CITIZEN

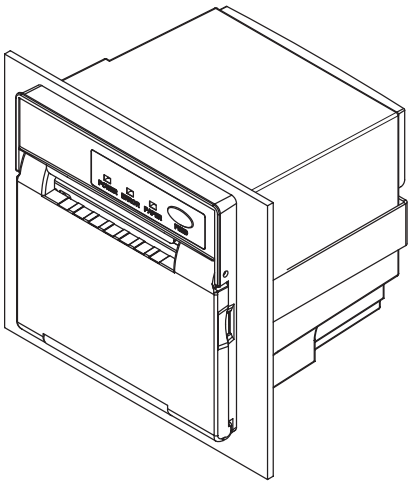
LINE THERMAL PRINTER

MODEL

CT-P290/CT-P291

CT-P292/CT-P293

User's Manual



CITIZEN SYSTEMS JAPAN CO., LTD.

WEEE MARK

En If you want to dispose of this product, do not mix it with general household waste. There is a separate collection systems for used electronics products in accordance with legislation under the WEEE Directive 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 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 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 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, 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 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, som kun er gældende i den Eu- ropæiske 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, 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 obowiązującej w Unii Europejskiej dla używanych produktów elektronicznych należy stosować oddzielne sposoby utylizacji.

Compliance Statement for European Users

CE marking shows conformity to the following criteria and provisions:
Low Voltage Directive (2014/35/EU), EMC Directive (2014/30/EU), and RoHS directive (2011/65/EU)
Full text of the EU declaration of conformity is available at the following internet address: http://www.citizen-systems.co.jp/en/printer/download/eu_doc.html

IMPORTANT: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.
CAUTION: Use shielded cable for this equipment.

Sicherheitshinweis
Die Steckdose zum Anschluß dieses Druckers muß nahe dem Gerät angebracht und leicht zugänglich sein.

For Uses in Canada
This Class A digital apparatus complies with Canadian ICES-003.
This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus, as set out in the radio interference regulations of the Canadian department of communications.

Pour L'utilisateurs Canadiens
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada. Cet appareil numérique ne dépasse pas les limites de carégorie a pour les émissions de bruit radio émanant d'appareils numériques, tel que prévu dans les réglements sur l'interférence radio du département Canadien des communications.

GENERAL PRECAUTIONS

- Before using this product, be sure to read through this manual. After having read this manual, keep it in a safe, readily accessible place for future reference.
- The information contained herein is subject to change without prior notice.
- Reproduction or transfer of part or all of this document in any means is prohibited without permission from Citizen Systems.
- Note that Citizen Systems is not responsible for any operation results regardless of missing, error, or misprinting in this manual.
- Note that Citizen Systems is not responsible for any trouble caused as a result of using options or consumables that are not specified in this manual.
- Except explained elsewhere in this manual, do not attempt to service, disassemble, or repair this product.
- Note that Citizen Systems is not responsible for any damage attributable to incorrect operation/handling or improper operating environments that are not specified in this manual.
- Data is basically for temporary use and not stored for an extended period of time or permanently. Please note that Citizen Systems is not responsible for damage or lost profit resulting from the loss of data caused by accidents, repairs, tests or other occurrence.
- If you find loss of information, error, or uncertain matter, please contact your Citizen Systems dealer.

EPSON and ESC/POS are registered trademarks of Seiko Epson Corporation.
QR Code is registered trademark of DENSO WAVE INCORPORATED.
CITIZEN is a registered trademark of Citizen Watch Co., Ltd. Japan.
Company names and product names in this manual are trademarks or registered trademarks of relevant companies.
Copyright © 2017 by CITIZEN SYSTEMS JAPAN CO., LTD.

SAFETY PRECAUTIONS ... WHICH SHOULD BE STRICTLY OBSERVED

Before using this product for the first time, carefully read these SAFETY PRECAUTIONS. Improper handling may result in accidents (fire, electric shock or injury).
In order to prevent injury to operators, third parties, or damage to property, special warning symbols are used in the User's Manual to indicate important items to be strictly observed.

- After having read this Manual, keep it in a safe, readily accessible place for future reference.
- Some of the descriptions contained in this manual may not be relevant to some printer models.

The following describes the degree of hazard and damage that could occur if the printer is improperly operated by ignoring the instructions indicated by the warning symbols.

WARNING

Neglecting precautions indicated by this symbol may result in fatal or serious injury.

CAUTION

Neglecting precautions indicated by this symbol may result in injury or damage to property.

CAUTION

The parts near the mark become hot. Do not touch them during or immediately after operation. Doing so may result in burns.

WARNING

There is a cutter at the paper ejection port. Do not put your fingers in this area, as touching it may cause injury.

This symbol is used to alert your attention to important items.

This symbol is used to alert you to the danger of electric shock or electrostatic damage.

This symbol denotes a request to unplug the printer from the wall outlet.

This symbol is used to indicate useful information, such as procedures, instructions or the like.

This symbol is used to indicate prohibited actions.

PRECAUTIONS ON PRINTER INSTALLATION

⚠ WARNING

■ Do not use or store this product in a place where it will be exposed to:
  * Flames or moist air.
  * Direct sunlight.
  * Hot airflow or radiation from a heating device.
  * Salty air or corrosive gases.
  * Ill-ventilated atmosphere.
  * Chemical reactions in a laboratory.
  * Airborne oil, steel particles, or dust.
  * Static electricity or strong magnetic field.

- **Neglecting these warnings may result in printer failure, overheating, emission of smoke, fire, or electric shock.**

■ Do not drop any foreign object nor spill liquid into the printer. Do not place any object on the printer either.

■ Do not drop any metallic object such as paper clip, pin or screw into the printer.

■ Do not place a flower vase, pot or cup containing water on the printer.

■ Do not spill coffee, soft drinks or any other liquid into the printer.

■ Do not spray insecticide or any other chemical liquid over the printer.

- **A metallic foreign object, if accidentally dropped into the printer, may cause printer failure, fire, or electric shock. Should it occur, immediately turn the printer off, unplug it from the supply outlet, and call your local Citizen Systems dealer.**

Do not handle the printer in the following ways:

■ Do not allow the printer to sustain strong impacts or hard jolts (e.g., trampling, dropping, striking with a hard edge).

■ Never attempt to disassemble or modify the printer.

- **Neglecting to handle properly may result in printer failure, overheating, emission of smoke, fire, or electric shock.**

■ Install, use, or store the printer out of the reach of children.

- **Electric appliances could cause an unexpected injury or accident if they are handled or used improperly.**
- **Keep the power cord and signal cables out of the reach of children. Also children should not be allowed to gain access to any internal part of the printer.**
- **The plastic bag the printer came in must be disposed of properly or kept away from children. Wearing it over the head may lead to suffocation.**

⚠ CAUTION

Do not use the printer under the following conditions.

