PRINTRONIX®

M4L Mobile Printer

Administrator's Manual

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1 *Introduction*

Product Introduction

Printronix® has been the global leader in industrial printing solutions for over 30 years, earning a reputation for designing and manufacturing leading edge products and delivering them to market with unsurpassed service and support.

The M4L is a comfortable, light-weight printer capable of working with any mobile receipt printing application where you need quick, simple receipts on demand. Our M4L is designed for a rough life, inside the IP54-rated environmental case to resist dust and water and with its rubber over-mold design prepared to take up to a five foot fall and keep printing. These small and light printers can be worn comfortably for a full shift, without interfering with the user's tasks. Use USB, Bluetooth, optional 802.11 b/g/n Wireless or serial to connect to a mobile computer or even a smart phone and produce clear easy-to-read receipts hour after hour

To print label formats, please refer to the instructions provided with your labeling software; if you need to write the custom programs, please refer to the ZPL/CPCL programming manual that can be found on the accessories CD-ROM or on PRINTRONIX website at http://www.printronix.com.

Applications

- Portable point of sale
- Retail item marking, markdowns, shelf labeling & shelf talkers
- Labels for shipping & receiving
- Inventory control
- Cross-docking
- Pick, pack & apply operations
- Print pick tickets
- Logistics receipts

Printer Features

Standard Features

Your M4L offers the following standard features:

Standard Feature
Direct thermal printing
Black mark reflective sensor (center position , black mark in back side)
Gap transmissive sensor (Fixed, center of offset 2.75 mm to right from center) 203 Print Density
203 Print Density
Cover open sensor
Label Taken sensor
4 operation buttons (On/off, menu, info, and feed)
2 LEDs for printer status and battery status
USB 2.0 (full speed) interface
Class 2 Bluetooth 2.1 module
32 MB SDRAM memory
16 MB FLASH memory
Micro SD card reader for memory expansion up to SDHC 4G (max.)
DC 7.2V/5800 mAh Li-ion rechargeable battery
Real time clock
Powerful 32 bit 200 MHz RISC processor
Zebra® CPCL and Zebra® ZPL emulation languages support
Internal 8 alpha-numeric bitmap fonts
Internal Monotype Imaging® true type font engine with one CG Triumvirate Bold Condensed scalable font
Fonts and bar codes can be printed in any one of the four directions (0, 90,180, 270 degree)
Downloadable fonts from PC to printer memory
Downloadable firmware upgrades

Bar code, graphics/image printing		
Supported bar code		Supported image
1D bar code	**2D bar code**	BITMAP; BMP; PCX (Max. 256 color graphics
Code 128 subsets A, B, C; Code 128UCC; EAN 128; Interleave 2 of 5; Code 39; Code 93; EAN-13; EAN-8; Codabar; POSTNET; UPC-A; UPC-E; EAN and UPC 2(5) digits; MSI; PLESSEY; China Post, ITF-14; EAN14; Code 11; TELPEN; PLANET, Code 49; Deutsche Post Identcode; Deutsche Post Leitcode; LOGMARS	CODABLOCK F mode; DataMatrix, Maxicode, PDF-417; Aztec; MicroPDF417; QR code; RSS Barcode (GS1 Databar)	

Code page		
Codepage 437 (English-US)	Codepage 869 (Greek 2)	Codepage 1258 (Vietnam)
Codepage 737 (Greek)	Codepage 950 (Traditional Chinese	ISO-8859-1: Latin-1 (Western European)
Codepage 850 (Latin-1)	Codepage 936 (Simplified Chinese)	ISO-8859-2: Latin-2 (Central European)
Codepage 852 (Latin-2)	Codepage 932 (Japanese)	ISO-8859-3: Latin-3 (South European)
Codepage 855 (Cyrillic)	Codepage 949 (Korean)	ISO-8859-4: Latin-4 (North European)
Codepage 857 (Turkish)	Codepage 1250 (Latin-2)	ISO-8859-5: Cyrillic
Codepage 860 (Portuguese)	Codepage 1251 (Cyrillic)	ISO-8859-6: Arabic
Codepage 861 (Icelandic)	Codepage 1252 (Latin-1)	ISO-8859-7: Greek
Codepage 862 Hebrew)	Codepage 1253 (Greek)	ISO-8859-8: Hebrew
Codepage 863 (French Canadian)	Codepage 1254 (Turkish)	ISO-8859-9: Turkish
Codepage 864 (Arabic)	Codepage 1255 (Hebrew)	ISO-8859-10: Nordic
Codepage 865 (Nordic)	Codepage 1256 (Arabic)	ISO-8859-15: Latin-9
Codepage 866 (Russian)	Codepage 1257 (Baltic)	UTF-8

General Specifications

<table>
<tr><th colspan="2">General Specifications</th></tr>
<tr><td>Physical dimensions</td><td>160 mm (W) x 191.6 mm (H) x 79 mm (D)</td></tr>
<tr><td>Mechanism</td><td>Plastic with rubber over molded</td></tr>
<tr><td>Weight</td><td>0.945 kg (w/o battery)</td></tr>
<tr><td>Power</td><td>Single Unit Charger (optional)
Input: AC 100-240V
Output: DC 12V 1A</td></tr>
<tr><td>Environmental condition</td><td>Operation: -10 ~ 50˚C (14 ~ 122˚F)
Storage: -40 ~ 60 ˚C (-40 ~ 140˚F)
Relative humidity: 10 ~ 90% non-condensing IP54 w/ IP54-rated environmental case
Drop 1.5m (5ft)
Drop 1.8m (6.5ft) w/ IP54-rated environmental case</td></tr>
<tr><td>Battery Spec</td><td>Charging time: 5 hr
Standby mode (Bluetooth): up to 32 hr
Standby mode (Wi-Fi): up to 18 hr
Printing: one label per 2 minutes,
<table>
<tr><th>Condition</th><th>Endurance (hr)</th><th>4" x 6" Labels</th></tr>
<tr><td>Density 3</td><td>26</td><td>780</td></tr>
<tr><td>Density 8</td><td>21</td><td>650</td></tr>
</table></td></tr>
<tr><td>Charging capability</td><td><u>Internal charging capability (battery-in)</u>
Single Unit Charger (optional)
<u>External charging capability (battery-out)</u>
Charging stations (4 bay or single bay) (optional)</td></tr>
</table>

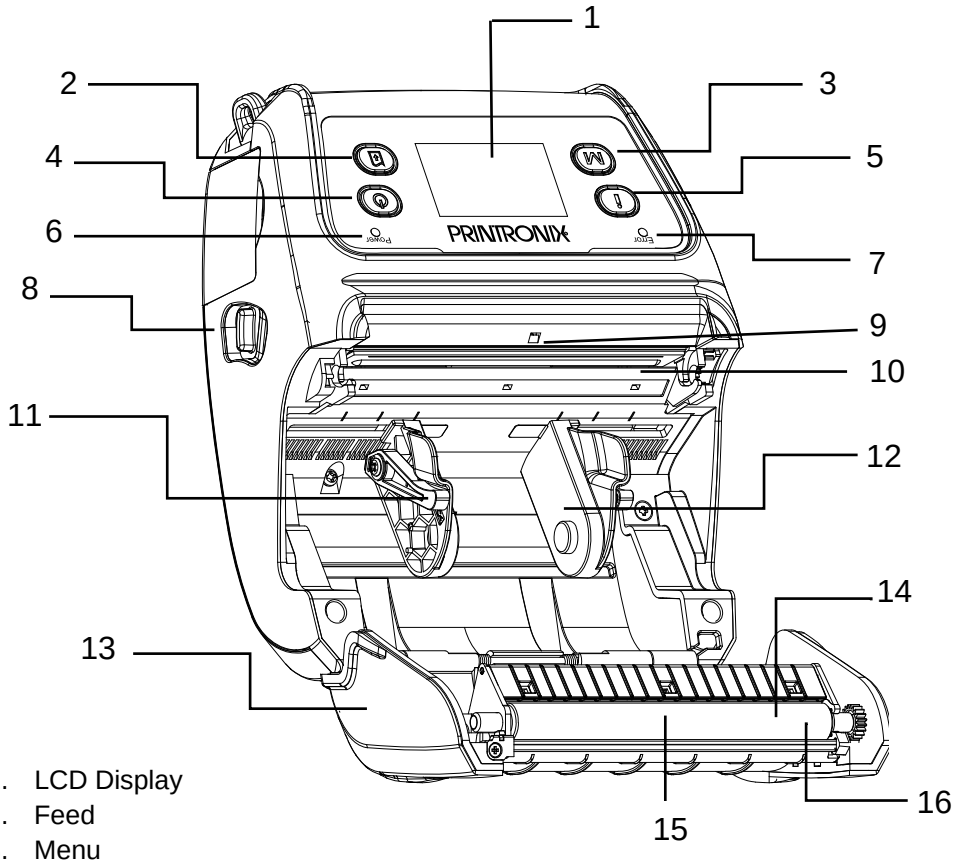
Print Specifications

Print Specifications	
Print head resolution (dots per inch/mm)	203 dots/inch (8 dots/mm)
Printing method	Direct thermal
Dot size (width x length)	0.125 x 0.125 mm (1 mm = 8 dots)
Print speed (inches per second)	Max. 4 ips (100 mm/sec)
	2,3 ips for Peel-Off mode
Max. print width	4.09” (104 mm)
Max. print length	90” (2286 mm)
Printout bias	Vertical: 1 mm max. Horizontal: 1 mm max.

