

# I-Class™ Mark II

Operator's Manual ■ ■ ■



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## ***Important Safety Instructions***

This printer has been carefully designed to provide many years of safe, reliable performance. As with all types of electrical equipment, however, there are a few basic precautions you should take to avoid hurting yourself or damaging the equipment:

- Carefully read the provided installation and operating instructions.
- Read and follow all warning instruction labels on the printer.
- Place the printer on a flat, firm, solid surface.
- Make sure all openings on the printer remain unblocked; never insert anything into the openings or ventilation slots.
- Do not place the printer near a heat source.
- Do not use your printer near water, or spill liquid into it.
- Be certain that your power source matches a listed voltage rating for the printer (if unsure, check with your dealer or local utility company).
- Do not place the power cord where it can be stepped on; and, if the power cord becomes damaged, immediately replace it.
- If service is required, use only qualified trained technicians to repair your printer.

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Part Number 88-2357-01, Revision C

## Agency Compliance and Approvals



UL60950-1; 2<sup>nd</sup> Edition  
CSA C22.2 No. 60950-1-07 2<sup>nd</sup> Edition

The manufacturer declares under sole responsibility that this product conforms to the following standards or other normative documents:

EMC: EN 55022 (2006) Class A  
EN 50024 (1998) + A1:2001; +A2:2003



Safety: This product complies with the requirements of IEC 60950-1, 2<sup>nd</sup> Edition, 2005-12  
ROHS: 2002/95/EC  
LVD: 2006/95/EC

### Warning!

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



Gost-R



GB4943-2001, GB9254-2008, GB17625.1-2003



I-4212e model:

The foregoing equipment has been registered under the Clause 3, Article 58-2 of Radio Waves Act

### FCC:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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# 1 Getting Started

## 1.1 Introduction

Congratulations on your I-Class Mark II printer purchase. The I-Class Mark II printer family, hereafter referred to as 'the printer', blends the rugged durability of die-cast construction with state-of-the-art electronics and user-friendly features to redefine the standard in industrial thermal printers.

This manual provides all the information necessary to operate the printer.

To print labels or tags, simply refer to the instructions included with the software you have chosen to create the labels. A Windows™ printer driver can be found on our website (<http://www.datamax-oneil.com>) or on the included CD-ROM for printing from common applications. If you wish to write a custom program, a copy of the Programmer's Manual can also be found on the CD-ROM.



## 1.2 Unpacking

After removing the printer from the packaging material, check the contents. The following items should be included:

- Printer
- Power Cord
- CD-ROM and Documentation
- Any special or additionally purchased items

### **Additional Requirements**

The following items are necessary for generating labels from your printer. Contact your customer support or sales representative for advice on which media and software may best be suited for your application.

- Serial, USB or Parallel cable
- Ethernet cable for optional LAN connectivity
- Applicable Media and Ribbon



It is a good idea to save all packaging materials for future use.





# 2 Printer Setup

## 2.1 Printer Connections

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### 2.1.1 Power Connection



Before connecting the AC Power Cord or interface cables to the printer, ensure the Power On/Off Switch is in the 'Off' position.

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Place the printer on a firm, level surface.

Ensure that the Power Switch on the Printer is in the 'Off' position.

Connect the AC Power Cord to the receptacle on the back of the Printer, and then plug the AC Power Cord into a properly grounded outlet. (The power supply automatically detects and then adjusts to the applied line voltage; see Appendix A for the acceptable voltage ranges.)



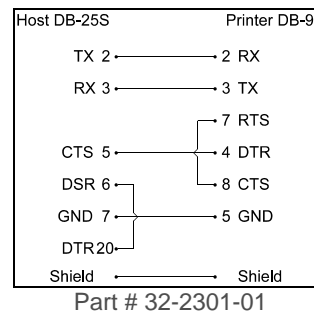
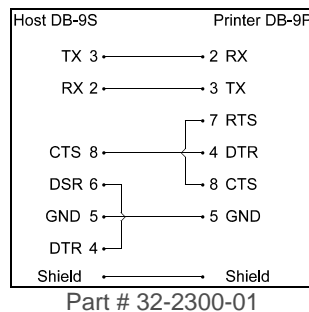
## 2.1.2 Interface Connection

The printer can be connected to the host via the parallel, USB, serial, or optional network interface. The printer will automatically connect to the first port that delivers valid data. Once established, the printer's power must be cycled 'Off' and 'On' to change an interface connection.

The **Parallel Connection** needs a Centronics IEEE 1284 cable with a 36-pin male connector for unidirectional (forward channel) communications, or an IEEE 1284 Compliant cable for bi-directional communications (forward and reverse channels). Also, for bi-directional communications your host must have supporting software.



The **Serial Connection** needs a serial interface cable with specific pin-outs for proper communications (part numbers and pin-outs are given, below; contact your reseller to order). The interface supports RS-232C communications via a DB-9 connector. Serial port settings are menu-selectable and must match your host's serial port settings.



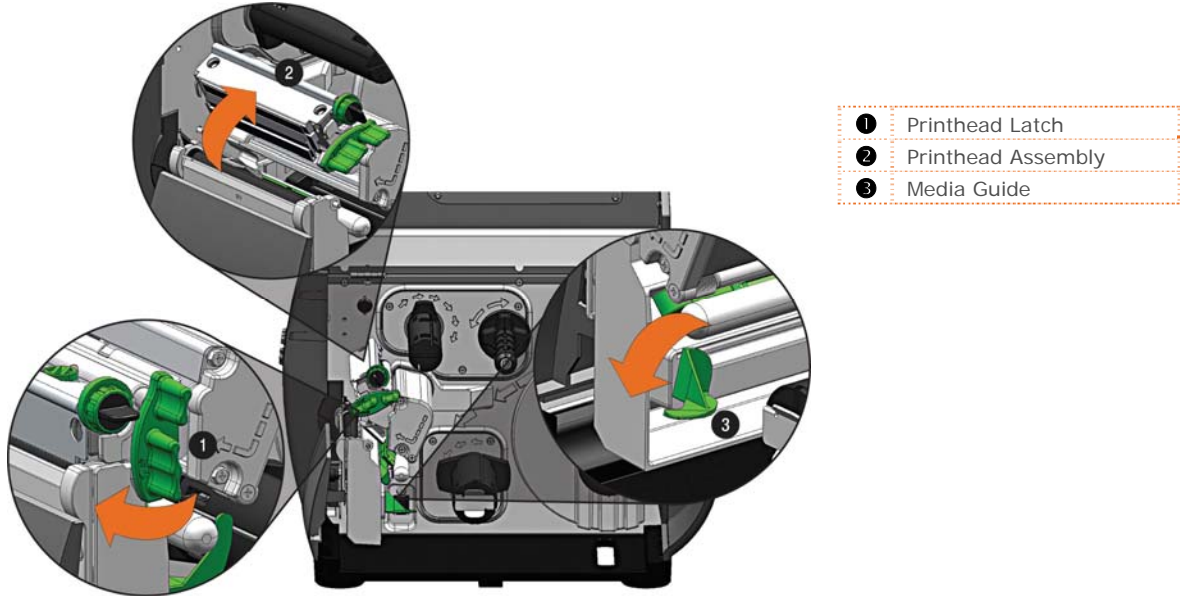
**Optional Ethernet Print Servers (wired and wireless)** are available. For information on using these interfaces, see Appendix B.

The **USB Connection** needs a USB cable and is supported in Windows 95 and greater operating systems. Depending upon the operating system of your host computer, installation requirements may differ slightly, see section 2.1.3 for more information

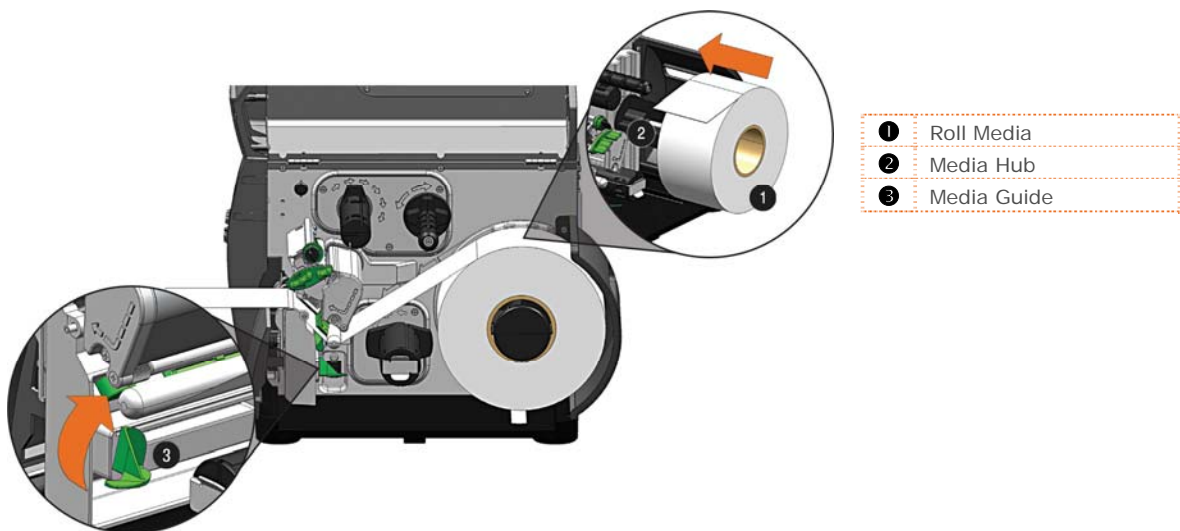
## 2.2 Loading Media

Load media into the printer as follows:

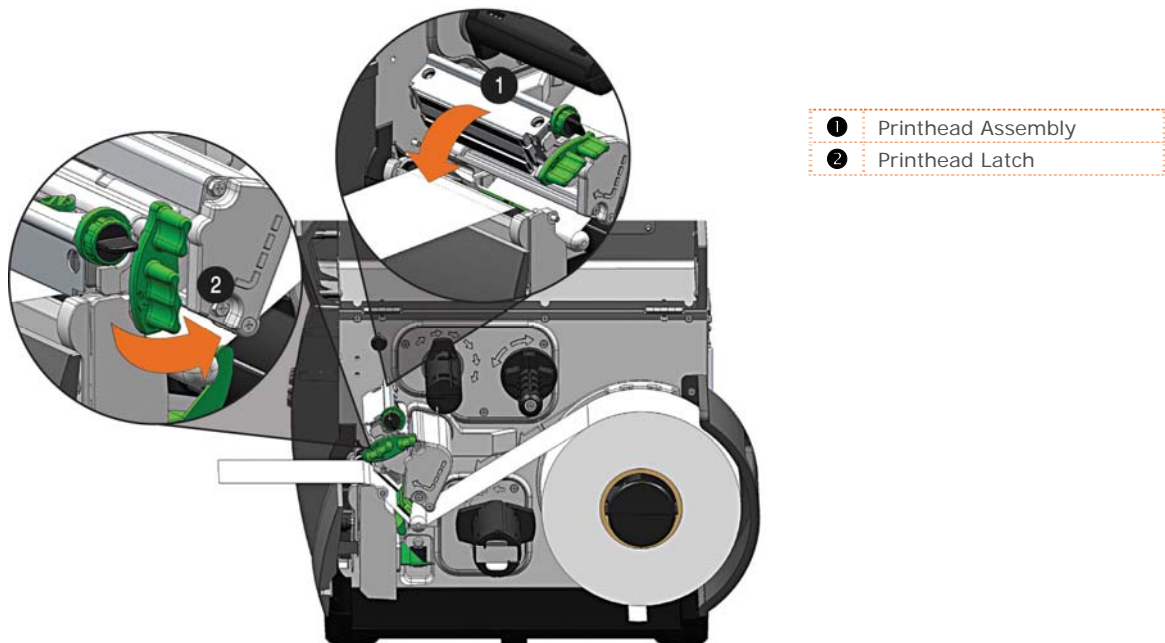
1. Open the media cover. Rotate and unlock the Printhead Latch and raise the Printhead Assembly.
2. Rotate the Media Guide down.



3. Slide the Roll Media onto the Media Hub.
4. Route the Media through the printer as shown. Raise the Media Guide. The Media Guide should be pushed inward so that it is just touching the edge of the Media.



5. Close the Printhead Assembly and rotate the Printhead Latch to the locked position.
6. Close the cover and press the FEED button several times to position the media and ensure proper tracking.



If the printer does not correctly sense the top of each label, it may be necessary to calibrate the printer (see Section 3.4 Media Calibration).



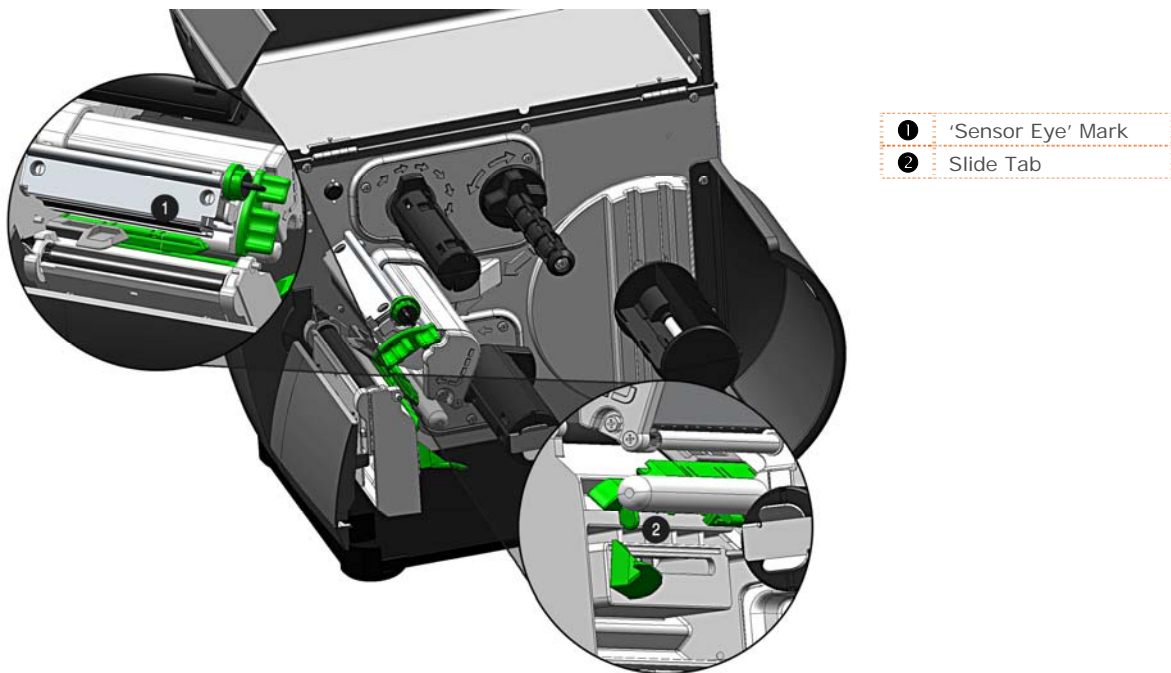
The printer is factory set to use 4-inch media (and ribbon, if thermal transfer equipped). When using a different width of media/ribbon, refer to Section 5.3.

## 2.3 Media Sensor Adjustment

The Media Sensor needs to be positioned so that the printer can detect the presence of media and the top-of-form (except for continuous stock, where the TOF is set through the front panel).

To adjust:

1. With media loaded, as described in Section 2.2, grasp the Slide Tab and move the Sensor Eye Mark into position over media according to the table below.



Media Sensor Selection and Adjustment		
Media Type	Sensor Eye Mark Position	Sensing Required
Die-cut	Near the middle of the label	Gap
Notched	Centered over the notch	Notch
Reflective	Centered over the black mark	Black Mark
Continuous	Near the middle of the media	Continuous

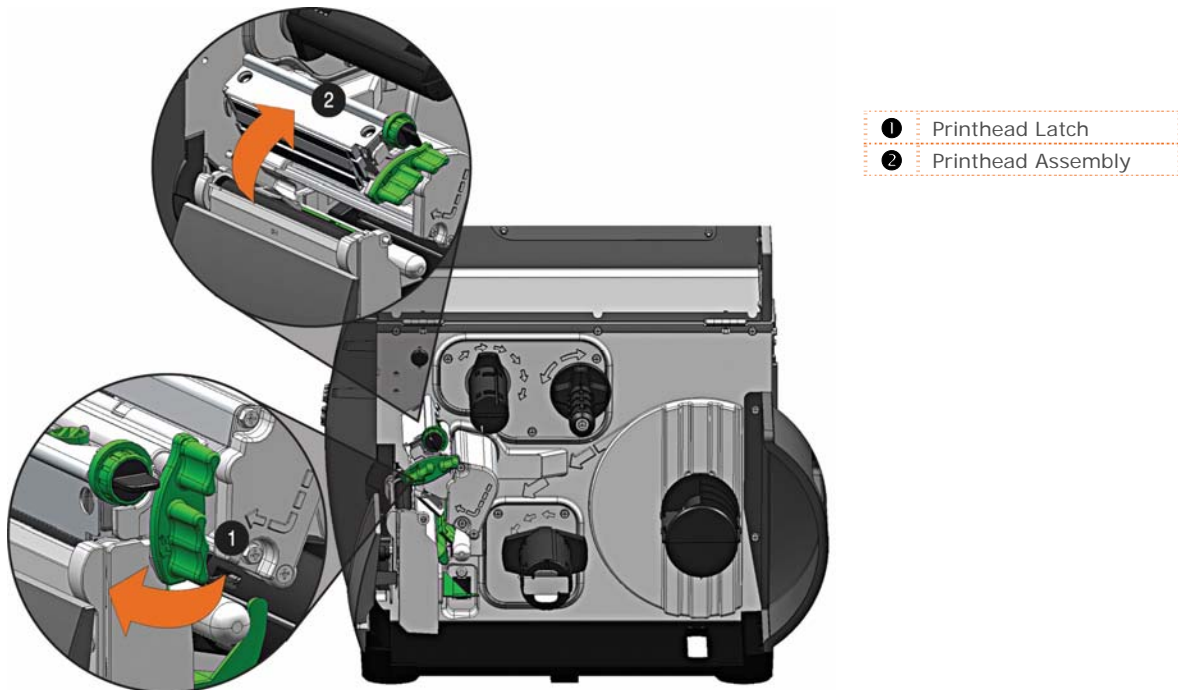
## 2.4 Loading Ribbon

Ribbon is required with thermal transfer media. It is recommended that the width of the ribbon be slightly wider than the media being used. The printer can use either ribbons with the 'coating side in' or ribbons with the 'coating side out'. To load:

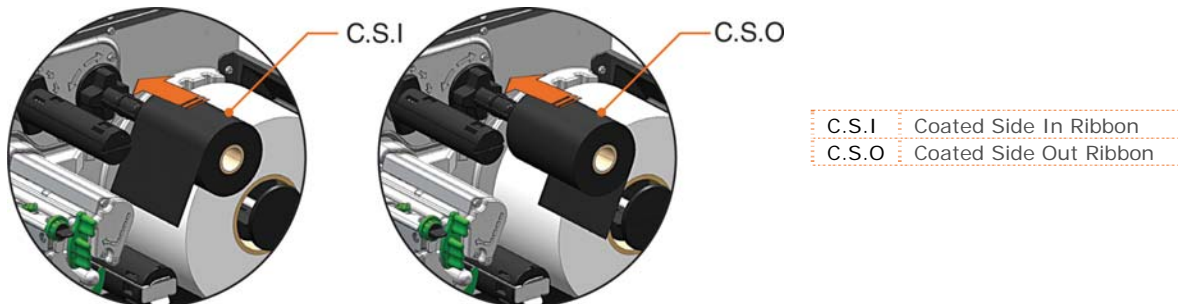


- Using a ribbon that is slightly wider than your media (and liner, if any) will help protect against printhead wear.
- The 'Media Type' setting within the printer's setup must be set to 'Thermal Transfer' to print using ribbon. This can be accomplished via the NETira CT configuration Utility (see section 3.3); or via the printers menu system (see section 4.5).

1. Open the media cover. Rotate and unlock the Printhead Latch and raise the Printhead Assembly.

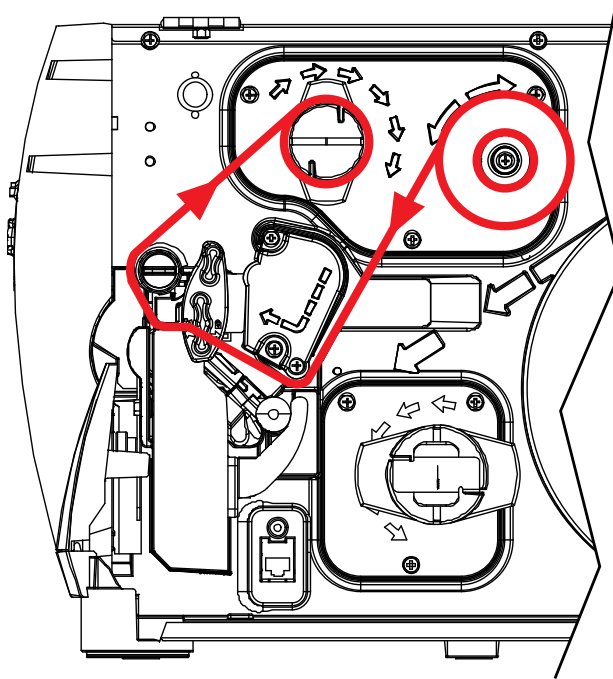


2. Slide the Ribbon Roll onto the Ribbon Supply Hub until it rests against the flange. Ensure the ribbon unwinds in the correct direction (see Ribbon Routing). The illustrations below depict the proper orientation.

