Intermec

User's Manual

PA30 Print Engine

Intermec Technologies Corporation

Worldwide Headquarters
6001 36th Ave.W.
Everett, WA 98203
U.S.A.

www.intermec.com

Document Change Record

This page records changes to this document. The document was originally released as Revision 001.

Revision	Date	Description of Change
002	3/2009	Manual was revised to include updated physical dimensions.

Contents

Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Information

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

This section explains how to identify and understand warnings, cautions, and notes that are in this document.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at **www.intermec.com** and click **Service & Support** > **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at **www.intermec.com** to download our current manuals (in PDF). To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at **intermec.custhelp.com** to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec.

Services	Description	In the USA and Canada call 1-800-755-5505 and choose this option
Order Intermec products	• Place an order. • Ask about an existing order.	1 and then choose 2
Order Intermec media	Order printer labels and ribbons.	1 and then choose 1
Order spare parts	Order spare parts.	1 or 2 and then choose 4
Technical Support	Talk to technical support about your Intermec product.	2 and then choose 2

Services	Description	In the USA and Canada call 1-800-755-5505 and choose this option
Service	• Get a return authorization number for authorized service center repair. • Request an on-site repair technician.	2 and then choose 1
Service contracts	• Ask about an existing contract. • Renew a contract. • Inquire about repair billing or other service invoicing questions.	1 or 2 and then choose 3

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

Who Should Read This Manual

This user's manual is for the person who is responsible for installing, configuring, and maintaining the PA30 Print Engine.

This document provides you with information about the features of the PA30, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the PA30, you should be familiar with your applicator system. You should also understand your network and general networking terms, such as IP address.

Related Documents

This table contains a list of related Intermec documents and their part numbers.

Document Title	Part Number
Intermec Fingerprint v8.xx Programmer's Reference Manual	937-005-xxx
Intermec Fingerprint 8.xx Font Reference Manual	1-960455-xx
Intermec Fingerprint 8.xx Tutorial	1-960608-xx

The Intermec web site at **www.intermec.com** contains our documents (as PDF files) that you can download for free.

To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click **Support** > **Manuals**.
3. Use the **Product Category** field, the **Product Family** field, and the **Product** field to help you locate the product whose documentation you want to download.

Patent Information

Product is covered by one or more of the following patents:

5,581,293; 5,613,790; 5,927,876; 6,088,049; 6,283,651; 6,345,920; 6,685,37.

There may be other U.S. and foreign patents pending.

1 Learning About the PA30

This chapter introduces the PA30 print engine and includes these sections:

- About the PA30 Print Engine
- Unpacking the PA30
- Understanding the Front Panel
- Understanding the Rear Panel
- Accessing the Media Compartment
- Using a Memory Card
- Installing the PA30
- Starting the PA30
- Loading Media
- Loading Ribbon
- Adjusting the Print Mechanism
- Configuring the PA30

About the PA30 Print Engine

The PA30 is a print engine designed for use in custom-built print-and-apply applicators. The PA30 is available in a left-hand configuration (media moves from right to left). Intermec's Fingerprint programming language allows you to easily configure the PA30 for any application. The PA30 can be mounted in any standard 5-bolt mounting location.

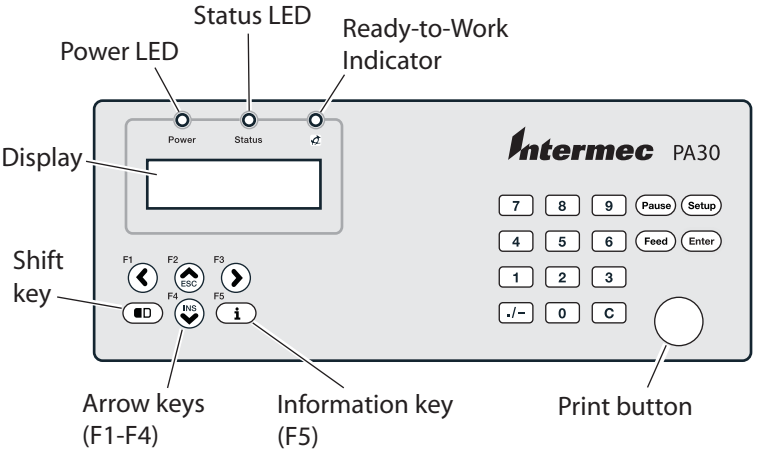
Unpacking the PA30

When you unpack the PA30, save the box and shipping material in case you need to ship or store the print engine. Examine the package for possible damage or missing parts.

If the print engine has been damaged during transportation, notify the carrier immediately.

If the delivery is incorrect or if parts are missing, contact your Intermec distributor immediately.

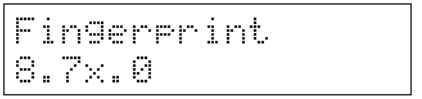
Understanding the Front Panel



PA30 Front Panel

About the Display

The display shows status messages and information as you operate the PA30.



PA30 Display: *When the PA30 is in Operating mode, this text appears in the display.*

About the Keypad

Use the keypad to operate the PA30 and to navigate through menus and choose options when the PA30 is in Setup modeSetup mode. The next table explains the functions for each key.

PA30 Keypad Descriptions

Key	Description
Arrow keys (F1-F4)	Navigate between menus and options when the PA30 is in Setup mode. For more information, see Chapter 5, "Using Setup Mode."
Shift key	Toggles the arrow keys between Setup mode navigation and function assignments in your application. If your application does not use F1-F5 values, this key is disabled.
Information key (F5)	Shows PA30 serial connection information, IP address, and USB port status in the display.
Print	Print a label or pause during printing. After a label has printed, press **Print** to print the label again.
Pause	Toggle between printing and pausing a print job.
Setup	Enter Setup mode to configure the PA30 using its keypad and display. For more information, see Chapter 5, "Using Setup Mode."
Feed	Advance the label stock by one label.
Enter	When the PA30 is in Setup mode, enters a value or setting and navigates to the next menu item.
Numeric keys	Enter a numeric value for settings when the PA30 is in Setup mode.

About the LEDs

The LEDs indicate print engine status as described next.

LED Indicator Descriptions

LED Name	Description
Power	Steady green indicates power to the print engine.
Status	Steady green indicates the PA30 is ready to use. Flashing green indicates the PA30 is communicating. Steady red indicates an error condition.
Intermec Ready-to-Work™ Indicator	Steady blue means the print engine is ready to print. Blinking blue indicates a possible error. For more information, see the next section.

About the Ready-to-Work Indicator

The Ready-to-Work indicator shows the current PA30 status. When the indicator is steady blue, the print engine is ready for print jobs.

If the indicator is blinking, an error has occurred. On the PA30, press F5 to see the error message in the display. If several errors occur simultaneously, only the most significant error message appears. Once this error has been cleared, the next significant error message appears in the display.

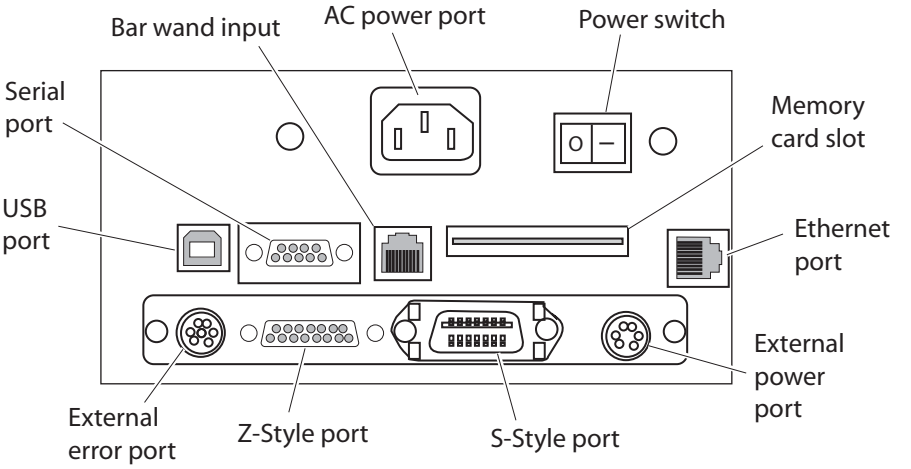
For a list of possible error messages, see **"Error Message and Ready-to-Work Indicator Descriptions" on page 110.**

The printer can also return error messages to the host PC. For more information, see the *Intermec Fingerprint v8.xx Programmer's Reference Manual*.

You can also configure the Ready-to-Work indicator to work with your application. For more information, see "RTW" in the **"Applicator Port Settings Descriptions" on page 35.**

Understanding the Rear Panel

Connect the PA30 to the host PC, to your network, and to the applicator via the rear panel ports.



PA30 Rear Panel

PA30 Rear Panel Port Descriptions

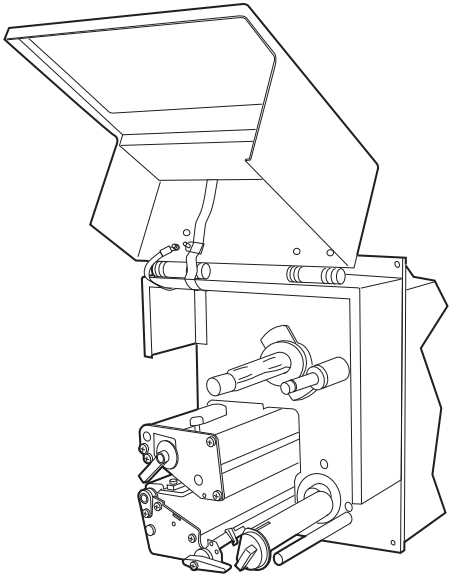
Port	Description
USB	USB port. Connect USB devices to this port for local communications.
Serial	Standard 9-pin serial port. Connect the host PC to the PA30 through this port for serial communications.
Ethernet	Connect a standard Ethernet cable to this port to connect the PA30 to your network.
AC power	Connect the PA30 to AC power.
External Error	8-pin mini-DIN connector. Use this port to connect external error circuits such as sensors or switches to the PA30. For more information, see Chapter 2. For pinouts, see **"External Error Port" on page 122.**
Z-Style	Standard DB15 port. Connect this port to the applicator interface port on a Zebra-type applicator. For pinouts, see **"Z-Style Port" on page 117.**

PA30 Rear Panel Port Descriptions (continued)

Port	Description
S-Style	Standard 14-pin Centronics connector. Connect this port to the EXT port on a Sato-type applicator. For pinouts, see **"S-Style Port" on page 119.**
External power	6-pin mini-DIN connector. To power sensors or solenoids for the label applicator, you can connect +5 or +24 VDC external power to this port. This external power is routed through the Z-Style and S-Style ports. For pinouts, see **"External Power Port" on page 121.** To use an external supply, you need to configure the PA30 applicator ports for external power. For more information, see **"To configure applicator port settings" on page 34.**
Bar wand input	Connect a wand scanner to this port to scan bar codes for configuring the PA30.

Accessing the Media Compartment

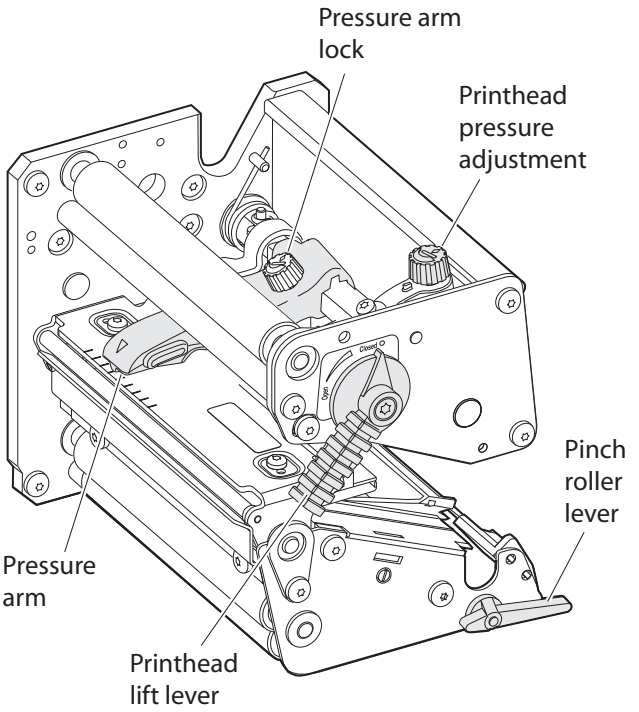
- Lift the PA30 access door.



With the access door open, you can easily reach the PA30 print mechanism for setup and maintenance.

About the Print Mechanism

The print mechanism features a high-performance thermal printhead with quick-mount fittings for easy replacement when needed.



PA30 Print Mechanism

Print Mechanism Adjustment Controls

Control	Description
Pressure arm lock	Locks the pressure arm in position on the printhead. You should adjust the pressure arm to be aligned with the center of the media. For help, see **"Adjusting the Pressure Arm" on page 25.**
Printhead pressure adjustment	Adjusts the printhead pressure for lighter or darker printing. For help, see **"Adjusting the Printhead Pressure" on page 26.**

Print Mechanism Adjustment Controls (continued)

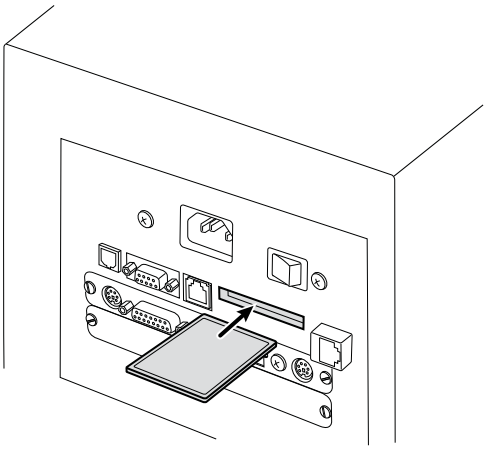
Control	Description
Printhead lift lever	Raises and lowers the printhead: • Turn counterclockwise to raise the printhead when loading media and ribbon or making printhead adjustments. • Turn clockwise to lower the printhead when you are ready to resume printing.
Pinch roller lever	Opens the pinch roller for media loading: • Turn counterclockwise to open the pinch rollers. • Turn clockwise to close the pinch rollers.

Using a Memory Card

The PA30 includes a memory card adapter you can access through the rear panel. You use a CompactFlash card to expand the print engine storage memory.

To insert a memory card

1. Make sure the PA30 is turned off.
2. Slide the memory card into the slot on the rear panel.



Installing a Memory Card: *Slide the CompactFlash card into the memory card slot in the rear panel.*

Intermec also provides these preprogrammed CompactFlash cards:

- Font Cards provide additional fonts that can be used as long as the card remains installed in the print engine.
- Font Install Cards permanently install additional fonts in the print engine, which can be used after the card is removed.

For more information on these accessories, contact your Intermec sales representative.

Installing the PA30

This section explains how to install the PA30 in an applicator system and includes dimensioned illustrations.

Physical and Environmental Requirements

The PA30 can be mounted in a label applicator with the required mounting area and standard five-bolt opening.

Be sure that the mounting location:

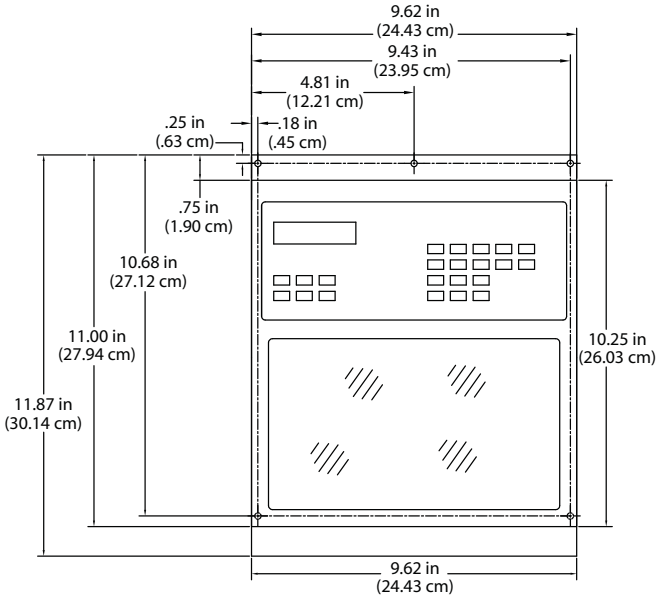
- provides adequate clearance for the PA30 and for connecting cables to the rear panel ports.
- is mechanically stable.

The temperature and humidity in the mounting location must be within the following specifications.

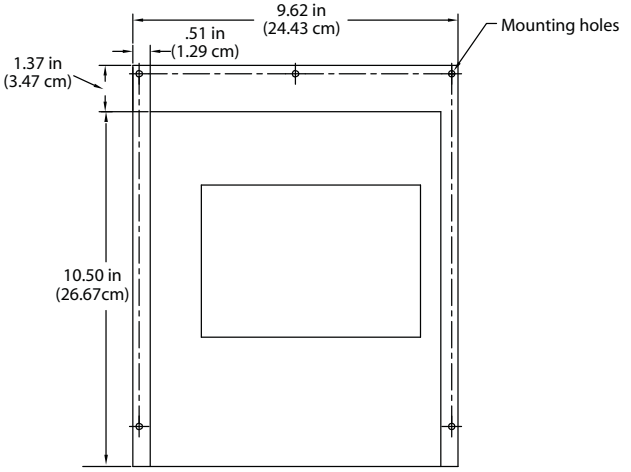
PA30 Environmental Requirements

Type	Range
Operating temperature	5°C to 40°C (41°C to 104°F)
Humidity	10% to 90% non-condensing

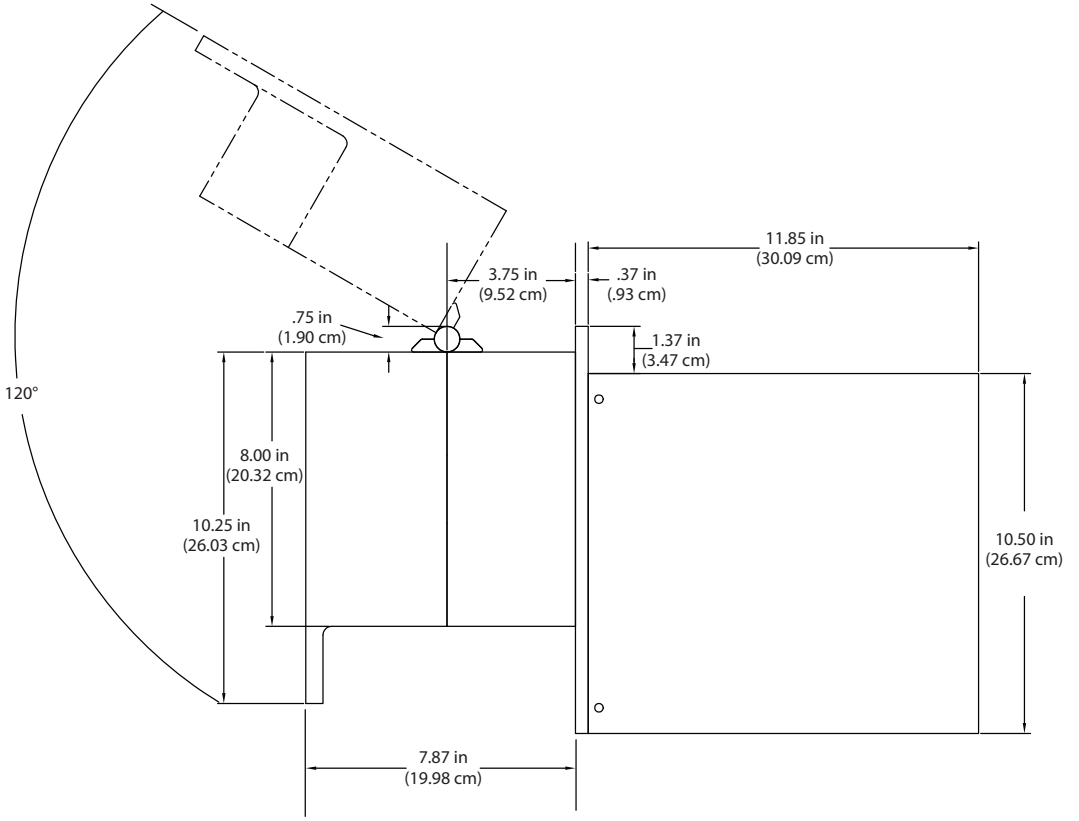
The next illustrations show the PA30 dimensions so you can verify how much space is required to install the PA30.



PA30 Front View



PA30 Rear View



PA30 Side View

Power Requirements

The PA30 requires 90 to 265 VAC at 400W peak.

Cable Requirements

To install the PA30, you need these cables:

- AC power cable appropriate to your country
- Applicator cable. Contact your applicator provider for the appropriate cable for your system.

