

Mini 8 Thermal Printer
Shown with
Document
Presenter

Mini 8 Thermal Printer **User Manual**



Telpar, Inc.

800-872-4886

Fax: 603-742-9938

Website: www.telpar.com

E-mail: info@telpar.com

Warranty

Telpar, Inc. — Printer Limited Warranty

.WARRANTIES AND DISCLAIMERS. Products manufactured by Telpar are warranted against defects in workmanship and materials for a period of twelve (12) months from the date of shipment to the original user, provided the Product (a) remains unmodified, (b) is used only in the United States or Canada, (c) is operated under normal and proper conditions, as Telpar determines in its sole discretion, and (d) Customer provides prompt written notice Telpar of any defects as to parts and/or workmanship to. Telpar may provide an extended warranty on certain Products or components thereof for an additional price determined solely by Telpar and such extended warranty shall only be effective to the extent memorialized in writing by Telpar. Telpar's sole obligation and Customer's exclusive remedy for defective Telpar-manufactured Products is limited to repair or replacement, as Telpar determines in its sole discretion. The warranty described above does not include any labor or service costs for removing or replacing parts, or any shipping charges. Any repair performed by Telpar under this warranty does not extend the original warranty period of any Product. This warranty shall not apply to any Product which has: (i) been repaired or altered, except by Telpar; (ii) not been maintained in accordance with all of the operating or handling instructions supplied by Telpar, or (iii) been subjected to misuse, willful acts, abuse, tampering, negligence or accident, unusual physical or electrical stress, as Telpar determines in its sole discretion. Customer acknowledges that Telpar provides no warranty for any third party materials and Telpar is not responsible and will have no liability for any items or services provided to Customer by any person or entity other than Telpar. Telpar's duty to perform under any warranty may be delayed, at Telpar's sole option, until Telpar has been paid in full for all Products purchased by Customer. No such delay shall extend the warranty period. To obtain assistance under this limited warranty, Customer should contact the selling agency or write to: Telpar, Warranty Claims Department, 187 Crosby Road, Dover, NH, 03820, U.S.A. Telephone: 800-872-4886 or fax: 603-742-9938. No person (including, without limitation, any agent, salesman, dealer or distributor) has the authority to act on behalf of Telpar to expand Telpar's obligation beyond the terms of this express warranty, or to state that the performance of the Product is other than published by Telpar. For Products not manufactured by Telpar, to the extent permitted Telpar assigns to Customer the benefits of any warranties provided to Telpar by the manufacturer(s) of the Product. THE FOREGOING IS A LIMITED WARRANTY AND IT IS THE ONLY WARRANTY PROVIDED BY TELPAR. TELPAR DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES OR INDEMNITIES FOR PATENT OR COPYRIGHT INFRINGEMENT. IN NO EVENT SHALL TELPAR BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS, REVENUE, DATA, OR USE, INCURRED BY CUSTOMER OR ANY THIRD PARTY, WHETHER IN AN ACTION IN CONTRACT OR TORT, ARISING OUT OF OR RELATED TO THIS AGREEMENT, EVEN IF TELPAR OR ANY OTHER PERSONS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. TELPAR'S LIABILITY FOR DAMAGES HEREUNDER FOR ANY CAUSE WHATSOEVER SHALL IN NO EVENT EXCEED THE AMOUNTS RECEIVED BY TELPAR FROM THE CUSTOMER FOR THE PRODUCTS. TELPAR SHALL NOT BE RESPONSIBLE FOR ANY LOSS, DAMAGE OR EXPENSE OF ANY KIND CAUSED DIRECTLY OR INDIRECTLY BY THE USE OR PERFORMANCE OF THE PRODUCT PROVIDED HEREUNDER.

Upon inspection, Telpar will make necessary repairs or replacement and return the merchandise, shipping prepaid.

Table of Contents

| | | |
|----------|--|-------------------------------------|
| 1 | General | 5 |
| 1.1 | Applications | 5 |
| 1.2 | Standard Features | 5 |
| 1.3 | Power Supply Requirements | 6 |
| 1.3.1 | External Power Supply (supplied separately) | 6 |
| 1.3.2 | Voltage: 24 VDC \pm 5% | 6 |
| 1.3.3 | 3-Pin Hosiden Connector on Printer for Power Supply Connection | 6 |
| 1.4 | Telpar Roll Paper for the Mini 8 Thermal Printer | 7 |
| 1.5 | Document Presenter Option | 7 |
| 2 | Operator Instructions | 8 |
| 2.1 | Unpacking and Inspection | 8 |
| 2.2 | Printer Sensors | 8 |
| 2.2.1 | Sensors on the Mini 8 Thermal Printer | 8 |
| 2.3 | Paper Loading | 11 |
| 2.3.1 | Loading the Paper Roll into the Printer | Error! Bookmark not defined. |
| 2.4 | Clearing a Paper Jam | 12 |
| 2.4.1 | Lifting the Print Head and the Presenter Plate of the Mini 8 Thermal Printer | 12 |
| 3 | Manual Operation and General Operational Tests | 13 |
| 3.1 | Paper Cut and Paper Feed Buttons | 13 |
| 3.2 | Self Test Mode and Burn-in Mode | 13 |
| 3.2.1 | Self Test | 13 |
| 3.2.2 | Factory Burn-in Mode | 13 |
| 4 | Printer Control | 14 |
| 4.1 | DIP Switch Settings and Print Darkness Adjustment | 14 |
| 4.2 | Control Codes and Control Sequences | 16 |
| 4.2.1 | General Usage Print Commands | 16 |
| 4.2.2 | Descriptions of Commands | 21 |
| 4.2.2.1 | Status commands | 21 |
| 4.2.2.2 | Set Print Mode | 22 |
| 4.2.2.3 | Printer Reset | 22 |
| 4.2.2.4 | Telpar's Window Commands | 22 |
| 4.2.2.5 | Bit Image (BI) Graphics Mode Commands | 23 |
| 4.2.2.6 | Print Bar Code Command | 23 |
| 4.2.2.7 | Bar Code 128 definitions | 24 |
| 4.3 | Serial (RS-232C) Interface | 26 |
| 4.3.1 | Serial (RS-232C) Interface Specification | 26 |
| 4.3.2 | Serial I/O Connector | 26 |
| 4.3.3 | Optional Serial Adapter Cable | 27 |

| | | |
|------------|---|-----------|
| 4.4 | Parallel Interface (IEEE-1284) | 28 |
| 4.4.1 | Parallel I/O Connector, IEEE-1284 Type C..... | 28 |
| 4.4.2 | Optional Parallel Adapter Cable..... | 29 |
| 4.5 | USB Interface | 30 |
| 4.6 | Ethernet Interface | 30 |
| 4.7 | Printer Drivers | 30 |
| 5 | Detailed Specifications | 31 |
| 5.1 | Mini 8 Thermal Printer Detailed Specifications..... | 31 |
| 5.2 | Character Sets - Print Samples | 32 |
| 5.3 | Mini 8 Thermal Printer Dimensional Drawings..... | 37 |
| 6 | Troubleshooting | 41 |
| 6.1 | General Troubleshooting..... | 41 |
| 6.2 | LED Diagnostics and Error Detection Codes..... | 42 |
| 6.3 | LED Error Code Definitions Table..... | 43 |

APPENDIX:

| | |
|--|-----------|
| Appendix A: Configuration Utility – | |
| Changing RS-232 Baud Rates and other Printer Settings in flash memory | 44 |
| Appendix B: Updating the flash firmware to a different version | 46 |
| Appendix C: How to use the Telpar Language Monitor to get Status Feedback | |
| from the Printer (includes sample Source Code in BASIC and C++) | 49 |

1 General

(For detailed printer specifications, please see Section 5 in this manual.)

The Mini 8 thermal printer is designed specifically for the high performance, size and durability requirements of cut and drop (or cut and present with optional Document Presenter) applications. The compact size and high performance characteristic, coupled with its rugged design, makes it ideal for the kiosk environment.

3.1 Applications

- Kiosks
- Automated Teller Machines (ATMs)
- Parking ticket dispensing
- Gaming receipts
- In-Store gift registry receipts which contain graphics and/or barcode information
- Maps on-the-go from information Kiosks located at malls or parks
- Embedded printer for custom scientific equipment (graphs, charts, status reports, ect.)

3.2 Standard Features

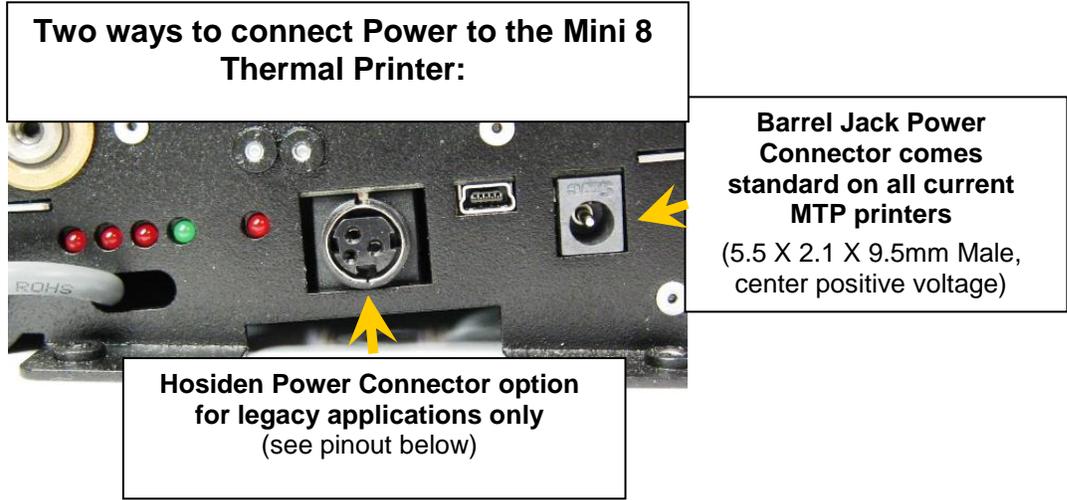
- Direct thermal printing
- Interfaces: Serial (RS-232), Parallel and USB interfaces all on the same printer
- Auto Cutter: full cut/partial cut under software control is standard
- All metal construction
- Paper low sensor
- Paper auto load function
- ESC/POS^{® 1} The commands conform to ESC/POS
- LEDs visible and DIP switches accessible without removing cover
- International character set: U.S.A., France, Germany, England, Denmark (2 choices), Sweden, Italy, Spain (2 choices), Japan, Norway, Latin America and Korea
- Barcode embedded symbologies: UPC-A, UPC-E, EAN 13, EAN 8, 3of 9. ITF, CODABAR, and Code 128
- Two resident font sizes
- Code pages 437, 850, 858, 860, 863, 865, and WPC 1252.
- Bit image mode
- Reverse video mode
- Black mark sensing (TOF mode)
- Horizontal or vertical mounting capabilities

¹ ESC/POS is a registered trademark of SEIKO EPSON Corp.

3.3 Power Supply Requirements

1.3.1 External Power Supply (supplied separately)

Use a Listed/Certified Power Supply.
Follow local wiring codes for external wiring.

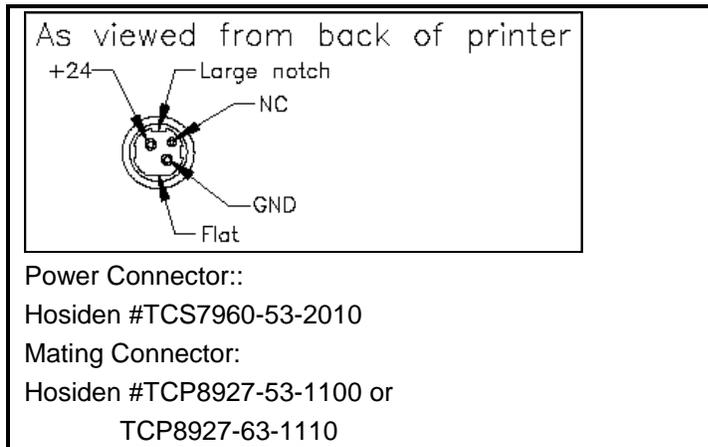


1.3.2 Voltage: 24 VDC ±5%

This printer operates using high speed currents at a low duty cycle. Typically, a switching power supply rated at 24 Volts DC, 2 Amps (50 Watts) is all that is needed. For more detailed printer specifications, please reference Section 5 in this manual.

Power Supply Option (Telpar Part Number 103929-0401): Telpar offers a power supply suitable for use with the Mini 8 thermal printer. This power supply uses the Barrel Jack connector option (NOT compatible with the older, legacy type connector). This power supply also provides a built-in ON/OFF switch near the printer-end of the cord.

1.3.3 3-Pin Hosiden Connector on Printer for Legacy Power Supply Connection



3-Pin Hosiden Power Supply Connector

3.4 Telpar Roll Paper for the Mini 8 Thermal Printer

203 mm (8 in) outside diameter, 215.9 mm (8.5 in) wide, approximate length 398 m (1,307 ft).

Thermal sensitive coating is on the “inside” of the roll.

Telpar P/N 751221-2080

Specific to Thermal Printers: Telpar, Inc. does not warranty damages to the thermal print head as a result of printing with thermal paper not specified or approved by Telpar, Inc.

3.5 Document Presenter Option (Presenter dimensions can be found in Section 5 – Printer Drawings)

The Mini 8 thermal printer can be ordered with an optional document presenter which attaches to the front of the printer (just after the cutter mechanism). The purpose of the document presenter option is to prevent a person from making physical contact with a document until the document has been completely printed and cut. This decreases the likelihood of someone purposely or accidentally causing a paper jam or smearing the printed information by pulling on the exiting document before it has finished printing. This option is especially useful when printing long documents.

Preventing human contact with a document during a printing operation is accomplished by allowing the presenter to hold the leading edge of the document (preventing the document from exiting the printer) while the remainder of the document is being printed. A paper loop will form below the presenter assembly while document printing is in progress. Finally, after the completed document is cut, the presenter ejects the document up to the trailing edge of the paper which it holds so that the customer may take the document from the presenter exit. The printer can be configured to retract the document if the customer has not removed it after a specified passage of time.

Check with our sales team to see if a Document Presenter would be beneficial to your application.

2 Operator Instructions

3.1 Unpacking and Inspection

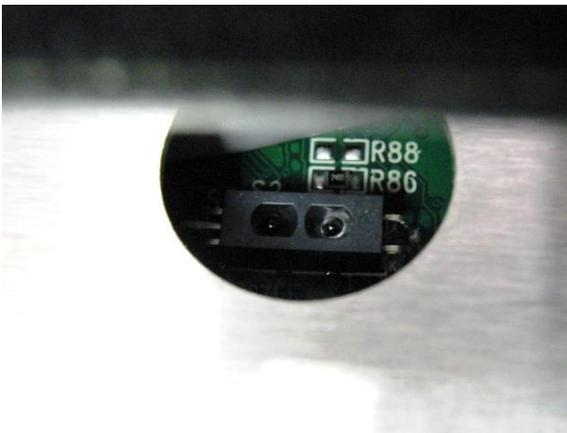
Carefully unpack and inspect your printer for any damage that may have occurred in transit. Should any damage have occurred, notify Telpar, Inc., save the shipping carton and packing materials, and file a damage claim with the carrier. Specify the nature and the extent of the damage. Before installing or operating the printer, check the following:

- Printer mechanism and paper path are clear of all packing materials or other foreign matter.
- Paper is installed. DO NOT OPERATE the printer without paper. Refer to Section 3.3 - Paper Loading for paper loading instructions.

3.2 Printer Sensors

The Mini 8 Thermal Printer uses infrared, reflective sensors to detect when the paper roll is getting low, when paper is present under the print head, and when paper has entered the document presenter (if your printer has the document presenter option). These sensors should be periodically cleaned from dust and other debris which will accumulate on them over time. Cleaning periodically will help prevent intermittent, false triggering of the sensors which result in system downtime. It is recommended that pressurized air be used to clean the sensor surfaces as shown below.

