



User's Manual

P/N 068453

External Coax/Twinax Adapter

 **ntermec**

A **UNOVA** Company

Intermec Technologies Corporation
6001 36th Avenue West
P.O. Box 4280
Everett, WA 98203-9280

U.S. service and technical support: 1-800-755-5505
U.S. media supplies ordering information: 1-800-227-9947

Canadian service and technical support: 1-800-688-7043
Canadian media supplies ordering information: 1-800-268-6936

Outside U.S. and Canada: Contact your local Intermec service supplier.

The information contained herein is proprietary and is provided solely for the purpose of allowing customers to operate and/or service Intermec manufactured equipment and is not to be released, reproduced, or used for any other purpose without written permission of Intermec.

Information and specifications in this manual are subject to change without notice.

© 1998-2000 by Intermec Technologies Corporation
All Rights Reserved

The word Intermec, the Intermec logo, JANUS, IRL, TRAKKER, Antares, Adara, Duratherm, EasyCoder, EZBuilder, Precision Print, PrintSet, Virtual Wedge, and CrossBar are either trademarks or registered trademarks of Intermec.

Command Pass-Thru™ is a trademark of I-O Corporation. The information in this manual is based on copyrighted material contained in the *I-O 4000 User's Guide*, published by I-O Corporation, Salt Lake City, Utah.

Throughout this manual, trademarked names may be used. Rather than put a trademark (™ or ®) symbol in every occurrence of a trademarked name, we state that we are using the names only in an editorial fashion, and to the benefit of the trademark owner, with no intention of infringement.

Manual Change Record

This page records the changes to this manual. The manual was originally released as version 001.

Version	Date	Description of Change
002	11/98	Changed the default baud rate to 9600 and changed the default code page for IBM translation to Intermec compatible Latin 1.
003	4/00	Added new information about Simple Backwards Compatible Mode and switch C settings.

Contents

Contents v

Before You Begin xi

Warranty Information xi

Safety Summary xi

About This Manual xii

1

Introducing the External Coax/Twinax Adapter

About the External Coax/Twinax Adapters 1-3

External Adapter Parts and Function 1-6

Preparing the External Adapter for Operation 1-9

Connecting the External Adapter to Your Printer 1-9

*Connecting the External Adapter to Your
System* 1-11

Providing Adapter Cables 1-11

*Connecting the External Adapter to Your Host,
System Controller, or Multiplexer* 1-11

Setting Up Communications 1-12

Setting the Twinax Address 1-12

*Choosing a Code Page for IBM
Translation* 1-13

Selecting a Country Character Set 1-13

Understanding the LED 1-14

Understanding the Rotary Switch 1-15

Testing Host Communication 1-17

2

Configuring for a Coax Interface

Sending Commands to the External Adapter 2-3

Coax Command Listing 2-4

Coax Commands 2-5

01: Buffer Size 2-5

07: Print Case 2-5

*08: Logical Unit 1 (LU1) Characters by
Country 2-6*

30: Override Format Commands 2-7

32: ASCII Control Code Parsing 2-8

*34: Intervention Required (IR)
Timeout 2-8*

39: Ending Delimiter Characters 2-9

40: Beginning Delimiter Characters 2-9

41: Alternate Command Identifier 2-10

42: Buffer Hex Dump 2-11

45: SCS TRN Translate 2-11

55: Custom User Strings 2-12

65: Character Set Selection 2-13

*70: Overwrite EBCDIC (SCS/LU1) Translation
Table 2-14*

*71: Overwrite EBCDIC (DSC/LU3) Translation
Table 2-14*

*98: Restore Factory Defaults, Print Self-Test, or
Restore Previously Defined Settings 2-15*

*99: Save Configuration in Nonvolatile
Memory 2-15*

Using the Advanced Features of the External Adapter 2-16

Command Pass-Thru 2-16

Custom User Strings 2-17

SCS Transparent Data Mode 2-17

3

Configuring for a Twinax Interface

Sending Commands to the External Adapter 3-3

Twinax Command Listing 3-4

Twinax Commands 3-5

00: Twinax Address 3-5

01: Alternate CPT Start Delimiter 3-5

02: Alternate CPT End Delimiter 3-5

04: User-Defined Strings 3-6

05: Host Country Character Set 3-7

17: Character Set 3-8

24: IBM Printer Emulation 3-8

25: IBM Motion Command 3-9

32: ASCII Control Code Parsing 3-9

42: Buffer Hex Dump 3-10

70: Overwrite EBCDIC Translation Table 3-10

*98: Restore Factory Defaults, Print Self-Test,
and Restore Previously Defined Settings 3-11*

99: Save Current Settings 3-12

Working With User-Defined Command Strings 3-12

Using Command Pass-Thru 3-13

4

Creating Print Programs

Programming Requirements 4-3

Configuration Requirements 4-3

Control Character Format 4-4

Formatting Label Data 4-4

Common Problems When Printing Labels 4-5

Designing Labels 4-5

Printing Labels on Demand From a Host Using

RPG 4-6

Example RPG Program 4-6

About the RPG Example Print Program 4-6

RPG Example Print Program 4-7

CLP Program 4-7

Display Program 4-8

RPG Program 4-9

Example CICS and IMS Print Programs 4-14

CICS Example Print Program 4-14

IMS Example Print Program 4-17

MFS Format Generation 4-17

COBOL Program Generation 4-18

5

Troubleshooting

Technical Support 5-3

Adapter Self-Test 5-3

Buffer Hex Dump 5-4

ASCII Dump Mode 5-5

Diagnostic Loopback 5-6

Twinax Self-Diagnostics 5-6

Common Problems 5-7

A

Jumper and DIP Switch Settings

Jumper Settings A-3

DIP Switch Settings A-4

***Making the External Coax/Twinax Adapter Backward
Compatible A-7***

*Duplicating the Coax/Twinax Card Original
Functions A-8*

***Setting the External Coax/Twinax Adapter to Use IBM
Latin 1 A-10***

B

Translation Tables and Code Pages

Translation Tables B-3

IBM Latin 1 B-8

Roman 8 B-9

Code Page 850 B-10

Code Page 437 B-11

*Changes to Intermec Compatible Latin 1 for Different
Countries B-12*

I

Index

Before You Begin

This section introduces you to standard warranty provisions, safety precautions, and sources of additional product information.

Warranty Information

To receive a copy of the standard warranty provision for this product, contact your local Intermec support services organization. In the U.S. call 1-800-755-5505, and in Canada call 1-800-688-7043. Otherwise, contact your local Intermec sales organization.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment.

Do not repair or adjust alone Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

About This Manual

This manual contains all of the information necessary to operate, configure, and troubleshoot the external coax/twinax adapter. This manual was written for personnel who need to know how to configure, test, and use the adapter in an IBM mainframe network. You should have a good understanding of your network, printer, and supporting software.

What You Will Find in This Manual

For Information On

Refer To

The external adapter and your network

Chapter 1, "Introducing the External Coax/Twinax Adapter," tells about how the external adapter works with your printer and your network. This chapter also describes the parts and function of the external adapter.

Coax configuration

Chapter 2, "Configuring for a Coax Interface," tells you how to configure the external adapter to communicate with a 3270-type host system and how to use host download commands to access the advanced features of the external adapter.

Twinax configuration

Chapter 3, "Configuring for a Twinax Interface," tells you how to configure the external adapter to connect to an AS/400 or System 3X host and how to use host download commands to access the advanced features of the external adapter.

Print programs

Chapter 4, "Creating Print Programs," explains RPG, CIMS, and IMS print programs and includes example programs.

Troubleshooting

Chapter 5, "Troubleshooting," instructs you on how to clear error messages and to troubleshoot programming and configuration problems with the external adapter.

Jumper and DIP switch settings

Appendix A, "Jumper and DIP Switch Settings," provides the definition for the different jumper and DIP switch settings.

What You Will Find in This Manual (continued)

For Information On

EBCDIC to ASCII translation and examples of code pages

Refer To

Appendix B, “Translation Tables and Code Pages,” provides EBCDIC to ASCII translation tables using different code pages and provides examples of the code pages that you can set on the external adapter.

Other Intermec Documents

You may need additional information when working with the external coax/twinax adapter in a data collection system. Please visit our web site at www.intermec.com for a list of available manuals or to access many of our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.



***Introducing the External
Coax/Twinax Adapter***

This chapter explains how the external coax/twinax adapters work with your printer and your network.

About the External Coax/Twinax Adapters

The external coax/twinax adapters provide Intermec printers with the ability to communicate with a 3270-type host system in Coax mode or an AS/400 or System 3X host system in Twinax mode. There are two external adapters:

- The external adapter for standard (3XXX and 4XXX) and XP (501XP and 601XP) printers (Part No. 068855) with a DB 25 pin serial cable
- The external adapter for 301, 7421, and 7422 printers (Part No. 068854) with a DB 9 pin serial cable

The external adapters are easy to set up and have many advanced features. To use your external adapter in Coax mode, attach a coax adapter cable to your external adapter before you turn on the printer. To use your external adapter in Twinax mode, attach a twinax adapter cable to your external adapter before you turn on the printer. (See Appendix A, “Jumper and DIP Switch Settings,” for information about backwards compatibility.)

The external coax/twinax adapter for the standard and XP printers comes with one of two power supplies:

- 110-volt power supply, Part No. 068860, 120VAC/60Hz input and 5VAC output
- 220-volt power supply, Part No. 068861, 220VAC/50Hz input and 5VAC output

The external adapters have the following default settings:

- Intermec compatible Latin 1 code page
- Coax buffer size of 1920 bytes
- Twinax printer emulation ID of 5256
- Multinational host character set with Intermec compatible Latin 1 or U.S.A./Canada host character set with other code pages

If you need to change these settings or access the more advanced features of the external adapters, refer to Chapter 2, “Configuring for a Coax Interface,” or Chapter 3, “Configuring for a Twinax Interface.”

When the printer is turned on, your external adapter checks for a proper coax or twinax adapter cable to determine the mode of operation. If a cable connection is not found, your external adapter LED flashes until you attach the adapter cable.

In Coax mode, the printer emulates a 3287, 3262, 3812-1, 4028, 4214, or 4224 (non-IPDS) printer.

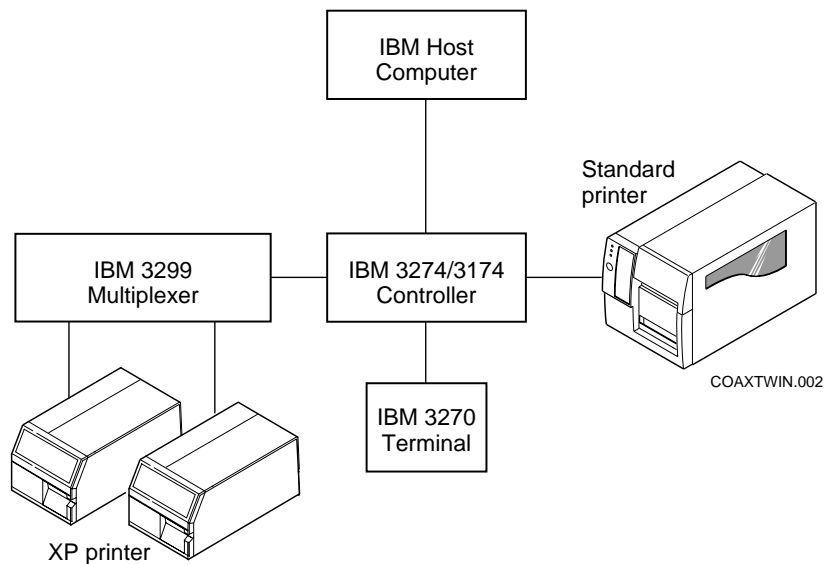
In Twinax mode, you must configure the host with a cable address and device ID for the printer and set the twinax address on the external adapter before you can communicate. See your system operator or system manager for details.

The standard and 7421 printers use Intermec Printer Language (IPL) commands to print labels. As a result, you should not need to use a printer emulation device ID in Twinax mode; however, Intermec recommends that you use the ID of a 5256 printer. You can use the following printer emulation IDs in Twinax mode to maintain compatibility with previous installations: 5224, 5225, or 4214.

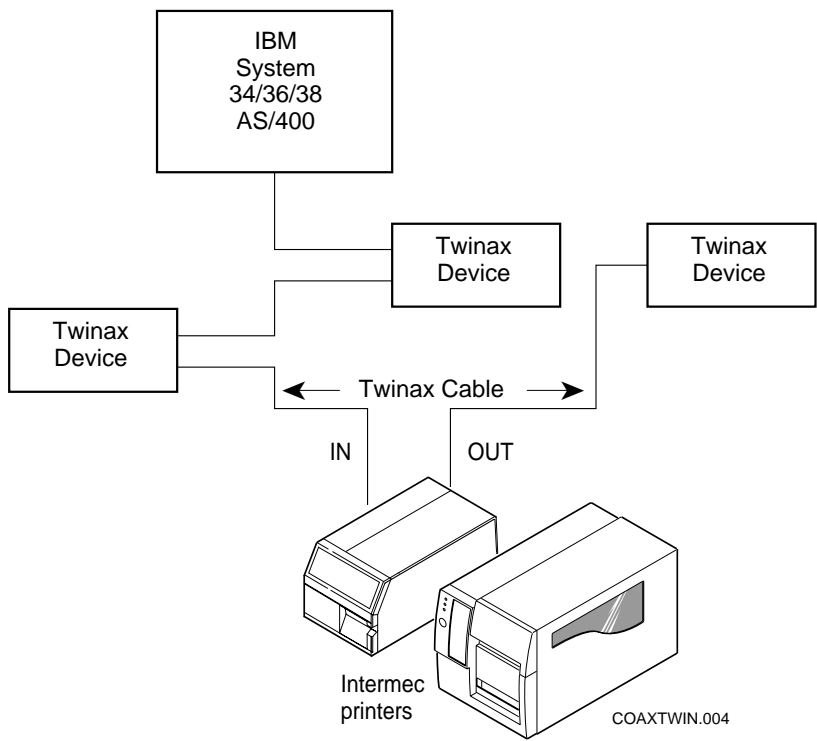
The external adapters are designed to use Generic protocol with the Intermec printer. In Generic mode, the external adapters do not pass on the LPI and CPI host commands to the printer.

The following figures illustrate how an Intermec printer with a coax or a twinax interface fits into an IBM system.

Coax Interface System Relationship



Twinax Interface System Relationship

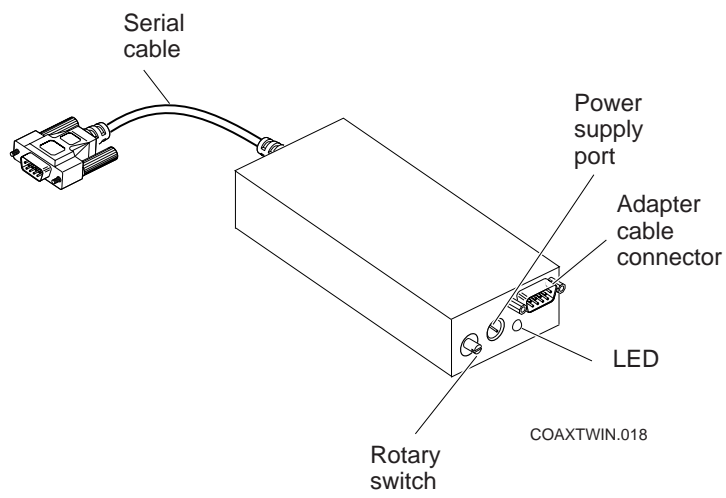


External Adapter Parts and Function

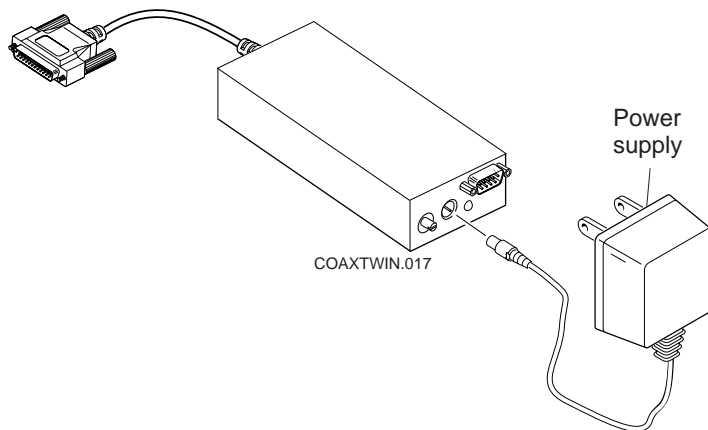
The following table describes the controls and indicators illustrated in the next figure.

