

Important:

1. **You must charge the battery** for at least **2½ hours** prior to the first use.
 2. Maximum battery capacity is first reached after completing three complete charge and discharge cycles.
 3. Always use **Genuine Printek Media** to ensure optimal performance.
- **To load media:**
 - Move the Paper Door Release in the direction indicated in *Figure A* and open the Paper Door.
 - Move the media support by pressing in the area indicated by the arrow in *Figure B* and place the roll between the supports. Make sure the media rotates freely. Lay the leading edge of the media through the print head as shown in *Figure C*, and close the door firmly.
 - **To install the battery:** Slide the battery into the battery compartment until the release lever on the battery snaps into place. You may remove the battery by pressing the release lever toward the bottom of the printer and pulling the battery out of the battery compartment.
 - **To charge the battery,** connect a PrintekMobile™ power adapter (sold separately) to the appropriate power source and plug the output cable into the printer's Power Connector as shown in *Figure A*. The  Battery Indicator will turn on indicating that the battery is being charged.
 - **To perform a self test,** press and hold the  Paper Feed Button while turning on the printer with the  Power Button.

Note: For more information, refer to the *MtP300 Series Operator's Manual*, available at printekmobile.com.

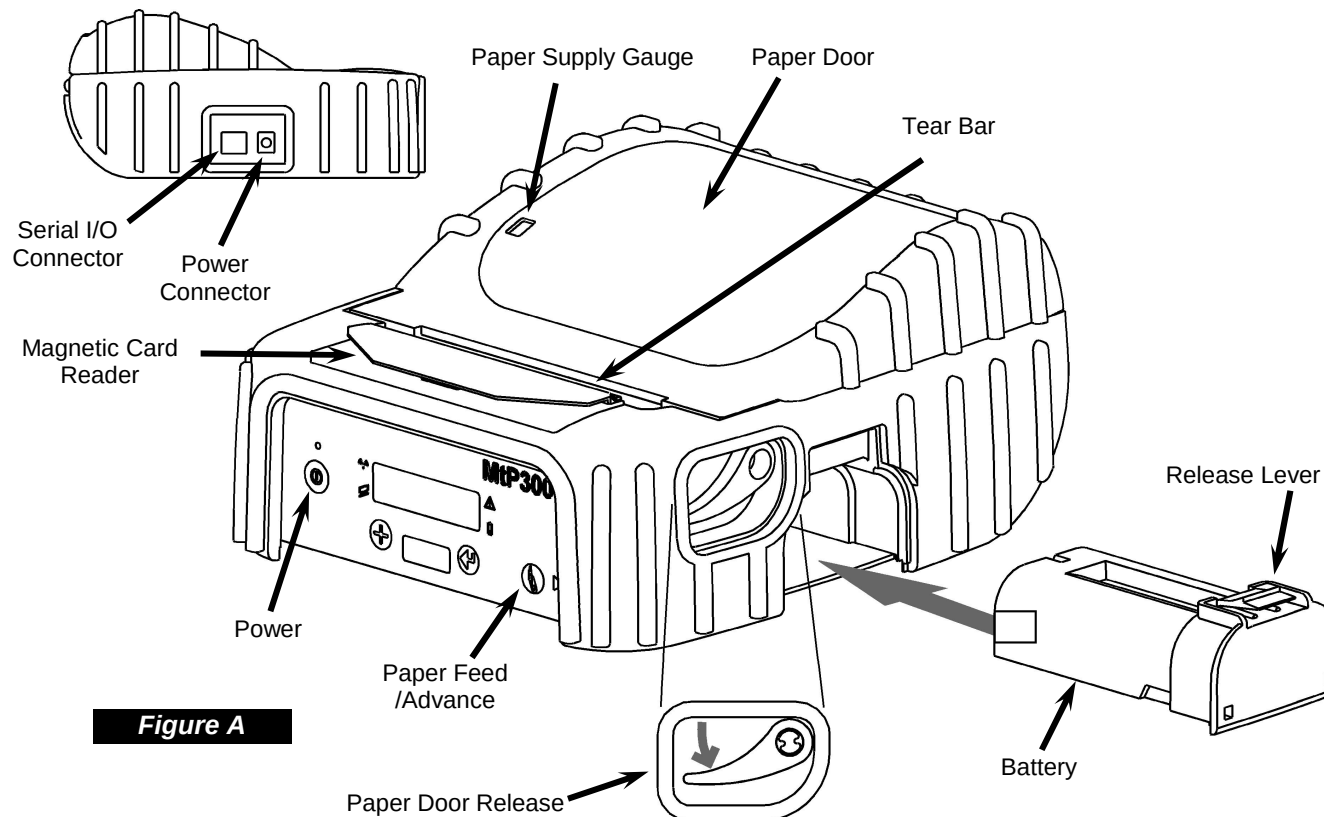


Figure A

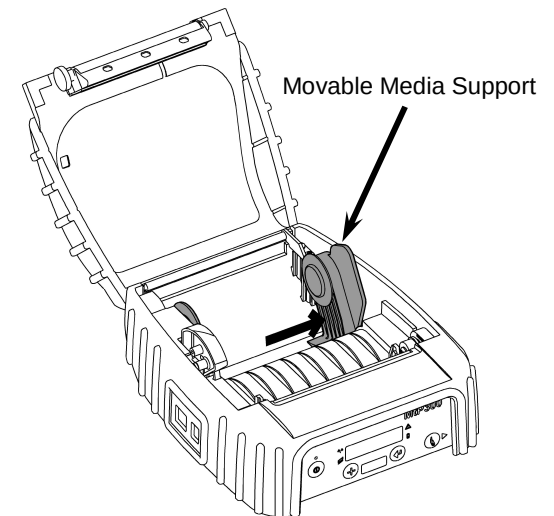


Figure B

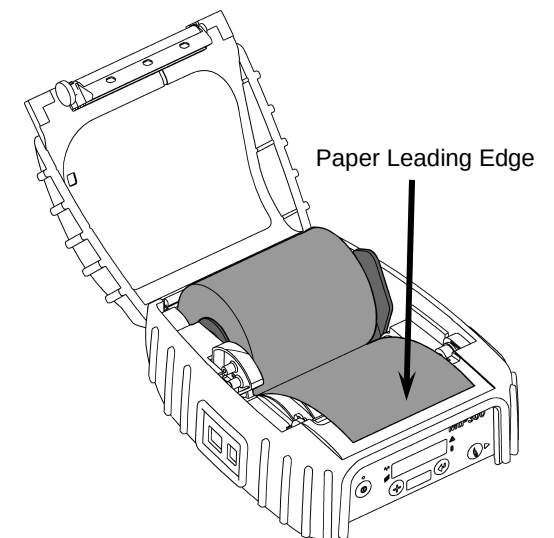


Figure C

Printer Setup

Many of the printer's features may be set using menus available on the front panel of the printer.

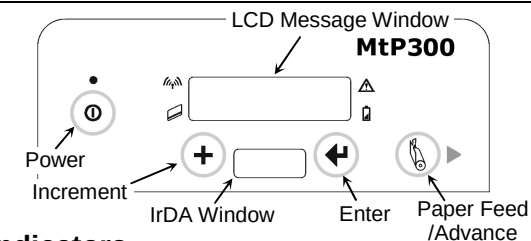
For complete details, please refer to the *MtP300 Series Operator's Manual*.

To enter the Setup Mode, press and hold the ◀ Enter Button while turning on the printer with the ⏻ Power Button. Continue to hold the ◀ Enter Button until "Menus Active" is displayed in the LCD Message Window.

While in Setup Mode, the power indicator will blink slowly. Upon entering Setup Mode, the FORMAT MENU is shown first. To advance to the INTERFACE MENU or OPTIONS MENU, press the ▶ Advance Button.

When in Setup Mode, the current menu item is shown on the top line in the LCD Message Window, and its corresponding value is shown on the bottom line. To increment the value on the bottom line to the next setting, press the + Increment Button. To advance to the next menu item, press the ◀ Enter Button.

To exit Setup Mode, press the ▶ Advance Button until "Exit Setup" is displayed. Press the ◀ Enter Button to save the changes and return to normal printer operation.



Indicators:

Power On = Ready to print, Slow Flash = Setup Mode, Short Flash = Power Saving Stand By Mode.

Wireless I/O Enabled and Connected.

Magnetic Card Reader: Ready for swipe.

Error: See messages, below.

Battery: On = Charging, Flashing = Battery Low.

Printer Setup Menus (Default Values Shown)

- Use the ▶ Advance Button to access the next menu. (Also see + note below)
- Use the + Increment Button to increment the value displayed on the bottom line.
- Use the ◀ Enter Button to accept the value displayed and advance to the next feature.

INTERFACE MENUS

Serial

Emulation = Printek
Baud Rate = 57600
Parity = None
Data Bits = 8
Stop Bits = 1
XON/XOFF = Off
ETX/ACK = Off
RTS/CTS = On

Bluetooth **

Emulation = Printek
Pairing Mode = Paired
Role Policy = Defer
Discoverability = On
Pin = "0"
Security = Off
Local Name = MtP300-Serial#
Address = (Hardware Value)

IrDA **

Emulation = Printek

Wi-Fi **

Emulation = Printek
Pass Thru Mode = Off

Basic Network Settings:

(Requires Mobile Setup Utility at right)

SSID = Any
Type = Ad-Hoc
Channel = 1
Encryption = Open
Authentication = Open PSK
Auth Protocol = PAP
Use WEP Key # = 1
IP Method = DHCP
Address = 192.0.0.192
Subnet = 255.255.255.0
Gateway = 192.0.0.1
Printer Server Port = 8023

IMAGE MANAGEMENT

Print Contrast = 0
Default Font = 16.9 Courier
Scalable Font = Default Scalable
Resident Font = Default Resident
Char Placement = Fixed Width
Char Space (%) = 0
Line Spacing = 3
Long Lines = Wrap

DEVICE SETTINGS

Left Margin = 0
Right Margin = 0
Max Paper Speed = 3.30 ips
Form Feed Ctrl = Distance
(Back Mark*)
FFeed Distance = 1.2608"
Top of Form Adj = 0.0000"
Tear Adj = 0.0000"
Mark Sensitivity = 0

ADVANCED

Auto Power Down = Off
Print Header = Not Loaded
Print Promotion = Not Loaded
Reprint Mode = Disabled
MCR Method = Host Request
MCR Data = 1 Track

Note: After exiting Setup, you may print the current Interface settings by pressing and holding the ◀ Enter Button until "Printing Setup" is displayed.

** IrDA, Bluetooth, or Wi-Fi are only available if installed.
To switch between these interfaces and the Serial Interface, press and hold the ◀ Enter Button until "Interface Now ..." is displayed.

Paper Related LCD Messages:

Paper Door Open - Close paper door and press the Paper Feed Button to continue.

Paper Fault - Load media or correct jam and press the Paper Feed Button to continue.

Magnetic Card Reader LCD Messages:

Swipe Card Now - Magnetic Card Reader is ready for card to be swiped.

Card Read Ok - Card read successfully.

Card Not Read - Card not read correctly.

Mobile Setup Utility

In addition to using the Printer's Front Panel Setup as described at the left, a Mobile Setup Utility is available that allows the printer to be configured from a Windows® desktop operating system or from a Windows Mobile®, Windows CE, or Pocket PC device.

For information regarding the Mobile Setup utility, please contact your system administrator.

Please Note: The Mobile Setup utility is *required* to make changes to the network settings of the Wi-Fi interface.

Setup utilities, printer drivers and the USB cable driver may be downloaded from printekmobile.com.

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Windows and Windows Mobile are registered trademarks of Microsoft Corp.



PRINTEKMOBILE™

MtP300 Series

Operator's Manual

Printek, Inc.
1517 Townline Road
Benton Harbor, MI 49022

269-925-3200

www.printek.com

Printek Part Number 6044 Rev. D

FCC Part 15 Class B

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with Canadian and FCC radiation exposure limits set forth for an uncontrolled environment. This equipment is in direct contact with the body of the user under normal operating conditions. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Part 15.21 Caution: Changes or modifications not expressly approved by Printek, Inc. could void the user's authority to operate the equipment.

Bluetooth Equipped Models:

This equipment contains either an OEM Serial Port Adapter from connectBlue with FCC ID: PVH070101 or a Printek, Inc. Bluetooth module with FCC ID: 0113900444.

Wi-Fi Equipped Models:

This equipment contains an OEM Wireless LAN Node Module from DPAC Technologies with FCC ID: RTTABDB-SEDP. This device has shown compliance with the conducted emissions limits in 15.107, 15.207, or 18.307 adopted under FCC 02-157 (ET Docket 98-80).

Battery Disposal

Only dispose of used batteries according to your local regulations. If you do not know your local regulations, the Rechargeable Battery Recycling Corporation (RBRC) is a non-profit organization created to promote recycling of rechargeable batteries. For more information visit www.rbrc.org.



Acknowledgments:

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PrinterCE is a registered trademark of Fieldsoftware Products

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This manual is based on printer firmware version 2.9. Specifications are subject to change without notice.



Read all setup and operating instructions before proceeding with operation.

Do not operate in an enclosure unless properly ventilated. Make sure no ventilation openings are blocked or obstructed, which may result in the printer overheating.

Do not operate near a heat source.



Lesen Sie vor der Inbetriebnahme die Aufbau- und Bedienungsanleitung.

Betreiben Sie den Drucker nicht in einem kleinen, geschlossenen Raum, es sei denn dieser wird ordnungsgemäß belüftet. Achten Sie darauf, dass die Lüftungen nicht blockiert oder versperrt sind, denn dies kann zum Überhitzen des Druckers führen.

Nehmen Sie den Drucker nicht in der Nähe einer Wärmequelle in Betrieb.



No user-serviceable parts inside. Refer service or repairs to a qualified service professional.

Use of genuine Printek replacement parts is required to warrant proper, safe operation.

Any alteration or modification of this device voids the user warranty and may make the product unsafe to operate.

The print head and motors get hot during use. Wait until they cool before touching them.

Make certain the printer is disconnected from AC power before removing any covers or performing any required cleaning or maintenance.

Connecting this printer to an ungrounded receptacle can result in electrical shock.

Never place the printer near inflammable or explosive substances. Do not operate near liquid or spill liquid into the printer at any time.



Enthält keine Teile, die vom Bediener instandgesetzt werden können. Bitte wenden Sie sich bei Instandsetzung oder Reparatur an qualifiziertes Kundendienstpersonal.

Die Verwendung von echten Printek Ersatzteilen ist notwendig, um ordnungsgemäßen, sicheren Betrieb zu gewährleisten.

Änderungen oder Modifikationen dieses Geräts machen die Garantie ungültig und können den sicheren Betrieb des Produkts gefährden.

Während des Druckens werden Druckerkopf und Motoren heiß. Warten Sie, bis sich die Teile abgekühlt haben, bevor Sie sie berühren.

Vergewissern Sie sich, dass der Drucker nicht mehr an die Stromquelle angeschlossen ist, bevor Sie Abdeckungen abnehmen oder das Gerät reinigen bzw. warten.

Schließen Sie diesen Drucker nicht an eine ungeerdete Steckdose an; dies kann zum Elektroschock führen.

Setzen Sie den Drucker niemals in die Nähe von feuer- oder explosionsgefährlichen Stoffen. Betreiben Sie den Drucker nicht in der Nähe von Flüssigkeiten und lassen Sie keine Flüssigkeiten in den Drucker gelangen.

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Introduction

Thank you for purchasing a Printek MtP300 Series Mobile Thermal Printer. The MtP300 Series offer a variety of configurations to suit any printing environment.

All models support media up to 3.12 inches wide and include “black mark” sensing capabilities on the printed side of the media. The MtP300 LP also supports rear black mark sensing and label gap sensing. All models are equipped with a Serial RS-232C port and will support one additional, optional interface. The interfaces available are IrDA, Bluetooth, and Wi-Fi.

Each printer is shipped with a battery, a belt loop system, a Quick Start Guide, and one roll of receipt paper.

This manual has been written for the end user and contains information needed for the set up and everyday use of the printer. It also contains information regarding preventative maintenance and how to obtain service if needed.

The information in this manual is arranged in the following sections:

Getting Started contains the minimum steps required to get the printer set up and able to communicate with your host system.

Daily Operation describes the activities that are likely to be encountered under normal operation by most users.

Printer Configuration contains detailed information on all the features available in the Setup menus.

Interfacing To A Host Computer provides basic information related to connecting the printer to a computer via the standard RS-232C Serial port or one of the optional IrDA, Bluetooth, or Wi-Fi interfaces.

Power Considerations provides information regarding operation on the internal battery or from an external supply.

Maintenance and Troubleshooting contains information on how to care for your printer to keep it working at peak performance. This section also includes a list of printer error messages and suggestions on how to solve problems.

Advanced Setup Features contains additional information for systems administrators.

Print & Font Samples offers examples of printed output and character mapping for the standard fonts.

Specifications provides detailed information regarding performance, media specifications, and options available for your MtP300 Series printer.

Glossary of Terms is a reference for terminology used within this manual and in the computer and printer industry.

Getting Started

Battery Installation and Charging

Note: You must charge the battery for at least 2½ hours prior to the first use.

The battery for your MtP300 printer is shipped in an “uncharged” state. The battery must be charged using the following instructions prior to using the printer for the first time. Maximum battery capacity is not reached until after completing a minimum of three complete charge and discharge cycles.

Please refer to Figure 1 and insert the battery by sliding it into the battery compartment until the release lever on the battery “snaps” into place.

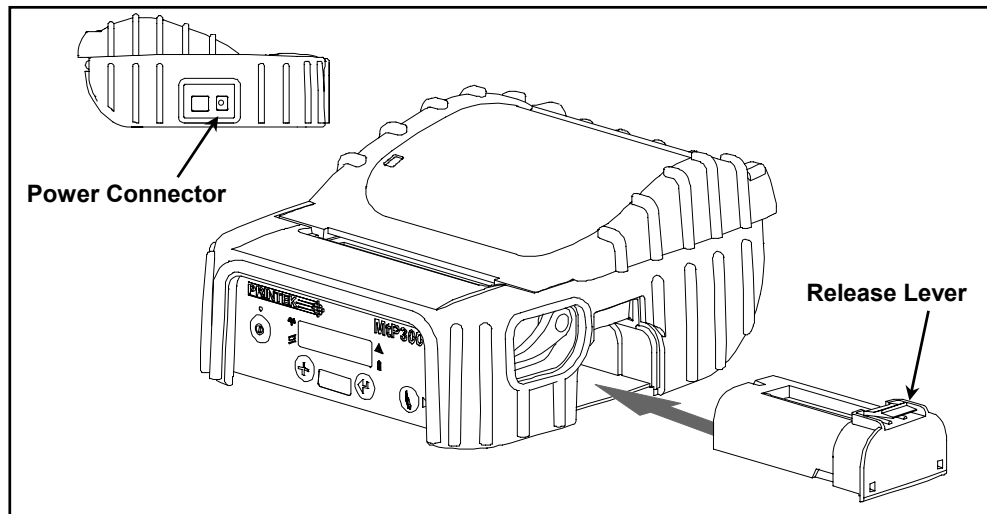


Figure 1 - Battery Installation and Power Connector

Connect an optional power supply to the appropriate input source, and then connect the output of the power supply to the printer's Power Connector. The  Battery Indicator will turn on and remain on until the battery is fully charged. This may take up to 2½ hours.

Caution: Use only Printek power supplies designed specifically for your MtP300 printer. Using a different power supply may cause damage to the printer and will not be covered by the printer's warranty. Printek power supplies are available for use with 100-240VAC/50-60Hz and for 12/24VDC vehicle applications.

Installing Media

Each printer comes supplied with a roll of receipt paper. For your convenience, the printers feature a paper supply indicator as shown in Figure 2. The indicator changes from all green to all red as the paper supply is used.

Note: For maximum performance and optimum print quality, use only genuine Printek media in your MtP300 Series printer.

To install media, you must release the paper door by moving the Paper Door Release in the direction shown in Figure 2 and then lift the paper door to expose the paper compartment.

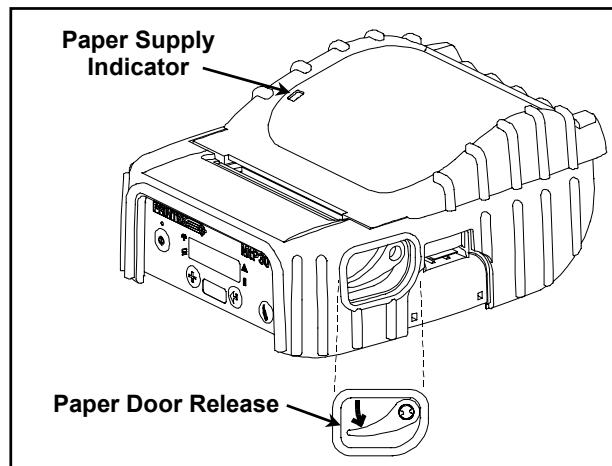


Figure 2 - Opening Paper Door

Refer to Figure 3 and locate the movable media support. Move the support in the direction shown and then locate the media between the supports and release the movable support.

Note: Make sure that the roll spins freely on the media supports.

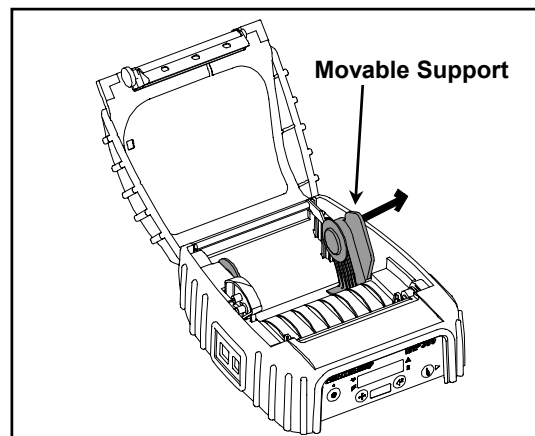


Figure 3 - Media Support

Refer to Figure 4 and unroll enough paper to allow it to lay through the print head as shown, and close the paper door.

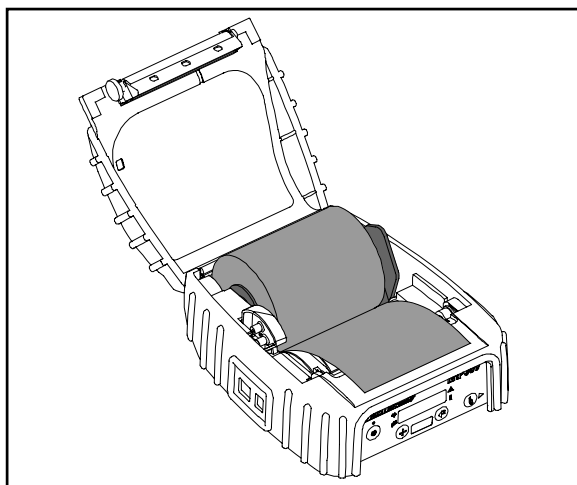


Figure 4 - Paper Laying Through Print Head

You may now press the  Paper Feed Button to advance the paper a few inches and then tear it off in preparation for printing.

Turning the Printer On and Off

To turn the printer on, simply press the  Power Button. If you continue to hold the Power Button, the printer will display the printer's model number. After the button is released, the printer will continue its power up initialization and then display the name of the current Format (default is "Format 1") on the top line. The bottom line will display a battery symbol at the right hand end of the line that indicates the current condition of the battery.

To turn the printer off, press and hold the  Power Button. The printer will display "Printer Off" and then power down after the button is released.

Performing A Printer Self Test

Two self test printouts are available – the standard printout which prints the items listed below, and an extended printout which also prints any graphic images or logos that are stored in the printer.

