

RL3/3e & RL4/4e

User Guide ■■■



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Part Number: 110259-004

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

Agency Compliance and Approvals



UL60950-1; 2nd Edition
CSA C22.2 No. 60950-1-07 2nd Edition

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

Applicable Directive

- 2004/108/EC, 73/23/EEC



Applicable Standards

- RL3 Printers: EN55022 Class A; RL4 Printers: EN55022 Class B
- EN55024 (1998), A1 (2001), A2 (2003)
- IEC60950-1 (2005) 2nd Edition

RLe Printers: FCC 15 Class B, EN55022 Class B

- EN55024
- IEC 60950-1 2nd edition
- EAC – Customs Union
- CCC, SRC
- C-tick, A-tick



The RL3e and RL4e printers with the 802.11 a/b/g/n and **Bluetooth®** wireless technology options has been found compliant to the SAR requirements. The maximum SAR measured value was 0.572 W/kg averaged over 1 gram.

FCC Notice:

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, it 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 to 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 RL3e/RL4e printer purchase. The RL Series printer family, hereafter referred to as “the printer,” blends the rugged durability with state-of-the-art electronics and user-friendly features to redefine the standard in portable thermal printers. The printer’s RS-232 serial, USB, or optional wireless LAN or Bluetooth® wireless technology allows easy interfacing to any host system.

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

To print labels or receipts, simply refer to the instructions included with the software you have chosen to use to create the labels.

A Windows® printer driver can be found on our website (www.datamax-oneil.com). If you wish to write a custom program, a copy of the Programmer’s Manual can also be found on our website.



1.2 Unpacking

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

- Printer
- Belt Clip
- Documentation

Additional Requirements:

In order to print from your RL Series printer, the following items are required. If you do not have these items, contact your customer-support or sales representative for advice on where to purchase them or download the required software items.

- **Power Supply** (sold separately) – The appropriate power supply for your region is required and is not included as part of the printer purchase. If you do not have an applicable power supply for your printer, you will need to order one before getting started.
- **NETira™ CT Configuration Software**, version 1.0.0 or greater. Available for download at www.datamax-oneil.com
- **Connection Cable** – If the printer you are setting up does not have a Bluetooth® wireless connection feature, or if you are seeking to connect your printer over a wired connection, you will need a cable. Available options: Serial Cable – Coiled (Part No. 210191-101); Serial Cable – Straight (Part No. 210191-101); or USB (Part No. 210304-100).
- **Print Media** – Datamax-O’Neil offers a full line of applicable printing labels, receipt media and supplies. It is recommended that Datamax-O’Neil-approved media be used to ensure the quality of your printing and maintain the integrity of your warranty. Go to www.datamax-oneil.com for more details on available supplies.

NOTE: This manual contains instructions and information regarding RL Series printers with various options. Not all features listed in this guide may be applicable to your RL Series printer model. If you are unsure of whether your printer contains these features, contact Datamax-O’Neil or visit our website at www.datamax-oneil.com for further details.



It is a good idea to save all packaging materials in the event that shipping the printer is ever required.

1.3 Carry Accessories

Several accessories are available for the printer to allow for ease of use and portability.

Belt Clip

Included with printer, the Belt Clip allows easy attachment to a belt or similar object.



1 Belt Clip

Shoulder Strap/Hand Strap (Optional Items)

Choose either a hand or longer shoulder strap for maximum comfort and flexibility. Each strap incorporates heavy-duty clasps for an easy and secure attachment; however, these are not OSHA-approved safety straps.

Both the hand strap and shoulder strap have a limited breakaway strength. If the strap is caught or wrapped and pulled beyond normal use the strap will come off the Attachment Points. Do not use the straps for mounting, hanging or as the means for a permanent installation of the printer. If the latch appears damaged (white stress marks in plastic) discontinue use and replace.

Orient and connect the clip(s) to the Attachment Points shown.



1 Attachment Points

Belt Loop (Optional Available Accessory)

The Velcro® loop fastens comfortably and securely around the belt and keeps the printer secure, yet swivels for comfort when the user is bending over or getting in and out of vehicles.



IP54 Soft Case *(Optional Available Accessory)*

Proper use of this case will allow the printer to be used in harsh, dusty or rainy environments. This case is certified to an IP54 rating, so when properly used, it will protect your product against particles as small as dust, and water from any direction. This case can be used in conjunction with the hand/shoulder straps, as well the belt-loop and belt-clip accessories.

The IP54 case has been tested at an accredited lab for use in dusty and heavy water environments. However, it is not designed for extensive prolonged use in the rain. During normal operation, water could enter into the case during media changing. This ingress of moisture should be avoided at all costs. The printer warranty cannot be honored for excessive water inside the printer even if an IP54 case is used.



1. Open the case at the two (2) side zippers.
2. Slide the printer into the case.
3. Close the case using the two (2) side zippers and Velcro® closure.
4. Fold back the paper exit flap for each print job. The paper exit flap can also be rolled up out of the way and secured using the Velcro® strip; doing so decreases the effectiveness of the case for water protection.



Never attempt to charge when the printer case or printer is wet as a short circuit could occur. Remove the printer from the case, allow to completely dry and then charge. In the event water is believed to have entered the printer, remove the battery and allow the unit to dry for several days before installing the battery or charging.

2 Printer Setup

2.1 Charging Your Battery

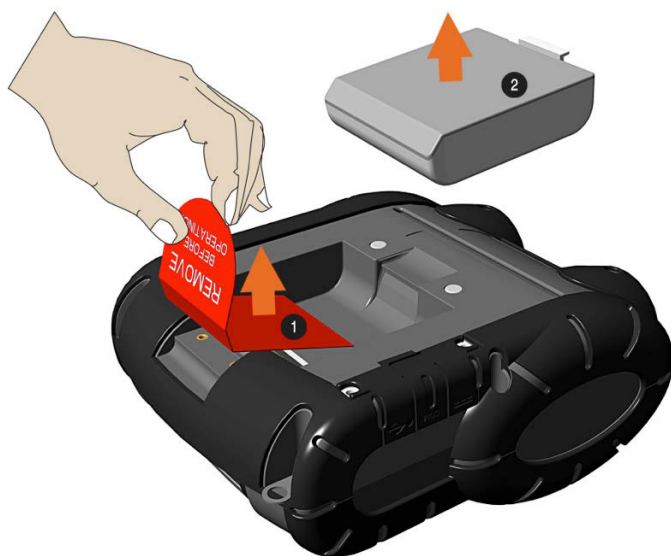
Your printer utilizes an external auto-ranging power supply to charge its battery. Before using your printer, the battery should be fully charged. The printer cannot be operated through AC power alone and requires the battery to be installed. Ensure that the operating ranges of the power supply are compatible with your electrical service (see **Appendix A**) then follow these instructions:



The maximum operating temperature of the printer is 50°C (122°F). However, the maximum operating temperature for charging when used with a Datamax-O'Neil power supply is limited to 40°C (104°F). Please charge the printer in a suitable location that meets this temperature requirement.

There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries properly.

- 1) Remove the Battery from the printer. Then remove the red Battery Isolator.



- | | |
|---|------------------|
| 1 | Battery Isolator |
| 2 | Battery |

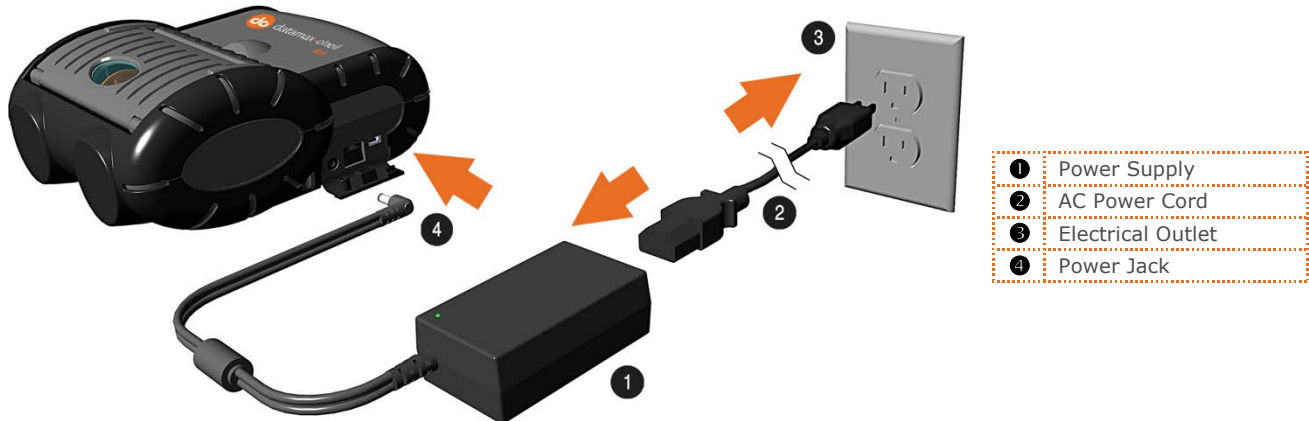
- 2) Re-install the Battery into the printer. Align the release tab with the same side as the charge contacts and lock the battery into position. The latch should click into place when seated properly.



- 3) Connect the Power Supply to Power Jack of the printer.
- 4) Connect the AC Power Cord to the Power Supply.
- 5) Connect the AC Power Cord to an Electrical Outlet.



Do not operate the printer while it is connected to the AC Power Supply.



Battery Guidelines:

- DO NOT store batteries in cold or hot conditions
- DO NOT drop the battery pack. In the event of a drop carefully inspect the battery plastic and contacts for damage. If you suspect damage, do not use the battery.
- DO NOT use sharp tools to remove the pack. If a pack is punctured or cracked, immediately remove from the printer.
- If the pack becomes extremely hot, or begins to smell, DO NOT touch. Place immediately in an empty metal trash can.
- DO NOT use the battery for any product other than the RL3e/RL4e or designated printer
- DO NOT tamper with or attempt to disassemble the battery pack
- DO NOT subject the battery pack to water or liquids of any kind
- Be careful when setting the battery pack down on a flat surface; always store the battery pack with the contacts facing up
- DO NOT stack batteries with the contacts facing each other
- Replacement batteries come in individual boxes, store this way
- Batteries have a shelf life of one (1) year

The printer is also designed with external-charging capabilities (optional) using Datamax-O'Neil-approved charging accessories. For more information on available optional charging accessories, or a guide to using the multi-bay charging accessory, go to www.datamax-oneil.com and select the RL or RLe printer for a list of available chargers, or the Install Guide for information on its use.



1 External Charging Contacts

2.2 Interface Connections

Connecting your printer to a host device can be set up using various connection options that are available for your printer. If your RL model has the available feature, you can connect via Serial, USB, Wireless 802.11 LAN or Wireless via Bluetooth®. The printer will automatically connect to the first available port that provides valid data. If you wish to change that connection once established, you will need to power the printer off and back on again. Choose from the options below for instructions on using the various options for establishing a connection to your host device. Once established, you can proceed to Section 3.3 for information on using the configuration software (NETira™ CT). Wired connections using USB or serial options require the appropriate cables for use. See Section 1.3 for a list of available cables.



❶	Serial (RJ11)
❷	USB
❸	Charging Port



Before connecting Power or interface cables to the printer, be sure the printer is powered off. For hardware setup instructions, see Section 3.3 – Establishing Printer Connection. Once hardware connection has been established, go to the corresponding Appendix listed below for instructions on setting up the printer using Netira™ CT.

Serial Connection

The serial interface supports RS-232 communications via an RJ-11 connector. The following list of serial-port settings is menu-selectable (via host software/driver) and must match the host computer's serial-port settings:

- > Baud Rate (Default 9600 bps)
- > Parity = (Default N)
- > Word Length = (Default 8 bits)
- > Stop Bits = (Default 1)

USB Connection (USB)

The USB Interface is supported in Windows® 98 and greater. Depending upon the operating system of your host computer, installation may differ slightly. For setup information, see **Appendix D.**

Optional Wireless LAN and Bluetooth®

For setup information on optional Wireless LAN and Bluetooth® connections, see **Appendix C.**

2.3 Loading Media (Labels or Paper)

Load media into the printer as follows:

- 1) Slide the Thumb Latch rearward and then lift up on the printer's Cover.



- | | |
|---|-------------|
| 1 | Thumb Latch |
| 2 | Cover |

- 2) Slide and hold open the Supply Hubs.



- | | |
|---|-------------|
| 1 | Supply Hubs |
|---|-------------|

3) Orient the Roll of Media (paper or labels) as shown and insert it into the printer.



1 Roll of Media

4) Allow the Supply Hubs to retract onto the Roll of Media. Then close the printer's Cover and press downward until latched.



1 Supply Hubs
2 Roll of Media
3 Cover

5) Press the **6** button two or three times to normalize tracking. The printer should advance the media to the start of the next label for each press.

2.3.1 Loading for Presenter Mode



The printer must be configured for use in "Presenter Mode." See Section 3.6 for connecting and configuring the printer's settings.

- 1) Load media as described in Section 2.3 (steps 1-3).
- 2) Remove about eight (8) inches (203 mm) of labels from the Media Backing.
- 3) Open the Peeler Door. Route the media as shown below.



- | | |
|---|---------------|
| 1 | Media Backing |
| 2 | Peeler Door |

- 4) Pull the media backing tight and then close the Peeler Door.
- 5) Press the **6** button two or three times to normalize tracking. The printer should advance the media to the start of the next label for each press.



With some types of media, it may be necessary to periodically remove slack in the backing (liner) material that accumulates before the Peeler Door. To remove: Hold the Peeler Door closed and pull on the backing material until the slack is removed and is tight.



When using the printer in presenter mode a large amount of backing can accumulate. Be sure to contain the backing as it can become a tripping hazard. When removing backing material from the printer do not pull the backing as it may disturb the printer. Cut using scissors or tear using two hands a few feet from the printer.

2.3.2 External Media Loading

Load media into the printer as follows:

- 1) Slide the Thumb Latch rearward and then lift up on the printer's Cover.



- | | |
|---|-------------|
| 1 | Thumb Latch |
| 2 | Cover |

- 2) Open the External Media Door located in the bottom of the printer.



- | | |
|---|---------------------|
| 1 | External Media Door |
|---|---------------------|

- 3) Slide and hold open the Supply Hubs and install the Media Spacer.