2.2.1 Sensors on the Mini 8 Thermal Printer

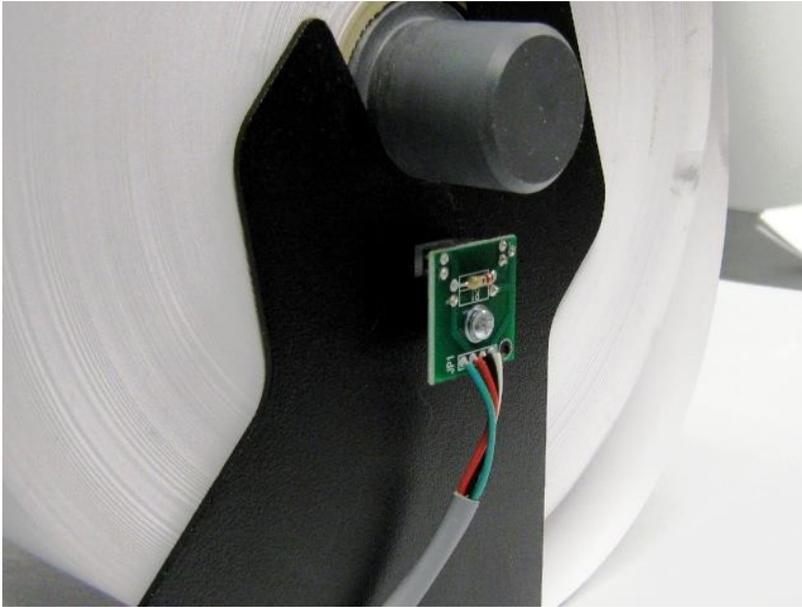


Paper Present Sensor

The Mini 8's Paper Present Sensor is located below the print head mechanism, and its function is to detect if there is paper under the printer's thermal print head before it attempts to print.

To access the sensor, pull back on the sliding lock mechanism on the print head's top plate (as shown in the top photo to the left) and rotate the print head assembly up. The sensor will be located below the circular cutout in the bottom plate (as shown below).

If there is no paper presently in the printer, and paper is fed through the entry slot, the printer will perform an auto feed operation. If paper is already in the printer mechanism and the paper supply runs out, the printer will indicate an out of paper status. This sensor can be cleaned by blowing pressurized air over the sensor face through the circular cutout in the chassis.



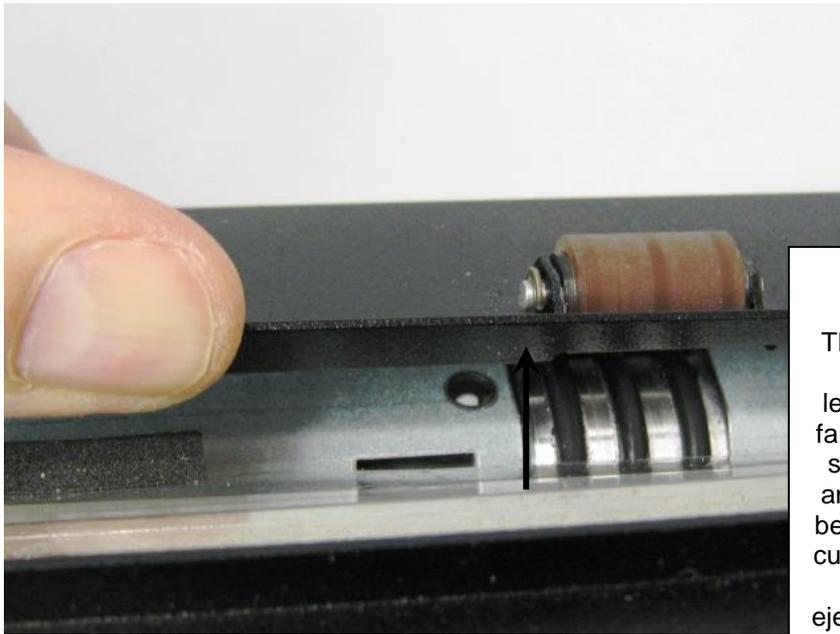
Mini 8's Paper Low Sensor

The Paper Low Sensor, shown in both photos, is mounted on the paper roll holder. It detects when the paper roll is almost depleted. Printer status feedback will indicate whether or not the sensor detects the roll as the roll's diameter decreases with use.

The sensor can be physically rotated within the slot in the chassis (see bottom photo) to allow the printer to sense within a small range of various end-of-roll diameters.

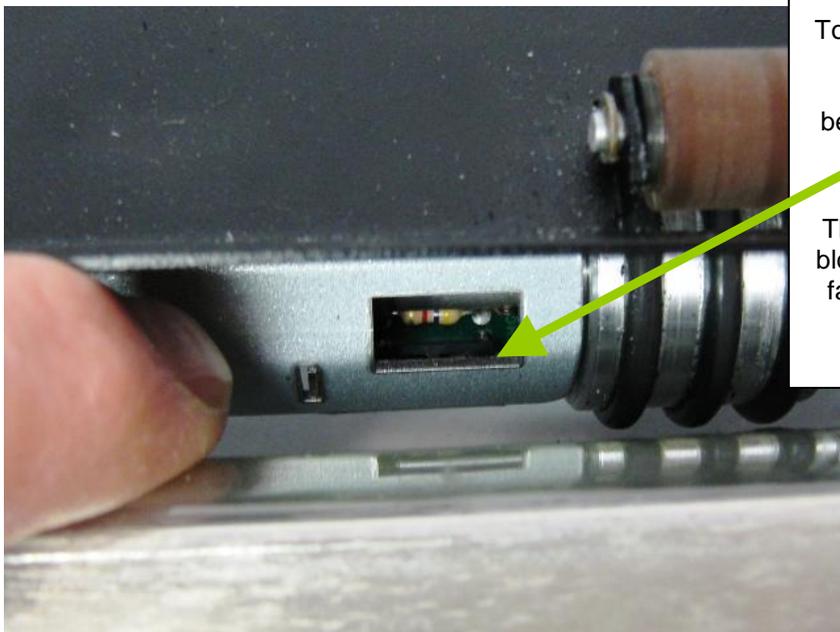
The sensor surface can be cleaned by blowing pressurized air over the sensor face through the hole in the roll side of the chassis (see bottom photo).





**Mini 8 DOCUMENT PRESENTER
OPTION ONLY**

The Presenter Sensor (location shown in both pictures) detects when the leading edge of the paper has entered far enough into the presenter section to stop the presenter motor from turning and thereby preventing the paper from being ejected until the printer prints and cuts the document. It also detects if the document has been successfully ejected (or retracted) from the presenter section after the document has been printed and cut.



To access the Presenter Sensor, lift the presenter's top plate first (see top photo). The sensor face is located below the rectangular cutout as shown in the bottom photo.

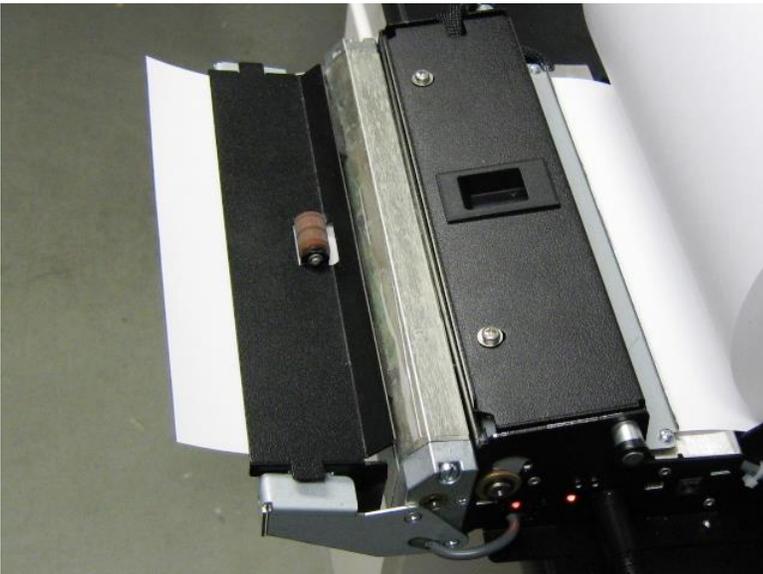
The sensor surface can be cleaned by blowing pressurized air over the sensor face through the rectangular cutout in the plate surface.

3.3 Paper Loading

2.3.1 Loading the Paper Roll into the Printer

The Mini 8 thermal printer is configured to accept a drop-in paper roll (as shown below).

Load the roll of paper by placing the spindle inside the roll of paper and set the paper roll and spindle into the spindle slots on each of the paper holder brackets (shown in top photo below). The paper must feed into the print mechanism from the bottom of the roll (thermal coated side **up**). To load paper, power the printer and feed the straight edge of the paper into the paper guide (see top photo below). **NOTE:** The printer does not have an ON / OFF Switch. Inserting paper will result in the automatic loading of paper once the leading edge of the paper covers the Paper Present Sensor in the mechanism. Ensure that the paper is installed correctly and feeding properly with the **thermal side facing up**. As part of the automatic paper loading process, a short section of the leading edge of the paper will be fed through the cutter section of the printer and cut off.



When paper is initially fed into a printer using the presenter option, part of the automatic feeding process will include cutting and presenting a short section of the leading edge of the paper as shown in the bottom photo.

3.4 Clearing a Paper Jam

In the event of a paper jam condition do not force paper into the unit, or try to pry the paper out of the unit, as this may damage the thermal print mechanism. Instead, lift the print head up, off the paper to

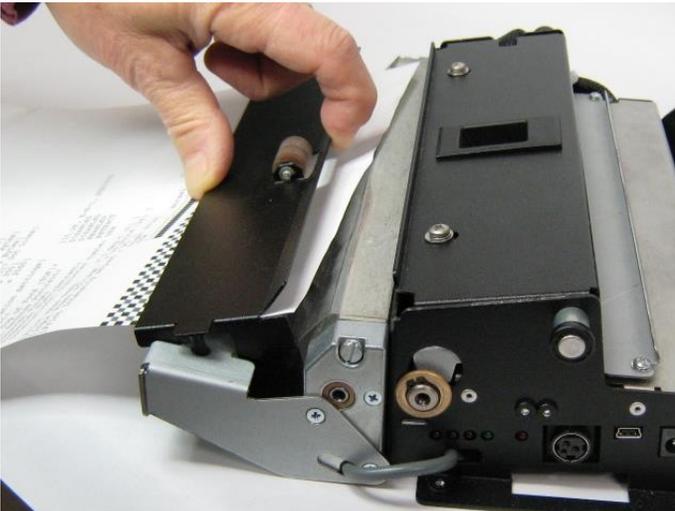
clear a jam as shown below. **Caution should be exercised when working next to the cutter mechanism, the blades are sharp and may cause serious injury!** Therefore, it is recommended to **unplug** the Printer before clearing a jam!

2.4.1 Lifting the Print Head and Presenter Plate of the Mini 8

The Mini 8's print head is lifted by pulling back on the sliding lock mechanism on the print head's top plate and rotating the print head assembly up as shown below. Lifting the head will allow you full access for clearing jams in the printing section as well as access to the Paper Present Sensor which may need to be cleaned from paper dust from time-to-time. When the print head of the Mini 8 is in the up position, be careful not to physically contact the actual print head element itself (element looks like a long, dark stripe on the bottom of the head) as you may easily damage it. The printer will not be able to print or automatically feed paper with the head up. When closing the print head, make sure that the sliding locking mechanism snaps into place thereby insuring that the printer will be ready to print.



The Mini 8's print head is raised by pulling back on the sliding lock mechanism on the print head's top plate and rotating the print head assembly up as shown in the photo to the right.

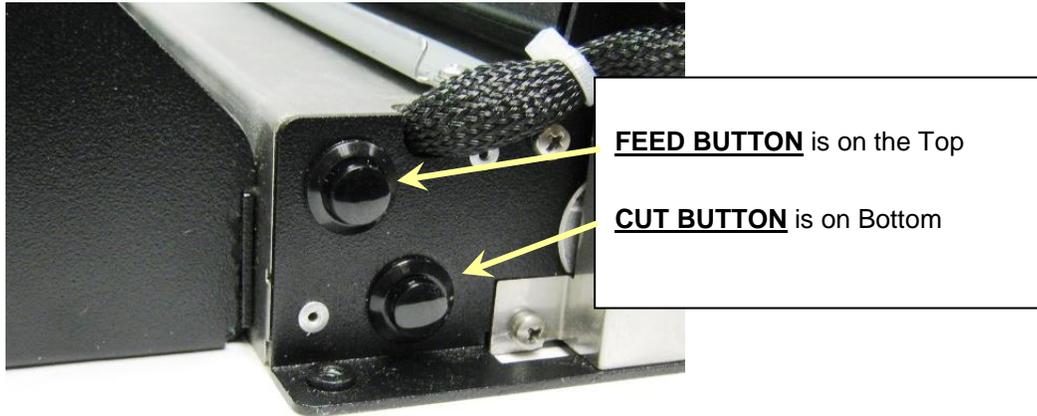


If the printer has a Document Presenter and a paper jam exists between the cutter and the presenter, then the top section of the presenter may be raised slightly to provide access to the jam. To do this, lift the back side of the presenter's top plate (shown in left-hand photo. The photo shows the plate lifted to its maximum height). When the plate is released, it will return back to its original position (via springs).

3.0 Manual Operation and General Operational Tests

3.1 Paper Cut and Paper Feed Buttons

The Mini 8 thermal printer has two external, momentary push-buttons that allow the operator to manually feed and cut paper. The locations of these buttons are shown below. When the Feed Button is pressed, the printer will feed paper until the Feed Button is released. When the Cut Button is pressed and released, the printer will feed and cut one short section of paper.



3.2 Self Test Mode and Burn-in Mode

The Mini 8 thermal printer has a self-test and Burn-in mode that will print and cut sample documents. All electrical and mechanical portions of the printer are exercised and checked by this action (except for the communication interface components). The self-test printout also shows pertinent information pertaining to the current printer setup.

3.2.1 Self Test

NOTE: The printer does not have to be connected to a host (computer, PLC, or other controller) to perform a Self Test. To place the unit into self-test mode, remove power from the printer, then press and hold the FEED button (see above). Next, return power to the printer, then release the paper feed switch after hearing one beep. The printer will print a Self Test form showing pertinent information pertaining to the current setup and sample text and barcodes.

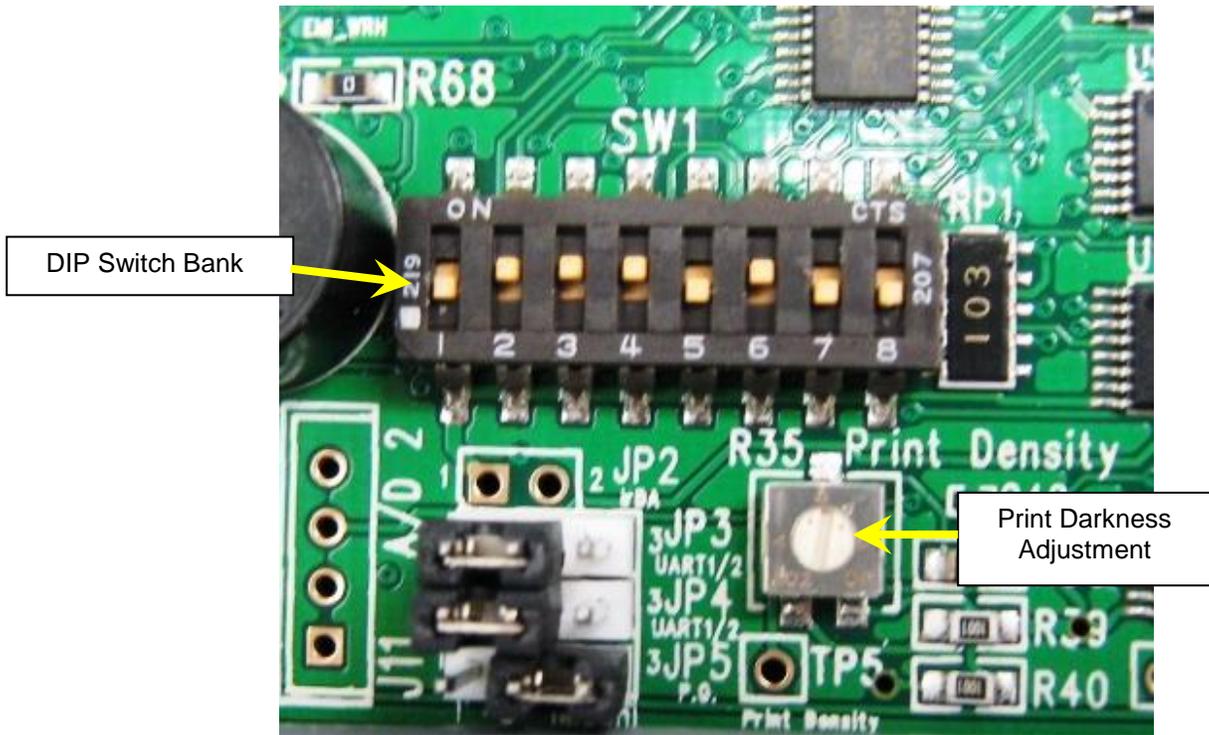
3.2.2 Factory Burn-in Mode

NOTE: The printer does not have to be connected to a host (computer, PLC, or other controller) to enter the Factory Burn-in Mode. If the Feed button is held for five beeps after power is applied to the printer, the printer will enter the Factory Burn-In Mode. Fifty shorter sheets will be printed.

