INFINITE PERIPHERALS
PROVIDER OF CUSTOM RECEIPT PRINTING SOLUTIONS

DPP-350

Thermal Printer
User Manual

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Contents

Technical Data

Feature	Specifications
Printing method	Line thermal dot printing
Printing speed	60mm/sec at 8.5V drive
Print Width	72mm
Dot density	8dots/mm (203 dpi)
Resident fonts	A: 12 x 24 dots B: 9 x 16 dots
Loadable fonts	C: 12 x 24 dots D: 9 x 16 dots
Printing columns	Font A, C – 48 Characters per line Font B, D – 64 Characters per line
Logo Registration	1 Black & White BMP format (1-bit per pixel) Size: 576 x 248
Memory	1 Mega bit Flash memory
Resident Barcodes	EAN13, EAN8, UPC-A, UPC-E, Codebar, Code39, Code128
Communications	RS-232C and USB 1.1compatible 2.0 Bluetooth® (optional)
Readers	Magnetic Card Reader - 3 track head, ISO7811 (optional) Smart Card Reader, ISO 7816-1/2/3 (optional) MIFARE Reader, ISO 14443-A (optional) SD card slot for SD card or WiFi modules (optional)
Emulation	ESC/POS
Power supply	Rechargeable battery (Li-Ion 7.2V 2000mAh) Battery capacity: Per Charge (~30000 lines) AC adapter – 9V @ 1000 mA
Environment	Operating temp. -10°C to 50°C @ 10 to 90 % RH Storage temp.
Reliability (MTBF)	50km (printing rate 25% max)
Dimensions	108x111x62mm (WxDxH) without readers
Weight	340g (without paper) 430g (with paper)
Thermal paper	80mm X 50mm diameter 58/60mm X 50mm diameter (optional)
Thermal Labels	Label length 100mm maximum Diameter = 50mm, Thickness ~ 60 - 100µm

Table 1

Box Contents

Your IPC DPP-350 comes with the following items listed below:

Item	Part Number	Descriptions	Image
1	DPP-350xx	DPP-350 Thermal printer	
2	-	AC charger	
3	-	1 Roll of thermal paper	
4	-	User's manual	

Table 2

Software (Drivers & SDK):

Because of the continually evolving Driver & SDK to support new mobile devices, Drivers & SDK are distributed online and is available for download at our website indicated below. For details on using the DPP-350 Drivers & SDK, please refer to the SDK's documentation.

For the latest DPP-350 SDK's, visit our developer web site at:

http://www.ipcprint.com/support/default.asp

Compatible Devices

The DPP-350 (Serial & USB) / DPP-350 (Bluetooth®) portable thermal printer is designed specifically for use with most PDA & Smartphone devices.

The DPP-350 can be used in a variety of applications where Printing / Card Reading is required.

User Notes:

Compatibility depends on the type of communication method "Serial / USB / Bluetooth®" your PDA or Smartphone supports and the availability of DPP-350 driver for your device.

- Determine the method of communications your device supports.
- Next determine if your device is supported by the DPP-350 Drivers & SDKs.

Compatible devices are added continually. Visit our web site at:

> http://www.ipcprint.com

Because of the continually evolving Driver & SDK to support new mobile devices, visit our developer web site at:

> http://www.ipcprint.com/support/default.asp

Getting Started

The IPC DPP-350 allows you to printer information from your PDA & Smartphone. Before using the DPP-350 thermal printer the battery should be properly charged. The following Quick Start guide will help to get your DPP-350 ready for use.

Quick Start:

Steps	What to do	Purpose	Where to find more information
1	Charge the DPP-350 rechargeable battery pack as recommended in this manual.	The Lithium Ion battery pack should be fully charged before use to ensure long battery life.	Charging Battery, Page 9
2	Load DPP-350 print media (Thermal Paper)	DPP-350 requires Thermal paper for printing.	Loading Paper, Page 11
3	Setup Bluetooth Pairing.	Setup Bluetooth® pairing to allow DPP-350 to communicate with Bluetooth® devices.	Bluetooth® Setup, Page 16
4	Install DPP-350 Software	To print information from your device, software needs to be installed onto your device.	Printing software is not provided by IPC. Please contact your DPP-350 reseller or Infinite Peripherals for recommendations on Third-Party solutions. Developers should refer to the section in this manual on "Developing Solutions".