■ A state subject to vibration or unstable state.
■ A state with this product slanted.
• **Otherwise dropping may cause injury.**
• **Poor print quality may occur.**

■ A state where the printer ventilation holes are obstructed by a nearby wall or other equipment.
■ A state where any object is placed on the printer
■ A state where the printer is covered or wrapped by a cloth or bed clothing

• **Be careful about internal heat buildup, which could cause fire and deform the case.**

■ Avoid using the printer near a radio or TV set or from supplying it from the same outlet as these appliances.
■ Avoid using the printer interconnected with a cable or cord that has no protection against noise. (For interconnections, use shielded or a twisted pair of cables and ferrite cores, or other anti-noise devices.)
■ Avoid using the printer with a device that is a strong source of noise.
• **The printer may have an adverse effect on nearby radio or TV transmissions. There may also be cases when nearby electrical appliances adversely influence the printer, causing data errors or malfunction.**
■ A state where this product is installed vertically or sidelong.
• **Malfunction, failure, or electric shock may result.**

■ Use the printer with its grounding post connected to a convenient grounding facility.
• **If leakage occurs electric shock may result.**

■ Do not connect the printer's grounding post onto any of the following facilities:
  * Utility gas piping
    • **A gas explosion could result.**
  * Telephone line ground
  * Lightning rod
    • **If lightning strikes a large surge of current may cause fire or shock.**
  * Utility water pipes
    • **Plastic water pipes should not be used for grounding. (Those approved by a Waterworks Department may be used.)**

■ Before connecting or disconnecting the grounding lead to or from the printer, always unplug it from supply outlet.

PRECAUTIONS IN HANDLING THE PRINTER

⚠ WARNING

Please observe the following precautions for power source and power cord:

- ■ Do not plug or unplug the power cord with a wet hand.
- ■ Use the printer only at the specified supply voltage and frequency.
- ■ Use only the specified AC adapter with the printer.

- ■ Check to make sure that the supply outlet from which the printer is powered has a sufficient capacity.
- ■ Do not supply the printer from a power strip or current tap shared with other appliances.

- ■ Do not plug the power cord into a supply outlet with dust or debris left on its plug.
- ■ Do not use a deformed or damaged power cord.
- ■ Do not move the printer while the printer power is on.

- • **Neglecting to handle properly may result in printer failure, emission of smoke, fire, or electric shock.**
- • **An overload may cause the power cord to overheat or fire or the circuit breaker to trip.**

- ■ Do not allow anything to rest on the power cord. Do not place the printer where the power cord will be trampled on.
- ■ Do not use or carry the printer with its power cord bent, twisted, or pulled.
- ■ Do not attempt to modify the power cord unnecessarily.
- ■ Do not lay the power cord in the neighbor of a heating device.

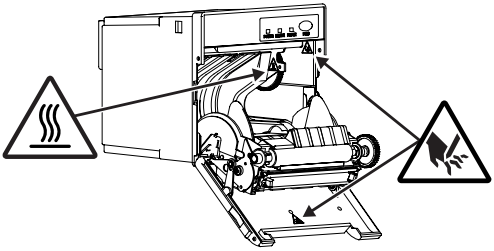
- • **Neglecting these cautions may cause wires or insulation to break, which could result in leakage, electric shock, or printer failure. If the power cord sustains damage, contact your Citizen Systems dealer.**
- ■ Do not leave things around the supply outlet.

- ■ Supply power to the printer from a convenient wall outlet, readily accessible in an emergency.
- • **The printer may not be immediately shut down in an emergency.**
- ■ Insert the power plug fully into the outlet.

- ■ If the printer will not be used for a long time, leave it disconnected from its supply outlet.
- ■ Hold the plug and connector when plugging or unplugging the power cord or signal cable after turning off the printer and the appliance connected to it.

⚠ CAUTION

Caution label is attached on the position shown in the following figure. Carefully read the precautions in handling before using the printer.



These labels indicate that the head becomes hot, so touching it may cause burns, and touching the autocutter when opening the paper cover may cause cuts on hands.

■ Do not transport this printer with the paper roll inside.

• **Printer failure or breakage may occur.**

To prevent possible failure of this product, never use the equipment under the following condition.

■ During printing, do not open the front cover.

■ Avoid operating the printer without paper properly loaded.

■ Avoid the use of paper not complying with specifications.

• **May result in poor print quality.**

■ Avoid using torn pieces of paper or spliced with plastic adhesive tapes.

■ Avoid forcibly pulling already loaded paper by hand.

■ Avoid wedging the paper into the printer.

• **May jam paper.**

■ Avoid using a sharp pointed device to operate panel keys.

■ Be sure to firmly insert the cable plug into its mating socket.

• **A cross connection may damage the printer's internal electronics or the host system's hardware.**

⚠ CAUTION

To prevent injury and printer failures from worsening, observe the following:

- ■ Do not touch the printing surface of the thermal head.
- ■ Do not touch any of the moving parts (e.g., paper cutter, gears, active electrical parts) while the printer is working.

- ■ In case of trouble do not attempt to repair the printer. Ask Citizen Systems service for repair.
- ■ Be careful that the printer cover does not entrap your hands or fingers.
- ■ Be careful with sharp edges on the printer. Do not allow them to injure you or damage property.

• **May result in electric shock, burn, or injury.**

If the printer emits smoke, an odd smell, or unusual noise while printing, immediately abort the current print session and unplug the printer from the supply outlet.

ⓘ DAILY MAINTENANCE

Observe the following precautions for daily maintenance.

- ■ When cleaning the printer, always turn it off and unplug it from the supply outlet.
- ■ Use a soft, dry cloth for cleaning the surface of the printer case.
- ■ For severe stains, use a soft cloth slightly dampened with water.

- ■ Never use organic cleaning solvent such as alcohol, paint thinner, trichloroethylene, benzene, or ketone. Never use a chemically processed cleaning cloth.
- ■ To remove paper dust, use a soft brush.

⚠ CAUTION

• **The thermal head is at a dangerously high temperature immediately after printing. Allow it to cool off before launching maintenance work.**

THE TABLE OF CONTENTS

1. GENERAL OUTLINE 10
   1.1 Features 10
   1.2 Unpacking 11
   1.3 Model Classification 12
   1.4 Basic Specifications 13
   1.5 Power Supply Used 14
2. EXPLANATION OF PRINTER PARTS 14
   2.1 Printer Appearance 14
   2.2 Front Cover Inside 15
   2.3 Operation Panel 16
   2.4 Other Built-in Functions 16
3. PREPARATION 17
   3.1 Mounting on Rack 17
   3.2 Connecting Power Cord and Data Cable 18
   3.3 Opening and Closing Front Cover 20
   3.4 Setting Paper 20
   3.5 Adjusting Paper Adjust Guide 21
   3.6 Setting DIP Switch 22
   3.7 Download Site for Various Electronic Files 23
4. MAINTENANCE AND TROUBLESHOOTING 24
   4.1 Releasing Cutter Lock 24
   4.2 Cleaning the Print Head and Platen 25
   4.3 Self-printing 25
   4.4 Hexadecimal Dump Printing 26
   4.5 Resetting the Printer 26
   4.6 Error Indication 27
5. Other 28
   5.1 External Views and Dimensions 28
   5.2 Printing Paper 29
   5.3 Manual Setting of Memory Switches 30
   5.4 Specifications of Power Supply and Interface Connectors 33
   5.5 Specifications of Connector for USB Interface 34

1. GENERAL OUTLINE

This product is a thermal panel printer to be built in a rack or the like that can be used for a variety of applications including data communication terminals, POS terminals, and various kinds of terminals for measuring instruments.
With extensive built-in features, it can be used in a wide range of applications. Before using this product, be sure to read through this manual.

1.1 Features

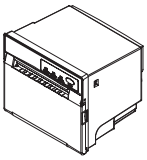
- Clamshell structure facilitating paper handling and head cleaning
- Drip-proof design of panel (against vertical drips) (Protection class: JIS Class 1)
- High speed (150 mm/s) printing.
- Low noise printing by line thermal system.
- Durable to low temperature operation up to -20°C / -4°F *.
- Equipped with auto cutter (full and partial cutting) (CT-P291/CT-P293)
- Factory-set optional USB interface.
- Built-in input buffer.
- A variety of multiple choices of functions by memory switch.
- Registration of user-defined characters and logos into flash memory.
- Page mode. Now you can arrange pages freely.
- Barcode & 2D Barcode printing is supported.

