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(Japan – HQ)	SATO Corporation
(Singapore)	Bar Code SATO Electronics (S) Pte Ltd
(Malaysia)	SATO Bar Code & Labelling Sdn Bhd
(Thailand)	Barcode SATO (Thailand) Co., Ltd
(China)	SATO Shanghai Co., Ltd
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(Germany)	SATO Deutschland GmbH
(Poland)	SATO Polska SP ZO.O
(Holland)	SATO Rotterdam Logistic Centre

Factory :

(Malaysia)	Bar Code SATO Electronics (M) Sdn Bhd
(Malaysia)	SATO Electronics (M) Sdn Bhd

DCS & Labelling Worldwide

CT400 / CT410

Plug & Play Retail Printer

Quick Guide

9001141A

DCS & Labelling Worldwide

Bar Code **SATO** Electronics (S) Pte Ltd
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Website : www.satosingapore.com

Warning : This equipment complies with the requirements in Part 15 of FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps necessary to correct the interference.

Options

Label Cutter

This is an internal option allowing labels to be cut at specified intervals. Controlled through programming. Factory installed only.

Label Dispenser

Another internal option allowing labels to be peeled from backing for immediate (on demand) application. Factory installed only.

Label Rewinder

An external accessory that rewinds labels onto a roll after they are printed.

Serial Interface

High Speed RS232 interface option, 9600 to 57.6 Kbytes. Factory installed only.

Ethernet Interface

TCP/IP Protocol Interface option. Factory installed only.

USB Interface

Universal Serial Bus Interface option. Factory installed only.

Coax/Twinax Interface

External Coax/Twinax I/F interface accessory.

Coax I/F emulates an IBM3287-2 printer with a standard Type A BNC connector.

Twinax I/F emulates IBM 5224, 5225 or 4214 printers with auto-terminate / cable-thru capabilities.

Printer Specifications

SPECIFICATION	CT400	CT410
PRINT		
Method	Thermal Transfer or Direct Thermal	
Speed (User Selectable)	2 – 6 ips 50 – 150 mm/s	2 – 4 ips 50 – 100 mm/s
Processor	32-Bit RISC, 80MHz	
Resolution	203dpi (8 dpmm)	305 dpi (12 dpmm)
Maximum Print Length	15.6" (400mm)	
Maximum Print Width	4.1" (104mm)	
MEDIA		
Width	0.9" – 4.6" (23mm – 118mm)	
Minimum Length	0.6" (15mm)	
Roll OD (Maximum)	4.3" (110mm), Wound Face-Out	
Label Sensing	See-Thru for Labels & Tags, Reflective I-Mark, Continuous Forms	
RIBBON		
Length	325 ft (100M)	
Maximum Width	4.4" (111mm)	
PRINT-OUTS		
Text Fonts	12 Proportional & Mono-Spaced OCR-A & OCR-B 10 Scaleable Vector Fonts	
Graphics	Sato Hex/Binary, .BMP or .PCX	
Bar Codes	19 including Four (4) 2-D Bar Codes	
Rotation	Text & Bar Codes can be rotated 90°, 180° & 270°	
PHYSICAL		
Dimension	W7.8" x D9.1" x H6.5" 198mm x 230mm x 181mm	
Weight	6.6 lbs (3 Kg)	
POWER REQUIREMENTS		
Voltage	110V (± 10%); 220V (± 10%); 50/60Hz (±1%)	
Power Consumption	150W Operating at 30% Density	
ENVIRONMENTAL		
Operating	5 – 40°C; 30 – 80% RH, Non Condensing	
Storage	-20 – 40°C; 20 – 90% RH, Non Condensing	

The following is a general list of the CT400 / CT410 series specifications. For a complete listing, please refer to the *Operator & Technical Reference, Section 1*.

Table of Contents

What You Get 2

Connecting The Printer 3

Ribbon Loading (CT4xxTT only)..... 5

Media Loading
Roll Media 5
Fanfold Media 7

Operator Panel 7

Rear Connector Panel 8

Troubleshooting
Initial Checklist 9
Using the IEEE 1284 Parallel Interface 9
Using the RS232C Serial Interface 10
Error Signals 11

Printer Specifications 12

Options.....13

This Quick Guide was prepared to get you up and running quickly. It will enable you to get your new SATO CT4xx Series installed and printing with minimum effort. However, it is recommended that you familiarise yourself with the contents of the Printer's *Operator & Technical Reference Manual* for detailed descriptions so you will be able to properly use the printer to its full potential.

