MODEL 814M

DIRECT THERMAL PRINTER

OPERATOR'S MANUAL

PART NUMBER 880047-0100

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Before installing and using the printer, please read the following items carefully:

- Install the printer on a flat and stable place.
- Reserve adequate space around the printer so that the operation and maintenance can be performed conveniently.
- Do not use or store the printer in direct sunlight, strong heat, high humidity or dew condensation.
- Do not place the printer in a place exposed to vibration or impact.
- Connect the DC adapter to an appropriately grounded outlet. Avoid sharing one electrical outlet with large power motors and other devices that may cause the fluctuation of voltage.
- Take care not to spill liquids into the printer. In case this happens, turn off the power immediately.
- Do not allow the printer to start printing when there is no paper installed, otherwise the print head and platen roller may be damaged.
- Use only recommended paper.
- Shut down the printer when connecting or disconnecting the interface connectors to avoid damage to control board.
- Use the lowest print darkness setting possible to produce acceptable print quality to prolong printhead life.
- Disassembly of the printer should only be done by properly trained technicians.
- Keep this manual available for reference.

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1 General Description

1.1 Introduction

The 814M is a high performance thermal printer with a cutter and optional presenter. The printer can accept up to 203mm (outer diameter) paper rolls. The maximum print width is 216mm. It is designed to be used in kiosk applications such that require Letter or A4 paper widths.

The 814M printer consists of the following modules:

- Thermal printing unit,
- Cutter,
- Paper holder (optional),
- Presenter (optional),

Depending upon the paper roll installation mode, the 814M printer can be structured for either horizontal or vertical modes. The 814M printer can be connected with host devices by serial, parallel, USB, or ethernet interfaces. Drivers are available for WINDOWS XP/Vista/7/8 and LINUX.

1.2 Main Features

- Printing
 - High-speed printing
 - Thermal print with low noise
 - High reliability

• Presenter

- Accommodate and present printout
- Retract printout after programmable wait time
- Hold printout for user to take

• Applications

- Character processing: 1-6 times enlargement vertically and horizontally, Rotation (0, 90, 180, 270°), white/black reverse, underline, inverse
- Barcode printing in both vertical and horizontal direction
- Character font size (font A or font B) can be selected via a command

• Printer maintenance

- Easy paper roll loading
- Easy printhead cleaning
- Various features and parameters can be selected via software
- Auto paper cutting
- Semi-automatic paper loading
- Mark identification and checkout

2 Specifications

2.1 Technical Specifications

	Itoms	Parameter			
	nems	203	dpi Model		300dpi Model
	Print method		Direct the	erma	al
	Resolution	20)3dpi		300dpi
	Paper Length	210mn	n-216mm		210mm-216mm
	Print Width	Max - 216	imm (8.5 ")		Max - 216mm (8.5 ")
		Max -	1728mm	M	ax -2560mm
	Print height	Standard mode	Max: 10	00mi	m, Min: 82.5mm
	Finitheight	Special mode	Max: 1000mm,	Min:	A4/3 (82.5mm)
	Print speed	Max	.125mm/s		Max.100mm/s
	RAM memory		SRAM:	8MB	
	Flash memory		1MB/2ME	3/4M	В
	Print head temperature detecting		Thermal r	esist	or
	Print head position detecting		Micro sv	witch	
	Paper / mark detecting		Photoelectric	al Se	ensor
	Paper near end detecting	 Photoelectrical Sensor RS-232 Centronics optional) USB(optional), Ethernet (optional) 		ensor	
	Interface			SB(optional), Ethernet	
Barcodes	Barcode	COD EAN8, C	E128, ITF , UPC- ODE39, CODE93	A, U 3, C	IPC-E, EAN13, ODABAR, PDF417
	Fonts	English font 0: font 1: 9×17 B	12×24 English ig font: 24X24	E Er	English font 0: 18×34 nglish font : 13×24 Big font: 36 X36
Fonts		Big Font (option Ching	onal)(Simplified nese GB18030, Ja	Chir apan	nese GB2312, traditional ese, Korean)
Graphics	Fonts Process	All fonts can be enlarged 1 to 6 times vertically and horizontally respectively; Rotation Print (0, 90, 180, 270°) Bold, white/black reverse, underline.		times vertically and Print (0, 90, 180, 270°) e, underline.	
Medium	Graphics	Support BMP bit Image download to RAM or FLASH, support direct BMP Print		d to RAM or FLASH, P Print	
	Paper type	Continue	ous paper / marke	ed pa	per / folded Paper
Media	Paper roll OD		Max - 20)3mn	1
INEUIA	Paper roll ID		Optional: 25.4m	m or	≥50mm
	Thickness	60~100 um			
	Thermal surface	Outer side			

