MARTEL INSTRUMENTS

Product Data Sheet

MPP4000

MPP4000 series - PANEL MOUNT PRINTERS

MPP4000	5-8Vdc, 4A peak
MPP4010	5-8Vdc, 2A peak
MPP4050	10-35Vdc

Features

- Fast-load paper loading feature
- High resolution thermal printing
- 5-8Vdc standard, 10-35Vdc / low power options
- Interfaces – RS232 & USB
- Panel screw mounting
- Panel screw mount or panel clamping bezel
- Quiet, non-impact system
- Maintenance-free
- Compact and light weight
- High reliability
- Versatile, for use with text or graphics
- 26, 34, 52(default), 69, 104 characters per line
- Suitable for paper and label printing
- Windows driver for Win 7 / Vista / XP and 2000
- Flash upgradeable firmware
- 60mm diameter / 112mm width paper roll support

Options

- Interface options - RS485, TTL
- Bezel—Black(default), Off White, Custom
- Real Time clock with backup battery
- Customised control membrane / keys / LED's

Introduction

The MPP40xx Series is from the latest range of Martel printers. Comprising of compact thermal panel mount printers, incorporating a fixed head mechanism and "Fast-load" paper feature. These Martel Printers are setting new performance standards for panel-mount units, and include a selection of standard options, and customisable features.

Designed for maximum versatility, the MPP40xx Series are capable of many different modes of operation. Numerous international character sets and barcodes are selectable. The printers have RS232 serial & USB interfaces as standard, and RS485 & TTL interfaces as factory options. 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 5-8Vdc as standard, or an optional 10-35Vdc supply giving fast, high resolution printing. Low current options also available for both supply options.

Paper changing is simplified by incorporating a hinged front on the robust moulded enclosure, and our "Fast Load" functionality, which allows for easy paper roll replacement / replenishment.

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	26, 34, 52(default), 69, 104 characters per line
Character matrix	8x24, 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	832x24 dots
Printing width	104mm

Power supply

MPP4000/MPP4010	5-8 Vdc
MPP4050	10-35Vdc

Current consumption

MPP4000	4A peak
MPP4010	2A Peak
MPP4050	2.7A @ 10V, 1.75A @ 15V, 1.5A @ 20V, 1.2A @ 25V, 1.1A @ 30V, 1A @ 35V peak

Paper and language support

Paper width	112mm Max, 104mm print width
Paper capacity	60mm diameter
Character set	UK / United States (437)
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Japan, Norway, Spain I.

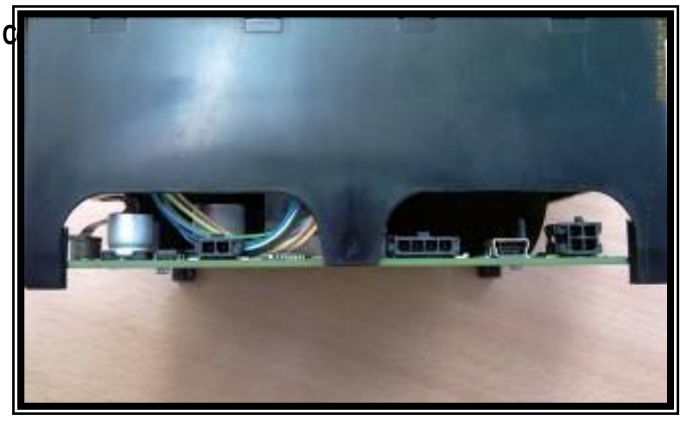
Data and Interface

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)
Buffer size	5 Kbytes

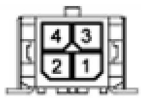
Dimensions

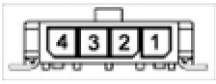
MPP4000 series	158mm x 110mm x 75mm (WxHxD)
Panel cut-out	140 x 103 mm

ELECTRICAL CONNECTIONS



Connectors	Receptacle	Crimp (and quantity)
RS232	Molex 43025-0400	Molex 43030-0007 (4 off)
USB	USB Mini B	N/A
5V Power / Paper Takeup	Molex 43645-0400	Molex 43030-0007 (4 off)
10-35V Power	Molex 43645-0200	Molex 43030-0007 (2 off)

RS232 Connector	
Pin No	
1	RXD In
2	TxD Out
3	CTS
4	GND

5V Power / Take-up Spool Connector	
Pin No	
1	0V
2	5-8Vdc (not for 10-35V)
3	Paper take up power
4	Paper take up drive

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

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, 52 CPL**
		2	Arial 12, 69 CPL
		3	Arial 8, 104 CPL
5	**Character Format**	**1**	**Normal**
		2	Double Width
		3	Double Height
		4	Double Width & Double 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

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

Character Font	Bit 1	Bit 0
52 characters per line	0	0
104 characters per line	0	1
69 characters per line	1	0
Undefined	1	1

Print Mode (ESC!)

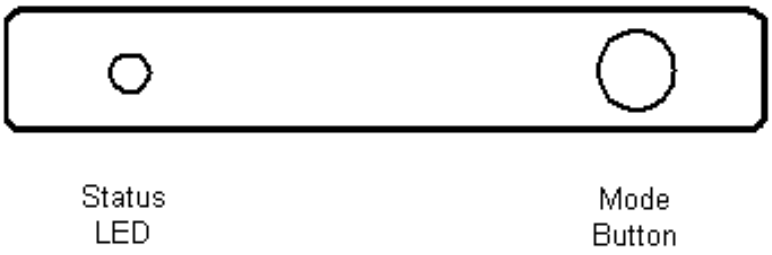
Bit	Function	0	1
0	Character font		
1	(see below)		
2	Print density		
3	(see below)		
4	Double height	Cancelled	Set
5	Double width	Cancelled	Set
6	Undefined		
7	Underline	Cancelled	Set

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

Mode Button and Status LED Operation



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

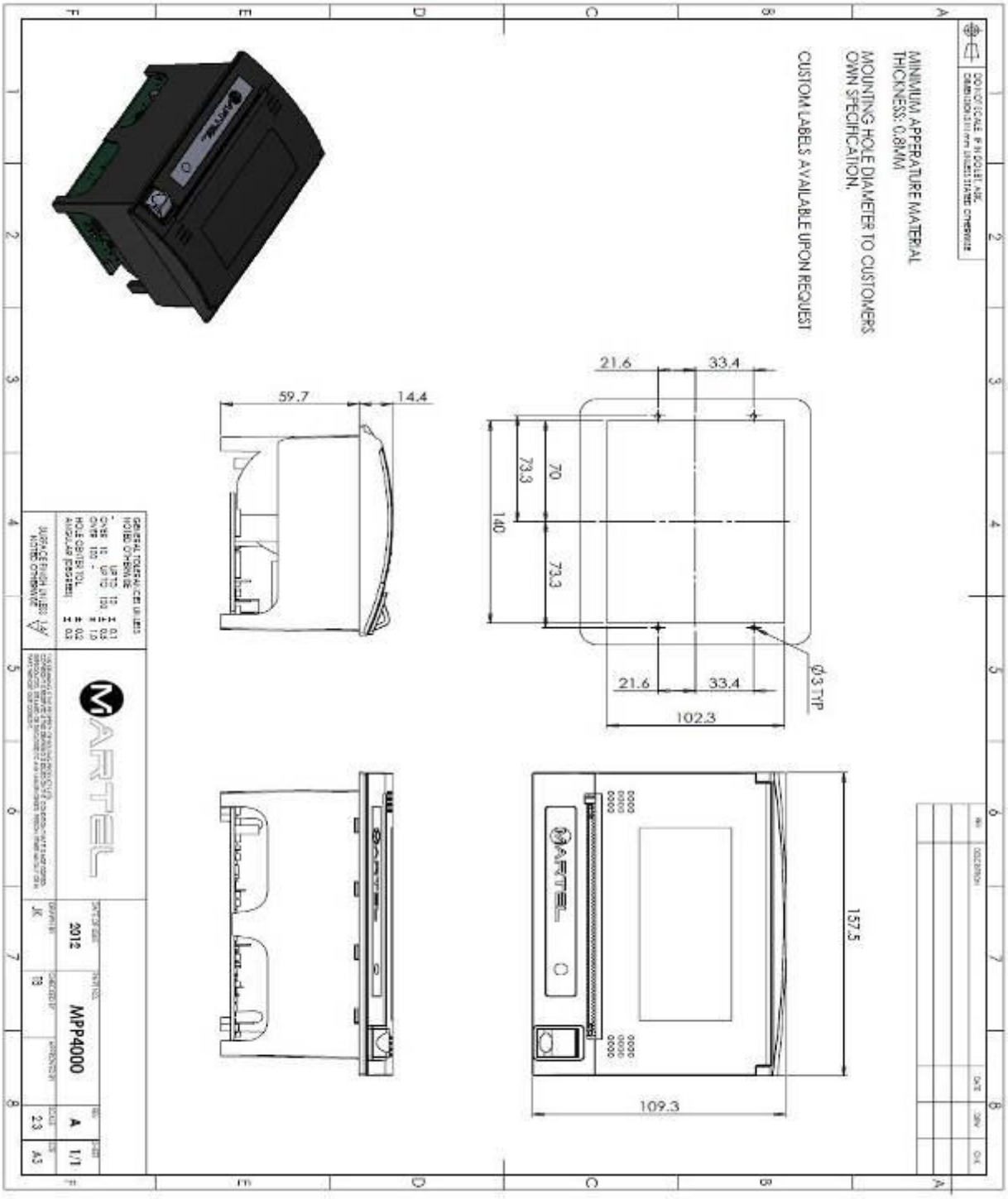
Push the lever open button forward until the lid is released from its locked position. To avoid damage do not use excessive force.

Replacing Paper Roll

If the paper roll needs replacing, open the paper cup lid by pressing the button forward, 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.


MINIMUM APPERATURE MATERIAL THICKNESS: 0.8MM
MOUNTING HOLE DIAMETER TO CUSTOMERS OWN SPECIFICATION.
CUSTOM LABELS AVAILABLE UPON REQUEST
59.7
14.4
21.6
33.4
73.3
70
140
73.3
21.6
33.4
102.3
Ø3 TYP
157.5
109.3
MARTEL
2012
MPP4000
A
1:1
A3