Workstation Series

User's Guide

right by our customers.

datamax·o'neil

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Important Safety Instructions

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

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

Agency Compliance

This product complies to the following:

FCC	CFR 47 Part 15, Class A Digital Device This device complies with Part 15, Subpart B of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation. This Class A digital apparatus complies with Industry Canada ICS-003 Class A requirements.
c(UL)us LISTED	UL 60950-1, 2nd Edition. Safety of Information Technology Equipment Including Electrical Business Equipment CAN/CSA-C22.2 No.60950-1, 2nd Edition. Safety of Information Technology Equipment Including Electrical Business Equipment
CE	European Council Directive 2004/108/EC "EMC Directive" EN55022, Emissions, Class A EN55024, Immunity EN61000-3-2, Harmonics EN61000-3-3, Voltage Fluctuations and Flicker European Council Directive 2006/95/EC "Low Voltage Directive" IEC 60950-1, 2nd Edition (CB Scheme) Directive 2011/65/EU RoHS2 [EN50581(2012)]
EAC	Customs Union – Russia, Kazakhstan, Belarus
⚠	CISPR 22 Class A Warning Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

	ACMA – Australian Communications and Media Authority EN55022; 2010 +AC:2011 Class A
CoC-MEX	Certificate of Compliance - Mexico CoC-Mex-00588-UL; UL 60950-1, 2nd Edition, 2011-12-19

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1   **Safety**

Warnings and Cautions

The following Warnings and Cautions are used throughout this manual:

Warning: Warnings alert you to possible safety risks.

Caution: Cautions alert you to the potential for equipment damage.
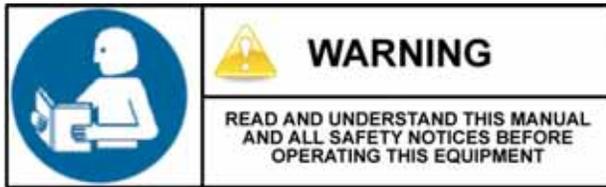
General Safety Information

Caution: This product is intended for indoor use only.

All service procedures should be done by properly trained and qualified service personnel.

Any on-site assembly required during the installation process must be performed by properly trained and qualified service personnel.

The product must be connected to a properly grounded and appropriately rated AC receptacle using the supplied cord set.

Caution: This product contains sensitive electronic components that could be damaged if exposed to excessive force.

Caution: Use only factory-approved consumables and cleaning kits. Use of any non-approved supplies could damage the product and void the warranty.

Caution: The printer must be installed on a stable, level surface.

Figure: 1 - 1   Caution - Hot

The printhead heats during printing. Do not touch.

Caution: Serious damage and bodily injury can result if this printer is exposed to liquids or foreign objects.

2   Overview

Workstation Series Overview

w1110 Product Tour

The following illustrations show some of the features and available options for the printer.

Figure: 2 - 1   Front View - w1110
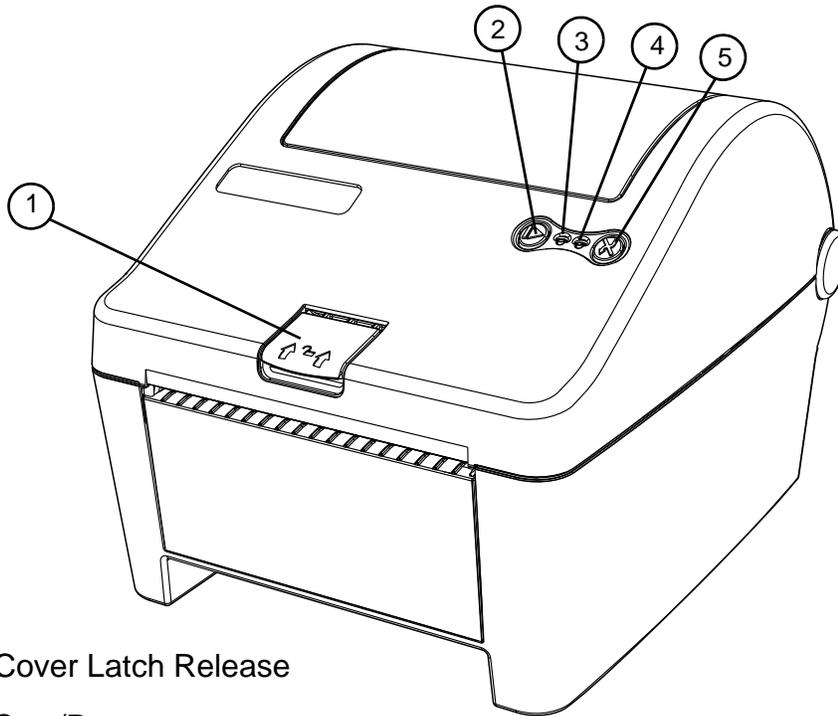
1. Cover Latch Release
2. Stop/Resume
3. Power LED (Green)
4. Error LED (Red)
5. Feed/Cancel

Figure: 2 - 2   Rear View - w1110
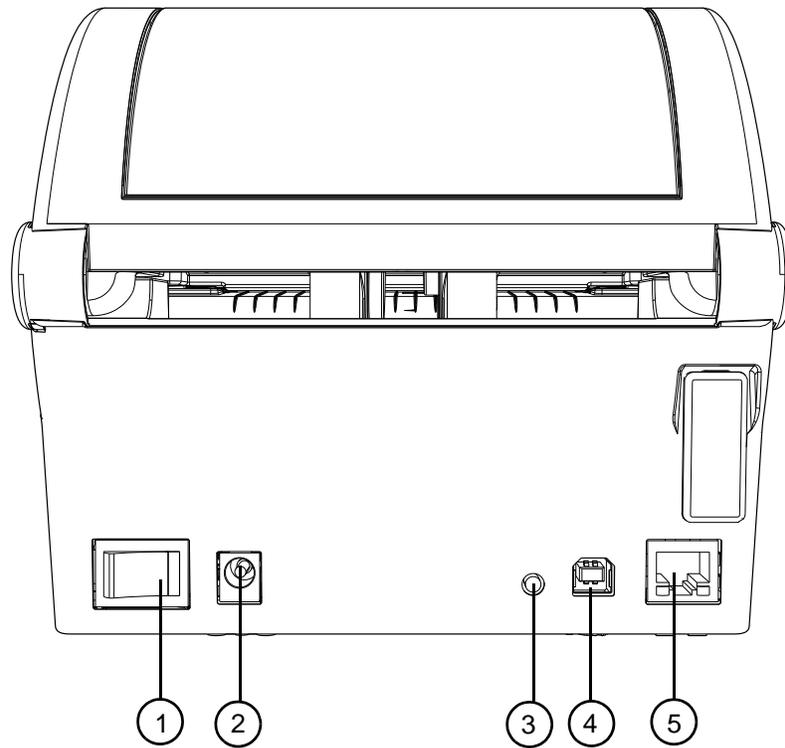
1. Power Switch
2. DC Power Inlet
3. Reset Button
4. USB 2.0 Port
5. Ethernet/Network Port