Name	Description
External adapters	Provides the coax or twinax interface that allows other IBM compatible devices to be serially connected to the printer.
Power supply	Provides power to the external adapter for the standard and XP printers. The 301, 7421, and 7422 printers provide power through the serial connection.
Power supply port	Connects the power supply to the external adapter.
Serial connector	Connects the external adapter to the printer's serial port.
Rotary switch	Allows you to test the external adapter and set it for different modes, such as Buffer Hex Dump mode.
LED	Indicates whether the external adapter is communicating with the host.
Adapter cable connector	Connects the external adapter to the adapter cable. You configure the adapter as either a coax or twinax interface by attaching either a coax or twinax adapter cable.
Coax and twinax adapter cables	Connect the adapter to the coax or twinax system and signal the external adapter to operate as either a coax or twinax interface.

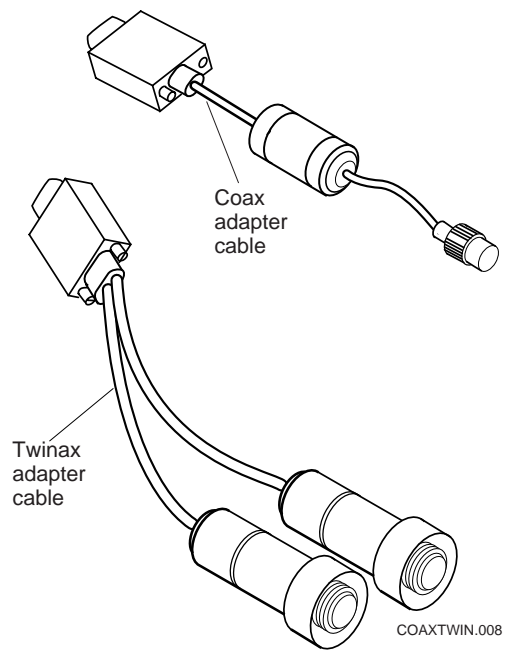
External Coax/Twinax Adapter for the 301, 7421, and 7422 Printers



External Coax/Twinax Adapter for the Standard and XP Printers



Adapter Cables



Preparing the External Adapter for Operation

Before you can use the external adapter with your Intermec printer, you need to do the following:

- Connect the external adapter to your printer.
- Connect the external adapter to your system.
- Set up coax or twinax communications.
- Understand the meanings of the LED on the external adapter.
- Understand the rotary switch positions.
- Test for communication with the host.

Connecting the External Adapter to Your Printer

The external adapter connects to the serial port on your printer. The following items are included in the external adapter package:

- External coax/twinax adapter
- Power supply (for standard and XP printers only)
- Coax adapter cable
- Twinax adapter cable
- This manual

If any of the above items are missing or damaged, call your local Intermec representative.

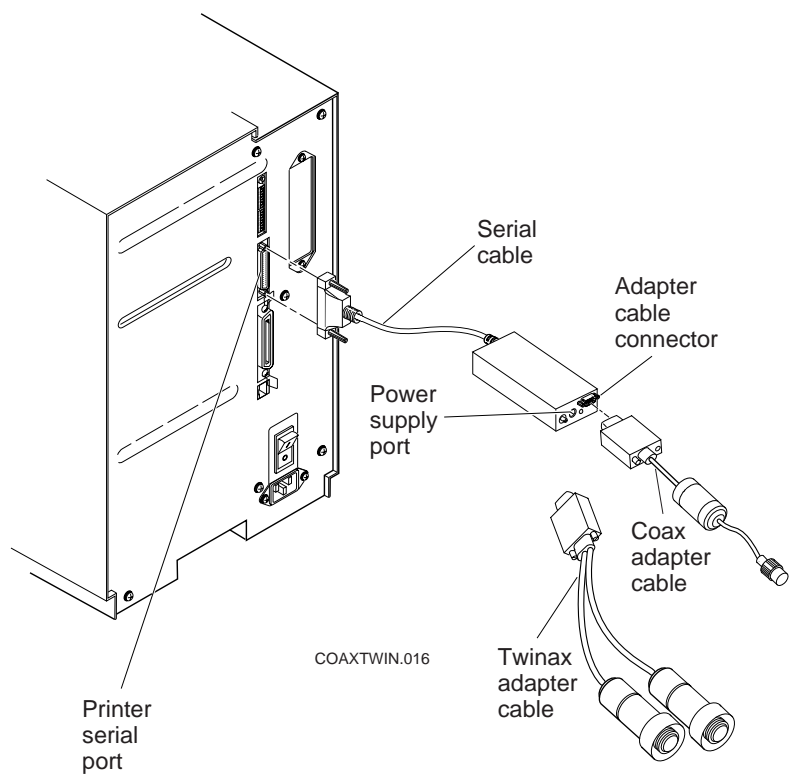
To connect the external adapter to your printer

1. Set your printer to the same serial communication settings as the external adapter:
 - 9600 baud
 - No parity
 - 8 data bits
 - 1 stop bit
 - XON/XOFF protocol

For help setting your printer's serial communications, see your printer user's manual.

2. Plug the external adapter's serial cable into the printer serial port.

Connecting the External Adapter



3. Plug either a coax or twinax adapter cable into the adapter cable connector on the external adapter.
4. For the standard and XP printers, plug the power supply into the external adapter and then plug in the power supply.
5. Turn the printer off and then on to configure the external adapter for Coax or Twinax mode.
6. Connect the external adapter to your system. For help, see the next section.

Connecting the External Adapter to Your System

With an external adapter and adapter cable installed, your Intermec printer can connect to an IBM 3174 or IBM 3274/76/99 system controller or multiplexer through a coax adapter cable, or your printer can connect directly to a host computer through a twinax adapter cable.

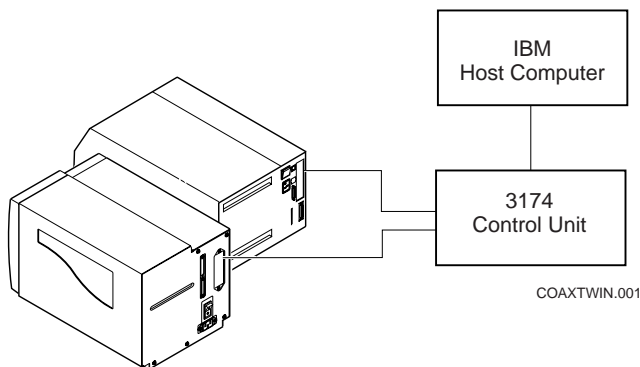
Providing Adapter Cables

Intermec does not provide either a coaxial or twinaxial cable for you. You need to purchase a cable equivalent to IBM Part No. 2577672 or 1833108 for coaxial cables or IBM Part No. 7362267 or 7362062 for twinaxial cables. The maximum coaxial cable length allowed is 4,920 feet (1,500 meters). The maximum twinaxial cable length allowed is 5,000 feet (1,525 meters).

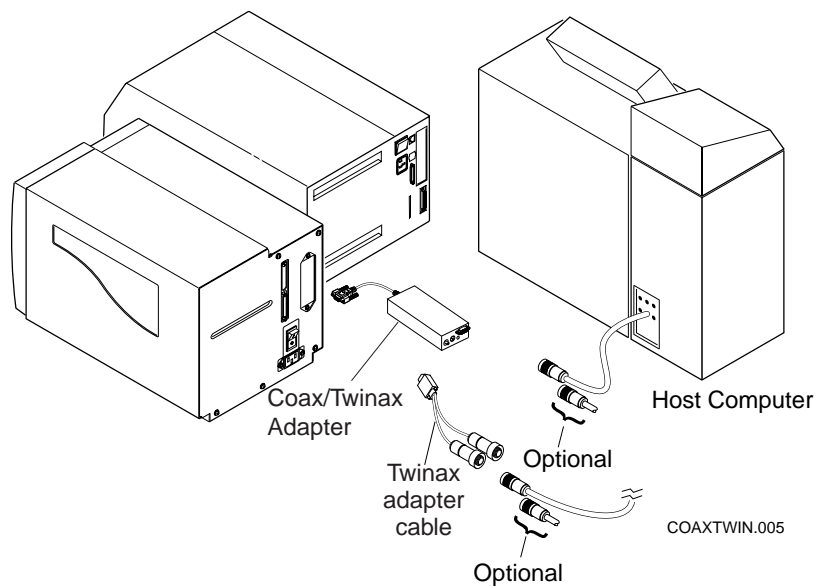
Connecting the External Adapter to Your Host, System Controller, or Multiplexer

Using one of the cables described in the preceding section, connect the external adapter to your host computer, system controller, or multiplexer according to the following illustrations.

Connecting the External Adapter to a Coax System



Connecting the External Adapter to a Twinax System



Setting Up Communications

To run your printer with the external adapter installed, you need to do the following:

- If you are using the external adapter in Twinax mode, set the twinax address.
- Choose the code page for IBM language translation.
- Select a country character set.

Setting the Twinax Address

You must configure the host with a cable address and device ID for the printer and set the twinax address on the external adapter before you can communicate in Twinax mode. See your system operator or system manuals for details.

You can set the twinax address to one of seven numbers from 0 to 6 on the rotary switch. The external adapter is shipped from the factory with the address set at zero. To select another address, determine which address is not used by another twinax device and then turn the rotary switch to the new address. For the changes to take effect, turn the printer off and then on again or remove the power supply from the adapter and then attach the power supply.

Choosing a Code Page for IBM Translation

The factory default code page used for IBM translation is Intermec compatible Latin 1.

You can change the code page used for IBM translation to IBM Latin 1, Roman 8, Code Page 850, or Code Page 437. Choose the code page that matches the characters you use on your labels. See Appendix B for examples of the code pages.

You can change the code page by using command 65 for Coax mode or command 17 for Twinax mode. For help using the commands, see Chapter 2, “Configuring for a Coax Interface,” and Chapter 3, “Configuring for a Twinax Interface.”

Selecting a Country Character Set

You select the country character set for your printer by:

- Setting the country character set on the printer. For help, see your printer user’s manual.
- Using the commands for setting the country character set from Chapters 2 and 3. If your printer uses Intermec compatible Latin 1, DIP switch 2 must be set to the on position to use the commands.
- Having a field service technician change the DIP switch settings.

If your printer uses Intermec compatible Latin 1 and you set the country character set at the printer, make sure that the country character set on the external adapter is multinational.

The following table lists the country character sets you can set and the code page used for translation. For examples of these code pages, refer to the *National Language Design Guide Volume 2: National Language Support Reference Manual*, IBM Part No. SE09-8002-03.

Selecting a Country Character Set (continued)

Country Character Set	Code Page
U.S.A. and Canada	037
Austria and Germany	273
Belgium	274
Brazil	275
Canada and France	276
Denmark and Norway	277
Finland and Sweden	278
France	297
Italy	280
Japan	281
Japan and England	037
Portugal	282
Spain	284
Latin America	284
United Kingdom	285
Multinational	500

Understanding the LED

The following table lists the LED activity and the description of the LED activity.

LED Activity	Description
Flashing quickly for 1 to 2 seconds.	The external adapter is writing to stored memory.
Flashes once.	The external adapter has received power.
Constant single flash pattern.	The printer is offline.

Understanding the LED (continued)

LED Activity	Description
Constant double flash pattern.	You need to attach a coax or twinax adapter cable.
Triple flash pattern for 30 seconds.	The printer is setting a new language using position C on the rotary switch.
LED on but not flashing.	The printer is communicating with the host.

Understanding the Rotary Switch

The external adapter has a rotary switch on the end that connects to the host adapter cable. The switch has a white line on the side that selects the following settings:

Positions 0 to 6 Selects the twinax address. When you turn on the printer, the external adapter compares the twinax address saved in memory to the rotary switch address in the following manner:

- If the address matches the host, normal operation occurs.
- If the rotary switch address is different than the address saved in memory, the external adapter saves the rotary selection in memory and uses the new address selection for communications.
- If the switch position is not 0 to 6, then the external adapter uses the saved memory address in conjunction with the current rotary switch selection (for example, printing a self test label).

Note: When you reset the external adapter to default parameters, the external adapter saves an address of 0 in memory.

In Coax mode, these switch positions are not defined and they function as if the switch is set to position A.

Position 7 Performs a self-test of the external adapter and prints a label with the self-test results.

Position 8 Restores the default settings of the external adapter and then prints a label with the default values. In Twinax mode, you must cycle the power before performing any further operations.

***Note:** Before you use position 8 in Twinax mode, use position 7 so that you will have a print out of the twinax address. Position 8 will set the address to the default (0), and you will need to reset the twinax address before you can return to using your printer.*

***Note:** If this is the first time the non-volatile memory is written to or if the mode is changed (twinax to coax or coax to twinax), the Language selection (position C) is written to the non-volatile memory when you restore factory defaults. Otherwise, the language setting is changed when you restore factory defaults.*

Position 9 Activates the EBCDIC Buffer Hex Dump mode. In this mode, the printer prints received data as EBCDIC control characters in EBCDIC hexadecimal notation. This mode stays active until you select another switch position (position A is recommended).

Position A Provides normal operation of the external adapter using the settings that are stored in saved memory.

Position B Activates the ASCII Buffer Hex Dump mode. In this mode, the printer prints received data as translated ASCII data in ASCII hexadecimal notation. This mode stays active until another switch position is selected (position A is recommended).

Position C The primary function of this switch enables Simple Backwards Compatible Mode. In this mode, the switch is continuously monitored and only printable characters are passed to the printer and no IBM EBCDIC commands are honored.

The secondary function of this switch selects the language format. The following table provides the secondary function settings and the language format the settings select.

Secondary Setting	Function / Format
0	Standard/7421 printer: With DIP switch 2, selects either Intermec compatible Latin 1 (DIP switch 2 off) or IBM Latin 1 (DIP switch 2 on).
1	XP/301 printer: With DIP switch 2, selects either Roman 8 (DIP switch 2 off) or Code Page 850 (DIP switch 2 on).
2	7422 printer: With DIP switch 2, selects either Code Page 850 (DIP switch 2 off) or Code Page 437 (DIP switch 2 on).

To select the secondary function of this switch, complete the following: Set the rotary switch to C and power on the printer. Immediately on power-up, the LED will display a three-flash pattern for approximately 30 seconds, and during this 30-second time, the rotary switch may be changed to select the secondary function. At the end of the 30 second time, the secondary function is entered into non-volatile memory and the LED flashes rapidly. After you successfully select the language format, return the rotary switch to your normal operating position (position A is recommended).

Position D Activates a download configuration mode where data is not sent to the printer. Use this selection to configure the external adapter without printing labels.

Position E Activates Twinax Diagnostics mode. Disconnect the host's twinax cable from the twinax adapter cable attached to the external adapter before turning on the printer to run this test. The printer prints a "Test Sequence Complete" label when the test runs without problems. If the external adapter encounters a diagnostic error during the test, the printer prints an error label.

Position E does not function in Coax mode.

Position F Activates a diagnostic fast loopback test. This test is designed for use with an oscilloscope to evaluate board performance. Disconnect the host cable from the adapter cable before turning on the printer to run this test.

Testing Host Communication

Before running a print program from the host terminal, you need to ensure that your host system is configured to operate with the external adapter. You then need to test the connection between the external adapter and the host computer.

Configure your host to recognize the external adapter as either an IBM 3287 printer for Coax mode or an IBM 5256 Model 1 printer for Twinax mode. For host configuration instructions, refer to your *IBM System Configuration Manual*.

To download a data file

1. Make sure that your printer is set up correctly for your system.
 - In Twinax mode, make sure that the twinax address is correct.
 - Make sure that the correct adapter cable is connected (coax or twinax).
 - Make sure that the cabling from the host to the adapter cable is correct.
 - Make sure that the host system is configured to recognize the printer as either an IBM 3287 printer (coax) or an IBM 5256 printer (twinax).
2. Turn on your printer.
3. Set the rotary switch to position B to activate ASCII Buffer Hex Dump mode.
4. Send down some characters from the host. When the interface is in ASCII Buffer Hex Dump mode, the interface formats the received data so that the printer prints each character it receives along with its hexadecimal equivalent. An example is given below.

```
ASCII DUMP
0250 5249 4E54 4552          ( .PRINTER )
030D 0A0C 0254 4553 5403    ( .TEST. )
```

5. When your printer has successfully completed downloading information with ASCII Buffer Hex Dump, set the rotary switch to position A for normal operation.

If the printer responded as described in the procedure, you have successfully installed the external adapter. Proceed to Chapter 2, "Configuring for a Coax Interface," or Chapter 3, "Configuring for a Twinax Interface."

If the printer failed to produce the results described in the above procedure, refer to Chapter 5, "Troubleshooting." If you cannot get the printer to print the sample labels after following the recommendations in Chapter 5, call your Intermecc service representative.

2

Configuring for a Coax Interface

This chapter lists the configuration commands for Coax mode.

Sending Commands to the External Adapter

You can download commands from the host to configure the external adapter and to access advanced features. The commands take effect immediately and stay in active memory until the external adapter receives a new setting or you turn off the printer. To invoke a command at power-up, save the command into nonvolatile memory using command 99.