- The printer's firmware revision level and release date.
- The current Setup Menu values for the following menus:
 - The currently selected Format(s)
 - The Options Menu settings.
- The type of optional interface, if installed, and which interface is currently selected.
- The presence of the optional Magnetic Card Reader, if installed.
- The current battery voltage.
- Print head temperature.

- A list of any graphic images or logos that have been stored.
- A sample bar code.
- Printer serial number.
- A print head test pattern.

To print the standard printout, press and hold the  Paper Feed button while turning on the printer with the  Power Button (press and release the power button, but continue to hold the paper feed button) until the printer displays “Printing Current Menu Values”, and then release the  Paper Feed button.

If the printer has any graphic images/logos stored, “Press Paper Feed To Print Logos” will be displayed. Pressing and releasing the  Paper Feed button will cause the images to be printed at the bottom of the standard printout.

Host Interface Set Up

Prior to using your printer with a computer application, check the interface settings to be sure they match those required by your host system.

Each printer is equipped with a Serial RS-232C interface which is selected by default. Additionally, the printer may also be equipped with either an IrDA interface, Bluetooth interface, or Wi-Fi interface. The model description on the serial number label will indicate if one of the optional interfaces is installed. The factory defaults for the basic settings for each interface are listed below.

Interface	Factory Default Interface Settings
Serial RS-232C	Printek Emulation, 57,600 Baud, 8 Data Bits, 1 Stop Bit, No Parity, No Handshake
IrDA	Printek Emulation. No other set up required.
Bluetooth	Printek Emulation, Pairing Mode = Paired, Security Disabled, PIN = “0” Bluetooth Name = “MtP300-SerialNumber”.
Wi-Fi	Connect to any SSID, Infrastructure, WEP = None, DHCP enabled, TCP tunnel port 8023, Channel = 1, DHCP Name = MtP300-SerialNumber.

If the above settings do not sufficiently match your host system, the following instructions describe how to access the Interface Set Up Menu.

1. Make sure the printer is powered off. If the printer is on, press and hold the  Power Button until “Printer Off” is displayed to turn the printer off.
2. Press and hold the  Enter Button.
3. Continue to hold the Enter Button and turn the printer on. Continue holding the  Enter Button until “Menus Active” is displayed.
4. Press the  Advance Button until “Interface Menu” is displayed. If necessary, you may toggle between the Serial interface and the optional interface (if installed) by pressing the  Increment Button. Note that the interface that is displayed is the interface that will be used when you exit set up mode.
5. Press the  Enter Button to advance to the first set up feature for the interface that was displayed in step 4. Only the features that pertain to the interface displayed/selected in step 4 will be available.

6. You may continue to step through additional set up features by pressing the ◀ Enter Button.
7. When you have finished setting the parameters to match you host system, press the ▶ Advance Button until “Exit Menu” is displayed.
8. Press the ◀ Enter Button to save the changes and exit the Setup Mode.
9. Your printer is now configured and ready to communicate with your host system.

Belt Loop System

The belt loop system consists of two parts – a knob located on the bottom of the printer and a belt loop strap with a click on connector

To use the belt loop system, slide your belt through the strap of the belt loop and then insert the knob located on the bottom of the printer into the slot of the belt loop connector. Pull down on the printer until you hear a click. The printer is now secure and can safely hang down beside your hip.

To release the printer, press in on the two latches on the sides of the connector and pull the printer and knob up and clear of the slot.

Note: Do not force or pull the printer from the connector without pressing in on the two latches.

Daily Operation

Introduction

For normal daily use, most users will only need to turn the printer on and off, load paper, and recharge the battery at the end of the day. The following sections describe these simple activities and provide additional information regarding the use of the MtP300.

Control Panel

The MtP300 Series printers are designed for simple operation with an easy to use control panel. As shown in Figure 5, the control panel consists of an LCD Display, five indicators, and four pushbuttons.

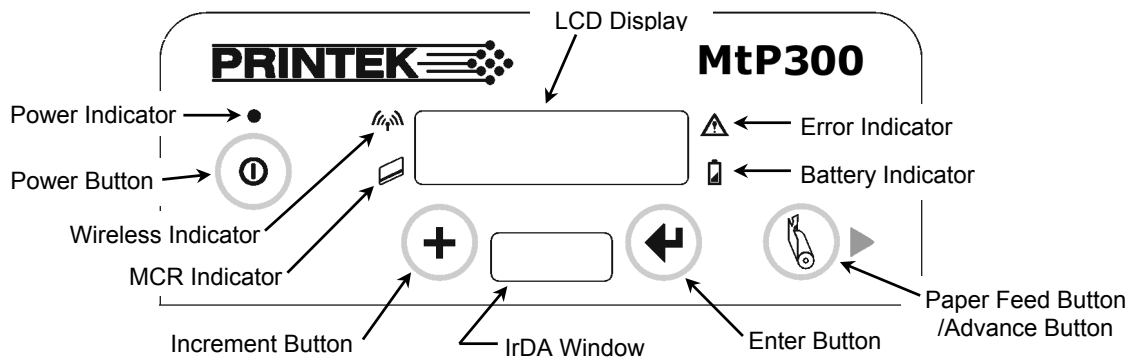


Figure 5 - Control Panel

In normal daily use, most users will only use the  Power Button/Indicator and perhaps the  Paper Feed Button, and observe any messages that may appear on the LCD Display. The purpose and functionality of all of the buttons and indicators are listed below.

-  Power Button – Used to turn the printer on or off.
-  Paper Feed /Advance Button – Advances paper the distance set by the FFeed Distance feature for the currently selected Format. (Default = 1.2608" (32mm). Also used to clear Check Paper error conditions.
-  Increment Button – Used in printer configuration menus to change the value of the currently selected feature. (May also be used to access a stored command file – see the *MtP Series & FieldPro Programmer's Manual* for more information.)

- ↵ Enter Button – Used in printer configuration menus to advance to the next setup feature. May also be used to print the settings and connection information for the currently selected interface.
- ⓘ Power Indicator – ON indicates that the power is on and that the printer is in normal power mode. SLOW FLASH indicates that the printer is in Setup mode and not accepting data. SHORT FLASH indicates that the printer has entered the power saving standby mode and will wake upon receipt of data or when the ⓘ Power Button or 📄 Paper Feed Button is pressed.
- 📶 Wireless Indicator – Indicates that an optional Bluetooth or Wi-Fi interface is installed, enabled and is currently connected or receiving data.
- 💳 MCR Indicator – Indicates that the optional Magnetic Card Reader has been enabled and is ready for the user to swipe a card.
- ⚠ Error Indicator – Indicates that an error has occurred as described on the LCD Display.
- 🔋 Battery Indicator – ON indicates that the battery is currently being charged. FLASHING indicates that the battery capacity is low and the battery needs to be recharged.

Removing Printed Output

In most cases, the host application program will issue a Form Feed that will eject the paper so that all the printed information is fed out of the printer and the receipt or label is ready to be torn off. If all the printing is not yet out of the printer and the host has finished sending data to the printer, the paper may be positioned for tearing by simply pressing the 📄 Paper Feed Button.

To tear the paper, pull the paper against the tear bar at a slight angle as shown in Figure 6, and then continue to pull the paper in the direction shown to tear it off.

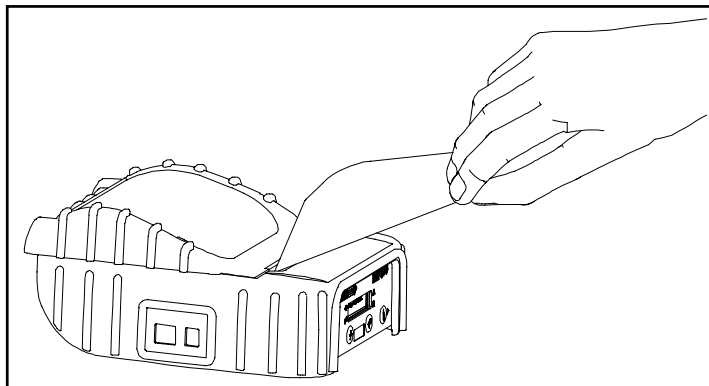


Figure 6 - Tearing Off Printed Output

Battery Charging

The MtP300 contains battery monitoring and charging circuitry so that the battery may be charged while still in the printer. Charging the battery in the printer requires an optional power supply. Printek offers power supplies for use with 100-240VAC/50-60Hz and 12/24VDC for vehicle applications.

Optional external battery chargers are also available so that you can have fully charged batteries “standing by” when needed.

The printer’s battery status is displayed in the lower right corner of the front panel LCD Display. The status is displayed as a battery shape which indicates the relative capacity that remains as indicated below.

Fully Charged  Discharged

To charge the battery inside the MtP300, connect the power supply to the appropriate source, and connect the output of the supply to the printer’s power connector shown in Figure 7.

Caution: Use only Printek power supplies to power your printer and charge batteries. Other power supplies may damage the electronics and printing mechanism. Damage caused by use of a non-Printek power supply will not be covered by the printer’s warranty.

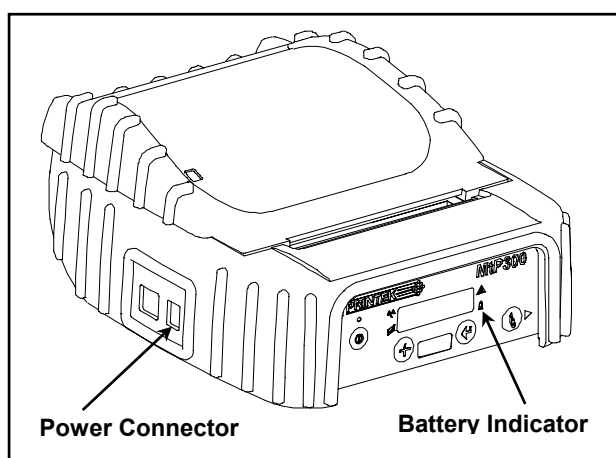


Figure 7 - MtP300 Power Connector & Battery Indicator

When the power supply is connected, the printer’s charging circuitry will determine if the battery currently requires charging and if so, will turn on the  Battery Indicator until the battery has reached sufficient charge. Depending on the condition of the battery, charging may take up to 2½ hours to complete.

Leaving the power supply connected to the printer will cause the printer to continuously monitor the condition of the battery and keep the battery charged.

For more information regarding battery charging, battery life, and battery disposal, refer to “Battery Care” on page 40.

Using the Magnetic Card Reader

The optional Magnetic Card Reader (MCR) is used by some applications to read information from credit cards, drivers licenses, etc.

When the host system sends a request to the MtP300 to enable the Magnetic Card Reader, “Swipe Card Now” will be displayed and the  MCR Indicator will flash to indicate that the card may now be passed through the MCR slot, or “swiped”. Refer to Figure 8 for the card orientation.

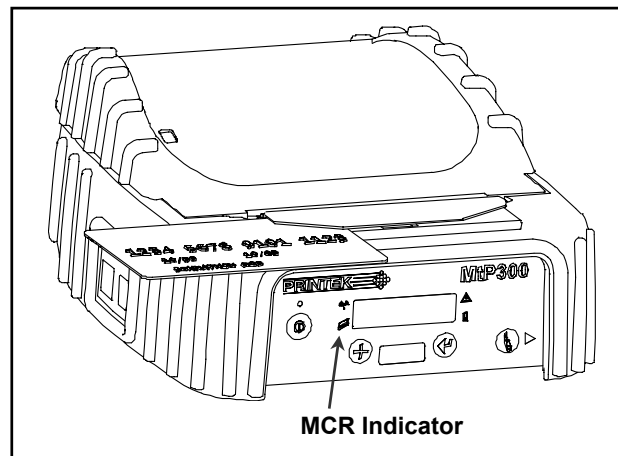


Figure 8 - Using The Magnetic Card Reader

If the card is read successfully, a short beep will sound, “Card Read Ok” will be displayed and the  MCR Indicator will stop flashing and remain on briefly to indicate success as the data is sent to the host system.

If the card is not read successfully, a longer error tone will sound, “Card Not Read” will be displayed and the  Error Indicator will also begin to flash. If the read operation is not cancelled by the host application within a few seconds, the  Error Indicator will stop flashing and the printer will return to the “Swipe Card Now” mode. At this time the card may be swiped again to attempt a successful read.

The length of time allowed before the timeout is specified by the host application program. Once a timeout occurs, the  Error Indicator will turn on momentarily and “MCR Timeout” will be displayed.

Fault Messages

Check Paper

This message is displayed and the  Error Indicator flashes whenever the printer runs out of print media. This may also occur if there has been a paper jam that prevents paper from feeding into the print head. To clear the error, first clear the jam and/or install new media. For information on how to replace the media supply or to check for a possible jam, please refer to “Installing Media” on page 4 in the Getting Started section of this manual.

Next, momentarily press the  Paper Feed Button to resume printing.

Note: If the printer has firmware version 2.8 or later, pressing the  Paper Feed Button will cause the printer to perform a Form Feed and then reprint the last print job. If the entire job does not print as expected, the host program may need to be modified to make use of the printer's buffer commands. Please refer to the *MtP Series & FieldPro Programmer's Manual* for more information.

It is also possible that a false paper error may be detected when using “black mark” sensing on preprinted forms. This condition should not occur unless the size of the black mark on the form is larger than the size allowed for in the host application program. Please refer to the *MtP Series & FieldPro Programmer's Manual* for more information.

Paper Door Open

This message is displayed and the  Error Indicator flashes when the printer is attempting to print and the Paper Door is not fully closed. To correct this error, make sure that the media is loaded properly, close the Paper Door, and momentarily press the  Paper Feed Button.

Printer Configuration

Introduction To Setup

The MtP300 Series printers feature an easy to use control panel “Setup” menu system for setting permanent configuration parameters. These menus offer many useful and necessary features, but are typically only used when first setting up the printer. They are rarely used in normal everyday operation. The values that are set are used as the “defaults” whenever the printer is turned on or reset by the host system. Application programs often send commands that may override any of these values.

As an alternative to using the Setup Menus described below, you may also use the “MtP Setup” remote configuration utility. This utility runs on a Windows Desktop system and connects to the printer’s serial port.

Setup Basics

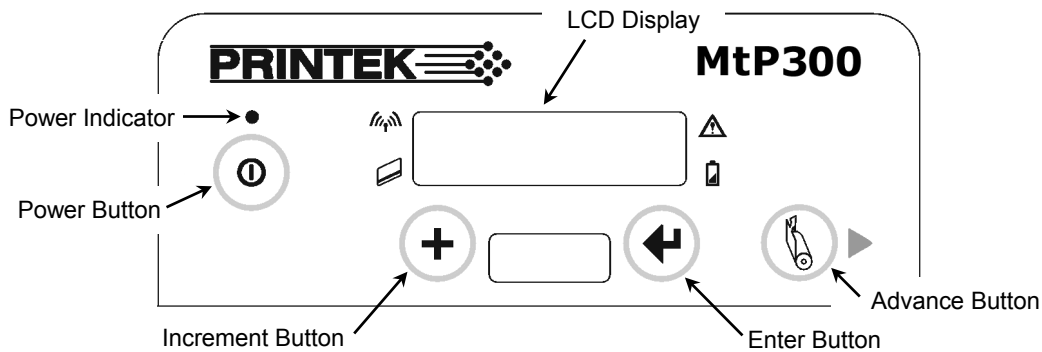


Figure 9 - MtP300 Control Panel

When in Setup, the top line of the LCD Display shows the name of the menu or the name of a “feature” within the menu. The bottom line of the display shows the current value that is set to be used for the item displayed on the top line.

The Setup menus operate as a “What You See Is What You Get” system. This means that whenever you view or change any of the menu choices available, the value showing when you proceed to the next item or exit Setup is the value the printer will use after you exit Setup. Note that when exiting Setup, you may elect to discard any changes.

Entering Setup

To enter Setup, press and hold the **↵** Enter Button while turning on the printer with the **⏻** Power Button. Continue to hold the Enter Button until **“Menus Active”** appears on the LCD Display. After releasing the **↵** Enter Button, **“Entering Setup Menus”** will be displayed momentarily before advancing to the **“FORMAT MENU”**. While in Setup Mode, the power indicator will blink slowly.

Selecting Menus

Once Setup Mode has been successfully entered, the **“FORMAT MENU”** is the first menu displayed. Note that while in Setup Mode, the **⏻** Paper Feed Button now operates as an **▶** Advance Button. To advance to the **INTERFACE MENU** or **OPTIONS MENU**, or to **Exit Setup**, press the **▶** Advance Button until the desired menu is displayed. With a few exceptions which are described where appropriate, pressing the **▶** Advance Button will always advance you to the next menu.

Detailed explanations on how to navigate each of the menus and use their features follow.

Exiting Setup

Setup may be exited by pressing the **▶** Advance Button until **“Exit Setup”** is displayed on the top line of the LCD Display, and **“Save Changes”** is displayed on the bottom line. To save any changes you have made and exit Setup press the **↵** Enter Button. If feature values were changed, **“Exiting Menus Saving Changes”** will be displayed. If no values were changed, **“Exiting Menus No Changes”** will be displayed.

If you do not want to save the changes you have made, press the **⏻** Increment Button to display **“Discard Changes”** on the bottom line and then press the **↵** Enter Button. **“Exiting Setup No Changes”** will be displayed.

After Setup is exited and any changes saved, the printer will reset and reinitialize itself to adopt any changes that may have been made. Note that when this reset occurs, any data that may have been in the input buffer will be discarded.

Setup Menu Summary

The following table is a summary of the features and possible values available in the Format, Interface, and Options Menus. This table may be used to help locate a particular item, or as a “quick reference” for the Setup menu system.

Setup Menu Summary

Format Menu	Interface Menu				Options Menu
Format <i>n</i>	Serial	IrDA	Bluetooth	Wi-Fi	
Format Name Up to 16 Characters Font 4.2, 5.5, 10.2, 10.7, 16.9, 18.5, 20.3 SansSerifA; 12.7, 13.5, 14.5, 15.6, 16.9*, 18.5, 20.3, 22.6, 25.4 Courier Spacing 0 - 10, 3* Left Margin 0* - 1.0244" Right Margin 0* - 1.2608" Print Contrast -75 to +125, 0* (+35* for LP Models) Max Paper Speed 0.32 to 3.30* ips (2.30* for LP Models) Form Feed Distance 0 – 2.5216", 1.2608* (Mark Sensing for LP Models) Mark Sensing Front*, Back, Gap (Back* for LP Models) Mark Sensitivity -10 to +10, 0* Gap Sensitivity -10 to +10, 0* Tear to Mark Dst -0.7092" to 1.7927", 0* Present Distance 0.0000"* to 1.2911"	Emulation Printek*, O'Neil, ZPL-II, Mt3, CPCL, Hex Dump Baud Rate 9600, 19200, 38400, 57600* Data Bits 7, 8* Stop Bits 1*, 2 Parity None*, Even, Odd XON/XOFF Off*, On ETX/ACK Off*, On RTS/CTS Off, On*	Emulation Printek*, O'Neil, ZPL-II, Mt3, CPCL, Hex Dump Pairing Mode Paired*, Unpaired Role Policy Defer*, Master Discoverability On*/Off Pin 0*, Up to 16 Numeric Chars. Security Off*, On Local Name MtP300-Serial#* Address (Displayed Only)	Emulation Printek*, O'Neil, ZPL-II, Mt3, CPCL, Hex Dump Pairing Mode Paired*, Unpaired Role Policy Defer*, Master Discoverability On*/Off Pin 0*, Up to 16 Numeric Chars. Security Off*, On Local Name MtP300-Serial#* Address (Displayed Only)	Emulation Printek*, O'Neil, ZPL-II, Mt3, CPCL, Hex Dump WLAN Type Infrastructure*, Peer-to-Peer WLAN Channel 1* – 14 WLAN SSID any* WLAN WEP Bits 0*, 64, 128 WEP Key 1-4 10 or 26 Char. Hex String "000...0"* WLAN Auth Auto*, Open, Shared IP Address Assign DHCP*, Static IP Address 0.0.0.0* IP Subnet Mask 0.0.0.0* IP Gateway 0.0.0.0* Tunnel Port# 08023*	Max Format # 1* – 5 Auto Power Down Off*, 1 – 15 Minutes User Language English*, French, German Truncate Lines No*, Yes Print Promo No*, Yes

Format Menu

FORMAT MENU <i>Current Format</i>

The MtP300 supports five “Formats”, or sets of printing parameters that may be selected either through the control panel or by host application programs. These Formats include printing related features such as Form Length, Font, Character Pitch, Margins, etc. Each Format also includes the ability to name the Format with a name such as “Receipt”, “Routing Label”, or “Shipping Label”, etc.

Upon entering Setup as described earlier in “Setup Basics”, the Format Menu is the first menu that will appear.

The bottom line of the display shows the Format that is currently selected. If you wish to change to a different format, press the **+** Increment Button until the desired Format is displayed.

Note: If you wish to use more than one Format, you must first enable additional Formats. Please refer to the “Max Format” feature in the “Options Menu” on page 31.

Once the desired Format is displayed, you may do one of the following:

press the **↵** Enter Button to review and/or change the features related to the displayed Format, or

press the **▶** Advance Button to advance to the INTERFACE MENU

Pressing the **↵** Enter Button will advance through the following features for the selected Format in the order listed below.

Format Name

Format Name Format 1

Possible Values: Up to 16 characters of A through Z, 0 through 9, SPACE

When shipped from the factory, the name for each format will be “FORMAT 1”, “FORMAT 2”, etc. This name may be changed to any combination of capital letters (A-Z), numerals (0-9), or spaces. The name may be up to 16 characters in length.

To advance through the character positions of the name, press the **▶** Advance Button. To change the character at the current position, press the **+** Increment Button. The order of characters that may be selected is “ABCDEFGHIJKLMNOPQRSTUVWXYZ SPACE 0123456789”. The name will automatically be centered on the display after exiting Setup, so there is no need to try to center it with spaces.

Font

Font 16.9 cpi Courier

Possible Values:

4.2 cpi SnsSrfA	16.9 cpi SnsSrfA
5.5 cpi SnsSrfA	16.9 cpi Courier*
10.2 cpi SnsSrfA	18.5 cpi SnsSrfA
10.7 cpi SnsSrfA	18.5 cpi Courier
12.7 cpi Courier	20.3 cpi SnsSrfA
13.5 cpi Courier	20.3 cpi Courier
14.5 cpi Courier	22.6 cpi Courier
15.6 cpi Courier	25.4 cpi Courier

Any downloaded fonts will also be displayed.

This feature selects the default font and character pitch.

Spacing

Spacing 3 Lines

Possible Values: 0 ... 3* ... 10 Lines

When printing text, this feature sets spacing between lines. The height of a complete line, or line pitch, is determined by adding the vertical size of the current font to the Spacing. With Spacing set to the default value of “3” and using a font that is 23 rows high, the line pitch would be 3 + 23, or 26 dot rows. Since each dot row is 0.125mm, 26 x 0.125 yields a line pitch of 3.25mm. or 7.8 lines per inch. This line pitch value also determines the amount of paper motion performed when an ASCII Line Feed character is received by the printer.

When printing PC Line drawing characters, Spacing should be set to “0” to avoid space between rows of characters used to draw vertical lines.

When printing graphic data, Spacing has no affect so that multiple lines of graphics may print adjacent to each other.

Left Margin

Left Margin 0.0000”

Possible Values: 0.0000”* ... 1.0244” in increments of 0.0394”

This feature sets the left margin in inches relative to the leftmost printing position. The left margin must be less than the right margin.