	ltems	Parameter	
	nems	203dpi Model	300dpi Model
Bowor	Input voltage	AC 120V±5%, 50/	60Hz
FOWER	Output voltage	DC 24V, 2.5A	
	Paper out speed	≥400mm/s	
Presenter	Paper retracting speed	≥400mm/s	
	Function modes	Retraction/Hold/Commands control/close	
	Print head lifetime	≥100Km	
Reliability	Cutter lifetime	≥500,000 (paper thickness: 0.08mm)	
	MTBF	360,000 hours	
Environmont	Operation Environment	5°C to 45°C, 20% to 90% RH (40°C)	
Environment	Storage Environment	-40°C to 60°C, 20% to 93% RH (40°C)	
Physics	Dimensions	212(L) ×294(W)×97(H)	
Character	Weight	About 3.8Kg (without paper roll and paper holder)	

Table 2-1 Technical Specifications

Note:

- DPI: Dots for each inch in printing (one inch equals 25.4 mm)
- Character spacing can be adjusted
- Actual print speed is influenced by: data speed, print darkness, print duty ratio, commands used and supply voltage

2.2 Paper Specifications

- Paper Type:
- Continuous paper / marked paper

210mm – 216mm

- Paper Supply Method: Paper roll / folded paper
- Paper Width:
- Paper Thickness: 60um 100um
- Thermal Layer: Outer side of roll
- Paper Roll Specification:
 50mm (inner dimension of standard core) 25.4mm or ≥ 50mm (inner dimension of optional core) 203mm (maximum paper outer dimension)
- Microcom Corporation Recommended Paper:

Part Number	Description
709009-00018	81/2"x5"x451' – 21#, 1" ID, Outerwound
709009-00019	81/2"x6"x595' - 21#, 2" ID, Outerwound
709009-00020	81/2"x8"x1134' - 21#, 2" ID, Outerwound

Table 2-2 Recommended Paper

• Marked paper specification

In marked paper mode, the printer determines cut position by referencing black mark position. Marked paper should meet the following requirement besides that of standard paper:

- Mark length L1: 20mm ≤ L1
- Mark height L2: $4mm \le L2 \le 8mm$
- Space between adjacent Marks L3: 82.5mm \leq L3 \leq 305mm
- Mark position on paper: Right, middle or left side on non-thermal sensitive surface of paper.
- Reflectivity: The reflectivity of black mark shall be less than 15% while the paper itself reflectivity shall exceeds 85%. There should not be any preprint on paper, such as logos, advertisements, etc. on the area between black marks.



Figure 2-1 Mark Position Sketch Map

Note:

- Mark height can be set by adjusting printer configuration,
- The paper path has three positions selectable for black mark sensor installation. Only one sensor is mounted on the right side of the paper path (default) when the printer is delivered.
- Black marks are not detected when printer is idle. Paper out is not detected if paper is removed while printer is idle.
- Folded paper specification



Figure 2-2 Paper Folding

- When using folded paper, be sure to keep the folded line outside of the printing area to avoid paper jams,
- It is recommended to set the cutting position 0.5-2.0mm below the folding line to prevent paper jams,
- Refer to the continuous and marked paper specification to decide the position between the folding line and black mark.

Notes!

- Please use the recommended paper or its equivalents. Using other paper may affect print quality and reduce printhead life.
- Do not paste the paper to the shaft core.
- Thermal paper may discolor due to exposure to certain chemical, high temperature, or direct sun light.

3 Structure and Functions

3.1 Appearance



Figure 3-1 Vertical Structure



Figure 3-2 Horizontal Structure



Figure 3-3 Structure Without Paper Holder

1-----Print unit

2-----Cutter

3-----Cutter label

4-----Presenter upper cover open label

5-----Presenter

6-----Button

7-----Paper holder (for vertical structure only)

8-----Product Label

9-----Print head cover open label

10------ Paper feed label (for vertical structure only)

11-----Paper feed label (for horizontal structure and without paper holder type)

12-----Paper holder (for horizontal structure only)

3.2 External Dimensions



Figure 3-4 Dimensions Without Paper Holder



Figure 3-5 Dimensions of Vertical Structure



Figure 3-6 Dimensions of Horizontal Paper Holder

3.3 Printer Mechanism

3.3.1 Printer Mechanism (without paper holder)



Figure 3-7 Printer Mechanism (without paper holder)

1 — Print platen	6 —Paper load sensor	11-Reset button
2 — Print head	7 —Cutter	12-Feed button
3 — Paper sensor	$\textbf{8} \textbf{Power LED} \ (\textbf{Green})$	13-Cut button
4 — Release Lever	9 —Alert LED (Red)	14-Power switch
5 —Paper guide module	10–Paper end LED $\left(\text{Red}\right)$	

3.3.2 Printer Mechanism Explanation

- 1. Print platen (drive roller)
- 2. Printhead
- 3. **Paper sensor** --Detects whether there is paper.
- 4. Release Lever Push to open printhead assembly.
- 5. **Paper guide module** –See figure 3.8. Left and right guides can support the paper widths from 210 to 216mm.