- | | |
|---|--------------|
| 1 | Supply Hubs |
| 2 | Media Spacer |

- 4) Insert the Media through the External Media Door and through the printer as shown:



- | | |
|---|-------|
| 1 | Media |
|---|-------|

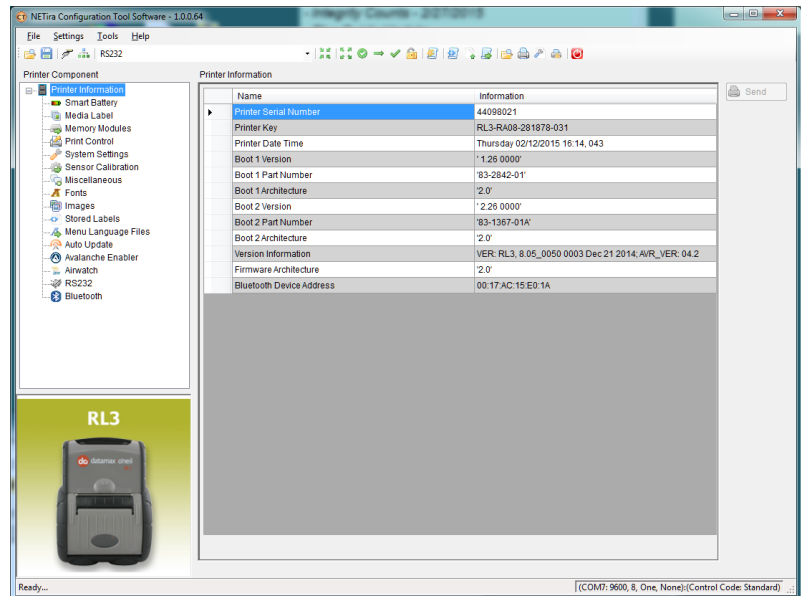
- 5) Close the printer's Cover and press downward until latched.
- 6) Press the  button a couple of times to normalize tracking. The printer should advance the media to the start of the next label for each press.

2.3 Real-Time Clock (RTC)

The Real-Time Clock is powered from a rechargeable coin cell. Once the RTC is set, and as long as the main battery is in place and has a reasonable charge, the RTC will continue to keep time. If the main battery is pulled, you have 2+ days or the time will be lost and will need to be reset once power is restored.

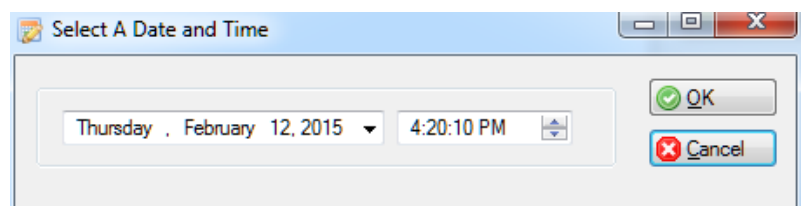
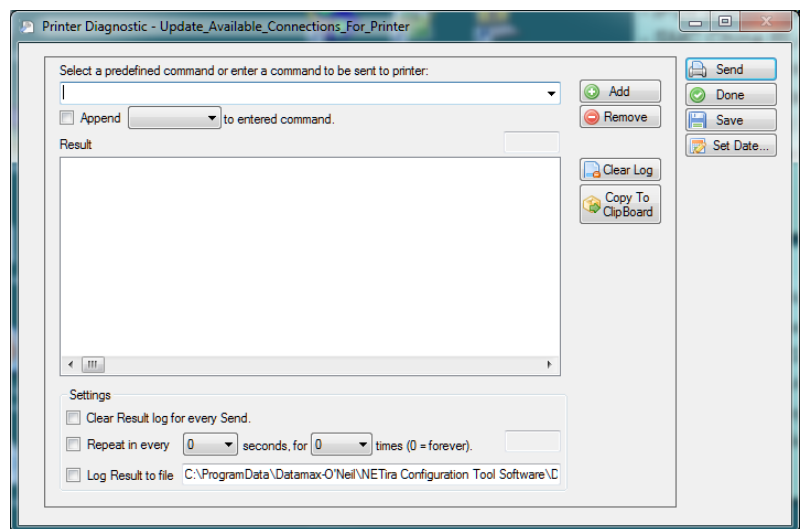
Viewing the RTC Setting:

- 1) Click on "Printer Information."
- 2) View the current RTC date and time stamp in "Printer Date Time" section.



Resetting the RTC:

- 1) Click on "Printer Diagnostics."
- 2) Click on "Set Date."
- 3) Set the "Date" and "Time" and click on "OK."



3 Printer Operation

3.1 Front Panel

The Front Panel is an event-driven interface composed of a graphic display and four (4) buttons. In addition to providing current printer information, the mode-dependent panel allows the items in the main display area and the button functions to change as operational events require.



The RL Series printer displays will enter sleep mode after one (1) minute of inactivity; press any button to wake.



RL Series printers will turn off after 120 minutes of inactivity. This "shutdown" period can be adjusted or disabled using the NETira™ CT configuration program (Ver. 35 or greater) and by modifying the System Settings/System Power Down setting. See Section 3.3 for more information on NETira™ CT. When the printer is charging it will not "auto shutoff."

3.1.1 LCD Icons

Icon	Function
 90%	Battery Charge Level. The number of bars and the % will change according to remaining battery charge. During charging, the battery level is continuously progressing to show charging, unless at 100%
	Wireless LAN Signal Strength.
	The DC power supply is connected and the battery is charging.
IP: 192.168.0.1	IP address currently assigned to the printer (if equipped). If an IP is not assigned, it will display as 0.0.0.0. Bluetooth® models will display the MAC address.

3.1.2 Audible Alerts

Alert	Event
One (1) beep	AC power supply disconnected
Two (2) beeps	AC power supply connected
Five (5) beeps	Opened printer cover or Paper-out condition
Constant beep (10 seconds in duration)	Failed download (via RS-232)
Short interval beep (for length of download)	Downloading data (via Wireless LAN)

3.1.3 Buttons

Ready Mode

Button	Function
	Short Press: Wakes the printer from sleep or off mode. Short Press: Puts the printer into sleep mode. Press and hold (~4 seconds) then release: Turns off the printer. Press and hold (~10 seconds): Resets the printer.
	Short Press: Feeds one label or a preset paper length Press and hold for four (4) and seven (7) seconds and then release: Prints the Configuration Label Press and hold until printing starts [approximately eight (8) seconds]: Prints the Configuration Label with additional information.
	Enters the printer's menu system.
	Long Press (~4 seconds): Toggles the Wireless LAN/Bluetooth® radio on and off

Menu Mode

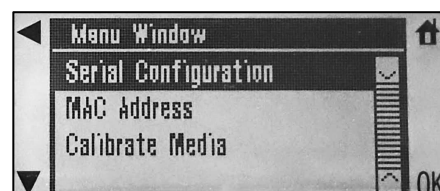
Button	Menu Icon	Function
		Returns to the previous menu level, at the top level it will exit the menu system.
		Scrolls downward to the next available menu item or menu branch.
		Exits the menu system and returns to "Ready Mode."
	OK	Selects the current highlighted item or menu branch.

3.1.4 Menu

Pressing the  button allows entry into the printer's menu system. The menu system is informational only; configuration changes to the printer cannot be made via the menu. The menu consists of three branches; default values are show next to each item.

Serial

Baud Rate	9600 BPS
Data Bits	8
Parity	None
Stop Bits	1
Protocol	Hardware



MAC Address xx:xx:xx:xx:xx:xx (varies for each printer; standard 6-octets of hexadecimal digits)

Calibrate Media The printer is factory-calibrated and should not need further calibration. However, certain types of aftermarket paper/media will need to be calibrated. Depending on the media type being used, this function senses the gaps between labels or the black mark on the back of the media. Once the printer senses these locations, it can accurately position the media for printing at the start of each label.

Once selected, the printer will feed media, pause ~20 seconds and then complete the calibration.

3.2 Configuration Label

Initiation of this mode causes the printer to print its Configuration Label. The Configuration Label provides valuable printer information, including the firmware version, memory allocations, enabled options, communications settings and label-counter data.

To print the Configuration Label:

- 1) Be sure the printer is properly loaded with media [at least four (4) inches wide] and that the power to the printer is off.
- 2) Turn on the printer and allow it to reach a ready state.
- 3) Press and hold the  button for four (4) to seven (7) seconds and then release. The printer will now print the current configuration of the printer.

3.3 Establishing Printer Connection

A printer connection to your host PC must be established before proceeding to set up the parameters of the printer. The connection is established through various options included with the model you are using. Below provides the setup based on your preference for connection type. Once connected, proceed to **Section 3.4 - NETira™ CT Printer Configuration Utility** for adjusting the settings and parameters of the printer, as needed.

Serial Connection Setup

To set up, an RJ11 to Serial interface cable is required (optional).

Connect the RJ11 connector to the RL printer. The port is located on the side of the printer and designated with COM printed on the port cover. Connector should click in place once secured.

Connect the serial-connector portion of the cable to your host computer's serial port.

The printer will automatically be assigned to COM 1 location.

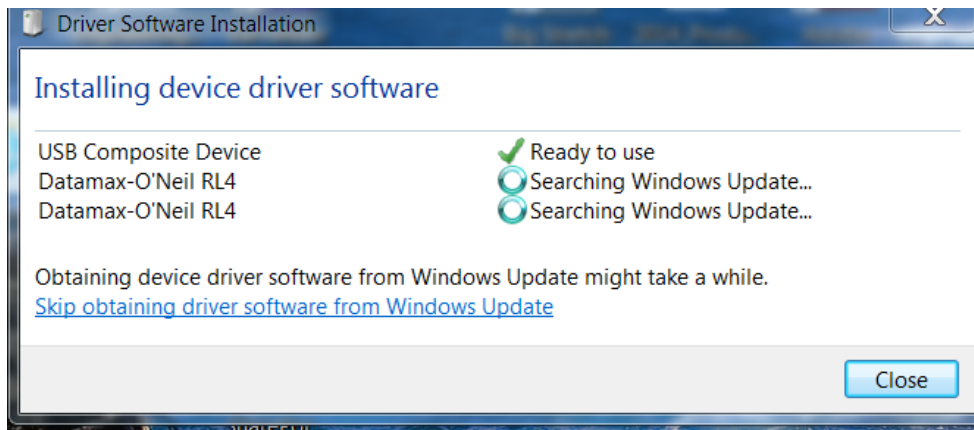
USB Connection Setup

To connect the printer via USB connection, an Internet connection may be required. You may also need administrative access rights to your host computer for completing this installation. If you do not, you will need to log off and log in under a profile that has such rights for your host computer.

To connect your printer to the host computer, a Standard Mini B to Standard USB A Printer Cable is required (Optional: P/N: 210304-100).

To set up a USB connection on Windows® OS 7.0 or later device:

- Power up your printer once the cable connection is made. The Mini B connector is used for connection to the printer. Connect to the port with the USB-symbol port cover.
- Connect the standard USB connector to an available USB port on the host Windows® PC.
- Your host computer should recognize the printer and begin "Adding Device Driver."



- If the setup operation does not start, locate the Devices and Printers section of the Control Panel and select "Add a Printer."
- Once initiated, select the printer model under Datamax-O'Neil Printers. If the model is not located, follow the steps "Locate Driver thru Windows Update" and follow the instructions to complete the installation.
- Once completed, you should see the RL Printer as an available printer from your host PC.
- The default setting will set up as a CDC Composite printer type.

Bluetooth® Connection Setup

Power on the printer and confirm that the wireless radio is on. The Radio icon should appear on the LCD screen of the printer. If it does not and "Radio OFF" is displayed, press the Radio button on your printer (insert Radio icon symbol) for five (5) seconds until "Turning on Radio" appears.

Next, follow your Host PC or device instructions for adding a new Bluetooth® device.

You should not see the printer as an available printer from your Host PC. Once connected and the connection is established, proceed to **Section 3.4 - NETIra™ CT Printer Configuration Utility**.

Wi-Fi – Wireless LAN

Before connection to the printer using Wi-Fi can be established, the printer must first be connected by using one of the options listed above. Once the connection is established, proceed to **Section 3.4 - NETIra™ CT Printer Configuration Utility** for Wireless LAN connections and use the configuration tool to complete the setup. For advanced setup details, see **Appendix C – Wireless LAN and Bluetooth® Setup**.

3.4 NETira™ CT Printer Configuration Utility

The NETira™ CT Printer Configuration Utility (available for download at www.datamax-oneil.com) is a Windows®-based configuration utility that allows the user to make changes to the existing printer setup via a serial, USB or Wireless LAN connection.

NOTE: Information shown for NETira™ CT reflects what is available on the current version of software (v. 1.0.0.64). If you are using a version that is not the most current, some features or options may not be available as shown.

Utility 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

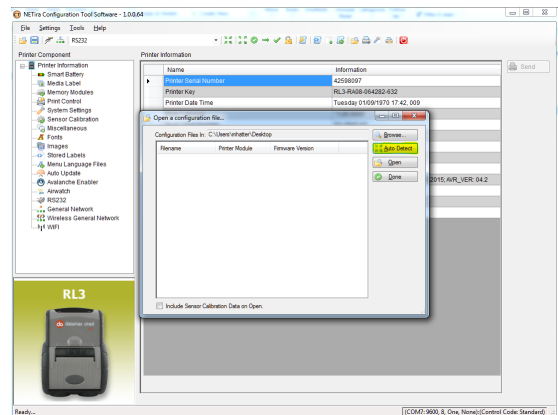


The NETira™ CT Printer Configuration Utility is designed to communicate to the printer using the DPL (or Auto) printer-language setting. This is the default setting for your printer when used for the first time. If the printer has been set to any other input mode, the printer must be reset back to Auto or DPL. To restore to your computer, use Tools>Set Input Mode function within NETira™ CT.

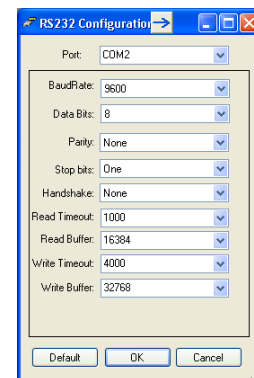
- 1) Once you have downloaded the software, follow the instructions as prompted to install it on your PC. Once installed, launch the NETira™ CT Printer Configuration Utility.
- 2) Ensure the battery is installed and the printer is "ON." Connect the host to the printer (see [Section 2.2 - Interface Connections](#)).

For Serial and Bluetooth® Connections:

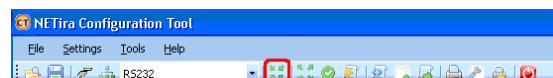
- a) Query the printer by using the "Auto-Detect" button. This will connect to the printer and retrieve the setting currently stored in the printer.



- b) If the Auto-Detect is unsuccessful, close the "Open a configuration file..." dialogue box and go to the Settings dropdown menu and choose the RS-232 menu option. On this screen you can manually select the port and its parameters.



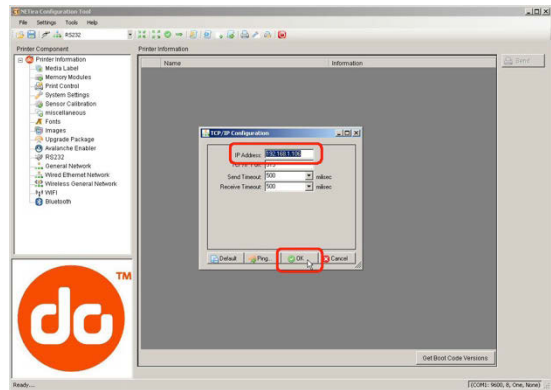
- c) Once complete, click "OK" and then click the "Query Printer" button on toolbar. This will connect to the printer and retrieve the setting currently stored in the printer.



