EXTECH INSTRUMENTS

EXcellence in TECHnology Since 1971

S2500THS
User Guide

Revision: 5.1
10/01/2007

"Make Mine an Extech!™"

Extech Instruments Corporation• 285 Bear Hill Road • Waltham, MA 02451-1064 USA
Tel: 1-781-890-7440 • Fax: 1-781-890-7864 • E-mail: printers@extech.com • www.extech.com

Table of Contents

Declaration of Conformity

Name	Extech Instruments Corporation
Manufacturer's Address	285 Bear Hill Road, Waltham, MA 02451, USA Telephone: +1 781 890 7440
Declares that the Product	
Product Name:	Portable Receipt Printer
Model Number:	S2500THS
Optionally Containing:	Bluetooth™ radio short range OEM module from connectBlue ab, cB-0701-01; FCC ID PVH 070101. Conforms to R&TTE Directives: 1999/5/EC (EN 300 328-2), EMC Directive 89/336/EEC (EN 301 489-1 and -17); and Low Voltage Directive 73/23/EEC (EN 61131-2)
Conforms to the following regulation and/or standards:	
	FCC: Part 15 Subpart B, Class B
	CE: EN60950 CE: EN55022 Class B; CE: EN61000-3-2; CE: EN61000-3-3 ; CE: EN50024.
Supplementary Information :	• The product complies with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC • The product conforms to ANSI/UL STD 60950 & Certified to CAN/CSA STD C22.2 No. 60950-00 • CB Certified • ETL Listed, control # 3046813 • The product is IEC 68 certified
Place:	Waltham, MA, USA
Date:	July, 2003
Signature:	*Antony Revis*
	Antony Revis, General Manager

General Precautions

- Before using this product be sure to read through this manual. After reading please keep the manual in a safe place for future reference.
- The information contained herein is subject to change without notice of any type.
- Extech is not responsible for any operational results regardless of missing information, errors or any misprinting in this manual.
- Extech is not responsible for problems created as a result of using options and consumables not approved by them.
- This product is designed for servicing at an Authorized Service Center. Other than routine maintenance described in this manual the user should not attempt to repair service or disassemble this product.
- Incorrect operation, handling, improper supplies and operating environments may cause damage or otherwise affect the proper operation of this product. Such actions invalidate the product warranty.

Safety

In this manual and on the Printer and accessories we make use of internationally recognized safety symbols as follows:

	**Caution! Refer to the explanation in this Manual**
	**Caution! Risk of electric shock**
	**Double Insulation or Reinforced Insulation**
	**DC, Direct Current or Voltage**
	**AC+DC, Current or Voltage**

1. Getting Started

1.1 Unpacking the Printer

The S2500THS portable printer is a full featured portable receipt printer designed for varied job environments including field service, field sales, hospitality and restaurants, ticketing and many others where point of service receipts are required. The package contains:

- S2500THS Printer
- Battery Cartridge
- Universal AC Adaptor (US, UK, European, and Australian plugs) for charging the battery inside the printer
- Belt Loop System
- Roll of paper supply (already loaded in the printer)

Both cabled and wireless communication is possible.

Overview

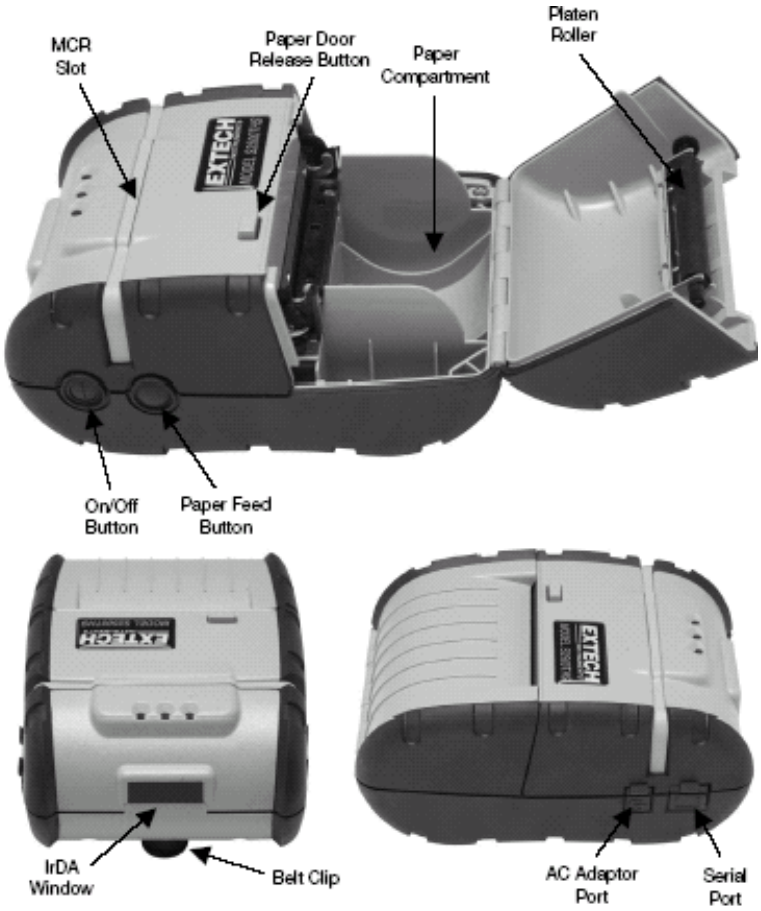


FIGURE 1: PRINTER OVERVIEW

1.2 Installing and Charging the Battery Cartridge

Note: One battery cartridge is included with the printer. Similar to a cordless phone battery, the printer's battery must be charged before using it.

