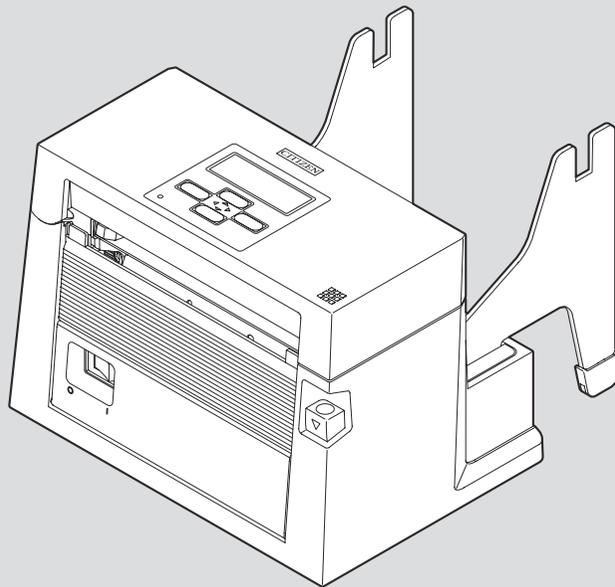


*Thermal Label & Barcode Printer*

# CL-S400DT

## USER'S MANUAL



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# INTRODUCTION

Thank you very much for purchasing Citizen's compact direct thermal label & barcode printer Model CL-S400DT that offers high performance printing at 6 inches per second on 4.1 inch media at very low cost.

## /// Main Features ///

### **<High-speed, high-quality printing>**

This printer can be used for high-speed high-quality printing thanks to its thermal-transfer system that uses a line thermal printhead together with its 32 bit RISC CPU and its 'history control IC'.

### **<Easy operation>**

- You can carry out all the daily operations of the printer by using the operation panel on the upper side of the printer. The power switch is also on the front side of the printer, and the access to the switch is therefore easy.
- The clear, easy-to-see backlit LCD makes both configuration and operation easy with simple messages about the printer's status and also the ability for quick configuration when needed.
- You can easily change the setting of the printer by operating the operation panel.
- Its high-lift printhead and mechanism means that media can be loaded with ease and it is constructed for easy thermal printhead cleaning, etc.
- Media width adjustment, media thickness adjustment, and media sensor adjustment can all be made easily by the user.

### **<Dual Programming Language>**

This printer contains both the Datamax® and Zebra® emulations and will automatically detect the language using the Cross-Emulation™ feature.

### **<Interface>**

An industry standard RS232 serial port and USB2.0 port are standard equipment, for quick data transfer and printing.

### **<Optional interface>**

Additional connectivity is available with an optional internally-housed IEEE1284 parallel port, an Ethernet interface.

### **<Optional auto-cutter / peeler unit>**

Its auto-cutter and peeler unit are constructed so they can be replaced easily.

### **<Adjustable sensors>**

The adjustable sensors that permit the adjustment of the positions of the media gap or the black mark detection sensor in the media width direction are standard equipment that can detect the position of special media.

### **<Installation>**

The printer is compactly designed and does not need much space to place. You can save space with this printer.

### **<Energy-saving functions>**

Adapted to ENERGY STAR.

## **COMPLIANCE STATEMENT FOR EUROPEAN USERS**

CE marking shows conformity to the following criteria and provisions:

Low Voltage Directive (2006/95/EC, formerly 73/23/EEC)/EN60950-1

EMC Directive (2004/108/EC, formerly 89/336/EEC)/EN55022, EN55024, EN61000-3-2 & EN61000-3-3

## **GS MARK STATEMENT**

This product has been tested under EN ISO 7779 and has an acoustic level output no higher than 55db(A).

This device is not intended for use at a video workstation in compliance with Bildscharb V.

This device is not intended for use in the direct field of view at visual display workplaces. To avoid incommoding reflections at visual display workplaces this device must not be placed in the direct field of view.

## **FCC COMPLIANCE STATEMENT FOR AMERICAN USERS**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

\* The model name printed on the CL-S400DT rating label is JP12-M01.

# EMI COMPLIANCE STATEMENT FOR CANADIAN USERS

## **This Class A digital apparatus complies with Canadian ICES-003.**

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. This equipment is designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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.

**CAUTION:** Use shielded cables to connect this device to computers.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

## ETAT DE CONFORMITE EMI A L'USAGE DES UTILISATEURS CANADIENS

### **Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.**

Cet équipement produit et utilise l'énergie à radiofréquences et s'il n'est pas installé et utilisé correctement, c'est à dire en accord strict avec les instructions du fabricant, il risque de provoquer des interférences avec la réception de la radio et de la télévision.

Le présent appareil numérique n'émet pas de bruits radio électriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Cet équipement est conçu pour fournir une protection satisfaisante contre de telles interférences dans une installation résidentielle. Cependant, il n'y a pas de garantie contre les interférences avec les réceptions radio ou télévision, provoquées par la mise en et hors circuit de l'équipement; aussi, il est demandé à l'utilisateur d'essayer de corriger l'interférence par l'une ou plus des mesures suivantes:

- Réorienter l'antenne de réception.
- Installer l'ordinateur autre part, par égard pour le récepteur.
- Brancher l'ordinateur dans une prise de courant différente de façon à ce que l'ordinateur et le récepteur soient branchés sur des circuits différents.

# IMPORTANT SAFETY INSTRUCTIONS

- Read all of these instructions and save them for later reference.
- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
- Slots and openings on the cabinet and the back or bottom are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, do not block or cover these openings. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
- This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- This product is equipped with a three-pronged plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be walked on.
- If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes for 120V outlet and 7.5 amperes for 220V-240V outlet.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
- Except as explained elsewhere in this manual, don't attempt to service this product yourself. Opening and removing those covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks. Refer all servicing on those compartments to service personnel.
- The mains plug on this equipment must be used to disconnect mains power. Please ensure that the socket outlet is installed near the equipment and shall be easily accessible.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - A. When the power cord or plug is damaged or frayed.
  - B. If liquid has been spilled into the product.
  - C. If the product has been exposed to rain or water.
  - D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  - E. If the product has been dropped or the cabinet has been damaged.
  - F. If the product exhibits a distinct change in performance, indicating a need for service.

# NOTICE

- Before use, be sure to read this manual. And keep it handy for reference when needed.
- The contents of this manual may change without prior notice.
- Reproduction, transfer, or transmission of the contents of this manual without prior consent is strictly prohibited.
- We are not liable for any damage resulting from the use of the information contained herein, regardless of errors, omissions, or misprints.
- We are not liable for any problems resulting from the use of optional products and consumable supplies other than the designated products contained herein.
- Do not handle, disassemble or repair the parts other than those specified in this manual.
- We are not liable for any damage caused by user's erroneous use of the printer and inadequate environment.
- Data residing in the printer is temporary. Therefore, all data will be lost if power is lost. We are not liable for any damage or loss of profits caused by data loss due to failures, repairs, inspections, etc.
- Please contact us if there are any mistakes or ambiguities within this manual.
- If there are missing or incorrectly collated pages in this manual, contact us to obtain a new manual.

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# SAFETY INSTRUCTIONS

## which must be strictly observed !

- To prevent personal injury or property damage, the following shall be strictly observed.
- The degree of possible injury and damage due to incorrect use or improperly following instructions is described below.

 <b>Warning</b>	Indicates a situation which, if not observed and handled properly, could result in death or serious injury.
 <b>Caution</b>	Indicates a situation which, if not observed and handled properly, could result in injury.



: This is a mark to call attention to the reader.

### **Warning**

**Never perform the following. If not avoided, these may cause damage or trouble to the printer or cause the printer to overheat and release smoke and cause burns or an electrical shock. If the printer is damaged or is malfunctioning, be sure to turn the printer off immediately and remove the power cord from the outlet, then consult our service personnel.**

- Do not jolt or impact to the printer by stepping on, dropping or hitting the printer.
- Do not place the printer in a poorly ventilated area, or shut off the air vent of the printer.
- Do not place the printer where chemical reactions occur, such as in laboratories or where air is mixed with salt or gas.
- Do not use a power voltage or frequency other than those specified.
- Do not plug/unplug the power cord or attach/detach the interface cable by simply grabbing the power cord or interface cable. Do not pull or carry the printer when the tension of the power cord or interface cable is increased.
- Do not drop or put foreign matter such as clips and pins into the printer. This may cause problems.
- Do not plug the power cord into an outlet with many loads.
- Do not spill drinks such as tea, coffee and juice on the printer or spray insecticide on the printer. If drink or water is spilled, first be sure to turn the power off and remove the power cord from the outlet, then consult our service personnel.
- Do not disassemble or modify the printer.

**Discard or safely store the plastic packing bag. This bag should be kept away from children. If the bag is pulled over a child's head, it may cause suffocation.**

## General Precautions

### **Caution**

- Prior to operation, read the safety instructions carefully and observe them.
- Do not drop or put foreign matter such as clips and pins into the printer. This may cause problems.
- Be careful when moving or carrying the printer. Dropping the printer may cause injury or property damage.
- Make sure if you open the top cover, it is opened all the way. If only partially open, the cover could slam shut, possibly causing injury.
- When the cover is open, be careful of the corners of the cover. They could cause injury.
- Do not open the printer during printing.
- When cleaning the surface of the printer case, do not use the cloth that is soaked in thinner, trichloroethylene, benzene, ketone or similar chemicals.
- Do not use the printer where there is a lot of oil, iron particles, or dust.
- Do not spill liquids or spray insecticide on the printer.
- Do not jolt or impact to the printer by stepping on, dropping or hitting the printer.
- Operate the control panel properly. A careless, rough handling may cause problems or malfunction. Do not use such sharp-edged tool as a ballpoint pen for operation.
- Be careful of the edges of the plates so injury or property damage is possible.
- If a problem occurs during printing, stop the printer immediately and unplug the power cord from the outlet.
- When printer trouble occurs, do not try to disassemble it. Instead, consult our service personnel.

## Precautions When Installing the Printer

### **Caution**

- Prior to operation, read the safety instructions carefully and observe them.
- Do not use or store the printer near fire, excessive moisture, in direct sunlight, near an air conditioner or heater or other source of unusually high or low temperature or humidity or excessive dust.
- Do not place the printer where chemical reactions occur, such as in a laboratory.
- Do not place the printer where air is mixed with salt or gas.
- The printer must sit on a firm, level surface where there is ample ventilation. Never allow the printer's air vent to be blocked by a wall or other object.
- Do not put anything on the top of printer.
- Do not place the printer near a radio or television, and do not use the same wall outlet for the printer and radio or television. Radio or television reception could be adversely affected.
- Do not use a power voltage or frequency other than those specified.
- Do not put anything on the power cord or step on it.
- Do not drag or carry the printer with the power cord or interface cable.
- Avoid plugging the power cord into an outlet with many loads.
- Do not bundle the power cord when inserting the plug.
- Always grip the plug housing, not the cord, to plug/unplug the power cord.
- Make certain the power is turned off before connecting/disconnecting the interface cable.
- Avoid lengthening the signal cable or connecting it to any noise-producing device. If it is unavoidable, use the shielded cable or twisted pair for each signal.
- Place the printer near the outlet where the power cord can be unplugged easily to shut off power.
- Use the AC outlet that accepts a three-pronged plug. Otherwise, static electricity may be generated and there will be danger of electric shock.

# Chapter 1 Setup

## Confirmation of Carton Contents

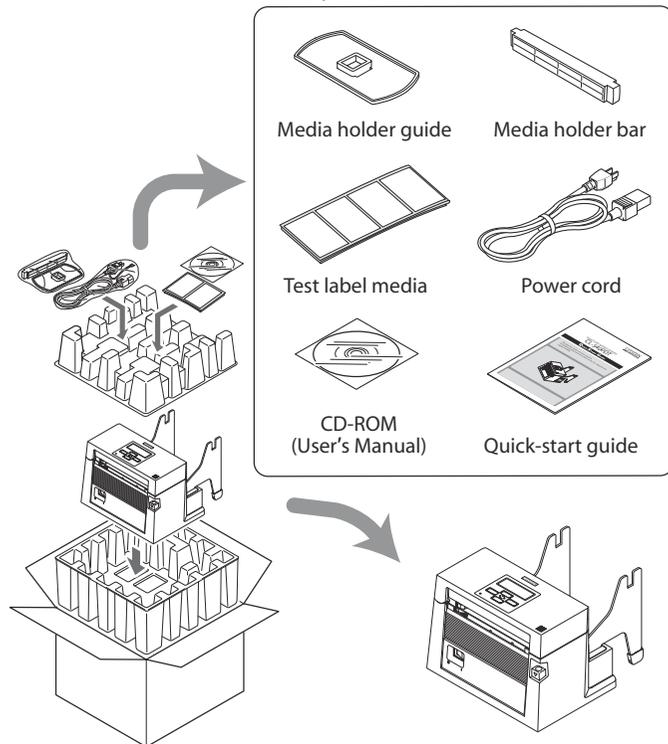
### Removing the Packing Material

The printer is shipped with adhesive tape in place to hold the top cover closed. Simply remove the two pieces of tape on either side of the top cover. Then simply open the cover by lifting up and tipping it backwards.

There is another strip of adhesive tape that must be removed which holds the mechanism closed for shipping. Remove the tape and attached paper by carefully peeling from the plastic case.

Retain the tape should you need to transport the printer again.

Check that the following accessories are included with the printer in the carton.



**Note:** The empty carton and packing materials should be stored for future shipping of the printer.

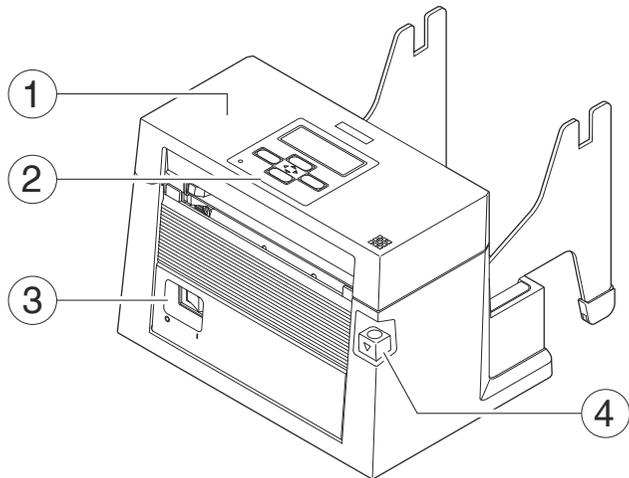


### Caution

- Be careful when moving or carrying the printer and when taking the printer out of the carton. The printer may cause injury or property damage if dropped. Be sure to grip the printer housing firmly when taking it out of the carton. Do not grip the printer by the packing material which may break, causing the printer to drop.
- When opening the cover, open it all the way. If only part way open, the cover could slam shut, possibly causing injury.
- Be careful of the edge of the cover when the cover is opened. It may cause injury or property damage.
- Be careful of the edges of the metal plates so injury or property damage is possible.