***Note:** These commands will overwrite the DIP switch settings.*

Use the following syntax for the commands:

`&%Zdata`

where:

`&%` is the Command Pass-Thru (CPT) delimiter. For more information on CPT, see “Using the Advanced Features of the External Adapter” later in this chapter.

`Z` indicates a host download command.

`data` is the command number.

For example, to configure the printer for Buffer Hex Dump mode and to start buffer hex dump printing, you would send the following command:

`&%Z42,1`

where:

`&%` is the CPT delimiter.

`Z` indicates a host download command.

`42` represents Buffer Hex Dump mode.

`,` is the separator between the command number and the command setting.

`1` is the command setting (start).

You can chain together multiple commands by using a slash (/) or a backslash (\) to separate the commands. For example, to set the coax buffer size to 1920 bytes (Z01,2), save the setting (Z99,0), and then print a test label with the configuration settings (Z98,1), you would enter:

```
&%Z01,2\Z99,0\Z98,1
```

Note: If any part of the command syntax is incorrect, the adapter ignores the command and the printer prints from the point of the syntax error.

Coax Command Listing

The following table lists the coax commands you can use with the external adapter.

Host Download Command	Command Number
Buffer Size	01
Print Case	07
Logical Unit Type 1 (LU1) Characters by Country	08
Override Format Commands	30
ASCII Control Code Parsing	32
Intervention Required (IR) Timeout	34
Ending Delimiter Characters	39
Beginning Delimiter Characters	40
Alternate Command Identifier	41
Buffer Hex Dump	42
SCS TRN Translate	45
Custom User Strings	55
Character Set Selection	65
Overwrite EBCDIC (SCS/LU1) Translation Table	70
Overwrite EBCDIC (DSC/LU3) Translation Table	71
Restore Factory Defaults, Print Self-Test, or Restore Previously Defined Settings	98
Save Configuration in Nonvolatile Memory	99

Coax Commands

01: Buffer Size

Purpose: Selects the default logical buffer size.

Syntax: Z01,*n*

n =

- 1 960 characters
- 2 1920 characters
- 3 2560 characters
- 4 3440 characters
- 5 3564 characters

Example: &%Z01,3

Sets the logical buffer size to 2560 characters.

Notes: This command, along with command 99, changes the logical buffer size selection in the nonvolatile memory of the adapter. The printer reports the logical buffer size to the host when you turn on the printer. The physical buffer size is permanently set at 4K.

07: Print Case

Purpose: Selects the default print case.

Syntax: Z07,*n*

n =

- 0 Mono case
- 1 Dual case

Example: &%Z07,0

Sets the print case to mono.

Notes: This default only affects LU3 printing.

08: Logical Unit 1 (LU1) Characters by Country

Purpose: Selects the default LU1 character set by country.

Syntax: Z08,*n*

n =

- 01 U.S.A. EBCDIC
- 03 Austria/Germany
- 04 Belgium
- 05 Brazil
- 06 Canada (French)
- 07 Denmark/Norway
- 08 Denmark/Norway (alternate [alt.])
- 09 Finland/Sweden
- 10 Finland/Sweden (alt.)
- 11 France
- 12 France (alt.—same as 11)
- 13 Austria/Germany (alt.—same as 3)
- 14 Multinational
- 15 Italy
- 16 Japan (English)
- 19 Spain
- 20 Spain (alt.)
- 21 Latin America
- 22 United Kingdom
- 23 Norway (same as 07)
- 24 Sweden (same as 09)
- 25 EBCDIC (alt.—same as 01)
- 26 Norway (alt.—same as 08)
- 27 Sweden (alt.—same as 10)
- 28 Portugal
- 29 Canada (Bilingual—same as 06)
- 30 France AZERTY (105 character—same as 11)
- 31 Switzerland (German) (same as 14)
- 32 Switzerland (French) (same as 14)

Example: &%Z08,04

Sets LU1 character set to the characters used in Belgium.

Notes: If Intermec compatible Latin 1 is selected, the external adapter ignores this setting and you select the host country character set on the printer.

Refer to “Selecting a Country Character Set” in Chapter 1 for a list of the code pages used for each character set.

This command, along with command 99, changes the default LU1 character set setting in the permanent memory of the adapter.

The command value should match the country or language number used in IBM CU configuration sequence number 121.

30: Override Format Commands

Purpose: Enables or disables the interface card interpretation of IBM EBCDIC control code symbols, such as CR, LF, FF, or NL.

Syntax: Z30,*n*

n =

- 0 Enable interpretation
- 1 Disable interpretation

Example: &%Z30,1

Disables the interface from honoring IBM EBCDIC control codes.

32: ASCII Control Code Parsing

Purpose: Enables or disables the external adapter interpretation of Intermec ASCII control code symbols.

Syntax: Z32,*n*

n =

0 Enable interpretation

1 Disable interpretation

Example: &%Z32,1

Disables the adapter from parsing for Intermec symbols for ASCII control codes.

Notes: For efficient operation, the external adapter scans the data and interprets the Intermec symbols for ASCII control codes (example <CR> for carriage return). In some cases of labels designed for older printers, this may cause a problem, and this command disables this feature.

34: Intervention Required (IR) Timeout

Purpose: Sets the time interval between a printer error and sending an IR signal to the host.

Syntax: Z34,*n*

n =

000 Never send IR

001 to 255 Send IR after *n* seconds multiplied by a value of 5

120 Send IR after 10 minutes (default)

Example: &%Z34,036

Sets IR time interval to 3 minutes
(36 seconds x 5 = 180 seconds = 3 minutes)

39: Ending Delimiter Characters

Purpose: Specifies one or two characters to be used as the ending delimiter for Command Pass-Thru (CPT).

Syntax: Z39,*xy*

x The ASCII hexadecimal value of the first delimiter character.

y The ASCII hexadecimal value of the second delimiter character.

Example: &%Z39,253F

Specifies %? as the alternate ending delimiter characters (% is 25 hex and ? is 3F hex).

Notes: If you do not select an ending delimiter, the delimiter selected with command 40 is the ending delimiter also.

If you enter both command 39 and command 40, you must send command 39 after command 40 to be active.

You can specify one delimiter character by entering 00 for the second character. For example, &%Z39,2500 selects % as the delimiter.

A hex code that starts with 00 is invalid.

40: Beginning Delimiter Characters

Purpose: Specifies one or two characters as the beginning delimiter for CPT.

Syntax: Z40,*xy*

x the ASCII hexadecimal value of the first beginning delimiter character.

y the ASCII hexadecimal value of the second beginning delimiter character.

Example: &%Z40,253F

Specifies %? as the beginning delimiter characters (% is 25 hex and ? is 3F hex).

Notes: The new character(s) replace &% in front of the Z when sending commands to the external adapter.

The default beginning delimiter (&%) is no longer active when you use this command to change it.

You can specify one delimiter character by entering 00 for the second character. For example, &%Z40,2500 selects % as the beginning delimiter.

A hex code that starts with 00 is invalid.

If you do not select an ending delimiter with command 39, the delimiter selected with this command is also used as the ending delimiter.

41: Alternate Command Identifier

Purpose: Specifies a character (in addition to Z) for the command identifier that follows the delimiter.

Syntax: Z41,*x*

x Hex code of the alternate command ID character. A hex code of 00 deletes the previously selected alternate character.

Example: &%Z41,59

Specifies Y (59 hex) as an alternate command identifier.

Note: You cannot select the following characters as command identifiers: 0 to 9, A to L, P, or U

42: Buffer Hex Dump

Purpose: Activates Buffer Hex Dump mode. In this mode, data received by the printer is printed as EBCDIC characters and in hexadecimal notation. This mode stays active until the external adapter receives the stop command or you turn off the printer.

Syntax: Z42,*n*
n =
0 No action taken (default)
1 Start buffer hex dump
2 Stop buffer hex dump

Example: &%Z42,1
Starts buffer hex dump printing.
&%Z42,2
Stops buffer hex dump printing.

Note: Hex printing starts with the buffer after the printer receives the start command and stops with the buffer after the printer receives the stop command.

45: SCS TRN Translate

Purpose: Specifies how the external adapter handles transparent data sent using SCS code 35.

Syntax: Z45,*n*
n =
0 Binary transparent
1 Emulate IBM 3287 printer (default)

Example: &%Z45,0
All SCS code 35 data goes to the printer as binary codes without translation.

Notes: Value 1 causes valid graphic characters to be printed normally (converted from EBCDIC to ASCII), while control codes and invalid graphics are printed as hyphens, and normal page formatting is maintained.

Value 0 causes the 8-bit binary codes to go directly to the printer from the host without being translated from EBCDIC to ASCII.

SCS code 36 functions the same as code 35.

Available in SCS (LU1) mode only.

55: Custom User Strings

Purpose: Allows you to define a maximum of six custom strings of up to 25 bytes each. These custom strings are stored in memory on the external adapter.

Syntax: *Z55,n(command string)*

n = 0 to 5

command string The hex codes of the ASCII characters in the string enclosed in parenthesis.

Example: *&%Z55,3(020D0A)*

Defines a custom user string (U3) as <STX><CR><LF> (02 0D 0A hex). This command starts a new label format.

Notes: A space is allowed between hex bytes but is not included in the string.

The command strings go to the printer when the character identifier U and the string number (for example, *&%U3*) are in the data sent to the printer.

The strings may specify a custom command to go directly to the printer. The command will go prior to the data if it is placed as the first printable data in the format (position 1, line 1).

To change a custom user string, send command 55 with the new values—the old string changes automatically.

65: Character Set Selection

Purpose: Enables you to select the ASCII character set to convert EBCDIC to ASCII for SCS/LU1 or to convert EBCDIC to ASCII for DSC/LU3.

Syntax: Z65,*n*

n =

- 1 IBM Latin 1
- 2 Code Page 850 character set
- 3 Code Page 437 (PC Set 2)
- 4 Intermec compatible Latin 1
- 5 Roman 8

Example: &%Z65,2

Selects the Code Page 850 character set.

Notes: Intermec compatible Latin 1 is the basis for characters in older Intermec printers, such as the 4400 printer. Roman 8 is the default setting for XP printers.

You must adjust the character set substitutions defined in commands 70 and 71 if you change the ASCII character set. Saved memory loses all previously defined substitutions when you change the character set.

Refer to the character set summary tables in Appendix B to confirm which ASCII character is printed for each of the 3270 hex codes.

70: Overwrite EBCDIC (SCS/LU1) Translation Table

Purpose: Defines custom substitutions for the EBCDIC (SCS/LU1) to ASCII translation table.

Syntax: Z70,*x*,*y*

x The EBCDIC character (in hex) to be changed.

y The substitute ASCII character (in hex).

Example: &%Z70,7B,40

Prints the @ character (40 hex) when the external adapter receives the # character (EBCDIC 7B).

Notes: Automatically changes previously stored substitutions to the new selection when you specify the same hex location in the EBCDIC table.

Cancels previously stored substitutions if you specify an ASCII hex sequence of 00.

Use command 99 to store the substitutions in nonvolatile memory, so that they will remain effective the next time you turn on the printer.

71: Overwrite EBCDIC (DSC/LU3) Translation Table

Purpose: Defines custom substitutions for the EBCDIC (DSC/LU3) to ASCII translation table.

Syntax: Z71,*x*,*y*

x The EBCDIC character (in hex) to be changed.

y The substitute ASCII character.

Example: &%Z71,7B,40
Prints the @ character (40 hex) when the adapter receives the corresponding EBCDIC character.

Notes: This command functions like command 70, except the substitutions are applicable to the EBCDIC (DSC/LU3) translation table.

98: Restore Factory Defaults, Print Self-Test, or Restore Previously Defined Settings

Purpose: Restores the factory default configuration selections, prints the active configuration settings, or restores the nonvolatile memory settings.

Syntax: Z98,*n*
n =
0 Restores the factory setup
1 Prints the active configuration settings
2 Restores the settings stored in nonvolatile memory

Example: &%Z98,1
Prints the active configuration settings.

Notes: &%Z98,2 placed at the end of the file restores the settings stored in nonvolatile memory.

99: Save Configuration in Nonvolatile Memory

Purpose: Saves the active setup in nonvolatile memory on the external adapter. Saving to nonvolatile memory makes the current setup take effect the next time you turn on the printer. Use this command to store permanent setting and not as a temporary command.

Syntax: Z99,0

Example: &%Z99,0

Notes: Active configuration commands are lost when you turn off the printer.

Using the Advanced Features of the External Adapter

You can use three advanced features of the external adapter to access special functions on your printer:

- Command Pass-Thru (CPT)
- Custom User Strings
- SCS Transparent Data Mode

Command Pass-Thru

CPT provides access to all of the built-in features of the printer, even if these features are not available through the host software. CPT lets you place printer-specific command sequences into the data sent to the printer. For example, you can send an <STX> control character to the printer to start a label even though there is no EBCDIC <STX> character defined by the host. The adapter recognizes these special sequences and passes the command through to the printer.

To use Command Pass -Thru

1. Convert a printer command to hexadecimal code. For example,
$$\langle \text{STX} \rangle \langle \text{CR} \rangle \langle \text{LF} \rangle = 02\ 0D\ 0A$$
2. Place the hex code, surrounded by the start and end delimiters (&% or the alternate CPT start and end delimiters) at the point in the file where the feature is to take effect. For example,

&%020D0A&%

or

&%02 0D 0A&%

You may enter a space between hexadecimal code pairs to make the command easier to read. Do not put spaces between the delimiter and the hexadecimal characters.

Only characters from 00 to FF are recognized (alphabetic characters must be in upper case).

Note: Errors in a CPT sequence cause the adapter to ignore the command and to resume printing from the point the error occurred. CPT may invalidate horizontal spacing.

Custom User Strings

Host download command 55 allows you to define up to six (0 through 5) custom user strings. A user string can be an ASCII control character, a form feed, or another printer command.

To activate a custom user string, place the delimiter (&% or the alternate beginning delimiter you defined with command 40), the command identifier U, and the number of the custom user string into the file being sent to the printer.

For example, use command 55 to define user string number 3 to be the ASCII control character <STX> (start of text, 02 hex):

```
&%Z55 , 3 ( 02 )
```

To send this user string (<STX>) to the printer at the start of a label, enter the following command at the start of the label format:

```
&%U3
```

When the external adapter receives the label format, it will interpret &%U3 as <STX> and send the control character to the printer.

SCS Transparent Data Mode

SCS Transparent Data mode (SCS TRN code 35) provides a method for transparent data transmission when operating in LU1 mode. To use this method, you must be connected to a system using SNA protocol and be operating as a Logical Unit Type 1.

An SCS TRN sequence begins with a one-byte binary count immediately following the TRN code. The count indicates the number of bytes, not including the count byte, of transparent data to follow. You can send up to 255 bytes of transparent data in each sequence.

SCS TRN data is user-defined and is not scanned for SCS control codes. However, to emulate the characteristics of the IBM 3287, data is translated to ASCII with undefined and non-printable characters (control characters) printed as hyphens. The external adapter offers the option to emulate the IBM 3287 or to pass the data without translation. For help, see command 45: SCS TRN Translate earlier in this chapter.

3

Configuring for a Twinax Interface

This chapter lists the configuration commands for Twinax mode.

Sending Commands to the External Adapter

You can download commands from the host to configure the external adapter and to access its advanced features. Host commands take effect immediately and stay in active memory until the external adapter receives a new setting or you turn off the printer. To invoke a command at power-up, save the command into nonvolatile memory using command 99.

Note: These commands will overwrite the DIP switch settings.

Use the following syntax for the commands:

`&%Zdata`

where:

`&%` is the Command Pass-Thru (CPT) delimiter. For more information on CPT, see “Using Command Pass-Thru” later in this chapter.

`Z` indicates a host download command.

`data` is the command number.

For example, to change the twinax address to 4, you would send the following command:

`&%Z00,4`

where:

`&%` is the CPT delimiter.

`Z` is the command identifier.

`00` is the command number.

`,` is the separator between the command number and the command setting.

`4` is the command setting (address 4).

You can chain together multiple commands by using a slash (/) or backslash (\) to separate the commands. For example, to set the printer emulation ID to 4214 (Z24,3), save the setting (Z99,0), and then print a test label (Z98,1), you would enter:

```
&%Z24 , 3\Z99 , 0\Z98 , 1
```

Note: If any part of the command syntax is incorrect, the adapter ignores the command and the printer prints from the point of the syntax error.

Twinax Command Listing

The following table shows the commands you can use with the external adapter.

