

# USER'S MANUAL

## MP-100 Dot-Matrix Printer



# IMPACT DOT-MATRIX RECEIPT PRINTER

## Instruction

MP-100 Series Impact Dot-matrix Receipt Printer are the new models after improvements on technique and quality, which should be with the most fast printing speed, the most reliable quality, and the most advanced technique

Due to the Small size, easy operating, high cost performance ratio characters, MP-100 system printers have been widely used in Stores, Hospitals, Restaurants, Banks, Gas stations, Toll roads, etc...

One year free mend for non-contrived attaints and techno-service for the whole lifetime.

### *Safety Notice*

- \* Don't touch the printer head with anything.
- \* Don't touch the cutter blade.
- \* Don't bend the power cord excessively or place any heavy objects onto it.
- \* Don't use the printer when it is out of order. This can cause a fire or and electrocution.
- \* Only use the power supply that is come along with the printer.
- \* When connecting or disconnecting the plug, always hold the plug-not the cord.
- \* Keep the desiccant out of children's reach.
- \* Use only approved accessories and do not try to disassemble, repair or remodel it for yourself.
- \* Install the printer on the stable surface. Choose firm, level surface where the printer will not be exposed to vibration.
- \* Don't let water or other foreign objects in the printer.
- \* Don't connect a telephone line into the peripheral drive connector.

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- \* We recommend that you unplug the printer from the power outlet whenever you do not plan to use it for long periods

## 1. General Information

- \* Command protocol is based on ESC/POS standard.
- \* Support black mark anchor testing print.
- \* High speed and Low-noise dot printing.
- \* Various Layouts are possible by using page mode
- \* High reliability due to a stable mechanism
- \* Repeated operation and copy printing are possible.
- \* Easy paper-roll installation.
- \* Easy paper jam clearance.
- \* Easy maintenance for tasks such as head cleaning.
- \* Built-in interface provides control capability for cash drawer.

## 2. Technique Spec.

- \* Print method: Impact Dot-matrix printing
- \* Print speed: 4.5line / sec.
- \* Paper width: 76+/-0.5mm
- \* Pin Dot Head Character:

(1) Print columns: 400dots/line

(2) Life span: 300 million dots/pin

(The Head of the printer has hot-protection function. The printer will stop printing by going into offline status if the printer is too hot. After the temperature's relapse, it can return to online status and continue printing automatically.)

- \* Print character: ANK Character, custom/times of character printing, adjusts row space.

Font A: 9\*9 dots, 1.6\*3.1mm (W\*H); 7\*9 dots, 1.2\*3.1mm (W\*H)

Simplify/Traditional: 16\*16 dots, 2.7\*2.7mm (W\*H)

Support different density image download and print.

- \* International code: PC437/Katakana/PC850/PC860/PC863/PC/865/West Europe/Greek/

Hebrew/East Europe/Iran/WPC1252/PC866/PC852/PC858

\* Paper Specification

(1) Paper type: Super 1 couplet of paper or 2~3 couplets of carbon paper.

(2) Form: Paper roll

(3) Roll diameter Maximum 75mm

(4) Paper roll spool diameter: Minimum 12mm

(5) Paper thickness: 0.06~0.058mm (1 couplet of paper)

0.05~0.08mm, overall <0.20mm (serial couplets of paper).

(6) Ink ribbon: Box ribbon ERC-39 (Blue or Black)

\* Reliability print: 10 million lines MTBF

\* Black mark test: on the left of receipt, long 5mm, wide 12mm, black mark part reflectivity <10%, other part >75%

\* Print command: compatible with ESC/POS

\* Interface: Parallel/Serial/USB

\* Temperature: 0~50°C

\* Dampness: 10~80%

\* Drivers: Win9x/WinME/ Win2000/WinNT/ WinXP, compatible with EPSON, SAMSUNG

\* Adaptor power input: AC 110V/220V, 50~60Hz

\* Adaptor power output: DC24V/2.5A

\* Printer power input: DC 24V/2.5A

\* Cash Drawer: DC 12-24V/1A

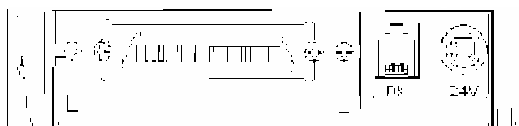
\* Work Temperature: 0~50°C, Dampness: 10~80%

\* Storage temperature: -10~60°C, Dampness: 10~90%

\* Drivers: Win9x/WinME/ Win2000/WinNT/ Win XP, compatible with EPSON, SAMSUNG

\* Weight: Approx 1.6kg

\* Interface:



Serial Interface : D-SUB 25 socket (Hole style) ,baud rate 9600bps, no parity check for data structure, 8byte data bit, one stop bit, support RTS/CTS and XON/XOFF Handshake Protocol;  
Parallel Interface: 36PIN Centronics, two-way parallel, 8byte parallel interface, support BUSY/nAck mitt-protocol.