	**Extech batteries must be cycled several times to achieve maximum capacity. To cycle a battery, fully charge it and then allow full discharge through normal use in the printer**

1.2.1: Installing the battery

Note: Refer to the illustration below to install the battery pack in the printer.

- Unlock the battery door by sliding the locking tab down
- Open the battery door to an angle of about 90 degrees. Do not force open.
- Insert the battery as shown. (Non-contact end first and let contact end drop into place).
- Close and lock the battery door by sliding the locking tab up.

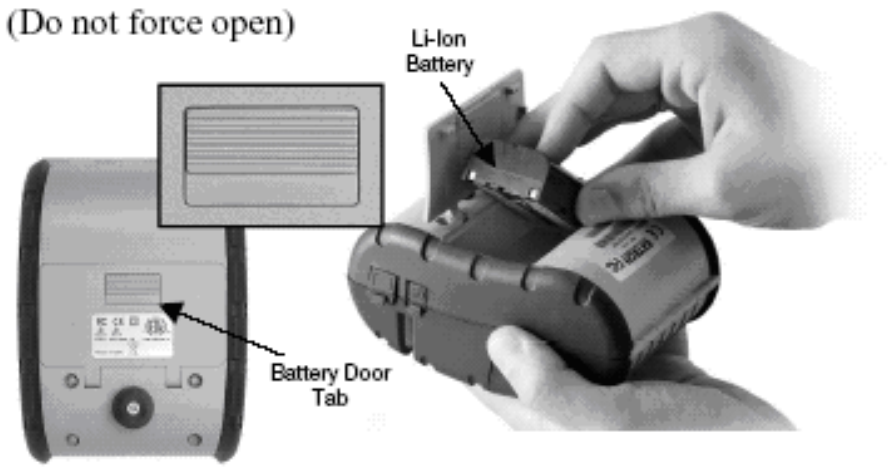


FIGURE 2: INSTALLING THE BATTERY CARTRIDGE

Note: Ensure that battery side with 2 contact terminals is facing down to make contact with the spring probes inside the battery compartment

1.2.2 Charging the Battery

- Plug battery charger adaptor output cable into the battery charger connector as shown.
- Plug battery charger adaptor into the appropriate AC line voltage socket.
- The Yellow/Amber charging LED will illuminate indicating that the battery is being charged.
- The battery will be fast charged and after about 180 minutes the LED will turn off.
- To remove the battery cartridge, open the battery door and tip the battery out of the printer.

FIGURE 3: CHARGING THE BATTERY

Note: To ensure a full charge do not operate the printer while charging.

Note: The wall mounted charger is a Class II equipment (⧈). Multiple plug configurations comply with most international standards. The wall mounted charger is not supplied with plugs for use in Korea.

Model	S2500THS
Input Voltage/Current	100-240 VAC/0.4A
Input Frequency	47-63 Hz
Output Voltage/Current (⎓)	10VDC/1.32A

⚠	**Do not use a charger not approved by Extech for use with the S2500THS series. Use of an unapproved charger could damage the battery pack or the printer and will void the warranty.**
⚠	**The battery terminals are well recessed inside the printer. Do not allow them to contact conductive material since this may create a short circuit which could cause injury or start a fire.**
⚠	**When using the wall mounted charger ensure the socket outlet is close to the printer and easily accessible during the battery recharging process. Either switch the socket off (if supplied with a socket switch) or pull out the charger from the socket or disconnect the plug from the printer in the event of any problems.**

1.3 Reading the LED Status

The illustration below points out the location of the LED indicators described in Table 1

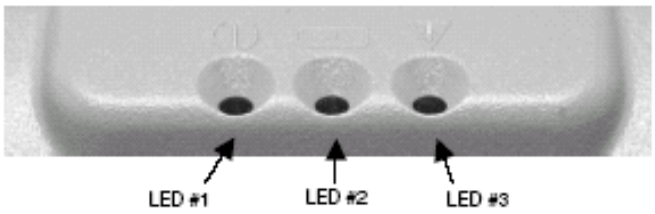


FIGURE 4: LED INDICATOR LOCATIONS

This table explains the LED indicator status. Refer to Figure 1 for the locations described for ON/OFF and FEED pushbutton switches and AC adaptor socket.

Table 1 - Reading the LED Status

LED Indicator	State	Status
LED#1	GREEN	*If the LED's Color is Green it indicates that Power is ON and that the printer is in RS232 or IrDA mode*
	PURPLE/ ORANGE	*If the LED's Color is PURPLE it indicates LOW power in Bluetooth (BT) mode. If it is ORANGE it indicates low power in RS232 mode.*
	BLUE	*If the LED's Color is Blue it indicates that Power is ON and that the printer is in Bluetooth mode*
LED # 2	YELLOW	*The battery is being charged at a fast rate. If the battery is below 5V, the battery is being "trickle" charged until the battery voltage reaches 5V, and then the fast charge rate is started. The LED will turn off when the battery is fully charged.*
LED # 3	GREEN	▪ *Indicates that MCR is ready to accept data.*
	RED	▪ *Indicates a fault condition or a printer error. The printer is not ready to accept data.* ▪ *Printer is out-of-paper*

Note: Refer to the troubleshooting guide to determine error or fault condition.

1.4 Attaching Belt Loop System

The belt loop system consists of two parts:

- A knob located on the back part of the printer just above the battery door
- A strap with click on connector

To attach the strap insert the knob located at the bottom of the printer into the slot of the connector. Pull down until you hear a click. The printer is now secure. Place the loop over your belt. Allow the printer to hang down on the left or right hip.

