# Tuffer Printer Manual

P/N: 8500880-01

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# 1.0   Introduction

The MCP7810V TUFFER Printer is an ultra-compact, lightweight portable printer with an "easy-load" paper feature. Housed in a new innovative enclosure this printer has an RS232 serial interface via a 6-way RJ12 socket.

Designed for maximum versatility, the MCP7810V is compatible with existing systems whilst allowing many upgrades in terms of printing speed and functionality. It requires an unregulated power supply ranging from 10-35V dc and has maintenance free operation, only available with thermal printers. The Printer is designed for use in a vehicular environment.

All units are built with robust ABS housings. In additional, a tough rubber boot with magnetic mounting allows for quick location and placement of the printer without any other accessory equipment.

# 2.0   General Information

## MCP7810V THERMAL PRINTER                    *Applications Datasheet*

### Features

- Easy-Load paper feature
- RS232 Interface
- 10-35VDC Power Supply requirement
- 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
- Supports labels and dual ply paper
- Range of configurable options
- Windows driver for XP and 2000
- Low Profile paper lid, protective boot and belt clip available

# 3.0  Installation

## 3.1  Package

a.  The Printer is shipped as a complete unit. See below:



*Rubber Boot      Printer               Paper Roll           Data + Power Cable*

The Printer is set up and ready to print data upon command from the Tuffer Meter. No additional Set Up is necessary.

## 3.2    Mounting and locating Printer

The Rubber boot encasing the Printer has magnetized mounting buttons within it. The data and power cable length is approximately six feet. This implies that the Printer needs to be located within a radius of six feet of the Tuffer printer. Select a flat metallic surface and let the magnets secure the printer.

Note the printer may be mounted vertically as shown below:



*Vertically Mounted Printer*

## 3.3   Interfacing the printer to Tuffer Meter

Once the Printer is securely mounted, the next step is to connect the Data + Power cable to the Tuffer meter. Hold the metallic cable pin connector and mate to the RS232 port of the Tuffer meter. Once connected, the Printer is ready for use.

# 4.0   Printer Operation

## 4.1   Power "ON" Procedure

When the Status indicator is "OFF", the printer is powered down. Use your index finger, to press (not more than a second) on the Mode button and release. Center the pressure area on the "M" and apply pressure till you feel a snap action.  This action powers "ON" the Printer.
When the Printer is powered up, the green Status indicator will illuminate and the printer mechanism will reset.

## 4.2 Power "OFF" procedure

Just as in 4.1, use your index finger to press on the Mode button. The Printer will power "OFF" and the green LED will stop illuminating.



Printer powered "ON" and ready for use.

## 4.3 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.

# 5.0   Printer Maintenance / Trouble Shooting

## 5.1    Power "ON" Self – Test

The self- test procedure will check most of the printer functions, except for the serial Interface, namely: 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 error indications

Error status of the Printer are communicated to the operator by ON/OFF sequences of the 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 On/Off sequence | Status | Solution |
|---|---|---|
|  |  |  |
| * | Printer "ON" |  |
|  | Printer "OFF" or Asleep |  |
| *          *          * | Out Of Paper | Insert new paper Roll |
| * *        * *        * * | Thermal Print Head too hot | Power "OFF" printer. Allow Print Head to cool |
| * * *      * * *      * * * | Power voltage below 10 volts | Check supply voltage |

Sequence Explanation:

**"*"**      A single ON/OFF followed by a delay.

**"* *"**    A succession of two quick ON/Off blinks followed by a time delay.

**"* * *"**  A succession of three quick ON/OFF blinks followed by a time delay.

## 5.3 Replacing Paper Roll

1. If the paper roll needs replacing, open the paper reservoir by gently pushing upward on the reservoir lid.  DO NOT APPLY EXCESSIVE PRESSURE!!
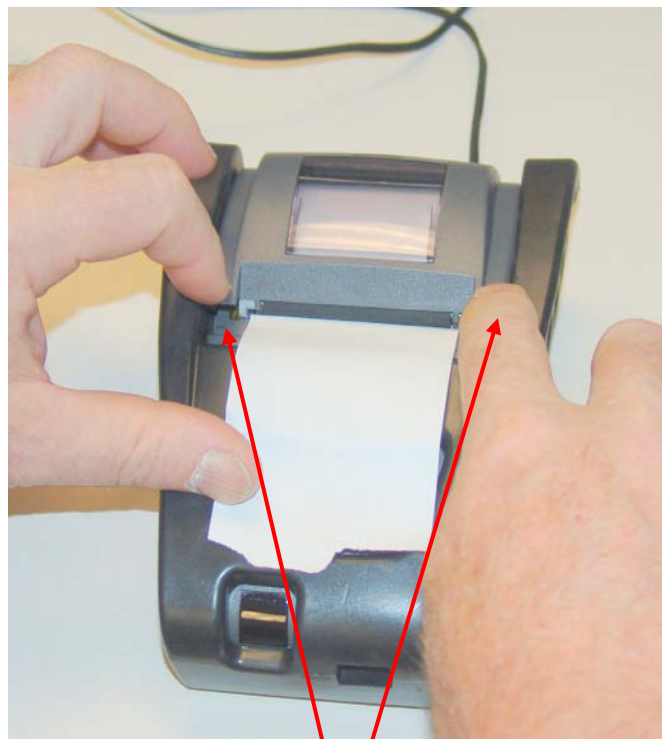