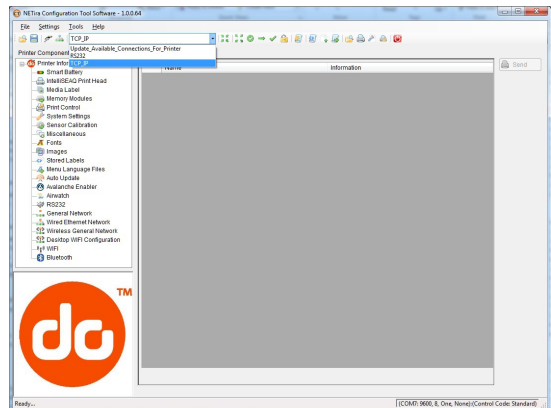
For Wireless LAN Connections:

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

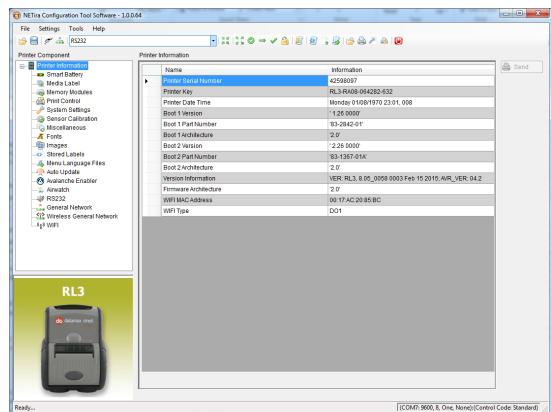
- a) In the toolbar, Click on the "TCP/IP Configuration" Icon .
- b) In the "TCP/IP Configuration" dialogue box enter the IP address of the printer and click "OK." (The IP address should be displayed on the home screen of the printer's LCD).



- c) In the toolbar, from the dropdown menu box, select "TCP_IP." Then click on the Query Printer Icon .



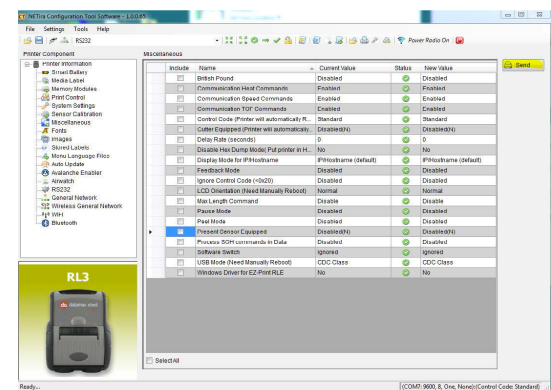
- 3) At this point you may browse the Printer Component categories and make any changes necessary to the printer configuration.



- 4) Once your changes are complete, send the new settings to the printer using the "Send" button.

NOTE: When using the "Send" button, only the changes displayed on the current page will be sent.

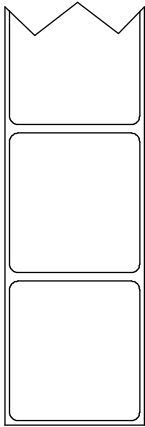
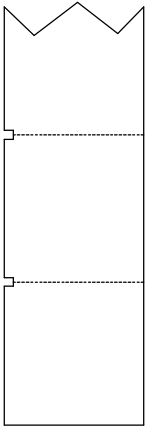
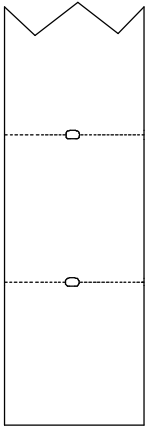
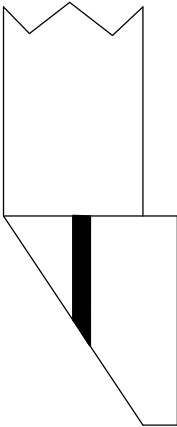
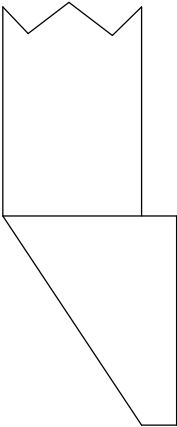
The "Set current setting to printer" button  will send all changes made to all pages.



3.5 Media and Calibration

3.5.1 Selecting Media Type

To accommodate a variety of media types, the printer is equipped with two (2) sensors. A transmissive sensor (for gap and notch-type label media) and a reflective sensor (for "black mark"-type label media). Several media types and their proper sensor settings are shown below:

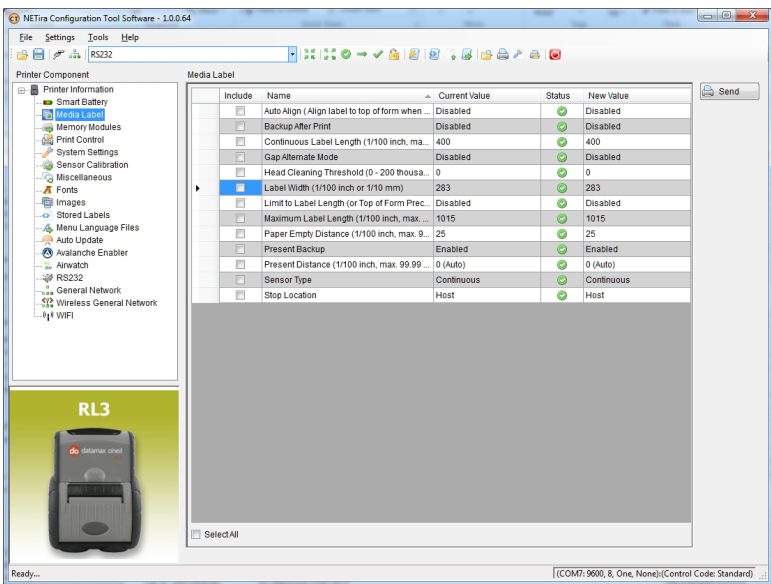
Media Type	Gap Label Media	Notch Media (Edge)	Notch Media (Center)	Reflective Media (Black Mark)	Continuous Media
					
Sensor Setting	Gap	Not Supported	Gap	Reflective	Continuous* *Requires the "Continuous Label Length" value to be set.

Most applications that use label media will use the default setting of "Gap." However, if "black mark" or continuous media is being used, this setting must be changed.

The Sensor Type setting can be changed using the NETira™ CT Printer Configuration Utility. You can find the software utility at www.datamax-oneil.com and download it from there to your computer's hard drive. Follow the instructions on installing the utility to your PC.

Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

- 1) Click on the "Media Label Settings" printer component.
- 2) To change the different parameters, select from the pull-down values or key in a value.



Common Settings:

	Name	Value	New value
1	Continuous Label Length (1/100 inch)	425	Distance the printer will advance after pressing the FEED button. Distance is measured in 1/100 inch, i.e. 1000=10 inches.
2	Label Width (1/100 inch)	425	200 = 2-inch media 300 = 3-inch media 400 = 4-inch media
3	Maximum Label Length (1/100 inch)	800	Distance must be greater than the length of your media, i.e. 1000=10 inches
4	Sensor Type	Continuous	Gap = Labels with gap Continuous = Media with no gaps Reflective = Labels with Q-Mark or black mark

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

Media Label				
	Include	Name	Current Value	Status
	☐	Auto Align (Align label to top of form when ...	Disabled	✔
	☐	Backup After Print	Disabled	✔
	☐	Continuous Label Length (1/100 inch, max...	600	✔
	☐	Gap Alternate Mode	Disabled	✔
	☐	Head Cleaning Threshold (0 - 200 thousa...	0	✔
	☒	Label Width (1/100 inch or 1/10 mm)	283	✔
	☐	Limit to Label Length (or Top of Form Prec...	Disabled	✔
	☐	Maximum Label Length (1/100 inch, max. 9...	317	✔
	☐	Paper Empty Distance (1/100 inch, max. 9...	0	✔
	☐	Present Backup	Disabled	✔
	☐	Present Distance (1/100 inch, max. 99.99 i...	24	✔
	☐	Sensor Type	Continuous	✔
	☐	Stop Location	TEAR	✔

NOTE: NETira™ CT will change its column status from a green ✔ to an orange triangle ⚠ when values are modified and do not match current printer values. Query the printer settings and if the orange triangle ⚠ is still present, try sending the "New Value" again.

3.5.2 Quick 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 3.5.3.

The Quick Media Calibration can be performed using the NETira™ CT Printer Configuration Utility, (see Section 3.4 for more information on NETira™ CT) or the front-panel menu (see Section 3.1).



It is recommended that the battery is charged to 50% or greater before starting media calibration.

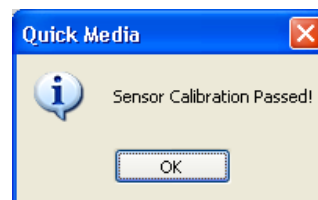
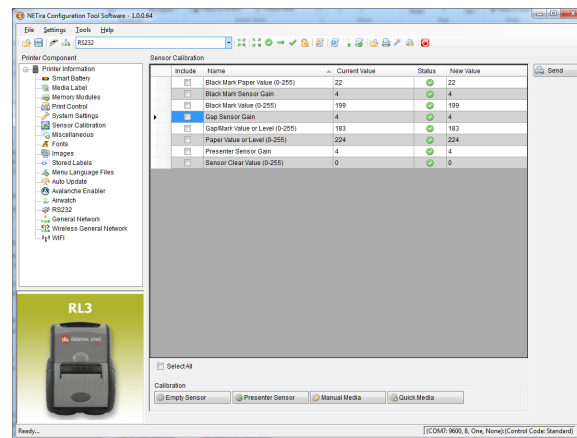
Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

- 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 3.5.3 - Manual Media Calibration**.



3.5.3 Manual Media Calibration

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.



When updating the printer's Firmware the sensor settings can be saved to a configuration file (see Section 3.8) that will eliminate the need to recalibrate the printer.

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 Printer Configuration Utility (see Section 3.4 for more information on NETira™ CT).



It is recommended that the battery is charged to 50% or greater before starting media calibration.

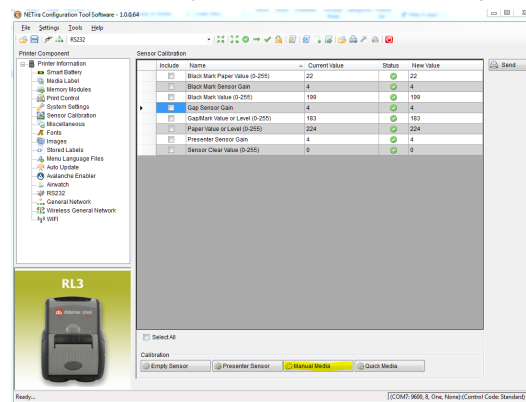
Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

Procedure for Gap-Type Media: (be sure the printer is set to sense Gap media, see Section 3.4.1).

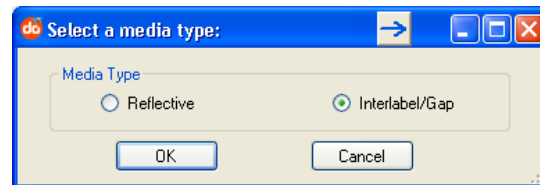
- 1) Click on the "Sensor Calibration" printer component.

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

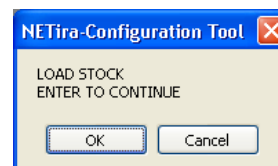
Follow the instructions on the following screen.



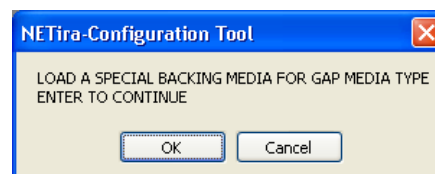
- 3) Select the "Interlabel/Gap" radio button then click "OK."



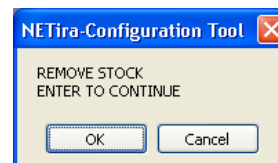
- 4) Load Stock: Place the face of media over the sensor, close the door, then click "OK."



- 5) Load Special Backing Media for Gap: Peel the label(s) off backing and place the backing over the sensor, close the door and then click "OK."



- 6) Remove Stock: Remove all media from printer, close the door and then click "OK."

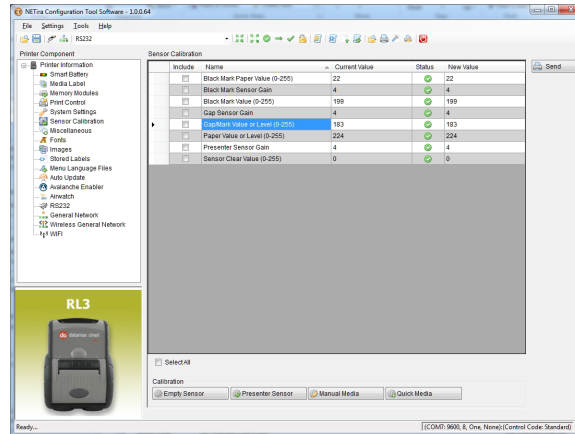


- 7) NETira™ CT will display a message indicating the process has finished.

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



- 8) To confirm changes, observe that Gap Back Value and Gap Paper Value have changed.

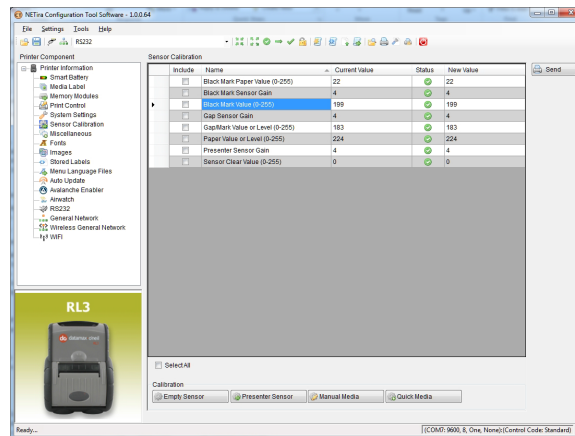


Procedure for Black Mark Media: (be sure the printer is set to sense Black Mark media, see Section 3.4.1).

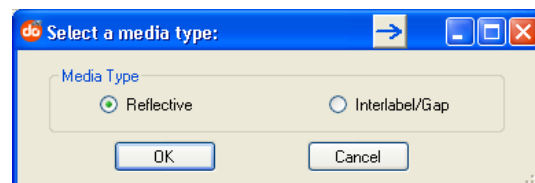
- 1) Click on the "Sensor Calibration" printer component.

