

# PRINTRONIX®

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IPDS™ Emulation  
*Programmer's Reference Manual*

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*Line Matrix Series Printers*

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# 1 *Introduction*

## About This Guide

This manual contains the IPDS\* configuration menu, lists the command sets and provides error messages.

This manual assumes you are familiar with IPDS and programming in IPDS. This book is not a tutorial, it does not explain how to program nor does it describe which applications support which commands. For detailed information, refer to the list below.

### Sources of Useful IBM Information

- *IBM\* Intelligent Printer Data Stream\* Reference*
- *IBM System/36 Concepts and Programmer's Guide*
- *IBM System/38 Guide to Program Product Installation and Device Configuration*
- *Forms Design Reference Guide for Printers*
- *IBM 9370 Information System: Customizing the Work Station Subsystem*
- *IBM 9370 Information System: Work Station Subsystem and Reference*
- *IBM AS/400\* Programming: Data Management Guide*
- *4234 Printer Models 007, 008, 011, and 012 Product and Programming Description*
- *Guide to Programming for Printing, Version 2*

### Warnings and Special Information

For your safety and to protect valuable equipment, it is very important that you read and comply with all information highlighted under special headings:

**WARNING**      Conditions that could harm you as well as damage the equipment.

**CAUTION**      Conditions that could damage the printer or related equipment.

**IMPORTANT**    Information vital to proper operation of the printer.

**NOTE:** Information and helpful tips about printer operation.

## Compatible System Attachments

With a twinax interface, you can attach your IPDS-compatible printer to the following systems:

- System/36 (SSP 5.1 plus IPDS PRPQ P84094)
- System/38 (with Rel. 8 System/38 Control Program Facility)
- AS/400 processor
- 5294/5394/5494 control units

**NOTE:** The coax IPDS emulation is currently not available.

IPDS characteristics available on each of the above attachments are not completely uniform, but the emulation printers are fully functional on these attachments as provided by the host vendor.

IPDS can also be supported with a network interface which is protocol compatible to the twinax IPDS.

## Defining IPDS

IPDS is both a protocol and a printer mode. The two terms do *not* mean the same thing.

### The Protocol

A protocol is a set of rules governing the exchange of information between the printer and the host computer. The rules are codes that manipulate and print data and allow for machine-to-machine communication. A printer and the host computer must use the same protocol.

IPDS is the protocol for your printer. Refer to your IBM documentation for details about commands, etc.

The printer uses EBCDIC character codes to print text, numbers, and punctuation. Some EBCDIC characters, singly and in groups, are used as control codes. Control codes instruct the printer to perform specific functions.

### The Printer Environment

The printer operates under "IPDS" (text and graphics) mode. In the IPDS mode, the data stream has special sequences to denote IPDS commands.

### Emulations and Data Streams

Your Line Matrix IPDS printer emulates only IBM 4234 twinax models 008 and 012.

Twinax printers always use IPDS data streams for sending commands. Even a simple job, such as a screen print, is IPDS data in a twinax attachment.

Because the printer definition on a twinax host is either set automatically (by auto configuration) or manually, the printer type is already known.

**NOTE:** To print a non-IPDS data stream, make sure to terminate any outstanding IPDS print job and end the IPDS write before sending the non-IPDS print job.

# 2 **Configuring with IPDS Commands**

## **Overview**

This chapter summarizes IPDS, lists control codes, and lists error messages. For detailed information, refer to Sources of Useful IBM Information on page 5.

## **The IPDS Emulation**

IPDS consists of the following command sets, which are defined in more detail beginning on page 9.

### **The Command Sets**

Text	This set contains the commands used to present text information on a page, on a page segment, or on an overlay.
IM Image	The commands for this functional area output raster image data on a page, a page segment, or on an overlay.
IO Image	Not available.
Graphics	To present vector graphics on a page, a page segment or on an overlay, use the commands in this set.
Barcode	This set contains the commands and data controls needed to produce barcodes.
Page Segment	The commands used to store and present page segments that contain text, graphics, image, and barcode information.
Overlay	The commands used to store and present overlays that contain text, graphics, image, and barcode information.
Device Control	This set contains commands that let you set up a page and manage printer-host communication.

### **The Data Towers**

Most of the IPDS commands contain data fields. The type of data is categorized into the following data towers:

Text	The Presentation Text Object Content Architecture (PTOCA) commands are a part of the text data tower. This information is necessary to print text in a page, a page segment, or an overlay.
IM Image	The image data enables the printer to print images in a page, a page segment, or an overlay.
IO Image	This is not supported.
Graphics	The Graphic Object Content Architecture (GOCA) commands are a part of the graphics data tower. This information is necessary to print images in a page, a page segment, or an overlay.

Barcode The Barcode Object Content Architecture\* (BCOCA\*) commands are a part of the barcode data tower. This information is necessary to print barcodes in a page, a page segment, or an overlay.

Some of the data towers contain only one level of commands; some contain two.

PTOCA, GOCA, and BCOCA are described in more detail in the IBM documentation.

## The States

IPDS-capable printers are known as “state machines.” As the printer recognizes a specific command, it operates in the state identified with that command. Figure 1 shows the transition of the different states.

- Home State The initial operating state. The printer returns to this state after a page, an overlay, or a page segment has been sent.
- Block States The printer establishes the processing conditions for a data block to be accepted. There are three block states: IM image, graphics, and barcode.
- Page State While printing a logical page, the printer is in the Page State.
- Overlay State This state permits overlay data blocks to be stored. An overlay is a block of data that is frequently accessed. It can be a block of text, images, graphics, or barcodes. An overlay can be a predefined page or part of a page and is often used for forms.
- Page Segment State Page segment data is stored when the printer is in this state. A page segment is a frequently accessed resource; it can be a block of text, images, graphics, or barcodes. Page segments can be a part of an overlay.
- Any state Some commands can be received in any state.

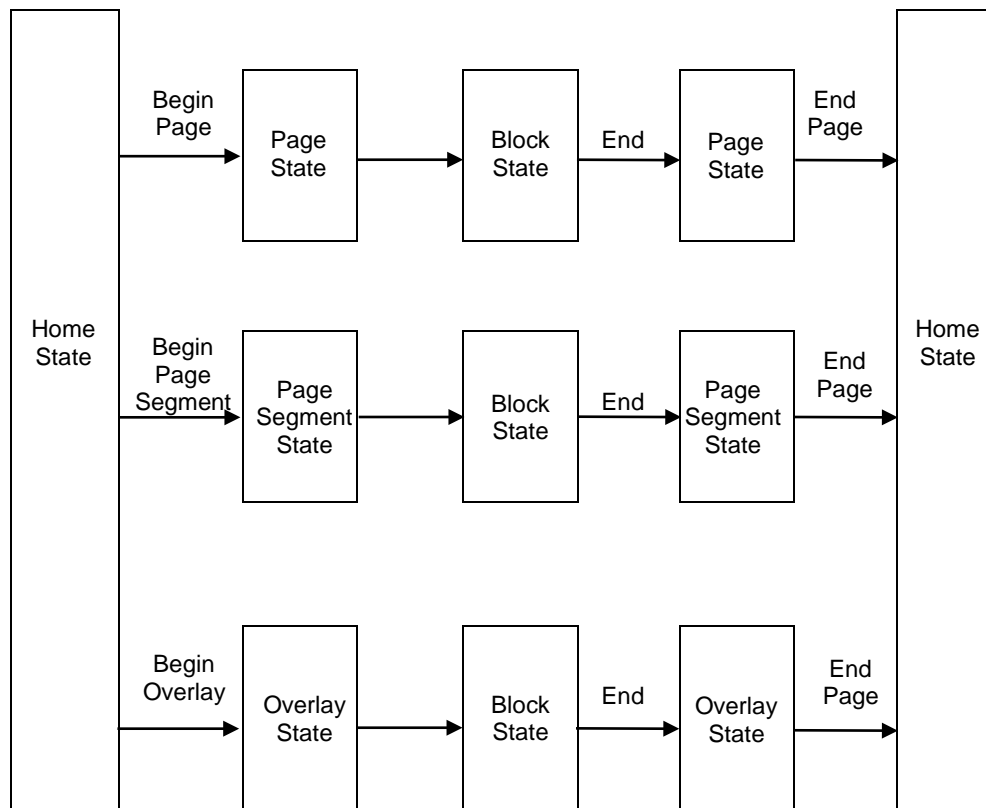


Figure 1 State Transition

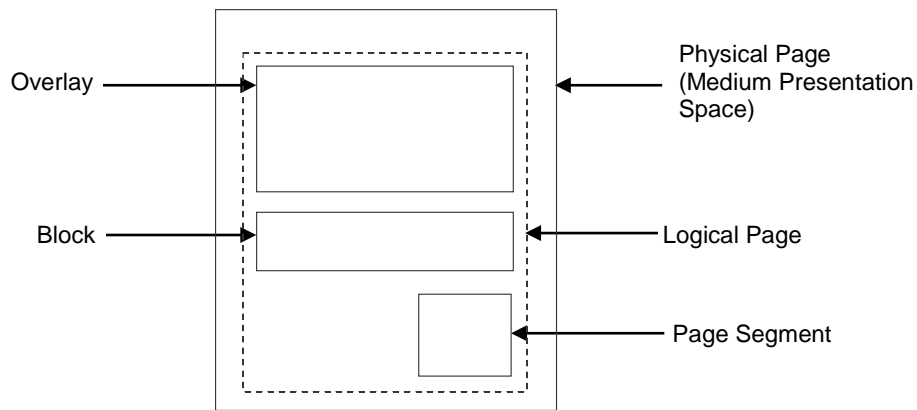


## Processing a Page

Your printer can print page by page or it can behave as a line printer. This section describes how the printer prints page by page. (The *User's Manual* explains the two printing methods in more detail.)