Paper reservoir lid
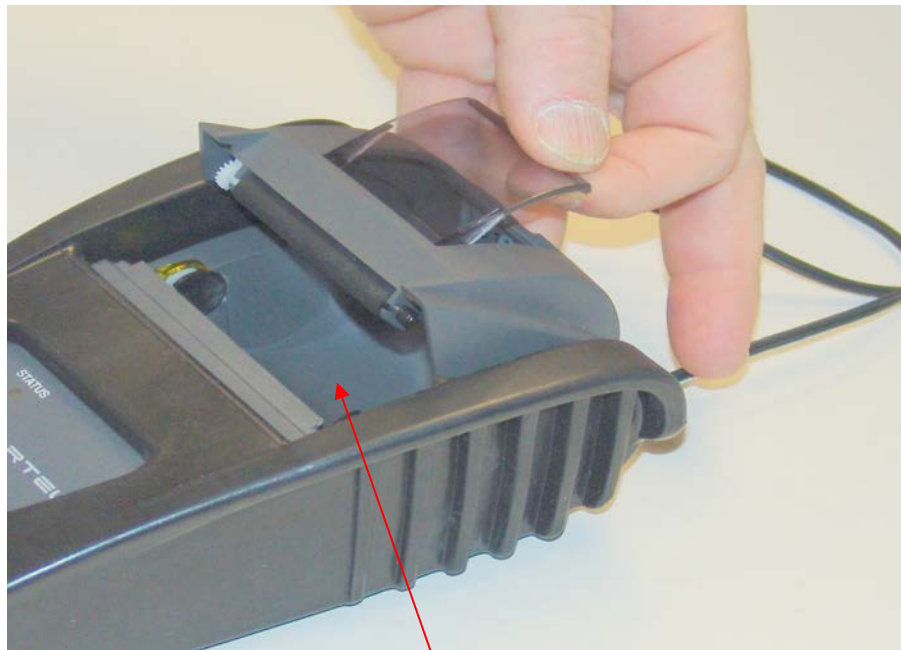


Paper reservoir exposed

2. Reel off a few centimeters from a new roll of paper; hold approximately 10 cm (4 to 5 inches) of paper outside the printer as the roll is placed into the reservoir.



3. Close the lid by applying <u>equal amounts of pressure on each side</u> until the lid is in the locked position. Now tear the surplus paper away.



