

User's Manual

P310C & P310F



User's Manual No. 980261-001

Rev. B

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FOREWORD

This manual contains installation and operation information for the P310 Series card printers manufactured by Zebra Technologies Corporation, Camarillo, California.

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 and Latin America:
Zebra Technologies Corporation
Eltron Card Printer Products
1001 Flynn Road
Camarillo, CA. 93012-8706. USA
Phone: +1 (805) 579 1800
Fax: +1 (805) 579 1808
Toll Free in US: (800) 452-4056

For Europe, Asia, and Pacific:
Zebra Technologies Corporation
Eltron Card Printer Products
Zone Industrielle, Rue d'Amsterdam
44370 Varades, France
phone: +33 (0) 240 097 070
Fax: +33 (0) 240 834 745

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TRADEMARKS

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WARRANTY INFORMATION

WE NEED TO HEAR FROM YOU!

To Establish Your Warranty Period And Provide Access To Technical Support, Send Us your Product Registration Card Today!

Zebra warrants the mechanism, control electronics and power supply, under normal use and service, to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase by the end user. Zebra warrants the print head, under normal use and service, to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase by the end user. Proof of purchase or product registration is required. If proof of purchase or product registration cannot be established, shipment date to the original buyer (dealer or distributor) will be used to establish the warranty period.

Failure to exercise caution to protect the equipment from electrostatic discharge damage, adverse temperature and humidity conditions or physical abuse, including, but not limited to, improper packaging, shipping, service or repairs performed by personnel not authorized by Zebra may void the warranty. Failure to use only Zebra approved media may void the warranty. Zebra will, at its option, repair or replace the equipment or any parts which are determined to be defective within this warranty period, and which are returned to Zebra F.O.B. factory of origin.

The warranty set forth above is exclusive and no other warranty, whether written or oral, is expressed or implied. Zebra specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

DECLARATIONS OF CONFORMITY



European Council Directive		Compliance to Standards	
89/336/EEC modified by 92/31/EEC and 93/68/EEC	EMC Directive	EN 55022-B	RF Emissions control
	EMC Directive	EN 500082-1, 1992	Immunity to Electromagnetic Disturbances
73/23/EEC modified by 93/68/EEC	Low voltage Directive	EN 60950	Product Safety



Model : P310 conforms to the following specification:

**FCC Part 15, Subpart A, Section 15.107(a) and Section 15.109(a)
Class A digital device**

Supplemental Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following Two Conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment 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 used in accordance with the instruction 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.

INDUSTRY CANADA NOTICE

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

INTRODUCTION

Thank you for choosing the Eltron P310 Plastic Card Printer.

These printers produce cards ideal for personalized identification, access control, visitor, membership, promotion and luggage card, badges and tags.

This manual guides you to an efficient start up and operation of your new Card Printer.

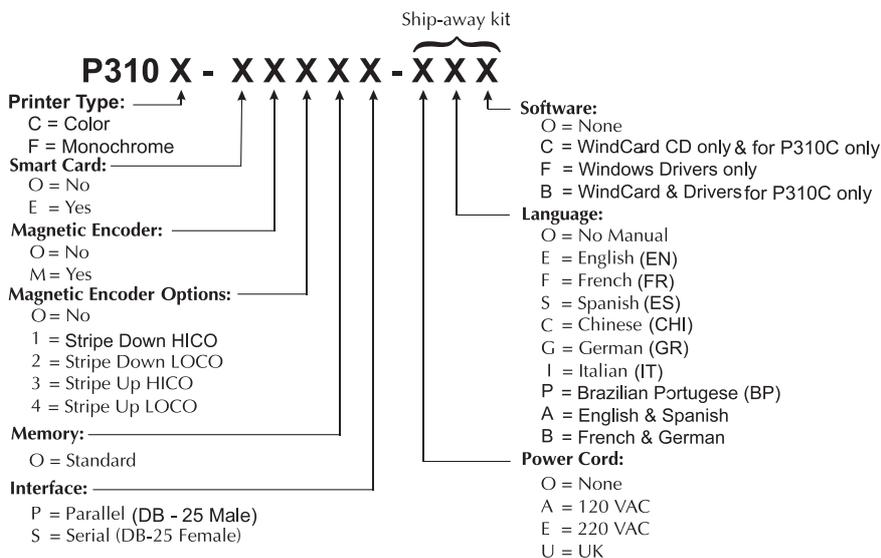
P310 PRINTER MODELS

Eltron's Product Numbers tell the story:

Here is a quick review of Eltron's Card Printer Series numbering and lettering system to help you.

Eltron's P310C Plastic Card Printer Series employ Dye Sublimation and Resin Thermal Transfer Technologies. Model numbers include identifiers that specify options and items in the Ship-Away kits.

Eltron's P310F Plastic Card Printer Series employ Resin Thermal Transfer Technology. Model numbers include identifiers that specify options and items in the Ship-Away kits.



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



Important general information.



Mechanical hazard, such as one associated with moving parts, capable of resulting in equipment damage or personal injury.



Electrical hazard, such as an exposed voltage point, capable of causing electrical shock and personal injury.



An area where electrostatic discharge (ESD) can cause component damage. Use a grounding wrist band.



Elevated temperature hazard, capable of producing a burn.



Keep Card Printer clean by minimizing cover open time.

