PRINTRONIX®

S828

# Programmer's Manual

# Introduction

This publication provides information about the commands supported by your printer. The commands are organized by function groups. Each command has both a brief and a detailed description.
Each command has the following structure:
Name and function description. Information about protocol (IBM® Proprinter XLIII, IBM Personal 2381+, EPSON FX Series, ANSI 3.64, IPDS® ).

The hexadecimal and decimal codes for the command: n represents variable parameters of the command. The functions of these parameters are explained in its corresponding command description.

# Index of Contents


| Chapters | Page |
|---|---|
| **Contents** | 1 |
| Introduction | 1 |
| Index of Contents | 1 |
| Index of Command Summary in Alphabetical Order | 9 |
| Common commands for the Printronix S828 model printers. | 9 |
| Commands for the Printronix S828 model printer with the IPDS feature present | 13 |
| Preface | 15 |
| **Chapter 1. EPSON/IBM Mode Commands** | 17 |
| Print and Line Feed Execution | 17 |
| Format Control | 18 |
| Print Mode | 29 |
| Character Set | 42 |
| Download Character | 44 |
| Bit Image | 48 |
| Data Input Control | 49 |
| Miscellaneous | 51 |
| **Chapter 2. Native Emulation Commands** | 57 |
| Format Control | 57 |
| Native Character Set | 58 |
| Bar Codes | 60 |
| Miscellaneous | 66 |
| **Chapter 3. ANSI Emulation Commands** | 71 |
| Character Set Control | 71 |
| Character Pitch and Print Modes | 74 |
| Horizontal Movements | 76 |
| Vertical Movements | 78 |
| Interface Control | 82 |
| Operating System Control | 83 |
| Paper Path Selection | 85 |
| Barcode Functions | 86 |
| Basic Program Sample | 88 |
| Basic Program Printed Output | 89 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Chapters** **Page**

**Chapter 4. IPDS Commands** 91
Overview 91
Physical Medium 91
IPDS Coordinate Systems 92
Processing IPDS Commands 95
IPDS Command Format 96
Acknowledge Requests and Replies 97
IPDS Data 100
Mixing Rules 101
IPDS Operating States 102
Summary of IPDS States and Commands 104
A typical IPDS Command Sequence 107
Error Handling 113

**Chapter 5. IPDS Programming Information** 115
IPDS Initialization Defaults 115
Command Format 116
Supported IPDS Command Codes 117
Command Function Sets 118
Device Control Function Set Commands 118
Text Function Set Commands 149
Image Function Set Commands 158
Graphics Function Set Commands 160
Related Drawing Orders 193
Bar Code Function Set Commands 196
Code 128 Character Set (EBCDIC) 208
Overlay Function Set Commands 209
Page Segment Function Set Commands 211
Loaded Font Function Set Commands 212

**Chapter 6. IPDS Exception Reporting Codes** 215
Command Reject - X'80' 215
Intervention Required - X'40' 215
Equipment Check - X'10' 216
Data Check - X'08' 216
Specification Check-Bar Code - X'04' 216
Specification Check-Graphics - X'03' 218
Specification Check-General - X'02' 220
Conditions Requiring Host Notification - X'01' 229

**Chapter 7. Print Samples and IPDS Coding Example** 231
Text Print Samples 231
Bar Codes 231
Graphics Patterns 232
Graphics Example 233
IPDS Coding Example 238



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Chapters** **Page**

**Appendix A. Code Pages** 247
EBCDIC Code Pages (IPDS) 247
ASCII Code Pages 293
Character Sets 355
Hexadecimal to Decimal Table 357
Epson FX-series Code Pages 358
ANSI National Variations 361

**Appendix B- Interfaces** 363
The Parallel Interface 363
The Serial Interface 369
LAN Interface Port 370
USB Interface Port 370

**Appendix C– Network Interface Reference** 371
Network Configuration Parameters 371
Managing a Single Printer Configuration Using the Internal Webpage 373
Managing Multiple Printers Using the Remote Printer 373
Network Interface Summary 373

**Appendix D – Lan Interface MIB Support** 377

**Appendix E- The Remote Printer Management Utility** 383
Operating System Compatibility 383
Software Installation and Documentation 383

**Appendix F – Printer Driver Support** 385

**Appendix G- Application Paper Source in IPDS** 387

**Appendix H- Bar Code and OCR Printing Options** 389

**Appendix I Configuration Menu Lockout** 393

**Appendix J Addendum (Bar Codes)** 395

**Notices** 415

**Customer Support** 419



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Figures** **Page**

Figure 1.Page Presentation 16
Figure 2.The Physical Medium 92
Figure 3. The Xm,Ym Medium Coordinate System 93
Figure 4. The Physical-Logical Page Relationship 93
Figure 5. The X and Y Coordinate System and the Logical Page 94
Figure 6. The I and B Coordinate System on the Logical Page 95
Figure 7. An Example of the IPDS Data Stream 96
Figure 8. A Sample Page Constructed on an IPDS Printer 101
Figure 9. The Relationship between Home State, Page State, and Block States 103
Figure 10. The Relationship between Home State, Overlay State, and Block State 104
Figure 11. The Complete IPDS State Diagram 107
Figure 12. Using the Load Page Descriptor Command to Specify the Logical Page 129
Figure 13. Using the Logical Page Position Command to Position 129
Figure 14. Using the Set Media Size Command to Specify the Physical Medium 132
Figure 15. Exception Handling Control (Part 1 of 3) 146
Figure 15. Exception Handling Control (Part 2 of 3) 147
Figure 15. Exception Handling Control (Part 3 of 3) 148
Figure 16. The Graphics X and Y Coordinate System 161
Figure 17. The Graphic Medium Presentation Space and Its Limits 162
Figure 18. The Graphic Window within the Graphic Medium Presentation Space 162
Figure 19. The Graphic Block Area on the Physical Medium 163
Figure 20. Graphic Block Area Position Control and the Graphic Block Area 165
Figure 21. Graphic Output Control and the Graphic Block Area 167
Figure 22. Graphic Data Descriptor and the Graphic Medium Presentation Space 169
Figure 23. Scale-to-Fit Mapping 170
Figure 24. Center-and-Trim Mapping 172
Figure 25. Position-and-Trim Mapping 173
Figure 26. Specifying the Bar Code Block Using the Bar Code Area Position Field 199
Figure 27. Specifying the Bar Code Block Size Using the Bar Code Output Control 201
Figure 28. Specifying the Bar Code Medium Presentation Space Size Using the Bar Code Data Descriptor 205
Figure 29 Shows an overlay nesting. 210
Figure 30. Bar Code Example in IPDS 232
Figure 31. Graphic Patterns Example in IPDS 233
Figure 32. Graphic Example in IPDS 234
Figure 33. Print Sample from an IPDS Application Program 239
Figure 34. CP00037 USA/Canada/Canadian Bilingual 249
Figure 35. CP00260 Canadian French 250
Figure 36. CP00273 Austrian/German 251
Figure 37. CP00274 Belgian Old 252
Figure 38. CP00275 Brazilian 253
Figure 39. CP00277 Danish/Norwegian 254
Figure 40. CP00278 Finnish/Swedish 255
Figure 41. CP00280 Italian 256
Figure 42. CP00281 Japanese English 257
Figure 43. CP00282 Portuguese 258
Figure 44. CP00284 Spanish/Spanish Speaking 259
Figure 45. CP00285 English (UK)/Ireland 260
Figure 46. CP00290 Japanese Katakana 261
Figure 47. CP00297 French/French Azerty 262



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Figures** **Page**

Figure 48. CP00420 Arabic 263
Figure 49. CP00423 Greek (Old) 264
Figure 50. CP00424 Hebrew Bulletin 265
Figure 51. CP00500 International 5/Swiss/Belgian 266
Figure 52. CP00813 Greek/Latin (ISO 8859-7) + euro 267
Figure 53. CP00833 Korean 268
Figure 54. CP00838 Thai 269
Figure 55. CP00870 Latin 2/ROECE 270
Figure 56. CP00871 Icelandic 271
Figure 57. CP00875 Greek New + euro 272
Figure 58. CP00880 Cyrillic 273
Figure 59. CP00890 Yugoslav (Old) 274
Figure 60. CP00892 OCR-A 275
Figure 61. CP00893 OCR-B 276
Figure 62. CP00924 Latin 9 (ISO 8859) + euro 277
Figure 63. CP01025 Cyrillic Multilingual 278
Figure 64. CP01026 Latin-5 Turkey 279
Figure 65. CP01097 Farsi 280
Figure 66. CP01112 Baltic Multilingual 281
Figure 67. CP01122 Estonian 282
Figure 68. CP01140 USA/Canada + euro 283
Figure 69. CP01141 Austrian/German + euro 284
Figure 70. CP01142 Danish/Norwegian + euro 285
Figure 71. CP01143 Finnish/Swedish + euro 286
Figure 72. CP01144 Italian + euro 287
Figure 73. CP01145 Spanish/Spanish Speaking + euro 288
Figure 74. CP01146 English/UK + euro 289
Figure 75. CP01147 French + euro 290
Figure 76. CP01148 International 5/Belgian New + euro 291
Figure 77. CP01149 Icelandic + euro 292
Figure 78. USA(CP437) 295
Figure 79. Greek(CP437-G) 296
Figure 80. Croatian(CP437-SLAVIC) 297
Figure 81. Greek/Latin (ISO 8859-7) 298
Figure 82 .ISO8859/1(Latin1) 299
Figure 83.Multilingual(CP850) 300
Figure 84.Old Greek(CP851) 301
Figure 85.EasternEurope(CP852) 302
Figure 86.Turkish(CP853) 303
Figure 87.Cyrillic(CP855) 304
Figure 88.Turkish(CP857) 305
Figure 89.EuroPCMultilingual(CP858) 306
Figure 90.Portugal(CP860) 307
Figure 91.Hebrew(CP862) 308
Figure 92.Canada/France(CP863) 309
Figure 93.Arabic(CP864) 310
Figure 94.CP864E(Arabic) 311
Figure 95.Denmark/Norway(CP865) 312
Figure 96Russian(CP866) 313
Figure 97.Turkish2(CP867) 314



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Figures** **Page**

Figure 98.OCR-A(CP876) 315
Figure 99.OCR-B(CP877) 316
Figure 100.ISO8859/2(Latin2) 317
Figure 101.ISO8859/3(Latin3) 318
Figure 102.ISO8859/4(Latin4) 319
Figure 103.ISO8859/5(Latin/Cyrillic) 320
Figure 104.ISO8859/8 (Latin 8) 321
Figure 105.ISO8859/9(Latin5) 322
Figure 106.BalticWindows(CP921) 323
Figure 107.Estonian (CP922) 324
Figure 108.ISO8859/15(Latin9) 325
Figure 109.Urdu (CP01006) 326
Figure 110.Arabic Extended (CP1046) 327
Figure 111.ISO8859/6(Latin/Arabic) 328
Figure 112.Farsi(CP1098) 329
Figure 113.Estonian (CP1116) 330
Figure 114.Latvian (Personal Computer) (CP1117) 331
Figure 115.Lthuanian (Personal Computer) (CP1118) 332
Figure 116.CentralEurope(CP1250) 333
Figure 117.Cyrillic(CP1251) 334
Figure 118.Latin1AnsiWindows(CP1252) 335
Figure 119.GreekWindows(CP1253) 336
Figure 120.TurkishWindows(CP1254) 337
Figure 121.HebrewWindows(CP1255) 338
Figure 122.ArabicWindows(CP1256) 339
Figure 123.Batlic Windows (CP1257) 340
Figure 124.MAZOWIA(Polish) 341
Figure 125.GOST(Russian) 342
Figure 126.TASS(Cyrillic) 343
Figure 127.UKRANIAN(oldversion) 344
Figure 128.KOI8-U(newversion) 345
Figure 129. Farsi 1 346
Figure 130. Farsi 2 347
Figure 131.Kamenicky 348
Figure 132.CWI 349
Figure 133.Roman-8 350
Figure 134.IN2 351
Figure 135.Turkish 352
Figure 136. Bulgarian 353
Figure 137.96GREEK 354
Figure 138.CharacterSet1 355
Figure 139.CharacterSet2 356
Figure 140.Hexadecimal to Decimal Table 357
Figure 141. Epson Extended Graphics Character 358
Figure 142. Epson Italic Character 359
Figure 143. Epson Extended Character Variables 360
Figure 144. ANSI National Variations 361
Figure 145. Mode Centronics 368
Figure 146. Mode IEEE 1284 369
Figure 147. Hex Dump of Intelligent Mail Bar Code in IPDS Commands Example 399
Figure 148. Intelligent Mail Bar Code in Native Commands Example (Bar Code Mode Native) 400



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Figure 149. Intelligent Mail Bar Code in Epson/IBM Commands Example (Bar Code Mode Alt. 1) 400
Figure 150. Intelligent Mail Bar Code in ANSI Commands Example 401
Figure 151. Intelligent Mail Bar Code in MTPL Commands Example (Bar Code Mode Alt. 1) 401
Figure 152. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native) 402
Figure 153. Hex Dump of example on figure 151 403
Figure 154. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native) 404
Figure 155. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native) 405
Figure 156. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native) 406
Figure 157. Hex Dump of example on figures 154, 155, 156 407
Figure 158. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1) 409
Figure 159. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1) 410
Figure 160. Hex Dump of example on figures 158, 159 411
Figure 161. Bar Code Examples with SEIKOSHA Commands (Bar Code Mode Alt. 1) 413
Figure 162. Hex Dump of example on figure 161 414



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Tables** **Page**

Table 1. 7-bit Substitution 72
Table 2. 8-bit Substitution 73
Table 3. Valid IPDS Command Codes for the Printronix S828 IPDS Printer 97
Table 4. IPDS Command Code Summary for the 828 IPDS Printer 105
Table 5. An Example of an IPDS Command Sequence 108
Table 6. IPDS Initialization Defaults 115
Table 7. Front and Rear with no linking 131
Table 8. Related Drawing Order 193
Table 9. Code 128 Character Set (EBCDIC) 208
Table 10. Exception Reporting Group Codes 215
Table 11. IPDS Coding Example 239
Table 12. Network Interface Summary 373
Table 13 List of the MIB of the printer 377
Table 14. Bar Code Printing Options for Non-UPC Family Bar Codes 389
Table 15. Bar Code Printing Options for UPC Family Bar Codes 391
Table 16. OCR Symbol Subsets 392



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Index of Command Summary in Alphabetical Order

This section contains a summary of commands used on the Printronix S828 model printer. It is divided into 2 separate sections. “Common commands for the Printronix S828 model printers” lists all the commands common to all models, the standard ASCII and the one with Intelligent Print Data Stream (IPDS) option installed.
“Commands for the Printronix S828 model printer with the IPDS feature present commands that can only be used when the IPDS option installed.

## Common commands for the Printronix S828 model printers


| Command | Description | Page |
|---|---|---|
| BEL | Buzzer (IBM/EPSON). | 51 |
| BEL | Bell (ANSI). | 83 |
| BS | Print and space back one position (IBM/EPSON). | 51 |
| BS | Back space (ANSI). | 76 |
| CAN | Cancels line. (EPSON) | 49 |
| CAN | Cancels data. (IBM) | 49 |
| CR | Prints all received data and the column counter is set to the left margin IBM/EPSON) | 17 |
| CR | Carriage return (ANSI). | 76 |
| DC1 | Selects printer. (IBM) | 49 |
| DC1 | Selects printer. (EPSON) | 50 |
| DC1 | Selects printer (Data Control 1) (ANSI) | 82 |
| DC2 | Sets 10 cpi printing. (IBM) | 29 |
| DC2 | Cancels compressed printing. (EPSON) | 29 |
| DC3 | Deselects printer. (EPSON) | 50 |
| DC3 | Deselects printer (Data Control 3) (ANSI) | 82 |
| DC4 | Cancels double width printing (IBM/EPSON) | 29 |
| DC4 DC4 ESC ! | Bar Code Selection | 60 |
| DC4 DC4 ESC (GS | Prints bar code symbols. | 66 |
| DC4 DC4 ESC @ | Re-initializes the printer. | 66 |
| DC4 DC4 ESC 1 | Sets vertical spacing n/180 inch. | 57 |
| DC4 DC4 ESC 3 1 | Sets vertical spacing 12 lines/30 mm. | 57 |
| DC4 DC4 ESC 3 3 | Sets vertical spacing to 3 lines/30 mm. | 57 |
| DC4 DC4 ESC 3 4 | Sets vertical spacing 4 lines/30 mm. | 57 |
| DC4 DC4 ESC 3 6 | Sets vertical spacing 6 lines/30 mm. | 58 |
| DC4 DC4 ESC 3 8 | Sets vertical spacing 8 lines/30 mm. | 58 |
| DC4 DC4 ESC A | Sets the horizontal spacing to 15, 17.1, 20 CPI. | 58 |
| DC4 DC4 ESC D | Sends the operator panel messages to the serial I/F. | 68 |
| DC4 DC4 ESC g | Selects LQ fonts. | 58 |
| DC4 DC4 ESC J | Sets amplification factor. | 66 |
| DC4 DC4 ESC N | Selects/loads or parks the fanfold from the Front 2 path. | 67 |
| DC4 DC4 ESC p | Sets quality printing. | 59 |
| DC4 DC4 ESC R | String rotation. | 67 |
| DC4 DC4 ESC r | Digit rotation. | 67 |
| DC4 DC4 ESC S | Selects character set ISO Character Sets or Code Pages. | 59 |
| DC4 DC4 ESC T | Selects/loads or parks the fanfold from the Front1 path. | 67 |
| DC4 DC4 ESC u | Selects the user macros. | 68 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Description | Page |
|---|---|---|
| DC4 DC4 ESC Y | Selects emulation. | 68 |
| DC4 DC4 ESC Z | Makes AGA in column. | 68 |
| DEL | Deletes the last character. (EPSON) | 50 |
| DEL | Delete (ANSI). | 83 |
| ENQ | Enquiry (ANSI). | 82 |
| ESC | Escape (ANSI). | 83 |
| ESC - | Sets or cancels underlined printing (IBM/EPSON). | 29 |
| ESC [ p1 a | Horizontal position relative (HPR) (ANSI). | 77 |
| ESC [ p1; pn h | Sets mode (SM) (ANSI). | 87 |
| ESC [ p1 d | Vertical position absolute (VPA) (ANSI). | 79 |
| ESC [ p1 q | Select graphics mode/density (GRM) (ANSI). | 86 |
| ESC p1; pn l | Resets mode (RM) (ANSI) | 84 |
| ESC [ p1; pn v | Sets vertical tab stops at specified positions (Multiple Vertical Tab Set -VTS) (ANSI) | 81 |
| ESC ! | Sets printing style. (EPSON) | 30 |
| ESC # | Cancels MSB control. (EPSON) | 50 |
| ESC $ | Sets the absolute printing position. (EPSON) | 18 |
| ESC % | Selects user-defined character set. (EPSON) | 44 |
| ESC & | Defines the user-defined download characters. (EPSON) | 44 |
| ESC ( - | Sets score line. (EPSON) | 30 |
| ESC * | Sets dot graphics printing. (IBM , EPSON) | 47 |
| ESC / | Selects the Vertical Format Unit (VFU) channel. (EPSON) | 19 |
| ESC : | Sets 12 CPI. (IBM) | 22 |
| ESC : | Copies characters from ROM to RAM. (EPSON) | 45 |
| ESC ? | Reassigns dot graphics mode. (EPSON) | 47 |
| ESC @ | Initializes the printer. (EPSON) | 51 |
| ESC [ - | Selects the score line. (IBM 2381 + only) | 31 |
| ESC [ I | Sets font and pitch of a character. (IBM 2381 + only) | 34 |
| ESC [ p1 ' | Horizontal position absolute (HPA) (ANSI). | 77 |
| ESC [ p1 k | Vertical position backward (VPB) (ANSI). | 80 |
| ESC [ p1 x | Selects national character set (Select National Characters -SNC) (ANSI). | 72 |
| ESC [ p1; p2 f | Horizontal and vertical position absolute (HVP) (ANSI). | 80 |
| ESC [ p1; p2 SP~ | Selects emulation (EMU) (ANSI). | 85 |
| ESC [ p1; pn { | Unidirectional printing (UDP) (ANSI). | 76 |
| ESC [ p1; pn } | Sets bar code parameters (BC) (ANSI). | 86 |
| ESC [ p1; pn u | Sets horizontal tab stops at specified positions multiple horizontal tab set (HTS) (ANSI) | 78 |
| ESC [ @ | Selects the printing type style. (IBM 2381 + only) | 32 |
| ESC [ @ | Sets double high printing and double line feed. (IBM) | 32 |
| ESC [ \ | Sets vertical units. (IBM) | 19 |
| ESC [ d | Set the print quality. (IBM 2381 + only) | 33 |
| ESC [ g | Selects 8 or 24 needle dot graphics mode. (IBM) | 43 |
| ESC [ K | Sets initial conditions. (IBM 2381 + only) | 52 |
| ESC [ p1 e | Vertical position relative (VPR) (ANSI). | 79 |
| ESC [ p1 j | Horizontal position backward (HPB) (ANSI). | 77 |
| ESC [ p1 t | Special print mode (Oversize/Expanded/Bar code Mode -SPM) (ANSI). | 75 |
| ESC [ p1; p2 <SP> G | Sets the line/character spacing (ANSI). | 82 |
| ESC [ p1; p2 s | Left/right margin set (SLR) (ANSI). | 77 |
| ESC [ p1; p2 SP B | Graphic size modification (GSM) (ANSI). | 75 |
| ESC [ p1; p2; p3 r | Form definition (FD) (ANSI). | 81 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Description | Page |
|---|---|---|
| ESC [ p1; pn g | Tab clear (TBC) (ANSI). | 80 |
| ESC [ p1; pn m | Select graphics rendition (SGR) (ANSI). | 74 |
| ESC [ T | Selects a Code page (IBM). | 42 |
| ESC [ u n | Bar Codes selection. (IBM -Epson) | 54 |
| ESC [ v nm | Sets Barcode parameters. (IBM -Epson) | 54 |
| ESC \ | Sets the relative dot position. (EPSON) | 19 |
| ESC \ | Prints characters from all characters table. (IBM) | 42 |
| ESC \ or ST | String terminator (ANSI). | 83 |
| ESC ] | Sets a reverse line feed. (IBM) | 17 |
| ESC ^ | Prints a single character from the all characters table. (IBM) | 43 |
| ESC _ | Sets or cancels overscore printing. (IBM) | 35 |
| ESC + | Sets n/360-inch line spacing. (IBM) | 11 |
| ESC < | Prints characters for one line from left to right. (EPSON) | 31 |
| ESC = | Defines downloaded characters. (IBM) | 45 |
| ESC = | Sets MSB to 0. (EPSON) | 50 |
| ESC > | Sets MSB to 1. (EPSON) | 51 |
| ESC 0 | Sets vertical spacing to 1/8 inch (IBM/EPSON). | 20 |
| ESC 1 | Sets vertical spacing to 7/72 inch. (IBM) | 20 |
| ESC 2 | Sets the vertical spacing to 1/6 inch. (EPSON) | 20 |
| ESC 2 | Enables the vertical spacing set by ESC A. (IBM) | 20 |
| ESC 3 | Sets vertical spacing to n/180 inch. (IBM , EPSON) | 21 |
| ESC 3 | Sets vertical spacing to n/216 inch. (IBM XLIII, 2381 +) | 21 |
| ESC 4 | Sets the current position as top of form (first printable line). (IBM) | 21 |
| ESC 4 | Sets italics printing mode. (EPSON) | 35 |
| ESC 5 | Sets an automatic line feed after a carriage return. (IBM) | 17 |
| ESC 5 | Cancels italics printing. (EPSON) | 35 |
| ESC 6 | Selects the Character Set 2 (IBM). | 43 |
| ESC 7 | Selects the Character Set 1 (IBM). | 43 |
| ESC 7 | Cancel Printable Code Area Expansion (EPSON) | 34 |
| ESC A | Sets variable vertical spacing to n/60 inch. (IBM , EPSON) | 21 |
| ESC A | Sets variable vertical spacing to n/72 inch. (IBM XLIII, 2381 +) | 21 |
| ESC a | Sets Letter Quality justification printing. (EPSON) | 35 |
| ESC B | Sets vertical tab stops (IBM/EPSON). | 22 |
| ESC b | Sets vertical tab stops in one of the 8 Vertical Format Unit channels Available (EPSON) | 22 |
| ESC B | NUL Resets vertical tab stops (IBM/EPSON). | 22 |
| ESC b NUL | Resets vertical tab stops in one of the 8 Vertical Format Unit channels Available (EPSON) | 23 |
| ESC c | Resets to initial state (RIS) (ANSI). | 84 |
| ESC C 0 n | Sets form length to n inches (IBM/EPSON). | 23 |
| ESC C n | Sets form length to n lines (IBM/EPSON). | 23 |
| ESC D | Sets horizontal tab stops (IBM/EPSON). | 23 |
| ESC d | Spaces forwards relative dot position. (IBM) | 24 |
| ESC D or IND | Index (ANSI). | 78 |
| ESC e | Spaces backward relative dot position. (IBM) | 24 |
| ESC E | Sets emphasized printing (IBM/EPSON). | 35 |
| ESC E or NEL | Next line (ANSI). | 78 |
| ESC F | Cancels emphasized printing (IBM/EPSON). | 36 |
| ESC G | Sets double strike printing (IBM/EPSON). | 36 |
| ESC g | Sets 15 CPI. (EPSON) | 28 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Description | Page |
|---|---|---|
| ESC H | Cancels double strike printing (IBM/EPSON). | 36 |
| ESC H or HTS | Horizontal tab setting (ANSI). | 78 |
| ESC I | Selects printing type for resident and DLL characters. (IBM) | 37 |
| ESC J | Advances paper n/216 inch (IBMXLIII and 2381) | 18 |
| ESC j | Feed paper n/216 in reverse direction (EPSON) | 18 |
| ESC J or VTS | Vertical tab setting (ANSI). | 81 |
| ESC k | Selects the LQ fonts. (EPSON) | 43 |
| ESC K | Normal density dot graphics printing (60 dpi) (IBM/EPSON). | 47 |
| ESC k | Prints test character (PTC) (ANSI). | 84 |
| ESC K or PLD | Partial line down (ANSI). | 79 |
| ESC I | Sets left margin. (EPSON) | 24 |
| ESC L | Double density dot graphics printing (120 dpi) (IBM/EPSON). | 48 |
| ESC L or PLU | Partial line up (ANSI). | 79 |
| ESC M | Selects 10.5 point. 12 CPI. (EPSON) | 37 |
| ESC M or RI | Reverse index (ANSI). | 79 |
| ESC N | Sets the skip over perforation to n lines (IBM/EPSON). | 25 |
| ESC O | Disables the skip over perforation (IBM/EPSON). | 26 |
| ESC P | Selects 10.5 point, 10 cpi (EPSON) | 37 |
| ESC P | Sets or cancels proportional printing. (IBM) | 38 |
| ESC p | Sets or cancels proportional printing. (EPSON) | 38 |
| ESC Q | Sets the right margin. (EPSON) | 26 |
| ESC Q | Deselects Printer. (IBM) | 51 |
| ESC Q or PU1 | Executes Self test (ANSI). | 83 |
| ESC R | Sets horizontal and vertical tab stops to default values. (IBM) | 26 |
| ESC R | Selects Nation character set. (EPSON) | 43 |
| ESC S | Sets subscript or superscript printing (IBM/EPSON). | 38 |
| ESC s | Sets and resets Quiet printing. (EPSON) | 39 |
| ESC SP | Sets inter character space. (EPSON) | 27 |
| ESC T | Cancels subscript or superscript printing (IBM/EPSON). | 39 |
| ESC t | Selects characters table. (EPSON) | 44 |
| ESC U | Sets printing direction (IBM/Epson). | 53 |
| ESC W | Sets or cancels double width printing (IBM/EPSON). | 40 |
| ESC w | Sets or cancels double height printing. (EPSON) | 40 |
| ESC X | Sets left and right margins. (IBM) | 27 |
| ESC x | Selects Letter Quality or Draft. (EPSON) | 40 |
| ESC Y | Double density dot graphics printing at double-speed graphics (120 virtual dpi) (IBM/EPSON) | 48 |
| ESC Z | Quadruple density dot graphics printing (240 virtual dpi) (IBM/EPSON) | 49 |
| FF | Advances paper to the top of the next page (IBM/EPSON). | 28 |
| FF | Form feed (ANSI). | 81 |
| HT | Logically moves the print carriage to the next horizontal tab stop (IBM/EPSON). | 28 |
| HT | Horizontal tab (ANSI). | 77 |
| LF | Line Feed (IBM/EPSON). | 18 |
| LF | Line feed (ANSI). | 78 |
| NUL | Ignored (ANSI). | 82 |
| SI | Sets compressed printing. (EPSON) | 41 |
| SI | Shift in (ANSI). | 74 |
| SI or ESC SI | Sets compressed printing (IBM/EPSON). | 38 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Description | Page |
|---|---|---|
| SO | Sets double width printing (one line) (IBM/EPSON). | 41 |
| SO | Shift out (ANSI). | 75 |
| SO or ESC SO | Sets double width printing (one line) (IBM/EPSON). | 39 |
| SP | Space (ANSI). | 76 |
| VT | Advances paper to the next vertical tab stop of the selected VFU channel (IBM/EPSON). | 28 |
| VT | Vertical tab (ANSI) | 80 |


## Commands for the Printronix S828 model printer with the IPDS feature present


| Command | EBCD | Description | Page |
|---|---|---|---|
| ACK | D6FF | Acknowledge Reply | 98 |
| BP | D6AF | Begin Page | |
| BPS | D65F | Begin Page Segment | 211 |
| BO | D6DF | Begin Overlay | 210 |
| DF | D64F | Deactivate Font | 130 |
| DO | D6EF | Deactivate Overlay | 210 |
| DPS | D66F | Deactivate Page Segment | 212 |
| END | D65D | End | 130 |
| EP | D6BF | End Page | 130 |
| IO | D67D | Include Overlay | 210 |
| IPS | D67F | Include Page Segment | 211 |
| LE | D61D | Load Equivalence | 149 |
| LFE | D63F | Load Font Equivalence | 123 |
| LSS | D61E | Load Symbol Set | 212 |
| LCC | D69F | Load Copy Control | 126 |
| LPD | D6CF | Logical Page Descriptor | 127 |
| LPP | D66D | Logical Page Position | 129 |
| NOP | D603 | No Operation | 119 |
| SHS | D697 | Set Home State | 122 |
| STM | D6E4 | Sense Type and Model | 119 |
| WBCC | D680 | Write Bar Code Control | 197 |
| WBC | D681 | Write Bar Code | 206 |
| WGC | D684 | Write Graphics Control | 164 |
| WG | D685 | Write Graphics | 175 |
| WIC | D63D | Write Image Control | 158 |
| WI | D64D | Write Image | 160 |
| WT | D62D | Write Text | 150 |
| XOH | D68F | Execute Order Home State | 130 |
| XOA | D633 | Execute Order Any State | 140 |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Preface

## Print Job Processing

There are no EPSON/IBM controls that explicity define print job boundaries. A print job for the Printronix S828 is established by the host system and consists of any set of related print objects. A print job could be as short as one character or could be many pages long.

As an aid to the printer operator, the printer provides a **DATA** indicator on the operator panel. When the **DATA** indicator is flashing, it indicates that data is currently being received, processed, or printing, or that data is buffered in the printer but cannot be immediately printed. If the **DATA** indicator is not lit, then all print jobs have been completed.

Configuration parameter values can be changed at any time; however, to obtain predictable results, changes to operator panel configuration parameter values should be made **before** the print job is sent to the printer and **after** the previous print job has completed printing. Changing configuration parameter values while a print job is in progress may cause unpredictable results.

Printronix Company recommends the following to ensure that your print jobs run correctly:
● Establish a known print environment, and end any previous print job. Start each print job with a Set Initial Conditions control or an Initialize Printer control. This control resets the printer environment to the default settings. You can then set additional controls depending on your print job environment.
● End each print job with a **FORM FEED** control. This control causes all data to be printed, and the current position is set to the top-of-form position.
● If a print job is abnormally terminated, the job should be canceled. See “Cancel Print” in “Chapter 2. Understanding the Operator Panel” in the Administrators Manual for your printer.

## Page Printing Concept

The Printronix Printronix S828 processes print jobs in terms of pages, as well as in lines and columns. A page is a logical entity
whose boundaries are defined by the width and the page length. These boundaries are established during printer initialization using the printer defaults, and can be changed using the Configuration Menu or by issuing the appropriate data stream controls.

As a job prints, the printer controller maintains both the logical position and the physical position on the page. If a print job does not end with a proper job terminator (for example, FORM FEED), then:
● All data for the current page may not print
● The next print job may be misaligned on the form
● Residual data from a previous job could print with the new job.

## Page Presentation

Many EPSON/IBM commands (tabs, margins, line spacing, for example) are described in terms of the presentation surface. A presentation surface is a two-dimensional surface upon which the printer positions symbols according to controls embedded in the incoming data stream. The presentation surface is defined in absolute terms by the width and depth parameters of the page size control commands (Set Page Length, Set Horizontal Margins, for example). The physical print position does not move outside the range of these two parameters. The left margin (LM) and right margin (RM) are variable parameters within the presentation surface. The logical print position does not move outside the range of the vertical margins nor outside the horizontal margins + 1. The following figure shows the presentation surface and the



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

relationships of some of these parameters.

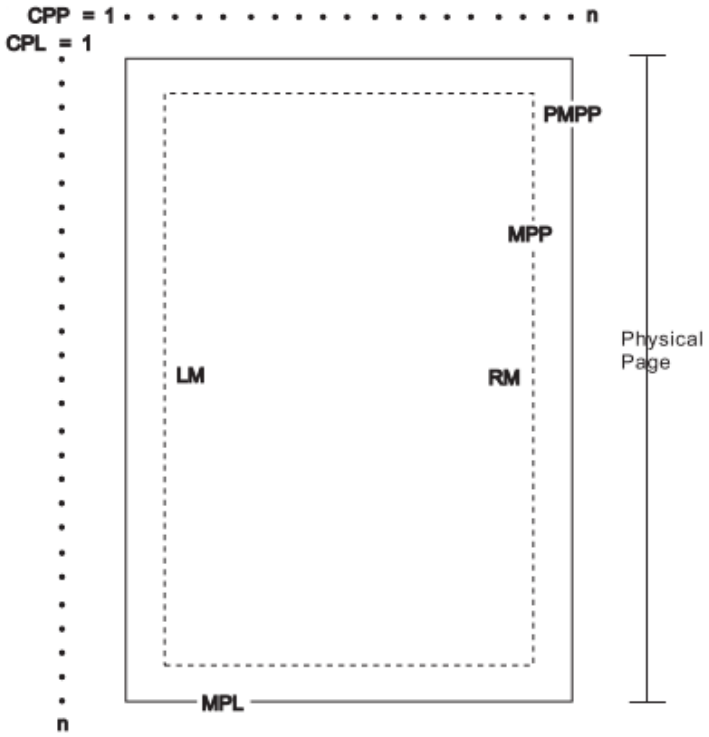



Figure 1 Page Presentation

**CPP** Current Print Position (LM = CPP = RM).
**CPL** Current Print Line
**MPP** Maximum Print Position (in characters at current CPI)
**PMPP** Physical Maximum Print Position. The largest number of characters that can be placed on one line of the surface (the largest value that MPP can assume).
**LM** Left Margin
**RM** Right Margin
**MPL** Maximum Page Length (in lines at current LPI)

**Notes:**
1. The host should set the limits of the presentation surface if the default or previous values are not acceptable.
2. The operator should align the physical paper so that it matches the logical presentation surface.

Also created with this surface is a pair of numbers (CPL and CPP) which specify the line number and column number where the next graphic will be printed. These internal values are the logical position on the presentation surface.

The variable parameters have default values which are established when the printer is initialized. The standard power-on defaults are:
**MPP (width)** Operator panel setting
**MPL (depth)** Operator panel setting
**CPI** Operator panel setting
**LPI** Operator panel setting
**LM** 0 inches (Column 1)
**RM** Equal to MPP
**HT** Horizontal tabs are set at each 8th column, starting with column 9 (9, 17, 25, 33, and so on.)
**VT** Vertical tabs are all cleared



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 1. EPSON/IBM Commands

The following printer commands are supported by this printer according to the IBM Proprinter XLIII-XLIII AGM, IBM 2381+ and EPSON FX Series.

## Print and Line Feed Execution

### CR

**Prints all received data and the column counter is set to the left margin (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | CR |
| Hexadecimal Value | X'0D' |
| Decimal Value | 13 |

This code is a terminator code; when received, it causes any data in the buffer to be printed out. The print head then moves logically to the left margin position. The column counter is set to the left margin value and a line feed is inserted automatically after the carriage return (see the automatic carriage return function in the printer setup). The code cancels the double width printing set by the SO or ESC SO command.

### ESC ]

**Sets a reverse line feed. (IBM)**

| | |
|---|---|
| ASCII Code | ESC ] |
| Hexadecimal Value | X'1B' X'5D' |
| Decimal Value | 27 93 |

This is a terminator code; it therefore causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by the software or the function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

### ESC 5

**Sets an automatic line feed after a carriage return. (IBM)**

| | |
|---|---|
| ASCII Code | ESC 5 n |
| Hexadecimal Value | X'1B' X'35' n |
| Decimal Value | 27 53 n |

If n is equal to 1, this command sets an automatic line feed on receiving of a CR code. If n is equal to 0, this command cancels the automatic line feed.

| n | Automatic line feed |
|---|---|
| 0 | Disabled |
| 1 | Enabled |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC J

**Advances paper n/216 inch. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC J n |
| Hexadecimal Value | X'1B' X'4A' n |
| Decimal Value | 27 74 n |
| Range | 1 = n = 255 |

This is a terminator code; it causes the current contents of the print buffer to be printed before performing a single line feed of n/216 of an inch. This command is cancelled after the line feed has been performed. The printing restarts after a line feed from the column at which the command was sent.

## ESC j

**Feed paper n/216 in reverse direction (EPSON)**

| | |
|---|---|
| ASCII Code | ESC J n |
| Hexadecimal Value | X'1B' X'6A' n |
| Decimal Value | 27 106 n |
| Range | 1 = n = 255 |

This is a terminator code; it causes the current contents of the print buffer to be printed. Then the paper is moved backward of n/216 of an inch. The printing restarts from the column at which the command was sent.

## LF

**Line Feed (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | LF |
| Hexadecimal Value | X'0A' |
| Decimal Value | 10 |

This is a terminator code; it causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by software or function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

# Format Control

## ESC $

**Sets the absolute printing position. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC & n1 n2 |
| Hexadecimal Value | X'1B' X'24' n1 n2 |
| Decimal Value | 27 36 n1 n2 |
| Range | 0 = n1 n2 = 255 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This command specifies the distance from the left margin to where you want to print subsequent characters. The distance is in number of dots and must be calculated using the following formula:

Margin distance = n1 +(n2 x 256) where n2 is the integer result of the number of dots divided by 256 and n1 is the remainder. 1 dot = 1/60 inch. If the selected position is outside the current right margin, the sequence is ignored.

## ESC[ \

**Sets vertical units. (IBM)**

| | |
|---|---|
| ASCII Code | ESC [ \ m1 m2 t1 ... t4 |
| Hexadecimal Value | X'1B' X'5B' X'5C' m1 m2 t1 ... t4 |
| Decimal Value | 27 91 92 m1 m2 t1 ... t4 |
| Range | m1 =4 |
| | m2 =0 |
| | 0 = t1 = 255 |
| | 0 = t2 = 255 |
| | t3 =0 |
| | t4 = 180 or 216 |

This command changes the base units for the graphics line spacing commands (ESC J, ESC 3). The default is 1/216 or 1/180 inch.

## ESC /

**Selects the Vertical Format Unit (VFU) channel. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC / m |
| Hexadecimal Value | X'1B' X'2F' m |
| Decimal Value | 27 47 m |
| Range | 0 = m = 7 |

This sequence selects the VFU channel that you want to use. Eight different channels are available. The m parameter represents the channel you want to select.

## ESC \

**Sets the relative dot position. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC \ n1 n2 |
| Hexadecimal Value | X'1B' X'5C' n1 n2 |
| Decimal Value | 27 92 n1 n2 |
| Range | 0 = n1, n2 = 255 |

This command specifies the distance between the current print head position and the position where you want to print subsequent characters (relative position). The distance is a number of dots and must be calculated using the following formula:

Current position distance = n1 +(n2 x 256)

where n2 is the integer result of the number of dots divided by 256 and the n1 is the remainder. The unit of dots is 1/120 inch for Draft or 1/180 inch for Letter Quality printing. If the distance is negative (Most Significant Bit of m2 equal to 1), the print head is moved to the left of the current position by the number of dots equal to the complement on two of n1 +(n2 x 256).



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC 0

**Sets vertical spacing to 1/8 inch (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC 0 |
| Hexadecimal Value | X'1B' X'30' |
| Decimal Value | 27 48 |

This code causes vertical spacing to be set to 1/8 inch.

## ESC 1

**Sets vertical spacing to 7/72 inch. (IBM)**

| | |
|---|---|
| ASCII Code | ESC 1 |
| Hexadecimal Value | X'1B' X'31' |
| Decimal Value | 27 49 |

This command causes vertical spacing to be set to 7/72 inch.

## ESC +

**Sets n/360-inch line spacing. (IBM)**

| | |
|---|---|
| ASCII Code | ESC + n |
| Hexadecimal Value | X'1B' X'2B' n |
| Decimal Value | 27 43 n |
| Range | 0 = n = 255 |

This command sets the line spacing to n/360 inch. If the line spacing is changed, it does not affect previous settings for vertical tabs or page length.

## ESC 2

**Sets the vertical spacing to 1/6 inch. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC 2 |
| Hexadecimal Value | X'1B' X'32' |
| Decimal Value | 27 50 |

This command causes the vertical spacing to be set to 1/6 inch.

## ESC 2

**Enables the vertical spacing set by ESC A. (IBM)**

| | |
|---|---|
| ASCII Code | ESC 2 |
| Hexadecimal Value | X'1B' X'32' |
| Decimal Value | 27 50 |

This command enables the vertical spacing sets by ESC A.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC 3

**Sets vertical spacing to n/180 inch. (IBM , EPSON)**

| | |
|---|---|
| ASCII Code | ESC 3 n |
| Hexadecimal Value | X'1B' X'33' n |
| Decimal Value | 27 51 n |
| Range | 1 = n = 255 |

This sequence sets the vertical spacing to n/180 inch. It is ignored if n is equal to 0.

## ESC 3

**Sets vertical spacing to n/216 inch. (IBM/EPSON)**

| | |
|---|---|
| ASCII Code | ESC 3 n |
| Hexadecimal Value | 1B 33 n |
| Decimal Value | X'27' X'51' n |
| Range | 0 = n = 255 |

This sequence sets the vertical spacing to n/216 inch.

## ESC 4

**Sets the current position as top of form (first printable line). (IBM)**

| | |
|---|---|
| ASCII Code | ESC 4 |
| Hexadecimal Value | X'1B' X'34' |
| Decimal Value | 27 52 |

This sequence sets the first line of the fanfold paper as the current paper position of the form.

## ESC A

**Sets variable vertical spacing to n/72 inch. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC A n |
| Hexadecimal Value | X'1B' X'41' n |
| Decimal Value | 27 65 n |

This command changes the default vertical spacing to n/72 inch. The new vertical spacing value is immediately activated.

## ESC A

**Sets variable vertical spacing to n/72 inch. (IBM)**

| | |
|---|---|
| ASCII Code | ESC A n |
| Hexadecimal Value | X'1B' X'41' n |
| Decimal Value | 27 65 n |

This command changes the default vertical spacing to n/72 inch. The vertical spacing value is stored and activated only after the ESC 2 code is received.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC B

**Sets vertical tab stops (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC B n1 ... nx 0 |
| Hexadecimal Value | X'1B' X'42' n1 ... nx 0 |
| Decimal Value | 27 66 n1 ... nx 0 |
| Range | 1 = n = 255 |

In EPSON mode, it sets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel. This code sets up to 16 vertical tab stops at the line specified by n1, n2 and so on in the 0 VFU channel. The tab stops are memorized as physical positions. In IBM mode, this code sets up to 64 vertical tab stops at the line number specified by n1, n2 and so on in the 0 VFU channel. The tab stops are retained as logical positions.

## ESC B NUL

**Resets vertical tab stops (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC B NUL |
| Hexadecimal Value | X'1B' X'42' 00 |
| Decimal Value | 27 66 00 |

This command resets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel.

## ESC b

**Sets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC b mn1 ... nx 0 |
| Hexadecimal Value | X'1B' X'62' mn1 ... nx 00 |
| Decimal Value | 27 98 mn1 ... nx 0 |
| Range | 0 = m = 7 |
| | 1 = n1 ... nx = 255 |

This sequence sets vertical tabulations in the VFU channel specified by the parameter m.

The VFU channel can be imagined as a blank page where you can set up to 16 vertical tabulations in order to format your page as you like. 8 channels are available and in each of them you can create a sample page that you can recall later. n1 to n16 specify the lines at which vertical tabulations must be set.

The values of n must be in ascending order. If you change the vertical spacing, the vertical tabulations set are not cancelled and they maintain their physical position on the page.

The vertical tabulations set in the channel specified by the m parameter are executed by the VT code when the specific channel is selected by the ESC / command, this code is executed as a line feed.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC b NUL

**Resets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC b NUL |
| Hexadecimal Value | X'1B' X'62' X'00' |
| Decimal Value | 27 98 0 |

This command resets the vertical tab stops in one of the 8 Vertical Format Unit channels available.

## ESC C 0 n

**Sets form length to n inches (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC C 0 n |
| Hexadecimal Value | X'1B' X'43' X'00' n |
| Decimal Value | 27 67 0 n |
| Range | 1 = n = 24 |

This command sets the form length to the number of inches specified by n. The current position of the paper is assumed as the top-of-form.

## ESC C n

**Sets form length to n lines (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC C n |
| Hexadecimal Value | X'1B' X'43' n |
| Decimal Value | 27 67 n |
| Range | 1 = n = 255 |

This command sets the form length to the number of lines specified by n at the current vertical spacing. The current position of the paper is assumed as top-of-form.

## ESC D

**Sets horizontal tab stops (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC D n1 n2 ... nx 0 |
| Hexadecimal Value | X'1B' X'44' n1 n2 ... nx 00 |
| Decimal Value | 27 68 n1 n2 ... nx 0 |
| Range | 1 = n = 255 |

This sequence sets up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops after canceling the current setting. The n1 to nx parameters specify the number of columns at which horizontal tab stops are required and must be entered in the sequence in ascending numerical order. Any value outside this range is ignored. In IBM mode, the tab stop position is retained as a logical position in the page so that it is affected by changing the horizontal spacing. The columns are numbered 1 through 136. In EPSON mode, the tab stop position set by ESC D is retained as the physical position on the page and therefore it is not affected by changing the horizontal spacing. The physical position of the tab stop depends on the horizontal spacing in operation when ESC D is used. The ESC D 0 cancels all active tab stops.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC d

**Spaces forwards relative dot position. (IBM)**

| | |
|---|---|
| ASCII Code | ESC d n1 n2 |
| Hexadecimal Value | X'1B' X'64' n1 n2 |
| Decimal Value | 27 100 n1 n2 |
| Range | 0 = n1 n2 = 255 |

This command moves the print carriage (n1 +(n2*256))/120 of an inch displacement on the right of its current dot position. If the selected position is outside the current right margin, it is forced to the last column.

## ESC e

**Spaces backward relative dot position. (IBM)**

| | |
|---|---|
| ASCII Code | ESC e n1 n2 |
| Hexadecimal Value | X'1B' X'65' n1 n2 |
| Decimal Value | 27 101 n1 n2 |
| Range | 0 = n1 n2 = 255 |

This command moves the print carriage (n1 +(n2*256))/120 of an inch displacement on the left of its current dot position. If the selected position is outside the current left margin, it is forced to the first column.

## ESC l

**Sets left margin. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC l n |
| Hexadecimal Value | X'1B' X'6C' n |
| Decimal Value | 27 108 n |
| Range | 0 = n = 255 |

This code sets the left margin at the current horizontal spacing. It must be sent at the beginning of the line. The n parameter specifies the number of columns. For each type of horizontal spacing there is a different range of possible values, as shown in the following table:

| Character Width | Horizontal Spacing | Range of columns |
|---|---|---|
| Double Width | 5 cpi | 0 = n = 67 |
| | 6 cpi | 0 = n = 80 |
| | 7.5 cpi | 0 = n = 100 |
| | 8.5 cpi | 0 = n = 114 |
| | 10 cpi | 0 = n = 134 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Character Width | Horizontal Spacing | Range of columns |
|---|---|---|
| Normal | 10 cpi | 0 = n = 134 |
| | 12 cpi | 0 = n = 160 |
| | 15 cpi | 0 = n = 201 |
| | 17 cpi | 0 = n = 229 |
| | 20 cpi | 0 = n = 255 |

Any value outside the accepted range is ignored and the previous setting remains in effect. The left margin must be smaller than the right margin. The physical position set for the left margin does not change if the horizontal spacing is modified. This command overrides the menu setting.

## ESC N

**Sets the skipover perforation to n lines (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC N n |
| Hexadecimal Value | X'1B' X'4E' n |
| Decimal Value | 27 78 n |
| Range | 1 = n = 127 (EPSON mode) |
| | 1 = n = 255 (IBM mode) |

The skipover perforation is the sum of the top and bottom margin values at the selected vertical spacing. The n parameter must be less than the current form length. The skipover is retained as the physical position on the page. It is cancelled by ESC O or changing the form length.

The skipover value, when accepted, sets the top and bottom margins according to the operator panel setting (see the Administrators Manual):

If the top margin set using the operator panel is greater than the skipover value, the following value of the margins is set:

Top margin = skipover value
Bottom margin = 0

If the top margin set using the operator panel is less than or equal to the skipover value, then the following value of the margins is set:

Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

If the sum of the top and bottom margins values set using the operator panel is less than the skipover value, the following values for the margins is set:
Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

Changing the vertical spacing does not affect the skipover distance. This can be changed by another ESC N command or can be reset by the ESC O command, which resets the skipover value to 0. The skipover perforation is performed when the end of the page is reached with a LF, VT or FF code and not with the ESC J or ESC C command. The skipover perforation is cancelled and must be reset.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC O

**Disables the skipover perforation (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC O |
| Hexadecimal Value | X'1B' X'4F' |
| Decimal Value | 27 79 |

This sequence sets the number of lines of the skipover perforation to the value 0. Any skip perforation set by ESC N is cancelled.

## ESC Q

**Sets the right margin. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC Q n |
| Hexadecimal Value | X'1B' X'51' n |
| Decimal Value | 27 81 n |
| Range | 1 = n = 225 |

This code sets the line length at the current horizontal spacing. It must be sent at the beginning of the line.

The n parameter specifies the number of columns and for each type of horizontal spacing there is a range of values, as shown in the following table:

| Character Width | Horizontal Spacing | Range of columns |
|---|---|---|
| Double Width | 5 cpi | 1 <= n <= 67 |
| | 6 cpi | 1 <= n <= 81 |
| | 7.5 cpi | 1 <= n <= 101 |
| | 8.5 cpi | 1 <= n <= 111 |
| | 10 cpi | 1 <= n <= 135 |
| Normal | 10 cpi | 1 <= n <= 135 |
| | 12 cpi | 1 <= n <= 162 |
| | 15 cpi | 1 <= n <= 203 |
| | 17 cpi | 1 <= n <= 232 |
| | 20 cpi | 1 <= n <= 255 |

Any value outside the accepted range is ignored and the previous setting remains in effect. The right margin must be greater than the left margin. The physical position set for the right margin does not change if the horizontal spacing is modified.

## ESC R

**Sets horizontal and vertical tab stops to default values. (IBM)**

ASCII Code ESC R
Hexadecimal Value X'1B' X'52'
Decimal Value 27 82

This command sets horizontal tab stops every eight columns starting from column 9 and cancels all vertical tab stops.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC SP

**Sets intercharacter space. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC SP™ n |
| Hexadecimal Value | X'1B' X'20' n |
| Decimal Value | 27 32 n |
| Range | 0 = n = 225 |

This command sets the intercharacter space to n/120 inch in Draft printing and n/180 inch in Quality printing.

## ESC X

**Sets left and right margins. (IBM)**

| | |
|---|---|
| ASCII Code | ESC X n1 n2 |
| Hexadecimal Value | X'1B' X'58' n1 n2 |
| Decimal Value | 27 88 n1 n2 |
| Range | 0 = n = 134 (left margin)<br>2 = n = 136 (right margin) |

This command sets the left and right margins at the same time. The n1 and n2 parameters indicate respectively the number of columns for the left and right margins at the current spacing. These margins are retained in terms of absolute displacement from the physical left edge of the page. Use a CR immediately after ESC X n to establish the print head position relative to the new margin setting.

If n1 is equal to 0, the current left margin of the page is used. If n2 is equal to 1, the current right margin of the page is used. The left margin value must be less than the right margin value. The right margin value must not exceed the physical right edge of the paper; otherwise the maximum acceptable value for the right margin will be set.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## FF

**Advances paper to the top of the next page (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | FF |
| Hexadecimal Value | X'0C' |
| Decimal Value | 12 |

This code is a terminator code, when received, causes all data in the print buffer to be printed out. Then it advances the paper to the first printable line of the next form. The line counter is set to the first line value and the column counter is set to the left margin value. This code cancels the double width printing set by SO code.

## HT

**Logically moves the print carriage to the next horizontal tab stop (IBM/EPSON).**

ASCII Code HT
Hexadecimal Value X'09'
Decimal Value 9

This code logically moves the print carriage to the next horizontal tab stop as defined by ESC D. Up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops can be set. The HT code is ignored if no tab stop is set, the current print carriage position is moved past the last tab position, or the tab stop is on or beyond the right margin. When the printer is powered on, the tab stops are set every eight columns (default).

In EPSON mode, the default tab stops are retained as logical positions in the page that are affected by changing the horizontal spacing. The tab stop positions set by ESC D are retained as physical positions on the page and are not affected by changing the horizontal spacing. When double width printing is selected, the tab stop setting must take into account that each character occupies two columns. In IBM mode, the tab stops, both the default and those set by ESC, are retained as logical positions in the page that are affected by changing the horizontal spacing. The horizontal tab stops can be changed by the ESC D command.

## VT

**Advances paper to the next vertical tab stop of the selected VFU channel (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | VT |
| Hexadecimal Value | X'0B' |
| Decimal Value | 11 |

This is a terminator code and when received causes the contents of the print buffer to be printed before advancing the paper to the next vertical tab stop set by the ESC B or the ESC b commands.

This code is run normally if vertical tab stops follow the current print position. It runs like an FF code (EPSON mode) or like a LF code (IBM mode), if the vertical tab stops follow the bottom of form position ( corresponding to the form length if the bottom of the form has not been set), or if the current position is beyond the last vertical tab stop. It runs like an LF code if no vertical tab stops have been set by the ESC B or ESC b commands.

In EPSON mode, the vertical tabulations are referred to the VHF channel selected by the ESC / m.Ifno VFU channels have been selected, the printer assumes the default channel 0.

This command cancels the double width printing set by SO or ESC SO command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Print Mode

## DC2

**Sets 10 cpi printing. (IBM)**

| | |
|---|---|
| ASCII Code | DC2 |
| Hexadecimal Value | X'12' |
| Decimal Value | 18 |

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed at 10 cpi.

## DC2

**Cancels compressed printing. (EPSON)**

| | |
|---|---|
| ASCII Code | DC2 |
| Hexadecimal Value | X'12' |
| Decimal Value | 18 |

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed as follows:

17 CPI . 10 CPI
20 CPI . 12 CPI

## DC4

**Cancels double width printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | DC4 |
| Hexadecimal Value | X'14' |
| Decimal Value | 20 |

This code cancels the double width printing set by SO or ESC SO code. It has no effect if the ESC W or ESC ! command is set to double width.

## ESC -

**Sets or cancels underlined printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC - n |
| Hexadecimal Value | X'1B' X'2D' n |
| Decimal Value | 27 45 n |

Enables or disables underlined printing. See the following table:

| n | Underlined Printing |
|---|---|
| 1 | enabled |
| 0 | disabled |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC !

**Sets printing style. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC ! n |
| Hexadecimal Value | X'1B' X'21' n |
| Decimal Value | 27 33 n |

This command is used to select any valid combination of printing attributes. Each printing attribute is selected by the nparameter, as specified in the following page:

| **n** | **Attribute** |
|---|---|
| 0 | 10 cpi |
| 1 | 12 cpi |
| 2 | Proportional |
| 4 | Compressed |
| 8 | Emphasized |
| 16 | Double Strike |
| 32 | Double Width |
| 64 | Italics |
| 128 | Underline |

To print the desired combination of printing attributes, calculate the nparameter by adding up the values of each attribute.

## ESC(-

**Sets score line. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC ( - n1 n2 md1 d2 |
| Hexadecimal Value | X'1B' X'28' X'2D' n1 n2 md1 d2 |
| Decimal Value | 27 40 45 n1 n2 md1 d2 |
| Range | n1 =3<br>n2 =0<br>m=1<br>1 = d1 = 3<br>d2 =0,1,2,5,6 |

This command enables or disables scoring of all characters and spaces following the command according to the following parameters:

| **d1** | **Line** |
|---|---|
| 1 | Underline |
| 2 | Strikethrough |
| 3 | Overscore |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| d2 | Line |
|---|---|
| 0 | Cancel score line |
| 1 | Single continuous line |
| 2 | Double continuous line |
| 5 | Single broken line |
| 6 | Single broken line |

Any combination of scoring may be used at the same time and are independent of each other. Graphics characters are not scored.

## ESC[-

**Selects the score line. (IBM 2381 + only)**

| | |
|---|---|
| ASCII Code | ESC [ - n1 n2 loc type |
| Hexadecimal Value | X'1B' X'5B' X'2D' n1 n2 loc type |
| Decimal Value | 27 91 45 n1 n2 loc type |
| Range | n1 =2 |
| | n2 =0 |

This command selects several forms of overscore, underscore, and strikethrough.
To select loc: To select type:

| loc | Selection | type | Selection |
|---|---|---|---|
| 1 | Underscore | 0 | Cancles Line |
| 2 | Strikethrough | 1 | Single Line |
| 3 | Overscore | 2 | Double Line |
| | | 255 | Cancels all score selections |

## ESC :

**Sets 12 CPI. (IBM)**

| | |
|---|---|
| ASCII Code | ESC : |
| Hexadecimal Value | X'1B' X'3A' |
| Decimal Value | 27 58 |

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi. This command is accepted at any position within the line. The setting of another horizontal spacing resets this command.

## ESC <

**Prints characters for one line from left to right. (IBM XLIII, EPSON)**

| | |
|---|---|
| ASCII Code | ESC < |
| Hexadecimal Value | X'1B' X'3C' |
| Decimal Value | 27 60 |

This command causes the printing of one line from left to right.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC[@

**Selects the printing type style. (IBM 2381 + only)**

| | |
|---|---|
| ASCII Code | ESC [ @ 40m1 0m3 m4 |
| Hexadecimal Value | X'1B' X'5B' X'40' 04*00*m1 00*m3 m4 |
| Decimal Value | 27 91 64 40m1 0m3 m4 |

(*) These values are constants.

This command is used to modify the type style of the character and the number of line spacing. Use this command for:

1. Italic printing
2. Single-high character
3. Double-high character
4. Single-wide character
5. Double-wide character
6. Single Line Feed
7. Double Line Feed

These selections may be combined, for example, italic print with double height or doublewide character and double line feed.

See the following tables for m1, m3 and m4 selections:

| m1 | Selection | m3 | Selection | m4 | Selection |
|---|---|---|---|---|---|
| 0 | No Change | 0 | No Change | 0 | No Change |
| 1 | Start Italic Printing | 1 | Single-High Character | 1 | Single-Wide Character |
| 2 | Stop Italic Printing | 2 | Double-High Character | 2 | Double-Wide Character |
| 4 | Start Outline | 4 | Single Line Feed | 4 | Single Line Feed |
| 8 | Stop Outline | 8 | Double Line Feed | 8 | Double Line Feed |
| 16 | Start Shadow | 16 | | | |
| 32 | Stop Shadow | 32 | | | |

## ESC[@

**Sets double high printing and double line feed. (IBM)**

| | |
|---|---|
| ASCII Code | ESC [ @ lhm1 m2 m3 m4 |
| Hexadecimal Value | X'1B' X'5B' X'40' lhm1 m2 m3 m4 |
| Decimal Value | 27 91 64 lhm1 m2 m3 m4 |

l= normally 4, h= normally 0, m1 =0, m2 =0
This command sets height, width, and vertical spacing.
The land hparameters specify the number of mode bytes mx contained in the sequence.
The m3 and m4 parameters specify the printing characteristics.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The m3 parameter controls both line spacing and character height. It has two parts: a high-order half-byte of m3 controls the line spacing and the low-order half-byte controls the character height.

| m3 | Character Height | Line Spacing |
|---|---|---|
| 0 | No Change | No Change |
| 1 | Standard character height | Line feeds unchanged |
| 2 | Double character height | Line feeds unchanged |
| 16 | Character height unchanged | Normal line feeds |
| 17 | Standard character height | Normal line feeds |
| 18 | Double character height | Normal line feeds |
| 32 | Character height unchanged | Double line feeds |
| 33 | Standard character height | Double line feeds |
| 34 | Double character height | Double line feeds |

The m4 parameter specifies the character width. Only the low-order half-byte is significant in this mode byte. The high-order half-byte is ignored.

| m4 | Character Width | Line Spacing |
|---|---|---|
| 0 | No change | Standard width character |
| 1 | Double width character | No change |
| 2 | No change | No change |

## ESC[d

**Set the print quality. (IBM 2381 + only)**

| | |
|---|---|
| ASCII Code | ESC [ d 10n |
| Hexadecimal Value | X'1B' X'5B' X'64' 0100n |
| Decimal Value | 27 91 100 10n |

This command sets the print quality to draft or LQ print.

| n | Types |
|---|---|
| 0 | No Change |
| From 64 to 127 | Draft |
| From 128 to 254 | Letter Quality |
| 255 | Initialization on NVRAM values |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# ESC[I

**Sets font and pitch of a character. (IBM 2381 + only)**

| | |
|---|---|
| ASCII Code | ESC [ I 2 0 m n |
| Hexadecimal Value | X'1B' X'5B' X'49' 02 00 m n |
| Decimal Value | 27 91 73 2 0 m n |

This command allows you to modify the character's font and style of pitch type.

The values 2 and 0 are constants. If font and pitch locks are active, this command is ignored. To select the values for the variables m and n, which identify the pitch and the font type style to use, refer to the table below.

1. Identify the type style (pitch and font) to use in the left column (pitch).
2. For the hexadecimal values of m and n, look across the row to the second column (Hex mn)
3. For the decimal values for m and n, look across the row to the third column (Decimal mn).
4. Substitute these values for m and n in the printer command syntax.

| **Pitch** | **Hexadecimal** | | **Decimal** | | **Dec. Value** |
|---|---|---|---|---|---|
| | **m** | **n** | **m** | **n** | **(m x 256 + n)** |
| **Courier** | | | | | |
| 10 | X'00' | X'00B' | 0 | 11 | 11 |
| 12 | X'01' | X'EB' | 1 | 235 | 491 |
| 15 | X'01' | X'EC' | 1 | 236 | 492 |
| 17 | X'01' | X'ED' | 1 | 237 | 493 |
| 20 | X'01' | X'EE' | 1 | 238 | 494 |

| **Pitch** | **Hexadecimal** | | **Decimal** | | **Dec. Value** |
|---|---|---|---|---|---|
| | **m** | **n** | **m** | **n** | **(m x 256 + n)** |
| **Gothic** | | | | | |
| 10 | X'00' | X'24' | 0 | 36 | 36 |
| 12 | X'01' | X'8F' | 1 | 143 | 399 |
| 15 | X'01' | X'8E' | 1 | 236 | 398 |
| 17 | X'01' | X'8D' | 1 | 237 | 397 |
| 20 | X'01' | X'8C' | 1 | 238 | 396 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC _

**Sets or cancels overscore printing. (IBM)**

| | |
|---|---|
| ASCII Code | ESC _ n |
| Hexadecimal Value | X'1B' X'5F' n |
| Decimal Value | 27 95 n |

Enables or disables overscore printing. See the following table:

| n | Overscore Printing |
|---|---|
| 1 | Enabled (all spaces and characters that follow are overscored) |
| 0 | Disabled |

## ESC 4

**Sets italics printing mode. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC 4 |
| Hexadecimal Value | X'1B' X'34' |
| Decimal Value | 27 52 |

Sets the style attribute of the font to italic. This command selects italic printing even if the italic character table is not selected.

## ESC 5

**Cancels italics printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC 5 |
| Hexadecimal Value | X'1B' X'35' |
| Decimal Value | 27 53 |

Sets the style attribute of the font to normal (cancels the italic style attribute previously selected with the ESC 4 command).

## ESC a

**Sets Letter Quality justification printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC a n |
| Hexadecimal Value | X'1B' X'61' n |
| Decimal Value | 27 97 n |
| Range | 0 = n = 3 |

Selects from four types of justification, as follows:

| n | Justification |
|---|---|
| 0 | Left |
| 1 | Centered |
| 2 | Right |
| 3 | Allows an uniform printing between the margins when the buffer is full. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC E

**Sets emphasized printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC E |
| Hexadecimal Value | X'1B' X'45' |
| Decimal Value | 27 69 |

This command starts emphasized printing. The print head strikes each dot twice to produce a darker, bolder character. The second strike is offset horizontally.

## ESC F

**Cancels emphasized printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | SC F |
| Hexadecimal Value | X'1B' X'46' |
| Decimal Value | 27 70 |

This command ends emphasized printing. This escape sequence cancels emphasized printing that was started by ESC E.

## ESC G

**Sets double strike printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC G |
| Hexadecimal Value | X'1B' X'47' |
| Decimal Value | 27 71 |

This command starts double-strike printing. ESC G may be canceled by ESC H.

## ESC g

**Sets 15 CPI. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC g |
| Hexadecimal Value | X'1B' X'67' |
| Decimal Value | 27 103 |

Subsequent data is printed at 15 cpi. This command is accepted at any position within the line. If you change the pitch during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

## ESC H

**Cancels double strike printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC H |
| Hexadecimal Value | X'1B' X'48' |
| Decimal Value | 27 72 |

This command cancels double-strike printing set with the ESC G command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC I

**Selects printing type for resident and DLL characters. (IBM)**

| | |
|---|---|
| ASCII Code | ESC I n |
| Hexadecimal Value | X'1B' X'49' n |
| Decimal Value | 27 73 n |

This command selects the resident or the download font in Draft or LQ printing mode. It is ignored if you select a font that has not been downloaded or has been overwritten. See the following table:

| n | Resident font | n | Download font |
|---|---|---|---|
| 0 | Draft 10 cpi | 4 | Draft 10 cpi |
| 2 | LQ10cpi | 6 | LQ10cpi |
| 3 | Proportional | 7 | Proportional |
| 8 | Draft 12 cpi | 12 | Draft 12 cpi |
| 10 | LQ 12 cpi | 14 | LQ 12 cpi |
| 16 | Draft 17 cpi | 20 | Draft 17 cpi |
| 18 | LQ 17 cpi | 22 | LQ 17 cpi |

## ESC M

**Selects 10.5 point, 12 CPI. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC M |
| Hexadecimal Value | X'1B' X'4D' |
| Decimal Value | 27 77 |

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi, if you previously set the compressed spacing by sending the SI or ESC SI command. If you select proportional printing, this command is stored.

## ESC P

**Selects 10.5 point, 10 cpi. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC P n |
| Hexadecimal Value | X'1B' X'50' n |
| Decimal Value | 27 80 n |

This command selects 10.5 point, 10 cpi character printing. If you change the pitch during proportional mode (selected with the ESC p command) the change takes effect when the printer exits proportional mode.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC P

**Sets or cancels proportional printing. (IBM)**

| | |
|---|---|
| ASCII Code | ESC P n |
| Hexadecimal Value | X'1B' X'50' n |
| Decimal Value | 27 80 n |
| Range | 1 = n = 255 |

This code is a terminator code. It causes all data in the print buffer to be printed. Then if the n parameter is equal to 1, the subsequent data is printed in proportional mode. If the n parameter is equal to 0, proportional mode is reset. If the any horizontal spacing command is sent to the printer when the proportional printing is set, the command is stored and activated as soon as the proportional printing is reset.

## ESC p

**Sets or cancels proportional printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC p n |
| Hexadecimal Value | X'1B' X'70' n |
| Decimal Value | 27 112 n |
| Range | 1 = n = 255 |

This command selects the proportional or fixed spacing according to the following values:

| **n** | **Proportional Printing** |
|---|---|
| 0 | Returns to current fixed character pitch |
| 1 | Selects proportional character spacing |

## ESC S

**Sets subscript or superscript printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC S n |
| Hexadecimal Value | X'1B' X'53' n |
| Decimal Value | 27 83 n |

Selects subscript or superscript printing. See the following table:

| **n** | **Selection** |
|---|---|
| 0 | Subscript Print enabled |
| 1 | Superscript Print enabled |

Proportional printing of subscript or superscript characters is performed at 2/3 of the proportional character width. Use the ESC T command to cancel subscript or superscript printing.

## ESC SI

**Sets 17/20 cpi (IBM).**

| | |
|---|---|
| ASCII Code | SI or ESC SI |
| Hexadecimal Value | X'0F' or X'1B' X'0F' |
| Decimal Value | 15 or 27 15 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

## ESC SI

**Sets compressed printing (EPSON).**

| | |
|---|---|
| ASCII Code | SI or ESC SI |
| Hexadecimal Value | X'0F' or X'1B' X'0F' |
| Decimal Value | 15 or 27 15 |

This command is accepted at any position within the line. The setting of this command depends on the horizontal spacing previously set:

10 CPI . 17 CPI
12 CPI . 20 CPI

The DC2 code cancels the compressed printing.

## ESC SO

**Sets double width printing (one line) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | SO or ESC S0 |
| Hexadecimal Value | X'0E' or X'1B' X'0E' |
| Decimal Value | 14 or 27 14 |

This code causes subsequent data in the same line to be printed as double width characters. It is canceled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.

## ESC s

**Sets and resets Quiet printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC s n |
| Hexadecimal Value | X'1B' X'73' n |
| Decimal Value | 27 115 n |

This command controls print speed as follows:

| **n** | **Selection** |
|---|---|
| 0 | Normal speed printing |
| 1 | Quiet speed printing |

## ESC T

**Cancels subscript or superscript printing (IBM/EPSON).**

ASCII Code ESC T
Hexadecimal Value X'1B' X'54'
Decimal Value 27 84

This command cancels subscript or superscript printing started with the ESC S command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC W

**Sets or cancels double width printing (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC W n |
| Hexadecimal Value | X'1B' X'57' n |
| Decimal Value | 27 87 n |
| Range | 0 = n = 1 |

Enables or disables double width printing. See the following table:

| n | Selection |
|---|---|
| 0 | Double Width Printing disabled |
| 1 | Double Width Printing enabled |

## ESC w

**Sets or cancels double height printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC w n |
| Hexadecimal Value | X'1B' X'77' n |
| Decimal Value | 27 119 n |
| Range | 0 = n = 255 |

Enables or disables double-height printing of all characters. The first line of a page is not doubled if the ESC w command is sent on the first line; all following lines are printed at double-height. Double-height printing overrides superscript, subscript, and condensed. Superscript, subscript, and condensed print resumes when double-height printing is canceled. See the following table:

| n | Selection |
|---|---|
| 0 | Double Height Printing disabled |
| 1 | Double Height Printing enabled |

## ESC x

**Selects Letter Quality or Draft. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC x n |
| Hexadecimal Value | X'1B' X'78' n |
| Decimal Value | 27 120 n |

This command selects either LQ or Draft printing according to the following values:

| n | Selection |
|---|---|
| 0 | Draft printing |
| 1 | Letter Quality printing |

If you select proportional spacing with the ESC p command during Draft printing, the printer prints an LQ font instead. When you cancel proportional spacing with the ESC p command, the printer returns to Draft printing.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## SI

**Sets compressed printing. (IBM)**

| | |
|---|---|
| ASCII Code | SI |
| Hexadecimal Value | X'0F' |
| Decimal Value | 15 |

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

## SI

**Sets compressed printing. (EPSON)**

| | |
|---|---|
| ASCII Code | SI |
| Hexadecimal Value | X'0F' |
| Decimal Value | 15 |

This command is accepted at any position within the line. DC2 code cancels compressed printing. The setting of this command depends on the horizontal spacing previously set

10 CPI . 17 CPI
12 CPI . 20 CPI

DC2 code cancels compressed printing.

## SO

**Sets double width printing (one line) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | SO |
| Hexadecimal Value | X'0E' |
| Decimal Value | 14 |

This code causes subsequent data in the same line to be printed as double width characters. It is cancelled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Character Set

## ESC [ T

**Selects a Code page (IBM).**

| | |
|---|---|
| ASCII Code | ESC [ T 4000HcLc |
| Hexadecimal Value | X'1B' X'5B' X'54' 04000000HcLc |
| Decimal Value | 7 91 84 4000HcLc |

This sequence allows you to change the current code page. If an unavailable code page is specified, this command is ignored. The digits 04000000(hexadecimal) and 4000(decimal) are constant. To calculate Hc Lc for a code page that is not shown: If your code page has an alphabetic character, such as 437G, add 10,000 to the code page number, then divide by 256.

- The whole number result is the Hc value
- The remainder is the Lc value.

| Hc | Lc | | Hc | Lc | | Hc | Lc | | Hc | Lc | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 181 | CP437 | 3 | 96 | CP864 | 33 | 143 | 8859/1 | 4 | 229 | CP1253 |
| 3 | 122 | CP437G | 3 | 97 | CP865 | 33 | 144 | 8859/2 | 4 | 230 | CP1254 |
| 33 | 129 | CP437 Slavic | 3 | 98 | CP866 | 33 | 145 | 8859/3 | 4 | 231 | CP1255 |
| 33 | 82 | CP850 | 3 | 99 | CP867 | 33 | 146 | 8859/4 | 4 | 232 | CP1256 |
| 3 | 83 | CP851 | 3 | 108 | CP876 | 33 | 147 | 8859/5 | 4 | 233 | CP1257 |
| 3 | 84 | CP852 | 3 | 109 | CP877 | 33 | 148 | 8859/6 | 33 | 130 | FARSI 1 |
| 3 | 85 | CP853 | 4 | 74 | CP1098 | 33 | 149 | 8859/7 | 33 | 131 | FARSI 2 |
| 3 | 87 | CP855 | 33 | 123 | 96 GREEK | 33 | 150 | 8859/8 | | | |
| 3 | 89 | CP857 | 33 | 124 | GOST | 33 | 151 | 8859/9 | | | |
| 3 | 90 | CP858 | 33 | 125 | TASS | 3 | 155 | 8859/15 | | | |
| 3 | 92 | CP860 | 33 | 126 | MAZOWIA | 4 | 226 | CP1250 | | | |
| 3 | 94 | CP862 | 33 | 128 | UKRANIAN | 4 | 227 | CP1251 | | | |
| 3 | 95 | CP863 | 33 | 138 | KOI8-U | 4 | 228 | CP1252 | | | |

## ESC \

**Prints characters from all characters table. (IBM)**

| | |
|---|---|
| ASCII Code | ESC \ n1 n2 |
| Hexadecimal Value | X'1B' X'5C' n1 n2 |
| Decimal Value | 27 92 n1 n2 |
| Range | 0 = n1 = 255<br>0 = n2 = 255 |

This command prints the next n1 + n2 x 256 characters from the table of all printable characters.

The total number of characters that will be printed from the table of all printable characters is equal to n1 + (n2 x 256). For example, to print 300 characters from the table of all printable characters: n1 = 44, n2 =1.

The control codes are not recognized as long as this sequence is active. The space character is printed as an unassigned character.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC ^

**Prints a single character from the all characters table. (IBM)**

| | |
|---|---|
| ASCII Code | ESC ^ n |
| Hexadecimal Value | X'1B' X'5E' n |
| Decimal Value | 27 94 n |
| Range | 0 = n = 255 |

This command prints the next character from the all characters table. This sequence prints only one character from the all character table.

## ESC 6

**Selects the Character Set 2 (EPSON, IBM).**

| | |
|---|---|
| ASCII Code | ESC 6 |
| Hexadecimal Value | X'1B' X'36' |
| Decimal Value | 27 54 |

This command selects the character set 2.

## ESC 7

**Selects the Character Set 1 (IBM).**

| | |
|---|---|
| ASCII Code | ESC 7 |
| Hexadecimal Value | X'1B' X'37' |
| Decimal Value | 27 55 |

This command selects the character set 1.

## ESC k

**Selects the NLQ fonts. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC k n |
| Hexadecimal Value | X'1B' X'6B' n |
| Decimal Value | 27 107 n |

Selects one of the available fonts in Letter Quality. If Draft mode is selected when this command is sent, the new LQ font is selected when the printer returns to LQ printing.

| **n** | **Types** |
|---|---|
| 0 | Courier |
| 2 | Gothic |

## ESC R

**Selects Nation character set. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC R n |
| Hexadecimal Value | X'1B' X'52' n |
| Decimal Value | 27 82 n |
| Range | 0 = n = 13 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This code causes the national character set to be selected according to the parameter n. See the following table:

| n | National Character Sets | n | National Character Sets | n | National Character Sets |
|---|---|---|---|---|---|
| 0 | USA | 5 | Sweden | 10 | Denmark-II |
| 1 | France | 6 | Italy | 11 | Spain-II |
| 2 | Germany | 7 | Spain-I | 12 | Latin America |
| 3 | United Kingdom | 8 | Japan | | |
| 4 | Denmark-I | 9 | Norway | | |

## ESC t

**Selects characters table. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC t n |
| Hexadecimal Value | X'1B' X'74' n |
| Decimal Value | 27 116 n |
| Range | 0 = n = 3 |

Selects the upper half (from 128 to 255) from the character table.

| n | Character Tables |
|---|---|
| 0 | Standard Italic Character Set |
| 1 | ASCII Character Set |
| 2 | Remaps DLL Character Set from position 0-127 to 128-255 |

# Download Character

## ESC %

**Selects user-defined character set. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC & n |
| Hexadecimal Value | X'1B' X'25' n |
| Decimal Value | 27 37 n |

This command switches between normal (resident) and user-defined (downloaded) characters:

| n | Selection |
|---|---|
| 1 | Selects the use of downloaded character set in RAM |
| 0 | Selects the use of resident character set in ROM |

## ESC &

**Defines user-defined characters. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC & NUL n m [ a d1 ... d11 ] |
| Hexadecimal Value | X'1B' X'26' 00 n m [a d1 ... d11 ] |
| Decimal Value | 27 38 00 nm a [ d1 ... d11 ] |
| Range | 0 <= n <= 255<br>0 <= m <= 255<br>n<= m<br>0 <=a <= 255<br>0 <=d <= 255 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The data within brackets above is repeated for each character you define.
The parameters in the command have the following meaning:

| | |
|---|---|
| n and m | The n and m parameters are two decimal numbers that define the first and the last characters to be replaced in the character set in use. |
| a | It sets parameters for characters to be user-defined. |
| d1 ...d11 | They are the character data that is printed. |

The format of the attribute byte “a” is the following:
You can define characters 11-dots wide by 8-dots high. You must specify whether to define the upper or lower 8 dots of the 9 dots available.
You can also specify the columns not printed on the left and right of the characters during proportional spacing. Set both these parameters with the a parameter, as described in the following table:

| Attribute byte table | | | | | |
|---|---|---|---|---|---|
| Beginning Column | | Ending Column | | Upper/Lower 8 pins | |
| Column Number | Value | Column Number | Value | Pin group | Value |
| 0 | 0 | 0 | 0 | Upper 8 pins | 128 |
| 1 | 16 | 1 | 1 | Lower 8 pins | 0 |
| 2 | 32 | 2 | 2 | | |
| 3 | 48 | 3 | 3 | | |
| 4 | 64 | 4 | 4 | | |
| 5 | 80 | 5 | 5 | | |
| 6 | 96 | 6 | 6 | | |
| 7 | 128 | 7 | 7 | | |
| | | 8 | 8 | | |
| | | 9 | 9 | | |
| | | 10 | 10 | | |
| | | 11 | 11 | | |

Add up the values for all three setting; the total will be the a value.

## ESC :

**Copies characters from ROM to RAM. (EPSON)**

ASCII Code ESC : NULn0
Hexadecimal Value X'1B' X'3A' 00n00
Decimal Value 27 58 n0

This code copies the draft character generator in ROM into RAM area dedicated to the user-defined characters. Also Courier or Gothic character generator font from ROM is copied to RAM memory according to the following values of n parameter:

| **n** | **Selection** |
|---|---|
| 0 | Courier |
| 1 | Gothic |

## ESC =

**Defines downloaded characters. (IBM)**

ASCII Code ESC = n m id p [a1 a2 d1 … d 11 ]
Hexadecimal Value 1B 3D n m id p [a1 a2 d1 … d 11 ]
Decimal Value 27 61 n m id p [a1 a2 d1 … d 11 ]



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This sequence allows to design and then down-line load special characters not present in the character set in use. Whenever you would like to start the DLL setting procedure, it should be better to copy the character generator in ROM into RAM by sending the ESC = {0} {0} sequence that causes the DLL to be reset. Up to 256 characters can be defined using the DLL function.

The parameters in the command line have the following meaning:

n and m Indicate how many characters you should down-line load. n and m are calculated as follows:
{number of characters x 13}+2 = {total}
If {total} is less than {256}
{n} = {t}
{m} = {0}
If {total} is greater than {256}
{n} = {remainder of {t} divided by 256}
{m} = {integer result of {t} divided by 256}

id Indicates the printer model. In this case it is fixed to {20}.

Each DLL character is described using the following parameters:

p This is the decimal code of the first character of the character set in use that should be replaced by the DLL character.

a1 This is the first attribute byte and it has the following meaning:

| | | |
|---|---|---|
| Bit 7: | {0} | indicates that the character is not a true descender. |
| | {1} | indicates that the character is a true descender. |
| | This bit is ignored if bit 0 or bit 1 is set to 1. | |
| Bit 6 to 2 | Ignored | |
| Bit 1, 0 | Character description: | |
| | {00} | no 12-high expansion. The bit 7 is valid. |
| | {01} | line drawing character. The dots in row 8 are extended downward to rows 9, 10, 11 and 12. The bit 7 is ignored. It is advisable to use this mode to create characters that should replace 179 to 223 code characters. |
| | {11} | shading characters. The dots in row 1, 2, 3 and 4 are repeated as rows 9, 10, 11 and 12. The Quality printing is ignored. It is advisable to use this mode to create characters that should replace 176 to 178 code characters. |

a2 This is the second attribute byte. It specifies the proportional printing information. If you do not wish to define a proportional character, set the bit 6 – 0 to {0}. When you use the proportional printing for a DLL character with bit 6 – 0 set to {0}, the databytes of the character will be printed.

| | |
|---|---|
| Bit 7: | Ignored |
| Bit 6, 5, 4 | Interpreted as binary number. These bits specify the number of leading bytes that should be ignored. This number is the offset. Up to 7 bytes can be ignored. The counts begins with byte 1. |
| Bit 3 to 0 | Interpreted as binary number. These bits specify the number of dots-columns that should be printed. Each character must be followed by a blank byte that is not included in the count of the character width. Character widths greater than 11 are treated as 11. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Bit-Image

## ESC *

**Sets dot graphics printing. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC * m n1 n2 p1 p2 ... px |
| Hexadecimal Value | X'1B' X'2A' m n1 n2 p1 p2 ... px |
| Decimal Value | 27 42 m n1 n2 p1 p2 ... px |
| Range | m = 0,1,2,3,4,5,6,7;<br>0 < n1 < 255;<br>0 < n2 < 31 |

This command prints dot-graphics in 8-dot columns, depending on the following parameters: number of dot columns = (n1 + (n2 x 256))

m Specifies the dot density.
n1, n2 specify the total number of columns of graphics data according to the formula:

The following table shows the 8-dot graphics mode:

| m | OPTION | Horizontal Density (dpi) | Alternate Code |
|---|---|---|---|
| 0 | Normal density | 60 | ESC K |
| 1 | Dual density | 120 | ESC L |
| 2 | Double speed, Double density | 120 (virtual) | ESC Y |
| 3 | Quadruple-density | 240 (virtual) | ESC Z |
| 4 | CTR Graphics I | 80 | |
| 5 | Plotter Graphics | 72 | |
| 6 | CTR Graphics II | 90 | |
| 7 | Double Density Plotter Graphics | 144 | |

## ESC ?

**Reassigns dot graphics mode. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC ? nm |
| Hexadecimal Value | X'1B' X'3F' nm |
| Decimal Value | 27 63 nm |

Reassigns one of the dot graphics mode (described in the command ESC *) to one of the following commands: ESC K, ESC L, ESC Y and ESC Z. The nparameter specifies a character (K, L, Y, or Z) which is reassigned to specific mode m= 0,1,2,3.

| m | n | m | n |
|---|---|---|---|
| 0 | (K): ESC K graphic command | 2 | (Y): ESC Y graphic command |
| 1 | (L): ESC L graphic command | 3 | (Z): ESC Z graphic command |

## ESC K

**Normal density dot graphics printing (60 dpi) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC K n1 n2 p1 p2 ... px |
| Hexadecimal Value | X'1B' X'4B' n1 n2 p1 p2 ... px |
| Decimal Value | 27 75 n1 n2 p1 p2 ... px |
| Range | 0 = n1 = 255 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

0 = n2 = 31
0 = p= 255

Terminator code. This command prints dot graphics at 60 horizontal dots per inch (dpi) by 180 vertical dpi. The parameter values are calculated as follows:

n1 Remainder of the number of columns divided by 256.
n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

## ESC L

**Double density dot graphics printing (120 dpi) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC L n1 n2 p1 p2 ... px |
| Hexadecimal Value | X'1B' X'4C' n1 n2 p1 p2 ... px |
| Decimal Value | 27 76 n1 n2 p1 p2 ... px |
| Range | 0 = n1 = 255 |
| | 0 = n2 = 31 |
| | 0 = p = 255 |

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi. The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.
n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

## ESC Y

**Double density dot graphics printing at double-speed graphics (120 virtual dpi) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC Y n1 n2 p1 p2 ... px |
| Hexadecimal Value | X'1B' X'59' n1 n2 p1 p2 ... px |
| Decimal Value | 27 89 n1 n2 p1 p2 ... px |
| Range | 0 = n1 = 255 |
| | 0 = n2 = 31 |
| | 0 = p = 255 |

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi. The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.
n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

graphics pattern.

p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.

px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

## ESC Z

**Quadruple density dot graphics printing (240 virtual dpi) (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | ESC Z n1 n2 p1 p2 ... px |
| Hexadecimal Value | X'1B' X'5A' n1 n2 p1 p2 ... px |
| Decimal Value | 27 90 n1 n2 p1 p2 ... px |
| Range | 0 = n1 = 255<br>0 = n2 = 31<br>0 = p = 255 |

Terminator code. This command prints dot graphics at 240 horizontal dot per inch by 180 vertical dpi. The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.

n2 Integer result of the previous division.

p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.

p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.

# Data Input Control

## CAN

**Cancels line. (EPSON)**

| | |
|---|---|
| ASCII Code | CAN |
| Hexadecimal Value | X'18' |
| Decimal Value | 24 |

This code clears all printable characters and bit-image graphics on the current line. This code moves the print position to the left-margin position.

## CAN

**Cancels data. (IBM)**

| | |
|---|---|
| ASCII Code | CAN |
| Hexadecimal Value | X'18' |
| Decimal Value | 24 |

This code clears all data stored in the preceding print buffer but does not change the current print position.

## DC1

**Selects printer. (IBM)**

| | |
|---|---|
| ASCII Code | DC1 |
| Hexadecimal Value | X'11' |
| Decimal Value | 17 |

This command causes the printer to be enabled after it has been disabled by the ESC Q command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## DC1

**Selects printer. (EPSON)**

| | |
|---|---|
| ASCII Code | DC1 |
| Hexadecimal Value | X'11' |
| Decimal Value | 17 |

This command causes the printer to be enabled after it has been disabled by the DC3 command.

## DC3

**Deselects printer. (EPSON)**

| | |
|---|---|
| ASCII Code | DC3 |
| Hexadecimal Value | X'13' |
| Decimal Value | 19 |

This code deselects the printer. The printer remains deselected until it receives a DC1 command or power is turned off then on again. The printer ignores the ESC @ command (initialize printer) when it is deselected.

## DEL

**Deletes the last character. (EPSON)**

| | |
|---|---|
| ASCII Code | DEL |
| Hexadecimal Value | X'7F' |
| Decimal Value | 127 |

This command causes the printer to delete the last printable character sent to the printer. Printer control codes are not affected. The printer ignores this command if it follows a command that moves the horizontal print position (ESC $, ESC \, or HT).

## ESC #

**Cancels MSB control. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC # |
| Hexadecimal Value | X'1B' X'23' |
| Decimal Value | 27 35 |

This command cancels any controls on the Most Significant Bit (MSB) (bit number 7) set by ESC = or ESC > commands. The printer then accepts all MSB data as is.

## ESC =

**Sets MSB to 0. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC = |
| Hexadecimal Value | X'1B' X'3D' |
| Decimal Value | 27 61 |

This command sets the MSB (bit number 7) of all incoming data to 0. All data is affected, including graphics data.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC >

**Sets MSB to 1. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC > |
| Hexadecimal Value | X'1B' X'3E' |
| Decimal Value | 27 62 |

This command sets the MSB (bit number 7) of all incoming data to 1. All data is affected, including graphics data.

## ESC Q

**Deselects Printer. (IBM)**

| | |
|---|---|
| ASCII Code | ESC Q n |
| Hexadecimal Value | X'1B' X'51' n |
| Decimal Value | 27 81 n |

This sequence tells the printer not to accept data from the host. The host must reset the printer or select the printer by using DC1 (Select Printer) to accept data. To deselect the printer, use ESC Q35.

# Miscellaneous

## BEL

**Buzzer (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | BEL |
| Hexadecimal Value | X'07' |
| Decimal Value | 7 |

This code sounds the printer buzzer.

## BS

**Print and space back one position (IBM/EPSON).**

| | |
|---|---|
| ASCII Code | BS |
| Hexadecimal Value | X'08' |
| Decimal Value | 8 |

This code causes printing to be continued from one column to the left of the current carriage position. The printer ignores this command if it would move the print position to the left of the left margin.

## ESC @

**Initializes the printer. (EPSON)**

| | |
|---|---|
| ASCII Code | ESC @ |
| Hexadecimal Value | X'1B' X'40' |
| Decimal Value | 27 64 |

This sequence causes the printer:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

- To go back to the current printer setup settings
- To cancel any selected print attributes
- To reset the column counter
- To set the horizontal tabulations every 8 columns
- To clear all vertical tabulations

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

## ESC[ K

**Sets initial conditions. (IBM 2381 + only)**

ASCII Code
ESC [ K n1 n2 init id

Hexadecimal Value X'1B' X'5B' X'4B' n1 n2 init id

Decimal Value
27 91 75 n1 n2 init id

This command causes the printer to reset to its initial status:

n1, n2 The n1 and n2 parameters specify the number of bytes in the escape sequence normally, n1 = 2 and n2 = always 0.

init The init parameter specifies which condition the printer should be initialized: normally init = 0,1,4,5,254,255.

| init | Description |
|---|---|
| 0 | Initializes the printer to user-default settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected. |
| 1 | Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected. |
| 4 | Initializes the printer to factory settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected. |
| 5 | Initializes the printer to factory settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected. |
| 254 | Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command changes the data stored in the selected macro. It copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM and in the selected macro. It also changes the default macro to the value of parm 3. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

255 Initializes the printer to default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command changes the data stored in the macro's nonvolatile RAM. It copies default settings from ROM, adds parameter changes, if any, and stores it in working RAM and all macros. It also sets the default macro to disable.

id The id parameter specifies the printer for which the following parameter bytes are intended. If the ID does not address your printer, the mode bytes that follow are ignored. The ID values are Hex = X'B6', Dec = 182.

parm1 Specifies the following functions:

| | Bit | Not set | Set |
|---|---|---|---|
| 7 | Discard byte | Process this byte | Ignore this byte |
| 6 | Reserved | | |
| 5 | Alarm | Alarm enabled | Alarm disabled |
| 4 | Automatic CR | No CR on vertical movement | CR on vertical movement |
| 3 | Automatic LF | No LF after CR | LF after CR |
| 2 | Page length | 11 inches | 12 inches |
| 1 | Slashed zero | Zero without | slash Zero with slash |
| 0 | Character set | CS1 | CS2 |

parm2 Specifies the following functions:

| | Bit | Not set | Set |
|---|---|---|---|
| 7 | Discard byte | Process this byte | Ignore this byte |
| 6 | Pass over from CP437-CP850 | CP437 | CP850 |
| 5 | Reserved | | |
| 4 | Reserved | | |
| 3 | Reserved | | |
| 2 | Reserved | | |
| 1 | Line length | 13.6 inch | 8 inch |
| 0 | Reserved | | |

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

## ESC U

**Sets printing direction (IBM/Epson).**

| | |
|---|---|
| ASCII Code | ESC U n |
| Hexadecimal Value | X'1B' X'55' n |
| Decimal Value | 27 85 n |

Selects bidirectional or unidirectional printing according to the parameters below:

| n | Direction |
|---|---|
| 0 | Bidirectional printing |
| 1 | Unidirectional (left to right) printing |

Unidirectional printing provides better alignment of vertical lines while bidirectional printing is faster.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC[ u n

**Bar Codes selection. (IBM -Epson)**

| | |
|---|---|
| ASCII Code | ESC [ u n |
| Hexadecimal Value | X'1B' X'5B' X'75' n |
| Decimal Value | 27 91 117 n |

This command is recognized only if the Bar Code menu option is set to “Alternate” mode.

| **n** | |
|---|---|
| 0 | Exit Bar Code mode |
| 1 | Enter Bar Code mode. Subsequent data are barcode data strings as set by ESC [ v n |

## ESC [ v n m

**Sets Barcode parameters. (IBM -Epson)**

| | |
|---|---|
| ASCII Code | ESC [ vnm |
| Hexadecimal Value | X'1B' X'5B' X'76' nm |
| Decimal Value | 27 91 118 nm |

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

| **n** | **Parameter Description** | **m values** | **m default** |
|---|---|---|---|
| 0 | Barcode style | see below table | 4 |
| 1 | Barcode height | 1-120 (1/12" increments) | 12 |
| 2 | Human readable line | 0=disable 1=enable | 1 |
| 3 | Narrow bar width | 2-225 | 3 |
| 4 | Wide bar width | 2-225 | 7 |
| 5 | Narrow space width | 2-225 | 3 |
| 6 | Wide space width | 2-225 | 7 |
| 7 | Intercharacter space width | 2-225 | 3 |
| 8 | Rotation and HRC font | 0.1=no rotation and current font for HRC 2=90 3=180 4=270 and special HRC font | 0 |
| 9 | Horizontal print density | 1=120 2=144 3=180 dpi | 1 |
| 10 | Check digit | 0=disable 1=enable | 0 |
| 11 | HRC font for rotate barcode | 3=OCRA 4=OCRB | 3 |
| 12 | Barcode height | 0-240 (1/24" increments) | 24 |

Supported Bar Code Styles

| **m** | **Style** |
|---|---|
| 0 | Interleaved 2 of 5 |
| 1 | Bidirectional 2 of 5 |
| 2 | Matrix 2 of 5 |
| 3 | Industrial 2 of 5 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Supported Bar Code Styles

| m | Style |
|---|---|
| 4 | Code 3 of 9 (default) |
| 5 | EAN-8 |
| 6 | EAN-13 |
| 7 | Code 11 |
| 9 | Codabar (default start/stop = a/t) |
| 10 | Codabar (default start/stop = b/n) |
| 11 | Codabar (default start/stop = c/*) |
| 12 | Codabar (default start/stop = d/e) |
| 13 | UPC-A |
| 14 | UPS-E |
| 15 | Code 93 |
| 16 | Code 128 (subset A, B, and C) |
| 17 | Code 128 (subset A, B, and C) |
| 18 | Code 128 (subset A, B, and C) |
| 19 | MSI |
| 20 | UPC 2 Supplemental |
| 21 | UPC 5 Supplemental |
| 22 | EAN 2 Supplemental |
| 23 | EAN 5 Supplemental |
| 50 | Postnet |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 2. Native Emulation Commands

The printer in the Native Mode supports the following printer commands.

## Format Control

### DC4 DC4 ESC 1

**Sets vertical spacing n/180 inch.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 1 n |
| Hexadecimal Value | X'14' X'14' X'1B' X'31' n |
| Decimal Value | 20 20 27 49 n |
| Range | 0 = n = 255 |

This command sets vertical spacing to n/180 inch for subsequent line feeds.

### DC4 DC4 ESC 3 1

**Sets vertical spacing 12 lines/30 mm.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 3 1 |
| Hexadecimal Value | X'14' X'14' X'1B' X'33' X'31' |
| Decimal Value | 20 20 27 51 49 |

This command sets vertical spacing to 12 lines per 30 mm.

### DC4 DC4 ESC 3 3

**Sets vertical spacing to 3 lines/30 mm.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 3 3 |
| Hexadecimal Value | X'14' X'14' X'1B' X'33' X'33' |
| Decimal Value | 20 20 27 51 51 |

This command sets vertical spacing to 3 lines per 30 mm.

### DC4 DC4 ESC 3 4

**Sets vertical spacing 4 lines/30 mm.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 3 4 |
| Hexadecimal Value | X'14' X'14' X'1B' X'33' X'34' |
| Decimal Value | 20 20 27 51 52 |

This command sets vertical spacing to 4 lines per 30 mm.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## DC4 DC4 ESC 3 6

**Sets vertical spacing 6 lines/30 mm.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 3 6 |
| Hexadecimal Value | X'14' X'14' X'1B' X'33' X'36' |
| Decimal Value | 20 20 27 51 54 |

This command sets vertical spacing to 6 lines per 30 mm.

## DC4 DC4 ESC 3 8

**Sets vertical spacing 8 lines/30 mm.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC 3 8 |
| Hexadecimal Value | X'14' X'14' X'1B' X'33' X'38' |
| Decimal Value | 20 20 27 51 56 |

This command sets vertical spacing to 8 lines per 30 mm.

## DC4 DC4 ESC A

**Sets the horizontal spacing to 15, 17.1, 20 CPI.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC A n |
| Hexadecimal Value | X'14' X'14' X'1B' X'41' n |
| Decimal Value | 20 20 27 65 n |

This is terminator code and causes the current contents of the print buffer to be printed. The subsequent characters are printed at the horizontal spacing specified by the n parameter.

| **n** | **Spacing** |
|---|---|
| 4 | 15 cpi |
| 5 | 17 cpi |
| 6 | 20 cpi |

# Native Character Set

## DC4 DC4 ESC g

**Selects LQ fonts.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC g n |
| Hexadecimal Value | X'14' X'14' X'1B' X'67' n |
| Decimal Value | 20 20 27 103 n |
| Range | 0 = n = 255 |

If down-line loading is selected, the command is stored and activated as soon as the down-line loading is canceled.

Boldface is available if the ESC p1 (proportional) is sent.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| n | Types |
|---|---|
| 0 | Courier |
| 1 | Gothic |
| 182 | DLL |

The OCR-A and OCR-B print styles are selected by the DC4 DC4 ESC S command.

## DC4 DC4 ESC S

**Selects character set ISO Character Sets or Code Pages.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC S n |
| Hexadecimal Value | X'14' X'14' X'1B' X'53' n |
| Decimal Value | 20 20 27 83 n |

| n | Types | n | Types |
|---|---|---|---|
| 1 | ISO 8859/1 Latin 1 | 137 | CP 852 Eastern Europe |
| 2 | ISO 8859/2 Latin 2 | 138 | CP 876 OCR-A |
| 3 | ISO 8859/3 Latin 3 | 139 | CP 877 OCR-B |
| 4 | ISO 8859/4 Latin 4 | 140 | CP 855 Cyrillic |
| 5 | ISO 8859/5 Latin/Cyrillic | 141 | CP 866 Russian |
| 6 | ISO 8859/6 Latin/Arabic | 142 | GOST Cyrillic |
| 7 | ISO 8859/7 Latin/Greek | 145 | CP 437G Greek |
| 8 | ISO 8859/8 Latin/Hebrew | 146 | CP 853 Turkish |
| 9 | ISO 8859/9 Latin 5 | 147 | CP 857 Turkish |
| 15 | ISO 8859/15 Latin 9 | 148 | CP 867 Turkish |
| 128 | CP 437 USA | 149 | CP 858 Euro PC Multilingual |
| 129 | CP 850 Multilingual | 199 | 96 Greek |
| 130 | CP 860 Portugal | 200 | CP 1250 |
| 131 | CP 863 Canada/France | 201 | MAZOWIA |
| 132 | CP 865 Denmark/Norway | 202 | CP 1251 |
| 133 | CP 851 Greek | 203 | CP 1252 |
| 134 | CP 862 Hebrew | | |
| 135 | CP 864 Arab | | |
| 136 | TASS Cyrillic | | |

## DC4 DC4 ESC p

**Selects printing style type.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC p n |
| Hexadecimal Value | X'14' X'14' X'1B' X'70' n |
| Decimal Value | 20 20 27 112 n |

| n | Setting |
|---|---|
| 0 | HS Draft |
| 1 | Normal Draft |
| 2 | DP Text |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Bar Codes

## DC4 DC4 ESC !

**Bar Code Selection.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC ! htfFroqbsBSiEM |
| Hexadecimal Value | X'14' X'14' X'1B' X'21' ! htfFroqbsBSiEM |
| Decimal Value | 20 20 27 33 ! htfFroqbsBSiEM |

This command is recognized only if the menu option “BAR CODE” is set to “NATIVE” mode.
h = Bar Code Height at n/6”, 1 < h < 30
t = Standard Bar Code to use

| t | Name | |
|---|---|---|
| 1 | 8-digits European Article Numbering | EAN-8 |
| 2 | 13-digits European Article Numbering | EAN-13 |
| 3 | Universal Product Code Type A | UPC-A |
| 4 | Universal Product Code Type E | UPC-E |
| 5 | UPC/EAN 2 Digit Supplement | UPC-EAN 2 |
| 6 | UPC/EAN 5 Digit Supplement | UPC-EAN 5 |
| 7, 8, 9 | 8-digits European Article Numbering | EAN-8 |
| 10 | General Purpose Bar Code | Code-GP |
| 11 | Code 2 of 5 3-BAR (Data Logic) | C25-3BAR |
| 12 | Binary Coded Decimal | CODE BCD |
| 13 | MSI-Plessey | MSI |
| 14 | AIM-USD-8 / Code-11 | Code 11 |
| 15 | AIM-USD-7 / Code-93 | Code 93 |
| 16 | Code 2 of 5 Bidirectional | C25-BID |
| 17 | Code 2 of 5 Interleaved | C25-INT |
| 18 | Code 2 of 5 Industrial | C25-IND |
| 19 | Code 2 of 5 Matrix | C25-MTX |
| 20 | Code 3 of 9 | Code-39 |
| 21 | 8-digits European Article Numbering | EAN-8 |
| 22 | Codabar (all types) | CODABAR |
| 23 | Code 128 | CODE-128 |
| 24 | USPS-PostNet | POSTNET |

f = Readable character printing
f = 1 printing enabled
f = 0 printing disabled
F = Font selection for the printable characters

| F | Selection |
|---|---|
| 0 | Selected font by r value |
| 1 | Default font for text |
| 1 | Special font for OCR-A o OCR-B bar codes according to the t value |
| 3 | Special font for OCR-A bar codes |
| 4 | Special font for OCR-B bar codes |

r = Bar code rotation

| r | Selection |
|---|---|
| 0 | No rotation |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

1 Rotation at 0°
2 Rotation at 90°
3 Rotation at 180°
4 Rotation at 270°

o = A check digit is inserted as the last character of the received string according to the bar code

q = The horizontal graphic density of the bar code

| q | Selection |
|---|---|
| 0 | 1/120" |
| 1 | 1/180" |

b = Narrow bar width in n/180", 3 < b <18
s = Narrow space width in n/180", 3 < s <18
B = Wide bar width in n/180", 6 < B <72
S = Wide space width in n/180", 6 < S <72
i = Spacing between characters in n/180", 3 < i <72

EM = Check sequence terminator

## Bar Code Description

**EAN-8** **DC4 DC4 ESC ! n1pEM**
The EAN-8 bar code data field must only contain numeric data and must be eight bytes long including the check digit. The EAN-8 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.

**EAN-13** **DC4 DC4 ESC ! n2pEM**
The EAN-13 bar code data field must only contain numeric data and must be 13 bytes long including the check digit. The EAN-13 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. If you want to print the Human Readable Characters, pmust have the value 1 (hex. X'01'); otherwise this value must be NUL (hex. X'00'). The range of values for the nand pparameters can be increased of 32 dec.

**UPC-A** **DC4 DC4 ESC ! n3pEM**
The UPC-A bar code data field allows 10 numeric characters plus one system number digit and one check digit at the leftmost and rightmost positions, respectively. The UPC-A character repertoire provides 0 to 9 ASCII numeric figures. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.

**UPC-E** **DC4 DC4 ESC ! n4pEM**
If 11-digit strings are received and the ocheck digit field is missing or takes values 0 or 2, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the 12th digit is inserted by the printer as a result of the internally available algorithm applied to the received string.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

If 10-digit strings are received and the ocheck-digit is missing or takes NULL value, question marks are printed in place of HRC string, if possible. If the ofield takes a value of 1, a default 0 System-Digit is automatically inserted by the printer and the 12th digit is also inserted as result of he internally available algorithm applied to the final string.
If the final UPC-A string cannot be compressed to an 8-digits string, or the received System-Digit is different than 0 or 1, question marks are printed in place of the HRC string, if possible.
The LEFT and RIGHT delimiters, System-Digit, and the Check-Digit are printed as descending bars to make a field to host a 6-digits HRC string. The System-Digit HRC to the left of the LEFT delimiter (at about the middle of the symbol) when the ffield is missing or set to 1. In this case, the Check-Digit shows in HRC to the right of the RIGHT delimiter (at about the middle of the symbol), when ofield takes values 2 or 3. Otherwise it never shows on the HRC string.

**UPC-EAN 2** **DC4 DC4 ESC ! n5pEM**

The ADD ON-2 bar code data fields contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.
If 3-digit strings are received within a DC4 DC4 ESC (... EM control sequence and the o check-digit option field is missing or takes NULL value, the symbol encodes the first 2 digits and the 3rd received digit is used as the check digit, even though this may affect its readability. If the o field takes a value of 1, the 3rd digit is matched as opposed to the internally generated check-digit. Question marks are printed in place of HRC string when mismatched, if possible.
If 2-digit strings are received and ocheck digit field is missing or takes NULL value, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the check digit are computed applying the internally available algorithm to the received string in order to properly encode the symbol.
If the ffield is missing or takes a value of 1, the 2-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height. The check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol's encoding prints at full height.

**UPC-EAN 5** **DC4 DC4 ESC ! n6pEM**

The ADD ON-5 bar code data field contains numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.
If 6-digit strings are received within a DC4 DC4 ESC (... EM control sequence and ocheck-digit option field is missing or takes NULL value, the symbol encodes the first 5 digits and the 6th received digit is used as a check digit, even though this may affect its readability. If the ocheck digit option takes a value of 1, the 6th digit is matched as opposed to the internally generated check digit. Question marks are printed in place of the HRC string when mismatching, if possible.
If 5-digit strings are received and the ocheck digit field is missing or takes a NULL value, question marks are printed in place of the HRC string, if possible. If the ofield takes a value of 1, the check digit is computed applying the internally available algorithm to the received string in order to properly encode the symbol If the ffield is missing or takes a value of 1, the 5-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height; the check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol’s encoding prints at full height.

**CODE GP** **DC4 DC4 ESC ! n10pEM**

The CODE-GP bar code allows bar codes to be constructed from the two basic elements (BAR and SPACE) by sending 0,1 digits: digit 0 produces a BAR and digit 1 produces a SPACE.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

These two elements may be combined in any sequence, giving the possibility of producing bars and spaces of any width that is a multiple of the basic element width. The default bar/spaces width is 1/60" (q= 0,1) but these values may be set by the user according to its specific needs. Data fields do not have a defined format length and contain 0,1 data only. Otherwise question marks are printed in place of HRC string, if possible.
No Human Readable Interpretation is possible No TEXT STRING below or above the bar/space symbol can be printed. The fand ofields are ignored.

**C25-3BAR** **DC4 DC4 ESC ! n11pEM**

The C25-3BAR bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit complying with general 2/5 family algorithm is added to the encoded string. However, it will not show on the required HRC string.

**Code BCD** **DC4 DC4 ESC ! n12pEM**

The CODE-BCD bar code data fields do not have a defined format length and contain numeric data only. Otherwise question marks will be printed in place of the HRC string, if possible. No internal check digit algorithm is available for this standard. The ofield is meaningless.