4 Printer Control

4.1 DIP Switch Settings and Print Darkness Adjustment

Note: Both the Printer's DIP Switch and Print Darkness Adjustment can be accessed from the bottom of the printer as shown:



DIP Switch Settings: The Mini 8 thermal printer has a DIP Switch located on the main circuit board (see photo above). The DIP Switch contains a bank of eight individual switches, each of which controls some aspect of the printer and are described in the table on the next page. The switches can slide up into the “ON” position or down into the “OFF” position (the picture above shows switches 1, 5, 7, and 8 in the “OFF” position, and switches 2, 3, 4, and 6 in the “ON” position). A small tip screwdriver or even a pen tip may be used to change the position of the switches.

IMPORTANT NOTE: If you make any changes to the DIP Switch settings, you must first cycle power to the printer in order for the changes to take place.

Print Darkness Adjustment: Control R35 on the circuit board is the Print Darkness (or Print Density) Control (see photo above). Clockwise rotation of the control increases print darkness, but also consumes more current and shortens the life of the print head. Therefore, it is recommended that the darkness level be increased to the point that just meets the desired darkness level under the normal ambient operating conditions for the printer application.

| DIP Switch Position | Printer Function based on State of Switch |
|---------------------|---|
| 1 | <p><u>Flash Memory Upload Mode used to Update the flash firmware to a different version</u></p> <p>OFF = Normal Print Mode (normal operating mode for printer) ON = Flash Memory Upload Mode (See Appendix B for more details)</p> |
| 2 | <p>OFF = Paper cutter disabled (will not cut paper) ON = Paper cutter enabled (will cut paper)</p> |
| 3 | <p>Reserved for future use</p> |
| 4 | <p>OFF = Document Presenter disabled (no document presenter option on the printer) ON = Document Presenter enabled (printer has the document presenter option)</p> |
| 5 | <p><u>This setting pertains to models with the document presenter option only</u></p> <p>OFF = Presenter paper loop enabled (prints first, cuts second, then delivers) ON = Presenter paper loop disabled (delivers document while printing, then cuts)</p> |
| 6 | <p><u>Paper Roll Low Sensor:</u></p> <p>OFF = Use Internal Paper Low Sensor on the board (standard configuration) ON = Use External Paper Low Sensor on chassis side (optional configuration)</p> |
| 7 | <p>Reserved for future use</p> |
| 8 | <p><u>Configuration Mode used to set-up the following attributes in Flash Memory:</u></p> <ol style="list-style-type: none"> 1) Changing Serial Port Settings 2) Enabling the Top of Form (TOF) Detection 3) Enabling Reverse Portrait Printing 4) Choosing Presenter Eject or Retract Setting 5) International Character Table Selection <p>OFF = Normal Print Mode (normal operating mode for printer) ON = Configuration Mode (See Appendix A for more details)</p> |

4.2 Control Codes and Control Sequences

(Note: The following commands are generally used by programmers designing custom software for printer applications using the RS-232 Serial Communications port and which do not require the use of a printer driver.)

4.2.1 General Usage Print Commands

| General Usage Print Commands | | | |
|------------------------------|---------------|---------------|--|
| Name | Command ASCII | Command hex | Description |
| Tab | HT | 09 | Move the print position to the next horizontal tab position. See ESC D. If a TAB is received and there are no more tab positions set on the current line, the TAB command is ignored. If the TAB will exceed the right margin, an auto-print is performed and the print position is set to the start of the next line. |
| Line feed | LF | 0A | Data on the current line is printed, paper is fed one line based on the current line spacing, and the print position is set to the left margin. If the current line spacing is set to less than the current font height then paper is fed to print the current font height (see ESC 2, ESC 3 +n, and ESC C +n). |
| Form Feed | FF | 0C | Feed paper to end of page as defined by the default page length of 11 inches or as modified by the US C command. If TOF mode is enabled (DIP switch 2 position 1 or ESC c 1 +n)) then paper is fed until the next BLACK MARK is detected. To advance to the BLACK MARK if TOF mode is not enabled use the GS FF command. |
| DLE | DLE | 10 | Data Link Escape Sequence Header. |
| Enable Auto Status Back | DLE A +n1 +n2 | 10 41 +n1 +n2 | +n1 and +n2 define a mask to enable the transmission of the STATUS bytes when a user defined event occurs. Default = 00 (ASB disabled). See Section 4.2.2.1 for more details. |
| Buffered STATUS request | DLE B | 10 42 | The STATUS bytes are transmitted when this command is processed out of the receive buffer. See Section 4.2.2.1 for more details. |
| Real time STATUS request | DLE R | 10 52 | The STATUS bytes are transmitted when this command is received by the printer. See Section 4.2.2.1 for more details. |
| User selected data string | DLE U +n1 +n2 | 10 55 +n1 +n1 | When DLE U +n1 +n2 is processed out of the receive buffer, the printer will transmit DLE U +n1 +n2 back to the host. |
| ESC | ESC | 1B | ESCAPE Sequence Header. |
| GS | GS | 1D | GROUP SEPARATOR Sequence Header. |
| US | US | 1F | UNIT SEPARATOR Sequence Header. |
| Reverse Video ON | ESC RS | 1B 1E | Printing is reversed to white characters on black background. Reverse video requires more power to print and is less readable. (Same as GS B 01). |

Telpar, Inc. Mini 8 Thermal Printer User Manual

| Name | Command ASCII | Command hex | Description |
|------------------------------------|--------------------------|-------------------------|--|
| Reverse Video OFF | ESC US | 1B 1F | Printing is set to default mode of black print on white background. (Same as GS B 00). |
| Set Print mode | ESC ! +n | 1B 21 +n | Set Print mode = font A or B, Double high, Double wide. See Section 4.2.2.2 for more details. |
| Select Bit Image mode | ESC .: +m +n1 +n2 +d1~dn | 1B 2A +m +n1 +n2 (data) | Select Bit Image mode. +m = ?. n2*256 + n1 = Number of DOT LINES of data to follow. (data) = the amount of data required to complete the sequence. Telpar does not fully support this command. Please refer to US * command which follows. |
| Underline | ESC - +n | 1B 2D +n | Bit 0 of n = 0 turns underlining OFF. Bit 0 of n = 1 turns underlining ON. Default is OFF. |
| Set 1/6" line spacing | ESC 2 | 1B 32 | Set 1/6 inch line spacing. |
| Set Line feed pitch | ESC 3 +n | 1B 33 +n | Set line spacing to n dot lines. If the n specified is less than the height to print text using the currently selected character set then printing will cause enough paper feeds to print the entire line but a print command with no data in the buffer will cause paper to feed by this amount. Default is 1/8 inch |
| Printer reset | ESC @ | 1B 40 | Initialize the printer. See Section 4.2.2.3 for more details. |
| Set page length | ESC C +n | 1B 43 +n | Set page length to n character lines using the current font. Overwrites the page length defined by US C. |
| Set Horizontal Tab positions | ESC D +d1~dn NUL | 1B 44 (data) 00 | Set from 1 to 32 tab positions in the current character size. Data values range from 1 to 255 in ascending order. The NUL character (00 hex) terminates this command if less than 32 tab settings are being set. If a data value is less than the previous data value, this command is terminated. ESC D NUL clears all tab positions. Default is every 8 columns. Print after a tab starts in the column following the tab setting specified. |
| Forward paper feed for n dot lines | ESC J +n | 1B 4A +n | Feed paper n dot lines. If there is data in the buffer, it is printed and paper is fed the difference of the +n and the amount needed to print the data. Range = 0 to 255 dec. |
| Select International character set | ESC R +n | 1B 52 +n | Select international character set. Range = 0 through 15 dec. See International Character Sets for characters affected for each character set. |
| Select justification for bar code | ESC a +n | 1B 61 +n | n=00hex, left justify. n=01hex, center justify. n=02hex, right justify. GS L, GS W, and ESC \ will also affect the bar code justification. |

Telpar, Inc. Mini 8 Thermal Printer User Manual

| Name | Command ASCII | Command hex | Description |
|----------------------------------|---------------|---------------|--|
| Select paper type | ESC c 1 +n | 1B 63 31 +n | Bit 0 = 0, Normal paper. Bit 0 = 1, TOF (Black Mark sensor) enabled. Default is based on Dip switch 2 position 1. |
| Paper sensor to output PE signal | ESC c 3 +n | 1B 63 33 +n | Command is not implemented, all four bytes will be ignored. |
| Paper sensor to stop printing | ESC c 4 +n | 1B 63 34 +n | Command is not implemented, all four bytes will be ignored. |
| Select CODE PAGE | ESC t +n | 1B 74 +n | n = 0, code page 437 (standard USA). n = 2, Code page 850 (Multilingual). n = 3, Code page 860 (Portuguese). n = 4, Code page 863 (Canadian-French). n = 5, Code page 865 (Nordic); n=10 hex, WPC1252; n=13 hex, Code page 858 (Multilingual with Euro character) |
| Feed to Top of Form | GS FF | 1D 0C | If TOF mode is disabled (DIP switch 2 position 1 or ESC c 1 +n) then paper is fed until the trailing edge of the Black Mark sensor is detected, the current page length is reached, or the printer runs out of paper. |
| Select character size | GS ! | 1D 21 +n | Bits 7,6,5,4 for width, Bits 3,2,1,0 for height. Can select 1,2,4, or 8 times normal size. 0hex = 1X size, 1hex = 2X size, 2hex = 4X size, and 3hex = 8X size. |
| Reverse video | GS B +n | 1D 42 +n | Bit 0 of n = 1 causes Reverse Video to be printed (same as ESC RS). Bit 0 of n = 0 turns Reverse Video off (same as ESC US). |
| HRI position | GS H +n | 1D 48 +n | Select HRI printing position for bar codes, n = 00hex no HRI printed. n = any value other than 00hex, HRI printed below the bar code. |
| Set left margin | GS L +nH +nL | 1D 4C +nH +nL | Sets the left margin to nH*256 + nL dot positions from the left side of the print head. Default = 0 (leftmost dot). The value being set must be equal to or less than the right margin minus 80 dots. If the margin is set to any invalid value this command is ignore. Range = 0 to Right Margin - 80. |
| Paper cut | GS V +n +m | 1D 56 +n +m | If n = 0 (either 00hex or 30hex) a full cut is performed and the +m byte is not needed. If n = 1 (either 01hex or 31hex) a partial cut is performed and the +m byte is not needed. If n is a capital A (41hex) then paper is fed for m dot lines and then a full cut is performed. If n is a capital B (42hex) then paper is fed for m dot lines and then a partial cut is performed. If a presenter is installed, only full cuts are performed. |

Telpar, Inc. Mini 8 Thermal Printer User Manual

| Name | Command ASCII | Command hex | Description |
|---|--------------------|----------------------|---|
| Set Right Margin | GS W + nH + nL | 10 57 + nH + nL | Set the right margin to nH*256 + nL dot positions from the left side of the print head. Default = maximum dot count for the printer mechanism minus 1. The value being set must be equal to or greater than the left margin plus 80 dots. If the margin is set to any invalid value this command is ignore. Range = Left Margin +80 to rightmost dot. |
| HRI font | GS f | 1D 66 +n | Not implemented, the controller selects a font and size to best fit under the bar code being printed. |
| Set Bar code height | GS h +n | [1D 68 +n | Set the bar code height in dots. Default = 64. Range - 1 to 255 dec. |
| Bar code printing | GS k +m +n +d1~dn | [1D 6B +m +n (DATA)] | Selects the bar code type and prints. See Sections 4.2.2.6 and 4.2.2.7 for more details. |
| Set Bar code magnification | GS w +n | [1D 77 +n] | Set the width of the bars used to print bar codes. The width of a narrow bar is set to n. Range = 1 to 8. Default = 2. A setting of n=1 prints a bar code so small it is possibly not readable.. |
| Bit image command | US * +nH +nL +data | 1F 2A +nH +nL +data | 256*nH +nL defines how many bytes of bit image data will follow. See Section 4.2.2.5 for more details. |
| Set Page Length | US C +nH +nL | 1F 43 +nH +nL | Sets the page length to 256*nH +nL dot lines. Default is 11 inches. Overwrites the page length set by ESC C. |
| Eject/retract ticket | US E | 1F 45 +n | Bit 0 of n = 0 sets the mode to RETRACT an untaken ticket back into the printer. Bit 0 of n = 1 sets the mode to EJECT an untaken ticket out the front of the printer. |
| Set timeout to use before an untaken ticket is purged | US K | 1F 4B +n | If a document is cut and presented (but not removed) and another document is sent to the printer, the first document will not be purged (either Ejected or Retracted) until +n seconds after the first document is presented. Default is 5 second. |
| Global IEEE-1284 STATUS Enable / Disable | US S +n | 1F 53 +n | Low order nibble of +n = 0 disables all STATUS transmissions in IEEE-1284 parallel mode. Low order nibble of +n = 1 thru F enables STATUS transmission. Default is disabled. |

Telpar, Inc. Mini 8 Thermal Printer User Manual

| Name | Command ASCII | Command hex | Description |
|--|---------------|---------------|---|
| Start of Document for WINDOWS | US b | 1F 62 | Used only by Telpar's Windows drivers. |
| End of Document for WINDOWS | US e | 1F 65 | Used only by Telpar's Windows drivers. |
| Set horizontal Print Position | US x +nH +nL | 1F 78 +nH +nL | The horizontal print position is set to $(256 * nH + nL) * 8$ dots from the left margin |
| Set Relative Vertical move | US y +nH +nL | 1F 79 +nH +nL | Causes paper to feed $256 * nH + nL$ dot lines. |
| Set Horizontal Print Position ABSOLUTE | US A | 1F 41 | Sets the x-move function (see US x +nH +nL) to be a move relative to the left margin. See US R. |
| Set Horizontal Print Position RELATIVE | US R | 1F 52 | Sets the x-move function (see US x +nH +nL) to be a move relative to the current position. Default setting. See US A. |

4.2.2 Descriptions of Commands

4.2.2.1 Status commands

All transmission of status in IEEE-1284 mode is disabled at power on. Status transmission must be enabled by the US S +n command before any STATUS transmission will occur in IEEE-1284 mode.

In case of an ERROR as defined in the table below, the printer transmits DLE E and the 2 status bytes. The response to a STATUS REQUEST is to transmit DLE (10hex) followed a SOURCE byte that distinguishes what type of status is being transmitted followed by the two status bytes as defined in the table below.

The SOURCE byte is defined as:

A = Auto Status Back. Is disabled by default but is enabled when the printer receives the DLE A +n1 +n2 command. +n1 and +n2 define a mask using the same byte/bit structure as in the table below. A "1" in a bit position enables the automatic transmission of DLE A and the 2 status bytes when an enabled condition occurs. The bit positions marked as errors in the table will always cause the automatic transmission of DLE E and the 2 status bytes so these positions will usually be "0" in the user defined mask.

B = Buffered status. DLE B and the 2 status bytes are transmitted when the DLE B command is processed out of the input buffer.

R = Real Time Status. If enabled by US R +n command, DLE R and the 2 status bytes are transmitted immediately when the DLE R command is received by the printer.

