E-Class™ *Mark III* ○

Operator's Manual ▪ ▪ ▪

Basic and Advanced Models
Serial# 4xxxxxxx or greater

right by our customers. ▪ ▪ ▪

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Important Safety Instructions

This printer has been carefully designed to provide years of safe reliable performance. As with all types of electrical equipment, however, there are a few basic precautions that should be taken to avoid personal injury or damage to the device:

- Carefully read the installation and operating instructions provided with the printer.
- Read and follow all warning and instruction labels on the printer.
- Place the printer on a flat, stable surface.
- Do not insert anything into the ventilation slots or openings on the printer.
- Do not place the printer on or near a heat source.
- Do not use the printer near water. Never spill liquid into the printer.
- Be certain the power source is within the voltage rating and frequency listed for the printer. If you are unsure, check with your dealer, an electrician, or local power company.
- Do not place the power cord where it can be stepped on. If the power cord becomes damaged or frayed, replace it immediately.
- Only qualified, trained service technicians should attempt to repair the printer.
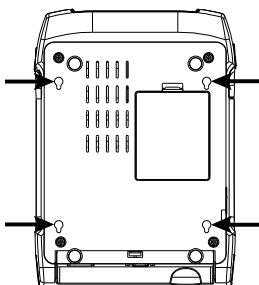
Cut-outs are not intended for wall-mount use.

Agency Compliance and Approvals

UL60950-1, Second Edition, 2007-03-27, Information Technology Equipment
CSA C22.2 No. 60950-1-07, Second Edition, 2007-03

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

EMC: EN 55022 (2008) Class A
EN 50024 (1998)
IEC 60950-1 : 2001, Second Edition

Safety: This product complies with the requirements of IEC 60950-1:2001, Second Edition

Customs Union – Russia, Kazakhstan, Belarus

GB4943-2001, GB9254-2008, GB17625.1-2012

E-4205A, E-4305A, E-4204B, E-4304B models:
The foregoing equipment has been registered under the Clause 3, Article 58-2 of Radio Waves Act

FCC: This device complies with FCC CFR 47 Part 15 Class A.

☑ **Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions in this manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Part Number: 88-2366-01, Revision B

Contents

1 Getting Started

1.1 Introduction

The E-Class Mark III printer (hereafter referred to as "the printer") is user-friendly thermal printing device that blends quality and durability in an affordable package to meet all of your labeling needs. This manual provides the information necessary to operate and maintain the printer.

To begin printing labels or tags, refer to the instructions included with your software labeling program. For your convenience, a Windows printer driver can be found on the Accessories CD-ROM, or it can be downloaded from our website at http://www.datamax-oneil.com. If you wish to write custom programs or label formats, a copy of the *DPL Programmer's Manual* is also included on the Accessories CD-ROM, or the manual can be downloaded from our website.

1.2 Unpacking the Printer

After removing the printer from the packaging material, check the contents of the box. In addition to the printer, the following items should be present:

- Power Supply
- Accessories CD-ROM
- Any special or additionally ordered items

Additional Requirements

The following items are necessary to generate labels:

- Parallel, Serial, USB, or (if equipped for LAN connectivity an Ethernet cable); see Section 2.2.2 for details.
- Applicable media; see Appendix A for details.

Contact customer support or your sales representative for advice on the media and software that may best be suited for your application.

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

2 Printer Setup

2.1 Introduction

This section explains how to connect your printer and load media (including ribbon, if equipped for thermal transfer operation).

2.2 Connecting the Printer

2.2.1 Power Connections

The printer is powered by an external auto-ranging power supply, which connects between the printer and an electrical outlet. Ensure that the operating ranges of the power supply are compatible with your electrical service, (see Appendix A for details) then connect power as follows:

☑ Before connecting power to the printer, ensure that the Power Switch is in the OFF (O) position.

1) Connect the Power Supply to Power Jack of the printer.

2) Connect the AC Power Cord to the Power Supply.

3) Connect the AC Power Cord to an Electrical Outlet.

❶	Power Supply
❷	AC Power Cord
❸	Power Jack
❹	Electrical Outlet

2.2.2 Interface Connections

The printer can be connected to the host system via the parallel, serial, Ethernet or USB ports.

☑ Before connecting interface cables to the printer, ensure that the Power Switch is in the OFF (O) position.

❶	Ethernet Port
❷	USB Port
❸	Serial Port
❹	Parallel Port

Cable Requirements

Choose the correct cable when interfacing the printer to the host:

▪ **The Parallel Port** (optional) supports parallel communications via a 36-pin male mini-Centronics connector. Bi-directional communications (forward and reverse channels) is supported when an IEEE 1284 compliant cable and supporting host software is used.

▪ **The Ethernet Port** (optional) supports Wired LAN communications (see Appendix B for information).

▪ **The Serial Port** supports RS-232C communications via a DB-9 connector with specific pin-outs (interface cable part numbers and pin-outs are given below; contact your reseller to order). Serial port settings are menu-selectable and must match the host settings.

Host DB-9S	Printer DB-9P	Host DB-25S	Printer DB-9P
TX 3 ───────→	2 RX	TX 2 ───────→	2 RX
RX 2 ←───────	3 TX	RX 3 ←───────	3 TX
	7 RTS		7 RTS
CTS 8 ←	4 DTR	CTS 5 ←	4 DTR
DSR 6 ←	8 CTS	DSR 6 ←	8 CTS
GND 5 ←─────→	5 GND	GND 7 ←─────→	5 GND
DTR 4 ←		DTR 20 ←	
Shield ←─────→	Shield	Shield ←─────→	Shield
Part # 32-2483-01		Part # 32-2301-01	

▪ **The USB Port** supports high-speed serial communications and requires a standard USB interface cable.

ⓘ The printer automatically establishes communications with the first port through which valid data is received. Afterward, a timeout period must be exceeded (or power must be cycled OFF and ON) to change the established communications port.

2.3 Loading Media

☑ If the printer is equipped with an Adjustable Media Sensor it may require adjustment to match your media choice. If the printer is equipped with this type of sensor, proceed to Section 4.4.

2.3.1 Loading Roll Media

Load media as follows:

1) Slide the Media Guides outward.

2) Slide the Media Hangers outward and insert the Roll Media as shown. Allow the Media Hangers to retract and grasp the media roll.

❶	Media Hangers
❷	Media Guides
❸	Roll Media
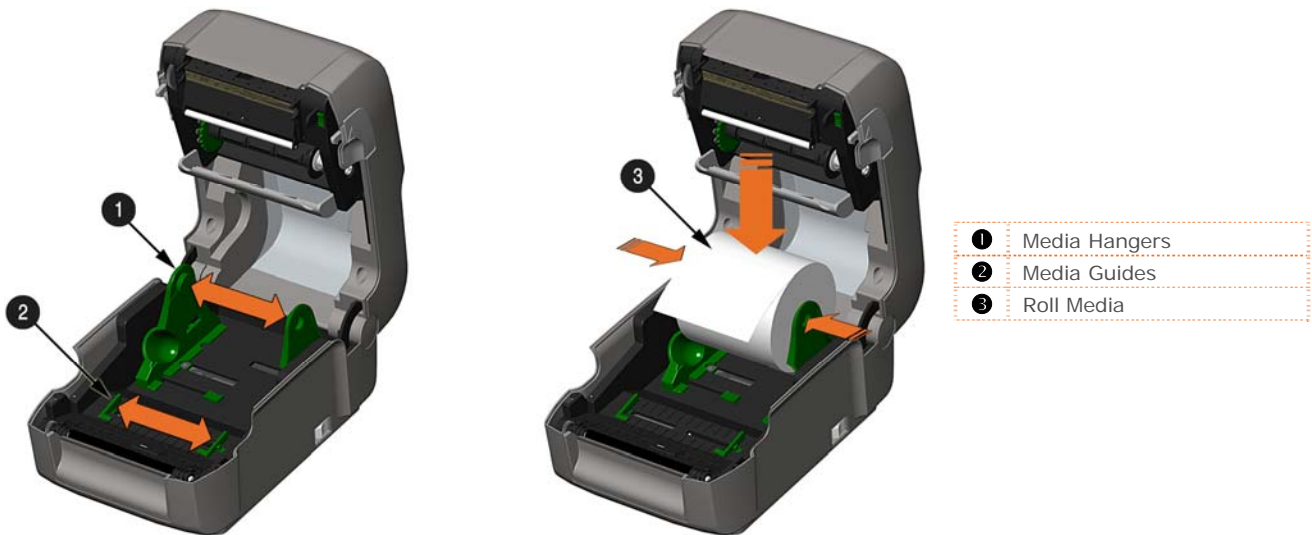
3) Pull out enough media to exit the front of the printer. Adjust the Media Guides so they are lightly touching the edge of the media.

4) If using thermal transfer media (ribbon) proceed to Section 2.4 Loading Ribbon. Otherwise close the printer's Cover and press downward until latched.

❶   Cover

5) Press the ▶❙ button several times to advance the media (if the Fault Light is on, see Section 3.7.)
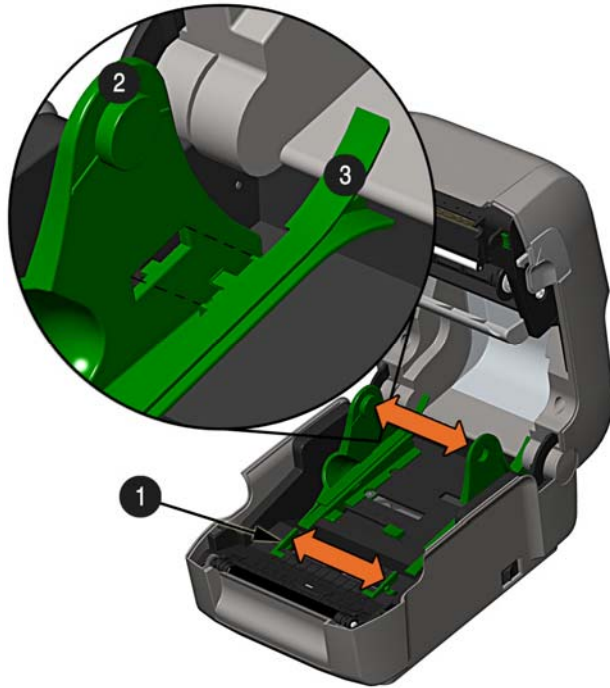

☑   The printer is factory set to use gap media. If using another media type (for example, continuous media), printer setup must be reconfigured; see Section 3.4.


2.3.2 Loading External or Fan-Fold Media

Load media as follows:

1) Slide the Media Guides outward.

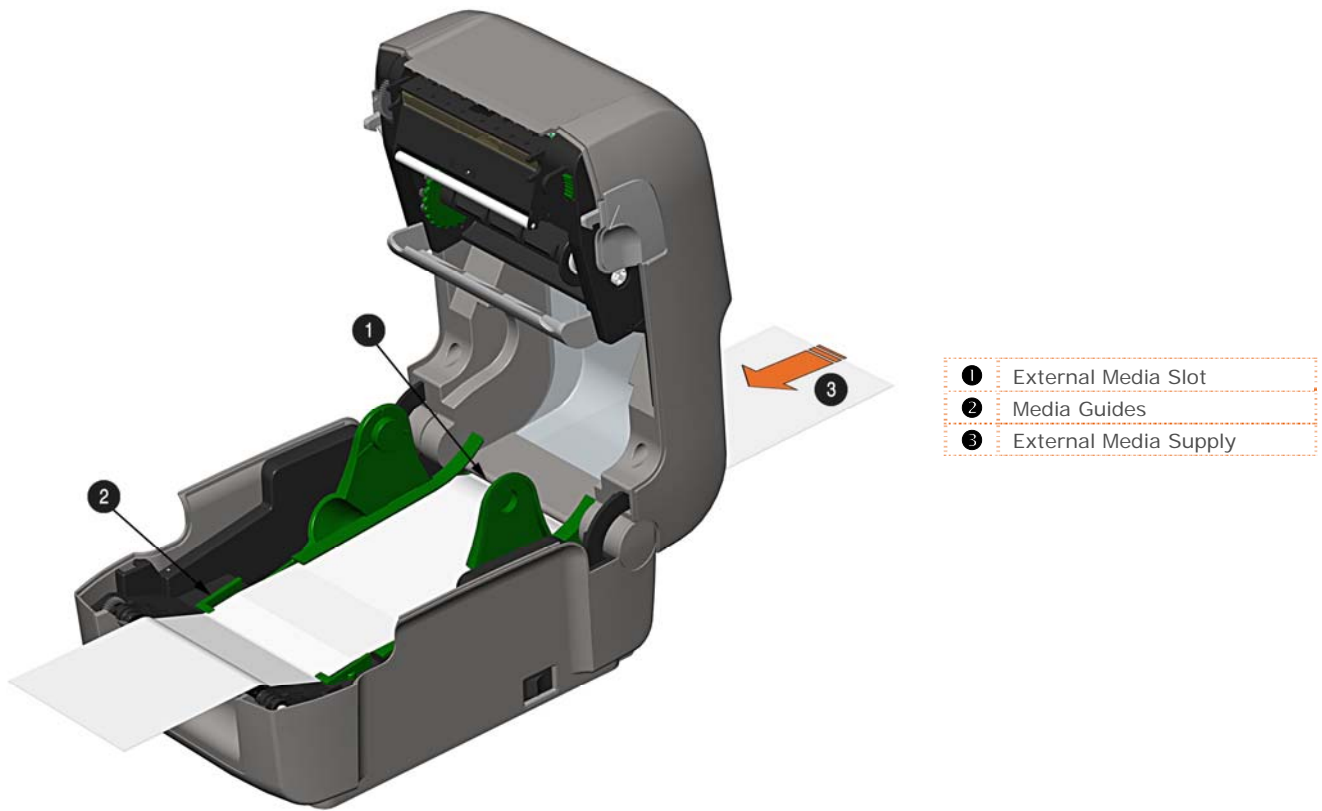2) Slide the Media Hangers outward and install the two Media Chute Guides into the Media Hangers.