**MSI Plessey** **DC4 DC4 ESC ! n13pEM**

The MSI bar code data fields do not have a defined format length and must contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible. To releave the host from calculating the MSI check digits, internal algorithms are provided that are accessible by the host application program, giving the proper supported value to the ocheck-digit option field, according to the following options:

| | | | |
|---|---|---|---|
| 0 | Print the bar code symbol with no printer-generated check digits | | |
| 1 | Print the bar code symbol with IBM Modulus-10 check digit -generated by the printer and put at the end of the numeric string. This is the 2nd check digit. The 1st check digit is IBM Modulus-10 also. | 2 | Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is also IBM Modulus-10. |
| 3 | Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is NCR Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible. | 4 | Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is IBM Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible. |
| 5 | Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string, If the modulus is 0 or 1, the check digit is 0. | 6 | Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, the check digit is 0. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| | | | |
|---|---|---|---|
| 7 | Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible. | 8 | Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible. |
| The printer-generated second check digit does not show on the required HRC string. | | | |

**Code 11** **DC4 DC4 ESC ! n14pEM**

The CODE-11 bar code fields do not have a defined format length and contain data belonging to the character set listed below:

0123456789

Otherwise question marks are printed in place of the HRC string, if possible.
This barcode type defines a variable WIDE/NARROW ratio. The bar code is printed at 1/180" horizontal and vertical graphical printing resolution to ensure high readability rate. Each digit encoding is separated from the next by a 1/90"—1/60" wide default Intercharacter Gap.
CODE-11 has unique a START/STOP character. The printer generates the couple related to each symbol. It is visually interpreted by an OPEN TRIANGLE and will always appear on the HRC string because its size is usually varied to signify the number of check digits being used in the particular symbol:

- SMALL open triangle means ONE check-digit
- LARGE open triangle means TWO check-digit

The ffield is meaningless and always defaults to the HRC string print.

**Code 93** **DC4 DC4 ESC ! n15pEM**

The CODE-93 bar code fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes.
Since the GS and EM control codes are used, the DC4 DC4 ESC (... EM “Print bar-code” control sequence is part of the supported character set. The host application must SET THE HIGHER-ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.
The complete ASCII standard character set is encoded using 47 combinations of 9 bar/space narrow elements arranged into 3 variable width bars with their adjacent variable width spaces. Each of the bars in the supported combinations can be 1, 2, or 3 modules wide. The START/STOP character has a 4-module wide bar. CODE-93 directly implements the basic subset as shown below:

0123456789 A BCDEFGHIJKL MNOP QRS T UVWX Y Z-.SPACES$/+%

($) (%) (/) (+) (as special control characters)

# (as unique START/STOP character)

The other STANDARD-ASCII codes not presented above are represented by means of a combination of one control character in the above set followed by a symbol in the alphabetical set. The HRC string is printed BELOW the symbol when ffield is set to 1 without



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

check digits. Non-printable ASCII characters are represented in the “control code” format (for example, CR is ^M, where “control” is represented as DARK-SQUARE symbol).

**2of5** **DC4 DC4 ESC ! n16pEM**
Bidirectional The BID-25 bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit is added to the encoded string that will not show on the required HRC string.

**2of5** **DC4 DC4 ESC ! n17pEM**
Interleaved The 2/5-INTERLEAVED bar code does not have a defined format length. However, the total sum of the characters must be even. nindicates the bar code height and must be in the range 1 to 12. p must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

**2of5** **DC4 DC4 ESC ! n18pEM**
Industrial The 2/5 INDUSTRIAL bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

**2of5** **DC4 DC4 ESC ! n19pEM**
The 2/5 MATRIX bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

**Code 39** **DC4 DC4 ESC ! n20pEM**
The CODE 39 bar code. Data format length is variable and must always start and end with an asterisk. It can contain the alphanumeric character listed below:

0123456789
ABCDEFGHIJKL MNOP QRS T UVWX Y Z -. SPACE$/+%*(as start / stop character)

The parameter indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. The pparameter must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

**CODABAR** **DC4 DC4 ESC ! n22pEM**
The Codabar bar code data fields do not have a defined format length and contain data belonging to the character set listed hereafter:

0123456789-$:/.+

ABCDEN T *abcdent (only as START/STOP characters)
The printer allows any combination of START/STOP characters. If the first and last characters of the received string do not belong to the START/STOP characters subset, question marks are printed in place of the HRC string, if possible

**CODE 128** **DC4 DC4 ESC ! n23pEM**
The CODE-128 bar code data fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes. Since the GS and EM control codes used within the DC4 DC4 ESC (...EM “Print Bar Code” control sequence are part of the supported character set, the host application must SET THE HIGHER-



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.

**POSTNET** **DC4 DC4 ESC ! n24pEM**
The POSTNET bar code data fields contain only numeric data and do not have a defined format length. POSTNET bar codes have no printed HRC string. The LOW/TALL bars that encode the symbol comply with the U.S.P.S standard regardless of the p field value.

## DC4 DC4 ESC (GS

**Prints bar code symbols.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC (GS n1 data GS n2 data ... EM |
| Hexadecimal Value | X'14' X'14' X'1B' X'28' X'1D' n1 data ... 19 |
| Decimal Value | 20 20 27 40 29 n1 data ... 25 |
| Range | 1 = n = 12<br>0 = p = 1 |

This sequence prints the bar code symbol according to the previous selection. If you want to print more than one bar code symbol of the same type and height, GS n defines the distance from the beginning of the line or between two bar code symbols in multiples of 1/60 or 1/90 of an inch, depending upon the selected barcode density (120 or 180 dpi). At the end of the line EM must close this command.

# Miscellaneous

## DC4 DC4 ESC @

**Re-initializes the printer.**
ASCII Code DC4 DC4 ESC @
Hexadecimal Value X'14' X'14' X'1B' X'40'
Decimal Value 20 20 27 64
This command resets the printer mode and clears the buffer of printable data.

## DC4 DC4 ESC J

**Sets amplification factor.**
ASCII Code DC4 DC4 ESC J hv
Hexadecimal Value X'14' X'14' X'1B' X'4A' hv
Decimal Value 20 20 27 74 hv

This command sets the required amplification factor to be applied to the current font.

h It is the horizontal amplification factor; the value range is 1 to 4. It is applied to the basic symbols.
It is the vertical amplification factor; the value range is 1 to 4.
0 values for either the hand vparameters keep the related current amplification factor unchanged.

The internally available symbol's amplification algorithms support the following character attributes that may be selected by means of the available control sequences within the currently active emulation: double width, double-height, emphasized, double strike, subscript, superscript, italics, proportional, and compressed.
Doublewide and double-high attributes must be lower than 2.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## DC4 DC4 ESC N

**Selects/loads or parks the fanfold from the Front 2 path.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC N n |
| Hexadecimal Value | X'14' X'14' X'1B' X'4E' n |
| Decimal Value | 20 20 27 78 n |
| Range | 0 = n= 1 |

| n | Selection |
|---|---|
| 0 | Selects and loads the fanfold from the Front2 path. If the paper is present, the printer automatically parks the fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message). |
| 1 | Parks the fanfold loaded from the Front2 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message). |

## DC4 DC4 ESC R

**String rotation.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC R n string EM |
| Hexadecimal Value | X'14' X'14' X'1B' X'52' n string EM |
| Decimal Value | 20 20 27 82 n string EM |

| n | Selection |
|---|---|
| 0 | No rotation. |
| 1 | Rotation at 0° |
| 2 | Rotation at 90° |
| 3 | Rotation at 180° |
| 4 | Rotation at 270° |

## DC4 DC4 ESC r

**Digit rotation.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC r |
| Hexadecimal Value | X'14' X'14' X'1B' X'72' |
| Decimal Value | 20 20 27 144 |

This command is used to set the required character rotation to be applied to the selected font.

| n | Selection |
|---|---|
| 0 | No rotation. |
| 1 | Rotation at 0° |
| 2 | Rotation at 90° |
| 3 | Rotation at 180° |
| 4 | Rotation at 270° |

## DC4 DC4 ESC T

**Selects/loads or parks the fanfold from the Front1 path.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC T n |
| Hexadecimal Value | X'14' X'14' X'1B' X'54' n |
| Decimal Value | 20 20 27 84 n |
| Range | 0 = n = 1 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| n | Selection |
|---|---|
| 0 | Selects and loads the fanfold from the Front1 path. If the paper is present (cut sheet/fanfold), the printer automatically parks this fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message). |
| 1 | Parks the fanfold loaded from the Front1 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message). |

## DC4 DC4 ESC Y

**Selects emulation.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC Y n |
| Hexadecimal Value | X'14' X'14' X'1B' X'59' n |
| Decimal Value | 20 20 27 89 n |

Selects the printer emulation type according to the n parameter value:

| n | Emulation |
|---|---|
| 0 | Default printer emulation |
| 1 | EPSON FX Series |
| 2 | IBM Proprinter XL III |
| 5 | IBM 2381+ |

## DC4 DC4 ESC Z

**Makes AGA in column.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC Z n |
| Hexadecimal Value | X'14' X'14' X'1B' X'5A' n |
| Decimal Value | 20 20 27 90 n |

The n parameter is the column number at 10 cpi where the AGA (Automatic Gap Adjustment) is made.

## DC4 DC4 ESC u

**Selects the user macros.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC u n |
| Hexadecimal Value | X'14' X'14' X'1B' X'75' n |
| Decimal Value | 20 20 27 117 n |
| Range | 0 = n = 4 |

| n | Selection |
|---|---|
| 1 | Selects User Macro 1 |
| 2 | Selects User Macro 2 |
| 4 | Selects User Macro 3 |
| 5 | Selects User Macro 4 |

## DC4 DC4 ESC D

**Sends the operator panel messages to the serial I/F.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC D n |
| Hexadecimal Value | X'14' X'14' X'1B' X'44' n |
| Decimal Value | 20 20 27 68 n |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This command enables or disables sending operator panel messages to the serial I/F. The string to send is the following: STX “message (16 ASCII byte-characters)”EXT.

| n | Selection |
|---|---|
| 0 | enabled |
| 1 | disabled |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 3. ANSI Emulation Commands

The following printer commands are supported by this printer according to the ANSI X3.64 emulation.

Most dimensional parameters in ANSI protocol are expressed in “decipoints”. For example:

| | |
|---|---|
| 1 decipoint | = 1/720 inch |
| 72 decipoints | = 1/10 inch |
| 120 decipoints | = 1/6 inch |
| 720 decipoints | = 1 inch |
| 2880 decipoints | = 4 inches |

All parameter values must be expressed as ASCII numeric rather than binary values.

Parameters, within commands with multiple parameters, must be separated by a semicolon “;”.

See “Basic Program Sample” at the end of this chapter and result printed by the printer.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Character Set Control

## ESC [ p1 x

**Selects national character set (Select National Characters -SNC).**

| | |
|---|---|
| ASCII Code | ESC [ p1 x |
| Hexadecimal Value | X'1B' X'5B' p1 X'78' |
| Decimal Value | 27 91 p1 120 |

This command selects the national character set table according to the p1 parameter value. See the following tables:

Table 1. 7-bit Substitution

| p1 | NATION | p1 | NATION |
|---|---|---|---|
| 0 | USA | 13 | Swedish/Finnish A |
| 1 | Germany | 14 | Swedish/Finnish B |
| 2 | French A | 15 | Swedish/Finnish C |
| 3 | French B | 16 | Swedish/Finnish D |
| 4 | French Canadian | 17 | Switzerland |
| 5 | Netherlands | 18 | USA (ISO) |
| 6 | Italian | 19 | Yugoslavia |
| 7 | United Kingdom | 20 | United Kingdom A |
| 8 | Spanish | 21 | Turkey |
| 9 | Danish/Norwegian A | 22 | Greece |
| 10 | Danish/Norwegian B | 25 | Cyrillic |
| 11 | Danish/Norwegian C | | |
| 12 | Danish/Norwegian D | | |

**See the tables in “ANSI National Variations”.**



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 2. 8-bit Substitution

| p1 | CHARACTER SETS |
|---|---|
| 437 | Code Page 437 |
| 850 | Code Page 850 |
| 851 | Code Page 851 |
| 852 | Code Page 852 |
| 853 | Code Page 853 |
| 855 | Code Page 855 |
| 858 | Code Page 858 (Euro symbol included) |
| 860 | Code Page 860 |
| 863 | Code Page 863 |
| 864 | Code Page 864 |
| 865 | Code Page 865 |
| 866 | Code Page 866 |
| 867 | Code Page 867 |
| 1250 | Code Page 1250 |
| 5915 | ISO 8859-15 (Euro symbol included) |
| 8570 to 8575 | Reserved |
| 8576 | Mazowia |
| 8577 | Turkish |
| 8578 | Greek |
| 8579 | Kamenicky |
| 8580 | CWI |
| 8581 | Roman-8 |
| 8582 | IN2 |
| 8583 | Code Page 864E |
| 8584 | Reserved |
| 8585 | Bulgarian |
| 8586 to 8590 | Reserved |
| 8591 | ISO 8859-1 Western Europe |
| 8592 | SO 8859-2 Eastern Europe |
| 8593 | ISO 8859-3 Southern Europe |
| 8594 | ISO 8859-4 Northern Europe |
| 8595 | ISO 8859-5 Cyrillic |
| 8596 | ISO 8859-6 Arabic |
| 8597 | ISO 8859-7 Greek |
| 8598 | ISO 8859-8 Hebrew |
| 8599 | ISO 8859-9 Southern Europe 2 |
| 8600 to 8700 | Reserved for other ISO Tables |

**See the tables in “Character Sets”.**



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Character Pitch and Print Modes

## ESC [ p1; ... pn m

**Select graphics rendition (SGR).**

ASCII Code ESC [ p1; ... pn m
Hexadecimal Value X'1B' X'5B' p1 X'3B' ... pn X'6D'
Decimal Value 27 91 p1 59 ... pn 109

This command selects fonts, pitch, print modes, and character styles according to the parameter settings:

| p | DEFINITION |
|---|---|
| 0 | Normal Print Mode |
| 1 | Bold Print Mode |
| 2 | Subscript Mode |
| 3 | Superscript Mode |
| 4 | Underline Mode |
| 5 | Expanded Mode |
| 6 | Proportional |
| 7 | Italic Mode |
| 8, 9 | Reserved |
| 10 | Draft Font |
| 11 | Draft Font |
| 12 | LQ Gothic |
| 13 | Draft Font |
| 14 | LQ Courier |
| 15 | Draft Italic |
| 16 | LQ Gothic Italic |
| 17 | Draft Italic |
| 18 | LQ Courier Italic |
| 19 | Draft |
| 20 | Reserved |

| p | DEFINITION |
|---|---|
| 21 | Double Underline Mode |
| 22 | Cancel Bold Mode |
| 23 | Reserved |
| 24 | Cancel Underline Mode (Single & Double) |
| 25 | Cancel Expanded Mode |
| 26 | Cancel Proportional Mode |

Subscript and Superscript modes are enabled through the System Menu (ANSI OPTIONS-S/SCRIPT YES). Refer to the Administrators Manual.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1; p2 SP B

**Graphic size modification (GSM).**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 SP B |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'20' X'42' |
| Decimal Value | 27 91 p1 59 p2 32 66 |

This command sets the height and/or width of expanded and oversized characters.

The p1 and p2 parameters are the percentages by which the height and width will be multiplied, respectively. The default values of p1 and p2 are 100%.
The maximum expansion factor is18700 for oversize mode and 800 for expanded mode, respectively.

## ESC [ p1 t

**Special print mode (Oversize/Expanded/Bar code Mode -SPM).**

| | |
|---|---|
| ASCII Code | ESC [ p1 t |
| Hexadecimal Value | X'1B' X'5B' p1 X'74' |
| Decimal Value | 27 91 p1 116 |

This sequence selects or deselects oversize expanded or bar code mode according to the p1 parameter value. See the following table:

| **p1** | **FUNCTION** |
|---|---|
| 0 | Cancel special mode |
| 1 | Select oversize mode |
| 2 | Select expanded mode |
| 3 | Select bar code mode |

It can select just one special print mode at a time.

## SO

**Shift out.**

| | |
|---|---|
| ASCII Code | SO |
| Hexadecimal Value | X'0E' |
| Decimal Value | 14 |

This code enables Expanded/Oversize mode as determined by the last received ESC [ p1 t command.

## SI

**Shift in.**

| | |
|---|---|
| ASCII Code | SI |
| Hexadecimal Value | X'0F' |
| Decimal Value | 15 |

This code disables Expanded/Oversize mode as determined by the last received ESC [ p1 t command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1; pn {

**Unidirectional printing (UDP).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn { |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'7B' |
| Decimal Value | 27 91 p1 59 pn 123 |

This command selects the unidirectional or bidirectional printing according to the p parameter values. See the following table:

| p | FUNCTION |
|---|---|
| 0 | Cancel unidirectional printing |
| 1 | Print unidirectional LQ and DP |
| 2 | Print unidirectional Dot Graphics |

# Horizontal Movements

## BS

Back space.

| | |
|---|---|
| ASCII Code | BS |
| Hexadecimal Value | X'08' |
| Decimal Value | 8 |

The BS code moves the print head one character to the left at the current cpi.

## CR

**Carriage return.**

| | |
|---|---|
| ASCII Code | CR |
| Hexadecimal Value | X'0D' |
| Decimal Value | 13 |

This code causes the print head to be moved to the left margin on the current line.

## SP

**Space.**

| | |
|---|---|
| ASCII Code | SP |
| Hexadecimal Value | X'20' |
| Decimal Value | 32 |

This code positions one character space to the right of the print position.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1 '

**Horizontal position absolute (HPA).**

| | |
|---|---|
| ASCII Code | ESC [ p1 ' |
| Hexadecimal Value | X'1B' X'5B' p1 X'60' |
| Decimal Value | 27 91 p1 96 |

This command causes the print position to be moved to the decipoint location specified by p1. This sequence can be used to print within the left, top, and bottom margins.

## ESC [ p1 a

**Horizontal position relative (HPR).**

| | |
|---|---|
| ASCII Code | ESC [ p1 a |
| Hexadecimal Value | X'1B' X'5B' p1 X'61' |
| Decimal Value | 27 91 p1 97 |

This command moves the print position to the right, relative to the current position. The p1 parameter specifies the number of decipoints. This command cannot be used to move beyond the right margin.

## ESC [ p1; p2 s

**Left/right margin set (SLR).**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 s |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'73' |
| Decimal Value | 27 91 p1 59 p2 115 |

This command sets the left and right margin values. The p1 parameter specifies the decipoint value of the left margin. The p2 parameter specifies the decipoint value of the right margin value. The default value for the left margin is 0. The value for the right margin is the maximum width supported by the printer configuration (that is 13.6*720=9792).

## ESC [ p1 j

**Horizontal position backward (HPB).**

| | |
|---|---|
| ASCII Code | ESC [ p1 j |
| Hexadecimal Value | X'1B' X'5B' p1 X'6A' |
| Decimal Value | 27 91 p1 106 |

This command causes the current horizontal position to be moved backwards as specified by the p1 parameter (decipoints).

## HT

**Horizontal tab.**

| | |
|---|---|
| ASCII Code | HT |
| Hexadecimal Value | X'09' |
| Decimal Value | 9 |

This code causes the print head to be moved to the next tab stop.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC H or HTS

**Horizontal tab setting.**

| | |
|---|---|
| ASCII Code | ESC H or HTS |
| Hexadecimal Value | X'1B' X'48' (7-bit) or X'88' (8-bit) |
| Decimal Value | 27 72 (7-bit) or 136 (8-bit) |

This command causes a horizontal tab stop to be set to the decipoint value of the current print position.

## ESC [ p1; pn u

**Sets horizontal tab stops at specified positions multiple horizontal tab set (HTS).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn u |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'75' |
| Decimal Value | 27 91 p1 59 pn 117 |

This command sets up to 22 horizontal tab stops at each decipoint position specified by p parameters. When specifying more than one position, enter the parameters in ascending order.

# Vertical Movements

## LF

**Line feed.**

| | |
|---|---|
| ASCII Code | LF |
| Hexadecimal Value | X'0A' |
| Decimal Value | 10 |

This code positions the paper one line space as indicated by the current line spacing value.

## ESC D or IND

**Index.**

| | |
|---|---|
| ASCII Code | ESC D or IND |
| Hexadecimal Value | X'1B' X'44' (7-bit) or X'84' (8-bit) |
| Decimal Value | 27 68 (7-bit) or 132 (8-bit) |

This command causes the paper to be positioned down one line space as indicated by the current line spacing value.

## ESC E or NEL

**Next line.**

| | |
|---|---|
| ASCII Code | ESC E or NEL |
| Hexadecimal Value | X'1B' X'45' (7-bit) or X'85' (8-bit) |
| Decimal Value | 27 69 (7-bit) or 133 (8-bit) |

This command causes the paper to be positioned down one line space as indicated by the current line spacing value. The column counter is reset to the left margin value.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC K or PLD

**Partial line down.**

| | |
|---|---|
| ASCII Code | ESC K or PLD |
| Hexadecimal Value | X'1B' X'4B' (7-bit) or X'8B' (8-bit) |
| Decimal Value | 27 75 (7-bit) or 139 (8-bit) |

This command causes the paper to be positioned down one half line space at the current line spacing value. This can create an appearance of subscripting. This sequence is also used after an ESC L (partial line up sequence) to recover the original active vertical position.

## ESC L or PLU

**Partial line up.**

| | |
|---|---|
| ASCII Code | ESC L or PLU |
| Hexadecimal Value | X'1B' X'4C' (7-bit) or X'8C' (8-bit) |
| Decimal Value | 27 76 (7-bit) or 140 (8-bit) |

This command causes the paper to be positioned up one half line space at the current line spacing value. This can create an appearance of superscripting. This sequence is also used after an ESC K (partial line down sequence) to recover the original active vertical position.

## ESC M or RI

**Reverse index.**

| | |
|---|---|
| ASCII Code | ESC M or RI |
| Hexadecimal Value | X'1B' X'4D' (7-bit) or X'8D' (8-bit) |
| Decimal Value | 27 77 (7-bit) or 141 (8-bit) |

This command causes the paper to be positioned up one line space at the current line spacing value.

## ESC [ p1 d

**Vertical position absolute (VPA).**

| | |
|---|---|
| ASCII Code | ESC [ p1 d |
| Hexadecimal Value | X'1B' X'5B' p1 X'64' |
| Decimal Value | 27 91 p1 100 |

This command causes the current vertical position to be set to the decipoint value specified by the p1 parameter relative to the top most line of the current form length. This sequence can be used to print within the top and the bottom margins.

## ESC [ p1 e

**Vertical position relative (VPR).**

| | |
|---|---|
| ASCII Code | ESC [ p1 e |
| Hexadecimal Value | X'1B' X'5B' p1 X'65' |
| Decimal Value | 27 91 p1 101 |

This command causes the current vertical position to be advanced to the position specified by the p1 parameter (in decipoints) relative to the current print line position.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1; p2 f

**Horizontal and vertical position absolute (HVP).**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 f |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'66' |
| Decimal Value | 27 91 p1 59 p2 102 |

This command causes the current print position to be moved to the vertical (p1) and horizontal (p2) decipoint locations specified relative to the top left corner of the page.

This sequence can be used to print within the right, left, top and bottom margins.

## ESC [ p1 k

**Vertical position backward (VPB).**

| | |
|---|---|
| ASCII Code | ESC [ p1 k |
| Hexadecimal Value | X'1B' X'5B' p1 X'6B' |
| Decimal Value | 27 91 p1 107 |

This command causes the current vertical position to be moved backwards as specified by the p1 parameter (decipoints) relative to the current print line position.

## ESC [ p1; pn g

**Tab clear (TBC).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn g |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'67' |
| Decimal Value | 27 91 p1 59 pn 103 |

This command clears horizontal and vertical tab stops. If no parameter is present, the horizontal tab stop at the current position is cleared (default).

| **p** | **DESCRIPTION** |
|---|---|
| 0 (default) | Clear horizontal tab at current position |
| 1 | Clear vertical tab at current position |
| 2 | Clear all horizontal tab stops |
| 3 | Clear all vertical tab stops |

## VT

**Vertical tab.**

| | |
|---|---|
| ASCII Code | VT |
| Hexadecimal Value | X'0B' |
| Decimal Value | 11 |

This code causes printing to be moved to the left margin at the next vertical tab stop.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC J or VTS

**Vertical tab setting.**

| | |
|---|---|
| ASCII Code | ESC J or VTS |
| Hexadecimal Value | X'1B' X'4A' (7-bit) or X'8A' (8-bit) |
| Decimal Value | 27 74 (7-bit) or 138 (8-bit) |

This command causes a vertical tab stop to be set to the decipoint value of the current vertical position.

## ESC [ p1; pn v

**Sets vertical tab stops at specified positions (Multiple Vertical Tab Set -VTS).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn v |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'76' |
| Decimal Value | 27 91 p1 59 pn 118 |

This command sets up to 12 vertical tab stops at each decipoint position specified by p parameters. The tab stops are measured from the top of the page. When specifying more than one position, enter the parameters in ascending order.

## FF

**Form feed.**

| | |
|---|---|
| ASCII Code | FF |
| Hexadecimal Value | X'0C' |
| Decimal Value | 12 |

This code causes the data in the print buffer to be printed out and then advances the paper to the top of the next form.

## ESC [ p1; p2; p3 r

**Form definition (FD).**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2; p3 r |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'3B' p3 X'72' |
| Decimal Value | 27 91 p1 59 p2 59 p3 114 |

This command sets the page length, top and bottom margins.

The p1, p2 and p3 parameters specify the decipoint values.

| **pn** | **FUNCTION** |
|---|---|
| p1 | Page Length |
| p2 | Top Margin Position From the Beginning of the Page |
| p3 | Bottom Margin Position From the End of the Page |

The maximum page length value is 15840 decipoints (22 inches).



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1; p2 <SP> G

**Sets the line/character spacing.**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 <SP> G |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'20' X'47' |
| Decimal Value | 27 91 p1 59 p2 32 71 |

This command sets the spacing between lines (p1 parameter) and the horizontal character pitch (p2 parameter) in decipoints.

If the vertical spacing value exceeds the current form length, this setting is ignored.

# Interface Control

## NUL

Ignored.

| | |
|---|---|
| ASCII Code | NUL |
| Hexadecimal Value | X'00' or NUL |
| Decimal Value | 00 |

This code is ignored.

## ENQ

**Enquiry.**

| | |
|---|---|
| ASCII Code | ENQ |
| Hexadecimal Value | X'05' |
| Decimal Value | 5 |

This code is used to request the message string defined by the OSC command when parameter p1=8 is transmitted to the host.

## DC1

**Selects printer (Data Control 1).**

| | |
|---|---|
| ASCII Code | DC1 |
| Hexadecimal Value | X'11' |
| Decimal Value | 17 |

In parallel interface, this code reselects the printer after the printer has been deselected by a DC3 code.

In serial interface, this code is sent from the printer to the host to indicate that the printer is ready to receive data.

## DC3

**Deselects printer (Data Control 3).**

| | |
|---|---|
| ASCII Code | DC3 |
| Hexadecimal Value | X'13' |
| Decimal Value | 19 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

In parallel interface, this code causes the printer to enter the standby condition until a DC1 code is received.
In serial interface, this code is sent from the printer to the host to indicate that it is not ready to receive data.

# Operating System Control

## BEL

**Bell.**

| | |
|---|---|
| ASCII Code | BEL |
| Hexadecimal Value | X'07' |
| Decimal Value | 7 |

This code causes the buzzer to sound for about 0.5 second.

## DEL

**Delete.**

| | |
|---|---|
| ASCII Code | DEL |
| Hexadecimal Value | X'7F' |
| Decimal Value | 127 |

In parallel interface, this code causes the last received character to be deleted.

## ESC

**Escape.**

| | |
|---|---|
| ASCII Code | ESC |
| Hexadecimal Value | X'1B' |
| Decimal Value | 27 |

This code is used as an escape sequence introducer.

## ESC\ or ST

**String terminator.**

| | |
|---|---|
| ASCII Code | ESC \ or ST |
| Hexadecimal Value | X'1B' X'5C' (7-bit) or X'9C' (8-bit) |
| Decimal Value | 27 92 (7-bit) or 156 (8-bit) |

This command closes the other escape sequences including the operating system and dot graphics commands.

## ESC Q or PU1

**Executes Selftest.**

| | |
|---|---|
| ASCII Code | ESC Q or PU1 |
| Hexadecimal Value | X'1B' X'51' (7-bit) or X'91' (8-bit) |
| Decimal Value | 27 81 (7-bit) or 145 (8-bit) |

In serial interface, upon receipt of this command the printer transmits 1B 50 30 1B 5C.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC c

**Resets to initial state (RIS).**

| | |
|---|---|
| ASCII Code | ESC c |
| Hexadecimal Value | X'1B' X'63' |
| Decimal Value | 27 99 |

This command writes the printer parameters from the stored format assigned to the current path into the current format.

## ESC k

**Prints test character (PTC).**

| | |
|---|---|
| ASCII Code | ESC k |
| Hexadecimal Value | X'1B' X'6B' |
| Decimal Value | 27 107 |

This sequence causes one line of the print head test character to be printed.

## ESC [ p1; ... pn h

**Sets mode (SM).**

| | |
|---|---|
| ASCII Code | ESC [ p1; ... pn h |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' ... pn X'68' |
| Decimal Value | 27 91 p1 59 ... pn 104 |

This command sets a specific print mode according to the parameter value. If the first parameter (p1)is preceded by a “>” symbol then all parameters are interpreted as proprietary defined parameters. If the “>” character is not specified, all parameters are interpreted as ANSI defined parameters.

The proprietary defined parameter values are:

| p | MNEMONIC | MODE FUNCTION |
|---|---|---|
| 1 | PRM0 | Proportional Print Mode |
| 2 | CSI | Single Character CSI Mode |
| 3 | BLD | Bold Mode |
| 4 | CS2 | Character Set 2 Mode |

The ANSI defined parameter values are:

| p | MNEMONIC MODE FUNCTION |
|---|---|
| 0 | Ignored |
| 20 | LNM Auto CR on LF |

## ESC p1; pn l

**Resets mode (RM).**

| | |
|---|---|
| ASCII Code | ESC p1; pn l |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'6C' |
| Decimal Value | 27 91 p1 59 pn 108 |

This sequence resets the print mode(s) indicated by the p1/pn parameter(s).



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## ESC [ p1; p2 SP~

**Selects emulation (EMU).**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 SP~ |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' p2 X'20' X'7E' |
| Decimal Value | 27 91 p1 59 p2 32 126 |

This sequence selects the emulation according to p values. The p1 parameter is an emulation identifier value while p2 is a reset control value.
The proprietary defined parameter values are:

| p1 | p2 | FUNCTION |
|---|---|---|
| 0 | | ANSI |
| 1 -20 | | Reserved |
| 21 | | IBM Proprinter XL 24/24E |
| 22 | | EPSON LQ 1050 |
| | 0 | Hold values (default). The current settings remain valid after changing the printer emulation. |
| | 1 | Full reset. The status of such parameters reverts to defaults dependent on the selected emulation. |

To select ANSI mode from the Proprinter XL 24 mode and maintain the parameters, the sequence would be: <ESC>[0; 0<SP>~ Leading zeros and defaulting parameters are not guaranteed to be parsed and therefore should not be used by the application. Parameter p1 & p2 will be expressed as ASCII, not binary, values. In the example above, “0” is “30H”, not “00H”.

# Paper Path Selection

## ESC [ p1; pn p

**Assign source for forms.**

| | |
|---|---|
| ASCII Code | ESC [ p1; p2 p |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'70' |
| Decimal Value | 27 91 p1 59 pn 32 112 |

This command controls the modes of paths for parking, loading paper. The p parameter is an ASCII value.

See the following table:

| P | PAPER PATH CONTROL |
|---|---|
| 0-7 | Reserved |
| 8 | Park paper in the current path. Fanfold can be moved backwards for two form lengths. This creates a “Paper Out” fault condition that exists until paper is loaded from the control panel. |
| 9 | Load Paper from the selected paper path. |
| 10 | Select and load paper from the Front2 (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected. |
| 11 | Select and load paper from the Front 1. The current paper will be parked. |
| 13 | Select and load paper from the Front 2. (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected. |
| 14 | Reserved |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Barcode Functions

## ESC [ p1; pn }

**Sets bar code parameters (BC).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn } |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'7D' |
| Decimal Value | 27 91 p1 59 pn 125 |

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: **Bar code style**

| p1 | FUNCTION |
|---|---|
| 0 | Interleaved 2 of 5 |
| 1 | Bidirectional 2 of 5 |
| 2 | Matrix 2 of 5 |
| 3 | Industrial 2 of 5 |
| 4 | Code 3 of 9 (default) |
| 5 | EAN-8 |
| 6 | EAN-13 |
| 7 | Code 11 |
| 9 | Codabar (default start/stop = a/t) |
| 10 | Codabar (default start/stop = b/n) |
| 11 | Codabar (default start/stop = c/*) |
| 12 | Codabar (default start/stop = d/e) |
| 13 | UPC-A |
| 14 | UPC-E |
| 15 | Code 93 |
| 16 | Code 128 (subset A, B and C) |
| 17 | Code 128 (subset A, B and C) |
| 18 | Code 128 (subset A, B and C) |
| 19 | MSI |
| 20 | UPC 2 Supplemental |
| 21 | UPC 5 Supplemental |
| 22 | EAN 2 Supplemental |
| 23 | EAN 5 Supplemental |
| 50 | Postnet |

p2: **Barcode Height**

| p2 | FUNCTION |
|---|---|
| 1 | Minimum bar code height (1/12 inch) |
| 120 | Maximum bar code height (10 inches) |
| 12 | Default bar code height (1 inch) |

p3: **Human Readable Input (HRI)**

| p3 | FUNCTION |
|---|---|
| 0 | Disables printing of the HRI |
| 1 | Enables printing of the HRI (default) |

p4: **Narrow Bar**

Default width value: 2 (120, 144 and 180 dpi)

p5: **Wide Bar Width**

Default width value: 3 (120, 144 dpi), 4 (180 dpi)

p6: **Narrow Space Width**

Default width value: 6 (120, 144 and 180 dpi)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

p7: **Wide Space Width**
Default width value: 7 (120, 144 dpi), 8 (180 dpi)
p8: **Intercharacter Space Width**
Default width value: 3 (120, 144 dpi), 4 (180 dpi)
p9: **Rotation**

| p9 | FUNCTION |
|---|---|
| 0 | 0 degrees using current font |
| 1 | 0 degrees using special HRI font |
| 2 | 90 degrees using special HRI font |
| 3 | 180 degrees using special HRI font |
| 4 | 270 degrees using special HRI font |

p10: **Horizontal Print Density for Bar Codes Printed**

| p10 | FUNCTION |
|---|---|
| 1 | 120 dpi horizontal density |
| 2 | 144 dpi horizontal density (Reserved) |
| 3 | 180 dpi horizontal density |

p11: **Check Digit**

| p11 | FUNCTION |
|---|---|
| 0 | No check digit requested (default) |
| 1 | Check digit requested |

p12: **Human Readable Font -Reserved**
p13: **Bar Code Height (in 1/24th-inch increments) -Reserved**



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Basic Program Sample

```
100 DEFSTR      DEFSTR          E:ESC=CHRS(27) 'Define Escape character
110 WIDTH       WIDTH           .LPT1:*,255
120 LPRINT      LPRINT          .FOLLOWING ARE SOME OF THIS PRINTER'S .;
121 LPRINT      LPRINT          .FEATURES USING THE ANSI EMULATION.
130 LPRINT      LPRINT          ESC;.[;72 C.;.10 CPI (PICA).
140 LPRINT      LPRINT          ESC;.[;60 G.;.12 CPI (ELITE).
150 LPRINT      LPRINT          ESC;.[;48 G.;.15 CPI.
160 LPRINT      LPRINT          ESC;.[;72 C.;.10 CPI.
170 LPRINT      LPRINT
180 LPRINT      LPRINT          ESC;.[6m.;.PROPOERTIONAL MODE.
190 LPRINT      LPRINT          ESC;.[0m.;.BACK TDO NORMAL.
200 LPRINT      LPRINT
210 LPRINT      LPRINT          ESC;.5m.;.DOUBLE-WIDE MODE.
220 LPRINT      LPRINT          LPRINT ESC;.0m':.BACK TO NORMAL.
230 LPRINT      LPRINT
240 LPRINT      LPRINT          LPRINT ESC;.[1m.;.BOLD PRINTING.
250 LPRINT      LPRINT          LPRINT ESC;.[0m.;.BACK TO NORMAL.
260 LPRINT      LPRINT          LPRINT ESC;.[1m.;.BOLD PRINTING.
270 LPRINT      LPRINT          LPRINT ESC;.[0m.;.BACK TO NORMAL.
280 LPRINT      LPRINT
290 LPRINT      LPRINT          ESC;.L.;.PARTIAL LINE UP .;
300 LPRINT      LPRINT          ESC;.K.;./ .;
310 LPRINT      LPRINT          ESC;.L.;.BACK TO NORMAL.
320 LPRINT      LPRINT
340 LPRINT      LPRINT          ESC;.[4m.;.UNDERLINE MODE.
350 LPRINT      LPRINT          ESC;.[0m.;.BACK TO NORMAL.
260 LPRINT      LPRINT          .
370 LPRINT      LPRINT          123.;
371 LPRINT      LPRINT          '456.
380 LPRINT      LPRINT          .123456789012345678901234567890123456789O.;
381 LPRINT      LPRINT          .12345678901234567890.
390 LPRINT      LPRINT
400 LPRINT      LPRINT          ESC;.[10m.;.DRAFT PRINT MODE.
410 REM         REM
420 LPRINT      LPRINT          ESC;.[720;2880s.
430 REM         REM
440 LPRINT      LPRINT          .LEFT MARGIN NOW BEGINS AT 1 INCH AND .;
441 LPRINT      LPRINT          .RIGHT MARGIN NOW ENDS AT 4 INCHES.
450 LPRINT      LPRINT          ESC;.[0;9792S.
460 REM
470 LPRINT                      .LEFT MARGIN NOW BEGINS AT 0 INCH AND .;
471 LPRINT                      .RIGHT MARGIN NOW ENDS AT 13.6 INCHES.
480 LPRINT
490 LPRINT                      ESC;.[62m.;.LQ PRINT MODE .
500 LPRINT
510 LPRINT                      ESC;.[120; G.;
520 FOR                         [=1 TO 3
530 LPRINT                      .1/6 INCH LINE FEED.

540 NEXT                        I
550 LPRINT
560 LPRINT                      ESC;.[90; G.;
570 FOR                         J=1 TO 3
580 LPRINT                      .1/8 INCH LINE FEED.
590 NEXT                        J
600 LPRINT                      ESC;.[120; G.;.NOW 1/6 INCH LINE FEED.
610 LPRINT                      .A FORMFEED <FF> FOLLOWS THIS LINE.;CHR$(12)
620 END
```



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Basic Program Printed Output

```
FOLLOWING ARE SOME OF THIS PRINTER'S FEATURES USING THE ANSI EMULATION
10 CPI (PICA)
12 CPI (ELITE)
15 CPI
10 CPI

PROPORTIONAL MODE
BACK TO NORMAL

DOUBLE-WIDE MODE
BACK TO NORMAL

BOLD PRINTING
BACK TO NORMAL
BOLD PRINTING
BACK TO NORMAL
PARTIAL LINE UP
                / PARTIAL LINE DOWN BACK TO NORMAL

UNDERLINE MODE
BACK TO NORMAL

          1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678901234567890

DRAFT PRINT MODE
          LEFT MARGIN NOW BEGINS AT 1 IN
          CH AND RIGHT MARGIN NOW ENDS A
          T 4 INCHES

LEFT MARGIN NOW BEGINS AT 0 INCH AND RIGHT MARGIN NOW ENDS AT 13.6 INCHES

LQ PRINT MODE

1/6 INCH LINE FEED
1/6 INCH LINE FEED
1/6 INCH LINE FEED

1/8 INCH LINE FEED
1/8 INCH LINE FEED
1/8 INCH LINE FEED
NOW 1/6 INCH LINE FEED
A FORMFEED <FF> FOLLOWS THIS LINE
```



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 4. Intelligent Printer Commands

This chapter explains the concepts of the Intelligent Printer Data Stream (IPDS). IPDS is an orderable feature for your printer. The intent of this chapter is to provide a basic overview of how IPDS works. The Intelligent Printer Data Stream Reference provides detailed information about IPDS programming in general while Chapter 5, “IPDS Programming Information,” provides a detailed description of the IPDS commands that the Printronix Model S828 printer uses. If the programming information in the Intelligent Printer Data Stream Reference is different from the programming information in this manual, use this manual to program the Printronix Model S828 printer.

## Overview

The Intelligent Printer Data Stream (IPDS) is a structured-field data stream for managing and controlling printer processes. IPDS uses all points addressability that allows users to position text, images, graphic pictures, bar codes, and overlays at any defined point on a printed page. Later pages in this chapter explain each of these data types and their uses.

IPDS offers the flexibility of creating data and commands independent of the type of attachment protocol used by the printer or its system. Using the same data stream, printers can attach to control units or any type of network link that does not restrict the transmission of data to the printer.

IPDS commands within the data stream enable the host processor to control and manage the downloading of symbol sets and stored objects, such as overlays and page segments. The printer can later use these stored objects to construct a printed page.

The IPDS command structure also provides the means for returning error information to the host, for returning query information, and for performing error recovery actions.

## Physical Medium

The S828 IPDS defines the physical medium as an area with boundaries of width and depth that define the limits of this page. The maximum print position (MPP) defines the width of the current page in characters.

MPP x 1/CPI = width in inches (CPI is the number of characters per inch).

The maximum page length (MPL) defines the depth of the current page in lines.
MPL x 1/LPI = depth in inches (LPI is the number of lines per inch).

The top margin on this page is the top-of-form position, as selected by pressing SET TOP OF FORM on the operator panel. Figure 2 shows the physical medium layout.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

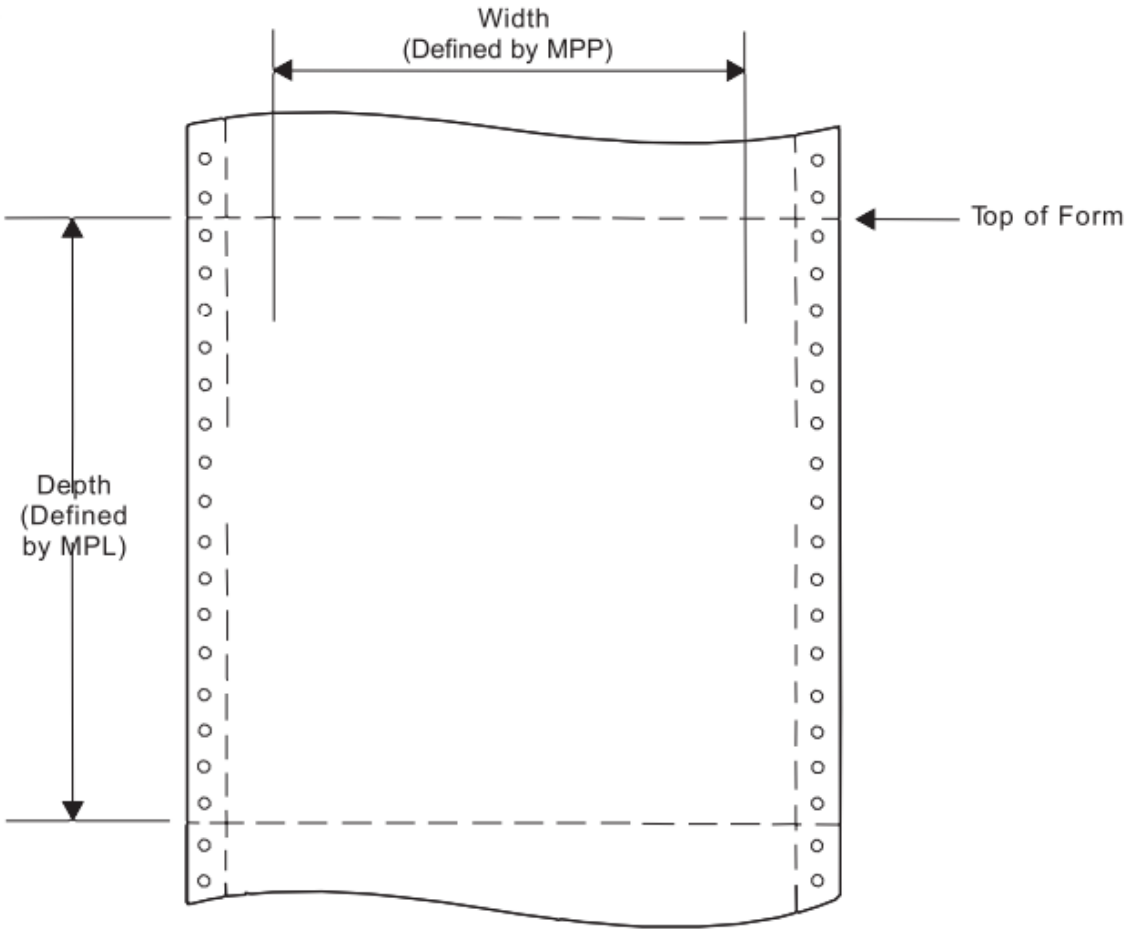



Figure 2. The Physical Medium

The physical medium defined above is assumed to coincide with the actual physical medium (form) as that terminology is used in the following discussion.

## IPDS Coordinate Systems

IPDS uses coordinate systems to define any point on a page. All IPDS commands containing location parameters use these coordinate systems to define distance measurements. The coordinate systems specify these distances in logical units called units.

Many IPDS commands contain parameters that specify values for position or size in units. For example, one unit may equal approximately 0.018 mm (0.007 in. [1/144 in.]). Before using these values, the S828 Printer truncates the specified values to multiples of 0.18 mm (0.0007 in. [1/1440 in.]) for all unit parameters except those associated with DP, and DP Text baseline positioning. The S828 Printer truncates DP, and DP Text baseline positioning parameters to multiples of 0.36 mm (0.014 in. [1/72 in.]). The unit parameters are identified in Chapter 5, “IPDS Programming Information,”.

## X and Y Medium Coordinate System

The Xm and Ym coordinates, known as the medium coordinate system, relate directly to the physical medium. The Xm, Ym coordinate system is fixed for each medium or form size. IPDS commands cannot change the origin and the orientation of these coordinates. The origin (Xm=0, Ym=0) is always at the top left hand corner of the physical medium. Positive Xm values begin at the origin and increase along the top of the sheet, from left to right. Positive Ym values begin at the origin and increase along the left side of the sheet moving downward toward the bottom of the sheet. Figure 3 shows the Xm, Ym coordinate system:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

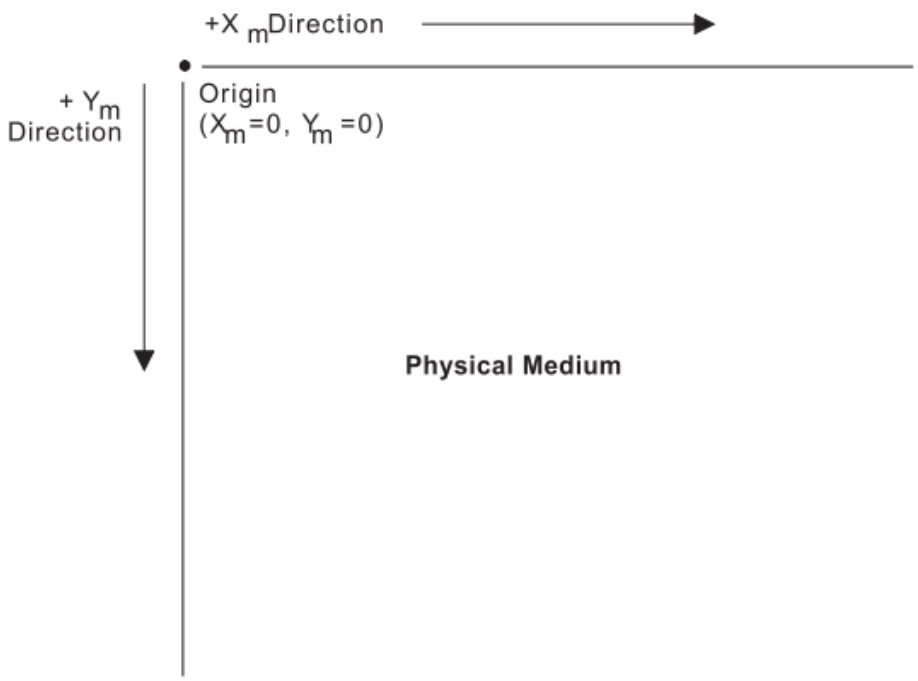



Figure 3. The Xm,Ym Medium Coordinate System

## Logical Page Layout

IPDS describes the printed output in terms of logical pages. The logical page does not have to be contained completely on the physical medium. However, printing can only occur where the two areas overlap. Figure 4 shows the physical-logical page relationship.

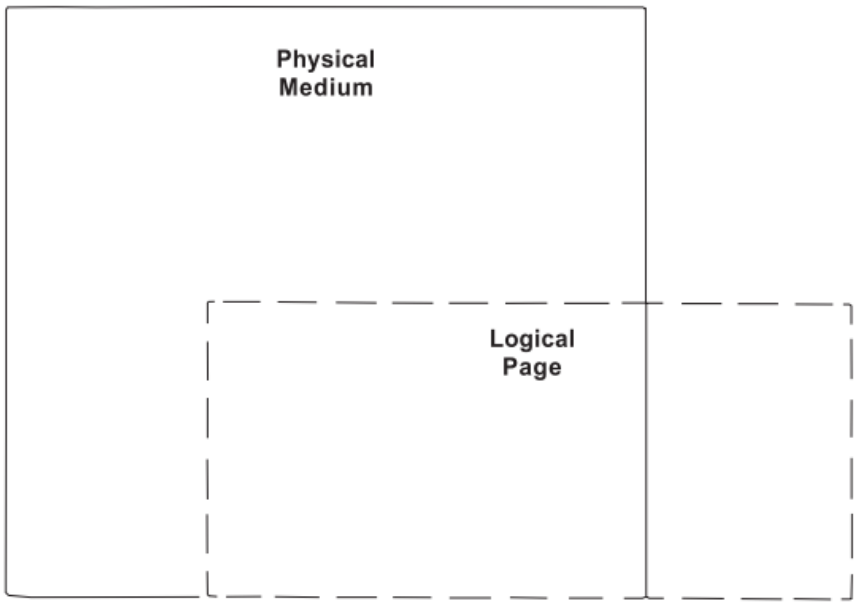



Figure 4. The Physical-Logical Page Relationship

The logical page reference corner is the corner of the logical page that is at the smallest Xp, Yp position. This corner does not necessarily have to coincide with the physical medium origin (Xm=0, Ym=0). The logical page size in the X dimension is the 'X-Extent', and the logical page size in the Y dimension is the 'Y-Extent'. IPDS commands specify the logical page size and location. Figure 5 shows the relationship



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

between the X and Y coordinates and the logical and physical medium.

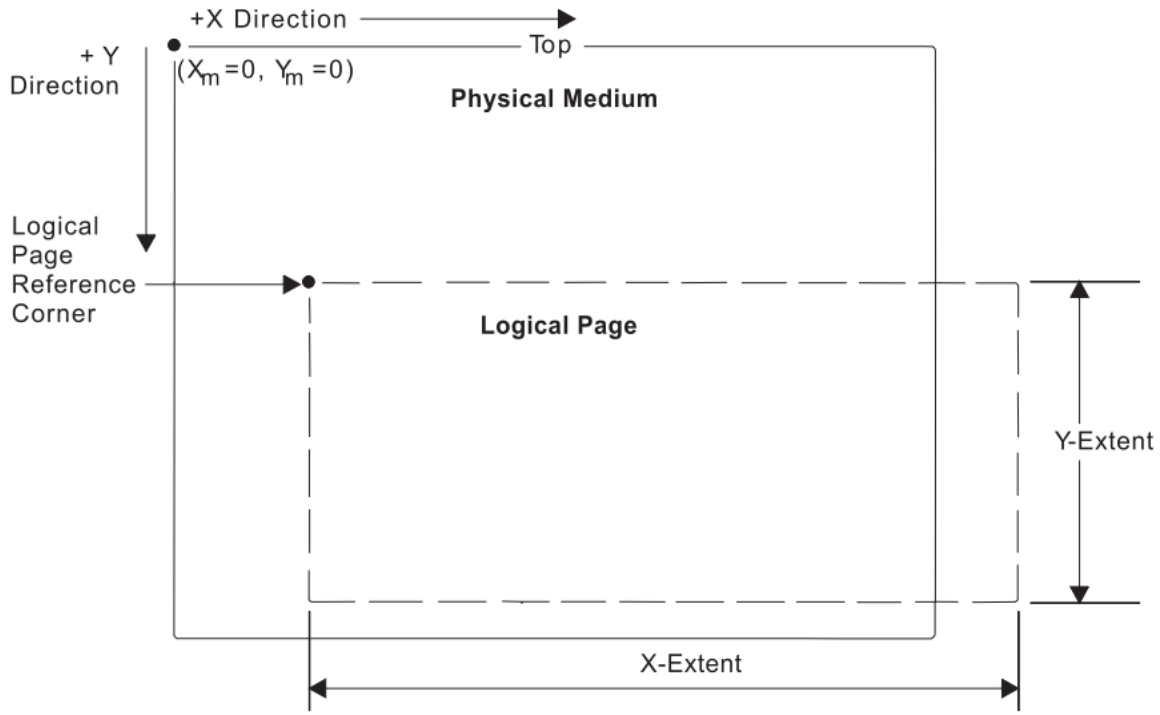



Figure 5. The X and Y Coordinate System and the Logical Page

## I and B Coordinate System

In addition to the X,Y coordinate system, IPDS uses another coordinate system, the I-B coordinate system. These coordinates describe the placement and orientation of text or images on the logical page. The printer places characters along the I-axis for a line of text. The B-axis is the direction in which the printer places lines of text on the logical page. IPDS commands can change both the origin and the orientation of the I and B axes (see Figure 5).

**Direction:** As the printer places text characters on the page, the inline coordinate increases. The direction of this increase is the positive inline direction or +I. The baseline coordinate also increases as the printer places text lines on the page. The direction of this increase is the positive baseline direction or +B. Location parameters within the IPDS commands specify the I and B directions. Chapter 5, “IPDS Programming Information,” contains specific information about these commands.

**Distance:** The inline coordinate increases a predetermined distance as the printer places the text characters on the page. This distance is the character increment. The baseline coordinate also increases a predetermined distance as the printer places lines of text on the page. This distance is the baseline increment. Location parameters within the IPDS commands specify the I and B distances. Chapter 5, “IPDS Programming Information,” contains specific information about these commands.

**Initial coordinates:** The coordinates of the first print position on the logical page are the initial coordinates. The initial inline print coordinate is Ii. The initial baseline print coordinate is Bi.

**Current coordinates:** The coordinates of the current print position on the logical page are the current coordinates. The current inline print coordinate is Ic. The current baseline print coordinate is Bc. Figure 6 shows the various I and B coordinates on the logical page:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

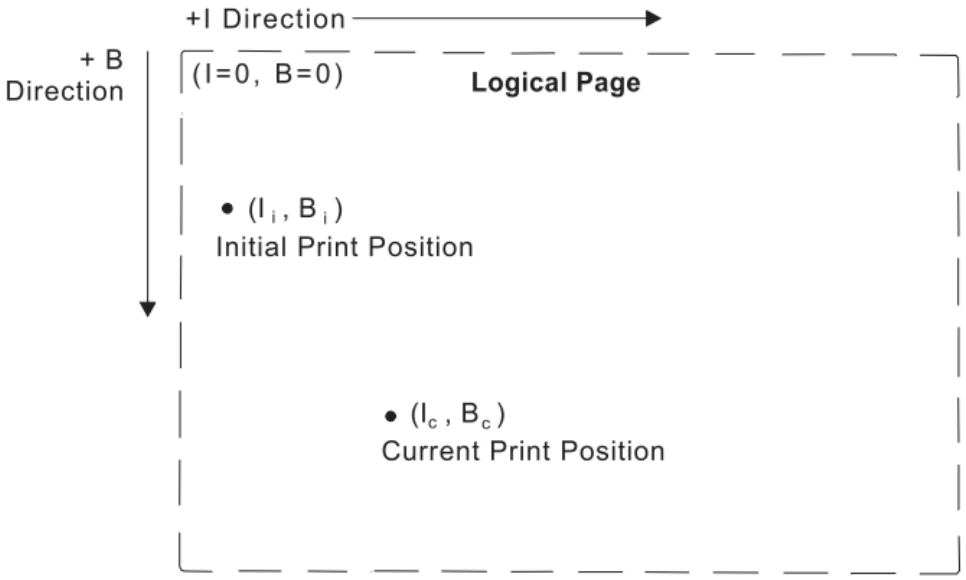



Figure 6. The I and B Coordinate System on the Logical Page

**Notes:**
1. The S828 IPDS Printer text character box is 180 units high by 144 units wide at 10 CPI when the XpYp units equal 1,440 per inch. The left edge of the character box is at the specified inline position and the bottom edge of the character box is 20 units below the specified baseline position.
2. If the bottom edge of the character box falls below the printable area on the physical medium, the character will not print. In this situation, a baseline move (Relative Move Baseline or Absolute Move Baseline) text command can place the character box totally within the printable area.

## Processing IPDS Commands

The structured field format of IPDS allows one or more commands to be sent to the printer in a continuous stream. Each command is self-describing; the command length, type, optional parameters, and data are all part of each specific command. The printer processes each command in the order it is received. Every IPDS command contains a flag byte. Setting the Acknowledgment Required bit on in this flag byte indicates to the printer the end of a command stream sequence. The printer then sends an Acknowledge Reply to the host. Figure 7 shows an example of an IPDS data stream:

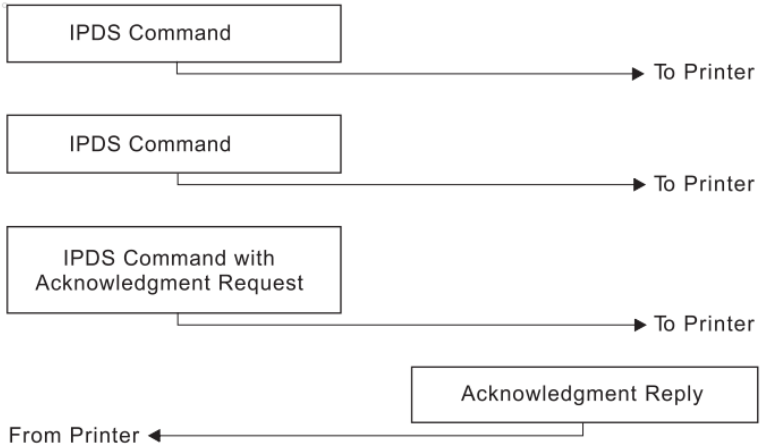



Figure 7. An Example of the IPDS Data Stream



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## IPDS Command Format

All of the printer commands use the following format:

| Length | Command | Flag | Correlation ID | Data |
|---|---|---|---|---|

**Note:** Bit numbering follows the EBCDIC convention with bit zero being the most significant bit. A description of each field follows.

| Length | | | | |
|---|---|---|---|---|

**Length** is a two-byte field that specifies the length of this command. This count includes the two-byte length field, the command field, the flag byte, and the optional fields (Correlation ID and Data Fields). The Length field can be any value from 5 to 32,767 (X'7FFF').

| | Command | | | |
|---|---|---|---|---|

**Command** is a two-byte field that specifies the IPDS command code. See next table for a list of valid command codes.

| | | Flag | | |
|---|---|---|---|---|

**Flag** is a one-byte field that contains the IPDS command stream flags.

Bit 0 of this byte is the Acknowledgment Required (ARQ) flag. If this bit is on, the host requests the printer to send an Acknowledge Reply.

Bit 1 of this byte is the Correlation ID flag. If this bit is B'1', a two-byte correlation number follows this flag byte. If this bit is B'0', the optional correlation number is not present and the following byte or bytes contain the data field.

Bit 2 of this byte is the acknowledgement continuation flag. If this bit is B'1', the host is requesting continuation of the current Acknowledge Reply. If this bit is B'0', the host is not requesting continuation. Bits 3-7 of the flag byte are reserved and must be zero.

| | | | Correlation ID | |
|---|---|---|---|---|

**Correlation ID** is a two-byte value that specifies an identifier for this command. The Correlation ID is an optional field and is only present if bit 1 of the flag byte is B'1'. The printer can use any value between 0000 and FFFF for this ID. If an error occurs on a command prior to acceptance for processing, the printer sends a negative acknowledgement (NACK) to the host. If the printer recognizes the command that caused the error, the Correlation ID field in the NACK will contain the ID of the command responsible for the NACK. Correlation ID is also returned in response to commands that request information and commands that request an acknowledgement.

| | | | | Data |
|---|---|---|---|---|



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Data** is an optional field and is not present for all commands. This field contains specific subcommands, parameters, and data appropriate for the given command. The length of the data field can range from 0 to 32760 (X'7FF8') if the correlation ID is present. If the correlation ID is not present, the length of the data field can range from 0 to 32762 (X'7FFA').

Table 3. Valid IPDS Command Codes for the Printronix S828 IPDS Printer

| Command | Hex Code | Description |
|---|---|---|
| SHS | D697 | Set Home State |
| STM | D6E4 | Sense Type and Model |
| NOP | D603 | No Operation |
| LSS | D61E | Load Symbol Set |
| XOH | D68F | Execute Order Home State |
| XOA | D633 | Execute Order Any State |
| BP | D6AF | Begin Page |
| EP | D6BF | End Page |
| LCC | D69F | Load Copy Control |
| LPD | D6CF | Logical Page Descriptor |
| LPP | D66D | Logical Page Position |
| WBCC | D680 | Write Bar Code Control |
| WBC | D681 | Write Bar Code |
| WGC | D684 | Write Graphics Control |
| WG | D685 | Write Graphics |
| WIC | D63D | Write Image Control |
| WI | D64D | Write Image |
| WT | D62D | Write Text |
| BO | D6DF | Begin Overlay |
| DO | D6EF | Deactivate Overlay |
| IO | D67D | Include Overlay |
| BPS | D65F | Begin Page Segment |
| DPS | D66F | Deactivate Page Segment |
| IPS | D67F | Include Page Segment |
| LE | D61D | Load Equivalence |
| LFE | D63F | Load Font Equivalence |
| DF | D64F | Deactivate Font |
| END | D65D | End |

## Acknowledge Requests and Replies

The following sections explain:
- Acknowledge Reply (ACK)
- Host Acknowledgment Requests
- Printer Acknowledgement Replies



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Acknowledge Reply (ACK)

The printer uses the Acknowledge Reply to return device status, sense information, and any additionally requested information to the host application program.

The application program uses the Acknowledge data to maintain control of the printing application and to initiate error recovery actions when necessary.

The format for the Acknowledge Reply is:

| | | | | |
|---|---|---|---|---|
| Length | D6FF | Flag | Correlation ID | Data |

or

| | | | | |
|---|---|---|---|---|
| Length | D6FF | Flag | Correlation ID | Data |

The printer sends an acknowledgment:
- Whenever the acknowledgment required bit in the flag byte is on
- Whenever the printer detects a command stream error or device error and a negative response must be sent.

A negative reply (NACK), if required, has priority over a positive reply (ACK).

| | | | | |
|---|---|---|---|---|
| Length | | | | |

**Length** is the total length of the ACK reply, including this field. The maximum length of this command is 255 bytes. If there is a five-byte command header (no correlation ID present), the data field can be up to 250 bytes long. If a correlation ID is present in the header, the maximum data field length is 248 bytes.

| | | | | |
|---|---|---|---|---|
| | D6FF | | | |

**D6FF** in the command ID field indicates this is an Acknowledge Reply from the printer to the host.

| | | | | |
|---|---|---|---|---|
| | | Flag | | |

**Flag** is a one-byte field that specifies the flags for this command. Bits 1, 2, and 7 are the only bits used in this byte. All other bits are reserved and must be zeros. If bit 1 is BX'1', a Correlation ID is present in this command. If bit 1 is BX'0', no Correlation ID is present. If bit 2 is B'1', the response can be continued in a later Acknowledge Reply. If bit 2 is B'0', the response is complete in this Acknowledge Reply.

| | | | | |
|---|---|---|---|---|
| | | | Correlation ID | |

**Correlation ID** is a two-byte field that contains the identifier from a previously received command, such as Sense Type and Model. If the printer receives a command that requires an Acknowledgment Reply, and if that command contains a correlation ID, the printer also includes the same correlation ID in its corresponding field. Also, if an error occurs and the printer can recognize the command that caused the error, the printer includes the correlation ID of that command in the NACK.

| | | | | |
|---|---|---|---|---|
| | | | | Data |

| | | |
|---|---|---|
| Acknowledgement Type | Page/Copy Counters | Special Data (SD) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**DATA** is the field that follows the correlation ID field or the flag byte if no correlation ID is present. The length of this field can be 0-250 (X'00'-X'FA') if no correlation ID is present, and 0-248 (X'00'-X'F8') if the correlation ID is present.

The first byte of the data field is the **acknowledgment type**. Values of 00, 01, 04, and 06 for this byte indicate a positive acknowledgment (ACK). A value of X'80' for this byte indicates a negative acknowledgment (NACK). Any other values for this byte are invalid.

The next 4 bytes of the data field are the **page/copy counters**. The first two page/copy counter bytes (most significant bytes) are a stacked page counter. This counter identifies how many pages have successfully stacked and printed. The last two page/copy counter bytes (least significant bytes) are reserved and must be zero.

Following the page/copy counter bytes is the Special Data (SD) area. Depending on the acknowledgment type, this field can be omitted, can contain requested printer information, or can contain sense information. The following chart summarizes the acknowledgments and the special data areas:

| Type | Meaning | Special Data Area Contents |
|---|---|---|
| X'00' | ACK | None |
| X'01' | ACK | Type and Model |
| X'04' | ACK | Resource List |
| X'06' | ACK | Printer Information |
| X'80' | NACK | Sense Bytes |

For a detailed explanation of the Special Data (SD) area contents, see Chapter 5, “IPDS Programming Information”.

## Host Acknowledgment Requests

The host requests an acknowledgment from the printer by setting the Acknowledgment Required (ARQ) flag bit on in the IPDS command (see “IPDS Command Format”). This request occurs in two instances:

1. In any command of a command sequence when the host wants a positive acknowledgment (ACK) that the printer has received and accepted the command sequence for processing.
2. In commands sent by the host to request the return of printer information.

If the printer receives a command that is normally used to request the return of printer data but the ARQ flag is not on, the printer ignores this command.

A positive acknowledgment (ACK) at the end of a command stream is equivalent to an ACK on each and every command preceding the command that has the ACK. An ACK is an indication from the printer that all commands since the last acknowledgment are accepted for processing.

## Printer Acknowledgment Replies

The printer sends an Acknowledge Reply to the host to:

- Indicate that a received command or command sequence requesting acknowledgment has been accepted for processing
- Return requested printer information
- Report errors



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The printer sends a Negative Acknowledge Reply (NACK) to the host to indicate that an error has occurred.

The printer can send an ACK or a NACK in response to an ARQ. If an error occurs, the printer can send a NACK without receiving an ARQ.

The following general rules apply to the printer replies:

- If the printer receives a command requesting acknowledgment and this command also requests specific printer information, then:
  1. The printer sends a positive acknowledgment to the host, and
  2. The printer sends the requested information in the data field portion of the Acknowledge Reply.
- If the printer receives a command requesting acknowledgment and this command does not request specific printer information, then:
  1. The printer sends a positive acknowledgment to the host, and
  2. The printer does not include any information in the data field portion of the Acknowledge Reply.
- If the printer generates the Acknowledge Reply as a result of detecting an error, then the printer sends a Negative Acknowledgment (NACK) to the host. Under this condition, the printer also sends to the host information concerning the error. This error information is in the data field portion of the Acknowledge Reply.
- The Exception Handling Control command instructs the printer on error processing. For more information about the Exception Handling Control, see Chapter 5, “IPDS Programming Information,”.
- The printer can only return one error per NACK.
- If the printer receives a command requesting an acknowledgment, the printer expects the host to wait for the acknowledgment before sending further commands. If the printer receives additional commands from the host within the same transmission after the acknowledgment, the commands are ignored.

## IPDS Data

There are various forms of data that the printer uses for creating the output page. These include text, graphics, bar codes, and images. The printed page can include any combination of this data.

**Text** data contains lines of character information which the printer places in sequence on the page.

**Graphics** data contains lines, arcs, markers, and other elements which present a printed picture.

**Bar code** data is a data type that supports applications requiring precision printing of encoded information in a form that is recognizable by scanning devices.

**Image** data contains rectangular arrays of information. The array consists of a sequence of scan lines. Each scan line consists of picture elements (pels). The image data contains one (dot position) bit per pel.

The text, graphics, bar code, and image data types each have their own unique commands. Chapter 5, “IPDS Programming Information,” contains a detailed description of these commands.

**Blocks** of graphics, image, or bar code data are presented as a single unit to the printer. The printer enters the appropriate Block State (graphics block, image block, or bar code block) to create the entire data group for that block of data.

**Page segments** and **overlays** are any combinations of text, graphics, bar codes, and images. The printer can store these segments and overlays for later use as the page is created. For information about segments, see “Include Page Segment (IPS)”. For information about overlays, see “Begin Overlay (BO)”. Figure 8 shows various data types on a page.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

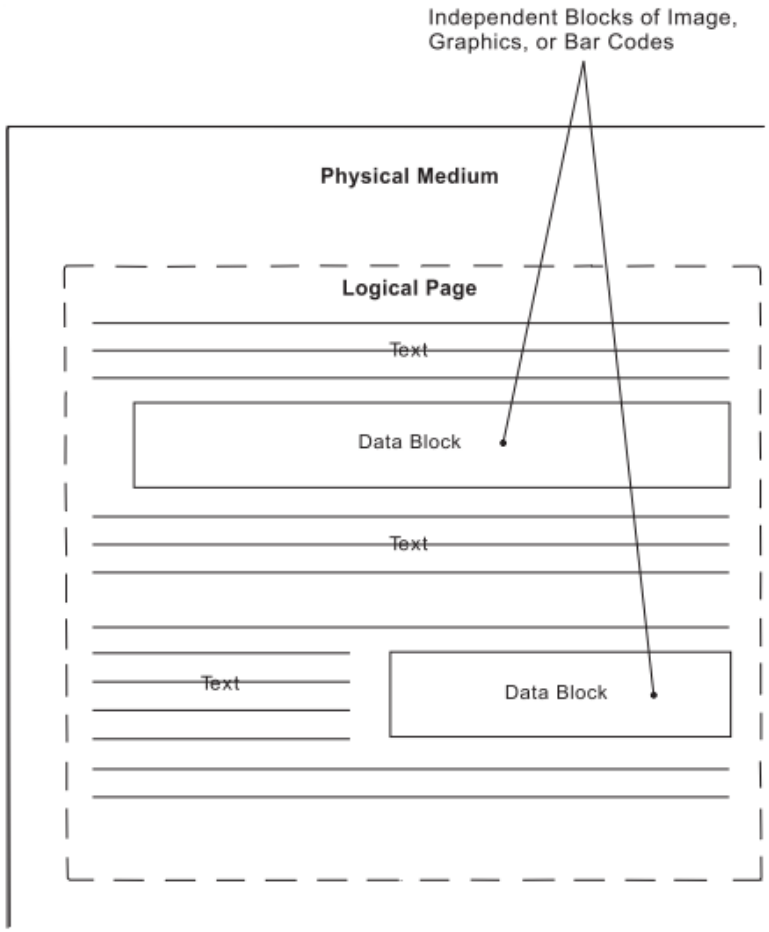



Figure 8. A Sample Page Constructed on an IPDS Printer

**Notes:**
1. Overlays and page segments can be merged on this page.
2. Text and data blocks can be positioned at different places on this page.
3. A logical page can be positioned anywhere with respect to the physical medium.

## Mixing Rules

IPDS allows the same physical pel to be overwritten an unlimited number of times. Overwriting can occur both within a block and across blocks. For example, within text blocks, overwriting can be caused by using the Overstrike control. Within a graphics block, overwriting occurs whenever one graphics area or figure overlays another. Across block overwriting can occur whenever one IPDS block physically overlays any portion of another IPDS block.

Within each block, the S828 IPDS Printer further defines background pels and foreground pels. Foreground pels are:
● The pels of a character



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

- The pels of a rule
- The pels of an image
- The pels of a graphic line or arc
- The pels of a filled area
- The pels of a bar code.

Background pels are all other pels.

Text data, because it prints at a different physical resolution than the data in the other blocks, does not logically mix with any other data type. The only mixing that takes place between text data and any other data type is the (possible) physical mixing of ink on forms.

For the S828 IPDS Printer, the mixing rule for overwritten data within a given block of image, graphics, or bar code data is quite simple: background pels are transparent; foreground pels are opaque. Thus, background pels always show through what is underneath (what was received earlier), while foreground pels cover it up. In other words, a pel prints in the color of its last overwriting.

**Note:** Color of medium is a valid color for image, graphics, and bar code data. Thus, foreground pels in this color cover up pels of any other color that are underneath.

For the S828 IPDS Printer, the mixing rule for overwritten data across blocks is the same as it is within blocks except for text. Thus, across image and graphics, or bar code blocks, background pels are transparent, while foreground pels are opaque.

## IPDS Operating States

There are various operating states using the IPDS commands. The following states define the operating environment for this printer:

- Home state
- Page state
- Overlay state
- Page segment state
- Block state.

While in the page, overlay, or page segment state, the printer can enter a block state. The block state causes the printer to process a block of data. There are image blocks, graphics blocks, and bar code blocks. Thus, the printer can enter any of the data block states from any of the operating states.

## Home State

Home state is the initial IPDS operating state. The printer returns to home state at the end of each page, page segment, or overlay. In addition, the printer can enter the home state by receiving a Set Home State command. The S828 IPDS Printer also goes to home state when a NACK is returned.
While in the home state, the printer receives control and initialization commands to prepare for a print operation. In this state, the printer can also receive commands that request the return of printer information to the host application program.

## Page State

Page state is the operating state for printing a logical page. The printer enters the page state from the home state as a result of receiving a Begin Page command.
In the page state, the printer can receive commands that merge previously defined and loaded overlay and page segments with the current page information. The printer can also receive Write Text commands that position text on the logical page. The presence of Write Image (block) Control, Write Graphics (block)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Control, or Write Bar Code (block) Control commands in the data stream indicates that the printed page contains individual blocks of image, graphics, or bar code data for positioning on the page. These commands cause a state transition to occur to an appropriate page block state. In the block state, the printer establishes the initial conditions and processes the block of data onto the page. Receiving an End command in a page block state terminates that state and returns processing back to the page state.

Figure 9 shows the relationship between the home state, page state, and block states.

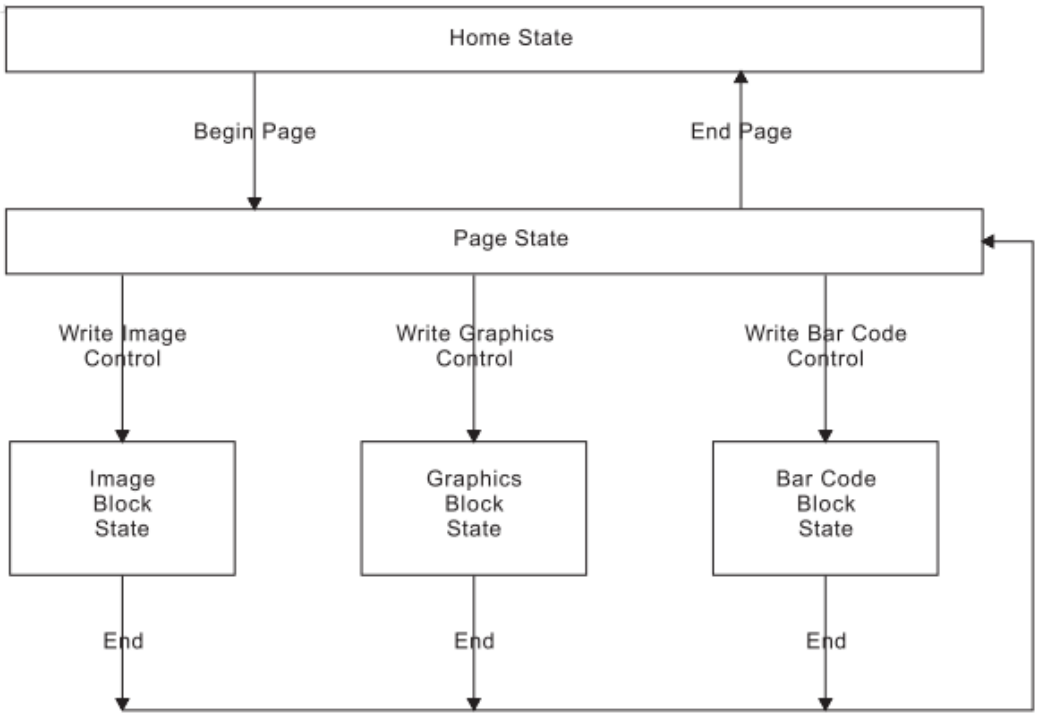



Figure 9. The Relationship between Home State, Page State, and Block States

## Overlay State

Overlay state is the operating state that stores data in the printer. The printer enters the overlay state from the home state as a result of receiving a Begin Overlay command.

A parameter in the Begin Overlay command provides an identifier for later references to this overlay. The printer saves the currently active Logical Page Descriptor value, the Load Font Equivalence value, and the Load Equivalence value as part of the stored overlay definition.

The same commands that the printer uses in the page state are also valid while in the overlay state.

Figure 10 shows the relationship between the home state, overlay state, and block states.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

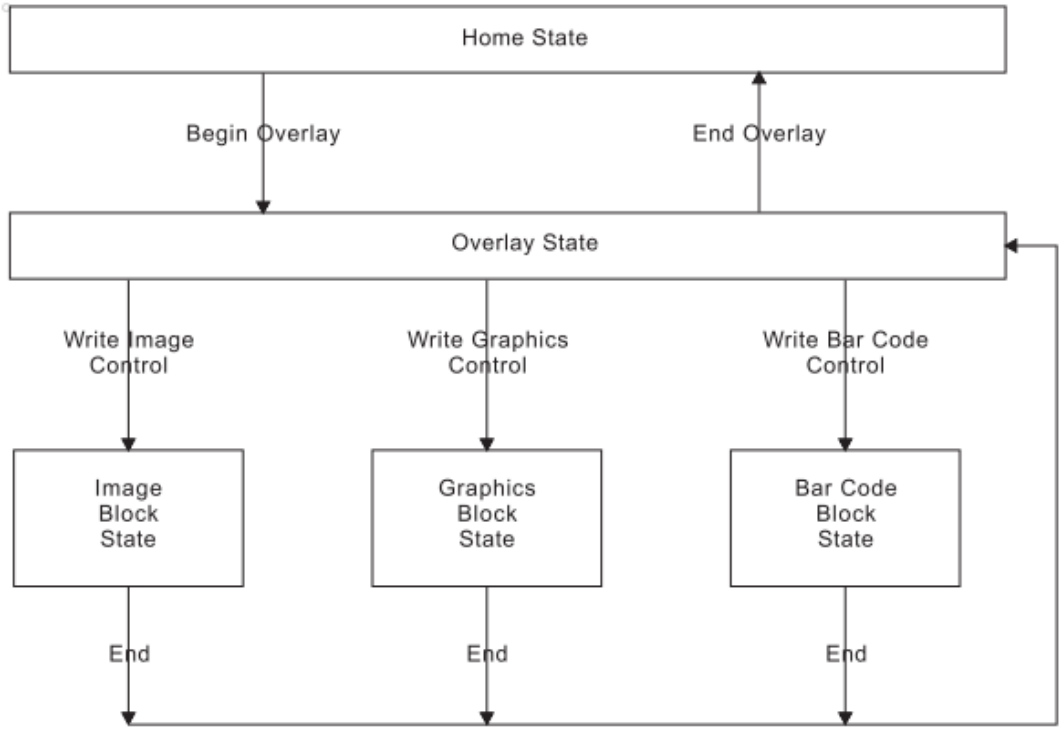



Figure 10. The Relationship between Home State, Overlay State, and Block State

## Page Segment State

The printer enters the page segment state from the home state as a result of receiving a Begin Page Segment command. A parameter in the Begin Page Segment command provides an identifier for later references to this segment.

Page segments assume the environment (Logical Page Descriptor, Load Font Equivalence, and Load Equivalence) that is active at the time the segment is presented.

While in a page segment state, the printer can only receive commands to write text, image, bar code, and graphics blocks.

Figure 11 shows the relationship between the home state, page segment state, and block states.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

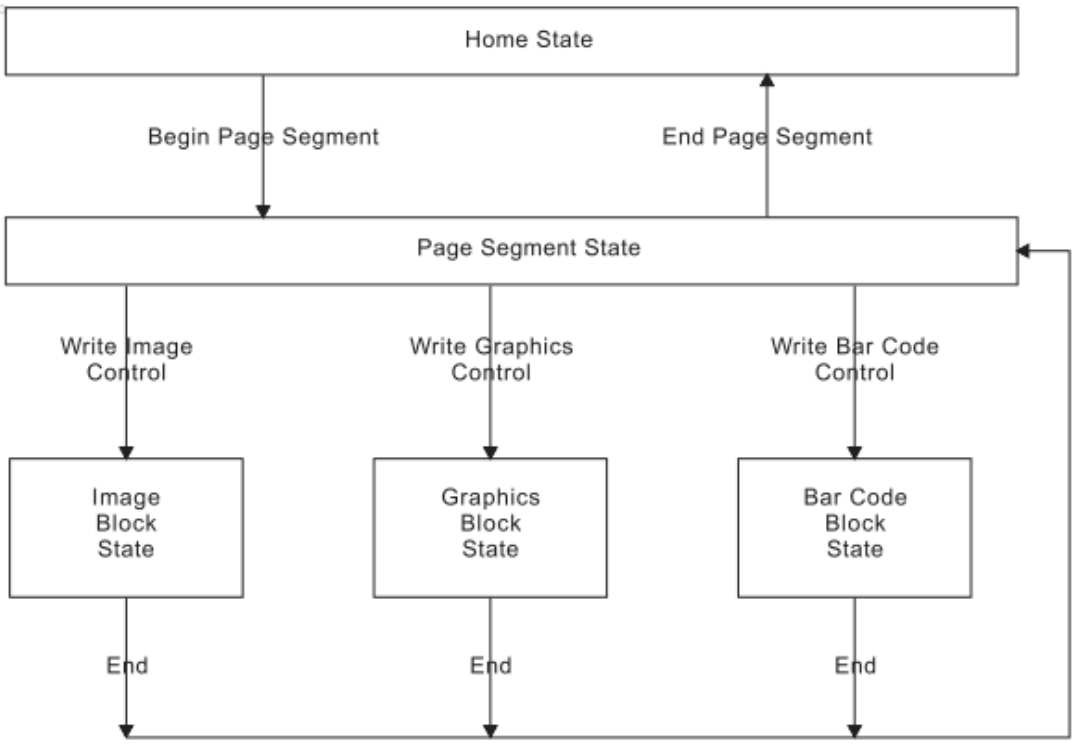



Figure 11. The Relationship between Home State, Page Segment State, and Block States

## Summary of the IPDS States and Commands

Next table shows all the valid IPDS commands for the S828 IPDS Printer and the initial and ending states for each command. The printer must be in the initial state shown for each command for that command to be valid. The ending state is the resulting state the printer enters after a valid command processes.

Table 4. IPDS Command Code Summary for the S828 IPDS Printer

| Cmd | Hex Code | Description | Initial State | Ending State |
|---|---|---|---|---|
| SHS | D697 | Set Home State | Any | Home |
| STM | D6E4 | Sense Type and Model | Any | No Change |
| NOP | D603 | No Operation | Any | No Change |
| LSS | D61E | Load Symbol Set | Home | Home |
| XOH | D68F | Execute Order Home State | Home | Home |
| XOA | D633 | Execute Order Any State | Any | No Change (See Note 1) |
| BP | D6AF | Begin Page | Home | Page |
| EP | D6BF | End Page | Page, Page Segment, or Overlay | Home |
| LCC | D69F | Load Copy Control | Home | Home |
| LPD | D6CF | Logical Page Descriptor | Home | Home |
| LPP | D66D | Logical Page Position | Home | Home |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 4. IPDS Command Code Summary for 828 IPDS Printer (continued)

| Cmd | Hex Code | Description | Initial State | Ending State |
|---|---|---|---|---|
| WBCC | D680 | Write Bar Code Control | Page, Page Segment, or Overlay | Page Bar Code Block, Page Segment Bar Code Block, or Overlay Bar Code Block |
| WBC | D681 | Write Bar Code Page | Page Bar Code Block, Page Segment Bar Code Block, or Overlay Bar Code Block | No Change |
| WGC | D684 | Write Graphics Control | Page, Page Segment, or Overlay | Page Graphics Block, Page Segment Graphics Block, or Overlay Graphics Block |
| WG | D685 | Write Graphics | Page Graphics Block, Page Segment Graphics Block, or Overlay Graphics Block | No Change |
| WIC | D63D | Write Image Control | Page, Page Segment, or Overlay | Page Image Block, Page Segment Image Block, or Overlay Image Block |
| WI | D64D | Write Image | Page Image Block, Page Segment Image Block, or Overlay Image Block | No Change |
| WT | D62D | Write Text | Page, Page Segment, or Overlay | No Change |
| BO | D6DF | Begin Overlay | Home | Overlay |
| DO | D6EF | Deactivate Overlay | Home | Home |
| IO | D67D | Include Overlay | Page or Overlay | No Change |
| BPS | D65F | Begin Page Segment | Home | Page Segment |
| DPS | D66F | Deactivate Page Segment | Home | Home |
| IPS | D67F | Include Page Segment | Page or Overlay | No Change |
| LE | D61D | Load Equivalence | Home | Home |
| LFE | D63F | Load Font Equivalence | Home, Page, Page Segment, or Overlay | No Change |
| DF | D64F | Deactivate Font | Home | Home |
| END | D65D | End | See Note 2 | See Note 2 |

**Notes:**
1. The Discard Buffered Data subcommand in the Execute Order Any State command causes the printer to enter the home state.
2. The End command is valid in any page block, overlay block, or page segment block state and causes the printer to return to the corresponding page, overlay, or page segment state.

Figure 11 shows all of the IPDS states and their commands. Notice that some commands can only occur in a specific state, some commands can occur in more than one state, and some commands can occur in any state. Also note that the printer can only enter the page state, the page segment state, and the overlay state from the home state.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

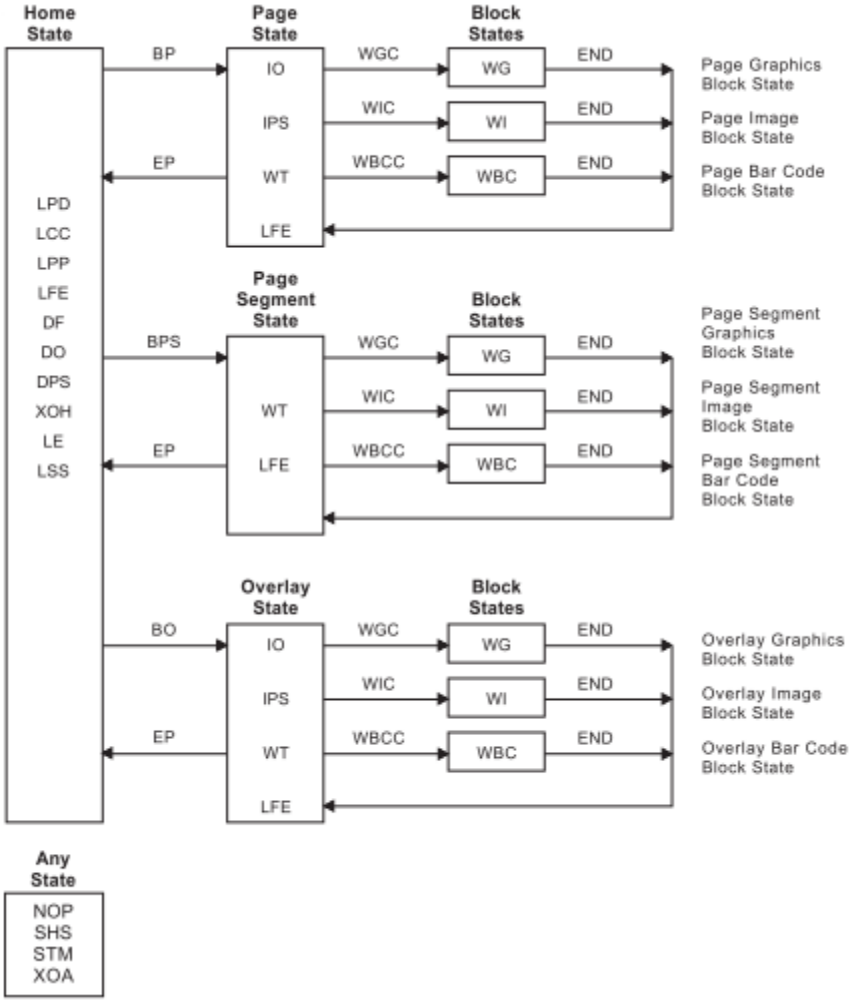



Figure 11. The Complete IPDS State Diagram

## A Typical IPDS Command Sequence

The following chart shows an example of a typical IPDS command sequence. This sequence contains five basic categories:

1. Initialization
2. Preparation
3. Page Segment
4. Overlay
5. Page



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Each category starts with a command from the host to the printer and ends with an acknowledgment from the printer to the host. An analysis of each category follows this example.

**Note:** . indicates a command from the host to the printer. . indicates a reply from the printer to the host.

Table 5. An Example of an IPDS Command Sequence

| Printer State | Command Direction | CMD | Command Name | Description |
|---|---|---|---|---|
| Initialization Sequence | → | STM | Sense Type and Model | Request Device Information |
| | ← | ACK | Acknowledgement Response | Return Type/Model Information |
| Preparatory Sequence | → | SHS | Set Home State | Set Printer Home State |
| | → | LPD | Logical Page Descriptor | Define Logical Page |
| | → | LPP | Logical Page Position Locate | Logical Page |
| | → | LCC | Load Copy Control | Load Page Copy Information |
| | → | LFE | Load Font Equivalence Load | Font Mapping |
| | ← | ACK | Acknowledgement Response | Acknowledge Successful Operation |
| Page Segment Sequence | → | BPS | Begin Page Segment | Set Printer to Page Segment State |
| | → | WT | Write Text | Store Text Data in Page Segment |
| | → | WT | Write Text | Store Text Data in Page Segment |
| | → | WT | Write Text | Store Text Data in Page Segment |
| Block State | → | WIC | Write Image Control | Start Page Segment Image Block State |
| | → | WI | Write Image | Store Image Data in Page Segment |
| | → | WI | Write Image | Store Image Data in Page Segment |
| End Block State | → | END | End | End Image Block State |
| | → | WT | Write Text | Store Text Data in Page Segment |
| | → | WT | Write Text | Store Text Data in Page Segment |
| | → | EP | End Page | Return to Home State |
| | ← | ACK | Acknowledgement Response | Acknowledge Successful Operation |
| Overlay Sequence | → | BO | Begin Overlay | Enter Overlay State |
| | → | WT | Write Text | Store Text Data in Overlay |
| | → | WT | Write Text | Store Text Data in Overlay |
| | → | WT | Write Text | Store Text Data in Overlay |
| | → | IO | Include Overlay | Include Another Overlay |
| Block State | → | WGC | Write Graphics Control | Enter Overlay Graphics Block State |
| | → | WG | Write Graphics | Store Graphics Data in Overlay |
| | → | WG | Write Graphics | Store Graphics Data in Overlay |
| End Block State | → | END | End | End Overlay Graphics Block State |
| | → | WT | Write Text | Store Text in Overlay |
| | → | WT | Write Text | Store Text in Overlay |
| | → | IO | Include Overlay | Include Another Overlay |
| | → | IPS | Include Page Segment | Include Page Segment in Overlay |
| | → | EP | End Page | Return to Home State |
| | ← | ACK | Acknowledgement Response | Acknowledge Successful Operation |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 3. An Example of an IPDS Command Sequence (continued)

| Printer State | Command Direction | CMD | Command Name | Description |
|---|---|---|---|---|
| Page Sequence | | BP | Begin Page | Enter Page State |
| | | WT | Write Text | Send Text Data to Printer |
| | | IO | Include Overlay | Print Overlay |
| | | IPS | Include Page Segment | Print Page Segment |
| Block State | | WIC | Write Image Content | Start Page Segment Image Block State |
| | | WI | Write Image | Send Image Data to Printer |
| | | WI | Write Image | Send Image Data to Printer |
| End Block State | | END | End | End Image Block State |
| | | WT | Write Text | Send Text Data to Printer |
| | | WT | Write Text | Send Text Data to Printer |
| | | IO | Include Overlay | Print Overlay |
| | | IPS | Include Pate Segment | Print Page Segment |
| | | EP | End Page | Complete All Printing and Return to Home State |
| | | ACK | Acknowledgement Response | Acknowledge Successful Operation |

## Printer Initialization and Preparation Sequence

Before any printing begins, it is necessary to specify certain parameters and conditions for the printer. The following sample command sequence accomplishes this task:

- STM (Sense Type and Model)
- ACK (Acknowledgment Reply)
- SHS (Set Home State)
- LPD (Logical Page Descriptor)
- LPP (Logical Page Position)
- LCC (Load Copy Control)
- LFE (Load Font Equivalence)
- ACK (Acknowledgment Reply).

**Note:** This sequence is only a typical example. It is not mandatory for the host to send all of these commands.

**STM (Sense Type and Model):** The host sends the STM command to sense the printer characteristics.
**ACK (Acknowledgment Reply):** If the previous command had the ARQ bit on, the printer responds with type and model information to the host. This information includes printer number (S828), model, and the various function set vector information.
**SHS (Set Home State):** The host sends the SHS command to make sure the printer is in the home state before the start of a print job.
**LPD (Logical Page Descriptor):** The LPD command sets print characteristics for the logical page. These parameters include:

- Page size
- Initial coordinates
- Initial left margin
- Intercharacter increment
- Baseline increment
- Font ID



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

● Text color.

**LPP (Logical Page Position):** The LPP command positions the upper-left corner of the logical page (as defined by the LPD command) with respect to the top-of-form setting. This command locates the logical page on the physical medium.
**LCC (Load Copy Control):** The LCC command specifies which overlays to include on each subsequent page and which suppressions to activate for each page. Suppression allows selective suppression of data while printing.
**LFE (Load Font Equivalence):** The LFE command maps a local font identifier (from within the text, graphics, or bar code data) to a global ID used for resource management. This command also specifies for each font attributes, such as bold, double-strike, double-wide, and italics.
**ACK (Acknowledgment Reply):** If the previous command had the ARQ bit on, the printer responds with the ACK reply to inform the host of successful execution of all the previous commands. This command indicates to the host that the printer is now ready to accept data for print operations. This is the end of the initialization and preparation sequence.

## Page Segment Sequence

The page segment sequence creates one or more page segments for later printing. The following command sequence illustrates the loading of a sample page segment:

● BPS (Begin Page Segment)
● WT (Write Text)
● WIC (Write Image Control)
● WI (Write Image)
● END (End)
● WT (Write Text)
● EP (End Page)
● ACK (Acknowledgment Reply).

**Note:** This sequence is only an example. A page segment can contain any combination of text, image, graphics, or bar code data.

**BPS (Begin Page Segment):** The host sends the BPS command to the printer, causing the printer to leave the home state and enter the page segment state. The page segment state creates a segment of page data to save within the printer for later printing. The BPS command contains an identifier (ID) for later use in selecting this segment. This segment can contain combinations of text, images, bar codes, and graphics.
**WT (Write Text):** The WT command sends text data to the printer. Because the printer is currently in a page segment state, this text information does not print at this time. Instead, the data becomes part of the page segment. The host can send multiple WT commands to the printer while in the page segment state.
**WIC (Write Image Control):** The WIC command causes the printer to enter the image block state. Parameters in this command define the image size, scale, initial coordinates, and color of the image.
WI (Write Image): The WI command sends a block of image data to the printer. One or more of these commands create the actual image for later printing.
**END (End):** The END command terminates the image block state. The printer remains in the page segment state with the image stored for later use.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**WT (Write Text):** This command is repeated at this point in the sequence to illustrate that additional text data can be added to the page segment. In addition to zero or more of the WT commands, this segment could also include additional graphics data, image data, or bar code data.
**EP (End Page):** The EP command causes the printer to leave the page segment state and return to the home state Printronix recommends that this command contain an acknowledgment request to let you know of successful execution of the page segment.
**ACK (Acknowledgment Reply):** If the previous command had the ARQ bit on, the printer responds with the ACK command to inform the host of successful execution of all the previous commands. This command indicates to the host that the printer has accepted all the segment data and stored this information for later printing.

## Overlay Sequence

The overlay sequence creates one or more overlays for later printing. The following command sequence illustrates the loading of a typical overlay:

- BO (Begin Overlay)
- WT (Write Text)
- IO (Include Overlay)
- WGC (Write Graphics Control)
- WG (Write Graphics)
- END (End)
- WT (Write Text)
- IO (Include Overlay)
- IPS (Include Page Segment)
- EP (End Page)
- ACK (Acknowledgment Reply).

**Note:** This sequence is only an example. An overlay can contain any combination of text, image blocks, graphics blocks, bar code blocks, page segments, or overlays.

**BO (Begin Overlay):** The host sends the BO command to the printer causing the printer to leave the home state and enter the overlay state. The overlay state creates an overlay of data to save within the printer for later printing. The BO command contains an identifier (ID) for later use in selecting this overlay.
**WT (Write Text):** The WT command sends text data to the printer. Because the printer is currently in an overlay state, this information does not print at this time. Instead, the data becomes part of the overlay. The host can send multiple WT commands to the printer while in the overlay state.
**IO (Include Overlay):** The IO command causes a previously stored overlay to merge onto the current overlay. This command contains an ID field that selects the desired overlay.
**WGC (Write Graphics Control):** The WGC command causes the printer to enter the graphics block state. Parameters in this command specify the placement, size, and orientation of the graphics block.
**WG (Write Graphics):** The WG command sends graphics data to the printer. The graphics data (contained in drawing orders) specifies the various elements of the graphic. These include color, size, line type, line width, and other parameters. One or more WG commands present the graphics picture.
**END (End):** The END command terminates the graphics block state. The printer remains in the overlay state with the graphics block as part of the overlay.
**WT (Write Text):** This command is repeated at this point in the sequence to illustrate that additional text data can be added to the overlay. In addition to zero or more of the WT commands, image data, bar code data, or additional graphics data could also be included in the overlay.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**IO (Include Overlay):** The IO command causes a previously stored overlay to merge onto the current overlay.
**IPS (Include Page Segment):** The IPS command causes a previously stored page segment to merge onto the current overlay. An ID in this command specifies the selected page segment.
**EP (End Page):** The EP command causes the printer to leave the overlay state and return to the home state. Printronix recommends that this command contain an acknowledgment request to verify successful transmission of the overlay.
**ACK (Acknowledgment Reply):** If the previous command had the ARQ bit on, the printer responds with the ACK reply, to inform the host of successful execution of all the previous commands. This reply indicates to the host that the printer has accepted all the overlay data and stored this information for later printing.

## Page Sequence

The page sequence causes data to print on the current page. This data can include previously stored overlays or page segments, as well as text data. The following commands illustrate a typical page sequence:

- BP (Begin Page)
- WT (Write Text)
- IO (Include Overlay)
- IPS (Include Page Segment)
- WIC (Write Image Control)
- WI (Write Image)
- END (End)
- WT (Write Text)
- IO (Include Overlay)
- IPS (Include Page Segment)
- EP (End Page)
- ACK (Acknowledgment Reply).

**Note:** This sequence is only an example. A page can contain any combination of text, image blocks, graphics blocks, bar code blocks, page segments, or overlays.

**BP (Begin Page):** The host sends the BP command to the printer, causing the printer to leave the home state and enter the page state.
**WT (Write Text):** The WT command sends text data to the printer. Because the printer is currently in a page state, this text information prints at this time. The host can send multiple WT commands to the printer while in the page state.
**IO (Include Overlay):** The IO command causes a previously stored overlay to merge onto the current page. This command contains an ID field, which selects the desired overlay.
**IPS (Include Page Segment):** The IPS command causes a previously stored page segment to merge onto the current page. An ID in this command specifies the selected page segment. The selected page segment now prints on the current page.
**WIC (Write Image Control):** The WIC command causes the printer to enter the image block state. Parameters in this command define the image size, scale, initial coordinates, and color of the image.
**WI (Write Image):** The WI command sends a block of bit image data to the printer. One or more of these commands create the actual image for printing. Because the printer is now in the page state, the image prints as it is received by the printer.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**END (End):** The END command terminates the image block state. The printer remains in the page state.
**WT (Write Text):** This command is repeated at this point in the sequence to illustrate that additional text data can be added to the page. In addition to zero or more of the WT commands, graphics data, bar code data, or additional image data could also be included on the page.
**IO (Include Overlay):** The IO command causes a previously stored overlay to merge onto the current page. This overlay now prints on the current page.
**IPS (Include Page Segment):** The IPS command causes a previously stored page segment to merge onto the current page. An ID in this command specifies the selected page segment. The selected page segment now prints on the current page.
**EP (End Page):** The EP command causes the printer to leave the page state and return to the home state. Printronix that this command contain an acknowledgment request to verify successful execution of the page data.
**ACK (Acknowledgment Reply):** If the previous command had the ARQ bit on, the printer responds with the ACK reply to inform the host of successful execution of all the previous commands. This reply indicates to the host that the printer has accepted all the page data, and all selected segments, images, or overlays have successfully printed.

Chapter 5, “IPDS Programming Information,” contains a more detailed description of all the IPDS commands.

## Error Handling

An exception (error) occurs when the printer detects an invalid or unsupported command, control, or parameter value in the data stream received from the host. The IPDS error handling structure assigns a unique exception code to each type of error. The printer sends these codes to the host, as sense bytes, in the NACK (negative acknowledgment reply). See Chapter 6, “IPDS Exception Reporting Codes,” for a description of the exception codes.

The host can control how the printer responds to the exceptions. The Exception Handling Control (see“Exception Handling Control (EHC)”) order permits independent control over three exception handling functions:

● The exceptions to report with a NACK reply
● The implementation of Alternate Exception Actions (AEA) when a valid parameter value is received but not supported by the printer
● The termination or continuation procedure to follow if the alternate error action is not taken or if there is no alternate error action associated with this error.

The host application program can use the Exception Handling Control order to accomplish many specific control capabilities necessary in data printing environments. For example, through the proper selection of settings, it is possible to:
● Enforce control over printing of page information
● Enable automatic skipping of data types not supported by the printer
● Suppress the return of meaningless or redundant exception reports when alternate actions are acceptable to the user.

The host can issue the Exception Handling Control order in any printer state. This allows the host to manage exception processing at any level desired by the host application.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 5. IPDS Programming Information

This chapter contains programming information for the Intelligent Printer Data Stream (IPDS) commands. The information is for the experienced programmer. A knowledge of data stream requirements, hexadecimal numbering systems, and data processing terminology and concepts is assumed.

In addition to the information in this chapter, Chapter 4, “Intelligent Printer Commands,” contains introductory information about the IPDS.

## IPDS Initialization Defaults

When the printer power switch is initially turned On (|), various IPDS data stream parameters are set to their initialization default values. These values remain in effect until overridden by specific data stream commands from the host application program.

Table 6 contains the initialization defaults for this printer:

Table 6. IPDS Initialization Defaults

| Default Description | Hex Value |
|---|---|
| Units Base Value | 00 (10 in.) |
| Input Media Source | Determined by Operator Panel Paper Source setting |
| Width of the Physical Medium | MPP Value, Operator Panel Selection |
| Length of the Physical Medium | MPL Value, Operator Panel Selection |
| Width of the Logical Page in Units (X-Extent) | 4A40 (Decimal 13.2 in. Width, 1440 Units Per In.) |
| Length of the Logical Page in Units (Y-Extent) | 3DE0 (Decimal 11 in. Length, 1440 Units Per In.) |
| Ordered Data Flags | 00 (Unordered Page, Block, and Text Flags) |
| X-Axis Orientation | 0000 (0 Degrees) |
| Y-Axis Orientation | 2D00 (90 Degrees) |
| Current I Text Position | 0000 |
| Current B Text Position | 00A0 The Default Font Type Baseline (see Note 1) |
| X-Displacement | 0000 Logical Page X-Displacement from Physical Medium Origin |
| Y-Displacement | 0000 Logical Page Y-Displacement from Physical Medium Origin |
| Initial Inline Margin in Units | 0000 |
| Intercharacter Adjustment | 0000 |
| Baseline Increment | LPI value, Operator Panel Selection |
| Local Font ID FF | (see Note 3) |
| Text Color | Black |
| Code Page ID | Language value, Operator Panel selection |
| Font Quality | Print Quality value, Operator Panel selection |
| Font Type | Determined by Print Quality and CPI value Operator Panel selection (see Note 2) |
| Exception Handling Control | Report Undefined Characters, Position Checks, and All Other Exceptions. Do Not Take Alternate Exception Action. Terminate, Print Page, and Go to Home State. |

**Notes:**

1. Text printing on the first line requires an initial Y-displacement value of 00A0.
2. The printer default font is Gothic for DP and fast draft print quality and Courier for DP Text and NLQ print quality. To determine the current values for CPI, language and quality, refer to the Administrators Manual for your printer.
3. When Local Font ID equals FF is used, the latest inline sequence established in “Logical Page Descriptor (LPD)” determines whether to print in a left-to-right or right-to-left sequence. The default when the printer is powered on is the left-to-right sequence.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Parameter Values

The Printronix S828 Printer allows flexibility in selecting various options to perform a wide range of functions. Parameter values are initially set at the factory. The printer uses these values to format the page and to control forms movement. The parameter values also allow the operator to select the printer address, language, and print mode and compatibility options, and to turn the alarm on or off.

The printer can use the initial factory set values, or the operator can change these values. Any new value selection made at the operator panel becomes the new parameter value immediately upon selection. If this configuration is saved by the operator into the power-on custom set, this value remains as the new parameter value, even after the printer power switch is turned Off (O).

The operator can select the following parameter values at the operator panel and change them:
- Characters per inch (CPI)
- Lines per inch (LPI)
- Maximum print position (MPP)
- Maximum page length (MPL) (See Note)
- Language
- Print quality
- Alarm (Enabled/Disabled)
- Graphics and Bar Code mode
- Left margin
- Emulation mode

**Note**: An MPL setting that results in a page length less than 762 mm (3 in.) causes a throughput reduction. A maximum reduction of about 50 percent occurs at an MPL setting of one line per page.
The application program can override any of the parameter values, except for turning the alarm on or off changing the address selection, changing the emulation determines what parameter value the printer uses:
1. The printer uses the program specified value.
2. If no program command has specified the value, the printer uses the current parameter value.

# Command Format

All the printer commands use the following format:

| Length | Command | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The following chart shows the purpose of each field:

| Byte | Field | Description |
|---|---|---|
| 0-1 | Length | Total Command Length, Including the Length Bytes |
| 2-3 | Command | Command Type |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Byte | Field | Description |
|---|---|---|
| 4 | Flag | Bit 0<br>0 = Acknowledge Response Not Required<br>1 = Acknowledge Response Required<br>Bit 1<br>0 = Correlation ID Not Included<br>1 = Correlation ID Included<br>Bit 2<br>0 = Acknowledge Reply Response is Complete<br>1 = Second Buffer of XOH - OPC Reply Required<br>Bit 3 - 6<br>Reserved (Always Zero)<br>Bit 7<br>0 = Persistent NACK is inactive<br>1 = Persistent NACK |
| 5-6 | Correlation ID | Identifier Name (Valid Only if Byte 4, Bit 1 Is On) |
| 7-n | Data | Specific Subcommands, Operands, Parameters, and Data Fields as Appropriate for the Given Command |

**Notes:**

1. Bit numbering follows the EBCDIC convention with bit zero being the most significant bit.
2. If the Correlation ID field is not present (byte 4, bit 1 is zero), the data field starts at byte 5 instead of byte 7.
3. Both positive or negative values fitting in the data fields are allowable. Negative values are in twos-complement form.
4. Some bits or bytes in the data fields are Reserved. The printer does not always check the contents of these fields. However, Printronix recommends that such fields equal the specified value (if one exists) or zero.
5. The printer will not detect a condition where the specified command length (bytes 0 through 1) exceeds the actual number of bytes received. If this occurs, the printer will not process the command until the printer receives the specified number of bytes.
6. If the host wants to request the second buffer, the request must be the next command following the request for the first buffer of an acknowledgment. However, it is not required that the host request the second buffer of an acknowledgment.

# Supported IPDS Command Codes

| Command | Hex Code | Description |
|---|---|---|
| SHS | D697 | Set Home State |
| STM | D6E4 | Sense Type and Model |
| NOP | D603 | No Operation |
| LSS | D61E | Load Symbol Set |
| XOH | D68F | Execute Order Home State |
| XOA | D633 | Execute Order Any State |
| BP | D6AF | Begin Page |
| EP | D6BF | End Page |
| LCC | D69F | Load Copy Control |
| LPD | D6CF | Logical Page Descriptor |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Hex Code | Description |
|---|---|---|
| LPP | D66D | Logical Page Position |
| WBCC | D680 | Write Bar Code Control |
| WBC | D681 | Write Bar Code |
| WGC | D684 | Write Graphics Control |
| WG | D685 | Write Graphics |
| WIC | D63D | Write Image Control |
| WI | D64D | Write Image |
| WT | D62D | Write Text |
| BO | D6DF | Begin Overlay |
| DO | D6EF | Deactivate Overlay |
| IO | D67D | Include Overlay |
| BPS | D65F | Begin Page Segment |
| DPS | D66F | Deactivate Page Segment |
| IPS | D67F | Include Page Segment |
| LE | D61D | Load Equivalence |
| LFE | D63F | Load Font Equivalence |
| DF | D64F | Deactivate Font |
| END | D65D | End |

# Command Function Sets

Function sets divide the printer commands into various categories. Each function set provides all the necessary controls for its functional area. These function sets are:

- Device Control function set
- Text function set
- Image function set
- Graphics function set
- Bar Code function set
- Overlay function set
- Page Segment function set
- Loaded Font function set.