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

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

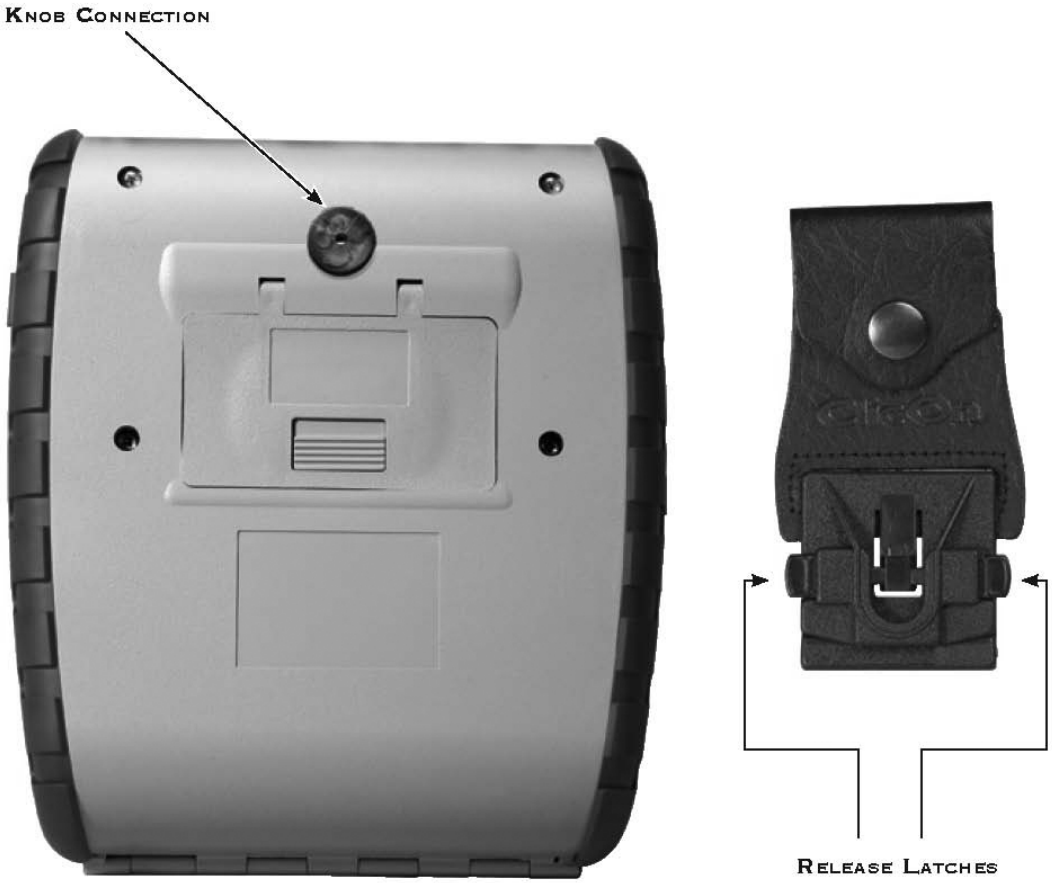


FIGURE 5: KNOB CONNECTION AND QUICK CLIP

2. Loading Supplies

2.1 Adding Paper/Labels

The printer can print text, bar codes and graphics on thermal receipt paper. See “Supply Specifications” on Section 5.2 for the width, thickness requirements and approved vendors. Follow these steps to load printer paper.

- Press Paper Door Release button. The door will open slightly. Open rest of the way as shown in Figure 6.
- Grip either side of the paper door and open – it will open to 180 degrees. See figure 6.

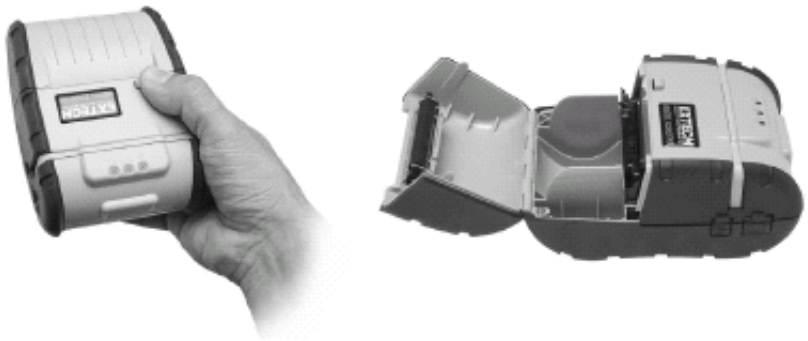


FIGURE 6: OPENING PAPER DOOR

Note: Paper Door Release button must be depressed when opening and closing paper door

- Place the paper roll into the paper supply well. Make sure the paper supply unwinds from the bottom as indicated below with the thermal side closest to the print head.
- Unroll about 3 inches of paper from the roll and position between the print head guides.

FIGURE 7: INSTALLING PAPER ROLL

Note: Pull Paper Roll Leader Out of Printer. Note direction of paper travel

- While pressing Paper Door Release button, close paper door.
- Let go of the Paper Door Release button and press the printer door until fully closed
- Turn on the printer by pressing Power button and test the paper advance function by pressing the Paper Feed Button. Verify that paper advances correctly.

Note: Paper Supply Roll
To prevent any possible damage to the print mechanism, it is important to verify that the paper has not been fastened to the inside core in any way. The paper should be wound on the core in such a way that the end of the paper will unwind freely from the core. If fastened by tape or glue, the core will be pulled into the mechanism causing jamming and possible gear damage. Proper paper roll supplies are available from Extech as P/N 757060

2.2 Tearing Paper

The printer's paper door acts as a tear bar. Pull one edge of the paper against the tear bar as indicated. Then, tear down and across against the tear bar to tear the paper. See Figure 8 for details.