Table 3

About Your DPP-350

♦ **DPP-350 left view**

Power On/Off Switch

Paper Cover Lever

Paper Feed

Serial RS232

Magnetic Card Reader

Figure 1

♦ **DPP-350 right view**

ON/OFF & Error LED

Charging LED

Reader LED

Mini USB Port

Charger Input

Smart Card Reader (Optional)

Figure 2

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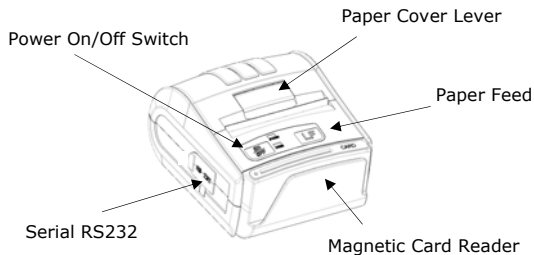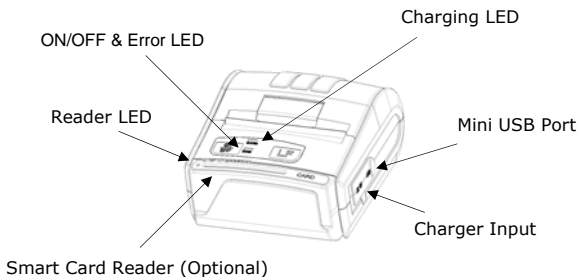DPP-350 User Manual v1.09

Charging the DPP-350:

The DPP-350 uses a Lithium Ion rechargeable battery pack. Before first use, the DPP-350 battery pack should be charged for at least 4 hours.

To prevent electrical damage to the DPP-350 and/or battery pack, please use approved AC Charger only.

Solid RED = charging
Solid GREEN = fully charged (~4 hrs.)

AC Charger
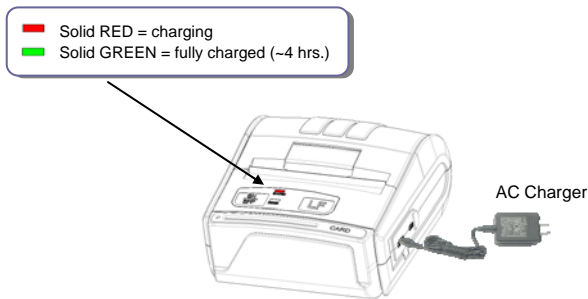
Figure 3

Status & Operating Modes

The DPP-350 uses LEDs to indicate various conditions of operation. This may be charging, active or online, battery low conditions. The following explains these conditions and LED indication.

Charging LED

Line Feed Button

Power Button

ON/OFF & Error LED

Figure 4
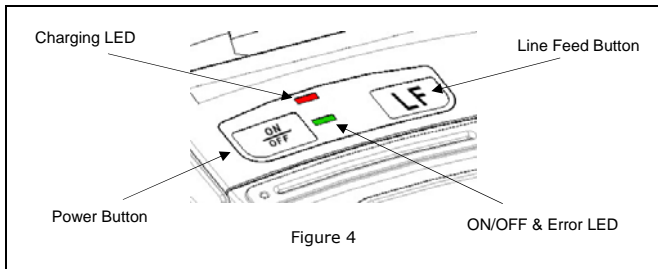
Printer Status			
Charging LED	🟩	Solid GREEN = Battery at full charge	
	🟥	Solid RED = Battery charging	
Status LED	🟩	Power ON Flashing once per second = Low battery	
	🟥	Low / No Paper	
	🟩 🟥	Flashing once per second = Thermal Head Overheating	

Table 4

Loading Paper

The DPP-350 uses a drop-and-load design making paper loading easy and trouble free. To load paper, simply lift up the paper cover latch and drop in the new roll as shown in the steps below.

1. Lift the paper cover latch to unlock the paper cover as shown in the figure on the right.

Figure 5

2. Lift the paper cover.

3. Drop in the new roll of thermal media (Stand Paper or Labels) as shown in the figure on the left.

   Be sure to pull at lease ½ inch or more of media above the top of the printer before closing.

Figure 6

4. Close the paper cover until it snaps lock.

Figure 7

Power On Self-test

The DPP350's LF switch/button is used for entering various printer modes. These modes can be used to assist developers in debugging problems related to programming and communication. The following explain how to access the various operating modes.