Apply equal pressure

# *APPENDIX*

## A. Interface Wiring Diagram from Printer to Tuffer Meter



Wiring Diagram for interfacing a Martel MCP7810V printer to a Tuffer Weigh-in-Motion Meter
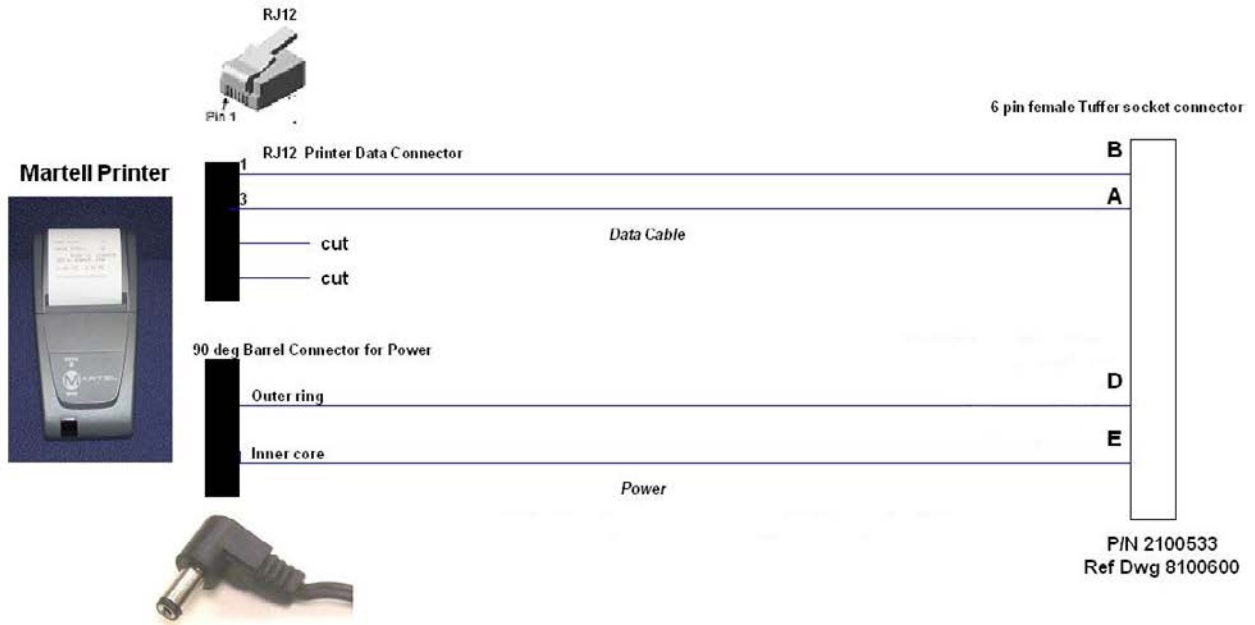
## B: Printer Specifications

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 (1.8 inches)
Average printing speed 10 lines per second (max)
Dimensions 85.5mm (3.36 inches) x 150mm (5.9 inches) x 55mm (2.2 inches)
Weight Approx.  400g (0.88 pounds)
External power supply 10-35V dc, 4A Peak
Paper width 58mm (2.29 inches)
Paper capacity 45 mm (1.77 inches) diameters, 25m (1.0 inches) standard printer 32mm
(1.26 inches) diameter
Recommended paper TF50-KS-E2D
Character set ASCII
Country codes USA, France, Germany, UK, Denmark I/II, Sweden, Italy, Spain & Japan
Interface
Data format RS232C
Connector 6-way RJ12 socket
Baud rates 300, 600, 1200, 2400, 4800, 9600 & 19200
Handshaking Hardware (CTS line) or Software (XON/XOFF)
Buffer size 5 Kbytes
Environmental Conditions
Operating range 0oC to +50oC
Storage range -20°C to +60°C
Charging range +10°C to +45°C
MTBF Approx. 10 Million lines (20oC, print ratio = 25%)
Power consumption
Sleep <1mA
Standby 30mA
Running Min 0.4A
Ave 1.3A, Maximum 2.8 amps

## C. Parts Order List
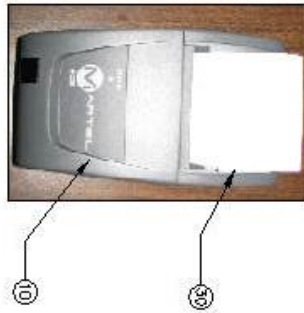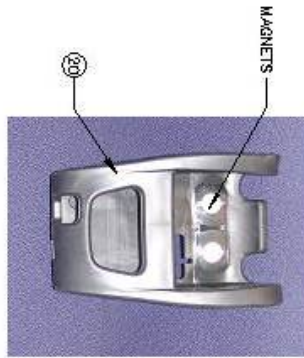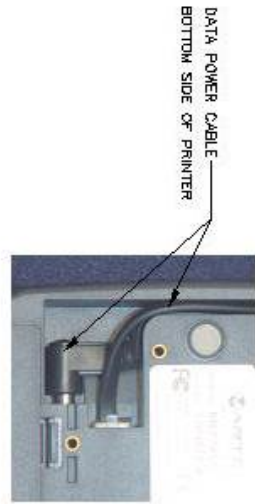


| ITEM | P/N | DESCRIPTION |
|------|------|-------------|
| 50 | 6190225 | TUFFER PRINTER MANUAL |
| 40 | 8100064 | PRINTER DATA/POWER CABLE |
| 30 | 2800830 | PAPER ROLL, CURRENT COMPONENTS TP201-211-25AC |
| 20 | 2600750 | RUBBER BOOT, CURRENT COMPONENTS MCP7000 |
| 10 | 6020170 | MARTEL PRINTER, CURRENT COMPONENTS MCP78110V |

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