FIGURE 8: TEARING PAPER

	**The tear bar may have sharp edges**

Note: Using the tear bar is the only way to tear the paper.

Note: Pulling up and pulling sideways without using the tear bar can cause a paper jam due to paper misalignment in the print head mechanism

3. Using the Printer

3.1 Initial power up and self-test

Once the battery is charged and the paper is loaded an initial power up self-test can be performed.

- Press the <On/Off> switch once. This turns printer on. The Green LED illuminates
  - *After approximately 20 seconds, if no instructions are sent to the printer, the printer will automatically turn off to conserve battery life.*
  - *If the printer is set for infrared communications (IrDA) mode the printer will stay on all the time.*
- Press the <On/Off> switch to turn the printer off. The green LED turns off.
- To start the self-test, press and hold the <FEED> switch then press the <On/Off> switch
- The printer will start printing the self-test messages. Release the <FEED> and <On/Off> switches.
  - *Press the* <On/Off> *or* <FEED> *switch to stop or cancel the self-test print.*
  - *The first few lines of self-test show the printer firmware version, the current printer settings (for example IrDA or Serial mode) and a list of any optional or special features installed.*

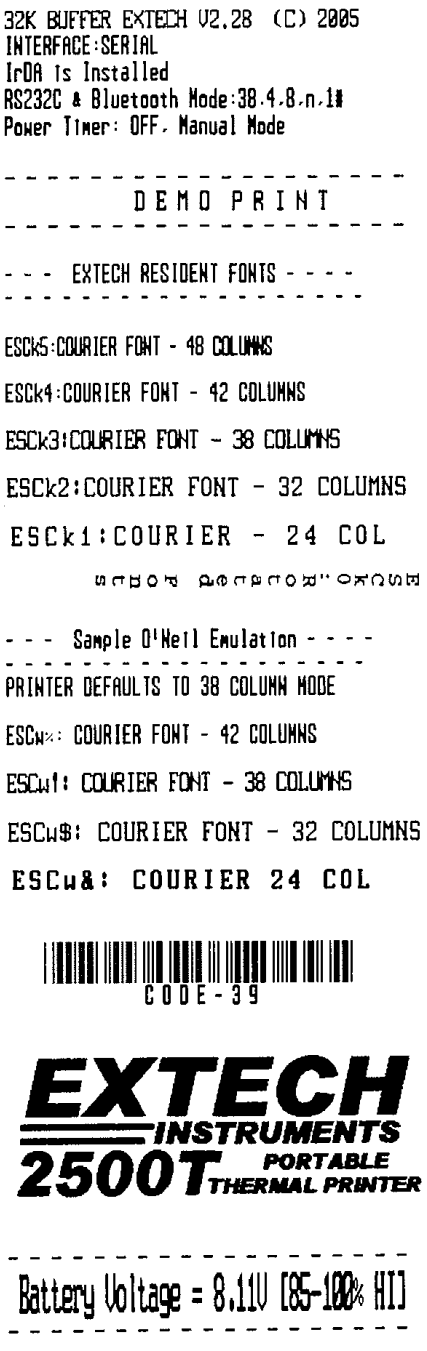


FIGURE 9: SELF TEST

3.2 Connecting the Printer

- The 2500THS printers support Serial RS232 and IrDA compatible infrared communication interfaces. Radio frequency (RF) Bluetooth ™ communication is also available as an optional feature.
- Serial, IrDA and Bluetooth communication settings can be changed via a DIP switch located on the control card as shown in Figure 10.
- The DIP switch is located inside the battery compartment as illustrated below indicating the location of this switch. Figure 11 shows the DIP switch selection.
- The functions assigned to these switches are shown **Table 2.**
- If the Serial interface is selected, the communication Parameters, Baud Rate, Data Bit and Parity, must be set.

Note: Optional serial cable is available for Serial RS232 communication (part # 5892RJD9).

- Printer drivers for Windows 95/98/NT/2000 and XP are available from Extech.
- PrinterCE print Control utility is available from Extech for Windows CE devices.
- Printboy Print Utility from Bachmann Software or PalmPrint Utility, from StevensCreek, are recommended for Palm Pilot devices.

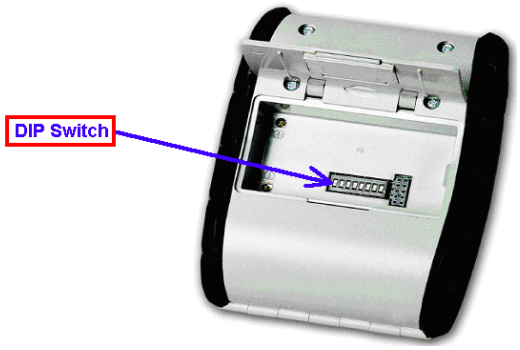


FIGURE 10: DIP SWITCH LOCATION

3.2.1 Location of Dip Switches

Infrared Communications (IrDA)

Dip switch #1 must be in the <On> position. Please check the Dip Switch table for further details.

Serial and Bluetooth Communications

1) All Switches OFF – RS232 mode
2) Dip Switch # 5 On – BT Mode

3.2.2 Setting Dip Switches

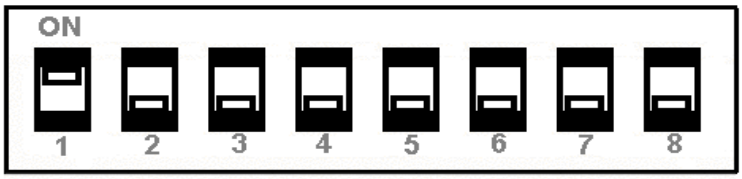


FIGURE 11: DIP SWITCH SETTINGS

Note: Be careful when changing dip switch settings. Carefully use a pointer on the dip switch you are going to change. DO NOT use a screw driver or apply excessive force.

