



980590-001 Rev. A



Zebra® P100i™ Card Printer User's Manual



**Card
Printer
Solutions**

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Introduction

This manual contains installation and operation information for the Zebra P100*i* Card Printer manufactured by Zebra Technologies Corporation.

Description

The P100*i* provides full color dye sublimation or monochrome thermal transfer single side printing on standard 2.125 inch by 3.375 inch (54 mm by 86 mm), PVC or PVC Composite plastic cards. Its single card feed is ideal for low volume applications and applications that use a variety of plastic cards (for example, cards pre-printed with certain information). It utilizes a Load-N-Go™ ribbon cartridge with integrated card cleaning roller for easy ribbon changing or replacement.

A variety of options (some of which can be factory-installed or field-installed as upgrades) are available, making the P100*i* configurable for varied application environments:

- Magnetic stripe encoder option
- Contact encoder and/or contactless smart card options
- USB or USB and Ethernet interface option

Its auto-switching 100 ~ 240 Volts AC, 50 ~ 60 Hz external power supply uses interchangeable power cords for maximum flexibility.

P100i Part Numbers

The Part Number of a particular P100i Printer is shown on a label affixed to the bottom of the printer; that Part Number identifies the specific configuration for that printer. This chart shows the configurations that are available.

PART NUMBER	DESCRIPTION
P 1 0 0 i - _ _ _ _ _ - _ _ _ _	Base Printer P100i Single Card Feed, Single-Sided Color Card Printer
_ _ _ _ _ - 0 _ _ _ _ - _ _ _ _ _ _ _ _ _ - B _ _ _ _ - _ _ _ _ _ _ _ _ _ - D _ _ _ _ - _ _ _ _ _ _ _ _ _ - H _ _ _ _ - _ _ _ _	Smart Card Options None Contact Encoder Contact Encoder & MIFARE contactless MIFARE contactless
_ _ _ _ _ - _ 0 _ _ _ - _ _ _ _ _ _ _ _ _ - _ M _ _ _ - _ _ _ _	Magnetic Encoder None Yes (select defaults below)
_ _ _ _ _ - _ _ 0 _ _ - _ _ _ _ _ _ _ _ _ - _ _ 1 _ _ - _ _ _ _	Magnetic Encoder Defaults None Stripe Down, HiCo/LoCo
_ _ _ _ _ - _ _ _ 0 _ - _ _ _ _ _ _ _ _ _ - _ _ _ U _ - _ _ _ _	Miscellaneous Magnetic Encoder only upgradeable board Upgradeable board for Smart Card Options, Magnetic Encoder, and Ethernet
_ _ _ _ _ - _ _ _ _ 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 100 - 30 mil PVC cards and one Black ribbon, part number 800015-901)

EXAMPLE	
P 1 0 0 i - 0 M 1 U C - I D 0	P100i Printer, No Smart Card Options installed, Magnetic Encoder (Stripe Down, HiCo/LoCo), Board upgradeable for Smart Card Options, USB and Ethernet interfaces, U.S. and European Power Cords, Windows Driver and User Documentation CD, No Starter Kit
ACCESSORIES	
105912-9xx	P100i Cleaning Kit, includes 4 sets of print engine cleaning cards

Features, Controls, and Indicators

The picture below points out some of the printer's external features. (See Chapter 3 for an interior view.)



Covered Card and Cleaning Roller Storage Area

Opening the translucent cover gives access to a storage area where you can keep cards and spare Cleaning Rollers. This can be useful for applications that require use of various cards.

Lid Release Button

Pressing the Lid Release Button allows the printer's lid to swing open. This gives internal access for changing the Ribbon Cartridge, changing Cleaning Rollers, and cleaning the printer.

LCD Display Panel

The LCD Display Panel displays printer status information. Messages also alert the user of the need for action, and indicate certain fault conditions.

Multi-Function Control Button

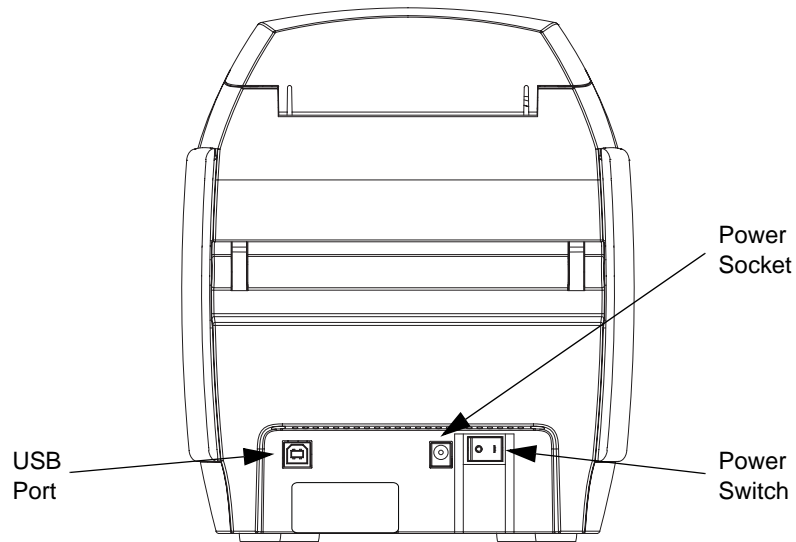
The Multi-Function Control Button initiates several functions; these are described in the appropriate sections of this document.

Card Entry / Exit Slot

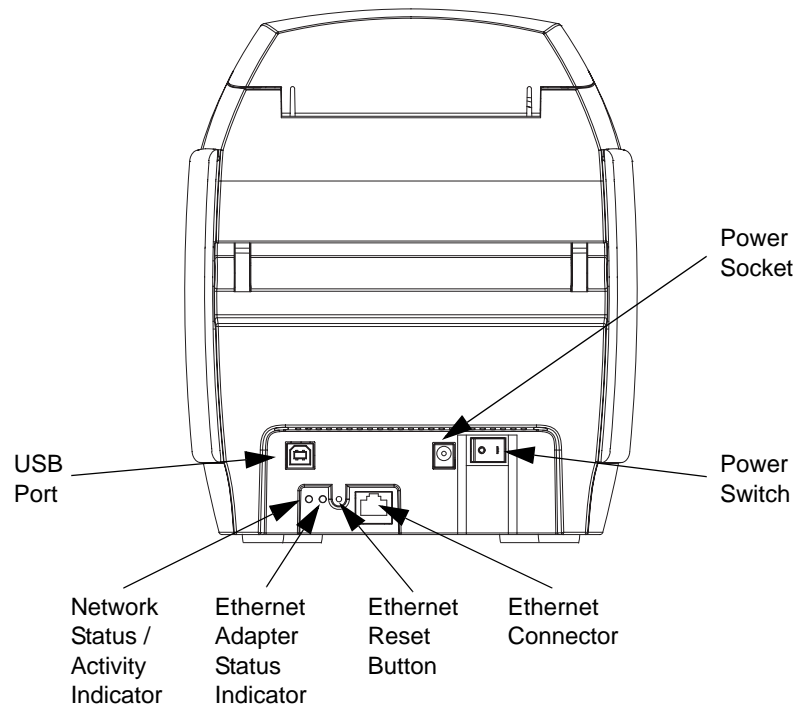
A card is inserted part-way into the Card Entry / Exit Slot. The card will be drawn into the printer, printed, encoded, or decoded as specified by the application program, and then be ejected out through the Card Entry / Exit Slot.

Rear Panel Connectors, Controls, and Indicators

The figure below shows the rear of the P100i Printer with the standard USB interface.



If your P100i Printer includes the Ethernet option, the rear of the printer will look like the figure below.



For Ethernet connection, refer to [Appendix C](#), Connecting to a Network.

Ethernet Adapter Status Indicator

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 slowly *flashing GREEN* (1 time/sec), the Ethernet Adapter is trying to print.

Network Status/Activity Indicator

1. If the LED is *solid GREEN*, a 100Base link is established.
2. If the LED is *flashing GREEN*, a 100Base link is established, and network activity has been detected.
3. If the LED is *solid ORANGE*, a 10Base link is established.
4. If the LED is *flashing ORANGE*, a 10Base link was established, and network activity has been detected.

LCD Panel Messages

LCD Panel messages fall into three categories:

- **Operational** Operational Messages are displayed during the Printer's normal operation.
- **Warnings** Warnings alert the operator to action that should be taken; the printer will generally continue operation.
- **Errors** Errors are displayed when a situation causes the printer to stop operating. Depending on the cause of the error message, restarting the printer or curing the displayed Error may return the printer to operational status, or the printer may require troubleshooting and repair.

MESSAGES
Operational
INITIALIZING
READY
DOWNLOADING DATA
MAG ENCODING
PRINTING CYAN
PRINTING YELLOW
PRINTING MAGENTA
PRINTING BLACK
PRINTING OVERLAY
DOWNLOADING FIRMWARE
CONTACT ENCODING
CONTACTLESS ENCODING
REMOVE CARD AT EXIT
CLEANING
REMOVE RIBBON THEN CLOSE LID
FEED LONG CLEANING CARD IN EXIT
REMOVE LONG CLEANING CARD
SINGLE CARD READY-PRINT OR EJECT
INSERT CARD
REMOVE CARD

MESSAGES
Warnings (Printer will still operate)
CLEAN PRINTER
CHECKING RIBBON
CLEANING CYCLE
CLEANING HEAD
CLEANING ROLLERS
ENCODING ERROR
CLEAN MAG HEAD
INVALID MAGNETIC DATA
REMOVE RIBBON
Errors (Printer will not operate)
CHECK RIBBON
OUT OF RIBBON
MECHANICAL ERROR
COVER OPEN
PARAMETER ERROR
COMMAND ERROR
CONTACT ERROR
CONTACTLESS ERROR
INVALID CONTACT DATA
INVALID CONTACTLESS DATA

Refer to [Chapter 6](#) for Troubleshooting Procedures.

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 Installation

Unpacking Your Card Printer

Your P100i 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 P100i Printer:
 - Software CD-ROM
 - Quick Start Guide
 - Cleaning Kit
 - 1 set of Power Cords
 - Power Transformer
 - USB Printer Cable

If any items are missing, please contact your dealer. To reorder, please refer to [Appendix D](#) of this manual.

Installing the P100i Printer

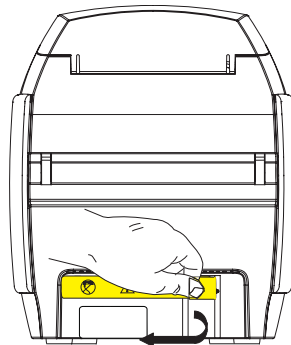


Caution • Do not power the printer with USB attached to your computer until the driver has been installed or until prompted by the driver.

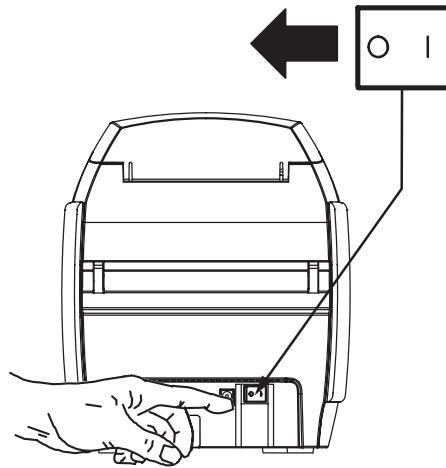


Caution • Limit electrical power supplied to the P100i Printer to 24 VDC. Limit excess current draw to 16 amps or less, using an associated circuit breaker or other such device. Never operate the printer in a location where operator, computer, or printer can get wet. Personal injury could result. The 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.