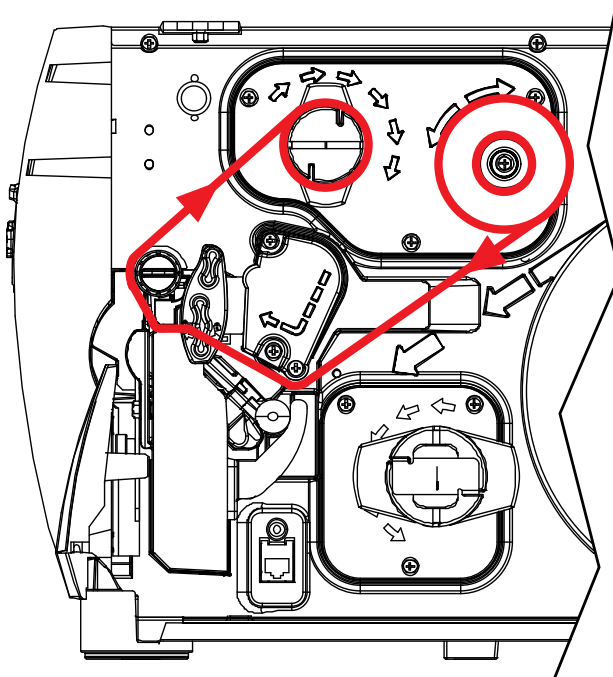


Directional Arrows near the Ribbon Supply Hub indicate the correct ribbon route. Ribbon types are available with the ink (coating) layer wound 'in' or 'out'. Ensure the inked side of the ribbon faces the media and NOT the printhead.

## Ribbon Routing Diagrams



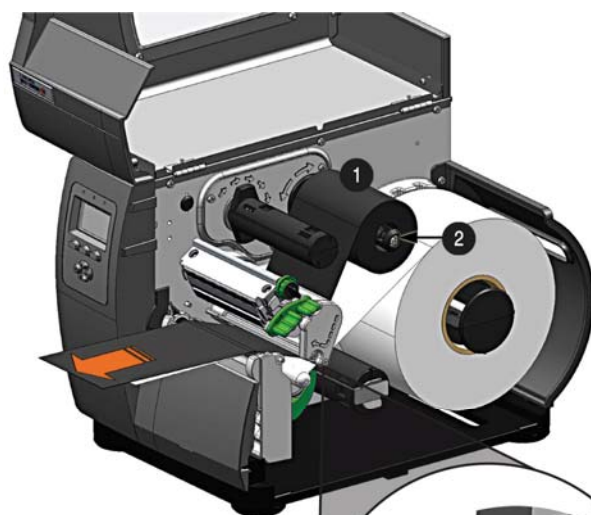
(CSI) 'Coating Side In' Ribbon Routing



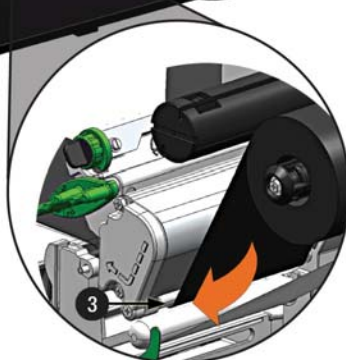
(CSO) 'Coating Side Out' Ribbon Routing



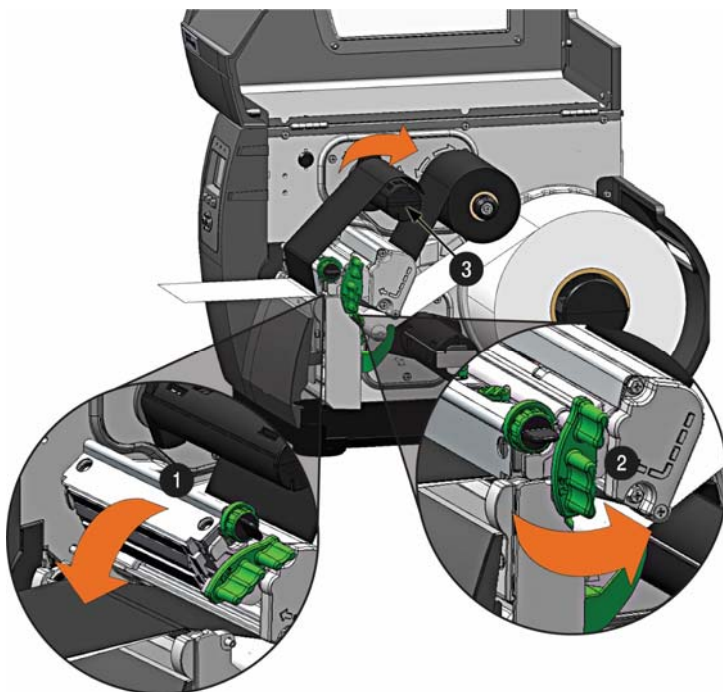
3. Route the ribbon under the Ribbon Idler and then out the front of the printer approximately 12 inches as shown.



- |   |                   |
|---|-------------------|
| 1 | Ribbon Roll       |
| 2 | Ribbon Supply Hub |
| 3 | Ribbon Idler      |



4. Close the Printhead Assembly and rotate the Printhead Latch to the locked position. Route the ribbon up and then around to the Ribbon Take-Up Hub, winding it several times in a clockwise direction to secure it in place.



- |   |                    |
|---|--------------------|
| 1 | Printhead Assembly |
| 2 | Printhead Latch    |
| 3 | Ribbon Take-up Hub |

5. Close the cover and press the Feed button several times to position the ribbon and ensure proper tracking.



## 2.5 OPTImedia

---

The OPTImedia function is designed to reduce set up time when using Datamax-O'Neil branded media and ribbons. This feature enables the printer to automatically adjust print heat and print speed settings to optimum levels to produce the best possible print quality. By using the model number prefix of the media and ribbon (printed on the shipping box), the printer can be quickly configured to produce optimum print quality for that particular media and ribbon combination.

To make the OPTImedia selection.

1. Press the MENU BUTTON.
2. Make sure MEDIA SETTINGS is highlighted then press the ENTER KEY.
3. Make sure OPTImedia is highlighted then press the ENTER KEY.
4. Using the DOWN BUTTON, Scroll to the model number prefix of the label media being used and then press the ENTER KEY.
5. ***For direct thermal media;*** an 'OK' will be displayed, then press the EXIT KEY to exit the menu system.

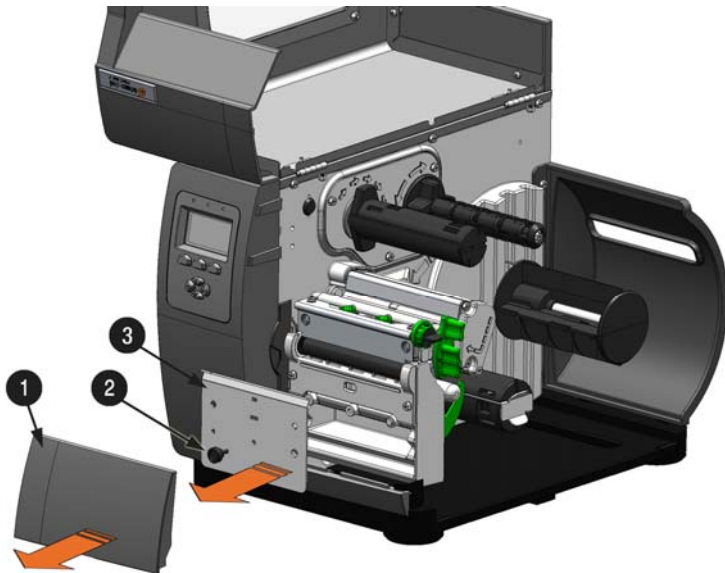
***For thermal transfer media;*** the printer will now prompt for selection of the ribbon being used. Scroll to the model prefix of the ribbon being used and then press the ENTER KEY. An 'OK' will be displayed, then press the EXIT KEY to exit the menu system.

The printer is now ready to print using the media/ribbon selections made.

## 2.6 Internal Rewinder

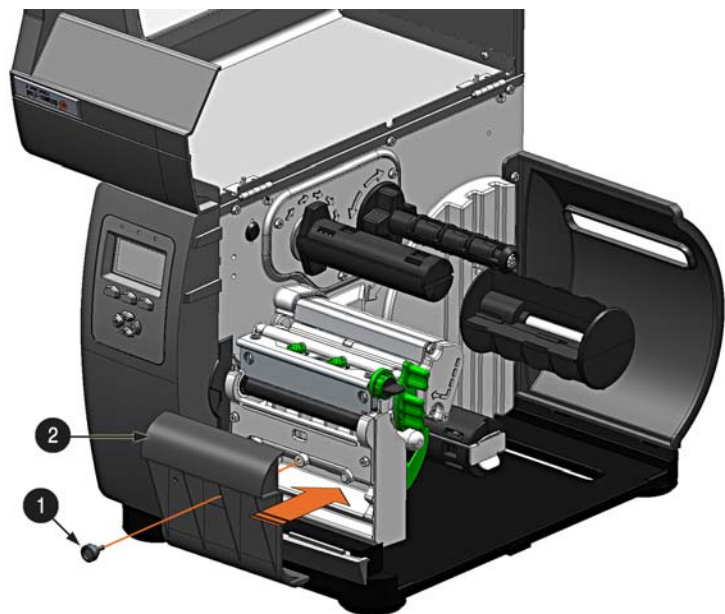
When equipped with the Internal Rewind option, labels can be rewound or, with the addition of a Peel and Present option, dispensed automatically for application. If equipped, follow the instructions below to begin using the Internal Rewinder:

1. Press down then pull outward to remove the Front Fascia.
2. Remove Thumbscrew and Tear Plate.



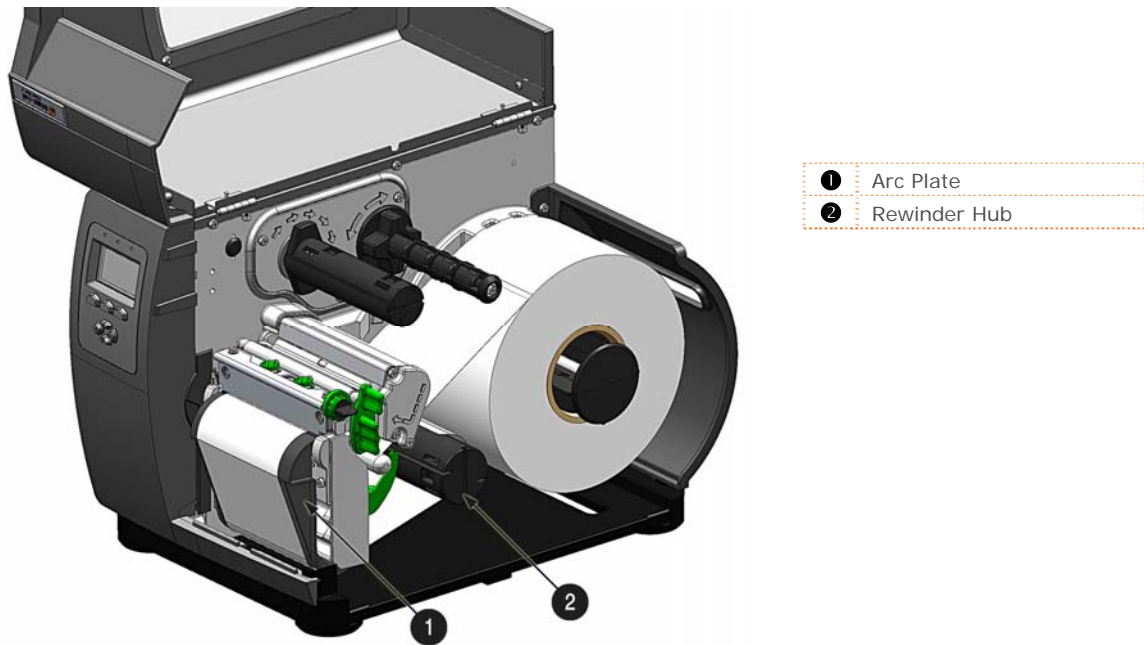
- |   |            |
|---|------------|
| ❶ | Fascia     |
| ❷ | Thumbscrew |
| ❸ | Tear Plate |

3. Place the Arc Plate on the front of the printer (as shown below) and tighten the Thumbscrew to secure it.

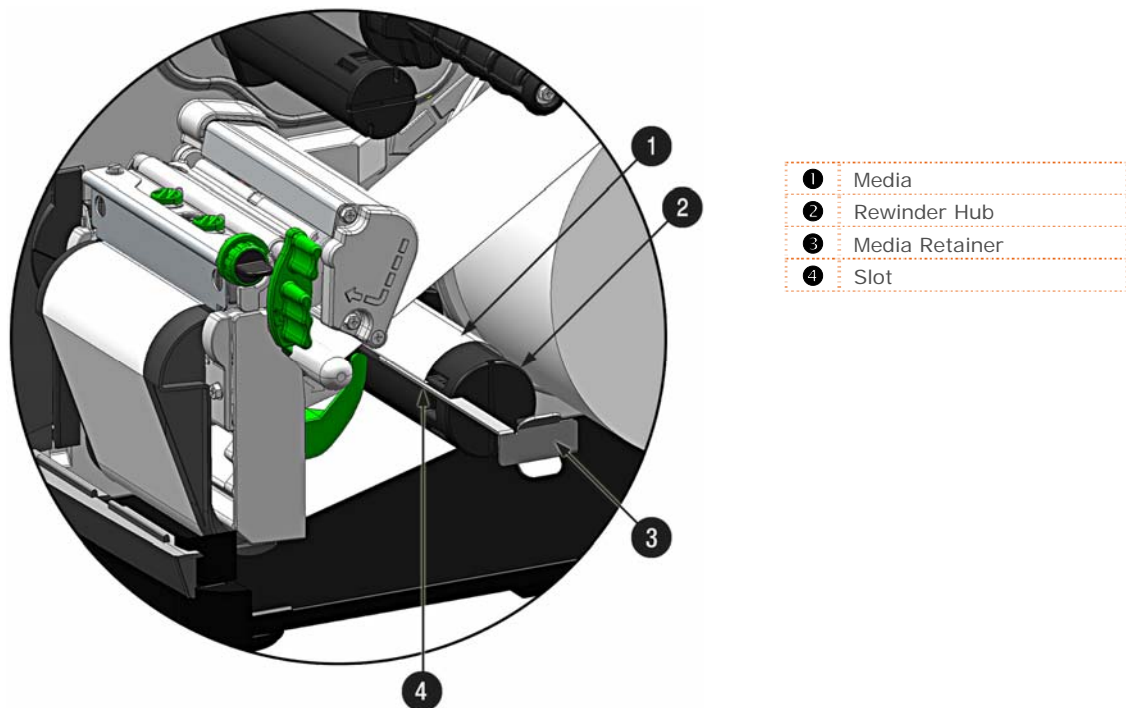


- |   |            |
|---|------------|
| ❶ | Thumbscrew |
| ❷ | Arc Plate  |

4. Load media as described in section 2.2. Feed approximately 20 inches (50 cm) of media out of the printer. Route the media over the Arc Plate and then back into the printer and around the Rewinder Hub.



5. Wrap the media around the Rewinder Hub. Insert the end of the media into a Slot in the Rewinder Hub. Slide the Media Retainer into the Slot to secure the media.



6. Rotate the Rewinder Hub by hand to take up any slack in the media. There should be at least 2 or 3 full wraps of the media on the Rewinder Hub before starting printing to ensure tight rewinded rolls.



# 3 Printer Operation














## 3.1 Front Panel

The Control Panel is an event-driven interface composed of a graphic display and keypad. In addition to providing current printer information, the mode-dependent panel allows the items in the main display area and the key functions to change as operational events require.

- ❶ Ready/Receiving Data
- ❷ Stop/Paused
- ❸ Fault/Error
- ❹ Time and Date
- ❺ Status Line
- ❻ Icon Status Line (see section 3.1.1)
- ❼ Soft Key Labels
- ❽ Soft Keys
- ❾ Menu Navigation and Control Buttons (see chapter 4)



### 3.1.1 Display Icons

Display Icon	Description
	Initialization, typically brief (but a damaged or invalid printhead can delay the process).
	Display large fonts
	Input Mode – DPL
	Input Mode – LINE
	Input Mode – PL-Z
	Input Mode – AUTO
	SD memory card detected.
	USB memory (or keyboard) detected.
	Wired network - Connected.
	Wired network - Server inaccessible.
	WLAN associated with Access Point.
	WLAN not associated with Access Point.
	WLAN ADHOC Mode.

## 3.2 Windows Driver

The Windows driver is located on the Accessories CD-Rom included with your printer. For the latest version please visit our web site at [www.datamax-oneil.com](http://www.datamax-oneil.com).



Be sure your printer's firmware version is **10.03\_0016B or greater**. Firmware is available from our website, for the latest version please visit our web site at <http://www.datamax-oneil.com>



Be sure your printer's USB Mode is set to "Printer". This mode can be viewed/changed via the printer's front panel menu under: Communications > USB Port > USB Device Class.

### *Installing the Windows Driver:*

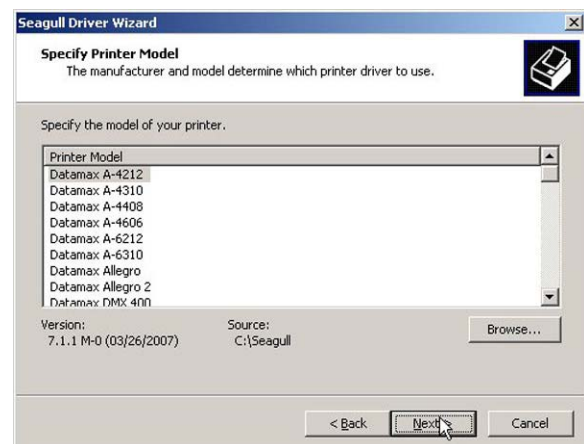
Place the Accessories CD-Rom included with your printer into your computers CD-Rom drive.



Once the CD-Rom starts select "Install Windows Driver" from the main menu and follow the instructions on the screen to install.



When prompted, select your printer from the list, (i.e. Datamax-O'Neil I-Class MarkII). Continue to follow the on-screen instructions to install the driver.

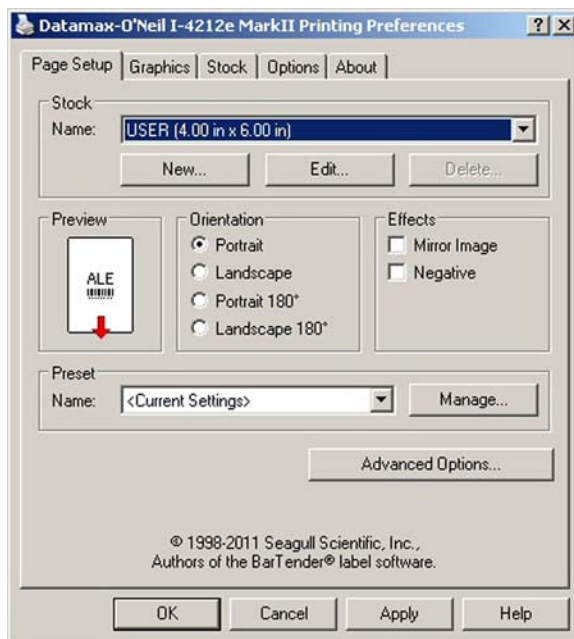


## Important Notes:

The Windows driver functions the same as any other Windows printer. A built in help file is available for complete information on all settings; however, there are some important settings that should be observed for trouble free printing.

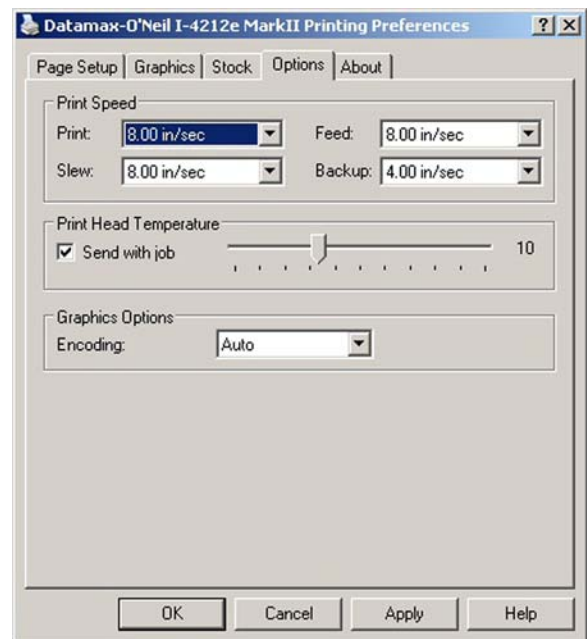
### Page Setup Tab: Stock

It is important that the Stock setting matches the size of the label you are using. If you cannot find a match for your label click 'New' and enter the dimensions of your label.



### Options Tab: Print Speed & Printhead Temperature

These two settings will have the greatest effect on print quality. Some label stocks will require more heat and slower print speeds to generate a quality image.



The Windows application software used to create the label format will likely have a "Page Setup" screen. This will also need to match the size of the label you are using.



### 3.3 Printer Configuration Utility (NETira CT)

NETira CT (located on the Accessories CD-ROM) is a Windows-based configuration utility that allows the user to make changes to the existing printer setup via a direct connection to the host computer's serial, USB, Ethernet, or parallel ports.