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1 **GETTING STARTED**

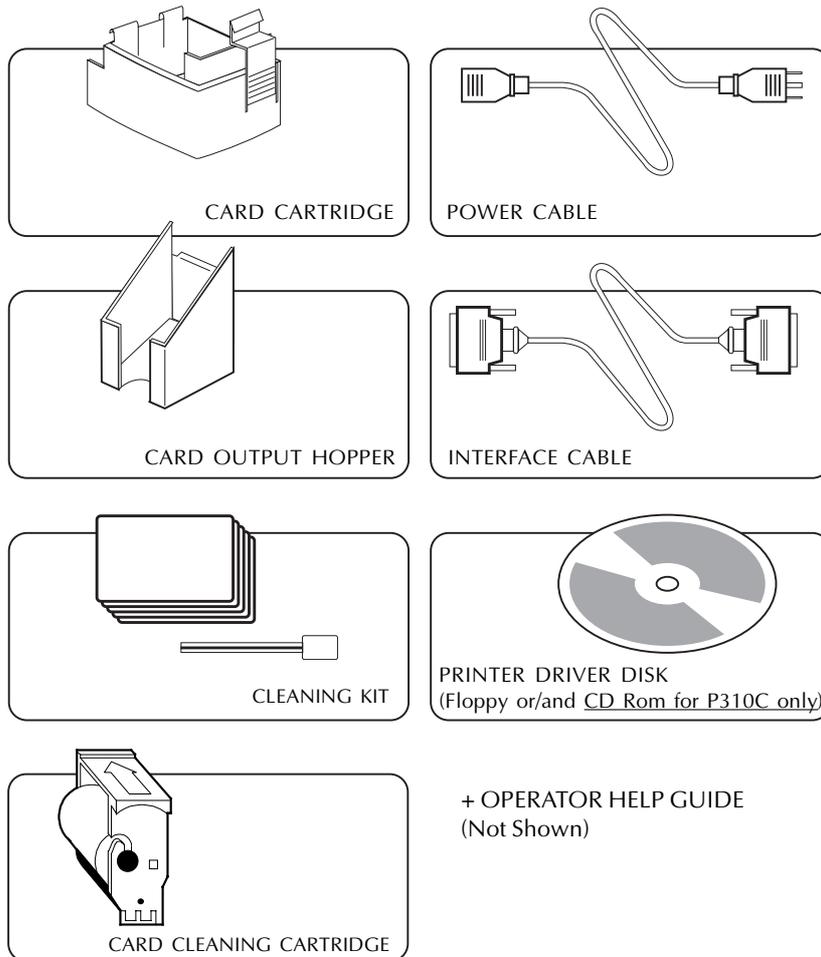
UNPACKING YOUR CARD PRINTER

Your P310 printer ships in a carton and protective anti-static bag. Keep all packing material in case you need to move or re-ship the printer.

While unpacking, inspect the carton to ensure that no damage occurred during shipping.

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

In addition to user documentation, make sure the following items are included with your P310 printer:

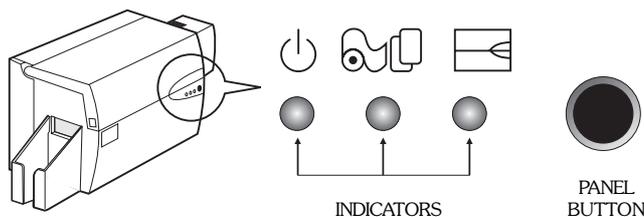


If any items are missing, please contact your dealer.

To reorder, please refer to Appendix C of this manual.

**INDICATORS
AND CONTROLS**

Your P310 Printer has three Status indicators and a panel button on the front and a power switch on the rear:



INDICATORS (green, amber & red) signal printer activity by illuminating or flashing, as follows:

INDICATOR	ON	FLASHING
	POWER ON	PROCESSING
	LOAD CARDS	REPLACE RIBBON
	PRINTER ALERT REFER TO TROUBLESHOOTING	ENCODER ALERT REFER TO TROUBLESHOOTING

OTHER ALERTS

	AMBER & RED FLASHING	PRINTER CLEANING PROCESS REQUIRED
	ALL FLASHING	PRINT HEAD COOL DOWN MODE PRINTING WILL RESTART SHORTLY

**PANEL
BUTTON**

This is a push button to operate the printer for:

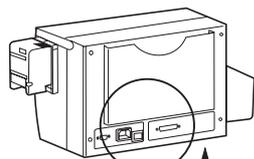


PRINTER INSTALLATION

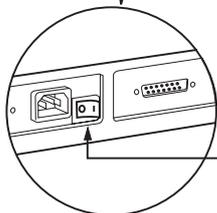
The following will guide you through the installation of your P310 Printer.



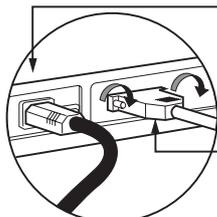
CAUTION: Limit AC power supplied to the P310 to 110 ~ 230 volts, 60 ~ 50 Hertz, for an associated 680 ~ 280 milliamps. Limit excess current draw to 16 amps or less, using an associated circuit breaker or other such device. Never operate the printer in a location where operator, computer, or printer can get wet. Personal injury could result. The electrical security of the printer is based on the reliability of the mains power source.



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



3. Insert the power cable into the printer power socket and attach to grounded electrical socket of the proper voltage and type.

4. Attach interface cable to printer and computer and then secure.

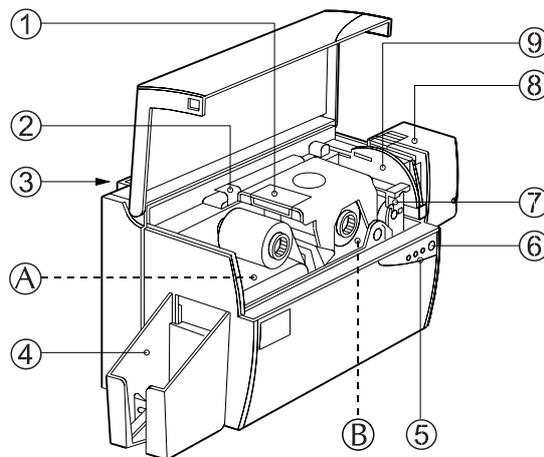
5. Switch power on.



CAUTION: Intermittent or unpredictable operation may occur from unsecured connectors. If damaged, the power cable must be replaced by an exact equivalent.

2 OPERATION

P310 PRINTER The following shows the features found on
FEATURES your P310 Printer.



PLEASE NOTE: Any blue items inside the printer can be operated by the user.

STANDARD FEATURES

1. Print Head
2. Print Head Unlock Lever
3. Manuel Holder
4. Card Output Hopper

OPTIONAL FEATURES

- A. Magnetic Encoding Station
- B. Smart Card Contact Station
5. Status Indicators
6. Panel Button
7. Card Cleaning Cartridge
8. Card Cartridge
9. Card Thickness Control

**LOADING
RIBBONS**

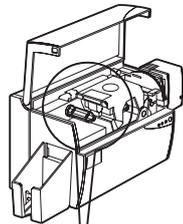
The P310 Printer requires approved ribbons (See Appendix C). The Resin Thermal Transfer and Dye Sublimation ribbons for P310C only and monochrome ribbons for P310F only are specifically designed for your P310 Printer. For optimum performance and printer life (Print Head), always use approved ribbons.



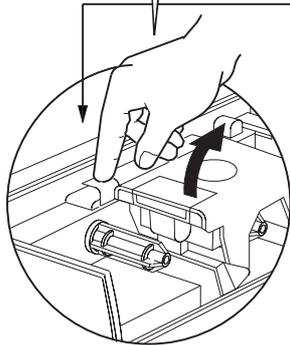
DO NOT TOUCH the print head or the electronic components on the print head carriage. Discharges of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage the print head and other electronic components used in the device.



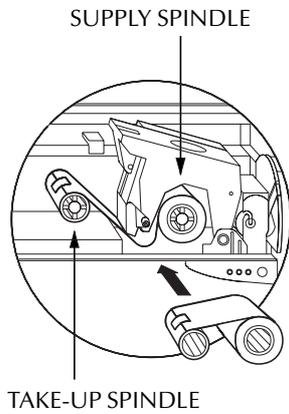
← 1. Remove ribbon from packaging.



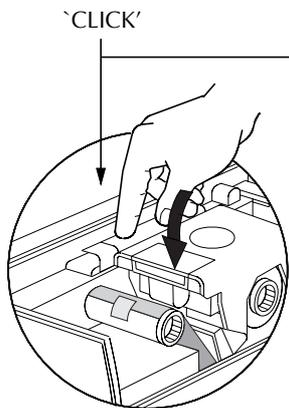
2. Open cover and press down on the print head unlock lever to open the print head carriage. The print head carriage will pop open.