❶	Media Chute Guides
❷	Media Hangers
❸	External Media Guide

3) Position the Media Hangers to match the width of the media being used. Slide the Hanger Lock against the Media Hanger to hold this position.
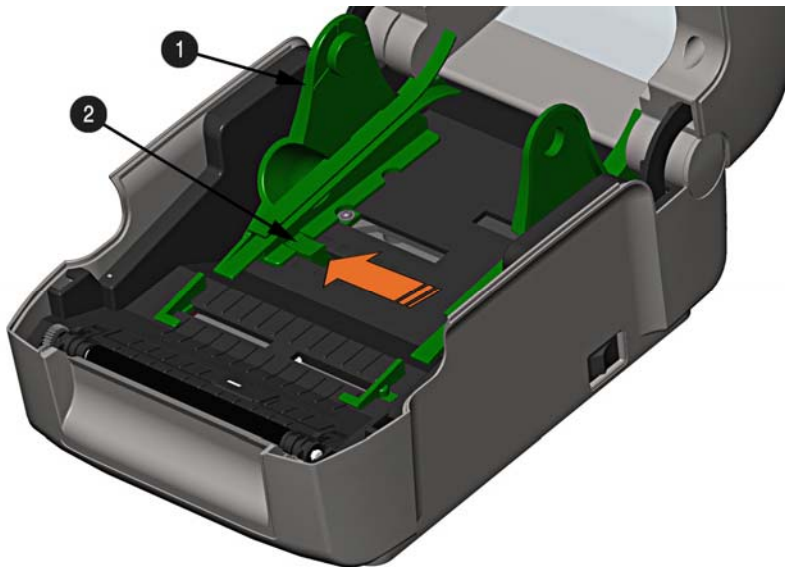
❶	Media Hangers
❷	Hanger Lock

4) Route the media through the External Media Slot in the rear of the printer. Pull out enough media to exit the front of the printer. Adjust the Media Guides so they are lightly touching the edge of the media.

❶	External Media Slot
❷	Media Guides
❸	External Media Supply

5) If using Thermal Transfer media (ribbon) proceed to Section 2.4 Loading Ribbon. Otherwise close the printer's Cover and press downward until latched.

6) Press the ▶❙ button several times to advance the media (if the Fault Light is on, see Section 3.7.)

☑ The printer is factory set to use gap media. If using another media type (for example, continuous media), printer setup must be reconfigured; see Section 3.4.

2.3.3   Loading Media with the Peel and Present Option

Load media for peeling (if the printer is equipped with the option) as follows:

☑   When using the Peel Mechanism do not exceed a print speed of 4 IPS.

☑   To utilize "Tear mode" with Peel and Present Option installed; move the Peeler Door to its open position.

1) Load media as described in Section 2.3, (steps 1-3).

2) Remove about 8 inches (200mm) of labels from the Media Backing.

3) Open the Peeler Door. Route the Media Backing over the Platen Roller and Peel Bar, and then behind the Peel Roller and Peeler Door, as shown below.

❶	Media Backing
❷	Peeler Door
❸	Platen Roller
❹	Peel Bar
❺	Peel Roller
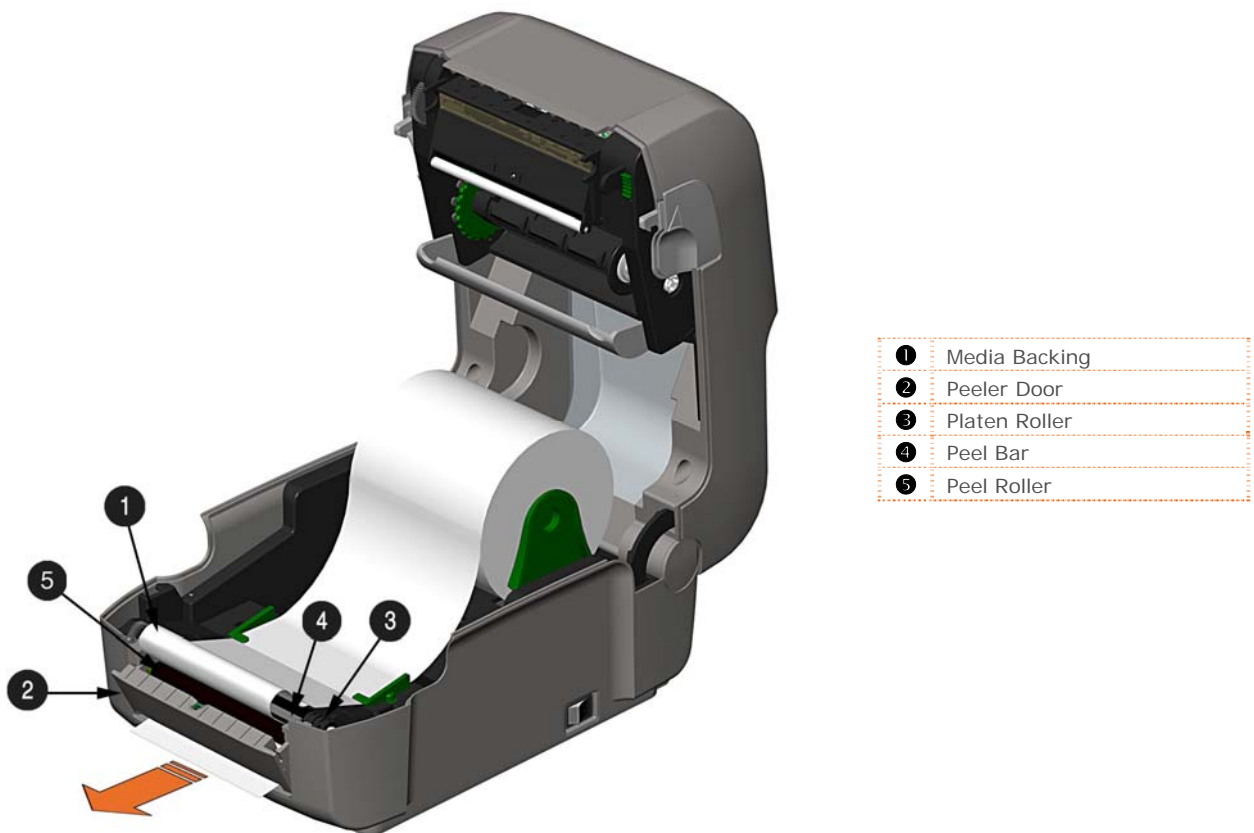
4) Close the Peeler Door.

5) If using Thermal Transfer media (ribbon) proceed to Section 2.4 Loading Ribbon. Otherwise close the printer's Cover and press downward until latched.

6) Press the ▶ button several times to advance the media (if the Fault Light is on, see Section 3.7.)

7) The printer will now peel each label and present it to the operator for removal. The indicator light will flash orange and the next label will not feed/print until the previous label is removed.

☑   The printer is factory set to use gap media. If using another media type (for example, continuous media), printer setup must be reconfigured; see Section 3.4.

2.3.4 Loading Media with the Cutter Option

Load media for cutting (if the printer is equipped with the option) as follows:

1) Load media as described in Section 2.3, (steps 1-3).

2) Route the media through the opening in the Cutter.

| ❶ | Cutter |
| ❷ | Media |

3) If using Thermal Transfer media (ribbon) proceed to Section 2.4 Loading Ribbon. Otherwise close the printer's Cover and press downward until latched.

4) Press the ▶| button several times to advance the media (if the Fault Light is on, see Section 3.7.). The printer will now cut each label as it exits from the printer.

7) The printer will now peel each label and present it to the operator for removal.

☑ If the printer is equipped with the Present Sensor Option, the indicator light will flash orange and the next label will not feed/print until the previous label is removed.

☑ The printer is factory set to use gap media. If using another media type (for example, continuous media), printer setup must be reconfigured; see Section 3.4.
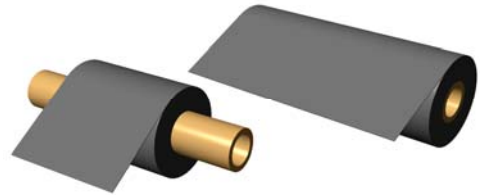

2.4 Loading Ribbon

The printer is capable of using C.S.I (Coated Side In) and C.S.O (Coated Side Out) ribbons in the following configurations:

½" Core Ribbons

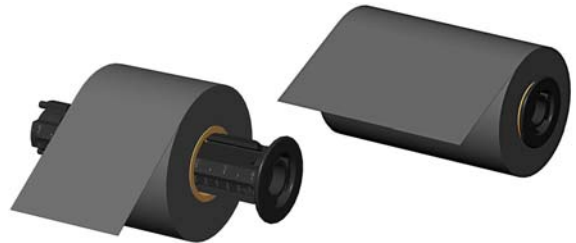> **Ribbon Core Width:** 4.3 inches (110mm)
> **Ribbon Width:** 1.0 - 4.3 inches (25 - 110mm); Centered on core

1" Core Ribbons (with Ribbon Core Adapters, see section 2.4.1.)

> **Ribbon Core Width:** 1.0 - 4.3 inches (25 - 110mm); Centered on Ribbon Core Adapters
>
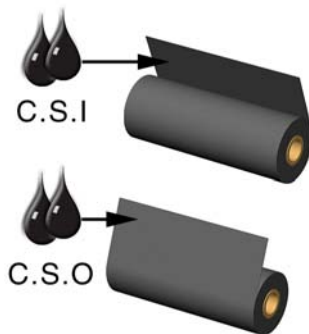> **Ribbon Width:** 1.0 - 4.3 inches (25 - 110mm); Centered on core

Load ribbon as follows:

> ☑ If equipped with the thermal transfer option, the printer is factory set to use ribbon; see Section 3.4 to change this setting if using direct thermal media.

1) Determine the type of ribbon (C.S.I or C.S.O) you are using.

| C.S.I	Coated Side In Ribbon
C.S.O	Coated Side Out Ribbon

> ☑ Ensure the inked side of the ribbon faces toward the label media, _not_ the printhead.

2) Push out the Supply Hub and load the Supply Roll into the printer as shown. Depending on the size of the Supply Roll, the Media Bouncer may need to be pushed out of the way.

3) Once the Supply Roll is loaded, slide the Ribbon Handler Latch downward to unlatch the Ribbon Handler Assembly.

❶	Supply Roll
❷	Supply Hub
❸	Media Bouncer
❹	Ribbon Handler Latch
❺	Ribbon Handler Assembly
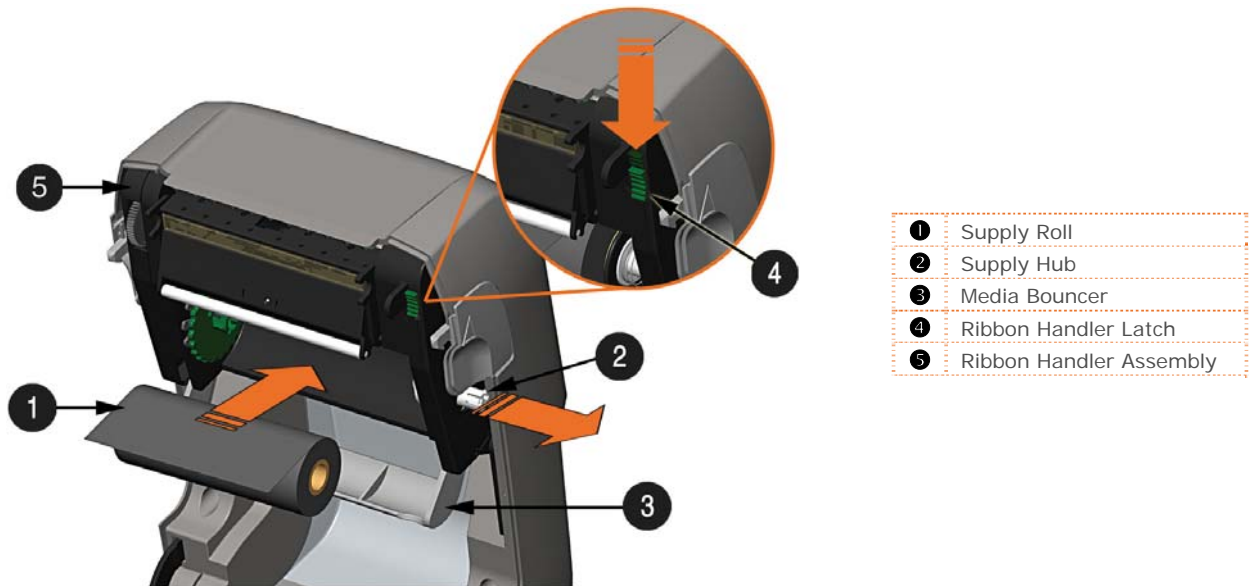
4) Push out the Take-up Hub and load an empty Ribbon Core into the printer as shown.

❶	Ribbon Core
❷	Take-up Hub
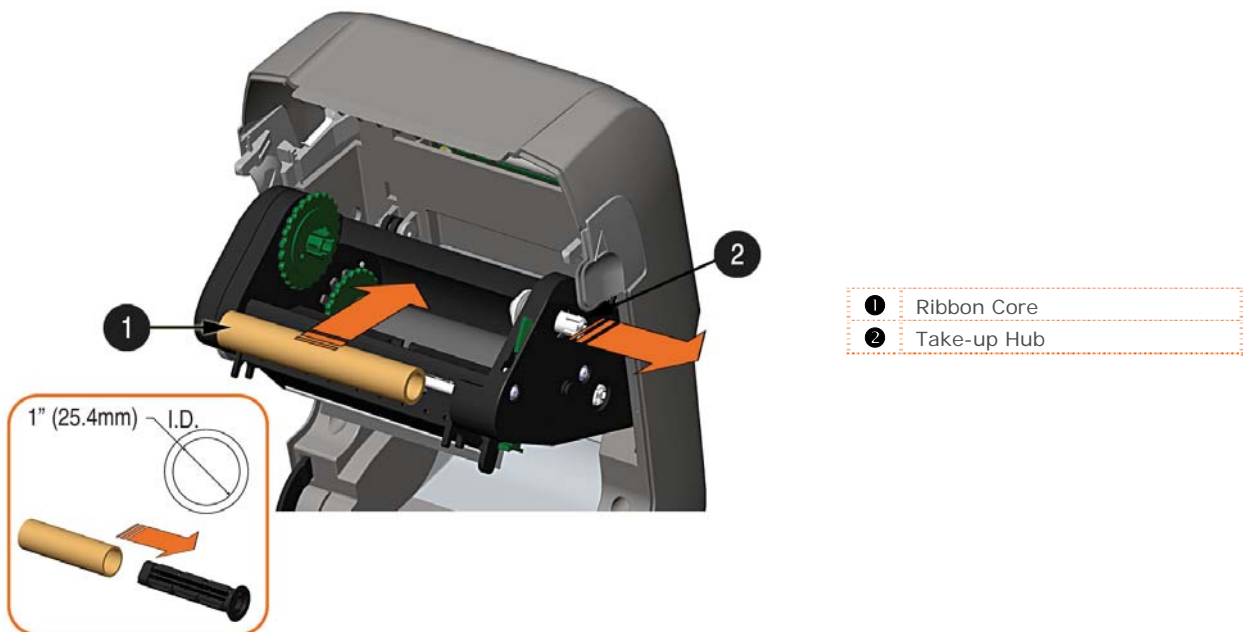
5) Route the ribbon from the supply roll to the Ribbon Core, as shown below.

6) If not already attached, affix the leader of the ribbon to the Ribbon Core using Tape. Rotate the Take-up Hub Wheel several times to secure the ribbon.
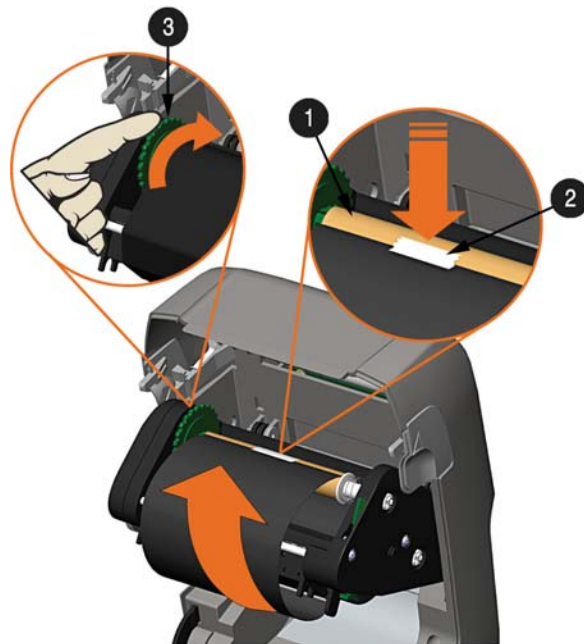
❶	Ribbon Core
❷	Tape
❸	Take-up Hub Wheel

7) Raise and latch the Ribbon Handler Assembly. Close the cover and press the ▶❙ button several times to advance the media (if the Fault Light is on, see Section 3.7.)
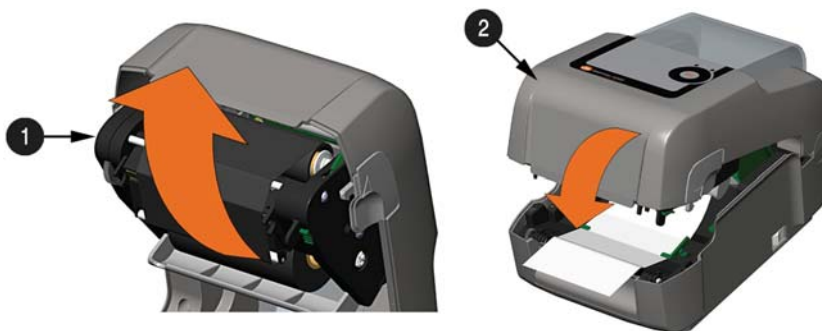
❶	Ribbon Handler Assembly
❷	Cover

2.4.1 Using the Ribbon Core Adapters

When using ribbons with a 1″ (25.4mm) I.D. core, a Core Adapter must be used.

1) Slide the Ribbon Roll (with the leader positioned as shown above) onto a Core Adapter. Slide an empty Ribbon Core onto the remaining Core Adapter.
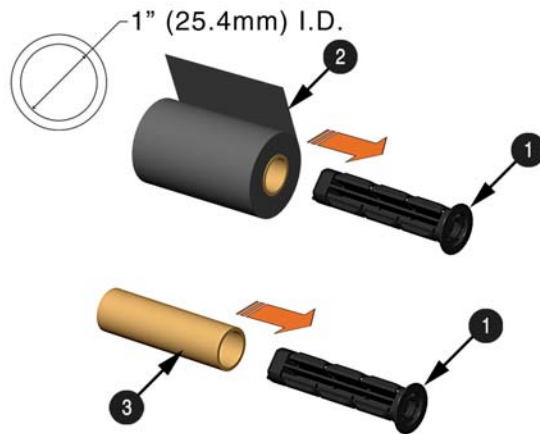
❶	Core Adapter
❷	Ribbon Roll
❸	Ribbon Core

2) If using a narrow ribbon, position the Ribbon Roll so that it is centered on the Core Adapter. The Core Adapters are marked in both inches and centimeters to aid in proper positioning.
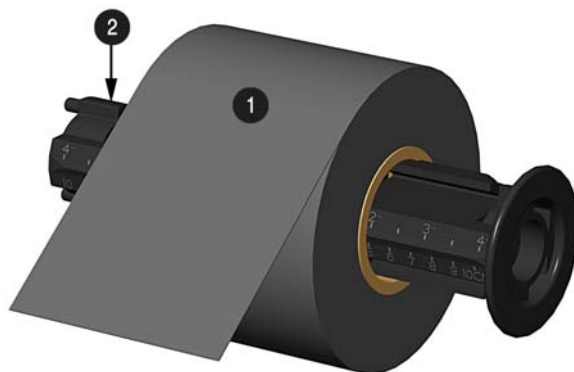
❶	Core Adapter
❷	Ribbon Roll

3 Printer Operation

3.1 Introduction

The Front Panel consists of two indicator lights and one multi-function button, as detailed in the following sections.

❶	Green/Orange Status LED
❷	Red Error LED
❸	Multi-function Button
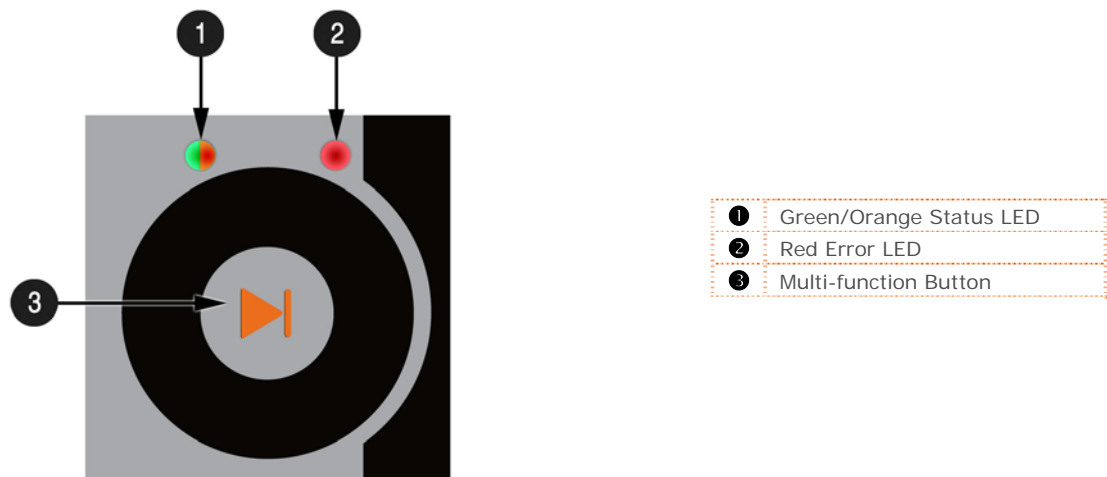
3.2 LED Indicators

Two LED indicator lights provide a quick visual reference of printer operations and conditions, as defined below:

	LED 1		LED 2
Color	**Green**	**Orange**	**Red**
Solid	Ready to print	Paused or Present Sensor is blocked.	TOF sensing error. Next TOF not Found.
Flashing	Processing/busy	Paused/busy	Out of stock\labels or printer jam..
Off	No power		No Error

3.3 Multi-Function Button

The multi-function button performs different functions depending upon the mode of the printer:

Button Action	LED 1 – Green Ready/Idle	LED 1 – Green Printing	LED 1 – Orange Paused	LED 2 – Red Faulted
Momentary Press	Printer feeds media to the next label.	Pauses Printer	Resumes printing	Clears Fault
Press and hold for 5 seconds (release when LED blinks orange)	Prints Network Report Label		Cancel Batch	Cancel Batch
Press and hold for 10 seconds (release when LED blinks green)	Performs the Quick Media Calibration		Performs the Quick Media Calibration	Performs the Quick Media Calibration
Press and hold for 15 seconds (release when LED blinks red)	Resets the printer's parameters to the stored Dealer Settings*		Resets the printer's parameters to the stored Dealer Settings*	Resets the printer's parameters to the stored Dealer Settings*
Press and hold for 20 seconds	Performs a 'warm reset'. Does not affect any stored printer settings.			

*Dealer Settings can be defined and modified using the NETira CT configuration utility, see section 3.5

3.4 Printer Configuration Tools

The printer contains many user adjustable parameters. These parameters are configurable using a few methods. The table below lists the most popular ways of configuring the printer and the advantages of each. Choose the method that best addresses your application.

Method	Description	Pros	Cons	For More Info
NETira CT Program*	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, parallel or LAN connection.	Easy to use, gives the user the most control of the printer.	Software must be installed on a Windows based host computer.	See Section 3.5
Internal Web Pages*	Internal web pages are simple HTML pages that can be accessed with any web browser via the optional Ethernet port.	Easy to use. Printer can be configured from any host connected to the network regardless of physical location or host operating system. No additional software required.	Printer must be equipped with an Ethernet option. Depending on the complexity of the network, initial connection may not be possible until network parameters are set via another method.	See Appendix B.2
Windows Driver	The Windows printer driver (located on the Accessories CD-ROM).	Many applications require use of driver for printing from 3rd party applications. This can be an all in one solution for some users that do not require advanced setups.	Requires installation of a driver on a Windows based host. Only basics parameters can be configured.	See Section 3.6
DPL Programming Commands	DPL Programming Language commands can be built into custom label formats or sent individually to the printer.	DPL commands can be built directly into label formats which can configure the printer on the fly.	DPL programming knowledge needed.	See the *DPL Programmer's Manual*

* Recommended methods

3.5 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 **9.04 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". Other connections (e.g. serial and LAN) do not require the Windows driver or this setting. Install the Windows driver as described in section 3.6. Then follow the steps below to set the driver setting:
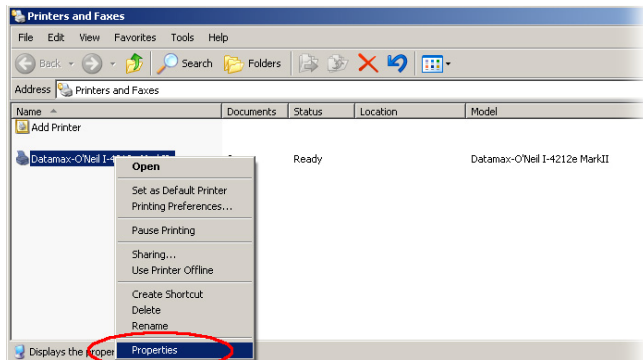
1) Open the list of installed printers on your PC.

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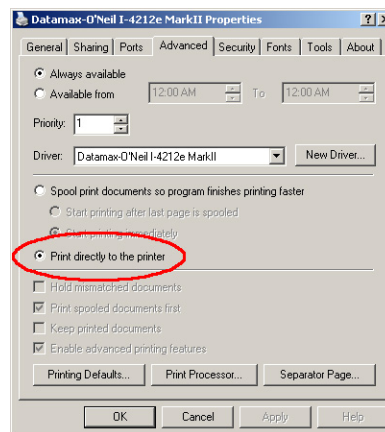
2) Right click on the printer and select Properties from the drop down menu.

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 2.2.2 Interface Connections*).
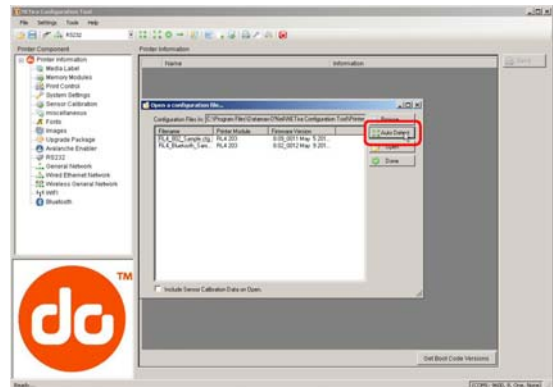
For Serial Connections:

    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, Port: 9100 and click 'OK'. (The IP address is displayed on the printer's Network Report and Configuration Labels).
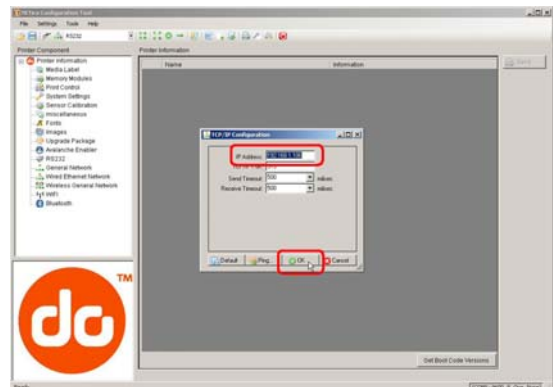
    c) In the toolbar, from the drop down menu box, select "TCP_IP". Then click on the Query Printer Icon 📇.
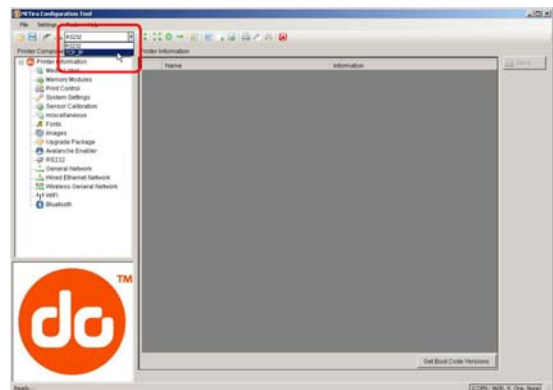
3) At this point you may browse the Printer Component categories and make any changes necessary to the printer configuration.
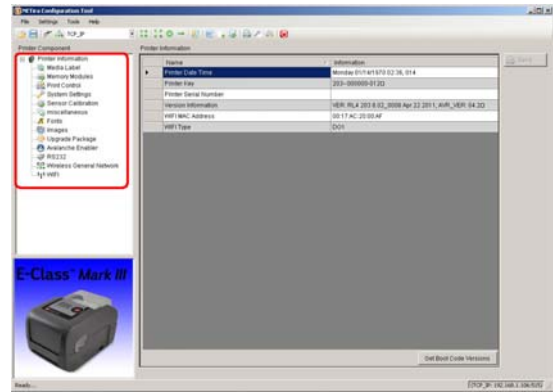
4) Once complete, send the new settings to the printer using the 'Send' button.

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.

3.6 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 http://www.datamax-oneil.com

☑ Be sure your printer's firmware version is **9.04 or greater**. Firmware is available from our website, for the latest version please visit our web site at http://www.datamax-oneil.com
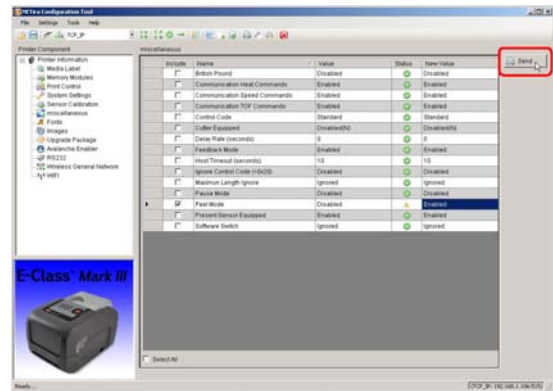
☑ Be sure your printer's USB Mode is set to "Printer". This mode can be viewed/changed via the printer's front panel menu under: Communications> USB Port> USB Device Class.

Installing the Windows Driver:

1) Place the Accessories CD-ROM included with your printer into your computers CD-ROM drive.

2) Once the CD-ROM starts select your printer model then "Install Driver" from the menu and follow the instructions on the screen to install.

3) When prompted, select your printer from the list, (i.e. Datamax-O'Neil E-4xxx Mark III). Continue to follow the on-screen instructions to install the driver.
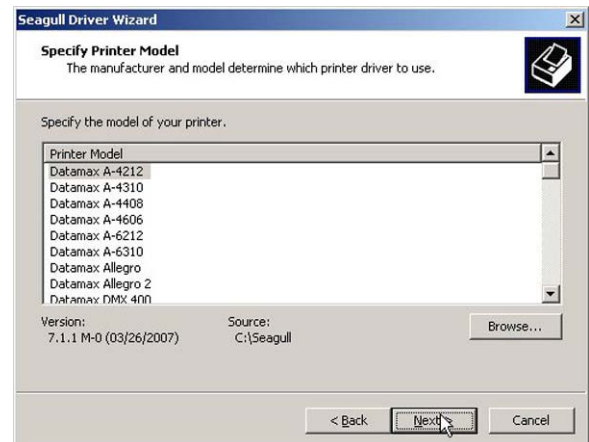
Important Notes:

The Windows driver functions the same as any other Windows printer. While built-in help files provide information on all settings, there are some important setting parameters 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.
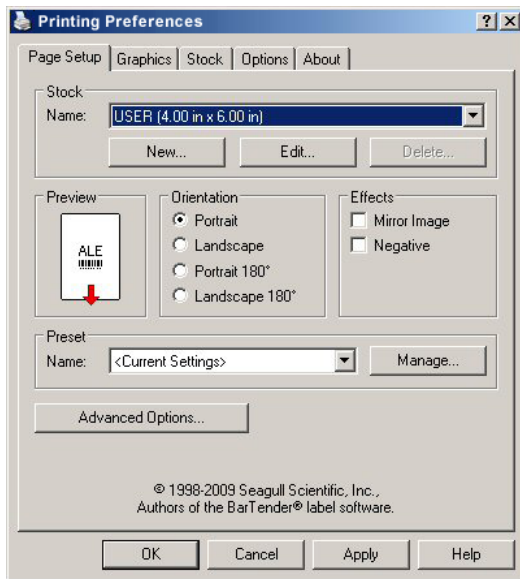
Options Tab: Print Speed & Printhead Temperature

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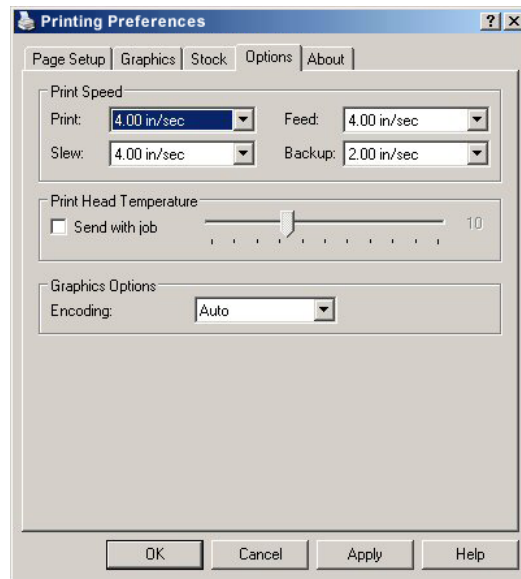
The Windows application software used to create the label format will likely have a "Page Setup" screen. This will also need to match the size of the label you are using.

3.7 Media Calibration

The printer is factory calibrated for operation with most media types (both gap and black mark). Try your media without performing any calibration adjustments first; this will determine if the factory settings are compatible. Only perform the calibration adjustments if you are experiencing media registration issues.

The Quick Media Calibration should be performed first, if it fails to detect your label media proceed to the Manual Media Calibration procedure, see section 3.7.2.

3.7.1 Quick Calibration

The Quick Media Calibration can be performed using the NETira CT configuration utility, (see section 3.5 for more information on NETira CT).

Launch the NETira CT configuration utility, and query (connect) to the printer.

1) Click on the 'Sensor Calibration' printer component.

2) Install your media in the printer and click the 'Quick Media' button.

3) The printer will feed media while the sensor is being calibrated. At the end of the process the following message will be shown, indicating a successful calibration. Values displayed in the "New Value" column may change after a calibration.

   If the calibration is not successful, repeat the procedure. If the Quick Media calibration continues to fail, proceed to section 3.7.2 Manual Media Calibration

3.7.2 Manual Media Calibration

The Manual Media Calibration is intended for use when Quick Media Calibration printer has failed to detect the start of each label. This procedure performs a complete recalibration of the sensors and will optimize the printer to your media. In some instances you may need to perform a Quick Media Calibration after the Manual Media Calibration to further optimize the printer's sensor.

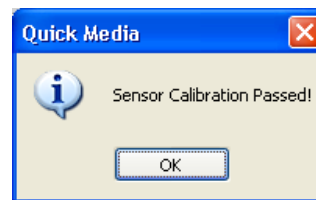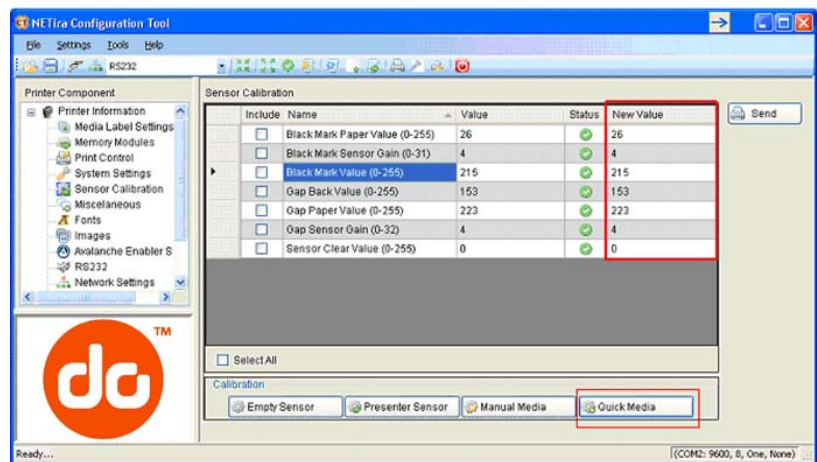Sensor calibration is needed to set either the black mark or the gap value of the media sensor on the printer. The Manual Media Calibration can be performed using the NETira CT configuration utility, (see section 3.5 for more information on NETira CT).

Launch the NETira CT configuration utility, and query (connect) to the printer.

Procedure for Gap Type Media:

1) Click on the 'Sensor Calibration' printer component.

2) Click the 'Manual Media' button to start the manual calibration process.

   Follow the instructions on the following screen.
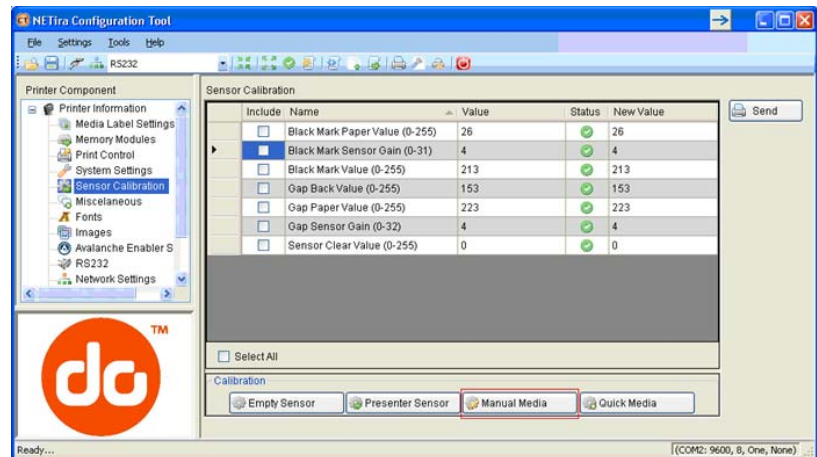
3) Select the Interlabel/Gap radio button then click 'OK'.
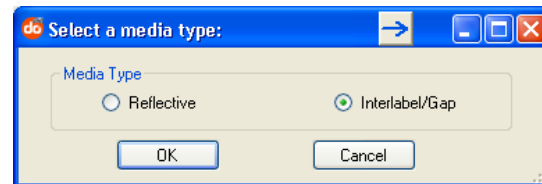
4) Load Stock: Place the face of media over the sensor, close the door then click 'OK'.
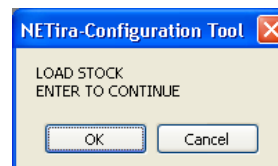
5) Load Special Backing Media for Gap: Peel the label(s) off backing and place backing over the sensor and close the door then click 'OK'.
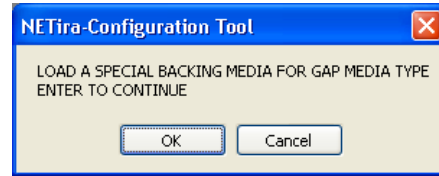
6) Remove Stock: Remove all media from printer, close the door then click 'OK'.
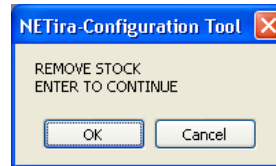
7) NETira CT will display a message indicating the process has finished.

In case of any error, a FAILED CALIBRATION message will be displayed. Repeat the process.
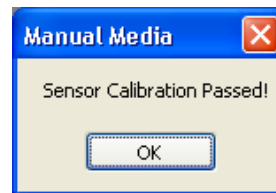
3.8 Internal Labels

The following section details the resident information and test labels.

3.8.1 Database Configuration Label

The Database Configuration Label provides information including the printer firmware version, memory allocations, enabled options, and label-counter data.

Print a Database Configuration Label as follows:

1) Load with media (4 inch wide) and ribbon (if printing with thermal transfer media).

2) Turn the printer on.

3) When the left LED is on (solid red), press and hold the ▶| button until the left LED turns (solid green) and then release. The Database Configuration Label will then print.

```
CONFIGURATION                BI-DIRECTIONAL
THU 09:31AM 19MAR2009        NIC ADAPTER:
PRINTER KEY:                 WLAN:
  4205-EF10-090310-024         NOT INSTALLED
APPLICATION VERSION:         IP ADDRESS:
  83-2755-12C 12.03 03/17/2009   10.50.12.65
BOOT LOADER:                 SUBNET MASK:
  83-2754-12A 12.01 03/06/2009   255.255.254.0
UNLOCKED:                    GATEWAY:
  NONE                         10.50.12.1
MACM:                        SNMPTRAP DESTINATION:
  00-0d-70-00-01-08            0.0.0.0
                             SNMP:
SYSTEM INFORMATION             ENABLED
PRINT BUFFER SIZE:           ADVANCED:
  100 in.                    TELNET:
FLASH SIZE:                    ENABLED
  8 MB                       FTP:
RAM TEST:                      ENABLED
  PASS                       MTU:
OPTIONAL LANGUAGES:            1500
  NONE                       GRATUITOUS ARP:
CONFIGURATION FILE:            0
                             PORT NUMBER:
                               9100
MEDIA SETTINGS               TCP KEEPALIVE:
MEDIA TYPE:                    DISABLED
  DIRECT THERMAL             DUPLEX CAPABILITY:
SENSOR TYPE:                   AUTO-NEGOTIATE
  GAP                        ADVERTISE CAPABILITY:
                               AUTOMATIC
                             HOST SETTINGS:
                             HOST TIMEOUT:
                               10 SEC
                             CONTR...
```

(Printed label may not match the label shown above.)

4 Maintenance & Adjustments

4.1 Introduction

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* applied with a cotton swab to clean the printhead from end to end.	After every roll of media.
Platen Roller	Turn OFF the printer. Rotate the platen roller and clean it thoroughly with solvent* applied with a cotton swab.	After every roll of media.
Peel-Off Roller	Rotate the peel-off roller and clean it thoroughly with solvent* applied with a cotton swab.	After every roll of media.
Media Path	Solvent*	After every roll of media.
Peel/Tear Bar	Solvent*	As needed
Media Sensor	Blown air or brush	Monthly
Exterior	Mild detergent or desktop cleaner.	As needed
Interior	Brush or vacuum cleaner	As needed.

A solvent containing isopropyl alcohol is recommended for use.

⚠ **Warning** Isopropyl alcohol is a flammable solvent; always take the proper precautions when in use.

4.2 Cleaning the Printhead

⚠ **Warning**   Never use a sharp, hard, or abrasive object on the printhead.

If print quality declines (symptoms can include unreadable bar codes or streaks through text and graphics), the typical cause is debris buildup on the printhead which, left unattended, can lead to premature dot failure. Depending upon the supplies and printing parameters used, different cleaning methods are recommended.

☑   Streaks can indicate a dirty or a faulty printhead.

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. To learn more visit our website.

Cotton Swab Procedure

If printing with direct thermal media or thermal transfer media with wax ribbon, clean the printhead as follows:

1) Turn OFF the power switch and unplug the printer. Open the printer. **Wait briefly for the printhead to cool.**

2) Remove any installed media and ribbon. Using a Cotton Swab moistened (not soaked) with isopropyl alcohol, thoroughly clean the Printhead.
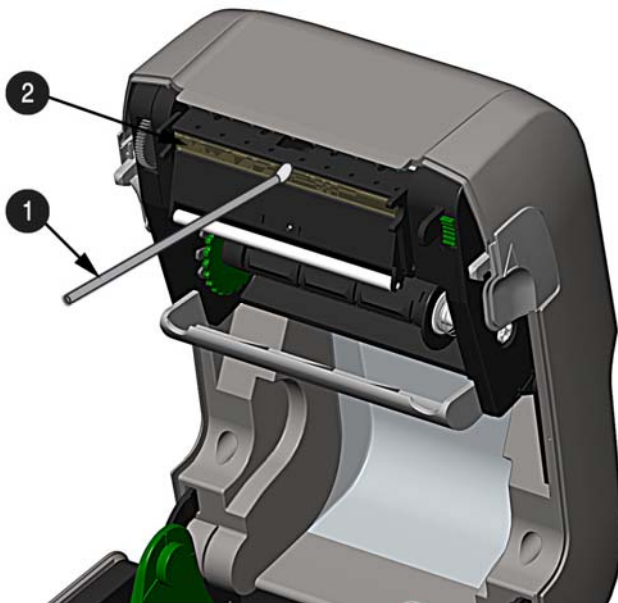
❶	Cotton Swab with Solvent
❷	Printhead

Cleaning Card Procedure

If printing with direct thermal media, thermal transfer media with wax/resin ribbon combinations, or if the Cotton Swab technique was not successful, clean the printhead as follows:

1) Open the printer. **Wait briefly for the Printhead to cool.**

2) Remove media and ribbon then place a Cleaning Card under the Printhead (part number 70-2013-01).

3) Close the cover then press the ▶| Button to initiate cleaning.

4) After the cleaning card has been run through the printer, reinstall media (and ribbon, if needed). Plug in and turn ON the printer. Run a few sample labels and examine them. If streaking is still present, use the Cleaning Film Procedure, below; otherwise, this completes cleaning.

Cleaning Film Procedure

If printing with thermal transfer media and resin ribbon, when printing with a Heat Value of 22 or higher, or when other methods prove unsuccessful, clean the printhead as follows:

1) Open the printer. **Wait briefly for the Printhead to cool..**

2) Remove media and ribbon then place a sheet of Cleaning Film under the Printhead (part number 70-2087-01).

3) Close the cover then press ▶| Button to initiate cleaning.

4) After the cleaning film has been run through the printer, turn OFF the Power Switch and unplug the printer. Open the cover and **wait briefly for the Printhead to cool.** Using a cotton swab moistened (not soaked) with isopropyl alcohol, clean the Printhead then allow it to dry.

5) Reinstall media (and ribbon, if needed). Plug in and turn ON the printer. Run a few sample labels and examine them. If streaking is still present, the Printhead may need to be replaced; see Section 4.2

4.3 Ribbon Tension Adjustment

The adjustable ribbon handler feature, found on printers equipped with the thermal transfer option, allows the optimum amount tension to be supplied by the ribbon supply hub. Adjust the ribbon tension as follows:

1) Turn 'off' the printer.

2) Hold the ribbon/ribbon hub to prevent it from turning. Then push in and rotate the Ribbon Tension Adjustment Knob to the position that matches the core size of the ribbon in use.
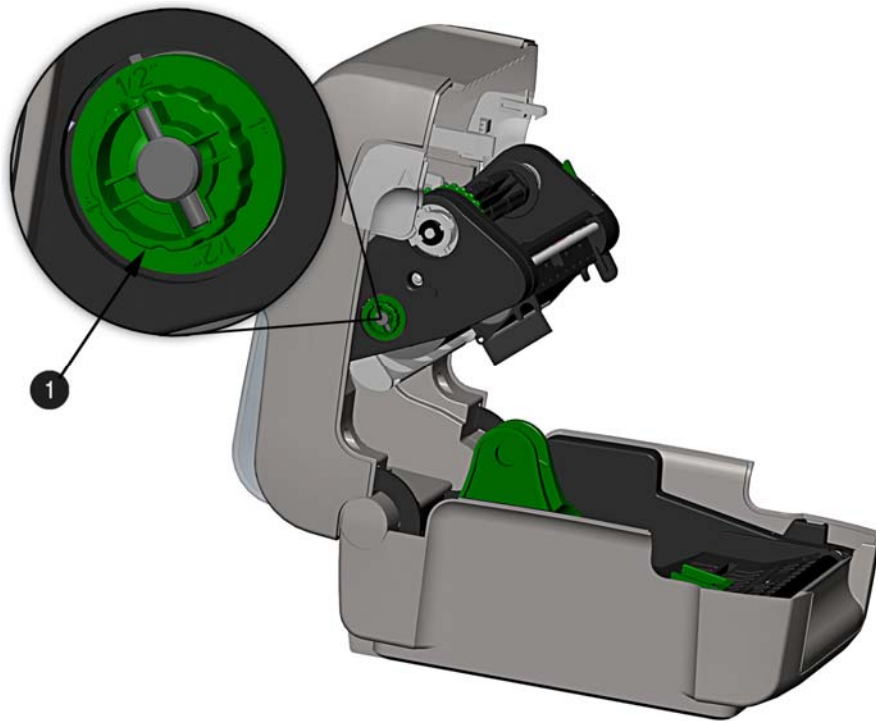
| ❶ | Ribbon Handler |
| ❷ | Ribbon Tension Adjustment Knob |

4.4 Adjustable Media Sensor

The optional Adjustable Media Sensor (AMS) allows the printer to accept a wider variety of media configurations. The table below defines general AMS positions for various media and Top of Form (TOF) types.

AMS Positioning		
Media Type	**Sensor Location**	**TOF Sensing Method**
Continuous	Center of the Media	Continuous
Die-Cut	Center of the Label	Gap
Notched	Center of the Notch	
Reflective	Center of the Mark	Reflective

Position the AMS as follows:

1) On the Bottom AMS Sensor, identify the proper Indicator for use with your media.

❶	Gap or Notch Indicator
❷	Reflective (Mark) Indicator
❸	Lock Release
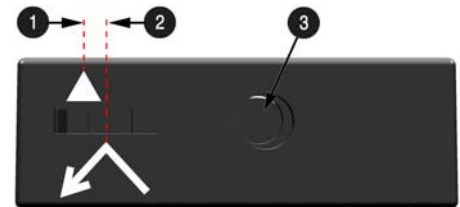
2) Depress the Lock Release and slide the Bottom AMS sensor so the Indicator is in line with the center of the notch, gap, or reflective (mark) of the installed media.

3) Depress the Lock Release and slide the Top AMS Sensor over to the <u>same</u> setting as the Bottom AMS Sensor, (this is not necessary if using reflective media).
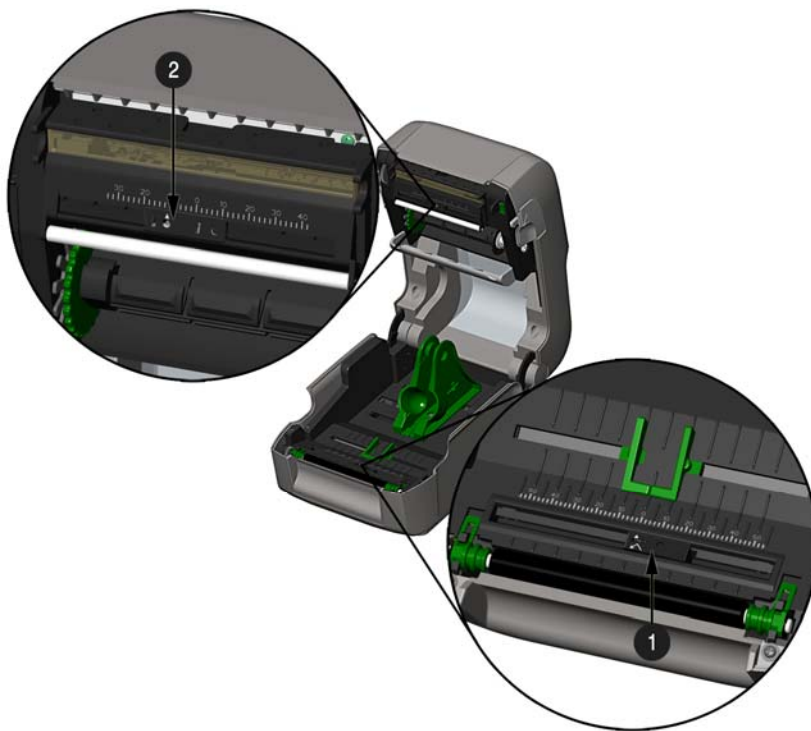
❶	Bottom AMS Sensor
❷	Top AMS Sensor

4) Load media, see Section 2.3.

4.5 Printhead Replacement

If the Printhead becomes damaged or worn, replace it as follows:

☑ Always follow proper Electro Static Discharge procedures when replacing the printhead.

1) Turn OFF the printer and remove the ribbon if installed.

2) Lower the Ribbon Handler Assembly.

3) Press outward on the two Printhead Carrier Tabs and rotate the Printhead Carrier down.
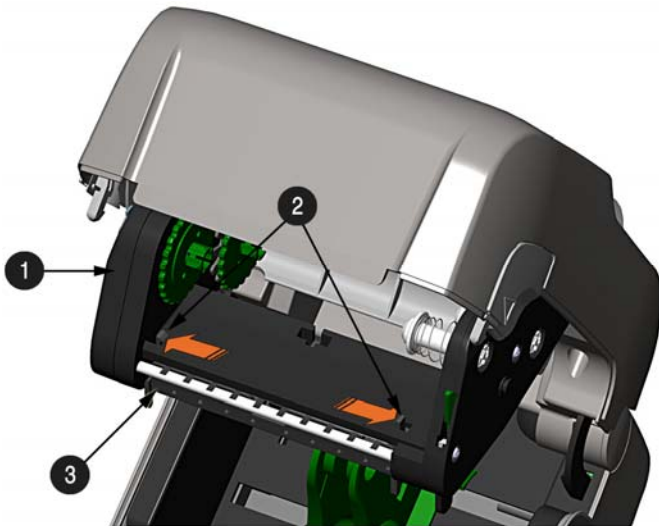
❶	Ribbon Handler
❷	Printhead Assembly Tabs
❸	Printhead Carrier

4) Press inward on the two Printhead Shield Tabs and rotate the Printhead Shield down.
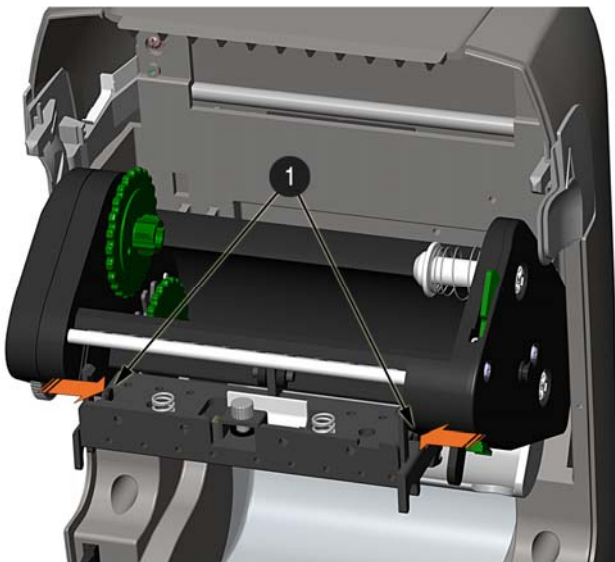
❶	Printhead Shield Tabs

5) Loosen the Printhead Screw and allow the Printhead to fall free.

6) Remove the Printhead Cable.
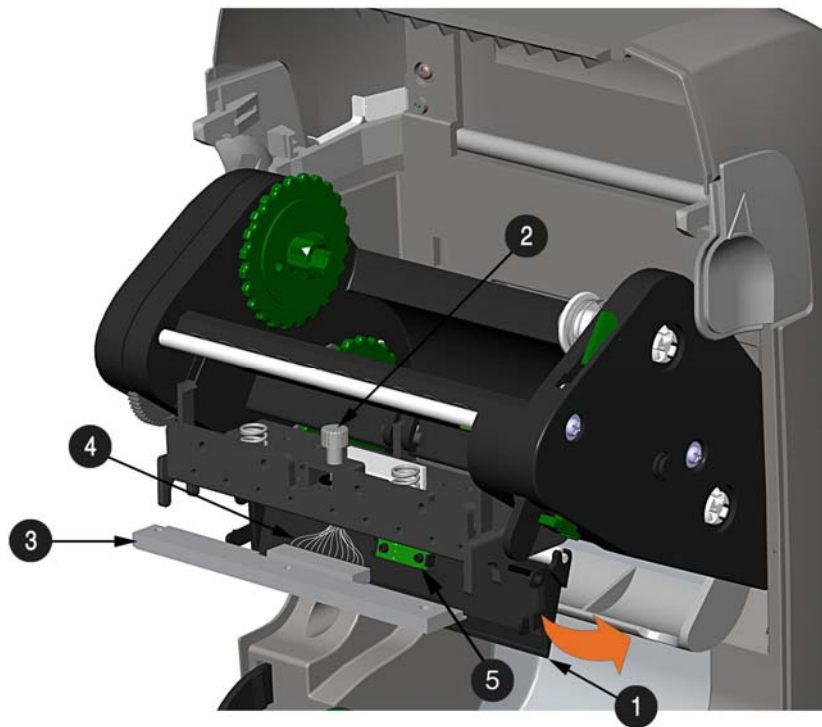
❶	Printhead Shield
❷	Printhead Screw
❸	Printhead
❹	Printhead Cable
❺	Sensor

Installation:

1) Carefully connect the Printhead Cable to the new Printhead.

2) Position the Printhead in the Printhead Carrier and tighten the Printhead Screw.

3) Ensure the Sensor properly seated and rotate the Printhead Shield upward until it snaps into place.

4) Rotate the Printhead Carrier upward until it snaps into place.

4.6 Platen Roller Replacement

The Platen Roller can be easily removed for cleaning, replacement, or clearing media jams.

1) Turn OFF the printer and remove the media if installed.

2) Lift up on the two Platen Roller Tabs.
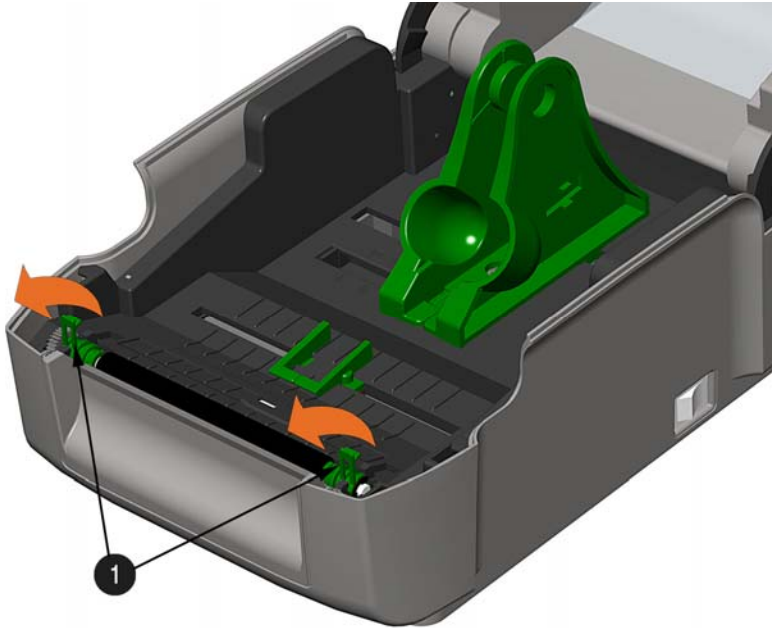
❶ Platen Roller Tabs

3) Remove the Platen Roller Assembly from the printer.
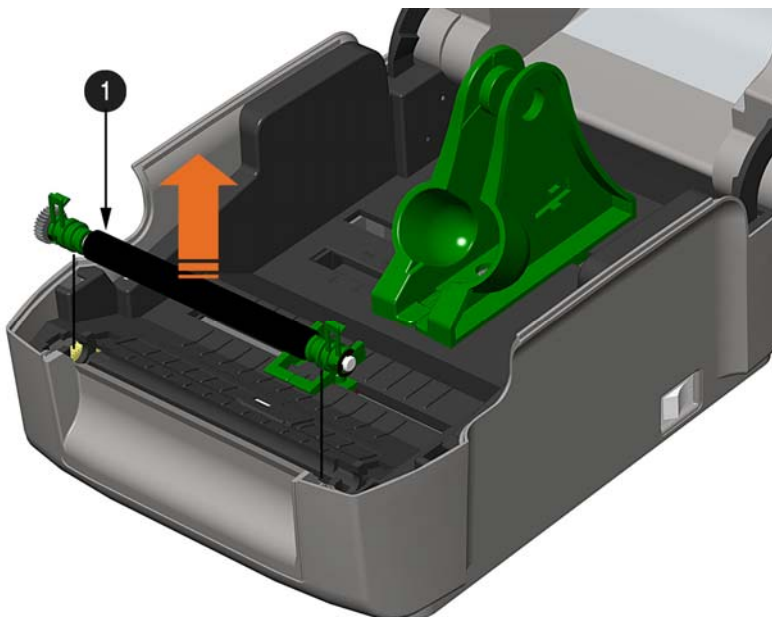
❶ Platen Roller Assembly

Installation:

1) Position the Platen Roller Assembly into the printer.

2) Rotate the two Platen Roller Tabs downward until they snap into place.

4.7 Downloading Firmware and Fonts

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 and download it onto your computer's hard drive.

2) Launch the NETira CT configuration utility, and query (connect) to the printer, (see section 3.5 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.
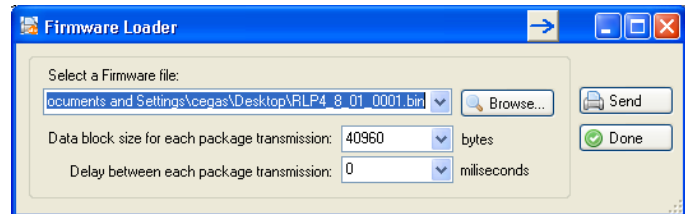
3) Go to the Tools>Upgrade>Firmware. Select the binary file (BIN file).

4) Click the 'Send' button to start the firmware update.

4.7.1 Boot 1 and Boot 2 Boot Loaders

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 3.5 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.

☑ Always Check "Erase System and/or User Area" box unless otherwise instructed..
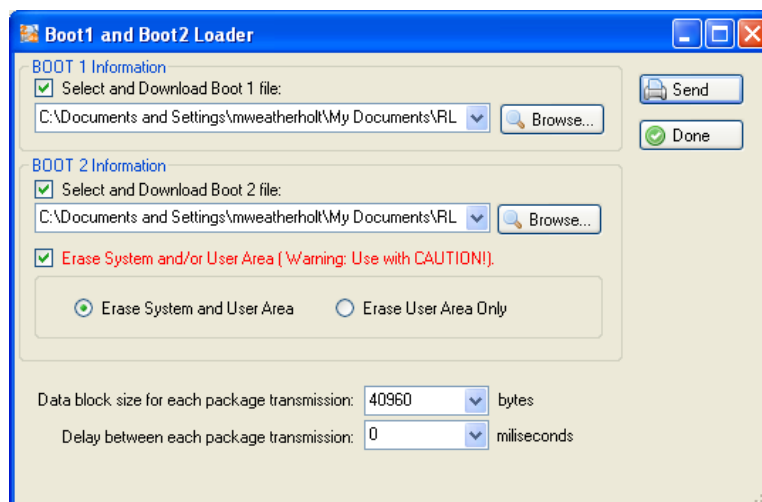
5) Once the Boot Loader files have been loaded, the firmware version can now be updated using the procedure outlined in section 4.7.

5 Troubleshooting

5.1 Introduction

Occasionally, situations arise that require troubleshooting. Possible problem situations and potential solutions are listed below. Contact a qualified technician for problems that persist or problems not covered in this section.

5.2 Troubleshooting Tips

The following section lists the symptoms and the associated page numbers of the topics covered. While not every situation is addressed, you may find some tips helpful. After a correction action is taken press the FEED Button to clear the alarm.

Unacceptable print quality:

- Dirty printhead: Clean the printhead (see Section 4.2).

- The temperature setting may be incorrect for the media being used: Use the software program or DPL commands adjust the Heat Setting and Print Speed.

- A mismatched incorrect ribbon/media combination is being used: Check the types being used.

- Faulty printhead: Replace it (see Section 4.5) or call for service.

