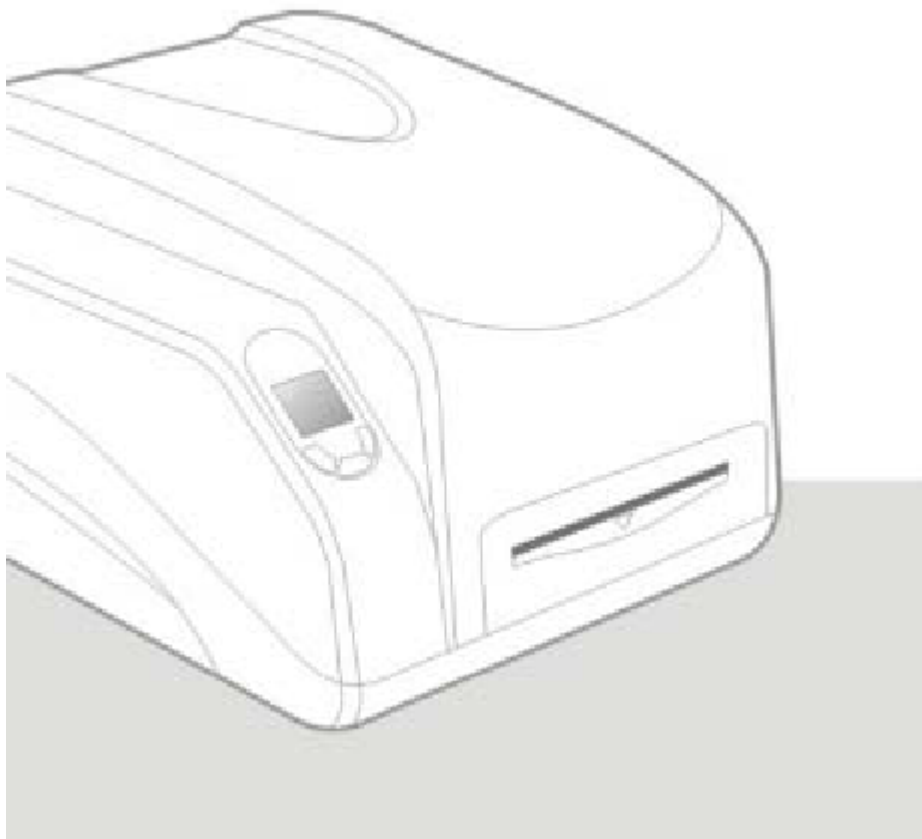


**Operator's Manual**  
**Thermal / Thermal Transfer e4**

**e4**



e4E2\_101

**e4**

## **cab Operator´s Manual**

valid for following printer types:

**e4/200™**

**e4/300™**

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## FCC Notice

This equipment may generate, use and/or radiate radio frequency energy. If not installed and used in full accordance with this instruction manual, interference to radio communications may occur. This equipment has been tested and complies with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may also cause interference. In such case the user will be required, at his own expense, to correct the interference using whatever means necessary.

## Important Safety Instructions

Only qualified and trained service technicians should attempt to repair the printer.  
 Do not place the printer on or near a heat source.  
 Be sure that the output of the power adapter is 24VDC and your power source matches the rating listed on the power adapter. Be certain your power source is grounded.  
 To avoid getting an electric shock, do not use a worn or damaged power cord.  
 If the power cord becomes damaged or frayed, replace it immediately.  
 Do not insert anything into the ventilation slots or openings on the printer.  
 The printer and power adapter should never be operated in a location where either one can get wet. Personal injury could result.  
 The printhead becomes hot while printing. To protect from damaging the printhead and risk of personal injury, avoid touching the printhead.  
 To get increased printhead lifespan and higher quality printouts, always use high quality approved labels, tags and thermal transfer ribbons. Approved supplies can be ordered from your dealer.  
 Static electricity that accumulates on the surface of the human body or other surfaces can damage or destroy the printhead or electronic components in this device.  
 DO NOT touch the printhead or the electronic components with bare hands.  
 Place the printer on a flat, firm, solid surface.

## Possible Corrective Action

Never jam or block the air vents, or operate in a high temperature environment.  
 Turn off the power when not in use for extended periods.  
 Follow all recommendations and setup instructions included in this manual.

## Preface

Welcome to cab's e-series label printer. The e Series is designed to provide general-purpose and high-performance printing capabilities.  
 cab e-series barcode label printer is a new generation of printing equipment featuring high performance and multiple functions.  
 It stands out with its modern appearance and excellent functionality while utilizing a series of new and cutting edge technologies. Relying on our wealth of experience, we carefully designed the units to be not just rugged and durable but also easily operated and maintained.  
 We utilize a 32-bit embedded ARM CPU and a high-tech system platform to guarantee the highest performance and quality possible.  
 This manual explains how to set up and begin using your G series printer.  
 It also provides detailed information on configuring your printer, basic operations, care and troubleshooting.  
 Please read this manual carefully before using.



## Chapter 1 Introduction

### Printer Specifications

Model	e4/200 (203dpi)	e4/300 (300dpi)
Printing method	Direct thermal & Thermal transfer	
Printing resolution	203dpi (8dots/mm)	300dpi (11.8dots/mm)
Max printing speed	4ips (101.6mm/s) 3ips (76.2mm/s)	
Max printing width	4.25" (108mm) 4.17" (106mm)	
Max printing length	40" (1016mm)	
Memory	2MB FLASH ROM, 4MB SDRAM	
Media	Roll-feed, die-cut, continuous, fan-fold, tags, tickets in plain paper or thermal paper - Width 110mm max. 27mm min. Supply roll: OD 6" (152mm) max., ID 1" (25.4mm) min.	
Ribbon	Wax, Wax/Resin, Resin Ribbon roll: OD 3" (76.2mm) max., ID 1" (25.4mm) core Max width: 110mm; Max length: 360M	
Fonts Bar Code Types*	Windows True Type Fonts (when using Windows drivers); Five built-in ASCII fonts and a 24x24 dot matrix Chinese font. 1D Barcode : Code 39, Code 93, Code 128/subset A,B,C Codabar, Interleave 2 of 5, UPC A/E 2 and 5 add-on, EAN-13/8/128, UCC-128, Postnet, Plessey, HBIC, Telepen, FIM and so on» 2D Barcode : MaxiCode, PDF417, Data matrix and so on.	
Media sensor	Reflective	
Interfaces	RS-232 serial, Centronics, USB and Ethernet	
Power rating	24 VDC, 2.0A**	
Weight	3.5 kg	
Dimensions	W256 x D329 x H200mm	
Operation environment	Temperature: 40°F–100°F (0°C–40°C) Relative humidity: 5% - 85% non condensing	

\* Theoretically, the printer can print any type of barcode, as determined by the software you are using.