Step #1: Make sure the printer is OFF (On-line LED is OFF) before performing step #2.

Step #2: Press and hold the line feed button (LF). While pressing the (LF) button, press the (ON) button momentarily and release when the LED turns green. Release LF button after the printer Beep once. Shortly after the LF button is released the printer will print the internal test pattern on the right.

LF Button Operation Modes		
Short Push	**N/A**	Paper feed
Push and Hold - release after the number of beeps	**1 - beep**	Self-test print
	2 - beeps	Hex Dump mode
	3 - beeps	Long-test print
	4 - beeps	Program mode

Table 5

Note: Care must be taken when entering operating modes to prevent the clearing of factory preset configuration information.

Self-test

The DPP-350 has a built-in test pattern that shows the printer's current configuration as well as the various resident printer fonts. The self-test can also be used as a troubleshooting tool to determine printing problems or battery level. The steps below show how the self-test is printed activated.

- Resident font sizes
- Characters per line
- Text formatting
- Resident character set
- Resident barcode symbols
- Printer's Configuration

Figure 8

Dip Switch Settings

The DPP-350 is designed to use different methods of communications. Care must be taken to ensure that the DIP Switches are not changed from its default factory configuration unless required.

♦ **DIP SWITCH SETTINGS:**

The printer has two absolutely different operation modes.

They are determined by the state of switch Sw2:

- OFF ESC/POS mode
- ON   Hex Dump mode

These two modes have absolutely different list of commands that are both described below. As the different operation modes use one and the same memory, the switching from one mode to another can cause lost of data and settings of the active mode as follows:

- Switching to Hex Dump mode deletes loadable fonts and logo of ESC/POS mode.
- Switching to ESC/POS mode deletes all forms, graphics and fonts that were loaded in Hex Dump mode.

Switch	OFF	ON
Sw1	Wide paper/label roll (78 мм)	Thinner paper/label roll (58 мм)
Sw2	ESC/POS mode	Hex Dump Mode
Sw3	Hardware protocol	Xon/Xoff protocol
Sw4	Normal operation mode	Protocol mode

Table 6

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DIP Switch Location

Figure 9

DIP Switch

Figure 10

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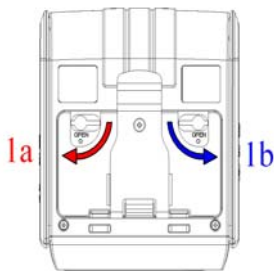
Memory Switch Settings

The DPP350 uses nonvolatile memory for storing some of the printer default configuration. The following table shows the available options.

Memory Switch Options	
Memory Switch (see command reference GS command)	1000000010
BAUD RATE	115200 bps
POWER OFF TIME	10 minutes
PRINT DENSITY	100%
CHARACTER TABLE	WESTERN (1252)

Table 7

Setting Memory Switch

♦ **MEMORY SWITCH SETTINGS:**

Step #1: Make sure the printer is OFF (STATUS LED is OFF) before performing step #2.

Step #2: Press and hold the line feed button (LF). While pressing the (LF) button, press and hold the (ON) button until the status LED display solid RED.

Step #3: Release the (ON) button and count (2) Beeps or until the next solid RED LED is displayed. Release LF button and follow the instruction printed.

Note: Care must be taken when changing factory preset configuration information.

```
MEMORY SWITCHES:   1000000010
BAUD RATE:         115200 bps
AUTO OFF TIME:     10 min
PRINT DENSITY:     100%
CHARACTER TABLE:   WESTERN (1252)

        HARDWARE SETUP
   <ON/OFF> - NO, <LF> - YES

CHANGE MEMORY SWITCHES ?
```

```
SAVE SETTINGS ?

MEMORY SWITCHES:   1000000011
BAUD RATE:         115200 bps
AUTO OFF TIME:     5 min
PRINT DENSITY:     100%
CHARACTER TABLE:   WESTERN (1252)

HARDWARE SETTINGS STORED !
```