The printer does not print or prints several labels at once:

- The labels are incorrectly loaded: See the loading instructions on the inside cover of the printer, or in Section 2.3.

- The media is not calibrated: Calibrate it (see Section 3.7).

- The media sensor or sensor circuitry may be defective: Call for service.

The ribbon does not advance (the paper advances, but ribbon does not):

- The ribbon may be installed incorrectly: Ensure that the inked side of the ribbon faces the labels. With most ribbons this can be verified by rubbing paper against the ribbon; the ink should smudge the paper. Or, if using label stock, the sticky side of a label will pull off the ink.

- A mismatched ribbon/paper combination is resulting in an insufficient amount of friction between paper and ribbon: Ensure that the correct type of ribbon is being used with the media.

Skips every other label (print quality is good, but every other label is skipped):

- The label is formatted too close to the top edge of the label: Leave white space equal to 8-dot rows (about .02 inch [.5mm]) at the top of the label.

- The media is not calibrated: Calibrate it (see Section 3.7 or 3.3).

- The media sensor or media sensor circuitry may be defective: Call for service.

Unable to print rotations:

- The characters are formatted outside the dimensions of the label: Check that the row/column values provide enough room for the height of the image being printed.

Light print on the right side of the label:

- The printer's cover is not latched down: Latch it.

- The printhead is not properly aligned: Call for service.

Printer fails to power ON:

- The AC wall outlet may be faulty: Try another outlet.

- The power supply may be faulty: Replace it.

- Possible defective power switch: Call for service.

Label advances 1-2 inches before a fault indication:

- The ribbon may be incorrectly installed. Ensure that the inked side of the ribbon faces the labels. With most ribbons this can be verified by rubbing paper against the ribbon; the ink should smudge the paper. Or, if using label stock, the sticky side of a label will pull off the ink.

- A mismatched ribbon/paper combination is resulting in an insufficient amount of friction between paper and ribbon: Ensure that the correct type of ribbon is being used with the media.

Label advances 12 inches before a fault indication:

- The media may not be properly loaded: Reload it (see Section 2.3). When loading media ensure that the media hangers and media guides are against the media and that gaps or marks in the labels are in line with the media sensor.

- The media sensor or media sensor circuitry may be defective: Call for service.

Labels move excessively from side to side during printing:

- The media may not be properly loaded: Reload it (see Section 2.3). When loading media ensure that the media hangers and media guides are against the media and that gaps or marks in the labels are in line with the media sensor.

A Specifications

Mechanical

Width	8.01 inches (20.4 cm)
Depth	11.10 inches (28.2 cm)
Height	7.36 inches (18.7 cm)
Weight	5.25 pounds (2.4 kg)
Operating Temperature	40 to 95 F (4 to 35 C)
AC Input Voltage	Power Supply 105 VAC to 250 VAC / 50-60 Hz

Printing

Print Method	Direct Thermal; Thermal Transfer (optional)
Print Speed	Basic Models: 2 - 4 IPS (50.8 - 101mm/s) Advanced Models: 2 - 5 IPS (50.8 – 127mm/s)
Resolution	203 DPI Models: 203 DPI (8 dots/mm) 300 DPI Models: 300 DPI (11.8 dots/mm)
Tear Bar	Tear up
DRAM Memory	32MB
FLASH Memory	64MB

Media / Ribbon

Media Types	Roll-Fed, Die-Cut, Continuous, Fan-Fold
Max. Media Width	4.4 inches (110mm)
Min. Media Width	0.75 inches (19mm)
Max. Print Width	203 DPI Models: 4.25 inches (108mm) 300 DPI Models: 4.12 inches (106mm)
Print Length Range	.236 – 99 inches (6 - 2514mm)
Minimum Label Height	Tear: 0.5 inches (12mm) Peel: 1.0 inches (25mm) Cut: 1.18 inches (30mm)
Media Thickness Range	.0025 - .01 inches (.064 - .254mm); *up to .005 inches (.127mm) with optional Cutter*
Media Supply Roll Capacity	5 inches (127mm) O.D. on a 1 inch (25.4mm) core
Ribbon Width Range	½" Core Ribbons Ribbon Core Width: 4.3 inches (110mm) Ribbon Width: 1.0 - 4.3 inches (25 - 110mm); Centered on core 1" Core Ribbons (with Ribbon Core Adapters, see section 2.4.1.) Ribbon Core Width: 1.0 - 4.3 inches (25 - 110mm); Centered on Ribbon Core Adapters Ribbon Width: 1.0 - 4.3 inches (25 - 110mm); Centered on core
Ribbon Roll Capacity	0.5" (13mm) core with 361' (110m) long ribbon or 1" (25mm) core with 984' (300m) long ribbon

Communications

|	
Interface Ports (standard)	USB, RS-232 (DB-9)
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

Fonts

9 Bit Mapped Fonts rotated 0, 90, 180, and 270 degrees.

Embedded Bar Codes

32 embedded barcodes (see the *DPL Programmer's Manual* for a detailed listing).

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 other 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.
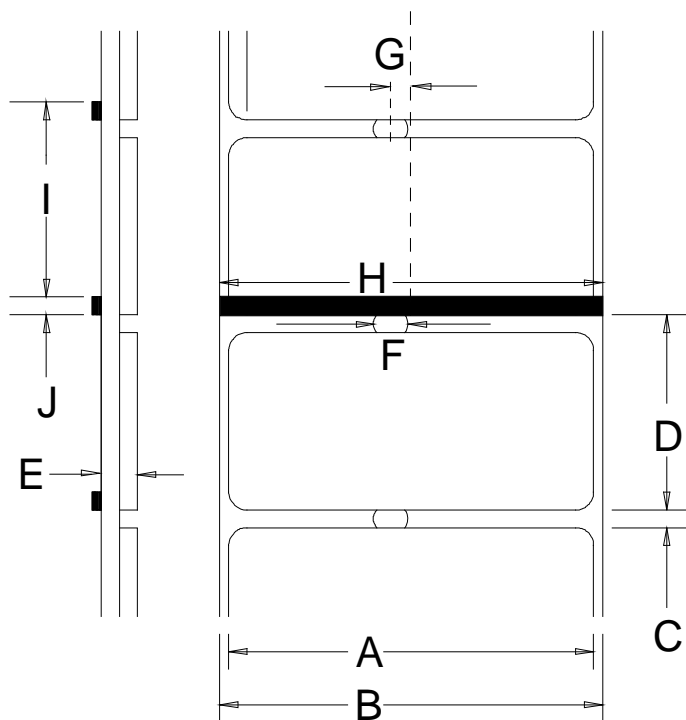
	Description	Max [1]	Min [1]
A	Label width	203 DPI: 4.25 300 DPI: 4.12	.75
B	Backing width	4.4	.75
C	Gap between labels	.25	.10
D	Label length	24[3]	.25[4]
E	Total thickness	.010[6]	.0025
F	Notch opening width	--	.20
G	Distance from the center of the media to the center of media sensor aperture	.1875	--
	with the Adjustable Media Sensor option	Adjustable across full media width	
H	Reflective mark width[2]	4.4	.50
I	Distance between reflective marks	24[3]	.25[5]
J	Reflective mark length	.25	.10

[1] Units of measure are in inches.
[2] 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.
[3] The label length may vary up to 99 inches with printable area not exceeding the maximum label length.
[4] This distance is inclusive of the minimum gap between labels. Min length of 1.25 inches (31.8mm) with optional Cutter installed.
[5] This distance is inclusive of the minimum reflective mark.
[6] .007 inches (.117mm) w/Standard Cutter.

B Ethernet Setup

B.1 Network Card Setup

The Print Server 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 Internal Ethernet Print Server 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.**

1) With Printer Off, connect the network cable then turn ON Printer.

2) The printer will now search for a DHCP server. 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. To print the Network Report:

   Press and hold the ▶❙ button for 5 seconds (release when LED blinks orange).

```
NETWORK REPORT
 CURRENT PRINTER INFO
  MACO: 00:0D:70:0B:31:90
  IP ADDRESS: 192.168.10.26
  SUBNET MASK: 255.255.255.0
  GATEWAY: 192.168.10.26
  DHCP: *ENABLED
  SNMP: *ENABLED
  PORT NUMBER: 9100
  NETBIOS NAME:  DMX_0B3190
 WLAN MODULE  - DISABLED -
  MODULE FW VERSION:  4.3.0.24
  RADIO FW VERSION:  1.1.1.111.8.4.0.145
  PORT STATUS: CONNECTED: ESS
  SSID:  000b2802d55e
  MACR: 00:0B:28:02:D5:5E
  BSS ADDRESS: PROVIDED BY DHCP
```

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, see Section B.1.1.

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

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.

-or-

> Browse to the internal web pages for advanced configuration; see Section B.2.

B.1.1 Wired Configuration - Static IP Address:

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 computers serial and parallel connection. This is a vital tool for the use and configuration of wired LAN setup.

1) Click on the 'Wireless General Network' printer component.

2) Change (or confirm) the following parameter settings:

DHCP Enable: Static

Static IP address: According to your network IP range.

Static Subnet mask: According to your network subnet mask.

3) After updating the "New Value" column, click the Send button to send these changes to the printer.

The printer will reset and will connect to your network with the values you specified.
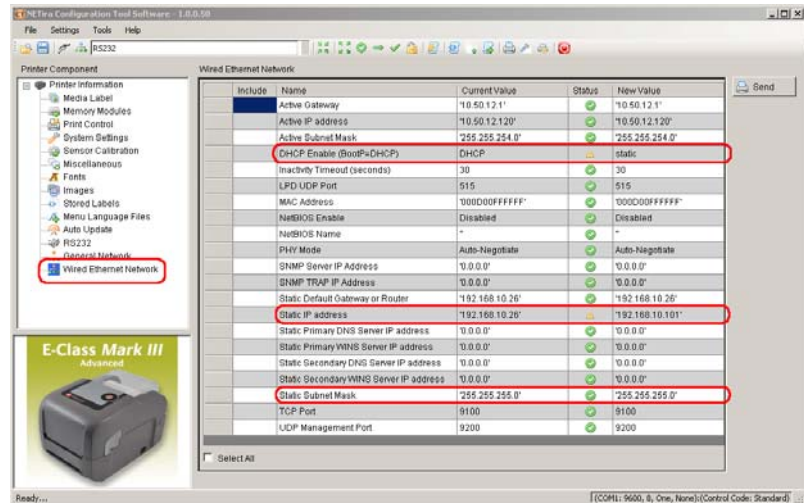
Once the previous steps have been successfully completed you may now use the IP Address to:

> Install a printer driver, and start printing from your Windows applications; see Section B.3.
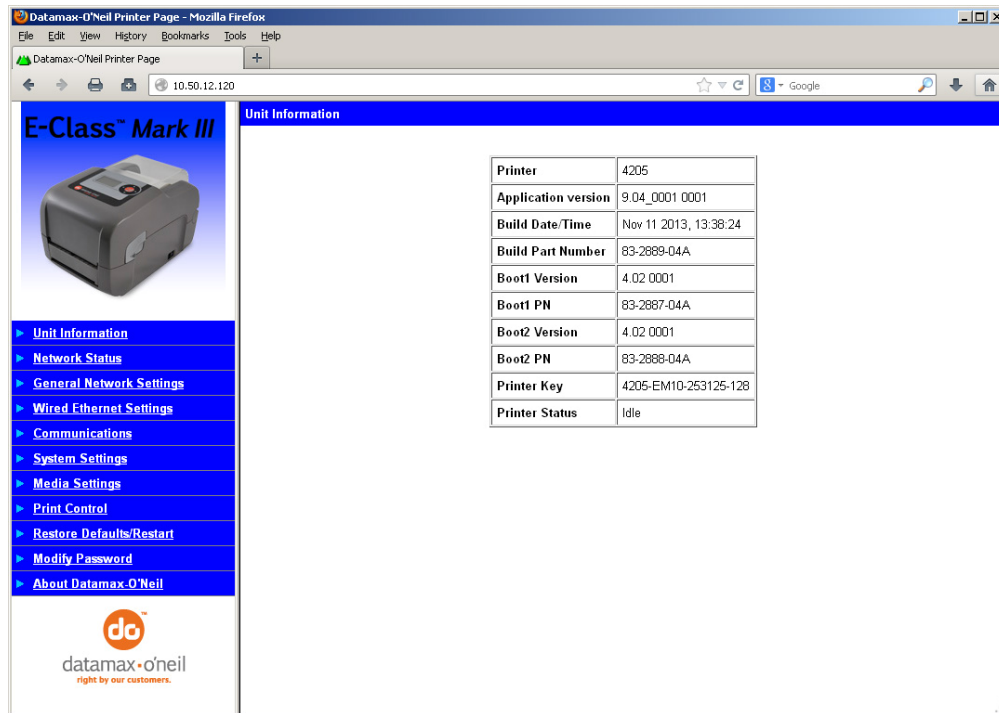
-or-

> Browse to the internal web pages for advanced configuration; see Section B.2.

B.2 Printer's Internal Web Pages

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

   ☑ **Note:** If you (or DHCP) have assigned a different IP address to the printer, make sure to use this address.