U = not a true STATUS request. When DLE U +n1 +n2 is processed out of the receive buffer, the printer transmits DLE U +n1 +n2 back to the host. The user can send DLE U +n1 +n2 anywhere within a document if he needs to know that the printer has processed the document up to that point.

| First Status byte transmitted (and MASK for DLE A command) | | |
|--|--------|------------------------|
| Bit | Type | Function/condition |
| 7 | Status | Spare |
| 6 | Status | Spare |
| 5 | Status | Receive buffer is full |
| 4 | ERROR | Cutter Error |
| 3 | Status | Printer Busy |
| 2 | Status | Receipt Taken |
| 1 | Status | Receipt Dropped |
| 0 | ERROR | Delivery Jam |

First Status byte transmitted (and MASK for DLE A command)

| Second Status byte transmitted (and MASK for DLE A command) | | |
|---|--------|-----------------------------|
| Bit | Type | Function/condition |
| 7 | Status | Spare |
| 6 | Status | Print head over temperature |
| 5 | Status | Spare Sensor |
| 4 | Status | Paper Low |
| 3 | Status | Cutter Home |
| 2 | Status | Paper at Delivery |
| 1 | ERROR | Paper Out |
| 0 | ERROR | Head Up |

Printer's response to a STATUS REQUEST command

4.2.2.2 Set Print Mode

ESC ! +n [1B 21 +n]

| +n is defined as | |
|------------------|---|
| Bit | Function |
| 7 | Not used. |
| 6 | Not used. |
| 5 | 0 = Double high print OFF. 1 = Double high print ON. |
| 4 | 0 = Double wide print OFF 1 = Double wide print ON. |
| 3 | Not used. |
| 2 | Not used. |
| 1 | Font size. |
| 0 | Font size. |

| Set Print Mode Table | | |
|----------------------|-------|-----------------|
| Bit 1 | Bit 0 | Font size (WxH) |
| 0 | 0 | FontB (10x30) |
| 0 | 1 | FontA (12x30) |

Table 1 - Set Print Mode Table

Both double wide and double high can be selected for either character size. When a printed line contains characters with different heights, the characters are arranged so that the baseline of all characters lines up. Default = 00hex (Font B, 10 x 30 matrix) for MTP-2222. Default = 01hex (Font A, 12 x 30 matrix) for MTP-2232 and MTP-2242

4.2.2.3 Printer Reset

ESC @ [1B 40]

Initializes the printer.

Any data received before the ESC @ but not yet printed is cleared. The character size is set to the default font. Left and Right Margins are set to the defaults. Reverse video is turned off. Underline printing is turned off. Bar code height is set to 64. Bar code magnification is set to 2.

4.2.2.4 Telpar's Window Commands.

The Begin Document (US b) and End Document (US e) commands were created for use by the Telpar Windows driver. These two commands should not be sent to the printer by any other application program since unexpected results will occur.

4.2.2.5 Bit Image (BI) Graphics Mode Commands

BI US * +nH +nL +data 1F 2A +nH +nL +data

256*nH +nL defines how many bytes of bit image data will follow. The data is received sequentially with the first byte representing the first 8 dot positions at the top left side of the bit image with bit 7 being to the left and bit 0 being to the right as printed.

XMOVE US x +nH +nL 1F 78 +nH +nL

The horizontal print position is set to (256*nH + nL) * 8 dots from the left margin.

If there is a lot of white space on the current dot line, the XMOVE command can cause the print location pointer to be moved resulting in less data required to define a dot line of bit image data to be printed. Anytime there is more than 4 bytes of white space (32 dots) the XMOVE command will result in less data being sent to the printer. Another BI command can follow the XMOVE command until a YMOVE signifies the end of the current dot line.

YMOVE US y +nH +nL 1F 79 +nH +nL

Causes paper to feed 256*nH + nL dot lines. This is also the BI line terminator and print command.

4.2.2.6 Print Bar Code Command

GS k +m +n +d1~dn [1D 6B +m +n (DATA)]

+m selects the bar code type. +n defines the number of data bytes which follow.

If more data is sent than can fit on the printer being used, the bar code is not printed.

| +m | Bar code | +n | Valid data | Comment |
|----|----------|-----------|-------------------------|---|
| 41 | UPC-A | 11 | 0-9 | Checksum generated & printed |
| 42 | UPC-E | 7 | 0-9 | Checksum generated & printed |
| 43 | EAN13 | 12 | 0-9 | Checksum generated & printed |
| 44 | EAN8 | 7 | 0-9 | Checksum generated & printed |
| 45 | Code39 | variable | 0-9 A-Z sp \$%*-./ | |
| 46 | ITF | variable. | 0-9 | If an odd number of data bytes is sent, a leading zero will be added. |
| 47 | CODABAR | variable. | 0-9 - \$: / . +ABCD | |
| 49 | CODE128 | variable. | | |
| 4A | CODE 39 | variable. | 0-9 A-Z sp \$%*-./ | Checksum generated & printed |
| 4B | ITF | variable. | 0-9 | Checksum generated & printed. If the data sent and the checksum causes an odd number of digits, a leading zero will be printed. |

4.2.2.7 Bar Code 128 definitions

Code128 Character set: 103 data chars, three different start characters, and a unique stop character.

CodeA consists of the ASCII characters 00hex thru 5Fhex, FNC1 thru FNC4, Shift, CodeB, and CodeC.

CodeB consists of the ASCII characters 00hex thru 7Fhex, FNC1 thru FNC4, Shift, CodeA, and CodeC.

CodeC consists of 2 digit numeral characters 00dec thru 99dec, FNC1, CodeA, and CodeB.

The 103 different bar code patterns have different meanings depending on whether CodeA, CodeB, or CodeC was specified when the data was received. The data string must start with {A or {B or {C to specify CodeA, CodeB, or CodeC. A checksum is calculated and printed by the printer.

| Value used to calculate checksum | CodeA | CodeB | CodeC | | Value used to calculate checksum | CodeA | CodeB | Code C |
|----------------------------------|-------|-------|-------|--|----------------------------------|-------|-------|--------|
| 0 | (sp) | (sp) | 00 | | 54 | V | V | 54 |
| 1 | ! | ! | 01 | | 55 | W | W | 55 |
| 2 | " | " | 02 | | 56 | X | X | 56 |
| 3 | # | # | 03 | | 57 | Y | Y | 57 |
| 4 | \$ | \$ | 04 | | 58 | Z | Z | 58 |
| 5 | % | % | 05 | | 59 | [| [| 59 |
| 6 | & | & | 06 | | 60 | \ | \ | 60 |
| 7 | ' | ' | 07 | | 61 |] |] | 61 |
| 8 | (| (| 08 | | 62 | ^ | ^ | 62 |
| 9 |) |) | 09 | | 63 | _ | _ | 63 |
| 10 | * | * | 10 | | 64 | 00hex | ` | 64 |
| 11 | + | + | 11 | | 65 | 01hex | a | 65 |
| 12 | , | , | 12 | | 66 | 02hex | b | 66 |
| 13 | - | - | 13 | | 67 | 03hex | c | 67 |
| 14 | . | . | 14 | | 68 | 04hex | d | 68 |
| 15 | / | / | 15 | | 69 | 05hex | e | 69 |
| 16 | 0 | 0 | 16 | | 70 | 06hex | f | 70 |
| 17 | 1 | 1 | 17 | | 71 | 07hex | g | 71 |
| 18 | 2 | 2 | 18 | | 72 | 08hex | h | 72 |
| 19 | 3 | 3 | 19 | | 73 | 09hex | i | 73 |
| 20 | 4 | 4 | 20 | | 74 | 0Ahex | j | 74 |
| 21 | 5 | 5 | 21 | | 75 | 0Bhex | k | 75 |
| 22 | 6 | 6 | 22 | | 76 | 0Chex | l | 76 |
| 23 | 7 | 7 | 23 | | 77 | 0Dhex | m | 77 |
| 24 | 8 | 8 | 24 | | 78 | 0Ehex | n | 78 |
| 25 | 9 | 9 | 25 | | 79 | 0Fhex | o | 79 |
| 26 | : | : | 26 | | 80 | 10hex | p | 80 |
| 27 | ; | ; | 27 | | 81 | 11hex | q | 81 |
| 28 | < | < | 28 | | 82 | 12hex | r | 82 |
| 29 | = | = | 29 | | 83 | 13hex | s | 83 |
| 30 | > | > | 30 | | 84 | 14hex | t | 84 |
| 31 | ? | ? | 31 | | 85 | 15hex | u | 85 |
| 32 | @ | @ | 32 | | 86 | 16hex | v | 86 |
| 33 | A | A | 33 | | 87 | 17hex | w | 87 |

| | | | | | | | | |
|----|---|---|----|--|-----|-------|-------|-------|
| 34 | B | B | 34 | | 88 | 18hex | x | 88 |
| 35 | C | C | 35 | | 89 | 19hex | y | 89 |
| 36 | D | D | 36 | | 90 | 1Ahex | z | 90 |
| 37 | E | E | 37 | | 91 | 1Bhex | { | 91 |
| 38 | F | F | 38 | | 92 | 1Chex | | 92 |
| 39 | G | G | 39 | | 93 | 1Dhex | } | 93 |
| 40 | H | H | 40 | | 94 | 1Ehex | ~ | 94 |
| 41 | I | I | 41 | | 95 | 1Fhex | DEL | 95 |
| 42 | J | J | 42 | | 96 | FNC3 | FNC3 | 96 |
| 43 | K | K | 43 | | 97 | FNC2 | FNC2 | 97 |
| 44 | L | L | 44 | | 98 | SHIFT | SHIFT | 98 |
| 45 | M | M | 45 | | 99 | CodeC | CodeC | 99 |
| 46 | N | N | 46 | | 100 | CodeB | FNC4 | CodeB |
| 47 | O | O | 47 | | 101 | FNC4 | CodeA | CodeA |
| 48 | P | P | 48 | | 102 | FNC1 | FNC1 | FNC1 |
| 49 | Q | Q | 49 | | | | | |
| 50 | R | R | 50 | | | | | |
| 51 | S | S | 51 | | | | | |
| 52 | T | T | 52 | | | | | |
| 53 | U | U | 53 | | | | | |

Code128 Start Characters

| Code128 Start Characters | | |
|----------------------------------|-----------|-----------------------|
| Value used to calculate checksum | Data sent | Represents |
| 103 | {A | Start character CodeA |
| 104 | {B | Start character CodeB |
| 105 | {C | Start character CodeC |

Code128 Stop Character

106 Stop character

Code128, other two character data sequences:

Note: Since { is used as a sequence header to specify special characters, {{ must be sent as data to actually print { in the bar code.

| Code128 Two Character Data Sequences | |
|--------------------------------------|------------|
| Data sent | Represents |
| {1 | FNC1 |
| {2 | FNC2 |
| {3 | FNC3 |
| {4 | FNC4 |
| {S | Shift |
| {{ | { |

4.3 Serial (RS-232C) Interface

4.3.1 Serial (RS-232C) Interface Specification (See Appendix A on how to change default settings)

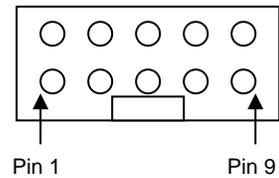
| Serial (RS-232C) Interface Specification | |
|--|--|
| Item | Specification |
| Default Baud Rate (Data receive speed) and other RS-232 Protocol | Baud rate selected at factory (written in flash). Default baud rate is 115200 bps. Default Data Bits = 8, default Stop Bits = 1, Default Parity = none NOTE: see Appendix A on how to change the default settings. |
| Synchronizing method | Asynchronous, Full duplex |
| Handshake | Hardware or XON/XOFF |
| Input output level | RS-232C |
| Signal level | Space (logic=0) +3 V ~ +12 V Mark (logic=1) -3 V ~ -12 V |

04.3.2 Serial I/O Connector

Location of J9, the Serial Port RS-232 Connector, on the Printer's main circuit board. **Pins 1-9 (odds) are bottom row, left to right. Pins 2-8 (evens) are top row, left to right.**



RS-232 Connector, J9 Pinout



Pin 1 Pin 9

Mates with .1"X.1" Socket Connector

| J9 Pin # | Function: |
|----------|--|
| 1 | NA |
| 2 | DTR (Data Terminal Ready, Output from printer) |
| 3 | TxD (Transmit Data, Output from printer) |
| 4 | CTS (Clear To Send, Input to Printer) |
| 5 | RxD (Receive Data, Input to Printer) |
| 6 | RTS (Request To Send, Output from Printer) |
| 7 | DSR (Data Set Ready, Input to Printer) |
| 8 | NA |
| 9 & 10 | Circuit Common |

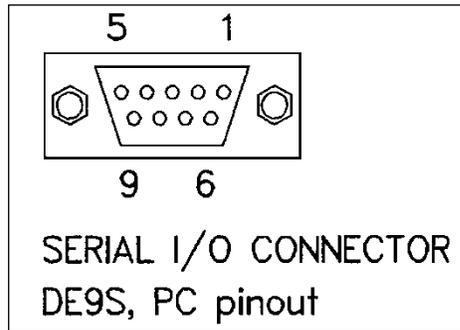
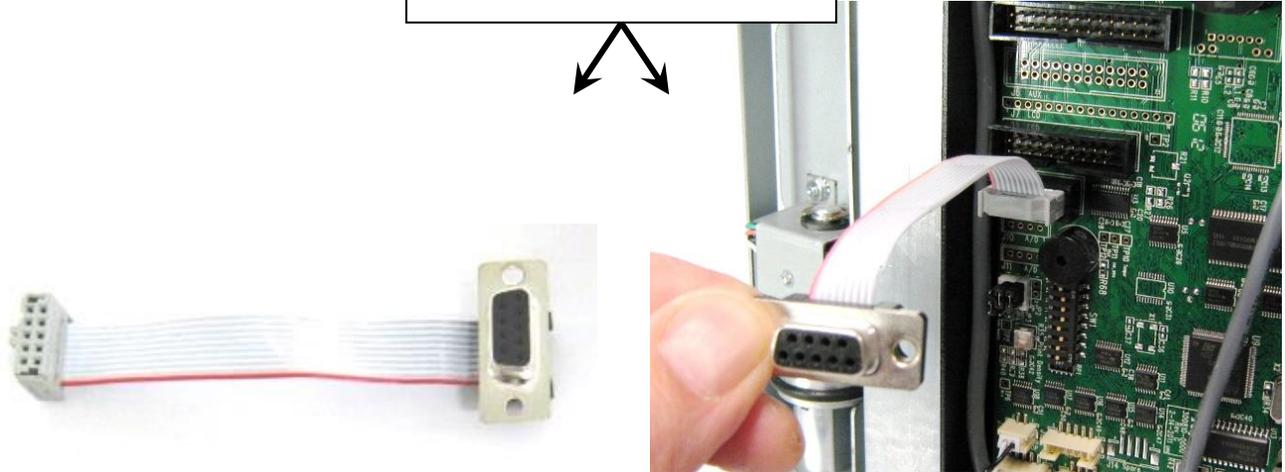
4.3.3 Optional Serial Adapter Cable (Telpar Part Number 800410-0015):

For customers who wish to connect to the printer with the traditional 9 Pin D-Sub Connector,

Telpar, Inc. Mini 8 Thermal Printer User Manual

Telpar offers a Serial Adapter Cable as shown below. This 3 1/2" long cable plugs into the J9 serial connector on the main circuit board and has enough length to exit the printer chassis (as shown below) for external connections to a cable. The pinout for the D-Sub connector is shown in the table below.