Media Specifications

Media Specifications	
Media roll capacity	Max. 2.65” (67.3 mm) OD
Media core diameter	0.5 ~ 1” (12.7 mm ~ 25.4 mm) ID core
Media type	Continuous, die-cut, gap/black mark, External fan- fold, receipt
Media wound type	Outside wound
Media width	2” ~ 4.41” (50.8 mm ~ 112 mm)
Media thickness	0.0020”~0.0065” (0.055 mm ~ 0.165 mm)
Label length	0.500”~90” (12.7 mm ~ 2286 mm)
Label length (peeler mode)	1” ~ 6” (25.4 ~ 152.4 mm)
External fan-fold media	Stack height: 2.75” (70 mm) Page length: 6” ~ 12” (152 mm ~ 305 mm)
Black mark	Min. 0.3150” (8 mm) (W) x 0.0785” (2 mm) (H)
Gap height	Min. 0.0785” (2 mm)

2 Printer Overview

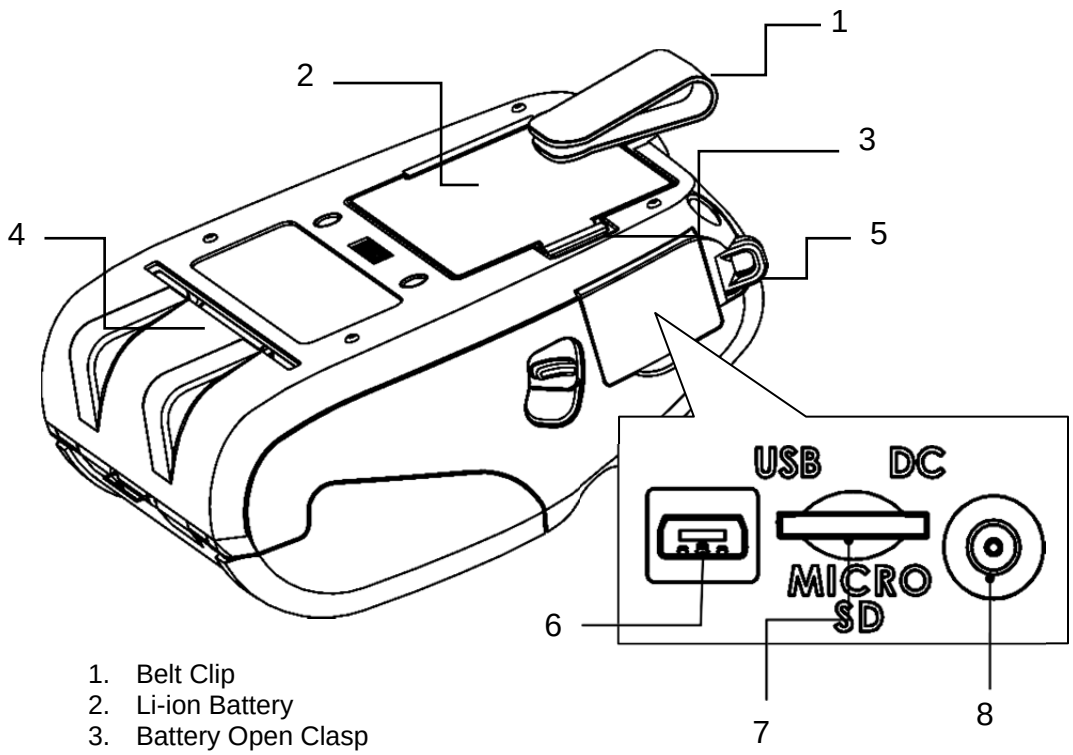


1. LCD Display
2. Feed
3. Menu
4. Power On/Off
5. Info Setting
6. Battery Status Indicator
7. Error Indicator
8. Media Cover Release Latch
9. Peel-off Sensor
10. Printhead
11. Media Holder Lock Lever
12. Media Holder
13. Media Cover
14. Platen Roller
15. Label Peeler Cover
16. Tear/Peeler Bar

Note:

1 The media sensor position is selectable by factory adjustment. Please refer to this figure for default settings. (Default – center position)

2 For LCD panel, please refer to section 2.3.2 for more details

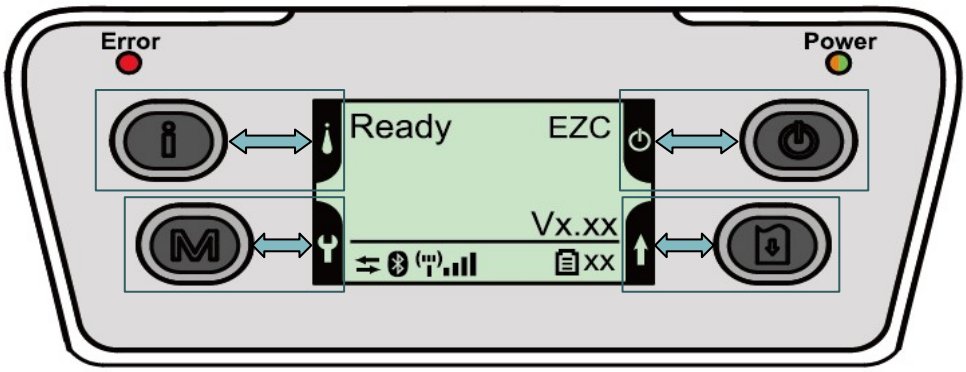


1. Belt Clip
2. Li-ion Battery
3. Battery Open Clasp
4. External Label Entrance Slot
5. Hanger for Shoulder Strap
6. USB Interface
7. Micro SD Card Socket
8. Power Jack

Note: Recommended Micro SD card specification

SD card spec	SD card capacity	Approved SD card manufacturer
V1.0, V1.1	MicroSD 128 MB	Transcend, Panasonic
V1.0, V1.1	MicroSD 256 MB	Transcend, Panasonic
V1.0, V1.1	MicroSD 512 MB	Transcend, Panasonic
V1.0, V1.1	MicroSD 1 GB	Transcend, Panasonic
V2.0 SDHC CLASS 6	MicroSD 4 GB	Transcend
- The DOS FAT file system is supported for the SD card.		
- Folders/files stored in the SD card should be in the 8.3 filename format		

LCD Display



Keys	Function	
	– Display the printer information – Button for setting LCD configuration menu	
	– Enter the printer configuration menu – Button for setting LCD configuration menu	
	– Press and hold for 2-3 seconds to turn on the printer – Press and hold for 2-3 seconds to turn off the printer – Button for setting LCD configuration menu	
	– Ready status: Feed one label – Printing status: Pause the print job – Button for setting LCD configuration menu	
LEDs	**Status**	**Indication**
Error	Off	Printer is ready
	Red (solid)	– Media cover is open – Out of memory – Clean data – Printer is busy
	Red (blinking)	– No paper – Paper jam
Power	Off	Printer power is turned off
	Green (solid)	– Printer power is turned on – Battery is full charged
	Green (blinking)	Low battery
	Amber (solid)	Battery is charging
LCD	**Indication**	
	Printer has been connected with cable	
	Bluetooth devices have been paired	
	Wi-Fi device has been connected	
xx	Battery capacity %	

Note: Refer to Section 6 for additional LCD Display details

3 *Printer Setup*

Installing the Belt Clip and Battery

Insert the Belt Clip first

Insert the left side to install the battery on the underside of the printer, and then push the right side of the battery down until the clasp locks

Battery Safety Warning:

DO NOT throw the battery in fire. **DO NOT** short circuit the contacts.
DO NOT disassemble the battery. **DO NOT** throw the battery in municipal waste

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

Charging the Battery

It takes 5 hours to fully charge the battery before first time usage. The lifetime of the battery is 300 charge/discharge cycles.

After installing the battery into the printer open the interface cover and plug the Charger power cord into the printer power jack
Plug the Charger into a compatible power outlet

Note: Switch OFF printer power prior to plugging the power cord into the printer power jack
Do not remove the battery from the printer while it is charging or you will need to re-plug the charger into the power outlet

When the battery is charging, the color of the Power LED Indicator is solid amber.
The battery is fully charged when the Power LED Indicator turns from amber to green

Loading the Media

Open the printer media cover by pressing down on the media cover release latch.

Pull the media holders apart far enough to fit the width of the label roll you are installing

Place the roll, printing side face-out, between the media holders and insert hub into the core. Pull out enough paper above the printhead

Press down on both sides of the media cover to ensure it is closed correctly.

Note: Calibrate the gap/black mark sensor when changing media using the Configuration Utility – Printer Function – Calibrate Sensor

Loading Media in Peel-Off Mode

Load Media as defined in **Loading the Media** section on previous page

Remove 1 ~ 2 die cut labels from the liner

Press down on both sides of the media cover to ensure it is closed correctly.

Note: Calibrate the gap/black mark sensor when changing media using the Configuration Utility – Printer Function – Calibrate Sensor

Route the liner under the label peel cover as shown

Pull the liner tightly

Push the label peel cover toward the front of the printer until it covers the plate roller

Press down on the label peel cover to lock it in place

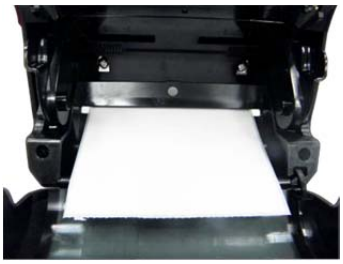
Note: Calibrate the gap/black mark sensor when changing media using the Configuration Utility – Printer Function – Calibrate Sensor

Loading Fan-fold/External Media

Open the printer media cover by pressing down on the media cover release latch.

Pull the media holders apart far enough to fit the width of the Fan-fold media you are installing

Push down each media holder lock lever to secure the media holders in place



Route the media, printing side out, through the bottom external label slot

Press down on both sides of the media cover to make sure it is closed correctly

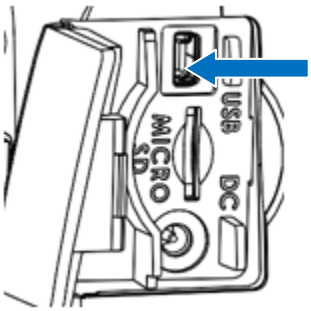
Note: Calibrate the gap/black mark sensor when changing media using the Configuration Utility – Printer Function – Calibrate Sensor

Connecting the Printer

The printer must establish communication with a host terminal which sends the data to be printed. There are three ways to connect the M4L series:

- By an USB cable between the printer and its host terminal
- By a Bluetooth short-range radio if Bluetooth is installed and enabled.
- By a Wireless LAN per 802.1 b/g/n (Option)

Cable Communications



Open the interface cover and connect the printer to the computer/smart phone (host terminal) with USB cable (USB to USB or USB to RS-232)

Wireless Communication with Bluetooth

Power on the printer
Open the Bluetooth device for host terminal to scan for printer's Bluetooth device.
Connect the Bluetooth devices. The Bluetooth icon will display in the LCD panel if devices have been paired.