\*\* Power for e4-series barcode label printer is provided via an external power adaptor.

#### Specifications for Power Adapter

Input : AC 100~240V, 47~63HZ

Output: DC 24V, 2.0 A

Environment: 0°C ~ 40°C

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## Unpacking and Inspection

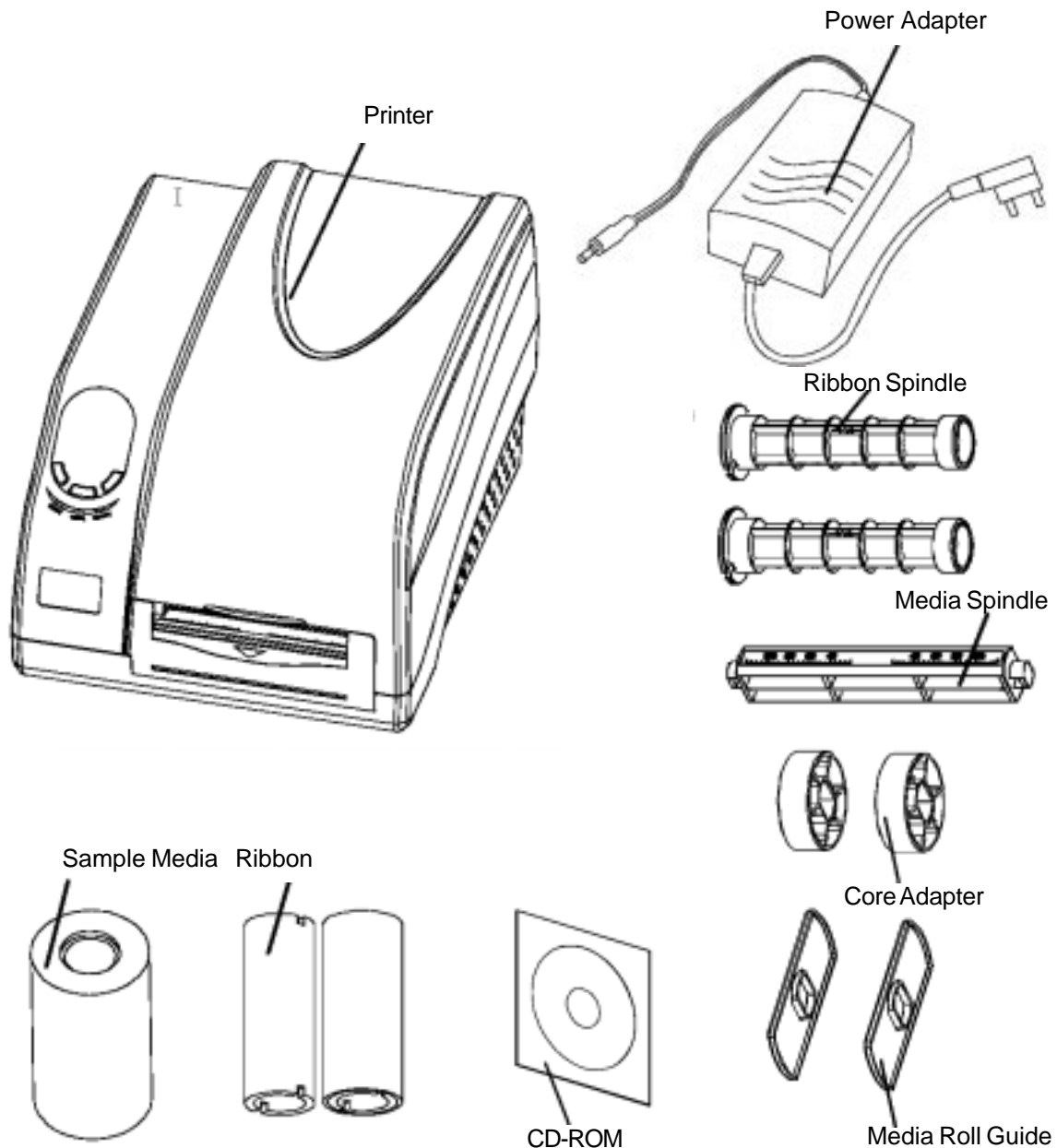
Inspect the shipping container(s) for possible shipping damage, if damage is discovered, notify the shipping company to report the nature and extent of the damage.

Please check the items according to the Packing List. If there are any items missing, notify your authorized reseller.

### Packing List Figure 1:

1. Printer	1 pcs	6. Media Roll Guide	2 pcs
2. Power adapter	1 pcs	7. Ribbon	1 pcs
3. Ribbon Spindle	2 pcs	8. Sample Media	1 pcs
4. Media Spindle	1 pcs	9. CDROM	1 pcs
5. Core Adapter	2 pcs		

Figure 1 Printer and accessories





## Chapter 2 Getting Started

### Setting up

Before setting up the printer you should consider the following:

1. Make sure there is adequate space around the printer for loading consumables and proper ventilation.
2. Make sure the printer is close to the host so the interface cable is easily accessible to either end.

### Connecting the Printer

#### Power Connection

Caution: (1) Use of the wrong adapter could damage your printer. cab assumes no liability for any damage in such case. The rating for the printer is 24VDC.  
(2) Do not use the printer near liquids or corrosive chemicals.

1. Make sure the printer is switched OFF.
2. Connect the power cord to the Power Adapter.
3. Connect the Power Adapter's DC output plug to the DC IN port on the back of the printer.
4. Plug the power cord into a live wall outlet.



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## Interface Connection



**CAUTION:** Make sure the printer is switched OFF before connecting the interface cable.

The interface between the printer and the host will use either a serial, parallel, USB cable or for Ethernet connection options.

1. The printer identifies the communication port automatically.
2. The default values of printer port can be obtained from the self-test report. (See Chapter 2 Operation Basics - System Mode - Self Test)
3. Cable configurations for serial (RS-232C) and parallel (Centronics) interfaces are shown in Appendix A of this manual.
4. Please take the following measures to reduce cable noise.
  - a. Reduce the length of the interface cable (keep the cable length under 1.83 meters / 6 feet) if required.
  - b. Keep the communication cable separate from power cords.