Figure: 2 - 3   Media Area
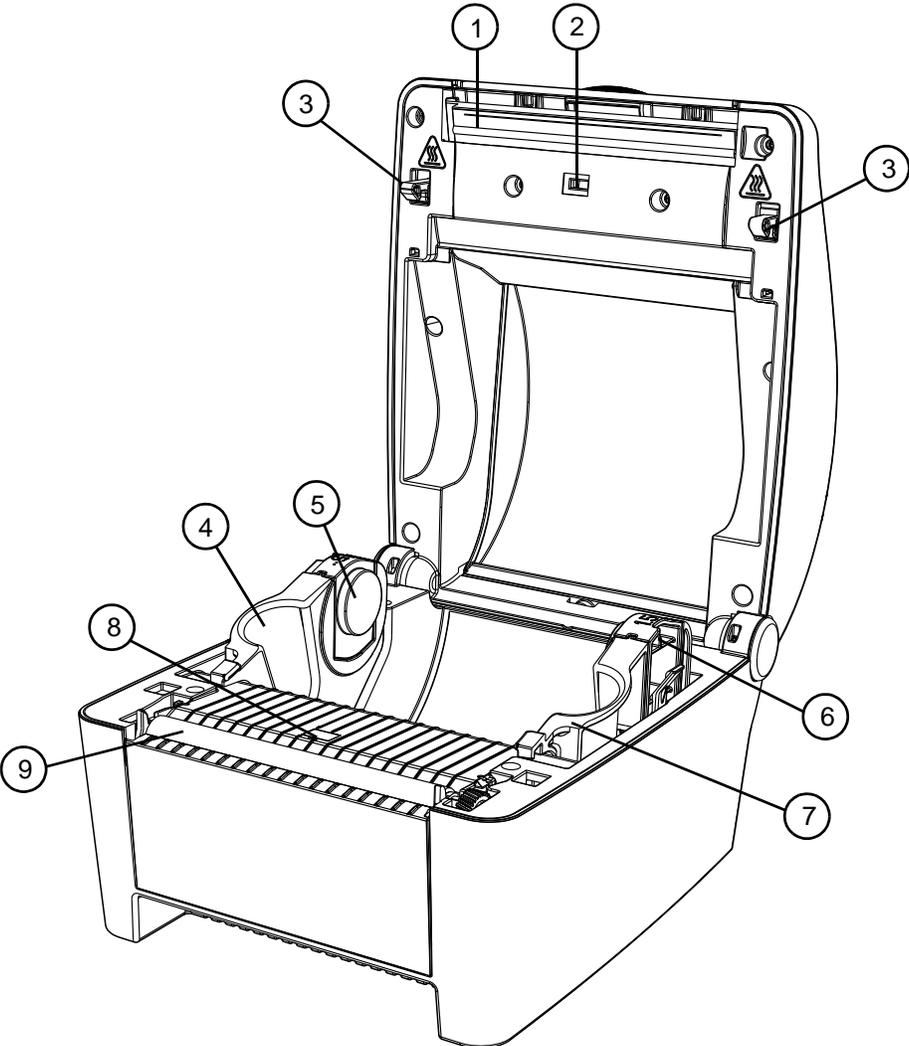
1. Printhead
2. Upper Top-of-Form Sensor
3. Cover Latch
4. Left Media Support Bracket
5. Left Core Adapter

6. Right Core Adapter
7. Right Media Support Bracket
8. Lower Top-of-Form Sensor
9. Platen Roller

Options

Figure: 2 - 4   Peel and Present

1. Peel Bar
2. Present Sensor
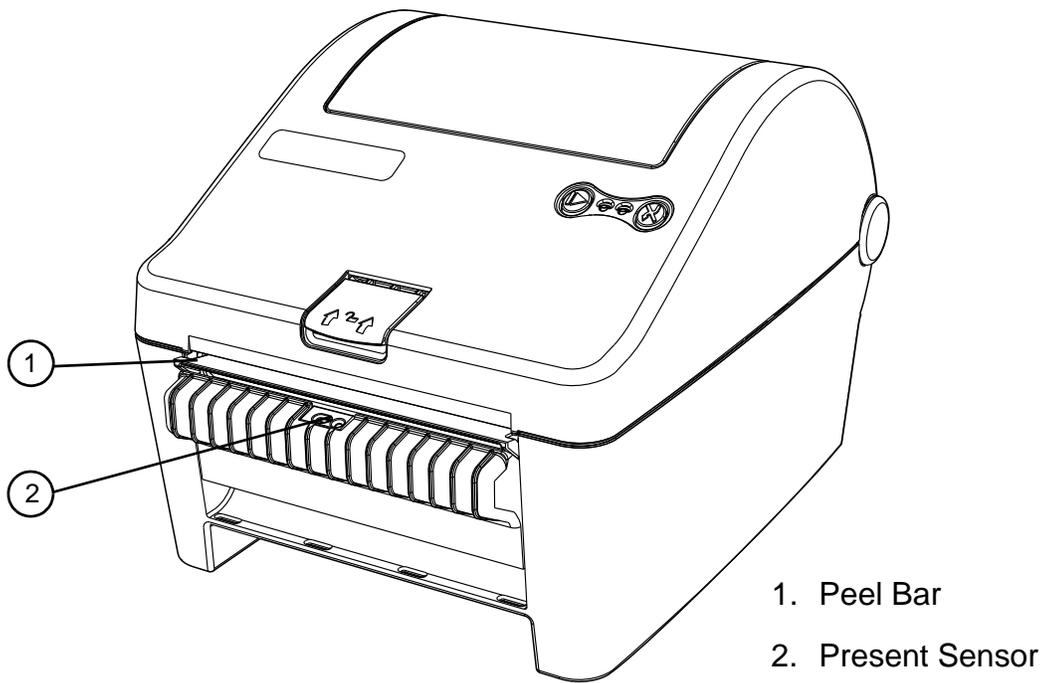
Figure: 2 - 5   Serial Interface

1. Serial Interface
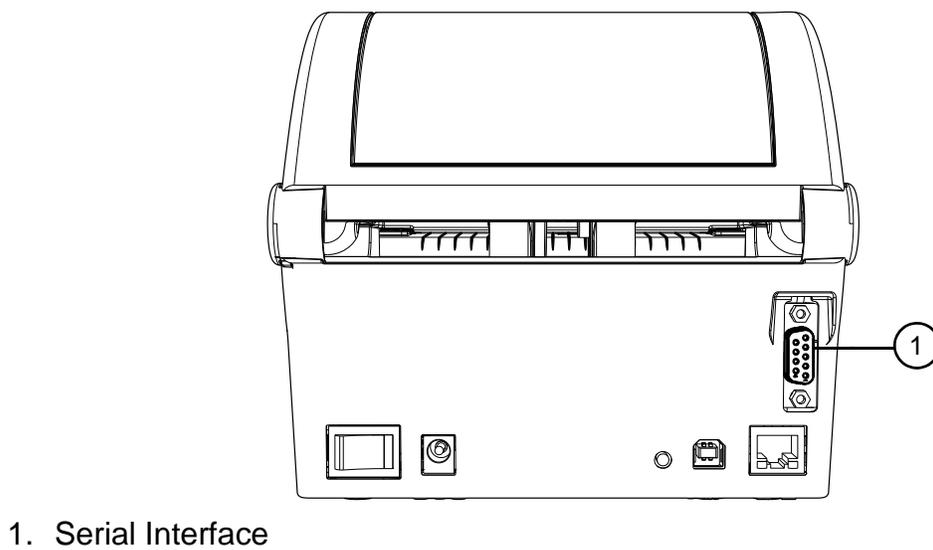
Standard Features

The thermal printer has the following standard features:

Table 1: Standard Features

Features	Descriptions
Max Print Speed	4 IPS / 102 mmps
Resolution	300 dpi / 11.8 dpmm
Memory	32 MB Flash (4 MB User Space) / 64 MB DDR2 RAM
Printer Type	Direct Thermal
Media Supply	• Roll-fed • Die-cut • Continuous Labels: [5" (127 mm) roll max diameter on 1.0" and 1.5" (25.4 mm and 38 mm) core]
Double-sided Top-of-Form Sensor	Fixed position for center-biased stock: • Label Gap • Reflective black mark on the bottom or the top of the form
Tear Bar	Bar for tearing off gapped or continuous media
Media Back Feed	Capable of backing up; max 0.5"
Control Panel	Two buttons
Reset Button	Inset on the rear of the unit
LEDs	Two LEDs: Green - Power On, Red - Error
Power Switch	Positioned on the rear of the unit
Chassis / Media Cover	Plastic construction with a clear window
Bar Codes	See Appendix A
Fonts	See Appendix A
Downloadable Font Types	• True-Type Scalable • PCL Bitmap (300 dpi)
Graphics	Full support of PCL5e and GL/2 graphics capability. [Support for various host-based file formats (PCX, BMP) are not part of the PCL5e standard but are supported and converted by standard applications]
Industry Standard Printer Language	HP PJL, HP PCL5e, HP GL/2 and HP XL, printer languages with auto-language select and extensions for barcode capabilities. Bi-directional communications capability is also supported.
Interfaces	• USB 2.0 Device • LAN 10/100

Features	Descriptions
Printer Driver Supported Operating Systems	• Windows XP • Windows Vista • Windows 7 • Windows 8
Operating Temperature	32°F (0°C) to 104°F (40°C)

Options

The following options are available:

- Peel and Present
- Serial Interface
- Non-US Power Cords

Unpacking the Printer

Upon receiving the printer, verify the box is undamaged. Carefully unpack the printer from its packaging and visually check for any physical damage that may have occurred during shipment.

Checking the Contents

The contents may vary depending on your configuration. It is recommended that all packaging materials be saved if the printer is to be shipped again. If the packaging material is discarded, new packaging material may be available from your reseller.

- Printer
- Power Cord
- AC Adapter
- Driver CD
- Product documentation
- Accessories/Options

Additional items that may be required include the following:

- All Applicable Communication Cables
- Media

Specifications

Print Characteristics

Table 2: Print Characteristics

Variable	Specifications
Print Resolution	300 dpi (11.8 dpmm)
Max Print Width	4.16" (105.7 mm)
Max Print Speed	4 ips (102 mmps)
Max Feed Speed	4 ips (102 mmps)
Max Back-up Speed	4 ips (102 mmps)
Media Width Range*	0.75" - 4.33" (19 mm - 110 mm)
Media Thickness Range*	0.003" - 0.008" (0.076 mm - 0.20 mm)
Print Length Range	0.25" - 30" (6.35 mm - 762 mm)

*Media wound out.

Dimensions and Weight

Table 3: Dimensions and Specifications

Height	Width	Depth	Weight
6.02 in (15.3 cm)	6.75 in (17.1 cm)	8.32 in (21.1 cm)	3.1 lbs. (1.4 kg)

Environmental

Table 4: Temperatures

	Temperature	Humidity
Operating	32°F to 104°F (0°C to 40°C)	<=20% to 80%
Storage	-4°F to 140°F (-20°C to 60°C)	<=35%

Print Driver Requirements

Table 5: Print Driver Minimum System Requirements

Minimum System Requirements	
Processor / Speed	500 MHz processor
RAM	512 MB
Hard Drive Space	6 MB

Minimum System Requirements	
Supported Operating Systems	Windows XP - x86 & x64
	Windows Vista - x86 & x64
	Windows 7 - x86 & x64
	Windows 8

Configuration Utility

Table 6: Configuration Utility Minimum System Requirements

Minimum System Requirements	
Processor / Speed	500 MHz processor
Supported Operating Systems	Windows XP - x86 & x64
	Windows 7 - x86 & x64
	Windows 8
RAM	256 MB
Hard Drive Space	15 MB
Minimum Screen Resolution	800 x 600
.NET Framework	3.5 SP1

3   Connections and Setup

Connections

Power

To connect the printer to a viable power source, please follow the steps below.

Caution: Ensure the printer power switch is off before connecting the AC power and data/network connectivity cables to the printer.

Caution: Adhere to all environmental requirements when installing and using the printer. Use of the product in an unsuitable environment may affect print quality and the durability of the printer and may void the manufacturer's warranty.

1. Place the printer on a suitable level surface capable of securely supporting 8lbs.

2. Connect the AC power cord to the power supply brick

3. Connect the AC power cord from the power supply brick to AC utility power.

4. Connect the DC power cord from the power supply brick to the printer power jack.

5. Using the power switch, turn on the printer.

During power-up, the LEDs indicate the status of the printer.

Table 1: Power-Up - LED Status

Action	Green LED	Red LED
Printer begins to power-up	Solid	Solid
Printer indicates powering up	Double Blink	Double Blink (synchronized with Green LED)
Printer is online	Solid	Off or slow blink which typically indicates cover open or an uncalibrated condition.*

Data

Printer data connectivity can be accomplished by the following standard or optional interfaces:

- USB
- Ethernet/Network
- Serial (Optional)

Connect the appropriate interface cables for your configuration. For network connection, the default is DCHP.

*__Note:__ To calibrate the printer sensors, remove paper and close the cover, then press and hold the rear panel reset switch together with both printer buttons simultaneously for five (5) seconds and release. Now, only the Green LED should remain lit. Rapidly flashing Red LED indicates sensor is blocked or a hardware problem exists.

Media Loading

The w1110 printer supports either a 1" core or a 1.5" core paper roll. The core adapters can be removed, rotated and reinstalled depending on the desired core size.

Please consult your reseller to obtain the appropriate media.

1. Lift the cover latch release and open the cover.

2. Verify the core size for the paper roll being used and select the appropriate core adapter side.
    a. To change the core adapter size, gently press the locking tabs outward and remove the media core adapters from the media support brackets.

Note: The media core sizes are printed on the top of the core adapters.

Figure: 3 - 1   Media Core Adapters

1.5" Media
Core Adapter

Locking Tabs
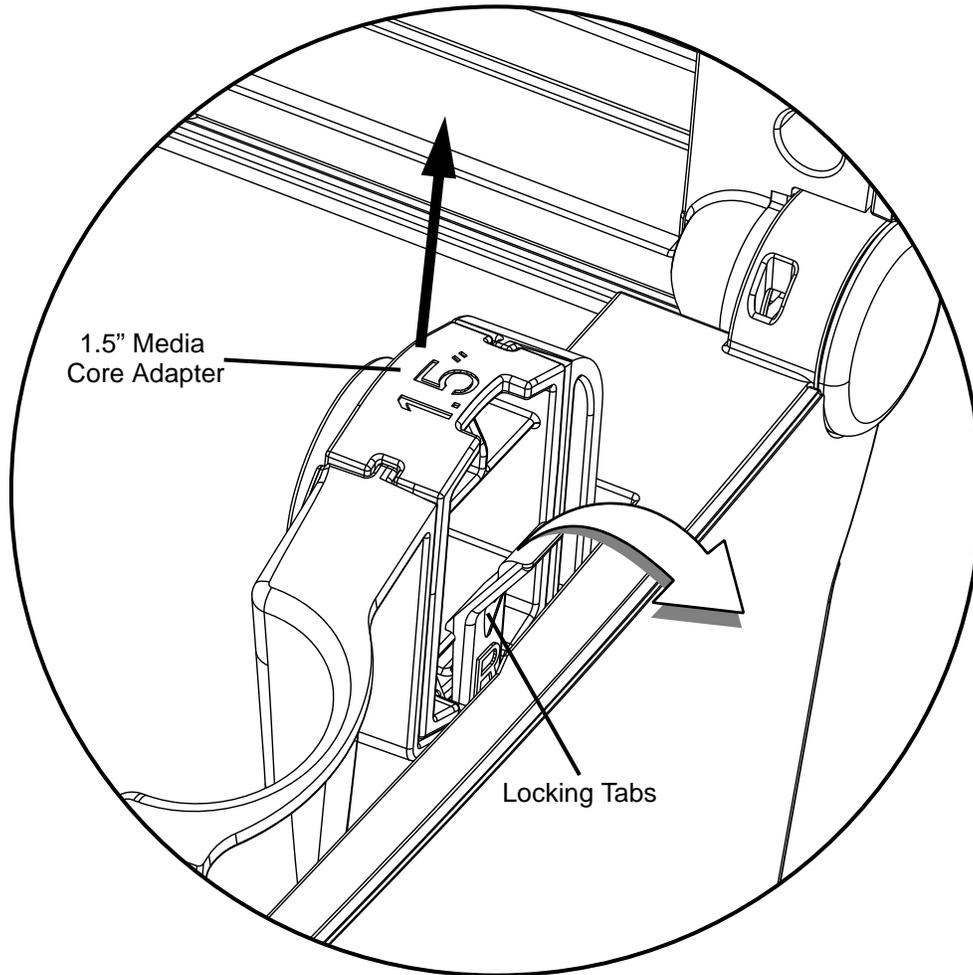
b. Reinstall the core adapters with the corresponding number for the appropriate core size facing upwards.