Your IPDS-capable printer builds a page by gathering all the page descriptor commands and data blocks that are specified in the data stream.

Page descriptor commands instruct the printer to create and position a logical page, which rests within the perimeter of the physical page.



**Figure 2 Processing a Page**

Blocks contain images, graphics, barcodes, coded fonts, and text. Each block is recognized by specific, functional commands. To print a barcode, for example, Barcode commands must be in the data stream.

As each type of data block is stored in memory, the printer moves from state to state. For example, when the printer is reading the Barcode commands, it is in the barcode state.

Once all the data has been stored, the page can be closed with an End Page command and the printer, which is now in the Home State, is ready to print the page.

## The Command Syntax

The commands on the following pages use this syntax:

<b>Byte Count</b>	<b>D6XX</b>	<b>Flag</b>	<b>CID</b>	<b>Data</b>
Byte Count				A two-byte field. Specifies the length of the command.
D6XX				A two-byte field. "D6" denotes an IPDS command; "XX" is the hex code for the IPDS command.
Flag				A one-byte field containing the IPDS command stream flags. You can request an Acknowledgement Required response from the printer in this field.
CID				Correlation ID. A two-byte field that identifies the command. If an exception (error) occurs, the printer will respond with a Negative Acknowledge Reply and the CID associated with the command.
Data				0-32760 bytes if CID is present; 0-32762 bytes if CID is not present.  This field contains parameters, orders, and data necessary for implementing the command.

## The Text Commands

The following commands are used to present text blocks in a page, a page segment, or an overlay.

### Load Equivalence (LE)

Byte	D61D	Flag	CID	Data Count
------	------	------	-----	------------

This command allows the printer to use a single suppression ID for more than one suppression pair.

### Write Text (WT)

Byte Count	D62D	Flag	CID	Presentation Text Object; Content Architecture control codes and character data
------------	------	------	-----	---

Use this command to send character data and controls to the printer. The data and controls can begin in one Write Text command chain and end in another Write Text command chain.

Controls are listed on the following pages. The first control is preceded by the escape sequence 2B D3. Subsequent controls will follow as long as the preceding code is a chained code.

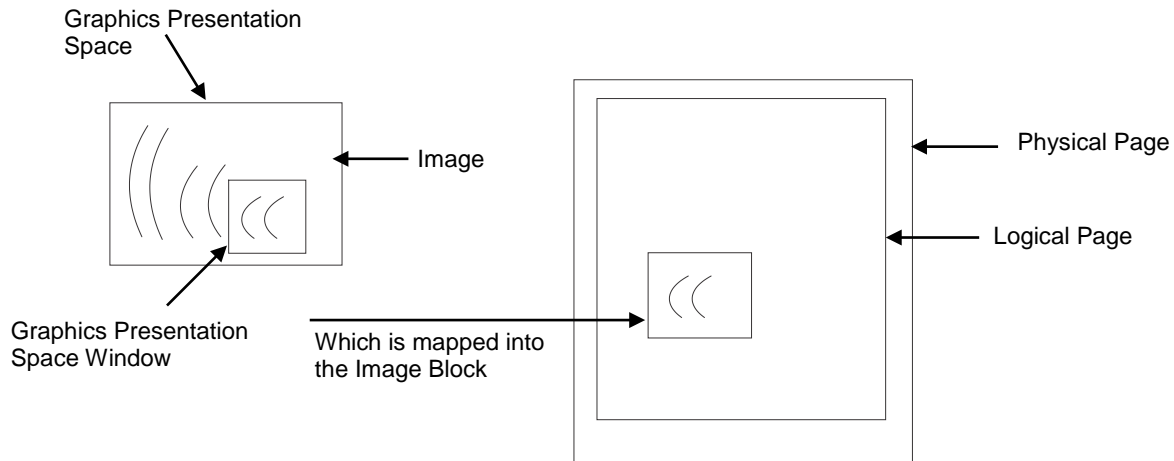
**Table 1 Control Codes**

Control Sequence	Unchained Hex Code	Chained Hex Code
Absolute Move Baseline (AMB)	D2	D3
Absolute Move Inline (AMI)	C6	C7
Begin Line (BLN)	D8	D9
Begin Suppression (BSU)	F2	F3
Draw B-Axis Rule (DBR)	E6	E7
Draw I-Axis Rule (DIR)	E4	E5
End Suppression (ESU)	F4	F5
No Operation (NOP)	F8	F9
Overstrike (OVS)	72	73
Relative Move Baseline (RMB)	D4	D5
Relative Move Inline (RMI)	C8	C9
Repeat String (RPS)	EE	EF
Set Baseline Increment (SBI)	D0	D1
Set Coded Font Local (SCFL)	F0	F1
Set Inline Margin (SIM)	C0	C1
Set Intercharacter Adjustment (SIA)	C2	C3
Set Text Color (STC)	74	75
Set Text Orientation (STO)	F6	F7
Set Variable Space Character Increment (SVI)	C4	C5
Temporary Baseline Move (TBM)	78	79
Transport Data (TRN)	DA	DB
Underscore (USC)	76	77
Absolute Move Inline (AMI)	C6	C7
Begin Line (BLN)	D8	D9
Begin Suppression (BSU)	F2	F3
Draw B-Axis Rule (DBR)	E6	E7
Draw I-Axis Rule (DIR)	E4	E5
End Suppression (ESU)	F4	F5

## Graphics

Graphics contain line drawings, such as arcs and lines.

The area containing the entire drawing is called the graphics presentation space. Usually, only a part of the drawing will be printed. This part is referred to as the graphics presentation space window.



**Figure 3 Generating Graphics**

To place the graphics presentation space window onto a logical page, it must be mapped to a graphics block on the logical page. This block can be the same size, larger, or smaller than the graphics presentation space.

When you map the window to the graphics block, you have three methods to choose from:

- Scale to fit mapping - The window will be the same size as the graphics block.
- Center and trim mapping - The window is centered inside the graphics block.
- Position and trim mapping - The window's top left corner is mapped to the graphics block and is affected by the graphics block's offset parameters.

## The Graphics Command Set

The following commands are used to present graphics in a page, a page segment, or an overlay.

### Write Graphics Control (WGC)

Byte Count	D684	Flag	CID	Graphics Area Position; Graphics Output Control; Graphics Data Descriptor
------------	------	------	-----	---

WGC specifies the graphics block position, size and orientation; it specifies the graphics presentation space window size and location inside the graphics presentation space; and it defines how the window will map into the graphics block.

### Write Graphics (WG)

<b>Byte Count</b>	<b>D685</b>	<b>Flag</b>	<b>CID</b>	<b>Begin Segment Introducer and drawing orders</b>
-------------------	-------------	-------------	------------	--

The WG command follows the Write Graphics Control command and contains information about the graphics presentation space. This data is referred to as drawing orders.

### Barcodes

Barcodes contain information that can be read by optical scanners and are widely used.

A barcode resides in a barcode presentation space, which is mapped to a barcode block that exists on the logical page. This block can be the same size, larger, or smaller than the barcode presentation space.

The entire barcode presentation space must be mapped to the barcode block; you cannot trim and cut any of the barcode presentation space.

### The Barcode Command Set

The following commands are used to present barcodes in a page, a page segment, or an overlay.

#### Write Barcode Control (WBCC)

<b>Byte Count</b>	<b>D680</b>	<b>Flag</b>	<b>CID</b>	<b>Bar Code Area Position; Bar Code Output Control; Bar Code Data Descriptor</b>
-------------------	-------------	-------------	------------	--

Use this command to set the barcode block position, size, and orientation; to set the barcode presentation size; the barcode to be used; and to set how the barcode presentation space will map into the barcode block.

#### Write Barcode (WBC)

<b>Byte Count</b>	<b>D681</b>	<b>Flag</b>	<b>CID</b>	<b>Data</b>
-------------------	-------------	-------------	------------	-------------

This command sends Barcode Object Content Architecture data to the printer and applies to only one barcode symbol. To print another barcode symbol, you must send another WBC command.

The following table displays the code and barcode type for Line Matrix printers.

Code	Barcode Type	Line Matrix	
X' 01'	Code 39 (3-of-9 Code), AIM USS-39	✓	
X' 02'	MSI (modified Plessey code)	✓	
X' 03'	UPC/CGPC--Version A	✓	
X' 05'	UPC/CGPC--Version B	✓	
X' 06'	UPC--Two-digit Supplemental (Periodicals)	✓	
X' 07'	UPC--Five-digit Supplemental (Paperbacks)	✓	
X' 08'	EAN-8 (includes JAN-short)	✓	✓

Code	Barcode Type	Line Matrix	
X' 09'	EAN-13 (includes Jan-standard)	✓	✓
X' 0A'	Industrial 2-of-5	✓	✓
X' 0B'	Matrix 2-of-5	✓	✓
X' 0C'	Interleaved 2-of-5, AIM USS-I 2/5	✓	✓
X' 0D'	Codabar, 2-of-7, AIM USS-Codabar	✓	✓
X' 11'	Code 128, AIM USS-128	✓	✓
X' 16'	EAN Two-digit Supplemental	✓	✓
X' 17'	EAN Five-digit Supplemental	✓	✓
X' 1E'	PDF417 (2D barcode)	✓	✓
X' 22'	USPS Intelligent Mail Barcode	✓	✓

## The Page Segment Command Set

The following commands are used to access printer data by name and merge on the logical page.

### Begin Page Segment (BPS)

**Byte Count**          **D65F**          **Flag**          **CID**          **Data**

This command identifies the data following as data for a page segment.