## Part Names and Functions

### Front View

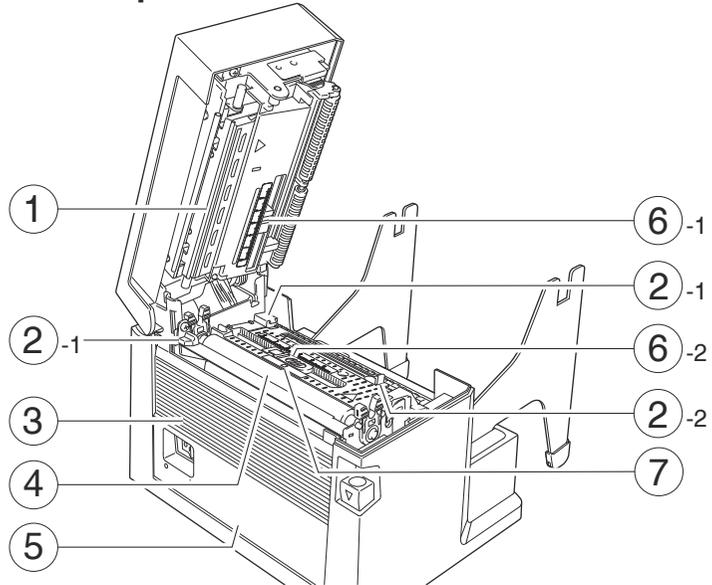


*Operation Panel (p.14)*

*Power ON/OFF (p.18)*

- ① **Printer cover**  
Is opened vertically to place or replace media.
- ② **Operation panel**  
This is used to make changes and adjustments to the printer and its configuration.
- ③ **Power switch**  
This is the power switch for the printer.
- ④ **Cover open lever**  
The printer cover can be raised to install media by pushing this lever. It locks the head unit during printing.

### Inside the printer



*Installing the Media (p.22)*

① **Thermal printhead**

This is the printhead. Avoid touching this with your fingertips and leaving grease or dirt on the printhead surface.

② **Media guides**

**(Left fixed media guide (②-1) and right movable media guide (②-2))**

The end of the media is matched to the left fixed media guide, then the right side movable media guide is moved horizontally to match it to the media size.

③ **Front cover**

It is removed to install optional units such as the peeler or cutter.

④ **Platen**

Interlocked with the thermal printhead, it feeds media backwards or forwards.

⑤ **Switch cover**

It is opened when the cables of the cutter unit and the peeler unit are connected. Do not remove during normal use.

⑥ **Upper sensor (⑥-1) and bottom sensor (⑥-2)**

When used as a transparent sensor (for labels and tags with notches), it is used by matching the marker scale of the upper sensor and the bottom sensor. When used as a reflective sensor, it is used by matching the reflective sensor marker on the bottom sensor with the position of the black mark on the liner or media backing.

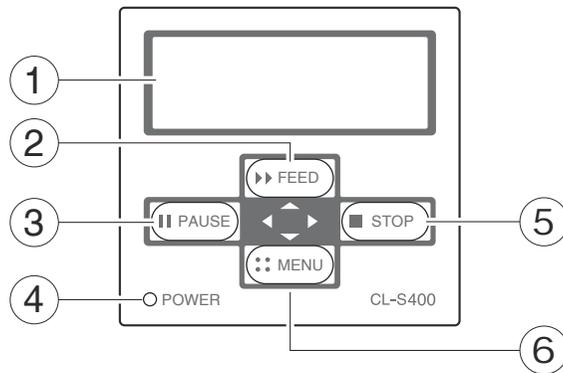
⑦ **Fixed sensor**

In order to move the media to an appropriate place, black marks are detected when they are set.

*Setting sensor positions (p.22)*

*Sensor Adjustments (p.45)*

### Operation Panel



*LED Functions (p.20)*

*Normal Operating Mode (p.19)*

*LED Functions (p.20)*

- ① **LCD display**  
This displays the operational status of the printer.
- ② **FEED key**  
This key feeds the media to the top of the next label or form.
- ③ **PAUSE key**  
This temporarily stops printing.
- ④ **POWER LED**  
This is lit when the printer power is on. (green)  
This is lit when the printer is in an alarm or error status. (red)
- ⑤ **STOP key**  
This stops printing or cancels the alarm.
- ⑥ **MENU key**  
This key exits current status in the menu setting mode or reprints the final label, depending on printer status.

*Serial Interface (p.57)*

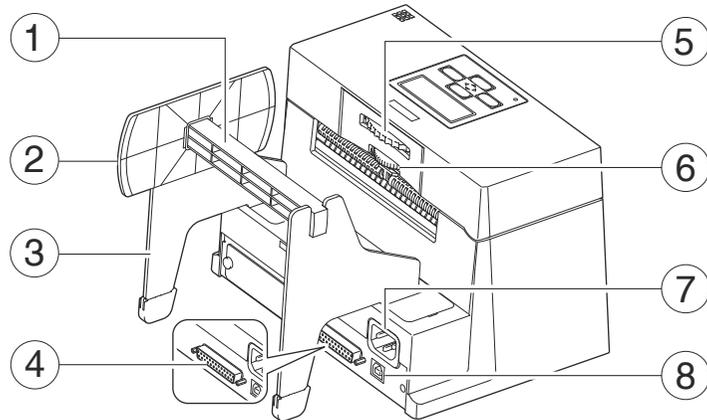
*Media Width Adjustment (p.49)*

*Media Thickness Adjustment (p.48)*

*Connection to Power (p.16)*

*USB Interface (p.59)*

### Rear View



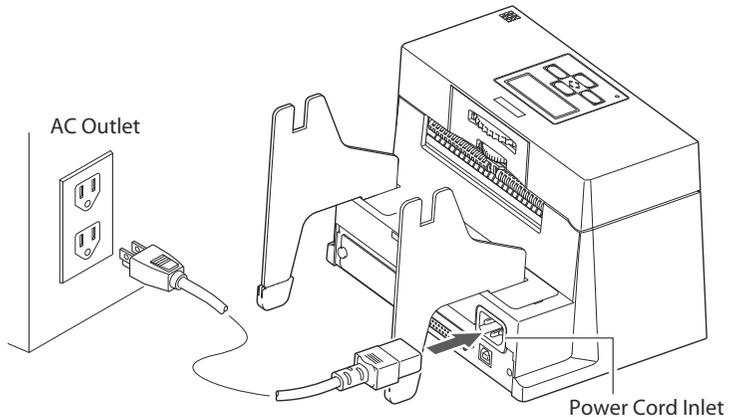
- ① **Media holder bar**  
The media is supported by the media holder bar when installed in the printer.
- ② **Media holder guide**  
This guide is moved horizontally to match the media size.  
The guide can be sliding it from the holder bar.
- ③ **Media holder stand**  
It is a base to mount the media holder bar.
- ④ **Serial interface (RS232C)**  
This receives serial transmission of data from a host computer.
- ⑤ **Media width adjustment dial**  
It is adjusted to match the width of the media.
- ⑥ **Media thickness adjustment dial**  
It is adjusted to match the thickness of the media.
- ⑦ **Power cord inlet**  
The connector of the enclosed power cord is connected here.
- ⑧ **USB interface (USB2.0)**  
This receives USB transmission of data from a host computer.

### **Caution**

Please do not touch the mounting screws on the media holder stand. By factory default, the media holder stand is adjusted at the optimum printing position. If the media holder stand needs to be replaced, please contact the retailer where you purchased the product.

### Connection to Power

1. Check that the power switch to the printer is turned OFF.
2. Connect the connector of the power cord to the power cord inlet on the printer.
3. Insert the plug of the power cord in the AC outlet.



#### **Caution**

Use an AC outlet that accepts a three-pronged plug. Otherwise, static electricity may be generated and there will be danger of electric shock.

### Driver Installation

The computer may automatically detect the presence of the new printer when it is first started, depending on the computer type, interface and operating system. Follow any on-screen instruction and also instructions supplied with any additional CD-ROM included with your printer. Your supplier will assist you with the correct drivers and software which are compatible with your particular computer system.

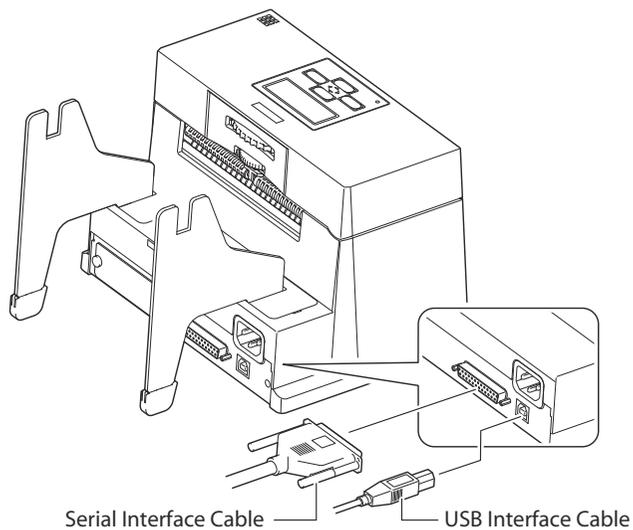
### Connection to a Computer

This product has two interfaces that can be used to receive printing data: a serial port (RS232C) and a USB port (USB2.0). An optional internal Ethernet or an IEEE1284 Parallel port can be added by your dealer. To connect the cable, proceed as follows:

1. Turn OFF both power switches of the printer and the computer.
2. Connect one end of the interface cable to the interface connector on the back of the printer and secure it with locks or locking screws, where available.
3. Connect the other end of the interface cable to the interface connector on the computer and secure it with locks or locking screws, where available.

*Serial Interface (p.57)*

*USB Interface (p.59)*



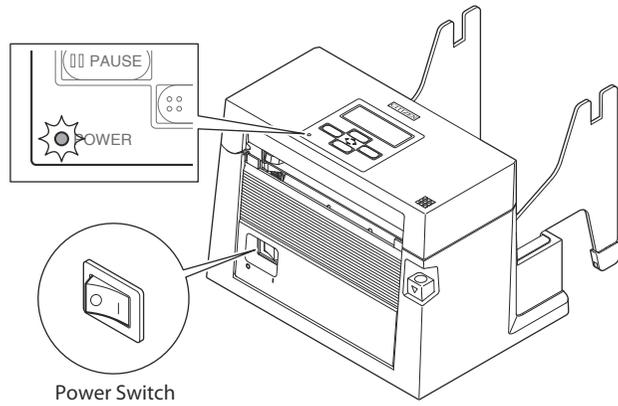
**Note:** If the optional Ethernet or an IEEE1284 Parallel port is used, contact your Citizen Systems dealer.

# Chapter 2 Printer Operation

## Power ON/OFF

### Turning on the power

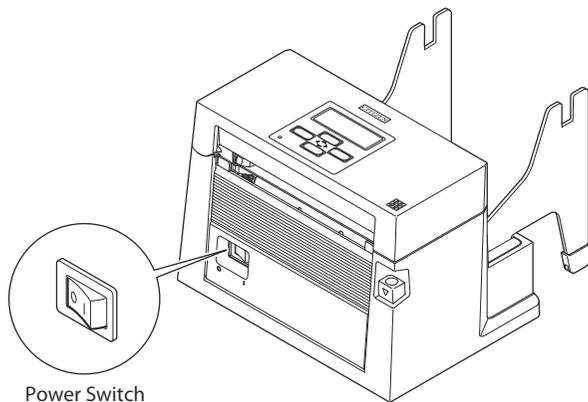
1. The power switch is conveniently located at the front of the printer for easy access during normal operation. It is in the recess underneath the control panel so it cannot be accidentally operated by mistake.
2. The POWER LED lights up.



Power Switch

### Turning off the power

1. Turn off the power switch of the printer.
2. The POWER LED goes off.

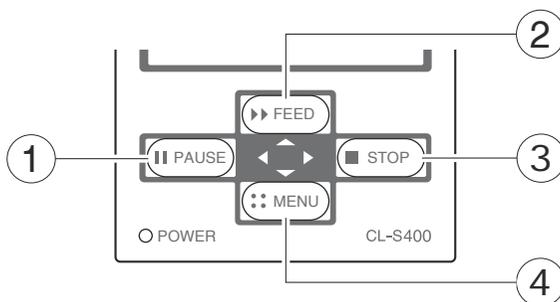


Power Switch

Menu Setup Mode (p.28)

### Normal Operating Mode

When the power is turned on, the printer enters normal operating mode. The control keys activate the following functions.



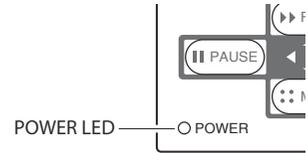
- ① **PAUSE key: Temporarily pauses printing**
  - When this key is pushed once, the LCD indicates “Pause” and the printer temporarily pauses.
  - When it is pushed during printing, the printer pauses after the label currently being printed is issued. Pressing the key a second time restarts printing and the remaining number of designated labels are printed.
- ② **FEED key: Feeds media**
  - Pressing this key feeds media to the print start position. The distance it is fed is determined by automatically detecting the front end of the media when using label media, and when continuous media has been designated, a fixed quantity is fed, then feeding stops.
  - When the TEAR OFF setting is effective, feeding stops when the media has been fed to the TEAR OFF location.
  - When the optional cutter unit is installed, the media is fed to the cut position then it is cut.
  - If the optional peeler unit is installed, the media is fed to the peeling location. When the media is pausing at the peeling position, feeding does not occur, even if the FEED key is pushed.
- ③ **STOP key: It stops printing and cancels the alarm**
  - Pushing this key once during printing puts the printer in pause mode after the label is issued. It is possible to cancel 1 batch of label issuing data by pressing the STOP key for 4 seconds or longer in pause status. (The LCD indicates “Job Clear” during cancel.)
- ④ **MENU key:**
  - In normal operation, this key will enter the menu configuration mode. It can be configured to repeat the previous label, if preferred.

## Chapter 2 Printer Operation

### Normal Operating Mode

#### LED Functions

In addition to normal operating mode, when an abnormal condition is detected in the printer, an alarm sounds and the POWER LED lights up (red) to indicate the type of error. The LCD indicates the error message.