Continued on next page



← **3.** Load ribbon onto the supply spindle (under print head carriage) and empty core (with tape attached) onto the take-up spindle. Make sure the ribbon comes off of the top of the supply spindle and feeds to the top of the take-up spindle.



4. Push down on the Print Head Lock Lever until an audible 'click' signals the locked-down position.

5. Close Cover.



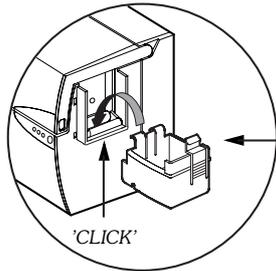
Please note that the ribbon automatically synchronizes whenever the print head lock down occurs with the P310C only.

The ribbon will not synchronize on the P310F.

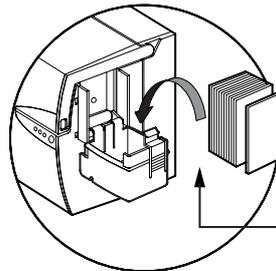
LOADING CARDS To help you load, print, and collect cards, the P310 has with the following items:

A - CARD CARTRIDGE

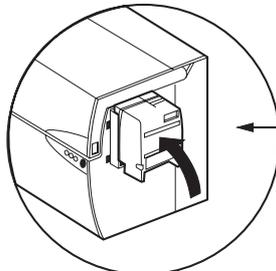
For loading cards.



1. Install Card Cartridge by hooking onto printer as shown and clicking down.



2. Install cards into Cartridge.*



3. Close Cartridge.

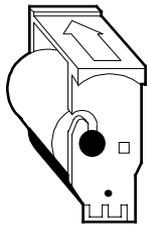


DO NOT bend cards or touch print surfaces as this can reduce print quality. The surface of the cards must remain clean and dust free. Always store cards in an enclosed container. Ideally, use cards as soon as possible. If cards stick together, carefully shuffle them.

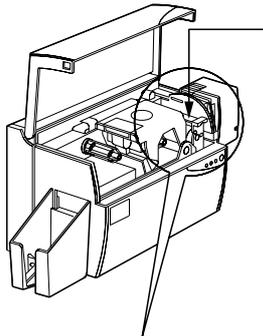
* See Chapter 6, Technical Specifications, for card requirements and capacities.

B - INSTALL CARD CLEANING CARTRIDGE

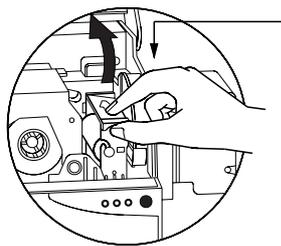
This item is used to clean the cards entering the printer.



- 1.** Remove Card Cleaning Cartridge from packaging.
Peel protective wrapper from adhesive roller.



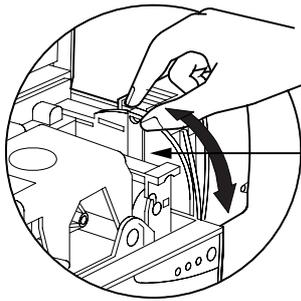
- 2.** Open Printer cover and remove the yellow reminder tape from the location for the Cleaning Cartridge.



- 3.** Make sure the arrow on top of the assembly is facing toward the rear of the printer.
Hook assembly into slot on printer and rotate down.
Ensure the assembly locks in place.

C - CARD THICKNESS CONTROL LEVER

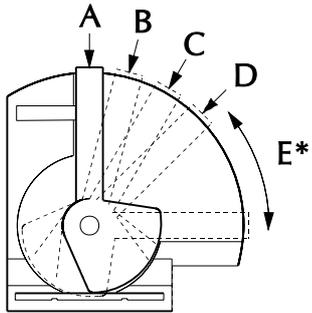
This item is operated by the user to prevent more than one card feeding into the printer at the same time and causing a jam.



Open Cover, and adjust lever to correct position. Repeat for different card thickness. (Factory setting is for 30mil (0.762mm) card thickness. See diagram below:

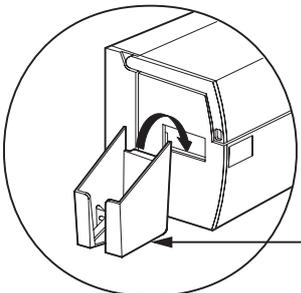
Card Thickness:
A - 60mil (1.524mm) to 50mil (1.27mm)
B - 40mil (1.016mm)
C - 30mil (0.762mm)
D - 20mil (0.508mm)
E* - Less than 20mil (0.508mm)
* Start at lowest position and move lever up to match card thickness.

For other card thickness, start lever at lowest position and move up until cards feed.

A diagram of the card thickness control lever mechanism. The lever is shown in various positions, labeled A through E*. Position A is the highest, and E* is the lowest. The lever is attached to a circular base with a spring. An arrow indicates the lever's range of motion from E* to A.

D - CARD OUTPUT HOPPER

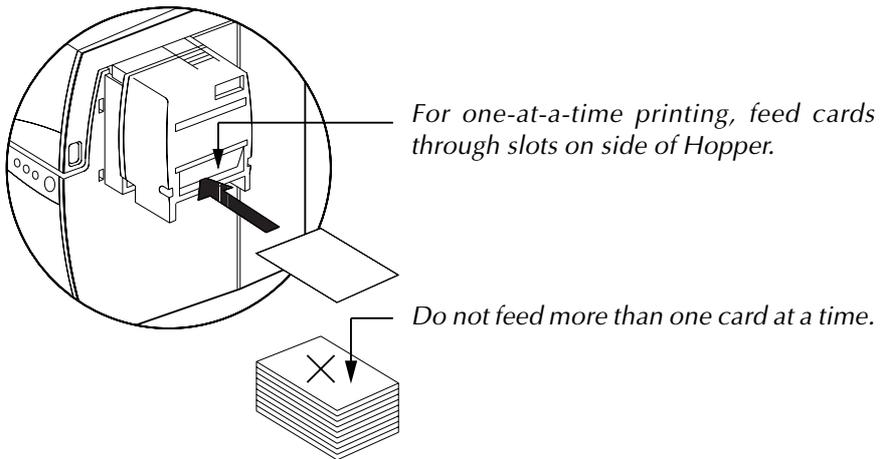
For collecting printed cards.



Install Card Output Hopper onto printer by hooking over button edge of card exit aperture.