## Main Parts and Features

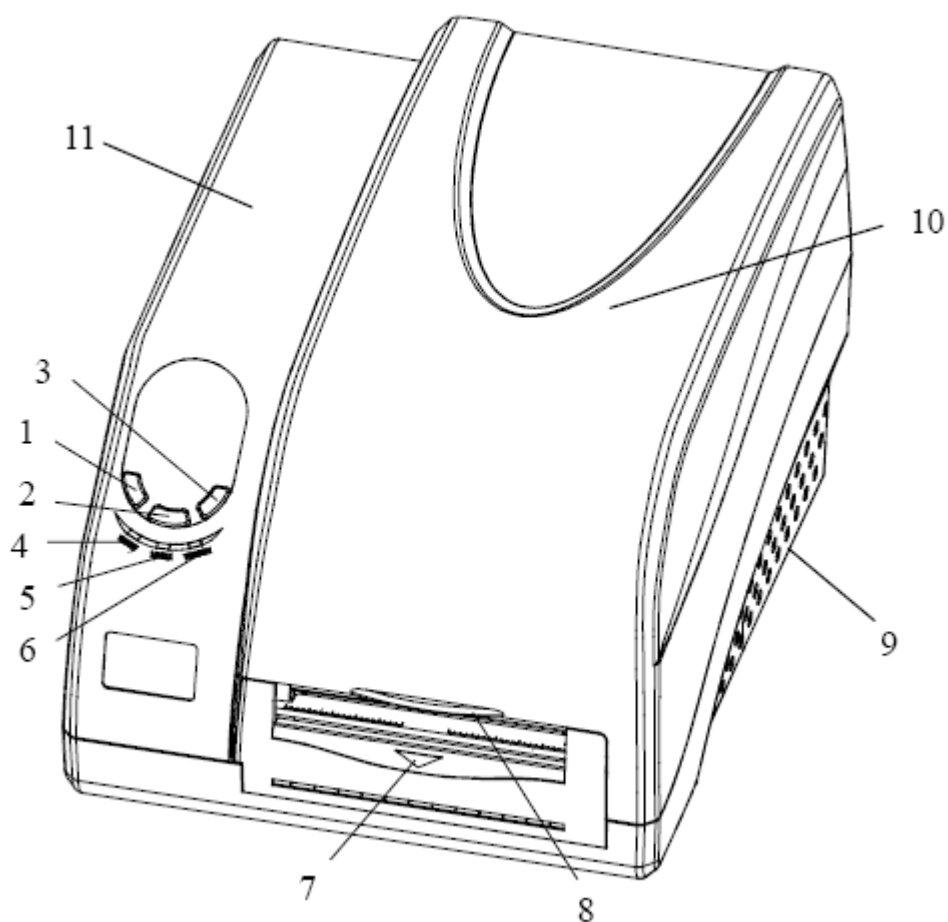


Figure 2

- |                           |                            |                            |
|---------------------------|----------------------------|----------------------------|
| <b>1. PAUSE Button</b>    | <b>2. FEED Button</b>      | <b>3. CANCEL Button</b>    |
| <b>4. READY Indicator</b> | <b>5. MEDIA Indicator</b>  | <b>6. RIBBON Indicator</b> |
| <b>7. Media Exit Path</b> | <b>8. Cover Handle</b>     | <b>9. Bottom Case</b>      |
| <b>10. Top Cover</b>      | <b>11. Left Side Cover</b> |                            |



## Description

Figure 3

1. Printhead Module
2. Printhead Bracket
3. Printhead
4. Media Sensor
5. Platen Roller
6. Release Lever
7. Media Guide
8. Ribbon Loading Knob
9. Ribbon Supply Spindle
10. Media Compartment
11. Guide Wheel

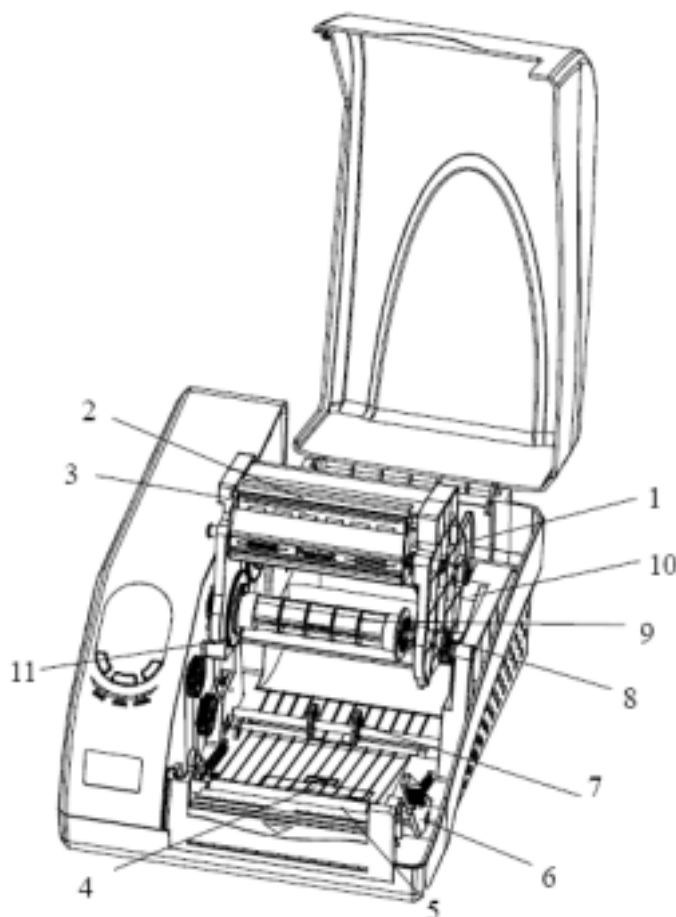
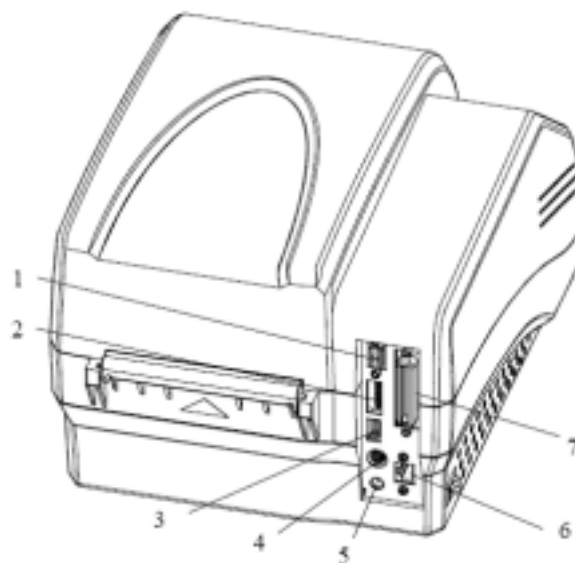


Figure 4

1. RS232 Serial Port
2. DIP Switches
3. USB Port
4. PS/2 Port
5. DC IN Port
6. Ethernet Port
7. Centronics Port



**Note:** The above figure illustrates all possible interface ports on a e- series printer, but some ports may not be available for your printer. Please check your requirements when purchasing the printer.

