

**Maxatec**



**MODEL : MD-500**

Mini Dot Impact Printer

All specifications are subject to change without notice



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This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronics equipment. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

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# 1. Features

## ♣ **Dip Switch Configuration**

Emulation mode, communications mode, baud rate, serial/parallel handshake, and head printing characteristics are all configured through dip switch settings.

## ♣ **Data Buffer**

The MD-500 printer has a built-in 16 Kilobyte I/O buffer allowing the host computer to free itself after sending the print data.

## ♣ **Reliable communications**

The MD-500 supports multiple baud rates, protocols, and handshaking on its parallel & serial interfaces.

## ♣ **User controls**

A power switch, a paper feed switch, power LED and Paper Low/Out error LED provide ease of use.

## ♣ **Self Test Mode**

A comprehensive self-test mode is available which describes the printer configuration and dip switch setting information along with the version number of firmware installed.

## ♣ **Print orientation**

The printer is capable of printing normal and upside down, the print orientation is selected by software commands.

## ♣ **Selectable international characters**

The MD-500 supports international characters selectable by software control.

## ♣ **Multiple Fonts/Sizes**

Two different resident fonts are available for printing diversity. Each of these fonts can be printed in normal, double wide, double height, and quadruple sizes. Both fonts and sizes are software selected.

## ♣ **Bit image graphic**

Two formats for bit mapped graphics are provided.

## ♣ **Error detection**

The MD-500 can detect paper-out and paper-jam as well as paper near-end, controller malfunction, and cover open status.

## ♣ **Peripheral Drive**

Two cash drawer drivers are provided.

## ♣ **Certification**

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

- 1) this device may not cause harmful interference, and
- 2) this device must accept any interference received, including interference that may cause undesired operation.

(2) UL/cUL (UL 60950-1)

(3) MIC

(4) CE-EMCD (CE-EMCD Class B should use Parallel shield Cable complied with IEEE-1284 standards)

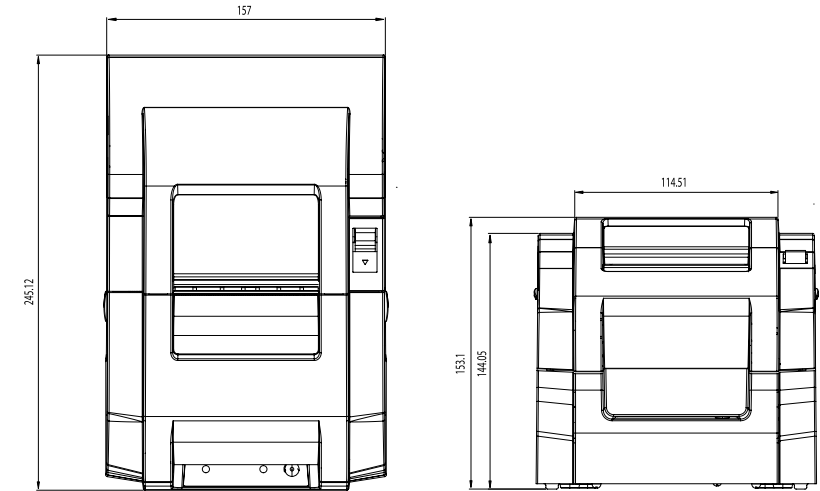
(5) RoHS (TUV)

## 2. Specification

### Printer Specifications

MODEL		MD-500
PRINT METHOD		9-pin serial impact dot matrix
PRINT DIRECTION		Bi-directional (with logical seeking)
NO. OF COLUMNS		Epson Mode : 42/35, 40/33, Star Sp200 : 42/35 Other Modes : 40/32
FONT SIZE		7 x 9, 9 x 9 dots
LINE SPACING		n/144 inch
PRINTING WIDTH		63.5mm (2.5")
PRINT SPEED		5 Line / Sec (at 40 cpl)
INK RIBBON		EPSON, ERC-38 compatible Black or Purple, Black/Red
PAPER	Media	Roll Paper
	Width	76.2mm (3.0")
	Diameter	76mm (3.0") max.
	Copies	3-ply max. (0.2mm or 0.008" thick) One Original and one copy
DATA BUFFER		16K bytes
CASH DRAWER DRIVER		2 circuits (24V, 1A max)
INTERFACE		RS-232C Serial (25Pin) USB USB Combo Ethernet Wireless Lan Centronics Parallel (36Pin)
EMULATION		Epson TM-U200, Citizen iDP-3540 Star SP200
POWER SUPPLY	Type	External Adaptor
	Input	120VAC, 230VAC
	Output	24VDC X 2.5A
OPERATING CONDITION		5°C to 40°C, 10% to 80% RH
STORAGE CONDITION		-20°C to 60°C, 5% to 95% RH
RELIABILITY	MCBF	18 million lines
	Printhead	150 million characters
DIMENSIONS	Cutter	157(W) X 245.12(D) X 153.1(H)mm
	Non cutter	157(W) X 245.12(D) X 153.1(H)mm
WEIGHT	Cutter	5.24 lbs (2.38 kg)
	Non cutter	4.96 lbs (2.25 kg)

