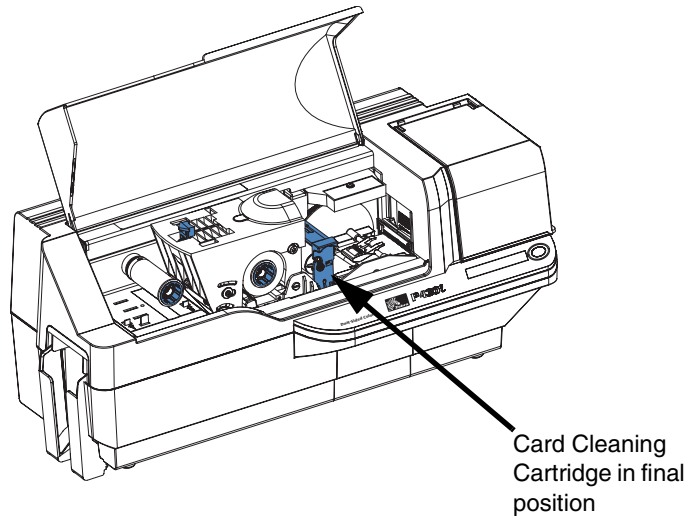


Note • DO NOT touch the adhesive roller surface that contacts the cards.

6. Replace the Card Cleaning Cartridge into the printer. For detailed instructions, see *Installing the Card Cleaning Cartridge* on page 14.



7. Close the printer main cover.



Troubleshooting

The table on the next page offers causes and solutions to symptoms related to improper operation. Check the table when experiencing any loss of operation or print quality.

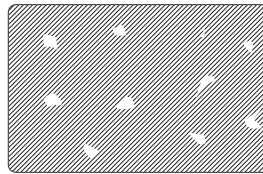
Problem / Description	Cause / Solution
The LCD Panel displays OUT OF CARDS message.	1. Check for cards in the card feeder. If no cards present, load cards. 2. Check that Card Thickness Control lever is properly adjusted (see Loading Cards in Chapter 2). 3. Press the Panel Button for 1 second. The printing job will restart.
The LCD Panel displays OUT OF RIBBON message.	1. Check ribbon. Replace if defective or entirely used. Ribbon will automatically synchronize and printing will restart with a new card.
The LCD Panel displays PRINT HEAD OPEN message.	1. Check that Print Head Carriage is closed and latched. If not, close and latch it.
The LCD Panel displays MECHANICAL ERROR message.	1. Check that you are using the correct card type (see Technical Specifications). 2. Check that Card Thickness Control lever is properly adjusted (see Loading Cards in Chapter 2). 3. If 2 cards are fed into the printer at the same time: Open cover and remove Card Cleaning Cartridge, empty the Card Feeder, and pull the jammed cards out. Replace the Card Cleaning Cartridge. Remove cards from Card Feeder, separate them as shown in Loading Cards in Chapter 2, and replace. 4. Check that ribbon is loaded correctly.
The LCD Panel displays ENCODING ERROR message.	1. Check that you are using the correct magnetic card type (for low or high coercivity encoding). 2. Verify command syntax. 3. Contact Zebra technical support.
The LCD Panel displays CLEAN PRINTER message.	1. Printer cleaning required (see Chapter 4).

Print Quality Issues

This section will help you resolve print quality problems. The print quality is dependent on several factors. The two most important factors that will increase your print quality are cleanliness and card stock. To diagnose and fix print quality problems, follow the troubleshooting procedures below:



Example 1 • Small spots appear on the printed card with a non-printed area or a different color.



Possible Cause:

- Contamination on the card surface.

Solutions:

- Check that cards are stored in a dust free environment.
- Use a different supply of cards.

Possible Cause:

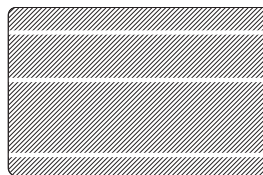
- Dust inside the printer and/or dirty Cleaning Roller.

Solutions:

- Perform a Cleaning of the printer (see Chapter 4).
- Replace Cleaning Roller (see Chapter 4).