Host Download Command	Command Number
Twinax Address	00
Alternate CPT Start Delimiter	01
Alternate CPT End Delimiter	02
User-Defined Strings	04
Host Country Character Set	05
Character Set	17
IBM Printer Emulation	24
IBM Motion Command	25
ASCII Control Code Parsing	32
Buffer Hex Dump	42
Overwrite EBCDIC Translation Table	70
Restore Factory Defaults, Print Self-Test, and Restore Previously Defined Settings	98
Save Current Settings	99

Twinax Commands

00: Twinax Address

- Purpose:** Sets the twinax address.
- Syntax:** Z00,*n*
n = 0 to 6 (default is 0)
- Notes:** The new cable address becomes active the next time you turn on the printer.

01: Alternate CPT Start Delimiter

- Purpose:** Creates an alternate CPT start delimiter, in addition to working as an alternate host download delimiter. Only one alternate CPT start delimiter is allowed.
- Syntax:** Z01,*xy*
x the first delimiter character (may be any printable character other than &).
y the second delimiter character.
xy two spaces—deletes the alternate CPT start delimiter.
- Example:** &%Z01,#*
Creates the alternate CPT start delimiter #*, which will function in addition to the default &%.

02: Alternate CPT End Delimiter

- Purpose:** Creates an alternate CPT end delimiter. You cannot use this delimiter as an alternate host download delimiter.

Syntax: Z02,*xy*

x the first delimiter character (may be any printable character other than &).

y the second delimiter character.

xy two spaces—deletes the alternate CPT end delimiter.

04: User-Defined Strings

Purpose: Creates up to 10 user-defined strings to send to the printer. Place the hex codes representing the printer command inside the parenthesis (up to 25 hex pairs).

Syntax: Z04,*n(hex codes)*

n = 0 to 9

(hex codes) The user-defined hex code string to be stored in the external adapter memory under the selected value number (0 to 9). To activate the command, place &%U*n* (where *n* is the value number) in the file.

() Deletes the specified user-defined string from memory.

Example: &%Z04,3(020D0A)

Creates a user-defined string to start a label. Hex values 02, 0D, and 0A represent the ASCII control characters <STX>, <CR>, and <LF>, respectively. This is string number 3, and to use it, you place &%U3 in the file sent to the printer.

&%Z04,3()

Deletes the user-defined command string number 3.

05: Host Country Character Set

Purpose: Selects the character set by country used by the twinax host.

Syntax: Z05,*n*

n =

- 00 Multinational
- 01 U.S.A./Canada
- 02 Austria/Germany
- 03 Belgium
- 04 Brazil
- 05 Canada/France
- 06 Denmark/Norway
- 07 Finland/Sweden
- 08 France
- 09 Italy
- 10 Japan
- 11 Japan (English)
- 12 Portugal
- 13 Spain
- 14 Latin America
- 15 United Kingdom

Example: &%Z05,00

Selects the multinational character set (00).

Notes: If Intermec compatible Latin 1 is selected, the external adapter ignores this setting and you select the host country character set on the printer.

Refer to “Selecting a Country Character Set” in Chapter 1 for a list of the code pages used for each character set.

17: Character Set

Purpose: Selects the character set that the external adapter uses as the underlying ASCII table for EBCDIC to ASCII translations.

See your printer user's manual to verify that the character set is supported by the printer.

Syntax: Z17,*n*

n =
0 Latin 1
1 Code Page 850
2 Code Page 437
3 Intermec compatible Latin 1
4 Roman 8

Example: &%Z17,1

Selects Code Page 850 character set.

Notes: Code Page 437 character set (often used in PC applications) has 41 fewer characters than Code Page 850. Intermec compatible Latin 1 is the basis for characters in older Intermec printers, such as the 4400 printer. Roman 8 is the default setting for XP printers.

24: IBM Printer Emulation

Purpose: Selects the active IBM printer emulation.

Syntax: Z24,*n*

n =
0 5256, Model 3
1 5224, Model 1
2 5225, Model 1
3 4214, Model 2
4 Suppress all IBM positioning commands

Example: &%Z24,2

Sets the active printer emulation to 5225, Model 1.

Notes: Many existing Intermecc formats use the Intermecc <CR> control code to select the next data entry field for the printer, and then require that any motion commands from the host be ignored. To emulate this Intermecc format, use value 4.

25: IBM Motion Command

Purpose: Selects the translation of the IBM motion commands.

Syntax: Z25,*n*
n =
0 Use FF (when possible)
1 Substitute multiple LF for FF
2 Suppress FF
3 Suppress CR, LF, and FF

Example: &%Z25,3
Sets the adapter to ignore all CR, LF, and FF characters sent from the host.

Notes: Many existing Intermecc formats use the Intermecc <CR> control code method to send motion commands to the printer, and then require that any motion commands from the host be ignored. To emulate this Intermecc format, use value 3.

32: ASCII Control Code Parsing

Purpose: Enables or disables the external adapter interpretation of Intermecc ASCII control code symbols.

Syntax: Z32,*n*
n =
0 Enable interpretation
1 Disable interpretation

Example: &%Z32,1

Disables the adapter from parsing Intermec symbols for ASCII control codes.

Notes: For efficient operation, the adapter scans the data and interprets the Intermec symbols for ASCII control codes (example: <CR> for carriage return). In some cases of labels designed for older printers, this may cause a problem, and you can use this command to disable this feature.

42: Buffer Hex Dump

Purpose: Activates Buffer Hex Dump mode. In this mode, data received by the printer is printed as EBCDIC characters and in hexadecimal notation. This mode stays active until you turn off the printer.

Syntax: Z42,*n*

n =
0 No action taken (default)
1 Start buffer hex dump

Example: &%Z42,1

Starts buffer hex dump printing.

Note: Printing starts with the buffer after the start command has been received by the printer and stops when the printer is powered off.

70: Overwrite EBCDIC Translation Table

Purpose: Defines custom substitutions for the EBCDIC to ASCII translation table.

Syntax: Z70,*x*,*y*

x The EBCDIC character (in hex) to be changed.

y The substitute ASCII character (in hex).

Example: &%Z70,7B,40

Prints the @ character (40 hex) when the external adapter receives the # character (EBCDIC 7B).

Notes: Automatically changes previously stored substitutions to the new selection when you specify the same hex location in the EBCDIC table.

Cancels previously stored substitutions if you specify an ASCII hex sequence of 00.

Use command 99 to store the substitutions in nonvolatile memory, so that they will remain effective the next time you turn on the printer.

98: Restore Factory Defaults, Print Self-Test, and Restore Previously Defined Settings

Purpose: Restores the factory default configuration selections, prints the active configuration settings, or restores the nonvolatile memory settings.

Syntax: Z98,*n*

n =

0 Restores the factory setup

1 Prints the active configuration settings

2 Restores the settings stored in nonvolatile memory

Example: &%Z98,1

Prints the active configuration settings.

Notes: To restore the settings in nonvolatile memory, place &%Z98,2 at the end of the file.

99: Save Current Settings

Purpose: Saves the active setup in nonvolatile memory on the external adapter. Use this command to store permanent setting and not as a temporary command.

Syntax: Z99,0

Example: &%Z99,0

Stores the active setup selections in nonvolatile memory on the external adapter.

Notes: Active configuration commands that you do not save in nonvolatile memory on the external adapter are lost when you turn off the printer.

Working With User-Defined Command Strings

To activate a user-defined command string, type the delimiter (&% or alternate CPT start delimiter) followed by the string number (U0 through U9) into the file. When you send the file to the printer, the external adapter recognizes the &%Un and sends the command assigned to the string number (*n*) to the printer.

For example, you can assign string number 1 to a command string to start a label (<STX><CR><LF>; hex codes 02, 0D, and 0A respectively):

```
&%Z04,1(02,0D,0A)
```

Enter &%U1 in the file at the point where you want to start the label.

Some commands may continue until another string is encountered that returns printing to normal, or for some host systems, until you send the next label to the printer.

If you want to verify the commands in your user-defined command string, place the printer in ASCII Dump mode or Data Line Print mode (Service Menu, Data Line Print, Enabled) and then send the &%Un

command to the external adapter. The printer prints the ASCII commands and corresponding hex codes of the data it receives.

Using Command Pass-Thru

Command Pass-Thru (CPT) provides access to all of the built-in features of the printer, even if these features are not available through the host software. CPT lets you place printer-specific command sequences into the data sent to the printer. This feature provides the capability to send command characters to the printer even though there is no EBCDIC character defined by the host.

For example, you can send an <STX> (hex 02) control character to the printer to start a label even though there is no EBCDIC <STX> character defined by the host. The external adapter recognizes these special sequences and passes the command through to the printer.

To use Command Pass-Thru

1. Convert a printer command to hexadecimal code. For example, <STX><CR><LF> converts to 02 0D 0A hex.
2. Place the hex codes, surrounded by the start and end delimiters (&% or the alternate CPT start and end delimiters), at the point in the file where the feature is to take effect.

&%020D0A&%

or

&%02 0D 0A&%

You may enter a space between hexadecimal code pairs to make the command easier to read. Do not put spaces between the delimiter and the hexadecimal characters.

Only characters from 00 to FF are recognized (alphabetic characters must be in upper case).

Note: *Errors in a CPT sequence cause the external adapter to ignore the command and the printer to resume printing from the point that the error occurred. CPT may invalidate horizontal spacing.*

4

Creating Print Programs

This chapter describes how to write RPG, CICS, and IMS print programs for your host computer that allow the external adapter to control printer output.

Programming Requirements

Print programs are one way to send control characters and label formats to your printer. Example print programs are provided for you in this chapter. After reading this chapter, you will be able to do the following:

- Understand how to send control characters to the external adapter.
- Understand how to send label formats and data to the external adapter.
- Write RPG, CICS, and IMS print programs for your Intermec printer with an external adapter.

There are special programming requirements that you need to understand before you can send valid print messages to the printer through the external adapter. These special requirements involve the following:

- Configuration requirements
- Control character format
- Character set limitations
- Formatting label data
- Designing labels

Configuration Requirements

Configure the host to recognize your Intermec printer as either an IBM 3287 printer for Coax mode or an IBM 5256 Model 1 printer for Twinax mode. Instructions for configuring the host are provided in your *IBM System Configuration Manual*.

Control Character Format

Many of the printer commands are control codes. To enter and view control codes at an IBM terminal, you enter the codes by using command pass thru, by using user strings, or as mnemonics and the IBM terminal displays the codes as mnemonics. The external adapter in the printer recognizes mnemonics and converts them into control codes before passing them to the printer. Refer to the *IPL Programming Manual* (Part No. 066396) to see how ASCII control characters are used in programming the printer.

To send a control character to the external adapter as part of a printer message, you need to send the control character mnemonic in upper case letters bracketed by these two characters:

< >

Example: The control character to **clear format data** is represented by the mnemonic "CAN." To clear data out of image RAM, send CAN to the external adapter in the following format:

<CAN>

(in human-readable format)

or

4C C3 C1 D5 6E

(in EBCDIC hex format)

Some control character mnemonics, such as "FF," are only two letters in length. The mnemonic "FF" advances the printer media to the next start-of-print point. Send "FF" to the external adapter in the following format:

<FF>

Formatting Label Data

All data sent to the external adapter for printing must begin with <STX> and end with <ETX>. Any printer data not sent with these beginning and ending control character mnemonics is not printed.

Note: The external adapter uses the <STX> and <ETX> delimiters to determine where the printer commands begin and end. Do not enter a semicolon (;) after <STX> and <ETX>.

Also, all data sent to the external adapter for printing must be a valid command or a printable character. The printer ignores invalid commands and data; it substitutes a default value whenever possible, skips to the next valid command, and continues to print.

Example: The message below causes the printer to print the word "DATA." The <ETB> control character mnemonic enables the printer to print the label:

```
<STX><ESC>E0<CR>DATA<ETB><ETX>
```

The maximum print line handled by the IBM 3287 printer or IBM 5256 printer is 132 characters long. See your printer user's manual to find the maximum number of characters your printer can print in one message.

Common Problems When Printing Labels

These are the five most frequently encountered problems in printing bar code labels:

- The message does not end with the printer command <ETB>.
- The program contains printer commands that the printer does not recognize. The printer ignores invalid commands and, when possible, substitutes a default value.
- The label data contains too many characters for its field on the label.
- The external label is physically too small to hold the data.
- The adapter has not been installed and tested correctly.

Designing Labels

When you print a label with the external adapter installed on the printer, design your label format and data by using a label design software program or your host terminal. Refer to your printer user's manual for information on label design at the host terminal.

Printing Labels on Demand From a Host Using RPG

IBM System/3X computers do not start sending data to printers until the printer file is closed. If you want to send labels that you design on a system terminal immediately to the external adapter for printing, you must follow these guidelines:

IBM System/34 and System/36 If you are using IBM System/34 or System/36, you need to finish the RPG to close the printer file. OCL statements may be used to reload the program for the next print job.

IBM System/38 and AS/400 If you are using IBM System/38 or AS/400, you need to call a separate print program that will print the on-demand label or, after writing a label, explicitly close the printer file within the RPG program.

Example RPG Program

The following pages provide an example RPG print program for the AS/400. The next few paragraphs provide you with details about the RPG print program.

File specifications The file specifications used in the RPG example program are identical to those used for the IBM 5256 printer.

Extension specification The extension specification defines a compile time array named FMT. The FMT array contains the label format.

Calculations specifications Miscellaneous label fields and printer control characters are initialized by the calculation specifications. The calculation specifications also contain the FORMAT subroutine used to send the label format to the external adapter.

About the RPG Example Print Program

After compiling these programs, called DEM44C, a display screen appears warning you about having the correct print file and outqueue. If necessary, change DEM44C.

The display screen requires a user name. Enter your name and press the ENTER key. The screen clears and a label prints. Use the CMD KEY 3 to exit the program.

Note: The following program contains X's in place of a printer model number. Please insert the model number of your printer in place of the X's.

RPG Example Print Program

```
      I N T E R M E C
      PRINTER DEMONSTRATION
                                         DEM44D
```

This program will show you how to print to an outqueue on the IBM AS/400. We are using qprint as the output file and prt01 as the outqueue. If you do not have either or both, please stop and change the clp program dem44c.

CLP Program

```
/*                                     */
/* PROGRAM: DEM44C                     */
/*                                     */
      PGM
      OVRPRTF FILE(QPRINT) OUTQ(PRT01)
      CALL PGM(DEM44R)
      DLTOVR FILE(QPRINT)
      ENDPGM
```

Display Program

```
A*
A*  PROGRAM:  DEM44D
A*
A                                     DSPSIZ(24 80 *DS3)
A                                     MSGLOC(23)
A                                     PRINT
A *****
A          R  SCRNO1
A *****
A                                     CF03(03 'END OF JOB')
A                                     1 32'I N T E R M E C'
A                                     DSPATR(HI)
A                                     2  3DATE EDTCDE(Y)
A                                     2 68'DEM44D'
A                                     3  3TIME EDTWRD('0 : : ')
A                                     3 31'XXXX DEMONSTRATION'
A                                     DSPATR(HI)
A                                     6 16'THIS PROGRAM WILL SHOW -
A                                     HOW TO PRINT TO AN OUTQUEUE'
A                                     8 16'ON THE IBM AS/400. -
A                                     WE ARE USING QPRINT AS THE '
A                                     10 16'OUTPUT FILE AND PRT01 -
A                                     AS THE OUTQUEUE. IF YOU DO'
A                                     12 16'NOT HAVE EITHER OR BOTH, -
A                                     PLEASE STOP AND CHANGE'
A                                     14 16'THE CLP PROGRAM DEM44C.'
A                                     17 14'PLEASE ENTER YOUR NAME:'
A          NAME          25  B 17 40
A 80          ERRMSG('NAME CAN NOT BE LEFT BLANK'-
A                                     80)
A                                     23 30'CMD 3: END OF JOB'
```


RPG Program

```
H          1                                DEM44R
*
* PROGRAM NAME:  DEM44R
*
* DESCRIPTION:  THIS PROGRAM WILL DEMONSTRATE THE XXXX
              PRINTER
*
FDEM44D  CF  E                                WORKSTN
FQPRINT  O  F    132      OF    PRINTER
*
E          INIT    1  10  80
E          WRK      80  1
E          QRX     125  1
*
I          DS
I          1  80  CMDQ
I          27  36  QUEUE
*
*** INITIALIZE VALUES **
*
C          MOVE '1'      ON      1
C          MOVE '0'      OFF     1
C          MOVE 'Y'      YES     1
C          MOVE 'N'      NO      1
C          Z-ADD1        AX      30
*
*** INITIALIZE FOR DATA DOWNLOAD
*
C          MOVE '<CR>'    QCR     4
C          MOVE '<ETB>'   QETB    5
C          MOVE '<ESC>'   QESC    5
C          MOVE '<CAN>'   QCAN    5
C          MOVE '<STX>'   QSTX    5
C          MOVE '<ETX>'   QETX    5
C          MOVE '<RS>'    QRS     4
C          MOVE '<FS>'    QFS     4
C          MOVE '<US>'    QUS     4
C          MOVEL '<ESC>'  QKINCL  7
C          MOVE 'I1'     QKINCL
C          MOVEL '<ESC>'  QKDECL  7
```

