GENERAL SPECIFICATION

TSP100IV

REV. No. 2.20

Model name

- TSP100IV-UE
- TSP100IV-UEWB

◆ Refer to the online manual for detail the product setup or uses.

Trademarks

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Precautions regarding this document

- No part of this document may be reprinted without permission.
- The contents of this document are subject to change without notice for functional improvement.
- Although every effort has been made to ensure that the contents of this document are correct, please contact us if you notice any errors or omissions in the description.
- The precautions in this document are not exhaustive of all possible events.
  We will not be held responsibe for any damage caused by the result of operating this product or negligence.

Safety information

This section contains safety information for preventing harm to users of this product, to third persons, and damage to property.

Carefully read before using this product and use the product properly.

We are not liable for any damage that occurs as a result of incorrect use other than those detailed in the safety information or in the manual for this product, or for any damage that occurs due to repairs/changes made by a third party who is not part of our company or specified by our company.

Warning

⚠ Warning

- Immediately turn the power off and pull the power plug out of the electrical outlet if it emits heat, smoke, abnormal smells or abnormal sounds.
  Then contact the seller.
  If use of the product is continued, fire or electric shock may occur.
- Do not dissemble, repair or modify the product.
  Otherwise, it may cause fire, electric shock or injury.
- When pulling out the power plug, always pull the plug and not the cable.
  Otherwise, the power cable may be damaged, and a short circuit, fire or electric shock may occur.
- Do not damage, modify, forcefully bend, pull, twist, put a heavy object on, or squeeze the power cable.
  Otherwise, the power cable may be damaged, and a short circuit, fire or electric shock may occur.
- Do not use a damaged power cable or power plug, or loose electrical outlet.
  Otherwise, it may cause a short circuit, fire or electric shock.
- Do not touch the power plug with wet hands.
  Otherwise, it may cause an electric shock.
- Do not touch the cutter blade. Otherwise, it may cause an injury.
  - There is a cutter inside the paper exit, so do not touch the blade even when it is not operating, as well as when it is operating.
  - The printer cover will be opened when replacing the paper roll, but as there is a cutter inside the printer cover, do not bring your face or hands close to the cutter blade when the printer cover is opened.
- If foreign matter such as liquid or metal fragments get inside this product, immediately cut off the power and pull the power plug out of the electrical outlet. Then contact the seller.
  If use of the product is continued, fire or electric shock may occur.

Installation notes

⚠ Warning

Do not install the product in the following locations.
Otherwise, an electric shock or fire may occur.

- Locations where there is a danger of electricity or water leakages
- Locations that are in the vicinity of fire, that are subject to direct sunlight, or where heat may be trapped

⚠ Caution

Do not install the product in the following locations.
Otherwise, it may cause malfunction.

- Locations where there is static electricity or where a strong magnetic field is generated
- Locations where ventilation is poor or dusty locations
- This product uses DC motors and switches which require contact with electricity; therefore avoid using in locations where silicone gas or flammable gas is volatilized.
- Locations where temperature and humidity exceed the usage environment conditions, or where condensation occurs
- Locations where the floor is not flat, or where vibrations occur, such as inside the car
  Problems such as paper feed errors may occur.
- Do not use the same electrical outlet as the one where equipment that generates noise such as copiers and refrigerators are connected to.
- Location at a distance from an electrical outlet
  Install in a location that is near the electrical outlet so that the power plug can be immediately pulled out if an abnormality occurs.

To install accessories and optional products

When installing accessories and optional products, turn the power of this product off, and pull the power plug out of the electrical outlet.
Carefully read the installation steps in the manual and install correctly.

Handling notes

⚠ Caution

- If not being used for a long time, pull the power plug out of the electrical outlet to ensure safety.
- When connecting or removing a cable, remove the power plug for both this product and the PC from the electrical outlet to ensure safety.
- Be careful not to forcibly pull the connected USB cable, LAN cable, power cable, or cash drawer cable.
- When removing the cable, always hold the plug part, and make sure that no excessive force is applied to the connector on the printer side.
- Do not connect a telephone line to the external device drive connector. In addition, to ensure safety, avoid using wiring connections that may cause an excessive voltage to be applied to the external device drive connector. Otherwise, it may lead to malfunctions.
- Do not open the printer cover while the printer is printing or cutting.
- Do not pull out the paper while the printer cover is closed.
- Be careful not to get your hands trapped when opening or closing the cover. Otherwise, it may cause an injury.
- As the heating element in the thermal printer head and the driver IC part can be easily damaged, do not allow direct contact with metals, sand paper and such.
- Do not operate the printer if there is moisture (which has been caused by condensation or another factor) on the front surface of the print head.
- If thermal paper other than that recommended is used, we may not be able to guarantee the printing quality or the thermal printer head life. Especially if the thermal paper has a large amount of Na+, K+, or Cl-, then the life of the thermal printer head may be drastically shortened. We recommend using products with ion concentration of 500 ppm Na+, 150 ppm K+, 300 ppm or less Cl-.
- Use in accordance with indicated environmental specifications. Even if the environmental temperature/humidity is within specifications, avoid drastic environmental condition changes. The operating temperature suitable for using this product is 5 to 45°C.

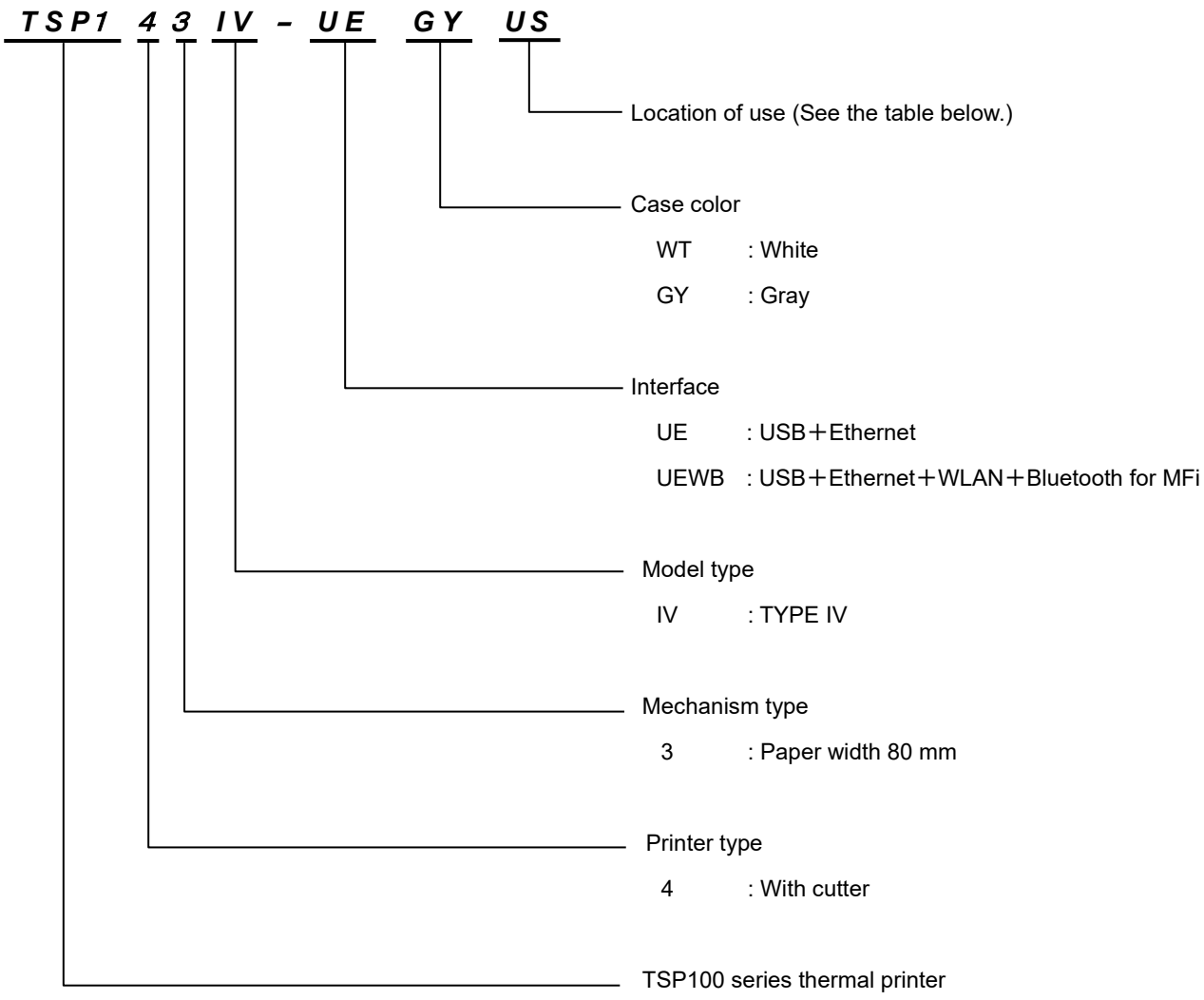
  However, when you want to charge your smartphone or tablet from the printer, use both the printer and device within the temperature range that satisfies the environmental specifications of the respective products.
- If you are using drivers provided by Star Micronics, limit the maximum number of LAN interface printers that are connected to a single host device to 10.
- When disposing of this product, be sure to follow local ordinances and regulations.
- When replacing paper, remove the paper core remaining in the paper roll holder.

Table of Contents

1. Product Overview

The TSP100IV series printers are direct line thermal printers with a clam-shell configuration.

1.1. Model name



<List of provided power cable types and wireless LAN channel settings by location of use>

TSP143IV-UE		TSP143IV-UEWB		
Location of use	Provided power cable (type)	Location of use	Provided power cable (type)	Wireless LAN channel setting
None	No cable provided	US	US cable	C01
US	US cable	E＋U	EU cable + UK cable	C02
E＋U	EU cable + UK cable	JP	JP cable	C03
EU	EU cable	AS	AS cable	C04
UK	UK cable	SAUS	US cable	C04
JP	JP cable	SAEU	EU cable	C04
CH	CH cable	SAUK	UK cable	C04
AS	AS cable			

- In this manual, the model names are abbreviated as follows:
  ・TSP143IV-UE → UE model
  ・TSP143IV-UEWB → UEWB model

  *Except for "10.4. Function comparison" and "10.5. Restrictions at the time of product replacement"

1.2. Product components (accessories and options)

[Accessories]

- Power cable (1.8 m)
- USB A-C cable (1.8 m)
- LAN cable (1.0 m) (UE model only)
- Paper roll guide
- Rubber feet (2)
- Safety guide
- Easy setup guide

<Note>
Accessories vary depending on the region where the printer was purchased.

[Options]

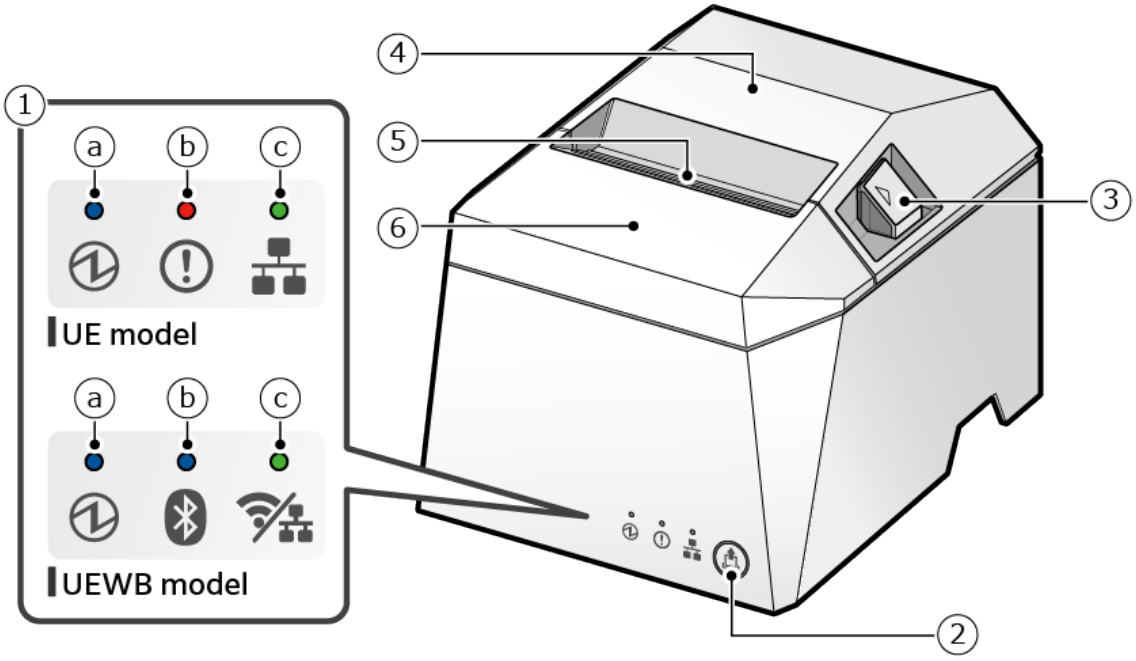
● Buzzer unit	Model	:BU01-24-A *1
	Connection	:External device drive connector
● Barcode reader	Model	:BCR-POP1
	Connection	:USB-A port
	Supported barcode	:1D
● Customer display	Model	:SCD222U
	Connection	:USB-A port
● Wireless LAN Unit	Model	: MCW10 (UE model only)
	Connection	: LAN port, USB-A port
● Melody speaker	Model	:MCS10 *2
	Connection	:External device drive connector

***1) No longer sold in Japan.**

***2) Supports the external device drive commands and melody speaker related commands. For details, refer to Command Specifications from the link below. https://www.star-m.jp/printersdks-wsw.html**

1.3. Part names and functions

[Front of main unit]



① LED

Indicates the printer status.

(a) [UE model] POWER LED (blue) : When the power is turned on, this LED lights up in blue.

[UEWB model] POWER/ERROR LED (blue/red) : Lights up blue when the power is turned on. Lights up red when an error occurs.

(b) [UE model] ERROR LED (red) : When an error occurs, this LED lights up in red.

[UEWB model] Bluetooth LED (blue) : Lights up blue according to the Bluetooth connection status.

(c) Network LED (green) : This LED lights up in green according to the network connection status.

For details, see "4. Operating Portion and Functions".

② FEED button

Press this button to feed paper. Also, use this button to perform Self-Printing.

For details, see "4. Operating Portion and Functions".

③ Opening lever

Push this lever to open the printer cover when setting the paper roll.

④ Printer cover

Open/close when setting the paper roll.

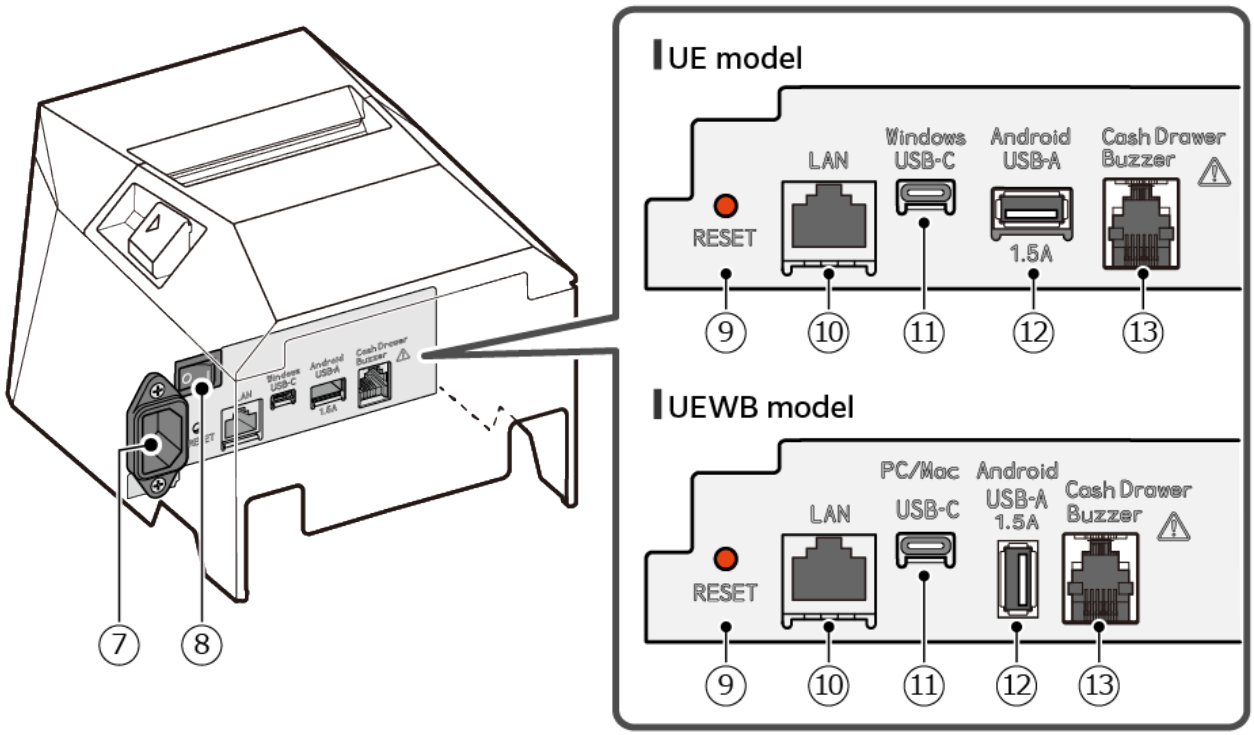
⑤ Paper exit

The printed paper is ejected from here.

⑥ Front cover

Remove this cover when resolving a cutter error.

[Back of main unit]



⑦ Power socket

Connect the power cable that comes with the main unit.

⑧ Power switch

Turns the power on/off.

⑨ Reset switch

Use this switch to initialize the network, wireless LAN, and Bluetooth settings of the main unit.

For details, refer to "4.2 RESET switch."

⑩ LAN port

Connect the LAN cable that comes with the main unit to connect to the network.

⑪ USB-C port

Connect the USB cable that comes with the main unit to connect a Windows, Linux, or Mac device.

⑫ USB-A port

Connect the USB cable that comes with the main unit to connect an Android device.

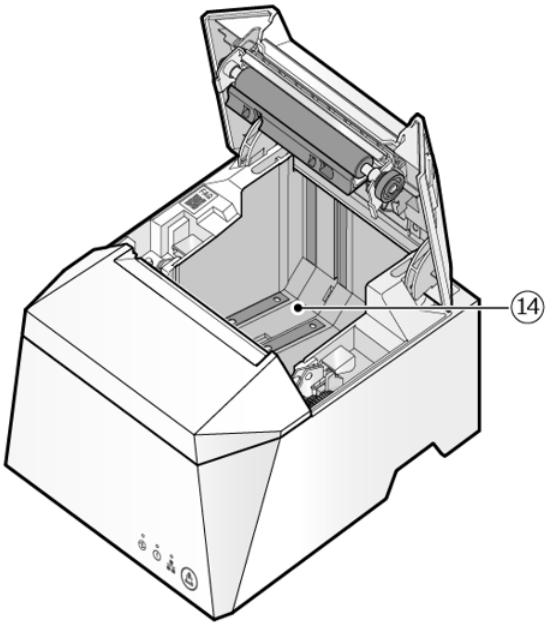
The USB-compatible products (Customer display: SCD222U, Barcode reader: BCR-POP1) specified by Star Micronics can also be connected for communication.

In addition, it can provide power to tablet terminals and other USB devices.

⑬ External device drive connector

Connect a melody speaker, buzzer, or cash drawer.

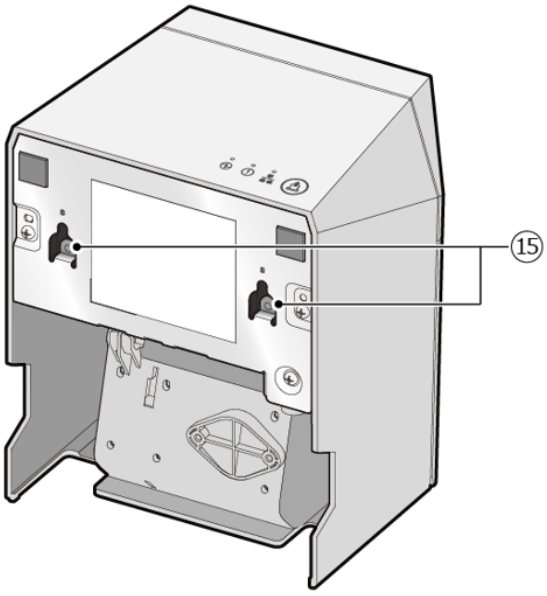
[Inside of main unit]



⑭ Paper roll holder

Set the paper roll.

[Bottom of main unit]



⑮ Wall mounting hole

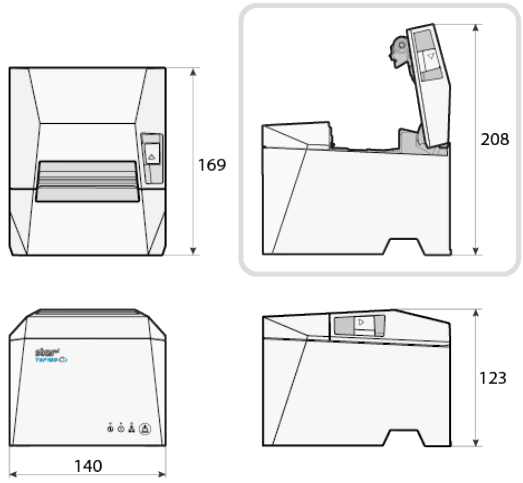
This is used when mounting the printer on the wall.

2. Product Specifications

2.1. General specifications

Item		Specifications	
Printing specifications*1	Printing method	Direct thermal printing	
	Dot configuration	576 dots/line	
	Print speed Standard mode	Printing width: 72 mm	Maximum 250 mm/sec
		Printing width: other than 72 mm	Maximum 220 mm/sec
	Resolution	8 dots/mm (203 dpi)	
	Printing width	Paper width: 79.5 ± 0.5 mm	72 mm (Left margin: 3.75 mm, Right margin: 3.75 mm)
		Paper width: 57.5 ± 0.5 mm	51 mm (Left margin: 2.75 mm, Right margin: 3.75 mm) 50.8 mm (Left margin: 2.75 mm, Right margin: 3.95 mm) 48 mm (Left margin: 4.75 mm, Right margin: 4.75 mm)
	Roll diameter	Maximum 83 mm	
	Top margin	11 mm	
	Minimum printing length	24 mm	
	Paper feeding	Friction feeding method	
Barcode*2	1D	UPC-A, UPC-E, JAN/EAN8, JAN/EAN13, ITF, CODE39, CODE93, CODE128, CODABAR (NW-7), GS1-128, GS1 Omnidirectional, GS1 Truncated, GS1 Limited, GS1 Expanded	
	2D	PDF417, GS1 Stacked, GS1 Stacked Omnidirectional, GS1 Expanded Stacked, QR Code	
	Composite	GS1 Composite Symbols	
Font*3	Specifications	Western character code	Code Page: Supported
		Chinese character code	Japanese: Supported Traditional Chinese (Big5): Supported Simplified Chinese (GB18030): Supported
		Unicode	UTF-8: Supported (specific font only)
	Type	ANK:Font-A	12 x 24 dot/1.50 x 3.00 mm IBM Block: 12 x 32 dot /1.50 x 4.00 mm
		ANK:Font-B	9 x 24 dot/1.125 x 3.00 mm IBM Block: 9 x 32 dot /1.125 x 4.00 mm
		Japanese characters: Alphanumerics, 96 characters	24 x 24 dot/3.00 x 3.00 mm
		Japanese characters: Extended graphics, 128 characters	
		Japanese characters: JIS level-1, 3489 characters	
		Japanese characters: JIS level-2, 3390 characters	

Item		Specifications	
Font*3	Type	Japanese characters: Special characters, 83 characters	
		Japanese characters: NEC selected IBM extended characters, 374 characters	
		Japanese characters: IBM extended characters, 388 characters	
		Japanese characters: Half-width kanji characters, 282 characters	12 x 24 dot/1.50 x 3.00 mm
		Chinese characters (GB18030 compliant): Alphanumerics, 96 characters	24 x 24 dot/3.00 x 3.00 mm
		Chinese characters (GB18030 compliant): Chinese characters, 28574 characters	
		Traditional Chinese BIG5(F): Alphanumerics, 96 characters	24 x 24 dot/3.00 x 3.00 mm
		Traditional Chinese BIG5(F): Taiwanese characters, 13877 characters	
Emulation		StarPRNT	
Interface		USB-A x 1 Standard: USB2.0 Full-speed Embedded Host, USB BC1.2 CDP, AOA Power supply specifications: USB BC1.2 CDP (up to 7.5 W)	
		USB-C x 1 Standard: USB2.0 Full-speed Device	
		Wired LAN (Ethernet) x 1 Standard: 10Base-T/100Base-TX (IEEE 802.3i/IEEE 802.3u)	
		Wireless LAN [UEWB model] Standard: 2.4 GHz: IEEE802.11b/g/n/ax, 5 GHz: IEEE802.11a/n/ac/ax Operating mode: Access point mode / Infrastructure mode	
		Bluetooth Classic [UEWB model] Standard: Bluetooth V5.0 Classic (BR/EDR), class 2, iAP2 supported	
		Bluetooth Low Energy [UEWB model] Standard: Bluetooth V5.3 * Used only for printer settings	
		DK-Port x 1 External device drive connector	

Item		Specifications	
Sensor	Head temperature	When the thermal head becomes hot, printing is temporarily stopped and the head temperature is controlled to decrease.	
	Board temperature	When the printed circuit board becomes hot, printing is temporarily stopped and the board temperature is controlled to decrease.	
	Paper out	Detects the end of paper.	
	Cover open	Detects whether the printer cover is open or closed.	
Sensor	Cutter home position	Detects the cutter home position.	
Auto cutter*4	Type	Guillotine type	
	Cutting method	Partial cut (Leave one uncut portion at the center. When the paper width is 79.5 mm, almost at the center. When the paper width is 57.5 mm, approx. 40 mm from the right edge.)	
	Cut duty	3 seconds/cut	
	Paper thickness	49 to 85 µm	
Printer orientation		Horizontal placement/Vertical placement (accessory rubber feet are used)/Wall mount (wall mount holes on the bottom of main unit are used.) Note) Tolerated range of printer orientation: Within ±5° in the horizontal direction	
External view	External dimensions	- When cover is closed 140 (W) x 169 (D) x 123 (H) mm - When cover is open 140 (W) x 169 (D) x 208 (H) mm	 (Reference figure)
	Weight	Approx. 1.3 kg (not including paper roll)	

[Notes about the general specifications]

Note*1) Printing specifications

<Print speed>

Print mode	Printing width: 72 mm	Printing width: other than 72 mm
High speed mode	Maximum 250 mm/sec	Maximum 220 mm/sec
Medium speed mode	Maximum 180 mm/sec	Maximum 180 mm/sec
Low speed mode	Maximum 100 mm/sec	Maximum 100 mm/sec

1) The above print speed values are based on the conditions that the power supply voltage is 24 V, the ambient temperature is 25°C, and the print density setting is the default.
2) The print speed will automatically change depending on conditions such as changes in the power supply voltage, atmospheric temperature of 25°C, print density, and print pattern.
3) The print speed may slow down depending on conditions such as the data transfer speed and print pattern.
4) The above print mode setting can be changed with the memory switch.