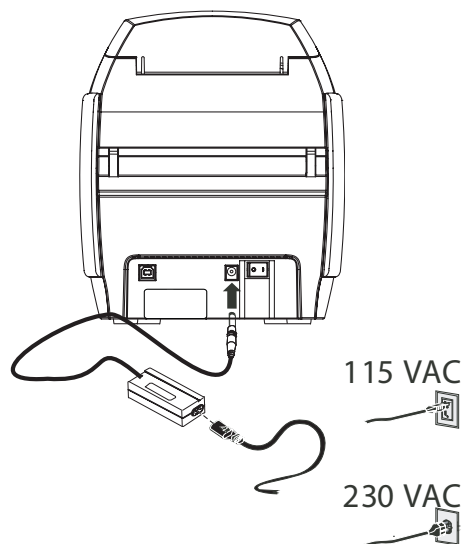
1. Place the printer in a location that allows easy access to all sides. The printer should never be operated while resting on its side or upside down
2. Remove the yellow CAUTION label from the back of the printer.



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.

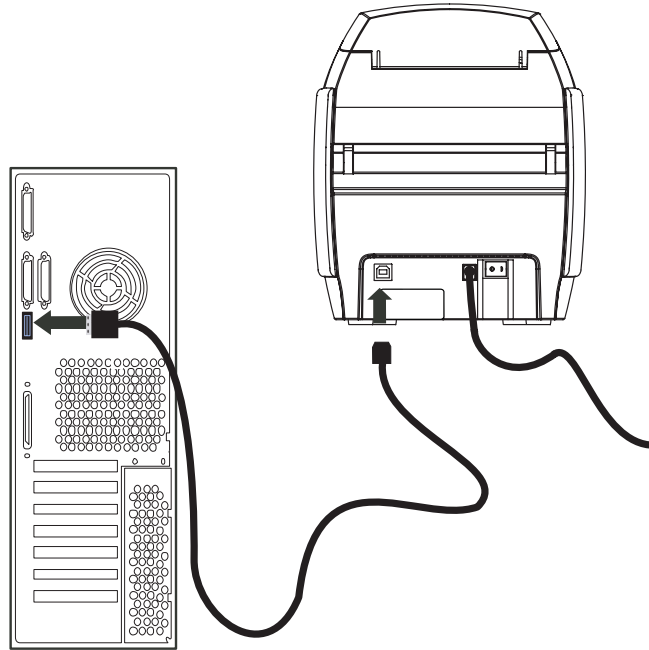


Caution • Intermittent or unpredictable operation may occur from unsecured connectors. If damaged, the power cable must be replaced by an exact equivalent. The socket should always be easily accessible to power off the printer.

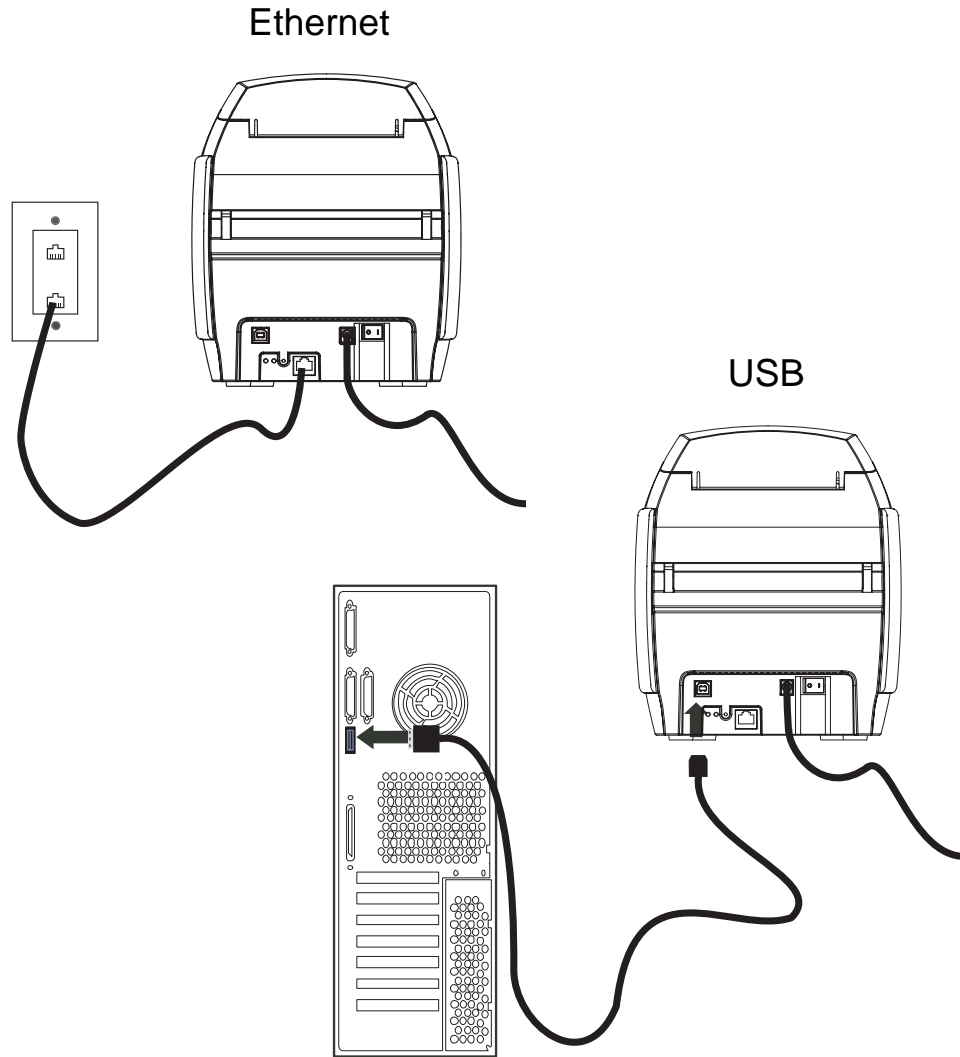
Printer Installation

Installing the P100i 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 P100i Printer on Windows 2000, Windows XP, Windows Server 2003, or Windows Vista 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.

The Install Wizard 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.
- 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.

If your User Documentation and Drivers CD does not load automatically:

1. Click on Start, then click on Run.
2. Type d:\index.htm, where d: is your CD drive letter.
3. Click OK.

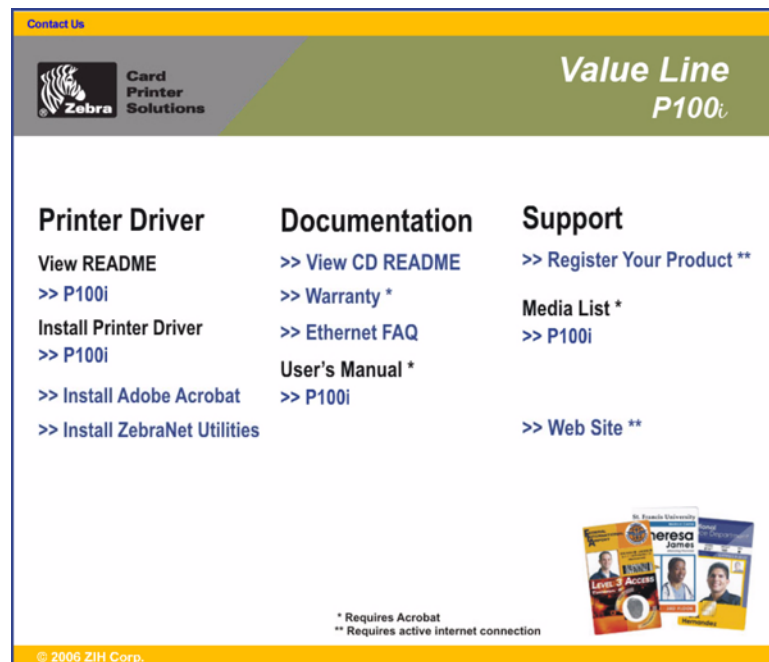
Print Driver Installation

Install the P100i Printer driver as follows:

1. Insert the **P100i 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 (English shown here, others comparable).



3. In the left column, select **Install Printer Driver >> P100i**.

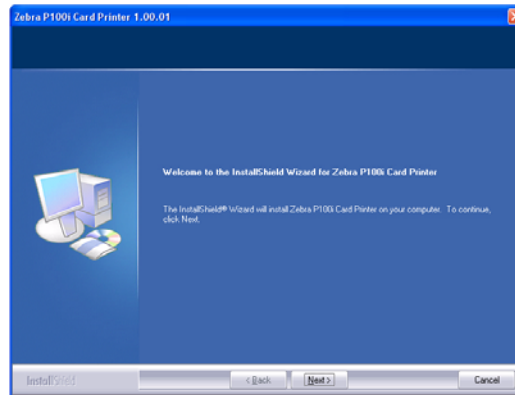
Printer Installation

Installing the Printer Driver

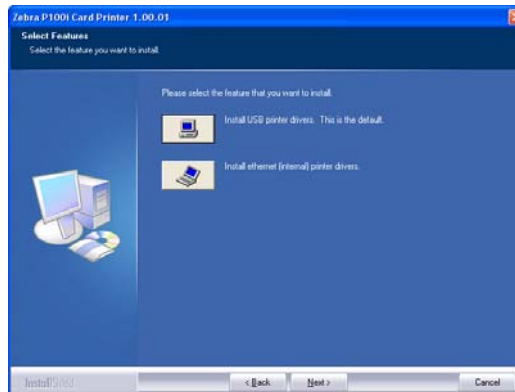
- The InstallShield Wizard will launch, and a progress window will be displayed.



- Once the InstallShield Wizard has been installed, the **Welcome to InstallShield Wizard** window will open. Click the **Next** button.



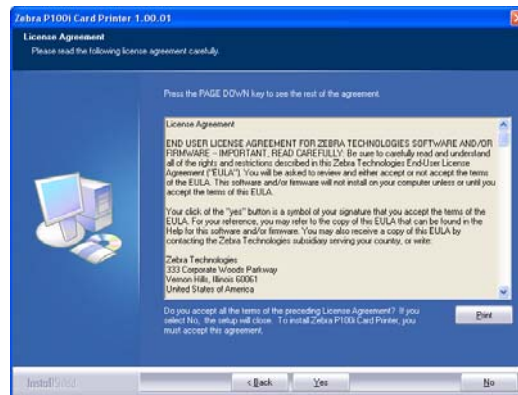
- On the **Select Features** window, you have the option to install USB printer drivers or ethernet (internal) printer drivers.



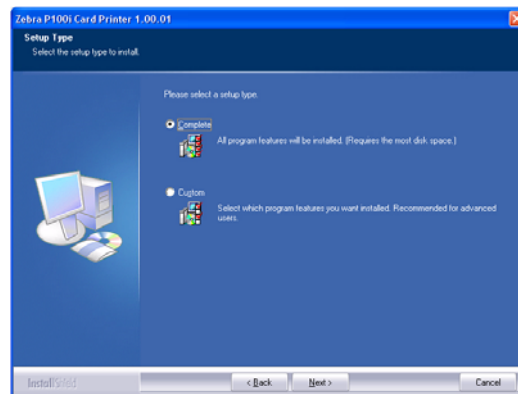
The next two sections detail USB Driver Installation and Ethernet Driver Installation respectively.

USB Driver Installation

1. Select USB, and click the **Next** button.
2. Observe the **License Agreement** window. If you agree to the License Agreement, click the **Yes** button.



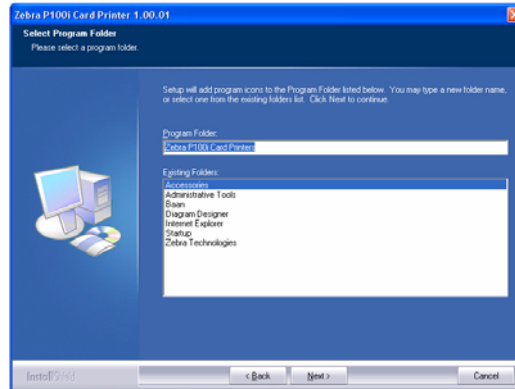
3. Most users should select the Complete setup type; then click the **Next** button.