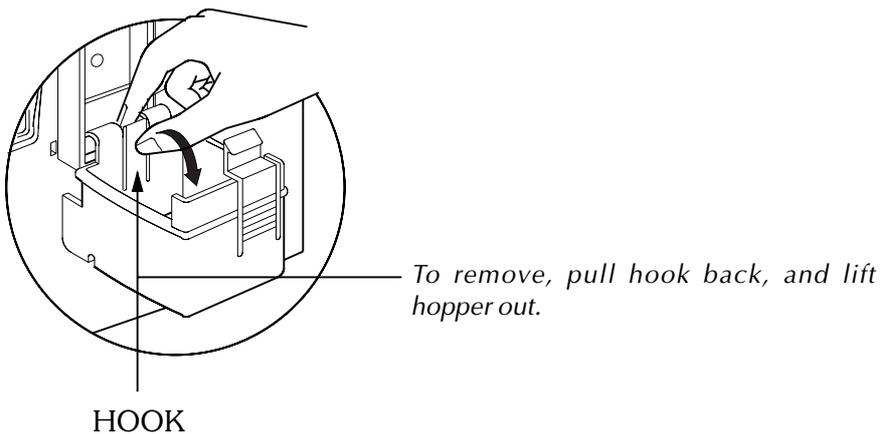
**FEEDING ONE
CARD AT A TIME**

A Manual Feed Slot is available on the size of the Card Input Hopper for feeding single cards. Cleaning Cards are fed manually through this slot. The Card Cartridge must be empty for manual card feeding to work properly.



**REMOVING
CARD
CARTRIDGE**

Remove the Card Cartridge prior to packaging the printer for shipment.

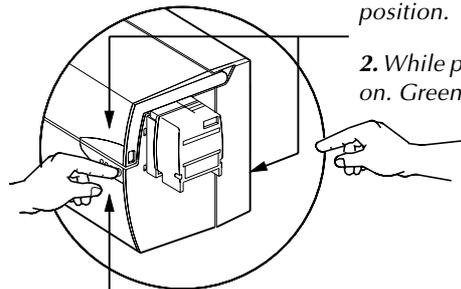


PRINTING A TEST CARD

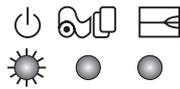
With ribbon and cards loaded, your P310 printer is ready to print. To check the operation of the printer you should print a test card.

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

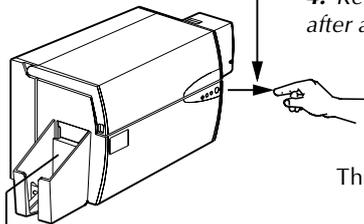
2. While pressing the panel button, switch printer on. Green indicator will show.



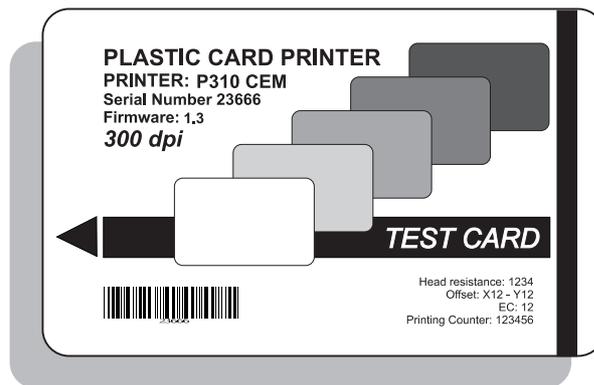
3. Keep pressing panel button until green indicator starts flashing.



4. Release panel button and a test card will print after a few seconds.



This is an example of the test card



3

PRINTING A SAMPLE CARD

Printing with the P310 Printer requires the Windows printer driver, your card design/issuing Windows Software , or printer command level programming through the printer interface.

The P310 Card Printer can be used with any Windows 95/98 and Windows NT 4.0 software application program, using the drivers provided with the printer.

This section contains information on the printing of a sample card in color (using the 5-Panel color ribbon YMCKO) for P310C, in monochrome for P310F and the Windows printer driver.



BEFORE installing updated printer driver versions, always delete the existing printer driver version from your computer.

A. To install the P310 Printer Driver in Windows 95/98, use the following steps:

IMPORTANT NOTE:

ENSURE THAT YOUR PC PRINTER PORT IS SET TO STANDARD MODE AND ALSO ENSURE THAT YOU HAVE DELETED ANY PREVIOUS VERSIONS OF THIS PRINTER DRIVER. IF YOU HAVE ANY DOUBTS PLEASE CONTACT YOUR IT DEPARTMENT.

This installation uses floppy drive 'A' or from CD Rom as the installation drive with the printer used as stand alone.

- Start your computer and then Windows.
- Insert your 'Eltron Software' diskette into the drive 'A' or CD drive.
- Under Windows click the **Start** button, select **Settings**, then **Printers**.
- Double click on the **Add Printer** icon and also **Next**.
- Ensure **Local Printer** is selected and click on **Next**.
- Click on **Have Disk** and then type in '**A:\win95**' and click **OK**.
- Eltron P310 Card Printer should be displayed after which click on **Next**.
- Choose **LPT1 : Standard Printer Port**, click on **Next**, select **Yes** to set as **Default Printer** and click on **Finish** to install.

The Printer Wizard will copy the necessary files to the PC for you and the P310 printer driver installation will be completed.

B. To install the P310 Printer Driver in Windows NT4.0:

ENSURE THAT YOU HAVE ADMINISTRATIVE PRIVILEGES TO PERFORM THIS INSTALLATION OR CONTACT YOUR IT DEPARTMENT.

Set printer as **Not Shared** for stand alone use.

Use the steps provided for Windows 95/98 installation with the exception of **step 6**. where you must type in '**A:\nt40**' instead and click **OK**.

Once the printer driver has been successfully installed, you will need to configure it for your printer. This driver provides control of several printer features when printing from Windows applications. These features are accessed through the P310 Plastic Card Printer **Properties**. To access these properties select the **Eltron P310 Card Printer** icon in **Printers**. Then click **File** Menu and select **Properties**.

C. Set Printer Driver Options

The P310 Printer screen appears. Change the options as follows:

- On the **Printer** tab configure the magnetic encoder feature. If your printer is equipped with a Magnetic Encoder option, select **With Magnetic Encoder** option.
- On the **Card** tab select card orientation:
Landscape or Portrait - Select '**Landscape**'.
- For P310C: On the **Ribbon** tab, select the Ribbon Type. Select **YMCKO** for the standard 5-panel ribbon.
- For P310F: On the **Ribbon** tab, select the Ribbon Type. Select **K** for the standard Monochrome Resin Ribbon.
- For P310C only: In the same tab, go to **Black Panel** area and select **Text Only**. This option allows the text printing using the Black Resin Panel from the Color Ribbon.
- Close the **Eltron P310 Printer Properties** screen.

Now that you have loaded media and set up the printer driver, the P310 Printer is ready to print.

D. Printing a sample card:

Follow the steps to print your first card

- Go to the Microsoft Word Software.
- If the printer was not selected as the default printer, go to the **File** menu and Select **Printer** and choose **Eltron P310 Card Printer** in the printer names list. Then **Close** the print dialog box.
- Come back to **File** menu and choose **Page Setup**.
- Select **Paper Size** tab and in **Paper Size** choose **Card**. Then select the orientation: "landscape".
- Go to **Margins** tab, put the Top, Bottom, Left and Right margins with 0 values.
- Press **OK** to close Page Setup window.
- The card appears on the screen.
- For P310C: Design a card with both black and colored text and with colored pictures (see example below).
- For P310F: Design a card with black text and with black pictures (see example below).