# Device Control Function Set Commands

The Device Control function set contains the commands the printer uses to set up the page, communicate device controls, and manage the Acknowledge protocol. The following commands are the device control function set:

| Command | Hex | Code Description |
|---|---|---|
| NOP | D603 | No Operation |
| STM | D6E4 | Sense Type and Model |
| SHS | D697 | Set Home State |
| ACK | D6FF | Acknowledge Reply |
| LFE | D63F | Load Font Equivalence |
| LCC | D69F | Load Copy Control |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Command | Hex Code | Description |
|---|---|---|
| LPP | D66D | Logical Page Position |
| LPD | D6CF | Logical Page Descriptor |
| BP | D6AF | Begin Page |
| DF | D64F | Deactivate Font |
| EP | D6BF | End Page |
| END | D65D | End |
| XOH | D68F | Execute Order Home State |
| XOA | D633 | Execute Order Any State |

The following pages describe the device control function set commands in detail.

# No Operation (NOP)

| Length | D603 | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

An NOP command is valid in any printer state. The printer does not perform any operation as a result of receiving this command. The printer ignores any data in this command.

# Sense Type and Model (STM)

| Length | D6E4 | Flag | Correlation ID (Optional) |
|---|---|---|---|

This command is valid in any state. The Sense Type and Model command requests the printer to respond with device dependent information, which identifies the printer and the function it supports. The printer returns this information to the host application program in the Special Data (SD) portion of the Acknowledge Reply to the STM command.

## Acknowledge Reply for Sense Type and Model

| Length | D6FF | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The format of the data field returned with the Acknowledge Reply is: acknowledgment type, page/copy counters, and 6 bytes of general information, followed by a sequence of function set vectors identifying the functions supported by this printer. The following chart shows the Data field:

| Decimal | Hex | Description |
|---|---|---|
| 0 | 0 | 01 (Acknowledgment Type) |
| 1-4 | 1-4 | Page/Copy Counters |
| 5 | 5 | FF (System/370™ Convention) |
| 6-7 | 6-7 | Printer Product Number 4247 (or 4230 or 4224 if printer is in emulation mode) |
| 8 | 8 | Printer Model Number (see note) |
| 9-10 | 9-A | 0000 (Reserved) |
| 11-40 | B-28 | Device Control Function Set Vector |
| 41-54 | 29-36 | Text Function Set Vector |
| 55-66 | 37-42 | Image Function Set Vector |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Description |
|---|---|---|
| 67-78 | 43-4E | Graphics Function Set Vector |
| 79-84 | 4F-54 | Page Segment Function Set Vector |
| 85-92 | 55-5C | Overlay Function Set Vector |
| 93-98 | 5D-62 | Loaded Font Function Set Vector |
| 99-110 | 63-6E | Bar Code Function Set Vector |

**Note:** The format for byte 8, the printer model number, is “03 - Ethernet Host Interface”

The function set vectors contain information relating to each specific command function set. The format of each function set vector group follows:

## Device Control Function Set Vector

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 11-12 | B-C | 001E | |
| 13-14 | D-E | C4C3 | Device Control Function Set Identifier |
| 15-16 | F-10 | FF10 | DC/1 Level Identifier |
| 17-18 | 11-12 | 8010 | XOA, Activate Printer Alarm |
| 19-20 | 13-14 | 80F2 | XOA, Discard Buffered Data |
| 21-22 | 15-16 | 80F4 | XOA, Request Resource List |
| 23-24 | 17-18 | 80F6 | XOA, Exception Handling |
| 25-26 | 19-1A | 80F8 | XOA, Print Quality Control |
| 27-28 | 1B-1C | 9005 | XOH, Erase Print Data |
| 29-30 | 1D-1E | 9007 | XOH, Erase Font Data |
| 31-32 | 1F-20 | 900D | XOH, Stack Received Pages |
| 33-34 | 21-22 | 9015 | XOH, Select Input Media Source |
| 35-36 | 23-24 | 9017 | XOH, Set Media Size |
| 37-38 | 25-26 | F001 | XOH, DSC Mode Persistent NACK Handling Supported |
| 39-40 | 27-28 | FF02 | Three Byte Sense Data Supported |

## Text Function Set Vector

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 41-42 | 29-2A | 000E | Vector Length |
| 43-44 | 2B-2C | D7E3 | Composed Text Function Set Identifier |
| 45-46 | 2D-2E | FF20 | PT/2 Level Identifier |
| 47-48 | 2F-30 | 1001 | Unordered Text Supported |
| 49-50 | 31-32 | 4020 (see note 1) 4000 (see note 2) | Limited Simulated Color Supported (see note 3) |
| 51-52 | 33-34 | 5041 | Text Orientation (2 for NLS) |
| 53-54 | 35-36 | 1000 | Optimum Performance if Text Data in Ordered Page |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Notes:**
1. 4247 native mode.
2. 4224 and 4230 emulation mode.
3. For Limited Simulated Color support, all valid but unsupported color values for text data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. In the S828 Printer, simulation of Color of Medium is done by printing in Color of Medium, except where not possible because of different resolutions when text overlays graphics, image, or bar code. For actual colors, all valid colors not listed in the above table are simulated in the S828 Printer by printing in black.

## Image Function Set Vector

**Decimal Hex Value Description**
55-56 37-38 000C Vector Length
57-58 39-3A C9D4 Image Function Set Identifier
59-60 3B-3C FF10 IM/1 Level Identifier
61-62 3D-3E 1001 Unordered Image Blocks Supported
63-64 3F-40 4022 Limited Simulated Color and Color of Medium Supported
65-66 41-42 1000 Optimum Performance if Image Blocks in Ordered Page

## Graphics Function Set Vector

**Decimal Hex Value Description**
67-68 43-44 000C Vector Length
69-70 45-46 E5C7 Graphics Function Set Identifier
71-72 47-48 FF20 GR/2 Level Identifier
73-74 49-4A 1001 Unordered Graphics Blocks Supported
75-76 4B-4C 4022 Limited Simulated Color and Color of Medium Supported
77-78 4D-4E A080 Zero Degree (°) Orientation Supported

## Page Segment Function Set Vector

**Decimal Hex Value Description**
79-80 4F-50 0006 Vector Length
81-82 51-52 D7E2 Page Segment Function Set Identifier
83-84 53-54 FF10 Page Segment Function Set Level Identifier

## Overlay Function Set Vector

**Decimal Hex Value Description**
**85-86 55-56 0008 Vector Length**
87-88 57-58 D6D3 Overlay Function Set Identifier
89-90 59-5A FF10 OL/1 Level Identifier
91-92 5B-5C 1505 5 Levels of Nested Overlays in Overlay State



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

### Loaded Font Function Set Vector

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 93-94 | 5D-5E | 0006 | Vector Length |
| 95-96 | 5F-60 | C3C6 | Loaded Font Function Set Identifier |
| 97-98 | 61-62 | FF20 | Symbol Sets |

### Bar Code Function Set Vector

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 99-100 | 63-64 | 000C | Vector Length |
| 101-102 | 65-66 | C2C3 | Bar Code Function Set Identifier |
| 103-104 | 67-68 | FF10 | BC/1 Level Identifier |
| 105-106 | 69-6A | 1001 | Unordered Bar Code Blocks Supported |
| 107-108 | 6B-6C | 4022 (see note 1) 4002 (see note 2) | Limited Simulated Color and Color of Medium Supported (see note 3) |
| 109-110 | 6D-6E | A0C0 | 0°, 90° Orientation Supported |

**Notes:**
1. 4247 native mode.
2. 4224 and 4230 emulation mode.
3. For Limited Simulated Color support, all valid but unsupported color values for text data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. In the S828 Printer, simulation of Color of Medium is done by printing in Color of Medium, except where not possible because of different resolutions when text overlays graphics, image, or bar code. For actual colors, all valid colors not listed in the above table are simulated in the S828 Printer by printing in black.

## Set Home State (SHS)

| Length | D697 | Flag | Correlation ID (Optional) |
|---|---|---|---|

This command is valid in any state. When the printer receives the Set Home State command, the current page ends, all buffered data prints, and the printer returns to the home state. If the printer receives this command while already in the home state, the printer treats this command as a No Operation command.

## Acknowledge Reply (ACK)

| Length | D6FF | 00 | Data |
|---|---|---|---|

or

| Length | D6FF | 40 | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The printer uses the Acknowledge Reply to return device status, sense information, and any additionally requested information back to the host application program. The application program uses the Acknowledge data to maintain control of the printing application and to begin error recovery actions when necessary. The printer sends an acknowledgment:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

- Whenever the acknowledgment required bit in the flag byte is on
- Whenever the printer detects a command stream error or device error and a negative response must be sent.

A negative response has priority over a positive response.

If the printer can identify the command and the command has a correlation ID, the Acknowledge Reply contains a correlation ID that matches the command.

The maximum length of this command is 255 bytes. If there is a five-byte command header (no correlation ID present), the data field can be up to 250 bytes long. If a correlation ID is present in the header, the maximum data field length is 248 bytes. The Acknowledge Reply data field contains the acknowledgment type, page/copy counters, and a Special Data (SD) area. The printer loads the Special Data area with the appropriate data when one of the following occurs:

1. The printer receives one of the following information request commands:
   - Sense Type and Model
   - Obtain Printer Characteristics
   - Request Resource List.
2. An error occurs. Under this condition, the printer loads the special data area with the sense bytes and sends a negative acknowledgment (NACK) to the host.

The format of the Acknowledge Reply data field follows:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | | Acknowledgement Type |
| | | 00 | Positive - No Special Data (SD) |
| | | 01 | Positive - Sense Type/Model (STM) Data in SD |
| | | 04 | Positive - Request Resource List (RRL) in SD |
| | | 06 | Positive - Obtain Printer Characteristics (OPC) in SD |
| | | 80 | Negative - Sense Bytes in SD |
| 1-4 | 1-4 | XX...XX | |
| 5-n | 5-n | XX...XX | |

# Load Font Equivalence (LFE)

| Length | D63F | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The Load Font Equivalence command maps font identifiers. The fonts do not have to exist in the printer when the printer receives this command.
In the home state, this command creates a new font equivalence record that completely replaces the current LFE record. In the page state:

- The font equivalence entries in this command add to the current LFE entries, or
- If identical local font identifiers (byte 1) exist, this command overlays the current LFE entries.

In the page segment or overlay state, a received LFE is stored as part of the page segment or overlay, and it does not process until the Include Page Segment or Include Overlay command is received.

The font equivalences for a given page are those that are in effect when the Begin Page command processes plus those added in the page state. There is a maximum of 20 different loaded font ID/print



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

quality combinations defined in home or page state. Page segments use the font equivalence tables active at the time the Include Page Segment command processes. In addition, the LFEs that were stored as part of the page segment add to the font equivalence tables during the include page segment process up to a maximum of 20 loaded font ID/print quality combinations.

Each Begin Overlay command starts the overlay with the loaded font IDs currently defined and will add its LFE entries during the overlay's definition up to a maximum of 20 loaded font ID/print quality combinations total. On a logical page, the sum of each included overlay's number of loaded font ID/print quality combinations (whether included through Include Overlay or through Load Copy Control commands) added to the number of loaded font ID/print quality combinations on the logical page cannot exceed 58.

Each font equivalence entry is 16 bytes, in the following format:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 00-FE | Local Font ID |
| | | FF | Reserved (4248 mode) (See Note 4) |
| 1-2 | 1-2 | 0001 - 7EFF | Font Host Assigned ID (See Note 3) |
| 3-4 | 3-4 | | Font Inline Sequence (Ignored) |
| 5-6 | 5-6 | 0000 | Reserved |
| 7-8 | 7-8 | XXXX | Code Page ID (See Code Page ID Chart) |
| | | FFFF | Use the Printer Defined Default Code Page ID |
| 9-10 | 9-A | XXXX | Font (Style) ID (See Font ID Chart) |
| | | FFFF | Use the Printer Defined Default Font |
| 11-12 | B-C | 0000 | Reserved |
| 13 | D | 00 | Reserved |
| 14 | E | | Font Attributes |
| | | Bit 0 | Font Is Present in Printer (See Notes 1 and 2) |
| | | Bit 1-2 | Reserved |
| | | Bit 3 | Double High (See Notes 5 and 6) |
| | | Bit 4 | Italicized Print (See Note 6) |
| | | Bit 5 | Double Strike |
| | | Bit 6 | Bold |
| | | Bit 7 | Double Wide |
| 15 | F | 00 | Reserved (See Note 2) |

**Notes:**

1. If the Font Present in Printer bit is on, this indicates to the printer that the font has previously been downloaded or is permanently resident. If this bit is off, this indicates to the printer that the font is not present in the printer and will, presumably, be downloaded (by an LSS command) prior to selection for printing.
2. Additional font equivalence entries, each 16 bytes long, can follow this entry, using the same format. No more than 20 different loaded font ID/print quality combinations can be active at a given time.
3. Use the same Loaded Font ID when using the same Font ID and Code Page ID for several Local IDs. This saves storage space and font allocation time in the printer.
4. Local ID byte 0 may use any value 1 to FE. A value of FF is supported if the printer is in 4224 Emulation Mode for compatibility, but is not recommended. See "Set Character Set" , "Logical Page Descriptor (LPD)", and "Printer Initialization and Preparation Sequence" for more information regarding Local IDs equal to FF.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

5. A double high font can be printed only on a page that is unordered. See “Logical Page Descriptor (LPD)” for more information.
6. A font cannot be both double high and italicized.

# Code Page ID Values

| Hex Value | Code Page | Hex Value | Code Page |
|---|---|---|---|
| 0025 | USA/Canada | 01A4 | Arabic |
| 0100 | International Set 1 | 01A7 | Greek |
| 0104 | Canadian French | 01A8 | Hebrew |
| 0111 | Austria/Germany | 01B5 | PC Character Sets 1 and 2 |
| 0112 | Belgium | 01F4 | International Set 1 |
| 0113 | Brazil | 0323 | Hebrew (old) |
| 0115 | Denmark/Norway | 033F | Portugal (Alternate) |
| 0116 | Finland/Sweden | 0341 | Korean |
| 0118 | Italy | 0346 | Thai |
| 0119 | Japan (English) | 0366 | Latin 2/ROECE |
| 011A | Portugal | 0367 | Icelandic |
| 011C | Spain/Latin America | 036B | Greek (Old) |
| 011D | United Kingdom | 0373 | Cyrillic (Old) |
| 011E | Austria/Germany (Alternate) | 037A | Yugoslav |
| 011F | Denmark/Norway (Alternate) | 037C | OCR-A (NLQ Only) |
| 0120 | Finland/Sweden (Alternate) | 037D | OCR-B NLQ Only) |
| 0121 | Spain (Alternate) | 03EA | DCF Compatibility |
| 0122 | Japan/Katakana | 0401 | Cyrillic Multilingual |
| 0125 | APL (4224 Compatibility) | 0402 | Turkish |
| 0129 | France | 0449 | Farsi |
| 0136 | APL | 0458 | Baltic Multilingual |
| 0462 | Estonian | 0154 | OCR (4224 Compatibility) NLQ only |
| 1149 | euro 924 | | |

## Font ID Values

| Hex Value | Font ID | Hex Value | Font ID |
|---|---|---|---|
| 001A | 10 CPI, Gothic (Fast Draft and DP Quality) | 00A0 | Proportional spacing, Gothic (DP Text and NLQ) |
| 000B | 10 CPI, Courier (DP Text and NLQ) | 00DE | 15 CPI, Gothic (Fast Draft and DP Quality) |
| 0013 | 10 CPI, OCR-A (NLQ) | 00DF | 15 CPI Courier (DP Text and NLQ) |
| 0003 | 10 CPI, OCR-B (NLQ) | 0190 | 16.7 CPI Gothic (Fast Draft and DP Quality) |
| 0055 | 12 CPI, Courier (DP Text and NLQ) | 0057 | 12 CPI, Gothic (Fast Draft and DP Quality) |

**Notes:**
1. The Graphic Character Set Global (GCSGID) portion of the Global Font ID is ignored by the printer.
2. All combinations of CPGID and FGID are valid with the following exceptions:
    - OCR-A Code Page and FGID 0013 are only valid in combination together.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

- OCR-B Code Page and FGID 0003 are only valid in combination together.
- The following Code Pages are not available with FGID X'00A0' (PSM)
  - Code Page 290 Katakana
  - Code Page 293 APL (4224)
  - Code Page 310 APL
  - Code Page 420 Arabic
  - Code Page 833 Korean
  - Code Page 838 Thai
  - Code Page 880 Cyrillic (Old)
  - Code Page 1002 DCF Compatibility
  - Code Page 1025 Cyrillic Multilingual
  - Code Page 1097 Farsi

# Load Copy Control (LCC)

| Length | D69F | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The Load Copy Control command controls the production of output from subsequently received input logical pages. The LCC command is only valid while the printer is in the home state. This command remains in effect until the printer receives the next LCC.

The format of the data field (DATA) for this command is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 02-24 | Copy Subgroup Count (See Note 1) |
| 1 | 1 | 01 | Number of Copies |
| 2-n | 2-n | XXXX | Copy Modification (See Description)<br>C100 = Simplex<br>D101 - D1FF = Suppression ID<br>E101 - E1FE = Overlay ID |

**Notes:**
1. Group Count is the number of bytes in this group definition entry. Valid ranges are from 2 to 36 (X'02' to X'24') in units of 2.
2. Subsequent LCC commands nullify previous Overlay IDs or Suppression IDs from previous LCC commands.

**Copy Modification** is an optional modification keyword list made up of two byte controls:
- The first byte is the keyword.
- The second byte is the associated parameter for this keyword.

Valid values for copy modification are:
- C100 - Simplex Printing
- D101 to D1FF - Suppression ID
- E101 to E1FE - Overlay ID.

**Simplex Printing** is printing on only one side of the document. This is the only type of printing the S828 Printer can perform.

**Suppression ID** allows the later suppression of text data. The first byte of the keyword, D1, specifies this keyword as suppression. The second byte of the keyword specifies a suppression identifier. Valid suppression ID values are 01 to FF. Print suppression occurs as follows:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

1. The LCC command specifies one or more suppression ID values. (Each ID must begin with the keyword - D1.)
2. The printer receives a Begin Suppression control (inside a Write Text command) with a suppression ID that matches a value in the LCC command.
3. All subsequent text data does not print (text suppression), until the printer receives an End Suppression control (inside a Write Text command) with the same ID.
4. All text data received after the End Suppression control prints normally.

**Overlay ID** allows later processing of specified overlays. The first byte of the keyword, E1, specifies this keyword as overlay. The second byte of the keyword specifies an overlay identifier. Valid overlay ID values are 01 to FE. An overlay processes as follows:
1. The LCC command specifies one or more overlay ID values. (Each ID must begin with the keyword - E1.)
2. The previously stored overlay with this specified identifier merges onto the following page at its reference corner.

# Logical Page Descriptor (LPD)

| Length | D6CF | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

This command establishes the print characteristics for the logical page. The Logical Page Descriptor command is only valid in the home state. See “Set Media Size (SMS)” for physical medium size information.

The format of the data field (DATA) for this command is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 00 | Units Base Value Equals 10 in. |
| 1 | 1 | 00 | Reserved |
| 2-3 | 2-3 | 05AD-7FFF | X Units Per Unit Base Value |
| 4-5 | 4-5 | 05A0-7FFF | Y Units Per Unit Base Value |
| 6 | 6 | 00 | Reserved |
| 7-9 | 7-9 | 000001 – 007FFF (See Note 1) | Width of Page in Units |
| 10 | A | 00 | Reserved |
| 11-13 | B-D | 000001 - 007FFF (See Note 1) | Length of Page in Units |
| 14 | E | 00 | Reserved |
| 15 | F | Ordered | Page Flag (See Note 2) |
| Bit 0 | Bit 0 | 0 | Unordered Page |
| | | 1 | Ordered Page |
| Bits 1-7 | Bits 1-7 | | Reserved |
| 16-17 | 10-11 | 0000 | Reserved |
| 18-21 | 12-15 | 00000000 | Reserved |
| 22-23 | 16-17 | 0000 | Reserved |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 24-25 | 18-19 | 0000 | I-Axis Orientation of 0 Degrees |
| | | 5A00 | I-Axis Orientation of 180 Degrees (See Note 5) |
| | | FFFF | Printer Default (0 Degrees) (See Note 3) |
| 26-27 | 1A-1B | 2D00 | B-Axis Orientation of 90 Degrees |
| | | FFFF | Printer Default (90 Degrees) |
| 29-29 | 1C-1D | 0000-FFFF | Initial I Displacement in Units (See Note 4) |
| 30-31 | 1E-1F | 0000-FFFF | Initial B Displacement in Units |
| 32-33 | 20-21 | 0000-FFFF | Initial Inline Margin in Units |
| | | FFFF | Printer Default (Use Initialization Value) (See Note 4) |
| 34-35 | 22-23 | 0000 | Intercharacter Increment |
| | | 0000-7FFF | Printer Default (Use Initialization Value) |
| 36-37 | 24-25 | 0000 | Reserved |
| 38-39 | 26-27 | 0000-7FFF | Baseline Increment |
| | | FFFF | Printer Default (Use Initialization Value) |
| 40 | 28 | 00-FE | Local Font ID |
| | | FF | Printer Default (Use Initialization Value) |
| 41-42 | 29-2A | 0000 | Printer Default (Black) |
| | | 0008 | Black |
| | | FF00 | Printer Default (Black) |
| | | FF07 | Printer Default (Black) |
| | | FFFF | Printer Default (Black) |

**Notes:**

1. The LPD command accepts logical page values from 0001 to 7FFF for this parameter. However, attempts to print outside the intersection of the physical medium (as defined by the Set Media Size command) and the logical page result in an error.
2. If the Ordered Page Flag is on, this indicates to the printer that subsequent data is in order and can print as it is received. If page data is unordered, printing is deferred (buffered), because the printer must place the received data in the proper sequence.
3. The high-order 9 bits of the two byte fields 18-19 and 1A-1B are interpreted as a 9-bit binary value that describes the orientation of the X and Y axes.
4. If bytes 1C-1D and bytes 20-21 are all 0, each line begins at the leftmost print position for 0, 90 orientation and rightmost print position for 180, 90 orientation.
5. The S828 Printer can print right-to-left by selecting a 180, 90 degree orientation within the Load Page Descriptor command or within the Set Text Orientation control sequence. The S828 Printer forces an inline sequence of 180 degrees for the default font to maintain upright printing when right-to-left printing is selected.

Figure 12 shows how the Logical Page Descriptor command defines the logical page.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

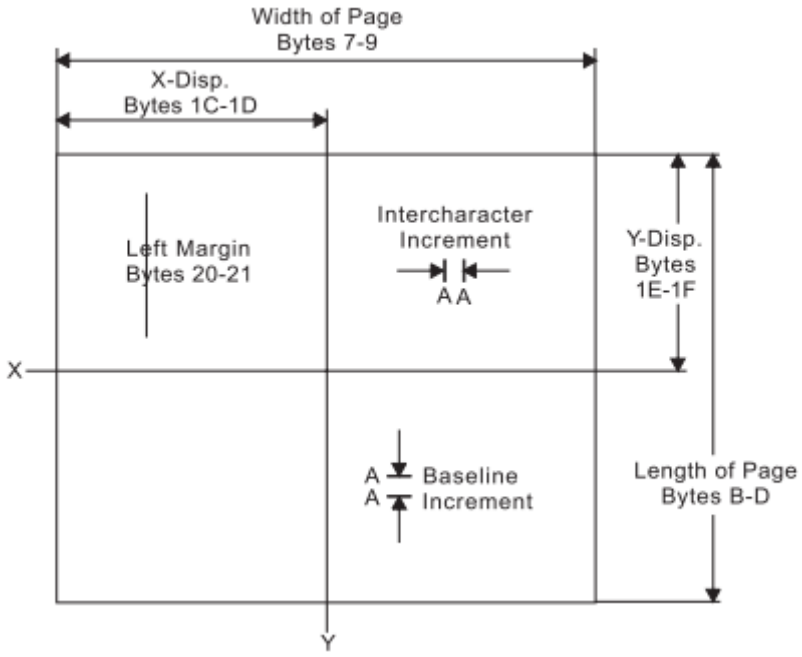



Figure 12. Using the Load Page Descriptor Command to Specify the Logical Page

# Logical Page Position (LPP)

| Length | D66D | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

This command positions the upper left corner of the logical page (defined by the Logical Page Descriptor control) with respect to the physical medium. The Logical Page Position command is only valid in the home state.
Figure 13 shows the LPP command positioning the logical page on the physical medium.

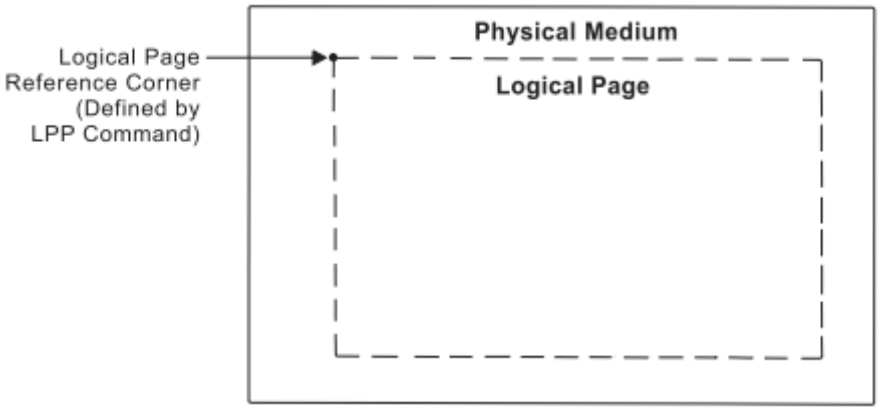



Figure 13. Using the Logical Page Position Command to Position

The physical medium dimensions do not change. The X and Y coordinates of the LPP command specify the location of the Logical Page Reference Corner relative to the corresponding corner of the physical medium. These coordinates are expressed in terms of the units in effect at the time the LPP command is received.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Only positive values are valid for the data field. The format of the data field (DATA) for this command is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 00 | Reserved |
| 1-3 | 1-3 | 000000-007FFF | X Displacement |
| 4 | 4 | 00 | Reserved |
| 5-7 | 5-7 | 000000-007FFF | Y Displacement |
| 8-9 | 8-9 | 0000 | Reserved |

## Deactivate Font (DF)

| Length | D64F | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The Deactivate Font command provides a means for the control unit to delete one or more fonts from the printer.

## End Page (EP)

| Length | D6BF | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

This command causes the printer to return to the home state from the page, page segment, or overlay state. If the printer is in the page state, the printer completes any deferred printing for the current page and advances the forms to the top of the next page. Zero or more bytes of data may be transmitted with this command but are ignored.

## End (END)

| Length | D65D | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The End command is the ending control for a graphics block, image block, or bar code block state. This command completes a series of write image, write graphics, or write bar code commands. This command does not transmit any data. At the completion of this command, the printer leaves the block state and returns to the page, overlay, or page segment state.

## Execute Order Home State (XOH)

| Length | D68D | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

| Subcommand | Subcommand Data |
|---|---|

The Execute Order Home State command identifies a set of subcommands (orders) for formatting physical mediums of data, printing groups of physical mediums, and managing the fonts, page segments, and overlays. This command is only valid while the printer is in the home state.

The data field contains a two byte order, called the subcommand, and a subcommand data field. There is only one subcommand for a single XOH command. The subcommand data field contains parameters for that order.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The valid orders for the XOH command for the S828 Printer are:

| Order | Description |
|---|---|
| 0100 | Print Buffered Data (PBD) |
| 0500 | Erase Residual Print Data (ERPD) |
| 0700 | Erase Residual Font Data (ERFD) |
| 0D00 | Stack Received Pages (SRP) |
| 1500 | Select Input Media Source (SIMS) |
| 1700 | Set Media Size (SMS) |
| F300 | Obtain Printer Characteristics (OPC) |

## Print Buffered Data (PBD)

This subcommand causes the printer to print all buffered data pages prior to sending the Acknowledgment Reply, if requested. The print buffer clears at the completion of this command.

## Erase Residual Print Data (ERPD)

This is a data security and privacy order. This order causes the printer to first complete a Print Buffered Data order, then delete all page segments, overlays, and buffered page data (text, image, graphics, and bar codes) from the printer storage.

## Erase Residual Font Data (ERFD)

This is a data security and privacy order. This order causes the printer to first complete a Print Buffered Data order, then delete all font information from the printer storage.

## Stack Received Pages (SRP)

This command is a synchronizing command. It is accepted by the S828 Printer, but it is functionally a no-op because of the simple paper path.

## Select Input Media Source (SIMS)

The Select Input Media Source (SIMS) subcommand selects an input media source ID and indirectly selects the input for subsequent sheets. This subcommand applies to the sheet that the next received page is printed on.

The size of the input media can be specified explicitly by the Set Media Size command or implicitly by the assumptions the printer makes about the size of the media in the input media source selected by this subcommand.

The set of valid Media Source ID values depend on what paper sources are currently installed. The following tables give the valid values for the configurations described in each table.

If the printer is in 4247 mode or an emulation mode with one or two tractors installed, valid values are:

Table 7. Front and Rear with no linking

| | | |
|---|---|---|
| Bytes 0-1 | X'1500' | Select Input Media Source Order Code |
| Byte 2 | X'00' | Front Paper Source |
| | X'01' | Rear Paper Source (if configured) |
| | X'FF' | Printer Default Bin |

## Set Media Size (SMS)

The Set Media Size subcommand specifies the size of the physical medium.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Refer to your printer's Administrators Manual for information on setting operator media size input.

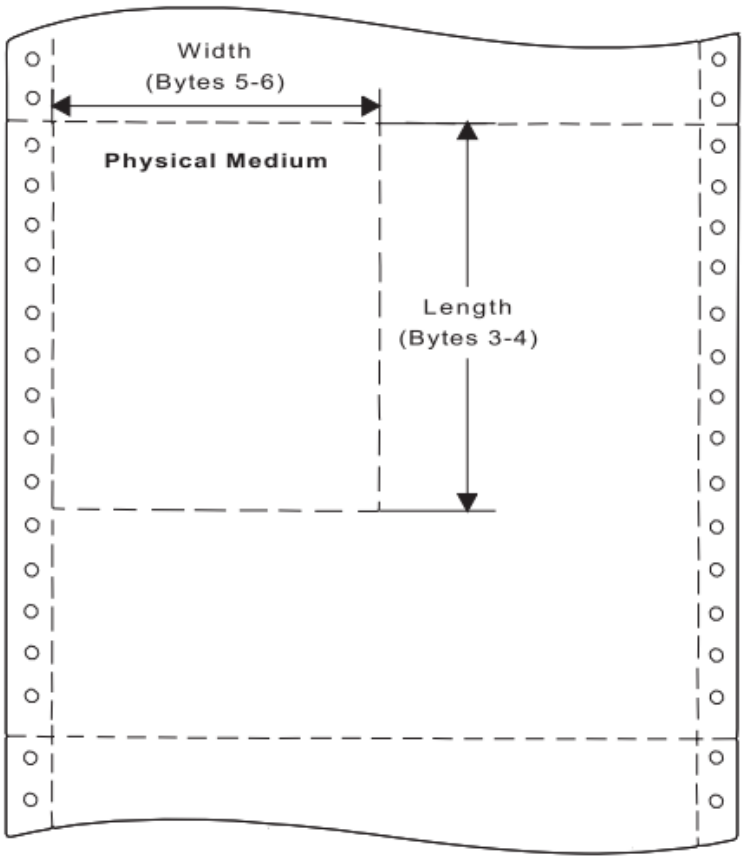



Figure 14. Using the Set Media Size Command to Specify the Physical Medium

The data field for the Set Media Size subcommand has the following format:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 00 | Unit Base (10 in.) |
| | | 01 | Unit Base (10 cm.) |
| 1-2 | 1-2 | 5A0-7FFF | Units per Base Value (per 10 in.) |
| | | 1626-7FFF | Units per Base Value (per 10 cm) |
| 3-4 | 3-4 | 000A-4A40 | X-Extent of the Physical Medium in Units |
| | | FFF | Use Current MPP |
| 5-6 | 5-6 | 000A-7FFF | Y-Extent of the Physical Medium in Units |
| | | FFFF | Use Current MPL |

## Obtain Printer Characteristics (OPC)

This subcommand is a host request for information about the current printer environment characteristics. The printer responds by placing the requested information in the Special Data (SD)area of a subsequent Acknowledge Reply. The printer reply is a series of self-defining fields describing the printer characteristics. The OPC data is returned in more than one response buffer. The self-defining fields contain specific information about the printer characteristics. If the ARQ flag was not set on for the XOH command containing this order, then this order is equivalent to a No Operation.

## Acknowledge Reply for Obtain Printer Characteristics:

| Length | D6FF | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The following charts describe the self-defining data fields.

## Acknowledge Type and Counters:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | 06 | Acknowledgement Type (4 byte) |
| 1-4 | 1-4 | XXXXXXXX | Page/Copy Counters |

## Printable Area Self-Defining Field: The page extents are set at initialization time to reflect the operator panel settings. The Set Media Size command can change the page extents. For 4247 mode and all emulation modes with one or two tractors installed:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0018 | Length of this Field |
| 2-3 | 2-3 | 0001 | Printable Area ID |
| 4 | 4 | | Media Source ID (See notes) |
| | | 00 | Front Continuous Forms |
| | | 01 | Rear Continuous Form |
| 5 | 5 | 00 | Reserved |
| 6 | 6 | 00 | 00 Unit Base (10 in.) |
| 7 | 7 | 00 | Reserved |
| 8-9 | 8-9 | 3840 | Units per Base Value (Decimal 14400 per 10 in.) |
| 10-11 | A-B | XXXX | Current Forms X-Extent |
| 12-13 | C-D | XXXX | Current Forms Y-Extent |
| 14-15 | E-F | 0000 | Printable Area X-Offset |
| 16-17 | 10-11 | 0000 | Printable Area Y-Offset |
| 18-19 | 12-13 | XXXX | Printable Area X-Extent (from Page Extent) |
| 20-21 | 14-15 | XXXX | Printable Area Y-Extent from Page Extent |
| 22-23 | 16-17 | XX00 | Input Media Source Characteristics |
| | | Bit 0 | 0 =No Duplex |
| | | Bit 1,2 | 01=Continuous Forms |
| | | Bit 3 | 1 =Media Source Available |
| | | Bit 4 | 0 =Reserved (Always 0) |
| | | Bit 5 | 0 =Reserved (Always 0) |
| | | Bit 6 | 0 =Reserved (Always 0) |
| | | Bit 7 | 0 =Reserved (Always 0) |

**Note:** The Printable Area Self-Defining Field is returned once for each installed media source; that is, front and rear tractor.

## Symbol-Set Support Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0046 | Length of this field |
| 2-3 | 2-3 | 0002 | Symbol Set Support ID |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 4 | 4 | 10 | Length of Self-Defining Parameter |
| 5 | 5 | 01 | Fixed Box Size Support (Fixed Pitch NLQ) |
| 6 | 6 | 14 | X-Box Size in Pels (20) |
| 7 | 7 | 12 | Y-Box Size in Pels (18) |
| 8 | 8 | 00 | Reserved |
| 9 | 9 | 02 | Repeating Group Length |
| 10-11 | A-B | 000B | 10 CPI Courier (NLQ) |
| 12-13 | C-D | 0055 | 12 CPI Courier (NLQ) |
| 14-15 | E-F | 00DF | 15 CPI Courier (NLQ) |
| 16-17 | 10-11 | 0013 | 10 CPI OCR-A (NLQ) |
| 18-19 | 12-13 | 0003 | 10 CPI OCR-B (NLQ) |
| 20 | 14 | 0C | Length of Self Defining Parameter |
| 21 | 15 | 01 | Fixed Box Size Support (Fixed Pitch DP Text) |
| 22 | 16 | 14 | X-Box Size in Pels (20) |
| 23 | 17 | 09 | Y-Box Size in Pels (9) |
| 24 | 18 | 00 | Reserved |
| 25 | 19 | 02 | Repeating Group Length |
| 26-27 | 1A-1B | 000B | 10 CPI Courier (DP Text) |
| 28-29 | 1C-1D | 0055 | 12 CPI Courier (DP Text) |
| 30-31 | 1E-1F | 00DF | 15 CPI Courier (DP Text) |
| 32 | 20 | 0E | Length of Self Defining Parameter |
| 33 | 21 | 01 | Fixed Box Size Support (Fixed Pitch DP Text) |
| 34 | 22 | A0 | X-Box Size in Pels (20) |
| 35 | 23 | 09 | Y-Box Size in Pels (9) |
| 36 | 24 | 00 | Reserved |
| 37 | 25 | 02 | Repeating Group Length |
| 38-39 | 26-27 | 001A | 10 CPI Gothic (DP) |
| 40-41 | 28-29 | 0057 | 12 CPI Gothic (DP) |
| 42-43 | 2A-2B | 00DE | 15 CPI Gothic (DP) |
| 44-45 | 2C-2D | 0190 | 16.7 CPI Gothic (DP) |
| 46 | 2E | 0C | Length of Self Defining Parameter |
| 47 | 2F | 02 | Variable Box Size Support (PSM NLQ) |
| 48 | 30 | 00 | Unit Base (10 in.) |
| 49 | 31 | 00 | Reserved |
| 50-51 | 32-33 | 0960 | Units per Unit Base (2400) |
| 52 | 34 | FF | Maximum X-Box Size in Pels (255) |
| 53 | 35 | 12 | Y-Box Size in Pels (18) |
| 54 | 36 | 00 | Reserved |
| 55 | 37 | 02 | Repeating Group Length |
| 56-57 | 38-39 | 00A0 | PSM Essay (NLQ) |
| 58 | 3A | 0C | Length of Self-Defining Parameter |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 59 | 3B | 02 | Variable Box Size Support (PSM DP Text) |
| 60 | 3C | 00 | Unit Base (10 in.) |
| 61 | 3D | 00 | Reserved |
| 62-63 | 3E-3F | 0960 | Units per Unit Base (2400) |
| 64 | 40 | FF | Maximum X-Box Size in Pels (255) |
| 65 | 41 | 09 | Y-Box Size in Pels (9) |
| 66 | 42 | 00 | Reserved |
| 67 | 43 | 02 | Repeating Group Length |
| 67-68 | 44-45 | 00A0 | PSM Essay (DP Text) |

## Image/Coded-Font Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 000A | Length of this field |
| 2-3 | 2-3 | 0003 | Image/Coded-Font Resolution ID |
| 4 | 4 | 00 | Unit Base (10 in.) |
| 5 | 5 | 00 | Reserved |
| 6-7 | 6-7 | 05A0 | X Pels per Base Value (Decimal 1440 per 10 in.) |
| 8-9 | 8-9 | 05A0 | Y Pels per Base Value (Decimal 1440 per 10 in.) |

## Storage Pools Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 000F | Length of this field |
| 2-3 | 2-3 | 0004 | Storage Pools ID |
| 4 | 4 | 0B | Length of Self-Defining Parameter |
| 5 | 5 | 01 | Triplet ID |
| 6 | 6 | 00 | Storage Pool ID |
| 7-10 | 7-A | 0006D000 | Size of Storage Pool when empty |
| 11-14 | B-E | 00000000 | Reserved |

## Foreground Color Support Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0006 | Length of this field |
| 2-3 | 2-3 | 0005 | Foreground Color |
| 4-5 | 4-5 | 0008 | Black Ribbon |

## Installed Features Self-Defining Field:

| Decimal | Hex | alue | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0006 | Length of this field |
| 2-3 | 2-3 | 0006 | Installed Features ID |
| 4-5 | 4-5 | 0B00 | Continuous Forms Output |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Available Features Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0006 | Length of this field |
| 2-3 | 2-3 | 0007 | Available Features |
| 4-5 | 4-5 | 0B00 | Continuous Forms Output |

## Resident-Symbol Set Support Self-Defining Field: For Ethernet interfaces:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 00B6 | Length of this field |
| 2-3 | 2-3 | 0008 | Resident Symbol Set Support |
| 4 | 4 | 6A | Length of this field |
| 5 | 5 | 01 | Code Page Support |
| 6 | 6 | 56 | Length of Code Page List |
| 7 | 7 | 02 | Length of CP Repeating Group Entry |
| 8-9 | 8-9 | 01A7 | CP423 Greek (Old) |
| 10-11 | A-B | 01A8 | CP424 Hebrew (New) |
| 12-13 | C-D | 01B5 | CP437 PC Extended |
| 14-15 | E-F | 0323 | CP089 Hebrew (Old) |
| 16-17 | 10-11 | 0366 | CP870 Latin 2/ROECE |
| 18-19 | 12-13 | 0367 | CP871 Icelandic |
| 20-21 | 14-15 | 036B | CP875 Greek (New) |
| 22-23 | 16-17 | 0402 | CP1026 Turkish |
| 24-25 | 18-19 | 0100 | CP256 International #1 |
| 26-27 | 1A-1B | 01F4 | CP500 International #2 |
| 28-29 | 1C-1D | 0025 | CP037 USA/Canada |
| 30-31 | 1E-1F | 0104 | CP260 Canadian French |
| 32-33 | 20-21 | 0111 | CP273 Austrian/German |
| 34-35 | 22-23 | 0112 | CP274 Belgian |
| 36-37 | 24-25 | 0113 | CP275 Brazilian |
| 38-39 | 26-27 | 0115 | CP277 Danish/Norwegian |
| 40-41 | 28-29 | 0116 | CP278 Finnish/Swedish |
| 42-43 | 2A-2B | 0118 | CP280 Italian |
| 44-45 | 2C-2D | 0119 | CP281 Japanese English |
| 46-47 | 2E-2F | 011A | CP282 Portuguese |
| 48-49 | 30-31 | 011C | CP284 Spanish and Spanish-Speaking |
| 50-51 | 32-33 | 011D | CP285 English (UK) |
| 52-53 | 34-35 | 0129 | CP297 French (Alternate) |
| 54-55 | 36-37 | 011E | CP286 Austrian/German (Alternate) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 56-57 | 38-39 | 0121 | CP289 Spanish (Alternate) |
| 58-59 | 3A-3B | 0120 | CP288 Finnish/Swedish (Alternate) |
| 60-61 | 3C-3D | 011F | CP287 Danish/Norwegian (Alternate) |
| 62-63 | 3E-3F | 033F | CP831 Portuguese (Alternate) |
| 64-65 | 40-41 | 037A | CP890 Yugoslav |
| 66-67 | 42-43 | 0458 | CP1112 Baltic Multilingual |
| 68-69 | 44-45 | 0462 | CP1122 Estonian |
| 70-71 | 46-47 | 0474 | CP1140 USA/Canada + euro |
| 72-73 | 48-49 | 0475 | CP1141 Austrian/German + euro |
| 74-75 | 4A-4B | 0476 | CP1142 Danish/Norwegian +euro |
| 76-77 | 4C-4D | 0477 | CP1143 Finnish/Swedish + euro |
| 78-79 | 4E-4F | 0478 | CP1144 Italian + euro |
| 80-81 | 50-51 | 0479 | CP1145 Spanish/Spanish Speaking + euro |
| 82-83 | 52-53 | 047A | CP1146 English UK + euro |
| 84-85 | 54-55 | 047B | CP1147 French + euro |
| 86-87 | 56-57 | 047C | CP1148 International 5 / Beligian New + euro |
| 88-89 | 58-59 | 047D | CP1149 Icelandic + euro |
| 90-91 | 5A-5B | 039C | CP924 Latin 9 ISO 8859 +euro |
| 92 | 5C | 12 | Length of Font ID List |
| 93 | 5D | 02 | Length of Font ID Repeating Group Entry |
| 94-95 | 5E-5F | 000B | 10 CPI Courier (DP Text and NLQ) |
| 96-97 | 60-61 | 0055 | 12 CPI Courier (DP Text and NLQ) |
| 98-99 | 62-63 | 00DF | 15 CPI Courier (DP Text and NLQ) |
| 100-101 | 64-65 | 001A | 10 CPI Gothic (Fast Draft and DP) |
| 102-103 | 66-67 | 0057 | 12 CPI Gothic (Fast Draft and DP) |
| 104-105 | 68-69 | 00DE | 15 CPI Gothic (Fast Draft and DP) |
| 106-107 | 6A-6B | 0190 | 16.7 CPI Gothic (Fast Draft and DP) |
| 108-109 | 6C-6D | 00A0 | PSM ESSAY (DP Text and NLQ) |
| 110 | 6E | 28 | Total Length of CP List |
| 111 | 6F | 01 | CP Support |
| 112 | 70 | 16 | Length of CP List |
| 113 | 71 | 02 | Length of CP Repeating Group Entry |
| 114-115 | 72-73 | 0122 | CP290 Japanese Katakana |
| 116-117 | 74-75 | 01A4 | CP420 Arabic |
| 118-119 | 76-77 | 0346 | CP838 Thai |
| 120-121 | 78-79 | 0370 | CP880 Cyrillic (Old) |
| 122-123 | 7A-7B | 0401 | CP1025 Cyrillic Multinational |
| 124-125 | 7C-7D | 03EA | CP1002 DCF Compatibility (Release 2) |
| 126-127 | 7E-7F | 0125 | CP293 APL (4224 Compatibility) |
| 128-129 | 80-81 | 0136 | CP310 APL |
| 130-131 | 82-83 | 0341 | CP833 Korean |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 132-133 | 84-85 | 0449 | CP1097 Farsi |
| 134 | 86 | 10 | Length of Font ID List |
| 135 | 87 | 02 | Length of Font ID Repeating Group Entry |
| 136-137 | 88-89 | 000B | 10 CPI Courier (DP Text and NLQ) |
| 138-139 | 8A-8B | 0055 | 12 CPI Courier (DP Text and NLQ) |
| 140-141 | 8C-8D | 00DF | 15 CPI Courier (DP Text and NLQ) |
| 142-143 | 8E-8F | 001A | 10 CPI Gothic (Fast Draft and DP) |
| 144-145 | 90-91 | 0057 | 12 CPI Gothic (Fast Draft and DP) |
| 146-147 | 92-93 | 00DE | 15 CPI Gothic (Fast Draft and DP) |
| 148-149 | 94-95 | 0190 | 16.7 CPI Gothic (Fast Draft and DP) |
| 150 | 96 | 0C | Total Length of CP List |
| 151 | 97 | 01 | CP Support |
| 152 | 98 | 04 | Length of CP List |
| 153 | 99 | 02 | Length of CP Repeating Group Entry |
| 154-155 | 9A-9B | 0154 | CP 340,OCR (4224 compatibility) |
| 156 | 9C | 06 | Length of Font ID List |
| 157 | 9D | 02 | Length of Font ID Repeating Group Entry |
| 158-159 | 9E-9F | 0013 | OCR-B Quality |
| 160-161 | A0-A1 | 0003 | OCR-A Quality |
| 162 | A2 | 0A | Total Length of CP List |
| 163 | A3 | 01 | CP Support |
| 164 | A4 | 04 | Length of CP List |
| 165 | A5 | 02 | Length of CP Repeating Group Entry |
| 166-167 | A6-A7 | 037C | CP 892,OCR-A |
| 168 | A8 | 04 | Length of Font ID List |
| 169 | A9 | 01 | Length of Font ID Repeating Group Entry |
| 170-171 | AA-AB | 0013 | OCR-A Quality |
| 172 | AC | 0A | Total Length of CP List |
| 173 | AD | 01 | CP Support |
| 174 | AE | 04 | Length of CP List |
| 175 | AF | 02 | Length of CP Repeating Group Entry |
| 176-177 | B0-B1 | 037D | CP 893,OCR-B |
| 178 | B2 | 04 | Length of Font ID List |
| 179 | B3 | 02 | Length of Font ID Repeating Group Entry |
| 180-181 | B4-B5 | 0003 | OCR-B Quality |

**Print Quality Support Self-Defining Field:** These values apply if Host Fast Draft is disabled in the printer configuration menu:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0007 | Length of this field |
| 2-3 | 2-3 | 0009 | Print Quality ID |
| 4 | 4 | 01 | DP Quality |
| 5 | 5 | 56 | DP Text Quality |
| 6 | 6 | AB | NLQ |

These values apply if Host Fast Draft **is enabled** in the printer configuration menu:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0008 | Length of this field |
| 2-3 | 2-3 | 0009 | Print Quality ID |
| 4 | 4 | 01 | Fast Draft Quality |
| 5 | 5 | 2B | DP Quality |
| 6 | 6 | 56 | DP Text Quality |
| 7 | 7 | AB | NLQ |

## XOA RRL RT & RIDF Support Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0006 | Length |
| 2-3 | 2-3 | 000A | RRL Resource Type Self Defining Field |
| 4-5 | 4-5 | FF00 | All Resources as Host Assigned Resource ID |

## Common Bar Code Type Self-Defining Field:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0007 | Length of this field |
| 2-3 | 2-3 | 000E | RRL Resource Type Self Defining Field |
| 4 | 4 | 0D | Codabar Modifier Byte Options X'01' and X'02' |
| 5 | 5 | 11 | Code 128 Modifier Byte Options X'02' |
| 6 | 6 1 | 8 | POSTNET Modifier Byte Options X'00' - X'03' |

## Product Identifier Self-Defining Field: If the printer is in 4247 native or 4230 Emulation Mode:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 003C | Length |
| 2-3 | 2-3 | 0013 | Product Identifier |
| 4 | 4 | 38 | Length of this ID |
| 5-6 | 5-6 | 0001 | 4247 with Page Counter Fix ID |
| 7-12 | 7-C | F0F0F4F2F4F7 | Device Type |
| 13-15 | D-F | E5F0F3 | Model Number |
| 16-18 | 10-12 | C9C2D4 | Manufacturer |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 19-20 | 13-14 | F0F1 | Plant of Manufacture |
| 21-32 | 15-20 | XX...XX | Sequence Number |
| 33-34 | 21-22 | 0000 | Tag |
| 35-43 | 23-2B | XX...XX | EC Level |
| 44-59 | 2C-3B | XX...XX | Device Specific |

If the printer is in 4224 emulation mode:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 003F | Length |
| 2-3 | 2-3 | 0013 | Product Identifier |
| 4 | 4 | 03 | Length of this Field |
| 5-6 | 5-6 | 0000 | 4224 with Page Counter Fix ID |
| 7 | 7 | 38 | Length of this Field |
| 8-9 | 8-9 | 0001 | 4224 Product Identifier Parameter ID |
| 10-15 | A-F | F0F0F4F2F4F7 | Device Type |
| 16-18 | 10-12 | E5F0F3 | Model Number |
| 19-21 | 13-15 | C9C2D4 | Manufacturer |
| 22-23 | 16-17 | F0F1 | Plant of Manufacture |
| 24-35 | 18-23 | XX...XX | Sequence Number |
| 36-37 | 24-25 | 0000 | Tag |
| 38-46 | 26-2E | XX...XX | EC Level |
| 47-62 | 2F-3E | XX...XX | Device Specific |

## Execute Order Any State (XOA)

| Length | D633 | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

| Subcommand | Subcommand Data |
|---|---|

The Execute Order Any State command identifies a set of subcommands (orders) that take effect immediately, regardless of the current printer command state. This command is valid in any state.

Each data field contains a two byte order (subcommand), followed by a zero or more bytes of parameters for that order. There is only one subcommand for a single XOA command.

The valid orders for the XOA command are:

| Order | Description |
|---|---|
| 1000 | Activate Printer Alarm (APA) |
| F200 | Discard Buffered Data (DBD) |
| F400 | Request Resource List (RRL) |
| F600 | Exception Handling Control (EHC) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Order | Description |
|---|---|
| F800 | Print Quality Control (PQC) |

## Activate Printer Alarm (APA)

The XOA Activate Printer Alarm (APA) subcommand signals the printer to activate the alarm mechanism. As long as the printers alarm function is enabled, the alarm will be turned on in response to this command. It will remain on until Stop is pressed.

After processing this command, the printer continues to process the incoming IPDS data stream. If synchronization of actions is desired, the application must ensure if the appropriate commands are sent to the printer.

## Discard Buffered Data (DBD)

The XOA Discard Buffered Data (DBD) subcommand deletes all buffered data from the printer storage and returns the printer to home state. Any data currently being received is deleted. If this order is syntactically correct, no exceptions can result from its execution. The DBD order does not affect completely received resources, such as fonts, page segments, and overlays; however, if the printer is in any resource state, the printer deletes the partial resource before returning to home state. If the printer is in Ordered Page Mode, the subcommand prints all buffered data to the point of the command, does a page eject, and returns to Home State.

The DBD order is a synchronizing command. Any command following a synchronizing command is not processed until all preceding commands have been completely processed. Also, the ACK of the DBD order is not returned until DBD processing is complete.

## Request Resource List (RRL)

This subcommand is a request from the host application program for the printer to identify resources currently allocated in the printer. The printer responds by placing the requested information in the Special Data (SD) area of a subsequent Acknowledge Reply.

The subcommand and subcommand data field has the following format:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | F400 | RRL Order Code |
| 2 | 2 | FF | Device Defined Ordering |
| 3-4 | 3-4 | XXXX | Entry Continuation Indicator (See Note 1) |
| 5 | 5 | 03 - FF | Entry Length |
| 6 | 6 | | Resource Type Requested (See Note 2) |
| | | 01 | Single Byte Fonts |
| | | 04 | Page Segments |
| | | 05 | Overlays |
| | | FF | All Resources |
| 7 | 7 | 00 | Resource ID Format |
| | | | Host-Assigned Resource ID |
| 8-9 | 8-9 | XXXX | Resource ID (See Note 2) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Notes:
1. If the entire resource list does not fit in the Special Data Area of the Acknowledge Reply, continuation is necessary which the S828 Printer will indicate using the Acknowledgement Continuation bit in the flag byte of the Acknowledge Reply. If the host requests Acknowledgement Continuation by sending a command with ARQ bit and the Continuation bit set, the printer will complete the RRL reply using Acknowledgement Continuation. If the host requests RRL continuation (by sending an RRL command with nonzero values in bytes 3 and 4), the printer will use continuation, the printer will default to RRL continuation.
2. For overlays, segments, and symbol sets, this is their two byte ID. This field is omitted when the resource type equals All.

## Acknowledge Reply for Request Resource List

| Length | D6FF | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

The format of the resource list returned with the Acknowledge Reply is as follows:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0 | 0 | FF | Unordered List |
| 1 | 1 | 01 | End of List |
| | | 06 | Length of this Entry |
| 2 | 2 | | Resource Type |
| | | 00 | Resource Size equals 0. The queried Resource Type, ID Format, or ID is unknown, unsupported, or inconsistent. |
| | | 01 | Deletable Single Byte Coded Font |
| | | 04 | Deletable Overlays |
| | | 05 | Resource Size equals 0 |
| | | FF | The List Query requested is not supported. |
| 3 | 3 | 01 | Resource ID Format (RIDF) |
| | | | Host-Assigned Resource ID |
| 4 | 4 | | Resource Size Indicator |
| | | 00 | Resource Not Present |
| | | 01 | Resource Present |
| 5-6 | 5-6 | XXXX | Resource ID |

**Note:** Bytes 2 - 6 repeat for each resource type.

## Exception Handling Control (EHC)

An exception (error) exists when the printer detects an invalid or unsupported command, control, or parameter value in the data stream received from the host. The IPDS structure provides Alternate Exception Action (AEA) when the printer receives a valid parameter value, but the printer does not support this value. The Exception Handling Control subcommand allows the host control of exception handling by the printer. This subcommand specifies the action the printer is to take with respect to the reporting and processing of exception (error) conditions. The format of the EHC subcommand is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | F600 | EHC Order Code |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 2 | 2 | | Exception Reporting |
| Bit 0 | Bit 0 | | Undefined Character Check |
| | | 0 | Do Not Report Exceptions |
| | | 1 | Report Exceptions |
| Bit 1 | Bit 1 | | Page Position Check |
| | | 0 | Do Not Report Exceptions |
| | | 1 | Report Exceptions |
| Bit 2-6 | Bit 2-6 | | Reserved |
| Bit 7 | Bit 7 | | All other Errors |
| | | 0 | Do Not Report Exceptions |
| | | 1 | Report Exceptions |
| 3 | 3 | | Alternate Exception Action |
| Bit 0-6 | Bit 0-6 | | Reserved |
| Bit 7 | Bit 7 | 0 | Take Alternate Exception Action and Continue |
| | | 1 | Do Not Take Alternate Exception Action, Proceed per Byte 4 |
| 4 | 4 | | Exception Presentation Processing |
| Bit 0-5 | Bit 0-5 | | Reserved |
| Bit 6 | Bit 6 | 0 | No Page Continuation |
| | | 1 | Page Continuation (Skip and Continue Action) |
| Bit 7 | Bit 7 | 0 | Discard Page |
| | | 1 | Print to point of exception |

**Exception Reporting:** Byte 2 of the EHC subcommand handles exception reporting. Bits 0, 1, and 7 of this byte may be set to report or not report exceptions as defined below. If the exception has no Alternate Exception Action or the printer is told not to take the Alternate Exception Action, the exception is always reported.

- Bit 0: Report Undefined Character Check
  When this bit is set to 1, an undefined data character in a Write Text, Write Graphics, or Write Bar Code command causes the printer to report an error to the host program. When this bit is set to 0, the printer does not report Undefined Character Check errors.
- Bit 1: Report Page Position Check
  Printing occurs only where the physical medium and the logical page overlap. When bit 1 is set to 1, an attempt to print outside the overlap of the logical page and the physical medium causes the printer to report an error. If bit 1 is set to 0, the printer does not report Position Check errors.
- Bits 2-6: Reserved
- Bit 7: Report all other exceptions



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

If this bit is set to 1, the printer reports all exceptions other than those defined by bits 0-1. If this bit is set to 0, the printer does not report errors other than those specified above.

If the printer is in home state or the application requests an Acknowledge Reply in an IPDS command, the printer reports exceptions with a Negative Acknowledge Reply (NACK). If an exception occurs within a page, overlay, or page segment, the printer reports the NACK instead of sending a positive acknowledgment of the page, overlay, or page segment.

The first asynchronous NACK is the only one reported, even though other synchronous NACKs may be detected before the first NACK is reported. If the printer has a pending exception (the exception has occurred but has not yet been reported), the printer reports the exception when exception handling control directs.

**Alternate Exception Action**: Byte 3 of the EHC subcommand controls Alternate Exception Actions.

- Bits 0-6: Reserved
- Bit 7: Alternate Exception Action (AEA) control

This bit defines how printer processing continues when a data stream error occurs.
If the bit is set to 0, the printer continues processing with the Alternate Exception Action. If the error has no Alternate Exception Action defined, the printer continues as though this bit contained a 1.
If this bit is set to 1 or no AEA is defined, the printer reports the error regardless of the value in the Exception Reporting byte above. The printer continues processing as defined by the contents of the Exception Presentation Processing byte below.

**Exception Presentation Processing**: Byte 4 of the EHC subcommand defines what the printer does when exceptions occur in any state except home state.

- Bits 0-5: Reserved
- Bit 6: Page Continuation

  If bit 6 is 0, the printer does the following:
  – Terminates processing of the page, overlay, or page segment data
  – Prints as much of the previously processed data as possible
  – Enters home state.
  If bit 6 is set to 1, the printer ignores bit 7 (Error Page Print) after taking a skip and continue action. The printer remains in the current state and treats subsequent commands as No Operation (NOP) until it encounters either the next valid command or a terminating condition.

  **1. Skip and Continue Action**
  Skip and Continue Actions are attempts by the printer to skip the remainder of the IPDS block containing the exception and to print subsequent blocks or text on the page (if any).
  The printer treats all subsequent commands other than Any State commands (NOP, SHS, STM, and XOA) as No Operation (NOP) commands until it encounters either the next valid command or a terminating condition. The printer remains in page, page segment, or overlay state. If the printer is in a block state, the End command is the next valid command that returns the printer to page, page segment, or overlay state. When the next valid command is encountered, the printer begins normal processing again. The exception that caused the skip and continue action is reported when the end of the page is reached, when an XOA command sets home state, or when a command with an ARQ is received. The following conditions determine the next valid command:

  – If the exception occurs in a Write Text command, a Load Font Equivalence command, or an Include Page Segment command, the next valid command is End Page, Set Home State, or XOA Discard Buffered Data.
  – If the exception occurs in a block state, the next valid command is End.
  – If the exception occurs in an Any-state command, the next valid command is the command that follows.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

– If the exception occurs in any other command, the next valid command is one of the following (if supported):
- Write Text
- Include Overlay
- Include Page Segment
- Write Text Control
- Write Image Control
- Write Image Control 2
- Write Bar Code Control
- Write Graphics Control
- End Page
- Set Home State
- XOA Discard Buffered Data
- Load Font Equivalence.

If the following terminating conditions occur, the printer returns to home state and reports the indicated exception:

– An asynchronous exception occurs such that the printer cannot recover without host intervention. The asynchronous exception is reported and the exception that caused the skip and continue action is discarded.
– A command is received with the ARQ flag set on. The exception that caused the skip and continue action is reported.
– A command is received with a length outside the valid IPDS range. The exception that caused the skip and continue action is reported.
– A command is received that violates the IPDS state diagram. The exception that caused the skip and continue action is reported.

During skip and continue actions, Any-state commands are treated as follows:

– SHS and XOA-DBD are next valid commands in all cases. They are processed, the skip and continue action processing is terminated, the exception is reported, and normal command processing resumes.
– Any-state commands with the ARQ bit set on are terminating conditions. They are not processed; they terminate skip and continue processing, the exception is reported, and the printer returns to home state.
– All other Any-state commands are processed as normal. However, subsequent non-Any-state, non-next valid commands are skipped.

Exceptions detected in included overlays or page segments are treated as though the commands were received as part of the page.

● Bit 7: Error Page Print

If both bits 6 and 7 are set to 1, bit 7 is ignored. If bit 6 is 0 and bit 7 is 1, the printer prints as much of the page as possible and returns to home state.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

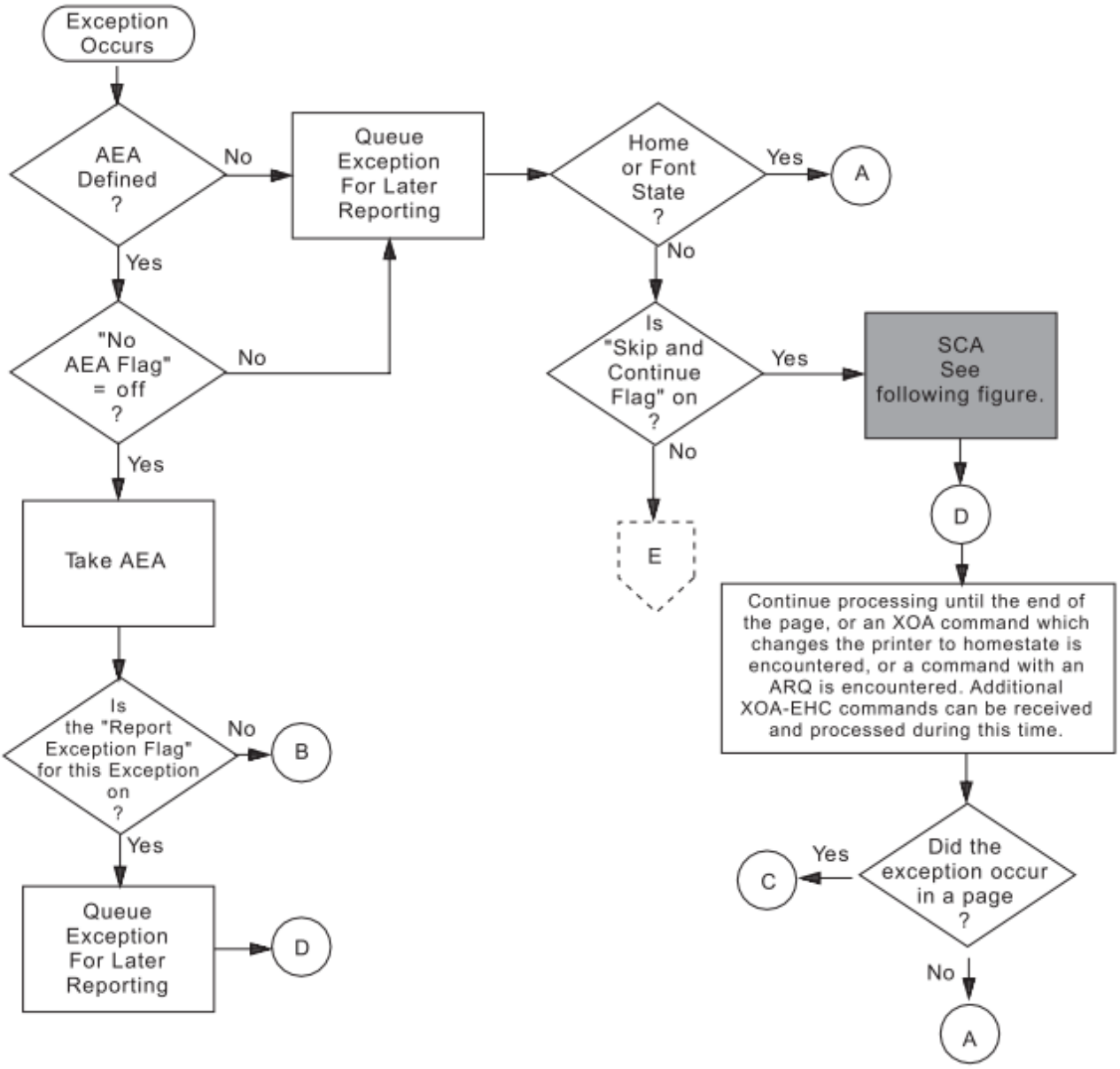



Figure 15. Exception Handling Control (Part 1 of 3)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

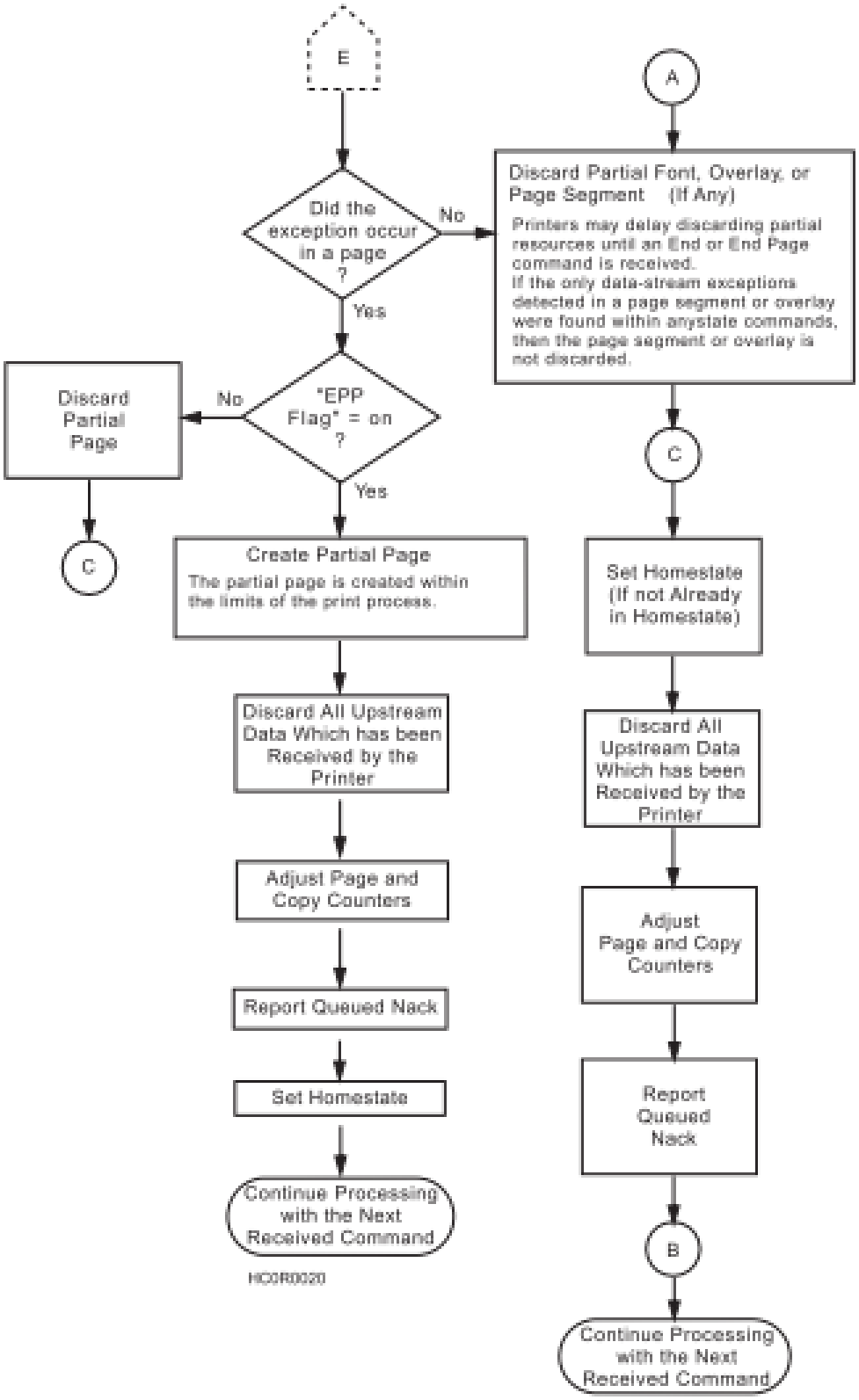



Figure 15. Exception Handling Control (Part 2 of 3)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

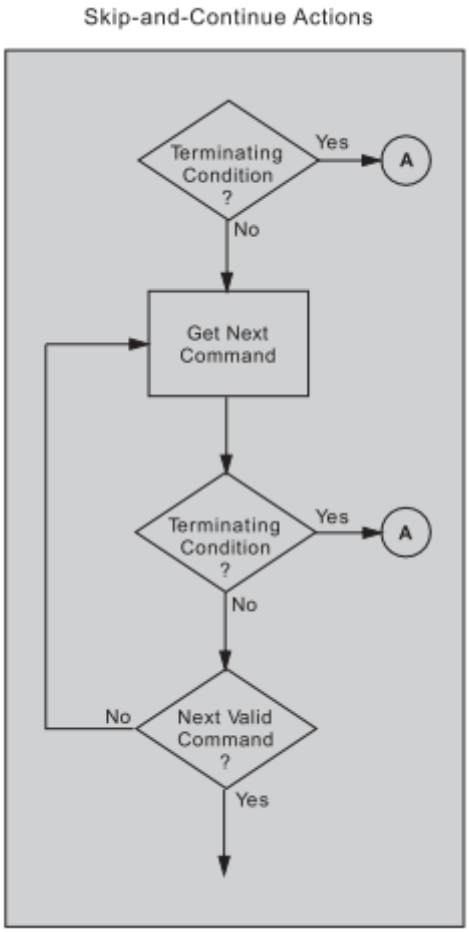



Figure 15. Exception Handling Control (Part 3 of 3)

**Print Quality Control (PQC)**

The Print Quality Control subcommand allows the host to specify the desired print quality without changing fonts (see notes). The quality selection (from the PQC subcommand) specifies the quality for printing text associated with fonts selected by the Set Coded Font Local (SCFL) command and defined by the Load Font Equivalence (LFE) command. A PQC specifying a print quality compatible with the desired font should precede the SCFL command. The PQC has no effect when the default font (defined by the offline operator panel selection) is in use.

The following bytes contain the print quality selection, as shown:

| Byte | Value | Description |
|---|---|---|
| Bit 0-1 | F800 | PQC Order Code |
| Bit 2 | 00 | Reserved |
| | 01 - 55 | DP |
| | 56 - AA | DP Text |
| | AB - FE | NLQ |
| | FF | Depends on Operator Panel setting |

**Note:** Host Fast Draft disabled.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The following bytes contain the print quality selection, as shown:

| Byte | Value | Description |
|---|---|---|
| Bit 0-1 | F800 | PQC Order Code |
| Bit 2 | 01 - 2A | Fast Draft Quality |
| | 2B - 55 | DP |
| | 56 - AA | DP Text |
| | AB - FE | NLQ |
| | FF | Depends on Operator Panel setting |

**Note:** S828 only with Host Fast Draft enabled.

For printing multiple-density selections of graphics and bar codes, the following values are valid if bar code/graphics density is set to computer selected:

| Byte | Value | Description |
|---|---|---|
| Bit 0-1 | F800 | PQC Order Code |
| Bit 2 | 01 - 55 | Low-Density Graphics/Bar Codes |
| | 56 - FE | High-Density Graphics/High-Contrast Bar Codes |
| | FF | Depends on Operator Panel setting |

**Notes:**
1. A PQC command can result in a font change in order to provide the desired quality level.
2. The printer changes fonts to satisfy quality selections for all supported code pages except OCR (340), OCR-A (892), or OCR-B (893). It will not change the selected code page to provide a requested quality.

# Text Function Set Commands

The text function set contains the commands and data controls for presenting text information on a logical page, page segment, or overlay area on the physical medium. The following commands are the text function set:

The following pages describe the text function set commands.

## Load Equivalence (LE)

| Length | D61D | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

This command permits Begin and End suppression controls imbedded in data stored within the printer to reference different external values. For example, internal suppression values of 06, 07, and 09 (from a Begin Suppression control) can map to an external value of 02 from a Load Copy Control command, if the printer previously has received an appropriate Load Equivalence command. Thus, the printer can use a single Load Copy Control suppression pair for more than one suppression value (see “Begin Suppression (BSU)”).



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

If a Load Copy Control command refers to a suppression identifier that has not been specified as an external value in an LE command, the identifier (external value) will map to itself. This is the only case where the identifier will map to itself unless specified.

This mapping remains in effect until the printer receives another Load Equivalence command, at which time its values will totally replace this mapping.

This command consists of a two-byte parameter followed by a list of 0 to 127 four-byte entries in the following format:

| Decimal | Hex | Description |
|---|---|---|
| 0-1 | 0-1 | Mapping Type - X'0100' Is the Only Valid Value, Indicating Suppression Equivalence Mapping. |
| 2-3 | 2-3 | Internal Value - Value of the Stored Parameter that the Begin Suppression and End Suppression Controls use. Valid Values are from 1 to 255 (X'1' to X'FF'). |
| 4-5 | 4-5 | External Value - Value that the Load Copy Control Command uses. This Is the Value for Referencing the Internal Value. Valid Values are from 1 to 127 (X'1' to X'7F'). |

**Notes:**
1. Additional entries, each four bytes long, can follow this entry, using the same format as bytes 2 through 5.
2. The mapping of one internal ID to more than one external ID is an error.

## Write Text (WT)

| Length | D62D | Flag | Correlation ID (Optional) | Data |
|---|---|---|---|---|

One or More Text Controls and Text Characters.

The Write Text command writes text presentation data to the printer. This command is only valid if the printer is in the overlay, page, or page segment state.

The DATA field in this command can contain one or more text controls and text characters. A text control begins with the text control escape sequence introducer, 2BD3. The format for this control is:

| 2BD3 | Length | Control | Parameters |
|---|---|---|---|

The length field of each text control is a one-byte value that gives the number of bytes in the text control. This length value includes the length field itself but excludes the 2BD3 introducer. Multiple text controls without intervening character data can chain together. Bit 7 (the least significant, or rightmost bit) of the control field is the chain bit. If this bit is on, the following text control is chained to the previous control. That is, chaining allows one escape sequence introducer for multiple text controls. With chaining, the first text control contains the X'2BD3' introducer, and each subsequent text control starts with its own length field, followed by its control field and any parameters for that control. The last text control in the chain must have the chain bit off.

A Write Text command can span to another Write Text command. That is, if a Write Text command ends after the control sequence has begun (the 2B has been received), and before all of the control sequence parameters have been received, this Write Text command spans to the next Write Text command. Spanning also occurs if a Write Text command ends between chained controls. Between the spanned Write Text commands, only STM, XOA, and NOP commands are valid. All other commands received at this time result in an error. The printer uses the following controls with the Write Text command:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Control | Description | Control | Description |
|---|---|---|---|
| CO (C1) | Set Inline Margin (SIM) | F4 (F5) | End Suppression (ESU) |
| C2 (C3) | Set Intercharacter Adjustment (SIA) | E4 (E5) | Draw I-Axis Rule (DIR) |
| D0 (D1) | Set Baseline Increment (SBI) | E6 (E7) | Draw B-Axis Rule (DBR) |
| C6 (C7) | Absolute Move Inline (AMI) | EE (EF) | Repeat String (RPS) |
| D2 (D3) | Absolute Move Baseline (AMB) | DA (DB) | Transparent Data (TRN) |
| C8 (C9) | Relative Move Inline (RMI) | F8 (F9) | No Operation (NOP) |
| D4 (D5) | Relative Move Baseline (RMB) | C4 (C5) | Set Variable Space Increment (SVI) |
| D8 (D9) | Begin Line (BLN) | 74 (75) | Set Text Color (STC) |
| F0 (F1) | Set Coded Font Local (SCFL) | 72 (73) | Overstrike (OVS) |
| F6 (F7) | Set Text Orientation (STO) | 76 (77) | Underscore (USC) |
| F2 (F3) | Begin Suppression (BSU) | 78 (79) | Temporary Baseline Move (TBM) |

**Note:** The controls shown in parenthesis are the text controls with their corresponding chain bit on.

## Set Inline Margin (SIM)

| 2BD3 | 04 | C0(C1) | P1P2 |
|---|---|---|---|

**Description:** This control specifies the position of the inline margin in the (I) direction, when the printer performs a Begin Line command. Receipt of this control does not change the current print position.

Parameters P1P2 form a two-byte value that specifies the margin in units. All values between 0 and X'7FFF' are valid. A value of X'FFFF' causes the printer to use the value in the LPD command.

**Note:** Values as large as X'7FFF' are valid but might be off the page.

## Set Intercharacter Adjustment (SIA)

| 2BD3 | 04 | C2(C3) | P1P2 |
|---|---|---|---|

or

| 2BD3 | 05 | C2(C3) | P1P2 |
|---|---|---|---|

**Description**: This control specifies additional inline adjustment between graphic characters.

Parameters P1P2 form a two byte value that specifies an additional increment or decrement in the inline direction between text characters in units. All values between 0 and X'7FFF' are valid. A value of X'FFFF' causes the printer to use the value in the LPD command.

Parameter P3 is a direction parameter and is optional. This parameter identifies whether the adjustment is an increment or a decrement. If P3 has a value of 0 or X'FF', the adjustment is an increment. If P3 has a value of 1, the adjustment is a decrement. If this parameter is missing, the default is an increment.

## Set Baseline Increment (SBI)

| 2BD3 | 04 | D0 (D1) | P1P2 |
|---|---|---|---|



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Description:** This control specifies a distance, which the printer adds to the current baseline coordinate when the printer performs a Begin Line control.

Parameters P1P2 form a two byte value that specifies the baseline increment in units. All values between X'8000' and X'7FFF' are valid. A value of X'FFFF' causes the printer to use the value in the LPD command.

## Absolute Move Inline (AMI)

| | | | |
|---|---|---|---|
| 2BD3 | 04 | 04 C6 (C7) | P1P2 |

**Description:** This control moves the inline coordinate in the I direction. The move is to an absolute position on the inline (I) axis.
Parameters P1P2 form a two byte value that specifies the new inline coordinate in units. All values between 0 and X'7FFF' are valid.

**Notes:**
1. Values as large as X'7FFF' are valid but might be off the page.
2. Several Absolute Move Inline controls used in a single line reduce throughput. If possible, replace Absolute Move Inline controls with spaces, or combine multiple Absolute Move Inline controls into a single Absolute Move Inline control.

## Absolute Move Baseline (AMB)

| | | | |
|---|---|---|---|
| 2BD3 | 04 | D2 (D3) | P1P2 |

**Description:** This control moves the baseline coordinate in the B direction. The move is to an absolute position on the baseline (B) axis.

Parameters P1P2 form a two byte value that specifies the new baseline coordinate in units. All values between 0 and X'7FFF' are valid.

**Note:** Baseline coordinate values that require a negative baseline displacement in order to print results in an error if the LPD command specifies ordered printing.

## Relative Move Inline (RMI)

| | | | |
|---|---|---|---|
| 2BD3 | 04 | C8 (C9) | P1P2 |

**Description:** This control moves the inline coordinate relative to the current line coordinate position.
Parameters P1P2 form a two byte value that specifies the displacement value in units. All values between X'8000' and X'FFFF' are valid. Negative values are in twos-complement form.
Notes:
1. Values as large as X'FFFF' are valid but might be off the page.
2. Several Relative Move Inline controls used in a single line reduce throughput. If possible, replace Relative Move Inline controls with spaces, or combine multiple Relative Move Inline controls into a single Relative Move Inline control.

## Relative Move Baseline (RMB)

| | | | |
|---|---|---|---|
| 2BD3 | 04 | D4 (D5) | P1P2 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Description:** This control moves the baseline coordinate relative to the current baseline coordinate position.

Parameters P1P2 form a two byte value that specifies the displacement value in units. All values between X'8000' and X'FFFF' are valid.

**Note:** Baseline displacement values that require a negative baseline displacement in order to print results in an error if the LPD command specifies ordered printing.

## Begin Line (BLN)

| | | |
|---|---|---|
| 2BD3 | 02 | D8 (D9) |

**Description:** This control moves the inline and baseline coordinates to the first position on the next line. The inline margin sets the inline coordinate. The baseline coordinate increases by the value in the Set Baseline Increment control.

## Set Coded Font Local (SCFL)

| | | | |
|---|---|---|---|
| 2BD3 | 03 | F0 (F1) | P1 |

**Description:** This control selects a previously assigned font, pitch, and code page. Load Font Equivalence commands assign a local font identifier (LFID) to a specified font, pitch, and character set. The SCFL control then specifies the LFID (in parameter P1) to use for printing. A Print Quality Control subcommand specifying a print quality that is compatible with the LFID (defined by a previous Load Font Equivalence command) must precede the SCFL control to provide the desired font and quality selections. Parameter **P1** is the **LFID** selection. Valid values for this parameter are 01 to X'FF'. A value of X'FF' specifies the LPD value.

## Set Text Orientation (STO)

| | | | |
|---|---|---|---|
| 2BD3 | 06 | F6 (F7) | P1-P4 |

**Description:** This control can be set to print right-to-left by selecting 180, 90 (X'5A00', X'2D00') degree orientation. The S828 Printer forces an inline sequence of 180 degrees for the default font to maintain upright printing when right-to-left printing is selected. The only valid values are 0 and 180 degrees for the inline direction and 90 degrees for the baseline direction. The Logical Page Descriptor command can also be used to select right-to-left printing.
Parameters **P1P2** specify the inline direction and must be a value of X'0000', X'5A00', or X'FFFF'.

**Note:** If the inline direction is set to 180 degrees, only fonts with 180 degree character rotation can be used or else error 023F02 is flagged.

X'5A00' is an orientation of 180 degrees used to print in a right-to-left direction. X'FFFF' specifies to use the inline direction from the LPD command. Parameters P3P4 specify the baseline direction and must be a value of X'2D00' or X'FFFF'. X'FFFF' specifies to use the baseline direction value from the LPD command. Refer to the description of the LFE command for supported combinations of LFE character rotation and STO.

## Begin Suppression (BSU)

| | | | |
|---|---|---|---|
| 2BD3 | 03 | F2 (F3) | P1 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Description:** This control marks the beginning of a string of text that the printer can suppress from the printed output.

Parameter P1 is a one byte suppression identifier. Valid values are from 1 to X'FF'. An End Suppression control, with the same suppression identifier, must follow the Begin Suppression control. An error results when BSU-ESU text controls are not paired properly or have different suppression IDs.
Suppression of the text output occurs only when activated by a Load Copy Control with a matching suppression ID.

For additional information about suppression, see Suppression ID in the “Load Copy Control (LCC)” on page 126.

## End Suppression (ESU)

| 2BD3 | 03 | F4(F5) | P1 |
|---|---|---|---|

**Description:** This control marks the end of a string of text that the printer can suppress from the printed output.
Parameter P1 is a one byte suppression identifier. Valid values are from 1 to X'FF'. A string of suppressed text starts with a Begin Suppression control and ends with an End Suppression control having the same suppression identifier.

## Draw I-Axis Rule (DIR)

| 2BD3 | 04 or 07 | E4(E5) | P1-P5 |
|---|---|---|---|

**Description:** This control specifies the dimensions of a horizontal rule (line) extending from the current print position. The current position does not change as a result of this control. The rule is not drawn until the current position advances vertically (as a result of other controls).

Parameters P1P2 specify the length of the rule in the inline direction in units. Valid values are from X'8000' to X'7FFF'. Negative values are in twos-complement form.

Parameters P3, P4, and P5 are optional, as a group. That is, either all three parameters are omitted or all three must be included together. Parameters P3P4 specify the width of the rule in the baseline direction in units. Valid values are from X'8000' to X'7FFF'. Also valid is X'FFFF'' which selects the printer default of 5 pels wide.
Parameter P5 is ignored by the S828 Printer.

## Draw B-Axis Rule (DBR)

| 2BD3 | 04 or 07 | E6(E7) | P1-P5 |
|---|---|---|---|

**Description:** This control specifies the dimensions of a vertical rule (line) extending from the current print position. The current position does not change as a result of this control. The rule is not drawn until the current position advances vertically (as a result of other controls).

Parameters P1P2 specify the length of the rule in the baseline direction in units. Valid values are from X'8000' to X'7FFF'. Parameters P3, P4, and P5 are optional, as a group. That is, either all three parameters are omitted or all three must be included together.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Parameters P3P4 specify the width of the rule in the inline direction in units. Valid values are from X'8000' to X'7FFF'. Negative values are in twos-complement form. Also valid is X'FFFF'. This selects the printer default of 5 pels wide.

Parameter P5 is ignored by the S828 Printer.

## Repeat String (RPS)

| | | | |
|---|---|---|---|
| 2BD3 | 04-FF | EE (EF) | P1-Pn |

**Description:** This control contains a string of coded graphic characters that repeats on the current line. Parameters P1P2 specify the repeat length. This is the total length of the generated string.
Parameters P3 through Pn are the repeat data. The data specified in bytes P3 through Pn repeats until the output equals the repeat length specified in parameters P1P2. The data field can be a maximum of 253 bytes. The printer does not check the data for the control sequence introducer (X'2B'). If the repeat length is zero, this control is a no-op. If the count equals 04, but the repeat length is greater than zero, an error occurs.

## Transparent Data (TRN)

| | | | |
|---|---|---|---|
| 2BD3 | 02-FF | DA (DB) | P1-Pn |

Description: This control marks the beginning of a string of coded characters, which the printer does not check for an embedded X'2B' escape sequence. The inline position increments for each position in the string.
Parameters P1 through Pn are the graphic characters. The data field can be a maximum of 253 bytes.

## No Operation (NOP)

| | | | |
|---|---|---|---|
| 2BD3 | 02-FF | F8 (F9) | P1-Pn |

Description: This control specifies a string of bytes that the printer ignores. The printer ignores all parameter data. The data field can be a maximum of 253 bytes.

## Set Variable Space Increment (SVI)

| | | | |
|---|---|---|---|
| 2BD3 | 04 | C4 (C5) | P1-P2 |

Description: The Variable Space Increment is a two byte positive value that defines the width of the variable space character in units. Parameters P1P2 are the width value. Valid values are 0 to X'7FFF'. X'FFFF' equals the printer default. The variable space character is X'40' for EBCDIC code pages and X'20' for ASCII code pages.

## Set Text Color (STC)

| | | | |
|---|---|---|---|
| 2BD3 | 04 or 05 | 74 (75) | P1-P3 |

Description: This control specifies the color attributes for text.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Parameters P1P2 are the color attributes, as shown:

| Hex | Color | Hex | Color |
|---|---|---|---|
| 0000 | Black (Default) | 0008 | Black |
| FF00 | Black | FFFF | Use Current Default |
| FF07 | Black | | (Default) |

**Note:** For Limited Simulated Color Support, all valid but unsupported color values for text data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. In the S828 Printer, simulation of Color of Medium is done by printing in Color of Medium except where not possible because of different resolutions when text overlays graphics, image, or barcode. For actual colors, all valid colors not listed in the above table are simulated in the S828 Printer by printing in black.

Parameter P3 is the precision parameter. This parameter is optional and has the following meaning:

**00** If the color is not supported or cannot be printed as requested, the printer reports an exception. Printing is in the default color if alternate exception action is invoked.
**01** If the color is not supported or cannot be printed as requested, the printer does not report an exception, regardless of the EHC, and printing is in the default color.
**FF** If the color is not supported or cannot be printed as requested, the printer reports an exception. Printing is in the default color if alternate exception action is invoked.

## Overstrike (OVS)

| 2BD3 | 05 | 72 (73) | P1-P3 |
|---|---|---|---|

**Description:** This control identifies text that the printer overstrikes with a specified character. The overstrike character prints using the font and character set that is active when the printer receives the Overstrike command.

Parameter P1 is the bypass identifier. This parameter controls white space to be overstruck, depending on its value, as shown:

Bits 0-3 Reserved

Bit 4 0 Overstrike white space from Relative Move Inline
1 Bypass white space from Relative Move Inline

Bit 5 0 Overstrike white space from Absolute Move Inline
1 Bypass white space from Absolute Move Inline

Bit 6 0 Overstrike white space from Space or Variable Space Character
1 Bypass white space from Space or Variable Space Character

Bit 7 0 Bypass Treat Bits 0-6 according to their set values
1 No Bypass Treat Bits 0-6 as if their values were set to 0.

**Note:** If bit 7 is on, the printer treats all other bits in byte P1 as zeros, regardless of their values.

The printer ignores parameter **P2** for this control. Parameter **P3** is the **overstrike** character.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

An OVS command with a bypass value of 00 ends overstrike mode.

## Underscore (USC)

| 2BD3 | 05 | 76 (77) | P1-P3 |
|---|---|---|---|

**Description:** This control identifies text the printer underscores at the baseline of the current line. The underscore prints using the same print quality as the text.

Parameter P1 is the bypass identifier. This parameter controls underscoring of white space, depending on its value, as shown:

| | |
|---|---|
| Bits 0-3 | Reserved |
| Bit 4 | 0 Underscore white space from Relative Move Inline<br>1 Bypass white space from Relative Move Inline |
| Bit 5 | 0 Underscore white space from Absolute Move Inline<br>1 Bypass white space from Absolute Move Inline |
| Bit 6 | 0 Underscore white space from Space or Variable Space Character<br>1 Bypass white space from Space or Variable Space Character |
| Bit 7 | 0 Bypass Treat Bits 0-6 according to their set values<br>1 No Bypass Treat Bits 0-6 as if their values were set to 0. |
| X'FF' | No bypass in effect. |

**Note:** If bit 7 is on, the printer treats all other bits in byte P1 as zeros, regardless of their values.

A USC command with a bypass value of 00 ends underscore mode.

## Temporary Baseline Move (TBM)

| 2BD3 | 03 or 06 | 78 (79) | P1-P4 |
|---|---|---|---|

**Description:** This control changes the position of the sequential baseline without change to the established baseline. This control also stops and starts both subscript and superscript printing.

Parameter P1 is the direction parameter. Its values are:

| | |
|---|---|
| 00 | Do not change baseline |
| 01 | Return to established baseline |
| 02 | Shift baseline away from the I axis (subscript) one additional temporary baseline increment, per parameters P3 and P4 |
| 03 | Shift baseline towards the I axis (superscript) one additional temporary baseline increment, per parameters P3 and P4. |

Parameter P2 is the precision parameter. Its values are:

| | |
|---|---|
| 00 | Baseline shift is not simulated and the active font is used. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| | |
|---|---|
| 01 | A substitute font with characteristics identical to the current font may be used to simulate baseline shift (superscript/subscript). |
| FF | Same as 00. |

**Note:** When subscript or superscript is active, double high printing will not occur.

Parameters P3 and P4 are the temporary baseline increments. Its values are:

| | |
|---|---|
| 0000 - 7FFF | Temporary Baseline Increment |
| FFFF | Half the current baseline increment. |

# Image Function Set Commands

The image function set contains the commands and data controls for presenting image data on a logical page, page segment, or overlay area on the physical medium. The following commands are the image function set:

| Command | Code | Description |
|---|---|---|
| WIC | D63D | Write Image Content |
| WI | D64D | Write Image |
| END | D65D | End |

## Write Image Control (WIC)

| Length | D63D | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Write Image Control command causes the printer to enter the image block state. The command sequence that follows directs an image presentation block area on the current page, overlay, or page segment that is being constructed.

The parameters of this command define the input and output size of the image array and the necessary information for interpreting the input data.

In the page state, the printer checks all the Write Image Control command parameter values for validity. If the parameters are not within the valid ranges, an exception condition exists.

An image cannot print outside the page without an error. If any part of the image extends beyond the physical or logical page, no image prints and an exception occurs.

The DATA field bytes have the following meaning for this command:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 1 - 7FFF | Output - Pels per Scan Line |
| 2-3 | 2-3 | 1 - 7FFF | Output - Number of Scan Lines |
| 4-5 | 4-5 | 1 - 7FFF | Input - Pels per Scan Line |
| 6-7 | 6-7 | 1 - 7FFF | Input - Number of Scan Lines |
| 8 | 8 | 00 | No Compression Algorithm |
| 9 | 9 | 00 | Pel Data Format - One Bit per Pel |
| 10-11 | A-B | 0101 | No Magnification |
| | | 0202 | Scale by 2, Both X and Y |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 12-13 | C-D | 0000 | Zero Degrees Scan Line Direction |
| 14-15 | E-F | 2D00 | 90 Degrees Scan Line Sequence Direction |
| 16 | 10 | | Coordinate Type (See note 1) |
| | | 00 | Absolute I, Absolute B |
| | | 20 | Absolute I, Relative B |
| | | 40 | Relative I, Absolute B |
| | | 60 | Relative I, Relative B |
| | | AD | Absolute X, Absolute Y |
| 17-19 | 11-13 | FF8000 - 7FFF | First Pel X or I Coordinate |
| 20 | 14 | 00 | Reserved |
| 21-23 | 15-17 | FF8000 - 7FFF | First Pel Y or B Coordinate |
| 24-25 | 18-19 | 0000, 0008, FF00, FF07, FF08 | Color - Same as Text and Graphics Color Values (See note 2) |

**Notes:**
1. Only A0 can be used if the text is set to 180/90 degrees.
2. The S828 Printer provides Limited Simulated Color Support. All architecturally defined color values for image data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. All valid colors not listed in the above table (X'0001' through X'0007', X'0009' through X'0010', and X'FF01' through X'FF06') are simulated by printing in black.

**Coordinate Type:** Can be either an absolute or a relative value. Absolute values specify a location on the logical page relative to the reference coordinates. Relative values specify a location on the logical page relative to the current coordinates.

If byte 10 equals X'00', the S828 Printer uses the absolute values of I and B, as specified in bytes 11 through 13 and bytes 15 through 17 of this command. These values are the text inline and text baseline coordinates, respectively.

If byte 10 equals'X'20', the S828 Printer uses the absolute value of I and the relative value of B. The absolute I value is the text inline coordinate (bytes 11 through 13 of this command); the relative B value is the sum of the current text baseline coordinate and the value specified in bytes 15 through 17 of this command.

If byte 10 equals X'40', the S828 Printer uses the relative value of I and the absolute value of B. The relative I value is the sum of the current text inline coordinate and bytes 11 through 13 of this command; the absolute B value is the text baseline coordinate, specified in bytes 15 through 17 of this command.
If byte 10 equals X'60', the S828 Printer uses the relative value of I and the relative value of B. The relative I value is the sum of the current text inline coordinate and bytes 11 through 13 of this command; the relative B value is the sum of the current text baseline coordinate and bytes 15 through 17 of this command.

If byte 10 equals X'A0', the current logical page X and Y coordinates determine the origin. When the block is within a page, WIC bytes 11 through 13 and 15 through 17 specify the offset from the X-coordinate and Y-coordinate origin specified in a previously received LPP command (or from the printer default coordinates if no LPP command is received). When the block is within an overlay that is invoked using an LCC command, WIC bytes 11 through 13 and 15 through 17 specify the offset from the Xm-coordinate and



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Ym-coordinate origin. When the block is within an overlay that is invoked using an IO command, WIC bytes 11 through 13 and 15 through 17 specify the offset from the X-coordinate and Y-coordinate origin specified in the IO command.
Bytes C through D must equal 0 degrees scan line direction and bytes E through F must equal 90 degrees scan line sequence direction. The Coordinate Type byte 10 is not used to modify the image direction.

## Write Image (WI)

| Length | D63D | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

This command transmits a block of image data to the printer. A sequence of one or more Write Image commands follows the Write Image Control command and terminates with an End command.

The total number of bits of image is equal to the product of the number of source scan lines and the number of bits on each scan line. Thus, the number of bytes sent is:
(Bytes 4 through 5 x bytes 6 through 7 of the WIC command) divided by 8

**Note**: If this calculation yields a fractional remainder, round the result to the next whole number. The DATA parameter bytes contain the image bit string.

## End (END)

For a description of the End control, see “End (END)”.

# Graphics Function Set Commands

The graphics function set contains the commands and data controls for presenting graphic pictures on a logical page, page segment, or overlay area on the physical medium. The following commands are the graphics function set:

| Command | Code | Description |
|---|---|---|
| WGC | D684 | Write Graphics Content |
| WG | D685 | Write Graphics |
| END | D65D | End |

Graphics is a data type the printer uses to present line art picture drawings in a graphics block area on a page. A sequence of drawing orders produce arcs, lines, fillets, character strings, markers, and other elements that define the drawing. These orders, grouped into one or more segments, present the picture.

The control unit sends a Write Graphics Control command to the printer to establish the control parameters and initial drawing conditions for presenting the picture data. The picture segments themselves are sent to the printer as data in one or more Write Graphics commands.

Knowing how the graphics picture is developed allows an understanding of the relationship between the Write Graphics command and the Write Graphics Control command. The following pages explain the drawing order coordinates, the graphic medium presentation space, and the graphic block area.

## Drawing Order Coordinate System

The drawing orders specify graphics in an abstract space rather than directly on the page. This allows repositioning graphics on a page without changing the drawing orders. Coordinates (Graphics X and Y) specify the position of the graphic.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Note:** The Graphics X and Y coordinates are not the same as the media X and Y coordinates. The horizontal axis is Graphics X; the vertical axis is Graphics Y. The intersection of the Graphics X and Y axes is coordinate (0,0). The horizontal axis is positive to the right of center and negative to the left of center. The vertical axis is positive to the top of center and negative to the bottom of center. Therefore, both positive and negative values are valid. Negative values are specified in twos-complement form.

All coordinates are in coordinate units, called **drawing units** that are the same as units in the Graphics Data Descriptor (GDD) structured fields. Figure 16 shows the Graphics X and Y coordinate system.

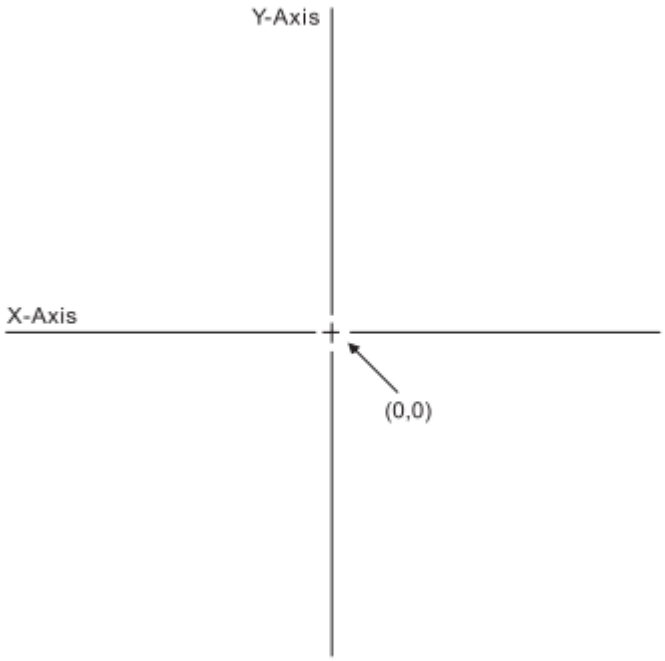



Figure 16. The Graphics X and Y Coordinate System

## Graphic Medium Presentation Space

The graphic medium presentation space is an abstract coordinate space where graphics are composed. It is a conceptual structure defined by the limits of the coordinate space as shown in Figure 17.
Units are defined in “Graphic Data Descriptor (GDD)”.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

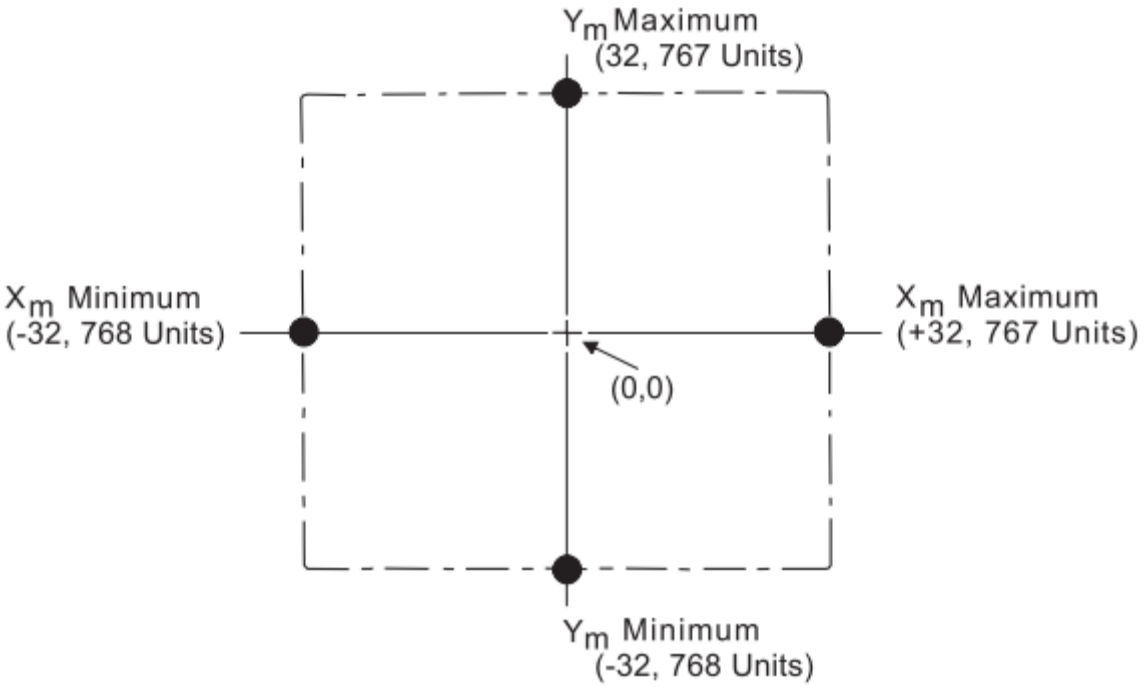



Figure 17. The Graphic Medium Presentation Space and Its Limits

## Graphic Window

The graphic window is a user-defined, rectangular area within the graphic medium presentation space. This area is the source from where information is selected for printing. Figure 18 illustrates the relationship of the graphic window to the graphic medium presentation space.

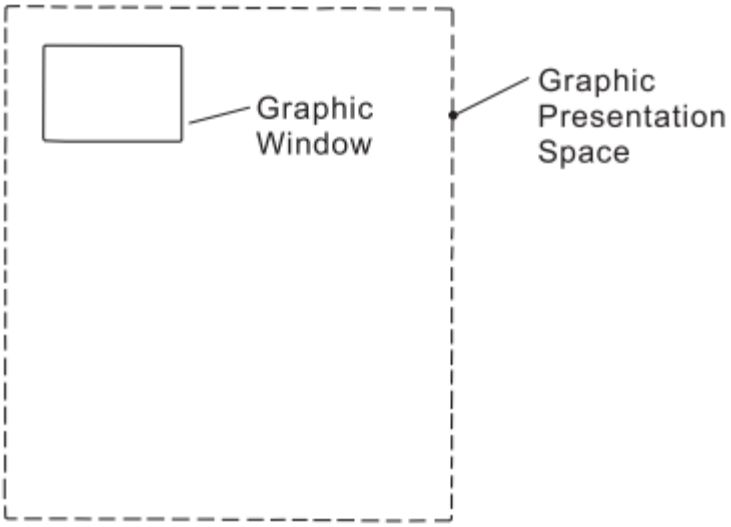



Figure 18. The Graphic Window within the Graphic Medium Presentation Space

## Graphic Block Area

The graphic block area is the part of the current physical medium in which the graphics is printed. The graphic block area can overlap other output (such as text or images) specified earlier for the same page. Likewise, subsequent output specified by other commands for the same page can overlap the graphic block area. Figure 19 shows the graphic block area and its relationship to the physical medium.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

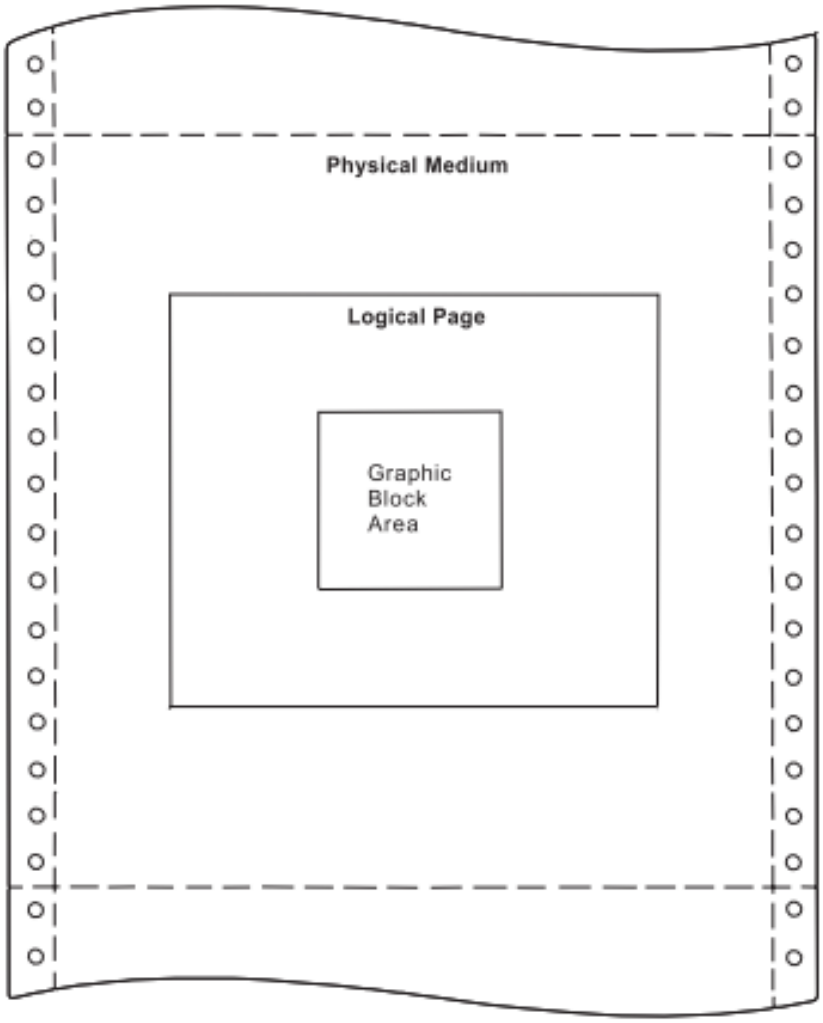



Figure 19. The Graphic Block Area on the Physical Medium

## Positioning the Graphic Window in the Graphic Block Area

As mentioned previously, the graphic window can be any size within the graphic presentation space limits. The graphic block area size can be the entire physical Medium or a portion of the physical medium.
The Write Graphics Control command, described in detail in “Write Graphics Control (WGC)”, specifies the mapping of the graphic window to the graphic block area.
The term mapping refers to the transformation of an abstract space into its size and position on the physical medium. There are three ways to map the abstract space. They are scale-to-fit, center-and-trim, and position-and-trim mapping. These mapping methods are described in detail in “Area Mapping Control Options”.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Write Graphics Control (WGC)

| Length | D684 | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

| GAP | GOC | GDD |
|---|---|---|

The Write Graphics Control command causes the printer to enter the graphics block state. The parameters of this command define the size, placement, and orientation of the graphic block area and establish the initial conditions for interpreting the graphic data. Receiving the End command in the graphic block state terminates the processing of the graphic data.

The Write Graphics Control data consists of three consecutive structured fields:

- The Graphic Area Position control defines the position of the graphics picture on the page.
- The Graphic Output Control (GOC) defines the size of this picture on the page.
- The Graphic Data Descriptor (GDD) defines the size of the graphics window and the default characteristics of the graphics picture.

Each structured field contains a two byte length field, then a two byte structured field ID, and finally a data field.

**Note:** The quality of the graphics output is affected by the graphics mode and direction parameter values selected at the operator panel (see the Administrators Manual for your model printer), and by the Print Quality Control command (see “Print Quality Control (PQC)”).

## Graphic Area Position Control (GAP)

| GAP | GOC | GDD |
|---|---|---|

| Length | ID | DATA |
|---|---|---|

The Graphic Area Position Control structured field is the first structured field in the DATA portion of the Write Graphics Control command. This field defines the position and orientation of the graphic block area. The top left corner of the graphic block area is defined relative to the reference coordinate system.