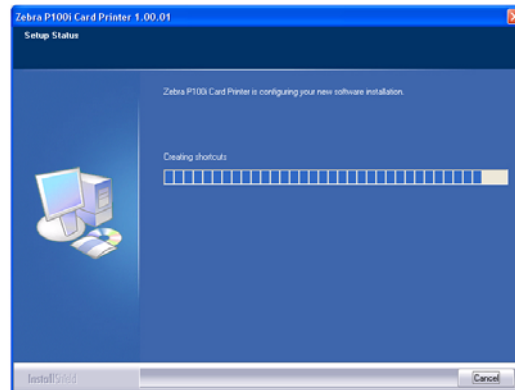
Printer Installation

Installing the Printer Driver

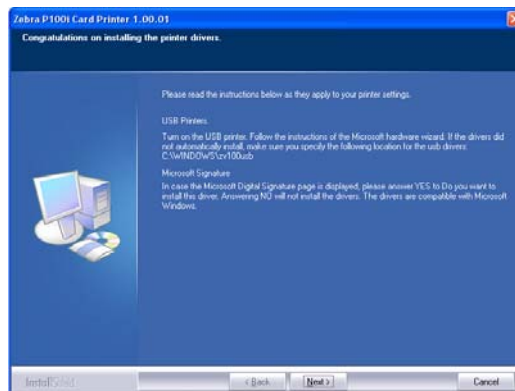
4. Select the appropriate Program Folder, then click the **Next** button.



5. The Install Wizard will show the progress of the installation.

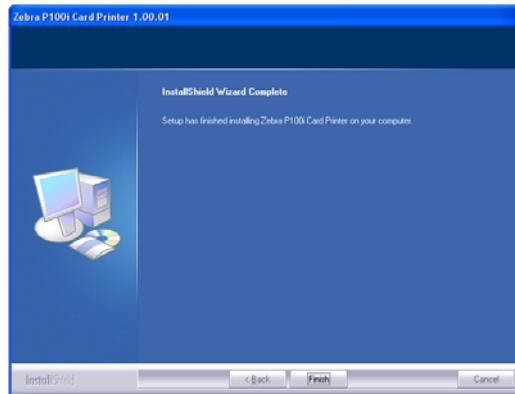


6. Read the appropriate information.



7. If you wish, you can open the ReadMe file, which has information about the driver version you have installed.

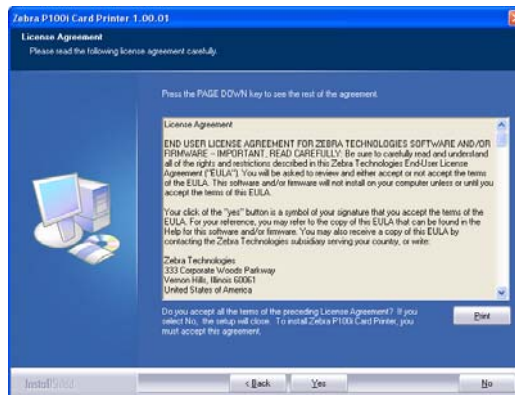
8. Driver installation is now complete. Click the **Finish** button.



9. After installing the Driver, restart your computer. When you apply power to the printer, the Windows New Hardware Found wizard will find the printer.

Ethernet Driver Installation

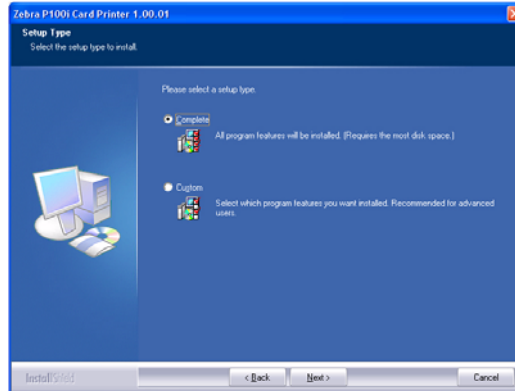
1. Select Ethernet, and click the **Next** button.
2. Observe the **License Agreement** window. If you agree to the License Agreement, click the **Yes** button.



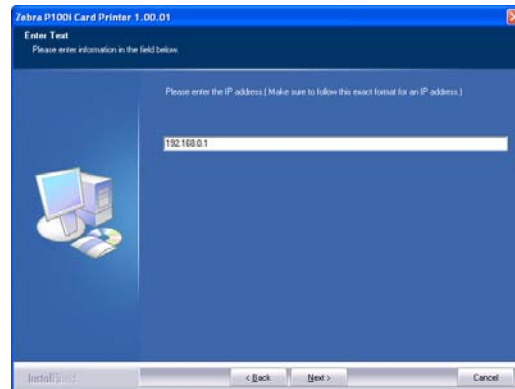
Printer Installation

Installing the Printer Driver

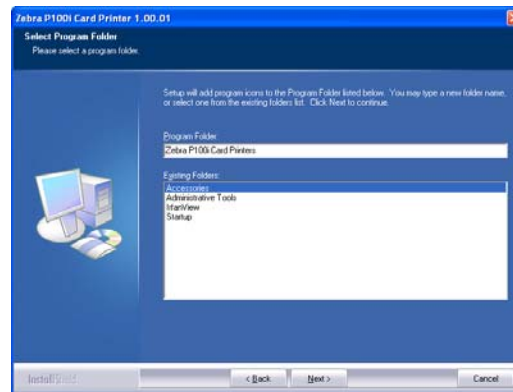
3. Most users should select the Complete setup type; then click the **Next** button.



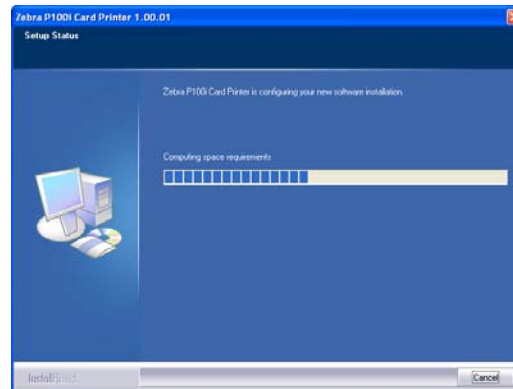
4. Specify the IP address, then click the **Next** button.



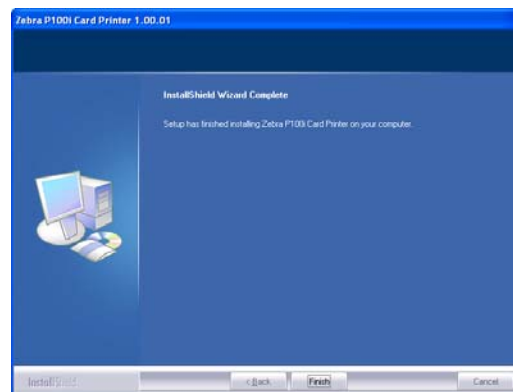
5. Select the appropriate Program Folder, then click the **Next** button.



6. The Install Wizard will show the progress of the installation.



7. If you wish, you can open the ReadMe file, which has information about the driver version you have installed.
8. Driver installation is now complete. Click the **Finish** button.



9. After installing the Driver, restart your computer. When you apply power to the printer, the Windows New Hardware Found wizard will find the printer.

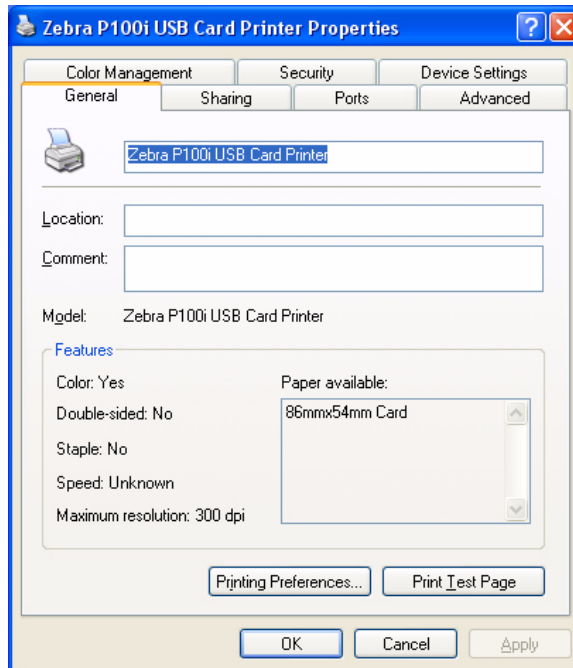
Setting Printer Driver Options

You can change the default settings for the P100i printer driver. Change the options as follows:



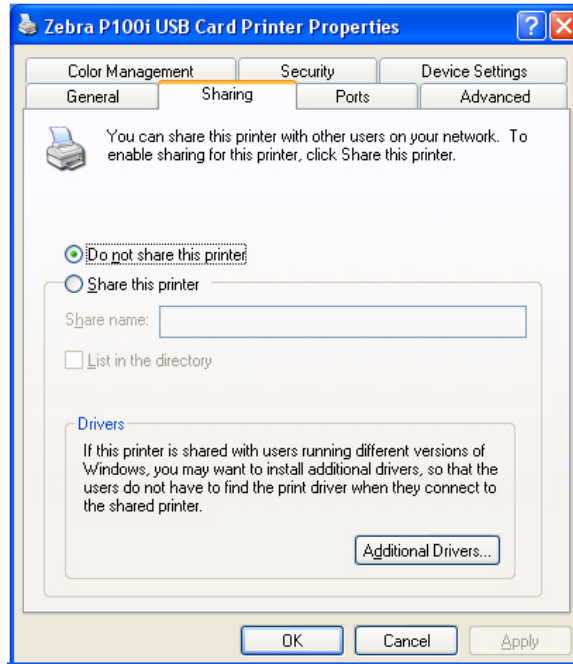
Note • The screen shots shown in this section are for the P100i Printer using the USB interface. If you are using the Ethernet interface, the screens will refer to the “Zebra P100i Network Printer.”

1. Select Start > Settings > Printers and Faxes to bring up a listing of connected printers.
2. From the Printers and Faxes list, right click the P100i USB Card Printer; and select **Properties** from the pop-up menu. The **Printer Properties** window will open.

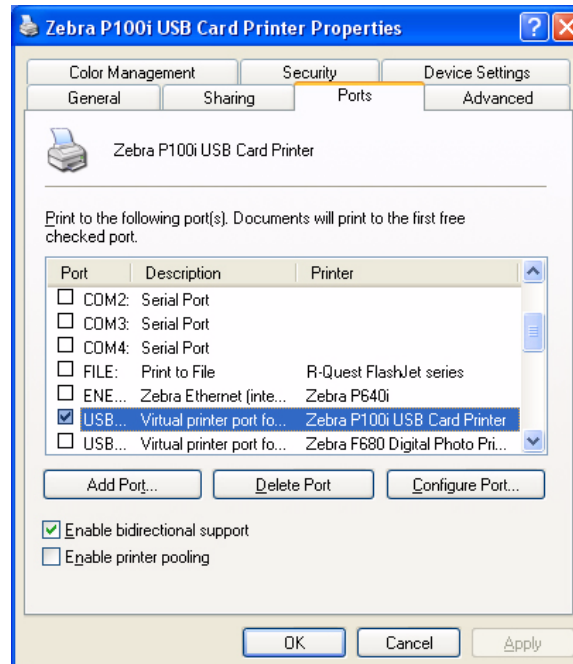


3. On the General tab, click on the Printing Preferences button to change the card orientation settings, monochrome conversion settings, various ribbon settings, or to adjust the color and head settings properties.

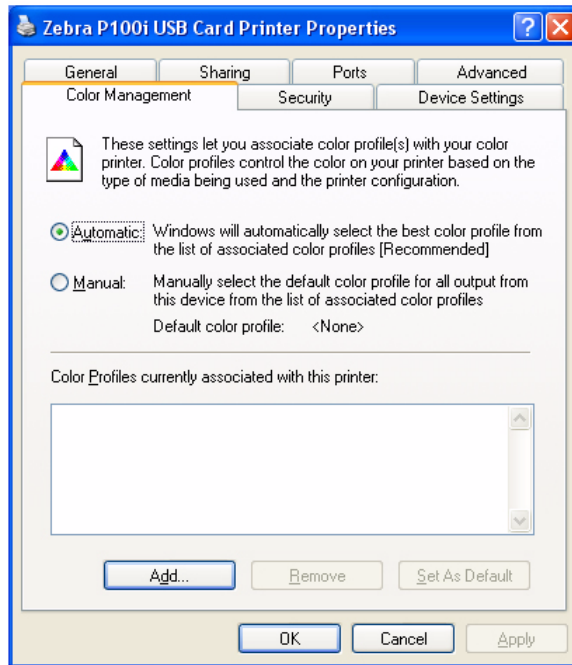
4. On the Sharing tab, you can choose to share the printer over the network, and install additional drivers to accommodate different operating systems.