#### Table of Alarm and Error Indications

Item	POWER LED	LCD
Printing possible (no error)	Lights up (green)	On Line Ready
STOP or PAUSE key on operation panel pressed	Lights up (green)	Pause
Head temperature - high temperature abnormality	Lights up (red)	Alarm Head Hot
Head temperature - low temperature abnormality	Lights up (red)	Error Head Cold
Cutter motor temperature abnormality	Lights up (red)	Alarm Cutter Hot
Cover open	Lights up (red)	Error Cover Open
Paper end	Lights up (red)	Error Paper End
Paper out (paper position undetectable)	Lights up (red)	Error Paper Load
Paper jam	Lights up (red)	Error Paper Jam
Head low resistance value abnormality	Lights up (red)	Alarm Head Check
Communication error (receiving buffer overrun)	Lights up (red)	Error Serial Over Run
Communication error (parity)	Lights up (red)	Error Serial Parity
Communication error (framing)	Lights up (red)	Error Serial Framing
System error	Lights up (red)	Error System Fail
*Auto-cutter abnormality (foreign object etc.)	Lights up (red)	Error Cutter Fail

\*Applicable only when using the optional auto cutter

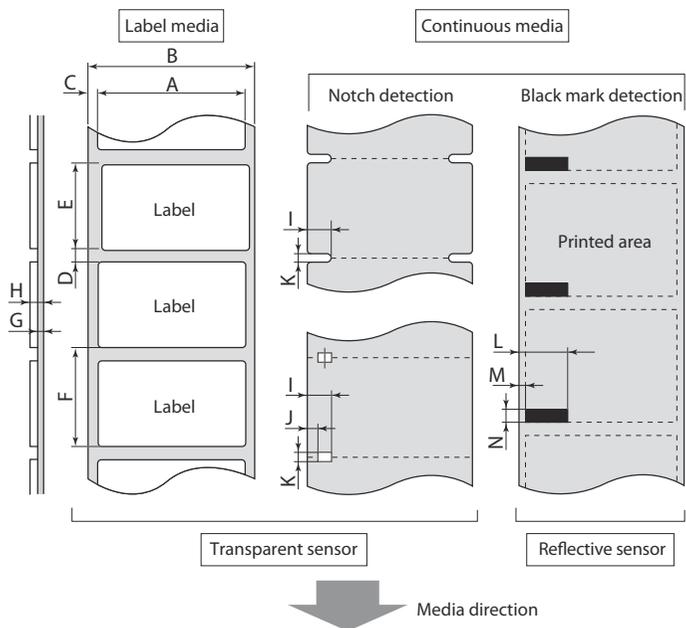
## Setting the Media

### Media Sizes

The position of label and tag media is sensed by either a transparent sensor or a reflective sensor.

Transparent sensor: Detects the gaps between label media and notches of tag media

Reflective sensor: Detects the black mark



		Min. value mm (inches)	Max. value mm (inches)
A	Label width	19.50 (0.77)	118.00 (4.65)
B	Liner width	19.50 (0.77)	118.00 (4.65)
C	Label left edge position	0 (0)	2.54 (0.10)
D	Length of gap between labels	2.54 (0.10)	812.8 (32.00)
E	Label length	6.35 (0.25)	812.8 (32.00)
F	Label pitch	6.35 (0.25)	812.8 (32.00)
G	Liner thickness	0.06 (0.0025)	0.125 (0.0049)
H	Total media thickness	0.06 (0.0025)	0.25 (0.01)
I	Position of right edge of notch	3.60 (0.14)	60.80 (2.39)
J	Position of left edge of notch	0 (0)	57.20 (2.25)
K	Notch length	2.54 (0.10)	17.80 (0.70)
L	Right edge of black mark	15.00 (0.59)	66.50 (2.62)
M	Left edge of black mark	0 (0)	51.5 (2.02)
N	Black mark width	3.18 (0.125)	17.80 (0.70)

\* Use a transparent sensor for label media gaps and media with black marks.

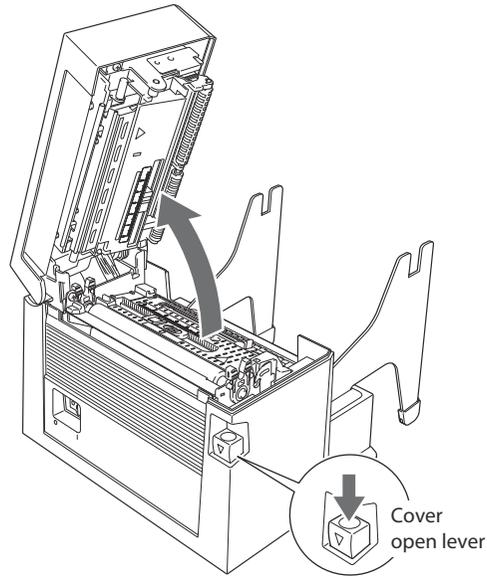
\* Use a transparent sensor for fan fold media.

\* If the label pitch is 1 inch or less, set the Small Media Adjustment menu to ON and match it to the label that uses the value of the Small Media Length menu.

Menu Setting Table (p.34)

#### Installing the Media

1. Push the cover open lever to release the printer cover. It can be opened to the position shown below by lifting the printer cover by hand.



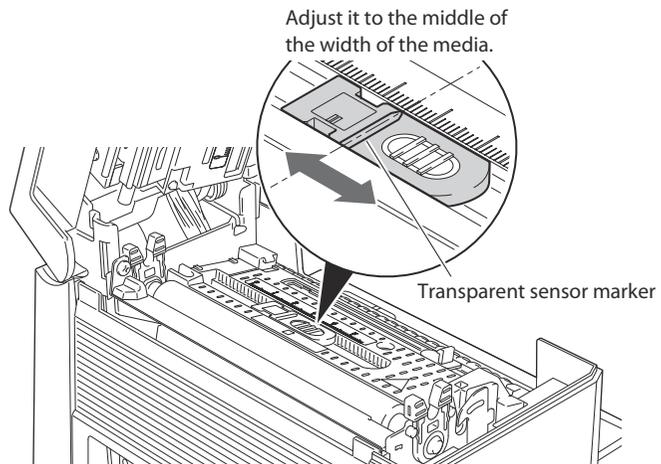
*Sensor Selection Method  
(Transparent ↔ Reflective)  
(p.45)*

*Adjusting the Transparent  
sensor (p.46)*

2. Setting sensor positions.

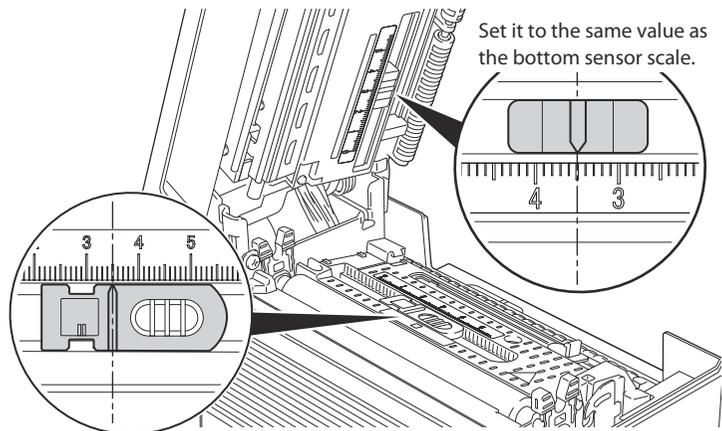
#### ■ When using a transparent sensor

- ① Move the bottom sensor to the middle of the width of the media.



### Setting the Media

- ② Then, regulate the position of the upper sensor so that the upper sensor marker scale indicates the same value as the scale of the bottom sensor scale.



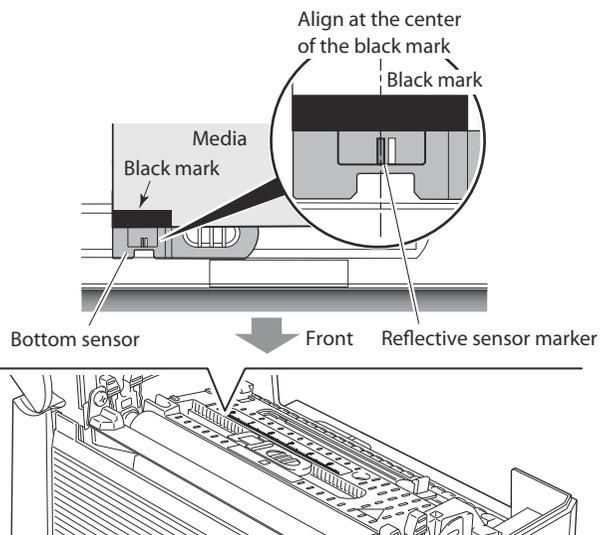
<In case the position of the bottom sensor scale is 3.5>

When using media that is 4 inches wide, position the upper sensor and the bottom sensor all the way to the right (cover open lever side).

*Adjusting the Reflective sensor  
(p.47)*

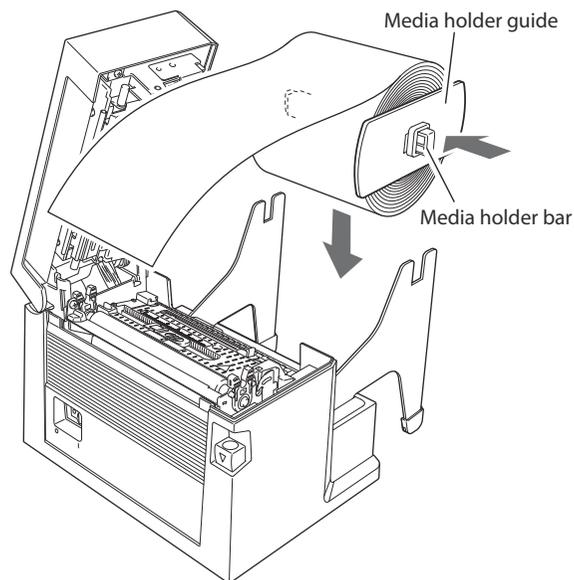
#### ■ When using a reflective sensor

Adjust the position of the sensor so that the reflective sensor marker of the bottom sensor is at the center of the black mark of the media as shown below.



### Setting the Media

3. Set the media on the printer.  
Firstly, slide the two black plastic parts of the media holder assembly together. Ensure correct alignment of the guide with the bar as it can only be installed in one direction.
4. Slide the roll of media over the media bar. The media guide must be on the right side of the roll of media (as viewed from the front of the printer) with the ribbed surface of the media guide touching the media roll as shown in the illustration.



*Media Sizes (p.21)*

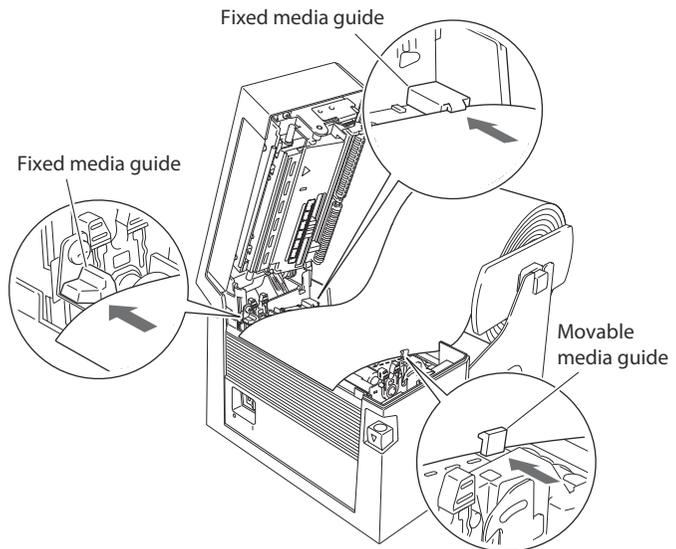
5. Set the media roll and media holder in to the printer as shown above. It is advisable to pull a length of media forwards and through the mechanism ready for later positioning.
6. Move the media roll so it is touching the left side of the housing. Then slide the black media guide so it is touching the media on the right side. Do not try to hold the media too tightly with these guides as it will cause the printer to jam during printing.

## Chapter 2 Printer Operation

### Setting the Media

7. Align the media with the left fixed media guides (2 places), and align the right movable media guide with the media width.

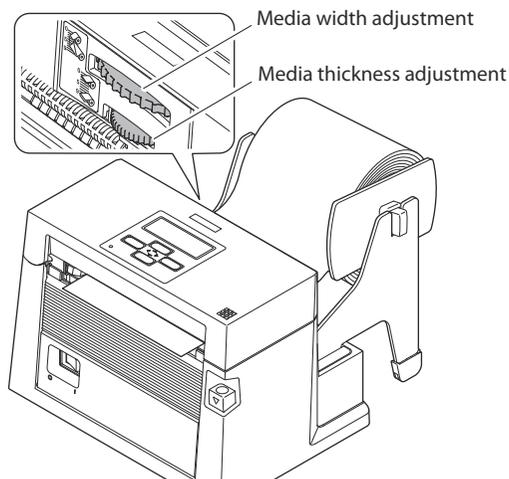
**Note:** Make sure to set the media following the procedure as indicated here. If not, it may jam.



*Adjusting the Transparent sensor (p.46)*

*Adjusting the Reflective sensor (p.47)*

8. Lower and lock the printer cover. Align it with the width of the media that has been set, then set the media width and media thickness adjustment dials. See "Chapter 3 Printer Adjustments".



9. With the power switched on, push the FEED key to feed the media. It will halt at the next print start position.

Operation Panel (p.14)

## Mode Settings

Turning on the power while pressing keys in the following combinations starts various functions.

Mode	Key operation
HEX dump mode	Turning power on while pushing the STOP key.
Self print mode	Turning power on while pushing the FEED key.
Menu list print mode and Menu setup mode	Turning power on while pushing the MENU key.

### HEX Dump Mode

- **When using label media**

Turn on printer power while pushing the STOP key. If the POWER LED lights up and the LCD indicates "Hex Dump Mode" and "Label Media", release the STOP key, and then the printer enters HEX DUMP mode.

- **When using continuous media**

Turn on printer power while pushing the STOP key. If the POWER LED lights up and the LCD indicates "Hex Dump Mode" and "Label Media", and then changed to "Hex Dump Mode" and "Cont. Media", release the STOP key, and then the printer enters HEX dump mode.

```

DUMP LIST

02 40 30 31 30 30 0D 02 60 30 30 32 30 0D 02 4C .M0100..c0020..L
44 31 31 0D 31 30 30 30 30 30 30 30 30 30 31 30 D11.100000000010
30 30 31 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 0010123456789::<
    
```

DUMPLIST

\* To exit HEX Dump Mode, turn off the power to the printer then turn the power on again (restart).