The format of the GAP field is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 000B - (n + 1) | Length of this Field |
| 2-3 | 2-3 | AC6B | Structured Field ID |
| 4-5 | 4-5 | 8000 - 7FFF | X Coordinate Position or Inline Coordinate Position of the Graphic Block Area in Units (Position of the Top Left Corner) |
| 6-7 | 6-7 | 8000 - 7FFF | Y Coordinate Position or Baseline Coordinate Position of the Graphic Block Area in Units (Position of the Top Left Corner) |
| 8-9 | 8-9 | 0000 | When you use the X,Y coordinate system or the I,B coordinate system with the inline orientation system equal to 0 degrees, you must use the 0 degree orientation for graphics. |
| | | 5A00 | When you use the I,B reference system and the inline orientation is 180 degrees, you must use the 180 degree orientation for graphics. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 10 | A | Reference | Coordinate System: |
| | | 00 | Absolute I, Absolute B |
| | | 20 | Absolute I, Relative B |
| | | 40 | Relative I, Absolute B |
| | | 60 | Relative I, Relative B |
| | | A0 | Absolute X, Absolute Y |
| 11-n | | B-n | Reserved |

Figure 20 shows the Graphic Block Area Position control specifying the top left reference point for the graphic block area.

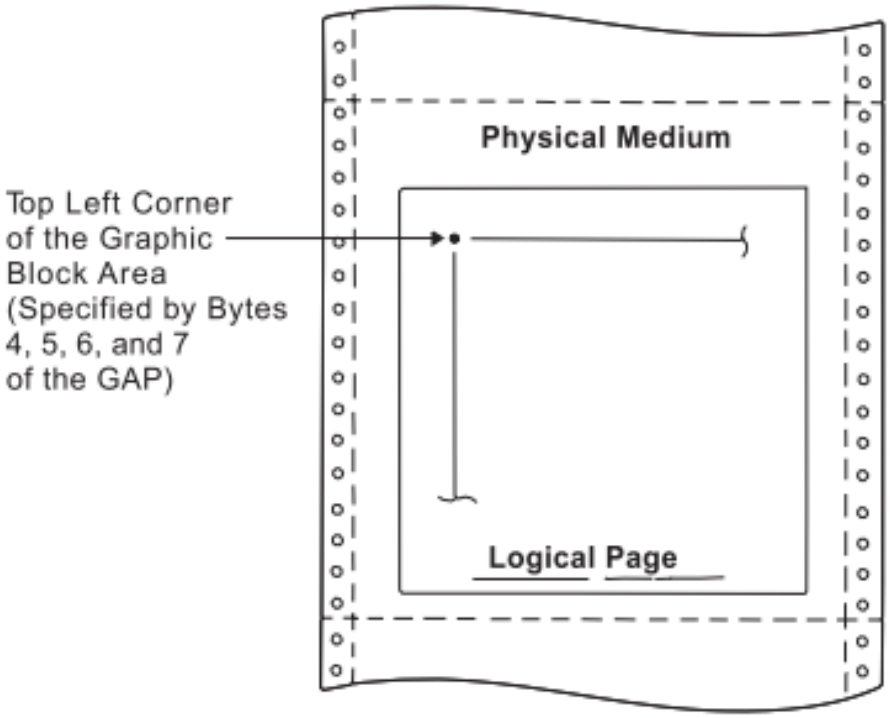



Figure 20. Graphic Block Area Position Control and the Graphic Block Area

Byte A of the GAP specifies the reference coordinate system. The reference coordinate system used for determining the top left corner of the graphic block area can be either the media X,Y or the I,B coordinate system.

If byte A equals X'00', the absolute I and B coordinates determine the top left corner. GAP bytes 4 and 5 specify the text inline coordinate. GAP bytes 6 and 7 specify the text baseline coordinate.

If byte A equals X'20', the absolute I and relative B coordinates determine the top left corner. GAP bytes 4 and 5 specify the text inline coordinate. GAP bytes 6 and 7 add to the last text baseline coordinate position used prior to graphics.

If byte A equals X'40', the relative I and absolute B coordinates determine the top left corner. GAP bytes 4 and 5 add to the last text inline coordinate position used prior to graphics. GAP bytes 6 and 7 specify the text baseline coordinate.

If byte A equals X'60', the relative I and B coordinates determine the top left corner. GAP bytes 4 and 5 add to the last text inline coordinate position used prior to graphics. GAP bytes 6 and 7 add to the last text baseline coordinate position used prior to graphics.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

If byte 10A equals X'A0', the current logical page X and Y coordinates determine the origin. When the block is within a page, GAP bytes 4 through 7 specify the offset from the X-coordinate and Y-coordinate origin specified in a previously received LPP command (or from the printer default coordinates if no LPP command was received). When the block is within an overlay that is invoked using an LCC command, GAP bytes 4 through 7 specify the offset from the Xm-coordinate and Ym-coordinate origin. When the block is within an overlay that is invoked using an IO command, GAP bytes 4 through 7 specify the offset from the X-coordinate and Y-coordinate origin specified in the IO command.

When you use the X,Y coordinate system or the I,B coordinate system with the inline orientation equal to 0 degrees, you must use the 0 degree orientation for graphics.

When you use the I,B reference system and the inline orientation is 180 degrees, you must use the 180 degree orientation for graphics.

## Graphic Output Control (GOC)

| GAP | GOC | GDD |
|---|---|---|

| Length | ID | DATA |
|---|---|---|

The Graphic Output Control structured field is the second structured field in the DATA portion of the Write Graphics Control command. This field specifies the size of the graphic block area and a mapping option for placing the graphic window into the graphic block area. This field is optional and does not need to be in the Write Graphics Control command. If the GOC field is not present, the printer uses:

- The mapping option X'30' (where offset equals zero)
- X offset and Y offset equals zero
- Graphics block size equals the graphics medium presentation space window size defined in the GDD self-defining field.

The format of the GOC field is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0010 - (n + 1) | Length of this Structured Field |
| 2-3 | 2-3 | A66B | Structured Field ID |
| 4 | 4 | 00 | Unit Base (10 in.) |
| | | 01 | Unit Base (10 cm) |
| 5-6 | 5-6 | 05A0 - 7FFF | Units per Unit Base (10 in.) (See Note 1) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) (See Note 1) |
| 7-8 | 7-8 | 1 - 7FFF | Width of Graphic Block Area in Units |
| | | FFFF | Use Value From LPD Command |
| 9-10 | 9-A | 1 - 7FFF | Height of Graphic Block Area in Units |
| | | FFFF | Use Value From LPD Command |
| 11 | B | | Area Mapping Control Option (See Note 2) |
| | | 10 | Scale-to-Fit |
| | | 20 | Center-and-Trim |
| | | 30 | Position-and-Trim |
| 12-13 | C-D | 8000 - 7FFF | X Offset in Units (See Note 3) |
| 14-15 | E-F | 8000 - 7FFF | Y Offset in Units (See Note 3) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 16-17 | 10-n | | Reserved |

**Notes:**
1. For bytes 5 through 6 (units per base value), 14400/10 in. is supported precisely. Multiples of 14400/10 in. are also supported. If byte 4 specifies units in centimeters and byte B specifies 20 (center-and-trim) or 30 (position-and-trim), then bytes 5 through 6 must be equivalent to a supported value such as X'1626' or X'2C4C'.
2. See “Area Mapping Control Options”.
3. The printer ignores the X and Y offset fields unless byte B equals X'30'. These values are the offset of the top left corner of the graphic window relative to the top left corner of the graphic block area.

Figure 21 shows the Graphic Output Control parameters specifying the size of the graphic block area.

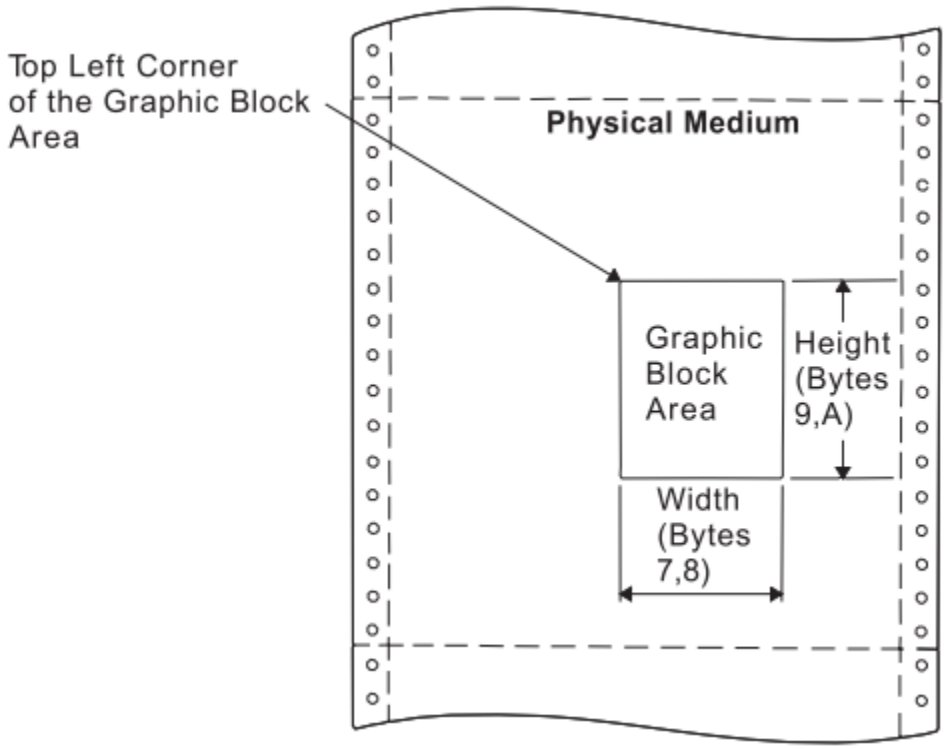



Figure 21. Graphic Output Control and the Graphic Block Area

## Graphic Data Descriptor (GDD)

| GAP | GOC | GDD |
|---|---|---|

| Length | ID | DATA |
|---|---|---|

The Graphic Data Descriptor is the last structured field in the DATA portion of the Write Graphics Control command. This field specifies the parameters for the graphic window in the graphic medium presentation space (GPS) and sets the drawing default conditions. The graphic window limits define the range of drawing order coordinate values that map to the graphic block area.
Without causing an error, the drawing orders can specify GPS coordinates in the X'8000' to X'7FFF' range. The specified GDD graphic window limits select the part of the drawing order’s picture to consider for mapping to the output area.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The format of the GDD field is:

| Decimal | Hex | Value | Description |
|---|---|---|---|
| 0-1 | 0-1 | 001C - (n + 1) | Length of this Structured Field |
| 2-3 | 2-3 | A6BB | Structured Field ID |
| 4 | 4 | 00 | Unit Base (10 in.) |
| | | 01 | Unit Base (10 cm) |
| 5 | 5 | 00 | Reserved |
| 6-7 | 6-7 | 05A0 - 7FFF | Units per Unit Base (10 in.) (See Note) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) (See Note) |
| 8-9 | 8-9 | 05A0 - 7FFF | Units per Unit Base (10 in.) (See Note) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) (See Note) |
| 10-13 | A-D | 00000000 | Reserved |
| 14-15 | E-F | 8000 - 7FFF X | Left Limit of the Graphic Window in GPS coordinate units |
| 16-17 | 10-11 | 8000 - 7FFF X | Right Limit of the Graphic Window in GPS coordinate units |
| 18-19 | 12-13 | 8000 - 7FFF Y | Top Limit of the Graphic Window in GPS coordinate units |
| 20-21 | 14-15 | 8000 - 7FFF Y | Bottom Limit of the Graphic Window in GPS coordinate units |
| 22-25 | 16-19 | 00000000 | Reserved |
| 26-27 | 1A-1B | 0000 | Graphics Flags - Ignored |
| 28-n | 1C-n | | Initial Graphic Default Conditions - Self-Describing Instructions that Set the Drawing Defaults for the Picture (See Note) (Optional field) |

**Note:** See “Self-Describing Instructions”. Figure 22 shows the Graphic Data Descriptor control parameters specifying the size of the graphic window.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

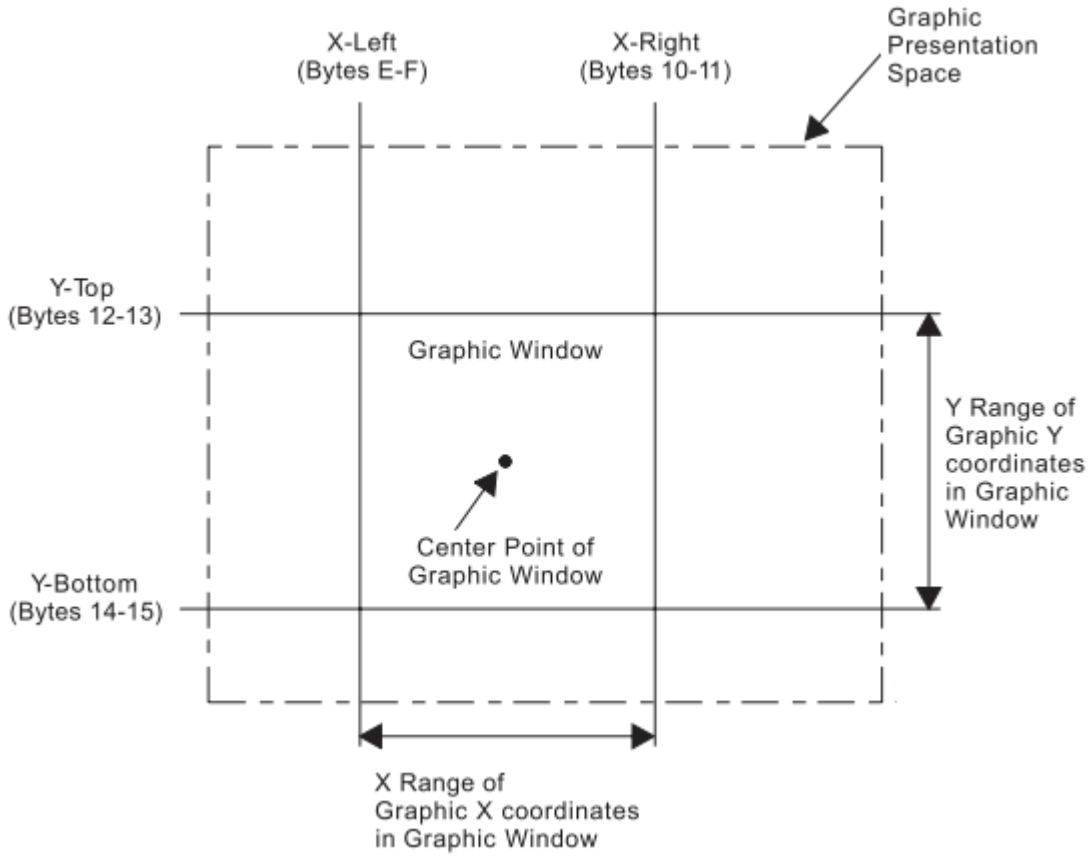



Figure 22. Graphic Data Descriptor and the Graphic Medium Presentation Space

## Area Mapping Control Options

Byte B in the GOC data field is the area mapping control option byte. The option values are:

- 10 - Scale to fit
- 20 - Center and trim
- 30 - Position and trim.

**Scale to Fit Mapping:** The center of the graphic window is mapped to the center of the graphic block area and the graphic data is scaled by the printer (to a printer-supported unit per unit base) so that the picture within the graphic window fits entirely within the output area at the closest maximum scale.

Figure 23 shows the result of scale-to-fit mapping. For this example, the graphic window is shown larger than the graphic block area. The parameters in the Graphic Data Descriptor specify the size of the graphic window (in GPS coordinate units). The parameters in the Graphic Area Position and the Graphic Output Control specify the size and location of the graphic block area on the physical medium.
If the graphic block area is smaller than the graphic window, as shown in this example, the graphic window is proportionally reduced to fit in the graphic block area. That is, the entire graphic drawing contained within the graphic window appears in the graphic block area, reduced in size to fit in the graphic block area.

This size reduction is done to scale, keeping the same proportions as the original graphic drawing.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Notes:**
1. The printer will not rescale graphics image data. If the image data does not fit within the output area, clipping of the image data occurs.
2. Graphics markers are not scaled; they are always 3 mm (0.12 in. [17/144-in.]) square. If markers are drawn close to the boundary of a page and the page is then scaled down, the center points of the markers are scaled closer to the boundary of the page but the marker size is still the same. The markers may be clipped from the page if the scaling factor scales the centers of the markers too close to the edge.

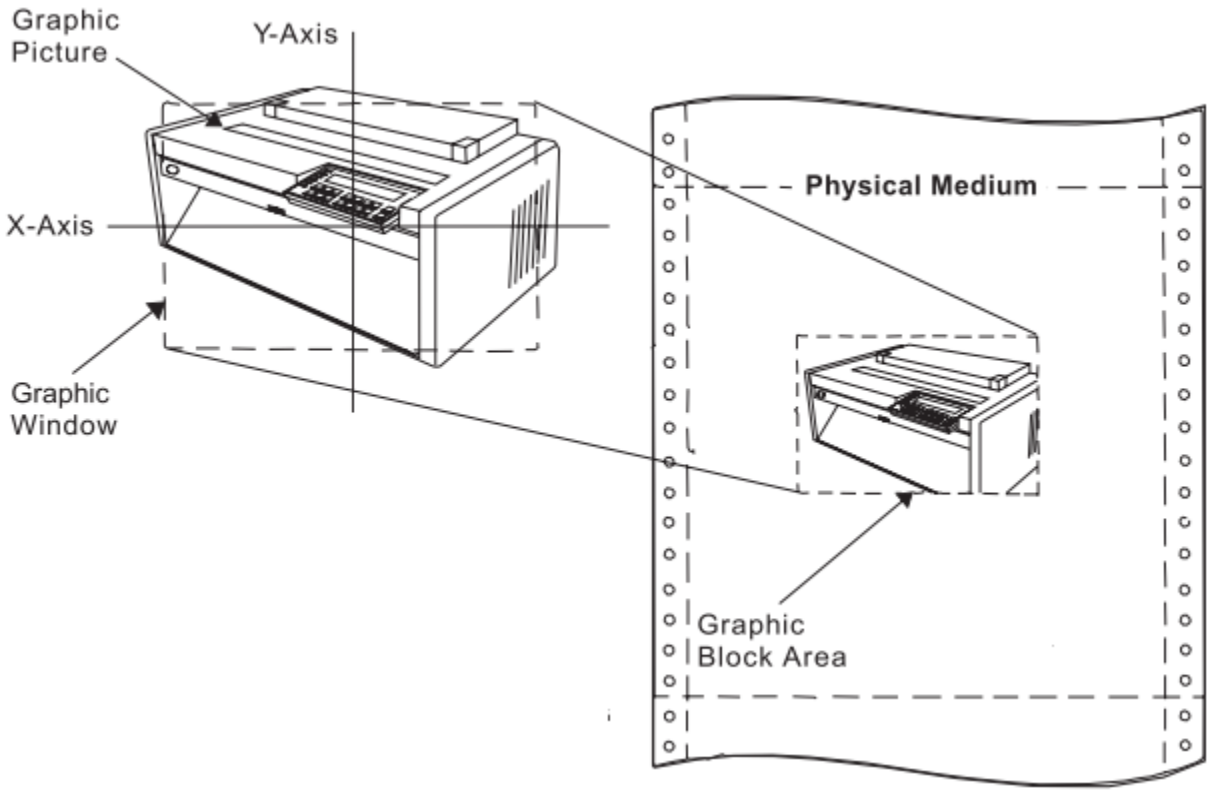



Figure 23. Scale-to-Fit Mapping

**Center and Trim Mapping:** The center of the graphic window is mapped to the center of the graphic block area and the graphic data is presented at the specified scale. Any portion of the picture that goes outside the graphic block area is clipped to the graphic block area boundary. Figure 24 shows the result of center-and-trim mapping. For this example, the graphic window is shown smaller than a previously defined graphic picture. This picture is to be placed on the physical medium. The parameters in the Graphic Data Descriptor specify the size of the graphic window (in graphic medium presentation space (GPS) units). The parameters in the Graphic Area Position and the Graphic Output Control specify the size and location of the graphic block area on the physical medium.
If the graphic block area is smaller than the graphic window, as shown in this example, a portion of the graphic picture is eliminated. The centers of the graphic window and the graphic block area coincide, and the boundaries of the graphic block area determine the limits of the graphic picture. Any portion of the graphic picture extending beyond the graphic block area will not be drawn on the page.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

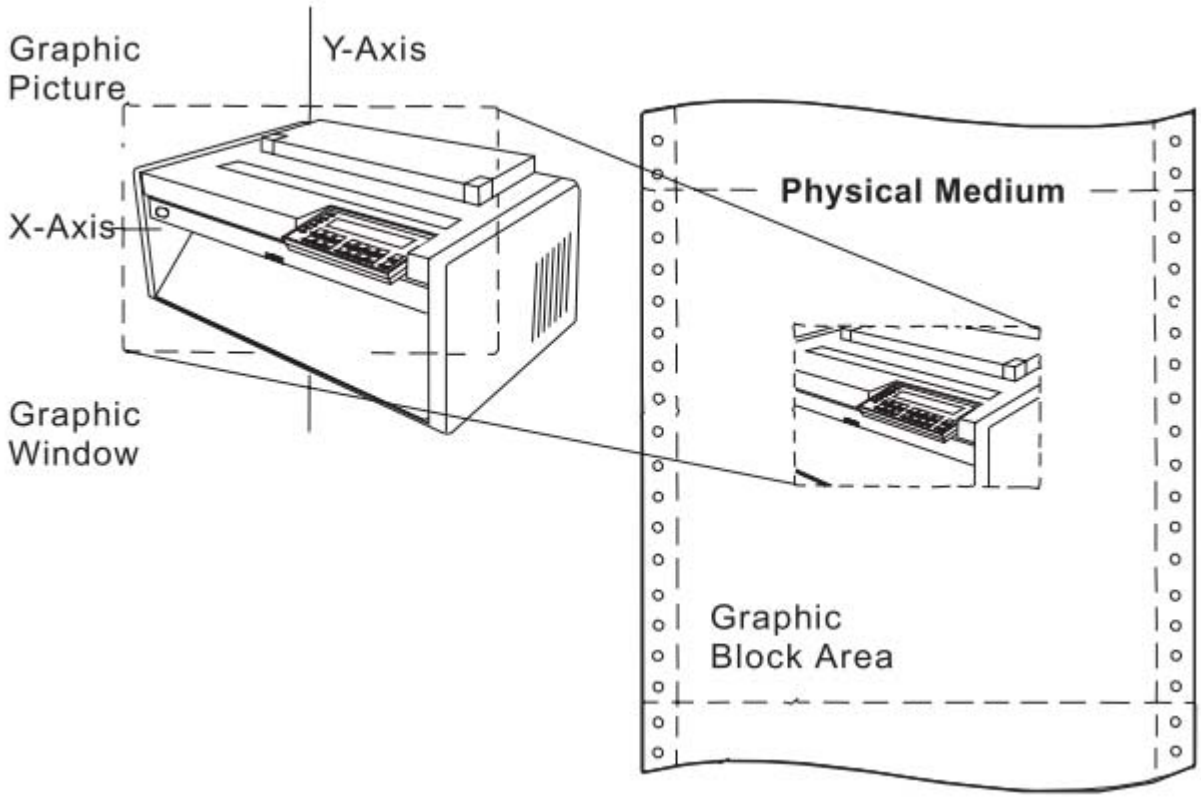



Figure 24. Center-and-Trim Mapping

**Position and Trim Mapping:** The upper left-hand corner of the graphic window is mapped to the graphic block area using the specified offset and presented at the specified scale. Any portion of the picture that goes outside the graphic block area is clipped to the area boundary. Figure 25 shows the result of position-and-trim mapping. For this example, the graphic window is shown smaller than a previously defined graphic picture. This picture is to be placed on the physical medium. The parameters in the Graphic Data Descriptor specify the size of the graphic window. The parameters in the Graphic Area Position and the Graphic Output Control specify the size and location of the graphic block area on the physical medium.

If the graphic block area is smaller than the graphic window, a portion of the graphic picture is eliminated. The top-left corner of the graphic window is either coincident with the top left corner of the graphic block area, or it is offset from the top left corner of the graphic block area by a distance specified in the Graphic Output Control. Only the portion of the picture contained within the overlapping areas of the graphic window and the graphic block area will be drawn. The printer trims (eliminates) the portion of the graphic picture outside this area.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

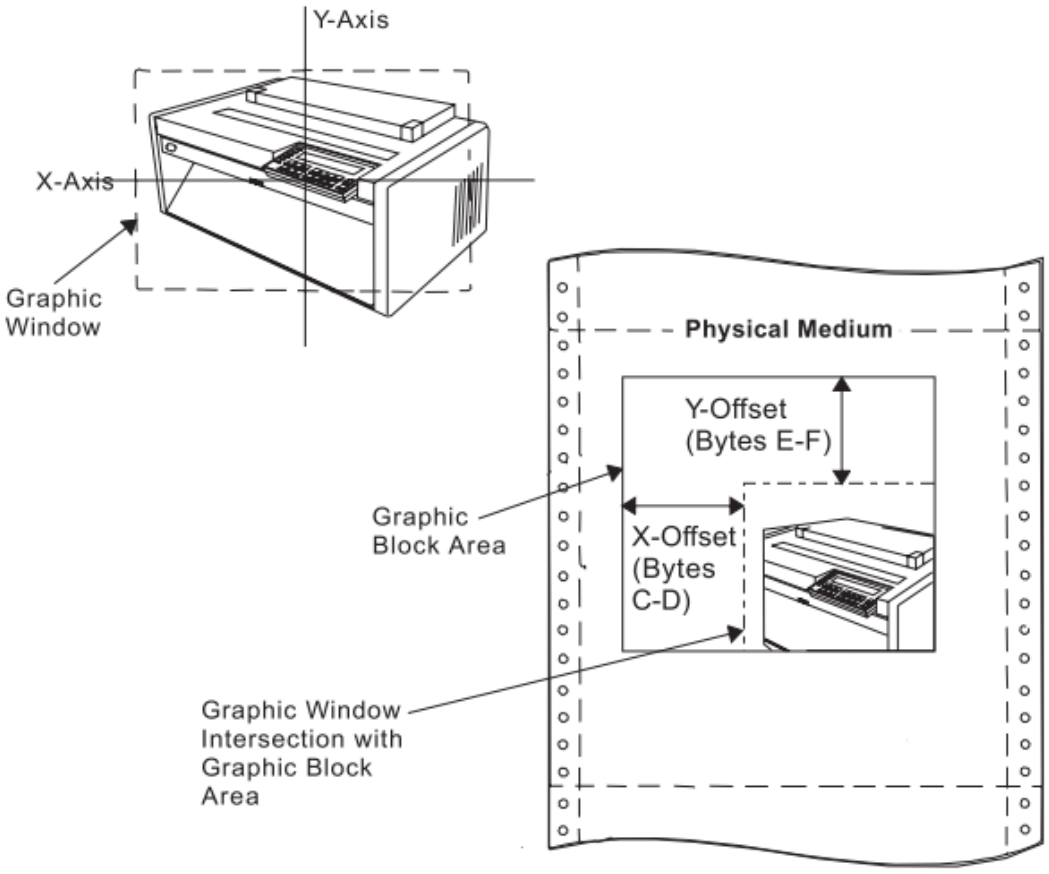



Figure 25. Position-and-Trim Mapping

## Self-Describing Instructions

This portion of the Graphic Data Descriptor structured field contains zero or more self-describing instructions that set the drawing defaults for the graphics picture. The general format of a self-describing instruction is:

| 21 | Length | Set | Mask | Default | Data |
|---|---|---|---|---|---|

The first byte, **21**, indicates that the following parameter is a Set Current Defaults instruction.

The **Length** byte is the length of the following data. If this value equals 4, the printer uses the standard default values.

The **Set** byte indicates the type of attribute or parameter this instruction is specifying.

The bits 0 through 15 in the **Mask** bytes correspond to attribute items within the indicated set. The individual set descriptions explain the meanings of these bits. When a mask bit equals one, the value of the default byte selects one of two options. See the default byte description for details. When a mask bit equals zero, the default does not change and the data does not include the value for the corresponding attribute.

The **Default** byte has a value of either 0F or 8F. A value of 0F sets all indicated items to their standard default values. A value of 8F and a mask bit equal to one requires the appropriate data for a new default to be defined in the data field for the corresponding attribute. Unreferenced data bytes not addressed by the mask field are ignored.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The **Data** bytes contain immediate data that specifies values for the attributes in this instruction. If the **Default** byte is 0F, these Data bytes are not present.

The **Set** byte specifies one of the following attributes or parameters:

| Set Value | Description |
|---|---|
| 00 | Drawing Attributes |
| 01 | Line Attributes |
| 02 | Character Attributes |
| 03 | Marker Attributes |
| 04 | Pattern Attributes |
| 0B | Arc Parameters |

The following charts explain the meaning of the mask bits for each of the Set instructions. Refer to the drawing order descriptions for supported attribute values.

## Drawing Attributes Set (Set = 00):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0 | Color | 2 |
| 1-15 | Reserved (Mask Bits = 0) | - |

## Line Attributes Set (Set = 01):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0 | Line Type | 1 |
| 1 | Line Width | 1 |
| 2-15 | Reserved (Mask Bits = 0) | – |

## Character Attributes Set (Set = 02):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0 | Angle X, Y | 4 |
| 1 | Cell size CW, CH | 4 |
| 2 | Direction | 1 |
| 3 | Precision | 1 |
| 4 | Symbol Set | 1 |
| 5 | Shear X, Y | 4 |
| 6-15 | Reserved (Mask Bits = 0) | – |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Marker Attributes Set (Set = 03):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0-1 | Reserved (Mask Bits = 0) | – |
| 2 | Reserved (Mask Bits = 0) | – |
| 3 | Precision | 1 |
| 4 | Symbol Set | 1 |
| 5-6 | Reserved (Mask Bits = 0) | – |
| 7 | Marker Symbol | 1 |
| 8-15 | Reserved (Mask Bits = 0) | – |

## Pattern Attributes Set (Set = 04):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0-4 | Reserved (Mask Bits = 0) | – |
| 5-6 | Reserved (Mask Bits = 0) | – |
| 7 | Pattern Symbol | 1 |
| 8-15 | Reserved (Mask Bits = 0) | – |

## Arc Parameters Set (Set = 0B):

| Mask Bit | Item Name | Length (Bytes) |
|---|---|---|
| 0 | P Value | 2 |
| 1 | Q Value | 2 |
| 2 | R Value | 2 |
| 3 | S Value | 2 |
| 4-15 | Reserved (Mask Bits = 0) | – |

If the self-describing instructions do not specify a current default, the printer uses the standard graphic default for that parameter. The standard default values for the graphic segments are:

| Description | Value |
|---|---|
| Color | Black |
| Line Type | Solid |
| Line Width | Normal |
| Character Angle | No Rotation |
| Character Cell | Standard Size (19 Dots High by 21 Dots Wide in 1/144 in. Units) |
| Character Direction | Left to Right |
| Character Set | Current Set (through the operator panel) |
| Character Font | NLQ Courier |
| Marker Symbol | Cross |
| Pattern Symbol | Solid Shading |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Description | Value |
|---|---|
| Current Position | X, Y = 0, 0 |
| Arc Parameters | P = Q = 1, R = S = 0 |
| Foreground Mix | Overpaint |
| Background Mix | Leave Alone |
| Character Precision | Character Precision |
| Marker Precision | Character Precision |
| Marker Symbol Set | Resident Set in Printer |

**Note:** Standard NLQ text character images (18 1/144 in. high by 20 1/200 in. wide) map to the standard size graphics character so that their upper left corners are coincident.

## Write Graphics (WG)

| Length | D685 | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

| BSI | One or More Drawing Orders |
|---|---|

The Write Graphics command transmits graphic data to the printer. The data in this command consists of picture segments that contain the drawing orders that define the picture in the graphic medium presentation space. Any number of Write Graphics commands may follow the Write Graphics Control command.

The Write Graphics command has a data length restriction of 32K. Within this data-length limit, the Write Graphics command can transmit partial segments, full segments, multiple segments, or any combination of these. Segments and drawing orders must be transmitted in the order in which they are to take effect.

When the printer encounters a partial segment, the printer expects the next graphics data to be the remainder of the segment. This condition is called graphics spanning. For a spanned segment, the segment length is the length of the entire segment before spanning. The Write Graphics command length is the actual number of bytes being transmitted in the current command.

The valid sequence for graphics spanning is as follows:

- Write Graphics command with zero or more segments, followed by the start of a partial segment
- Zero or more XOA, NOP, or STM commands
- A new Write Graphics command with a continuation of the partial segment, followed by zero or more segments.

All segments are run in deferred mode; drawing orders are included in the picture as they are received. The printer does not retain or store the segments. Receipt of the first segment starts the drawing process.

## Begin Segment Introducer (BSI)

| BSI | One or More Drawing Orders |
|---|---|

The Begin Segment Introducer precedes all of the drawing orders that are together in the graphic segment. The following chart shows the format of the BSI:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0 | 0 | 70 | Begin Segment Command |
| 1 | 1 | 0C | Length of the Following Parameters in BSI |
| 2-5 | 2-5 | NAME | Name of Segment (Printer ignores this field) |
| 6 | 6 | 00 | Reserved |
| 7 | 7 | Bit 0-2 | Reserved (Must be Zeros) |
| | | Bit 3 | Prologue Flag<br>0 - No Prologue<br>1 - Prologue |
| | | Bit 4 | Reserved |
| | | Bit 5-6 | Segment Flags<br>00 - New Segment (Reinitialize Current Drawing Attributes)<br>11 - Append This Segment to the Previous Segment (Do Not Reinitialize Current Drawing Attributes) |
| | | Bit 7 | Reserved |
| 8-9 | 8-9 | LEN | Length of Created Segment |
| 10-13 | A-D | NAME | Predecessor/Successor Name (The Printer Ignores This Field) |
| 14-n | E-n | ORDER | Drawing Order or Orders (The Number of Bytes in This Field Must Equal the Length Field, Bytes 8-9) |

If bit 3 of byte 7 is on, a prologue is the first sequence of drawing orders in a new segment. The prologue, if present, is always at the beginning of a new segment's data and ends by an End Prologue order within the same segment.

If bits 5 and 6 of byte 7 are zero, the drawing attributes are re-initialized to the current default values. If bits 5 and 6 of byte 7 are equal to 11, this segment appends to the previous segment and the current drawing attributes do not reinitialize.

**Drawing Orders:** One or more drawing orders follow each Begin Segment Introducer. The format of a drawing order is:

| Order Code |
|---|

| Order Code | Parameter(s) |
|---|---|

| Order Code | Length | Parameter(s) |
|---|---|---|

The order code specifies the type of graphics to print or the assigned drawing attribute.

The Length field, if present, is a one byte value that specifies the length of the drawing order following this byte. See the specific drawing orders for information about the length field.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The parameter bytes contain the specific characteristics for the drawing order. For information about the parameters, see the specific drawing orders, following this description.

| Code | Drawing |
|---|---|
| 00 | No Operation |
| 01 | Comment |
| 04 | Reserved (Treated as a No-op) |
| 08 | Set Pattern Set |
| 0A | Set Color (Graphics) |
| 0C | Set Mix |
| 0D | Set Background Mix |
| 11 | Set Fractional Line Width |
| 18 | Set Line Type |
| 19 | Set Line Width |
| 21 | Set Current Position |
| 22 | Set Arc Parameters |
| 26 | Set Extended Color |
| 28 | Set Pattern Symbol |
| 29 | Set Marker Symbol |
| 85 | Fillet at Current Position |
| 87 | Full Arc at Current Position |
| 91 | Image at Current Position |
| 92 | Image Data |
| 93 | End Image |
| A1 | Relative at Current Position |

| Code | Drawing |
|---|---|
| 33 | Set Character Cell Size |
| 34 | Set Character Angle |
| 38 | Set Character Set |
| 39 | Set Character Precision |
| 3A | Set Character Direction |
| 3B | Set Marker Precision |
| 3C | Set Marker Set |
| 3E | End Prologue |
| 43 | Reserved (Treated as a No-op) |
| 60 | End Area |
| 68 | Begin Area |
| 71 | End Segment (Treated as a No-op) |
| 81 | Line at Current Position |
| 82 | Marker at Current Position |
| 83 | Character String at Current Position |
| C1 | Line |
| C2 | Marker |
| C3 | Character String |
| C5 | Fillet |
| C7 | Full Arc |
| D1 | Begin Image |
| E1 | Relative Line |

The following sections describe the drawing orders.

## No Operation

| 00 |
|---|

**Description**: This order is a no-operation; it has no effect on the graphic medium presentation space or any attribute or any current parameter.

**Comment**

| 01 | L1 | P1..Pn |
|---|---|---|

**Description:** This order is a no-operation; it has no effect on the graphic medium presentation space or any attribute or any current parameter. This order can appear anywhere within the segment.

L1 is the length byte. This byte is a value between 1 and 255 and specifies the number of data bytes that follow. Parameters P1 to Pn are the data bytes. The printer ignores the data within the order. However, there must be at least one data byte within this order.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Segment Characteristics

| 04 | L1 | P1..Pn |
|---|---|---|

**Description:** This order is for compatibility with existing products and is a No Operation order.

## Set Pattern Set

| 08 | P1 |
|---|---|

**Description**: This order sets the value of the current pattern set attribute. Parameter byte P1 has the following value:

**00** Pattern default

## Set Color

| 0A | P1 |
|---|---|

**Description:** This order sets the value of the current graphic color attribute. The color for non-graphics (for example, text) does not change with this order. The color attribute applies to all following graphic drawing orders until another Set Color order or Set Extended Color order occurs or until a new graphic segment initializes the graphic attributes. This order does not change any other graphic drawing attributes.

Parameter P1 specifies the color, as follows:

| Hex | Color (See note) |
|---|---|
| 00 | Current Default |
| 07 | Black |
| 08 | Color of Medium |

**Note:** The S828 Printer provides Limited Simulated Color Support. All architecturally defined color values for graphics data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. All valid colors not listed in the above table (X'01' through X'06') are simulated by printing in black.

If the color requested is not available, the printer uses black. If this occurs, the Exception Handling Control determines whether to report this condition. The EHC also determines whether to continue with the Write Graphics command.

For all color selections except the color of the medium, graphics prints in black. These selections overpaints previous graphics (if of a different color) by changing the color of the dots to print. For a color of medium selection, following graphics overpaints previous graphics by deleting (erasing) the dots to print.

## Set Mix

| 0C | P1 |
|---|---|

**Description**: This order sets the value of the current mix attribute. The mix controls the way that the printer combines the color of the foreground with the color of the medium presentation space. Parameter byte P1 contains the value of the current mix attribute. The only valid values for this byte are:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**00** Use the default (overpaint)
**02** Overpaint - The color attribute value of the foreground replaces the color attribute value of the graphics medium presentation space.

## Set Background Mix

| 0D | P1 |
|---|---|

**Description:** This order sets the value of the background mix. The background mix controls the way the printer combines the color of the background with the color of the graphics medium presentation space. Parameter byte P1 contains the value of the current mix attribute. The only valid values for this byte are:

**00** Use the default (leave alone)
**05** Leave Alone - The color attribute value of the medium presentation space does not change.

## Set Fractional Line Width

| 11 | P1 | P2 |
|---|---|---|

**Description:** The Set Fractional Line Width order sets the line width attribute. This order changes only the line width attribute. The printer uses the last line width received, no matter which order, Fractional Line Width Order or Set Line Width, sets the line width. Parameters P1 and P2 form a two byte sequence that specifies the line width, as follows:

| Hex Value | Line Width |
|---|---|
| 0000 | Current Default |
| 0001 - 017FF | Normal Line (One Dot Wide) |
| 0180 - FFFF | Thick Line (Two Dots Wide) |

This order aids graphics interchange capability. See also “Set Line Width” .

## Set Line Type

| 18 | P1 |
|---|---|

**Description:** The Set Line Type order sets the value of the current line type attribute. This order does not change any other graphic drawing order attributes.
Parameter P1 specifies the type of line for the graphic output. The following values are valid for P1:

| Hex | Line Type |
|---|---|
| 00 | Current Default |
| 01 | Dotted Line |
| 02 | Short Dashed Line |
| 03 | Dash-Dot Line |
| 04 | Double Dotted Line |
| 05 | Long Dashed Line |
| 06 | Dash-Double Dot Line |
| 07 | Solid Line |
| 08 | Invisible Line |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Set Line Width

| 19 | P1 |
|---|---|

**Description:** The Set Line Width order specifies the line width for subsequent graphics. This order changes the fractional line width attribute only. The printer uses the last line width received, no matter which order, Set Fractional Line Width Order or Set Line Width, sets the line width. Parameter P1 specifies the width of the line for the graphic output. The following values are valid for P1:

| Hex | Line Type |
|---|---|
| 00 | Current Default |
| 01 | Normal Line (One Dot Wide) |
| 02-FF | Thick Line (Two Dots Wide) |

## Set Current Position

| 21 | 04 | P1-P4 |
|---|---|---|

**Description:** This order sets the current graphics position for a subsequent drawing order. The position for non-graphics (for example, text) does not change.

Parameters P1 and P2 form a two byte value that specifies the X coordinate in drawing units. Parameters P3 and P4 form a two byte value that specifies the Y coordinate in drawing units. The printer resolves the coordinates to the nearest increment of 0.18 mm (0.007 in. [1/144 in.]).

## Set Arc Parameters

**Description:** This order specifies the parameters for a full arc (circle or ellipse), which the Full Arc orders use.

The center of this circle or ellipse is the origin (coordinate 0,0). The circle or ellipse is drawn in a counterclockwise direction. Parameters P1 to P8 form four two byte values that specify the coordinates of the major and minor axis ends, as follows:

P1P2 - The X coordinate of the major axis end
P3P4 - The Y coordinate of the minor axis end
P5P6 - The X coordinate of the minor axis end
P7P8 - The Y coordinate of the major axis end.

For an ellipse:
(P1P2) x (P5P6) + (P3P4) x (P7P8) = 0
For a circle of radius r, the parameters are:
P1P2 = P3P4 = r, P5P6 = P7P8 = 0
For an ellipse with major axis a and minor axis b, the parameters are:
P1P2 = a, P3P4 = b, P5P6 = P7P8 = 0
For the above ellipse, tilted at an angle A to the X axis, the parameters are:
P1P2 = a cos(A)
P3P4 = b cos(A)
P5P6 = -b sin(A)
P7P8 = a sin(A)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This order does not change any other graphic drawing attributes.

## Set Extended Color

| 21 | 04 | P1-P4 |
|---|---|---|

**Description:** This order functions the same as the Set Color order except that it specifies a length field and the color parameter contains two bytes. The color for non-graphics (for example, text) does not change with this order.This order does not change any other graphic drawing attributes.

This order aids graphics interchange compatibility.

Parameters P1 and P2 form a two byte value that specifies the color, as follows:

| Hex | Line Type |
|---|---|
| 0000 | Current Default |
| 0008 | Black |
| FF00 | Black |
| FF07 | Black |
| FF08 | Color of Medium |

**Note:** The S828 Printer provides Limited Simulated Color Support. All architecturally defined color values for graphics data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. All valid colors not listed in the above table (X'0001' through X'0007', X'0009' through X'0010', and X'FF01' through X'FF06') are simulated by printing in black.

For all color selections except the color of the medium, graphics prints in the selected color. These selections overpaint previous graphics (if of a different color) by changing the color of the dots to be printed. For a color of medium selection, following graphics overpaints previous graphics by deleting (erasing) the dots to print.

## Set Pattern Symbol

| 28 | P1 |
|---|---|

**Description:** This order sets the value of the current shading pattern attribute for subsequent area shading. For additional information, see “Begin Area” and “End Area”.

Parameter P1 specifies the pattern attribute value. This value determines which particular pattern from the pattern symbol set the printer uses to shade (fill) the interior of subsequent areas. The pattern attribute values are:

| Hex | Line Type |
|---|---|
| 00 | Current Default |
| 01 - 08 | Density 1 to Density 8 (Decreasing) |
| 09 | Vertical Lines |
| 0A | Horizontal Lines |
| 0B | Diagonal Lines 1 (Bottom Left to Top Right) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Hex | Line Type |
|---|---|
| 0C | Diagonal Lines 2 (Bottom Left to Top Right) |
| 0D | Diagonal Lines 1 (Top Left to Bottom Right) |
| 0E | Diagonal Lines 2 (Top Left to Bottom Right) |
| 0F | No Shading |
| 10 | Solid Shading |
| 40 | Blank |

## Set Marker Symbol

| 29 | 04 |
|---|---|

**Description:** This order sets the value of the current marker symbol attribute for subsequent markers. See "Marker" and "Marker at Current Position" orders.

Parameter P1 specifies the marker symbol attribute value. This value determines which marker from the marker symbol set the printer uses for subsequent orders. The following are the marker symbol values:

| Hex | Line Type |
|---|---|
| 00 | Current Default |
| 01 | Cross |
| 02 | Plus |
| 03 | Diamond |
| 04 | Square |
| 05 | Six Point Star |
| 06 | Eight Point Star |
| 07 | Filled Diamond |
| 08 | Filled Square |
| 09 | Dot |
| 0A | Small Circle |
| 40 | Blank |

## Set Character Cell Size

| 33 | 04 | P1-P4 |
|---|---|---|

or

| 21 | 08 | P1-P4 |
|---|---|---|

**Description:** This order specifies the size of the character cell for output characters with subsequent Character String orders. The character cell size for non-graphics (for example, text) does not change with this order. The Set Character Cell order does not change any other graphic drawing attributes.

There are two types of formats with this order. The first format has a length of 4 and has four parameter bytes. The second format has a length of 8 and has eight parameter bytes.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

For both formats, parameters P1P2 form a two byte value that specifies the width of the character in drawing units. Parameters P3P4 form a two byte value that specifies the height of the character in drawing units.
For the second format, the width and height of the character cell contain both integer and fractional values. Parameters P5P6 form a two byte value that specifies the fractional portion of the width of the character in drawing units. Parameters P7P8 form a two byte value that specifies the fractional portion of the height of the character in drawing units. There is an implied decimal point between P1P2 and P5P6, and between P3P4 and P7P8.
The printer pads the standard graphics character cell with spaces to achieve the desired spacing. The printer also adjusts the character size within the specified cell in integer multiples of the standard size graphics character. The minimum character image (resulting from graphics mapping) is the standard size graphics character, even though the scaled character cell may be smaller. In this case, overlapping of characters may occur.

**Note:** The printer clips the expanded graphics representation of the last vertical column of a downloaded NLQ character (see Load Symbol Sets).

## Set Character Angle

| 34 | 04 | P1-P4 |
|---|---|---|

**Description:** This order specifies the angle of the baseline of graphic character strings that print using subsequent character string orders. The non-graphics (for example, text) character angle does not change with this order. Angles of 0, 90, 180, and 270 degrees are valid. This order does not change any other graphic drawing order attributes.

Parameters P1 and P2 form a two byte value that specifies the X coordinate. Parameters P3 and P4 form a two byte value that specifies the Y coordinate. To meet the requirement that the angle be 0, 90, 180, or 270 degrees, either the X or the Y coordinate must equal zero, as follows:

If X > 0 and Y = 0, then the angle is zero degrees (default).
If X = 0 and Y > 0, then the angle is 90 degrees.
If X < 0 and Y = 0, then the angle is 180 degrees.
If X = 0 and Y < 0, then the angle is 270 degrees.
If X = 0 and Y = 0, then the angle is zero degrees.

If neither the X nor the Y coordinate is zero, the printer uses the current default for this drawing order.

## Set Character Set

| 38 | P1 |
|---|---|

**Description:** This order sets the value of the current character set attribute. The character set specified by this command must use an NLQ font if printing high-density graphics or a DP font if printing low-density graphics. Downloaded DP characters are not supported in graphics.

Parameter P1 specifies the local character set identifier. A value of 0 or X'FF' selects the current drawing default. A value of X'01' to X'FE' selects a local ID for the character set. This local ID is mapped to a global font ID by the Load Font Equivalence command. See “Load Font Equivalence (LFE)”.

## Set Character Precision

| 39 | P1 |
|---|---|



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Description**: This order sets the value of the current character precision attribute. Parameter P1 specifies the type of precision. Precision 2 (character precision) is the only valid type of precision for this printer. P1 must equal 01 or 02. P1 set to X'00' is the current default.

## Set Character Direction

| 3A | P1 |
|---|---|

**Description:** This order sets the value of the character direction attribute. Subsequent strings that print using the Character String order will print in the direction specified relative to the character baseline angle. See “Set Character Angle”. The character direction for non-graphics (text) does not change with this order. This order does not change any other graphic drawing attributes.

Parameter P1 specifies the direction, as shown:

| Hex | Line Type |
|---|---|
| 00 | Current Default |
| 01 | Left to Right |
| 02 | Top to Bottom |
| 03 | Right to Left |
| 04 | Bottom to Top |

## Set Marker Precision

| 3B | P1 |
|---|---|

**Description:** This order sets the value of the current marker precision attribute. Parameter P1 specifies the type of precision. Precision 2 (character precision) is the only valid type of precision for this printer. P1 must equal 01 or 02.

## Set Marker Set

| 3C | P1 |
|---|---|

**Description:** This order sets the value of the current marker symbol set attribute. Parameter P1 specifies the local character set identifier. This printer only uses the default marker set. Thus, P1 must equal 00.

## End Prologue

| 3E | P1 |
|---|---|

**Description:** This order ends the prologue section of a segment. It is only valid if the prologue flag bit is on in the Begin Segment Introducer (BSI). When the BSI prologue flag bit is on, only the following orders are valid before the End Prologue order:

- Comment
- No Operation
- Segment Characteristics
- All Set Attribute type orders.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## End Area

| 80 | L1 | P1-Pn |
|---|---|---|

**Description:** This order indicates the end of the boundary of an area specified with a Begin Area order. This order does not change any other graphic drawing attributes. However, orders between a Begin Area/End Area pair can update the current position.

L1 is the length of the data, P1 to Pn. If no data is present, the length is zero.

Parameters P1 to Pn are optional data bytes, and if present, must be zeros.

Within the area boundaries, one or more closed figures can exist. A figure ends either by an End Area order or by a order specifying a coordinate that implies the start of a new closed figure. These orders include a Line, Relative Line, Arc, Full Arc, Fillet, or Set Current Position order.

Each closed figure should close properly; its start and end points should be identical. If not, the figure closes arbitrarily with a straight line connecting the start and end points.

## Begin Area

| 68 | L1 |
|---|---|

**Description:** This order indicates the beginning of the boundary of an area that the printer shades. The area definition must terminate with an End Area order.

The area boundaries consist of one or more closed figures. Each closed figure is made up of a continuous set of straight lines, full arcs, and fillets defined using the Line at Current Position, Fillet at Current Position, and Full Arc at Current Position orders. The pattern symbol and the shading color for the area are the attribute values that are current prior to the Begin Area order. Only the following orders are valid between a Begin Area and an End Area order:

- Comment
- Line or Relative Line
- Line at Current Position
- Relative Line at Current Position
- Set Arc Parameters
- Full Arc at Current Position
- Full Arc or Fillet
- Fillet at Current Position
- Set Color or Set Extended Color (see note)
- Set Line Type, Set Line Width, or Set Fractional Line Width (see note)
- Set Current Position.

**Note:** When used between Begin Area and End Area drawing orders, the orders Set Color, Set Extended Color, Set Line Type, Set Line Width, and Set Fractional Line Width update the values of their respective current attributes only for the Area boundary, if drawn. These orders do not update their respective current values for the area fill pattern after an area has begun.

Use of the Line, Relative Line, Full Arc, and Fillet in the non At Current Position form can cause the printer to arbitrarily close the area figure. The recommended orders to use within an area definition are those in the At Current Position form.
The printer cannot nest Area orders. The Begin Area order does not change any other graphic drawing attributes. However, orders between a Begin Area/End Area pair can update the current position.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Parameter **P1** is a **flag** byte that specifies whether boundary lines are to be drawn, as shown:

| | |
|---|---|
| Bit 0 | Reserved |
| Bit 1 | 0 = Do Not Draw Boundary Lines<br>1 = Draw Boundary Lines |
| Bits 2-7 | Reserved |

The printer uses the current values of color, mix, background mix, pattern, and pattern set when shading the area. If boundary lines are drawn, the printer uses the current values of graphics color, line type, and line width. The printer shades any commented region with an odd number of line crossings from infinity. This shading uses the current values of pattern symbol, color, mix, and background mix from the Begin Area order. The printer will not shade regions with an even number of line crossings from infinity. The printer counts all coincident boundary lines when counting line crossings.

The current position is the last coordinate value of the preceding drawing order. The Set Current Position order can move the current position to any drawing order coordinate within the limits of the GDD defined medium presentation space window.

**Note:** When filled areas are drawn such that some boundaries coincide, it is recommended that they be drawn with the same value for Parameter P1 so that the area boundary is drawn properly.

## Line at Current Position

| 81 | L1 | P1-Pn |
|---|---|---|

**Description**: This order specifies one or more connected lines. The printer draws a line from the current graphics position to the points specified by the first set of X and Y coordinates in the parameters. The printer then draws additional lines from the previous end point to the next coordinate pair, if additional coordinates are present.

The printer uses the current attributes for color, mix, line type, and line width in drawing the lines.
L1, the length, specifies the number of bytes following this byte. The value of L1 must be a multiple of four. If L1 is zero, no line is drawn.

Parameters P1 to Pn, if present, form two byte values that specify the X and Y coordinates of the end points for a series of connected lines. This order updates the current graphics position to the last line end point. If the order does not specify any points, the current graphics position does not change. P1 and P2 form a two byte sequence that specifies the X coordinate of the second end point. P3 and P4 form a two byte sequence that specifies the Y coordinate of the second end point. Additional X and Y coordinates, if present, are specified in the remaining parameters, following the same format.

## Marker at Current Position

| 82 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies one or more marker symbols, which the printer places at the points specified by a pair of X and Y coordinates, beginning with the current graphics position. The Set Marker Symbol order determines the marker that prints.

L1, the length, specifies the number of bytes following this byte. The value of L1 must be a multiple of four. A value of zero for L1 is valid and results in only one marker symbol being drawn at the current graphics position.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Parameters P1 to Pn, if present, form two byte values that specify the X and Y coordinates for each additional marker symbol. The printer draws the first marker symbol at the current graphics position. P1 and P2 form a two byte value that specifies the second X coordinate. P3 and P4 form a two byte value that specifies the second Y coordinate. Any remaining parameters specify additional coordinate values for additional markers, using the same format.

The printer uses the current values of color, mix, background mix, marker, precision marker set, and marker symbol for drawing the marker.

This order updates the current graphics position to the value of the last point coordinates. If this order does not specify any points, the current graphics position will not change.

**Note:** The marker cell size is constant 3 mm (0.12 in. [17/144 in.]). The scaling factor used in defining a graphics area does not affect the size of the marker. If markers are used near the edge of a defined graphics area, scaling the graphics may result in the markers being clipped from the printable graphics area.

## Character String at Current Position

| 83 | L1 | P1-Pn |
|---|---|---|

**Description**: This order draws a character string, starting at the current graphics position. A previous Set Character Set order specifies the font to use for drawing the character string. If no previous Set Character Set order has been processed, the printer uses the drawing default character set.

The printer uses the current values of color, mix, background mix, and character precision when drawing the string. The Set Character Cell, Set Character Angle, and Set Character Direction orders determine the character size, character angle, and character direction, respectively.

L1 is a one-byte value that specifies the length of the character string. If L1 is zero, no character string is drawn.

Parameters P1 to Pn, the character string, are one-byte values that specify the code points (characters) of the character string to be drawn, using the currently active character set.

## Fillet at Current Position

| 85 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies a curved line that the printer draws tangential to a specified set of connected, imaginary, straight lines. The printer uses the current graphics position for the first point and the parameter (or parameters) specifies additional points to use.

The printer joins the points specified by imaginary straight lines. The printer then fits a curve to the lines, as follows:
- The curve is tangent to the first line at the start point and to the last line at its end point.
- If there are intermediate lines, the curve is tangent to these lines at their center points.

L1 specifies the length of the parameter (or parameters) in this order. The value of L1 must be a multiple of four. A value of zero for L1 is invalid.

The first end point for the imaginary line specifying the fillet is the graphics current position. Parameters P1 to Pn form two byte values that specify additional X and Y coordinates. These coordinates are additional,



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

sequential end points of the imaginary lines specifying the fillet.
The printer uses the current values of color, mix, line type, and line width when drawing the fillet.
This order updates the current graphics position to the coordinates of the last point.

## Full Arc at Current Position

| 87 | L1 | P1-P2 |
|---|---|---|

**Description:** This order specifies a full arc (circle or ellipse) with the center at the current graphics position. A previous Set Arc Parameters order determines the shape and orientation of the arc. If no Set Arc Parameters order has been received, then the printer draws an arc using the default values of the arc parameters.

Parameters P1 and P2 form a two byte value that specifies the scale. P1 specifies the integer portion of the scale; P2 specifies the fractional portion of the scale (P2 divided by 256). For example, if P2 equals X'40', the decimal value of P2 is 64. This value (64) divided by 256 equals the fraction one-fourth.

The scale value acts as a multiplier for the arc parameters. For a circle, the radius is P1P2 x r. A previous Set Arc Parameters order specifies the value of r.
For an ellipse: The major axis is P1P2 x a, the minor axis is P1P2 x b, and a previous Set Arc Parameters order specifies the values for a and b.
The printer uses the current values of color, mix, line type, and line width when drawing the arc.

This order does not update the current graphics position.

## Begin Image at Current Position

| 91 | 06 | P1-P6 |
|---|---|---|

**Description:** This order defines an image, with the top left corner of the image at the current graphics position. An image consists of a rectangular region with a resolution of one pel, defined in increments of 0.18 mm (0.007 in. [1/144 in.]). Each pel, therefore, represents one dot in the printed image. One or more Image Data orders follow the Begin Image at Current Position order. The Image Data orders contain the image data itself. The Begin Image at Current Position order introduces a graphics image. Only Image Data, Comment, or No-op orders are valid between Begin Image and End Image orders.

Parameters P1 and P2 are always zero for this order. Parameters P3 and P4 form a two byte value that specifies the width of the image in increments of 0.18 mm (0.007 in. [1/144 in.]). Parameters P5 and P6 form a two byte value that specifies the height of the image in increments of 0.18 mm (0.007 in. [1/144 in.]).

The printer uses the current values of color and mix when drawing the image.

**Note:** The Begin Image at Current Position order always specifies the width and height of the image in increments of 0.18 mm (0.007 in. [1/144 in.]), not in drawing units.

## Image Data

| 92 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies the image data for all or part of an image introduced by a Begin Image order. A Begin Image order must precede an Image Data order.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

L1 is a one-byte value that specifies the length (in bytes) of the image data that follows. Valid values for L1 are X'00' through X'FF'.

Parameters P1 to Pn are values that specify the image dot data, a zero indicating the absence of a dot, a one indicating the presence of a dot. The dots are 0.18 mm (0.007 in. [1/144 in.]) apart horizontally and vertically.

The image data is in the form of horizontal scan lines (rows), left to right. Each Image Data order specifies only one scan line (row) of the image. Therefore, the number of Image Data orders following a Begin Image order must be equal to the value specified in parameters P5 and P6 (the image height) of the Begin Image order.

Each of the parameters, P1 to Pn, of the Image Data order specifies eight dots. Therefore, parameter L1 of the Image Data order must equal the image width divided by eight. Parameters P3 and P4 of the Begin Image order specify the image width. If the image width is not a multiple of eight, the printer ignores any extra dots specified by bits in the last parameter, Pn.

**Note:** The image data specified in the Image Data Orders between a Begin Image and End Image pair must exactly fill the area specified by the width and height of the Begin Image order.
This order does not update the current graphics position.

## End Image

| | | |
|---|---|---|
| 93 | L1 | P1-Pn |

**Description:** This order defines the end of an image. A Begin Image order and zero or more Image Data orders must precede the End Image order.

L1, the length, is a one-byte value that specifies the number of parameter bytes that follow. If no parameter bytes follow, L1 is zero.

Parameters P1 to Pn are optional. The printer does not use these parameters; if they are present, the printer discards them.

This order does not update the current graphics position.

## Relative Line at Current Position

| | | |
|---|---|---|
| A1 | L1 | P1-Pn |

**Description:** This order specifies one or more connected straight lines, like the Line at Current Position order. With this order, the end point of each line is an offset from the previous end point, rather than an absolute coordinate pair.

L1 is a one-byte value that specifies the length of the parameter field. L1 must be a multiple of two. The printer will not draw a line if L1 is zero.

Parameters P1 to Pn are signed, twos-complement, one-byte values that specify the offset, in drawing units. The first line end point is the graphics current position. P1 specifies the X coordinate for the second point as an offset from the first point. P2 specifies the Y coordinate for the second point as an offset from the first point. The remaining parameters, if present, specify additional X and Y coordinate values, as offsets from each previous end point, following the same format.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The printer uses the current values of color, mix, line type, and line width when drawing the line.
This order updates the current graphics position to the coordinates of the last end point. If there are no offsets in this order, the current graphics position does not change.

## Line

| C1 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies one or more connected lines.

L1 is a one-byte value that specifies the length of the parameter field that follows. The value of L1 must be a multiple of four and cannot be zero. If L1 equals four, no line is drawn, but the printer updates the graphics current position to the points specified by parameters P1 to P4.

Parameters P1 and P2 form a two byte value that specifies the first X coordinate point. Parameters P3 and P4 form a two byte value that specifies the first Y coordinate point. Parameters P5 to P8, if present, specify the second X and Y coordinate points. The printer draws a line from the point specified by the first pair of coordinates to the point specified by the second pair of coordinates. If additional coordinate pairs are present, the printer draws additional lines from the previous end point to the next coordinate pair.

This order uses the current values of color, mix, line type, and line width.
Following this order, the printer updates the graphics current position to the last end point specified in the order.

## Marker

| C2 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies one or more marker symbols to place at the points specified by pairs of coordinates. The specified location is the center of the marker.

A previously specified Set Marker Symbol order determines the marker symbol the printer uses. If no previous Set Marker Symbol order was processed, the printer uses the current graphics default marker symbol. The printer uses the current values of color, mix, background mix, marker precision, marker set, and marker symbol when drawing the markers.

L1 is a one-byte value that specifies the length of the parameter field that follows. The value of L1 must be a multiple of four. If L1 equals zero, the printer does not draw a marker.

Parameters P1 and P2 form a two byte value that specifies the X coordinate point for the first marker.
Parameters P3 and P4 form a two byte value that specifies the Y coordinate point for the first marker.
Parameters P5 to Pn, if present, specify the X and Y coordinate points for additional markers.
This order updates the current graphics position to the coordinates of the last end point.

**Note:** The marker cell size is constant 3 mm (0.12 in. [17/144 in.]). The scaling factor used in defining a graphics area does not affect the size of the marker. If markers are used near the edge of a defined graphics area, scaling the graphics may result in the markers being clipped from the printable graphics area.

## Character String

| C3 | L1 | P1-Pn |
|---|---|---|



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Description:** This order draws a character string starting at the specified location. A previous Set Character Set order specifies the font to use for drawing the character string. If no previous Set Character Set order was processed, the printer uses the drawing default character set.

The printer places the character cell of the first character in the string at the specified graphics position. The Set Character Cell, Set Character Angle, and Set Character Direction orders determine the character size, character angle, and character direction, respectively. The printer uses the current values of color, mix, background mix, and character precision when drawing the string.

L1 is a one-byte value that specifies the length of the parameter field that follows. L1 must be greater than or equal to four. If L1 equals four, the printer does not draw the character string, but the printer updates the graphics current position to the point specified by parameters P1 to P4.

Parameters P1 and P2 form a two byte value that specifies the X coordinate of the starting location. Parameters P3 and P4 form a two byte value that specifies the Y coordinate of the starting location. Parameters P5 to Pn, if present, are one-byte values that specify the code points of the character string, using the currently active character set.

This order updates the current graphics position to the coordinates of the last point.

## Fillet

| C5 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies a curved line, which the printer draws tangential to a specified set of connected, imaginary, straight lines.

The printer joins the points specified in the order by imaginary straight lines. The printer then fits a curve to the lines. The curve is tangent to the first line at the start point and is tangent to the last line at its end point. If there are intermediate lines, the curve is tangent to these lines at their center points.

L1 is a one-byte value that specifies the length of the following parameters. L1 must be a multiple of four and cannot equal zero. If L1 equals four, the printer does not draw the fillet, but the printer updates the graphics current position to the point specified by parameters P1 to P4.

Parameters P1 and P2 form a two byte value that specifies the X coordinate of the first point. Parameters P3 and P4 form a two byte value that specifies the Y coordinate of the first point. Parameters P5 to Pn, if present, form two byte values that specify the corresponding coordinate values for additional points. If only two points are specified, the printer draws a straight line.

The printer uses the current values of color, mix, line type, and line width when drawing the fillet.
This order updates the current graphics position to the coordinates of the last point.

## Full Arc

| C7 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies a full arc (circle or ellipse) with the center at the specified point. A previous Set Arc Parameters order determines the shape and orientation of the arc. If no previous Set Arc Parameters order was processed, the printer draws the arc using the graphics default arc parameters.

Parameters P1 and P2 form a two byte value that specifies the X coordinate for the center of the arc. Parameters P3 and P4 form a two byte value that specifies the Y coordinate for the center of the arc.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Parameters P5 and P6 form a two byte, unsigned, floating point value that specifies the scale. P5 specifies the integer portion of the scale; P6 specifies the fractional portion of the scale. There is an implied decimal point between P5 and P6. Byte P6 represents the fraction given by the value of P6 divided by 256 (see "Full Arc at Current Position").

The scale value acts as a multiplier for the arc parameters, as follows:

For a circle: The radius is P5P6 x r. A previous Set Arc Parameters order specifies the value of r. For an ellipse: The major axis is P5P6 x a and the minor axis is P5P6 x b.

A previous Set Arc Parameters order specifies the values for a and b. The printer uses the current values of color, mix, line type, and line width when drawing the arc.
This order does not update the current graphics position.

## Begin Image

| D1 | 0A | P1-P10 |
|---|---|---|

**Description:** This order defines an image at the graphics position specified by parameters P1 to P4. An image consists of a rectangular region defined in increments of 1/144 in. One or more Image Data orders follow the Begin Image order. The Image Data orders contain the image data itself. The Begin Image order introduces a graphics image. Only Image Data, Comment, or No-op orders are valid between Begin Image and End Image orders.

Parameters P1 and P2 form a two byte value that specifies the X coordinate for the start of the image. Parameters P3 and P4 form a two byte value that specifies the Y coordinate for the start of the image. Parameters P1 to P4 define the location of the top left corner of the image. Parameters P5 and P6 are always zero for this order. Parameters P7 and P8 form a two byte value that specifies the width of the image in increments of 1/144 in. Parameters P9 and P10 form a two byte value that specifies the height of the image in increments of 1/144 in.
The printer draws the image in the current values of color and mix.
This order updates the current graphics position to the coordinates of the image (parameters P1 to P4).

**Notes:**
1. The Begin Image at Current Position order always specifies the width and height of the image in increments of 1/144 in., not in drawing units.
2. By sending the image ordered (immediate) instead of unordered (deferred), the printer uses less storage.

## Relative Line

| E1 | L1 | P1-Pn |
|---|---|---|

**Description:** This order specifies one or more connected straight lines, like the Line order, except that the end point of each line is an offset from the previous end point.

L1 is a one-byte value that specifies the length of the parameter field that follows. A value of zero for L1 is invalid; L1 must be a multiple of 2. If the value of L1 is two, the printer does not draw the line. However, the printer does update the graphics current position to the point specified by P1 and P2.
Parameters P1 to Pn are signed, twos-complement, one-byte values that specify the offset in drawing units. Parameters P1 and P2 form a two byte value that specifies the X coordinate of the first end point of the line. Parameters P3 and P4 form a two byte value that specifies the Y coordinate of the first end point



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

of the line. Parameter P5 is a signed, twos-complement, one-byte value that specifies the X coordinate of the second end point as an offset from the first end point. Parameter P6 is a signed, twos-complement, one-byte value that specifies the Y coordinate of the second end point as an offset from the first end point. The remaining parameters, if present, specify additional X and Y coordinate values as offsets from the previous point, following the same format.

The printer draws the line in the current values of color, mix, line type, and line width.

This order updates the current graphics position to the coordinates of the last offset point. If there are no offset points with this order, the current graphics position does not change.

### End (END)

For a description of the End control, see “End (END)”.

## Related Drawing Orders

The following list contains drawing orders that relate to a selected order. That is, when defining parameters for a specific order, the additional orders in the list are also affected or should be considered.

Table 8. Related Drawing Order

| | |
|---|---|
| Set Color | Set Extended Color |
| | Line, Line at Current Position |
| | Fillet, Fillet at Current Position |
| | Begin Area, End Area |
| | Full Arc, Full Arc at Current Position |
| | Begin Image |
| | Begin Image at Current Position |
| | Image Data, End Image |
| | Marker, Marker at Current Position |
| | Character String |
| | Character String at Current Position |
| | Relative Line |
| | Relative Line at Current Position |
| Set Fractional Line Width | Set Line Width |
| | Line, Line at Current Position |
| | Fillet, Fillet at Current Position |
| | Full Arc, Full Arc at Current Position |
| | Begin Area, End Area |
| | Relative Line |
| | Relative Line at Current Position |
| Set Line Type | Line, Line at Current Position |
| | Fillet, Fillet at Current Position |
| | Full Arc, Full Arc at Current Position |
| | Begin Area, End Area |
| | Relative Line |
| | Relative Line at Current Position |
| Set Line Width | Set Fractional Line Width |
| | Line, Line at Current Position |
| | Fillet, Fillet at Current Position |
| | Full Arc, Full Arc at Current Position |
| | Begin Area, End Area |
| | Relative Line |
| | Relative Line at Current Position |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 8. Related Drawing Order (continued)

| | |
|---|---|
| Set Current Position | Line at Current Position |
| | Fillet at Current Position |
| | Full Arc at Current Position |
| | Begin Image at Current Position |
| | Marker at Current Position |
| | Character String at Current Position |
| | Relative Line at Current Position |
| Set Arc Parameters | Full Arc, Full Arc at Current Position |
| Set Extended Color | Set Color |
| | Line, Line at Current Position |
| | Fillet, Fillet at Current Position |
| | Begin Area, End Area |
| | Full Arc, Full Arc at Current Position |
| | Begin Image |
| | Begin Image at Current Position |
| | Image Data, End Image |
| | Marker, Marker at Current Position |
| | Character String |
| | Character String at Current Position |
| | Relative Line |
| | Relative Line at Current Position |
| Set Pattern Symbol | Begin Area, End Area |
| Set Marker Symbol | Marker |
| | Marker at Current Position |
| Set Character Cell Size | Set Character Angle (Related to Cell Size, Not affected by It) |
| | Set Character Direction (Related to Cell Size, Not affected by It) |
| | Character String |
| | Character String at Current Position |
| Set Character Angle | Set Character Cell Size (Related to Character Angle, Not affected by It) |
| | Set Character Direction (Related to Character Angle, Not affected by It) |
| | Character String |
| | Character String at Current Position |
| Set Character Direction | Set Character Angle (Related to Character Direction, Not affected by It) |
| | Set Character Cell Size (Related to Character Direction, Not affected by It) |
| | Character String |
| | Character String at Current Position |
| End Area | Set Color, Set Extended Color |
| | Set Pattern Symbol |
| | Begin Area |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| Begin Area | Set Color, Set Extended Color |
| | Set Pattern Symbol |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | End Area |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 8. Related Drawing Order (continued)

| | |
|---|---|
| Line at Current Position | Line, Relative Line |
| | Relative Line at Current Position |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Color |
| | Set Extended Color |
| | Set Current Position |
| Marker at Current Position | Marker |
| | Set Marker Symbol |
| | Set Color, Set Extended Color |
| | Set Current Position |
| Character String at Current Position | Character String |
| | Set Character Direction |
| | Set Character Angle |
| | Set Character Cell Size |
| | Set Color, Set Extended Color |
| | Set Current Position |
| Fillet at Current Position | Fillet |
| | Set Color, Set Extended Color |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Current Position |
| Full Arc at Current Position | Full Arc |
| | Set Arc Parameters |
| | Set Color, Set Extended Color |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Current Position |
| Begin Image at Current Position | Begin Image |
| | Set Color, Set Extended Color |
| | Image Data |
| | End Image |
| | Set Current Position |
| Image Data | Begin Image |
| | Begin Image at Current Position |
| | Set Color, Set Extended Color |
| | End Image |
| End Image | Begin Image |
| | Begin Image at Current Position |
| | Image Data |
| | Set Color, Set Extended Color |
| Relative Line at Current Position | Line, Relative Line |
| | Line at Current Position |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Current Position |
| | Set Color, Set Extended Color |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 8. Related Drawing Order (continued)

| | |
|---|---|
| Line | Line at Current Position |
| | Relative Line |
| | Relative Line at Current Position |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Color |
| | Set Extended Color |
| Marker | Marker at Current Position |
| | Set Marker Symbol |
| | Set Color, Set Extended Color |
| | Character String Character String at Current Position |
| | Set Character Direction |
| | Set Character Angle |
| | Set Character Cell Size |
| | Set Color, Set Extended Color |
| Fillet | Fillet at Current Position |
| | Set Color, Set Extended Color |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| Full Arc | Full Arc at Current Position |
| | Set Arc Parameters |
| | Set Color, Set Extended Color |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| Begin Image | Begin Image at Current Position |
| | Set Color, Set Extended Color |
| | Image Data |
| | End Image |
| | Set Current Position |
| Relative Line | Line |
| | Relative Line at Current Position |
| | Line at Current Position |
| | Set Line Type |
| | Set Line Width |
| | Set Fractional Line Width |
| | Set Current Position |
| | Set Color, Set Extended Color |

# Bar Code Function Set Commands

The bar code function set contains the commands and controls for presenting bar code information on a logical page, a page segment, or an overlay area on the physical medium. The following commands are the bar code function set:

| Command | Code | Description |
|---|---|---|
| WBCC | D680 | Write Bar Code Control |
| WBC | D681 | Write Bar Code |
| END | D65D | End |

The following pages describe the bar code function set commands.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Write Bar Code Control (WBCC)

| Length | D680 | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

| BCAP | BCOC | BCDD |
|---|---|---|

The Write Bar Code Control command causes the printer to enter the bar code block state in the current page, overlay, or page segment state. The parameters of this command define the size, placement, and orientation of the bar code block. Parameters in this command also establish the initial conditions for interpreting the bar code data.

**Note:** The quality of the bar code output is affected by the bar code mode and direction parameter values selected at the operator panel (see the Administrators Manual for your model printer), and by the Print Quality Control command (see “Print Quality Control (PQC)”).

A bar code block contains one or more bar code symbols with or without human readable interpretation of the bar encoded information. Because an important application of bar code printing is printing bar code symbols on labels, means are provided in the function set to repeat symbols. The repeated symbols must be of the same type, but the length and content of the variable data can be different. General parameters applying to all the repeated symbols are in a single Write Bar Code Control command. Parameters that always change or can change from symbol to symbol are in the Write Bar Code command. A separate Write Bar Code command must be used with the variable bar code data for each symbol.

Upon receiving the Write Bar Code Control command, the printer enters the appropriate bar code block state. The printer then initializes control for processing bar code symbols in subsequent Write Bar Code commands. Receiving the End Code in the bar code block state terminates the processing of bar code data.

The Write Bar Code Control command data contains three consecutive structured fields:

- Bar Code Area Position (BCAP)
- Bar Code Output Control (BCOC)
- Bar Code Data Descriptor (BCDD).

Each structured field contains a two byte length field, then a two byte structured field ID, and finally a data field.

**Note:** For more detailed information on bar codes, see Appendix C, “S828 Bar Code and OCR Printing Options,”.

## Bar Code Area Position (BCAP)

| BCAP | BCOC | BCDD |
|---|---|---|

| Length | ID | Data |
|---|---|---|

The Bar Code Area Position Control structured field is the first structured field in the DATA portion of the Write Bar Code Control command. This field defines the origin and orientation of the bar code block relative to the reference coordinate system. The format of the BCAP field is:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0-1 | 0-1 | 000B - XXXX | Length of This Field |
| 2-3 | 2-3 | AC6B | Structured Field ID |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 4-5 | 4-5 | 8000 - 7FFF | X Coordinate of Origin of Bar Code Block |
| 6-7 | 6-7 | 8000 - 7FFF | Y Coordinate of Origin of Bar Code Block |
| 8-9 | 8-9 | 0000<br>2D00<br>Note (2) | When you use the X,Y coordinate system or the I,B coordinate system with the inline orientation equal to 0 degrees, you must use the 0 or 90 degree orientation for bar codes. |
| | | 5A00<br>8700 | When you use the I,B reference system and the inline orientation is 180 degrees, you must use the 180 or 270 degree orientation for bar codes. |
| 10 | A | 00 | Absolute I, Absolute B |
| | | 20 | Absolute I, Relative B |
| | | 40 | Relative I, Absolute B |
| | | 60 | Relative I, Relative B |
| | | A0 | Absolute X, Absolute Y |
| 11-x | B-x | | Reserved |

**Notes:**
1. Any positive or negative value fitting in the two byte field is allowable. Negative values are in twos-complement form. Figure 26 shows the BCAP field specifying the top left reference point, or origin, for the bar code block, relative to the logical page.
2. Bar codes with a unit/module width of 0.533 mm (0.021 in.) cannot be printed in high speed mode. Bar codes with a unit/module width of 0.356 mm (0.014 in.) and a wide-to-narrow ratio of 2.5:1 cannot be printed in high speed mode.

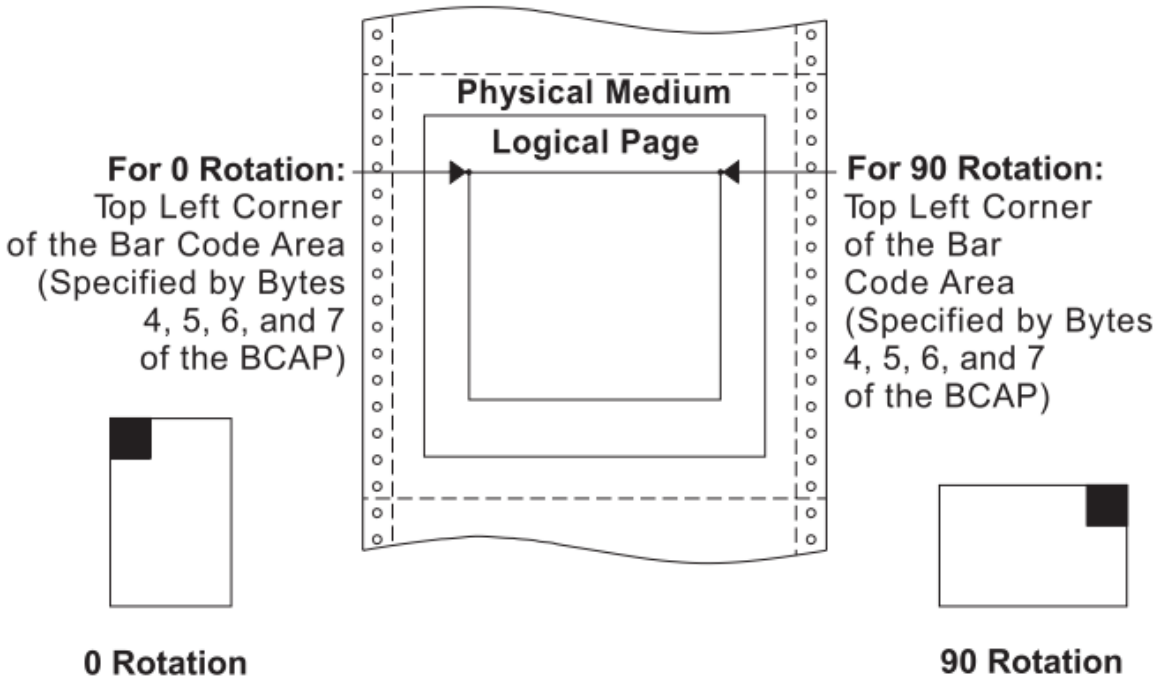



Figure 26. Specifying the Bar Code Block Using the Bar Code Area Position Field

Byte A of the BCAP specifies the reference coordinate system. The reference coordinate system for determining the top left corner of the bar code area can be either the X,Y or the I,B coordinate system.

If byte A equals X'00', the absolute I and B coordinates determine the top left corner. BCAP bytes 4 and 5 specify the text inline coordinate. BCAP bytes 6 and 7 specify the text baseline coordinate.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

If byte A equals X'20', the absolute I and relative B coordinates determine the top left corner. BCAP bytes 4 and 5 specify the text inline coordinate. BCAP bytes 6 and 7 add to the last text baseline coordinate position prior to bar codes.

If byte A equals X'40', the relative I and absolute B coordinates determine the top left corner. BCAP bytes 4 and 5 add to the last text inline coordinate position prior to bar codes. BCAP bytes 6 and 7 specify the text baseline coordinate.

If byte A equals X'60', the relative I and B coordinates determine the top left corner. BCAP bytes 4 and 5 add to the last text inline coordinate position prior to bar codes. BCAP bytes 6 and 7 add to the last text baseline coordinate position prior to bar codes.

If byte A equals X'A0', the current logical page X and Y coordinates determine the origin. When the block is within a page, BCAP bytes 4-7 specify the offset from the X-coordinate and Y-coordinate origin specified in a previously received LPP command (or from the printer default coordinates if no LPP command received). When the block is within an overlay that is invoked using an LCC command, BCAP bytes 4-7 specify the offset from the Xm-coordinate and Ym-coordinate origin. When the block is within an overlay that is invoked using an IO command, BCAP bytes 4-7 specify the offset from the X-coordinate and Y-coordinate origin specified in the IO command.

When you use the X,Y coordinate system or the I,B coordinate system with the inline orientation equal to 0 degrees, you must use the 0 or 90 degree orientation for bar codes.

When you use the I,B reference system and the inline orientation is 180 degrees, you must use the 180 or 270 degree orientation for bar codes.

## Bar Code Output Control (BCOC)

| BCAP | BCOC | BCDD |
|---|---|---|

| Length | ID | Data |
|---|---|---|

The Bar Code Output Control structured field is the second structured field in the DATA portion of the Write Bar Code Control command. This field specifies the mapping option for the bar code block. This field is optional and may not be present in the Write Bar Code Control command.

If the BCOC field is not present, the bar code block is equal to the bar code medium presentation space. The format of the BCOC field is:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0010 – XXXX | Length of This Structured Field |
| 2-3 | 2-3 | A66B | Structured Field ID |
| 4 | 4 | 00 | Unit Base (10 in.) |
| | | 01 | Unit Base (10 cm) |
| 5-6 | 5-6 | 05A0 - 7FFF | Units per Unit Base (10 in.) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) |
| 7-8 | 7-8 | 1 - 7FFF | Block Width (X-Extent of Block) |
| | | FFFF | Use LPD Value |
| 9-10 | 9-A | 1 - 7FFF | Block Height (Y-Extent of Block) |
| | | | FFFF Use LPD Value |
| 11 | B | 30 | Area Mapping Option - Position |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 12-13 | C-D | 8000 - 7FFF | X Offset of Medium Presentation Space Origin in Units |
| 14-15 | E-F | 8000 - 7FFF | Y Offset of Medium Presentation Space Origin in Units |
| 16-x | 10-x | | Reserved |

Figure 27 shows the BCOC field specifying the size of the bar code block on the logical page.

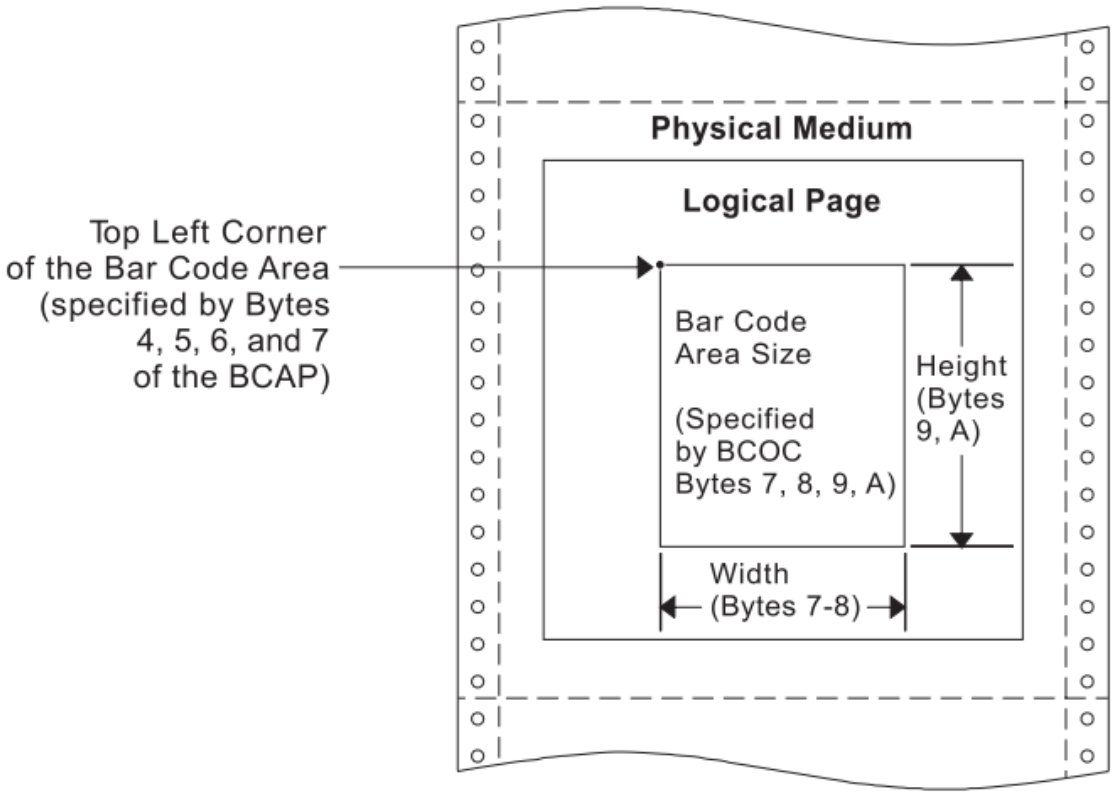



Figure 27. Specifying the Bar Code Block Size Using the Bar Code Output Control

## Bar Code Data Descriptor (BCDD)

| BCAP | BCOC | BCDD |
|---|---|---|

| Length | ID | Data |
|---|---|---|

The Bar Code Data Descriptor structured field is the last structured field in the DATA portion of the Write Bar Code Control command. This field specifies the parameters that define the bar code symbols that print. The format of the BCDD field is:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0-1 | 0-1 | 001B – XXXX | Length of This Structured Field |
| 2-3 | 2-3 | A6EB | Structured Field ID |
| 4 | 4 | 00 | Unit Base (10 in.) |
| | | 01 | Unit Base (10 cm) |
| 5 | 5 | | Reserved |
| 6-7 | 6-7 | 05A0 - 7FFF | Units per Unit Base (10 in.) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) |
| 8-9 | 8-9 | 05A0 - 7FFF | Units per Unit Base (10 in.) |
| | | 1626 - 7FFF | Units per Unit Base (10 cm) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 10-11 | A-B | 1 - 7FFF | X-Extent of Medium Presentation Space (Width) |
| | | FFFF | Use BCOC bytes 7-8 if BCOC is present. Otherwise, use LPD value. |
| 12-13 | C-D | 1 - 7FFF | Y-Extent of Medium Presentation Space (Height) |
| | | FFFF | Use BCOC bytes 9-A if BCOC is present. Otherwise, use LPD value. |
| 14-15 | E-F | | Reserved |
| 16 | 10 | | Bar Code Type |
| | | 00 | Reserved |
| | | 01 | 3 of 9 Code |
| | | 02 | MSI |
| | | 03 | UPC - Version A |
| | | 04 | Reserved |
| | | 05 | UPC - Version E |
| | | 06 | UPC - Two Digit Add-On (Magazine) |
| | | 07 | UPC - Five Digit Add-On (Paperback) |
| | | 08 | EAN-8 |
| | | 09 | EAN-13 |
| | | 0A | 2 of 5 Industrial |
| | | 0B | 2 of 5 Matrix |
| | | 0C | 2 of 5 Interleaved |
| | | 0D | Codabar |
| | | 0E-10 | Reserved |
| | | 11 | Code 128 |
| | | 12-15 | Reserved |
| | | 16 | EAN Two Digit Add On (Magazine) |
| | | 17 | EAN Five Digit Add On (Paperback) |
| | | 18 | POSTNET (See Note 6) |
| 17 | 11 | | Modifier (See Note 1) |
| 18 | 12 | 01-FE | Local Font ID (See Note 4) |
| | | FF | Printer Default |
| 19-20 | 13-14 | | Color support (See note 7) |
| | | 0000 | Printer Default (Black) |
| | | 0008 | Black |
| | | FF00 | Printer Default (Black) |
| | | FF07 | Color of Medium |
| | | FF08 | Printer Default (Black) |
| | | FFFF | Use Current Default |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 21 | 15 | | Unit/Module Width (See Note 2) |
| | | 0E | 0.36 mm (0.014 in.) Width |
| | | 11 | 0.43 mm (0.017 in.) Width (Must have 0 in bytes 8-9 of BCAP) |
| | | 15 | 0.53 mm (0.021 in.) Width |
| | | 1C | 0.71 mm (0.028 in.) Width |
| | | FF | Printer Default |
| 22-23 | 16-17 | 1 - 7FFF | Element Height (See Note 3) |
| | | FFFF | Printer Default |
| 24 | 18 | 1 - FF | Height Multiplier (See Note 3) |
| 25-26 | 19-1A | | Wide-to-Narrow Ratio (See Note 5) |
| | | 2, 14 | 2:1 |
| | | 19, 0FA | 2.5:1 |
| | | 3, 1E | 3:1 |
| | | FFFF | Printer Default |
| 27-x | 1B-x | | Reserved |

**Notes:**

1. The meaning of byte 11 (modifier byte) is dependent upon the bar code type. For the meaning of this byte, see “Modifier Byte”

2. Any bar code can print with a unit/module width of 0.36 mm (0.014 in.). The only bar codes that can print with a unit/module width of 0.53 and 0.71 mm (0.021 and 0.028 in.) are: Code 128, Codabar, Code 3 of 9, MSI, 2 of 5 Industrial, 2 of 5 Matrix, and 2 of 5 Interleaved. If an unsupported unit/module width is specified, the closest smaller supported unit/module width is used. For 0.43 mm (0.017 in.), bar code block must equal 0 in BCAP bytes 8 - 9.

3. For all bar code types except UPC and EAN, the specified height equals the height of the bar/space patterns. For UPC and EAN bar codes, the specified height includes the bar/space patterns and the HRI. If a UPC or EAN bar code specifies a height less than or equal to 190 units at 1440 units per in., the height of the bar/space patterns equals the specified height and the total height is the specified height plus the HRI height (180 units at 1440 units per in.).
If UPC supplemental or EAN add-on bar codes specify a zero degree rotation and a height less than or equal to 460 units at 1440 units per in., the top of the bar/space patterns begins at the symbol reference point. The height of the bar/space patterns equals the specified height, and the total height equals the specified height plus the HRI height (450 units at 1440 units per in.). Otherwise, the top of the HRI begins at the symbol reference point and the specified height includes the bar/space patterns and the HRI.
If UPC supplemental or EAN add-on bar codes specify a 90 degree rotation and a height less than or equal to 420 units at 1440 units per in., the top of the bar/space patterns begins at the symbol reference point. The height of the bar/space patterns equals the specified height, and the total height equals the specified height plus the HRI height (410 units at 1440 units per in.). Otherwise, the top of the HRI begins at the symbol reference point and the specified height includes the bar/space patterns and the HRI.

4. Byte 12 selects a Local Font ID, either OCR-A or OCR-B, for use when printing the Human Readable Information (HRI) beneath the bar code. The list below shows the bar code types that use OCR-A and those that use OCR-B:

| OCR-A | OCR-B |
|---|---|
| Code 128 | UPC - Version A |
| Code 3 of 9 | UPC - Version E |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| **OCR-A** | **OCR-B** |
|---|---|
| MSI | UPC - Two Digit Add-On (Magazine) |
| 2 of 5 Industrial | UPC - Five Digit Add-On (Paperback) |
| 2 of 5 Matrix | EAN-8 |
| 2 of 5 Interleaved | EAN-13 |
| Codabar | EAN Two Digit Add-On |
| | EAN Five Digit Add-On |

5. Wide-to-Narrow ratio is only valid for the following bar code types:
   - Code 3 of 9 (X'01')
   - MSI (X'02')
   - 2 of 5 Industrial (X'0A')
   - 2 of 5 Matrix (X'0B')
   - Interleaved 2 of 5 (X'0C')
   - Codabar (X'0D')

The default ratio for Codabar, Code 3 of 9, and the 2 of 5 types is 2.5:1 for unit/module width of 0.36 and 0.43 mm (0.014 and 0.017 in.), 3:1 for 0.53 mm (0.021 in.), and 2.5:1 for 0.71 mm (0.028 in.) The default for MSI is always 2:1.
6. BCDD bytes 12 and 15-1A and WBC command byte 0 are not applicable to POSTNET; these bytes are ignored by the printer as the POSTNET Specification defines values for these parameters.
7. The S828 Printer provides Limited Simulated Color Support. All architecturally defined color values for graphics data are accepted and result in simulation of the specified colors without generation of unsupported color exceptions. All valid colors not listed in the above table (X'0001' through X'0007', X'0009' through X'0010', and X'FF01' through X'FF06') are simulated by printing in black.
8. If the color requested is not available, the printer uses black.

Figure 28 shows the BCDD field specifying the size of the bar code medium presentation space within the bar code block on the logical page. The bar code medium presentation space must fit within the bar code block.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

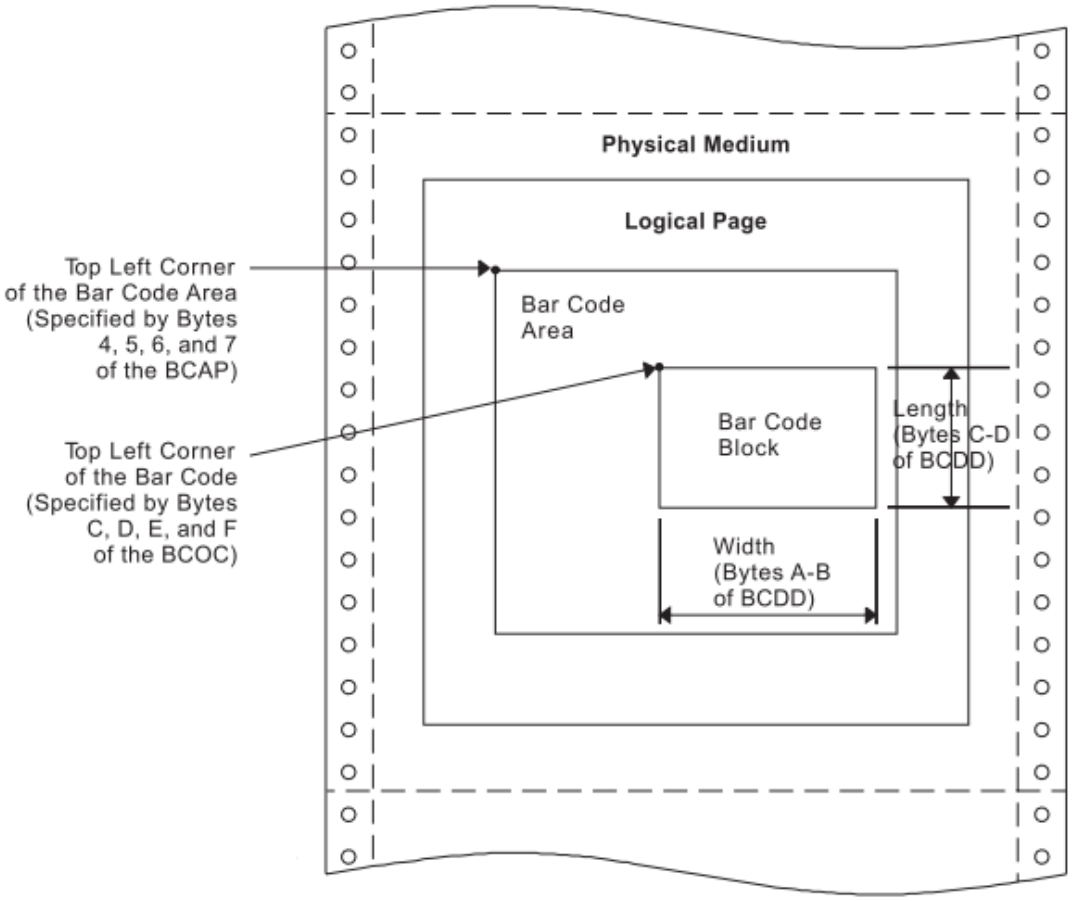



Figure 28. Specifying the Bar Code Medium Presentation Space Size. Using the Bar Code Data Descriptor

**Modifier Byte: 3 of 9 Code:**

01 Print bar code with no printer generated check character.
02 Generate check character and print with bar code.

**MSI Code:**
01 Print bar code with no printer generated check character.
02 Print bar code with IBM Modulus 10 check digit generated by the printer and put at the end of the data. This check digit will be the second check digit.
03 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will also be IBM Modulus 10.
04 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be NCR Modulus 11. Check digit equals remainder; check digit of 10 equals error.
05 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be IBM Modulus 11. Check digit equals remainder; check digit of 10 equals error.
06 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be NCR Modulus 11. Check digit equals 11 minus remainder; check digit of 10 equals zero.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

07 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be IBM Modulus 11. Check digit equals 11 minus remainder; check digit of 10 equals zero.
08 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be NCR Modulus 11. Check digit equals 11 minus remainder; check digit of 10 equals error.
09 Print bar code with both check digits generated by the printer and put at the end of the data. The second check digit will be IBM Modulus 10. The first check digit will be IBM Modulus 11. Check digit equals 11 minus remainder; check digit of 10 equals error.

**UPC Version A:**

00 Generate check digit and print standard symbol. Variable data field of Write Bar Code command contains 11 bytes, first the number system digit, then the 10 article number digits.

**UPC Version E:**
00 Print bar code; six digits are bar encoded. Ten variable data characters are input. From the ten input digits, the printer generates both the check digit and the six bar code characters. The printer does not bar code the check digit. The check digit only assigns odd or even parity to the six bar encoded digits.

**UPC Two Digit Add-On:**
00 Print the two supplemental digits (bar/space pattern and HRI). The Write Bar Code command variable data consists only of the two supplemental digits. The preceding Version A or E symbol prints under control of separate Write Bar Code Control and Write Bar Code commands.

**UPC Five Digit Add-On:**
00 Print the five supplemental digits (bar/space pattern and HRI). The Write Bar Code command variable data consists only of the supplemental digits. The preceding Version A or E symbol prints under control of separate Write Bar Code Control and Write Bar Code commands.

**EAN-8:**
00 Print the bar code symbol. The input variable data is seven digits: two flag digits and five article identification digits. The seven digits are all bar coded along with a check digit generated by the printer. The check digit follows the last article identification digit.

**EAN-13:**
00 Print the bar code symbol. The input variable data is twelve digits — two flag digits and ten article identification digits, in that order. The first flag digit is not bar encoded. The second flag digit, the article identification digits, and a check digit generated by the printer are bar encoded. The first flag digit prints in human readable form at the bottom of the left quiet zone. The first flag digit governs the A/B number set pattern of the bar/space encoding of the six digits to the left of the center pattern.

**Two of Five Industrial, Two of Five Matrix, Two of Five Interleaved:**
01 Print the bar code with no printer generated check digit.
02 Generate the check digit and print it with the bar code.

**EAN Two Digit Add-On:**
00 Print the two add-on digits (bar/space pattern and HRI). The Write Bar Code command variable



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

data consists of only the add-on digits. The preceding EAN-13 symbol prints under control of separate Write Bar Code Control and Write Bar Code commands.

**EAN Five Digit Add-On:**
00 Print the five add-on digits (bar/space pattern and HRI). The Write Bar Code command variable data consists of only the add-on digits. The preceding EAN-13 symbol prints under control of separate Write Bar Code Control and Write Bar Code commands.

**Codabar:**
01 Print the bar code with no printer generated check digit.
02 Generate the check digit and print it with the bar code.

**Code 128:**
01 Print the bar code with no printer generated check digit (4230 and 4224 emulation only)
02 Generate the check digit and print it with the bar code.
Note: Code 128 is normally printed with a check digit.

**POSTNET:**
00 Print a U.S. Postal Service POSTNET ZIP Code (5 digit) bar code symbol. The ZIP Code to be bar encoded is defined as a 5-digit, numeric (0-9), input data variable to the Write Bar Code (WBC) command. The POSTNET ZIP Code bar code is printed with a leading frame bar, the bar encoded ZIP Code data, a correction digit, and a trailing frame bar.
01 Print a U.S. Postal Service POSTNET ZIP+4 (9 digit) bar code symbol. The ZIP+4 code to be bar encoded is defined as a 9-digit, numeric (0-9), input data variable to the Write Bar Code (WBC) command. The POSTNET ZIP+4 bar code is printed with a leading frame bar, the bar encoded ZIP+4 Code data, a correction digit, and a trailing frame bar.
02 Print a U.S. Postal Service POSTNET Advanced Bar Code (ABC, 11 digit) bar code symbol. The ABC code to be bar encoded is defined as an 11-digit, numeric (0-9), input data variable to the Write Bar Code (WBC) command. The POSTNET ABC bar code is printed with a leading frame bar, the bar encoded ABC data, a correction digit, and a trailing frame bar.
03 Print a variable length POSTNET bar code symbol. The code to be bar encoded is defined as a n-digit, numeric (0-9), input data variable to the Write Bar Code (WBC) command. The printer produces a bar code symbol without length checking; the symbol is not guaranteed to be scannable or interpretable. The POSTNET variable-length bar code is printed with a leading frame bar, the bar encoded data, a correction digit, and a trailing frame bar.

## Write Bar Code (WBC)

| Length | D681 | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Write Bar Code command transmits data (code points) to output as a bar code symbol. This command contains parameters that locate the symbol reference point within the bar code medium presentation space. The WBC command also contains the variable bar code data for printing as bar/space patterns and information about printing the code in human readable form.

A flag byte contains information as to whether a human readable interpretation (HRI) is to print, whether the HRI is to be above or below the bar/space patterns, and for the 3 of 9 code, whether the HRI of the start/stop character (a star or asterisk) is to print or not.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The HRI code prints in the OCR-A or the OCR-B font, depending on the bar code type. The following bar codes print the HRI in OCR-A:

- Code 128
- Code 3 of 9
- MSI
- 2 of 5 Industrial
- 2 of 5 Matrix
- 2 of 5 Interleaved
- Codabar.

The following bar codes print the HRI in OCR-B:

- UPC-A
- UPC-E
- UPC Two Digit Add-On
- UPC Five Digit Add-On
- EAN-8
- EAN-13
- EAN Two Digit Add-On
- EAN Five Digit Add-On.

POSTNET bar codes have no HRI.

The DATA field for the WBC command has the following format:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0 | 0 | | Flags |
| | | Bit 0 | 0 - Print Human Readable Code (HRI)<br>1 - Do Not Print HRI |
| | | Bit 1-2 | 00 - Printer Option<br>01 - Print HRI Below Symbol - Valid for Code 128, Codabar, 3of 9, MSI, UPC-A, UPC-E, EAN-8, EAN-13, and All 2 of 5 Bar Codes.<br>10 - Print HRI Above Symbol - Not valid for UPC and EAN without 2-Digit Supplemental and UPC and EAN 5-Digit Supplemental.<br>11 -Invalid Combination |
| | | Bit 3 | 0 - Do Not Print Asterisk (*) with Bar Code 3 of 9<br>1 - Print Asterisk (*) with Bar Code 3 of 9 |
| | | Bit 4-7 | Reserved |
| 1-2 | 1-2 | 1 - 7FFF | X Coordinate of Symbol Reference Point |
| 3-4 | 3-4 | 1 - 7FFF | Y Coordinate of Symbol Reference Point |
| 5-n | 5-n | | Bar Code Data (See Note 3) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Notes:** If bar codes with human readable interpretation (HRI) are placed too close to the page edges, the human readable characters may fall outside the physical medium boundaries. If the HRI falls outside the physical medium boundaries, the characters may not print and a Position Check error, X'041100', may occur.

To ensure that the human-readable characters print, choose X and Y parameter values that allow sufficient space for the characters to print. Some guidelines are:
1. For bar code types UPC-A, UPC-E, EAN-8, and EAN-13, choose X and Y coordinates that place the bar code at least 3.88 mm (0.15 in.) from both the top and left edges of the page.
2. For bar code types UPC Two Digit Add-On and UPC Five Digit Add-On, choose a Y coordinate that places the bar code at least 6.35 mm (0.25 in.) from the top edge of the page.
3. For Codabar bar codes, the data must include the START and STOP characters. For Code 128 bar codes, the table on the following page should be used to determine the hex value of the desired character.
The symbol reference point must be inside the bar code medium presentation space and must lie within the logical page.

# Code 128 Character Set (EBCDIC)

Table 9. Code 128 Character Set (EBCDIC)

| Character | Hex | Character | Hex | Character | Hex | Character | Hex |
|---|---|---|---|---|---|---|---|
| NUL | 00 | . | 4B | i | 89 | I | C9 |
| SOH | 01 | < | 4C | FNC 1 | 8F | } | D0 |
| STX | 02 | ( | 4D | j | 91 | J | D1 |
| ETX | 03 | + | 4E | k | 92 | K | D2 |
| HT | 05 | \| | 4F | l | 93 | L | D3 |
| VT | 0B | & | 50 | m | 94 | M | D4 |
| FF | 0C | ! | 5A | n | 95 | N | D5 |
| CR | 0D | $ | 5B | o | 96 | O | D6 |
| SO | 0E | * | 5C | p | 97 | P | D7 |
| SI | 0F | ) | 5D | q | 98 | Q | D8 |
| DLE | 10 | ; | 5E | r | 91 | R | D9 |
| DC1 | 11 | _ | 60 | ~ | A1 | \ | E0 |
| DC2 | 12 | / | 61 | s | A2 | S | E2 |
| DC3 | 13 | , | 6B | t | A3 | T | E3 |
| BS | 16 | % | 6C | u | A4 | U | E4 |
| CAN | 18 | - | 6D | v | A5 | V | E5 |
| EM | 19 | > | 6E | w | A6 | W | E6 |
| GS | 1D | ? | 6F | x | A7 | X | E7 |
| RS | 1E | ‘ | 79 | y | A8 | Y | E8 |
| US | 1F | : | 7A | z | A9 | Z | E9 |
| FS | 22 | # | 7B | ^ | BO | FNC 2 | EA |
| LF | 25 | @ | 7C | [ | BA | 0 | F0 |
| ETB | 26 | ’ | 7D | ] | BB | 1 | F1 |
| ESC | 27 | = | 7E | FNC 4 | BE | 2 | F2 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 7. Code 128 Character Set (EBCDIC) (continued)

| Character | Hex | Character | Hex | Character | Hex | Character | Hex |
|---|---|---|---|---|---|---|---|
| ENQ | 2D | " | 7F | { | C0 | 3 | F3 |
| ACK | 2E | a | 81 | A | C1 | 4 | F4 |
| BEL | 2F | b | 82 | B | C2 | 5 | F5 |
| SYN | 32 | c | 83 | C | C3 | 6 | F6 |
| EOT | 37 | d | 84 | D | C4 | 7 | F7 |
| DC4 | 3C | e | 85 | E | C5 | 8 | F8 |
| NAK | 3D | f | 86 | F | C6 | 9 | F9 |
| SUB | 3F | g | 87 | G | C7 | FNC3 | FA |
| SP | 40 | h | 88 | H | C8 | DEL | FF |

**Note:** All START, STOP, SHIFT, and CODE characters are generated by the printer in order to produce the shortest bar code possible from the given data.

# Overlay Function Set Commands

The overlay function set contains the commands the printer uses to store, delete, and present information in the overlay memory of the printer. These commands are independent of any specific data types used in defining the overlay.

The overlay is contained between the Begin Overlay (BO) command and the End Page (EP) command and cannot contain itself. Overlays can be nested; that is, overlays can contain other overlays. The depth of the overlay nesting cannot exceed five levels.

Figure 29 shows an overlay nesting.

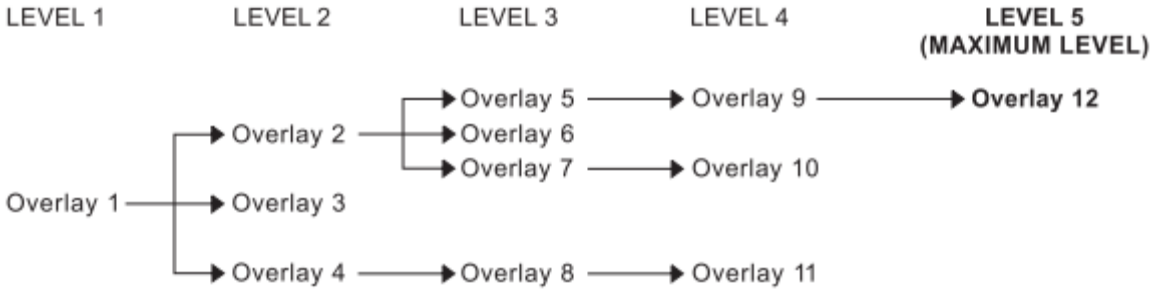



Figure 29. An Example of Overlay Nesting

The following commands are the overlay function set:

| Command | Code | Description |
|---|---|---|
| BO | D6DF | Begin Overlay |
| DO | D6EF | Delete Overlay |
| IO | D67D | Include Overlay |

The following pages describe the overlay function set commands.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Begin Overlay (BO)

| Length | D6DF | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Begin Overlay command causes the printer to leave the home state and enter the overlay state. This command defines data that the printer saves for later use within an overlay. The printer later merges the stored overlay with ordinary printed pages by using the Include Overlay command or the Load Copy Control command. The current Load Page Description, Load Font Equivalence, and Load Equivalence records, if any, become part of the definition of the overlay. The definition of the overlay terminates by an End Page command. The overlay itself is between the Begin Overlay and the End Page commands.