### Overall dimension



### 3. Self Test

While pressing the paper feed switch for more than 10 seconds after the printer is turned on, the self test mode is initiated.

The printer self test includes a listing of the current default settings, read and write test of internal RAM, checksum test of internal program memory, loop back detection statement, a staggered dot line, a few lines of rotating character set, and a diagnostic report.

The printer then enters into the On-Line mode.

#### Configuration Setup

When the paper FEED switch is pressed and released instantly as the power is applied to the printer, the printer will print the current printer configuration settings along with the DIP switch information.

If the printer setup needs to be changed, turn the Power Off before changing the setting.

The printer will be setup at the factory as follows;

Printer is setup as follows:

Model :	MD-500
Firmware :	Ver X.XX
Interface :	Serial
Emulation :	Epson TM-U200
CR Character :	CR=CR only
Flow Control :	DTR/DSR
Data Bits :	8 Bits
Parity :	None
Baud Rate :	9600
CPL :	40/33 Char/Line
Two Color :	Installed
Auto Cutter :	Installed
Journal :	Installed

### 4. User Switches

#### Panel Switches

Paper Feed button : Pressing the PF button momentarily will advance the paper one character line and pressing it continuously will cause a fast feed at 15 lines per second.

#### Power Switch

A Power switch located on the lower left side of the printer is used to turn the printer on/off.

#### Indicators

This section explains the different patterns signaled by the two LED indicators located on the top cover of the MD-500.

STATUS	LED1	LED2	LED3	REMARKS
	GREEN	RED	RED	
Power Off	OFF	OFF	OFF	Normal power is not supplied to the printer
Power On	Flash	ON	ON	Normal power is supplied to the printer
On line	ON	OFF	OFF	Normal error-free mode
Paper low	ON	OFF	ON	Insert new paper roll
Cover open	ON	Flash	OFF	Close cover
Paper empty	ON	Flash	OFF	Insert new paper roll
Paper jam	ON	OFF	OFF	Impossible to recover
	OFF	ON		
Test mode	ON	ON	OFF	Ignored Paper Low

## 5. Command List

### 5.1. EMULATION EPSON TM-U200

Command	Hex Code	Description
HT	<09>H	Horizontal tab
LF	<0A>H	Print and line feed
CR	<0D>H	Carriage Return
DLE EOT	<10>H<04>H<n>	Real-time status transmission
DLE ENQ	<10>H<05>H<n>	Real-time request to printer
ESC SP	<1B>H<20>H<n>	Set right-side character spacing
ESC !	<1B>H<21>H<n>	Set print mode
ESC %	<1B>H<25>H<n>S	Select/cancel user-defined character set
ESC &	<1B>H<26>H	Define user-defined characters
ESC *	<1B>H<2A>H	Select bit-image mode
ESC -	<1B>H<2D>H<n>	Turn on/off underline mode
ESC 2	<1B>H<32>H	Select 1/6 inch line spacing
ESC 3	<1B>H<33>H<n>	Set line spacing
ESC <	<1B>H<3C>H	Return home
ESC =	<1B>H<3D>H<n>	Select peripheral device
ESC ?	<1B>H<3F>H<n>	Cancel user-defined characters
ESC @	<1B>H<40>H	Initialize printer
ESC D	<1B>H<44>H<n>	Set horizontal tab positions
ESC E	<1B>H<45>H<n>	Turn on/off emphasized mode
ESC G	<1B>H<47>H<n>	Turn on/off double-strike mode
ESC J	<1B>H<4A>H<n>	Print and feed paper
ESC R	<1B>H<52>H<n>	Select an international character set
ESC U	<1B>H<55>H<n>	Turns on/off unidirectional printing mode
ESC a	<1B>H<61>H<n>	Select justification
ESC c 4	<1B>H<63>H<34>H<n>	Select paper sensor to stop printing
ESC c 5	<1B>H<63>H<35>H<n>	Enable/disable panel button
ESC d	<1B>H<64>H<n>	Print and feed n lines
ESC p	<1B>H<70>H	Generate pulse
ESC t	<1B>H<74>H<n>	Select character code table
ESC {	<1B>H<7B>H<n>	Turn on/off upside-down printing mode
GS l	<1D>H<49>H<n>	Transmit printer ID
GS a	<1D>H<61>H<n>	Enable/disable Automatic Status Back
GS r	<1D>H<72>H<n>	Transmit status