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

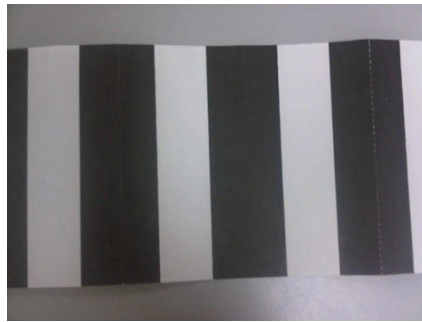
Follow the instructions on the following screen.



- 3) Select the Reflective radio button, then click "OK."

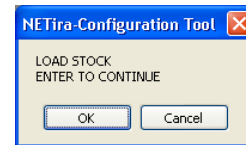
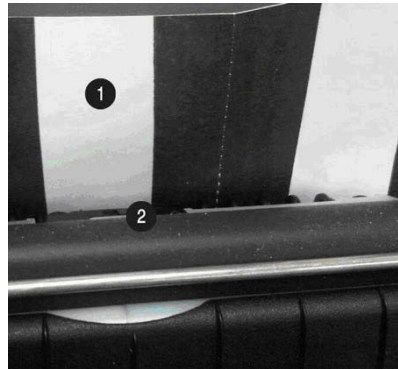


NOTE: A special media with black marks is needed to perform this calibration. See the image to the right. A sample image is included at the end of this document, it can be printed and used for this calibration procedure.



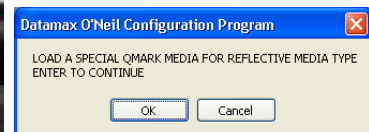
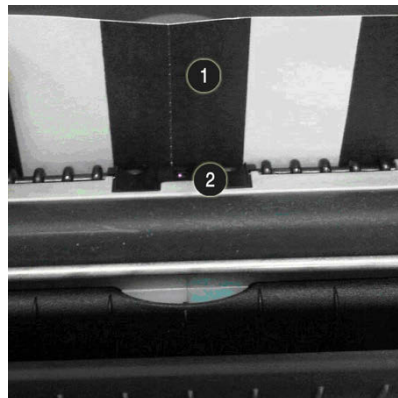
- 4) Load Stock: Place a white section of media under the sensor, close the door and then click "OK."

①	Printing Area
②	Sensor

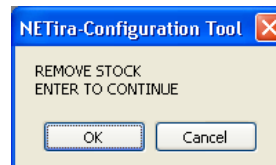


- 5) Load Special Q-Mark Media for Reflective Media: Place a black section of the media under the sensor, close the door and then click "OK."

①	Q-Mark Area
②	Sensor



- 6) Remove Stock: Remove all media from printer, close the door, then click "OK."

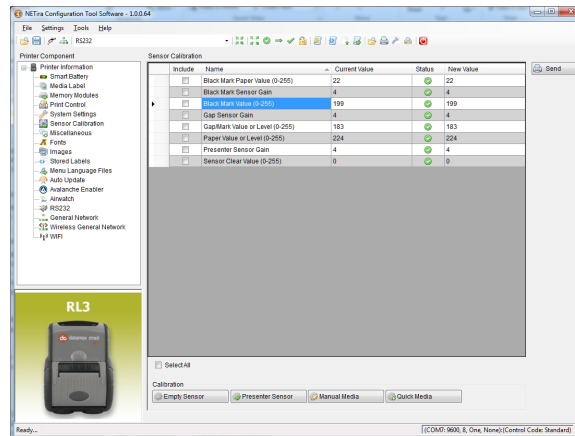


- 7) NETira™ CT will display a message indicating that the process has finished.

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



- 8) To confirm changes, observe that the Black Mark values have changed.



3.6 Presenter Mode

To set the printer to work in Presenter Mode, follow these steps:

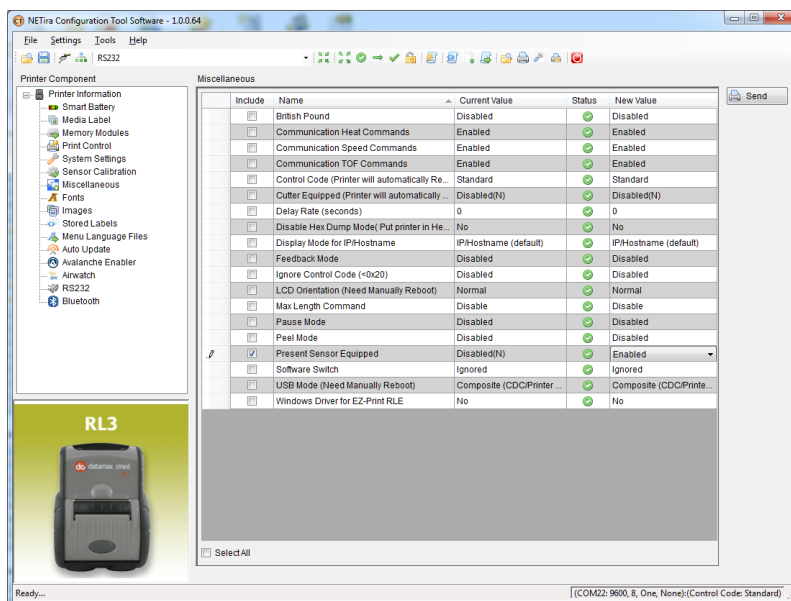
- Set the "Presenter Sensor Equipped" parameter to enable the presenter sensor.
- Calibrate the Presenter Sensor to store the media settings (liner and media).

These setting changes can be performed using the NETira™ CT Printer Configuration Utility (see Section 3.4 for more information on NETira™ CT).

Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

Enable the Presenter Sensor:

- 1) Click on the "Miscellaneous" printer component.
- 2) Set the "Present Sensor Equipped" to Enabled.
- 3) After updating the "New Value" column, click the "Send" button to send this change to the printer.



Calibrate the Presenter Sensor:



After calibration is complete, the presenter sensor will be disabled. You must re-enable the presenter before use.

- 1) Install the media in the printer and route the liner through the peeler door, see Section 2.3.1.

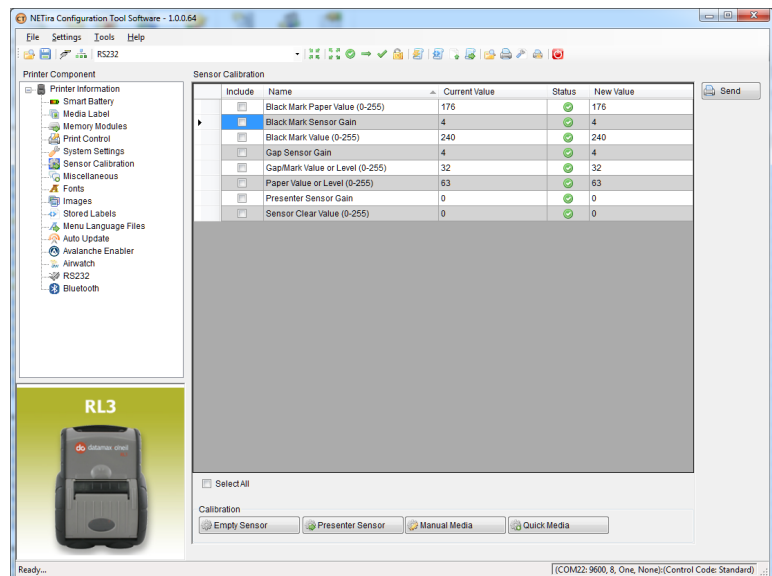
When the "FEED" key is pressed, the label will be peeled and presented for the operator.



- 1 Media Backing
- 2 Peeler Door

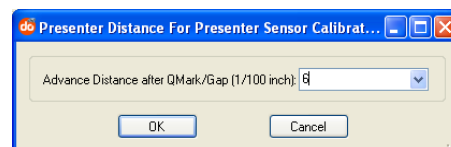
- 2) Click on the "Sensor Calibration" printer component.
- 3) Click the "Presenter Sensor" button to start the calibration process.

Follow the instructions on the following screen.

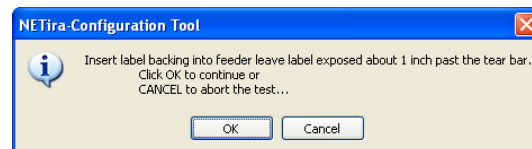


- 4) Type the number 6 as the Advance Distance after QMark/Gap. Click the "OK" button.

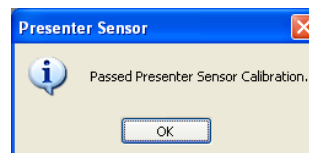
This value may vary if Datamax-O'Neil media is not used and may require adjustments to the Advance Distance after QMark/Gap parameter for the sensor to work properly.



- 5) The following screen will be shown. Click the "OK" button to start the process.



After the calibration is performed successfully, the following confirmation screen will be shown. If the sensor calibration fails, repeat the process.



NOTE: To test the proper operation of the printer, press the "Feed" button. The label is separated from the liner and a message "REMOVE LABEL" is shown in the LCD. After the label is removed, the printer will print the next label.

3.7 Printer Input Mode (Emulation)

The printer supports several printer languages, such as CPCL, ZPL, DPL, etc. However, the printer has an AUTO input mode that will detect the type of script and switch to the desired printing language. By default, the printer is configured as an AUTO mode. To manually change the printer language used, perform the following steps.

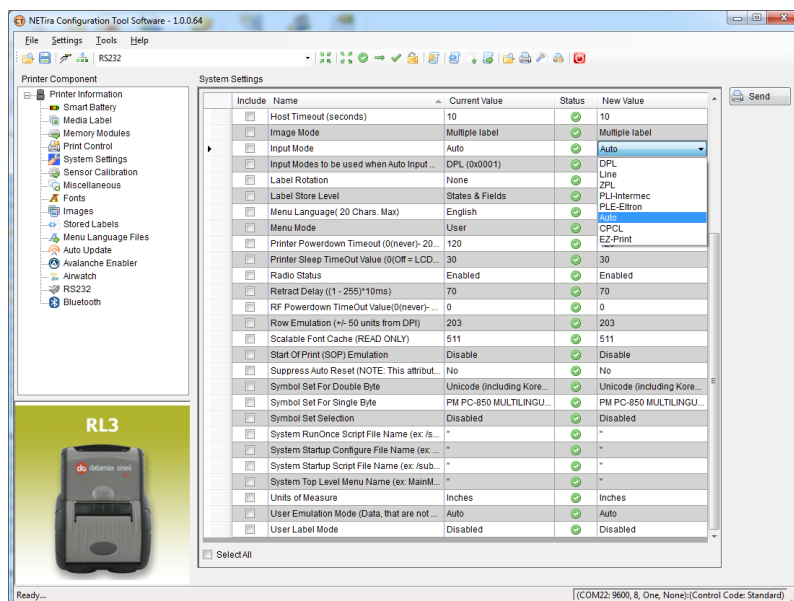
These setting changes can be performed using the NETira™ CT Printer Configuration Utility, (see Section 3.4 for more information on NETira™ CT).



The NETira™ CT Configuration Utility can only communicate to the printer using the DPL printer-language input mode. If the printer has been set to use an input mode other than DPL, the printer's input mode must be changed back to Auto or DPL. This can be performed using the Tools>Set Input Mode function within NETira™ CT.

Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

- 1) Click on the "Systems Settings" printer component.
- 2) Set the 'Input Mode' to the desired emulation under the "New Value" column.
- 3) After updating the "New Value" column, click the "Send" button to send this change to the printer.



3.8 Saving & Loading Configuration Files

The NETira™ CT Printer Configuration Utility allows printer configuration files to be saved to a file. These files can be useful for saving a printer configuration for a particular application or media. Saved configuration files can be shared with other printers/users.

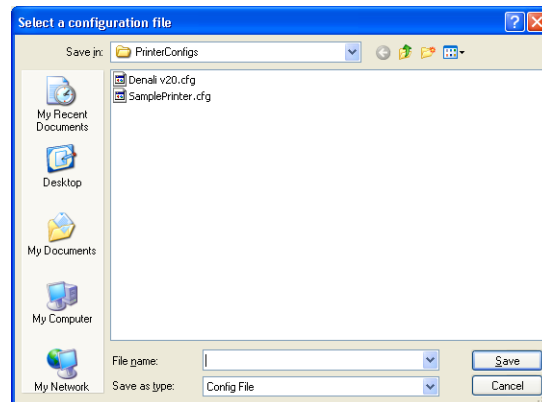
Saving and Loading a Configuration file can be performed using the NETira™ CT Printer Configuration Utility (see Section 3.4 for more information on NETira™ CT).

Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer.

To Save a Configuration File:

- 1) Once the printer has been queried the current settings can now be saved to a file. You may also make changes to any of the settings and have these values saved, as well.
- 2) To save the current configuration in a file, go to "File/Save As" menu and specify the filename.

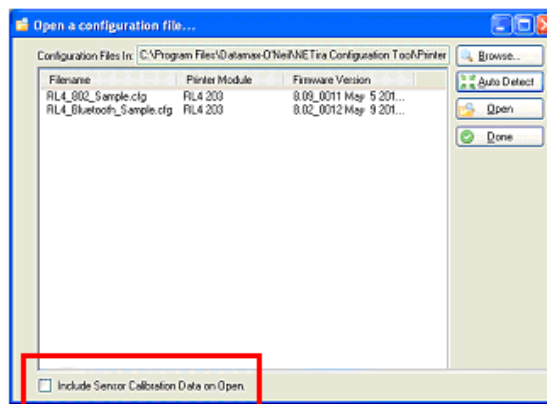
The current settings will be saved in a file with extension ".cfg".



To Load a Configuration File:

- 1) To open a saved configuration, go to the "File/Open" menu and choose the configuration filename.

Optional: Check "include Sensor Calibration Data on Open" box to import sensor data with the configuration. Sensor data is printer-specific and should only be imported to the printer that it came from.



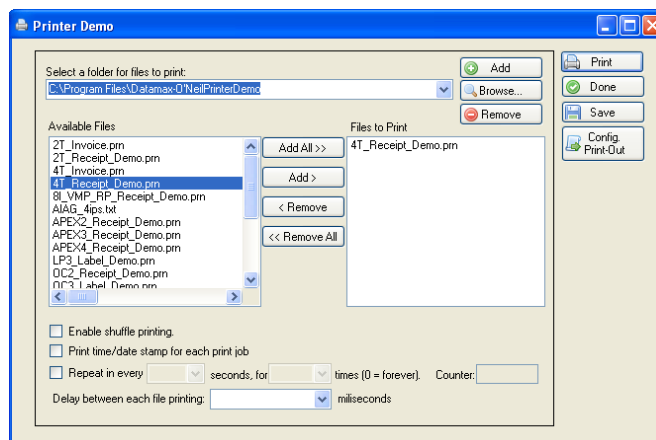
- 2) The configuration will now be loaded to NETira™ CT.

3.9 Printer Demo

There are two (2) ways to send demo-label formats to the printer, NETira™ CT and the standalone Printer Demo program available for download at www.datamax-oneil.com.