Serial Adapter Cable

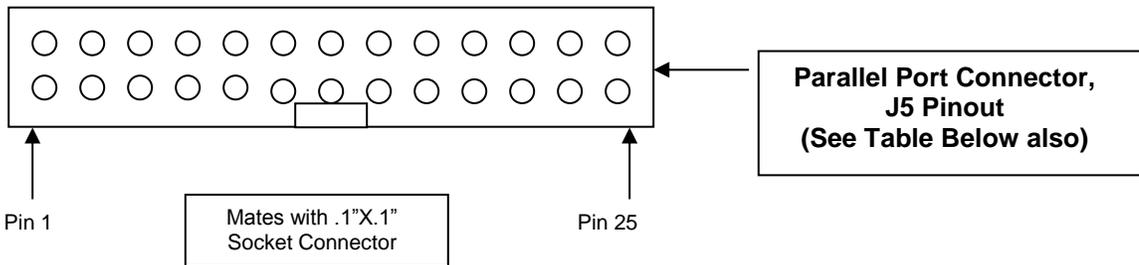
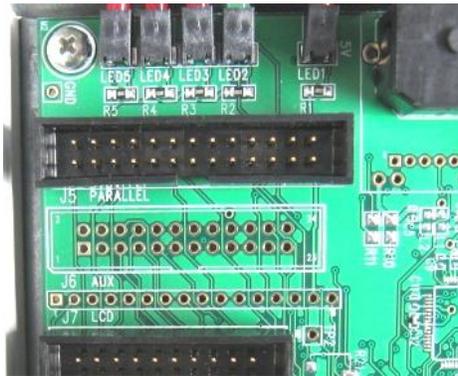


| D-Sub Connector Serial (RS-232C) Interface Pinout | | | |
|---|------|-----------|--|
| Pin | Name | Direction | Function |
| 2 | RD | I | RS232 received data. |
| 3 | XD | O | RS232 transmitted data. |
| 4 | DTR | O | Hardware handshake line. |
| 5 | GND | - | Logic ground. |
| 6 | DSR | I | The state of DSR is IGNORED for XON/XOF handshaking if selected. |

4.4 Parallel Interface (IEEE-1284)

4.4.1 Parallel I/O Connector

Location of J5, the Parallel Port Connector, on the Printer's main circuit board. **Pins 1-25 (odds) are bottom row, left to right. Pins 2-26 (evens) are top row, left to right.**

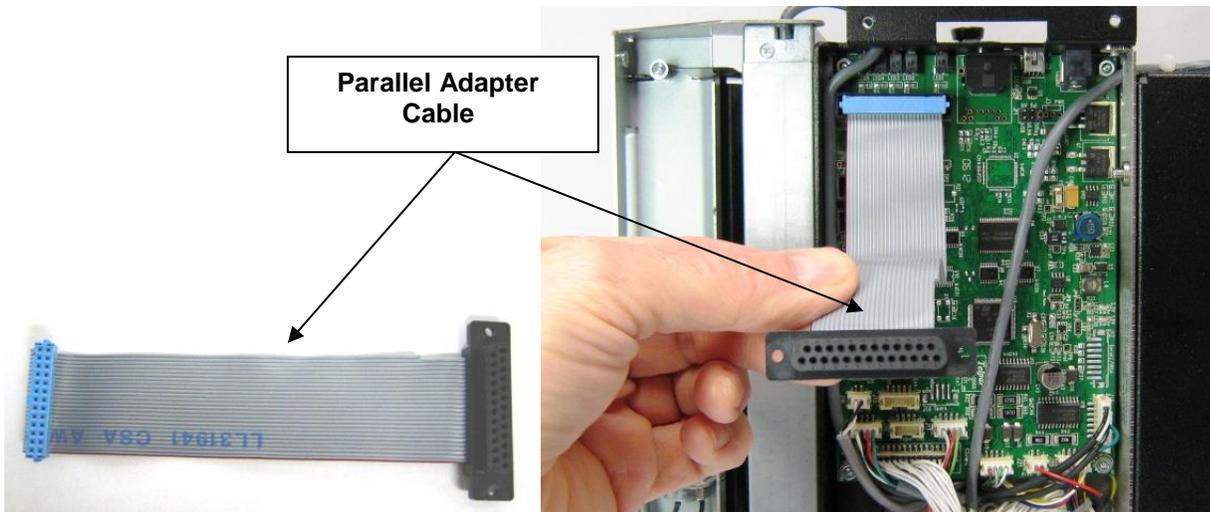


| J5 Pin # | Function | J5 Pin # | Function |
|----------|--|----------|--|
| 1 | /STB, Active Low Pulse to send data to printer | 14 | Circuit Common |
| 2 | AFXT, HostAck, Input to Printer | 15 | IO6, ASCII data bit 6, Bi-directional |
| 3 | IO0, ASCII data bit 0 (LSB), Bi-directional | 16 | Circuit Common |
| 4 | /ERR, Low level output = Printer Error | 17 | IO7, ASCII data bit 7 (MSB), Bi-directional |
| 5 | IO1, ASCII data bit 1, Bi-directional | 18 | Circuit Common |
| 6 | /INIT, Low level resets printer | 19 | /ACK, Active low pulse when data is accepted |

| | | | |
|----|---------------------------------------|----|--|
| 7 | IO2, ASCII data bit 2, Bi-directional | 20 | Circuit Common |
| 8 | /SLCTIN, Low level enables printer | 21 | BUSY, High level when printer cannot accept data |
| 9 | IO3, ASCII data bit 3, Bi-directional | 22 | Circuit Common |
| 10 | Circuit Common | 23 | PE, High level when printer is out of paper |
| 11 | IO4, ASCII data bit 4, Bi-directional | 24 | Circuit Common |
| 12 | Circuit Common | 25 | SLCT, High level when printer is on |
| 13 | IO5, ASCII data bit 5, Bi-directional | 26 | Circuit Common |

4.4.2 Optional Parallel Adapter Cable (Telpar Part Number 800180-1012):

For customers who wish to connect to the printer with the traditional 25 Pin D-Sub Connector, Telpar offers a Parallel Adapter Cable as shown below. This 6" long cable plugs into the J5 parallel connector on the main circuit board and has enough length to exit the printer chassis (as shown below) for external connections to a cable. The pinout for the D-Sub connector is shown in the table below.

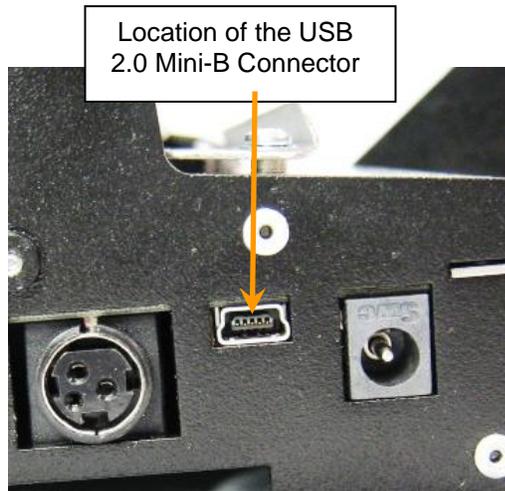


| Parallel Interface Pin Assignments | | | | |
|------------------------------------|----------------|------------|-----------|---|
| J2 Pin# | Name | Cent. Name | Direction | Function in Centronics Mode (SPP) |
| 1 | PeripheralAck | BUSY | O | High level when printer cannot accept data. |
| 2 | Xflag | SLCT | O | High level when printer is on. |
| 3 | PeripheralClk | /ACK | O | Active low pulse when data is accepted |
| 4 | -PeripheralReq | /ERR | O | Low level when an error occurs. |
| 5 | -AckRev | PE | O | High level when printer is out of paper |
| 6 | IO0 | DO | I/O | ASCII data bit 0 (LSB) |
| 7 | IO1 | D1 | I/O | ASCII data bit 1 |
| 8 | IO2 | D2 | I/O | ASCII data bit 2 |
| 9 | IO3 | D3 | I/O | ASCII data bit 3 |
| 10 | IO4 | D4 | I/O | ASCII data bit 4 |

| | | | | |
|---------------|-----------------|---------|-----|--|
| 11 | IO5 | D5 | I/O | ASCII data bit 5 |
| 12 | IO6 | D6 | I/O | ASCII data bit 6 |
| 13 | IO7 | D7 | I/O | ASCII data bit 7 |
| 14 | -RevReq | /INIT | I | Low level = system reset. |
| 15 | HostClk | /STB | I | Active Low Pulse to send data to printer |
| 16 | 1284Active | /SLCTIN | I | Low level enables printer. |
| 17 | HostAck | AFXT | I | |
| 18 | HostLogicHigh | | I | Host Logic High |
| 19 thru 35 | | GND | - | Logic ground. |
| 36 | PeriphLogicHigh | | O | Peripheral Logic High. |
| Shell | CGND | CGND | - | Chassis ground |

4.5 USB Interface

The current location of the USB 2.0 Mini-B connector for all MTP series printers is located next to the barrel power jack as shown below.



4.6 Ethernet Interface (Currently under development)

The ability to connect the Mini 8 thermal printer to the Ethernet is currently being developed and will be available shortly.

4.7 Printer Drivers

Printer Drivers for Microsoft® Windows® Operating Systems can be downloaded from our website at www.telpar.com.

Microsoft® and Windows® are registered trademarks of Microsoft Corporation.

5 Detailed Specifications

5.1 Mini 8 Thermal Printer Detailed Specifications

| Specifications | | MTP-2283 |
|---|-----------------------|---|
| Printing method | | Thermal-sensitive line dot method |
| Dot Structure | | 2400 dots/line |
| Dot pitch (horizontal) | | 0.00333 inch (300 dot/inch)-Dot density |
| Dot pitch (vertical) | | 0.00333 inch (300 dot/inch)-Line feed pitch |
| Effective printing area | | 8 inches |
| Paper width | | 8.5 inches |
| Paper thickness | | 0.0024 to 0.0039 inches |
| Cutting type | | Full cut only |
| Number of columns (default) | | 80 columns/line (30 x 50 dot font) |
| Maximum printing speed | | 600 dot line/s (50 mm/s) |
| Character composition, dimensions (W x H), Number of characters per line | | 30 x 50 dots, 2.54 x 4.23 mm, 80 columns 18 x 38 dots, 1.52 x 3.22 mm, 133 columns |
| Interface | | IEEE-1284 Parallel and RS-232C Serial |
| Power Supply | For head | DC 24V± 5% DC 24V± 5%, 1.0 A max. |
| | For motor | |
| | For cutter | |
| Expected Life | Mechanism | Pulse durability: 1x10 ⁸ pulse/dot Wear resistance: 50 km |
| | Cutter | 5 x 10 ⁵ cuts |
| Environmental condition | Operating temperature | 0 to +50°C |
| | Operating humidity | 20 to 85% RH (No condensation) |
| | Storage temperature | -20 to +60°C |
| | Storage humidity | 5 to 95% RH (No condensation) |
| Detection | Head temperature | By thermistor (applied energy control, abnormal temperature detection) |
| | Paper out/Mark detect | By reflective photo assembly |
| Paper | | Thermal Sensitive paper |

MTP-2242 CHARACTER SET
PC860 (Portuguese)
ESC t 03hex

| | |
|----|-----------------------|
| | 0123456789ABCDEF |
| 20 | !"#\$%&'()*+,-./ |
| 30 | 0123456789:;<=>? |
| 40 | @ABCDEFGHIJKLMNO |
| 50 | PQRSTUVWXYZ[$\#$]^_ |
| 60 | `abcdefghijklmno |
| 70 | pqrstuvwxyz{ }~ |
| 80 | ÇüéâãàÁçêÊëíÎïÃÄ |
| 90 | ÉÀÈôõòÚùìÕÜç£ÙÚÓ |
| A0 | áíóúñÑæø¿Ò-½¼i«» |
| B0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| C0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| D0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| E0 | αβΓπΣσμτφθΩδ∞ΦεΠ |
| F0 | ≡±≥≤∫÷≈°•√n²■ |

Code Page 860 Print sample

MTP-2242 CHARACTER SET
PC863 (Canadian-French)
ESC t 04hex

| | |
|----|-----------------------|
| | 0123456789ABCDEF |
| 20 | !"#\$%&'()*+,-./ |
| 30 | 0123456789:;<=>? |
| 40 | @ABCDEFGHIJKLMNO |
| 50 | PQRSTUVWXYZ[$\#$]^_ |
| 60 | `abcdefghijklmno |
| 70 | pqrstuvwxyz{ }~ |
| 80 | ÇüéâÀà çêëèîî_À§ |
| 90 | ÉÈÊêËÏîùùøÔÜç£ÙÛf |
| A0 | ´óú” , ³î-½¼¾«» |
| B0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| C0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| D0 | ⋮⋮⋮ + = π ⋮⋮⋮ |
| E0 | αβΓπΣσμτφθΩδ∞ΦεΠ |
| F0 | ≡±≥≤∫÷≈°•√n²■ |

Code Page 863 Print Sample

MTP-2242 CHARACTER SET
PC865 (Nordic)
ESC t 05hex

0123456789ABCDEF
20 !"#%&'()*+,-./
30 0123456789:;<=>?
40 @ABCDEFGHIJKLMNO
50 PQRSTUVWXYZ[\backslash]^_
60 `abcdefghijklmno
70 pqrstuvwxyz{|}~
80 ÇüéâäååçêëèìîïÄÅ
90 ÉæÆôöòûÿÿÖÜøŁØłłf
A0 áíóúñÑæø¿¬½¼i«»
B0 ::::|+|||7|||7|||7
C0 4444444444444444
D0 4444444444444444
E0 αβΓπΣσμτφθΩδ∞ΦεΠ
F0 ≡±≥≤∫÷≈°•√n²■

Code Page 865 Print Sample

MTP-2242 CHARACTER SET
PC1252
ESC t 10hex

0123456789ABCDEF
20 !"#%&'()*+,-./
30 0123456789:;<=>?
40 @ABCDEFGHIJKLMNO
50 PQRSTUVWXYZ[\backslash]^_
60 `abcdefghijklmno
70 pqrstuvwxyz{|}~
80 € , f „ „ „ † ‡ ^ % Š < € Ž
90 ` ' " „ . - - ~ ™ Š > œ Ž Ÿ
A0 i ç Ł ł ¥ | § ¨ © ª « ¬ ® ¯
B0 ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿
C0 À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï
D0 Ñ Ò Ó Ô Õ Ö × Ø Ù Ú Û Ü Ý Þ ß
E0 à á â ã ä å æ ç è é ê ë ì í î ï
F0 ð ñ ò ó ô õ ö ÷ ø ù ú û ü ý þ ÿ

Code Page WPC1252 Print sample

MTP-2242 CHARACTER SET
 PC858 (Euro)
 ESC t 13hex

0123456789ABCDEF
 20 !"#%&'()*+,-./
 30 0123456789:;<=>?
 40 @ABCDEFGHIJKLMNO
 50 PQRSTUVWXYZ[$\#$]^_
 60 `abcdefghijklmnop
 70 pqrstuvwxyz{|}~
 80 ÇüéâäàåçêëèìîïÄÅ
 90 ÉæÆôöòûÿÖÜø£Ø×f
 A0 áíóúñÑæœ¿½¼i«»
 B0 ::||ÁÂÀ| |||c¥
 C0 L| |ãÃL| | |
 D0 ðÐÊËÈ€ÍÎÏ | | |
 E0 ÓβÔòõÕμρÚÛÜýÝ´
 F0 -±¼¶§÷ º · 132■

Code Page 858 Print sample

MTP-2242 CHARACTER SET

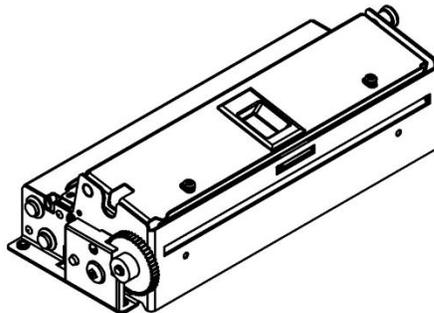
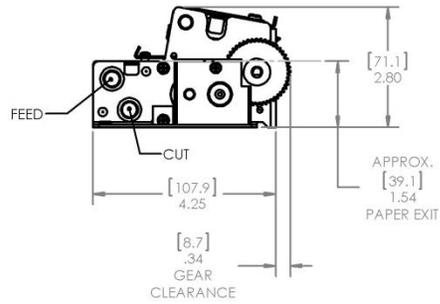
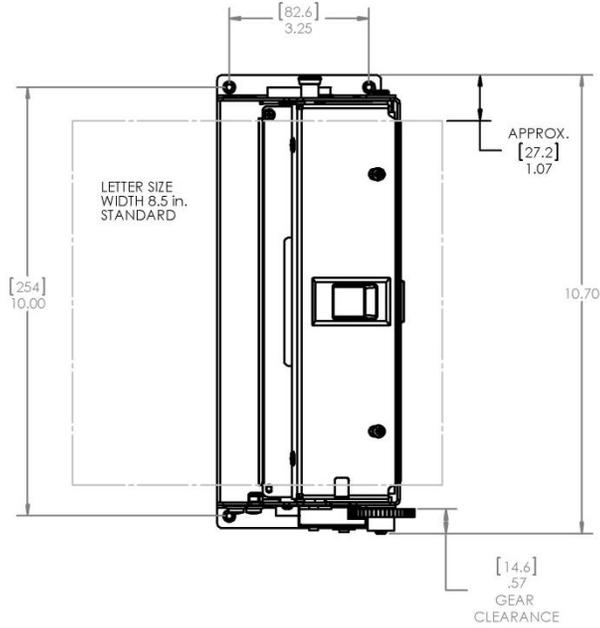
Default per DIP switch 2 or as changed by
 ESC R +n = INTERNATIONAL CHARACTER SET

| +n | hex | 23 | 24 | 40 | 5B | 5C | 5D | 5E | 60 | 7B | 7C | 7D | 7E |
|--------------|-----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 USA | # | \$ | @ | [| \ |] | ^ | ` | { | | } | ~ | |
| 1 France | # | \$ | à | ° | ç | § | ^ | ` | é | ù | è | ¨ | |
| 2 Germany | # | \$ | § | Ä | Ö | Ü | ^ | ` | ä | ö | ü | ß | |
| 3 England | £ | \$ | @ | [| \ |] | ^ | ` | { | | } | ~ | |
| 4 Denmark | # | \$ | @ | Æ | Ø | Å | ^ | ` | æ | ø | å | ~ | |
| 5 Sweden | # | ¤ | É | Ä | Ö | Å | Ü | é | ä | ö | å | ü | |
| 6 Italy | # | \$ | @ | ° | \ | é | ^ | ù | à | ò | è | ì | |
| 7 Spain | ¤ | \$ | @ | í | Ñ | ¿ | ^ | ` | ¨ | ñ | } | ~ | |
| 8 Japan | # | \$ | @ | [| ¥ |] | ^ | ` | { | | } | ~ | |
| 9 Norway | # | ¤ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü | |
| 10 Denmark 2 | # | \$ | É | Æ | Ø | Å | Ü | é | æ | ø | å | ü | |
| 11 Spain 2 | # | \$ | á | í | Ñ | ¿ | é | ` | í | ñ | ó | ú | |
| 12 LatAmer | # | \$ | á | í | Ñ | ¿ | é | ü | í | ñ | ó | ú | |
| 13 Korea | # | \$ | @ | [| ₩ |] | ^ | ` | { | | } | ~ | |