RPG Program (continued)

```
C             MOVE 'D1'           QKDECL
*
***  DOWNLOAD FORMAT TO OUTQUEUE  **
*
C             EXSR DLOADQ
*
*****
**             MAINLINE LOGIC             **
*****
*
C             MOVE 'A'           FUNCTN  1
*
C             FUNCTN  DOWNE 'Z'
C             FUNCTN  CASEQ 'A'           SCRNL
C             END
C             END
*
C             SETON                LR
*****
*
*****
**  SCRNL - PROMPT SCREEN             **
*****
*
C             SCRNL  BEGSR
*
C             EXFMTSCRNL
*
C             *IN03  IFEQ ON
C             MOVE  'Z'           FUNCTN
C             ELSE
C             EXSR EDIT01
*
C             ERR    IFEQ NO
C             EXSR LABELQ
C             MOVE  *BLANKS      NAME
C             END
*
C             END
*
C             ENDSR
```

RPG Program (continued)

```
*****
*
*****
** EDIT01 - EDITS THE PROMPT SCREEN FIELD **
*****
*
C          EDIT01    BEGSR
*
C          MOVE OFF      *IN80
C          MOVE NO      ERR      1
*
C          NAME        IFEQ *BLANKS
C          SETON              80
C          MOVE YES      ERR
C          END
*
C          ENDSR
*****
*
*****
** DLOADQ - DOWNLOAD TO PRINTER OUTQ SUB-ROUTINE **
*****
*
C          DLOADQ    BEGSR
*
*   LINES IN THE <INIT> ARRAY:
C          Z-ADD10      MXRD      30
*
*   SET-UP CHANNEL CODE & <ESC> CHARACTER
C          Z-ADD1        AX
C          MOVE *BLANKS  QRX
C          MOVEAQESC     QRX,AX
C          ADD 5         AX
*
*   OUTPUT ALL <INIT> ARRAY PRINTER STATEMENTS TO PRINTER
C          1          DO  MXRD      BX      30
C          MOVEA*BLANKS WRK
C          MOVEAINIT,BX WRK
C          Z-ADD80      CX      30
*
C          WRK,CX      DOWEQ' '
```

RPG Program (continued)

```
C          SUB 1          CX
C          END
*
C          120          SUB AX          TMP          30
C          ADD 1          TMP
C          TMP          IFLT CX
C          EXCPTPRINTQ
C          MOVE *BLANKS  QRX
C          Z-ADD1          AX
C          END
*
C          MOVEAINIT,BX  QRX,AX
C          ADD CX          AX
C          END
*
C          EXCPTPRINTQ
*
C          ENDSR
*****
*
*****
**  SETUPQ  SET-UP OUTPUT ARRAY FOR PRINT QUEUE  **
*****
*
C          SETUPQ  BEGSR
*
C          Z-ADD1          AX
C          MOVEA*BLANKS  QRX
*
C          ENDSR
*****
*
*****
**  LABELQ  - PRINT LABEL SUBROUTINE (PRINT QUEUE) **
*****
*
C          LABELQ  BEGSR
*
C          EXSR SETUPQ
C          MOVEAQESC      QRX,AX
C          ADD 5          AX
```

RPG Program (continued)

```
C          MOVEA 'E3'      QRX,AX
C          ADD  2          AX
C          MOVEAQCAN      QRX,AX
C          ADD  5          AX
C          MOVEAQCR       QRX,AX
C          ADD  4          AX
C          MOVEANAME      QRX,AX
C          ADD  20         AX
C          MOVEAQCR       QRX,AX
C          ADD  4          AX
C          MOVEAQETB      QRX,AX
C          ADD  5          AX
C          MOVEAQETX      QRX,AX
C          EXCPTPRINQQ
C          *
C          ENDSR
C          *****
C          *
C          *****
C          ** OUTPUT SPECIFICATIONS **
C          *****
OQPRINT  E          PRINTQ
O          QSTX      +  0
O          QRX       +  0
O          QETX      131
O          E          PRINQQ
O          QSTX      +  0
O          QRX       +  0
C          *****
** INIT - LABEL FORMAT **
P;E3;F3;H0;
H1;o050,050;c2;w2;h3;d3,INTERMEC;
H2;o075,100;c2;w1;h1;d3,Presents the;
H3;o115,125;c2;w1;h2;d3,MODEL;
H4;o075,165;c2;w1;h2;d3,XXXX PRINTER;
B5;o082,200;c0,0;f0;h35;w1;i1;d3, XXXX ;
I5;o113,238;c0;w1;h1;
H6;o135,255;c2;w1;h1;d3,to;
H7;o050,285;c2;w1;h2;d0,20;
R
```

Example CICS and IMS Print Programs

The following pages provide examples of CICS and IMS print programs. These programs send label formats as well as data and print commands to your printer through the external adapter.

CICS Example Print Program

```
000100 IDENTIFICATION DIVISION.
000200 PROGRAM-ID. XPRT1.
000300 ENVIRONMENT DIVISION.
000400 DATA DIVISION.
000600 WORKING-STORAGE SECTION.
000710 01 ROUTE-LIST.
000800     05 ROUTE-ENTRY.
000900         10 ROUTE-TERMINID          PIC X(4).
001000         10 FILLER                  PIC X(5).
001100         10 ROUTE-STATUS             PIC X(1).
001200         10 FILLER                  PIC X(6).
001300     05 ROUTE-END                   PIC S9 (4) COMP VALUE -1.
001500 01 J                               PIC 9(3).
001510 01 PRINT-LENGTH                 PIC S9 (4) COMP VALUE +40.
001700 01 LABEL-DESIGN.
001710     05 LABEL-FORMAT.
001730         10 PMOD PIC X(40) VALUE
001731             '<STX><ESC>P<ETX>'.
001740         10 EDIT PIC X(40) VALUE
001741             '<STX>E3;F3;<ETX>'.
001750         10 H0 PIC X(40) VALUE
001760             '<STX>H0;o0,0;c0;w2;h2;b2;d0,15;<ETX>'.
001770         10 B1 PIC X(40) VALUE
001771             '<STX>B1;o57,25;c0,0;h30;w1;i1;d0,10;<ETX>'.
001790         10 I1 PIC X(40) VALUE
001791             '<STX>I1;o57,56;c0w2;h1;<ETX>'.
001800         10 B2 PIC X(40) VALUE
001810             '<STX>B2;o57,66;c0,0;h30;w1;i1;d0,8;<ETX>'.
002000         10 I2 PIC X(40) VALUE
002010             '<STX>I2;o57,97;c0;w2;h1;<ETX>'.
002100         10 B3 PIC X(40) VALUE
002110             '<STX>B3;o57,107;c0,0;h30;w1;i1;d0,5;<ETX>'.
002300         10 I3 PIC X(40) VALUE
```

CIGS Example Print Program (continued)

```
002310          `<STX>I3;o57,138;c0;w2;h1;<ETX>' .
002400      10 H4  PIC X(40) VALUE
002410          `<STX>H4;o0,148;c0;w2;h2;b2;d0,15;<ETX>' .
002800      10 H5  PIC X(40) VALUE
002900          `<STX>H5;o10,30;c0;w1;h3;d3,ITEM;<ETX>' .
003000      10 H6  PIC X(40) VALUE
003100          `<STX>H6;o10,70;c0;w1;h3;d3,S/N;<ETX>' .
003200      10 H7  PIC X(40) VALUE
003210          `<STX>H7;o10,110;c0;w1;h3;d3,PTY.;<ETX>' .
003400      10 L8  PIC X(40) VALUE
003410          `<STX>L8;o1,20;f3;w1;l130;<ETX>' .
003500      10 L9  PIC X(40) VALUE
003510          `<STX>L9;o50,20;f3;w1;l130;<ETX>' .
003600      10 DONE PIC X(40) VALUE
003700          `<STX>R<ETX>' .
004202      05 FORMAT-DATA REDEFINES LABEL-FORMAT OCCURS 16
PIC          X(40).
004203
004204      05 LABEL-DATA1.
004205      10 L-START PIC X(11) VALUE `<STX><ESC>E3<CAN>' .
004206      10 L-FIELD1 PIC X(17) VALUE SPACES.
004207      10 L-CR1    PIC X(4) VALUE `<CR>' .
004208      10 L-ETX1   PIC X(5) VALUE `<ETX>' .
004209      10 L-FILL1  PIC X(8) VALUE SPACES.
004210      05 LABEL-DATA2.
004211      10 L-STX2   PIC X(3) VALUE `<STX>' .
004212      10 L-FIELD2 PIC X(10) VALUE SPACES.
004213      10 L-CR2    PIC X(4) VALUE `<CR>' .
004214      10 L-FIELD3 PIC X(8) VALUE SPACES.
004215      10 L-CR3    PIC X(4) VALUE `<CR>' .
004216      10 L-FIELD4 PIC X(5) VALUE SPACES.
004217      10 L-CR4    PIC X(4) VALUE `<CR>' .
004218      10 L-ETX2   PIC X(5) VALUE `<ETX>' .
004219      10 L-FILL2  PIC X(2) VALUE SPACES.
004220      05 LABEL-DATA3.
004221      10 L-STX3   PIC X(5) VALUE `<STX>' .
004223      10 L-FIELD5 PIC X(15) VALUE SPACES.
004224      10 L-CR5    PIC X(4) VALUE `<CR>' .
004229      10 L-RS     PIC X(4) VALUE `<RS>' .
004230      10 L-BATCH  PIC X(4) VALUE `0001' .
004231      10 L-ETB   PIC X(5) VALUE `<ETB>' .
```

CICS Example Print Program (continued)

```
004232      10 L-ETX3      PIC X(5) VALUE '<ETX>'.
004233      10 L-FILL3     PIC X(6) VALUE SPACES.
004234
004240      PROCEDURE DIVISION.
004300          EXEC CICS HANDLE CONDITION
004400              ERROR (910-ERROR)
004500              END-EXEC.
004600      000-START-PROG.
004700          MOVE SPACES TO ROUTE-ENTRY.
004800          MOVE 'I006' TO ROUTE-TERMIN.
004900          MOVE LOW-VALUES TO ROUTE-STATUS.
005000          EXEC CICS ROUTE
005100              LIST (ROUTE-LIST)
005200              NLEOM
005300              END-EXEC.
005400          PERFORM 100-LABEL-DESIGN
005500              VARYING J FROM 1 BY 1 UNTIL J > 16.
005600          EXEC CICS SEND PAGE END-EXEC.
005700
006214          MOVE SPACES TO ROUTE-ENTRY.
006215          MOVE 'I006' TO ROUTE-TERMIN.
006216          MOVE LOW-VALUES TO ROUTE-STATUS.
006217          EXEC CICS ROUTE
006218              LIST (ROUTE-LIST)
006219              NLEOM
006220              END-EXEC.
006222      MOVE 'MODEL XXXX PRINTER' TO L-FIELD1 OF LABEL-DATA1.
006223          MOVE 'NXXXX1' TO L-FIELD2 OF LABEL-DATA2.
006224          MOVE '0004305' TO L-FIELD3 OF LABEL-DATA2.
006225          MOVE '00001' TO L-FIELD4 OF LABEL-DATA2.
006226          MOVE 'XXXX' TO L-FIELD5 OF LABEL-DATA3.
006228          MOVE CICS SEND TEXT
006230              FROM (LABEL-DATA1) LENGTH (PRINT-LENGTH)
006240              FREEKB PAGING NLEOM
006250              END-EXEC.
006251          EXEC CICS SEND TEXT
006252              FROM (LABEL-DATA2) LENGTH (PRINT-LENGTH)
006253              FREEKB PAGING NLEOM
006254              END-EXEC.
006255          EXEC CICS SEND TEXT
006256              FROM (LABEL-DATA3) LENGTH (PRINT-LENGTH)
```

CICS Example Print Program (continued)

```
006257          FREEKB PAGING NLEOM
006258          END-EXEC.
006260          EXEC CICS SEND PAGE END-EXEC.
006270          GO TO 990-EOJ.
006271 100-LABEL-DESIGN.
006280          EXEC CICS SEND TEXT
006290          FROM (FORMAT-DATA(J)) LENGTH (PRINT-LENGTH)
006291          FREEKB PAGING NLEOM
006292          END-EXEC.
006300 910-ERROR.
006400          EXEC CICS ABEND ABCODE ('PRT1') END-EXEC.
006500 990-EOJ.
006600          EXEC CICS RETURN END-EXEC.
006700          STOP RUN.
```

IMS Example Print Program

```
00100          PRINT NOGEN
00200          PCB TYPE=TP,LTERM=YL031006
00300          PSBGEN PSBNAME=YIMEC006,LANG=COBOL
00400          END
```

MFS Format Generation

```
000100          PRINT NOGEN
000200 PTRLU3  FMT
000300          DEV TYPE=3270P,FEAT=IGNORE
000400          div TYPE=OUTPUT
000500          DPAGE FILL=NONE
000600 MSG      DFLD LTH=40,POS=(01,1),ATTR=NO
000700          FMTEND
000800 PTRMOD6  MSG TYPE=OUTPUT,SOR=(PTRLU3,IGNORE),
          OPT=2,FILL=PT
000900          SEG
001000          MFLD MSG,LTH=40
001100          MSGEND
```

COBOL Program Generation

```
000100 IDENTIFICATION DIVISION.
000200 PROGRAM-ID. YIMEC006.
000300 ENVIRONMENT DIVISION.
000400 DATA DIVISION.
000500
000600 WORKING-STORAGE SECTION.
000700 01 IN-USR-AREA.
000800 05 LL PIC S9(4) COMP.
000900 05 ZZ PIC S9(4) COMP VALUE ZERO.
001000 05 TC PIC X(8).
001100 05 OPT PIC X.
001200
001300 01 OUT-USR-AREA.
001400 05 LL PIC S9(4) COMP VALUE +80.
001500 05 ZZ PIC S9(4) COMP.
001600 05 PRINT-STATUS PIC X(14) VALUE 'PRINT STATUS :'.
001700 05 PTR-FUNC-CODE PIC X(2).
001800 05 USR-MESSAGE PIC X(60).
001900
002000 01 OUT-PTR-AREA.
002100 05 LL PIC S9(4) COMP VALUE +44.
002200 05 ZZ PIC S9(4) COMP VALUE ZERO.
002300 05 PTR-MESSAGE PIC X(40).
002400
002500 01 FUNCTION-CODES.
002600 05 GU PIC X(4) VALUE 'GU '.
002700 05 GN PIC X(4) VALUE 'GN '.
002800 05 ISRT PIC X(4) VALUE 'ISRT'.
002900 05 CHNG PIC X(4) VALUE 'CHNG'.
003000 05 PURG PIC X(4) VALUE 'PURG'.
003100
003200 01 MOD-NAMES.
003300 05 PTRMOD PIC X(8) VALUE 'PTRMOD6 '.
003400 01 J PIC 9(3).
003500
003600 01 LABEL-DESIGN.
003700 05 LABEL-FORMAT.
003800 10 PMOD PIC X(40) VALUE
003900 '<STX><ESC>P<ETX>'.
004000 10 EDIT PIC X(40) VALUE
```

COBOL Program Generation (continued)

```
004100      '<STX>E3;F3;<ETX>' .
004200      10 H0          PIC X(40) VALUE
004300      '<STX>H0;o0,0;c0;w2;h2;b2;d0,15;<ETX>' .
004400      10 B1          PIC X(40) VALUE
004500      '<STX>B1;o57,25;c0,0;h30;w1;f0;i1;d0,9;<ETX>' .
004600      10 I1          PIC X(40) VALUE
004700      '<STX>I1;o57,56;c0;w2;h1;<ETX>' .
004800      10 B2          PIC X(40) VALUE
004900      '<STX>B2;o57,66;c0,0;h30;w1;i1;d0,8;<ETX>' .
005000      10 I2          PIC X(40) VALUE
005100      '<STX>I2;o57,97;c0;w2;h1;<ETX>' .
005200      10 B3          PIC X(40) VALUE
005300      '<STX>B3;o57,107;c0,0;h30;w1;i1;d0,5;<ETX>' .
005400      10 I3          PIC X(40) VALUE
005500      '<STX>I3;o57,138;c0;w2;h1;<ETX>' .
005600      10 H4          PIC X(40) VALUE
005700      '<STX>H4;o0,148;c0;w2;h2;b2;d0,15;<ETX>' .
005800      10 H5          PIC X(40) VALUE
005900      '<STX>H5;o10,30;c0;w1;h3;d3,ITEM;<ETX>' .
006000      10 H6          PIC X(40) VALUE
006100      '<STX>H6;o10,70;c0;w1;h3;d3,S/N;<ETX>' .
006200      10 H7          PIC X(40) VALUE
006300      '<STX>H7;o10,110;c0;w1;h3;d3,QTY.;<ETX>' .
006400      10 L8          PIC X(40) VALUE
006500      '<STX>L8;o1,20;f3;w1;l130;<ETX>' .
006600      10 L9          PIC X(40) VALUE
006700      '<STX>L9;o50,20;f3;w1;l130;<ETX>' .
006800      10 R          PIC X(40) VALUE
006900      '<STX>R<ETX>' .
007000      05 FORMAT-DATA REDEFINES LABEL-FORMAT OCCURS 16 PIC
X(40).
007100
007200      05 LABEL-DATA1.
007300      10 L-START    PIC X(17) VALUE '<STX><ESC>E3<CAN>' .
007400      10 L-FIELD1   PIC X(14) VALUE SPACES.
007500      10 L-CR1      PIC X(4) VALUE '<CR>' .
007600      10 L-ETX1     PIC X(5) VALUE '<ETX>' .
007700      10 L-FILL1    PIC X(8) VALUE SPACES.
007800
007900      05 LABEL-DATA2.
008000      10 L-STX2     PIC X(95) VALUE '<STX>' .
```