The DATA field is one byte and it specifies the overlay ID. Valid values for this byte are decimal 1 through 254 (X'1' through X'FE''). If this value specifies an overlay identifier already loaded in the printer, an exception occurs.

**Note:** Because overlays use more than the normal amount of printer storage, use overlays only when data needs to be kept.

## Delete Overlay (DO)

| Length | D6EF | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Delete Overlay command deletes (clears) either a single overlay or all overlays from the printer memory.
The DATA field is one byte in length and can be any value between 0 and 254 (X'00' to X'FE'). This value is the overlay identifier, and it specifies the overlay to be deleted. If this value is zero, all overlays are deleted.

## Include Overlay (IO)

| Length | D67D | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Include Overlay command causes a previously stored overlay to merge onto the current page at the specified presentation position. Following the inclusion and processing of an overlay, the current print position remains where it was prior to the overlay processing. The printer restores all page description values, font and suppression equivalences, and text control values to the values that existed for each at the time the overlay was processed.

The DATA field is 10 bytes in length, and contains the following:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0-1 | 0-1 | 0001 - 00FE | Overlay ID |
| 2 | 00 | | Reserved |
| 3-5 | 3-5 | | X Coordinate |
| | | 000000 - 007FFF | Positive Offset Value Relative to the Logical Page |
| | | FF8000 - FFFFFE | Negative Offset Value Relative to the Logical Page |
| | | FFFFFF | Use the Current Inline Text Position |
| 6 | 6 | 00 | Reserved |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 7-9 | 7-9 | | Y Coordinate |
| | | 000000 - 007FFF | Positive Offset Value Relative to the Logical Page |
| | | FF8000 - FFFFFE | Negative Offset Value Relative to the Logical Page |
| | | FFFFFF | Use the Current Baseline Text Position |

**Note:** Negative values must be specified in twos-complement form.

# Page Segment Function Set Commands

The page segment function set contains the commands the printer uses to store, delete, and present information in the page segment memory of the printer. These commands are independent of any specific data types defining the page segment. The following commands are the page segment function set:

| Command | Code | Description |
|---|---|---|
| BPS | D65F | Begin Page Segment |
| DPS | D66F | Deactivate Page Segment |
| IPS | D67F | Include Page Segment |

The following pages describe the page segment function set commands.

## Begin Page Segment (BPS)

| Length | D65F | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Begin Page Segment command causes the printer to enter the page segment state. This command is only valid in the home state. Receipt of an End Page command while in the page segment state causes the printer to return to the home state.

The Page Segment command defines a segment of page data to save within the printer for later printing. This printer later includes this segment when it receives the Include Page Segment command.
The DATA field is two bytes in length and can be any value between X'01' and X'7F'. This value is the page segment identifier. If this value specifies a page segment identifier already loaded in the printer, an exception occurs.

Note: Because page segments use more than the normal amount of printer storage, use page segments only when data needs to be kept.

## Include Page Segment (IPS)

| Length | D67F | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Include Page Segment command causes a previously stored set of commands to process in the input data stream as though they were just received from the host. The printer places the segment at the current presentation position and updates the presentation position as a result of this command.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The DATA field is two bytes in length and can be any value between X'01' and X'7F'. This value is the page segment identifier, and it specifies the page segment to include. A value specifying a page segment identifier that is not defined in the printer causes an exception to occur.

## Deactivate Page Segment (DPS)

| Length | D66F | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Deactivate Page Segment command deletes (clears) either a single page segment or all page segments from the printer memory.
The DATA field is two bytes in length and can be any value between X'00' and X'7F'. This value is the page segment identifier, and it specifies the page segment to delete. A value of zero deletes all segments.

# Loaded Font Function Set Commands

The loaded font function set contains the commands the printer uses to download and delete font information from the font storage of the printer. The following commands are the loaded font function set:

| Command | Code | Description |
|---|---|---|
| LSS | D61E | Load Symbol Set |

The following pages describe the loaded font function set commands.

## Load Symbol Set (LSS)

| Length | D61E | Flag | Correlation ID (Optional) | DATA |
|---|---|---|---|---|

The Load Symbol Set command provides control and pattern information for code points of a font. This command is only valid in the home state and does not result in a state transition. The DATA field contains the following information:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 0 | 0 | 90 | FLAGS (Vertical Format Download - See Note 1) |
| 1 | 1 | 00 | Reserved |
| 2 | 2 | 01-0F | Starting Code Point |
| 3 | 3 | 00 | Reserved |
| 4 | 4 | D-FF | Additional Parameter Byte Length (This Value Is One More Than the Number of Bytes Remaining) |
| 5 | 5 | 60 | No Self-Defining Fields Present |
| | | 61 | Self-Defining Fields Present |
| 6 | 6 | XX | Uniform Character Box Size X Dimension (See Note 2) |
| 7 | 7 | | Uniform Character Box Size Y Dimension |
| | | | DP and DP Text Quality |
| | | 09 NLQ | |
| | | 12 | |
| 8 | 8 | 00 | Reserved |
| 9 | 9 | 00 | Reserved |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 10 | A | 00 | Reserved |
| 11 | B | 01-FF | Ending Code Point |
| 12 | C | 00 | Reserved |
| 13 | D | 00 | Reserved |
| 14 | E | 00 | Reserved |
| 15-16 | F-10 | 0001 - 7EFF | Loaded Font Identifier (See Note 3) |
| 17-x | 11-x | 00...00 | Reserved (See Note 4) |
| (x+1) - xx | (x+1) - xx | 02FF...XX | Self-Defining Fields |
| o-p | o-p | XX...XX | Character Raster Data |

**Notes:**
1. Vertical format download refers to the method used to send the character patterns to the printer. The bits are organized as a sequence of vertical cell slices. Each slice contains a number of bits equal to the uniform box Y size (byte 7). Slices are contiguous (run together) in the raster pattern data. The last slice of each character is padded with the minimum number of bits needed to reach a byte boundary. Padded bits are always zeros. The number of vertical slices per character is equal to the uniform box X size (byte 6).
The first vertical slice received by the printer is the left reference edge of the character box. The last slice received is the right reference edge of the character box. The first received pel of each slice makes up the top reference edge of each character box. The last received non-padding pel of each slice makes up the bottom reference edge of each character box.
2. The meaning of this byte depends upon the font selected, as explained below.
3. An LFE entry must exist for this LFID prior to receiving the LSS command; otherwise an error occurs.
4. The value of byte 4 determines the number of bytes in this field.
5. Load symbol set into Fast Draft fonts is not allowed.

**Character Box Size X Dimension (Byte 6)**: The meaning of byte 6 is as follows:

- Resident Fonts, except PSM
  - 0A - DP Quality
  - 14 - DP Text and NLQ Quality
- Resident PSM Fonts
  - 01-FF - DP Text Quality
  - 01-FF - NLQ Quality
- Non-Resident Fonts
  - 01-FF - With Y Dimension (byte 7) equal to 09
  - 01-FF - With Y Dimension (byte 7) equal to 12.

The print quality must be set appropriately (with the PQC command) before the LSS command is issued if the font is present in the printer (specified by the LFE command).

**Self-Defining Fields**: If byte 5, bit 7, equals one, then the DATA field includes one or more self-defining fields. The format of each field is:

| L | T | Data |
|---|---|---|

L and T are single byte values that specify the length and type of self-defining field. The only valid self-defining field is the terminator field X'02FF', without any data. The character raster patterns immediately follow this field. The printer ignores any other self-defining fields.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Character Raster Patterns:** Data in this field contains the actual code points (bit patterns) for the font specified in bytes 0F and 10. If the font identifier matches an existing font ID, and one or more of the code points specified in bytes 2 and 0B overlap previously specified code points, then the printer replaces the character patterns of the previously specified code points, regardless of how they were originally loaded.

**Note:** Printronix recommends that image data bits for the last vertical column of NLQ character patterns be all zeros. The printer clips the graphics representation of the last vertical column if NLQ characters are expanded for graphics printing (see “Set Character Cell Size” on page 182). Resident NLQ text character patterns do not contain image data (dots) in the last column of the character box.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 6. IPDS Exception Reporting Codes

The following tables contain the exception reporting codes, which the printer sends to the host in the NACK reply. These codes are in a three-byte format. The first byte, byte 0, is the error group. The remaining two bytes, bytes 1 and 2, are the individual error identifiers. Table 8 shows the error group meanings:

Table 10. Exception Reporting Group Codes

| Byte 0 | Error Type |
|---|---|
| 80 | “Command Reject - X'80'” |
| 40 | “Intervention Required - X'40'” |
| 10 | “Equipment Check - X'10'” |
| 08 | “Data Check - X'08'” |
| 04 | “Specification Check-Bar Code - X'04'” |
| 03 | “Specification Check-Graphics - X'03'” |
| 02 | “Specification Check-General - X'02'” |
| 01 | “Conditions Requiring Host Notification - X'01'” |

**Command Reject**: Indicates that the printer cannot recognize a received command.

**Intervention Required:** Indicates that the printer requires operator intervention.

**Equipment Check:** Indicates that a hardware error has occurred. Data Check: Indicates that the printer detects a data error when receiving a logical unit from the application program or that the printer detects a data error while printing the page.

**Specification Check:** Indicates that the data parameters or values in a received command are invalid.

**Condition Requiring Host Notification**: Indicates that the printer has detected an error or condition that should be reported to the host computer.

## Command Reject - X'80'

The following exception codes are the valid codes for a command reject condition:

**X'800100' Invalid IPDS Command Code**

**Explanation:**
1. The command code is not recognized. An error length on a previous command may have caused the current data to be processed as a command.
2. The command is not supported.
**Alternate Exception Action**: None

**X'800200' Invalid IPDS Command Sequence**

**Explanation:** The printer state is invalid for the received command.
**Alternate Exception Action**: None

## Intervention Required - X'40'

The following exception codes are the valid codes for an intervention required condition:

**X'400000' Printer Not Ready**

**Explanation:** The printer needs operator intervention to tear off a continuous forms paper source so paper source switching can be done when in 4224 emulation mode.
**Alternate Exception Action**: None

**X'400100' Printer Out of Forms**

**Alternate Exception Action**: None



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'402000' Incorrect Forms Module Selection**

**Alternate Exception Action**: None.

**X'401300' Tear-Off Required**

**Explanation:** The printer needs operator intervention to tear off a continuous forms paper source so paper source switching can be done.
**Alternate Exception Action**: None

**X'40E000' Forms Jam**

**Alternate Exception Action**: None.

**X'40E400' Cancel Print Key Pressed**

**Explanation:** The Cancel Print key was pressed while the printer was receiving IPDS data.
**Alternate Exception Action:** None.

## Equipment Check - X'10'

The following exception codes are the valid codes for an equipment check condition:

**X'10F100' Permanent Error**

**Explanation:**
1. There was a permanent hardware error.
2. The microcode detected an irrecoverable logic error.
3. The microcode detected a condition that should not have occurred.

**Alternate Exception Action**: None.

## Data Check - X'08'

The following exception codes are the valid codes for a data check condition:

**X'082100' Undefined Character**

**Explanation:**
1. An undefined character code has been detected in Write Text data.
2. An undefined overstrike character code has been detected.
3. A character has been detected in Write Text Command data which is undefined at the quality level specified by the XOA-PQC command.
4. An undefined character code has been detected in Write Bar Code data.

**Alternate Exception Action:** For reasons 1-3, print the default character. For reason 4, there is no alternate exception action.

**X'08C100' Position Check**

**Explanation:** An attempt was made to print outside the valid printable area.

**Alternate Exception Action:** All physical printing
outside the valid printable area is suppressed. All data and controls continue processing. The printer continues to print within the valid printable area to the greatest possible extent. For text, this may mean truncating text lines at the character boundary closest to the edge of the intersection. For graphics, this may mean truncating graphics pictures at the pel closest to the boundary. For image, this may mean truncating scan lines at the pel closest to the boundary, or alternatively, not printing any of the image if any part of the image falls outside the valid printable area.

## Specification Check-Bar Code - X'04'

The following exception codes are the valid codes for a bar code specification check condition:

**X'040300' Bar Code Type Requested Is Not Supported**
**Explanation:** The bar code type requested in the Write Bar Code Data Descriptor field is not supported.

**X'040400' LCID Requested Is Not Supported**
**Explanation:** The type style/font requested in the
Write Bar Code Data Descriptor field is not supported.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Alternate Exception Action:** None.

**Alternate Exception Action:** Use printer default.

**X'040500' Bar Code Color Requested Is Not Supported**
**Explanation:** The color requested in the Write Bar Code Data Descriptor field is not supported.
**Alternate Exception Action:** Use printer default color.

**X'040600' Bar Code Color Requested Is Not Supported**
**Explanation:** The unit/module width specified in the Write Bar Code Data Descriptor field is not supported.
**Alternate Exception Action:** Use closest smaller width supported or the device default for those devices with only one fixed default value.

**X'040700' Element Height Specified Is Not Supported**
**Explanation:** The element height specified in the Write Bar Code Data Descriptor field is not supported.
**Alternate Exception Action:** Use closest height supported

**X'040800' Height Multiplier Specified Is Not Supported**
**Explanation:** The height multiplier specified in the Write Bar Code Data Descriptor field is not supported.
**Alternate Exception Action:** Use closest multiplier supported.

**X'040900' Wide/Narrow Ratio Is Not Supported**
**Explanation:** The wide/narrow ratio specified in the Write Bar Code Data Descriptor field is not supported.
**Alternate Exception Action:** Use the printer default wide element width. The default wide element width and the specified or default unit/module width should be such that a wide/narrow ratio of 2.50 or 3.00 results.

**X'040A00' Invalid Symbol Reference Point**
**Explanation**: The symbol reference point given in the Write Bar Code command is not a valid or supported value.
**Alternate Exception Action**: None.

**X'040B00' Invalid Bar Code Modifier**
**Explanation:** The bar code modifier, byte 17 of the Bar Code Data Descriptor structured field, is not a valid or supported value for the bar code type specified by byte 16 of the same structured field.
**Alternate Exception Action:** None.

**X'040C00' Invalid Bar Code Data Length**
**Explanation:** The length of the variable data (as given in bytes 5-n of the Write Bar Code command) to be bar-encoded/printed, plus any printer-generated check digits to be coded/printed, is not a valid or supported value.
**Alternate Exception Action:** None.

**X'040E00' Check Digit Calculation Error**
**Explanation:** A first check digit calculation resulting in a value of 10 is defined as an error in various modifier options (byte 17 of the Bar Code Data Descriptor structured field) for the MSI bar code.
**Alternate Exception Action:** None.

**X'041000' HRI Location Not Supported**
**Explanation:** HRI location specified in the FLAGS byte of the WBC command is not a supported location.
**Alternate Exception Action:** None.

**X'041100' Attempt to Print Portion of Symbol Outside Block or VPA**
**Explanation:**
1. A portion of the bar code presentation space, as mapped into the block, extends outside the bar code block boundaries, or a portion of the bar code block extends outside of the logical page (or current overlay).
2. An attempt is made to print a bar code symbol or HRI outside the physical page.
3. The symbol reference point lies outside the bar code block, presentation space, or logical page (or current overlay).
**Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Specification Check-Graphics - X'03'

The following exception codes are the valid codes for a graphics specification check condition:

**X'030001' Unallocated Graphic Order or Command Code**
**Explanation:**
1. An attempt was made to execute an unallocated order code that is reserved for future use.
2. An attempt was made to execute an unallocated command code that is reserved for future use.
**Alternate Exception Action:** None.

**X'030002' Reserved Byte Error or Invalid Default**
**Explanation:**
1. A reserved byte in the graphic order is not set to zero.
2. The Set Current Defaults instruction attempts, in byte 2, to set an invalid or unsupported attribute.
3. An invalid default byte value was received in the GDD.
**Alternate Exception Action**: None.

**X'030003' Incorrect Drawing Order Length**
**Explanation:** A drawing order length is invalid.
**Alternate Exception Action:** None.

**X'030004' Invalid Attribute Value**
**Explanation:** An attribute value for a graphic order or for a WGC Set Current Default instruction is invalid.
**Alternate Exception Action**: Use the standard default value for that attribute.

**X'030008' Truncated Order Error**
**Explanation:** An order has been requested that is not a complete order. This order is one of the following:
1. A fixed 2-byte order and the second byte is not in the segment.
2. A long order and the length byte is not in the segment.
3. A long order and the number of bytes following the byte containing the length count to the end of the segment is less than the value of the length count.
**Alternate Exception Action:** None.

**X'03000C' Segment Prologue Error**
**Explanation**: A supported order that is not valid within a prologue was found in a prologue.
The end of a segment was reached without an End Prologue order.
**Alternate Exception Action:** None.

**X'03000E' Unsupported Attribute Value**
**Explanation:** An attribute value for a graphic order or for a WGC Set Current Default instruction is not supported.
**Alternate Exception Action:** Use the standard default value for that attribute.

**X'0300021' Invalid Default**
**Explanation:** The Set Current Defaults instruction sets an invalid or unsupported default for an attribute.
**Alternate Exception Action:** None.

**X'033400' Character Angle Value Not Supported**
**Explanation:** The specific character angle requested is not supported.
**Alternate Exception Action**: Use the closest angle supported by the printer.

**X'033E00' Invalid End Prologue**
**Explanation:** An End Prologue was found outside the prologue section of a segment.
**Alternate Exception Action:** None.

**X'036000' Area Bracket Error**
**Explanation**: An End Area order has been executed without a Begin Area order having previously been executed.
**Alternate Exception Action:** None.

**X'038000' Begin Area Received Incorrectly**
**Explanation:** Begin Area order received while Begin Area is already in progress.
**Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'036801' Area Truncation Error**
**Explanation:** A Begin Area order has been executed in a segment, and the end of the segment is reached without an End Area order being executed. Area fill implementation results are printer dependent.
**Alternate Exception Action:** None.

**X'036802' Supported Order Invalid in Area**
**Explanation:** A supported order is detected that is not valid within an area.
**Alternate Exception Action:** None.
.

**X'036803' Pattern Symbol Set Not Available**
**Explanation:** The symbol set identified by the current Pattern Set is not available.
**Alternate Exception Action:** Use the standard default pattern symbol set.

**X'036804' Undefined Pattern Symbol**
**Explanation:** The current pattern symbol is undefined in the pattern symbol set.
**Alternate Exception Action:** Use the standard default pattern symbol.

**X'037001' Invalid Repeat/Append Bit**
**Explanation:** The Begin Segment Repeat/Append bit has a value of B'10' in chained immediate mode.
Alternate Exception Action: None.

**X'037082' Invalid Repeat/Append Bit**
**Explanation:** The Begin Segment Repeat/Append bit has a value of B'01'.
Alternate Exception Action: None.

**X'0370C1' Invalid Begin Segment length**
**Explanation:** The Begin Segment parameter length is invalid.
**Alternate Exception Action:** None.

**X'039200' Graphic Image Order Sequence Error**
**Explanation:** A Begin Image order was not executed before the Image Data order in this segment.
**Alternate Exception Action**: None.

**X'039201' Image Data Discrepancy**
**Explanation:** There are insufficient or too many bytes of data in the Image Data order.
**Alternate Exception Action:** None.

**X'039300' Graphic Image Bracket Error**
**Explanation:** An End Image order is executed without a Begin Image order having been previously executed.
Alternate Exception Action: None.

**X'039301' Incorrect Number of Image Data Orders**
**Explanation:** The number of Image Data orders between the Begin Image and End Image orders is not equal to the number of rows in the image (as given by the value of height in the Begin Image order).
**Alternate Exception Action:** None.

**X'03C200' Marker Symbol Set Not Available**
**Explanation:** The symbol set identified by the current Marker Set attribute is not available.
**Alternate Exception Action:** Use the standard default marker symbol set.

**X'03C201' Undefined Marker Code**
**Explanation:** A marker code point is undefined in the current marker symbol set.
**Alternate Exception Action:** Use the standard default marker symbol.

**X'03C300' Character Symbol Set Not Available**
**Explanation:**
1. The symbol set identified by the current Character Set is not available.
2. The current character set specified in the Set Character Set order does not have the proper attributes to be printed in graphics mode.
**Alternate Exception Action:** Use the standard default character symbol set.

**X'03C301' Undefined Graphics Character Code**
**Explanation:** A code in a character string is undefined in the current character symbol set.
**Alternate Exception Action:** Use the standard default character symbol.

**X'03D100' Truncated Graphic Image Error**
**Explanation:** A Begin Image order has been executed in a segment, and the end of the segment is reached without an End Image order having been executed.
**Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'03D101' Invalid Order in Graphic Image**
**Explanation:** A Begin Image order has been executed in a segment, and an order other than a Comment, Image Data, or End Image order is executed.
**Alternate Exception Action:** None.

**X'03D102' Graphic Image Format Not Supported**
**Explanation**: The value specified for the graphic image format parameter is not supported.
**Alternate Exception Action:** None.

**X'03D103' Image Width Greater Than Maximum Supported**
**Explanation:** The Width value specified in the Begin
Image order exceeds the maximum image width supported by the product.
**Alternate Exception Action:** The image width is truncated at the maximum width supported.

**X'03D104' Image Height Greater Than Maximum Supported**
**Explanation:** The Height value specified in the Begin Image order exceeds the maximum image height supported by the product.
**Alternate Exception Action:** The image height is truncated at the maximum height supported.

**X'03E100' Relative Line Outside Coordinate Space**
**Explanation**: The relative line starts inside the drawing order coordinate space but goes outside.
Alternate Exception Action: None.

## Specification Check-General - X'02'

The following exception codes are the valid codes for a general specification check condition:

**X'020001' Embedded Text Control Code Error**
**Explanation:** Undefined text control code.
**Alternate Exception Action**: Ignore the control sequence.

**X'020201' End Suppression Text Control Error**
**Explanation:** The active Begin Suppression ID within the current page, overlay, or page segment is not the same as that specified in the ES control.
There is no active suppression ID.

**X'020202' Invalid IPDS Command Length**
**Explanation:** The length for a command is not within the allowed range.
The length of a Request Resource List entry is not a valid or supported value.
The length specified for a Request Resource List entry does not match the number of bytes received.
**Alternate Exception Action:** None.

**X'020205' Invalid Data Structured Field Length**
**Explanation:** A data structured field has been received in a WGC or WBCC command that is less than the minimum allowable length.
**Alternate Exception Action:** None.

**X'020302' IPDS Command Header Length too Small**
**Explanation:** The length value of a command is less than 5 (or less than 7 if a correlation ID is included).
Alternate Exception Action: None.

**X'020305' Area Position Orientation is Not Supported**
**Explanation:** The orientation specified in the Area Position structured field of the WGC or WBCC command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'020401' End Page Encountered During Active Suppression**
**Explanation:** The End Page control was encountered before a text suppression ended.
**Alternate Exception Action:** Process the object as if the corresponding End Suppression control sequence appeared at the end of the object. That is, all of the data following the Begin Suppression control sequence in the object is processed and suppressed.

**X'020402' Acknowledge Reply Response Continuation Request is Invalid**
**Explanation**: The printer received a command whose response continuation bit is on but there is no response to continue.
**Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'020405' Area Position Reference System is Not Supported**
**Explanation:** The reference system specified in the Area Position structured field of the WGC or WBCC command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'020501' Invalid Spanning Sequence**
**Explanation:** A Write Text or Write Graphics command is required to complete a partial order, control, or double-byte character code and another command was received other than an XOA command.
**Alternate Exception Action**: None.

**X'020502' Unsupported Baseline Move**
**Explanation:** Unsupported advancement of the baseline coordinate toward the I-axis.
**Alternate Exception Action**: None.

**X'020505' Structured Field Unit-Base Invalid**
**Explanation:** The unit-base (measurement units) specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'020601' Begin Suppression Error**
**Explanation:** Begin Suppression encountered in the same unit (page, segment or overlay) before previous suppression in that unit ended.
**Alternate Exception Action**: None.

**X'020605' Structured Field Units Invalid**
**Explanation:**
1. The units specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.
2. The result of the calculation cannot be represented in the printer. This may result from the WGC GDD window limits being very close together.
3. Coordinate overflow while scaling graphics. Possible if scaling coordinates require multiplication by a value greater than 1.
**Alternate Exception Action**: None.

**X'020705' Structured Field Extents Not Supported**
**Explanation:** The extents specified in the Output Control or Data Descriptor structured field of the WGC or WBCC command are not a valid or supported value. The window values of the WGC GDD structured field are not consistent; therefore, the value of XL is larger than the value of XR or the value of YB is larger than the value of YT.
**Alternate Exception Action:** None.

**X'020805' Invalid Mapping Option**
**Explanation**: A mapping option specified in the Output Control structured field of the WGC or WBCC command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'020905' Invalid Axis Offsets**
**Explanation**: The axis offsets specified in the Output Control structured field of the WGC or WBCC command are not valid or supported values.
**Alternate Exception Action:** None.

**X'020B05' Invalid Structured Field Identifier**
**Explanation**: A two-byte structured field identifier in a WGC or WBCC command is invalid or out of sequence.
**Alternate Exception Action:** None.

**X'020F01' Invalid Text Orientation**
**Explanation:** Baseline or Inline orientation specified in Set Text Orientation is not a valid or supported value.
**Alternate Exception Action:** Use an inline orientation of 0 degrees and a baseline orientation of 90 degrees.

**X'021001' Invalid Margin**
**Explanation:** The margin position is not a valid or supported value.
**Alternate Exception Action**: None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'021101' Invalid Baseline Increment**
**Explanation:** The value of the baseline increment is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021201' Invalid Intercharacter Adjustment**
**Explanation:**
1. The value of the intercharacter adjustment is not a valid or supported value.
2. The intercharacter adjustment direction is not a valid or supported value.
**Alternate Exception Action**:
1. Ignore the control sequence and continue presentation with the parameter values according to the hierarchy (the hierarchy is the last valid value received or if none received then use the LPD value).
2. Use direction = zero.
**Note**: In an LPD command, no Alternate Exception Action occurs.

**X'021202' Font Storage is Full**
**Explanation:** There is insufficient pattern storage to store the font transmitted with the Load Symbol Set command. There is insufficient storage to load the data transmitted with the Load Font Equivalence command.
**Alternate Exception Action:** None.

**X'021301' Invalid Absolute Move Baseline Value**
**Explanation:** The Absolute Move Baseline parameter value is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021401' Invalid Absolute Move Inline Value**
**Explanation:** The Absolute Move Inline parameter value is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021402' Font to be Deleted Not Found**
**Explanation:** The single byte font specified by the Deactivate Font command is not in the machine.
**Alternate Exception Action:** None.

**X'021403'**
**Explanation:** Unsupported Baseline Move
**Alternate Exception Action:** None.

**X'021502' Invalid DF Font**
**Explanation:** The Loaded Font Identifier field is required in the Deactivate Font command; however, it is not present or its value is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021802' Invalid Font ID**
**Explanation:**
1. The two-byte Font Identifier on a Load Symbol Set or Load Font Equivalence command is not a valid or supported value.
2. The one-byte Font Identifier value on the Load Font Equivalence command is not a valid or supported value.
3. A font is referenced on a Set Font control, a Logical Page Description, a Load Symbol Set, a Write Graphics, or Write Bar Code command, but the font has not been previously identified by the Load Font Equivalence command.
4. The font or symbol set referenced in a Logical Page Description, Write Text, or Write Graphics command is defined within the current Load Font Equivalence but is not loaded in the printer.
**Alternate Exception Action**:
1. None.
2. None.
3. Substitute the active font for the specified local font and continue processing.
4. Substitute the active coded font for the specified local font and continue processing.

**X'021701' Invalid Variable Space Increment**
**Explanation:** The value of the variable space increment as specified in a text control is not a valid or supported value.
**Alternate Exception Action**: None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'021702' Invalid DF Deletion Type**
**Explanation**: The Deletion Type on a Deactivate Font command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021901' Repeat String Length Error**
**Explanation:** The Repeat String target string length is not a valid or supported value.
**Alternate Exception Action:** None.

**X'021902' Multiple Occurrences of the Same LFE Local ID**
**Explanation: Explanation:** The one-byte Local Identifier value in the Load Font Equivalence command has been used more than once, making the Two-Byte Font Identifier reference ambiguous.
**Alternate Exception Action**: None.

**X'021C01' Invalid Embedded Text Control Sequence**
**Explanation**: A text control sequence contains a code other than X'D3' following X'2B'.
**Alternate Exception Action:** None.

**X'021D02' Invalid LFE Identifier**
**Explanation:** One or more of the following font parameters listed in the LFE or their combination is not valid or supported: Character Set ID, Code Page ID, Uniform Character Increment, and Proportional Increment Coefficient Table.
**Alternate Exception Action:** None.

**X'021E01' Invalid Text Control Length**
**Explanation:** The length of a text control is not valid.
**Alternate Exception Action:** None.

**X'021E02' Mismatch Between Font and XOA Print Quality Control**
**Explanation:**
1. The combination of parameters specified in LFE are not supported together with the quality indicated by XOA Print Quality Control.
2. The Font (Style) ID specified in the LFE is invalid or unsupported or is not valid with the other font parameters.
**Alternate Exception Action:** Choose “Best Fit” font. Note: This error will be flagged when an attempt to present the font is processed.

**X'021F01' Repeat String Length Error**
**Explanation:** Repeat String control on a Write Text command has nonzero fill count but zero string length.
**Alternate Exception Action:** None.

**X'021F02' Mismatch of LFE Two-Byte Loaded Font ID Parameters**
**Explanation**: Two fonts have been assigned the same two-byte Loaded Font ID by the LFE command, but one or more of the following attributes differ: Character Set ID, Code Page ID, Font (Style) ID, Uniform Character Increment, Proportional Increment Coefficient Table.
**Alternate Exception Action:** None.

**X'022602' Invalid LSS X Box Size**
**Explanation:** The Box X size, specified in Byte 6 of the Load Symbol Set command, is not a valid or supported value or is incompatible with the specified font.
**Alternate Exception Action:** None.

**X'022702' Invalid LSS Y Box Size**
**Explanation:** The Box Y size, specified in Byte 7 of the Load Symbol Set command, is not a valid or supported value or is incompatible with the specified font.
**Alternate Exception Action**: None.

**X'022802' LSS Pattern Download Format Reserved or Not Supported**
**Explanation:** The specified pattern download format in LSS is either a reserved value or not supported.
**Alternate Exception Action:** None.

**X'022902' Invalid LSS Additional Parameter Byte Length**
**Explanation**: The additional parameter byte length specified in the LSS command is outside the range X'0D' through X'FF' or is not a supported value.
**Alternate Exception Action:** None.

**X'023101' Invalid LCC Number of Copies**
**Explanation:** The Number of Copies value specified on the Load Copy Control command is not a valid or supported value.
**Alternate Exception Action:** Proceed as though the number of copies field stated 1.

**X'023201' Invalid LCC Number of Copies**

**X'023401' Invalid LCC Copy Group Byte**



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**Explanation:** There is an invalid or unsupported Load Copy Control keyword in the group entry.
**Alternate Exception Action:** None.

**Count**
**Explanation:**
1. The number of bytes in Load Copy Control group is not a multiple of two byte pairs.
2. The number of bytes in Load Copy Control group is not a valid or supported value.
**Alternate Exception Action:** None.

**X'023601' Invalid or Unsupported Load Copy Control Simplex/Duplex Parameter**
**Explanation:** The LCC command simplex/duplex parameter is invalid or unsupported.
**Alternate Exception Action**: If invalid, none. If unsupported, the printer prints simplex.

**X'023A02' Maximum Number of Fonts Allowed by the Printer Exceeded**
**Explanation**: An attempt was made to download more fonts than the printer can support.
**Alternate Exception Action:** None.

**X'023F02' Font Index Not Loaded**
**Explanation:**
1. The font inline sequence in Load Font Equivalence command is not supported or not supported with the current Text Orientation.
2. The Font Index specified in a Load Font Equivalence command called out by a Set Coded Font Local text control is not loaded.
**Alternate Exception Action:** None.

**X'024201' WIC Pel Count < Minimum Required**
**Explanation:** The Target or Source Pel Count value on the Write Image Control command is less than 1.
**Alternate Exception Action:** None.

**X'024301' WIC Pel Count > Maximum Allowed**
**Explanation:** The Target or Source Pel Count value on the Write Image Control command is greater than the valid or supported maximum.
**Alternate Exception Action**: None.

**X'024401' WIC Scan Count < Minimum Required**
**Explanation**: The Target or Source Scan Count value on the Write Image Control command is less than 1.
**Alternate Exception Action:** None.

**X'024501' WIC Scan Count > Maximum Allowed**
**Explanation:** The Target or Source Scan Count value on the Write Image Control command is greater than the valid or supported maximum.
**Alternate Exception Action:** None.

**X'024601' Invalid WIC Source Image Format**
**Explanation:**
1. The Compression Algorithm value (Byte 8) is not a valid or supported value.
2. The (Pel) Data Format value (Byte 9) in the Write Image Control command is not X'00'.
**Alternate Exception Action:** None.

**X'024701' Invalid WIC Scale Factor Value**
**Explanation:**
1. The Pel Count Scale Factor value on the Write Image Control command is not a valid or supported value.
2. The Scan Count Scale Factor value on the Write Image Control command does not equal the Pel Count Scale Factor.
**Alternate Exception Action:** None.

**X'024702' Invalid LFE Font Inline Sequence**
**Explanation**: The Font Inline Sequence parameter in a Load Font Equivalence command is not a valid or supported value.
**Alternate Exception Action**: None

**X'024801' Invalid WIC Scan Line Direction**
**Explanation:** The Scan Line Direction parameter value on the Write Image Control command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'024802' Invalid Font Section Number in LSS command**
**Explanation:** The section number specified in the LSS command is not a valid or supported value.
**Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'024901' Invalid WIC Scan Sequence Direction**
**Explanation:** The Scan Line Sequence Direction value specified on the Write Image Control command is not plus ninety degrees from the Scan Line Direction value.
**Alternate Exception Action:** None.
**Note**: Plus ninety from 270, (X'8700') must be X'0000'.

**X'024902' Invalid Starting Code Point in LSS command**
**Explanation:** The Starting Code Point in the LSS command is not a valid or supported value.
**Alternate Exception Action**: None.

**X'024A01' Invalid WIC Coordinate Specification**
**Explanation:**
1. The Coordinate Definition value on the Write Image Control command is not a valid or supported value.
2. The First Pel Location (X or I Direction) value on the Write Image Control command is not a valid or supported value.
3. The First Pel Location (Y or B Direction) value on the Write Image Control command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'024A02' Invalid WIC Coordinate Specification**
**Explanation:** The Ending Code Point specified in the LSS command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'024B02' Invalid Bit Values in Flag Bytes of LSS Command**
**Explanation:** One or more of the bits in the two Flags bytes of the LSS command Extended Form, Clear/Overstrike, Skip, APA/CB/OB, Use S. E. T. is not a valid or supported value.
**Alternate Exception Action**: None.

**X'024C02' Invalid LSS Data Length**
**Explanation:**
1. The LSS additional parameter byte length does not correlate with the LSS data length.
2. An LSS self-identifying field length is not a valid or supported value or does not correlate with the LSS data length.
3. The amount of bit image data in the LSS command does not correspond with the number of code points, box size, and pattern download format.
**Alternate Exception Action:** None.

**X'025301' Invalid WIC Color Value**
**Explanation:** The Color value of the WIC command is not a valid or supported value.
**Alternate Exception Action:** Use printer default value.

X'025503' Unsupported Color or Color Attribute
Explanation:
1. The text color is not a valid or supported value.
2. The text color precision is not a valid or supported value.
**Alternate Exception Action:** If the attribute value is not valid, ignore the control and continue presentation with the value that was in effect prior to this control sequence. If the attribute value is valid but unsupported for this printer, use the printer default color.

**X'026002' Invalid LPD X Units/Unit-Base**
**Explanation**: On the Logical Page Description command, the X units per unit-base value is not a valid or supported value.
**Alternate Exception Action**: None.

**X'026102' Invalid LPD Y Units/Unit-Base**
**Explanation:**
1. On the Logical Page Description command, the Y units per unit-base value is not a valid or supported value.
2. On the Set Media Size command, the units per unit-base value is not a valid or supported value.
**Alternate Exception Action**: None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'026202' Invalid LPD X-Extent**
**Explanation:** On the Logical Page Description command, the X-Extent is not a valid or supported value.
**Alternate Exception Action:** None.

**X'026302' Invalid LPD Y-Extent**
**Explanation:** On the Logical Page Description command, the Y-Extent is not a valid or supported value.
**Alternate Exception Action:** None.

**X'026401' Insufficient Control Storage for Image**
**Explanation:** There is insufficient control storage to print the image data transmitted with the Write Image command.
**Alternate Exception Action:** None.

**X'026402' Invalid LPD Unit-Base**
**Explanation:** On the Logical Page Description command, the unit-base is not a valid or supported value.
**Alternate Exception Action**: None.

**X'026802' Invalid LPD Inline Direction**
**Explanation:** On a Logical Page Description command the Inline Sequence Direction value is not a valid or supported value.
**Alternate Exception Action:** Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

**X'026902' Invalid LPD Baseline Direction**
**Explanation:** On a Logical Page Description command the Baseline Sequence Direction value is not a valid or supported value.
**Alternate Exception Action:** Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

**X'026A01' Insufficient Source Image Data**
**Explanation:** The number of source image bytes received < the number implied in the Write Image Control command.
**Alternate Exception Action:** None.

**X'026A02' Invalid LPD Initial Inline Coordinate**
**Explanation:** On a Logical Page Description command, the initial inline coordinate value is not a valid or supported value.
**Alternate Exception Action**: None.

**X'026B01' Excess Source Image Data**
**Explanation:** The number of source image bytes received > the number implied in the Write Image Control command.
**Alternate Exception Action:** None.

**X'026B02' Invalid LPD Initial Baseline Coordinate**
**Explanation**: On a Logical Page Description command, the initial baseline coordinate value is not a valid or supported value.
**Alternate Exception Action:** None.

**X'027002' Invalid Units Value in an XOH SMS Command**
**Explanation:** The units value in an XOH SMS command is invalid or unsupported.
**Alternate Exception Action:** None.

**X'027202' Invalid SMS X-Extent**
**Explanation:** On the Set Media Size command, the X-extent is not a valid or supported value.
**Alternate Exception Action:** None.

**X'027302' Invalid SMS Y-Extent**
**Explanation:** On the Set Media Size command, the Y-extent is not a valid or supported value.
**Alternate Exception Action:** None.

**X'027402' Invalid SMS Unit Base**
**Explanation**: On the Set Media Size command, the unit-base is not a valid or supported value.
**Alternate Exception Action:** None.

**X'028101' Insufficient Storage for Overlay or Page Segment**
**Explanation:** There is insufficient storage to process an overlay or page segment.
**Alternate Exception Action**: None.

**X'028501' Invalid DO Parameter Value**
**Explanation:** The Overlay Identifier on the Deactivate Overlay command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'028A01' Invalid DPS Parameter Value**
**Explanation:** The Page Segment Identifier on the Deactivate Page Segment command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'029001' Overlay Number Outside Valid Range**
**Explanation:**
1. The Overlay Identifier on the Begin Overlay command is not a valid or supported value.
2. The Overlay Identifier on the Include Overlay command is not a valid or supported value.
3. The Overlay Identifier on a Load Copy Control command is not a valid or supported value. **Alternate Exception Action:** None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'029101' BO Overlay Number Already Loaded**
**Explanation**: The host attempted to download an overlay from the Begin Overlay command that already exists in the printer.
**Alternate Exception Action:** None.

**X'029102' Invalid Request Resource List Parameter**
**Explanation:**
1. The Requested Ordering parameter of a Request Resource List order is not a valid or supported value.
2. The Entry Index parameter of a Request Resource List order is not a valid or supported value.
3. The Resource Qualifier parameter of a Request Resource List order is not a valid or supported value.
4. The Resource Type parameter on the Request Resource List order is not a valid or supported value.
**Alternate Exception Action:** None.

**X'029201' Overlay Number Not Loaded**
**Explanation:** The overlay identified by the Overlay Identifier on the Include Overlay, Deactivate Overlay or LCC command was not loaded or was already deleted prior to its attempted use.
**Alternate Exception Action:** None.

**X'029202' Invalid Print Quality Control Parameter:**
**Explanation:** The Print Quality Control parameter is X'00', which is a reserved value.
A**lternate Exception Action**: None.

**X'029301' Recursive Overlay Invocation:**
**Explanation:** An infinite nesting loop has occurred with the Include Overlay command (for example, an overlay has included itself).
**Alternate Exception Action**: None.

**X'029401' Recursive Overlay Invocation:**
**Explanation:**
1. The Page Segment Identifier on the Include Page Segment command is not a valid or supported value.
2. The Page Segment Identifier on the Begin Page Segment command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'029501' Page Segment Number Already Loaded**
**Explanation:** The host attempted to download a page segment that already exists in the printer.
**Alternate Exception Action:** None.

**X'029601' Page Segment Number Not Loaded**
**Explanation:** The page segment identified by the Page Segment Identifier on the Include Page Segment or Deactivate Page Segment command was not loaded or was already deleted prior to its attempted use.
**Alternate Exception Action:** None.

**X'029701' Overlay Nesting Limit Exceeded**
**Explanation**: Depth of overlay nesting is greater than the maximum depth.
**Alternate Exception Action**: None.

**X'029801' Suppression Number Outside Valid Range**
**Explanation:**
1. On a Write Text command, the Begin Suppression number value is not a valid or supported value.
2. In a LCC command, the suppression number value is not a valid or supported value.
**Alternate Exception Action:**
1. Ignore the control sequence.
2. None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**X'029803' Temporary Baseline Move Error**
**Explanation:**
1. The temporary baseline increment is not a valid or supported value.
2. The temporary baseline move direction is not a valid or supported value.
3. The temporary baseline move precision is not a valid or supported value.
4. Unsupported multiple offset temporary baseline move.
5. Unable to support temporary baseline move by printing full size characters.
**Alternate Exception Action:**
1. None for reasons 1 through 4.
2. For reason 5, present according to the substitution method.

**X'02A401' Logical-page boundary in the X-direction cannot be represented**
**Explanation:** In either the page or page overlay, the sum of the logical page origin and the logical page size in the X direction exceeds the maximum supported.
**Alternate Exception Action:** None.

**X'02A501' Logical-page boundary in the Y-direction cannot be represented**
**Explanation:** In either the page or page overlay, the sum of the logical page origin and the logical page size in the Y direction exceeds the maximum supported.
**Alternate Exception Action**: None.

**X'02AC01' Insufficient Storage to Print the Sheet**
**Explanation:** Page is too large for main storage.
**Alternate Exception** Action: None.

**X'02AD01' Invalid Logical Page Position Parameter**
**Explanation:** The X Coordinate value on the Logical Page Position command is not a valid or supported value. The Y Coordinate value on the Logical Page Position command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'02AE01' Invalid Include Overlay Position Parameter**
**Explanation:**
1. The X-Coordinate value on the Include Overlay command is not a valid or supported value.
2. The Y-Coordinate value on the Include Overlay command is not a valid or supported value.
**Alternate Exception Action:** None.

**X'02C101' Maximum Number of Simplex Keywords in an LCC Command**
**Explanation:** More than one simplex operation keyword has been specified in an LCC command copy group.
**Alternate Exception Action:** None.

**X'02C102' Load Equivalence Internal Value Not Unique**
**Explanation**: The first two bytes of two or more list entries on the Load Equivalence command are not unique. Setting both external values to the same value will not prevent the error.
**Alternate Exception Action:** None.

**X'02C602' Invalid Load Equivalence Mapping Type**
**Explanation:** The Mapping Type on the Load Equivalence command is not X'0100'.
**Alternate Exception Action:** None.

**X'02C801' An unsupported Input Media Source ID was Specified**
**Explanation**: An unsupported Input Media Source ID was specified in an XOH-SIMS command.
**Alternate Exception Action**: None.

**X'02C802' Invalid Internal/External Value on LE**
**Explanation:** The Internal or External value on a Load Equivalence command is not a valid or supported value.
**Alternate Exception Action**: None.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Conditions Requiring Host Notification - X'01'

**X'010100' Media Size or Input Media Source ID Changed**
**Explanation:**
1. The size of the media in one or more of the installed input media sources was changed.
2. The input media source ID of one or more of the installed input media sources was changed.
**Alternate Exception Action:** None.
**Note:** Not reported in 4224 Emulation Mode.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Chapter 7. Print Samples and IPDS Coding Example

The following pages contain examples of the printing capabilities of the S828 Printer and one IPDS coding example.

## Text Print Samples

Various print styles are available with this Printronix printer. The data stream sent by the host computer determines the print style, characters per inch, and character set.

There are four print qualities available:
This is Fast Draft Mode
This is DP mode, printed in the Gothic font,
This is DP Text mode, printed in the Courier font.
This is NLQ mode, printed in the Courier font.

Pitches include:
10 characters per inch,
12 characters per inch,
15 characters per inch
16.7 characters per inch in DP quality

Printer can also be Underscored to emphasize important points.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Bar Codes

The following are sample bar code labels printed with the S828 Printer:

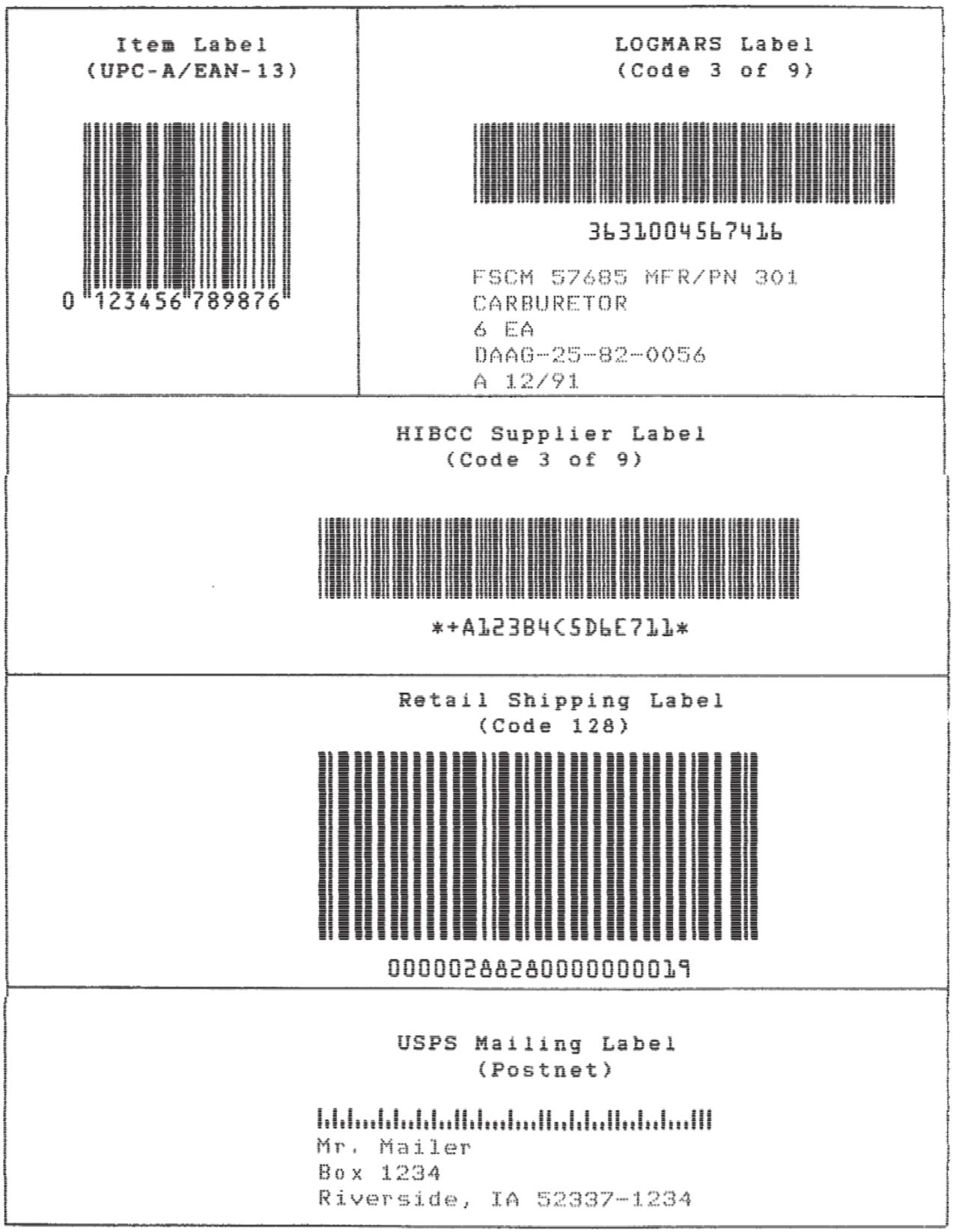



Figure 30. Bar Code Example in IPDS



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Graphics Patterns

The following example shows the area fill patterns, line widths, line types, and marker symbols available with this printer.

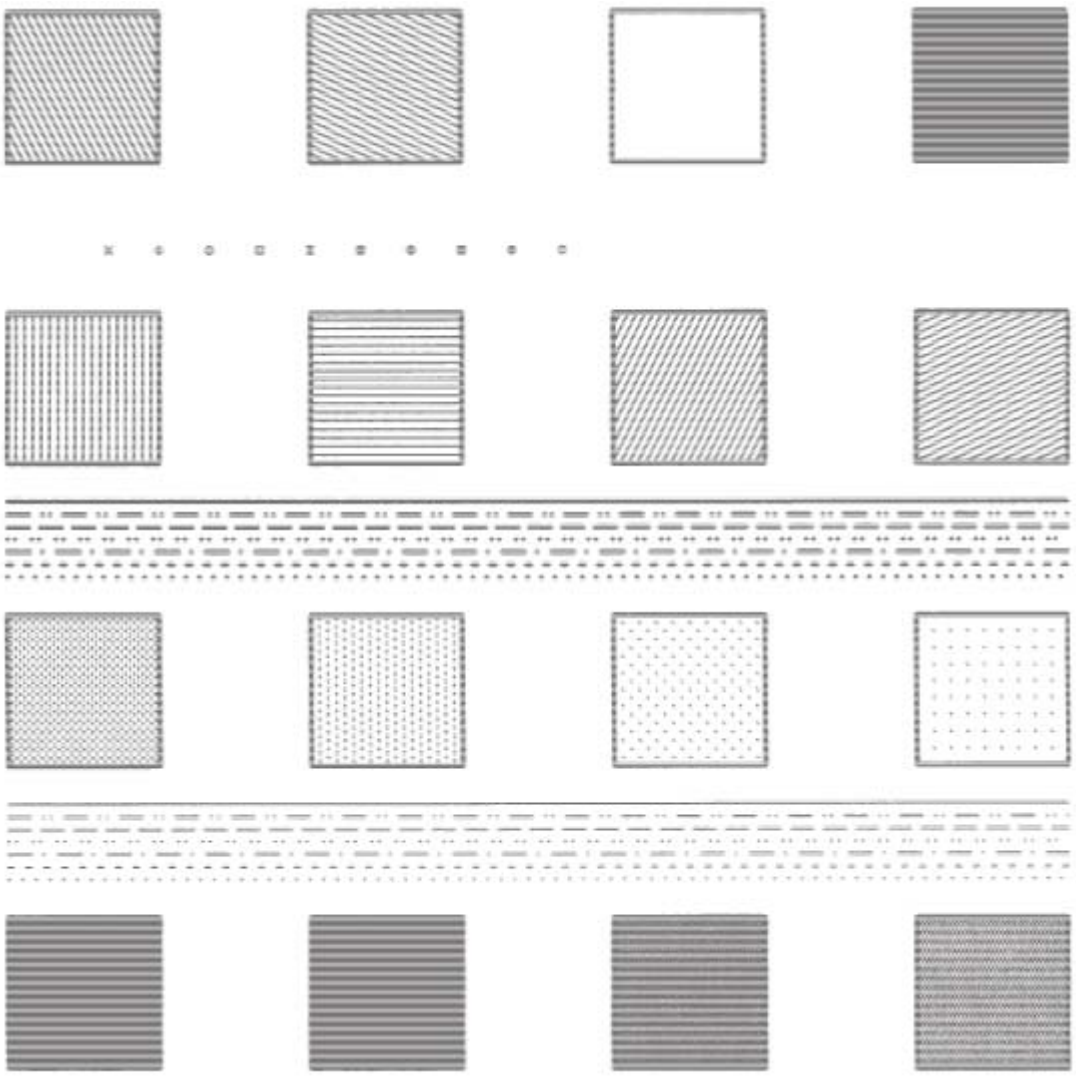


Figure 31. Graphic Patterns Example in IPDS



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Graphics Example

The following drawing is an example of the graphics capabilities of the S828 Printer. The actual IPDS graphics data stream commands necessary to draw this graphic follow the example.

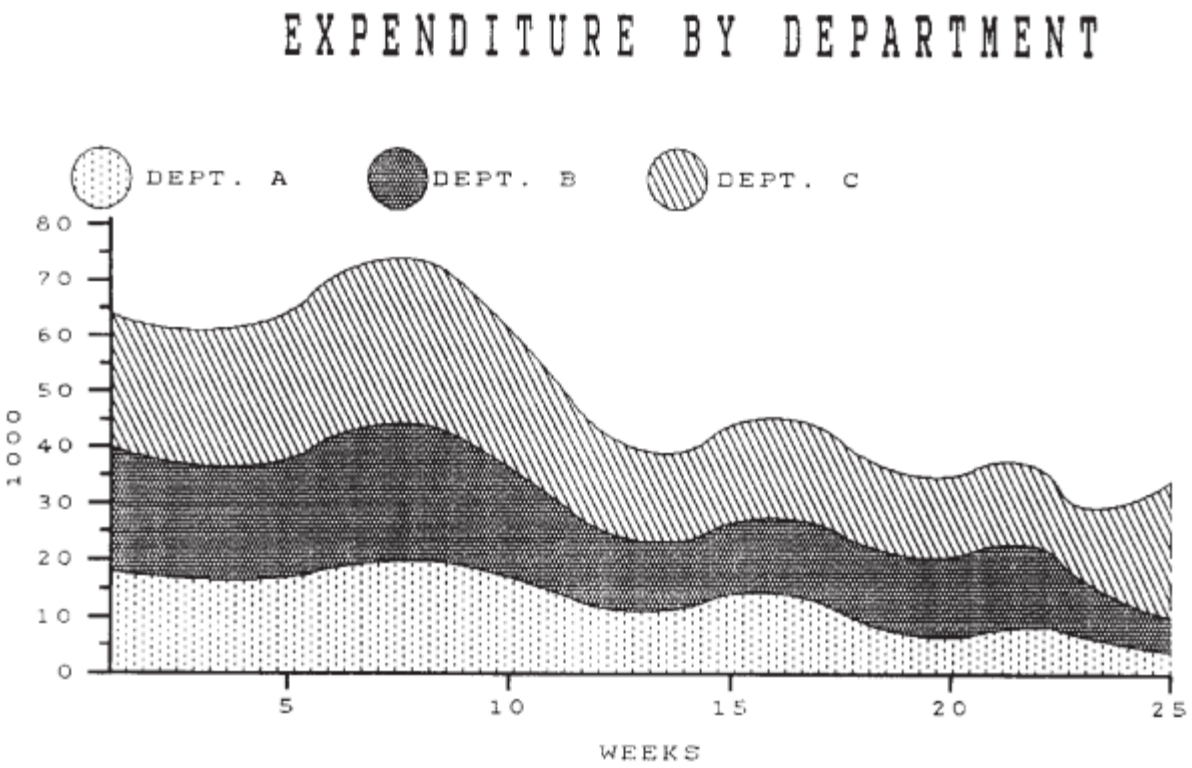



Figure 32. Graphic Example in IPDS

Data Stream for Graphics Example
********* BEGIN PAGE
0009D6AF0000000000
********* Write Graphics Control
003CD68400000BAC6B000000000000A0
0010A66B0038403DE030001000000000
001CA6BB000038403840000000000DB0010001000F000
000000000000
********* Write Graphics Command Header
037FD68500
********* Begin Segment
700C000000000000036C00000000
********* Set Character Cell Size
3304010E021C
********* Character String
C31DF32B0E10
********* String Data - EXPENITURE BY DEPARTMENT
C5E7D7C5D5C4C9E3E4D9C540C2E840C4C5D7C1D9E3D4C5D5E3
********* Character String
C313F8710BF4
********* String Data - FIRST HALF 1979
C6C9D9E2E340C8C1D3C640F1F9F7F9
********* Key Circles, Set Line Type979
1800
********* Color
0A00
********* Set Pattern Symbol
2806



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

********* Begin Area
6840
********* Full Arc
C706ED680A8CF000
********* End Area
6000
********* Color
0A00
********* Set Pattern Symbol
2803
********* Begin Area
6840
********* Full Arc
C706F6DC0A8CF000
********* End Area
6000
********* Color
0A00
********* Set Pattern Symbol
280D
********* Begin Area
6840
********* Full Arc
C706FFB00A8CF000
********* End Area
6000
********* Color
0A00
********* Set Pattern Symbol
280D
********* Set Line Type
1800
********* Begin Area
6840
********* Fillet
C528EDB80654F1F00492F6280924
FA6000654FE98008702D00438070800FA
OB4002760CA8FF1F0F78010E
********* Set Line Type
1803
********* Line At Current Position
810C0F78FB14EDBBFB14EDB80654
********* End Area
6000
********* Color
0A08
********* Set Pattern Symbol
2800
********* Set Line Type
1800
********* Begin Area
6840
********* Fillet
C528EDB8021CF1F00087F628
0384FA6001C2FE98FE3E02D0
00B40708FE110B40FFA60CA8
FD8A0F78FCD6
********* Set Line Type
1808
********* Line At Current Position
810C0F78FB14EDB8FB14EDB8021C
********* End Area
6000
********* Color
0A00
********* Set Pattern Symbol
2803



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Set Line Type
1800
********* Begin Area
6840
********* Fillet
C528EDB8021CF1F00087F628
0384FA6001C2FE98FE3E02D0
00B40708FE110B40FFA60CA8FD8A0F78FCD6
********* Set Line Type
1808
********* Line
810C0F78FB14EDB8FB14EDB8021C
********* End Area
6000
********* Color
0A08
********* Set Pattern Symbol
2800
********* Set Line Type
1800
********* Begin Area
6840
********* Fillet
C528EDB8FE3EF1F0FD8AF628
FEC5FA60FE3EFE98FC7C02D
FE3E0708FBC80B40FCD6
0CA8FC220F78FBC8
********* Set Line Type
1808
********* Line At Current Position
810C0F78FB14EDB8FB14EDB801C2
********* End Area
6000
********* Color
0A00
********* Set Pattern Symbol
2806
********* Set Line Type
1800
********* Begine Area
6840
********* Fillet
C528EDB8FE3EF1F0FD8AF628
FEC5FA60FE3EFE98FC7C02D0FE3E0708FBC80B40FCD6
0CA8FC220F78FBC8
********* Set Line Type
1808
********* Line At Current Position
810C0F78FB14EDB8FB14EDB801C2
********* End Area
6000
********* Axes and Tic Marks, Set Line Type
1800
********* Set Line Width
1902
********* Color
0A00
********* Line
C108EDB8FB14EDB80951
********* Line
C108EDB8FB140F78FB14
********* Line
C108EDB8FB14ED04FB14
********* Line
C108EDB8FCD6ED04FCD6
********* Line
C108EDB8FE98ED04FE98



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

********* Line
C108EDB8005AED04005A
********* Line
C108EDB8021CED04021C
********* Line
C108EDB803DEED0403DE
********* Line
C108EDB805A0ED0405A0
********* Line
C108EDB80762ED040762
********* Line
C108EDB80924ED040924
********* Line
C108EDB8FBF5ED5EFBF5
********* Line
C108EDB8FDB7ED5EFDB7
********* Line
C108EDB8FF79ED5EFF79
********* Line
C108EDB8013BED5E013B
********* Line
C108EDB802FDED5E02FD
********* Line
C108EDB804BFED5E04BF
********* Line
C108EDB80681ED5E0681
********* Line
C108EDB80843ED5E0843
********* Line
C108F358FB14F358FA8D
********* Line
C108FA60FB14FA60FA8D
********* Line
C1080168FB140168FA8D
********* Line
C1080870FB140870FA8D
********* Line
C1080F78FB140F78FA8D
********* Letters and Numbers, Set Character Cell
330400000000
********* Character String, DEPT. A
C30BEEC60A32
C4C5D7E34B40C1
********* Character String, DEPT. B
C30BF7EA0A32
C4C5D7E34B40C2
********* Character String, DEPT. C
C30B00E10A32
C4C5D7E34B40C3
********* Character String, 5
C305F2FEF9AC
F5
********* Character String, 10
C306F9ACF9AC
F1F0
********* Character String, 15
C30600BAF9AC
F1F5
********* Character String, 20
C30607BCF9AC
F2F0
********* Character String, 25
C3060EC4F9AC
F2F5
********* Character String, WEEKS
C309FD30F844
E6C5C5D2E2



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

********* Character String, 80
C306EB4208ca
F8F0
********* Character String, 70
C306EB420708
F7F0
********* Character String, 60
C306EB420546
F6F0
********* Character String, 50
C306EB420384
F5F0
********* Character String, 40
C306EB4201C2
F4F0
********* Character String, 30
C306EB420000
F3F
********* Character String, 20
C306EB42FE3E
F2F0
********* Character String, 10
C306EB42FC7C
F1F0
********* Character String, 0
C305EBF6FABA
F0
********* Character Angle
3404000005A0
********* Character String, 1000
C308EAE800B4
F1F0F0F0
********* END
0005D65D00
********* END PAGE
0005D6BF00



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## IPDS Coding Example

The S828 Printer produced this example of text, bar codes, and block graphic characters printing on the front continuous forms paper source. The code used to print the example appears in Table 11.

Figure 33. Print Sample from an IPDS Application Program

The following chart is an example of an IPDS application program that prints the block graphic characters, two bar codes, and text information shown in Table 9, printing on the front continuous forms paper source. The first column (IPDS Commands) contains abbreviations of the IPDS instructions that are coded in column 2. Column 2 (Hexadecimal Code) contains the hexadecimal code that produces the characters, bar codes, and text pictured in Table 9. Column 3 (Code Explanation) explains each command element.

When the application is actually coded, the hexadecimal code of each command may be entered in one stream. The IPDS command abbreviations in the first column and the explanation of each part of the command in the last column, are comments.

Table 11. IPDS Coding Example

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| ******** | Printer Initialization | |
| SHS | 0005 | Control Length |
| — | D697 | Set Home State |
| — | 00 | Flag Byte |
| X0A(EHC) | 000A | Control Length |
| — | D633 | Execute Order Any State |
| — | 00 | Flag Byte |
| — | F600 | Exception Handling Order |
| — | C1 | Report All Exceptions |
| — | 01 | Do Not Take Alternate Action |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 11. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| — | 01 | Print All Data and Exit |
| XOA(DBD) | 0007 | Control Length |
| — | D633 | Execute Order Any Style |
| — | 00 | Flag Byte |
| — | F200 | Discard Buffer Data |
| LPD | 0030 | Control Length |
| — | D6CF | Load Page Descriptor |
| — | 00 | Flag Byte |
| — | 00 | Units Base Value equals (10 in.) |
| — | 00 | Reserved |
| — | 3840 | X Units per Base Value |
| — | 3840 | Y Units per Base Value |
| — | 00 | Reserved |
| — | 00 | 3570 Width of Page (Units) |
| — | 00 | Reserved |
| — | 00 | 1EF0 Length of Page (Units) |
| — | 00 | Reserved |
| — | 00 | No Ordered Page |
| — | 0000 | Reserved |
| — | 00000000 | Reserved |
| — | 0000 | Reserved |
| — | 0000 | X-Axis Orientation (0 degrees) |
| — | 2D00 | Y-Axis Orientation (90 degrees) |
| — | 0000 | Initial X Displacement |
| — | 0000 | Initial Y Displacement |
| — | 0000 | Initial Left Margin |
| — | 0000 | Intercharacter Increment |
| — | 0000 | Reserved |
| — | FFFF | Baseline Increment (Use Default) |
| — | FF | Local Font ID (Use Default) |
| — | FFFF | Text Color (Use Default) |
| LPP | 000F | Control Length |
| — | D66D | Load Page Position |
| — | 00 | Flag Byte |
| — | 00 | Reserved |
| — | 000000 | X Displacement |
| — | 00 | Reserved |
| — | 000000 | Y Displacement |
| — | 0000 | Reserved |
| XOH(SMS) | 000E | Control Length |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| — | D68F | Execute Order Home State |
| — | 00 | Flag Byte |
| — | 1700 | Set Media Size (SMS) |
| — | 00 | Units Base Value equals (10 in.) |
| — | 3840 | Units per Base Value |
| — | 3570 | X-Extent of Physical Medium |
| — | 1EF0 | Y-Extent of Physical Medium |
| LFE | 0015 | Control Length |
| — | D63F | Load Font Equivalence |
| — | 00 | Flag Byte |
| — | 07 | Local ID |
| — | 0007 | Loaded Font ID |
| — | 0000 | Character Rotation (0 degrees) |
| — | 0000 | Reserved |
| — | 0025 | Code Page ID (USA) |
| — | 000B | Font Style ID (10 CPI, Courier) |
| — | 0000 | Reserved |
| — | 00 | Reserved |
| — | 80 | Font Attribute (In printer) |
| — | 00 | Reserved |
| XOA(PQC) | 0008 | Control Length |
| — | D633 | Execute Order Any State |
| — | 00 | Flag Byte |
| — | F800 | Print Quality Control |
| — | AB | Select NLQ |
| XOH(SIMS) | 0008 | Control Length |
| — | D68F | Execute Order Home State |
| — | 00 | Flag Byte |
| — | 1500 | Select Input Media Source |
| — | 00 | Front Paper Source |
| | | |
| ******** | Begin Page | |
| | | |
| BP | 0009 | Control Length |
| — | D6AF | Begin Page |
| — | 00 | Flag Byte |
| — | 00000000 | Data ** Ignored |
| | | |
| ******** | Write Text Data | |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| WT | 0014 | Control Length |
| — | 262D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 03F107 | Set Coded Font Local |
| — | 04C709D8 | Absolute Move Inline |
| — | 04D20F78 | Absolute Move Baseline |
| — | F2F8 | Data '28' |
| WT | 0011 | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C61194 | Absolute Move Inline |
| — | F1F2F3F4F5F6F | Data '123456' |
| WT | 000D | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C62058 | Absolute Move Inline |
| — | F9F9 | Data '99' |
| WT | 0013 | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C709D8 | Absolute Move Inline |
| — | 04D21248 | Absolute Move Baseline |
| — | F6F5F2F3 | Data '6523' |
| WT | 000E | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C613B0 | Absolute Move Inline |
| — | F8F0F0 | Data '800' |
| WT | 0011 | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C62058 | Absolute Move Inline |
| — | F1F4FFC5C5C5 | Data '14 EEE' |
| WT | 0014 | Control Length |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C70E10 | Absolute Move Inline |
| — | 04D21518 | Absolute Move Baseline |
| — | F7F3F2F4F5 | Data '73245' |
| WT | 000E | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C61AB8 | Absolute Move Inline |
| — | F0F9F9 | Data '099' |
| WT | 0013 | Control Length |
| — | D62D | Write Text |
| — | 00 | Flag Byte |
| — | 2BD3 | Escape Sequence |
| — | 04C628C8 | Absolute Move Inline |
| — | F1F262F1F661F8F6 | Data '12/16/86' |
| | | |
| ******** | Write Graphics Control | |
| | | |
| WGC | 002C | Control Length |
| — | D684 | Write Graphics Control |
| — | 00 | Flag Byte |
| (GAP) | 000B | Field Length |
| — | AC6B | Graphics Area Position Control |
| — | 0000 | Inline (X) Coordinate Position |
| — | 0000 | Baseline (Y) Coordinate Position |
| — | 0000 | Orientation (0 degrees) |
| — | A0 | Absolute X, Absolute Y |
| (GDD) | 001C | Field Length |
| — | A6BB | Graphics Data Descriptor |
| — | 00 | Unit Base (10 in.) |
| — | 00 | Reserved |
| — | 3840 | X Units/Unit Base |
| — | 3840 | Y Units/Unit Base |
| — | 00000000 | Reserved |
| — | 0000 | X Left Limit of Window |
| — | 3570 | X Right Limit of Window |
| — | 1EF0 | Y Top Limit of Window |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| — | 0000 | Y Bottom Limit of Window |
| — | 00000000 | Reserved |
| — | 0000 | Graphics Flags ** Ignored |
| | | |
| ******** Write Graphics | | |
| | | |
| WG | 003D | Control Length |
| — | D685 | Write Graphics |
| — | 00 | Flag Byte |
| (BSI) | 70 | Begin Segment Introducer |
| — | 0C | Length of Following Parameter |
| — | 00000000 | Reserved |
| — | 00 | Flags |
| — | 06 | Append Segment |
| — | 002A | Length of Segment |
| — | 00000000 | Reserved |
| (SCCS) | 33 | Set Character Cell Size |
| — | 04 | Length of Data |
| — | 021C | Width of Cell |
| — | 02D0 | Height of Cell |
| (SCS) | 38 | Set Character String |
| — | 07 | Local Character Set ID |
| (CS) | 05 | Character String |
| — | C3 | Field String |
| — | 0BF4 | X Coordinate (Units) |
| — | 1734 | Y Coordinate (Units) |
| — | D4 | Data 'M' |
| (CS) | C3 | Character String |
| — | 10 | Field Length |
| — | 1680 | X Coordinate (Units) |
| — | 1734 | Y Coordinate (Units) |
| — | F6F3CAF3F0F3CA | Data '63-303-498-8' |
| — | F4F9F8CAF8 | |
| (CS) | C3 | Character String |
| — | 07 | Field Length |
| — | 21C0 | X Coordinate (Units) |
| — | 1248 | Y Coordinate (Units) |
| — | C5F4F8 | Data 'E48' |
| END | 0005 | Control Length |
| — | D65D | End (Graphics) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| — | 00 | Flag Byte |
| | | |
| ******** | Write Bar Code Control | |
| | | |
| WBCC | 002B | Control Length |
| — | D680 | Write Bar Code Control (BC) |
| — | 00 | Flag Byte |
| (BCAP) | 000B | Field Length |
| — | AC6B | BC Area Position Control |
| — | 0000 | X Coordinate of BC Area |
| — | 0000 | Y Coordinate of BC Area |
| — | 0000 | Orientation of Bar Code (0 Degrees) |
| — | A0 | Absolute X, Absolute Y |
| (BCDD) | 001B | Field Length |
| — | A6EB | Bar Code Data Descriptor |
| — | 00 | Unit Base (10 in.) |
| — | 00 | Reserved |
| — | 3840 | X Units/Unit Base |
| — | 3840 | Y Units/Unit Base |
| — | 3840 | X Extent of Block (Width) |
| — | 2FD0 | Y Extent of Block (Height) |
| — | 0000 | Reserved |
| — | 0C | Bar Code Type (2 of 5 Interleaved) |
| — | 01 | No Check Digit |
| — | FF | User Printer Default LFID |
| — | 0000 | Select Color (Black) |
| — | 0E | Unit Module Width (.014 in.) |
| — | 02D0 | Element Height (720 Units) |
| — | 01 | Height Multiplier |
| — | 0019 | Wide/Narrow Ratio |
| | | |
| ******** Write Bar Codes | | |
| | | |
| WBC | 0013 | Control Length |
| — | D681 | Write Bar Code |
| — | 00 | Flag Byte |
| — | 20 | Bar Code Flag |
| — | 2544 | X Coordinate |
| — | 0168 | Y Coordinate |
| — | F2F8F6F5F1F3F8F1F0 | Data '286523810' |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 9. IPDS Coding Example (continued)

| IPDS Command | Hexadecimal Code | Code Explanation |
|---|---|---|
| WBC | 00E | Control Length |
| — | D681 | Write Bar Code |
| — | 00 | Flag Byte |
| — | 20 | Bar Code Flag |
| — | 28C8 | X Coordinate |
| — | 0D5C | Y Coordinate |
| — | F7F3F2F4 | Data '7324' |
| END | 0005 | Control Length |
| — | D65D | End (Bar Code) |
| — | 00 | Flag Byte |
| | | |
| ******** | End of Page | |
| | | |
| EP | 0005 | Control Length |
| — | D6BF | End Page |
| — | 00 | Flag Byte |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix A. Code Pages

The EBCDIC code charts contains information about the code pages that the Printronix S828 Model Printers use on the Ethernet IPDS attachments.

See the “ASCII Code Pages” for information about the code pages for Ethernet ASCII attachments.

You can use the following charts to determine the actual character printed for any code page and font combination.

## EBCDIC Code Pages (IPDS)

The table below lists the EBCDIC code pages used by the S828 Printer, and also provides page references so you can determine what code page contains the characters you want to use.

| Code Page | Character Set Name |
|---|---|
| 37 | USA/Canada/Canadian Bilingual |
| 260 | Canadian French |
| 273 | Austrian/German |
| 274 | Belgian Old |
| 275 | Brazilian |
| 277 | Danish/Norwegian |
| 278 | Finnish/Swedish |
| 280 | Italian |
| 281 | Japanese English |
| 282 | Portuguese |
| 284 | Spanish/Spanish Speaking |
| 285 | English (UK)/Ireland |
| 290 | Japanese Katakana |
| 297 | French/French Azerty |
| 420 | Arabic |
| 423 | Greek (Old) |
| 424 | Hebrew Bulletin |
| 500 | International 5/Swiss/Belgian |
| 813 | Greek/Latin (ISO 8859-7) + euro |
| 833 | Korean |
| 838 | Thai |
| 870 | Latin 2/ROECE |
| 871 | Icelandic |
| 875 | Greek New + euro |
| 880 | Cyrillic |
| 890 | Yugoslav (Old) |
| 892 | OCR-A |
| 893 | OCR-B |
| 924 | Latin 9 (ISO 8859) + euro |
| 1025 | Cyrillic Multilingual |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Code Page | Character Set Name |
|---|---|
| 1026 | Latin-5 Turkey |
| 1097 | Farsi |
| 1112 | Baltic Multilingual |
| 1122 | Estonian |
| 1140 | USA/Canada + euro |
| 1141 | Austrian/German + euro |
| 1142 | Danish/Norwegian + euro |
| 1143 | Finnish/Swedish + euro |
| 1144 | Italian + euro |
| 1145 | Spanish/Spanish Speaking + euro |
| 1146 | English/UK + euro |
| 1147 | French + euro |
| 1148 | International 5/Belgian New + euro |
| 1149 | Icelandic + euro |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## USA/Canada/Canadian Bilingual

## Code Page 00037

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ^ SD150000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | [ SM060000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | ] SM080000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | EO |

Figure 34. CP00037 USA/Canada/Canadian Bilingual



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Canadian French

## Code Page 00260

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | | | | | | é LE110000 | è LE130000 | ¸ SD410000 | 0 ND100000 |
| -1 | | | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | | ë LE170000 | | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | | | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | | | | | e LE010000 | n LN010000 | v LV010000 | | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | | î LI150000 | | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | | ï LI170000 | | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | | Ç LC420000 | | h LH010000 | q LQ010000 | y LY010000 | | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | | | | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | à LA130000 | ´ SD110000 | ù LU130000 | : SP130000 | | | | | | | | |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | | | | | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | | | | | | ü LU170000 | | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | | | | | | | | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | | | | | | | | |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | | | | | | | | (EO) |

Figure 35. CP00260 Canadian French



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Austrian/German

## Code Pages 273

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ä LA170000 | ü LU170000 | Ö LO180000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ß LS610000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | { SM110000 | ë LE170000 | [ SM060000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | @ SM050000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ~ SD190000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Ä LA180000 | Ü LU180000 | ö LO170000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | § SM240000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ¦ SM650000 | } SM140000 | \ SM070000 | ] SM080000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 36. CP00273 Austrian/German



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Belgian Old

## Code Pages 274

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | é LE110000 | è LE130000 | ç LC410000 | 0 ND100000 |
| -1 | (RSP) SP300000 | { SM110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | @ SM050000 | } SM140000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | \ SM070000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | ù LU130000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | à LA130000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ~ SD190000 | ò LO130000 | ¦ SM650000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 37. CP00274 Belgian Old



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Brazilian

## Code Pages 275

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | õ LO190000 | é LE110000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | } SM140000 | / SP120000 | [ SM060000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ` SD130000 | î LI150000 | @ SM050000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ¦ SM650000 | ì LI130000 | ] SM080000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ã LA190000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | É LE120000 | $ SC030000 | ç LC410000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Ç LC420000 | , SP080000 | Õ LO200000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ã LA200000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | { SM110000 | ÿ LY170000 | # SM010000 | (EO) |

Figure 38. CP00275 Brazilian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Danish/Norwegian

## Code Page 00277

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ¦ SM650000 | @ SM050000 | ° SM190000 | µ SM170000 | ¢ SC040000 | æ LA510000 | å LA270000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ü LU170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ã LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | } SM140000 | ï LI170000 | $ SC030000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | # SM010000 | ¤ SC010000 | ø LO610000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Å LA280000 | , SP080000 | Æ LA520000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ø LO620000 | ð LD630000 | { SM110000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ~ SD190000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | [ SM060000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ] SM080000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 39. CP00277 Danish/Norwegian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Finnish/Swedish

## Code Pages 278

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ä LA170000 | å LA270000 | É LE120000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ` SD130000 | / SP120000 | \ SM070000 | a LA010000 | j LJ010000 | ü LU170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | { SM110000 | ë LE170000 | # SM010000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | [ SM060000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | } SM140000 | ï LI170000 | $ SC030000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | é LE110000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | § SM240000 | ¤ SC010000 | õ LO170000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Å LA280000 | , SP080000 | Ä LA180000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ö LO180000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ¦ SM650000 | ~ SD190000 | @ SM050000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ◌́ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ] SM080000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 40. CP00278 Finnish/Swedish



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Italian

## Code Page 00280

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | [ SM060000 | µ SM170000 | ¢ SC040000 | à LA130000 | è LE130000 | ç LC410000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ] SM080000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ì LI130000 | # SM010000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | { SM110000 | } SM140000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | @ SM050000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | \ SM070000 | ~ SD190000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ù LU130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ° SM190000 | é LE110000 | ò LO130000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | £ SC020000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | § SM240000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ¦ SM650000 | ` SD130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 41. CP00280 Italian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Japanese English

## Code Pages 00281

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | $ SC030000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¯ SM150000 | [ SM060000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | \ SM070000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | £ SC020000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ^ SD150000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | ¥ SC050000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | ] SM080000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ~ SD190000 | õ LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | EO |

Figure 42. CP00281 Japanese English



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Portuguese

## Code Page 00282

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ã LA190000 | ′ SD110000 | Ç LC420000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ç LC410000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | { SM110000 | î LI150000 | # SM010000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ~ SD190000 | ì LI130000 | \ SM070000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | õ LO190000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | Ã LA200000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Õ LO200000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | } SM140000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | ¦ SM650000 | ÿ LY170000 | @ SM050000 | (EO) |

Figure 43. CP00282 Portuguese



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Spanish/Spanish Speaking

## Code Pages 00284

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ¦ SM650000 | ß LS610000 | # SM010000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | ñ LN190000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ^ SD150000 | ¯ (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | Ñ LN200000 | » SP180000 | º SM200000 | ¿ SP160000 | ! SP020000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ~ SD190000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 44. CP00284 Spanish/Spanish Speaking



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## English (UK)/Ireland

## Code Page 00285

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¯ SM150000 | [ SM060000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ã LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | $ SC030000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ^ SD150000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | £ SC020000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | ] SM080000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ~ SD190000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 45. CP00285 English (UK)/Ireland



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Japanese Katakana

## Code Page 00290

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | [ SM060000 | ] SM090000 | ソ JS500000 | ~ SD190000 | ^ SD150000 | { SM110000 | } SM140000 | $ SC030000 | 0 ND100000 |
| -1 | 。 JQ700000 | ェ JE010000 | / SP120000 | i LI010000 | ア JA000000 | タ JT100000 | ｰ SM150000 | ¢ SC040000 | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | 「 JQ710000 | ォ JO010000 | a LA010000 | j LJ010000 | イ JI000000 | チ JT200000 | ヘ JH400000 | \ SM070000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | 」 JQ720000 | ャ JY110000 | b LB010000 | k LK010000 | ウ JU000000 | ツ JT300000 | ホ JH500000 | t LT010000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | 、 JQ730000 | ュ JY310000 | c LC010000 | l LL010000 | エ JE000000 | テ JT400000 | マ JM100000 | u LU010000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | ・ JQ740000 | ョ JY510000 | d LD010000 | m LM010000 | オ JO000000 | ト JT500000 | ミ JM200000 | v LV010000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ヲ JW500000 | ッ JT310000 | e LE010000 | n LN010000 | カ JK100000 | ナ JN100000 | ム JM300000 | w LW010000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ァ JA010000 | | f LF010000 | o LO010000 | キ JK200000 | ニ JN200000 | メ JM400000 | x LX010000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ィ JI010000 | ー JX700000 | g LG010000 | p LP010000 | ク JK300000 | ヌ JN300000 | モ JM500000 | y LY010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ゥ JU010000 | | h LH010000 | ` SD130000 | ケ JK400000 | ネ JN400000 | ヤ JY100000 | z LZ010000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | £ SC020000 | ! SP020000 | | : SP130000 | コ JK500000 | ノ JN500000 | ユ JY300000 | レ JR400000 | | | | |
| -B | . SP110000 | ¥ SC050000 | , SP080000 | # SM010000 | q LQ010000 | r LR010000 | s LS010000 | ロ JR500000 | | | | |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | サ JS100000 | | ヨ JY500000 | ワ JW100000 | | | | |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | シ JS200000 | ハ JH100000 | ラ JR100000 | ン JN800000 | | | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ス JS300000 | ヒ JH200000 | リ JR200000 | ゜ JX710000 | | | | |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | セ JS400000 | フ JH300000 | ル JR300000 | ° JX720000 | | | | (EO) |

Figure 46. CP00290 Japanese Katakana



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## French/French Azerty

## Code Page 00297

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | [ SM060000 | ` SD130000 | ¢ SC040000 | é LE110000 | è LE130000 | ç LC410000 | 0 ND100000 |
| -1 | (RSP) SP300000 | { SM110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | # SM010000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | @ SM050000 | } SM140000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | ] SM080000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | \ SM070000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | µ SM170000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ° SM190000 | § SM240000 | ù LU130000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | £ SC020000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | à LA130000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ~ SD190000 | ò LO130000 | ¦ SM650000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 47. CP00297 French/French Azerty



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Arabic

## Code Page 00420

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ح AH450003 | ش AS230000 | ظ AZ450000 | غ AG310003 | ك AK010003 | ؛ SP140007 | ؟ SP150007 | × SA070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ـ AA310002 | / SP120000 | خ AH470000 | a LA010000 | j LJ010000 | ÷ SA060000 | ل AL010000 | A LA020000 | J LJ020000 | (NSP) SP310000 | 1 ND010000 |
| -2 | ـ AX100000 | ؤ AW310000 | ة AT020000 | ذ AH470003 | b LB010000 | k LK010000 | s LS010000 | ﻵ AL220000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ـ AX100004 | | ت AT010000 | د AD010000 | c LC010000 | l LL010000 | t LT010000 | ﻷ AL220003 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | – SM860000 | | ـ AT010003 | ذ AD470000 | d LD010000 | m LM010000 | u LU010000 | ﻸ AL320000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | ـ SM870000 | ئ AY310000 | ث AT470000 | ر AR010000 | e LE010000 | n LN010000 | v LV010000 | ﻹ AL320003 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ء AX300000 | ا AA010000 | ـ AT470003 | ز AZ010000 | f LF010000 | o LO010000 | w LW010000 | | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | آ AA210000 | ـ AA010002 | ج AG230000 | س AS010000 | g LG010000 | p LP010000 | x LX010000 | | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ـ AA210002 | ب AB010000 | ـ AG230003 | ـ AS010003 | h LH010000 | q LQ010000 | y LY010000 | ﻻ AL020000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | أ AA310000 | ـ AB010003 | ح AH450000 | ، SP080007 | i LI010000 | r LR010000 | z LZ010000 | ﻼ AL020003 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | ـ AS230003 | ع AC470000 | غ AG310004 | ـ AL010003 | (SHY) SP320000 | ى AA020000 | ١ ND010001 | |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | ـ AS450000 | ـ AC470002 | ف AF010000 | م AM010000 | ه AH010003 | ـ AA020002 | ٢ ND020001 | ٦ ND060001 |
| -C | < SA030000 | * SM040007 | ٪ SM020007 | @ SM050000 | ـ AS450003 | ـ AC470003 | ـ AF010003 | ـ AM010003 | | ي AY010000 | | ٧ ND070001 |
| -D | ( SP060000 | ) SP070000 | ـ SP090000 | ' SP050000 | ـ AD450000 | ـ AC470004 | ق AQ010000 | ن AN010000 | ـ AH010004 | ـ AY010002 | ٣ ND030001 | ٨ ND080001 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ـ AD450003 | ـ AG310000 | ـ AQ010003 | ـ AN010003 | | ـ AY010003 | ٤ ND040001 | ٩ ND090001 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ط AT450000 | ـ AG310002 | ك AK010000 | ه AH010000 | و AW010000 | ٠ ND100001 | ٥ ND050001 | (EO) |

Figure 48. CP00420 Arabic



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Greek (Old)

## Code Page 00423

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | | Ä LA180000 | Ö LO180000 | Ü LU180000 | | ◌́ SD410000 | ʼ SD110000 | ° SM190000 | 0 ND100000 |
| -1 | A GA020000 | K GK020000 | / SP120000 | Ά GA120000 | a LA010000 | j LJ010000 | ¨ SD170000 | ά GA110000 | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | B GB020000 | Λ GL020000 | T GT020000 | Έ GE120000 | b LB010000 | k LK010000 | s LS010000 | έ GE110000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | Γ GG020000 | M GM020000 | Y GU020000 | Ή GE720000 | c LC010000 | l LL010000 | t LT010000 | ή GE710000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | Δ GD020000 | N GN020000 | Φ GF020000 | (RSP) SP300000 | d LD010000 | m LM010000 | u LU010000 | ΐ GI170000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | E GE020000 | Ξ GX020000 | X GH020000 | Ί GI120000 | e LE010000 | n LN010000 | v LV010000 | ί GI110000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | Z GZ020000 | O GO020000 | Ψ GP620000 | Ό GO120000 | f LF010000 | o LO010000 | w LW010000 | ό GO110000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | H GE320000 | Π GP020000 | Ω GO320000 | Ύ GU120000 | g LG010000 | p LP010000 | x LX010000 | ύ GU110000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | Θ GT620000 | P GR020000 | | Ώ GO720000 | h LH010000 | q LQ010000 | y LY010000 | ϋ GU170000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | I GI020000 | Σ GS020000 | | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ώ GO710000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | \| SM130000 | : SP130000 | α GA010000 | η GE310000 | ν GN010000 | ς GS610000 | (SHY) SP320000 | ± SA020000 | ½ NF010000 | ÿ LY170000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | £ SC020000 | β GB010000 | ϑ GT610000 | ξ GX010000 | τ GT010000 | ω GO310000 | é LE110000 | ö LO170000 | ç LC410000 |
| -C | < SA030000 | * SM040000 | % SM020000 | § SM240000 | γ GG010000 | ι GI010000 | ο GO010000 | υ GU010000 | â LA150000 | è LE130000 | ô LO150000 | Ç LC420000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | δ GD010000 | κ GK010000 | π GP010000 | φ GF010000 | à LA130000 | ë LE170000 | û LU150000 | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ε GE010000 | λ GL010000 | ρ GR010000 | χ GH010000 | ä LA170000 | î LI150000 | ù LU130000 | |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ζ GZ010000 | μ GM010000 | σ GS010000 | ψ GP610000 | ê LE150000 | ï LI170000 | ü LU170000 | (EO) |

Figure 49. CP00423 Greek (Old)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Hebrew Bulletin

## Code 00424

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | | | ° SM190000 | µ SM170000 | ^ SD150000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | א HX330000 | ׳ HY010000 | / SP120000 | ת HT010000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | ב HB010000 | ך HK610000 | ע HX350000 | | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ג HG010000 | כ HK010000 | ף HP610000 | | c LC010000 | l LL010000 | t LT010000 | • SM570000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ד HD010000 | ל HL010000 | פ HP010000 | (RSP) SP300000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | ה HH010000 | ם HM610000 | ץ HS610000 | | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ו HW010000 | מ HM010000 | צ HS450000 | | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ז HZ010000 | ן HN610000 | ק HQ010000 | | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ח HH450000 | נ HN010000 | ר HR010000 | ‗ SM100000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ט HT450000 | ס HS010000 | ש HS210000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | | | [ SM060000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | | | ] SM080000 | | | | |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | | | | ¯ SM150000 | | | | |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | | ◌́ SD410000 | | ¨ SD170000 | | | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | | | | ´ SD110000 | | | | |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | | | | ◌ |

Figure 50. CP00424 Hebrew Bulletin



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## International 5/Swiss/Belgian

## Code Page 00500

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ã LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 51. CP00500 International 5/Swiss/Belgian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Greek/Latin (ISO 8859-7) + euro

## Code Page 00813

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | ΐ GI730000 | Π GP020000 | ΰ GU730000 | π GP010000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ‘ SP190000 | ± SA020000 | Α GA020000 | Ρ GR020000 | α GA010000 | ρ GR010000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ’ SP200000 | ² ND021000 | Β GB020000 | | β GB010000 | ς GS610000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Γ GG020000 | Σ GS020000 | γ GG010000 | σ GS010000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | € SC200000 | ΄ SD110000 | Δ GD020000 | Τ GT020000 | δ GD010000 | τ GT010000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | | ΅ SD730000 | Ε GE020000 | Υ GU020000 | ε GE010000 | υ GU010000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | Ά GA120000 | Ζ GZ020000 | Φ GF020000 | ζ GZ010000 | φ GF010000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Η GE320000 | Χ GH020000 | η GE310000 | χ GH010000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | Έ GE120000 | Θ GT620000 | Ψ GP620000 | θ GT610000 | ψ GP610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | Ή GE720000 | Ι GI020000 | Ω GO320000 | ι GI010000 | ω GO310000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | | Ί GI120000 | Κ GK020000 | Ϊ GI180000 | κ GK010000 | ϊ GI170000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Λ GL020000 | Ϋ GU180000 | λ GL010000 | ϋ GU170000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | Ό GO120000 | Μ GM020000 | ά GA110000 | μ GM010000 | ό GO110000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | Ν GN020000 | έ GE110000 | ν GN010000 | ύ GU110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | | Ύ GU120000 | Ξ GX020000 | ή GE710000 | ξ GX010000 | ώ GO710000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | — SM120000 | Ώ GO720000 | Ο GO020000 | ί GI110000 | ο GO010000 | |

Figure 52. CP00813 Greek/Latin (ISO 8859-7) + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Korean

## Code Page 00833

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | [ SM060000 | ] SM080000 | | ¯ SM150000 | ^ SD150000 | { SM110000 | } SM140000 | ₩ SC140000 | 0 ND100000 |
| -1 | | | / SP120000 | | a LA010000 | j LJ010000 | ~ SD190000 | | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | SP490000 | ㅁ OD100000 | ㅀ OL300000 | ㅈ OJ000000 | b LB010000 | k LK010000 | s LS010000 | \ SM070000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ㄱ OG000000 | ㄹ OL000000 | ㅁ OM000000 | ㅉ OJ100000 | c LC010000 | l LL010000 | t LT010000 | | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ㄲ OG100000 | ㄺ OL200000 | ㅂ OB000000 | ㅊ OC200000 | d LD010000 | m LM010000 | u LU010000 | | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | ㄳ OG200000 | ㄻ OL400000 | ㅃ OB100000 | ㅋ OK000000 | e LE010000 | n LN010000 | v LV010000 | | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ㄴ ON000000 | ㄼ OL100000 | ㅄ OB200000 | ㅌ OT000000 | f LF010000 | o LO010000 | w LW010000 | | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ㄵ ON150000 | ㄽ OL600000 | ㅅ OS000000 | ㅍ OP000000 | g LG010000 | p LP010000 | x LX010000 | | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ㄶ ON100000 | ㄾ OL700000 | ㅆ OS100000 | ㅎ OH000000 | h LH010000 | q LQ010000 | y LY010000 | | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ㄷ OD000000 | ㄿ OL500000 | ㅇ ON200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | ㅏ OA000000 | ㅐ OY400000 | ㅛ OY500000 | ㅡ OE300000 | | | | |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | ㅑ OA200000 | ㅒ OY300000 | ㅜ OU000000 | ㅢ OE400000 | | | | |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ㅓ OY200000 | ㅗ OO000000 | ㅝ OU300000 | ㅣ OI000000 | | | | |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ㅔ OY250000 | ㅘ OO100000 | ㅞ OU200000 | | | | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ㅕ OE200000 | ㅙ OO200000 | ㅟ OU400000 | | | | | |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ㅖ OE000000 | ㅚ OO300000 | ㅠ OY600000 | | | | | (EO) |

Figure 53. CP00833 Korean



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Thai

## Code Page 00838

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ฿ SC130000 | ◎ BQ400000 | ๚ BQ500000 | ๏ BQ600000 | ๐ ND100002 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP900000 | ' BZ100300 | / SP120000 | ็ BE400000 | a LA010000 | j LJ010000 | ~ SD180000 | ๑ ND010002 | A LA020000 | J LJ020000 | ๙ BZ300300 | 1 ND010000 |
| -2 | ก BK100000 | จ BC100000 | ฎ BT100000 | ถ BT600000 | b LB010000 | k LK010000 | s LS010000 | ๒ ND020002 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ข BK200000 | ฉ BX100000 | ฏ BT200000 | ท BT700000 | c LC010000 | l LL010000 | t LT010000 | ๓ ND030002 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ฃ BK300000 | ช BS100000 | ฐ BT300000 | ธ BT800000 | d LD010000 | m LM010000 | u LU010000 | ๔ ND040002 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | ค BK400000 | ซ BX200000 | ฑ BT400000 | น BN300000 | e LE010000 | n LN010000 | v LV010000 | ๕ ND050002 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ฅ BK500000 | ฌ BX300000 | ฒ BN200000 | บ BB100000 | f LF010000 | o LO010000 | w LW010000 | ๖ ND060002 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ฆ BK600000 | ญ BY100000 | ด BD200000 | ป BP100000 | g LG010000 | p LP010000 | x LX010000 | ๗ ND070002 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ง BN100000 | ฎ BD100000 | ต BT500000 | ผ BP200000 | h LH010000 | q LQ010000 | y LY010000 | ๘ ND080002 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | [ SM060000 | ] SM080000 | ^ SD150000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ๙ ND090002 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | ฝ BF100000 | ร BR100000 | ษ BS300000 | ๆ BQ200000 | ะ BZ200300 | • BQ300000 | า BA700000 | + BZ400000 |
| -B | . SP110000 | $ SC030000 | , SP060000 | # SM010000 | พ BP300000 | ฤ BR200000 | ส BS400000 | ั BA200000 | า BI200000 | เ BE200000 | ๆ BQ100000 | ๋ BZ500000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ฟ BF200000 | ล BL100000 | ห BH100000 | ิ BA100000 | ำ BU100000 | แ BE300000 | ๘ BE100000 | ° BN400000 |
| -D | ( SP060000 | ) SP070000 | _ SP080000 | ' SP050000 | ภ BP400000 | ฦ BL200000 | ฬ BL300000 | า BA300000 | ี BU200000 | โ BO200000 | ' BZ100000 | + BZ400300 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ม BM100000 | ว BW100000 | อ BO100000 | ่า BA400000 | ุ BU300000 | ใ BA500000 | ๚ BZ200000 | ๊ BZ500300 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ย BY200000 | ศ BS200000 | ฮ BH200000 | ิ BI100000 | ู BU400000 | ไ BA600000 | ๛ BZ300000 | (EO) |

Figure 54. CP00838 Thai



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 2/ROECE

## Code Page 00870

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ˇ SD210000 | ˘ SD230000 | ° SM190000 | ą LA430000 | · SD290000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | Ą LA440000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ę LE430000 | Â LA160000 | Ę LE440000 | b LB010000 | k LK010000 | s LS010000 | ż LZ290000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | Ţ LT420000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ţ LT410000 | ů LU270000 | ″ SD250000 | Ů LU280000 | d LD010000 | m LM010000 | u LU010000 | Ż LZ300000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ă LA230000 | î LI150000 | Ă LA240000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ž LZ210000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | č LC210000 | ĭ LI210000 | Č LC220000 | Ľ LL220000 | g LG010000 | p LP010000 | x LX010000 | ź LZ110000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | Í LL110000 | Ç LC420000 | Ĺ LL120000 | h LH010000 | q LQ010000 | y LY010000 | Ž LZ220000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ć LC110000 | ß LS610000 | Ć LC120000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | Ź LZ120000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | \| SM130000 | : SP130000 | ś LS110000 | ł LL610000 | Ś LS120000 | Ł LL620000 | (SHY) SP320000 | Ě LE220000 | ď LD210000 | Ď LD220000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | ň LN210000 | ń LN110000 | Ň LN220000 | Ń LN120000 | ô LO150000 | ű LU250000 | Ô LO160000 | Ű LU260000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | đ LD610000 | š LS210000 | Đ LD620000 | Š LS220000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ŕ LR110000 | ť LT210000 | Ŕ LR120000 | Ť LT220000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ř LR210000 | ˛ SD430000 | Ř LR220000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ş LS410000 | ¤ SC010000 | Ş LS420000 | × SA070000 | ő LO250000 | ě LE210000 | Ő LO260000 | (EO) |

Figure 55. CP00870 Latin 2/ROECE



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Icelandic

## Code Page 00871

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | þ LT630000 | æ LA510000 | ′ SD110000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ö LO170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ð LD630000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Þ LT640000 | Æ LA520000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ð LD620000 | ` SD130000 | } SM140000 | @ SM050000 | ¯ SM150000 | ~ SD190000 | ü LU170000 | ^ SD150000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | { SM110000 | ] SM080000 | [ SM060000 | \ SM070000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | Ö LO180000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 56. CP00871 Icelandic



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Greek New + euro

## Code Page 00875

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ¨ SD170000 | ΄ SD730000 | ο SM190000 | ΄ SD110000 | £ SC020000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | A GA020000 | K GK020000 | / SP120000 | Ά GA120000 | a LA010000 | j LJ010000 | ~ SD190000 | ά GA110000 | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | B GB020000 | Λ GL020000 | T GT020000 | Έ GE120000 | b LB010000 | k LK010000 | s LS010000 | έ GE110000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | Γ GG020000 | M GM020000 | Y GU020000 | Ή GE720000 | c LC010000 | l LL010000 | t LT010000 | ή GE710000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | Δ GD020000 | N GN020000 | Φ GF020000 | (RSP) SP300000 | d LD010000 | m LM010000 | u LU010000 | ΐ GI170000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | E GE020000 | Ξ GX020000 | X GH020000 | Ί GI120000 | e LE010000 | n LN010000 | v LV010000 | ί GI110000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | Z GZ020000 | O GO020000 | Ψ GP620000 | Ό GO120000 | f LF010000 | o LO010000 | w LW010000 | ό GO110000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | H GE320000 | Π GP020000 | Ω GO320000 | Ύ GU120000 | g LG010000 | p LP010000 | x LX010000 | ύ GU110000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | Θ GT620000 | P GR020000 | Ϊ GI180000 | Ώ GO720000 | h LH010000 | q LQ010000 | y LY010000 | ϋ GU170000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | I GI020000 | Σ GS020000 | Ϋ GU180000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ώ GO710000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | \| SM130000 | : SP130000 | α GA010000 | η GE310000 | ν GN010000 | ς GS610000 | (SHY) SP320000 | ± SA020000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | β GB010000 | θ GT610000 | ξ GX010000 | τ GT010000 | ω GO310000 | ½ NF010000 | § SM240000 | © SM520000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | γ GG010000 | ι GI010000 | ο GO010000 | υ GU010000 | ΄ GI730000 | | | € SC200000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | δ GD010000 | κ GK010000 | π GP010000 | φ GF010000 | ΰ GU730000 | • SD630000 | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ε GE010000 | λ GL010000 | ρ GR010000 | χ GH010000 | ‘ SP190000 | ’ SP200000 | « SP170000 | » SP180000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ζ GZ010000 | μ GM010000 | σ GS010000 | ψ GP610000 | — SM120000 | ¦ SM650000 | ¬ SM660000 | (EO) |

Figure 57. CP00875 Greek New + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Cyrillic

## Code Page 00880

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | Њ KN120000 | ц KC010000 | й KJ110000 | я KA150000 | ь KX110000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | Љ KL410000 | / SP120000 | Ћ KC120000 | a LA010000 | j LJ010000 | ~ SD190000 | ы KY010000 | A LA020000 | J LJ020000 | ¤ SC010000 | 1 ND010000 |
| -2 | ђ KD610000 | њ KN110000 | Ѓ KG120000 | Ќ KK120000 | b LB010000 | k LK010000 | s LS010000 | з KZ010000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ѓ KG110000 | ћ KC110000 | Ё KE180000 | (SHY) SP320000 | c LC010000 | l LL010000 | t LT010000 | ш KS210000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ё KE170000 | ќ KK110000 | Є KE160000 | Ў KU240000 | d LD010000 | m LM010000 | u LU010000 | э KE130000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | є KE150000 | ў KU230000 | S KZ160000 | Џ KG220000 | e LE010000 | n LN010000 | v LV010000 | щ KS150000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | s KZ150000 | ц KG210000 | I KI120000 | ю KU150000 | f LF010000 | o LO010000 | w LW010000 | ч KC210000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | i KI110000 | Ъ KU220000 | Ї KI180000 | a KA010000 | g LG010000 | p LP010000 | x LX010000 | ъ KU210000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ї KI170000 | № SM000000 | J KJ020000 | б KB010000 | h LH010000 | q LQ010000 | y LY010000 | Ю KU160000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | j KJ010000 | Ђ KD620000 | Љ KL420000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | А KA020000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | \| SM130000 | : SP130000 | д KD010000 | к KK010000 | р KR010000 | Б KB020000 | Х KH020000 | Н KN020000 | Т KT020000 | З KZ020000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | е KE010000 | л KL010000 | с KS010000 | Ц KC020000 | И KI020000 | О KO020000 | У KU020000 | Ш KS220000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ф KF010000 | м KM010000 | т KT010000 | Д KD020000 | Й KJ120000 | П KP020000 | Ж KZ220000 | Э KE140000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | г KG010000 | н KN010000 | у KU010000 | Е KE020000 | К KK020000 | Я KA160000 | В KV020000 | Щ KS160000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | х KH010000 | о KO010000 | ж KZ210000 | Ф KF020000 | Л KL020000 | Р KR020000 | Ь KX120000 | Ч KC220000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | и KI010000 | п KP010000 | в KV010000 | Г KG020000 | М KM020000 | С KS020000 | Ы KY020000 | (EO) |

Figure 58. CP00880 Cyrillic



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Yugoslav (Old)

## Code Page 00890

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ˇ SD210000 | ˘ SD230000 | ° SD270000 | ą LA430000 | ˙ SD290000 | š LS210000 | ć LC110000 | Đ LD020000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | č LC210000 | £ SC020000 | A LA020000 | J LJ020000 | (NSP) SP310000 | 1 ND010000 |
| -2 | â LA150000 | ę LE430000 | Â LA160000 | Ę LE440000 | b LB010000 | k LK010000 | s LS010000 | ż LZ280000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | Ţ LT420000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | ů LU270000 | À LA140000 | Ů LU280000 | d LD010000 | m LM010000 | u LU010000 | Ż LZ300000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ă LA230000 | î LI150000 | Ă LA240000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ` SD130000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ″ SD250000 | ĭ LL210000 | ˆ SD150000 | Ľ LL220000 | g LG010000 | p LP010000 | x LX010000 | ź LZ110000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | Í LL110000 | Ç LC420000 | Ĺ LL120000 | h LH010000 | q LQ010000 | y LY010000 | @ SM050000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | Ď LD220000 | ß LS610000 | ] SM080000 | ž LZ210000 | i LI010000 | r LR010000 | z LZ010000 | Ź LZ120000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Š LS220000 | Ć LC120000 | đ LD610000 | : SP130000 | ś LS110000 | ł LL810000 | Ś LS120000 | Ł LL820000 | (SHY) SP320000 | Ě LE220000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | ň LN210000 | ń LN110000 | Ň LN220000 | Ń LN120000 | ô LO150000 | ű LU250000 | Ô LO160000 | Ű LU260000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ž LZ220000 | ě LE210000 | ď LD210000 | Ą LA440000 | [ SM060000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | ‗ SP050000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ŕ LR110000 | ť LT210000 | Ŕ LR120000 | Ť LT220000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ř LR210000 | ˛ SD430000 | Ř LR220000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | Č LC220000 | ? SP150000 | " SP040000 | ş LS410000 | ¤ SC010000 | Ş LS420000 | ţ LT410000 | ő LO250000 | ÿ LY170000 | Ő LO260000 | (EO) |

Figure 59. CP00890 Yugoslav (Old)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## OCR-A

## Code Page 00892

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | | Ø LO620000 | | | | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | | | / SP120000 | | a LA010000 | j LJ010000 | | £ SC020000 | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | | | | | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | | | Ä LA180000 | | c LC010000 | l LL010000 | t LT010000 | | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | | | | | d LD010000 | m LM010000 | u LU010000 | | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | | | | | e LE010000 | n LN010000 | v LV010000 | | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | | | | | f LF010000 | o LO010000 | w LW010000 | | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | | | Å LA280000 | — SO150000 | g LG010000 | p LP010000 | x LX010000 | | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | | | | | h LH010000 | q LQ010000 | y LY010000 | | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | | | Ñ LN200000 | | i LI010000 | r LR010000 | z LZ010000 | | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | | : SP130000 | | | | | | | | |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | | | | \| SO130000 | ⊣ SO020000 | ♪ SO000000 | Ψ SO010000 | |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | | | | | | | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | | ' SP050000 | | | | | | | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | | Æ LA520000 | | | | | | |
| -F | ! SP020000 | | ? SP150000 | " SP040000 | | | | ■ SO140000 | | ^ SM090000 | | (EO) |

Figure 60. CP00892 OCR-A



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## OCR-B

## Code Page 00893

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | | | | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | | | / SP120000 | | a LA010000 | j LJ010000 | ˜ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | | 1 ND010000 |
| -2 | | | | | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | | Ā LA180000 | | c LC010000 | l LL010000 | t LT010000 | | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | | | | | d LD010000 | m LM010000 | u LU010000 | | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | | | | | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | | | | ¯ SD470000 | f LF010000 | o LO010000 | w LW010000 | | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | | Å LA280000 | — SO150000 | g LG010000 | p LP010000 | x LX010000 | | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | | | | | h LH010000 | q LQ010000 | y LY010000 | | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | | : SP130000 | | | | | | | | |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | | | | \| SO130000 | | | | |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | | æ LA510000 | | | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | | ¸ SD410000 | | ¨ SD170000 | | | | |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ij LI510000 | Æ LA520000 | | ´ SD110000 | | | | |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | IJ LI520000 | ¤ SC010000 | | ■ SO140000 | | ∧ SM090000 | | (EO) |

Figure 61. CP00893 OCR-B



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 9 (ISO 8859) + euro

## Code Page 00924

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | Œ LO520000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | œ LO510000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | Ÿ LY180000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Ý LY120000 | ! SP020000 | Š LS220000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | š LS210000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD640000 | ¯ SD310000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ž LZ210000 | [ SM060000 | ] SM080000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | Ž LZ220000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 62. CP00924 Latin 9 (ISO 8859) + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Cyrillic Multilingual

## Code Page 01025

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | Њ KN120000 | ц KC010000 | й KJ110000 | я KA150000 | ь KX110000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | Љ KL410000 | / SP120000 | Ћ KC120000 | a LA010000 | j LJ010000 | ~ SD190000 | ы KY010000 | A LA020000 | J LJ020000 | § SM240000 | 1 ND010000 |
| -2 | ђ KD610000 | њ KN110000 | Ґ KG120000 | Ќ KK120000 | b LB010000 | k LK010000 | s LS010000 | з KZ010000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ґ KG110000 | ћ KC110000 | Ё KE180000 | (SHY) SP320000 | c LC010000 | l LL010000 | t LT010000 | ш KS210000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ё KE170000 | ќ KK110000 | Є KE160000 | Ў KU240000 | d LD010000 | m LM010000 | u LU010000 | э KE130000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | є KE150000 | ў KU230000 | S KZ160000 | Џ KG220000 | e LE010000 | n LN010000 | v LV010000 | щ KS150000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | s KZ150000 | ц KG210000 | I KI120000 | ю KU150000 | f LF010000 | o LO010000 | w LW010000 | ч KC210000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | i KI110000 | Ъ KU220000 | Ї KI180000 | a KA010000 | g LG010000 | p LP010000 | x LX010000 | ъ KU210000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ї KI170000 | № SM080000 | J KJ020000 | б KB010000 | h LH010000 | q LQ010000 | y LY010000 | Ю KU160000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | j KJ010000 | Ъ KD620000 | Љ KL420000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | А KA020000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | \| SM130000 | : SP130000 | д KD010000 | к KK010000 | р KR010000 | Б KB020000 | Х KH020000 | Н KN020000 | Т KT020000 | З KZ020000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | е KE010000 | л KL010000 | с KS010000 | Ц KC020000 | И KI020000 | О KO020000 | У KU020000 | Ш KS220000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ф KF010000 | м KM010000 | т KT010000 | Д KD020000 | Й KJ120000 | П KP020000 | Ж KZ220000 | Э KE140000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | г KG010000 | н KN010000 | у KU010000 | Е KE020000 | К KK020000 | Я KA160000 | В KV020000 | Щ KS160000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | х KH010000 | о KO010000 | ж KZ210000 | Ф KF020000 | Л KL020000 | Р KR020000 | Ь KX120000 | Ч KC220000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | и KI010000 | п KP010000 | в KV010000 | Г KG020000 | М KM020000 | С KS020000 | Ы KY020000 | (EO) |