### Mode Settings

*Installing the Media (p.22)*

#### Self Print Mode

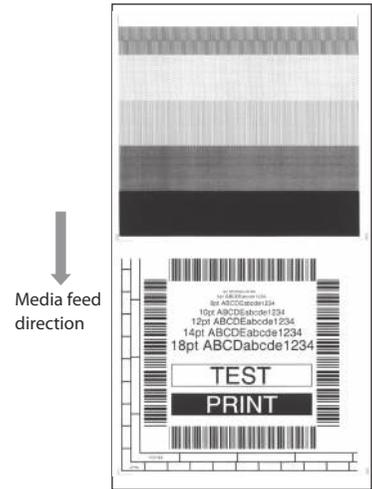
Performing a self test print is an easy way to check on the state of printer setting and printing quality. Install the media as explained in “Installing the Media” and then operate the printer as follows.

- **Case of label media**

Turn on printer power while pushing the FEED key. When the LCD indicates “Self Print Mode” and “Label Media”, release the FEED key. After it enters TEST MODE and media has fed, two labels print then printing stops. To restart printing, press the FEED key once more.

- **Case of continuous media**

Turn on printer power while pushing the FEED key. When the LCD indicates “Self Print Mode” and “Label Media”, and then changed to “Self Print Mode” and “Cont. Media”, release the FEED key. After it enters TEST MODE and it prints then printing stops. To restart printing, press the FEED key once more.

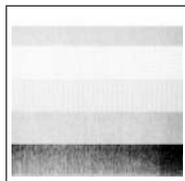


*Self print pattern*

#### Media Adjustments

Using the Self Test Print shown above, you can make adjustments to the printer settings such as media width and media thickness (printhead pressure). The location of these two adjustments is explained in Chapter 3.

*Adjusting the Transparent sensor (p.46)*



The first sample, left, shows an incorrectly set “media thickness adjustment”. For standard label media, it is recommended you set the blue dial to the “1” position.

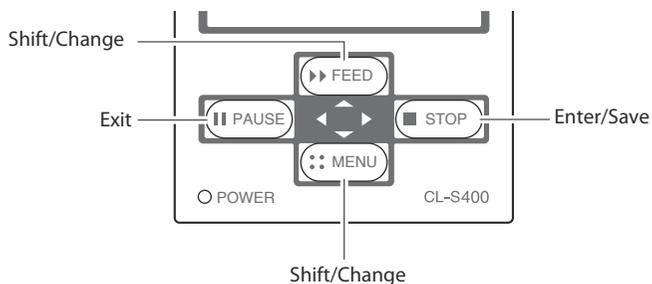
*Adjusting the Reflective sensor (p.47)*



The second sample, left, shows an incorrectly set “media width adjustment”. For 4-inch or 102mm wide media, the adjuster should be set to the “9” position on the blue dial. The settings shown above are for general label media and may not apply to specialist media.

#### Menu Setup Mode

If the MENU key is pressed while the printer is in the On Line Ready state, the printer enters menu setup mode. In this mode, the printer's configuration can be changed using the operation panel. During menu setting mode, the LCD indicates the current menu settings and the key function.



#### ■ Functions of the keys

When you enter Menu Setup Mode, the LCD displays “Main Menu” on the top line and Page Setup below.

In the menu setup mode, the four keys become “cursor keys” to navigate the menu. Refer to the four small arrows in the centre of the keypad rather than the names of the keys.

#### **FEED key (Shift/Change):**

The ▲ key (FEED key) goes up the menu system or selects a higher value

#### **MENU key (Shift/Change):**

The ▼ key (MENU key) goes down the menu system or selects a lower value

#### **STOP key (Enter/Save):**

The ► key (STOP key) selects or saves the item or enters a menu

#### **PAUSE key (Exit):**

The ◀ key (PAUSE key) exits the current item (goes back) and eventually exits the menu system

The menu settings are stored temporarily in the printer's memory. They are only permanently stored in the printer setup when you exit the menu system and say “Yes” to the “Save Settings” question.

### **Caution**

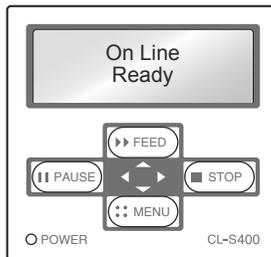
Turning the power off while the printer is performing the “Save Settings” function could cause a mis-save. Do not do this! If the power is accidentally turned off, first reset the printer to factory defaults.

### Example of changing a menu

This is an explanation of the method of changing the set value of print darkness from "12" to "14" in a case where the main menu is "Page Setup" and the sub menu is "Print Darkness".

#### 1. Entering Menu Setup Mode.

Ensure LCD displays "On Line Ready". Then press the MENU key to enter 'menu setup mode' where the printers settings can be changed or confirmed.

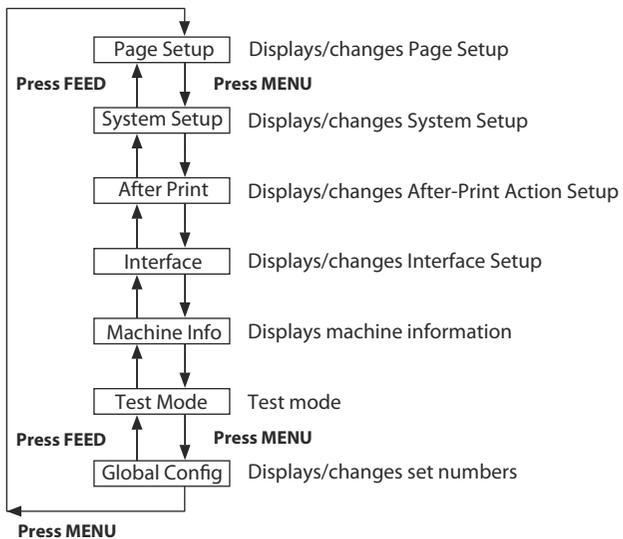


The current main menu is displayed.

The following are the functions of each key.

- ▲ key: displays the previous menu item
- ▼ key: displays the next menu item
- ▶ key: enters the Page Setup menu
- ◀ key: enters the Save Settings section

<Main menu item flow>



#### 2. Entering Sub menu.

Press the ► key. The currently set item, "Print Speed", is displayed.

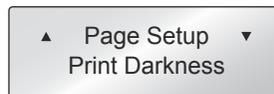


The following are the functions of each key.

- ▲ key: displays the previous sub menu
- ▼ key: displays the next sub menu
- key: displays the values set by the selected sub menu
- ◀ key: returns to the main menu

#### 3. Selecting "Print Darkness" from the sub menu.

Press the ▼ key one time to display "Print Darkness". It is the second item within "Page Setup".



#### 4. Displaying the set value of "Print Darkness".

Press the ► key and the value "12" - the currently set value - is displayed.



The following are the functions of each key.

- ▲ key: displays the higher value (13, in this case)
- ▼ key: displays the lower value (11, in this case)
- key: the current value is temporarily saved
- ◀ key: exits "Print Darkness" and ignores any value changes

#### 5. To change the value of Print Darkness to 14.

Press the ▲ key two times to display "14" on the screen. Then press the ► key to temporarily save the value into the printer RAM.

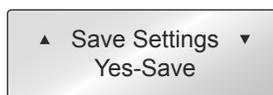
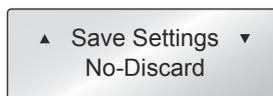


#### 6. Save Changes to Settings.

Unless you save your settings, your changes will be lost when you turn off the printer.

##### To Save Changes

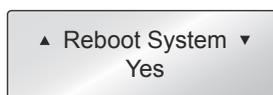
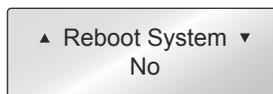
- ① Press the ◀ key twice to display the message "Save Settings No-Discard".
- ② Press the ▲ key or the ▼ key to display the message "Save Settings Yes-Save".
- ③ Press the ▶ key.  
The new settings will be saved and the printer will return to the "On Line Ready" screen.



##### ■ Changing the Interface and Emulation Settings

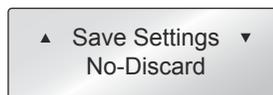
Changes to interface or emulation settings require a printer restart (or reboot) to take effect. The printer will offer to do this when needed by displaying the following message after saving the settings:

- ④ The screen shown on the right will be displayed when "Save Settings Yes-Save" is selected.
- ⑤ Press the ▲ key or the ▼ key to display the message "Reboot System Yes".
- ⑥ Press the ▶ key and reboot the printer.



##### To Discard Changes

- ① Press the ◀ key twice to display the message "Save Settings No-Discard".
- ② Press the ▶ key.  
The printer will return to the "On Line Ready" screen.  
The new settings will be lost when the printer is turned off.



### Mode Settings

*Example of changing a menu  
(p.29)*

### Printing a List of Settings

You can get a list of the configuration settings in two ways:

- Press MENU key whilst turning the printer on. The POWER LED lights up and "Print Settings" is displayed on the LCD. After printing, the printer will enter Menu Setup Mode.
- You can access the configuration print via the "Test Mode, Print Pattern, Current Config" from the setup menu.

Machine Information	
Model Number	: CL-S400DT
Boot Version	: ****
ROM Version	: *****
ROM Date(DD//MM//YY)	: XX/XX/XX
ROMCheck Sum	: ****
FPGA Version	: **** ****
Head Check	: OK
Print Counter	: 0002.234km
Service Counter	: 0002.234km
Cut Counter	: 0
Sensor Monitor	: 1.50V
Option Interface	: None
Current Menu Setting	
[Global Config Menu]	
Config set	: 1
[PageSetup Menu]	
Print Speed	: 6 IPS
Print Darkness	: 10
Darkness Adjust	: 00
Continuous Media Length	: 4.00 inch
Vertical Position	: 0.00 inch
Horizontal Position	: 0.00 inch
Vertical Image Shift	: 0.00 inch
Auto Side Shift	: 0 dot
Media Sensor	: See Through
Small Media Adjustment	: Off
Small Media Length	: 1.00 inch
Symbol Set	: PM
[System Setup Menu]	
Sensor Level	: 1.7 V
Paper End Level	: 2.80 V
Error Reporting	: On Printing
Buzzer Select	: On
Metric/Inch	: Inch
Max Media Length	: 10.00 inch
Setting Lock	: Off
Keyboard Lock	: Off
Standby Mode	: Off
Standby Timer	: 5 min
Control Code	: STD
Emulation Select	: DM4
Emulation Auto Detect	: On
[After Print Menu]	
AutoConfigure	: On
Function Select	: Tear
Cutter Action	: Backfeed
Paper Position	: 0.00 inch
Menu Key Action	: Enters Menu
[Interface Menu]	
RS-232C Baudrate	: 9600
RS-232C Parity	: None
RS-232C Length	: 8 bit
RS-232C Stop bit	: 1 bit
RS-232C X-ON	: Yes
IEEE1284	: On
USB Device Class	: Printer
USB VCOM Protocol	: Auto

<Example of Datamax® emulation selected>

**Note:** Citizen continually enhances its printers with new options and settings based on our customer's requests. Extra or changed menu items may appear on the above print out in some cases.

### Global Configuration Sets

The printer can store three sets of configuration settings that can be recalled quickly and easily.

Each "Config Set" (1, 2 or 3) can contain completely different configuration settings for all menu parameters. For example, "Config Set 1" could be configured for 4 ips print speed, print darkness 18.

"Config Set 2" next could be 5 ips continuous card media with black mark, print darkness 12.

The ability of having three sets of settings is ideal for someone who prints on different media types regularly, for example in a label printing bureau. Global config settings can be printed using the "Test Mode, Print Pattern, Global Config" menu option. It will also display the currently active "Config Set":

	Active Configuration Setting		
	Config 1	Config 2	Config 3
[PageSetup Menu]			
Print Speed	6	5	4
Print Darkness	10	12	12
Darkness Adjust	+00	+00	+00
Continuous Media Length	04.00inch	04.00inch	04.00inch
Vertical Position	+0.00inch	+0.00inch	+0.00inch
Horizontal Position	+0.00inch	+0.00inch	+0.00inch
Vertical Image Shift	+0.00inch	+0.00inch	+0.00inch
Auto Side Shift	00dots	00dots	00dots
Media Sensor	See Through	Reflect	See Through
Small Media Adjustment	Off	Off	Off
Small Media Length	1.00inch	1.00inch	1.00inch
Symbol Set	PM	PM	PM
[System Setup Menu]			
Sensor Level	1.4V	1.4V	1.4V
Paper End Level	2.80V	2.80V	2.80V
Error Reporting	On Printing	On Printing	On Printing
Buzzer Select	On	On	On
Metric/Inch	Inch	Inch	Inch
Max Media Length	10.00inch	10.00inch	10.00inch
Settings Lock	Off	Off	Off
Keyboard Lock	Off	Off	Off
Standby Mode	Off	Off	Off
Standby Timer	5 min	5 min	5 min
Control Code	STD	STD	STD
Emulation Select	DM4	DM4	DM4
[After Print Menu]			
AutoConfigure	On	On	On
Function Select	Tear	Tear	Tear
Paper P...		+0.00inch	+0.00inch

<Example of Datamax® emulation selected>

## Chapter 2 Printer Operation

### Mode Settings

#### [Datamax® Emulation]

### Menu Setting Table

**Page Setup Menu** - allows you to change settings related to the media or print quality.

**System Setup Menu** - allows you to change settings for the printer hardware and basic control systems.

**After Print Menu** - changes how the printer reacts after the label has been printed.

**Interfaces** - changes interface parameters such as baud rate.

**Machine Information, Test Mode** - allows you to check and/or print test pages and information about the printer.

**Global Config menu** - allows you to switch between 3 complete 'config sets' contained within the printer.

### Menu Setting

Press the MENU key in print possible status to enter MENU Setup Mode. Use the keys on the operation panel according to the LCD display to setup the printer. The contents that can be setup on the printer are shown below. And the items that are actually displayed on the LCD are shown in [ ].