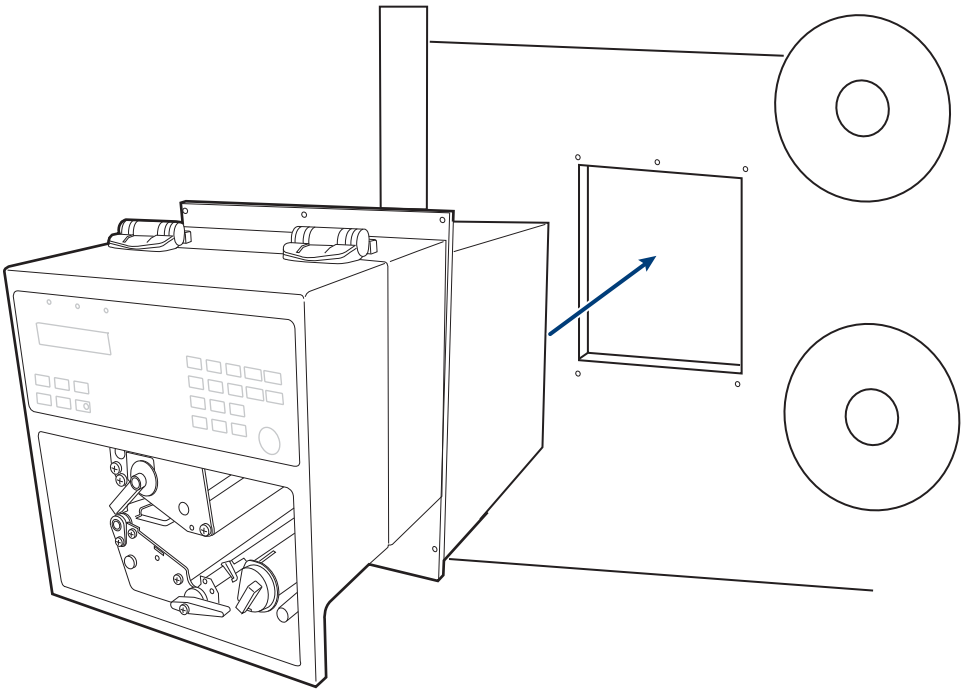
Note: All data cables should be fully shielded and fitted with metal or metallized connector shells. Shielded cables and connectors prevent reception and radiation of electrical noise.

The following cables are optional depending on your installation:

- Standard DB9 serial cable to connect the PA30 to a host PC
- USB cable with "B" connector to connect the PA30 to a USB device
- Standard Ethernet cable to connect the PA30 to your network
- 8-conductor cable with mini-DIN connector to connect external error circuits such as sensors or switches
- 6-conductor cable with mini-DIN connector to connect an external +5 or +24 VDC power supply

Installing the PA30 in an Applicator

1 Place the PA30 in the mounting location on the applicator.



2 Install appropriate mounting hardware (max. size #8 or M4) in the five mounting locations. Make sure the print engine is securely mounted before proceeding.

3 Make sure the PA30 power switch is turned off.

4. (Optional) Connect the external power cable to the 6-pin mini-DIN connector.
5. Connect the applicator port cable:
   - For a Zebra-type applicator, connect the DB15 cable from the PA30 Z-Style port to the applicator interface port on the applicator.
   - For a Sato-type applicator, connect the Centronics cable from the PA30 S-Style port to the EXT port on the applicator.
6. (Optional) Connect the Ethernet cable from the PA30 Ethernet port to your network.
7. (Optional) If you are using external error devices, connect the external error cable from the PA30 External Error port to the devices. For more information, see Chapter 2.
8. (Optional) Connect a standard serial cable from the PA30 serial port to a host PC.
9. (Optional) Connect a USB cable from the PA30 USB port to a USB device.
10. Connect the power cable from the PA30 to an AC power source.

The PA30 is now ready for media loading and configuration.

- For more information on loading media, see **"Loading Media" on page 15.**
- For more information on configuring the PA30, see Chapter 3, "Configuring the PA30."

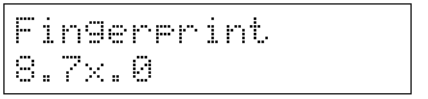
Starting the PA30

When you turn on the PA30, the print engine startup file (autoexec.bat) determines what application runs at startup time. By default, autoexec.bat runs the Intermec Shell file managing program, which allows you to choose from a variety of applications and functions. For more information, see Chapter 6, "Using the Intermec Shell Program."

You can also configure autoexec.bat to run a custom application you have stored in the print engine permanent memory. For more information, see the next section, "About Startup Files."

To start the PA30

1. Make sure you have correctly connected the PA30 to the applicator. For more information, see **"Installing the PA30" on page 9.**
2. Press the power switch. The Power LED on the front panel turns on and stays on. As the PA30 boots, the print engine loads its startup file and runs self-diagnostic tests.
3. If you have configured the startup file to run a custom application, the application starts.
   - If you are not using a custom application, the PA30 starts the Intermec Shell startup program. For more information, see Chapter 6, "Using the Intermec Shell Program."
   - If you are not using a custom application, and do not enter the Intermec Shell startup program, the printer finishes initialization and this text appears in the display:

   The PA30 is now ready to use.

About Startup Files

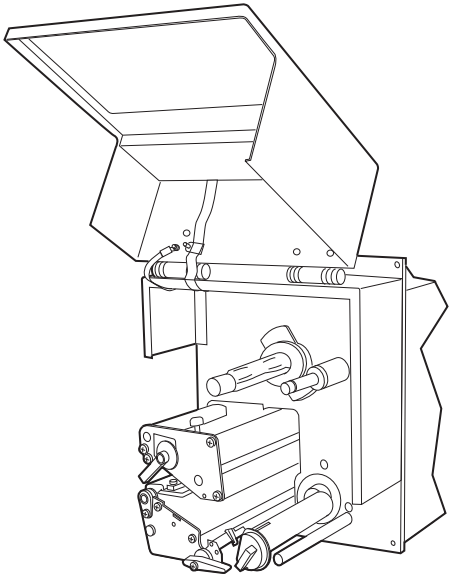
There can be one startup file stored in each of three different parts of the print engine memory. If more than one startup file exists, the print engine determines which startup file to use based on the file's location:

1. Autoexec.bat file stored on a memory card. The card must be installed in the print engine before the print engine is turned on.
2. Autoexec.bat file stored in the read/write portion of the print engine permanent memory (device "/c").
3. Pup.bat file (Intermec Shell) in the read-only portion of the print engine permanent memory (device "/rom").

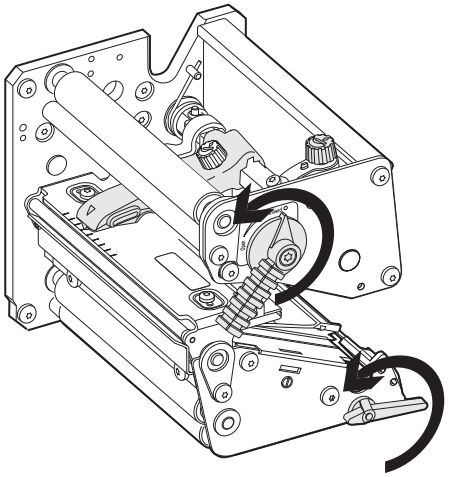
For more information on memory cards, see **"Using a Memory Card" on page 8.**

Loading Media

1. Open the PA30 access door.



2. Turn the printhead lift lever counterclockwise to open the printhead.
3. Turn the pinch roller lever counterclockwise to open the pinch rollers.

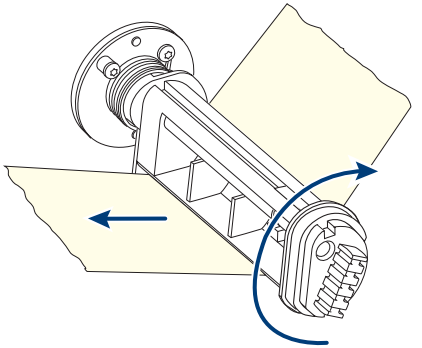


Opening the Printhead and Pinch Rollers

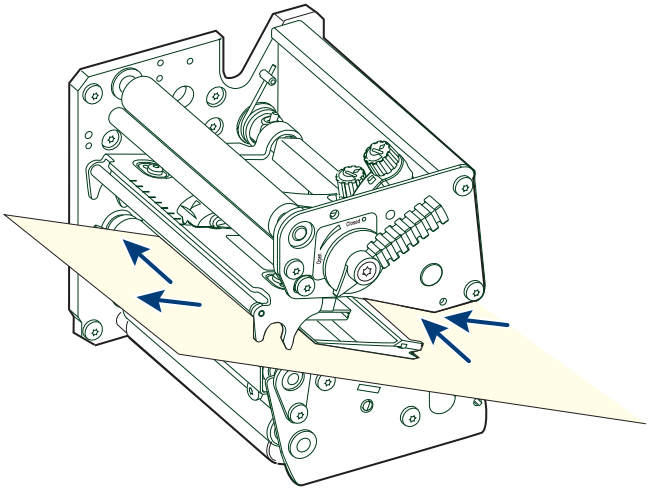
4 Remove empty cores from the media supply hub and the liner takeup hub on the applicator.

5 Fit a new roll of media on the media supply hub.

6 Route the media under the slack absorber and towards the print mechanism. You can rotate the slack absorber for better access, or snap-lock it in open position.



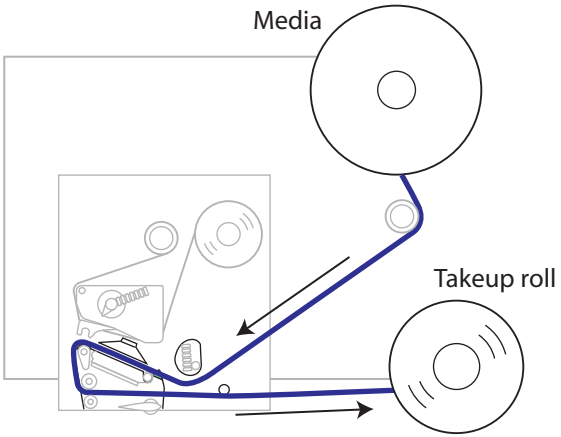
7 Route the media through the print mechanism. Be sure to keep the inner edge of the media as close to the back wall of the PA30 as possible.



8 Pull out about 40 cm (15 in) of media and remove the labels from the liner.

9 Route the liner around the tear bar and through the pinch roller mechanism.

10 Secure the liner to the takeup hub and rotate the hub to take up slack.

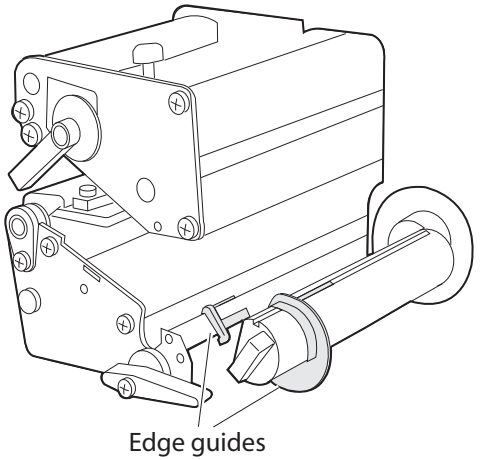


Media Route: *This illustration of a typical applicator shows the media path through the PA30.*

11 Turn the printhead lift lever clockwise to close the printhead.

12 Turn the pinch roller lever clockwise to close the pinch rollers.

13 Slide the green edge guides to the media edge. The guides should be adjusted so the media passes through the printhead with a minimum of play.



Edge Guides: *Adjust the guides to the edge of the media.*

14 Close the PA30 access door.

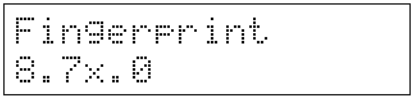
15 Perform a testfeed to align the media properly. For help, see the next section.

Performing a Testfeed

After you install media in the PA30, follow the next procedure to align the media with the label stop sensor.

To perform a testfeed

1 Press the Power switch to turn on the PA30. After the PA30 initializes, you see this in the display:



2 On the PA30 front panel, press **Setup**. The PA30 enters Setup mode.

3 Press the right arrow key several times until this text appears in the display:

4 Press the down arrow key. Media: Media Size appears in the display.

5 Press the right arrow key several times until you see this text in the display:

6 Press the down arrow and then press **Enter**. The PA30 feeds out labels until the firmware has determined the best position for the media.

7 Press **Setup** to exit Setup mode.

Loading Ribbon

The PA30 can print on labels, tickets, tags, and continuous stock using thermal transfer printing with a special ink-coated ribbon.

The PA30 can use transfer ribbon rolls wound with the ink-coated side facing either outward or inward. Illustrations in this section show the ink-coated side facing inward, and media is omitted from the illustrations for clarity.

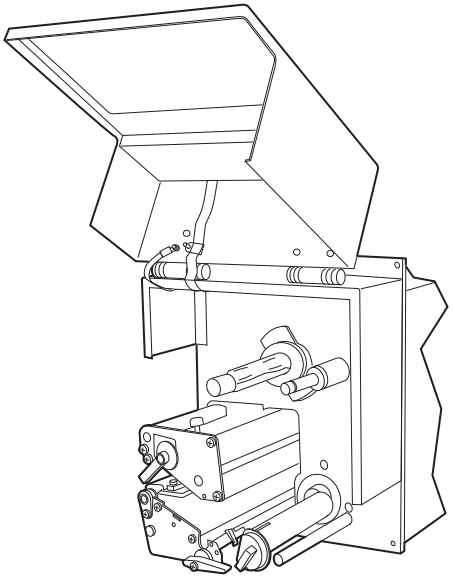
Note: By default, the PA30 is configured to use an 83-mm diameter ribbon. To use larger diameter ribbon (such as 90-mm), you need to send the SYSVAR(53)=90 Fingerprint command to the PA30.

For more information on using Fingerprint with the PA30, see **"Programming Applications for the PA30" on page 40.**

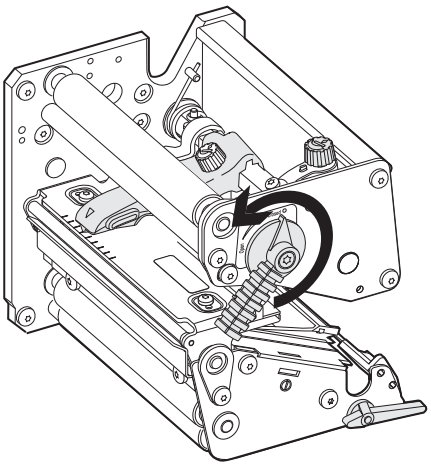
For more information on all Fingerprint commands, see the *Intermec Fingerprint v8.xx Programmer's Reference Manual*.

To load thermal transfer ribbon

1 Open the PA30 access door.



2 Turn the printhead lift lever counterclockwise to open the printhead.

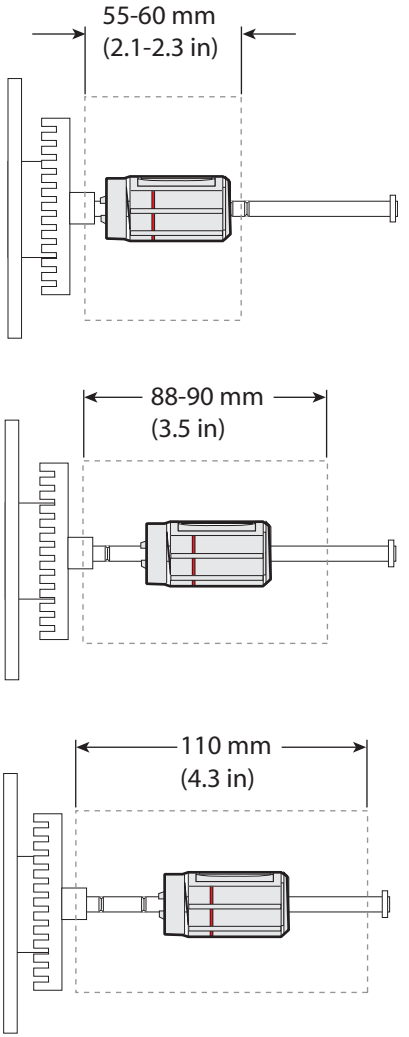


3 If you are reloading ribbon, remove the empty ribbon core or unused ribbon.

4 Squeeze the ends of the ribbon supply bobbin and slide the bobbin along the shaft. The bobbin snaps into several grooves along the shaft that correspond to these ribbon widths:

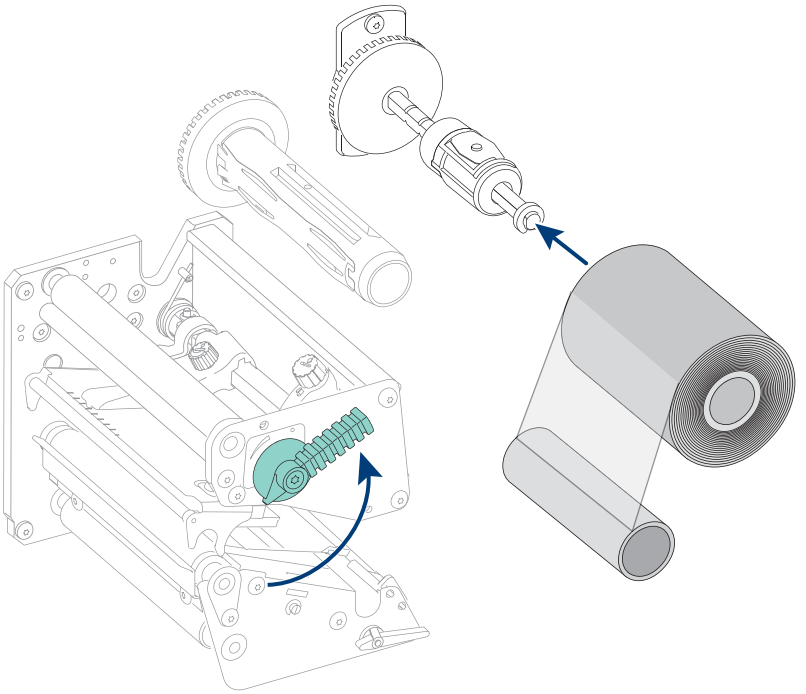
- 55 to 60 mm (2.16 to 2.3 in)
- 88 to 90 mm (3.5 in)
- 110 mm (4.3 in)

Snap the bobbin into the correct groove for the size of ribbon you want to use. The bobbin should be centered in the ribbon roll for best results. The wider the ribbon, the closer the bobbin should be to the front of the PA30.

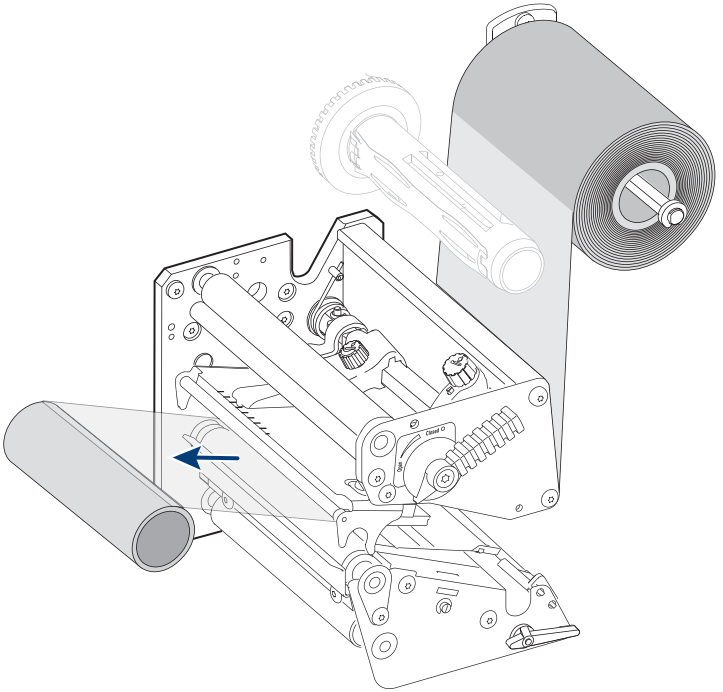


Bobbin Placement: *The bobbin should be in the center of the roll of ribbon.*

5 Press the ribbon roll onto the ribbon supply bobbin.



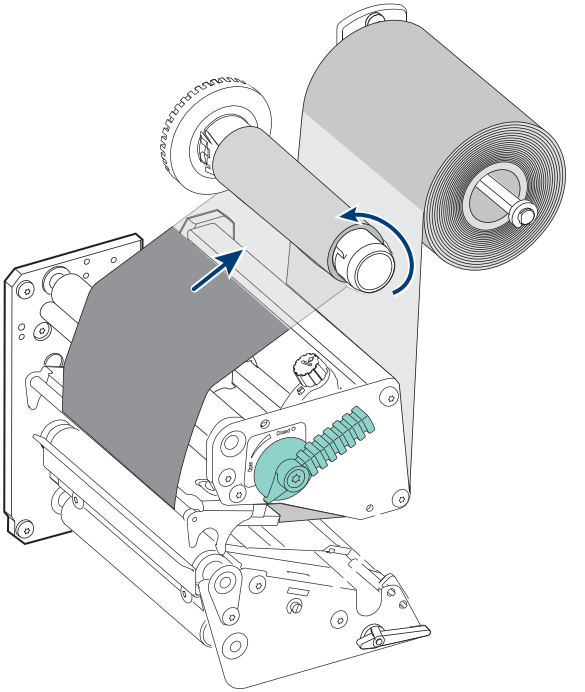
6 Route the ribbon through the print mechanism. Pull out about 20 cm (8 in) of ribbon.



7 Keep the ribbon pulled taut through the print mechanism and turn the printhead lever counterclockwise to the Closed position to lock the ribbon in place.

8 Press the cardboard core at the front end of the ribbon onto the rewind hub. During printing, the rewind hub rotates counterclockwise.

9 Turn the printhead lever to the Open position.



10 Turn the rewind hub to wind up the ribbon until all the transparent leader is taken up. Keep the ribbon tight.

11 Turn the printhead lever to the Closed position.

12 Close the PA30 access door.

Adjusting the Print Mechanism

After you install media and ribbon, you may need to adjust the PA30 print mechanism to get the best print quality.