<Printing width>

1) The printing width setting can be changed with the memory switch.
2) When the printing width is set to be wider than the paper width, the life of the thermal head may become shorter than the specification.
3) 57.5 ± 0.5 mm is in the case when the included roll paper guide is used.

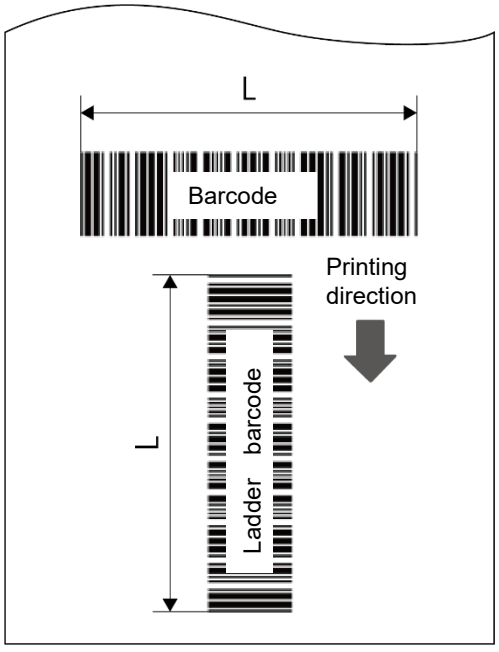
<Paper length>

When sending print data whose paper length to be cut is less than 24 mm, perform empty feed so that the paper length becomes 24 mm or more.

Note*2) Barcode

1) The barcode print quality largely depends on the color characteristics of the thermal paper, the environment (such as temperature and humidity) of the printer location, and the print density and print speed settings
   When you read the printed barcodes using a scanner or other type of device, we strongly recommend that you evaluate the data scanning quality beforehand.
2) If you cannot obtain the desired scanning quality, try to reduce the print speed, increase the size of the minimum module, or change the barcode length.
3) When using GS1 Composite Symbols, we recommend using the scanner to make size adjustments to improve readability and evaluating the quality of the scan in advance. Increasing the distance from the scanner in order to increase the scan area may make it difficult to acquire the desired scanning quality.

Barcode type		Barcode			Ladder barcode		
		Module size	Print speed	L	Module size	Print speed	L
1D		15 mil or more	No limitation	Approx. 72 mm or less	20 mil or more	Medium speed or less	Approx. 72 mm or less
2D	PDF, GS1	15 mil or more	Medium speed or less	Approx. 72 mm or less	15 mil or more	Medium speed or less	Approx. 72 mm or less
	QR	20 mil or more	Medium speed or less	Approx. 72 mm or less	20 mil or more	Medium speed or less	Approx. 72 mm or less
Composite		15 mil or more	Medium speed or less	Approx. 72 mm or less	15 mil or more	Medium speed or less	Approx. 72 mm or less



Barcode : Barcode in which the direction of the bars is arranged parallel to the printing direction

Ladder barcode : Barcode in which the direction of the bars is arranged vertically to the printing direction

L : Barcode length

Note*3) Font

<Japanese and Chinese characters>

1) Font settings can be changed with the memory switch settings or utility.
   For Japanese characters, the JIS level-1 kanji characters and the JIS level-2 kanji characters are compliant with JIS x0208-1990/1997.
   The level-1 and level-2 JIS 2004 sample character style and SHIFT-JIS code are supported.
2) The Chinese characters (GB18030 compliant) support 2-byte and 4-byte codes.

<UTF-8 support>

1) Chinese characters and Western characters inputs with UTF-8 code are supported.
2) Characters that can be printed with UTF-8 code are Western characters including the code page retained by the printer and the following Chinese characters.
   - Japanese characters
   - Chinese characters, GB18030 compliant 2-byte code
   - Traditional Chinese characters, BIG5
   - Hangul characters

   "･" is printed for characters that cannot be printed with the UTF-8 code.
3) For 4-byte code Chinese characters compliant with GB18030, UTF-8 is not supported. "□" mark is printed for the unsupported code.
4) The selection between the conventional character code and the UTF-8 code can be switched by a command or the memory switch setting.

Note*4) Auto cutter

1) When an error occurs, open the printer cover, remove the paper or other object that caused the error, and close the printer cover to restore.
   If the printer cannot be restored to normal or if the printer cover does not open, restart the printer.
2) Remove the paper after the cutting process is completed.
   Removing the paper while it is being cut will generate small pieces of paper that may cause a paper jam.
   Caution: The device may be damaged if the printer cover is opened during the middle of a cutting.

2.2. Paper specifications

(1) Type : Thermal roll paper

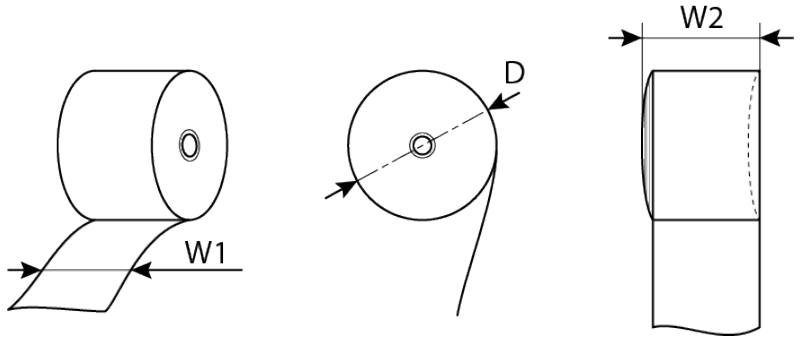
(2) Paper width (W1) : 79.5 ± 0.5 mm/57.5 ± 0.5 mm (when the included roll paper guide is used)

Note 1) Do not change the paper width while the printer is in use.

2) When paper with a width of 57.5 ± 0.5 mm is used, change the printing width with "MSW4: Printing width setting."

(3) External dimensions : Winding diameter (D) Maximum roll diameter φ83 (mm)

Width (roll dimension) 80 + 0.5, -1 (mm)/58 + 0.5, -1 (mm)



(4) Paper thickness : 49 to 85 µm

(5) Core inner diameter (mm)/outer diameter (mm) : Inner diameter Φ12 ± 1 mm/Outer diameter Φ18 ± 1 mm

(6) Printing face : Outer surface of the roll

(7) Recommended thermal paper

Manufacturer	Product name	Quality characteristics and use	Paper thickness (μm)
Mitsubishi Paper Mills Limited	P220AG	Normal type	65
	HP220A	Long-storage type	65
	HP220AB-1	Long-storage type	75
Nippon Paper Industries	TF50KS-E2D	Normal type	59
Oji Paper Company	PD150R	Normal type	75
	PD160R	Ultra-long-storage type	75
Domtar (Appvion)	Domtar POS 55S-2.3 (Alpha 400-2.3)	Normal type	58
	Domtar POS 48S-2.1 (Alpha 400-2.1)	Normal type	53
Koehler	KT48 FA	Normal type	53
	KT44 FA	Normal type	49
	Blue4est Lite	Non-chemical	55
Mitsubishi HiTec Paper	P5047(55)	Normal type	60

Note 1) After thorough evaluation of the paper type and the usage environment, change the print density as necessary.

2) Change the print density using the print density setting command, <ESC> <RS> 'd' n or "MSW2: Print density".

3) Adequate reading results of bar codes or characters may not be attained because of factors such as the scanner, paper type, or print density. Be sure to evaluate your scanner with the printer in advance.

4) Depending on the printing rate and paper type, pitch misalignment may occur at the start of printing.

5) Depending on the paper type and the usage environment, striped printing or wrinkles may occur.

6) Do not use glue to attach the roll paper to the core. In addition, the roll paper end should not be folded.

7) Blue4est Lite only has a paper width of 80mm.

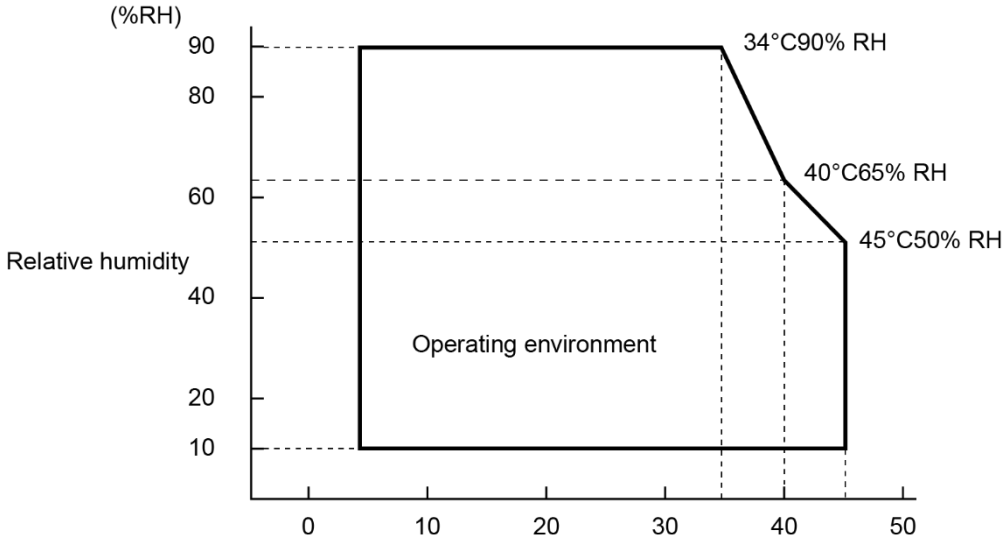
2.3. Environmental specifications

2.3.1. Operating environment

Temperature : 5°C to 45°C

Humidity : 10% RH to 90% RH (No condensation)

(Refer to the following figure, "Temperature and humidity range during operation.")



Operating temperature and humidity range

2.3.2. Storage environment (excluding roll paper)

Temperature : -20°C to 60°C

Humidity : 10% RH to 90% RH (No condensation)

Note) The worst combination of high temperature and humidity is 40°C and 90% RH (no condensation).

2.4. Power specifications

The device has a built-in AC/DC power supply unit.

(1) Power input

Voltage : 100 to 240 VAC ±10%

Current : 1.4 A

Frequency : 50/60 Hz

(2) Power consumption

[UE model]

- Power ON standby : Approx. 3.5 W (without external power supply)
  Approx. 13 W (when 1.5 A is supplied from USB-A)
- ASCII continuous printing : Approx. 43 W (without external power supply)
  Approx. 53 W (when 1.5 A is supplied from USB-A)

[UEWB model]

- Power ON standby : Approx. 4.2 W (without external power supply)
  Approx. 14 W (when 1.5 A is supplied from USB-A)
- ASCII continuous printing : Approx. 43 W (without external power supply)
  Approx. 55 W (when 1.5 A is supplied from USB-A)

2.5. Reliability specification

2.5.1. Life

(1) Life Mechanical : 20 million lines

<Note>

The cutter and thermal head are not included in the mechanism life.

(2) Thermal head service life : 100 km (100 million pulses)

*Printing conditions)

Average printing rate: 12.5%, head average resistance value change rate ±15% or less

Note 1) The life is calculated based on our own evaluation in normal temperature and humidity environments.

2) The end of the head's life is defined as the point when two or more adjacent dots are damaged.
However, this does not include scratches caused by external materials being affixed to the head or accidental damage caused by the user.

3) When printing is repeatedly performed at an extremely high printing rate, the life of the thermal head may decrease drastically. Therefore, you have to carefully plan the print formats that will be used.

4) The above values provide reliability specifications assuming that all printing operations use the recommended thermal paper. Reliability cannot be guaranteed if different paper is used.

5) Never change the paper width while the printer is in use.
If the paper width is changed, printing may not work properly.

(3) Cutter service life: 2 million cuts (79.5 mm width paper)/1 million cuts (57.5 mm width paper)

Note 1) The life is calculated based on our own evaluation in normal temperature and humidity environments.

2) Never change the paper width while the printer is in use.
If the paper width is changed, cutting may not work properly.

2.5.2. MCBF

60 million lines

MCBF is defined as the overall interval of failures including accidental failures from part wear out leading to the life of the mechanical parts which is 20 million lines. (* Mechanical life is 20 million lines and the MCBF 60 million lines do not represent durability life.)

2.5.3. MTBF

360,000 hours

MTBF is defined as overall interval of failures during the accidental failure period including the circuit system. (* MTBF is an indicator of reliability and does not guarantee 360,000 hours of operation.)

<Note>

The above values provide reliability specifications assuming that all printing operations use the recommended thermal paper. Reliability cannot be guaranteed if different paper is used.

2.5.4. Vibration and drop impact

(1) Vibration (when packaged)

- Vibration direction : XYZ
- Vibration frequency : 7Hz to 100Hz
- Sweep time : Logarithmic frequency sweep rate, 15 minutes for reciprocation
- Vibration acceleration : 1.5 G, constant
- Application time : 1 hour (Total of 3 hours)
- Packaging status : Minimum packaging
- Criterion : No destruction of the device or removal of parts occur.
  Cracking and deformation of packaging and cushioning material shall be acceptable.

(2) Drop impact (when packaged)

- Drop height : 65 cm
- Direction of drop : 1 angle, 3 corners, 6 surfaces
- Number of drops : One each time (Total of 10 drops)
- Packaging status : Minimum packaging
- Criterion : No destruction of the device or removal of parts occur.
  Cracking and deformation of packaging and cushioning material shall be acceptable.

(3) Drop impact (when not packaged)

- Drop height : 5 cm
- Direction of drop : 4 sides, side support
- Number of Drops : One for each direction
- Criterion : No destruction of the device or removal of parts occur.

2.5.5. Noise

- Measurement standard : JIS X 7779 (ISO 7779)
- During Operation : A-weighted sound pressure level is approx. 57 dB.

The above noise level is based on Star Micronics evaluation conditions that comply with JIS X7779.
The noise levels will vary depending on the paper that you use, the contents that you are printing, and the settings (print speed and print density) that you have made.

3. Communication specifications

3.1. Network interface

3.1.1. Wired LAN (Ethernet) interface

(1) Communication specifications : 10Base-T/100Base-TX

(2) Connector : RJ-45 (8P8C)

Use the accessory cable or Category 5 or higher cables.

(3) Setting Items

The wired LAN-specific settings are shown in the following table. The contents of the settings can be checked by self-print. For details about self-print, refer to "4.1.2. Test print mode (self-print mode)".

When changing the network setting, use Web Configuration or Star Quick Setup Utility.

Setting item	Input range	Initial value	Remark
IP Address	0.0.0.0 ~ 255.255.255.255	0.0.0.0	
Subnet Mask	0.0.0.0 ~ 255.255.255.255	0.0.0.0	
Default Gateway	0.0.0.0 ~ 255.255.255.255	0.0.0.0	
DHCP	ENABLE / DISABLE	ENABLE	

3.1.2. Wireless LAN interface

This section applies to wireless LAN-compatible models only.

For the compatible models, refer to the Interface field in "2.1 General specifications Interface."

3.1.2.1. Wireless LAN specifications

IEEE802.11a/b/g/n/ac/ax (2.4 GHz, 5 GHz)

1-stream (1T1R)

Operating frequency	: 2.4 GHz 2,412 to 2,472 MHz
	: 5 GHz 5,180 to 5,825 MHz
Channel width	: 20 MHz
Frequency interval	: 2.4 GHz 5 MHz
	: 5 GHz 20 MHz
Modulation type	: 11b DSSS (DBPSK, DQPSK, CCK)
	: 11a/g/n OFDM (BPSK, QPSK, 16QAM, 64QAM)
	: 11ac/ax OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Encryption	: RC4 128 bits
	: AES 128 bits
Country/region settings	: The table at the bottom of this section shows the details on the frequency bandwidth set to the channel and transmission power in compliance with the radio laws in each country or region for the location of use of each model name.
Standard for communicable distance (*1)	:30 m
Interference distance	: 40 m

(*1) This is the distance that has been tested for operation.

However, there must be no obstacles between the host device and printer and their surrounding areas that interfere with communication.

In addition, since the communication distance varies depending on the surrounding reception environment, obstacles, installation environment, etc., an evaluation should be thoroughly performed at the time of setup.

<Frequency bandwidth details>

Wireless LAN channel setting Location of use	Supported channels
C01 Location of use: US	[2.4 GHz] 1 to 11 ch [5 GHz] W52 (36,40,44,48 ch) (*1) W53 (52,56,60,64 ch) W56 (100,104,108,112,116,132,136,140 ch) W58 (149,153,157,161,165 ch) (*1) Outdoor use prohibited (Canada)
C02 Location of use: E+U	[2.4 GHz] 1 to 13 ch [5 GHz] W52 (36,40,44,48 ch) (*2) W53 (52,56,60,64 ch) (*2) W56 (100,104,108,112,116,120,124,128,132,136,140 ch) W58 (149,153,157,161,165 ch) (*2) Outdoor use prohibited (EU, UK)
C03 Location of use: JP	[2.4 GHz] 1 to 13 ch [5 GHz] W52 (36,40,44,48 ch) (*3) W53 (52,56,60,64 ch) (*3) W56 (100,104,108,112,116,120,124,128,132,136,140,144 ch) (*3) Outdoor use prohibited (Japan)
C04 Location of use: AS, SAxx	[2.4 GHz] 1 to 13 ch [5 GHz] W52 (36,40,44,48 ch) (*4) W53 (52,56,60,64 ch) (*5) W56 (100,104,108,112,116,132,136,140 ch) W58 (149,153,157,161,165 ch) (*4) Outdoor use prohibited (Australia, New Zealand) (*5) Outdoor use prohibited (Australia)

* Access point mode does not support W53 and W56 with 5 GHz.

3.1.2.2. Wireless LAN setting items

Available setting items vary depending on the wireless LAN communication mode as shown below.

・ Common setting items

Setting item	Input range	Default value	Remarks
Wireless LAN function	ENABLE	ENABLE	
	DISABLE		
Wireless communication mode	Access point Infrastructure	Access point	
Auto reset function	ENABLE	ENABLE	
	DISABLE		

・ Setting items for access point mode

Setting item	Input range	Default value	Remarks
SSID (*1)	1- to 32-byte character string	TSP100IV-XXXXXX (XXXXXX is the last 6 digits of MAC address)	
Security Type	NONE WPA WPA2 WPA3	WPA2	
Security Key (*2)	8- to 63-byte character string or 64-digit hexadecimal number	Product serial number	
Frequency	2.4 GHz 5 GHz	2.4 GHz	
Channel	Varies depending on the frequency or channel table settings	1	
IP address	192.168.10.1 (fixed)	192.168.10.1	
Subnet Mask	255.255.255.0 (fixed)	255.255.255.0	
Default Gateway	0.0.0.0 (fixed)	0.0.0.0	
DHCP	DISABLE (fixed)	DISABLE	

(*1) Multi-byte characters (katakana and kanji characters) cannot be used.

(*2) A character string or hexadecimal number is specifiable.

Example: The following is an example of specifying a 10-digit hexadecimal number. Available characters are numbers 0 to 9 and letters a to f. The entered characters are not case sensitive.

"537461724d"

・ Setting items for infrastructure mode

Setting item	Input range	Default value	Remarks
SSID (*1)	1- to 32-byte character string	-	
Security Type	NONE AUTO WPA WPA2 WPA3	-	
Security Key (*2)	8- to 63-byte character string or 64-digit hexadecimal number	-	
IP address	0.0.0.0 to 255.255.255.255	0.0.0.0	
Subnet Mask	0.0.0.0 to 255.255.255.255	0.0.0.0	
Default Gateway	0.0.0.0 to 255.255.255.255	0.0.0.0	
DHCP	ENABLE DISABLE	ENABLE	

(*1) Multi-byte characters (katakana and kanji characters) cannot be used.

(*2) A character string or hexadecimal number is specifiable.

Example: The following is an example of specifying a 10-digit hexadecimal number. Available characters are numbers 0 to 9 and letters a to f. The entered characters are not case sensitive.

"537461724d"

3.1.2.3. Wireless LAN easy setup

To use the wireless LAN function of this product, change the setting to enter infrastructure mode and connect to the access point.

The following two setting change methods, as mentioned in "8.2 Software" are available: Star Quick Setup Utility and Web Configuration, both of which are configurable through simple operations.

Access to Web Configuration is easy. Refer to "3.1.2.3.2 Connecting to the printer via wireless LAN by scanning the QR code" and "3.1.2.3.3 Automatic access to Web Configuration using Captive Portal."

3.1.2.3.1. Setting using Star Quick Setup Utility

To set up wireless LAN, select [For New Users (Initial Setup)] > [Use Wireless LAN] from Star Quick Setup Utility using a Bluetooth Low Energy-compatible smartphone or tablet.

3.1.2.3.2. Connecting to the printer via wireless LAN by scanning the QR code

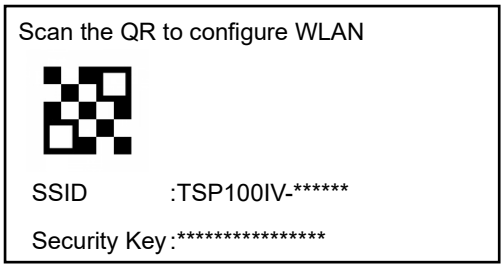
Wireless LAN connection to the printer is easily possible by scanning the QR code at startup in access point mode.

Scan the QR code for connection using the standard camera app or QR code reader app of the terminal.

The QR code for connection is printed under one of the following two conditions:

1) Self-printing
2) Automatic printing when all of the following apply 20 seconds after startup:
   - The wireless LAN function is not disabled.
   - The printer is running in access point mode.
   - No LAN cable is connected.
   - No device is connected to the USB-A port or USB-C port.
   - There is no Bluetooth pairing history.
   - Self-printing is not executed.

QR code printing sample



* SSID and Security Key are not printed in this position when self-printing is executed.

3.1.2.3.3. Automatic access to Web Configuration using Captive Portal

To make it easy to configure the network settings, this product has a function (Captive Portal function) to automatically access Web Configuration after a wireless LAN connection to the printer in access point mode is established.

* Automatic access to Web Configuration may not be possible depending on the terminal to use.

3.1.2.4. Wireless LAN communication mode

This product supports access point mode and infrastructure mode.

By default, the product starts in access point mode when the power is turned on (factory settings).

3.1.2.4.1. Access point mode

Since the settings of the product where wireless LAN has not been configured are changed via Web Configuration, the product serves as an access point.

The product functions as a DHCP server in access point mode with the following parameters.

DHCP Lease Time	24 hours	: Fixed
Starting address assigned by DHCP	192.168.10.2	: Fixed
Number assigned by DHCP	Max 8	: Fixed

3.1.2.4.2. Infrastructure mode

When you set the wireless LAN setting items via Web Configuration or using Star Quick Setup Utility, the settings are saved in the non-volatile memory. When the power is turned on in infrastructure mode the next time, the printer is automatically connected to the access point based on the saved settings.

3.1.2.5. Wireless LAN troubleshooting function

This product has a wireless connection diagnosis function to identify a problem and assist the action to take next in the event of trouble, such as the printer being unable to connect to wireless LAN.