Figure 3-8 Paper Guide Module

- 6. Paper load sensor -- Detects the front edge of paper.
- 7. Cutter
- 8. Power LED (Green) -- Indicates whether the power is on.
- 9. Error LED (Red) -- This LED is used to indicate the status of the printer. Normally, it isn't lit. When errors occur (for example, paper end), it will flash.
- 10. **Paper end LED** --When the printer is in paper end status, this LED blinks; if paper is available, Paper End LED is off.
- 11. **Reset button** –When pressing down this button, the printer will execute its reset automatically and clear the print data in the printer.
- 12. **FEED button** --Under normal status (no error), press to feed paper. Keep pressing for continuous paper feeding. Turn on the power while pressing this button for one second to print self test page. (Content in self test page changes with the configuration of the printer.)

Note: make sure that there is paper in the printer and the print head is not lifted before starting self test page. (For self test page, please refer to Appendix 1 printer self test page).

- 13. CUT button -- Press to cut paper under any condition (even if the printer has errors).
- 14. Power Switch (Green) Press "—" to turn on the power, press "O" to turn off the power.

3.4 Presenter

3.4.1 Appearance



Figure 3-9 Presenter Appearance



Figure 3-10 Paper Out Sensor

- 1.-- Presenter control board
- 2.-- Presenter module
- 3.-- Paper path
- 4.-- Paper out sensor
- 5.-- Prstln sensor(optional)



Figure 3-11 Retraction Sensor

3.4.2 Presenter Parts Explanation

- 1. Paper loading sensor –Used to detect paper status.
- 2. PrsIn Sensor (optional) –Used to detect whether paper is retracted.

Caution: Paper sensor may be ineffective if exposed to direct sunlight!

3.5 Paper Holder

3.5.1 Paper Holder Appearance





Figure 3-12 Horizontal Paper Roll Holder Appearance

Figure 3-13 Vertical Paper Roll Holder Appearance

- 1. -- Paper roll shaft
- 2. -- Paper roll support
- 3. -- Paper near end sensor
- 4. -- Paper near end sensor inter-connective socket
- 5. -- Paper roll locating block (each one on the left and right)

3.5.2 Paper Holder Module Explanation

1. Paper near end sensor

- User may check paper status by sending inquiry command (refer to "command set" for details) to the printer.
- Users can adjust the position of paper near end sensor to control the amount of remaining paper according to different paper roll diameters (see figure 3-12 and 3-13). To adjust the sensor, please loosen the two retaining screws and move the positioning board up or along the slide track then re-tighten the screws.

2. Paper roll shaft

Paper roll supports (2) are needed when a paper roll with a 50mm ID is used. For paper roll with 25mm ID, use only the paper roll shaft (1).

3. Paper Roll-Spacer Block

 Install paper roll-spacer block on paper holder only when using a 210mm wide paper roll. For 216mm wide paper, remove the paper roll-spacer block.

Caution: When you install or remove paper roll-locating block, you should adjust both left and right paper guide modules!

3.6 Interface



Figure 3-14 Parallel Interface Model



Figure 3-15 USB Interface Model

- 1.-- Parallel interface (Centronics)
- 2.-- Serial interface (RS-232)
- 3.-- Power socket
- 4.-- USB interface
- 5.-- Ethernet



Figure 3-16 Ethernet Interface Model

Note: Either Parallel or USB can be configured in one printer, but not both.

4 Installation

4.1 Unpacking

Open the carton and all packing materials, and verify that all items on the packing list are enclosed. In case of damaged or missing items, please contact your dealer or the manufacturer for assistance.

4.2 Assembling the Printer

For safety purpose, the print mechanism and paper holder should be packed separately in transport. Before placing the printer into use, assemble the print mechanism and paper holder according to the following figures.



Note: Make sure to plug paper near-end sensor into its connector (see figures 3-12 and 3-13).

4.3 Connecting the Grounding Wire

To ensure that the printer has a good ground, please see figure below to connect the ground wire correctly.



Figure 4-3 Connecting the Ground Wire

4.4 Connecting the AC Power Adapter

- 1. Make sure the printer is turned off.
- 2. With the flat side of the cable pin of AC adapter facing downward, plug the cable pin into the power interface on the side of the printer.
- 3. Connect the AC power cable to a nearby electrical outlet.