What You Get

The CT Series Thermal Transfer printer comes packed in a protective carton. Included in the carton are the following items :

- CT400 / CT410 Printer
- Quick Guide
- Driver / Manual CD ROM
- Power Module AC Power Cord
- Cleaning Solution & Cloth (Not for Export out of Singapore)

6. If you are still unable to get printer output, try the Hex Dump as described in Step 5 under the Parallel Interface troubleshooting. In this case, the printer monitors its RS232C interface for incoming data.

7. From the Hex Dump, if you are seeing no extra 0D 0A (CR & LF) characters, and are using BASIC, refer to the beginning of the Command Code section. It provides hints for writing a SATO program in BASIC.

Error Signals

The 7-segment LED, Front Panel LED Indicators and Buzzer provide a visual/audio indication of the type of error encountered.

Dis-play	LED Indicators		Buzzer	Error Condition	Corrective Action
	LINE	ERROR			
0		ON	1 Beep	Flash Memory error	Replace Flash ROM
1				Not Assigned	
2		ON	1 Beep	Motherboard error	Replace PCB
3		ON	1Beep	EEPROM error	Replace EEPROM
4		ON	1 Beep	Electrical Head	Replace Print Head
5		Blink	3 Beeps	Head not latched	Latch Print Head
6		Blink	3 Beeps	Out of Paper	1) Replenish paper 2) Route Paper thru sensor
7		Blink	3 Beeps	Sensor error	1) Select correct sensor 2) Adjust sensor level
8		Blink	3 Beeps	Cutter error	Connect cutter
8.	ON	ON		Program download error	Retry download
9		Blink	3 Beeps	Ribbon End (TT mode only)	Replace ribbon
A	ON		1 Beep	Receive buffer overflow	1) Modify host SW 2) Select correct protocol
b	ON		1 Beep	Parity error (Serial I/F only)	Correct Parity Settings
c	ON		1 Beep	Framing error (Serial I/F only)	Correct data bit setting
d	ON		1 Beep	Overrun error (Serial I/F only)	Correct flow control settings
E	ON		1 Beep	LAN Time Out Error	Replace LAN I/F
F			3 Beeps	Download Font / Graphic Error	Correct data stream

6. When you send the print job to the printer and it does not respond, and there is no error message on the PC :
   a. Check your data stream for some of the basics. Is your job framed as follows :
      <ESC>A--DATA--<ESC>Z
   b. Verify that you have included all required parameters in the data stream.
   c. Verify the following :
   i. You have not typed a '0' (zero) for an 'O' (letter) or vice-versa.
   ii. You have not missed any <ESC> characters where they are needed.
   iii. Make sure all printer command codes are in Capital Letters.

7. If you have checked all of the above and the printer is still not printing, you may want to try a Buffer Hex Dump to determine what (if anything) the printer is receiving from your computer.

Using the RS232C Serial Interface

1. Is the RS232C Serial Cable connected securely to your serial port on the PC (DB-25S or DB-9S Male) and to the RS232C connector on the printer?

2. Is the cable defective? At the very least, you should be using a "Null Modem Cable" which crosses pins in a specific manner. This should enable your printer to print. But we recommend that you eventually use a cable built to specifications as described in *Section 5 of the Operator & Technical Reference Manual* : Interface Specifications.

3. Is the RS232 Interface option installed in the printer? DSW-8 must be in the OFF Position to enable the Optional Interface.

4. Check for obvious errors in the data stream. Is the data properly framed with the <ESC>A and <ESC>Z commands?

5. If after sending your job to the printer, it only "beeps' and displays an error message of the 7-segment display, you may have a configuration problem. There may be some inconsistencies with the Baud Rate, Parity, Data Bits, or Stop Bits in relation to your host computer. If you are confused as to what the printer's current RS232 settings are, print a self test label (refer to *Section 2 of the Operator & Technical Reference Manual)*. It contains a list of all the current printer configuration settings.