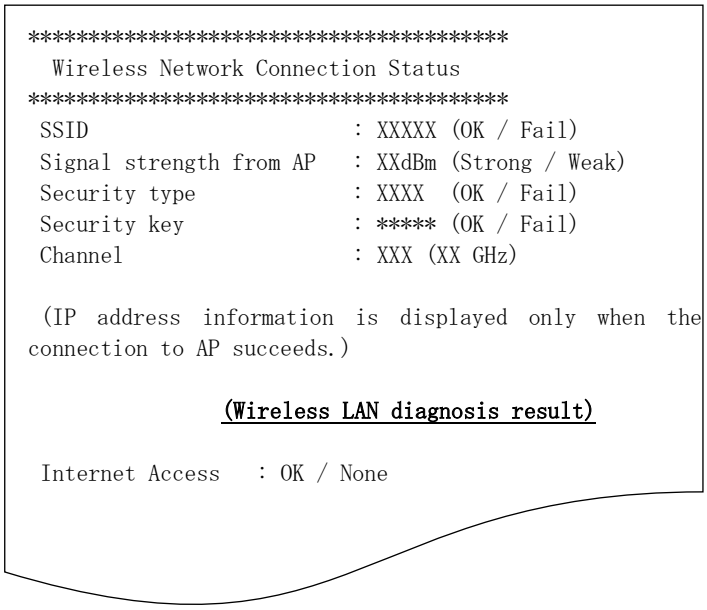
3.1.2.5.1. Troubleshooting using Star Quick Setup Utility

To perform a wireless LAN connection diagnosis, select [Verify Printer Operation] > [Troubleshoot Wireless LAN] from Star Quick Setup Utility iOS/Android, mentioned in "8.2 Software" using a Bluetooth Low Energy-compatible smartphone or tablet.

3.1.2.5.2. Wireless LAN connection diagnosis print function

This product has a function to diagnose whether a connection from the product to an access point has succeeded or failed.

The wireless LAN connection diagnosis result can be confirmed in the following self-print.



```
**************************************
  Wireless Network Connection Status
**************************************
 SSID                      : XXXXX (OK / Fail)
 Signal strength from AP   : XXdBm (Strong / Weak)
 Security type             : XXXX  (OK / Fail)
 Security key              : ***** (OK / Fail)
 Channel                   : XXX (XX GHz)

 (IP address information is displayed only when the
connection to AP succeeds.)

               (Wireless LAN diagnosis result)

 Internet Access   : OK / None
```

If "(Fail)" is listed for the SSID, security type, or security key, the connection failed because there is an error in that item. To correct it, refer to the wireless LAN diagnosis result field.

If the wireless LAN connection succeeds, Internet connection availability is determined and printed.

3.1.2.6. Auto reset function

If the product fails to connect to the access point, such as when you change the wireless LAN settings with the auto reset function set to ENABLE and enter a wrong SSID or Security Key, turning off and back on the power restores the wireless LAN settings from the time of factory shipment.

This function is set to ENABLE in the factory default settings.

3.1.3. Wired LAN (Ethernet) and wireless LAN interface common functions

3.1.3.1. Supported protocol

TCP/IPv4 is supported.

TCP/IP specifications

Layer	Protocol	Reception port	Application
Network layer	ARP, IP, ICMP		
	(ARP/Ping)		Temporary IP address setting
Transport layer	TCP, UDP		
Application layer	DHCP		Dynamic IP address setting
	LPD/LPR	515/TCP	Printing
	Raw Socket Print	9100/TCP	Retrieve print/printer status
	Reset with authorization	22222/TCP	Force reset
	SDP (Star Discovery Protocol)	22222/UDP	Search for printer on network
	TELNET	23/TCP	Network settings
	HTTP	80/TCP	Network settings Star CloudPRNT
	HTTPS	443/TCP	Star Micronics Cloud Services*1 Star CloudPRNT
	MQTT	1883/TCP	Star CloudPRNT*2
	MQTTS	8883/TCP	Star CloudPRNT*2
	AMQPS	5671/TCP	Star Micronics Cloud Services*1

*1 Communication with Star Micronics Cloud Services will start when power is turned ON, the status is changed and a certain time duration has passed.

*2 Supported with F/W Ver. 2.2 or later

3.1.3.2. Setting items

Setting item	Input range	Default value	Remarks
DHCP Timeout	ENABLE / DISABLE	ENABLE	
DNS 1	0.0.0.0 to 255.255.255.254	8.8.8.8	
DNS 2	0.0.0.0 to 255.255.255.254	8.8.4.4	
"user" Login Password	・1 to 31 ASCII characters ・ASCII character ・Distinction between upper case and lower case characters	"guest"	Camouflaged with "********" when changed from the initial value.
"root" Login Password	・1 to 31 ASCII characters ・ASCII character ・Distinction between upper case and lower case characters	"public"	Always camouflaged with "********."
Web Refresh Time (Sec.)	1 to 300	5	
9100 Multi Session	ENABLE / DISABLE	DISABLE	
9100 Data Timeout (Sec.)	0, 30, 40, 60, 120, 180, 360	0	
Disconnect Message	ENABLE / DISABLE	DISABLE	
TCP#9100	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 1.1 or later. Fixed to ENABLE with F/W Ver. 1.0.
TCP#9101	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 1.1 or later. Fixed to ENABLE with F/W Ver. 1.0.
LPR	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 1.1 or later. Fixed to ENABLE with F/W Ver. 1.0.
UDP#22222	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 1.1 or later. Fixed to ENABLE with F/W Ver. 1.0.
Telnet	ENABLE / DISABLE	DISABLE	Supported with F/W Ver. 1.1 or later. Fixed to ENABLE with F/W Ver. 1.0.
TCP#80	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 2.2 or later. Fixed to ENABLE with F/W Ver. 2.1 or earlier.
TCP#443	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 2.2 or later. Fixed to ENABLE with F/W Ver. 2.1 or earlier.
TCP#22222	ENABLE / DISABLE	ENABLE	Supported with F/W Ver. 2.2 or later. Fixed to ENABLE with F/W Ver. 2.1 or earlier.
Certificate	Self-Signed/CA Signed	Self-Signed	
Create Self-Signed Certificate		Not exist	
Import CA-Signed Certificate		Not exist	
Star CloudPRNT Cloud Service	ENABLE / DISABLE	DISABLE	
Star CloudPRNT	・1 to 511 ASCII characters	Blank	

Setting item	Input range	Default value	Remarks
Service URL			
Star CloudPRNT Polling time (Sec.)	・1 to 7200 seconds	5	
Star CloudPRNT UserName	・1 to 63 ASCII characters	Blank	
Star CloudPRNT Password	・1 to 63 ASCII characters	Blank	
Star CloudPRNT TLS trust level	Use trusted CA-Certificate list / Use custom CA-Certificate / Accept all	Use trusted CA-Certificate list	
Star CloudPRNT NTP Server	Use Star NTP service Use custom NTP server	Use Star NTP service	0.pool.ntp.org
Star CloudPRNT TLS1.2 Cipher Suites Encryption Level	HIGH + MEDIUM / MEDIUM	HIGH + MEDIUM	
Star CloudPRNT TLS1.3	ENABLE / DISABLE	ENABLE	
Star CloudPRNT HTTP Response Timeout (Sec.)	10, 20, 30, 40, 50, 60 s	60	Supported with F/W Ver. 2.2 or later. Fixed to 60 s with F/W Ver. 2.1 or earlier.

3.1.3.3. LPD/LPR

The LPR protocol supported by the LPD of this product complies with RFC1179 (partially not supported), and the list of logical printer names is treated as a queue name. LPR is an abbreviation for Line Printer Daemon protocol, which was originally defined as a UNIX printing system and is now supported as standard on Windows (NT and later). "LPR" may be used as the executable file name of the LPR printing utility software.
A print server (daemon) that supports LPR is called LPD (Line Printer Daemon). LPD uses TCP communication port 515.

- The receive buffer for print data is 64 KB (shared with Raw Socket Print).
- Banner printing is not supported.
- When specifying the queue name in the port setting on the host device side, specify "lp."
  If you can choose to enable or disable the addition LPR byte counter, enable it.

3.1.3.4. Raw Socket Print

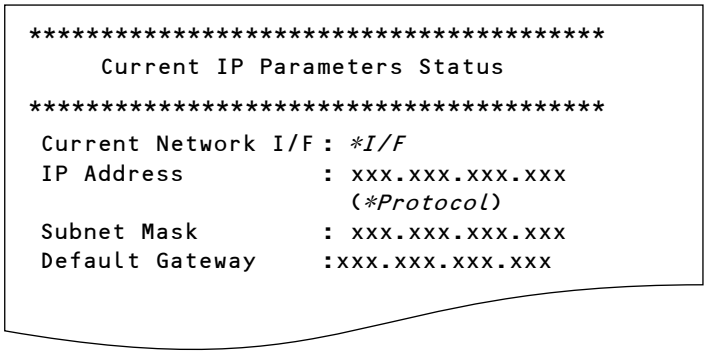
This product supports Raw Socket Print communication for printing under a TCP/IP environment.
Raw Socket Print determines that all data communicated during a TCP session is data handled between the printer and the host device, and therefore performs bidirectional data distribution.
TCP communication port specification is as following.

Item	Specifications	Remark
Communication port number	TCP #9100	
Number of simultaneous connection sessions	1 or 8	- Factory setting is 1
Data reception timeout	0 (disabled)/30 sec./40 sec./60 sec./120 sec./180 sec./300 sec.	- Factory setting is 0 (disabled) - The connection is forcibly disconnected when timeout occurs.

3.1.3.5. IP address setting specifications

3.1.3.5.1. General description

The IP address of the printer is determined by the "fixed address (Static)" or "dynamic acquisition from the network with DHCP and ARP/Ping." The fixed address (static) is not registered and the DHCP is enabled as factory defaults. ARP/Ping is enabled when an address cannot be obtained for Static or DHCP.
The acquired IP address information can be confirmed in the test print (self-print) display below.



* *I/F*	:	Prints the I/F (one of the following) currently connected to the network.
LAN	:	Currently connected to the network via wired LAN.
WLAN	:	Currently connected to the network via wireless LAN.

* *Protocol*	:	The following address acquisition protocols are displayed in the parentheses for the IP address field.
(Static)	:	Static (fixed address)
(DHCP)	:	Retrieved from the DHCP server
(Ping ARP)	:	Retrieved using ARP/Ping
(Didn't obtain)	:	Unable to retrieve the IP address

3.1.3.5.2. Fixed address (Static)

If the static IP address, subnet mask, and default gateway are registered, the printer always starts in a fixed condition when the power is turned on. DHCP and ARP/Ping are disabled.
Since the fixed address is not registered in the factory settings, the registration for a fixed address using TELNET or HTTP (Web Configuration) should be done after a dynamic address is obtained with DHCP or ARP/Ping. (See "3.1.3.7. TELNET server" and "3.1.3.6 Web Configuration.")

3.1.3.5.3. DHCP

If the DHCP (Dynamic Host Configuration Protocol) is enabled, the IP address, subnet mask, and default gateway are obtained from the network. When obtaining the address information in DHCP, ARP/Ping is disabled. Make sure that a DHCP server is installed in the LAN.
DHCP is enabled in the factory settings. To return the setting from fixed address to DHCP, initialize the network settings or change them using TELNET or HTTP (Web Configuration).
(See "3.1.3.7. TELNET server" and "3.1.3.6 Web Configuration.")

- The DHCP Request differs according to the DHCP Timeout setting. (See "4.1.4. Special function setting mode.")
  DHCP Timeout = ON: A DHCP Request is generated three times within 20 seconds of starting TCP/IP.
  DHCP Timeout = OFF: DHCP Requests are generated continuously until address information is acquired.
- The address obtained using DHCP is erased when the power is turned OFF.

3.1.3.5.4. ARP/Ping

By registering the combination of the printer's IP address and MAC address in the ARP (Address Resolution Protocol) table on the host device and transmitting a ping, a temporary IP address can be set by ARP/Ping.
The temporary IP address set by the ARP/Ping is accepted when no fixed IP address is specified and no IP address is obtained by DHCP. Address acquisition by ARP/Ping is only once.

- Subnet mask and default gateway cannot be specified by ARP/Ping.
- The address obtained using ARP/Ping is erased when the power is turned OFF.
  For execution examples, see "10.1. ARP/Ping execution example."

3.1.3.6. Web Configuration

This product is equipped with an HTTP (Hyper Text Transfer Protocol) server which allows you to change network settings, display network information, monitor the printer status, etc. by accessing a web browser.
The HTTP server uses TCP/UDP communication port 80.

- The HTTP version is HTTP 1.1.
- The maximum number of simultaneous connection devices is 2.
  If more than 2 devices need to access the site, connect (reload) 5 seconds after the page loading of the previous 2 devices is completed.
- Enable Java Script in the web browser settings.
- Checking user home page [Login unnecessary]: http://IP Address/index.htm
  (Example) http://192.168.10.1/index.htm
- Administrator's home page [Login necessary]: http://IP Address/html/main.htm
  (Example) http://192.168.10.1/html/main.htm
- Checking and changing network settings and password [Login necessary]
  By specifying to execute the print settings when writing the settings, you can verify whether the settings were correctly written to the non-volatile memory. In addition, if the writing is successful, a printer reset is automatically performed.
- Displaying network information [Login unnecessary]
- Displaying printer information [Login unnecessary]
  The printer status display is updated automatically at the set refresh time.
- The HTTP server is only enabled when "TCP#80：Enable."

The following accounts (username and password) can be accessed from a web browser.
Items that can be checked and set differ depending on the account.

Account	Username	Password	Target
User	Login unnecessary		General user (Information display only)
Root user	"root"	"public" ASCII characters between 1 to 31 characters (changeable)	System administrator (Information display and writing)

The following web browser versions have been checked and are supported.

- Windows 11: Chrome 130, Microsoft Edge 130
- macOS 15.0.1 Sequoia: Safari
- iOS 17.7: Safari
- Android 14: Chrome 130

For supported cipher suites when HTTPS is used, see "10.3.1. Web Configuration."

3.1.3.7. TELNET server

3.1.3.7.1. TELNET server specifications

The TELNET (TELecommunication NETwork) of this product allows you to change network settings such as IP parameters or passwords in an interactive menu format, or display network information or the printer status. The username of each login account, password, and access privileges are as shown in the following chart.

Account	Username (fixed)	Password	Target
User	"user"	"guest" (factory setting) ASCII characters between 1 to 31 characters	General user (Read privilege)
Root	"root"	"public" (factory setting) ASCII characters between 1 to 31 characters	System administrator (Reading and writing)

- By specifying to execute the print settings when writing the settings, you can verify whether the settings were correctly written to the non-volatile memory. In addition, if the writing is successful, a printer reset is automatically performed.
- Possible to be executed with a host device with a dedicated software (Windows) or by entering commands in an interactive menu format with the terminal software.

3.1.3.7.2. IP address setting

The input range for a fixed address and DHCP is shown in the following table.

Category	Setting item	Input range	Initial value (Factory setting)
Static address (Static)	IP Address	0.0.0.0 ~ 255.255.255.255	0.0.0.0
	Subnet Mask	0.0.0.0 ~ 255.255.255.255	0.0.0.0
	Default Gateway	0.0.0.0 ~ 255.255.255.255	0.0.0.0
Dynamic address	DHCP	ENABLE / DISABLE	ENABLE

Note: If you set a fixed address, "DHCP: DISABLE" is automatically set.
If you set "DHCP: ENABLE," the fixed address field will automatically become 0.0.0.0.

3.1.3.7.3. Password setting

The password input range is shown in the following table.

Setting item	Input range	Initial value (factory setting)
"user" Login Password (*1)	- 1 to 31 characters - ASCII characters (case sensitive)	"guest"
"root" Login Password	- 1 to 31 characters - ASCII characters (case sensitive)	"public"

*1) The "user" Login Password will be displayed if it is the default value ("guest"), but if it is changed from the default, it will be hidden by asterisks (********).

3.1.3.7.4. Raw Socket Print setting

The input range of the maximum number of connection sessions of Raw Socket Print is shown in the table below.

Setting item	Input range	Initial value (factory setting)
9100 Multi Session	ENABLE / DISABLE	DISABLE

3.1.3.7.5. Disconnect warning print setting

The password input range is shown in the following table.

Setting item	Input range	Initial value (factory setting)
Disconnect Message	ENABLE / DISABLE	DISABLE

3.1.3.7.6. Status display, etc.

Status display is possible for the following items.

(1) Display firmware version

Displays the version number of the main program and boot program.

(2) Display current IP parameters/status

Displays IP parameters in operation.

The protocol used to retrieve the address is displayed inside the parenthesis of the IP address.

(3) Display printer device ID

Displays the device ID of the printer. The format conforms to IEEE1284.

(4) Display printer status

Displays the printer status in hexadecimal dump format.

3.1.3.8. Print disconnects warning

If any of the following network errors are detected, the printer will automatically print a warning.

(1) Link down [Physically disconnected]

See "4.3. LED indications and errors."

A warning is printed when a link-down state [physically disconnected] has continued for 4 seconds.

(2) Link down [IP address not obtained]

See "4.3. LED indications and errors."

A warning is printed when a link-down state [IP address not obtained] has been detected.

However, if DHCP is enabled, when the printer is waiting for an IP address (state is not a time-out) the warning printing is not performed.

This function can be enabled/disabled by TELNET or HTTP (Web Configuration).

This is disabled in the factory setting.

(See "3.1.3.7. TELNET server" and "3.1.3.6 Web Configuration.")

In addition, the setting status can be confirmed with test print (self-print).

Print sample

3.1.3.9. SSL/TLS communication

[General description]

This printer supports encrypted communication with HTTPS and AMQPS using SSL (Socket Security Layer) or TLS (Transport Layer Security).

3.1.3.9.1. Specifications for server

The services in which the printer operates as an SSL/TLS server are the following.

- Web Configuration

[Specifications]

<Communication specifications>

SSL/TLS version	:	TLS1.2 (SSL3.3)
Application protocol	:	HTTPS (Server authentication) (*1)
TCP communication port number	:	443
Certificate	:	Self-signed certificate or CA-signed certificate
Encryption algorithm	:	AES 128/256, RC4, 3DES
Hash algorithm	:	SHA-256, SHA-1, MD5

(*1) For supported cipher suites, see "10.3.1. Web Configuration."

Regarding the certificate required to authenticate with the client device, register either a self-signed certificate or a CA-signed certificate.
You can check the basic settings (certificate selection and whether it is necessary or unnecessary to register a certificate) by self-print.
SSL/TLS communication is enabled when "TCP#443: Enable" and one of the above certificates is registered.

3.1.3.9.1.1. Self-signed certificate

You can create and sign a server certificate on the web settings screen of the printer.

The input items on the "Self-Signed Certificate" screen of the web settings are shown in the following table.

Input items when creating a certificate

Variable name	Max length of string	*[Example]*	Default value
Country Name (2 letter code)	2	*JP*	(Blank)
State or Province Name	128	*Shizuoka city*	(Blank)
Locally Name (e.g. city)	128	*Shimizu-ku, Nanatshushinya*	(Blank)
Organization Name (e.g. company)	128	*Star Micronics Co., ltd.*	(Blank)
Organization Unit Name (e.g. section)	128	*Software Section*	(Blank)
Domain (IP Address)	128	*192.168.1.175*	(Blank)
Expiration Date (e.g. YYYY/MM/DD)	2018.01.01 ~ 2049.12.31	*2020/12/31*	(Blank)

- To register a certificate in the web browser, click [Create Self-Signed Certificate] and then click [Download].
- Once the certificate has been registered, it cannot be deleted by network setting initialization.
  You can delete a certificate file by clicking [Delete] after clicking [Create Self-Signed Certificate].
- Enter the expiration date of the certificate in the "Expiration Date" field.
  You can specify an expiration date up to "2064.12.31." However, the web browser will misinterpret the expiration date as 1950 or later and cause an error when specifying a date from 2050 or later.
  Consequently the maximum date is fixed at "2049.12.31."
  The start date of the validity period is fixed at "2018.01.01." and the time is fixed at 00:00:00 (GMT) for both the start date and the end date.
- The minimum required items for creating a certificate are "Domain" and "Expiration," but we recommend you input information for all items.
- For "Domain," input the printer's IP address. Based on the input value, items for Subject Alt Name (SAN) are also generated.
  For example procedure for creating and signing a self-signed certificate, see "10.2. Example procedures for registration of SSL/TLS certificates" in Appendix.

3.1.3.9.1.2. CA-signed certificate

A server certificate and private key signed by a CA (Certification Authority) created externally can be imported into the printer and used.

<Server certificate specification>

- Encode type: Base64 (file extension = PEM)
- Types of the certification file: PKCS #1
- Key length: RSA 2048 bits or 1024 bits
- The CA (Certificate Authority) above is required to be registered as a "Trusted Root Certification Authorities" in the web browser.
- To delete the certificate registered to the NIC, click [Delete] after selecting [Import CA-Signed Certificate]. However, the [Delete] button is disabled unless a CA-signed certificate and a CA-signed private key are registered.
- Once the certificate has been registered, it cannot be deleted by network setting initialization. To delete the certificate file, click [Import CA-Signed Certificate] and then click [Delete] on the SSL/TLS settings screen. An example procedure for importing a CA-signed certificate to NIC is indicated in "10.2. Example procedures for registration of SSL/TLS certificates" in Appendix.

3.1.3.9.2. Specifications for client

The services in which the printer operates as an SSL/TLS client are the following.

- Star CloudPRNT
- Star Micronics Cloud Service

[Specifications]

<Communication specifications>

SSL/TLS version	:	TLS1.2 (SSL3.3), TLS1.3
Application protocol	:	HTTPS, AMQPS, MQTTS (*1, *2)
TCP communication port number	:	443, 5671, 8883
Certificate	:	Preinstalled CA certificate or custom CA certificate
Encryption algorithm	:	AES 128/256 (GCM, CBC), ChaCha20 (Poly1305), RC4, 3DES
Hash algorithm	:	SHA-384, SHA-256, SHA-1, MD5

(*1) For supported cipher suites, see "10.3.2. Star CloudPRNT."

(*2) MQTTS is supported from FW Ver2.2 or later.

Convenient function

3.1.3.10. Star Micronics Cloud Service

If you connect the printer to Star Micronics Cloud Services, helpful cloud services for operating your store are available for free.

<Services for stores>

Device Monitor	:	You can check the printer status and the number of receipts in the graph.
Digital Journal	:	You can check the digitized receipt data in the cloud at any time.
PromoPRNT	:	You can configure the setting for issuing paper coupons and manage the schedule in the cloud.

<Services for developers>

Device Manager API	: The printer status and receipt printing data can be acquired by webAPI. Printer settings can also be remotely configured using webAPI.
Star Quick Setup Utility Customizer	: The Star Quick Setup Utility display items can be customized.
Star Document Markup Designer	: Star Document Markup-based printing data can be created via GUI.

A wide range of other services will be also available. For details, please access the following website.
Star Micronics Cloud Services (www.starmicronicscloud.com)

3.1.3.11. Star CloudPRNT function

[General description]

Star CloudPRNT is a protocol that enables printing to a printer and peripheral device control from a back-end service on a remote server. Two types of communication protocols are available: Version HTTP and Version MQTT.

For details of the server-side specifications, refer to "Star CloudPRNT Protocol Guide."

Version MQTT is supported from FW Ver2.2 or later.

＜CloudPRNT communication protocol Version HTTP＞

Version HTTP enables print control (printing, etc.) by polling via a network between a remote server (*) and this product.

The response to the polling of printer information (status, printer identifier, etc.) from this product to the remote server notifies the product that data has been prepared on the remote server. In this case, it is possible for this product to acquire the print data from the remote server and print the data.

＜CloudPRNT communication protocol Version MQTT＞

By using the MQTT protocol in addition to the HTTP protocol for communication between any remote server (*) and the device, communication latency can be reduced, enabling faster printer control.

Version MQTT provides the following two methods:

- Trigger POST
- Full MQTT/Pass URL

Note) Communication with the product must be installed on the remote server based on the Star CloudPRNT specifications.

[Specifications]

<Communication specifications>

TCP/IP version	:	TCP/IP v4
Communication protocol	:	HTTP/HTTPS (Version HTTP), HTTP/HTTPS/MQTT/MQTTS(Version MQTT)
Communication data format	:	Compatible with REST/JSON format
Communication session start	:	Started from the product side. Version MQTT issues a request to get server setting information retrieval request (GET) when the printer starts, and determines the operating protocol based on the GET response. [When not printing (*)] -Version HTTP/Trigger POST Printer information is sent to the server by POST request. -Full MQTT/Pass URL Printer information is sent to the server by MQTT Publish.

[When printing (*)]

-Version HTTP/Trigger POST/Pass URL

Print data is acquired from the server by GET request.

-Full MQTT

Print data is acquired from the server by MQTT Subscribe.

Communication session end : Ended from the server side.

[When not printing (*)] When there is data on the server, print job notification, non-printing control commands, and other information is sent to the printer.

[When printing] The print data on the server is sent to the printer.

Note) Control other than status notification and printing.

In Version HTTP, this communication session performs continual polling at the specified polling cycle.

<Remarks>

The CloudPRNT protocol uses the MAC address of the wired LAN port of the printer even when the printer is connected via wireless LAN.

This allows the server to recognize and manage the printer as the same one whichever LAN—wired or wireless—is used by the printer.

<Request/response specifications between server and printer>

For details of the process flow between server and printer, HTTP request/response specifications, MQTT topic/message specifications, refer to "Star CloudPRNT Protocol Guide."

