PRINTRONIX®

Smart Label Developer's Quick Setup Guide

The Printronix T5000^{e} series of Label Printers

NOTICE

This Quick Setup Guide contains a CD-ROM with the following materials:

- RFID reference material and industry primers
- The User's Manual
- Programmer's Reference Manuals
- Useful utility programs

The CD-ROM is located in a plastic pocket in the back cover.

Do not discard this guide. If you move or pack the printer in the future, you will need to follow the instructions in this guide.

The Printronix T5000^{e} series of Thermal Printers

Smart Label Developer's Quick Setup Guide

PRINTRONIX®

177393-001A

Software License Agreement

CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE USING THIS PRINTER. USING THIS PRINTER INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, PROMPTLY RETURN THE PRINTER AND ALL ACCOMPANYING HARDWARE AND WRITTEN MATERIALS TO THE PLACE YOU OBTAINED THEM, AND YOUR MONEY WILL BE REFUNDED.

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Communication Notices

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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Printronix is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by any unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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.

Any change or modification to this product voids the user's authority to operate it per FCC Part 15 Subpart A Section 15.21 regulations.

CAUTION: This product should be positioned so that personnel in the area for prolonged periods may safely remain at least 23 cm (9 in) from the readers antenna surface in an uncontrolled environment. See FCC OET Bulletin 56 "Hazards of radio frequency and electromagnetic fields" and Bulletin 65 "Human exposure to radio frequency electromagnetic fields."

This product contains an intentional radiator with the following parameters:
Operating Frequency: 902-928 MHz
Typical RF Power: 25-100 miliwatts
Maximum RF Power: 1 Watt under abnormal conditions

Canadian Department of Communications Compliance Statement: This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformite aux normes du ministere des Communcations du Canada: Cet appareil numerique de la classe A est conform á norme NMB-003 du Canada.

European Community (EC) Conformity Statement:
This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Printronix cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Printronix option cards.

German Conformity Statement:
Zulassungsbescheinigung Gesetz über die elektromagnetische Verträglichkeit von Geraten (EMVG) vom 30. August 1995

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen das EG-Konformitätszelchen - CE - zu führen.

Der Außteller der Konformitätserklärung ist die Printronix.....(1)

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte bedürfen folgender Hinweise:

Nach dem EMVG: "Geräte dürfen an Orten, für die sie nicht asreichend entstört sind, nur mit besonderer Genehmigung des Bundesminesters für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind." (Auszug aus dem EMVG, Paragraph 3, Abs. 4) Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Nach der EN 55022: "Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzkommen."

Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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此为A级产品。在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

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1 *Smart Label Developer's Application & Reference Notes*

Overview

Congratulations on your purchase of the industry's first Smart Label Developer's Kit. The intent of this kit is to provide a complete environment for the printing and encoding of RFID smart labels right out of the box. Printronix has specifically designed this kit to help you fast track your RFID pilot through the use of a suite of Software Migration Tools (SMT).

The Printronix Smart Label Developer's Kit contains:

- T5000e thermal printer: a web-enabled, industrial-grade thermal bar code printer designed for exacting label applications
- Integrated RFID UHF encoder

CAUTION **Static electricity can damage the smart labels. Open the media cover of the printer and touch an unpainted metal part of the printer before you handle smart labels. This will discharge any static electricity that may have been on your hands.**

- Two rolls of 500 smart labels with Alien Technologies, Class 1, 915MHz inlays
- Software migration tools that permit the seamless encoding of smart labels

- One 450 m thermal premium wax ribbon
- Media starter kit (100 4 inch x 6 inch standard labels, 50 m thermal premium wax ribbon, and a printhead cleaning pen)
- Programming manuals
- Smart Label Developer's Quick Setup Guide (this manual)
- Application and reference notes (this chapter)
- Technical support
- Printronix's PrintNet® Enterprise: a web-enabled remote network print management system that provides instantaneous visibility to every network printer and allows users to configure simultaneously an unlimited number of Printronix printers. This edition of PrintNet Enterprise also supports management of the additional RFID UHF encoder capabilities.

We are proud to partner with you as you embark on your RFID journey!

What To Expect When Running Your RFID Application

Factors Affecting Smart Label Performance

Smart labels are based on an EEPROM technology that requires some time to program. This minor pause between labels may be noticed by the user. This time is necessary to better ensure consistent quality and improved reliability.

When dealing with smart labels, it is possible that an occasional RFID tag may require to be written and verified more than once (retry) before being considered acceptable. In this event each retry time will be added to the inter-label pause.

Overstruck Smart Labels

If an RFID tag within a smart label is deemed unacceptable after execution of the defined number of internal retries, the following actions are performed:

- If Error Handling is set to Overstrike (the default), the unacceptable smart label will print with a grid Overstrike pattern. If the Label Retry Count is greater than zero (the default is 5), the next smart label will be tried until the label retry count is exhausted.
- If Error Handling is set to Stop, the printer will stop, give an error message, and discard the failing form data.
- If Error Handling is set to None, the printer will continue to the next smart label with the next form and discard the failing form data.

Smart Label Limitations

The smart labels currently supported have the following characteristics:

- UHF 915MHz radio frequency identification tag inlay
- EPC class 1 tags – 64 data bits Write Few / Read Many
- 4 inch x 6 inch label stock
- Nominal roll size is 500 smart labels. An additional number of smart labels may be added to the Printronix smart label rolls to compensate for tags that are deemed unacceptable. This is so you can have 500 “good” labels.

NOTE: It is highly recommended that additional smart labels are purchased directly from Printronix to assure the highest level of performance and reliability. See “How To Order More Smart Labels” on page 17.

Transitioning From UCC/GTIN Applications Using Printronix Software Migration Tools (SMT)

It is more than likely that your software is already set up to create barcodes. You may have also spent a lot of time creating compliance label templates & integrating them into your system. The Smart Label Developer's Kit Software Migration Tools will allow you to effortlessly transition from printing compliance labels to smart labels.

How Printronix Makes It Easy

If you are printing bar codes now, you can print smart labels — no change to your host data stream or existing compliance templates is required.

How It Works

A set of Software Migration Tools has been created to intercept the bar code data in a host datastream and copy the data to an smart label's RFID tag according to a set of rules. Each tool has been designed for a specific end-use application. By simply selecting the desired Software Migration Tool from the printer's operator panel, you automatically enable the printer to create an RFID smart label from your existing software application even if it does not have the functionality to program RFID tags. The tools include:

- **GTIN:** Copies the Global Trade Identification Number (GTIN) bar code data for case and palette labels onto the smart label's RFID tag.
- **EAN-8**, **EAN13**, **UPCA**, and **UCC128:** These tools copy the data from their respective bar code symbologies to a smart label's RFID tag. This enables the achievement of supply-chain efficiencies with RFID-ready trading partners while at the same time remaining compatible with those who are not.

- **EPC:** This tool allows EPC data to be directly encoded into the smart label's RFID tag. Simply have your existing software application write the desired EPC number to a Code 3 of 9 barcode. The printer will then write the EPC data to the RFID tag without printing the bar code.

The existing toolset will meet the needs of many RFID early adopters. If you have a requirement for a Software Migration Tool not included in this kit, feel free to contact us.

To select and use the tools, see "Software Migration Tools (SMT)" on page 63.

How To Order More Smart Labels

To order more RFID smart labels, contact Printronix:
1 (800) 733-1900
www.printronix.com

Part Number
Roll of 500 four inch by six inch EPC Class 1 smart labels:
204932-001

NOTE: Due to the dynamic state of the RFID market, the cost of smart labels will fluctuate to market conditions. Please check for the latest pricing. (Price breaks are available for large orders.)

Printronix Professional Services

What We Can Do

Printronix can partner with you on your RFID pilot project to make your existing software applications RFID/smart label capable. We specialize in AutoID Consulting, compliance labeling, third party software integration, and label generation.

Contact Information

RFID Pilot Manager
Stephen Morris
714-368-2486
smorris@printronix.com

Hardware/Infrastructure Considerations

Once your smart labels have been applied to their target container or pallet you will need external readers for tracking them through your supply chain. Such readers are typically networked devices that are deployed at key points in the warehouse or distribution center to track incoming and outgoing packages. The readers are managed through a server for gathering and filtering all the RFID information. Readers may have multiple antennas to maximize read range and reliability.

The readers you purchase must be compatible with the smart labels programmed by the printer. Specifically, they should be EPC Class I compliant. Fixed position readers and their antennas can be purchased from Alien Technology (www.AlienTechnology.com). Handheld readers with integrated antennas can be purchased from AWID (www.awid.com).

The data that are gathered by the reader servers must be managed for tracking and archiving purposes. Software applications that perform these tasks are available from companies such as Manhattan Associates (www.manh.com).

Useful Industry Web Links

Reference Material

Auto-ID Center
www.autoidcenter.org

Uniform Code Council
www.uc-council.com

EPC Global
www.uc-council.org/epcglobal/

RFID Journal
www.rfidjournal.com

For a general overview of RFID technology, please see the Alien Technology RFID Primer located on the CD contained in this manual. (This primer is currently unavailable at time of publication).

