Zebra® P110*i* & P110*m*

Card Printers
User's Manual

Card Printer Solutions

Foreword

This manual contains installation and operation information for the Zebra P110*i* and P110*m* card printers manufactured by Zebra Technologies Corporation.

The only difference between these models is that the P110*i* supports full-color ribbons (which may include a protective overcoat panel), and the P110*m* supports monochrome color printing only. Photographs and drawings that show the front faceplate show the P110*i* name; for P110*m* printers these would show P110*m*.

In this manual, references that are specific to the P110*i* or P110*m* will be identified as such; references that apply to both models will use the term "the printer."

Copyright Notice

Trademarks

Product Disposal

Product Disposal Information • Do not dispose of this product in unsorted municipal waste. This product is recyclable, and should be recycled according to your local standards. For more information, please see our web site at: http://www.zebra.com/environment

Return Materials Authorization

Before returning any equipment to Zebra Technologies Corporation for in-warranty or out-of-warranty repair, contact Repair Administration for a Return Materials Authorization (RMA) number. Repack the equipment in the original packing material and mark the RMA number clearly on the outside. Ship the equipment, freight prepaid, to the address listed below:

For USA, Latin America, and Asia / Pacific:

Zebra Technologies Corporation
Zebra Card Printer Solutions
1001 Flynn Road
Camarillo, CA. 93012-8706.USA
Phone: +1 (805) 578-5001
FAX: +1 (805) 579-1808

For Europe and Middle East:

Zebra Technologies Corporation
Zebra Card Printer Solutions
Pittman Way, Fulwood
Preston, PR2 9ZD
Lancashire, U.K.
Phone: +44 - 1 - 772 - 797555
FAX: +44 - 1 - 772 - 693000

Declarations of Conformity

FCC Regulations

Models P110*i* and P110*m* have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and operated in accordance with the P110*i* and P110*m* User's Manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this equipment not expressly approved by Zebra may cause harmful interference and void the FCC authorization to operate this equipment.

Industry Canada Notice

This device complies with Industry Canada ICES-003 class A requirements.

Cet équipement est conforme à l 'ICES-003 classe A de la Norme Industrielle Canadienne.

CE	89/336/EEC modified by 92/31/EEC and 93/68/EEC	EMC Directive	EN 55022 (1998)	RF Emissions control
		EMC Directive	EN 301489-3 V1.4.1	RF Emissions and Immunity for radio equipment
		EMC Directive	EN55024 (2001)	Immunity to Electro-Magnetic Disturbances
	73/23/EEC modified by 93/68/EEC	Low voltage Directive	EN 60950-1 (2001)	Product safety
	1999/5/CE	R&TTE Directive	EN300330-2 V1.1.1	Radio Frequency Interferences

For a formal certificate, please contact the Compliance Office at Zebra's Camarillo facility.

EUROPE: Norway Only: This product is also designed for IT power system with phase to phase voltage 230V. Earth grounding is via the polarized, 3-wire power cord.

FI: "Laite on liitettävä suojamaadoitus koskettimilla varustettuun pistorasiaan"

SE: "Apparaten skall anslutas till jordat uttag"

NO: "Apparatet må tilkoples jordet stikkontakt"

Icons

Throughout this manual, different icons highlight important information, as follows:

Note • Indicates information that emphasizes or supplements important points of the main text.

Advises you of information that is essential to complete a task, or points out the importance of specific information in the text.

Electric Shock Caution • Warns you of a potential electric shock situation.

Electrostatic Discharge Caution • Warns you of a situation where electrostatic discharge could cause damage to electronic components.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to you, or could result in physical damage to the hardware.

Printer Models

The Zebra Product Number tells a story:

Here is a quick review of the Zebra Card Printer Series numbering and lettering system to help you.

Model numbers include identifiers that specify options using the following lettering conventions:

Part Number	Description

P 1 1 0 *i* – _ _ _ _ _ – _ _ _
 P 1 1 0 *m* – _ _ _ _ _ – _ _ _
	Base Printer
	    P110*i* Single Sided Color Card Printer
	    P110*m* Single Sided Monochrome Card Printer

_ _ _ _ _ – 0 _ _ _ _ – _ _ _	Smart Card Options None

_ _ _ _ _ – _ 0 _ _ _ – _ _ _
 _ _ _ _ _ – _ M _ _ _ – _ _ _
	Magnetic Encoder
	    None
	    Yes (select defaults below)

_ _ _ _ _ – _ _ 0 _ _ – _ _ _
 _ _ _ _ _ – _ _ 1 _ _ – _ _ _
	Magnetic Encoder Defaults
	    None
	    Stripe Down, HiCo/LoCo

_ _ _ _ _ – _ _ _ 0 _ – _ _ _	Memory Expansion None

_ _ _ _ _ – _ _ _ _ A – _ _ _
 _ _ _ _ _ – _ _ _ _ C – _ _ _
	Interface
	    USB Only
	    USB and Ethernet

_ _ _ _ _ – _ _ _ _ _ – I _ _
 _ _ _ _ _ – _ _ _ _ _ – U _ _
	Power Cords
	    U. S. and Europe
	    U. K. and Australia

_ _ _ _ _ – _ _ _ _ _ – _ D _	Windows Drivers and User Documentation included on one CD (Software & Documentation Package) which contains Multi-language documentation - English, Spanish, French, German, Chinese, Italian, and Portuguese

_ _ _ _ _ – _ _ _ _ _ – _ _ 0
 _ _ _ _ _ – _ _ _ _ _ – _ _ S
	Starter Kit
	    No Starter Kit
	    Starter kit (including 200 - 30 mil PVC cards and one YMCKO ribbon, part number 800015-940) (P110*i* only)

Example	
P 1 1 0 *i* – 0 M 1 0 A – I D 0	P110*i* Single-Sided Color Card Printer, Magnetic Stripe Encoder (HiCoDn), Standard Memory, USB Inter-face, US and Europe Power Cords, Windows Driver and User Documentation CD
Accessories	
105862-001	P120*i*/110*i*/P110*m* Card Sense^{TM} single card feed upgrade kit
105912-912	P120*i*/110*i*/P110*m* Cleaning Kit, includes 4 print engine cleaning cards and 4 feeder cleaning cards

Table of Contents

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Getting Started

Unpacking Your Card Printer

Your P110*i* or P110*m* printer ships in a cardboard carton, protected by styrofoam inserts and a protective anti-static bag. Keep all packaging material in case you need to move or re-ship the printer.

1. Before opening and unpacking the printer, inspect the carton to ensure that no damage occurred during shipment.

2. Ensure that you have a clean and nearly dust free environment for proper operation and storage of the printer.

3. Unlatch and remove the handle, open the carton, and remove the box containing the printer accessories from the shipping carton.

4. Remove the styrofoam packing material from the top of the printer.

5. Lift the printer out of the carton by holding it on both sides of the bottom and lifting the printer gently from the carton.

6. Make sure the following accessories are included with your printer:
   a. Software CD-ROM
   b. Quick Start Guide
   c. Cleaning Kit
   d. 120 VAC and 230 VAC Power Cords
   e. Power Transformer
   f. USB Printer Cable

If any items are missing, please contact your dealer. To reorder; refer to Appendix D of this manual.

Controls and Indicators

Multi-Function LCD Panel

Your printer is equipped with a Multi Function LCD Readout Panel to provide printer status information. The readout is controlled by the multi-function control button directly below the viewing window.

Multi-Function LCD Panel

Multi-Function Control Button

P110*i*
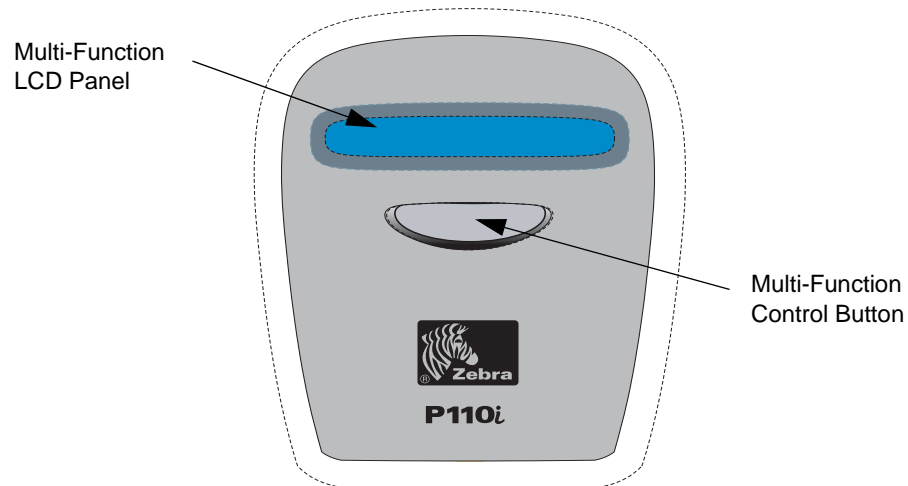
The LCD Panel can display the following messages:

Message	Mode
Operational	
Initializing	Fixed
SELF TEST	Fixed
READY	Fixed
DOWNLOADING DATA	Fixed
MAG ENCODING	Fixed
PRINTING MONO	Fixed
PRINTING CYAN	Fixed (These messages do not apply to the P110*m* Printer.)
PRINTING YELLOW	
PRINTING MAGENTA	
PRINTING BLACK	
PRINTING OVERLAY	
DOWNLOADING FIRMWARE	Fixed

Message	Mode
CLEANING	Fixed
REMOVE RIBBON THEN CLOSE LID	Scrolling
EMPTY FEEDER THEN CLOSE COVER	Scrolling
FEED LONG CLEANING CARD IN EXIT	Scrolling
REMOVE LONG CLEANING CARD	Scrolling
INSERT FEEDER CLEANING CARD	Scrolling
CLOSE FEEDER DOOR	Scrolling
REMOVE FEEDER CLEANING CARD	Scrolling
SINGLE CARD READY-PRINT OR EJECT	Scrolling
INSERT CARD	Fixed
PUSH BUTTON TO CONTINUE	Scrolling
Warnings (Printer will still operate)	
REMOVE CARD AT EXIT	Scrolling
CLEAN PRINTER	Fixed
CHECKING RIBBON	Fixed
ENCODING ERROR	Fixed
INVALID MAGNETIC DATA	Scrolling
CHECK RIBBON	Fixed
CLOSE LID	Fixed
FLASH ERROR	Fixed
READING ERROR	Fixed
Errors (Printer will not operate)	
OUT OF RIBBON	Fixed
OUT OF CARDS	Fixed
MECHANICAL ERROR	Fixed
COVER OPEN	Fixed
PARAMETERS ERROR	Fixed
COMMAND ERROR	Fixed
LID OPEN	Fixed
OUT OF RIBBON	Fixed