NETira Features:

- Allows Real-Time Control/Query of Printer Configuration
- Define and Save Optimal Configurations for Applications
- Saved Configurations can be Shared with other Printers and Sent via Email
- Download Files, Formats and Fonts
- Query Memory Modules



Be sure to use the NETira utility located on the Accessories CD-ROM that is included with your printer. Older versions might not operate correctly with some printers. For the latest version please visit our web site at <http://www.datamax-oneil.com>



Be sure your printer's firmware version is **10.03\_0016B or greater**. Firmware is available from our website, for the latest version please visit our web site at <http://www.datamax-oneil.com>

### USB and Parallel Port Connection Requirements

Using Netira CT with an USB or parallel port connection requires a Windows driver to be installed and the driver to be set to "Print directly to the printer". Install the Windows driver as described in section 3.6. Then follow the steps below to set the driver setting:

- 1) Open the list of installed printers on your PC.

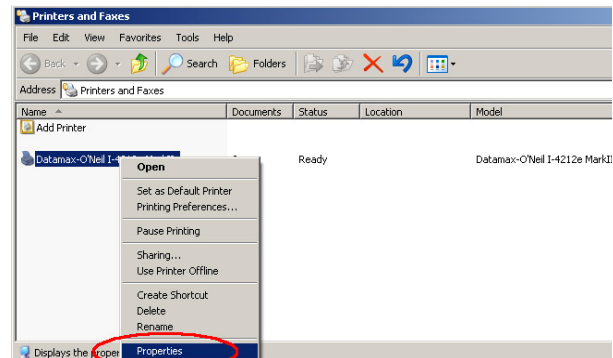
*Windows XP*

Open Printer and Faxes by clicking the Start button, and then Settings, and then click on Printer and Faxes.

*Windows 7*

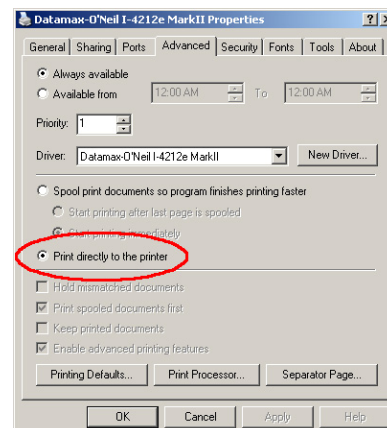
Open Devices and Printers by clicking the Start button, and then click on Devices and Printers.

- 2) Right click on the printer and select Properties from the drop down menu.



- 3) In the Driver Properties window, click on the Advanced tab.

- 4) Click the "Print directly to the printer" radio button. Then click OK.



*USB and parallel port connections will now be available for use with Netira CT.*

## NETira CT Usage


- 1) Once installed launch the NETira CT configuration utility:
- 2) Be sure the printer is 'ON'. Connect the host to the printer (see *Section 2.1.2*).

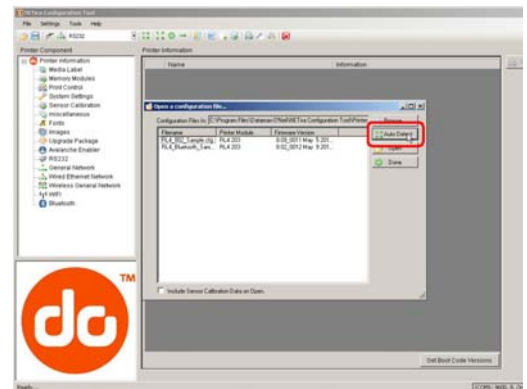
### *For Serial Connections:*

- a) Query the printer by using the 'Auto Detect' button. This will connect to the printer and retrieve the setting currently stored in the printer.

### *For USB and Parallel Connections:*


Close the 'Open a configuration file...' dialogue box.

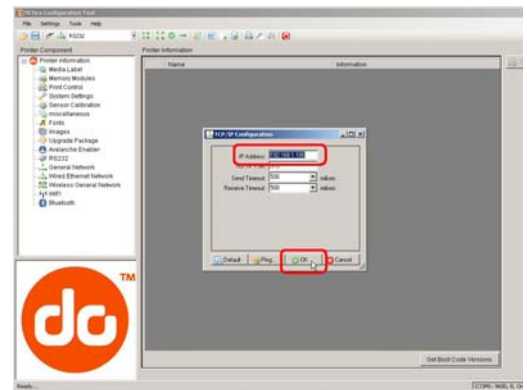
- a) In the toolbar, from the drop down menu box, select the appropriate port. Then click on the Query Printer Icon .




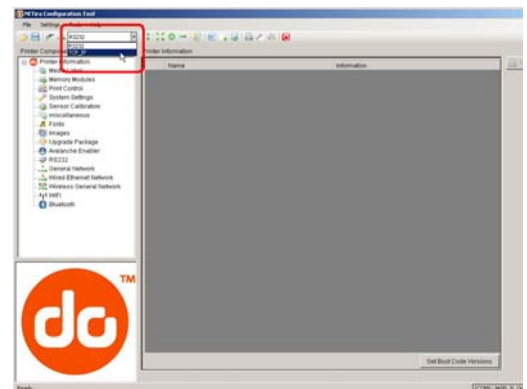
### *For Ethernet Connections*

Close the 'Open a configuration file...' dialogue box.

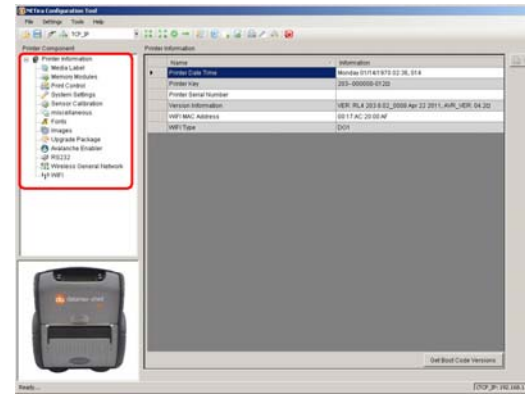
- a) In the toolbar, Click on the 'TCP/IP Configuration' Icon .
- b) In the 'TCP/IP Configuration' dialogue box enter the IP address of the printer and click 'OK'. (The IP address should be displayed on the printers LCD).



- c) In the toolbar, from the drop down menu box, select "TCP\_IP". Then click on the Query Printer Icon .



- 3) At this point you may browse the Printer Component categories and make any changes necessary to the printer configuration.



- 4) Once complete, send the new settings to the printer using the 'Send' button.

Note: When sending the changes to the printer, only the changes displayed on the current page will be sent. You must click the 'Send' button for each page that has been modified.



## 3.4 Media Calibration

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### 3.4.1 Quick Calibration

Quick Calibration should be performed as part of the media loading routine to fine-tune the sensing parameters.



- (1) This calibration is not necessary when using continuous stock.
  - (2) Media containing large gaps may require a change in the PAPER EMPTY DISTANCE before proceeding.
- 

Calibrate the printer as follows:

1. Ensure that the printer is ON and in an idle state (i.e., not off-line) with media loaded, the media sensor adjusted, and the sensor type selected.
2. Press and hold the FEED Key until at least one full label has been output then release the key and wait for the printer to process the data. There are two possible outcomes:

CALIBRATION COMPLETE - will be displayed, and the media will be advanced to the next top of form if calibration was successful; or,

CALIBRATION FAILED will be displayed if calibration was not successful. In this case, check the hints listed below to help resolve the problem:

#### Calibration Hints:

WARNING LOW BACKING is a normal message when calibrating die-cut media mounted on a highly translucent liner or notched tag stocks.

If the initial attempt fails, press and hold the FEED Key until two successive label TOFs have been output. If, however, CALIBRATION FAILED is displayed again, perform the Standard Calibration routine, see Section 3.4.3.

### 3.4.2 Empty Calibration

Empty Calibration calibrates the printer's media sensor to detect an 'Out of Stock' condition. Calibrate the printer as follows:

1. Ensure that the printer is ON and in an idle state (i.e., not off-line) with media removed.
2. Press and hold the Pause & Feed Keys together. The printer will now be calibrated for the 'Out of Stock' condition.

### 3.4.3 Standard Calibration

The Standard Calibration can be performed using the NETira CT Utility (see Section 3.3) or using the front panel buttons via the printer's menu, see Section 4.5. Standard Calibration provides dynamic readings, which can be helpful when using media with small position-critical notches or marks. Three calibration samples are required:

Empty – with nothing over the sensor;

Gap, Notch, Hole or Mark – with media liner, a notch, hole, or a mark over the sensor; and,

Paper – with the label (and liner, if any) over the sensor.

Calibrate the Media Sensor using the steps below:



The Sensor Calibration menu item is only accessible in the Advanced Menu mode.

Step	Action	Displayed Message	Comment
A	Turn ON the printer.	READY	Wait briefly for initialization to complete.
B	Press MENU Button. Make sure MEDIA SETTINGS is highlighted and press ENTER.  Then using the DOWN Button, scroll to SENSOR CALIBRATION.	(Printer Menu)	
C	Press ENTER to access SENSOR CALIBRATION. Then using the DOWN Button, scroll to PERFORM CALIBRATION. Press ENTER again and then press YES to proceed.	PERFORM CALIBRATION	Press NO to abort this procedure.
D	With no media installed, press ESC.	REMOVE LABEL STOCK PRESS ESC KEY Yyy	This sets the empty value, where "yyy" represents the current sensor reading.
E	Proceed according to the media type:  Die-Cut – Remove a label or two from the liner then install the media. Position the Media Sensor under the liner area and press ESC.  Notched (or Reflective) – Install media. Position the Media Sensor under a notch (or black mark) and press ESC.  Continuous – Press ESC then proceed to Step F.	<i>For die-cut media:</i> SCAN BACKING PRESS ESC KEY yyy  <i>For Notched/Reflective media:</i> SCAN MARK PRESS ESC KEY yyy  <i>For continuous media:</i> REMOVE LABEL STOCK PRESS ESC KEY Yyy	This sets the gap (or mark) value, where "yyy" represents the current sensor reading.  See Section 2.3 for sensor adjustment instructions.  <i>Do not position a perforation over the sensor when taking the sample.</i>  <i>(3) For small notches or reflective marks, ensure that the labels exit straight from the printer.</i>  <i>(4) Unless otherwise noted, do not move the Media Sensor after this step.</i>

### Standard Calibration (continued)

Step	Action	Displayed Message	Comment
F	<p>Proceed according to the media type:</p> <p>All media except Continuous – Position label material (and liner, if any) over the sensor then press the ESC Key.</p> <p>Continuous – Install media. Position the Media Sensor under the stock and press ESC.</p>	<p>SCAN PAPER</p> <p>PRESS ESC KEY</p> <p>yyy</p>	<p>This sets the paper value, where “yyy” represents the current sensor reading.</p> <p>(1) If using preprinted media, ensure that the area placed over the sensor is free of text, graphics, or borders.</p> <p>(2) See Section 2.3 for sensor adjustment instructions.</p>
G	Observe the calibration result.	CALIBRATION COMPLETE	<p>Calibration was successful.</p> <p>☑ If WARNING LOW BACKING is displayed, calibration was successful.</p>
H	<p>Press ESC then EXIT to return to READY.</p> <p>When calibrating gap or reflective media, press and hold the FEED Key until at least one label is output.</p>	<p>CALIBRATION COMPLETE</p> <p>Followed by...</p> <p>READY</p>	The printer is now ready for use.

### 3.4.4 Advanced Entry Calibration

Advanced Entry is an alternate calibration method for special-case media types, where sensor readings are taken using different sampling algorithms and from a list of these readings the best algorithm is selected for manual entry into the database.



Advanced Entry Calibration should be used only when Standard Calibration proves unsuccessful.

Calibrate the Media Sensor using the steps below:



The Sensor Calibration menu item is only accessible in the Advanced Menu mode.

Step	Action	Displayed Message	Comment
A	Turn ON the printer.	READY	Wait briefly for initialization to complete.
B	Press MENU Button. Make sure MEDIA SETTINGS is highlighted and press ENTER.  Then using the DOWN button, scroll to SENSOR CALIBRATION	(Printer Menu)	
C	Using the DOWN Button, highlight ADVANCED ENTRY then press ENTER.	ADVANCED ENTRY	Press EXIT to abort this procedure.
D	Scroll to TRAN SENSOR GAIN (or REFL SENSOR GAIN, if using reflective media) then press ENTER.	TRAN SENSOR GAIN 25 (0 - 31)	The following examples detail die-cut media calibration; however, unless otherwise noted, the reflective media procedure is the same.
E	Install media. Position the Media in the Media Sensor then lower and latch the Printhead Assembly.	TRAN SENSOR GAIN 25 (0 - 31)	See Section 2.3 for sensor adjustment instructions.  Do not position the Media Sensor under a perforation; and if using preprinted media, ensure the label area placed over the sensor is free of text, graphics, lines, etc.

*Advanced Entry Calibration (continued)*

Step	Action	Displayed Message	Comment
F	<p>Use the UP and DOWN Arrow buttons to set the Gain Number to 00.</p> <p>Record the sensor reading as a Label Value for Gain Number 00 in a table (32 rows by four columns, with headings similar to those shown below.)</p>	<p>TRAN SENSOR GAIN 00 (0 - 31)</p>	<p>This is the Label Value for a gain setting of 00.</p>

<i>Sample Calibration Table</i>			
<i>Gain Number</i>	<i>Label Value</i>	<i>TOF Value</i>	<i>Difference Value</i>
00	252		
01			
02			
...			
31			

Step	Action	Displayed Message	Comment
G	<p>Use the UP and DOWN Arrow buttons to increment the Gain Number by one and then Record the Label Value.</p> <p>Repeat this process for each Gain Number.</p>	<p>TRAN SENSOR GAIN 01 (0 - 31)</p>	<p>This is the Label Value for a gain setting of 01.</p>

<i>Sample Calibration Table</i>			
<i>Gain Number</i>	<i>Label Value</i>	<i>TOF Value</i>	<i>Difference Value</i>
00	252		
01	250		
02	248		
...	...		
31	09		



Advanced Entry Calibration (continued)

Step	Action	Displayed Message	Comment
H	<p>Raise the printhead assembly then proceed according to the media type:</p> <p>Die-cut – Remove a label or two from the liner then position the liner in the Media Sensor. Adjust the Media Sensor if necessary.</p> <p>Notched – Position the Media in the Media Sensor under the notch.</p> <p>Reflective – Position the Media in the Media Sensor under the black mark.</p>	<p>TRAN SENSOR GAIN 31 (0 - 31)</p>	<p>(1) Do not position the Media Sensor under a perforation; and if using preprinted media, ensure the label area placed over the sensor is free of text, graphics, lines, etc.</p> <p>(2) Do not move the Media Sensor after this step.</p>
I	<p>Lower and latch the Printhead Assembly.</p> <p>Using the UP and DOWN Arrow buttons set the Gain Number to 00.</p> <p>Record the reading as a TOF Value for Gain Number 00 in the table.</p>	<p>TRAN SENSOR GAIN yyy                      (0 - 31) 00</p>	<p>This is the TOF Value for a gain setting of 00, where “yyy” represents the current sensor reading.</p>

Sample Calibration Table			
Gain Number	Label Value	TOF Value	Difference Value
00	252	248	
01	250		
02	248		
...	...		
31	09		

### Advanced Entry Calibration (continued)

Step	Action	Displayed Message	Comment
J	Use the buttons to increment the Gain Number by one. Record the TOF Value. Repeat this process for each Gain Number.	TRAN SENSOR GAIN yyy (0 - 31) 01	These are TOF Values, where "yyy" represents the current sensor reading.

Sample Calibration Table			
Gain Number	Label Value	TOF Value	Difference Value
00	252	248	
01	250	245	
02	248	234	
...	...	...	
31	09	14	

Step	Action	Displayed Message	Comment
K	<p>In your sample calibration table, where both the Label Value and TOF Value are at least 20, subtract the amounts and record the result as a Difference Value (see below).</p> <p>Identify the largest Difference Value and the corresponding Gain Number. This Gain Number will be used to resample the media.</p>	TRAN SENSOR GAIN yyy (0 - 31) 31	In this example, Gain Number 18 is chosen because, where both values are at least twenty, it has the highest Difference Value.

Sample Calibration Table			
Gain Number	Label Value	TOF Value	Difference Value
00	252	248	4
01	250	245	5
02	248	234	14
...	...	...	...
15	188	63	125
16	184	51	133
17	179	38	141
18	174	25	149
19	170	19	N/A
...	...	...	...
31	132	14	N/A

Advanced Entry Calibration (continued)

Step	Action	Displayed Message	Comment
L	Use the buttons to set the Gain Number determined in the previous step. Press ENTER to enable the setting.	TRAN SENSOR GAIN yyy (0 - 31) 18	This example uses Gain Number 18.
M	<p>Complete a table (see example below) using new measurements, as follows:</p> <p>(A) Raise the Printhead Assembly. Place the label over the Media Sensor then lower and latch the Printhead Assembly. Record the sensor reading as P.</p> <p>(B) Raise the Printhead Assembly. Place the liner, notch, or mark over the Media Sensor then lower and latch the Printhead Assembly. Record the sensor reading as G (or M).</p> <p>(C) Raise the Printhead Assembly. Remove all media from the Media Sensor then lower and latch the Printhead Assembly. Record the sensor reading as E.</p>	<p>TRAN SENSOR GAIN</p> <p>yyy (0 - 31) 18</p>	<p>Where "yyy" is a numerical value representing the current sensor reading.</p> <p>☑ The re-sampled values may differ from those previously noted. This is normal; do not readjust the Media Sensor.</p>

Selected Gain Table			
Gain Number	Paper	Gap (or Mark)	Empty
18	173	42	9

*Advanced Entry Calibration (continued)*

Step	Action	Displayed Message	Comment
N	<p>Press the ESC Key.</p> <p>Use the buttons to scroll to PAPER SENSOR LEVEL (or if using reflective media, REFL PAPER LEVEL) and then press ENTER.</p> <p>Use the buttons to set the Paper value determined in Step M and then press ENTER.</p>	<p>PAPER SENSOR LEVEL</p> <p>(0 - 255)</p> <p>173</p>	This is the Paper value.
O	<p>Press the ESC Key.</p> <p>Scroll to GAP SENSOR LEVEL (or, if using reflective media, MARK SENSOR LEVEL) and then press ENTER.</p> <p>Set the Gap (or Mark) value determined in Step M and then press ENTER.</p>	<p>GAP SENSOR LEVEL</p> <p>(0 - 255)</p> <p>042</p>	This is the Gap (or Mark) value.
P	<p>Press the ESC Key.</p> <p>Scroll to EMPTY SENSOR LEVEL and then press ENTER.</p> <p>Set the Empty value determined in Step M and then press ENTER.</p>	<p>EMPTY SENSOR LEVEL</p> <p>(0 - 255)</p> <p>009</p>	This is the Empty value.
Q	<p>Press the EXIT Key and, when prompted, press YES at the SAVE CHANGES prompt.</p>	OFFLINE	The procedure is finished, the process almost complete.

### Advanced Entry Calibration (continued)

Step	Action	Displayed Message	Comment
R	Press and hold the FEED Key until at least one label has been output.	CALIBRATION COMPLETE Followed by... READY	<p>The printer is ready for use.</p> <p>☑ If the calibration attempt fails, try desensitizing the sensor as follows:</p> <p>Re-enter the ADVANCED MENU.</p> <p>Go to MEDIA SETTINGS / SENSOR CALIBRATION / ADVANCED ENTRY / TRAN (or REFL) SENSOR GAIN and lower the corresponding GAIN SETTING by one.</p> <p>Exit the menu and save your changes. Test your media at the new setting. If necessary, repeat until a usable Gain Setting is obtained.</p>



# 4 Menu System

## 4.1 Menu System Overview

The Menu System contains three primary branches, each with a differing level of access to secondary menus or functions:

- The User Menu accesses basic printer settings and functions;
- The Advanced Menu accesses all operational settings, functions, and diagnostics; and,
- The Test Menu accesses a menu of test, user-defined, and previous label printing functions.

---

(1) Prompts may appear before menu access is granted and before changes are enacted; see Security for details.



(2) Display contrast is adjustable: press and hold the MENU BUTTON to cycle through the contrast range (this may take several seconds) then release the button when the desired appearance has been achieved.

---

The multi-purpose **Menu**, **Test**, and **Navigation Buttons** allow Menu System entry, negotiation, and parameter selection functions:

- ❶ Soft Key Labels
- ❷ Soft Keys
- ❸ MENU Button: Enters the Menu System; returns to the previous menu level. Press and hold to adjust display contrast.
  - To change printer settings or perform diagnostics, press the MENU Button then observe the display for available selections. (When the number of selections present is greater than can be shown, use the UP or DOWN Buttons to view those additional items.) Also, Soft Key Labels are dynamic and change to denote the current associated Soft Key functions.)
- ❹ UP Button: Accesses the System Window, or ascends through branches, levels, items, and increments settings in the Menu System. Press and hold to view printer system information.
- ❺ DOWN Button: Descends through branches, levels, items, and decrements settings.
- ❻ TEST Button: Enters the Test Menu; or, if already in the Menu System, advances to next level or item, and moves cursor position. Press and hold to initiate the printhead cleaning routine.



## 4.2 The User Menu

---

The User Menu contains basic selections in these menus:

- Media Settings
- Print Control
- Printer Options
- System Settings



(1) Some setting changes will only become effective (and saved) after selecting YES at the Save Changes prompt.

(2) Labeling software may, in some cases, override the printer menu settings; see Advanced Menu for details.