Alien Technology
www.alientechnology.com

Advanced Wireless Indentifications
www.awid.com

Chapter 1 Useful Industry Web Links

2 *Printer Setup*

Unpacking And Installing The Printer

Unpacking The Printer

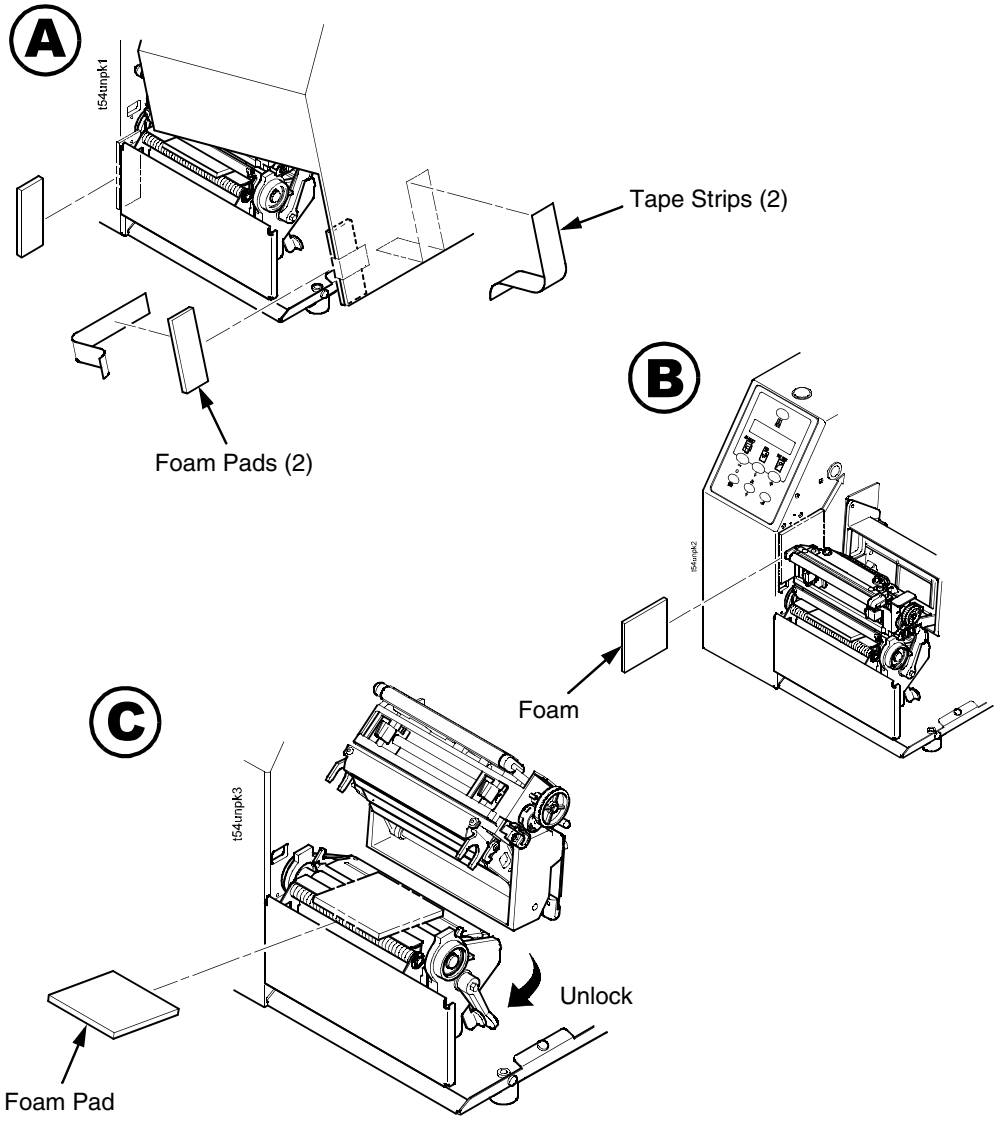
The printer is shipped in a carton and protective bag. Keep all packing material in case shipping is required.

CAUTION **Avoid touching the electrical connectors to prevent electrostatic discharge damage while setting up the printer. The discharge of accumulated electrostatic energy can damage or destroy the printhead or electronic components used in this device.**

CAUTION **Do not place the printer on its backside during unpacking or handling, because damage to the printer interface connector may occur.**

Removing The Internal Packing Material

Remove the tape strips and foam pads from the printer as indicated below. (The top lid of the shipping carton also displays these instructions.)

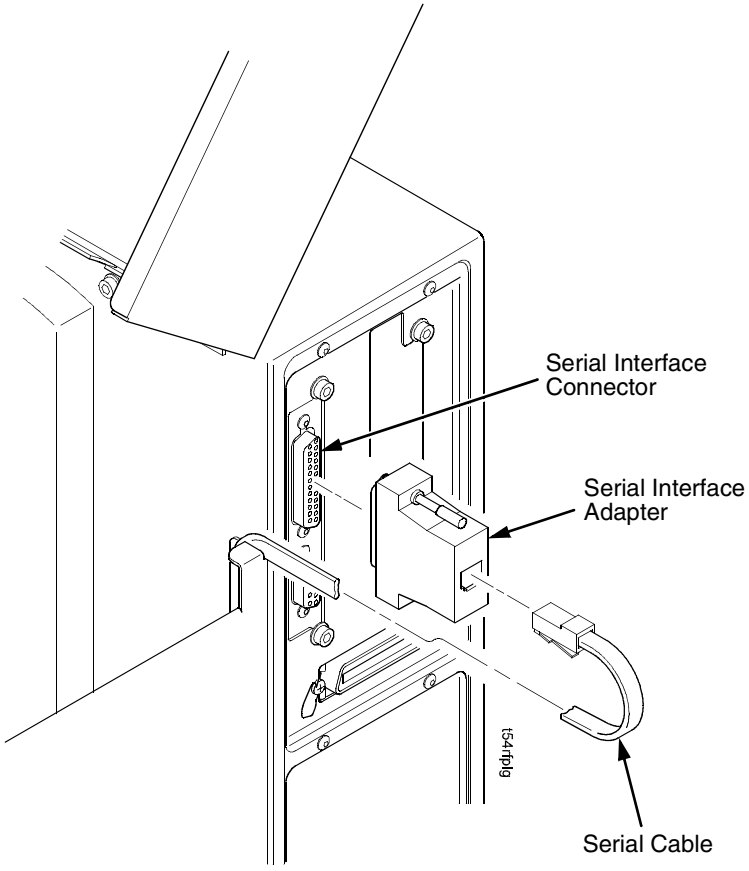


Installation

1. Place the printer on a flat level surface that allows easy access to all sides of the printer.

CAUTION **Never operate the printer on its side or upside down.**

2. Make sure the printer power switch is in the Off (O) position.
3. Install the serial interface adapter onto the serial interface connector (as shown).
4. Plug the serial cable into the serial interface adapter.



WARNING **Failure to properly ground the printer may result in electric shock to the operator.**

In compliance with international safety standards, this printer has been equipped with a three-pronged power cord. Do not use adapter plugs or remove the grounding prong from the cable plug. If an extension cord is required, ensure that a three-wire cable with a properly grounded plug is used.

5. Attach the AC power cord to the AC power receptacle in the back of the printer.

CAUTION **Verify the required voltage on the printer's model number label on the back of the printer.**

6. Attach the AC power cord to a grounded (three prong) electrical outlet of the proper voltage.

Controls And Indicators

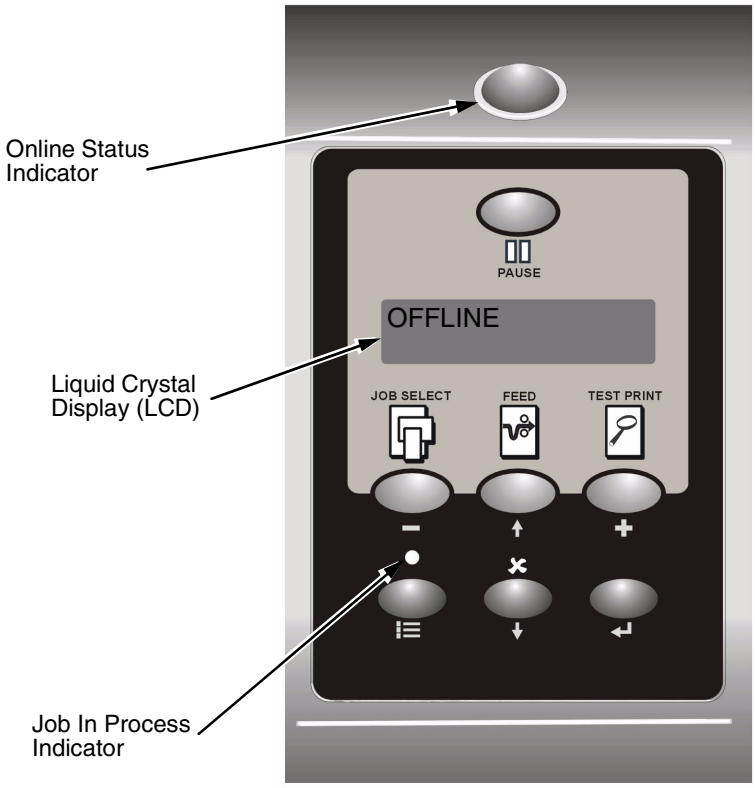
Power Switch

The power switch is located on the bottom back panel of the printer. To apply power, place the switch in the | (ON) position. When you first power on the printer, a series of initialization messages will appear on the Liquid Crystal Display (LCD) on the control panel.

To remove power, place the power switch in the O (OFF) position.

Control Panel

The control panel is located on the front of the printer and includes an LCD, indicators, and control keys (buttons). These are described in the following tables.



Status And Display Indicators

Indicator	Description	Function in Online Mode	Function in Offline Mode	Function in Menu Mode
Online Status	Indicates when the printer is online, offline, or when there is a fault condition.	Stays lit when the printer is online, ready to print, and accept data from the host. Flashes during a fault condition.	Off when the printer is offline. Flashes during a fault condition.	Off. Flashes during a fault condition.
Liquid Crystal Display (LCD)	A backlighted liquid crystal display with two rows of 16 characters each.	Displays "ONLINE," the interface type, and emulation in use. During a fault condition, displays the specific fault message and the corrective action.	Displays "OFFLINE." During a fault condition, displays the specific fault message and the corrective action.	Displays "OFFLINE" and a main menu, submenu, or option. During a fault condition, displays the specific fault message and the corrective action.
Job In Process	Indicates when the printer is receiving or processing data.	Flashes when receiving data. Stays lit when data has been processed and is waiting to be printed. Off when no data is being received or when no data remains in the buffer.	Flashes when receiving data. Stays lit when data has been processed and is waiting to be printed. Off when no data is being received or when no data remains in the buffer.	None

Control Panel Keys

Button	Description	Function in Online Mode	Function in Offline Mode	Function in Menu Mode
PAUSE	**PAUSE Key** Toggles the printer between Online and Offline modes.	Sets printer to Offline mode.	Sets printer to Online mode.	Sets printer to Offline mode.
JOB SELECT -	**JOB SELECT Key** **DECREMENT Key in Menu mode**	None	Displays the name and number of the last loaded configuration and allows you to load the factory and/or pre-stored printer configurations.	Scrolls left through main menus. Decrements option values within submenus.
FEED ↑	**FEED Key** **UP Key in Menu mode**	Advances the media one label length.	Advances the media one label length.	Scrolls the current menu selection one level up.
TEST PRINT +	**TEST PRINT Key** Pressing the ↵ (ENTER) key with a Diagnostic Test displayed initiates the test. Pressing ↵ again terminates the test. **INCREMENT Key in Menu mode**	None	Scrolls through the Test Print patterns.	Scrolls right through main menus. Increments option values within submenus.