Right Margin

Right Margin 0.0000”

Possible Values: 0.0000”* ... 1.2608” in increments of 0.0394”

This feature sets the right margin in inches relative to the rightmost printing position.

Text characters that would have printed to the right of the margin will either be “wrapped around” and printed on the next line, or will be discarded based on the setting for “Truncate Lines” in the Options Menu.

Graphic data that would have printed to the right of the margin will be truncated.

Printer Configuration

Print Contrast

Print Contrast 0

Possible Values: -75 ... 0* ... +125 in increments of 5 (+35* for LP Models)

The printer automatically adjusts the amount energy used in order to maintain constant print quality as the battery discharges during use. The Print Contrast setting modifies the value that is determined to be needed by the printer and may be used to obtain improved print quality on different qualities of thermal print media.

Note: By affecting the relative amount of battery energy that is used when printing, the Print Contrast setting affects both print speed and battery life. Setting a lower value will result in faster printing and will extend normal battery life. Setting a higher value may allow the use of poorer quality media and will result in slower printing and a shorter battery life.

Maximum Paper Speed

Max Paper Speed 3.30 ips

Possible Values: 0.32 ... 3.30* ips (2.30* for LP Models)

This feature may be used to reduce the maximum paper speed if necessary to allow the printer to use heavier papers, labels, narrow paper or labels, or some coated papers that have a more slippery finish.

Form Feed Distance

FFeed Distance 1.2608"

Possible Values: 1.0000" ... 1.2608"* ... 2.5216"

This feature sets the distance that paper is to be moved whenever the user presses the  Paper Feed Button or a Form Feed character is received from a host system.

Mark Sensing

Mark Sensing Front

Possible Values: Front*, Back, Gap (Back* for LP Models)

Mark Sensing is used to identify form or label position marking and must be set to match the media being used. The use of Black Mark or Gap sensing is associated with the design of the application program that is controlling the printer. For more information on Black Mark or Gap sensing, please refer to the *MtP Series & FieldPro Programmer's Manual*.

Note: This feature is only available in MtP300 LP models.

Mark Sensitivity

Mark Sensitivity 0

Possible Values: -10 ...0* ...+10

This feature allows the Black Mark/Paper sensor to be adjusted to allow for variations in media materials and Black Mark printing methods. The following list will help determine if, and how, the Mark Sensitivity should be adjusted.

- If the printer is not detecting black marks reliably, set the Mark Sensitivity to a lower value.
- If the printer is detecting false Check Paper errors, set the Mark Sensitivity to a higher value.
- If the printer is detecting black marks where none exist, set the Mark Sensitivity to a higher value.

Gap Sensitivity

Gap Sensitivity 0

Possible Values: -10 ...0* ...+10

This feature is used to adjust the sensing of gaps between labels when using precut labels that are provided on a removable backing. The following method should be used to adjust the gap sensor.

- If the printer is not detecting gaps between labels reliably, set the Gap Sensitivity to a higher value.
- If the printer is detecting gaps where none exist, set the Gap Sensitivity to a lower value.

Note: This feature is only available in MtP300 LP models.

Tear to Mark Distance

Tear to Mark Dst 0.0000"

Possible Values: -0.7092" ...0.0000"* ...1.7927"

This feature is used to set the distance from the tear position on the paper/labels to the black mark. If the tear position is above the black mark, the value is negative. If the tear position is below the black mark, the value is positive.

Present Distance

Present Distance 0.0000"

Possible Values: 0.0000"* ...1.2911"

This feature sets the distance the paper is moved forward after the black mark is sensed. When the black mark is sensed, the paper will be fed forward by this amount to allow for tearing or peeling of a label. When the next print job begins, the paper will be reverse fed this same amount before printing begins.

When the Tear to Mark Distance is a negative value, this is typically set to the inverse of that value.

Interface Menu

INTERFACE MENU <i>Current Host I/O</i>

After entering Setup as described earlier in “Setup Basics”, press the ► Advance Button until “INTERFACE MENU” is displayed on the top line.

The bottom line displays the currently selected host interface. The Interface Menu provides access to the features that may be configured for the currently selected interface.

Note that the Serial interface is standard in all MtP300 Series printers. If another, optional interface such as IrDA, Bluetooth, or Wi-Fi is installed, you may select between the Serial interface and the optional interface by pressing the + Arrow Button. Once the desired interface is displayed, you may do one of the following:

- press the ◀ Enter Button to review and/or change the features related to the selected interface, or
- press the ► Advance Button to advance to the OPTIONS MENU

Pressing the ◀ Enter Button will advance through the following features for the selected Interface in the order listed below.

Please refer to “Interfacing To A Host Computer” on page 33 for additional information.

Serial Interface

INTERFACE MENU Serial

Note that “Serial” must be displayed on the bottom line of the display in order to access the following features and for this interface to be active when Setup is exited.

Emulation

Emulation Printek

Possible Values: Printek*, O’Neil, ZPL-II, Mt3, CPCL, Hex Dump

This feature sets the family of printer commands that may be used by a host application program to control the various capabilities of the printer. The printer will only respond to commands valid for the currently selected emulation. For more information, please refer to the *MtP Series & FieldPro Programmer’s Manual*.

Baud Rate

Baud Rate
57600

Possible Values: 9600, 19200, 38400, 57600*

This feature sets the baud rate for the Serial interface. The value must match the setting used on the host system.

Data Bits

Data Bits
8

Possible Values: 7, 8*

This feature sets the number of data bits in the serial character frame. The value must match the setting used on the host system.

Stop Bits

Stop Bits
1

Possible Values: 1*, 2

This feature sets the number of stop bits included in the serial character frame. The value must match the setting used on the host system.

Parity

Parity
None

Possible Values: None*, Even, Odd

This feature sets the parity checking requirements for the data bits in the serial character frame. The value must match the setting used on the host system.

XON/XOFF Handshaking

XON/XOFF
Off

Possible Values: Off*, On

This feature enables or disables the XON/XOFF (DC1/DC3) character handshaking method used to control data flow from the host system to the printer. When enabled, an XOFF character will be sent by the printer whenever the printer's input buffer is nearly full. An XON character will be sent whenever the printer's input buffer becomes nearly empty or if the control panel Setup Mode has been exited.

Printer Configuration

ETX/ACK Handshaking

ETX/ACK
Off

Possible Values: Off*, On

This feature enables or disables the ETX/ACK character handshaking method used to control data flow from the host system to the printer. When enabled, an ACK character will be sent by the printer after an ETX character has been received and processed out of the input buffer. ETX characters used for handshaking cannot be part of an escape sequence.

RTS/CTS Handshaking

RTS/CTS
On

Possible Values: Off, On*

This feature enables or disables the RTS/CTS hardware handshaking method used to control data flow from the host system to the printer. When enabled, the printer will activate the RTS signal whenever the printer's input buffer becomes nearly empty or when the printer's control panel Setup Menus are active. The RTS signal will be deasserted whenever the printer's input buffer becomes nearly empty or Setup Mode has been exited.

Likewise, the printer will not send data to the host system if the host has asserted the CTS signal.

IrDA Interface

INTERFACE MENU
IrDA

Note that "IrDA" must be displayed on the bottom line of the display in order to access the following features and for this interface to be active when Setup is exited.

Emulation

Emulation
Printek

Possible Values: Printek*, O'Neil, ZPL-II, Mt3, CPCL, Hex Dump

This feature sets the family of printer commands that may be used by a host application program to control the various capabilities of the printer. The printer will only respond to commands valid for the currently selected emulation. For more information, please refer to the *MtP Series & FieldPro Programmer's Manual*.

Bluetooth Interface

INTERFACE MENU
Bluetooth

Note that “Bluetooth” must be displayed on the bottom line of the display in order to access the following features and for this interface to be active when Setup is exited.

Emulation

Emulation
Printek

Possible Values: Printek*, O’Neil, ZPL-II, Mt3, CPCL, Hex Dump

This feature sets the family of printer commands that may be used by a host application program to control the various capabilities of the printer. The printer will only respond to commands valid for the currently selected emulation. For more information, please refer to the *MtP Series & FieldPro Programmer’s Manual*.

Note: After pressing the  Enter Button to move from Emulation to Pairing Mode, the printer will pause and display “Waiting for Bluetooth” while reading the current configuration from the Bluetooth interface module.

Pairing Mode

Pairing Mode
Paired

Possible Values: Paired*, Unpaired

This feature allows Bluetooth pairing to occur between the printer and the connecting device whenever Security is required by either device. Pairing requires that the PIN on the printer and the connecting exactly match each other.

Role Policy

Role Policy
Defer

Possible Values: Defer*, Master

Note that this feature is only available in firmware version 2.8 or later.

This feature selects the role of the printer’s interface in the Bluetooth network.

If the device attempting to communicate with the printer is having trouble discovering the printer, setting the value to Master may correct the problem.

Printer Configuration

Discoverability

Discoverability On

Possible Values: Off, On*

This feature is used to set whether the printer may be discovered by other Bluetooth devices.

PIN

PIN 0

Possible Values: 0*, Up to 16 Numeric Characters.

Note that this feature is only available if Pairing Mode is set to Paired.

To advance through the character positions, press the ► Advance Button. To change the character at the current position, press the + Increment Button. The characters that may be selected are “0123456789” and SPACE. Setting a character to SPACE will terminate the value being set.

Security

Security Off

Possible Values: Off*, On

Setting Security to On forces the printer and the remote device to use pairing. Setting Security On requires that Pairing is set to Paired and that a PIN has been entered that matches the PIN in the remote device.

Local Name

Local Name MtP300-AAANNNNN

Possible Values: MtP300-*aaannnnn**,

Up to 16 characters of “0” through “9”, “A” through “Z”, “a” through “z”, “-”, “_”, SPACE

This feature sets the name that will be displayed by most host systems when “discovering” the printer. When shipped from the factory, the default value for the Bluetooth Local Name is “MtP300-*aaannnnn*” where “*aaannnnn*” is the printer’s serial number. This name may be changed to any combination of letters, numbers, dashes, underscores, and SPACES. The name may be up to 16 characters in length.

To advance through the character positions of the name, press the ► Advance Button. To change the character at the current position, press the + Increment Button. The order of characters that may be selected is “0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz - _ SPACE”.

Address

Address 0080371B8F32

Possible Values: Twelve digit hexadecimal string.

This feature displays the unique hardware value associated with the particular Bluetooth interface installed in the printer. This value is set by the hardware manufacturer, is guaranteed to be unique for each interface, and may not be changed.

Wi-Fi Interface

INTERFACE MENU Wi-Fi

Note that “Wi-Fi” must be displayed on the bottom line of the display in order to access the following features and for this interface to be active when Setup is exited.

Emulation

Emulation Printek

Possible Values: Printek*, O’Neil, ZPL-II, Mt3, CPCL, Hex Dump

This feature sets the family of printer commands that may be used by a host application program to control the various capabilities of the printer. The printer will only respond to commands valid for the currently selected emulation. For more information, please refer to the *MtP Series & FieldPro Programmer’s Manual*.

Note: After pressing the **↵** Enter Button to move from Emulation to WLAN Type, the printer will pause and display “Waiting for Wi-Fi” while reading the current configuration from the Bluetooth interface module.

WLAN Type

WLAN Type Infrastructure

Possible Values: Infrastructure*, Peer-to-Peer

This feature specifies the type of wireless network the printer will be attached to. An Infrastructure network consists of nodes that connect to each other and/or a wired network through an Access Point. A Peer-to-Peer, or Ad-Hoc, network consists of nodes that connect directly to each other without the control of an access point.

Printer Configuration

WLAN Channel

WLAN Channel
1

Possible Values: 1* ... 14

Note that this feature is only available if the WLAN Type is set to Peer-to-Peer.

This feature sets the radio channel to be used when communicating in a Peer-to-Peer network. When in an Infrastructure network, the radio channel is automatically assigned by the interface and Access Point.

WLAN SSID

WLAN SSID
any

Possible Values: any*,

Up to 16 characters of “0” through “9”, “A” through “Z”, “a” through “z”,

This feature specifies the “name” of the network the printer will connect to. This allows communications to be controlled, or routed to the appropriate nodes when multiple wireless networks are present. When set to “any”, the printer may connect to any available network(s).

To advance through the character positions, press the ► Advance Button. To change the character at the current position, press the + Increment Button. The order of characters that may be selected is “0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz”.

WLAN WEP Bits

WLAN WEP Bits
0

Possible Values: 0*, 64, 128

This feature specifies the level of Wired Equivalent Security to use. If set to “0”, security is turned off. If set to a “64” or “128” bit encryption level, a WEP Key must be entered that matches the key on the other nodes on the network.

WEP Key 1
WEP Key 2
WEP Key 3
WEP Key 4

Key1: 1234567890

– OR –

Key1: 0123456789
01234567890ABCDE

Possible Values: 10 or 26 character user specified hexadecimal string

Note that this feature is only available if WLAN WEP Bits is set to 64 or 128.

This feature specifies an encryption “key” or password that is used to encrypt/decrypt data on the network. If WLAN WEP Bits is set to “64”, a ten character hexadecimal string must be entered that matches the key on the other nodes the printer will be communicating with. If WLAN WEP Bits is set to “128”, a 26 character hexadecimal string must be entered.

WLAN Auth

WLAN Auth
Auto

Possible Values: Auto*, Open, Shared

This feature specifies the authentication method that will be used when establishing connections on the network. The method may be to use an open key or a shared key. If set to “Auto”, the printer will automatically match itself to the method used by other nodes.

IP Address Assign

IP Addr Assign
DHCP

Possible Values: DHCP*, Static

This features specifies whether the printer will obtain an IP address from a DHCP server, or if a an IP address will be manually assigned.

IP Address

IP Address
0.0.0.0

Possible Values: 0.0.0.0*, User specified

This feature specifies the IP address for the printer.

Note that this feature has no effect if IP Address Method is not set to “Static”.

IP Subnet Mask

IP Subnet Mask
0.0.0.0

Possible Values: 0.0.0.0*, User specified

This feature specifies the range of addresses, or the size of the network, that the printer’s IP address belongs to.

Note that this feature has no effect if IP Address Method is not set to “Static”.

IP Gateway

IP Gateway
0.0.0.0

Possible Values: 0.0.0.0*, User specified

This feature specifies the network node where data destined for a node outside of the LAN should be directed.

Note that this feature has no effect if IP Address Method is not set to “Static”.

Printer Configuration

Tunnel Port Number

Tunnel Port# 08023

Possible Values: 00000 ... 08023* ... 65384

This feature specifies the TCP/IP port to be used for data that is to be printed..

To advance through the character positions, press the ► Advance Button. To change the character at the current position, press the + Increment Button.

Options Menu

OPTIONS MENU

The **OPTIONS MENU** contains features that affect how the printer operates regardless of how features in other menus have been set.

After entering Setup as described earlier in “Setup Basics”, press the ► Advance Button until “**OPTIONS MENU**” is displayed on the top line. You may now do one of the following:

- press the ◀ Enter Button to review and/or change the features available, or
- press the ► Advance Button to advance to the **TEST MENU**

Pressing the ◀ Enter Button will advance through the following features in the order shown below.

Maximum Format Number

Max Formats
Format 1

Possible Values: **Format 1*** ... **Format 5**

This feature sets the highest Format number to be displayed in the Format Menu. This allows the operator to see only the formats that are in use rather than having to potentially sort through several unused formats.

Note that when changing the value of this feature, you may not select a value less than the value currently set in the Format Menu.

Auto Power Down

Auto Power Down
Off

Possible Values: **Off***, 1 Minute Delay ... 15 Minute Delay

This feature sets whether the printer will automatically power down and if so, after what period of time of inactivity. If set to a value other than “Off”, the printer will automatically turn itself off after the specified number of minutes have passed since the printer last received data or last printed, whichever is longer.

User Language

User Language
English

Possible Values: **English***, French, German

This feature specifies the language to be used when presenting information on the control panel’s LCD Display.

Truncate Lines

Truncate Lines No

Possible Values: No*, Yes

This feature specifies what is to be done with data that will not fit within the printable area of the current Format. The printable area is defined as the printable line length of the print head (approximately 4.1 inches) minus the area specified by the left and right margin.

When printing text, a value of “No” will cause excess data to be “wrapped around” and printed at the beginning of the next line. A value of “Yes” will cause the excess data to be discarded.

When printing graphics, excess data will always be discarded.

Print Promotion

Print Promo No

Possible Values: No*, Yes

This feature is only available in firmware version 2.8 or later.

When set to “Yes” this feature causes a previously stored graphic image with an ID value of “\$” to be printed at the end of each print job.

This feature may be used to print a special logo or graphic image of a special sales promotion or other event, that also needs to be enabled/disabled by the user in the field.

Note: In firmware version 2.9 and later, multiple graphic images may be stored with the ID values of “!”, “@”, “#”, “\$”, “%”, “^”, “&”, “*”, “(”, and/or “)”. In this case, the printer will automatically cycle through each of these images printing one at the end of each print job.

Please refer to the *MtP Series & FieldPro Programmer’s Manual* for more information on storing graphics and logos.

Interfacing To A Host Computer

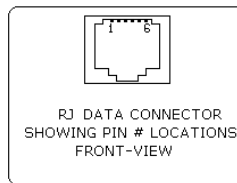
Every MtP300 is equipped with an RS-232C Serial Interface. Optional factory installed interfaces are also available for IrDA (Infrared), Bluetooth®, and Wi-Fi®. When the printer is equipped with one of the optional interfaces, the interface that is selected in the Interface Menu as described on page 22 is the one that will be active and the other interface will be ignored.

Note: To print out configuration information for the currently selected interface, you may press and hold the ⬅ Enter Button until “Printing Setup” is displayed.

Note: To switch back-and-forth between the RS-232C Serial interface and an optional interface (if installed), you may continue to the ⬅ Enter Button until “Interface Now ‘*interface*’” is displayed. After the ⬅ Enter Button is released, the alternate ‘*interface*’ will be selected and the setup information for the newly selected interface will be printed. (This is merely a shortcut method and accomplishes the same result as using the Interface Configuration Menu.)

RS-232C Serial Interface

To communicate using the Serial interface, “Serial” must be selected in the Interface Menu as described on page 22. If there is no optional interface installed, Serial will be the only interface available. When using the Serial interface, the baud rate, data bits, parity, stop bit(s), and handshaking method (XON/XOFF, ETX/ACK, RTS/CTS) must be set to match the settings on the host computer. If these settings do not match, errors and/or lost data may occur. The serial connector is an “RJ” type connector located on the side of the printer. The pin assignments are shown below.



<u>Pin #</u>	<u>Signal</u>	<u>Description</u>
1	COM	Logic Common
2	TXD	Transmit Data (From Printer)
3	RXD	Receive Data (From Host)
4	CTS	Clear To Send (From Printer)
5	COM	Logic Common
6	RTS	Request To Send (From Host)

Figure 10 - Serial Interface

IrDA Interface

In addition to the standard Serial interface, your MtP300 may be equipped with an optional IrDA interface. IrDA interfaces are commonly found on many PDA's and notebook computers. To communicate using the IrDA interface, "IrDA" must be selected in the Interface Menu as described on page 24.

The IrDA interface uses infrared light to provide a cable free, short range interface. Since the communications medium is light, it is "line-of-sight" and requires that the interfaces on the printer and the host device be aligned with, or pointed at, each other. The printer's transmitter and receiver are located behind an "IrDA Window" as indicated in Figure 11.

Whenever a host computer has established a connection with the printer, the  Wireless Indicator will illuminate.

Note: The printer's IrDA implementation makes use of IrCOMM rather than IrLPT. As a result, some host systems will require that the printer connection be established using a "COM" port rather than selecting "IrDA". In most PDA's, for instance, this will be "COM3".

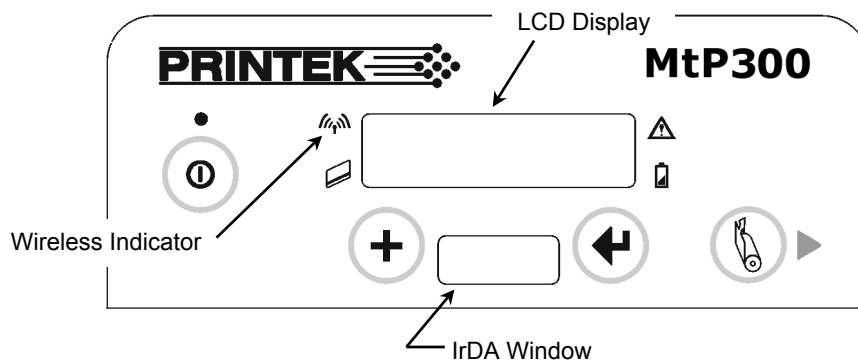


Figure 11 – Wireless Indicator & IrDA Window

Bluetooth® Interface

In addition to the standard Serial interface, your MtP300 may be equipped with an optional Bluetooth interface. Bluetooth interfaces are built into some PDA's and may be added to most others. Bluetooth interfaces may also be added to notebook or desktop computers. To communicate using the Bluetooth® interface, "Bluetooth" must be selected in the Interface Menu as described on page 25.

The Bluetooth interface uses wireless, radio frequency signals to communicate, which eliminates the line-of-sight requirement imposed by the IrDA interface.

The MtP300 Bluetooth interface acts as a "serial port adapter" operating as a "server". Being a serial port adapter means that the printer may appear as a "Serial Device" when discovered, rather than as a "Printer". Operating as a server, other devices such as a PDA or other host computer may initiate the connection to the printer.

When discovered, the default name that will appear will be "MtP300-aaannnnn" where "aaannnnn" is the printer's serial number. To obtain the printer's Bluetooth name, you may use the printer's Setup menus or you

Power Considerations

MtP300 printers are designed to provide superior output using as little power as necessary. This provides the longest possible battery life. The printers may also be operated from an external power supply when used in a more permanent installation in a vehicle or office. The following discussions indicate how the printer accomplishes this power conservation using features such as Standby and Auto Power Down. For more information on battery charging, please refer to “Charging the Battery” on page 40.

Standby Operation

When operating on battery power, the printer automatically enters a Standby mode one minute after last receiving data, printing, a front panel button is pressed, or a magnetic card reader swipe operation. When in Standby, the printer will flash the  Power Indicator.

While in Standby the printer turns off as many power consuming components as possible. However, the printer remains fully capable of receiving data or responding to a control panel button. The printer will automatically “wake up” when it begins to receive data from a host system, or when any front panel Button is pressed.

Auto Power Down

To conserve even more battery power, the printer may also be configured to turn itself off after a specified number of minutes of inactivity. When the printer powers down, this is equivalent to turning the printer off using the  Power Button and the printer will no longer respond to incoming data.

To enable the Auto Power Down feature, please refer to the Options Menu settings beginning on page 31.

Operation Without A Battery

MtP300 printers may be operated with an optional power supply and without a battery installed. Power supplies are available for use with 100-240VAC/50-60Hz and for 12/24VDC vehicle applications.

Caution: Use only Printek power supplies designed specifically for your MtP300 printer. Using a different power supply may cause damage to the printer and will not be covered by the printer’s warranty.

Note: When the printer is connected to an external power supply, the printer will not enter Standby as described above.

Maintenance and Troubleshooting

Cleaning

In normal environments, the printer should be cleaned after printing a few rolls of paper or if there are voids in the printout. For optimum performance and life, you should clean the Print Head and Platen Roller whenever you load new paper.

To clean the printer areas as described below, use a Thermal Head Cleaning Pen available from Printek, or you may use cotton swabs moistened with isopropyl alcohol. Please refer to Figure 12 for the following instructions.