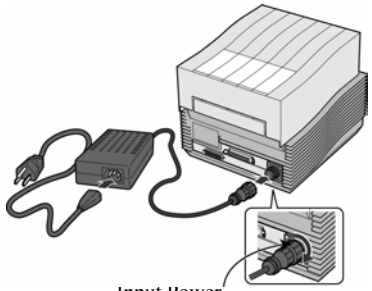
Connecting The Printer

1. Locate a solid flat surface with adequate room to set the printer. Make sure the Power Module can be located so that the power connecting the cable can be attached to the printer and the AC Power Cable can be connected to an AC power outlet.

2. The location should be near the host or computer terminal. The maximum distance is :
   - 10 feet for the Parallel interface. To fully utilise the capabilities of the printer, a cable meeting IEEE 1284 specifications must be used.
   - 18 feet for the optional Serial RS232 interface.
   - 10 feet for the optional USB interface without hub.
   - The optional 10baseT Ethernet Interface depends upon the LAN cabling.

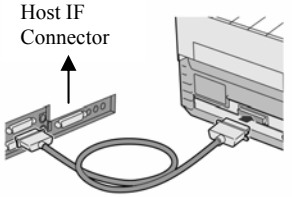
3. Make sure the power switch on the Operator Panel is in the OFF (0) position and place the Power Module in a safe and secure location, taking into consideration the location of the AC outlet and the host in relation to the printer.

4. Connect the Input Power connector to the printer. This connector is keyed and must be turned approximately ¾ turn clockwise to secure it to the printer.



5. Connect the AC Power Cable to the proper AC Outlet supply.

6. Connect the interface cable to the host system. A parallel IEEE1284 interface cable must be used to realise the high data transfer rate of the printer's parallel port. If an optional interface is installed, the appropriate cable should be used.



7. Load the ribbon and media following the instructions in the next section

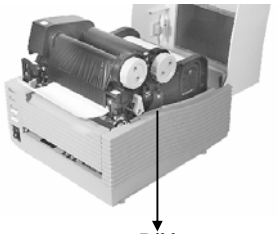
8. Configure the printer for label width and operating mode by referring to the *Operator & Technical Reference Manual – Section 2*.

9. Apply power to the printer by placing the AC Power switch in the ON (1) position.

10. Print a test label to verify the printer is set up and operating correctly.

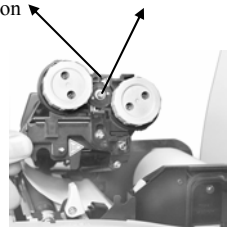
Ribbon Loading (CT4xxTT only)

The SATO CT Series ribbons come shrink-wrapped with a 12" (305mm) leader pre-attached to a take-up core. There are 3 widths of ribbon available for the CT Series printers : 4.3" (110mm), 3" (76mm) & 1.75" (45mm).



1. Power off the printer.

2. Open the **Top Cover** by pressing the release points located on each side of the printer. This releases the cover latch and allows it to swing upward on the rear mounted hinge points.

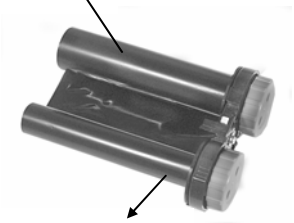


3. Release the **Print Head Assembly** by pressing the **Head Latch** to the rear. This allows the assembly to rotate upwards to the left allowing easy access for ribbon routing. Rotate the assembly until it is vertical.

4. Press down on the **Ribbon Assembly Latch**. This allows the **Paper Roller** to swing downwards for ribbon routing.

5. Press down on the **Ribbon Positioning** button while simultaneously pulling upwards on **the Ribbon Spindle Unit**, which should slide off.

6. Remove the shrink-wrap from the ribbon and unwind approximately 6" off the leader. Press the **Ribbon Supply** core all the way onto the rear spindle of **Ribbon Spindle Unit**. Press the attached take-up core on the front spindle. Make sure each core is fully seated on the spindles and there is enough ribbon leaders to go down around the print head



Troubleshooting

Initial Checklist

1. Is the Printer powered up and ONLINE?

2. Do any of the Front Panel LEDs indicate an error condition? If the Error LED is lighted, it may mean the print head assembly is open.

3. Is the Print Head in the down and latched position?

Using the IEEE 1284 Parallel Interface

1. Is the IEEE 1284 printer cable connected securely to your parallel port (DB-25S Female) on the PC and to the Parallel Interface connector on the printer?