Control Panel Keys (cont.)

Button	Description	Function in Online Mode	Function in Offline Mode	Function in Menu Mode
	CANCEL Key When the CANCEL key is enabled, pressing it will clear all data in the printer buffer and prevent printing of that data. **Note:** The default = Disable. However, when the Coax/ Twinax Interface option is installed, the default = Enable.	None	Clears all data in the printer data buffer when enabled.	Scrolls the current menu selection one level down.
	DOWN Key in Menu mode			
	MENU Key	Takes the printer Offline and selects the Menu mode.	Selects the Menu mode.	Scrolls between main menu selections.
	ENTER Key Pressing the ↵ (ENTER) key in Menu mode selects the displayed option or value. An asterisk then appears next to the option or value indicating it has been selected. **Note:** If the ENTER key is locked, "ENTER SWITCH LOCKED" displays on the LCD for one second. Press the ➔ (DOWN) and ↵ (ENTER) keys at the same time to unlock the ENTER key.	None	None	Selects the current menu value and displays an asterisk (*) next to the value.

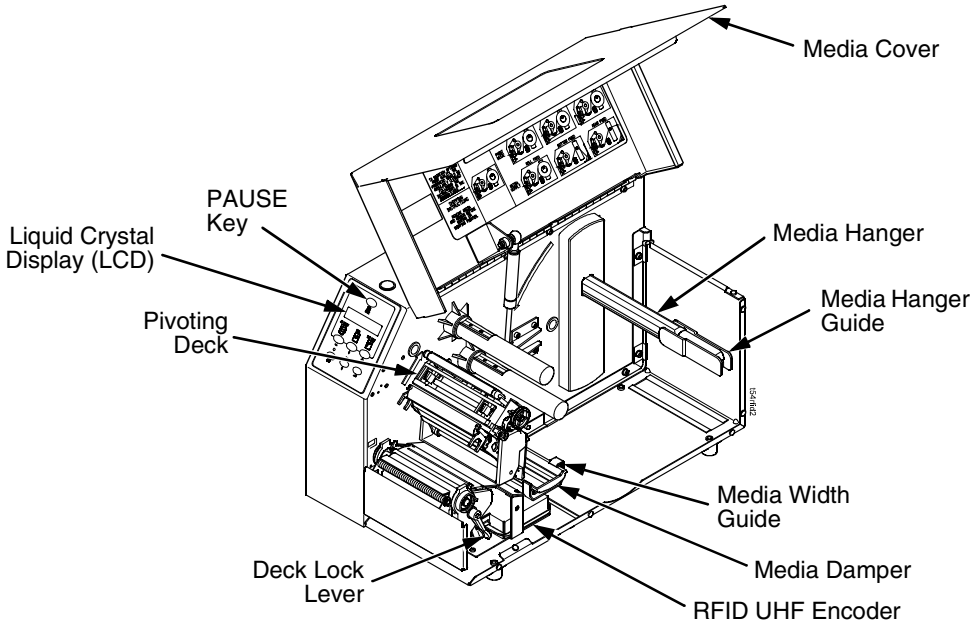
Loading Media And Ribbon

IMPORTANT **Printronix recommends using the supplied starter roll of 100 labels to setup and verify printer operation. This will avoid expending the more expensive smart labels for this task.**

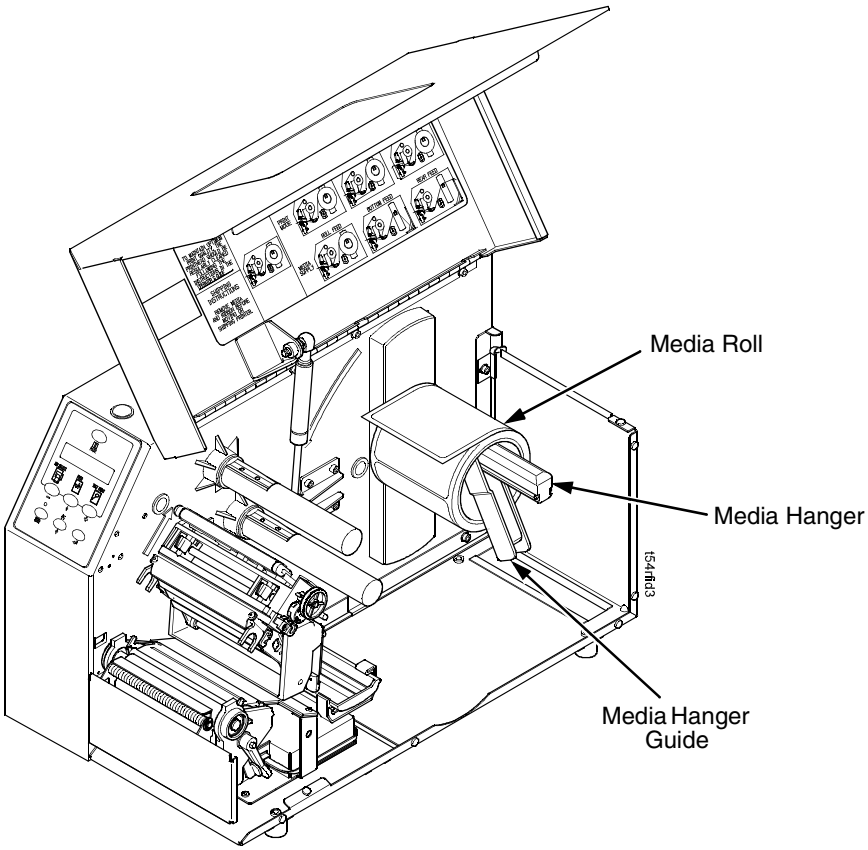
CAUTION **DO NOT TOUCH the printhead or the electronic components under the printhead assembly.**

CAUTION **Do not close the pivoting deck without label stock installed between the printhead and the platen, because debris on the platen may damage the printhead.**

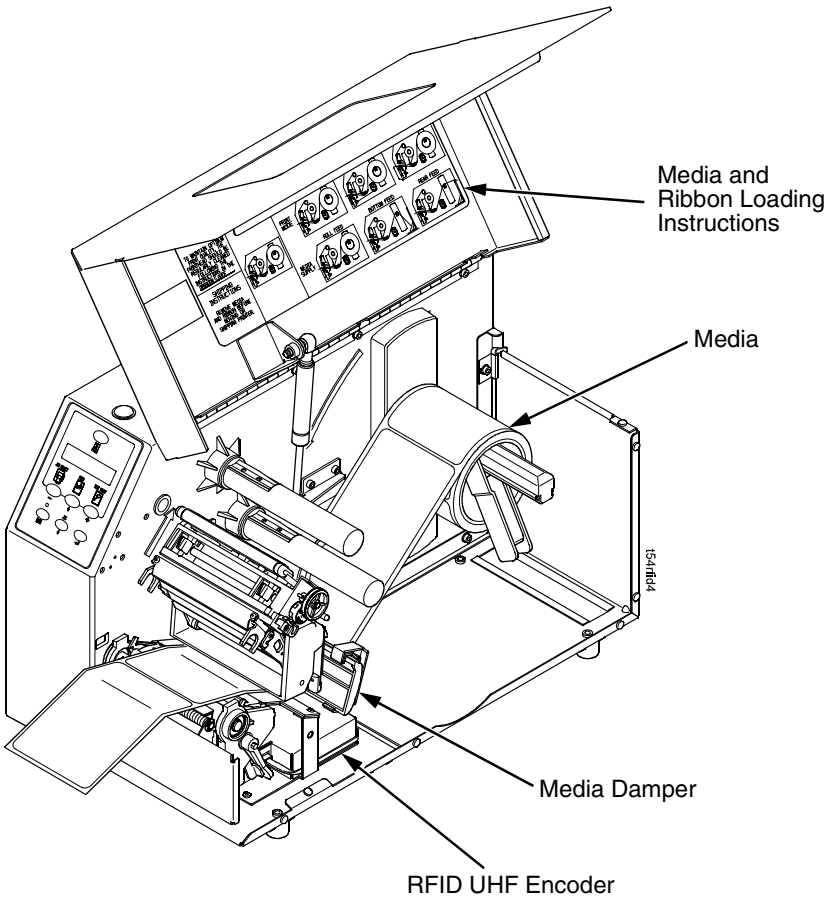
Loading Roll Media



1. Slide the media hanger guide outward to the end of the media hanger, and flip it down into the horizontal position (as shown).
2. Open the pivoting deck by rotating the deck lock lever fully clockwise.

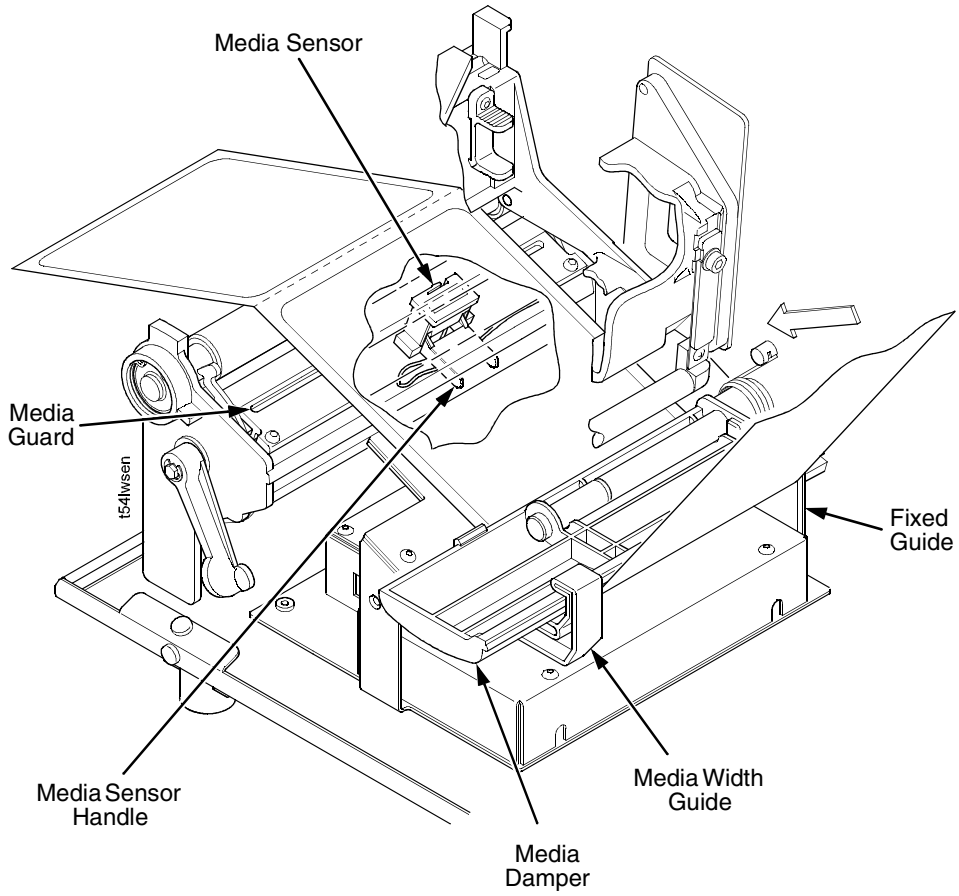


3. Slide the media width guide close to the outside end of the media damper.
4. Slide the media roll onto and towards the back of the media hanger.
5. Place the media hanger guide under the media hanger and against the lower part of the label core at a 45 degree angle (as shown). This position provides the required tension for a new label roll and the desired drag for a partial label roll.

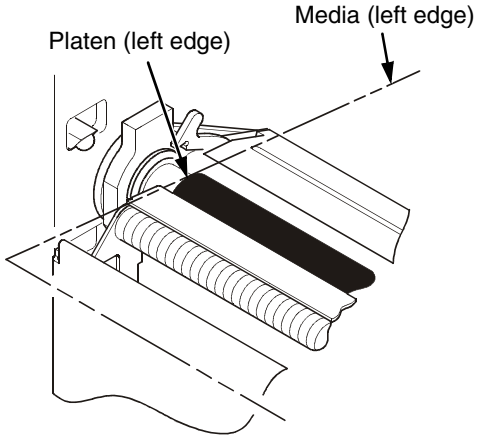


6. Raise the media damper.
7. Route the media as illustrated on the media and ribbon loading instructions (or refer to the arrows on the printer frame).

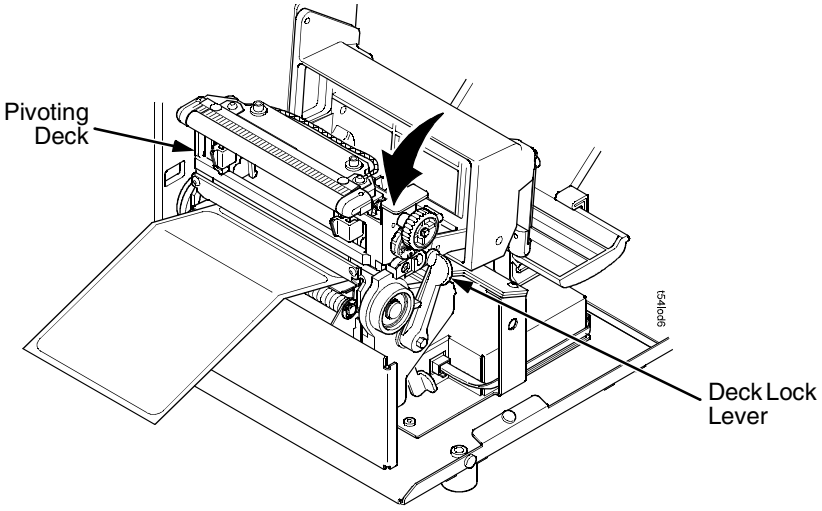
NOTE: The media damper must be raised up and the media must rest on top of the RFID UHF encoder.



8. Lower the media damper.
9. Verify that the left edge of the media is against the fixed guide on the bottom of the media damper.
10. Push the media width guide in until it is flush with the outer edge of the media.
11. Check the horizontal position of the media sensor, and refer to “Positioning The Media Sensors” on page 37.

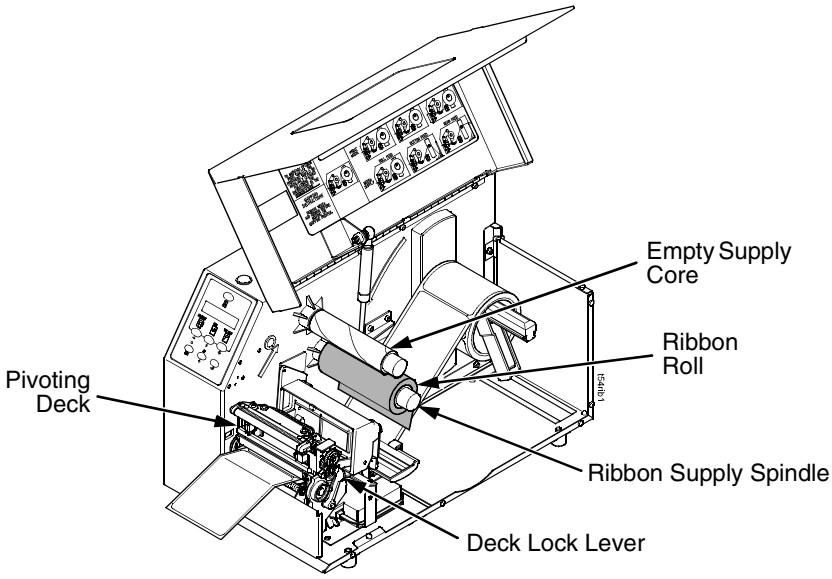


12. Align the left (inside) edge of the media with the left straight edge of the platen (rubber drive roller).

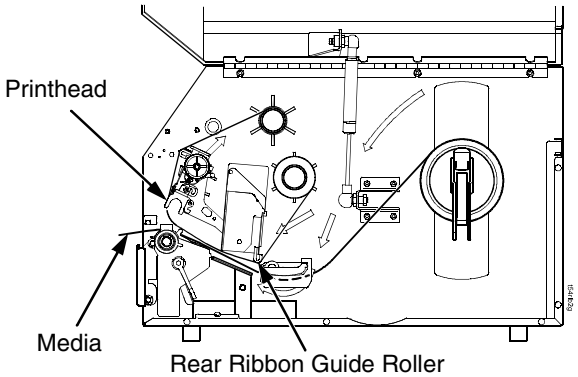


13. Close the printhead by pressing down on the pivoting deck and rotating the deck lock lever fully counterclockwise.
14. Power on the printer (place the power switch in the | position).

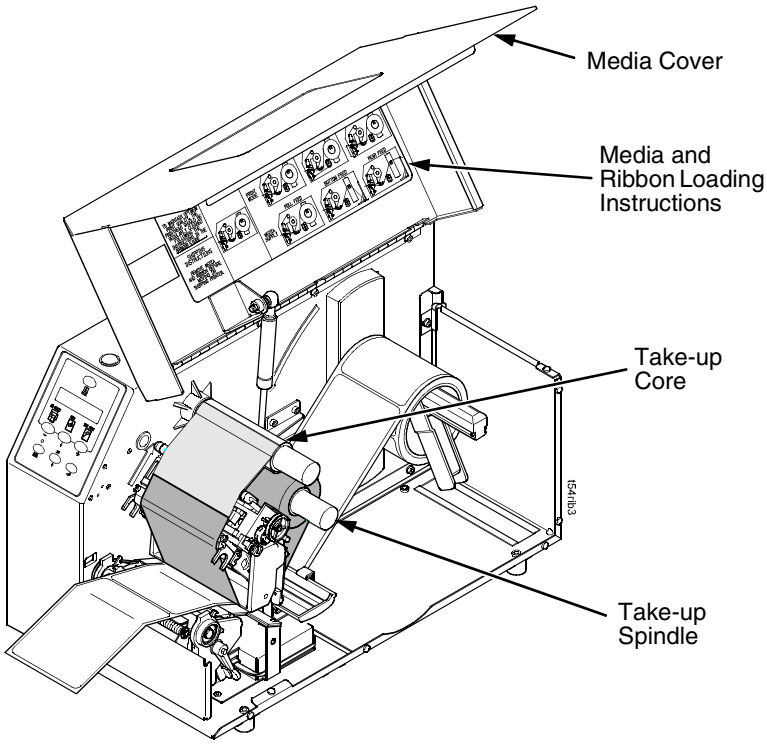
Loading Ribbon



1. Install the empty supply core on the take-up spindle.
2. Slide the ribbon roll onto the ribbon supply spindle until it stops against the spindle flange.
3. Open the pivoting deck by rotating the deck lock lever fully clockwise until the deck swings upward.



4. Thread the end of the ribbon under the rear ribbon guide roller, then between the platen and the printhead.

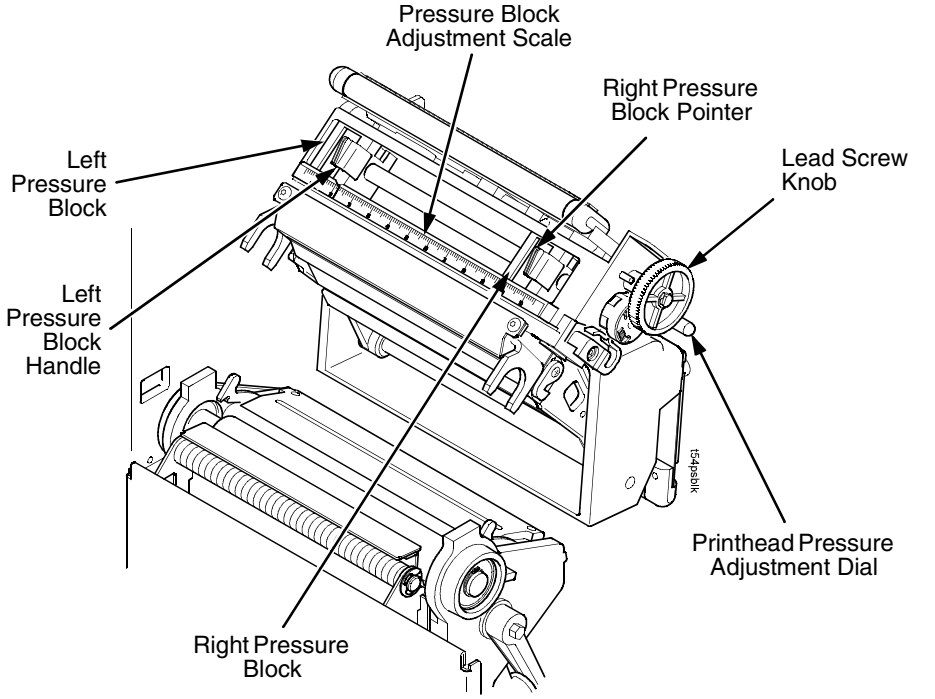


5. Route the ribbon using the media and ribbon loading instructions on the media cover (or refer to the arrows on the printer frame).

IMPORTANT **Do not attach the ribbon to the take-up spindle without a core installed.**

6. Attach the ribbon to the fiberboard core on the ribbon take-up spindle using the adhesive on the ribbon leader.
7. Manually rotate the spindle clockwise until the clear leader has passed the printhead.
8. Close the pivoting deck.

Printing Adjustments



Printhead Pressure Adjustment

Adjust the printhead pressure to the setting of 4.

Printhead Pressure Block Adjustments

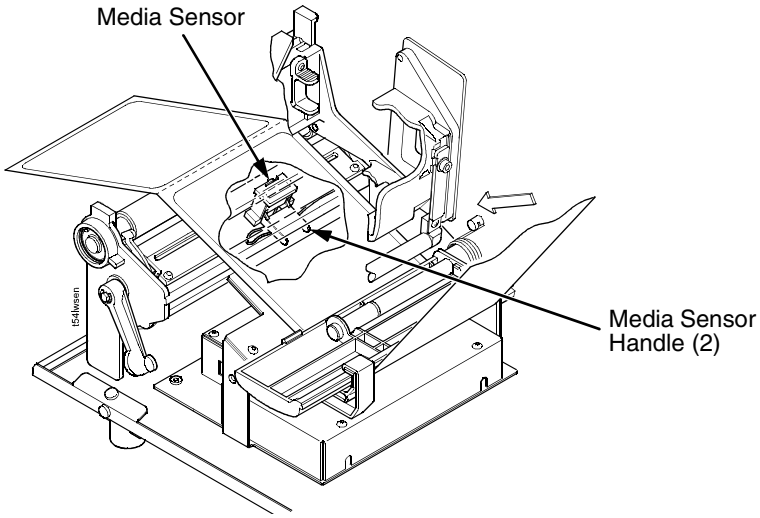
Left Pressure Block

Manually adjust the left block so its handle is aligned with the bold mark on the pressure block adjustment scale.

Right Pressure Block

Use the lead screw knob to position the right block with its pointer near the right edge of the media in use.

Positioning The Media Sensors



Your printer is equipped with upper and lower media sensors that detect the top-of-form position on media with label length indicators (gaps, notches, holes, or black marks). The media sensors also detect Paper Out conditions.

Use the handles on the lower media sensor to horizontally position it in the center of the installed media. Slide the upper sensor directly over the lower sensor.

Running Auto Calibrate

Due to manufacturing differences in media and ribbon, the media sensor may have difficulty distinguishing between the label and the liner (gap).

To ensure proper operation, you must now run Auto Calibrate:

1. Power on the printer by pressing the power switch. (For the location of the power switch and various panel keys, refer to “Controls And Indicators” on page 24.)
2. Press the ⋮☰ key until QUICK SETUP displays.

NOTE: For a complete description of the QUICK SETUP menu, see page 40.

3. If necessary, press ↓ and ↵ at the same time to unlock the ↵ key.
4. Press ↑ or ↓ until Gap/Mark Sensor / Disable* displays.
5. Press **+** or **–** until Gap displays.
6. Press ↵. An asterisk (*) displays next to Gap.
7. Press ↓ until Auto Calibrate/Run Calibrate displays.
8. Press ↵. Media advances until it can accurately detect the label length indicators and then stops at the top-of-form position. The sensed distance value then displays for one second.
9. Auto Calibrate is successful when the sensed distance value correctly matches that of the installed media. For the Gap option, the sensed distance value is the physical length of one label plus the length of one gap.

   If GAP NOT DETECTED or PAPER OUT displays, check the horizontal position of the media sensor (see “Positioning The Media Sensors” on page 37), press **PAUSE**, and run Auto Calibrate again.
10. Press the **PAUSE** key to take the printer offline.
11. Press the **FEED** key several times. Each time you press FEED, the media should advance one label length and stop.
12. Once the sensed distance value and performance is confirmed, save it to the desired configuration menu as described below before powering off the printer.

Saving The Configuration

13. Press the ⋮☰ key until QUICK SETUP displays.
14. Press ↑ or ↓ until Save Config./1* displays.
15. Press ↵. Saving Configuration displays briefly.

Run A Barcode Demo Test

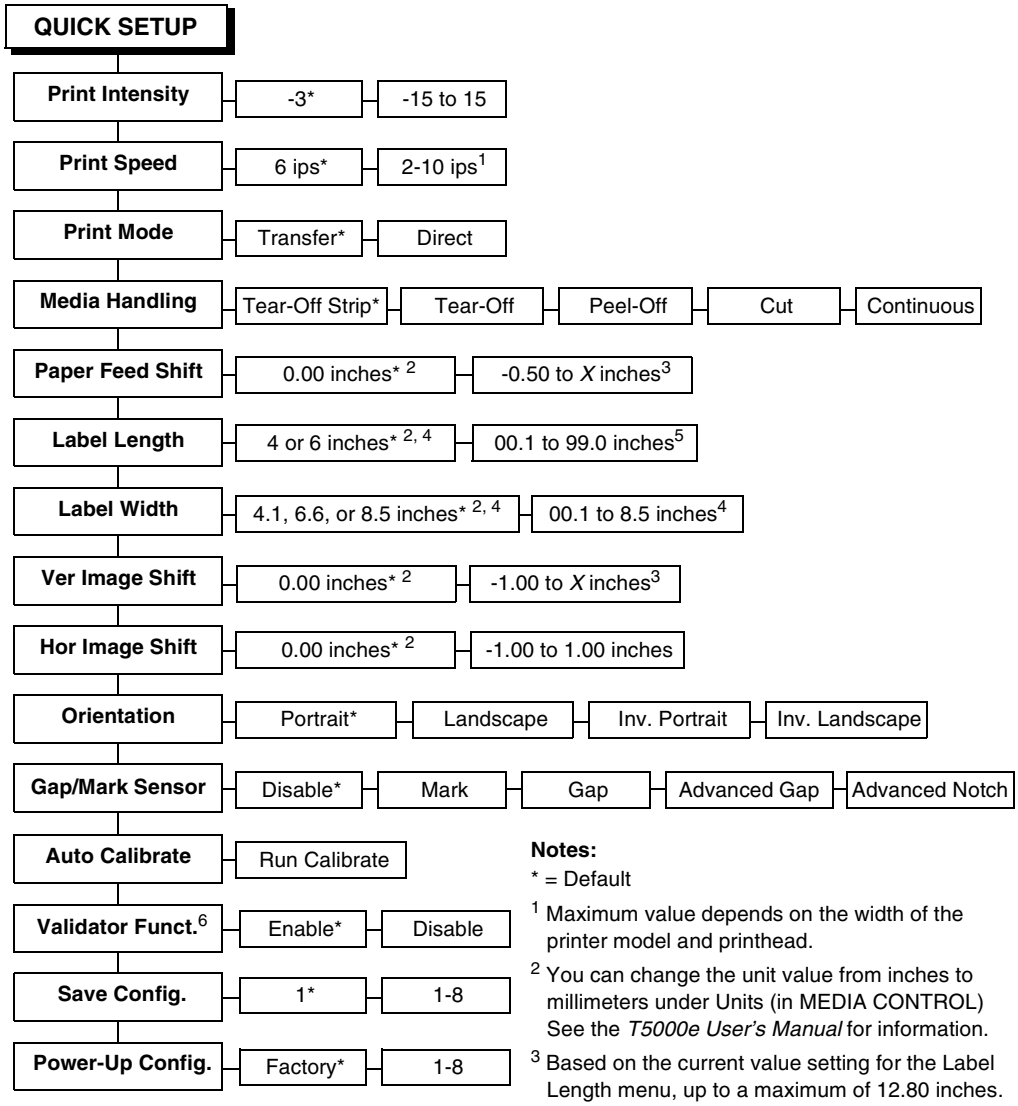
IMPORTANT **Printronix recommends using the supplied starter roll of 100 labels to setup and verify printer operation. This will avoid expending the more expensive smart labels for this task.**

Before you send an actual print job, run a barcode demo test:

1. Press the PAUSE key until “OFFLINE” displays.
2. Press the TEST PRINT key until “Printer Tests/Barcode Demo” displays.
3. Press ↵. The Barcode Demo test pattern will start and print two barcodes.
4. Check the test pattern. If necessary, reposition the pressure blocks to obtain a uniform print quality. In most cases, you will need to adjust only the right pressure block.
5. If desired, you can run additional printer tests, such as Grey, Grid, and Checkerboard. See step 1 above to start other tests.

NOTE: These tests default to run continuously. Press ↵ to end the test.

QUICK SETUP Menu



Notes:

* = Default

[1] Maximum value depends on the width of the printer model and printhead.

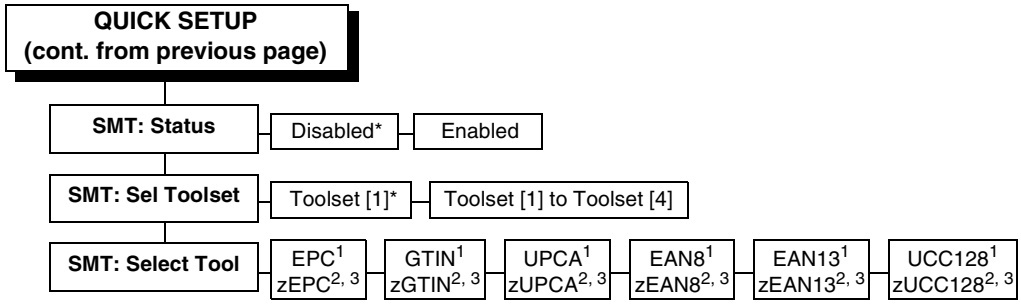
[2] You can change the unit value from inches to millimeters under Units (in MEDIA CONTROL) See the *T5000e User's Manual* for information.