- Version HTTP process flow

https://star-m.jp/products/s_print/sdk/StarCloudPRNT/manual/en/protocol-guide.html#uklink02

- Trigger POST process flow

https://star-m.jp/products/s_print/sdk/StarCloudPRNT/manual/en/protocol-guide.html#uklink04

- Full MQTT/Pass URL process flow

https://star-m.jp/products/s_print/sdk/StarCloudPRNT/manual/en/protocol-guide.html#uklink05

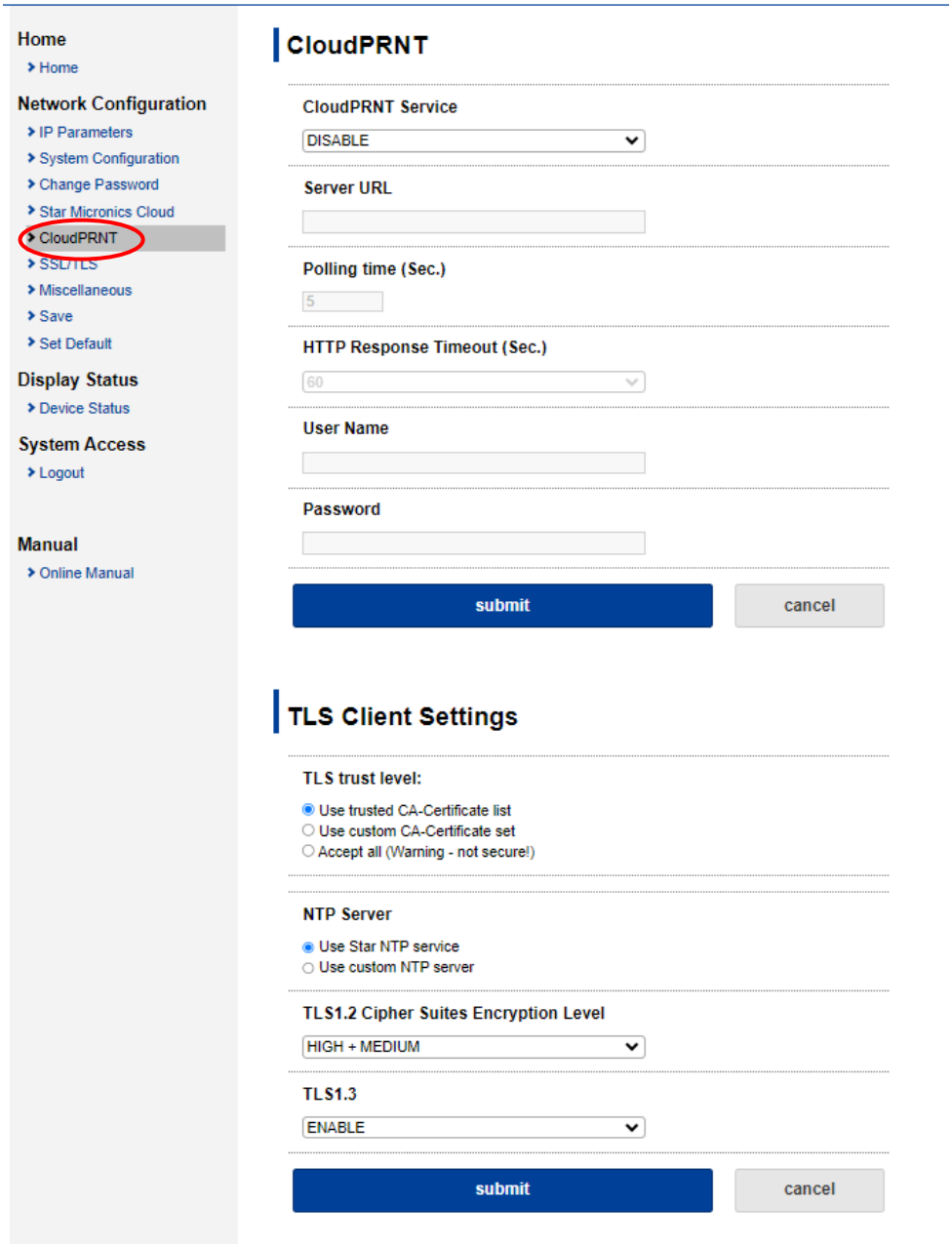
- Version HTTP Request/Response specifications

https://star-m.jp/products/s_print/sdk/StarCloudPRNT/manual/en/protocol-reference/http-method-reference/index.html

- Version MQTT Topic/Message specifications

https://star-m.jp/products/s_print/sdk/StarCloudPRNT/manual/en/protocol-reference/mqtt-method-reference/index.html

<Web Configuration UI setting specifications>



- Items set from the CloudPRNT menu in the Web Configuration UI of this product.
  - CloudPRNT Service: Set whether the service is enabled or disabled. Factory default setting = Disabled
  - Server URL: Enter the server URL such as "http://...."
    Version MQTT executes a server setting information retrieval request (GET) based on this URL to determine the operating protocol.
  - Polling time: Enter the polling interval (seconds). Factory default setting = 5 sec
    If the printer runs on CloudPRNT Version MQTT, this setting is not used.
  - HTTP Response Timeout : Timeout time (in seconds) when there is no response from the server, such as when polling or retrieving the print data. One of the following values: 10, 20, 30, 40, 50, 60 enable to set. Factory default setting = 60 sec
  - User Name/Password : When necessary, register cloud server security information. (option)

- TLS trust level : Set the certificate (PEM format) according to the server-side specifications when conducting secure communication with the server.
  When "Use custom CA-certificate set" is selected, trusted CA-certificate list is also used for server authentication (F/W Ver2.2 or later).
- NTP Server: Set the NTP server used for time information inquiries. The StarNTP service (0.pool.ntp.org) is selected as the factory default setting. As necessary, enter the URL of the user's own NTP server.
- TLS1.2 Cipher Suites Encryption Level :
  Set the encryption level of TLS 1.2 cipher suite. For details, see "10.3.2. Star CloudPRNT." Factory default setting = HIGH + MEDIUM.
- TLS1.3 : Set whether TLS1.3 is enabled or disabled. For cipher suites supported when TLS1.3 is enabled, see "10.3.2. Star CloudPRNT."
  Factory default setting = Enabled

For details of the server-side specifications, refer to the separate Developer Guide.

3.2. USB interface

3.2.1. USB-C port

(1) Communication standard: USB2.0 Full-speed Device
(2) Device class : Printer Class
(3) Connector : USB-C

To connect a device, use the USB cable that was provided with the printer or a USB-certified cable.
In addition, be sure to fully verify operation with the actual device before beginning actual use.

3.2.2. USB-A port

(1) Standard : USB2.0 Full-speed Embedded Host, USB BC1.2 CDP, AOA
(2) Supplied power : 5 V @1.5 A (max)
(3) Connector : USB-A

The operation of this port changes according to the connected device.
See below for supported devices and operations.

A device that performs communication as a USB host and supplies power of 5 V/0.5 A

- Customer display (SCD222U)
- Barcode reader (BCR-POP1)
- HID device (Keyboard interface)
- USB memory device

A device that performs communication as a USB host and supplies power of 5 V/1.5 A

- Android devices (AOA compatible devices with OS version 9 or later)

A device that only supplies power of 5 V/1.5 A (communication as a USB host not possible)

- Devices conforming to USB BC1.2 CDP (some Android devices, iOS devices, etc.)

USB devices other than the above cannot perform communication but supply power of 5 V/0.5 A.

Note 1) When communication cannot be established with the connected device, the fact is displayed with LED. See "4.3. LED indications and errors."

2) When connecting an Android device to the USB-A port for the purpose of communication, start the Android device, connect the device to the printer using the USB cable, and then turn ON the printer.
In addition, confirm that the version of Android OS is 9 or later.
Use a USB-certified cable for connection with a device.
However, even if the conditions are met, operation is not guaranteed.
Be sure to fully verify operation with the actual device before beginning actual use.

3.2.3. Commercially available devices that can be used

The following are commercially available USB devices that has been tested and can be connected to the USB-A port.

- Barcode reader
  Handling models of Star Micronics distributors :BSH-20U、BSH-20B、BSD-40U、BSH-32U、BSH-32B

  <Note>
  1) Contact distributors for available models for purchase.

- HID device
  Target device : HID devices with USB keyboard interface

  <Note>
  The operation of all commercially available HID devices is not guaranteed. Be sure to fully verify operation with the actual device before beginning actual use.

- USB memory device
  <Specifications of USB memory devices that can be connected>

File system	: FAT12/16/32
Device class	: Mass Storage
Device sub-class	: SCSI transparent command set
Device protocol	: Bulk-Only Transport

  <Application>
  Execute F/W rewrite by storing the Star Configuration File and printer F/W data in the USB memory device.

  <Note>
  1) Even when the USB memory device satisfies the above specifications, it may not be possible to use the device when an extension cable is used, or for other reason such as compatibility with the printer USB host. In such a case, use another USB memory device.
  2) For details about the Star Configuration Format and the F/W rewrite procedure, refer to the download site in "6. Firmware update."

3.3. Bluetooth interface

This section applies to Bluetooth-compatible models only.
For the compatible models, refer to the Interface field in "2.1 General specifications."

3.3.1. Wireless communication unit

Bluetooth Classic specifications	:	Bluetooth V5.0 (BR/EDR-supported), class 2
Frequency bandwidth	:	2,402 MHz to 2,480 MHz
Frequency interval	:	2 MHz (ch. 0 to ch. 39)
Supported profile	:	SPP
Security	:	SSP
iOS accessory protocol	:	iAP2
Communicable distance (*2)	:	5 m
Interference distance	:	10 to 20 m

(*1) If the Bluetooth module of the device being used is V2.0 or earlier, a PIN Code is required to connect via Bluetooth to this product. The PIN Code for this is "1234."

(*2) This is the distance that has been tested for operation.
However, there must be no obstacles between the host device and printer and their surrounding areas that interfere with communication.
In addition, since the communication distance varies depending on the surrounding reception environment, obstacles, installation environment, etc., an evaluation should be thoroughly performed at the time of setup.

Bluetooth Low Energy specifications	:	Bluetooth V5.3
Carrier frequency bandwidth	:	2,402 MHz to 2,480 MHz
Frequency interval	:	2 MHz (ch. 0 to ch. 39)
Supported profile (*1, 2)	:	GATT (unique format)
Communicable distance (*2)	:	50 cm

(*1) Bluetooth Low Energy can be used only for printer settings but not for printing.
(*2) Bluetooth becomes communicable only in the special application Star Quick Setup Utility. For details on how to obtain it, refer to "8.2 Software."

3.3.2. Bluetooth connection

You can scan the QR code for Bluetooth connection with Star Quick Setup Utility to pair the printer with a device. The QR code for connection is printed under one of the following two conditions:

1) Self-printing

2) Automatic printing when all of the following apply 20 seconds after startup:

・Bluetooth Classic is not disabled.

・The printer is running in access point mode.

・No LAN cable is connected.

・No device is connected to the USB-A port or USB-C port.

・There is no Bluetooth pairing history.

・Self-printing is not executed.

3.3.3. Bluetooth settings

Setting item	Default value
Bluetooth Classic	Valid
Device name (*1)	TSP100IV-"5-digit identification number unique to each product"
iOS port name	TSP100IV
New pairing permission	Valid
Auto Connection	Valid (iOS auto detection)
Bluetooth LE	Valid

The above settings can be checked from the test printing results and can be changed by using the Star Quick Setup Utility.

(*1) Device name

Holds a Bluetooth device ID consisting of maximum 16 digits as a unique identification code specifically (TSP100IV-"5-digit identification number unique to each product") on the inside of the printer.

3.3.4. Confirm Bluetooth settings

The Bluetooth settings can be checked by test printing (self-printing).

For details, refer to "4.1.2 Test print mode (self-print mode)"

Self-printing sample

```
*** Bluetooth Information ***

Dev Name : TSP100IVSK-I0044
iOS Name : TSP100IVSK
Address    : 00-11-62-00-06-41

Auto Connection : ON
New Pairing Permission : ON

Scan the QR
to Pair by Star Quick Setup Utility
```

```
*** Bluetooth Information END ***
```

You can scan the QR code with Star Quick Setup Utility to pair the printer with a device or select the printer to connect to.

3.3.5. Function to prevent unauthorized Bluetooth connections

This product, as a function to prevent unauthorized access from a tablet or PC that is not connected, has a function to prohibit Bluetooth connections from devices other than those where a Bluetooth connection has already been established. For security purposes, after a Bluetooth connection has been established for the devices to be used, it is recommended that you open Star Quick Setup Utility and disable the setting for "New Pairing Permission."

The factory default setting is set to "Valid".

If the "New Pairing Permission" setting is "Valid" : No limit with the Bluetooth connection

If the "New Pairing Permission" setting is "Invalid": No new Bluetooth connection is allowed

"New Pairing Permission" : Notes when "Invalid "is chosen

When the following cases occur when "New Pairing Permission : Invalid" is set, initialization of Bluetooth must be performed. After this product is initialized and connected with Bluetooth, it is recommended that you disable "New Pairing Permission" again for enhanced security

- If changing the tablet or PC with the Bluetooth connection because of loss or malfunction
- If Bluetooth connection information to this product is deleted from the Bluetooth settings of the tablet or PC

Refer to "4.2.1 Initializing the communication settings" for the initialization procedure.

3.3.6. Auto Connection function (iOS only)

This product is installed with the Auto Connection function because it is always used in a 1-to-1 connection with an iPad or other iOS device. When the Auto Connection function is used, because this product connects automatically to the iOS device that it was most recently connected to when it reconnects after a connection was interrupted, it is not necessary to perform manual connection again.

If the device you connected to last time is not iOS, the behavior is the same as that of Auto Connection OFF.

	Auto Connection : ON (Default)	Auto Connection : OFF
Reconnection with upper level terminal (device)	1) After the power is turned ON for the printer, it attempts to automatically connect to the most recently connected iOS device. 2) If step 1) fails, wait for a connection from another device. 3) If not connected in step 2), return to step 1).	Wait for the connection from the upper level terminal (device) after the printer is turned ON. Select the device name of the product from the Bluetooth settings screen of the upper level terminal (device).
Changes to the upper level terminal (device)	Turn the Bluetooth function of the upper level terminal (device) which has the automatic connection destination set to OFF and select the device name of the printer that needs change in the Bluetooth settings on the screen of the upper level terminal (device).	After the power is turned ON for this unit, select the device name of the printer from the Bluetooth settings screen of the upper level terminal (device).
Application Example	The printer is used on a one-to-one basis with the upper level terminal (device).	The printer is used with multiple upper level terminals (devices).

Auto Connection ON and OFF can be switched through either the product operation or Star Quick Setup Utility.

3.3.7. Notes on Bluetooth interface

Waiting time until the start of the communication : Recommended 100 msec or longer

After connection to the upper level terminal (device), as post-processing was performed in the Bluetooth module, it is recommended that a waiting time of 100 msec or more should be applied between the port open and the start of sending data for the application.

Note that the above value changes according to the developmental environment of the application and operating environment (upper level terminal (device) type and usage environment), therefore it is necessary to conduct sufficient operational tests in advance, and determine a waiting time.

Waiting time until reconnection : Recommended 500 msec or longer

After disconnection from the upper level terminal (port close), post-processing is performed in the Bluetooth module. Therefore, it is recommended that a waiting time of 500 msec or longer should be applied before reconnection starts (before the next time the port opens after it is closed) for the application. Note that the above value changes according to the developmental environment of the application and operating environment (upper level terminal (device) type and usage environment), therefore it is necessary to conduct sufficient operational tests in advance, and determine a waiting time.

Disconnection timing

Even if data transfer from the application of upper level terminal (device) is already completed, data may remain in the printer internal buffer. When the port is closed, the data left in the buffer may be discarded. When printing or disconnecting wireless connection, check the status and ensure that the transmitted data has been printed.

Consider retries on upper level terminal

We recommend a retry implementation on the upper level terminal, considering the risk of connection failure due to wireless communications. Perform appropriate operation tests in advance because the waiting time depends on the execution environment (the type of upper level terminal (device) and the usage environment).

Notes when using the Bluetooth USB Adapter

Always check the applicable specifications and verify the printer operation carefully.

Notes if you have made changes in Bluetooth settings, or had it reset

To reflect the changed contents to the upper level terminal (device), delete the Bluetooth connection information for the upper level terminal (device) and restart the associated application or system. After restarting, connect via Bluetooth again.

3.4. Printing on multiple interfaces

This product supports printing using multiple interfaces, and the interfaces can be dynamically switched during use without turning the printer power off/on or disconnecting and reconnecting the interface cable.
There is a receive buffer for commands and printing data, and the interface that first received data first occupies the receive buffer. If the receive buffer is empty for a certain period, the receive buffer is released and the interface can be switched. The wait time for interface switching can be changed by the memory switch setting.
For memory switch settings, see "7.11 MSWE."

The devices (command and printing data source) which can connect to and communicate with each interface are as shown in the table below.

	USB TYPE A (CDP)	USB TYPE C	Wired LAN	Wireless LAN	Bluetooth
iOS	-	-	✓	✓	✓
Android	✓	-	✓	✓	✓
Windows	-	✓	✓	✓	✓
Linux	-	✓	✓	✓	✓
Mac	-	✓	✓	✓	✓

<Limitations>

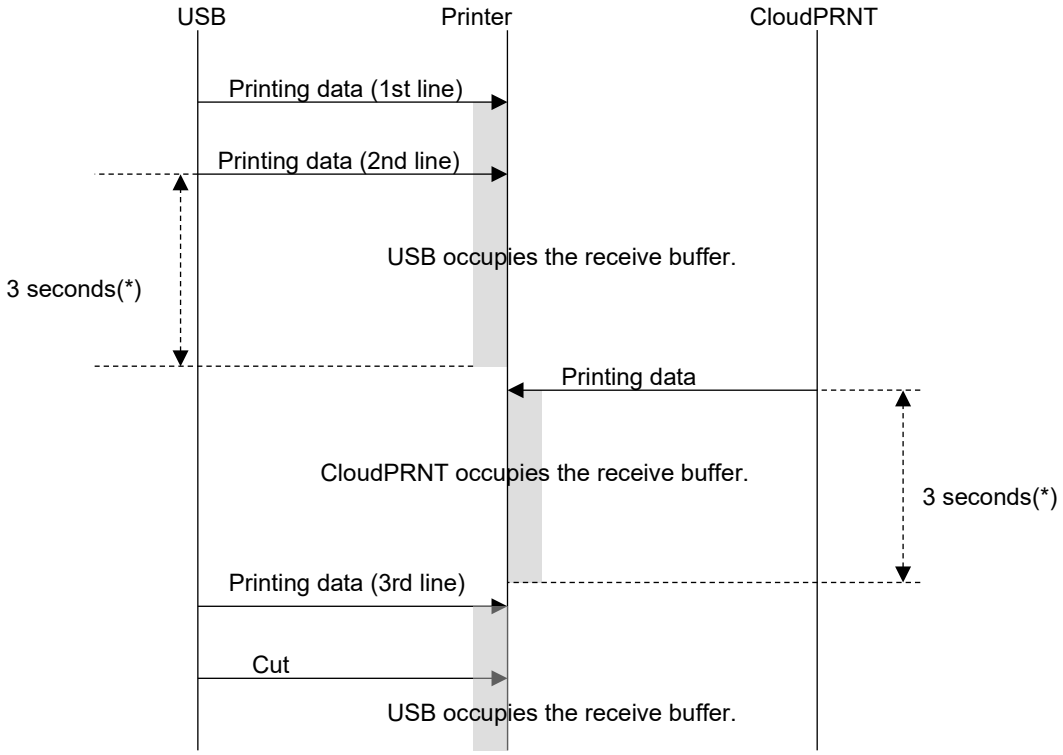
1) The printer cannot be connected via both wired LAN and wireless LAN simultaneously. When the printer is connected via wired LAN, wireless LAN is disabled.
2) When print data is erased or the communication is disconnected during Bluetooth communication with iOS
   If any of the following conditions apply during Bluetooth communication with an iOS device, a phenomenon may occur, for example, print data may be erased or the communication may be disconnected.
   - When another interface occupies the receiving buffer, the iOS device sends 8 KB or more data via Bluetooth.
   - When the printer is offline (unable to print due to a no paper error), the iOS device sends 72 KB or more data via Bluetooth.

   To avoid the above phenomena, make sure that the printer is online (able to print without an error), and then send the print data.

3) When using multiple interfaces in parallel and the data transmission interval is equal to or longer than the interface switching wait time, then data may become mixed.

For example, when sharing a single printer with USB and CloudPRNT, and as shown in the figure below the transmission interval for USB printing data (2nd line) and printing data (3rd line) is 3 seconds(*) or more, then mixing of the CloudPRNT printing data occurs.

Example) Case where data mixing occurs with USB and CloudPRNT



*) When the interface switching wait time setting is the default (3 seconds)

Data mixing can be prevented by paying attention to the following.

- When sending printing data from the application to the printer, send one entire document all at once without a transmission interval within the document.
- When the transmission interval within a document is 3 seconds or more, set a longer interface switching wait time.

3.5. External device drive connector

This printer is equipped with a drive circuit to control external device (such as optional external buzzer).

An external device drive connector (6P modular jack connector) is located on the output side of the drive circuit.

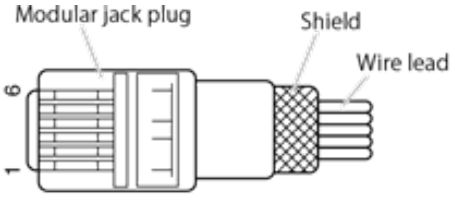
To use the drive circuit, attach a cable to this connector.

Please prepare the cable by yourself. The following are the recommended cable specifications.

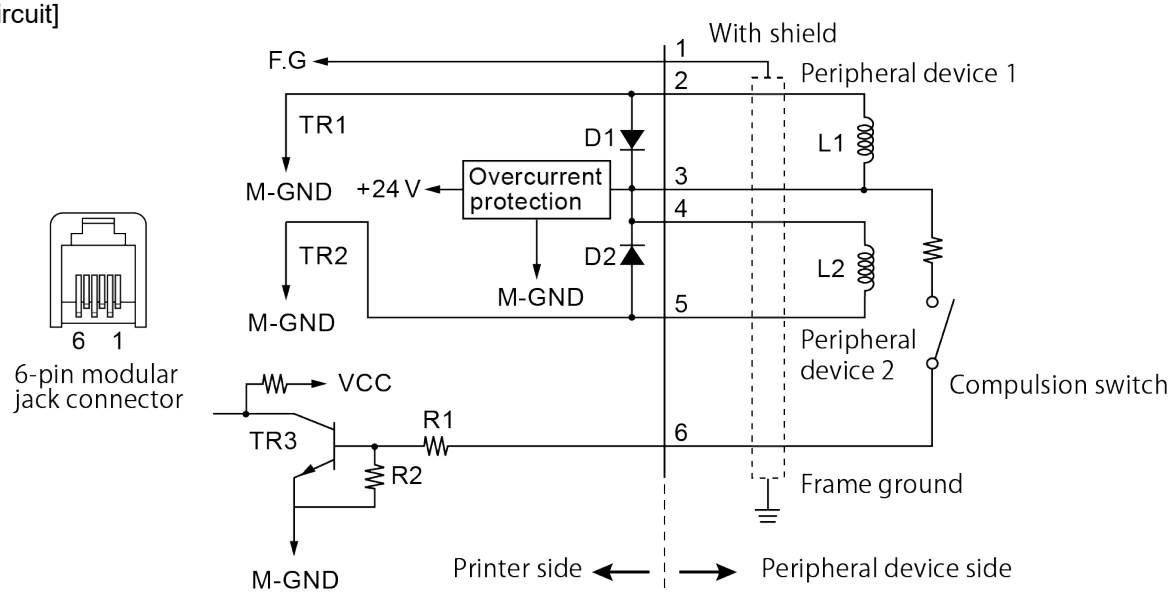
[Recommended cable]

RJ12 plug (6P6C)

Pin No. 1 (frame ground) must be a shielded line.



[Circuit]



Protection circuit: With overcurrent protection of 1.5 A and overvoltage protection diode (D1, D2)
Drive circuit : TR1 and 2, 1.0 A maximum
Input circuit : R1 = 10 kΩ, R2 = 47 kΩ
Connection detection circuit : Detects the connection with the cash drawer.

Note 1) External device 1 and external device 2 cannot be driven simultaneously.

2) When connecting a device other than the external buzzer such as a cash drawer, set the duty to 20% or less.

3) If you connect a device other than the external buzzer, make sure that the external buzzer drive command is not used.
Otherwise, the connected device and this circuit may be damaged.

4) The condition of the compulsion switch and the connection state of the cash drawer can be found in the status.

5) L1 and L2 must be at least 24 Ω.

4. Operating Portion and Functions

4.1. FEED button

The FEED button enables functions such as paper feed and self-printing mode.
The following details each function:

4.1.1. Paper feed

Press this button in online status to feed paper.
This function can be disabled by changing the setting of the memory switch. (-> See "7.12. MSWF")

4.1.2. Test print mode (self-print mode)

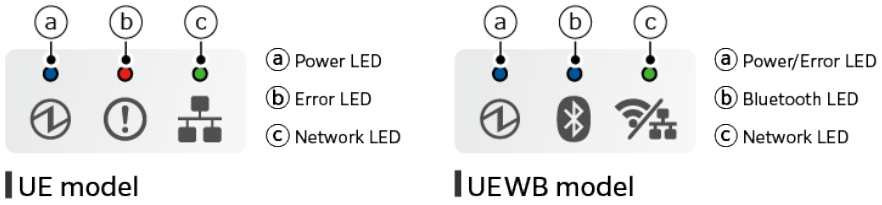
In the test print mode, information such as firmware version, melody speaker connection status, model name, memory switch settings, and network settings is printed.