3.2.3 Dip Switch Functions

Note: Programmers refer to Developer's Manual for more information

Table 2 – DIP Switch Setting

Switch #	Function	Switch	Switch	Switch	NOTES:
1 & 5	***Communication Interface***	***SW1***	***SW5***	***SW7***	
	RS232	*Off*	*Off*		*SET SW 2,3,6 &7*
	RS232 and Bluetooth	*Off*	*On*		*Defaults to 38.4k Baud*
	IrDA Set to 9600	*On*	*Off*		*Baud rate fixed to 9600*
	IrDA Variable 9600-38.4K	*On*	*On*		
	Direct IR	*On*	*Off*	*On*	*Defaults to 9600 Baud*
2 & 3	***Baud Rate***	***SW2***	***SW3***		
	38,400	*Off*	*Off*		*(DEFAULT)*
	19,200	*Off*	*On*		
	9,600	*On*	*Off*		
	2,400	*On*	*On*		
4	***Printer Power Timer Control***	***SW4***			*Software control*
	Continuous Power On	*On*			
	Auto Power Off	*Off*			*(DEFAULT)*
6 & 7	***Parity bit***	***SW6***	***SW7***		
	No Parity	*Off*	*Off*		*(DEFAULT)*
	Odd Parity	*On*	*Off*		
	Even Parity	*On*	*On*		
8	***Printer-Power-Control***	***SW8***			*Hardware control*
	Continuous Power ON	***On***			***Remove the battery to shut down printer***
	Auto Power Off	***Off***			*(DEFAULT)*

Note: In order for changes to the dip switch configuration to take effect, the printer power must be reset. This action occurs automatically when the battery is removed to gain access to the dip switches.

3.3 Serial Communication

- The RS232C Interface signals for the 2500THS Series printers are terminated on a 6 PIN RJ type data connector located on the side of the printer.
- Six connections are provided from the Serial Interface to the host computer. Table 3 below lists the Serial Interface signals and pin outs on the RJ connector and the connector pin locations are shown in Figure 12.
- A minimum of two pin connections are required for operation, RXD – pin 3 and Common – pin 1.

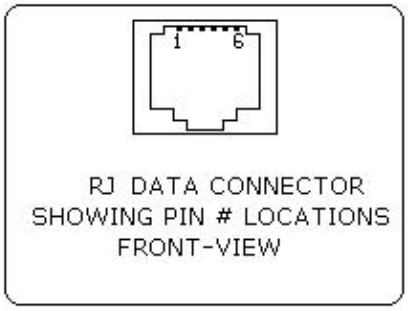


FIGURE 12: RJ DATA CONNECTOR

Table 3 – S2500THS Serial RS232C Interface signals

RJ25 CONNECTOR PIN #	FUNCTIONAL DESCRIPTION	SIGNAL NAME
3	RS232 from Host (INPUT)	RXD
2	RS232 from Printer (OUTPUT)	TXD
6	Request to send from Host (INPUT)	RTS
4	Clear to send from Printer (OUTPUT)	CTS
1, 5	Logic common	COM

Note: The communication Parameters: Baud rate, Data Bit and Parity must be set the same as the host device settings. Dip switch #1 must be in the OFF position.

3.4 Infrared Communications (IrDA)

- Dip Switch #1 must be in the <ON> position.
- The printer can be powered up by pressing the power <On/Off> switch.
- If no IrDA connection is made, the printer will automatically power down to a lower power level to conserve battery life. It will remain in a “sleep” mode until an IrDA

connection is made, at which time the printer will “wake” up and print the requested data.

- Pressing the power switch again will turn the printer <OFF>.

3.4.1. Direct IR

- The S2500THS printer supports direct IR printing.
- To select Direct IR mode, set DIP switches 1 and 7 in the ON position and
- 2, 3, 4, 5, 6 and 8 to OFF. This sets the communication speed at 9600bps.
- This mode is intended for host devices that only support the physical layer of the IrDA communication.

3.4.2 Infrared Communications (Variable Baud Rate IrDA Mode):

- Dip Switch #1 and #5 in the <ON> position selects Variable Baud Rate IrDA mode.
- In Variable IrDA, mode, the communication Baud Rate can be negotiated up to 38.4K.
- Graphic print speed is tripled in variable IrDA mode.

3.5 Bluetooth Communications (Option)

- Dip Switch #5 has to be <ON>. However, if you want to make sure that the printer stays <ON> please turn Dip Switch #4 <ON>. This will make the printer go into low power mode if not used and only pressing the <ON/OFF> button will turn it <OFF>. On the other hand if you turn Dip Switch #8 <ON> it will have the same effect as turning Dip Switch #4 <ON> but in order to turn the printer <OFF> you have to take the battery out – otherwise it will go into low power mode but never shut down.

Note: Adjust settings to match those of the Bluetooth module in your computing device

- The printer can be powered up by pressing the power <On/Off> switch
- When powered up in Bluetooth mode, the printer will not enter a “sleep” mode and will remain active waiting for the wireless print command (If you want the printer to enter sleep mode please follow the instructions above).
- Pressing the power <On/Off> switch again will turn the printer <OFF>.

Note: In Bluetooth mode, it is necessary for the mobile computing device you are using to discover the printer and the printer needs to be set as a favorite. Refer to instructions provided by the systems integrator.

Note: Systems Integrators: Refer to the Bluetooth manual provided with your mobile computer and the Bluetooth section of the Developer’s Manual available for this printer.