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## Loading the Ribbon



- Caution:**
- (1) ***Make sure the inked side of your ribbon faces outwards. Always make sure the inked side of the ribbon faces the media and NOT the printhead.***
  - (2) ***The maximum width of the ribbon is 110mm. When using a ribbon roll with a width less than 110m, please place the ribbon roll right in the middle of the Ribbon Spindle corresponding to the symmetry symbol (-->|<--).***
  - (3) ***This section is not applicable to direct thermal printing.***

1. Lift the top cover (Figure 5-1).
2. Push the Release Lever to release the Printhead Module.
3. Lift the Printhead Module to expose the ribbon supply holder (Figure 5-2).
4. Unwrap the ribbon roll pack and separate the ribbon roll and the empty core (Figure 5-3).
5. Slide a roll of Ribbon onto one of the Ribbon Spindles and an Empty Core onto the other spindle (Figure 5-3).
6. Load the Ribbon Spindle into the printer and route the ribbon through the Printhead Module as shown in Figure 5-4.
7. Wrap the end of the ribbon around the empty core (Figure 5-5).
8. Load the empty core into the Ribbon rewinder (Figure 5-6).
9. Turn the guide wheel on the left of the empty core to take up the loose ribbon and tighten the ribbon.
10. Close the Printhead Module and press down until it locks into place.

e4

Figure 5-1

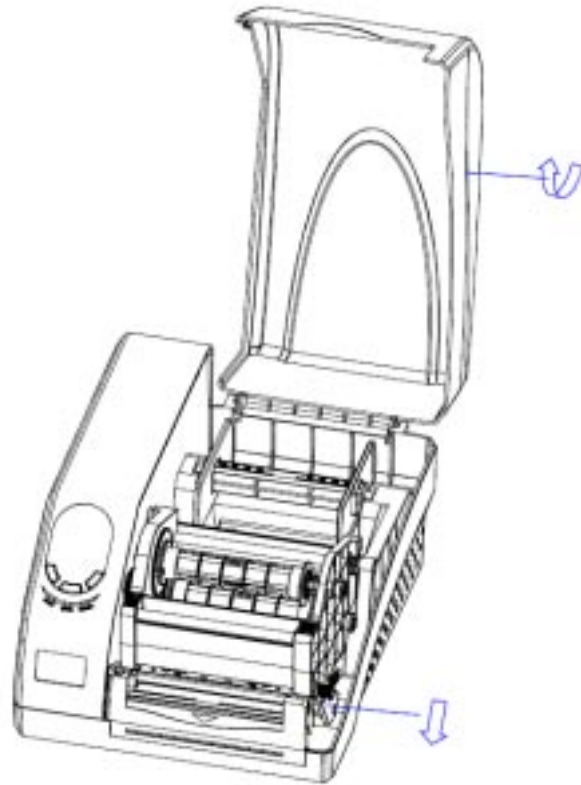
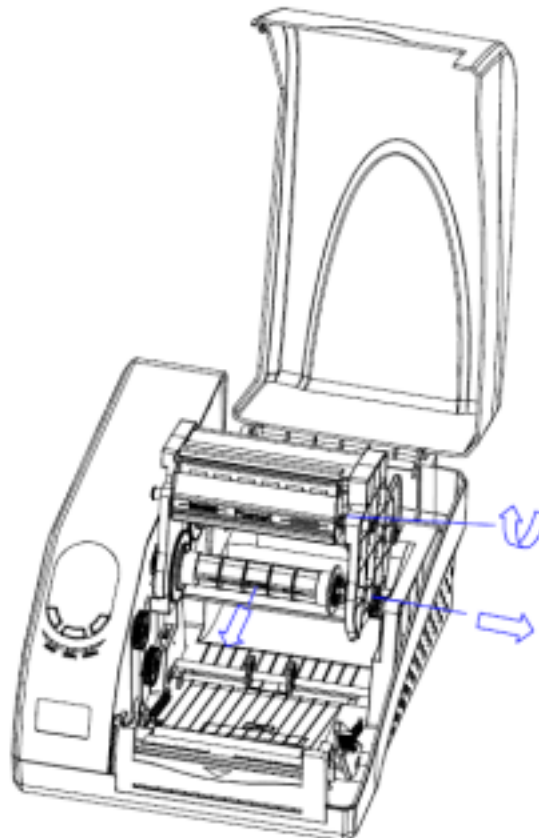


Figure 5-2



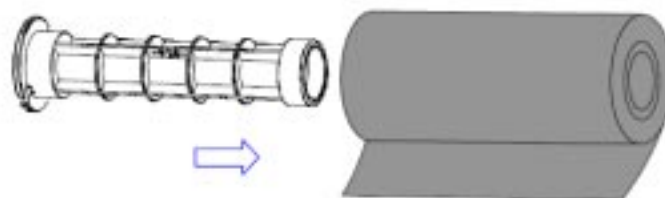
**e4**

Figure 5-3

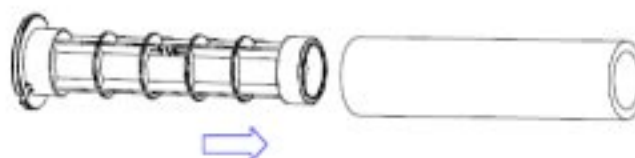
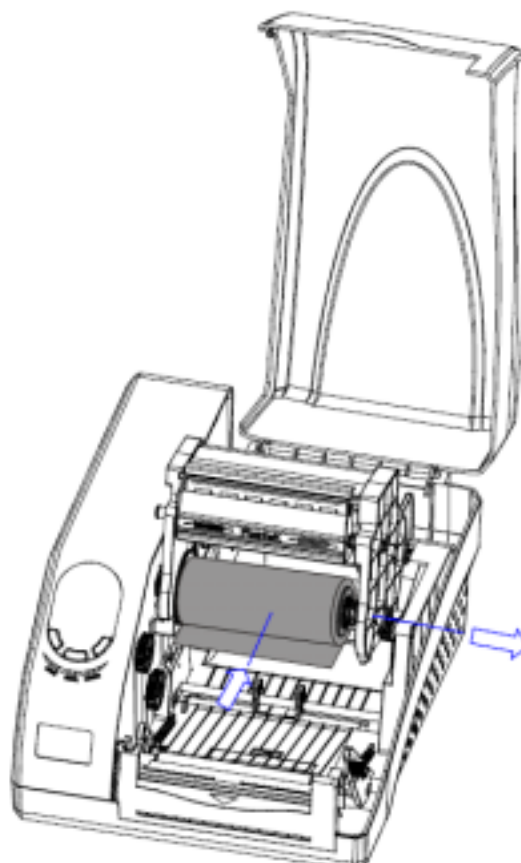