<How to go into the test print mode when the power is turned on>
When the power is turned on while the switch is pressed, it will go into the test print mode.
After the test print is completed, the printer automatically returns to the normal mode.

<How to go into the test print mode after the power is turned on>
Even after power on, you can make the printer go into the test print mode by opening the printer cover. For details, refer to "4.1.5 Special function setting mode (during normal standby)."

4.1.3. Hexadecimal dump print mode

[LED indicator]

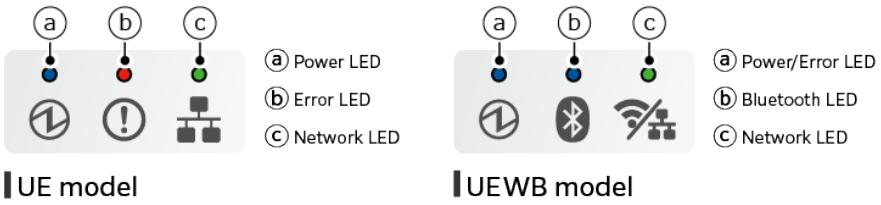


Open the printer cover, and while holding down the Feed button, turn on the power.
When the LED (a) starts flashing blue, release the FEED button. (Note: Release the FEED button while the LED (a) is flashing blue.)
If the LED (a) becomes lit blue by holding down the FEED button, turn off the power, and then repeat the steps from the beginning.
When you close the printer cover, the "Hex Dump Mode" title will be printed, and the printer will go into the hexadecimal dump print mode.
Data subsequently received will be printed in hexadecimal.
To finish the hexadecimal dump printing function, turn off the power of the printer.

4.1.4. Special function setting mode (at power ON)

Perform the special function setting procedure in the order of A → B → C → D.

[LED indicator]



A) Going into the special mode

Open the printer cover, and turn on the power while holding down the FEED button.

When the LED (a) flashes blue (every 0.25 sec) for 5 seconds and then becomes lit blue, release the FEED button.

Press the FEED button 3 times to enter special mode.→ To B: Selecting modes

<When entering special mode>

[UE model] LED (b): Red light [UEWB model] LED (a): Red light

B) Selecting modes

Every time the Feed button is pressed, the LED indication changes: B1 -> B2 -> B3 -> B4 -> B1….

Status	LED indicator		Selected mode
	UE model	UEWB model	
B1	LED (a) Off / LED (b) Red light	LED (a) Red light	Cutter setting mode (C1)
B2	LED (a) Off / LED (b) Red flashing (every 0.5 sec)	LED (a) Red flashing (every 0.5 sec)	DHCP timeout setting mode (C2)
B3	LED (a) Blue light / LED (b) Red light	LED (a) Purple light	USB serial number setting mode (C3)
B4	LED (a) Blue flashing (every 0.5 sec) / LED (b) Off	LED (a) Blue flashing (every 0.5 sec)	MSW initialization mode

-> Close the cover. -> The setting mode is determined. → To C: Settings selection

* B4: In MSW initialization mode, a hardware reset is made and normal mode is restored when the cover is closed.

C) Settings selection

Press the FEED button → LED changes: C1/2/3 -1 ⇔ C1/2/3 -2 → To D: Saving the settings

Status		LED indicator		Selected mode
		UE model	UEWB model	
C1	C1-1	LED (a) Blue flashing (every 0.25 sec)	LED (a) Blue flashing (every 0.25 sec)	Cutter enabled
	C1-2	LED (b) Red flashing (every 0.25 sec)	LED (a) Red flashing (every 0.25 sec)	Cutter disabled
C2	C2-1	LED (a) Blue flashing (every 0.25 sec)	LED (a) Blue flashing (every 0.25 sec)	DHCP timeout enabled
	C2-2	LED (b) Red flashing (every 0.25 sec)	LED (a) Red flashing (every 0.25 sec)	DHCP timeout disabled
C3	C3-1	LED (a) Blue flashing (every 0.25 sec)	LED (a) Blue flashing (every 0.25 sec)	USB serial number enabled
	C3-2	LED (b) Red flashing (every 0.25 sec)	LED (a) Red flashing (every 0.25 sec)	USB serial number disabled

→ Hold down the FEED button for 1 sec → the setting is determined→ To D: Saving the settings

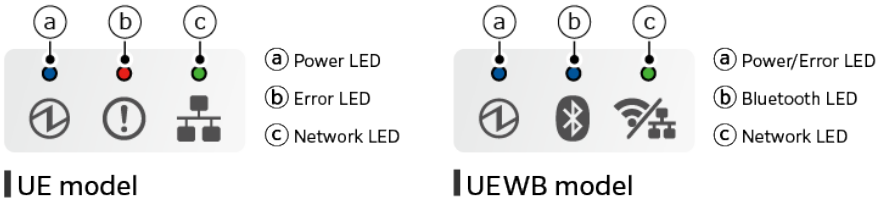
D) Saving the settings

The setting is saved, and a hardware reset is made to execute self-printing and then resume normal mode.

4.1.5. Special function setting mode (during normal standby)

Perform the special function setting procedure in the order of A → B.

[LED indicator]



A) Going into the special mode

With the printer cover open, hold down the FEED button for 5 seconds or more.

When the LED (a) starts flashing blue (every 0.25 sec), release the FEED button to enter special mode. → To B: Selecting modes

B) Selecting modes

Press the FEED button for 1 sec or more -> LED display changes: B1 -> B2 -> B3 (UEWB model)-> B4 (UEWB model)->B1)->....

Status	LED indicator		Selected mode
	UE model	UEWB model	
B1	LED (a) Blue flashing (every 0.5 sec) / LED (b) Off	LED (a) Blue flashing (every 0.5 sec)	Self-printing mode executed
B2	LED (a) Blue flashing (every 0.5 sec) / LED (b) Red flashing (every 0.5 sec)	LED (c) Green flashing (every 0.5 sec)	Network setting initialization mode *1
B3	-	LED (b) Blue flashing (every 0.5 sec)	Bluetooth setting initialization mode
B4	-	LED (b) Blue flashing (every 0.5 sec) / LED (c) Green flashing (every 0.5 sec)	Network & Bluetooth setting initialization mode *1

→ Close the cover → the setting mode is determined

[B1 When self-printing mode is selected/determined]

The printer is reset to execute self-printing and then resume normal mode.

[B2 When network setting initialization mode is selected/determined]

The network settings (*1) are initialized and the printer is reset to self-print the network settings and then resume normal mode.

[B3 When Bluetooth setting initialization mode is selected/determined]

The Bluetooth settings are initialized, and the printer is reset to self-print the Bluetooth settings and then resume normal mode.

[B4 When network & Bluetooth setting initialization mode is selected/determined]

The network and Bluetooth settings (*1) are initialized and the printer is reset to self-print the network and Bluetooth settings and then resume normal mode.

*1) F/W Ver3.2 or earlier: Star CloudPRNT and DNS settings are included in the network initialization target.
F/W Ver3.3 or later: Star CloudPRNT and DNS settings are excluded from the network initialization target.

4.2. RESET switch

4.2.1. Initializing the communication settings

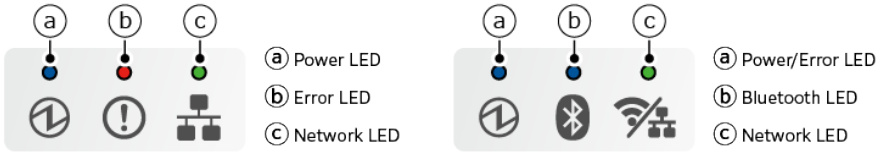
3.1.1 Wired LAN (Ethernet) interface (4) Network settings, 3.1.2.2 Wireless LAN setting items, and 3.3.2 Bluetooth connection can be initialized by initializing the communication settings.

To communicate via a connected access point after initializing the wireless LAN settings, you need to reconfigure the wireless LAN settings.

If you want communication with a paired connection device after Bluetooth settings are initialized, it is necessary to pair the device again.

Perform the communication setting initialization in the order of A → B.

[LED indicator]



A) Entering the network setting initialization mode

Turn off the printer and turn it on while holding down the RESET switch on the back using a pen or other pointed objects.

When the LED (c) starts flashing green (every 0.5 sec), release the RESET switch to enter special mode. → To B: Selecting mode

B) Selecting modes

Press the FEED button for 1 sec or more -> LED changes: B1 -> B2 (UEWB model) -> B3 (UEWB model) -> B1 -> ・・・

Status	LED indicator		Selected mode
	UE model	UEWB model	
B1	LED (c) Green flashing (every 0.5 sec)	LED (c) Green flashing (every 0.5 sec)	Network setting initialization mode
B2	—	LED (b) Blue flashing (every 0.5 sec)	Bluetooth setting initialization mode
B3	—	LED (b) Blue flashing (every 0.5 sec) / LED (c) Green flashing (every 0.5 sec)	Network & Bluetooth setting initialization mode

-> Hold down the FEED button to reset the printer -> Release the FEED button.

[B1 When network setting initialization mode is selected/determined]
The network setting is initialized and the printer is reset to resume normal mode.

[B2 When Bluetooth setting initialization mode is selected/determined]
The Bluetooth settings are initialized, and the printer is reset to resume normal mode.

[B4 When network & Bluetooth setting initialization mode is selected/determined]
The network and Bluetooth settings are initialized and the printer is reset to resume normal mode.

The communication settings can be initialized by using the RESET switch as described in this chapter, and by opening the printer cover. For details see "4.1.5. Special function setting mode (during normal standby)."

4.3. LED indications and errors

4.3.1. Automatic recovery error (online)

Error type	UE model		UEWE model	Cause	Restoration method
	Power LED	Error LED	Power/Error LED		
High head temperature detection (Stop printing)	Flashing (1 sec. cycle)	Off	Blue flashing (every 1 sec)	Head temperature is hot.	Automatically recovers when head temperature drops.
High board temperature detection (Stop printing)	Flashing (4 sec. cycle)	Off	Blue flashing (every 4 sec)	Board temperature is hot.	Automatically recovers when the board temperature drops.
F/W rewriting (Stop printing)	Flashing alternately (Irregular cycle)	Flashing alternately (Irregular cycle)	Continuous red and blue alternate flashing (irregular cycle)	Printer F/W is being rewritten.	Automatically recovers when F/W rewriting is completed.

4.3.2. Recoverable error (Offline)

Error type	UE model		UEWE model	Cause	Restoration method
	Power LED	Error LED	Power/Error LED		
Cover open error	On	On	Red light	The cover is open.	Close the cover.
No paper error	On	Flashing (1 sec. cycle)	Continuous red flashing (every 1 sec)	Out of paper.	Set the paper.

4.3.3. Unrecoverable error (Offline)

Error type	UE model		UEWE model	Cause	Restoration method
	Power LED	Error LED	Power/Error LED		
Auto-cutter error	Off	Flashing (0.25 sec. cycle)	Continuous purple flashing (every 0.25 sec)	Paper jam or cutter malfunction	Turn off the power, eliminate what is causing the error, and after confirming that the cutter blade has returned to the home position, turn on the power. If the error persists, repair is necessary.
Power supply voltage error	Flashing (2 sec. cycle)	Flashing (2 sec. cycle)	Purple flashing (1 time)	The power supply voltage is abnormal (in standby)	Repair is necessary.
Head thermistor error	Flashing (1 sec. cycle)	Flashing (1 sec. cycle)	Purple flashing (2 times)	Head thermistor resistance is abnormal.	Repair is necessary.
FLASH error	Off	Flashing (4 times)	Purple flashing (4 times)	FLASH access error	Repair is necessary.
EEPROM error	Flashing (0.5 sec. cycle)	Flashing (0.5 sec. cycle)	Purple flashing (5 times)	EEPROM access error	Repair is necessary.
RAM error	Off	On	Purple flashing (6 times)	External RAM access error	Repair is necessary.
F/W rewrite error	Off	Flashing (7 times)	Purple flashing (7 times)	- Anomaly detection of received F/W data - Detection of rewrite error	If the same error persists after the power is turned off and then turned on again, repair is necessary.

For inquiries regarding repairs, please contact the place of purchase.

4.3.4. Network link status indication

(1) Wired LAN (Ethernet) interface

Type	Network LED		Cause	Restoration method
	UE model	UEWB model		
Link up	Green Light		TCP/IP communication possible	
Link down [Physical disconnection]	Off		Physically disconnected (Ethernet link is down)	Check the connection of the communication cable between the printer and hub router, and turn the power on again.
Link down [IP address not obtained]	Green Light Flashing (0.25 sec. cycle)		<When DHCP is enabled> IP address could not be obtained from the network.	After confirming the wiring path and the DHCP server, turn the power on again. (*1)
			<When DHCP is disabled> IP address = 0.0.0.0 is specified.	After initializing the settings, set the correct IP address. (*1)

(*1) Temporarily run ARP/Ping if you want to set a temporary IP address.

(2) Wireless LAN interface (UEWB model only)

Type	Network LED	Cause	Restoriation method
Link up [Wireless LAN infrastructure mode]	Green light	TCP/IP communication is enabled.	
Link up [Wireless LAN AP mode]	Green light	At least one device is connected to the printer.	
Link down [Wireless LAN infrastructure mode]	Off	The access point was disconnected.	Make sure that the access point that you will connect to is running and the wireless LAN settings of the printer are correct, and then turn on the power again.
Link down [Wireless LAN AP mode]	Off	No terminal is connected to the printer.	
Link down [IP address not acquired]	Green flashing (every 0.25 sec)	<DHCP enabled> IP address cannot be acquired from the network.	Check the wiring path and the DHCP server, and then turn on the power again. (*1)
		<DHCP disabled> IP address = 0.0.0.0 is set.	Initialize the network settings, and set a correct IP address. (*1)

*1) To set a temporary IP address, run ARP/Ping.

4.3.5. Bluetooth status display (UEWB model only)

Type	Bluetooth LED
Ready state (pairing/connection possible)*1	Off
Connected	Blue light

*1) When the [New Pairing Permission] settings are OFF, pairing is not possible even in the ready state.

4.3.6. USB host status display

Type	UE model		UEWB model
	Power LED	Error LED	Power/Error LED
When connected to an unsupported USB device	Flashing continuously and simultaneously (For 5 sec., 0.5 sec. cycle)	Flashing continuously and simultaneously (For 5 sec., 0.5 sec. cycle)	Continuous red and blue alternate flashing (for 5 sec, every 1 sec)
When connected to an unsupported USB hub	Flashing alternately (For 5 sec., 0.5 sec. cycle)	Flashing alternately (For 5 sec., 0.5 sec. cycle)	Continuous red and blue alternate flashing (for 5 sec, every 0.5 sec)

5. Maintenance

To enable comfortable and safe use, conduct maintenance periodically.
Carefully read the following precautions before maintenance.
Recommended maintenance interval: Every 6 months or every after printing of 40 rolls (2 km/500,000 lines).

⚠ Warning

- Be sure to turn off the power before performing maintenance.
  Otherwise, it may cause an electric shock or injury if the power is on during maintenance.
- Do not conduct maintenance with wet hands.
  Otherwise, it may cause an electric shock.
- Periodically inspect the power cable.
  If usage of a damaged (e.g. cracked) cable is continued, it may cause fire or electric shock.

⚠ Caution

- Do not use benzine, thinner, trichlorethylene, and ketone solvents. Do not also dampen or damage the interior of this product during maintenance. Otherwise, it may lead to malfunctions.
- Do not touch any of the other interior sections that are not noted in the manual. Otherwise, it may cause an injury or burns.
- The thermal head is easily damaged. Use a soft cloth and carefully clean the head so it does not get any scratches.
- Do not clean he thermal head immediately after printing while the thermal head is hot.
- Be careful of static electricity while cleaning the thermal head. Static electricity can damage the head.
- It is recommended to conduct maintenance on a daily basis regardless of the recommended maintenance intervals above.

5.1. Daily maintenance

5.1.1. Exterior/Exit

- Wipe dust and dirt off the plastic area using a dry, soft, and clean cloth.
- If it is very dirty, soak a soft cloth in water with a very small amount of neutral detergent, completely squeeze the cloth, and gently wipe the dirt, and wipe off the moisture with a dry, soft cloth.

5.1.2. Thermal head

- Put an alcohol solvent (ethanol, isopropyl alcohol) on a cotton swab (or a soft cloth) and wipe the thermal area of the head.
- Remove the blackened paper powder from the surface of the thermal head.

5.1.3. Platen rubber roller

- Use a soft, dry cloth to wipe off the dirt from the rubber roller.
- Rotate the rubber roller while cleaning to make sure that the whole roller is cleaned.

5.1.4. Paper holder

- Remove any dirt, dust, and paper particles, etc., from the feeding path.

5.2. Handling paper jams

If paper jam occurs, turn off the power and then take the following actions.

- Open the printer cover and remove the jammed paper.
  To avoid damage to the components, do not pull out the jammed paper with the cover closed.
- If the printer cover does not open, restart the printer, and open it.
- If the printer cover does not open even after restarting the printer, the cutter blade may be in the wrong position (the blade is out).
  In that case, open the front cover and turn the knob of the cutter to return the cutter blade to the proper position.

6. Firmware update

The following are the methods for updating the firmware of this product.

Method	Reference
Star Quick Setup Utility	Update the firmware using an iOS or Android device. iOS: App Store Android: Google Play
Star Windows Software	Rewrite the firmware using a Windows device. Download site
USB memory	Rewrite the firmware using a USB memory. Procedure for Firmware Rewrite Using USB Memory
Star CloudPRNT (*)	Rewrite the firmware remotely from the remote server. Star CloudPRNT Protocol Guide
SMCS Device Manager API (*)	Using the OAuth 2.0 authorization code flow, rewrite the firmware remotely with webAPI. Device Manager API

*) Solutions for developers to be incorporated into the application.

7. Memory switch

The memory switch settings are read when the power is turned on or when the reset command is executed. Changed settings are enabled when the power is turned on again or when the reset command is executed.
The memory switch settings can be rewritten by any of the following methods.

- Command
- Star Quick Setup Utility
- Star Windows Software

7.1. MSW0

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E	Special location of use	(See table below.)	(See table below.)	*3
D	Special location of use	(See table below.)	(See table below.)	*3
C	Special location of use	(See table below.)	(See table below.)	*3
B				
A	Multi-byte character	(See table below.)	(See table below.)	*1
9	Multi-byte character	(See table below.)	(See table below.)	*1
8	Multi-byte character	(See table below.)	(See table below.)	*1
7				
6				
5	SHIFT-JIS Kanji Character Mode	Enabled	Disabled	*2
4	Destination specifications	SBCS (Single-byte character	MBCS (Multi-byte character	*4
3	(Reserved)			
2				
1				
0				

*1) Multi-byte characters (enabled only when MSW0-4 MBCS is set)

N	MSW0-A	MSW0-9	MSW0-8	Multi-byte character
"0"	0	0	0	Simplified Chinese (GB18030)
"1"	0	0	1	Japanese characters
"2"	0	1	0	Traditional Chinese (BIG5)
"3"	0	1	1	Simplified Chinese (GB18030)
"4"	1	0	0	(Reserved)
"5"	1	0	1	(Reserved)
"6"	1	1	0	(Reserved)
"7"	1	1	1	(Reserved)

*2) SHIFT-JIS Kanji Character Mode

This setting is enabled only when Japanese kanji characters are selected and the MBCS is set.

Refer to the table below for details on the JIS Kanji Character Mode or SHIFT-JIS Kanji Character Mode when Japanese kanji characters are selected.

(The JIS Kanji Character Mode is disabled when the power is turned on.)

<Japanese kanji characters are selected: SHIFT-JIS/JIS Specifications>

SHIFT-JIS Kanji	JIS Kanji Character	Print mode
Disabled	Disabled	Japanese Kanji Character ANK Mode (when MSW0-5 = "1")
Enabled	Disabled	SHIFT-JIS Kanji Character Mode (when MSW0-5 = "0")
Disabled	Enabled	JIS Kanji Character Mode
Enabled	Enabled	JIS Kanji Character Mode

*3) Special location of use

Select the location of use which requires specialized specifications such as character types and a baseline.

N	MSW0-E	MSW0-D	MSW0-C	Location of use	Specification overview	Remark
"0"	0	0	0	Standard		
"1"	0	0	1	Thailand	Thai precomposed characters are supported. Specialized ANK fonts are selected. Specialized baseline specification is	Page mode, International character setting, slashed zero selected, and large font disabled.
"2"	0	1	0	(Reserved)		
"3"	0	1	1	(Reserved)		
"4"	1	0	0	(Reserved)		
"5"	1	0	1	(Reserved)		
"6"	1	1	0	(Reserved)		
"7"	1	1	1	(Reserved)		

*4) Initial value of UTF-8 code ambiguous character setting according to destination specifications

MSW0-4	Destination specifications	Initial value of UTF-8 code ambiguous character setting
0	SBCS (Single-byte character countries)	Priority is given to single-byte characters.
1	MBCS (Multi-byte character countries)	Priority is given to double-byte characters.

7.2. MSW1

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B				
A				
9				
8				
7				
6	Font type (Font-A, Font-B)	Standard fonts	Large fonts	*2
5				
4	Zero style	Normal zero	Slashed zero	
3	International characters	(See table below.)		*1
2	International characters	(See table below.)		*1
1	International characters	(See table below.)		*1
0	International characters	(See table below.)		*1

*1 International Characters

n	MSW1-3	MSW1-2	MSW1-1	MSW1-0	International characters
"0"	0	0	0	0	USA
"1"	0	0	0	1	France
"2"	0	0	1	0	Germany
"3"	0	0	1	1	UK
"4"	0	1	0	0	Denmark 1
"5"	0	1	0	1	Sweden
"6"	0	1	1	0	Italy
"7"	0	1	1	1	Spain 1
"8"	1	0	0	0	Japan
"9"	1	0	0	1	Norway
"A"	1	0	1	0	Denmark 2
"B"	1	0	1	1	Spain 2
"C"	1	1	0	0	Latin America
"D"	1	1	0	1	Korea
"E"	1	1	1	0	Ireland
"F"	1	1	1	1	Legal

<Note>

This setting is disabled if Japanese kanji characters are selected and the MBCS mode is set. International character setting is fixed to "Japan (n = 8)."

*2) Font type (Font-A, Font-B)

Large font is not compatible with all code page types, even if the large font has been selected by the MSW, there may be code pages that cannot be switched to a large font.

Shown in the table below is the switching propriety of large font for each code page.

The code page, where switching to large font cannot be done as shown in the table below, will print in standard font even when the large font has been selected by the MSW.

(✓: Large font can be switched, - : Large font cannot be switched)

PAGE	Code page	Large font support
0	Normal	✓
1	CodePage437 (USA,Std. Europe)	✓
2	Katakana	-
3	CodePage437 (USA,Std. Europe)	✓
4	Codepage 858 (Multilingual)	✓
5	Codepage 852 (Latin-2)	✓
6	Codepage 860 (Portuguese)	✓
7	Codepage 861 (Icelandic)	✓
8	Codepage 863 (Canadian French)	✓
9	Codepage 865 (Nordic)	✓
10	Codepage 866 (Cyrillic Russian)	✓
11	Codepage 855 (Cyrillic Bulgarian)	✓
12	Codepage 857 (Turkey)	✓
13	Codepage 862 (Israel (Hebrew))	-
14	Codepage 864 (Arabic)	-
15	Codepage 737 (Greek)	✓
16	Codepage 851 (Greek)	✓
17	Codepage 869 (Greek)	✓
18	Codepage 928 (Greek)	✓
19	Codepage 772 (Lithuanian)	✓
20	Codepage 774 (Lithuanian)	✓
21	Codepage 874 (Thai)	-
32	Codepage 1252 (Windows Latin-1)	✓
33	Codepage 1250 (Windows Latin-2)	✓
34	Codepage 1251 (Windows Cyrillic)	✓
64	Codepage 3840 (IBM-Russian)	✓
65	Codepage 3841 (Gost)	✓
66	Codepage 3843 (Polish)	✓
67	Codepage 3844 (CS2)	✓
68	Codepage 3845 (Hungarian)	✓
69	Codepage 3846 (Turkish)	✓
70	Codepage 3847 (Brazil-ABNT)	✓
71	Codepage 3848 (Brazil-ABICOMP)	✓
72	Codepage 1001 (Arabic)	-
73	Codepage 2001 (Lithuanian-KBL)	✓
74	Codepage 3001 (Estonian-1)	✓
75	Codepage 3002 (Estonian-2)	✓
76	Codepage 3011 (Latvian-1)	✓
77	Codepage 3012 (Latvian-2)	✓
78	Codepage 3021 (Bulgarian)	✓
79	Codepage 3041 (Maltese)	✓
96	Thai Character Code 42 (Thai)	-
97	Thai Character Code 11 (Thai)	-
98	Thai Character Code 13 (Thai)	-
102	Thai Character Code 18 (Thai)	-

7.3. MSW2

	Function	OFF/"0"	ON/"1"	Remark
F				
E	(Reserved)			
D	(Reserved)			
C	180° inversion	Disabled	Enabled	*4
B				
A				
9				
8	Print startup control	Page units	Line units	*3
7				
6				
5	Print speed	(See table below.)		*1
4	Print speed	(See table below.)		*1
3				
2	Print density	(See table below.)		*2
1	Print density	(See table below.)		*2
0	Print density	(See table below.)		*2

*1) Print speed

N	MSW2-5	MSW2-4	Single-color Mode
"0"	0	0	High
"1"	0	1	Middle
"2"	1	0	Slow
"3"	1	1	(Reserved)

For details on the print speed, see "Note*1) Printing specifications <Print speed> [Notes about the general specifications]."