- Once you are ready to print, go to **File** and point **Print**
- 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 your computer).
- Once the printing job is achieved the card is ejected from the printer.

4 CLEANING



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 P310 Printer.

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

NEVER use a shop air compressor to remove particles in the printer.

CLEANING SYSTEM

Your P310 Printer includes a simple cleaning system using the Pre-saturated Cleaning Cards provided. The regular use of these cards will clean and maintain important parts of your printer: including the Print Head, Transport Rollers, and Magnetic Encoder Station (optional feature).

WHEN TO CLEAN

When the amber & red indicators flash
(Every 1000 cards* approx.)

*Using 5-panel color ribbon (YMCKO).

(Every 5000 cards* approx.)

*Using monochrome ribbon.

*Optional factory setting.



HOW TO CLEAN

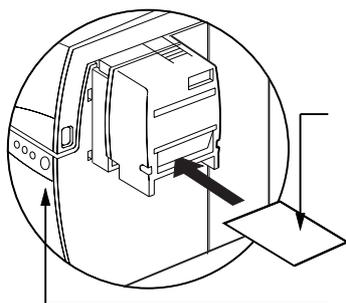
1. Leave power on.

Open Cover and release Print Head Bracket to remove ribbon.

Close Print Head.

Close Cover. Remove cards from Card Cartridge

2. Insert one Pre-saturated Cleaning Card (provided) through slot on the side of the Card Cartridge.



3. Press the Panel Button for a few seconds.

The Card will feed into printer and carry out the cleaning process. Repeat the process with a new Cleaning Card if necessary.

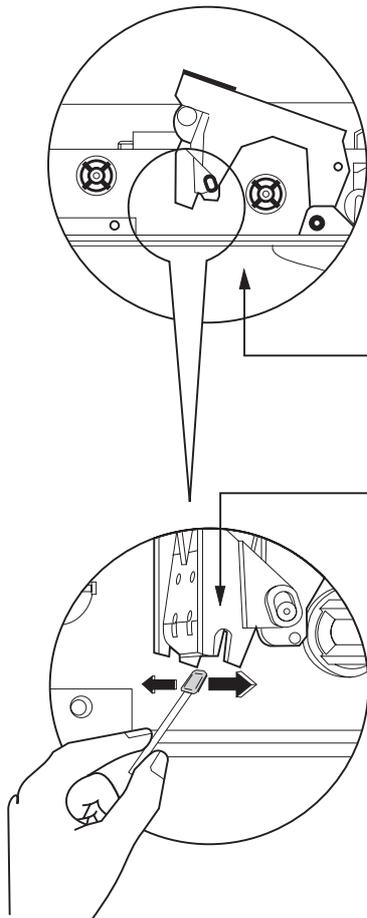
Note: For cleaning prior to the WHEN TO CLEAN signal, press the Panel Button for 3 seconds to start the cleaning process (Repeat first steps 1 & 2 above).



Although the amber and red indicators will keep flashing until the cleaning process has been performed, the printer will continue to operate.

CLEANING THE PRINT HEAD

A cleaning using the Cleaning Cards usually suffices. 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.



1. Turn power OFF. Raise Print Head and remove the Ribbon.

2. Clean Print Head by moving alcohol-moistened swab tip side-to-side across Print Head elements. Only use moderate force. (To reorder swabs see Appendix C).

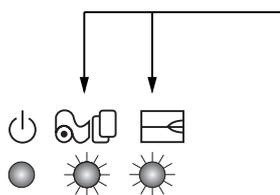
3. Turn power ON. Allow two minutes for the print head components to dry before resume printing.



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

CARD CLEANING CARTRIDGE

Your P310 Printer also has a Card Cleaning Cartridge. This item cleans the cards entering the printer. To ensure print quality, the cleaning roller requires periodic replacements.



WHEN TO MAINTAIN

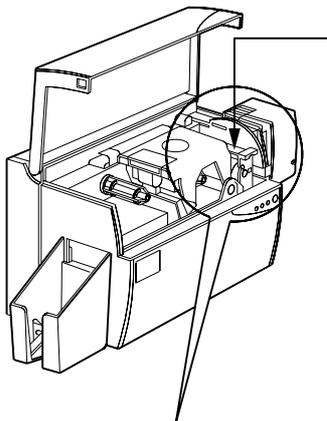
When the amber & red indicators flash
(Every 1000 cards* approx.)

*Using 5-panel color ribbon (YMCKO).

(Every 5000 cards* approx.)

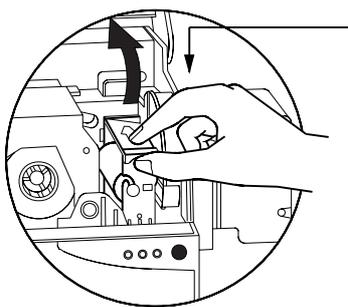
*Using monochrome ribbon..

*Optional factory setting.



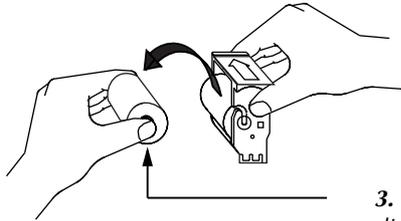
HOW TO MAINTAIN

1. Open Cover and locate Cleaning Cartridge.

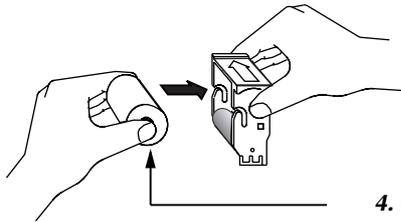


2. Gently remove by rotating up and away from printer.

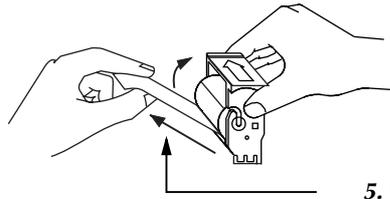
Continued on next page...



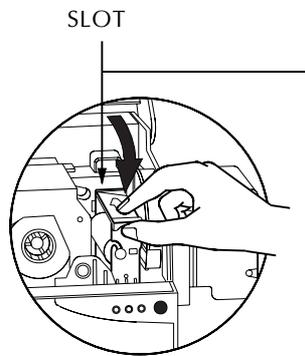
3. Remove Cleaning Roller from Cartridge and discard.



4. Install new Cleaning Roller into Cartridge*. To avoid contamination, always hold the Cleaning Roller assembly by the ends.



5. Carefully peel off wrapper from new Cleaning Roller while in Cartridge.



6. To replace Cartridge into printer: Make sure the arrow on top of the assembly is facing toward the rear of the printer. Hook assembly into slot on printer and rotate down. Ensure the assembly locks in place.

DO NOT touch the roller surface that contacts the card.

7. Close Cover.

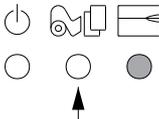
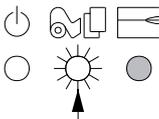
* See Appendix C for replacement Cleaning Rollers.