Rear Panel Connectors, Controls, and Indicators

The figure below shows the rear of the P110*i* or P110*m* Printer.
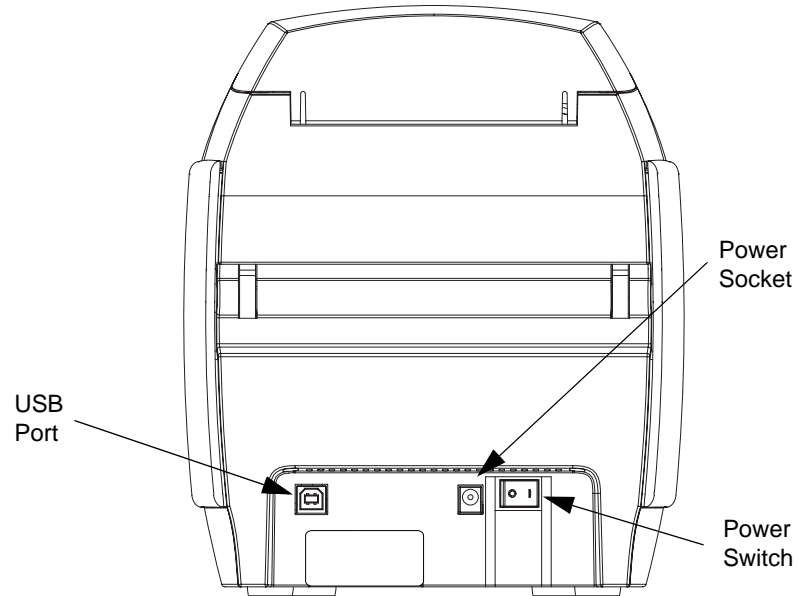
Power Switch

The power switch is located at the rear of the printer unit, bottom right.
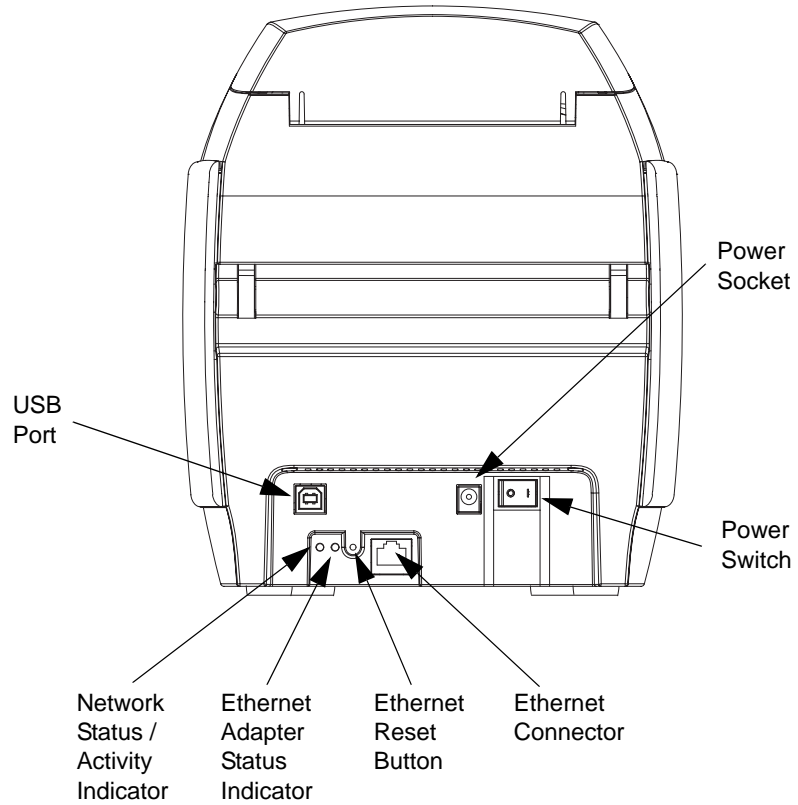
Power Socket

The power socket is located at the rear of the printer, to the left of the power switch.

USB Port

The USB port is located at the rear of the printer unit, bottom left.

Ethernet Option

If your Printer includes the Ethernet option, the rear of the printer will look like the figure below.

Power Socket

USB Port

Power Switch

Network Status / Activity Indicator

Ethernet Adapter Status Indicator

Ethernet Reset Button

Ethernet Connector

Printer Installation

Installing the P110*i* or P110*m* Printer

Caution • Do not power the printer with USB attached to your computer at this time. THE DRIVER WILL PROMPT YOU WHEN IT IS TIME TO PLUG IN AND POWER UP YOUR PRINTER.

Caution • Limit electrical power supplied to the P110*i* or P110*m* Printer to 24 VDC. Limit excess current draw to 16 amps or less, using an associated circuit breaker or other such device. Never operate the printer in a location where operator, computer, or printer can get wet. Personal injury could result. The printer must be connected to an earthed electrical power supply and properly protected against electrical surges and grounding faults. The power supply pack can only be replaced by the same product from the manufacturer.

1. Place the printer in a location that allows easy access to all sides. The printer should never be operated while resting on its side or upside down

2. Remove the yellow CAUTION label from the back of the printer.
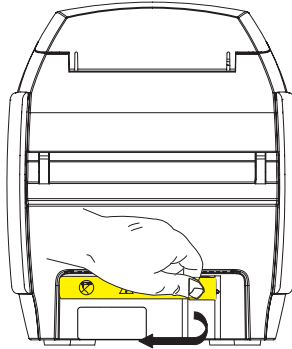
3. Ensure that the printer's power switch is in the OFF (O) position.
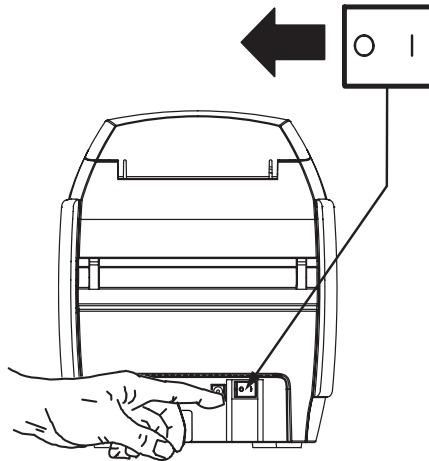
4. Insert the power supply plug into the power socket, attach the power cord (120VAC or 230VAC) to the power supply, then plug the power cord in to a grounded electrical socket of the proper voltage and type.

115 VAC

230 VAC
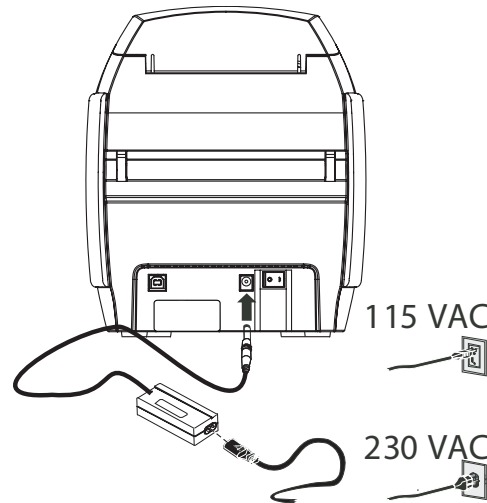
Caution • Intermittent or unpredictable operation may occur from unsecured connectors. If damaged, the power cable must be replaced by an exact equivalent. The socket should always be easily accessible to power off the printer.

5. If your printer has only the USB interface, attach the included USB cable to your computer and the printer.
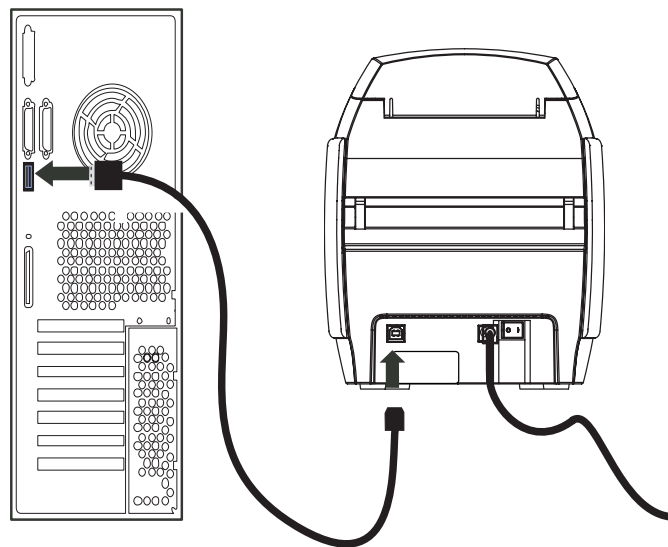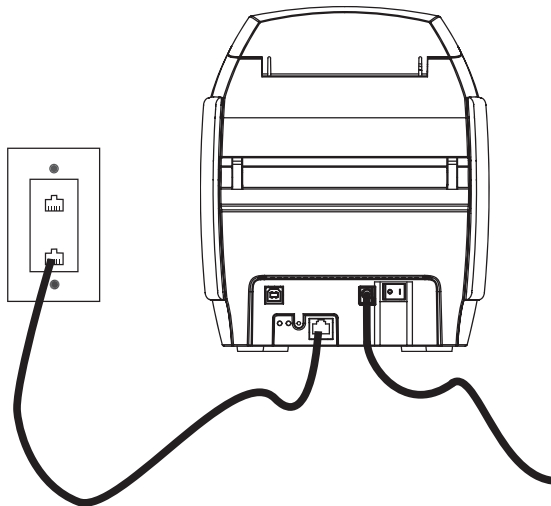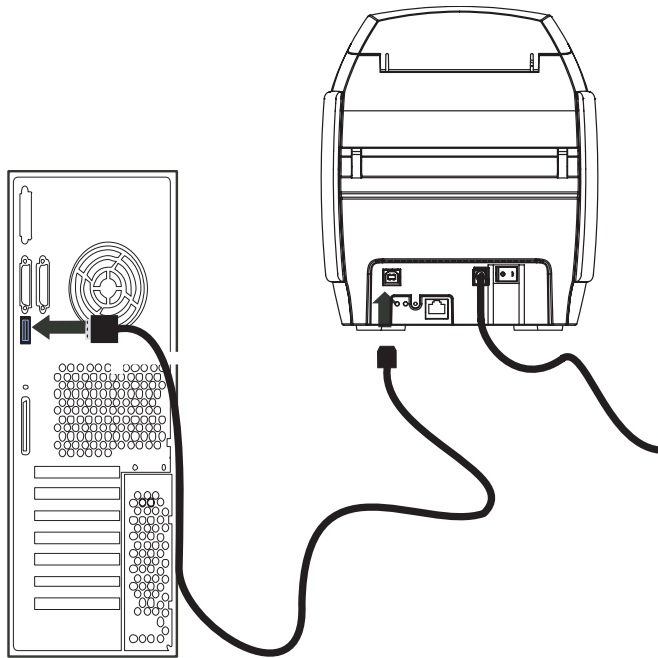
6. If your printer has the optional Ethernet interface (as well as the USB interface), connect **either** the USB cable to printer and computer or the Ethernet cable to the printer and the Ethernet network.