   Warning : Never connect or disconnect interface cables (or use a switch box) with power applied to either the printer or the host. This may cause damage to the interface circuitry and is not covered by warranty.

2. Does the Parallel interface cable used meet IEEE 1284 specifications?

3. Is there more than 1 parallel interface port on your PC (LPT1, LPT2, etc.)? If so, make sure you are sending data out of the correct port.

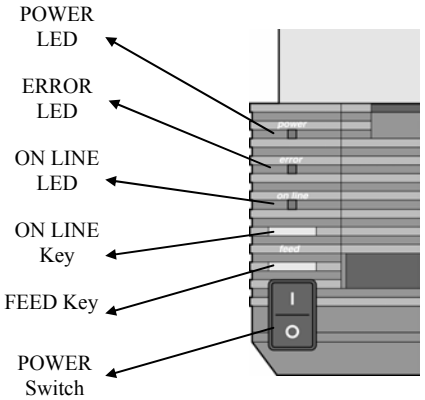
4. Is the IEEE 1284 interface selected? DSW-8 must be in the ON position to enable the Parallel interface.

5. When you send the print job to the printer and it does not respond, do you get an error message on your PC that says "Device Fault" or something similar? This may mean that the computer does not know the printer is there. Verify that :
   a. Both ends of the cable are securely inserted into their respective connectors.
   b. The printer is ONLINE
   c. The cable is not defective. There are other things that can cause this error message on your computer, but at this stage, a defective cable may be one of the reasons.

ON LINE KEY — If the ONLINE LED is illuminated, pressing this switch will place the printer in the OFFLINE mode. If this switch is pressed during printing, the printing process is suspended. To resume printing, press this switch again.

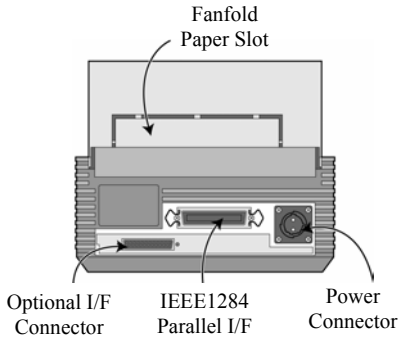
FEED Key — Feeds one label when pressed in the OFFLINE mode. If this switch is held in the depressed position while power is applied, a printer status label will be printed.

POWER — A two-position switch that applies power to the printer. When the "0" position is pressed, power is removed from the printer. When the "1" position is pressed, power is applied to the printer.



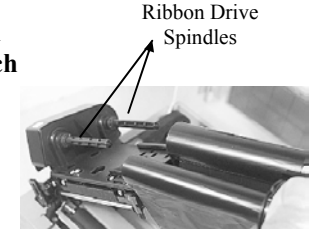
Rear Connector Panel

Power	DC Power input to the printer. From Power Module
Parallel Interface Interface Connector	IEEE 1284 Parallel
Optional Interface	Connector for any installed
Fanfold Paper Slot	Slot for fanfold paper. Panel must be removed to route fanfold paper into the printer



Note: CT Series ribbons are wound face (ink side) out. Make sure the dull (ink) side of the ribbon will be in contact with the paper and the supply core is on the rear spindle.

7. Slide the **Ribbon Spindle Unit** over the **Ribbon Drive Spindles** until the **Head Positioning Latch** snaps into position. The first position corresponds to a 4.3" ribbon width. If you are using a narrower ribbon, press the **Head Position Latch** while sliding the **Ribbon Spindle Unit** to the correct position.

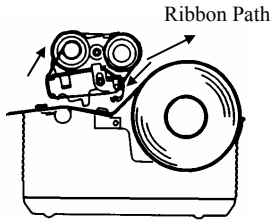


8. The ribbon should be centre justified (i.e. the centre of the ribbon roll should be aligned with the centre of the print head).

9. Route the ribbon leader under the print head and between the **Ribbon Assembly** and the **Paper Roller**. Rotate the take-up spindle until the leader is completely wound onto the take-up core.

10. Push the **Ribbon Assembly Latch** to the up or locked position. Rotate the **Paper Roller** upward and latch it by pushing the **Ribbon Assembly Latch** into the upward position.