Figure 5-4



**e4**

Figure 5-5

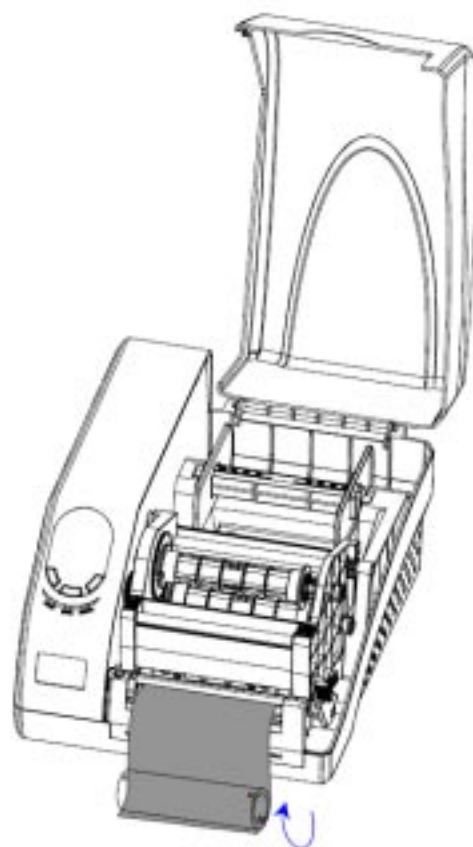
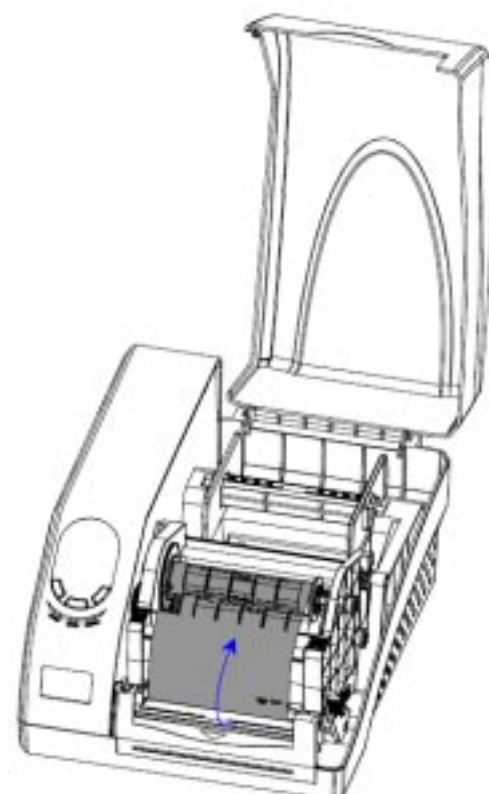


Figure 5-6



**e4**

## Loading the Media

### Standard Mode

1. Lift the top cover to expose the media compartment (Figure 6-1).
2. Load a roll of media (labels facing up) on the Media Spindle, then slide two Media Roll Guides with their smooth sides toward the media onto the Media Spindle from each end until snug to the media. If you are placing a roll of media with 3" ID core, please slide the two Core Adapters onto the Media Spindle first.
3. Insert them into the printer (Figure 6-2).
4. Corresponding to the scale on the Media Spindle, position the media roll right in the middle of the Spindle.
5. Release and lift the Printhead Module.
6. Route the media as shown in Figure 6-3.
7. Slide the Media Guide to the edge of the media.
8. Close the Printhead Module and press down until it locks into place (Figure 6-4).
9. Close the cover and press the 'Feed' button to feed the media and ensure proper tracking. If the printer does not correctly sense the top of each label it may be necessary to perform the Calibration Procedure shown in the Operation Basics section.



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## Adjusting the Position of Media Sensor

1. Lift the top cover.
2. Push the Release Lever to release the Printhead Module.
3. Lift the Printhead Module to expose the media sensor cover. (Figure 7-1).
4. Remove the media sensor cover and slide the media sensor to the correct position (refer to Figure 7-3, Figure 7-4 and Figure 7-5).
5. Replace the media sensor cover.

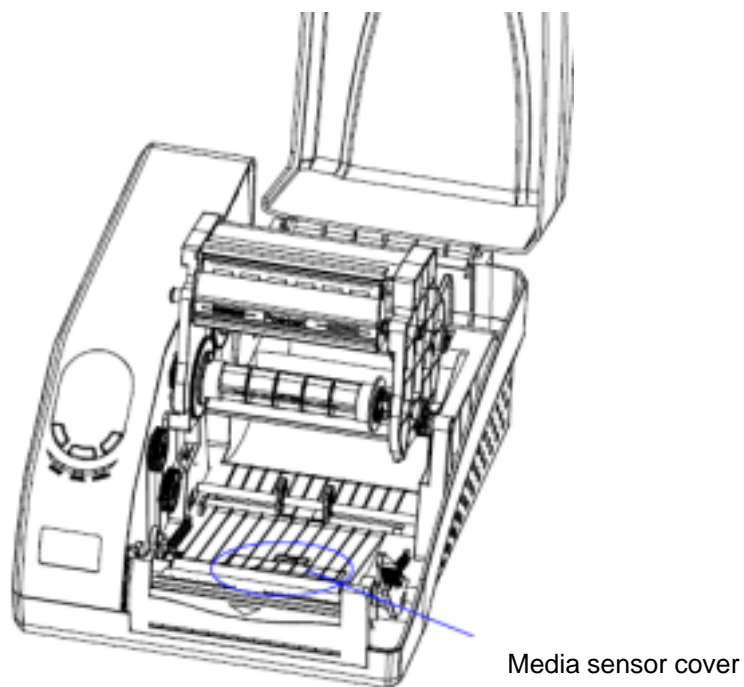


Figure 7-1

e4

## Media sensing

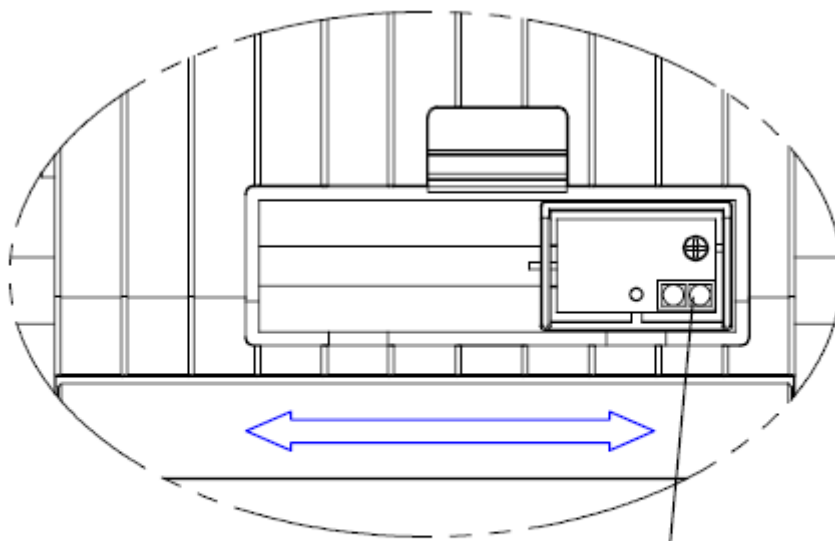


Figure 7-2

Media sensor

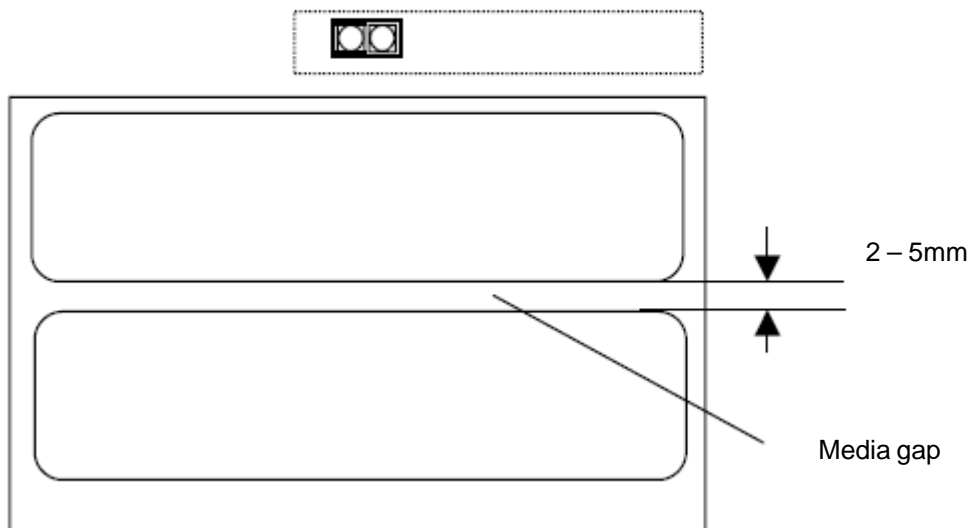


Figure 7-3

e4

## Media sensing

Figure 7-4

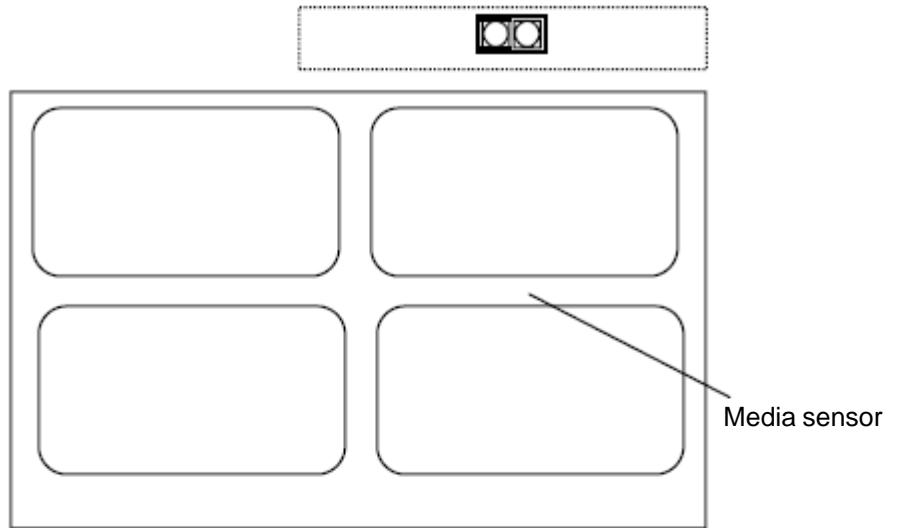
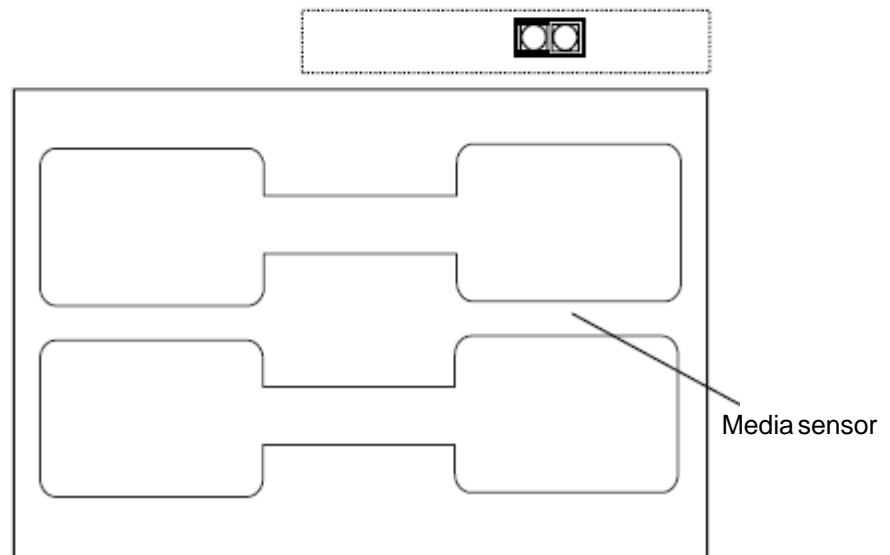


Figure 7-5





## Operation Basics

### Power Switch

The power switch is on the left side of the printer. The symbol on the switch is defined as follows:

ON  
OFF

### The Front Panel

The Front Panel of the printer consists of :

- Three Indicator Lamps: MEDIA, READY and RIBBON
- Three dual function buttons: PAUSE, FEED and CANCEL

### Indicator Lamps

The three lamps indicate the status of the printer (please refer to Chapter 4 for error indications).

**READY**

- **Solid on:** Indicates the printer is in normal state.

**MEDIA**

- **Solid on:** Indicates the printer is in normal state.
- **Blinking along with READY:** Running out of media.
- **Blinking individually:** Indicates the printer is in the 'PAUSE' state.

**RIBBON**

- **Solid on:** Indicates thermal transfer printing .
- **Off:** Direct thermal printing (no ribbon installed).
- **Blinking along with READY:** Running out of ribbon.

## Buttons

Three buttons perform different functions based on the mode the printer is in. The printer operates in one of the following modes:

**Normal Mode:** Normal printer functions (i.e. Pause, Feed, and Cancel). See the table below.

**System Mode:** Allows the printer to perform Reset, Media Sensor Calibration and Self-testing. See the following table at section 'System Mode'.

Mode	Normal Mode	System Mode
<b>FEED</b>	Feeds one label	Media Sensor Calibration
<b>PAUSE</b>	-Press once to pause current print job -Press a second time to resume work	Self-test: the printer performs a self-test and prints out a configuration report
<b>CANCEL</b>	-Cancels current batch of labels -Forces the printer to continue working after an error has been solved	Reset: reset the printer to Factory Default Settings

## System Mode

In System Mode the printer's buttons allow the printer to perform Reset, Media Sensor Calibration and Self-testing. The printer cannot receive commands from the host when in System Mode.

- **Entering:** Press and hold CANCEL button for 4 seconds, the three blinking lamps indicate the printer is in System Mode.
- **Exiting:** The printer will exit System Mode automatically if no further operations are requested in 4 seconds after entering System Mode.

Reset – Reset the Printer to Factory Default Settings

Following the steps listed below allows you to reset the printer to factory default settings.

1. After entering System Mode, press CANCEL button.
2. The three indicators stop blinking and remain lit. The printer is back to a normal state.



The following parameters automatically reset:

- Label parameters
- Print darkness
- Speed
- Others for specific emulation

**Note: The printed label count cannot be reset.**

## Media Sensor Calibration

It is necessary to perform Media Sensor Calibration after a new roll of media is loaded.

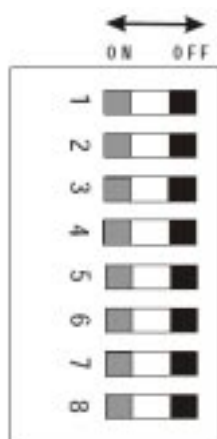
1. After entering System Mode, press FEED button.
2. The three indicators continue blinking.
3. The printer will feed approximately 200mm, and then the three indicators stop blinking and remain lit. The printer is back to a normal state.

## Self Test

1. After entering System Mode, press PAUSE button.
2. The three indicators continue blinking.
3. The printer will print out a configuration report and the three indicators stop blinking and remain lit. The printer is back to a normal state.
4. The following information will be printed on the report:
  - Font list
  - Hardware configuration and status
  - DIP switch settings
  - Label parameters
  - Firmware version

# e4

## DIP Switch at the Back Panel



**Caution:** Make sure the printer is powered OFF before adjusting the DIP switch settings.

DIP Bit	Functions	Remarks
1	ON: Direct thermal print OFF: Thermal transfer print	Printing type settings Default: OFF
2	ON: Enable Back feed OFF: Disable Back feed	Back feed settings Default: OFF
3	ON: Cutter is installed OFF: Cutter is not installed	Cutter settings Default: OFF
4	ON: Peeler is installed OFF: Peeler is not installed	Peeler settings Default: OFF
5	Reserved	/
6	Reserved	/
7	8   7 0   0 – 9600,n,8,1 0   1 – 19200,n,8,1	RS232 Serial Port baud rate setting 0: OFF, 1: ON Default: 00
8	1   0 – 38400,n,8,1 1   1 – 57600,n,8,1	



## Windows Driver Installation

The printer driver supports Windows XP/2000/NT/ME/98/95 operating systems and can be found on the CDROM included with the printer or is available for download from: <http://www.cabgmbh.com>.

### Installation

1. Single click the Windows "Start" menu
2. Click "Control Panel" button      Click "Printers" button  
Double click "Add printer" icon      Click "Next" to continue»
3. Choose between "Network" or "Local" option      Click "Next" to continue»
4. Choose the appropriate port for your configuration (example - LPT1 for parallel connection, etc)  
Click "Next" to continue.
5. Choose "Have disk" and change from A: (Floppy drive) to the location of your CD-ROM drive or local hard disk location of downloaded drivers - Click "Browse" to continue;
6. Browse to CD-ROM or local hard disk location and choose the Operating System you are using
7. Click "Next" to continue.  
Operating system choices are as follows:
  - WIN95
  - WIN98
  - WIN2000
  - WINXP
  - NT4.0
8. Choose your printer model (example: cab e4/200 - Click "Next" to continue.
9. Congratulations! Your cab printer is now installed.

**Note:** *If you need to update the driver, please remove any old versions of the driver before continuing.*



## Label edition software eLABEL

Each e4-series printer comes with the powerful bar code software elabel and operating instructions, which is available on the CD-ROM shipped with the product. If you do not have the CD-ROM or wish to upgrade your current software it is available for download from: <http://www.cabgmbh.com>.



e4

## Chapter 3 Maintenance



### Warning:

1. **Make sure the printer is powered OFF before performing any maintenance operation.**
2. **The printhead becomes hot while printing, be careful, when maintaining the printhead.**
3. **Use only the cleaning agents indicated. cab Produkttechnik GmbH & Co KG will not be responsible for damage caused by any other cleaning materials used on this printer.**
4. **Anhydrous isopropyl alcohol is a solvent of isopropyl alcohol containing no more than one percent water. Isopropyl alcohol is a flammable solvent; always take the proper precautions when using this solvent.**

### Cleaning the Printhead

The printhead is easily damaged due to its precision configuration. A printhead damaged by misuse is not covered under the terms of the warranty. To promote longevity of the printhead, please note the following:

1. Always use proper cleaning materials and techniques to clean the printhead. Never use hard materials to scrape the printhead.
  2. Always use high-quality consumables. When the Thermal print head (TPH) module is closed, pressure is placed on the TPH directly; dirt such as paper scraps, sand, dust and water can scrape or damage the printhead. The TPH is also easily damaged by static electricity, which may be generated by low-quality ribbons.
  3. After every roll of ribbon or every three rolls of media, the printhead should be cleaned with anhydrous isopropyl alcohol.
    - a. Power off the printer and open the cover.
    - b. Release and lift the Printhead Module.
    - c. Remove the ribbon (if applicable).
    - d. Using a Cotton Swab dipped in anhydrous isopropyl alcohol, rub the Cotton Swab along the printhead.  
Cleaning the Platen Roller  
Debris or dirt on the platen roller should be cleaned after every three rolls of media.
- a. Power off the printer and open the cover.
  - b. Release and lift the Printhead Module.
  - c. Rotate the platen roller and clean it thoroughly with anhydrous isopropyl alcohol and a cotton swab.

#### Cleaning other Parts of the Printer

**Media Sensor:** blow with air monthly, if more thorough cleaning is required, gently wipe the sensor with anhydrous isopropyl alcohol and a cotton swab.

**Exterior:** with mild detergent or desktop cleaner, as needed.

**Interior:** with brush or vacuum cleaner, as needed.

## Chapter 4 Troubleshooting

Occasionally situations occur that require some troubleshooting skills. Possible issues and potential solutions are listed in this section. While not every situation is addressed, you may find some of these tips helpful.

### Error Indications

Typically, when the printer is in an abnormal state, one or two of the three indicator lamps will begin blinking. The possible situations addressed by the status of the three indicator lamps are listed below.

#### READY and MEDIA lamps blink at the same tempo

Possible Cause	Recommend Solutions	Remarks
Cannot detect the media gap or black line	a. Check the media path b. Check the position of the media sensor c. Perform Media Sensor Calibration	If you are using continuous media, be sure you have correct settings in your software
Run out of media	Load a roll of media	
Media jam	Clear the jam	
Media sensor error	Service media sensor	

#### READY and RIBBON Lamps blink at the same tempo

Possible Cause	Recommend Solution	Remarks
Run out of ribbon	Load a roll of ribbon	
Ribbon jam	Clear the jam	
Ribbon Sensor error	Service Ribbon Sensor	To be serviced only by qualified personnel

#### Only READY Lamp blinks

Possible Cause	Recommend Solution	Remarks
Serial I/O error	Check DIP switches for baud rate settings	
Memory overflow	a. Restart the printer b. Perform Reset	

### Miscellaneous

Vertical blank lines

Continuous vertical blank lines in printout indicate a dirty or faulty printhead as shown below:



If the problem cannot be solved by cleaning the printhead, replace the printhead.

### The host shows 'Printer Timeout'

1. Check if the interface cable is connected.
  2. Check if the printer is turned on.
- If the situation remains unsolved, please contact your reseller or our customer service engineers.

### The data has been sent, but no printout

1. Verify you are using the correct Windows driver.
  2. Perform Reset.
- If the situation remains unsolved, please contact your reseller or our customer service engineers.

### Print quality problems

1. Adjust Print Darkness setting.
2. Adjust Print Speed setting.
3. Clean the printhead and platen roller.
4. Make sure the correct media/ribbon is loaded.
5. Use only high-quality Media, replace if necessary.

### Recovery

After the corrective action is taken press the CANCEL button to clear the alarm, the printer will get back to work automatically.

### Contact a Qualified Service Engineer

Contact a qualified Service Engineer from your reseller or our company for troubles that persist or are not covered in this section.

## Appendix A: Interface Specifications

### RS232 Serial

The RS232 connector on the printer is a DB9F

Pin	Direction	Definition
1	/	/
2	Out	TX
3	In	RX
4	In	CTS
5	-	Ground
6	Out	TS
7	In	DSR
8	Out	DTR
9	/	/

#### Connection with host:

Host 25S		Printer 9P	Host 9S		Printer 9P
TX2	.....	3RX	RX2	.....	2TX
RX3	.....	2TX	TX3	.....	3RX
DSR 6	.....	8DTR	DTR 4	.....	7 DSR
DTR 20	.....	7 DSR	DSR 6	.....	8DTR
RTS 4	.....	4CTS	RTS 7	.....	4CTS
CTS 5	.....	6RTS	CTS 8	.....	6RTS
GND 7	.....	5 GND	GND 5	.....	5 GND

#### Alternately you can just connect the 3 wires as follows:

Host 25S		Printer 9P	Host 9S		Printer 9P
TX2	.....	3RX	RX2	.....	2TX
RX3	.....	2TX	TX3	.....	3RX
GND 7	.....	5 GND	GND 5	.....	5 GND
pin 4	<input type="checkbox"/>		pin 4	<input type="checkbox"/>	
pin 5	<input type="checkbox"/>		pin 6	<input type="checkbox"/>	
pin 6	<input type="checkbox"/>		pin 7	<input type="checkbox"/>	
pin 20	<input type="checkbox"/>		pin 8	<input type="checkbox"/>	

Baud rate : 9600, 19200, 38400,57600  
(Baud Rate set by DIP switches 7–8)

Data format: always 8 data bits, 1 start bit and 1 stop bit.

Parity : always non parity.

Flow control: RTS/CTS (Hardware flow control).

If you are using software or drivers under the Windows environment, the flow control must be set to "hardware"

# e4

## Parallel (Centronics)

The parallel port is a standard 36-pin Centronics interface. Its pin assignments are as follows:

Pin	Direction	Definition	Pin	Direction	Definition
1	In	/STROBE	13	Out	SELECT
2	In	Data 1	14,15		NC
3	In	Data 2	16	-	Ground
4	In	Data 3	17	-	Ground
5	In	Data 4	18		NC
6	In	Data 5	19~30	-	Ground
7	In	Data 6	31		NC
8	In	Data 7	32	Out	/Fault
9	In	Data 8	33~36	-	NC
10	Out	/ACK			
11	Out	BUSY			
12	Out	PE			

Any communications port can transmit data from the host (Centronics, RS232, Ethernet, and USB). Preliminary communications settings are not required since the printer will automatically detect which port is active.



**Note: Never send data from 2 ports at the same time. Data cannot be sent to more than one port simultaneously or data corruption and print errors may occur.**



## Appendix B: ASCII Table

	0	1	2	3	4	5	6	7
0	<b>NUL</b>			<b>0</b>	<b>@</b>	<b>P</b>	<b>'</b>	<b>p</b>
1	<b>SOH</b>	<b>XON</b>	<b>!</b>	<b>1</b>	<b>A</b>	<b>Q</b>	<b>a</b>	<b>q</b>
2	<b>STX</b>		<b>"</b>	<b>2</b>	<b>B</b>	<b>R</b>	<b>b</b>	<b>r</b>
3		<b>XOFF</b>	<b>#</b>	<b>3</b>	<b>C</b>	<b>S</b>	<b>c</b>	<b>s</b>
4			<b>\$</b>	<b>4</b>	<b>D</b>	<b>T</b>	<b>d</b>	<b>t</b>
5	<b>NAK</b>		<b>%</b>	<b>5</b>	<b>E</b>	<b>U</b>	<b>e</b>	<b>u</b>
6	<b>ACK</b>		<b>&amp;</b>	<b>6</b>	<b>F</b>	<b>V</b>	<b>f</b>	<b>v</b>
7	<b>BEL</b>		<b>'</b>	<b>7</b>	<b>G</b>	<b>W</b>	<b>g</b>	<b>w</b>
8	<b>BS</b>		<b>(</b>	<b>8</b>	<b>H</b>	<b>X</b>	<b>h</b>	<b>x</b>
9			<b>)</b>	<b>9</b>	<b>I</b>	<b>Y</b>	<b>i</b>	<b>y</b>
A	<b>LF</b>		<b>*</b>	<b>:</b>	<b>J</b>	<b>Z</b>	<b>j</b>	<b>z</b>
B		<b>ESC</b>	<b>+</b>	<b>;</b>	<b>K</b>	<b>[</b>	<b>k</b>	<b>{</b>
C	<b>FF</b>		<b>,</b>	<b>&lt;</b>	<b>L</b>	<b>\</b>	<b>l</b>	<b> </b>
D	<b>CR</b>		<b>-</b>	<b>=</b>	<b>M</b>	<b>]</b>	<b>m</b>	<b>}</b>
E	<b>SO</b>	<b>RS</b>	<b>.</b>	<b>&gt;</b>	<b>N</b>	<b>^</b>	<b>n</b>	<b>~</b>
F	<b>SI</b>	<b>US</b>	<b>/</b>	<b>?</b>	<b>O</b>	<b>_</b>	<b>o</b>	<b>DEL</b>