---

## 4.3 The Advanced Menu

---

The Advanced Menu contains all setting, control, and functional selections in these menus:

- Media Settings
- Print Control
- Printer Options
- System Settings
- Communications
- Diagnostics

After selecting the Advanced Menu, it will be accessed whenever the **MENU BUTTON** is pressed. To enable the Advanced Menu, proceed as follows:

1. Press the MENU BUTTON.
2. Using the UP or the DOWN BUTTON, scroll to SYSTEM SETTINGS then press the ENTER KEY.
3. Scroll to MENU MODE then press the ENTER KEY.
4. Scroll to ADVANCED MENU then press the ENTER KEY. (Upon completion, OK will be displayed and the printer will exit the menu system.)



(1) Some setting changes will only become effective (and saved) after selecting YES at the Save Changes prompt.

(2) Labeling software may, in some cases, override the printer menu settings; see Advanced Menu / Communications / Host Settings to avoid potential conflicts.

(3) To return to the User Menu, re-select it or restore the factory defaults.

---



## 4.4 The Test Menu

---

The Test Menu contains test and informational label selections:

- Print Quality Label
- Print Configuration
- Ribbon Test Label
- Test Label
- Validation Label
- Print Last Label
- User Defined Label

Internally generated, these labels are printed at pre-selected media type, speed, and heat settings. Changes to these print settings can be made via the Menu System or through host commands. When printing, use full width media to capture the entire format; otherwise, adjust the printer and set the Label Width menu setting.



(1) Press the CANCEL KEY to stop printing.

(2) A printing delay can be set; see Print Test Rate (in Diagnostics).

---

### 4.4.1 User-Defined Label

The User-Defined Label allows a template to be populated by variable data (via the printer's control panel or a USB QWERTY keyboard). The template is a stored label format, where fields delimited by an ampersand (&) become variable.

The printer will prompt you to enter the variable field data. For example, the stored label format could contain the data 19131423443&ENTER NAME&

Afterward, when recalled from memory, the printer's display will indicate the variable field: ENTER NAME

---

(1) Variable data can be any part of the DPL format - font ID, positioning, etc.



(2) No error checking will be performed.

(3) Supports .dlb, .dpl, .prn, and .txt file types.

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## 4.5 Menu Details

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### Media Settings

The Media Settings menu contains label and ribbon sensing and sizing functions, as well as printhead cleaning selections:

- OPTImedia
- Media Type
- Media Index Type
- Label Length
- Maximum Label Length\*
- Paper Empty Distance\*
- Label Width
- Ribbon Low Options\*
- Sensor Calibration\*
- Printhead Cleaning\*



Items denoted with an asterisk (\*) are only accessible through the Advanced Menu.

---

The menu selections are defined on the following pages:

DISPLAYED ITEM	ITEM DESCRIPTION
OPTmedia	Automatically configures various print settings to the selected media/ribbon combination.
MEDIA TYPE	Selects the method used to print labels and should be set according to the type of media being used, where:
DIRECT THERMAL	Sets use for media that is heat reactive to produce an image.
THERMAL TRANSFER	Sets use for media that requires a ribbon to produce an image.
MEDIA INDEX TYPE	Selects the top-of-form (TOF) sensing method used to determine the leading edge of the label, where:
GAP	TOF will be recognized by sensing the gaps in the media. (Default Setting)
NOTCH	TOF will be recognized by sensing the notches in the media.
HOLE	TOF will be recognized by sensing the holes in the media.
BLACK MARK	TOF will be recognized by sensing the reflective (black) marks on the underside of the media
CONTINUOUS	No TOF sensing will be used; instead, LABEL LENGTH (in Media Settings) is used.
LABEL LENGTH	Determines the length of the label (0 - 99.99 inches) when the SENSOR TYPE is set to CONTINUOUS, where:
04.00	Is the default setting.
MAXIMUM LABEL LENGTH	Sets the distance (0 - 99.99 inches) that the printer will feed media to find TOF (when the Sensor Type is set to GAP or REFLECTIVE) before a TOF Fault is declared, where:
8.00	Is the default setting.



Maximum Label Length should typically be 2.5 to 3 times the physical length of the label.

PAPER EMPTY DISTANCE	Sets the distance (0 - 99.99 inches) the printer will attempt to feed before an Out Of Stock Fault is declared, where:
0.25	Is the default setting.



When using clear or translucent media, this setting should be longer than the actual label size.

LABEL WIDTH	Sets the maximum printable width. Objects extending beyond this setting will NOT print, where:
x.xx	Default setting is dependant on printer model.
RIBBON LOW OPTIONS	Defines the printer response when THERMAL TRANSFER mode is selected and the ribbon supply begins to diminish.
RIBBON LOW DIAMETER	Sets the ribbon supply threshold diameter (1.00 - 2.00 inches) that will trigger a Low Ribbon Warning prompt, where:
0.50	Is the default setting.
PAUSE ON RIBBON LOW	Allows the printer to enter a paused condition when Ribbon Low Diameter is met, where:
ENABLE	Pauses when a Ribbon Low Diameter condition is detected; the PAUSE Key must be pressed to proceed with the print job.
DISABLE	No action is required by the operator; printing can continue until a Ribbon Fault is declared. (Default Setting)

DISPLAYED ITEM	ITEM DESCRIPTION
SENSOR CALIBRATION	Selects the media sensor calibration method, where:
PERFORM CALIBRATION	Sets the values via internal printer calculations, as described in the STANDARD CALIBRATION procedure.
ADVANCED ENTRY	Sets the values via manual entry (typically for hard to calibrate label stocks), as described in the ADVANCED ENTRY CALIBRATION where:
PAPER SENSOR LEVEL	Establishes the threshold for the paper value (0 - 255), where 170 is the default setting.
REFL PAPER LEVEL	Establishes the threshold for the reflective value (0 - 255), where 170 is the default setting.
GAP SENSOR LEVEL	Establishes the threshold for the gap value (0 - 255), where 040 is the default setting.
MARK SENSOR LEVEL	Establishes the threshold for the mark value (0 - 255), where 040 is the default setting.
EMPTY SENSOR LEVEL	Establishes the threshold for the empty value (0 - 255), where 000 is the default setting.
TRAN SENSOR GAIN	Establishes the sensitivity of the transmissive sensor (0 - 31), where 15 is the default setting.
REFL SENSOR GAIN	Establishes the sensitivity of the reflective sensor (0 - 31), where 15 is the default setting.
PRINTHEAD CLEANING	Controls the automatic cleaning alert and function, where:
CLEAN HEAD SCHEDULE	Specifies the inch (or centimeter) count at which to clean the printhead, and if exceeded three times, declare a Head Cleaning Fault. (Note that the specified count [0 - 200 inches] will be multiplied by one thousand, and that zero [the default setting] will disable the function.)
CLEAN HEAD COUNTER	Indicates the number of inches (or centimeters) since a cleaning was last initiated.
RESET COUNTER	Resets the Clean Head Counter to zero to restart the Clean Head Schedule.
CLEAN HEAD NOW	Initiates the cleaning process and resets the Clean Head Counter.

## Print Control

The Print Control menu contains printing throughput, offset and custom setup functions:

- Heat
- Print Speed
- Feed Speed
- Reverse Speed\*
- Slew Speed\*
- Row Offset
- Column Offset
- Present Distance
- TOF Precedence\*
- Custom Adjustments\*
- Motor Throttling\*



Items denoted with an asterisk (\*) are only accessible through the Advanced Menu.

The menu selections are defined as follows:

DISPLAYED ITEM	ITEM DESCRIPTION
HEAT	Controls the burn time (0 - 30) of the printhead (and is equivalent to the Heat setting in many software labeling programs), where:
10	Is the default setting.
PRINT SPEED	Controls the rate of label movement during printing, where:
x.x in/sec	
FEED SPEED	Controls the rate of label movement between printing areas, where:
x.x in/sec	
REVERSE SPEED	Controls the rate of label movement (2.0 - 5.0 inches per second) during backup positioning, where:
4.0 in/sec	Is the default setting.
SLEW SPEED	Controls the rate of label movement (2.0 - 16.0 inches per second) between printing areas when using the GPIO function, where:
x.x in/sec	
ROW OFFSET	Shifts the vertical start of print position (0 - 99.99 inches) on the label, where:
00.00 in.	Is the default setting.
COLUMN OFFSET	Shifts the HORIZONTAL, left-justified start of print position to the right (0-99.99 inches), without shifting the LABEL WIDTH termination point to the right, where:
00.00 in.	Is the default setting.

DISPLAYED ITEM	ITEM DESCRIPTION
PRESENT DISTANCE	Sets the label stop position (0 - 4.00 inches) past the start of print position upon output. When subsequent label formats are received, the printer will automatically back up the label to position it at the start of print position, where:
0.00 in.	Is the default setting.



When set to 0.01 in., NONE is assumed and a zero (0) positioning value will be used.

TOF PRECEDENCE	Allows an override of label format data when the form length is exceeded, where:
DISABLE	Prints labels formats without TOF truncating.
ENABLE	Ends the label at the next TOF, truncating any print data that extends past this mark.
CUSTOM ADJUSTMENTS	Changes the factory adjustment parameters to finely and independently compensate for slight mechanical differences sometimes evident when multiple printers share label formats. These settings are also available to make special label formatting adjustments, where:
DARKNESS	Controls the strobe time (1 - 64) to establish the nominal HEAT setting for printhead-specific thermal characteristics, where:
32	Is the default setting.
CONTRAST	Allows fine-tuning (1 - 64) of the gray adjustment for print quality, where:
32	Is the default setting.
ROW ADJUST	Shifts the vertical start of print position (in xxx dots) to fine-tune the ROW OFFSET setting, where:
+0000	If shifting Row Adjust in the negative direction, modify the PRESENT ADJUST setting (see below) by that same amount.
COLUMN ADJUST	Shifts both the horizontal start of print position and the LABEL WIDTH termination point to the right (in xxx dots) to fine-tune the COLUMN OFFSET setting, where:
+000 (-100 – 100 DOTS)	Is the setting.
PRESENT ADJUST	Adjusts the label stopping position (in xxx dots) to fine-tune the PRESENT DISTANCE setting, where:
+000 (-100 – 100 DOTS)	Is the setting.
MOTOR THROTTLING	The printer will throttle the print to a single label with delay mode if printing consecutively for a specified period of time.
ENABLE	Enables Motor Throttling; default setting
DISABLE	Disables Motor Throttling


## Printer Options

The Printer Options menu contains file-handling, module, and optional equipment settings:

- Modules
- Present Sensor
- Cutter
- GPIO Port

The menu selections are defined as follows:

DISPLAYED ITEM	ITEM DESCRIPTION																								
MODULES	Controls memory handling functions, where:																								
DIRECTORY	Allows viewing and printing of the available space and file types (including plug-in files) present on a module. Only detected modules will be listed, and selecting ALL will display all results. (See the <i>Programmer's Manual</i> for memory allocation information.)																								
PRINT FILE	Prints selections from stored file types: <table border="1"> <thead> <tr> <th>File Extension</th><th>Printed Result</th></tr> </thead> <tbody> <tr> <td>DBM</td><td>A font sample.</td></tr> <tr> <td>DCM</td><td>The configuration commands contained in the file.</td></tr> <tr> <td>DIM</td><td>The image.</td></tr> <tr> <td>DLB</td><td>The stored label.</td></tr> <tr> <td>DLN</td><td>The name of the language.</td></tr> <tr> <td>DMS</td><td>The database contained in the file for RFID.</td></tr> <tr> <td>DPL</td><td>A label format, if detected.</td></tr> <tr> <td>DTT</td><td>A font sample.</td></tr> <tr> <td>PLU</td><td>The names of the files contained in the plug-in directory.</td></tr> <tr> <td>PRN</td><td>Is processed as a DPL file.</td></tr> <tr> <td>TXT</td><td>Is processed as a DPL file.</td></tr> </tbody> </table>	File Extension	Printed Result	DBM	A font sample.	DCM	The configuration commands contained in the file.	DIM	The image.	DLB	The stored label.	DLN	The name of the language.	DMS	The database contained in the file for RFID.	DPL	A label format, if detected.	DTT	A font sample.	PLU	The names of the files contained in the plug-in directory.	PRN	Is processed as a DPL file.	TXT	Is processed as a DPL file.
File Extension	Printed Result																								
DBM	A font sample.																								
DCM	The configuration commands contained in the file.																								
DIM	The image.																								
DLB	The stored label.																								
DLN	The name of the language.																								
DMS	The database contained in the file for RFID.																								
DPL	A label format, if detected.																								
DTT	A font sample.																								
PLU	The names of the files contained in the plug-in directory.																								
PRN	Is processed as a DPL file.																								
TXT	Is processed as a DPL file.																								
FORMAT MODULE	Selects from a list of modules available for formatting by the printer. Choosing FORMAT MODULE will erase existing data in the selected module																								
DELETE FILE	Selects from the list of available files for deleting; see Section 6.3, File Handling Messages.																								
COPY FILE	Selects from the list of available files for copying, prompting you for the destination module before execution.																								
UNPROTECT MODULE	Selects from the list of available modules to unprotect, and then prompting you regarding the outcome of the attempt.																								
PRESENT SENSOR	Controls the "on-demand" dispensing of labels , where:																								
MODE	Sets the detection method and response of the printer:																								
AUTO	Is the default setting. Automatically detects, enables the Present Sensor (or Peel and Present mechanism) and sets the label stop location; if not detected, the operation will be ignored.																								
ENABLED	Enables the Present Sensor (or Peel and Present mechanism) and sets the label stop location; if not detected, a fault will be generated.																								
DISABLED	Disables the option.																								
RETRACT DELAY	Programs a time delay for the retraction of the next label in the print process, where:																								
(1 - 255 x 10 mS) 070	Is the range, times 10 milliseconds; and, Seventy (times ten) is the default setting.																								

DISPLAYED ITEM	ITEM DESCRIPTION
CUTTER	Controls the Cutter operation, where:
MODE	Sets the detection method and response of the printer:
AUTO	Is the default setting, where the presence of the cutter option is automatically sensed. If detected, the cutter is enabled; otherwise, it will be ignored.
ENABLED	Enables the cutter. If the cutter is not detected, a fault will be generated.
DISABLED	Disables the cutter.
CUT BEHIND	<p>Allows a queue of small labels to accumulate before cutting is performed to increase throughput.</p> <hr/> <div>  <p>(1) This mode can be used without a cutter to allow the presentation of an extra label with retraction upon the next job or feed operation.</p> <p>(2) After a fault or unknown label position, the leading edge will be cut to ensure no extra material exists at the beginning of the first label; otherwise, the cutter will only cut when necessary.</p> </div> <hr/>
(0 – 2) 0	Zero, one, or two are the number of labels to queue before cutting; and Is the default setting.
GPIO PORT	Controls the optional Applicator Interface Card's GPIO function, where:
GPIO DEVICE	Sets the option to work with a specific device type, where:
DISABLED	Disables the option.
APPLICATOR	Enables parameters for related label applicator functions: <ul style="list-style-type: none"> <li>• Completion upon last SOP, de-asserts Data Ready (DRDY);</li> <li>• FEED allowed at any time; and,</li> <li>• DRDY upon PAUSE.</li> </ul>
APPLICATOR2	Enables parameters for alternate label applicator functions: <ul style="list-style-type: none"> <li>• Completion upon 1 msec. overlap of Data Ready (DRDY) and End of Print (EOP);</li> <li>• DRDY signal end inhibits FEED; and,</li> <li>• De-asserts DRDY upon PAUSE or FAULT.</li> </ul>
BARCODE VERIFIER	Enables the GPIO Port to work with a bar code verifier.
START OF PRINT	Selects the type of input signal required to initiate Start of Print (SOP), where:
LOW PULSE	Triggers printing with a low pulse.
HIGH PULSE	Triggers printing with a high pulse.
ACTIVE LOW	Triggers printing with a low signal.
ACTIVE HIGH	Triggers printing with a high signal.
EDGE	Triggers printing with a signal edge transition.
END OF PRINT	Sets the type of output signal generated to indicate End of Print (EOP), where:
LOW PULSE	Outputs a low pulse upon completion.
HIGH PULSE	Outputs a high pulse upon completion.
ACTIVE LOW	Outputs a logic low upon completion.
ACTIVE HIGH	Outputs a logic high upon completion.

RIBBON LOW	Sets the type of output signal generated to indicate Ribbon Low condition where:
ACTIVE LOW	Outputs a logic low upon condition.
ACTIVE HIGH	Outputs a logic high upon condition..
SLEW ENABLE	Selects the type of input signal required to initiate label slew, where:
STANDARD	Triggers slew with a low signal.
LOW PULSE	Triggers slew with a low pulse.
HIGH PULSE	Triggers slew with a high pulse.
ACTIVE LOW	Triggers slew with a low signal.
ACTIVE HIGH	Triggers slew with a high signal.
Err On Pause (App2)	Sets the output when a service required fault occurs (Applicator Interface Card Type 2 equipped only), where:
ENABLED	Enables the output signal.
DISABLED	Disables the output signal.

## System Settings

The System Settings menu contains label formatting, operation, and control functions:

- Menu Mode
- Configuration File
- Internal Module\*
- Default Module\*
- Scaleable Font Cache\*
- Single Byte Symbols\*
- Double Byte Symbols\*
- Time And Date
- Media Counters\*
- Print Configuration\*
- Configuration Level\*
- Set Factory Defaults\*
- Format Attributes\*
- Label Rotation
- Imaging Mode\*
- Pause Mode\*
- Peel Mode\*
- Security\*
- Units Of Measure\*
- Input Mode\*
- DPL Emulation\*
- Column Emulation\*
- Row Emulation\*
- SOP Emulation\*
- Back After Print\*
- Font Emulation\*
- Label Store\*
- Menu Language
- Display Settings\*
- Fault Handling\*
- SCL Font Bold Factor\*



Items denoted with an asterisk (\*) are only accessible through the Advanced Menu.

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The menu selections are defined as follows:



DISPLAYED ITEM	ITEM DESCRIPTION
CONFIGURATION FILE	Controls the creation, storage, and recall of printer configuration files, where:
RESTORE AS CURRENT	Returns the printer to a previously saved configuration.
SAVE SETTING AS	Creates a file based on the current printer configuration, as described here.
DELETE FILE	Removes a selected configuration file from memory. (An active file cannot be deleted.)
FACTORY SETTING FILE	Provides a list of available configuration files used to restore the printer's configuration following a Level One Reset or when YES is selected in the SET FACTORY DEFAULTS menu. (NONE is the default file setting.)
INTERNAL MODULE	Sets the number of 1KB blocks (100 - 5120) allocated for the internal DRAM 'D' module, where:
1024	Is the Default Setting.
DEFAULT MODULE	Designates the memory module to be used for file storage when none are specified, where:
D	Is the Default Setting (DRAM module).
G	Flash module.



The available modules may vary depending upon printer model and options.

SCALEABLE FONT CACHE	Configures the number of 1KB blocks (128 - 512) allocated for the scaleable font engine, where:
384 KBytes	Is the Default Setting.
SINGLE BYTE SYMBOLS	Selects the code page used to print single byte fonts, including:

ARABIC-8	ISO 15: ITALIAN	ISO 17: SPANISH
CYRILLIC	LEGAL	ISO 11: SWEDISH
ISO 60: DAN/NOR	HP4000 ZAPF DINGBAT	SYMBOL
DESKTOP	MATH-8	TURKISH-8
ITC ZAPF DINGBAT/100	MACINTOSH	PS TEXT
ITC ZAPF DINGBAT/200	PS-MATH	UTF-8
ITC ZAPF DINGBAT/300	PC-858 MULTILINGUAL	ISO 4: UK
PS ITC ZAPF DINGBAT	MICROSOFT PUBLISHING	ISO 6: ASCII
ISO 8859/1 LATIN 1	PC-8 CODE PAGE 437	VENTURA INTERNATIONAL
ISO 8859/2 LATIN 2	PC-8 D/N, CP 437N	VENTURA US
ISO 8859/5 LATIN 5	PC-852 LATIN 2	VENTURA MATH
ISO 8859/10 LATIN 6	PC-851 LATIN/GREEK	WINDOWS 3.1 LATIN 1
ISO 8859/7 LT/GK E7	PC-862 LATIN/ARABIC	WINDOWS LATIN/ARABIC
ISO 8859/15 LATIN 9	PI FONT	AGFA TIDBITS
ISO 8859/7 LT/GK EG	PC-850 MULTILINGUAL (Default Setting)	WINDOWS 3.1 LATIN 2
ISO 8859/8 LATIN/HBR	PC-864 LATIN/ARABIC	WINDOWS LATIN/GREEK
ISO 8859/8 LATIN/CYR	PC-8 TK, CP 437T	WINDOWS 3.1 LATIN 5
ISO 69: FRENCH	PC-1004	WINDOWS
GREEK-8	PC-775 BALTIC	WINDOWS 3.0 LATIN 1
PC-8 GREEK	PTXT3000	WINDOWS LATIN/CYRIC
ISO 21: GERMAN	NON-UGL, PI FONT	WINDOWS 3.0 LATIN 5
HEBREW-7	ROMAN-8	
HEBREW-8	ROMAN-9	



Reference the *Programmer's Manual* for code page symbol set details.

DISPLAYED ITEM	ITEM DESCRIPTION
DOUBLE BYTE SYMBOLS	Selects the optional ILPC code page used to print double byte fonts, where:
JIS	Japanese Industry Standard
SHIFT JIS	Shift Japanese Industry Standard
EUC	Extended UNIX Code
UNICODE	Unicode (including Korean). Default setting.
GB	Government Bureau Industry Standard; Chinese (PRC)
BIG 5	Taiwan encoded




Reference the *Programmer's Manual* for the code page symbol set details.