[3] Based on the current value setting for the Label Length menu, up to a maximum of 12.80 inches.

[4] Maximum value depends on the width of the printer model.

[5] Maximum value depends on model width and size of DRAM installed.

[6] Appears only if the validator option is installed.



Notes:

* = Default.

[1] Appears only if Toolset [1] is selected under SMT: Sel Toolset.

[2] Appears only if Toolset [2] is selected under SMT: Sel Toolset.

[3] Undocumented options are reserved for internal use and future design.

QUICK SETUP Submenus

Print Intensity

Specifies the level of thermal energy from the printhead to be used for the type of media and ribbon installed.

Large numbers imply more heat (thermal energy) to be applied for each dot. This has a significant effect on print quality. The print intensity and speed must match the media and ribbon type to obtain the best possible print quality and barcode grades.

The range is -15 through +15:

- In Transfer mode, the default is -3.
- In Direct Thermal mode, the default is 0.

Print Speed

Specifies the speed in inches per second (ips) at which the media passes through the printer while printing.

The range is 2 through 10 ips (in increments of 1 ips).

The default is 6 ips.

NOTE: The maximum print speed varies based on maximum printer width and dot per inch (dpi) resolution of the printhead installed (203 or 300 dpi).

Print Mode

Specifies the type of printing to be done.

- **Transfer**. Indicates Thermal Transfer printing (ribbon installed).
- **Direct**. Indicates Direct Thermal printing (no ribbon) and requires special heat sensitive media.

The default is Transfer.

Media Handling

Specifies how the printer will handle the media (labels or tag stock).

- **Tear-Off Strip**. Printer prints on the media and sends it out the front until the print buffer is empty, then positions the last label over the tear bar for removal.
- **Tear-Off**. After each label is printed, the printer positions the label over the tear bar and waits for you to tear off the label before printing the next one (on-demand printing). A “Remove Label” message displays to remind you to remove the label before the next one can be printed.
- **Peel-Off**. When the optional rewinder is installed, prints and peels die-cut labels from the liner without assistance. The printer waits for you to remove the label before printing the next one (on-demand printing). The label liner is rewound on the internal rewinder. A “Remove Label” message displays to remind you to remove the label before the next one can be printed.
- **Cut**. When the optional media cutter is installed, it automatically cuts media after each label is printed or can cut

after a specified number of labels have been printed using a software cut command. It cuts continuous roll paper, labels, or tag stock.

NOTE: This feature is currently not supported using the RFID UHF encoder.

- **Continuous**. Printer prints on the media and sends it out the front.

The default is Tear-Off Strip.

Paper Feed Shift

Represents the distance to advance a label (+ shift) or pull back (– shift) when the Tear-Off Strip, Tear-Off, Peel-Off, or Cut Media Handling option is enabled. The allowable range is -0.50 inches to the current Label Length value setting up to a maximum of 12.80 inches in 0.01 inch increments.

The default is 0.00 inches.

Label Length

In most applications, the user-selected Label Length will match the *physical* label length. Physical label length is the actual label length of the media installed. Following is a list of different media types:

- Die-cut labels – measurable length of the removable label (leading edge to trailing edge). This does not include the liner material or gap.
- Tag Stock with notches or holes – measurable length from the trailing edge of one notch or hole to the trailing edge of the next notch or hole.
- Tag Stock with black marks on the underside – measurable length from the leading edge of one black mark to the leading edge of the next black mark.
- Continuous media (no label length indicators) – measurable length should be within $\pm$ 1-2% of the Label Length value entered.

Label Width

The allowable range in inches is 00.1 to the maximum print width of the printer. The allowable range in millimeters is 2.5 to the maximum width of the printer.

Ver Image Shift

Specifies the amount to shift an image up (-) or down (+) for precise positioning on the label. The actual height of the image is not affected by this parameter. The allowable range is -1.00 inches to the current Label Length value setting, up to a maximum of 12.80 inches in 0.01 inch increments.

The default value is 0.00 inches.

Hor Image Shift

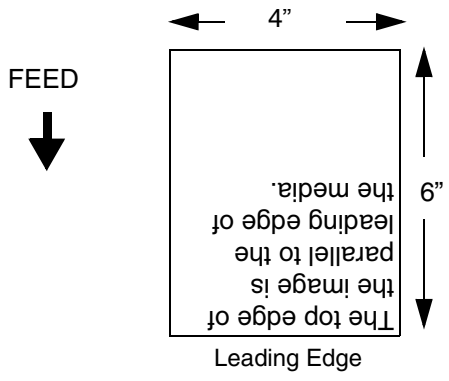
Specifies the amount to shift an image left (-) or right (+) for precise positioning on the label. The actual width of the image is not affected by this parameter. The allowable range is -1.00 through +1.00 inches in 0.01 inch increments, displayed as *xx*/100.

The default value is 0.00 inches.

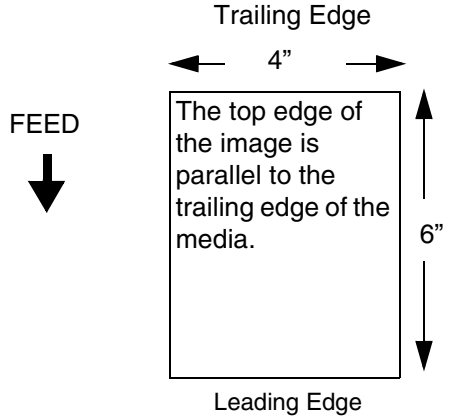
Orientation

Specifies the image orientation to be used when printing the label.

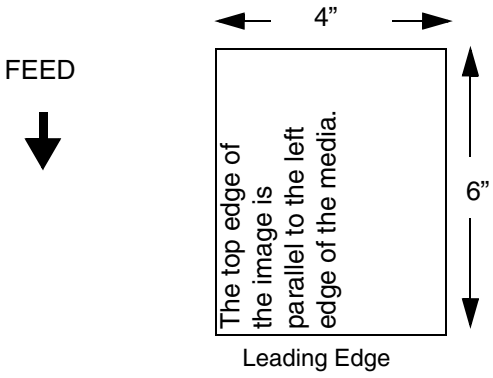
- **Portrait**. The default. Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the leading edge of the media. The following example is viewed from the front of the printer.



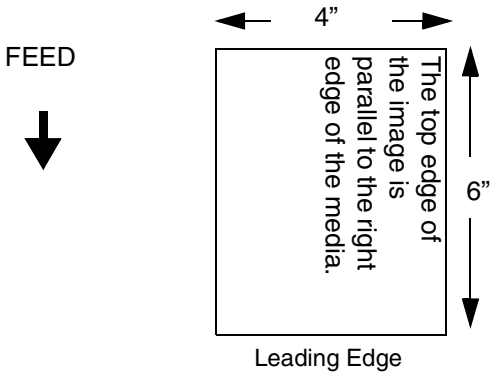
- **Inv. Portrait**. Inverse Portrait refers to vertical page orientation, where the height of a page is greater than its width. The top edge of the image is parallel to the trailing edge of the media. The following example is viewed from the front of the printer.



- **Landscape**. Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is parallel to the left edge of the media. The following example is viewed from the front of the printer.



- **Inv. Landscape**. Inverse Landscape refers to horizontal orientation, where the width of a page is greater than its height. The top edge of the image is parallel to the right edge of the media. The following example is viewed from the front of the printer.



Gap/Mark Sensor

Specifies the sensor type needed for detecting the top-of-form position on media with label length indicators (gaps, notches, holes, or black marks).

- **Disable**. Select when using media with no label length indicators (no gaps, notches, holes, or black marks), or when you want the printer to ignore all existing label length indicators on the installed media.

NOTE: When you select Disable, the length of each label is based on the Label Length value entered.

- **Mark**. Select when using media that has horizontal black marks located on the underside of the label liner or tag stock. The top-of-form position is the leading edge of the black mark.
- **Gap**. Select when using media with a liner space between die-cut labels or when using tag stock with notches or holes as label length indicators on white background media. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).

- **Advanced Gap**. Select when using media that has liner gaps between die cut labels with black background. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).
- **Advanced Notch**. Select when using media with notches or holes that interrupt a black vertical line on the underside of the media. The top-of-form position is the leading edge of the die cut label (trailing edge of the gap, notch, or hole).

The default is Disable.

Auto Calibrate

This feature is used to improve the sensitivity and reliability of the media sensor in detecting gaps, notches, holes, or black marks on the installed media, as well as a Paper Out condition.

To initiate Auto Calibrate, scroll to the “Auto Calibrate” menu and press the ↵ key. The printer will advance media the distance needed to accurately detect the label length indicators, then stop at the top-of-form position and momentarily display the Sensed Distance. This process will take a few seconds and will result in an update of the printer values.

Auto Calibrate is completed successfully when the Sensed Distance displayed correctly matches that of the installed media. When you select Gap, the Sensed Distance should match the length from the trailing edge of one gap to the trailing edge of the next gap (one label + one gap). When you select Mark, the Sensed Distance should match the length from the leading edge of one black mark to the leading edge of the next black mark.

Auto Calibrate supports label lengths up to 24 inches.

Validator Funct.

This menu appears only if the validator option is installed.

- **Enabled**. The printer will command the validator to begin scanning and errors will be reported. The counters will be incremented while the validator is enabled.

- **Disabled**.The printer will not command the validator to begin scanning and no errors will be reported. The counters will not be incremented while the validator is disabled.

NOTE: If you save a configuration with the validator enabled, power down and power up, and the validator is not connected or not functioning, the error message “Validator not communicating” will display briefly. The Validator menu will not display.

If the validator is installed, the default is Enable.

Save Config.

Allows you to save up to eight unique configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory and will not be lost if you turn off the printer. The default is 1.

Power-Up Config.

You can specify one of the eight configurations as the power-up configuration. The default is Factory.

SMT: Status

This menu appears only if the RFID UHF encoder is installed. See “Software Migration Tools (SMT)” on page 63.

- **Disabled**.The printer will disable the use of the Software Migration Tools.
- **Enabled**. The printer will enable the use of the Software Migration Tools.

SMT: Sel Toolset

This menu appears only if the RFID UHF encoder is installed. See “Software Migration Tools (SMT)” on page 63.

- **Toolset [1]**. SMTs for PGL® emulation.
- **Toolset [2]**. SMTs for PPI1 emulation.
- **Toolset [3]** and **Toolset [4]**. Reserved for internal use and future design.