Figure 63. CP01025 Cyrillic Multilingual



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin-5 Turkey

## Code Page 01026

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ç LC410000 | ğ LG230000 | ü LU170000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ö LO170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | { SM110000 | ì LI130000 | [ SM060000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ı LI610000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Ç LC420000 | Ğ LG240000 | ş LS410000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | İ LI300000 | , SP080000 | Ö LO180000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ş LS420000 | } SM140000 | æ LA510000 | ] SM080000 | ¯ SM150000 | ~ SD190000 | \ SM070000 | # SM010000 | " SP040000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ` SD130000 | ¸ SD410000 | $ SC030000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ¦ SM650000 | Æ LA520000 | @ SM050000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | Ü LU180000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 64. CP01026 Latin-5 Turkey



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Farsi

## Code Page 01097

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | چ AC210003 | ژ AZ210000 | ص AS450006 | ظ AZ450002 | غ AG310003 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ٥ AX300000 | / SP120000 | ح AH450000 | a LA010000 | j LJ010000 | ~ SD190000 | غ AG310004 | A LA020000 | J LJ020000 | ؟ SP150007 | 1 ND010000 |
| -2 | ، SP080007 | أ AA310000 | پ AP010003 | ح AH450003 | b LB010000 | k LK010000 | s LS010000 | ف AF010000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ٔ AA070009 | ا AA310002 | ت AT010000 | خ AH470000 | c LC010000 | l LL010000 | t LT010000 | ف AF010003 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | آ AA210000 | ٱ AA310006 | ت AT010003 | خ AH470003 | d LD010000 | m LM010000 | u LU010000 | ق AQ010000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | آ AA210002 | ؤ AW310000 | ث AT470000 | د AD010000 | e LE010000 | n LN010000 | v LV010000 | ق AQ010003 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ٓ AA210006 | ئ AY320003 | ث AT470003 | ذ AD470000 | f LF010000 | o LO010000 | w LW010000 | ک AK010006 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | ا AA010000 | ب AB010000 | ج AG230000 | ر AR010000 | g LG010000 | p LP010000 | x LX010000 | ک AK010003 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ا AA010002 | ب AB010003 | ج AG230003 | ز AZ010000 | h LH010000 | q LQ010000 | y LY010000 | گ AG010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ٱ AA010006 | پ AP010000 | چ AC210000 | ٔ SD130000 | i LI010000 | r LR010000 | z LZ010000 | گ AG010003 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ﷼ SC180000 | ! SP020000 | ؛ SP140007 | : SP130000 | « SP170000 | ص AS450003 | ع AC470000 | [ SM060000 | (SHY) SP320000 | ه AH010003 | _ SM880000 | ٥ ND050004 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | ض AD450006 | ع AC470002 | ] SM080000 | ـه AM010003 | ﻫ AH010004 | ٥ ND100003 | ۶ ND060003 |
| -C | < SA030000 | * SM040007 | ٪ SM020007 | @ SM050000 | س AS010006 | ض AD450003 | ع AC470003 | ل AL010000 | ن AN010000 | ة AH210000 | ١ ND010001 | ٧ ND070001 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | سـ AS010003 | ط AT450001 | ـع AC470004 | لـ AL010003 | نـ AN010003 | ى AY020000 | ٢ ND020001 | ٨ ND080001 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ش AS230006 | ط AT450002 | غ AG310000 | م AM010000 | و AW010000 | ی AY020002 | ٣ ND030001 | ٩ ND090001 |
| -F | \| SM130000 | ¬ SM680000 | ؟ SP150000 | " SP040000 | شـ AS230003 | ظ AZ450001 | غ AG310002 | × SA070000 | ه AH010000 | ـي AY020003 | ۴ ND040003 | (EO) |

Figure 65. CP01097 Farsi



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Baltic Multilingual

## Code Page 01112

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ^ SD150000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD180000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | š LS210000 | ę LE430000 | Š LS220000 | Ę LE440000 | b LB010000 | k LK010000 | s LS010000 | ī LI310000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ė LE290000 | Ä LA180000 | Ė LE300000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | ą LA430000 | č LC210000 | Ą LA440000 | Č LC220000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | į LI430000 | ų LU430000 | Į LI440000 | Ų LU440000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ū LU310000 | „ SP230000 | Ū LU320000 | Ī LI320000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | " SP210000 | Å LA280000 | Ļ LL420000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ė LE310000 | ģ LG410000 | Ė LE320000 | Ģ LG420000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ž LZ210000 | ß LS610000 | Ž LZ220000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | Ŗ LR420000 | ” SP220000 | [ SM360000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP060000 | # SM010000 | » SP180000 | ţ LR410000 | ź LZ110000 | ] SM370000 | ō LO310000 | ć LC110000 | Ō LO320000 | Ć LC120000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ā LA310000 | æ LA510000 | Ā LA320000 | Ź LZ120000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP080000 | ' SP050000 | ż LZ290000 | ķ LK410000 | Ż LZ300000 | Ķ LK420000 | ņ LN410000 | ł LL610000 | Ņ LN420000 | Ł LL620000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ń LN110000 | Æ LA520000 | Ń LN120000 | ļ LL410000 | ó LO110000 | ś LS110000 | Ó LO120000 | Ś LS120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | ¤ SC010000 | ® SM530000 | × SA070000 | õ LO190000 | ’ SP200000 | Õ LO200000 | (EO) |

Figure 66. CP01112 Baltic Multilingual



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Estonian

## Code Page 01122

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ä LA170000 | å LA270000 | É LE120000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ` SD130000 | / SP120000 | \ SM070000 | a LA010000 | j LJ010000 | ü LU170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | { SM110000 | ë LE170000 | # SM010000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD830000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | [ SM060000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA180000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | } SM140000 | ï LI170000 | $ SC030000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS810000 | Ñ LN200000 | é LE110000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | § SM240000 | ¤ SC010000 | ö LO170000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM880000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Å LA280000 | , SP080000 | Ä LA180000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ö LO160000 | š LS210000 | æ LA510000 | Š LS220000 | ¯ SM150000 | ¦ SM650000 | ~ SD180000 | @ SM050000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | , SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | ž LZ210000 | Æ LA520000 | Ž LZ220000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ] SM080000 | ® SM530000 | × SA070000 | õ LO180000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 67. CP01122 Estonian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## USA/Canada + euro

## Code Page 01140

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ^ SD150000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ¢ SC040000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | [ SM060000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | ] SM080000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM630000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 68. CP01140 USA/Canada + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Austrian/German + euro

## Code Page 01141

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ã LA170000 | ü LU170000 | Ö LO180000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ß LS610000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | { SM110000 | ë LE170000 | [ SM060000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | @ SM090000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ~ SD190000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Ä LA180000 | Ü LU180000 | ö LO170000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | § SM240000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ¦ SM650000 | } SM140000 | \ SM070000 | ] SM080000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 69. CP01141 Austrian/German + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Danish/Norwegian + euro

## Code Page 01142

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ¦ SM650000 | @ SM050000 | ° SM190000 | µ SM170000 | ¢ SC040000 | æ LA510000 | å LA270000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ü LU170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | } SM140000 | ï LI170000 | $ SC030000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | # SM010000 | € SC200000 | ø LO610000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Å LA280000 | , SP080000 | Æ LA520000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ø LO620000 | ð LD630000 | { SM110000 | Ð LD620000 | ¯ SM150000 | õ LO170000 | ~ SD190000 | Õ LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | [ SM650000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ] SM080000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 70. CP01142 Danish/Norwegian + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Finnish/Swedish + euro

## Code Page 001143

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | ã LA170000 | å LA270000 | É LE120000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ` SD130000 | / SP120000 | \ SM070000 | a LA010000 | j LJ010000 | ü LU170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | { SM110000 | ë LE170000 | # SM010000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | [ SM060000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | } SM140000 | ï LI170000 | $ SC030000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | é LE110000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | § SM240000 | € SC200000 | ö LO170000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | Å LA280000 | , SP080000 | Ä LA180000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ö LO180000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ¦ SM650000 | ~ SD190000 | @ SM050000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | ] SM080000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 71. CP01143 Finnish/Swedish + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Italian + euro

## Code Page 00144

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | [ SM060000 | µ SM170000 | ¢ SC040000 | à LA130000 | è LE130000 | ç LC410000 | 0 ND100000 |
| -1 | (RSP) SP300000 | ] SM080000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ì LI130000 | # SM010000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | { SM110000 | } SM140000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | @ SM050000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | \ SM070000 | ~ SD190000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ù LU130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ° SM190000 | é LE110000 | ò LO130000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | £ SC020000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | § SM240000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | õ LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ¦ SM650000 | ` SD130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 72. CP01144 Italian + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Spanish/Spanish Speaking + euro

## Code Page 01145

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ¦ SM650000 | ß LS610000 | # SM010000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | ñ LN190000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ^ SD150000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | Ñ LN200000 | » SP180000 | º SM200000 | ¿ SP160000 | ! SP020000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ~ SD190000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 73. CP01145 Spanish/Spanish Speaking + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## English/UK + euro

## Code Page 01146

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¯ SM150000 | [ SM060000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | $ SC030000 | ! SP020000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ^ SD150000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | £ SC020000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | ] SM080000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ~ SD190000 | õ LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | \| SM130000 | ¬ SM660000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 74. CP01146 English/UK + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## French + euro

## Code Page 01147

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | [ SM060000 | ` SD130000 | ¢ SC040000 | é LE110000 | è LE130000 | ç LC410000 | 0 ND100000 |
| -1 | (RSP) SP300000 | { SM110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ¨ SD170000 | # SM010000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | @ SM050000 | } SM140000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | ] SM080000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | \ SM070000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | µ SM170000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | ° SM190000 | § SM240000 | ù LU130000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | £ SC020000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | à LA130000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ~ SD190000 | ò LO130000 | ¦ SM650000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 75. CP01147 French + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## International 5/Belgian New + euro

## Code Page 01148

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | { SM110000 | } SM140000 | \ SM070000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | ~ SD190000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ä LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ` SD130000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | [ SM060000 | ] SM080000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | @ SM050000 | ð LD630000 | æ LA510000 | Ð LD620000 | ¯ SM150000 | ö LO170000 | ü LU170000 | Ö LO180000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | þ LT630000 | Æ LA520000 | Þ LT640000 | ´ SD110000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | ^ SD150000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 76. CP01148 International 5/Belgian New + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Icelandic + euro

## Code Page 01149

| HEX DIGITS 1ST → 2ND ↓ | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | (SP) SP010000 | & SM030000 | - SP100000 | ø LO610000 | Ø LO620000 | ° SM190000 | µ SM170000 | ¢ SC040000 | þ LT630000 | æ LA510000 | ´ SD110000 | 0 ND100000 |
| -1 | (RSP) SP300000 | é LE110000 | / SP120000 | É LE120000 | a LA010000 | j LJ010000 | õ LO170000 | £ SC020000 | A LA020000 | J LJ020000 | ÷ SA060000 | 1 ND010000 |
| -2 | â LA150000 | ê LE150000 | Â LA160000 | Ê LE160000 | b LB010000 | k LK010000 | s LS010000 | ¥ SC050000 | B LB020000 | K LK020000 | S LS020000 | 2 ND020000 |
| -3 | ã LA170000 | ë LE170000 | Ä LA180000 | Ë LE180000 | c LC010000 | l LL010000 | t LT010000 | · SD630000 | C LC020000 | L LL020000 | T LT020000 | 3 ND030000 |
| -4 | à LA130000 | è LE130000 | À LA140000 | È LE140000 | d LD010000 | m LM010000 | u LU010000 | © SM520000 | D LD020000 | M LM020000 | U LU020000 | 4 ND040000 |
| -5 | á LA110000 | í LI110000 | Á LA120000 | Í LI120000 | e LE010000 | n LN010000 | v LV010000 | § SM240000 | E LE020000 | N LN020000 | V LV020000 | 5 ND050000 |
| -6 | ã LA190000 | î LI150000 | Ã LA200000 | Î LI160000 | f LF010000 | o LO010000 | w LW010000 | ¶ SM250000 | F LF020000 | O LO020000 | W LW020000 | 6 ND060000 |
| -7 | å LA270000 | ï LI170000 | Å LA280000 | Ï LI180000 | g LG010000 | p LP010000 | x LX010000 | ¼ NF040000 | G LG020000 | P LP020000 | X LX020000 | 7 ND070000 |
| -8 | ç LC410000 | ì LI130000 | Ç LC420000 | Ì LI140000 | h LH010000 | q LQ010000 | y LY010000 | ½ NF010000 | H LH020000 | Q LQ020000 | Y LY020000 | 8 ND080000 |
| -9 | ñ LN190000 | ß LS610000 | Ñ LN200000 | ð LD630000 | i LI010000 | r LR010000 | z LZ010000 | ¾ NF050000 | I LI020000 | R LR020000 | Z LZ020000 | 9 ND090000 |
| -A | Þ LT640000 | Æ LA520000 | ¦ SM650000 | : SP130000 | « SP170000 | ª SM210000 | ¡ SP030000 | ¬ SM660000 | (SHY) SP320000 | 1 ND011000 | 2 ND021000 | 3 ND031000 |
| -B | . SP110000 | $ SC030000 | , SP080000 | # SM010000 | » SP180000 | º SM200000 | ¿ SP160000 | \| SM130000 | ô LO150000 | û LU150000 | Ô LO160000 | Û LU160000 |
| -C | < SA030000 | * SM040000 | % SM020000 | Ð LD620000 | ` SD130000 | } SM140000 | @ SM050000 | ¯ SM150000 | ~ SD190000 | ü LU170000 | ^ SD150000 | Ü LU180000 |
| -D | ( SP060000 | ) SP070000 | _ SP090000 | ' SP050000 | ý LY110000 | ¸ SD410000 | Ý LY120000 | ¨ SD170000 | ò LO130000 | ù LU130000 | Ò LO140000 | Ù LU140000 |
| -E | + SA010000 | ; SP140000 | > SA050000 | = SA040000 | { SM110000 | ] SM080000 | [ SM060000 | \ SM070000 | ó LO110000 | ú LU110000 | Ó LO120000 | Ú LU120000 |
| -F | ! SP020000 | Ö LO180000 | ? SP150000 | " SP040000 | ± SA020000 | € SC200000 | ® SM530000 | × SA070000 | õ LO190000 | ÿ LY170000 | Õ LO200000 | (EO) |

Figure 77. CP01149 Icelandic + euro



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# ASCII Code Pages

The table below lists the ASCII code pages used by the S828 Printer, and also provides page references so you can determine what code page contains the characters you want to use.
These Code Pages can be found in the EPSON/IBM/ANSI emulations.

| Code Page | Character Set Name |
|---|---|
| 437 | USA (Personal Computer) A-54 |
| 437-G | Greek |
| 437-SL | Croatian |
| 850 | PC Multilingual |
| 851 | Old Greek |
| 852 | Latin 2/ROECE |
| 853 | Latin 3 (PC) |
| 855 | Cyrillic (PC) |
| 857 | Latin 5-Turkey + euro |
| 858 | PC Multilingual + euro |
| 860 | Portuguese |
| 862 | Hebrew |
| 863 | Canadian French |
| 864E | Arabic |
| 865 | Danish/Norwegian |
| 866 | PC Data, Cyrillic, Russian |
| 867 | Turkish 2 |
| 876 | OCR-A |
| 877 | OCR-B |
| 1098 | Farsi (Personal Computer) |
| 1250 | Central Europe Latin 2 |
| 1251 | Cyrillic |
| 1252 | Latin 1 Ansi Windows |
| 1253 | Greek Windows |
| 1254 | Turkish Windows |
| 1255 | Hebrew Windows |
| 1256 | Arabic Windows |
| 1257 | Baltic Windows |
| MAZOWIA | Polish |
| GOST | Russian |
| TASS | Cyrillic |
| UKRANIAN | old version |
| KOI8-U | new version |
| FARSI 1 | |
| FARSI 2 | |
| Kamenicky | |
| CWI | |
| Roman-8 | |
| IN2 | |
| Turkish | |
| Bulgarian | |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

| Code Page | Character Set Name | Page |
|---|---|---|
| ISO 8859-1 | Latin 1 | |
| ISO 8859/2 | Latin 2 | |
| ISO 8859/3 | Latin 3 | |
| ISO 8859/4 | Latin 4 | |
| ISO 8859-5 | Latin/Cyrillic | 281 |
| ISO 8859-6 | Latin/Arabic | 300 |
| ISO 8859-7 | Latin/Greek | 301 |
| ISO 8859-8 | Latin/Hebrew | 302 |
| ISO 8859-9 | Latin 5 | 305 |
| ISO 8859-15 | Latin 9 | 308 |
| 96 GREEK | | |
| Extended Graphics Character Table | | 318 |
| Italic Character Table | | 319 |
| Epson Extended Character Variables | | 320 |
| ANSI National VAriations | | |




Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## USA (Personal Computer) A-54

## Code Page 00437

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | SF140000 | SF020000 | SF460000 | α GA010000 | ≡ SA480000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | SF150000 | SF070000 | SF470000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | SF160000 | SF060000 | SF480000 | Γ GG020000 | ≥ SA530000 |
| -3 | SS020000 | !! SP530000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | SF490000 | π GP010000 | ≤ SA520000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | SF090000 | SF100000 | SF580000 | Σ GS020000 | ⌠ SS260000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | SF190000 | SF050000 | SF510000 | σ GS010000 | ⌡ SS270000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | ª SM210000 | SF200000 | SF360000 | SF520000 | µ GM010000 | ÷ SA060000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | SF210000 | SF370000 | SF530000 | τ GT010000 | ≈ SA700000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ÿ LY170000 | ¿ SP160000 | SF220000 | SF380000 | SF540000 | Φ GF020000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ⌐ SM680000 | SF230000 | SF390000 | SF040000 | Θ GT620000 | • SA790000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Ω GO320000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ¢ SC040000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | ¥ SC050000 | ¡ SP030000 | SF270000 | SF430000 | SF580000 | ϕ GF010001 | ² ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | Pts SC060000 | « SP170000 | SF280000 | SF440000 | SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ƒ SC070000 | » SP180000 | SF030000 | SF450000 | SF600000 | ∩ SA380000 | (RSP) SP300000 |

Figure 78. USA(CP437)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Greek

## Code Page 00437-G

| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | Ø | ▶ | | 0 | @ | P | ’ | p | A | P | ι | ░ | └ | ╨ | ω | o |
| 01 | ☺ | ◀ | ! | 1 | A | Q | a | q | B | Σ | ´ κ | ▒ | ┴ | ╤ | α | ± |
| 02 | ☹ | ≺ | “ | 2 | B | R | b | r | Γ | T | ´ λ | ▓ | ┬ | ╥ | ε | ≥ |
| 03 | ♥ | !! | # | 3 | C | S | c | s | Δ | Y | ´ μ | │ | ├ | ╙ | η | ≤ |
| 04 | ♦ | ¶ | $ | 4 | D | T | d | t | E | ϕ | ν | ┤ | ─ | ╘ | ι | ⌠ |
| 05 | ♣ | § | % | 5 | E | U | e | u | Z | X | ´ ξ | ╡ | ┼ | ╒ | ι | ⌡ |
| 06 | ♠ | ‒ | & | 6 | F | V | f | v | H | Ψ | ´ ο | ╢ | ╞ | ╓ | ο | ÷ |
| 07 | • | ≺ | ‘ | 7 | G | W | g | w | Θ | Ω | ´ π | ╖ | ╟ | ╫ | υ | ≈ |
| 08 | ◘ | ↑ | ( | 8 | H | X | h | x | I | α | ¨ ρ | ╕ | ╚ | ╪ | υ | ° |
| 09 | ° | ↓ | ) | 9 | I | Y | i | y | K | β | ´ σ | ╣ | ╔ | ┘ | ω | £ |
| 0A | ■ | → | * | : | J | Z | j | z | Λ | γ | ' ς | ║ | ╩ | ┌ | A | ¥ |
| 0B | ♂ | ← | + | ; | K | [ | k | { | M | δ | ' τ | ╗ | ╦ | █ | E | √ |
| 0C | ♀ | ∟ | , | < | L | \ | l | \| | N | ε | υ | ╝ | ╠ | ▄ | H | ⁿ |
| 0D | ♪ | ↔ | - | = | M | ] | m | } | Ξ | ξ | ' ♥ | ╜ | ═ | ▌ | I | ² |
| 0E | ♫ | ▲ | . | > | N | ^ | n | ~ | O | η | ' χ | ╛ | ╬ | ▐ | O | ■ |
| 0F | ☼ | ♦ | / | ? | O | _ | o | ⌂ | Π | θ | ψ | ┐ | ╧ | ▀ | γ | |

Figure 79.Greek(CP437-G)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Croatian

## Code Page 00437-SL

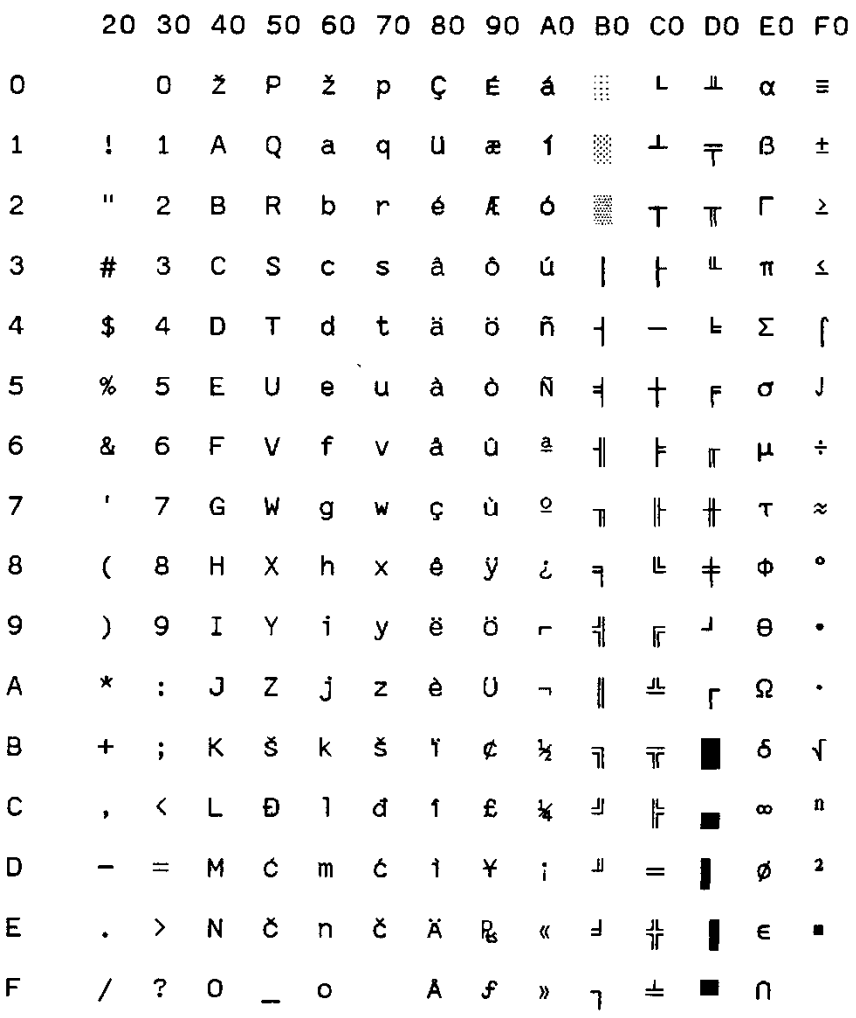



Figure 80.Croatian(CP437-SLAVIC)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Greek/Latin (ISO 8859-7)
## Code Page 00813

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | ΐ GI730000 | Π GP020000 | ΰ GU730000 | π GP010000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ‘ SP190000 | ± SA020000 | A GA020000 | P GR020000 | α GA010000 | ρ GR010000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ’ SP200000 | ² ND021000 | B GB020000 | | β GB010000 | ς GS610000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Γ GG020000 | Σ GS020000 | γ GG010000 | σ GS010000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | | ΄ SD110000 | Δ GD020000 | T GT020000 | δ GD010000 | τ GT010000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | | ‵ SD730000 | E GE020000 | Y GU020000 | ε GE010000 | υ GU010000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | Ά GA120000 | Z GZ020000 | Φ GF020000 | ζ GZ010000 | φ GF010000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | H GE320000 | X GH020000 | η GE310000 | χ GH010000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | Έ GE120000 | Θ GT620000 | Ψ GP620000 | ϑ GT610000 | ψ GP610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | Ή GE720000 | I GI020000 | Ω GO320000 | ι GI010000 | ω GO310000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | | Ί GI120000 | K GK020000 | Ϊ GI180000 | κ GK010000 | ϊ GI170000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Λ GL020000 | Ϋ GU180000 | λ GL010000 | ϋ GU170000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | Ό GO120000 | M GM020000 | ά GA110000 | μ GM010000 | ό GO110000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | N GN020000 | έ GE110000 | ν GN010000 | ύ GU110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | | Ύ GU120000 | Ξ GX020000 | ή GE710000 | ξ GX010000 | ώ GO710000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | — SM120000 | Ώ GO720000 | O GO020000 | ί GI110000 | o GO010000 | |

Figure 81. Greek/Latin (ISO 8859-7)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 1 (ISO 8859-1)

## Code Page 00819

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | À LA140000 | Ð LD620000 | à LA130000 | ð LD630000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ¡ SP030000 | ± SA020000 | Á LA120000 | Ñ LN200000 | á LA110000 | ñ LN190000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | Â LA160000 | Ò LO140000 | â LA150000 | ò LO130000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Ã LA200000 | Ó LO120000 | ã LA190000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA180000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ¥ SC050000 | µ SM170000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | ¶ SM250000 | Æ LA520000 | Ö LO180000 | æ LA510000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | È LE140000 | Ø LO620000 | è LE130000 | ø LO610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | É LE120000 | Ù LU140000 | é LE110000 | ù LU130000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | ª SM210000 | º SM200000 | Ê LE160000 | Ú LU120000 | ê LE150000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | ¼ NF040000 | Ì LI140000 | Ü LU180000 | ì LI130000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | Í LI120000 | Ý LY120000 | í LI110000 | ý LY110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | ¾ NF050000 | Î LI160000 | Þ LT640000 | î LI150000 | þ LT630000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | ¯ SM150000 | ¿ SP160000 | Ï LI180000 | ß LS610000 | ï LI170000 | ÿ LY170000 |

Figure 82 .ISO8859/1(Latin1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## PC Multilingual

## Code Page 00850

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | SF140000 | SF020000 | ð LD630000 | Ó LO120000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | SF150000 | SF070000 | Đ LD620000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | SF160000 | SF060000 | Ê LE160000 | Ô LO160000 | SM100000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | Ë LE180000 | Ò LO140000 | ¾ NF050000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | SF090000 | SF100000 | È LE140000 | õ LO190000 | ¶ SM250000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | Á LA120000 | SF050000 | ı LI610000 | Õ LO200000 | § SM240000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | ª SM210000 | Â LA160000 | ã LA190000 | Í LI120000 | µ SM170000 | ÷ SA060000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | À LA140000 | Ã LA200000 | Î LI160000 | þ LT630000 | ¸ SD410000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ÿ LY170000 | ¿ SP160000 | © SM520000 | SF380000 | Ï LI180000 | Þ LT640000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ® SM530000 | SF230000 | SF390000 | SF040000 | Ú LU120000 | ¨ SD170000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Û LU160000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ø LO610000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | Ù LU140000 | 1 ND011000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ý LY110000 | 3 ND031000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | Ø LO620000 | ¡ SP030000 | ¢ SC040000 | SF430000 | ¦ SM650000 | Ý LY120000 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | × SA070000 | « SP170000 | ¥ SC050000 | SF440000 | Ì LI140000 | ¯ SM150000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ƒ SC070000 | » SP180000 | SF030000 | ¤ SC010000 | SF600000 | ´ SD110000 | (RSP) SP300000 |

Figure 83.Multilingual(CP850)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Old Greek

## Code Page 00851

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | Ί GI120000 | ΐ GI170000 | SF140000 | SF020000 | T GT020000 | ζ GZ010000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | | ΐ GI730000 | SF150000 | SF070000 | Y GU020000 | η GE310000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Ό GO120000 | ό GO110000 | SF160000 | SF060000 | Φ GF020000 | ϑ GT610000 | υ GU010000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ύ GU110000 | SF110000 | SF080000 | X GH020000 | ι GI010000 | φ GF010000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | A GA020000 | SF090000 | SF100000 | Ψ GP620000 | κ GK010000 | χ GH010000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | Ύ GU120000 | B GB020000 | K GK020000 | SF050000 | Ω GO320000 | λ GL010000 | § SM240000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | Ά GA120000 | û LU150000 | Γ GG020000 | Λ GL020000 | Π GP020000 | α GA010000 | μ GM010000 | ψ GP610000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | Δ GD020000 | M GM020000 | P GR020000 | β GB010000 | ν GN010000 | ΄ SD410000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | Ώ GO720000 | E GE020000 | N GN020000 | SF380000 | γ GG010000 | ξ GX010000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | Z GZ020000 | SF230000 | SF390000 | SF040000 | ο GO010000 | ¨ SD170000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | H GE320000 | SF240000 | SF400000 | SF010000 | π GP010000 | ω GO310000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ά GA110000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | ρ GR010000 | ϋ GU170000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | Θ GT620000 | SF260000 | SF420000 | SF570000 | σ GS010000 | ΰ GU730000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Έ GE120000 | έ GE110000 | I GI020000 | Ξ GX020000 | SF430000 | δ GD010000 | ς GS610000 | ώ GO710000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | ή GE710000 | « SP170000 | O GO020000 | SF440000 | ε GE010000 | τ GT010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Ή GE720000 | ί GI110000 | » SP180000 | SF030000 | Σ GS020000 | SF600000 | ´ SD110000 | (RSP) SP300000 |

Figure 84.Old Greek(CP851)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 2/ROECE

## Code Page 00852

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | SP010000 | ND100000 | SM050000 | LP020000 | SD130000 | LP010000 | LC420000 | LE120000 | LA110000 | SF140000 | SF020000 | LD610000 | LO120000 | SP320000 |
| -1 | SS030000 | SM630000 | SP020000 | ND010000 | LA020000 | LQ020000 | LA010000 | LQ010000 | LU170000 | LL120000 | LI110000 | SF150000 | SF070000 | LD620000 | LS610000 | SD250000 |
| -2 | SS010000 | SM760000 | SP040000 | ND020000 | LB020000 | LR020000 | LB010000 | LR010000 | LE110000 | LL110000 | LO110000 | SF160000 | SF060000 | LD220000 | LO160000 | SD430000 |
| -3 | SS020000 | SP330000 | SM010000 | ND030000 | LC020000 | LS020000 | LC010000 | LS010000 | LA150000 | LO150000 | LU110000 | SF110000 | SF080000 | LE180000 | LN120000 | SD210000 |
| -4 | SS030000 | SM250000 | SC030000 | ND040000 | LD020000 | LT020000 | LD010000 | LT010000 | LA170000 | LO170000 | LA440000 | SF090000 | SF100000 | LD210000 | LN110000 | SD230000 |
| -5 | SS040000 | SM240000 | SM020000 | ND050000 | LE020000 | LU020000 | LE010000 | LU010000 | LU270000 | LL220000 | LA430000 | LA120000 | SF050000 | LN220000 | LN210000 | SM240000 |
| -6 | SS050000 | SM700000 | SM030000 | ND060000 | LF020000 | LV020000 | LF010000 | LV010000 | LC110000 | LL210000 | LZ220000 | LA160000 | LA240000 | LI120000 | LS220000 | SA060000 |
| -7 | SM570000 | SM770000 | SP050000 | ND070000 | LG020000 | LW020000 | LG010000 | LW010000 | LC410000 | LS120000 | LZ210000 | LE220000 | LA230000 | LI160000 | LS210000 | SD410000 |
| -8 | SM570001 | SM320000 | SP060000 | ND080000 | LH020000 | LX020000 | LH010000 | LX010000 | LL610000 | LS110000 | LB440000 | LS420000 | SF380000 | LE210000 | LR120000 | SM190000 |
| -9 | SM750000 | SM330000 | SP070000 | ND090000 | LI020000 | LY020000 | LI010000 | LY010000 | LE170000 | LO180000 | LB430000 | SF230000 | SF390000 | SF040000 | LU120000 | SD170000 |
| -A | SM750002 | SM310000 | SM040000 | SP130000 | LJ020000 | LZ020000 | LJ010000 | LZ010000 | LO260000 | LU180000 | | SF240000 | SF400000 | SF010000 | LR110000 | SD290000 |
| -B | SM280000 | SM300000 | SA010000 | SP140000 | LK020000 | SM060000 | LK010000 | SM110000 | LO250000 | LT220000 | LZ110000 | SF250000 | SF410000 | SF610000 | LU260000 | LU250000 |
| -C | SM290000 | SA420000 | SP080000 | SA030000 | LL020000 | SM070000 | LL010000 | SM130000 | LI150000 | LT210000 | LC220000 | SF260000 | SF420000 | SF570000 | LY110000 | LR220000 |
| -D | SM930000 | SM780000 | SP100000 | SA040000 | LM020000 | SM080000 | LM010000 | SM140000 | LZ120000 | LL620000 | LS410000 | LZ300000 | SF430000 | LT420000 | LY120000 | LR210000 |
| -E | SM910000 | SM600000 | SP110000 | SA050000 | LN020000 | SD150000 | LN010000 | SD190000 | LA180000 | SA070000 | SP170000 | LZ290000 | SF440000 | LU280000 | LT410000 | SM470000 |
| -F | SM690000 | SV040000 | SP120000 | SP150000 | LO020000 | SP090000 | LO010000 | SM790000 | LC120000 | LC210000 | SP180000 | SF030000 | SC010000 | SF600000 | SD110000 | SP300000 |

Figure 85.EasternEurope(CP852)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 3 (PC)

## Code Page 00853

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | ► SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | ▒ SF140000 | └ SF020000 | | Ó LO120000 | (SHY) SP320000 |
| -1 | ☺ SS000000 | ◄ SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | ĉ LC290000 | í LI110000 | ▓ SF150000 | ┴ SF070000 | | ß LS610000 | |
| -2 | ☻ SS010000 | ↕ SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Ć LC300000 | ó LO110000 | ▓ SF160000 | ┼ SF060000 | Ê LE160000 | Ô LO160000 | ℓ SM160000 |
| -3 | ♥ SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | ▌ SF110000 | ├ SF080000 | Ë LE180000 | Ò LO140000 | 'n LN630000 |
| -4 | ♦ SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ã LA170000 | ö LO170000 | ñ LN190000 | ┤ SF090000 | ─ SF100000 | È LE140000 | Ġ LG300000 | ˘ SD230000 |
| -5 | ♣ SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | Á LA120000 | ┼ SF050000 | ı LI610000 | ġ LG290000 | § SM240000 |
| -6 | ♠ SS050000 | ▬ SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | ê LC150000 | û LU150000 | Ğ LG240000 | Â LA160000 | Ŝ LS160000 | Í LI120000 | µ SM170000 | ÷ SA060000 |
| -7 | • SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | ğ LG230000 | À LA140000 | ŝ LS150000 | Î LI160000 | Ħ LH620000 | ¸ SD410000 |
| -8 | ◘ SM571001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | İ LI300000 | Ĥ LH160000 | Ş LS420000 | ╚ SF380000 | Ï LI180000 | ħ LH610000 | ° SM190000 |
| -9 | ○ SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ĥ LH150000 | ╣ SF230000 | ╗ SF390000 | ┘ SF040000 | Ú LU120000 | ¨ SD170000 |
| -A | ◙ SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | | ╚ SF240000 | ╩ SF400000 | ┌ SF010000 | Û LU160000 | • SD290000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ĝ LG150000 | ½ NF010000 | ╗ SF250000 | ╦ SF410000 | ■ SF610000 | Ù LU140000 | |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | Ĵ LJ160000 | ╝ SF260000 | ╬ SF420000 | ▬ SF570000 | Ŭ LU240000 | 3 ND031000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | Ĝ LG160000 | ş LS410000 | Ż LZ300000 | ═ SF430000 | | ŭ LU230000 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | × SA070000 | « SP170000 | ż LZ290000 | ╠ SF440000 | Ì LI140000 | · SD630000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Ĉ LC160000 | ĵ LJ150000 | » SP180000 | ╖ SF030000 | ¤ SC010000 | ▬ SF600000 | ´ SD110000 | (RSP) SP300000 |

Figure 86.Turkish(CP853)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Cyrillic (PC)

## Code Page 00855

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | ђ KD610000 | Љ KL410000 | а KA010000 | SF140000 | SF020000 | л KL010000 | Я KA160000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | Ђ KD620000 | Љ KL420000 | А KA020000 | SF150000 | SF070000 | Л KL020000 | р KR010000 | ы KY010000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | ѓ KG110000 | њ KN110000 | б KB010000 | SF160000 | SF060000 | М KM010000 | Р KR020000 | Ы KY020000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | Ѓ KG120000 | Њ KN120000 | Б KB020000 | SF110000 | SF080000 | М KM020000 | с KS010000 | з KZ010000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ё KE170000 | ћ KC110000 | ц KC010000 | SF090000 | SF100000 | н KN010000 | С KS020000 | З KZ020000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | Ё KE180000 | Ћ KC120000 | Ц KC020000 | х KH010000 | SF050000 | Н KN020000 | т KT010000 | ш KS210000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | є KE150000 | ќ KK110000 | д KD010000 | Х KH020000 | к KK010000 | О KO010000 | Т KT020000 | Ш KS220000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | Є KE160000 | Ќ KK120000 | Д KD020000 | и KI010000 | К KK020000 | О KO020000 | у KU010000 | э KE130000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | s KZ150000 | ў KU230000 | е KE010000 | И KI020000 | SF380000 | П KP010000 | У KU020000 | Э KE140000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | S KZ160000 | Ў KU240000 | Е KE020000 | SF230000 | SF390000 | SF040000 | ж KZ210000 | щ KS150000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | і KI110000 | ц KG210000 | ф KF010000 | SF240000 | SF400000 | SF010000 | Ж KZ220000 | Щ KS160000 |
| -B | SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | І KI120000 | Ц KG220000 | Ф KF020000 | SF250000 | SF410000 | SF610000 | в KV010000 | ч KC210000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | ї KI170000 | ю KU150000 | г KG010000 | SF260000 | SF420000 | SF570000 | В KV020000 | Ч KC220000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Ї KI180000 | Ю KU160000 | Г KG020000 | й KJ110000 | SF430000 | П KP020000 | ь KX110000 | § SM240000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | j KJ010000 | ъ KU210000 | « SP170000 | Й KJ120000 | SF440000 | я KA150000 | Ь KX120000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | J KJ020000 | Ъ KU220000 | » SP180000 | SF030000 | ¤ SC010000 | SF600000 | № SM000000 | (RSP) SP300000 |

Figure 87.Cyrillic(CP855)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 5-Turkey + euro

## Code Page 00857

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | SF140000 | SF020000 | º SM200000 | Ó LO120000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | SF150000 | SF070000 | ª SM210000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | SF160000 | SF060000 | Ê LE160000 | Ô LO160000 | |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | Ë LE180000 | Ò LO140000 | ¾ NF050000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | SF090000 | SF100000 | È LE140000 | õ LO190000 | ¶ SM250000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | Á LA120000 | SF050000 | € SC200000 | Õ LO200000 | § SM240000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | Ğ LG240000 | Â LA160000 | ã LA190000 | Í LI120000 | µ SM170000 | ÷ SA060000 |
| -7 | SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | ğ LG230000 | À LA140000 | Ã LA200000 | Î LI160000 | | ¸ SD410000 |
| -8 | SM570001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | İ LI300000 | ¿ SP160000 | © SM520000 | SF380000 | Ï LI180000 | × SA070000 | ° SM190000 |
| -9 | SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ® SM530000 | SF230000 | SF390000 | SF040000 | Ú LU120000 | ¨ SD170000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Û LU160000 | • SD630000 |
| -B | SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ø LO610000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | Ù LU140000 | ¹ ND011000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ì LI130000 | ³ ND031000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ı LI610000 | Ø LO620000 | ¡ SP030000 | ¢ SC040000 | SF430000 | ¦ SM650000 | ÿ LY170000 | ² ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | Ş LS420000 | « SP170000 | ¥ SC050000 | SF440000 | Ì LI140000 | ¯ SM150000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ş LS410000 | » SP180000 | SF030000 | ¤ SC010000 | SF600000 | ´ SD110000 | (RSP) SP300000 |

Figure 88.Turkish(CP857)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## PC Multilingual + euro

## Code Page 00858

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | SF140000 | SF020000 | ð LD630000 | Ó LO120000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | SF150000 | SF070000 | Đ LD620000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | SF160000 | SF050000 | Ê LE160000 | Ô LO160000 | SM100000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | Ë LE180000 | Ò LO140000 | ¾ NF060000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | SF090000 | SF100000 | È LE140000 | õ LO190000 | ¶ SM250000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | Á LA120000 | SF060000 | € SC200000 | Õ LO200000 | § SM240000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | ª SM210000 | Â LA160000 | ã LA190000 | Í LI120000 | µ SM170000 | ÷ SA060000 |
| -7 | SM570000 | SM770000 | ' SP060000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | À LA140000 | Ã LA200000 | Î LI160000 | þ LT630000 | SD410000 |
| -8 | SM570001 | SM320000 | ( SP080000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ÿ LY170000 | ¿ SP160000 | © SM520000 | SF380000 | Ï LI180000 | Þ LT640000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ® SM530000 | SF230000 | SF390000 | SF040000 | Ú LU120000 | ¨ SD170000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Û LU160000 | • SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ø LO610000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | Ù LU140000 | 1 ND011000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ý LY110000 | 3 ND031000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | Ø LO620000 | ¡ SP030000 | ¢ SC040000 | SF430000 | SM650000 | Ý LY120000 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | × SA070000 | « SP170000 | ¥ SC050000 | SF440000 | Ì LI140000 | ¯ SM150000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ƒ SC070000 | » SP180000 | ¬ SF030000 | ¤ SC010000 | SF600000 | ´ SD110000 | (RSP) SP300000 |

Figure 89.EuroPCMultilingual(CP858).



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Portuguese

## Code Page 00860

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | ► SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | ▒ SF140000 | └ SF020000 | ╨ SF460000 | α GA010000 | ≡ SA480000 |
| -1 | ☺ SS000000 | ◄ SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | À LA140000 | í LI110000 | ▓ SF150000 | ┴ SF070000 | ╤ SF470000 | ß LS610000 | ± SA020000 |
| -2 | ☻ SS010000 | ↕ SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | È LE140000 | ó LO110000 | ▓ SF160000 | ┬ SF060000 | ╪ SF480000 | Γ GG020000 | ≥ SA530000 |
| -3 | ♥ SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | ┤ SF110000 | ├ SF080000 | ╘ SF490000 | π GP010000 | ≤ SA520000 |
| -4 | ♦ SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ã LA190000 | õ LO190000 | ñ LN190000 | ╡ SF090000 | ─ SF100000 | ╒ SF500000 | Σ GS020000 | ⌠ SS260000 |
| -5 | ♣ SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | ╢ SF190000 | ┼ SF050000 | ╓ SF510000 | σ GS010000 | ⌡ SS270000 |
| -6 | ♠ SS050000 | ▬ SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | Á LA120000 | Ú LU120000 | ª SM210000 | ╖ SF200000 | ╞ SF360000 | ╫ SF520000 | µ GM010000 | ÷ SA060000 |
| -7 | • SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | ╕ SF210000 | ╟ SF370000 | ╪ SF530000 | τ GT010000 | ≈ SA700000 |
| -8 | ◘ SM571001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | Ì LI140000 | ¿ SP160000 | ╣ SF220000 | ╚ SF380000 | ┘ SF540000 | Φ GF020000 | ° SM190000 |
| -9 | ○ SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | Ê LE160000 | Õ LO200000 | Ò LO140000 | ╗ SF230000 | ╔ SF390000 | ┌ SF040000 | Θ GT620000 | • SA790000 |
| -A | ◙ SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | ╝ SF240000 | ╩ SF400000 | └ SF010000 | Ω GO320000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | Í LI120000 | ¢ SC040000 | ½ NF010000 | ╜ SF250000 | ╦ SF410000 | ■ SF610000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | Ô LO160000 | £ SC020000 | ¼ NF040000 | ╛ SF260000 | ╠ SF420000 | ▬ SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | Ù LU140000 | ¡ SP030000 | ╘ SF270000 | ═ SF430000 | ▌ SF580000 | ϕ GF010001 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ã LA200000 | ₧ SC060000 | « SP170000 | ╒ SF280000 | ╬ SF440000 | ▐ SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Â LA160000 | Ó LO120000 | » SP180000 | ╓ SF030000 | ╧ SF450000 | ▬ SF600000 | ∩ SA380000 | (RSP) SP300000 |

Figure 90.Portugal(CP860)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Hebrew

## Code Page 00862

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | ► SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | א HX330000 | נ HN010000 | á LA110000 | ▒ SF140000 | └ SF020000 | ╙ SF460000 | α GA010000 | ≡ SA480000 |
| -1 | ☺ SS000000 | ◄ SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ב HB010000 | ס HS010000 | í LI110000 | ▓ SF150000 | ┴ SF070000 | ╨ SF470000 | ß LS610000 | ± SA020000 |
| -2 | ☻ SS010000 | ↕ SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | ג HG010000 | ע HX350000 | ó LO110000 | ▓ SF160000 | ┬ SF060000 | ╤ SF480000 | Γ GG020000 | ≥ SA530000 |
| -3 | ♥ SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | ד HD010000 | ף HP610000 | ú LU110000 | ┃ SF110000 | ├ SF080000 | ╚ SF490000 | π GP010000 | ≤ SA520000 |
| -4 | ♦ SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ה HH010000 | פ HP010000 | ñ LN190000 | ┤ SF090000 | ─ SF100000 | ╘ SF500000 | Σ GS020000 | ⌠ SS260000 |
| -5 | ♣ SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | ו HW010000 | ץ HS610000 | Ñ LN200000 | ╡ SF190000 | ┼ SF050000 | ╒ SF510000 | σ GS010000 | ⌡ SS270000 |
| -6 | ♠ SS050000 | ▬ SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | ז HZ010000 | צ HS450000 | ª SM210000 | ╢ SF200000 | ╞ SF360000 | ╓ SF520000 | µ GM010000 | ÷ SA060000 |
| -7 | • SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ח HH450000 | ק HQ010000 | º SM200000 | ╖ SF210000 | ╟ SF370000 | ╫ SF530000 | τ GT010000 | ≈ SA700000 |
| -8 | ◘ SM570001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ט HT450000 | ר HR010000 | ¿ SP160000 | ╕ SF220000 | ╚ SF380000 | ╪ SF540000 | Φ GF020000 | ° SM190000 |
| -9 | ○ SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | י HY010000 | ש HS210000 | ⌐ SM680000 | ╣ SF230000 | ╔ SF390000 | ┘ SF040000 | Θ GT620000 | • SA790000 |
| -A | ◙ SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | ך HK610000 | ת HT010000 | ¬ SM660000 | ║ SF240000 | ╩ SF400000 | ┌ SF010000 | Ω GO320000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | כ HK010000 | ¢ SC040000 | ½ NF010000 | ╗ SF250000 | ╦ SF410000 | ▌ SF610000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | ל HL010000 | £ SC020000 | ¼ NF040000 | ╝ SF260000 | ╠ SF420000 | ▬ SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ם HM610000 | ¥ SC050000 | ¡ SP030000 | ╜ SF270000 | ═ SF430000 | ▐ SF580000 | φ GF010001 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM680000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | מ HM010000 | ₧ SC060000 | « SP170000 | ╛ SF280000 | ╬ SF440000 | ▌ SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | ן HN610000 | ƒ SC070000 | » SP180000 | ┐ SF030000 | ╧ SF450000 | ▬ SF600000 | ∩ SA380000 | (RSP) SP300000 |

Figure 91.Hebrew(CP862)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Canadian French

## Code Page 00863

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | ¦ SM650000 | SF140000 | SF020000 | SF460000 | α GA010000 | ≡ SA480000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | È LE140000 | ′ SD110000 | SF150000 | SF070000 | SF470000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Ê LE160000 | ó LO110000 | SF160000 | SF060000 | SF480000 | Γ GG020000 | ≥ SA530000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | SF490000 | π GP010000 | ≤ SA520000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | Â LA160000 | Ë LE180000 | ¨ SD170000 | SF090000 | SF100000 | SF500000 | Σ GS020000 | ⌠ SS260000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | Ï LI180000 | ¸ SD410000 | SF190000 | SF050000 | SF510000 | σ GS010000 | ⌡ SS270000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | ¶ SM250000 | û LU150000 | ³ ND031000 | SF200000 | SF360000 | SF520000 | µ GM010000 | ÷ SA060000 |
| -7 | SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | ¯ SM150000 | SF210000 | SF370000 | SF530000 | τ GT010000 | ≈ SA700000 |
| -8 | SM570001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ¤ SC010000 | Î LI160000 | SF220000 | SF380000 | SF540000 | Φ GF020000 | ° SM190000 |
| -9 | SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ô LO160000 | ⌐ SM680000 | SF230000 | SF390000 | SF040000 | Θ GT620000 | • SA790000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Ω GO320000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ¢ SC040000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ‗ SM100000 | Ù LU140000 | ¾ NF050000 | SF270000 | SF430000 | SF580000 | ϕ GF010001 | ² ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | À LA140000 | Û LU160000 | « SP170000 | SF280000 | SF440000 | SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | § SM240000 | ƒ SC070000 | » SP180000 | SF030000 | SF450000 | SF600000 | ∩ SA380000 | (RSP) SP300000 |

Figure 92.Canada/France(CP863)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Arabic

## Code Page 00864

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | ► SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | ° SM190000 | β GB010000 | (RSP) SP300000 | ٠ ND100001 | ¢ SC040000 | ذ AD470000 | ـ SM860000 | ّ AX100004 |
| -1 | ☺ SS000000 | ◄ SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | · SD630000 | ∞ SA450000 | (SHY) SP320000 | ١ ND010001 | ٥ AX300000 | ر AR010000 | ف AF010003 | ّ AX100001 |
| -2 | ♪ SM930000 | ↕ SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | • SA790000 | ϕ GF010001 | آ AA210002 | ٢ ND020001 | آ AA210000 | ز AZ010000 | ق AQ010003 | ن AN010000 |
| -3 | ♫ SM910000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | √ SA800000 | ± SA020000 | £ SC020000 | ٣ ND030001 | أ AA310000 | س AS010003 | ك AK010003 | ه AH010000 |
| -4 | ☼ SM690000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ▒ SF150000 | ½ NF010000 | ¤ SC010000 | ٤ ND040001 | ؤ AW310000 | ش AS230003 | ل AL010003 | ٔ AH010004 |
| -5 | ═ SF430000 | § SM240000 | ٪ SM020007 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | ┼ SF100000 | ¼ NF040000 | ا AA310002 | ٥ ND050001 | ع AC470002 | ص AS450003 | ـ AM010003 | ى AA020002 |
| -6 | ╟ SF240000 | ▬ SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | ╞ SF110000 | ≈ SA700000 | | ٦ ND060001 | ك AY310000 | ض AD450003 | ـ AN010003 | ي AY010002 |
| -7 | ╬ SF440000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ╪ SF050000 | « SP170000 | | ٧ ND070001 | ا AA010000 | ط AT450000 | ه AH010003 | غ AG310004 |
| -8 | ╣ SF230000 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ╡ SF090000 | » SP180000 | ا AA010002 | ٨ ND080001 | ب AB010003 | ظ AZ450000 | و AW010000 | ق AQ010000 |
| -9 | ╗ SF410000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ╢ SF060000 | لأ AL320000 | ب AB010000 | ٩ ND090001 | ة AT020000 | ع AC470003 | ى AA020000 | لآ AL220000 |
| -A | ╝ SF420000 | → SM310000 | * SM040007 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | ╖ SF080000 | لأ AL320003 | ت AT010000 | ف AF010000 | ة AT010003 | غ AG310003 | ي AY010003 | لآ AL220003 |
| -B | ╜ SF400000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ╕ SF070000 | | ث AT470000 | ؛ SP140007 | ث AT470003 | ؛ SM650000 | ض AD450000 | ل AL010000 |
| -C | ╛ SF250000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | ╒ SF030000 | | ، SP080007 | س AS010000 | ج AG230003 | ¬ SM660000 | ـ AC470004 | ك AK010000 |
| -D | ╒ SF390000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ╘ SF010000 | لا AL020000 | ج AG230000 | ش AS230000 | ح AH450003 | ÷ SA060000 | غ AG310002 | ي AY010000 |
| -E | ╙ SF380000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | ╘ SF020000 | لا AL020003 | ح AH450000 | ص AS450000 | خ AH470003 | × SA070000 | غ AG310000 | ■ SM470000 |
| -F | ╜ SF260000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | ╙ SF040000 | ، SM870000 | ح AH470000 | ؟ SP150007 | د AD010000 | ع AC470000 | م AM010000 | |

Figure 93.Arabic(CP864)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Arabic

## Code Page 00864E

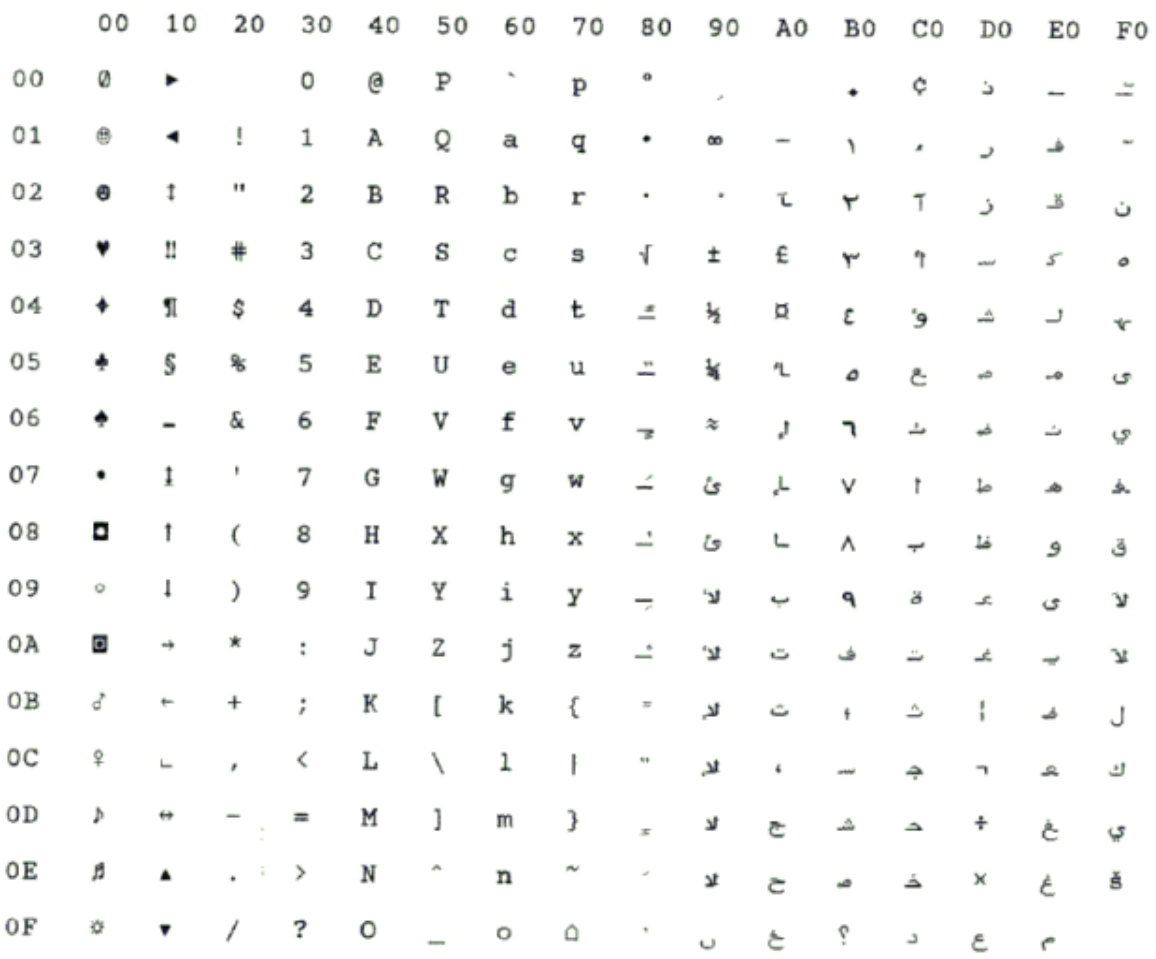


Figure 94.CP864E(Arabic)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Danish/Norwegian

## Code Page 00865

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | SF140000 | SF020000 | SF460000 | α GA010000 | ≡ SA480000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | SF150000 | SF070000 | SF470000 | ß LS610000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | SF160000 | SF060000 | SF480000 | Γ GG020000 | ≥ SA530000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | SF110000 | SF080000 | SF490000 | π GP010000 | ≤ SA520000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | SF090000 | SF100000 | SF500000 | Σ GS020000 | ⌠ SS260000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | SF190000 | SF050000 | SF510000 | σ GS010000 | ⌡ SS270000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | ª SM210000 | SF200000 | SF360000 | SF520000 | µ GM010000 | ÷ SA060000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | SF210000 | SF370000 | SF530000 | τ GT010000 | ≈ SA700000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ÿ LY170000 | ¿ SP160000 | SF220000 | SF380000 | SF540000 | Φ GF020000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ⌐ SM680000 | SF230000 | SF390000 | SF040000 | Θ GT620000 | • SA790000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM660000 | SF240000 | SF400000 | SF010000 | Ω GO320000 | · SD630000 |
| -B | ♂ SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ø LO610000 | ½ NF010000 | SF250000 | SF410000 | SF610000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | SF260000 | SF420000 | SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | Ø LO620000 | ¡ SP030000 | SF270000 | SF430000 | SF580000 | ϕ GF010001 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | Pts SC060000 | « SP170000 | SF280000 | SF440000 | SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ƒ SC070000 | ¤ SC010000 | SF030000 | SF450000 | SF600000 | ∩ SA380000 | (RSP) SP300000 |

Figure 95.Denmark/Norway(CP865)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## PC Data, Cyrillic, Russian

## Code Page 00866

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM590000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | А KA020000 | Р KR020000 | а KA010000 | SF140000 | SF020000 | SF460000 | р KR010000 | Ё KE180000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | Б KB020000 | С KS020000 | б KB010000 | SF150000 | SF070000 | SF470000 | с KS010000 | ё KE170000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | В KV020000 | Т KT020000 | в KV010000 | SF160000 | SF060000 | SF480000 | т KT010000 | Є KE160000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | Г KG020000 | У KU020000 | г KG010000 | SF110000 | SF080000 | SF490000 | у KU010000 | є KE150000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | Д KD020000 | Ф KF020000 | д KD010000 | SF090000 | SF100000 | SF500000 | ф KF010000 | Ї KI180000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | Е KE020000 | Х KH020000 | е KE010000 | SF190000 | SF050000 | SF510000 | х KH010000 | ї KI170000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | Ж KZ220000 | Ц KC020000 | ж KZ210000 | SF200000 | SF360000 | SF520000 | ц KC010000 | Ў KU240000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | З KZ020000 | Ч KC220000 | з KZ010000 | SF210000 | SF370000 | SF530000 | ч KC210000 | ў KU230000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | И KI020000 | Ш KS220000 | и KI010000 | SF220000 | SF380000 | SF540000 | ш KS210000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | Й KJ120000 | Щ KS160000 | й KJ110000 | SF230000 | SF390000 | SF040000 | щ KS150000 | • SA790000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | К KK020000 | Ъ KU220000 | к KK010000 | SF240000 | SF400000 | SF010000 | ъ KU210000 | · SD630000 |
| -B | SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | Л KL020000 | Ы KY020000 | л KL010000 | SF250000 | SF410000 | SF610000 | ы KY010000 | √ SA800000 |
| -C | SM290000 | SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | М KM020000 | Ь KX120000 | м KM010000 | SF260000 | SF420000 | SF570000 | ь KX110000 | № SM000000 |
| -D | SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Н KN020000 | Э KE140000 | н KN010000 | SF270000 | SF430000 | SF580000 | э KE130000 | ¤ SC010000 |
| -E | SM910000 | ▲ SM600000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | О KO020000 | Ю KU160000 | о KO010000 | SF280000 | SF440000 | SF590000 | ю KU150000 | ■ SM470000 |
| -F | SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | П KP020000 | Я KA160000 | п KP010000 | SF030000 | SF450000 | SF600000 | я KA150000 | (RSP) SP300000 |

Figure 96. Russian(CP866)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Turkish 2

## Code Page 00867

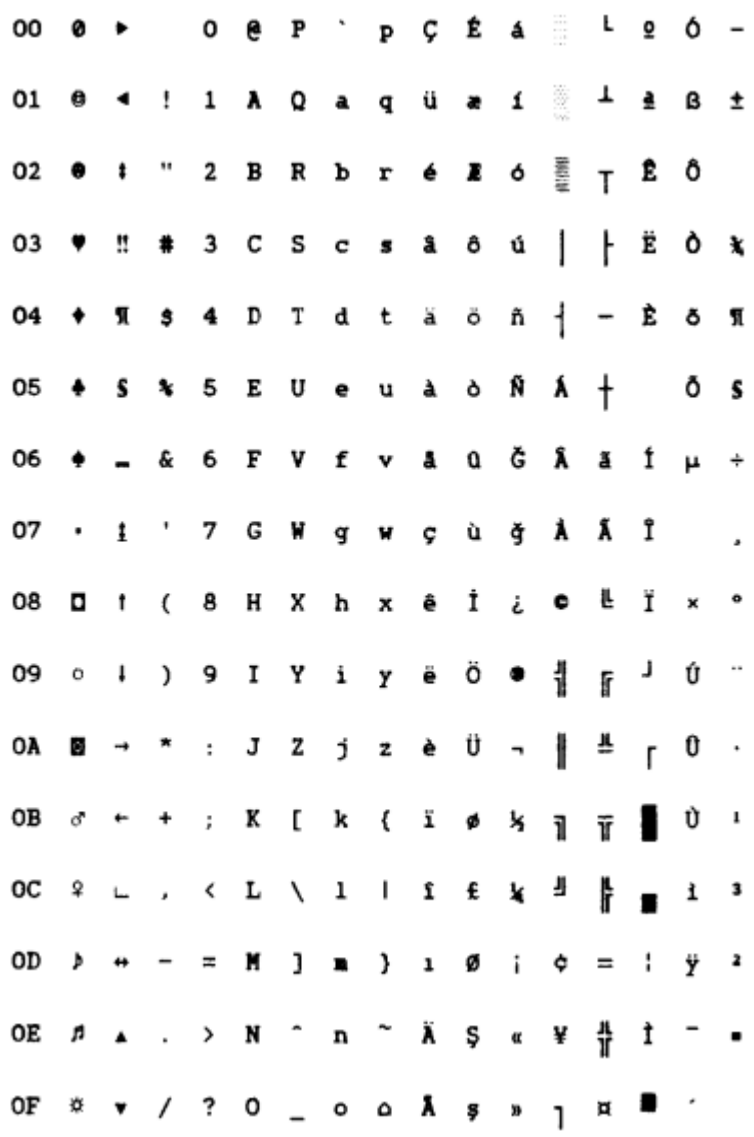


Figure 97.Turkish2(CP867)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## OCR-A

## Code Page 00876

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ┌ SO020000 | p LP010000 | | | | | | | | |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | | | | | | |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | Æ LA520000 | | | | | | |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | | | | | | |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | | | | | | |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | Ñ LN200000 | | | | | |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | | | | | | |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | Ø LO620000 | | | | | |
| -8 | | — SO150000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | | | | | | |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | Ö LO180000 | | | | | | |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | Ü LU180000 | | | | | | |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | | | | | | |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SO130000 | | £ SC020000 | | | | | | |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | ¥ SC050000 | | | | | | |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SM090000 | n LN010000 | ♪ SO000000 | Ä LA180000 | | | | | | | |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | ┘ SO010000 | o LO010000 | ■ SO140000 | Å LA280000 | | | | | | | |

Figure 98.OCR-A(CP876)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## OCR-B

## Code Page 00877

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | | | | | | |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | | | | | ß LS610000 | |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | Æ LA520000 | | | | | | |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | | | | | | |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | | | | | | |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | Ñ LN200000 | | | | | § SM240000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | | ø LO610000 | | | | | |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | Ø LO620000 | | | | | ˚ SD410000 |
| -8 | | — SO150000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | | | | | | |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | Ö LO180000 | ¯ SP090000 | ij LI510000 | | | | ¨ SD170000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | Ü LU180000 | | IJ LI520000 | | | | |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | ^ SD150000 | | | | | | |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SO130000 | | £ SC020000 | | | | | | |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | ¥ SC050000 | | | | | | |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ∧ SM090000 | n LN010000 | ~ SD190000 | Ä LA180000 | | | | | | | |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SD470000 | o LO010000 | ■ SO140000 | Å LA280000 | | | | ¤ SC010000 | | ' SD110000 | |

Figure 99.OCR-B(CP877)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 2 (ISO 8859-2)

## Code Page 00912

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | Ŕ LR120000 | Đ LD620000 | ŕ LR110000 | đ LD610000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | Ą LA440000 | ą LA430000 | Á LA120000 | Ń LN120000 | á LA110000 | ń LN110000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ˘ SD230000 | ˛ SD430000 | Â LA160000 | Ň LN220000 | â LA150000 | ň LN210000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | Ł LL620000 | ł LL610000 | Ă LA240000 | Ó LO120000 | ă LA230000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA180000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | Ľ LL220000 | Ĺ LL210000 | Ć LC120000 | Ő LO260000 | Í LI110000 | ő LO250000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | Ś LS120000 | ś LS110000 | Ć LC120000 | Ö LO180000 | ć LC110000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | ˇ SD210000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | Č LC220000 | Ř LR220000 | č LC210000 | ř LR210000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | Š LS220000 | š LS210000 | É LE120000 | Ů LU280000 | é LE110000 | ů LU270000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | Ş LS420000 | ş LS410000 | Ę LE440000 | Ú LU120000 | ę LE430000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | Ť LT220000 | ť LT210000 | Ë LE180000 | Ű LU260000 | ë LE170000 | ű LU250000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | Ź LZ120000 | ź LZ110000 | Ě LE220000 | Ü LU180000 | ě LE210000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ˝ SD250000 | Í LI120000 | Ý LY120000 | í LI110000 | ý LY110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | Ž LZ220000 | ž LZ210000 | Î LI160000 | Ţ LT420000 | î LI150000 | ţ LT410000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | Ż LZ300000 | ż LZ290000 | Ď LD220000 | ß LS610000 | ď LD210000 | ˙ SD290000 |

Figure 100.ISO8859/2(Latin2)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 3 (ISO 8859-3)

## Code Page 00913

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | À LA140000 | | à LA130000 | |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | Ħ LH620000 | ħ LH610000 | Á LA120000 | Ñ LN200000 | á LA110000 | ñ LN190000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ˘ SD230000 | ² ND021000 | Â LA160000 | Ò LO140000 | â LA150000 | ò LO130000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | | Ó LO120000 | | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA180000 | Ô LO160000 | ã LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | | µ SM170000 | Ċ LC300000 | Ġ LG300000 | ċ LC290000 | ġ LG290000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | Ĥ LH160000 | ĥ LH150000 | Ĉ LC160000 | Ö LO180000 | ĉ LC150000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | È LE140000 | Ĝ LG160000 | è LE130000 | ĝ LG150000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | İ LI300000 | ı LI610000 | É LE120000 | Ù LU140000 | é LE110000 | ù LU130000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | Ş LS420000 | ş LS410000 | Ê LE160000 | Ú LU120000 | ê LE150000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | Ğ LG240000 | ğ LG230000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | Ĵ LJ160000 | ĵ LJ150000 | Ì LI140000 | Ü LU180000 | ì LI130000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | Í LI120000 | Ŭ LU240000 | í LI110000 | ŭ LU230000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | | | Î LI160000 | Ŝ LS160000 | î LI150000 | ŝ LS150000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | Ż LZ300000 | ż LZ290000 | Ï LI180000 | ß LS610000 | ï LI170000 | ˙ SD290000 |

Figure 101.ISO8859/3(Latin3)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 4 (ISO 8859-4)

## Code Page 00914

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | Ā LA320000 | Đ LD620000 | ā LA310000 | đ LD610000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | Ą LA440000 | ą LA430000 | Á LA120000 | Ŋ LN420000 | á LA110000 | ŋ LN410000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ĸ LK810000 | ˛ SD430000 | Â LA180000 | Ō LO320000 | â LA150000 | ō LO310000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | Ŗ LR420000 | ŗ LR410000 | Ã LA200000 | Ķ LK420000 | ã LA190000 | ķ LK410000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA160000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | Ĩ LI200000 | ĩ LI190000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | Ļ LL420000 | ļ LL410000 | Æ LA520000 | Ö LO180000 | æ LA510000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | ˇ SD210000 | Į LI440000 | × SA070000 | į LI430000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | Č LC220000 | Ø LO620000 | č LC210000 | ø LO610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | Š LS220000 | š LS210000 | É LE120000 | Ų LU440000 | é LE110000 | ų LU430000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | Ē LE320000 | ē LE310000 | Ę LE440000 | Ú LU120000 | ę LE430000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | Ģ LG420000 | ģ LG410000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | Ŧ LT620000 | ŧ LT610000 | Ė LE300000 | Ü LU180000 | ė LE290000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM090000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | Ņ LN620000 | Í LI120000 | Ũ LU200000 | í LI110000 | ũ LU190000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | Ž LZ220000 | ž LZ210000 | Î LI160000 | Ū LU320000 | î LI150000 | ū LU310000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP080000 | o LO010000 | | | | ¯ SD310000 | ŋ LN610000 | Ī LI320000 | ß LS610000 | ī LI310000 | ˙ SD290000 |

Figure 102.ISO8859/4(Latin4)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Cyrillic (ISO 8859-5)

## Code Page 00915

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | А KA020000 | Р KR020000 | а KA010000 | р KR010000 | № SM000000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | Ё KE180000 | Б KB020000 | С KS020000 | б KB010000 | с KS010000 | ё KE170000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | Ђ KD620000 | В KV020000 | Т KT020000 | в KV010000 | т KT010000 | ђ KD610000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | Ѓ KG120000 | Г KG020000 | У KU020000 | г KG010000 | у KU010000 | ѓ KG110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | Є KE160000 | Д KD020000 | Ф KF020000 | д KD010000 | ф KF010000 | є KE150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | S KZ160000 | Е KE020000 | Х KH020000 | е KE010000 | х KH010000 | s KZ150000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | І KI120000 | Ж KZ220000 | Ц KC020000 | ж KZ210000 | ц KC010000 | і KI110000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | Ї KI180000 | З KZ020000 | Ч KC220000 | з KZ010000 | ч KC210000 | ї KI170000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | Ј KJ020000 | И KI020000 | Ш KS220000 | и KI010000 | ш KS210000 | ј KJ010000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | Љ KL420000 | Й KJ120000 | Щ KS160000 | й KJ110000 | щ KS150000 | љ KL410000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | Њ KN120000 | К KK020000 | Ъ KU220000 | к KK010000 | ъ KU210000 | њ KN110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | Ћ KC120000 | Л KL020000 | Ы KY020000 | л KL010000 | ы KY010000 | ћ KC110000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | Ќ KK120000 | М KM020000 | Ь KX120000 | м KM010000 | ь KX110000 | ќ KK110000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | Н KN020000 | Э KE140000 | н KN010000 | э KE130000 | § SM240000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | Ў KU240000 | О KO020000 | Ю KU160000 | о KO010000 | ю KU150000 | ў KU230000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | Џ KG220000 | П KP020000 | Я KA160000 | п KP010000 | я KA150000 | џ KG210000 |

Figure 103.ISO8859/5(Latin/Cyrillic)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 8 (ISO 8859-8)

## Code Page 00916

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | | | א HX330000 | ן HN010000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | | ± SA020000 | | | ב HB010000 | ס HS010000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | | | ג HG010000 | ע HX350000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | | | ד HD010000 | ף HP610000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | | | ה HH010000 | פ HP010000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ¥ SC050000 | µ SM170000 | | | ו HW010000 | ץ HS610000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | ¶ SM250000 | | | ז HZ010000 | צ HS450000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | • SM570000 | | | ח HH450000 | ק HQ010000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | | | ט HT450000 | ר HR010000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | | | י HY010000 | ש HS210000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | × SA070000 | ÷ SA060000 | | | ך HK610000 | ת HT010000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | | | כ HK010000 | |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | ¼ NF040000 | | | ל HL010000 | |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | ¯ (SHY) SP320000 | ½ NF010000 | | | ם HM610000 | |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | ¾ NF050000 | | | מ HM010000 | |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | ‾ SM150000 | | | ═ SM100000 | ן HN610000 | |

Figure 104.ISO8859/8



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 5 (ISO 8859-9)

## Code Page 00920

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | À LA140000 | Ğ LG240000 | à LA130000 | ğ LG230000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ¡ SP030000 | ± SA020000 | Á LA120000 | Ñ LN200000 | á LA110000 | ñ LN190000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | Â LA160000 | Ò LO140000 | â LA150000 | ò LO130000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Ã LA200000 | Ó LO120000 | ã LA190000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA180000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ¥ SC050000 | µ SM170000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | ¶ SM250000 | Æ LA520000 | Ö LO180000 | æ LA510000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | È LE140000 | Ø LO620000 | è LE130000 | ø LO610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | É LE120000 | Ù LU140000 | é LE110000 | ù LU130000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | ª SM210000 | º SM200000 | Ê LE160000 | Ú LU120000 | ê LE150000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | ¼ NF040000 | Ì LI140000 | Ü LU180000 | ì LI130000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | Í LI120000 | İ LI300000 | í LI110000 | ı LI610000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | ¾ NF050000 | Î LI160000 | Ş LS420000 | î LI150000 | ş LS410000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | ¯ SM150000 | ¿ SP160000 | Ï LI180000 | ß LS610000 | ï LI170000 | ÿ LY170000 |

Figure 105.ISO8859/9(Latin5)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Baltic Multilingual

## Code Page 00921

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | Ą LA440000 | Š LS220000 | ą LA430000 | š LS210000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ” SP220000 | ± SA020000 | Į LI440000 | Ń LN120000 | į LI430000 | ń LN110000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | Ā LA320000 | Ņ LN420000 | ā LA310000 | ņ LN410000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Ć LC120000 | Ó LO120000 | ć LC110000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | “ SP210000 | Ä LA180000 | Ő LO320000 | ä LA170000 | ő LO310000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | „ SP230000 | µ SM170000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | ¶ SM250000 | Ę LE440000 | Ö LO180000 | ę LE430000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ē LE320000 | × SA070000 | ē LE310000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | Ø LO620000 | ø LO610000 | Č LC220000 | Ų LU440000 | č LC210000 | ų LU430000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | É LE120000 | Ł LL820000 | é LE110000 | ł LL810000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | Ŗ LR420000 | ŗ LR410000 | Ź LZ120000 | Ś LS120000 | ź LZ110000 | ś LS110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Ė LE300000 | Ū LU320000 | ė LE290000 | ū LU310000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM680000 | ¼ NF040000 | Ģ LG420000 | Ü LU180000 | ģ LG410000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ½ NF010000 | Ķ LK420000 | Ż LZ300000 | ķ LK410000 | ż LZ290000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | ¾ NF050000 | Ī LI320000 | Ž LZ220000 | ī LI310000 | ž LZ210000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | Æ LA520000 | æ LA510000 | Ļ LL420000 | ß LS610000 | ļ LL410000 | ’ SP200000 |

Figure 106.BalticWindows(CP921)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Estonian

## Code Page 00922

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM180000 | À LA140000 | Š LS220000 | à LA130000 | š LS210000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ¡ SP030000 | ± SA020000 | Á LA120000 | Ñ LN200000 | á LA110000 | ñ LN190000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | Â LA180000 | Ò LO140000 | â LA150000 | ò LO130000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Ã LA200000 | Ó LO120000 | ã LA190000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | ´ SD110000 | Ä LA160000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ¥ SC050000 | µ SM170000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ¦ SM650000 | ¶ SM250000 | Æ LA520000 | Ö LO180000 | æ LA510000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | È LE140000 | Ø LO620000 | è LE130000 | ø LO610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | É LE120000 | Ù LU140000 | é LE110000 | ù LU130000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | ª SM210000 | º SM200000 | Ê LE160000 | Ú LU120000 | ê LE150000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | ¼ NF040000 | Ì LI140000 | Ü LU180000 | ì LI130000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | ¯ (SHY) SP320000 | ½ NF010000 | Í LI120000 | Ý LY120000 | í LI110000 | ý LY110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | ¾ NF050000 | Î LI160000 | Ž LZ220000 | î LI150000 | ž LZ210000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP080000 | o LO010000 | | | | ¯ SM150000 | ¿ SP160000 | Ï LI180000 | ß LS610000 | ï LI170000 | ÿ LY170000 |

Figure 107.Estonian (CP922)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 9 (ISO 8859-15) + euro

## Code Page 00923

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ° SM190000 | À LA140000 | Ð LD640000 | à LA130000 | ð LD630000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ¡ SP030000 | ± SA020000 | Á LA120000 | Ñ LN200000 | á LA110000 | ñ LN190000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ¢ SC040000 | ² ND021000 | Â LA160000 | Ò LO140000 | â LA150000 | ò LO130000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | £ SC020000 | ³ ND031000 | Ã LA200000 | Ó LO120000 | ã LA190000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | € SC200000 | Ž LZ220000 | Ä LA180000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ¥ SC050000 | µ SM170000 | Å LA280000 | Õ LO200000 | å LA270000 | õ LO190000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | Š LS220000 | ¶ SM250000 | Æ LA520000 | Ö LO180000 | æ LA510000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | š LS210000 | ž LZ210000 | È LE140000 | Ø LO620000 | è LE130000 | ø LO610000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | © SM520000 | ¹ ND011000 | É LE120000 | Ù LU140000 | é LE110000 | ù LU130000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | ª SM210000 | º SM200000 | Ê LE160000 | Ú LU120000 | ê LE150000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | « SP170000 | » SP180000 | Ë LE180000 | Û LU160000 | ë LE170000 | û LU150000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ¬ SM660000 | Œ LO520000 | Ì LI140000 | Ü LU180000 | ì LI130000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | œ LO510000 | Í LI120000 | Ý LY120000 | í LI110000 | ý LY110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ® SM530000 | Ÿ LY180000 | Î LI160000 | Þ LT640000 | î LI150000 | þ LT630000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | ¯ SD310000 | ¿ SP160000 | Ï LI180000 | ß LS610000 | ï LI170000 | ÿ LY170000 |

Figure 108.ISO8859/15(Latin9) .151



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Urdu

## Code Page 01006

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | ا AA010000 | چ AC210000 | ش AS230003 | ف AF010003 | و AW010000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | ٠ ND100001 | ب AA010002 | چ AC210003 | ص AS450006 | ق AQ010000 | ه AH020000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | ١ ND010001 | ت AA010006 | ح AH450000 | ض AS450003 | ق AQ010003 | ہ AH020003 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | ٢ ND020001 | ٹ AB010000 | ح AH450003 | ض AD450006 | ک AK010006 | ہ AH020004 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ٣ ND030001 | ٹ AB010003 | خ AH470000 | ض AD450003 | ک AK010003 | ھ AH030000 |
| -5 | | | % SM020007 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | ۴ ND040004 | پ AP010000 | خ AH470003 | ط AT450000 | گ AG010000 | ء AX300000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | ۵ ND050004 | چ AP010003 | د AD010000 | ظ AZ450000 | گ AG010003 | ئ AY320000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | ٦ ND060001 | ة AT020000 | ذ AD030000 | ع AC470000 | ل AL010000 | ئ AY320002 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ۷ ND070004 | ت AT010000 | ذ AD470000 | ع AC470002 | ل AL010006 | ئ AY320003 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | ٨ ND080001 | ت AT010003 | ر AR010000 | ء AC470003 | ل AL010004 | ی AY020000 |
| -A | | | * SM040007 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | ٩ ND090001 | ث AT030000 | ز AR030000 | ء AC470004 | م AM010000 | ی AY020002 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | | | ، SP080007 | ث AT030003 | ز AZ010000 | غ AG310000 | م AM010002 | ے AY020003 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ؛ SP140007 | ٹ AT470000 | ژ AZ210000 | غ AG310002 | ں AN020000 | ۓ AY340000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | ٹ AT470003 | س AS010006 | غ AG310003 | ن AN010000 | ۓ AY040000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | ؟ SP150007 | ج AG230000 | س AS010003 | غ AG310004 | ن AN010003 | ؏ AX100000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | آ AA210000 | ج AG230003 | ش AS230006 | ف AF010000 | ؤ AW310000 | ؏ AX100004 |

Figure 109.Urdu (CP01006)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Arabic Extended

## Code Page 01046

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | ـٰ AA310402 | ـّ AU050004 | (RSP) SP300000 | ٠ ND100001 | ء AC470003 | ذ AD470000 | ـ SM860000 | ـَ AI050000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | × SA070000 | ـَ AI050004 | ٱ AA210006 | ١ ND010001 | ء AX300000 | ر AR010000 | ف AF010000 | ّ AX100000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | ÷ SA060000 | ـّ AX100004 | ٱ AA310006 | ٢ ND020001 | آ AA210000 | ز AZ010000 | ق AQ010000 | ٔ AE050000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | ـر AS010000 | ـٔ AE050004 | ٱ AA310406 | ٣ ND030001 | أ AA310000 | س AS010006 | ك AK010000 | ق AQ010003 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ـش AS230000 | ـَ AA050004 | ﷼ SC010000 | ٤ ND040001 | ؤ AW310000 | ش AS230006 | ل AL010000 | ك AK010003 |
| -5 | | | ٪ SM020007 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | ـص AS450000 | ـئ AY310002 | ١ AA010006 | ٥ ND050001 | ! AA310400 | ص AS450006 | م AM010000 | ـل AL010003 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | ـض AD450000 | ـى AA020002 | ـك AY310000 | ٦ ND060001 | ـئ AY310006 | ض AD450006 | ن AN010000 | ـً SM870000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ـٷ AA070004 | ـيـ AY010003 | ـبـ AB010003 | ٧ ND070001 | ا AA010000 | ط AT450000 | ه AH010003 | لآ AL220000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | ـي AY010002 | ـتـ AT010003 | ٨ ND080001 | ب AB010000 | ظ AZ450000 | و AW010000 | لأ AL320000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ■ SM470000 | ـغ AG310002 | ـثـ AT470003 | ٩ ND090001 | ة AT020000 | ع AC470000 | ى AA020000 | لإ AL320400 |
| -A | | | * SM040007 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | ▯ SF110000 | ـغـ AG310003 | ـجـ AG230003 | ـشـ AS230003 | ت AT010000 | غ AG310000 | ي AY010000 | لا AL020000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ▭ SF100000 | ـغـ AG310004 | ـحـ AH450003 | ؛ SP140007 | ث AT470000 | ع AC470004 | ٔ AA070000 | ـّ AM010003 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | ▭ SF030000 | ـآ AL220003 | ، SP080007 | ـصـ AS450003 | ج AG230000 | آ AA210002 | ٔ AU070000 | ـذ AN010003 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ▭ SF010000 | ـأ AL320003 | (SHY) SP320000 | ـضـ AD450003 | ح AH450000 | أ AA310002 | ٔ AI070000 | ـٓ AH010004 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | ▭ SF020000 | ـلا AL320402 | ـخـ AH470003 | ـعـ AC470002 | ـحـ AH470000 | ـا AA010002 | ـً AA050000 | ه AH010000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | ▭ SF040000 | ـلا AL020003 | ـسـ AS010003 | ؟ SP150007 | د AD010000 | ف AF010003 | ـٔ AU050000 | |

Figure 110.Arabic Extended (CP1046)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latin 6 (ISO 8859-6)

## Code Page 01089

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | | | (RSP) SP300000 | | | ذ AD470009 | ـ SM860000 | ً AI050009 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | | | | ء AX300009 | ر AR010009 | ف AF010009 | ّ AX100009 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | | | | | آ AA210009 | ز AZ010009 | ق AQ010009 | ٌ AE050009 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | | | | أ AA310009 | س AS010009 | ك AK010009 | |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | | | ¤ SC010000 | | ؤ AW310009 | ش AS230009 | ل AL010009 | |
| -5 | | | ٪ SM020007 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | | | | | إ AA310409 | ص AS450009 | م AM010009 | |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | | | | | ي AY310009 | ض AD450009 | ن AN010009 | |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | | | | | ا AA010009 | ط AT450009 | ه AH010009 | |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | | | ب AB010009 | ظ AZ450009 | و AW010009 | |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | | | | | ة AT020009 | ع AC470009 | ى AA020009 | |
| -A | | | * SM040007 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | | | | | ت AT010009 | غ AG310009 | ي AY010009 | |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM080000 | k LK010000 | { SM110000 | | | | ؛ SP140007 | ث AT470009 | | ٍ AA070009 | |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | | | ، SP080007 | | ج AG230009 | | ٌ AU070009 | |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM090000 | m LM010000 | } SM140000 | | | (SHY) SP320000 | | ح AH450009 | | ٍ AI070009 | |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | | | | | خ AH470009 | | ً AA050009 | |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | | | | ؟ SP150007 | د AD010009 | | ْ AU050009 | |

Figure 111.ISO8859/6(Latin/Arabic)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Farsi (Personal Computer)

## Code Page 01098

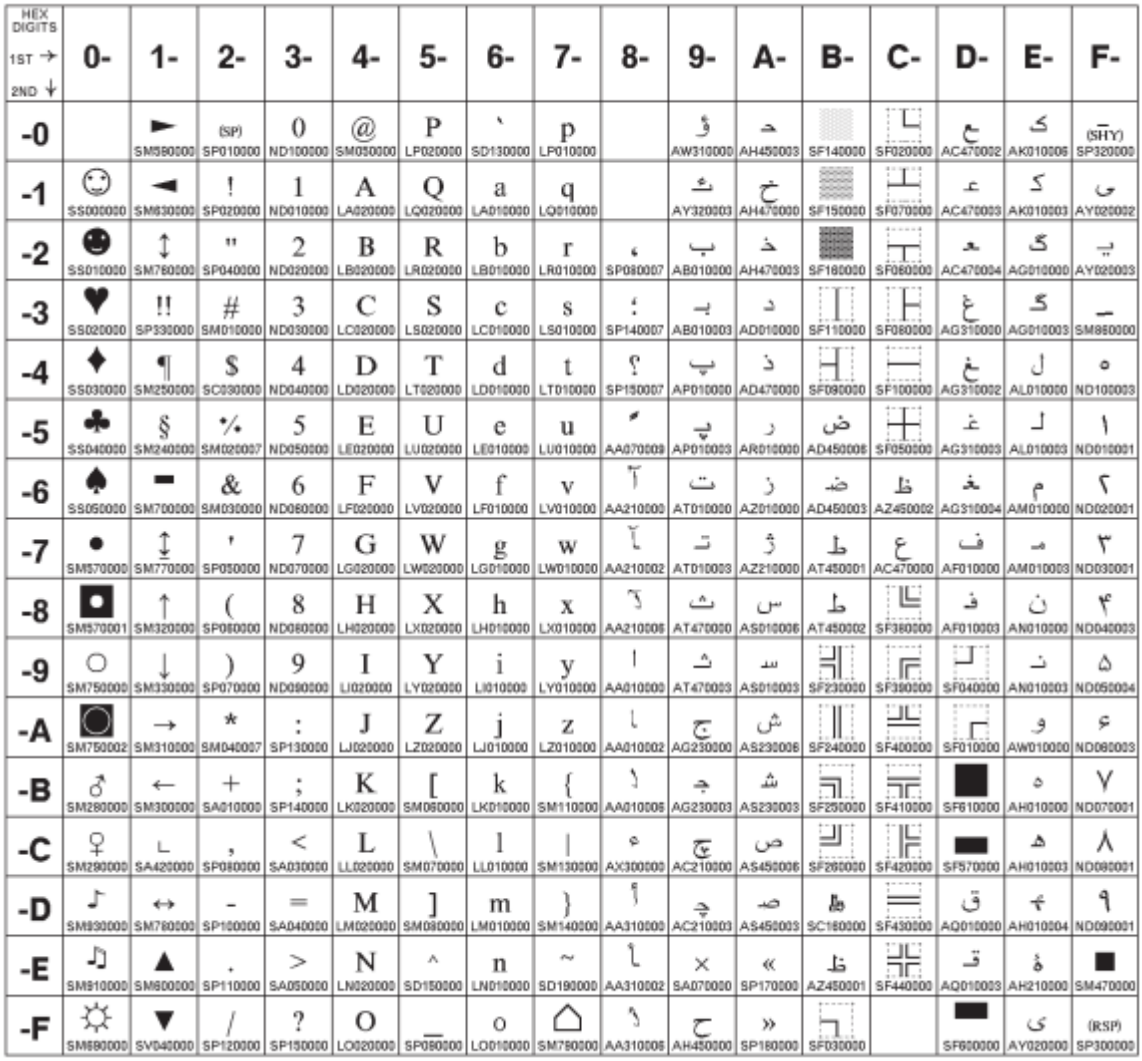


Figure 112.Farsi(CP1098)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Estonian (Personal Computer)

## Code Page 01116

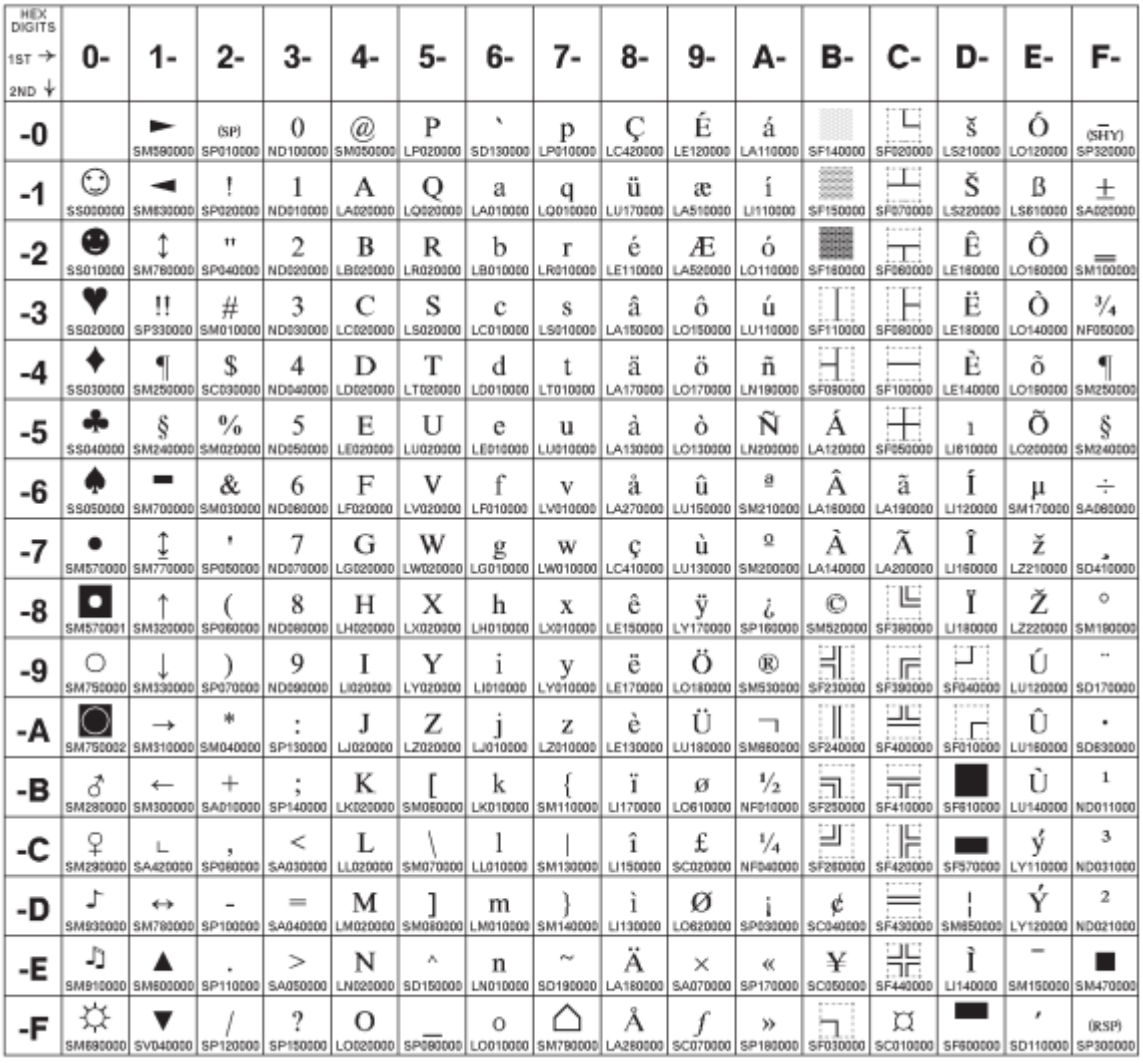


Figure 113.Estonian (CP1116)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Latvian (Personal Computer)

## Code Page 01117

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | SM580000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ć LC120000 | É LE120000 | Ā LA320000 | SF140000 | SF020000 | SF460000 | Ó LO120000 | (SHY) SP320000 |
| -1 | SS000000 | SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | Ż LZ300000 | Ī LI320000 | SF150000 | SF070000 | SF470000 | ß LS810000 | ± SA020000 |
| -2 | SS010000 | SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | ż LZ290000 | ó LO110000 | SF160000 | SF060000 | SF480000 | Ō LO320000 | æ LA510000 |
| -3 | SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | ā LA310000 | ō LO310000 | ų LU430000 | SF110000 | SF080000 | SF490000 | Ń LN120000 | Æ LA520000 |
| -4 | SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | Ą LA440000 | SF090000 | SF100000 | SF500000 | õ LO190000 | ¶ SM250000 |
| -5 | SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | ģ LG410000 | Ģ LG420000 | ą LA430000 | SF190000 | SF050000 | SF510000 | Õ LO200000 | ¤ SC010000 |
| -6 | SS050000 | SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | ū LU310000 | Ž LZ220000 | SF200000 | SF360000 | SF520000 | Š LS220000 | ÷ SA060000 |
| -7 | SM570000 | SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ć LC110000 | Ś LS120000 | ž LZ210000 | SF210000 | SF370000 | SF530000 | š LS210000 | ø LO610000 |
| -8 | SM570001 | SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ł LL810000 | ś LS110000 | Ę LE440000 | SF220000 | SF380000 | SF540000 | Ķ LK420000 | ° SM190000 |
| -9 | SM750000 | SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ē LE310000 | Ö LO180000 | ę LE430000 | SF230000 | SF390000 | SF040000 | ķ LK410000 | Ø LO820000 |
| -A | SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | ė LE290000 | Ü LU180000 | Ė LE300000 | SF240000 | SF400000 | SF010000 | Ū LU320000 | · SD630000 |
| -B | SM280000 | ← SM300000 | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | į LI430000 | ń LN110000 | ź LZ110000 | SF250000 | SF410000 | SF610000 | Ų LU440000 | ţ LR410000 |
| -C | SM290000 | SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | ī LI310000 | Ļ LL420000 | Č LC220000 | SF260000 | SF420000 | SF570000 | ļ LL410000 | Ŗ LR420000 |
| -D | SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Ź LZ120000 | Ł LL820000 | Į LI440000 | SF270000 | SF430000 | SF580000 | Ē LE320000 | „ SP230000 |
| -E | SM910000 | ▲ SM800000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | × SA070000 | « SP170000 | SF280000 | SF440000 | SF590000 | Ņ LN420000 | “ SP210000 |
| -F | SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | Å LA280000 | č LC210000 | » SP180000 | SF030000 | SF450000 | SF600000 | ŗ LN410000 | (RSP) SP300000 |

Figure 114.Latvian (Personal Computer) (CP1117)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Lithuanian (Personal Computer)

## Code Page 01118

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | ► SM580000 | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ç LC420000 | É LE120000 | á LA110000 | ▒ SF140000 | └ SF020000 | ą LA430000 | α GA010000 | ≡ SA480000 |
| -1 | ☺ SS030000 | ◄ SM630000 | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | ü LU170000 | æ LA510000 | í LI110000 | ▓ SF150000 | ┴ SF070000 | č LC210000 | β GB010000 | ± SA020000 |
| -2 | ☻ SS010000 | ↕ SM760000 | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | é LE110000 | Æ LA520000 | ó LO110000 | ■ SF160000 | ┬ SF060000 | ę LE430000 | Γ GG020000 | ≥ SA530000 |
| -3 | ♥ SS020000 | !! SP330000 | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | â LA150000 | ô LO150000 | ú LU110000 | ┐ SF110000 | ├ SF080000 | ė LE290000 | π GP010000 | ≤ SA520000 |
| -4 | ♦ SS030000 | ¶ SM250000 | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | ä LA170000 | ö LO170000 | ñ LN190000 | ┤ SF090000 | ─ SF100000 | į LI430000 | Σ GS020000 | „ SP230000 |
| -5 | ♣ SS040000 | § SM240000 | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | à LA130000 | ò LO130000 | Ñ LN200000 | Ą LA440000 | ┼ SF050000 | š LS210000 | σ GS010000 | " SP210000 |
| -6 | ♠ SS050000 | ▬ SM700000 | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | å LA270000 | û LU150000 | ª SM210000 | Č LC220000 | Ų LU440000 | ų LU430000 | µ SM170000 | ÷ SA060000 |
| -7 | • SM570000 | ↨ SM770000 | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ç LC410000 | ù LU130000 | º SM200000 | Ę LE440000 | Ū LU320000 | ū LU310000 | τ GT010000 | ≈ SA700000 |
| -8 | ◘ SM570001 | ↑ SM320000 | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | ê LE150000 | ÿ LY170000 | ¿ SP160000 | Ė LE300000 | ╚ SF380000 | ž LZ210000 | Φ GF020000 | ° SM190000 |
| -9 | ○ SM750000 | ↓ SM330000 | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ë LE170000 | Ö LO180000 | ⌐ SM680000 | ╣ SF230000 | ╔ SF390000 | ┘ SF040000 | Θ GT620000 | • SA790000 |
| -A | ◙ SM750002 | → SM310000 | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | è LE130000 | Ü LU180000 | ¬ SM680000 | ╚ SF240000 | ╩ SF400000 | ┌ SF010000 | Ω GO320000 | · SD290000 |
| -B | ♂ SM280000 | ← SM300000 | + SAD10000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ï LI170000 | ¢ SC040000 | ½ NF010000 | ╗ SF250000 | ╦ SF410000 | ■ SF810000 | δ GD010000 | √ SA800000 |
| -C | ♀ SM290000 | ∟ SA420000 | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | î LI150000 | £ SC020000 | ¼ NF040000 | ╝ SF260000 | ╠ SF420000 | ▬ SF570000 | ∞ SA450000 | n LN011000 |
| -D | ♪ SM930000 | ↔ SM780000 | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | ì LI130000 | ¥ SC050000 | ¡ SP220000 | Į LI440000 | ═ SF430000 | ▌ SF580000 | φ GF010000 | 2 ND021000 |
| -E | ♫ SM910000 | ▲ SM800000 | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ä LA180000 | Pts SC060000 | « SP170000 | Š LS220000 | ╬ SF440000 | ▐ SF590000 | ε GE010000 | ■ SM470000 |
| -F | ☼ SM690000 | ▼ SV040000 | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | ⌂ SM790000 | Å LA280000 | ƒ SC070000 | » SP180000 | ╕ SF030000 | Ž LZ220000 | ▀ SF800000 | ∩ SA140000 | (RSP) SP300000 |

Figure 115.Lthuanian (Personal Computer) (CP1118)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Central Europe Latin 2

## Code Page 01250

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | € SC200000 | | (RSP) SP300000 | ° SM190000 | Ŕ LR120000 | Đ LD600000 | ŕ LR110000 | đ LD610000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | | ‘ SP190000 | ˇ SD210000 | ± SA020000 | Á LA120000 | Ń LN120000 | á LA110000 | ń LN110000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | ‚ SP260000 | ’ SP200000 | ˘ SD230000 | ¸ SD430000 | Â LA160000 | Ň LN220000 | â LA150000 | ň LN210000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | | “ SP210000 | Ł LL620000 | ł LL610000 | Ă LA240000 | Ó LO120000 | ă LA230000 | ó LO110000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | „ SP230000 | ” SP220000 | ¤ SC010000 | ´ SD110000 | Ä LA180000 | Ô LO160000 | ä LA170000 | ô LO150000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | … SV520000 | • SM570000 | Ą LA440000 | µ SM170000 | Ĺ LL120000 | Ő LO260000 | Í LI110000 | ő LO250000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | † SM340000 | – SS680000 | ˙ SM650000 | ¶ SM250000 | Ć LC120000 | Ö LO180000 | ć LC110000 | ö LO170000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ‡ SM350000 | — SM900000 | § SM240000 | · SD630000 | Ç LC420000 | × SA070000 | ç LC410000 | ÷ SA060000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | | | ¨ SD170000 | ¸ SD410000 | Č LC220000 | Ř LR220000 | č LC210000 | ř LR210000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ‰ SM560000 | ™ SM540000 | © SM520000 | ą LA430000 | É LE120000 | Ů LU280000 | é LE110000 | ů LU270000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | Š LS220000 | š LS210000 | Ş LS420000 | ş LS410000 | Ę LE440000 | Ú LU120000 | ę LE430000 | ú LU110000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ‹ SP270000 | › SP280000 | « SP170000 | » SP180000 | Ë LE180000 | Ű LU260000 | ë LE170000 | ű LU250000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | Ś LS120000 | ś LS110000 | ¬ SM660000 | Ľ LL220000 | Ě LE220000 | Ü LU180000 | ě LE210000 | ü LU170000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Ť LT220000 | ť LT210000 | (SHY) SP320000 | ˝ SD250000 | Í LI120000 | Ý LY120000 | í LI110000 | ý LY110000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ž LZ220000 | ž LZ210000 | ® SM530000 | Ľ LL210000 | Î LI160000 | Ţ LT420000 | î LI150000 | ţ LT410000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | Ź LZ120000 | ź LZ110000 | Ż LZ300000 | ż LZ290000 | Ď LD220000 | ß LS610000 | ď LD210000 | ˙ SD290000 |

Figure 116.CentralEurope(CP1250)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Cyrillic Windows + euro

## Code Page 01251

| HEX DIGITS 1ST → 2ND ↓ | 0- | 1- | 2- | 3- | 4- | 5- | 6- | 7- | 8- | 9- | A- | B- | C- | D- | E- | F- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -0 | | | (SP) SP010000 | 0 ND100000 | @ SM050000 | P LP020000 | ` SD130000 | p LP010000 | Ђ KD620000 | ђ KD610000 | (RSP) SP300000 | ° SM190000 | А KA020000 | Р KR020000 | а KA010000 | р KR010000 |
| -1 | | | ! SP020000 | 1 ND010000 | A LA020000 | Q LQ020000 | a LA010000 | q LQ010000 | Ґ KG120000 | ‘ SP190000 | Ў KU240000 | ± SA020000 | Б KB020000 | С KS020000 | б KB010000 | с KS010000 |
| -2 | | | " SP040000 | 2 ND020000 | B LB020000 | R LR020000 | b LB010000 | r LR010000 | , SP260000 | ’ SP200000 | ў KU230000 | І KI120000 | В KV020000 | Т KT020000 | в KV010000 | т KT010000 |
| -3 | | | # SM010000 | 3 ND030000 | C LC020000 | S LS020000 | c LC010000 | s LS010000 | ґ KG110000 | “ SP210000 | Ј KJ020000 | і KI110000 | Г KG020000 | У KU020000 | г KG010000 | у KU010000 |
| -4 | | | $ SC030000 | 4 ND040000 | D LD020000 | T LT020000 | d LD010000 | t LT010000 | „ SP230000 | ” SP220000 | ¤ SC010000 | г KG290000 | Д KD020000 | Ф KF020000 | д KD010000 | ф KF010000 |
| -5 | | | % SM020000 | 5 ND050000 | E LE020000 | U LU020000 | e LE010000 | u LU010000 | … SV520000 | • SM570000 | Ґ KG300000 | µ SM170000 | Е KE020000 | Х KH020000 | е KE010000 | х KH010000 |
| -6 | | | & SM030000 | 6 ND060000 | F LF020000 | V LV020000 | f LF010000 | v LV010000 | † SM340000 | – SS680000 | ¦ SM650000 | ¶ SM250000 | Ж KZ220000 | Ц KC020000 | ж KZ210000 | ц KC010000 |
| -7 | | | ' SP050000 | 7 ND070000 | G LG020000 | W LW020000 | g LG010000 | w LW010000 | ‡ SM350000 | — SM900000 | § SM240000 | · SD630000 | З KZ020000 | Ч KC220000 | з KZ010000 | ч KC210000 |
| -8 | | | ( SP060000 | 8 ND080000 | H LH020000 | X LX020000 | h LH010000 | x LX010000 | € SC200000 | | Ё KE180000 | ё KE170000 | И KI020000 | Ш KS220000 | и KI010000 | ш KS210000 |
| -9 | | | ) SP070000 | 9 ND090000 | I LI020000 | Y LY020000 | i LI010000 | y LY010000 | ‰ SM560000 | ™ SM540000 | © SM520000 | № SM000000 | Й KJ120000 | Щ KS160000 | й KJ110000 | щ KS150000 |
| -A | | | * SM040000 | : SP130000 | J LJ020000 | Z LZ020000 | j LJ010000 | z LZ010000 | Љ KL420000 | љ KL410000 | Є KE160000 | є KE150000 | К KK020000 | Ъ KU220000 | к KK010000 | ъ KU210000 |
| -B | | | + SA010000 | ; SP140000 | K LK020000 | [ SM060000 | k LK010000 | { SM110000 | ‹ SP270000 | › SP280000 | « SP170000 | » SP180000 | Л KL020000 | Ы KY020000 | л KL010000 | ы KY010000 |
| -C | | | , SP080000 | < SA030000 | L LL020000 | \ SM070000 | l LL010000 | \| SM130000 | Њ KN120000 | њ KN110000 | ¬ SM660000 | j KJ010000 | М KM020000 | Ь KX120000 | м KM010000 | ь KX110000 |
| -D | | | - SP100000 | = SA040000 | M LM020000 | ] SM080000 | m LM010000 | } SM140000 | Ќ KK120000 | ќ KK110000 | (SHY) SP320000 | S KZ160000 | Н KN020000 | Э KE140000 | н KN010000 | э KE130000 |
| -E | | | . SP110000 | > SA050000 | N LN020000 | ^ SD150000 | n LN010000 | ~ SD190000 | Ћ KC120000 | ћ KC110000 | ® SM530000 | s KZ150000 | О KO020000 | Ю KU160000 | о KO010000 | ю KU150000 |
| -F | | | / SP120000 | ? SP150000 | O LO020000 | _ SP090000 | o LO010000 | | Џ KG220000 | џ KG210000 | Ї KI180000 | ї KI170000 | П KP020000 | Я KA160000 | п KP010000 | я KA150000 |

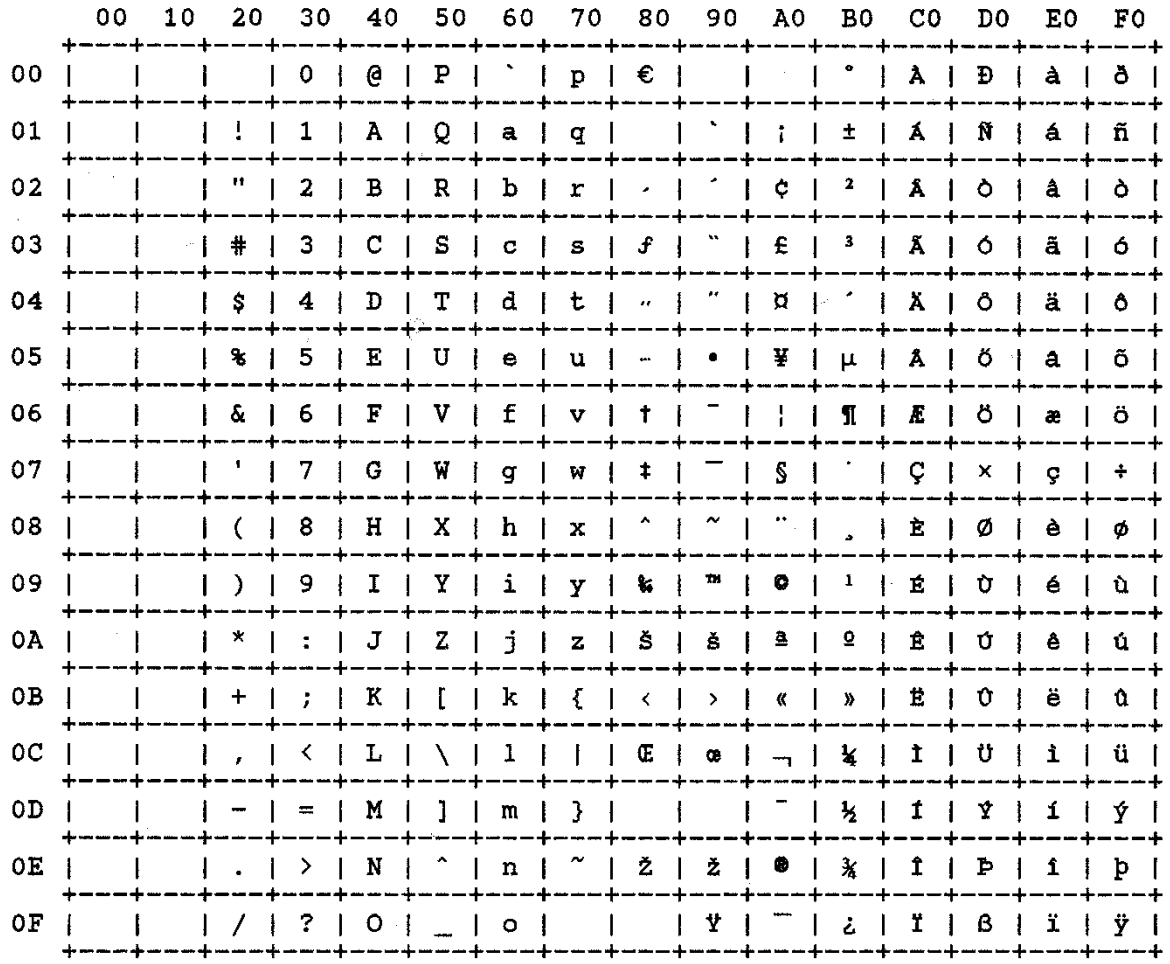
Figure 117.Cyrillic(CP1251)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Latin1 Ansi Windows