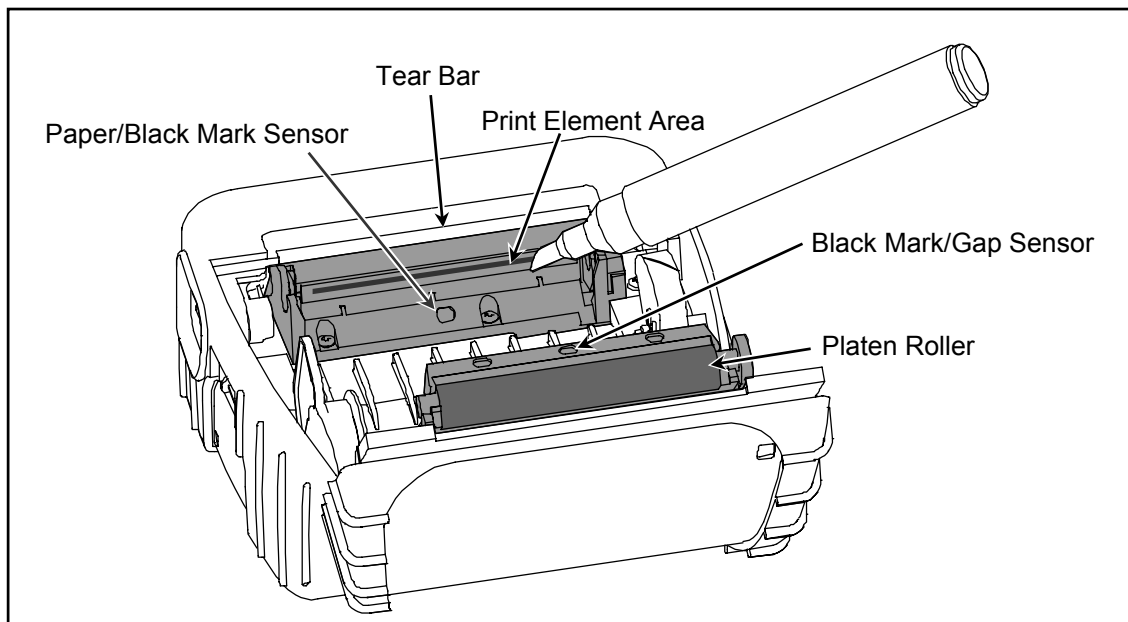


Figure 12 - Printer Cleaning Areas

- Turn the printer off. Open the Paper Door and remove the paper.
- Using a Thermal Head Cleaning Pen, clean the Print Element Area on the Print Head.
Caution: Do not use sharp objects to clean the print head. This may damage the printer and require service. Such damage is not covered under warranty.
- Clean the Paper/Black Mark Sensor in the lower part of the print head.
- Clean the Tear Bar
- If a Magnetic Card Reader is installed, pass an MCR Cleaning Card through the MCR slot to clean the head.
- Clean the Platen Roller. Turn the platen roller with your finger to clean the entire surface.
- If your printer is an MtP300 LP model, clean the Back Black Mark/Gap Sensor Near the Platen Roller.

You may also experience a build up of paper dust in the printer. This may be removed using a can of compressed air or by vacuuming.

To clean the exterior of the printer, turn the printer off and use a soft cloth moistened with a mild detergent.

Battery Care

Charging the Battery

The printer's battery is charged in the printer using an optional power supply. Power supplies are available for 100-240VAC/50-60Hz and for 12/24VDC vehicle applications. Follow the steps listed below to charge the battery. An optional external two-bay charger is also available.

- Plug the power supply into a power source appropriate for the adapter being used.
- Plug the power supply into the power connector on the side of the printer. The printer's battery charging circuitry will analyze the condition of the battery and begin charging it if necessary.
- If the battery is not fully charged, charging will begin and the  Battery Indicator will illuminate.
- When the battery is fully charged, the  Battery Indicator will turn off. Charging may take up to 2½ hours depending on the condition of the battery.
- The printer may be used while the battery is charging, but this will extend the time required to fully charge the battery.
- The power supply may remain connected to the printer to keep the battery fully charged and will not cause damage to the printer or battery.

The printer's battery status is displayed in the lower right corner of the front panel LCD Display. The status is displayed as a battery shape which indicates the relative capacity that remains as indicated below.

Fully Charged  Discharged

Additional Battery and Safety Information

- All MtP300 Series printers use a 7.4 volt 2200mAh Lithium Ion battery.
- The recommended ambient temperature for charging is 68-77° Fahrenheit (20-25° Centigrade).
- Take the battery out of the printer when storing the printer for long periods of time. The battery storage temperature is 40-104° Fahrenheit (4-40° Centigrade). Do not store a fully charged battery at temperatures above this range for long periods of time or the battery may permanently lose charge capacity.
- Do not disassemble, short circuit, heat above 80°C, or incinerate the battery. The battery may explode.
- Only dispose of used batteries according to your local regulations. If you do not know your local regulations, the Rechargeable Battery Recycling Corporation (RBRC) is a non-profit organization created to promote recycling of rechargeable batteries. For more information visit www.rbrc.org.



Testing the Power Supply and Battery

To verify that the printer's internal battery charger is functioning properly, perform the following steps.

- Test the power adapter (100-240VAC/50-60Hz, 12/24VDC adapter) with a voltmeter to verify that its output voltage is 9 VDC.
- Connect the power supply to a power source and then connect it to the printer.
- Verify that the printer's  Battery Indicator is illuminated. If illuminated, the charging circuit is functioning properly.
 - Note:** that if the battery is already fully charged, the  Battery Indicator will turn off after a short time.
- After the battery has been charged for five minutes, disconnect the power supply.
- Perform a printer Self-Test.
 - Make sure the printer is turned off. The power indicator will be off and the LCD Display will be blank.
 - Press and hold the  Paper Feed Button.
 - Continue holding the  Paper Feed Button and turn the printer on using the  Power Button until "Printing Current Menu Values" is displayed.
- If the printer successfully prints the Self-Test, the battery is functional. If the Self-Test does not complete and the printer turns itself off, repeat this test with a known good battery.
- Once this test has completed successfully, allow the battery to fully charge. At the end of this time the  Battery Indicator will turn off.

Note: If the printer is turned on, the battery status shown in the bottom right corner of the LCD display will always show a "full" battery whenever the printer is connected to the power supply.

If the printer and battery do not appear to successfully pass these tests, refer to the Troubleshooting section for possible causes and solutions.

Note: This test only verifies that the power adapter, the internal charging circuit, and the battery are functioning properly. This test does not provide a valid indication of the relative capacity of the battery or how long it may hold a charge.

Troubleshooting

When encountering problems, the cause may be the printer or may sometimes be due to other problems with your system. Please review the following tables to solve common problems you may encounter with your printer. You may also visit www.printek.com for additional “FAQ’s” that may assist you.

If you are still unable to solve your problem, please contact the company where you purchased your printer since they are most familiar with your systems. If they are unable to help you, you may contact Printek Technical Support at (800) 368-4636.

Error Messages

Whenever the printer detects an error condition, the  Error Indicator will either flash or go to a steady on condition. The indicator flashes for errors that can be easily corrected such as Check Paper or Paper Door Open.

The indicator will stay on without flashing for errors that cannot be recovered without loss of data. These are typically caused by interface configuration errors such as serial handshaking, or baud rate, and will require that the printer be turned off to clear the error.

Message	Possible Cause	Solution
Check Paper	Media supply is empty.	Install new roll.
	Paper/Black Mark sensor is dirty.	Clean the Black Mark sensor. Refer to “Cleaning” on page 39.
Paper Door Open	Paper door not fully closed.	Make sure the door is fully closed by opening the door and closing it again until the door “clicks” closed. Check the platen roller for damage.
Parity Error	Serial I/O not configured correctly.	Verify that the parity selection made in the Serial Interface Setup Menu matches the setting on the host system.
I/O Overflow	Serial I/O not configured correctly.	Verify that the handshaking selections (ETX/ACK, XON/XOFF, RTS/CTS) selections made in the Serial Interface Setup Menu match the settings on the host system.
I/O Error	Optional interface – IrDA, Bluetooth, or Wi-Fi not responding.	Try turning the printer off and on again. If the error repeats, the printer requires service.

Other Problems

Problem	Possible Cause	Solution
Printer will not turn on.	Battery not installed properly.	Remove and reinstall battery making sure the battery release lever “clicks” when fully installed.
	Discharged battery.	Recharge battery.
Printer turns itself off.	Auto Power Down is enabled.	Change setting in Options Menu as described on page 31.
	Battery discharged.	Replace or recharge battery.
	Electrostatic discharge.	May occur in extreme low humidity conditions. Turn printer back on with power button.
❑ Battery Indicator does not light or does not stay lit when power supply is connected.	Battery already fully charged.	No action required.
	Power supply not receiving power.	Check building/vehicle circuit breakers/fuses.
	Faulty power supply.	Check output of power supply with voltmeter. 9 VDC.
	Battery not installed properly.	Remove and reinstall battery making sure the battery release lever “clicks” when fully installed.
Battery not charging.	Faulty power supply or battery.	Refer to “Testing the Power Supply and Battery” on page 41.
Poor print quality.	Low battery.	Check and recharge battery.
	Print head dirty.	Clean print head. Refer to page 39.
	Poor quality or “old” paper.	Verify paper from approved source. Try new roll of paper.
Paper not feeding.	Obstruction in paper path or paper improperly installed.	Check paper path and reinstall paper.
	Poor quality paper.	Verify paper from approved source.
Paper not feeding reliably or print is compressed vertically	Poor quality paper.	Verify paper from approved source.
	Heavy or thick forms or labels. Specialty paper with slick finish.	Lower the Max Paper Speed as described on page 20.
Print Garbled.	Low Battery.	Check and recharge battery.
	Improper Serial interface configuration.	Verify printer and host settings match.
Printer will not print.	Low Battery.	Check and recharge battery.
	Paper not loaded correctly.	Check paper path and reinstall paper.
	Improper interface configuration.	Verify printer and host settings match. Use test print to verify printer setting and to verify printer is functioning properly.
Cannot print via optional interface,  Wireless Indicator does not light.	Interface not configured correctly.	With printer on, press and hold the  Enter Button to print out current configuration. Make sure the interface is selected and Make sure printer and host set ups match.

Obtaining Service

If service is required for your printer, please contact the company where you purchased your printer. If they are unable to assist you, contact Printek Customer Service at (800) 368-4636 to obtain the name of the nearest Printek Authorized Service Center.

If you wish to return your printer to Printek for service, please contact Printek Customer Service at (800) 368-4636 to obtain a Return Authorization Number. Units returned without a Return Authorization will not be accepted.

Advanced Setup Features

An additional security menu is available for system administrators who prefer to “lock out” operator changes to the various menus. This method of security can be set independently for the Format Menu, the Interface Menu, or the Options Menu.

When set to **Edit Allowed**, the user is allowed to make changes to any item in the menu specified. When set to **View**, the operator can review the settings, but cannot edit, or change, the values. When set to **Initialize**, the printer will reset all values in that menu and any associated submenus to the factory default values and security will be reset to **Edit Allowed**.

To be able to access the Security Menu, you must press and hold the **+** Increment Button rather than use the normal “hold the **↵** Enter Button during power on” method. Once Setup is entered, press the **▶** Advance Button to cycle through the menus until “**Security Menu**” is displayed. You may then press the **↵** Enter Button to advance through the items as listed below.

SECURITY MENU

Format Menu

Format Menu
Edit Allowed

Possible Values: **Edit Allowed***, **view Only**, **Initialize**

This feature selects whether the items in the **Format Menu** can be edited, or only viewed by the operator. **Initialize** will reset all the features for all formats to factory default values.

Interface Menu

Interface Menu
Edit Allowed

Possible Values: **Edit Allowed***, **view Only**, **Initialize**

This feature selects whether the items in the **Interface Menu** can be edited, or only viewed by the operator. **Initialize** will reset all the features for all interfaces to factory default values, including the optional Bluetooth and Wi-Fi interfaces.

Options Menu

Options Menu
Edit Allowed

Possible Values: **Edit Allowed***, **view Only**, **Initialize**

This feature selects whether the items in the **Options Menu** can be edited, or only viewed by the operator. **Initialize** will reset all the options to factory default values.

Print & Font Samples

Print Samples

Sans Serif
5.5 cpi
012345 ABCDEF
abcdef

Sans Serif 10.2 cpi
012345 ABCDEF abcdef

Sans Serif 10.7 cpi
012345 ABCDEF abcdef

Courier 12.7 cpi
012345 ABCDEF abcdef

Courier 13.5 cpi
012345 ABCDEF abcdef

Courier 14.5 cpi
012345 ABCDEF abcdef

Courier 15.6 cpi
012345 ABCDEF abcdef

Courier 16.9 cpi
012345 ABCDEF abcdef

Courier 18.5 cpi
012345 ABCDEF abcdef

Courier 20.3 cpi
012345 ABCDEF abcdef

Courier 22.3 cpi
012345 ABCDEF abcdef

Courier 25.4 cpi
012345 ABCDEF abcdef

Courier 12.7 cpi

Courier 12.7 cpi Emphasized

Courier 12.7 cpi 2xHigh

Courier 12.7 cpi 2xHigh & Emphasized

Courier Font With International Extended Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	
3	Ø	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8	Ç	ü	é	â	ä	à	ã	ç	ê	ë	è	í	î	ï	Ä	Å
9	È	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ø	£	Ø	×	ƒ
A	á	í	ó	ú	ñ	Ñ	æ	ø	¿	↑	↓	½	¼	¿	«	»
B	Ş	ş	Ĉ	ĉ	İ	İ	Â	Â	Â	0	1	Γ	Δ	Δ	Σ	Π
C	Φ	Ψ	α	Υ	ó	ε	ä	Ä	ζ	η	θ	κ	λ	ξ	σ	ς
D	τ	ν	Ê	Ê	Ê	ψ	Í	Î	Ï	ω	ά	έ	ή	ά	Ì	□
E	ó	β	ô	ò	ö	ö	μ	ρ	√	·	0	ù	¢	¥	ú	ú
F	£	±	0	∞	Ω	Σ	π	f	♥	♦	♣	♠	÷			■

Courier Font PC Line Drawing Extended Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	ä	à	ã	ç	ê	ë	è	í	î	ï	Ä	Å
9	È	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ø	£	Ø	×	ƒ
A	á	í	ó	ú	ñ	Ñ	æ	ø	¿	↑	↓	½	¼	¿	«	»
B	Ş	ş	Ĉ		┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐
C	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐
D	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐	┐
E	ó	β	ô	ò	ö	ö	μ	ρ	√	·	0	ù	¢	¥	ú	ú
F	£	±	0	∞	Ω	Σ	π	f	♥	♦	♣	♠	÷			■

Sans Serif Font

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	□
8	€	□	,	f	„	...	†	‡	^	%	Š	◊	Œ	□	Ž	□
9	□	‘	’	“	”	•	—	~	™	š	◊	œ	□	ž	Ÿ	
A	ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯	
B	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
C	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	

Specifications

Printer Specifications

Printing Specifications

Printing Method:	Direct Thermal, Up To 3.3 Inches Per Second
Printing Resolution:	203 dots per inch (8 dots per mm)
Printing Width:	576 Printing Elements for up to 2.84" (7.21 cm)

Fonts/Characters/Bar codes

Fonts:	A wide range of font types and sizes, from ~ 6 cpi to 34 cpi plus scaling depending on emulation chosen
International Characters:	Arab-T, Arab-S, Arab-E, Asian fonts and an expanding catalog available for download
Bar Codes:	Code 39, Code 128, UCC/EAN-128, UPC/EAN/JAN, Interleaved 2 of 5, CODABAR, EAN08 & 13, PDF-417, UPC
Downloads:	Downloadable fonts, graphics, and logos

Connectivity

Serial:	RS-232C (Standard)
Wireless:	IrDA, Bluetooth, Wi-Fi, Custom RF (Options)
Emulations:	Printek, Printek Mt3, O'Neil, ZPL-II, CPCL
Software Available:	Drivers for Windows 98/2000/XP Print Utilities for Pocket PC and Palm OS SDK's for Pocket PC and Palm OS MtP Setup Remote Configuration Utility for Windows 98/2000/XP

Data Input

Magnetic Card Reader:	3 Track, Simultaneous Read (Option)
-----------------------	-------------------------------------

Power Management

Battery:	7.4 V, 2200mAH rechargeable 2 cell Lithium Ion
Endurance:	500 pages or more than 2000 inches of print per charge
Internal Charging:	2½ hours (requires optional power supply)
Battery Free Operation:	Printer may be used with optional external power supply, with or without battery

Specifications

Physical Specifications

Size: 6.5 x 5.3 x 3.1 inches, 19.56 x 16.76 x 7.87 cm (LxWxH)
Weight: 1.96 lbs. (0.89 kg) with battery

Environmental Specifications

Operating Temp: 10° to 122°F (-12° to 50°C)
Storage Temp: -4° to 140°F (-20° to 60°C)
Humidity: 10% to 90% RH (non-condensing)
Rating: IP54 per IEC 529, without optional environmental case

Operator Controls and Indicators

Display: 2 line x 16 character LCD
Indicators: Power, Wireless Connection, Magnetic Card Reader Ready, Battery Status, Fault
Controls: Power, Paper Feed, and two Configuration Buttons
Sensors: Paper, Paper Door Open, Black Mark Detection, and Label Gap Detection (LP Models Only)

Memory Capacity

Flash: 1MB Program Memory; 1MB Font, Logo and Graphic Storage
RAM: 1MB
EEPROM: For Nonvolatile Configuration Storage

Durability and Reliability

Drop Test: Survives multiple 4 foot drops to concrete (each face), conforms to IEC 68-2
MTBF: 10,000 hours @100% duty cycle in normal use

Regulatory Approvals

Approvals/Markings: FCC Class B
CE Mark
UL listed AC adapters
E-mark on In-Vehicle adapters

Warranty

Printer: One year including print head and battery.

Media Specifications

Receipt Paper

General Specifications: 0.0022 to 0.0065" (0.056 to 0.089mm) Thick
 Black Mark Sensing On Printed Side
 2.00 to 3.12" (50.8 to 79.25mm) Wide
 0.750" (19.05mm) Inside Diameter Core
 2.625" (66.68mm) Maximum Outside Diameter
 (Black Mark Sensing On Back Side and Gap Sensing On MtP300 LP Models)

Approved Vendors: Kansaki: P300, P310, P350, P354, P390*, P530UV, TO281CA,
 OP200, TO381N, F180, F380, F550
 Jujo: TF-50KS-E2C
 Honshu: FH65BV-3
 *Standard Printek Offering

Labels

MtP300: 0.0022 to 0.0065" (0.056 to 0.089mm) Thick
 0.750" Inside Diameter Core
 Black Mark Sensing On Printed Side
 2.625" Maximum Outside Diameter
 3.12" Maximum Width (carrier)

MtP300 LP: 0.0022 to 0.0065" (0.056 to 0.089mm) Thick
 0.750" Inside Diameter Core
 Black Mark Sensing On Printed Side Or Back Side
 Gap Sensing Between Labels
 2.625" Maximum Outside Diameter
 3.12" Maximum Width (carrier)

Specifications

Black Mark Position

The vertical position of a Black Mark is dependent on the application program that will be used to search for and print relative to the mark. The following diagram shows the optimum position when seeking the Black Mark at the beginning of a print job and will require little, if any, reverse paper motion.

The Black Mark must be printed on the front side of the paper for the MtP300. It may optionally be printed on the back side of the paper for use with the MtP300 LP models

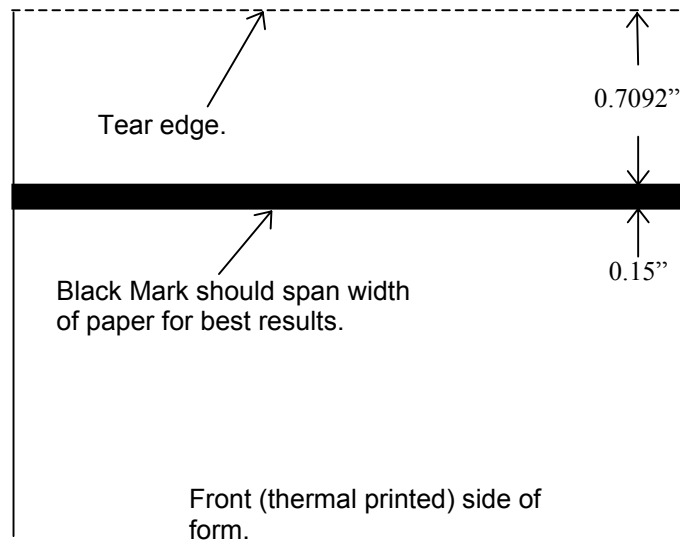


Figure 13 - Black Mark Position

Gap Sensing Specifications

Gap Sensing is only available for MtP300 LP models. The minimum gap between labels is 0.125" (3.2mm).

Supplies and Accessories

Supplies

- Battery: 7.4V, 2200 mAH Li-Ion
Available separately or in 5 or 20 packs.
- Receipt Paper: 3.12" Width *
Available in cases of 36.
- Labels: 2 x 1.25", 3 x 1.75", or 2.9375 x 4.9275" *
Available in cases of 36.

* Other sizes available on request.

Accessories

- Power Supplies: 100-240VAC/50-60Hz Wall Adapter
12/24VDC Vehicle Adapter
- Battery Charger: Four Bay Fast Charger
- Carrying Options: Shoulder Strap
- Cables: Serial RJ to DB-9F
Serial RJ to Pigtail

Glossary of Terms

802.11	Wireless networking communication standards created by IEEE.
access point	An interface between a wireless network and a wired network.
Ad-Hoc	A Wi-Fi network consisting of only stations (no access point). Same as Peer-to-Peer.
ASCII	American Standard Code for Information Interchange.
authentication	The process a Wi-Fi station uses to identify itself to another station.
bandwidth	The amount of data that be transferred in a given period of time.
baud rate	The rate at which characters are transmitted over a serial interface. This is also often referred to as bits per second.
binary	Base two numbering system. Digits are represented by the characters 0 and 1.
bit	A single binary digit.
Bluetooth	A definition for short range radio frequency communications.
client	Any node on a network that requests services from another node (server).
control code	A single, non-printing character which is used to control the configuration or operation of the printer.
character pitch	The horizontal spacing of characters. Measured in cpi.
cpi	Characters per inch.
current line	The line upon which the next character will be printed.
current print position	The column on the current line where the next character will be printed.
default	Value or configuration assumed when the printer is powered on or reset.
DHCP	Dynamic Host Configuration Protocol. A method used to centrally control the assignment of IP addresses on a network.
dpi	Dots per inch. Generally used to refer to graphics density or resolution.
escape sequence	String of characters beginning with the escape (ESC) character which is used to control the configuration or operation of the printer. The characters which are part of this string are not printed.
font	A group of characters of a given shape or style.
hexadecimal	Base sixteen numbering system. Digits are represented by the characters 0 through 9 and a through f.
IEEE	Institute of Electrical and Electronic Engineers
infrastructure	A Wi-Fi network consisting of stations connecting to a wired network or other stations via an access point.
interface	The connection between the printer and the host computer.