*This feature is supported only with the printer. The user is requested to prepare the power supply and other peripheral devices.

1.2 Unpacking

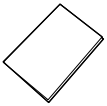
When unpacking the printer, confirm that the following are provided:

- Printer: 1
- Sample paper roll: 1 roll
- Quick start guide: 1
- Wiring cable: 1
- Ferrite core: 1
- Mounting attachment: 1
- Screws for fixing mounting attachment: 2
- Wire clamp: 1
- Power connector board (DC type only): 1
- Power connector board cover (DC type only): 1
- Screws for mounting power connector board (DC type only): 2



Printer

Sample paper roll



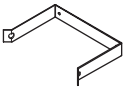
Quick start guide

(NN type)

(DC type)

Wiring cable

Ferrite core



Mounting attachment

Screws for fixing mounting attachment

Wire clamp

DC type only

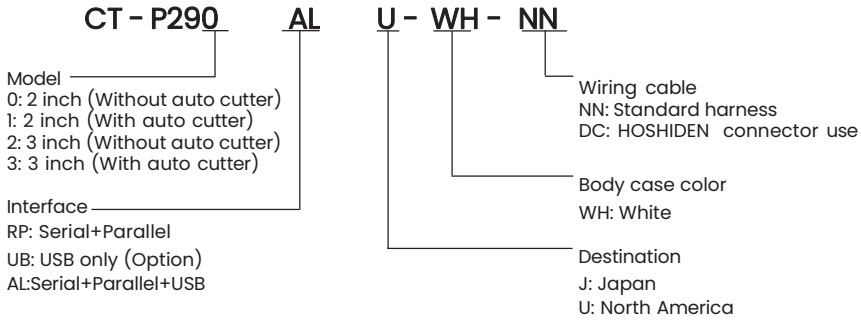
Power connector board

Power connector board cover

Screws for mounting power connector board

1.3 Model Classification

The printer models are classified by the following designation method:



1.4 Basic Specifications

Item	Specifications			
Model	CT-P290	CT-P291	CT-P292	CT-P293
Print method	Line thermal dot print method			
Print width	51 mm /408 dots		72 mm/576 dots	
Dot density	8 dots/mm			
Print speed*1	MAX 150 mm/s (1200 dot lines/s)			
Number of print columns	Font A: 34 columns Font B: 45 columns Font C: 51 columns		Font A: 48 columns Font B: 64 columns Font C: 72 columns	
Character size	Font A: 12 x 24 dots, 1.50 x 3.00 mm Font B: 9 x 17 dots, 1.13 x 2.13 mm Font C: 8 x 16 dots, 1.00 x 2.00 mm As space for internal space of character font is included, actual character is smaller than those in the above table.			
Character type	Alphanumeric, International (12 characters x 16 countries), PC437 PC850/852/857/858/860/863/864/865/866/WPC1252/Katakana/Thai code 18			
User memory	256 KB (Capable of registering user-defined characters and logos)			
Types of bar code	UPC-A/E, JAN (EAN) 13/8 columns, ITF, CODE 39, CODE 128, CODABAR, CODE 93, PDF417, QR Code			
Line spacing	4.25 mm (1/6 inch) Settable by a command			
Paper roll	Paper width 48-58 mm		Paper width 58-80 mm	
	Paper thickness: 65-75µm, Paper diameter Ø50mm (MAX), Inside core diameter Ø 18mm (MIN)			
Interfacing *2	Serial (RS-232C compliant) Parallel (Centronics or IEEE1284 nibble mode compliant) USB (Option)			
Input buffer	4k bytes/45 bytes (Parallel is only for 4K setting.)			
Input voltage	Input voltage DC24 V ±10%, Current consumption: 1.9A (9A at peak)			
Weight	650g	700g	750g	800g
Outside dimensions	2 inch model:107(W) x 120.5(D) x 109 (H) mm 3 inch model:127(W) x 120.5(D) x 109 (H) mm			
Operating temperature and humidity *3	-20 to 50°C / 4 to 122°F (* 0 to 45°C / 32 to 113°F in the use of 37AD5), 35 to 85% RH (No condensation)			
Storage temperature and humidity	-20 to 60°C / 4 to 140°F, 10 to 90% RH (No condensation)			
Reliability	Print head life: 100 km, 1 x 10^8 pulses (At normal temperature/ humidity with recommended paper used) Auto cutter life:1 million cuts (At normal temperature, normal humidity, with 65 mm paper with full cutting)			
Safety standard *4	UL, cUL, FCC, IC, CE, UKCA *			

*: Please contact us for information on other regions and the latest status such as standardnumbers.

Notes:

*1: The above print speed is available under the condition of 24.0 V, 25°C / 77°F and print duty of 12.5%. Print speed may be delayed by the setting of print conditions or by the combination of commands.

*2: Interface installed varies by model category.

*3: However, print quality may partly be out of warranty.

*4: Standard acquired by the use of CITIZEN AC adapter 37AD5.

1.5 Power Supply Used

Power supply that can meet these specifications shall be prepared.

The power supply shall be capable of supplying DC 24 V ±10%, 1.2 to 1.5A (9A or more at peak).

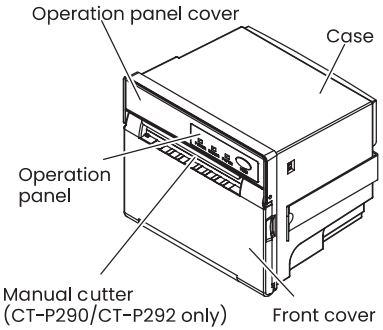
If power capacity is below 6A to 9A at peak, low current consumption mode is recommended (DIP switch No. 7 to ON).

⚠ CAUTION!

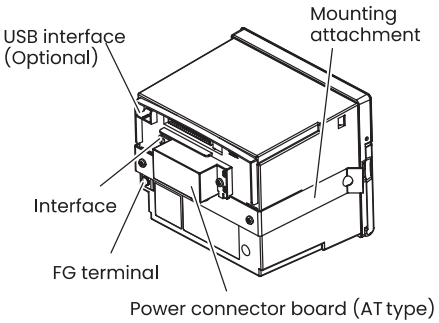
■ Avoid using power supply having excessively high current capacity.

2. EXPLANATION OF PRINTER PARTS

2.1 Printer Appearance



(Front view)



(Rear view)

- Front cover
  Opened or closed in the case of paper handling, paper jam, etc.
- Manual cutter(CT-P290/CT-P292 only)
  Used when cutting paper. (If the paper length is short, cutting remainder may present.)
- Case
  Internal mechanism is covered with the case. Do not apply excessive force.
- Operation panel cover
  Opened or closed when changing the DIP switch setting.
- Operation panel
  Provides LED indication of the printer status. The FEED button allows paper feeding.
- USB interface (Optional)
  Use a mini-B type connector.

●Interface → See 5.4 Specifications of Power Supply and Interface Connectors

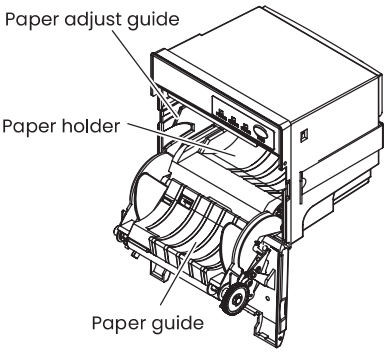
Attached power cord and wiring cable are connected.