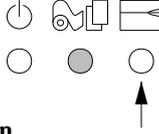
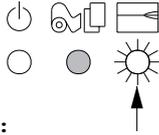
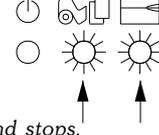
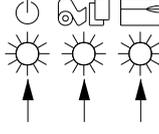
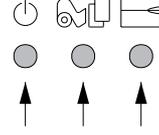


Although the amber and red indicators will keep flashing until maintenance has been performed, the printer will continue to operate.

5 **TROUBLESHOOTING**

The following offers causes or solutions to symptoms related to improper operation. Check this table when experiencing any loss of operation or print quality. Note that the LEDs appear white for ON, dark for OFF, and circled with radial lines for FLASHING.

PROBLEMS / DESCRIPTION	REASON / SOLUTION
<p>AMBER INDICATOR ILLUMINATES</p>  <p>Alert: cards The Printer stops and an error comes up in the Windows application program or in WindCard Software.</p>	<ol style="list-style-type: none"> 1. Check for Cards in Card Cartridge. 2. Check Card Thickness Control setting. 3. Press the Panel Button for 1 second. <p>The printing job will restart.</p>
<p>AMBER INDICATOR FLASHES</p>  <p>Alert: ribbon The Printer stops and an error comes up in the Windows application program or in WindCard Software.</p>	<ol style="list-style-type: none"> 1. Check ribbon. 2. Load new ribbon. 3. Ribbon will automatically synchronize and printing will restart with new card.

<p>RED INDICATOR ILLUMINATES</p>  <p>Printer alert: Print Head Bracket open Card Jam Ribbon Jam Command Error <i>The printer stops working</i></p>	<ol style="list-style-type: none"> 1. Check Print Head Bracket is closed. 2. Check if you are using correct card type (see Technical Specifications). 3. Check Card Thickness Control Lever is properly adjusted for correct card thickness (see Chapter 2 - Loading Cards). 4. If two cards are fed into printer at same time: - Open cover & remove Card Cleaning Cartridge, empty feeder, pull jammed cards out. Replace Card Cleaning Cartridge. - Remove cards from Card Cartridge, shuffle them and replace. 5. Check ribbon is loaded correctly inside printer. 6. Check command.
<p>RED INDICATOR FLASHES</p>  <p>Magnetic Encoder alert: <i>The printer needs cleaning</i></p>	<ol style="list-style-type: none"> 1. Check that you are using correct magnetic card type (for low or high coercivity encoding). 2. Verify Command Syntax. 3. Call technical support.
<p>AMBER & RED INDICATORS FLASH</p>  <p>Cleaning alert: <i>The Printer ejects card and stops.</i></p>	<ol style="list-style-type: none"> 1. Printer cleaning required. (see Chapter 4 - Cleaning)
<p>ALL INDICATORS FLASH</p>  <p>Print head alert: Cool down mode <i>Printing stops</i></p>	<ol style="list-style-type: none"> 1. Printing will restart automatically after a few seconds.
<p>NO INDICATOR ILLUMINATES</p>  <p>Power cord <i>The power switch is ON.</i></p>	<ol style="list-style-type: none"> 1. Make sure power cord is plugged in properly at both ends. 2. Call technical support.

<p>CARDS HAVE 'SCRATCH LINES' MISSING PRINTING Incorrect rolled ribbon Dust Print Head <i>There are non-printed horizontal lines (white) on card surfaces.</i></p>	<ol style="list-style-type: none"> 1. Incorrect position of ribbon. Check ribbon is properly rolled onto the ribbon core and there are no pleats. 2. There may be dust on the print head. (see Chapter 4 - Cleaning). 3. An element on the print head may be scratched or burnt. Contact technical support for print head replacement information.
<p>POOR PRINTING QUALITY Dust on print head. Contrast & Intensity values for P310C <i>Printing shows very pale or inconsistent results.</i></p>	<ol style="list-style-type: none"> 1. There may be dust or embedded contaminations on elements of the print head (see Chapter 4 - Cleaning). 2. Contrast <u>and/or intensity colors for P310C</u> may be set to high values. Adjust contrast <u>and intensity values for P310C</u> in software or with programming.
<p>PRINTING HAS VOIDS Dust inside printer Contamination on card surface <i>Small spots on the printed card with a non-printed area or a different printed color.</i></p>	<ol style="list-style-type: none"> 1. This may be caused by dust inside the printer and/or a dirty Cleaning Roller Assembly (see Chapter 4 - Cleaning). 2. This may be caused by contaminations on the card surface. Check that cards are stored in a dust free environment.

Ribbon Errors: Check that the print ribbon has not 'run out'. Lock and then unlock the print head assembly; this resynchronises the ribbon automatically. When using a color ribbon, it should advance automatically so that the leading edge of the Yellow panel is beneath the print head. Ensure that the correct ribbon type has been specified in the Windows driver.

Card Feed & Mechanical Errors: Ensure that the card thickness adjustment has been set-up correctly to allow one card to feed.

Magnetic Encoding Errors: Check that the cards are inserted correctly in the printer. Ensure that the cards are low or high coercivity as required, and are set-up correctly in the printer driver.

Cleaning Alert: The printer has counted the number of cards printed and has automatically flagged that a cleaning routine needs to be carried out.

6

TECHNICAL SPECIFICATIONS

- General**
- For P310C: High speed printing, over 140 cards/hour edge to edge in full color (YMCKO) throughput
 - For P310F: High speed printing, over 1000 cards/hour throughput
 - Small footprint
 - Windows Drivers for 95/98 and NT 4.0 (option)
 - One year printer warranty
 - One year (unlimited passes) print head warranty
 - Powerful EPCL (Eltron Printer Program Command Language)

- Color Printing**
- For P310C: Color dye sublimation or monochrome thermal transfer printing
 - For P310F: Monochrome thermal transfer printing
 - For P310C: 25 seconds per card edge to edge in full color (YMCKO)
 - For P310F: 4 seconds per card
 - 300 dpi (11,8 points/mm) print resolution
 - Edge to edge printing standard

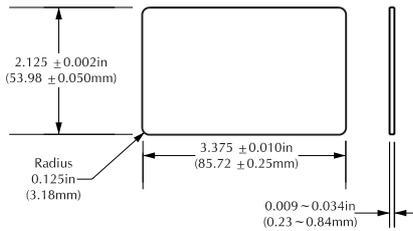
- Bar Codes**
- Code 39
 - Code 128 B & C with or without check digit
 - 2 of 5 & 2 of 5 industrial
 - UPC A
 - EAN 8 & EAN 13
 - PDF 417 2D bar code and other symbologies available via WindCard Classic utility tool (option)

- Fonts**
- Resident: Arial Normal 100, Arial Bold 100
 - True Type fonts available via Windows Driver

