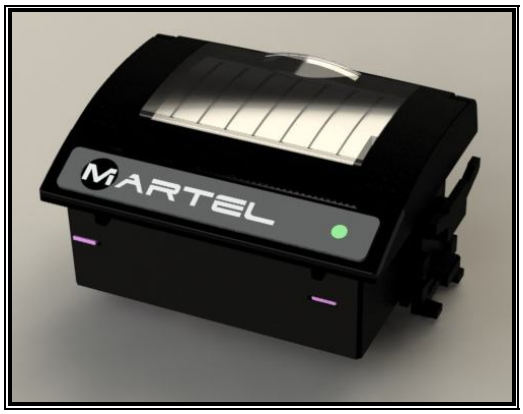
Product Data Sheet

MPP2000

MPP2000 series - PANEL MOUNT PRINTERS



MPP2000	5-8Vdc, 4A peak
MPP2010	5-8Vdc, 2A peak
MPP2020	10-35Vdc

Features

- Fast-load paper loading feature
- High resolution thermal printing
- 5-8Vdc standard, 10-35Vdc / low power options
- Interfaces - RS232 and USB
- Adjustable clip mounting
- Quiet, non-impact system
- Maintenance-free
- Compact and light weight
- High reliability
- Versatile, for use with text or graphics
- 12, 16, 24, 32 or 48 characters per line
- Suitable for paper and label printing
- Windows driver for Win 7 / Vista / XP and 2000
- Linux and WinCE 5.0 / 6.0 drivers available
- Flash upgradeable firmware
- 32mm diameter paper roll support

Options

- Interface options - RS485, TTL
- Bezel—Black, Off White, Custom

Introduction

The MPP2000 Series is from the latest range of Martel printers of the smallest form factor size. Comprising of a compact thermal panel mount printer, with a fixed head mechanism, and our “Fast-Load” paper feature, these Martel Printers set new performance standards for panel-mount units, and include a selection of standard options, and customisable features.

Designed for maximum versatility, the MPP2000 Series are capable of many different modes of operation. Numerous international character sets and barcodes are also selectable. The printers have RS232 serial and USB interfaces as standard, with RS485 & TTL interfaces as factory options. A firmware flash upgrade capability comes as standard, providing a flexible method of remotely updating the printers firmware with new customer requirements.

Power supply options include a single 5-8Vdc (standard) or 10-35Vdc supply, giving fast, high resolution printing. A low current version is also available for both supply options.

Paper changing is simplified by the incorporation of a hinged front on the robust moulded enclosure. with a detachable roller facilitating the “Fast-Open” functionality, for ease of paper roll replacement.

Martel manufactures a wide range of cased and compact panel printers. We would be pleased to discuss the possibility of customising any aspect of our printer to your specific requirements.

SPECIFICATION

General

Printing system	Direct thermal line head
Max Characters per line	48, 42, 32, 24(default), 16 and 12
Character matrix	8x24, 9x24, 12x24 or 16x24
Character size	3mm x 2mm, 3mm x 1.5mm or 3mm x 1mm (Approx. 13, 17 or 25cpi)
Horizontal dot pitch	0.125mm (Approx. 200dpi)
Vertical dot pitch	0.125mm
Text line composition	384x24 dots
Printing width	48mm

Average printing speed

MPP2000/MPP2020	13 lines of text per second (max)
MPP2010	2 lines of text per second (max)

Power supply

MPP2000/MPP2010	5-8 Vdc
MPP2020	10-35Vdc

Current consumption

MPP2000	4A peak
MPP2010	2A Peak
MPP2020	2.7A @ 10V, 1.75A @ 15V, 1.5A @ 20V, 1.2A @ 25V, 1.1A @ 30V, 1A @ 35V peak

Paper and language support

Paper width	58mm
Paper capacity	32mm diameter
Character set	UK / United States (437)
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Japan, Norway, Spain I/II