Note: Ensure the core adapters have snapped into place.

3. Slide the media support brackets outward and place the paper roll between them.

Note: The paper must be wound out.

Figure: 3 - 2   Paper Roll Installation
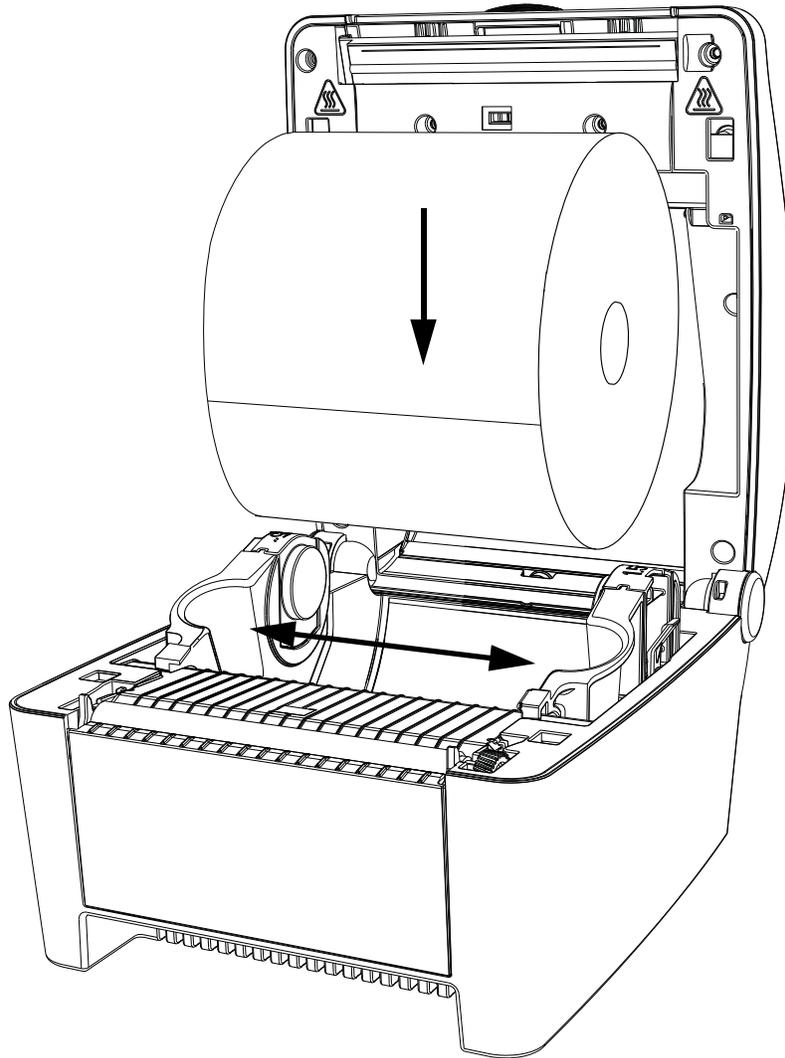
4. Release the media support brackets ensuring the core is secured by the core adapters.

5. Route the paper under the support bracket guides.

Figure: 3 - 3   Support Bracket Guides

Left Guide

Right Guide
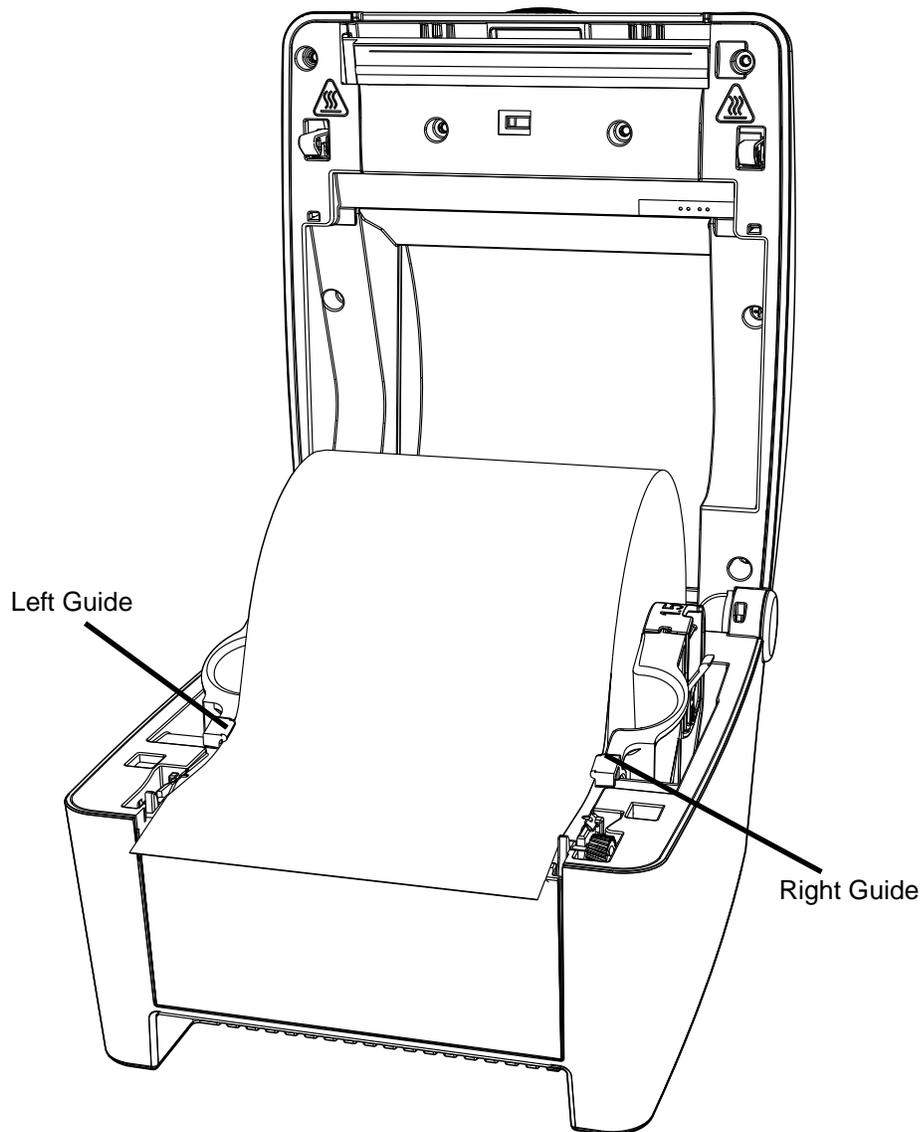
6. Close and latch the printer cover.

7. Feed the paper to find top-of-form.

Note: When installing new media, perform a paper calibration to ensure the printer finds the top-of-form.

Media Loading - Peel and Present

The peel and present option allows for the media labels to peel at the peel bar while the label backing routes away from the labels.