IP	Internet Protocol. A specification for packets, or datagrams, of data and an addressing method to allow the exchange of data with another system. Must be combined with another protocol such as TCP to create a complete connection with the other system.
LAN	Local Area Network.
LCD	Liquid crystal display.
LED	Light emitting diode.
line pitch	The vertical spacing of rows of characters. Measured in lpi.
lpi	Lines per inch.
margin	An area along any edge of a form where data may not be printed.
MSB	Most significant bit. In a character, this refers to bit seven (of 0 to 7).
node	Any device connected to a network.
parity	A method used for detecting errors within a single character transmitted or received via an interface.
Peer-to-Peer	A network consisting of only stations (no access point or central server). Same as Ad-Hoc.
reset	Initialization of various operating parameters of the printer to the value or state assumed when the printer is powered on.
RS-232C	An EIA standard for serial data transmission.
server	Any node on a network that provides services to another node (client).
SSID	Service Set IDentifier. An identifier attached to packets on a Wi-Fi network that identify the particular network the packets are intended for.
TCP	Transmission Control Protocol. A specification that controls the connection between systems on a network.
top of form	The vertical position where the first line is printed on the paper. Also the position the paper is advanced to when a form feed (FF) character is received from the host or the Form Feed button is pressed on the printer's control panel.
WAN	Wide Area Network. Refers to connections that allow one LAN to communicate with another LAN(s).
WEP	Wired Equivalent Privacy. A security protocol for wireless LANs designed to provide data security similar to a wired LAN.
Wi-Fi	Refers to any of the IEEE 802.11 standards.
WLAN	Wireless Local Area Network. A LAN made up of wireless nodes.



PRINTEKMOBILE™

MtP Series & FieldPro Programmer's Manual

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Introduction

This manual is intended to be used by software developers for the purpose of creating and/or modifying applications to make use of the special features offered by the Printek MtP and FieldPro Series of mobile thermal printers.

This section of the manual describes the various models of printers and the features supported by this manual and the information contained in other sections.

For printer set up and operating information for users, system integrators and information technology personnel, please refer to the printer's Operator's Manual for the specific model of interest.

Printer Models and Key Features

Printek mobile thermal printers offer solutions for a wide variety of printing applications. The various models support flexible paper widths, printing from roll stock or flat stock in easy loading cassettes, label printing enhancements, and several host interface choices. The configuration options are shown below for each model. For additional information, please refer to the printer's Operator's Manual or visit www.printek.com.

Model	Max Paper Size (Width x Diameter)	Label/Ticket Printing	Host Interfaces			
			RS-232	IrDA	Bluetooth	Wi-Fi
MtP300	3.12" x 2.625" Roll	Front Black Mark	Std	Opt	Opt	Opt
MtP300LP	3.12" x 2.625" Roll	Front/Back Black Mark, Gap	Std	Opt	Opt	Opt
MtP400	4.125" x 2.625" Roll	Front Black Mark	Std	Opt	Opt	Opt
MtP400LP	4.125" x 2.625" Roll	Front/Back Black Mark, Gap	Std	Opt	Opt	Opt
MtP400SL	4 x 6" Cassette	n/a	Std	Opt	Opt	Opt
FieldPro RT43	4.125" x 1.75" Roll	Front Black Mark	Std	n/a	Opt	Opt

Manual Contents

The remaining sections of this manual provide information on printer commands offered for the various emulations as well as additional information helpful to programmers. Descriptions of each section are shown below.

Selecting Emulations describes how to select the various printer emulations available.

Printek Emulation describes in detail the Printek commands available.

Mt3 Emulation provides a summary of the commands that are supported when emulating a Printek Mt3 printer.

O'Neil Emulation provides a summary of the commands that are supported when emulating an O'Neil microFlash4t printer.

Introduction

ZPL-II Emulation provides a summary of the commands that are supported when emulating a Zebra ZPL-II compatible printer.

CPCL Emulation provides a summary of the commands that are supported when emulating a Comtec CPCL compatible printer.

Hex Dump describes the printer's output while in Hex Dump mode, and how it may be used to debug software problems.

Print & Font Samples provides character set mapping information and several font print samples.

ASCII Character Tables provides a definition of ASCII control codes and an ASCII to Decimal to Hexadecimal conversion table.

Printer Reset Conditions describes the state of the printer after a power up reset or receipt of a reset command.

Glossary provides a reference for printer related terms.

Selecting Emulations

The emulations offered by Printer Mobile Thermal Printers allow for a great deal of language commonality between the various series of Printek printers as well as compatibility with systems and software that have been created for printers offered by other manufacturers.

The Printek MtP and FieldPro Series printers offer Printek, O'Neil, ZPL-II and CPCL emulations plus a Printek Mt3 emulation to allow the printers to work with existing three inch applications.

The printer's default emulation may be selected through the control panel set up as described in the printer's Operator's Manual. To select an emulation temporarily, the host system may send an escape sequence as described below.

Select Emulation

ESC ESC *n*

This command selects emulation mode *n* by which future commands will be interpreted as described in the following table. The selected mode will be in effect until another Select Emulation command is received or until the printer is reset via an escape sequence appropriate for the current emulation, or the printer is manually reset by entering/exit the front panel set up mode or cycling power on the printer.

Once the emulation has been selected, please refer to the section of this manual that describes the commands available for that emulation.

Example: The following escape sequence will set the printer to Mt3 Emulation.

Escape Sequence: ESC ESC 4
Hexadecimal: 1B 1B 04

<u><i>n</i></u>	<u>Emulation</u>
0	Test (reserved for factory use)
1	Printek Emulation
2	O'Neil Emulation
3	ZPL-II Emulation
4	Mt3 Emulation
5	CPCL Emulation
6	Hex Dump Mode
?	Previously Selected Emulation
@	Default Emulation

If more than one emulation has been selected, ESC ESC ? will return to the previously selected emulation. This is particularly useful when the previous emulation is unknown. Please beware that the memory (stack) is only one level deep.

ESC ESC @ will return to the default emulation, as specified by the "Emulation" value in the Interface setup menu.

Note: Numeric values may be specified as either a binary or an ASCII value. As such, the example above may be sent as either 1B 1B 04 or 1B 1B 34.

Printek Emulation

Introduction

This section describes the control codes and escape sequences comprising Printek emulation. This emulation may be selected by setting “Emulation” to “Printek” in the appropriate interface setup menu, or via software with the ESC ESC 1 sequence. While this emulation is selected, control codes and escape sequences from other emulations are not available.

Control codes and escape sequences are used to control printer operation. An ASCII control code is a single character in the range 00 hex through 1F hex, and 7F hex. The ESC (Escape) control code (1B hex) is used to introduce character strings called escape sequences, which provide an extension of the commands available with ASCII control codes.

If a sequence accepts one numeric parameter, it will be represented as “*n*”. If a sequence accepts more than one numeric parameter, they will be represented as “*n1 n2 ... nx*”.

Spaces are used when documenting escape sequences to increase readability. If a space character is actually a valid part of the sequence, it will be represented as “SPACE”. Characters that appear in *italics* (such as “*n*” and “*n1*” above) are not sent to the printer as is; they are used as a place holder indicating that some value must be supplied.

Multiple character strings without intervening spaces typically represent control codes. For example, BS is the Backspace control code (08 hex), not the two characters “B” and “S” (42 and 53 hex), and SPACE is the space character (20 hex). An ASCII Control Code Table is provided on page 53 for your convenience. If you have any doubt about how to interpret a documented control code or escape sequence, refer to the hexadecimal representation in the example. The examples may also be helpful when analyzing a Hex Dump printed by the printer. Please refer to the “Hex Dump” section of this manual on page 47.

Control Codes and Escape Sequences Grouped by Function

Communications

This section describes various methods of controlling the flow of data to and from the printer. Unlike other sections describing printer commands, the descriptions in this section indicate whether the command is one that is “received” by the printer, or “transmitted” by the printer.

Note that some handshaking methods are only supported by the RS-232C Serial interface and are not supported for the IrDA, Bluetooth, or Wi-Fi interfaces.

End of Text (Received by Printer)

ETX

If “ETX/ACK” is set to “On” in the Serial Interface Menu (refer to the Operator’s Manual), then processing of an ETX from the printer’s input buffer causes the printer to transmit an ACK to the host computer.

Since the ETX may be a legal value within an escape sequence, it is the user's responsibility to ensure that an ETX used for data handshake is not sent within an escape sequence. The user must also ensure that the maximum block size or the number of blocks sent at one time does not exceed the input buffer size of the printer.

The input buffer size is 32K (32,768 Bytes) unless Minimum Buffer has been selected in the printer’s Options Menu. Please refer to the Operator’s Manual for more information.

Control code: ETX
Hexadecimal: 03

Acknowledge (Transmitted by Printer)

ACK

Please refer to the “End of Text” description above.

Control Code: ACK
Hexadecimal: 06

End of Transmission (Transmitted by Printer)

EOT

The printer sends an EOT character each time the printer’s input buffer becomes empty to indicate the printer is idle.

Control Code: EOT
Hexadecimal: 04

Transmitter On (Transmitted by Printer, Serial Only)

XON (DC1)

When enabled for the Serial Interface (refer to the Operator’s Manual), this character is transmitted by the printer to indicate that the printer is on line and ready to receive data. See DC3/XOFF for more information.

Control Code: XON
Hexadecimal: 11

Transmitter Off (Transmitted by Printer, Serial Only)

XOFF (DC3)

When enabled for the Serial Interface (refer to the Operator's Manual), this character is transmitted by the printer to indicate that the printer's input buffer is nearly full and that the host computer should stop sending data. When the printer is able to accept data again, it will transmit DC1/XON.

Control Code: XOFF

Hexadecimal: 13

Character Size and Line Spacing

Select Character Pitch

ESC K *n*

Selects the character pitch according to the following table.

<u><i>n</i> (hex)</u>	<u>Character Pitch/Font</u>	<u>Matrix</u>	<u>Columns Per Line</u>	
			<u>MtP300</u>	<u>MtP400 & FieldPro RT43</u>
00	5.5 cpi Sans Serif	37 x 60	13	22
01	10.2 cpi Sans Serif	20 x 26	28	41
02	10.7 cpi Sans Serif	19 x 26	30	43
03	12.7 cpi Courier	16 x 23	36	52
04	13.5 cpi Courier	15 x 23	38	55
05	14.5 cpi Courier	14 x 23	41	59
06	15.6 cpi Courier	13 x 23	44	64
07	16.9 cpi Courier	12 x 23	48	69
08	18.5 cpi Courier	11 x 23	52	75
09	20.3 cpi Courier	10 x 23	57	83
0A	22.6 cpi Courier	9 x 23	64	92
0B	25.4 cpi Courier	8 x 23	72	104
0C	16.9 cpi Sans Serif	12 x 23	48	69
0D	18.5 cpi Sans Serif	11 x 23	52	75
0E	20.3 cpi Sans Serif	10 x 23	57	83
0F	4.2 cpi Sans Serif *	48 x 60	12	17
**	Downloaded Fonts			

* Only available in firmware version 3.2 and later.

** For downloaded fonts, use font ID. First font = A, second = B, etc.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Example 1: The following escape sequence will select the 12.7 cpi Courier font.

Escape Sequence: ESC K 3

Hexadecimal: 1B 4B 03

Example 2: The following escape sequence will select the first downloaded font.

Escape Sequence: ESC K A

Hexadecimal: 1B 4B 41

Set Printer to 12.7 cpi

SO

Sets the character size to 12 cpi. This is equivalent to sending ESC K 0x03.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Control Code: SO
Hexadecimal: 0E

Set Printer to 22.6 cpi

SI

Sets the character size to 22.6 cpi. This is equivalent to sending ESC K 0x0A.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Control Code: SI
Hexadecimal: 0F

Set Printer to 22. 6 cpi

DC4

Sets the character size to 22.6 cpi. This is equivalent to sending ESC K 0x0A.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Control Code: DC4
Hexadecimal: 14

Double High On

FS

Enables double high printing. This will cause the characters and the interline spacing to be doubled in height. Double high printing will be in effect until the Double-High Off (GS) command is received.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Control Code: FS
Hexadecimal: 1C

Double High Off

GS

Disables double high printing.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Control Code: GS
Hexadecimal: 1D

Double High/Wide On

DC2 D

Enables double high/wide printing.

This command causes all characters on the current line to printed double high and double wide.

Control Code DC2 D
Hexadecimal: 12 44

Double High/Wide Off

DC2 d

Disables double high/wide printing.

This command cancels double high/wide printing for the current line.

Control Code DC2 d
Hexadecimal: 12 64

Set Text Line Spacing

ESC a *n*

Sets the number of dot rows the paper is to be moved after printing each row of text. Each dot row is 0.125mm. $0 \leq n \leq 10$.

Example: The following escape sequence sets the line spacing to zero (as needed when printing line drawing characters when the PC Line Drawing character set is selected).

Escape Sequence: ESC a 0
Hexadecimal: 1B 61 00

Character Attributes

Select Emphasized Mode

ESC U *n*

Selects emphasized printing mode. Emphasized mode may be used to highlight text by giving it a more bold appearance.

<u><i>n</i></u>	<u>Selection</u>
0	Emphasized Mode Off
1	Emphasized Mode On

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Example: The following escape sequence will set emphasized printing mode to On.

Escape Sequence: ESC U 1
Hexadecimal: 1B 55 31

Character Sets

Select Extended Character Set

ESC F *n*

Selects the character set to be used when printing extended characters (hexadecimal 80-FF).

<u><i>n</i></u>	<u>Character Set</u>
1	International Character Set
2	PC Line Drawing Character Set

When using the PC Line Drawing Character Set, the Text Line Spacing should be set to zero. Doing so will allow the vertical line characters to form continuous lines.

This command must be sent prior to any printable characters on the line. If sent after printable characters are received, a Carriage Return and Line Feed will be inserted and a new line started before the command takes effect.

Please refer to “Print & Font Samples” on page 49 for information on the specific characters contained in each character set.

Example: The following escape sequence will select the International character set.

Escape Sequence: ESC F 1
Hexadecimal: 1B 46 31

Horizontal Position

Carriage Return

CR

Causes the current line to be printed and the paper to advance to the next line. The current print position is set to the beginning of the next line.

Note that either a Carriage Return (CR) or a Line Feed (LF) will cause both functions to be performed. However, a Carriage Return and Line Feed “pair” (CRLF) will only perform a single line feed.

Control code: CR
Hexadecimal: 0D

Backspace

BS

Removes the previous character from the print buffer. Backspacing can be done up to, but not beyond, the beginning of the line.

Control code: BS
Hexadecimal: 08

Horizontal Tab

HT

Advances to the next horizontal tab stop. If no tab stop exists between the active column and the right margin, the print position will advance to the beginning of the next line.

Horizontal tab stops are associated with columns, not absolute physical positions. Changing the character spacing or font will change the physical position of the tab stops. Default tab stops are set to every fourth column, i.e. 5,9,13,17,21,25,29,33,37

Control code: HT
Hexadecimal: 09

Set Horizontal Margins

ESC H *l r*

Sets the left and right margins in millimeters. *l* and *r* may be set from zero up to ½ the line length.

Example: The following escape sequence will set both the left and right margins to 10mm (0.394”).

Escape Sequence: ESC H 10 10
Hexadecimal: 1B 48 0A 0A

Vertical Position

Line Feed

LF

Causes the current line to be printed and/or advances the paper to the next line. The total distance the paper is advanced is based on the vertical size of the current font plus the Text Line Spacing.

A Carriage Return is also performed which places the current print position at the beginning of the next line.

Note that either a Carriage Return (CR) or a Line Feed (LF) will cause both functions to be performed. However, a Carriage Return and Line Feed “pair” (CRLF) will only perform a single line feed.

Control code: LF
Hexadecimal: 0A

Variable Size Line Feed

ESC J *n*

Causes paper to be moved forward $n \times 0.125\text{mm}$. $0 \leq n \leq 255$.

A Carriage Return is also performed which places the current print position at the beginning of the next line.

Example: The following escape sequence performs a line feed of five millimeters ($5 \div 0.125$).

Escape Sequence: ESC J 40
Hexadecimal: 1B 4A 28

Variable Size Reverse Line Feed

ESC Q J *n*

Causes paper to be moved in the reverse direction $n \times 0.125\text{mm}$. $0 \leq n \leq 255$.

A Carriage Return is also performed.

Note that reverse paper motion is not supported in MtP400 SL models and this command is ignored.

Example: The following escape sequence moves paper in the reverse direction two millimeters ($2 \div 0.125$).

Escape Sequence:	ESC	Q	J	16
Hexadecimal:	1B	51	4A	10

Vertical Tab

VT

Advances the paper five lines. If a partial line exists in the buffer, that line will be printed including a Carriage Return and Line Feed, and then the paper advanced five lines.

A Carriage Return is also performed which places the current print position at the beginning of the next line.

Control code:	VT
Hexadecimal:	0B

Form Feed

FF

If a partial line exists in the buffer, that line will be printed including a Carriage Return and Line Feed, and then the paper will be advanced as described below.

For printers that use rolls of print media, (not “SL” models), the paper will be advanced by the “FFeed Distance” set for the current Format (refer to the Operator’s Manual for more information).

For printers that use cassette media (MtP400 SL), the current sheet of paper will be ejected.

A Carriage Return is also performed which places the current print position at the beginning of the next line.

Control code:	FF
Hexadecimal:	0C

Bar Codes

Several types barcode symbols may be printed using the following command. The specification for each bar code type is also described.

Print Bar Code

ESC a t n h data

Printek printers support several bar code symbologies including Code 39, Code 128, UCC/EAN-128, Interleaved 2 of 5, UPC/EAC/JAN, and Codabar. The following table describes the Bar Code command. Details for each specific bar code type, including examples, are found below.

Variable	Value	Description
<i>a</i>	z (lower case)	Print bar code only.
	Z (upper case)	Print bar code and human readable text.
<i>t</i>	1	Code 39
	2	Code 128, UCC/EAN-128
	3	Interleaved 2 of 5
	4	UPC/EAN/JAN
	5	Codabar
<i>n</i>	$1 \leq n \leq 255$	Number of characters in bar code.
<i>h</i>	$1 \leq h \leq 255$	Height of bar code in increments of 0.125mm.
<i>data</i>		<i>n</i> characters to be represented in the bar code. See individual bar code types for allowable characters and other specific requirements.

Notes: All barcodes are printed with the minimum bar width (“x-dimension”) of 0.250mm, in compliance with the respective official specification.

All barcodes are printed centered between the left and right margins. For information on setting margins, please refer to the Operator’s Manual.

Code 39 Specifications

Description: Each symbol starts with Leading Quiet Zone, followed with Start Symbol, Data Symbols, ending with Stop Symbol and Trailing Quiet Zone.

Character set: 43 ASCII characters including A-Z (uppercase only), 0-9, . (period), - (dash), \$, /, +, %, and SPACE

Elements per symbol: 9 (5 bars, 4 spaces)

Character density: 6.25 CPI

Bar width: 0.25mm (narrow to wide ratio = 1:3)

Example: The following escape sequence will print a bar code containing the characters "CODE-39" 1 mm high followed by human readable text.

Escape Sequence:	ESC	Z	1	7	8	C	O	D	E	-	3	9
Hexadecimal:	1b	5A	31	07	08	43	4F	44	45	2D	33	39

Printek Emulation

Code 128 Specifications

Description: Each symbol starts with Leading Quiet Zone, followed with Start Symbol, Data Symbols, ending with Stop Symbol and Trailing Quiet Zone.

Character set: 256 ASCII via three Code Sets and an “Extend” function.

Elements per symbol: 6 (3 bars, 3 spaces)

Character density: 9.1 CPI

Bar width: 0.25mm

The first character position in the *data* portion of the escape sequence must contain a “Start Character”, as defined below. This Start Character defines the Code Set to be used to interpret the following *data* characters. Each Code Set has special character values defined that allow switching to a different Code Set(s) within the bar code.

Start Character	Code Set	Characters Sent To Printer	Characters Read By Scanner
87	A	20 – 5F	20 – 5F
		60 – 7F	00 – 32
88	B	20 – 7F	20 – 7F
89	C	Pairs of 30 – 39	Numeric Character Pairs 30, 30 – 39, 39 (00-99 Dec.)

All character values shown in Hexadecimal.

Special *data* characters are available for each Code Set that allow switching to a different Code Set and other special functions. These characters have values of 80-86 Hexadecimal and their functions in each Code Set are defined below.

Character Value (Hex)	Code Set A	Code Set B	Code Set C
80	FNC3	FNC3	-
81	FNC2	FNC2	-
82	Shift	Shift	-
83	Switch to Code Set C	Switch to Code Set C	-
84	Switch to Code Set B	FNC4	Switch to Code Set B
85	FNC4	Switch to Code Set A	Switch to Code Set A
86	FNC1	FNC1	FNC1

FNC 1: Reserved for EAN use.

FNC 2: Concatenate the data in this bar code with the data in the next bar code read. Not supported by all bar code readers.

FNC 3: Reset the bar code reader. Any other data in this bar code will be discarded.

FNC 4: Extended characters. The bar code reader will add 128 (80 Hex.) to each character.

Example 1: The following escape sequence will print a bar code containing “ABC123” that is 10mm high and is followed with human readable text.

Escape Sequence: ESC Z 2 7 80 Start B A B C 1 2 3
Hexadecimal: 1B 5A 32 07 50 88 41 42 43 31 32 33

Example 2: The following escape sequence will print a bar code using numeric pairs of numeric characters containing “123456” that is 10mm high without human readable text.

Escape Sequence:	ESC	z	2	7	80	Start C	1	2	3	4	5	6
Hexadecimal:	1b	7A	32	07	50	89	31	32	33	34	35	36

Example 3: The following escape sequence will print the same data as in Example 1, “ABC123”, using Code Sets that allow a mixture of alphanumeric character and numeric pairs. The bar code will be 20mm high without human readable text.

Escape Sequence:	ESC	z	2	7	160	Start A	A	B	C	1	Switch C	2	3
Hexadecimal:	1B	7A	32	07	A0	87	41	42	43	31	83	32	33

UCC/EAN-128 Specifications

Description: The UCC/EAN-128 specification is an internationally recognized format for application identifiers in code 128 bar codes. The bar code symbology is identical to Code 128. Only recognized bodies of the UCC or EAN may assign application identifiers. For more information visit www.ean-int.org and www.uc-council.org.

Character set: 256 ASCII via three Code Sets and an “Extend” function.

Elements per symbol: 6 (3 bars, 3 spaces)

Character density: 9.1 CPI

Bar width: 0.25mm

Example: The following escape sequence prints an all numeric bar code containing “1234” in an EAN-128 format that is 10mm high followed by human readable text.

Escape Sequence:	ESC	Z	2	6	80	FNC1	1	2	3	4
Hexadecimal:	1B	5A	32	06	50	86	31	32	33	34

UPC/EAN/JAN Specifications

Description: Each symbol starts with Leading Quiet Zone, followed with Left Guard Bars, Left Data Symbols, Center Bar Pattern, Right Data Symbols, Check Character, ending with Right Guard Bars and Trailing Quiet Zone. The UPC, EAN/JAN-8, EAN/JAN-13 specifications comprise an internationally recognized format for application identifiers. Unlike the UCC/EAN-128 specification, these identifiers are intended for point-of-sale applications. Only recognized bodies of the UCC and EAN may assign application identifiers. For more information visit www.ean-int.org and www.uc-council.org.

Character set: numeric - fixed length as follows:

- UPC-A – Requires 12 digits. The first 11 will be printed and the 12th will be replaced by a check digit calculated by the printer.
- UPC-E – Requires 7 digits. (The check digit will be added by the printer.)
- EAN/JAN-8 – Requires 8 digits. The first 7 will be printed and the 8th will be replaced by a check digit calculated by the printer.
- EAN/JAN-13: – Requires 13 digits. The first 12 will be printed and the 13th will be replaced by a check digit calculated by the printer.

Printek Emulation

Elements per symbol: 4 (2 bars, 2 spaces)

Character density: 14.5 CPI

Bar width: 0.25mm

Note: When specifying the bar code height that h represents the total height including a 1.25mm drop bar pattern printed after the barcode pattern.