Printer Bluetooth default	
Address	You can find this info from configuration (self-test) page, Please refer to Power On Utilities section for how to print the self-test.
Name	BT-SPP
PIN	0000

Note: Please refer to **Setting Bluetooth by Configuration Utility** in section 5 to change the name and PIN by Configuration Utility or refer to **Bluetooth** in section 6 to change the name and PIN directly

Wireless Communication with WiFi

You should set the WLAN settings via the cable when first setting up the printer. Please refer to **Setting WiFi be Configuration Utility** in section 5 to set up the WiFi module. Please refer to **Wireless LAN** in section 6 to set up the WLAN settings

4 *Power-On Utilities*

There are three power-on utilities to set up and test printer hardware.
These utilities are activated by pressing the FEED key then turning on the printer power key simultaneously and releasing the FEED key when the desired utility function displays on the LCD panel to initiate that utility.

Power-On Utilities

Use the following steps to initiate different power-on utilities:

Turn off the printer power using the power key

Press and hold the FEED key then while still pressing the FEED key press and hold down the power key

Release the power key when the “Error” LED turns red.

Note: At this time continue to press down on the FEED key

After the printer beeps twice, wait until the desired utility displays on the LCD and then release the FEED key to initiate that utility. The order that the utilities appear on the LCD are described below:

Power On Utilities	The LCD will change as follows:		
LCD	Calibrate..... (5 dots)	Self Test..... (5 dots)	Initialize..... (5 dots)
Release Feed key for different functions	Media sensor calibration	Media sensor calibration, self-test and dump mode	Printer initialization

Media Sensor Calibration

Use the following steps to calibrate the media sensor:

Turn off the printer using the Power key

Press and hold down the Feed key then, while still holding down the Feed key, press and hold down the Power key

Release the Power key when the Error LED turns red continuing to hold down the Feed key

When the printer beeps twice release the Feed key. The LCD will display “Calibrating…..”.

The printer will move media, calibrate the gap/black mark sensor sensitivity and then stop with “Ready” displayed on the LCD.

Note: If the Feed key is held down after the printer beeps twice, with “Self Test” displayed, it will perform a Calibrate followed by a Self Test where it prints a Configuration Page and then ends in Dump mode.

Self Test and Dump Mode

Use the following steps to perform Self Test:

Turn off the printer using the Power key

Press and hold down the Feed key then, while still holding down the Feed key, press and hold down the Power key

Release the Power key when the Error LED turns red continuing to hold down the Feed key

When the printer beeps twice wait until “Self Test” displays on the LCD then release the Feed key

The printer will calibrate the sensor, print a Configuration Page of its internal settings and then enter Dump mode

Note: To exit Dump mode and return the printer back to normal print mode, turn off/on the printer power or press the Feed key. The LCD will display “Ready”.

Printer Initialization

Printer initialization is used to clear DRAM and restore printer settings to defaults.

Use the following steps to perform printer initialization:

Turn off the printer using the Power key

Press and hold down the Feed key then, while still holding down the Feed key, press and hold down the Power key

Release the Power key when the Error LED turns red continuing to hold down the Feed key

When the printer beeps twice wait until “Initialize” displays on the LCD then release the Feed key

The LCD will display “Initializing…..” followed by “Ready”.

The printer will restore printer settings to defaults (see **Printer Defaults**)

Self Test

Printer will print the Configuration Page after media sensor calibration. Self-test printout can be used to verify printer configurations and available memory space. The printhead test pattern can verify if any printhead heater elements (dots) are damaged.

Note: The Self-test printout requires 4” paper/label width.

```
PRINTER INFO.
Model name  Version: X.XX EZ
SERIAL NO.:
MILAGE(m): 2
CHECKSUM: 075AC29C
SERIAL PORT: 9600,N,8,1
CODE PAGE: 850
COUNTRY CODE: 001
SPEED: 2 INCH
DENSITY: 8.0
SIZE: 4.00 , 5.99
GAP: 0.12 , 0.00
TRANSPARENCE: 6
VOLTAGE: 7.05 V
TEMPERATURE: 31 °C
RESISTANCE: 179 ohm
BAD DOT(S): 0
*************************************
BT ADDRESS: 00190EA07ADD
BT NAME: BT-SPP
BT PIN CODE: 0000
*************************************
WLAN MAC ADDRESS: 00-1D-C9-90-FA-F4
WLAN MODE: INFRASTRUCTURE
WLAN SSID:
WLAN DHCP ENABLED: YES
WLAN IP ADDRESS: 0.0.0.0
WLAN SUBNET MASK: 0.0.0.0
WLAN DEFAULT GATEWAY: 0.0.0.0
*************************************
FILE LIST:
DRAM FILE:                  0 FILE(S)

FLASH FILE:                 0 FILE(S)

PHYSICAL  DRAM:       XXXX KBYTES
AVAILABLE DRAM:       XXXX KBYTES FREE
PHYSICAL  FLASH:     XXXXX KBYTES
AVAILABLE FLASH:     XXXXX KBYTES FREE
END OF FILE LIST
*************************************
```

Printer model name & Main board firmware versio
Printer serial number
Printed mileage
Main board firmware checksum
Serial port setting
Code page
Country code
Print speed
Print darkness
Label size (width, height)
Gap/Black mark (vertical gap, offset)
Sensor sensitivity
Battery voltage
Print head temperature
Print head average resistance
Bad dots of print head

Bluetooth settings information

WiFi settings information

File management information

Print-head test pattern

Dump Mode

Printer will enter dump mode after printing Configuration Page. In dump mode, all characters will be printed in 2 columns as shown. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.

ASCII Data

Hex decimal data related to left column of ASCII data

```
SPEED 2.0    53 50 45 45 44 20 32 2E 30 0D
 DENSITY 8   0A 44 45 4E 53 49 54 59 20 38
  SET PEEL   0D 0A 53 45 54 20 50 45 45 4C
 OFF  DIRE   20 4F 46 46 0D 0A 44 49 52 45
CTION 0  G   43 54 49 4F 4E 20 30 0D 0A 47
AP 3.00 mm   41 50 20 33 2E 30 30 20 6D 6D
,0.00 mm     2C 30 2E 30 30 20 6D 6D 0D 0A
REFERENCE    52 45 46 45 52 45 4E 43 45 20
0,0  SET C   30 2C 30 0D 0A 53 45 54 20 43
UTTER OFF    55 54 54 45 52 20 4F 46 46 0D
 SIZE 100.   0A 53 49 5A 45 20 31 30 30 2E
02 mm,65.0   30 32 20 6D 6D 2C 36 35 2E 30
4 mm  CLS    34 20 6D 6D 0D 0A 43 4C 53 0D
 BARCODE 1   0A 42 41 52 43 4F 44 45 20 31
44,149,"39   34 34 2C 31 34 39 2C 22 33 39
",120,1,0,   22 2C 31 32 30 2C 31 2C 30 2C
2,6,"57114   32 2C 36 2C 22 35 37 31 31 34
38T"  PRIN   33 38 54 22 0D 0A 50 52 49 4E
T 1,1  SPE   54 20 31 2C 31 0D 0A 53 50 45
ED 2.0  DE   45 44 20 32 2E 30 0D 0A 44 45
NSITY 8  S   4E 53 49 54 59 20 38 0D 0A 53

ET PEEL OF   45 54 20 50 45 45 4C 20 4F 46
F  DIRECTI   46 0D 0A 44 49 52 45 43 54 49
ON 0  GAP    4F 4E 20 30 0D 0A 47 41 50 20
3.00 mm,0.   33 2E 30 30 20 6D 6D 2C 30 2E
00 mm  REF   30 30 20 6D 6D 0D 0A 52 45 46
ERENCE 0,0   45 52 45 4E 43 45 20 30 2C 30
  SET CUTT   0D 0A 53 45 54 20 43 55 54 54
ER OFF  SI   45 52 20 4F 46 46 0D 0A 53 49
ZE 100.02    5A 45 20 31 30 30 2E 30 32 20
mm,65.04 m   6D 6D 2C 36 35 2E 30 34 20 6D
m  CLS  BA   6D 0D 0A 43 4C 53 0D 0A 42 41
RCODE 144,   52 43 4F 44 45 20 31 34 34 2C
149,"39",1   31 34 39 2C 22 33 39 22 2C 31
20,1,0,2,6   32 30 2C 31 2C 30 2C 32 2C 36
,"5711438T   2C 22 35 37 31 31 34 33 38 54
"  PRINT 1   22 0D 0A 50 52 49 4E 54 20 31
,1           2C 31 0D 0A
```

Note:

Dump mode requires 4” paper/label width.

Exit Dump mode by turning off / on the power or by pressing the FEED key. The LCD will show “Ready” for normal printing operation.

Printer Defaults

Printer configuration will be restored to defaults as below after initialization.

Parameter	Default setting
Speed	50.8 mm/sec (2 ips)
Density	8
Media Width	4” (101.5 mm)
Media Height	4” (101.5 mm)
Sensor Type	Gap sensor
Print Direction	0
Reference Point	0,0 (upper left corner)
Gap Offset	0
Post-Print Action	Tear mode
Serial Port Settings	9600 bps, none parity, 8 data bits, 1 stop bit
Code Page	850
Country Code	001
Clear Flash Memory	No

Note: When printer initialization is done, calibrate the gap or black mark sensor before printing or attempting any Self tests.