3.6 Magnetic Stripe Reader (option)

- The Magnetic Card Reader is a factory-installed option. This option requires special application software to read and process cards with a magnetic stripe, such as credit cards or driver's license

Note: Refer to Figure 1 for location of optional magnetic stripe reader

- Quickly swipe the card through the reader either left to right or right to left. The magnetic stripe must be facing toward the paper supply door as indicated below while it is passed through the reader.

FIGURE 13: USING THE MAGNETIC CARD READER

- Refer to Table 4 for the description of the Magnetic Card LED Status.

Table 4 - Magnetic Card LED Indicator

LED indicator	State	Status
Green	ON	Ready/waiting for card to be swiped.
	OFF	Good swipe - Card data read OR Card not ready to be swiped.
Red	ON	Error reading card's data.

3.7 Programming Information

This section lists the printer control commands strings.

Note: System Developers: Please refer to S2500T developer's manual for further details. Other features may be available and are described in the programmer's manual

3.7.1 ASCII Control Characters

Character	Hex/Dec	CONTROL ACTION
EOT	04/04	End Of Text
BS	08/08	Back Space
HT	09/09	Horizontal Tab
LF	0A/10	Line Feed
VT	0B/11	Vertical Tab
FF	0C/12	Form Feed
CR	0D/13	Carriage Return
SO	0E/14	Shift Out
SI	0F/15	Shift In
XON	11/17	Transmitter On
AUXON	12/18	Printer on
XOFF	13/19	Printer receiver is off
NORM	14/20	Return to default
AUXOFF	15/21	Printer to Host: printer is off
CANCEL	18/24	Cancel and reset printer BUFFER
ESC	1B/27	Escape
EXTEND	1C/28	Extended print
EXTEND OFF	1D/29	Extended print off/Normal print

3.7.2 Printer Font Commands – Courier Character Set

Font Name	Character size (W x H)	Command String
24 CPI normal	8x23	ESC+'k'+'5'
21 CPI normal	9x23	ESC+'k'+'4'
19 CPI normal	10x23	ESC+'k'+'3'
16 CPI normal	12x23	ESC+'k'+'2'
12 CPI normal	16x23	ESC+'k'+'1'
13 CPI rotated	14x16	ESC+'k'+'0'

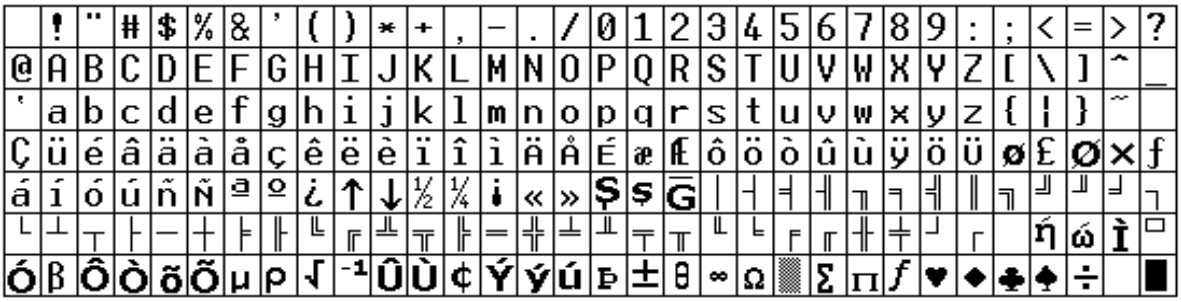
3.7.3 Printer Font Commands

Command String	Printer Action
ESC - 'F' – 1	Selects International character set
ESC - 'F' – 2	Selects PC Line Draw character set
ESC - 'U' - '1'	Enable emphasized print.
ESC - 'U' - '0'	Disable emphasized print.

Table 5 shows the international and PC Line Character set from 32 to 255.

Table 5: International and PC Line Draw Character Set

International Character Set



PC Line Draw Character Set

3.7.4 Printer Graphic Commands

Command String	Printer Action
ESC - 'a' – n	Select dot line spacing between printed lines.
ESC - 'J' – n	Graphic Line Feed command
ESC - 'P' - '#'	Select Online mode, characters printed as received.
ESC - 'P' - '$'	Select Buffer mode, characters are printed on (^ D)
ESC - 'V' - n1 – n2	8-bit Graphic command
ESC - 'v' - n1 – n2	RLE Compressed Graphic command

3.7.5 Magnetic Card Reader Commands (When MCR is installed)

Command String	Printer Action
ESC - 'M' - 'nnm' - CR	Select MCR with (nn) auto timeout Where nn="00" to "99" m=1: Reads track 1 only m=2: Reads track 2 only m=3: Reads track 3 only m=4: Reads track 1 & 2 m=5: Reads track 2 & 3 m=6: Reads track 1, 2 & 3
ESC – 'C'	Cancel MCR read process

3.7.6 Graphic Logo and Bar Code Commands

Command String	Printer Action
ESC – L – G –n	Prepare printer to load image
ESC – G - 0x0FF	Loading Logo Complete
ESC – L – g – n	Print stored logo image
ESC - 'z' - n1 – n2 - L - [data]	Print Bar Code without visible text
ESC - 'Z' - n1 – n2 - L - [data]	Print Bar Code with visible text
ESC - 'Q' - 'J' – *n*	Reverse Dot Feed
ESC - 'Q' - 'Q' – *n*	Set Out of Paper Sensitivity
ESC - 'Q' - 'F' – *m*	Set Forward Black Mark Seek
ESC - 'Q' - 'B' – *m*	Reverse Black Mark Seek

3.7.7 Printer Supervisory and Control Commands

Command String	Printer Action
^V	Buffer, power timer & battery status
^B	Buffer status
ESC - 'P' –'^'	Print Battery Voltage
ESC – 'P' – alpha	Time and date print and control
ESC – 'M' - '000' - Cr	disable the power down timer
ESC - 'M' - 'nn0' - Cr	sets the power down timer to nn seconds
ESC – 'M' - 'C'	Reset Auto power down to 20 seconds
ESC – 'P' – '('	Firmware version query
ESC – ' P' - ')'	Hardware model query:

4. Printer Maintenance

4.1 Print Head Cleaning Instructions

You may need to clean the print head and platen roller after printing a number of rolls of paper, whenever you load new supplies or when you see voids in the printout.