## Code Page 01252



| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | | | | 0 | @ | P | ` | p | € | | | ° | À | Ð | à | ð |
| 01 | | | ! | 1 | A | Q | a | q | | ` | ¡ | ± | Á | Ñ | á | ñ |
| 02 | | | " | 2 | B | R | b | r | ‚ | ´ | ¢ | ² | Â | Ò | â | ò |
| 03 | | | # | 3 | C | S | c | s | ƒ | ¨ | £ | ³ | Ã | Ó | ã | ó |
| 04 | | | $ | 4 | D | T | d | t | „ | ¨ | ¤ | ´ | Ä | Ô | ä | ô |
| 05 | | | % | 5 | E | U | e | u | … | • | ¥ | µ | Å | Õ | å | õ |
| 06 | | | & | 6 | F | V | f | v | † | ¯ | ¦ | ¶ | Æ | Ö | æ | ö |
| 07 | | | ' | 7 | G | W | g | w | ‡ | ¯ | § | · | Ç | × | ç | ÷ |
| 08 | | | ( | 8 | H | X | h | x | ˆ | ~ | ¨ | ¸ | È | Ø | è | ø |
| 09 | | | ) | 9 | I | Y | i | y | ‰ | ™ | © | ¹ | É | Ù | é | ù |
| 0A | | | * | : | J | Z | j | z | Š | š | ª | º | Ê | Ú | ê | ú |
| 0B | | | + | ; | K | [ | k | { | ‹ | › | « | » | Ë | Û | ë | û |
| 0C | | | , | < | L | \ | l | \| | Œ | œ | ¬ | ¼ | Ì | Ü | ì | ü |
| 0D | | | - | = | M | ] | m | } | | |  | ½ | Í | Ý | í | ý |
| 0E | | | . | > | N | ^ | n | ~ | Ž | ž | ® | ¾ | Î | Þ | î | þ |
| 0F | | | / | ? | O | _ | o | | Ÿ | ¯ | ¿ | Ï | ß | ï | ÿ | |

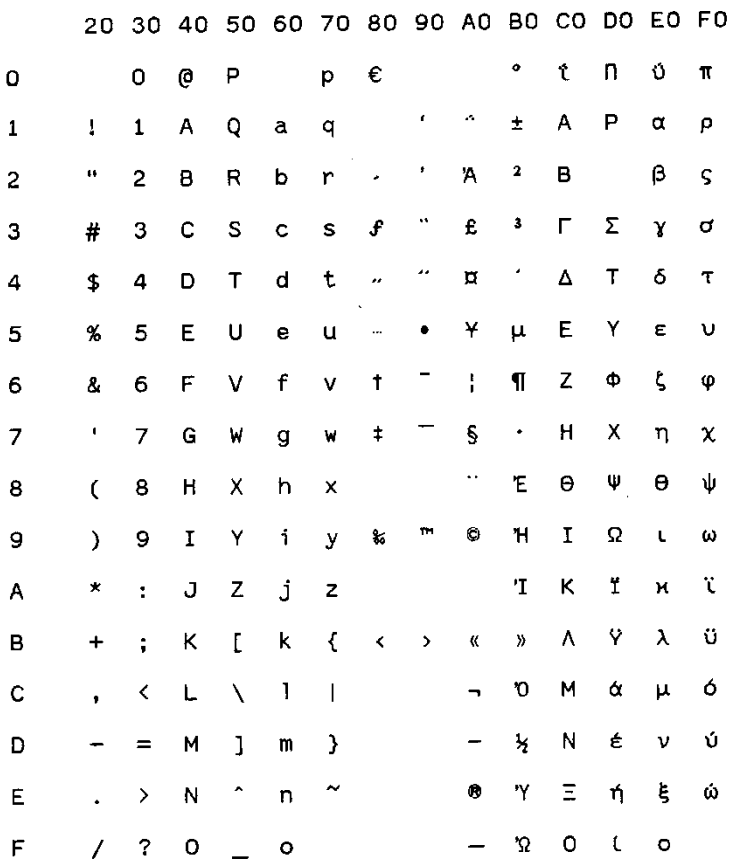
Figure 118.Latin1AnsiWindows(CP1252)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Greek Windows

## Code Page 01253



| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | @ | P | | p | € | | | ° | ΐ | Π | ΰ | π |
| 1 | ! | 1 | A | Q | a | q | | ‘ | ΅ | ± | A | P | α | ρ |
| 2 | " | 2 | B | R | b | r | ‚ | ’ | Ά | ² | B | | β | ς |
| 3 | # | 3 | C | S | c | s | ƒ | “ | £ | ³ | Γ | Σ | γ | σ |
| 4 | $ | 4 | D | T | d | t | „ | ” | ¤ | ´ | Δ | T | δ | τ |
| 5 | % | 5 | E | U | e | u | … | • | ¥ | µ | E | Y | ε | υ |
| 6 | & | 6 | F | V | f | v | † | – | ¦ | ¶ | Z | Φ | ζ | φ |
| 7 | ' | 7 | G | W | g | w | ‡ | — | § | · | H | X | η | χ |
| 8 | ( | 8 | H | X | h | x | | | ¨ | Έ | Θ | Ψ | θ | ψ |
| 9 | ) | 9 | I | Y | i | y | ‰ | ™ | © | Ή | I | Ω | ι | ω |
| A | * | : | J | Z | j | z | | | | Ί | K | Ϊ | κ | ϊ |
| B | + | ; | K | [ | k | { | < | › | « | » | Λ | Ϋ | λ | ϋ |
| C | , | < | L | \ | l | \| | | | ¬ | Ό | M | ά | μ | ό |
| D | - | = | M | ] | m | } | | | - | ½ | N | έ | ν | ύ |
| E | . | > | N | ^ | n | ~ | | | ® | Ύ | Ξ | ή | ξ | ώ |
| F | / | ? | O | _ | o | | | | ― | Ώ | O | ί | ο | |

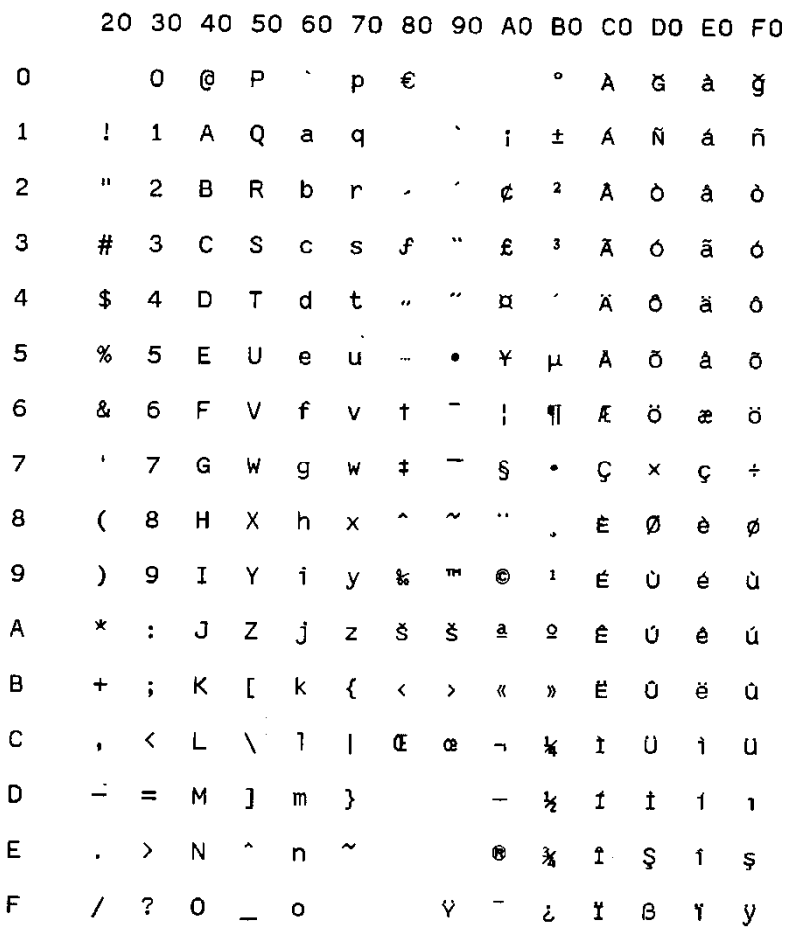
Figure 119.GreekWindows(CP1253)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Turkish Windows

## Code Page 01254



| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | @ | P | ` | p | € | | | ° | A | Ğ | à | ğ |
| 1 | ! | 1 | A | Q | a | q | | ` | ¡ | ± | Á | Ñ | á | ñ |
| 2 | " | 2 | B | R | b | r | ‚ | ´ | ¢ | ² | Â | Ò | â | ò |
| 3 | # | 3 | C | S | c | s | ƒ | ¨ | £ | ³ | Ã | Ó | ã | ó |
| 4 | $ | 4 | D | T | d | t | „ | ¨ | ¤ | ´ | Ä | Ô | ä | ô |
| 5 | % | 5 | E | U | e | u | … | • | ¥ | µ | Å | Õ | å | õ |
| 6 | & | 6 | F | V | f | v | † | ¯ | ¦ | ¶ | Æ | Ö | æ | ö |
| 7 | ' | 7 | G | W | g | w | ‡ | ¯ | § | · | Ç | × | ç | ÷ |
| 8 | ( | 8 | H | X | h | x | ˆ | ~ | ¨ | ¸ | È | Ø | è | ø |
| 9 | ) | 9 | I | Y | i | y | ‰ | ™ | © | ¹ | É | Ù | é | ù |
| A | * | : | J | Z | j | z | Š | š | ª | º | Ê | Ú | ê | ú |
| B | + | ; | K | [ | k | { | ‹ | › | « | » | Ë | Û | ë | û |
| C | , | < | L | \ | l | \| | Œ | œ | ¬ | ¼ | Ì | Ü | ì | ü |
| D | - | = | M | ] | m | } | | |  | ½ | Í | İ | í | ı |
| E | . | > | N | ^ | n | ~ | | | ® | ¾ | Î | Ş | î | ş |
| F | / | ? | O | _ | o | | | Ÿ | ¯ | ¿ | Ï | ß | ï | ÿ |

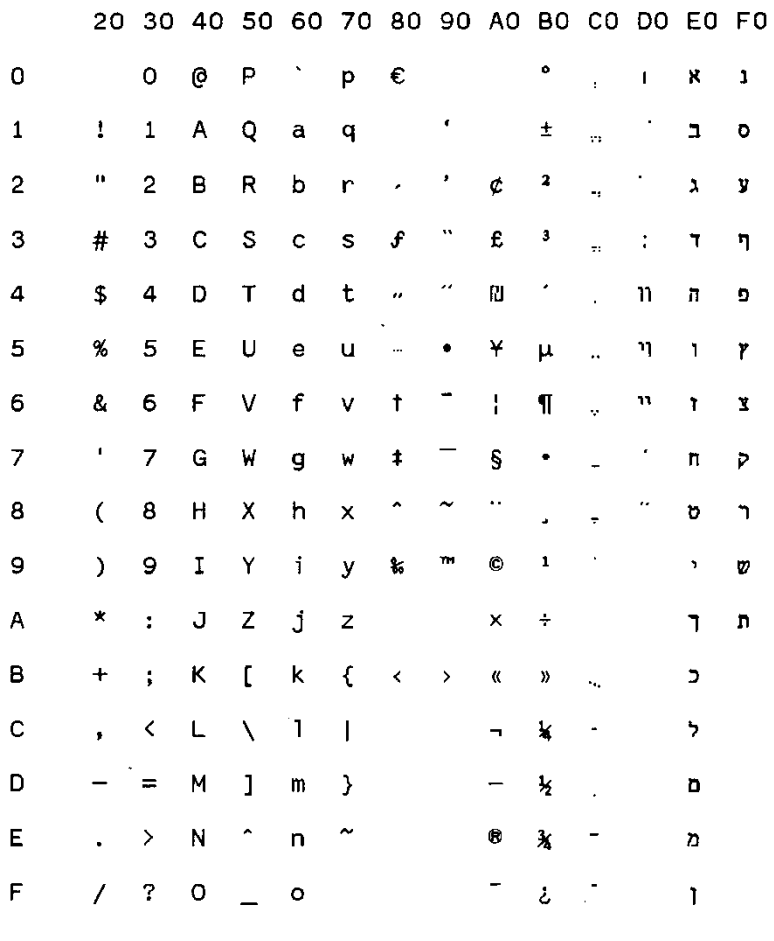
Figure 120.TurkishWindows(CP1254)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Hebrew Windows

## Code Page 01255



| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | @ | P | ` | p | € | | | ° | ְ | ׀ | א | ׀ |
| 1 | ! | 1 | A | Q | a | q | | ‘ | | ± | ֱ | ׁ | ב | ס |
| 2 | " | 2 | B | R | b | r | ‚ | ’ | ¢ | ² | ֲ | ׂ | ג | ע |
| 3 | # | 3 | C | S | c | s | ƒ | “ | £ | ³ | ֳ | ׃ | ד | ף |
| 4 | $ | 4 | D | T | d | t | „ | ” | ₪ | ´ | ִ | ׄ | ה | פ |
| 5 | % | 5 | E | U | e | u | … | • | ¥ | µ | ֵ | ׅ | ו | ץ |
| 6 | & | 6 | F | V | f | v | † | – | ¦ | ¶ | ֶ | ׆ | ז | צ |
| 7 | ' | 7 | G | W | g | w | ‡ | — | § | · | ַ | ׇ | ח | ק |
| 8 | ( | 8 | H | X | h | x | ˆ | ~ | ¨ | ¸ | ָ | ׈ | ט | ר |
| 9 | ) | 9 | I | Y | i | y | ‰ | ™ | © | ¹ | ֹ | ׉ | י | ש |
| A | * | : | J | Z | j | z | | | × | ÷ | ֺ | | ך | ת |
| B | + | ; | K | [ | k | { | ‹ | › | « | » | ֻ | ׊ | כ | |
| C | , | < | L | \ | l | \| | | | ¬ | ¼ | ּ | ׋ | ל | |
| D | – | = | M | ] | m | } | | |  | ½ | ֽ | ׌ | ם | |
| E | . | > | N | ^ | n | ~ | | | ® | ¾ | ־ | ׍ | מ | |
| F | / | ? | O | _ | o | | | | ¯ | ¿ | ֿ | ׎ | ן | |

Figure 121. HebrewWindows(CP1255)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Arabic Windows

## Code Page 01256

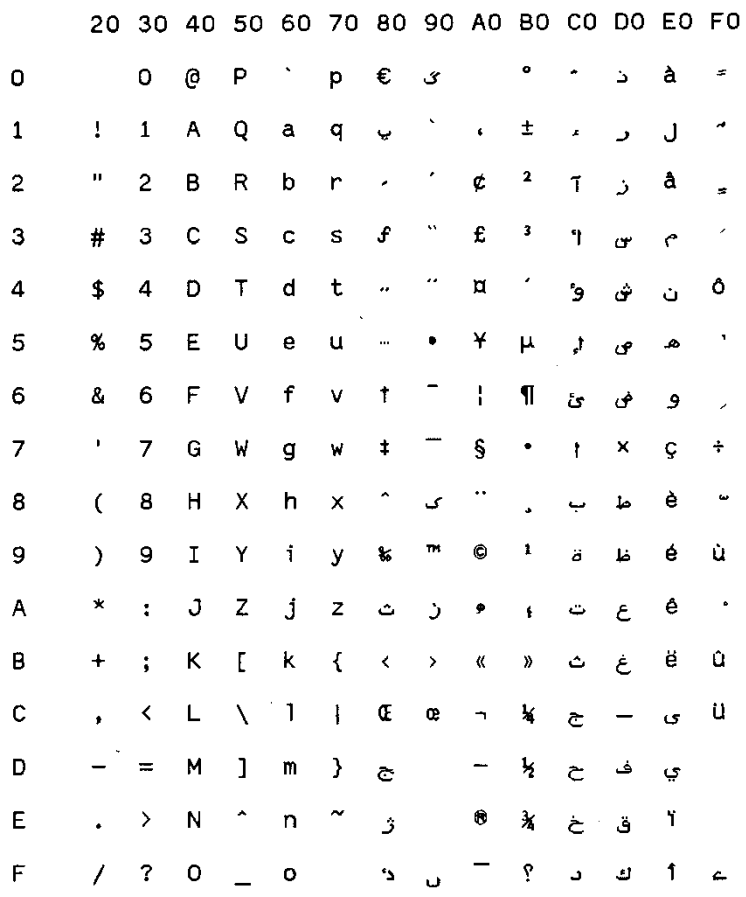


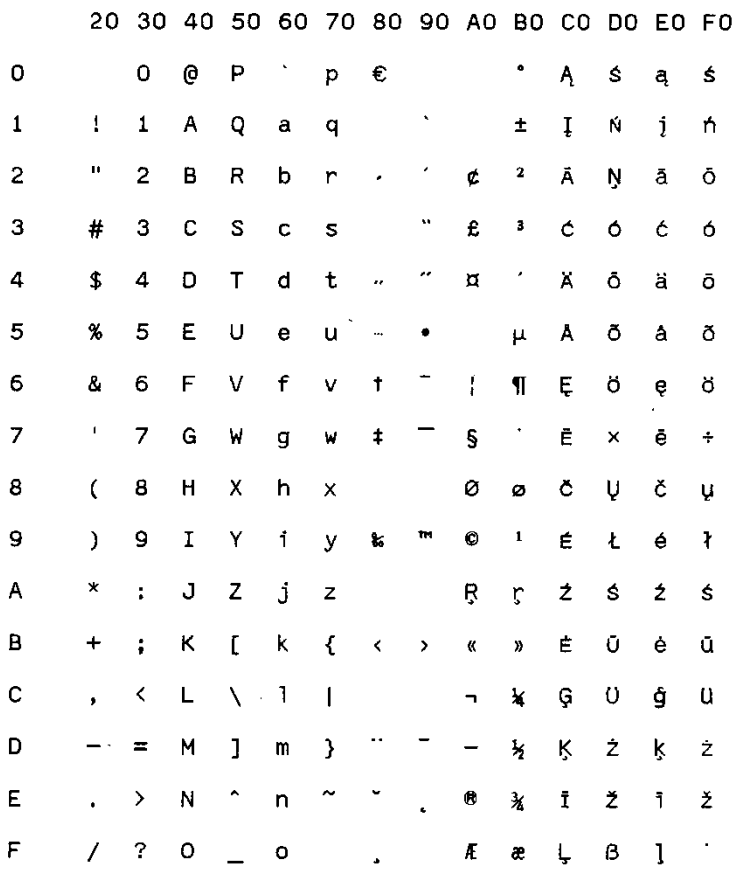

Figure 122.ArabicWindows(CP1256)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Baltic Windows

## Code Page 01257



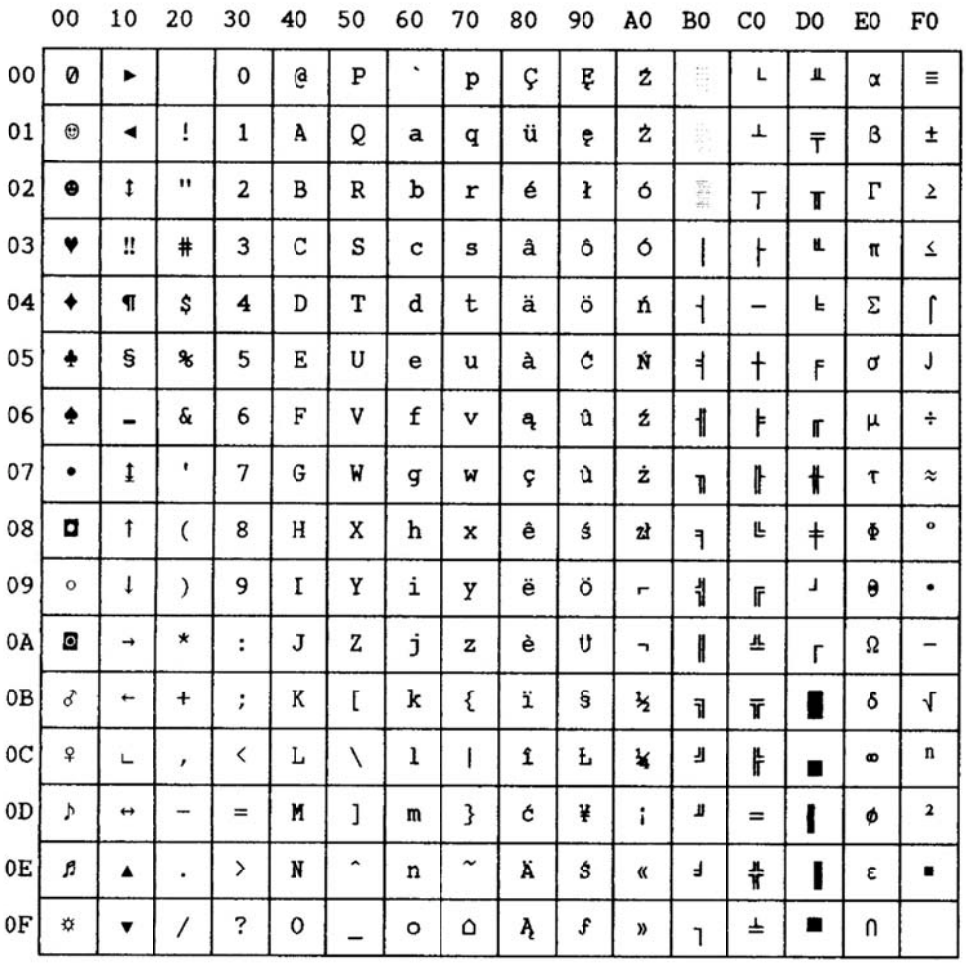
| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | @ | P | ` | p | € | | | ° | Ą | Ś | ą | ś |
| 1 | ! | 1 | A | Q | a | q | | ` | | ± | Į | Ń | į | ń |
| 2 | " | 2 | B | R | b | r | ‚ | ´ | ¢ | ² | Ā | Ņ | ā | ō |
| 3 | # | 3 | C | S | c | s | | ¨ | £ | ³ | Ć | Ó | ć | ó |
| 4 | $ | 4 | D | T | d | t | „ | ¨ | ¤ | ´ | Ä | Ō | ä | ō |
| 5 | % | 5 | E | U | e | u | … | • | | µ | Å | Õ | å | õ |
| 6 | & | 6 | F | V | f | v | † | ¯ | ¦ | ¶ | Ę | Ö | ę | ö |
| 7 | ' | 7 | G | W | g | w | ‡ | ¯ | § | · | Ē | × | ē | ÷ |
| 8 | ( | 8 | H | X | h | x | | | Ø | ø | Č | Ų | č | ų |
| 9 | ) | 9 | I | Y | i | y | ‰ | ™ | © | ¹ | É | Ł | é | ł |
| A | * | : | J | Z | j | z | | | Ŗ | ŗ | Ź | Ś | ź | ś |
| B | + | ; | K | [ | k | { | ‹ | › | « | » | Ė | Ū | ė | ū |
| C | , | < | L | \ | l | \| | | | ¬ | ¼ | Ģ | Ü | ģ | ü |
| D | - | = | M | ] | m | } | ¨ | ¯ | - | ½ | Ķ | Ż | ķ | ż |
| E | . | > | N | ^ | n | ~ | ˜ | ¸ | ® | ¾ | Ī | Ž | ī | ž |
| F | / | ? | O | _ | o | | ˙ | | Æ | æ | Ļ | ß | ļ | ˙ |

Figure 123.Batlic Windows (CP1257)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# MAZOWIA (Polish)



| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | Ø | ► | | 0 | @ | P | ` | p | Ç | Ę | Ź | ▒ | └ | ╨ | α | ≡ |
| 01 | ☺ | ◄ | ! | 1 | A | Q | a | q | ü | ę | Ż | ▒ | ┴ | ╤ | ß | ± |
| 02 | ☻ | ↕ | " | 2 | B | R | b | r | é | Ł | ó | ▒ | ┬ | ╥ | Γ | ≥ |
| 03 | ♥ | ‼ | # | 3 | C | S | c | s | â | ô | Ó | │ | ├ | ╙ | π | ≤ |
| 04 | ♦ | ¶ | $ | 4 | D | T | d | t | ä | ö | ń | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | ♣ | § | % | 5 | E | U | e | u | à | Ć | Ń | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | ♠ | ▬ | & | 6 | F | V | f | v | ą | û | ś | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | • | ↨ | ' | 7 | G | W | g | w | ç | ù | Ś | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | ◘ | ↑ | ( | 8 | H | X | h | x | ê | ś | Ź | ╕ | ╚ | ╪ | Φ | ° |
| 09 | ○ | ↓ | ) | 9 | I | Y | i | y | ë | Ö | ⌐ | ╣ | ╔ | ┘ | Θ | • |
| 0A | ◙ | → | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | ♂ | ← | + | ; | K | [ | k | { | ï | ś | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | ♀ | ∟ | , | < | L | \ | l | \| | î | Ł | ¼ | ╝ | ╠ | ▄ | ∞ | n |
| 0D | ♪ | ↔ | − | = | M | ] | m | } | ć | ¥ | ¡ | ╜ | ═ | ▌ | φ | ² |
| 0E | ♫ | ▲ | . | > | N | ^ | n | ~ | Ä | ś | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | ☼ | ▼ | / | ? | O | _ | o | ⌂ | Ą | ƒ | » | ┐ | ╧ | ▀ | ∩ | |

Figure 124.MAZOWIA(Polish)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# GOST (Russian)

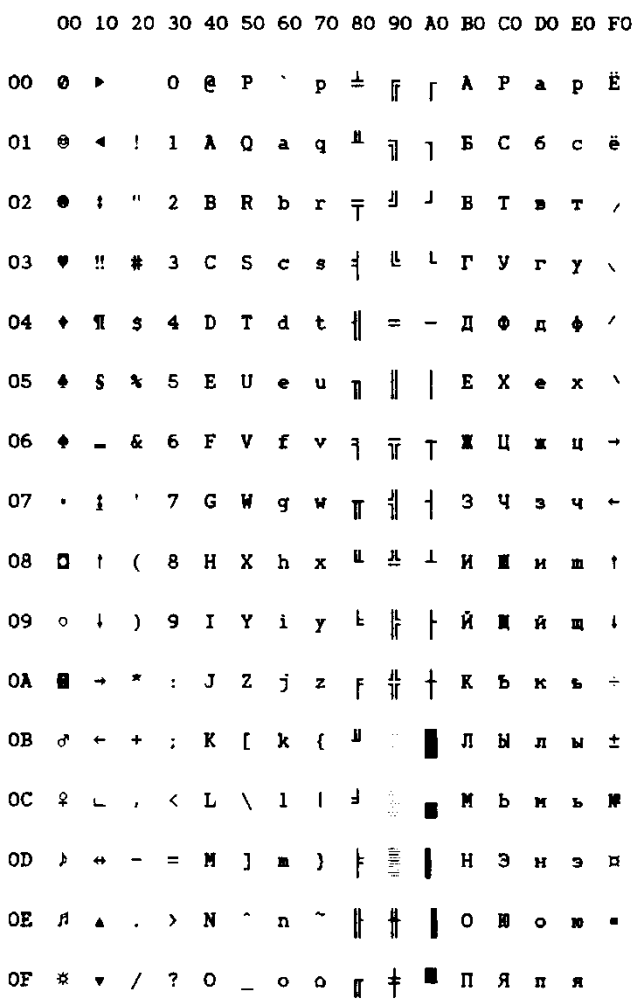


Figure 125.GOST(Russian)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# TASS (Cyrillic)

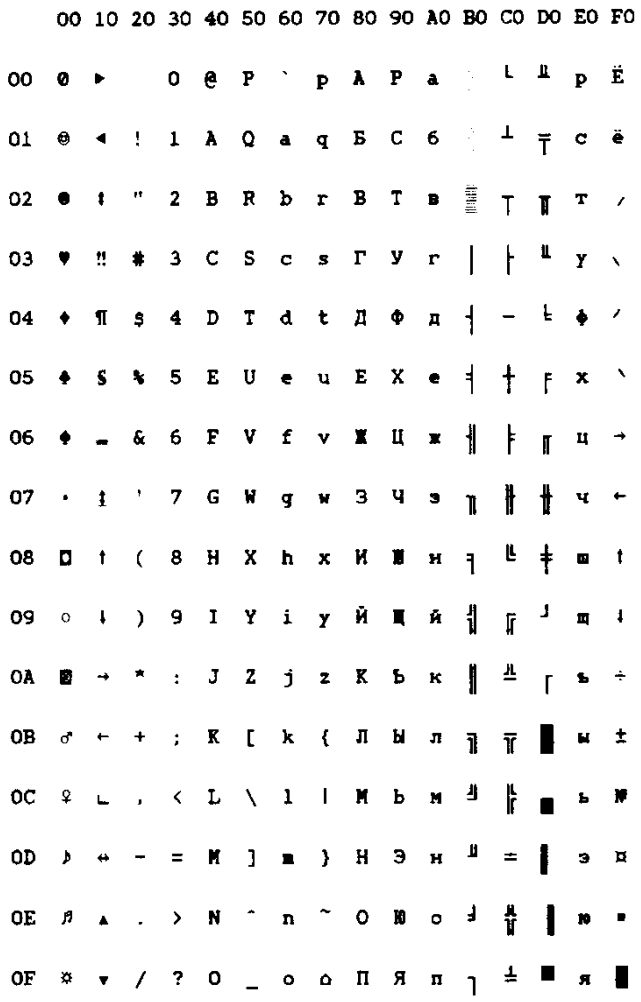
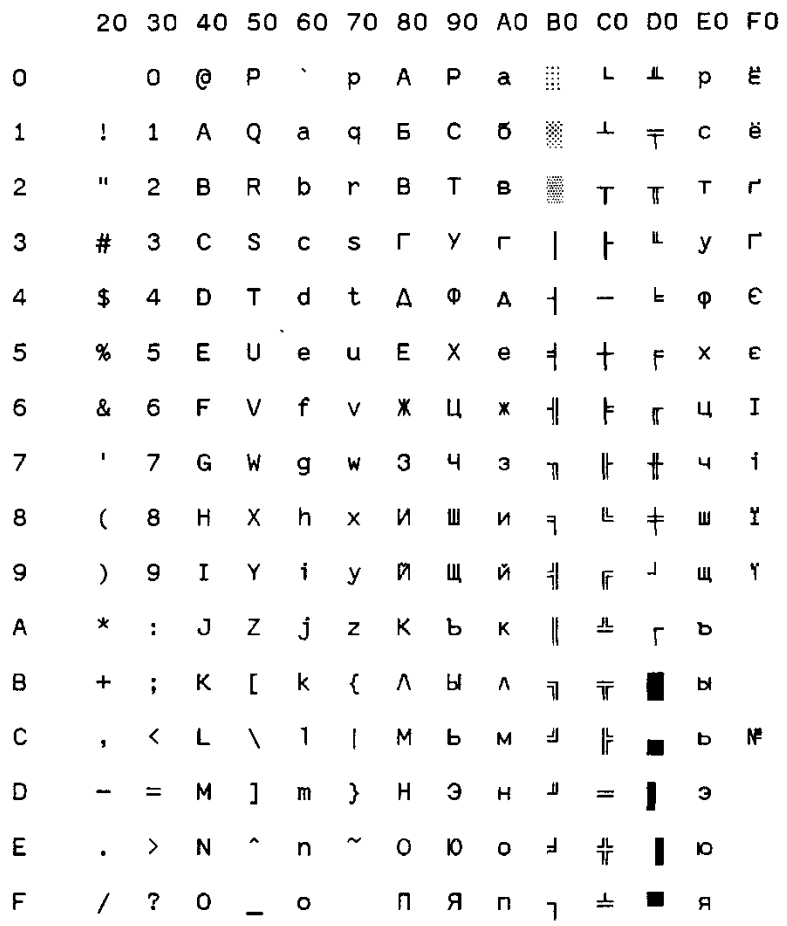


Figure 126.TASS(Cyrillic)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# UKRANIAN (old version)



| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0 | @ | P | ` | p | А | Р | а | ⣿ | └ | ╨ | р | Ё |
| 1 | ! | 1 | A | Q | a | q | Б | С | б | ▒ | ┴ | ╤ | с | ё |
| 2 | " | 2 | B | R | b | r | В | Т | в | ▓ | ┬ | ╥ | т | Ґ |
| 3 | # | 3 | C | S | c | s | Г | У | г | │ | ├ | ╙ | у | ґ |
| 4 | $ | 4 | D | T | d | t | Д | Ф | д | ┤ | ─ | ╘ | ф | Є |
| 5 | % | 5 | E | U | e | u | Е | Х | е | ╡ | ┼ | ╒ | х | є |
| 6 | & | 6 | F | V | f | v | Ж | Ц | ж | ╢ | ╞ | ╓ | ц | І |
| 7 | ' | 7 | G | W | g | w | З | Ч | з | ╖ | ╟ | ╫ | ч | і |
| 8 | ( | 8 | H | X | h | x | И | Ш | и | ╕ | ╚ | ╪ | ш | Ї |
| 9 | ) | 9 | I | Y | i | y | Й | Щ | й | ╣ | ╔ | ┘ | щ | ї |
| A | * | : | J | Z | j | z | К | Ъ | к | ║ | ╩ | ┌ | ъ | |
| B | + | ; | K | [ | k | { | Л | Ы | л | ╗ | ╦ | █ | ы | |
| C | , | < | L | \ | l | \| | М | Ь | м | ╝ | ╠ | ▄ | ь | № |
| D | - | = | M | ] | m | } | Н | Э | н | ╜ | ═ | ▌ | э | |
| E | . | > | N | ^ | n | ~ | О | Ю | о | ╛ | ╬ | ▐ | ю | |
| F | / | ? | O | _ | o | | П | Я | п | ┐ | ╧ | ▀ | я | |

Figure 127.UKRANIAN(oldversion)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## KOI8-U (new version)

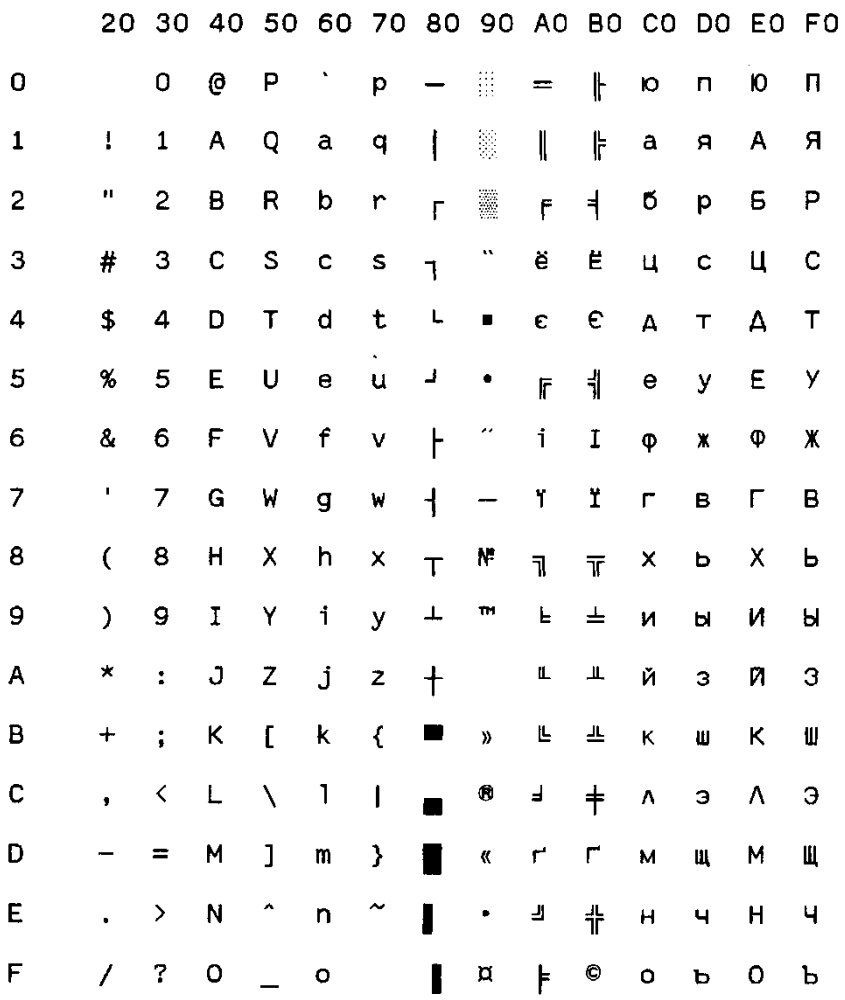



Figure 128.KOI8-U(newversion)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## FARSI 1

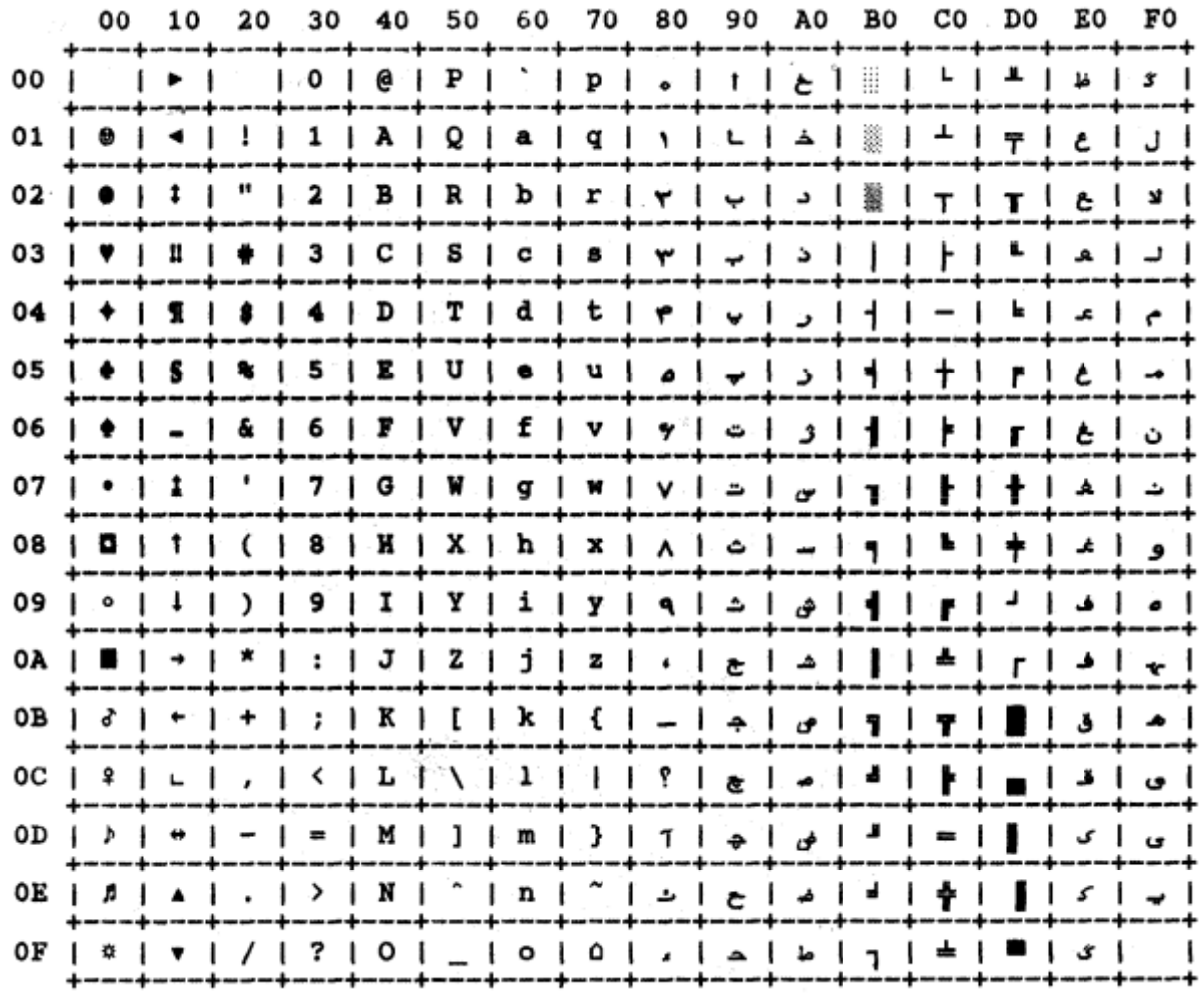
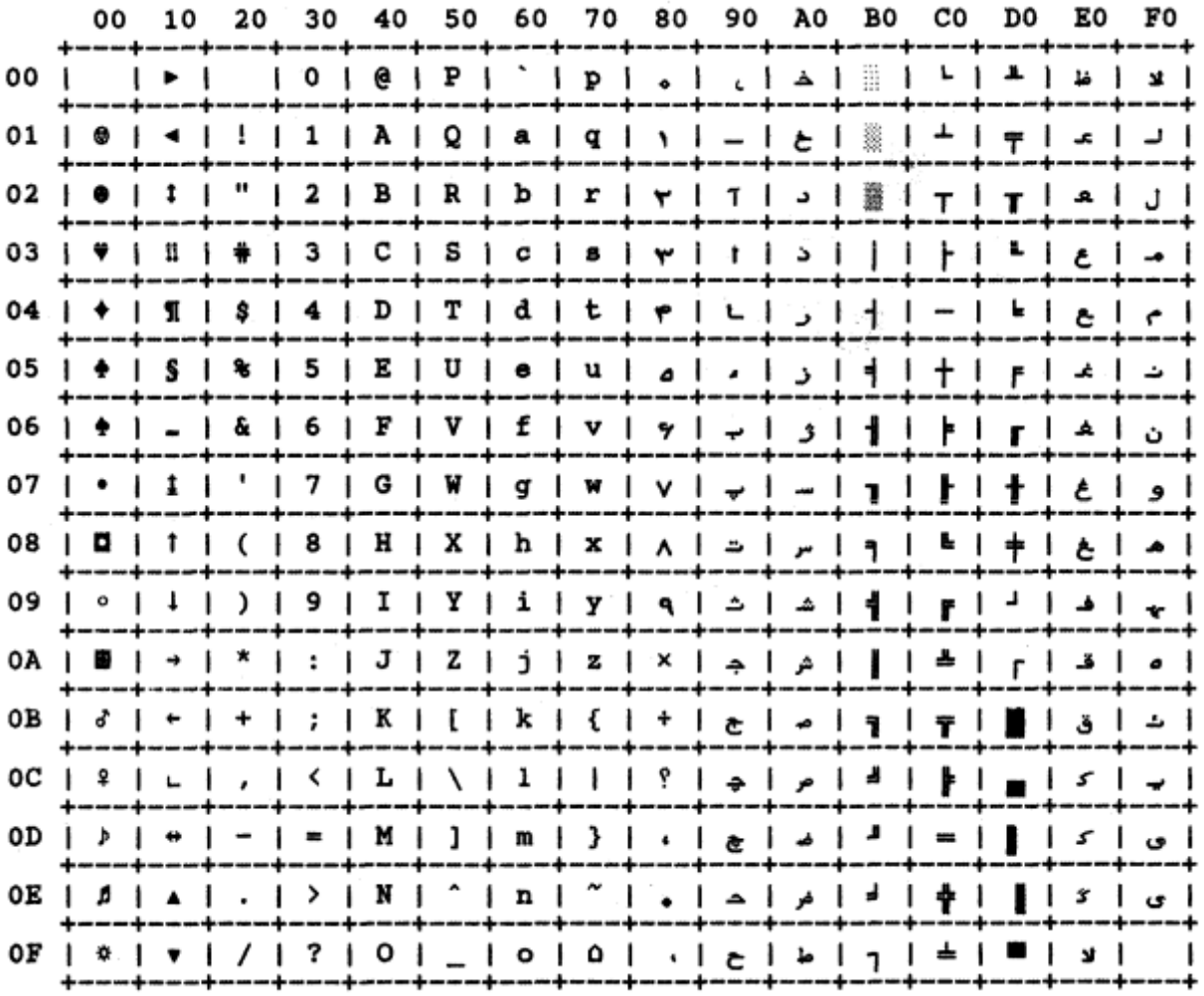


Figure 129. Farsi 1



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## FARSI 2



| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | | ► | | 0 | @ | P | ` | p | ۰ | ٬ | خ | ░ | └ | ╨ | ظ | لا |
| 01 | ☺ | ◄ | ! | 1 | A | Q | a | q | ۱ | ـ | خ | ▒ | ┴ | ╤ | ع | ـ |
| 02 | ● | ↕ | " | 2 | B | R | b | r | ۲ | آ | د | ▓ | ┬ | ╥ | ه | ل |
| 03 | ♥ | ‼ | # | 3 | C | S | c | s | ۳ | ا | ذ | │ | ├ | ╙ | ع | م |
| 04 | ♦ | ¶ | $ | 4 | D | T | d | t | ۴ | ب | ر | ┤ | ─ | ╘ | ع | م |
| 05 | ♣ | § | % | 5 | E | U | e | u | ۵ | ء | ز | ╡ | ┼ | ╒ | غ | ن |
| 06 | ♠ | ▬ | & | 6 | F | V | f | v | ۶ | ب | ژ | ╢ | ╞ | ╓ | غ | ن |
| 07 | • | ↨ | ' | 7 | G | W | g | w | ۷ | پ | س | ╖ | ╟ | ╫ | غ | و |
| 08 | ◘ | ↑ | ( | 8 | H | X | h | x | ۸ | ت | س | ╕ | ╚ | ╪ | خ | ه |
| 09 | ○ | ↓ | ) | 9 | I | Y | i | y | ۹ | ث | ش | ╣ | ╔ | ┘ | ف | ی |
| 0A | ◙ | → | * | : | J | Z | j | z | × | ج | ش | ║ | ╩ | ┌ | ق | ه |
| 0B | ♂ | ← | + | ; | K | [ | k | { | ÷ | ج | ص | ╗ | ╦ | █ | ق | ث |
| 0C | ♀ | ∟ | , | < | L | \ | l | \| | ؟ | چ | ص | ╝ | ╠ | ▄ | ک | ی |
| 0D | ♪ | ↔ | - | = | M | ] | m | } | ، | چ | ض | ╜ | ═ | ▌ | ک | ی |
| 0E | ♫ | ▲ | . | > | N | ^ | n | ~ | ٭ | ح | ض | ╛ | ╬ | ▐ | گ | ی |
| 0F | ☼ | ▼ | / | ? | O | _ | o | ⌂ | ، | ح | ط | ┐ | ╧ | ▀ | لا | |

Figure 130. Farsi 2



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Kamenicky

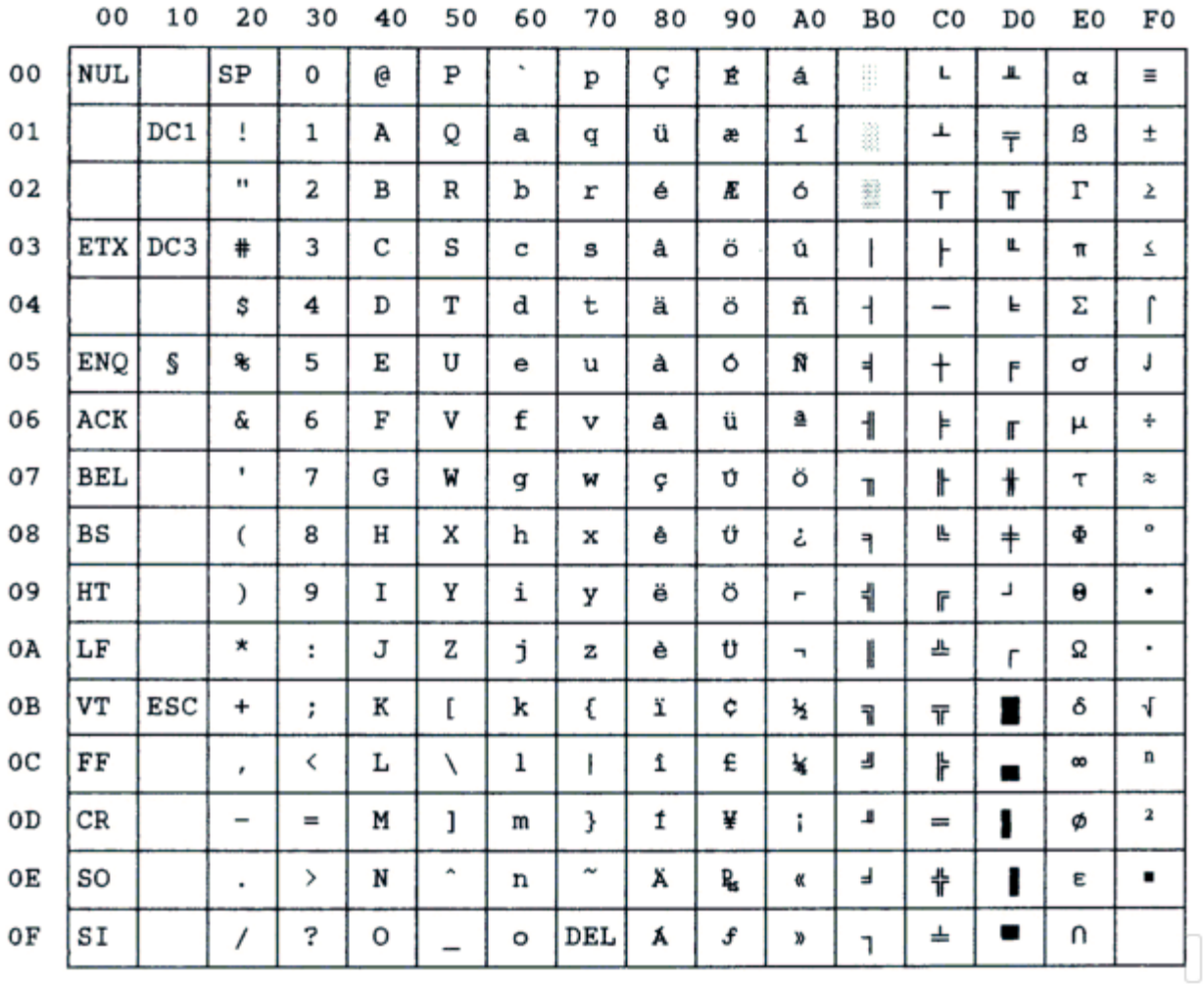
| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL | | SP | 0 | @ | P | ` | p | Č | É | á | ▒ | └ | ╨ | α | ≡ |
| 01 | | DC1 | ! | 1 | A | Q | a | q | ü | ž | í | ▒ | ┴ | ╤ | ß | ± |
| 02 | | | " | 2 | B | R | b | r | é | Ž | ó | ▒ | ┬ | ╥ | Γ | ≥ |
| 03 | ETX | DC3 | # | 3 | C | S | c | s | ď | ô | ú | │ | ├ | ╙ | π | ≤ |
| 04 | | | $ | 4 | D | T | d | t | ä | ö | ň | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | ENQ | § | % | 5 | E | U | e | u | Ď | ó | Ň | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | ACK | | & | 6 | F | V | f | v | Ť | ů | Ô | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | BEL | | ' | 7 | G | W | g | w | č | Ú | ô | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | BS | | ( | 8 | H | X | h | x | ě | ý | š | ╕ | ╚ | ╪ | Φ | ° |
| 09 | HT | | ) | 9 | I | Y | i | y | É | Ö | ř | ╣ | ╔ | ┘ | Θ | ∙ |
| 0A | LF | | * | : | J | Z | j | z | Ľ | Ü | ŕ | ║ | ╩ | ┌ | Ω | · |
| 0B | VT | ESC | + | ; | K | [ | k | { | ť | š | Ř | ╗ | ╦ | █ | δ | √ |
| 0C | FF | | , | < | L | \ | l | \| | Ľ | Ľ | ¼ | ╝ | ╠ | ▄ | ∞ | n |
| 0D | CR | | - | = | M | ] | m | } | Í | Ý | ; | ╜ | ═ | ▌ | ∅ | 2 |
| 0E | SO | | . | > | N | ^ | n | ~ | Ä | Ř | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | SI | | / | ? | O | _ | o | DEL | Á | Ť | » | ┐ | ╧ | ▀ | ∩ | |

Figure 131.Kamenicky



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## CWI



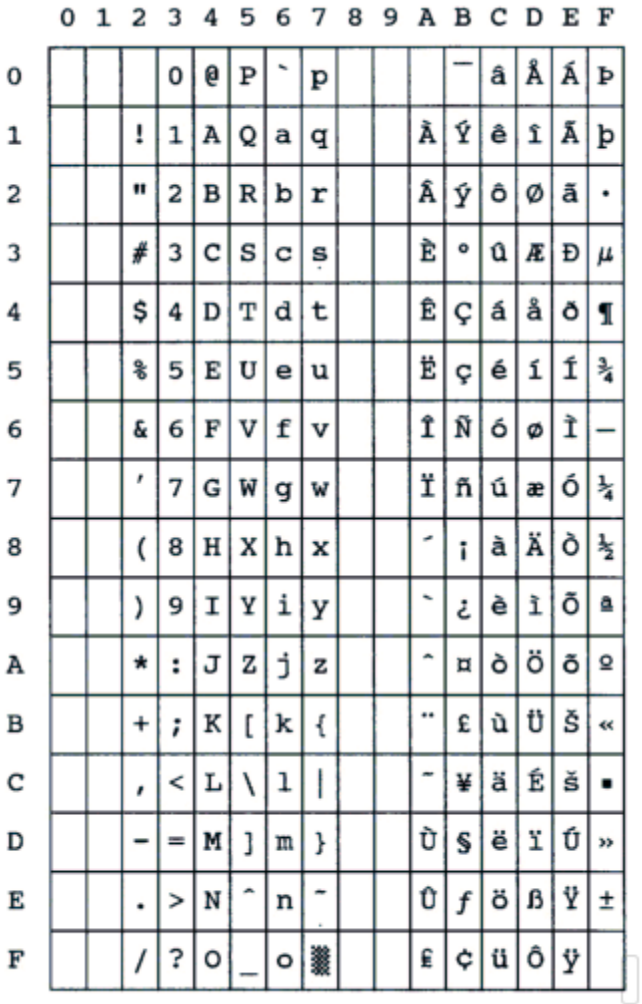
| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL | | SP | 0 | @ | P | ` | p | Ç | É | á | ▒ | └ | ╨ | α | ≡ |
| 01 | | DC1 | ! | 1 | A | Q | a | q | ü | æ | í | ▒ | ┴ | ╤ | ß | ± |
| 02 | | | " | 2 | B | R | b | r | é | Æ | ó | ▒ | ┬ | ╥ | Γ | ≥ |
| 03 | ETX | DC3 | # | 3 | C | S | c | s | â | ö | ú | │ | ├ | ╙ | π | ≤ |
| 04 | | | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | ENQ | § | % | 5 | E | U | e | u | à | ó | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | ACK | | & | 6 | F | V | f | v | å | ü | ª | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | BEL | | ' | 7 | G | W | g | w | ç | Ù | º | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | BS | | ( | 8 | H | X | h | x | ê | ÿ | ¿ | ╕ | ╚ | ╪ | Φ | ° |
| 09 | HT | | ) | 9 | I | Y | i | y | ë | Ö | ⌐ | ╣ | ╔ | ┘ | Θ | • |
| 0A | LF | | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | VT | ESC | + | ; | K | [ | k | { | ï | ¢ | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | FF | | , | < | L | \ | l | \| | î | £ | ¼ | ╝ | ╠ | ▄ | ∞ | n |
| 0D | CR | | - | = | M | ] | m | } | ì | ¥ | ¡ | ╜ | ═ | ▌ | ø | ² |
| 0E | SO | | . | > | N | ^ | n | ~ | Ä | ₧ | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | SI | | / | ? | O | _ | o | DEL | Å | ƒ | » | ┐ | ╧ | ▀ | ∩ | |

Figure 132.CWI



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Roman-8



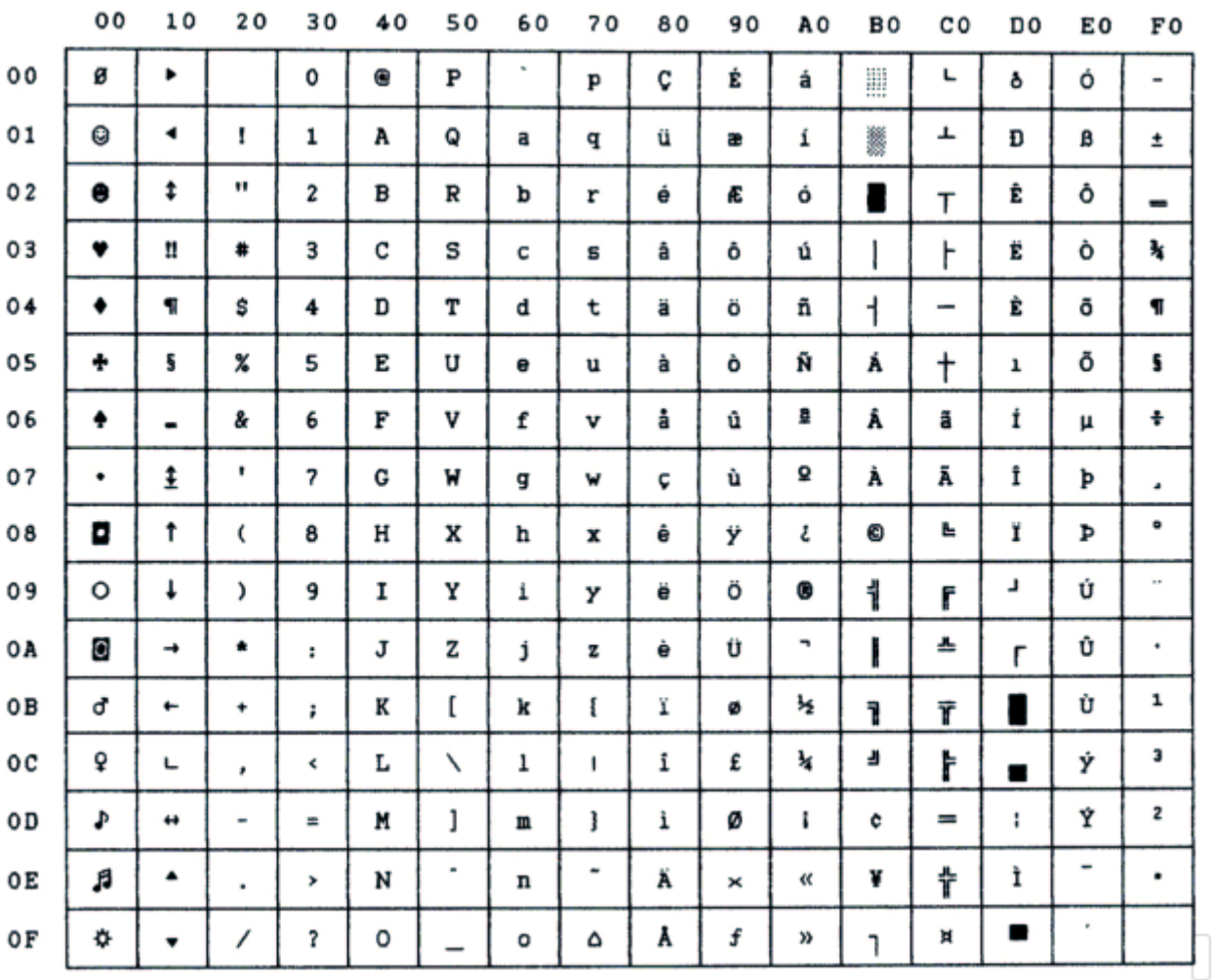
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | 0 | @ | P | ` | p | | | | ¯ | â | Å | Á | Þ |
| 1 | | | ! | 1 | A | Q | a | q | | | À | Ý | ê | î | Ã | þ |
| 2 | | | " | 2 | B | R | b | r | | | Â | ý | ô | Ø | ã | · |
| 3 | | | # | 3 | C | S | c | s | | | È | ° | û | Æ | Ð | µ |
| 4 | | | $ | 4 | D | T | d | t | | | Ê | Ç | á | å | ð | ¶ |
| 5 | | | % | 5 | E | U | e | u | | | Ë | ç | é | í | Í | ¾ |
| 6 | | | & | 6 | F | V | f | v | | | Î | Ñ | ó | ø | Ì | — |
| 7 | | | ' | 7 | G | W | g | w | | | Ï | ñ | ú | æ | Ó | ¼ |
| 8 | | | ( | 8 | H | X | h | x | | | ´ | ¡ | à | Ä | Ò | ½ |
| 9 | | | ) | 9 | I | Y | i | y | | | ` | ¿ | è | ì | Õ | ª |
| A | | | * | : | J | Z | j | z | | | ˆ | ¤ | ò | Ö | õ | º |
| B | | | + | ; | K | [ | k | { | | | ¨ | £ | ù | Ü | Š | « |
| C | | | , | < | L | \ | l | \| | | | ˜ | ¥ | ä | É | š | ▪ |
| D | | | - | = | M | ] | m | } | | | Ù | § | ë | ï | Ú | » |
| E | | | . | > | N | ^ | n | ~ | | | Û | ƒ | ö | ß | Ÿ | ± |
| F | | | / | ? | O | _ | o | ▒ | | | £ | ç | ü | Ô | ÿ | |

Figure 133.Roman-8



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## IN2



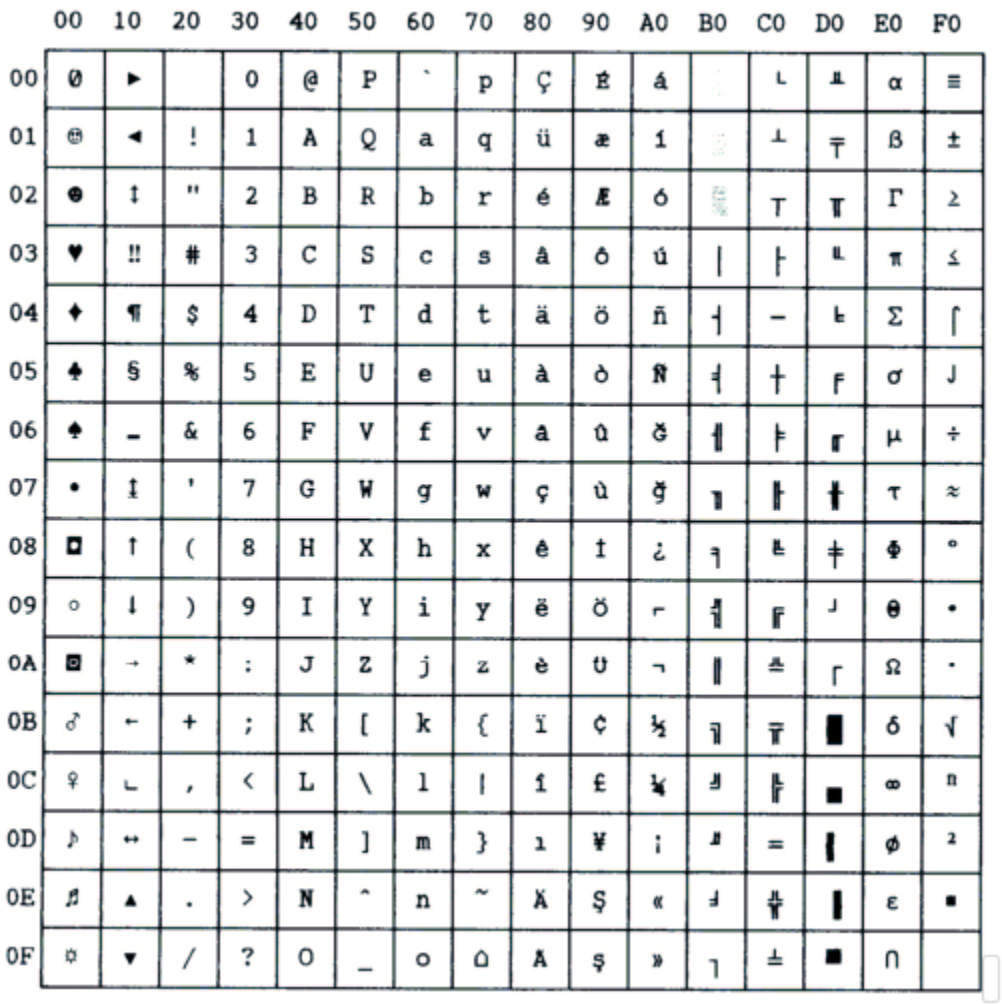
| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | Ø | ▶ | | 0 | @ | P | ` | p | Ç | É | á | ▒ | └ | ð | Ó | - |
| 01 | ☺ | ◀ | ! | 1 | A | Q | a | q | ü | æ | í | ▓ | ┴ | Ð | ß | ± |
| 02 | ☻ | ↕ | " | 2 | B | R | b | r | é | Æ | ó | ▉ | ┬ | Ê | Ô | ‗ |
| 03 | ♥ | ‼ | # | 3 | C | S | c | s | â | ô | ú | ▏ | ├ | Ë | Ò | ¾ |
| 04 | ♦ | ¶ | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | È | õ | ¶ |
| 05 | ♣ | § | % | 5 | E | U | e | u | à | ò | Ñ | Á | ┼ | ı | Õ | § |
| 06 | ♠ | ▬ | & | 6 | F | V | f | v | å | û | ª | Â | ã | Í | µ | ÷ |
| 07 | • | ↨ | ' | 7 | G | W | g | w | ç | ù | º | À | Ã | Î | Þ | ¸ |
| 08 | ◘ | ↑ | ( | 8 | H | X | h | x | ê | ÿ | ¿ | © | ╚ | Ï | Þ | ° |
| 09 | ○ | ↓ | ) | 9 | I | Y | i | y | ë | Ö | ® | ╣ | ╔ | ┘ | Ú | ¨ |
| 0A | ◙ | → | * | : | J | Z | j | z | è | Ü | ¬ | ▌ | ╩ | ┌ | Û | · |
| 0B | ♂ | ← | + | ; | K | [ | k | { | ï | ø | ½ | ╗ | ╦ | ▉ | Ù | ¹ |
| 0C | ♀ | ∟ | , | < | L | \ | l | ¦ | î | £ | ¼ | ╝ | ╠ | ▄ | ý | ³ |
| 0D | ♪ | ↔ | - | = | M | ] | m | } | ì | Ø | ¡ | ¢ | ═ | ¦ | Ý | ² |
| 0E | ♫ | ▲ | . | > | N | ^ | n | ~ | Ä | × | « | ¥ | ╬ | Ì | ¯ | ■ |
| 0F | ☼ | ▼ | / | ? | O | _ | o | ⌂ | Å | ƒ | » | ┐ | ¤ | ▄ | ´ | |

Figure 134.IN2



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Turkish



| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | Ø | ► | | 0 | @ | P | ` | p | Ç | É | á | | └ | ╨ | α | ≡ |
| 01 | ☺ | ◄ | ! | 1 | A | Q | a | q | ü | æ | í | | ┴ | ╤ | ß | ± |
| 02 | ☻ | ↕ | " | 2 | B | R | b | r | é | Æ | ó | | ┬ | ╥ | Γ | ≥ |
| 03 | ♥ | ‼ | # | 3 | C | S | c | s | â | ô | ú | │ | ├ | ╙ | π | ≤ |
| 04 | ♦ | ¶ | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | ♣ | § | % | 5 | E | U | e | u | à | ò | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | ♠ | ▬ | & | 6 | F | V | f | v | â | û | ğ | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | • | ↨ | ' | 7 | G | W | g | w | ç | ù | Ğ | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | ◘ | ↑ | ( | 8 | H | X | h | x | ê | İ | ¿ | ╕ | ╚ | ╪ | Φ | ° |
| 09 | ○ | ↓ | ) | 9 | I | Y | i | y | ë | Ö | ⌐ | ╣ | ╔ | ┘ | Θ | • |
| 0A | ◙ | → | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | ♂ | ← | + | ; | K | [ | k | { | ï | ¢ | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | ♀ | ∟ | , | < | L | \ | l | \| | î | £ | ¼ | ╝ | ╠ | ▄ | ∞ | n |
| 0D | ♪ | ↔ | − | = | M | ] | m | } | ı | ¥ | ¡ | ╜ | ═ | ▌ | ø | ² |
| 0E | ♫ | ▲ | . | > | N | ^ | n | ~ | Ä | Ş | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | ☼ | ▼ | / | ? | O | _ | o | ⌂ | Å | ş | » | ┐ | ╧ | ▀ | ∩ | |

Figure 135.Turkish



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Bulgarian

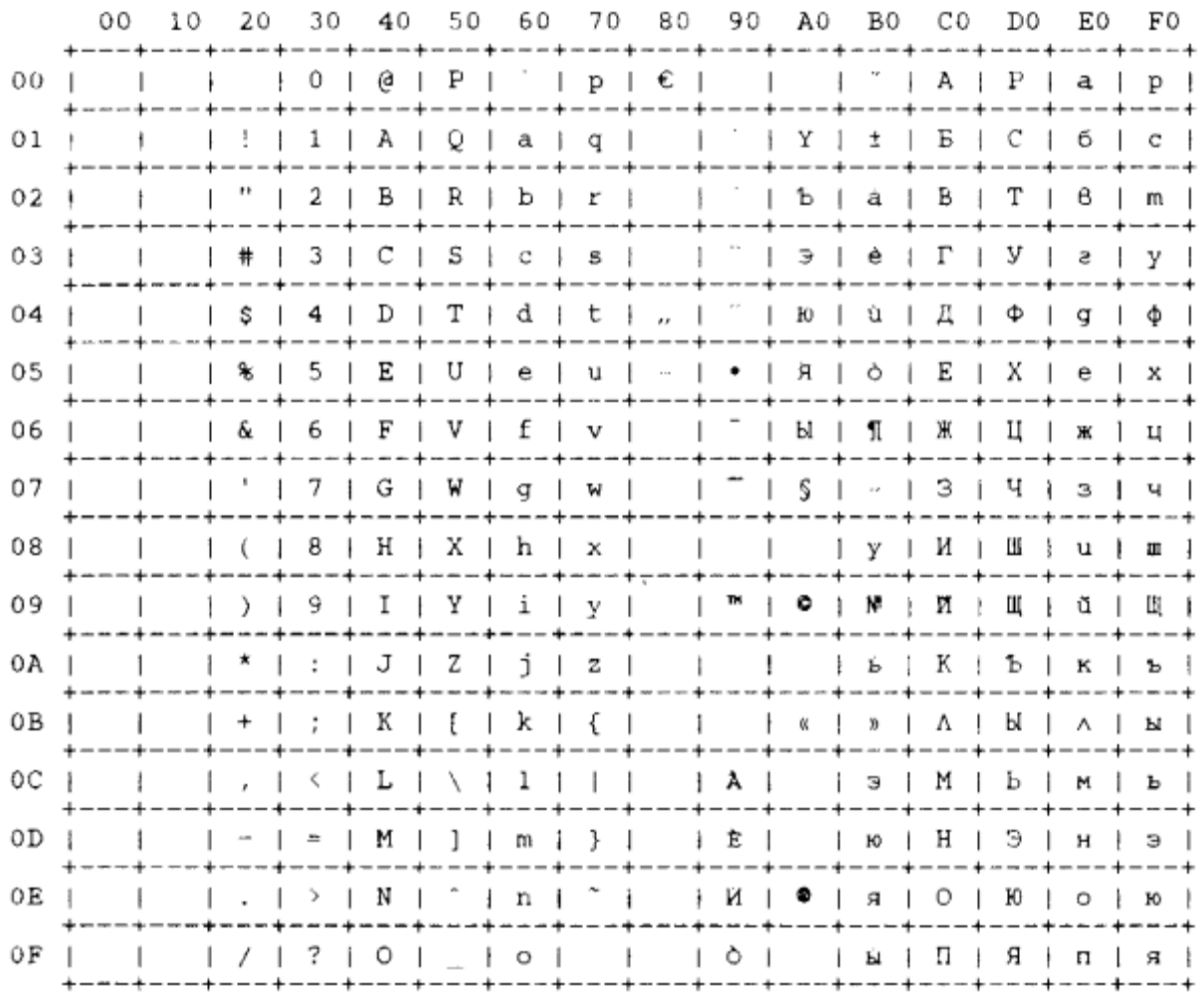


Figure 136. Bulgarian



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# 96 GREEK

| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL | | SP | 0 | @ | P | ` | | | | | | | | | |
| 01 | | DC1 | ! | 1 | A | Q | a | | | | | | | | | |
| 02 | | DC2 | " | 2 | B | R | b | | | | | | | | | |
| 03 | | DC3 | # | 3 | C | S | c | | | | | | | | | |
| 04 | | DC4 | $ | 4 | D | T | d | | | | | | | | | |
| 05 | | | % | 5 | E | U | e | | | | | | | | | |
| 06 | | | & | 6 | F | V | f | | | | | | | | | |
| 07 | BEL | | ' | 7 | G | W | g | | | | | | | | | |
| 08 | BS | CAN | ( | 8 | H | X | h | | | | | | | | | |
| 09 | HT | | ) | 9 | I | Y | i | | | | | | | | | |
| 0A | LF | | * | : | J | Z | j | | | | | | | | | |
| 0B | VT | ESC | + | ; | K | [ | k | | | | | | | | | |
| 0C | FF | | , | < | L | \ | l | | | | | | | | | |
| 0D | CR | | - | = | M | ] | m | | | | | | | | | |
| 0E | SO | | . | > | N | ^ | n | | | | | | | | | |
| 0F | SI | | / | ? | O | _ | o | DEL | | | | | | | | SP |

Figure 137.96GREEK



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Character Sets

## Character Set 1

| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL | | SP | 0 | @ | P | ’ | p | NUL | | á | ▒ | └ | ╨ | α | ≡ |
| 01 | | DC1 | ! | 1 | A | Q | a | q | | DC1 | í | ▓ | ┴ | ╤ | ß | ± |
| 02 | | DC2 | “ | 2 | B | R | b | r | | DC2 | ó | ▓ | ┬ | ╥ | Γ | ≥ |
| 03 | | DC3 | # | 3 | C | S | c | s | | DC3 | ú | │ | ├ | ╙ | π | ≤ |
| 04 | | DC4 | $ | 4 | D | T | d | t | | DC4 | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | | | % | 5 | E | U | e | u | | | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | | | & | 6 | F | V | f | v | | | ª | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | BEL | | ‘ | 7 | G | W | g | w | BEL | | º | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | BS | CAN | ( | 8 | H | X | h | x | BS | CAN | ¿ | ╕ | ╚ | ╪ | Φ | ° |
| 09 | HT | | ) | 9 | I | Y | i | y | HT | | ⌐ | ╣ | ╔ | ┘ | Θ | ∙ |
| 0A | LF | | * | : | J | Z | j | z | LF | | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | VT | ESC | + | ; | K | [ | k | { | VT | ESC | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | FF | | , | < | L | \ | l | \| | FF | | ¼ | ╝ | ╠ | ▄ | ∞ | ⁿ |
| 0D | CR | | - | = | M | ] | m | } | CR | | ¡ | ╜ | ═ | ▌ | φ | ² |
| 0E | SO | | . | > | N | ^ | n | ~ | SO | | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | SI | | / | ? | O | _ | o | DEL | SI | | » | ┐ | ╧ | ▀ | ∩ | SP |

Figure 138.CharacterSet1



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Character Set 2

| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL | | SP | 0 | @ | P | ’ | p | Ç | É | á | ▒ | └ | ╨ | α | ≡ |
| 01 | | DC1 | ! | 1 | A | Q | a | q | ü | æ | í | ▓ | ┴ | ╤ | ß | ± |
| 02 | ` | DC2 | “ | 2 | B | R | b | r | é | Æ | ó | ▓ | ┬ | ╥ | Γ | ≥ |
| 03 | ♥ | DC3 | # | 3 | C | S | c | s | â | ô | ú | │ | ├ | ╙ | π | ≤ |
| 04 | ♦ | DC4 | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | ♣ | § | % | 5 | E | U | e | u | à | ò | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | ♠ | | & | 6 | F | V | f | v | å | û | ª | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | BEL | | ‘ | 7 | G | W | g | w | ç | ù | º | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | BS | CAN | ( | 8 | H | X | h | x | ê | ÿ | ¿ | ╕ | ╚ | ╪ | Φ | ° |
| 09 | HT | | ) | 9 | I | Y | i | y | ë | ö | ⌐ | ╣ | ╔ | ┘ | Θ | ∙ |
| 0A | LF | | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | VT | ESC | + | ; | K | [ | k | { | ï | ¢ | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | FF | | , | < | L | \ | l | \| | î | £ | ¼ | ╝ | ╠ | ▄ | ∞ | ⁿ |
| 0D | CR | | - | = | M | ] | m | } | ì | ¥ | ¡ | ╜ | ═ | ▌ | φ | ² |
| 0E | SO | | . | > | N | ^ | n | ~ | Ä | ₧ | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | SI | | / | ? | O | _ | o | DEL | Å | ƒ | » | ┐ | ╧ | ▀ | ∩ | SP |

Figure 139.CharacterSet2



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Hexadecimal to Decimal Table

| | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | 0 | 16 | 32 | 48 | 64 | 80 | 96 | 112 | 128 | 144 | 160 | 176 | 192 | 208 | 224 | 240 |
| 01 | 1 | 17 | 33 | 49 | 65 | 81 | 97 | 113 | 129 | 145 | 161 | 177 | 193 | 209 | 225 | 241 |
| 02 | 2 | 18 | 34 | 50 | 66 | 82 | 98 | 114 | 130 | 146 | 162 | 178 | 194 | 210 | 226 | 242 |
| 03 | 3 | 19 | 35 | 51 | 67 | 83 | 99 | 115 | 131 | 147 | 163 | 179 | 195 | 211 | 227 | 243 |
| 04 | 4 | 20 | 36 | 52 | 68 | 84 | 100 | 116 | 132 | 148 | 164 | 180 | 196 | 212 | 228 | 244 |
| 05 | 5 | 21 | 37 | 53 | 69 | 85 | 101 | 117 | 133 | 149 | 165 | 181 | 197 | 213 | 229 | 245 |
| 06 | 6 | 22 | 38 | 54 | 70 | 86 | 102 | 118 | 134 | 150 | 166 | 182 | 198 | 214 | 230 | 246 |
| 07 | 7 | 23 | 39 | 55 | 71 | 87 | 103 | 119 | 135 | 151 | 167 | 183 | 199 | 215 | 231 | 247 |
| 08 | 8 | 24 | 40 | 56 | 72 | 88 | 104 | 120 | 136 | 152 | 168 | 184 | 200 | 216 | 232 | 248 |
| 09 | 9 | 25 | 41 | 57 | 73 | 89 | 105 | 121 | 137 | 153 | 169 | 185 | 201 | 217 | 233 | 249 |
| 0A | 10 | 26 | 42 | 58 | 74 | 90 | 106 | 122 | 138 | 154 | 170 | 186 | 202 | 218 | 234 | 250 |
| 0B | 11 | 27 | 43 | 59 | 75 | 91 | 107 | 123 | 139 | 155 | 171 | 187 | 203 | 219 | 235 | 251 |
| 0C | 12 | 28 | 44 | 60 | 76 | 92 | 108 | 124 | 140 | 156 | 172 | 188 | 204 | 220 | 236 | 252 |
| 0D | 13 | 29 | 45 | 61 | 77 | 93 | 109 | 125 | 141 | 157 | 173 | 189 | 205 | 221 | 237 | 253 |
| 0E | 14 | 30 | 46 | 62 | 78 | 94 | 110 | 126 | 142 | 158 | 174 | 190 | 206 | 222 | 238 | 254 |
| 0F | 15 | 31 | 47 | 63 | 79 | 95 | 111 | 127 | 143 | 159 | 175 | 191 | 207 | 223 | 239 | 255 |

Figure 140.Hexadecimal to Decimal Table



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Epson FX-series Code Pages

The following Epson code charts provide information on the character tables available for Epson FX-series emulation mode.

## Extended Graphics Character

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | sp | 0 | @ | P | ‘ | p | Ç | É | á | ▒ | └ | ╨ | α | ≡ |
| 1 | | | 1 | 1 | A | Q | a | q | ü | æ | í | ⣿ | ┴ | ╤ | β | ± |
| 2 | | | " | 2 | B | R | b | r | é | Æ | ó | ▓ | ┬ | ╥ | Γ | ≥ |
| 3 | | | # | 3 | C | S | c | s | â | ô | ú | │ | ├ | ╙ | π | ≤ |
| 4 | | | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 5 | | | % | 5 | E | U | e | u | à | ò | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 6 | | | & | 6 | F | V | f | v | å | û | ª | ╢ | ╞ | ╓ | μ | ÷ |
| 7 | | | ' | 7 | G | W | g | w | ç | ù | º | ╖ | ╟ | ╫ | τ | ≈ |
| 8 | | | ( | 8 | H | X | h | x | ê | ÿ | ¿ | ╕ | ╚ | ╪ | ϕ | ° |
| 9 | | | ) | 9 | I | Y | i | y | ë | Ö | ⌐ | ╣ | ╔ | ┘ | θ | ● |
| A | | | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | • |
| B | | | + | ; | K | [ | k | { | ï | ¢ | ½ | ╗ | ╦ | ▌ | δ | √ |
| C | | | , | < | L | \ | l | ¦ | î | £ | ¼ | ╝ | ╠ | ▪ | ∞ | ⁿ |
| D | | | - | = | M | ] | m | } | ì | ¥ | ¡ | ╜ | ═ | ▐ | ϕ | ² |
| E | | | . | > | N | ^ | n | ~ | Ä | ₧ | ⪡ | ╛ | ╬ | ▐ | ϵ | ■ |
| F | | | / | ? | O | _ | o | | Å | ƒ | ⪢ | ┐ | ╧ | ■ | ∩ | Ø |

Figure 141. Epson Extended Graphics Character



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Italic Character Table

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | sp | 0 | @ | P | ‘ | p | | | | 0 | @ | P | ‘ | p |
| 1 | | | ! | 1 | A | Q | a | q | | | ! | 1 | A | Q | a | q |
| 2 | | | " | 2 | B | R | b | r | | | " | 2 | B | R | b | r |
| 3 | | | # | 3 | C | S | c | s | | | # | 3 | C | S | c | s |
| 4 | | | $ | 4 | D | T | d | t | | | $ | 4 | D | T | d | t |
| 5 | | | % | 5 | E | U | e | u | | | % | 5 | E | U | e | u |
| 6 | | | & | 6 | F | V | f | v | | | & | 6 | F | V | f | v |
| 7 | | | ' | 7 | G | W | g | w | | | ’ | 7 | G | W | g | w |
| 8 | | | ( | 8 | H | X | h | x | | | ( | 8 | H | X | h | x |
| 9 | | | ) | 9 | I | Y | i | y | | | ) | 9 | I | Y | i | y |
| A | | | * | : | J | Z | j | z | | | * | : | J | Z | j | z |
| B | | | + | ; | K | [ | k | { | | | + | ; | K | [ | k | { |
| C | | | , | < | L | \ | l | ¦ | | | , | < | L | \ | l | ¦ |
| D | | | − | = | M | ] | m | } | | | − | = | M | ] | m | } |
| E | | | . | > | N | ^ | n | ˜ | | | . | > | N | ^ | n | ˜ |
| F | | | / | ? | O | _ | o | | | | / | ? | O | _ | o | { |

Figure 142. Epson Italic Character



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Epson Extended Character Variables

The following table shows characters that vary, by language, from the Epson Extended Character Graphics set.
The code points shown are the only ones that vary. For example, in the United Kingdom, only code point X'23' is different from the basic Epson table, shown on previous pages.

| | Code Point (in hexadecimal) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Country** | **23** | **24** | **40** | **5B** | **5C** | **5D** | **5E** | **60** | **7B** | **7C** | **7D** | **7E** |
| U S A | # | $ | @ | [ | \ | ] | ^ | ' | { | ¦ | } | ~ |
| France | | | à | ° | ç | § | | | é | ù | è | ¨ |
| Germany | | | § | Ä | Ö | Ü | | | ä | ö | ü | ß |
| U K | £ | | | | | | | | | | | |
| Denmark - 1 | | $ | | Æ | Ø | Å | | | æ | ø | å | |
| Sweden | | ¤ | É | Ä | Ö | Å | Ü | é | ä | ö | å | ü |
| Italy | | | | ° | \ | é | | ù | à | ò | è | ì |
| Spain - 1 | ₧ | | | ¡ | Ñ | ¿ | | | ¨ | ñ | | |
| Japan | | | | | ¥ | | | | | | | |
| Norway | | ¤ | É | Æ | Ø | Å | Ü | é | æ | ø | ø | ü |
| Denmark - 2 | | | É | Æ | Ø | Å | Ü | é | æ | ø | ø | ü |
| Spain - 2 | | | á | ¡ | Ñ | ¿ | é | | í | ñ | ó | ú |
| Latin America I | | | á | ¡ | Ñ | ¿ | é | ü | í | ñ | ó | ú |
| French Canadian | | | á | â | ç | ê | î | ô | é | ù | è | û |
| Latin America II | | | | | Ñ | | ú | í | ó | á | é | ü |

Figure 143. Epson Extended Character Variables



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# ANSI National Variations

The following table shows characters that vary, by language, from the ANSI Extended Character Graphics set.

| | 33 | 35 | 36 | 38 | 39 | 42 | 59 | 64 | 91 | 92 | 93 | 94 | 96 | 113 | 123 | 124 | 125 | 126 | (dec.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USA | ! | # | $ | & | ' | * | ; | @ | [ | \ | ] | ^ | ` | q | { | \| | } | ~ | |
| German | ! | # | $ | & | ' | * | ; | § | Ä | Ö | Ü | ^ | ` | q | ä | ö | ü | ß | |
| French A | ! | £ | $ | & | ' | * | ; | à | ° | ç | § | ^ | ` | q | é | ù | è | ¨ | |
| French B | ! | é | à | 1 | ' | è | ; | è | à | \ | ù | û | ç | q | { | \| | } | ö | |
| French/Canadian | ! | # | $ | & | ' | * | ; | à | â | ç | é | î | ô | q | é | ù | è | û | |
| Netherlands | ! | # | ƒ | & | ' | * | ; | @ | [ | \ | ] | ^ | ` | q | ¨ | \| | ij | ¨ | |
| Italian | ! | £ | $ | & | ' | * | ; | § | ° | ç | é | ^ | ù | q | à | ò | è | ì | |
| United Kingdom | ! | £ | $ | & | ' | * | ; | @ | [ | \ | ] | ^ | ` | q | { | \| | } | ~ | |
| Spanish | ! | ₧ | $ | & | ' | * | ; | @ | ¡ | ₧ | ¿ | ^ | ` | q | ¨ | ñ | } | ~ | |
| Danish/Norwegian A | ! | # | $ | & | ' | * | ; | @ | Æ | Ø | Å | ^ | ` | q | æ | ø | å | ~ | |
| Danish/Norwegian B | ! | # | ¤ | & | ' | * | ; | @ | Æ | Ø | Å | ^ | ` | q | æ | ø | å | ~ | |
| Danish/Norwegian C | ! | # | $ | & | ' | * | ; | É | Æ | Ø | Å | Ü | é | q | æ | ø | å | ü | |
| Danish/Norwegian D | ! | # | ¤ | & | ' | * | ; | É | Æ | Ø | Å | Ü | é | q | æ | ø | å | ü | |
| Swedish/Finnish A | ! | # | $ | & | ' | * | ; | @ | Ä | Ö | Å | ^ | ` | q | ä | ö | å | ~ | |
| Swedish/Finnish B | ! | # | ¤ | & | ' | * | ; | @ | Ä | Ö | Å | ^ | ` | q | ä | ö | å | ~ | |
| Swedish/Finnish C | ! | # | $ | & | ' | * | ; | É | Ä | Ö | Å | Ü | é | q | ä | ö | å | ü | |
| Swedish/Finnish D | ! | # | ¤ | & | ' | * | ; | É | Ä | Ö | Å | Ü | é | q | ä | ö | å | ü | |
| Switzerland | ! | # | $ | & | ' | * | ; | ç | à | é | è | ^ | ` | q | ä | ö | ü | ~ | |
| USA (ISO) | ! | # | $ | & | ' | * | ; | @ | [ | \ | ] | ^ | ` | q | { | \| | } | ~ | |
| Yugoslavia | ! | # | $ | & | ' | * | ; | Ž | Š | Đ | Ć | Č | ž | q | š | đ | ć | č | |
| United Kingdom A | ! | $ | £ | & | ' | * | : | @ | [ | \ | ] | ^ | ` | q | { | \| | } | ~ | |
| Turkey | ! | ğ | $ | & | ' | * | ; | Ç | Ş | İ | ö | Ü | ç | ğ | ş | ı | ö | ü | |
| Greece | Γ | Δ | Σ | Θ | Λ | * | Ξ | π | Σ | Φ | Ψ | Ω | ` | q | { | \| | } | ~ | |
| Cyrillic | ! | # | $ | & | ' | * | ; | @ | [ | \ | ] | ^ | ` | q | { | \| | } | ~ | |
| | 21 | 23 | 24 | 26 | 27 | 2A | 3B | 40 | 5B | 5C | 5D | 5E | 60 | 71 | 7B | 7C | 7D | 7E | (hex.) |

Figure 144. ANSI National Variations



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix B. Interfaces

This section provides technical information for the parallel and serial interfaces.

## The Parallel Interface

The parallel interface of this printer fully supports the Centronics protocol plus the specific features requested by the EPSON and IBM printer connection in monodirectional mode and the Compatibility and Nibbles modes in bidirectional mode, plus the negotiation phases and the device identifier (as IEEE P1284).

The parallel interface is available on a specific 36 contact connector type AMPHENOL 57-40360- 12-D56 or equivalent connector for 1284 Type B.

- Drive Capability
  Up to 15 feet (5 m) on AWG26 min. wire size of twisted conductors on TTL receiver. The max. reachable distance is conditioned by the host drive capability and by the noise level along the interface cable path.
- Printer Connector Type
  36 pins, 1284 Type B
- Cable Connector
  25 pin, 1284 A Type

### Signals Description

According to the IEEE - P1284 Standard, the pins assume different meanings and are identified by different names depending on the actual handshaking mode as follows:

- Compatibility mode (Centronics)
  This is the lower level mode provides an asynchronous, byte-wide forward (host-to-peripheral) channel with data and status lines used according to their original definitions. The interfaces power up in the compatibility Mode Idle phase.
- Nibble Mode
  This mode provides an asynchronous, reverse (peripheral-to-host) channel, under control of the host. In this mode, peripheral device to host data bytes are sent as two sequential, four-bit nibbles using the four peripheral-to-host status lines. These two modes cannot be active simultaneously.
- Byte Mode
  This mode provides an asynchronous, byte-wide reverse (peripheral-to host) channel based on eight data lines of the interface for data and the control/status lines for handshaking. Byte mode is under host control and it cannot be simultaneously active with compatibility mode.

### Operating Phases

The link protocol is mainly based on the following three phases:

- Negotiation Phase
  This phase is activated always by the host, only when in compatibility mode, and defines:
  – whether a bidirectional link protocol can be established.
  – the handshaking mode as well as the communications mode to be used.
  – the device identification, if supported.
- Communication Phase
  This phase is based on well defined handshaking rules which depend upon the selected link mode.
- Termination Phase



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This phase is initiated by the host and returns the interface to the compatibility mode.

## Parallel Interface Signals

Description of the signals in monodirectional link:

| Signal Name | Pin N° | Source | Description |
|---|---|---|---|
| STROBE | 1 | HOST | Clock signal which controls data transmission with its falling edge. |
| ACK | 10 | PRINTER | Negative pulsed signal indicating that the printer has received data and is ready to accept the next set of data. Also sent when the printer is switched from off-line to on-line and at the end of the initialization time. The BUSY line is always active. |
| DATA BIT 1 | 2 | PRINTER / HOST | Data 8 is the most significant bit. These are the data lines used by host or printer to transfer control code or ASCII codes. |
| DATA BIT 2 | 3 | | |
| DATA BIT 3 | 4 | | |
| DATA BIT 4 | 5 | | |
| DATA BIT 5 | 6 | | |
| DATA BIT 6 | 7 | | |
| DATA BIT 7 | 8 | | |
| DATA BIT 8 | 9 | | |
| BUSY | 11 | PRINTER | When high, this signal indicates that the printer cannot accept data or control codes. This signal goes high during data processing, in test and program modes, during initialization, when the buffer is full, and when a paper jam, paper end or paper size error occurs, in case of a power-on reset, the reception of a STROBE signal, while the register was not yet read, or when the INIT line is still active. |
| PE | 12 | PRINTER | When high, this signal indicates that the automatic input bin is out of paper and paper cannot be loaded from an other bin. |
| SELECT | 13 | PRINTER | When high, this signal indicates that the printer is on-line. It is put to low state in case of initialization or test and program mode. In IBM Proprinter emulation in low condition this signal signals a off-line request from the operator panel, paper jam, paper end or paper size errors. |
| AUTOFEEDXT | 14 | HOST | Active low level signal. Indicates whether a LF is performed after a CR or not. |
| GND | 16 | – | Logical ground level (0V). |
| CHASSIS GND | 17 | – | Frame ground. |
| +5 VDC | 18 | PRINTER | Is the DC voltage supplied by a component that limits the driven capability up to 100 mA. |
| SIGNAL GND | 19-30 | – | Signal ground. |
| INIT | 31 | HOST | Active low level signal. Indicates, that the printer is initializing. The BUSY signal is forced high. |
| ERROR | 32 | PRINTER | When low, this signal indicates that the printer is offline, there is an offline request from the operator panel, or the printer is in an error state because of: paper jam, paper end or paper size error, engine error, output bin full or cover open condition. |
| +5V | 35 | PRINTER | Pulled up to signal. |
| SELECTIN | 36 | HOST | Active low level signal. Enables the printer. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

The pins 1 to 14 of the printer are connected to the pins with the same number of the parallel port of the host.
The pins 19 to 30 of the printer are connected to the pins 18 to 25 of the parallel port of the host.
The pins 31, 32 and 36 of the printer are connected respectively to the pins 16, 15 and 17 of the parallel port of the host.
1284 Mode signal names are shown with their Compatibility mode (Centronics) names in parenthesis ( ) for the bidirectional link.

| Signal Name | Pin N° for Signal Wire | Pin N° for Return Wire | Source |
|---|---|---|---|
| HostClk (nStrobe) | 1 | 19 | HOST |
| AD1 (Data 1) | 2 | 20 | HOST in Compatibility mode and negotiation phase. |
| AD2 (Data 2) | 3 | 21 | |
| AD3 (Data 3) | 4 | 22 | NOT USED in Nibble mode. |
| AD4 (Data 4) | 5 | 23 | |
| AD5 (Data 5) | 6 | 24 | BIDIRECTIONAL in Byte mode. |
| AD6 (Data 6) | 7 | 25 | |
| AD7 (Data 7) | 8 | 26 | |
| AD8 (Data 8) | 9 | 27 | |
| PrtClk (nAck) | 10 | 28 | PRINTER |
| PrtBusy (Busy) | 11 | 29 | PRINTER |
| AckDataReq (PError) | 13 | 28 | PRINTER |
| Xflag (Select) | 14 | 28 | PRINTER |
| HostBusy (nAutofd) | 15 | 30 | HOST |
| Peripheral Logic High (+5 V) | 18 | | PRINTER |
| n.a. (nInit) | 31 | 30 | HOST |
| nDataAvail (NFault) | 32 | 29 | PRINTER |
| 1284 Active (NSelectIn) | 36 | 30 | |
| Common Logic Ground | 16 and Return Wires | | |
| Chassis Ground | 17 | | |

## Parallel Interface Signals Behaviour

**HostClk /nWrite (nStrobe)**

| | |
|---|---|
| Compatibility Mode: | Set Active low to transfer data into printer input latch. Data is valid while nStrobe is low. |
| Negotiation Phase: | Set active low to transfer extendibility request value into printer input latch. Data is valid on the falling edge of HostClk. |
| Reverse Data Transfer Phase: | Set high during Nibble Mode transfer to avoid latching data into printer. Pulsed low during Byte Mode transfers to acknowledge transfer of data from the printer. The printer shall ensure that this pulse does not transfer a new data into the printer input latch. |

**AD1 ... AD8 (Data 1 ... Data 8)**

| | |
|---|---|
| Compatibility Mode: | Forward channel data. |
| Negotiation Phase: | Extendibility request value. |
| Reverse Data Transfer Phase: | Nibble Mode: NOT USED.<br>Byte Mode: Reverse channel data. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**PrtClk (nAck)**

| | |
|---|---|
| Compatibility Mode: | Pulsed low by the printer to acknowledge the transfer of a data from the host. |
| Negotiation Phase: | Set low to acknowledge 1284 support, then set high to indicate that the Xflag (Select) and data available flags may be read. |
| Reverse Data Transfer Phase: | Used in both Nibble and Byte Modes to qualify data being sent to the host. |

**PrtBusy (Busy)**

| | |
|---|---|
| Compatibility Mode: | Driven high to indicate that the printer is not ready to receive data. |
| Negotiation Phase: | Reflects the present state of the printer's forward channel. |
| Reverse Data Transfer Phase: | **Nibble Mode:** Data bits 3 then 7, then forward channel busy status<br>**Byte Mode:** Forward channel busy status. |
| Reverse Idle phase: | Forward channel busy status. |

**AckDataReq (PError)**

| | |
|---|---|
| Compatibility Mode: | Driven high to indicate that the printer has encountered an error in the paper path. The printer shall set nFault low whenever it sets PError high. |
| Negotiation Phase: | Set high to indicate 1284 support, then follows nDataAvail (nFault). |
| Reverse Data Transfer Phase: | **Nibble Mode:** Data bits then 6.<br>**Byte Mode:** same as nDataAvail (nFault) |
| Reverse Idle phase: | Set high until host requests data transfer, then follows nDataAvail (nFault). |

**Xflag (Select)**

| | |
|---|---|
| Compatibility Mode: | Set high to indicate that the printer in on-line. |
| Negotiation Phase: | The Xflag refers to extendibility flag. Used by the printer to reply to the requested extendibility byte sent by the host during the negotiation phase. The signal level is low for Nibble Mode, high for Byte Mode. |
| Reverse Data Transfer Phase: | **Nibble Mode:** Data bits 1 then 5.<br>**Byte Mode:** Same as negotiation phase. |
| Reverse Idle phase: | Same as negotiation phase. |

**Xflag (Select)**

| | |
|---|---|
| Compatibility Mode: | Set low by host to put the printer into auto-line feed mode. |
| Negotiation Phase: | Set low in conjunction with 1284 Active (NSelectIn) being set high to request a 1284 mode.<br>Then set high after printer sets PtrClk (nAck) low. |

**Xflag (Select)**

| | |
|---|---|
| Reverse Data Transfer Phase: | **Nibble Mode:** Set low to indicate that host can receive printer-to-host data then set high to acknowledge receipts of that nibble.<br>**Byte Mode:** Same as Nibble Mode to request and acknowledge bytes. Following a reverse channel transfer the interface transitions to idle phase when HostBusy (nAutoFd) is set low and printer's no data available. |
| Reverse Idle phase: | Set high in response to PtrClk (nAck) low pulse to re-enter reverse data transfer phase.<br>Is set high with 1284 Active (nSelectIn) being set low, the 1284 idle phase is being aborted and the interface returns to Compatibility Mode. |

Peripheral Logic High (+ 5V)

Set high to indicate that all other signals sourced by the printer are in valid state. Set low to indicate the printer is off.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**n.a. (nInit)**

| | |
|---|---|
| Compatibility Mode: | Pulsed low in conjunction with 1284 Active low to reset the interface and force to return to Compatibility Mode idle phase. |
| Negotiation Phase: | Set HIGH. |
| Reverse Data Transfer Phase: | Set HIGH. |

**nDataAvail (NFault)**

| | |
|---|---|
| Compatibility Mode: | Set low to indicate that an internal printer error has occurred. |
| Negotiation Phase: | Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high. |
| Reverse Data Transfer Phase: | **Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4.<br>**Byte Mode:** Used to indicate that data is available. |
| Reverse Idle phase: | Used to indicate that data is available. |

**nDataAvail (NFault)**

| | |
|---|---|
| Compatibility Mode: | Set low to indicate that an internal printer error has occurred. |
| Negotiation Phase: | Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high. |
| Reverse Data Transfer Phase: | **Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4.<br>**Byte Mode:** Used to indicate that data is available. |
| Reverse Idle phase: | Used to indicate that data is available. |

**1284 Active (NSelectIn)**

| | |
|---|---|
| Compatibility Mode: | Set low by host to select printer. |
| Negotiation Phase: | Set high in conjunction with Host Busy being set low to request a 1284 mode. |
| Reverse Data Transfer Phase: | Set high to indicate that bus direction is printer to host. Set low to terminate 1284 mode and set bus direction host to printer. |
| Reverse Idle Phase: | Same as Reverse Data Transfer phase. |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Interface Timing

Timing and Handshaking depend upon the connection mode.

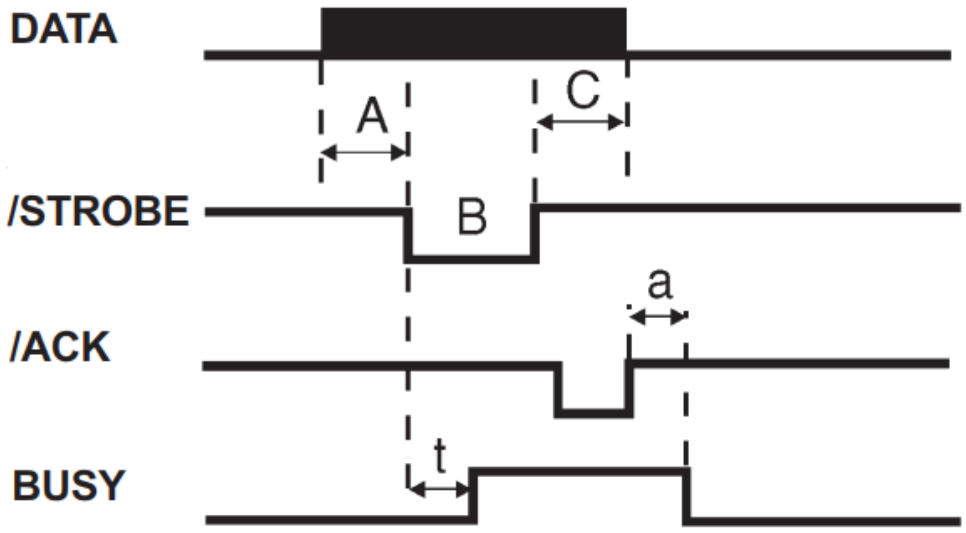



Figure 145. Mode Centronics

Our Centronics mode supports the BUSY-WHILE-STROBE busy signal timing and ACK-INBUSY as BUSY-ACK relationship.

| Legend | Time interval | Min. | Max. | |
|---|---|---|---|---|
| A | Data Setup Time | 1.0 | | |
| B | Strobe pulse width | 1.0 | 500 | |
| C | Data hold time | 1.0 | | all times in µs |
| t | Busy while Strobe | 0.25 | 1.0 | |
| a | Ack in Busy | 0 | 2.5 | |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

### Mode IEEE 1284

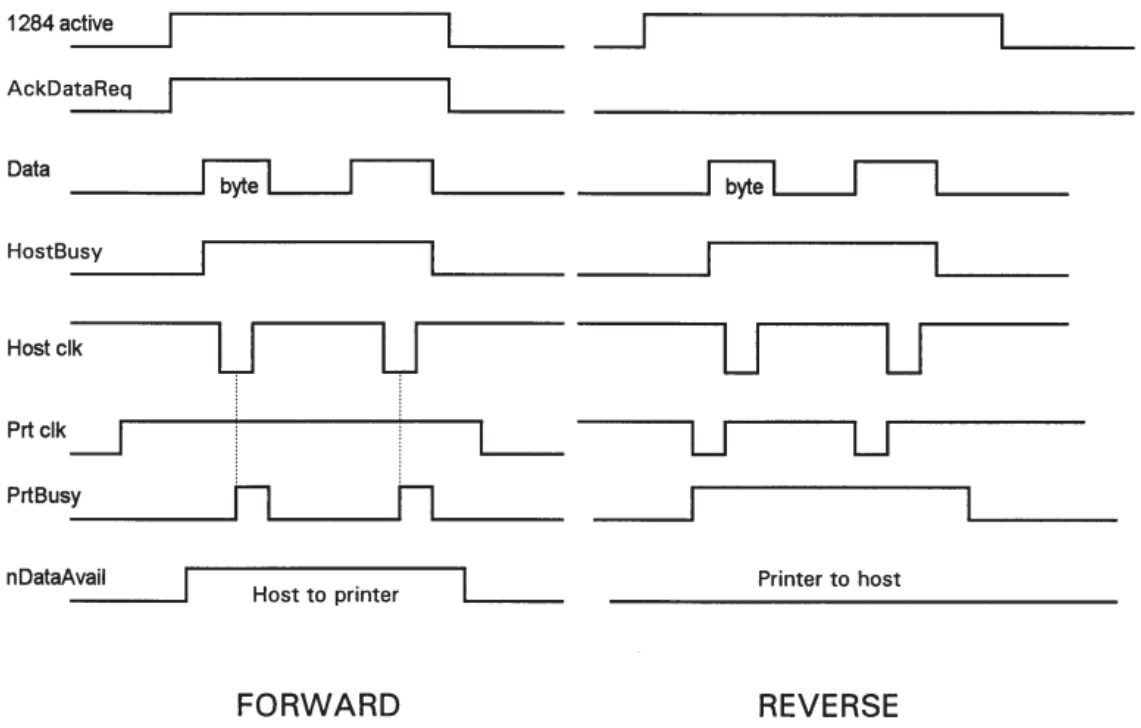



Figure 146. Mode IEEE 1284

## The Serial Interface

This printer provides the RS-232/C serial interfaces. The interface mode is selected via menu.

- Transmission Type
  Data is sent and received in start/stop (asynchronous) transmission.
- Character Format
  Each character is transmitted in the following format:
  1 START BIT + 8 DATA BITS + 1 PARITY BIT + 1 STOP BIT
  The least significant bit of the data bits is sent first after the start bit. The number of data bits is selected via menu. The parity bit, when present, follows the data bits. The start bit is a logical “0” and the stop bit is a logical “1”. The start and stop bits are used as character framing bits.
- Printer Connector
  Male DB9 or equivalent connector.
- Drive Capability
  Max. 50 feet (15 m) for all supported data rates. The RS-422/A interface is effective up to 1200 m.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

### Serial Interface Signals

The following table lists the RS-232/C serial interface signals:

| Signal Name | Pin Number | Local Connect. Source | Remote Connect. Source | Description |
|---|---|---|---|---|
| SIGNAL GROUND | 5 | – | – | Always connected to the 0 Volts of the Power Supply |
| TXD | 3 | Printer | Printer | Transmitted Data Signal (an output from printer). A MARK condition is held during IDLE communication state. An indeterminate state is present when printer is powered off. |
| RXD | 2 | Host | Data Set | Received data signal (an input to printer). |
| RTS | 7 | Printer | Printer | Request to Send Signal (an output from printer). Active HIGH level signal. It is HIGH until the printer is powered off, then an indeterminate state is present . |
| CTS | 8 | | Data Set | Active HIGH level signal indicates that the host or data set is ready to receive data from the printer. |
| DSR | 6 | | Data Set | Active HIGH level signal. Indicates that the host or data set is ready to be connected to the printer and is ready for data transfer. |
| DCD | 1 | | Data Set | Active HIGH level signal. Indicates that the host is transmitting or the data set is r receiving the Data Carrier signal. |
| 2nd RTS | 9 | Printer | | Functionally equivalent to the DTR signal. |
| DTR | 4 | Printer | Printer | Data Terminal Ready. Normally HIGH (ON). Indicates that the printer is ready to initiate a connection. |

# LAN Interface Port

### LAN Interface Port

1. Ethernet 10/100BaseT Connector
2. Green 10/100Mbit/sec. Transmission Speed LED
3. Yellow Traffic LED

### LED Indicators

The LED indicator modes are described in the following table:

| LED | Status | Description |
|---|---|---|
| Yellow LED | Unlit | Transmission speed at 10Mbit/sec. |
| | Lit | Transmission speed at 100Mbit/sec. |
| Green LED | Blinks | Transmitting or receiving packets from the network. |

# USB Interface Port

USB 2.0 full speed 12/Mbit/sec. interface.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix C. Network Interface Technical Reference

## Network Configuration Parameters

**IP Address Assignment**

Fixed: Assigns the static or fixed IP address.
DHCP: Assigns the dynamic IP address (DHCP protocol).
Default value is DHCP.