Figure 4-4 Connecting the AC Adapter

4.5 Connecting the Interface Cable

- 1. Make sure the printer has been shut down.
- 2. Connect the interface cable into relevant connector of the printer and secure with applicable screws or latch springs (see figures 3-14 and 3-15).
- 3. Connect the other end of the interface cable to the host.



Figure 4-5 Connecting the Serial Interface Cable





Figure 4-7 Connecting the Parallel Interface Cable

Figure 4-6 Connecting the USB Interface Cable

Notes:

- When connecting the serial interface cable, do not forget to tighten the retaining screws. For parallel interface cable, make sure to close the clips.
- When connecting or disconnecting the interface cable, make sure to hold the plug shell instead of the the cable only.

4.6 Loading Paper Roll

Before loading paper, confirm that the paper specifications match the printer's requirements (see table 2.2 Paper Specification)

4.6.1 Loading Process

1. Before loading the paper roll, verify that the paper width is 210mm to 216mm and determine if the paper roll-spacer blocks are required.



If the paper roll is 210mm wide, a paper roll-spacer block is needed

If the paper roll is 216mm wide, a paper roll-spacer block is not needed.

2. Insert the paper roll shaft into the core of the paper roll as shown in the following figures:





Figure 4-8 Paper Roll - 25mm

Figure 4-9 Paper Roll - 50mm

3. Make sure that the paper winding direction is backward and then put the paper roll onto the paper holder.



Figure 4-10 Loading Paper Roller

4. Cut the leading edge of the paper neatly (see figure 4-11).



Figure 4-11 Paper Leading Edge Cut Examples

5. Slide the paper guides to appropriate position (210mm or 216mm) according to paper width (see figure 4-12).



Figure 4-12 Paper Guide Adjustment

4.6.2 Semi-automatic Paper Loading or Manual Paper Loading

- Semi-automatic Paper Loading
- 1. Turn on the power. The buzzer will beep for paper end.
- 2. See the figure below, insert the front end of the paper roll smoothly through the paper feeding path and until the platen roller starts running and holds the paper.
- 3. The leading edge of the paper will automatically advance to the normal printing position.



Figure 4-13 Semi-automatic Paper Loading

Notes:

- Feed the leading edge of the paper under the horizontal positioning shaft (vertical structure does not have this shaft).
- Feed the paper through the sliding paper guides.



Figure 4-14 Paper Loading Explanation

1—Positioning shaft (for horizontal structure only) 2---Paper guides

• Manual Paper Loading

- 1. Turn on the power and the buzzer will alarm paper end.
- 2. Press down the on the printhead release lever and lift the print head.
- 3. Manually load paper as shown (see figure 4-15), and make sure that the printing platen roller is fully covered by paper.
- 4. Close the print head. The printer will automatically feed paper to the correct position.



Figure 4-15 Manual Paper Loading

4.7 Installing the Printer

The 814M printer is designed for embedded applications.

- 1. Installation guidelines:
 - Install the printer on a flat and stable location. Horizontal installation is recommended. The inclination should not exceed ±15° (paper direction).
 - Keep printer away from water sources.
 - Do not place printer in an area exposed to vibration or impact.

- While operating and doing routine maintenance, we suggest reserving space around the printer as follows (see figures 4-16, 4-17 and 4-18).



Figure 4-16 Vertical Structure



Figure 4-17 Horizontal Structure



Figure 4-18 Structure without Paper Holder

Notes:

- Spaces in above figure include: printer working space, printer routine maintenance and printer operating space. Specifically, printer work space includes paper accommodation and paper backing space. Printer routine maintenance space includes PRE upper cover opening and cutter access. Printer operating space includes paper loading and cable connection space.
- The dimensions given in above figures are for reference only.
- There should not be any sharp edges or corners around the space to avoid injury.

2. Spaces Explanation

- Paper loading space. Make sure to reserve enough space for semi-automatic paper loading.
- **Upper cover space.** Make sure to reserve enough space to open the upper cover.



Figure 4-19 Opening Upper Cover

Paper accommodating space. Make sure to reserve enough space for paper looping (see figure 4-20).



Figure 4-20 Paper Looping

 PRE upper cover uplifting space. Make sure to reserve to leave enough space for PRE upper cover to lift up (see figure 4-21).



Figure 4-21 PRE Upper Cover

- Paper roll loading space. Make sure to reserve enough space to load the paper roll.
- Paper retraction space. The presenter module waits for the user to take the paper away. If the user does not take the paper, the paper backs into a collection bin. A paper retraction outlet should be added to your design if the printer will utilize paper retraction. (Disregard if your printer doesn't have the paper retraction function.)