### Delete Page Segment (DPS)

**Byte Count**          **D66F**          **Flag**          **CID**          **Data**

DPS instructs the printer to delete one or all of the stored page segments.

### Include Page Segment (IPS)

**Byte Count**          **D67F**          **Flag**          **CID**          **Data**

When you issue an IPS command, a stored page segment can be processed as if the printer had just received it.

## The Overlay Command Set

Overlays contain data that is frequently accessed and can be stored by name for future use. You can create an overlay so that it fills the entire page or fills part of a page. The following overlay commands are used to access printer data by name and merge on the logical page.

### Begin Overlay (BO)

**Byte Count**            **D6DF**            **Flag**            **CID**            **Data**

This command tells the printer to store the following parameters (including Logical Page Descriptor, Load Font Equivalence, and Load Equivalence) for an overlay and not to print immediately.

### Delete Overlay (DO)

**Byte Count**            **D6EF**            **Flag**            **CID**            **Data**

The Delete Overlay command instructs the host to delete one or all of the stored overlays. The host can reuse the deleted overlay identification numbers for new overlays.

### Include Overlay (IO)

**Byte Count**            **D67D**            **Flag**            **CID**            **Data**

Issue an Include Overlay command to place an overlay on a logical page.

**Table 2 Execute Order Home State Commands**

Order	Function	Hex Code
Erase Residual Print Data	Prevents access to resident print data.	0500
Obtain Printer Characteristics	Used for Acknowledge Replies.	F300
Print Buffered Data	All data in the buffer prints.	0100
Set Media Size	Specifies the page size.	1700

### XOH Obtain Printer Characteristics

This order causes a set of device self-defined fields describing printer characteristics to be placed in the Special Data Area of the Acknowledgement Reply and is identified with an acknowledgement type of X'46'.

See Table 7 for a detailed description of each Self-Defining field reported in the Acknowledge Reply.





# A *Line Matrix Fonts and Code Pages*

**Table 3 Language, Code Page, and Quality Combinations**

Language	CPGID	GCSGID	Version <sup>(1)</sup>	Fonts Supported <sup>(2)</sup>
English/USA/Canada	037	101, 697	0, 1	All
International Set 1	256	337, 697		All
Canadian, French	260	341, 697		All
Austrian, German	273	265, 697	0, 1	All
Belgian	274	269, 697	0, 1	All
Brazilian	275	273, 697	0, 1	All
Danish, Norwegian	277	281, 697	0, 1	All
Finnish, Swedish	278	285, 697	0, 1	All
Italian	280	293, 697	0, 1	All
Japanese English	281	297, 697	0, 1	All
Portuguese	282	301, 697	0, 1	All
Spanish Speaking	284	309, 697	0, 1	All
English (UK)	285	313, 697	0, 1	All
Danish, Norwegian (Alt)	287	321, 697		All
Finnish, Swedish (Alt)	288	325, 697		All
Spanish (Alt)	289	329, 697		All
Japanese Katakana	290	332		All
French, Azerty	297	288, 697	0, 1	All
Arabic	420	235, 697		All
Greek	423	218		All
Hebrew	424	941, 697		All
International Set 5	500	697	0, 1	All
Hebrew (Old)	803	1147		All
Thai	838			All

**Table 3 Language, Code Page, and Quality Combinations**

Language	CPGID	GCSGID	Version <sup>(1)</sup>	Fonts Supported <sup>(2)</sup>
Latin 2/ROECE	870	959, 697		All
Icelandic	871	697	0, 1	All
Cyrillic Old	880	960, 697		All
Yugoslav Old	890			All
OCR-A	892	968		19
OCR-B	893	969		3
Turkish (Old)	905			All
Euro Latin 9	924			All
Cyrillic Multilingual	1025			All
Turkish, Latin 5	1026	1152		All
Farsi	1097			All
Baltic Multilingual	1112			All
Estonian	1122			All
Euro USA/Canada	1140	695		All
Euro Austrian, German	1141	695		All
Euro Danish, Norwegian	1142	695		All
Euro Finnish, Swedish	1143	695		All
Euro Italian	1144	695		All
Euro Spanish Speaking	1145	695		All
Euro UK/Ireland	1146	695		All
Euro French	1147	695		All
Euro International	1148	695		All
Euro Icelandic	1149	695		All
Euro Latin 2	1153			All
OCR-B Katakana	3	332		3

(1) If there is no value listed for Version, it means there is only one value.

(2) Fonts that are fully supported are listed in this column. Other fonts support a subset of the code page. When 'All' is specified, it refers to all resident fonts except the OCR fonts (3 and 19).

**Table 4 Resident Font and Code Page**

<b>Resident Font</b>	<b>FGID</b>	<b>Pitch (CPI)</b>	<b>Code Pages <sup>(1)</sup></b>	<b>Print Quality Available</b>
OCR-B	3	10	893, Katakana	OCR
OCR-A	19	10	892	OCR
Gothic 10	26	10	All	Draft, DP
Gothic 10 (Bold)	28	10	All	Draft, DP
Gothic 10 (Italic)	314	10	All	Draft, DP
Gothic 12	87	12	All	Draft, DP
Gothic 12 (Bold)	110	12	All	Draft, DP
Gothic 12 (Italic)	109	12	All	Draft, DP
Gothic 13.3	204	13.3	All	Draft, DP, NLQ
Gothic 13.3 (Bold)	206	13.3	All	Draft, DP, NLQ
Gothic 13.3 (Italic)	314	10	All	Draft, DP, NQL
Gothic 15	222	15	All	Draft, DP
Gothic 15 (Bold)	220	15	All	Draft, DP
Gothic 15 (Italic)	217	15	All	Draft, DP
Gothic 16.7	400	16.7	All	Draft, DP, NLQ
Gothic 16.7 (Bold)	404	16.7	All	Draft, DP, NLQ
Gothic 16.7 (Italic)	408	16.7	All	Draft, DP, NLQ
Gothic 18	258	18	All	Draft, DP, NLQ
Gothic 18 (Bold)	295	18	All	Draft, DP, NLQ
Gothic 18 (Italic)	296	18	All	Draft, DP, NLQ
Courier 10	11	10	All	NLQ
Courier 10 (Bold)	46	10	All	NLQ
Courier 10 (Italic)	18	10	All	NLQ
Courier 12	85	12	All	NLQ
Courier 12 (Bold)	108	12	All	NLQ
Courier 12 (Italic)	92	12	All	NLQ
Courier 15	223	15	All	NLQ
Courier 15 (Bold)	214	15	All	NLQ
Courier 15 (Italic)	215	15	All	NLQ
Essay	160	PSM	All	NLQ

<b>Table 4 Resident Font and Code Page</b>				
<b>Resident Font</b>	<b>FGID</b>	<b>Pitch (CPI)</b>	<b>Code Pages <sup>(1)</sup></b>	<b>Print Quality Available</b>
Essay (Bold)	163	PSM	All	NLQ
Essay (Italic)	162	PSM	All	NLQ
Gothic 10 (Compressed)	51	10	All	Draft, DP
Gothic 12 (Compressed)	74	12	All	Draft, DP
Gothic 13.3 (Compressed)	205	13.3	All	Draft, DP, NLQ
Gothic 15 (Compressed)	232	15	All	Draft, DP
Gothic 16.7 (Compressed)	300	16.7	All	Draft, DP, NLQ
Gothic 18 (Compressed)	259	18	All	Draft, DP, NLQ
Courier 10 (Compressed)	52	10	All	NLQ
Courier 12 (Compressed)	75	12	All	NLQ
Courier 15 (Compressed)	233	15	All	NLQ
Essay (Compressed)	154	PSM	All	NLQ

(1) When 'All' is specified, all character sets are supported with exception to those specifically designated for OCRA or OCRB.

# B *IPDS Exception Reporting*

Unlike other protocols, IPDS allows the host to control exception (error) processing, which can free up the printer CPU.

The host can request one of two methods:

- the printer must print the pages as requested
- the printer does not allow any page that has a data stream error to print.

The first method applies for situations such as printing checks; the second method applies for printing drafts or when troubleshooting data streams.

The following tables list the exception IDs and the error conditions. The exception ID consists of three parts.

For example:

8001..00

80 = sense byte 0, which indicates a command reject

00 = sense byte 1

00 = sense byte 2

The following tables contain the exception reporting codes, which the printer sends to the host in the NACK reply. These codes are in a three-byte format. The first byte, byte 0, is the error group. The remaining two bytes, bytes 1 and 2, are the individual error identifiers. The following table shows the error group meanings.

Byte 0	Error Type	Page
80	Command Reject	22
40	Intervention Required	21
10	Equipment Check	N/A
08	Data Check	22
04	Specification Check - Bar Codes	23
03	Specification Check - Graphics	28
02	Specification Check - General	35
01	Condition Requiring Host Notification	53

**Command Reject:** Indicates that the printer cannot recognize a received command.

**Intervention Required:** Indicates that the printer requires operator intervention.

**Equipment Check:** Indicates that a hardware error has occurred.

**Data Check:** Indicates that the printer detects a data error when receiving a logical unit from the application program or that the printer detects a data error while printing the page.

**Specification Check:** Indicates that the data parameters or values in a received command are invalid.

**Condition Requiring Host Notification:** Indicates that the printer has detected an error or condition that should be reported to the host computer.

### **Command Reject — X'80'**

The following exception codes are the valid codes for a command reject condition:

**X'800100' Invalid IPDS Command Code**

**Explanation:**

1. The command code is not recognized. An error length on a previous command may have caused the current data to be processed as a command.
2. The command is not supported.