*2) Print density

n	MSW2-2	MSW2-1	MSW2-0	Print density
"0"	0	0	0	Standard
"1"	0	0	1	+ 1
"2"	0	1	0	+ 2
"3"	0	1	1	+ 3
"4"	1	0	0	Standard
"5"	1	0	1	-1
"6"	1	1	0	-2
"7"	1	1	1	-3

*3) Print startup control

This function selects the print startup control (page or line units).

When line units are selected, printing starts immediately. However, printing can sometimes be intermittent. Compared to when page units are selected, the print quality may degrade (white lines appearing and such) or the printer noise may become louder.

When page units are selected, intermittent printing does not occur until the image buffer length (300 mm) is reached.

However, compared to when line units are selected, print startup may be slower.

*4) 180° inversion

If the print data length is less than 300 mm and this function is enabled, the print data is inverted 180° by the following triggers.

If the print data length is 300 mm or more, the 180° inversion function is ignored.

Also, if any of the following 180° inversion trigger commands is not sent consecutively after print data has been sent, the 180° inversion function is ignored.

<180° inversion trigger command>

- Cut command : <ESC> d n
- Form feed command : <FF>

7.4. MSW3

bit	Function	OFF/ “0”	ON/"1"	Remark
F	Code page	(See table below.)		*2
E	Code page	(See table below.)		*2
D	Code page	(See table below.)		*2
C	Code page	(See table below.)		*2
B	Code page	(See table below.)		*2
A	Code page	(See table below.)		*2
9	Code page	(See table below.)		*2
8	Code page	(See table below.)		*2
7				
6				
5	Chinese characters per line	(See table below.)		*1
4	Characters per line	(See table below.)		*1
3				
2				
1				
0	Amount of line feed	4mm	3mm	

*1) Chinese characters per line/ANK characters per line

<For SBCS>

MSW3-4	Character type	Character size (Font + Right space)	Printing width (MSW4-0~MSW4-2)	Font-A Characters per line
0	ANK	12(12+0) dots	72mm (576dots)	48 characters
			51mm (408dots)	34 characters
			48mm (384dots)	32 characters
			50.8mm (406dots)	33 characters
1	ANK	15(12+3) dots	72mm (576dots)	38 characters
			51mm (408dots)	27 characters
			48mm (384dots)	25 characters
			50.8mm (406dots)	27 characters

<When set to Japanese kanji characters (when Japanese kanji characters are selected and MBCS is set)>

MSW3-5	Character type	Character size (Left space + Font + Right space)	Printing width (MSW4-0~MSW4-2)	Font-A Characters per line
0	Full-width kanji characters	26(1+24+1) dots	72mm (576dots)	22 characters
			51mm (408dots)	15 characters
			48mm (384dots)	14 characters
			50.8mm (406dots)	15 characters
	Half-width kanji characters	13(0+12+1) dots	72mm (576dots)	44 characters
			51mm (408dots)	31 characters
			48mm (384dot)	29 characters
			50.8mm (406dot)	31 characters
1	Full-width kanji characters	30(3+24+3) dots	72mm (576dots)	19 characters
			51mm (408dots)	13 characters
			48mm (384dots)	12 characters
			50.8mm (406dots)	13 characters
	Half-width kanji characters	15(1+12+2) dots	72mm (576dots)	38 characters
			51mm (408dots)	27 characters
			48mm (384dots)	25 characters
			50.8mm (406dots)	27 characters

MSW3-4	Character type	Character size (Font + Right space)	Printing width (MSW4-0~MSW4-2)	Font-A Characters per line
0	ANK	12(12+0) dots	72mm (576dots)	48 characters
			51mm (408dots)	34 characters
			48mm (384dots)	32 characters
			50.8mm (406dots)	33 characters
1	ANK	15(12+3) dots	72mm (576dots)	38 characters
			51mm (408dots)	27 characters
			48mm (384dots)	25 characters
			50.8mm (406dots)	27 characters

<When not set to Japanese kanji characters (when Japanese kanji characters are not selected and MBCS is set)>

MSW3-5	Character type	Character size (Left space + Font + Right space)	Printing width (MSW4-0~MSW4-2)	Font-A Characters per line
0	Chinese character	26(1+24+1) dots	72mm (576dots)	22 characters
			51mm (408dots)	15 characters
			48mm (384dots)	14 characters
			50.8mm (406dots)	15 characters
1	Chinese character	30(3+24+3) dots	72mm (576dots)	19 characters
			51mm (408dots)	13 characters
			48mm (384dots)	12 characters
			50.8mm (406dots)	13 characters

MSW3-4	Character type	Character size (Font + Right space)	Printing width (MSW4-0~MSW4-2)	Font-A Characters per line
0	ANK	13(12+1) dots	72mm (576dots)	44 characters
			51mm (408dots)	31 characters
			48mm (384dots)	29 characters
			50.8mm (406dots)	31 characters
1	ANK	15(12+3) dots	72mm (576dots)	38 characters
			51mm (408dots)	27 characters
			48mm (384dots)	25 characters
			50.8mm (406dots)	27 characters

*2) Code page

When SBCS is set

n	MSW3-F	MSW3-E	MSW3-	MSW3-C	MSW3-	MSW3-A	MSW3-9	MSW3-8	Character Table
"00"	0	0	0	0	0	0	0	0	Normal*
"01"	0	0	0	0	0	0	0	1	CodePage437 (USA,Std. Europe)
"02"	0	0	0	0	0	0	1	0	Katakana
"03"	0	0	0	0	0	0	1	1	CodePage437 (USA,Std. Europe)
"04"	0	0	0	0	0	1	0	0	Codepage 858 (Multilingual)
"05"	0	0	0	0	0	1	0	1	Codepage 852 (Latin-2)
"06"	0	0	0	0	0	1	1	0	Codepage 860 (Portuguese)
"07"	0	0	0	0	0	1	1	1	Codepage 861 (Icelandic)
"08"	0	0	0	0	1	0	0	0	Codepage 863 (Canadian
"09"	0	0	0	0	1	0	0	1	Codepage 865 (Nordic)
"0A"	0	0	0	0	1	0	1	0	Codepage 866 (Cyrillic
"0B"	0	0	0	0	1	0	1	1	Codepage 855 (Cyrillic
"0C"	0	0	0	0	1	1	0	0	Codepage 857 (Turkey)
"0D"	0	0	0	0	1	1	0	1	Codepage 862 (Israel
"0E"	0	0	0	0	1	1	1	0	Codepage 864 (Arabic)
"0F"	0	0	0	0	1	1	1	1	Codepage 737 (Greek)
"10"	0	0	0	1	0	0	0	0	Codepage 851 (Greek)
"11"	0	0	0	1	0	0	0	1	Codepage 869 (Greek)
"12"	0	0	0	1	0	0	1	0	Codepage 928 (Greek)
"13"	0	0	0	1	0	0	1	1	Codepage 772 (Lithuanian)
"14"	0	0	0	1	0	1	0	0	Codepage 774 (Lithuanian)
"15"	0	0	0	1	0	1	0	1	Codepage 874 (Thai)
"20"	0	0	1	0	0	0	0	0	Codepage 1252 (Windows
"21"	0	0	1	0	0	0	0	1	Codepage 1250 (Windows
"22"	0	0	1	0	0	0	1	0	Codepage 1251 (Windows
"40"	0	1	0	0	0	0	0	0	Codepage 3840 (IBM-Russian)
"41"	0	1	0	0	0	0	0	1	Codepage 3841 (Gost)
"42"	0	1	0	0	0	0	1	0	Codepage 3843 (Polish)
"43"	0	1	0	0	0	0	1	1	Codepage 3844 (CS2)
"44"	0	1	0	0	0	1	0	0	Codepage 3845 (Hungarian)
"45"	0	1	0	0	0	1	0	1	Codepage 3846 (Turkish)
"46"	0	1	0	0	0	1	1	0	Codepage 3847 (Brazil-ABNT)
"47"	0	1	0	0	0	1	1	1	Codepage 3848 (Brazil-
"48"	0	1	0	0	1	0	0	0	Codepage 1001 (Arabic)
"49"	0	1	0	0	1	0	0	1	Codepage 2001 (Lithuanian-
"4A"	0	1	0	0	1	0	1	0	Codepage 3001 (Estonian-1)
"4B"	0	1	0	0	1	0	1	1	Codepage 3002 (Estonian-2)
"4C"	0	1	0	0	1	1	0	0	Codepage 3011 (Latvian-1)
"4D"	0	1	0	0	1	1	0	1	Codepage 3012 (Latvian-2)
"4E"	0	1	0	0	1	1	1	0	Codepage 3021 (Bulgarian)
"4F"	0	1	0	0	1	1	1	1	Codepage 3041 (Maltese)
"60"	0	1	1	0	0	0	0	0	Thai Character Code 42 (Thai)
"61"	0	1	1	0	0	0	0	1	Thai Character Code 11 (Thai)

n	MSW3-F	MSW3-E	MSW3-	MSW3-C	MSW3-	MSW3-A	MSW3-9	MSW3-8	Character Table
"62"	0	1	1	0	0	0	1	0	Thai Character Code 13 (Thai)
"66"	0	1	1	0	0	1	1	0	Thai Character Code 18 (Thai)
"80"	1	0	0	0	0	0	0	0	UTF-8
"FF"	1	1	1	1	1	1	1	1	User Setting (Blank Code

When MBCS is set (UTF-8 settings)

n	MSW3-F	MSW3-E	MSW3-D	MSW3-C	MSW3-B	MSW3-A	MSW3-9	MSW3-8	UTF-8 setting
Other than "80"	*	*	*	*	*	*	*	*	UTF-8 disabled (*1)
"80"	1	0	0	0	0	0	0	0	UTF-8 enabled (*2)

*1) When the UTF-8 code is disabled, the Chinese character code is specified by JIS/Shift-JIS/GB/BIG5/KS code

*2) When the UTF-8 code is enabled, the Chinese character code is specified by UTF-8
Chinese characters that can be printed in UTF-8 code are those Chinese character that are selected in "MSW0: multi-byte character."

7.5. MSW4

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B				
A				
9				
8				
7				
6				
5				
4				
3				
2	Printing width	(See table below.)		*1
1	Printing width	(See table below.)		*1
0	Printing width	(See table below.)		*1

*1) Printing width

n	MSW4-2	MSW4-1	MSW4-0	Printing width
"0"	0	0	0	72mm (576dots)
"1"	0	0	1	51mm (408dots)
"2"	0	1	0	48mm (384dots)
"3"	0	1	1	50.8mm (406dots)
"4"	1	0	0	(Reserved)
"5"	1	0	1	(Reserved)
"6"	1	1	0	(Reserved)
"7"	1	1	1	(Reserved)

7.6. MSW7

bit	Function	OFF/"0"	ON/"1"	Remark
F	ASB function (Ethernet)	Enabled	Disabled	*2
E	ASB function (Bluetooth)	Disabled	Enabled	*2
D				
C	ASB function (USB-C)	Enabled	Disabled	*2
B	NSB function (Ethernet)	Enabled	Disabled	*1
A				
9				
8	NSB function (USB-C)	Enabled	Disabled	*1
7				
6	ASB function (wireless LAN)	Enabled	Disabled	*2
5	NSB function (wireless LAN)	Enabled	Disabled	*1
4				
3				
2				
1				
0	Error sound playback function	Disabled	Enabled	*3

*1) NSB function

If the USB-C I/F is used, this function automatically sends printer status information every time BULK IN transaction occurs.

If the Ethernet I/F and wireless LAN I/F is used, this function automatically sends printer status information when the print port (TCP #9100) is connected.

If the USB-A I/F and Bluetooth I/F is used, this function is not supported (fixed to disabled).

*2) ASB function

This function automatically sends printer status information to the host every time the printer status changes.

*3) Error sound playback function

This function is available when the melody speaker is connected.

For details on the error sound playback function, refer to the MCS10 Product Specifications Manual.

7.7. MSW8

bit	Function	OFF/"0"	ON/"1"	Remark
F	Horizontal reduced printing	(See table below.)		*1
E	Horizontal reduced printing	(See table below.)		*1
D	Horizontal reduced printing	(See table below.)		*1
C	Horizontal reduced printing	(See table below.)		*1
B				
A				
9	Vertical reduced printing	(See table below.)		*2
8	Vertical reduced printing	(See table below.)		*2
7	Reduced printing and barcode	Printed in reduced size	Not printed in reduced size	*3
6				
5				
4				
3	Horizontal paper saving	Disabled	Enabled	*4
2	Vertical paper saving	Disabled	Enabled	*5
1				
0				

*1) Horizontal reduced printing

n	MSW8-F	MSW8-E	MSW8-D	MSW8-C	Horizontal reduced printing
"0"	0	0	0	0	Disabled
"1"	0	0	0	1	Enabled (67%)
"2"	0	0	1	0	
...	...	...	...	...	
"F"	1	1	1	1	

When the horizontal reduced printing is enabled, with the current printing width setting (MSW4-0 to 2), print data with a printing width of 72 mm can be printed using the above reduction ratio.

*2) Vertical reduced printing

n	MSW8-9	MSW8-8	Vertical reduced printing
"0"	0	0	Disabled
"1"	0	1	Enabled (50%)
"2"	1	0	Enabled (75%)

*3) Reduced printing and barcode processing

This function is available when reduced printing is enabled.

Restrictions applicable if barcode reduced printing is disabled.

- Characters or bit images that run in vertical directions on barcode are not printed in reduced size.

*4) Horizontal paper saving

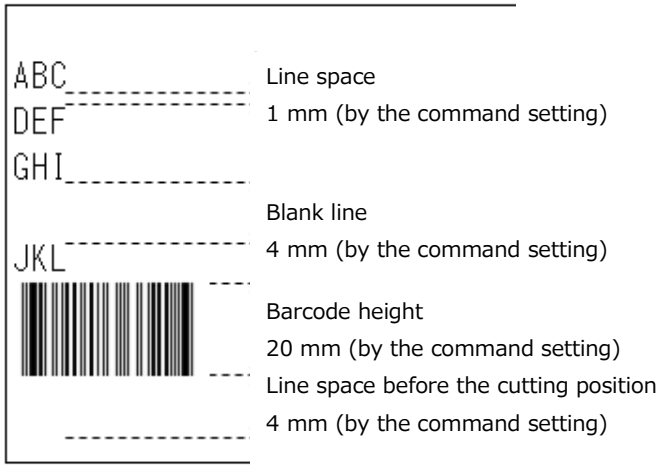
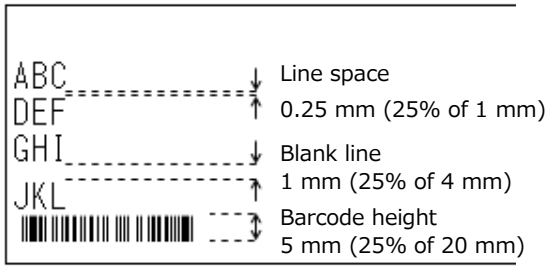
When enabled, Font-A (12 x 24 dots) is automatically replaced with Font-B (9 x 24 dots) to increase the number of characters per line.

*5) Vertical paper saving

If enabled, the line space is reduced to 25% of the original size, the height of blank lines to 25%, the height of barcodes to 25%, and the height of blank lines before the cut command to 0%.

If the line space is reduced to less than 2 dots (0.25 mm) by this setting, the line space is set to 2 dots.

If the barcode height is reduced to less than 30 dots (3.75 mm) by this setting, the barcode height is set to 30 dots. This setting is disabled in Page Mode.

	Printing result
Vertical paper saving disabled	
Vertical paper saving enabled	

7.8. MSWA

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B				
A				
9				
8				
7				
6				
5				
4				
3				
2				
1				
0				

7.9. MSWB

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E	Communication connection state detection	Enabled	Disabled	*1
D				
C	Print data processing after recovery from an error	Print data is discarded.	Reprint	*2
B				
A				
9				
8				
7				
6				
5				
4				
3				
2				
1				
0				

* 1) Communication connection state detection

If this function is enabled, the communication connection status of the interface is monitored.
If a disconnection is detected when a command is being received, the command analysis will be terminated.
In addition, if the data cancel mode is enabled when disconnection is detected, data cancellation will be performed until the document end command.

*2) Print data processing after recovery from an error

This function is only enabled in the page mode.

MSWB-C = 0 (Print data is discarded.)	MSWB-C = 1 (Reprint)
When an error occurs, discard the continued print data	When the ON-LINE status is recovered, restart printing from the top of the page when the error occurred

7.10. MSWC

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B				
A				
9				
8				
7				
6				
5				
4				
3	(Reserved)			
2	(Reserved)			
1	USB serial number	Disabled	Enabled	
0				

7.11. MSWE

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B	I/F switching wait time	(See table below.)		*1
A	I/F switching wait time	(See table below.)		*1
9	I/F switching wait time	(See table below.)		*1
8	I/F switching wait time	(See table below.)		*1
7				
6				
5				
4				
3				
2				
1				
0				

*1) I/F switching wait time

n	MSWE-B	MSWE-A	MSWE-9	MSWE-8	I/F switching wait time
"0"	0	0	0	0	3 seconds
"1"	0	0	0	1	1 second
"2"	0	0	1	0	2 seconds
"3"	0	0	1	1	3 seconds
"4"	0	1	0	0	4 seconds
"5"	0	1	0	1	5 seconds
"6"	0	1	1	0	6 seconds
"7"	0	1	1	1	7 seconds
"8"	1	0	0	0	8 seconds
"9"	1	0	0	1	9 seconds
"A"	1	0	1	0	10 seconds
"B"	1	0	1	1	(Reserved)
"C"	1	1	0	0	(Reserved)
"D"	1	1	1	0	(Reserved)
"E"	1	1	1	1	(Reserved)
"F"	1	1	1	1	(Reserved)

7.12. MSWF

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B				
A				
9	Paper feed with the feed button	Enabled	Disabled	
8	Cutter operation	Enabled	Disabled	
7				
6				
5				
4				
3				
2				
1				
0				

7.13. MSWR

bit	Function	OFF/"0"	ON/"1"	Remark
F				
E				
D				
C				
B	Top margin setting	(See table below.)		*1
A	Top margin setting	(See table below.)		*1
9	Top margin setting	(See table below.)		*1
8	Top margin setting	(See table below.)		*1
7				
6				
5	External device automatic drive	(See table below)		*2
4	External device automatic drive	(See table below)		*2
3				
2				
1	(Reserved)			
0	(Reserved)			

*1) Top margin setting

n	MSWR-B	MSWR-A	MSWR-9	MSWR-8	Top margin
"0"	0	0	0	0	11 mm (No back feed)
"1"	0	0	0	1	(Reserved)
"2"	0	0	1	0	(Reserved)
"3"	0	0	1	1	(Reserved)
"4"	0	1	0	0	(Reserved)
"5"	0	1	0	1	(Reserved)
"6"	0	1	1	0	(Reserved)
"7"	0	1	1	1	(Reserved)
"8"	1	0	0	0	(Reserved)
"9"	1	0	0	1	(Reserved)
"A"	1	0	1	0	(Reserved)
"B"	1	0	1	1	11 mm
"C"	1	1	0	0	(Reserved)
"D"	1	1	0	1	(Reserved)
"E"	1	1	1	0	(Reserved)
"F"	1	1	1	1	(Reserved)

*2) External device automatic drive (F/W Ver2.2 or later)

When cutting is performed with one of the following cut commands, the external device is driven automatically under the set conditions.

- <ESC>'d' n : Auto cutter

n	MSWR-5	MSWR-4	Drive condition
"0"	0	0	Disabled
"1"	0	1	Setting1 ON: 0.6 sec, OFF: 0.2 sec, Repeats 2 times (for buzzer sound)
"2"	1	0	Setting2 ON: 1.0 sec, OFF: 1.0 sec, Repeats 2 times (for buzzer sound)
"3"	1	1	Setting3 ON: 0.3 sec, OFF: 0.6 sec, Repeats 5 times (for buzzer sound)

Note) Since no printing or paper feed is performed during an external device drive, the next printing starts after the drive time (max. 4.5 sec) specified above has elapsed.

When MCS10 is connected, the length of the buzzer sound and the number of repetitions of the buzzer may not be as specified.

8. Application Development

Information on the control method of this product and the application development method is as follows.

8.1. Compatible emulations

StarPRNT emulation

8.2. Software

l Software developer's kit l

Name	General description
StarXpand SDK for iOS, Android	This is a software developer's kit for controlling the printer from a native application. New SDK with a redesigned StarPRNT SDK. Manual: https://www.star-m.jp/starxpandsdk-oml.html
StarXpand SDK for ReactNative	This is a software developer's kit for controlling the printer from a native application with ReactNative. Manual: https://www.star-m.jp/react-native-stario10-oml.html
StarPRNT SDK	This is a software developer's kit for controlling the printer from a native application. Manual: https://www.star-m.jp/starprntsdk-oml-android.html
Star Micronics Cloud Services	A service that provides access to printer data by connecting the Star Micronics printer to the Star Micronics cloud. Manual: https://www.starmicronicscloud.com
Star webPRNT SDK	This is a software developer's kit for printing from various devices such as PCs and tablets via a web browser. Manual: https://www.star-m.jp/starwebprnt-oml.html
Star PassPRNT SDK	This is a software developer's kit for calling and printing from other applications using the URL scheme. The software receives the print data and prints the data on a Star Micronics printer. Manual: https://www.star-m.jp/starpassprntsdk-oml-android.html
CloudPRNT SDK	Star CloudPRNT is a protocol that can print from a remote server. Manual: https://www.star-m.jp/starcloudprntsdk-oml.html

l Driver l

Name	General description	Operating environment
Star Windows Driver	This is required when using the Star Micronics printer via the Windows printer driver. Use the Windows printer driver to perform printing from Windows applications. It is included in Star Windows Software.	Windows
Star OPOS Driver	This is required when using the Star Micronics printer via the OPOS driver. It is included in Star Windows Software.	Windows
Star JavaPOS Driver	This is required when using Star Micronics printers and peripherals with JavaPOS drivers.	Windows, Linux, macOS
Star CUPS Driver	This is required when using Star Micronics printers and peripherals with CUPS drivers.	Linux, macOS

l Utility l

Name	General description	Operating environment
Star Quick Setup Utility	Communication settings, initial settings, printer operation test, printer setting change, etc. are possible.	iOS, Android
Star Windows Software	This provides the Windows printer driver, the OPOS driver, and printer utilities. The printer utility performs various settings on the printer. Printer Driver Installation, OPOS Driver Configuration, Configuration Utility, SteadyLAN setting utility, and USB serial number setting utility are provided.	Windows

l Download l

Various software and manuals can be downloaded from the following website.

https://www.star-m.jp/supportsite-wsw.html

iOS : App Store

Android : Google Play

9. Related Regulations

9.1. Electrical safety / EMC

Country	Electrical safety	EMC
International	CB	-
United States	UL	FCC (EMI Class A)
Canada	c-UL	ISED (EMI Class A)
Europe	CE, UKCA (EMI Class A)	
China	CCC (EMI Class A) (*1)	
Mexico	UL CoC	-
Australia/New Zealand	-	RCM (EMI Class A)
Japan	-	VCCI (EMI Class A)
Taiwan	RPC (*1)	
Russia/Belarus/Kazakhstan	EAC (*1)	
India	BIS	-

(*1) These items are used only for the UE model.

9.2. Radio Law

The following items are used only for the UEWB model.

Country	Radio
United States	FCC
Canada	ISED
Europe	CE, UKCA
Australia/New Zealand	RCM
Japan	Technical Standards Conformity Certification
Mexico	IFETEL
India	WPC

9.3. Environmental Regulations

Country	Environment
Europe	CE (RoHS Directive) WEEE Directive Packaging and package waste material directive REACH Regulation
China	China RoHS (*1)
Taiwan	Taiwan RoHS (*1)
Russia/Belarus/Kazakhstan	EAC (*1)
India	India RoHS

(*1) These items are used only for the UE model.