Cash Drawer interface-6-line RJ-11socket, Output electrical signal DC 12V/1A to drive the Cash Drawer.

### 3. Installation and Disassembly

#### 3.1 Disassembly

Printer 1pc  
Specified Power Adaptor with line 1pc  
Parallel/Serial communication cable 1pc  
Dot paper roll for test 1roll  
Manual 1pc

#### 3.2 Connecting way:

(1) Make sure printer and computer both power off, plug communication cable into printers data interface, plug the other side into 9-hole Serial joint, (or plug it into 25-pin parallel joint), and plug joints into Serial or Parallel interface of computer.

(2) Plug RJ-11 joint into Cash Drawer's interface. (Cash Drawer's spec. must accord with Diver's spec.)

(3) Connect the specified power adaptor. Please use accessory adaptor with the printer.



#### **Note:**

(1) Turn off the printer before put out of the communication cable, RJ-11joint or adaptor

(2) Must use the accessory adaptor with the printer.

(3) Don't connect phone-line into Cash Drawer interface.

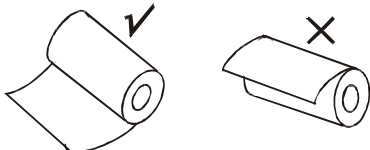
(4) Must insert the power plug first, and then connect with AC220V power, at last turn on, if not will damage the printer.

#### 3.3 Installation of Paper Roll

MP-100 series use 76mm super paper roll with easy-load structure, very convenient to install. Installing as following:

(1) Open the top cover.

(2) Install dot paper roll as the picture showing direction



(3) Pull the paper out of some length to outside, then close the cover.

(4) Cut redundant paper by blade.

### 3.3.1 Installation of Ink Ribbon

Please use original ink ribbon, make sure the printer not receiving data before installation

Open the printer's cover.

- (1) Turn the knob five or six times in the direction of the arrow.
- (2) Insert the ink ribbon, and push the ribbon cassette down until it clicks.

## 3.4 Power, Buttons, and Indicators

### 3.4.1 Power

Power supply switch stand on the back or on the left of the printer. Press "ON" to turn on, and press "OFF" to turn off.

### 3.4.2 Keys and Indicators



**FEED:** To feed roll paper

When the indicator on standing status, Press " FEED" to feed continuously, it is invalid during printing.

ESC C5 command allow or prohibit this button, when prohibit it, "FEED" is invalid.

#### **STATUS: Status Indicator**

This indicator on indicates printer is online, its off indicated printer is offline, its flashing indicates printer error, printer Head too hot such as out of paper, paper jammed, or printer cover is not closed properly.

**POWER:** Power Indicator

The POWER light is on whenever the printer in on.

## 3.5 Printer Self Test

This is to test whether the printer is working properly or not and also checks the printing quality, firmware version, and DIP switch settings.

- (1) Self Test operation: Hold "ONLINE" first and then turn on the power at the same time, release the button after around 5 seconds.
- (2) If the printer is working properly, it should then automatically print the self-testing, result that indicating the firmware version number, printer connection type, English alphanumeric characters

(3) The test print will be ended with the following message:

\*\* Completed \*\*

### 3.6 Hex-data memory

#### 3.6.1 Startup Hex-data memory:

After connecting the printer, hold "FEED" first and then on the power at the same time, release the button after more than 5 seconds to enter Hex-data memory mode. The printer first print "Hexadecimal Dump" on the paper roll, and then print received data with Hex-data code and its corresponding characters.



Note: (1) Print "." If no corresponding character with the received data  
 (2) All the commands are invalid on the Hex-data storage mode Finish the Hex-data storage mode: Power off printer to finish this mode. Example for the Hex-data storage:

Hexadecimal Dump To terminate Hexadecimal dump, Press FEED button three times  57 65 60 63 6F 6D 65 20 Welcome 54 6F 20 47 61 69 6E 73 To Gains  **Exit Hexadecimal Dump
--

### 3.7 Serial Interface

MP-100 series printers use RS-232C serial interface, Baud rate 9600bps or 19200bps, no parity check for data structure, 8byte data bit, one or above stop bit, support RTS/CTS and XON/XOFF Handshake Protocol.