**Alternate Exception Action:** None

**X'800200' Invalid IPDS Command Sequence**

**Explanation:**

The printer state is invalid for the received command.

**Alternate Exception Action:** None

**X'800E00' Invalid IPDS Command Length**

**Explanation:**

The command has an invalid length. This command is only from the Line Matrix printer.

**Alternate Exception Action:** None

### **Data Check—X'08'**

The following exception codes are the valid codes for a data check condition:

**X'082100' Undefined Character**

**Explanation:**

1. An undefined character code has been detected in Write Text data.
2. An undefined overstrike character code has been detected.
3. A character has been detected in Write Text Command data which is undefined at the quality level specified by the XOA-PQC command.
4. An undefined character code has been detected in Write Bar Code data.

**Alternate Exception Action:**

For reasons 1-3, print the default character. For reason 4, there is no alternate exception action.

**X'086000' Numeric Representation Precision Check**

**Explanation:**

1. The print position cannot be represented within the printer.
2. The result of the calculation cannot be represented in the printer. This may result from the WGC GDD window limits being very close together.
3. There was a coordinate overflow while scaling.

**Alternate Exception Action:** None

**X'08C100' Position Check**

**Explanation:**

An attempt was made to print outside the valid printable area.

**Alternate Exception Action:**

All physical printing outside the valid printable area is suppressed. All data and controls continue processing. The printer continues to print within the valid printable area to the greatest possible extent. For text, this may mean truncating text lines at the character boundary closest to the edge of the intersection. For graphics, this may mean truncating graphics pictures at the pel closest to the boundary. For image, this may mean truncating scan lines at the pel closest to the boundary, or alternatively, not printing any of the image if any part of the image falls outside the valid printable area.

**Specification Check-Bar Code — X'04'**

The following exception codes are the valid codes for a barcode specification check condition:

**X'040200' Attempt to print Barcode or HRI character out of presentation space**

**Explanation:**

The exception code is when the model type is not 6400 and barcode or HRI is outside of presentation space.

**Alternate Exception Action:** None

**X'040300' Bar Code Type Requested Is Not Supported**

**Explanation:**

The barcode type requested in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:** None

**X'040400' LCID Requested Is Not Supported**

**Explanation:**

The type style/font requested in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use printer default.

**X'040500' Bar Code Color Requested Is Not Supported**

**Explanation:**

The color requested in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use printer default color.

**X'040600' Unit/Module Width Specified Is Not Supported**

**Explanation:**

The unit/module width specified in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use closest smaller width supported or the device default for those devices with only one fixed default value.

**X'040700' Element Height Specified Is Not Supported**

**Explanation:**

The element height specified in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use closest height supported.

**X'040800' Height Multiplier Specified Is Not Supported**

**Explanation:**

The height multiplier specified in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use closest multiplier supported.

**X'040900' Wide/Narrow Ratio Is Not Supported**

**Explanation:**

The wide/narrow ratio specified in the Write Bar Code Data Descriptor field is not supported.

**Alternate Exception Action:**

Use the printer default wide element width. The default wide element width and the specified or default unit/module width should be such that a wide/narrow ratio of 2.50 or 3.00 results.

**X'040A00' Invalid Symbol Reference Point**

**Explanation:**

The symbol reference point given in the Write Bar Code command is not a valid or supported value.

**Alternate Exception Action:** None



**X'040B00' Invalid Bar Code Modifier**

**Explanation:**

The barcode modifier, byte 17 of the Bar Code Data Descriptor structured field, is not a valid or supported value for the barcode type specified by byte 16 of the same structured field.

**Alternate Exception Action:** None

**X'040C00' Invalid Bar Code Data Length**

**Explanation:**

The length of the variable data (as given in bytes 5-n of the Write Bar Code command) to be bar-encoded/printed, plus any printer-generated check digits to be coded/printed, is not a valid or supported value.

**Alternate Exception Action:** None

**X'040E00' Check Digit Calculation Error**

**Explanation:**

A first check digit calculation resulting in a value of 10 is defined as an error in various of the modifier options (byte 17 of the Bar Code Data Descriptor structured field) for the MSI barcode.

**Alternate Exception Action:** None

**X'041000' HRI Location Not Supported**

**Explanation:**

HRI location specified in the FLAGS byte of the WBC command is not a supported location.

**Alternate Exception Action:** None

**X'041100' Attempt to Print Portion of Symbol Outside Object or VPA**

**Explanation:**

1. A portion of the barcode presentation space, as mapped into the object, extends outside the barcode object boundaries, or a portion of the barcode object extends outside of the logical page (or current overlay).
2. An attempt is made to print a barcode symbol or HRI outside the physical page.
3. The symbol reference point lies outside the barcode object, presentation space, or logical page (or current overlay).

**Alternate Exception Action:** None

X'040F00'

**Explanation:**

Matrix row size value or number of rows value is not supported.

**Alternate Exception Action:**

Use X'0000' for the unsupported value.

X'040F01'

**Explanation:**

Invalid structured append sequence indicator.

**Alternate Exception Action:**

Present the barcode symbol without structured append information.

X'040F02'

**Explanation:**

Structured append sequence indicator too large.

**Alternate Exception Action:**

Present the barcode symbol without structured append information.

X'040F03'

**Explanation:**

Structured append information mismatch.

**Alternate Exception Action:**

Present the barcode symbol without structured append information.

X'040F04'

**Explanation:**

Invalid number of structured append symbols.

**Alternate Exception Action:**

Present the barcode symbol without structured append information.

X'040F05'

**Explanation:**

Invalid symbol mode value for a MaxiCode symbol.

**Alternate Exception Action:**

Terminate barcode object processing.

X'040F06'

**Explanation:**

Invalid number of data symbol characters per row for a PDF417 symbol.

**Alternate Exception Action:**

Terminate barcode object processing.

X'040F07'

**Explanation:**

Invalid desired number of rows value for a PDF417 symbol.

**Alternate Exception Action:**

Proceed as if X'FF' was specified.

X'040F08'

**Explanation:**

Too much data for a PDF417 symbol.

**Alternate Exception Action:**

Terminate barcode object processing.

X'040F09'

**Explanation:**

Invalid security level value for a PDF417 symbol.

**Alternate Exception Action:**

Proceed as if security level 8 was specified.

X'040F0A'

**Explanation:**

Incompatible combination of Data Matrix parameters.

**Alternate Exception Action:**

Terminate barcode object processing.

X'040F0B'

**Explanation:**

Invalid structured append file identification value.

**Alternate Exception Action:**

Present the barcode symbol without structured append information.

**X'040F0C'**

**Explanation:**

Invalid Macro PDF417 Control Block length value.

**Alternate Exception Action:**

Terminate barcode object processing.

**X'040F0D'**

**Explanation:**

Invalid data within a Macro PDF417 Control Block.

**Alternate Exception Action:**

Present the barcode symbol without a Macro PDF417 Control Block.

**Specification Check-Graphics — X'03'**

The following exception codes are the valid codes for a graphics specification check condition:

**X'030001' Unallocated Graphic Order or Command Code**

**Explanation:**

1. An attempt was made to execute an unallocated order code that is reserved for future use.
2. An attempt was made to execute an unallocated command code that is reserved for future use.

**Alternate Exception Action:** None

**X'030002' Reserved Byte Error or Invalid Default**

**Explanation:**

1. A reserved byte in the graphic order is not set to zero.
2. The Set Current Defaults instruction attempts, in byte 2, to set an invalid or unsupported attribute.
3. An invalid default byte value was received in the GDD.

**Alternate Exception Action:** None

**X'030003' Incorrect Drawing Order Length**

**Explanation:**

A drawing order length is invalid.

**Alternate Exception Action:** None

**X'030004' Invalid Attribute Value****Explanation:**

An attribute value for a graphic order or for a WGC Set Current Default instruction is invalid.

**Alternate Exception Action:**

Use the standard default value for that attribute.

**X'030008' Truncated Order Error****Explanation:**

An order has been requested that is not a complete order. This order is one of the following:

1. A fixed 2-byte order and the second byte is not in the segment.
2. A long order and the length byte is not in the segment.
3. A long order and the number of bytes following the byte containing the length count to the end of the segment is less than the value of the length count.

**Alternate Exception Action:** None

**X'03000C' Segment Prologue Error****Explanation:**

A supported order that is not valid within a prologue was found in a prologue. The end of a segment was reached without an End Prologue order.

**Alternate Exception Action:** None

**X'03000E' Unsupported Attribute Value****Explanation:**

An attribute value for a graphic order or for a WGC Set Current Default instruction is not supported.

**Alternate Exception Action:**

Use the standard default value for that attribute.

**X'030021' Invalid Default****Explanation:**

The Set Current Defaults instruction sets an invalid or unsupported default for an attribute.

**Alternate Exception Action:** None

**X'033400' Character Angle Value Not Supported**

**Explanation:**

The specific character angle requested is not supported.

**Alternate Exception Action:**

Use the closest angle supported by the printer.

**X'033E00' Invalid End Prologue**

**Explanation:**

An End Prologue was found outside the prologue section of a segment.

**Alternate Exception Action:** None

**X'036000' Area Bracket Error**

**Explanation:**

An End Area order has been executed without a Begin Area order having previously been executed.

**Alternate Exception Action:** None

**X'036800' Begin Area Received Incorrectly**

**Explanation:**

Begin Area order received while Begin Area is already in progress.

**Alternate Exception Action:** None

**X'036801' Area Truncation Error**

**Explanation:**

A Begin Area order has been executed in a segment, and the end of the segment is reached without an End Area order being executed. Area fill implementation results are printer dependent.

**Alternate Exception Action:** None

**X'036802' Supported Order Invalid in Area**

**Explanation:**

A supported order is detected that is not valid within an area.