SMT: Select Tool

This menu appears only if the RFID UHF encoder is installed. See “Software Migration Tools (SMT)” on page 63.

- **EPC**, **GTIN**, **UPCA**, **EAN8**, **EAN13**, and **UCC128**. SMTs displayed if Toolset [1] is selected under SMT: Sel Toolset.
- **zEPC**, **zGTIN**, **zUPCA**, **zEAN8**, **zEAN13**, and **zUCC128**. SMTs displayed if Toolset [2] is selected under SMT: Sel Toolset.

NOTE: Undocumented options are reserved for internal use and future design.

For More Information

This chapter has provided general information for use of your printer. The next chapter provides information about the RFID UHF encoder.

Please refer to your *User’s Manual* for more detailed information including:

- Other Configuration Menus
- Interfaces
- Diagnostics and Troubleshooting
- Printer Options
- Specifications
- Glossary of Terms

Chapter 2 For More Information

3 *Smart Label Development*

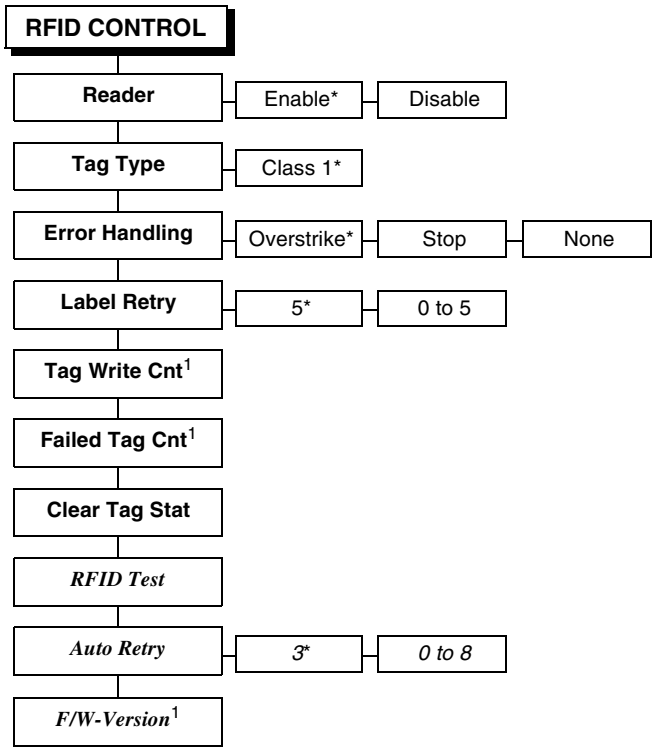
Overview

This chapter describes how to use the T5000e thermal printer RFID UHF encoder. The RFID UHF encoder is designed to be transparent to the printer operation. It provides the capability of programming smart labels (with embedded RFID UHF tags) while printing the label format. The smart labels are provided with the printer or purchased separately from Printronix.

There are several ways to program RFID tags in smart labels:

- Use the Software Migration Tools (SMT) to enable the printer to automatically create RFID commands from your existing bar code commands. These tools are described on page 63.
- Incorporate RFID commands into new or existing Printronix PGL programs. Command details start on page 55.
- Incorporate RFID commands into new or existing ZPL™ programs. By selecting the Printronix PPI1 emulation you can seamlessly upgrade from Zebra™ printers. Command details start on page 60.

RFID CONTROL Menu



Notes:

* = Default.

Italicized items are available only when you enable Admin User in the PRINTER CONTROL menu.

[1] Display item only.

RFID CONTROL Submenus

Reader

This menu item allows the user to enable or disable the RFID UHF encoder. The default is Enable.

Tag Type

This menu item allows the user to specify the tag type in use. The default is Class 1. Other classes may be added in the future.

Error Handling

This menu item allows the user to disable the printing of the Overstrike pattern for a failed label. The default is Overstrike.

In Overstrike mode, each failed label prints with the Overstrike pattern and the form retries until the Label Retry count is exhausted. At this time, the error message “RFID Error: Check System” displays. The failed label will not be reprinted.

In Stop mode, when a tag fails to be programmed the printer will halt and display the error message “RFID Error: Check Media.” The label will be discarded and reprinting of the label (if desired) must be initiated from the host. When the error is cleared, the label with the failed tag moves forward until the next label is in position to be printed.

In None mode, no specific action is taken when a tag fails to be progammed.

Label Retry

This menu item allows the user to specify the number of label retries that the RFID UHF encoder will attempt before declaring a fault indicating a problem with the RFID UHF encoder, the assembly antenna, the printer setup, or the label stock. Label Retry only applies when the Error Handling mode is Overstrike. The default is 5.

In the Overstrike mode, each failed label prints with the Overstrike pattern and the form retries until the label retry count is exhausted. At this time, the error message “RFID Error: Check System” displays. The failed label will not be reprinted.

Tag Write Cnt

This menu item displays the number of tags written since the last Clear Tag Stat operation has been initiated. (See “Clear Tag Stat” below.)

Failed Tag Cnt

This menu item displays the number of failed tag write attempts since the last Clear Tag Stat operation has been initiated. (See “Clear Tag Stat” below.)

Clear Tag Stat

This menu item clears the Tag Write Cnt and Failed Tag Cnt menu items when selected.

Admin User Menu Items

To see these menu items, set Admin User to Enable in the PRINTER CONTROL menu. (Refer to the *User’s Manual*.)

IMPORTANT **Admin User menu items should only be used for troubleshooting.**

RFID Test

This menu item reads the tag in range of the internal RFID antenna and reports the tag data to the debug port and momentarily displays it on the operator panel. It is primarily intended for development verification by checking that the system is working.

Auto Retry

This menu item allows the user to specify the number of automatic (internal) retries that the RFID UHF encoder will attempt before declaring a tag error. The default is 3.

F/W-Version

This menu item displays the reader firmware version.

RFID PGL Commands

Write Tag

Purpose To program non-incremental data into an RFID tag (embedded in the smart label).

MODE CREATE

Format

RFWRITE;[HEX;][EPC*m*;][RF*n*;L;][LOCK;]AT*p*;[(D)*datafield*(D)]

RFWRITE; The RFID Write Tag command.

HEX; Optional parameter to indicate that the text in *datafield* is in hexadecimal format and that it will be converted to binary format.

EPC*m*; Optional parameter to indicate that the data in *datafield* should be converted to an EPC number. When this parameter is used, the HEX option is automatically enabled and the data field is limited to a maximum of 14 digits. The AT parameter is ignored. The tag is then programmed as follows:

Bits 0 to 1 are programmed with the EPC value 0 to 3, specified in *m*.

Bits 2 to 57 are programmed with the hexadecimal characters in the data field (14 maximum). If the data field has less than 14 hexadecimal characters, zeros are assumed for the remaining digits.

Bits 58 to 63 are set to zero.

RF*n*;*L*; Optional parameter to indicate that this field has dynamic data. Replace *n* with a number ranging from 1 to 512 to identify the field number of this RFWRITE field. Replace *L* with the length of the dynamic data string. If this option is used, the

	datafield is ignored, and dynamic data must be entered via the RF command in the EXECUTE mode. The length of the dynamic data must be equal to *L*.
LOCK;	Optional parameter to write-protect the data. Currently not supported.
AT*p*;	*p* specifies the decimal start position where data will be written to the tag. Subsequent bits will be shifted and previous bits are nulled.
(D)	Delimiter designating the start and end of static data for the RFWRITE field. Replace (D) with any printable character, except the SFCC and "/" (the slash character).
datafield	The static data of the RFWRITE field.

NOTE: RFWRITE fields are not expandable in VDUP and/or HDUP sections.

Example 1

Program a tag with "HELLOTAG".

```
~CREATE;HELLO
            // Create a form named HELLO.
RFWRITE;AT1;*HELLOTAG*
            // RFID Write Tag command with static data. Data will
            // be at the first location of the tag. The static data is
            // "HELLOTAG".
END
            // Terminate HELLO form creation.
~EXECUTE;HELLO
            // Execute HELLO form.
~NORMAL
            // Back to normal mode.
```

Example 2

Another version of Example 1 using the HEX parameter.

```
~CREATE;HELLO
RFWRITE;HEX;AT1;*48454C4C4F544147*
END
~EXECUTE;HELLO
~NORMAL
```

Example 3

Program a tag using the EPC parameter 1. This results in the tag having the first two bits = 01, next 56 bits with hexadecimal values “01234567890123”, and last 6 bits = 0.

```
~CREATE;HELLO
RFWRITE;EPC1;AT1;*01234567890123*
END
~EXECUTE;HELLO
~NORMAL
```

Example 4

Write tag command with dynamic non-incremental data “HELLOTAG”.

```
~CREATE;DYNATAG
            // Create a form named DYNATAG.
RFWRITE;RF1;8;AT1;
            // RFID Write Tag command with dynamic
            // non-incremental data. The 8-byte data will be at the
            // first location of the tag.
END
            // Terminate DYNATAG form creation.
~EXECUTE;DYNATAG
~RF1;*HELLOTAG*
            // Execute the DYNATAG with the dynamic data
            // “HELLOTAG”.
~NORMAL
            // Back to normal mode.
```

Read Tag

Read Tag is not a command, but an element of the ALPHA and BARCODE commands. See “Alphanumerics” and “Bar Codes” in the *IGP/PGL Programmer’s Reference Manual* for more information.

Purpose Embed RFID data into an ALPHA or BARCODE data field.

Format <RDI>*position,length[,format];*

<RDI>	The RFID Data Indicator character, as defined by the RFREAD parameter in the ALPHA or BARCODE commands. See the ALPHA and/or BARCODE command description for details.
position	The decimal number that specifies the starting position of the data inside the transponder.
length	The decimal number that specifies the length of the data to be read.
format	Replace the optional *format* parameter with any non-zero number to convert the data to hexadecimal format.