COBOL Program Generation (continued)

```
008100      10 L-FIELD2          PIC X(9) VALUE SPACES.
008200      10 L-CR2            PIC X(4) VALUE '<CR>'.
008300      10 L-FIELD3          PIC X(8) VALUE SPACES.
008400      10 L-CR3            PIC X(4) VALUE '<CR>'.
008500      10 L-FIELD4          PIC X(5) VALUE SPACES.
008600      10 L-CR4            PIC X(4) VALUE '<CR>'.
008700      10 L-ETX2           PIC X(5) VALUE '<ETX>'.
008800      10 L-FILL2          PIC X(2) VALUE SPACES.
008900
009000      05 LABEL-DATA3.
009100          10 L-STX3        PIC X(3) VALUE '<STX>'.
009200          10 L-FIELD5      PIC X(15) VALUE SPACES.
009300          10 L-CR5         PIC X(4) VALUE '<CR>'.
009400          10 L-RS          PIC X(4) VALUE '<RS>'.
009500          10 L-BATCH       PIC X(4) VALUE '0001'.
009600          10 L-ETB        PIC X(5) VALUE '<ETB>'.
009700          10 L-ETX3       PIC X(5) VALUE '<ETX>'.
009800          10 L-FILL3      PIC X(6) VALUE SPACES.
009900
010000      LINKAGE SECTION.
010100      01 IO-PCB.
010200          05 LTERM        PIC X(8).
010300          05 FILLER      PIC X(2).
010400          05 STATUS-CODE  PIC X(2).
010500          05 MSG-ID.
010600              07 MSG-DATE  PIC 9(7)  COMP-3.
010700              07 MSG-TIME  PIC 9(6)V9 COMP-3.
010800              07 MSG-SEO   PIC 9(5)  COMP.
010900          05 DEFAULT-MODNAME PIC X(8).
011000      01 PTR-PCB.
011100          05 PTR-NAME     PIC X(8).
011200          05 FILLER      PIC X(2).
011300          05 ALT-STATUS   PIC X(2).
011400
011500      PROCEDURE DIVISION.
011600          ENTRY 'DLITCBL' USING IO-PCB PTR-PCB.
011700          CALL 'CBLTDLI' USING GU
011800                      IO-PCB
011900                      IN-USR-AREA.
012000          PERFORM 100-DOWNLOAD-PROGRAM.
012100          PERFORM 200-PROCESS UNTIL STATUS-CODE > SPACES.
```

COBOL Program Generation (continued)

```
012200      GOBACK.
012300
012400      100-DOWNLOAD-PROGRAM.
012500      MOVE FORMAT-DATA (1) TO PTR-MESSAGE OF OUT-PTR-AREA.
012600      CALL 'CBLTDLI' USING ISRT
012700                      PTR-PCB
012800                      OUT-PTR-AREA
012900                      PTRMOD.
013000      PERFORM 110-SEND-FORMAT
013100          VARYING J FROM 2 BY 1 UNTIL J > 16.
013200
013300      110-SEND-FORMAT.
013400      MOVE FORMAT-DATA (J) TO PTR-MESSAGE OF OUT-PTR-
AREA.
013500      CALL 'CBLTDLI' USING ISRT
013600                      PTR-PCB
013700                      OUT-PTR-AREA.
013800
013900      200-PROCESS.
014000      MOVE 'MODEL XXXX PRINTER' TO L-FIELD1 OF LABEL-DATA1.
014100      MOVE SPACES TO PTR-MESSAGE OF OUT-PTR-AREA.
014200      MOVE LABEL-DATA1 TO PTR-MESSAGE OF OUT-PTR-AREA.
014300      CALL 'CBLTDLI' USING ISRT
014400                      PTR-PCB
014500                      OUT-PTR-AREA.
014600
014700      MOVE 'NXXXX1' TO L-FIELD2 OF LABEL-DATA2.
014800      MOVE '0004305' TO L-FIELD3 OF LABEL-DATA2.
014900      MOVE '00001' TO L-FIELD4 OF LABEL-DATA2.
015000      MOVE SPACES TO PTR-MESSAGE OF OUT-PTR-AREA.
015100      MOVE LABEL-DATA2 TO PTR-MESSAGE OF OUT-PTR-AREA.
015200      CALL 'CBLTDLI' USING ISRT
015300                      PTR-PCB
015400                      OUT-PTR-AREA.
015600      MOVE 'XXXX' TO L-FIELD5 OF LABEL-DATA3.
015700      MOVE SPACES TO PTR-MESSGE OF OUT-PTR-AREA.
015800      MOVE LABEL-DATA3 TO PTR-MESSAGE OF OUT-PTR-AREA.
015900      CALL 'CBLTDLI' USING ISRT
016000                      PTR-PCB
016100                      OUT-PTR-AREA.
016300      MOVE ALT-STATUS TO PTR-FUNC-CODE OF OUT-USR-AREA.
```

COBOL Program Generation (continued)

```
016400     IF ALT-STATUS = SPACES
016500         MOVE `  SAMPLE LABEL SENT TO PRINTER.`
016600             TO USR-MESSAGE OF OUT-USR-AREA
016700     ELSE
016800         MOVE `  UNABLE TO SEND TO PRINTER.`
016900             TO USR-MESSAGE OF OUT-USR-AREA.
017000     CALL 'CBLTDLI' USING ISRT
017100                             IO-PCB
017200                             OUT-USR-AREA.
017300     CALL 'CBLTDLI' USING GU
017400                             IO-PCB
017500                             IN-USR-AREA.
017700     STOP RUN.
```

5

Troubleshooting

This chapter provides instructions for performing diagnostic tests on the external coax/twinax adapter and contains solutions to common interface problems.

Technical Support

If you are unable to solve a problem by following the procedures in this section, verify that you:

- Installed the printer correctly.
- Correctly configured the external adapter.
- Performed the appropriate diagnostic tests.

When you contact your Intermecc representative, have the following information available:

- Printer and adapter self-test labels
- Model number and serial number of the printer
- Description of the problem
- Results of diagnostic tests
- Type of host system or controller

You may also need to print in Buffer Hex Dump mode. You can do this by setting the external adapter rotary switch (located on the back panel of the printer) to position 9. The printer prints the data it receives from the host as EBCDIC characters and hexadecimal codes. You can also display the translated ASCII codes by performing an ASCII dump, using rotary switch position B.

Adapter Self-Test

To verify that you have properly configured the external adapter, perform a self-test. The self-test prints the current software version, memory condition (RAM and ROM), and basic configuration settings.

To start the self-test from the printer

1. Turn off the printer and make sure the proper 9-pin host adapter is attached to the external adapter.
2. Set the external adapter rotary switch to position 7.
3. Turn on the printer.

To start the self-test from your terminal

1. Turn off the printer and make sure that the proper 9-pin host adapter is attached to the external adapter.
2. Turn on the printer and wait for the external adapter LED to indicate Line Sync.
3. Send the following command from the host to the printer:

```
&%Z98 , 1
```

If a self-test label does not print, the external adapter failed the self-test and you should contact your Intermec representative for more information.

Buffer Hex Dump

The external adapter can print the buffer contents as EBCDIC characters and in hexadecimal codes. This printout can be useful in diagnosing problems with the label format, adapter, or the printer. The EBCDIC hex data is printed on a grid corresponding to the position of the data in the buffer.

To start Buffer Hex Dump mode from the printer

1. Make sure the printer has media loaded and is ready to print.
2. Set the rotary switch to position 9.
3. Send the print job to the printer. The printer prints the EBCDIC data instead of the label format.
4. To exit Buffer Hex Dump mode, reset the rotary switch to its previous position, usually position A.

All data sent to the printer prints as EBCDIC characters and hexadecimal codes.

To start Buffer Hex Dump mode at the host

1. Turn off the printer and make sure the proper 9-pin host adapter is attached to the external adapter and that the printer is connected to the host.
2. Turn on the printer.
3. Send the following command from the host to the printer:
`&%Z42,1`
4. To exit Buffer Hex Dump mode, turn the printer off and then on again.

All data sent to the printer prints as ASCII control characters and hexadecimal codes.

ASCII Dump Mode

The external adapter can print the ASCII codes that the external adapter sends to the printer. You can use this printout to make sure that the printer is receiving the label format correctly. The ASCII data is printed in a grid format to aid in finding and fixing errors.

To activate ASCII Dump mode

1. Make sure the printer has media loaded and is ready to print.
2. Set the rotary switch to position B.
3. Send the print job to the printer. The printer prints the ASCII data instead of the label format.
4. To exit ASCII Dump mode, reset the rotary switch to its previous position, usually position A.

Diagnostic Loopback

In Diagnostic Loopback mode, the external adapter transmits data to itself to check for errors.

To start Diagnostic Loopback mode

1. Turn off the printer and disconnect the host cable(s) from the 9-pin host adapter, but leave the adapter connected to the external adapter.
2. Set the external adapter rotary switch to position F.
3. Turn on the printer. The printer prints a test label indicating that the external adapter is in Diagnostic Loopback mode.
4. Turn off the printer to end Diagnostic Loopback mode and set the external adapter rotary switch to position A.

Twinax Self-Diagnostics

The external adapter can perform a complete analysis of twinax functions by transmitting data to itself and analyzing how that data is processed. If an error is detected, a message is printed on a test label.

To perform the adapter self-diagnostics test

1. Turn off the printer and disconnect the twinax host cable(s) from the 9-pin host adapter, but leave the host adapter connected to the external adapter.
2. Set the external adapter rotary switch to position E.
3. Turn on the printer. The printer starts the twinax diagnostics test and prints a label if it encounters an error or when it completes the test.
4. Turn off the printer to end the self-diagnostics test and set the external adapter rotary switch to position A.

Common Problems

Use this section as a guide to resolving common problems that may occur with the external adapter. Please refer to this section before contacting your Intermec representative.

Problem	Probable Cause	Action
Line Sync LED comes on and then starts flashing.	Address conflict with another twinax device on the cable.	Make sure that no other devices on this cable have the same address.
	Damaged or improper host cables.	Check host cabling for damage or improper connection.
Line Sync LED does not come on.	Configuration or address is incorrect.	Make sure the host is configured for the proper printer at the proper address.
	Damaged or improper cabling.	Check host cabling for damage or an improper connection.
	Host is not configured for a printer at the address specified.	Make sure the host is properly configured for the printer.
	Host is not operating.	Make sure the host system is operating correctly.
	Printer is not in a ready status.	Make sure the printer is online and has paper.
	Twinax cable improperly terminated.	Make sure the prior device is not terminated (some PC emulator cards may terminate mid-line).
	Twisted pair cabling is used.	Use a balun (line balance converter) to make sure that the transmission line is balanced and properly connected.

Common Problems (continued)

Problem	Probable Cause	Action
Printer loses host communications (drops offline).	Improper printer configuration on the host.	Check that the proper printer is configured for the address on the host.
	Improper or damaged cabling.	Check host cabling for improper connections or damage.
Printer Not Ready (message displayed at host).	Damaged or loose printer cable.	Check printer cable for damage or an improper connection.
	Printer fault, such as paper out or paper jam.	Make sure the printer has paper and is clear of jams.
Printer does not print or is not communicating with the host.	Host does not recognize the printer.	Configure the host for the type of printer you are using.
Printer does not print correctly.	Printer is not configured correctly.	Make sure the printer is configured correctly to communicate with the host and to print the job.



Jumper and DIP Switch Settings

This appendix provides the definitions for the jumper and DIP switch settings on the external coax/twinax adapter. This information is provided so that you can record any possible changes that were made when the box was installed.

Jumper Settings

Jumper 3 determines whether the external coax/twinax adapter receives power from the printer or from an external power supply.

Jumper 3: Power Selection

Setting	Format
Closed	The external adapter receives power from the printer. (Default for 301, 7421, and 7422 printers.)
Open	The external adapter receives power from an external power supply. (Default for standard and XP printers.)

By opening or closing jumper 9, you can select the default baud rate. Only certified service personnel should set the jumpers.

Jumper 9: Baud Rate

Setting	Format
Closed	9600 baud (Default)
Open	19200 baud

***Note:** The external adapter reads Jumper 9 when the rotary switch is set to position 8 to restore factory defaults.*

DIP Switch Settings

The external adapter reads the DIP switches when you apply power to the external adapter with the rotary switch in position 8. The factory default settings are listed in the following table:

Interface	Default settings
Coax	Intermec compatible Latin 1 with multinational character set and Coax Buffer 1920
Twinax	Intermec compatible Latin 1 with multinational character set and 5256M1 Printer ID

If you use a software package or download the commands listed in Chapters 2 and 3 to change the printer settings, the software settings or commands will overwrite the DIP switch settings. All of the parameters that can be set by DIP switch can also be set by the commands listed in Chapters 2 and 3. When the external adapter uses Intermec compatible Latin 1, you cannot use coax command 08, twinax command 05, or DIP switches 5 through 8 to set the country character set.

Note: Only certified service personnel should change the DIP switch settings.

DIP Switch 1: Output Port Selection

Setting	Port
Off	Centronics
On	Serial port

DIP Switch 2: Code Page Selection

Setting	Page
Off	With position C on the rotary switch: <ul style="list-style-type: none">• Intermec compatible Latin 1 for standard and 7421 printers with the secondary position C setting set to 0• Roman 8 for 301 and XP printers with the secondary position C setting set to 1• Code Page 850 for 7422 printers with the secondary position C setting set to 2
On	With position C on the rotary switch: <ul style="list-style-type: none">• IBM Latin 1 for standard and 7421 printers with the secondary position C setting set to 0• Code Page 850 for 301 and XP printers with the secondary position C setting set to 1• Code Page 437 for 7422 printers with the secondary position C setting set to 2

DIP Switches 3 and 4: Printer ID (Twinax) and Coax Buffer Size (Coax)

Switch 3	Switch 4	Printer ID	Coax Buffer Size
Off	Off	5256 (default)	1920 (default)
Off	On	5224	3440
On	Off	5225	960
On	On	4214	3564

DIP Switches 5 through 8: Host Default Country Character Set

Note: The code page used for each language is in square brackets []. You cannot use these settings if you are using Intermec compatible Latin 1.

Switch 5	Switch 6	Switch 7	Switch 8	Twinax	Coax
Off	Off	Off	Off	1-U.S.A./Can. [037]	1-U.S.A./Can. [037]
Off	Off	Off	On	2-Austria/ Germany [273]	2-U.S.A./Can. (alternate [alt.]) [037]
Off	Off	On	Off	3-Belgium [274]	3-Austria/ Germany [273]
Off	Off	On	On	4-Brazil [275]	4-Belgium [274]
Off	On	Off	Off	5-Canada/ France [276]	5-Brazil [275]
Off	On	Off	On	6-Denmark/ Norway [277]	6-Canada/ France [276]
Off	On	On	Off	7-Finland/ Sweden [278]	7-Denmark/ Norway [277]
Off	On	On	On	8-France [297]	8-Denmark/ Norway (alt.) [287]
On	Off	Off	Off	9-Italy [280]	9-Finland/ Sweden [278]
On	Off	Off	On	10-Japan [281]	10-Finland/ Sweden (alt.) [288]
On	Off	On	Off	11-Japan/ England [037]	11-France [297]
On	Off	On	On	12-Portugal [282]	12-France (alt.) [297]

DIP Switches 5 through 8: Host Default Country Character Set (continued)

Switch 5	Switch 6	Switch 7	Switch 8	Twinax	Coax
On	On	Off	Off	13-Spain [284]	13-Austria/ Germany (alt.) [286]
On	On	Off	On	14-Latin America [284]	14- Multinational [500]
On	On	On	Off	15-United Kingdom [285]	15-Italy [280]
On	On	On	On	00- Multinational [500]	16-Japan/ England [037]

Making the External Coax/Twinax Adapter Backward Compatible

This section describes how to return the external adapter to the factory default setting for the standard printers, which is backward compatible with the Intermec twinax card (Part No. 057029-004) and the Intermec coax card (Part No. 057026-004). These older cards used a modified version of the Latin 1 code page (referred to as Intermec compatible Latin 1) to translate ASCII data to EBCDIC data. If you have created label formats for these older cards and then installed the external adapter, the following procedure will set the external adapter so that your existing label formats will work.