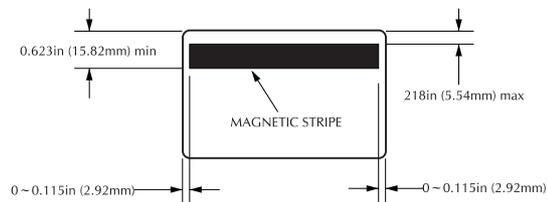
- Cards***
- Types PVC, Composite
 - Card width/length: ISO CR-80 - ISO 7810
2.125" (54mm) by 3.385" (86mm)
 - Option: Magnetic Stripe - ISO 7811
 - Option: Smart Card - ISO 7816-2
 - Card Thickness: 10mil (0.25mm) to 60 mil (1.524mm)
 - Card Cartridge capacity: Up to 210 cards (10mil), up to 75 cards (30mil)
 - Card Output Hopper capacity: Up to 210 cards (10mil), up to 75 cards (30mil)

CARD DIMENSIONS

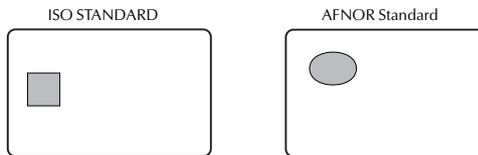
ISO STANDARD DIMENSIONS FOR PLAIN CARD



ISO STANDARD DIMENSIONS FOR MAGNETIC STRIPE CARD



CHIP POSITION FOR SMART CARD



* Use Eltron approved media only.

- Ribbons***
- Monochrome: 1500 cards/roll
 - Monochrome colors: black, red, blue, green, yellow, silver, gold, white
- For P310C only
- K-Resin + O: 800 cards/roll
 - K-Dye + O: 800 cards/roll
 - YMCKO : 350 cards/roll:

- Overlay Varnish**
- Thermal Transfer
 - 4 microns thick
 - Clear and holographic options:
 - Clear
 - Genuine/Secure Hologram
 - Pcard Hologram
 - Custom Hologram

- Interfaces**
- Parallel standard (cable included)
 - RS-232C Serial (option)

- Mechanical**
- Width: 11.8" (315mm)†
 - Depth: 7.75" (198mm)†
 - Height: 8.7" (220mm)†
 - Weight: 13.4lbs (6,1Kg)

- Electrical**
- 110 ~ 230 Volts AC, 60 ~ 50 Hz
 - FCC Class A, CE, UL, and CUL approved.

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

* Thermal transfer (Resin) ribbons offer more durability than dye sublimation, with greater resistance to scratches and UV-induced fading.

For P310C only:

Dye Sublimation printing requires dye sublimation ribbons, with either black or cyan, magenta, and yellow (plus black resin) panels.

† Measured without card feeder and card hopper.

Options

- RS-232C serial port
- Smart Card Contact Station (30 mil cards only)
- Magnetic Encoder (30 mil cards only)
- Cleaning supplies
- Service Manual



Use only Eltron-approved card and ribbon media. Using non-approved card or ribbon media can void your warranty.

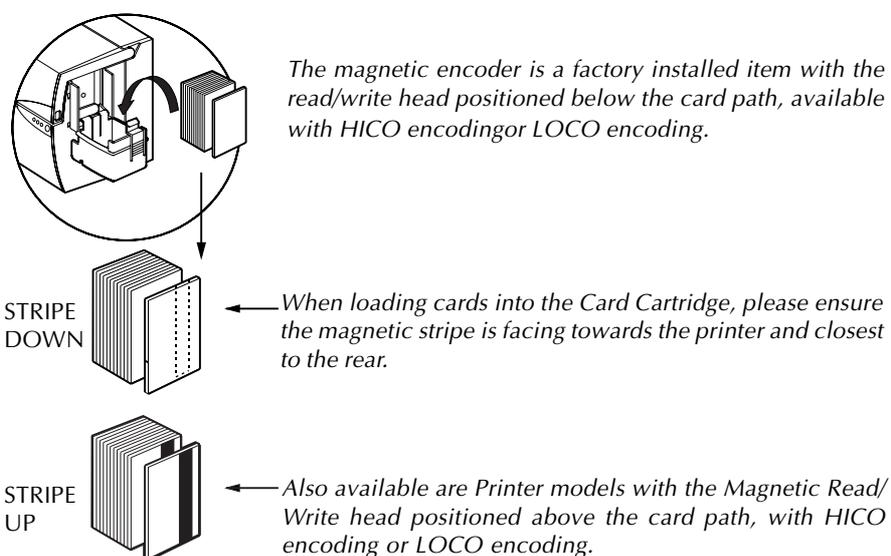
Refer to the Appendix C for more information about Card and Ribbon Media available from Zebra Technologies.

APPENDIX A - MAGNETIC CARD STRIPE ENCODER

Operation and maintenance requirements for the P310 Printer with the optional magnetic card stripe encoder.

(See Chapter 2 for location).

The magnetic encoder can be set for either high or low coercivity.



When loading cards, please ensure the magnetic stripe.

Approved HICO & LICO PVC cards are available. (See Appendix C.)

SAMPLE ENCODING PROGRAM

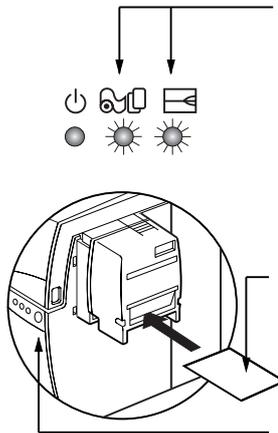
Refer to Programmer's manual (Part number 980081-001)



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 taped-on magnetic stripes.

MAGNETIC ENCODER CLEANING

The read/write head requires periodic cleaning to maintain error-free encoding.



WHEN TO CLEAN

When the amber & red indicators flash
(Every 1000 cards* approx.)

*Using 5-panel color ribbon (YMCKO).

*Optional factory setting.

HOW TO CLEAN

1. Leave power on.

Open Cover and release Print Head Bracket to remove ribbon.

Close Print Head.

Close Cover. Remove cards from Card Cartridge.

2. Insert one Pre-saturated Cleaning Card (provided) through slot on the side of the Card Cartridge.

3. Press the Panel Button for a few seconds. The Card will feed into printer and carry out the cleaning process. Repeat the process with a new Cleaning Card if necessary.

Note: For cleaning prior to the WHEN TO CLEAN signal, first press the Panel Button for 3 seconds to start the cleaning process (Repeat steps 1 & 2 above).



Although the amber and red indicators will keep flashing until the cleaning process has been performed, the printer will continue to operate.

ISO STANDARD ENCODING

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

* Bit per inch

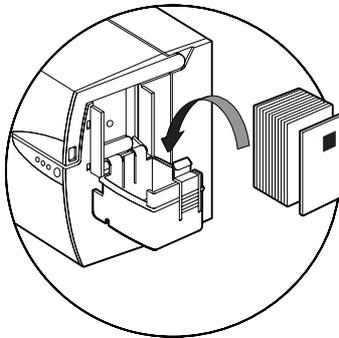
† Except the "?" character

‡ Including Start, Stop and LRC characters. Also note these 3 characters are automatically managed by the magnetic encoder according to the ISO Standard Norms.
NOTE: Refer to the Card Printer Programmer's Manual for complete programming information.