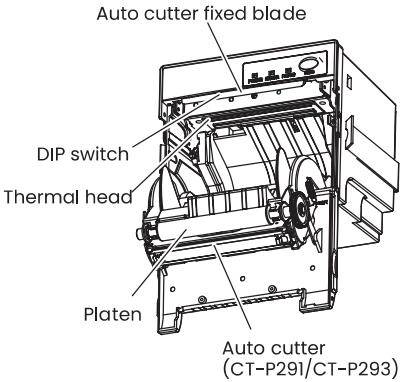
●FG terminal
The printer frame is connected to ground. Be sure to keep this wiring.

●Mounting attachment
A metal attachment for mounting the printer in a rack or the like.

●Power connector board
Used for connecting the AC adapter.

2.2 Front Cover Inside





●Paper holder
A place where thermal paper roll is set. → See 3.4 Setting Paper

●Paper adjusts guide
Adjusts this guide to meet the paper width to be set.

●Paper guide
Thermal paper roll is set and held.

●Auto cutter fixed blade
Used for cutting paper. → See 3.6 Setting DIP Switch

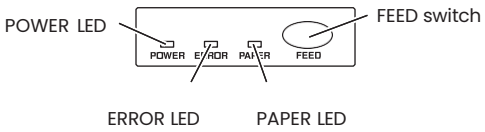
●DIP switch
Allows various kinds of setting.

●Thermal head
Prints characters and/or graphic data on thermal paper.

●Platen
Feeds paper while pressing the thermal paper onto thermal head.

●Auto cutter (CT-P292/CT-P293)
Cuts the paper with a command at the end of printing. Cutting method is selectable between partial cut and full cut with a command.

2.3 Operation Panel



●FEED switch
Pressing this button once causes the paper to feed one line. The longer the button is pressed, the more paper is fed.
In case of auto cutter error, press the FEED button after removing the cause of the error.

●POWER LED (Green)
Illuminated when the printer power is on and off when the printer power is off. May blink or light in a special mode or in case of failure.

●ERROR LED (Red)
Lights or blinks in case of an error, etc. See 4.6 Error Indication

The interval length of blinking represents the type of error.

●PAPER LED (Orange)
Lights or blinks when paper is empty.

2.4 Other Built-in Functions

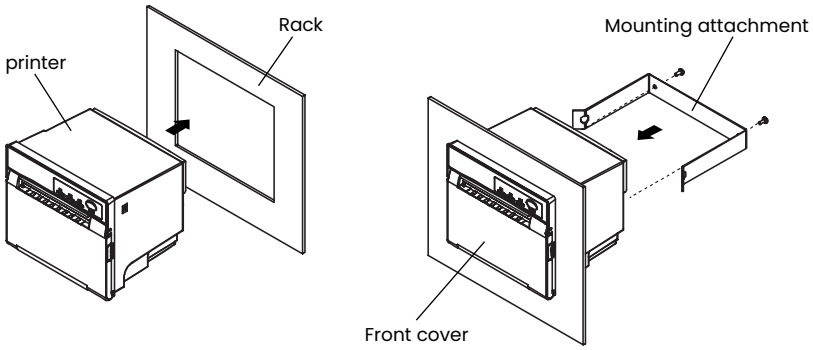
●User memory
You can save user-defined logo and character data in this memory. Data remains stored in this memory even if the printer is turned off. For information on how to save data, refer to the Command Reference.

●Memory switch (Memory SW)
Setting of various kinds of functions can be stored in nonvolatile memory. The functions are valid even if the printer power is turned off.

3. PREPARATION

3.1 Mounting on Rack

1. Insert the printer into the specified rack, etc. as shown in the following figure.
2. Attach the supplied mounting attachment to the printer from the rear and fix the printer with the supplied screws.
3. After mounting, make sure the front cover can be opened and closed normally.
4. Apply appropriate force when tightening the screws while paying attention to prevent deformed mounting attachment and printer case. Excessive tightening may cause not only stress on the printer but also printer failure, etc.
5. The mounting rack shall be about 1 to 3 mm thick.



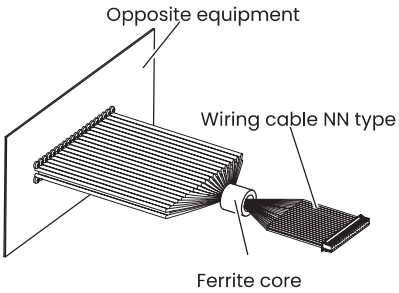
⚠ CAUTION!

■ Screws for fixing mounting attachment must not be longer than 15 mm.
■ Install the printer with its front cover set vertical.

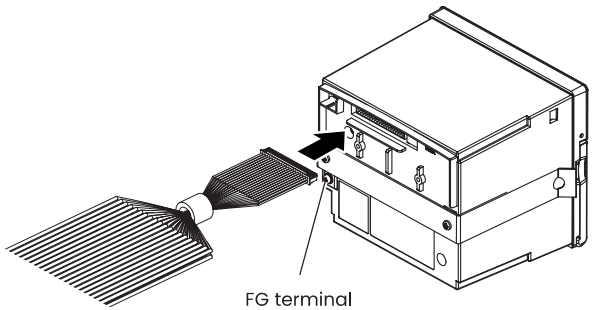
3.2 Connecting Power Cord and Data Cable

[In case of NN type]

1. Make sure the power supply for the opposite equipment to be connected is OFF.
2. Prepare the power supply that can supply the supply voltage and current capacity designated in the specifications (DC 24 V ±10%, 1.2 to 2.1A (9A or more at peak current).
3. Pass ferrite cores one by one while checking the pin number of the wiring cable for connection to the opposite equipment. In case of open type ferrite core, connect it after wiring has been completed. For pin numbers, refer to "5.4 Power Supply and Interface Connector Specifications". Be sure to use the Ferrite core if you make the cable by yourself.



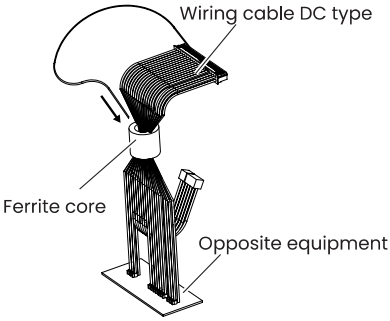
4. After making sure the printer power is OFF, orient the connector correctly and firmly connect it to the printer.



5. Connect the printer FG terminal to ground. Be sure to make this connection to prevent noise, static charge, etc. Firmly make this connection using the terminal screw at the rear of the printer.

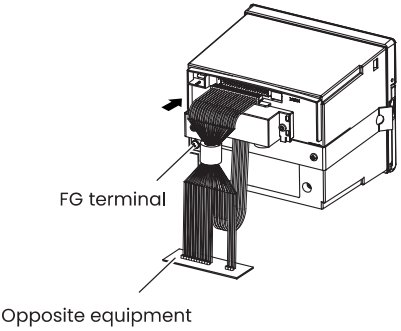
[In case of DC type]

1. Make sure the power supply for the opposite equipment to be connected is OFF.
2. Prepare the power supply that can supply the supply voltage and current capacity designated in the specifications ((DC 24 V ±10%, 1.2 to 2.1 A (9 A or more at peak current).
3. Pass ferrite cores one by one while checking the pin number of the wiring cable for connection to the opposite equipment. In case of open type ferrite core, connect it after wiring has been completed. For pin numbers, refer to "5.4 Power Supply and Interface Connector Specifications". Be sure to use the Ferrite core if you make the cable by yourself.