Note: *If installing the external adapter for the first time instead of replacing an older card, select IBM Latin 1 or Code Page 850 as the code page for the external adapter. These code pages match the way IBM translates its character sets.*

Duplicating the Coax/Twinax Card Original Functions

The Coax/Twinax Interface has a Backwards Compatible mode that passes only printable characters using the Intermec Compatible Latin 1 in multinational and ignores all IBM EBCDIC commands. This mode duplicates the functions of the previous interfaces but supports no new features.

The Backwards Compatible mode is activated by placing the Rotary Switch into position “C”. The switch is continuously monitored for this setting so that the operator could move between “C” and “A” to select this position for different print jobs, if desired.

Note that by enabling this mode, not all of the added features of the Coax/Twinax interface are available. These include features such as: full language translations, user loadable tables, user strings, ASCII dump, parsing, command-pass-thru, and download commands.

Thus, if a download command is to be used (for example, to select the Coax IR timeout) the switch must be in a position other than “C” (such as “A”) to function. Configure the printer interface for all settings such as the Twinax Address as described previously in this manual, then move the switch to “C” to operate the printer in Backwards Compatible mode.

To emulate the Intermec twinax card (Part No. 057029-004)

1. Set the DIP switches and jumpers to the following settings:

Switch/Jumper	Setting	Description
DIP switch 1	On	Serial port
DIP switch 2	Off	Intermec compatible Latin 1
DIP switches 3 and 4	Off	Printer ID 5256
Jumper 9	Open	19200 baud

2. Set the rotary switch to position C and turn on the printer.
3. While the LED is displaying a three-flash pattern, set the rotary switch to position 0. With DIP switch 2 off, this rotary switch setting sets the printer character set to Intermec compatible Latin 1.
4. Turn off the printer.

- Set the rotary switch to position 8 and turn on the printer. The external adapter will reset to the DIP switch and jumper settings and the printer will print the configuration label. The configuration label will have the following information:

```

INTERMEC MINIDX Twinax
© 1998 SDE
Software REV X.X
Address 0
Emulation 5256
Host Language INTERMEC
Control Code Parse = Yes
Character Set = INTERMEC
ROM OK    RAM OK

```

- Keep the configuration label and turn off the printer.
- Use the rotary switch to set the twinax address and turn on the printer.
- Turn off the printer, set the rotary switch to position A, and turn on the printer.
- If you want to use a language character set other than multinational, set the IBM language translation and the printer language selection to the language you want. For help, see the printer user's manual.

To emulate the Intermec coax card (Part No. 057026-004)

- Set the DIP switches and jumpers to the following settings:

Switch/Jumper	Setting	Description
DIP switch 1	On	Serial port
DIP switch 2	Off	Intermec compatible Latin 1
DIP switches 3 and 4	Off	Coax buffer size of 1920
Jumper 9	Closed	9600 baud

- Set the rotary switch to position C and turn on the printer.
- While the LED is displaying a three-flash pattern, set the rotary switch to position 0. With DIP switch 2 off, this rotary switch setting sets the printer character set to Intermec compatible Latin 1.
- Turn off the printer.

5. Set the rotary switch to position 8 and turn on the printer. The external adapter will reset to the DIP switch and jumper settings and the printer will print the configuration label. The configuration label will have the following information:

```
INTERMEC MINIDX Coax
© 1998 SDE
Software REV X.X
Coax Buffer Size 1920
Host Language INTERMEC
IR Timeout = 120 * 5 secs.
Control Code Parse = Yes
Character Set = INTERMEC
ROM OK      RAM OK
```

6. Keep the configuration label and turn off the printer.
7. Turn off the printer, set the rotary switch to position A, and turn on the printer.
8. If you want to use a language character set other than multinational, set the IBM language translation and the printer language selection to the language you want. For help, see the printer user's manual.

Setting the External Coax/Twinax Adapter to Use IBM Latin 1

To set the external coax/twinax adapter for the IBM Latin 1 code page, you must:

- Set jumper 9 to closed.
- Set DIP switch 1 to the on position.
- Set DIP switch 2 to the on position.
- Set the rotary switch to position C then position 0.

Use this setting when you set the host default country character set on the external adapter. If you set the country character set on the external adapter, do not enable IBM translation or select the language on the printer.



Translation Tables and Code Pages

This appendix covers the translation tables from EBCDIC to ASCII and the following code pages: IBM Latin 1, Roman 8, Code Page 850, and Code Page 437.

Translation Tables

The following tables provide character translation between EBCDIC and ASCII. The top row is the most significant EBCDIC hexadecimal character and the left column is the least significant EBCDIC hexadecimal character. The hexadecimal codes in the body of the text are the ASCII codes and the ASCII characters are in the parenthesis.

For example, using the next table, the EBCDIC and ASCII hexadecimal codes for the @ character are 7C (EBCDIC) and 40 (ASCII).

EBCDIC Code Page 037 to ASCII Code Page Latin 1 for SCS (Coax LU1 and Twinax)

	4	5	6	7	8	9	A	B	C	D	E	F
0	20 (&)	26 (-)	2D (ø)	F8 (Ø)	D8 (°)	B0 (μ)	B5 (°)	5E (°)	7B (ì)	7D (ì)	5C (\)	30 (0)
1	23 (é)	E9 (/)	2F (É)	C9 (É)	61 (a)	6A (j)	7E (°)	A3 (£)	41 (A)	4A (J)	20 (1)	31 (1)
2	E2 (â)	EA (è)	C2 (Å)	CA (É)	62 (b)	6B (k)	73 (s)	A5 (¥)	42 (B)	4B (K)	53 (S)	32 (2)
3	E4 (ä)	EB (ë)	C4 (Ä)	CB (Ë)	63 (c)	6C (l)	74 (t)	B7 (•)	43 (C)	4C (L)	54 (T)	33 (3)
4	E0 (à)	E8 (è)	C0 (À)	C8 (È)	64 (d)	6D (m)	75 (u)	A9 (©)	44 (D)	4D (M)	55 (U)	34 (4)
5	E1 (á)	ED (í)	C1 (Á)	CD (Í)	65 (e)	6E (n)	76 (v)	A7 (§)	45 (E)	4E (N)	56 (V)	35 (5)
6	E3 (ã)	EE (î)	C3 (Ã)	CE (Ï)	66 (f)	6F (o)	77 (w)	B6 (¶)	46 (F)	4F (O)	57 (W)	36 (6)
7	E5 (å)	EF (ï)	C5 (Å)	CF (Ï)	67 (g)	70 (p)	78 (x)	BC (¼)	47 (G)	50 (P)	58 (X)	37 (7)
8	E7 (ç)	EC (ì)	C7 (Ç)	CC (Ï)	68 (h)	71 (q)	79 (y)	BD (½)	48 (H)	51 (Q)	59 (Y)	38 (8)
9	F1 (ñ)	DF (ß)	D1 (Ñ)	60 (°)	69 (i)	72 (r)	7A (z)	BE (¾)	49 (I)	52 (R)	5A (Z)	39 (9)
A	A2 (ø)	21 (!)	A6 (ì)	3A (:)	AB («)	AA (°)	A1 (j)	5B (l)	AD (-)	B9 (¹)	B2 (²)	B3 (³)
B	2E (.)	24 (\$)	2C (.)	23 (#)	BB (»)	BA (°)	BF (¿)	5D (l)	F4 (ô)	FB (û)	D4 (Ô)	DB (Û)
C	3C (<)	2A (*)	25 (%)	40 (@)	F0 (ð)	E6 (æ)	D0 (Ð)	AF (°)	F6 (ö)	FC (ü)	D6 (Ö)	DC (Û)
D	28 (O)	29 (O)	5F (_)	27 (°)	FD (ý)	B8 (.)	DD (Ý)	A8 (°)	F2 (ò)	F9 (ù)	D2 (Ò)	D9 (Û)
E	2B (+)	3B (:)	3E (>)	3D (=)	FE (P)	C6 (Æ)	DE (p)	B4 (°)	F3 (ó)	FA (ú)	D3 (Ó)	DA (Û)
F	7C (l)	AC (¬)	3F (?)	22 (°)	B1 (±)	A4 (æ)	AE (®)	D7 (x)	F5 (ö)	FF (ÿ)	D5 (Ö)	20 (0)

EBCDIC Code Page 037 to ASCII Code Page 850 for SCS (Coax LU1 and Twinax)

	4	5	6	7	8	9	A	B	C	D	E	F
0	20 (&)	26 (-)	2D (ø)	9B (Ø)	9D (°)	F8 (μ)	E6 (´)	5E (¡)	7B (¡)	7D (¡)	5C (\)	30 (0)
1	20 (é)	82 (/)	2F (É)	90 (a)	61 (j)	6A (˘)	7E (£)	9C (A)	41 (J)	4A (J)	20 (1)	31 (1)
2	83 (â)	88 (è)	B6 (Å)	D2 (Ê)	62 (b)	6B (k)	73 (s)	BE (¥)	42 (B)	4B (K)	53 (S)	32 (2)
3	84 (ä)	89 (ë)	8E (Ä)	D3 (Ë)	63 (c)	6C (l)	74 (t)	FA (•)	43 (C)	4C (L)	54 (T)	33 (3)
4	85 (à)	8A (è)	B7 (À)	D4 (È)	64 (d)	6D (m)	75 (u)	9F (f)	44 (D)	4D (M)	55 (U)	34 (4)
5	A0 (á)	A1 (í)	B5 (Á)	D6 (Í)	65 (e)	6E (n)	76 (v)	F5 (§)	45 (E)	4E (N)	56 (V)	35 (5)
6	C6 (ā)	8C (î)	C7 (Ā)	D7 (Ī)	66 (f)	6F (o)	77 (w)	F4 (¶)	46 (F)	4F (O)	57 (W)	36 (6)
7	86 (â)	8B (ï)	8F (Ā)	D8 (Ī)	67 (g)	70 (p)	78 (x)	AC (¼)	47 (G)	50 (P)	58 (X)	37 (7)
8	87 (ç)	8D (ì)	80 (Ç)	DE (Ĭ)	68 (h)	71 (q)	79 (y)	AB (½)	48 (H)	51 (Q)	59 (Y)	38 (8)
9	A4 (ñ)	E1 (ß)	A5 (Ñ)	60 (˘)	69 (i)	72 (r)	7A (z)	F3 (¾)	49 (I)	52 (R)	5A (Z)	39 (9)
A	BD (ø)	21 (!)	DD (!)	3A (:)	AE («)	A6 (°)	AD (j)	5B (l)	F0 (-)	D5 (1)	FD (?)	FC (?)
B	2E (.)	24 (\$)	2C (.)	23 (#)	AF (»)	A7 (°)	A8 (¿)	5D (l)	93 (ò)	96 (ù)	E2 (Ô)	EA (Û)
C	3C (<)	2A (*)	25 (%)	40 (@)	D0 (ð)	91 (æ)	D1 (Ð)	EE (˘)	94 (ö)	81 (ü)	99 (Ö)	9A (Ü)
D	28 (O)	29 (O)	5F (_)	27 (´)	EC (ý)	F7 (_)	ED (Ý)	F9 (˘)	95 (ò)	97 (ù)	E3 (Ô)	EB (Û)
E	2B (+)	3B (:)	3E (>)	3D (=)	E8 (P)	92 (Æ)	E7 (p)	EF (˘)	A2 (ó)	A3 (ú)	E0 (Ó)	E9 (Û)
F	7C (l)	5E (˘)	3F (?)	22 (˘)	F1 (±)	CF (æ)	A9 (®)	F2 (-)	E4 (ö)	98 (ÿ)	E5 (Ö)	20 (0)

EBCDIC to ASCII Code Page 850 for DSC (Coax LU3)

	0	1	2	3	4	5	6	7	8	9	A	B
0	00	20 (0)	30 (0)	26 (&)	85 (à)	84 (ä)	B7 (À)	8E (Ä)	61 (a)	71 (q)	41 (A)	51 (Q)
1	00	3D (=)	31 (1)	2D (-)	8A (è)	89 (ë)	D4 (È)	D3 (Ë)	62 (b)	72 (r)	42 (B)	52 (R)
2	00	27 (')	32 (2)	2E (.)	8D (ì)	8B (ï)	DE (Ì)	D8 (Ï)	63 (c)	73 (s)	43 (C)	53 (S)
3	00	22 ("')	33 (3)	2C (,)	95 (ò)	94 (ö)	E3 (Ö)	99 (Ï)	64 (d)	74 (t)	44 (D)	54 (T)
4	00	2F (/)	34 (4)	3A (:)	97 (ù)	81 (ü)	EB (Û)	9A (Ü)	65 (e)	75 (u)	45 (E)	55 (U)
5	00	5C (\)	35 (5)	2B (+)	C6 (ã)	83 (â)	C7 (Ā)	B6 (Ā)	66 (f)	76 (v)	46 (F)	56 (V)
6	00	7C (l)	36 (6)	AA (l)	E4 (ô)	88 (è)	E5 (Ï)	D2 (Ê)	67 (g)	77 (w)	47 (G)	57 (W)
7	00	DD (l)	37 (7)	EE (-)	98 (ÿ)	8C (î)	59 (Y)	D7 (Î)	68 (h)	78 (x)	48 (H)	58 (X)
8	3E (>)	3F (?)	38 (8)	F8 (°)	85 (à)	93 (ô)	41 (A)	E2 (Ï)	69 (i)	79 (y)	49 (I)	59 (Y)
9	3C (<)	21 (!)	39 (9)	00	8A (è)	96 (û)	45 (E)	EA (Û)	6A (j)	7A (z)	4A (J)	5A (Z)
A	5B (l)	24 (\$)	E1 (B)	5E (^)	82 (é)	A0 (á)	45 (E)	B5 (Á)	6B (k)	91 (æ)	4B (K)	92 (Æ)
B	5D (l)	BD (ø)	F5 (§)	7E (~)	8D (ì)	82 (é)	49 (I)	90 (É)	6C (l)	9B (ø)	4C (L)	9D (Ø)
C	29 (l)	9C (£)	23 (#)	F9 (^)	95 (ò)	A1 (í)	4F (O)	D6 (Í)	6D (m)	86 (â)	4D (M)	8F (Ā)
D	28 (l)	BE (¥)	40 (@)	60 (^)	97 (ù)	A2 (ó)	55 (U)	E0 (Ó)	6E (n)	87 (ç)	4E (N)	80 (Ç)
E	7D (l)	FA (•)	25 (%)	EF (^)	81 (ü)	A3 (ú)	59 (Y)	E9 (Ú)	6F (o)	3B (:)	4F (O)	3B (:)
F	7B (l)	CF (œ)	5F (_)	F7 (,)	87 (ç)	A4 (ñ)	43 (C)	A5 (Ñ)	70 (p)	2A (*)	50 (P)	2A (*)

EBCDIC Code Page 037 to ASCII Code Page 437 for SCS (Coax LU1 and Twinax)

	4	5	6	7	8	9	A	B	C	D	E	F
0	20 (&)	26 (-)	2D (Y)	ED (=)	CD (°)	F8 (µ)	E6 (´)	5E (¡)	7B (¡)	7D (¡)	5C (\)	30 (0)
1	20 (é)	82 (/)	2F (É)	90 (a)	61 (j)	6A (˘)	7E (£)	9C (A)	41 (J)	4A (J)	20 (1)	31 (1)
2	83 (â)	88 (è)	00 (0)	00 (0)	62 (b)	6B (k)	73 (s)	9D (Ø)	42 (B)	4B (K)	53 (S)	32 (2)
3	84 (ä)	89 (ë)	8E (Å)	00 (0)	63 (c)	6C (l)	74 (t)	00 (0)	43 (C)	4C (L)	54 (T)	33 (3)
4	85 (à)	8A (è)	00 (0)	00 (0)	64 (d)	6D (m)	75 (u)	9F (f)	44 (D)	4D (M)	55 (U)	34 (4)
5	A0 (á)	A1 (í)	00 (0)	00 (0)	65 (e)	6E (n)	76 (v)	15 (§)	45 (E)	4E (N)	56 (V)	35 (5)
6	B1 (ã)	8C (î)	00 (0)	00 (0)	66 (f)	6F (o)	77 (w)	00 (0)	46 (F)	4F (O)	57 (W)	36 (6)
7	86 (â)	8B (ï)	8F (Å)	00 (0)	67 (g)	70 (p)	78 (x)	AC (¼)	47 (G)	50 (P)	58 (X)	30 (7)
8	87 (ç)	8D (ì)	80 (Ç)	00 (0)	68 (h)	71 (q)	79 (y)	AB (½)	48 (H)	51 (Q)	59 (Y)	38 (8)
9	A4 (ñ)	E1 (ß)	A5 (Ñ)	60 (´)	69 (i)	72 (r)	7A (z)	00 (0)	49 (I)	52 (R)	5A (Z)	39 (9)
A	9B (ø)	21 (!)	7C (j)	3A (:)	AE («)	A6 (°)	AD (j)	5B (l)	2D (-)	00 (0)	FD (?)	00 (0)
B	2E (.)	24 (\$)	2C (.)	23 (#)	AF (»)	A7 (°)	A8 (¿)	5D (l)	93 (ô)	96 (û)	00 (0)	00 (0)
C	3C (<)	2A (*)	25 (%)	40 (@)	00 (0)	91 (æ)	00 (0)	C4 (-)	94 (ö)	81 (ü)	99 (Ö)	9A (Ü)
D	28 (o)	29 (o)	5F (_)	27 (´)	00 (0)	00 (0)	00 (0)	D4 (È)	95 (ò)	97 (ù)	00 (0)	00 (0)
E	2B (+)	3B (:)	3E (>)	3D (=)	00 (0)	92 (Æ)	00 (0)	27 (´)	A2 (ó)	A3 (ú)	00 (0)	00 (0)
F	7C (l)	5E (´)	3F (?)	22 (´)	F1 (±)	EC (ý)	00 (0)	00 (0)	CB (ÿ)	98 (ÿ)	00 (0)	20 (0)

IBM Latin 1

The following table shows the character set that prints if you select IBM Latin 1 with the multinational country character set.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
(SP) 40	(RSP) 41	â 42	ä 43	à 44	á 45	ã 46	å 47	ç 48	ñ 49	[4A	. 4B	< 4C	(4D	+ 4E	! 4F
& 50	é 51	ê 52	ë 53	è 54	í 55	î 56	ï 57	ì 58	ß 59] 5A	\$ 5B	* 5C) 5D	; 5E	^ 5F
- 60	/ 61	Â 62	Ä 63	À 64	Á 65	Ã 66	Å 67	Ç 68	Ñ 69	 6A	, 6B	% 6C	_ 6D	> 6E	? 6F
ø 70	É 71	Ê 72	Ë 73	È 74	Í 75	Î 76	Ï 77	Ì 78	´ 79	: 7A	# 7B	@ 7C	' 7D	= 7E	" 7F
Ø 80	a 81	b 82	c 83	d 84	e 85	f 86	g 87	h 88	i 89	« 8A	» 8B	ð 8C	ý 8D	± 8E	± 8F
° 90	j 91	k 92	l 93	m 94	n 95	o 96	p 97	q 98	r 99	á 9A	ó 9B	æ 9C	, 9D	Æ 9E	¤ 9F
µ A0	~ A1	s A2	t A3	u A4	v A5	w A6	x A7	y A8	z A9	í AA	¿ AB	Ð AC	Ý AD	® AE	® AF
¢ B0	£ B1	¥ B2	• B3	© B4	§ B5	¶ B6	¼ B7	½ B8	¾ B9	¬ BA	¦ BB	- BC	¨ BD	' BE	x BF
{ C0	A C1	B C2	C C3	D C4	E C5	F C6	G C7	H C8	I C9	^{SHY} CA	ô CB	ö CC	ò CD	ó CE	õ CF
} D0	J D1	K D2	L D3	M D4	N D5	O D6	P D7	Q D8	R D9	¹ DA	û DB	ü DC	ù DD	ú DE	ÿ DF
\ E0	÷ E1	S E2	T E3	U E4	V E5	W E6	X E7	Y E8	Z E9	² EA	Ô EB	Ö EC	Ò ED	Ó EE	Õ EF
0 F0	1 F1	2 F2	3 F3	4 F4	5 F5	6 F6	7 F7	8 F8	9 F9	³ FA	Û FB	Ü FC	Ù FD	Ú FE	(BO) FF

COAXTWIN.010

Roman 8

The following table shows the character set that prints if you select Roman 8 character set.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	
20	!	"	#	\$	%	&	'	()	*	+	,	-	•	/	
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	
60	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	☒
80																
90																
A0	À	Á	Â	Ã	Ä	Å	Ā	Ă	Ą	Ȧ	Ȧ	ˆ	ˆ	ˆ	ˆ	£
B0	–	Ÿ	ý	°	Ç	ç	Ñ	ñ	ı	ı	ı	£	¥	§	f	¢
C0	â	ê	ô	û	á	é	ó	ú	à	è	ò	ù	ä	ë	ö	ü
D0	Å	î	ø	Æ	å	í	ø	æ	Ä	ì	Ö	Ü	É	ï	ß	Ô
E0	Á	Ã	ã	Đ	đ	Í	ì	Ó	Ò	Õ	õ	Š	š	Ú	ÿ	ÿ
F0	ƒ	ƒ	•	µ	¼	–	¼	½	ª	º	«	■	»	±		

COAXTWIN.009

Code Page 850

This table shows the character set that prints if you select Code Page 850 as the printer character set.

00	☺	☹	♥	♠	♣	♣	●	◻	○	◼	♂	♀	🎵	🎶	☀
01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
▶	◀	↕	⚡	¶	§	▬	↕	↑	↓	→	←	L	↔	▲	▼
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	!	"	#	\$	%	&	'	()	•	+	,	-	.	/
21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F	
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	-
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
p	q	r	s	t	u	v	w	x	y	z	{		}	~	⏏
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F
Ç	ü	é	â	ä	à	ç	ê	ë	è	ï	î	ì	Ä	Å	
80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	X	f
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
á	í	ó	ú	ñ	Ñ	ã	õ	¿	®	¬	½	¼	¡	«	»
A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
					Á	Â	Ã	©	¶		¶	¶	¶	¥	¬
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
L	┴	┴	┴	—	+	ã	Ã	⌘	⌘	⌘	⌘	⌘	⌘	⌘	⌘
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
ð	Ð	Ê	Ë	È	Ì	Í	Î	Ï	⌘	⌘	⌘	⌘	⌘	⌘	⌘
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
Ó	ß	Ô	Ò	õ	Õ	μ	þ	p	Ú	Û	Ù	Ý	Ý	-	'
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
-	±	=	¾	¶	§	÷	•	◦	••	•	1	3	2	■	
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

COAXTWIN.012

Code Page 437

This table shows the character set that prints if you select Code Page 437 as the printer character set.

00	☺	☹	♥	♠	♣	♣	●	◻	○	◉	♂	♀	🎵	🎶	☀	
10	▶	◀	↕	⋈	¶	§	▬	↕	↑	↓	→	←	↔	▲	▼	
(SP)	!	"	#	\$	%	&	'	()	•	+	,	-	.	/	
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	-
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	⏏
80	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	¥	Pts	f
A0	á	í	ó	ú	ñ	Ñ	ã	õ	¿	¬	½	¼	í	«	»	
B0					†	‡	¶	π	≡	≠	≡	≡	≡	≡	≡	
C0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	
D0	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	⊥	
E0	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	∅	ε	∩
F0	≡	±	≥	≤		J	÷	≈	◦	•	•	√	n	2	■	(RSP)
																FF

COAXTWIN.011

Changes to Intermec Compatible Latin 1 for Different Countries

The following table shows the changes to Intermec compatible Latin 1 when you select different country character sets.

	4F	7B	5B	7C	4A	E0	5A	5F	79	C0	6A	D0	A1
U.S.A./ Canada		#	\$	@	¢	\	!	¬	`	{		}	~
United Kingdom		#	£	@	\$	\	!	¬	`	{		}	-
Austria/ Germany	!	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
France/ Belgium/ Canada (French)	!	£	\$	à	°	ç	§	^	`	é	ù	è	¨
Denmark/ Norway	!	Æ	Å	Ø	#	\	¤	^	`	æ	ø	å	ü
Finland/ Sweden	!	Ä	Å	Ö	§	É	¤	^	é	ä	ö	å	ü
Spain/Latin America/ Portugal/ Brazil		Ñ	R	@	[\]	¬	`	{	ñ	}	¨
Italy	!	£	\$	§	°	ç	é	^	ù	à	ò	è	ì



Index

A

- about this manual, xii
- address, twinax, 1-12, 1-15, 3-5
- alternate command identifier, 2-10
- ASCII
 - Buffer Hex Dump, 1-16, 5-5
 - code pages, EBCDIC conversion, 2-13, 3-8
 - control code parsing, 2-8, 3-9
 - EBCDIC translation tables, B-4 to B-7

B

- backward compatibility, A-7
- baud rate, 1-9
- beginning delimiter characters, 2-9
- Buffer Hex Dump
 - ASCII, 1-16, 5-5
 - EBCDIC, 1-16, 2-11, 3-10, 5-4
 - host, starting at, 5-5
 - printer, starting at, 5-4
- buffer size, 2-5

C

- cables, 1-11
- chapter overview, xii
- CICS print program, 4-14 to 4-17
- CLP program, 4-7
- Coax mode
 - commands
 - alternate command identifier, 2-10
 - ASCII control code parsing, 2-8
 - beginning delimiter characters, 2-9
 - buffer hex dump, 2-11
 - buffer size, 2-5
 - character set selection, 2-13
 - characters by country, 2-6
 - custom user strings, 2-12
 - ending delimiter characters, 2-9
 - intervention required timeout, 2-8
 - introducing, 2-3
 - list of, 2-4
 - override format commands, 2-7
 - overwrite EBCDIC (DSC/LU3) translation table, 2-14
 - overwrite EBCDIC (SCS/LU1) translation table, 2-14
 - print case, 2-5

- Coax mode, (continued)
 - commands, (continued)
 - restore factory defaults, print self test, or restore previously defined settings, 2-15
 - save configuration in nonvolatile memory, 2-15
 - SCS TRN translate, 2-11
 - sending multiple commands, 2-4
 - syntax, 2-3
 - connecting to a system, 1-11
 - printer emulation, 1-4
 - system relationship, 1-4
- COBOL program generation, 4-18
- code page 437
 - DIP switch settings, A-4
 - illustration, B-11
- code page 850
 - DIP switch settings, A-4
 - illustration, B-10
- code pages for IBM translation, 1-13, 2-13, 3-8
 - code page 437, B-11
 - code page 850, B-10
 - DIP switch settings, A-4
 - IBM Latin 1, B-8
 - Roman 8, B-9
- Command Pass-Thru
 - alternate CPT end delimiter, 3-5
 - alternate CPT start delimiter, 3-5
 - beginning delimiter characters, 2-9
 - ending delimiter characters, 2-9
 - using, 2-16, 3-13
- commands
 - Coax mode, 2-4
 - sending multiple commands, 2-4, 3-4
 - syntax, 2-3, 3-3
 - Twinax mode, 3-4
- common problems, 4-5, 5-7
- communications
 - printer not communicating with host, 5-8
 - setting up, 1-12
 - testing, 1-17
- communications protocol, 1-9
- configuration requirements for print programs, 4-3
- connecting to a system, 1-11
 - Coax mode, 1-11
 - Twinax mode, 1-12

- connecting to your printer, 1-9
- control character
 - format, 4-4
 - sending, 4-4
- country character set
 - coax command, 2-6
 - code pages, 1-13
 - DIP switch settings, A-6
 - selecting, 1-13
 - twinax command, 3-7
 - with Intermec compatible Latin 1, B-12
- custom user strings, 2-12, 2-17

D

- data bits, 1-9
- data file, downloading, 1-18
- default settings, 1-3
 - code pages, 1-13
 - DIP switches, A-4
 - restoring, 1-15, 2-15, 3-11
 - serial communications, 1-9
- DEM44C, 4-6
- diagnostic loopback test, 1-17, 5-6
- DIP switches
 - default settings, A-4
 - switch 1, A-4
 - switch 2, A-5
 - switches 3 and 4, A-5
 - switches 5 through 8, A-6
- display program, 4-8

E

- EBCDIC
 - ASCII translation tables, B-4 to B-7
 - Buffer Hex Dump, 1-16, 2-11, 3-10, 5-4
 - code pages, ASCII conversion, 2-13, 3-8
 - command override, 1-16
 - overwrite (DSC/LU3) translation table, 2-14
 - overwrite (SCS/LU1) translation table, 2-14
 - overwrite translation table, 3-10
- ending delimiter characters, 2-9
- external coax/twinax adapter
 - advanced features, 2-16
 - backward compatibility, A-7
 - cables, 1-11
 - connecting to a system, 1-11

- external coax/twinax adapter (continued)
 - connecting to printer, 1-9
 - default settings, 1-3
 - illustration, 1-7
 - introducing, 1-3
 - operation, 1-9
 - parts and function, 1-6
 - power supplies, 1-3
 - self-test, 1-15, 5-3

F, I

- factory default settings, 1-3
 - code pages, 1-13
 - DIP switches, A-4
 - restoring, 1-15, 2-15, 3-11
 - serial communications, 1-9
- format commands, override, 2-7
- IBM Latin 1
 - DIP switch settings, A-4
 - illustration, B-8
- IBM motion command, 3-9
- IBM translation
 - choosing code pages, 2-13, 3-8
 - choosing code pages for, 1-13
 - tables, B-4 to B-7
- IMS print program, 4-17
- Intermec compatible Latin 1
 - country character set changes, B-12
 - DIP switch settings, A-4
 - using, A-7
- Intermec web address, xiii
- intervention required timeout, 2-8

J

- jumper 3, setting, A-3
- jumper 9, setting, A-3

L

- label data, formatting, 4-4
- labels
 - designing, 4-5
 - formatting data, 4-4
 - printing on demand, 4-6
- language
 - coax command, 2-6
 - code pages, 1-13

- language (continued)
 - selecting, 1-13
 - twinax command, 3-7
- Latin 1, *See* IBM Latin 1 or Intermec compatible Latin 1
- LED
 - does not come on, 5-7
 - flashing, 5-7
 - understanding, 1-14
- light, *See* LED
- loopback test, diagnostic, 1-17, 5-6

M, N, O

- MFS format generation, 4-17
- nonvolatile memory, 2-15, 3-12
- operating the external adapter, 1-9
- other manuals, xiii
- override format commands, 2-7

P

- parity, 1-9
- parts, defined, 1-6
- power supplies, 1-3
- print case, 2-5
- print programs
 - requirements, 4-3 to 4-5
 - RPG, 4-6 to 4-13
- print self test, 2-15, 3-11
- printer commands, sending, 4-4
- printer does not print, 5-8
- printer emulation
 - Coax mode, 1-4
 - DIP switch settings, A-5
 - Twinax mode, 1-4, 3-8
- printer loses host communications, 5-8
- Printer Not Ready, 5-8
- printer-specific command sequences, using, 2-16, 3-13
- printing labels
 - common problems, 4-5
 - formatting label data, 4-4
 - on demand from host, 4-6
- protocol, communications, 1-9

R

- restore previously defined settings, 2-15, 3-11
- Roman 8
 - DIP switch settings, A-4
 - illustration, B-9
- rotary switch, 1-15
- RPG print program
 - about, 4-6
 - example, 4-7 to 4-13
 - specifications, 4-6

S

- safety summary, xi
- save configuration in nonvolatile memory, 2-15, 3-12
- SCS Transparent Data mode, 2-17
- SCS TRN translate, 2-11
- self-test, 1-15, 5-3
- sending a control character, 4-4
- serial communications settings, 1-9
- Simple Backwards Compatible mode, 1-16
- stop bit, 1-9

T

- technical support, 5-3
- testing host communication, 1-17
- transparent data transmission, 2-17
- Twinax mode
 - address, 3-5
 - commands
 - alternate CPT end delimiter, 3-5
 - alternate CPT start delimiter, 3-5
 - ASCII control code parsing, 3-9
 - buffer hex dump, 3-10
 - character set, 3-8
 - host country character set, 3-7
 - IBM motion command, 3-9
 - IBM printer emulation, 3-8
 - introducing, 3-3
 - list of, 3-4
 - overwrite EBCDIC translation table, 3-10
 - restore factory defaults, print self test, or restore previously defined settings, 3-11
 - save current settings, 3-12
 - sending multiple commands, 3-4
 - syntax, 3-3

- Twinax mode (continued)
 - commands (continued)
 - twinax address, 3-5
 - user-defined strings, 3-6
 - connecting to a system, 1-12
 - diagnostic, 1-17, 5-6
 - setting the twinax address, 1-12, 1-15
 - system relationship, 1-5
 - user-defined command strings, 3-12

U, W

- user-defined command strings, 3-12
- user-defined strings, 3-6
- warranty information, xi

