



MARTEL INSTRUMENTS

Printers

for HPIR Printing

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October 2026

Why?

- Why this topic?
- Why Martel?
- Why now? What's new? HP 82240B, Martel HPIR printers not new...

Printing is Useful

- Adding machine
- HP 19BII
- R47
 - Program listings
 - Registers

Adding Machine

R47 Trace

```
45 +
45.36 ***
81.2 ***
162.2 ***
145 ***
307.37 ***
270. ***
```

R47 Norm

```
45 +
45.36 ***
81.2 ***
162.2 ***
145 ***
307.37 ***
270. ***
```

HP19BII example

08/13/2026 03:59:02 PM
THURSDAY

```
R0 = 0.00
R1 = 0.00
R2 = 0.00
R3 = 0.00
R4 = 0.00
R5 = 0.00
R6 = 0.00
R7 = 0.00
R8 = 0.00
R9 = 0.00
```

```
15.57 ***
-536.82 ***
I/YR=5.00
PV=100,000.00
PMT=-536.82
```

```
N= 360.00
I/YR= 5.00
PV= 100,000.00
PMT= -536.82
FV= 0.00
P/YR= 12.00
END MODE
```

```
OLD= 150.00
NEW= 120.00
%CHANGE= -20.00

TOTAL= 175.00
PART= 35.00
%TOTAL= 20.00
```

```
FEET= 1.00
INCHES= 13.00
METERS= 0.30
CM= 30.00
MM= 300.00
MILES= 0.00
NAUTICAL.MI= 0.00
KM= 0.00
YARDS= 0.00
FATHOMS= 0.00
08/13/2026 04:05:18 PM
THURSDAY
```

R47 example

```
D =
C =
B =
A =
Z =
Y =
X =
```

```
Σ =
ΣX =
ΣY =
ΣXY =
ΣlnXlnY =
ΣlnX =
ΣlnY =
ΣlnXY =
ΣXlnY =
ΣXlnY/X =
Σ1/X =
Σ1/Y =
Σ1/XY =
ΣX =
ΣY =
ΣXY =
ΣXmin =
ΣXmax =
ΣYmin =
ΣYmax =
```

R47 Register listing

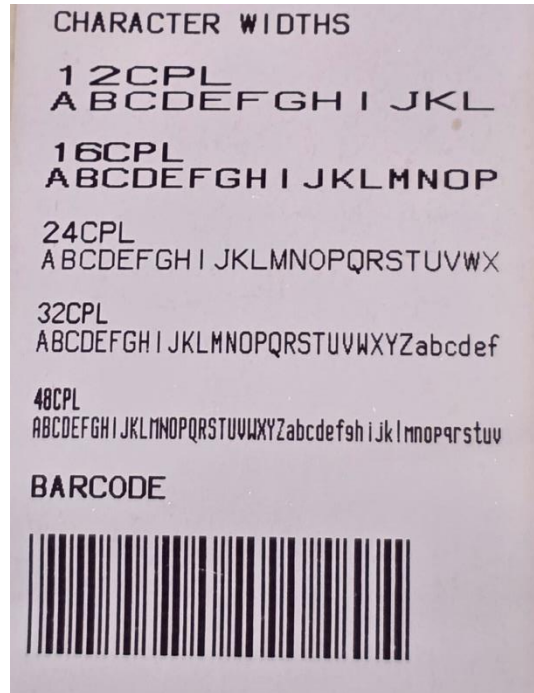
Why?

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- Why now? What's new? HP 82240B, Martel HPIR printers not new...

Martel MCP8850B vs HP82240B

Specification	HP 88240B	MCP 8850B	Units	
IR Protocol	HPIR	HPIR		
Fonts	24	12/16/24/32/48	Characters/Line	.5x,2x
IR Transmission Rate	80	240	Characters/Sec	3x
Print Speed	.5-.8	3-10	lines/sec	6x-12.5x
Print Speed	1.2-1.8	.1-.33	sec/line	
Print Width	47	48	mm	
Resolution	166*	384	dots/line	2.3x
Paper Width	57/58	58	mm	
Buffer Capacity	200	200	characters	
Battery Life	6000	6000	Lines/Charge	
Weight	463	425	grams	
Size	90x185x61	91x185x58	mm	
* Graphics mode				

Martel Print Options



- Both HPIR compatible
- MCP >6x faster
- 2x dots/line
- Max 2x characters/line

Why?

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 - Printing useful – adding machine, printouts
- Why Martel
 - HPIR compatibility
 - Faster! Higher resolution! (graphics)
 - Font with more characters/line
- Why now? What's new? HP 82240B, Martel HPIR printers not new...

People have been using HP 82240A/B and Martel Printers for HPIR Printing for years.

Why now?

- With some Swiss Micros calculators now supporting HPIR printing (like the R47) there is a growing potential new demand for printers.
- HP 82240A/B are still occasionally available in the used market (eBay, etc.) but with fixed supply and with increasing demand the HP printers' price may increase.
- Martel is still actively selling printers, some of which are HP IR compatible. There is a growing base of Martel printers. So, more HP IR printer supply to address the new demand (with some at lower cost, all at higher performance).
- However, buyer beware, many of the Martel printer models do not support HP IR.

Why?

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- Why Martel
 - HPIR compatibility
 - Faster! Higher resolution! (graphics)
 - Font with more characters/line
- Why now? What's new? HP 82240B, Martel HPIR printers not new...
 - New Swiss Micros Calculators supporting HPIR (e.g., R47)
 - New users in the market for HP IR compatible printers

What to buy:

The C47/R47 team has identified and tested 3 Martel Printers...

MCP 8850B

MCP 7850B

Midtronics 182-003B(MCP 8830-031).



Figure 3: From left to right: HP-82240B, Martel MCP8850B, Martel MCP7850B and Midtronics 182-003B (a custom Martel MCP1830)

	HP-82240B	Martel MCP8850B	Martel MCP7850B	Midtronics 182-003B
Printing system	Thermal moving head	Thermal line head system	Thermal line head system	Thermal line head system
Texte line	8 x 166 dots	24 x 384 dots	24 x 384 dots	24 x 384 dots
Characters per line	24	48 max (24 default)	48 max (24 default)	48 max (24 default)
Buffer size	200 characters	6 Kbytes	5 Kbytes	5 Kbytes
Paper width	57 mm	58 mm	58 mm	58 mm
Character set	Roman- 8, ECMA-94	Roman 8, ECMA 94	Roman 8, ECMA 94	Roman 8, ECMA 94
Interface	HPIR	HPIR	HPIR	HPIR, IrDA, RS-232
Power	4 x 1.5V alkaline, AA cells	4 x 1.5V alkaline, AA cells	4 x 1.5V alkaline, AA cells	4 x AA NiMh batteries
Dimensions	90 x 185 x 61 mm	91 x 185 x 58 mm	85.5 x 150 x 55 mm	86 x 148.8 x 57.5 mm
Weight (with paper and batteries)	463 g	425 g	400 g	395 g

Where can I purchase a Martel Printer

- Purchase directly from Martel?
- Purchase from distributor that uses Martel Printers in their products
- Purchase used (eBay...)

RE: Martel HPIR Printers



[Redacted]@martelinstruments.com>

To cmcc0rd@comcast.net



Tue 2:30 AM



MCP7830_ADR.pdf

850 KB



Hi Charles

I have attached the MCP7830 user guide. If you are looking for any, I'd advise this model, however, they have not been tested with the equipment you are using.

I have no datasheets available for the MCP8850 or any of the MCP98xx series.

Please note, that any units that have a 3 digits suffix after, are customised units, intended for use with a specific bit of kit. (for example, medical equipment, breathalyser units etc.) These will probably fail to work.

We are unable to offer any technical support for units that are not purchased via us.

Hope this helps

Best regards



Martel Instruments- the "Burger King"
for thermal printers
(enabling customers to have it their way ☺)



MARTEL INSTRUMENTS



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Getting more information from Martel...

- Martel is local to some UK HPCC members
- Talking, live, directly >> trading emails
- Mark Power volunteered to give Martel a call 😊
- Per Martel technical support, their current products* that support HP IR:
 - MCP 7830 ⊕ -- (° -- ⊖
 - MCP 1830 ⊕ -- (° -- ⊖
 - MCP 1880B² ⊕ -- (° -- ⊖
- MCP 8850B also supports HP IR but is not a current product
- MCP 28xx datasheet incorrectly says it is HP IR compatible -- (° --
- Martel has a minimum £500 order, we do not have printer pricing yet.



Martel LLP1880B-391

* There are different flavors of each of these models, some of which may, and some of which may not, be HP IR compatible.

² Interestingly, the 1880 datasheet does not list IR functionality and I have not been able to get the R47 or HP19BII to print to the LLP1880B-391 I own.

Martel's printers have an attractive form factor: are portable, ink-less and are customized kit for users' systems. The mark-up on custom printers makes the business attractive...



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All Products / Lab Analyzers / Point of Care Analyzers / Siemens 11413889 Martel Printer – EPOC, New

Siemens 11413889 Martel Printer – EPOC, New

\$ 1,504.10

-

1

+

Add to cart

Buy now

In Stock

Product code: 11413889
MPN: 11413889
Manufacturer: Siemens Healthineers
Shipping Weight: 15.00lbs (6.80kg)



Purchasing from a distributor



MARTEL INSTRUMENTS

Martel is still selling new 7850s...

From: [REDACTED] <sales@madur.com>

Sent: Tuesday, August 4, 2026 11:09 PM

To: cmcc0rd@comcast.net

Subject: Re: Martel IRDA thermal printer

Dear Charles,

We have a few new MCPK-7850 printers (purchased directly from Martel in 2025). We are still using them with our analysers, but they are not a very popular add-on with our clients. I can spare one or two (how many do you need?)

I can sell them to you at the distributor price of [REDACTED] USD (is it a reasonable cost ? :) - those printers are expensive)

Purchasing a used printer

To eBay or not to eBay...



On US eBay there were

- 20 Martel printers listed on both 12-Aug, 8-Oct
- 12 Different Martel models listed on 12-Aug, 8 different models on 8-Oct
- 5 Midtronics 182-003B for sale (\$349, \$255, \$376, \$425, \$660) on 8-Oct
- No 8850B's for sale. The last 4 MCP-8850B prices were:
 - \$175+10
 - \$125+10
 - \$150+11.50
 - \$199
- Other used MCP printer's min-max total price range \$35 - \$450 (both 12-Aug, 8-Oct) 8-Oct average:\$145
- Most listings "Best Offer"
- Most other MCP printers listed at lower price than MCP8850B.
- Most printers do **not** come with an AC adapter
- Most sellers do NOT know if their printer has HPIR or even IR (I asked ☺)
 - Most Martel printer sales do NOT have a picture of their self-test print out (which lists supported I/O), and
 - Most sellers are not interested in generating a self-test print out (I asked ☺, hassle to find power & paper)
- Most sellers do NOT have any documentation

If some of these printers were compatible, they would be newer designs, faster, lower cost, smaller form factor, would support NiMh batteries and charging.

I did this Google search:

Build a comparison table of different Martel Instrument printer models in one dimension and model features in the other dimension. Model list must include at least:

MCP8850B
MCP7870
MCP1810-395 serial number 1806022328
MCP1810-440K for LumirDX
LLP1810B-391 Portable Printer Data Logger
MCP9814-097
MCP9819-065
MCP9821X-055
MCP9821X-055

Feature list must include at least:

Battery type (e.g., 4 AA or 1 NiMh)
Does it have an IR interface



And got this as one of the replies:

The requested comparison table features specific [Martel Instruments](#) thermal printer models on one axis and their battery type and infrared (IR) interface capabilities on the other axis, compiled from available product technical data. [\[1\]](#)

Printer Model	Battery Type	Has IR Interface?
MCP8850B	Rechargeable Ni-MH (4 x AA size) [1.2, 1.3]	Yes (HP 82240B format)
MCP7870	Rechargeable Ni-MH / Alkaline option	Varies / Configurable (Optional IR)
MCP1810-395	Rechargeable Ni-MH / Battery pack	Varies by OEM configuration
MCP1810-440K	Rechargeable Ni-MH / Battery pack	Varies by OEM configuration
LLP1810B-391	Rechargeable Ni-MH pack	Varies by OEM configuration
MCP9814-097	Ni-MH battery pack (e.g., Abbott/i-STAT style)	Yes
MCP9819-065	Ni-MH battery pack (e.g., Abbott/i-STAT style)	Yes
MCP9821X-055	Ni-MH battery pack / Rechargeable pack	Yes

Unfortunately re-running the search also yields all “Yes” for IR interface and all “No” except for the 8850B & 7870.

MCP7830 Infra-Red THERMAL PRINTER Series Applications Datasheet

MCP7830 Series

MCP7830	Rechargeable NiMH batteries
MCP7830B	Alkaline batteries
MCP7830V	external 10-35Vdc
MCP7830X	external 5Vdc UPS

Introduction

The MCP7830 Series are ultra-compact, lightweight, portable thermal printers with an "easy-load" paper feature.

Housed in an innovative enclosure and designed for maximum flexibility, the series have IrDA and RS232 interfaces incorporated whilst also being compatible with existing systems using HP infra-red communications but allowing upgrades in terms of printing speed and functionality.

Power options include rechargeable NiMH batteries, alkaline batteries, an external 5Vdc Universal Power Supply or an external 10-35Vdc power supply. Rechargeable batteries may be continuously trickle charged from a mains power adapter, or a 12Vdc supply and a fast charge facility is incorporated.

Many different modes of operation are possible, including numerous character sets, all selectable by software commands.

The MCP7830 Series is from a range of thermal printers designed and manufactured in the UK by Martel Instruments. All units are built into robust ABS housings, with a choice of colours. We would be pleased to discuss the possibility of customising any aspect of the printer to specific requirements.

Features

- Easy-Load paper feature
- HP compatible IR interface
- IrDA and RS232 interfaces
- Power supply options
- High speed, high resolution printing capability
- Quiet, non-impact system
- Maintenance-free
- Ultra-Compact and light weight
- High reliability line head mechanism
- Versatile for use with text or graphics
- 24, 32 or 48 characters per line
- Barcode capability
- Low power mode
- Range of configurable options
- Windows drivers available on request
- Suitable for paper and label media
- Range of mounting options available

1. PRINTER SPECIFICATIONS
1.1 Overall Specification

Printing system	Direct thermal line head
Max Characters per line	48, 32, 24(default)
Character matrix	24x8, 24x12 or 24x16
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	24x384 dots
Printing width	48mm
Average printing speed	10 lines per second (max), MCP7830B 5 lines per sec
Dimensions	85.5mm x 150mm x 55mm (45mm low profile printer)
Weight	400g approx (inc batteries and paper)
Power supply	
MCP7830	internal 4 x 1.2V NIMH 1600mAh, AA cells
MCP7830B	internal 4 x 1.5V alkaline, AA cells
MCP7830V	external 10-35Vdc
MCP7830X	external 5Vdc
Paper width	58mm
Paper capacity	45mm dia. 25m (standard printer)
Character set	ASCII
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Spain & Japan
Interfaces	
Data format	(a) RS232C (8 Data, 1 Stop, No Parity). Connector 6-way RJ12 socket Baud rates 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, & 115200
	Handshaking Hardware (CTS line) or Software (XON/XOFF)
	(b) HP IR (1 start, 8 data, 4 error detection).
	(c) IrDA (V1.0 physical layer).
Buffer size	5 Kbytes
Environmental Conditions	
Operating range	0°C to +50°C
Storage range	-20°C to +60°C
MTBF	Approx. 10 Million lines (20°C, print ratio = 25%)
	Charging range +10°C to +45°C


1.2 Infra-red Interface

The transmit/receive requirements for interfacing with the MCP7830 are compatible with existing systems, however higher transmission speeds and printing speeds are possible due to the incorporation of a large 5Kbyte buffer and a high speed thermal fixed head printer mechanism.

Higher print speed can be achieved by minimising the inter-frame delays in the transmission software, previously required when using a slower printer mechanism. Maximum distance for reliable infra-red communication between printer and host equipment is 45cm (18in). The infra-red port at the front of the printer should be pointed directly at, and horizontal to, the port on the host equipment and the beam should not be obstructed.

1.3 Serial Interface

The RS232C standard is used, and the baud rate is selectable via Configuration Option 4 (see page 3).

The printer is fitted with a 6-way RJ12 socket (Fig 1 illustrates the pin numbers for the connector), the pin assignments and interface signals are defined below.

PIN	Signal	I/O	Definition
1	GND	N/A	Signal ground
2	TxD	0	Transmitted data to host
3	RxD	1	Received data from host
4	CTS	0	Clear to Send
5	n/c	N/A	No connection
6	n/c	N/A	No connection

Fig 1: Pin Numbers for Serial Interface Connector


1.4 Drivers

Windows : <http://www.martelinstruments.com/aboutus/support-reliable-product-support/resources/downloads>

Linux : <http://www.martelinstruments.com/aboutus/support-reliable-product-support/resources/downloads>

2. PRINTER CONFIGURATION

2.1 Configuration Options

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. After about 5 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 IrDA 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 4 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 Number	Option Description	Setting Number (default in bold)	Setting (default in bold)	Option Number	Option Description	Setting Number (default in bold)	Setting (default in bold)
1	IrDA Protocol	1	8, No parity	6	Font	1	Arial 16, 24 CPL
		2	8, Odd parity			2	Arial 12, 32 CPL
		3	8, Even parity			3	Arial 8, 48 CPL
		4	7, Odd, parity			4	Roman 8, 24 CPL
		5	7, Even Parity			5	Ecma 94, 24 CPL
		6	HPIR Mode	7	Character Format	1	Normal
		7	IrMP Mode			2	Double Width
2	IrDA Baud Rate	1	115200 baud			3	Double Height
		2	57600 baud			4	Double Width and Height
		3	38400 baud	8	Print Density	1	Lowest
		4	19200 baud			2	
		5	9600 baud			3	
		6	4800 baud			4	Highest
		7	2400 baud	9	Printing Current	1	Highest
		8	1200 baud			2	
		9	600 baud			3	
		10	300 baud			4	Lowest
3	RS232 Protocol	1	8, No parity	10	Print Format	1	Standard paper, normal printing
		2	8, Odd parity			2	Standard paper, upside down printing
		3	8, Even parity			3	Labels, normal printing
		4	7, Odd, parity			4	Labels, upside down printing
		5	7, Even Parity	11	Sleep / Wake-up	1	Never Sleep
4	RS232 Baud Rate	1	115200 baud			2	Sleep after 1 minute
		2	57600 baud			3	Sleep after 2 minutes
		3	38400 baud			4	Sleep after 5 minutes
		4	19200 baud			5	Sleep after 10 minutes
		5	9600 baud			6	Off after 1 minute
		6	4800 baud			7	Off after 2 minutes
		7	2400 baud			8	Off after 5 minutes
		8	1200 baud			9	Off after 10 minutes
		9	600 baud				
		10	300 baud				
5	RS232 Flow Control	1	None				
		2	Software				
		3	Hardware				

2.2 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

2.3 Control Codes and Escape Sequences (HP IR Mode)

Function	Code	Decimal	Hex
Horizontal tab	HT	9	09
Line feed	LF	10	0A
Form feed	FF	12	0C
Carriage return	CR	13	0D
Cancel	CAN	24	18
Double width on	SO	14	0E
Double width off	Si	15	0F
Set print mode	ESC NULL ! <i>n</i>	27 0 33 <i>n</i>	1B 00 21 <i>n</i>
Set barcode start position	ESC NULL \$ <i>n1 n2</i>	27 0 36 <i>n1 n2</i>	1B 00 24 <i>n1 n2</i>
Set bit image (8 pin single density)	ESC NULL * 0 <i>n1 n2 [d]</i>	27 0 42 0 <i>n1 n2 [d]</i>	1B 00 2A 00 <i>n1 n2 [d]</i>
Set bit image (8 pin double density)	ESC NULL * 1 <i>n1 n2 [d]</i>	27 0 42 1 <i>n1 n2 [d]</i>	1B 00 2A 01 <i>n1 n2 [d]</i>
Set bit image (24 pin single density)	ESC NULL * 32 <i>n1 n2 [d]</i>	27 0 42 32 <i>n1 n2 [d]</i>	1B 00 2A 20 <i>n1 n2 [d]</i>
Set bit image (24 pin double density)	ESC NULL * 33 <i>n1 n2 [d]</i>	27 0 42 33 <i>n1 n2 [d]</i>	1B 00 2A 21 <i>n1 n2 [d]</i>
Underline on	ESC NULL - 1	27 0 45 1	1B 00 2D 01
Underline off	ESC NULL - 0	27 0 45 0	1B 00 2D 00
Reset	ESC NULL @	27 0 64	1B 00 40
Set page length	ESC NULL C <i>n</i>	27 0 67 <i>n</i>	1B 00 43 <i>n</i>
Set horizontal tabs	ESC NULL D <i>n</i>	27 0 68 <i>n</i>	1B 00 44 <i>n</i>
Set bit image	ESC NULL K <i>n1 n2 [d]</i>	27 0 75 <i>n1 n2 [d]</i>	1B 00 4B <i>n1 n2 [d]</i>
Country select	ESC NULL R <i>n</i>	27 0 82 <i>n</i>	1B 00 52 <i>n</i>
Double width on	ESC NULL W 1	27 0 87 1	1B 00 57 01
Double width off	ESC NULL W 0	27 0 87 0	1B 00 57 00
Compressed bit image graphics	ESC NULL Z <i>n1 [x1] ... n24 [x24]</i>	27 0 90 <i>n1 [x1] ... n24 [x24]</i>	1B 00 5A <i>n1 [x1] ... n24 [x24]</i>
Print & feed paper	ESC NULL d <i>n</i>	27 0 100 <i>n</i>	1B 00 64 <i>n</i>
Label advance	ESC NULL f	27 0 102	1B 00 66
Reversed on	ESC NULL i 1	27 0 105 1	1B 00 69 01
Reversed off	ESC NULL i 0	27 0 105 0	1B 00 69 00
Double height on	ESC NULL w 1	27 0 119 1	1B 00 77 01
Double height off	ESC NULL w 0	27 0 119 0	1B 00 77 00
Inverse on	ESC NULL { 1	27 0 123 1	1B 00 7B 01
Inverse off	ESC NULL { 0	27 0 123 0	1B 00 7B 00
Graphics	ESC <i>n [d]</i>	27 <i>n [d]</i>	1B <i>n [d]</i>
Roman 8 character set	ESC <248>	27 248	1B F8
ECMA 94 character set	ESC <249>	27 249	1B F9
Underline off	ESC <250>	27 250	1B FA
Underline on	ESC <251>	27 251	1B FB
Normal width on	ESC <252>	27 252	1B FC
Double width on	ESC <253>	27 253	1B FD
Self test	ESC <254>	27 254	1B FE
Reset	ESC <255>	27 255	1B FF
Set barcode height (1 ≤ <i>n</i> ≤ 255)	GS h <i>n</i>	29 104 <i>n</i>	1D 68 <i>n</i>
Print UPC-A barcode	GS k 0 [<i>d</i>] NULL	29 107 0 [<i>d</i>] 0	1D 6B 00 [<i>d</i>] 00
Print UCP-E barcode	GS k 1 [<i>d</i>] NULL	29 107 1 [<i>d</i>] 0	1D 6B 01 [<i>d</i>] 00
Print EAN13 barcode	GS k 2 [<i>d</i>] NULL	29 107 2 [<i>d</i>] 0	1D 6B 02 [<i>d</i>] 00
Print EAN8 barcode	GS k 3 [<i>d</i>] NULL	29 107 3 [<i>d</i>] 0	1D 6B 02 [<i>d</i>] 00
Print Code 39 barcode	GS k 4 [<i>d</i>] NULL	29 107 4 [<i>d</i>] 0	1D 6B 04 [<i>d</i>] 00
Print 2 of 5 barcode	GS k 5 [<i>d</i>] NULL	29 107 5 [<i>d</i>] 0	1D 6B 05 [<i>d</i>] 00
Print Codabar barcode	GS k 6 [<i>d</i>] NULL	29 107 6 [<i>d</i>] 0	1D 6B 06 [<i>d</i>] 00
Print CODE128 barcode	GS k 7 <i>n [d]</i>	29 107 7 <i>n [d]</i>	1D 6B 07 <i>n [d]</i>
Set barcode magnification (2 ≤ <i>n</i> ≤ 4)	GS w <i>n</i>	29 119 <i>n</i>	1D 77 <i>n</i>

2.4 Control Codes and Escape Sequences (IrDA/RS232 Mode)

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 ! <i>n</i>	27 33 <i>n</i>	1B 21 <i>n</i>
Set barcode start position	ESC \$ <i>n1 n2</i>	27 36 <i>n1 n2</i>	1B 24 <i>n1 n2</i>
Set bit image (8 pin single density)	ESC * 0 <i>n1 n2 [d]</i>	27 42 0 <i>n1 n2 [d]</i>	1B 2A 00 <i>n1 n2 [d]</i>
Set bit image (8 pin double density)	ESC * 1 <i>n1 n2 [d]</i>	27 42 1 <i>n1 n2 [d]</i>	1B 2A 01 <i>n1 n2 [d]</i>
Set bit image (24 pin single density)	ESC * 32 <i>n1 n2 [d]</i>	27 42 32 <i>n1 n2 [d]</i>	1B 2A 20 <i>n1 n2 [d]</i>
Set bit image (24 pin double density)	ESC * 33 <i>n1 n2 [d]</i>	27 42 33 <i>n1 n2 [d]</i>	1B 2A 21 <i>n1 n2 [d]</i>
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 <i>n</i>	27 67 <i>n</i>	1B 43 <i>n</i>
Set horizontal tabs	ESC D <i>n</i>	27 68 <i>n</i>	1B 44 <i>n</i>
Bold on	ESC G	27 71	1B 47
Bold off	ESC H	27 72	1B 48
Move <i>n</i> dot lines forwards ($1 \leq n \leq 23$)	ESC J <i>n</i>	27 74 <i>n</i>	1B 4A <i>n</i>
Change peak current	ESC I <i>n</i>	27 73 <i>n</i>	1B 49 <i>n</i>
Set bit image	ESC K <i>n1 n2 [d]</i>	27 75 <i>n1 n2 [d]</i>	1B 4B <i>n1 n2 [d]</i>
Country select	ESC R <i>n</i>	27 82 <i>n</i>	1B 52 <i>n</i>
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 <i>n1 [d1] ... n24 [d24]</i>	27 90 <i>n1 [d1] ... n24 [d24]</i>	1B 5A <i>n1 [d1] ... n24 [d24]</i>
Print & feed paper	ESC d <i>n</i>	27 100 <i>n</i>	1B 64 <i>n</i>
Label advance	ESC f	27 102	1B 66
Reversed on	ESC i 1	27 105 1	1B 69 01
Reversed off	ESC i 0	27 105 0	1B 69 00
Move <i>n</i> dot lines backwards ($1 \leq n \leq 23$)	ESC j <i>n</i>	27 106 <i>n</i>	1B 6A <i>n</i>
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 ($1 \leq n \leq 255$)	GS h <i>n</i>	29 104 <i>n</i>	1D 68 <i>n</i>
Print UPC-A barcode	GS k 0 [<i>d</i>] NULL	29 107 0 [<i>d</i>] 0	1D 6B 00 [<i>d</i>] 00
Print UCP-E barcode	GS k 1 [<i>d</i>] NULL	29 107 1 [<i>d</i>] 0	1D 6B 01 [<i>d</i>] 00
Print EAN13 barcode	GS k 2 [<i>d</i>] NULL	29 107 2 [<i>d</i>] 0	1D 6B 02 [<i>d</i>] 00
Print EAN8 barcode	GS k 3 [<i>d</i>] NULL	29 107 3 [<i>d</i>] 0	1D 6B 02 [<i>d</i>] 00
Print Code 39 barcode	GS k 4 [<i>d</i>] NULL	29 107 4 [<i>d</i>] 0	1D 6B 04 [<i>d</i>] 00
Print 2 of 5 barcode	GS k 5 [<i>d</i>] NULL	29 107 5 [<i>d</i>] 0	1D 6B 05 [<i>d</i>] 00
Print Codabar barcode	GS k 6 [<i>d</i>] NULL	29 107 6 [<i>d</i>] 0	1D 6B 06 [<i>d</i>] 00
Print CODE128 barcode	GS k 7 <i>n [d]</i>	29 107 7 <i>n [d]</i>	1D 6B 07 <i>n [d]</i>
Set barcode magnification ($2 \leq n \leq 4$)	GS w <i>n</i>	29 119 <i>n</i>	1D 77 <i>n</i>

2.5 International Character Sets

(HP IR Mode)

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

(IrDA/RS232 Mode)

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

2.6 Print Mode (ESC!)

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

2.7 Character Font

	Bit 1	Bit 0
24 characters per line	0	0
48 characters per line	0	1
32 characters per line	1	0
Undefined	1	1

2.8 Print Density

	Bit 3	Bit 2
Light 1 (Default)	0	0
2	0	1
3 (Label Default)	1	0
Dark 4	1	1

3. Housing Colour

Printer housings are available in four standard colours as shown, all printers will be supplied in Black Grey colour unless specified to the contrary.

Other colours from the RAL colour chart can be supplied subject to a MOQ.

Custom colours can be moulded subject to discussion with Martel.



Cream—RAL9001



Grey White—RAL9002



Black Grey—RAL7021



Graphite Black—RAL9011

4. PRINTER OPERATION

MCP7830

4.1 Battery Charging

Insert the batteries ensuring the correct polarity positioning is followed. When the printer is first delivered there may be little or no charge in the printer's batteries. The printer should be **turned off**, connected to the MPS adapter and allowed to charge for 16 hours before it is used for the first time.

It is recommended to connect the printer to the MPS power adapter and recharge the batteries as soon as the Status LED indicates low battery.(5.2 Status LED, pg 9)

It is permissible to leave the printer permanently connected to the MPS power adapter to trickle charge the batteries. If the printer is asleep it will wake up when the adapter is connected and will not sleep while it is connected. To fast charge the batteries, the printer must be off.

If the batteries in the printer become exhausted, printing will become faint, erratic or not possible at all. **Turn off** the printer and recharge the batteries for at least 15 minutes before attempting further printing. The MPS adapter cannot supply the full power requirements for the printer during printing, so the batteries must be partially charged before printing is possible.

The printer should only be used in conjunction with a MPS161 power adapter. Users wishing to provide their own power source must contact Martel. **The use of an unapproved source may void the printer's warranty.**

4.2 Power On Procedure

Ensure the NiMH batteries are sufficiently charged. Open the paper cup lid and ensure that the roll is present and that there are no foreign objects inside the paper cup. Close the lid, ensuring that the paper passes through the paper exit slot.

When the Status indicator is off, the printer is off. A brief press of the Mode button turns the printer on, the Status indicator will illuminate and the printer mechanism will reset. A brief press of the Mode button will turn the printer off. When the printer is asleep, pressing the Mode button will wake up the printer.

MCP7830B

4.2 Power On Procedure

Insert the alkaline batteries ensuring the correct polarity positioning is followed. Open the paper cup lid and ensure that the roll is present and that there are no foreign objects inside the paper cup. Close the lid, ensuring that the paper passes through the paper exit slot.

When the Status indicator is off, the printer is off. A brief press of the Mode button turns the printer on, the Status indicator will illuminate and the printer mechanism will reset. A brief press of the Mode button will turn the printer off. When the printer is asleep, pressing the Mode button will wake up the printer.

If the batteries in the printer become exhausted, printing will become faint, erratic or not possible at all

Batteries should be removed if the printer is to be left unused for long periods.

External PSU (optional)

The MCP7830B can be powered from the optional mains PSU, MPS120 or MPS122. The printer should be switched off when changing from battery to external power and vice-versa however the batteries do not need to be removed when using the MPS120 or MPS122.

MCP7830V

4.2 Power On Procedure

Power is supplied to the printer from a 10-35Vdc external supply via a 2.1/5.5mm connector (+ve OUTER). Insert the connector into the socket provided in the base of the printer. Power and data via the RJ12 connector can be arranged as a factory option on request.

10-35Vdc



MCP7830X

4.2 Power On Procedure

Power is supplied to the printer from a 5Vdc external supply via a 2.1/5.5mm connector (+ve OUTER). The Martel MPS120 or MPS122 Universal Power Supply should be used and the use of an alternative source may void the printer's warranty

Insert the connector into the socket provided in the base of the printer.

5Vdc



4.3 Low Power Mode

The MCP7830 incorporates two low power modes; configured via option 11, page 3, however the printer will not enter low power mode if the charger is attached.

In **Sleep mode** the printer enters low power mode after a preset period of inactivity. Once asleep, the printer can be woken by sending a NULL character 1 sec before data to be printed, OR the printer can be woken by pressing the Mode button.

In **Auto off mode** the printer cannot be woken by data transfer and must be powered-on manually.

4.4 Paper Tear Procedure

When removing the printout from the printer, pull the printout toward the front of the printer and tear from one side to the other across the serrated edge.

5. PRINTER MAINTENANCE

5.1 Power On Self Test

The self test procedure will check most of the printer functions, except for the serial Interface, i.e: Printer mechanism, Control circuitry, Firmware version, Print quality. When the printer is off, press and hold the Mode button depressed for approximately 2 seconds. Release the button, the printer will power on and print a self-test report.

5.2 Status LED

LED Indication	Condition	Solution
On	Printer On	-
Off	Printer Off or Asleep	-
Short flash every second	Fast Charging	MCP7830 only
* * *	Paper out	Fit new paper
** ** *	Thermal head too hot	Allow head to cool
*** ** *	Battery cut-out (no charge remaining)	Recharge batteries — MCP7830
		Replace batteries — MCP7830B
		Check supply voltage — MCP7830V & MCP7830X
**** ** *	Battery low (approx. 20% charge remaining)	Recharge batteries—MCP7830
		Prepare to replace batteries — MCP7830B
		Check supply voltage — MCP7830V & MCP7830X

5.3 Paper Out

The printer will automatically detect when the printer paper has run out, and report this using the Status LED. Replace the paper roll as described below.

5.4 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.

5.5 How to open Paper Reservoir Lid

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

5.6 Replacing Paper Roll

If the paper roll needs replacing, open the paper reservoir lid and remove the remaining paper. Reel off a few centimetres from a new roll of paper, hold approximately 5cm of paper outside the printer as the roll is placed into the reservoir. Close the lid by applying equal amounts of pressure on each side until the lid is in the locked position. Now tear the surplus paper away.

5.7 Disposal

At the end of its working life the printer should be disposed of in accordance with The Waste Electrical and Electronic Regulations ("the WEEE Regulations"), if in use within the EU, and in accordance with national requirements in other countries. The MCP7830 and MCP7830B printers contain batteries that should be disposed of by a qualified recycler or hazardous material handler.

6. ACCESSORIES & CONSUMABLES

6.1 Power Adaptors

Description	Use with	Part Number
Universal Charger with detachable plugs, UK, US & Euro	MCP7830	MPS161
Universal Power Supply with detachable plugs, UK, US & Euro	MCP7830B/X	MPS122
Universal Power Supply	MCP7830B/X	MPS120

6.2 Mains Leads

Description	Use with	Part Number
Mains Lead with US style plug	MPS120	MGK50
Mains Lead with UK style plug	MPS120	MGK51
Mains Lead with Euro style plug	MPS120	MGK52

6.3 Paper / Labels

Description	Part Number
Thermal Paper Roll, 25m	MM58
Continuous Thermal Label Roll, 10m, 12 yr life	ML58/C48

6.4 Data Cables

Description	Part Number
Serial Cable, RJ12/D9	MGK20

6.5 Replacement Battery

Description	Use with	Part Number
Battery, AA, 1.2V, Ni-MH (4 required)	MCP7830	MJ10.01
Battery, AA, 1.5V, Alkaline (4 required)	MCP7830B	MJ11

6.6 Mounting Options

Description	Part Number
Protective Boot with magnetic inserts	MPB500
Carry Case with shoulder strap and belt loop	MPH501
Detachable Magnetic Plate	MFP92
Detachable Mounting Plate	MFP93
Detachable Belt Loop	MFP94
Detachable Belt Loop with studs	MFP95
Detachable Belt Clip	MFP96
Wall Mounting Kit including fixings	MFP97



MCP7830/AD/R

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All instruments designed and manufactured in Great Britain. The manufacturer reserves the right to alter specifications without prior notice.

The MCP1800 series thermal printers) are from the latest range of Martel printers. They have a fixed head mechanism with "Easy open" paper loading and include a selection of standard options and customisable features.

Designed for maximum versatility, they are capable of many different modes of operation. Numerous international character sets and barcodes are selectable and the printers have RS232 and Bluetooth as standard, with USB, RS485, and TTL as factory fit options. With flash upgrade capability as standard, they provide a flexible method of remotely updating the printer firmware for new customer requirements or requests. They are powered from batteries or optionally from 5V dc, or 10-35Vdc.

In common with other devices from this manufacturer, these printers can be customised or branded to exactly match your requirements. Please contact us to discuss your specification.



Features & Benefits

- 58mm mobile thermal printer
- High Print Speed (10 lines/sec average text printing) - for receipting or ticketing applications
- Up to 48mm diameter paper - reduces down time for paper changes
- RS232 serial & Bluetooth with USB, RS485 & TTL options - compatible with most systems
- Data logging to optional storage card - keeps an electronic copy of what's printed
- Internal (removeable) AA NiMH rechargeable batteries - can be used with existing system power
- AA alkaline batteries - can be used as a backup power option
- Direct 5V DC or 10-35VDC non battery versions - for extra flexibility
- 'Easy Open' function - for fast, easy paper loading
- Compatible with linerless label roll - for rapid order picking, samples, or product labelling
- Full Windows driver support - compatible with most operating systems

Manufactured by...



Options

- Paper 57mm wide 46mm diameter - (available in boxes of 20 rolls)
- MaxStick linerless label roll
- Real Time Clock with battery backup
- Core product, base model for modification to suit bespoke design

Applications

Mobile printers offer the flexibility to provide portable receipting or ticketing. They can work with RS232 or USB based computers but Bluetooth adds wireless connectivity. The data card option (MCL1830 series) is ideal for industrial/scientific data logging or transaction audit copies at the point of sale.

- Mobile Point of Sale (POS) receipting
- Portable Test & Measurement Equipment
- Field sales and service
- Rent/subscription/entry fee collection/parking
- Field and track event timing
- Portable Health Care / Medical Test Equipment
- Mobile library, book reservation systems/overdue fines collection
- Utility billing
- Law enforcement

SPECIFICATION	MCP1880	MCP1880X	MCP1880V	MCL1830	MCL1830X	MCL1830V
Printing System	Direct Thermal, Clamshell Easy load					
Case Colour(s)	Charcoal Grey (custom colours available)					
Cutting System	Tear bar					
Media	Thermal paper roll, Thermal label roll					
Paper width	57/58mm					
Roll Diameter	48mm					
Roll Length	22m (Note *1)					
Characters per line	12, 16, 24(default), 32 & 48					
Resolution	203 dpi, 8 dots/mm					
Print width	2 inch (48mm), 384 dots					
Printing speed	10 lines/second (max)					
Dimensions (WxDxH)	86 x 149.8 x 56.5mm					
Weight (incl. paper)	.					
Interfaces	RS-232C & Bluetooth (std) USB, RS485, TTL (options)			RS-232C, USB & IrDA (std) RS485, TTL, WiFi, Bluetooth (options)		
Flow Control	Hardware or Software (XON/XOFF)					
Sensors	Head open, Paper out					
Data Logging	N/A			Internal MicroSD card (2GB)		
Power	NiMH battery supplied with AC charger	5 to 8.5V DC, 4A max	10 to 35V DC, 1A max(at 35V)	NiMH battery supplied with AC charger	5 to 8.5V DC, 4A max	10 to 35V DC, 1A max(at 35V)
MCBF: head	.					
Operating temp.	.°C					
Humidity	.%					

Notes...

1. Paper roll length is approximate, based upon readily available UK sourced paper with 12.7mm core.

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Features

- Flip 'n' Load paper loading feature
- High resolution thermal printing
- Optional non battery versions, 5V dc, or 10-35Vdc Input Power
- 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(default) characters per line
- Suitable for paper and label printing
- Windows driver for Win 7 (32) / Vista(32) / XP(32) and 2000
- Linux and WinCE 5.0 / 6.0 drivers available
- 48mm diameter paper roll support
- Interface—IrDA, with RS232 + flash update capability
- AA NiMH battery Operation, (Alkaline as backup option)
- Integral Magnetic Clamping
- Data logging to optional storage card

Optional

- Real Time clock with backup battery
- Wifi & Bluetooth optional daughter boards
- USB interface (required for easy SD card reading)

Introduction

The MCP1830 is from the latest range of Martel printers, comprising compact thermal handheld printers incorporating a fixed head mechanism with "Flip 'n' Load" paper loading feature, setting new performance standards for handheld units, with a selection of standard options and customisable features.

Designed for maximum versatility, the unit is capable of many different modes of operation. Numerous international character sets and barcodes are selectable and the printer has RS232 and IrDA serial as standard, with USB, RS485, TTL and Wifi / Bluetooth as factory fit options. With flash upgrade capability as standard, it provides a flexible method of remotely updating the printer firmware for new customer requirements or requests with minimal delay.

Non battery options 5V dc, or 10-35Vdc, giving fast, high resolution printing. A low current mode is also available.

Paper changing is simplified by the use of a hinged front to the robust moulded enclosure incorporating a detachable roller facilitating the "Flip 'n' Load" functionality.

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

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SPECIFICATION

General

Printing system	Direct thermal line head
Max Characters per line	48(default), 32, 24, 16 and 12
Character matrix	24x8, 24x12 or 24x16
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	24x384 dots
Printing width	48mm
Average printing speed	10 lines of text per second (max)
Charger for battery version	
MCL1830	9V (Centre negative)
Power supply for non-battery versions	
MCL1830X	5-8Vdc
MCL1830V	10-35Vdc
Current consumption	
MCL1830/MCL1830X	4A Peak
MCL1830B	2A Peak
MCL1830V	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	48mm 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

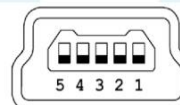
IrDA (V1.0 physical layer)

USB

Maximum distance for reliable IR communication between the printer and the host is 100cm (~3ft). The infra-red port is on the right hand side of the printer, which ensures easy communication with the printer.

USB v2.0 mini-B socket

PIN	Signal
1	VCC
2	D -
3	D +
4	ID
5	GND



RS232

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)

PIN	Signal	I/O	Definition
1	GND	N/A	Signal ground
2	TxD	0	Transmitted data to host
3	RxD	1	Received data from host
4	CTS	0	Clear to Send
5	n/c	N/A	No connection
6	n/c	N/A	No connection

Fig 1: Pin Numbers for Serial Interface Connector



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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 IrDA Protocol	1	8, No parity
	2	8, Odd Parity
	3	8, Even Parity
	4	7, Odd Parity
	5	7, Even Parity
	6	HPiR Mode
2 IrDA 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 Protocol	1	8, No parity
	2	8, Odd parity
	3	8, Even parity
	4	7, Odd, parity
	5	7, Even Parity
	6	7, Even Parity
4 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

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Configuration & Setup

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5	RS232 Flow Control	1	None
		2	Software
		3	Hardware
6	Default Font	1	Arial 16, 24 CPL
		2	Arial 12, 32 CPL
		3	Arial 8, 48 CPL
		4	Double Width and Height
7	Character Format	1	Normal
		2	Double Width
		3	Double Height
		4	Double Width and Height
8	Print Density	1	Lowest
		2	
		3	
		4	Highest
9	Printer Current	1	Highest
		2	
		3	
		4	Lowest
10	Print Format	1	Standard paper, normal printing
		2	Standard paper, upside down printing
		3	Labels, normal printing
		4	Labels, upside down printing
11	Sleep Mode	1	None
		2	Sleep after 1 minute
		3	Sleep after 2 minutes
		4	Sleep after 5 minutes
		5	Sleep after 10 minutes
		6	Off after 1 minute
		7	Off after 2 minutes
		8	Off after 5 minutes
		9	Off after 10 minutes

Control Codes

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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 I 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 O	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 03 [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

Control codes

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International Character Sets

Country	Code	Decimal	Hex	Bit	Function	0	1
USA	ESC R 0	27 82 0	1B 52 00	0	Character font		
France	ESC R 1	27 82 1	1B 52 01	1	(see below)		
Germany	ESC R 2	27 82 2	1B 52 02	2	Print density		
UK	ESC R 3	27 82 3	1B 52 03	3	(see below)		
Denmark I	ESC R 4	27 82 4	1B 52 04	4	Double height	Cancelled	Set
Sweden	ESC R 5	27 82 5	1B 52 05	5	Double width	Cancelled	Set
Italy	ESC R 6	27 82 6	1B 52 06	6	Undefined		
Spain	ESC R 7	27 82 7	1B 52 07	7	Underline	Cancelled	Set
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 Density		Bit 3	Bit 2	Send Printer Status (ESC v)		
				Bit	Function	
Light	1 (Default)	0	0			
	2	0	1			
	3	1	0			
Dark	4	1	1			
Character Font		Bit 1	Bit 0			
	24 characters per line	0	0			
	48 characters per line	0	1			
	32 characters per line	1	0			
	Undefined	1	1			

Operation

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Mode Button and Status 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.

The printer should be charged from the standard charger provided. Charger input voltage 115V or 230V 50/60Hz AC, centre pin -ve, 9V PSU.

Battery Charging

The printer uses NI-MH rechargeable AA cells, which will take up to 16 hours to recharge from fully discharged status. Low battery is indicated by a slow flash of the Status LED.

If the printer is left on charge, charging automatically stops to protect against overcharging or overheating. The printer circuitry will protect the battery from total and deep discharge. It is permissible to leave the printer permanently connected to the MPS power adapter to trickle charge the batteries.

If the printer is asleep it will wake up when the adapter is connected and will not sleep while it is connected. To fast charge the batteries, the printer must be off. If the batteries in the printer become exhausted, printing will become faint, erratic or not possible at all. **Turn off** the printer and recharge the batteries for at least 15 minutes before attempting further printing. The MPS adapter cannot supply the full power requirements for the printer during printing, so the batteries must be partially charged before printing is possible. The printer should only be used in conjunction with an MPS101(UK), MPS102(EURO), MPS103(US) or MPS161(UNI) power adapter. Users wishing to provide their own power source must contact Martel. *The use of an unapproved source may void the printer's warranty.*

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	Rit new paper
** ** *	Thermal head too hot	Allow head to cool
*** ** *	Battery cut-out (no charge remaining)	Recharge batteries
**** ** *	Battery low (approx. 20% charge remaining)	Recharge batteries

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Operation

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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.

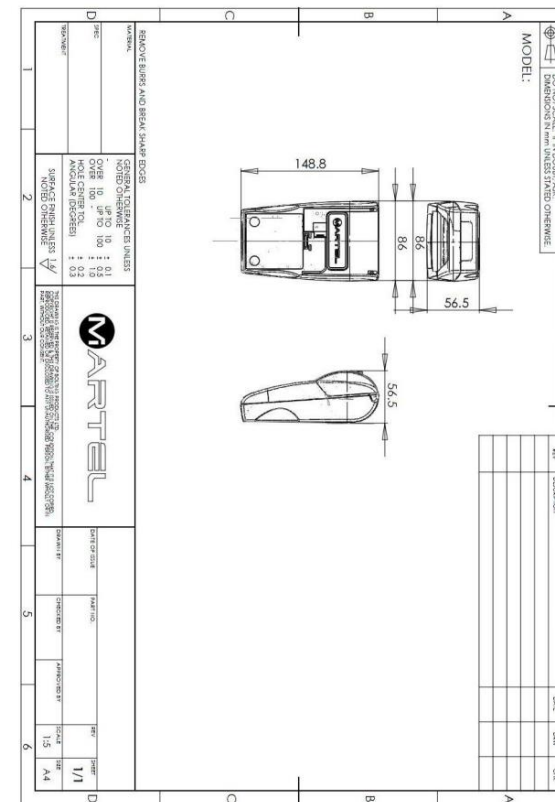
Paper Feed

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

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Mechanical

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Introduction

A factory fitted option to the new range of printers is the micro SD card data storage. This will provide an electronic copy of everything that is sent to the printer, therefore allowing the user to display or print these saved records through the printer, or via a windows PC.

Hardware

There is a slot in the printer case inside the battery compartment that accommodates the micro SD holder. This allows easy access to the micro SD card, but is hidden from sight by the battery cover.

The maximum size of micro SD card qualified is 2GB, also known as SD Standard Capacity or SDSC.

Due to the variance of SD card functionality and standards, the SD card functionality is only certified for use on SD cards provided via Martel Instruments.

Firmware operation

The microSD card must be formatted prior to insertion in the printer. This can be done on Windows XP, Windows Vista and Windows 7 PCs, the formats that are suitable for Martel logger use are FAT16 or FAT32. Please note – exFAT / NTFS is not supported at this time.

The operation of the firmware is as follows.

Any characters sent to the printer will be printed on the paper roll and also stored real-time in a designated location and file on the microSD card.

If the printer is idle for more than a pre-set "time out" period, the buffered characters will be written to the SD card file. Any new characters will be saved to a new file.

All files are stored in the microSD card's root directory, by default.

The file naming format is

<pppp><nnnn>.PRN

where pppp is the number of times the printer has powered up and nnnn is the auto incremented sequence number. So 00530061.PRN is from a printer that has powered up 53 times and it is the 61st file since the printer last powered up.

The escape sequence ESC 'F' <ddddddd> CR will create and cause all subsequent files to be placed in directory <ddddddd> where d is an alphanumeric character and can be up to eight characters in length. Non alphanumeric characters will be ignored. A zero length directory name will cause files to be written to the root directory.

ESC 'v' has now changed to provide a status of the memory card as well as the paper out state. The ESC 'v' status request has 'card present' and 'card functioning correctly' bits.

Card error. A customer configurable option gives the user of the host machine an indication of an error by giving 5 short flashes every second on the printer's status LED.

Storage encryption. The SD stored data is encrypted by default to ensure viewing of the captured data can only be carried out via the Martel viewing software, and protection of unauthorised viewing by any laptop.

Enable / disable SD card storage. ESC 'E' will enable data storage and ESC 'e' will disable storage. This has no effect on printing.

Idle time out. When the printer has not received any data for a certain time any new data will be written to the next file in the sequence described earlier. ESC 'c' <x> provides this configurable time out. The time out values are given in the table below.

ESC 'c' <x> Setting delays (1-9 as options 'x')

1	2	3	4	5	6	7	8	9
1sec	10sec	30s	1min	10mins	30mins	1hr	5hrs	10hrs

ESC 'n' will also force a "file save" and "new next file" creation, to ensure the user can directly control when, and how the data is saved.

Inserting / Removing SD Card



Open battery cover

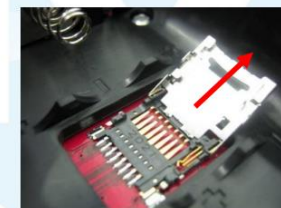


Slide SD card holder forward as shown

SD card removal



Lift up card holder



Pull out SD card to remove

MCP8850B

HPIR THERMAL PRINTER

User Guide



The MCP8850B is a compact and lightweight portable printer with an Infra-red interface compatible with HP IR format in a new elegant enclosure.

Designed for maximum versatility, the MCP8850B is compatible with existing systems whilst allowing many upgrades in terms of printing speed and functionality.

It is powered from alkaline batteries and has maintenance free operation, only available with thermal printers.

Many different modes of operation are possible, including numerous character sets, all selectable by software commands.

The MCP8850B is one of a family of thermal printers designed and manufactured in the UK by Martel. All units are built into robust ABS housings, with a choice of colours. We would be pleased to discuss the possibility of customising any aspect of the printer to specific requirements.

Specification

Printing system	Thermal line head system
Max characters per line	48 (Default 24)
Character matrix	24x16, 24x12 or 24x8
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	24x384 dots
Printing width	48mm
Average printing speed	3 lines per second (typical)
Dimensions	91mm x 185mm x 58mm
Weight	Approx. 425 grammes
Internal power supply	4 X 1.5V alkaline, AA cells
Paper width	58mm
Character set	Roman 8, ECMA 94, Arial
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Spain & Japan
Interface	
Data format	HP IR (1 Start, 8 Data, 4 error detection)
Buffer size	Infra-Red 940nm, 33KHz modulated. 6 Kbytes
Environmental Conditions	
Operating range	0°C to +50°C
Storage range	-20°C to +60°C
Charging range	+10°C to +45°C
MTBF	Approx. 10 million lines (20°C, print ratio = 25%)

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Instruments

Features

- Infra-Red interface, 82240B format.
- High-speed, high resolution printing capability.
- Quiet, non-impact system
- Maintenance-free
- Compact and lightweight
- High reliability line head mechanism
- Versatile for use with text or graphics
- 24, 32 or 48 characters per line
- Barcode capability
- Auto power off
- Supports labels and dual ply paper
- Alkaline batteries

Printer Mechanism

The printer mechanism comprises a 384 element, thin film head and stepper motor driven transport. Battery voltage and head temperature compensation is utilised to provide constant print quality across the range of operating conditions.

Paper out: The printer will automatically detect when the printer paper has run out. The Status indicator will flash repeatedly to denote that the paper has run out. Use the Mode button to feed through the last few centimetres of paper and fit a new roll as described on page 3.

Head thermal limit: After extensive printing the print head temperature may rise to an unusable level. If this occurs the Status indicator will flash twice repeatedly and printing will be suspended until the head temperature returns to normal levels.

Power Supply

Power is supplied to the printer from four alkaline AA cells. The Status indicator will flash three times repeatedly to show that the batteries are nearly exhausted.

Power consumption

Off	2 µA (Typical)
Standby	10mA
Running -	Min 0.4A
	Ave 1.0A
	Max 1.5A

Note: The peak current can reach a maximum of 2A.

Charge life Approx. 6000 lines (18m) of continuous printing

External PSU (optional)

The MCP8850B can be powered from an optional mains PSU. **The printer should be switched off when switching from battery to external power and vice-versa. Contact Martel for further details.**



Power On Procedure

Check that the batteries have sufficient charge or that the power adapter is correctly fitted and operational. Open the paper cup lid and ensure that the roll is present and there are no foreign objects inside the paper cup. Close the lid, ensuring that the paper passes through the paper exit slot.

When the status indicator is off, the printer is off. A brief press of the Mode button turns the printer on, the status indicator will illuminate and the printer mechanism will reset. A brief press of the Mode button will turn the printer off.

Power On Self Test

The self test procedure will check most of the printer functions, except for the Infra-Red interface, i.e: Printer mechanism, Control circuitry, Firmware version, Print quality. When the printer is off, press and hold the Mode button for approximately 2 seconds. Release the button, the printer will power on and print a self-test report.

Auto Power Off

The MCP8850 will automatically switch off after approximately ten minutes of inactivity. Further data transmitted to the printer will be ignored.

The printer can be re-activated by briefly pressing the Mode button.

Replacing Paper Roll

If the paper roll needs replacing, open the paper cup lid and remove the remaining paper by pressing and holding the Mode button. **do not pull paper through the printer mechanism.** Reel off a few centimetres from a new roll of paper and check that the end has a clean straight edge. Slide the leading edge of the paper through the paper entry slot, with the leading edge of the paper feeding forwards from the bottom of the roll, until you feel resistance. Press the Mode button and feed the paper through the printer mechanism. Keep the Mode button depressed until enough paper is fed through the printer mechanism to pass through the paper exit slot. Sit the new paper roll in the paper cup and close the lid.

Should the paper become creased or out of line when feeding in a new roll, cut the end off the paper roll, feed out the creased paper using the Mode button, and reload ensuring the paper has a clean straight edge.

Paper Tear Procedure

When removing printout from the printer, pull the printout toward the front of the printer and tear from one side to the other across the serrated edge.

Print Mode (ESC NULL!)

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

Character Font	Bit	Bit
Arial 24 chars/line	0	0
Arial 48 chars/line	0	1
Arial 32 chars/line	1	0
Reserved	1	1

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

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
Cancel	CAN	24	18
Double width on	SO	14	0E
Double width off	SI	15	0F
Set print mode	ESC NULL i n	27 0 33 n	1B 00 21 n
Set barcode start position	ESC NULL \$ n1 n2	27 0 36 n1 n2	1B 00 24 n1 n2
Set bit image (8 pin single density)	ESC NULL * 0 n1 n2 [d]	27 0 42 0 n1 n2 [d]	1B 00 2A 00 n1 n2 [d]
Set bit image (8 pin double density)	ESC NULL * 1 n1 n2 [d]	27 0 42 1 n1 n2 [d]	1B 00 2A 01 n1 n2 [d]
Set bit image (24 pin single density)	ESC NULL * 32 n1 n2 [d]	27 0 42 32 n1 n2 [d]	1B 00 2A 20 n1 n2 [d]
Set bit image (24 pin double density)	ESC NULL * 33 n1 n2 [d]	27 0 42 33 n1 n2 [d]	1B 00 2A 21 n1 n2 [d]
Underline on	ESC NULL - 1	27 0 45 1	1B 00 2D 01
Underline off	ESC NULL - 0	27 0 45 0	1B 00 2D 00
Reset	ESC NULL @	27 0 64	1B 00 40
Set page length	ESC NULL C n	27 0 67 n	1B 00 43 n
Set horizontal tabs	ESC NULL D n	27 0 68 n	1B 00 44 n
Set bit image	ESC NULL K n1 n2 [d]	27 0 75 n1 n2 [d]	1B 00 4B n1 n2 [d]
Country select	ESC NULL R n	27 0 82 n	1B 00 52 n
Double width on	ESC NULL W 1	27 0 87 1	1B 00 57 01
Double width off	ESC NULL W 0	27 0 87 0	1B 00 57 00
Compressed bit image graphics	ESC NULL Z n1 [d1] ... n24 [d24]	27 0 90 n1 [d1] ... n24 [d24]	1B 00 5A n1 [d1] ... n24 [d24]
Print & feed paper	ESC NULL d n	27 0 100 n	1B 00 64 n
Label advance	ESC NULL f	27 0 102	1B 00 66
Reversed on	ESC NULL i 1	27 0 105 1	1B 00 69 01
Reversed off	ESC NULL i 0	27 0 105 0	1B 00 69 00
Double height on	ESC NULL w 1	27 0 119 1	1B 00 77 01
Double height off	ESC NULL w 0	27 0 119 0	1B 00 77 00
Inverse on	ESC NULL { 1	27 0 123 1	1B 00 7B 01
Inverse off	ESC NULL { 0	27 0 123 0	1B 00 7B 00
Graphics	ESC n [d]	27 n [d]	1B n [d]
Roman 8 character set	ESC <248>	27 248	1B F8
ECMA 94 character set	ESC <249>	27 249	1B F9
Underline off	ESC <250>	27 250	1B FA
Underline on	ESC <251>	27 251	1B FB
Normal width on	ESC <252>	27 252	1B FC
Double width on	ESC <253>	27 253	1B FD
Self test	ESC <254>	27 254	1B FE
Reset	ESC <255>	27 255	1B FF
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 UPC-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 NULL R 0	27 0 82 0	1B 00 52 00
France	ESC NULL R 1	27 0 82 1	1B 00 52 01
Germany	ESC NULL R 2	27 0 82 2	1B 00 52 02
UK	ESC NULL R 3	27 0 82 3	1B 00 52 03
Denmark I	ESC NULL R 4	27 0 82 4	1B 00 52 04
Sweden	ESC NULL R 5	27 0 82 5	1B 00 52 05
Italy	ESC NULL R 6	27 0 82 6	1B 00 52 06
Spain	ESC NULL R 7	27 0 82 7	1B 00 52 07
Japan	ESC NULL R 8	27 0 82 8	1B 00 52 08
Norway	ESC NULL R 9	27 0 82 9	1B 00 52 09
Denmark II	ESC NULL R 10	27 0 82 10	1B 00 52 0A

MCP8850B/UG/B

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INSTRUMENTS

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Control Codes and Escape Sequences (HP IR Mode)

Function	Code	Decimal	Hex
Horizontal tab	HT	9	09
Line feed	LF	10	0A
Form feed	FF	12	0C
Carriage return	CR	13	0D
Cancel	CAN	24	18
Double width on	SO	14	0E
Double width off	SI	15	0F
Set print mode	ESC NULL l n	27 0 33 n	1B 00 21 n
Set barcode start position	ESC NULL \$ n1 n2	27 0 36 n1 n2	1B 00 24 n1 n2
Set bit image (8 pin single density)	ESC NULL * 0 n1 n2 [d]	27 0 42 0 n1 n2 [d]	1B 00 2A 00 n1 n2 [d]
Set bit image (8 pin double density)	ESC NULL * 1 n1 n2 [d]	27 0 42 1 n1 n2 [d]	1B 00 2A 01 n1 n2 [d]
Set bit image (24 pin single density)	ESC NULL * 32 n1 n2 [d]	27 0 42 32 n1 n2 [d]	1B 00 2A 20 n1 n2 [d]
Set bit image (24 pin double density)	ESC NULL * 33 n1 n2 [d]	27 0 42 33 n1 n2 [d]	1B 00 2A 21 n1 n2 [d]
Underline on	ESC NULL - 1	27 0 45 1	1B 00 2D 01
Underline off	ESC NULL - 0	27 0 45 0	1B 00 2D 00
Reset	ESC NULL @	27 0 64	1B 00 40
Set page length	ESC NULL C n	27 0 67 n	1B 00 43 n
Set horizontal tabs	ESC NULL D n	27 0 68 n	1B 00 44 n
Set bit image	ESC NULL K n1 n2 [d]	27 0 75 n1 n2 [d]	1B 00 4B n1 n2 [d]
Country select	ESC NULL R n	27 0 82 n	1B 00 52 n
Double width on	ESC NULL W 1	27 0 87 1	1B 00 57 01
Double width off	ESC NULL W 0	27 0 87 0	1B 00 57 00
Compressed bit image graphics	ESC NULL Z n1 [d1] ... n24 [d24]	27 0 90 n1 [d1] ... n24 [d24]	1B 00 5A n1 [d1] ... n24 [d24]
Print & feed paper	ESC NULL d n	27 0 100 n	1B 00 64 n
Label advance	ESC NULL f	27 0 102	1B 00 66
Reversed on	ESC NULL i 1	27 0 105 1	1B 00 69 01
Reversed off	ESC NULL i 0	27 0 105 0	1B 00 69 00
Double height on	ESC NULL w 1	27 0 119 1	1B 00 77 01
Double height off	ESC NULL w 0	27 0 119 0	1B 00 77 00
Inverse on	ESC NULL { 1	27 0 123 1	1B 00 7B 01
Inverse off	ESC NULL { 0	27 0 123 0	1B 00 7B 00
Graphics	ESC n [d]	27 n [d]	1B n [d]
Roman 8 character set	ESC <248>	27 248	1B F8
ECMA 94 character set	ESC <249>	27 249	1B F9
Underline off	ESC <250>	27 250	1B FA
Underline on	ESC <251>	27 251	1B FB
Normal width on	ESC <252>	27 252	1B FC
Double width on	ESC <253>	27 253	1B FD
Self test	ESC <254>	27 254	1B FE
Reset	ESC <255>	27 255	1B FF
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 (HP IR Mode)

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



Warranty

The printer is warranted against defects in materials and workmanship for a period of one year from original purchase date. We will replace or repair without charge, at our option, provided the product has not been misused or modified. We shall not be liable for consequential damages.

Midtronics, Inc.
7000 Monroe Street
Willowbrook, IL 60527
U.S.A
Phone: 630 323 2800
Fax: 630 323 2844
ISO 9001 Certified

Midtronics Canada, Inc.
54 Ferris Drive
P.O. Box 746
North Bay, Ontario
P1B 8J8 Canada
Phone: 705 476 9228
Fax: 705 476 9255

Midtronics, b.v
Lage Dijk-Noord 6
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The Netherlands
Phone:+31 306 868 150
Fax:+31 306 868 158
ISO 9001 Certified

182-003A/UG/B

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INSTRUMENTS

All instruments designed and
manufactured in Great Britain.
The manufacturer reserves
the right to alter specifications
without prior notice

www.midtronics.com
Toll free in North America: (800) 776-1995

182-003A
IR/RS232 THERMAL PRINTER
User Guide



Features

- Infra-Red (HP IR, IrDA) and RS232 interfaces.
- High-speed, high resolution printing capability.
- Quiet, non-impact system
- Maintenance-free
- Compact and lightweight
- High reliability line head mechanism
- Versatile for use with text or graphics
- 24, 32 or 48 characters per line
- Barcode capability
- Auto off
- Supports labels and dual ply paper

Model 182-003A is a compact and lightweight portable thermal printer with an Infra-red interface compatible with HP IR format in a new elegant enclosure.

Designed for maximum versatility, the printer is compatible with existing systems while allowing many upgrades in terms of printing speed and functionality, with the addition of IrDA and RS232 interfaces.

It is powered from Nickel-Metal Hydride batteries and has maintenance free operation only available with thermal printers. The standard unit may be continuously trickle charged from a mains power adapter, and a fast charge facility is incorporated. US(157-001A), Euro(157-002A) and UK(157-003A) versions of the power adaptor are available.

Many different modes of operation are possible, including numerous character sets, all selectable by software commands.

The 182-003A is one of a family of thermal printers designed and manufactured in the UK by Martel Instruments Ltd (www.martelinstruments.com).

Specification

Printing system	Thermal line head system
Max characters per line	48 (Default 24)
Character matrix	24x16, 24x12 or 24x8
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	24x384 dots
Printing width	48mm
Average printing speed	10 lines per second (max)

Dimensions	91mm x 185mm x 58mm
Weight	Approx. 425 grammes
Internal power supply	4 X 1.2V NIMH 1600mAh, AA cells
Paper width	58mm
Character set	Roman 8, ECMA 94, Arial
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Spain & Japan

Interface
Data format

Buffer size

Environmental Conditions
Operating range
Storage range
Charging range
MTBF

- a) RS232, (1 start bit, 8 data, 1 stop, no parity).
 - b) HP IR (1 start, 8 data, 4 error detection).
 - c) IrDA (V1.0 physical layer).
- 6 Kbytes

0°C to +50°C
-20°C to +60°C
+10°C to +45°C
Approx. 10 million lines (20°C, print ratio = 25%)



Infra-red interface

The transmit/receive requirements for interfacing with the 182-003A are compatible with existing systems, however higher transmission speeds and printing speeds are possible due to the incorporation of a large 6Kbyte buffer and a high speed thermal fixed head printer mechanism.

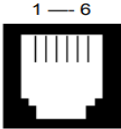
Higher print speed can be achieved by minimizing the inter-frame delays in the transmission software, previously required when using a slower printer mechanism.

Maximum distance for reliable infra-red communication between printer and host equipment is 45cm (18in). The infra-red port at the front of the printer should be pointed directly at, and horizontal to, the port on the host equipment and the beam should not be obstructed.

RS232 interface

An RJ12 socket is provided for applications requiring RS232 interface with connections as detailed below:

PIN	Signal	I/O	Definition
1	GND	N/A	Signal ground
2	TxD	0	Transmitted data to host
3	RxD	I	Received data from host
4	CTS	0	Clear to send
5	n/c	N/A	No connection
6	n/c	N/A	No connection



Printer Mechanism

The printer mechanism comprises a 384 element, thin film head and stepper motor driven transport. Battery voltage and head temperature compensation is utilized to provide constant print quality across the range of operating conditions.

Paper out: The printer will automatically detect when the printer paper has run out. The Status indicator will flash repeatedly to denote that the paper has run out. Use the Mode button to feed through the last few centimetres of paper and fit a new roll as described the bottom of page 2.

Head thermal limit: After extensive printing the print head temperature may rise to an unusable level. If this occurs, the Status indicator will flash twice repeatedly and printing will be suspended until the head temperature returns to normal levels.

Power Supply

Power is supplied to the printer from four Nickel-Metal Hydride AA cells. The Status indicator will flash three times repeatedly to show the batteries are nearly exhausted and in need of re-charging. The mains power adapter will trickle charge (16 hours) the printer when it is switched on, and will fast charge (up to 4 hours) the printer when it is switched off. Operation of the fast charge algorithm is indicated by a short flash of the status indicator every second. There may be a delay before fast charging commences following switch off.

Power consumption

Off	50uA (Typical)
Standby	30mA
Running -Min	0.4A
Ave	1.3A
Max	2.8A

Note: The peak current can reach a maximum of 4A.

Battery Pack

Charge life	Approx. 6000 lines (18m) of continuous printing
-------------	---

The printer should only be used in conjunction with 157-001A (US), 157-002A (Euro) or 157-003A (UK) power adaptor. The use of an unapproved source may void the printer's warranty.

Power On Procedure

Check to insure that the batteries are sufficiently charged or that the power adapter is correctly fitted and operational. Open the paper cup lid and ensure that the roll is present and there are no foreign objects inside the paper cup. Close the lid, ensuring that the paper passes through the paper exit slot.

When the status indicator is off, the printer is off. A brief press of the Mode button turns the printer on, the status indicator will illuminate and the printer mechanism will reset. A brief press of the Mode button will turn the printer off.

Power On Self Test

The self test procedure will check most of the printer functions, except for the serial interface, i.e: Printer mechanism, Control circuitry, Firmware version, Print quality. When the printer is off, press and hold the Mode button for approximately 2 seconds. Release the button, the printer will power on and print a self-test report.

Battery Charging

Connect the printer to the power adapter and recharge the battery pack as soon as the Status indicator flashes three times repeatedly during printing.

If the batteries in the printer become exhausted, printing will become faint, erratic or not possible at all. Turn off the printer and recharge the batteries for at least 15 minutes before attempting further printing. The adapter cannot supply the full power requirements during printing, so the batteries must be partially charged before printing is possible.

When the printer is first delivered there may be little or no charge in the printer's batteries. The printer should be turned off, connected to the power adapter and allowed to charge for 16 hours before it is used for the first time.

It is permissible to leave the printer permanently connected to the power adaptor to trickle charge the batteries. If the printer is asleep it will wake up when the adapter is connected and will not sleep while it is connected. To fast charge the batteries the printer must be off. The Status indicator will flash every second while fast charge is operating.

Auto Off Mode

The printer incorporates a auto-off mode which minimizes the printer's power consumption after approximately two minutes of inactivity.

Paper Feed

When the printer is on, paper can be fed manually by pressing and holding the Mode button for more than one second.

Paper Tear Procedure

When removing printout from the printer, pull the printout toward the front of the printer and tear from one side to the other across the serrated edge

Replacing Paper Roll

If the paper roll needs replacing, open the paper cup lid and when the printer is switched on remove the remaining paper using the Mode button, do not pull paper through the printer mechanism. Reel off a few centimetres from a new roll of paper and check that the end has a clean straight edge. Slide the leading edge of the paper into the entry point of the mechanism just below the roller, with the leading edge of the paper feeding forward from the bottom of the roll.

The paper will be detected and the auto-feed function will draw it through to the correct position for printing.

Should the paper become creased or out of line when feeding in a new roll, cut the end off the paper roll, feed out the creased paper using the Mode button, and reload ensuring the paper has a clean straight edge.

Changing to HPIR Mode

- 1. Ensure the printer is OFF.
- 2. Press and hold the mode button, after about five seconds the status light will flash fives times.
- 3. Now release the mode button and briefly press it once. Wait until the light flashes once.
- 4. Briefly press the mode button three times then wait again. After a short delay, the status light should flash three times and the printer should power-on.
- 5. Switch the printer off again by briefly pressing the mode button.
- 6. Press and hold the mode button, after about five seconds, the status light will flash five times.
- 7. Release the mode button and briefly press it four times. Wait until the light flashes four times.
- 8. Again press the mode button four times then wait. After a short delay, the status light should flash four times and the printer should power-on.
- 9. The printer will now power-on in HPIR mode.

Control Codes and Escape Sequences (IrDA/RS232 Mode)

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 1 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 1A 20 n1 n2 [d]
Set bit image (24 pin double density)	ESC * 33 n1 n2 [d]	27 42 33 n1 n2 [d]	1B 1A 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]

Print Mode (ESC!)

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

Print Density		Bit 3	Bit 2	Character Font		Bit 1	Bit 0
Light	1 (Default)	0	0	Roman 8	24 chars/line	0	0
	2	0	1	Arial	48 chars/line	0	1
	3 (Label Default)	1	0	Arial	32 chars/line	1	0
Dark	4	1	1	ECMA 94	24 chars/line	1	1

Changing to IrDA Mode

- 1. Ensure the printer is OFF.
- 2. Press and hold the mode button, after about five seconds the status light will flash fives times.
- 3. Now release the mode button and briefly press it once. Wait until the light flashes once.
- 4. Next briefly press the mode button twice then wait. After a short delay, the status light should flash twice and the printer should power-on.
- 5. Switch the printer off again by briefly pressing the mode button.
- 6. Press and hold the mode button after about five seconds, the status light will flash about five times.
- 7. Release the mode button, and briefly press it four times. Wait until the light flashes four times.
- 8. Briefly press the mode button once and then wait. After a short delay, the status light should flash once and the printer should power-on.
- 9. The printer will now power-on in IrDA mode.

Function	Code	Decimal	Hex
Country select	ESC R n	27 82 n	1B 52 n
Double width on	ESC W 1	27 87 1	1B 57 01
Double width off	ESC W 0	27 87 0	1B 57 00
Compress 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
Label advance	ESC f	27 102	1B 66
Reversed on	ESC i 1	27 105 1	1B 69 01
Reversed off	ESC i 0	27 105 0	1B 69 00
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 ≤ 225)	GS h n	29 104 n	1D 58 n
Print UPC-A barcode	GS k 0 [d] NULL	29 107 0 [d] 0	1D 6B 00 [d] 00
Print UPC-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 (IrDA/RS232 Mode)

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



4 Martel Models that are HP IR compatible...

INFORMATION



MARTEL
INSTRUMENTS

MCP7830 Infra-Red THERMAL PRINTER Series *Applications Datasheet*



MCP7830 Series

MCP7830	Rechargeable NiMH batteries
MCP7830B	Alkaline batteries
MCP7830V	external 10-35Vdc
MCP7830X	external 5Vdc UPS

Features

- Easy-Load paper feature
- HP compatible IR interface
- IrDA and RS232 interfaces
- Power supply options
- High speed, high resolution printing capability
- Quiet, non-impact system
- Maintenance-free
- Ultra-Compact and light weight
- High reliability line head mechanism
- Versatile for use with text or graphics
- 24, 32 or 48 characters per line
- Barcode capability
- Low power mode
- Range of configurable options
- Windows drivers available on request
- Suitable for paper and label media
- Range of mounting options available



Midtronics Portable Thermal Printer 182-003A, HP IR & IRda, RJ12/RS232

- MCP-8830-031

MCP8850B
HPIR THERMAL PRINTER
User Guide





Features

- Infra-Red interface, 82240B format.
- High-speed, high resolution printing capability.
- Quiet, non-impact system
- Maintenance-free
- Compact and lightweight
- High reliability line head mechanism
- Versatile for use with text or graphics
- 24, 32 or 48 characters per line
- Barcode capability
- Auto power off
- Supports labels and dual ply paper
- Alkaline batteries



CURRENT COMPONENTS
INCORPORATED



MCP7850

The MCP7850 Series are ultra-compact, lightweight portable thermal printers with an “easy-load” paper feature. Housed in a new innovative enclosure this series has an Infra-red interface compatible with HP82240B format.

Designed for maximum versatility, the MCP7850 Series is compatible with existing systems whilst allowing many upgrades in terms of printing speed and functionality.

Power options include rechargeable NiMH batteries, alkaline batteries, an external 5Vdc Universal Power Supply or an external 10-35Vdc power supply. Rechargeable batteries may be continuously trickle charged from a mains power adapter or a 12Vdc supply and a fast charge facility is incorporated.

31

How HP 82240 compatible are Martel printers that are advertised as HPIR/82240 compatible?

Google

Is MCP8850 compatible with HP42s

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AI Overview

Yes, the Martel MCP8850 is fully compatible with the HP-42S calculator. The Museum of HP Calculators +1

The HP-42S scientific calculator uses a built-in infrared (IR) transmitter to send print data using HP's proprietary protocol. The **Martel MCP8850** was specifically engineered as an aftermarket solution featuring an IR interface that natively emulates the old **HP 82240B** printing format. Curcomp +3

Google

Does MCP8850 lack of support for the 04 code affect HP42s compatibility

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AI Overview

Yes, a lack of support for the 04 code directly affects HP-42S compatibility when using the Martel MCP8850 thermal printer. The Museum of HP Calculators +1

Why the 04 Code Matters

When an HP-42S calculator sends data to an HP-IR compatible printer (like the original HP-82240A/B or the Martel MCP8850), commands are structured in hex format. Curcomp +3

A standard text string transmission from the calculator looks like this:
[Formatting Commands] + [Text Characters] + 04 The Museum of HP Calculators

In the original HP printer protocol, the byte value 04 functions as an End of Text (EOT) / special line feed command. It tells the printer that the line transmission is finished and instructs it to advance the paper. The Museum of HP Calculators +1

How This Affects Printing

If a modern third-party printer lacks proper handling or parsing of the 04 byte code command:

- Garbage Characters:** The printer may misinterpret 04 as a printable character or an invalid instruction, occasionally printing a glyph or a question mark at the end of every line.
- Missing Line Feeds:** Because 04 signals the printer to execute a line feed, ignoring it can result in lines stacking up or failing to advance automatically, chopping off or blending the output data. The Museum of HP Calculators

While basic data might still travel from the calculator's IR diode to the printer, the missing firmware translation for that specific byte breaks seamless formatting, meaning you will not get clean, exact replicas of your calculator's screen or program listings. The Museum of HP Calculators +2

- Martel thermal printers use a paper-width, fixed print bar
- The HP 82240 uses a character-sized printhead that physically scans horizontally across the paper
- So...
 - Martel printers are faster.
 - Martel printers don't support the 0x04 "PRINT LINE AND LEAVE PRINT HEAD AT RIGHT" control code which is interpreted and printed as "¼".
 - This is not an issue for the C47/R47 but can be an issue when HP calculators (like HP-42s, HP41) print – especially some graphics, plot, and program outputs.



HP42S, HP19BII print outs with MCP 8850B

HP42S PRST w/MCP8850B

```
T=      4.00000
Z=      3.00000
Y=      2.00000
X=      1.00000
```

HP42S TRACE w/MCP8850B

```
34.00000  +
34.00000  ***
45.00000  +
79.00000  ***
78.00000  +
157.00000 ***
2.00000   ÷
78.50000  ***
3.00000   x
235.50000 ***
```

HP42S PRΣ w/MCP8850B

```
ΣX=      20.00000
ΣX^2=     400.00000
ΣY=      3.60000
ΣY^2=     1.20000
ΣXY=      1.00000
ΣLN(X)=   2.99557
ΣLN(X)^2= 8.97444
ΣLN(Y)=   4.09437
ΣLN(X)LN(Y)= 16.76337
ΣLN(X)^2= 12.26556
ΣLN(Y)^2= 81.88669
ΣLN(X)LN(Y)= 179.74339
```

HP42S RCL Σ, PRX w/MCP8850B

```
[ 25x1 Matrix ]
1:1=      0.00000
2:1=      0.00000
3:1=      0.00000
4:1=      0.00000
5:1=      0.00000
6:1=      0.00000
7:1=      0.00000
8:1=      0.00000
9:1=      0.00000
10:1=     0.00000
11:1=     0.00000
12:1=     2.00000
13:1=     4.00000
14:1=     3.60000
15:1=     1.20000
16:1=     1.00000
17:1=     2.99557
18:1=     8.97444
19:1=     4.09437
20:1=     16.76337
21:1=     12.26556
22:1=     81.88669
23:1=     179.74339
24:1=      0.00000
25:1=      0.00000
```

HP19BII w/MCP8850B

```
10/03/2026 04:57:30 PM
SATURDAY

R0=      0.00
R1=      0.00
R2=      0.00
R3=      0.00
R4=      0.00
R5=      0.00
R6=      0.00
R7=      0.00
R8=      0.00
R9=      0.00

12 PMTS/YR:  END MODE
33.02

N=      360.00
I/YR=     5.00
PV=     100,000.00
PMT=    -536.82
FV=      0.00
P/YR=     12.00
END MODE

OLD=      0.00
NEW=      0.00
%CHANGE=   0.00

TOTAL=     0.00
PART=     0.00
%TOTAL=    0.00

FEET=      1.08
INCHES=    12.96
METERS=    0.33
CM=        32.92
MM=        329.18
MILES=     0.0002
NAUTICAL.MI= 0.0003
KM=        0.0003
YARDS=     0.36
FATHOMS=   0.18
STATUTE.MI= 0.0002
RODS=      0.07
CHAINS=    0.02
SURVEY.FT= 1.08
```

HP42S PRLCD w/MCP8850B

```
x: [ 25x1 Matrix ]
PRSR LIST ADV PRLCD DELAY
```

HP42S NORM w/MCP8850B

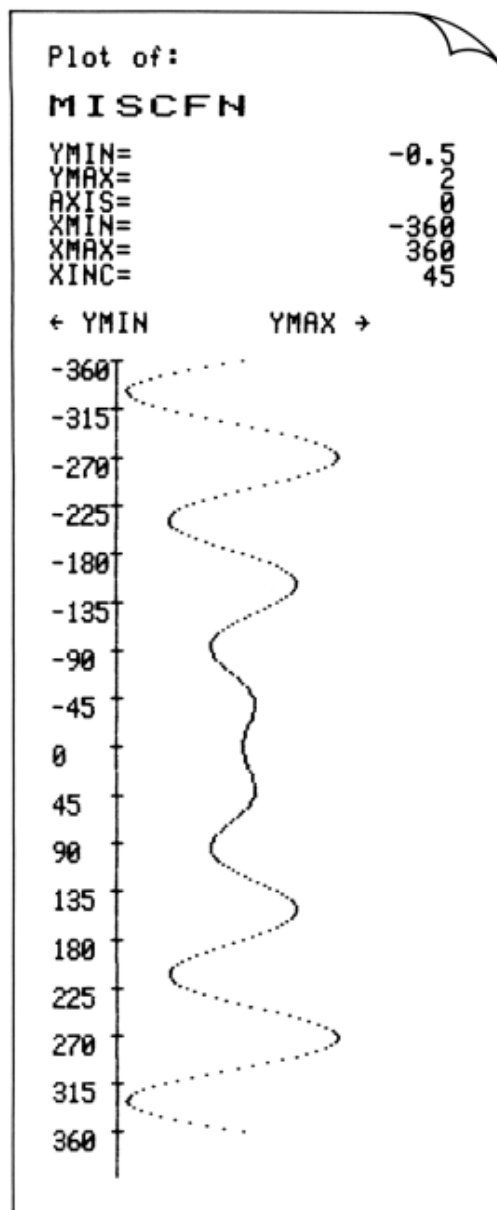
```
2.00000  STAT
3.00000  ENTER
4.00000  +
5.00000  +
100.00000 x
3.00000  +
PRINT
PRX
142.0000 ***
```

While Martel printers don't support the 0x04 "PRINT LINE AND LEAVE PRINT HEAD AT RIGHT" control code which is interpreted and printed as "¼":

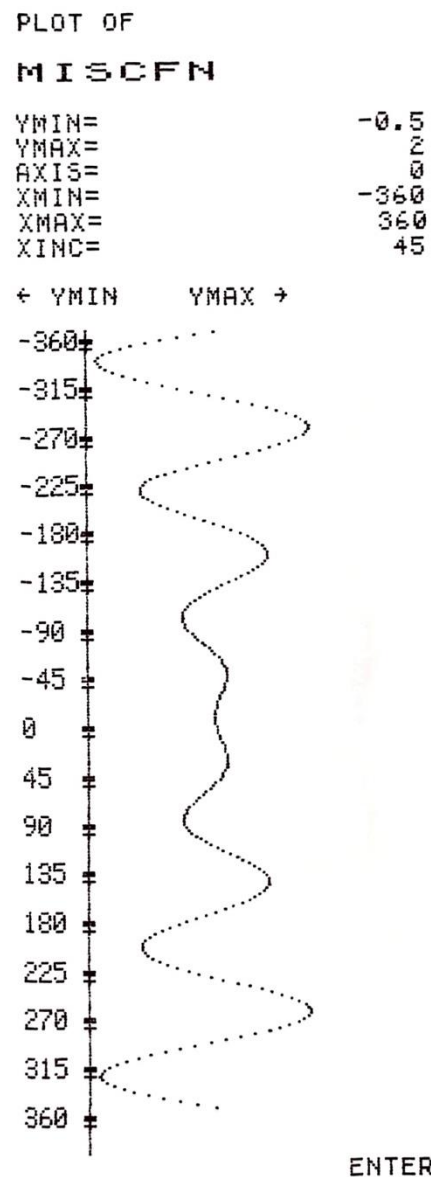
- These examples show that the many/most HP42S, HP19BII print functions work with the MCP 8850B
- It can be an issue when HP calculators (like HP-42S, HP41) print – especially some graphics, plot, and program outputs.

HP42S MCP8850B compatibility

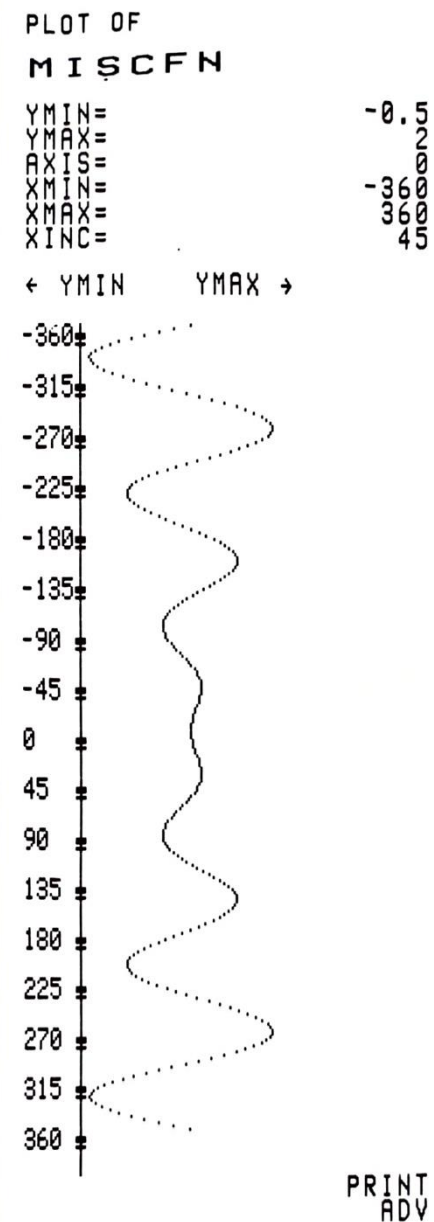
HP42S Manual



HP82240B Print Out



MCP8850B Print Out



Source:
HP-42S
RPN Scientific Calculator
Owners Manual
p. 159-165

Since the MCP8850B is one of the printers of choice, what AC adapter does it need?

Google

is martel mp8850b ac adapter input voltage center positive

AI Mode **All** Images Shopping Videos Forums Short videos More ▾

◆ AI Overview

Yes, the original AC/DC power adapters supplied for Martel electronic equipmer thermal printers (such as the MP8850 series) are typically configured with a **cer (tip-positive)** polarity barrel plug. ⓘ

Verifying Polarity

- Check the physical label on your specific power brick. Look for the standard showing a small circle (representing the inner tip/center pin) connected to a an outer C-shaped arc (representing the outer barrel) connected to a - sign. ⓘ Wikipedia +1



martel mps103 output voltage

◆ AI Overview

The [Martel Instruments](#) MPS103 power supply has a DC output voltage of **8.4VDC** with an output current of **800mA**. ⓘ

Power Supply Details

- **Input Voltage:** 115VAC $\pm 10\%$ 60Hz (US plug variant)
- **Output Voltage:** 8.4VDC
- **Output Current:** 800mA
- **Output Connector:** 2.1 / 5.5 mm concentric connector (**+ve outer**) ⓘ

If you need help with a specific device connection or troubleshooting a Martel Instruments printer model, please let me know!





Martel Thermal Printer Battery Charger

SKU: 959-2

\$ 35.00

Battery charging cord plugs into the printer and recharges the batteries for the Martel Thermal Printer.

1

 **ADD TO CART**

 **ADD TO WISHLIST**

RE: Does charger sku 952-2 work with Martel 1880 printer?



@alcopro.com>

To Cmcc0rd@comcast.net

↶

↷

➡

⋮

Fri 8/7

100--240 VAC image001.png 801 bytes	50/60 Hz image002.png 680 bytes	0.5 A image003.png 577 bytes
9 VDC image004.png 624 bytes	1000 mA image005.png 625 bytes	1 A image006.png 512 bytes
⊕---(∘--⊖ image007.png		

Chuck,

Without knowing the input requirements for the Martel LLP1880B-391, I cannot give you a definitive answer.

However, the power cable you inquired about is an MPC1880-502K. Both printers appear to be Martell 1880 series printers.

Here is the technical data for the part you requested.

Input Voltage: 100--240 VAC, 50/60 Hz, 0.5 A (Universal input)
Output Voltage: 9 VDC
Output Current: 1000 mA (1 A)
Polarity: Center-Positive (⊕ -- (∘ -- ⊖)

V/R



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100--240 VAC
50/60 Hz
0.5 A

9 VDC
1000 mA
1 A



AC Adapters for HP IR Martel Printers

Printer	Recommended AC adapter	AC adapter Voltage	AC adapter Tip polarity	Source Adapter Model #	Source V,I Specs
MCP-7830	MPS-120	5V DC	- tip +out	Martel	Google
MCP-7830	MPS-122	5V DC, 4A	- tip +out	Martel	Curcomp
MCP-7850		5V DC	- tip +out		Curcomp
MCP-8850	MPS101 UK MPS103 US	7-10VDC, 9v nom 200ma-500ma 800ma?	- tip +out		rice lake
Midtronics 182-003A MCP-8830-031	157-001A US 157-003A UK			Midtronics	

If the Martel 8850B needs 9v I think this US AC Adapter might work ...



Click to see full view

Ask Alexa

- Can it power multiple pedals?
- Does it have short circuit protection?
- Sponsored Why choose pigtone power adapters?
- Is it easy to carry around?
- Why you might like this
- Ask something else

DC 9V Guitar Pedal Power Supply 1A (10mA -1000mA) Center Negative | External Positive Low Noise One Spot AC Wall Charger Adapter Compatible for Most Effect Pedal And Other Devices Requiring 9V

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Brand	pigtone
Connector Type	DC Plug Size Of 5.5x2.1mm
Compatible Devices	Guitar Effect Pedals, Bass Pedals
Compatible Phone Models	guitar pedal power supply
Included	1 x 9V Power Adapter

[See more](#)

- #### About this item
- Input: AC 100V-240V, 50/60 Hz
 - Output: DC 9V1A (10-1000mA) MAX: 1000mA, Center Negative(-), External Positive(+), DC Plug Size Of 5.5x2.1mm
 - This product is compatible with guitar pedals with currents ranging from 10mA to 1000mA. You can also pair it with a daisy chain cable to power multiple guitar pedals simultaneously
 - Intelligent and professional integrated circuit chips,equipped with noise reduction and isolation safety protection performance , the magnetic ring at the end of the adapter cable can further reduce noise
 - The length of the adapter cable is 110cm/43inch, suitable for most brands of guitar pedals (center negative), and can also provide power to keyboards(center negative)
- [See more product details](#)

[Report an issue with this product or seller](#)



MARTEL INSTRUMENTS

Printers Fun Facts Summary

- Do **NOT** paper advance by pulling paper! Use printer's paper advance button or calculator's paper advance function. (is OK to pull paper on HP printers?)
- On the Martel 8850B **turn the printer off before connecting/disconnecting AC adapter**
- **Be careful what kind of AC adapter you use.**
 - I'm 80% positive 😊 that the HP IR Martel Printers are center negative, outer positive
 - Many AC adapters are center positive...
- For the C47,R47: Best to stick with MCP 8850B, 7850, 7830, MCP-8830-031 for HP IR compatibility
 - 7830 preferred?... (NiMh charging supported, HPIR default)
- For the HP42S, HP41 the HP82240 has the best compatibility



Connector: 2.1 / 5.5 mm concentric connector (+ve outer)





I'd never seen Google correct itself on the fly before...



osu used hours today



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AI Overview

The OSUsed Store at Oregon State University is **closed today** (Friday is not a Tuesday, and today is Friday, August 7, 2026—wait, let's re-verify Friday hours!).

Correction: Public sales hours for the [OSUsed Store](#) are actually **Tuesdays from 5:30 PM – 7:30 PM** and **Fridays from 12:00 PM – 3:00 PM**. Since today is Friday, August 7, 2026, they are **open today from 12:00 PM to 3:00 PM**. [osu Surplus Property | Oregon ...](#)

Store Details & Location

- Address: 644 SW 13th St, Corvallis, OR 97333
- Today's Hours (Friday): 12:00 PM – 3:00 PM

Show more



Surplus Property | Oregon State University
<https://surplus.oregonstate.edu/public-sales/osused-st...>

OSUsed Store - Surplus Property - Oregon State University

Hours. Public sales are on: **Tuesdays 5:30-7:30 p.m.** (5:30 to 7 p.m., Nov 1 through Feb 1); **Fridays 12-3 pm** ; Rewards Cards. We are again hosting our punch cards ... [Read more](#)

12–3 PM

OSUsed Store, Friday hours