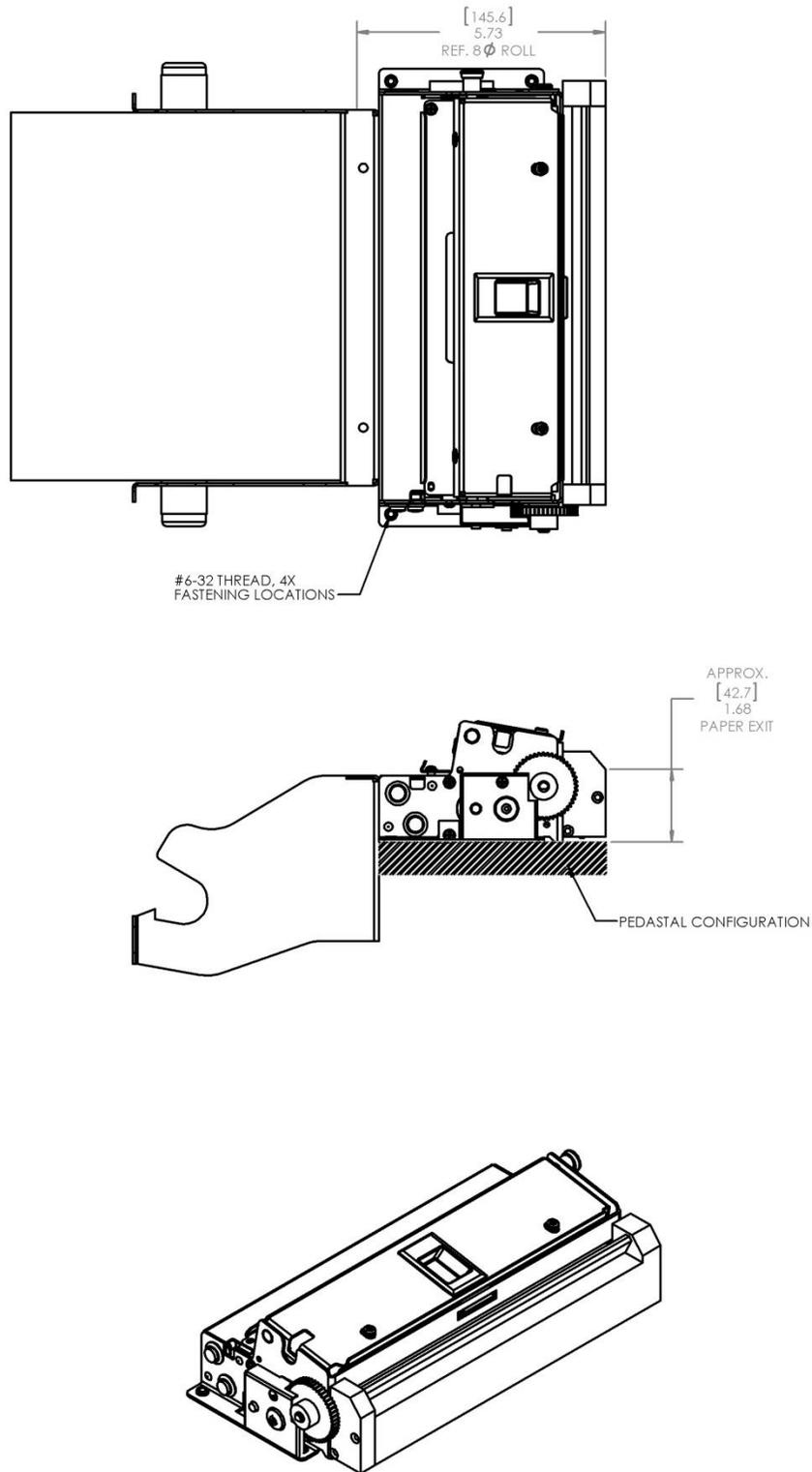
International Character Sets

5.3 Mini 8 Thermal Printer Dimensional Drawings

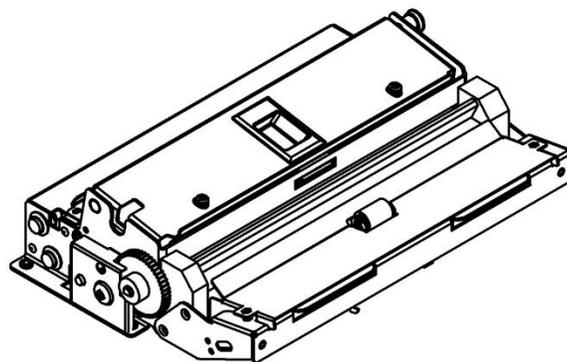
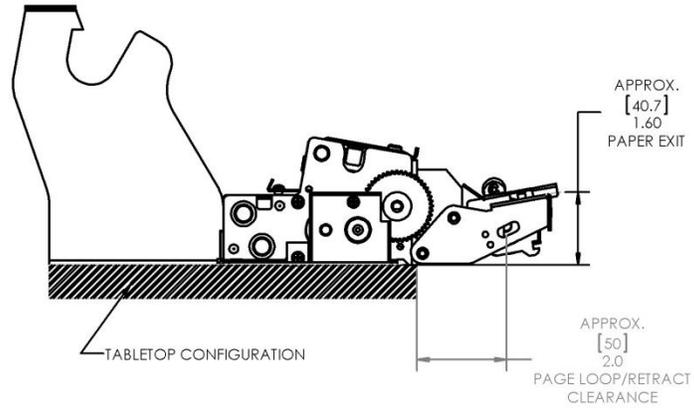
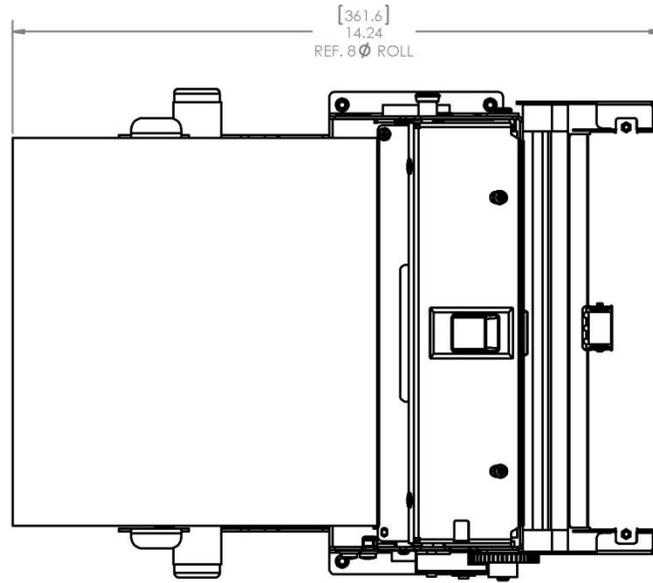
MINI8 MECHANISM 907200-001X SERIES



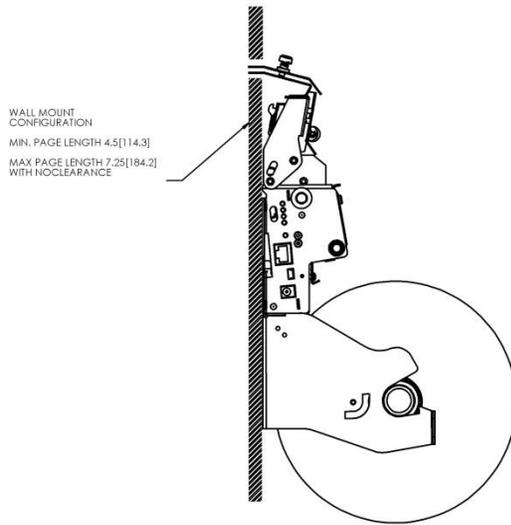
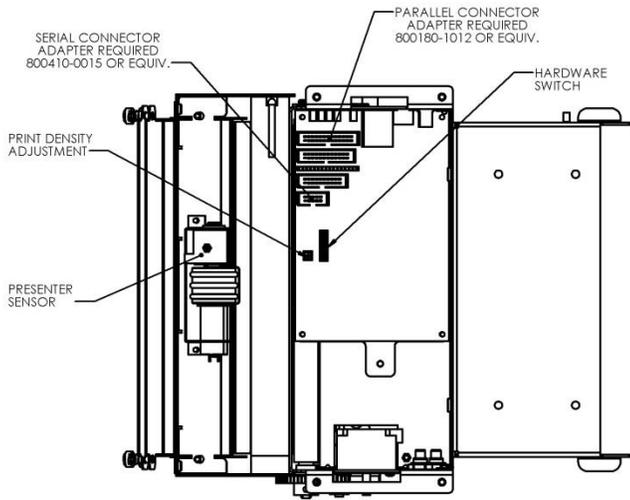
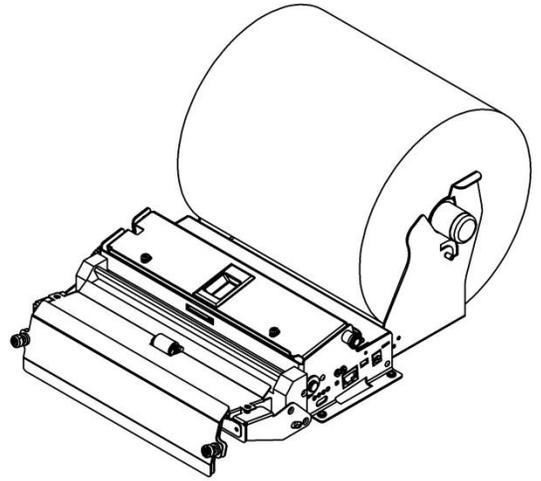
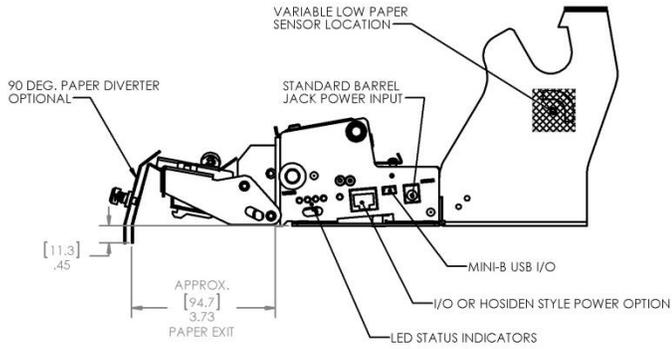
**MINI8 MECHANISM/CUTTER
907200-002X SERIES**



**MINI8 MECHANISM/CUTTER/PRESENTER
907200-003X SERIES**



**MINI8 MECHANISM/CUTTER/PRESENTER
90 DEG. ADAPTER OPTION ATTACHED
907200-1001**



6 Troubleshooting

6.1 General Troubleshooting

Printer does not seem to do anything → Check the following:

- ❑ Printer is plugged into an active power source with the correct voltage and current ratings
- ❑ Power supply – Is it active or switched to the ‘ON’ position (if applicable)?
- ❑ Is the main circuit board getting power? Check the Red 5 Volt Power LED (See Section 6.2 below). If the 5 Volt Power LED is not lit, and an approved external power supply that is known to be working correctly is being used, then the main circuit board on the printer has probably failed. Call Telpar Technical support for assistance.
- ❑ Is the printer’s print head or Head Up lever in its fully closed position? These printers will not attempt to print unless the print-head is fully and securely closed.
- ❑ Is the main circuit board’s DIPSWITCH, position 1 switch in the “Up” or ON position? If so, slide the switch to the OFF position and cycle printer power. The printer will not print with this switch on (flash memory upload mode).

Printer feeds paper and performs a Self Test but does not print from the host (computer, controller, etc.)→

Check the following:

- ❑ Communications Cable – is the correct type of cable being used, and is it securely connected?
- ❑ Is the correct printer driver installed on the host (if required)?
- ❑ Is the printer connected to the same port that was selected when installing the printer driver?
- ❑ Is the host’s printer port ‘Ready’ or ‘OFFLINE’? Is there a conflict with another printer on that port?

Printer’s Document Presenter, Cutter and/or Paper Low Status not working as expected / General unexpected printer operation / Unexpected Printer Error→ check the following:

- ❑ Are the printer’s DIP Switch’s on the main circuit board correctly set for your application? Remember, whenever any DIPSWITCH positions are changed, the power to the printer must be cycled for the change to take effect.
- ❑ Is the printer’s print head or Head Up lever in its fully closed position? These printers will not attempt to print unless the print-head is fully and securely closed.
- ❑ Printer is plugged into an active power source with the correct voltage and current ratings.
- ❑ Sensors are clean (free of paper dust or other unwanted obstructions). Clean sensors by blowing pressurized air over the sensor face.

Printer presents a blank document (nothing is printed on the ticket) or the printing is too light → check the following:

- ❑ In case of a blank document: verify that the roll of paper is Thermal Paper (not plain paper) and that the paper is fed into the printer with the **thermal side up** (this is the most common cause for receiving a blank document as only one side of a roll of thermal paper is printable typically).
- ❑ In the case of the print appearing too light: check the setting of the darkness control adjustment (R35 on the Main Circuit Board – Print Density). Try rotating the adjustment clockwise to darken the print. It is recommended that the darkness level be increased to the point that just meets the desired darkness level under the normal ambient operating conditions for the printer application – this will help extend the life of the print head element.

Printer prints gibberish when sending Serial Information to the Printer (apparent random characters) → check the following:

- ❑ The default factory settings for the MTP Series serial protocol is printers is 15,200 bps (baud rate), 8 Data Bits, 1 Stop Bit, No Parity. The Host controller (computer, PLC, etc.) must be set to the same settings as the printer in order for the printer to print correctly.

Paper jams in Printer or Presenter → check for the following: (ALWAYS KEEP FINGERS AND TOOLS AWAYS FROM CUTTER BLADES!)

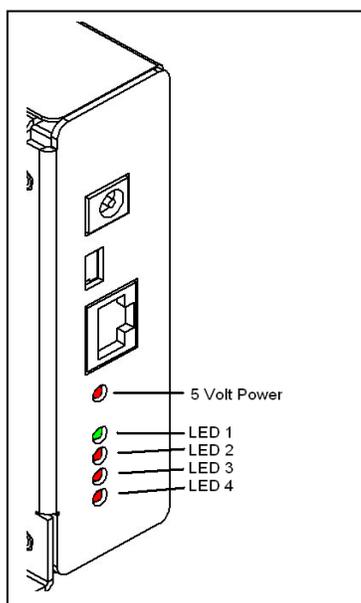
- ❑ Obstructions in the paper path (including the paper presenter loop if a presenter is used – it is very important that the paper loop that forms below the presenter section does not physically contact anything)
- ❑ Misalignment of the paper path. This is possible if the printer's original paper roll holder is not being used, but rather a different design has been implemented that allows the paper roll to be located away from or outside of the printer. If this is the case, you must make sure your design maintains a reliably aligned paper path from the paper roll location to the printer.
- ❑ Is Incorrect or out-of-spec paper is being used? Paper that is not to the paper specifications for your printer increases the chances of having repetitive paper jams.
- ❑ An Inoperable document cutter or damaged cutter blades not fully opening or closing.
- ❑ Is the Customer allowed to pull the exiting document before the printer is done printing or cutting? This is a common jam scenario. To avoid this possibility, specify the document presenter option by added to your printer when ordering.