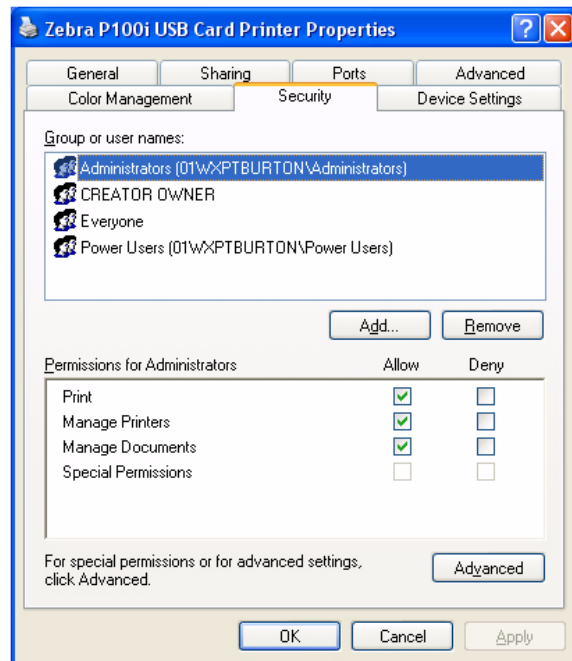
5. On the Ports tab, you can add, delete, and configure the printer ports, as well as choose which port the P100i Printer is assigned.



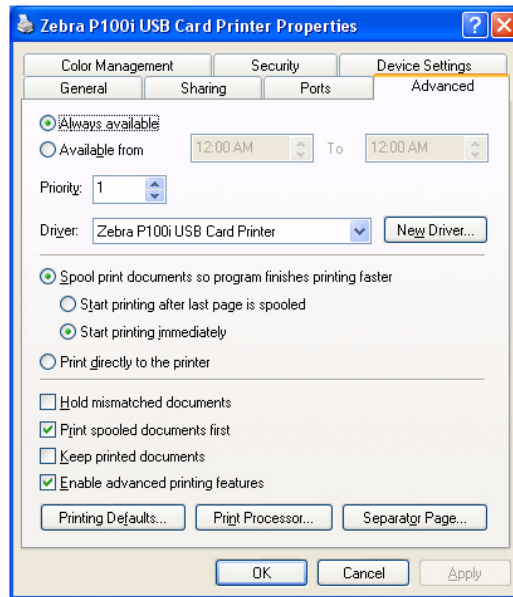
6. On the Color Management tab, you can add, remove, or change printer color profiles.



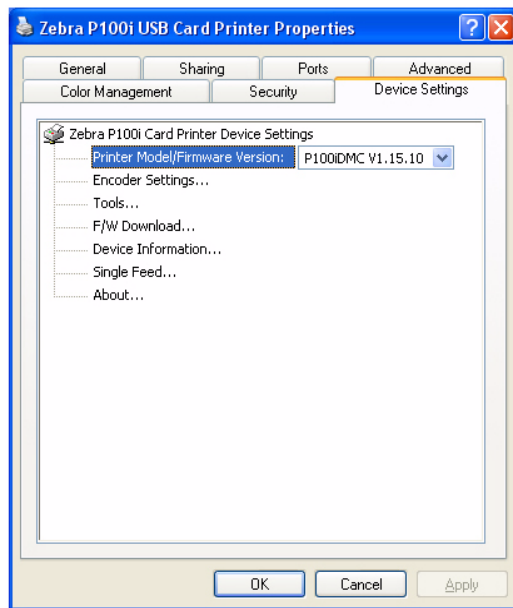
7. Use the Security tab to change permissions for the P100i Printer.



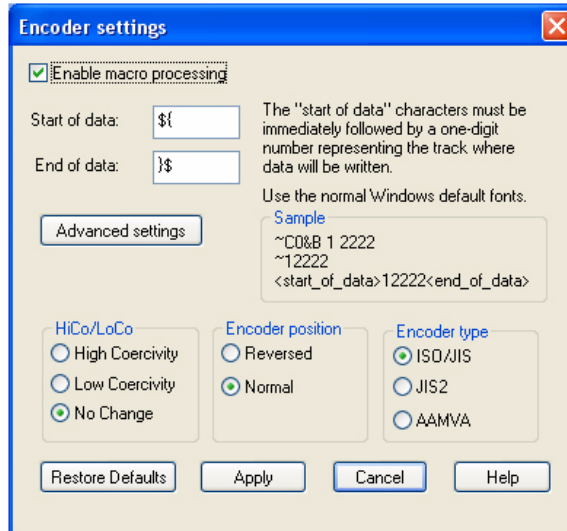
8. On the Advanced tab, you can choose various printer properties, install different printer drivers, and change default printer settings.



9. On the Device Settings tab, you can check the Firmware Version installed on the printer.



10. Under the Device Settings tab, if you select Encoder Settings, a button “Properties” will open next to the Encoder Settings. Click that Properties button, and the following screen will appear.



Typically, the only setting that a User might change is to switch between High Coercivity and Low Coercivity Magnetic Stripe cards. A User should leave all other settings unchanged.

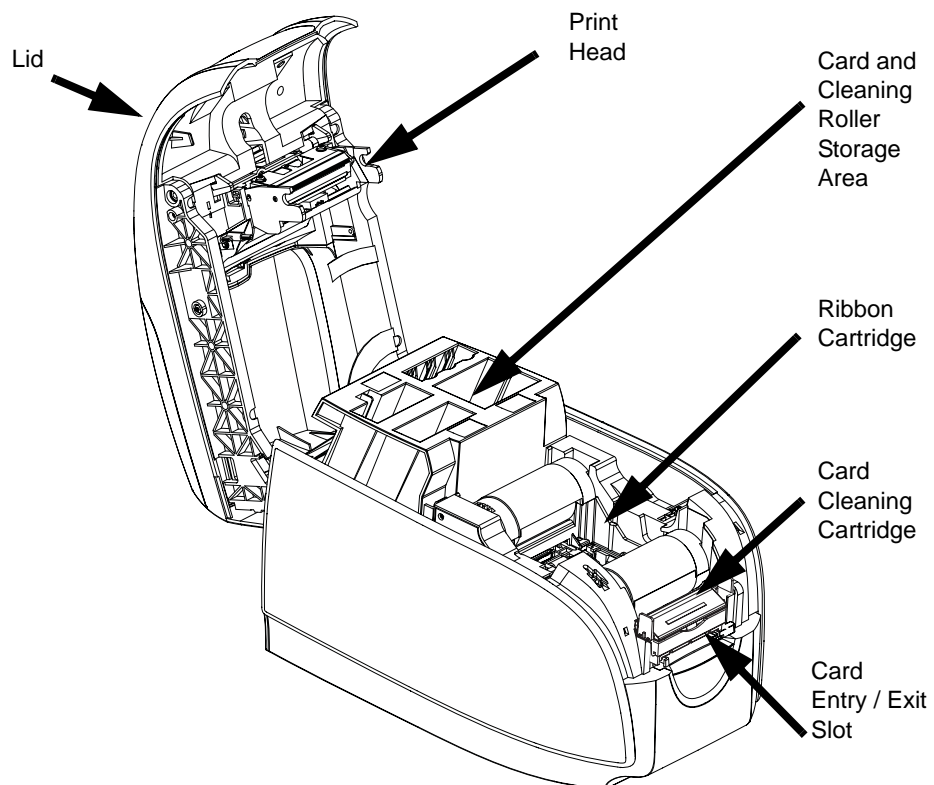
11. Once the P100i printer driver options are set to your satisfaction, click the OK button to save your new configuration and close the Properties window.



P100i Printer Setup

Printer Features

The following shows an interior view of your P100i Printer.



Loading Ribbon Cartridge

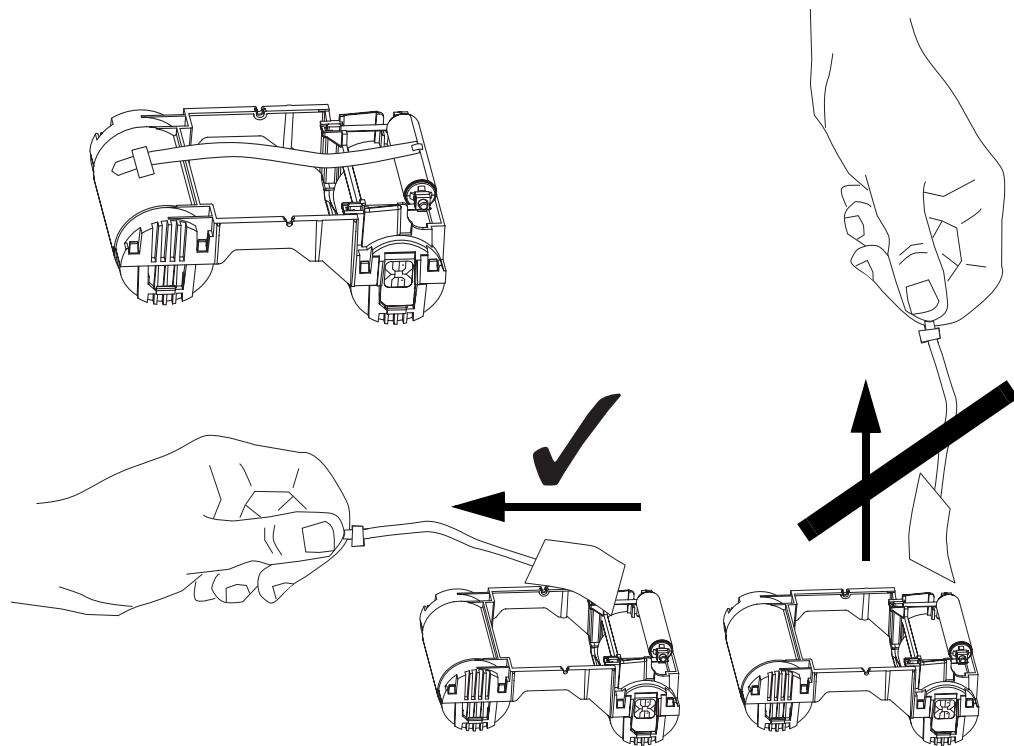
The P100i Printer requires approved ribbon cartridges. The Resin Thermal Transfer and Dye Sublimation ribbons are specifically designed for your P100i Printer.

- *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.