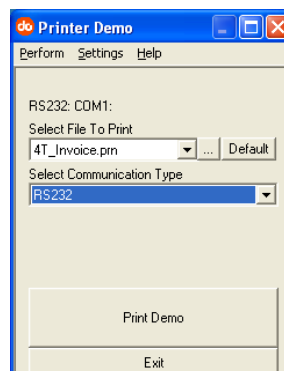
NETira™ CT Printer Demo:

- 1) Launch the NETira™ CT Printer Configuration Utility, select "Tools," then "Printer Demo."
- 2) Browse to folder containing print files, highlight files to be printed and click "Add>."
- 3) Click on "Print" to send the file(s) to the printer.



Standalone Printer Demo:

- 1) Launch the Printer Demo utility.
- 2) Select the file to print from the dropdown menu.
- 3) Select "Settings" to set the communication parameters for the communication type selected.
- 4) Click "Print Demo" to send the file to the printer.



3.10 Firmware Update

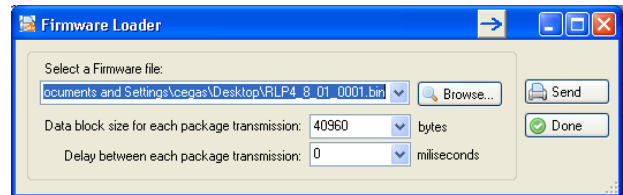
When program updates and/or new features are added, they can be downloaded to the printer as follows:

- 1) Identify the new version for your model of printer from the Datamax-O'Neil website at www.datamax-oneil.com and download it onto your computer's hard drive. **NOTE:** *RL3/RL3e and RL4/RL4e firmware files are not interchangeable.*
- 2) Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer (see Section 3.4 for more information on NETira™ CT). **NOTE:** To update your firmware, the NETira™ Printer Configuration Utility program is required. Go to www.datamax-oneil.com and download it onto your computer's hard drive if you have not done so already.



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. See Section 3.8 for instructions.

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



Loading Boot 1 and Boot 2 and Firmware



Loading Boot Firmware requires a serial connection to the printer.

- 1) Connect the printer to your PC using a serial cable.
- 2) Launch the NETira™ CT Printer Configuration Utility and query (connect) to the printer (see Section 3.4 for more information on NETira™ CT).

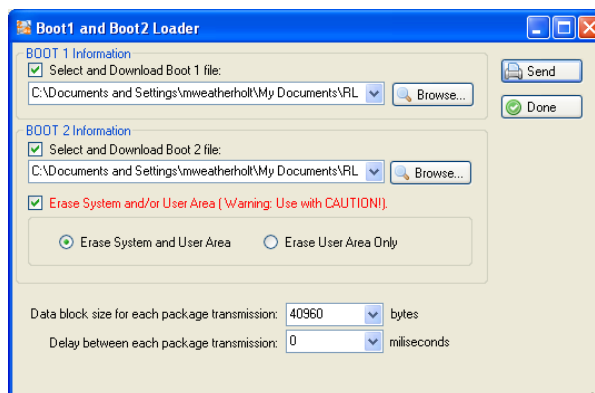


It is recommended that the configuration be saved before downloading Firmware and restored when finished. Be sure to check the box labeled "Include Sensor Calibration Data on Open" when restoring the configuration. See Section 3.8 for instructions.

- 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 the "Erase System and/or User Area" box unless otherwise instructed.



- 5) Once the Boot Loader files have been loaded, the firmware version can be updated using the procedure outlined in Section 3.10.

4 Maintenance and Adjustments

4.1 Cleaning Intervals

This section details the cleaning, adjusting and troubleshooting tips for the RL Series printer. 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 www.datamax-oneil.com to learn more. The following table outlines the recommended maintenance schedule for the various printer parts.

Area	Method (Std. Models)	Method (Linerless Models)	Interval
❶ Printhead	Cleaning Card or Cotton Swab w/Isopropyl Alcohol	Cleaning Pens	After 3-5 rolls of media
❷ Platen Roller	Cotton Swab w/Isopropyl Alcohol	Cleaning Pens	After 3-5 rolls of media
❸ Peel-Off Roller	Cleaning Pens	Cleaning Pens	After 3-5 rolls of media
❹ Lid Roller	Cotton Swab w/Isopropyl Alcohol	Cleaning Pens	After 3-5 rolls of media
❺ Media Sensor	Compressed Air	Compressed Air	Monthly
❻ Interior	Compressed Air	Compressed Air	As Needed



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

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 D-O 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.

4.2 Cleaning the Printhead

If print quality declines (symptoms include non-compliant bar codes, print dropouts and streaks), the typical cause is debris buildup on the printhead. Furthermore, when the buildup is not removed it may lead to reduced service life or printhead failure. Streaks in printed labels usually indicate a dirty or faulty printhead.

To clean the printhead (using a Datamax-O'Neil cleaning card):



The following procedure is for "standard configuration" printers. Linerless printers should only be cleaned with the Datamax-O'Neil Cleaning Pens.

- 1) Open the printer Cover. Remove any media installed in the printer. Open the External Media Door located in the bottom of the printer.



1 External Media Door

- 2) Remove the cleaning card from its package. Insert the cleaning card through the External Media Door and into the printer as shown:



1 Cleaning Card

- 3) Close the Cover and then Press the **6** button several times until the cleaning card has been completely fed through the printer. Repeat if necessary.



1	Cleaning Card
2	Cover
3	6 Feed Button

- 4) Reload the media. Close the Cover, push down until it latches closed. Press the **6** button to normalize tracking.

To clean the printhead (using Datamax-O'Neil Cleaning Pens #770189-000):

The Cleaning Pens are typically intended for use on linerless-model printers or any printer with adhesive buildup. They are used to clean components that are exposed directly to adhesive. Two pens are included in the kit, the first pen "Step 1" breaks up the adhesive and the second pen "Step 2" removes it.

STEP 1



STEP2



The pen's end cap has a plastic scraper to remove large buildup of adhesive from the printhead and other parts.

NOTE: DO NOT USE ON THE PLATEN ROLLER OR SENSORS.



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.

Contact Datamax-O'Neil Customer Service for further details.

For further details regarding parts availability and where to buy, contact Datamax-O'Neil by Honeywell Customer Service.

5.2 Troubleshooting Tips

The following section lists the symptoms and the associated User's Guide Sections for the topics covered. While not every situation is addressed, you may find some tips helpful. After a corrective action is taken, press the  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 NETira™ CT Printer Configuration Utility or software commands to adjust the Heat Setting and Print Speed.
- Faulty printhead: Call for service.

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

- The labels are incorrectly loaded: See the loading instructions in Section 2.3.
- The media is not calibrated: Calibrate it as directed in Section 3.5.
- The media sensor or sensor circuitry may be defective: Call for service.

Skips every other label or occasionally skips labels

- The label is formatted too close to the top edge of the label: Leave white space equal to 8-dot rows [about 0.02 inch (0.5 mm)] at the top of the label.
- The media is not calibrated: Calibrate it as directed in Section 3.5.
- 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 battery may need to be charged: Charge the battery (see Section 2.1).
- For RL3/RL3e models, make sure the printer is turned on (see Section 3.1.3).

Label advances eight (8) inches before a fault indication:

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

When using Peeler Mode, slack in backing (liner) material occurs:

- With some types of media it may be necessary to periodically remove slack in the liner material that accumulates before the Peeler Door. To remove: Hold the Peeler Door closed and pull on the liner material until the slack is removed and the liner is tight.



For list of possible error codes and conditions, please refer to **Appendix E**.

A Specifications

Physical Characteristics

Dimensions	RL3/RL3e: 5.6" w x 7.6" h x 3.2" d (142 x 193 x 81 mm) RL4/RL4e: 6.5" w x 7.9" h x 3.2" d (166 x 200 x 81 mm)
Weight (printer only):	RL3/RL3e: 1.95 lbs. (0.88 kg) RL4/RL4e: 2.16 lbs. (0.98 kg)
Drop Specifications	6 ft. (1.8 m)
User Interface	128 x 64 LCD display with white LED backlighting. Four (4)-button user interface

User Environment

Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	40°F to 140°F (-40°C to 60°C)
Charging Temperature	40°F to 104°F (5°C to 40°C)
Relative Humidity	10% – 90% non-condensing
ESD Protection	RL4/RL4e: 8kV Air/ 6kV Contact; RL3/RL3e: 6kV Air/6kV Contact

Print Technology

Printhead	Direct thermal; 203 dots per inch (8 dots per mm)
Print Width	RL3/RL3e: 2.8" (72 mm) RL4/RL4e: 4.125" (105 mm)
Print Speed	4" per second (102 mm per second)

Memory

Installed Memory	RLe: 64 MB RAM/128 MB Flash RL: 32 MB RAM/64 MB Flash
------------------	--

Media

Media Types	RL3/RL3e: 1.00"– 3.125" (26 – 79 mm) RL4/RL4e: 2.00"– 4.12" (51 – 105 mm) Lined and linerless (if equipped) labels with black mark or gap sensing. External fanfold or roll supply.
Media-Thickness Range	2 mil – 6.5 mil
Media-Roll Capacity	2.65" (67 mm) O.D. on 0.75" (19 mm) I.D. core

Communications

Serial Interface	RS-232, up to 460.8 kbps
USB Interface	2.0 (full speed)
Bluetooth Interface	Supported versions: Version 4.0 LE, Class 2; Serial-port profile
Wireless LAN	Network standard: IEEE 802.11 a/b/g/n with Dual Radio Wireless access modes: Infrastructure and ad-hoc Security Protocols: WEP (64/128), WPA (TKIP/RC4), WPA2 (CCMP/AES) Authentication: LEAP, EAP-PEAP, EAP-FAST, EAP-TTLS, EAP-LEAP:
Network Support	DHCP, TCP, UDP, DNS, BOOTP

Power Source

Battery	14.8V Lithium-ion, 2200 mAh (33 W-h)
DC Inputs	Smart Battery External DC jack, 11-15V, built-in spike and surge protection External charge contacts, 11-15V, built-in spike and surge protection
Recharging	4-6 hours
RL3 Endurance	Prints more than 5,500 3"x1" (76.2 x 25.4 mm) labels when operating eight (8) continuous hours.
RL4 Endurance	Prints more than 320 4"x6" (100 x 150 mm) labels when operating 16 continuous hours.

Barcodes/Fonts/Graphics

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

- Scalable Fonts:
 - CG Triumvirate™ Bold Condensed, CG Triumvirate & CG Times with Cyrillic, Greek, Arabic and Hebrew character support from Monotype Imaging
- Standard fonts:
 - 5.5CPI, 7.2CPI, 10.2 CPI, 10.7CPI, 18.5CPI 20.4CPI, 22.6CPI, 34.0CPI, OCR-A, OCR-B (additional fonts available)
- Downloadable font types:
 - True Type, Bitmap
- Character Sets:
 - Unicode/UTF8 support; 50 international symbol sets, Big 5, JIS and Shift JIS, and more
- Optional characters:
 - Arabic, Greek, Hebrew, Unicode subset, including Latin
 - Asian (including Big 5, Simplified Chinese, Kanji, Hangul and Shift JIS); additional international characters available
- Barcodes:
 - Linear: Codabar, Code 3 of 9, Code 93, Code 128, EAN-8, EAN13, Interleaved 2 of 5, HIBC, PLESSEY, MSI/Plessey, UCC/ EAN-128, UPC-A, UPC-E, UPC 2- and 5-digit addendums, Postnet, Telepen, UPS MaxiCode, FIM, USD-8
 - 2D Symbolologies: PDF417, Aztec, QR Code, GS1, Datamatrix, TLC39, MicroPDF417
- Graphics:
 - Supports storage of graphics/logos in Flash memory and transient "print once" graphic

Software/Firmware

- NETira™ CT Configuration Tool - complete printer set-up utility
- Control Language Compatibility:
 - NETira™ MS – Menu Scripting
 - NETira™ LD – Label Design Software
 - EZ-Print, DPL, ZPL II®, CPCL, IPL™, XML (limited)
- Device Management Support and Compatibility:
 - NETira™ Remote Management: Monitor and manage printers
 - NETira™ MD: Mobile Device Management Utility for Smart Mobile Devices
 - NETira™ Connector (CA): Access AirWatch® Mobile Device Management Console
 - Skyze and QualSoft MDM
- Network Compatibility
 - TCP-IP based networks
 - AS/400 (LPD)-based networks
- O/S Support:
 - Windows® CE x/6.x to 6.0, Windows® Mobile and Android O/S
- Label design software compatibility:
 - BarTender®, NiceWare/NiceLabel and others
- ERP Systems:
 - SAP, Oracle
- Software development kit:
 - Android 2.1 and above, IOS 5,6 and 7
 - Microsoft Windows® Desktop up to Windows® 8, Windows® 8 Store, Windows® Mobile and Windows® CE
 - C++, C Sharp, Java, Active X Control

B Supplies and Media

B.1 Supplies

To achieve optimum print quality and maximum printhead life, Datamax-O'Neil specifies the use of Datamax-O'Neil brand media. 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 your Datamax-O'Neil Media Representative.

Direct Thermal Lined/Linerless Labels - 0.75" Core ID, 2.65" Roll O.D.

Direct Thermal Lined/Linerless Labels and Receipt Paper - ImagePro Labels - Standard with Permanent Adhesive

Part Number	Width x Length	Approx. LBS/CTN	Rolls/CTN	Labels/Roll
740854-912	2.0" x 1.0" Die Cut (0.125" gap) - PERM	14	50	645
740855-909	3.0" x 2.0" Die Cut (0.125" gap) - PERM	14	50	340
740855-202	*Linerless/REM 3.0" x 113'	33	30	N/A
740855-203	*Linerless/PERM 3.0" x 113'	33	30	N/A

Direct Thermal Lined/Linerless Labels and Receipt Paper - 0.75" Core I.D., 2.65" Roll O.D.

Direct Thermal Lined/Linerless Labels and Receipt Paper - ImagePro Labels - Standard with Permanent Adhesive

Part Number	Width x Length	Approx. LBS/CTN	Rolls/CTN	Labels/Roll
740854-914	4.0" x 2.0" Die Cut (0.125" gap) - PERM	15	50	370
740854-915	4.0" x 3.0" Die Cut (0.125" gap) - PERM	15	50	245
740854-916	4.0" x 4.0" Die Cut (0.125" gap) - PERM	15	50	185
740854-910	4.0" x 6.0" Die Cut (0.125" gap) - PERM	17	50	123
740854-202	*Linerless/REM 4.0" x 85'	33	30	N/A
740854-203	*Linerless/PERM 4.0" x 85'	33	30	N/A

**Must be used in linerless capable RL Series printers. PERM = Permanent Adhesive. Contact your sales representative for details.*

Direct Thermal Receipt Paper - 0.75" Core ID, 2.65" Roll OD

Part Number	Width x Length	Approx. LBS/CTN	Rolls/CTN	Labels/Roll
RL3e				
740855-102	Premium - 3.0" x 164' - Continuous	8	50	N/A
RL4e				
740854-102	Premium - 4.125" x 171' - Continuous	9	50	N/A

Cleaning Pens and Cards - For Adhesive Applications

Part Number	Printer Models	Approx. LBS/CTN	Pens/Cards per CTN for Step 1 and Step 2
770189-000	RL3, RL3e, RL4, RL4e Label	10	2 Part Cleaning Pen

A two-step process designed to remove adhesive residue and give the thermal printhead, rollers and paper path a thorough cleaning.

Each step involves inserting a chemically saturated card into the paper path. Step one will remove adhesive residue.

Step two will remove any chemical residue remaining from the Step one card as well as all dirt and other contaminants from the thermal printhead, rollers and paper path. Sold in carton quantities.

B.2 RL/RLe Series Peripherals and Accessories

Part#	Description
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AC Adapters - Battery Chargers

220515-100	AC Adapter for Charging with U.S. plug
220516-100	AC Adapter for Charging with EU plug
220517-100	AC Adapter for Charging with UK plug
220521-100	AC Adapter for Charging with Swiss plug
220518-100	AC Adapter for Charging with AU plug
220282-000	DC/DC Voltage converter (12v-60v)
220207-200	Vehicle Charge Cable Kit, [10 ft (3 m)]
510116-001	Cigarette Lighter Vehicle Power for Thermal Printers
220275-000	Battery Charging Cradle (2 bay)
550046-001	Spare Battery
220284-000	Multiple Unit Charging Adapter with Power Supply (1 to 4), US Plug
220285-000	Multiple Unit Charging Adapter with Power Supply (1 to 4), EU Plug
220286-000	Multiple Unit Charging Adapter with Power Supply (1 to 4), UK Plug

Multi-Bay Charger *(Includes High Capacity AC Adapter and Multi-Unit Charging Adapter for multi-unit models)*

229028-000	Multi-Bay Charging Kit, RL series, 4-Upright Unit Depot Charger, US Plug
229029-000	Multi-Bay Charging Kit, RL series, 3-Upright Unit & 2 Battery Depot Charger, US Plug
229030-000	Single Charger Stand, RL Series - AC not included

Communication Cables

210304-100	USB Cable (mini B to USB-A)
210164-100	Cable, Coiled, Right Angle, DB9 F
210191-101	Cable DB-9 F [7 ft (2.1 m)]

Accessories

230112-000	RL Series Universal Mounting Bracket
280656-000	RL Series Belt Clip
210305-000	RL Series Belt Loop
210300-000	RL Series Hand strap
210302-000	RL Series Shoulder Strap
750332-000	RL3 / RL3e IP54 Case
220280-000	RL Series "RAM Mount" compatible Adapter and Ball
280711-000	External Media Spacer - RL3 / RL3e
280688-000	External Media Spacer - RL4 / RL4e

C Wireless LAN and Bluetooth® Setup

C.1 Introduction

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).

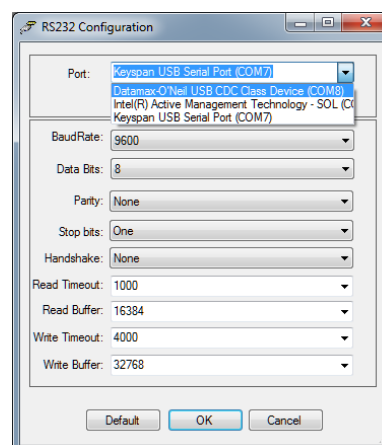
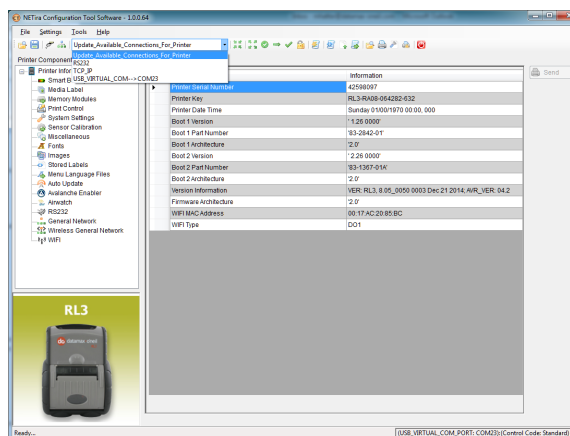
Default Network Settings:

The following table lists some of the printer's default network settings. Any of these parameters can be modified using the NETira™ CT Printer Configuration Utility program.)See Section 3.4 for more information on NETira™ CT.)

Network Parameter	RL3 (All firmware Versions)	RL3e (All firmware Versions)	RL4 (Firmware Version 8_02_0050 or earlier)	RL4 (Firmware Version 8_02_0051 or later)	RL4e (All firmware Versions)
ESSID:	D-O	D-O	(None)	D-O	D-O
TCP Port:	9100	9100	515	9100	9100
UDP Port:	9200	9200	515	9200	9200
Bluetooth® Name:	Printer - RL3	DO_ <serial number>	Printer - RL4	Printer - RL4	DO_ <serial number>

- 1) Turn the printer ON and connect it to the computer using the USB cable. Refer to **Section 3.3 - Establishing Printer Connection.**
- 2) Install and Open the NETira™ CT Printer Configuration Utility application on your PC (see Section 3.4 for more information). This configuration utility can be downloaded from our [website](#).
- 3) Query the printer by using the "Update Available Connection For Printer". This will look for the "USB Virtual COM Port." Once it is completed, reopen the dropdown menu and select the assigned port. If the printer fails to detect the USB Virtual COM port, check "Click on Settings" and select the COM port that is assigned to the Datamax-O'Neil USB CDC Class Device COM port.

NOTE: The message "Done query printer" confirms that the communication process was successfully executed.



C.2 Static IP/DHCP Setting

The printer can be configured to use a static IP or a dynamic IP obtained from a DHCP server.

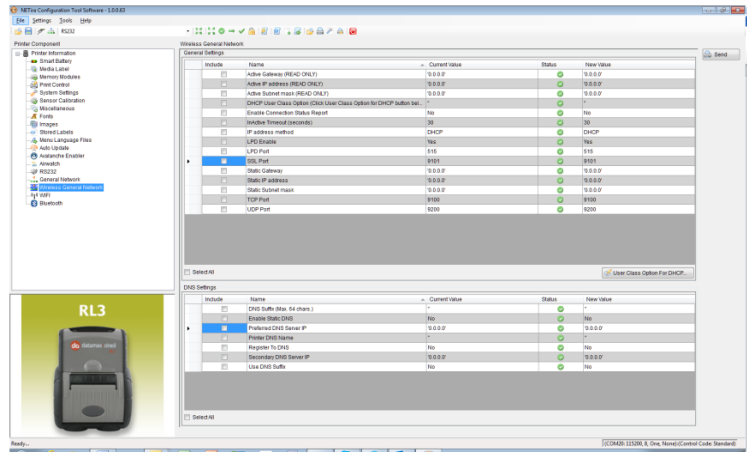
Using a Dynamic IP Address (DHCP):

- 1) Click on the “Wireless General Network” printer component.

- 2) Change (or confirm) the following parameter setting:

IP address method: DHCP

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



Values obtained from the DHCP server will be shown under the fields: Active IP address, Active Subnet Mask and Active Gateway.

Using Static IP Address:

- 1) Click on the “Wireless General Network” printer component.

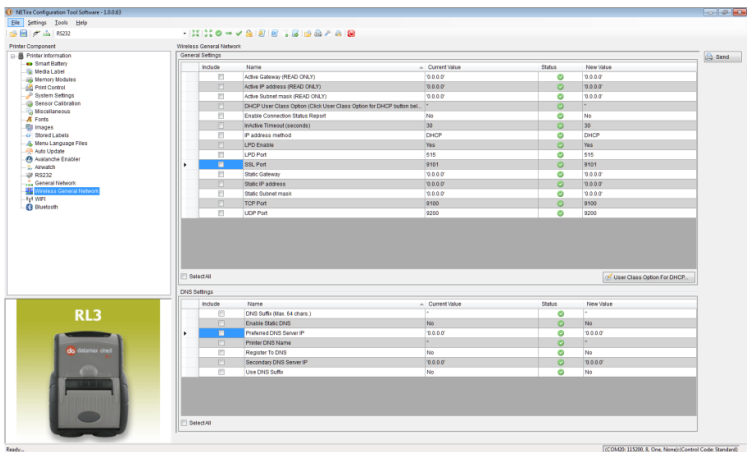
- 2) Change (or confirm) the following parameter settings:

IP address method: 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.



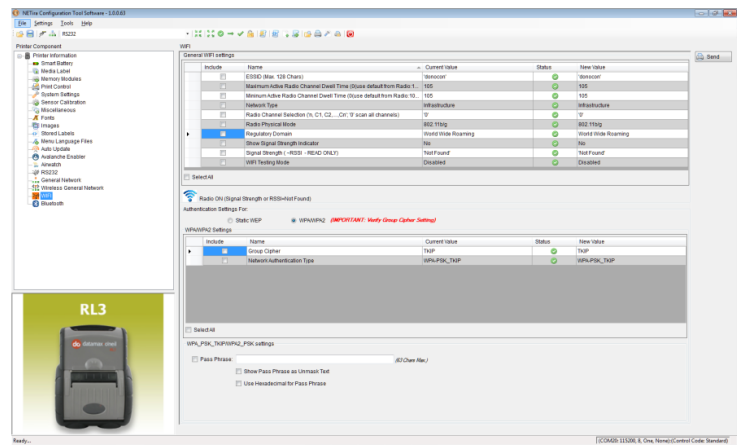
C.3 Infrastructure/Ad-hoc Setting

- 1) Click on the “Wi-Fi” printer component.
- 2) Change (or confirm) the following parameter settings:

ESSID: (Default: **D-O**) Type name that matches the name of your access point.

Network Type: Infrastructure or Ad-hoc.

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



NOTE: To validate a successful Wireless LAN connection, the IP address obtained from the access point will be shown on the LCD display of the printer.

C.4 Wireless LAN Security Settings

The printer can be configured to utilize several Wireless LAN security protocols. The following sections outline the most popular configurations.

B.4.1 WEP 64 & 128 Bit

- 1) Click on the “W-Fi” printer component.
- 2) Click the “Static WEP” radio button.
- 3) Change (or confirm) the following parameter settings:

WEP Selected Key: Select the key number to use.

WEP AP authentication:

Users share 40-bit = 64-bit encryption.

Users share 128-bit = 128-bit encryption.

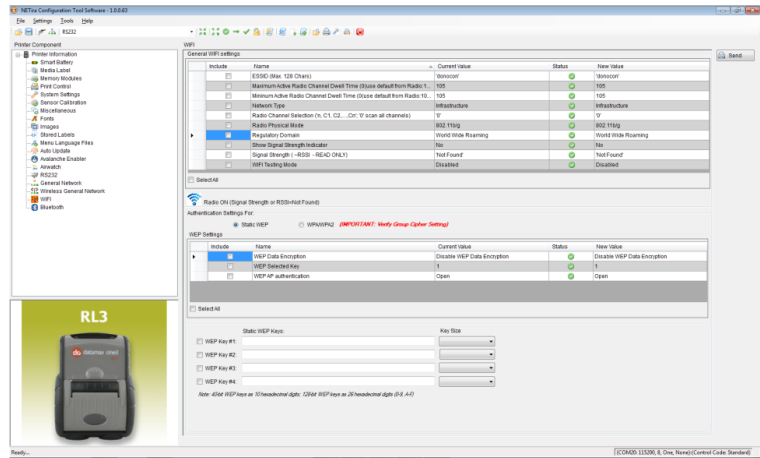
WEP Data Encryption:

Enable WEP Data Encryption.

WEP Key #1-4:

Enter the WEP keys that match values used in the access point.

- 4) After updating the “New Value” column, click the “Send” button to send these changes to the printer.



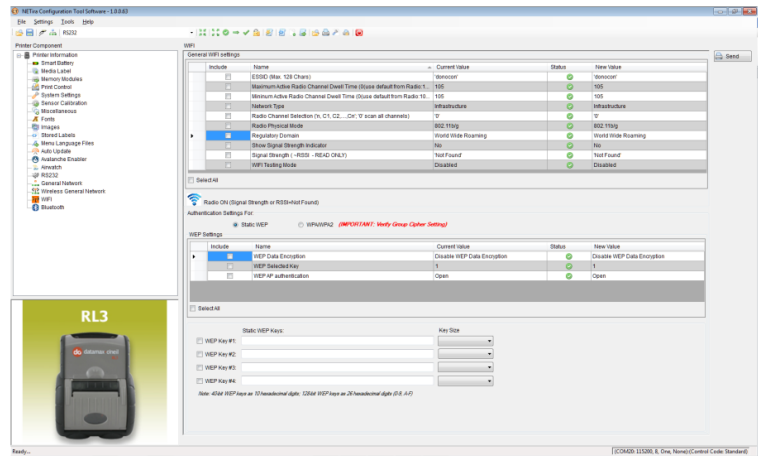
C.4.2 WPA2-PSK w/CCMP

- 1) Click on the "Wi-Fi" printer component.
- 2) Click the "Click the WPA/WPA2" radio button.
- 3) Change (or confirm) the following parameter settings:

Group Cipher: CCMP

Network Authentication Type: WPA2-PSK

- 4) Type the Pass Phrase under the "WPA_PSK_TKIP/WPA2_PSK settings" section. Note that Pass Phrase is case-sensitive.
- 5) After updating the "New Value" column, click the "Send" button to send these changes to the printer.



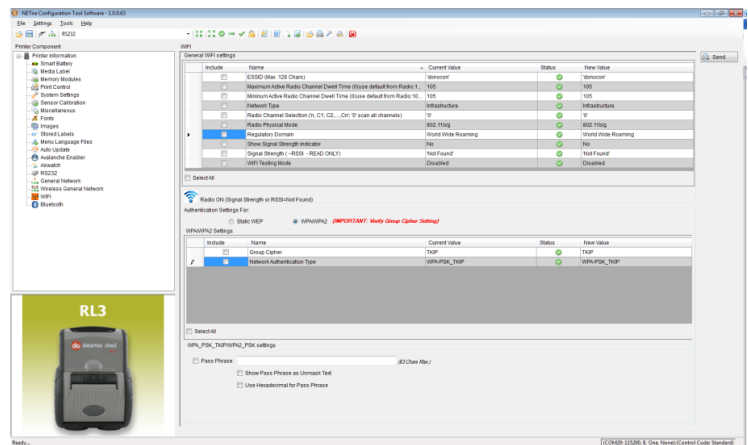
C.4.3 WPA2-PSK w/TKIP

- 1) Click on the "Wi-Fi" printer component.
- 2) Click the "Click the WPA/WPA2" radio button.
- 3) Change (or confirm) the following parameter settings:

Group Cipher: TKIP

Network Authentication Type: WPA2-PSK

- 4) Type the Pass Phrase under the "WPA_PSK_TKIP/WPA2_PSK settings" section. Note that Pass Phrase is case-sensitive.
- 5) After updating the "New Value" column, click the "Send" button to send these changes to the printer.