Memory Switch Details

```
SW1   ENABLE SOUND ?
SW2   EXECUTE <CR> AS <LF> ?
SW3   DISABLE <CR> COMMAND ?
SW4   N/A
SW5   N/A
SW6   N/A
SW7   N/A
SW8   DISABLE DISCOVERABELITY ?
SW9   ENABLE USB INTERFACE ?
SW10  USB IN DEVICE MODE ?


CHANGE BAUD RATE ?
CHANGE AUTO OFF TIME ?
CHANGE PRINT DENSITY ?
CHANGE CHARACTER TABLE ?
CHANGE PAIRING INFO ?

SAVE SETTINGS ?
```

- ♦ **SW1:** Enable/Disable buzzer.
- ♦ **SW2:** Execute <CR> Carriage Return as <LF> Line Feed.
- ♦ **SW3:** Disable <LF> Line Feed command.
- ♦ **SW4-7:** Reserved for future features.
- ♦ **SW8:** Prevents others from discovering printer when set to ENABLE. Must be set after pairing is completed.
- ♦ **SW9:** Allow the use of USB port for communications.
- ♦ **SW10: (OFF)** set USB as the host mode.

Pairing Info Details

- ♦ **BAUD RATE:**   Default is 115200
- ♦ **AUTO OFF TIME:**   Default is 5 minutes
- ♦ **PRINT DENSITY:**   Default is 100%
- ♦ **CHARACTER TABLE:**   Default is WESTERN (1252)
- ♦ **PAIRING INFO:**   DEFAULT is (SAVE = No)

Notes:

When saving pairing information, the printer remembers Bluetooth information of the last device connected (paired) to the printer. Saving pairing info prevents the printer from asking for passkey upon initialization. The process for using this option is described below.

"To speed this programming process, you may bypass the memory switch settings by indicating "NO" via pressing of the <ON/OFF> button when the printer prints "CHANGE MEMORY SWITCHES" as shown on page 17. This will advance you to the next level of setting where pairing can be found".

Saving Pairing Info:

1. Following instruction on page-17, change the Pairing Info option to [**Save = Yes**].
2. Turn the printer on and pair the printer to your Bluetooth device.
3. The printer will now remember the pairing information and not prompt user for a passkey on every printer initialization.

Clearing Pairing Info:

1. Following instruction on page-17, change the Pairing Info option to [**Save = No**].
2. Turn on the printer and pair the new Bluetooth device to the printer.
3. The printer will prompt user for a passkey on every printer initialization.

Communication Configuration

The following default configurations are used for the different communication methods.

♦ **Bluetooth:**

Memory Switch Options	
Memory Switch (1 thru 10) (see page 16, 17, 18)	1000000010
Physical Switch Options	
DIP Switch (1, 2, 3 ,4) (see page 14)	OFF, OFF, OFF, **ON**

Table 8

♦ **USB:**

Memory Switch Options	
Memory Switch (1 thru 10) (see page 16, 17, 18)	1000000010
Physical Switch Options	
DIP Switch (1, 2, 3 ,4) (see page 14)	OFF, OFF, OFF, **ON**

Table 9

♦ **Serial:**

Memory Switch Options	
Memory Switch (1 thru 10) (see page 16, 17, 18)	1000000010
Physical Switch Options	
DIP Switch (1, 2, 3 ,4) (see page 14)	OFF, OFF, OFF, **ON**

Table 10

Notes: When not using Driver/SDK developer tools, set DIP Switch 4 to OFF.

Connecting Device

The DPP-350 is designed to use different methods of communications. Care must be taken to ensure that the DPP-350 USB or Serial connector and PDA & Smartphone connector are not accidentally damaged. The figures below show how to attach the different device to the DPP-350.

♦ **Serial / USB (Cabled) Version:**

- Connect the DPP-350 using Mini USB or Serial cable is shown in the figure below.
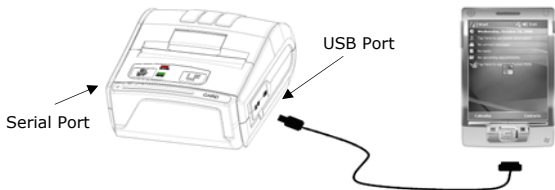

Serial Port

USB Port

Figure 11

♦ **BLUETOOTH® (Wireless) Version:**

- The DPP-350 Bluetooth® version uses Bluetooth® wireless technology to connect to Bluetooth® enable devices. See page 18 for details on Bluetooth® setup.
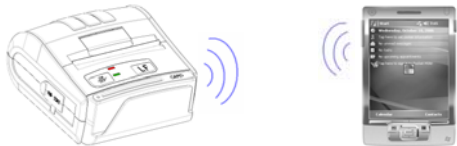

Figure 12

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Bluetooth® Setup

Adding New Bluetooth® Device to PDA or Smartphones

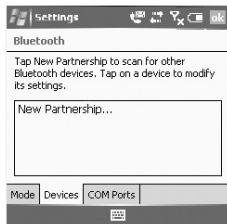The following is a brief explanation on how to [**Pair**] your Bluetooth® DPP-350 to PDA & Smartphones.