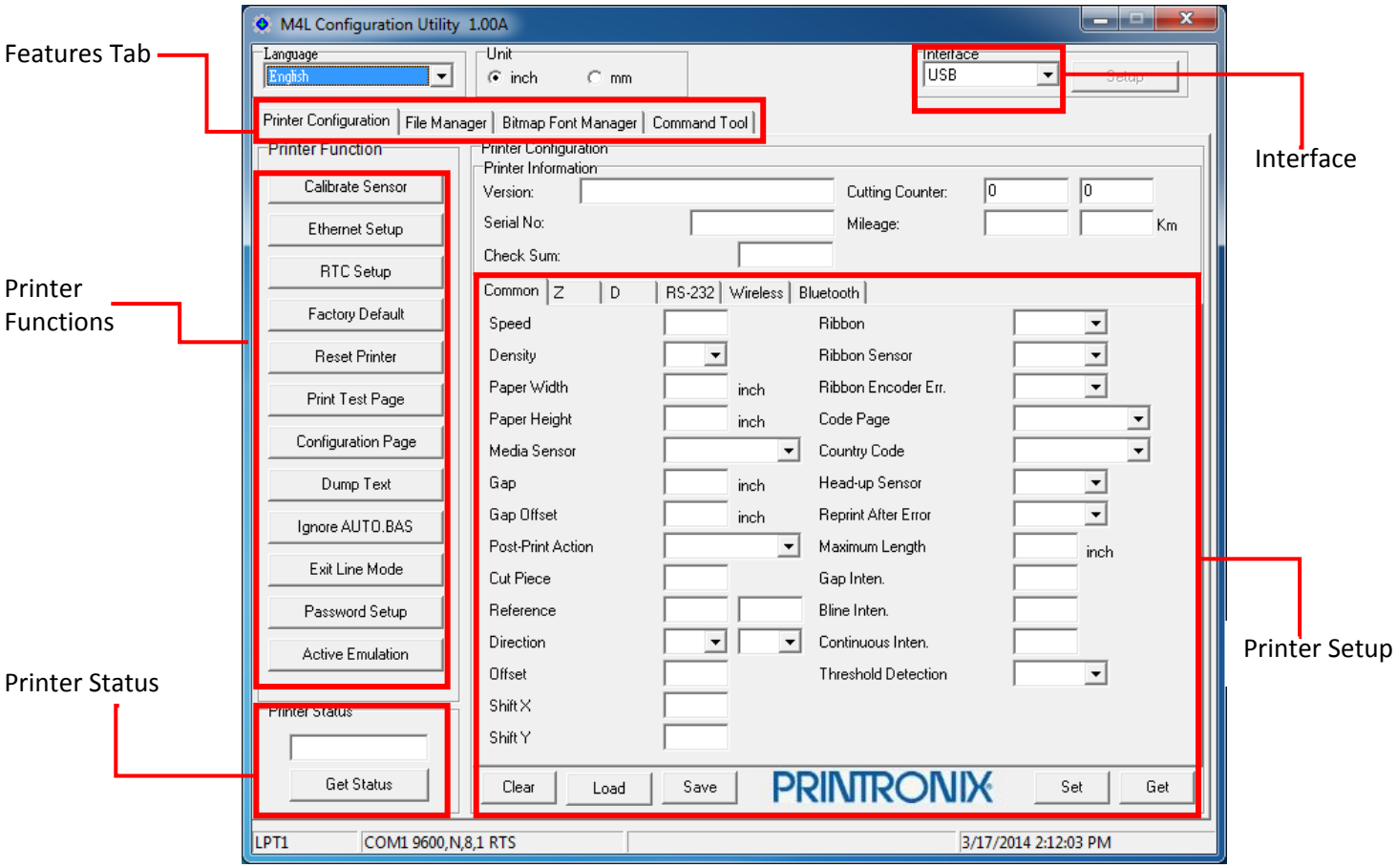
5 Configuration Utility

PRINTRONIX's Configuration Utility is an integrated tool incorporating features that enable you to explore a printer's settings/status; change a printer's settings; download graphics, fonts and firmware; create a printer bitmap font; and send additional commands to a printer. With the aid of this powerful tool, you can review printer status and setting in an instant, which makes it much easier to troubleshoot problems and other issues.

Start the Configuration Utility

Double click on the Configuration Utility icon to start the software.

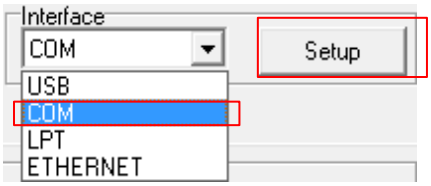
There are four features (Printer Configuration, File Manager, Bitmap Font Manager, Command Tool) included in the Configuration Utility



Connect the printer and computer with a USB cable.

Note: The printer connects with the computer via USB to USB cable or USB to RS-232 cable (option).

Select the printer interface connected with bar code printer

USB to USB cable	USB to RS-232 cable
 The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.	

Click the “Printer Function” button to setup.
The detail functions in the Printer Function Group are listed as below.

Function	Description
Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field
Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet
RTC Setup	Synchronize printer Real Time Clock with PC
Factory Default	Initialize the printer and restore the settings to factory default.
Reset Printer	Reboot printer
Print Test Page	Print a test page
Configuration Page	Print printer configuration
Dump Text	To activate the printer dump mode.
Ignore AUTO.BAS	Ignore the downloaded AUTO.BAS program
Exit Line Mode	Exit line mode.
Password Setup	Set the password to protect the settings
Active Emulation	Select ZPL/EPL/TSPL or CPCL emulation

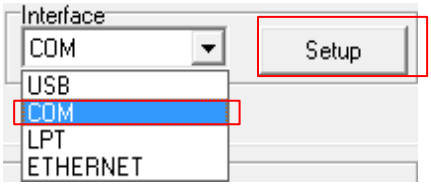
Setting Bluetooth by Configuration Utility

Connect the printer and computer with a USB cable.

Note: The printer connects with the computer via USB to USB cable or USB to RS-232 cable (option).

Turn the printer power on using the Power key

Open Configuration Utility and set interface (default setting is USB)

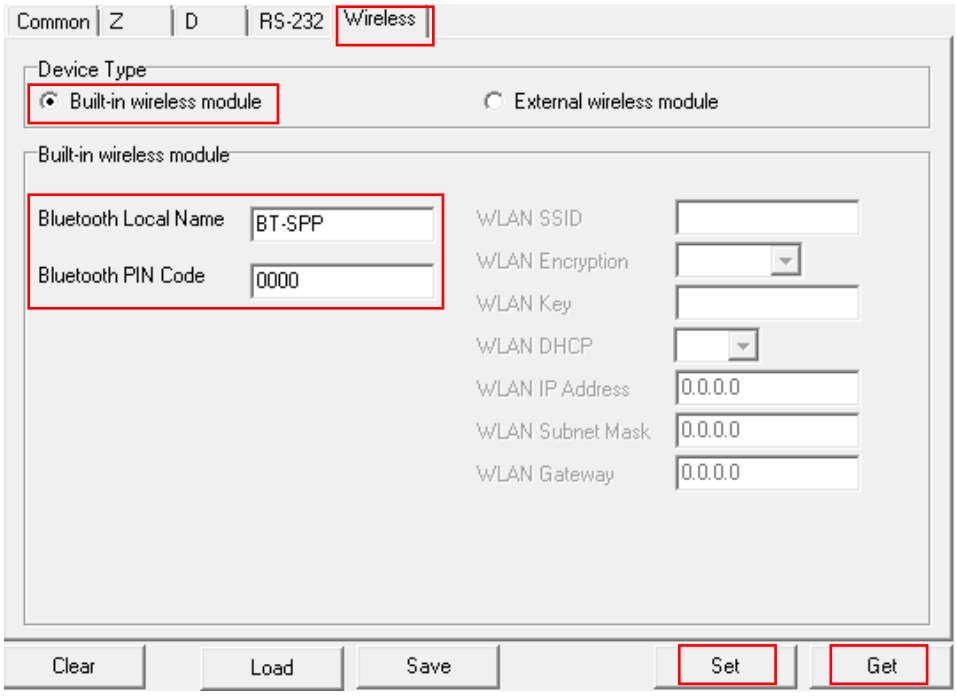
USB to USB cable	USB to RS-232 cable
 The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.	

Select “Wireless” tab and click on “Built-in wireless module” item.

Enter the new BT Local Name or BT PIN Code in the editor.

Press “Set” button to set the new BT name or BT PIN code of the printer.

Press “Get” button to get back the settings. Make sure the Bluetooth module settings are set properly



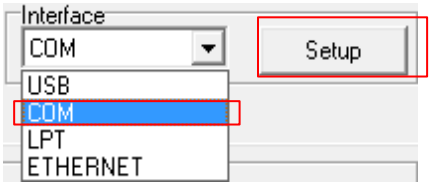
Setting WiFi by Configuration Utility

Connect the printer and computer with a USB cable.

Note: The printer connects with the computer via USB to USB cable or USB to RS-232 cable (option).

Turn the printer power on using the Power key

Open Configuration Utility and set interface (default setting is USB)

USB to USB cable	USB to RS-232 cable
 The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.	

Select “Wireless” tab and click on “Built-in wireless module” item.

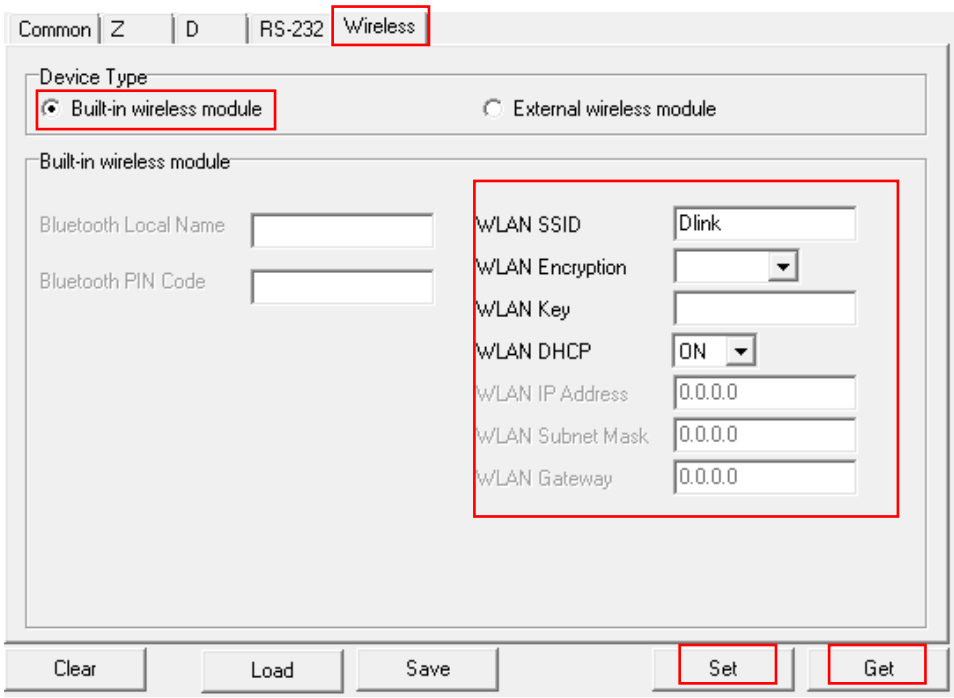
Enter the new WLAN settings in the editor.