C.4.4 WPA2-Enterprise

- 1) Click on the “W-Fi” printer component.
- 2) Click the “Click the WPA/WPA2” radio button.
- 3) Change (or confirm) the following parameter settings:

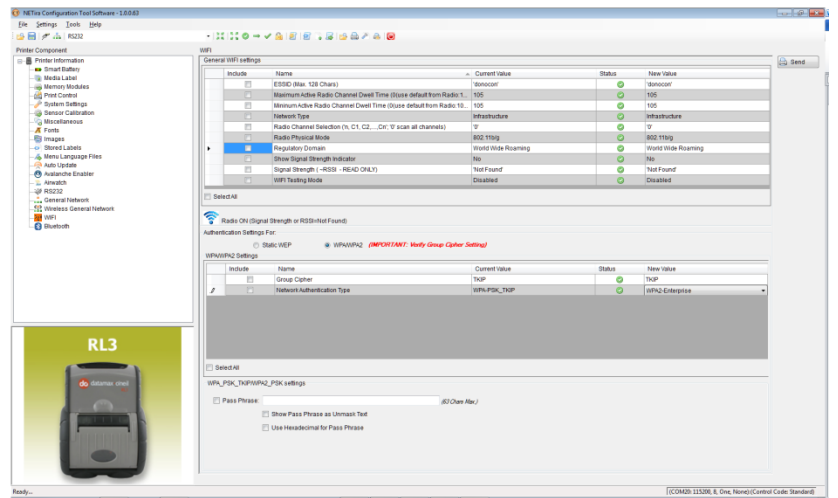
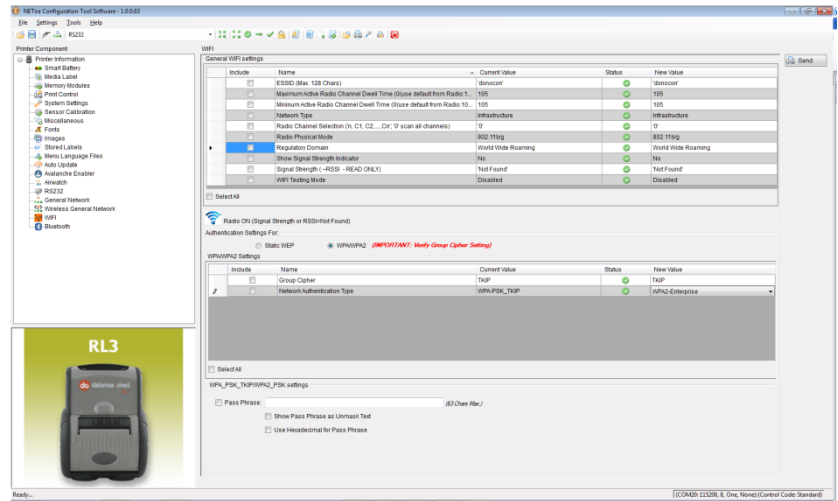
Network Authentication Type:
WPA-Enterprise

Phase 2 Method: EAP-MSCHAPv2

EAP Type: Select EAP-PEAP

NOTE: EAP Type can be variable.
Other values supported: EAP-LEAP,
EAP-TTLS, EAP-PEAP and EAP-
FAST.

- 4) Type the username and password under the “WPA/WPA2 Enterprise” section.
- 5) After updating the “New Value” column, click the “Send” button to send these changes to the printer.



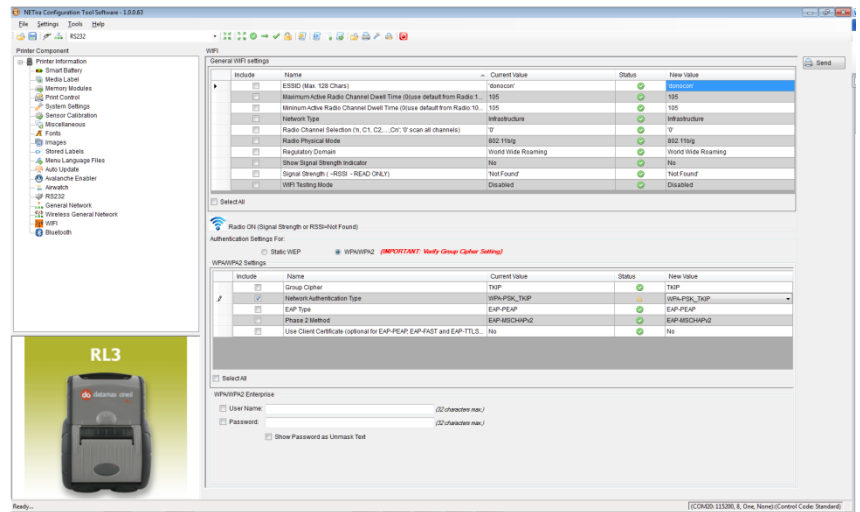
C.4.5 WPA-PSK TKIP w/TKIP

- 1) Click on the "Wi-Fi" printer component.
- 2) Click the "Click the WPA/WPA2" radio button.
- 3) Change (or confirm) the following parameter settings:

Group Cipher: TKIP

Network Authentication Type:
WPA2-PSK_TKIP

- 4) Type the Pass Phrase under the "WPA_PSK_TKIP/WPA2_PSK settings" section. Note that Pass Phrase is case-sensitive.
- 5) After updating the "New Value" column, click the "Send" button to send these changes to the printer.



C.5 Resetting the Printer

In the event of a Wireless LAN communication problem (drop-offs, hangs, can't communicate, etc.), the printer can be reset.

To reset the printer:

- 1) Press and hold the  button until the "Radio Off" message is displayed and then release.
- 2) Next, press and hold the  button until the "Turning Radio On" message is displayed and then release.

The printer will reboot and attempt to connect to the network device using the parameters previously set in the printer.

As an alternate method, remove the battery from the printer, wait 20 seconds and then reinstall the battery. See Section 2.1.

C.6 Bluetooth® Setup

The printer is configured with default factory settings. To determine your printer's configuration, print a Configuration Label (see Section 3.2).

- 1) Click the Bluetooth® menu item in the Printer Component section of the configuration utility.
- 2) To set up the printer for Bluetooth®, change (or confirm) the following parameter settings:

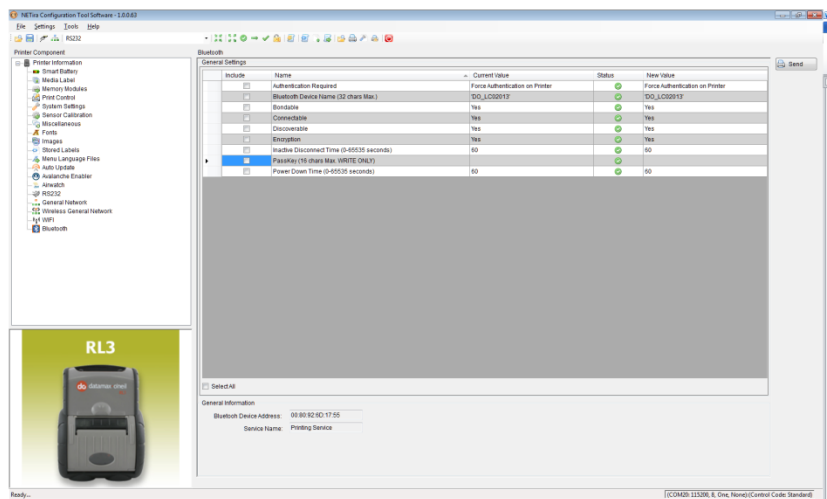
Bondable: Yes

Connectable: Yes

Discoverable: Yes

PassKey: Default "0000" (must match entry used on host computer)

- 3) After updating the "New Value" column, click the "Send" button to send these changes to the printer.
- 4) Allow 30 seconds for the printer to reset. For connection to the printer, please refer to the instructions included with your Bluetooth® adapter or host computer/handheld.



D USB Setup

D.1 Introduction

The printer can be connected to a PC or a handheld device using a USB cable. Before connecting the printer to your host device, the type (or class) of USB connection must be determined. There are three (3) classes of USB connections that are supported:

- CDC (Communication Device Class, virtual COM port via emulated RS-232)
- Printer Class (Typical Windows® Printer)
- Composite Class (CDC + Printer Class)

Whenever possible, it is recommended to use the Composite Class, as it gives the most flexibility. However, on some systems (e.g., handheld devices) CDC or Printer Class alone should be selected, as handheld devices have limited support.

Software/Files Needed:

The following files can be downloaded from: www.datamax-oneil.com

- NETira™ CT Printer Configuration Utility
- Qualsoft Windows® Drivers (for Printer and Composite Class installations only)
- "Datamax-O'Neil Windows Printer Drivers" (for Printer Class installations only)
- "Datamax-O'Neil CDC Class.inf" file (for CDC installations only)

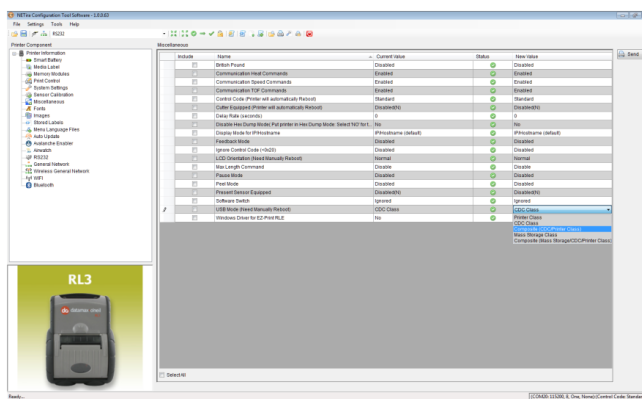
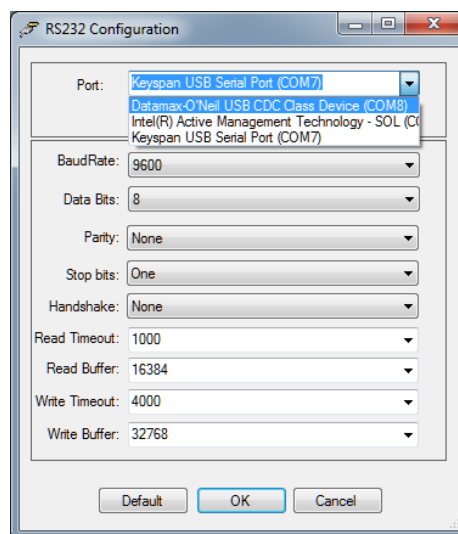
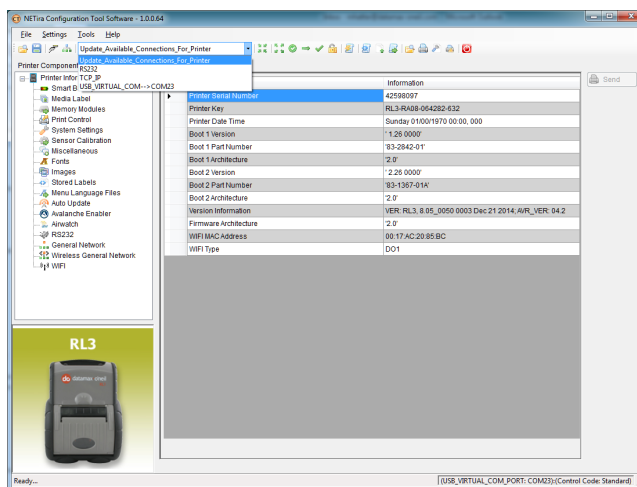
Create a new folder on your local computer named "Drivers." Download the necessary files and place them in this folder.

D.2 Printer Configuration

Before attempting a USB connection the printer must first be configured to use the desired USB class. Set the printer to appropriate USB class for your particular application by using the NETira™ CT Printer Configuration Utility. The default setting is “Composite (CDC/Printer Class).”

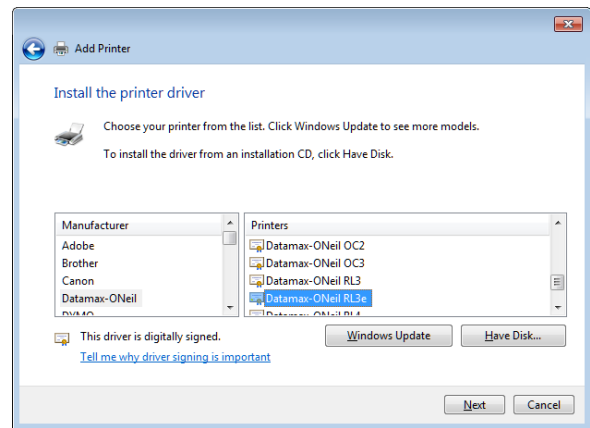
- 1) Turn the printer ON and connect it to the computer using the USB cable. Refer to **Section 3.3 - Establishing Printer Connection**.
 - 2) Install and Open the NETira™ CT Printer Configuration Utility application on your PC (see Section 3.4 for more information). This configuration utility can be downloaded from our [website](#).
 - 3) Query the printer by using the “Update Available Connection For Printer.” This will look for the “USB Virtual COM Port.” Once it is completed, reopen the dropdown menu and select the assigned port. If the printer fails to detect the USB Virtual COM port, check “Click on Settings” and select the COM port that is assigned to the Datamax-O’Neil USB CDC Class Device COM port.
- NOTE:** The message “Done query printer” confirms that communication process was successfully executed.
- 4) Click on the “Miscellaneous” printer component.
 - 5) Change (or confirm) the **USB Mode** parameter setting.
 - 6) After updating the “New Value” column, click the “Send” button to send this change to the printer.
 - 7) Proceed to the appropriate section to complete the USB connection.

Section C.3, Composite Class
Section C.4, CDC Class
Section C.5, Printer Class

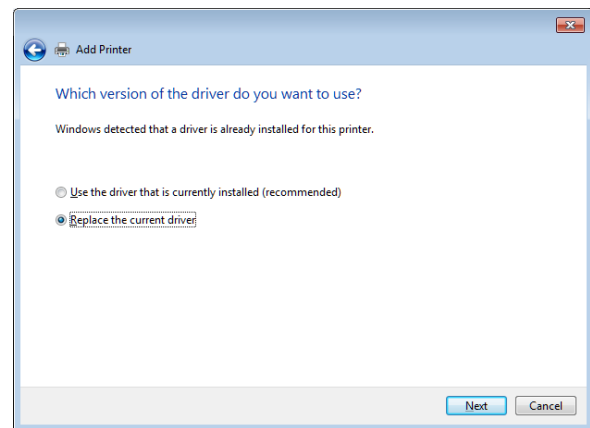


- 6) Scroll through the "Manufacturer" list and click on "Datamax-O'Neil." Scroll through "Printers" and select the applicable printer.