BlackBerry Devices:

Add Device or Pairing Bluetooth® peripherals to BlackBerry devices require the use of the device Bluetooth® manager. Image on the right shows a typical Blackberry Bluetooth® manager. When adding / pairing the DPP-350, use the [**0000**] pairing key when prompted.
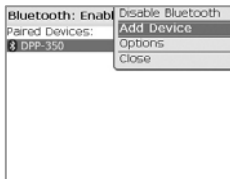
Windows Mobile Devices:

Creating a *New Partnership* or Pairing Bluetooth® peripherals to your Windows Mobile devices require the use of the device Bluetooth® manager. Image on the right shows a typical Windows Mobile Bluetooth® manager. When adding / pairing the DPP-350, use the [**0000**] pairing key when prompted.

Palm Devices:

Add Device or Pairing Bluetooth® peripherals to your Palm devices require the use of the device Bluetooth® manager. Image on the right shows a typical Palm Bluetooth® manager. When adding / pairing the DPP-350, use the [**0000**] pairing key when prompted.
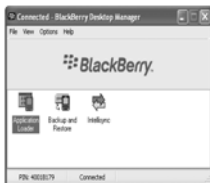
Loading Drivers

Loading DPP-350 drivers for you're PDA or Smartphones.

BlackBerry Devices:

Blackberry Desktop Manager shown in the figure on the right is used to load third party software on to your device.

Please review your device's documentation on how to use the Application Loader Option to load software on to your device.

Windows Mobile Devices:

Active Sync shown in the figure on the right is used to install third party applications on to your mobile device.

Please review your device's documentation on how to use the Active Sync Manager to load new software on to your device.

In most cases you only need to run the DPP-350 installer to start the installation.

Palm Devices:

Palm Install Manager Application shown in the figure on the right is used to install third party applications on to your device.

Please review your device's documentation on how to use the Palm Install Manager Application to load new software on to your device. In most cases you only need to drag & drop DPP-350 PRC files in installer and click Add.

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Magnetic Card Reader (MS Version only)

The DPP-350 has a built-in magnetic card reader. The card reader incorporates a (3)-track magnetic read head requiring a single swipe to read field data from all three tracks.

Magnetic Strip
(Face this direction)

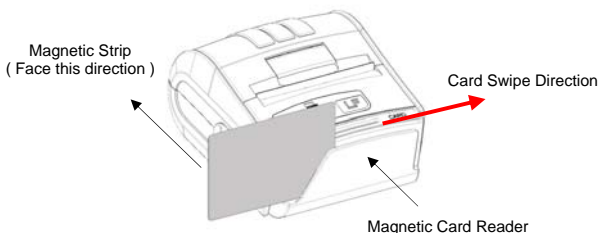Card Swipe Direction

Magnetic Card Reader

Figure 13

The reader's magnetic head faces towards the front of the printer. When placing the card into the reader, the magnetic strip must be facing as show in the figure above. Keep the bottom edge of the card flat on the inner base of the reader to ensure that the magnetic strip passes over the read head evenly.

When swiping the card through the reader, use an even consistent motion from start to finish.

The speed of swiping can vary however the speed must be consistent from start to finish of the swipe in order to accurately read card data.

User Notes:

To use the magnetic card reader feature, special software must be used to read and process the card information. If you do not have card reading software, please consult your reseller to find out if this software is available or contact Infinite Peripherals for recommendations on compatible third party software solutions.

Smart Card Reader (SC Version only)

The DPP-350 has a built-in smart card reader (optional). The smart card reader is designed to read information stored embedded on smart chips and process the information using device side software.