TIME AND DATE	Sets the printer's time and date.
MEDIA COUNTERS	Displays and controls various internal counters, where:
ABSOLUTE COUNTER	Shows the total number of inches printed and the date the counter was set (non-resettable).
PRINthead COUNTER	Shows the total number of inches printed (not user-resettable).
RESETTABLE COUNTER	Shows the number of inches printed since the last reset (user-resettable).
RESET COUNTER	Returns the Resettable Counter to zero.
PRINT CONFIGURATION	Produces a Configuration Label using the printer's current database information.



(1) The information varies with the model, firmware version and installed options.

(2) To capture all the data, use media that is at least 2 inches (51 mm) wide and set the Label Width (in Media Settings) according to the width of your labels.

CONFIGURATION LEVEL	Displays the hardware and software levels of the printer, where:
	 This information is also provided on the Configuration Label.
PRINTER KEY	<p>Identifies the unique key number of the printer, in the form: vvvv-cwxx-yyyyyy-zzz, where:</p> <p>vvvv - Represents the printer model number.</p> <p>cwxx - Represents the hardware/software feature level, where:</p> <p>c - Represents the printer class.</p> <p>w - Represents hardware feature level of the main board.</p> <p>xx - Represents the software feature level (10 = standard DPL, and 20 = Internal CG Times Font). Features are accepted up to this value, but increases beyond the range will require an authorization code.</p> <p>yyyyyy - Is the manufacturing date code.</p> <p>zzz - Is a unique time stamp.</p>
APPLICATION VERSION	Displays the level, version number, and date of the application firmware.
BOOT LOADER	Displays the version level and date of the boot loader.
UPGRADE PRINTER CODE	Upgrades the software feature level of the printer.
UNLOCK FEATURE	Unlocks additional optional features within the printer. (An authorization code is required.)

DISPLAYED ITEM	ITEM DESCRIPTION
SET FACTORY DEFAULTS	Returns the printer settings to the factory-programmed values (except CUSTOM ADJUSTMENTS and calibrations); or, if selected, to the Factory Setting File, where selecting YES at the prompt causes the configuration to be restored.
FORMAT ATTRIBUTES	Defines the manner in which overlapping text and graphics appear when printed, where:
TRANSPARENT	Intersecting text, images, and bar codes will be printed, for example: 
XOR	Intersecting text, images, and bar codes will not be printed, for example:  (Default Setting)
OPAQUE	Intersecting text, images, and bar codes will be printed by obliterating those formatted first, for example: 
LABEL ROTATION	Allows the label format to be rotated 180 degrees before printing, where:
ENABLED	Flips the format.
DISABLED	Does not flip the format. (Default Setting)
IMAGING MODE	Determines the process used to format labels, where:
MULTIPLE LABEL	Images multiple labels as memory permits to achieve the fastest throughput. If time-stamping labels, however, the indicated time will reflect the moment of imaging rather than the actual print time. (Default Setting)
SINGLE LABEL	Images the next label only after the previous label has been printed, providing the most accurate time-stamps but at a slower throughput rate.
PAUSE MODE	Allows for controlled interactive printing, where:
ENABLED	Requires you to press the PAUSE Key to print each label.
DISABLED	Labels are printed without pausing. (Default Setting)
PEEL MODE	Allows the printer to wait until the Start of Print signal is received (via the optional GPIO Port) to feed a label, where:
ENABLED	Inhibits the feed function until the Start of Print signal is received.
DISABLED	Feeds the label regardless of the Start of Print signal. (Default Setting)
SECURITY	Allows all or part of the User Interface to be password-protected and for that password to be modified:
SELECT SECURITY	Allows password to be set for specific User Interface areas, where:
DISABLED	No password is required for menu access. (Default Setting)
SECURE MENU	Sets a password requirement for User and Advanced menu entry.
MENU AND TEST	Sets a password requirement for all menu entries.
ADVANCED MENU	Sets a password requirement for Advanced menu entry. (After enabling this selection, make it effective by returning the Menu Mode to the User setting; see above.)
MODIFY PASSWORD	Modifies the four-digit password required when security is enabled. For modification, the code must be reentered when prompted to confirm.






To be activated, the password must initially be set to a value other than the default setting (0000).

DISPLAYED ITEM	ITEM DESCRIPTION
UNITS OF MEASURE	Sets the measurement standard used, where:
IMPERIAL	Uses inches. (Default Setting)
METRIC	Uses millimeters and centimeters.
INPUT MODE	Defines the type of processing that will occur when data is received, where:
PL-Z	Alternative programming language processing will be used, with the exception of the following DPL specific-parameters:  DPL Emulation; SOP Emulation; and, Label Store.
AUTO	Identifies then activates the appropriate emulation parser for the data.
DPL EMULATION	Allows the printer to reproduce, for backward compatibility, label formats with the same characteristics as those produced by legacy models, where:
STANDARD	Standard DPL processing will be used for printing. (Default Setting)
ALLEGRO	Processes DPL data as an Allegro®, including row position calculations based on 194 dots per inch and the exceptions noted below.
PRODIGY PLUS	Processes DPL data as a Prodigy Plus®, including column calculations based on 200 dots per inch and the exceptions noted below.
PRODIGY	Processes DPL data as a Prodigy®, including column calculations based on 200 dots per inch and the exceptions noted below.

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- Exceptions:
- Data Terminator processing – When printing I 2 of 5 bar codes D, J, and L, the first non-numeric character processed will terminate the bar code data field.
  - Bar Size exception – When printing I 2 of 5 bar code L, if the bar size specified is greater than P (25) it is automatically decreased to 10.
  - Human Readable Fonts fixed size – When printing EAN and UPC bar codes B, C, F, G, M, and N, a fixed font size is produced.
  - Line and box vertical sizing anomaly – When printing rotations 2 and 4, lines and boxes are affected by the vertical multiplication factor defined in the DPL Dxx command.
  - Column position defaults – Column positions greater than the printhead width are adjusted back to the printable area then printed.
  - Bar codes in rotation 3 - (upside down / right to left) default sizing – When row position in rotation 3 is less than bar code height, bar codes falling off the label's leading edge are pushed back onto the label.
  - <STX>L command – When no printable fields reside in the format, it results in no label movement.
- 

COLUMN EMULATION	Allows the column dots per inch to be adjusted (153 - 253 dots), so that numbers smaller than the printhead resolution reduce the printed output from right to left, where:
XXX Dots	

DISPLAYED ITEM	ITEM DESCRIPTION
ROW EMULATION	Allows the row dots per inch to be adjusted (103 - 303), so that numbers smaller than the printhead resolution enlarge the height of the printed output and numbers larger reduce it, where:
XXX Dots	
SOP EMULATION	Allows label positioning commands to function with backward compatibility when printing label formats designed for legacy models, where:
DISABLED	Produces the natural start of print position. (Default Setting)
110 (PRODPLUS)	Emulates the Prodigy Plus® start of print position.
220 (ALLEGRO)	Emulates the Allegro® start of print position.
250 (PRODIGY)	Emulates the Prodigy™ start of print position.
BACK AFTER PRINT	Determines media movement when a cutter, present sensor, peel and present, or GPIO is enabled, where:
MODE	Repositions media, where:
DISABLED	Movement occurs only when the next label is ready to print, minimizing edge curling. (Default Setting)
ENABLED	Movement occurs according to BACKUP DELAY timing after a cut, cleared sensor, or SOP to allow fastest throughput.
BACKUP DELAY (1/50s)	Instructs the printer to retract a presented label after a specified time elapses (0 – 255, in one-fiftieth of a second increments), where:
000	Retraction occurs when the next label is received and processed. (Default Setting)
FONT EMULATION	Allows font substitution for all internal fonts, where:
STANDARD FONTS	Prints using a standard (internal) font. (Default Setting)
CG TIMES	Prints using the CG Times font.
USER ID S50	Prints using a downloaded font.
LABEL STORE	Determines the command recall level used when retrieving stored label formats, where:
STATE & FIELDS	Recalls the printer state (i.e., heat, speed settings, etc.) and the label-formatting commands for the stored label. (Default Setting)
FIELDS ONLY	Recalls the label-formatting commands for the stored label.
MENU LANGUAGE	Selects the menu and configuration label language. Only languages that are resident will be displayed (see Appendix C), where:
ENGLISH	Enables English (Default Setting)
DISPLAY SETTINGS	Determines the appearance of the items in the display, where:
GRAPHIC DISPLAY MODE	Determines the magnification of the displayed items, where:
STANDARD	Is the normal setting.
ENHANCED	Is the enlarged setting.
DISPLAY UNITS	Determines the displayed type of distance information, where:
STANDARD	Displays the information according to the UNITS OF MEASURE setting (see above).
IMPERIAL	Displays the information in inches.
METRIC	Displays the information in millimeters and centimeters.
DISPLAY CONTRAST	Adjusts the displays contrast (0-100), where:
35	Is the default setting

DISPLAYED ITEM	ITEM DESCRIPTION
FAULT HANDLING	Determines the intervention required and the disposition of the label in process when a fault occurs, where:
LEVEL	Selects the user action and the reprint status upon declaration of a fault, where:
NO REPRINT	Printing stops and a fault message is displayed. Following correction of the problem, the FEED Key must be pressed to clear the fault, but the label in process is not reprinted.
STANDARD	Printing stops and a fault message is displayed. Following correction of the problem, the FEED Key must be pressed to clear the fault then the label in process is reprinted. (Default Setting.)
VOID AND RETRY	<p>Depending upon the RETRY COUNT (see below), one of the following occurs:</p> <p>If the count has not been exceeded, VOID is printed (see VOID DISTANCE) on the failed label and reprinting automatically occurs;</p> <p>If the count has been exceeded, printing stops and a fault message is displayed. Following correction of the problem, the FEED Key must be pressed to clear the fault before the label in process is reprinted; or,</p> <p>If the CANCEL Key is pressed, reprinting is optional: to reprint press NO; or, to cancel the reprint press YES (and press YES again to cancel the batch.)</p> <hr/> <div>  <p>(1) With no Linear Scanner attached, the printer will perform in the STANDARD setting, except that VOID will be printed on the faulted label.</p> <p>(2) VOID will not be printed if insufficient text space exists (see VOID DISTANCE, below), or if the fault occurred after printing.</p> <p>(3) The text can be customized, see the <i>Programmer's Manual</i> for details.</p> </div> <hr/>
VOID DISTANCE	Sets the distance to backup and then print VOID on a faulted label, where:
(0.09 – 2.00 in.) 0.50	Is the distance, measured from the trailing edge of the label, which indirectly establishes the font size of the text. (The default setting is 0.5 inches.)
RETRY COUNT	Sets the number of reprint attempts, where:
(0 – 3) 1	<p>Is the last label in the count to be voided before the printer will stop and display a fault message. (The default setting is one.)</p> <hr/> <div>  <p>Retry counts greater than 1 are only valid for printers equipped with the Linear Scanner or RFID option.</p> </div> <hr/>
BACKFEED ON CLEAR	Determines the printer's action after a fault is cleared, where:
ENABLED	Backup label positioning will occur after the fault is cleared.
DISABLED	<p>No backup label positioning will occur after fault clearing; the printer will assume that the <u>current</u> position is correct. (This is the default setting.)</p> <hr/> <div>  <p>If reloading media, the label must be placed its presented position.</p> </div> <hr/>
SCL FONT BOLD FACTOR	Sets a scalable font boldfacing amount, where:
08 (1 – 36)	Is the setting, based on an incrementing scale, where eight (08) is nominal.

## Communications


The Communications menu contains interface and host control functions:

- Serial Port A\*
- Parallel Port A\*
- USB Port\*
- Network Interface\*
- Host Settings\*





Items denoted with an asterisk (\*) are only accessible through the Advanced Menu.





The menu selections are defined as follows:

DISPLAYED ITEM	ITEM DESCRIPTION
SERIAL PORT A	Controls the RS-232 communications settings for Serial Port A, where:
BAUD RATE	Sets the serial communication rate, where:
(1200 – 115000 BPS) 9600 BPS	Is the range, in Bits Per Second; and, is the Default Setting.
PROTOCOL	Sets the data flow control (handshaking) method, where:
BOTH	XON/XOFF and CTS/DTR are used. (Default Setting)
SOFTWARE	XON/XOFF is used.
HARDWARE	CTS/DTR is used.
NONE	Flow control is not used.
PARITY	Sets word parity, where:
NONE	Parity is not used. (Default Setting)
ODD	Odd parity is used.
EVEN	Even parity is used.
DATA BITS	Sets word length, where:
(7 - 8) 8	A seven or eight bit word is selectable; and, is the Default Setting.
STOP BITS	Sets the number of stop bits, where:
(1 - 2) 1	One stop or two stop bits are selectable; and, is the Default Setting.
PARALLEL PORT A	Controls the communication setting for the parallel port, where:
PORT DIRECTION	Determines if data is returned from the printer, where:
UNI-DIRECTIONAL	No data is returned; communication is one-way.
BI-DIRECTIONAL	Data is returned in compliance with IEEE 1284 back-channel operation. (Default Setting)
	 An IEEE 1284 bidirectional cable is required.
USB PORT	Controls the communication setting for the USB port
USB DEVICE CLASS	Defines the USB port type
PRINTER	Sets the printer for use as a typical Windows printer
CDC	Sets the printer for use with handled PC's and similar devices
Composite	Combines both Printer and CDC classes. (Default Setting)
NETWORK INTERFACE	Controls the communications settings for the network interface, where:
QUICK SETUP	Controls the communications settings for the network interface, where:
WIRED DHCP	Configures the card for wired connection.
SET FACTORY DEFAULTS	Resets NIC Adapter parameters to the factory defaults values.

DISPLAYED ITEM	ITEM DESCRIPTION
GENERIC SETTINGS	Controls global communication settings shared by wired and wireless LAN
ACTIVE INTERFACE	Selects the network interface currently in use by the printer, where:
NONE	Disables both interfaces
WIRED ETHERNET	Selects the Wired Ethernet interface
WIRELESS ETHERNET	Selects the Wireless Ethernet interface
SNMP ENABLE	Sets SNMP
NO	(Default Setting)
YES	
TELNET ENABLE	Enable/Disable Telnet protocol
NO	(Default Setting)
YES	
FTP SERVER ENABLE	Enable/Disable FTP protocol
NO	(Default Setting)
YES	
HTTP SERVER ENABLE	Enable/Disable FTP protocol
NO	
YES	(Default Setting)
LPD PRINT ENABLE	
NO	
YES	(Default Setting)
TCP PRINT ENABLE	
NO	
YES	(Default Setting)
NETCENTER ENABLE	
NO	(Default Setting)
YES	
GRATUITOUS ARP	Sets time interval for ARP transmission packets, where: (0-100 minutes); Default is 0
NETWORK REPORT	Prints or displays a report which lists the printer's network settings.



DISPLAYED ITEM	ITEM DESCRIPTION
WIRED ETHERNET	Controls the communications settings for the wired Ethernet network interface
IP DISCOVERY	Sets the address discovery method, where:
USE STATIC ADDRESSES	The stored static IP, Subnet Mask, and / or Gateway Address will be used.
USE DHCP	<p>The card broadcasts over the network using DHCP protocol to receive addresses from the responsible server at startup. Manual modifications to IP Address, Subnet Mask, or Gateway Address are not allowed; and, if no server is found, the specified static value will be used. (Default Setting)</p> <p> A server assigned IP address takes precedence over any static IP address stored in the interface.</p>
USE BOOTP	<p>The card broadcasts over the network using BOOTP protocol to receive addresses from the responsible server at startup. Manual modifications to IP Address, Subnet Mask, or Gateway Address are not allowed; and, if no server is found, the specified static value will be used. (Default Setting)</p> <p> A server assigned IP address takes precedence over any static IP address stored in the interface.</p>
IP ADDRESS	Specifies the static IP Address of the interface in the standard octet format.
SUBNET MASK	Specifies the static Subnet assigned to the interface, for example: 255.255.255.000.
DEFAULT GATEWAY	Specifies the Gateway Address the interface will use, for example: 192.168.10.1
DUPLEX CAPABILITY	<p>Specifies the transmission and speed of the wired Ethernet connection:</p> <ul style="list-style-type: none"> <li>• Auto-Negotiate (default);</li> <li>• 100 BaseT Full Duplex;</li> <li>• 100 BaseT Half Duplex;</li> <li>• 10 BaseT Full Duplex; or,</li> <li>• 10 BaseT Half Duplex</li> </ul>
PRIMARY WINS SERVER	The IP address of the primary WINS Server.
SECONDARY WINS SERVER	The IP address of the secondary WINS Server.
PRIMARY DNS SERVER	The IP address of the primary DNS Server.
SECONDARY DNS SERVER	The IP address of the secondary DNS Server.
SNMP TRAP DESTINATION ADDRESS	Is the address in standard octet format where SNMP traps will be sent when SNMP service is installed on your receiver. When zeroed, no traps are sent.
SNMP SERVER ADDRESS	Is the server address in standard octet format for SNMP services.
NETBIOS ENABLE	Enables or disables the NET BIOS SERVICES
NO	(Default Setting)
YES	

DISPLAYED ITEM	ITEM DESCRIPTION
TCP PRINT PORT	Selects the Port to use for all TCP network communications; Default is 9100
INACTIVITY TIME	Set the amount of time ( <i>in seconds</i> ) in which the current port will remain open when no activity is present.
LPD PRINT PORT	Selects the Port to use for all LPD network communications; Default is 515
WIRELESS ETHERNET	Controls the communications settings for the wireless Ethernet network interface, where:
IP DISCOVERY	Sets the address discovery method, where:
USE STATIC ADDRESSES	The stored static IP, Subnet Mask, and / or Gateway Address will be used.
USE DHCP	<p>The card broadcasts over the network using DHCP protocol to receive addresses from the responsible server at startup. Manual modifications to IP Address, Subnet Mask, or Gateway Address are not allowed; and, if no server is found, the specified static value will be used. (Default Setting)</p> <p> A server assigned IP address takes precedence over any static IP address stored in the interface.</p>
USE BOOTP	<p>The card broadcasts over the network using BOOTP protocol to receive addresses from the responsible server at startup. Manual modifications to IP Address, Subnet Mask, or Gateway Address are not allowed; and, if no server is found, the specified static value will be used. (Default Setting)</p> <p> A server assigned IP address takes precedence over any static IP address stored in the interface.</p>
IP ADDRESS	Specifies the static IP Address of the interface in the standard octet format.
SUBNET MASK	Specifies the static Subnet assigned to the interface, for example: 255.255.255.000.
DEFAULT GATEWAY	Specifies the Gateway Address the interface will use, for example: 192.168.10.1
HOST SETTINGS	Controls the communications with a host device, where:
	<p> The "ignore host" settings for ESC SEQUENCES, HEAT, SPEED, TOF SENSING, SYMBOL SET, CNTRL-CODES, STX-V SW SETTINGS, and MAX LENGTH will be unaffected when PL-Z Mode is selected (see Input Mode for details).</p>
HOST TIMEOUT	Sets the number of seconds (1 - 60) that an established communications port must be idle before data can be received through an alternate port, where:
	<p> If the time-out period is exceeded before all data is received, the data will be ignored.</p>
10	Is the Default Setting.

DISPLAYED ITEM	ITEM DESCRIPTION
CONTROL CODES	Allows changes to the prefix of the software commands interpreted by the printer, where:
STANDARD CODES	Use these characters: Hex 01 = SOH command; Hex 02 = STX command; count-by = ^; Hex 1B = ESC; Hex 0x0D = Carriage Return. (Default Setting)
ALTERNATE CODES	Use these characters: Hex 5E = SOH command; Hex 7E = STX command; count-by = @; Hex 1B = ESC; Hex 0x0D = Carriage Return.
ALTERNATE CODES 2	Use these characters: Hex 5E = SOH command; Hex 7E = STX command; count-by = @; Hex 1B = ESC; Hex 0x7C = Carriage Return.
CUSTOM CODES	Each DPL command (SOH, STX, CR, and count-by) may be selected by entering the desired Hex code.
FEEDBACK CHARACTERS	Allows the printer to return a Hex 1E (RS) after each label successfully prints, and a Hex 1F (US) after each label batch successfully prints, where:
ENABLED	Sends feedback characters to the host.
DISABLED	Does not send feedback characters to the host. (Default Setting)
ESC SEQUENCES	Allows data containing invalid ESC control code sequences to be processed, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores ESC sequences are during processing (since some systems send a "banner" to the printer). Bitmapped font downloads are disabled in this mode.
HEAT COMMAND	Determines the way the DPL Heat command is handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores DPL Heat commands; instead, the heat value is controlled via the menu setting.
SPEED COMMANDS	Determines the way DPL Print, Feed, Slew, and Reverse commands are handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores DPL speed commands; instead, the speeds are controlled via the menu setting.
TOF SENSING COMMANDS	Determines the way in which DPL Gap, Continuous, and Reflective commands are handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores DPL TOF commands; instead, TOF is controlled via the menu setting.
SYMBOL SET COMMAND	Determines the way in which DPL Single and Double Symbol Set commands are handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores DPL Symbol Set commands; instead, the Symbol Set selection is controlled via the menu setting.
CNTRL-CODES (DATA)	Determines the way in which DPL SOH, STX, CR, ESC, and ^ codes are handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores DPL Control Codes; instead, the control code functions are established via the menu setting.
STX-V SW SETTINGS	Determines the way in which the DPL <STX>V command is handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores the option-enable command; instead, the option selections are controlled via menu settings.
MAX LENGTH COMMAND	Determines the way in which the DPL <STX>M command is handled, where:
ENABLED	Processes commands normally. (Default Setting)
DISABLED	Ignores the maximum label length command; instead, Maximum Label Length is controlled via the menu setting.
PROCESS SOH (DATA)	Determines the way the printer responds to an Immediate Command (e.g., Get Status, Module Storage, etc.), where:
ENABLED	Operations are interrupted upon receipt to process the command.
DISABLED	Processes commands normally. (Default Setting)

## Diagnostics



The Diagnostics menu contains testing functions and printhead reporting selections:

- Hex Dump Mode\*
- Options Testing\*
- Print Test Rate (min)\*
- Sensor Readings\*
- Ribbon Sensor Limits\*
- iPH Report\*
- Flash Module Report\*



Items denoted with an asterisk (\*) are only accessible through the Advanced Menu.