1. Open the peel and present sub-assembly.
    a. Rotate the peel and present sub-assembly forward.

Figure: 3 - 4   Peel and Present Assembly
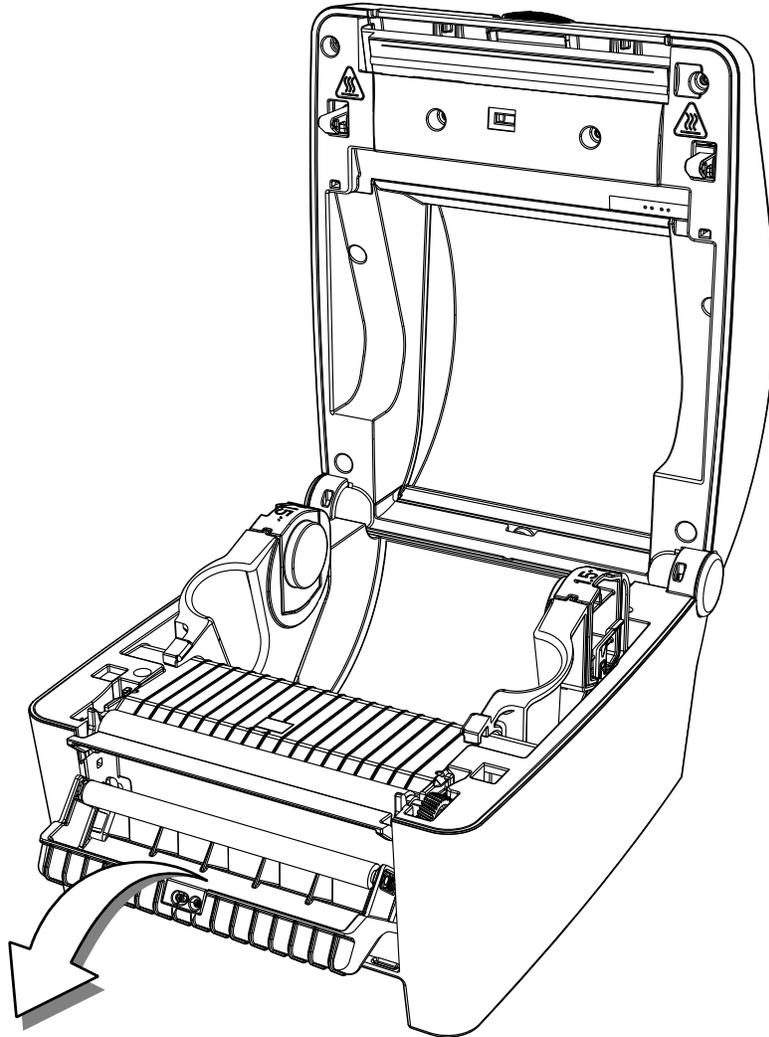
2. Load the media into the support bracket and the core adapters.

3. Remove the enough labels to expose at least 6" of backing. Insert the backing behind the roller of peel and present sub-assembly until it appears underneath.

Note: Be sure there are no labels attached to the backing that is routed behind the peel and present sub-assembly.

Figure: 3 - 5   Media Backing
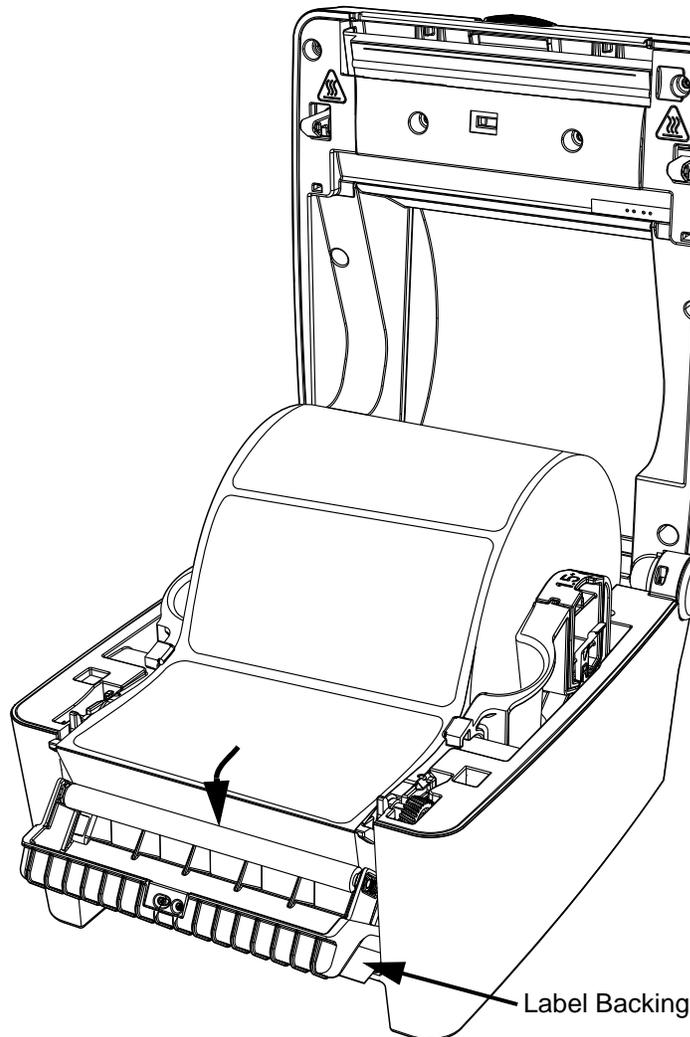
Label Backing

4. Pull the label backing tight to ensure proper tension of the label backing.

5. Hold the backing tight and close the peel and present sensor assembly.

6. Close and latch the printer cover.

7. Feed the paper to find top-of-form.

Note: Peel and present mode is enabled through the configuration utility. If both peel and present mode and prompt mode are enabled at the same time, only prompt mode will be active.

Control Panel

The control panel consists of the two (2) main buttons on the printer cover, two (2) LEDs on the printer cover and the reset button on the back of the printer. All three are used to perform certain printer functions.

LEDs

The green and red LEDs may blink during the operation of the printer. There are functions of the printer where the blinking lights can be used to interpret the printer's state.

A slow blink is considered a repeating blink that lights for 0.8 seconds and then turns off for 0.8 seconds.

A fast blink is considered a repeating blink that lights for 0.1 seconds and then turns off for 0.1 seconds.

A Synchronized blink is when both LEDs turn on and off at the same time.

An alternating blink is when green and red LEDs turn on and off opposite of each other.

A double blink is considered two short blinks with a delay in between.

More information is presented in the troubleshooting section.

LED Indicators

The LEDs are used to indicate the printer's state.

Table 2: LED Chart

Light	Printer State
Green	Fast Blink - Waiting for an operator action (to press Resume or to remove label)
	Slow Blink - Printer is processing data
	Solid Light - Printer ready idle state
	Short Blink with Delay - Configuration utility control mode
Red	Fast Blink - Hardware error or Sensor blocked during calibration
	Slow Blink - Warning
	Solid Light - Fault
	Fast Blink with Pause - Maintenance timer expired

Light	Printer State
Green/Red Combination	Fast Alternating Blink - Recovery mode
	Slow Alternating Blink - Upgrade in progress
	Slow Synchronized Blink - Cooling down or processing with a warning
	Synchronized Double Blink - Power-up in progress

Buttons

The operation of the buttons consists of long or short presses depending on the operation being performed. A button pressed for three (3) or more seconds is considered a long press. A button pressed for less than three (3) seconds is considered a short press.

The Stop/Resume button is positioned on the left side of the printer's control panel and the Feed/Cancel button is positioned on the right side. Together with the reset button on the back of the printer, these buttons enable certain printer functions.