Press “Set” button to set the new settings to the printer.

The Wi-Fi icon will be shown in the LCD panel if the device has been connected.

Print out the self-test page to confirm if it’s connected with the correct settings.

Remove the cable to print data to test

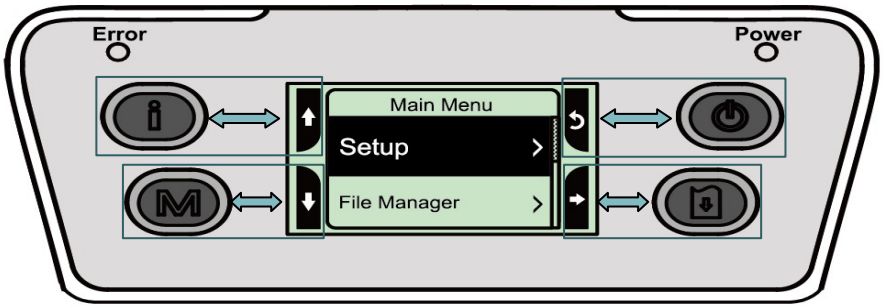


6 LCD Menu Function

The M4L has an LCD panel to further enhance its capabilities to meet the demands of a wide range of printing solutions. This includes an LCD control panel, 4 keys and 2 LED status indicators.

Using the LCD to Set the Printer

Press the “M” key to display the function menu screen as shown below

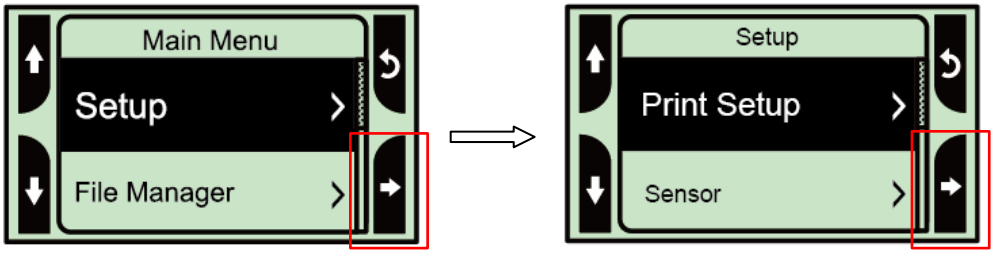


Use the 4 keys at the sides of the LCD to scroll, select, enter or return from the menu. The icon functions are listed below.

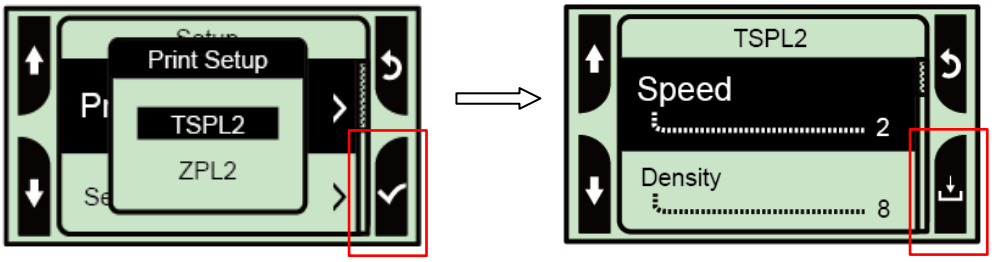
Icon	Function
	Display printer information
	Enter setting menu
	Power switch
	Scroll up
	Scroll down
	Return to previous menu
	Enter to next menu
	Enter setting mode
	Exit setting mode
H	Save the selected settings and return to previous menu
	Select
	Alter to OFF
	Alter to ON

Example:
To change the Speed setting, follow the steps below:

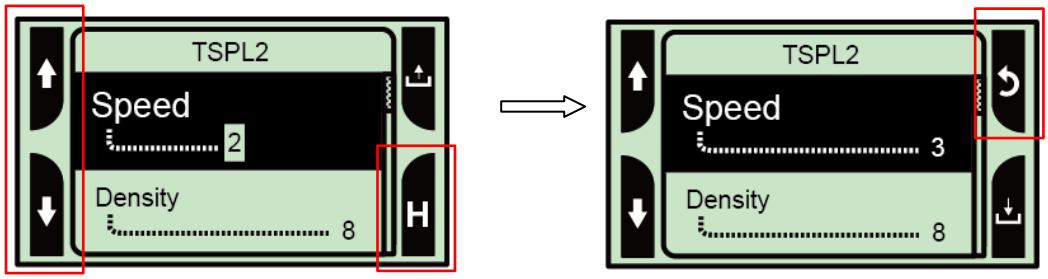
Press “M” key to enter the Main menu. Press key to enter the “Setup” item.



Press button to enter the “Print Setup” item. Select the “TSPL2” item. Enter the “Speed” setting mode.

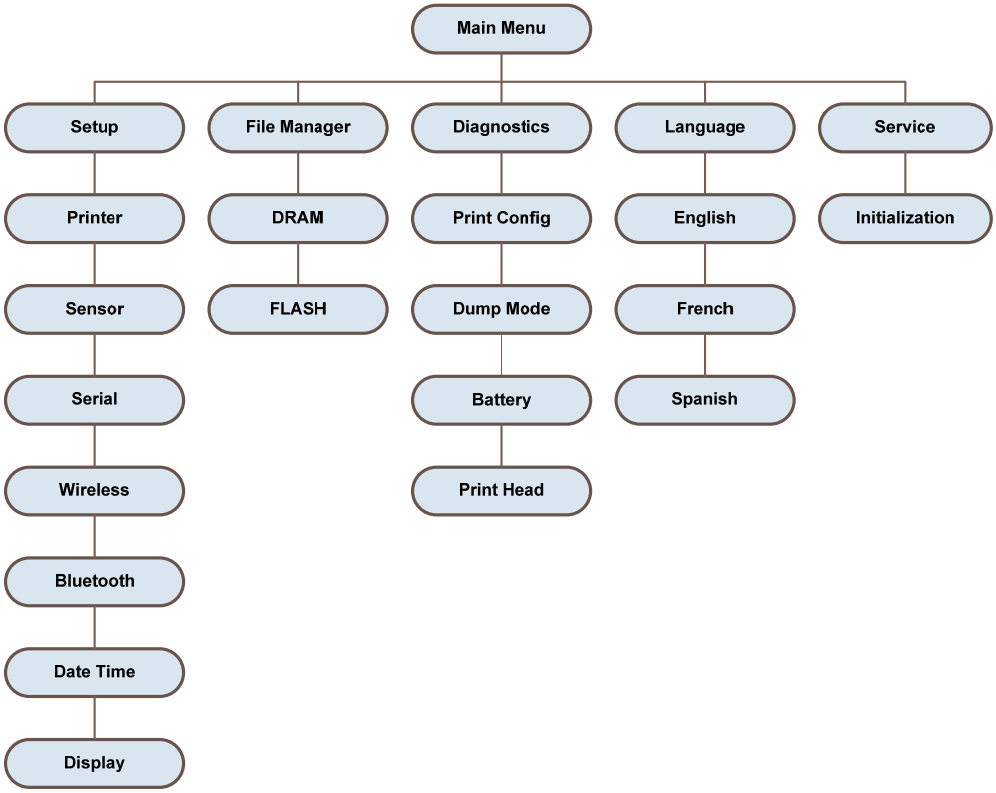


At this status, you can scroll up or scroll down to select the value of print speed. Then press the key to save the selected value into the printer. Press key to go back to “Ready mode”.

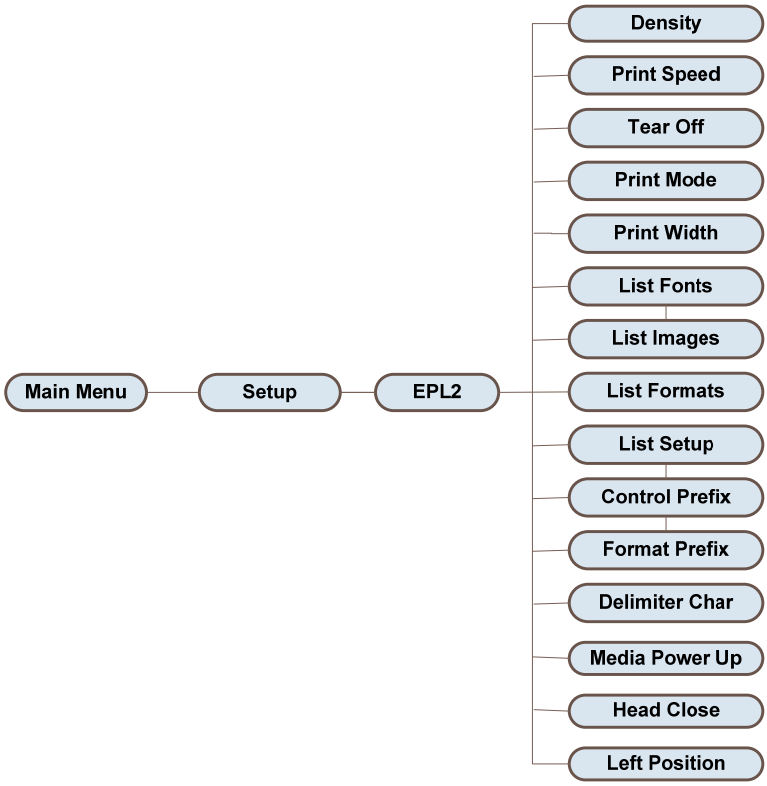


Using the LCD to Set the Printer

There are 5 categories for the main menu. You can easily set the settings of the printer without connecting it to a computer. Please refer to the following sections for more details.