! **Important •** Do not connect both the USB and the Ethernet interfaces at the same time!

Installing the Printer Driver

> **!** **Important •** Do not power the printer with USB attached to your computer at this time. The driver will prompt you when it is time to plug in and power up your printer.

To install the Printer Driver on Windows 2000 and Windows XP operating systems, insert the User Documentation and Drivers CD, included with your printer, into your computer and the InstallWizard will walk you through the required installation steps.

Both the P110*i* and P110*m* Printers use the same Printer Driver.
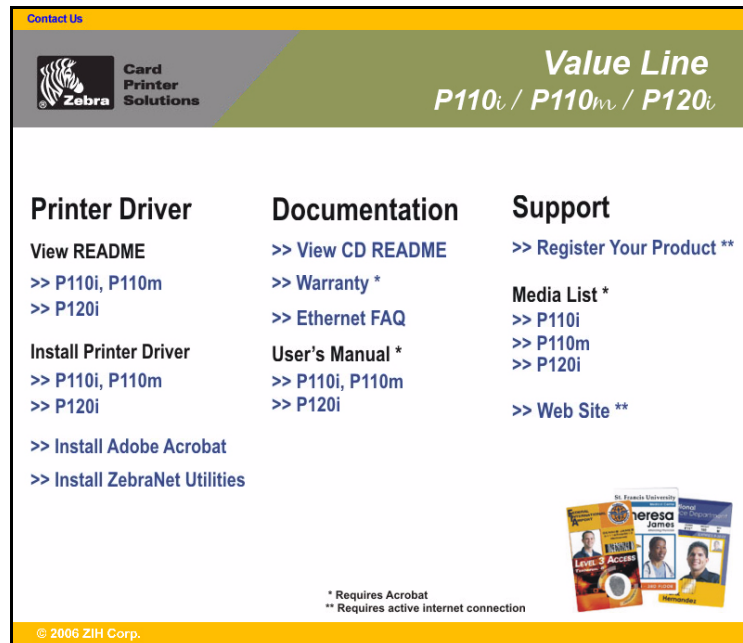
The InstallWizard will:

- Automatically install the User Interface when the driver CD is inserted.
- Start the installation process when the **Install Printer Driver** menu item is selected from the Main Menu.
- Allow you to install Ethernet drivers, if you plan on networking your card printer via an external print server
- Check to see which operating system you are using
- Detect previous versions of the driver and clean up any unnecessary Windows registry entries. You must select "Remove" from the install options to remove any previous driver versions.
- Install the new driver files
- Reboot your computer

Print Driver Installation

Install the Printer driver as follows:

1. Insert the **P110*i* / P120*i* / P110*m* User Documentation and Drivers** CD into the CD drive of the host computer. The **Select Language** window will open.

2. From the **Select Language** window, choose the appropriate language for your system. The Main Menu will open in the selected language.

3. From the **Main Menu**, under **Install Printer Driver,** select P110*i* / P110*m*.

Note • Note that the Driver installer will refer to the P110*i*. Remember, the same driver is used for both the P110*i* and P110*m* Printers.
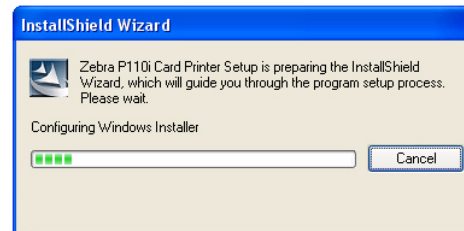
4. The InstallShield Wizard will be installed and a progress window will be displayed. Once the InstallShield Wizard has been installed, the **Welcome to InstallShield Wizard** window will open.
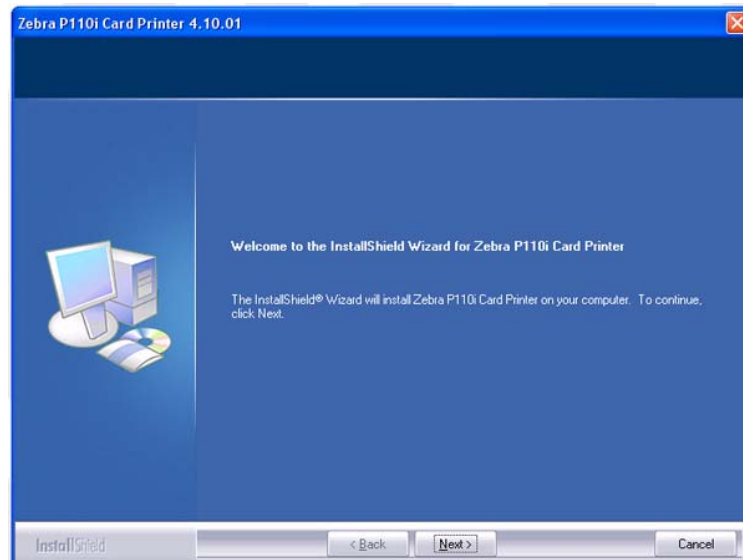
5. On the **Welcome to InstallShield Wizard** window, click the **Next** button.

6. Select USB or Ethernet, click the **Next** button, then follow the instructions that appear on the screen.
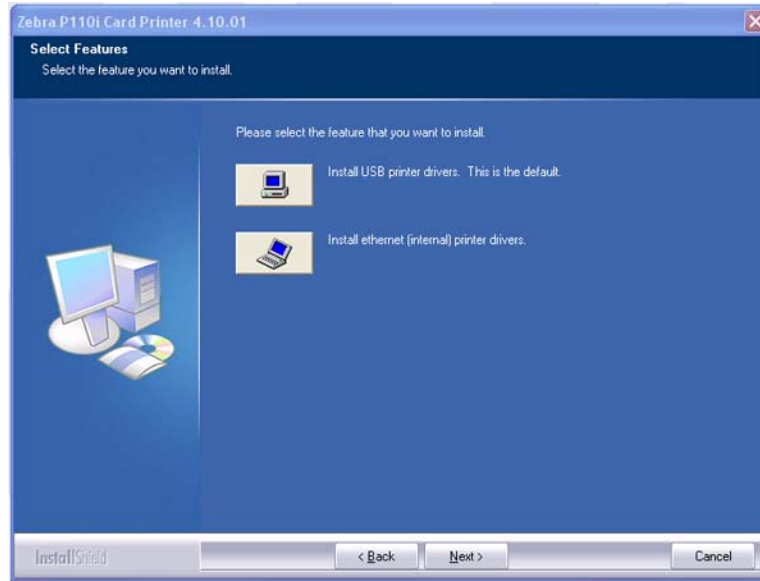
7. When driver installation is complete, you will be prompted to restart your computer.

Change Printer Driver Options

Note • The screen shots shown in this section are for the P110*i* Printer using the USB interface. If you are using the Ethernet interface, the screens will refer to the "Zebra P110i Network Printer." Again, remember that the P110*m* Printer uses the same driver.

You can change the default settings for the printer driver. Change the options as follows:

1. Select Start>Settings>Printers and Faxes.
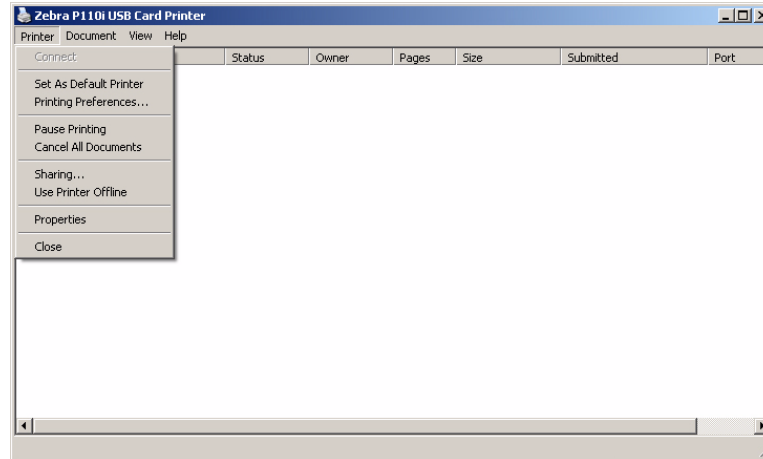
2. From the Printers and Faxes list, right click the P110*i* USB Card Printer and select **Properties** from the pop-up menu. The **Printer Properties** window will open.
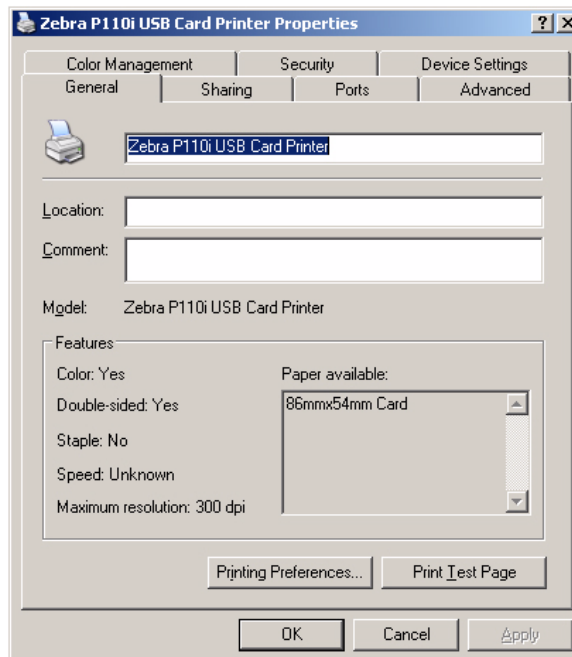
3. On the General tab, click on the Printing Preferences button to change the card orientation settings, monochrome conversion settings, various ribbon settings, or to adjust the color and head settings properties.
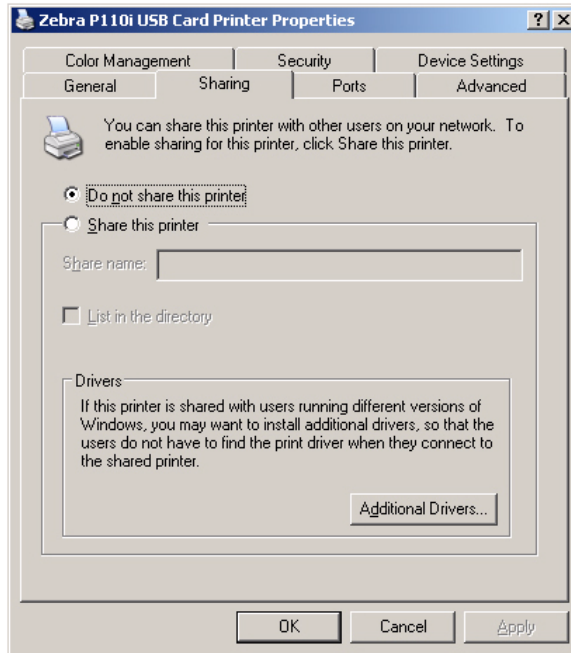
4. On the Sharing tab, you can choose to share the printer over the network, and install additional drivers to accommodate different operating systems.
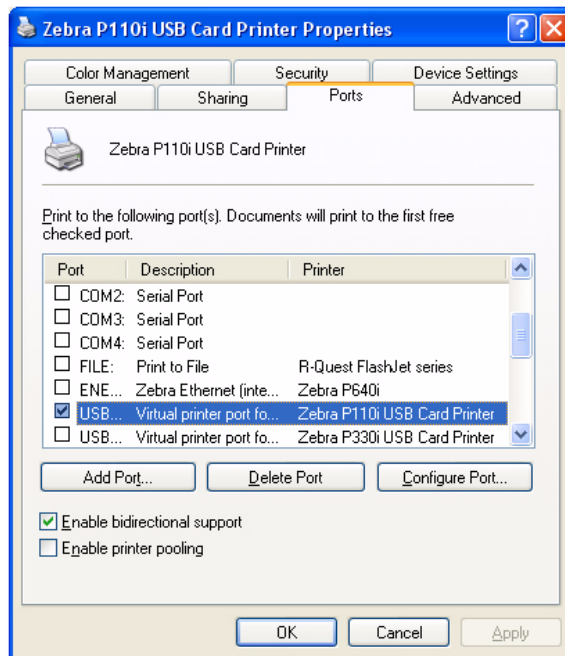
5. On the Ports tab, you can add, delete, and configure the printer ports, as well as choose which port the printer is assigned.
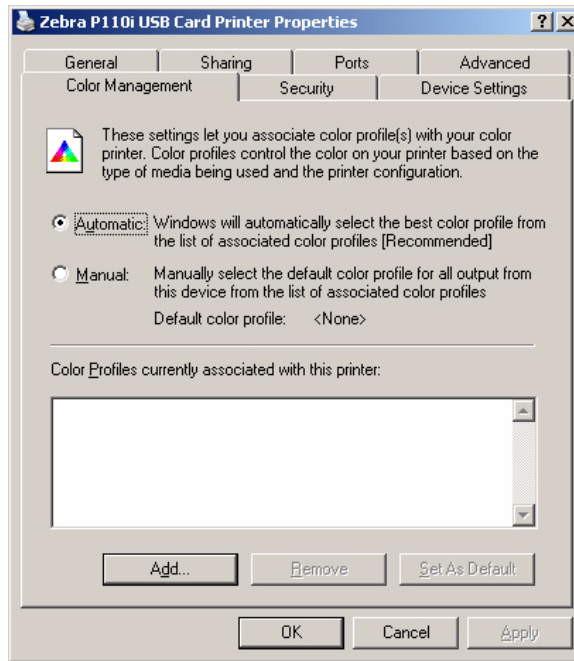
6. On the Color Management tab, you can add, remove, or change printer color profiles.
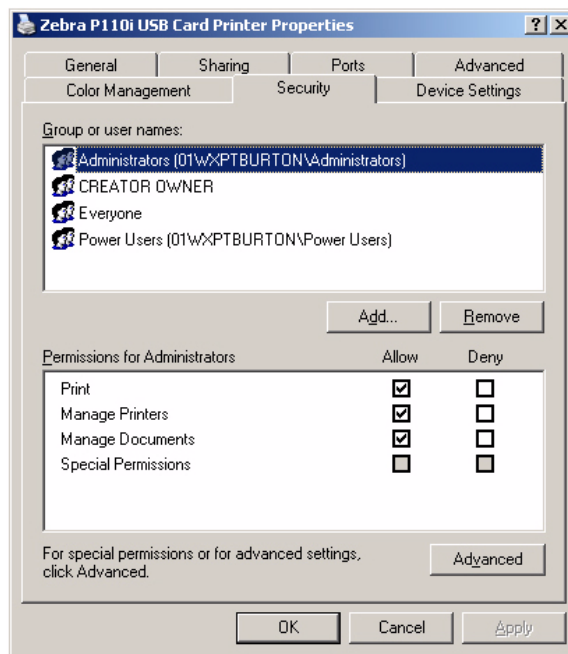
7. Use the Security tab to change permissions for the printer.
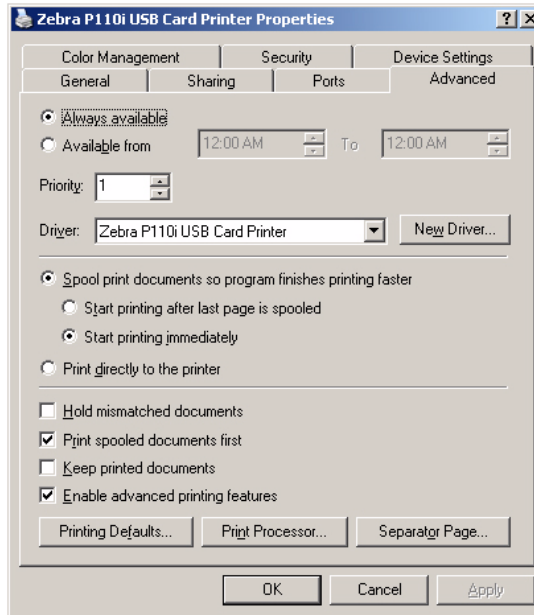
8. On the Advanced tab, you can choose various printer properties, install different printer drivers, and change default printer settings.
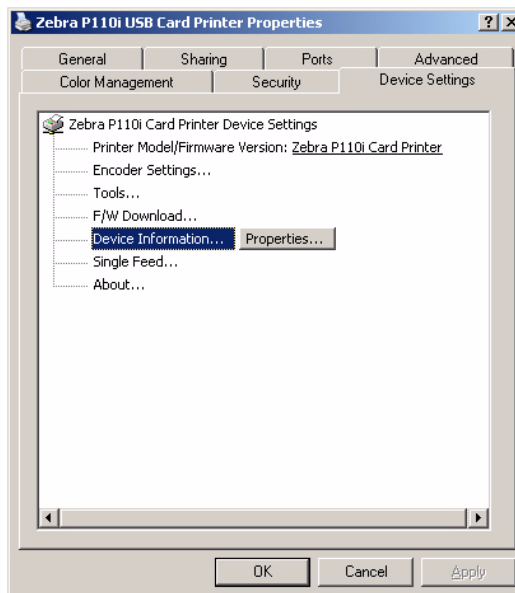
9. On the Device Settings tab, you can change settings for a Magnetic Encoder and change to or from single feed mode.

10. Once the printer driver options have been configured to your satisfaction, click the OK button to save your new configuration and close the Properties window.

Printer Setup

Printer Features

The following shows an interior view of your P110*i* / P110*m* Printer.

Print
Head

Lid

Card
Output
Hopper

Ribbon
Cartridge

Card
Guide

Card
Feeder

:
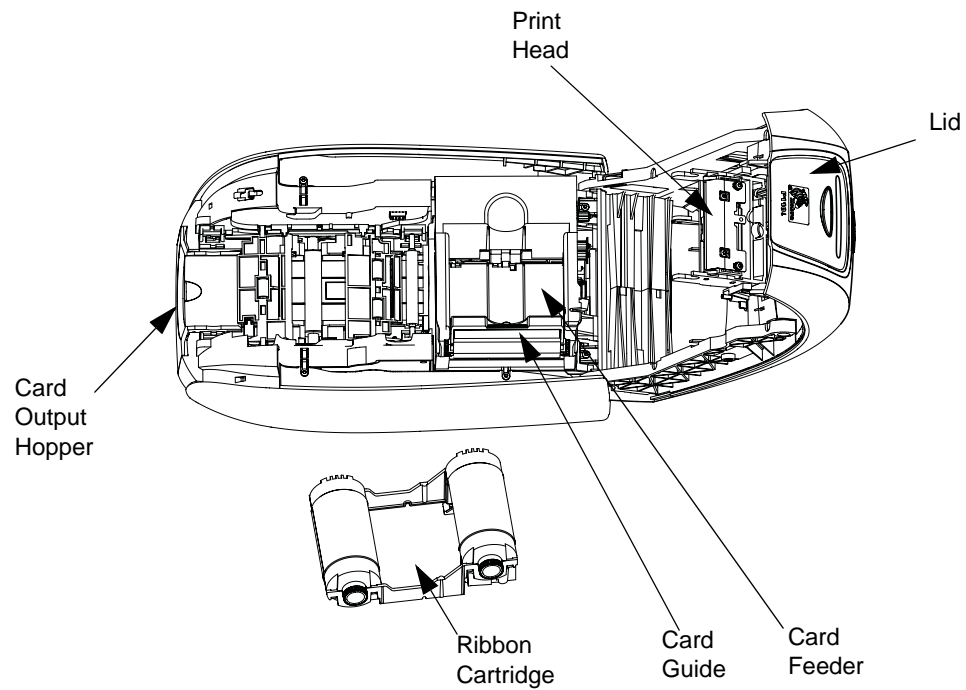
Loading Ribbon Cartridge

The Printer requires approved ribbon cartridges. The Resin Thermal Transfer and Dye Sublimation ribbons are specifically designed for your Printer.

- *i* Series Printers require the use of *i* Series ribbons for full color printing.
- Each ribbon cartridge includes an integrated adhesive cleaning roller assembly that is used to clean the cards entering the printer. Improper cleaning will reduce printer life and degrade print quality
- When the ribbon is completely used, change the whole cartridge assembly.