Data and Interface

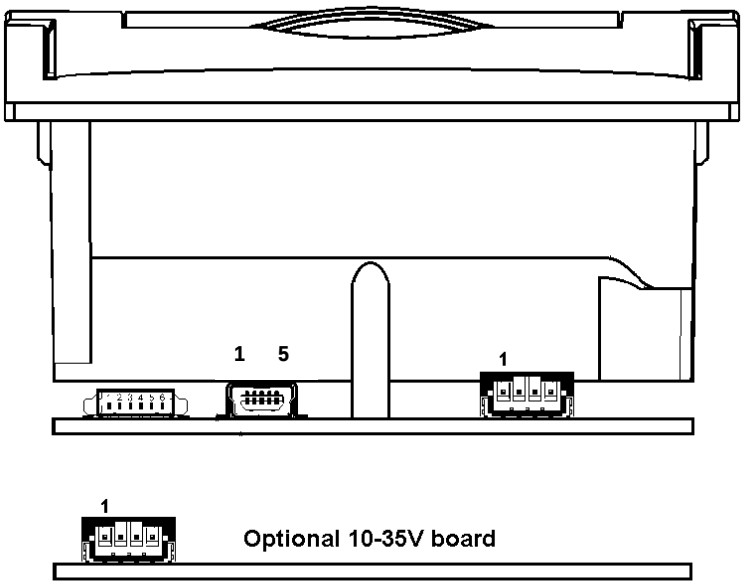
USB	USB v2.0
Serial	
Data format	RS232 (Default, 1 Start, 8 Data, 1 Stop, No Parity)
Baud rates	300, 600, 1200, 2400, 4800, 9600 & 19200, 38400, 57600 & 115200
Handshaking	Hardware (CTS line) or Software (XON/XOFF)

Dimensions

Panel cut-out	78.8 x 59mm
MPP2000/MPP2010	83 x 67 x 47mm (WxDxH)
MPP2020	83 x 67 x 66mm (WxDxH)

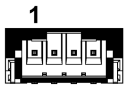
ELECTRICAL CONNECTIONS

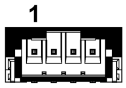
Standard Connectors



Connectors	Receptacle	Crimp (and quantity)
RS232	Molex 51021-0600	Molex 50058 or 50079 (6 off)
USB (Option)	USB Mini B	N/A
5V Power	JST PHR-4	JST SPH-002T-P0.5S (4 off)
10-35V Power	JST PHR-4	JST SPH-002T-P0.5S (4 off)

RS232 Connector	
Pin No	
1	CTS
2	TxD Out
3	RXD In
4	GND
5	Paperfeed
6	LED drive

5V Power Connector	
Pin No	
1	5-8Vdc (not for 10-35V)
2	5-8Vdc (not for 10-35V)
3	0V
4	0V

10-35V Power Connector (option)	
Pin No	
1	10-35Vdc
2	10-35Vdc
3	0V
4	0V

Configuration & Setup

The printer incorporates a number of configurable *options*, each of which has a number of *settings*. The default settings of the standard printer are detailed in the table below in bold. To change the setting of any option, follow the procedure below:

1. Ensure the printer is OFF.
2. Press and hold the Mode button whilst powering the printer ON. After about five seconds, the Status light will flash five times to show that the printer is in *configuration mode*. Release the Mode button.
3. Press the Mode button the same number of times as the *option* that you wish to change (for example to change baud rate, press the Mode button twice).
4. After a short delay, the Status light will flash the same number of times as the option that you have chosen. If you have made a mistake at this stage, simply wait: after a delay, the printer will power-on without changing any options.
5. To proceed with configuration, press the Mode button the same number of times as the *setting* that you wish to make (for example, to set the baud rate to 19200, press the Mode button four times).
6. After a short delay, the Status light will flash the same number of times as the setting that you have made.
7. After a further delay, the printer will power-on with the new setting.