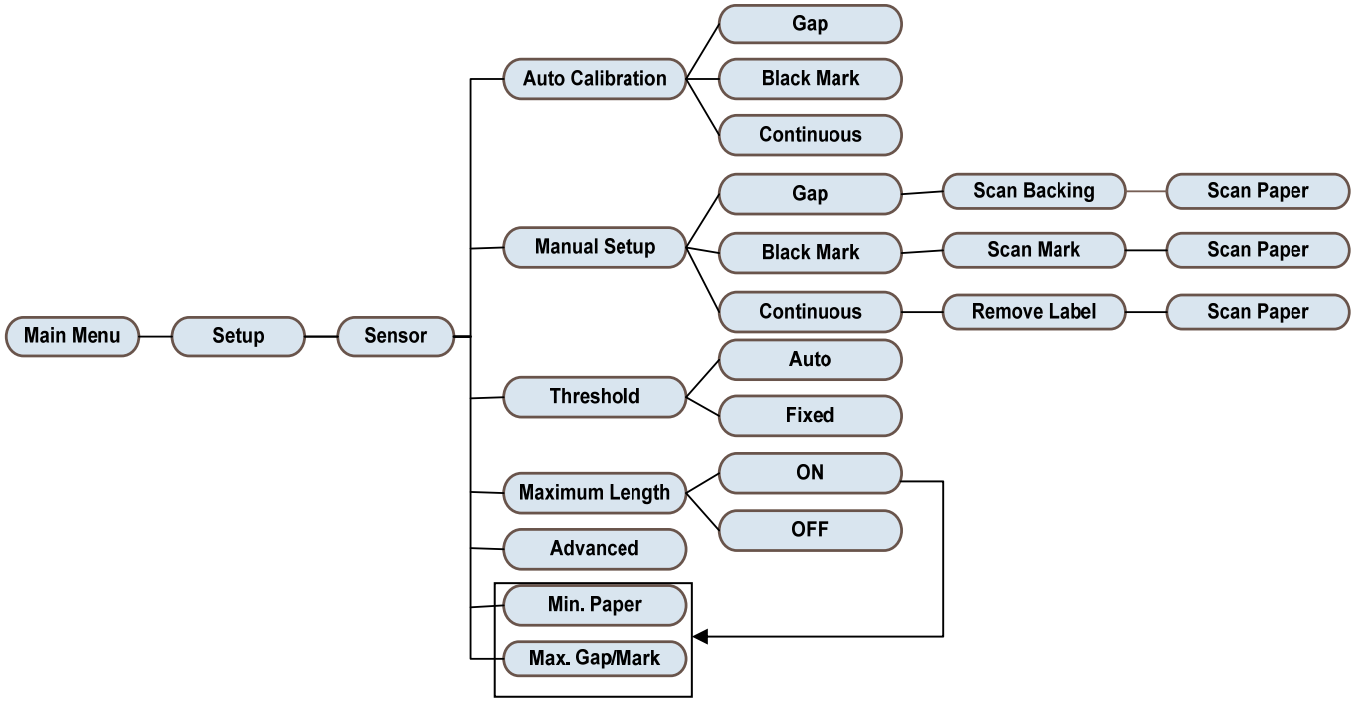
Printer Setup for EPL2



<table>
<tr><th>Item</th><th>Description</th><th>Default</th></tr>
<tr><td>Density</td><td>Use this item to setup printing darkness. The available setting is from 0 to 30, and the step is 1. You may need to adjust your density based on selected media.</td><td>16</td></tr>
<tr><td>Print Speed</td><td>Use this item to setup print speed. The each increase or decrease is 1 ips. Available setting is from 1 to 6.</td><td>2</td></tr>
<tr><td>Tear Off</td><td>This item is used to fine tune media stop location. Available setting value is from “+” to “-” or “0” to “9”.</td><td>0</td></tr>
<tr><td>Print mode</td><td>This item is used to set the print mode. There are 2 modes as below,
<table>
<tr><th>Printer Mode</th><th>Description</th></tr>
<tr><td>Tear Off Mode</td><td>Next label top of form is aligned to the print head burn line location</td></tr>
<tr><td>Peeler Mode</td><td>Enable the Label Peel Off mode</td></tr>
</table></td><td>Tear Off</td></tr>
<tr><td>Print Width</td><td>This item is used to set print width. The available value is from “0” to “9”.</td><td>812</td></tr>
<tr><td>List Fonts</td><td>This feature is used to print current printer available fonts list to the label. The fonts stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Images</td><td>This feature is used to print current printer available images list to the label. The images stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Formats</td><td>This feature is used to print current printer available formats list to the label. The formats stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Setup</td><td>This feature is used to print current printer configuration to the label.</td><td>N/A</td></tr>
<tr><td>Control Prefix</td><td>This feature is used to set control prefix character.</td><td>N/A</td></tr>
<tr><td>Format Prefix</td><td>This feature is used to set format prefix character.</td><td>N/A</td></tr>
<tr><td>Delimiter Char</td><td>This feature is used to set delimiter character.</td><td>N/A</td></tr>
<tr><td>Media Power Up</td><td>This option is used to set the action of the media when you turn on the printer.
<table>
<tr><th>Selections</th><th>Description</th></tr>
<tr><td>Feed</td><td>Printer will advance one label</td></tr>
<tr><td>Calibration</td><td>Printer will calibrate the sensor levels, determine length and feed label</td></tr>
<tr><td>Length</td><td>Printer will determine length and feed label</td></tr>
<tr><td>No Motion</td><td>Printer will not move media</td></tr>
</table></td><td>No Motion</td></tr>
<tr><td>Head Close</td><td>This option is used to set the action of the media when you close the printhead
<table>
<tr><th>Selections</th><th>Description</th></tr>
<tr><td>Feed</td><td>Printer will advance one label</td></tr>
<tr><td>Calibration</td><td>Printer will calibrate the sensor levels, determine length and feed label</td></tr>
<tr><td>Length</td><td>Printer will determine length and feed label</td></tr>
<tr><td>No Motion</td><td>Printer will not move media</td></tr>
</table></td><td>No Motion</td></tr>
<tr><td>Label Top</td><td>This option is used to adjust print position vertically on the label. The range is -120 to +120 dots.</td><td>0</td></tr>
<tr><td>Left Position</td><td>This option is used to adjust print position horizontally on the label. The range is -9999 to +9999 dots.</td><td>0</td></tr>
</table>

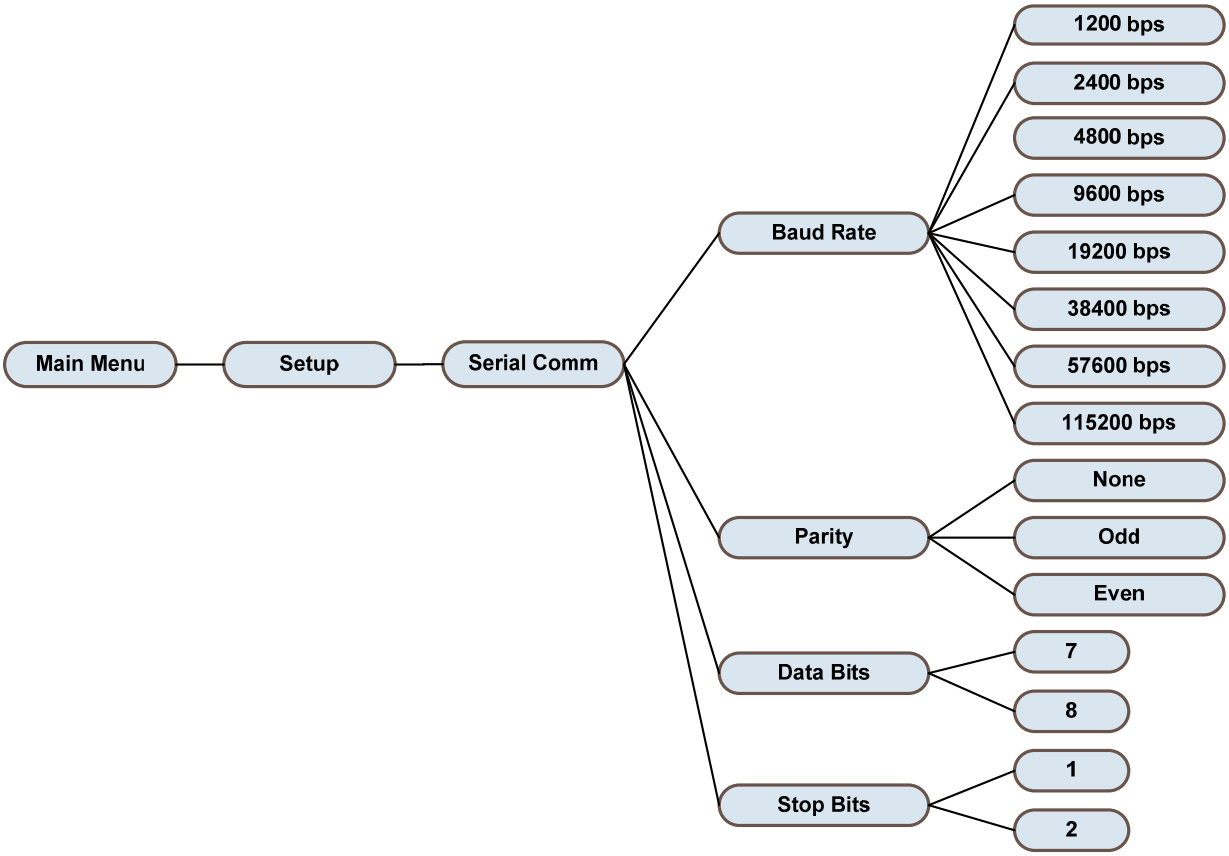
Note: If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the LCD panel