**Alternate Exception Action:** None

**X'036803' Pattern Symbol Set Not Available**

**Explanation:**

The symbol set identified by the current Pattern Set is not available.

**Alternate Exception Action:**

Use the standard default pattern symbol set.

**X'036804' Undefined Pattern Symbol**

**Explanation:**

The current pattern symbol is undefined in the pattern symbol set.

**Alternate Exception Action:**

Use the standard default pattern symbol.

**X'037001' Invalid Repeat/Append Bit**

**Explanation:**

The Begin Segment Repeat/Append bit has a value of B'10' in chained immediate mode.

**Alternate Exception Action:** None

**X'037082' Invalid Repeat/Append Bit**

**Explanation:**

The Begin Segment Repeat/Append bit has a value of B'01'.

**Alternate Exception Action:** None

**X'0370C1' Invalid Begin Segment length**

**Explanation:**

The Begin Segment parameter length is invalid.

**Alternate Exception Action:** None

**X'0370C5' Insufficient Segment data**

**Explanation:**

Received End Segment when expecting more data.

**Alternate Exception Action:** None

**X'039200' Graphic Image Order Sequence Error**

**Explanation:**

An Begin Image order was not executed before the Image Data order in this segment.

**Alternate Exception Action:** None

**X'039201' Image Data Discrepancy**

**Explanation:**

There are insufficient or too many bytes of data in the Image Data order.

**Alternate Exception Action:** None

**X'039300' Graphic Image Bracket Error**

**Explanation:**

An End Image order is executed without a Begin Image order having been previously executed.

**Alternate Exception Action:** None

**X'039301' Incorrect Number of Image Data Orders**

**Explanation:**

The number of Image Data orders between the Begin Image and End Image orders is not equal to the number of rows in the image (as given by the value of height in the Begin Image order).

**Alternate Exception Action:** None

**X'03C200' Marker Symbol Set Not Available**

**Explanation:**

The symbol set identified by the current Marker Set attribute is not available.

**Alternate Exception Action:**

Use the standard default marker symbol set.

**X'03C201' Undefined Marker Code**

**Explanation:**

A marker code point is undefined in the current marker symbol set.

**Alternate Exception Action:**

Use the standard default marker symbol.



**X'03C202' Mismatched Marker Set**

**Explanation:**

This exception is from the Line Matrix printer only. An unsupported marker precision was received.

**Alternate Exception Action:**

Use the standard default marker symbol.

**X'03C300' Character Symbol Set Not Available**

**Explanation:**

1. The symbol set identified by the current Character Set is not available.
2. The current character set specified in the Set Character Set order does not have the proper attributes to be printed in graphics mode.

**Alternate Exception Action:**

Use the standard default character symbol set.

**X'03C301' Undefined Graphics Character Code**

**Explanation:**

A code in a character string is undefined in the current character symbol set.

**Alternate Exception Action:**

Use the standard default character symbol.

**X'03C302' Mismatched Character Set**

**Explanation:**

This exception is from the Line Matrix printer only. Character precision is invalid.

**Alternate Exception Action:**

Use the standard default character symbol.

**X'03C601' Arc Drawing Check**

**Explanation:**

The drawing processor has detected an exceptional condition which may prevent the drawing of the arc within the normal limits of pel accuracy.

**Alternate Exception Action:**

The arc is drawn in an implementation-defined manner which may reduce to drawing straight lines.

**X'03D100' Truncated Graphic Image Error**

**Explanation:**

A Begin Image order has been executed in a segment, and the end of the segment is reached without an End Image order having been executed.

**Alternate Exception Action:** None

**X'03D101' Invalid Order in Graphic Image**

**Explanation:**

A Begin Image order has been executed in a segment, and an order other than a Comment, Image Data, or End Image order is executed.

**Alternate Exception Action:** None

**X'03D102' Graphic Image Format Not Supported**

**Explanation:**

The value specified for the graphic image format parameter is not supported.

**Alternate Exception Action:** None

**X'03D103' Image Width Greater Than Maximum Supported**

**Explanation:**

The Width value specified in the Begin Image order exceeds the maximum image width supported by the product.

**Alternate Exception Action:**

The image width is truncated at the maximum width supported.

**X'03D104' Image Height Greater Than Maximum Supported**

**Explanation:**

The Height value specified in the Begin Image order exceeds the maximum image height supported by the product.

**Alternate Exception Action:**

The image height is truncated at the maximum height supported.

**X'03E100' Relative Line Outside Coordinate Space**

**Explanation:**

The relative line starts inside the drawing order coordinate space but goes outside.

**Alternate Exception Action:** None

## Specification Check-General — X'02'

The following exception codes are the valid codes for a general specification check condition:

### X'020003' Character Exceeds Presentation Text Object Space

**Explanation:**

Invalid length of arc command, text string, or text control.

**Alternate Exception Action:**

Ignore the control sequence.

### X'020001' Embedded Text Control Code Error

**Explanation:**

Undefined text control code.

**Alternate Exception Action:**

Ignore the control sequence.

### X'020201' End Suppression Text Control Error

**Explanation:**

The active Begin Suppression ID within the current page, overlay, or page segment is not the same as that specified in the ES control. There is no active suppression ID.

**Alternate Exception Action:** None

### X'020202' Invalid IPDS Command Length\

**Explanation:**

The length for a command is not within the allowed range.

The length of a Request Resource List entry is not a valid or supported value.

The length specified for a Request Resource List entry does not match the number of bytes received.

**Alternate Exception Action:** None.

### X'020205' Invalid Data Structured Field Length

**Explanation:**

A data structured field has been received in a WGC or WBCC command that is less than the minimum allowable length.

**Alternate Exception Action:** None

**X'020302' IPDS Command Header Length Too Small**

**Explanation:**

The length of the IPDS command header is too small.

**Alternate Exception Action:** None

**X'020305' Invalid or Unsupported Block Orientation**

**Explanation:**

Invalid font-inline sequence or invalid orientation of image block.

**Alternate Exception Action:** None

**X'020401' End Page Encountered During Active Suppression**

**Explanation:**

The End Page control was encountered before a text suppression ended.

**Alternate Exception Action:**

Process the object as if the corresponding End

Suppression control sequence appeared at the end of the object. That is, all of the data following the Begin Suppression control sequence in the object is processed and suppressed.

**X'020402' Acknowledge Reply Response Continuation Request is Invalid**

**Explanation:**

The printer received a command whose response continuation bit is on but there is no response to continue.

**Alternate Exception Action:** None

**X'020405' Area Position Reference System is Not Supported**

**Explanation:**

The reference system specified in the Area Position structured field of the WGC or WBCC command is not a valid or supported value.

**Alternate Exception Action:** None

**X'020501' Invalid Spanning Sequence**

**Explanation:**

A Write Text or Write Graphics command is required to complete a partial order, control, or double-byte character code and another command was received other than an XOA command.

**Alternate Exception Action:** None

**X'020502' Unsupported Baseline Move**

**Explanation:**

Unsupported advancement of the baseline coordinate toward the I-axis.

**Alternate Exception Action:** None

**X'020505' Structured Field Unit-Base Invalid**

**Explanation:**

The unit-base (measurement units) specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.

**Alternate Exception Action:** None

**X'020601' Begin Suppression Error**

**Explanation:**

Begin Suppression encountered in the same unit (page, segment or overlay) before previous suppression in that unit ended.

**Alternate Exception Action:** None

**X'020605' Structured Field Units Invalid**

**Explanation:**

1. The units specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.
2. The result of the calculation cannot be represented in the printer. This may result from the WGC GDD window limits being very close together.
3. Coordinate overflow while scaling graphics. Possible if scaling coordinates require multiplication by a value greater than 1.

**Alternate Exception Action:** None

**X'020705' Structured Field Extents Not Supported**

**Explanation:**

The extents specified in the Output Control or Data Descriptor structured field of the WGC or WBCC command are not a valid or supported value.

The window values of the WGC GDD structured field are not consistent; therefore, the value of XL is larger than the value of XR or the value of YB is larger than the value of YT.

**Alternate Exception Action:** None

**X'020805' Invalid Mapping Option**

**Explanation:**

A mapping option specified in the Output Control structured field of the WGC or WBCC command is not a valid or supported value.

**Alternate Exception Action:** None

**X'020A05' Data within a Block might be Outside the VP**

**Explanation:**

Image out of VPA or image out of logical page.

**Alternate Exception Action:** None

**X'020905' Invalid Axis Offsets**

**Explanation:**

The axis offsets specified in the Output Control structured field of the WGC or WBCC command are not valid or supported values.

**Alternate Exception Action:** None

**X'020B05' Invalid Structured Field Identifier**

**Explanation:**

A two-byte structured field identifier in a WGC or WBCC command is invalid or out of sequence.

**Alternate Exception Action:** None

**X'020F01' Invalid Text Orientation**

**Explanation:**

Baseline or Inline orientation specified in Set Text Orientation is not a valid or supported value.

**Alternate Exception Action:**

Use an inline orientation of 0 degrees and a baseline orientation of 90 degrees.

**X'021001' Invalid Margin**

**Explanation:**

The margin position is not a valid or supported value.

**Alternate Exception Action:** None

**X'021101' Invalid Baseline Increment**

**Explanation:**

The value of the baseline increment is not a valid or supported value.

**Alternate Exception Action:** None

**X'021201' Invalid Intercharacter Adjustment**

**Explanation:**

1. The value of the intercharacter adjustment is not a valid or supported value.
2. The intercharacter adjustment direction is not a valid or supported value.

**Alternate Exception Action:**

1. Ignore the control sequence and continue presentation with the parameter values according to the hierarchy (the hierarchy is the last valid value received or if none received then use the LPD value).
2. Use direction = zero.