Example 2 • There are non-printing horizontal lines (white) on the card surfaces.



Possible Cause:

- Ribbon cartridge is not correctly positioned.

Solutions:

- Ensure that the ribbon is properly rolled onto the ribbon cores of the cartridge and that there are no wrinkles in the ribbon.
- Replace ribbon cassette, making sure it locks in place.

Possible Cause:

- Print Head is dirty.

Solution:

- Clean the Print Head

Possible Cause:

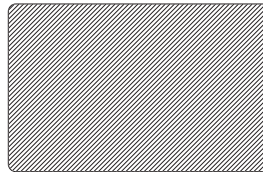
- Print Head elements are damaged (e.g., scratched or burnt).

Solution:

- Call Zebra Customer Service for Print Head replacement information.



Example 3 • Printing shows very pale, very dark, or inconsistent results



Possible Cause:

- Ribbon has been stored improperly or is damaged.

Solution:

- Change ribbon and print again.

Possible Cause:

- Cards may not meet specifications.

Solution:

- Use a different supply of cards.

Possible Cause:

- Contrast and/or Intensity may be set to incorrect values.

Solution:

- Adjust Contrast and/or Intensity values in software.

Possible Cause:

- Head Settings are too low / high.

Solution:

- Adjust Head Settings higher / lower.

Possible Cause:

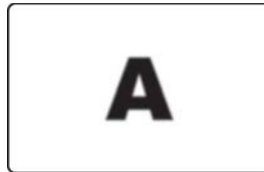
- Dust or embedded contamination on elements of the Print Head.

Solution:

- Perform a Cleaning of the Print Head (see Chapter 4).



Example 4 • Printing shows blurry printed image.



Possible Cause:

- Ribbon cartridge may not be correctly positioned.

Solution:

- Check that the ribbon is properly rolled onto the ribbon cores of the cartridge.
- Replace ribbon cartridge, making sure it locks in place, and print again.

Possible Cause:

- Ribbon may not be synchronized on the correct color panel position.

Solution:

- Open the Print Head Carriage, then close it. This will cause the ribbon to re-synchronize.

Possible Cause:

- Cards may not meet specifications.

Solution:

- Use a different supply of cards.

Possible Cause:

- Dust or embedded contamination inside the printer and/or dirty Cleaning Roller.

Solution:

- Clean the Print Head.
- Replace the Cleaning Roller.



Example 5 • No printing on the card.

Possible Cause

- Ribbon may not be installed in the printer.

Solution:

- Check for ribbon in the printer.

Possible Cause

- Cards may not meet specifications.

Solution:

- Use a different supply of cards.

Possible Cause

- Print Head elements may be scratched or burnt.

Solution

- Call Service for Print Head replacement information.



Example 6 • Only one panel of a color ribbon prints.

Possible Cause

- Using the wrong type of ribbon.

Solution:

- Use only *i* Series ribbons for full color printing.



Note • For optimum print quality, always keep the Main Cover and the Card Feeder Cover of the printer closed.

Troubleshooting the Ethernet Connection and Adapter

Resetting to Factory Defaults

To reset the Ethernet Adapter configuration parameters to the factory defaults, press the Panel Button and hold it in while turning the printer power on. Keep the Panel Button pressed until the Status Indicator light turns green, then release the Panel Button. To print a configuration card, press and hold the Ethernet switch.

Ethernet Adapter Status Indicator

A bi-color Status Indicator displays the operational status of the Ethernet Adapter. The following conditions might occur:

1. During normal operation, the LED is solid **green** for more than 30 seconds. This indicates all the hardware is functioning properly and the Ethernet Adapter has detected the presence of the network. It does not mean the Ethernet Adapter has an IP address or is attached to a printer queue.
2. If the LED is rapidly flashing **green** (9 times/sec), the Ethernet Adapter has not detected the presence of a network cable. To solve the problem:
 - Verify that the network cable is appropriate for the network and has an RJ-45 connector.
 - Turn the printer power off (O). Remove the network cable from the Ethernet Adapter. Plug the network cable back in until you hear a positive click. Check the other end of the cable in the same manner. Turn the printer power on; if the Ethernet Adapter still does not detect a cable, continue.
 - Connect the Ethernet Adapter to a known good network connection. If the Ethernet Adapter is still unable to detect the network cable, contact Technical Support for assistance.
3. If the LED is slowly flashing green (1 time/sec), the Ethernet Adapter is trying to print a job. If the job does not print, check the following:



Important • Cables with a rating higher than CAT-6 have **not** been tested.

- Verify that the printer has media and ribbon. If the printer is showing any errors, it is unlikely that the Ethernet Adapter can send data to the printer. The LED continues to blink until the printer malfunction is resolved or until the printer is turned off (O).
 - Flashing red indicates the Power On Self Test (POST) is in progress.
4. If the LED is solid **red** for more than 30 seconds, the Ethernet Adapter has failed the POST. A failed POST can be caused by any of the following:
 - The printer attached to the Ethernet Adapter device is malfunctioning. Turn the printer power off, wait 10 seconds, then turn the printer back on (I).
 - If the Ethernet Adapter still fails the POST, the Ethernet Adapter has a hardware problem that can be fixed only by replacing or returning the unit. Contact Technical Support for repair or replacement information.

5. If the LED is alternately flashing **red** and **green** for longer than 2 minutes, the Ethernet Adapter is in firmware-download mode. This means it is waiting for new firmware data to be sent before it continues normal functioning. Perform the following:
 - If the Ethernet Adapter was purposely put into firmware-download mode, finish the download with the proper update utility. Contact the Zebra web site at <http://www.zebra.com> to download this utility.
 - Contact Technical Support for help recovering this unit.

Network Status/Activity Indicator

A bi-color Status/Activity LED indicates network speed, established link, and network activity.

1. If the LED is off, no link was established.
2. If the LED is solid **green**, a 100Base link is established.
3. If the LED is flashing **green**, a 100Base link is established and network activity has been detected.
4. If the LED is solid **orange**, a 10Base link is established.
5. If the LED is flashing **orange**, a 10Base link was established and network activity has been detected.

Network activity detected by this LED does not mean the activity is data for the print server. The activity is all activity on the network seen on the Ethernet Adapter.



Technical Specifications

General Specifications

- Full color dye-sublimation card printing
- 25 seconds per card single-sided color printing (YMCKO)
- Monochrome thermal transfer printing
- 4 seconds per card monochrome

Ribbon Specifications

- Patented ribbon core and spindle system
- *i* Series technology featuring RFID



Note • "*i* Series" Printers require the use of "*i* Series" ribbons for full color printing. For more information about Card Media and Ribbons available from Zebra Technologies Corp., please refer to the Media List on the Windows Drivers and User Documentation CD supplied with this printer.

Card Specifications

- Types: PVC or Composite
- Card Width/length ISO CR-80 - ISO 7810, 2.125" (54 mm) x 3.375" (86 mm)
- Option: Magnetic Stripe - ISO 7811
- Card thickness: 10-60 mil (0.25-1.5 mm) $\pm$ 10%
- Card feeder capacity: up to 100 cards (30mil) (Optional high-capacity feeder: up to 220 cards)
- Reject card hopper capacity: 20 cards (30 mil)
- Card output hopper capacity: 100 cards (30mil)

Bar Codes

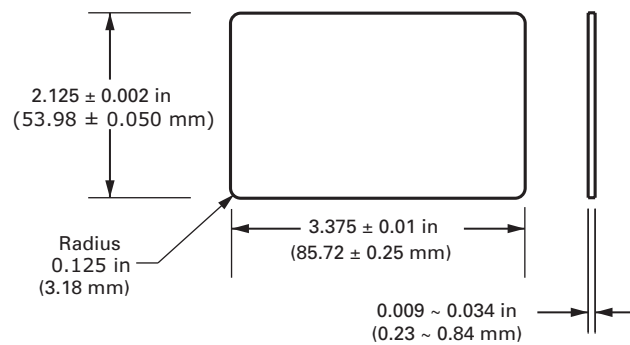
- Code 39, Code 128 B & C with & without check digit
- 2 of 5 and 2 of 5 interleaved
- UPC-A, EAN8, and EAN13
- PDF-417 2D bar code and other symbologies available via Windows printer driver