- If you are using media less than the full size width, Intermec recommends you adjust the printhead pressure arm. For help, see the next section.
- If you are using thicker or thinner media than standard, you can adjust the printhead pressure to darken or lighten the print quality as needed. For help, see **"Adjusting the Printhead Pressure" on page 26.**

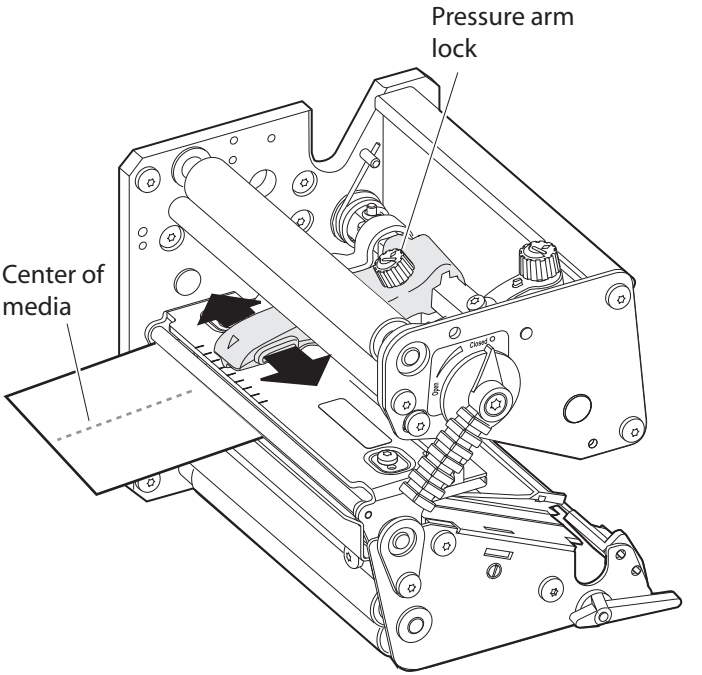
- If you are using media with slots, gaps, or black marks that indicate label edges, you can adjust the label stop sensor (LSS) to position the sensor for best results. For help, see **"Adjusting the Label Stop Sensor" on page 28.**

Adjusting the Pressure Arm

The PA30 is factory-adjusted for full size media width. If you use media of less than 120 cm (4.72 in) width, you should adjust the printhead pressure arm to center the arm over the media and maintain even pressure.

To adjust the pressure arm

1. Open the PA30 access door.
2. Turn the printhead lift lever counterclockwise to raise the printhead.
3. Remove ribbon if any ribbon is installed.
4. Turn the pressure arm lock knob counterclockwise to loosen the knob.
5. Slide the pressure arm in or out until the arrow on the tip of the arm is centered over the media. To slide the arm, push it along the bar below the pressure arm lock knob. If the arm is difficult to move, push down on the printhead to disengage the pressure arm magnet.



Pressure Arm Adjustment: *Loosen the pressure arm lock knob and slide the pressure arm until it is centered over the media.*

6 Turn the pressure arm lock knob clockwise to lock the pressure arm in place.

7 Adjust the media edge guides.

8 Reload ribbon if necessary.

9 Close the PA30 access door.

Adjusting the Printhead Pressure

The pressure of the thermal printhead against the ribbon or direct thermal media is factory adjusted. However, using thicker or thinner media than normal could require adjusting the printhead pressure for best print quality.

To adjust printhead pressure

1 Open the PA30 access door.

2 Turn the pressure adjustment knob clockwise to increase the pressure and darken the print, or counterclockwise to decrease

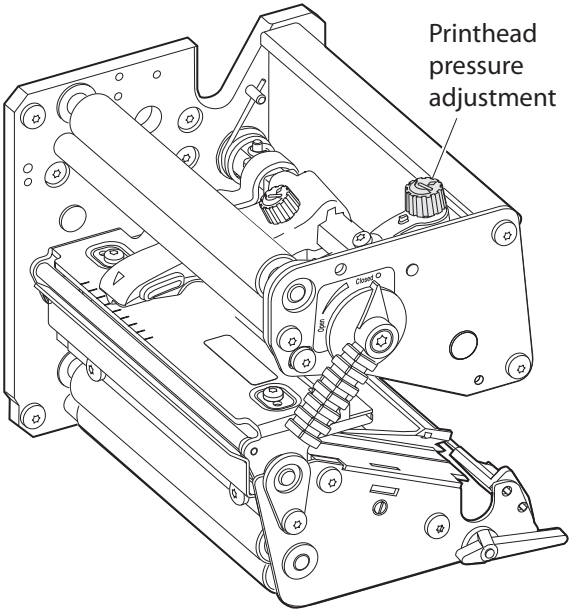
the pressure and lighten the print. You should print a few test labels to check the quality after adjusting the pressure.

Or, you can locate the basic setting as follows:

a Turn the pressure adjustment knob counterclockwise until there is no resistance. To test this, place a piece of media under the printhead and pull it out. There should be little or no resistance as you pull the media out.

b Turn the knob five full turns clockwise.

After you locate the basic setting, repeat the first part of Step 2 to determine the correct adjustment for your media.

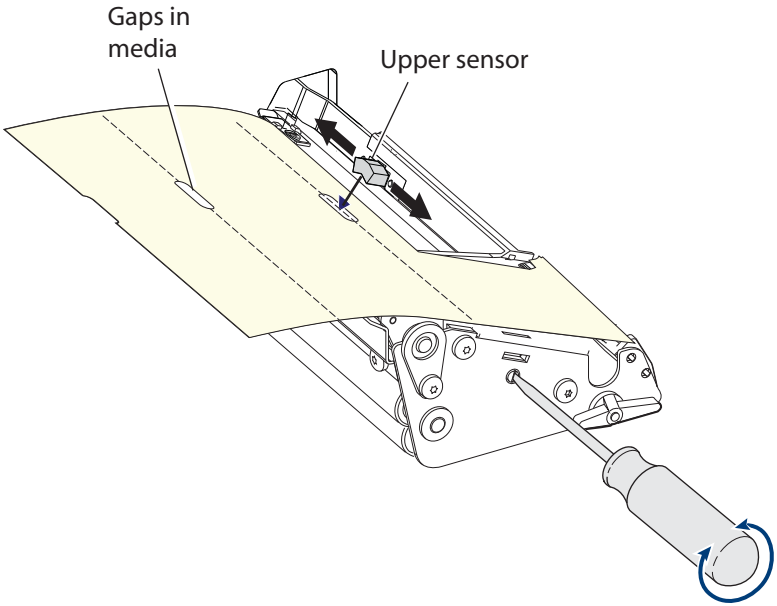


Adjusting the Label Stop Sensor

The label stop sensor (LSS) controls the media feed by detecting gaps between labels, or slots or black marks in continuous stock. For best results, the LSS should be aligned with the gaps, slots, or black marks, or with the front tips of irregularly shaped labels.

To adjust the label stop sensor

- Turn the LSS adjusting screw clockwise to move the LSS towards the back wall of the media compartment, or counterclockwise to move away from the back wall. Move the LSS until the center point of the upper sensor is aligned with the center of the gaps or slots to be detected.



Positioning the Label Stop Sensor: *Align the center point of the upper sensor with the gaps to be detected. The printhead is omitted here for clarity.*

You can also position the LSS by using the linear markings on the lower guide plate as a reference. The markings are 1 cm (.4 in) apart. This method is especially useful for black marks. Measure the lateral position of the marks before loading the media, and adjust the LSS accordingly.

Testing the Label Stop Sensor

1. Make sure the PA30 is set up correctly for the loaded media type.
2. Press **Shift** and **Feed** at the same time to perform a testfeed. The media advances through the print mechanism.
3. Make sure there is a label (not a gap or mark) at the LSS.
4. Check that the media is routed as close to the back of the media compartment as the guides allow.
5. Press **Setup**. The PA30 enters Setup mode.
6. Use the arrow keys to navigate to PRINT DEFS: LSS TEST: LSS AUTO. The cursor appears in the lower center of the display.
7. To test gap or slot detection, raise the printhead and slowly pull out the media. When the LSS detects a gap or slot, the cursor moves to the right.

   To test black mark detection, raise the printhead and slowly pull out the media. When the LSS detects a black mark, the cursor moves to the left.

   If necessary, press the down arrow key to refresh the cursor center position.
8. If the LSS behaves as described in Step 7, the LSS is working properly.

   If the LSS does not behave as described in Step 7, check these items:

   - Is the LSS laterally aligned with the slots or black marks?
   - Are the upper and lower parts of the LSS aligned with each other?
   - Is the transfer ribbon loaded properly so that it does not interfere with the LSS?
   - Are the label stop sensors free from dust?
   - Are the guides free from stuck labels or other objects that may interfere with the light between the upper and lower sensors?

- Does the media have preprint areas that may be interfering with LSS detection?
- Is there enough contrast between the black marks and the surrounding areas?
- Does the liner have too little transparency?
- Does the LSS work with other types of media?

Configuring the PA30

You can configure settings on the PA30:

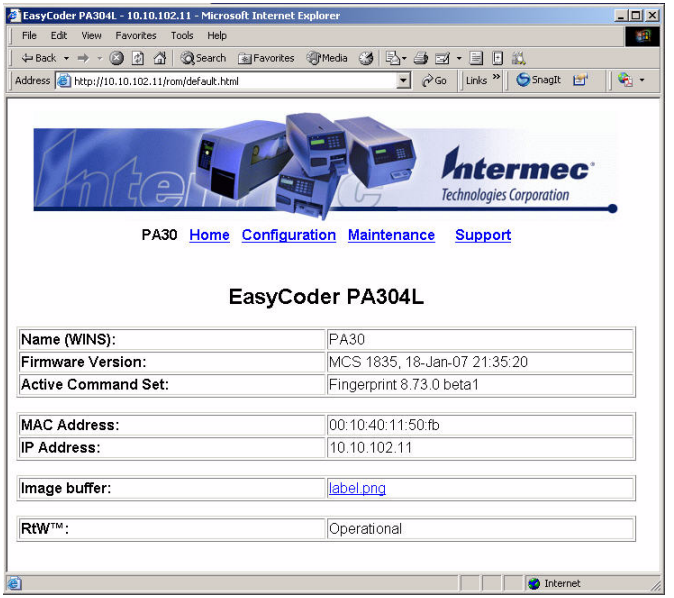
- via the web browser interface. For more information, see the next section.
- by placing the PA30 in Setup mode and using the printer keypad and display. However, not all settings can be changed in Setup mode. For more information, see Chapter 5, "Using Setup Mode."
- by sending Fingerprint or Direct Protocol commands to the PA30 via a serial connection from your desktop PC. For more information, see the *Intermec Fingerprint v8.xx Programmer's Reference Manual*.

Using the Web Browser Interface

After the PA30 has been assigned an IP address, you can manage and configure it from any desktop PC on the network using a web browser.

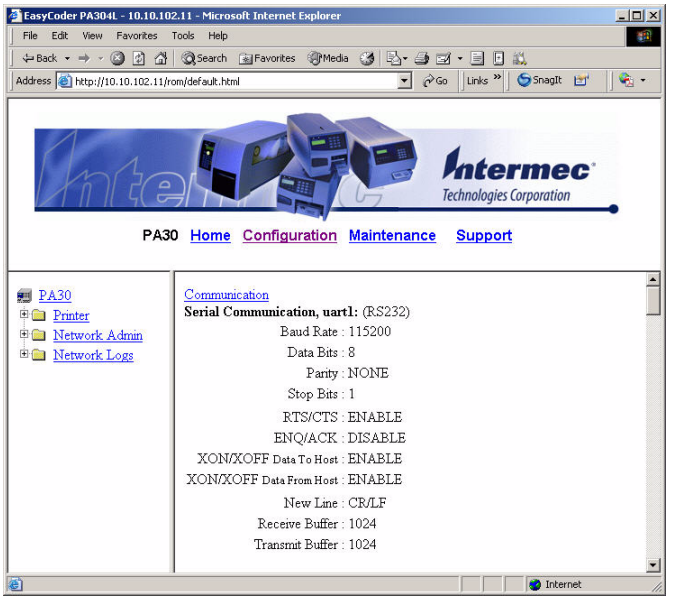
To connect to the PA30 using a web browser

1. On the desktop PC, open a web browser.
2. In the browser Address field, type the PA30 IP address and press **Enter**. The PA30 main web page appears.



3 Click **Configuration**. A dialog box appears, prompting you for a username and password.

4 Type `admin` in the username field and `pass` in the password field, and then click **OK**. This screen appears:



From this screen you can configure all PA30 settings.

- To configure applicator port settings, see Chapter 2, "Using the PA30 in an Applicator."
- To configure serial and network communication settings, see Chapter 3, "Configuring Communication Settings."
- To configure print engine and media settings, Chapter 4, "Configuring Print Engine and Media Settings."

2 Using the PA30 in an Applicator

This chapter explains how to use the PA30 in an applicator and includes these sections:

- Applicator Port Styles: Describes the Z-Style, S-Style, and I-Style applicator port interfaces.
- Configuring Applicator Port Settings: Explains how to configure and change settings for each applicator port style.
- Programming Applications for the PA30: Describes Intermec's Fingerprint printer language and how to use it when developing applications for the PA30.
- Using External Applicator Signals: Describes how the PA30 handles input and output signals from the applicator.

Applicator Port Styles

The PA30 can be configured for a Zebra-style ("Z-Style") applicator interface or a Sato-style ("S-Style") applicator interface. Each interface requires different setup parameters, which can be configured via the PA30 web browser interface or in Setup Mode.

The PA30 also supports an Intermec-style ("I-Style") interface, which adds additional functionality to the basic Zebra or Sato interface.

For more information on applicator port settings, see the next section.

For pinout diagrams and signal information, see **"Port Pinouts" on page 117.**

Configuring Applicator Port Settings

The PA30 supports three different applicator modes:

- Z-Style. Choose this mode for a Zebra-type applicator.
- S-Style. Choose this mode for a Sato-type applicator.
- I-Style. This mode combines Z-Style or S-Style settings with the ability to trigger external I/O systems via the External Error port.

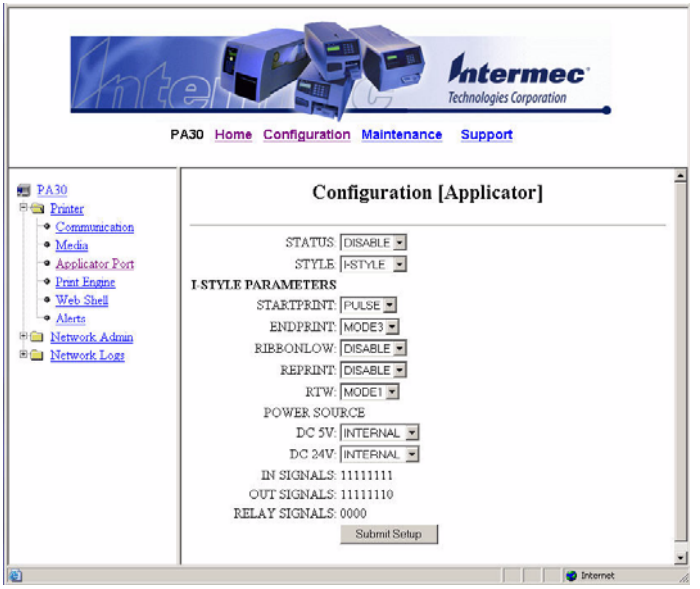
You can configure applicator port settings:

- via the web browser interface. For help, see the next section.
- in Setup Mode. For more information, see Chapter 5Z-Style, "Using Setup Mode."
- by sending commands from another application.

Using the Web Browser Interface

To configure applicator port settings

1. Open a web browser interface to the PA30. For more information, see **"Using the Web Browser Interface" on page 30.**
2. From the menu, click **Printer** > **Applicator Port**. The Configuration [Applicator] screen appears.



3 Choose settings from the drop-down lists. For more information, see the next table.

4 Click **Submit Setup**. The settings are saved.

Applicator Port Settings Descriptions

Setting	Description
Status	Enables or disables Applicator mode.
Style	Select from I-Style, Z-Style, or S-Style. For more information, see "Applicator Port Styles" on page 34.
Startprint	Choose either Level or Pulse. For more information, see "Startprint" on page 37.
Endprint	Choose from: • OFF • Mode 1/Type 3 • Mode 2/Type 4 • Mode 3/Type 1 • Mode 4/Type 2 For more information, see "Endprint" on page 38.

Applicator Port Settings Descriptions (continued)

Setting	Description
Ribbonlow	Enables or disables the PA30 low ribbon alert message. For more information, see "Ribbon Low" on page 39.
Reprint	Enables or disables reprinting the last label sent to the printer (by using the Reprint in signal). For more information, see "Reprint" on page 38.
RTW	Configures the Ready-to-Work indicator on the PA30 front panel. Asserting this signal turns the Ready-to-Work indicator on (steady blue). Choose from: • Mode 1 - Signal is asserted low when no events are active in the System Health Monitor (SHM). • Mode 2 - Signal is asserted low when the printer motor is idle. • Mode 3 - Signal is asserted low when the printer motor is idle and no events are active in the SHM. For more information, see "RTWOUTEXT" on page 39.
DC 5V	Configures the PA30 to use either its internal power supply or an external supply (connected to the External Power port) to provide +5VDC to the Z-Style and S-Style ports.
DC 24V	Configures the PA30 to use either its internal power supply or an external supply (connected to the External Power port) to provide +24VDC to the Z-Style and S-Style ports.
In Signals	(Read-only) Shows the current state of the 8 in signals, from left (lowest numbered port) to right. 0 indicates low, 1 indicates high. For more information, see "About PA30 In Signals" on page 37.

Applicator Port Settings Descriptions (continued)

Setting	Description
Out Signals	Shows the current state of the 8 out signals, from left (lowest numbered port) to right. 0 indicates low, 1 indicates high. **Note:** Out signals can only be configured in Setup Mode. For more information, see "About PA30 Out Signals" on page 38.
Relay Signals (Read-only)	Shows the current state of the four relay signals, from left (lowest numbered port) to right. 0 indicates low, 1 indicates high. On the applicator interface, the relay signals determine whether an internal or external power source is used. When the applicator port is disabled, use the Fingerprint PORTOUT(PORT) command to configure the power source.
Error on Pause	Enable this setting to set the "service required" signal when the PA30 is paused. This setting is supported by Z-Style only.
Error Port	Enables or disables the PA30 External Error port.

About PA30 In Signals

This section describes the PA30 in signals.

Note: All in signals are asserted low and de-asserted high.

Startprint

Starts a print job. Choose either:

- Level: The PA30 starts printing labels when the startprint signal is asserted, and continues printing until the signal is de-asserted.
- Pulse: The PA30 prints one label when the startprint signal is asserted. The startprint signal must be de-asserted and then asserted to print the next label.

Feed

Feeds a single label. Not supported by S-Style.

Pause
Toggles between Pause mode and printing. Not supported by S-Style.

Reprint
Reprints the last valid label.

Apperr1
Applicator error 1.

Apperr2
Applicator error 2.

Apperr3
Applicator error 3.

RTWINEXT
External input signal for the Ready-to-Work indicator, which you can use to monitor the operational status of the entire system.

About PA30 Out Signals

This section describes the PA30 out signals.

Note: Unless described otherwise, all out signals are asserted low and de-asserted high.

Data Ready
Asserted when the PA30 is ready to receive a startprint signal and execute the current print job. De-asserted when the print cycle ends. Not supported by S-Style.

Endprint
Asserted during or after a print cycle. The endprint signal also behaves differently depending on the applicator port endprint mode. When the startprint signal is received, the endprint signal may or may not be asserted.

There are five options to choose from:

- Off: Endprint signal is never asserted.
- Mode 1 (Z-Style)/Type 3 (S-Style): Asserted low during print/feed cycle.
- Mode 2 (Z-Style)/Type 4 (S-Style): Asserted high during print/feed cycle.

- Mode 3 (Z-Style)/Type 1 (S-Style): Asserted low for at least 20 ms after print/feed cycle end.
- Mode 4 (Z-Style)/Type 2 (S-Style): Asserted high for at least 20 ms after print/feed cycle end.

Media Out

Asserted when the PA30 is out of media. Activates an shmPaperOut event in the System Health Monitor (SHM). De-asserted when the same event is deactivated.

Ribbon Low

Asserted when the ribbon roll diameter drops below a predefined level. De-asserted while the roll diameter remains above the predefined level.

Ribbon Out

Asserted when the PA30 is out of ribbon. Activates an shmRibbonOut event in the System Health Monitor (SHM). De-asserted when the same event is deactivated.

RTWOUTEXT

External output signal for the Ready-to-Work indicator.

Behavior depends on the current setup. Signal may be asserted when there are no active events in the System Health Monitor (SHM), when the PA30 motor is idle, or both. This has the effect of turning on the Ready-to-Work indicator on the PA30 front panel.

This signal is inactive when the Error Port option is disabled.

SERVICEREQ (Service Required)

Asserted low when an event in the System Health Monitor (SHM) is activated. De-asserted when no events are active in the SHM. Supported only by I-Style.

A “service required” event is also activated when the Error Port is enabled and any of the four applicator error in signals is detected. This signal is also asserted when the Error on Pause option is enabled.

Programming Applications for the PA30

The PA30 includes Intermec Fingerprint v8.7x, a programming language that resides on the printer. Fingerprint is an easy-to-use programming tool for label formatting and printer customization.

Fingerprint also includes a slave protocol, Intermec Direct Protocol, which allows layouts and variable data to be downloaded from a host and combined into labels, tickets, and tags with a minimum of programming. Intermec Direct Protocol also includes a versatile error handler and a flexible counter function.

For more information on using Fingerprint, see these documents:

- *Intermec Fingerprint v8.xx Programmer's Reference Manual* (P/N 937-005-xxx). This manual includes detailed information on all Fingerprint programming instructions as well as program-related information.
- *Intermec Fingerprint 8.xx Tutorial* (P/N 1-960608-xx). This tutorial walks you through the basics of using Fingerprint to create printer applications.
- *Intermec Direct Protocol v8.xx Programmer's Reference Manual* (P/N 1-960597-xx). Includes in-depth information on Direct Protocol instructions and use.