#### ■ Datamax® Emulation

Top Menu	Sub Menu	Default	Menu	Remarks
Page Setup	Print Speed*	6 IPS	2 to 6 IPS	Printing speed setting.
	Print Darkness	10	00 to 30	Adjusting print darkness.
	Darkness Adjust [Darkness Adj]	00	-10 to 10	Fine adjustment of darkness commands.
	Continuous Media Length [Cont Media Len]	4.00 inch 101.6 mm	0.25 to 32.00 inch 6.4 to 812.8 mm	Setting media length of continuous media. Lower level = during mm mode.
	Vertical Position [Vertical Pos]	0.00 inch 0.0 mm	-1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusting printing start position.
	Horizontal Position [Horizontal Pos]	0.00 inch 0.0 mm	-1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusting horizontal image position.
	Vertical Image Shift [Vertical Image]	0.00 inch 0.0 mm	0.00 to 32.00 inch 0.0 to 812.8 mm	Adjust the off set value in vertical when mapping data on a RAM.
	Auto Side Shift	00 dots	00 to 15 dots	Allows horizontal shifting of printing position by specified number of dots per page. Effective when load is applied to a specific head area, like vertical lines.
	Media Sensor	See Through	See Through Reflect None	Selecting media sensor.
	Small Media Adjustment [Small Media Adj]	Off	On Off	Setting for small media.
Small Media Length [Small Media Len]	1.00 inch 25.4 mm	0.25 to 1.00 inch 6.4 to 25.4 mm	Setting media length for small media.	
Symbol Set	PM	50 symbols	Setting symbol set.	
System Setup	Sensor Monitor	-	-	Displays level of sensor that is currently selected.
	Sensor Level	1.7 V	0.0 V to 3.3 V	Selects threshold of the sensor.
	Paper End Level	2.80 V	0.01 to 3.00 V	Sets the paper end level.
	Error Reporting [Error Report]	On Printing	On Printing Immediate	Setting for error report.

\* 2 to 4 IPS with optional peeler.

## Chapter 2 Printer Operation

### Mode Settings

#### [Datamax® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Buzzer Select	Exec/Err	Exec/Err All Error Key None	Setting buzzer sounding conditions.
	Metric/Inch [Metric/Inch Sel]	Inch	Inch mm	Sets the units.
	Max Media Length [Max Media Len]	10.00 inch 254.0 mm	1.00 to 50.00 inch 25.4 to 1270.0 mm	Sets the maximum media length.
	Settings Lock	Off	On Off	Prevents a command changing the set value.
	Keyboard Lock	Off	On Off	Prevents a change by a key operation. Hold down the Menu Key for at least 4 seconds to enter the Menu Setup Mode when setting the "On" menu.
	Standby Mode	Off	On Off	Choose the Standby Mode. If you switch on the Standby Mode, the printer will go into power-saving mode after the elapse of the time set by the Standby Timer.
	Standby Timer	5 min	1 to 1440 min	You can set the time it takes for the machine to go into Standby Mode.
	Control Code	STD	STD ALT ALT-2	Switches command mode of DMX mode.
	Emulation Select [Emulation Sel]	DM4	DM4 DMI DPP ZPI2	Selects DataMax®/Zebra® compatibility DM4: DataMax® 400 DMI: DataMax® IClass DPP: DataMax® Prodigy Plus® ZPI2: Zebra® 2844Z
	Emulation Auto Detect [Emulation Auto]	On	On Off Full Auto	Setting emulation (as above) auto detection.
<b>After Print</b>	AutoConfigure [Auto Config]	On	On Off	Automatically configures optional devices. On.....AutoConfigure enabled (Regardless of whether Function Select is set, if a peeler or cutter is installed, each mode is set automatically.) Off ....AutoConfigure disabled (A peeler or cutter is installed, but to not operate the peeler or cutter, turn it Off and the operation is selected by Function Select.)
	Function Select [Function Sel]	Tear	Off Tear Peel On* Cut On**	Selects the operation when the AutoConfigure is set to Off. Designates the paper position based on each option. The operation of this device is enabled during selection. At the same time, the parameters of the f command of Prodigy Plus are emulated for each optional device.

\* Only when peeling option is mounted.

\*\*Only when cutter is mounted.

## Chapter 2 Printer Operation

### Mode Settings [Datamax® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Cutter Action	Backfeed	Backfeed Through	Sets the cutter action. With the optional AutoConfigure On, printing is executed only when the cutter is installed or only when Cut is selected by Function Select. Backfeed is always set after cutting. Through is set at the rear end of sheets 1 to n-1 when the number of copies = n, and the rear end of the final page of single sheet and the copy is backfeed.
	Peel Wait Delay*	0.1 sec	0.1 to 2.0 sec	Sets the Peel Wait Delay. Displays only machines with a peeler installed.
	Paper Position	0.00 inch 0.0 mm	Peel/Cut/Tear Off 0.00 to 2.00 inch 0.0 to 50.8 mm Peel/Cut/Tear On -1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusts the stop position. It is based on the inch/millimeter setting. There are initial values of the stop position for each device set above, and later, relative values are set.
	Menu Key Action	Enters Menu	Enters Menu Repeat Label Set Repeat Last One	Sets the menu key action. Enters Menu: Enters the menu setup mode. Repeat Label Set: Repeats the number of copies. Repeat Last One: Last one is issued only for the final page. In the case of a count, afterwards, only last one is issued. Note: Hold down the MENU key for at least 4 seconds in order to enter the Menu Setup Mode when setting the "Repeat Label Set" or "Repeat Last One" menus.
<b>Interfaces</b>	RS-232C Baud	9600	115200 57600 38400 19200 9600 4800 2400	Setting the baud rate of the serial interface. • All settings related to the interface are enabled after the power is reconnected.
	RS-232C Parity	None	None Odd Even	Setting the communication parity for the serial interface.
	RS-232C Length	8 bits	8 bits 7 bits	Setting the character length for the serial interface.
	RS-232C Stop bit [RS-232C Stopbit]	1 bit	1 bit 2 bits	Setting the stop bit for the serial interface.
	RS-232C X-ON	Yes	Yes No	Selectively setting the X-ON flow control of the serial interface.
	IEEE1284	On	On Off	Setting both direction of the Centro Interface.

\* Only when cutter is mounted.

## Chapter 2 Printer Operation

### Mode Settings [Datamax® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Web Monitor*	Auto	Auto On Off	Selecting the web monitor function.
	Network Address**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed IP address of the LAN board.
	Subnet Mask**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed subnet mask value of the LAN board.
	Gateway Address**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed default gateway address of the LAN board.
	BOOTP**	Off	On Off	Setting the BOOTP of the LAN board.
	DHCP**	Off	On Off	Setting the DHCP of the LAN board.
	USB Device Class [USB Device Clas]	Printer	Printer VCOM	Selects the USB device class.
	USB VCOM Protocol [VCOM Protocol]	Auto	Auto DTR X-ON	Selects the protocol (flow control) when operating USB VCOM.
<b>Machine Information</b> [Machine Info]	Model Number	–	CL-S***	Displays the model name.
	Boot Version	–	*.*	Displays the boot version.
	ROM Version	–	*****	Displays the ROM version.
	ROM Date	–	**/**/**	Displays the date the ROM was prepared.
	ROM CheckSum	–	****	Displays the check sum of the ROM.
	FPGA Version	–	****.****	Displays the FPGA version.
	Head Check	–	OK NG	Displays the results of the head check.
	Print Counter	–	****.*** km	Displays the print counter.
	Service Counter	–	****.*** km	Displays the service counter.
	Cut Counter	–	*****	Displays the cut count.
	Sensor Monitor	–	*.*V	Displays the sensor level.
	Option Interface [Option I/F]	–	None IEEE1284 LAN	Displays the presence/absence of the optional interface.
	<b>Test Mode</b>	Print Pattern	Current Config	Current Config Global Config Sample
Head Check		No	Yes No	Executes head check.
Factory Default		No	Yes No	Initializes the set values of the configuration set to the state when the unit was shipped from the factory.
Hex Dump		No	Yes No	Sets the hex dump mode.

\* Displayed when equipped with a SEH LAN board.

\*\*Displayed when the Web Monitor is operating.

## Chapter 2 Printer Operation

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### Mode Settings

#### [Datamax® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Serial Monitor	–	–	Displays the state of the serial interface.
	Auto Calibration [Auto Cal]	See Through	See Through Reflect	Executes the calibration of the sensor.
	Sensor Monitor	See Through	See Through Reflect	Displays the level of the sensor.
Global configuration [Global Config]	–	Config Set 1	Config Set 1 Config Set 2 Config Set 3	Sets the Config Set.

**Note:** To restore factory default settings, turn on printer power while pushing the MENU and PAUSE keys simultaneously, then press the FEED key and the STOP key sequentially.

## Chapter 2 Printer Operation

### Mode Settings

#### [Zebra® Emulation]

##### ■ Zebra® Emulation

Top Menu	Sub Menu	Default	Menu	Remarks
Page Setup	Print Speed*	6 IPS	2 to 6 IPS	Printing speed setting.
	Print Darkness	10	00 to 30	Adjusting print darkness.
	Darkness Adjust [Darkness Adj]	00	-10 to 10	Fine adjustment of darkness commands.
	Continuous Media Length [Cont Media Len]	4.00 inch 101.6 mm	0.25 to 32.00 inch 6.4 to 812.8 mm	Setting media length of continuous media. Lower level = during mm mode.
	Vertical Position [Vertical Pos]	0.00 inch 0.0 mm	-1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusting printing start position.
	Horizontal Position [Horizontal Pos]	0.00 inch 0.0 mm	-1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusting horizontal image position.
	Vertical Image Shift [Vertical Image]	000 dots	-120 to 120 dots	Adjust the off set value in vertical when mapping data on a RAM.
	Auto Side Shift	00 dots	00 to 15 dots	Allows horizontal shifting of printing position by specified number of dots per page. Effective when load is applied to a specific head area, like vertical lines.
	Media Sensor	See Through	See Through Reflect None	Selecting media sensor.
	Small Media Adjustment [Small Media Adj]	Off	On Off	Setting for small media.
	Small Media Length [Small Media Len]	1.00 inch 25.4 mm	0.25 to 1.00 inch 6.4 to 25.4 mm	Setting media length for small media.
	Symbol Set	PM	50 symbols	Setting symbol set.
	System Setup	Sensor Monitor	–	–
Sensor Level		1.7 V	0.0 V to 3.3 V	Selects threshold of the sensor.
Paper End Level		2.80 V	0.01 to 3.00 V	Sets the paper end level.
Error Reporting [Error Report]		On Printing	On Printing Immediate	Setting for error report.
Buzzer Select		Exec/Err	Exec/Err All Error Key None	Setting buzzer sounding conditions.
Metric/Inch [Metric/Inch Sel]		Inch	Inch mm	Sets the units.
Max Media Length [Max Media Len]		10.00 inch 254.0 mm	1.00 to 50.00 inch 25.4 to 1270.0 mm	Sets the maximum media length.
Settings Lock		Off	On Off	Prevents a command changing the set value.
Keyboard Lock		Off	On Off	Prevents a change by a key operation. Hold down the Menu Key for at least 4 seconds to enter the Menu Setup Mode when setting the "On" menu.

\* 2 to 4 IPS with optional peeler.

## Chapter 2 Printer Operation

### Mode Settings

#### [Zebra® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Standby Mode	Off	On Off	Choose the Standby Mode If you switch on the Standby Mode, the printer will go into power-saving mode after the elapse of the time set by the Standby Timer.
	Standby Timer	5 min	1 to 1440 min	You can set the time it takes for the machine to go into Standby Mode.
	Media Power Up	Off	On Off	Selects whether or not to initiate media measurement when the power is ON.
	CI Lock	Off	On Off	Activates/deactivates the CI command.
	Emulation Select	ZPI2	DM4 DMI DPP ZPI2	Selects DataMax®/Zebra® compatibility DM4: DataMax® 400 DMI: DataMax® IClass DPP: DataMax® Prodigy Plus® ZPI2: Zebra® 2844Z
	Emulation Auto Detect [Emulation Auto]	On	On Off Full Auto	Setting emulation (as above) auto detection.
<b>After Print</b>	AutoConfigure [Auto Config]	On	On Off	Automatically configures optional devices. On.....AutoConfigure enabled (Regardless of whether Function Select is set, if a peeler or cutter is installed, each mode is set automatically.) Off ....AutoConfigure disabled (A peeler or cutter is installed, but to not operate the peeler or cutter, turn it Off and the operation is selected by Function Select.)
	Function Select [Function Sel]	Tear	Off Tear Peel On* Cut On**	Selects the operation when the AutoConfigure is set to Off. Designates the paper position based on each option. The operation of this device is enabled during selection. At the same time, the parameters of the f command of Prodigy Plus are emulated for each optional device.
	Cutter Action	Backfeed	Backfeed Through	Sets the cutter action. With the optional AutoConfigure On, printing is executed only when the cutter is installed or only when Cut is selected by Function Select. Backfeed is always set after cutting. Through is set at the rear end of sheets 1 to n-1 when the number of copies = n, and the rear end of the final page of single sheet and the copy is backfeed.
	Peel Wait Delay**	0.1 sec	0.1 to 2.0 sec	Sets the Peel Wait Delay. Displays only machines with a peeler installed.

\* Only when peeling option is mounted.

\*\*Only when cutter is mounted.

## Chapter 2 Printer Operation

### Mode Settings [Zebra® Emulation]

Top Menu	Sub Menu	Default	Menu	Remarks
	Paper Position	0.00 inch 0.0 mm	Peel/Cut/Tear Off 0.00 to 2.00 inch 0.0 to 50.8 mm Peel/Cut/Tear On -1.00 to 1.00 inch -25.4 to 25.4 mm	Adjusts the stop position. It is based on the inch/millimeter setting. There are initial values of the stop position for each device set above, and later, relative values are set.
	Menu Key Action	Enters Menu	Enters Menu Repeat Last One	<p>Sets the menu key action.</p> <p>Enters Menu: Enters the menu setup mode.</p> <p>Repeat Last One: Last one is issued only for the final page. In the case of a count, afterwards, only last one is issued.</p> <p>Note: Hold down the MENU key for at least 4 seconds in order to enter the Menu Setup Mode when setting the "Repeat Last One" menu.</p>
Interfaces	RS-232C Baud	9600	115200 57600 38400 19200 9600 4800 2400	<p>Setting the baud rate of the serial interface.</p> <ul style="list-style-type: none"> <li>All settings related to the interface are enabled after the power is reconnected.</li> </ul>
	RS-232C Parity	None	None Odd Even	Setting the communication parity for the serial interface.
	RS-232C Length	8 bits	8 bits 7 bits	Setting the character length for the serial interface.
	RS-232C Stop bit [RS-232C Stopbit]	1 bit	1 bit 2 bits	Setting the stop bit for the serial interface.
	RS-232C X-ON	Yes	Yes No	Selectively setting the X-ON flow control of the serial interface.
	IEEE1284	On	On Off	Setting both direction of the Centro Interface.
	Web Monitor*	Auto	Auto On Off	Selecting the web monitor function.
	Network Address**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed IP address of the LAN board.
	Subnet Mask**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed subnet mask value of the LAN board.
	Gateway Address**	0.0.0.0	0.0.0.0 to 255.255.255.255	Setting fixed default gateway address of the LAN board.
BOOTP**	Off	On Off	Setting the BOOTP of the LAN board.	
DHCP**	Off	On Off	Setting the DHCP of the LAN board.	