Figure 4-22 Paper Retraction Outlet

- Connection wire space. Make sure there is enough space to connect and disconnect power and communication cables.
- Button space. Make sure there is enough space to operate the CUT button, FEED button and the power switch.
- Cutter maintenance space. Make sure there is enough space to remove the protective cover and
 reset the cutter.

Paper roll space Allow space for the paper roll. There is a blue line in the space. If paper feeding is controlled above the blue line, your printer is considered to be horizontal, otherwise, it is vertical. For a horizontal installation, you need to control the paper roll above the space, mainly in order to use the buffer mechanism of the print mechanism to avoid compression. For vertical installation, add a buffer mechanism to the paper holder. In addition, if paper feeding touches the vertical critical interface, please add a paper transition roller to the paper holder in order to prevent the paper from touching any metal parts directly causing the paper to be damaged.



Figure 4-23 Buffer Explanation

3. Separate paper holder installation

If possible, install the printer and paper holder together. If the paper holder has to be installed separately be sure to pay attention to following items:

- For installation dimension, please refer to the Paper roll space above.
- Keep paper path smooth avoid sharp folds which would cause drive overload.
- Avoid paper rubs with any sharp objects in order to prevent the paper damage.
- Make sure that paper keeps tension on the printer elastic shaft to get a buffer effect.
- Make sure that the paper center is consistent with the center of the paper feed path.
- The paper holder and paper shaft should be parallel with printhead, cutter, etc.

4. Notes when designing external paper out path

Take care to design your enclosure so that the paper feeds smoothly out. The paper path should align to the printer so that the transition is smooth and without sharp bends or burrs.



Figure 4-24 Paper Outlet Explanation

- Upper guide "A" dimension of paper out path should be controlled from 4.5 to 5.5 mm and "C" dimension should be from 4 to 5mm. This is mainly to avoid the interference when the upper cover of PRE uplifts, and also to avoid interference with the retaining screw (M2.5) of the PRE upper cover.
- Lower guide B dimension of paper out path is controlled to be within 1mm, and D is from 2 to 4mm.

Note:

- The paper outlet shown in figure is just a sketch map; the paper outlet angle can be designed according to actual need. But try to avoid the paper outlet bend in order to increase the smoothness of the paper path.
- Retaining holes are provided in the printer mechanism for connecting the paper out (see figure 4.25).



Figure 4-25 Retaining Holes

- If you need to use the retaining holes, design the size of paper out path according to above request strictly. If your paper outlet is not assembled on the printer and the paper outlet can be separated from the printer during maintenance, "A" and "C" dimensions are not as critical.
- To prevent paper jams in the paper outlet can be designed as shown in figure 4-26. But as a result of the design, the paper cannot fall off automatically during paper out. You can design it in other shapes, but try to keep the paper outlet smooth.

Figure 4-26 Paper Outlet Preventing Jammed Paper

4.8 Installing Printer Driver

Serial driver and parallel driver both support System platforms such as WINDOWS XP/Vista/7/8. The USB driver supports System platforms such as WINDOWS XP/Vista/7/8. The current edition of the WINDOWS driver is V1.0. (For setup and use of the driver, please refer to the help document in the drive software package.)

🚰 Install Driver for printe	ers		
POS KIOSK	Legal Agreement CAREFULLY READ AGREEMENT. THE THIS AGREEMENT LICENSED AND IT TERMS AND CONUNCT NOT AGREE TO TH AGREEMENT, PRO SOFTWARE AND D 1. LICENSE GRAN	O THE FOLLOWING L SOFTWARE PROVID (THE "SOFTWARE") S USE IS SUBJECT T DITIONS BELOW. IF ' THE TERMS OF THIS OMPTLY DESTROY T DOCUMENTATION. T	EGAL DED WITH I IS FO THE YOU DO THE
Press "F1" for Help	<< <u>B</u> ack	<u>N</u> ext >>	<u>C</u> ancel

Figure 4-27 WINDOWS Driver Installation Interface

5 Routine Maintenance

Caution:

- Make sure that the power is turned off before starting routine maintenance.
- Do not touch the printhead, platen roller, or sensors with sharp objects they may scratch.
- Do not clean any components of the printer with strong solvents such as gasoline, acetone, etc.
- Use only isopropyl alcohol or other Microcom Corporation approved cleaners on the print head.
- Be sure to do follow a monthly maintenance routine (more, if printer use is severe).

5.1 Cleaning Print head

The print head should be cleaned whenever the following circumstances occur:

- Print is not clear.
- Some columns are missing or are not clear.
- Paper feed is not smooth through the print head / platen roller area.

To clean the print head, follow the steps below:

- Turn off the power and open the upper cover.
- Lift the print head module and allow the print head to cool down if it has recently printed.
- Wipe off the surface of the print head with a soft cotton cloth dampened with isopropyl alcohol.
- Allow isopropyl alcohol to evaporate and press print head module and close upper cover.

5.2 Cleaning sensors

5.2.1 Cleaning paper end sensor

The paper end sensor should be cleaned whenever the following circumstances occur:

- Printing stops and falsely signals paper end when there is still paper in the printer.
- The printer does not signal paper end when paper runs out during printing.
- The printer skips or incorrectly reads registration marks.

To clean the paper sensor, follow the steps below:

- Turn off the power and open the upper cover.
- Lift the print head to access the paper end sensor (see figure 3-7).
- Wipe off dust and stains on the surface of the paper end sensor with a soft cotton cloth dampened with isopropyl alcohol.
- Allow isopropyl alcohol to evaporate, press print head module and close upper cover.

5.2.2 Cleaning paper loading sensor

The paper end sensor should be cleaned whenever the following circumstances occur:

- The paper does not retract back to normal printing position during semi-automatic paper loading.
- Print motor runs in reverse direction for an abnormally long time during semi-automatic paper loading.
- The paper does not retract to normal printing position after printing.

To clean the paper loading sensor, follow the steps below:

- Turn off the power and open the upper cover.
- Lift the print head to access the paper loading sensor (see figure 3-7).
- Wipe off dust and stains on the surface of the paper loading sensor with a soft cotton cloth dampened with isopropyl alcohol.
- Allow isopropyl alcohol to evaporate, press print head module and close upper cover.

5.2.3 Cleaning paper out sensor

The paper out sensor should be cleaned whenever the following circumstances occur:

- PRESENTER cannot hold paper normally.
- PRESENTER cannot perform retracting function normally.

To clean the paper end sensor, follow the steps below:

- Turn off the power and open the PRESENTER upper cover.
- Locate paper out sensor (see figure 5-1).
- Wipe off dust and stains on the surface of the paper loading sensor with a soft cotton cloth dampened with isopropyl alcohol.
- Allow isopropyl alcohol to evaporate, press print head module and close upper cover.



Figure 5-1 Paper Out Sensor

5.2.4 Paper Retract Sensor

The paper retract sensor should be cleaned whenever the following circumstances occur:

- Paper fails to retract and printer does not signal retract failure.
- Paper retracts, but printer signals retract failure.

To clean the paper end sensor, follow the steps below:

- Turn off the power and turn the printer over.
- Locate the paper retract sensor (see figure 5-2).
- Wipe off dust and stains on the surface of the paper loading sensor with a cotton swab dampened with isopropyl alcohol.
- Allow isopropyl alcohol to evaporate.



Figure 5-2 Presenter Paper Retract Sensor

5.3 Cleaning Printing Platen

When any of the following case occurs, the sensor should be cleaned:

- Print out is not clear.
- Some columns on the page are not clear.
- Paper feed is not smooth through the print head / platen roller area.

To clean printing platen, follow the steps given below:

- Turn off the power, open the top cover of the printer.
- Wait for a few minutes until print head cools down if the printer has just finished printing.
- With soft cotton cloth dampened with some neutral detergent, carefully wipe off the surfaces of printing platen roller.

5.4 Resetting Cutter Manually

When one of the following cases occurs, manually resetting the cutter should be done:

- The cutter fails to cut the paper.
- The cutter does not work when pressing the cut button.

Reset the cutter manually in the following steps:

- Turn off the printer power.
- Remove the protective board cover.
- Use a screwdriver to rotate the motor shaft to clear cutter blades (see figure 5-3).



Figure 5-3 Manual Cutter Reset

5.5 Manual Removal of the Jammed Paper

When any of the errors occurs, please remove jammed paper manually:

- Paper jams between platen roller and cutter holder.
- Paper accumulates at the paper inlet of the cutter in the front of the print head.
- The cutter cannot cut off paper.

Remove jammed paper in the following steps:

- Open the upper cover.
- Pull out the jammed paper.
- Manually reset cutter if necessary.
- Cut off any wrinkled or irregular paper so that leading edge is straight and square.
- Reload paper.