9.4. Energy Star

Energy Star Program conformance

10. Appendix

10.1. ARP/Ping execution example

Assumption: MAC address of printer = 00:11:62:12:34:56, IP address to set = 192.168.10.2

1. Turn on the power.
   Wait until ARP/Ping is in a state where it can be executed (usually takes approx. 25 seconds).
   Alternatively, execute self-print and wait until the following information is printed.

```
**************************************
      Current IP Parameters Status
**************************************
 IP Address         :0.0.0.0 (Didn't obtain)
 Subnet Mask        :0.0.0.0
 Default Gateway    :0.0.0.0
```

2. Open the command prompt as an administrator.
3. To avoid using the same address, clear the existing ARP table on the host device from the command line

```
arp -d 192.168.10.2
arp -a
```

4. Register the IP address and MAC address to the ARP table of the host device.

   (Linux/Mac) Shell

```
arp -s 192.168.10.2 00:11:62:12:34:56
arp -a
```

   (Windows) Command prompt

```
arp -s 192.168.10.2 00-11-62-12-34-56
arp -a
```

5. Run ping from the host device.

```
ping 192.168.10.2
```

6. Check that an echo response is returned by the specified address from the NIC.
   Note that an echo response is not returned on the first time since it is used to retrieve the IP address.
   An echo response is returned from the second ping and on.

```
ping 192.168.10.2
 -> No response (Timeout)
ping 192.168.10.2
 -> echo response
ping 192.168.10.2
 -> echo response
ping 192.168.10.2
 -> echo response
```

7. Lastly, delete the ARP table registered in (4).
   Make sure to execute this operation to avoid having the same address exist.

```
arp -d 192.168.10.2
arp -a
```

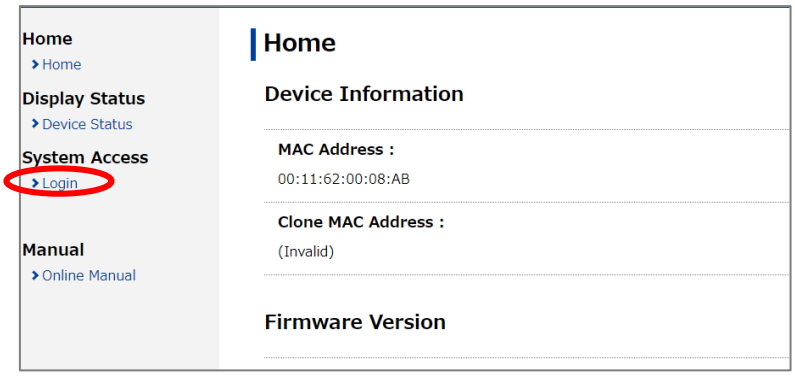
10.2. Example procedures for registration of SSL/TLS certificates

To use SSL/TLS communications (HTTPS), you must configure settings for the use of either a self-signed certificate or CA-signed certificate beforehand. The following shows each procedure.

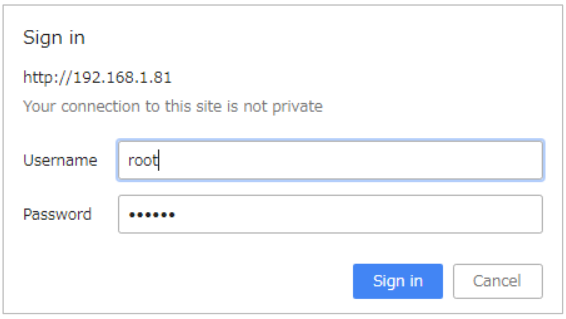
10.2.1. Using a self-signed certificate

1. Create a certificate on the printer.

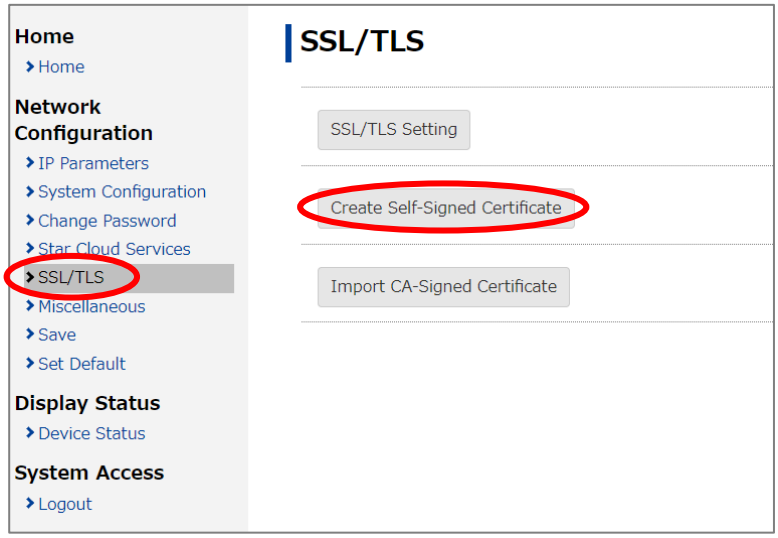
   Access the printer's IP address (in this procedure: http://192.168.1.81), and then log in with root privilege.



   Enter the following username and password, and then click [OK]. Username: "root", Password: "public" (factory default setting)

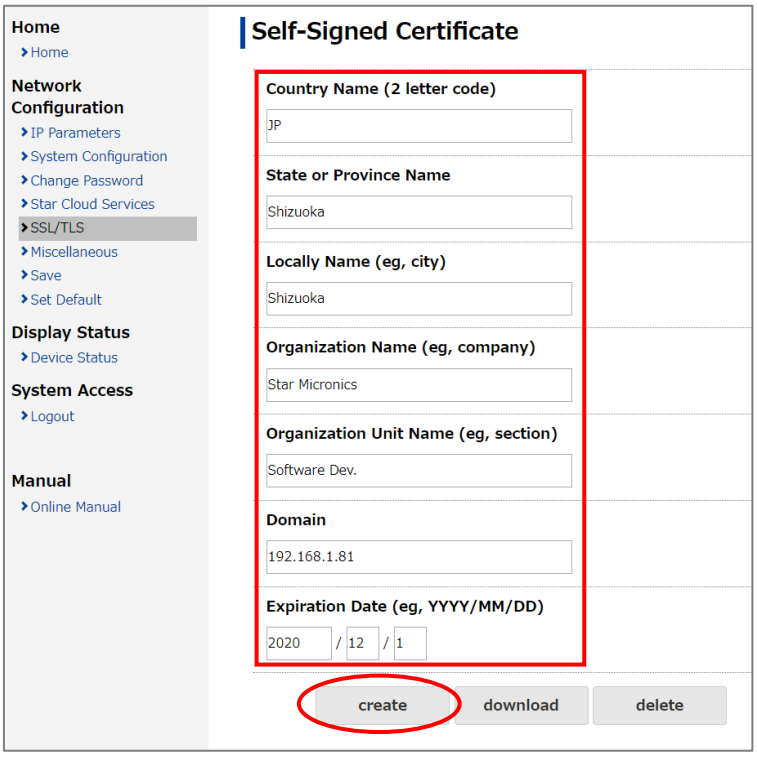


   Select "SSL/TLS", and click [Create Self-Signed Certificate].

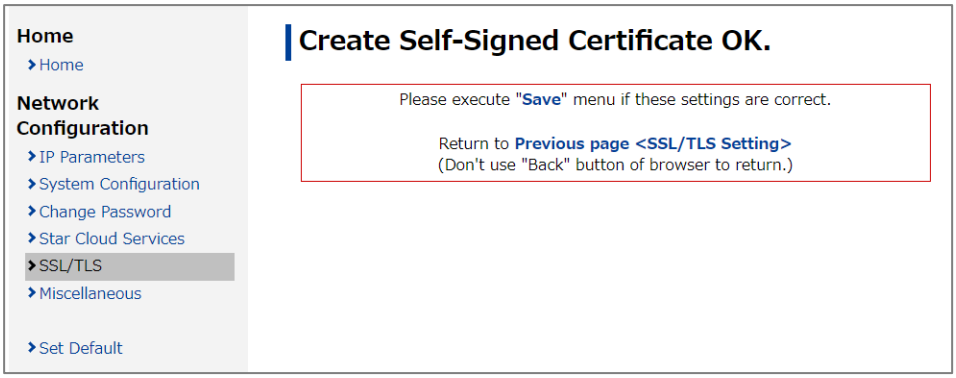


After entering each item in the "Self-Signed Certificate" fields and clicking [Create], a certificate is created in the printer.

For "Domain," enter the printer's IP address (the static value). * The following screen is an example.

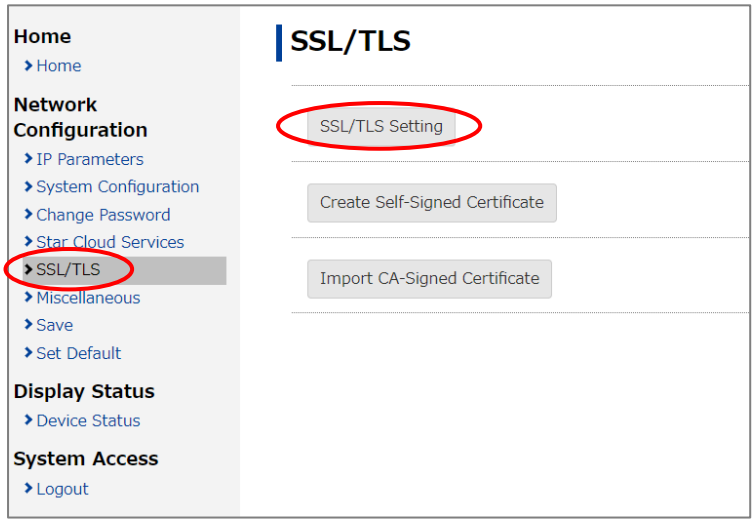


The following screen appears when you successfully create a certificate.

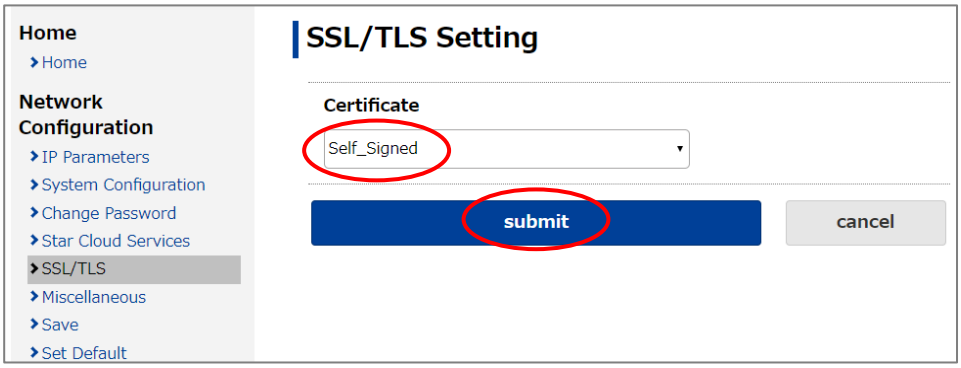


2. Enable the printer self-signed certificate setting.

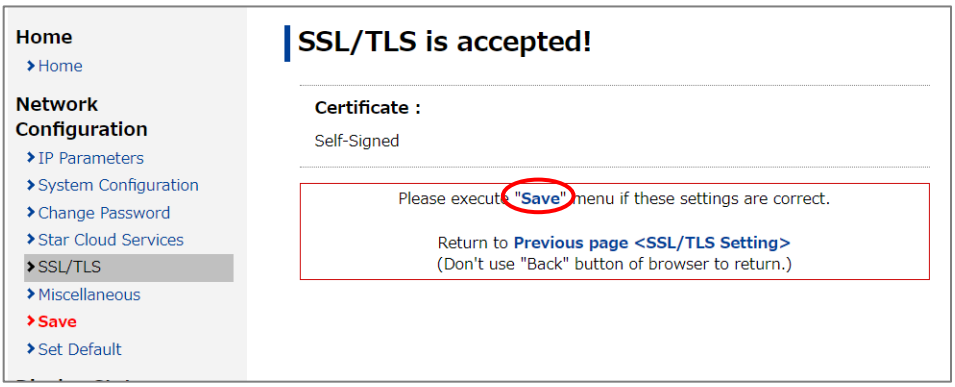
Click [SSL/TLS]. Click [SSL/TLS Setting].



Select "Self-Signed" in the "Certificate" drop-down list, and then click [Submit].



The following will be displayed. Confirm that Certificate: Self-Signed.

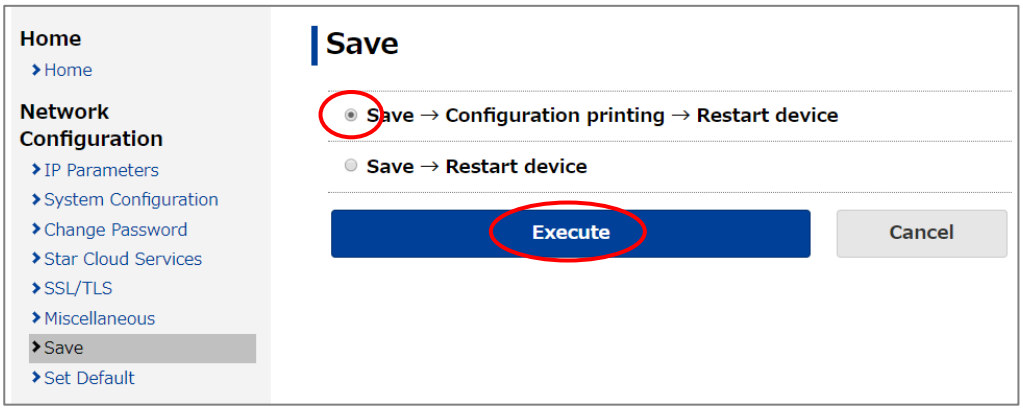


Select "Save".

On the Save screen, select "Save → Configuration printing → Restart device," and then click [Execute].

The printer prints the settings. Check that the settings are the same as below.

- Self-signed Certificate Exist
- Certificate: Self-Signed



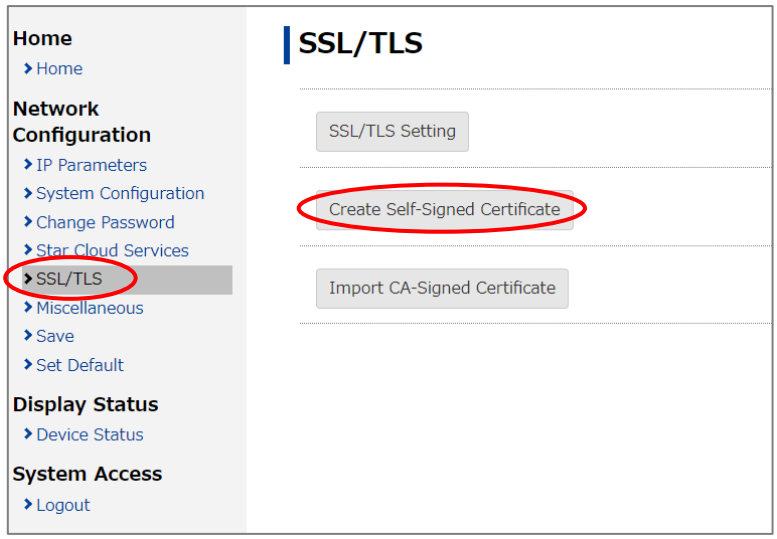
The procedures for creating the printer self-signed certificate are completed.

3. Import the certificate to the web browser.

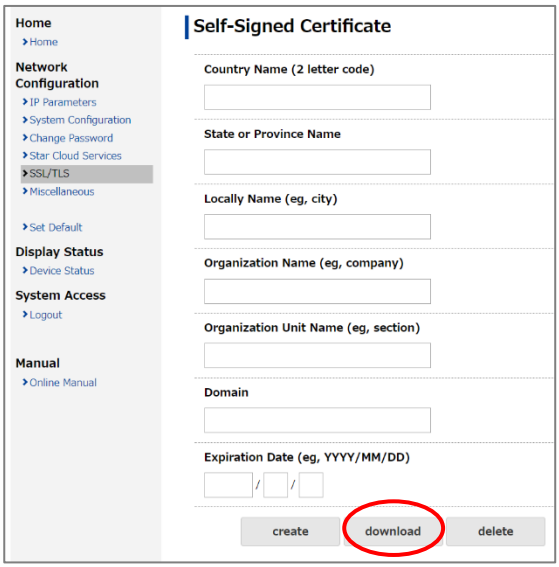
   Import the created certificate in the NIC to the web browser of the client device.

■ For Windows devices (Windows 7 example)

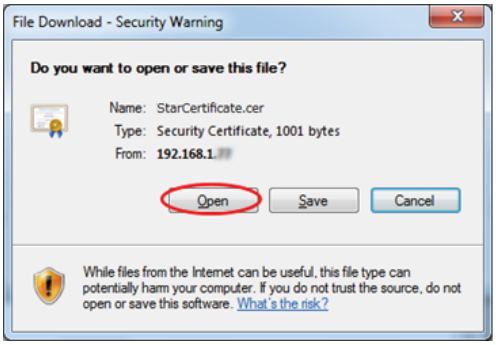
Select "SSL/TLS", and click [Create Self-Signed Certificate]



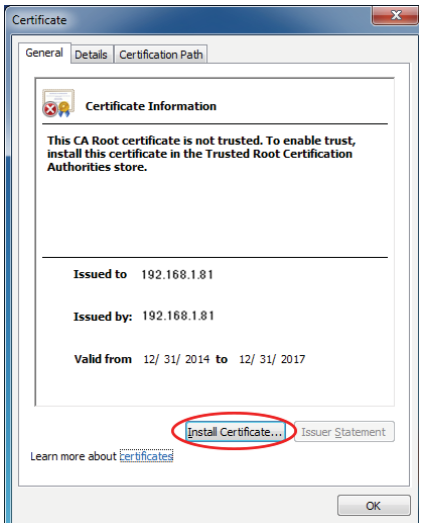
Click [download] and save a certificate file (name is optional) to any place in Windows.
(In this procedure, save this file as "StarCertificate.cer.")



On the client device, double-click the saved certificate file and click [Open].

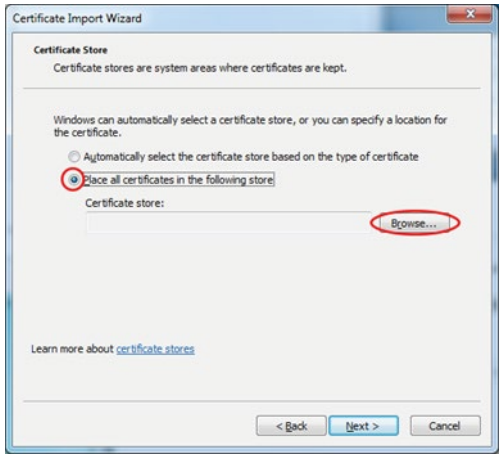


Click [Install Certificate…].

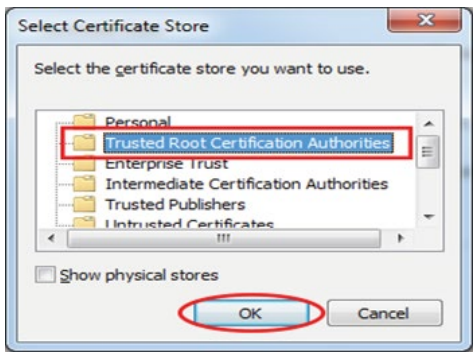


Click [Next].

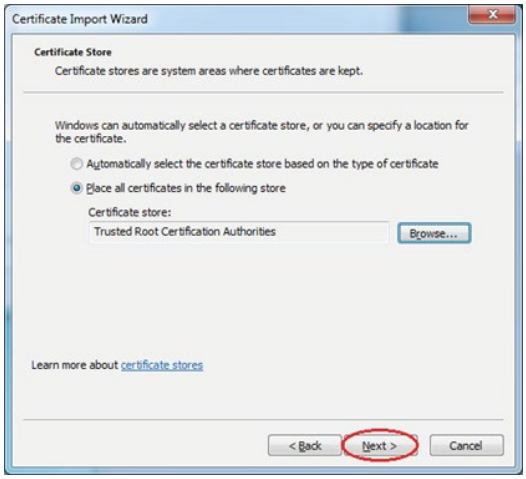
Select "Place all certificates in the following store" and then click [Browse…].



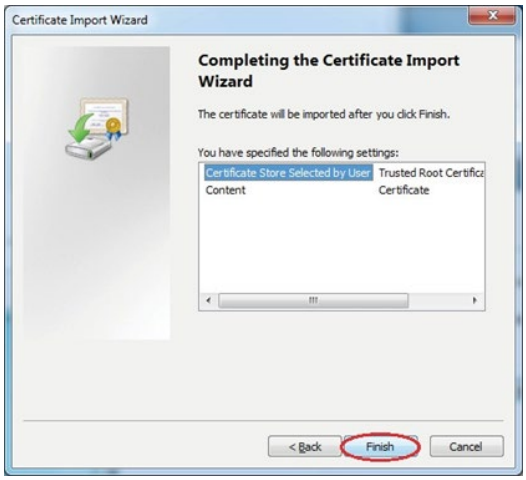
Select "Trusted Root Certification Authorities" and then click [OK].



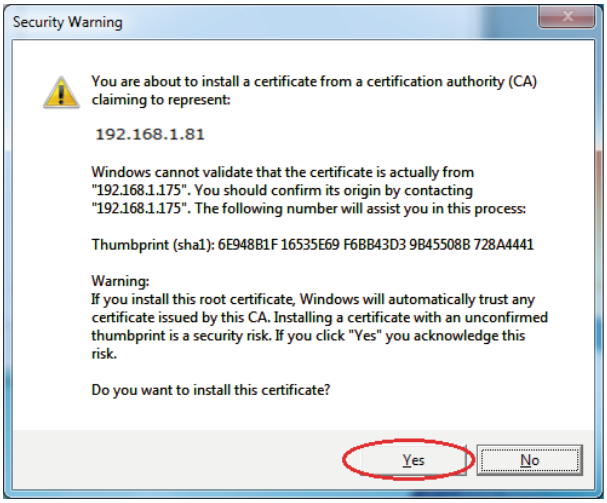
Click [Next].



Click [Finish].

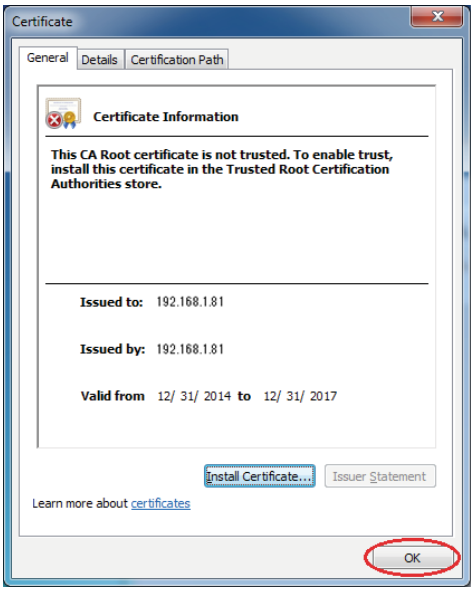


Click [Yes] when the following message appears.

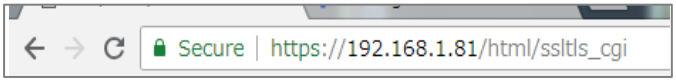


Click [OK].

Click [OK] and close. The procedure is complete.



Turn on the printer power again. It becomes possible to access the printer web screen with an address beginning with "https://."



However, depending on the client device environment, you may need to add the address as a "Trusted sites."
(For example, combination of Windows 10 + Microsoft Edge.)
See "10.2.3. Supplementary Information."

[References]

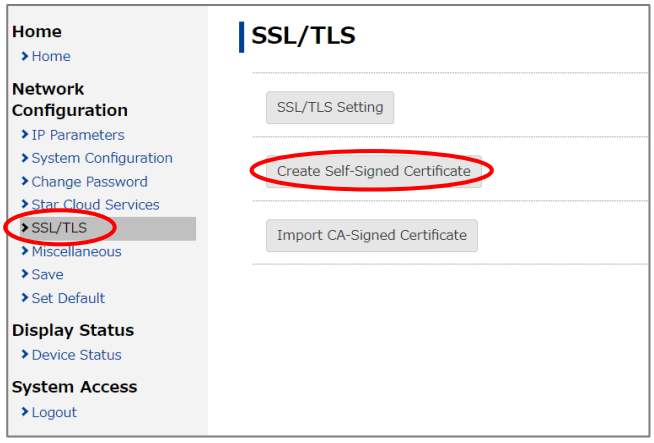
When importing a certificate file to the web browser on Windows 8/8.1/10/11, you must activate certificate manager, "certmgr.msc" in Windows administrative tools, and then perform the following procedure.

- Select "Trusted Root Certification Authorities" and then [Certificate].
- Select [All tasks] and then [Import] from the [Action] menu.
- Import a self-singed certificate in accordance with the import wizard.
- Make sure you import the certificate by referring to "Trusted Root Certification Authorities" and then [Certificate].

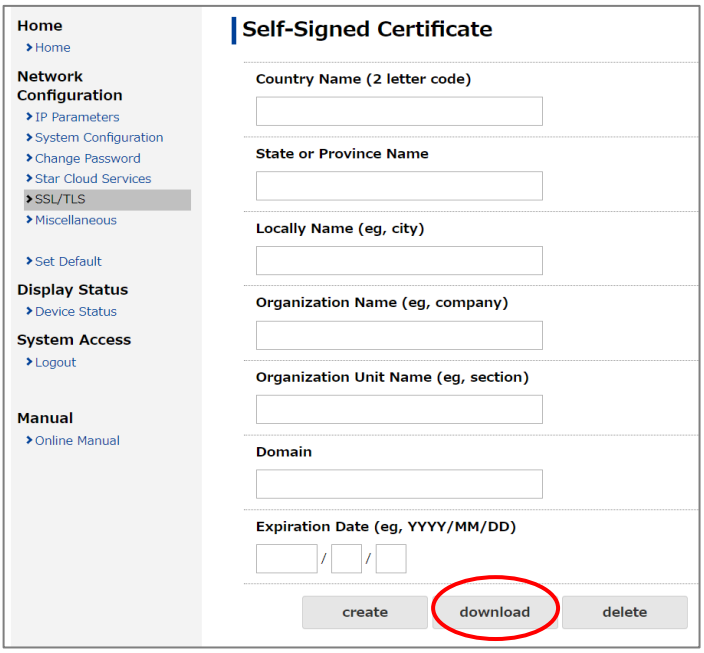
■ For iOS devices

Access the printer's IP address (in this procedure: http://192.168.192.63) on Safari, and log in as root privilege. Select "SSL/TLS," and then select [Create Self-Signed Certificate].