\* Displayed when equipped with a SEH LAN board.

\*\*Displayed when the Web Monitor is operating.

## Chapter 2 Printer Operation

### Mode Settings [Zebra® Emulation]

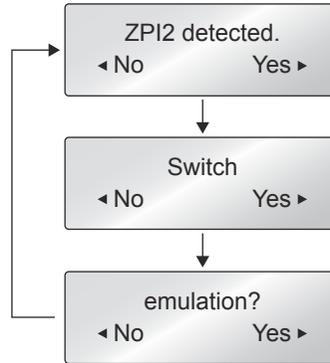
Top Menu	Sub Menu	Default	Menu	Remarks
	USB Device Class [USB Device Clas]	Printer	Printer VCOM	Selects the USB device class.
	USB VCOM Protocol [VCOM Protocol]	Auto	Auto DTR X-ON	Selects the protocol (flow control) when operating USB VCOM.
Machine Information [Machine Info]	Model Number	–	CL-S***	Displays the model name.
	Boot Version	–	*.*	Displays the boot version.
	ROM Version	–	*****	Displays the ROM version.
	ROM Date	–	**/**/**	Displays the date the ROM was prepared.
	ROM CheckSum	–	****	Displays the check sum of the ROM.
	FPGA Version	–	****.****	Displays the FPGA version
	Head Check	–	OK NG	Displays the results of the head check.
	Print Counter	–	****.*** km	Displays the print counter.
	Service Counter	–	****.*** km	Displays the service counter.
	Cut Counter	–	*****	Displays the cut count.
	Sensor Monitor	–	*.* V	Displays the sensor level.
	Option Interface [Option I/F]	–	None IEEE1284 LAN	Displays the presence/absence of the optional interface.
Test Mode	Print Pattern	Current Config	Current Config Global Config Sample	Executes the test pattern.
	Head Check	No	Yes No	Executes head check.
	Factory Default	No	Yes No	Initializes the set values of the configuration set to the state when the unit was shipped from the factory.
	Hex Dump	No	Yes No	Sets the hex dump mode.
	Serial Monitor	–	–	Displays the state of the serial interface.
	Auto Calibration [Auto Cal]	See Through	See Through Reflect	Executes the calibration of the sensor.
	Sensor Monitor	See Through	See Through Reflect	Displays the level of the sensor.
Global configuration [Global Config]	–	Config Set 1	Config Set 1 Config Set 2 Config Set 3	Sets the Config Set.

**Note:** To restore factory default settings, turn on printer power while pushing the MENU and PAUSE keys simultaneously, then press the FEED key and the STOP key sequentially.

## Emulation Auto Detect: Cross-Emulation™

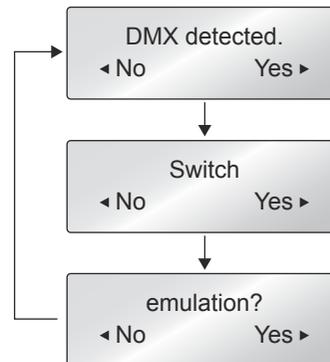
Ordinarily emulation switching is conducted in the Menu Setup mode. However, switching can also be conducted using the Emulation Auto-Detection function outlined below.

The following message is displayed on the LCD when the Zebra® emulation (ZPI2) command is detected during Datamax® emulation.



By selecting "Yes" the printer will reboot and automatically switch to ZPI2 emulation. The printer will return to the On Line Ready status if "No" is selected.

The following message is displayed in the LCD when the Datamax® command is detected during Zebra® emulation.



By selecting "Yes" the printer will reboot and automatically switch to Datamax® emulation (DM4/DMI/DPP). The printer will return to the On Line Ready status if "No" is selected.

- Note:**
- The Emulation Auto-Detection function will not work if the “Emulation Auto Detect” command in the Sub Menu in the “System Setup” in the Top Menu is set to “Off”. (The command is set to “On” when shipped from the factory)
  - After the Emulation Auto-Detection function is activated, this function will not work unless the printer is turned Off and then turned On again.
  - If the “Emulation Auto Detect” function is set to “Full Auto”, this will cause the printer to automatically restart when it detects an alternative emulation. This is useful for remotely located machines where the control panel cannot be accessed.

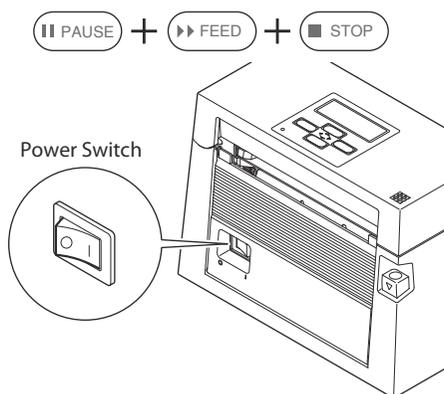
# Chapter 3 Printer Adjustments

## Sensor Adjustments

The sensing level of both the transparent (see thru) and reflective sensors is adjusted separately and independently. Firstly, the sensor type must be selected using the Sensor Method Selection shown below. Then the adjustment and calibration of the sensor can be made.

### Entering Sensor Adjustment Mode

1. Turn on the power while pushing the PAUSE key, FEED key, and STOP key simultaneously.



2. After "Sensor Cal Mode" lights up, release the keys to change the printer to sensor adjustment setting mode.

Sensor Cal Mode  
See Through

### Sensor Selection Method (Transparent ↔ Reflective)

To switch from transparent to reflective sensor, hold down the MENU key and then press the STOP key. Each time you press the STOP key, you switch to back and forth between the two sensor types.

If the transparent sensor is selected, "See Through" is displayed and the buzzer sounds once. If the reflective sensor is selected, "Reflect" is displayed and the buzzer sounds twice.

Sensor Cal Mode  
See Through



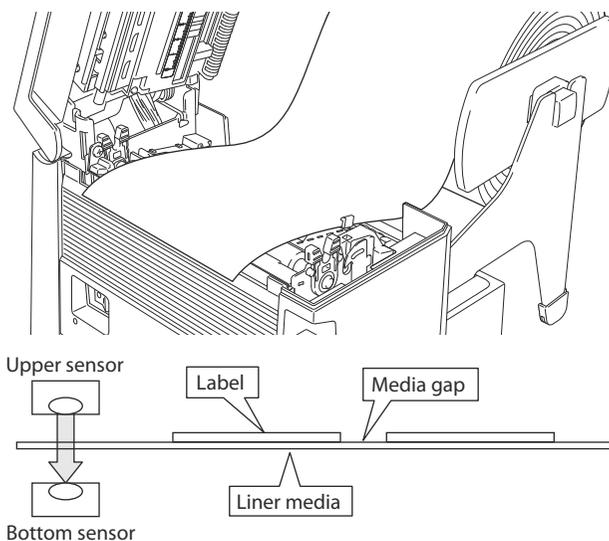
*Installing the Media (p.22)*

*Installing the Media (p.22)*

*Sensor Selection Method  
(Transparent ⇔ Reflective) (p.45)*

### Adjusting the Transparent sensor

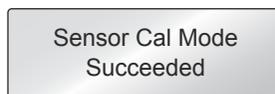
1. The transparent sensor is selected.
2. Install only the liner media (label backing paper) with the label media removed so that it will pass between the platen roller and the media sensor. (Be careful that media with black marks does not pass the media sensor.) Then close the printer cover.



3. If the PAUSE Key is pressed then released while the MENU key is continually pressed, the sensor is automatically adjusted.



4. When automatic adjustment stops normally, "Succeeded" is displayed by the LCD. If it stops abnormally (adjustment is impossible), the POWER LED lights up red and "Failed" is displayed on the LCD.



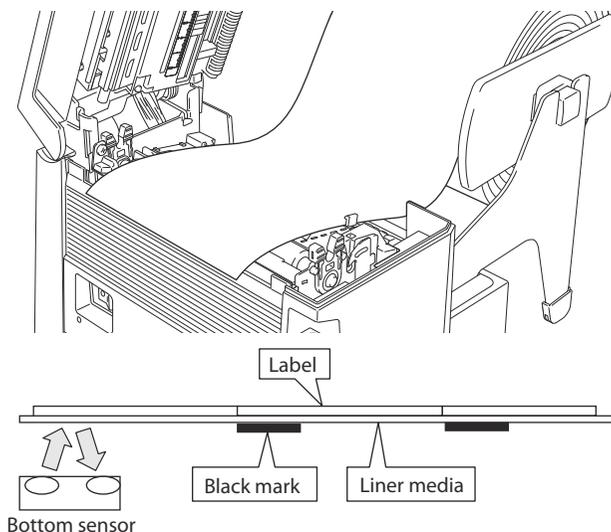
5. If the STOP key is pressed, the Printer completes sensor adjustment and the printer restarts.

*Installing the Media (p.22)*

*Sensor Selection Method  
(Transparent ⇄ Reflective) (p.45)*

### Adjusting the Reflective sensor

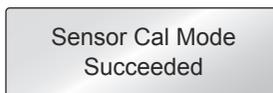
1. The reflective sensor is selected.
2. With the reflective sensor selected, install the label media so that it is between the platen roller and the media sensor. Be careful that black mark and media gap do not pass the media sensor. Then close the printer cover.



3. If the PAUSE Key is pressed then released while the MENU key is continually pressed, the sensor is automatically adjusted.



4. When automatic adjustment stops normally, "Succeeded" is displayed by the LCD. If it stops abnormally (adjustment is impossible), the POWER LED lights up red and "Failed" is displayed on the LCD.



5. If the STOP key is pressed, the Printer completes sensor adjustment and the printer restarts.

*Installing the Media (p.25)*

*Self Print Mode (p.27)*

### Media Thickness Adjustment

It may be necessary to adjust the printer according to the thickness of the media being used. This can be done easily by rotating the media adjustment dial to improve the print quality.

- Poor print quality across the complete printout means wrongly set media thickness. See this section.
- Poor print quality on one side of a printout means wrongly set media width. See next section.

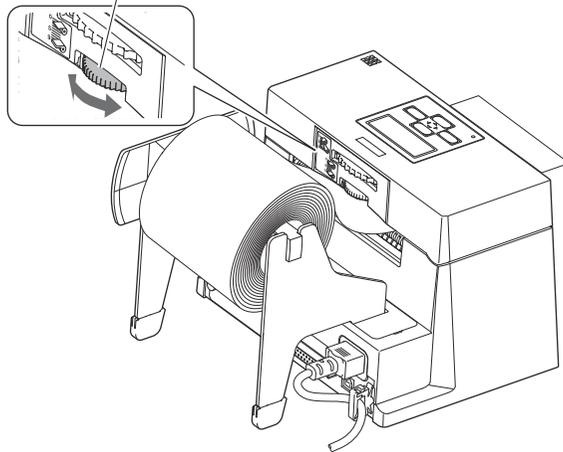
#### **When using recommended direct thermal label media, high quality direct thermal media, or standard direct thermal media**

Adjust while performing test printing by turning the dial from the smallest number on the dial to the largest number on the dial one step at a time.

#### **When using thicker media (direct thermal tags, etc.)**

Adjust while performing test printing by turning the dial from the smallest number on the dial to the largest number on the dial one step at a time.

Media thickness adjustment dial



Dial Position	Suggested media type
0	Direct thermal media (thin media)
1	Direct thermal label media, standard direct thermal media
3-5	Thicker media such as high quality direct thermal media
6-9	Cards, tags, thicker media stock.

These values are guidelines. The exact media being used must be matched with the correct media thickness adjustment position.

- When shipped from the factory, it is set at dial 1.
- The offset adjustment varies according to the thickness and the hardness of the media.

*Installing the Media (p.25)*

*Self Print Mode (p.27)*

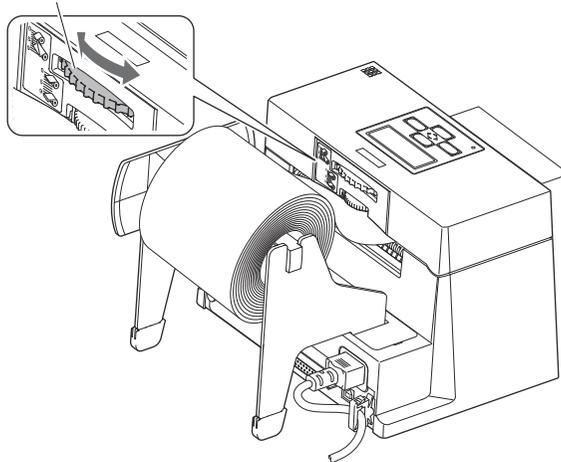
## Media Width Adjustment

The head pressure varies according to the width of the media being printed. The head pressure balance must be adjusted according to media width so that constant head pressure is applied to the head. With this printer, it can be adjusted easily by turning the media width adjustment dial. If the printing is blurred or lightly printed on one side or the media moves in a zigzag pattern adjust the head pressure balance. After making an adjustment, confirm the output quality with a test print.

### Caution

When using narrow media, be sure to **MAKE** this adjustment. (If you do not, the head may be damaged by jamming, etc.)