Example

Write tag contents, then read and insert the tag contents into an ALPHA field.

```
~CREATE;READTAG
        // Create the READTAG form.
RFWRITE;AT1;*HELLOTAG*
        // Program the string “HELLOTAG” into the tag
ALPHA
        // The following ALPHA element is defined below:
RFREAD@;AF1;27;3;5;0;0
        // RFID Data Indicator character is “@”.
        // Dynamic field number of this ALPHA element is 1.
STOP
        // Terminate the ALPHA element definition.
```

```
BARCODE
            // The following BARCODE element is defined below:
C3/9;RFREAD@;BF1;10;5;5
            // Code 3 of 9 bar code; the RFID Data Indicator
            // character is “@”.
PDF
            // Dynamic bar code field number is 1; display the
            // readable part.
STOP
            // Terminate the BARCODE element definition.
END
            // Terminate the READTAG form creation.
~EXECUTE;READTAG
~AF1;*DATA FROM 0 TO 7 = @1,8;*
            // Execute READTAG form with dynamic and RFID
            // data from the first eight bytes inside the tag, using the
            // RFID Data Indicator character, which is “@”.
            // Since we programmed that tag with “HELLOTAG”,
            // the string is “DATA FROM 0 TO 7 = HELLOTAG” is
            // printed.
~BF1;*@1,5,1;*
            // Read the first five bytes from the tag, which is
            // “HELLO”, and convert it to hexadecimal format,
            // which is “48454C4C4F”. Next, attach the hex format
            // data to the bar code. The 3 of 9 bar code containing
            // the data “48454C4C4F” is printed.
~NORMAL
            // Complete the EXECUTE mode, and return to
            // NORMAL mode.
```

RFID PPI1 Commands

Get Tag Unique ID

Purpose Read the unique identification number of the RFID tag (embedded in the smart label).

Format ^RI *x*

^RI	Get Tag Unique ID command.
x	The field number to which the data will be assigned. The default is 0, and other acceptable values range from 1 to 9999.

Comments

The PPI1 only supports Alien Technology Class 1a tags, which do not have the unique identification numbers. Therefore, the PPI1 absorbs this command.

Set Tag Type

Purpose Select the type of the RFID tag (embedded in the smart label).

Format ^RS *x*

^RS	Set Tag Type command.
x	Number assigned to the type of the tag. The default is 0, and other acceptable values range from 1 to 9999.

Comments

The PPI1 only supports Alien Technology Class 1a tags. There are no alternative choices. Therefore, the PPI1 absorbs this command.

Read Tag

Purpose This command allows data from the RFID tag (embedded in the smart label) to merge into any previously defined dynamic data field. It is equivalent to the Field Number command (^FN) except that the data come from the RFID tag.

Format ^RT *x*,*startblock*,*length*,*hexformat*,*retriescount*,*nomotionflag*,*reservedflag*

^RT	Read Tag command.
x	The field number to which the data will be assigned. The default is 0, and other acceptable values range from 1 to 9999.
startblock	Location where data will be read from the RFID tag. The PPI1 only supports Alien Technology Class 1a tag, which has only one 8–byte block. Therefore, *startblock* will be set to 0, regardless of the specified value.
length	The number of blocks to be read from the RFID tag. The PPI1 only supports Alien Technology Class 1a tags, which have only one 8–byte block. Therefore, *length* will be set to 1, regardless of the specified value.
hexformat	This flag indicates whether the data, after being read from the RFID tag, should be translated into hexadecimal format. The default is 0, meaning the data will not be translated. The other acceptable value is 1, meaning the data will be translated into hexadecimal format.
retriescount	The number of automatic attempts to read data from the tag if previous reads failed. The PPI1 absorbs the number and uses the value on the operator panel.

nomotionflag Set this flag to 1 to read data from the tag without moving the label. The PPI1 does not move the label regardless of the value. The user needs to print something on the label to eject the label.

reservedflag This is a reserved flag. The PPI1 absorbs this number.

Comments

This command is only executed by the demand for data from any dynamic field. The PPI1 absorbs this command if there are no demands for the data.

Write Tag

Purpose This command programs data into an RFID tag (embedded in the smart label).

Format ^WT *startblock*,*retriescount*,*nomotionflag*,*writeprotect*, *reservedflag*

^WT Write Tag command.

startblock Location of data in the RFID tag. The PPI1 only supports Alien Technology Class 1a tags, which have only one 8–byte block. Therefore, *startblock* will be set to 0, regardless of the specified value.

retriescount The number of automatic attempts to write data into the tag if previous writes failed. The PPI1 absorbs the number and uses the value on the operator panel.

nomotionflag Set this flag to 1 to program data into the tag without moving the label. The PPI1 does not move the label regardless of the value. The user needs to print something on the label to program the data into the tag and eject the label.

writeprotect This flag indicates whether the data should be protected from being overwritten later. The default is 0,

meaning the data are not protected. The other acceptable value is 1, meaning the data are protected. The PPI1 absorbs this number and does not protect the data.

reservedflag This is a reserved flag. The PPI1 absorbs this number.

Software Migration Tools (SMT)

There are SMTs for six separate end-use applications supporting both PGL and PPI1 datastreams for a total of 12 tools. Each tool intercepts bar code data in a host datastream and copies the data to an RFID tag (embedded in a smart label) according to a set of rules as defined below. SMTs assume that only one bar code of the type being processed is present. In the event that there is more than one of a given type of barcode present, only the first is processed.

Bar code information encoded as dynamic data is supported. To avoid ambiguity, where bar code data is provided in the form of dynamic data, the RFID tag will be encoded with only the contents of the first variable bar code field. It will be your responsibility to ensure that the first variable bar code is the desired bar code.

Tools List

- **GTIN:** According to Uniform Code Council standards there are two permissible bar codes on standard case labels: UCC-128 and Interleaved Two of Five (ITF14). These are the typical bar code carriers for the GTIN (Global Trade Identification Number). This tool copies data from either an ITF14, or from a UCC-128 barcode with an Application Identifier of 01 (which indicates an SCC-14) to an RFID tag. If barcode checksum data is included in your datastream, it will be encoded onto the tag. If your datastream requests the printer to calculate the bar code checksum, it will not be encoded onto the tag. In the case of the UCC bar code, the (01) application identifier is not written to the tag. Data written to the RFID tag is right justified and zero padded.

- **UCC128:** Copies data from a UCC-128 bar code with an application identifier (AI) in the range of 90-99 to an RFID tag. These AI's are reserved for internal applications. The AI is not written to the RFID tag. Data written to the RFID tag is right justified and zero padded. Checksum data calculated by the printer is not encoded onto the tag. Bar code data beyond the 16th digit is truncated without an error message.
- **EAN8:** Copies data from an EAN8 bar code to an RFID tag. EAN 8+2 and EAN 8+5 variants are both supported. Data written to the RFID tag is right justified and zero padded. Checksum data calculated by the printer is not encoded onto the RFID tag.
- **EAN13:** Copies data from an EAN13 bar code to an RFID tag. EAN 13+2 is also supported but EAN 13+5 variant is not supported. Data written to the RFID tag is right justified and zero padded. Checksum data calculated by the printer is not encoded onto the RFID tag.
- **UPC-A:** Copies data from an UPC-A, UPC-A+2 or UPC-A+5 bar code to an RFID tag. Data written to the RFID tag is right justified and zero padded. Checksum data calculated by the printer is not encoded onto the RFID tag.
- **EPC:** This tool allows EPC data carried by a Code 3 of 9 bar code to be encoded onto an RFID tag. Data beyond the 16th digit is not allowable for an EPC and is truncated. Data must be numeric only.
- **zGTIN**, **zEPC**, z**UCC-128**, **zEAN8**, **zEAN13**,and **zUPC-A:** These are all PPI1 emulation specific tools identical in function to those of their corresponding names above.

NOTE: Dynamic data is variable data entered into specific locations on each form definition. Each time the form prints, a single command enters new data into those locations supplied in the datastream after form definition has been completed.

Selecting The Tools

1. Press ⋮☰ until QUICK SETUP displays.
2. If necessary, press ↓ and ↵ at the same time to unlock the ↵ key.
3. Press ↓ until SMT: Sel Toolset displays.
4. Press ↓ until Toolset [1] (PGL emulation) or Toolset [2] (PPI1 emulation) displays.
5. Press ↵ to select it.
6. Press ↓ until SMT: Select Tool displays.
7. Press ↓ until the desired tool displays.
8. Press ↵ to select it.
9. Press ↓ and ↵ at the same time to lock the ↵ key, then press **PAUSE** to take the printer offline.
10. Press **PAUSE** again to put the printer online.

Error Messages

The RFID UHF encoder can detect a number of errors. When one of these errors occurs, the RFID UHF encoder alerts the printer to perform the currently selected error action (see “Error Handling” on page 53) and show the appropriate error message on the printer display. RFID UHF encoder error messages are explained in Table 1.

Table 1. Error Message List

Error Message	Explanation	Solution
RFID MAX RETRY Check System	Error Handling = Overstrike in the RFID CONTROL menu, and the Label Retry count has been exhausted.	Press **PAUSE** to clear the message. See “Troubleshooting” on page 67.
RFID Reader Comm Error	RFID error: communication cannot be established with the RFID UHF encoder. Reader will be set to Disable in the RFID CONTROL menu and the previous port settings restored.	Press **PAUSE** to clear the message. See “Troubleshooting” on page 67.
RFID TAG FAILED Check Media	Error Handling = Stop in the RFID CONTROL menu, and the RFID UHF encoder could not read the RFID tag.	Press **PAUSE** to clear the message. See “Troubleshooting” on page 67.

Troubleshooting

If you are having trouble with the RFID UHF encoder, consult Table 2 for a list of symptoms and possible solutions.

Table 2. Troubleshooting the RFID UHF Encoder

Symptom	Solution
No communication between the printer and the reader	1. Make sure the serial interface adapter and the serial cable are plugged into the printer. See “Installation” on page 23. 2. Make sure Reader = Enable in the RFID CONTROL menu. 3. Use the RFID Test option in the RFID CONTROL menu (Admin User enabled) to read and display the current RFID tag content. RFID tags usually contain a valid entry due to the pre-test process. See “RFID Test” on page 54.
Tag failed	1. The label could be misaligned. Perform the Auto Calibrate procedure (page 37). 2. Make sure the media are smart labels with RFID tags located in the correct position. 3. The RFID tag could be defective. Try another tag. 4. Make sure the application does not send too few or too many digits to the RFID tag.
Inconsistent results	Make sure the media is loaded correctly and passes smoothly over the antenna. See “Loading Media And Ribbon” on page 29.
The RFID UHF encoder works, but it does not meet expectations	Make sure that both Error Handling and Label Retry are set to desired values in the RFID CONTROL menu.

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