(ex. Parallel)

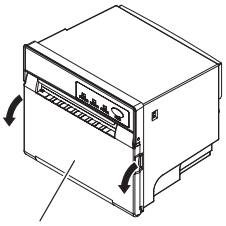
4. After making sure the printer power is off, fix the power connector board with two places screws.
5. Connect the power supply and the interface connector to the printer while making sure the connector is oriented correctly.



5. Connect the printer FG terminal to ground. Be sure to make this connection to prevent noise, static charge, etc. Firmly make this connection using the terminal screw at the rear of the printer.

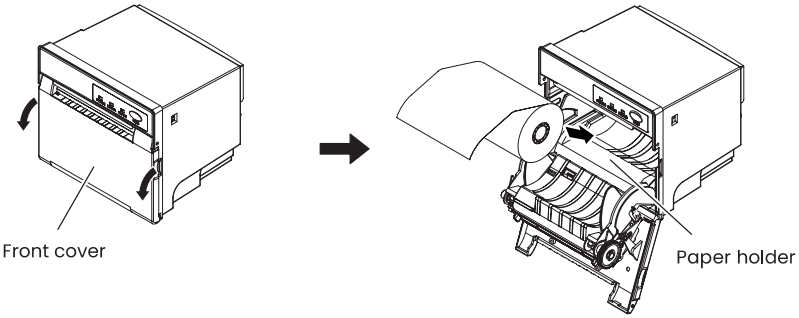
3.3 Opening and Closing Front Cover

1. Apply your fingers onto the concaved places located at the right and left sides of the front cover and pull the cover in the direction of arrow. The cover opens about 150° downward.
2. When closing the cover, firmly hold and press the front cover. When closing, make sure paper is not loosened. Loosened paper may result in paper jam, etc.



3.4 Setting Paper

1. Apply your fingers onto the concaved places located at both sides of the front cover and pull the front cover.
2. Open the front cover by about 15°, and the cutter unit is disengaged allowing the paper holder to appear.
3. Confirm the direction of paper roll and put the paper onto the paper holder.
4. Close the front cover with the paper front edge fed about 5 cm from the upper surface of the case.



⚠ CAUTION!

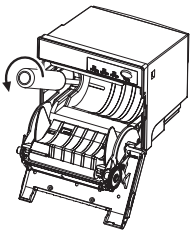
- Do not open the front cover while the printer is in operation.
- Use the specified paper. Using paper not specified may cause poor print quality, shorter printer life, etc.
- Set the paper straight without looseness.
- The print head is hot immediately after printing. DO NOT touch it with your hand.
- Hold the printer cover at its both sides and close it firmly. Holding the front cover at one side may result in poor closing causing uneven printing.
- When closing the front cover, avoid pinching a finger.
- Be careful not to touch the cutter fixed blade and manual cutter with your finger.

3.5 Adjusting Paper Adjust Guide

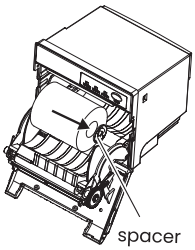
By changing the position of the paper adjust guide, narrower paper can be set. The paper adjust guide is set to the factory to the position shown below.

- For CT-P290/CT-P291: 58-mm wide paper roll
- For CT-P292/CT-P293: 80-mm wide paper roll

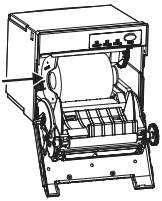
1. **Open the front cover and loosen the screw that fixes the paper adjust guide. The amount of loosening the screw is a half turn of a screwdriver. Excessive loosening the screw may result in detachment of screw.**



2. **In order to secure the clearance between the paper roll used and paper adjust guide, set a spacer (coin or the like) with a diameter of 1 to 2 mm to the paper holder located at the FEED switch side.**

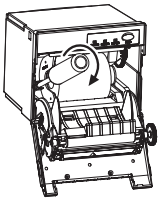


3. **With the paper adjust guide pressed to the edge of the paper roll, position the paper adjust guide.**



4. **Tighten the screw with a Phillips screwdriver to fix the adjust guide while pressing and holding the paper adjust guide not to get slanted. Excessive tightening may result in breakage of the paper adjust guide.**

5. **Remove the spacer and verify that there is a clearance by moving the paper roll toward right and left.**



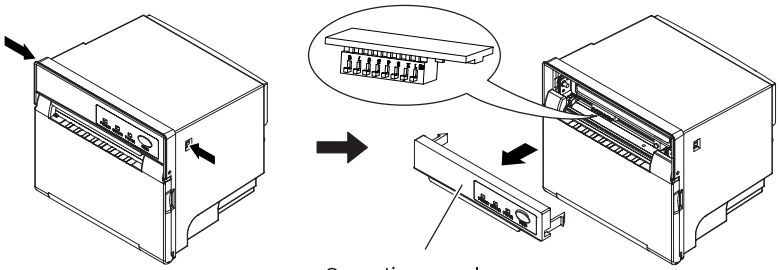
⚠ CAUTION!

- If you change the paper width, degradation of print quality, faulty paper feeding, shorter life, or other phenomenon may occur in rare case. In this case, verify that there is no fault in the use conditions of printing. Even if no improvement is achieved, return the paper width to the value specified at the time of factory shipment.
- If you change the paper width, paper-loading feature may be degraded.

3.6 Setting DIP Switch

To set the DIP switch, the operation panel cover must be removed.
Remove the operation panel cover by using the following procedure.

1. **Turn the printer power off.**
2. **Pressing the hooks at both sides remove the operation panel cover.**
3. **Set the DIP switch.**
4. **Return the operation panel to the former position.**
   (The printer does not operate if the operation panel is detached.)



Switch No.	Function	OFF	ON	Initial Settings
1	Auto cutter	CT-P291/293:- CT-P290/292Unavailable	CT-P291/293:Available CT-P290/292:-	*1
2	Interface	See Table below.		OFF
3				OFF
4	Reserved	Fixed	-	OFF
5	Reserved	Fixed	-	OFF
6	Print head installed	CT-P290/291:- CT-P292/293:3 inch	CT-P290/291:2 inch CT-P292/293:-	*2
7 *3	Character	Normal	Low current consumption	OFF
8	Reserved	Fixed	-	OFF

*1 Initial settings depend on the model.
CT-P291/293:ON
CT-P290/292:OFF

*2 Initial settings depend on the model.
CT-P290/291:ON
CT-P292/293:OFF

*3 When DIP switch No. 7 is set to ON and low current consumption mode is selected, the printing speed will be 70 mm/s.