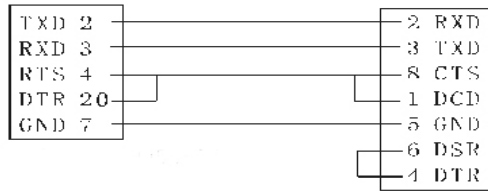
#### 3.7.1 Functions:

Pin NO.	Signal name	Signal source	Description
2	TXD	Printer	When using XON/XOFF handshake protocol, printer transmits control code XON/XOFF.
3	RXD	Host	Printer receive data from host.
4	RTS	Printer	Indicates printer current status, whether the printer is busy or ready to receive data.
7	GND	• • • •	Signal ground
20	DTR	Printer	Same as RTS (PIN4)

#### 3.7.2 Serial interface connection example:

**Printer Side DB-25**

**POS RS-232 Connection DB9**



### 3.8 Parallel Interface

MP-100 series printers use parallel 36PIN Centronics, 8byte parallel interface, support BUSY/nAck mitt-protocol.

Functions:

Pin NO.	Signal name	Signal source	Description
1	/STB	Host	The computer presents the data on the data lines, and pulses STB
2	DATA0	Host	Indicates the 1 <sup>st</sup> data bit through 8 <sup>th</sup> data bit 8bit information "HIGH" electric potential when each signal logic "1" "LOW" electric potential when each signal logic "0"
3	DATA1	Host	
4	DATA2	Host	
5	DATA3	Host	
6	DATA4	Host	
7	DATA5	Host	
8	DATA6	Host	
9	DATA7	Host	
10	nAck	Printer	Printer acknowledge signal which indicates that printer has received previous data bit.
11	BUSY	Printer	"High" electric potential Indicates printer is busy and can't receive data.
12	GND	• • •	Ground. Logic " LOW" electric potential
13	Select	Printer	High electric potential
14- 15	NC	• • •	No Connect
16- 17	GND	• • •	Ground. Logic " LOW" electric potential
18	Logic-H	Printer	High electric potential
19-30	GND	• • •	Ground. Logic " LOW" electric potential
31	NC	• • •	No Connect
32	NError (nFault)	Printer	Printer error signal
33	GND	• • •	Ground. Logic " LOW" electric potential
34-36	NC	• • •	No Connect

### 3.9 Cash Drawer Interface

6-line RJ-11socket, Output electrical signal DC 24V/1A to drive the Cash Drawer.



Functions:

Pin No.	Signal Name	Direction
1	NC	No
2	Frame GND	Output
3	NC	No
4	Drive Signal	Output
5	NC	No
6	NC	No

### **3.10 Black Mark Anchor control**

#### **3.10.1 Printer's structure and corresponding parameter:**

- (1) The distance from dot head to paper- cutting line is 15mm.
- (2) The distance from dot head to the black mark test switch is 28mm

#### **3.10.2 Black Mark Printing Proceeding:**

- (1) The black mark must locate on the front and on the left of the receipt
- (2) The black mark printing size should be 12\*5mm (W\*H)
- (3) The density of black mark should be strong enough, other part should be white enough

#### **3.10.3 Black Mark Anchor**

Support pre--printing anchor with black mark paper

### **3.11 Periodical Cleaning**

#### **3.11.1 Cleaning the Dot Head**

On following conditions to clean the Dot Head:

- (1) Printing unclearly
- (2) Some portrait line unclearly.
- (3) Much noise when feeding the paper roll.

Cleaning Approaches:

- (1) Set the printer power off, and open the cover, get rid of the paper.
- (2) Waiting for the dot head's cooling after printing
- (3) To remove blackish dust collected on the surface of the dot head, wipe it with Isopropyl alcohol.
- (4) After Isopropyl alcohol volatilize completely, cover the printer and test printing again.

#### **3.11.2Cleaning the Paper Holder**

On following conditions to clean the paper holder:

- (1) Printing unclearly
- (2) Some portrait line unclearly.
- (3) Much noise when feeding the paper roll.

Cleaning Approaches:

- (1) Set the printer power off, and open the cover, get rid of the paper.
- (2) To remove blackish dust collected on the surface of the sensor, wipe it with Isopropyl alcohol.
- (3) After Isopropyl alcohol volatilize completely, cover the printer and test printing again

**Note:**

- (1) Make sure the printer has been power off before cleaning it.
- (2) The dot head is easy to damage, so clean it gently with a soft cloth. Take sufficient care not to scratch it when cleaning it.
- (3) Must not use acetone, gas such solvent.
- (4) Must continue printing after Isopropyl alcohol volatilize completely.