Printer suddenly stops and does not respond unless the power switch is cycled → check the following: (ALWAYS KEEP FINGERS AND TOOLS AWAYS FROM CUTTER BLADES!)

- ❑ Is there a paper jam condition? Are cutter blades not fully open (if applicable)?
- ❑ Check the Diagnostic / Error LEDs and use the table below to interpret the problem the printer is reporting. See if the problem can be corrected based on the printer's diagnostic feedback.
- ❑ Possible dirty or defective paper sensors or Print-head Latch Switch. In the case of dirty sensors obstructed by dust or paper fragments, clean sensors by blowing pressurized air over the sensor face.

6.2 LED Diagnostics and Error Detection Codes:

Five LED's are located on the printer as shown below. These LED's have the following functions:



Power LED: The Top most LED Indicates 5 Volt power is present

LED 1 Indicates the Printer is Ready when blinking.

LED 2 provides PAPER_LOW and PAPER_OUT status.

- Blinking indicates Paper Low Status.
- ON indicates Paper Out Status.

LED 3 & 4 Provide error status (see table below)

6.3 LED Error Code Definitions Table

Certain ERROR codes are reported when they occur by a sequence of blinks of LEDs 3 and 4 located on the controller board. The ERROR BLINK patterns are listed below. This table is also printed during a self test.

LED 3 blinks ON four times indicated in the table below as T1, T2, T3, and T4. Following each sequence of blinks there is a pause before repeating the sequence. The ON times of LED 3 is the time base used for encoding the error reporting by LED 4. LED 4 blinks ON during some of the four times that LED 3 blinks ON. The pattern of ON times of LED 4 listed in the table below indicates the ERROR being reported. The printer's audio beeper will also sound a long tone at the same time LED 4 is ON.

| Error Number | Error Code | T1 | T2 | T3 | T4 | Description |
|--------------|-------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---|
| | | LED 3 Blinks ON LED 4 status below | |
| 1 | Paper Out | Blinks ON | OFF | OFF | OFF | Printer is out of paper. |
| 2 | Head Up | OFF | Blinks ON | OFF | OFF | Printer head is in the up position. |
| 3 | Paper Jam | Blinks ON | Blinks ON | OFF | OFF | Paper is jammed in printer. |
| 4 | Cutter Fault | OFF | OFF | Blinks ON | OFF | Cutter is not functioning. |
| 5 | Delivery Jam | Blinks ON | OFF | Blinks ON | OFF | Paper is jammed at the delivery. |
| 6 | Abort Printing | OFF | Blinks ON | Blinks ON | OFF | Printing aborted due to unrecoverable error |
| 7 | Over Temp Warning | Blinks ON | Blinks ON | Blinks ON | OFF | Print head is above maximum temperature. |

APPENDIX:

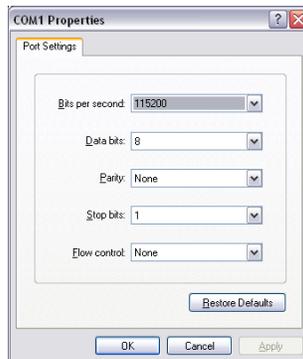
Appendix A: Configuration Utility -- Changing RS-232 Baud Rates and other Printer Settings in flash memory:

This procedure describes how to use the Configuration Utility to modify default settings for the Mini 8 and MTP thermal printer series relating to the serial port, presenter eject or retract option, Top of form detection, reverse portrait option, and the character table default. Changes made to these settings are stored in flash memory and will be retained even if the power is switched off. To enter the Configuration Utility, follow the procedure below.

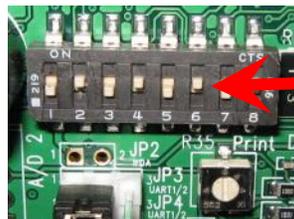
1. If not already done, load paper through the printer. The printer must NOT be reporting any errors (ie. No beeping) after paper has been successfully loaded.
2. Switch OFF power to the printer.
3. Connect a serial cable between a Windows PC and J9 on controller board.



4. Start HyperTerminal (Windows based terminal program) with settings at 115,200-N-8-1. (NOTE: If you are using Windows 7 or higher, you can usually find a downloadable version of HyperTerminal on the Internet that is free for personal use.)
 - a. Start > Programs > Accessories > Communications > HyperTerminal
 - b. Name Configuration
 - c. Select Comm Port
 - d. Configure port settings
 - i. 115,200 Baud
 - ii. 8 Data bits
 - iii. No Parity
 - iv. Flow Control – None

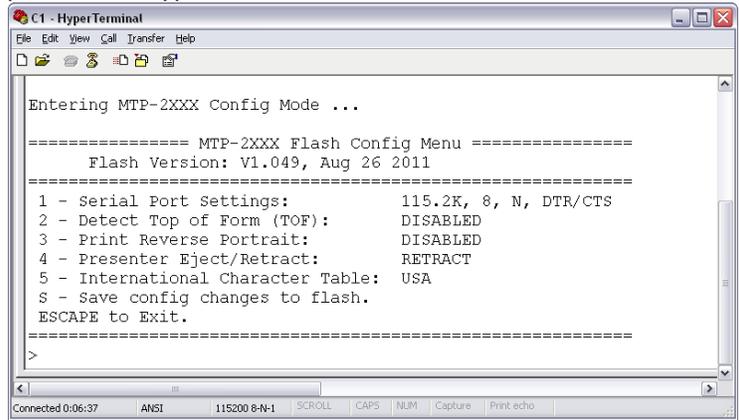


5. Set Printer Switch 1 Position 8 to ON.

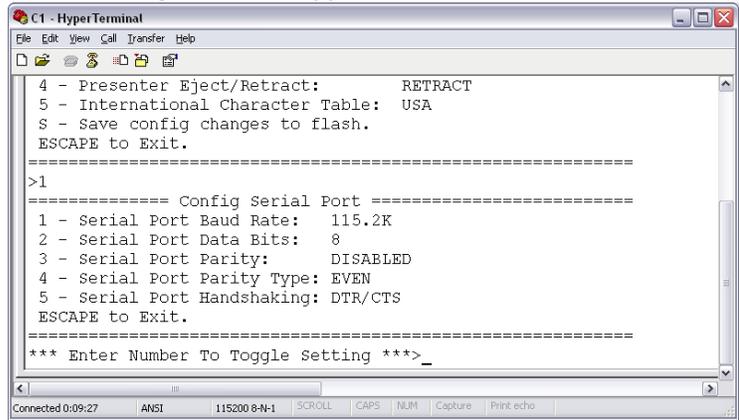


Set Position 8
on Dipswitch 1
to the 'ON'
position.

6. Turn the printer power on.
 - a. Printer LED's 1 (green) and LED 4(Red) will be blinking and the beeper will sound a beep every 2 seconds.
 - b. A Menu will appear in the HyperTerminal window.



7. To change a setting enter the number to the left of the setting.
 - a. **For example**, enter "1" to change the Serial Port Settings.
 - b. The following menu will appear.



- c. Enter a number to change the desired setting.
8. Once completed with changes, enter "S" (MUST be a capital "S") to save the changes to flash memory.
9. Turn power off.
10. Restore Switch 1 position 8 to the OFF position.
11. Print a Self-Test to verify settings and printer operation.
 - a. Hold Feed Button while turning printer power on.
 - b. Release Feed button after one beep.
 - c. Self-Test printout example:

```
[User Configuration Settings]
Serial Port:                115.2K, 8-N-1, DTR/CTS
Detect Top of Form (TOF):   DISABLED
Print Reverse Portrait:     DISABLED
Presenter Eject/Retract:    RETRACT
International Character Table: USA
```

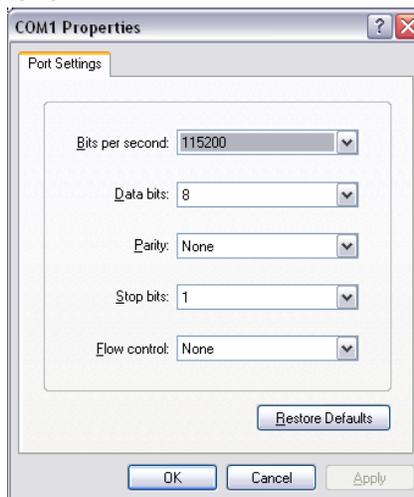
Appendix B: Updating the flash firmware to a different version

This procedure describes how to update the firmware on the Telpar Mini 8, MTP-28XX and MTP-22XX thermal printers. This operation is performed through the serial port and the serial interface of the printer. The materials required for this is HyperTerminal, a serial cable, and a serial interface on the printer. The available flash files for the various printers may be downloaded from our website at www.telpar.com.

1. Connect a serial cable between a Windows PC and J9 on controller board.

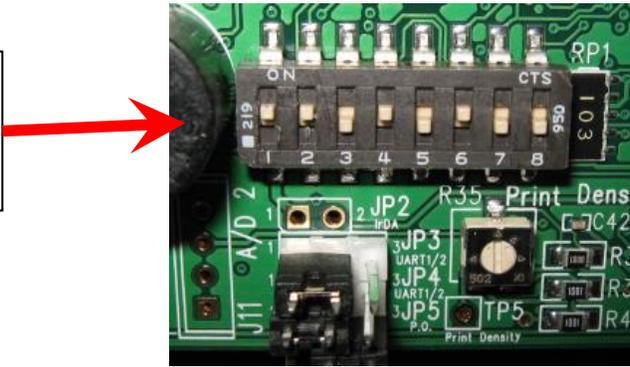


2. Start HyperTerminal with settings at 115,200-N-8-1. (NOTE: If you are using Windows 7 or higher, you can usually find a downloadable version of HyperTerminal on the Internet that is free for personal use.)
 - a. Start > Programs > Accessories > Communications > HyperTerminal
 - b. Name Configuration
 - c. Select Comm Port
 - d. Configure port settings
 - i. 115,200 Baud
 - ii. 8 Data bits
 - iii. No Parity
 - iv. Flow Control – None

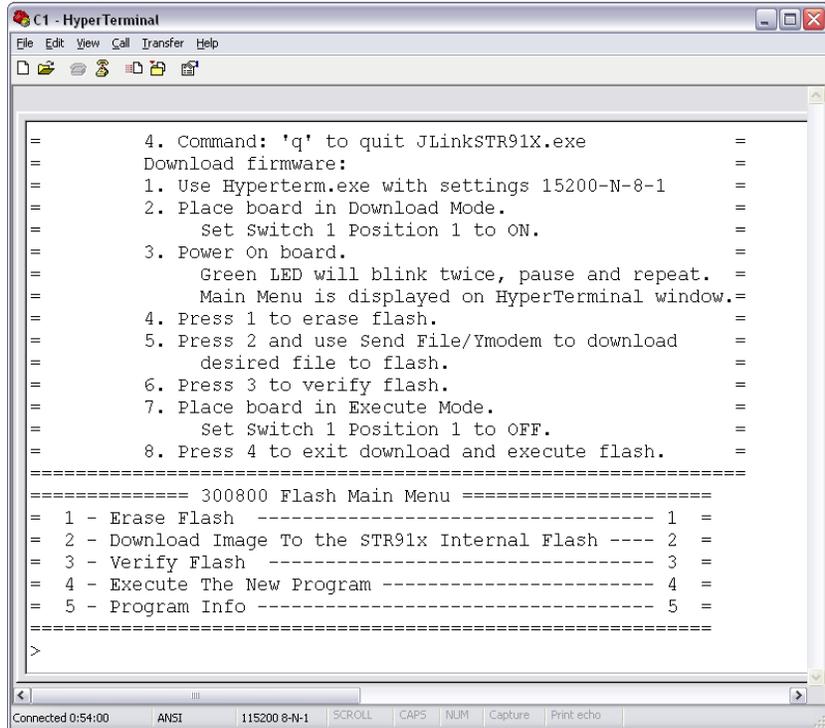


3. Set Printer Switch 1 Position 1 to ON.

Set Position 1 on Dipswitch 1 to the 'ON' position.



4. Turn the printer power on.
 - a. The Printer LED's will be cycling a pattern.
 - b. A Menu will appear in the HyperTerminal window.



5. Press 'Enter' to display 'In-Application Programming' Menu.
6. Press '1' to Erase Flash.
 - a. Wait for operation to complete.
7. Press '2' to download flash.
8. Select Hyperterm Menu item 'Transfer->Send File...'
9. Browse for flash file to download.
10. Select 'Ymodem' for the Protocol.
11. Press 'Send'.
 - a. Wait for download to complete.
12. Press '3' to verify flash.
13. Press '4' to execute new program in flash.
14. Turn the printer power off.

15. Set Printer Switch 1 Position 1 to OFF.
16. Print a Self-Test to verify printer operation and firmware version.
 - a. Hold Feed Button while turning printer power on.
 - b. Release Feed button after one beep.

Appendix C: How to use the Telpar Language Monitor to get Status Feedback from the Printer:

Telpar Language Monitor Printer Description:

The purpose of the Telpar Language Monitor (TLM) is to provide the customer's software application access to the printer's status feedback via an installed TLM printer driver -- see our website at http://www.telpar.com/Drivers_and_Support/MTP-2000_Drivers.aspx for our latest available drivers.

A simple set of library routines is provided to the programmer to access the printer's status. The Printer Language Monitor is integrated into the Windows operating system components to communicate with the printer.

The Telpar Printer Language Monitor is comprised of a number of dynamic linked libraries and drivers, which are installed during the printer driver installation. A programmer can make use of the Printer Language Monitor to retrieve printer status with a simple routine available in the library 'TP2KMon.dll'. The TP2Kmon.dll library makes use of routines in the other libraries and drivers to retrieve printer and port information in the system.

The Telpar Language Monitor will retrieve printer status from any MTP-2xxx Series Thermal Printers which use an installed Telpar TLM Printer Driver for the particular model printer being used (printer driver must be downloaded and installed first). Existing versions of TLM drivers should be uninstalled before installing a different version of the TLM driver.

The Printer Language Monitor also provides legacy support for applications developed for use with the previous Telpar Printer Language Monitor. Therefore applications do not have to be changed to work with the new language monitor.

Language Monitor Files

The Telpar Language Monitor consists of the following files:

- TP2KMon.dll
- TelparMonitor.dll
- TelparPIO32.dll
- TelparIO.sys

The above files are included during the installation of any of the following printer driver options (Notes: drivers are based on the printer's model number. **TLM** stands for **T**elpar **L**anguage **M**onitor):

- Mini 8TLM
- MTP-2222TLM
- MTP-2232TLM
- MTP-2242TLM
- MTP-2283iTLM
- MTP-2822TLM
- MTP-2832TLM

Language Monitor Routines

The following routines are accessible in the Telpar Language Monitor.

GetPrinterStatus

Description:

The input to this function is a printer name. This allows direct specification of which printer to retrieve status from. The function returns an integer containing the status bits returned from the specified printer.

Printer Language Monitor C Declaration:

```
int __stdcall GetPrinterStatus(LPSTR pszPrinterName)
```

VB6 Declare Statement:

```
Private Declare Function GetPrinterLMStatus Lib "TP2KMON.dll" Alias  
    "GetPrinterStatus" (ByVal sPrinterName As String) As Long
```

GetLMStatus (Legacy Support)

Description:

This function will retrieve a list of printers available in the system and request status from the first 'MTP' printer in the list. The function returns an integer containing the status bits returned from the printer. This routine is provided for legacy support.

Printer Language Monitor C Declaration:

```
int GetLMStatus(VOID)
```

VB6 Declare Statement:

```
Private Declare Function GetLMStatus Lib "TP2KMON.dll" () As Long
```

ReqLMStatus (Legacy Support)

Description:

This function was formerly used to initiate a printer status request. This function is no longer necessary and is available for previously developed applications expecting this routine to be present.

Printer Language Monitor C Declaration:

```
void ReqLMStatus(VOID)
```

VB6 Declare Statement:

```
Private Declare Sub ReqLMStatus Lib "TP2KMON.dll" ()
```

Visual Basic 6.0 Demo Application

The Visual Basic 6.0 Demo Application makes use of Visual Basics standard controls to display status information and accept user input for selecting a printer and retrieving printer status. A Declare statement is used to define the Telpar Printer Language Monitor routines to retrieve printer status.

The Demo application provides examples of each Printer Language Monitor status retrieval function. An example of a function to retrieve status information from a specified printer, and an example of a function to retrieve status from the first available 'MTP-2200' printer in the system is provided.

Upon retrieval of the printer status data, the data is analyzed and the individual bit status is displayed in the form of check boxes.