Electrostatic Discharge Caution • DO NOT TOUCH the print head or the electronic components on the print head. Discharge of electrostatic charge from the human body or other surfaces can damage the print head or other electronic components

1. Open printer lid by pressing the Cover Release button on the top of your printer.

2. Peel protective wrapper from adhesive cleaning roller by gently pulling on the tape. Discard the protective wrapper.

Adhesive
Cleaning
Roller
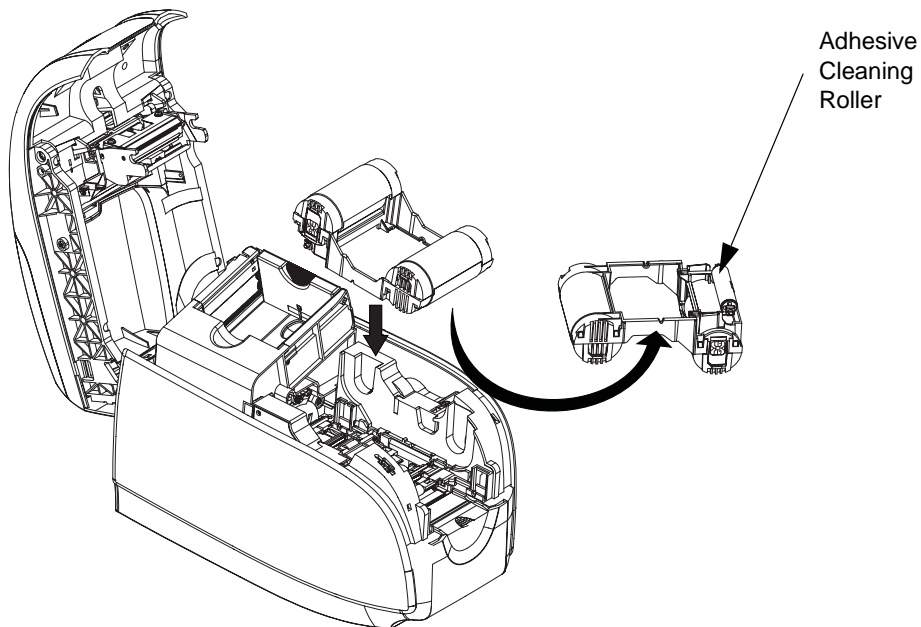
3. Insert the ribbon cartridge with the cleaning roller facing down, so the gears on the ends of the rollers fit into the appropriate slots.

4. Close the printer lid and push down until you hear an audible click.

> **Note •** After the lid is closed, the ribbon automatically synchronizes when the printer power is on.

Loading Cards

To help you load, print, and collect cards, the printer has the following items:

Card Feeder

The card feeder is used for loading cards, it can hold up to 100 cards of 30 mils thickness. The card feeder is located under the card feeder cover of the Printer.

> **Caution • DO NOT** bend cards or touch print surfaces as this can reduce print quality.

> **Note •** The surface of the cards must remain clean and dust free. Always store cards in an enclosed container. Ideally, use cards as soon as possible. If cards stick together, carefully fan or shuffle them.
>
> **Note •** For Cards with magnetic stripe, refer to Appendix A for loading instructions.

Load cards into card feeder as follows:

1. Open card feeder cover.

2. Slide card guide all the way to the right until it locks in place with an audible click.

Card
Feeder
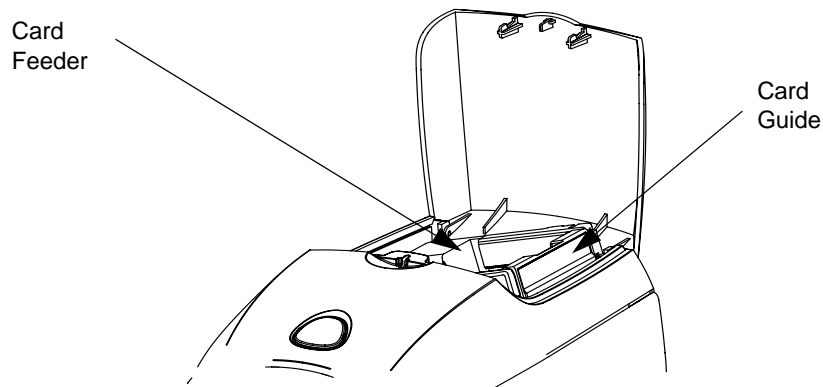
Card
Guide

3. Remove cellophane wrapper from card stack.
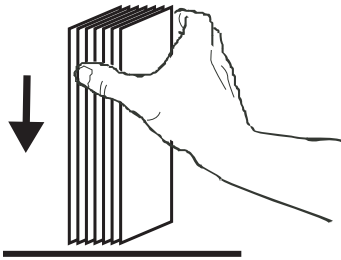
Note • Static charges and edge burrs from the card die-cutting process can render individual cards stuck together with significant adhesion force. These cards <u>must be</u> physically separated from each other before inserting into the feeder; if not separated, feeding or printing problems may occur.

4. Holding the card deck by the sides, hold it vertically against a flat surface such as a desktop. If the deck is too thick for your hand to hold it comfortably, use about half a deck at a time.
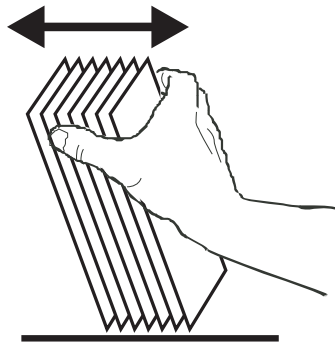
5. Push the stack back and forth to an angle of about 45° from vertical, so as to separate all of the cards.

6. Restore the card stack to its original squared-off condition, and place the cards in the input hopper.

7. Place stack of up to 100 cards into card feeder and close the card feeder cover. When card feeder cover is closed, the card guide locking mechanism will automatically be released.

Card Feeder Cover

Card
Stack

Card Feeder
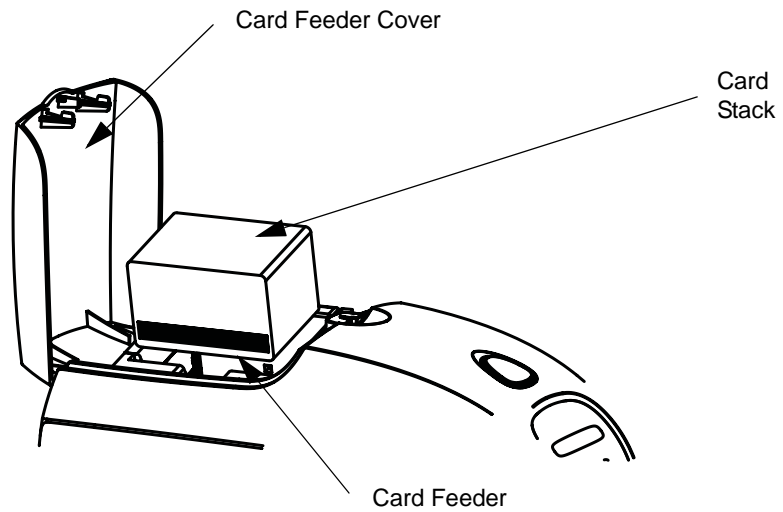
Card Output Hopper

1. Raise the printer lid and pull the output hopper down to place it in its functional position.

2. When not using the printer, place the card output hopper back in its closed position to protect the printer from dust.
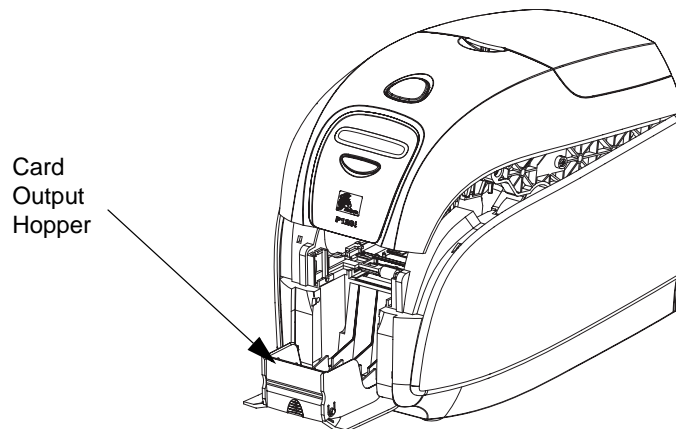
Card
Output
Hopper

Printing a Test Card

With ribbon cartridge and cards loaded, your printer is ready to print. To check the operation of the printer, you should print a test card.

1. Place the printer power switch in the OFF (0) position.

2. While holding down the Multi Function Button, place the printer power switch in the ON (|) position. The LCD status window will glow blue.

Multi-Function Switch

Power Switch

PLASTIC CARD PRINTER
PRINTER: P320CEM
Serial No.K000179
Firmware: V1.00
300 dpi

TEST CARD

Offset: 0002 - 1570
EC: 0016
Printing Counter: 00002178
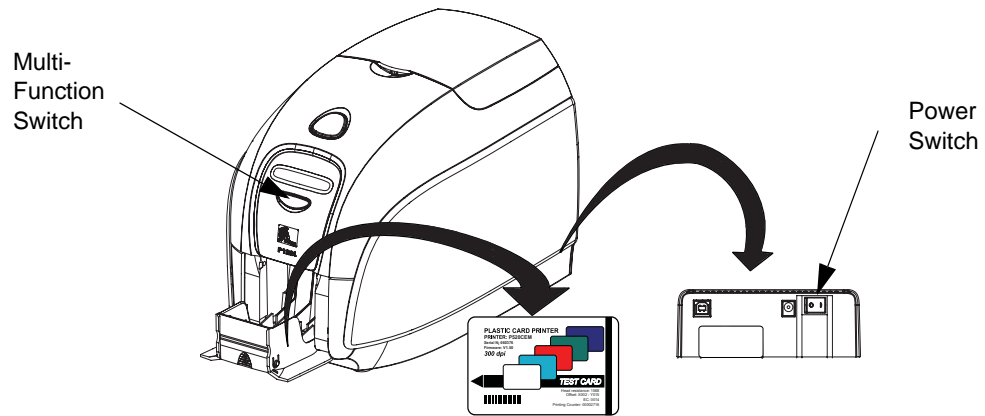
3. Keep pressing the Multi Function button until the SELF TEST message appears in the window.

4. Release the Multi Function button, and a test card will print after a few seconds.

4

Printer Operation

Printing

Printing with the P110*i* or P110*m* Printer requires the Windows Printer Driver, your card design/issuing software or printer command level programming through the printer interface.