Do not use sharp objects to clean the print head. This may damage the printer and require service

- Open the paper door by pressing the Paper Door Release Button as shown in Figure 6. The paper supply door will pop up.
- Remove the paper roll.
- Moisten a cotton swab with isopropyl alcohol and clean the print head.
- Clean the platen roller with a dry cloth or small brush.

Note: You can also use another cotton swab moistened with isopropyl alcohol. Turn the platen roller with your finger and run the cotton swab or dry cloth across it. Make sure the platen roller is clean all the way around.

- Moisten another cotton swab with isopropyl alcohol. Rub the swab across the black mark sensor to remove any build-up
- Moisten another cotton swab and rub the swab across the tear bar to remove any build-up

Note: You may experience dust build-up depending on the environment and the quality of the paper supply you use. If this occurs, use a can of compressed air to blow dust and paper debris out of the printer.

4.2 Charging the Printer Battery

The printer battery is charged using the wall mount adapter provided. Follow these steps to charge the battery pack.

- Plug battery charger adaptor output cable into the battery charger connector as shown in Figure 3.
- Plug battery charger adaptor into the appropriate AC line voltage socket.
- The Yellow/Amber charging LED will illuminate indicating that the battery is being charged.
- The battery will be fast charged and after about 180 minutes the LED will turn off.
- To remove the battery cartridge, open the battery door and tip the battery out of the printer.

4.2.1 Important Notes on Charging Batteries

- The model 2500THS printers require an adaptor output of 10VDC/1.32A.
- The battery fast-charge is initiated each time the power adapter is connected to the printer.
- The fast-charge controller checks the battery's voltage and temperature, before the start of the fast recharge process. If the battery voltage or the temperature is outside of the fast-charge limits, the charger defaults to trickle charge at C/10 or 70mA rate.
- Optional external battery chargers are available for Extech batteries. Refer to Section 4.7 "Printer Supplies" for detailed information.

4.2.2 Important Notes on Replacing Batteries

- Check for the correct Extech part number for the battery and use only that part for your new battery.

	**Risk of explosion if battery is replaced by an incorrect type**
	**Follow instructions in Section 4.5 to dispose used batteries**

4.3 Verifying Battery Charge State

We strongly recommend testing your printer before returning it to Extech. Follow these steps to identify and correct any battery power problem that may be encountered. These will help to identify that the fault is with the printer and not some other part of your system.

To test the AC adaptor:

- Use a multi meter and measure the output voltage. Output should be 10VDC.
- Press the <ON/OFF> switch and wait until all LED's are off.
- Insert the AC adaptor plug into the printer. If the amber LED goes on, the battery is not fully charged but the charge circuit is functioning.
- The AC power portion of the circuit appears ok.

To test the DC power:

- Disconnect the AC Adapter once the battery has charged for 5 minutes or so.
- Press and hold the <FEED> switch, then press and release the <ON/OFF> switch and then release the <FEED> switch. The printer will print a "self test" receipt

- If the self test receipt is printed, the DC power is ok.

To test if the battery is accepting charge:

- Press <ON/OFF> switch and wait until all LED's are off
- Plug the AC power adapter into the printer. Press <ON>; the green LED is illuminated and after about 20 seconds the LED should go off
- If the amber LED is on, this will continue on through this test indicating that the battery is accepting a charge and that the charge circuit is ok. At the end of a 180 minute charge cycle the LED will go off.

4.4 Battery and Safety Information

The printer is powered by a 7.4V Li-Ion battery cartridge.

- Charging time in the printer is approximately 3.0 hours
- Take the battery out of printer if storing the printer for long periods of time
- The battery storage temperature is 40°F to 104°F (4°C to 40°C). Do not store a fully charged battery at temperatures greater than 104°F (40°C) for long periods of time – the battery may permanently lose charge capacity
- The recommended temperature for charging is between 68°F (20°C) to 77°F (25°C).
- Be sure to use a fully charged battery before long or battery intensive printing sessions. Certain operations (for example, printing receipts with a lot of bar codes and graphics) drain the battery more quickly than others
- Dispose according to your local regulations. **Do not throw in trash.**

	**Do not disassemble, short circuit, heat above 80°C, or incinerate. The battery may explode**

4.5 Recycling Batteries

The Rechargeable Battery Recycling Corporation (RBRC) is a non-profit organization created to promote recycling of rechargeable batteries. For more information about how to recycle batteries in your area, visit **www.rbrc.org.**

4.6 Trouble Shooting

Problem	Action
Does not feed paper or has a paper jam	•Remove any jammed supply •Reload paper supply
Does not print	•Check or replace the printer's battery •Make sure the paper supply is loaded correctly, not backwards •Verify communication between the host device and the printer by disconnecting the communication cable and performing a printer self test
Light printing	•Check or recharge the battery •Adjust the print contrast through print application
Voids in printing	•Clean the print head following the cleaning instruction listed in Section 4.1.
Red (Error) LED on	•Check that paper roll is not out and paper door is closed •Error reading MCR •After extended printing, print head may be hot; printer will pause before resuming printing

If the problem is not identified by following the above trouble shooting guide, contact Extech Technical Support. Support numbers and Email addresses are listed at Section 6 of this manual.