The menu selections are defined as follows:

DISPLAYED ITEM	ITEM DESCRIPTION
HEX DUMP MODE	Determines how the printer handles the data received from a host, where:
ENABLE	The printer outputs the raw ASCII data it receives without interpretation; no processing occurs.
DISABLE	Processes data normally. (Default Setting)
FILE CAPTURE	Saves the incoming data to Module H (USB thumbdrive) if present; otherwise, the file is stored on Module G. The file name, in the form [dmx_xxx_yyy.dpl], where the count is automatically incremented for every capture and a unique printer time stamp (xxx), is assigned.
OPTIONS TESTING	Performs printer option diagnostics or monitors and outputs test results, where:
TEST PRESENT SENSOR	Performs a functional test of the Present Sensor by indicating LABEL PRESENTED (when a label blocks the sensor) and LABEL NOT PRESENTED (when no label blocks the sensor). (Note that this test can also be used to check the sensor function of the Peel & Present option.)
TEST CUTTER	Performs a functional test of the Cutter, where:
PERFORM TEST 001 TIMES	Cycles the cutter blade a selected number of times (0 - 999), with PASS / FAIL results given for each cycling attempt.
TEST GPIO	Performs a functional test of the GPIO port, where:
MONITOR GPIO INPUT	Displays input signal logic values for Start of Print (SOP). <div> If unconnected, a zero or one may be displayed.</div>
TEST GPIO OUTPUT	Displays output signal logic values for End of Print (EP) and Service Required (SR). <div> To change an output signal state, cursor over the displayed state to select and then toggle it using the UP or Down Arrow Buttons.</div>
PRINT SIGNAL INFO	Prints a reference label containing GPIO signal names, pin assignments, programmed settings, and current signal states.
PRINT TEST RATE (MIN)	Sets a label-to-label delay interval (0 - 120 minutes) when Test label batch printing, where:
000	Is the Default Setting.

DISPLAYED ITEM		ITEM DESCRIPTION																			
SENSOR READINGS		Displays the values (0 – 255) from the printer sensors, where:  <table><tr><td>THR</td><td>TRAN</td><td>RIBM</td><td>24V</td></tr><tr><td>103</td><td>091</td><td>009</td><td>171</td></tr><tr><td>PS</td><td>HD</td><td>RANK</td><td></td></tr><tr><td>003</td><td>255</td><td>050</td><td></td></tr></table> THR = Printhead thermistor sensor; TRAN = Gap media sensor (REFL when set to reflective); RIBM = Ribbon sensor; 24V = 24 volt power supply sensor; PS = Present sensor; HD = Printhead position sensor; and, RANK = Printhead ranking resistor.				THR	TRAN	RIBM	24V	103	091	009	171	PS	HD	RANK		003	255	050	
THR	TRAN	RIBM	24V																		
103	091	009	171																		
PS	HD	RANK																			
003	255	050																			
RIBBON SENSOR LIMITS		Displays the values from the ribbon sensor readings (see example below) for printers equipped with the thermal transfer option, where:  <table><tr><td>RIBBON ADC LOW</td></tr><tr><td>111</td></tr><tr><td>RIBBON ADC HIGH</td></tr><tr><td>249</td></tr></table>				RIBBON ADC LOW	111	RIBBON ADC HIGH	249												
RIBBON ADC LOW																					
111																					
RIBBON ADC HIGH																					
249																					
iPH REPORT		Displays the IntelliSEAQ™ printhead report data, where:																			
VIEW		Displays the data.																			
PRINT		Prints a reference label: <div><div>iPH REPORT TUE 12:44PM 23MAY2006 4212-HE25-060224-090 PRINTHEAD SERIAL #: 5x-00289 PRINTHEAD MODEL # 163 PRINTER SERIAL # 60430014 PRINTHEAD INCHES 11175 INSTALLATION DATE - INITIAL 02/02/2006 INSTALLATION DATE - LAST 28/ 02/2006 PRINTHEAD CLEANING CLEAN PROCEDURES: 0 CLEAN COUNTER RESET 0 NUMBER OF INCHES - INITIAL 0</div></div>																			
FLASH MODULE REPORT		Displays the module report data, where:																			
VIEW		Displays the data.																			
PRINT		Prints a reference label: <div><div>FLASH MODULE REPORT SUN 12:44PM 23MAY2011 Module G Mount Fail: 0 Module G Reformatted: 0</div></div>																			



# 5 Maintenance and Adjustments

## 5.1 Cleaning Intervals

This section details the cleaning, adjusting, and troubleshooting tips for the printer. The following table outlines the recommended maintenance schedule for the various printer parts.

Area	Method	Interval
Printhead	Turn off the printer before cleaning the printhead. Use solvent* on a cotton swab to clean the printhead from end to end.	After every roll of media.
Platen Roller	Turn the power off. Rotate the platen roller and clean it thoroughly with solvent* and a cotton swab.	After every roll of media.
Peel-Off Roller	Rotate the peel-off roller and clean it thoroughly with solvent* and a cotton swab.	After every roll of media.
Media Path	Solvent*	After every roll of media.
Peel/Tear Bar	Solvent*	As needed
Media Sensor	Air blow	Monthly
Exterior	Mild detergent or desktop cleaner.	As needed
Interior	Brush or vacuum cleaner	As needed.

\* It is recommended that a solvent containing isopropyl alcohol be used.



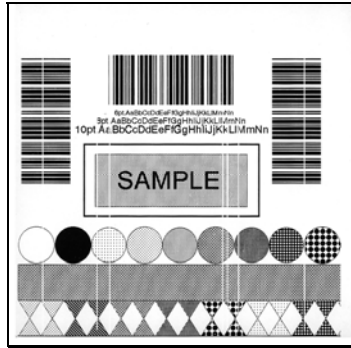
Isopropyl alcohol is a flammable solvent; always take the proper precautions when using this substance.

Proper cleaning is critical. To maintain peak performance of the printer, Datamax-O'Neil offers a complete line of cleaning products including pens, cards, films and swabs. Visit our website at <http://www.datamax-oneil.com> to learn more.

**Certified Datamax-O'Neil – The worry free choice for optimal printer performance**

## 5.2 Cleaning the Printhead

If print quality declines (symptoms include non-compliant bar codes, print dropouts, and streaks; see sample label below), the typical cause is debris build-up on the printhead. Furthermore, when the build-up is not removed it may lead to element failure, greatly reducing the service life of the printhead.



Faulty Print Quality Label:

Streaks indicate a dirty or faulty printhead.

To clean the printhead:

1. Turn 'Off' and unplug the printer.
2. Open the cover. Unlock the Printhead Latch and raise the Printhead Assembly. **Allow the printhead to cool before proceeding.**
3. Move media and ribbon away from the printhead as necessary.
4. Using a Cotton Swab moistened, not soaked, with isopropyl alcohol gently wipe away any build-up on the printhead surface, paying close attention to the Burn Line. Allow the printhead to dry.
5. Replace the ribbon and media. Lower the Printhead Assembly back to the locked position.
6. Close the cover. Plug in and turn 'On' the printer. Feed several labels to normalize tracking.



- |   |                    |
|---|--------------------|
| 1 | Printhead Latch    |
| 2 | Printhead Assembly |
| 3 | Cotton Swab        |



## ***Automated Printhead Cleaning***

1. Remove media and ribbon.
2. Place a Datamax-O'Neil Cleaning Card, part number 70-2013-01 under the printhead. Lower and lock the printhead. Ensure that the Media Width Adjustment is not engaged.
3. Press and hold the TEST Key for approximately four seconds.

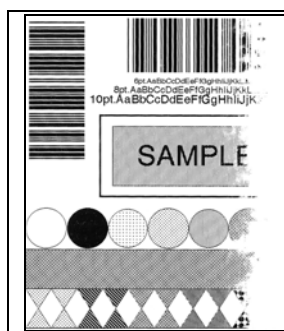
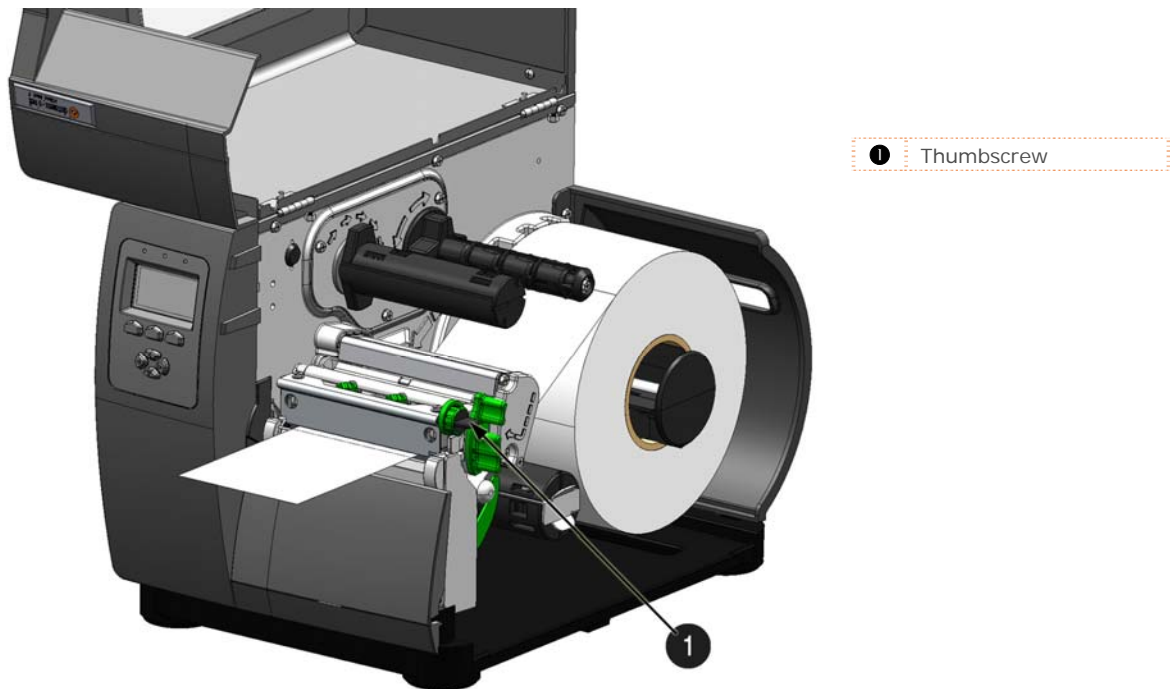
***The printer will begin the cleaning routine.***

4. In cases of heavy build-up, or if high heat values are typically used for printing, flip the card over and repeat Step 3.
5. Reinstall your ribbon and media (if necessary, readjust the Media Width Adjustment, see Section 5.3). Lower and lock the printhead. Close the cover.

## 5.3 Media Width Adjustment

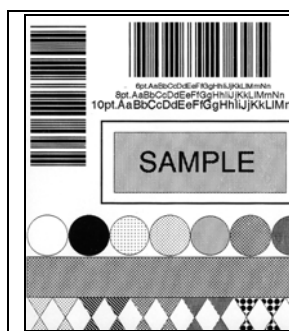
Whenever using narrow media (sizes that are less than the width of the printhead), adjust the Leveling Cam for even pressure distribution. Adjust the Printhead Leveling Cam as follows:

1. With media loaded, download your label format (or use a Test Menu format) then begin printing a small batch of labels.
2. While observing the printed output, rotate the Leveling Cam counter-clockwise until the image fades across the label, as shown in Example 1 (below).
3. While observing the printed output, rotate the Leveling Cam clockwise until the image is complete, with even contrast, as shown in Example 2 (below).



**Example 1 – Over adjustment:**

*Too much adjustment produces an image that fades across the label. To correct this, move the Thumbscrew to the right.*



**Example 2 – Correct adjustment:**

*The proper adjustment produces a complete image with even print contrast across the label (see note below).*



Under-adjustment can also cause problems including ribbon wrinkling, label tracking, and platen roller and printhead wear. When changing to a different width of label, always perform this adjustment.

## 5.4 Printhead Pressure Adjustment

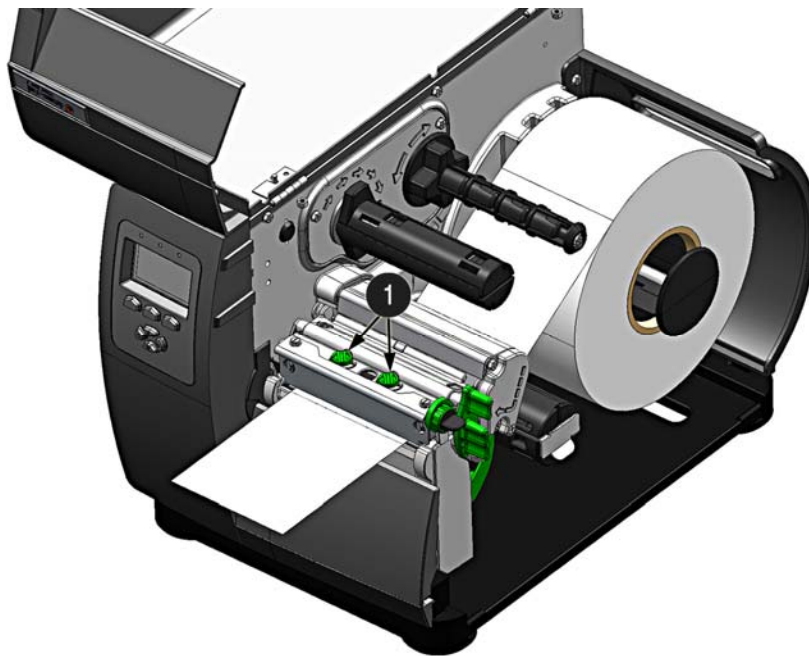
Printhead Pressure Adjustment should only be performed after attempting to improve print quality through the use of other print quality controls.

- A. With media loaded, download your label format (or use a Test Menu format) then begin printing a small batch of labels.
- B. While observing the printed output, turn each Pressure Adjustment Screw (use a small coin or screwdriver) by the same amount until the image is complete, with even contrast:
  - Counterclockwise (+) to increase applied pressure, or;
  - Clockwise (-) to decrease applied pressure.



Ensure that each arrow points in the same direction.

---



① Pressure Adjustment Cams

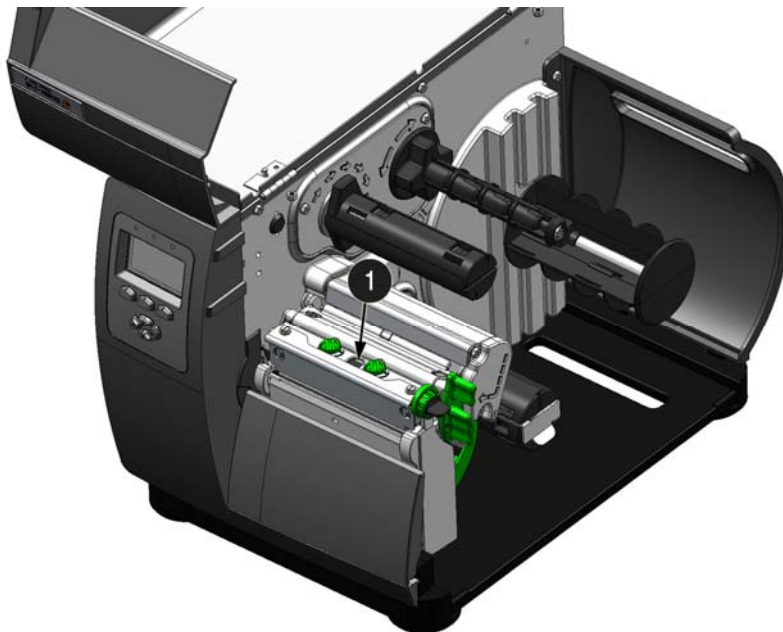
## 5.5 Printhead Replacement

To replace a damaged printhead, follow the procedure below.



Printheads are fragile; use extreme care when handling and never use a sharp object on the surface. If you have questions, contact a qualified technician or Datamax-O'Neil Technical Support before proceeding.

1. Touch a bare metal part of the printer's frame to discharge any static electricity that may be present on your body.
2. Turn 'Off' and unplug the printer. Open the cover; if ribbon is installed, remove it.
3. With the printhead locked in the down position, loosen the Printhead Mounting Screw (it will remain in the assembly).
4. Unlatch the Printhead Assembly. While holding the Printhead, raise the assembly. Disconnect the two cables and then remove the old Printhead.
5. While carefully holding the new Printhead, connect both cables.
6. Position the Printhead onto the Locating Pins in the Printhead Assembly and secure in place with the Printhead Mounting Screw (do not over-tighten).
7. Clean the Printhead (see Section 5.2).
8. Reload ribbon (if removed), lower the printhead assembly, and rotate the printhead latch back, into the locked position.



1 Printhead Mounting Screw

## 5.6 Resetting the Printer

**Soft Reset** - To reset the printer and clear any temporary host settings:

1. With the printer 'On', press and hold the **PAUSE** and **CANCEL** buttons for approximately four seconds.

## 5.7 Upgrading Firmware

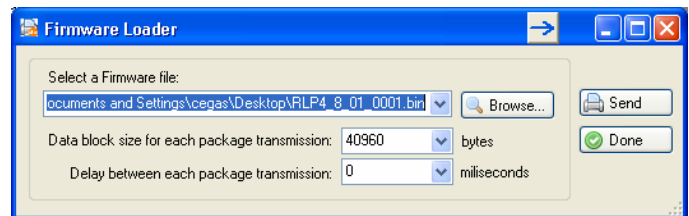
When program updates and/or new features are added, they can be downloaded to the printer as follows:

- 1) Identify the new version for your model of printer from the Datamax-O'Neil Web site at [www.datamax-oneil.com](http://www.datamax-oneil.com) and download it onto your computer's hard drive.
- 2) Launch the NETira CT configuration utility, and query (connect) to the printer, (see section 3.3 for more information on NETira CT).



It is recommended that the configuration be saved before downloading firmware, and restored when finished. Be sure to check the box labeled "Include Sensor Calibration Data on Open" when restoring the configuration.

- 3) Go to the Tools>Upgrade>Firmware.  
Select the binary file (BIN file).
- 4) Click the 'Send' button to start the firmware update.



Be sure only that only one communication cable is connected to the printer before attempting the firmware upgrade. Do not attempt to send any other data or perform operations via the front panel when the firmware is downloading.

## Loading Boot 1 and Boot 2 and Firmware

- 1) Connect the printer to your PC using a serial cable
- 2) Launch the NETira CT configuration utility, and query (connect) to the printer, (see section 3.3 for more information on NETira CT).



It is recommended that the configuration be saved before downloading firmware, and restored when finished. Be sure to check the box labeled "Include Sensor Calibration Data on Open" when restoring the configuration.

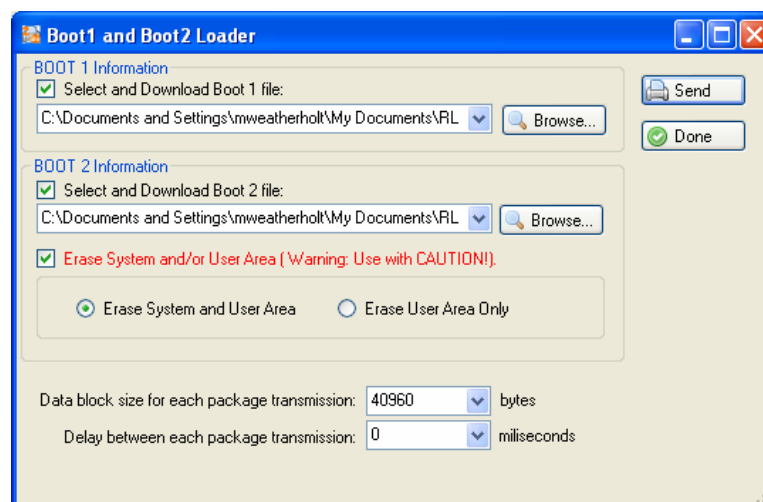
- 3) Go to the Tools>Upgrade>Firmware. Select the binary files (BIN files) for each of the Boot files.
- 4) Check the "Select and Download Boot 1 file:", "Select and Download Boot 2 file:" and "Erase System and/or User Area" boxes and click send to initiate the download.



Be sure only that only one communication cable is connected to the printer before attempting the firmware upgrade. Do not attempt to send any other data or perform operations via the front panel when the firmware is downloading.



Always Check "Erase System and/or User Area" box unless otherwise instructed.



- 5) Once the Boot Loader files have been loaded, the firmware version can now be updated using the procedure outlined in section 5.7.

# 6 Troubleshooting

## 6.1 Problem Resolution

Should a problem arise, the information in this section will help you resolve it. The following table lists problems that may not necessarily generate an error condition. Items denoted with an asterisk (\*) are only for display-equipped printers.