These documents are available for free from the Intermec web site. For information on downloading these manuals, see **"To download documents" on page xiv.**

Fingerprint Commands for the PA30

The ON PORTIN, PORTIN, PORTOUT, and ON PORTOUT Fingerprint commands support applicator functionality for the PA30. These commands are functional when the PA30 applicator port status is enabled.

This section includes basic information for each of these commands. For more information on Fingerprint, see the Fingerprint programmer's reference manual.

ON PORTIN

This command allows a Fingerprint application to detect in signals. If a particular in signal is asserted, the application moves to the subroutine responsible for carrying out tasks related to that in signal. One command is available for detection of each of the 8 in signals.

This command is not supported by the Intermec Direct Protocol.

Example

```
ON PORTIN.STARTPRINT GOSUB nnn
```

PORTIN

This command is a version of the PORTIN(PORT) command and checks the current state of a specified signal. This command returns -1 if the signal is asserted, or 0 if the signal is de-asserted.

This command is supported by Fingerprint and Direct Protocol.

Examples

```
PORTIN.STARTPRINT
```

or

```
PORTIN.RIBBONLOW
```

PORTOUT

Supports manually modifying the dataready signal. PORTOUT is not allowed when the applicator port style is set to S-Style.

This command is not supported by Direct Protocol.

Example

```
PORTOUT.DATAREADY ON
PORTOUT DATAREADY OFF
```

where *on* asserts the dataready signal low and *off* de-asserts the dataready signal high.

ON PORTOUT

This command allows a Fingerprint application to detect when out signals have been reset to default values. The command moves to a specified subroutine whenever the applicator port status is enabled, and whenever the applicator port style is changed.

Example

```
ON PORTOUT.RESET GOSUB nnn
```

Using External Applicator Signals

The PA30 responds to external applicator port signals differently, depending on whether your application is using Fingerprint or Intermec Direct Protocol.

Fingerprint and Applicator Signals

When you use Fingerprint, all in signals and the Dataready out signal are handled by Fingerprint. Other out signals are handled by firmware.

Feed

When the Feed in signal is received, the application moves to a specified subroutine that feeds labels until the Feed in signal is de-asserted.

Example

```
10 ON PORTIN.FEED GOSUB 200
...
200 FORMFEED
210 RETURN
```

Pause

When the Pause in signal is received, the application moves to a specified subroutine that finishes the current print job and then places the PA30 in pause mode.

Example

```
10 ON PORTIN.PAUSE GOSUB 90
...
90 pause printer
```

Startprint

When the Startprint signal is received, the application moves to a specified subroutine that starts the print job. The Startprint signal must be preceded by the dataready signal as seen in this example.

Example

```
10 PORTOUT.DATAREADY on
20 ON PORTIN.STARTPRINT GOSUB 60
...
60 my print routine
70 PRINTFEED
80 RETURN
```

Reprint

When the Reprint signal is received, the application moves to a specified subroutine that reprints the last valid label.

Example

```
...
100 ON PORTIN.REPRINT GOSUB 150
...
150 PRINTFEED -1,1
160 RETURN
```

Printfeed

The dataready signal must be set manually by the Fingerprint application.

Handling External Applicator Errors

When an error signal (`apperr1`, `apperr2`, or `apperr3`) is received, the application moves to a specified subroutine that takes action based on error severity.

Example

```
...
60 ON PORTIN.APPERR1 GOSUB 100

...
100 perform error handling
110 RETURN
```

Handling Internal System Errors

For internal system errors, the system error signal status can be read at any time within the application so appropriate measures can be taken. When any of these errors occur, the appropriate out signal (including the error) is asserted:

- Ribbon low
- Ribbon out
- Media low
- Media out
- RFID tag error

Example

```
10 IF PORTIN.RIBBONLOW GOTO 200
...
200 perform error handling
210 RETURN
```

Resetting Out Signals

Out signals are reset to their default values when certain options are changed by using the SETUP menu. When the reset is detected, the application moves to a specified subroutine and performs the tasks necessary to reinitialize the print engine.

Example

```
10 ON PORTOUT.RESET GOSUB 150
...
150 perform initialization
160 RETURN
```

Direct Protocol and Applicator Signals

In Direct Protocol, all in and out signals are handled by the Direct Protocol firmware.

Feed

There are two ways to trigger blank label feeding:

- by manually pressing **Feed** on the PA30 front panel. The PA30 feeds a single blank label.
- by using the Feed in signal. When this signal is detected, the PA30 feeds blank labels for as long as the internal applicator flag indicates that the Feed signal is asserted.

Pause

The applicator can toggle the current pause state by using the pause in signal to simulate pressing **Pause** on the PA30 front panel. When the PA30 is in pause state, you can press **Setup** on the PA30 front panel and place the print engine in Setup Mode for manual configuration.

Startprint

When the printfeed command is executed, the print process sets the dataready signal and then waits for the startprint signal to be detected before proceeding with the print job.

The print process will not set another dataready signal until the current print job de-asserts the previous dataready signal. This prevents the PA30 from printing a new label before the previous label is completed.

Reprint

This signal works much the same way as startprint. The reprint signal is detected under two conditions:

- when the PA30 is idle.
- when the PA30 is waiting for a startprint signal during the execution of a printfeed command.

The PA30 prints only one label at a time.

Handling External Applicator Errors

The external applicator error in signals (`APPERR1`, `APPERR2`, `APPERR3`, `RTWINEXT`) should be asserted when external applicator errors occur. When one of these signals is detected, an associated event is activated in the System Health Monitor (SHM). When the issue causing the error has been resolved and the error signals are de-asserted, the events are deactivated in the SHM.

Handling Internal System Errors

When a system error occurs that activates an event in the SHM, the "service required" signal is asserted. The external RTW out signal can be de-asserted, depending on the current print engine RTW setting.

When any of these errors occur, the appropriate out signal (including the error) is asserted:

- Ribbon low
- Ribbon out
- Media low
- Media out
- RFID tag error

For more information on error messages, see **"Error Message and Ready-to-Work Indicator Descriptions" on page 110.**

Error Messages

ERRNOAPP

Message: `Operation not allowed. Applicator Port disabled.`

Cause: Application sent an applicator port command to the PA30 and the applicator port is disabled.

Error Number: 88

ERRAPP

Message: `Operation not allowed. Applicator Port enabled.`

Cause: Application sent the Fingerprint command `PORTOUT(PORT) ON|OFF` on a port used by the applicator port when the applicator port is enabled.

Error Number: 89

ERRINPUTON

Message: `Operation not allowed in Direct Protocol.`

Cause: Running the `PORTOUT.DATAREADY ON|OFF` or `PORTIN.<SIGNAL> GOSUB` *XXX* commands when the PA30 is using Direct Protocol.

Error Number: 90

EAPPERR1

Message: `Applicator Error 1.`

Cause: AppErr1 in signal detected.

Result: Activates event in System Health Monitor (SHM).

Error Number: 1340

EAPPERR2

Message: `Applicator Error 2.`

Cause: AppErr2 in signal detected.

Result: Activates event in System Health Monitor (SHM).

Error Number: 1341

EAPPERR3

Message: `Applicator Error 3.`

Cause: AppErr3 in signal detected.

Result: Activates event in System Health Monitor (SHM).

Error Number: 1342

ERTWINEXT

Message: `RTW Extenal Error.`

Cause: RTWExternal in signal detected.

Result: Activates event in System Health Monitor (SHM).

Error Number: 1343

ENODATAREADY

Message: `Dataready not enabled.`

Cause: Application sent a `PRINTFEED` in Fingerprint when the applicator port is enabled, the style is set to I-Style or Z-Style, and the dataready signal is not enabled.

Result: Terminates the printfeed command without printing a label.

Error Number: 1344

Display Messages

These messages appear in the PA30 display under certain conditions when a `PRINTFEED` command is run.

Message: `APPLICATOR PORT: Wait for signal.`

Cause: Running a `PRINTFEED` command blocks execution until a startprint signal is received. The message appears when execution has been blocked for a few seconds.

Message: `APPLICATOR PORT: Wait for reprint.`

Cause: Running a `PRINTFEED -1,1` command blocks execution until a reprint signal is received. The message appears when execution has been blocked for a few seconds.

3 Configuring Communication Settings

This chapter explains how to configure communication settings on the PA30, and assumes you are using the web browser interface to configure settings on the PA30. This chapter includes:

- Changing Serial Communication Settings
- Changing the Standard I/O Port
- Changing TCP/IP Settings
- Changing Network Administrator Settings
- Changing DDNS Settings
- Configuring Network Logging
- Configuring Wireless Network Settings
- Changing Wireless LAN Settings
- Configuring 802.1x Security Settings

Configuring Communication Settings for the PA30

This chapter assumes you are using the web browser interface to configure settings. For more information, see "Using the Web Browser Interface" on page 30.

To communicate with the PA30, you can:

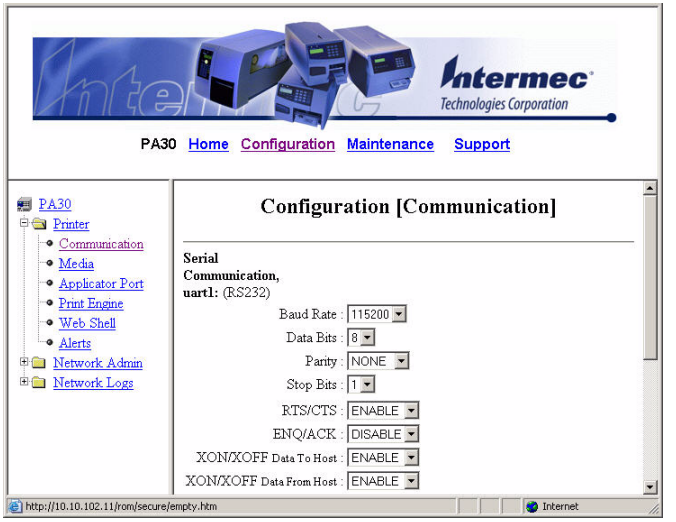
- connect the PA30 directly to a host PC via a serial connection. To configure serial connection settings, see the next section.
- connect the PA30 to your Ethernet network. For help, see "Changing TCP/IP Settings" on page 52.

If you ordered the 802.11 wireless option, you can communicate with the PA30 over your wireless network. For more information, see "Configuring Wireless Network Settings" on page 58.

To change communication settings in Setup mode, see Chapter 5, "Using Setup Mode."

Changing Serial Communication Settings

1. Open a web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. From the menu, click **Printer** > **Communication**. The Configuration [Communication] screen appears.



3 Choose settings from the drop-down lists, or specify values in the entry fields. For more information, see the next table.

4 Click **Submit Setup**. The settings are saved.

Serial Communication Settings

Setting	Description
Baud Rate	Baud rate for serial communications with a host PC. Default is 9600.
Data Bits	Number of bits defining a character. Default is 8.
Parity	Default is None.
Stop Bits	Number of bits defining the end of a character. Default is 1.
RTS/CTS	Enable or disable.
ENQ/ACK	Enable or disable.
XON/XOFF Data to Host	Enable or disable.
XON/XOFF Data from Host	Enable or disable.
New Line	New line character. Default is CR/LF.
Receive Buffer	Receive buffer size in bytes. Default is 1024.
Transmit Buffer	Transmit buffer size in bytes. Default is 1024.

Note: The PA30 can print a list of the current serial communication settings. For more information, see **"Printing Test Labels and Setup Information" on page 96.**

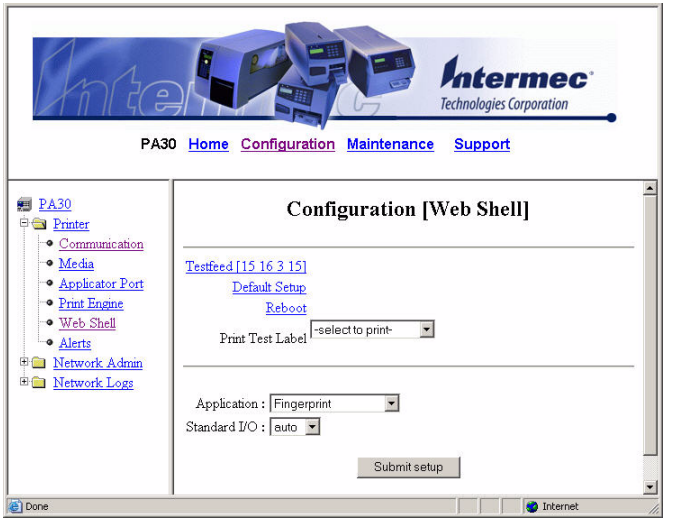
Changing the Standard I/O Port

By default, the PA30 communicates with a host PC via the serial port, also known as "uart1:". You can change the default I/O port by using the web browser interface.

Note: You can also change the standard I/O port from the Intermec Shell program. For more information, see **"About Intermec Shell" on page 88.**

To change the default I/O port

1 From the menu, click **Printer** > **Web Shell**. The Configuration [Web Shell] screen appears.



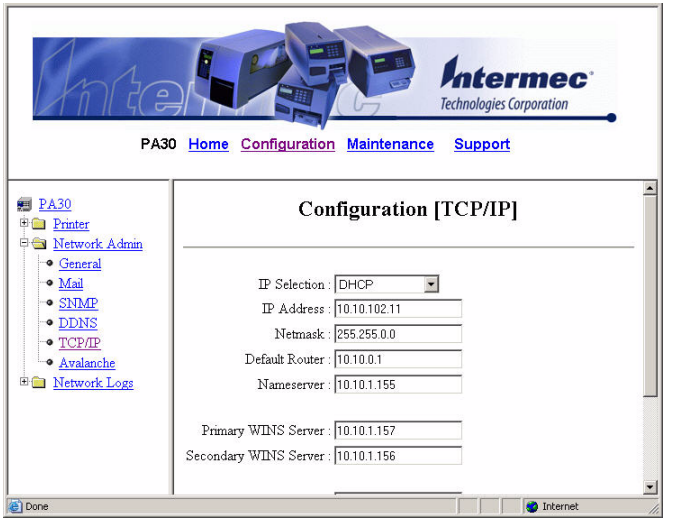
2 Choose an option from the Standard I/O drop-down list:

- **auto** - The PA30 checks possible I/O ports and uses the port with the best connection.
- **uart1:** - serial port
- **net1:** - network interface (Ethernet or wireless)
- **usb1:** - USB port

3 Click **Submit setup**. The changes are saved.

Changing TCP/IP Settings

1 From the menu, click **Network Admin** > **TCP/IP**. The Configuration [TCP/IP] screen appears.



2 Choose options from the drop-down lists and enter values in the entry fields. For more information, see the next table.

3 Click **Submit TCP/IP settings**. The changes are saved.

TCP/IP Settings Descriptions

Setting	Description
IP Selection	Determines how the PA30 is assigned TCP/IP parameters: • DHCP: A DHCP server assigns TCP/IP parameters. • BOOTP: A BOOTP server assigns TCP/IP parameters. • DHCP+BOOTP: TCP/IP parameters are assigned by either a DHCP or BOOTP server. • Manual: TCP/IP parameters, including IP address, netmask, default router, and WINS addresses, are set manually.
IP Address	Specifies the IP address if TCP/IP parameters are manually assigned, or shows the IP address assigned by a DHCP or BOOTP server.

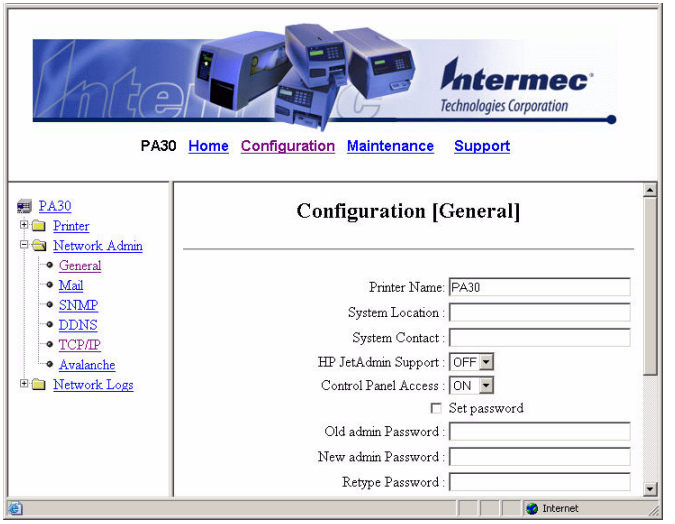
TCP/IP Settings Descriptions (continued)

Setting	Description
Netmask	Specifies the netmask address if TCP/IP parameters are manually assigned, or shows the netmask address assigned by a DHCP or BOOTP server.
Default Router	Specifies the default router address of TCP/IP parameters are manually assigned, or shows the default router address assigned by a DHCP or BOOTP server.
Nameserver	Specifies the name server for the network.
Primary WINS Server	Specifies the primary WINS server addresses if TCP/IP parameters are manually assigned, or shows the addresses assigned by a DHCP or BOOTP server. Not configurable in Setup mode.
Secondary WINS Server	Specifies the secondary WINS server addresses if TCP/IP parameters are manually assigned, or shows the addresses assigned by a DHCP or BOOTP server. Not configurable in Setup mode.
net1 TCP Port Number	Specifies the port number for TCP connections via Ethernet. Not configurable in Setup mode.
net1 Queueing	Enables or disables queueing for TCP connections via Ethernet.

Note: The PA30 can print a list of the current TCP/IP settings. For more information, see **"Printing Test Labels and Setup Information" on page 96.**

Changing Network Administrator Settings

1 From the menu, click **Network Admin** > **General**. The Configuration [General] screen appears:



2 Enter values in the entry fields, or choose values from the drop-down lists. For more information, see the next table.

To change the administrator password:

a Type the old password in the **Old admin Password** entry field.

b Type the new password in the **New admin Password** entry field.

c Type the new password again in the **Retype Password** entry field.

To restrict access to PA30 settings:

a In the **Restrictions** entry fields, type `admin` if you want only the PA30 administrator to change settings, or `admin,user` if you want anyone to be able to change PA30 settings.

The user access settings include:

- Users allowed to UPDATE - change and save any settings

- Users allowed to read/set protected lan1 settings - change and save passwords and permissions
- Users allowed to change NETWORK settings - change and save network settings only
- Users allowed to do SETUP KEY ON - change and save Setup key enabling

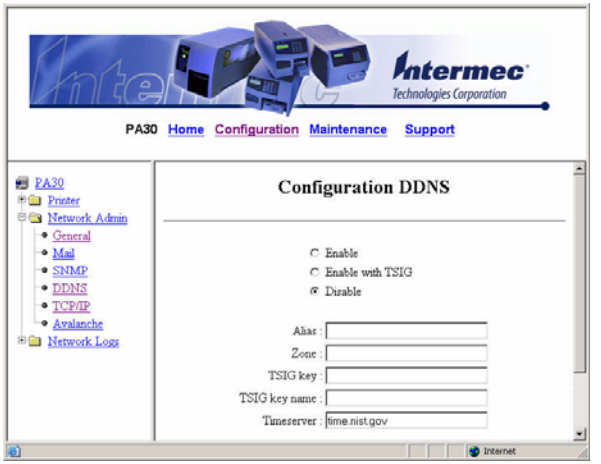
3 Click **Submit General settings**. The changes are saved.

Network Administrator Settings Descriptions

Setting	Description
Printer Name	Name for the PA30.
System Location	Location of the PA30.
System Contact	Contact person, such as the network administrator, for the PA30.
HP JetAdmin Support	Enables (ON) or disables (OFF, default) HP JetAdmin print server support.
Control Panel Access	Enables or disables the Setup key on the PA30. Disable Control Panel Access to prevent users from pressing **Setup** and changing settings manually.

Configuring DDNS Settings

1 From the menu, click **Network Admin** > **DDNS**. The Configuration DDNS screen appears.



2 Choose an option from the list:

- Click **Enable** to enable DDNS.
- Click **Enable with TSIG** to enable DDNS using a transaction signature (TSIG) for better security.
- Click **Disable** to disable DDNS.

3 Enter information in the entry fields. For more information, see the next table.

4 Click **Submit changes**. The changes are saved.

DDNS Settings Descriptions

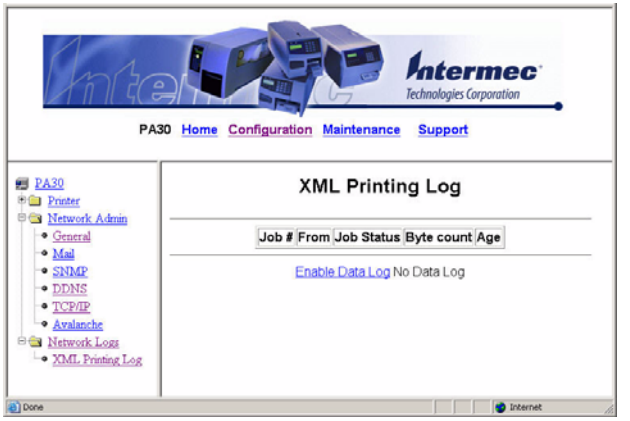
Setting	Description
Alias	DDNS alias for the PA30.
Zone	DDNS zone the PA30 should subscribe to.
TSIG key	Key used for TSIG authentication.
TSIG key name	Name of the TSIG key. Must match the TSIG key name on the server.
Timeserver	Time server used for authentication.

Configuring Network Logging

You can use the web browser interface to enable or disable data logging, which shows the status of XML print jobs sent to the PA30.