Smart Chip
(Face this direction)

Card Insert Direction

Reader Active LED
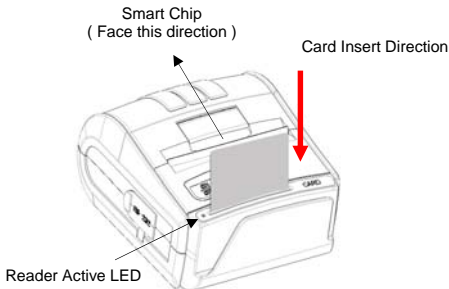
Figure 14

When placing the card into the reader, the smart chip must be facing to the front of the printer as show in the figure above. Insert the card in to the reader until the card stops.

User Notes:

To use the smart card reader feature, special software must be used to read and process the smart chip information. Please consult your reseller if this software is available or contact Infinite Peripherals for recommendations on compatible third party software solutions.

MIFARE Reader (MF Version only)

The DPP-350 has a built-in MIFARE reader (optional). The MIFARE reader is designed to read information stored embedded on MIFARE contact less cards or tags and process the information using device side software.
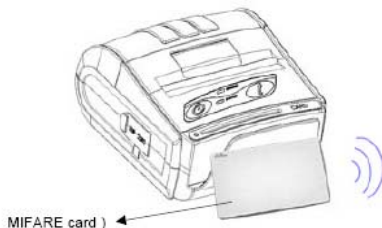
MIFARE card)

Place the MIFARE card close to the printer facing the front of the printer as shown in the figure above.

User Notes:
To use the MIFARE reader feature, special software must be used to read and process the card information. Please consult your reseller if this software is available or contact Infinite Peripherals for recommendations on compatible third party software solutions.

Replacing Battery

To replace the battery in the DPP-350 thermal printer follow the steps below.

Steps:

1. Turn over the DPP-350 and place on a flat surface. Rotate the (2) locking levers as shown in the figure on the right.

   Figure 15
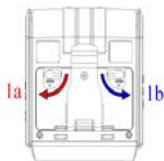
2. Lift the battery cover as showed in the figure on the right.

   Figure 16

3. Lift the battery as shown in the figure on the right.

   Figure 17

4. Detach the battery connector as shown in the figure on the right. Reverse Steps 1-4 to install the new battery pack.

   Figure 18

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Developing Solution

Integrating the DPP-350 into your mobile solution requires the use of the DPP-350 PDA & Smartphone SDK. The SDK incorporates API specific to developing printing applications and using the integrated Magnetic Card Reader / Smart Card Reader capability of the DPP-350.

The table below shows the SDKs currently available for PDA & Smartphone devices.

OS	Language	SDK - IDE
BlackBerry	Java	RIM BlackBerry Java JDE 4.1 and higher
Palm One	C ++	Code Warrior
	Basic	Satellite Forms
	Basic	NS Basic
Windows Mobile	VB.Net	Microsoft Visual Studio 2005 (.Net)
	C ++	Microsoft Visual Studio 2005 (.Net)
	C Sharp	Microsoft Visual Studio 2005 (.Net)

Table 11

For details on using the DPP-350 SDK, please refer to the SDK's documentation.

For the latest DPP-350 SDK's, visit our developer web site at:

http://www.ipcprint.com/support/default.asp

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Troubleshooting

If you're having problems capturing signatures refer to the table below for possible causes.

Item	Problem	Possible Cause
1	Paper feeds after issuing a print job but no printed text visible on paper.	Thermal media is specially coated on outside of roll. Remove paper roll and reload properly. See section "Loading Paper" for details on loading paper.
		Paper cover not installed properly. See section "Loading Paper" for details on replacing paper cover.
2	On-line LED blinks RED continuously.	Battery voltage low.
		Printer out of paper or Paper not properly loaded. See section "Loading Paper" for details on loading paper.
3	Text and/or graphics are printed very light.	Battery voltage low. See section on charging battery pack.
		Thermal media not imaging correctly. Verify that you are using the recommended thermal media.
4	Strange characters are printed when printing.	Battery voltage low. See section on charging battery pack.
5	Printer stops responding to print and paper feed commands.	Remove battery for 5 seconds and reconnect battery.
6	Printing is light or missing only on half of the print width.	Paper cover not properly installed. See section on loading paper.
		Mechanism jarred loose. Contact technical support.

Table 12

Federal Communications Commission

Federal Communications Commission (FCC) Statement

15.21
You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)
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 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.

Operation is subject to the following two conditions:
1) this device may not cause interference and
2) this device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Contact Information

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