If experiencing this problem...	Try this solution...
Can not communicate through the parallel port:	Observe the Ready Indicator as the format is sent to the printer. If it does not flash, check the parallel cable type. Also, check the protocol and port settings between the printer and host.
Can not load media through the optional cutter:	<div><b><i>WARNING!</i></b> Use extreme care. Turn 'Off' and unplug the printer before proceeding.</div> Ensure that the cutter is properly installed. Plug in and turn 'On' the printer. You should hear the cutter blade rotate and position itself properly. However, if the problem continues call for service.
* The LCD is blank, but the Ready Indicator is 'On':	The display contrast may set too low. Press and hold the MENU Key for 3 seconds then use the up and down arrow keys until the display reappears.
Erratic feeding:	The printer may require Calibration; see Section 3.4.
Erratic printing (instead of the label format, strange characters are printed):	The printer may be in Hex Dump Mode; see Section 6.2.  If using the serial port for communicating, check both the host and printer port settings; the printer may be set to eight data bits while the host is set to 7 (or vice versa).
Intellifont will not print:	Intellifont format is Little/Big Endian specific. The printer uses Big Endian. Refer to your font supplier for information.
Light print on the right side (facing the printer) of the label:	The Media Width Adjustment may be incorrectly adjusted; see Section 5.3.  The Printhead or Platen Roller may be dirty or worn; clean or call for service.

If experiencing this problem...	Try this solution...
Missing information in the printed label:	<p>Check the label format for character placement outside the dimensions of the label; all row/column values must allow enough space for the height/length of the characters and bar codes to be printed within the format size.</p> <p>The available memory may have been exceeded by the memory requirement of the label format. Try reducing the memory allocated to either the internal module or scaleable font caches, see Section 4.5.)</p> <p>If using serial communications, ensure that the interface cable meets the requirements found in Section 2.1.2.</p>
Missing print on left or right side of the label:	<p>Information may be formatted outside the label dimensions. Check your software program label size. For display-equipped printers also check the values in the menu for Print Control / Column Offset and Print Control / Custom Adjustments / Column Offset; see Section 4.5.</p>
No power (all indicator lights are 'Off'):	<p>Verify that the AC power cord connection has been made at both the outlet and the printer; also, ensure the power switch is 'On'.</p> <p>Verify that the AC outlet is functioning, or try moving the printer to another AC circuit.</p> <p>The AC cord may be damaged; replace it.</p> <p>The line fuse may be blown; call for service.</p>



If experiencing this problem...	Try this solution...
<p>Nothing is printing (labels advance normally, but no image is printed):</p>	<p>Examine the used ribbon for an image:</p> <p><b>If there is an image on the used ribbon:</b></p> <ul style="list-style-type: none"> <li>• Verify that the ribbon was properly loaded per Section 2.4.</li> <li>• If properly loaded, the wrong coating configuration was used. (To verify the inked side, press the adhesive backing of a label against the ribbon surface. Ink will only lift from the coated side of the ribbon.) Clean the printhead (see Section 5.2); then replace the ribbon with the correct type for the printer, Section 2.4.</li> </ul> <p><b>If there is no image on the used ribbon:</b></p> <p>Print any Internal Test Label, see Section 4.4.) If an image is printed, then check the protocol and port settings for both the printer and host. These settings must match.</p> <p>The heat setting may be too low. Make an adjustment in the software program or through the menu.</p> <p>The media/ribbon combination may be incorrect. Contact a Media Representative.</p> <p>The printhead or printhead cable(s) may be loose; power 'Off' the printer then reconnect.</p>
<p>Nothing happens when trying to print using a software program:</p>	<p>Ensure that the printer is at READY.</p> <p>Observe the Front Panel, if the READY light does not flash as you send the format check the protocol and port settings between the printer and host.</p> <p>Ensure the interface cable meets the requirements found in Section 2.1.2.</p>

If experiencing this problem...	Try this solution...
<p>Poor print quality:</p>	<p>The printhead may need cleaning; see Section 5.2.</p> <p>Adjust the Heat and Print Speed settings through the Front Panel or by host commands, see Section 4.5.)</p> <p>The media/ribbon combination may not be compatible; contact a Media Representative.</p> <p>The Media Width Adjustment may be incorrectly adjusted; see Section 5.3.</p> <p>The Platen Roller may be dirty or worn; clean or call for service.</p>
<p>Skips labels when printing:</p>	<p>Media Calibration may be needed; see Section 3.4.</p> <p>The Media Sensor may be out of position; readjust the position; see Section 2.3.</p> <p>The format may be within 1/8 inch of the label's trailing edge. Try reducing or moving the format slightly.</p>
<p>Unable to print rotated text:</p>	<p>The characters may be formatted outside the label dimensions. Ensure the row/column values provide enough room for the height of the characters or bar code to be printed. See the <i>Programmer's Manual</i> for details.</p>

## 6.2 Hex Dump Mode

The Hex Dump Mode is a useful tool for diagnosing problems, including communication and DPL syntax errors, allowing a comparison of input strings (sent by host) to output data (received by printer). To decode this information, the *Programmer's Manual* is an essential reference. This output can be used for debugging the label format. In addition, by repeatedly sending a format, this mode can uncover handshaking problems (if they exist). Handshaking problems are identified by sections of missing data in the character string.

### To print the Hex Dump Label:

To begin, go to the Diagnostics menu and enable Hex Dump Mode; see Section 4.5. Exit the menu and save the changes. Now, 'HEX DUMP MODE' will be indicated by the display and all data sent to the printer will now be output in hexadecimal code, along with the printable ASCII equivalents, as shown below. To exit Hex Dump Mode, re-enter the Diagnostics Menu and disable the Hex Dump Mode, exit the menu, then save the changes.

The figure below is a sample Hex Dump Label. After sending a label format to the printer, the hex code output will be immediate. As a final note, many software programs use bit mapping to construct the label, making diagnosis difficult. Contact Datamax-O'Neil Technical Support with any questions.

0000	02	4C	00	44	31	31	00	31	^L.D11.1
0008	36	31	31	30	30	30	30	33	61100003
0010	32	30	30	30	31	30	46	4F	200010FD
0018	4E	54	20	36	3A	20	41	4C	NT 6: AL
0020	4C	20	56	41	4C	49	44	20	L VALID
0028	20	20	20	20	20	20	20	20	
0030	20	20	20	00	31	36	31	31	1611
0038	30	30	30	30	32	38	30	30	00002800
0040	30	31	30	20	20	20	20	20	010
0048	20	20	20	43	48	41	52	41	CHARA
0050	43	54	45	52	53	3A	00	31	CTERS: 1
0058	36	31	31	30	30	30	30	32	61100002
0060	34	30	30	30	31	30	23	24	400010#\$
0068	25	26	28	29	2A	2B	2E	2D	%&()*+,-



# A Specifications

## ***Mechanical***

Width	12.62 inches (320.6 mm)
Depth	18.60 inches (472.5 mm)
Height	12.70 inches (322.6 mm)
Weight	45 pounds (20.5 kg)
Operating Temperature	32 F to 100 F (0 C to 38 C)
Humidity	10% – 95% non-condensing
AC Input Voltage	90 – 132 or 180 – 264 VAC @ 47–63 Hz, auto-ranging.

## ***Printing***

Print Method	Direct Thermal; Thermal Transfer (optional)
Print Speed	2 – 12 IPS (51 – 305 MMPS): I-4212e 2 – 10 IPS (51 – 254 MMPS): I-4310e 2 – 6 IPS (51 – 152 MMPS): I-4606
Resolution	203 dpi (8 dots/mm): I-4212e 300 dpi (11.8 dots/mm): I-4310e 600 DPI (23.6 dots/mm): I-4606e
Tear Bar	Tear Down
DRAM Memory	32MB
FLASH Memory	64MB

## ***Media/Ribbon***

Media Types	Roll-Fed, Die-Cut, Continuous, Fan-Fold
Max. Media Width	4.65" (118 mm)
Min. Media Width	1.0" (25 mm)
Max. Print Width	4.10" (104.0 mm): I-4212e 4.16" (105.7 mm): I-4310e & I-4606e
Print Length Range	.25 - 99" (6 - 2475 mm); with Cutter min. 1.25" (31.8mm); with peel and Present min. 1.50" (38mm)
Media Thickness Range	.0025 - .01" (.064 mm - .254 mm)
Media Supply Roll Capacity	8" (203 mm) O.D. on a 3.0" (76.2 mm) or 1.5" (38mm) core
Ribbon Width Range	1.0 - 4.5" (25 - 114 mm)
Ribbon Roll Capacity	Matched to media: approx. 1968' (600 m) long
Ribbon Core:	1.010" .006" (25.6 mm .2 mm) inner diameter.

## ***Communications***

Interface	USB, RS-232 (DB-9), and IEEE 1284 Compliant Centronics Parallel
Baud Speed	600 to 38,400 bits per second (BPS)
Handshaking	Xon/Xoff, CTS, DTR
Parity	Even, Odd, or None
Stop Bits	1 or 2
Data Bits	7 or 8

## ***Embedded Fonts and Barcodes***

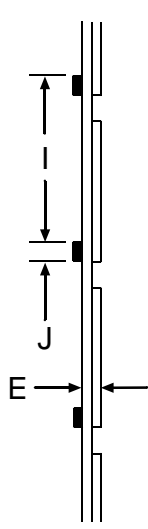
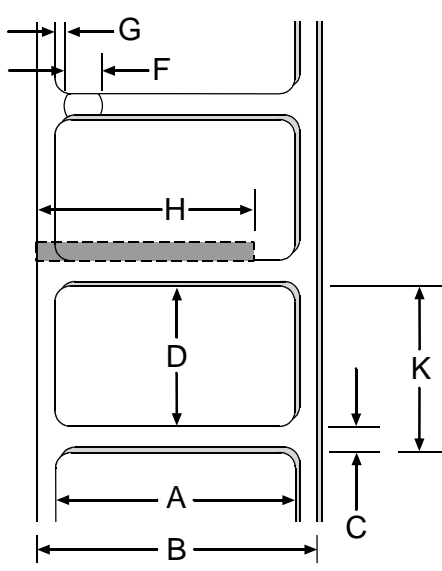
The printer is equipped with the most popular industry fonts and bar codes; see the *Programmer's Manual* for full listings and detailed information.

- 9 Bit Map Fonts; rotated 0, 90, 180, 270 degrees.
- 10 smooth bitmap fonts 6pt – 48pt  
AGFA Scalable Font Engine featuring CG Triumvirate™ regular and bold-condensed scalable fonts with dynamic font attributes.

## Approved Media

To achieve optimum print quality and maximum printhead life, Datamax-O'Neil specifies the use of Datamax-O'Neil brand media and ribbons. These supplies are specially formulated for use in our printers; use of non-Datamax-O'Neil supplies may affect the print quality, performance, and life of the printer or its components.

For a current list of approved media and ribbons for use in direct thermal and thermal transfer applications, please contact a Media Representative at (407) 523-5650.

<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Side View</p>  </div> <div style="text-align: center;"> <p>Top View</p>  </div> </div>			
Media Dimensional Requirements			
Designator	Description	Minimum <sup>[1]</sup>	Maximum <sup>[1]</sup>
A	Label width	1.00	4.65
B	Liner width	1.00	4.65
C	Gap (or notch) between labels <sup>[3]</sup>	.10	–
D	Label length <sup>[3]</sup>	.25	–
E	Media thickness	.0025	.010
F	Notch opening width	.20	.500
G	Media edge to sensor aperture distance	.20	2.25
H	Reflective (black) mark width <sup>[2]</sup>	.50	4.65
I	Distance between reflective marks <sup>[3]</sup>	.50	–
J	Reflective mark length <sup>[3]</sup>	.10	–
K	Label repeat distance <sup>[3]</sup>	.35	–

<sup>[1]</sup> Units of measure are given in inches and referenced by the direction of label feed.

<sup>[2]</sup> The reflective (black) mark must be carbon based, placed on the backside of the stock, and the reflectance shall be less than 10% at wavelengths of 950 and 640 nm.

<sup>[3]</sup> The maximum allowable length of the combined label and gap (or mark) measurement cannot exceed 99.99 inches.






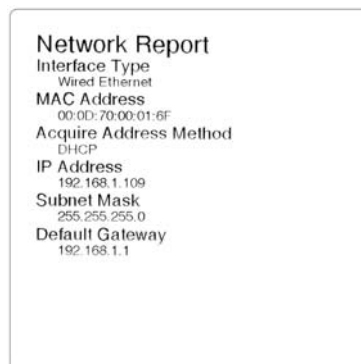
# B Wireless and Wired LAN Setup

## B.1 Network Card Setup

Whether a wired or wireless connection is intended, it is recommended to establish a wired connection to the printer first. This will allow access to the printer's internal web pages to configure the settings necessary for a typical wireless connection. If a wired connection is not or cannot be achieved, all connection parameters can also be set using the NETira CT configuration utility, see section 3.3.

The printer makes IP requests at power-up, so before making a network connection to the printer, consider how your IP addressing needs to be assigned. The IP addressing of the printer can be configured in one of two ways: Using a static IP Address or Using IP Discovery (DHCP, BootP, or RARP). **At factory default settings IP DISCOVERY is ENABLED (DHCP).**

1. With Printer Off, connect the network cable then turn on Printer.
2. The printer will now search for a DHCP server. Once the printer has obtained an IP address, the icon  will be displayed, signifying that an IP address has been obtained. Allow up to 90 seconds for the printer to retrieve an IP address.
3. At this point, it is recommended to print a Network Report. This Network Report is generated by the printer and lists important default information such as the IP and MAC Addresses as well as SSID for wireless equipped cards. To print the 'Network Report': Press the **PAUSE, FEED, CANCEL** buttons at the same time.
4. Verify the printer has obtained a valid IP address for your network. If a valid IP address was not obtained or you wish to use a different static address, this can be set via the printer's front panel.



*The information on this label will vary depending on your configuration and firmware version.*

Enter the printer's menu and navigate to the Communications/Network Interface/Wired Ethernet menu branch.

- Set the "IP Discovery" menu item to "Use Static Addresses".
- Set the "IP Address" menu item to desired value, continue the same procedure with "Subnet Mask" and "Default Gateway" menu items if necessary. Exit the printer's menu. Cycle power to the printer, upon start-up the printer will connect to the network using the new parameters you provided.

Once the previous steps have been successfully completed, you may now use the IP Address to:

- If your printer is equipped with wireless capabilities, browse to the printer's internal web pages for wireless/advanced configuration. **See section B.2, Wireless Setup.**

-or-

- Install a printer driver, and start printing from your Windows applications. **See section B.3, Installing the Printer Driver.**

## B.2 Wireless Setup

1. Open your web browser. Type in the IP Address assigned to the printer. The printers default IP address is: 192.168.10.26.

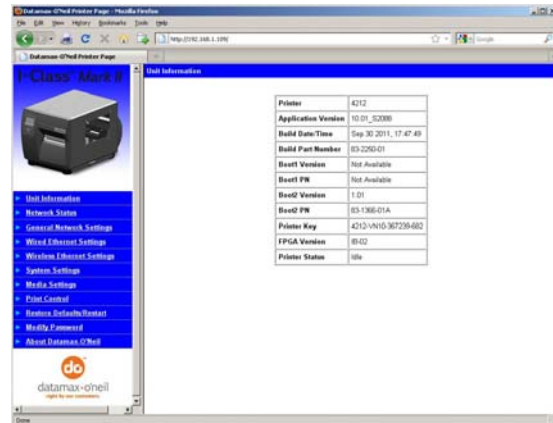


If a different IP Address has been assigned to the printer, make sure to enter the correct IP address.

The following page will appear:

The printer's internal web pages are divided into 10 pages that are accessible via the navigation bar on the left-hand side.

Most of the items on these pages mimic the printer's internal menu. For more information on the function of these settings see the corresponding function in Chapter 4.



You must provide a password to change any settings, the default password is "sysadm".



If any address parameters were changed such as IP address, subnet or gateway, the printer might not be viewable from the current host if they are no longer on the same subnet.

### B.2.1 Wireless Setup – Infrastructure

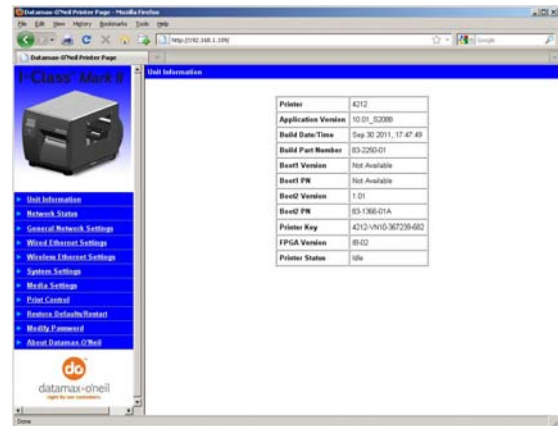
After a successful setup is made via a wired connection, the Wireless connection (if equipped) can now be configured in infrastructure mode using a static or DHCP issued IP address.

1. Open your web browser. Type in the IP Address of the printer. The Default IP is: 192.168.10.26.



If a different IP Address has been assigned to the printer, make sure to enter the correct IP address.

A page similar to the right will appear:




2. Click on the "Wireless Ethernet Settings" menu item on the left side of the screen. Locate and set the following items:

- In the "Acquire Address Method" section, select the "Use DHCP" radio button.

*For static IP setup:*

- In the "Acquire Address Method" section, select the "Use Static Addresses" radio button.
- In the "Static IP Addresses" section, enter valid static IP addresses for Printer IP Address, Printer Subnet Mask, and Printer Gateway.

3. Scroll down the page to "Network Type", select "infrastructure" from the drop down box.
4. In the SSID field type the name of the SSID of your access point.
5. Under the "WIFI Security and Authentication", set any security/authentication settings necessary for your network.
6. Scroll down to the bottom of the page, enter the password (default is "sysadm") and click Apply.
7. Click on the "General Network Settings" menu item on the left side of the screen. Locate and set the following items:
8. In the "Network Interface", select the "Wireless Ethernet" radio button
9. Scroll down to the bottom of the page, enter the password (default is "sysadm") and click Apply.
10. Click on the "Restore Defaults/Restart" menu item on the left side of the screen. Be sure that Restart Printer is displayed in the "Action to Execute:" drop down box. Enter the password at the top of the page (default is "sysadm") and click Execute to restart the printer.

Once the printer has restarted the  icon will be displayed signifying that an IP address has been obtained. Allow up to 90 seconds for the printer to retrieve an IP address.

At this point it is recommended to print a Network Report. This Network Report is generated by the printer and lists important default information such as the IP and MAC Addresses as well as SSID for wireless connections. To print the 'Network Report': Press the **PAUSE, FEED, CANCEL** buttons at the same time.

Once the previous steps have been successfully completed you may now use the IP Address to install a printer driver, and start printing from your Windows applications. See section B.3, Installing the Printer Driver.

<b>Network Report</b>	
Interface Type	Wireless Ethernet
MAC Address	00:17:AC:20:07:EC
Acquire Address Method	DHCP
IP Address	192.168.1.104
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
<b>WIFI Report</b>	
State	Connected
Network Type	Infrastructure
SSID	prodman
BSSID	00:14:BF:1B:86:07
Channel	6
Bit Rate	54000 KBPS
RSSI	-27 dbm
SNR	69 dbm
TX Power	18 dbm

*The information on this label will vary depending on your configuration and firmware version.*

### B.2.1 Wireless Setup – Ad-Hoc

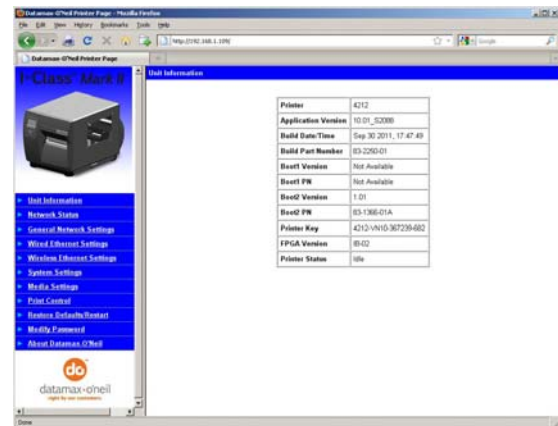
After a successful setup is made via a wired connection, the Wireless connection (if equipped) can now be configured in ad-hoc mode using a static IP address. To configure the wireless card in Ad-hoc mode, you must configure your host computer to match the IP settings of the printer. Refer to your operating system's or your wireless network card documentation for information on how to configure your computer.

1. Open your web browser. Type in the IP Address of the printer. The Default IP is: 192.168.10.26.




If a different IP Address has been assigned to the printer, make sure to enter the correct IP address.

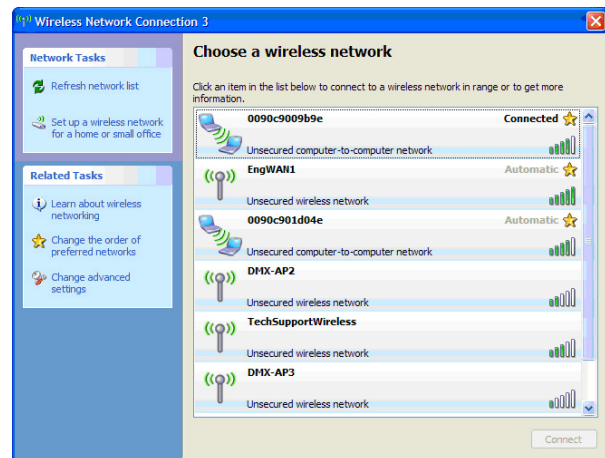
A page similar to the right will appear:



2. Click on the "Wireless Ethernet Settings" menu item on the left side of the screen. Locate and set the following items:
  - In the "Acquire Address Method" section, select the "Use Static Addresses" radio button.
  - In the "Static IP Addresses" section, enter valid static IP addresses for Printer IP Address, Printer Subnet Mask, and Printer Gateway.
3. Scroll down the page to "Network Type", select "Ad-hoc" from the drop down box.

4. In the SSID field type the name of the SSID you wish to assign to the printer.
5. Under the "WIFI Security and Authentication", set any security/authentication settings necessary for your network.
6. Scroll down to the bottom of the page, enter the password (default is "sysadm") and click Apply.
7. Click on the "General Network Settings" menu item on the left side of the screen. Locate and set the following items:
8. In the "Network Interface", select the "Wireless Ethernet" radio button
9. Scroll down to the bottom of the page, enter the password (default is "sysadm") and click Apply.
10. Click on the "Restore Defaults/Restart" menu item on the left side of the screen. Be sure that Restart Printer is displayed in the "Action to Execute:" drop down box. Enter the password at the top of the page (default is "sysadm") and click Execute to restart the printer.
11. Once the printer has restarted the  icon will be displayed signifying that an wireless connection has been obtained. Allow up to 90 seconds for the printer to make a connection.
12. From Windows, you may now "View Wireless Networks". From the list of available wireless networks select the printer that you wish to connect to and then click on the Connect button.

If you do not see your printer listed be sure you have the host computer configured for Ad-hoc wireless networks.



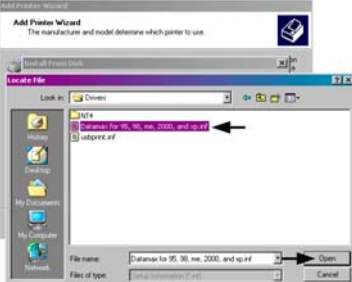
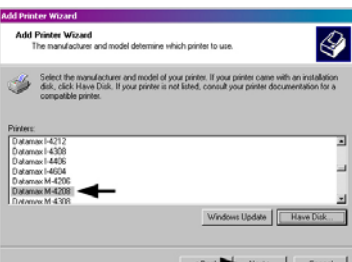
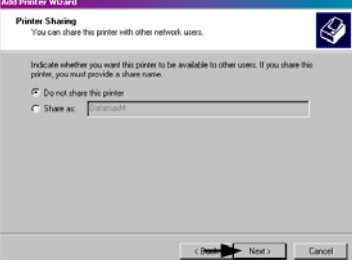
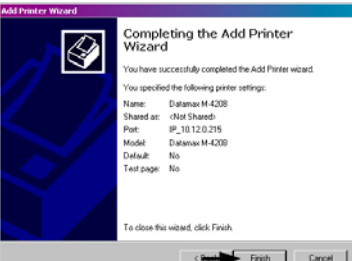

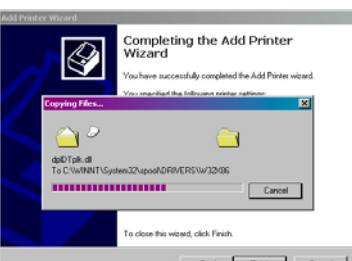
*This process will vary depending on your wireless device installed in your host computer and your operating system version.*

Once the previous steps have been successfully completed you may now use the IP Address assigned to the printer to install a printer driver, and start printing from your Windows applications. See section B.3, Installing the Printer Driver.

## B.3 Installing the Printer Driver

The following screen shots are taken from Windows 2000, other Windows versions will be similar.

<p><b>1</b></p> <p>Start the Windows “Add Printer Wizard”. The following screen should appear, click ‘Next&gt;’.</p>	<p><b>2</b></p> <p>Make sure that ‘Local Printer’ is selected and then click ‘Next’.</p>
<p><b>3</b></p> <p>Select on ‘Create a new port:’ and then select ‘Standard TCP/IP Port’ from the drop down menu. Click ‘Next’</p>	<p><b>4</b></p> <p>Click ‘Next’.</p>
<p><b>5</b></p> <p>In the ‘Printer Name or IP Address:’ field enter the IP address or NetBIOS name of your printer. The ‘Port Name’ field <u>does not</u> need to be changed. When finished click ‘Next’.</p>	<p><b>6</b></p> <p>Make sure ‘Standard’ is selected and then click ‘Next’.</p>
<p><b>7</b></p> <p>Confirm your settings and then click ‘Finish’.</p>	<p><b>8</b></p> <p>Click on ‘Have Disk’.</p>

<p>9</p> <p>Insert the Accessories CD-Rom and click 'Browse'.</p> 	<p>10</p> <p>Browse to the "\DRIVERS\Seagull" folder on the CD-ROM, make sure the file "for 95, 98, me, 2000, and xp.inf" is selected and click 'OK'.</p> 
<p>11</p> <p>Click 'OK'.</p> 	<p>12</p> <p>Choose your printer from the list and then click 'Next'.</p> 
<p>13</p> <p>Name your printer in the 'Printer name:' field. Next select whether or not to set this printer as your default printer. Then Click 'Next'.</p> 	<p>14</p> <p>Select whether or not to share this printer on your network. Then Click 'Next'.</p> 
<p>15</p> <p>Select 'No' then Click 'Next'.</p> 	<p>16</p> <p>Confirm your settings and then click 'Finish'.</p> 
<p>17</p> <p>If prompted with the "Digital Signature Not Found" window, click 'Yes' to continue installation.</p> 	<p>18</p> <p>Your computer will now copy the necessary files from the CD-ROM.</p> <p><b>The driver and port installation is now complete. The printer can be selected through any Window's application.</b></p> 





# C Menu Language

## C.1 Changing the Menu Language

Different languages and / or Datamax-O'Neil-provided translations can be downloaded to replace the standard (English) menu of the printer by changing the spreadsheet that defines the system dictionary. To change the language you will add a new language column (or modify the existing column) in the spreadsheet, click on the "Generate DPL file(s)" radio button, and then send that file(s) to the printer.

Software requirements for modifying the menu language are as follows:

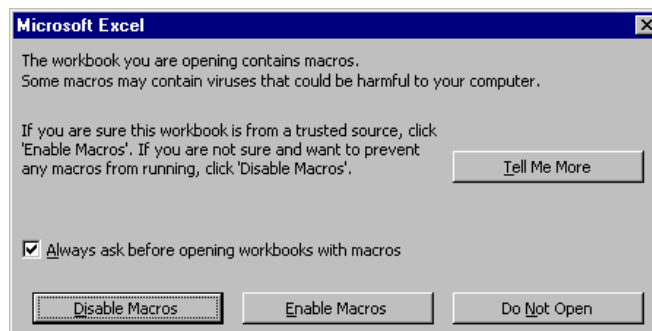
- Microsoft® Excel must be purchased by user;
- Img2dl.exe (provided at <ftp://ftp.datamax-oneil.com/Printer%20Firmware/EFIGS-A.I.M.W.Class/>) is a program used during the process to create the DPL file; and,
- Common.xls (also provided at the web site above) is the Menu Dictionary.



*Place Img2dl.exe and Common.xls in the same directory.*

Create a Menu Language by following these steps:

- A. Invoke Excel and open the Common.xls file. *After the file opens, the following screen appears:*



B. Click the “Enable Macro” box. *The following screen appears:*

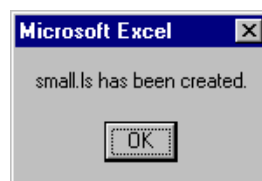
NID	COMMENTS	MAX	MESSAGE ID	ENGLISH	FRANCAIS	ITALIANO
0000	System Messages	20	MID_READY	READY	PRÊT	PRONTO
0001		20	MID_PRINTING	PRINTING		
0002		20	MID_PAUSED	PAUSED	PAUSE	IN PAUSA
0003	1Aa	20	MID_CANCEL_PRINT_JOB	CANCEL PRINT JOB?		
0004		20	MID_CLEARING_FAULTS	CLEARING FAULTS		CANCELLA ERRORI
0005		10	MID_OF	OF	DE	DI
0006		20	MID_DOTCHECK_IN_PROGRESS	DOTCHECK IN PROGRESS		
0007	Faults	20	MID_SYSTEM_FAULT	SYSTEM FAULT	DEFAILLANCE SYSTEME	ANOMALIA SISTEMA
0008		20	MID_ADC_FAULT	ADC FAULT	DEFAILLANCE ADC	ANOMALIA ADC
0009		20	MID_HEAD_UP_FAULT	HEAD UP FAULT	TETE NON VEROUILLÉE	ANOM. TESTINA ALTA
0010		20	MID_RIBBON_FAULT	RIBBON FAULT	DEFAILLANCE RUBAN	ANOMALIA NASTRO
0011		20	MID_TOP_OF_FORM_FAULT	TOP OF FORM FAULT	DEFAIL. DEBUT D'IMP.	ANOMALIA BORDO SUP
0012		20	MID_OUT_OF_STOCK	OUT OF STOCK	RUPTURE PAPIER	ESAURITO
0013		20	MID_CUTTER_FAULT	CUTTER FAULT	DEFAILLANCE COUTEAU	ANOMALIA TAGLIERIN
0014		20	MID_VERIFIER_FAULT	VERIFIER FAULT	DEFAILLANCE VERIFIC.	ANOMALIA VERIFICAT
0015		20	MID_RIBBONSAVER_FAULT	RIBBONSAVER FAULT	DEFAIL. ECONOM. RUBANOM.	SALVA-NASTRO
0016		20	MID_POSITION_FAULT	POSITION FAULT	DEFAILLANCE POSITION	ANOM. POSIZIONAMEN
0017		20	MID_TEMPERATURE_FAULT	TEMPERATURE FAULT		
0018		20	MID_DMA_FAULT	DMA FAULT	DEFAILLANCE DMA	ANOMALIA DMS
0019		20	MID_PRINT_ENGINE_FAULT	PRINT ENGINE FAULT	DEFAILLANCE MOTEUR	
0020		20	MID_24V_OUT_OF_TOLERANCE	24V OUT OF TOLERANCE	DEPASS. TOLERANCE 24V	24V FUORI TOLLERAN
0021		20	MID_STROBE_TIMING_FAULT	STROBE TIMING FAULT	DEFAIL. DUREE D'IMPULSION	ANOM. FASAT. STROB
0022	Warnings	20	MID_WARNING_RESOLVED	WARNING RESOLVED	AVERTISSEMENT RESOLU	AVVERTENZA RISOLTA
0023		20	MID_RIBBON_LOW	RIBBON LOW	RUBAN FAIBLE	NASTRO BASSO
0024		20	MID_GAP_MISSED	GAP MISSED	INTERVALLE MANQUANT	INTERVALLO SALTATO
0025		20	MID_DOT_FAILURE	DOT FAILURE	DEFAUT IMPRESSION	ANOMALIA PUNTO
0026		20	MID_BAD_SENSOR_DELTA	BAD SENSOR DELTA		
0027		20	MID_HOST_CHANGES_PENDING	HOST CHANGES PENDING		MOD. HOST IN ATTES
0028		20	MID_LOW_VOLTAGE	LOW VOLTAGE		
0029		20	MID_GOODBYE	GOODBYE		
0030	Conditions	20	MID_REMOVE_LABEL	REMOVE LABEL	ENLEVER ETIQUETTE	RIMUOVI ETICHETTA
0031		20	MID_TEMPERATURE_RAISE	TEMPERATURE RAISE		

C. Click on Column J and enter the new language, or modify an existing one. Some tips on this process:

- Message Size – When entering new messages, reference the “MAX” column: this is the maximum number of characters allowed for this field. (Warnings are displayed when the number of characters is exceeded, or when trying to modify the MAX value; however, if “cutting and pasting” fields, this warning system may be defeated.)
- Two Line Messages – Some of the message are displayed as two lines. These are indicated in the comment fields.
- Comments – This field can be modified with no effect.

D. After editing is complete, highlight all of the columns to be created by pressing the letter above the column (more than one column can be selected).

E. Press the Generate DPL File(s) radio button. *A file will be generated for each of the selected columns and Excel will provide confirmation (for example, as shown below, small.ls).*



- F. Download the generated files to the printer – one method is the DOS copy command:

```
copy small.ls lpt1: /b
```

- G. Reset the printer by pressing and holding the CANCEL Key for approximately four seconds.

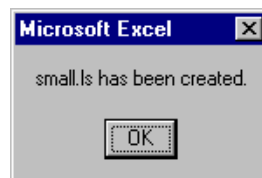
- H. After resetting, verify operation by printing a Configuration Label (see Section 4.4). *New language information will be printed under SYSTEM INFORMATION / OPTIONAL LANGUAGES. (Also, the new language will appear on the display as a menu item in SYSTEM SETTINGS / MENU LANGUAGE. These are the only methods to determine a successful download.)*

Enable the new language. Enter the menu system and go to SYSTEM SETTINGS / MENU LANGUAGE and select the new language. Next select the desired font for the language. Save the changes when prompted. *(A reset will occur as font validation is performed.)*

*An error has occurred if the printer displays the new language selection, but all messages remain in English. In this case, re-check your process or contact Datamax-O'Neil Technical Support (be ready to provide the Common.xls and DPL download files created). Other error messages are also possible:*

Menu Language Error Message	Description
Please select the entire column(s) or the desired language(s), by clicking on the column letter(s)	After pressing the Generate DPL File(s) radio button, the languages to convert were not correctly selected.
Message text may not exceed MAX = xx designated characters for this MID	The entered message exceeds the number of characters specified in column C. You may not modify this number.

- I. Repeat Steps A – H using the filename misc.xls to translate printer option items. This will output small20.ls.

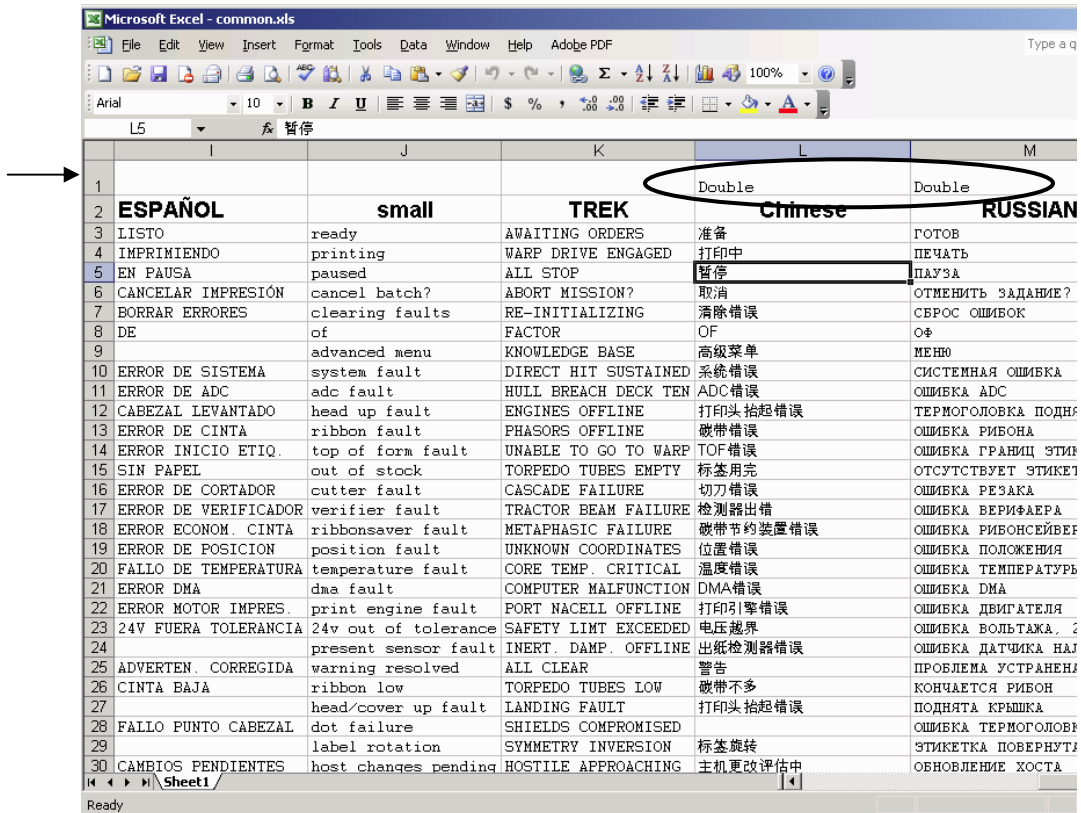


## C.2 Advanced File Handling Information

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- The standard printer leaves the factory with EFIGS loaded into Module Y. At this point, Module Y is LOCKED and will only accept additional language downloads.
- After downloading a language update, Module Y is left UNLOCKED until the printer is reset or power is cycled. In this state, Module Y will accept font, image and label format downloads. The module will also honor the Clear Module request. Therefore, following an update it is recommended that a reset be performed to lock the module; otherwise, a software package may "Clear All Modules" thus destroying the new menu language(s).
- Module Y can be UNLOCKED by sending this DPL string: <STX>KpY0
- To restore the factory generated EFIGS image, download the file \*832296.01A to the printer. This file is located on the Datamax-O'Neil FTP site. The letter at the end of the file name (e.g., A) specifies the revision. The latest revision will be available on the FTP site.
- Downloading the same language twice will automatically delete the first occurrence, but will not free the memory space.
- Deletion of the selected language will reset the printer to English. The total number of languages that the printer can now accept is limited to 10, but this number is dependent upon the size of each language translation. The translation size will vary with the number of messages that are translated for that particular language. Current complete language files are about 7,000 bytes each; but with product growth, the total number of languages is expected to drop to five.

The screen shot below is an example of Unicode defined languages, Chinese & Russian. Note the only additional information required is the “double” in row 1.



Microsoft Excel - common.xls

File Edit View Insert Format Tools Data Window Help Adobe PDF

100%

Arial 10 B I U

L5 暂停

	I	J	K	L	M
1				Double	Double
2	<b>ESPAÑOL</b>	<b>small</b>	<b>TREK</b>	<b>Chinese</b>	<b>RUSSIAN</b>
3	LISTO	ready	AWAITING ORDERS	准备	ГОТОВ
4	IMPRIMIENDO	printing	WARP DRIVE ENGAGED	打印中	ПЕЧАТЬ
5	EN PAUSA	paused	ALL STOP	暂停	ПАУЗА
6	CANCELAR IMPRESIÓN	cancel batch?	ABORT MISSION?	取消	ОТМЕНИТЬ ЗАДАНИЕ?
7	BORRAR ERRORES	clearing faults	RE-INITIALIZING	清除错误	СВРОС ОШИБОК
8	DE	of	FACTOR	OF	ОФ
9		advanced menu	KNOWLEDGE BASE	高级菜单	МЕНЮ
10	ERROR DE SISTEMA	system fault	DIRECT HIT SUSTAINED	系统错误	СИСТЕМНАЯ ОШИБКА
11	ERROR DE ADC	adc fault	HULL BREACH DECK TEN	ADC错误	ОШИБКА ADC
12	CABEZAL LEVANTADO	head up fault	ENGINES OFFLINE	打印头抬起错误	ТЕРМОГОЛОВКА ПОДНЯ
13	ERROR DE CINTA	ribbon fault	PHASORS OFFLINE	破带错误	ОШИБКА РИБОНА
14	ERROR INICIO ETIQ.	top of form fault	UNABLE TO GO TO WARP	TOF错误	ОШИБКА ГРАНИЦ ЭТИК
15	SIN PAPEL	out of stock	TORPEDO TUBES EMPTY	标签用完	ОТСУТСТВУЕТ ЭТИКЕТ
16	ERROR DE CORTADOR	cutter fault	CASCADE FAILURE	切刀错误	ОШИБКА РЕЗАКА
17	ERROR DE VERIFICADOR	verifier fault	TRACTOR BEAM FAILURE	检测器出错	ОШИБКА ВЕРИФИКАЕРА
18	ERROR ECONOM. CINTA	ribbonsaver fault	METAPHASIC FAILURE	破带节约装置错误	ОШИБКА РИБОНСЕЙВЕРА
19	ERROR DE POSICION	position fault	UNKNOWN COORDINATES	位置错误	ОШИБКА ПОЛОЖЕНИЯ
20	FALLO DE TEMPERATURA	temperature fault	CORE TEMP. CRITICAL	温度错误	ОШИБКА ТЕМПЕРАТУРЫ
21	ERROR DMA	dma fault	COMPUTER MALFUNCTION	DMA错误	ОШИБКА DMA
22	ERROR MOTOR IMPRES.	print engine fault	PORT NACELL OFFLINE	打印引擎错误	ОШИБКА ДВИГАТЕЛЯ
23	24V FUERA TOLERANCIA	24v out of tolerance	SAFETY LIMIT EXCEEDED	电压越界	ОШИБКА ВОЛЬТАЖА
24		present sensor fault	INERT. DAMP. OFFLINE	出纸检测器错误	ОШИБКА ДАТЧИКА НАЛ
25	ADVERTEN CORREGIDA	warning resolved	ALL CLEAR	警告	ПРОБЛЕМА УСТРАНЕНА
26	CINTA BAJA	ribbon low	TORPEDO TUBES LOW	破带不多	КОНЧАЕТСЯ РИБОН
27		head/cover up fault	LANDING FAULT	打印头抬起错误	ПОДНЯТА КРЫШКА
28	FALLO PUNTO CABEZAL	dot failure	SHIELDS COMPROMISED		ОШИБКА ТЕРМОГОЛОВКИ
29		label rotation	SYMMETRY INVERSION	标签旋转	ЭТИКЕТКА ПОВЕРНУТА
30	CAMBIOS PENDIENTES	host changes pending	HOSTILE APPROACHING	主机更改评估中	ОБНОВЛЕНИЕ ХОСТА

Ready