Example 1: The following escape sequence will print a UPC-A bar code containing “12345678901” that is 30mm high followed by human readable text. Note that a check digit “9” is also sent, but will be ignored and recalculated by the printer.

Escape Sequence:	ESC	Z	4	12	240	1	2	3	4	5	6	7	8	9	0	1	9
Hexadecimal:	1B	5A	34	0C	F0	31	32	33	34	35	36	37	38	39	30	31	39

Example 2: The following escape sequence will print a UPC-E bar code containing “1234567” that is 30mm high followed by human readable text.

Escape Sequence:	ESC	Z	4	7	240	1	2	3	4	5	6	7
Hexadecimal:	1B	5A	34	07	F0	31	32	33	34	35	36	37

Example 3: The following escape sequence will print an EAN/JAN-8 bar code containing “1234567” that is 30mm high followed by human readable text. Note that a check digit “9” is also sent, but will be ignored and recalculated by the printer.

Escape Sequence:	ESC	Z	4	8	240	1	2	3	4	5	6	7	9
Hexadecimal:	1B	5A	34	08	F0	31	32	33	34	35	36	37	39

Example 4: The following escape sequence will print an EAN/JAN-13 bar code containing “123456789012” that is 30mm high followed by human readable text. Note that a check digit “9” is also sent, but will be ignored and recalculated by the printer.

Escape Sequence:	ESC	Z	4	13	240	1	2	3	4	5	6	7	8	9	0	1	2	9
Hexadecimal:	1B	5A	34	08	F0	31	32	33	34	35	36	37	38	39	30	31	32	39

Interleaved 2 of 5 Specifications

Description: Each symbol starts with Leading Quiet Zone, followed with Start Symbol, Data Symbols, ending with Stop Symbol and Trailing Quiet Zone.

Character set: numeric pairs.

Elements per symbol: 10 (5 bars, 5 spaces)

Character density: 11.11 CPI

Bar width: 0.25mm

Example: The following escape sequence will print a bar code containing “123456” that is 10mm high followed by human readable text.

Escape Sequence:	ESC	Z	3	6	80	1	2	3	4	5	6
Hexadecimal:	1B	5A	33	06	50	31	32	33	34	35	36

Codabar Specifications

Description: Each symbol starts with Leading Quiet Zone, followed with Start Symbol, Data Symbols, ending with Stop Symbol and Trailing Quiet Zone.

Character set: 0-9, \$, -, :, /, ., + and the start/stop pairs of A/T, B/N, C/*, and D/E.

Elements per symbol: 7 (4 bars, 3 spaces)

Character density: 8.1 CPI

Bar width: 0.25mm

Example 1: The following escape sequence will print a bar code containing “123456”, using the A/T start/stop characters, and 20mm high followed by human readable text.

Escape Sequence:	ESC	Z	5	8	160	A	1	2	3	4	5	6	T
Hexadecimal:	1B	5A	35	08	A0	41	31	32	33	34	35	36	54

Example 2: The following escape sequence will print a bar code containing “123456”, using the C/* start/stop characters and 20mm high followed by human readable text.

Escape Sequence:	ESC	Z	5	8	160	C	1	2	3	4	5	6	*
Hexadecimal:	1B	5A	35	08	A0	43	31	32	33	34	35	36	2A

Graphics

The printer uses a single line thermal print head with elements spaced at 0.125mm. The maximum number of graphic data bytes allowed for each model printer is shown for each command. After each line of graphic data, the paper is automatically advanced 0.125mm to position the paper for the next graphic line. To advance the paper by additional graphic increments without printing, refer to “Variable Size Line Feed” on page 11.

8-Bit Graphics

ESC # *h w data*

This command may be used to print any graphics pattern. The height and width of the graphic image may be specified as shown below. Each line must contain the same number of bytes (width).

The image will be printed starting from the left margin and up to the right margin. If the width specified will not fit within the margins, the right side of the image will be truncated.

Variable	Value	Description
<i>h</i>	$1 \leq h \leq 255$	Number of graphic lines in the data to follow.
<i>w</i>	MtP300: $0 \leq w \leq 72$ MtP400: $0 \leq w \leq 104$ FieldPro RT43: $0 \leq w \leq 104$	Number of bytes per graphic line in the data to follow. Each byte contains 8 bits.
<i>data</i>	A line of graphic data bytes where the value of each byte is 0-255	$h \times w$ bytes per line are required.

Example 1: The following escape sequence will print a horizontal line 2mm long starting 2mm from the left margin.

Escape Sequence: ESC # 1 4 0 0 255 255
Hexadecimal: 1B 23 01 04 00 00 FF FF

Example 2: The following escape sequence will print a square box 2mm x 1mm starting 2mm from the left margin, and then move the paper forward an additional 5mm.

Escape Sequence: ESC # 8 4 0 0 255 255
Hexadecimal 1B 23 08 04 00 00 FF FF

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 128 1
Hexadecimal 00 00 80 01

Escape Sequence: 0 0 255 255
Hexadecimal 00 00 FF FF

Escape Sequence: ESC J 40
Hexadecimal: 1B 4A 28

8 Bit Compressed Graphics

ESC v *h w c data [c data] [c data] ...*

This command differs from the 8 Bit Graphics command described above by reducing the number of bits (bytes) that have to be sent to the printer. This allows for faster data transfer between the host computer and the printer.

Variable	Value	Description
<i>h</i>	$1 \leq h \leq 255$	Number of graphic lines in the image.
<i>w</i>	MtP300: $0 \leq w \leq 72$ MtP400: $0 \leq w \leq 104$ FieldPro RT43: $0 \leq w \leq 104$	Number of bytes in each graphic line of the image.
<i>c</i>	$0 \leq c \leq 255$	Counter(s) describing how following bytes are to be interpreted. A description of how counter values and the following data are interpreted follows this table.
<i>data</i>	Graphic data bytes where the value of each byte is 0-255	Graphic data bytes to be interpreted as specified by the preceding counter, <i>c</i> .

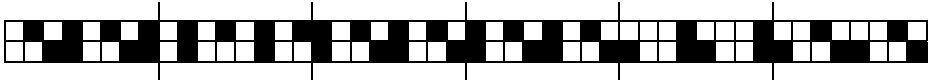
Multiple “sets” of counters and data may be sent to the printer as necessary to describe the graphic pattern to be printed. The values specified by the counter(s) are interpreted as follows.

The counter may be considered as either a signed 7 bit value or an unsigned 8 bit value.

For signed 7 bit values: $0 \leq c \leq 127$ Process the next $(c + 1)$ bytes as simple 8 bit graphic patterns.
 $-128 \leq c \leq -1$ Repeat the next byte $(-c + 1)$ times.

For unsigned 8 bit values: $0 \leq c \leq 127$ Process the next $(c+1)$ bytes as simple 8 bit graphic patterns.
 $128 \leq c \leq 255$ Repeat the next byte $(256 - c + 1)$ times.

Example: The following escape sequence will print a graphic image that is two lines long and six bytes (48 bits) wide as shown below. Note that the outlines for each bit are shown only to explain this example and that only the image represented by the black “bits” will actually be printed.



In the following escape sequence the data bytes are shown in binary. The hexadecimal values for each byte are shown on the second line.

ESC v 2 6 255 01010101 255 10101010 3 00010001 00100010 00110011 01000100 25310011001
1B 76 02 06 FF 55 FF AA 03 11 22 33 44 FD 99

Vector Graphics

ESC > *id lines size data*
ESC > *id p data t*

Note: This feature is only available in units with firmware version 2.8 or later.

Vector graphics may be used to print images of straight lines, curved lines, or even more complex shapes such as a person’s signature. Each shape is defined as one or more “line segments”. A curved line is simply several shorter, straight lines connected together. To define such a line, the data sent to the printer contains the endpoints, or nodes, of each line segment and the printer will draw the entire line by drawing line segments between the nodes.

Note that the image will be automatically scaled, up or down, to fit between the currently defined left and right margins.

Vector graphic data may be sent in two different formats as specified by *id* and as described below.

<u><i>id</i></u>	<u><i>lines size data</i></u>
0	<i>lines</i> = Eight bit value indicating the number of lines to be drawn. This is the number of distinct lines, not line segments. <i>size</i> = <i>wmsb wlsb hmsb hlsb</i> = 16 bit width and 16 bit height of the grid that the image will be specified in. The image does not have to be this large, but nodes may not be specified outside of the grid size. Maximum values: <i>w</i> = 65,535, <i>h</i> = 32,767. <i>data</i> = <i>xmsb xlsb ymsb ylsb</i> = 16 bit X position and 16 bit Y position of each node. Multiple lines are drawn in a single graphic image by setting the most significant bit of <i>ymsb</i> = 1 (0x80). This indicates the <u>end</u> of the current line and will cause no line segment to be drawn between this node and the next.

Printek Emulation

Example: $id = 0$

This example will print the following signature. The size of the grid that the image is specified in is 277 points wide by 145 points high. When printed the image will be scaled to fit between the left and right margins.

				$w = 277$		$h = 145$		$x = 63$		$y = 91$	...		
Escape Sequence:	ESC	>	0	2	$wmsb$	$wlsb$	$hmsb$	$hlsb$	$xmsb$	$xlsb$	$ymsb$	$ylsb$	...
Hexadecimal:	1B	3E	30	02	01	15	00	91	00	3F	00	5B	...

The entire string of *data* representing the graphic nodes for this example is:

```
00 3F 00 5B 00 3B 00 5A 00 35 00 57 00 2F 00 51 00 28 00 41 00 2B 00 38
00 34 00 31 00 3E 00 2C 00 40 00 2D 00 41 00 34 00 41 00 3A 00 3F 00 4A
00 39 00 5D 00 2C 00 77 00 24 00 80 00 1F 00 80 00 1F 00 7E 00 24 00 74
00 31 00 69 00 39 00 63 00 43 00 5B 00 49 00 55 00 4A 00 53 00 45 00 54
00 3F 00 58 00 3E 00 5D 00 43 00 60 00 49 00 61 00 4D 00 61 00 4F 00 60
00 50 00 5E 00 4F 00 5C 00 4B 00 59 00 49 00 59 00 47 00 58 00 4D 00 58
00 53 00 56 00 56 00 54 00 5C 00 50 00 5E 00 4B 00 5D 00 40 00 5A 00 36
00 59 00 32 00 57 00 30 00 55 00 32 00 55 00 38 00 57 00 3C 00 5A 00 47
00 5B 00 53 00 5A 00 5F 00 59 00 61 00 56 00 62 00 5A 00 5C 00 60 00 58
00 62 00 57 00 65 00 55 00 66 00 58 00 64 00 5C 00 63 00 5E 00 69 00 62
00 70 00 62 00 75 00 5F 00 78 00 5C 00 7B 00 58 00 7D 00 56 00 7F 00 56
00 80 00 58 00 7F 00 5C 00 7D 00 5F 00 7B 00 61 00 7C 00 5E 00 7E 00 59
00 84 00 56 00 8C 00 53 00 8E 00 54 00 8C 00 57 00 8B 00 59 00 8B 00 5D
00 8F 00 61 00 99 00 61 00 99 80 61 00 B7 00 4D 00 B8 00 51 00 B8 00 57
00 B8 00 5A 00 BA 00 5C 00 B9 00 57 00 B6 00 4E 00 B2 00 3D 00 B4 00 37
00 B8 00 35 00 C2 00 39 00 C7 00 3F 00 C9 00 47 00 C9 00 4C 00 C7 00 53
00 C0 00 59 00 BA 00 5B 00 B8 00 59 00 C1 00 57 00 C5 00 57 00 CD 00 56
00 D0 00 56 00 D3 00 55 00 CF 00 55 00 CB 00 56 00 CB 00 58 00 D3 00 5C
00 D9 00 5E 00 DB 00 5E 00 DC 00 5A 00 DA 00 58 00 D6 00 55 00 D3 00 53
00 D7 00 54 00 D9 00 54 00 DD 00 55 00 E0 00 54 00 E2 00 53 00 E5 00 51
00 E9 00 51 00 EF 00 50 00 F7 00 4E 00 FA 00 4C 00 F7 00 49 00 F1 00 48
00 EC 00 4A 00 EE 00 53 00 FD 00 5B 01 06 80 5D
```

id *p data t*

1 p = A variable number of prefix characters that may be inserted by some signature capturing devices. These characters may not include a pair of adjacent characters that would represent a valid hexadecimal value (00-FF) at any position in the string. These characters will be ignored by the printer and are not required.

$data = xmsb xlsb ymsb ylsb$ = 8 bit X position and 8 bit Y position of each node (xy). Each X and Y value is sent as a pair of ASCII characters that represent the hexadecimal value of the position. Maximum values: $x = 127, y = 127$. Multiple lines are drawn in a single graphic image by setting the most significant bit of $ymsb = 1$ (0x80). This indicates the beginning of a new line and will cause no line segment to be drawn between the previous node this node.

t = Terminating character. The vector graphic command is terminated by any ASCII control character ($< 0x20$) such as a Carriage Return (0x0d).

The entire string of *data* representing the graphic nodes for this example is:

2 D 9 3	2 C 1 1	2 A 1 2	2 8 1 4	2 6 1 6	2 5 1 9
32 44 39 33	32 43 31 31	32 41 31 32	32 38 31 34	32 36 31 36	32 35 31 39
2 4 1 B	2 3 1 D	2 2 1 F	2 0 2 4	1 F 2 D	1 F 3 1
32 34 31 42	32 33 31 44	32 32 31 46	32 30 32 34	31 46 32 44	31 46 33 3
1 F 3 4	1 F 3 8	2 0 3 A	2 2 3 C	2 4 3 E	2 6 3 F
31 46 33 34	31 46 33 38	32 30 33 41	32 32 33 43	32 34 33 45	32 36 33 46
2 D 3 F	3 3 3 E	3 6 3 C	3 8 3 A	3 B 3 6	3 D 3 3
32 44 33 46	33 33 33 45	33 36 33 43	33 38 33 41	33 42 33 36	33 44 33 33
3 E 3 1	3 F 2 F	3 F 2 B	3 F 2 7	3 E 2 5	3 C 2 3
33 45 33 31	33 46 32 46	33 46 32 42	33 46 32 37	33 45 32 35	33 43 32 33
3 A 2 2	2 B 1 F	1 E 1 E	1 B 1 E	1 7 1 E	1 1 1 F
33 41 32 32	32 42 31 46	31 45 31 45	31 42 31 45	31 37 31 45	31 31 31 46
0 F 2 0	0 C 2 2	0 B 2 4	0 B 2 6	0 B 2 9	0 D 2 D
30 46 32 30	30 43 32 32	30 42 32 34	30 42 32 36	30 42 32 39	30 44 32 44
0 F 2 E	1 1 2 F	1 5 3 1	2 6 3 4	2 8 3 4	3 B 3 5
30 46 32 45	31 31 32 46	31 35 33 31	32 36 33 34	32 38 33 34	33 42 33 35
3 E 3 5	4 3 3 4	4 D 3 1	4 B 3 1		
33 45 33 35	34 33 33 34	34 44 33 31	34 42 33 31		

Graphic images including logos may be stored permanently in the printer's flash memory so that they may be printed as often as needed without having to retransmit the graphic image each time. A total of 1MB of Flash memory is allocated to storing graphic images. The number of images that may be stored depends on the size of the images.

- Step 1: Send the Load Graphic Image command to the printer.
- Step 2: Send the image using up to 2,436 graphic lines as described in the Graphics section on page 17. (The 8-Bit Compress Graphics command is not supported when defining logos.)
- Step 3: Send the Store Graphic Image command to the printer.
- Step 4: Wait for the printer to respond with “D” (Hexadecimal 44) indicating that the printer has begun storing the image.
- Step 5: Wait for the printer to respond with an Exclamation Point character (Hexadecimal 21) indicating that the image has been stored.

Load Graphic Image

ESC L G *n*

This command indicates that graphic commands describing an image to be stored is to follow. The value of *n* is used to identify this particular graphic image and may be any printable ASCII character ($0x21 \leq n \leq 0x7E$). This same value is then used to print the graphic.

The graphic data is sent using Graphic commands as described on page 17. The image may consist of up to 2,436 graphic lines. The loading process will terminate when 2,436 lines have been received, or upon receipt of the Store Graphic Image command.

Example: This escape sequence specifies that the following graphic command(s) will define graphic image “A”.

Escape Sequence:	ESC	L	G	A	Graphics Data
Hexadecimal:	1B	4C	47	41	Graphic commands as described on page 17.

Note 1: This command may be used to store graphic images that can later be recalled and printed using CPCL, ZPL-II, and O’Neil Emulation Easy Print commands. The name used in the Easy Print command would be “LOGO*n*”, or “LOGOA” for the above example.

Note 2: As of printer firmware revision 2.8, a special “Print Promo” feature is available that may be enabled through the printer’s control panel. This feature allows an image that is stored with the value of *n* = 0x24 (“\$”) to automatically be printed at the *end* of each print job.

Refer to the Options configuration section in the printer’s operator’s manual for more information.

Note 3: As of printer firmware revision 3.1, a special “Print Header” feature is available that may be enabled through the printer’s control panel. This feature allows an image that is stored with the value of *n* = 0x3F (“?”) to automatically be printed at the *beginning* of each print job.

Refer to the Options configuration section in the printer’s operator’s manual for more information.

Store Graphic Image

ESC L G DEL

This command terminates the Load Graphic Image mode and causes the graphic image to be stored in the printer’s Flash memory.

After this command is received, the printer will transmit a “D” (Hexadecimal 44) and begin saving the image. Once the image is stored, the printer will transmit an Exclamation Point (Hexadecimal 21). The image may now be printed using the Print Graphic Image command.

Caution: The printer power must remain on throughout this entire process.

Escape Sequence:	ESC	L	G	DEL
Hexadecimal:	1B	4C	47	FF

Print Graphic Image

ESC L g *n*

This command will print a graphic image that was previously stored using the Load Graphic Image command.

Example: The following escape sequence will print the graphic logo stored as “A”.

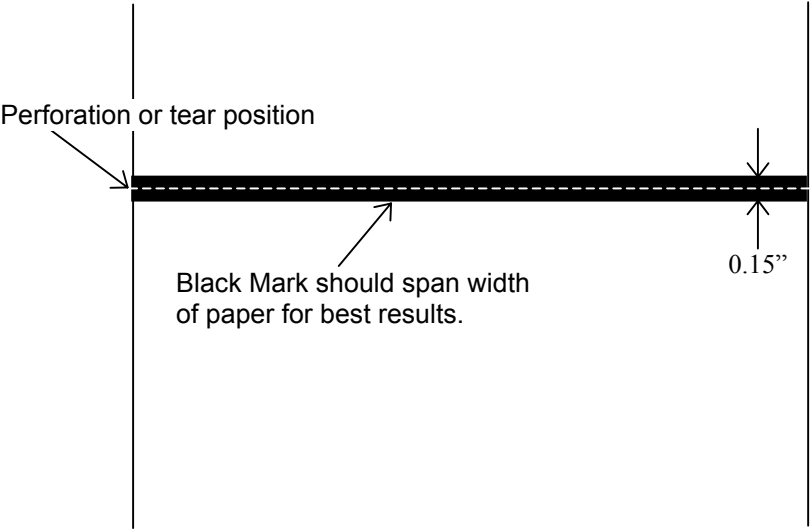
Escape Sequence:	ESC	L	g	A
Hexadecimal:	1B	4C	67	41

Black Mark Sensing

The MtP and FieldPro Series printers can print on preprinted forms on roll media by using a “black mark” to sense the beginning of each form. The black mark is located on the form in a position where the printer’s paper out sensor can be used to detect its presence. Additionally, the MtP “LP” models are capable of sensing a black mark on the back side of the form and for sensing the gap between labels. The recommended position for the black mark is described below.

Black Mark Requirements

For automatic label and ticket printing, the black mark should be positioned as shown in the illustration below. When using Mark Sensing mode, the MtP and FieldPro printers will automatically position the label for tear-off and printing following a Form Feed command or by pressing the Paper Feed button. Please refer to your printer’s Operator’s Manual for information on selecting this operation mode.



Optimum Black Mark Position

Black Mark Sensing Commands

For non-automatic paper positioning, the following commands may be used to cause the paper motion to stop when the black mark is sensed.

Set Paper Out Sensitivity

ESC Q Q *n*

This command sets the number of 0.125mm dot rows of paper motion that can occur after the paper out sensor detects the lack of paper before a paper out condition is displayed and the printer stops printing. Using this command to set a number of dot rows larger than the vertical size of the black mark, which looks like a lack of paper, allows the printer to continue operating in the area of the black mark. $0 \leq n \leq 255$, the default value is 40.

Example: The following escape sequence will set the paper out sensitivity to 50 dot rows.

Escape Sequence	ESC	Q	Q	50
Hexadecimal	1B	51	51	32

Forward Seek Black Mark

ESC Q F *n*

This command causes the printer to move the paper forward up to *n* dot rows to seek the beginning of a black mark on a form where $0 \leq n \leq 255$ 0.250mm dot rows. If the black mark is found, the printer responds with the escape sequence ESC Q ? ? *n1 n2* where *n1 n2* represent the number of dot rows the paper was moved before the black mark was detected. If the black mark is not found, the printer responds with ESC Q 0 0 *n1 n2* where *n1 n2* represent the number of dot rows moved before the seek was aborted.

Example: The following escape sequence commands the printer to move the paper forward up to $200 * 0.250$ mm dot rows in search of a black mark on the form. This example also shows the printer's response that it found the beginning of the black mark in 183 dot rows.

Command sent to printer:

Escape Sequence:	ESC	Q	F	200
Hexadecimal:	1B	51	46	C8

Response from printer:

Escape Sequence:	ESC	Q	?	?	;	7
Hexadecimal:	1B	51	3F	3F	3B	37

Note that the values for *n1 n2*, or in this example “;” “7” in the response from the printer, represent the upper and lower nibbles, respectively, of the number of dot rows the paper was moved before detecting the beginning of the black mark. Each of these values has been “or’ed” with 30 Hexadecimal in order to provide the character shown. As a result, the value represented by “;” is 176, and the value represented by “7” is 7, indicating that the paper was moved 183 dot rows, or 45.75mm.

Reverse Seek Black Mark

ESC Q B *n*

This command is identical to the Forward Seek Black Mark command described above except that the paper is moved in the reverse direction in order to seek the bottom edge of the black mark. Care should be taken not to move the paper very far in the reverse direction to avoid wrinkling the paper and creating the possibility of paper jams.

Note that reverse paper motion is not supported in MtP400 SL models and this command is ignored.

Black Mark Found (Response From Printer)

ESC Q ? ? *n1 n2*

This response is provided by the printer after detecting the presence of a black mark on the form in response to either a Forward Seek Black Mark or Reverse Seek Black Mark command. Please refer to the example for Forward Seek Black Mark, above.

Black Mark Not Found (Response From Printer)

ESC Q 0 0 *n1 n2*

This response is provided by the printer when the presence of a black mark is not detected on the form in response to either a Forward Seek Black Mark or Reverse Seek Black Mark command. Please refer to the example for Forward Seek Black Mark, above.

Gap Sensing

Gap sensing is only available on “LP” models and is used to sense the space between die cut labels. The minimum space between labels is 0.125” (3.2mm).

Gap sensing is very similar to Black Mark sensing and uses the same commands. Refer to the Operator's Manual for instructions on how to select Gap versus Black Mark sensing.

Printer Controls

Bell

BEL

Causes the printer's bell to sound.

Control code: BEL
Hexadecimal: 07

CANCEL

CAN

Deletes all data in the printer's input buffer and resets the printer to power up default values. Refer to "Printer Reset Conditions" on page 55 for more information.