### 5.2. EMULATION CITIZEN iDP-3540

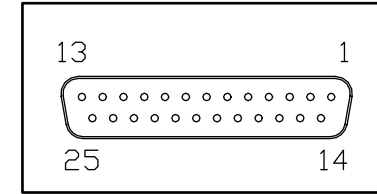
Command	Hex Code	Description
BEL	<07>H	Drive pulse setting command for 1st drawer
CAN	<18>H	Clear data in buffer
LF	<0A>H	Paper feed
FF	<0C>H<n>	Paper feed n lines
CR	<0D>H	Print command
SO	<0E>H	Select expanded character mode
SI	<0F>H	Select normal character mode
DC1	<11>H	Initial set command
DC2	<12>H	Inverted print mode
DC3	<13>H	Red color print command
ESC BEL	<1B>H<07>H<n>	1st drawer driver command
SUB	<1A>H	2nd drawer driver command
ESC -	<1B>H<2D>H<n>	Select underline mode
ESC *	<1B>H<2A>H<n>	Graphic command
ESC 1	<1B>H<31>H	Set 1/9 inch line feed
ESC 2	<1B>H<32>H<n>	Set 2/9 inch line feed
ESC C	<1B>H<43>H<n>	Set page length
ESC N	<1B>H<4E>H<n>	n line skip perforation command
ESC O	<1B>H<4F>H	Cancel skip perforation command
ESC P	<1B>H<50>H<n>	Select full-cut / partial-cut
ESC f	<1B>H<66>H	Form feed
FS	<1C>H	1st drawer drive command

### 5.3. EMULATION STAR SP200

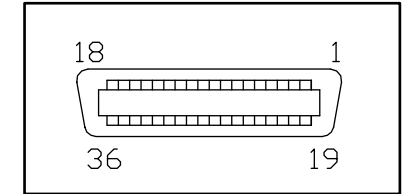
Command	Hex Code	Description
BEL	<07>H	Differed drive command "A" for peripheral unit (Default setting)
CAN	<18>H	Cancel print data in buffer
LF	<0A>H	Line feed
CR	<0D>H	Line feed (same as LF)
SO	<0E>H	Select expanded character mode
SI	<0F>H	Cancel expanded character mode
FS	<1C>H	Immediate drive command "B" for peripheral unit 1
DC4	<14>H	Cancel expanded character mode
ESC BEL n1 n2	<1B>H<07>H<n1><n2>	Adjust drive pulse width for peripheral unit (Default setting)
ESC @	<1B>H<40>H	Initialize printer
ESC M	<1B>H<4D>H	Select 7 x 7 (Half dots) character size (Default setting)
ESC R n	<1B>H<52>H<n>	Select international character set
ESC P	<1B>H<50>H	Select 9 x 7 (Half dots) character size
ESC W 1	<1B>H<57>H<31> H<1B>H<57>H<1>	Select expanded character mode
ESC W 0	<1B>H<57>H<37> H<1B>H<57>H<0>	Cancel expanded character mode
ESC a n	<1B>H<61>H<n>	Feed paper n lines

## 6. Interface

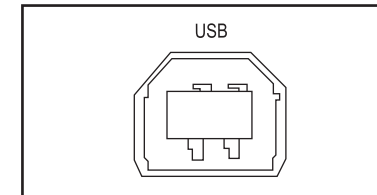
### 6-1. Interface Connector



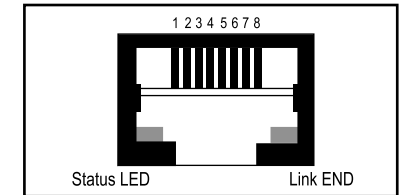
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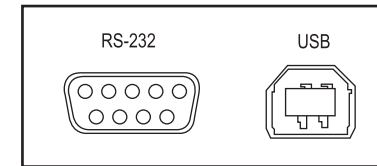
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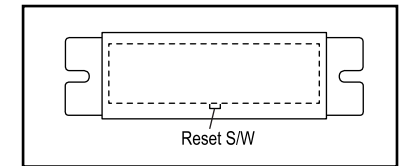
<USB "B" Type>