The Printer can be used with any Windows 2000 or Windows XP software application program, using the drivers provided on CD with the printer. See Section 2 for instructions on installing the Printer Driver.

Creating a Sample Card

Before you begin a new printing session, print a sample card to ensure that the cards will be printed correctly. Follow the steps below to print your first card using the True Colours^{TM} Card Printer Ribbon Cartridge and the Windows printer driver.

1. Go to the Microsoft Word Software.

2. If the printer was not selected as the default printer, go to File> Select Printer and choose Printer from the printer names list. Close the Print dialog box.

3. Go to File>Page Setup.

4. Select the Size tab, and under Paper Size, choose Card. Under orientation, select Landscape or Portrait.

5. Select the Margins tab, and set the Top, Bottom, Left and Right margins to O (zero).

6. Press OK to close Page Setup window.

7. The card appears on the window.

8. Design a card with both black and colored text and with colored pictures similar to the sample card shown below. (For the P110*m*, design a card with text and pictures in the same monochrome color as the ribbon.)

Printing a Sample Card

Once you completed creating your sample card, you are ready to print. Ensure your printer has a True Colours™ Card Printer Ribbon Cartridge installed and there is card stock in the card feeder. See Section 3 for instructions on installing the ribbon and loading the cards Print your sample card as follows:.

1. Select File>Print to open the Print dialogue box. Ensure the following settings in the Print dialogue box:

   • Printer Name: - Zebra P110*i* Card Printer

   • Print to File: - Unchecked

   • Page Range: - All

   • Number of Copies: - 1

   • Collate: - Unchecked

   • Print What?: - Document

   • Print: - All pages in range

   • Pages per sheet: - 1 page

   • Scale to paper size: - No scaling
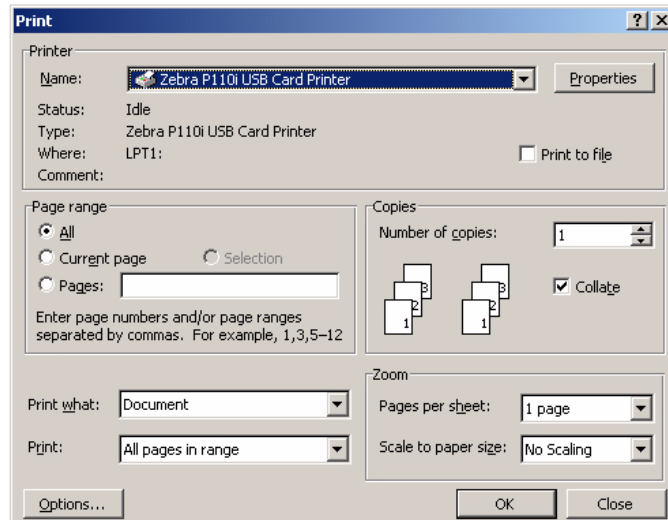
2. Click the OK button.

3. The printer will feed in a card and start printing. The data download time will vary depending on the complexity of the card design and the processing speed of the computer.

4. Once the printing is completed, the card is ejected from the printer into the printed card hopper.

5. Remove the sample card from the card output hopper and check for any discrepancies. If the sample card is correct, your printer is to produce more cards.

Cleaning

Cleaning System

Caution • PROTECT YOUR FACTORY WARRANTY!
The recommended maintenance procedures must be performed to maintain your factory warranty. Other than the recommended cleaning procedures described in this manual, allow only Zebra authorized technicians to service the P110*i* or P110m Printer.

NEVER loosen, tighten, adjust, or bend, etc., a part or cable inside the printer.

NEVER use a high-pressure air compressor to remove particles in the printer.

Your Printer includes a simple cleaning system using Pre-Saturated Cleaning Cards provided. The regular use of these cards will clean and maintain important parts of your printer that cannot be reached: including Print Head, the Transport Rollers, and the Magnetic Encoder Station (optional feature).

When to Clean

After approximately 1000 color cards have been printed, the printer LCD will prompt CLEAN PRINTER, or when print quality has been degraded.

How to Clean

1. Leave power on.
2. Press and hold the Multi-Function Control Button for 5 seconds.

Multi-Function
LCD Panel

Feeder Cleaning
Card

Card
Feeder
Cover

Multi-Function
Control Button

Printer Path
Cleaning Card
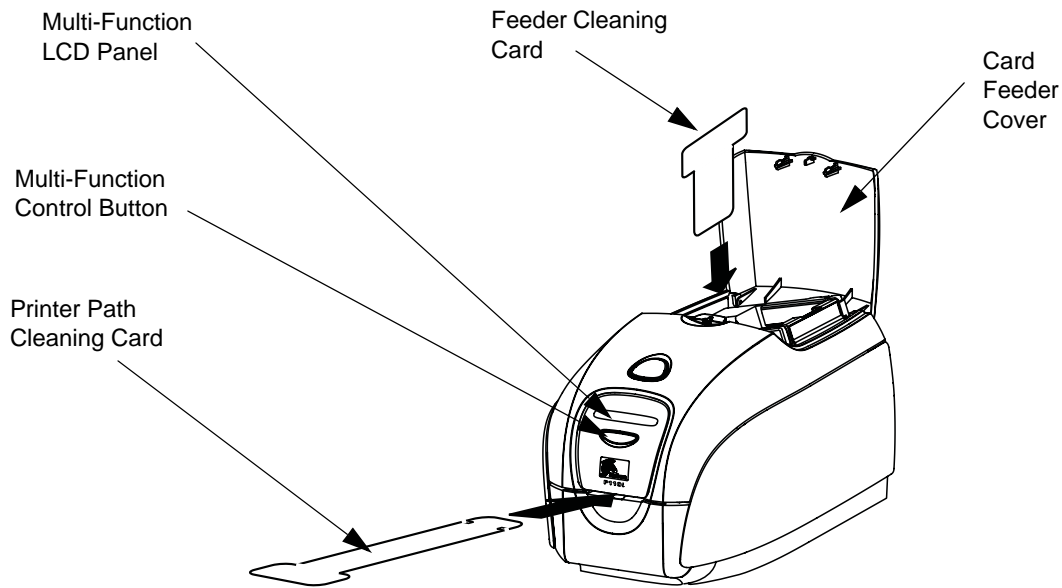
3. When the cleaning cycle is initiated, the LCD message **REMOVE RIBBON THEN CLOSE LID** will display.

4. After the ribbon is removed and the lid is closed, the message **EMPTY FEEDER THEN CLOSE COVER** will display.

5. If the lid is opened and closed without removing the ribbon, the **REMOVE RIBBON THEN CLOSE LID** message will remain.

6. Once the cover is closed, the firmware will eject any card inside the printer. The message **EJECTING CARD** will display.

7. The LCD will then display **FEED LONG CLEANING CARD IN EXIT**. When the card sensor registers the presence of the cleaning card, the rollers should take the card into the printer.

8. When the cleaning process is done, the printer will eject the cleaning card. If the card sensor still senses the cleaning card, the message **REMOVE LONG CLEANING CARD** will display.

9. Once the long cleaning card is no longer sensed by the exit card sensor, the message I**NSERT FEEDER CLEANING CARD** will display. Open the feeder cover and insert the feeder cleaning card.

10. When the feeder cleaning card has been sensed by the feeder card sensor, the message **CLOSE FEEDER COVER** will display.

11. When feeder cleaning is complete, the message **REMOVE FEEDER CLEANING CARD** will display.

12. After the card is removed, the LCD will display **READY**. You may now reload the ribbon and cards and continue printing.

Cleaning the Print Head

Use of the cleaning cards will normally do an adequate job of cleaning the printer. However, a separate Print head cleaning, using swabs, can remove more stubborn deposits when print anomalies persist. To avoid deposits, only use foam-tipped swabs.

Caution • Never use a sharp object to scrape deposits from the print head. Permanent damage to the print head will result

1. Place the printer power switch in the OFF (0) position.

2. Open printer lid by pressing cover release button and open cover fully to reveal the print head mounted to inside of the cover.
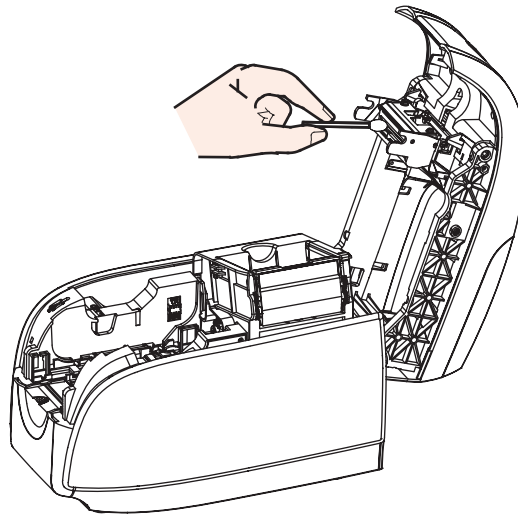
3. Clean Print Head by moving alcohol-moistened swab tip side-to-side across Print Head elements. Only use moderate force.

4. Allow two to three minutes for the printhead to dry before placing the printer power switch in the ON (|) position.

5. To reorder swabs, see the P110*i* or P110m Printer Media List.

Troubleshooting

Troubleshooting Procedures

The table below 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. 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 Section 7).
	2. If two 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 Section 3, and replace.
	3. 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 Section 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 • Small spots appear on the printed card with a non-printed area or a different color.
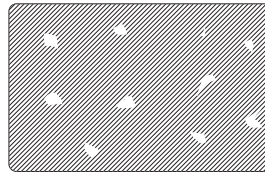
Possible Cause:

- Contamination on the card surface

Solutions:

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

Possible Cause:

- Cleaning roller not installed
- Dust inside the printer and/or dirty Cleaning Roller

Solutions:

- Perform a Cleaning of the printer (see Section 5)
- Check that the protective cover was removed from the ribbon cartridge cleaning roller (see Section 3).
- If printing one card at a time, replace the cleaning roller located at the front of the printer (see Appendix B).

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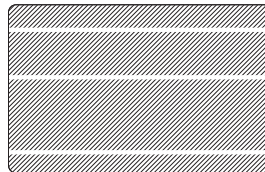
Possible Cause:

- 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.

Possible Cause:

- Print Head is dirty.
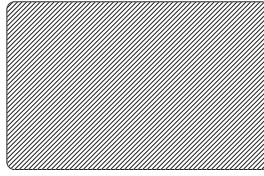
Solutions:

- Clean the Print Head

Possible Cause:

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

Solutions:

- Call Zebra Customer Service for Print Head replacement information.

Example • Printing shows very pale or inconsistent results.