Other than routine cleaning and other maintenance described in Section 4, the printer is not intended to be serviced by the user. It must be returned to an Authorized Service Center. Under no circumstances should the user attempt to take the printer apart

4.7 Printer Supplies

Part Number	Description
78328I1	S2500THS PKG
78328I1-1	S2500THS PKG w/Bluetooth™
78328I1R	S2500THS MCR PKG
78328I1R-1	S2500THS MCR PKG and Bluetooth™
151133	Optional 12V/24V In-Vehicle Adaptor (Battery in printer)
157261	Multi-Plug Battery Charger Adapter (US, UK, Euro & Australian Plug)
5892RJD9	Serial Data Cable – RJ to DB9 PC compatible
756983	IP54 Certified Environmental Case
756998-2	Spare Belt Loop System
757060	2500THS Thermal Paper Pack (2.25”/57 mm, 5 rolls per pack)
757060-CASE	Spare Paper (Case of 200 Rolls)
757150	Thermal Print Head Cleaning Pen
757160	Magnetic Card Reader Cleaning Cards (5 per order)
757351	Optional Shoulder Strap with Quick Clip
767400-1	Battery Charger (2 Bay) Li-Ion, 120VAC
767400-2	Battery Charger (2 Bay) Li-Ion, 220VAC
767400-4	Battery Charger (2 Bay) Li-Ion, 240VAC
7A1000014	2500THS Li-Ion Battery Cartridge: 7.4VDC– 2200mA
Available from Extech Email: printers@extech.com	Windows 95/98/NT/2000/ Drivers
Download: http://www.fieldsoftware.com/PrinterCE.htm	Windows CE print Utility
Download http://www.stevenscreek.com/pilot/dodownload.html http://www.bachmannsoftware.com/downloads.html	Palm Pilot print Utility PrintBoy for Palm O/S

5 Specifications

5.1 Printer Specifications

Height:	2.7 inches (68mm)
Width:	4.2inches (107mm)
Length:	5.4 inches (138mm)
Weight: w/battery & supply	1 lb (465g)
Shipping weight:	2.8 lbs. (1.31 kg)
Power:	7.4 V Li-Ion battery
Operating Temp. Limits:	14F to 122F (-10 to 50C)
Storage Temp. Limits:	-4F to 140F (-20C to 60C)
Operating Humidity Limits:	20% to 85% non-condensing
Storage Humidity Limits:	5% to 95% non-condensing
Print head:	2.25" wide (57mm); 203 dpi (8 dots per mm)
Printing Method:	Direct Thermal
Print Speed:	Up to 2.0 inches per second
Supported Fonts: (Bitmap)	Standard (normal and bold) Large (normal) Reduced (normal and bold) Large rotated.
Supported Bar Codes:	Codabar, Code 39, UCC/EAN – 128, UPC/EAN/JAN, Interleaved 2 of 5, Code 128 2D: PDF417 (optional)
Memory:	32K SRAM, 128K Flash
Charging Time:	Approximately 180 minutes
Communications:	RS-232 port; IrDA; Bluetooth option
Print Ratio:	25% black maximum/sq. in.

5.2 Supply Specifications

Supplies:	Thermal direct receipt paper
Supply Thickness:	2.2 to 3.5 mils (receipt paper)
Supply Width:	2.25 inches (57mm)
Supply Length:	1 roll of receipt paper is approx. 600 inches (15,240 mm)
Supply Sensing:	Black mark (on face of supply)
Paper roll diameter:	Outside: 1.5 inches (37.5 mm) Inside: 0.4 inches (10 mm)
Maximum Print Area:	1.89 inches (48 mm) X 5.3 inches (203mm)
Approved Vendors:	**Kansaki**: P300, P310, P350, P354, P390, P394, P530UV, TO281CA, OP200, TO381N **Jujo**: TF-50KS-E2C **Honshu**: FH65BV-3

5.3 Regulatory Notes

5.3.1 FCC Part 15 Class 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 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.

For Bluetooth equipped printers, please note:

- The printer contains an OEM Serial Port Adapter from connectBlue with FCC ID: PVH070101. 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.

5.3.2 Warranty

This printer is warranted by Extech Instruments to be free of defects in parts and workmanship for a period of one year from date of shipment. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties of merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, special, incidental or consequential damages. Extech's total liability is limited to the repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral is expressed or implied.

5.3.3 Warranty and/or Repair Service

A Return Authorization number must be issued before a unit is returned to Extech for repair. Once a unit has been properly returned to Extech (Note: The customer is responsible for ensuring proper packing to prevent damage in transit as well as the shipping costs back to Extech), it will be repaired (estimates are provided first if the repair cost is estimated above $100.00) and returned via UPS ground. The customer may elect a faster mode of transport at their cost.

6. Customer Support

6.1 Online Technical Assistance

Frequently Asked Questions page	http://www.extech.com/printer/techSupport/FAQ.html
Troubleshooting Guide.	http://www.extech.com/printer/techSupport/troubleShootGuide.html

6.2 Technical Support Request

If you need technical assistance regarding software, hardware or operation of Extech printers, please contact us at:

Tech Support Form	http://www.extech.com/printer/techSupport/support.html
Email	printers@extech.com
Telephone	+1-(781)-890-7440
Fax	+1-(781)-890-7864

Portable Printer Division
http://www.extech.com/Printer

"Make Mine an Extech!™"