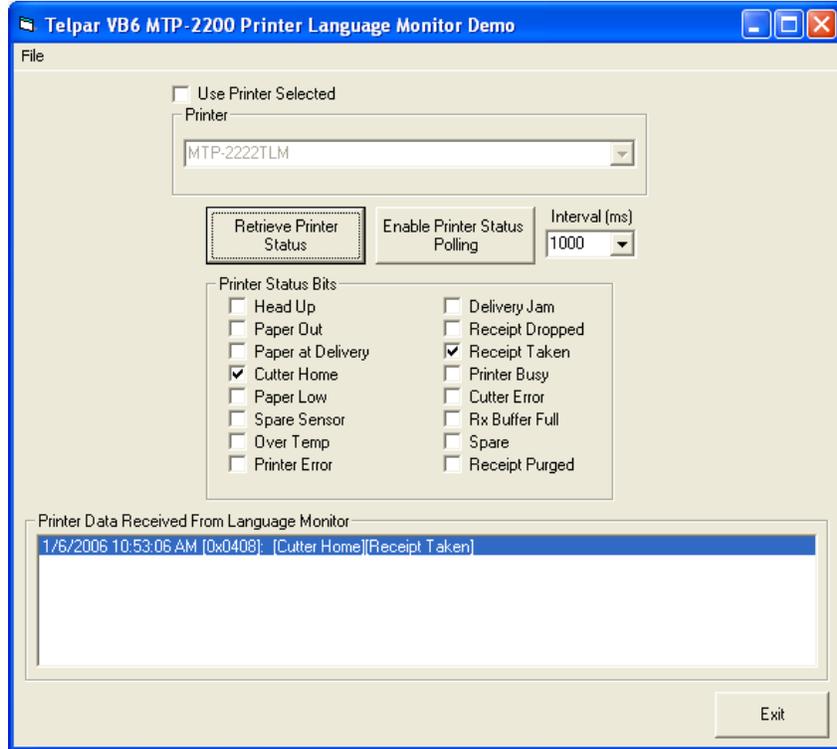
Included in the Visual Basic 6.0 Demo is a timer for use with continuous printer status polling at a specified interval.

Also displayed in the application is a list box containing application activity.

The Project Source code and executable for this application is contained in the zip file VB6PrinterStatusDemo.zip.

The Demo Application will appear as follows:

(Fig. 1)



File Menu

The File Menu contains an 'About' item for version information and an 'Exit' item to exit the program.

Use Printer Selected

The 'Use Printer Selected' check box is used for allowing the selection of a specific printer for demonstrating the available language monitor routines.

Retrieve Printer Status Button

This button will execute the language monitor routine to retrieve and display the printer status.

Enable Printer Status Polling Button

This button will enable a timer for polling the printer status at the specified interval.

Printer Status Bits

This displays the status of each individual printer status bit with its definition.

Printer Data Received From Language Monitor

A list of activity is displayed including the time, data returned from the language monitor, and the names of the bits that are set.

Visual Basic 6.0 Demo Source Code

The Visual Basic 6.0 Source Code is displayed below with comments.

(Fig. 2)

Option Explicit

```
' Declare Telpar Language Monitor DLL routines
' Updated Language monitor routine
Private Declare Function GetPrinterLMStatus Lib "TP2KMON.dll" Alias "GetPrinterStatus" (ByVal sPrinterName As String) As Long
' Legacy language monitor routine
' The legacy language monitor routine will search the computers printer list
' for the first printer with 'MTP' in the name and use this printer in the call
' to the updated language monitor routine.
' This routine was kept in order to maintain backward compatability with customers
' existing software.
Private Declare Function GetLMStatus Lib "TP2KMON.dll" () As Long

Private Sub Form_Load()
    ' load up printer combo list
    GetPrintersList

    ' load up interval combo list with times in milliseconds.
    comboParallelInterval.AddItem 500
    comboParallelInterval.AddItem 1000
    comboParallelInterval.AddItem 2000
    comboParallelInterval.AddItem 3000
    comboParallelInterval.AddItem 4000
    comboParallelInterval.AddItem 5000
    comboParallelInterval.AddItem 10000
    comboParallelInterval.AddItem 20000
    comboParallelInterval.AddItem 30000
    comboParallelInterval.AddItem 40000
    comboParallelInterval.AddItem 50000
    comboParallelInterval.AddItem 60000
End Sub

' Routine for generating a list of available printers for selection
Private Sub GetPrintersList()
    Dim X As Printer

    ComboPrintersList.Clear
    For Each X In Printers
        ' Add only MTP printers to list
        If InStr(1, X.DeviceName, "MTP") Then
            ComboPrintersList.AddItem X.DeviceName
            ComboPrintersList.ListIndex = ComboPrintersList.ListCount - 1
        End If
    Next X
End Sub
```

```

        Set Printer = X
    End If
Next X
End Sub

' Menu File About message
Private Sub mnuFileAbout_Click()
    Dim sMsg As String

    sMsg = " Telpar MTP-2200 Series Printer Language Monitor Demo." & vbCrLf & _
        "          Version 2.1" & vbCrLf & vbCrLf & _
        "This Demo requests printer status from the MTP-2200 Series " & vbCrLf & _
        "Printers using the Telpar Printer Status Language Monitor."
    MsgBox sMsg, vbOKOnly
End Sub

' Menu file exit
Private Sub mnuFileExit_Click()
    End
End Sub

' Check box for enabling printer selection.
Private Sub chkUsePrinterSelected_Click()
    If chkUsePrinterSelected.Value = vbChecked Then
        ComboPrintersList.Enabled = True
    Else
        ComboPrintersList.Enabled = False
    End If
End Sub

' Command to retrieve printer status and update display
Private Sub cmdRetrievePrinterStatus_Click()
    ' Call routine to retrieve and display printer status.
    ListStatus.AddItem RetrievePrinterStatus()
    ' Advance list index to latest data.
    ListStatus.ListIndex = ListStatus.ListCount - 1
    If ListStatus.ListCount >= 100 Then
        ListStatus.RemoveItem 0
    End If
End Sub

' Check box button for enabling printer status polling timer.
Private Sub chkEnableStatusPolling_Click()
    If chkEnableStatusPolling.Value = vbChecked Then
        tmrPrinterStatusPoll.Interval = Val(comboParallelInterval.Text)
        tmrPrinterStatusPoll.Enabled = True
    Else
        tmrPrinterStatusPoll.Enabled = False
    End If
End Sub

```

```
End If
End Sub
```

```
' Status polling timer
Private Sub tmrPrinterStatusPoll_Timer()
  ' Call routine to retrieve and display printer status.
  ListStatus.AddItem RetrievePrinterStatus()
  ' Advance list index to latest data.
  ListStatus.ListIndex = ListStatus.ListCount - 1
  If ListStatus.ListCount >= 100 Then
    ListStatus.RemoveItem 0
  End If
End Sub
```

```
' Retrieve Printer Status Results via call to TP2KMON.dll routine.
```

```
Public Function RetrievePrinterStatus() As String
```

```
  Dim RetVal As Long
  Dim sMsg As String
  Dim sPrinter As String
```

```
  If chkUsePrinterSelected.Value = vbChecked Then
```

```
    ' Get Printer Name
    sPrinter = ComboPrintersList.Text
    If Len(sPrinter) > 0 Then
      RetVal = GetPrinterLMStatus(sPrinter)
    Else
      MsgBox "Invalid Printer Selected!", vbCritical
    End If
```

```
  Else
```

```
    ' Use legacy Language Monitor routine.
    RetVal = GetLMStatus()
```

```
  End If
```

```
  ' Update status check boxes based on returned status
```

```
  ' and return status text string.
```

```
  sMsg = UpdateRealTimeStatusBits(RetVal)
  RetrievePrinterStatus = sMsg
```

```
End Function
```

```
' Update real time status bits
```

```
Function UpdateRealTimeStatusBits(data As Long) As String
```

```
  Dim X As Long
  Dim I As Integer
  Dim Msg As String
```

```
  ' Print time stamp and data received in hex format.
```

```
  Msg = Now & " [0x" & Format(Hex(data), "0000") & "]: "
```

```
  ' Update status check boxes based on data received.
```

```

X = 1 ' start with bit 0.
For I = 0 To 15 ' check bits 0 to 15
    If data And X Then
        ' If bit set, set check box to checked.
        ' The check boxes are indexed in the control array
        ' in the same order as the bit locations.
        chkStatus(I).Value = vbChecked
        ' Add status to status text string.
        Msg = Msg & "[" & chkStatus(I).Caption & "]"
    Else
        chkStatus(I).Value = vbUnchecked
    End If
    ' next bit to check.
    X = X * 2
Next I

' Return the status text string.
UpdateRealTimeStatusBits = Msg
End Function

Private Sub comboParallelInterval_Click()
    If tmrPrinterStatusPoll.Enabled Then
        tmrPrinterStatusPoll.Interval = Val(comboParallelInterval.Text)
    End If
End Sub

' Button to clear received data list.
Private Sub cmdClearReceivedData_Click()
    ListStatus.Clear
End Sub

' Exit button
Private Sub cmdExit_Click()
    End
End Sub

```

Visual C++ 7.0 MFC Demo Application

The Visual C++ 7.0 MFC Demo Application makes use of MFC standard controls to display status information and accept user input.

The Telpar Printer Language Monitor routines to retrieve printer status are accessed in the TP2Kmon.dll library. Once the library is loaded with 'LoadLibrary()', the necessary Printer Language Monitor function address is retrieved with 'GetProcAddress()'. The function is then called to retrieve the printers status.

The Demo application provides examples of each Printer Language Monitor status retrieval function. An example of a function to retrieve status information from a specified printer, and an example of a function to retrieve status from the first available 'MTP-2200' printer in the system is provided.

Upon retrieval of the printer status data, the data is analyzed and the individual bit status is displayed in the form of check boxes.

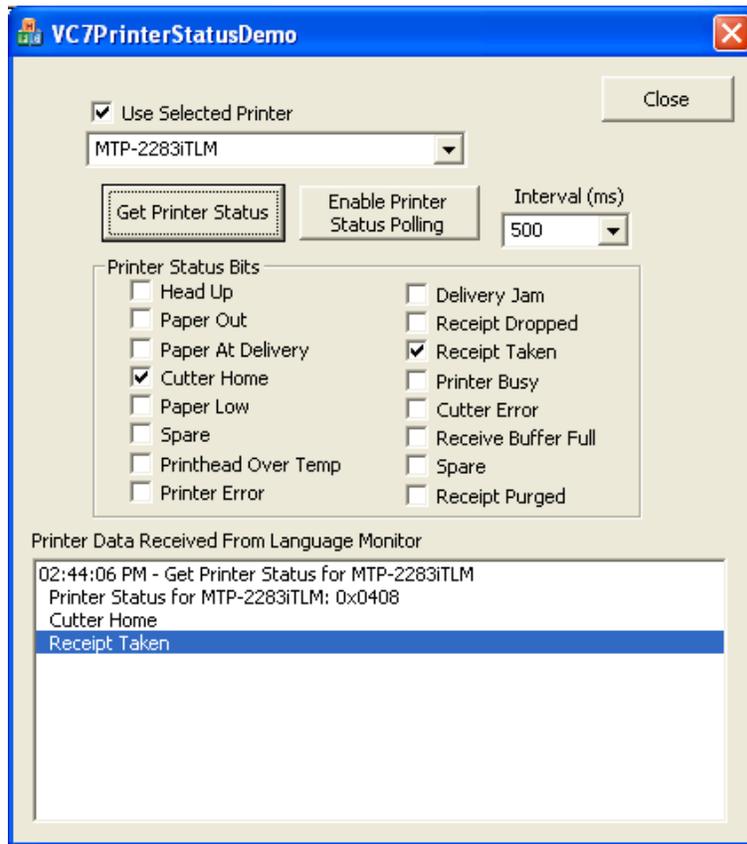
Included in the Visual C++ 7.0 MFC Demo is a timer for use with continuous printer status polling at a specified interval.

Also displayed in the application is a list box containing application activity.

The Project Source code and executable for this application is contained in the zip file VC7PrinterStatusDemo.zip under the solution name VC7PrinterStatusDemo.sln.

The Demo Application will appear as follows:

(Fig. 3)



Use Selected Printer

The 'Use Printer Selected' check box is used for allowing the selection of a specific printer for demonstrating the available language monitor routines.

Get Printer Status Button

This button will execute the language monitor routine to retrieve and display the printer status.

Enable Printer Status Polling Button

This button will enable a timer for polling the printer status at the specified interval.

Printer Status Bits

Check boxes represent the status of each individual printer status bit with its definition.

Printer Data Received From Language Monitor

A list of activity is displayed including the time, data returned from the language monitor, and the names of the bits that are set.

Visual C++ Source Code

A Visual C++ Project file was included with the zip file. Following are key sections of code used in communication with the Telpar Printer Language Monitor.

GetPrinterStatus(pszPrinterName) Example:

Below is a section of code used in the demo to communicate with the Telpar Printer Language Monitor GetPrinterStatus(pszPrinterName) routine (Fig 4.).

(Fig 4.)

```
// Telpar Printer Language Monitor Function Pointer typedefs
typedef DWORD (__stdcall *funcname_ptr) (LPSTR);

// Telpar Printer Language Monitor
TCHAR cszPrinterStatusMonitor[] = "TP2KMon.dll";

// Function pointer variable definition.
funcname_ptr funcGetPrinterStatus;

// Get a handle to the Printer Language Monitor DLL module.
hinstLib = LoadLibrary(cszPrinterStatusMonitor);

// If the handle is valid, get the function address for 'GetPrinterStatus'.
if (hinstLib != NULL)
{
    // Get function address
    funcGetPrinterStatus = (funcname_ptr) GetProcAddress(hinstLib, "GetPrinterStatus");
    // If the function address is valid, call the function.
    if (funcGetPrinterStatus != NULL)
    {
        // Call Printer Language Monitor DLL Routine 'GetPrinterStatus'
        Status = (funcGetPrinterStatus) (pszPrinterName);
        // Display result in list box
        wsprintf(pszMessage, " Printer Status for %s: 0x%04X", pszPrinterName,
            Status);
        AddToStatusList(pszMessage);
        // Update status check boxes.
        UpdateStatusCheckBoxes (Status);
    }
    else
    {
        wsprintf(pszMessage, " ERROR: GetProcAddress %s.GetPrinterStatus()",
            cszPrinterStatusMonitor);
        AddToStatusList(pszMessage);
    }

    // Free the DLL module.
    fFreeResult = FreeLibrary(hinstLib);
}
else
{
    wsprintf(pszMessage, " ERROR: LoadLibrary(cszPrinterStatusMonitor)");
    AddToStatusList(pszMessage);
}
}
```

```
return Status;
```

GetPrinterStatus(void) Example:

Below is a section of code used in the demo to communicate with the Telpar Printer Language Monitor GetPrinterStatus(void) routine (Fig 5.).

(Fig. 5)

```
// Telpar Printer Language Monitor Function Pointer typedefs
typedef DWORD (__stdcall *funcname_ptr2)(void);

// Telpar Printer Language Monitor
TCHAR cszPrinterStatusMonitor[] = "TP2KMon.dll";

// Function pointer variable definition.
funcname_ptr2 funcGetPrinterStatus;

// Get a handle to the Printer Language Monitor DLL module.
hinstLib = LoadLibrary(cszPrinterStatusMonitor);

// If the handle is valid, get the function address for 'GetLMStatus'.
if (hinstLib != NULL)
{
    // Get function address
    funcGetPrinterStatus = (funcname_ptr2) GetProcAddress(hinstLib, GetLMStatus);
    // If the function address is valid, call the function.
    if (funcGetPrinterStatus != NULL)
    {
        // Call Printer Language Monitor DLL Routine 'GetLMStatus'
        Status = (funcGetPrinterStatus) ();
        // Display result in list box
        wsprintf(pszMessage, " Printer Status: 0x%04X", Status);
        AddToStatusList(pszMessage);
        // Update status check boxes.
        UpdateStatusCheckBoxes(Status);
    }
    else
    {
        wsprintf(pszMessage, " ERROR: GetProcAddress %s.GetPrinterStatus()",
            cszPrinterStatusMonitor);
        AddToStatusList(pszMessage);
    }

    // Free the DLL module.
    fFreeResult = FreeLibrary(hinstLib);
}
else
{
    wsprintf(pszMessage, " ERROR: LoadLibrary(cszPrinterStatusMonitor)");
    AddToStatusList(pszMessage);
}

return Status;
```