Note: Refer to the Operation section of this guide for more information about the operational functionality of the buttons.

Feed

To position the label to the top-of-form, press the Feed/Cancel (right) button once the media has been installed.

Test Labels

To print a test label from the printer, push the Stop/Resume button and the Feed/Cancel button together with a short press. A quality label will print. This function can also be performed with the configuration utility.

Calibration

The printer uses upper and lower top-of-form sensors to determine top-of-form. Both sensors are transmissive and reflective to ensure top-of-form for qualified media. There are two (2) types of calibrations:

- Paper Calibration
- Sensor Calibration

Paper Calibration

The printer should be calibrated after a new type of media has been installed or to verify a paper out warning. When re-loading the same type of media, calibration should not be necessary unless the printer does not find top-of-form.

1. Install the paper into the printer.

2. Close and latch the printer cover.

3. Select the Stop/Resume button and the Feed/Cancel button together with long presses until the paper begins to move.

Note: The media will advance through the printer verifying the top-of-form.

Sensor Calibration

Sensor calibration is set during the manufacturing process and may only need to be performed after upgrading the printer's software or resetting defaults. This is indicated by the red LED blinking slowly after power-up.

1. Remove the paper from the printer.

2. Close and latch the printer cover.

3. Push the Reset, Stop/Resume, and the Feed/Cancel buttons together with one long press.

Note: Wait for the green LED to fast blink followed by solid green.

Printer Settings

All printer settings can be adjusted in the configuration utility or the printer's internal web pages. Refer to the Help section in the utility for more information.

Print Driver Installation

Overview

This installation should be executed only on a computer where a pw Series printer driver is not currently installed or one that the driver have been completely removed.

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

Installing the Windows Driver:

1. Place the Accessories CD-ROM included with the printer into the computers CD-ROM drive. Once the CD-ROM starts select your printer model then "Install Driver" from the menu. Follow the instructions on the screen to install.

   If the driver was downloaded from our website, simply double click the downloaded ".exe" file to launch the installation.

2. Check the "Remove printer drivers" radio button then click 'Next'. If this option is not available skip to Step 6.

3. On the next screen check the "Remove printers" radio button then click 'Next'.

4. Browse the list of installed printers, if any "Workstation" or "Performance" printers are listed check the corresponding check boxes and click 'Next' to remove the installed printers.

5. The next screen will show a summary of items to be removed, click 'Finish' to complete the removal process. Once complete return to the main screen to install the new driver.

6. Check the "Install printer drivers" radio button then click 'Next' and follow the on-screen instructions to install the driver.

7. When prompted, select your printer from the list, (i.e., Datamax-O'Neil w1110). Continue to follow the on-screen instructions to install the driver.
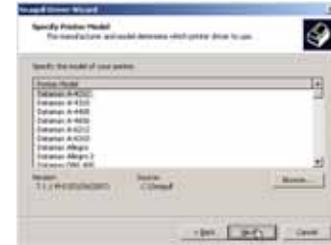
Important Notes:

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.
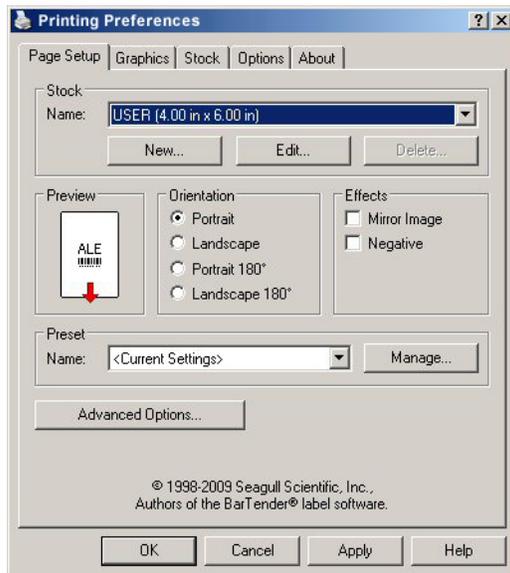
Options Tab: Print Speed & Printhead Temperature

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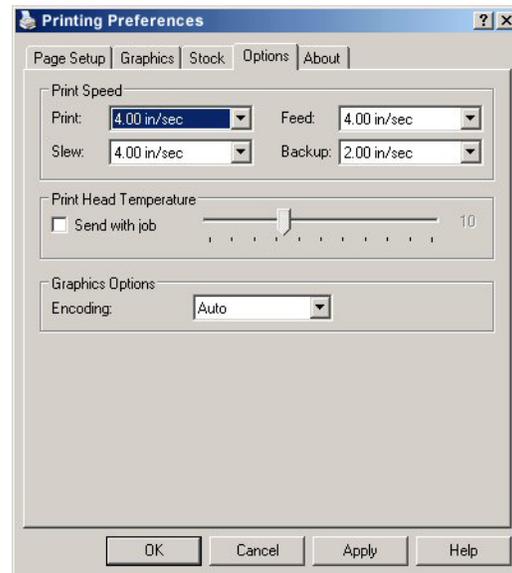
The Windows application software used to create the label format will likely have a "Page Setup" screen. This will also need to match the size of the label you are using.

Printer Modes

The w1110 features three (3) modes:

- Tear Mode
- Present Sensor Mode
- Pause Mode

The modes are set in the printer's configuration utility.

Tear Mode

Tear mode is used for most common print jobs and is the default mode for the printer. This mode is always used when Present Sensor Mode and Prompt Mode are not needed.

To pause a batch print job, press the Stop/Resume (left) button and the printer will stop printing at the next label. The printer will enter the operator action state indicated by a fast blink of the green LED.

To continue the print job, press the Stop/Resume button.

After pausing, the print job can be canceled by pushing the Feed/Cancel (right) button with a long press. The green LED will illuminate with a solid light indicating the printer ready state.

Present Sensor Mode

Present Sensor Mode controls the on-demand dispensing of labels. Once the mode is enabled in the configuration utility and a print job has been sent to the printer, the paper will stop printing after each label until the printed label has been removed. The printer will enter the operator action state indicated by a fast blink of the green LED. Once the label has been removed, the next label will be printed until the batch print job has been completed.

The print job can be canceled by pushing the Feed/Cancel (right) button with a long press. The green LED will illuminate with a solid light indicating the printer ready state.

Pause Mode

Pause mode allows the user to prompt the printer for the next label. Once a label has been printed, the printer will pause with a fast green blink until the user presses the Stop/Resume (left) button directing the printer to print the next label.

To continue the rest of the print job, press the Stop/Resume button before each label.

The print job can be canceled by pushing the Feed/Cancel (right) button with a long press. The green LED will illuminate with a solid light indicating the printer ready state.

Reporting

The printer has a reporting feature that allows the user to print two different reports:

- System Report
- Settings Report

System Report

The system report contains information about the printer including the following:

System Report

- Printer Model
- Firmware Version
- FPGA Version
- Boot Version
- RAM Size
- Flash Size
- Printer Key
- Absolute Counter
- Setup File
- Paper
- Ethernet IP
- Ethernet MAC
- Ethernet DHCP
- Hostname
- Serial Port Settings
- Head Temperature
- Motor Temperature
- Head Voltage
- Session Label Count
- Printer Mode

To print the System Report, push the Reset button and the Feed/Cancel (right) button simultaneously with a short press.