6 Interface Signal

6.1 RS-232 Interface

6.1.1 Parameter

-	data transmission mode:	asynchronous serial communication
_	handshake mode:	RTS/CTS, DTR / DSR
_	voltage level:	MARK = -3 to -15 V: Logic "1"/ OFF SPACE = +3 to +15 V: Logic "0"/ ON
_	baud rate:	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
_	data bit:	8 bit or 7bit
_	Parity bit:	None, even, or odd
_	Stop bit:	1 bit
_	connector :	9 pins serial connector (female head)

Note:

Baud rate, data bit and parity are set by EEPROM

6.1.2 RS-232 Serial Interface Signals

PIN NO	Signal name	Signal direction	function
1	NO		
2	RXD	input	Data input end
3	TXD	output	Data output end
4	DTR	output	Data terminal is ready
5	SG		Signal ground
6	DSR	input	Data device is ready
7	RTS	output	Request to send
8	CTS	input	Allow to send
9	FG		Frame Ground

Printer serial port signals and status are described in the following table:

 Table 6-1 Serial Interface Signals

6.2 IEEE 1284 Parallel Interface (optional)

6.2.1 Parameters

-	Data transmission:	8 bits Parallel
_	Synchronization mode:	nStrobe signal is provided by exterior

- Handshake mode: Busy signal
- Signal voltage level: TTL compatible
- Connector: 36 pin Centronics

6.2.2 Parallel Interface Printer Status (/FAULT pin and PE pin)

Status	/FAULT	PE
Normal	high	low
Paper end	low	high
Print head Overheated	low	low
Other errors	low	low

Table 6-2 /FAULT Pin and PE Explanation

Pin No.	Source	Compatible mode	
1	Н	nStrobe	
2	Н	Data 0 (Least Significant Bit)	
3	Н	Data 1	
4	Н	Data 2	
5	Н	Data 3	
6	Н	Data 4	
7	Н	Data 5	
8	Н	Data 6	
9	Н	Data 7 (Most Significant Bit)	
10	Р	nAck	
11	Р	Busy	
12	Р	Perror	
13	Р	Select	
14	Н	nAutoFd	
15		Not Defined	
16		Logic Ground	
17		Chassis Ground	
18	Р	Peripheral Logic High	
19		Signal Ground (nStrobe)	
20		Signal Ground (Data 0)	
21		Signal Ground (Data 1)	
22		Signal Ground (Data 2)	
23		Signal Ground (Data 3)	
24		Signal Ground (Data 4)	
25		Signal Ground (Data 5)	
26		Signal Ground (Data 6)	
27	27 Signal Ground (Data 7)		

6.2.3 Parallel Interface Signals

 Table 6-3 Parallel Interface Signals Definition

Note:

- H stands for host computer terminal and P stands for printer terminal.
- Parallel Interface signals use TTL voltages. When it is used, please make sure both the rise and drop time of host computer terminal is no longer than 0.5us.
- When data transfers, the host computer should not ignore the busy signal, or else the print data may be lost.
- The length of parallel interface connection wire should be as short as possible.

6.2.4 Time Sequence of Data Receiving



Figure 6-1 Time Sequence of Parallel Interface Data Receiving

Signal Time Demands:

Signal	Min(ms)	Max(ms)
Setup	0.75	-
Ready	0	-
Stb	0.75	500
Busy	0	2.5
Hold	0.75	-

Table 6-4 Parallel Interface Signal Timings

6.3 USB Interface (optional)



6.3.1 Power Interface

This connector is used to connect the printer with an external power supply.

Power connector pins:

PIN	Signal name
1	+24V
2	GND
3	NC
SHELL	F.G.



Figure 6-3 Power Supply Pins

Table 6-5 Power Pin Explanation

7 Troubleshooting and Maintenance

7.1 Common Errors and Settlement

Problem	Possible reasons	How to settle
Paper roll cannot be loaded into paper holder.	The paper roll width and diameter do not meet the requirements of the printer .	Replace the paper.
The printer cannot feed paper automatically.	Paper lead edge is irregular. The paper load sensor is not covered by paper. Dust or wastepaper covers the paper loading sensor.	Clear wastepaper. Remove jammed paper. Check the front end of paper to confirm that the paper-load sensor is covered fully by paper. Clean the paper load sensor.
Buzzer alarms.	Paper end. The printer cover is not fully closed.	Replace the paper roll. Ensure that printer upper cover fully closed.
After auto paper feeding, the paper cannot stop in the normal print position.	Dust or wastepaper covers the paper loading sensor	Clean the paper loading sensor.