11. Latch the **Print Head Assembly** in the closed position by pushing downward on the "PUSH" tabs on both sides of the assembly until it latches in position.



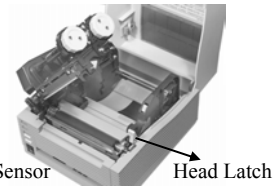
Media Loading

The CT Series Printers can use die-cut labels, tag stock or continuous media. The media supply can be either roll or fanfold.

Roll Media

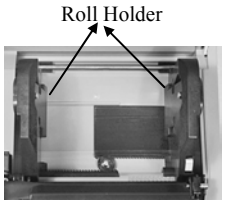
Roll media should be between 0.90" (23mm) and 4.5" (115mm) in width and wound face-out on a core with a minimum ID of 1.6" (40mm).

1. Remove power from the printer by placing the **Power Switch** in the OFF (0) position.



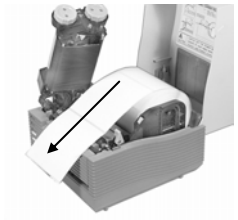
2. Open the **Top Cover** by pressing on cover release points located on each side of the printer.

3. Release the **Print Head Assembly** by pressing the **Head Latch** to the rear. This allows the assembly to rotate upwards to the left allowing easy access for media routing. Rotate the assembly until it is vertical.



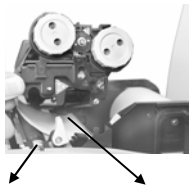
4. With the **Print Head Assembly** in the up position, press the **Paper Guide Release** while adjusting the **Paper Guides** until they allow a media roll to fit between them. A millimetre scale is moulded into the case to provide a guide when making the adjustment. The **Paper Guides** are centre justified and interact with each other so that each moves an equal distance.

5. Make sure the **Roll Holders** are in the released position. If they are not, lift up on each one and they will snap to the open position.



6. Unwind approximately 12" of label material from the roll. The labels should be wound face-out (printing side to the outside of the roll). Drop the roll in between the **Paper Guides** so that the labels come off the top of the roll. The **Paper Guides** will automatically position the **Roll Holders** to suspend the roll.

7. Route the label material through the **Paper Sensor Assembly** and over the **Platen**. Note that the Sensor is part of the left **Label Roll Guide** so that the **Paper Sensor** is always positioned in the same location relative to the left edge of the label.



8. Close and latch the **Print Head Assembly**.

9. Press the **LINE** key so that the printer is in the OFF LINE mode and then press the **FEED** key. The label should advance to the next index (label gap or eye-mark) position.

Fanfold Media

1. Place the fanfold media behind the printer with the printing surface up.

2. Open the **Top Cover** by pressing on cover release points located on each side of the printer. This releases the cover latch and allows it to swing upwards on the rear mounted hinge points.

3. Carefully break out the **Fanfold Access Panel** from the back of the **Top Cover**.

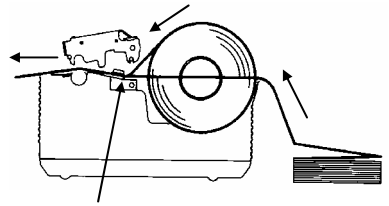
4. Release the **Print Head Assembly** by pressing the **Head Latch** to the rear. This allows the assembly to rotate upwards to the left allowing easy access for ribbon routing. Rotate the assembly until it is vertical.

5. With the **Print Head Assembly** in the up position, press the **Paper Guide Release** while adjusting the **Paper Guides** until they allow a media to fit between them. A millimetre scale is moulded into the case to provide a guide when making the adjustment. The **Paper Guides** are centre justified and interact with each other so that each moves an equal distance.

6. Route the label material through the **Sensor Assembly** and over the **Platten**.

7. Close and latch **Print Head Assembly**.

8. After loading the ribbon and media, it is recommended that you run a Test Print to make sure the labels and ribbon (for CT4xxTT only) are correctly loaded.



Operator Panel

POWER	Green LED, illuminated when power is applied.
ERROR	Red LED, illuminated when there is a system fault such as an open print head.
ON LINE	Green LED, illuminated when the printer is ON LINE and ready to receive data. The printer is placed ON LINE and OFF LINE by toggling the ON LINE key.