APPENDIX B - SMART CARD CONTACT STATION

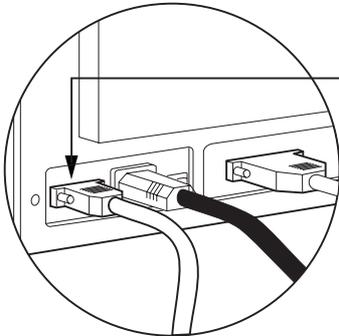
This section contains information on the additional operations of the P310 Printers with Smart Card Contact Stations. (See Chapter 2 for location)

INTRODUCTION Smart Cards can have a built-in microcomputer and a battery. Card Memory can store fingerprints, voice recognition patterns, medical records and other such data. The P310 may be equipped with an optional contact station for programming Smart Cards (ISO 7816). This printer model responds to commands that position the cards at the contact station, where the printer connects to the contacts on the Smart Cards. All other printer operations remain the same as the standard P310 model.



MEDIA LOADING ORIENTATION

Orient the cards with the Smart Card Chip at the top of the card and facing away from the printer.



SMART CARD CONTACT STATION INTERFACE

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

An attached external Smart Card Programmer can be used to program Smart Card chips.



DO NOT position printing over the Smart Card Chip.

DB - 9 PINS	SMART CARD CONTACT POINTS	DB - 9 PINS	SMART CARD CONTACT POINTS
1	C1 (Vcc)	6	C6 (Vpp)
2	C2 (Reset)	7	C7 (I/O)
3	C3 (Clock)	8	C8 (RFU)
4	C4 (RFU)	9	(GND when chip is at station)
5	C5 (GND)		

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

APPENDIX C - ACCESSOIRES & SUPPLIES

Please contact your Zebra-authorized dealer to place an order accessories and supplies

RIBBONS The following ribbons are optimized for use in the P310 Printers:

Monochrome Resin Ribbons (Sold by the roll)		
Part Number	Description	
800015-301	Black	1500 images
800015-302	Red	1500 images
800015-303	Green	1500 images
800015-304	Blue	1500 images
800015-305	Yellow	1500 images
800015-306	Gold	1500 images
800015-307	Silver	1500 images
800015-309	White	1500 images

Color Ribbons for P310C only (Sold by the roll)		
Part Number	Description	
800015-340	5-panel Color (YMCKO)	350 images
800015-350	2-panel Black (Kdye + O)	800 images
800015-360	2-panel Resin (Kresin + O)	800 images

Note:

Y = Yellow, M = Magenta, C = Cyan, K = Black, O = Overlay

Overlay Varnishes (Sold by the roll)		
Part Number	Description	
800015-120	Genuine Secure Hologram	350 cards
800015-121	Pcard Hologram	350 cards
800015-122	Clear	350 cards

CARDS The following cards are optimized for use in the P310 Printers:

Blank White Cards (sold by the box)	
Part Number	Description
	Premier Grade PVC
104523-114	Card, 10 mil † (5 packs of 200)
104523-110	Card, 10 mil † adhesive back (5 packs of 200)
104523-111	Card, 30 mil (5 packs of 100)
104523-112	Card, 30 mil -low coercivity Mag. Stripe (5 packs of 100)
104523-113	Card, 30 mil -High coercivity Mag. Stripe (5 packs of 100)
	Premier Plus Grade (PVC composite 60/40)
104524-101	Card, 30 mil (5 packs of 100)
104524-102	Card, 30 mil -low coercivity Mag. Stripe (5 packs of 100)
104524-103	Card, 30 mil -low coercivity Mag. Stripe (5 packs of 100)

Notes :

† 10mil = 0.254mm; 30mil = 0.762mm

‡ 10 mil cards are recommended for single side printing and monochrome only.

Many other card types are also available; ask your dealer for more information.

ACCESSORIES Accessories available for P310 Printers appear below. Always refer to the part number when placing an order.

Printer Supplies	
Part Number	Description
300055-001	Card Printer Parallel/ Serial Interface Cable, ft. (DB-25 male to DB-25 female)
105912-024	Card Cartridge
105912-038	Card Output Hopper
109909-112	Replacement Print Head Kit

Cleaning Supplies	
Part Number	Description
105909-169	Premier Cleaning Kit (25 swabs, 50 cards)
105912-003	Adhesive Cleaning Roller Kit (set of 5)
105912-002	Cleaning Cartridge, complete
104531-001	Cleaning Card Kit (box of 100 cards)
104526-001	Cleaning Swab Kit (box of 25 swabs)

Documentation	
Part Number	Description
980261-001	P310C & F User's Manual (English)
980261-021	P310C & F User's Manual (French)
980261-031	P310C & F User's Manual (German)
980261-041	P310C & F User's Manual (Spanish)
980261-051	P310C & F User's Manual (Italian)
980261-061	P310C & F User's Manual (Chinese)
980261-081	P310C & F User's Manual (Portuguese)
980081-001	Pseries Programmer's Manual (English only)
980264-001	P310 Maintenance Manual (English only)

Miscellaneous	
Part Number	Description
105536-001	CD ROM (Software, Windows Drivers, Documentation)
806503-001	Card Punch (slots card for lapel clip)
104527-001	Lapel Clips (pack of 100 clips)

World Wide Sales and Support:

Zebra Technologies Corporation

Eltron Card Printer Products

1001 Flynn Road
Camarillo, CA. 93012-8706.USA
Phone:+1 (805) 579 1800
Fax.:+1 (805) 579 1808
Toll Free in US: (800) 452-4056
e-mail:cards@eltron.com

Zebra Technologies Corporation

Eltron Card Printer Products, (Europe, Middle East, Africa)

The Valley Centre, Gordon Road, High Wycombe
Buckinghamshire HP13 6EQ, England
Phone: +44 (0) 870 241 1527
Fax.: +44 (0) 870 241 0765
e-mail:eurosales@eltron.com

Zebra Technologies Corporation

Eltron Card Printer Products, France

50, 56 rue Marcel Dassault
92100 Boulogne-Billancourt, France
Phone: +33 1 55 20 93 93
Fax.: +33 1 55 20 93 99
e-mail:frsales@eltron.com

Zebra Technologies Corporation

Eltron Card Printer Products, Latin America

6175 NW 153rd Street, Suite # 121
Miami Lakes, FL 33014 USA
Phone: +1 (305) 558 8470
Fax: +1 (305) 558-8485
e-mail:latinsales@eltron.com

Zebra Technologies Corporation

Eltron Card Printer Products, Asie/Pacifique

1 Sims Lane #06-11
387355 Singapore
Phone:+65 84 20 322
Fax.:+65 84 20 514
e-mail:asiasales@eltron.com

CORPORATE HEADQUARTERS

Zebra Technologies Corporation

333 Corporate Woods Parkway
Vernon Hills, IL 60061-3109 USA
Phone: +1 (847) 634 6700
FAX: +1 (847) 913 8766
er-mail: sales@Zebra.com



Zebra Technologies Corporation



PN: 980261-001B