**NOTE:** In an LPD command, no Alternate Exception Action occurs.

**X'021301' Invalid Absolute Move Baseline Value**

**Explanation:**

The Absolute Move Baseline parameter value is not a valid or supported value.

**Alternate Exception Action:** None

**X'021401' Invalid Absolute Move Inline Value**

**Explanation:**

The Absolute Move Inline parameter value is not a valid or supported value.

**Alternate Exception Action:** None

**X'021402' Font to be Deleted Not Found**

**Explanation:**

The single byte font specified by the Delete Font command is not in the machine.

**Alternate Exception Action:** None

**X'021501' Invalid Relative Move Inline**

**Explanation:**

Invalid Relative Move Inline value.

**Alternate Exception Action:** None

**X'021502' Invalid DF Font**

**Explanation:**

The Loaded Font Identifier field is required in the Delete Font command; however, it is not present or its value is not a valid or supported value.

**Alternate Exception Action:** None

**X'021601' Invalid Relative Move Baseline Value**

**Explanation:**

Invalid Relative Move Baseline value.

**Alternate Exception Action:** None

**X'021701' Invalid Variable Space Increment**

**Explanation:**

The value of the variable space increment as specified in a text control is not a valid or supported value.

**Alternate Exception Action:** None

**X'021702' Invalid DF Deletion Type**

**Explanation:**

The Deletion Type on a Delete Font command is not a valid or supported value.

**Alternate Exception Action:** None

**X'021802' Invalid Font ID**

**Explanation:**

1. The two-byte Font Identifier on a Load Symbol Set or Load Font Equivalence command is not a valid or supported value.
2. The one-byte Font Identifier value on the Load Font Equivalence command is not a valid or supported value.
3. A font is referenced on a Set Font control, a Load Page Description, a Load Symbol Set, a Write Graphics, or Write Bar Code command, but the font has not been previously identified by the Load Font Equivalence command.
4. The font or symbol set referenced in a Load Page Description, Write Text, or Write Graphics command is defined within the current Load Font Equivalence but is not loaded in the printer.

**Alternate Exception Action:**

1. None.
2. None.
3. Substitute the active font for the specified local font and continue processing.
4. Substitute the active coded font for the specified local font and continue processing.



**X'021901' Repeat String Length Error**

**Explanation:**

The Repeat String target string length is not a valid or supported value.

**Alternate Exception Action:** None

**X'021902' Multiple Occurrences of the Same LFE Local ID**

**Explanation:**

The one-byte Local Identifier value in the Load Font Equivalence command has been used more than once, making the Two-Byte Font Identifier reference ambiguous.

**Alternate Exception Action:** None

**X'021C01' Invalid Embedded Text Control Sequence**

**Explanation:**

A text control sequence contains a code other than X'D3' following X'2B'.

**Alternate Exception Action:** None

**X'021D02' Invalid LFE Identifier**

**Explanation:**

One or more of the following font parameters listed in the LFE or their combination is not valid or supported: Character Set ID, Code Page ID, Uniform Character Increment, and Proportional Increment Coefficient Table.

**Alternate Exception Action:** None

**X'021E01' Invalid Text Control Length**

**Explanation:**

The length of a text control is not valid.

**Alternate Exception Action:** None

**X'021E02' Mismatch Between Font and XOA Print Quality Control**

**Explanation:**

1. The combination of parameters specified in LFE are not supported together with the quality indicated by XOA Print Quality Control.
2. The Font (Style) ID specified in the LFE is invalid or unsupported or is not valid with the other font parameters.

**Alternate Exception Action:**

Choose "Best Fit" font.

**NOTE:** This error will be flagged when an attempt to present the font is processed.

**X'022E02' Insufficient Font Data Received**

**Explanation:**

Insufficient font data received or the printer received an invalid command in Spanning mode.

**Alternate Exception Action:** None

**X'023001' Insufficient Storage for LCC Copy-control Record**

**Explanation:**

Too many copy groups or insufficient storage for LCC record.

**Alternate Exception Action:** None

**X'021F01' Repeat String Length Error**

**Explanation:**

Repeat String control on a Write Text command has non-zero fill count but zero string length.

**Alternate Exception Action:** None

**X'021F02' Mismatch of LFE Two-Byte Loaded Font ID Parameters**

**Explanation:**

Two fonts have been assigned the same two-byte Loaded Font ID by the LFE command, but one or more of the following attributes differ: Character Set ID, Code Page ID, Font (Style) ID, Uniform Character Increment, Proportional Increment Coefficient Table.

**Alternate Exception Action:** None

**X'023101' Invalid LCC Number of Copies**

**Explanation:**

The Number of Copies value specified on the Load Copy Control command is not a valid or supported value.

**Alternate Exception Action:**

Proceed as though the number of copies field stated 1.

**X'023201' Invalid LCC Keyword in Group Entry**

**Explanation:**

There is an invalid or unsupported Load Copy Control keyword in the group entry.

**Alternate Exception Action:** None

**X'023401' Invalid LCC Copy Group Byte Count**

**Explanation:**

1. The number of bytes in Load Copy Control group is not a multiple of two byte pairs.
2. The number of bytes in Load Copy Control group is not a valid or supported value.

**Alternate Exception Action:** None

**X'023601' Invalid or Unsupported Load Copy Control Simplex/Duplex Parameter**

**Explanation:**

The LCC command simplex/duplex parameter is invalid or unsupported.

**Alternate Exception Action:**

If invalid, none. If unsupported, the printer prints simplex.

**X'023801' Maximum Supported Number of Overlays per LCC Copy Group Exceeded**

**Explanation:**

Exceeded maximum number of overlays.

**Alternate Exception Action:** None

**X'023901' Maximum Supported Number of Suppression per LCC Copy Group Exceeded**

**Explanation:**

Exceeded maximum number of suppression.

**Alternate Exception Action:** None

**X'023F02' Font Index Not Loaded**

**Explanation:**

1. The font inline sequence in Load Font Equivalence command is not supported or not supported with the current Text Orientation.
2. The Font Index specified in a Load Font Equivalence command called out by a Set Coded Font Local text control is not loaded.

**Alternate Exception Action:** None

**X'024201' WIC Pel Count < Minimum Required**

**Explanation:**

The Target or Source Pel Count value on the Write Image Control command is less than 1.

**Alternate Exception Action:** None

**X'024301' WIC Pel Count > Maximum Allowed**

**Explanation:**

The Target or Source Pel Count value on the Write Image Control command is greater than the valid or supported maximum.

**Alternate Exception Action:** None

**X'024401' WIC Scan Count < Minimum Required**

**Explanation:**

The Target or Source Scan Count value on the Write Image Control command is less than 1.

**Alternate Exception Action:** None

**X'024501' WIC Scan Count > Maximum Allowed**

**Explanation:**

The Target or Source Scan Count value on the Write Image Control command is greater than the valid or supported maximum.

**Alternate Exception Action:** None

**X'024601' Invalid WIC Source Image Format**

**Explanation:**

1. The Compression Algorithm value (Byte 8) is not a valid or supported value.
2. The (Pel) Data Format value (Byte 9) in the Write Image Control command is not X'00'.

**Alternate Exception Action:** None

**X'024701' Invalid WIC Scale Factor Value**

**Explanation:**

1. The Pel Count Scale Factor value on the Write Image Control command is not a valid or supported value.
2. The Scan Count Scale Factor value on the Write Image Control command does not equal the Pel Count Scale Factor.

**Alternate Exception Action:** None

**X'024702' Invalid LFE Font Inline Sequence**

**Explanation:**

The Font Inline Sequence parameter in a Load Font Equivalence command is not a valid or supported value.

**Alternate Exception Action:** None

**X'024801' Invalid WIC Scan Line Direction**

**Explanation:**

The Scan Line Direction parameter value on the Write Image Control command is not a valid or supported value

**Alternate Exception Action:** None

**X'024901' Invalid WIC Scan Sequence Direction**

**Explanation:**

The Scan Line Sequence Direction value specified on the Write Image Control command is not plus ninety degrees from the Scan Line Direction value.

**Alternate Exception Action:** None.

**NOTE:** Plus ninety from 270, (X'8700') must be X'0000'.

**X'024A01' Invalid WIC Coordinate Specification**

**Explanation:**

1. The Coordinate Definition value on the Write Image Control command is not a valid or supported value.
2. The First Pel Location (X or I Direction) value on the Write Image Control command is not a valid or supported value.
3. The First Pel Location (Y or B Direction) value on the Write Image Control command is not a valid or supported value.

**Alternate Exception Action:** None

**X'025301' Invalid WIC Color Value**

**Explanation:**

The Color value of the WIC command is not a valid or supported value.

**Alternate Exception Action:**

Use printer default value.

**X'025803' Unsupported Color or Color Attribute**

**Explanation:**

1. The text color is not a valid or supported value.
2. The text color precision is not a valid or supported value.

**Alternate Exception Action:**

If the attribute value is not valid, ignore the control and continue presentation with the value that was in effect prior to this control sequence. If the attribute value is valid but unsupported for this printer, use the printer default color.

**X'025C02' Invalid or Unsupported Parameter in an LFI Command**

**Explanation:**

Invalid parameter in Load Font Index command.

**Alternate Exception Action:** None

**X'026002' Invalid LPD X Units/Unit-Base**

**Explanation:**

On the Load Page Description command, the X units per unit- base value is not a valid or supported value.

**Alternate Exception Action:** None

**X'026102' Invalid LPD Y Units/Unit-Base**

**Explanation:**

1. On the Load Page Description command, the Y units per unit-base value is not a valid or supported value.
2. On the Set Media Size command, the units per unit-base value is not a valid or supported value.

**Alternate Exception Action:** None

**X'026202' Invalid LPD X-Extent**

**Explanation:**

On the Load Page Description command, the X-Extent is not a valid or supported value.

**Alternate Exception Action:** None

**X'026302' LPD Invalid Y-Extent**

**Explanation:**

On the Load Page Description command, the Y-Extent is not a valid or supported value.

**Alternate Exception Action:** None

**X'026401' Insufficient Control Storage**

**Explanation:**

Insufficient memory for saving data.

**Alternate Exception Action:** None

**X'026402' Invalid LPD Unit-Base**

**Explanation:**

On the Load Page Description command, the unit-base is not a valid or supported value.

**Alternate Exception Action:** None

**X'026802' Invalid LPD Inline Direction**

**Explanation:**

On a Load Page Description command the Inline Sequence Direction value is not a valid or supported value.

**Alternate Exception Action:**

Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

**X'026902' Invalid LPD Baseline Direction**

**Explanation:**

On a Load Page Description command the Baseline Sequence Direction value is not a valid or supported value.

**Alternate Exception Action:**

Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

**X'026A01' Insufficient Source Image Data**

**Explanation:**

The number of source image bytes received < the number implied in the Write Image Control command.

**Alternate Exception Action:** None.

**X'026A02' Invalid LPD Initial Inline Coordinate**

**Explanation:**

On a Load Page Description command, the initial inline coordinate value is not a valid or supported value.

**Alternate Exception Action:** None

**X'026B01' Excess Source Image Data**

**Explanation:**

The number of source image bytes received > the number implied in the Write Image Control command.

**Alternate Exception Action:** None

**X'026B02' Invalid LPD Initial Baseline Coordinate**

**Explanation:**

On a Load Page Description command, the initial baseline coordinate value is not a valid or supported value.

**Alternate Exception Action:** None

**X'027002' Invalid Units Value in an XOH SMS Command**

**Explanation:**

The units value in an XOH SMS command is invalid or unsupported.

**Alternate Exception Action:** None

**X'027202' Invalid SMS X-Extent**

**Explanation:**

On the Set Media Size command, the X-extent is not a valid or supported value.

**Alternate Exception Action:** None

**X'027302' Invalid SMS Y-Extent**

**Explanation:**

On the Set Media Size command, the Y-extent is not a valid or supported value.

**Alternate Exception Action:** None

**X'027402' Invalid SMS Unit Base**

**Explanation:**

On the Set Media Size command, the unit-base is not a valid or supported value.

**Alternate Exception Action:** None

**X'027A01' Invalid triplet length value**

**Explanation:**

The length specified in a triplet is invalid.

**Alternate Exception Action:** None

**X'027B01' Incorrect number of triplet data bytes**

**Explanation:**

The number of data bytes specified in a triplet length field is greater than the number of bytes remaining in the command.

**Alternate Exception Action:** None



**X'028101' Insufficient Storage for Overlay or Page Segment**

**Explanation:**

There is insufficient storage to process an overlay or page segment.

**Alternate Exception Action:** None

**X'028501' Invalid DO Parameter Value**

**Explanation:**

The Overlay Identifier on the Delete Overlay command is not a valid or supported value.

**Alternate Exception Action:** None

**X'028A01' Invalid DPS Parameter Value**

**Explanation:**

The Page Segment Identifier on the Delete Page Segment command is not a valid or supported value.

**Alternate Exception Action:** None

**X'029001' Overlay Number Outside Valid Range**

**Explanation:**

1. The Overlay Identifier on the Begin Overlay command is not a valid or supported value.
2. The Overlay Identifier on the Include Overlay command is not a valid or supported value.
3. The Overlay Identifier on a Load Copy Control command is not a valid or supported value.

**Alternate Exception Action:** None

**X'029101' BO Overlay Number Already Loaded**

**Explanation:**

The host attempted to download an overlay from the Begin Overlay command that already exists in the printer.

**Alternate Exception Action:** None

**X'029102' Invalid Request Resource List Parameter**

**Explanation:**

1. The Requested Ordering parameter of a Request Resource List order is not a valid or supported value.
2. The Entry Index parameter of a Request Resource List order is not a valid or supported value.
3. The Resource Qualifier parameter of a Request Resource List order is not a valid or supported value.
4. The Resource Type parameter on the Request Resource List order is not a valid or supported value.

**Alternate Exception Action:** None

**X'029201' Overlay Number Not Loaded**

**Explanation:**

The overlay identified by the Overlay Identifier on the Include Overlay, Delete Overlay or LCC command was not loaded or was already deleted prior to its attempted use.

**Alternate Exception Action:** None

**X'029202' Invalid Print Quality Control Parameter:**

**Explanation:**

The Print Quality Control parameter is X'00', which is a reserved value.

**Alternate Exception Action:** None

**X'029301' Recursive Overlay Invocation:**

**Explanation:**

An infinite nesting loop has occurred with the Include Overlay command (for example, an overlay has included itself)

**Alternate Exception Action:** None

**X'029401' Page Segment Number Outside Valid Range**

**Explanation:**

1. The Page Segment Identifier on the Include Page Segment command is not a valid or supported value.
2. The Page Segment Identifier on the Begin Page Segment command is not a valid or supported value.

**Alternate Exception Action:** None

**X'029501' Page Segment Number Already Loaded**

**Explanation:**

The host attempted to download a page segment that already exists in the printer.

**Alternate Exception Action:** None

**X'029601' Page Segment Number Not Loaded**

**Explanation:**

The page segment identified by the Page Segment Identifier on the Include Page Segment or Delete Page Segment command was not loaded or was already deleted prior to its attempted use.

**Alternate Exception Action:** None

**X'029701' Overlay Nesting Limit Exceeded**

**Explanation:**

Depth of overlay nesting is greater than the maximum depth.

**Alternate Exception Action:** None

**X'029801' Suppression Number Outside Valid Range**

**Explanation:**

1. On a Write Text command, the Begin Suppression number value is not a valid or supported value.
2. In a LCC command, the suppression number value is not a valid or supported value.

**Alternate Exception Action:**

1. Ignore the control sequence.
2. None

**X'029803' Temporary Baseline Move Error**

**Explanation:**

1. The temporary baseline increment is not a valid or supported value.
2. The temporary baseline move direction is not a valid or supported value.
3. The temporary baseline move precision is not a valid or supported value.
4. Unsupported multiple offset temporary baseline move.
5. Unable to support temporary baseline move by printing full size characters.

**Alternate Exception Action:**

1. None for reasons 1 through 4.
2. For reason 5, present according to the substitution method.

**X'02AC01' Insufficient Storage to Print the Sheet**

**Explanation:**

Page is too large for main storage.

**Alternate Exception Action:** None

**X'02A401' Page Boundary in the X-direction cannot be Represented in the Printer**

**Explanation:**

Page boundary in the X-direction cannot be represented in the printer.

**Alternate Exception Action:** None

**X'02A501' Page Boundary in the Y-direction cannot be Represented in the Printer**

**Explanation:**

Page boundary in the Y-direction cannot be represented in the printer.

**Alternate Exception Action:** None

**X'02AD01' Invalid Load Page Position Parameter**

**Explanation:**

The X Coordinate value on the Load Page Position command is not a valid or supported value.

The Y Coordinate value on the Load Page Position command is not a valid or supported value.

**Alternate Exception Action:** None

**X'02AE01' Invalid Include Overlay Position Parameter**

**Explanation:**

1. The X-Coordinate value on the Include Overlay command is not a valid or supported value.

2. The Y-Coordinate value on the Include Overlay command is not a valid or supported value.

**Alternate Exception Action:** None

**X'02AF01' Insufficient storage to continue processing**

**Explanation:**

There is insufficient storage to continue processing. Make sure any fonts, overlays, and page segments that are not being used are deactivated. You could also attempt to increase your host storage space.

**Alternate Exception Action:** None

**X'02C101' Maximum Number of Simplex Keywords in an LCC Command**

**Explanation:**

More than one simplex operation keyword has been specified in an LCC command copy group.

**Alternate Exception Action:** None

**X'02C102' Load Equivalence Internal Value Not Unique**

**Explanation:**

The first two bytes of two or more list entries on the Load Equivalence command are not unique. Setting both external values to the same value will not prevent the error.

**Alternate Exception Action:** None

**X'02C602' Invalid Load Equivalence Mapping Type**

**Explanation:**

The Mapping Type on the Load Equivalence command is not X'0100'.

**Alternate Exception Action:** None

**X'02C801' An unsupported Input Media Source ID was Specified**

**Explanation:**

An unsupported Input Media Source ID was specified in an XOH-SIMS command.

**Alternate Exception Action:** Select an installed and available media source.

**X'02C802' Invalid Internal/External Value on LE**

**Explanation:**

The Internal or External value on a Load Equivalence command is not a valid or supported value.

**Alternate Exception Action:** None

**Conditions Requiring Host Notification — X'01'**

**X'010100' Media Size or Input Media Source ID Changed**

**Explanation:**

1. The size of the media in one or more of the installed input media sources was changed.
2. The input media source ID of one or more of the installed input media sources was changed.

**Alternate Exception Action:** None.

**NOTE:** Not reported in 4234 Emulation Mode.



# C *Glossary*

<b>Acknowledge Reply</b>	A message about printer information or exceptions that the printer sends to the host. It can be a positive or negative reply. ([N]ACK can contain status resource or counter information.)
<b>barcode</b>	A printed code consisting of parallel bars of varied width and spacing and designed to be read by a one-dimensional scanning device.
<b>barcode block</b>	It is a rectangular space that has a specified size, position, and orientation on a logical page. It is the area into which the barcode presentation space is mapped.
<b>barcode presentation space</b>	It is a rectangular, conceptual space where a barcode is generated. The entire barcode presentation space must be mapped to the barcode block.
<b>bold</b>	A print attribute specifying text of a heavy line thickness. <i>See also</i> character weight.
<b>buffer</b>	A reserved area in memory that data is written to and read from during data transfers.
<b>character set</b>	A protocol instructing the printer how to construct a set of printable characters, including symbols, punctuation, numbers, diacritical markings, and alphabet characters. Each character is assigned a unique address in memory.
<b>character weight</b>	The degree of lightness and thickness of printed text. For example: “ <b>Bold</b> ” refers to a heavy or thick character weight. “Medium,” “normal,” or “book weight” refer to the character weight used in this sentence.
<b>control sequence</b>	A series of bytes that instruct the printer to perform a specific function.
<b>correlation ID (CID)</b>	Identifies a specific command/data transmission from the host. This two-byte value is used to match any exceptions (errors or conditions specified in an Acknowledge Reply) with the IPDS command.

<b>cpi</b>	<i>Abbrev. for</i> characters per inch. A measurement of monospaced fonts indicating the horizontal character density. For example, 10 cpi means 10 characters can be printed in one horizontal inch.
<b>default</b>	A value, parameter, attribute, or option assigned by a program or system if another is not specified by the user.
<b>deferred printing</b>	The printer prints page by page: It gathers all of the page descriptor commands and data blocks for each page and then prints the page.
<b>diagnostic</b>	Pertains to the detection and isolation of printer malfunctions or mistakes.
<b>emulation</b>	Refers to the ability of a printer to execute the commands of another printer language (protocol).
<b>environment</b>	The parameters that affect how data will display on a page, such as the dimensions, orientation, and location of the logical page on the physical page. An overlay has its own environment; a page segment is affected by the environment that is placed into.
<b>expanded</b>	A font enhancement referring to larger-than-normal character width with no change in character height.
<b>exception</b>	A condition in which the printer notifies the host and will sometimes require the host to resend data. An exception can also be in response to an invalid data stream.
<b>family (or type)</b>	A set of all variations and sizes of a type style.
<b>fixed-pitch fonts</b>	See font.
<b>FOCA</b>	<i>Abbrev for</i> Font Object Content Architecture. A collection of methods and rules for describing fonts.
<b>font</b>	Referred to as a resource that is stored in memory. The complete set of a given size of type, including characters, symbols, figures, punctuation marks, ligatures, signs, and accents. To fully describe a font, you must specify seven characteristics: <ol style="list-style-type: none"> <li>1) typeface</li> <li>2) spacing (proportional or monospaced)</li> <li>3) type size (12 point, 14 point, etc.)</li> <li>4) scale factor (character height/width ratio)</li> <li>5) type style</li> <li>6) character weight</li> <li>7) character proportion (normal, condensed, expanded).</li> </ol>



<b>GOCA</b>	<i>Abbrev for Graphic Object Content Architecture.</i> A collection of methods and rules for describing graphic data.
<b>graphics</b>	Lines, arcs, etc. used to draw a picture. Differs from an image.
<b>graphics block</b>	Rectangular space that has a specified size, position, and orientation on a logical page. It is the area where the graphics presentation space (or the graphics presentation space window) is mapped to.
<b>graphics presentation space</b>	Rectangular, conceptual space where graphics are generated.
<b>graphics presentation space window</b>	You can specify a part of the presentation space to be mapped to the graphics block. This portion is called the graphics presentation space window. Specifying a window is synonymous to cropping or trimming.
<b>home state</b>	The initial state of the printer before it begins downloading overlays, page segments, and/or fonts. After the printer prints the page, the printer returns to the home state.
<b>host assigned ID</b>	The host assigns an ID to every resource (page segment, overlay, or font). These IDs are used for loading and calling.
<b>host computer</b>	The computer that stores, processes, and sends data to be printed, and which communicates directly with the printer. The term "host" indicates the controlling computer, since modern printers are themselves microprocessor-controlled computer systems.
<b>image</b>	An illustration or picture. Differs from graphics.
<b>image block</b>	Rectangular space that has a specified size, position, and orientation on a logical page. The image block contains the image. It is the area where the image presentation space is mapped to.
<b>image presentation space</b>	Rectangular, conceptual space where an image is generated. It is mapped to the image block. Once mapped, the image is ready to be printed.
<b>initialization</b>	A series of processes and self-tests to set power-up default conditions and parameters.
<b>interface</b>	The hardware components used to link two devices by common physical interconnection, signal, and functional characteristics.
<b>invoke</b>	To put into effect or operation.

<b>IPDS</b>	Intelligent Printer Data Stream. Allows sophisticated printing, such as merging text and graphics.
<b>lpi</b>	<i>Abbrev. for lines per inch.</i> A measurement indicating the vertical spacing between successive lines of text. For example, 8 lpi means 8 lines of text for every vertical inch.
<b>logical page</b>	A rectangular area on a physical page. The logical page has a specified size, orientation, location, and offset. The logical page is the area where barcode blocks, image blocks, graphics blocks, and text is printed. Printing occurs in the area common to the physical page and the logical page.
<b>logical link</b>	The parameters that specify data transfer, control, or communication operations.
<b>no operation</b>	This command causes the printer not to process anything, but instead, to proceed to the next command sequence.
<b>object</b>	Another term for a font, graphics, image, text, or a combination of these.
<b>offset</b>	An offset is a measurement indicating displacement. For example, you can specify the logical page to rest in the lower left hand corner of the physical page.
<b>ordered printing</b>	The printer behaves like a line printer: It begins printing as soon as you send the data.
<b>orientation</b>	The degrees of rotation of a presentation space or a data block.
<b>overlay</b>	This is usually a form. It can contain text, graphics, an image, and barcode data. You can also merge a page segment into an overlay. The overlay can encompass the entire logical page or a portion of it. The overlay has its own environment, unlike a page segment.
<b>overlay ID</b>	The host assigns an ID to every overlay so that it can be identified for particular commands, such as Begin Overlay, Delete Overlay, Include Overlay, etc.
<b>overlay state</b>	This state permits overlay data to be downloaded and produced.
<b>page</b>	See logical page <i>and</i> physical page.

<b>page segment</b>	Contains a font, image, text, or graphics and is merged onto a logical page. A page segment has an ID and can be stored for future use. It does not have its own environment; instead, it uses the environment that it is merged into. You can load a page segment into an overlay.
<b>page segment state</b>	This state allows page data to be loaded and produced.
<b>parity (check)</b>	Parity checking is the addition of non-data bits to data, resulting in the number of 1 bits being either always even or always odd. Parity is used to detect transmission errors. Parity represents the value in the check digit of the received or transmitted data.
<b>physical page</b>	The medium that the printer prints data on.
<b>pixel</b>	Derived from picture element. The smallest displayable picture element on a video monitor or printable unit. In printing, a pixel is a dot.
<b>point</b>	A unit of length in printing and typography, used to specify type sizes, heights of font characters, etc. There are 72 points in a vertical inch; thus, one point equals 1/72 inch, or approximately 0.0138 inch. Some examples of point sizes are: This is 8 point type. This manual is printed in 10 point type. <b>This is 14 point type.</b>
<b>port</b>	A channel used for receiving data from or transmitting data to one or more external devices.
<b>presentation space</b>	A space where data can be generated before it is mapped onto the logical page. The presentation space uses an X-axis and Y-axis to specify addresses.
<b>protocol</b>	A set of rules or conventions governing the exchange of information between computer systems. For computer printers, a protocol is the coding convention used to convey and print data. A printer protocol includes character codes, printer function codes, and machine-to-machine communication codes.
<b>RAM</b>	<i>Acronym for random-access memory.</i> Also called "main memory" or "working memory." RAM is the active memory of a printer, into which programs are loaded. This memory can be read from or written to at any time- hence the term "random-access." RAM is also termed "volatile" because whatever is in RAM is lost when power is turned off or interrupted.
<b>read</b>	To retrieve data from memory (RAM, NVRAM) or mass storage (hard disk, floppy diskette, etc.).

<b>reset</b>	To turn off, deactivate, disable, or return to a previously determined state.
<b>resolution</b>	A measure expressing the number of units in a given range used to create an image. In printing, this is expressed as the number of dots per inch (dpi) horizontally and vertically.
<b>ROM</b>	<i>Acronym for read-only memory.</i> Programs, instructions, and routines permanently stored in the printer. ROM is not lost when power is turned off and cannot be written to, hence the term “read-only.” ROM-resident fonts are fonts permanently stored in a printer and available at any time.
<b>set</b>	To turn on, activate, invoke, or enable.
<b>string</b>	Two or more bytes of data or code treated as a unit.
<b>twinax</b>	Twinaxial. A type of cable with two wires surrounded by insulation and a braided shield.
<b>type style</b>	Refers to either the upright or italic character style in a specific font family. Roman is upright, <i>italic is slanted.</i>
<b>typeface</b>	A descriptive name or brand name that identifies a particular design of type. Also called type family.
<b>weight</b>	See character weight.
<b>write</b>	To place data in memory (RAM, NVRAM).

# D **Contact Information**

## **Printronix Customer Support Center**

**IMPORTANT** Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout: (See "Printing A Configuration") in your printers *Administrator's Manual*.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

<http://www.primtronix.com/support.aspx>

## **Printronix Supplies Department**

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	(33) 1 46 25 19 07
Asia Pacific	(65) 6548 4100
China	(86) 400-886-5598
India	1800 102 7869

<http://www.primtronix.com/supplies-parts.aspx>

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