Control Code: CAN
Hexadecimal: 18

Print Contrast

ESC P n

Sets the contrast, or relative "darkness", of the characters or graphic images to be printed where $0 \leq n \leq 9$ (hexadecimal 30-39). A value of zero provides the greatest contrast and also the slowest print speed. Likewise, a value of nine provides the lowest contrast, but the fastest print speed. The default value is "5".

Since contrast is greatly affected by the quality of thermal paper being used, this command allows varying grades of paper to be printed on successfully.

In association with this setting, the printer automatically adjusts the contrast while printing in order to achieve consistent output based on the current battery condition and print head temperature.

Example: The following escape sequence with set the printer to a Print Contrast setting of "4".

Escape Sequence: ESC P 4
Hexadecimal: 1B 50 34

Buffer Mode

ESC P #

ESC P \$

Buffer Mode may be used to force the printer to "hold" data until the entire print job is received.

If Buffer Mode has been enabled, the printer continues to hold data in its input buffer until an EOT character (Hexadecimal 04) has been received. Once the EOT is received, the printer will print the data in the input buffer up to the EOT character.

When Buffer Mode is not enabled (default) data are printed as received.

Example 1: The following escape sequence enables Buffer Mode.

Escape Sequence: ESC P \$
Hexadecimal: 1B 4D 24

Example 2: This escape sequence disables Buffer Mode.

Escape Sequence: ESC P #
Hexadecimal: 1B 4D 23

Select Format

ESC I *n*

Causes the current line to be printed, and then loads the format parameters for Format *n*. $1 \leq n \leq 5$. If Format *n* is already selected, this command is ignored. Refer to the Printer Configuration section of the Operator's Manual for complete details.

Example: This escape sequence selects Format 2.

Escape Sequence: ESC I 2
Hexadecimal: 1B 6C 02

Select Emulation

ESC ESC *n*

Select the printer emulation mode to be used for future commands. For complete details, refer to "Selecting Emulations" on page 3.

Store Printer Command File

ESC T *type id size name data*

Stores a command file in the printer.

This command file may be executed from the front panel of the printer by pressing and holding the **+** Increment Button until "Recall File:" is displayed. Continue to hold the **+** Increment Button and press the **↵** Enter Button to select which command file to execute (if more than one has been loaded) or to select "Exit" to cancel performing the command. When selecting the command file, the printer will display "Recall File: *id*" on the top line and the *name* on the bottom line.

The selected command will be executed when the **+** Increment Button is released.

type = Type of command file:

T = Text, a string of ASCII characters.

Note: Using other values for *type* is not supported and may cause unpredictable results.

id = A single printable ASCII character used to identify the command file.

size = Four byte value containing the number of command file bytes to follow. This size includes the 16 character name.

name = Sixteen character command name. This name will be displayed on the printer's front panel when selecting a command file(s) to perform. Names shorter than 16 characters must be padded at the end with enough spaces to total 16 characters.

data = Number of command bytes plus sixteen as specified by *size*.

Example: This command will store a Text command file with the *id* of "1", the name "TestCmdFile" to display on the printer, and will cause the printer to print "Hello world" followed by a CRLF.

Escape Sequence: ESC T T 1 29 T e s t C m d F i l e SP
Hexadecimal: 1B 54 54 31 00 00 00 1D 54 65 73 74 43 6D 64 46 69 6C 65 20

(Continued) SP SP SP SP H e l l o SP w o r l d CR LF
20 20 20 20 48 65 6C 6C 6F 20 77 6F 72 6C 64 0D 0A

Reset

ESC c
ESC * 0

Deletes all data in the printer's input buffer and resets the printer to power up default values. Refer to "Printer Reset Conditions" on page 55 for more information.

Escape Sequence: ESC c
Hexadecimal: 1B 63

Escape Sequence: ESC * 0
Hexadecimal: 1B 2A 00

Turn Printer Off

ESC * 1

Causes the printer to turn itself off

Escape Sequence: ESC * 1
Hexadecimal: 1B 2A 01

Printer Status Commands

Print Battery Status

ESC P ^

This command will cause the printer to print the current battery voltage and charge status followed by a Carriage Return and Line Feed.

If a partial line exists in the buffer, it will be printed prior to printing the battery information.

Escape Sequence: ESC P ^
Hexadecimal: 1B 50 5E

Query Printer Status

STX
SYN

Each of these commands returns character strings which provide information regarding the current print buffer status and the magnetic card reader status. Additionally, SYN will return the current battery voltage.

Each status is returned as an escape sequence and four ASCII hexadecimal digits followed by a Carriage Return and Line Feed. The hexadecimal digits are nibbles that have been "OR'ed" with 0x30. The statuses returned for each command are as follows:

Command	Returned Strings	Comment
STX	ESC B <i>b1 b2 b3 b4</i> CR LF	Print Buffer Status
	ESC M <i>m s1 s2 t</i> CR LF	MCR Status
SYN	ESC B <i>b1 b2 b3 b4</i> CR LF	Print Buffer Status
	ESC M <i>m s1 s2 t</i> CR LF	MCR Status
	ESC V <i>v1 v2 v3 v4</i> CR LF	Battery Voltage Status

Print Buffer Status String

The print buffer status will be returned as a four digits representing the number bytes in the buffer that remain to be processed, divided by 32. For example, if *b1-b4* = "0020", this would indicate that there are at least 20 x 32, or 640, bytes remaining to be processed. A value of "0000" would indicate that the buffer is empty.

Magnetic Card Reader Status String

The MCR status indicates the presence of a reader in the printer, and if present, its current status.

- m* "0" if MCR is present. "X" if not installed in printer.
- s1, s2* Number of seconds remaining for a good card swipe before the timeout specified in the read command occurs. If this value is "00" and a non-zero value for *t* is returned, the reader will not time out and must be cancelled by a Cancel Read Magnetic Card Reader command.
- t* The tracks to be read as specified by the read command. If this value is zero and *m* and *s1, s2* are also zero, this indicates that the reader is present but currently disabled (no read pending).

Battery Voltage Status String

This string contains the current battery voltage in millivolts. A string where *v1* through *v4* contains "7123" would indicate that the battery voltage is currently 7123 millivolts, or 7.123 volts.

Example: The following control code will return the status of the print buffer, the magnetic card reader, and the battery voltage.

Control Code: SYN
Hexadecimal: 16

The three sample status strings that would be returned in response to this command are as follows.

Print Buffer Status:	ESC	B	0	0	4	2	CR	LF	1,344 bytes in input buffer.
Hexadecimal:	1B	42	30	30	34	32	0D	0A	
MCR Status:	ESC	M	0	1	2	4	CR	LF	Twelve seconds remain to read 1 & 2.
Hexadecimal:	1B	4D	30	31	32	34	0D	0A	
Battery Voltage:	ESC	V	7	1	2	3	CR	LF	Battery Voltage is 7.123 Volts
Hexadecimal:	1B	56	37	31	32	33	0D	0A	

Query Printer Firmware Version
ESC P (

This command returns a string containing the printer's firmware version designation as three ASCII digits. The three digits may be interpreted by adding a decimal point between the first two digits as shown in the example below.

Example: This following escape sequence requests the printer's firmware version.

Escape Sequence: ESC P (
Hexadecimal: 1B 50 28

A sample string returned in response to this command is shown below and indicates that the firmware version is "1.00".

Firmware Version: ESC (1 0 0 SPACE CR LF
Hexadecimal: 1B 28 31 30 30 20 0D 0A

Query Printer Model and Hardware Revision Level
ESC P)

This command returns a string containing three digits that represent the printer model and a single character that represents the printer's hardware revision level. The printer models indicated by the three digits are as follows:

<u>Value</u>	<u>Printer Model</u>	<u>Value</u>	<u>Printer Model</u>	<u>Value</u>	<u>Printer Model</u>
300	MtP300	400	MtP400	4F0	FieldPro RT43
302	MtP300 with MCR	401	MtP400 SL	4F2	FieldPro RT43 with MCR
304	MtP300 LP	402	MtP400 with MCR		
		403	MtP400 SL with MCR		
		404	MtP400 LP		

Example: This escape sequence requests the printer's model and revision level.

Escape Sequence: ESC P)
Hexadecimal: 1B 50 29

A sample string returned in response to this command is shown below and indicates that the printer is a model is an MtP400 SL with a Magnetic Card Reader, and is at hardware revision level "A".

Printer/Version: ESC) 4 0 3 A CR LF
Hexadecimal: 1B 29 34 30 33 41 0D 0A

Magnetic Card Reader

Read Magnetic Card Data

ESC M *n1 n2 t* CR

If the optional Magnetic Card Reader (MCR) is installed in the printer, this command instructs the printer to read data from a card such as a credit card or driver's license. The MCR is a three track reader designed to read magnetically encoded data conforming to ANSI/ISO 7810, 7811 standards. The card specifications are listed below.

	Track 1 ISO1 (IATA)	Track 2 ISO2 (ABA)	Track 3 ISO3 (MINTS)
Recording Density	210 bpi	75 bpi	210 bpi
Data Bits	7	5	7
Characters Per Track	79	40	107
Card Thickness	0.030" ±0.003" (0.76mm ±0.08mm)		

The Read Magnetic Card Data command allows an application to request that the MCR reads one, two, or three tracks simultaneously within a specified number of seconds, where *n1 n2* are ASCII digits that specify the number of seconds to wait for the user to successfully swipe a card before a "timeout" error occurs, and *t* is an ASCII digit specifying the tracks to be read.

Specifying a timeout value of "00" disables the timeout timer and allows the user to swipe a card until a successful read is accomplished or until a cancel command (ESC C) is sent by the host.

t Tracks To Be Read

- 1 Track 1
- 2 Track 2
- 3 Track 3
- 4 Tracks 1 & 2
- 5 Tracks 2 & 3
- 6 Tracks 1, 2 & 3

After the printer receives the command, the  MCR indicator will begin to flash indicating to the user that (s)he may now pass the card to be read through the MCR slot near the front of the printer. The card may be swiped in either direction. If the read is successful, the  MCR indicator will stay lit momentarily (not flashing) and the printer will transmit the data read and/or the status of the requested read operation.

If a swipe does not result in a successful read, the  Error Indicator will also begin to flash and an error message as described below will be transmitted. The card may be swiped multiple times until a successful read occurs or until the specified timeout expires. Once the timeout occurs, the MCR will be disabled and both indicators will be turned off.

The data are returned as string(s) of ASCII characters in the following format.

ASCII:	%	/	1	/	<i>track 1 data</i>	?	CR	LF
Hexadecimal:	25	2F	31	2F	...	3F	0D	0A
ASCII:	;	/	2	/	<i>track 2 data</i>	?	CR	LF
Hexadecimal:	3B	2F	32	2F	...	3F	0D	0A
ASCII:	+	/	3	/	<i>track 3 data</i>	?	CR	LF
Hexadecimal:	2B	2F	33	2F	...	3F	0D	0A

Note: If no data is available for a track, the *track data* portion of the string will be empty. Other tracks containing valid data will be returned. If an error occurs on any track, the *track data* portion of the string for that track will contain a single "E" (Hexadecimal 45).

If for any reason the MCR is unable to read the card’s data, the printer will transmit an error message string in the format shown below. The characters *n1 n2* represent an error number and *error message* is a description of the error. Possible values are described in the subsequent table.

ASCII:	ESC	E	,	<i>n1</i>	<i>n2</i>	,	<i>error message</i>	,	CR	LF
Hexadecimal:	1B	45	2C	...	...	2C	...	2C	0D	0A

<u><i>n1 n2</i></u>	<u>Error Message</u>
05	Time-out Expired
06	Invalid Character
07	Invalid Track Number
08	Unsupported Track Selected
09	Cancel Request

Cancel Read Magnetic Card Data Command

ESC C

This command will cancel a pending MCR read command. The printer will transmit an “error” message indicating that it has processed the cancel request and turn off the MCR indicator.

Escape Sequence:	ESC	C
Hexadecimal:	1B	43

Control Code and Escape Sequence Summary

Communications (RS-232C Serial Interface Only)

End of Text	ETX
Acknowledge (Transmitted by Printer)	ACK
Printer Idle (Transmitted by Printer)	EOT
Transmitter On (Transmitted by Printer)	XON (DC1)
Transmitter Off (Transmitted by Printer)	XOFF (DC3)

Character Size and Line Spacing

Select Character Pitch	ESC K <i>n</i>
Set Printer to 12.7 cpi	SO
Set Printer to 22.6 cpi	SI
Set Printer to 22.6 cpi	NORM (DC4)
Double High On	FS
Double High Off	GS
Double High/Wide On	DC2 D
Double High/Wide Off	DC2 d
Set Text Line Spacing	ESC a <i>n</i> , ESC A <i>n</i>

Character Attributes

Select Emphasized Mode	ESC U <i>n</i>
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Character Sets

Select Extended Character Set	ESC F <i>n</i>
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Horizontal Position

Carriage Return	CR
Backspace	BS
Horizontal Tab	HT
Set Horizontal Margins	ESC H <i>l r</i>

Vertical Position

Line Feed	LF
Variable Size Line Feed	ESC J <i>n</i>
Variable Size Reverse Line Feed	ESC Q J <i>n</i>
Vertical Tab	VT
Form Feed	FF, ESC E

Bar Codes

Print Bar Code	ESC z <i>t n h data</i>
Print Bar Code With Human Readable Text	ESC Z <i>t n h data</i>

Graphics

8-Bit Graphics	ESC # <i>h w data</i>
8 Bit Compressed Graphics	ESC v <i>h w c data [c data] [c data] ...</i>
Vector Graphics	ESC > <i>id lines size data</i> , ESC > <i>id p data t</i>

Storing and Printing Graphic Logos

Load Graphic Logo	ESC L G <i>n</i>
Store Graphic Logo	ESC L G DEL
Print Graphic Logo	ESC L g <i>n</i>

Black Mark Sensing

Set Paper Out Sensitivity	ESC Q Q <i>n</i>
Forward Seek Black Mark	ESC Q F <i>n</i>
Reverse Seek Black Mark	ESC Q B <i>n</i>

Printer Controls

Sound Bell	BEL
Cancel	CAN
Print Contrast	ESC P <i>n</i>
Enable Buffer Mode	ESC P \$
Disable Buffer Mode	ESC P #
Print Buffer Contents (Buffer Mode)	EOT
Select Format	ESC I <i>n</i>
Select Emulation	ESC ESC <i>n</i>
Store Printer Command File	ESC T <i>type id size name data</i>
Reset Printer	ESC c, ESC * 0
Turn Printer Off	ESC * 1

Printer Status Commands

Print Battery Status	ESC P ^
Query Print Buffer & MCR Status	STX
Query Print Buffer, MCR, & Battery Voltage Status	SYN
Query Printer Firmware Version	ESC P (
Query Printer Model and Hardware Revision Level	ESC P)

Magnetic Card Reader

Read Magnetic Card Data	ESC M <i>n1 n2 t</i> CR
Cancel Magnetic Card Data Read Command	ESC C

Mt3 Emulation

Selecting Mt3 Emulation allows applications written for the Printek Mt3 series printers to operate properly. When using this emulation in an MtP400 or FieldPro RT43, the printer matches the print width of the Printek Mt3.

For information on selecting emulations using Escape Sequences, please refer to “Selecting Emulations” on page 3. For information selecting emulations through the printer’s control panel set up, please refer to the printer’s Operator’s Manual.

The following summary lists the commands supported when Mt3 Emulation is selected. For more detailed information, please refer to the *Mt3 Programmer’s Manual*.

Note: Items marked with an asterisk (*) are Printek extensions. Refer to the Printek Emulation section of this manual.

Communications (RS-232C Serial Interface Only)

End of Text	ETX
Acknowledge (Transmitted by Printer)	ACK
Printer Idle (Transmitted by Printer)	EOT
Transmitter On (Transmitted by Printer)	XON (DC1)
Transmitter Off (Transmitted by Printer)	XOFF (DC3)

Character Size and Line Spacing

Select Character Pitch	ESC k <i>n</i>
Set Printer to 12 cpi	SO
Set Printer to 21 cpi	SI
Set Printer to 21 cpi	NORM (DC4)
Double High On	FS
Double High Off	GS
Set Text Line Spacing	ESC a <i>n</i> , ESC A <i>n</i>

Character Attributes

Select Emphasized Mode	ESC U <i>n</i>
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Character Sets

Select Extended Character Set	ESC F <i>n</i>
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Horizontal Position

Carriage Return	CR
Backspace	BS
Horizontal Tab	HT
Set Horizontal Margins *	ESC H <i>l r</i>

Vertical Position

Line Feed	LF
Variable Size Line Feed	ESC J <i>n</i>
Variable Size Reverse Line Feed	ESC Q J <i>n</i>
Vertical Tab	VT
Form Feed (ESC E *)	FF, ESC E

Mt3 Emulation

Bar Codes

Print Bar Code	ESC z t n h data
Print Bar Code With Human Readable Text	ESC Z t n h data

Graphics

8 Bit Graphics	ESC V n1 n2 data
8-Bit Graphics *	ESC # h w data
8 Bit Compressed Graphics	ESC v h w c data [c data] [c data] ...

Storing and Printing Graphic Logos

Enter Flash Logo Mode	ESC D L
Load Graphic Logo	ESC L G 0
Store Graphic Logo	ESC L G DEL
Print Graphic Logo	ESC L g 0

Black Mark Sensing

Set Paper Out Sensitivity	ESC Q Q n
Forward Seek Black Mark	ESC Q F n
Reverse Seek Black Mark	ESC Q B n

Printer Controls

Sound Bell *	BEL
Cancel	CAN
Print Contrast	ESC P n
Peak Power Mode	ESC P n
Enable Buffer Mode	ESC P #
Disable Buffer Mode	ESC P \$
Print Buffer Contents (Buffer Mode)	EOT
Select Emulation *	ESC ESC n
Reset Printer *	ESC * 0
Turn Off Printer *	ESC * 1

Printer Status Commands

Print Battery Status	ESC P ^
Query Print Buffer & MCR Status	STX
Query Print Buffer, MCR, & Battery Voltage Status	SYN
Query Printer Firmware Version	ESC P (
Query Printer Model and Hardware Revision Level	ESC P)

Magnetic Card Reader

Read Magnetic Card Data	ESC M n1 n2 t CR
Cancel Magnetic Card Data Read Command	ESC C

O'Neil Emulation

O'Neil Emulation allows Printek printers to respond to commands designed to operate an O'Neil microFlash printer. The commands that are supported are listed below.

Note: Items marked with an asterisk (*) are Printek extensions. Refer to the Printek Emulation section of this manual.

Communications

Same as Printek Emulation

Line Printer Mode

Character Size and Line Spacing

Double Wide On	SO
Double Wide Off	SI
Double High/Wide On *	DC2 D
Double High/Wide Off *	DC2 d
Multiply Character Height	ESC H <i>n</i>
Select Double High and Double Wide	ESC ! <i>n</i>

Character Sets

Select Font (See Font Mapping, below.)	ESC w <i>n</i>
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Horizontal Position

Backspace *	BS
Horizontal Tab *	HT
Carriage Return	CR

Vertical Position

Line Feed	LF
Vertical Tab *	VT
Form Feed (ESC E *)	FF, ESC E
Set Interline Spacing	ESC A <i>n</i>
Set Form Length	ESC C <i>n</i>
Advance From Q Mark	ESC Q <i>n1 n2</i>

Graphics

Select Graphics Mode	ESC V <i>n1 n2</i>
Begin Graphics	ESC B
End Graphics	ESC E

Printer Controls

Sound Bell *	BEL
Cancel Line Buffer	CAN
Reset	ESC @
Select Easy Print Mode	ESC E Z

Easy Print Mode

Move Paper Forward	{AHEAD: <i>n</i> }	
Move Paper Backward	{BACK: <i>n</i> }	
Select Line Printer Mode	{LP}	
Print Test Page	{TP}	
Save Graphic	{SAVE: <i>n</i> }	This command has been added to provide a mechanism for storing graphic images. The image defined in the PRINT command that immediately follows will be stored as a graphic named “ <i>n</i> ”, where <i>n</i> is a string of up to five characters in length.

Print Text Line/Bar Code/Graphic Image/Line

{PRINT,*GlobalOptions*:@*row,column:name,FieldOptions*|*data*|}

GlobalOptions: BACK, DEMAND, QUANTITY, QSTOP, STOP, ROT270

FieldOptions: Fonts – HMULT*n* (HM*n*), VMULT*n* (VM*n*)
Bar Codes – HIGH*n* (H*n*), WIDEN*n* (W*n*)
Graphics – HMULT*n* (HM*n*), VMULT*n* (VM*n*)
Lines – length *n* (L*n*), thick *n* (T*n*)

Note: In addition to the standard fonts, specifying “MFDEF” will select the printer’s default font for the currently selected Format. Refer to the printer’s operator’s manual for more information.

Line Printer and Easy Print Modes

Query Commands

Print Status Request	ESC {ST?}
Configuration Request	ESC {CF?}
Battery Condition Request	ESC {BT?}
Version Request	ESC {VR?}
Memory Information/Status Request	ESC {MY?}
Print Head Information Request	ESC {PH?}
IrDA Configuration Information Request	ESC {IR?}
Font List Request	ESC {FN?}
Graphic List Request	ESC {GR?}
Format List Request	ESC {FM?}
Demand Quantity Remaining Request	ESC {DQ?}
Cancel Demand Printing	ESC {CN!}
Reset Printer	ESC {RE!}

Magnetic Card Reader Commands

Configure Reader	ESC{CCR:n}
Configure MCR	ESC{CMR:n}
Enable MCR	ESC{ME!}
Disable MCR	ESC{MD!}
Zero MCR Data	ESC{MZ!}
Read MCR Status	ESC{RS?}
Read MCR Data	ESC{MR?}

Printer Controls

Select Emulation	ESC ESC <i>n</i>
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Font Mapping

<u>Line Printer Mode</u>	<u>Font Used</u>
0x20	10.2 cpi Sans Serif A Bold
0x21	20.3 cpi Sans Serif A
0x22	10.2 cpi Sans Serif A
0x23	5.5 cpi Sans Serif A
0x24	18.5 cpi Sans Serif A
0x25	22.6 cpi Courier
0x26	10.7 cpi Sans Serif A Bold
0x28	10.7 cpi Sans Serif A
0x29	10.7 cpi Sans Serif A
0x2a	15.6 cpi Courier
0x2b	20.3 cpi Sans Serif A
0x41	34.0 cpi Sans Serif A
0x42	34.0 cpi Sans Serif A
0x43	25.4 cpi Courier
0x44	18.5 cpi Sans Serif A
0x45	14.5 cpi Courier Bold
0x46	12.7 cpi Courier Bold
0x47	12.7 cpi Courier Bold
0x48	10.2 cpi Courier Sans Serif A
0x49	10.2 cpi Courier Sans Serif A Bold
0x4a	10.2 cpi Courier Sans Serif A Bold
0x4b	10.2 cpi Courier Sans Serif A
0x5b	22.6 cpi Courier
0x5d	12.7 cpi Courier
0x60	10.7 cpi Sans Serif A
0x61	12.7 cpi Courier
0x62	12.7 cpi Courier
0x63	12.7 cpi Courier
0x7a	25.4 cpi Courier

- Notes:**
1. In Easy Print Mode, the font used will be equal to, or smaller than, the font requested with preference given to the Sans Serif font.
 2. Any downloaded font with an ID of an internal font will override the internal font.

ZPL-II Emulation

ZPL-II Emulation supports a subset of the Zebra ZPL-II command set and allows Printek printers to respond to commands designed to control a ZPL-II compatible printer. The commands that are supported are listed below.