Sensor



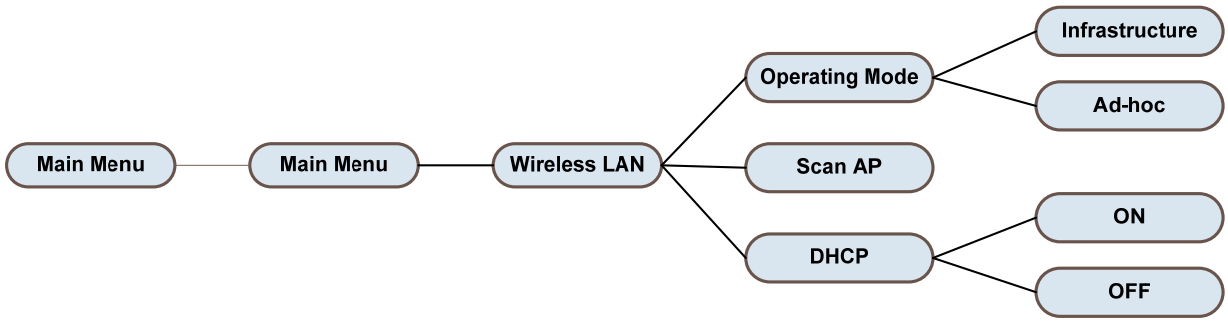
Item	Description	Default
Auto Calibration	This item is used to set the media sensor type and calibrate the selected sensor. Printer will feed 2 to 3 gap labels to calibrate the sensor sensitivity automatically.	N/A
Manual Setup	In case “Auto Calibration” cannot apply to the media, please use “Manual Setup” function to calibrate the sensor manually. Please **Note:** You can open the media cover to move the paper but have to close the media cover for each scan.	N/A
Threshold	This item is used to fix the calibrated sensor sensitivity.	Auto
Maximum Length	This item is used to set the max. Calibrate length.	152
Advanced	This item is used for pre-printed paper. If this advanced function is turned “ON” then you can setup the min. paper and max. gap/black mark size.	OFF

Serial Comm.



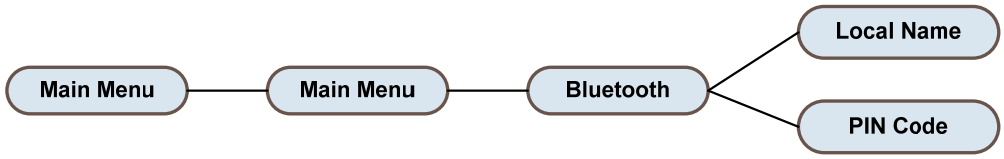
Item	Description	Default
Baud Rate	This item is used to set the RS-232 baud rate.	9600
Parity	This item is used to set the RS-232 parity.	None
Data Bits	This item is used to set the RS-232 Data Bits.	8
Stop Bit(s)	This item is used to set the RS-232 Stop Bits.	1

Wireless LAN



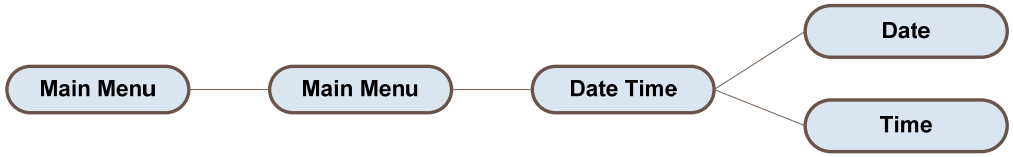
Item	Description	Default
Operating Mode	This item is used to set the operating mode of wireless local area networks to connect devices to the networks. **Note:** Infrastructure mode requires the use of an access point for this communication to take place. Ad hoc mode involves connecting a computer directly to another computer.	Infrastructure
Scan AP	This item is used to scan the access point devise	N/A
DHCP	This item is used to ON or OFF the DHCP (Dynamic Host Configuration Protocol) network protocol.	ON

Bluetooth



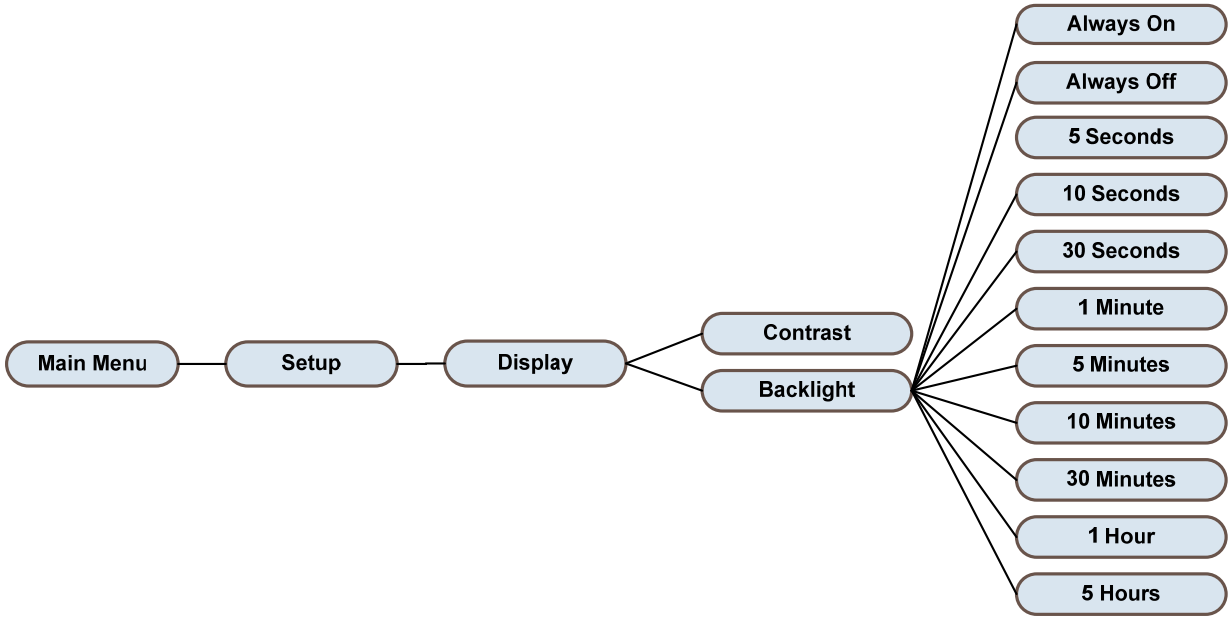
Item	Description	Default
Local Name	This item is used to set the local name for Bluetooth.	BT-SPP
PIN Code	This item is used to set the local PIN code for Bluetooth.	0

Date Time



Item	Description	Default
Date	This item is used to set the date. (ex: 2013-05-30)	N/A
Time	This item is used to set the time. (ex: 19:20:02)	N/A

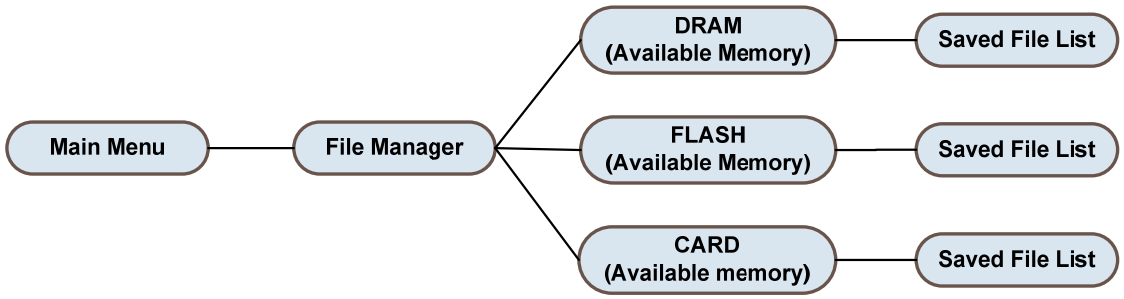
Display



Item	Description	Default
Contrast	This item is used to set the contrast for the display.	50
Backlight	This item is used to set the backlight time for the display.	10 Seconds

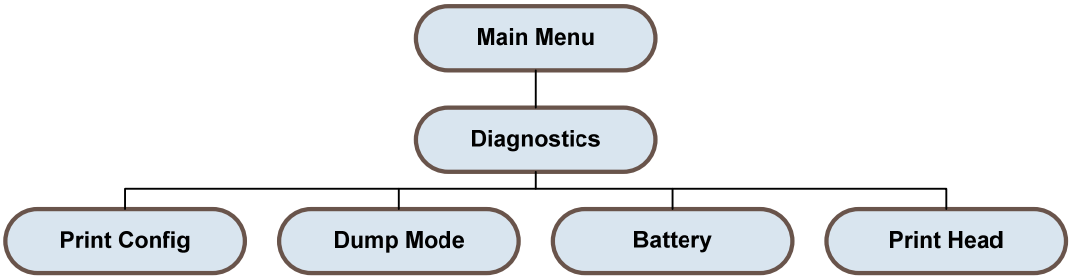
File Manager

This feature is used to check the printer available memory and file list.

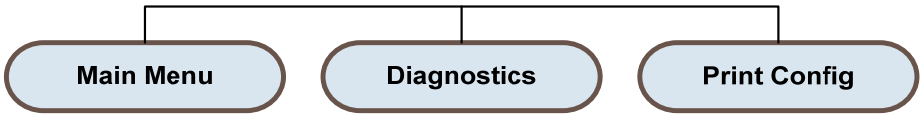


Item	Description
DRAM	Use this menu to show available memory space and run (.BAS) the files saved in the printer DRAM memory.
FLASH	Use this menu to show available memory space and run (.BAS) the files saved in the printer Flash memory.
CARD	Use this menu to show available memory space and run (.BAS) the files saved in the printer MicroSD card memory.

Diagnostics

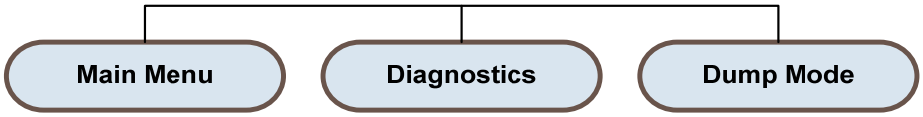


Print Config



This feature is used to print current printer configuration to the label. On the configuration printout, there is a print head test pattern, which is useful for checking if there is any dot damage on the printhead heater elements. Please refer to **Self Test** in Chapter 4 for more details.