To enable network logging

1 From the menu, click **Network Logs** > **XML Printing Log**. The XML Printing Log appears.



2 Click **Enable Data Log** to enable XML print job logging.

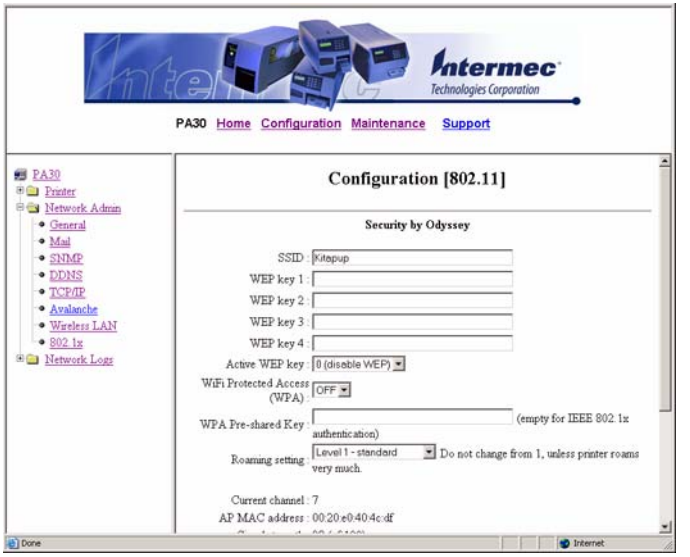
Configuring Wireless Network Settings

If the PA30 includes the EasyLAN Wireless option, you can communicate with the PA30 over your wireless network.

- For information on configuring general wireless network settings including network name (SSID), WEP keys, WPA pre-shared keys, and roaming settings, see the next section.
- For information on configuring 802.1x security settings, see "Changing 802.1x Security Settings" on page 60.

Changing Wireless LAN Settings

1 From the menu, click **Network Admin** > **Wireless LAN**. This screen appears:



The lower part of this screen includes the current wireless channel, the signal strength and MAC address of the currently connected access point, and the wireless region.

2 Enter values in the entry fields, or choose values from the drop-down lists. For help, see the next table.

3 Click **Submit 802.11 Settings**. The changes are saved.

Wireless LAN Settings Descriptions

Setting	Description
SSID	Name of the network you want the PA30 to connect to. Leave this field blank if you want the PA30 to connect to any network.
WEP key 1 - 4	Values for up to 4 WEP keys: • For WEP 64, enter a string of five ASCII characters or hex pairs. • For WEP 128, enter a string of 13 ASCII characters or hex pairs. To enter a WEP key value in hex notation, precede the hex pairs with “0x”.
Active WEP key	Sets the active WEP key for the PA30.
Wi-Fi Protected Access (WPA)	Turns WPA on or off.

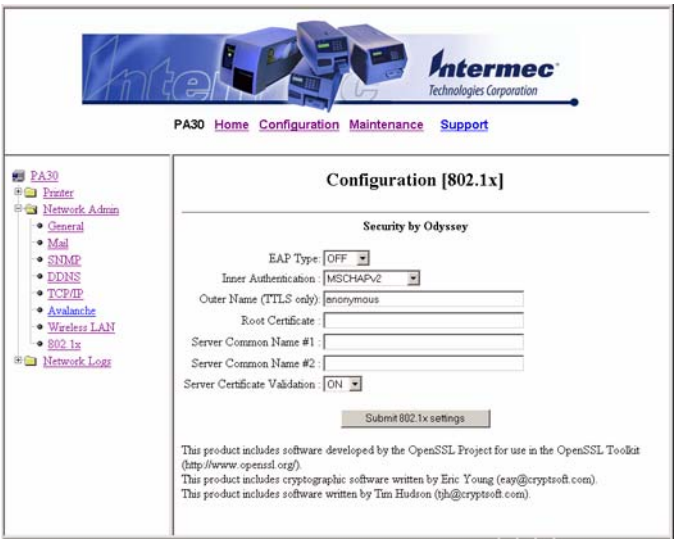
Wireless LAN Settings Descriptions (continued)

Setting	Description
WPA Pre-Shared Key	Key value for the pre-shared key.
Roaming setting	Leave at Level 1 unless the PA30 has trouble maintaining a connection to the access point.

Changing 802.1x Security Settings

Note: Before you change security settings, you should be familiar with the 802.1x security requirements for your wireless network. For more information, consult your network administrator.

1 From the menu, click **Network Admin** > **802.1x**. This screen appears:



2 Choose settings from the drop-down lists, or enter values in the entry fields. For more information, see the next table.

3 Click **Submit 802.1x settings**. The changes are saved.

802.1x Security Settings Descriptions

Setting	Description
EAP Type	Authentication type for the 802.1x client on the PA30. Choose from: • TTLS • LEAP • PEAP • OFF to disable EAP authentication
Inner Authentication	Inner authentication method for this 802.1x client if you chose TTLS or PEAP as the EAP type. Choose from: • PAP • MSCHAPv2 • EAP/MSCHAPv2 • EAP/MD5 • EAP/GTC
Outer Name (TTLS only)	EAP identity passed in the clear if you selected TTLS as the EAP Type. Default is "anonymous".
Root Certificate	Name of the certificate containing the public key corresponding to the private key used to sign the server's certificate. Default is /rom/intermec.cer. To override this certificate, load another certificate in .der, .cer, .p12, or .pfx format.
Server Common Name #1	Name that the common name on the server certificate must match for authentication. Default is blank (accepts any common name).
Server Common Name #2	Name that the common name on the server certificate must match for authentication. Default is blank (accepts any common name). If this name is specified, the server certificate common name must match either this name or Server Common Name #1.
Server Certificate Validation	When set to ON, requires that the installed CA certificate is the root of the server certificate. Default is ON.

4 Configuring Print Engine and Media Settings

This chapter explains how to configure print engine and media settings on the PA30, including:

- About Print Engine Settings: Changing the start and stop adjust parameters, print speed, and enabling clip default.
- About Alert Messages: Configuring alert messages the PA30 sends during operation and error conditions.
- About Media Settings: Configuring the PA30 for specific media types and setting the print window size. Includes information on thermal transfer and direct thermal print modes.

About Print Engine Settings

Print engine settings determine the way the PA30 handles printing and media.

This section explains how to use the web browser interface to view and change print engine settings, including:

- Print speed, Start Adjust, and Stop Adjust values. For more information, see the next section.
- Alert message settings, including the text of alert messages and other related parameters. For more information, see **"About Alert Messages" on page 66.**

This chapter assumes you are using the web browser interface to configure the PA30. For more information, see **"Using the Web Browser Interface" on page 30.**

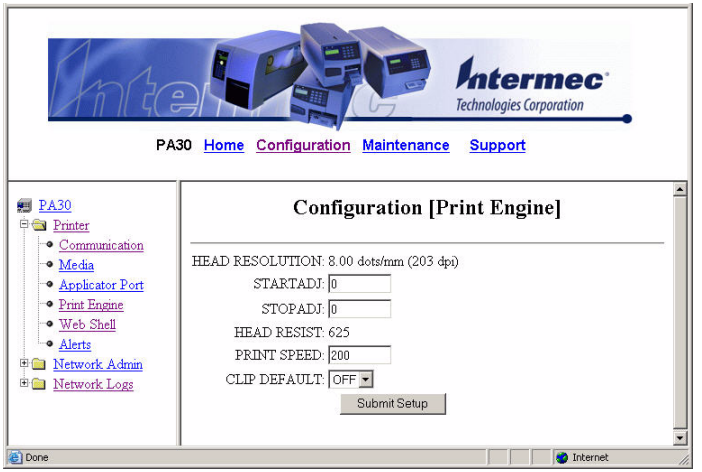
Configuring Print Engine Settings

Print engine settings apply to all printing regardless of the application. These settings include:

- Start Adjust and Stop Adjust parameters, which determine how much of the media is fed out and pulled back before and after actual printing.
- Print speed (inches per second)
- Clip default

To configure print engine settings

1. Open a web browser interface to the PA30.
2. From the menu, click **Printer** > **Print Engine**. The Configuration [Print Engine] screen appears:



3 Enter values in the entry fields, or choose settings from the drop-down lists. For more information, see the next table.

4 Click **Submit Setup**. The changes are saved.

Print Engine Settings Descriptions

Setting	Description
STARTADJ (Start Adjust)	Amount of media (in dots) that is either fed out or pulled back before printing begins. A positive Start Adjust value feeds media out and a negative value pulls media back. Default is 0.
STOPADJ (Stop Adjust)	Amount of media (in dots) that is fed out or pulled back after printing is completed. A positive Stop Adjust value increases the normal media feed and a negative Stop Adjust value decreases the normal media feed. Default is 0.
HEAD RESIST	(Read-only) Head resistance value for the installed printhead.
PRINT SPEED	Sets the desired printing speed in inches per second (ips). Set the print speed to a value appropriate for your media. For more information, see "Media Type Settings" on page 71.
CLIP DEFAULT	Enables or disables printing of partial fields. Partial fields are print fields that have been configured larger than the print window and will be truncated if Clip Default is enabled.

About Alert Messages

The PA30 firmware can send alert messages when certain operating conditions or errors occur. You can use the web browser interface to configure:

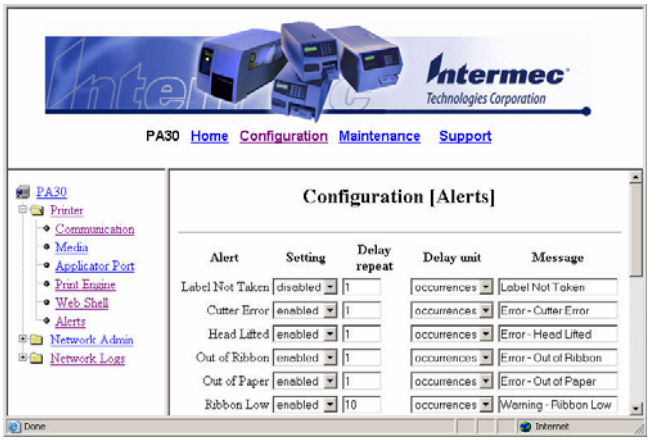
- the text for each alert message.
- the number of times the alert message is repeated.
- the amount of time or repeated errors that cause an alert message to be repeated.

To configure alert message settings, see the next section.

You can also configure settings for the mail server where the alert messages are sent. For more information, see "Configuring Mail Settings" on page 68.

Configuring Alert Messages

1. Open a web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. From the menu, click **Printer** > **Alerts**. The Configuration [Alerts] screen appears:



The Alerts screen shows a list of printer alert messages. Some alert messages are sent when the error occurs, and some alert messages are not sent until a PRINTFEED command is executed. For more information on alert messages, see the next table.

3 For each alert you want to configure:

- Choose **enabled** or **disabled** from the Setting list for that alert.
- Enter a value for the delay repeat in the **Delay Repeat** entry field.
- Choose **seconds** or **occurrences** from the Delay unit drop-down list.
- (Optional) Change the default alert message text in the Message entry field.

4 Choose a notification method from the **Notify with** drop-down list:

- Choose trap to send the mail notification to the SNMP trap specified in SNMP settings. For more information, see **"Using Simple Network Management Protocol" on page 99.**
- Choose mail to send the notification to the E-mail address specified in mail settings. For more information, see **"Configuring Mail Settings" on page 68.**
- Choose trap and mail to send the notification to both the SNMP trap and the E-mail address.

5 Click **Submit Setup**. The changes are saved.

Alert Message Descriptions

Message	Sent When
Label Not Taken	Printed label is not taken from the printer. Requires the optional label taken sensor (LTS) and applies to label and ticket media types.
Cutter Error	Label cutter error occurs.
Head Lifted	Print job is sent to the printer while the printhead is lifted.
Out of Ribbon	Thermal transfer ribbon is selected and the printer is out of ribbon.
Out of Paper	Printer is out of media.
Ribbon Low	Diameter of the remaining roll of ribbon is lower than the value specified in the Media configuration screen.

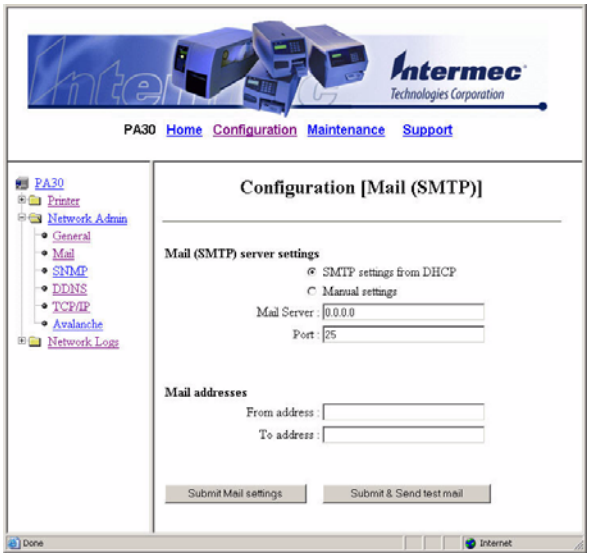
Alert Message Descriptions (continued)

Message	Sent When
Pause Mode	Print job is sent while the printer is paused.
Setup Mode	Printer is in Setup mode.
Error Condition	An error occurs in a running Fingerprint application. Includes non-critical errors.
Application Break	A running Fingerprint application is interrupted manually or due to an error.
Print Job Complete	Print job is successfully completed.
Odometer Count1	Amount of media printed reaches a set amount, measured in meters or number of labels.

Configuring Mail Settings

Follow this procedure to specify mail settings, which determine where alert messages are sent.

1 From the menu, click **Network Admin** > **Mail**. The Configuration [Mail (SMTP)] screen appears:



2 Choose an option:

- Click **SMTP settings from DHCP** if you want the DHCP server to assign SMTP values.
- Click **Manual settings** to configure the mail server and port manually, and then enter those values in the **Mail Server** and **Port** entry fields.

3 (Optional) Enter mail address information in the **From address** and **To address** entry fields.

4 Click **Submit Mail settings**. The changes are saved. You can also click **Submit & Send test mail** to send a test mail message to confirm your settings are working properly.

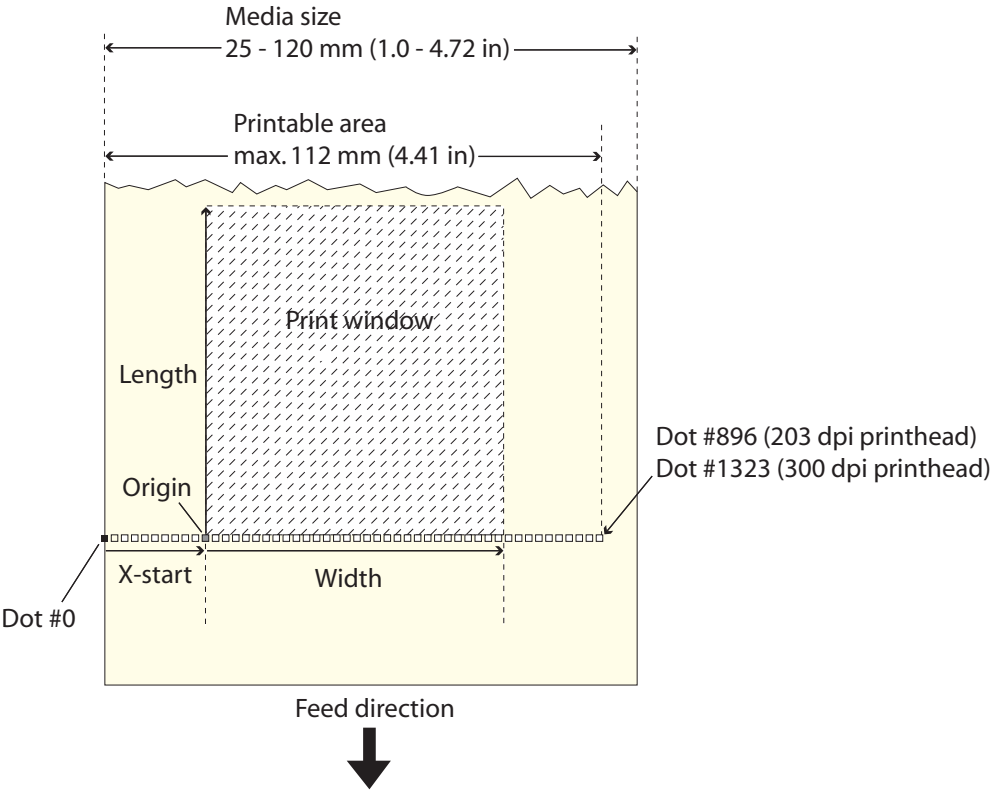
About Media Settings

These settings define the size and type of media you are using in the PA30. This section explains media size and media type settings. For best performance and print quality, make sure you have configured these settings correctly.

To configure media settings, see **"Configuring Media Settings" on page 75.**

Media Size Settings

The media size settings specify a "print window" inside which the label is printed. Any object or field extending outside the print window in any direction is clipped or causes a "field out of label" error condition. For more information, see the Fingerprint programmer's reference manual.



Print Window Dimensions: *This illustration shows the relationship of the Xstart, Width, and Length settings to the media size and printable area.*

Xstart

Specifies the position of the origin along the dots on the printhead.

The default X-start value prevents printing outside labels when the liner is slightly wider than the labels. If you want to maximize the print width, reset the X-start value to 0.

By increasing the value for the X-start parameter, the origin will be moved outwards, away from the inner edge of the media path. In other words, the larger X-start value, the wider inner margin and the less available print width.

Width

Specifies the width of the print window (in number of dots) from the origin. Thus, the sum of the X-start and width values gives the outer margin of the print window. The width should be set to prevent printing outside the media, which may harm the printhead.

Length

Specifies the length of the print window (in number of dots) from the origin along the Y-coordinate and allocates memory space for two identical image buffers in the printer's temporary memory.

The size of each buffer can be calculated using this formula:

Buffer size (bits) = [Print length in dots] x [Printhead width in dots]

Note: The temporary memory has other functions that also require some memory space. To obtain a longer print area, you can have more memory installed in the PA30. For more information, contact your Intermec sales representative.

The length setting also decides the amount of media feed when using "fix length strip."

When the printer is set to use label or ticket stock, the length setting creates an emergency stop if the label stop sensor has not detected a gap or mark within 150% of the set length. Media feed is automatically stopped to avoid feeding out a whole roll of media because of a sensor malfunction.

Media Type Settings

These settings specify the type of media and related parameters.

Media Type

Specifies the media type being used, which also controls how the label stop sensor (LSS) and the media feed work. There are five media type options:

- **Label (w gaps)** is used for adhesive labels mounted on liner.
- **Ticket (w mark)** is used for labels or tickets with black marks at the back.
- **Ticket (w gaps)** is used for tickets and tags with detection slots.

- **Fix length strip** is used for continuous stock where the length of the print window decides the length of media to be fed out.
- **Var length strip** is used for continuous stock. The size of the print images decides the length of each copy.

When you select the correct media type, the printer can indicate the following errors:

- Error 1005 "Out of paper" indicates that the last ordered copy could not be printed because of an empty media stock.
- Error 1031 "Next label not found" indicates that the last ordered label or ticket was successfully printed, but no more labels/tickets can be printed because of an empty media stock.

Paper Type

Specifies the printing mode:

- Thermal Transfer printing (default)
- Direct Thermal printing

This parameter controls the heat emitted from the printhead to the ribbon or direct thermal media in order to produce the dots that make up the print image.

For more information on thermal transfer printing, see **"Thermal Transfer Printing Settings" on page 73.**

For more information on direct thermal printing, see **"Direct Thermal Print Settings" on page 74.**

Contrast

Choose a contrast level for printing. Range is -10% to +10% in 10% intervals. Default is 0. Use this setting to make minor adjustments of the blackness in the printout (for example, to adapt the printer to variations in quality between different batches of the same media). Contrast is reset to 0 whenever a new paper type is specified.

Testfeed Mode

Sets the Testfeed mode to either fast or slow. Choose slow if you are using media with preprinted lines.

The sensitivity of the label stop sensor (LSS) may need to be adjusted when switching from one type of media to another. This is especially the case when using adhesive labels since the transparency of the liner (backing paper) may vary. When the Testfeed menu is displayed, press **Enter** on the PA30 front panel. A number of blank copies are fed out until the firmware has decided the proper setting for the LSS. At the same time, the front edges of the labels, tickets, etc. are detected so the feed control can position the media according to the Feedadjust parameter (same as the Intermec Fingerprint statement TESTFEED). Four values used for troubleshooting the LSS are displayed (read-only information).

Len (Slow Mode)

Sets the length of the media sampled when Testfeed Mode is set to slow. Default is the media length specified by the Length parameter plus 10 mm. minimum value is the number of dots corresponding to 10 mm.

Thermal Transfer Printing Settings

When you select thermal transfer printing, you need to specify additional settings:

Ribbon Constant

Choose a value appropriate for the media you are using. For more information, see the next table.

Ribbon Factor

Unless specified for your media, set to 25.

Label Offset

Always set to 0.

Low Diameter

Specifies the ribbon supply roll diameter (in mm) at which you want the printer to send a “ribbon low” alert message. The printer can detect this diameter to within ±3 mm. Default setting is 0, effectively disabling this feature.

Adjusting Image Darkness

When adjusting the image darkness for non-Intermec media and transfer ribbons:

- Set the Ribbon Factor to the recommended value as seen in the next table.

- Set the Ribbon Constant to the value listed in the table and decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality.

General Thermal Transfer Print Settings

Media Performance	Ribbon Constant	Ribbon Factor	Maximum Print Speed (ips)
Low (Europe)	75	25	150
Low (U.S.A.)	70	25	150
Medium (Europe)	90	25	200
Medium (U.S.A.)	75	25	200
High (Europe)	90	25	225
High (U.S.A.)	90	25	225

As a general rule, high energy and/or high print speed will shorten the life of the printhead. Never use paper type and print speed settings higher than necessary for obtaining acceptable printout quality and throughput speed.

If the ambient temperature is lower than +15°C (+59°F), decrease the print speed by 50 mm/sec.

Direct Thermal Print Settings

When you select direct thermal printing, you also need to specify these additional settings:

Label Constant

Choose a value appropriate to the type of media you are using. For more information, see the next table.

Label Factor

Unless specified for your media, set to 40.

Adjusting Image Darkness

When adjusting the image darkness for non-Intermec direct thermal media:

- Set the Label Factor to the recommended value for the type of direct thermal media listed in the next table.

- Set the Label Constant to the value listed in the table. Decrease or increase it for lighter or darker images respectively until you are satisfied with the printout quality.

General Direct Transfer Print Settings

Sensitivity	Label Constant	Label Factor	Maximum Print Speed (ips)
Low	100	40	100
Standard	90	40	150
High	80	40	200
Ultra high	60	40	225

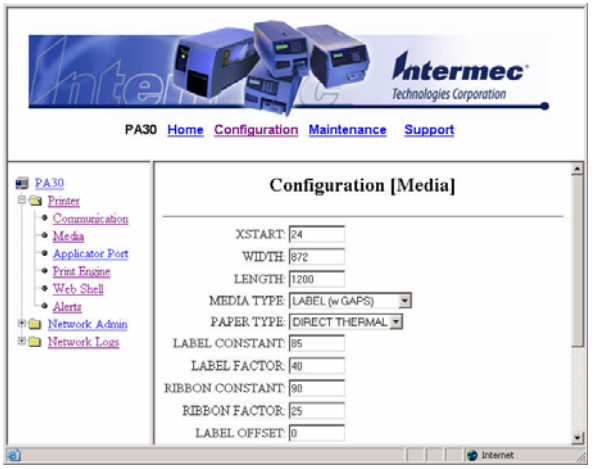
Note: Preprint and varnish decrease the sensitivity of direct thermal media.

Configuring Media Settings

Follow the next procedure to configure media size and type settings for the PA30.

To configure media size and type

1 From the menu, click **Printer** > **Media**. The Configuration [Media] screen appears.



2 Choose settings from the drop-down lists, or enter settings in the entry fields.

- For information on Xstart, Width, and Length settings, see **"Media Size Settings" on page 69.**
- For information on all other settings, see **"Media Type Settings" on page 71.**

3 Click **Submit Setup**. The settings are saved.

5 Using Setup Mode

This chapter explains how to use Setup mode to configure the PA30. In Setup mode, you use the printer keypad and display to view and change settings.

- About Setup Mode describes what Setup mode is, how to place the PA30 in Setup mode and navigate in the menus, and includes lists of the settings you can configure in Setup mode.
- Setup Mode Menus includes illustrations of the Setup mode menus as a visual reference.

About Setup Mode

In Setup mode, you can use the PA30 keypad and display to view and change configuration settings.

Placing the PA30 in Setup Mode

There are three ways to place the PA30 in Setup mode:

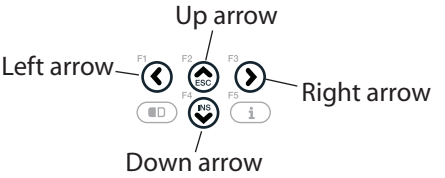
- Press **Setup** on the PA30 front panel.
- From the Intermec Shell program, press the left or right arrow keys to choose SHELL SETUP and press **Enter**.
- Send the Fingerprint SETUP command from a host PC.

When the PA30 is in Setup mode, this text appears in the display:

```
SETUP:
SER-COM,UART1
```

Navigating in Setup Mode

When the PA30 is in Setup mode, you use the arrow keys to navigate between menus and options.



- Press the right arrow key several times to cycle through the settings menus. Press the left arrow key several times to cycle through the menus in the opposite direction.
- Press the down arrow key to enter a settings menu and see the first option for that setting. Press the right arrow key several times to cycle through the options for that setting.
  - To choose an option, press **Enter**.
  - If the setting requires a value, press the left and right arrow keys to select a digit in that value. Press the numeric keys to enter values. When you finish setting the value, press **Enter**. The next setting in that menu appears.

Note: Read-only settings appear in brackets.

What Settings Can You Configure in Setup Mode?

In Setup mode, you can configure most basic PA30 settings, including serial and network communication, applicator port, media parameters, and print engine settings such as feed adjust. The next section lists the PA30 settings you can configure in Setup mode.

Note: Some PA30 settings can only be configured through the web browser interface or by sending Fingerprint commands to the printer.

Serial Communication Settings

- Baud rate
- Character length
- Parity
- Stop bits
- Flow control
- New line
- Receiver buffer
- Transmit buffer

For more information on these settings, see **"Serial Communication Settings" on page 51.**

Network Communication Settings

- IP selection (DHCP, BOOTP, combination, or manual)
- IP address (if manually configured)
- Netmask
- Default router
- Nameserver
- MAC address (read-only)

For more information on these settings, see "TCP/IP Settings Descriptions" on page 53.

Note: You cannot change wireless network settings or security settings in Setup mode. For more information, see "Configuring Wireless Network Settings" on page 58.

Feed Adjust Settings

- Start adjust
- Stop adjust

For more information, see "About Print Engine Settings" on page 64.

Media Size and Media Type Settings

- Xstart
- Width
- Length
- Media type
- Paper type, including specific settings for thermal transfer and direct thermal printing
- Contrast
- Testfeed (Read-only)
- Testfeed mode
- Len (slow mode)

For more information on these settings, see "Configuring Media Settings" on page 75.

Print Define Settings

- Print speed and clip default. For more information on these settings, see "Print Engine Settings Descriptions" on page 65.
- Testprint, which chooses the default test label. Press **Enter** to print the selected test label. For more information on test labels, see "Printing Test Labels and Setup Information" on page 96.
- LSS test, which sets the label stop sensor mode. For more information, see "Testing the Label Stop Sensor" on page 29.

Applicator Port Settings

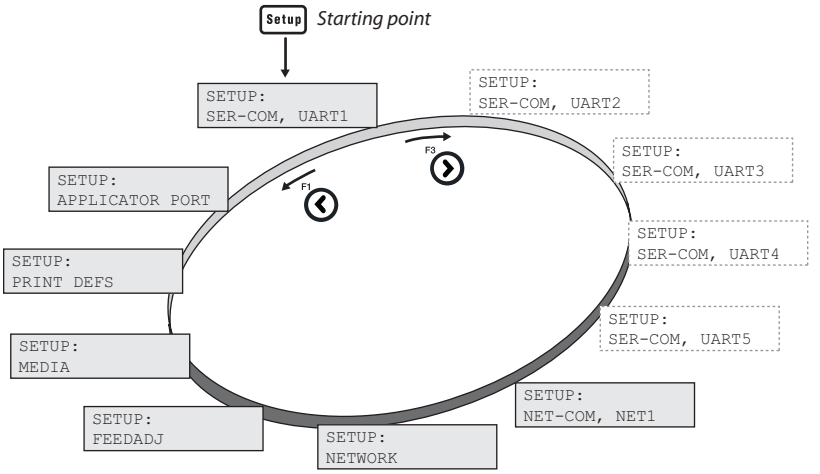
- Status
- Style
- Power source
- In signals
- Out signals
- Relay signals

For more information on these settings, see "Configuring Applicator Port Settings" on page 34.

Setup Mode Menus

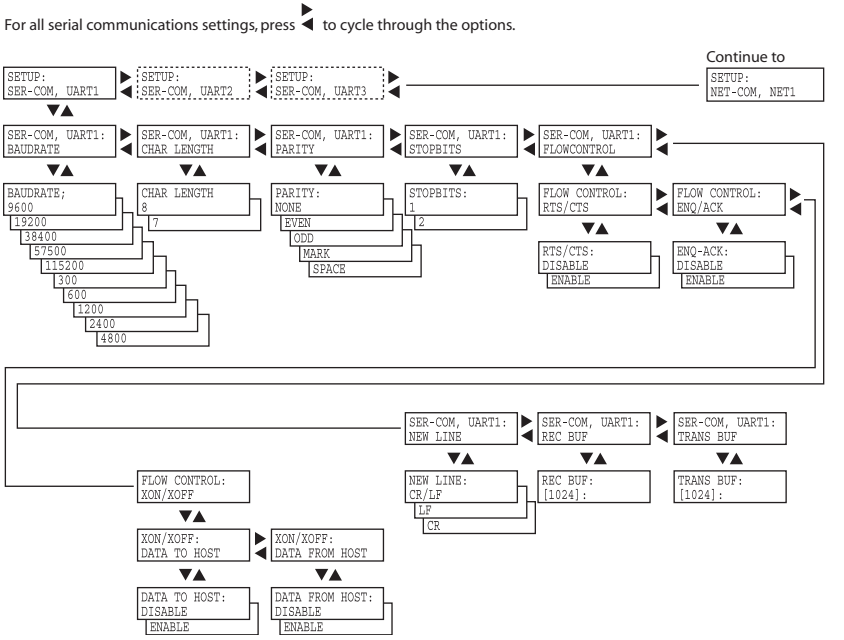
The menus in Setup mode are organized as a loop from which you can choose individual settings and options for each setting. At startup, the firmware determines which hardware options are installed in the print engine and shows the appropriate menus for those options in Setup mode.

This section includes illustrations that show how the Setup mode menus are organized. To move from one menu to the next, press the left or right arrow keys.

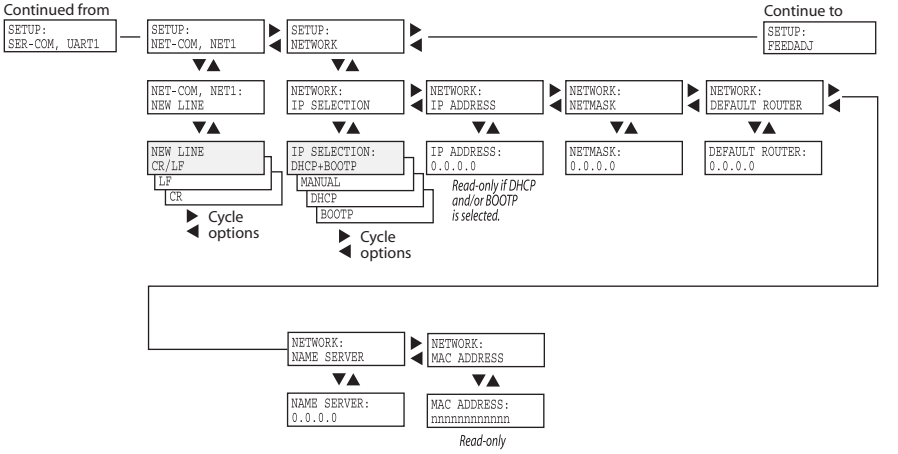


Setup Mode: *This illustration shows the order in which menus appear in Setup mode. Menus in gray dotted lines appear only if your PA30 includes those hardware options.*

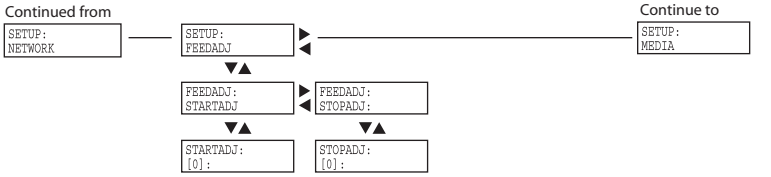
Serial Communication Settings



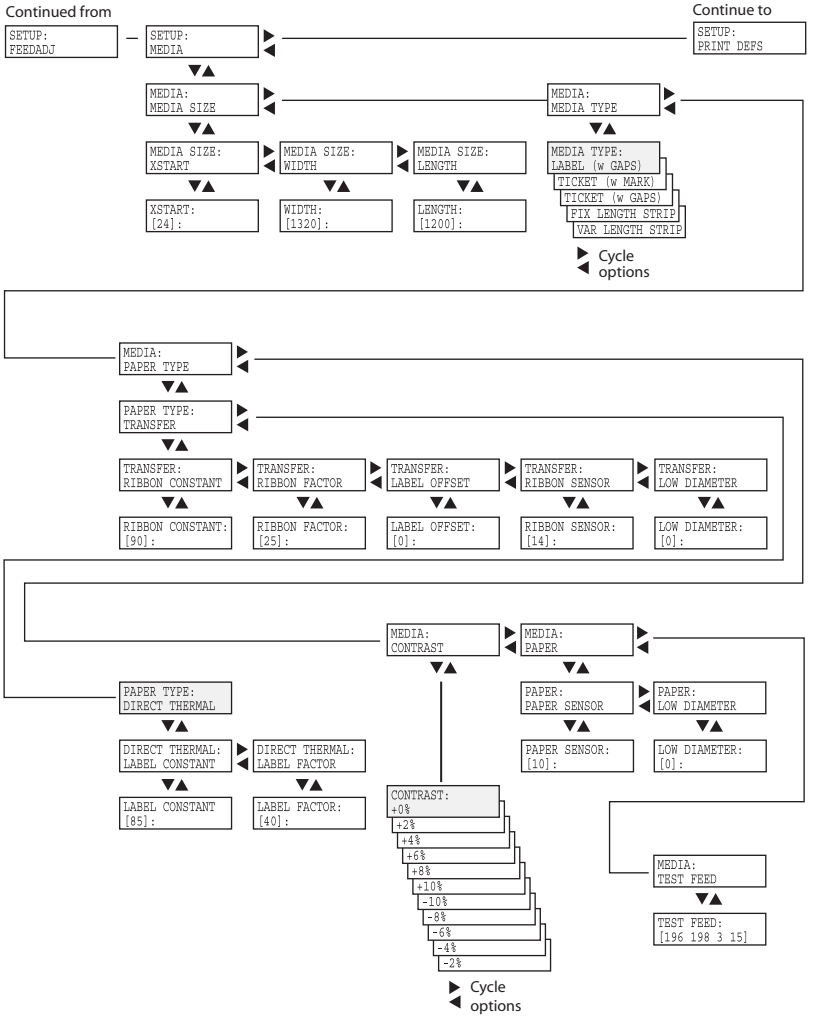
Network Communication Settings



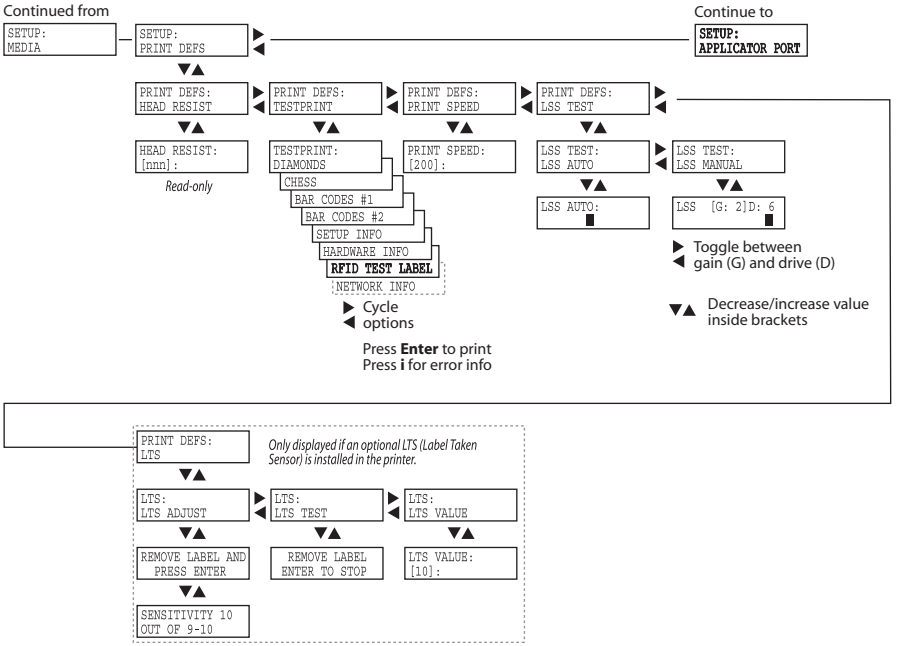
Feed Adjust Settings



Media Settings

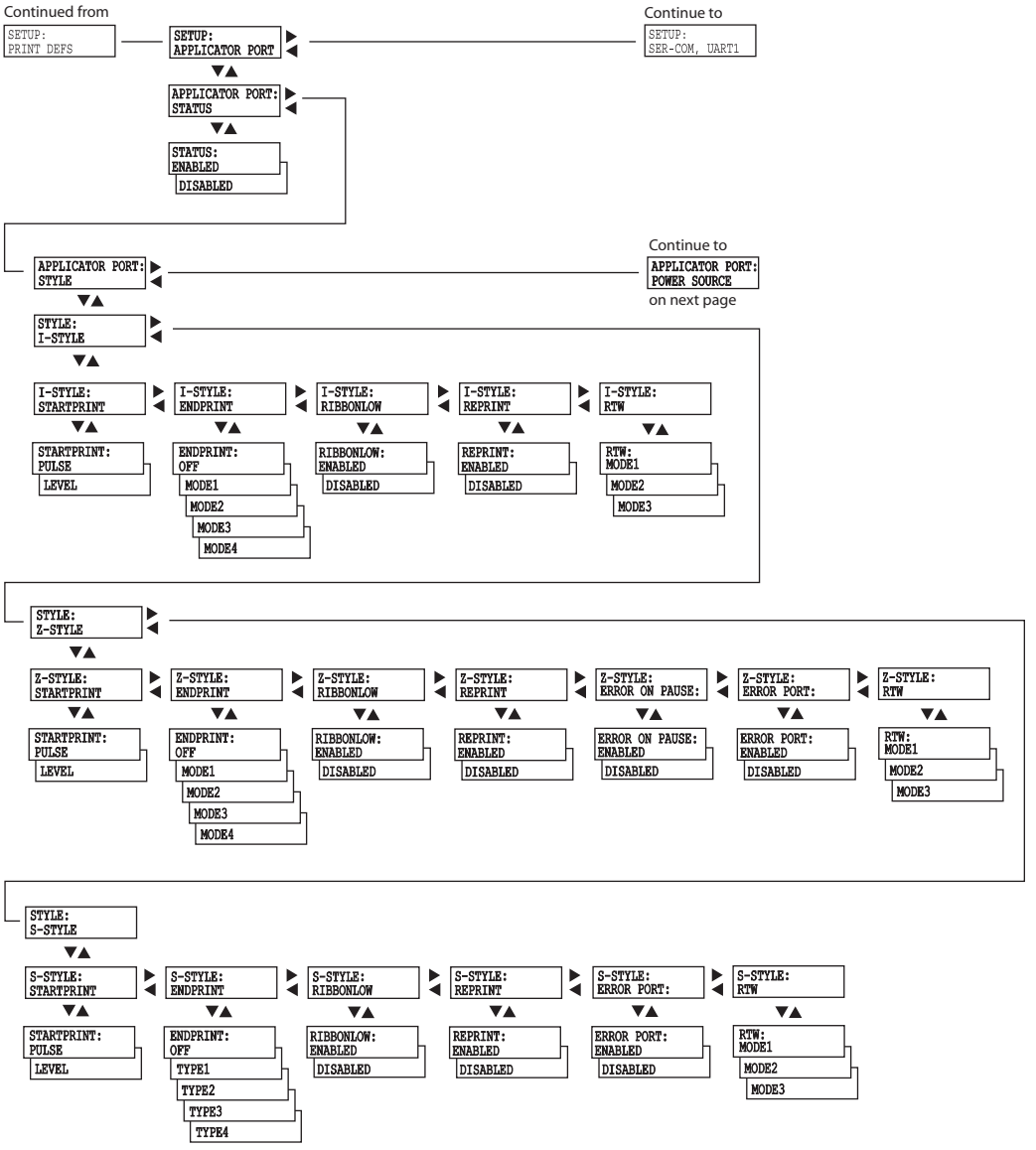


Print Definition Settings

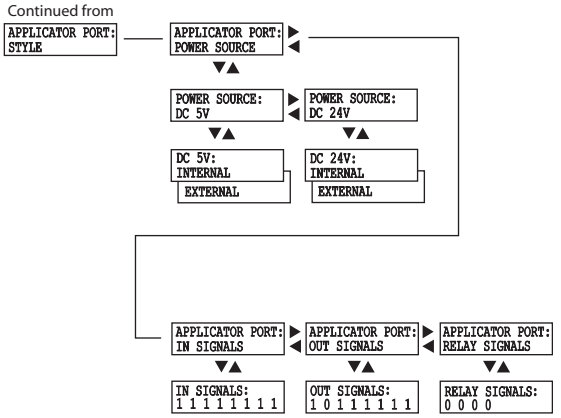


Applicator Port Settings

For all applicator port settings, press ▶ ◀ to cycle through the options.



Applicator Port Settings (continued)



6 Using the Intermec Shell Program

The Intermec Shell program runs when the PA30 boots. This chapter explains what Intermec Shell is and how to use it to perform management tasks. This chapter includes:

- About Intermec Shell
- Selecting an Application
- Selecting a Facility
- About Line Analyzer

About Intermec Shell

The Intermec Shell program automatically starts when the PA30 boots. Once you enter the shell program, you can run a standard or custom application, or perform several test and maintenance tasks as described next.

If you do not enter the shell program, the PA30 finishes initialization and enters standard operating mode.

To run Intermec Shell

1. Turn on power to the PA30. After initialization is completed, the countdown menu of the Intermec Shell program appears in the display:

   ```
   ENTER=SHELL
   5 sec.    v.8.2
   ```

2. Before the counter reaches 0, press **Enter** to start Intermec Shell.

Note: Should the time run out before you have taken any action, the last selected application in Intermec Shell will be opened. If you use the same application all the time, you will only need to switch on the power once the application has been selected.

When you enter the Intermec Shell from the countdown menus, the Select Application menu appears:

```
SHELL
SEL. APPLICATION
```

In this menu, you can choose between two options:

- Press **Enter** to go to the application menu. For more information, see **"Selecting an Application" on page 89.**
- Press the right arrow key to go to the Facilities part of Intermec Shell. For more information, see **"Selecting a Facility" on page 90.**

Note: Intermec Shell is factory-installed in the printer's permanent memory (device "/rom"). If you insert a memory card with another startup file before you switch on the printer, or if there is a startup file stored in the printer's permanent memory (device "/c"), this startup file is used instead of Intermec Shell.

Selecting an Application

In Intermec Shell, the menus present the options in infinite loops, To see all menus and options, refer to the overview in this chapter. The Select application lets you choose from applications in the print engine memory:

- **Current appl.** starts the last selected application (default is Intermec Fingerprint with "auto" selected as standard IN/OUT channel).
- **Fingerprint** is used to create, modify, or run programs written in the Intermec Fingerprint programming language and to run the Intermec InterDriver. This option requires that you also select a standard IN/OUT channel, which is the channel to use for communication between the printer and the computer (typically "uart1:"). For more information, see the *Intermec Fingerprint v8.xx Programmer's Reference Manual*.
- **Direct Protocol** is an easy-to-use printer protocol for downloading label formats and variable input data to a printer from a host computer. This option requires that you also select a standard IN/OUT channel (the serial channel to use for communication between the printer and the host, typically "uart1:"). For more information, see the *Intermec Direct Protocol v8.xx Programmer's Reference Manual*.
- **LINE-AXP.PRG** (Line Analyzer) is a Fingerprint program that captures characters received by the printer on a communication channel and prints them on labels. For more information, see **"About Line Analyzer" on page 91.**
- Other applications appear as additional options. For a custom application to appear in this menu, the program must have the extension ".PRG" and be stored in the root of the directory "/c" or "card1:". These Intermec utilities are excluded as long as they remain stored in "/rom":
  - ERRHAND.PRG
  - FILELIST.PRG
  - LBLSHTXT.PRG
  - MKAUTO.PRG
  - SHELLXP.PRG

- WINXP.PRG

Note: When an application starts, it may automatically change the communication setup. If another application is selected later, this communication setup remains valid, unless the new application includes instructions that automatically change the setup. The setup could also be changed manually in Setup mode.

Selecting a Facility

Instead of running an application, you can choose from a number of useful test and maintenance facilities:

Setup
Places the PA30 in Setup mode. For more information, see Chapter 5, "Using Setup Mode."

Print Setup
Prints the current PA30 setup values (test label "Setup Info").

Testfeed
Feed out a number of label, ticket, tag, or portions of continuous stock while the printer auto-adjusts its media feed and label stop/black mark sensor. Intermec recommends that you perform a testfeed each time you load a roll of labels from a new batch or a different brand.

Test Label
Prints a series of four test labels (test labels "Diamonds", "Chess", "Bar Codes #1", and Bar Codes #2") in order to test the printout quality and printhead alignment. The labels are presented in an infinite loop, so you can print the series over and over again. Press **Enter** for each new label.

Default Setup
Resets all setup parameters to their default values. For a complete list of defaults, see Appendix A.

Software Update
Using the Z-modem communication tool, files can be downloaded from a PC, either to be stored on a standard CompactFlash memory card or to upgrade the printer's firmware. The following options are available:

- **Update CompactFlash card** allows the PA30 to be used as a CompactFlash card programming device. Any files can be

downloaded from a PC to a standard CompactFlash card inserted in the PA30 memory card slot.

A typical application is to create a firmware upgrade card from an upgrade file stored in a PC. You can use the card to upgrade the firmware in several PA30s simply by moving the card from print engine to print engine. Just insert the card, switch on the power, and follow the prompts that appear in the PA30 display.

- **Update firmware** is used to directly upgrade the firmware of a specific PA30 from a new firmware version stored as a file in a PC. Firmware upgrade files can be found on www.intermec.com and can also be obtained from your local Intermec distributor.

If the CompactFlash card or upgrade file contains an earlier firmware version than the one in the PA30, the firmware will be downgraded without warning.

Reboot

Cycles power to the PA30. To exit Intermec Shell without choosing an application, select **Reboot**. Then wait for the 5 seconds countdown to finish, and the last selected application starts.

About Line Analyzer

The Line Analyzer (LINE_AXP.PRG) is a program written in the Intermec Fingerprint programming language and is intended to help solve communication problems. As the name implies, the Line Analyzer captures all incoming characters on a specified communication channel and prints them on one or more labels.

Printable characters are printed in black-on-white, whereas control characters and space characters (ASCII 000–032 dec.) are printed in white-on-black.

While the printer is receiving data, the Status LED blinks. There is a 0.5 second time out before the program considers the transmission terminated and prints out a label.

As long as a continuous string of characters is being received, the program wraps the lines until the label is full and then starts to print another label. At the bottom of each label, the following information is printed:

- Page number
- Number of characters printed on the label
- Total number of characters received so far

After the Line Analyzer has been selected and the printer has started up again, the printer feeds out two labels and the following menu is displayed:

```
Line Analyzer
Sel.port(1-8) 1
```

Enter the desired communication port using the numeric keys on the printer's keyboard:

- 1 = "uart1:"
- 2 = "uart2:"
- 3 = "uart3:"
- 4 = "centronics:"
- 5 = "net1:"
- 6 = "usb1:"
- 7 = "uart4:"
- 8 = "uart5:"

If the printer is not fitted with the specified port, an error message appears in the display and you can select another port:

```
Line Analyzer
Error:56
```

7 Managing, Maintaining, and Troubleshooting the PA30

This chapter includes information on managing and maintaining the PA30 and performing general troubleshooting:

- Managing the PA30: Includes descriptions of using SNMP, Wavelink Avalanche, and the web browser interface to manage the PA30 from a desktop PC.
- Maintaining the PA30: Explains general maintenance procedures, including cleaning and replacing the printhead, and clearing media jams.
- Troubleshooting the PA30: Describes problems you may have when operating the PA30 and possible solutions.
- Error Messages and the Ready-to-Work Indicator: Includes information on the states of the Ready-to-Work Indicator and error messages that may appear during operation.
- About Product Support: How to contact Intermec Product Support with technical questions.
- Loading Firmware: Describes how to use the web browser to load firmware and upgrades.

Managing the PA30

This section describes ways to manage the PA30 remotely, including:

- using the web browser interface to perform certain tasks also found in the Intermec Shell startup program. For more information, see the next section.

  For more information on the Intermec Shell program, see Chapter 6, "Using the Intermec Shell Program."

- using Wavelink Avalanche. For more information, see **"Using Wavelink Avalanche" on page 98.**
- using a Simple Network Management Protocol (SNMP) station. For more information, see **"Using Simple Network Management Protocol" on page 99.**

Using the Web Shell

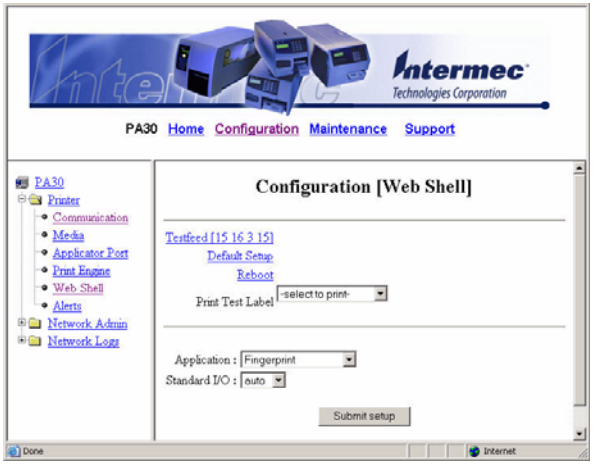
You can use the PA30 web browser interface to manage the PA30 from a desktop PC and perform these tasks:

- Feed a single label through the PA30.
- Reset the PA30 to its default settings.
- Reboot the PA30.
- Choose the active application.
- Set the default COM channel.

To use the web browser interface to print a test label or setup and network information, see **"Printing Test Labels and Setup Information" on page 96.**

To manage the PA30 from the web shell

1 From the menu, click **Printer** > **Web Shell**. The Configuration [Web Shell] screen appears:



2 Choose an option:

- To feed a single label through the printer, click **Testfeed**.
- To check the ribbon sensor (if installed), click **Ribbon sensor**.
- To restore all default settings, click **Default Setup**.
- To reboot the PA30, click **Reboot**.
- To change the active application, choose an option from the Application drop-down list. If you have a custom application in the printer memory, you can choose it from this list. For more information, see "About Startup Files" on page 14.
- To change the standard I/O port, choose an option from the **Standard I/O** drop-down list:
  - **auto** - The PA30 checks possible I/O ports and uses the port with the best connection.
  - **uart1:** - serial port
  - **net1:** - network interface (Ethernet or wireless)
  - **usb1:** - USB port

3 Click **Submit setup**. The changes are saved.

Printing Test Labels and Setup Information

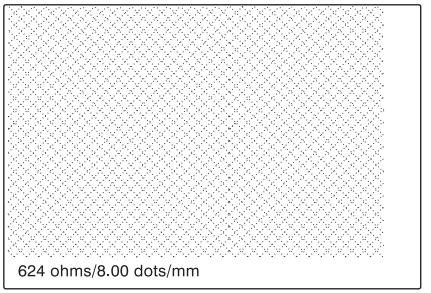
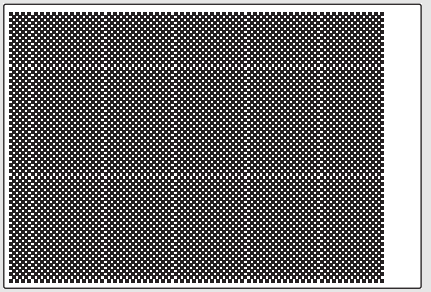
Follow this procedure to print test labels or PA30 configuration information from the web browser interface.

To print test labels and setup information

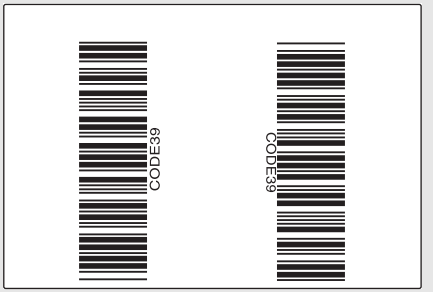
1. From the menu, click **Printer** > **Web Shell**. The Configuration [Web Shell] screen appears.
2. Choose a label type from the Print Test Label drop-down menu. For more information, see the next table.

   As soon as you select a label type, the PA30 prints the label.

Test Label Descriptions

Label Type	Description
Diamonds	Prints a series of diagonal lines: 
Chess	Prints a chessboard pattern: 

Test Label Descriptions (continued)

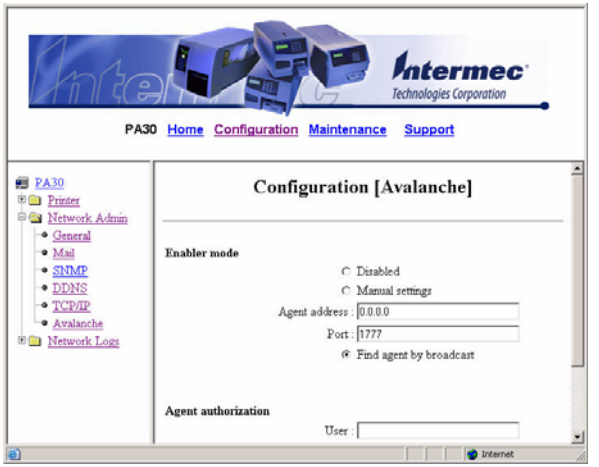
Label Type	Description
Bar Codes #1	Prints three bar codes in "picket fence" orientation (across the label from side to side): 
Bar Codes #2	Prints two bar codes in "ladder" orientation (across the label from end to end): 
Setup Info	Prints a list of current PA30 setup parameters, including serial communication settings, print engine and media settings, applicator port setup information, and firmware version.
Hardware Info	Prints a list of PA30 hardware information, including available memory and part numbers for major interface boards.
RFID Test Label	Not supported.
Network Info	Prints a list of current TCP/IP or wireless settings and network statistics such as input and output packets.

Using Wavelink Avalanche

You can manage the PA30 with the Wavelink Avalanche client management system. Follow the next procedure to configure Avalanche settings.

To configure Avalanche settings

1. Open a web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. From the menu, click **Network Admin** > **Avalanche**. The Configuration [Avalanche] screen appears.



3. Click the buttons to choose options and enter values in the entry fields. For more information, see the next table.
4. Click **Submit Avalanche settings**. The changes are saved.

Avalanche Settings Descriptions

Setting	Description
Agent address	IP address of the Wavelink Avalanche agent.
Port	Port number for the agent.
User	Username for Avalanche authorization.
Password	Password for Avalanche authorization.

For more information, see the Wavelink Avalanche documentation and online help. Or, visit the Wavelink web site at www.wavelink.com.

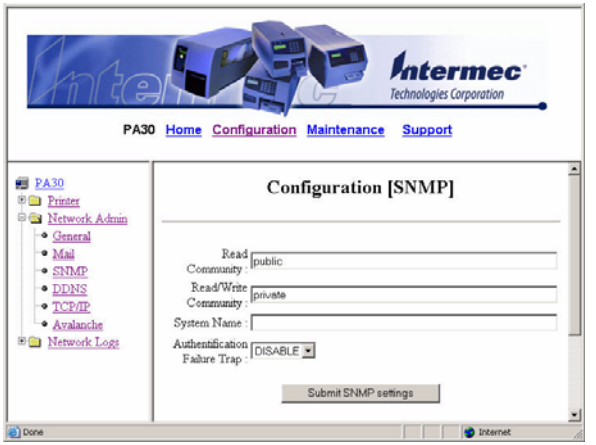
Using Simple Network Management Protocol

You can access the PA30 from a Simple Network Management Protocol (SNMP) station. Contact your Intermec representative if you need to obtain a copy of the management information base (MIB).

Before you can use an SNMP station, you need to define the PA30 community strings.

To configure SNMP settings

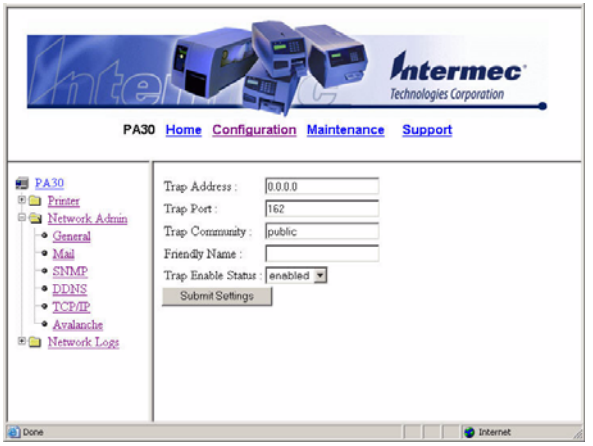
1. Open a web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. From the menu, click **Network Admin** > **SNMP**. The Configuration [SNMP] screen appears.



3. Enter SNMP settings in the entry fields and (optional) choose **Enable** or **Disable** from the Authentication Failure Trap drop-down list. For more information, see the next table.
4. (Optional) To set a trap address, click **Add**. The Trap Address Settings screen appears.

   To delete a trap address, click the button next to the address and then click **Delete**. The trap address is deleted.

   To edit a trap address, click **Edit**. The Trap Address Settings screen appears.



5 Enter trap address settings in the entry fields. For more information, see the next table.

6 Click **Submit Settings**. The Configuration [SNMP] screen appears with the trap address settings in the table.

7 Click **Submit SNMP settings**. The changes are saved.

SNMP Settings Descriptions

Setting	Description
Read Community	Specify a password for read-only access. Default is `public`.
Read/Write Community	Specify a password for read and write access. Default is `private`.
Friendly Name	User-friendly name for the trap.
Authentication Failure Trap	Enable or disable an authentication failure trap.
Trap Address Settings	When the Authentication Failure Trap is enabled, you can set these trap settings: • Trap address • Trap port • Trap community • Friendly name • Trap enable status

Maintaining the PA30

This section explains how to perform routine maintenance on the PA30, including:

- Cleaning the printhead. For more information, see the next section.
- Replacing the printhead. For more information, see "Replacing the Printhead" on page 102.
- Cleaning the PA30 case. For more information, see "Cleaning the PA30" on page 103.
- Cleaning the label stop sensor (LSS). For more information, see "Cleaning the Label Stop Sensor" on page 103.
- Clearing media jams. For more information, see "Clearing Media Jams" on page 105.

Cleaning the Printhead

To extend the life of the printhead and to maintain printout quality, clean the printhead regularly. Intermec recommends you clean the printhead each time you replace media.

This section explains how to clean the printhead using cleaning cards.


Warning

Isopropyl alcohol is a highly flammable, moderately toxic, and mildly irritating substance.

To clean the printhead

1. Open the PA30 access door.
2. Turn the printhead lift lever counterclockwise to raise the printhead.
3. Remove media and transfer ribbon.
4. Pull the cleaning card out of its envelope and insert most of the cleaning card under the printhead.
5. Turn the printhead lift lever clockwise to engage the printhead.

6 Pull the cleaning card through the printhead.

7 Turn the printhead lift lever counterclockwise to raise the printhead.

8 Wait about 30 seconds to allow the cleaning fluid to dissolve residue on the printhead.

9 Repeat steps 5 to 7. If necessary, use a fresh cleaning card.

10 Allow the printhead to dry before you load media and ribbon.

Replacing the Printhead

The PA30 printhead life depends on the print images, the type of direct thermal media or ribbon being used, the amount of energy to the printhead, the print speed, the ambient temperature, and other factors. Follow the next procedure to replace the PA30 printhead.

To prevent damage to the PA30, disconnect power to the print engine when you replace the printhead.

Note: Make sure the density of the new printhead matches the one being replaced. You can switch between densities at will, but printouts will be affected accordingly.

To replace the printhead

1 Make sure the PA30 is not connected to power.

2 Open the PA30 access door.

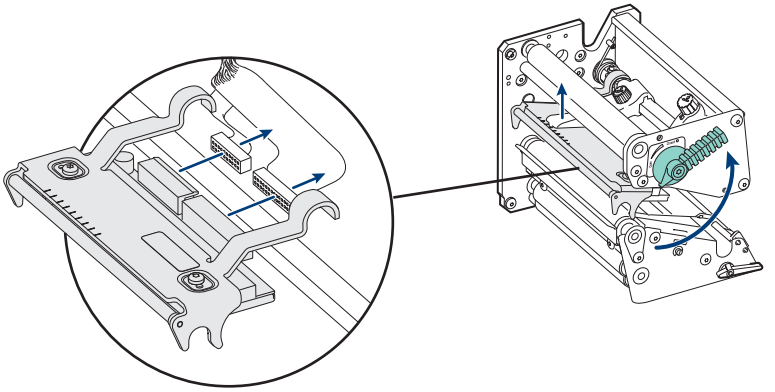
3 Turn the printhead lift lever counterclockwise to raise the printhead.

4 Remove media and ribbon.

5 Push the printhead bracket away from the magnet in the pressure arm.

6 Lift the printhead bracket hooks from the shaft and pull the printhead out from the print mechanism as far as the cables allow.

7 Disconnect the cables from the printhead and remove it.



Replacing the Printhead: *After you pull the printhead out, disconnect the cables.*

8 Connect the cables to the new printhead.

9 Slide the printhead into the print mechanism and hook the bracket hooks on the shaft. Make sure the cables are clear of the shaft and that the bracket hooks are seated properly on the shaft.

10 Turn the prithead lift lever clockwise to close the printhead. The magnet on the pressure arm should engage the printhead.

11 Load media and ribbon.

12 Close the PA30 access door.

Cleaning the PA30

To clean the PA30, wipe external surfaces with a soft cloth slightly dampened with water or a mild detergent.

- **Always remove the power cord before cleaning the PA30.**
- **Do not spray the PA30 with water or any other fluids.**
- **Do not use sharp tools to remove stuck labels.**

Cleaning the Label Stop Sensor

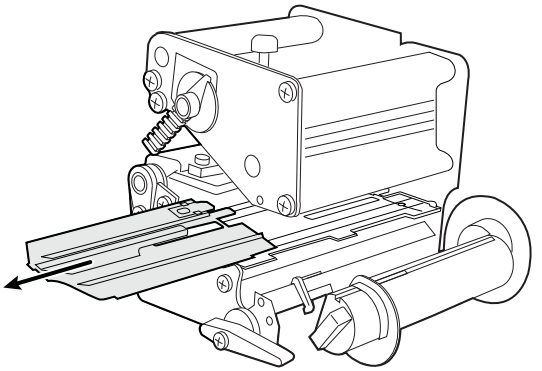
If the PA30 starts to feed out labels unexpectedly, there may be a problem with the label stop sensor.

The sensor is partially enclosed by two plastic guides. Slots in the guides allow light from the upper and lower sensors to pass through. The guides must be kept free from stuck labels and other objects that can block the light.

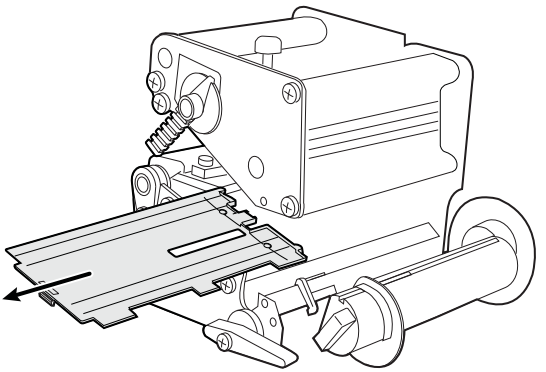
Follow the next procedure to remove the upper and lower guides for cleaning.

To clean the label stop sensor guides

1. Make sure the print engine is turned off, open the PA30 access door, and remove media and transfer ribbon.
2. Pull the upper guide straight out from the PA30 as shown in the next illustration.



3. Press a straight-slot screwdriver into the slot in the center of the lower mechanism to unlatch the lower guide.
4. Pull the lower guide straight out from the PA30.



5 Clean the guides with a cleaning card or a soft cloth dampened with isopropyl alcohol.

6 Reverse steps 4 to 6 to replace the guides in the PA30.

Clearing Media Jams

Should a media jam occur in the print mechanism, follow this procedure to clear the jam.

To clear a media jam

1 Make sure the PA30 is turned off and open the PA30 access door.

2 Turn the printhead lift lever counterclockwise to raise the printhead.

3 Turn the pinch roller lever counterclockwise to open the pinch rollers.

4 Pull jammed media out of the print mechanism. If the media has been wound up on or has stuck on the platen roller, remove the media by hand. Do not use sharp tools that may damage the printhead or platen roller. Avoid rotating the platen roller.

If you have to rotate the platen roller to remove jammed media, wait until the power has been off for more than a minute or you may cause irreparable damage to the electronics.

5 Cut off damaged or wrinkled media.

6 Inspect the print mechanism for label adhesive. If necessary, clean the print mechanism with a cleaning card, or with a cotton swab dampened with isopropyl alcohol. For help with using a cleaning card, see **"Cleaning the Printhead" on page 101.**

7 Load media and ribbon and be sure to close the printhead and pinch rollers.

8 Close the PA30 access door and press the Power switch to turn on the PA30.

9 After the printer initializes, perform a testfeed. For help, see **"Performing a Testfeed" on page 18.**

Troubleshooting the PA30

This section includes a list of symptoms, problems and possible solutions.

Problems with Print Quality

Symptom	Possible Problems and Solutions
Overall light printout.	• Check the Paper Type parameter and make sure it is set correctly. • The contrast may be set too low. Adjust the contrast to a higher value. • The printhead pressure may be set too low. Adjust the printhead pressure to a higher value. For help, see "Adjusting the Printhead Pressure" on page 26. • The printhead may be worn. Replace the printhead. For help, see "Replacing the Printhead" on page 102. • The voltage to the printhead may be incorrect. Call Intermec for service.
Printout is lighter on one side.	The printhead pressure may be uneven. Adjust the pressure arm. For help, see "Adjusting the Pressure Arm" on page 25.
Light spots appear in the printout.	• There may be foreign particles on the media. Clean the media or replace it. • The media type you are using is incorrect for the ribbon. Change the media or ribbon. • The media or ribbon may be of poor quality. Change the media or ribbon. • The printhead may be worn. Replace the printhead. For help, see "Replacing the Printhead" on page 102. • The platen roller may be worn. Call Intermec for service.
White vertical lines appear in the printout.	• The printhead may be dirty. Clean the printhead. For help, see "Cleaning the Printhead" on page 101. • The printhead may be missing dots. Replace the printhead. For help, see "Replacing the Printhead" on page 102.

Symptom	Possible Problems and Solutions
Overall dark printout.	• Check the Paper Type parameter and make sure it is set correctly. For help, see "Paper Type" on page 72. • The contrast may be set too high. Adjust the contrast to a lower value. • The printhead pressure may be set too high. Adjust the printhead pressure to a lower value. For help, see "Adjusting the Printhead Pressure" on page 26. • The voltage to the printhead may be incorrect. Call Intermec for service.
Excessive bleeding.	• Check the Paper Type parameter and make sure it is set correctly. For help, see "Paper Type" on page 72. • The contrast may be set too high. Adjust the contrast to a lower value. • The printhead pressure may be too high. Adjust the printhead pressure to a lower value. For help, see "Adjusting the Printhead Pressure" on page 26. • The energy control may be faulty. Call Intermec for service.
Dark lines appear along the media path.	There may be foreign objects on the printhead. Clean the printhead. For help, see "Cleaning the Printhead" on page 101.
Large part of the dot line is missing.	• The X-start or Width parameters may be set incorrectly. Adjust these parameters as needed. For help, see "Media Size Settings" on page 69. • The printhead may be worn. Replace the printhead. For help, see "Replacing the Printhead" on page 102. • The strobe signal may be failing. Call Intermec for service.
Printout missing along inner edge.	• The media is not aligned properly. Adjust the media alignment. • The X-start parameter may be set too low. Adjust the parameter as needed. For help, see "Media Size Settings" on page 69.
Transfer ribbon breaks.	The ribbon may not be fitted correctly. Reload the ribbon. For help, see "Loading Ribbon" on page 19.

Symptom	Possible Problems and Solutions
Transfer ribbon wrinkles.	• Check the Paper Type parameter and make sure it is set correctly. For help, see "Paper Type" on page 72. • The energy control may be faulty. Call Intermec for service. • The ribbon break shaft may need adjustment. Adjust the shaft as needed. • The edge guide is aligned incorrectly. Adjust the edge guide as needed. For help, see "Loading Ribbon" on page 19. • The printhead pressure is set to too high a value. Adjust the printhead pressure to a lower value. For help, see "Adjusting the Printhead Pressure" on page 26.
No thermal transfer printout.	The ink-coated side of the ribbon must face the media. Reload the ribbon correctly. For help, see "Loading Ribbon" on page 19.
Media feed not working properly.	• The media characteristics may have changed. Perform a testfeed. For help, see "Performing a Testfeed" on page 18. • The start- and stop-adjust values are incorrect. Check the values and adjust them as needed. For help, see "Configuring Print Engine Settings" on page 64. • The Media Type parameter is set incorrectly. Make sure this parameter is set correctly. For help, see "Media Type Settings" on page 71. • The label stop sensor is adjusted incorrectly. Adjust the sensor as needed. For help, see "Adjusting the Label Stop Sensor" on page 28. • The sensors are dirty. Clean them as needed. For help, see "Cleaning the Label Stop Sensor" on page 103. • The sensors are faulty. Call Intermec for service.

Problems with Connectivity

When troubleshooting problems with connectivity, make sure you know and understand these network-specific items:

- TCP/IP settings
- If your PA30 includes the 802.11g wireless option: wireless network settings including the SSID, 802.1x security, user names, and passwords
- COM port settings for serial connections

You should also make sure all physical network connectors and cables are in good working order.

Symptom	Possible Problem and Solution
The PA30 is not communicating in your Ethernet network.	Make sure you have configured the PA30 network settings correctly. For help with network settings, see "Changing TCP/IP Settings" on page 52.
You have assigned a static IP address to the PA30 but cannot connect to it over your network.	By default, the PA30 looks for a DHCP server for its TCP/IP settings. Be sure that the IP Selection parameter is set to Manual. For help, see "Changing TCP/IP Settings" on page 52.
You cannot communicate with the PA30 via the serial port.	Make sure you have configured the PA30 serial communications settings correctly. For help with serial communication settings, see "Changing Serial Communication Settings" on page 50.

Problems with Using the PA30 in an Applicator System

Many problems you may encounter when using the PA30 in an applicator system can be solved by carefully checking the PA30 applicator port settings and changing them accordingly. For help, see "Configuring Applicator Port Settings" on page 34.

If the PA30 does not respond to signals from the applicator, try these solutions:

- Check these applicator port settings:
  - Applicator port status should be Enabled.

- Applicator style should correspond to your applicator system (Z-Style for Zebra-type, S-Style for Sato-type, I-Style for Intermec-type).

For help, see "Configuring Applicator Port Settings" on page 34.

- Make sure you have correctly connected the appropriate cable from the PA30 Z-Style or S-Style port to the applicator. For help, see "Installing the PA30" on page 9. For pinout diagrams, see "Port Pinouts" on page 117.
- Make sure all applicator cables and connectors are in good working order.

Error Messages and the Ready-to-Work Indicator

This section lists PA30 error messages and describes the state of the Intermec Ready-to-Work indicator on the PA30 front panel for various operating conditions.

Note: The Ready-to-Work indicator status may also be affected by your application settings.

Error Message and Ready-to-Work Indicator Descriptions

Error Message or Event	Error No.	Ready-to-Work Indicator	Comments
Print engine operational	-	Steady	No error
Out of paper	1005	Blinking	
Next label not found	1031	Blinking	
Label not taken		Blinking	
Out of transfer ribbon	1027	Blinking	
Transfer ribbon is installed	1058	Blinking	
(Print) Head lifted	1022	Blinking	
Cutter does not repsond	1059	Blinking	
Cutter error 1	1701	Blinking	
Cutter error 2	1702	Blinking	
Cutter error 3	1703	Blinking	
Cutter open	1704	Blinking	

Error Message and Ready-to-Work Indicator Descriptions (continued)

Error Message or Event	Error No.	Ready-to-Work Indicator	Comments
LSS too high	1007	Blinking	
LSS too low	1008	Blinking	
Testfeed not done	1606	Blinking	
Pause mode entered		Blinking	
Setup Mode entered		Blinking	Includes interactive setup from Fingerprint or Direct Protocol
IP link error		Blinking	See Note 1
IP configuration error		Blinking	See Notes 1, 2, and 3
Generic DP error		Blinking	See Note 4
Press any key to continue		Blinking	See Note 5
Application load error		Blinking	See Note 6
IRI blink by application		Blinking	Set by SYSHEALTH command in Fingerprint
IRI off by application		Off	Set by SYSHEALTH command in Fingerprint
Application break		Off	See Note 7
Printhead not found		Off	
Rebooted		Off	
Initializing		Off	Appears at startup while printer is initializing. Messsage disappears when printer is operational.
Printer crash		Off	See Notes 2 and 8
Printer turned off		Off	
Maintenance		Off	Appears when the printer firmware is being upgraded.
Power supply over temperature	1718	Off	
Printhead too hot	1088	Off	See Note 9

Notes for Error Message Descriptions

1 In this case, the PA30 is not connected to a network and has a blinking Ready-to-Work indicator. To avoid this, set “IP SELECTION” to “MANUAL” and “IP ADDRESS” to “0.0.0.0”. This indicates that the lack of a network connection is not an error.

2 No trap can be sent when this error/event occurs.

3 This error indicates that the PA30 has not received an IP address. It is only applicable when IP SELECTION is set to DHCP and/or BOOTP.

4 In the Direct Protocol, the user can enable error handling for specific errors using the ERROR statement. When errors added to the built-in error handling occur, this event will be set. The text included in the SNMP trap is the standard text corresponding to the error.

5 If an error occurs in the Fingerprint immediate mode (for example, "out of paper" when the print key is pressed), this event is set.

6 If an application is started but does not execute, the Ready-to-Work indicator blinks. For example, this occurs if there is a syntax error in the loaded program file.

This is useful when the PA30 has an AUTOEXEC.BAT file (startup file) that is supposed to run automatically.

7 When execution is stopped with a user break (SHIFT + PAUSE) or due to a run-time error, the Ready-to-Work indicator turns off. The indicator is turned on if the user either changes the mode to Direct Protocol or runs an application.

If the application program handles the user break (ON BREAK) or the run-time error (ON ERROR GOTO), the Ready-to-Work indicator is not affected. In this case, it is up to the application to set the status.

8 At most, but not all, PA30 crashes, the console is reset, which turns off the Ready-to-Work indicator.

9 If the printhead temperature rises above 100°C (212°F), error 1088 occurs.

In Fingerprint, printing is cancelled. Resuming printing after the printhead has cooled off to 85°C (185°F) must be handled by the application program.

In Direct Protocol, the printing is paused and then automatically resumed when the printhead has cooled off to 85°C (185°F). Meanwhile, the PA30 is able to receive instructions and data until the buffer is filled.

About Product Support

For information on contacting Intermec Product Support, see "Global Services and Support" on page xii.

You can also use the web browser interface to visit Intermec online resources as described next.

To view Intermec onine resources

1. Open the web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. At the top of the screen, click **Support**. The Product Support screen appears.

3. In this screen:
   - click **Printer Support** to see a list of links with more information and technical bulletins for Intermec printers.
   - click **Knowledge Central** to visit Intermec Knowledge Central, a technical knowledge base with information on all Intermec products.
   - click **Global Directory** to locate your local Intermec representative.
   - click **Intermec Corporate** to visit the main Intermec web site at www.intermec.com.

Loading Firmware

You can use the PA30 web browser interface to load firmware and firmware upgrades as described next.

To load firmware using the web browser interface

1. Open a web browser interface to the PA30. For help, see "Using the Web Browser Interface" on page 30.
2. At the top of the screen, click **Maintenance**. The Enter Network Password screen appears.
3. Enter the username and password for the PA30 in the entry fields. The default username is "admin" and the default password is "pass".
4. Click **OK**. The Firmware upgrade screen appears.

5. Type the path to the firmware file in the entry field.

   Or, click **Browse** to browse to the location of the firmware file, and double-click the file name. The path appears in the entry field.
6. Click **Upgrade**. The firmware is loaded.

A Specifications

This appendix includes a list of PA30 specifications and port pinouts.

PA30 Specifications

Print Specifications

Specification	Values
Operating mode	Peel-off (self-strip)
Print modes	Direct thermal, thermal transfer
Resolution	8 dots/mm (203/300 dpi)
Speed	100 to 300 mm/sec (4 to 12 in/sec)
Print width	Direct thermal: Max. 112 mm (4.41 in) Thermal transfer: Max. 110 mm (4.33 in)
Print length	Max. 32767 dots = 409.5 cm (161.25 in)
Media width	25 to 120 mm (1 to 4.72 in)
Ribbon width	55 to 110 mm (2.17 to 4.33 in)
Ribbon roll diameter	Core: Max. 25 mm (1 in) Outer roll: Max. 90mm (3.5 in)
Print directions	4

Firmware

Name	Description
Operating system	Intermec Fingerprint v8.7x
Smooth fonts	13 scalable, 21 bitmap
Resident bar codes	44

Physical Specifications

Type	Description
Dimensions (W x L x H)	24.45 cm x 51.12 cm x 30.16 cm (9.625 in x 20.125 in x 11.875 in)
Weight (excluding media)	6.11 kg (13.48 lb)
Operating temperature	+5°C to +40°C (+41°F to +104°F)
Storage temperature	-20°C to +70°C (-4°F to +152°F)
Humidity	10 to 90% non-condensing

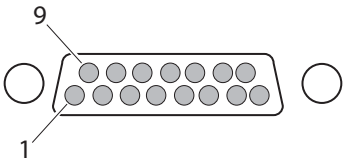
Electrical Specifications

Type	Description
AC Voltage	~ 100 to 245 VAC, 45 to 65 Hz
Power consumption	Minimum 20W Continuous printing 125W (average) Peak 400W
PFC regulation	IEC 61000-3-2
Microprocessor	32-bit RISC
On-board Flash SIMMs	2 sockets, 4MB or 8MB each (1 x 4MB standard)
On-board DRAM SIMM	16MB

Port Pinouts

This section includes port pinout diagrams and tables.

Z-Style Port



Z-Style Port Pinouts

Pin	Signal	Type	Description
1	Signal ground	Ground	Configurable for internal or external source.
2	+5VDC	Power	Voltage supply for external sensors. Configurable for internal or external source.

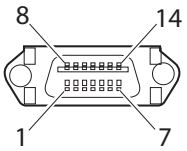
Z-Style Port Pinouts (continued)

Pin	Signal	Type	Description
3	Start print	Input	Pulse mode - prints one and only one label whenever this pin is pulled to ground. Signal must be de-asserted and re-asserted to print another label. • Printing starts on HIGH to LOW transition if format is ready. • De-assert this signal to HIGH to inhibit printing. Level mode - prints labels continuously when this pin is pulled to ground. Printing is disabled when signal is de-asserted. If a label is printing when de-asserted, printing stops after that label is complete. • Assert LOW to start printing if format is ready. • De-asserted HIGH when current label has finished printing. Remains de-asserted while waiting for next label to be ready to print.
4	Feed	Input	Assert LOW to feed label stock. De-assert HIGH to stop feeding labels.
5	Pause	Input	Assert this input LOW for 200ms, or until SERVICE REQUIRED output pin changes state to toggle from current pause state.
6	Reprint	Input	Enables Reprint mode via software. When this mode is enabled, assert LOW to reprint last label. This input is ignored when Reprint mode is disabled.
7	+24VDC	Output	Power for external devices: +24VDC (±10%) @2A.
8	Power ground	Ground	+24VDC return
9	Ribbon low	Output	Goes HIGH when the amount of ribbon on the unwind shaft is approximately 14 m (46 ft). Output will be LOW when the ribbon is completely out.
10	Service required	Output	Goes LOW during every status which keeps the printer from printing: • Media cover open • Printhead open • Ribbon out • Media out • General print engine fault

Z-Style Port Pinouts (continued)

Pin	Signal	Type	Description
11	End print	Output	Drives an applicator or other external device requiring synchronization with the print cycle. Choose between five types of output signals: • Mode 0: Applicator port is OFF. • Mode 1: Asserted LOW only when media is moving, otherwise de-asserted HIGH. • Mode 2: Asserted HIGH only when media is moving, otherwise de-asserted LOW. • Mode 3 (Default): Asserted LOW for 20ms when label has finished printing and positioned. Not asserted during continuous printing. • Mode 4: Asserted HIGH for 20ms when label has finished printing and positioned. Not asserted during continuous printing.
12	Media out	Output	Goes LOW when the PA30 is out of media.
13	Ribbon out	Output	Goes LOW when the PA30 is out of ribbon.
14	Data ready	Output	Goes LOW when ready to print. De-asserted HIGH whenever printing stops after the current label.
15	VOID	Output	RFID error signal: Asserted LOW when the RFID tag is bad and the VOID signal is active. De-asserted HIGH when the End Print signal is asserted.

S-Style Port



S-Style Port Pinouts

Pin	Signal	Type	Description
1	Media out	Output	Goes LOW when the PA30 is out of media.
2	Signal ground	Ground	Configurable for internal or external source.

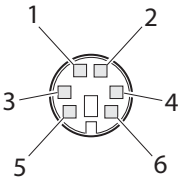
S-Style Port Pinouts (continued)

Pin	Signal	Type	Description
3	Ribbon out	Output	Goes LOW when the PA30 is out of ribbon.
4	Error	Output	Goes LOW during every status which keeps the printer from printing: • Media cover open • Printhead open • Ribbon out • Media out • General print engine fault
5	Start print	Input	Pulse mode - prints one and only one label whenever this pin is pulled to ground. Signal must be de-asserted and re-asserted to print another label. • Printing starts on HIGH to LOW transition if format is ready. • De-assert this signal to HIGH to inhibit printing. Level mode - prints labels continuously when this pin is pulled to ground. Printing is disabled when signal is de-asserted. If a label is printing when de-asserted, printing stops after that label is complete. • Assert LOW to start printing if format is ready. De-asserted HIGH when current label has finished printing. Remains de-asserted while waiting for next label to be ready to print.
6	End print	Output	Drives an applicator or other external device requiring synchronization with the print cycle. Choose between four types of output signals: • Type 1 (Default): Asserted LOW for 20ms when label has finished printing and positioned. Not asserted during continuous printing. • Type 2: Asserted HIGH for 20ms when label has finished printing and positioned. Not asserted during continuous printing. • Type 3: Asserted LOW only when media is moving, otherwise de-asserted HIGH. • Type 4: Asserted HIGH only when media is moving, otherwise de-asserted LOW.

S-Style Port Pinouts (continued)

Pin	Signal	Type	Description
7	Reprint	Input	Enables Reprint mode via software. When this mode is enabled, assert LOW to reprint last label. This input is ignored when Reprint mode is disabled.
8	5V sensor reference	Input	5V sensor reference.
9	Reserved		
10	Ribbon low	Output	Goes HIGH when the amount of ribbon on the unwind shaft is approximately 14 m (46 ft). Output is LOW when the ribbon is completely out.
11	Reserved		
12	+24VDC	Output	Power for external devices: +24VDC (±10%) @2A.
13	+5VDC	Power	Voltage supply for external sensors. Configurable for internal or external source.
14	Power ground	Ground	+24VDC return.

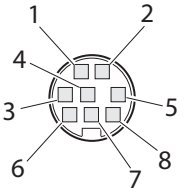
External Power Port



External Power Port Pinouts

Pin	Signal	Type	Description
1	+5VDC	Input	+5VDC input for distribution through Applicator Port connector (Z-Style pin 2, S-Style pin 13).
2	Signal ground	Input	Signal return for +5VDC supply (Z-Style pin 1, S-Style pin 2).
3	+24VDC	Input	+24VDC input for distribution through Applicator Port connector (Z-Style pin 7, S-Style pin 12).
4	Power ground	Input	Power return for input (Z-style pin 8, S-style pin 2).

External Error Port



External Error Port Pinouts

Pin	Signal	Type	Description
1	AppErr_1	Input	Applicator error #1
2	AppErr_2	Input	Applicator error #2
3	AppErr_3	Input	Applicator error #3
4	RtW_In_Ext	Input	Intermec Ready-to-Work indicator input for external errors.
5	+5VDC	Output	Available for applicator.
6	RtW_Out	Output	Intermec Ready-to-Work indicator output for total system indicator.
7	Ground		Available for applicator.
8	Ground		Available for applicator.

Index

Intermec

Worldwide Headquarters
6001 36th Avenue West
Everett, Washington 98203
U.S.A.

tel 425.348.2600

fax 425.355.9551

www.intermec.com

PA30 Print Engine User's Manual

2

P/N 935-008-002