<Ethernet>



<USB COMBO>



<Wi-fi>

#### Serial Interface

PIN	SIGNAL	I/O	DESCRIPTION
2	TXD	Output	Printer transmit data line RS-232C level
3	RXD	Input	Printer receive data line RS-232C level
4, 20	DTR	Output	Printer handshake to host line RS-232C level
6	DSR	Input	Data Send Ready
1, 7	GND	-	System Ground

#### USB Interface

PIN	SIGNAL	I/O	DESCRIPTION
1	+5V	-	+5V
2	DATA-	-	Printer transmit data line
3	DATA+	-	Printer transmit data line
4	GND	-	System Ground

Centronics Parallel Interface

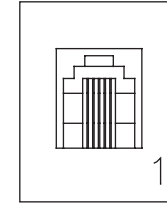
PIN	SIGNAL	I/O	DESCRIPTION
1	STROBE-	Input	Synchronize signal Data received
2~9	DATA0~7	Input/Output	Data bit Transmitted 0~7
10	ACK-	Output	Data receiving completed.
11	BUSY	Output	Impossible to print of data receiving.
12	PE	Output	Paper empty
13	SELECT	Output	Printer status for ON/OFF line
14	AUTO FEED-	Input	Paper auto feed signal
15	GROUND	-	System ground
16	GROUND	-	System ground
17	NC	-	
18	LOGIC-H	-	+5V
19~30	GROUND	-	System ground
31	INIT-	Input	Initialize
32	ERROR-	Output	Printer error
33	GROUND	-	System ground
34	NC	-	
35	+5V	-	+5V
36	SELLECT IN-	Input	Printer select signal

Ethernet Interface

PIN	SIGNAL	I/O
1	Data Out +	Output Data +
2	Data Out -	Output Data -
3	GND	Ground
4	Data IN +	Input Data +
5	Data IN -	Input Data -
6	N.C	
7	N.C	
8	N.C	

## 7. Cash Drawer Connector

The MD-500 can operate two cash drawers with a 6 pin RJ-11 modular connector. The driver is capable of supplying a maximum current of 1.0A for 510 ms or less, when not printing.



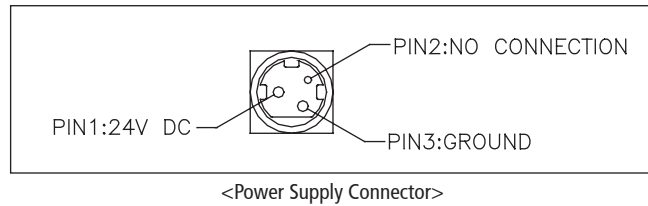
<Cash Drawer Connector>

PIN	SIGNAL	DESCRIPTION
1	Signal GND	-
2	Drawer kick-out drive signal 1	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal 2	Output
6	Signal GND	-

## 8. Electrical Specifications

The MD-500 requires a power supply with the following parameters.  
A linear power Adapter is included in the MD-500 box.

Power Supply Voltage : 24VDC±10%  
Power Supply Current : 2.5 A



## 9. Dip Switch Settings

This table gives the definition for the DIP switch settings.