7.1.1 Problems during Paper Loading

Table 7-1 Paper Feeding Issues Index

7.1.2 Problems during Printing

Problems	Possible reasons	How to deal with
The receipt cannot be ejected out smoothly.	Paper jams.	Open upper cover and presenter upper cover, check paper path, remove wastepaper and reload paper automatically.
Printout is not clear	The thermal paper is loaded in wrong direction or of poor quality.	Make sure the paper roll is loaded correctly.
	Print head needs cleaning.	Use recommended paper or its equivalents.
	Printing darkness is too low.	Adjust print darkness(*).
	Input voltage is too low.	Use the recommended power supply.
Cutter works abnormally	Paper jams in cutter.	Check if there is paper jammed in cutter path (*)
		Contact the manufacturer or your local distributor.
Printer does not print.	The printer cover is closed improperly.	Close printer upper cover properly.
	Paper jams.	Remove paper jam

Table 7-2 Print Issues Index

* Contact a distributor or manufacturer to adjust print darkness

7.1.3 Problems during Paper Out

Problems	Possible reasons	How to deal with
The printer stops printing and warns of errors during	Paper end.	Install a new paper roll.
printing.	Paper jams in cutter.	Check if there is paper debris in cutter path.
	Dust or wastepaper covers the paper near end sensor.	Clean the paper end sensor.

Table 1-5 Out of 1 aper 1550es much

7.1.4 Other Problems

Problem	Possible reasons	How to deal with
No power LED and printer	The printer is not connected to the power supply correctly.	Connect the printer to the power supply correctly.
does not work.	The printer isn't turned on.	Turn on the printer.
The printer does not work after receiving commands.	Printer is in error status.	Remove all errors (*).
	The communication cable is not connected well.	Make sure the communication cable is connected correctly.
	Interface settings are wrong.	Print a self-test page and set the interface according to information on it.

* Paper near end alert acts only as a prompt for users, not as an error status. A print format can still be sent during a paper near end alert.

* If there is a jam in the cutter, first clear paper from cutter and then press the cutter button to reset the cutter.

Appendix

Self-test Page

Print self-test page in the following steps:

- Turn off the printer power.
- Hold the feed button for at least one second while turning on the power.

The printer will start to print a self-test page. Take the 203 dpi, Serial + USB interface model as an example. The self-test paper is shown as follows:

Boot Firmware	:FV2.010
Main Firmware	:FV2.050
H/W Parameters H/W ID Flash Memory Size Flash Logos Size Resolution Print Width (Max) Fixed Left Margin Fixed Right Margin Print Speed (MAX) Dark Scale Cutter Paper Roll Width Presenter Presenter Mode Presenter Wait Time	:MICROCOM814-3(U) 1 :1M bytes :64k bytes :300×300DPI :216mm :2mm :2mm :75mm/s :100 :Enabled :216mm :Enabled :Keep Paper :3s
Communication Interface Rx Buffer Size Interface Type1 Baud Rate Data Bits Stop Bits Parity Flow Control Command CR Data Receive Error Interface Type2	:4K bytes :RS232 :38400bps :8 1 :NONE :DTR/DSR :Disabled :Ignored :USB_ORU
Resident Fonts	:English
Font0 (18x34)	:English
Font1 (13x24)	:437,850,852
Code Pages	:858,860,863

MICROCOM814M-3 TEST FORM

International Character	:865,866,1252 :Katakana :U.S.A. :France ;Germany :U K
Bar Code Available	:Denmark I :Italy :Spain I :Japan :Norway :Denmark II :Spain II :Latin America :UPC-A
	:UPC-E :EAN-8 :EAN-13 :CODE 39 :CODE 93 :ITF :CODABAR :CODE128 :PDF417

Explanation of self-test page content:

Boot Firmware	Printer BOOTLOADER version
	Printer monitor program version
H/W Parameters	Printer parameter setting
H/W ID	Printer ID setting
Flash Memory Size	Printer FLASH size
Flash Logos Size	Flash size for bitmap downloading
Resolution	Printer resolution
Valid Print Width (Max) Maximur	n print width
Fixed Left Margin	Fixed left margin setting
Fixed Right Margin	Fixed right margin setting
PrintSpeed (MAX)	Print speed
Dark Scale	Print darkness
Cutter	Enable/ Disable cutter
Paper Roll Width (MAX)	Maximum width of paper roll
PRSENTER	Enable/Disable PRESENTER
PRSENTER Mode	PRESENTER paper out mode
PRESENTER WAIT TIME	Time print is presented before retraction
Comm Interface	Communication interface setting
Rx Buffer Size	Data receiving buffer zone size
Interface Type	Interface type
Baud Rate	Serial communication baud rate setting
Data Bit	Serial communication data bit setting
Stop Bit	Serial communication stop bit setting
Parity	Serial communication parity bit setting
Handshaking	Serial communication data stream mode (handshaking type)
Command CR	Enable/Disable CR command
Data Received Error	Serial receive error
Interface Type2	The second interface type
Resident Fonts	Font setting

Font 0(18×34) Font 1(13×24) Code Pages International Character BarCode Available Font 0 setting Font 1 setting Code page type International Character type Printable Barcode types