Media width adjustment dial



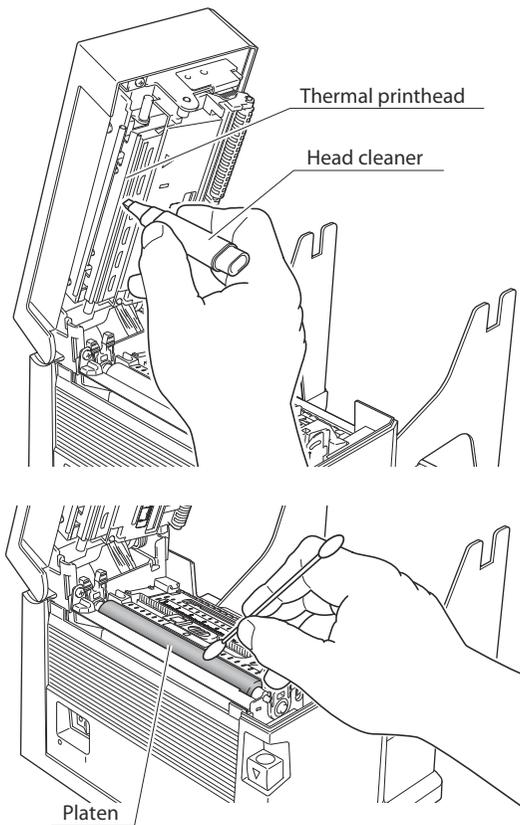
Dial position	Media width mm (inches)	Head pressure
0	19.5 to 23.0 mm (0.77 to 0.90)	 Low          High
1	23.0 to 30.0 mm (0.90 to 1.18)	
2	30.0 to 39.0 mm (1.18 to 1.53)	
3	39.0 to 49.0 mm (1.53 to 1.92)	
4	49.0 to 62.0 mm (1.92 to 2.44)	
5	62.0 to 76.0 mm (2.44 to 2.99)	
6	76.0 to 88.0 mm (2.99 to 3.46)	
7	88.0 to 99.0 mm (3.46 to 3.89)	
8	99.0 to 108 mm (3.89 to 4.25)	
9	108 to 118 mm (4.25 to 4.65) (setting when shipped)	

The following values are criteria.

### Cleaning

Wipe off any foreign matter such as media dust, dirt and adhesive substances built up around the printhead with the head cleaning pen (head cleaner) sold separately, and use a soft cloth soaked in ethyl alcohol for the platen etc. It is particularly important to clean the thermal printhead after printing on thermal media for long periods, which will guarantee the print quality and extend the life of the thermal printhead.

**Note:** Always use the head cleaner when cleaning the thermal printhead. For the purchase of separately sold items, please contact the shop where you bought this product.



#### **Caution**

Do not use any solvent other than ethyl alcohol. Solvents such as benzene, acetone and thinner will dissolve plastic parts and destroy the thermal printhead, platen and much of the printer!  
Try to avoid using "excessive amounts" of ethyl alcohol to clean the platen. Excessive use will harden the platen surface prematurely.

## Troubleshooting

This section explains corrective actions taken when the printer malfunctions or when an error message is displayed.

### Items to check when a malfunction occurs

When the printer malfunctions during operation, take corrective action with reference to the following table. If the corrective action does not solve the problem, consult with the service personnel at the dealer where you purchased the printer.

*Connection to Power (p.16)*

Indication	Check	Corrective action
The LED does not light up when printer power is connected.	1) Is the plug of the power cord correctly inserted into the electric outlet?	1) Insert the plug of the power cord correctly in the electric outlet.
	2) Is the connector of the power cord correctly inserted into the power inlet of the printer?	2) Insert the connector of the power cord correctly into the power inlet of the printer.
	3) Is the power cord damaged?	3) Replace the power cord. Consult with the dealer where the printer was purchased to make sure you obtain a cord made especially for the printer.  Note: Do not use any power cord except one made especially for the printer.
	4) Is power supplied to the electric outlet the printer is connected to?	4) Check to make sure power is supplied to the outlet. If there are any problems, make sure power is supplied to the building. Or find out if a power failure has occurred.
	5) Is the main fuse in the building's fuse box burnt out?	5) If necessary, replace the main fuse in the building's fuse box, and reset the main breaker. Ask a qualified serviceman to carry out the replacement.
Paper is feeding, but nothing is printed.	1) Is the thermal printhead dirty? Is a label stuck to the head?	1) If it is dirty, remove the dirt with the separately sold head cleaner. If a label is stuck to the thermal printhead remove it.  Note: Do not use a metal object to remove a label stuck to the inside of the printer. (This may damage the thermal printhead.) If adhesive label material is stuck to the thermal printhead, remove it with a soft cloth soaked in ethyl alcohol.

*Cleaning (p.50)*

# Appendixes

## Troubleshooting

*Menu Setting Table (p.34)*

*Cleaning (p.50)*

*Media Thickness Adjustment (p.48)*

*Media Width Adjustment (p.49)*

*Installing the Media (p.22)*

*Cleaning (p.50)*

*LED Functions (p.20)*

*Menu Setting Table (p.34)*

Indication	Check	Corrective action
The printer is not printing neatly.	1) Is the printing density too high or too low?	1) Set the appropriate printing density using the menu or control software.
	2) Is the platen dirty? Is it deformed?	2) If it is dirty, clean it with ethyl alcohol. If it is deformed, replace it.  Note: Consult with the dealer that supplied the printer concerning the replacement.
	3) Is the thermal printhead dirty? Is a label stuck to the head.	3) If it is dirty, remove the dirt with the separately sold head cleaner. If a label is stuck to the head, remove it.  Note: Do not use a metal object to remove a label stuck to the inside of the printer. (This may damage the printhead.) If adhesive label material is stuck to the thermal printhead, remove it with a soft cloth soaked in ethyl alcohol.
	4) Is the thermal printhead in the correct position for the media that is used?	4) Adjust the offset of the thermal printhead with the media thickness adjustment dial.
	5) Is the printer's head pressure balance correct for the width of the media that is used?	5) Adjust the thermal printhead pressure with the media width adjustment dial.
The printing position changes.	1) Is the media properly installed?	1) Correctly install the media.
	2) Is the platen dirty? Is it deformed?	2) If it is dirty, clean it with ethyl alcohol. If it is deformed, replace it.  Note: Consult with the dealer that supplied the printer concerning the replacement.
	3) Are the data contents and the command signals from the host appropriate?	3) If an error message is displayed, check the content of the software and the communication status set by the host computer.
	4) Are the menu values set appropriately?	4) Set the correct menu values using the operating panel or the host computer.

# Appendixes

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## Troubleshooting

Indication	Check	Corrective action
The printing position changes.	5) Are the sensitivities of the media sensors appropriate for the media that is used?	5) Set the media sensitivity to appropriate values. If this does not solve the problem, change the "Sensor level" that is set in the "System setup."

# Specifications

Item	Description			
Printing	Printing method	Direct thermal		
	Resolution	Main scanning line density: 203 dots/inch (8 dots/mm)		
		Sub- scanning line density: 203 dots/inch (8 dots/mm)		
		Head 864 dots (effective dots: 832 dots)		
	Max. print width	104 mm	4.1 inch	
	Max. print length	812.8 mm	32 inch	
Print density	Print density is adjustable with software			
Printing speed	Printing speed setting	6, 5, 4, 3 or 2 inches per second. 2-4 inches per second with optional peeler.		
Print mode	Batch mode	Normal printing (single or multiple sheets)		
	Tear off mode	Feeds back media to the tear-off position after printing is completed.		
	Cut mode <sup>*1</sup>	Prints while cutting at designated sheet units. The following two kinds of cut mode operations are done. <ul style="list-style-type: none"> <li>• Backfeed</li> <li>• Cut through (Cut through refers to stopping present printing to cut the previous label when it reaches the cut position. After cutting, printing restarts but a gap may be created at the seam of the printing at this time.)</li> </ul>		
	Peel mode <sup>*1</sup>	Peels labels from the liners after printing them.		
Media <sup>*2</sup>	Types of media	Roll, fanfold (continuous thermal media, thermal die-cut media, continuous thermal tags, continuous thermal tickets)		
	Kinds of media	Thermal-transfer media		
	Recommended media <sup>*2</sup>	Heat-transfer media: label media (150LA-1 Ricoh), tag media (130LHB Ricoh)		
	Max. media width	118.0 mm	4.65 inch	
	Min. media width	19.5 mm	0.77 inch	
	Min. label width	19.5 mm	0.77 inch	
	Min. label pitch <sup>*3</sup>	6.35 mm	0.25 inch	
	Max. media thickness	0.254 mm	0.01 inch	
	Max. media length	812.8 mm	32 inch	
	Min. media length	6.35 mm	0.25 inch	
	Min. media thickness	0.0635 mm	0.0025 inch	
	On-board roll media diameter	Max. external diameter: 127 mm	5 inch	
		Media core: 25.4 to 76 mm Min. media core external diameter (when using label media): 50.8 mm	1 to 3 inch	2 inch
Bar code (for Datamax® emulation)	One-dimension	<ul style="list-style-type: none"> <li>• Code 3 of 9 • UPC-A • UPC-E • EAN-13 (JAN-13) • EAN-8 (JAN-8)</li> <li>• Interleaved 2 of 5 • Code 128 • HIBC (Modulus 43-used code 3 of 9)</li> <li>• Codabar (NW-7) • Int 2 of 5 (Modulus 10-used Interleaved 2 of 5)</li> <li>• Plessey • Case Code • UPC 2DIG ADD • UPC 5DIG ADD • Code 93</li> <li>• Telepen • ZIP • UCC/EAN128 • UCC/EAN128 (for K-MART)</li> <li>• UCC/EAN128 Random Weight • FIM</li> </ul>		
	Two-dimension	<ul style="list-style-type: none"> <li>• UPS Maxi Code • PDF-417 • Data Matrix • QR Code • AztecAztec</li> <li>• RSS</li> </ul>		

# Appendixes

## Specifications

Item		Description
Bar code (for Zebra® emulation)	One-dimension	<ul style="list-style-type: none"> <li>• Code 11 • Interleaved 2 of 5 • Code 39 • EAN-8 • UPC-E • Code 93</li> <li>• Code 128 • EAN-13 • Industrial 2 of 5 • Standard 2 of 5</li> <li>• ANSI CODABAR • LOGMARS • MSI • Plessey • UPC/EAN Extensions</li> <li>• UPC-A • POSTNET • Planet</li> </ul>
	Two-dimension	<ul style="list-style-type: none"> <li>• Code 49 • PDF-417 • CODA BLOCK • UPS Maxi Code</li> <li>• Micro PDF-417 • Data Matrix • QR Code • RSS • TLC39</li> </ul>
Font (for Datamax® emulation)		<ol style="list-style-type: none"> <li>1. Seven kinds of fixed pitch font <ul style="list-style-type: none"> <li>• Overseas, English fonts and European fonts</li> </ul> </li> <li>2. OCR fonts OCR-A<sup>4</sup>, OCR-B<sup>4</sup></li> <li>3. Proportional fonts <ul style="list-style-type: none"> <li>CG Triumvirate smooth font</li> <li>CG Triumvirate Bold smooth font</li> <li>(6, 8, 10, 12, 14, 18, 24, 30, 36, 48 points)</li> <li>• Character set: Conforms with code page 850 standards</li> </ul> </li> <li>4. True type™ rasterizer<sup>5</sup></li> </ol>
Font (for Zebra® emulation)		<ol style="list-style-type: none"> <li>1. Five kinds of fixed pitch font <ul style="list-style-type: none"> <li>• Overseas, English fonts and European fonts</li> </ul> </li> <li>2. OCR fonts <ul style="list-style-type: none"> <li>OCR-A<sup>4</sup>, OCR-B<sup>4</sup></li> </ul> </li> <li>3. Proportional font <ul style="list-style-type: none"> <li>CG Triumvirate Condensed Bold</li> </ul> </li> <li>4. True type™ rasterizer<sup>5</sup></li> </ol>
Symbol set		PC866U Ukraina <sup>6</sup> , PC Cyrillic, ISO 60 Danish/Norwegian, DeskTop, ISO 8859/1 Latin 1, ISO 8859/2 Latin 2, ISO 8859/9 Latin 5, ISO 8859/10 Latin 6, ISO 8859/7 Latin/Greek, ISO 8859/15 Latin 9, ISO 8859/5 Latin/Cyrillic, ISO 69: French, ISO 21: German, ISO 15: Italian, Legal, Math-8, Macintosh, Math, PC-858 Multilingual, Microsoft Publishing, PC-8, Code Page 437, PC-8 D/N, Code Page 437N, PC-852 Latin 2, PC-851 Latin/Greek, PC-862 Latin/Hebrew, Pi Font, PC-850 Multilingual, PC-864 Latin/Arabic, PC-8 TK, Code Page 437T, PC-1004, PC-775 Baltic, Non-UGL, Generic Pi Font, Roman-8, Roman-9, ISO 17: Spanish, ISO 11: Swedish, Symbol, PS Text, ISO 4: United Kingdom, ISO 6: ASCII, Ventura International, Ventura Math, Ventura US, Windows 3.1 Latin 1, Wingdings, Windows 3.1 Latin 2, Windows 3.1 Baltic (Latv, Lith), Windows 3.0 Latin 1, Windows Latin/Cyrillic, Windows 3.1 Latin 5
Control language		Conforms to Datamax® programming language <sup>7</sup> and Zebra® programming language <sup>8</sup>
Outline of electronic devices	CPU	32Bit RISC CPU
	ROM	Standard equipment: FLASH ROM 8MBbytes (User area: 1MByte)
	RAM (for Datamax® emulation)	Standard equipment: SDRAM 16MBytes (User area: 1MByte)
	RAM (for Zebra® emulation)	Standard equipment: SDRAM 16MBytes (User area: 4MByte)
Media detection sensors	Transparent sensor	Detects media gap between labels, notches on tags, and media out
	Reflective sensor	Detects reflective mark on back of media and media out
	Label peeling sensor <sup>11</sup>	
Communication interfaces	Serial	2400 4800 9600 19200 38400 57600 115200 bps
	USB	FULL Speed USB2.0
Communication interface options	Parallel	IEEE1284 (compatible, Nibble, ECP mode)
	Network	Ethernet

# Appendixes

## Specifications

Item	Description	
Indications and switches	LED	POWER, ERROR
	Buzzer	Alarms, errors, etc.
	Operating panel keys	PAUSE, FEED, STOP, MENU
	Head-up detection sensor	Detects head open
	Power switch	Turns power on and off
Power (standards)	100 V version	100 V, 50/60 Hz (Japan) 120 V (-10%+6%), 2.5 A, 60 Hz (U.S.A., Canada) UL60950-1, CSA No. 950, FCC Part 15 Subpart B (Class A)
	220 V version	220 V-240 V (-10%+6%), 1.2 A, 50/60 Hz (Europe) EN60950-1, EN55022 (Class A), EN55024, EN61000-3-2, EN61000-3-3
Environment	Operating temperature conditions:	Operating temp. 0 to 40°C, humidity 30 to 80%, condensation free (Conditions: ventilation, and natural convection)
	Storage temperature conditions:	Temp. -20 to 60 °C, humidity 5 to 85 % (Conditions: ventilation, and natural convection)
<p style="text-align: center;"> <span style="display: inline-block; width: 10px; height: 10px; background-color: #d3d3d3; border: 1px solid black; margin-right: 5px;"></span> Operating assurance temperature  <span style="display: inline-block; width: 10px; height: 10px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></span> Printing assurance temperature         </p> <p style="text-align: center;">           Conditions assuring operation and printing      Storage assurance temperature         </p>		
External dimensions	Approx. 206 (W) × 218 (D) × 150 (H) mm 8.1 (W) × 8.6 (D) × 5.9 (H) inch	
Weight	Weight Approx. 3 kg (6.6 lb.)	
Accessories	Test label media, CD-ROM (User's Manual), Quick start guide, Power cord, Media holder bar and Media holder guide	
Option	Auto-cutter unit, Peeler unit, IEEE1284 Parallel interface board, Ethernet interface board	

\*1: Options can be separately purchased.