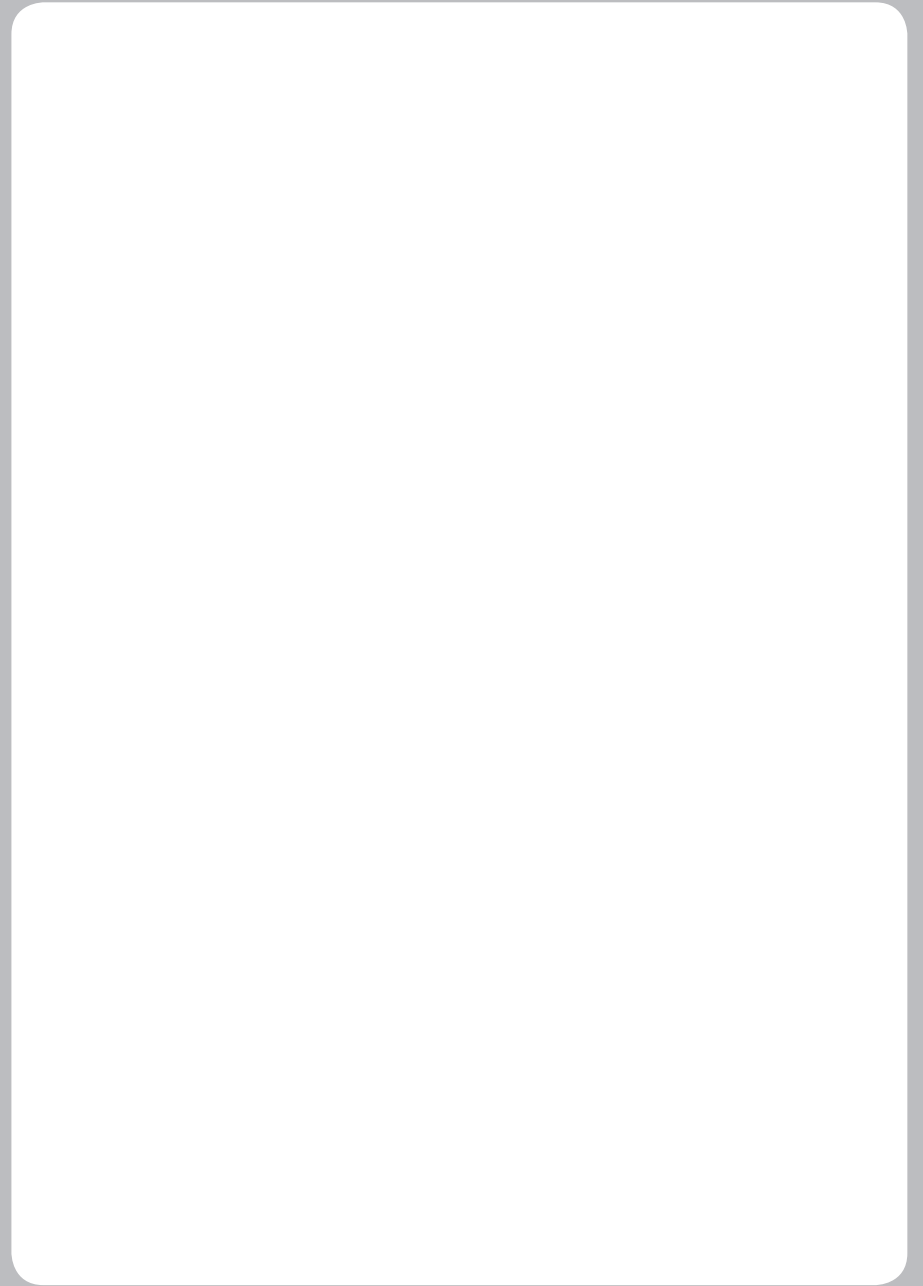
Function	Setting	SW1							
		1	2	3	4	5	6	7	8
Emulation	Epson TM-U200 Epson TM-U300 Citizen iDP3540 Star SP200	OFF ON OFF ON	OFF OFF ON ON						
CR Character	CR=CR Only CR=CR + LF			OFF ON					
CPL	40/33 Char/Line 42/35 Char/Line				OFF ON				
Auto Cutter	Not Install Install					OFF ON			
2Color	Not Install Install						OFF ON		
Journal	Not Install Install							OFF ON	
Function	Setting	SW2							
Flow Control	DTR/DSR Xon/Xoff	OFF ON							
Baud Rate	38400 19200 9600 4800		OFF ON OFF ON	OFF OFF ON ON					
Data Bits	8 Bits 7 Bits				OFF ON				
Parity	None Odd Even					- OFF ON	OFF ON ON		
Auto Melody	Not Install Installed								OFF ON

SERIAL

	Function	Setting	SW1							
			1	2	3	4	5	6	7	8
P A R A M E T E R S	Emulation	Epson TM-U200 Epson TM-U300 Citizen iDP3540 Star SP200	OFF OFF ON ON	OFF ON OFF ON						
	CR Character	CR=CR Only CR=CR + LF			OFF ON					
	CPL	40/33 Char/Line 42/35 Char/Line				OFF ON				
	Auto Cutter	Not Installed Installed					OFF ON			
	2 Color	Not Installed Installed						OFF ON		
	Journal	Not Installed Installed							OFF ON	
	Function	Setting	SW2							
		1	2	3	4	5	6	7	8	
Auto Melody	Not Install Installed								OFF ON	



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