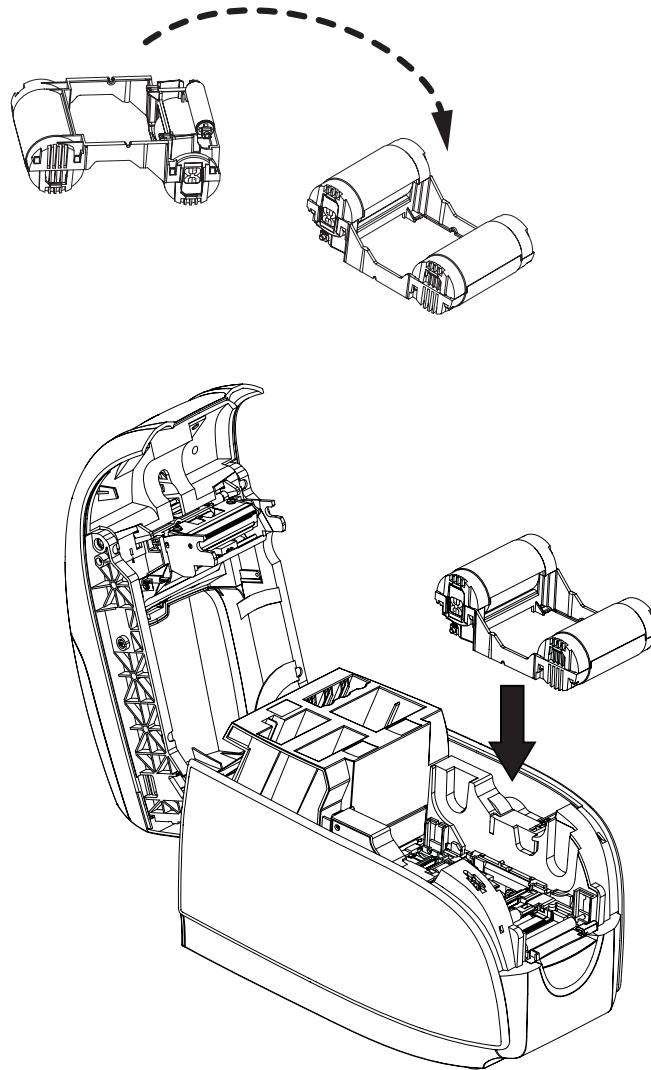


Electrostatic Discharge Caution • DO NOT TOUCH the print head or the electronic components on the print head. Discharge of electrostatic charge from the human body or other surfaces can damage the print head or other electronic components

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.



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.

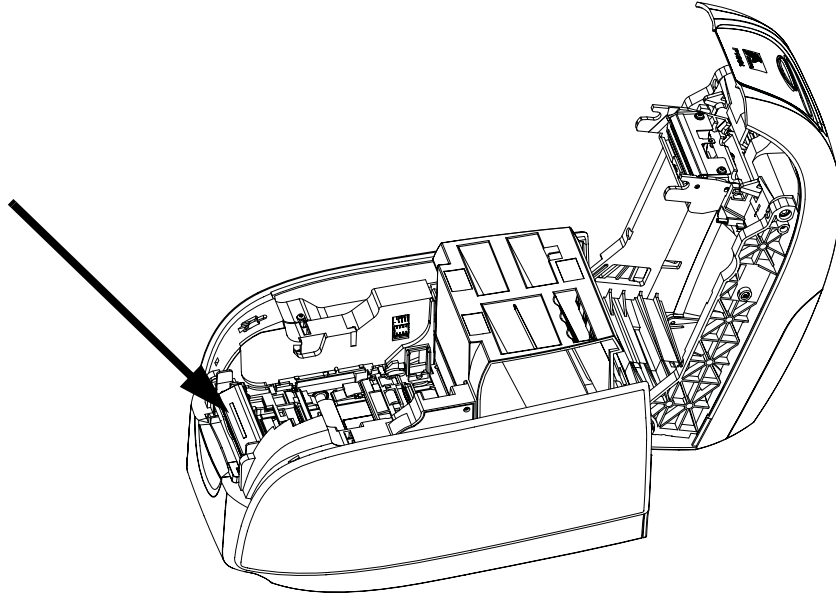


Installing the Cleaning Cartridge

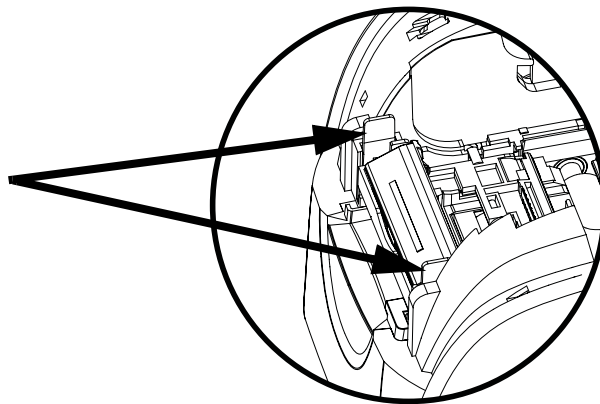
The Cleaning Cartridge removes surface dust particles and oil from the card surface, resulting in better printing.

A new printer will have a Cleaning Cartridge installed, but its Cleaning Roller will have a protective wrapper that must be removed.

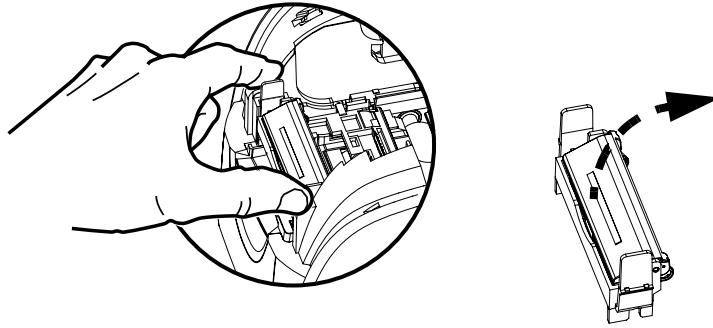
1. Locate the Cleaning Cartridge.



2. The Cleaning Cartridge is held in place by two clips.



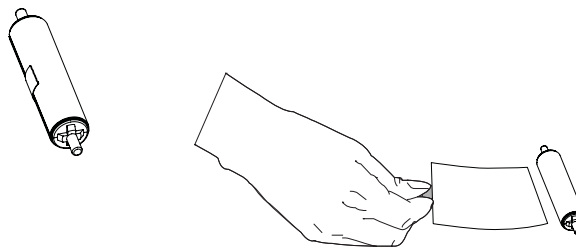
3. Gently squeeze the clips and lift the Cleaning Cartridge free of the printer.



4. Lift the lid of the Cleaning Cartridge. A new printer will have a Cleaning Roller with its protective wrapping. Replace the Cleaning Roller when it is dirty.



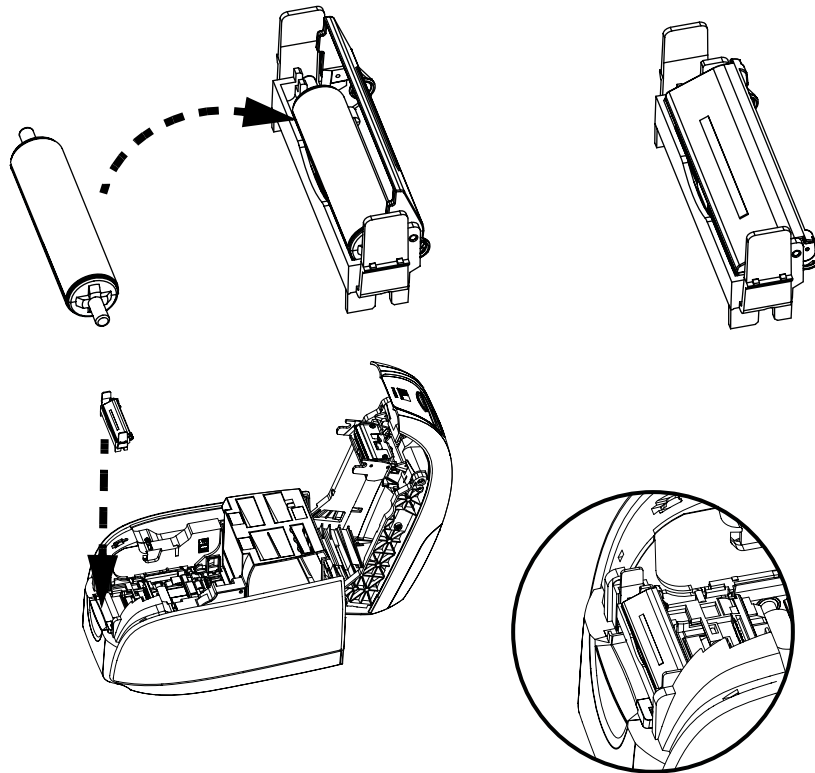
5. Remove the Cleaning Roller from the Cleaning Cartridge. (Discard a dirty Cleaning Roller, and replace it with a new one.)
6. Remove the protective wrapper from the Cleaning Cartridge.



P100i Printer Setup

Installing the Cleaning Cartridge

7. Place the Cleaning Roller in the Cartridge, close the lid, and insert it in place so the latches engage.



8. 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.

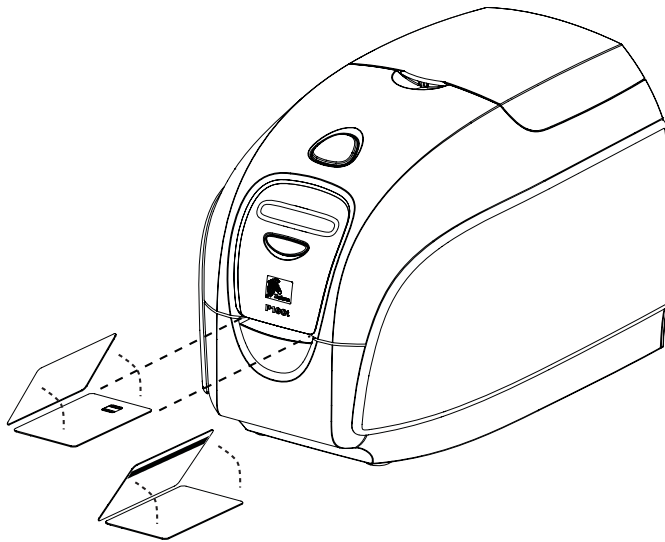
Inserting Cards

Cards are inserted one at a time into the slot on the front of the P100i . The card is printed on the top surface and ejected out through the same slot.



Important • Handle the cards only by the edges.

The following figure shows the encoding orientation for contact smart-cards and cards with a magnetic stripe.



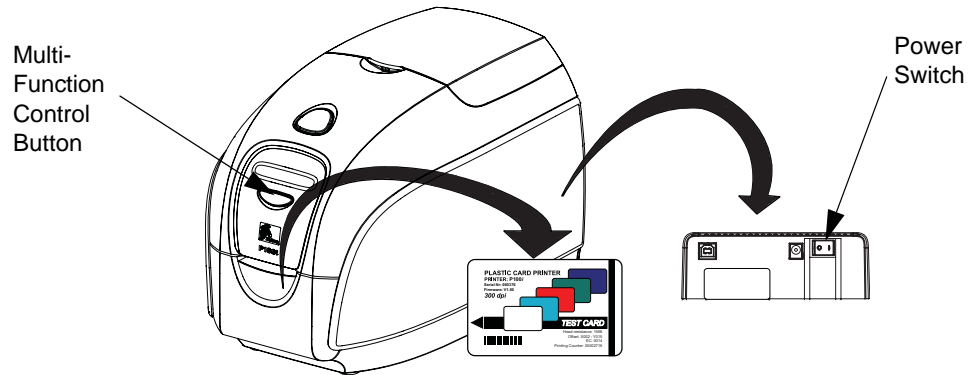
For magnetic-stripe cards, if printing is desired on the side with the magnetic stripe, the card would be inserted stripe up, with the stripe toward the right side of the printer as viewed from the front.

For contactless smart-cards, orientation is not a consideration.

Printing a Test Card

With Ribbon Cartridge and Card Cleaning Cartridge loaded, your P100i 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 (O) position.
2. While holding down the Multi-Function Control Button, place the printer power switch in the ON (|) position. The LCD status window will glow blue.



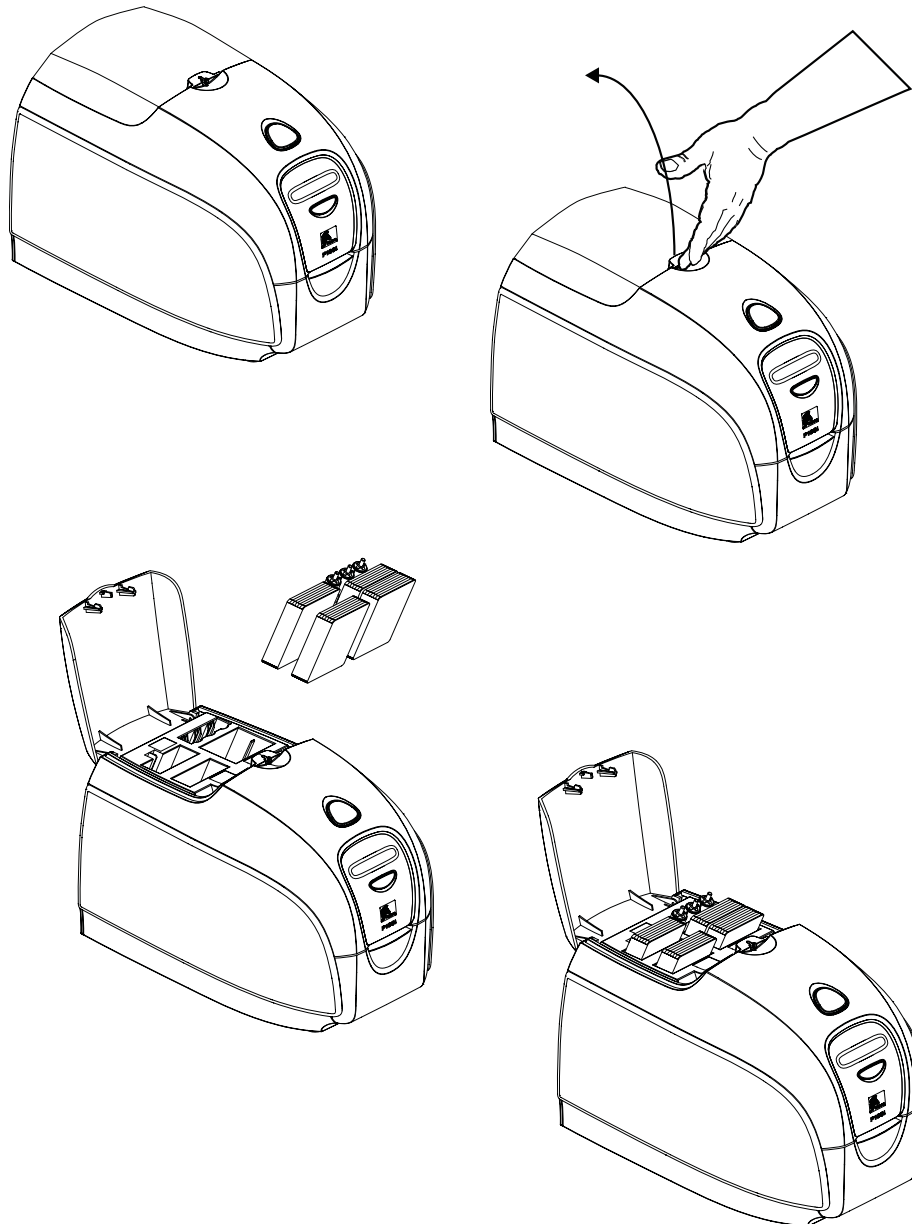
3. Keep pressing the Multi-Function Control Button until you are prompted to insert a card.
4. Insert a card into the card entry slot. At this point, you can release the Multi-Function Control Button.
5. A test card will print after a few seconds and then exit the printer.

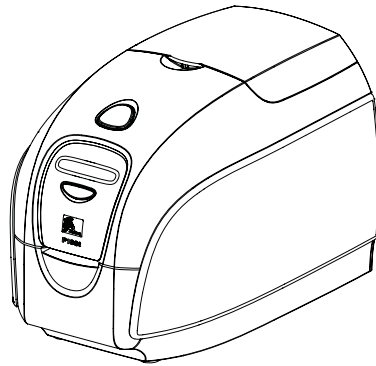
Storing Extra Cards and Cleaning Rollers

The P100i Printer includes a storage area where you can keep up to 100 extra cards (four groups of 25 cards) and up to three extra Cleaning Rollers.



Important • Handle the cards only by the edges.







P100i Printer Operation

Printing

Printing with the P100i Printer requires the Windows Printer Driver, your card design/issuing software or printer command level programming through the printer interface.

The P100i Printer can be used with any Windows 2000, Windows XP, or Windows Vista software application program, using the drivers provided on CD with the printer. Refer to [Chapter 2](#) for instructions on installing the P100i 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™ Card Printer Ribbon Cartridge and the Windows printer driver.



Note • To simplify creating a sample card, you can use one of the sample files that were installed during the driver installation process. These samples (Word files) can be found in *Start > All Programs > Zebra Card Printers*.

1. Go to the Microsoft Word Software.
2. If the P100i Printer was not selected as the default printer, go to File > Select Printer; and choose Zebra P100i Card 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 0 (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.

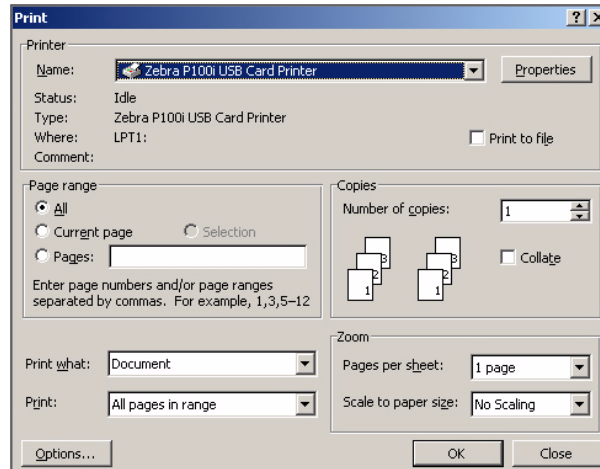


Printing a Sample Card

Once you completed creating your sample card, you are ready to print. Ensure your printer has a True Colours™ Card Printer Ribbon Cartridge installed. Refer to [Chapter 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.



2. Ensure the following settings in the Print dialogue box:

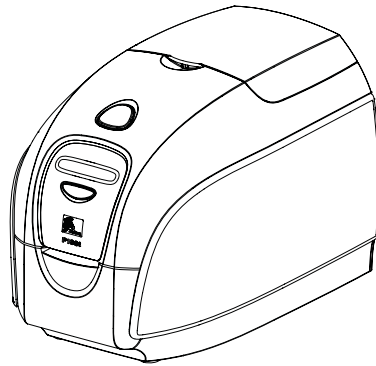
- Printer Name: Zebra P100i Card Printer
- Print to File: Unchecked
- Page Range: All
- Number of Copies: 1
- Collate: Unchecked
- Print What?: Document
- Print: All pages in range
- Pages per sheet: 1 page
- Scale to paper size: No scaling

3. Click the OK button.

4. The user 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.

5. Once the printing is completed, the card is ejected from the printer.

6. Check the card for any discrepancies. If the sample card is correct, your P100i Card Printer is ready to produce more cards. For print quality issues, refer to [Chapter 6](#).





Cleaning the 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 P100i 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 P100i 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 Printhead, the Transport Rollers, and the Magnetic Encoder Station (optional feature).

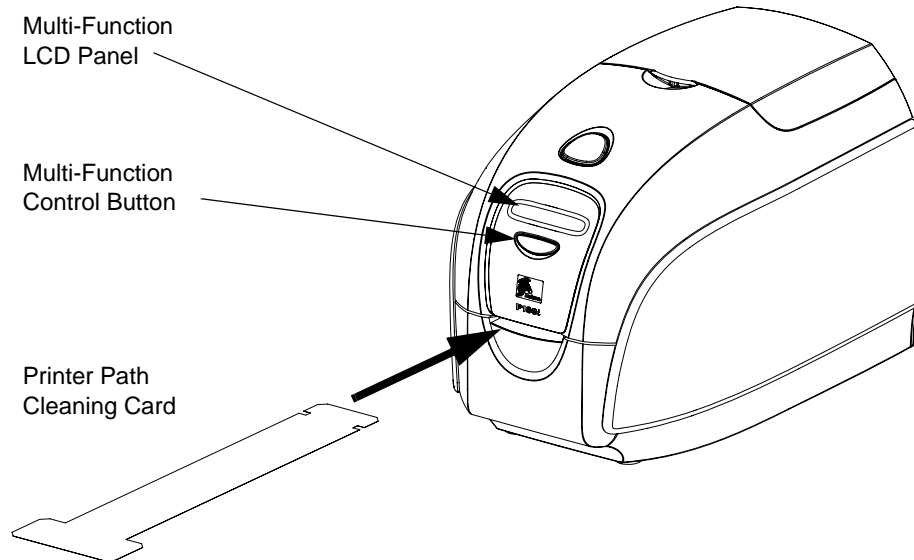
When to Clean

Clean the Printer when:

- Print quality has been degraded.
- The LCD panel displays the message **CLEAN PRINTER**.

How to Clean

1. Leave power on.



2. Press and hold the Multi-Function Control Button for 5 seconds.
3. When the cleaning cycle is initiated, the LCD message **REMOVE RIBBON THEN CLOSE LID** will display.
4. If the lid is opened and closed without removing the ribbon, the message **REMOVE RIBBON THEN CLOSE LID** will remain.
5. After the ribbon is removed and the lid is closed, the messages **CHECKING RIBBON** and **CLEANING CYCLE** will display.
6. The message **FEED LONG CLEANING CARD IN EXIT** will display. When the card sensor registers the presence of the cleaning card, the rollers should take the card into the printer.
7. The message **CLEANING HEAD** will display.
8. The message **CLEANING ROLLERS** will display.
9. 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.
10. After the card is removed, the LCD will display **READY**. You may now reload the ribbon and continue printing.

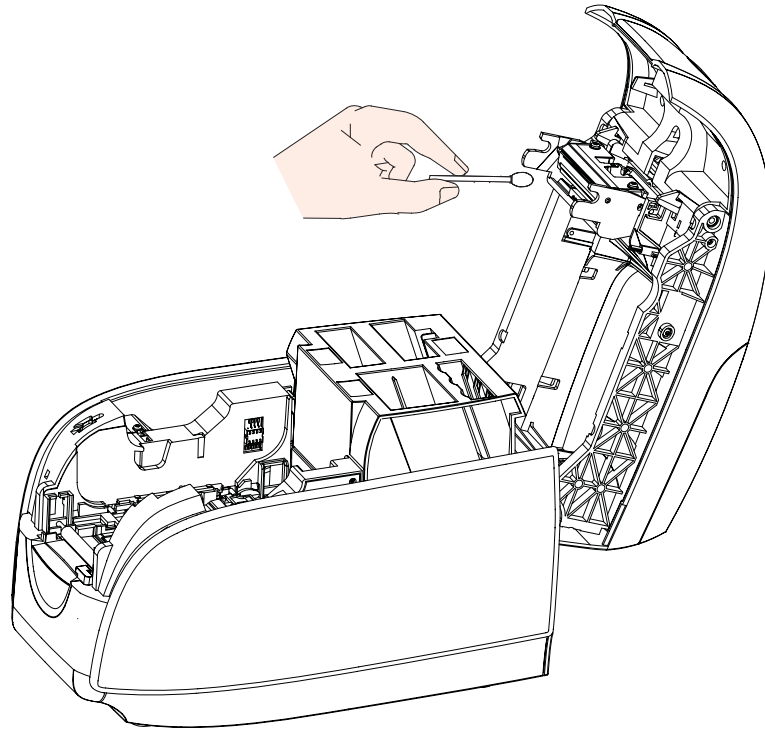
Cleaning the Printhead

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

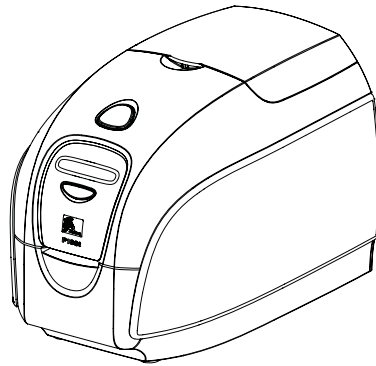


Caution • Never use a sharp object to scrape deposits from the Printhead. Permanent damage to the Printhead will result

1. Place the printer power switch in the OFF (O) position.
2. Open printer lid by pressing cover release button, and open cover fully to reveal the Printhead mounted to inside of the cover.
3. Clean the Printhead by moving alcohol-moistened swab tip side-to-side across Printhead 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, reference the P100i Printer Media List.





Troubleshooting

Troubleshooting Procedures

LCD Panel Warnings and Error Messages

WARNING MESSAGES (printer will still operate)

Problem / Symptom	Description or Cause	Possible Solution *
CLEAN PRINTER	Printer needs to be cleaned (this message is displayed after 1000 cards have been printed).	Clean the printer. Refer to Chapter 5 for details on how to clean the printer.
CHECKING RIBBON	Printer is determining type of ribbon installed.	No action required -- status message only.
CLEAN MAG HEAD	The magnetic encoder head needs cleaning.	Use the standard cleaning card process described in Chapter 5 .
INVALID MAGNETIC DATA	The magnetic data may be invalid.	Check data format.
REMOVE RIBBON	Displayed during the printer cleaning process described in Chapter 5 .	Remove the ribbon.

* If the problem persists, contact Technical Support; see [Appendix D](#).

ERROR MESSAGES (printer will not operate)

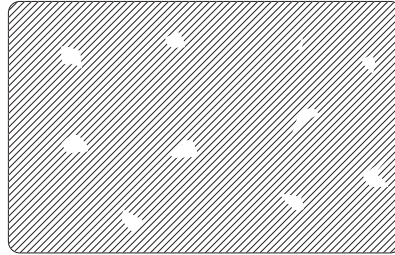
Problem / Symptom	Description or Cause	Possible Solution *
CHECK RIBBON	Ribbon may be improperly installed.	Reload ribbon cartridge. Refer to Chapter 2 for details on loading a ribbon cartridge.
OUT OF RIBBON	Ribbon may be entirely used	Load a new ribbon cartridge. Refer to Chapter 2 for details on loading a ribbon cartridge.
MECHANICAL ERROR	A mechanical error occurred; e.g., card jam.	Remove jammed card.
COVER OPEN	The cover is open.	Make sure that the cover is completely and securely closed.
PARAMETER ERROR	A parameter error occurred.	Reset the Printer, and try printing the card again.
COMMAND ERROR	A command error occurred.	Reset the Printer, and try printing the card again.
CONTACT ERROR	A contact error occurred.	Reset the Printer, and try printing the card again.
CONTACTLESS ERROR	A contactless error occurred.	Reset the Printer, and try printing the card again.
INVALID CONTACT DATA	The contact data is invalid.	Reset the Printer, and try printing the card again.
INVALID CONTACTLESS DATA	The contactless data is invalid.	Reset the Printer, and try printing the card again.

* If the problem persists, contact Technical Support; see [Appendix D](#).

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.

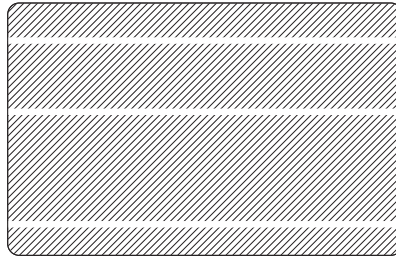
Possible Cause:

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

Solutions:

- Clean the printer (refer to [Chapter 5](#))
- Check that the protective cover was removed from the ribbon cartridge cleaning roller (refer to [Chapter 3](#)).
- Replace the Cleaning Roller (refer to [Chapter 3](#)).

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:

- Printhead is dirty.

Solution:

- Clean the Printhead (refer to [Chapter 5](#)).

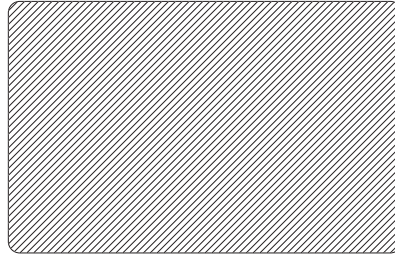
Possible Cause:

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

Solution:

- Call Zebra Customer Service for Printhead 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.

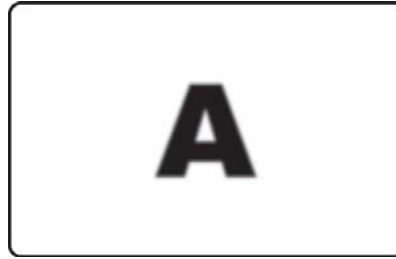
Possible Cause:

- Dust or embedded contamination on elements of the Printhead.

Solution:

- Clean the Printhead (refer to [Chapter 5](#)).

Example • Printing shows blurry printed image.



Possible Cause:

- Ribbon cartridge may not be correctly positioned.

Solutions:

- 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.

Solution:

- Open lid, then close lid to synchronize the 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.

Solutions:

- Clean the Printhead (refer to [Chapter 5](#)).
- Replace the Cleaning Roller (refer to [Chapter 3](#)).

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 Causes:

- Cable on Printhead may be disconnected.
- Printhead elements may be scratched or burnt.

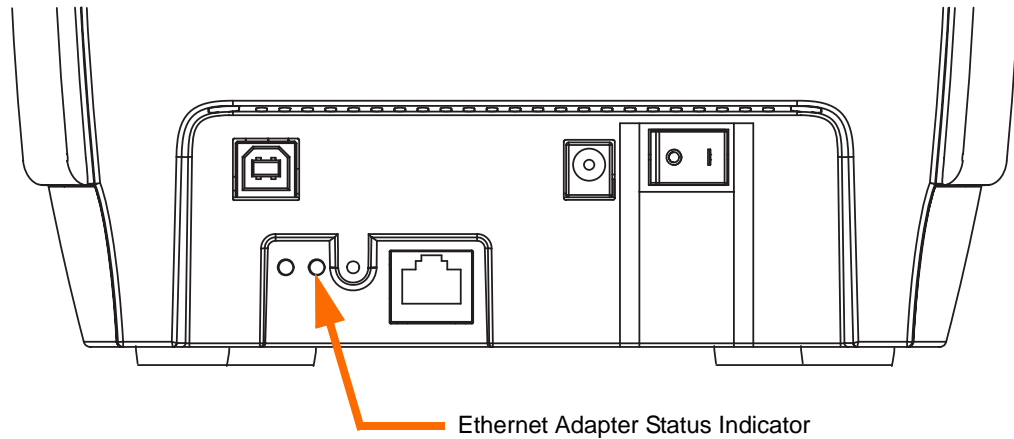
Solution:

- Call Service for Printhead repair or replacement information.

Troubleshooting the Ethernet Connection and Adapter

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 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

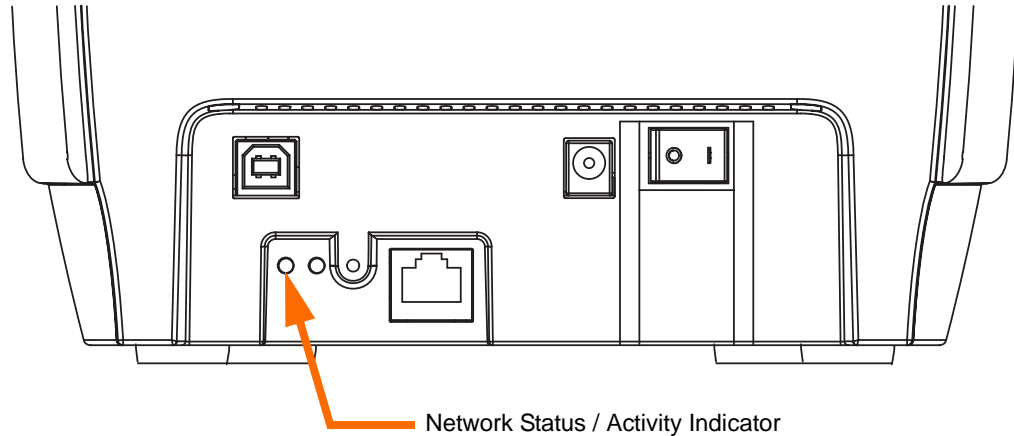


Important • Cables with a rating higher than CAT-6 have **not** been tested.

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).
 - A *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. Do 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.zebracard.com>, and click on the Drivers & Downloads tab.
 - Contact Technical Support for help recovering this unit.

Network Status/Activity Indicator

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



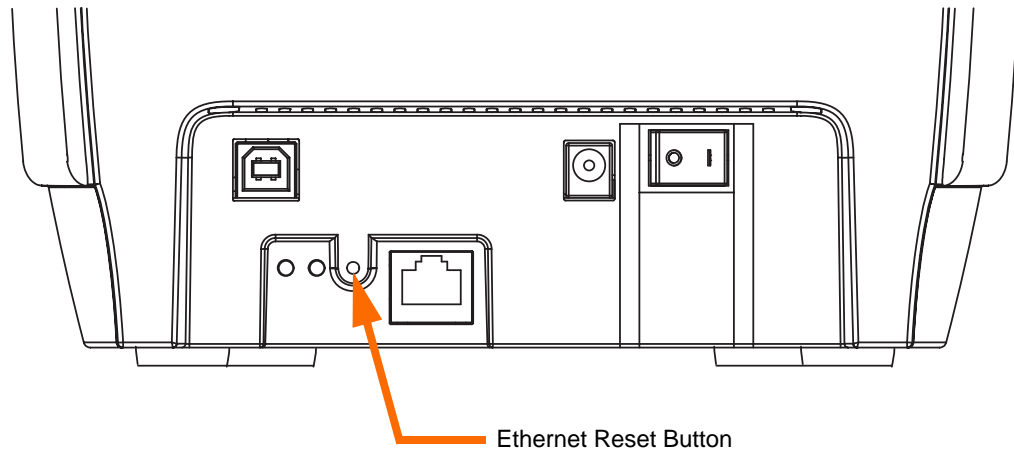
1. If the LED is off, no link was established.
2. If the LED is *solid GREEN*, a 100Base link is established.
3. If the LED is *flashing GREEN*, a 100Base link is established, and network activity has been detected.
4. If the LED is *solid ORANGE*, a 10Base link is established.
5. If the LED is *flashing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

Resetting to Factory Defaults

To reset the Ethernet Adapter configuration parameters to the factory defaults:

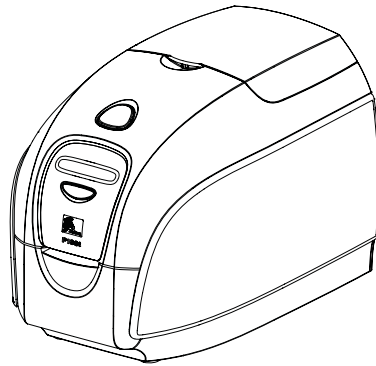
1. Press the Ethernet Reset Button, and hold it in while turning the printer power ON (|).