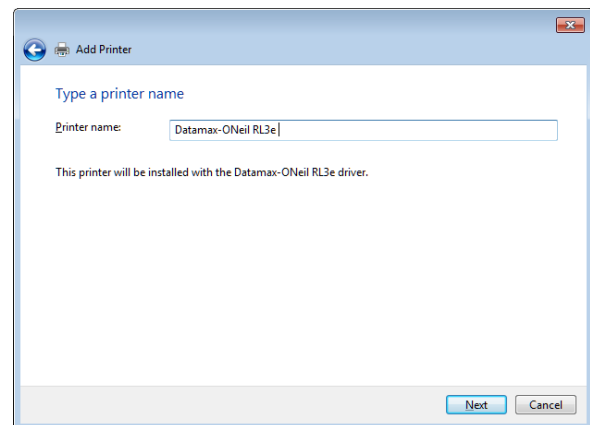
NOTE: If Datamax-O'Neil or the correct printer does not appear in the selection boxes, click on "Windows Update" and repeat Step 6 once the update is completed.



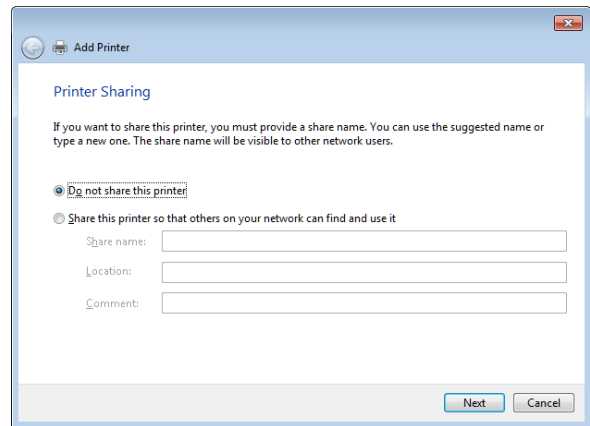
- 7) If the printer drivers were previously installed you may see this screen. Choose the setting that applies and click "Next."



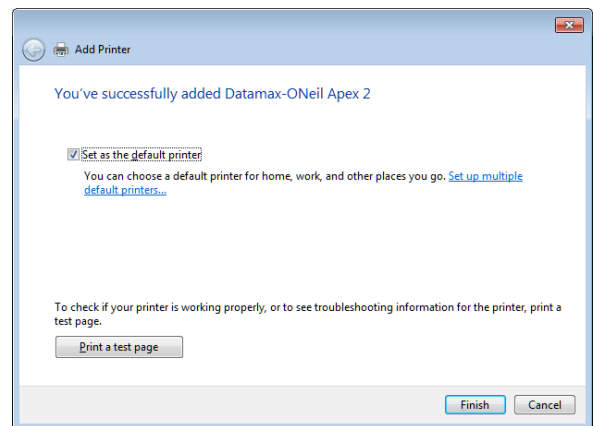
- 8) You can use the default or type in a printer name, click "Next."



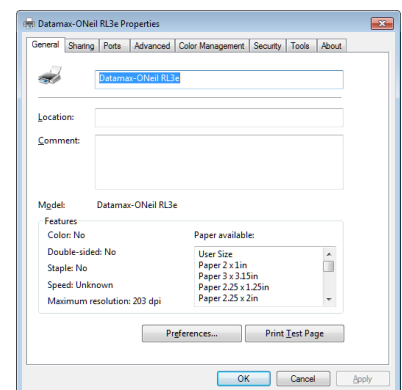
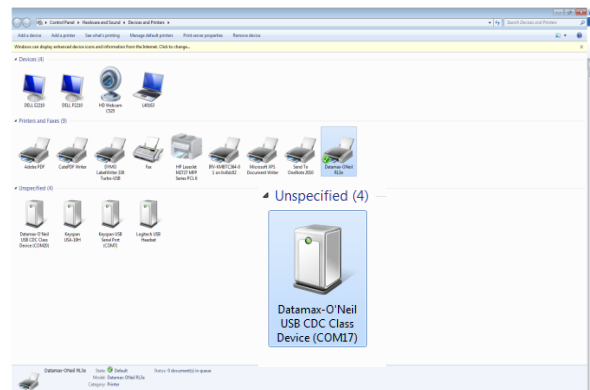
9) Share or do not share the printer, click "Next."



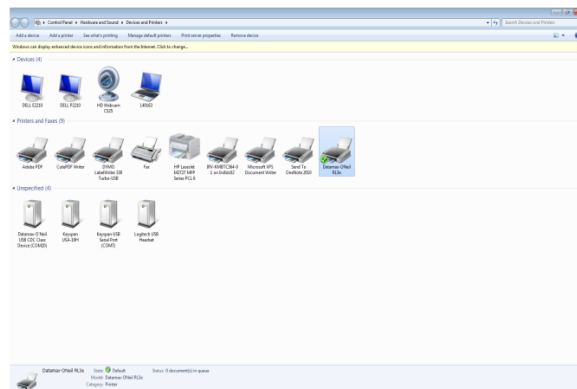
10) Uncheck or check the box "Set as the default printer," then click "Finish." Do not print a test page.



11) Connect the USB cable to your printer and host PC. Right-click on your printer and select printer properties. Click on "Print Test Page." If the print test does not print, verify that the printer Com Port and the USB CDC class device COM Port match.



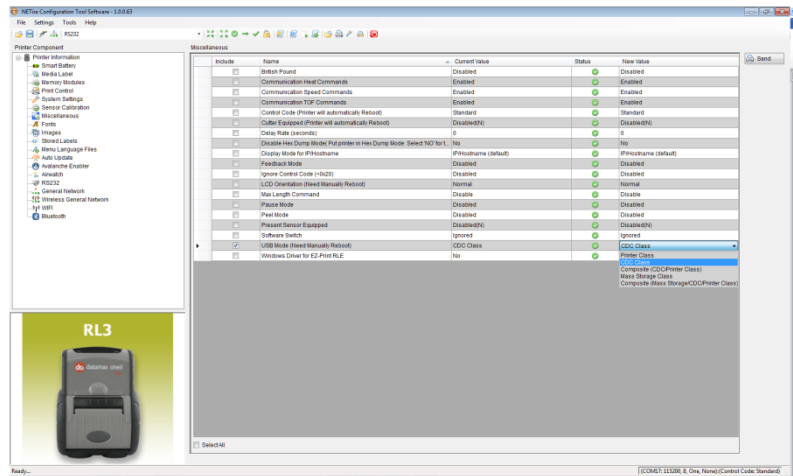
www.datamax-oneil.com



D.4 CDC Class (optional)

Once the printer is installed following the process in **Section C.3**, both the printer driver and USB CDC drivers are installed. If the requirement is for CDC only, you need to update the printer **User Mode** using the NETira™ CT Printer Configuration Utility.

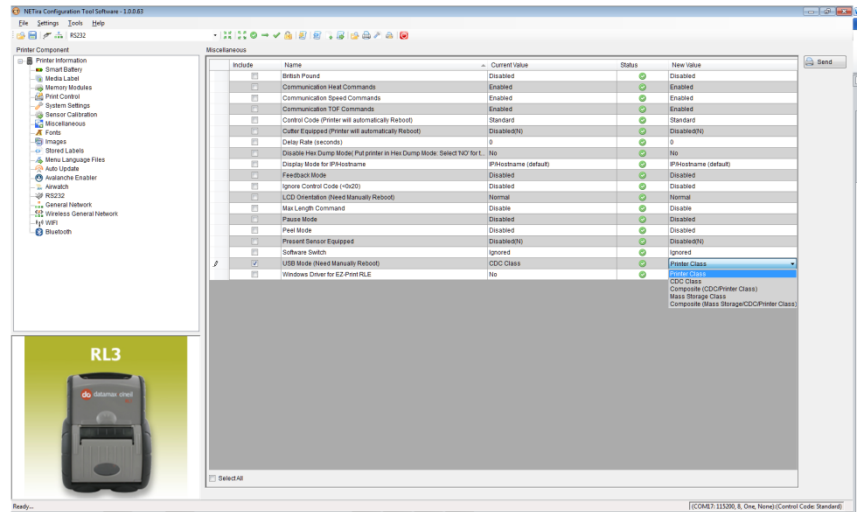
- 1) Turn on the printer and wait until the "Ready" screen appears.
Connect the USB cable to the PC.
- 2) Open the NETira™ CT Printer Configuration Utility.
- 3) Query the printer by using the "Auto Detect" button. This will connect to the printer and retrieve the settings currently stored in the printer. If the printer fails to "Auto Detect," check your RS-232 settings to ensure you have the correct COM Port selected.
- 4) Click on "Miscellaneous" and change the "USB Mode" to "CDC Class."
- 5) Press "Send."



D.5 Printer Class (optional)

Once the printer is installed following the process in **Section C.3**, both the printer driver and USB CDC drivers are installed. If the requirement is for Printer Class only, you need to update the printer **User Mode** using the NETira™ CT Printer Configuration Utility.

- 1) Turn on the printer and wait until the "Ready" screen appears. Connect the USB cable to the PC.
- 2) Open the NETira™ CT Printer Configuration Utility.
- 3) Query the printer by using the "Auto Detect" button. This will connect to the printer and retrieve the settings currently stored in the printer. If the printer fails to "Auto Detect," check your RS-232 settings to ensure you have the correct COM Port selected.
- 4) Click on "Miscellaneous" and change the "USB Mode" to "Printer Class."
- 5) Press "Send."



E Error Codes

E.1 Conditions

Code	Conditions Listing
0	No Conditions
1	Remove a Label
2	Waiting for a GPIO Signal
3	Thermal Printhead is Warm
4	Print Engine is Calibrating Sensors
5	FLASH is being Erased
6	FLASH is being Written
7	Network is Being Initialized
8	Print Engine is NOT Calibrated
9	Parser is in HEX DUMP Mode
10	Verifier/GPIO Mode
11	Print Engine in Print Test Rate Mode
12	Waiting for Additional Data
13	Motor is Warm
14	RFID is Active
15	Paper is Out
16	Battery is Charging
17	Battery is Dis-Charging
18	Wired Ethernet - 802.3 - Is Active
19	Wireless Ethernet - 802.11 - Is Active
20	Bluetooth® - 802.15 - Is Active
21	Battery Charging
22	AC Plugged In
23	WIFI Attempting to Connect
24	WIFI Radio is OFF

NOTE: Codes listing is for notification information only; no user interaction required.

E.2 Warnings

Code	Warning Listing
100	No Warnings
101	Ribbon Is Low
102	TPH Needs Cleaning
103	RFID Write Warning
104	Changes are Pending
105	Low Voltage
106	Power Down Imminent
107	Rewinder Full
108	Thermal Printhead Mismatch
109	High Voltage
110	Media Low
111	Battery Low

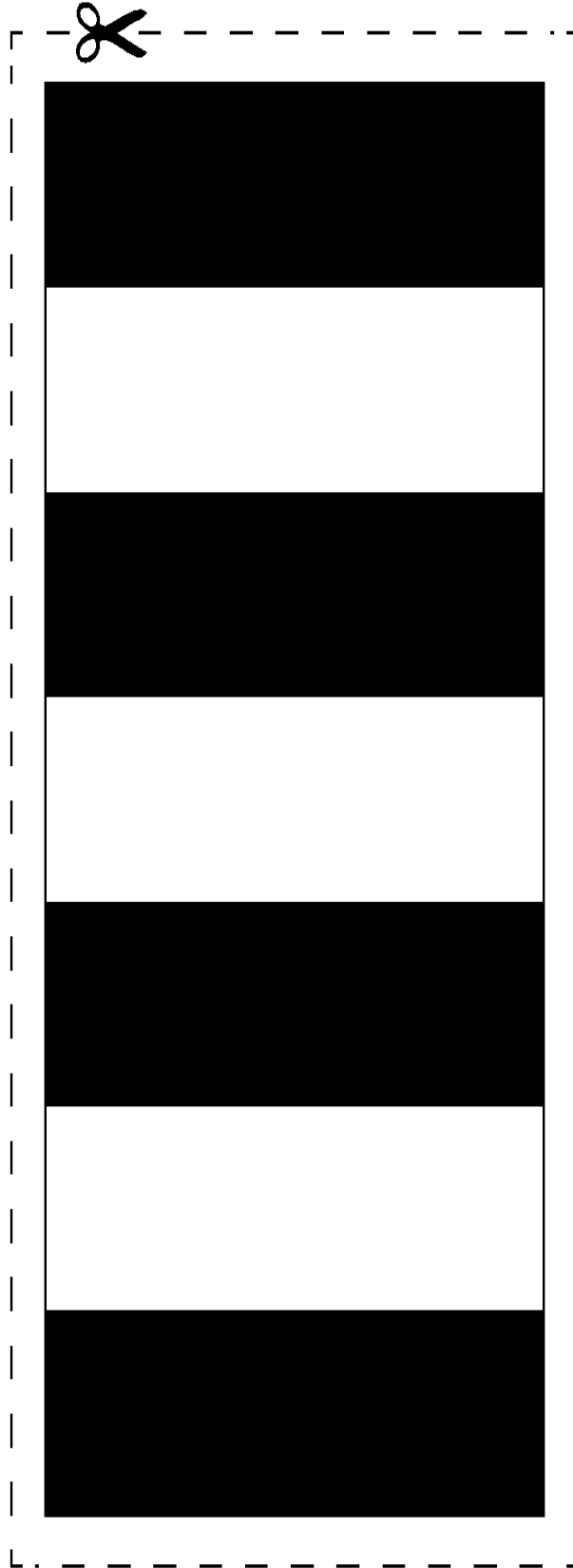
NOTE: Represents Warning notification and may require some action by user.

E.3 Faults

Code	Fault Listing
200	No Faults
201	System Fault
202	ADC Fault
203	Thermal Printhead UP
204	Ribbon Fault
205	Top Of Form Fault
206	Stock (Paper) Fault
207	Cutter Fault
208	Verifier Fault
209	Ribbon-Saver Fault
210	Positioning Fault
211	Thermal Printhead Fault
212	DMA (SPI) Data Transfer to TPH Fault
213	Print-Engine Fault
214	Motor-Too-Hot Fault
215	TPH-Too-Dirty Fault
216	Scanner Fault
217	Present-Sensor Fault
218	TPH-DOT-Failure Fault
219	Radio-Frequency-ID Fault
220	Label-Rewinder Fault
221	Feed-Clear Fault
222	Close Thermal Printhead Latch Fault
223	Invalid-Data Fault
224	802.11 (WIFI) Radio Fault
225	(Bluetooth®) Radio Fault
226	Battery Fault
227	Battery-Charger Fault
228	No-Battery Fault

NOTE: User Interaction required to restore printing. Shut down or restart the printer when error codes above are displayed.

F.1 Reflective Media-Calibration Label



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