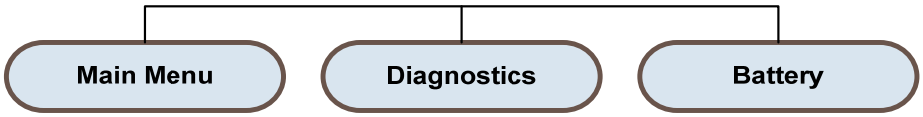
Dump Mode



Captures the data from the communications port and prints out the data received by printer. In Dump mode, all characters will be printed in 2 columns. (Please refer to **Dump Mode** in Chapter 4) The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.

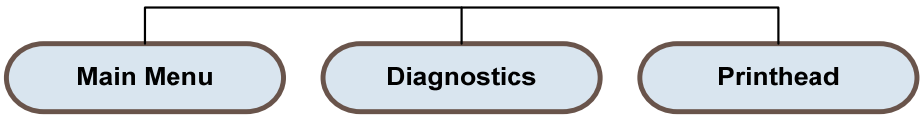
Note: Dump mode requires 4” paper/label width.

Battery



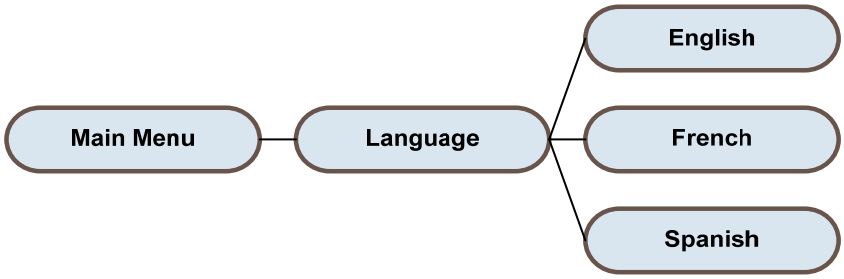
This feature is used to check the printer battery voltage

Printhead



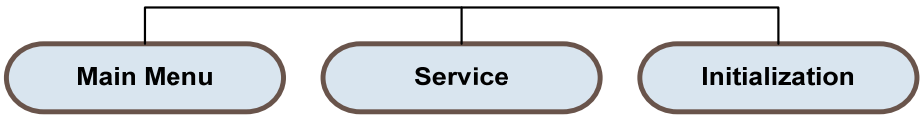
This feature is used to check the printer temperature, resistance and bad dots for the printhead.

Display Languages



Is option is used to setup languages on LCD display

Service



This feature is used to restore printer settings to defaults. Please refer to Printer Defaults in Chapter 4.

Note: When printer initialization is done, calibrate the gap or black mark sensor before printing or attempting any Self Tests.

7 Trouble Shooting

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Printronix Customer Support Center for assistance.

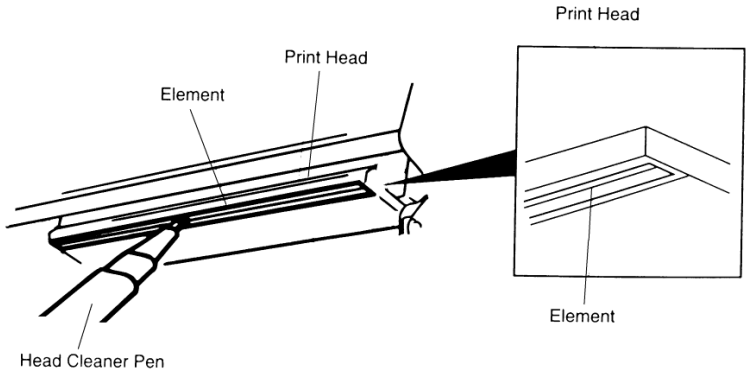
Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	* The battery is not properly installed. * The battery is out of power. * The battery is dead.	* Reinstall the battery correctly. * Power the printer on. * Charge the battery. * Replace with a new battery.
Not Printing	* Check if interface cable is well connected to the interface connector. * Check if wireless or Bluetooth device settings match between the host and printer. * The port specified in the Windows driver is not correct.	* Reset the wireless device settings. * Select the correct printer port in the driver.
No print on the label	* Labels are not loaded correctly. * Media may be installed wrong side out. * The wrong type paper/labels are installed.	* Follow the instructions in loading the media. * Use direct thermal type paper/labels.
The printer status from the Configuration Utility or LCD shows “Head Open”.	* The printer media cover is open or is not closed properly.	* Close the media cover correctly.
The printer status from the Configuration Utility or LCD shows “Out of Paper”..	* The printer has run out of media. * The media is installed incorrectly. * Media sensor is not calibrated.	* Install new media.. * Follow the instructions for loading roll or fanfold media. * Calibrate the media sensor.
The printer status from the Configuration Utility or LCD shows “Paper Jam”.	* Media sensor is not set properly. * Make sure media size is set properly. * A label may be stuck inside the printer mechanism.	* Calibrate the media sensor. * Set media size correctly. * Remove the stuck label from inside the printer mechanism.
The printer status from LCD shows "Strong light. Press FEED to print."	* The Peel-off sensor can’t work in strong lighted areas.	* Move the printer to a proper place to print in peel-off mode.

Problem	Possible Cause	Recovery Procedure
Can’t downloading the file to memory (FLASH / DRAM/CARD)	* The selected memory space is full.	* Delete unused files in the memory. * The max. number of DRAM is 256 files. * The max. user addressable memory space of DRAM is 2048KB. * The max. number of FLASH files is 256 files. * The max. user addressable memory space of FLASH is 14336KB.
Poor Print Quality	* Media is loaded incorrectly * Dust or adhesive accumulation on the print-head. * Print density (darkness) is not set properly. * Print speed is not set properly. * Printhead element is damaged.	* Reload media correctly. * Clean the print-head. * Clean the platen roller. * Adjust the print density (darkness) and print speed. * Run the printer self-test and check the print-head test pattern for dots missing in the pattern. * Change to a proper media roll.
Missing printing on the left or right side of label	* Too small of label width size is setup.	* Set the correct label width size.
Gray line on the blank label	* The print-head is dirty. * The platen roller is dirty.	* Clean the print-head. * Clean the platen roller. Please refer to Maintenance Chapter
Irregular printing	* The printer is in Hex Dump mode. Dump mode is displayed on the LCD panel.	* Turn the printer off and on to exit dump mode.

8 *Maintenance*

This section discusses how to maintain your printer.

1. Use one of following materials to clean the printer.
   - Cotton swab or authorized Printronix Thermal Printhead Cleaning Pen (203502-002)
   - Lint-free cloth
   - Vacuum / Blower brush
   - 100% Ethanol or 99.7% Isopropyl Alcohol
2. The cleaning process is as follows:

Printer	Method	Interval
PrintHead	1. Always turn off the printer before cleaning the print head. 2. Allow the printhead to cool for a minimum of one minute. 3. Use a cotton swab or thermal printhead cleaning pen and 100% Ethanol or 99.7% Isopropyl Alcohol to clean the print head surface.	Clean the printhead prior to installing a new label roll.
		
Platen Roller	1. Turn the power off. 2. Rotate the platen roller and wipe it thoroughly with 100% ethanol alcohol or 99.7% isopropyl al a lint-free cloth.	Clean the platen roller when changing a new label roll
Tear/Peel Bar	Use a lint-free cloth with 100% ethanol alcohol to wipe the Tear/Peel bar.	Clean as needed
Sensor	Use compressed air or vacuum	Clean monthly
Exterior	Wipe it with a damp cloth	Clean as needed
Interior	Brush or vacuum	Clean as needed

A Contact Information

Contact Information

Printronix Customer Support Center

IMPORTANT Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout (Press CONFIG on the control panel, then press
- ENTER)
- Network test page if Ethernet is enabled.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

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Communication Statements

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

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may cause harmful interference, and

This device must accept any interference received, including interference that may cause undesired operation.

RF exposure warning (WiFi)

This equipment must be installed and operated in accordance with provided instructions and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be providing with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SAR Value: 0.663 W/kg

RF exposure warning (For Bluetooth)

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

Battery safety warning:

- DO NOT throw the battery in fire.
- DO NOT short circuit the contacts.
- DO NOT disassemble the battery.
- DO NOT throw the battery in municipal waste. Contact your local waste agency for the correct disposal procedure

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions

The symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

CE Notice (European Union)

Marking by the CE symbol indicates compliance to the EMC directive and Low Voltage Directive of the European Union. Such marking is indicative that this system meets the following technical standards:

- EN 55022 “Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.”
- EN 55024 “Electromagnetic Immunity Requirements for Information Technology Equipment”
- EN 60950 “Safety of Information Technology Equipment”
- EN 300328, EN 301489 “Electromagnetic Compatibility and Radio spectrum Matters’

Konformitätserklärung:

FCC Klasse B entspricht EMVG Klasse B

Für alle in Deutschland vertriebenen EN 55022 Klasse B Geräte:

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 18. September 1998 (bzw. der EMC EG Richtlinie 89/336):

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die:

Printronix Deutschland GmbH

Goethering 56

D-63067 Offenbach

Deutschland

Informationen in Hinsicht EMVG Paragraph 4 Abs. (1) 4:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse B.
EN 55022 Klasse B Geräte müssen mit folgendem Warnhinweis versehen werden: “Warnung: dies ist eine Einrichtung der Klasse B. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.”

EN 55024 Hinweis:

Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 55024 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu vergrößern.

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Printronix Handbüchern angegeben, zu installieren und zu betreiben.

Konformitätsklassen:

CE: EN 55022/24, IEC 61000-3-3, IEC 61000-3-2, EN 300328, EN 301489

EN 60950-1 durchgeführt von TÜV SÜD

Wichtige Sicherheits-Hinweise

1. Bitte lesen Sie die Hinweis sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzspannungs-Steckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Beachten Sie beim Anschluss ans Stromnetz die Anschlusswerte.
8. Dieses Gerät kann bis zu einer Außentemperatur von maximal 40¬℃ betrieben werden.

Batterie-Sicherheitshinweis:

Batterie nicht in offenes Feuer werfen.

Batterie nicht kurzschließen.

Batterie nicht zerlegen.

Batterie nicht über den Hausmüll entsorgen.

Auf fachgerechte Entsorgung achten (Kennzeichnung durch durchgestrichene Mülltonne).

Achtung!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Ersatz nur durch Original- oder vom Hersteller empfohlenen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers durchführen.

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