Fixed and DHCP assignments of IP addresses are supported. On most networks, you will want to assign a permanent IP address and disable DHCP.

**IP Address**

These values set the IP Address. The address is represented by a decimal notation where the decimal values are divided by points in four fields.

Each field ranges between 0 and 255.
Default is 127.000.000.000.

**Subnet Mask**

These values set the Subnet Mask number. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 255.255.254.000.

**Default Gateway**

These values set the Default Gateway address. This address is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

The gateway address tells the printer which router or gateway to use to access other subnets or hosts. Simply add your router's IP address as the default gateway. All packets destined for other subnets will be forwarded to the default gateway for delivery to the destination host.

**Host Name**

The host is identified by a name in the NetBIOS protocol over TCP/IP. This function allows creating the name of the host using a 14-character string.

Default is PTX_xxxxxx where xxxxxx are the last 6-digits of the MAC address...

**Workgroup Name**

The workgroup is identified by a name in the NetBIOS protocol over TCP/IP in Windows. This function allows creating the name of the workgroup using a 14-character string.

Default is Workgroup.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

**SMTP Service**

SMTP (Simple Mail Transfer Protocol) allows a mail server address to be entered into the printer configuration to send automated e-mail notifications with printer alert conditions.

Disabled: Disables the SMTP (Simple Mail Transfer Protocol) service, that is disables the reception/transfer/error service of the e-mail.

Enabled: Enables the SMTP service, that is it enables the reception/transfer/error service of the e-mail.

Default is Disabled.

**Mail Server Address**

These values set the mail server address. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

**Note:** Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

**E-mail Address (Receiver)**

This function allows writing the e-mail address where you can notify the failures using a 48-character string. Default is an empty string.

**Note**: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

**E-mail Address (Sender)**

This function allows to write the sender e-mail address using a 48-character string.

Default is an empty string.

**Note:** Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

**Location**

You can enter the physical location of the printer into this field.

**Contact**

You can enter a network support contact’s name and phone number into this field.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Managing a Single Printer Configuration Using the Internal Webpage

## Configuration Password

The Printronix S828's configuration settings can be protected by a password to keep unauthorized users from making changes. When you try to submit any Printronix S828 configuration change, you will be asked for your user name and password. At the prompt, enter the default user **name = root** and **default password = root**, unless you have setup another user name and password with root privileges.

## Storing and Saving Settings

When settings are configured on the Printronix S828 and the SUBMIT button on the related page has been pressed, you will be reminded to Reboot the printer to ensure the latest settings are in use. To reset the Printronix S828, go to the Home page, enter the Power On Reset page, and Click on the REBOOT PRINTER button.

# Managing Multiple Printers Using the Remote Printer

## Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrators that allows the configuration and control of Printronix S828 printers remotely over a LAN. With this tool the installed printers can be controlled, configured and organized easily. The main features are:

**Device Discovery** - Searches for the devices within a range of IP addresses.

**Printer Organization** - Printers connected to the network can be organized into logical groups in a hierarchically structured tree.

**Printer Status Report** - Checks the printer's status and reports alarms.

**Printer Configuration** - Printers may be configured as needed from the administrators workstation. Change the configuration of single printers, or simultaneously change the configuration of multiple printers in your enterprise, anywhere, and anytime.

**Firmware Updating** - Provides a firmware download function to upgrade the printer's firmware.

**Remote Operator Panel Management** - Provides a virtual operator panel for the remotely connected printer at the administrators workstation that allows performing all functions normally achieved pressing the operator panel keys. The RPMU also provides the basic status management for third-party printers compliant to the standard MIB objects. Visit our website to download this free software utility program.

# Network Interface Summary

Table 12. Network Interface Summary

| **INSTALLATION INTEGRATION** | |
|---|---|
| Network speed / connection | 10/100 BASET |
| Auto-detection | 10/100 network speed Yes |
| Manual network speed selection | No |
| Parallel interface free | Yes |
| Network configuration through printer operator panel | Yes |
| Web page network setting configuration | Yes |
| Web page login password protection | Yes |
| Web page default user-id and default password | Root, Root |
| Windows Port Monitor and Drivers | Yes, download from www.Printronix.com |
| NIC configuration printout | Yes |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 12. Network Interface Summary (cont.)

| | |
|---|---|
| DHCP | Yes |
| WINS | Yes |
| DDNS | Yes |
| **SYSTEM / OS** | |
| IBM System i OS 400 | Yes |
| IBM pSeries® AIX | Yes |
| Sun Solaris | Yes |
| Unix | Yes |
| Linux® | Yes |
| Windows 95,98,2000,NT,XP, 2003 Server | Yes |
| Windows VISTA, Win7, Win8, Win10 | Yes |
| NETBIOS over TCP | Yes |
| NETBEUI | No |
| Novell Netware | No |
| OS2 | No |
| MacIntosh / Apple EtherTalk | No |
| **PRINTING METHODS** | |
| Raw Port 9100 | Yes |
| LPD/LPR Port 515 | Yes |
| LPR print queue name | Any name (PR1, d1PRN, etc.) can be used. |
| IPDS Port 5100 | Yes (with IPDS option on some models) |
| Interleaved multi-protocol communications | Yes |
| Hot Interface switching | Yes between Parallel and LAN interfaces |
| Hot Port switching | Yes between Raw 9100, LPR/LPD 515, and IPDS 5100 (with IPDS option on some models) |
| Multiple internal print server queues | No |
| String substitutions | No |
| String before/after job | No |
| **DATASTREAMS** | |
| S828 ASCII native | Yes |
| ASCII text and single byte escapes | Yes |
| IBM Proprinter III emulation | Yes (on some models) |
| IBM Personal Printer 2391 emulation | Yes (on some models) |
| IBM Proprinter III emulation | Yes (on some models) |
| IBM Personal Printer 2381 emulation | Yes (on some models) |
| Epson FX series emulation | Yes (on some models) |
| Epson - FX emulation | Yes (on some models) |
| IPDS | Yes (with IPDS option on some models. See “Intelligent Printer Data Stream,” for application program compatibility considerations) |
| **PRINTER SERVER FACILITIES SUPPORT** | |
| PSF AIX | Yes |
| PSF OS400 | Yes |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 12. Network Interface Summary (cont.)

| | |
|---|---|
| PSF MVS™ | Yes |
| PSF VSE | Yes |
| PSF VM | Yes |
| **NETWORK MANAGEMENT** | |
| S828 Remote Printer Management Utility | Yes, download from www.Printronix.com |
| IBM NPM | Yes (generic printer) |
| HP JetAdmin | Yes (generic printer) |
| E-mail SMTP | Yes |
| Internal Web page | Yes |
| **PRINTER STATUS AND ERROR REPORTING** | |
| Ready | Yes |
| Not ready | Yes |
| Paper out | Yes |
| Paper jam | Yes |
| Cover open | Yes |
| Machine check (carriage fault, ribbon blocked...) | Yes |
| **NETWORK CONFIGURATION PARAMETERS (see above)** | |
| **LINK LAYER** | |
| Ethernet II | Yes |
| 802.2 | Yes |
| 802.3 | Yes |
| 2/SNAP | Yes |
| Link disconnect (no data timeout) | 15 second fixed setting |
| **PROTOCOLS** | |
| IP | Yes |
| TCP | Yes |
| UDP | Yes |
| ARP | Yes |
| RARP | Yes |
| SMP | Yes |
| Telnet | Yes |
| DHCP | Yes |
| DDNS | Yes |
| WINS | Yes |
| BOOTP | Yes |
| FTP | Yes |
| TFTP | Yes |
| ICMP | Yes |
| LPR/LPD | Yes |
| DHCP | Yes |
| SNMP | Yes |
| SMTP | Yes |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 12. Network Interface Summary (cont.)

| | |
|---|---|
| Direct Socket Printing | Yes |
| HTTP | Yes |
| PING | Yes |
| SNMP | Yes |
| MIB II (RFC 1514) | Yes (see note) |
| Host Resource MIB (RFC 1514) | Yes |
| Printer MIB (RFC1759) | Yes |
| S828 Private MIB | Yes |
| Reverse Telnet | No |
| PROS | No |
| IPP | No |
| SLPv2 | No |
| **HARDWARE** | |
| RISC processor | Yes |
| Flash memory | 4MB |
| RAM | 16MB |
| Attachment connector type | RJ-45 |
| Network traffic led | Yes (green) |
| Network speed led | Yes (yellow) |
| **FIRMWARE UPGRADE** | |
| Firmware upgrade over network | Yes |
| Firmware upgrade through parallel interface | Yes |

**Note**: All relevant parts of MIB-II (RFC1231) required to support HP JetAdmin are implemented.

- The following IP table group OIDs are not implemented: ipForwarding, ipDefaultTTL , ipInReceives ,ipInHdrErrors,ipInAddrErrors, ipForwDatagrams, ipInUnknownProtos, ipInDiscards, ipInDelivers, ipOutRequests, ipOutDiscards, ipOutNoRoutes, ipReasmTimeout ,ipReasmReqds, ipReasmOKs,ipReasmFails,ipFragOKs, ipFragFails, ipFragCreates
- The ipRouteTable OIDs are not implemented.
- The ipNetToMediaTable OIDs are not implemented.
- The icmp group OIDs are not implemented.
- The tcp group OIDs are not implemented.
- The udp group OIDs are not implemented.
- The snmp group OIDs are not implemented.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix D. LAN Interface MIB Support

Table 13 List of the MIB of the printer.

| Description | MIB |
|---|---|
| prtButton | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 1 |
| prtBaseCodeVersion | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 2 |
| prtHtmlContact | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 3 |
| prtRebootPrinter | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 4 |
| prtRestoreToMfg | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 5 |
| prtGetPrinterStatus | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 6 |
| prtMenuLocked | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 7 |
| prtPowerOnCycles | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 8 |
| prtPowerOnMinutes | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 9 |
| prtBarCodes | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 10 |
| prtPageWithGraphics | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 11 |
| prtHSDraftCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 12 |
| prtDPCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 13 |
| prtDPTextCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 14 |
| prtNLQCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 15 |
| prtBESTDraftCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 16 |
| prtLQCharacters | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 17 |
| prtPrintedPageNumber | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 18 |
| prtLPD_Timeout | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 19 |
| LPD_Reboot | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 20 |
| prtMenuUserMacro | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2 |
| prtMenuUserMacroTable | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1 |
| prtUserMacroEntry | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1 |
| prtUserMacroIndex | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 1 |
| prtUserMacroLineSpace | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 2 |
| prtUserMacroLineSpaceLock | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 3 |
| prtUserMacroLength | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 4 |
| prtUserMacroTopOfForm | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 5 |
| prtUserMacroSkiPover | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 6 |
| prtUserMacroDraftMode | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 7 |
| prtUserMacroFont | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 8 |
| prtUserMacroPitch | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 9 |
| prtUserMacroPitchLock | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 10 |
| prtUserMacroLeftMargin | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 11 |
| prtUserMacroRightMargin | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 12 |
| prtUserMacroSlashZero | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 13 |
| prtUserMacroPath | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 14 |
| prtUserMacroTear | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 15 |
| prtUserMacroImpact | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 16 |
| prtUserMacroPerforSave | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 17 |
| prtUserMacroGap | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 18 |
| prtUserMacroTuningHor | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 19 |
| prtUserMacroTuningVer | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 20 |
| prtUserMacroIgnoreFF | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 21 |
| prtUserMacroQuality | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 22 |
| prtUserMacro1524Cpi | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 23 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 13 List of the MIB of the printer (cont.)

| Description | MIB |
|---|---|
| prtUserMacroTearDelay | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 24 |
| prtUserMacroQuiet | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 25 |
| prtUserMacroDBCS | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 26 |
| prtUserMacroDBCS_Cpi | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 27 |
| prtUserMacroDBCS_Lpi | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 28 |
| prtUserMacroTH_Space | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 29 |
| /* IPDS SETTINGS START */ | |
| prtUserMacroI_Pitch | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 30 |
| prtUserMacroI_LineSpace | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 31 |
| prtUserMacroI_RightMargin | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 32 |
| prtUserMacroI_FormLength | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 33 |
| prtUserMacroI_Font | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 34 |
| prtUserMacroI_NLQ_Font | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 35 |
| prtUserMacroI_HostFastDraft | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 36 |
| prtUserMacroI_Nation | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 37 |
| prtUserMacroI_Emulation | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 38 |
| prtUserMacroI_MediaSizePriority | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 39 |
| prtUserMacroI_BcMode | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 40 |
| prtUserMacroI_GraMode | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 41 |
| prtUserMacroFontLock | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 42 |
| /* IPDS SETTINGS END */ | |
| prtMenuConfig | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3 |
| prtMenuConfigTable | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1 |
| prtMenuConfigEntry | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1 |
| prtMenuConfigMacroWork | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 1 |
| prtMenuConfigIfType | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 2 |
| prtMenuConfigEmulation | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 3 |
| prtMenuConfigCharset | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 4 |
| prtMenuConfigNation | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 5 |
| prtMenuConfigAutoCR | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 6 |
| prtMenuConfigAutoLF | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 7 |
| prtMenuConfigIBM20CPI | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 8 |
| prtMenuConfigBarcode | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 9 |
| /* ANSI SETTINGS START */ | |
| prtMenuConfigA_CharSet | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 10 |
| prtMenuConfigA_CharTable | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 11 |
| prtMenuConfigA_Nation | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 12 |
| prtMenuConfigA_RIS_Enable | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 13 |
| prtMenuConfigA_SI_SO_Control | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 14 |
| prtMenuConfigA_AutoCR | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 15 |
| prtMenuConfigA_PrimeOnDEL | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 16 |
| prtMenuConfigA_ControlInDg | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 17 |
| prtMenuConfigA_ExpandUp | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 18 |
| prtMenuConfigA_AltGraph | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 19 |
| prtMenuConfigA_8BitControl | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 20 |
| prtMenuConfigA_ENQ_Code | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 21 |
| prtMenuConfigA_SubSuperScript | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 22 |
| prtMenuConfigA_ControlInESC | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 23 |
| prtMenuConfigA_VT_NotSet | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 24 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 13 List of the MIB of the printer (cont.)

| Description | MIB |
|---|---|
| prtMenuConfigA_DoubleLF | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 25 |
| prtMenuConfigA_AutoWrap | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 26 |
| prtMenuConfigA_ClearMargin | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 27 |
| prtMenuConfigA_Backup | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 28 |
| prtMenuConfigA_GuardBar | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 29 |
| /* ANSI SETTINGS END */ | |
| prtMenuConfigParType | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 30 |
| prtMenuConfigParSelectIn | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 31 |
| prtMenuConfigParDataBits | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 32 |
| prtMenuConfigParDedicBuffer | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 33 |
| prtMenuConfigSerType | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 34 |
| prtMenuConfigSerBaudRate | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 35 |
| prtMenuConfigSerDataBits | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 36 |
| prtMenuConfigSerParity | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 37 |
| prtMenuConfigSerProtocol | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 38 |
| prtMenuConfigSerLocRem | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 39 |
| prtMenuConfigSerDedicBuffer | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 40 |
| prtMenuConfigBuzzer | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 45 |
| prtMenuConfigSequence | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 46 |
| prtMenuConfigRibbon | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 47 |
| prtMenuConfigBarCodeDpi | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 48 |
| prtMenuConfigTextDirect | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 49 |
| prtMenuConfigGraphDirect | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 50 |
| prtMenuConfigBarCodeDirect | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 51 |
| prtMenuConfigGraphHighSpeed | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 52 |
| prtMenuConfigPowerOnPath | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 53 |
| prtMenuConfigMenuLanguage | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 54 |
| prtMenuConfigLowerJamSensor | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 55 |
| prtMenuConfigUpperJamSensor | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 56 |
| prtMenuConfigTearAdjust | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 57 |
| prtMenuConfigQuick | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 58 |
| prtMenuConfigOverlay | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 59 |
| prtMenuConfigA_AutoLF | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 60 |
| prtMenuConfigD_G0_CharSet | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 61 |
| prtMenuConfigD_UP_CharSet | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 62 |
| prtMenuConfigD_AutoCR | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 63 |
| prtMenuConfigD_AutoLF | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 64 |
| prtMenuConfigD_AutoWrap | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 65 |
| prtMenuConfigCondensed | 1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 66 |
| printserver | 1, 3, 6, 1, 4, 1, 6345, 1, 1 |
| csystem | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 1 |
| csystemVersion | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 1, 1 |
| cinetd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2 |
| cinetdnum | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1 |
| cinetdNumber | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1, 1 |
| cinetdlpd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2 |
| cinetdDescr1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 1 |
| cinetdType1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 2 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 13 List of the MIB of the printer (cont.)

| Description | MIB |
|---|---|
| cinetdUdp1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 3 |
| cinetdWait1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 4 |
| cinetdInstance1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 5 |
| cinetdUserID1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 6 |
| cinetdProgram1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 7 |
| cinetdProgram11 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 8 |
| cinetdftp | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3 |
| cinetdDescr2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 1 |
| cinetdType2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 2 |
| cinetdUdp2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 3 |
| cinetdWait2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 4 |
| cinetdInstance2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 5 |
| cinetdUserID2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 6 |
| cinetdProgram2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 7 |
| cinetdProgram12 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 8 |
| cinetdtelnet | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4 |
| cinetdDescr3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 1 |
| cinetdType3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 2 |
| cinetdUdp3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 3 |
| cinetdWait3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 4 |
| cinetdInstance3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 5 |
| cinetdUserID3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 6 |
| cinetdProgram3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 7 |
| cinetdProgram13 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 8 |
| cinetddipd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5 |
| cinetdDescr4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 1 |
| cinetdType4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 2 |
| cinetdUdp4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 3 |
| cinetdWait4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 4 |
| cinetdInstance4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 5 |
| cinetdUserID4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 6 |
| cinetdProgram4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 7 |
| cinetdProgram14 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 8 |
| cservices | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3 |
| cservnum | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1 |
| cservNumber | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1, 1 |
| cservftp | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2 |
| cservDescr1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 1 |
| cservPort1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 2 |
| cservType1 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 3 |
| cservtelnet | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3 |
| cservDescr2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 1 |
| cservPort2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 2 |
| cservType2 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 3 |
| cservlpd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4 |
| cservDescr3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 1 |
| cservPort3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 2 |
| cservType3 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 3 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 13 List of the MIB of the printer (cont.)

| Description | MIB |
|---|---|
| cservdipd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5 |
| cservDescr4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 1 |
| cservPort4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 2 |
| cservType4 | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 3 |
| cqueue | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 4 |
| cinit | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5 |
| cintAddr | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 1 |
| cdefRout | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 3 |
| cnetMask | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 2 |
| cinitHost | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 4 |
| cinitWorkg | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 5 |
| cinitDescr | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 6 |
| cinitBoot | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 7 |
| cprinter | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 6 |
| cconfig | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7 |
| csnmpd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1 |
| csnmpdEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 1 |
| csnmpdReadCommunity | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 2 |
| csnmpdSetCommunity | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 3 |
| csnmpdSetCommunityCrypt | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 4 |
| chttpd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2 |
| chttpdEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2, 1 |
| csamba | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3 |
| csambaEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3, 1 |
| cnovell | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4 |
| cnovellEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 1 |
| cnovellFrmType | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 2 |
| cnovellNwServer | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 3 |
| cnovellPrtName | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 4 |
| cnovellQueueName | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 5 |
| csmtp | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5 |
| csmtpEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 1 |
| csmtpEmailAddr | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 2 |
| csmtpSMTPAddr | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 3 |
| csmtpTrap | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 4 |
| csmtpEmailMittAddr | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 6 |
| csecurity | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6 |
| csecUser | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 1 |
| csecPwd | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 2 |
| csecPwdCrypt | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 3 |
| cipds | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7 |
| cipdsEnb | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 1 |
| cipdsPort | 1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 2 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix E. The Remote Printer Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrators that allows the configuration and control of Printronix Company printers remotely connected to the Ethernet LAN.

With this tool the installed printers may be controlled, configured and organized easily.

The main features are:

| | |
|---|---|
| **Device Discovery** | Searches for the devices within a range of IP addresses. |
| **Printer Organization** | The printers connected to the network can be organized into logical groups in a hierarchically structured tree. |
| **Printer Status** | Report Checks the printer's status and reports alarms. |
| **Printer Configuration** | The remotely connected printers may be configured as needed from the administrators workstation. |
| **Firmware Updating** | Provides a firmware downloading function to upgrade both the base and the LAN card firmware. |
| **Remote Operator Panel** | Provides a virtual operator panel for the remotely connected |
| **Management** | printer at the administrators workstation that allows to perform all functions normally achieved pressing the operator panel keys. |

The Remote Printer Management Utility also provides the basic status management for third-party printers compliant to the standard MIB objects.

**Operating System Compatibility**
The Remote Printer Management Utility is a Java™ based application and can be run on any platform supporting the Java Run Time Environment version 1.6 or newer.

**Software Installation and Documentation**
The Remote Printer Management Utility software and Administrators Manual can be downloaded from our website at : www.printronix.com



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix F. Print Driver Support

Microsoft Windows drivers, IBM pSeries AIX color files, and IBM System i workstation customization objects can be downloaded from our website: www.Printronix.com



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix G. Application Paper Source Selection

## Application-controlled paper-source selection

This section describes the identifiers to use in selecting the various available paper sources on the S828 printer for key IPDS applications. These selections will cause the appropriate forms path selection commands to be sent to the printer from the host applications.

## PSF usage - z/OS and System i

In the z/OS® PSF's (PSF/MVS, PSF/VSE, and PSF/VM), the desired paper source is identified in the FORMDEF, using the appropriate Media ID number as defined in the following sections. The FORMDEF can also be used in System i™ PSF and uses these same Media ID numbers.

## Paper source identification (media IDs)

**Continuous forms or combination forms feeding**: “Continuous Forms Feeding” uses either the front forms path or the rear forms path. The front path uses the forms that are fed into the front of the printer, and utilize the forms tractor installed in the standard (default) Front Push configuration when the optional second tractor is not installed. The standard (default) tractor becomes the rear tractor only when the optional second tractor is installed. In this condition the optional second tractor becomes the front tractor. “Combination Forms Feeding” applies to the dual continuous forms (both front push and rear push path in use) printer configuration.

This is the common usage mode for the S828. These identifiers should be used in all configurations.
In this configuration, the S828 paper sources are identified by the host application as follows:

**Front** Media ID = 1
**Rear** Media ID = 2

The S828 may be run in native (S828) mode or in an emulation mode (something other than S828).

## Creating form definitions (FORMDEFs)

**In z/OS and AIX**: Page Printer Formatting Aid (PPFA) can be used to create Form Definitions in the z/OS and AIX® environments.

**In System i:** System i supports user specification of a Form Definition with the PRTAFPDTA command and DEVTYPE=*AFPDS. Support for user named Form Definitions in the Printer File is included in System i V3R2 and V3R7 or later releases.

## System i media selection (other than FORMDEF)

In System i, selecting the input media source requires a combination of two Printer File parameters, Form Feed (FORMFEED) and Source Drawer (DRAWER). The following selection parameters should be used whether the printer is configured in S828 or emulation (4230/42x4) mode:

| | | |
|---|---|---|
| Front CF: | FORMFEED (*CONT) | See notes 1 & 2) |
| Rear CF: | FORMFEED (2) | (See notes 1 & 2) |

**Note:** The combination of settings with Automatic Eject = Enabled and Automatic Restore = Disabled is not recommended.

**Notes:**

1. In OS/400® Version 3 Release 2 and Version 3 Release 7, the FORMFEED parameter has been enhanced to support explicit selection of the rear continuous form input source as follows:



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Rear CF: FORMFEED (*CONT2)
In this case, the AS/400® is aware that the Rear Continuous Forms is in fact a continuous form feed. Therefore a drawer parameter is not required and the Forms Alignment message can be issued.

2. When you are switching from one continuous forms path to the other, printed output must be manually torn off and removed from the printer before the first forms path can be parked. For this reason, you may want to use the FORM keyword in the AS/400 Printer File to alert the operator to remove any printer output before a job using a different forms path is sent.

## Use of 'FORMS' parameters - z/OS and System i

For continuous forms printers with only a single continuous forms paper source, forms were specified using FORMS parameters in JCL or, for the AS/400, the FORMTYPE parameter. This method can still be used to have the operator change to the correct forms for the job. But it cannot be used to cause the printer to switch between the Front and Rear continuous forms sources.

## Using S828 with System i Host Print Transform

AS/400 Host Print Transform (HPT) provides two objects that allow you to use the multiple paper sources available on the S828 printer.

The first is ***IBM4247DUAL**. This object provides support for the two tractor feeds, with DRAWER (1) meaning the front tractor feed and DRAWER (2) meaning the rear tractor feed.

Front Continuous Forms: DRAWER (2)
Rear Continuous Forms: DRAWER (4)

Support that includes this enhancement to the HPT objects can also be added to V4R1 or V4R2 by applying a PTF. For information, see the Euro I Info APAR, number II1523.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix H. S828 Bar Code and OCR Printing Options

This appendix contains information about the options that are available for printing bar codes and Optical Character Recognition (OCR) characters. The bar code charts detail the element (bar/space) width options, the wide-to-narrow element ratios, the magnification percentages, and the characters printed per inch plus whether the bar codes can be printed in low-contrast or high-contrast modes. Low-contrast mode

provides the best throughput, while high-contrast mode results in the best bar code printing quality. The OCR section contains the Optical Character Recognition symbol subsets that can be printed.

## Bar Code Printing Options Charts

Keep the following statements in mind when printing bar codes.

- All bar codes printed by the S828 Printer can print in high-contrast mode. Not all of them, however, can print in low-contrast mode. If you specify low-contrast mode for a bar code that is not supported in that mode, the printer will not return an error but will default to high-contrast mode instead.
- Vertically-rotated bar codes may not consistently meet bar/space width specifications. Users should test for application suitability.
- Bar codes printed in low-contrast mode may not consistently meet specifications. Users should test for application suitability.

Table 14. Bar Code Printing Options for Non-UPC Family Bar Codes

| Bar Code Type | Narrow Element Width Options (mils) | Wide-to-Narrow Element Ratio | Low-Contrast Mode - Horzontal | Low-Contrast Mode - Vertical | Bar Code Char. Per Inch (CPI) |
|---|---|---|---|---|---|
| Code 3 of 9 | 13.9 | 2:1 | Yes | Yes | 5.54 |
| | 13.9 | 2.5:1 | Yes | Yes | 4.97 |
| | 13.9 | 3:1 | Yes | Yes | 4.5 |
| | 16.7 | 2:1 | Yes | No | 6.65 |
| | 16.7 | 2.5:1 | Yes | No | 5.95 |
| | 16.7 | 3:1 | Yes | No | 5.4 |
| | 20.8 | 2:1 | Yes | Yes | 3.69 |
| | 20.8 | 2.5:1 | Yes | Yes | 3.2 |
| | 20.8 | 3:1 | Yes | Yes | 3.0 |
| | 27.8 | 2:1 | Yes | Yes | 2.77 |
| | 27.8 | 2.5:1 | Yes | Yes | 2.48 |
| | 27.8 | 3:1 | Yes | Yes | 2.25 |
| Interleaved 2 of 5 | 13.9 | 2:1 | Yes | Yes | 10.29 |
| | 13.9 | 2.5:1 | Yes | Yes | 9.0 |
| | 13.9 | 3:1 | Yes | Yes | 8.0 |
| | 16.7 | 2:1 | Yes | No | 12.35 |
| | 16.7 | 2.5:1 | Yes | No | 10.8 |
| | 16.7 | 3:1 | Yes | No | 9.6 |
| | 20.8 | 2:1 | Yes | Yes | 6.86 |
| | 20.8 | 2.5:1 | Yes | Yes | 5.76 |
| | 20.8 | 3:1 | Yes | Yes | 5.33 |
| | 27.8 | 2:1 | Yes | Yes | 5.14 |
| | 27.8 | 2.5:1 | Yes | Yes | 4.5 |
| | 27.8 | 3:1 | Yes | Yes | 4.0 |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 14. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

| Bar Code Type | Narrow Element Width Options (mils) | Wide-to-Narrow Element Ratio | Low-Contrast Mode - Horzontal | Low-Contrast Mode - Vertical | Bar Code Char. Per Inch (CPI) |
|---|---|---|---|---|---|
| Industrial 2 of 5 | 13.9 | 2:1 | Yes | Yes | 6.0 |
| | 13.9 | 2.5:1 | Yes | Yes | 5.54 |
| | 13.9 | 3:1 | Yes | Yes | 5.14 |
| | 16.7 | 2:1 | Yes | No | 7.2 |
| | 16.7 | 2.5:1 | Yes | No | 6.65 |
| | 16.7 | 3:1 | Yes | No | 6.17 |
| | 20.8 | 2:1 | Yes | Yes | 4.0 |
| | 20.8 | 2.5:1 | Yes | Yes | 3.6 |
| | 20.8 | 3:1 | Yes | Yes | 3.43 |
| | 27.8 | 2:1 | Yes | Yes | 3.0 |
| | 27.8 | 2.5:1 | Yes | Yes | 2.77 |
| | 27.8 | 3:1 | Yes | Yes | 2.57 |
| Matrix 2 of 5 | 13.9 | 2:1 | Yes | Yes | 9.0 |
| | 13.9 | 2.5:1 | Yes | Yes | 8.0 |
| | 13.9 | 3:1 | Yes | Yes | 7.2 |
| | 16.7 | 2:1 | Yes | No | 10.8 |
| | 16.7 | 2.5:1 | Yes | No | 9.6 |
| | 16.7 | 3:1 | Yes | No | 8.64 |
| | 20.8 | 2:1 | Yes | Yes | 6.0 |
| | 20.8 | 2.5:1 | Yes | Yes | 5.14 |
| | 20.8 | 3:1 | Yes | Yes | 4.8 |
| | 27.8 | 2:1 | Yes | Yes | 4.5 |
| | 27.8 | 2.5:1 | Yes | Yes | 4.0 |
| | 27.8 | 3:1 | Yes | Yes | 3.6 |
| MSI | 13.9 | 2:1 | Yes | Yes | 6.0 |
| | 13.9 | 2.5:1 | Yes | Yes | 5.14 |
| | 13.9 | 3:1 | Yes | Yes | 4.5 |
| | 16.7 | 2:1 | Yes | No | 7.6 |
| | 16.7 | 2.5:1 | Yes | No | 6.17 |
| | 16.7 | 3:1 | Yes | No | 5.4 |
| | 20.8 | 2:1 | Yes | Yes | 4.0 |
| | 20.8 | 2.5:1 | Yes | Yes | 3.27 |
| | 20.8 | 3:1 | Yes | Yes | 3.0 |
| | 27.8 | 2:1 | Yes | Yes | 3.0 |
| | 27.8 | 2.5:1 | Yes | Yes | 2.57 |
| | 27.8 | 3:1 | Yes | Yes | 2.25 |
| Codabar | 13.9 | 2:1 | Yes | Yes | 6.55 - 7.2 |
| | 13.9 | 2.5:1 | Yes | Yes | 5.76 - 6.55 |
| | 13.9 | 3:1 | Yes | Yes | 5.14 - 6.0 |
| | 16.7 | 2:1 | Yes | No | 7.86 - 8.64 |
| | 16.7 | 2.5:1 | Yes | No | 6.91 - 7.86 |
| | 16.7 | 3:1 | Yes | No | 6.17 - 7.2 |
| | 20.8 | 2:1 | Yes | Yes | 4.36 - 4.8 |
| | 20.8 | 2.5:1 | Yes | Yes | 4.00 - 4.5 |
| | 20.8 | 3:1 | Yes | Yes | 3.43 - 4.0 |
| | 27.8 | 2:1 | Yes | Yes | 3.27 - 3.6 |
| | 27.8 | 2.5:1 | Yes | Yes | 2.88 - 3.27 |
| | 27.8 | 3:1 | Yes | Yes | 2.57 - 3.0 |
| Code 128 | 13.9 | N/A | Yes | Yes | 6.55 |
| | 16.7 | N/A | Yes | No | 7.86 |
| | 20.8 | N/A | Yes | Yes | 4.36 |
| | 27.8 | N/A | Yes | Yes | 3.27 (See Note) |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Table 14. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

| Bar Code Type | Narrow Element Width Options (mils) | Wide-to-Narrow Element Ratio | Low-Contrast Mode - Horzontal | Low-Contrast Mode - Vertical | Bar Code Char. Per Inch (CPI) |
|---|---|---|---|---|---|
| POSTNET | 21.2 | N/A | Yes | Yes | 4.3 |
| **Note:** The CPI shown for Code 128 is for code sets A or B. The CPI for code set C is approximately double the values shown. | | | | | |

Table 15. Bar Code Printing Options for UPC Family Bar Codes

| Bar Code Type | Narrow Element Width Options (mils) | Wide-to-Narrow Element Ratio | Low-Contrast Mode - Horzontal | Low-Contrast Mode - Vertical | Bar Code Char. Per Inch (CPI) |
|---|---|---|---|---|---|
| UPC A | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |
| UPC E | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |
| UPC/EAN-2 | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |
| UPC/EAN-5 | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |
| EAN 8 | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |
| EAN-13 | 13.9<br>16.7 | 1.07<br>1.07 | Yes<br>Yes | Yes<br>No | 10.29<br>12.35 |

## Optical Character Recognition (OCR) Printing

### OCR Symbols

The S828 prints a comprehensive set of OCR-A and OCR-B characters derived from standards developed by the International Standards Organization (ISO) and the American National Standards Institute (ANSI). All OCR character shapes produced by the S828 Printer are not identical with the shapes defined in these standards. Users should test OCR printing with their scanning equipment to verify satisfactory performance.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## OCR Scanning

Printronix Company has tested the following OCR symbol subsets for readability:

Table 16. OCR Symbol Subsets

| OCR-A NRMA | OCR-A Data Entry | OCR-A Eurobanking | OCR-A Money Transfer | OCR-B ECMA | OCR-B Money Transfer |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 | 9 |
| A | A | C | hook | C | > |
| B | B | P | fork | E | + |
| C | C | R | chair | N | < |
| D | D | U | | S | |
| M | M | X | | T | |
| N | N | Z | | V | |
| P | P | / | | X | |
| R | R | + | | Z | |
| U | U | # | | > | |
| X | X | hook | | < | |
| Y | Y | fork | | + | |
| > | > | chair | | | |
| / | / | | | | |
| " | + | | | | |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix I. Configuration Menu Lockout

Configuration Menu Lockout should be used by the application programmer or printer operator to lock the Configuration Menu when you want to prevent a casual operator from changing parameter values that have been set for print jobs.

To set Configuration Menu Lockout:

1. Press ON LINES if the READY indicator is on. The printer goes to the NOT READY state.
2. In the NOT READY state, press and hold ALTERNATE + MACRO + ONLINE keys in the same time. The printer displays MENU LOCKED.
3. To unlock the Configuration Menu repeat the step 1 and 2. The printer display MENU UNLOCKED.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Appendix J. Addendum (Bar Codes)

The following chapter integrates the Bar Code information already present in this manual adding the Intelligent Mail Barcode explanation with examples in different emulations.
Furthermore it describes some features in specific Emulation Commands present in the firmware but not described in the previous chapters.

## Bar Code Mode

The S828 printer has three different Bar Code Modes selectable in the Power-on Configuration Setup.

1) **Native** selection enables bar code printing using :
   - The Native commands as indicated in chapter 2 and also in this chapter as examples
   - MTPL commands as indicated later on in this chapter.
2) **Alt.1** selection enables bar code printing using :
   - EPSON or IBM commands as indicated in chapter 1.
3) **Alt.2** selection enables bar code printing using:
   - SEIKOSHA commands as indicated later on in this chapter.

The S828 can print Bar Code using also :
- ANSI commands as indicated in chapter 3 (see example in this chapter)
- IPDS (see example in this chapter)

## USPS Intelligent Mail Bar Code 4-state

The S828 can print the USPS Intelligent Mail Bar Code 4-state in different emulations.
The 4-statebarcode data must contains only ASCII numeric (from 0 to 9) and must be converted into only 0, 1, 2 or 3. Each number represents one of the four possible bars.

The Intelligent Mail barcode is a 65-bar Postal Service™ barcode used to sort and track letters and flats. It allows mailers to use a single barcode to participate in multiple Postal Service programs simultaneously, expands mailers' ability to track individual mail pieces, and provides greater mail stream visibility.
The Intelligent Mail barcode consists of a 20-digit tracking code (Barcode Identifier, Service Type Identifier, Mailer Identifier, and Serial Number) and a Routing Code (ZIP Code™) field of up to 11 digits.
An encoder converts the digits into a 65-character string representing the bars of the IMb® tracking code,

**EXAMPLE:**
Service Type ID of 270 (First-Class Mail®, Intelligent Mail Full-Service option, with IMb Tracing® service, no address correction), Mailer ID 123456, uniquely identified by Serial Number 200800001, going to ZIP Code 98765-4321(01), is encoded like this:

**Digit String**:
00270123456200800001198765432101

Intelligent Mail barcode encoder > Encoded string (T=Tracker, F=Full Bar, A=Ascender, D=Descender):

TTFAFDADTFFFADTAFAFTTDATDFAAFTDAFDFDFDATFDFTDDDDFADFFDADDTDDTTDAT

More information on website: https://postalpro.usps.com/mailing/intelligent-mail-barcode



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Intelligent Mail Bar Code 4-state with Native Commands Mode (Native Bar Code Mode)

## DC4 DC4 ESC ! h “ f EM

**UPPS Bar Code Selection.**

| | |
|---|---|
| ASCII Code | DC4 DC4 ESC ! h “ f F r EM |
| Hexadecimal Value | X'14' X'14' X'1B' X'21' h X’22’ f F r X’19’ |
| Decimal Value | 20 20 27 33 h 34 f F r 25 |

h = Bar Code Height at n/6”, 1 < h < 30

f = Readable character printing

- f = 0 printing disabled
- f = 1 printing enabled, characters below barcode, justified position
- f = 21 printing enabled, characters above barcode, justified position
- f = 81 printing enabled, characters below barcode, middle position
- f = A1 printing enabled, characters above barcode, middle position

F = Font selection for the printable characters

- 0 Selected font by r value
- 1 Default font for text
- 1 Special font for OCR-A o OCR-B bar codes according to the t value
- 3 Special font for OCR-A bar codes
- 4 Special font for OCR-B bar codes

r = Bar code rotation

| **r** | **Selection** |
|---|---|
| 0 | No rotation |
| 1 | Rotation at 0° |
| 2 | Rotation at 90° |
| 3 | Rotation at 180° |
| 4 | Rotation at 270° |

EM = Check sequence terminator



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Intelligent Mail Bar Code 4-state with Epson/IBM Emulations Commands (Alt. 1 Bar Code Mode)

See chapter 1, pages 54, 55 for details of these commands.
Remark: these commands are not handled in DEC emulations.

## ESC [ v n m

**Sets Barcode parameters. (IBM -Epson)**

| | |
|---|---|
| ASCII Code | ESC [ vnm |
| Hexadecimal Value | X'1B' X'5B' X'76' nm |
| Decimal Value | 27 91 118 nm |

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

| n | Parameter Description | m values |
|---|---|---|
| 0 | Barcode style IMB 4-state | X ‘22’, 34 dec |
| 2 | Human readable line | 0=disable<br>1, 21 =enable below barcode<br>81, A1 =enable above barcode |
| 8 | Rotation and HRC font | 0.1=no rotation and current font for HRC<br>2=90 3=180 4=270 and special HRC font |
| 11 | HRC font for rotate barcode | 3=OCRA 4=OCRB |

# Intelligent Mail Bar Code 4-state with MTPL Commands (Native Bar Code Mode)

## ESC [ 9 SP k CR

**Sets bar code parameters (BC).**

| | |
|---|---|
| ASCII Code | ESC [ 9 SP k CR |
| Hexadecimal Value | X'1B' X'5B' X’39’ X'20' X’6B’ X’0D’ |
| Decimal Value | 27 91 57 32 109 13 |

In next pages a specific sub-chapter describes the MTPL (Mannesmann-Tally Printer Language) commands which can be handled by S828 printer.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Intelligent Mail Bar Code 4-state with ANSI Emulation Commands

See chapter 3, pages 86 and 87 for details of these commands.

## ESC [ p1; ; ; pn }

**Sets bar code parameters (BC).**

| | |
|---|---|
| ASCII Code | ESC [ p1; pn } |
| Hexadecimal Value | X'1B' X'5B' p1 X'3B' pn X'7D' |
| Decimal Value | 27 91 p1 59 pn 125 |

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: **Bar code style**

| p1 | FUNCTION |
|---|---|
| | X ’33 34’, dec 48 49 IMB 4-state |

p3: **Human Readable Input (HRI)**

| p3 | FUNCTION |
|---|---|
| 0 | Disables printing of the HRI |
| 1 | Enables printing of the HRI |

p9: **Rotation**

| p9 | FUNCTION |
|---|---|
| 0 | 0 degrees using current font |
| 1 | 0 degrees using special HRI font |
| 2 | 90 degrees using special HRI font |
| 3 | 180 degrees using special HRI font |
| 4 | 270 degrees using special HRI font |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Intelligent Mail Bar Code 4-state with IPDS Emulation Commands

See chapter 5, pages 196 to 208 for details of these commands.

The BCDD (Bar Code Data Descriptor) has only one byte changed:

| Decimal | Hex | Content | Description |
|---|---|---|---|
| 16 | 10 | | Bar Code Type |
| | | 22 | USPS Four.State Bar Code |

```
00000000h: 07 00 00 07 D6 E4 C0 00 01 07 00 00 07 D6 03 40 ; ....Öäà.....Ö.@
00000010h: 00 02 07 00 00 07 D6 97 40 00 03 0C 00 00 0C D6 ; ......Ö—@.....Ö
00000020h: 33 40 00 04 F6 00 00 00 01 0A 00 00 0A D6 33 40 ; 3@..ö.....Ö3@
00000030h: 00 05 F8 00 56 17 00 00 17 D6 3F 40 00 06 01 00 ; ..ø.V....Ö?@....
00000040h: 01 00 00 FF FF FF FF 00 0B 00 90 00 80 00 32 00 ; ...ÿÿÿÿ... .€.2.
00000050h: 00 32 D6 CF 40 00 07 00 00 38 40 38 40 00 00 4A ; .2ÖÏ@....8@8@..J
00000060h: 40 00 00 3D E0 00 E0 00 00 2B 00 44 C0 00 00 FF ; @..=à.à..+.DÀ..ÿ
00000070h: FF FF FF 00 00 00 A0 00 00 00 00 00 00 00 F0 01 ; ÿÿÿ... .......ð.
00000080h: FF FF 10 00 00 10 D6 03 40 00 08 17 00 00 38 40 ; ÿÿ....Ö.@.....8@
00000090h: FF FF 3D E0 11 00 00 11 D6 6D 40 00 09 00 00 00 ; ÿÿ=à....Öm@.....
000000a0h: 00 00 00 00 00 00 00 0A 00 00 0A D6 8F 40 00 0A ; ...........Ö @..
000000b0h: 15 00 00 07 00 00 07 D6 03 C0 00 0B 07 00 00 07 ; .......Ö.À......
000000c0h: D6 97 40 00 0C 09 00 00 09 D6 8F 40 00 0D 07 00 ; Ö—@......Ö @....
000000d0h: 09 00 00 09 D6 8F 40 00 0E 05 00 07 00 00 07 D6 ; ....Ö @........Ö
000000e0h: 03 C0 00 0F 07 00 00 07 D6 E4 C0 00 10 09 00 00 ; .À......ÖäÀ.....
000000f0h: 09 D6 8F C0 00 11 F3 00 07 00 00 07 D6 03 E0 00 ; .Ö À..ó.....Ö.à.
00000100h: 12 07 00 00 07 D6 97 C0 00 13 07 00 00 07 D6 03 ; .....Ö—À......Ö.
00000110h: C0 00 14 07 00 00 07 D6 97 40 00 15 0C 00 00 0C ; À......Ö—@......
00000120h: D6 33 40 00 16 F6 00 00 00 00 27 00 00 27 D6 3F ; Ö3@..ö....'..'Ö?
00000130h: 40 00 17 01 00 01 00 00 FF FF FF FF 00 0B 00 90 ; @.......ÿÿÿÿ...
00000140h: 00 80 00 02 00 02 00 00 FF FF FF FF 00 57 00 78 ; .€......ÿÿÿÿ.W.x
00000150h: 00 80 00 0A 00 00 0A D6 8F 40 00 18 15 00 00 0A ; .€.....Ö @......
00000160h: 00 00 0A D6 33 40 00 19 F8 00 56 32 00 00 32 D6 ; ...Ö3@..ø.V2..2Ö
00000170h: CF 40 00 1A 00 00 38 40 38 40 00 00 4A 40 00 00 ; Ï@....8@8@..J@..
00000180h: 3D E0 00 00 00 00 2B 00 44 00 00 00 00 00 2D 00 ; =à....+.D.....-.
00000190h: 00 00 39 DE 00 00 00 00 00 00 00 F0 01 FF FF 11 ; ..9Þ.......ð.ÿÿ.
000001a0h: 00 00 11 D6 6D 40 00 1B 00 00 00 00 00 00 00 00 ; ...Öm@..........
000001b0h: 00 00 0C 00 00 0C D6 33 40 00 1C F6 00 00 00 00 ; ......Ö3@..ö....
000001c0h: 09 00 00 09 D6 9F 40 00 1D 02 01 0B 00 00 0B D6 ; ....ÖŸ@........Ö
000001d0h: AF 40 00 1E 00 00 00 01 0C 00 00 0C D6 33 40 00 ; ¯@..........Ö3@.
000001e0h: 1F F6 00 00 00 00 3D 00 00 3D D6 80 40 00 20 00 ; .ö....=..=Ö€@. .
000001f0h: 0B AC 6B 00 00 00 00 00 00 00 00 10 A6 6B 00 38 ; .¬k.........¦k.8
00000200h: 40 4E C0 3D E0 30 00 00 00 00 00 1B A6 EB 00 00 ; @NÀ=à0......¦ë..
00000210h: 38 40 38 40 4E C0 3D E0 00 00 22 03 FF 00 00 FE ; 8@8@NÀ=à.."..ÿ..þ
00000220h: 03 C0 01 FF FF 2B 00 00 2B D6 81 40 00 21 40 02 ; .À.ÿÿ+..+Ö @.!@.
00000230h: 00 02 00 F0 F1 F2 F3 F4 F5 F6 F7 F0 F9 F4 F9 F8 ; ...ðñòóôõö÷ðùôùø
00000240h: F7 F6 F5 F4 F3 F2 F1 F0 F1 F2 F3 F4 F5 F6 F7 F8 ; ÷öõôóòñðñòóôõö÷ø
00000250h: F9 F1 07 00 00 07 D6 5D 40 00 22 07 00 00 07 D6 ; ùñ....Ö]@."....Ö
00000260h: BF 40 00 23 07 00 00 07 D6 03 C0 00 24 07 00 00 ; ¿@.#....Ö.À.$...
00000270h: 07 D6 03 40 00 25 07 00 00 07 D6 03 C0 00 26    ; .Ö.@.%....Ö.À.&
```

Figure 147. Hex Dump of Intelligent Mail Bar Code in IPDS Commands Example



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## USPS Intelligent Mail Bar Code 4-state Examples

The following are samples for USPS Intelligent Mail Bar Code 4-state printed with the S828 Printer with related hex commands:

Figure 148. Intelligent Mail Bar Code in Native Commands Example (Bar Code Mode Native)

Figure 149. Intelligent Mail Bar Code in Epson/IBM Commands Example (Bar Code Mode Alt. 1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

```
Print Intelligent Mail Barcode with MTPL Commands
(Barcode Mode Native)

ASCII: Esc[?11~Esc[9Spk "data" Cr
Hex  : 1B5B3F31317E 1B5B39206B "data" 0D Esc[?10
```

Figure 150. Intelligent Mail Bar Code in ANSI Commands Example

```
ASCII: Esc[34;;0;;;;;;1;1;}
HEX  : 1B5B33343B3B303B3B3B3B3B3B313B313B7D

   00 270 123456 200800001 98765 4321 01

ASCII: Esc[34;;1;;;;;;1;1;}
HEX  : 1B5B33343B3B313B3B3B3B3B3B313B313B7D
```

Figure 151. Intelligent Mail Bar Code in MTPL Commands Example (Bar Code Mode Alt. 1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Bar Codes handled in NATIVE Commands (Native Bar Code Mode)

The S828 integrates in the firmware the handling of the Bar Codes with the NATIVE commands.

The complete and detailed information for these commands can be found on chapter 2 of this Programmer Manual. Here are reported some examples how these commands work.

Figure 152. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

```
0000  14 14 1B 40 0D 0A 50 52 49 4E 54 20 42 41 52 20   ¶¶←@♪◙PRINT BAR
0001  43 4F 44 45 20 33 39 20 69 6E 20 64 69 66 66 65   CODE 39 in diffe
0002  72 65 6E 74 20 66 6F 72 6D 61 74 73 20 61 6E 64   rent formats and
0003  20 73 69 7A 65 73 20 77 69 74 68 20 4E 41 54 49    sizes with NATI
0004  56 45 20 43 4F 4D 4D 41 4E 44 53 0A 0D 0A 0D 0A   VE COMMANDS◙♪◙♪◙
0005  52 6F 74 61 74 69 6F 6E 0D 0A 0A 0A 14 14 1B 21   Rotation♪◙◙◙¶¶←!
0006  03 14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19   ♥¶☻ ☻↓¶¶←(*123*↓
0007  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0008  20 20 20 14 14 1B 21 03 14 01 00 03 19 14 14 1B      ¶¶←!♥¶☻ ♥↓¶¶←
0009  28 2A 31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A   (*123*↓♪◙◙◙◙◙◙◙◙
000A  0A 1B 6A 7B 20 20 20 20 20 20 20 20 20 20 20 20   ◙←j{
000B  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
000C  20 20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21                ¶¶←!
000D  03 14 01 00 02 19 14 14 1B 28 2A 31 32 33 2A 19   ♥¶☻ ☻↓¶¶←(*123*↓
000E  0D 0A 1B 6A FF 20 20 20 20 20 20 20 20 20 20 20   ♪◙←j
000F  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20

0010  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0011  20 20 20 20 20 20 20 20 20 20 20 20 20 20 14 14                ¶¶
0012  1B 21 03 14 01 00 04 19 14 14 1B 28 2A 31 32 33   ←!♥¶☻ ♦↓¶¶←(*123
0013  2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 48 65 69 67      *↓♪◙◙◙◙◙◙◙◙◙◙Heig
0014  68 74 0D 0A 14 14 1B 21 01 14 01 00 01 19 14 14   ht♪◙¶¶←!☺¶☻ ☻↓¶¶
0015  1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20 20   ←(*123*↓♪
0016  20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21 02                ¶¶←!☻
0017  14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19 0D   ¶☻ ☻↓¶¶←(*123*↓♪
0018  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0019  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001A  20 20 20 20 1B 6A 20 14 14 1B 21 03 14 01 00 01      ←j ¶¶←!♥¶☻ ☻
001B  19 14 14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20   ↓¶¶←(*123*↓♪
001C  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001D  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001E  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001F  20 20 1B 6A 3C 14 14 1B 21 04 14 01 00 01 19 14     ←j<¶¶←!♦¶☻ ☻↓¶

0020  14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20   ¶←(*123*↓♪
0021  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0022  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0023  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0024  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0025  20 20 1B 6A 58 14 14 1B 21 05 14 01 00 01 19 14     ←jX¶¶←!♠¶☻ ☻↓¶
0026  14 1B 28 2A 31 32 33 2A 19 0D 0D 0A 0D 48 52 43   ¶←(*123*↓♪♪◙♪HRC
0027  20 4E 6F 0D 0A 14 14 1B 21 03 14 00 01 01 00 00    No♪◙¶¶←!♥¶ ☻☻
0028  19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0D 0A 0A   ↓¶¶←(↔!*123*↓♪◙◙
0029  73 70 61 63 69 6E 67 3D 64 65 66 2E 0D 0A 14 14   spacing=def.♪◙¶¶
002A  1B 21 03 14 01 01 01 00 00 19 14 14 1B 28 1D 21   ←!♥¶☻☻☻  ↓¶¶←(↔!
002B  2A 31 32 33 2A 19 0D 0A 0A 73 70 61 63 69 6E 67   *123*↓♪◙◙spacing
002C  3D 33 78 36 0D 0A 14 14 1B 21 03 14 01 01 01 00   =3x6♪◙¶¶←!♥¶☻☻☻
002D  00 03 03 06 06 03 19 14 14 1B 28 1D 21 2A 31 32    ♥♥♠♠♥↓¶¶←(↔!*12
002E  33 2A 19 0A 0D 0A 73 70 61 63 69 6E 67 3D 34 78   3*↓◙♪◙spacing=4x
002F  31 32 0D 0A 14 14 1B 21 03 14 01 01 01 00 00 04   12♪◙¶¶←!♥¶☻☻☻  ♦

0030  04 09 09 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A   ♦○○♥↓¶¶←(↔!*123*
0031  19 0A 0D 0A 73 70 61 63 69 6E 67 3D 35 78 31 30   ↓◙♪◙spacing=5x10
0032  0D 0A 14 14 1B 21 03 14 01 01 01 00 00 05 05 0A   ♪◙¶¶←!♥¶☻☻☻  ♠♠◙
0033  0A 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A   ◙♥↓¶¶←(↔!*123*↓◙
0034  0D 0A 73 70 61 63 69 6E 67 3D 36 78 31 31 0D 0A   ♪◙spacing=6x11♪◙
0035  14 14 1B 21 03 14 01 01 01 00 00 06 06 0B 0B 03   ¶¶←!♥¶☻☻☻  ♠♠♪♪♥
0036  19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A   ↓¶¶←(↔!*123*↓◙♪◙
0037  73 70 61 63 69 6E 67 3D 37 78 31 34 0D 0A 14 14   spacing=7x14♪◙¶¶
0038  1B 21 03 14 01 01 01 00 00 07 07 0E 0E 03 19 14   ←!♥¶☻☻☻  ••♫♫♥↓¶
0039  14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70   ¶←(↔!*123*↓◙♪◙sp
003A  61 63 69 6E 67 3D 38 78 31 35 0D 0A 14 14 1B 21   acing=8x15♪◙¶¶←!
003B  03 14 01 01 01 00 00 08 08 0F 0F 03 19 14 14 1B   ♥¶☻☻☻  ◘◘☼☼♥↓¶¶←
003C  28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63   (↔!*123*↓◙♪◙spac
003D  69 6E 67 3D 39 78 31 38 0D 0A 14 14 1B 21 03 14   ing=9x18♪◙¶¶←!♥¶
003E  01 01 01 00 00 09 09 12 12 03 19 14 14 1B 28 1D   ☻☻☻  ○○↕↕♥↓¶¶←(↔
003F  21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63 69 6E   !*123*↓◙♪◙spacin

0040  67 3D 39 78 33 36 0D 0A 14 14 1B 21 03 14 01 01   g=9x36♪◙¶¶←!♥¶☻☻
0041  01 00 00 09 09 24 24 03 19 14 14 1B 28 1D 21 2A   ☻  ○○$$♥↓¶¶←(↔!*
0042  31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 0A 0C   123*↓♪◙◙◙◙◙◙◙◙◙♀
```

Figure 153. Hex Dump of example on figure 151



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

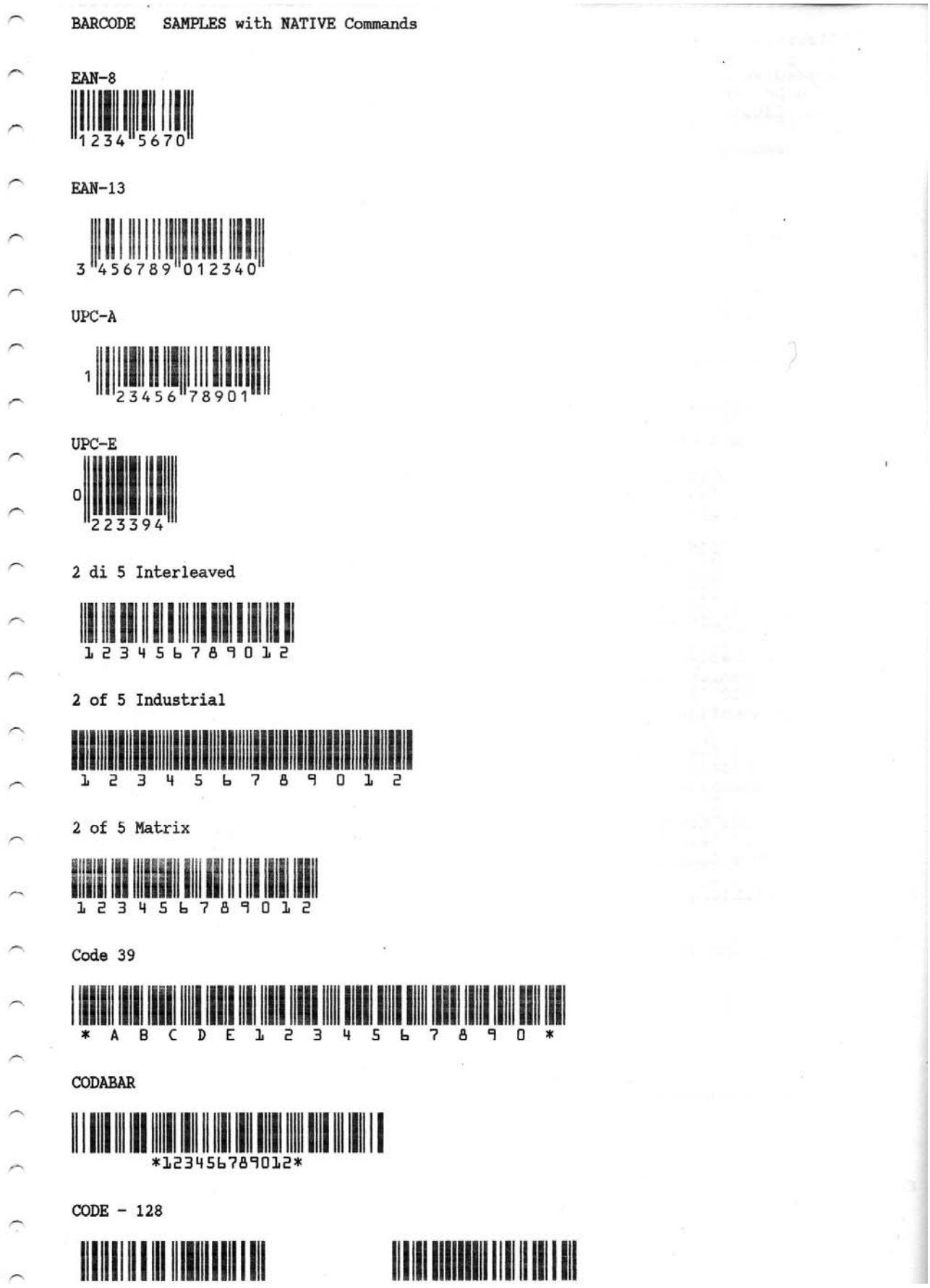



Figure 154. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

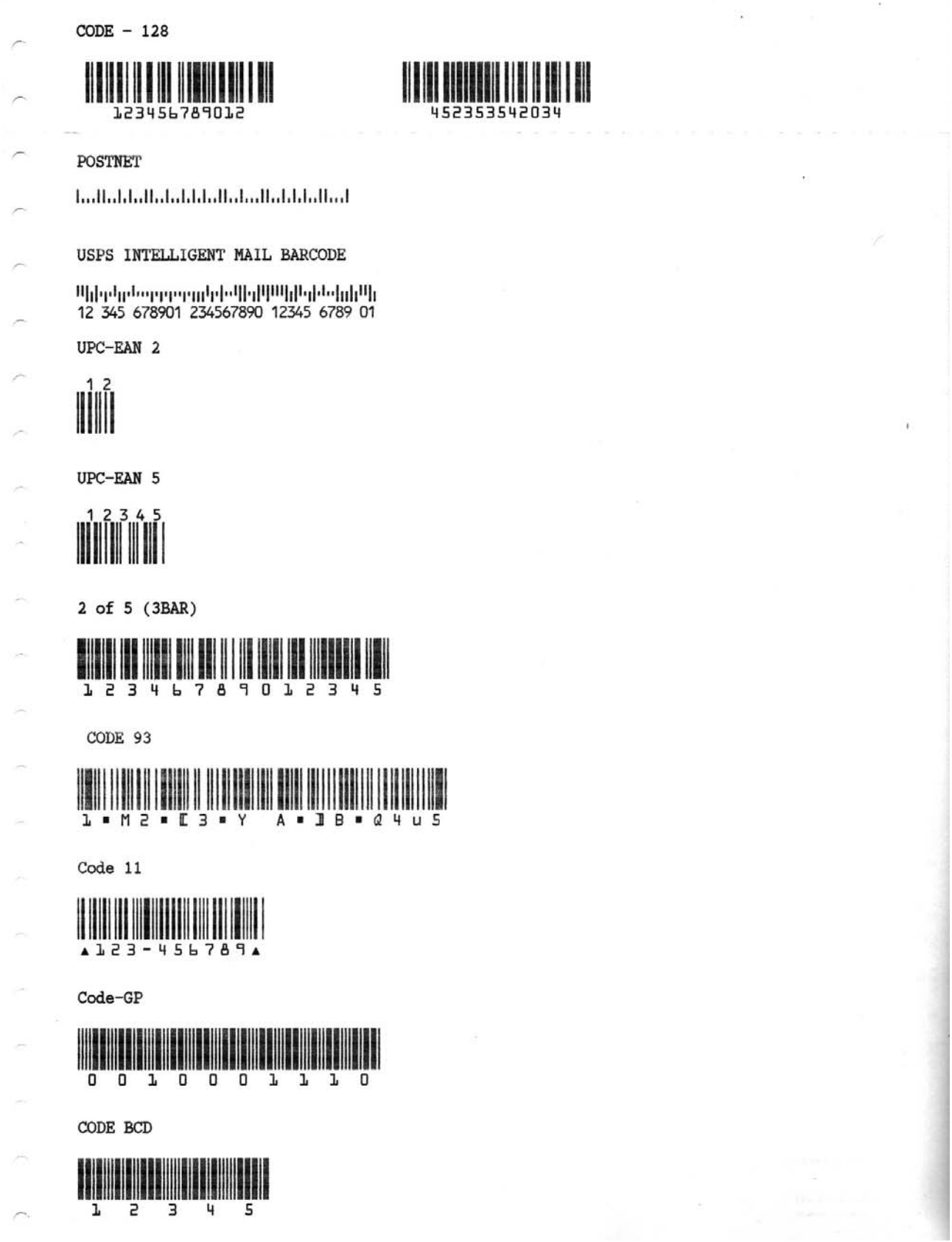



Figure 155. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

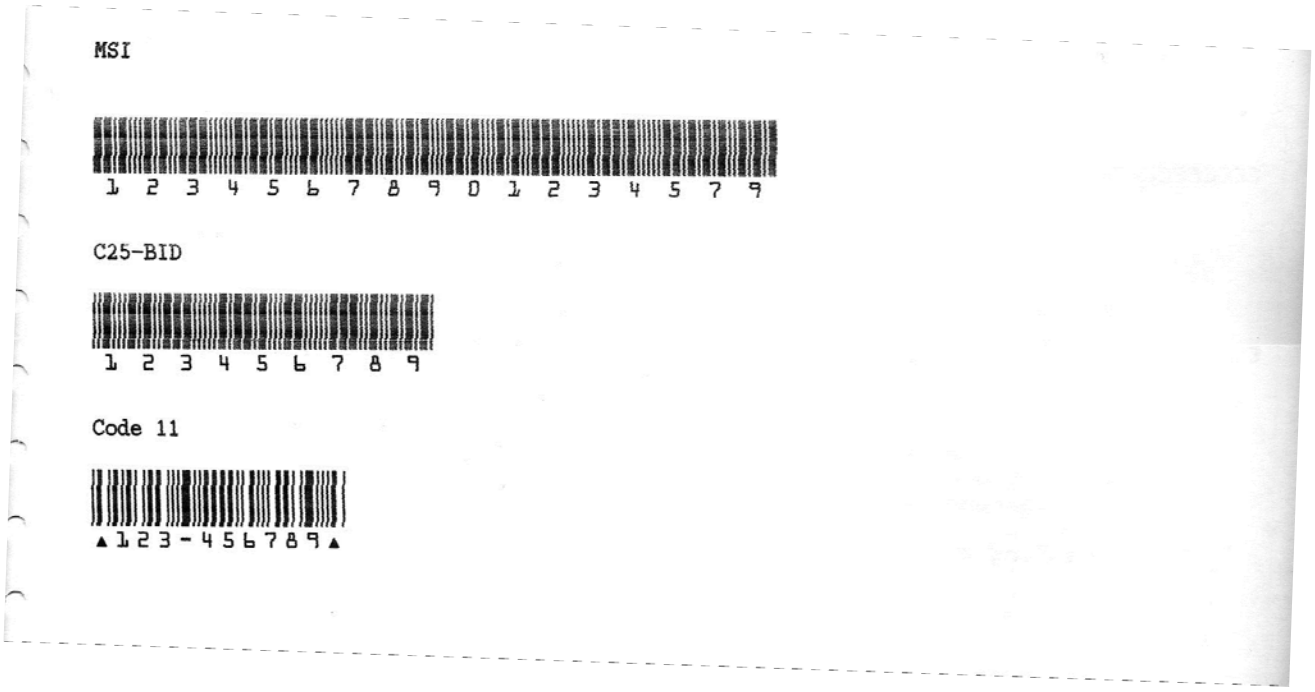
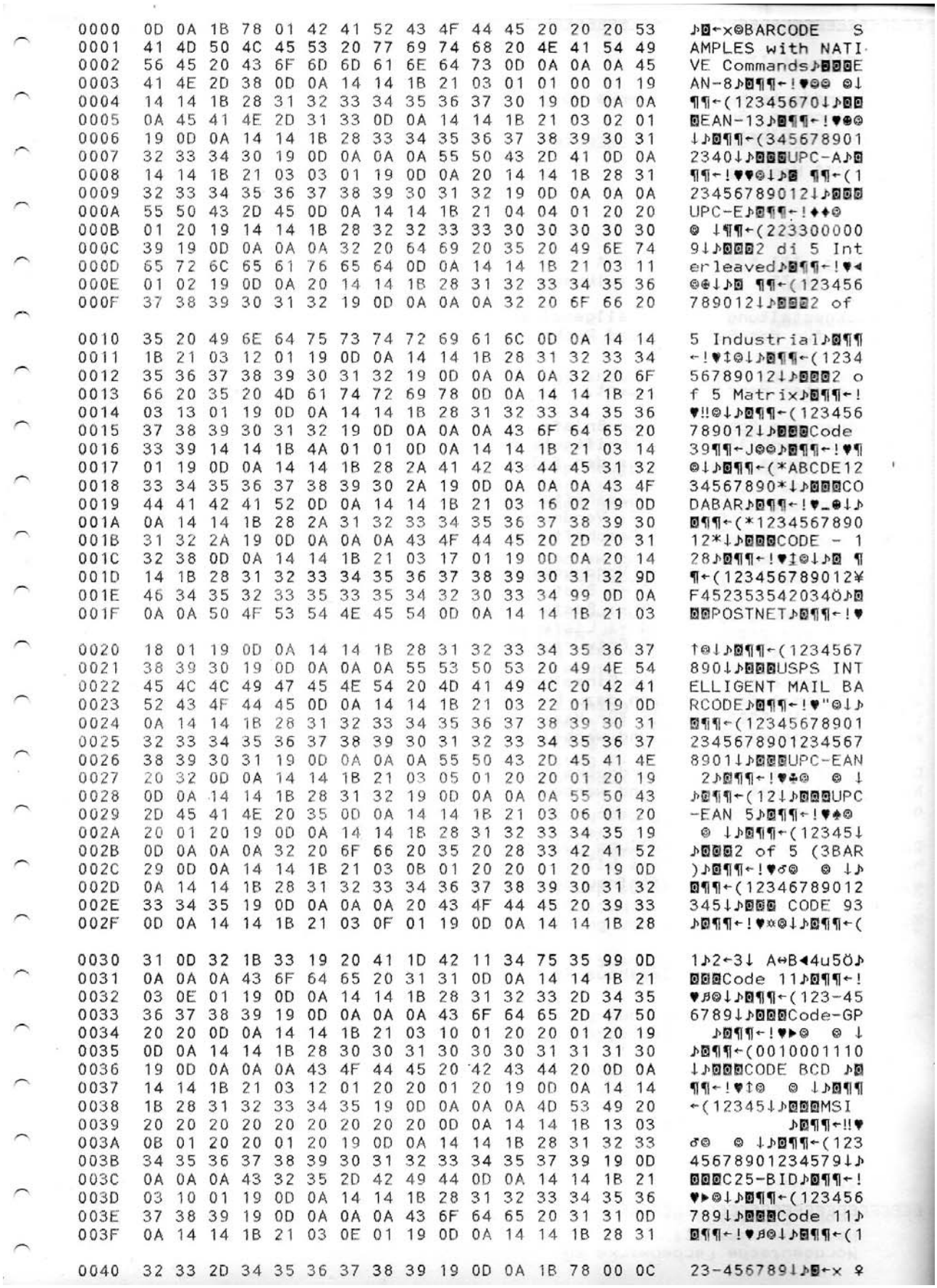



Figure 156. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es



```
0000  0D 0A 1B 78 01 42 41 52 43 4F 44 45 20 20 20 53   ♪◙←x☺BARCODE   S
0001  41 4D 50 4C 45 53 20 77 69 74 68 20 4E 41 54 49   AMPLES with NATI
0002  56 45 20 43 6F 6D 6D 61 6E 64 73 0D 0A 0A 0A 45   VE Commands♪◙◙◙E
0003  41 4E 2D 38 0D 0A 14 14 1B 21 03 01 01 00 01 19   AN-8♪◙¶¶←!♥☺☺ ☺↓
0004  14 14 1B 28 31 32 33 34 35 36 37 30 19 0D 0A 0A   ¶¶←(12345670↓♪◙◙
0005  0A 45 41 4E 2D 31 33 0D 0A 14 14 1B 21 03 02 01   ◙EAN-13♪◙¶¶←!♥☻☺
0006  19 0D 0A 14 14 1B 28 33 34 35 36 37 38 39 30 31   ↓♪◙¶¶←(345678901
0007  32 33 34 30 19 0D 0A 0A 0A 55 50 43 2D 41 0D 0A   2340↓♪◙◙◙UPC-A♪◙
0008  14 14 1B 21 03 03 01 19 0D 0A 20 14 14 1B 28 31   ¶¶←!♥♥☺↓♪◙ ¶¶←(1
0009  32 33 34 35 36 37 38 39 30 31 32 19 0D 0A 0A 0A   234567890 12↓♪◙◙◙
000A  55 50 43 2D 45 0D 0A 14 14 1B 21 04 04 01 20 20   UPC-E♪◙¶¶←!♦♦☺
000B  01 20 19 14 14 1B 28 32 32 33 33 30 30 30 30 30   ☺ ↓¶¶←(223300000
000C  39 19 0D 0A 0A 0A 32 20 64 69 20 35 20 49 6E 74   9↓♪◙◙◙2 di 5 Int
000D  65 72 6C 65 61 76 65 64 0D 0A 14 14 1B 21 03 11   erleaved♪◙¶¶←!♥◄
000E  01 02 19 0D 0A 20 14 14 1B 28 31 32 33 34 35 36   ☺☻↓♪◙ ¶¶←(123456
000F  37 38 39 30 31 32 19 0D 0A 0A 0A 32 20 6F 66 20   789012↓♪◙◙◙2 of

0010  35 20 49 6E 64 75 73 74 72 69 61 6C 0D 0A 14 14   5 Industrial♪◙¶¶
0011  1B 21 03 12 01 19 0D 0A 14 14 1B 28 31 32 33 34   ←!♥↕☺↓♪◙¶¶←(1234
0012  35 36 37 38 39 30 31 32 19 0D 0A 0A 0A 32 20 6F   56789012↓♪◙◙◙2 o
0013  66 20 35 20 4D 61 74 72 69 78 0D 0A 14 14 1B 21   f 5 Matrix♪◙¶¶←!
0014  03 13 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36   ♥‼☺↓♪◙¶¶←(123456
0015  37 38 39 30 31 32 19 0D 0A 0A 0A 43 6F 64 65 20   789012↓♪◙◙◙Code
0016  33 39 14 14 1B 4A 01 01 0D 0A 14 14 1B 21 03 14   39¶¶←J☺☺♪◙¶¶←!♥¶
0017  01 19 0D 0A 14 14 1B 28 2A 41 42 43 44 45 31 32   ☺↓♪◙¶¶←(*ABCDE12
0018  33 34 35 36 37 38 39 30 2A 19 0D 0A 0A 0A 43 4F   34567890*↓♪◙◙◙CO
0019  44 41 42 41 52 0D 0A 14 14 1B 21 03 16 02 19 0D   DABAR♪◙¶¶←!♥▬☻↓♪
001A  0A 14 14 1B 28 2A 31 32 33 34 35 36 37 38 39 30   ◙¶¶←(*1234567890
001B  31 32 2A 19 0D 0A 0A 0A 43 4F 44 45 20 2D 20 31   12*↓♪◙◙◙CODE - 1
001C  32 38 0D 0A 14 14 1B 21 03 17 01 19 0D 0A 20 14   28♪◙¶¶←!♥↨☺↓♪◙ ¶
001D  14 1B 28 31 32 33 34 35 36 37 38 39 30 31 32 9D   ¶←(123456789012¥
001E  46 34 35 32 33 35 33 35 34 32 30 33 34 99 0D 0A   F4523535420340♪◙
001F  0A 0A 50 4F 53 54 4E 45 54 0D 0A 14 14 1B 21 03   ◙◙POSTNET♪◙¶¶←!♥

0020  18 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36 37   ↑☺↓♪◙¶¶←(1234567
0021  38 39 30 19 0D 0A 0A 0A 55 53 50 53 20 49 4E 54   890↓♪◙◙◙USPS INT
0022  45 4C 4C 49 47 45 4E 54 20 4D 41 49 4C 20 42 41   ELLIGENT MAIL BA
0023  52 43 4F 44 45 0D 0A 14 14 1B 21 03 22 01 19 0D   RCODE♪◙¶¶←!♥"☺↓♪
0024  0A 14 14 1B 28 31 32 33 34 35 36 37 38 39 30 31   ◙¶¶←(12345678901
0025  32 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37   2345678901234567
0026  38 39 30 31 19 0D 0A 0A 0A 55 50 43 2D 45 41 4E   8901↓♪◙◙◙UPC-EAN
0027  20 32 0D 0A 14 14 1B 21 03 05 01 20 20 01 20 19    2♪◙¶¶←!♥♣☺  ☺ ↓
0028  0D 0A 14 14 1B 28 31 32 19 0D 0A 0A 0A 55 50 43   ♪◙¶¶←(12↓♪◙◙◙UPC
0029  2D 45 41 4E 20 35 0D 0A 14 14 1B 21 03 06 01 20   -EAN 5♪◙¶¶←!♥♠☺
002A  20 01 20 19 0D 0A 14 14 1B 28 31 32 33 34 35 19    ☺ ↓♪◙¶¶←(12345↓
002B  0D 0A 0A 0A 32 20 6F 66 20 35 20 28 33 42 41 52   ♪◙◙◙2 of 5 (3BAR
002C  29 0D 0A 14 14 1B 21 03 0B 01 20 20 01 20 19 0D   )♪◙¶¶←!♥♂☺  ☺ ↓♪
002D  0A 14 14 1B 28 31 32 33 34 36 37 38 39 30 31 32   ◙¶¶←(12346789012
002E  33 34 35 19 0D 0A 0A 0A 20 43 4F 44 45 20 39 33   345↓♪◙◙◙ CODE 93
002F  0D 0A 14 14 1B 21 03 0F 01 19 0D 0A 14 14 1B 28   ♪◙¶¶←!♥☼☺↓♪◙¶¶←(

0030  31 0D 32 1B 33 19 20 41 1D 42 11 34 75 35 99 0D   1♪2←3↓ A↔B◄4u5Ö♪
0031  0A 0A 0A 43 6F 64 65 20 31 31 0D 0A 14 14 1B 21   ◙◙◙Code 11♪◙¶¶←!
0032  03 0E 01 19 0D 0A 14 14 1B 28 31 32 33 2D 34 35   ♥♬☺↓♪◙¶¶←(123-45
0033  36 37 38 39 19 0D 0A 0A 0A 43 6F 64 65 2D 47 50   6789↓♪◙◙◙Code-GP
0034  20 20 0D 0A 14 14 1B 21 03 10 01 20 20 01 20 19     ♪◙¶¶←!♥►☺  ☺ ↓
0035  0D 0A 14 14 1B 28 30 30 31 30 30 30 31 31 31 30   ♪◙¶¶←(0010001110
0036  19 0D 0A 0A 0A 43 4F 44 45 20 42 43 44 20 0D 0A   ↓♪◙◙◙CODE BCD ♪◙
0037  14 14 1B 21 03 12 01 20 20 01 20 19 0D 0A 14 14   ¶¶←!♥↕☺  ☺ ↓♪◙¶¶
0038  1B 28 31 32 33 34 35 19 0D 0A 0A 0A 4D 53 49 20   ←(12345↓♪◙◙◙MSI
0039  20 20 20 20 20 20 20 20 20 0D 0A 14 14 1B 13 03                ♪◙¶¶←‼♥
003A  0B 01 20 20 01 20 19 0D 0A 14 14 1B 28 31 32 33   ♂☺  ☺ ↓♪◙¶¶←(123
003B  34 35 36 37 38 39 30 31 32 33 34 35 37 39 19 0D   456789012345 79↓♪
003C  0A 0A 0A 43 32 35 2D 42 49 44 0D 0A 14 14 1B 21   ◙◙◙C25-BID♪◙¶¶←!
003D  03 10 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36   ♥►☺↓♪◙¶¶←(123456
003E  37 38 39 19 0D 0A 0A 0A 43 6F 64 65 20 31 31 0D   789↓♪◙◙◙Code 11♪
003F  0A 14 14 1B 21 03 0E 01 19 0D 0A 14 14 1B 28 31   ◙¶¶←!♥♬☺↓♪◙¶¶←(1

0040  32 33 2D 34 35 36 37 38 39 19 0D 0A 1B 78 00 0C   23-456789↓♪◙←x ♀
```

Figure 157. Hex Dump of example on figures 154, 155, 156



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Bar Codes handled in MTPL Commands (Native Bar Code Mode)

The S828 integrates in the firmware a sub-set handling of the MTPL emulation Bar Codes commands.

The complete and detailed information for these commands can be found on specific MTPL Programmer Manual available on web.

## Bar Code Description

Before the data, which contain the Barcode information, are transmitted to the printer, the Barcode header must be sent. Otherwise the standard parameter values are used (see section "Header Format"). In the header, the printing parameters, the Barcode size and the Barcode Type are de-fined. This header only needs to be transferred once, unless settings are to be changed or the printer has been turned off.

**Header Format** *Format:* **SUB [F] a [n] [;xyz] [;p] EM**

[ ] Specification is optional
x, y unregarded at EAN/UPC-Barcode!
For Code 128 and EAN 128 (Type S+T) only the X parameter is valid. This is automatically used for the Y parameter. The Z parameter is not evaluated.

**Meaning of the characters:**

| | |
|---|---|
| SUB (hex.1A, dec.26) | Start header |
| F | Print feature |
| | SP (hex. 20, dec. 32): HRI OFF, Normal Print, Double Pass, Unidirectional (def.) |
| | ! (hex. 22, dec. 34): HRI ON, Normal Print, Double Pass, Unidirectional |
| a ASCII a = "A"..."S" | Barcode Types (def. “A”, see later on) |
| n ASCII n = "0"..."90" | Barcode height in n/6 inch. At n="0" the Barcode height equals to 1/12 inch. (def. 1) |
| ; ASCII | Separation character |
| x ASCII x = "0"..."3" | Width of the narrow bar (def.0 ) |
| y ASCII y = "0"..."3" | Width of the narrow space (def.0 ) |
| z ASCII z = "0"..."3" | Ratio of wide to narrow (def.0 ) |
| p ASCII p = "0"…"9" | Barcode orientation (def. 0, horizontal) |
| EM (hex.19, dec.25) | End of header |

**Barcode Types**

| | | |
|---|---|---|
| A = 2/5 matrix (default) | B = 2/5 industrial | C = 2/5 interleaved |
| D = Code 11 | E = Code BCD matrix | F = Code 39 |
| G = Codabar | H = EAN 8 with HRI | I = EAN 8 without HRI |
| J = 2/5 matrix (default) | K = EAN 13 with HRI | L = EAN 13 without HRI |
| M = MSI/modified Plessey | N = UPC A with HRI | O = UPC A without HRI |
| P = UPC E with HRI | Q = UPC E without HRI | S = Code 128 |
| T = EAN 128/GSI-128 | | |

**Post Office Barcode Types**

| | |
|---|---|
| US Postnet Barcode | = ESC [ 1 SP p |
| Planet Barcode | = ESC [ 2 SP p <data> EM |
| KIX Barcode | = ESC [ 2 SP k |
| Royal Mail Customer Barcode | = ESC [ 1 SP k |
| USPS Intelligent Mail Barcode (IMB) | = ESC [ 9 SP k |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## MTPL Bar Codes Commands Examples

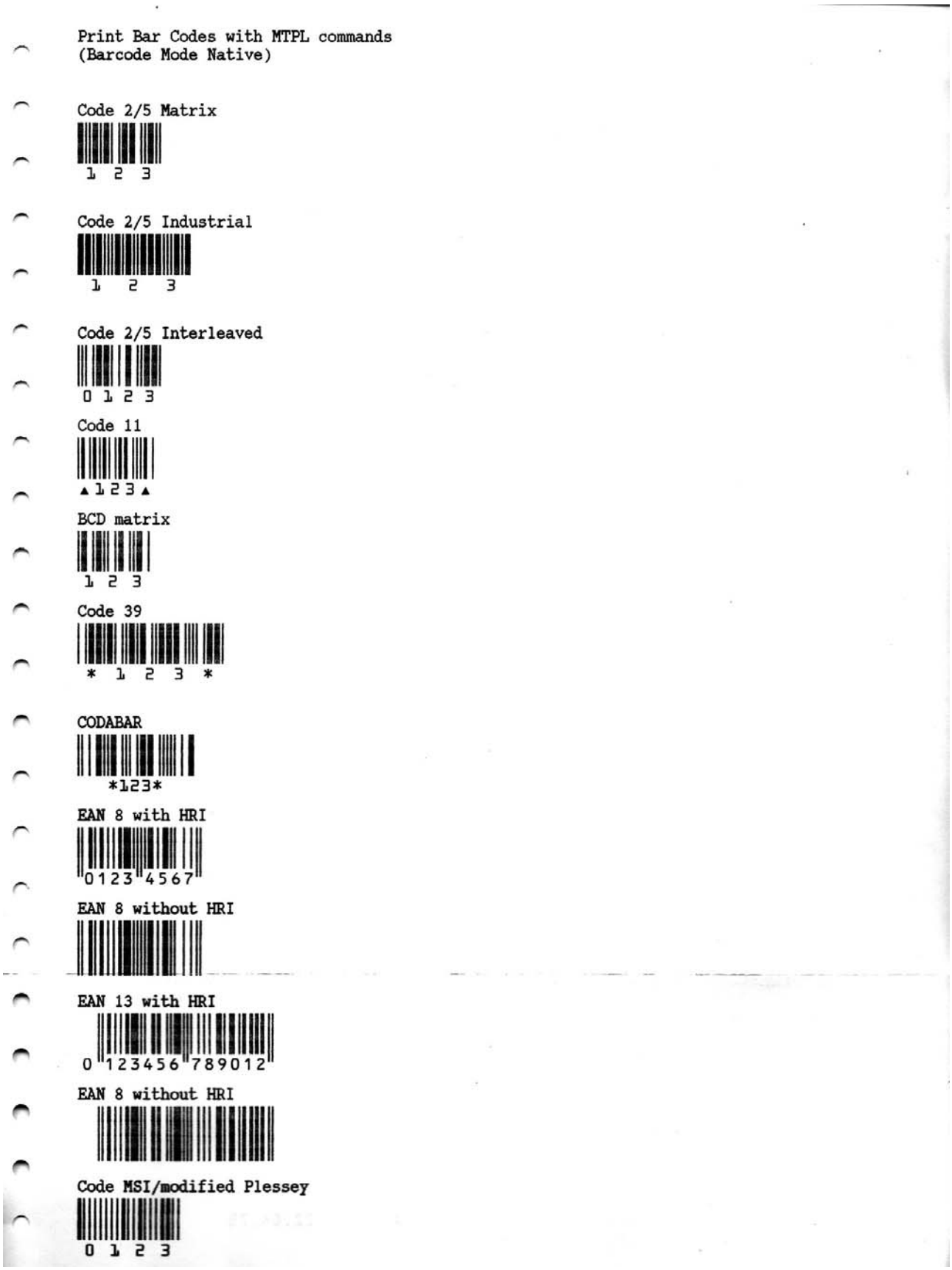



Figure 158. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

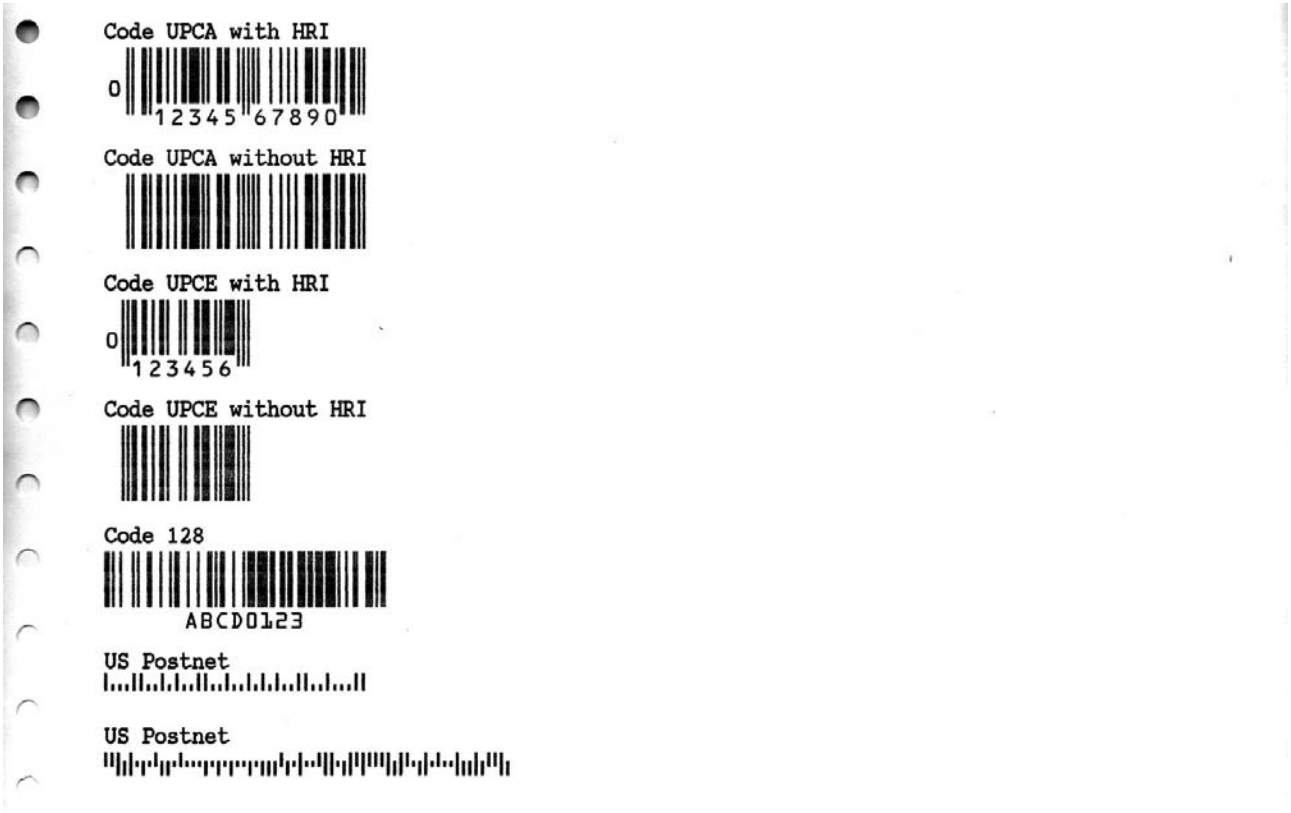



Figure 159. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

```
0000  0D 0A 0D 0A 0A 0A 0A 0A 50 72 69 6E 74 20 42 61   ♪■♪■■■■■Print Ba
0001  72 20 43 6F 64 65 73 20 77 69 74 68 20 4D 54 50   r Codes with MTP
0002  4C 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42 61 72   L commands♪■(Bar
0003  63 6F 64 65 20 4D 6F 64 65 20 4E 61 74 69 76 65   code Mode Native
0004  29 20 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35 20 4D   ) ♪■■■Code 2/5 M
0005  61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E 1A 22   atrix ♪■←[?11~→"
0006  41 33 3B 31 31 31 19 14 3A 31 32 33 3A 14 1B 5B   A3;111↓¶:123:¶←[
0007  3F 31 30 7E 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35   ?10~♪■■■Code 2/5
0008  20 49 6E 64 75 73 74 72 69 61 6C 20 0D 0A 1B 5B    Industrial ♪■←[
0009  3F 31 31 7E 1A 22 42 33 3B 31 31 31 19 14 3A 31   ?11~→"B3;111↓¶:1
000A  32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A 0A 0A 43 6F   23;¶←[?10~♪■■■Co
000B  64 65 20 32 2F 35 20 49 6E 74 65 72 6C 65 61 76   de 2/5 Interleav
000C  65 64 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 43 33 3B   ed ♪■←[?11~→"C3;
000D  31 31 31 19 14 3A 31 32 33 3B 14 1B 5B 3F 31 30   111↓¶:123;¶←[?10
000E  7E 0D 0A 0A 43 6F 64 65 20 31 31 20 0D 0A 1B 5B   ~♪■■Code 11 ♪■←[
000F  3F 31 31 7E 1A 22 44 33 3B 31 31 31 19 14 3A 31   ?11~→"D3;111↓¶:1

0010  32 33 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 42 43 44   23:¶←[?10~♪■■BCD
0011  20 6D 61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E    matrix ♪■←[?11~
0012  1A 22 45 33 3B 31 31 31 19 14 3A 31 32 33 3A 14   →"E3;111↓¶:123:¶
0013  1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 33 39   ←[?10~♪■■Code 39
0014  0D 0A 1B 5B 3F 31 31 7E 1A 22 46 33 3B 31 31 31   ♪■←[?11~→"F3;111
0015  19 14 2A 31 32 33 2A 14 1B 5B 3F 31 30 7E 0D 0A   ↓¶*123*¶←[?10~♪■
0016  0A 0D 0A 43 4F 44 41 42 41 52 20 0D 0A 1B 5B 3F   ■♪■CODABAR ♪■←[?
0017  31 31 7E 1A 22 47 33 3B 31 31 31 19 14 2A 31 32   11~→"G3;111↓¶*12
0018  33 2A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20   3*¶←[?10~♪■■EAN
0019  38 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F   8 with HRI ♪■←[?
001A  31 31 7E 1A 22 48 33 3B 31 31 31 19 14 3A 30 31   11~→"H3;111↓¶:01
001B  32 33 3A 34 35 36 37 3A 14 1B 5B 3F 31 30 7E 0D   23:4567:¶←[?10~♪
001C  0A 0A 45 41 4E 20 38 20 77 69 74 68 6F 75 74 20   ■■EAN 8 without
001D  48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 49 33   HRI ♪■←[?11~→ I3
001E  3B 31 31 31 19 14 3A 30 31 32 33 3A 34 35 36 37   ;111↓¶:0123:4567
001F  3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20 31   :¶←[?10~♪■■EAN 1

0020  33 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F   3 with HRI ♪■←[?
0021  31 31 7E 1A 22 4B 33 3B 31 31 31 19 14 3A 30 31   11~→"K3;111↓¶:01
0022  32 33 34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B   23456:789012:¶←[
0023  3F 31 30 7E 0D 0A 0A 45 41 4E 20 38 20 77 69 74   ?10~♪■■EAN 8 wit
0024  68 6F 75 74 20 48 52 49 20 0D 0A 1B 5B 3F 31 31   hout HRI ♪■←[?11
0025  7E 1A 20 4C 33 3B 31 31 31 19 14 3A 30 31 32 33   ~→ L3;111↓¶:0123
0026  34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B 3F 31   456:789012:¶←[?1
0027  30 7E 0D 0A 0A 43 6F 64 65 20 4D 53 49 2F 6D 6F   0~♪■■Code MSI/mo
0028  64 69 66 69 65 64 20 50 6C 65 73 73 65 79 20 0D   dified Plessey ♪
0029  0A 1B 5B 3F 31 31 7E 1A 22 4D 33 3B 31 31 31 19   ■←[?11~→"M3;111↓
002A  14 3A 30 31 32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A   ¶:0123;¶←[?10~♪■
002B  0A 43 6F 64 65 20 55 50 43 41 20 77 69 74 68 20   ■Code UPCA with
002C  48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 4E 33   HRI ♪■←[?11~→"N3
002D  3B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36 37   ;111↓¶:012345:67
002E  38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 43   8901:¶←[?10~♪■■C
002F  6F 64 65 20 55 50 43 41 20 77 69 74 68 6F 75 74   ode UPCA without

0030  20 48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 4F    HRI ♪■←[?11~→ O
0031  33 3B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36   3;111↓¶:012345:6
0032  37 38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A   78901:¶←[?10~♪■■
0033  43 6F 64 65 20 55 50 43 45 20 77 69 74 68 20 48   Code UPCE with H
0034  52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 50 33 3B   RI ♪■←[?11~→"P3;
0035  31 31 31 19 14 3A 30 31 32 33 34 35 36 37 3A 14   111↓¶:01234567:¶
0036  1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 55 50   ←[?10~♪■■Code UP
0037  43 45 20 77 69 74 68 6F 75 74 20 48 52 49 20 0D   CE without HRI ♪
0038  0A 1B 5B 3F 31 31 7E 1A 20 51 33 3B 31 31 31 19   ■←[?11~→ Q3;111↓
0039  14 3A 30 31 32 33 34 35 36 37 3A 14 1B 5B 3F 31   ¶:01234567:¶←[?1
003A  30 7E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 0D 0A   0~♪■■Code 128 ♪■
003B  1B 5B 3F 31 31 7E 1A 22 53 33 3B 31 31 31 19 14   ←[?11~→"S3;111↓¶
003C  41 42 43 44 30 31 32 33 14 1B 5B 3F 31 30 7E 0D   ABCD0123¶←[?10~♪
003D  0A 0A 55 53 20 50 6F 73 74 6E 65 74 0D 0A 1B 5B   ■■US Postnet♪■←[
003E  3F 31 31 7E 1B 5B 31 20 70 31 32 33 34 35 36 37   ?11~←[1 p1234567
003F  0D 1B 5B 3F 31 30 7E 0D 0A 0A 55 53 20 50 6F 73   ♪←[?10~♪■■US Pos

0040  74 6E 65 74 0D 0A 1B 5B 3F 31 31 7E 1B 5B 31 20   tnet♪■←[?11~←[1
0041  6B 31 32 33 34 35 36 37 38 39 30 31 32 33 34 35   k1234567890123345
0042  36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31   6789012345678901
0043  0D 1B 5B 3F 31 30 7E 0D 0A 0A 0A 0A 0A 0A 0A 0C   ♪←[?10~♪■■■■■■■♀
```

Figure 160. Hex Dump of example on figures 158, 159



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Bar Codes handled in SEIKOSHA Commands (Alt. 2 Bar Code Mode)

The S828 partially integrates in the firmware a sub-set handling of the SEIKOSHA BP-9000 Bar Codes specific commands.

The complete and detailed information for these can be found in specific SEIKOSHA BP-9000 programmer manual available on web.

| # | Function | Bar Code Commands |
|---|---|---|
| 1. | Bar code type | DC4 DC4 T n |
| 2. | Element width | DC4 DC4 E n1 n2 |
| 3. | Bar code height | DC4 DC4 H n |
| 4. | Setting HRI on and off | DC4 DC4 I n |
| 5. | HRI font | DC4 DC4 F n |
| 6. | Check character | DC4 DC4 C n |
| 7. | Starting the bar code data sequence | ESC SI |
| 8. | Ending the bar code data seqence | ESC SO |
| 9. | Bar code data sequence | DC4 DC4 B n d1 d2 ... dk |
| 10. | Printing density | DC4 DC4 D n |
| 11. | Guard bar expansion | DC4 DC4 G n |
| 12. | Start and stop characters | DC4 DC4 N n1 n2 |
| 13. | Bar code rotational angle | DC4 DC4 R n |
| 14. | Disabling HRI of the start and stop characters | DC4 DC4 S n |
| 15. | Value input mode | DC4 DC4 V n |
| 16. | Initializing the bar code mode | DC4 DC4 @ |

**Bar Code Type (n)**

| | | | | | |
|---|---|---|---|---|---|
| **0** | Industrial 2 of 5 | **5** | Code39 | **10** | UPC-A |
| **1** | Interleaved 2 of 5 | **6** | Code93 | **11** | UPC-E |
| **2** | Matrix 2 of 5 | **7** | Code128 | **12** | Postnet |
| **3** | Codabar | **8** | EAN-8 | | |
| **4** | Code11 | **9** | EAN-13 | | |



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## SEIKOSHA Commands Bar Codes Examples

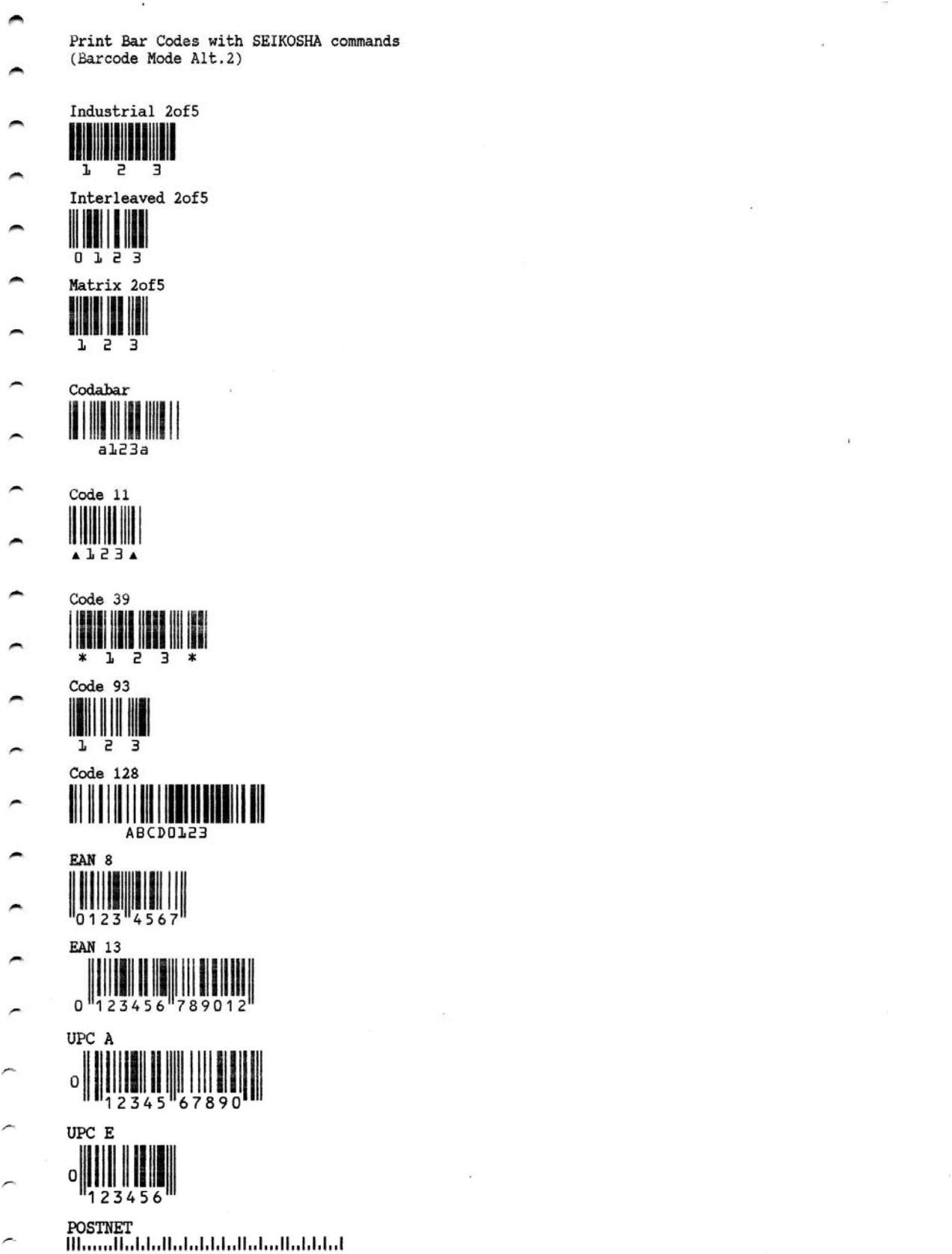



Figure 161. Bar Code Examples with SEIKOSHA Commands (Bar Code Mode Alt. 1)



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

```
0000  0D 0A 0A 14 14 40 50 72 69 6E 74 20 42 61 72 20   ♪◙◙¶¶@Print Bar
0001  43 6F 64 65 73 20 77 69 74 68 20 53 45 49 4B 4F   Codes with SEIKO
0002  53 48 41 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42   SHA commands♪◙(B
0003  61 72 63 6F 64 65 20 4D 6F 64 65 20 41 6C 74 2E   arcode Mode Alt.
0004  32 29 20 0D 0A 0A 0A 49 6E 64 75 73 74 72 69 61   2) ♪◙◙◙Industria
0005  6C 20 32 6F 66 35 20 0D 0A 14 14 54 00 14 14 48   l 2of5 ♪◙¶¶T ¶¶H
0006  06 14 14 49 01 1B 0F 31 32 33 1B 0E 0D 0A 0A 49   ♠¶¶I☺←☼123←♬♪◙◙I
0007  6E 74 65 72 6C 65 61 76 65 64 20 32 6F 66 35 20   nterleaved 2of5
0008  20 0D 0A 14 14 54 01 14 14 48 06 14 14 49 01 1B    ♪◙¶¶T☺¶¶H♠¶¶I☺←
0009  0F 31 32 33 1B 0E 0D 0A 0A 4D 61 74 72 69 78 20   ☼123←♬♪◙◙Matrix
000A  32 6F 66 35 20 20 0D 0A 14 14 54 02 14 14 48 06   2of5  ♪◙¶¶T☻¶¶H♠
000B  14 14 49 01 1B 0F 31 32 33 1B 0E 0A 0A 0A 43 6F   ¶¶I☺←☼123←♬◙◙◙Co
000C  64 61 62 61 72 20 20 0D 0A 14 14 54 03 14 14 48   dabar  ♪◙¶¶T♥¶¶H
000D  06 14 14 49 01 1B 0F 61 31 32 33 61 1B 0E 0A 0A   ♠¶¶I☺←☼a123a←♬◙◙
000E  0A 43 6F 64 65 20 31 31 20 20 0D 0A 14 14 54 04   ◙Code 11  ♪◙¶¶T♦
000F  14 14 48 06 14 14 49 01 1B 0F 31 32 33 1B 0E 0A   ¶¶H♠¶¶I☺←☼123←♬◙

0010  0A 0A 43 6F 64 65 20 33 39 20 20 0D 0A 14 14 54   ◙◙Code 39  ♪◙¶¶T
0011  05 14 14 48 06 14 14 49 01 1B 0F 2A 31 32 33 2A   ♣¶¶H♠¶¶I☺←☼*123*
0012  1B 0E 0D 0A 0A 43 6F 64 65 20 39 33 20 20 0D 0A   ←♬♪◙◙Code 93  ♪◙
0013  14 14 54 06 14 14 48 06 14 14 49 01 1B 0F 31 32   ¶¶T♠¶¶H♠¶¶I☺←☼12
0014  33 1B 0E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 20   3←♬♪◙◙Code 128
0015  0D 0A 14 14 54 07 14 14 48 06 14 14 49 01 1B 0F   ♪◙¶¶T•¶¶H♠¶¶I☺←☼
0016  41 42 43 44 30 31 32 33 1B 0E 0D 0A 0A 45 41 4E   ABCD0123←♬♪◙◙EAN
0017  20 38 20 20 0D 0A 14 14 54 08 14 14 48 06 14 14    8  ♪◙¶¶T◘¶¶H♠¶¶
0018  49 01 1B 0F 30 31 32 33 34 35 36 37 1B 0E 0D 0A   I☺←☼01234567←♬♪◙
0019  0A 45 41 4E 20 31 33 20 20 0D 0A 14 14 54 09 14   ◙EAN 13  ♪◙¶¶T○¶
001A  14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35 36   ¶H♠¶¶I☺←☼0123456
001B  37 38 39 30 31 32 1B 0E 0D 0A 0A 55 50 43 20 41   789012←♬♪◙◙UPC A
001C  20 20 0D 0A 14 14 54 0A 14 14 48 06 14 14 49 01     ♪◙¶¶T◙¶¶H♠¶¶I☺
001D  1B 0F 30 31 32 33 34 35 36 37 38 39 30 31 1B 0E   ←☼012345678901←♬
001E  0D 0A 0A 55 50 43 20 45 20 20 0D 0A 14 14 54 0B   ♪◙◙UPC E  ♪◙¶¶T♂
001F  14 14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35   ¶¶H♠¶¶I☺←☼012345

0020  36 37 1B 0E 0D 0A 0A 50 4F 53 54 4E 45 54 20 20   67←♬♪◙◙POSTNET
0021  0D 0A 14 14 54 0C 1B 0F 30 31 32 33 34 35 36 37   ♪◙¶¶T♀←☼01234567
0022  38 39 1B 0E 0D 0A 0A 0C                           89←♬♪◙◙♀
```

Figure 162. Hex Dump of example on figure 161



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Notices

These terms are trademarks or registered trademarks of Ricoh Co., Ltd., in the United States, other countries, or both:

- IBM
- Infoprint Solutions
- Ricoh
- Advanced Function Printing
- AFP
- Intelligent Printer Data Stream
- IPDS

These terms are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both:

- AIX
- AS400
- i5/OS
- IBM
- iSeries
- MVS
- OS/400
- Print Services Facility
- PSF
- System i
- z/OS
- zSeries

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
Intel, Intel Inside (logos), MMX, and Pentium are trademarks of Intel Corporation in the United States, other countries, or both.
Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.
Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
UNIX is a registered trademark of The Open Group in the United States and other countries.
Other company, product, or service names may be trademarks or service marks of others.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

This page is intentionally left blank.



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

# Customer Support

## Printronix Customer Support Center

**IMPORTANT** **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

| | | |
|---|---|---|
| Press the ON LINE key to take the printer OFF LINE | | |
| Press the PROGRAM key | PRINT OUT? NO | Is displayed |
| Press the → key | PRINT OUT? YES | The PROGRAM SETUP PRINTOUT is printed |
| Press the ↓ key until | PRINT STATS? NO | Is displayed |
| Press the → key | PRINT OUT? YES | The USAGE STATISTICS DATA PRINTOUT is printed |
| Press the ↓ key until | CONFIG MENU NO | Is displayed |
| Press the → key to display | CONFIG MENU YES | |
| Press the ↓ key | PRINT OUT? NO | Is displayed |
| Press the → key | PRINT OUT? YES | The CONFIGURATION SETUP PRINTOUT is printed |
| Press the PROGRAM key | | |
| Press the TEAR key and tear off the printout at the perforation | | |

- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing these samples may be required)

| | |
|---|---|
| Americas | (714) 368-2686 |
| Europe, Middle East, and Africa | (31) 24 6489 311 |
| Asia Pacific | (65) 6548 4114 |
| China | (86) 800-999-6836 |

http://www.printronix.com/support.aspx

## Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

| | |
|---|---|
| Americas | (800) 733-1900 |
| Europe, Middle East, and Africa | (33) 1 46 25 19 07 |
| Asia Pacific | (65) 6548 4100 |
| China | (86) 400-886-5598 |

http://www.printronix.com/supplies-parts.aspx



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

## Corporate Offices

Printronix, LLC.
6440 Oak Canyon Rd, Suite 200
Irvine, CA 92618
U.S.A.
Phone: (714) 368-2300
Fax: (714) 368-2600

Printronix Inc.
c/o Printronix Nederland BV
Bijsterhuizen 11-38
6546 AS Nijmegen
The Netherlands
Phone: (31) 24 6489489
Fax: (31) 24 6489499

Printronix Schweiz GmbH
3Changi Business Park Vista
#04-05 AkzoNobelHouse
Singapore 486051
Phone: (65) 6548 4100
Fax: (65) 6548 4111

Printronix Commercial (Shanghai) Co. Ltd
Room 903, 9thFloor
No. 199, North Xizang Road
200070 Shanghai P.R. China
Phone: (86) 400 886 5598
Fax: (8621) 61171256

Printronix India PvtLtd
B-808/809, BSEL Tech Park 8thFloor, Sector 30A
VashaiNaviMumbai 400705 India
Toll Free No.: 1800 102 7896 Fax: (9211) 4158 5555

Visit the Printronix web site at www.printronix.com



Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
This manual refers to various company and products by their trade names.
In most of the cases, these designations are claimed as trademarks or
registered tramarkers by their respective companies.

Copyright 2017 PRINTRONIX s.r.l. - Printed in Italy

260071-001A

Mantenimiento Periféricos Informáticos C/Canteras,15 28860 Paracuellos de Jarama (Madrid) tel: 00 33 917481604 WEB: https://mpi.com.es