Selecting Interface

Baud Rate (bps)	Switch No.	
	2	3
Parallel + USB (VCOM)	OFF	OFF
Parallel + USB (Printer class)	OFF	ON
Serial MSW setting + USB (VCOM)	ON	OFF
Serial 19200*+ USB (Printer class)	ON	ON

* With initial setting, 19200 bps, stop bit 1, data length 8 bits, no parity (Fix)

3.7 Download Site for Various Electronic Files

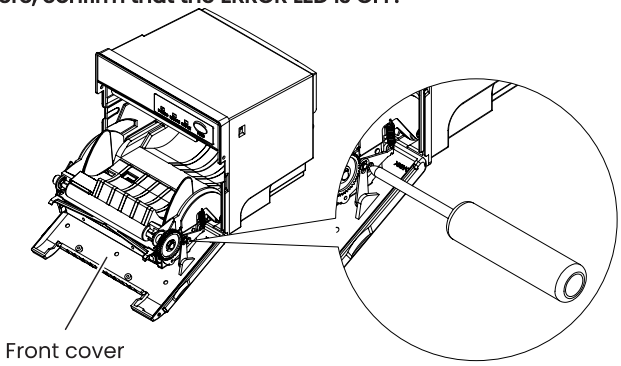
You can view support information and download the latest documents, drivers, utilities, etc. from the following site.
https://www.citizen-systems.co.jp/en/printer/download/#CT-P291

4. MAINTENANCE AND TROUBLESHOOTING

4.1 Releasing Cutter Lock

Dropping of foreign object, paper jam or the like in the printer may cause a cutter lock error. If the cuter lock error is slight, press the FEED button or use a cutter lock release command to start the auto recovery operation. Auto cutter returns to the initial position. Turning power on again can also recover the initial position.
If the cutter lock error cannot be recovered with the above steps, use the following procedure to remove the cutter lock error.

1. **Turn the printer power off.**
2. **Apply your fingers onto the concaved places located at both sides of the front cover and pull the cover.**
3. **If the front cover cannot be opened because the cutter blade is obstructed by the operation panel cover, detach the hook located in the back and remove the operation panel cover from the printer. Then, pull the front cover.**
4. **Open the front cover and remove the cause of the cutter lock.**
5. **Using a screwdriver, turn the white plastic screw at the right side to lower the blade.**
6. **Set paper correctly, close the front cover, and then turn the printer power on. Here, confirm that the ERROR LED is OFF.**



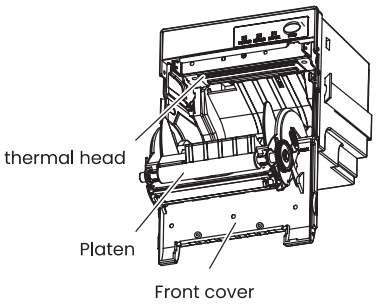
⚠ CAUTION!

- The print head is hot immediately after printing. DO NOT touch it with your hand.
- DO NOT touch the heating element of the print head with a bare hand or metal object.
- Be careful not to touch the cutter blade.
- If the cutter lock error cannot be recovered even if you have tried the procedure of pressing the FEED button or using a cutter lock release command several times, repeat the above procedure from step 1. Avoid continuous operation under irrecoverable condition.

4.2 Cleaning the Print Head and Platen

Dust, paper dust or the like on the thermal head or platen unit may cause poor print quality, paper feed error, etc. Periodic cleaning of thermal head and platen unit is recommended.

1. **Turn the printer power off.**
2. **Apply your fingers onto the concaved places located at both sides of the front cover and pull the front cover.**
3. **Wipe off any dust on the heating element of the thermal head and platen rubber using a cotton swab soaked in ethyl alcohol.**

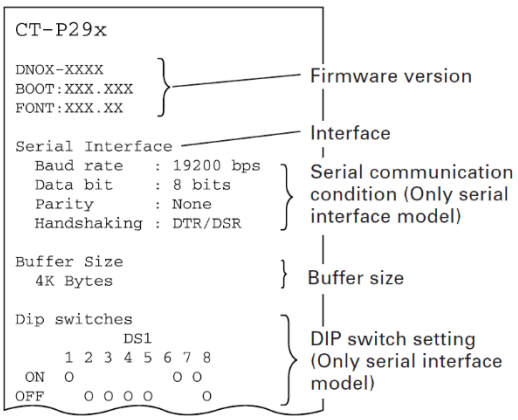


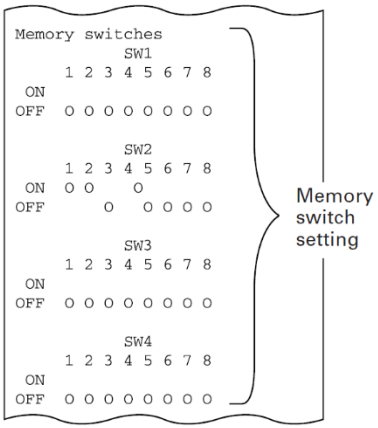
⚠ CAUTION!

■ The print head is hot immediately after printing. DO NOT touch it with your hand.
■ DO NOT touch the heating element of the print head with a bare hand or metal

4.3 Self-printing

Insert paper into the printer. With the FEED button pressed and held, turn the printer power on, keep the FEED button held for about 1 second, and then release the FEED button. The printer starts self-printing. The printer prints model name, version, DIP switch setting, memory switch setting, and built-in fonts.





4.4 Hexadecimal Dump Printing

This function is to print all received data in hexadecimal numbers. If problems such as missing data, data duplication, etc. should occur, this function allows checking whether or not the printer is receiving data correctly.
Set paper to the printer and keep the front cover open. With the FEED button pressed and held, turn the printer power on and then close the printer cover. The printer prints "HEX dump print mode" followed by the received data printed in hexadecimal numbers and some characters.

⚠ CAUTION!

■ The printer prints "." if there is no characters corresponding to data.
■ During hexadecimal dump, functions except some command will be disabled.
■ If print data DOES NOT cover a line, press the FEED button to print the line.

Repeat pressing the FEED switch three times, and the printer prints "Completed" and completes hexadecimal dump printing.

Print example

```
HEX DUMP PRINT MODE
1B  40  31  32  33  34  35  36  .@123456
37  38  39  30  0A              7890.

          Completed
```

4.5 Resetting the Printer

This procedure restores the printer to the initial state or the state after powering the printer on. This function is used in place of the power on operation necessary for starting transition to various printer functions (4.3 Self Printing, 4.4 Hexadecimal Dump Printing, 5.3 Manual Setting of Memory Switches) without the printer power switch. Reset the printer in the following procedure.

1. **Open the front cover. With the ERROR LED kept lighted, repeat pressing the FEED button three times. The printer starts resetting operation.**
2. **About 1 second after pressing the FEED button three times, all the LED indicators go off. After about 1 second thereafter, the printer enters normal operation and LED indicators go on depending on the status. If the printer is in normal printable state, only the POWER LED goes on.**

⚠ CAUTION!

■ Printer reset operation does not start under the error condition (4.6 Error Indication).

4.6 Error Indication

- Paper end
  Paper empty is detected in two steps: paper near-end and paper end. It causes the ERROR LED to light. If paper end is detected, refill the paper. If the printer cover is open, a paper-end is detected.

- Printer cover open
  During printing, do not open the printer cover. If you open the printer cover accidentally, the ERROR LED blinks. Check the paper, pull the paper straightforward by several cm out of the printer, and then close the printer cover. Printing resumes automatically. Sending a command to resume printing may be required depending on the memory switch setting.

- Cutter lock
  If the cutter blade stops operating due to paper jam or the like, the ERROR LED blinks. Remove the cause of the trouble and press the FEED button. If the blade still does not move and the cover cannot be opened, contact your Citizen Systems dealer.

- Thermal head overheat
  When you print dense characters or dark image, the head temperature rises. If the head temperature exceeds a specified level, the printer stops printing operation and waits till the head temperature is lowered. During waiting, the ERROR LED blinks. When the head temperature is lowered, printing resumes automatically.

Lighting and blinking status of each error including the above is shown below.