\*2: If you wish to use other media than those recommended, please contact the shop where you bought this item.

\*3: When a media pitch of less than 1 inch is used, activate the "Small Media Adjustment" setting in the "Page Setup."

\*4: The OCR font may have a low recognition rate according to the reader.

\*5: UFST™ and TrueType™ rasterizer are licensed from Monotype Imaging, Inc. UFST™ and CG Triumvirate™ are trademarks of Monotype Imaging, Inc. TrueType™ is a trademark of Apple Inc.

\*6: "PC866U Ukraina" is available for Datamax® emulation only.

\*7: Datamax® is a registered trade mark of Datamax Bar Code Products Corporation.

\*8: Zebra® is a registered trade mark of ZIH corp.

## Interfaces

This printer is connected to a computer and prints according to commands sent from the computer.

There are two types of computer interfaces, and these are connected to devices suited to each type of interface. The printer can also be connected to a computer by the optional Ethernet and Parallel board.

### Serial Interface

#### Specifications

System	Start/stop asynchronous duplex communication
Signal level	RS-232C
Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Bit length	7 Bit, 8 Bit
Stop bit	1 Bit, 2 Bit
Parity	Odd, even, none
Connector	D-SUB 25 PIN

#### Signal line and pin arrangement

Pin No.	Signal code	Signal name	Function
1	FG	Protective grounding	Protective grounding
2	TXD	Transmitted data	Signal line that transmits data from the printer to other devices
3	RXD	Received data	Signal line that transmits data from other devices to the printer
4	RTS	Transmission request	Signal line that becomes active when the printer can receive data
5	CTS	Able to transfer data	Signal line that becomes active when other devices can receive data from the printer
6	DSR	Data set relay	Signal line that is active when an external device can interface with the printer
7	SGND	Signal line ground	Shows the ground level of the signal line
8-13	NC	-	Not used
14	VCC	+3.3V	(FACTORY USE ONLY)
15-19	NC	-	Not used
20	DTR	Data terminal relay	Signal line that is active when an external device can interface with the printer
21-24	NC	-	Not used

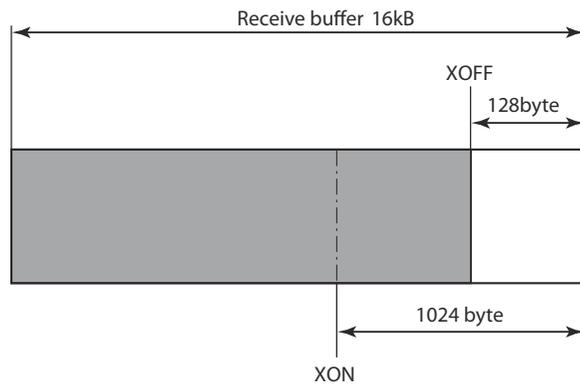
### XON/XOFF Protocol

#### Requirements to output X-ON code

- Communication is possible when the power is on.
- When the receive buffer has less than 128 byte available, XOFF code is output, then the receive buffer has at least 1024 bytes available.

#### Requirements to output the X-OFF code

- When the receive buffer has less than 128 bytes available



### DTR Protocol

#### Conditions when the DTR signal is "Ready (High)"

All the following conditions are satisfied.

- The receive buffer is 128 byte or more available capacity.
  - \* When the receive buffer has less than 128 byte available and the DTR signal has changed to BUSY (Low) status, BUSY status is maintained until the capacity of the receive buffer has reached 1024 bytes or more.

#### Conditions when DTR signal is "Busy (Low)"

- When the receive buffer has fallen to less than 128 byte available.

### USB Interface

#### Specifications

Standards	Complies with Universal Serial Bus Specification
Transmission speed	Compatible with 12Mbps (full speed) transmission
Receive buffer	16 kB
Connector	DUSB DUSB-BRA42-T11(DDK)

#### Signal line and pin arrangement

Pin No.	Signal code	Signal	Function
1	VBUS	USB power	USB power (+5V)
2	D+	Signal line +	+ signal line
3	D-	Signal line -	- signal line
4	GND	GND	GND

### Parallel Interface (Option)

#### Specifications

Transmission mode	8-bit parallel data
Receive buffer size	16 kB
Transmission modes	<p><b>Compatible mode:</b> It is an asynchronous forward direction of the byte width (from host to printer) channel, and the interface line of the data is operated in accordance with signal line definitions of Centronics.</p> <p><b>NIBBLE mode:</b> Nibble mode is asynchronous reverse channel communication with data transmission controlled by the host computer. In reverse channel transmission, the data is nibble transmitted in two parts using four status lines (Fault, Select, PE, and Busy). And nibble mode can be used along with compatible mode to send data in two directions.</p> <p><b>ECP mode:</b> ECP mode permits bi-directional asynchronous data transmission, and thanks to its interlock handshake, it does not require the timing necessary with compatible mode.</p>
Signal level	IEEE1284 standard

#### Signal line and pin assignment table

Pin No.	Signal name	I/O	Function
1	*STROBE	Input	Strobe signal to read in 8-bit data
2-9	DATA1-8	Input	8-bit parallel signal
10	*ACKNLG	Output	8-bit data request signal
11	BUSY	Output	Signal specifying printer busy
12	PERROR	Output	Signal specifying media out
13	SELECT	Output	Signal specifying if the printer is on-line (printing enabled) or off-line (pausing)
14	*AUTOFD	Input	Invalid (ignored)
15	NC	-	Not used
16	GND	-	Signal ground
17	FGND	-	Frame ground
18	P.LH	Output	Peripheral logic high (pull up to +5 V at 10 kΩ)
19-30	GND	-	Ground for twisted pair return
31	*INIT	Input	Printer reset
32	*FAULT	Output	Signal specifying printer error
33-35	NC	-	Not used
36	*SELECTIN	Input	Invalid (ignored)

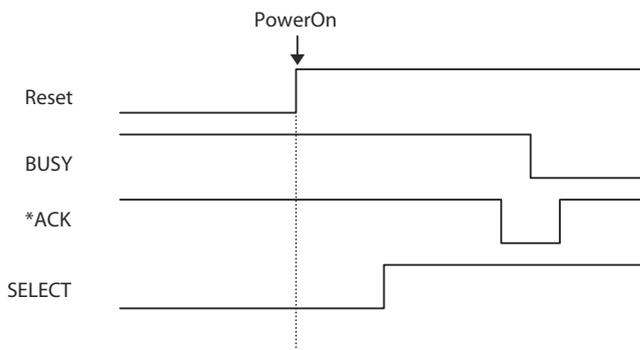
### Parallel port status signals when an error occurs

The status of a signal line will not be changed in bi-directional mode such as nibble or ECP mode.

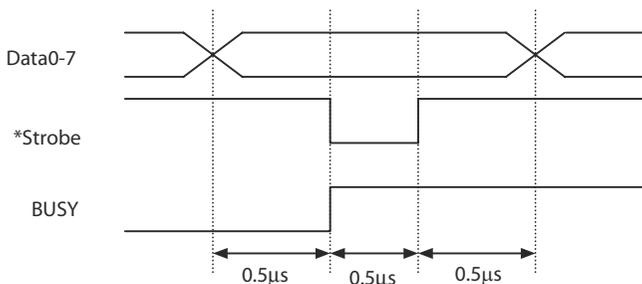
Error	Change in the status of a signal line in compatible mode
Paper end	Busy : L → H PError : L → H Select : H → L nFault : H → L
Error other than paper end • Head open • Other	Busy : L → H PError : L → unchanged Select : H → L nFault : H → L
Conditions for Busy	<ul style="list-style-type: none"> <li>• Receive buffer full</li> <li>• Data being read</li> <li>• Error</li> </ul>

### Compatible timing specification

[When power is on] (Time it goes off-line)

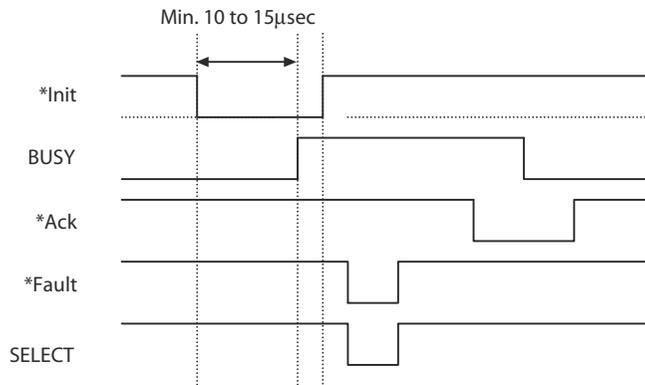


[While receiving data]



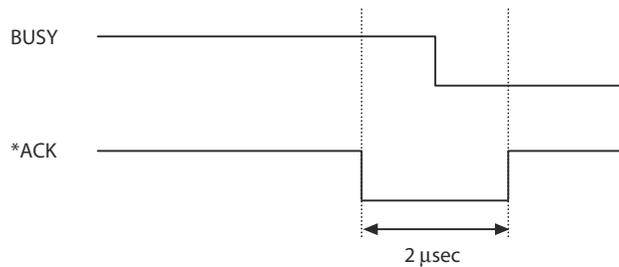
**Note:** Busy rises when \*Strobe signal starts, and data is latched with \*Strobe signal starts.

### [While receiving INIT signal]



**Note:** If the \*Init signal does not have width of 10 to 15 μsec or more, it cannot act as an Init signal. If it is lower, the \*Init signal is ignored. BUSY starts up when the \*Init signal is perceived.

### Relation of the timing of the BUSY signal and the \*ACK signal [Center – ACK]



# WEEE MARK

**En** If you want to dispose this product, do not mix with general household waste. There is a separate collection systems for used electronics products in accordance with legislation under the WEEE Directive (Directive 2002/96/EC) and is effective only within European Union.

**Ge** Wenn Sie dieses Produkt entsorgen wollen, dann tun Sie dies bitte nicht zusammen mit dem Haushaltsmüll. Es gibt im Rahmen der WEEE-Direktive innerhalb der Europäischen Union (Direktive 2002/96/EC) gesetzliche Bestimmungen für separate Sammelsysteme für gebrauchte elektronische Geräte und Produkte.

**Fr** Si vous souhaitez vous débarrasser de cet appareil, ne le mettez pas à la poubelle avec vos ordures ménagères. Il existe un système de récupération distinct pour les vieux appareils électroniques conformément à la législation WEEE sur le recyclage des déchets des équipements électriques et électroniques (Directive 2002/96/EC) qui est uniquement valable dans les pays de l'Union européenne.

Les appareils et les machines électriques et électroniques contiennent souvent des matières dangereuses pour l'homme et l'environnement si vous les utilisez et vous vous en débarrassez de façon inappropriée.

**Sp** Si desea deshacerse de este producto, no lo mezcle con residuos domésticos de carácter general. Existe un sistema de recogida selectiva de aparatos electrónicos usados, según establece la legislación prevista por la Directiva 2002/96/CE sobre residuos de aparatos eléctricos y electrónicos (RAEE), vigente únicamente en la Unión Europea.

**It** Se desiderate gettare via questo prodotto, non mescolatelo ai rifiuti generici di casa. Esiste un sistema di raccolta separato per i prodotti elettronici usati in conformità alla legislazione RAEE (Direttiva 2002/96/CE), valida solo all'interno dell'Unione Europea.

**Du** Deponeer dit product niet bij het gewone huishoudelijk afval wanneer u het wilt verwijderen. Er bestaat ingevolge de WEEE-richtlijn (Richtlijn 2002/96/EG) een speciaal wettelijk voorgeschreven verzamelsysteem voor gebruikte elektronische producten, welk alleen geldt binnen de Europese Unie.

**Da** Hvis du vil skille dig af med dette produkt, må du ikke smide det ud sammen med dit almindelige husholdningsaffald. Der findes et separat indsamlingssystem for udtjente elektroniske produkter i overensstemmelse med lovgivningen under WEEE-direktivet (direktiv 2002/96/EC), som kun er gældende i den Europæiske Union.

**Por** Se quiser deitar fora este produto, não o misture com o lixo comum. De acordo com a legislação que decorre da Directiva REEE – Resíduos de Equipamentos Eléctricos e Electrónicos (2002/96/CE), existe um sistema de recolha separado para os equipamentos electrónicos fora de uso, em vigor apenas na União Europeia.

**Pol** Jeżeli zamierzasz pozbyć się tego produktu, nie wyrzucaj go razem ze zwykłymi domowymi odpadkami. Według dyrektywy WEEE (Dyrektywa 2002/96/EC) obowiązującej w Unii Europejskiej dla używanych produktów elektronicznych należy stosować oddzielne sposoby utylizacji.



## **CITIZEN SYSTEMS AMERICA CORPORATION**

363 Van Ness Way, Suite 404  
Torrance, CA 90501. USA  
Tel: (310) 781-1460  
Fax: (310) 781-9152  
<http://www.citizen-systems.com>

## **CITIZEN SYSTEMS EUROPE GmbH**

Mettinger Strasse 11	Park House, 643-651 Staines Road
D-73728, Esslingen	Feltham, Middlesex, TW14 8PA
Germany	United Kingdom
Tel: +49 (0) 711 3906 420	Tel: +44 (0) 20 8893 1900
Fax: +49 (0) 711 3906 405	Fax: +44 (0) 20 8893 0080
<a href="http://www.citizen-europe.com">http://www.citizen-europe.com</a>	

## **CITIZEN SYSTEMS JAPAN CO., LTD.**

6-1-12, Tanashi-cho, Nishi-Tokyo-shi  
Tokyo, 188-8511. Japan  
Tel: +81 (0) 42 468 4608  
Fax: +81 (0) 42 468 4996  
<http://www.citizen-systems.co.jp>

PXZ00012  
PMC-1108