2. Keep the Panel Button pressed until the Status Indicator light turns **GREEN**.
3. Then release the Ethernet Switch.

Printing a Configuration Card

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





Technical Specifications

Printer Specifications

General

- Load-N-Go™ drop-in ribbon cartridge
- 16-digit LCD display
- Driver for Windows 2000, Windows XP, Windows Server 2003, and Windows Vista

Color Printing

- Color dye sublimation or monochrome thermal transfer printing
- 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, and 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 in (54 mm) x 3.38 in (86 mm)
- Magnetic Stripe-ISO 7811
- Smart Card - Contact and Contactless: 30 mil (.76 mm) to 40 mil (1.02 mm)
- Card thickness: 10 mil (.254 mm) to 40 mil (1.02 mm) (±10%)

Ribbon Cartridges

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

Interfaces

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

Dimensions

- Width: 7.9 in (201 mm)
- Depth: 12.9 in (328 mm)
- Height: 9.25 in (235 mm)
- Weight: 10.0 lbs (4.5 kg)

Electrical

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

Environmental

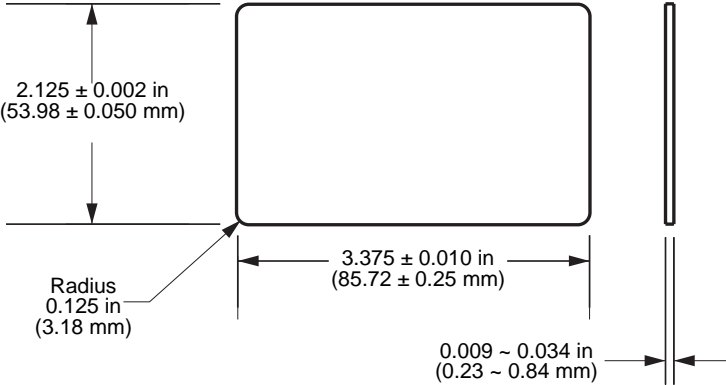
- Operating Temperature: 60°F to 86°F (15°C to 30°C)
- Operating Humidity: 20% to 65% non-condensing
- Storage Temperature: 23°F to 158°F (-5°C to 70°C)
- Storage Humidity: 20% to 70% non-condensing
- Ventilation: Free air

Options

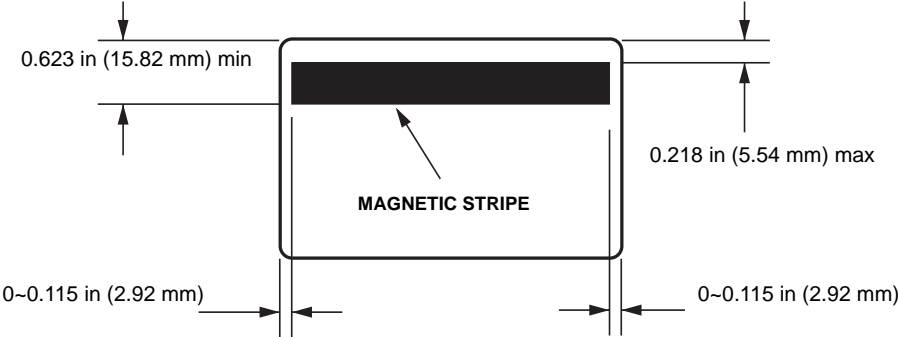
- Magnetic encoder (30 mil cards only), 3 track HiCo/LoCo
- Ethernet (10/100 MBps); available at time of order only
- P100i Starter Kit (100 - 30 mil PVC cards and one Black ribbon)
- Cleaning Kit (1 cleaning card and 1 cleaning swab)

Card Dimensions

ISO standard dimensions for plain card



ISO standard dimensions for magnetic stripe card



Declarations of Conformity

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”

FCC Regulations

Model P100i has 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 P100i 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.

FCC Radiation Exposure Statement (applicable to 15.247 device only)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum 20 cm between the radiator and your body. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.

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.

Appendix A

Magnetic Encoder



Introduction

This section contains information on the additional operations of the P100i Printers with a Magnetic Encoder.

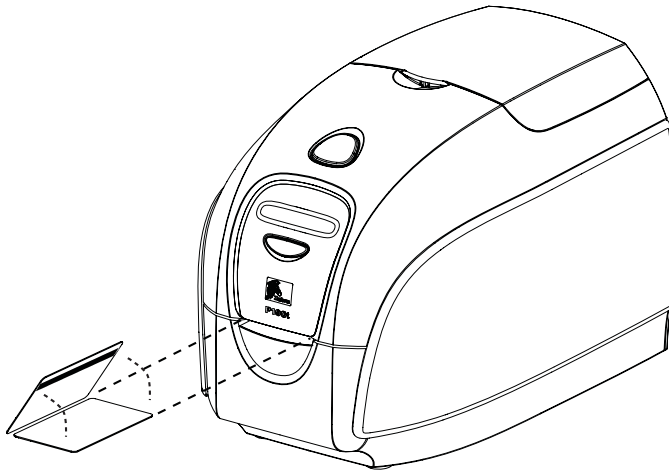
The magnetic encoder can be set for either high coercivity (HiCo) or low coercivity (LoCo). This setting can be made via a third-party application software or via the Printer Driver: Device Settings > Encoder Settings.

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.

When loading cards with magnetic stripes into the card feeder, ensure that the magnetic stripe is toward the right side when facing the printer and down, as shown below.



Note • Zebra approved HiCo & LoCo PVC cards are available. (Reference *P100i* printer Media List.)

Magnetic Encoder Cleaning

Use the standard cleaning card process as described in [Chapter 5](#). This process cleans the most important parts of the printer; including the Printhead, Transport Roller, and Magnetic 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‡

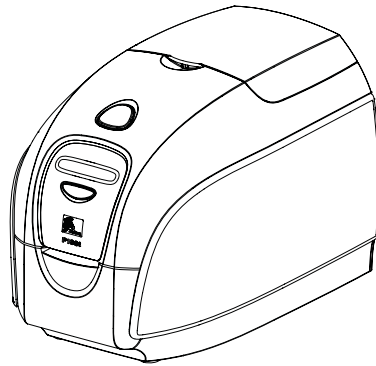
* Bits per inch

† Except the “?” character

‡ Including Start, Stop, and LRC characters. Note that these three 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.



Appendix B

Smart Card Encoder



Introduction

This section contains information on the additional operations of a P100i Printer equipped with optional contact and/or contactless smart card encoders.

Smart cards can have a built-in microprocessor and/or memory.

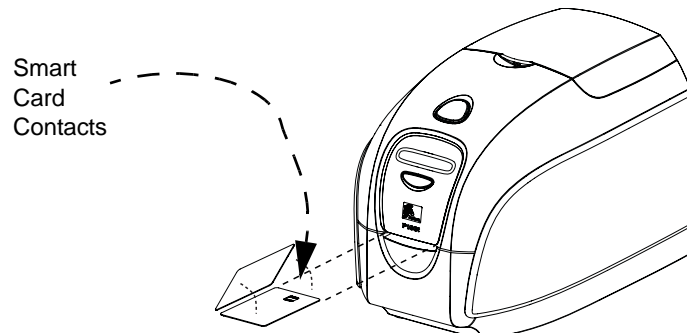
Contact smart card encoders physically make electrical connection via a contact pad on the card. Contactless smart card encoders utilize a short-range radio signal.

Use of either type of smart card encoder is entirely under control of the third-party application program -- no operator action is required.

Media Loading Orientation

Contact Smart Cards

Orient the cards with the gold-plated Smart Card contacts at the top surface of the card and nearer the card entry slot, as shown below.



Contactless Smart cards

For contactless smart-cards, orientation is not a consideration (unless the card will be printed on; see below).

Printing on Smart Cards

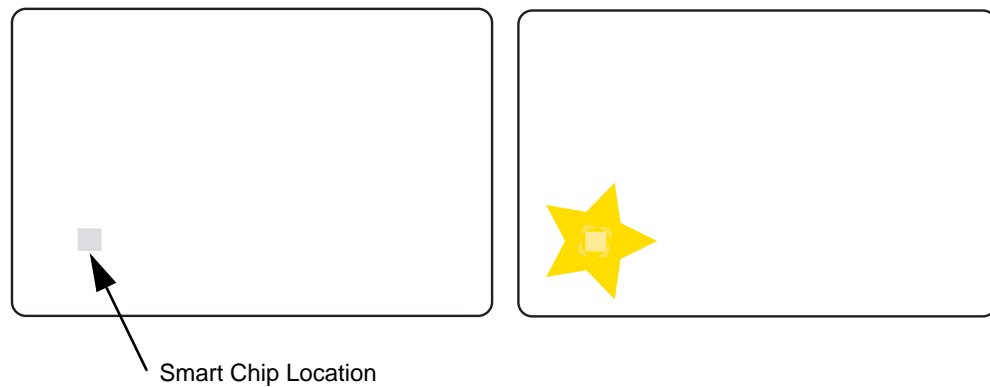
Contact Smart Cards

When designing material to be printed on Contact Smart Cards, be sure the printing will not be on the contact area.

Contactless Smart Cards

When designing material to be printed on Contactless Smart Cards, be sure the printing will not be on the smart chip area (i.e., the printing on **either side of the card** must not be on top of or underneath the smart chip area).

By looking at an unprinted card very carefully, it is possible to see the chip location (as in the figure on the left below). If you print in that area, results will be unsatisfactory (in the figure on the right, the “star” should have been a single solid color).



Appendix C

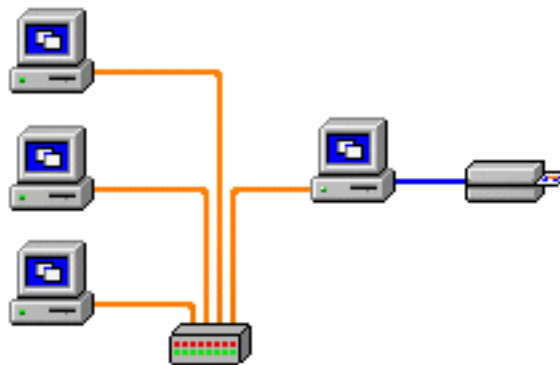
Connecting to a Network



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

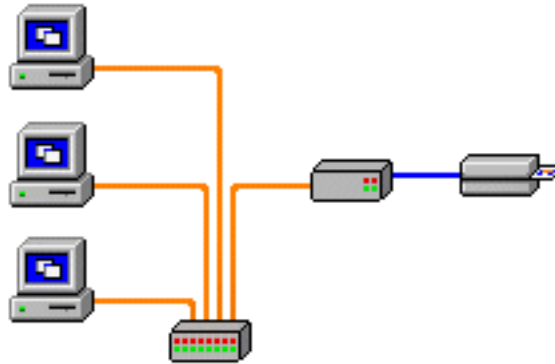
Printer Sharing

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.



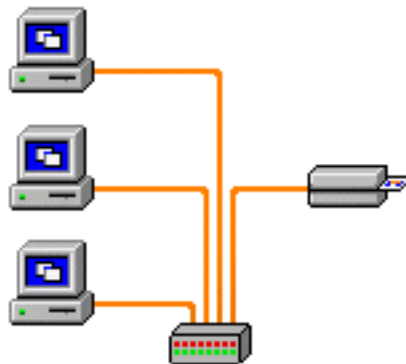
External Print Server

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 Support



For Technical Support or Repair Services, contact the appropriate facility listed below.

North America - Technical Support

Zebra Technologies
Card Printer Solutions
1001 Flynn Road
Camarillo, CA 93012-8706 USA
Phone: 1-800-511-9909
email: techsupport@zebra.com

North America - Repair Services

Before returning any equipment to Zebra Technologies Corporation for in-warranty or out-of-warranty repair, contact Repair Services 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:

Zebra Technologies
Card Printer Solutions
1001 Flynn Road
Camarillo, CA 93012-8706 USA
Phone: 800-452-4034 or 1-805-578-1201
email: repair-ca@zebra.com

Europe, Middle East, and Africa - Technical Support

Zebra Technologies Card Printer Solutions

The Valley Centre, Gordon Road

High Wycombe

Buckinghamshire HP13 6EQ

United Kingdom

Phone: + 44 (0) 870 241 1527

e-mail: cardts@zebra.com

Europe, Middle East, and Africa - Repair Services

Before returning any equipment to Zebra Technologies Corporation for in-warranty or out-of-warranty repair, contact Repair Services 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:

Zebra Technologies Corporation

Zebra Card Printer Solutions

Pittman Way, Fulwood

Preston, PR2 9ZD

Lancashire, U. K.

Phone: 44 (0) 1772-693-069

FAX: 44 (0) 1772-693-046

email: repairupdate@zebra.com

Latin America - Technical Support

Zebra Technologies

Card Printer Solutions, Latin America

9800 NW 41st Street, Suite 220

Doral, FL 33178 USA

Phone: + 1 (305) 558 3100, extension 2821

e-mail: techsupport@zebra.com

Latin America - Repair Services

(Please contact North America Repair Services.)

Asia Pacific - Technical Support and Repair Services

Before returning any equipment to Zebra Technologies Corporation for in-warranty or out-of-warranty repair, contact Repair Services 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:

Zebra Technologies Asia Pacific, LLC

16 New Industrial Road

#05-03 Hudson TechnoCentre

Singapore 536204

Phone: + 65 6885 0833

e-mail: esoh@zebra.com

Website

www.zebracard.com