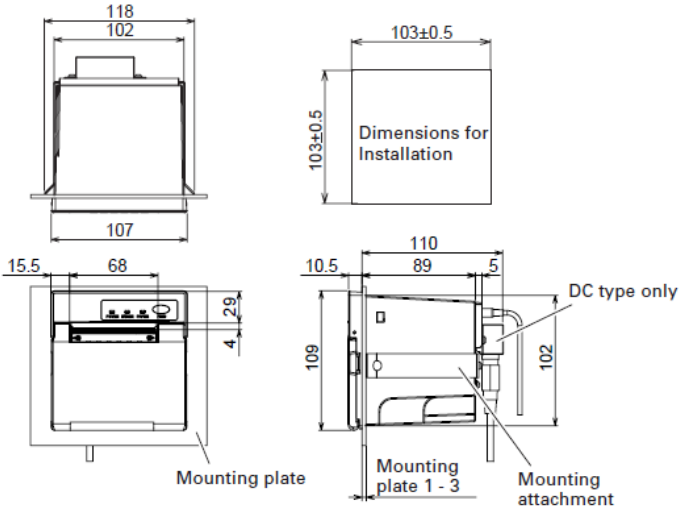
Status	POWER LED (Green)	ERROR LED (Red)	PAPER LED (Orange)
Head overheat error	Lights		—
Front cover open (At standby)	Lights	Lights	—
Front cover open (In printing)	Lights		—
Cutter lock error	Lights		—
Memory check error		—	—
Low voltage error	Lights		—
High voltage error or	Lights		—
Paper end	Lights	Lights	Lights
Macro execution wait	Lights		—

5. Other

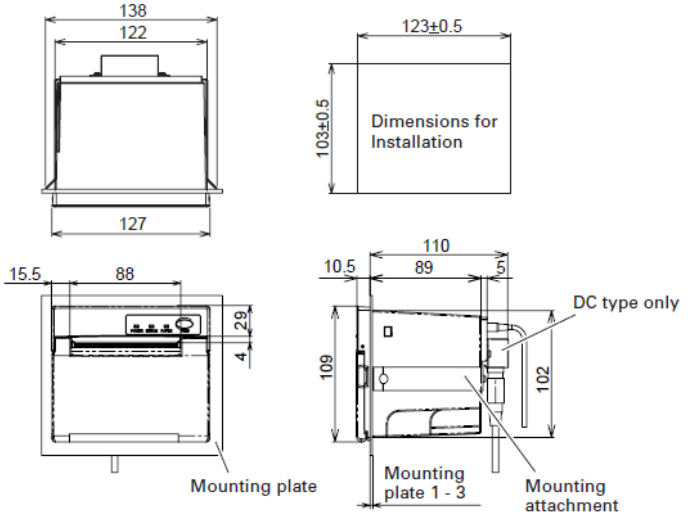
5.1 External Views and Dimensions

(Unit: mm)

CT-P290/CT-P291 (2 inch model)



CT-P292/CT-P293 (3 inch model)

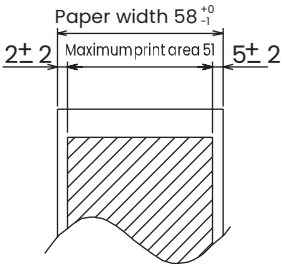


5.2 Printing Paper

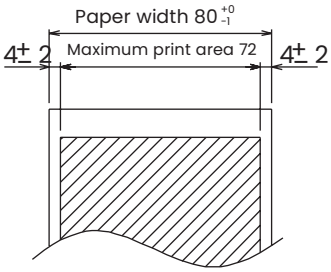
Use the print paper shown in the following table or the paper with equivalent quality.

Paper Type	Product Name
Recommended thermal paper roll	TF50KS-E2D from Nippon Paper PD160R from Ohji Paper F230AA from Mitsubishi Paper

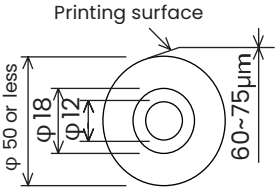
(Unit: mm)



CT-P290/CT-P291 use



CT-P292/CT-P293 use



⚠ CAUTION!

DO NOT use the following type of paper roll.
- ■ Paper with folds.
- ■ Paper with bent corners.
- ■ Paper pasted or glued to the core.
- ■ In-wound paper roll (print side in).

5.3 Manual Setting of Memory Switches

Memory switches (Memory SW) can be set manually or by a command. For manual setting, refer to the next page.
The function of each memory switch is shown in the following table.
(The white-on-black characters are factory setting.)

Switch No.	Setting	0 (OFF)	1 (ON)
Memory SW1-1	Power ON Info	Valid	Not send
SW1-2	Buffer Size*1	4k bytes	45 bytes
SW1-3	Busy Condition	Full/Err	Full
SW1-4	Receive Error	Print ?	No Print
SW1-5	CR mode	Ignored	LF
SW1-6	Reserved	Fixed	-
SW1-7	DSR Signal	Invalid	Valid
SW1-8	Reserved	Fixed	□
Memory SW2-1	Reserved	-	Fixed
SW2-2*2	Auto Cutter	Invalid	Valid
SW2-3	Spool Print	Invalid	Valid
SW2-4	Full Col Print	LineFeed	WaitData
SW2-5	Resume aft PE	Next	Top
SW2-6	Reserved*4	-	-□
SW2-7	Reserved	Fixed	-
SW2-8	Reserved	-	Fixed
Memory SW3-1	Resum Cttr Err	FEED switch valid	FEED switch invalid
SW3-2	Reserved	Fixed	-
SW3-3	Parallel reset	Valid	Invalid
SW3-4	Reserved	Fixed	-
SW3-5	Character size*3	48 (CT-P292/CT-P293) 34 (CT-P290/CT-P291)	32 32
SW3-6	Reserved	Fixed	-
SW3-7	CBM1000 Mode	Invalid	Valid
SW3-8	Resum Open Err	Close	Command
Memory SW4-1	Reserved	-	Fixed
SW4-2	Reserved	-	Fixed
SW4-3	Feed&Cut at TOF	Invalid	Valid
SW4-4	Reserved	Fixed	-
SW4-5	Reserved	Fixed	-
SW4-6	Reserved	Fixed	-
SW4-7	Reserved	Fixed	-
SW4-8	Partial only	Invalid	Valid

*1. In the case of parallel interface and USB interface, the input buffer is 4 Kbytes regardless of this setting.
*2. MSW2-2 functions only when DS1 is ON (Valid).
*3. Depending on the DSW-6 setting.
*4. Depending on the DSW-6 setting.

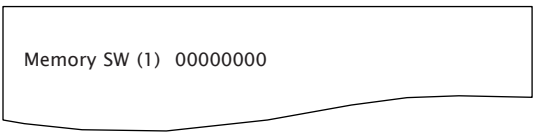
Switch No.	Setting	0 (OFF)	1 (ON)
Memory SW5-1	Reserved	Fixed	-
SW5-2	Reserved	Fixed	-
SW5-3	Reserved	Fixed	-
SW5-4	Reserved	Fixed	-
SW5-5	Reserved	Fixed	-
SW5-6	Speed/Quality	Speed priority	Quality priority
SW5-7	Reserved	Fixed	-
SW5-8	Reserved	Fixed	-

Switch No.	Setting	Default	Set Values
Memory SW7-1	Baud Rate	9600 bps	1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps
SW7-2	Data Length	8bits	7bits, 8bits
SW7-3	Stop Bit	1bit	1bit, 2bits
SW7-4	Parity	NONE	NONE, EVEN, ODD
SW7-5	Flow Control	DTR/DSR	DTR/DSR, XON/XOFF
SW7-6	Reserved	-	-
SW7-7	VCom Protocol	PC Setting	PC Setting, DTR/DSR, XON/XOFF
Memory SW9-1	Code Page	PC437	PC437/Katakana/PC850,858/PC860/PC863/ PC865/PC852/PC866/PC857/WPC1252/ Space page/PC864/Thai Code 18
SW9-2	Int' char Set	U.S.A	U.S.A, France, Germany, England, Denmark, Sweden, Italy, Spain, Japan, Norway, Denmark 2, Spain 2, Latin America, Korea, Croatia, China
SW9-3	Kanji	OFF	ON, OFF
SW9-4	JIS/Shift JIS	JIS	JIS, Shift JIS
Memory SW10-1	Print Density	100%	70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%, 110%, 115%, 120%, 125%, 130%, 135%, 140%
SW10-2	Print Speed	Level 9	Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Level 7, Level 8, Level 9
SW10-3	Reserved	-	-

Manual Setting of Memory Switch (Memory SW)

The memory switch can be selected, changed, or written by the combination of three actions: pressing the FEED button, pressing and holding the FEED button, and opening or closing the front cover.