Possible Cause:

- Ribbon cartridge have been stored improperly or is damaged.

Solution:

- Change ribbon cartridge 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 values which are too high.

Solution:

- Adjust Contrast and/or Intensity values in software.

Possible Cause:

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

Solution:

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

Example • Printing shows blurry printed image.
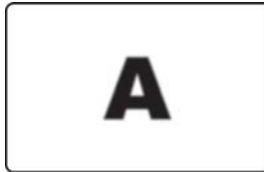
Possible Cause:

- Ribbon cartridge may not be correctly positioned.

Solution:

- Check that the ribbon is properly rolled onto the ribbon cores of the cartridge, with no wrinkles.
- 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 (model P110*i* only).

Solution:

- Open lid, then close lid to synchronize ribbon.

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.
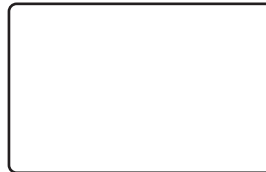
Solution:

- Clean the Print Head.
- Replace Cleaning Roller.

Example • No printing on the card.

Possible Cause:

- Ribbon cartridge may not be installed in the printer.

Solution:

- Check for ribbon cartridge in the printer.

Possible Cause:

- Cards may not meet specifications.

Solution:

- Use a different supply of cards.

Possible Cause:

- Cable on Print Head may be disconnected.
- Print Head elements may be scratched or burnt.

Solution:

- Call Service for Print Head repair or replacement information.

Troubleshooting the Ethernet Connection and Adapter

Resetting to Factory Defaults

To reset the Ethernet Adapter configuration parameters to the factory defaults, press the Ethernet Switch

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 Ethernet Switch. To print a configuration card, press and hold the Ethernet Switch until a card starts to print.

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.

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

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:
   - 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 (**|**).
   - 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.

7

Technical Specifications

General

- Load-N-Go™ drop-in ribbon cartridge
- 16-digit LCD display
- Windows® drivers for 2000 and XP

Color Printing

- Color dye sublimation or monochrome thermal transfer printing (P110*i*); Monochrome thermal transfer printing only (P110*m*)
- 30 seconds per card full color single sided (YMCKO) (P110*i* only)
- 300 dpi (11.8 dots/mm) print resolution

Bar Code

- Code 39, Code 128 B & C with & without check digit
- 2 of 5 & 2 of 5 Interleaved
- UPC-A, EAN 8 & EAN 13
- PDF-417 2D bar code and other symbologies can be printed via Windows drivers

Cards

- Types: PVC, PVC Composite
- Card width/length: ISO CR-80-ISO 7810, 2.12" (54mm) x 3.38" (86mm)
- Magnetic Stripe-ISO 7811
- Smart Card-ISO 7816
- Card thickness: 30 mil (.76mm) (+/- 10%)
- Card feeder capacity: 100 cards (30 mil)
- Card output hopper capacity: 45 cards (30 mil)

Ribbons Cartridges

- Load-N-Go™ ribbon cartridge with integrated card-cleaning roller
- *i* Series technology featuring contact-chip-based ribbon detection (P110*i* only)
- YMCKO: 200 cards/cartridge (P110*i* only)
- Monochrome: 1000 cards/cartridge in black or blue; 850 cards/cartridge white

Interfaces

- USB 1.1 (cable included)
- USB 1.1 and built-in Ethernet (optional)

Dimensions

- Width: 7.9 in (201mm)
- Depth: 12.9 in (328mm)
- Height: 8.5 in (216mm)
- Weight: 9.5 lbs (4.3kg)

Electrical

- 110 ~ 240 Volts AC, 50 ~ 60 Hz (auto switching)
- 8 MB image memory standard
- FCC Class A, CE, UL and CUL approved
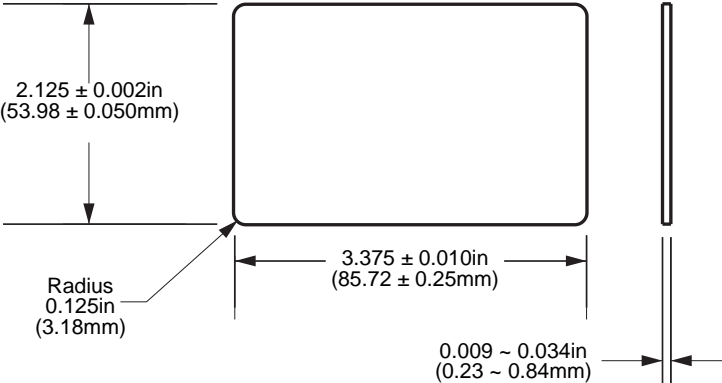
Environmental

- 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
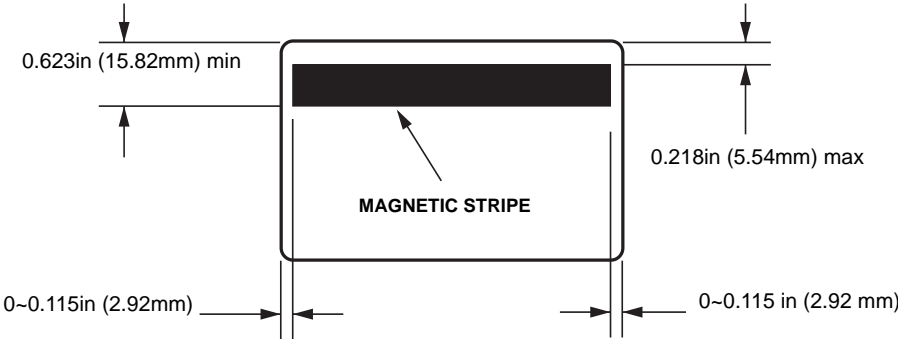- Ventilation: Free air

Options

- Magnetic encoder (30 mil cards only), 3 track HiCo/LoCo
- CardSense™ single card-feed mode
- P110*i* Starter Kit (200 cards and 1 YMCKO ribbon)
- Cleaning Kit (1 cleaning card and 1 cleaning swab)

Card Dimensions

ISO standard dimensions for plain card

2.125 ± 0.002in
(53.98 ± 0.050mm)

Radius
0.125in
(3.18mm)

3.375 ± 0.010in
(85.72 ± 0.25mm)

0.009 ~ 0.034in
(0.23 ~ 0.84mm)

ISO standard dimensions for magnetic stripe card

0.623in (15.82mm) min

MAGNETIC STRIPE

0.218in (5.54mm) max

0~0.115in (2.92mm)

0~0.115 in (2.92 mm)

Appendix A

Magnetic Card Encoder

Introduction

This section contains information on the additional operations of the P110*i* or P110*m* Printers with Magnetic Card Stripe Encoder.

Media Loading Orientation

> ⚠️ **Caution •** ONLY USE cards that comply with ISO 7810 & 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.

The magnetic encoder is a factory installed item with the read/write head positioned below or above the card path, available with HiCo or LoCo encoding.

When loading cards with magnetic stripes into the card feeder, please ensure that the magnetic stripe is facing the left side of the printer, and closest to the bottom edge of the card feeder, as shown below.
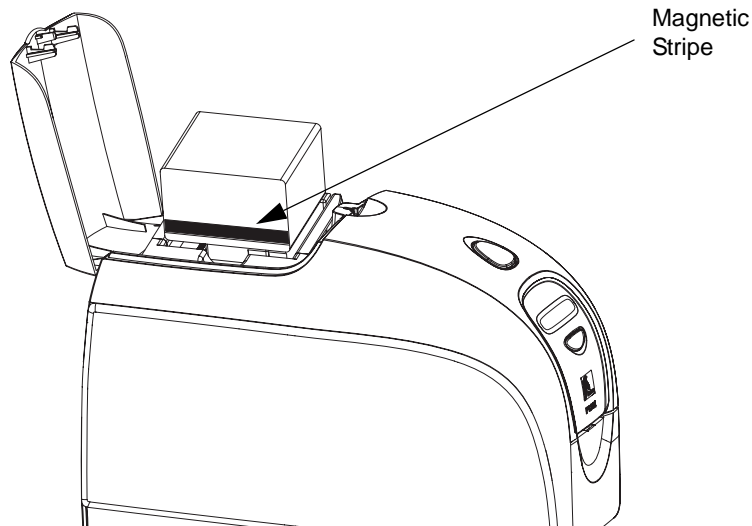
Magnetic
Stripe

> 📄 **Note •** Zebra approved HiCo & LoCo PVC cards are available.

Magnetic Encoder Cleaning

Use the standard cleaning card process as described in Section 5. This cleans the most important parts of the printer; including the Print Head, Transport Roller, and Magnetic Stripe Encoder.

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 areautomatically managed by the magnetic encoder according to the ISO Standard Norms.				

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

Appendix B

# Card Sense^{TM} Single Card Feed Mode

Printing a Single Card Without Using the Feeder

For operating the P110*i* or P110*m* Card Printer in single card feed mode, the printer requires that the operator install an optional Card Sense™ Single Card Feed Kit. In Single Card Feed Mode, the printer will only accept cards through the front slot, not from the card feeder.
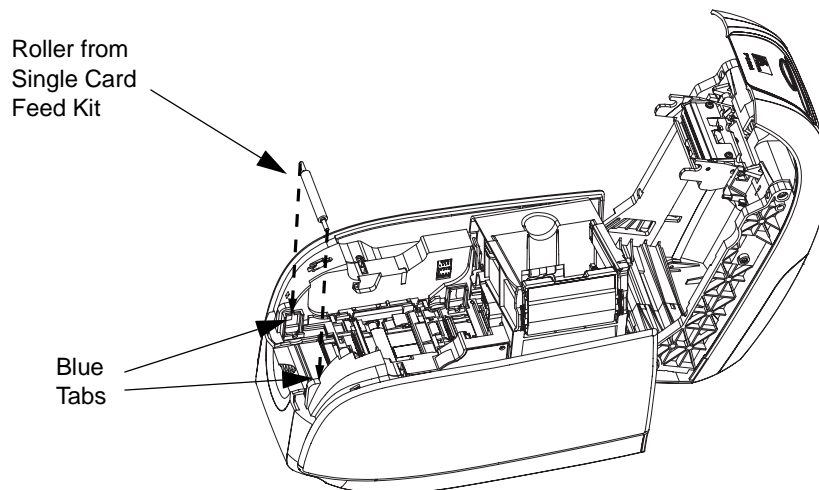
Install Card Sense™ Single Card Feed Kit