Settings Report

The Settings Report provides information about the print settings including:

Media Settings

- Paper Sensor Type
- Heat
- Heat Balance
- Gap/Mark Offset
- Gap/Mark Noise
- Number of Forms
- Form Length

Printer Settings

- Present Sensor
- Print Speed
- Feed Speed
- Reverse Speed
- Present Distance
- Paper Out Warning
- Reprint on Error
- Cover Open Warning
- Paper Change Warning
- Present Timeout
- Pause Mode

Page Defaults Settings

- Print Length
- Print Width
- Vertical Offset
- Horizontal Offset
- Orientation
- Raster Mode
- Font Name
- Point Size

- Pitch Size
- Symbol Set
- Print Truncation
- Print on Gap/Mark

Auto Settings

- Auto Option Detect
- Auto Present Distance
- Auto Speed Adjust

Adjustment Settings

- Present Distance Adjust
- Vertical Adjust
- Horizontal Adjust
- Darkness
- Contrast

Calibration Settings

- Paper Threshold
- Gap/Mark Threshold
- TOF Gain

To print the Settings Report, push the reset button and the Stop/Resume (left) button simultaneously together with a short press.

Webpages

Webpages provide a printer configuration interface for the user. Users can view the printer status, set printer parameters, print test labels and perform simple actions like printer calibration and setting defaults.

To access the printer Webpages from a computer where the printer has been installed, type the printer's IP address into the Web browser URL field.

Note: The printer must be connected to the Ethernet.

Note: The following Web browsers are supported:

- Internet Explorer (version 8 and higher)
- Firefox (version 13 and higher)
- Google Chrome (version 23 and higher)

Note: The printer's IP address can be obtained by printing a System Report.

5 Cleaning and Maintenance

Overview

To maintain good print quality and increase printhead life, proper cleaning should be routinely performed using factory-approved cleaning supplies.

Caution: A contaminated printhead can cause premature printhead failure.

Caution: Failure to clean the printhead as detailed in this manual could void the printhead manufacturer's warranty.

Intervals

The printhead should be cleaned whenever a roll of labels is replaced or every 650 inches printed.

Supplies

Caution: Cleaning should only be performed using factory-approved and authorized cleaning supplies. Any use of non-authorized cleaning supplies can void the printhead and platen roller warranties.

- Cleaning Pens
- Cleaning Cards/Film
- Can of Compressed Air
- Clean, Lint-Free Cloth
- Isopropyl Alcohol

Cleaning the Top-of-Form Sensor

The Top-of-Form sensor should be cleaned whenever necessary.

1. Remove the media.

2. With a lint-free cloth, wipe both sensor covers to remove dust and debris.

3. Repeat as necessary.

Cleaning the Printhead

For optimum performance, the printhead should be routinely cleaned with factory-approved cleaning supplies. When using the cleaning pen, follow the instructions located on the packaging.

6 Troubleshooting

LED Indicators

The printer LEDs are also used to indicate errors and warnings. Refer to the following chart:

Table 1: LED Indicators

Action	Green LED	Red LED	Notes
Warning	Not affected by Warning	Slow blink	
Error	Off	Solid	
Control Mode	Short blink with a delay	Not affected by Control Mode	Only applies when printer is in configurator session Printer is not operational during this time 0.1 seconds on and 2.3 seconds off
Data Processing	Slow blink	Off	
Hardware Failure	Off	Fast blink	
Cooling or Processing with Warning	Slow blink	Slow blink	LEDs blink in sync
Maintenance Needed	Not affected by Maintenance Needed	Short blink with a delay	0.8 seconds on and 3.2 seconds off
Label Presented	Fast blink	Not affected by Label Presented	Waiting for the operator to remove the label or press 'Resume'

Errors

The following errors may occur:

Errors	Description
SYSTEM ERROR	Software or label format error. Communication rate too slow.
OUT OF PAPER	Out of paper
PRINTHEAD HOT	Printhead is too hot
FPGA HARDWARE	Analog to digital converter hardware fault
NV RAM HARDWARE	Non-volatile memory hardware fault
PAPER SENSOR BLOCKED	Top-of-form sensor hardware fault or sensor calibration performed with paper installed
PAPER CALIBRATION	Could not calibrate media

Errors	Description
PRESENT SENSOR HARDWARE	Present sensor hardware fault
HEAD UP	Printing or feeding with the cover open

Note: To clear errors, open the printer cover fully and then close and latch it.

Warnings

Warnings	Description
MAINTENANCE REMINDER	Maintenance timer has expired
POWER SUPPLY HARDWARE	Printhead voltage above maximum specifications
POWER SUPPLY LOW	Printhead voltage below minimum specifications
PRINTER COOLING	The printer is cooling
PAPER CALIBRATION MARGINAL	Paper sensor calibration marginal
PERFORM CALIBRATE SENSORS	There is a need to run Sensor Calibration
COVER OPEN	The printer cover is open and should be latched
PRESENT SENSOR NOT INSTALLED	The present sensor is enabled but not installed

Troubleshooting

The following chart provides basic troubleshooting steps for diagnosing problems with the printer. If the symptoms remain after troubleshooting, contact your technical support representative.

Symptom	Causes	Solutions
System Error	Incorrect label format or communication is too slow.	1. Connect to a different input port. 2. Analyze the label format. 3. Try a different label design method.
Out of Paper	The printer may be out of media.	Install a new media roll.
	The media is too transparent to be detected.	1. Perform "Calibrate Sensors." 2. Check the "TOF Sensor" reading in the "Extended Status" utility.
FPGA Hardware	The main controller board may be faulty.	Contact your technical support representative.
NV RAM Hardware	The main controller board may be faulty.	Contact your technical support representative.

Symptom	Causes	Solutions
Paper Sensor Blocked	Adhesive, dirt or remnants of a label may be covering the sensor.	1. Clean the debris from the sensor. 2. Perform "Calibrate Sensors" calibration.
	The main controller board may be faulty.	Contact your technical support representative.
	The Top-of-Form sensor failed the "Calibrate Sensors" calibration due to a faulty sensor.	Contact your technical support representative.
Paper Calibration	The characteristics of the media may not be sensed by the printer. (Ex. gap, notch, mark)	1. Set the paper mode to continuous. 2. Install different media.
No Top-of-Form Found	The gap or mark was not found.	1. Ensure the Top-of-Form type has been set correctly. 2. Install different media.
	The label image size exceeded the maximum of 99 inches.	1. Check the print mechanism for a paper jam. 2. Calibrate the printer for the media being used.
	There may be dirt or debris obstructing the Top-of-Form sensor.	1. Clean the debris from the sensors. 2. Perform "Calibrate Sensors" calibration. 3. Perform "Paper Calibration".
Present Sensor Hardware	There may be a poor connection.	Contact your technical support representative.
	The Present Sensor module may be faulty.	Contact your technical support representative.

Troubleshooting Print Quality

Tools

- Datamax-O'Neil approved media
- Magnifying lens
- Barcode verifier and grading system
- Printhead cleaning card
- Printhead cleaning pen

Preliminary Instructions

1. Ensure the latest software has been loaded.

2. Load the media according to the instructions in the Setup section.

Note: Verify that the paper is properly exiting the printer.

3. Print a Quality Label from the configuration utility or the printer control panel buttons.

4. Examine the print quality.

Note: Some imperfections can be caused by a contaminated printhead. Clean the printhead and reprint the label.

Symptom	Possible Solutions
No Print or Poor Print Quality	Verify the proper media is being used.
Light Print on One Side	Contact your technical support representative.
Print Quality Defect	Clean the printhead and platen roller with factory-approved cleaning supplies.
	If there are any missing dots, the printhead should be replaced by a certified technician.
Print Quality gets worse over time	Printhead is at the end of life and should be replaced by a certified technician.
Diminished print quality on the Quality Label	Incomplete horizontal lines requires an increase in the sharpness setting.
	For higher-grade barcodes, lighten the print by reducing the darkness setting.
	For white specks inside dark boxes, increase the darkness setting and clean the printhead and platen roller.
	If the small font is not readable, increase the darkness setting.
	When dithering increments are not equal, adjust the darkness setting.
	If graphics are not displayed properly, adjust the sharpness setting.
Image size is out of the print area (off the side or top or truncated from the next label)	Turn off print truncation.
	Ensure the image width is the same as the print width.
	Modify horizontal or vertical adjustments.