1. Entering memory switch setting mode.
   Set paper to the printer and keep the front cover open. With the FEED button pressed and held, turn the printer power on, and then press the FEED button twice. Close the cover. If the current settings of the memory switch etc. are printed, the printer is now in the memory switch setting mode.

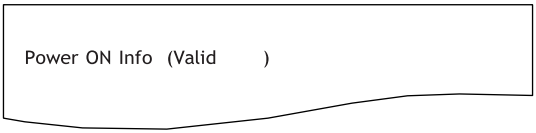


0: OFF state
1: ON state

(No indication for 0/1 with memory switch 7 through 10)

2. Selecting memory switch
When the FEED button is pressed short (within 2 seconds), printing occurs in the order of "Memory SW1" ->Memory SW2" -> "Memory SW3" ->....."Memory SW10" -> "Save To Memory" -> "Memory SW1" -> ..... repeatedly. When the memory switch you want to change is reached, press and hold the FEED button (for more than 2 seconds).

3. Selecting each switch item
2-15 items are provided for setting in each switch. By pressing and holding the FEED button long, the printer goes to the next item and prints the current setting of the item. Repeat pressing and holding till the item you want to change is reached.



Items with ERROR LED lit are those valves elected currently

4. Changing the setting
When the item you want to change is printed, press the FEED button short. The changed set value is printed. (When change of set value is repeated, the original set value is recovered). When you press the FEED button long, the set value is accepted and then the printer goes to the next setting item.

5. Returning to the memory switch select mode
When the setting of the desired content is completed, open the front cover and then close the printer cover. This allows the printer to print the setting of the changed memory switch.

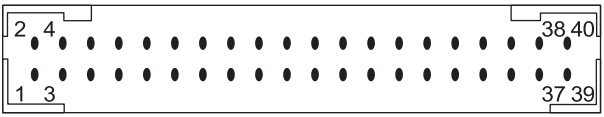
6. Saving the setting and exiting the memory switch setting mode
Press the FEED button short to move to "Save To Memory". Then press and hold the FEED button. The printer prints the content of new setting and exits the memory switch setting mode to return to the normal standby state.
   * Unless saving the setting is executed, the changed setting cannot be enabled.

7. Initializing the memory switch
When you want to return the memory switch setting to the initial state, go to "Save To Memory" in the above procedure. Here, open the front cover and press and hold the FEED button till buzzer sounds. This allows the printer to return to the initial state.
   * All the memory switches settings are returned to the factory set values.

5.4 Specifications of Power Supply and Interface Connectors

Connector pin assignment for power supply, serial interface and parallel interface is shown below.

Pin No.		Signal name	Input and output	Function
1	A1	AUTOFD	Input	ParallelI/F AUTO FD
2	B1	SELECT	Input	ParallelI/F SELECT
3	A2	NC	-	Not usable
4	B2	GND	-	GND
5	A3	GND	-	GND
6	B3	GND	-	GND
7	A4	Vp	-	Power supply for driving mechanism
8	B4	Vp	-	Power supply for driving mechanism
9	A5	Vp	-	Power supply for driving mechanism
10	B5	Vp	-	Power supply for driving mechanism
11	A6	Vp	-	Power supply for driving mechanism
12	B6	Vp	-	Power supply for driving mechanism
13	A7	GND	-	GND
14	B7	GND	-	GND
15	A8	GND	-	GND
16	B8	GND	-	GND
17	A9	GND	-	GND
18	B9	GND	-	GND
19	A10	-	-	Not usable
20	B10	ERROR	Output	ERROR LED output
21	A11	PE	Output	PE LED output
22	B11	DTR	Output	SerialI/F DTR
23	A12	TXD	Output	SerialI/F TxD
24	B12	RXD	Input	SerialI/F RxD
25	A13	DSR	Input	Serial/F DSR
26	B13	nSTB	Output	ParallelI/F nSTB
27	A14	BUSY	Output	ParallelI/F BUSY
28	B14	nACK	Output	ParallelI/F ACK
29	A15	DATA 0	Input/Output	ParallelI/F DATA 0
30	B15	DATA 1	Input/Output	ParallelI/F DATA 1
31	A16	DATA 2	Input/Output	ParallelI/F DATA 2
32	B16	DATA 3	Input/Output	ParallelI/F DATA 3
33	A17	DATA 4	Input/Output	ParallelI/F DATA 4
34	B17	DATA 5	Input/Output	ParallelI/F DATA 5
35	A18	DATA 6	Input/Output	ParallelI/F DATA 6
36	B18	DATA 7	Input/Output	ParallelI/F DATA 7
37	A19	PE	Output	ParallelI/F PE
38	B19	nFAULT	Output	ParallelI/F nFAULT
39	A20	nRESET	Input	ParallelI/F nRESET
40	B20	SELECT IN	Input	ParallelI/F SELECT IN

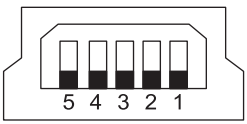


a. The ERROR and PE LED indicators are provided with a resistance of 330 W in the circuit to keep the current value at 10 mA. To use this terminal, adopt an LED rated with about 2V of forward voltage. If you use an LED exceeding 10 mA, the control board may be destructed.
b. For the power supply for driving mechanism (pins 7 through 12) at the power terminals and GND (pins 13 through 18), supply power to all the pins to keep the capacity.
   *GND of pins 4 through 6 shall be used for grounding the interface or the like. If unnecessary, common use of GND for pins 13 through 18 is recommended.
c. The serial interface is equipped with RS-232C driver and receiver. Be sure to use it at RS-232C level.
d. The RESET terminal (pin 39) is pulled up with 3.3 kW. If this terminal is not used, set it to NC.
e. Either serial interface or parallel interface is usable.
   * You can use either one of the interfaces and cannot use both at the same time.
f. The attached cable is about 300 mm in length. Adjust the length as necessary. However, avoid excessive extension of wiring. Otherwise, printer malfunction may result due to noise, etc.
   *In consideration of the effect by noise, etc., unused wiring requires some treatment such as cutting from the root.
g. As pin 19 is used inside of the printer, Never connect it to the opposite equipment.

⚠ CAUTION!

■ Wrong wiring may cause trouble not only on the printer but also on the opposite equipment connected.

5.5 Specifications of Connector for USB Interface



USB miniB type

Pin No.	Name
1	VBus (+5V)
2	-Data (D-)
3	+Data (D+)
4	NC
5	GND

NC:FNone Connect

⚠ CAUTION!

■ The USB interface is a factory-set option. It is not installed in the standard printer.
■ Purchase your USB cable by confirming the connector type.