## **3.12 Faults removing**

### **3.12.1 Indicator on the control panel can't light**

Check power line connect with printer, adaptor, socket correctly. Check the printer power on or not.

### **3.12.2 MODE/STATUS Indicator flash continuously, printer can't work**

- (1) Set the printer power off, and check if paper is jammed.
- (2) If not jammed but printer has worked for long time, then waiting for the dot head cooling, the printer will continue printing after cooling.
- (3) If neither paper jammed nor hot-working, switch the printer power off, and then restart after 10 minutes.

### **3.12.3 MODE/STATUS Indicator is on, but printer can't work.**

Run printer self test to check if the printer working properly. Checking following contents:

- (1) Check the interfaces between printer and computer, at the same time confirm if the wire specification accords with printer and computer.
- (2) Data transmitting settings between printer and computer maybe different. make sure printer data parameters same as computer, you can use self test print out the interface setting.
- (3) If can't print, please connect with dealers or professionals

### **3.12.4 Printer beeps, but hasn't printed**

- (1) Maybe you install the Ink Ribbon incorrectly, please re-install it correctly.
- (2) Maybe the Ink Ribbon damaged, please change a new one.

## **3.13 Driver Installation**

MP-100 series Drivers have two ways to install: one to install the driver directly in Windows 9X/Me/2000/XP, another way to drive the printer by serial or parallel interface directly.

### **3.13.1 Setup the driver program in Windows.**

Append the printer into Windows, and appoint the driver documents to Windows to transfer the printing command to print. By this method, printing carrying out by Windows' printer driving program switching Character into Graphics Lattice

### **3.13.2 Serial/ Parallel drive directly**

No need driver program, only need output the characters to the ports, and the hardware dictionary transfer the character to print. Printing way change from page-printing into line-printing, make printing control more convenient.

### 3.13.3 Ports drive directly

Use repertoire control the printer's working. MP-100 series have integrated ESC/POS command.

## 4 Command List

No	Command	Description
1	LF	Print and line feed
2	CR	Print and enter
3	ESC SP n	Set right-side character spacing
4	ESC ! n	Set print modes
5	ESC % n	Select /cancel use-defined character set
6	ESC &	Define user-defined character set
7	ESC * m nL nH d1 dk	Select bit-image mode
8	ESC 2	Select default line spacing
9	ESC 3 n	Set line spacing
10	ESC @	Initialize printer
11	ESC J n	Print and feed paper
12	ESC c 5 n	Enable/disable panel buttons
13	ESC d n	Print and feed n lines
14	ESC p m t1 t2	General pulse for cash drawer
15	ESC -n	Turn underline mode on/off
16	ESC D (n) K NUL	Set horizontal tab position
17	HT n	Horizontal tab
18	ESC K n	Select barcode height
19	ESC R n	Cancel international characters
20	ESC U n	Set/cancel single line print
21	ESC e n	Print and return n line
22	GS V m	Select cut mode and cut paper
23	FS &	Defined user-defined characters
24	ESC ? N	Cancel user-defined characters
25	FS	Cancel Kanji character mode
26	FS 2 c1 c2 d1...dk	Define user-defined kanji characters
27	GS z 0 t1 t2	Set revert waiting time on line
28	FS ! n	Set print modes for Kanji characters
29	FS ? c1 c2	Cancel user-defined kanji characters
30	FS S n1 n2	Set left- and right- side Kanji character spacing
31	FS W n	Turn quadruple-size mode on/off for Kanji character
32	GS (F pL pH a m nL nH)	Set black mark anchor offset
33	GS FF	Feed the black mark paper to the section start
34	GS (A pL pH n m)	Enter Hex-data memory mode

## 5. Appendix

### International Character Code List

Country	ASCII Code (Hex)											
	23	24	40	5	5	5	5E	60	7	7	7	7E
U.S	#	\$	@	[	\	]	^	`	{		}	~
France	#	\$	à	°	ç	§	^	`	é	ù	è	·
Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
England	£	\$	@	[	\	]	^	`	{		}	~
Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	\$	@	°	\	é	^	ù	à	ó	è	ì
Spanish	Pt	\$	@	í	Ñ	¿	^	`	ñ	ñ	}	~
Japan	#	\$	@	[	¥	]	^	`	{		}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü