MCP7830-242
THERMAL PRINTER
User Guide

Features

- Easy-Load paper feature
- IrDA, RS232 and HPIR Interface
- Rechargeable NiMH, AA batteries
- Recharge from mains or 12V vehicle supply
- 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
- 42 characters per line
- Barcode capability
- Low power mode
- Range of configurable options
- Windows driver for XP, 2000, 7 and CE

1. PRINTER SPECIFICATIONS

Average printing speed	10 lines per second (max)
Dimensions	85.5mm x 150 mm x 55 mm,
Weight	Approx. 400 gms inc batteries and paper roll
Internal power supply	4 x 1.2V NiMH 1600mAH, AA cells
Paper width	58mm
Paper length	25m
Operating range	0°C to +50°C
Storage range	-20°C to +60°C
Charging range	+10°C to +45°C
Character set	ASCII
Country codes	USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Spain & Japan

Interfaces		
RS232	8 Data, 1 Stop, No Parity	
	Connector	6-way RJ12 socket
	Baud rate	300, 600, 1200, 2400, 4800, 9600 19200
HP IR	1 start, 8 data, 4 error detection	
IrDA	V1.0 physical layer	
Buffer size	5 Kbytes	
MTBF	Approx. 10 million lines (20°C, print ratio = 25%)	

2. PREPARATION

2.1 Insert Batteries

SPORTident take every precaution possible to ensure your printer reaches you in perfect condition. To aid this we remove the rechargeable batteries from the unit for transit.

When you receive your printer you should be able to locate 4 x rechargeable NiMH batteries in the packaging. Remove the battery cover from the base of the printer and insert the batteries, taking care to ensure the batteries are inserted correctly using the illustration guide inside the battery compartment to guarantee the batteries are correctly positioned.

2.2 Charge Printer

Before attempting to use a new printer you need to charge it for 16 hours. This will ensure optimum battery capacity and life.

2.3 Check Paper

Make sure a thermal paper roll is present in the paper reservoir and the leading edge emerges from the printer over the tear bar. The paper should feed from the bottom front face of the roll.

2.4 Attach Data Cable

When using RS232 interface insert a suitable data cable into the RJ12 connector in the base of the printer. For pin connection see next point.

2.5 Serial Interface

The interface can be selected from RS232, IrDA and HPIr via Configuration Options (see page 3).
For RS232C 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/0	Definition
1	GND	N/A	Signal ground
2	TxD	0	Transmitted data to host
3	RxD	1	Received data from host

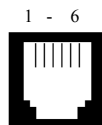| PIN	Signal	I/0	Definition
4	CTS	0	Clear to Send
5	n/c	N/A	No connection
6	n/c	N/A	No connection

1 - 6

Fig 1: Pin Numbers for Serial Interface Connector

2.6 Driver

Windows : http://www.martelinstruments.com/downloads/mtl2kxp.exe

Linux : http://www.martelinstruments.com/downloads/martel_linux_driver_0.1.0.tar.gz

3. PRINTER CONFIGURATION

3.1 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 some 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 once).
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	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
		7	IrMP 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
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
5	**RS232 Flow Control**	1	None
		2	**Software**
		3	Hardware
6	**Font**	1	Arial 16, 24 CPL
		2	Arial 12,32 CPL
		3	**Arial 9, 42 CPL**
7	**Character Format**	**1**	**Normal**
		2	Double W idth
		3	Double Height
		4	Double W idth and Height
8	**Print Density**	**1**	**Lowest**
		2	
		3	
		4	Highest
9	**Printing 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 / Wake-up**	1	Never Sleep
		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

4. PRINTER OPERATION

4.1 Battery Charging

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.

When in use 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 (see table 5.2)

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 MPS160(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.*

4.2 Power On Procedure

Check the batteries are sufficiently charged. Open the paper cup lid by pulling the central lever upwards and forwards from its locked position. To avoid damage do not use excessive force. Ensure that a paper roll is present and that there are no foreign objects inside the paper reservoir. Close the lid by applying equal amounts of pressure on each side of the lid until it is in the locked position. The paper should emerge from the printer over the tear bar.

The logo operates as a switch button. Above the logo is a LED status indicator.

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

4.3 Low Power Mode

The printer incorporates two low-power modes, configured via option 11, page 3, however the printer will not enter the 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 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 logo button depressed for approximately 2 seconds. Release the button, the printer will power on and print a self-test report.

5.2 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 or Asleep	-
Short flash every second	Fast Charging	-
✳ ✳ ✳	Paper out	Fit new paper
✳✳ ✳✳ ✳✳	Thermal head too hot	Allow head to cool
✳✳✳ ✳✳✳ ✳✳✳	Battery cut-out (no charge remaining)	Recharge battery
✳✳✳✳ ✳✳✳✳ ✳✳✳✳	Battery low (approx. 20% charge remaining)	Recharge battery

5.3 Paper Out

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

Pull the central lever on the paper cup lid upwards and forwards until it 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 cup lid and remove the spool and any remaining paper. Reel off a few centimetres from a new roll of paper. Hold approximately 5cm of paper outside the printer, place the new roll into the paper reservoir with the paper feeding from the bottom front of the roll. with the leading edge over the tear bar. Close the lid by applying equal amounts of pressure on each side of the paper cup lid until the lid is in the locked position.

6. 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.
This printer contains NiMH batteries that should be disposed of by a qualified recycler or hazardous material handler.

7. ACCESSORIES

Power Supplies & Mains Leads

UK Charger Unit	MPS101
Euro Charger Unit	MPS102
USA Charger Unit	MPS103
Universal Charger Unit	MPS160

Mains Lead with US style plug	MGK50
Mains Lead with UK style plug	MGK51
Mains Lead with Euro style plug	MGK52

Paper & Labels

Thermal Paper Roll, 25m	MM58
Thermal Paper Roll,10m	MM58/10
Continuous Thermal Label Roll, 6m	ML58/C48

Data Cables

Serial Cable, RJ12/D9	MGK20

Replacement Battery

Battery, AA 1.5V, Ni-MH (4 required)	MJ10

Mounting Options

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 stud fixing	MFP95
Detachable Belt Clip	MFP96
Wall Mounting Kit including fixings	MFP97