2. The following page will appear:

The printer's ten internal web pages are accessible via the navigation bar on the left-hand side.

The **Generic Network Settings** and **Wired Ethernet Settings** pages contain many items associated with the setup of the network card. The following tables provide information on each of the items listed on these pages.

☑
- You must provide a password to change any settings; the default password is `sysadm`

- After changes are sent to the printer (on all web pages), the printer must be reset in order for the changes to take effect. This can be done from the Restore Defaults/Restart page.

- 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.

Generic Network Settings Page

Network Interface	
Network Interface	Wired Ethernet
	Disabled

TCP Print Services	
TCP Print Services	Enables TCP
	Disables TCP

LPD Print Services	
LPD Print Services	Enables the Line Printer Daemon (LPD) Service.
	Disables the Line Printer Daemon (LPD) Service

HTTP (WWW) Services	
HTTP (WWW) Services	Allows HTTP (WWW) protocol to transfer data, where:
	Enables HTTP
	Disables HTTP

Gratuitous ARP	
Gratuitous ARP (Minutes) (Disabled=0)	Sets time interval for ARP transmission packets, where: (0-2048 minutes); the default is Disabled.

Wired Ethernet Settings Page

Acquire Address Method	
Acquire Address Method	Controls IP Address discovery, where: Use DHCP: Broadcasts over the network to receive addresses from the responsible server at startup. Manual modifications to IP Address, Subnet Mask, or Gateway are not allowed; and, if no server is found, the specified static value will be used. Use Static Addresses: Uses the stored static IP, Subnet Mask, and / or Gateway Address.

Static IP Settings	
Printer IP Address	
Printer Subnet Mask	
Printer Gateway	
Primary DNS Server	These are the static address the printer will use when Acquire Address Method is set to "Use Static Addresses" or a valid IP could not be retrieved from a DHCP server.
Secondary DNS Server	
Primary WINS Server	
Secondary DNS Server	

Ethernet Port Connection Settings	
Duplex Capability	Allows the User to specify the line duplex and speed of the wired Ethernet connection. Auto-Negotiate (default) 10 BaseT Full Duplex 100 BaseT Full Duplex 10 BaseT Half Duplex 100 BaseT Half Duplex

Printers DNS Name	
Printers DNS Name	Sets the DNS name of the printer.

NetBIOS Settings	

NetBIOS Enable	Enables/Disables NetBIOS, where:
	    Enables NetBIOS
	    Disables NetBIOS

NetBIOS Name	Is the name used to reference the printer instead of the IP address. A WINS or DNS server is required for this capability.

TCP Print Services	
TCP Print Port	Selects the Port to use for all network communications; the default is 9100.
Inactivity Time (seconds)	Sets the time-out (inactivity) threshold in seconds

LPD Print Port	
LPD Print Port	Sets the LPD printer port; the default is 515

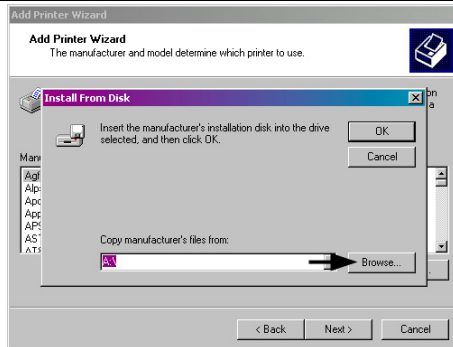| UDP Management Port	
UDP Management Port	Sets the UDP printer port; the default is 9200

B.3 Installing the Printer Driver

Install the Printer Driver as follows (screen shots below are samples taken using Windows 2000; other versions will be similar):

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

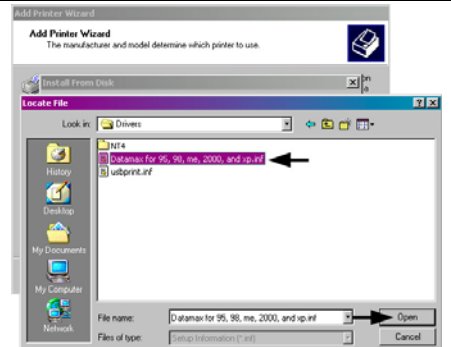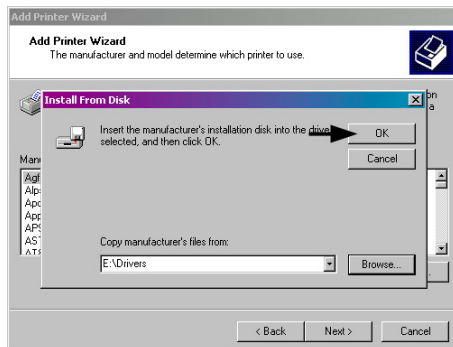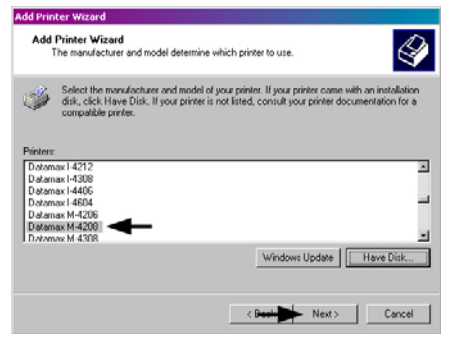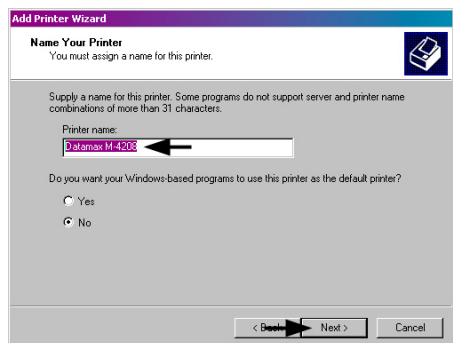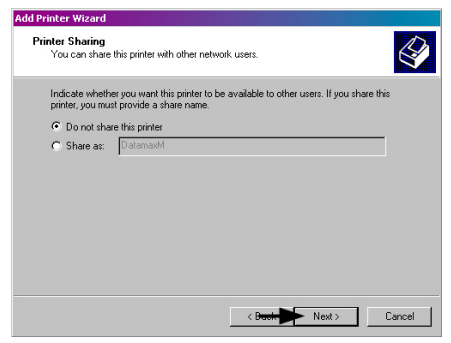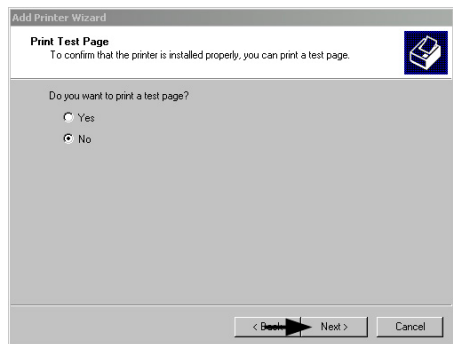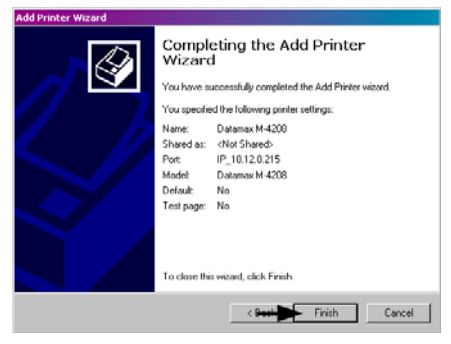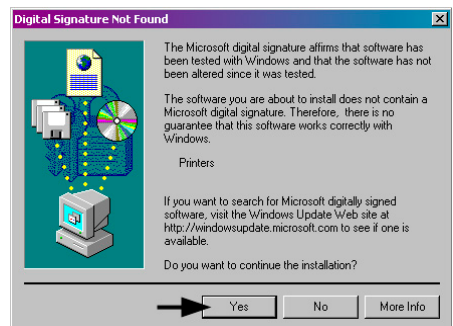|			
9 Insert the Accessories CD-ROM and click Browse.		**10** Browse to the \DRIVERS\ folder on the CD-ROM. Ensure the file "Datamax-O'Neil.inf" is selected then click OK.	
11 Click OK.		**12** Choose your printer from the list and then click Next>.	
13 Assign a name in the Printer name field and select whether or not it is to be your default printer then click Next>.		**14** Select whether or not to share this printer on your network. Then click Next>.	
15 Select No then Click Next>.		**16** Confirm your settings and then click Finish.	
17 If prompted with the Digital Signature Not Found window, click Yes to continue installation.		**18** Your computer will now copy the necessary files from the CD-ROM.	
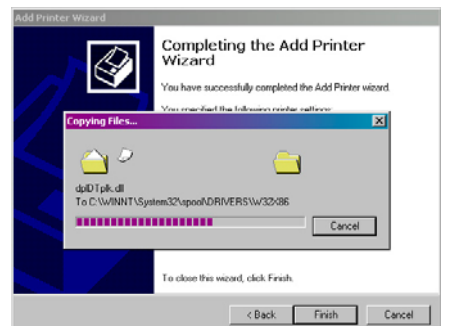
The driver and port installation is now complete. The printer can be selected through any Windows application.

Glossary

alphanumeric Consisting of alphabetic, numeric, punctuation and other symbols.

backing material The silicon-coated paper carrier material to which labels with adhesive backing are affixed. Also referred to as "liner".

bar code A representation of alphanumeric information in a pattern of machine-readable marks. The basic categories are divided into one-dimensional (UPC, Code 39, Postnet, etc.) and two-dimensional barcodes (DataMatrix, MaxiCode, PDF417, etc.).

burn line The row of thermal elements in the printhead that create the images on the media.

calibration The process through which sensor readings are entered into the printer for correct sensor function (for example, detection of a given media type) and TOF positioning.

character set The entire complement of alphanumeric symbols contained in a given font.

checksum An alphanumeric error detection method used in many bar code symbologies for informational security.

continuous media An uninterrupted roll or box of label or tag media that contains no gap, notch, or mark to separate individual labels or tags.

core diameter The inside diameter measurement of the cardboard core at the center of a ribbon or media roll.

cutter A mechanical device with a rotary or guillotine type blade used to cut labels or tags following printing.

defaults The functional setting values returned following a factory reset of the printer.

diagnostics Programs used to locate and diagnose hardware problems.

die-cut media Media that has been cut into a pattern using a press, where the excess paper is removed leaving individual labels, with gaps between them, attached to a backing material.

direct thermal The printing method that uses heat sensitive media and the heat produced from the printhead to create an image on the label.

direct thermal media Media coated with special chemicals that react and darken with the application of heat.

DPI (dots per inch) A measurement of print resolution, rated in the number of thermal elements contained in one inch of the printhead. Also referred to as "resolution".

DPL Programming Language The programming commands used specifically for control of and label production with Datamax-O'Neil desktop printers. A complete listing can be found in the *Class Series 2 Programmer's Manual.*

fan-fold Media that is folded and stacked.

feed speed The speed at which the media moves under the printhead in non-printed areas and between labels.

Flash memory Non-volatile memory (does not require printer power to maintain data) that can be erased and reprogrammed, used to hold the printer's operating programs.

font A set of alphanumeric characters that share a particular typeface.

gap A space between die-cut or notched labels used to sense the top of form.

IPS (inches per second) Imperial measurement of printer speeds.

label A paper or synthetic printing material, typically with a pressure sensitive adhesive backing.

label length The distance from the top of the label to the bottom of the label as it exits the printer.

label repeat The distance from the top of one label to the top of the next label.

label tracking Excessive lateral (side to side) movement as media travels under the printhead.

label width The left to right measurement of the label as it exits the printer.

mark Generalized term to indicate the label top of form indicator of the media.

media Generalized term for printing material.

media hub Device in the printer used to support roll media.

media sensor An electronic device equipped with photo sensors to detect media and the top of form on die-cut, notched or reflective media.

notched stock Media, typically tag stock, with holes or notches in the material that is used to signal the top of form. The printer must be set to "gap" to use this media type.

preprinted media Label stock that contains borders, text, or graphics, flood coating, etc.

perforation Small cuts extending through the backing and/or label material to facilitate their separation. Also referred to as "perf".

print speed The speed at which the media moves under the printhead during the printing process.

reflective media Media imprinted with carbon-based black marks on the underside of the material, which is used to signal the top of form when the reflective sensor is enabled.

registration Repeatable top to bottom alignment of printed labels.

reverse speed The backward rate of media motion into the printer during tear-off, peel and present and cutting operations for positioning the label at the start of print position.

ribbon An extruded polyester tape with several layers of material, one of which is ink-like, used to produce an image on the label. Also referred to as "foil".

ribbon wrinkle An undesirable overlapping of the ribbon during the printing process that leads to voids on the printed label, typically caused by an improper ribbon width adjustment.

roll media A form of media that is wound upon a cardboard core.

start of print The position on the label where the printing actually begins.

tag stock A heavy paper or synthetic printing material, typically featuring a notch or black mark for TOF and no adhesive backing.

thermal transfer The printing method that creates an image by transferring ink from a ribbon onto the media using the heat produced from the printhead.

TOF (top of form) The start of a new label as indicated by a label gap, notch, mark or programming.

void An undesirable blank space in a printed image.