Select Font For Current Field	^A <i>n1,n2,n3,n4</i>
Interleaved 2 of 5 Bar Code	^B2 <i>n1,n2,n3,n4,n5</i>
Code 39 Bar Code	^B3 <i>n1,n2,n3,n4,n5</i>
PDF417 Bar Code	^B7 <i>n1,n2,n3,n4,n5,n6</i>
EAN-8 Bar Code	^B8 <i>n1,n2,n3,n4</i>
UPC-E Bar Code	^B9 <i>n1,n2,n3,n4,n5</i>
Code 128 (A, B, C) Bar Code	^BC <i>n1,n2,n3,n4,n5,n6</i>
EAN-13 Bar Code	^BE <i>n1,n2,n3,n4</i>
ANSI Codabar Bar Code	^BK <i>n1,n2,n3,n4,n5,n6,n7</i>
UPC-A Bar Code	^BU <i>n1,n2,n3,n4,n5</i>
Bar Code Field Default	^BY <i>n1,n2,n3</i>
Change format command prefix (default is ^)	^CC/~CC <i>n1</i>
Change parameter delimiter (default is ,)	^CD/~CD <i>n1</i>
Change control command prefix (default is ~)	^CT/~CT <i>n1</i>
Change default font	^CF <i>n1,n2,n3</i>
Download Format	^DF <i>n1:n2.n3</i>
Download graphics (uncompressed ASCII)	~DG <i>n1,n2,n3,n4,<data></i>
Download graphics	~DY <i>n1,n2,n3,n4,n5,<data></i>
Field Data	^FD <i>n</i>
Field Number	^FN <i>n</i>
Field Origin	^FO <i>n1,n2</i>
Field prints white over black and black over white	^FR
Field Separator	^FS or SI
Graphic Box	^GB <i>n1,n2,n3,n4,n5</i>
Draw circle	^GC <i>n1,n2,n3</i>
Draw diagonal line	^GD <i>n1,n2,n3,n4,n5</i>
Send a status message to host	~HS
Delete object from RAM or flash	^ID <i>n1,n2</i>
Load image to bitmap	^IL <i>n1</i>
Move image from storage to bitmap	^IM <i>n1</i>
Save label as image	^IS <i>n1,n2</i>
Change Backfeed Sequence to Normal	~JSN
Set 230 Dots Per Inch	^JMA
Reprint After Error = Yes	^JZY
Label Home	^LH <i>n1,n2</i>
Label Reverse Print	^LR
Label Top	^LT <i>n</i>
Map Clear = Yes	^MCY
Relative contrast adjustment	^MD <i>n1</i>
Media Feed	^MF <i>n1,n2</i>
Print Mirror Image = No	^PMN
Print Quality	^PQ <i>n1,n2,n3,n4</i>
Print Rate = Maximum	^PR
Set page/print width	^PW <i>n1</i>

ZPL-II Emulation

Set absolute contrast	~SD <i>n</i> 1
Select ZPL-II	^SZ2
Adjust tear-off position	~TA <i>n</i> 1
Start Format	^XA or STX
Recall Graphic	^XG <i>n</i> 1, <i>n</i> 2, <i>n</i> 3
Recall Format	^XF <i>n</i> 1, <i>n</i> 2, <i>n</i> 3
End Format	^XZ or ETX

Additional Printer Control

Select Emulation	ESC ESC <i>n</i>
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Bar Code and Font Indices

<u>Bar Code</u>	<u>Index</u>
Interleaved 2 of 5	2
Code 39	3
PDF417	7
EAN-8	8
UPC-E	9
Code 128	C
EAN-13	E
Codabar (ANSI)	K
UPC-A	U

<u>Font Requested</u>	<u>Index</u>	<u>Font Used</u>
Zebra Font A	A	25.4 cpi Courier
Zebra Font B	B	22.6 cpi Courier
Zebra Font C	C	18.5 cpi Courier
Zebra Font D	D	18.5 cpi Courier
Zebra Font E	E	10.2 cpi Sans Serif A
Zebra Font F	F	5.5 cpi Sans Serif A
Zebra Font G	G	10.7 cpi Sans Serif A

Note: The font used will be equal to, or smaller than, the font requested with preference given to the Sans Serif font.

CPCL Emulation

CPCL Emulation supports a subset of the Comtec CPCL command set and allows Printek printers to respond to commands designed to control a CPCL compatible printer. The commands that are supported are listed below.

Note: This emulation is only available in units with firmware version 2.0 or later.

CPCL Commands

Terminate and Print File	PRINT
Form Feed	FORM {max feed} {skip length}
Place Text on Label	TEXT, T {font} {size} {x} {y} {data}
Place Text on Label, Rotated 90° CCW	TEXT90, VTEXT, T90, VT {font} {size} {x} {y} {data}
Place Text on Label, Rotated 180°	TEXT180, T180 {font} {size} {x} {y} {data}
Place Text on Label, Rotated 270° CCW	TEXT270, T270 {font} {size} {x} {y} {data}
Place Mult. Same Size Text Lines on Label	MULTILINE, ML {height} {text} {font} {size} {x} {y} {data} ENDMULTILINE, ENDML
Set Font Magnification	SETMAG {w} {h}
Print Bar Code	BARCODE, B {type*} {width} {ratio} {height} {x} {y} {data}
Print Vertical Bar Code	VBARCODE, VB {type*} {width} {ratio} {height} {x} {y} {data}
Print PDF-417 Bar Code	BARCODE PDF-417 {x} {y} [XD n] [YD n] [C n] [S n] {data} ENDPDF
Print Human Readable Text Under Bar Code	BARCODE-TEXT, BT {font number} {font size} {offset}
Place a Rectangular Box on Label	BOX {x0} {y0} {x1} {y1} {width}
Place a Line on Label	LINE, L {x0} {y0} {x1} {y1} {width}
Place Expanded Graphics on Label	EXPANDED-GRAPHICS, EG {width} {height} {x} {y} {data}
Place Vertical Expanded Graphics on Label	VEXPANDED-GRAPHICS, VEG {width} {height} {x} {y} {data}
Place Compressed Graphics on Label	COMPRESSED-GRAPHICS, CG {width} {height} {x} {y} {data}
Place Vertical Compressed Graphics on Label	VCOMPRESSED-GRAPHICS, VCG {width} {height} {x} {y} {data}
Set Print Contrast Level	CONTRAST {level}
Set Print Tone Level	TONE {level}
Set Page Width	PAGE-WIDTH, PW {width}
Enable Pace Mode	PACE
Disable Pace Mode	NO-PACE
Wait <i>n</i> /8 Seconds	WAIT {delay-time}
Set Maximum Print Speed	SPEED {speed level}
Set Paper Feed Distance Before Printing	PREFEED {length}
Set Paper Feed Distance After Printing	POSTFEED {length}
Sound Control Panel Bell for <i>n</i> /8 Seconds	BEEP {beep length}

CPCL Commands (Continued)

Set Printer to Use Gap Sensing (LP Models Only)	GAP-SENSE,
Set Printer to Use Back Mark Sensing (LP Only)	BAR-SENSE,
Print PCX formatted Graphic	PCX {x} {y} {data}
Print Different Character Styles On One Line	CONCAT {x} {y} {font} {size} {offset} {data} ... {font} {size} {offset} {data} ENDCONCAT
Print Different Character Styles Vertically	VCONCAT {x} {y} {font} {size} {offset} {data} ... {font} {size} {offset} {data} ENDCONCAT
Left Justify Fields	LEFT [end]
Center Justify Fields	CENTER [end]
Right Justify Fields	RIGHT [end]
Draw a Circle **	CIRCLE {x} {y} {r} {thick}
Print a Logo/Graphic **	LOGO {logoname} {x} {y} {wscale} {hscale}
Save Label Job as Logo **	SAVE {logo ID} {logo name}

Utility Commands

Set Line Printer Font	SETLP {font number} {font size} {unit height}
Set Line Feed Height	SETLF {unit height}
Set Horizontal Position	X {unit value}
Set Horizontal and Vertical Position	XY {x unit value} {y unit value}
Set Vertical Position	Y {unit value}
Move Horiz. Relative to Current Position	RX {unit x value to move relative to present position}
Move Vertically Relative to Current Position	RY {unit y value to move relative to present position}
Set Left Margin	LMARGIN {dots to offset from left}
Set Bold Mode	SETBOLD {value}
Set Spacing Between Characters	SETSP {unit to separate characters}
Align Media to Print Head	SETFF {max-feed} {skip-length}
Set Start Printing Timeout to n/8 Seconds	SETLP-TIMEOUT {time in 1/8 seconds}
Set Page Width	PAGE-WIDTH, PW {width}
Print Bar Code	BARCODE, B {type*} {width} {ratio} {height} {x} {y} {data}
Print Vertical Bar Code	VBARCODE, VB {type*} {width} {ratio} {height} {x} {y} {data}
Print a Rectangular Box	BOX {x0} {y0} {x1} {y1} {width}
Print a Line	LINE, L {x0} {y0} {x1} {y1} {width}
Set Print Tone	TONE {level}
Print PCX Formatted Graphic **	PCX {x} {y} {data}
Relative Move Horizontally & Vertically **	RXY {x} {y} {data}

Line Print Mode Commands

Graphic Data	ESC-g {00} {width}
Carriage Return	CR
Line Feed	LF
Form Feed	FF
Backspace	BS
I/O Handshake, Printer Responds With ACK	ETX
Use Format File	! USE-FORMAT, ! UF {format name}
Define Format File	! DEFINE-FORMAT, !DF {format name}
Begin a Label Print Session	! {offset} 200 200 {height} {qty}
Single Utility Command	! U1 {single utility command}
Multiple Utility Command	! UTILITIES, ! U {multiple utility command separated by CRLF} PRINT

Additional Printer Control

Select Emulation

ESC ESC n

* Supported barcode types:

UPCA,UPCE,EAN13,EAN8,39,39C,I2OF5,I2OF5C,128,UCCEAN128,CODABAR,CODABAR16

** Additional command extensions.

Hex Dump Mode

Hex Dump provides a way to print, in a readable form, all the data received by the printer. This tool is useful to programmers for debugging programs when sending control codes and escape sequences to the printer. Hex Dump mode may also be used to detect what commands are being sent by a particular software application to help determine which emulation mode is needed for that application.

When the printer is operating in Hex Dump mode, control characters and escape sequences sent to the printer are not recognized or processed. The hexadecimal representation of the control characters and escape sequences will appear in the hex dump, but no other special processing will occur.

To select Hex Dump mode, please refer to your printer's Operator's Manual.

A sample hex dump for the MtP400 is shown below. Note that each line shows sixteen characters, first in hexadecimal format and then in printable ASCII format. Certain, common nonprinting characters are represented by special characters such as C_R , L_F , and F_F . The Escape character is represented by a diamond shape (♦) to help identify the beginning of command strings. All other unprintable ASCII characters (0x00-0x1F) are represented by a period.

```
54 68 69 73 20 69 73 20 61 20 73 61 6D 70 6C 65   This.is.a.sample
20 68 65 78 20 64 75 6D 70 20 74 6F 20 69 6C 6C   .hex.dump.to.ill
75 73 74 72 61 74 65 20 68 65 78 20 64 75 6D 70   ustrate.hex.dump
66 6F 72 6D 61 74 0D 0A 0C 00 00 00 00 1B 1B 01   format $C_R$  $L_F$  $F_F$ ....♦♦.
```

The format of the Hex Dump output for the MtP300 models will vary slightly due to constraints of printing on the smaller width paper.

Note: ETX/ACK handshake will not operate properly in Hex Dump mode. When an ETX is received by the printer, its hexadecimal representation will be printed in the hex dump, but no ACK will be sent to the host computer. When using the printer in Hex Dump mode using the RS-232C Serial Interface, it is recommended that the printer be configured for RTS/CTS handshake or XON/XOFF handshake.

Note: The Hex Dump feature is only available in units with firmware version 2.0 or later.

Print & Font Samples

These print samples were produced on an MtP400.

Print Samples

Sans Serif 5.5 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Sans Serif 10.2 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Sans Serif 10.7 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 12.7 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 13.5 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 14.5 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 15.6 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 16.9 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 18.5 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 20.3 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 22.3 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 25.4 cpi
0 1 2 3 4 5 A B C D E F a b c d e f

Courier 12.7 cpi

Courier 12.7 cpi Emphasized

Courier 12.7 cpi Double High

Courier 12.7 cpi Double High Emphasized

Courier Font With International Extended Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	
3	Ø	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8	ç	ü	é	â	ä	à	ã	ç	ê	ë	è	ï	í	ì	ñ	ñ
9	è	æ	œ	ô	ö	ò	û	ù	ý	ö	ü	ø	é	ø	×	f
A	á	í	ó	ú	ñ	ñ	æ	ø	¿	↑	↓	½	¼	¿	«	»
B	Ş	ş	Ġ	ğ	İ	ı	İ	ı	ı	ı	ı	ı	ı	ı	ı	ı
C	ϕ	ψ	α	β	γ	δ	ε	ζ	η	θ	κ	λ	ξ	σ	ς	
D	τ	ν	ê	ë	è	ï	í	ì	ñ	ñ	ñ	ñ	ñ	ñ	ñ	ñ
E	ó	β	ô	ò	ö	ö	μ	ρ	√	·	0	ù	¢	¥	ú	ú
F	£	±	ø	∞	Ω	Σ	π	f	♥	♦	♣	♠	÷			

Courier Font PC Line Drawing Extended Character Set

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	ç	ü	é	â	ä	à	ã	ç	ê	ë	è	ï	í	ì	ñ	ñ
9	è	æ	œ	ô	ö	ò	û	ù	ý	ö	ü	ø	é	ø	×	f
A	á	í	ó	ú	ñ	ñ	æ	ø	¿	↑	↓	½	¼	¿	«	»
B	Ş	ş	Ġ		+	+	+	+	+	+	+	+	+	+	+	+
C	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞
D	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞	⌞
E	ó	β	ô	ò	ö	ö	μ	ρ	√	·	0	ù	¢	¥	ú	ú
F	£	±	ø	∞	Ω	Σ	π	f	♥	♦	♣	♠	÷			

Sans Serif Font

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/	
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{		}	~	□
8	€	□	,	f	„	...	†	‡	^	%	Š	◊	œ	□	Ž	□
9	□	‘	’	“	”	•	—	~	™	š	◊	œ	□	ž	Ÿ	
A	ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯	
B	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
C	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	

ASCII Character Tables

ASCII Control Code Definitions

The following table is provided as a reference to the control character descriptions as provided by the ASCII definition. Not all of these definitions are supported by Printek printers and some are emulation dependent. For more information consult the appropriate chapter for the emulation being used.

Control Code	Hexadecimal Value	Description
NUL	00	Null
SOH	01	Start of Heading
STX	02	Start of Text
ETX	03	End of Text
EOT	04	End of Transmission
ENQ	05	Enquiry
ACK	06	Acknowledge
BEL	07	Bell
BS	08	Backspace
HT	09	Horizontal Tabulation
LF	0A	Line Feed
VT	0B	Vertical Tabulation
FF	0C	Form Feed
CR	0D	Carriage Return
SO	0E	Shift Out
SI	0F	Shift In
DLE	10	Data Link Escape
DC1	11	Device Control 1 (XON)
DC2	12	Device Control 2
DC3	13	Device Control 3 (XOFF)
DC4	14	Device Control 4
NAK	15	Negative Acknowledge
SYN	16	Synchronous Idle
ETB	17	End of Transmission Block
CAN	18	Cancel
EM	19	End of Medium
SUB	1A	Substitute
ESC	1B	Escape
FS	1C	File Separator
GS	1D	Group Separator
RS	1E	Record Separator
US	1F	Unit Separator

Decimal to Hexadecimal TO ASCII Conversion Table

<u>Dec</u>	<u>Hex</u>	<u>ASCII</u>	<u>Dec</u>	<u>Hex</u>	<u>ASCII</u>	<u>Dec</u>	<u>Hex</u>	<u>Dec</u>	<u>Hex</u>
0	00	NUL	64	40	@	128	80	192	C0
1	01	SOH	65	41	A	129	81	193	C1
2	02	STX	66	42	B	130	82	194	C2
3	03	ETX	67	43	C	131	83	195	C3
4	04	EOT	68	44	D	132	84	196	C4
5	05	ENQ	69	45	E	133	85	197	C5
6	06	ACK	70	46	F	134	86	198	C6
7	07	BEL	71	47	G	135	87	199	C7
8	08	BS	72	48	H	136	88	200	C8
9	09	HT	73	49	I	137	89	201	C9
10	0A	LF	74	4A	J	138	8A	202	CA
11	0B	VT	75	4B	K	139	8B	203	CB
12	0C	FF	76	4C	L	140	8C	204	CC
13	0D	CR	77	4D	M	141	8D	205	CD
14	0E	SO	78	4E	N	142	8E	206	CE
15	0F	SI	79	4F	O	143	8F	207	CF
16	10	DLE	80	50	P	144	90	208	D0
17	11	XON	81	51	Q	145	91	209	D1
18	12	DC2	82	52	R	146	92	210	D2
19	13	XOFF	83	53	S	147	93	211	D3
20	14	DC4	84	54	T	148	94	212	D4
21	15	NAK	85	55	U	149	95	213	D5
22	16	SYN	86	56	V	150	96	214	D6
23	17	ETB	87	57	W	151	97	215	D7
24	18	CAN	88	58	X	152	98	216	D8
25	19	EM	89	59	Y	153	99	217	D9
26	1A	SUB	90	5A	Z	154	9A	218	DA
27	1B	ESC	91	5B	[	155	9B	219	DB
28	1C	FS	92	5C	\	156	9C	220	DC
29	1D	GS	93	5D	]	157	9D	221	DD
30	1E	RS	94	5E	^	158	9E	222	DE
31	1F	US	95	5F	~	159	9F	223	DF
32	20	SP	96	60		160	A0	224	E0
33	21	!	97	61	a	161	A1	225	E1
34	22	“	98	62	b	162	A2	226	E2
35	23	#	99	63	c	163	A3	227	E3
36	24	\$	100	64	d	164	A4	228	E4
37	25	%	101	65	e	165	A5	229	E5
38	26	&	102	66	f	166	A6	230	E6
39	27	'	103	67	g	167	A7	231	E7
40	28	(	104	68	h	168	A8	232	E8
41	29	)	105	69	i	169	A9	233	E9
42	2A	*	106	6A	j	170	AA	234	EA
43	2B	+	107	6B	k	171	AB	235	EB
44	2C	,	108	6C	l	172	AC	236	EC
45	2D	-	109	6D	m	173	AD	237	ED
46	2E	.	110	6E	n	174	AE	238	EE
47	2F	/	111	6F	o	175	AF	239	EF
48	30	0	112	70	p	176	B0	240	F0
49	31	1	113	71	q	177	B1	241	F1
50	32	2	114	72	r	178	B2	242	F2
51	33	3	115	73	s	179	B3	243	F3
52	34	4	116	74	t	180	B4	244	F4
53	35	5	117	75	u	181	B5	245	F5
54	36	6	118	76	v	182	B6	246	F6
55	37	7	119	77	w	183	B7	247	F7
56	38	8	120	78	x	184	B8	248	F8
57	39	9	121	79	y	185	B9	249	F9
58	3A	:	122	7A	z	186	BA	250	FA
59	3B	;	123	7B	{	187	BB	251	FB
60	3C	<	124	7C		188	BC	252	FC
61	3D	=	125	7D	}	189	BD	253	FD
62	3E	>	126	7E	~	190	BE	254	FE
63	3F	?	127	7F	DEL	191	BF	255	FF

Printer Reset Conditions

The following list describes what conditions are assumed whenever the printer is powered on.

This list includes all variables which may be modified by the user for all emulations even though some emulations cannot modify all the variables shown. Refer to the appropriate section for the emulation being used.

Variable	Reset Condition
Emulation	According to Interface Setup
Line Printer/Easy Print	Line Printer Mode
Character Pitch/Font	According to Format Setup
Extended Character Set	International
Double High	Off
Double Wide	Off
Double High/Wide	Off
Emphasized	Off
Line Spacing	According to Format Setup
Left Margin	According to Format Setup
Right Margin	According to Format Setup
Print Contrast	According to Format Setup
Buffer Mode	Disabled
Text in an Incomplete Line	Discarded
Input Buffer	Cleared
Magnetic Card Reader	Pending Read Canceled

Glossary

802.11	Wireless networking communication standards created by IEEE.
access point	An interface between a wireless network and a wired network.
Ad-Hoc	A Wi-Fi network consisting of only stations (no access point). Same as Peer-to-Peer.
ASCII	American Standard Code for Information Interchange.
authentication	The process a Wi-Fi station uses to identify itself to another station.
bandwidth	The amount of data that be transferred in a given period of time.
baud rate	The rate at which characters are transmitted over a serial interface. This is also often referred to as bits per second.
binary	Base two numbering system. Digits are represented by the characters 0 and 1.
bit	A single binary digit.
Bluetooth	A definition for short range radio frequency communications.
client	Any node on a network that requests services from another node (server).
control code	A single, non-printing character which is used to control the configuration or operation of the printer.
character pitch	The horizontal spacing of characters. Measured in cpi.
cpi	Characters per inch.
current line	The line upon which the next character will be printed.
current print position	The column on the current line where the next character will be printed.
default	Value or configuration assumed when the printer is powered on or reset.
DHCP	Dynamic Host Configuration Protocol. A method used to centrally control the assignment of IP addresses on a network.
dpi	Dots per inch. Generally used to refer to graphics density or resolution.
escape sequence	String of characters beginning with the escape (ESC) character which is used to control the configuration or operation of the printer. The characters which are part of this string are not printed.
font	A group of characters of a given shape or style.
hexadecimal	Base sixteen numbering system. Digits are represented by the characters 0 through 9 and a through f.
IEEE	Institute of Electrical and Electronic Engineers
infrastructure	A Wi-Fi network consisting of stations connecting to a wired network or other stations via an access point.
interface	The connection between the printer and the host computer.

Glossary

IP	Internet Protocol. A specification for packets, or datagrams, of data and an addressing method to allow the exchange of data with another system. Must be combined with another protocol such as TCP to create a complete connection with the other system.
LAN	Local Area Network.
LCD	Liquid crystal display.
LED	Light emitting diode.
line pitch	The vertical spacing of rows of characters. Measured in lpi.
lpi	Lines per inch.
margin	An area along any edge of a form where data may not be printed.
MSB	Most significant bit. In a character, this refers to bit seven (of 0 to 7).
node	Any device connected to a network.
parity	A method used for detecting errors within a single character transmitted or received via an interface.
Peer-to-Peer	A network consisting of only stations (no access point or central server). Same as Ad-Hoc.
reset	Initialization of various operating parameters of the printer to the value or state assumed when the printer is powered on.
RS-232C	An EIA standard for serial data transmission.
server	Any node on a network that provides services to another node (client).
SSID	Service Set Identifier. An identifier attached to packets on a Wi-Fi network that identify the particular network the packets are intended for.
TCP	Transmission Control Protocol. A specification that controls the connection between systems on a network.
top of form	The vertical position where the first line is printed on the paper. Also the position the paper is advanced to when a form feed (FF) character is received from the host or the Form Feed button is pressed on the printer's control panel.
WAN	Wide Area Network. Refers to connections that allow one LAN to communicate with another LAN(s).
WEP	Wired Equivalent Privacy. A security protocol for wireless LANs designed to provide data security similar a wired LAN.
Wi-Fi	Refers to any of the IEEE 802.11 standards.
WLAN	Wireless Local Area Network. A LAN made up of wireless nodes.