	Option	Setting Number(default in bold)	Setting (default in bold)
1	**RS232 Protocol**	**1**	**8, No parity**
		2	8, Odd parity
		3	8, Even parity
		4	7, Odd, parity
		5	7, Even Parity
2	**RS232 Baud Rate**	1	115200 baud
		2	57600 baud
		3	38400 baud
		4	19200 baud
		5	**9600 baud**
		6	4800 baud
		7	2400 baud
		8	1200 baud
		9	600 baud
		10	300 baud
3	**RS232 Handshake**	1	None
		2	Software
		3	**Hardware**

4	**Default Font**	**1**	**Arial 16, 24 CPL**
		2	Arial 12, 32 CPL
		3	Arial 8, 48 CPL
		4	Ariel 9, 42 CPL
5	**Character Format**	**1**	**Normal**
		2	Double Width
		3	Double Height
		4	Double Width and Height
6	**Print Density**	**1**	**Lowest**
		2	
		3	
		4	Highest
7	**Printer Current**	**1**	**Highest**
		2	
		3	
		4	Lowest
8	**Print Format**	1	Standard paper, normal printing
		2	**Standard paper, upside down printing**
		3	Labels, normal printing
		4	Labels, upside down printing
9	emulation	1	Martel
		2	**Option 1**
		3	HEX DUMP mode

Software Selectable Functions

Underline
Double height
Double width
Graphics
Horizontal tab, plus setting
Form feed, plus setting
11 selectable international character sets
Reverse printing
Inverse printing
Reset
Barcodes

Control Codes and Escape Sequences

Function	Code	Decimal	Hex
Horizontal tab	HT	9	09
Line feed	LF	10	0A
Form feed	FF	12	0C
Carriage return	CR	13	0D
Double width on	SO	14	0E
Double width off	SI	15	0F
Cancel	CAN	24	18
Set print mode	ESC ! *n*	27 33 *n*	1B 21 *n*
Set barcode start position	ESC $ *n1 n2*	27 36 *n1 n2*	1B 24 *n1 n2*
Set bit image (8 pin single density)	ESC * 0 *n1 n2 [d]*	27 42 0 *n1 n2 [d]*	1B 2A 00 *n1 n2 [d]*
Set bit image (8 pin double density)	ESC * 1 *n1 n2 [d]*	27 42 1 *n1 n2 [d]*	1B 2A 01 *n1 n2 [d]*
Set bit image (24 pin single density)	ESC * 32 *n1 n2 [d]*	27 42 32 *n1 n2 [d]*	1B 2A 20 *n1 n2 [d]*
Set bit image (24 pin double density)	ESC * 33 *n1 n2 [d]*	27 42 33 *n1 n2 [d]*	1B 2A 21 *n1 n2 [d]*
Underline on	ESC – 1	27 45 1	1B 2D 01
Underline off	ESC – 0	27 45 0	1B 2D 00
Reset	ESC @	27 64	1B 40
Set page length	ESC C *n*	27 67 *n*	1B 43 *n*
Set horizontal tabs	ESC D *n*	27 68 *n*	1B 44 *n*
Bold on	ESC G	27 71	1B 47
Bold off	ESC H	27 72	1B 48
Set bit image	ESC K *n1 n2 [d]*	27 75 *n1 n2 [d]*	1B 4B *n1 n2 [d]*
Country select	ESC R *n*	27 82 *n*	1B 52 *n*
Set black line recognition	ESC L	22 76	1B 4C
Double width on	ESC W 1	27 87 1	1B 57 01
Double width off	ESC W 0	27 87 0	1B 57 00
Compressed bit image graphics	ESC Z *n1 [d1] ... n24 [d24]*	27 90 *n1 [d1] ... n24 [d24]*	1B 5A *n1 [d1] ... n24 [d24]*
Print & feed paper	ESC d *n*	27 100 *n*	1B 64 *n*
Reversed on	ESC i 1	27 105 1	1B 69 01
Feed to start of next label	ESC f	27 102	1B 66
Reversed off	ESC i 0	27 105 0	1B 69 00
Send Printer Status	ESC v	27 119	1B 76
Double height on	ESC w 1	27 119 1	1B 77 01
Double height off	ESC w 0	27 119 0	1B 77 00
Inverse on	ESC { 1	27 123 1	1B 7B 01
Inverse off	ESC { 0	27 123 0	1B 7B 00
Set barcode height (1 ≤ n ≤ 255)	GS h *n*	29 104 *n*	1D 68 *n*
Print UPC-A barcode	GS k 0 *[d]* NULL	29 107 0 *[d]* 0	1D 6B 00 *[d]* 00
Print UCP-E barcode	GS k 1 *[d]* NULL	29 107 1 *[d]* 0	1D 6B 01 *[d]* 00
Print EAN13 barcode	GS k 2 *[d]* NULL	29 107 2 *[d]* 0	1D 6B 02 *[d]* 00
Print EAN8 barcode	GS k 3 *[d]* NULL	29 107 3 *[d]* 0	1D 6B 02 *[d]* 00
Print Code 39 barcode	GS k 4 *[d]* NULL	29 107 4 *[d]* 0	1D 6B 04 *[d]* 00
Print 2 of 5 barcode	GS k 5 *[d]* NULL	29 107 5 *[d]* 0	1D 6B 05 *[d]* 00
Print Codabar barcode	GS k 6 *[d]* NULL	29 107 6 *[d]* 0	1D 6B 06 *[d]* 00
Print CODE128 barcode	GS k 7 *n [d]*	29 107 7 *n [d]*	1D 6B 07 *n [d]*
Set barcode magnification (2 ≤ n ≤ 4)	GS w *n*	29 119 *n*	1D 77 *n*

International Character Sets

Country	Code	Decimal	Hex
USA	ESC R 0	27 82 0	1B 52 00
France	ESC R 1	27 82 1	1B 52 01
Germany	ESC R 2	27 82 2	1B 52 02
UK	ESC R 3	27 82 3	1B 52 03
Denmark I	ESC R 4	27 82 4	1B 52 04
Sweden	ESC R 5	27 82 5	1B 52 05
Italy	ESC R 6	27 82 6	1B 52 06
Spain	ESC R 7	27 82 7	1B 52 07
Japan	ESC R 8	27 82 8	1B 52 08
Norway	ESC R 9	27 82 9	1B 52 09
Denmark II	ESC R 10	27 82 10	1B 52 0A

Print Mode (ESC!)

Bit	Function	0	1
0	Character font		
1	(see below)		
2	Print density		
3	(see below)		
4	Double height	Cancelled	Set
5	Double width	Cancelled	Set
6	Undefined		
7	Underline	Cancelled	Set

Print Density		Bit 3	Bit 2
Light	1 (Default)	0	0
	2	0	1
	3	1	0
Dark	4	1	1

Send Printer Status (ESC v)

Bit	Function	0	1
2	Paper Out	False	True

Character Font	Bit 1	Bit 0
24 characters per line	0	0
48 characters per line	0	1
32 characters per line	1	0
42 characters per line	1	1

Mode Button and Status LED Operation

Mode Button

Status LED

Power On Self Test

The self test procedure is initiated by supplying power to the printer while the mode button is depressed. When the mode button is released a test print will be produced.

Status LED

The printer incorporates an LED indicator to report its condition. If there is a fault, the LED will flash in sequence. The fault can be identified by counting the number of flashes.

LED Indication			Condition	Solution
On			Printer On	-
Off			Printer Off	-
*	*	*	Paper out or door open	Fit new paper
**	**	**	Thermal head too hot	Allow head to cool
***	***	***	Power low	Check power supply & connections
****	****	****	Power low	Check power supply & connections

Paper Out

The printer will automatically detect when the printer paper has run out, and report this using the Status LED. Use the Mode button to feed through the last few centimetres of paper and fit a new roll.

Head Thermal Limit

After extensive printing the print head temperature may rise to an unusable level. The Status LED will report when this occurs, and printing will be suspended until the head temperature returns to normal levels.

Paper Tear Procedure

When removing printout from the printer, pull the printout toward the tear bar and tear from one side to the other across the serrated edge. Note: paper can be torn in either direction as this printer has a double faced tear bar.

How To Open Lid

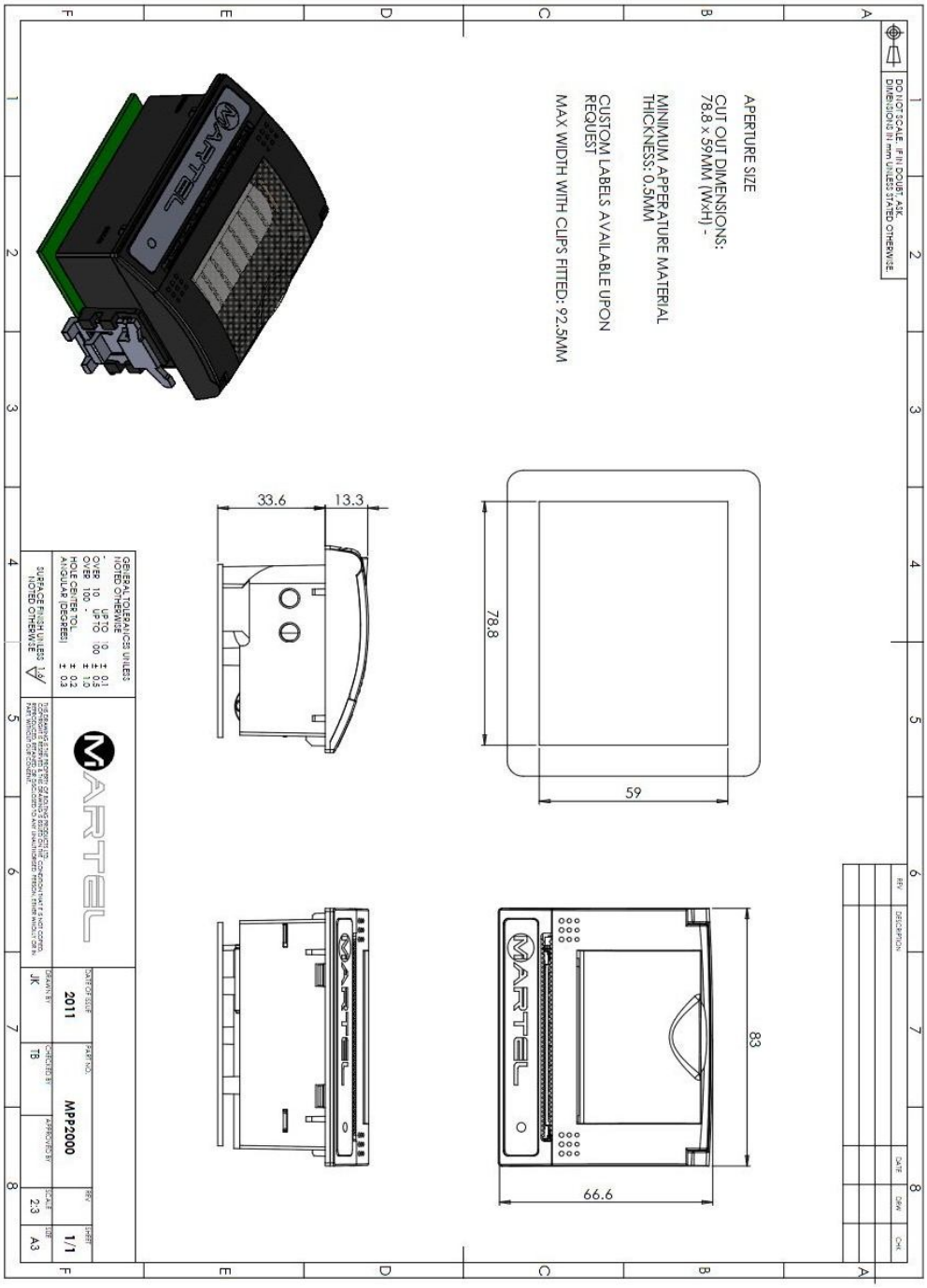
Pull the lever until the lid is released from its locked position. To avoid damage do not use excessive force.

Replacing Paper Roll

If the paper roll needs replacing, open the paper cup lid and remove the remaining paper. Reel off a few centimetres from a new roll of paper. Hold approximately 5cm of paper outside the device as you place the new roll into the reservoir. Close the lid by applying equal amounts of pressure on each side ensuring the lid is in the locked position. Now tear the spare paper away.

Paper Feed

Depressing the mode button will allow paper to be fed through the printer.


APERTURE SIZE
CUT OUT DIMENSIONS:
78.8 x 59MM (WxH) -
MINIMUM APPERATURE MATERIAL
THICKNESS: 0.5MM
CUSTOM LABELS AVAILABLE UPON
REQUEST
MAX WIDTH WITH CLIPS FITTED: 92.5MM
33.6
13.3
78.8
59
83
66.6
MARTEL
MPP2000
2011
1/1
A3
2:3