Fonts

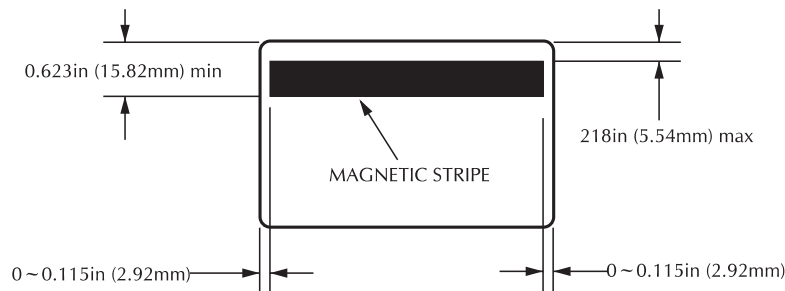
- Arial and Arial Bold
- True Type fonts available via Windows Driver

Card Dimensions

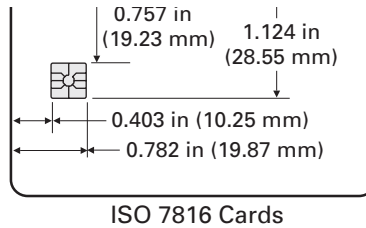
ISO Standard 7810 Dimensions for Plain Card



ISO Standard 7811 Dimensions for Magnetic Stripe Card



Contact Location for Smart Card ISO Standard 7816



Bi-Directional Communications Interfaces

- USB
- Built-in Ethernet (optional)

Mechanical Specifications

- Width: 18.2 in (462 mm)
- Depth: 9.4 in (239 mm)
- Height: 10.1 in (256 mm)
- Weight: 15.5 lbs (7 kg)

Electrical

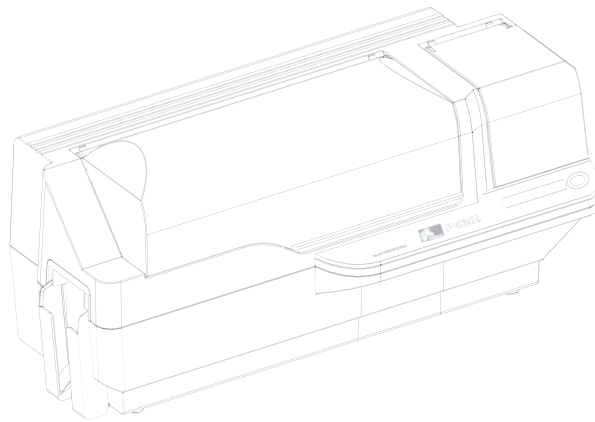
- 110 ~ 230 Volts AC $\pm 10\%$ (99 - 254 V), 60 ~ 50 Hz $\pm 3\text{Hz}$ (47 - 63 Hz)
- FCC Class B, CE, UL, and CUL approved

Environmental

- Operating Temperature: 60°F to 86°F (15°C to 30°C)
- Operating Humidity: 20% to 65% non condensing
- Storage Temperature: 23°F to 158°F (-5°C to 70°C)
- Storage Humidity: 20% to 70% non-condensing
- Ventilation: Reasonably dust free air environment

Options

- Built-in Ethernet network communications
- Three track magnetic stripe encoder (standard and reverse)
- High capacity feeder (220 30-mil cards)
- Contactless encoding (MIFARE and HID iCLASS)
- Contact encoding (Station and encoder)



APPENDIX A

Magnetic Card Stripe Encoder



Introduction

This Appendix includes operation and maintenance requirements for the P430i Printer with the optional magnetic card stripe encoder. (See Chapter 2 for location of the Magnetic Card Stripe Encoder.)

The magnetic encoder can be set for either high or low coercivity. Use the printer driver to change the encoder setting.

Media Loading Orientation

The magnetic encoder may be installed with the read/write head positioned below the card path. Magnetic Card Stripe Encoder upgrade kits are also available.

When loading cards with magnetic stripes into the card feeder, please ensure that the magnetic stripe is down and nearer to the rear of the printer.



Also available are Printer models with the Magnetic Read/Write head positioned above the card path. When loading cards into one of these models, ensure that the magnetic stripe is up and nearer to the rear of the printer.



Sample Encoding Program

Refer to the Programmer's Manual (part number 98001-001).



Note • ONLY USE cards that comply with ISO 7810 and 7811 standards for magnetic stripe cards. The magnetic stripe must be flush to the surface of the card to work properly. Never use cards which have taped-on magnetic stripes.

Magnetic Encoder Cleaning

The Magnetic Encoder Read/Write Head is cleaned as part of the printer cleaning process. If the frequency of encoding errors increases, the magnetic encoder head may need cleaning.

When to Clean

When the LCD Panel displays the message **ENCODING ERROR** at an increasing frequency.

How to Clean

1. Leave power on.
2. Press and hold the front panel button for a few seconds.
3. Open the main cover and release the Print Head Carriage latch, raise the Print Head Carriage, and remove the ribbon. Close the Print Head Carriage.
4. Close the main cover.
5. Open the Card Feeder cover and remove any cards.
6. Insert a Pre-Saturated Cleaning Card (provided) into the slot below the Card Feeder. The cleaning card will feed into the printer and carry out the cleaning process. Repeat the process with a new cleaning card if necessary.
7. Additional cleaning of the magnetic head can be accomplished using the alcohol-soaked swabs provided with the printer. Follow the directions given in Section 4.

ISO Standard Encoding

Track #	Field Separator	Track Density	Valid Characters	# of characters
1	^	210 BPI*	Alphanumeric (ASCII 20~95†)	79‡
2	=	75 BPI*	Numeric (ASCII 48~62)	40‡
3	=	210 BPI*	Numeric (ASCII 48~62)	107‡

*Bits per inch

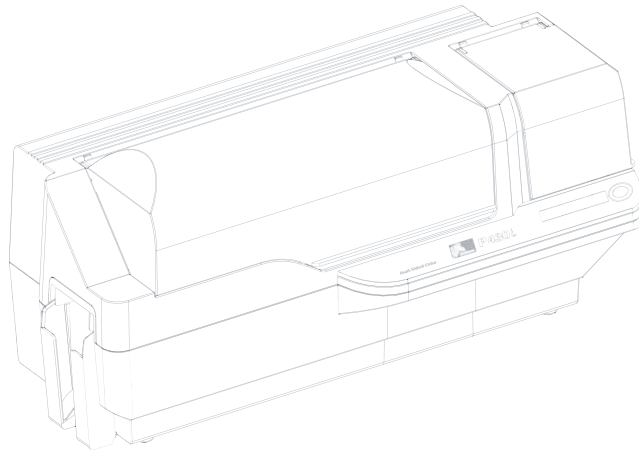
†Except the “?” character

‡Including Start, Stop, and LRC characters. Also note that these 3 characters are automatically managed by the magnetic encoder according to the ISO Standard Norms.



Note • Refer to the Card Printer Programmer’s Manual for complete programming information.

Magnetic Card Stripe Encoder
ISO Standard Encoding



APPENDIX B

Smart Card Contact Station



This section contains information on the additional operations of a P430i Printer equipped with the optional Smart Card Contact Station. (See Chapter 2 for location.)

Introduction

Smart Cards can have a built-in microcomputer and/or memory to store fingerprints, voice recognition patterns, medical records, and other such data. The P430i Printer may be equipped with an optional contact station for programming Smart Cards (ISO 7816). This printer model responds to commands that position the card at the contact station, where the printer connects to the contacts on the Smart Card. All other printer operations remain the same as the standard P430i model.

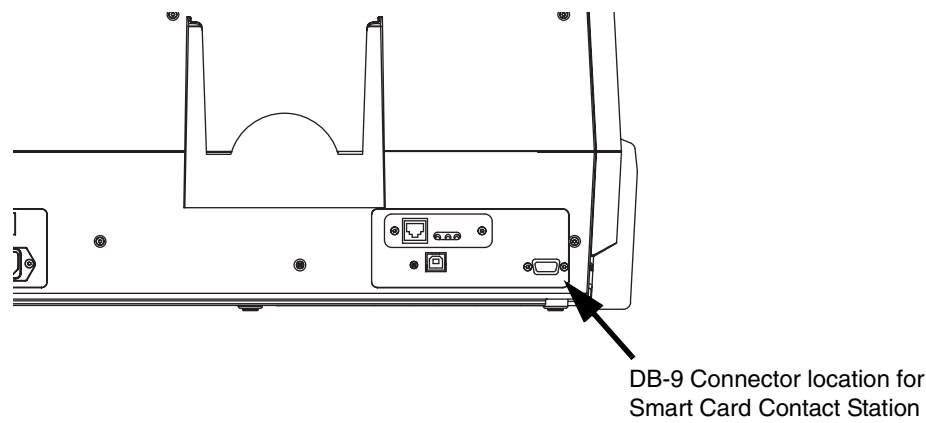
Media Loading Orientation

Orient the cards with the gold-plated Smart Card contacts at the top surface of the card and facing to the left.



Smart Card Contact Station Interface

When a command to the printer interface sends a card to the Smart Card Contact Station, the printer connects the Smart Card Contact Station to the female DB-9 connector on the rear of the printer.



An attached external Smart Card Programmer can be used to program Smart Card chips. The following table shows the Smart Card Contact Points.

DB-9 Pin	Smart Card Contact Points	DB-9 Pin	Smart Card Contact Points
1	C1 (VCC)	6	C6 (Vpp)
2	C2 (Reset)	7	C7 (I/O)
3	C3 (Clock)	8	C8 (RFU)
4	C4 (RFU)	9	(GND when chip is at station)
5	C5 (GND)		

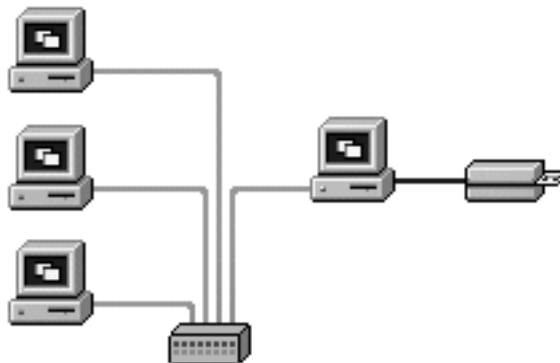


Connecting to a Network

Card printers can be connected to an Ethernet network in three ways.

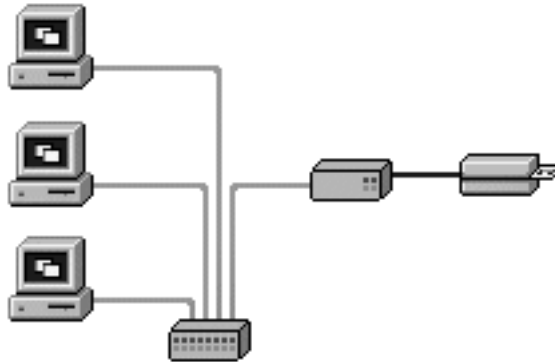
Printer Sharing

In printer sharing, the printer is connected locally to the host computer and configured to be shared to other client computers. Client computers connect to the printer over the network through the host computer.



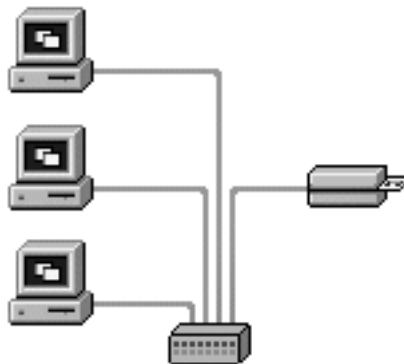
External Print Server

A stand alone device that acts as a server on the network specifically for receiving print jobs and passing them to the printer. Client computers connect to the print server over a network.



Internal Print Server

Similar to an external print server, except the print server is integrated into the printer. This removes the need for a separate power supply and separate device drivers. This is the simplest way to network a printer.



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