7 **Appendix A**

Symbol Sets

The following Symbol Sets are available:

Table 1: Symbol Sets

Number	Symbol Sets
0	PC-8
1	Roman-8
2	Roman-9
3	ISO-L1
4	ISO-L2
5	ISO-L4
6	ISO-L5
7	ISO-L6
8	ISO-L9
9	PC-775
10	PS MATH
11	MATH-8
12	PI FONT
13	MS PUBL
14	PC-8 DN
15	PC-850
16	PC-852
17	PC-858
18	PC-8 TK
19	PC-1004
20	WIN L1
21	WIN L2
22	WIN L5
23	WINBALT
24	DESKTOP
25	PS TEXT
26	LEGAL
27	ISO-4

Number	Symbol Sets
28	ISO-6
29	ISO-11
30	ISO-15
31	ISO-17
32	ISO-21
33	ISO-60
34	ISO-69
35	WIN 3.0
36	MC TEXT
37	UCS-2
38	RomanExt
39	Wingdings
40	ZapDingBats
41	Symbol

Fonts

The following Fonts are supported:

Table 2: Fonts

Font	Escape Sequence
CG Times	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4101T
CG Times Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4101T
CG Times Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b4101T
CG Times Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b4101T
Univers Medium	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4148T
Univers Medium Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4148T
Univers Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b4148T
Univers Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b4148T
Univers Condensed Medium	<ESC>(<symset><ESC>(s1p<ptsize>v4s0b4148T
Univers Condensed Medium Italic	<ESC>(<symset><ESC>(s1p<ptsize>v5s0b4148T
Univers Condensed Bold	<ESC>(<symset><ESC>(s1p<ptsize>v4s3b4148T
Univers Condensed Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v5s3b4148T
Antique Olive	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4168T
Antique Olive Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4168T
Antique Olive Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b4168T

Font	Escape Sequence
CG Omega	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4113T
CG Omega Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4113T
CG Omega Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b4113T
CG Omega Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b4113T
Garamond Antiqua	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4197T
Garamond Kursiv	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4197T
Garamond Halbfett	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b4197T
Garamond Kursiv Halbfett	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b4197T
Courier	<ESC>(<symset><ESC>(s0p<pitch>h0s0b4099T
Courier Italic	<ESC>(<symset><ESC>(s0p<pitch>h1s0b4099T
Courier Bold	<ESC>(<symset><ESC>(s0p<pitch>h0s3b4099T
Courier Bold Italic	<ESC>(<symset><ESC>(s0p<pitch>h1s3b4099T
Letter Gothic	<ESC>(<symset><ESC>(s0p<pitch>h0s0b4102T
Letter Gothic Bold	<ESC>(<symset><ESC>(s0p<pitch>h0s3b4102T
Letter Gothic Italic	<ESC>(<symset><ESC>(s0p<pitch>h1s0b4102T
Albertus Medium	<ESC>(<symset><ESC>(s1p<ptsize>v0s1b4362T
Albertus Extra Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s4b4362T
Clarendon Condensed Bold	<ESC>(<symset><ESC>(s1p<ptsize>v4s3b4140T
Coronet	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b4116T
Marigold	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b4297T
Arial	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b16602T
Arial Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b16602T
Arial Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b16602T
Arial Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b16602T
Times New Roman	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b16901T
Times New Roman Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s0b16901T
Times New Roman Bold	<ESC>(<symset><ESC>(s1p<ptsize>v0s3b16901T
Times New Roman Bold Italic	<ESC>(<symset><ESC>(s1p<ptsize>v1s3b16901T
Symbol	<ESC>(19M<ESC>(s1p<ptsize>v0s0b16686T
Wingdings	<ESC>(579L<ESC>(s1p<ptsize>v0s0b31402T
OCR-A Fixed	<ESC>(<symset><ESC>(s0p<pitch>h0s0b23584T
OCR-A Mono	<ESC>(<symset><ESC>(s1p<pitch>h0s0b23584T
OCR-B Fixed	<ESC>(<symset><ESC>(s0p<pitch>h0s0b23590T
OCR-B Mono	<ESC>(<symset><ESC>(s1p<pitch>h0s0b23590T

Font	Escape Sequence
Vera Regular Mono	<ESC>(<symset><ESC>(s0p<pitch>h0s0b23410T
Vera Italic	<ESC>(<symset><ESC>(s0p<pitch>h1s0b23410T
Vera Bold	<ESC>(<symset><ESC>(s0p<pitch>h0s3b23410T
Vera Bold Italic	<ESC>(<symset><ESC>(s0p<pitch>h1s3b23410T
CG Triumvirate	<ESC>(<symset><ESC>(s1p<ptsize>v0s0b92244T
CG Triumvirate Condensed Bold	<ESC>(<symset><ESC>(s1p<ptsize>v4s3b92250T
LinePrinter	<ESC>(<symset><ESC>(s0p16.67h8.5v0s0b0T

Barcodes

The following barcodes are supported:

Table 3: Barcodes

Barcode ID	Type	Length	Valid ASCII Characters, decimal value representation
1000	Code 3 of 9	1-75	0-9, A-Z, $,%,+,-,.,/,space [1]
1001	Extended Code 3 of 9	1-66	ASCII 0-0x7F
1010	UPC-A	1-11	0-9 [2]
1020	UPC-E	1-7	0-9 [2]
1021	UPC/EAN Add-On	2 or 5	0-9
1030	Code 128 Autoselect	1-79	ASCII 0-0x7F
1031	Code 128 Code Set A	1-79	A-Z
1032	Code 128 Code Set B	1-79	ASCII 0-0x7F
1033	Code 128 Code Set C	1-79	0-9
1040	EAN-8	1-7	0-9
1050	EAN-13	1-12	0-9
1060	Interleaved 2 of 5 Mod 10	1-89	0-9
1061	Interleaved 2 of 5 bearer bars	1-89	0-9
1062	Interleaved 2 of 5	1-89	0-9
1070	GS1-128	1-79	ASCII 0x20-0x7F The leading AI value must be placed in square brackets and a trailing checksum must be included.
1080	Codabar	1-60	A-D, 0-9 [1]
1090	Plessey	1-65	A-D, 0-9

Barcode ID	Type	Length	Valid ASCII Characters, decimal value representation
1091	MSI Plessey Mod 10	1-55	0-9
1100	Code 93	1-107	0-9, A-Z, $,%,+,-,.,/,space
1110	HIBC Code 93	1-36	0-9, A-Z, $,%,+,-,.,/,space
1111	HIBC Code 128	1-36	0-9, A-Z, $,%,+,-,.,/,space
1120	Telepen	1-30	ASCII 0x20-0x7F
1130	GS1 Databar (RSS) (linear only)	1-13	
1131	GS1 Databar Expanded (linear only)	1-45	ASCII 0x20-0x7F
1500	Postnet	1-38	0-9
1510	Planet	1-38	0-9
1520	FIM	1	A, B, C, D
1530	UPS Intelligent Mail (OneCode)	20	0-9
2000	QR Code - Auto	1-256	ASCII 0x20-0x7F
2010	PDF-417	1-256	Full ASCII (0 – 0xFF)
2020	MicroPDF417	1-256	Full ASCII (0 – 0xFF)
2030	DataMatrix	1-256	Full ASCII (0 – 0xFF)
2040	UPS MaxiCode	1-138	Alphanumeric, ASCII 0x1E, 0x1D,0x04,[,),>
2050	Aztec	1-256	Full ASCII (0 – 0xFF)

[1] Lower-case alphanumeric will be converted to upper-case.

[2] A "+" can be used to separate UPC and addendum data.