1. Set printer to OFF.

Printer Lid
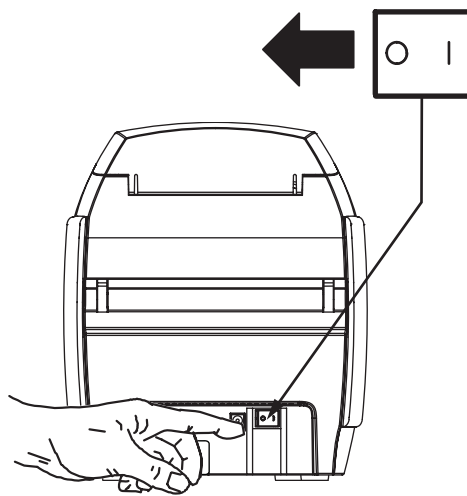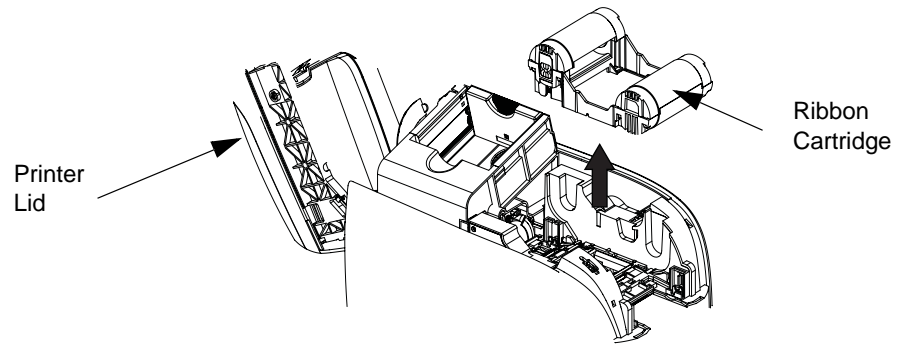
Ribbon Cartridge

2. Open the lid and remove the ribbon cartridge.

Important • Make sure the output hopper remains closed.
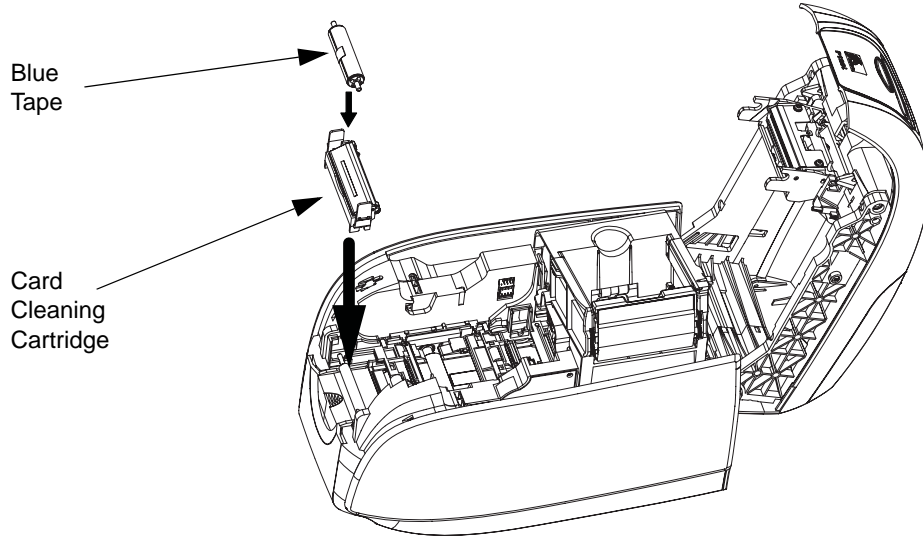

Roller from Single Card Feed Kit

Blue Tabs

3. Install the black roller from the Single Card Feed Kit into the blue tabs at the front of the printer, and press roller down firmly to lock into the tabs.

Install Card Cleaning Cartridge

Install the Card Cleaning Cartridge as follows:

1. Open the lid of the card cleaning cartridge.

Blue
Tape

Card
Cleaning
Cartridge

2. Insert the cleaning roller into the card cleaning cartridge and close the cartridge.

3. Peel protective wrapper from adhesive cleaning roller by gently pulling on the blue tape, and discard the wrapper.

4. Slide the Card Cleaning Cartridge into the slots provided at the front of the printer. An alignment tab is located on the left side of the Card Cleaning Cartridge to ensure proper installation.
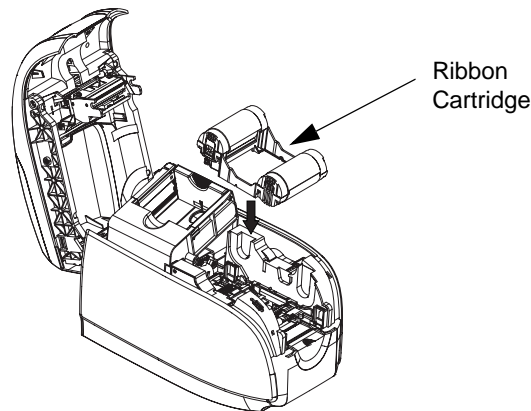
Ribbon
Cartridge

5. Insert the Ribbon Cartridge with the cleaning roller facing down, so the gears on the ends of the rollers fit into the appropriate slots.

6. Close the printer lid and push down until you hear an audible click. If you can not close the lid, the cleaning cartridge or the ribbon cartridge may be installed wrong.

Setting Up the Printer Driver

1. Go to Printer Properties.

2. Select the Device Settings tab.

3. Select Single Feed Properties.

4. Select Enable Single Feed Support.
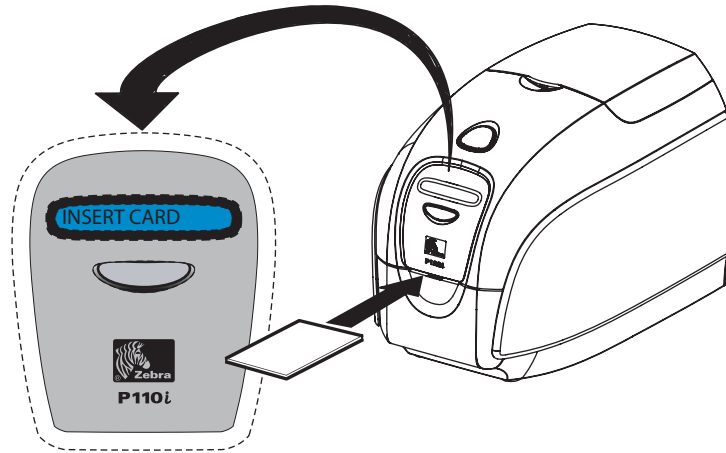
5. Click the Apply button.

Important • You can disable Single Feed Support and return to printing cards from the hopper. You do not have to remove the components of the Single Card Feed Kit in order to operate in normal mode.

Printing a Single Card
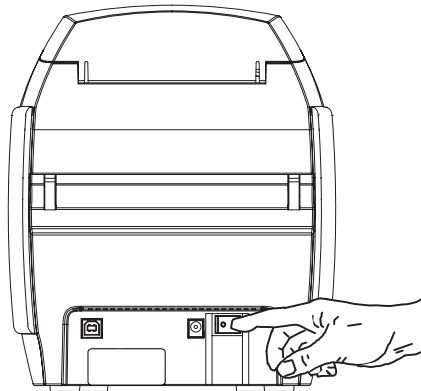
1. Place the printer power switch in the ON (|) position.

2. Insert a single card into the slot at the front of the printer, directly above the card output hopper. Do not feed more than one card at a time. Printer will take the card.
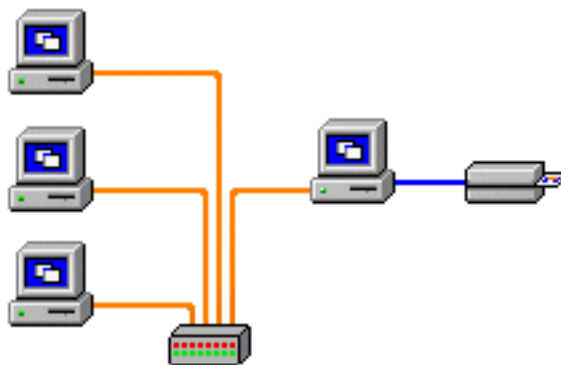
Appendix C

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.
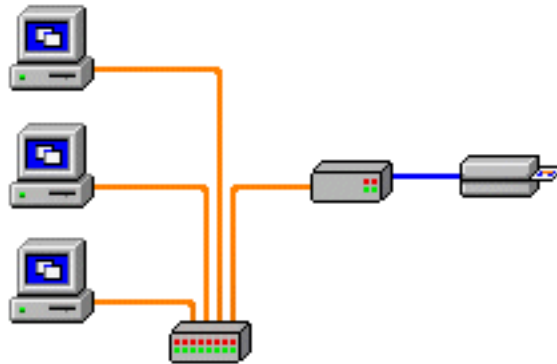
Internal Print Server

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.
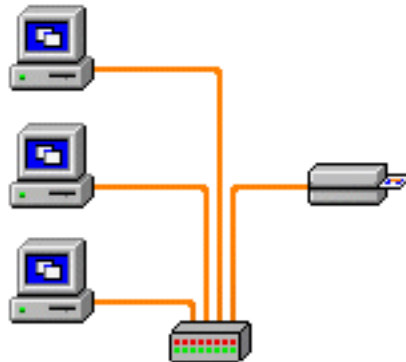
Appendix D

Worldwide Sales & Support

Sales and Support Locations

North America:

Zebra Technologies Card Printer Solutions

1001 Flynn Road

Camarillo, CA 93012-8706 USA

Phone: + 1 (805) 579 1800

Fax: + 1 (805) 579 1808

e-mail: cards@zebra.com

Europe, Middle East, and Africa:

Zebra Technologies Card Printer Solutions

The Valley Centre, Gordon Road

High Wycombe

Buckinghamshire HP13 6EQ

United Kingdom

Phone: + 44 (0) 870 241 1527

Fax: + 44 (0) 870 241 0765

e-mail: eurosales@zebra.com

Asia Pacific:

Zebra Technologies Card Printer Solutions

120 Robinson Road

#06-01 Parakou Building

Singapore 068913

Phone: + 65 6858 0722

Fax: + 65 6885 0836

e-mail: asiasales@zebra.com

Latin America:

Zebra Technologies Card Printer Solutions

9800 NW 41st Street, Suite 220

Doral, FL 33178 USA

Phone: + 1 (305) 558 3100

Fax: + 1 (305) 558-8485

e-mail: latinsales@zebra.com

Website

www.zebracard.com