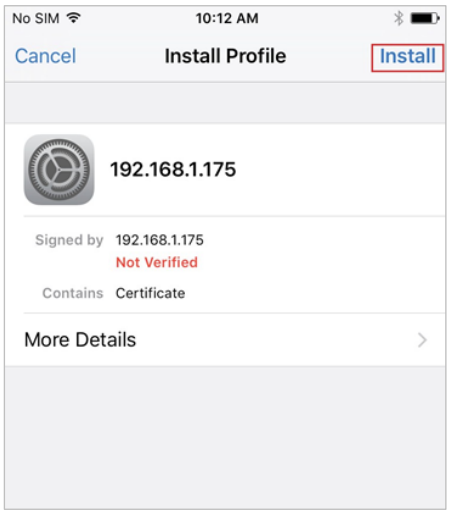
Note: For iOS devices, you need to use Safari because the certificate download is not permitted in browsers other than Safari.



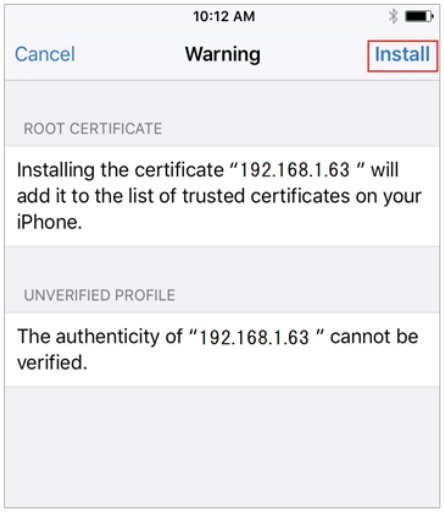
Select [download].



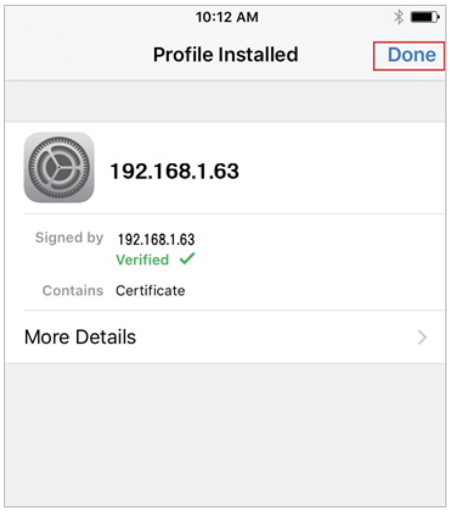
Click [Install] when the following screen appears.



Click [Install] when the following screen appears.



Installation is complete when the following screen appears. Click [Finish].

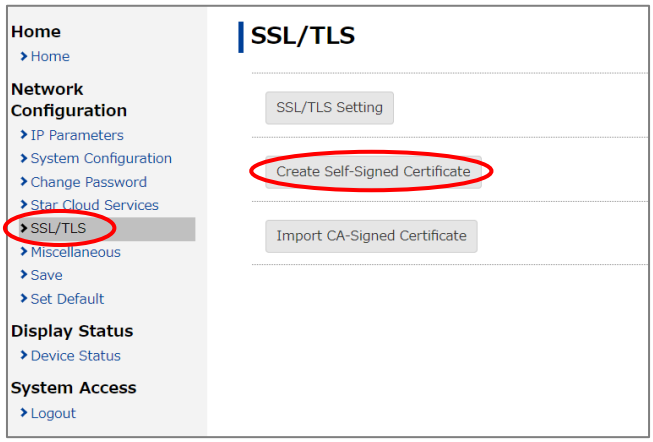


Turn on the printer power again. It becomes possible to access the printer web screen with an address beginning with "https://."

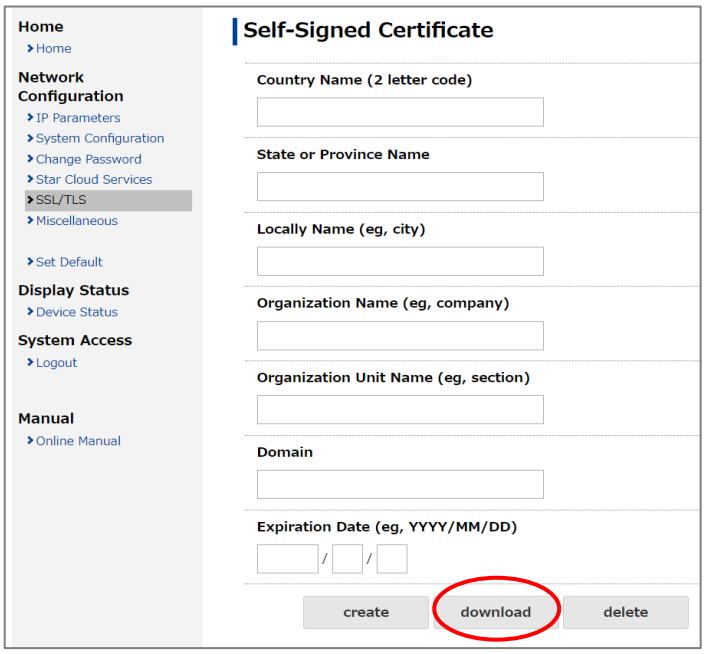
If you use iOS 10.3 or later, additional settings are necessary on the iOS side. Therefore, refer to "10.2.4. Settings required for certificate registration on iOS 10.3 or later."

■ For Android devices

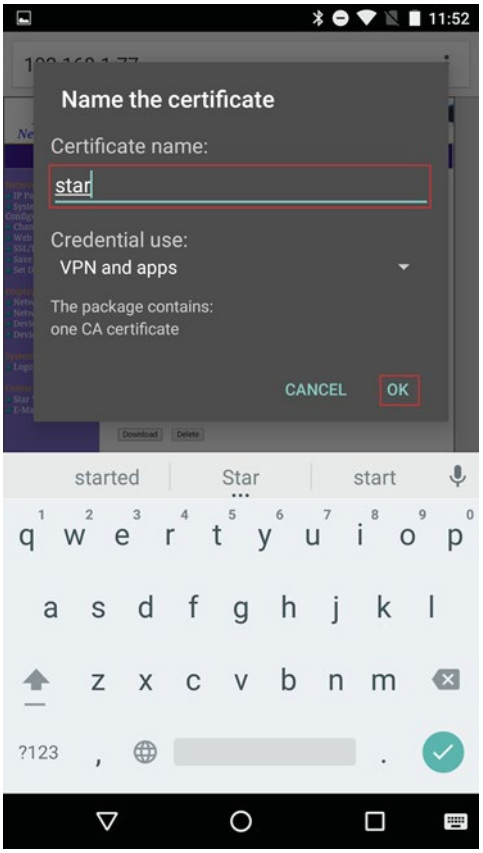
Go to the printer's IP address (in this procedure: http://192.168.192.63) on Chrome, and log in as root privilege. Select "SSL/TLS," and then click [Create Self-Signed Certificate].



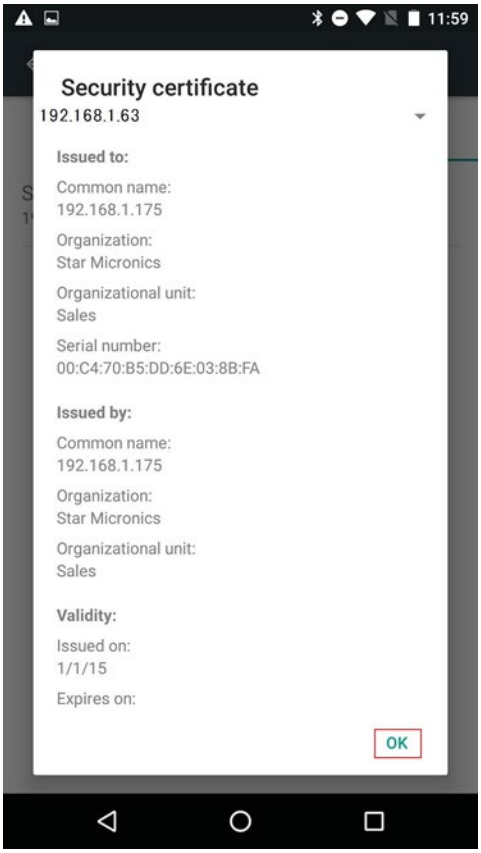
Click [Download].



When the name of the certificate is required, enter any name (in this procedure: "star") and click [OK].



Installation is complete when the contents of the certificate appear. Tap [OK] to finish.



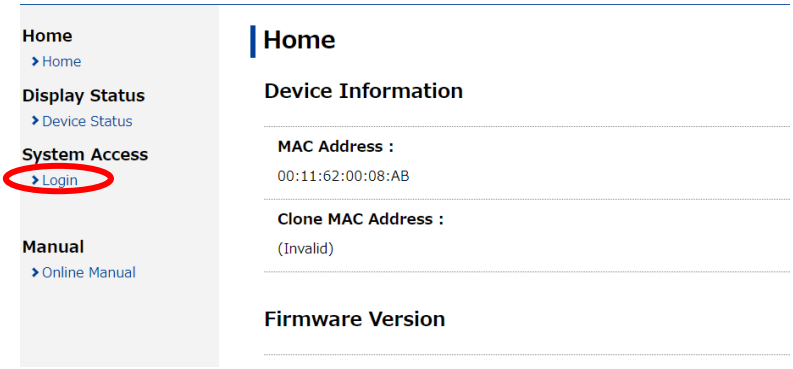
Turn on the printer power again. It becomes possible to access the printer web screen with an address beginning with "https://."

10.2.2. Using CA-signed certificates

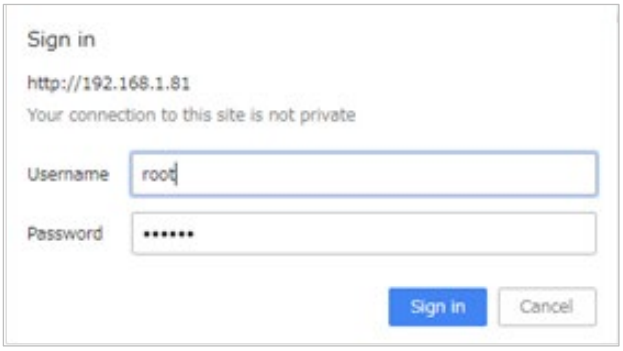
Import a server certificate created externally and signed by CA and a private key to the printer.
For the browser, you must register the CA (Certificate Authority) as a "Trusted Root Certification Authorities."

1. Prepare the server certificate and private key.
   Prepare a server certificate file signed by an external Certificate Authority (CA) and a private key file.
   - Encoding type: Base64 (filename extension = PEM)
   - Types of the certification file: PKCS #1
   - Key length: RSA 1024 bits

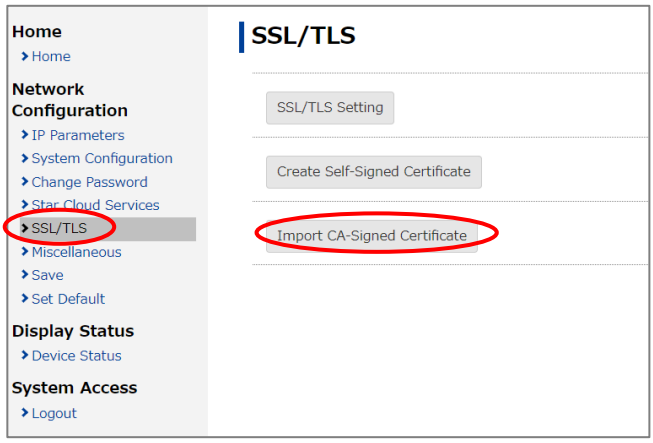
2. Import a server certificate and a private key to the NIC.
   Access the printer's IP address (in this procedure: http://192.168.1.81), and then log in with root privilege.



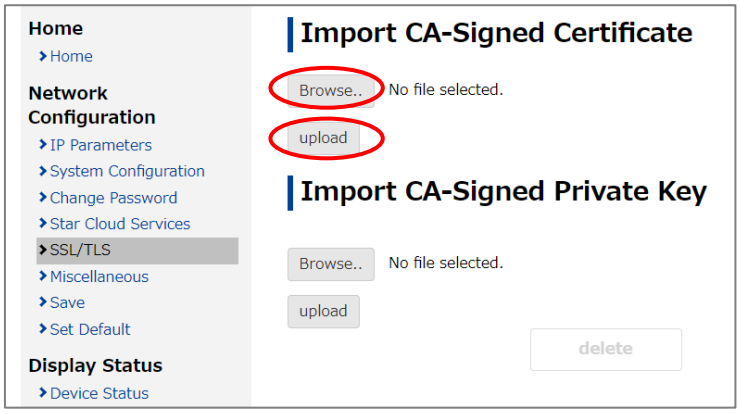
   Enter the following username and password, and then click [OK]. Username: "root", Password: "public" (factory default setting)



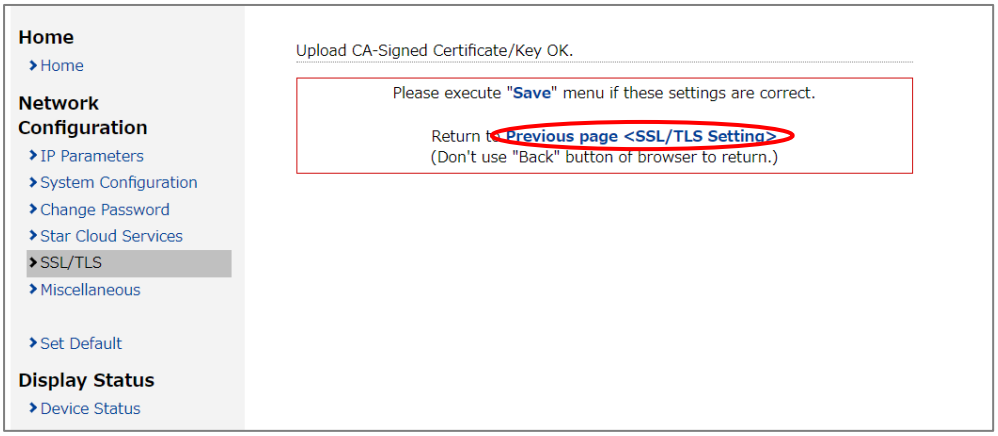
Click [SSL/TLS]. Click [Import CA-Signed Certificate].



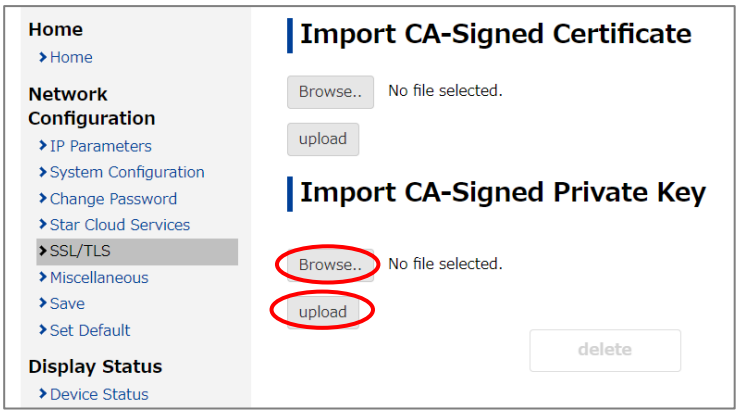
Click [Browse] in the "Import CA-Signed Certificate" column. Select the certificate file to import from the client device's file dialog, and then click [upload].



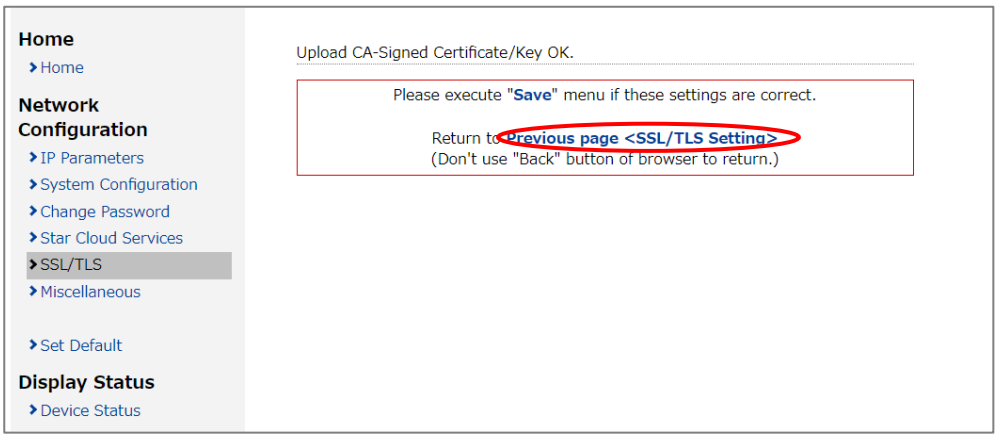
The following screen appears when importing has been successful.
Click "Return to Previous page" to return to the previous page and continue to register the private key.



Click [Browse] in the "Import CA-Signed Private Key" column. Select the private key file from the client device's file dialog, and then click [upload].

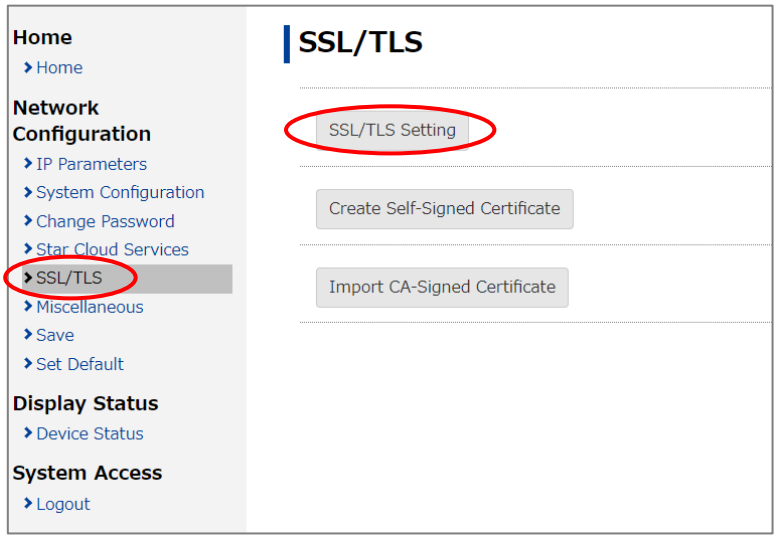


The following screen appears when importing has been successful.

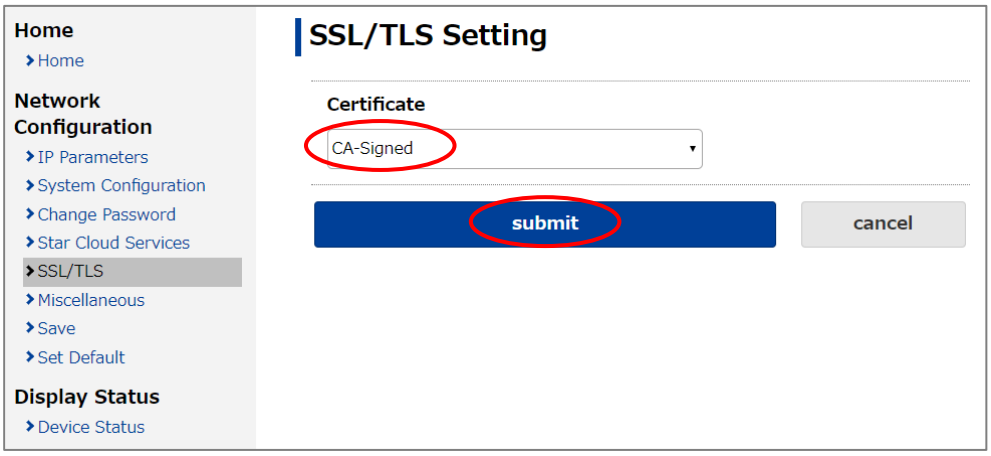


The registration is complete.

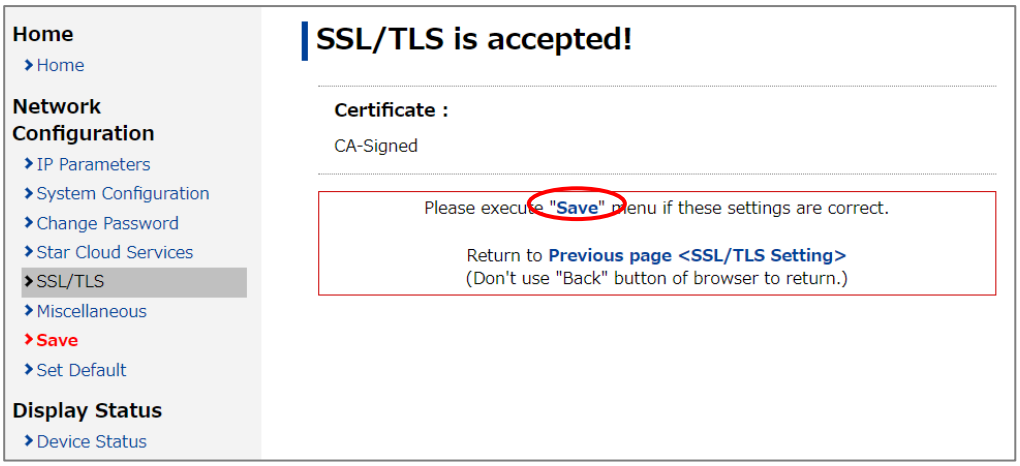
3. Enable the CA-signed certificate setting.
   Select [SSL/TLS].
   Click [SSL/TLS Setting].



Select "CA-Signed" in the "Certificate" drop-down list, and then click [submit].

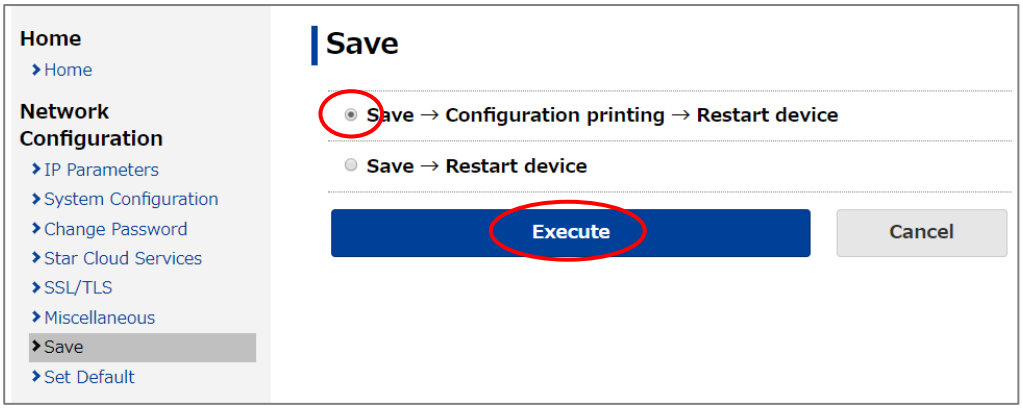


The following will be displayed. Confirm that Certificate: CA-Signed.



Click "Save" and, on the Save screen, select "Save → Configuration printing → Restart device".
Click [Execute].
The printer prints the settings. Check that the settings are the same as below.

- CA-Signed Certificate: Exist
- Certificate: CA-Signed



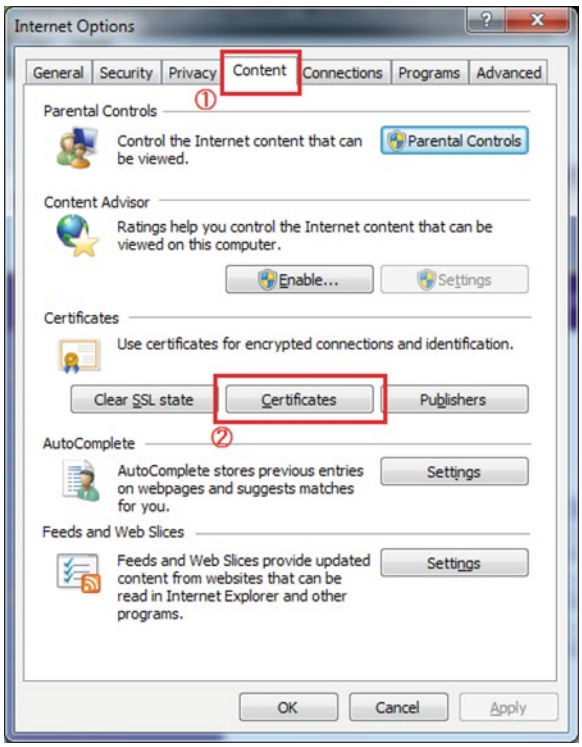
Importing a server certificate and a private key to the printer is complete.

[Registering in the web browser]

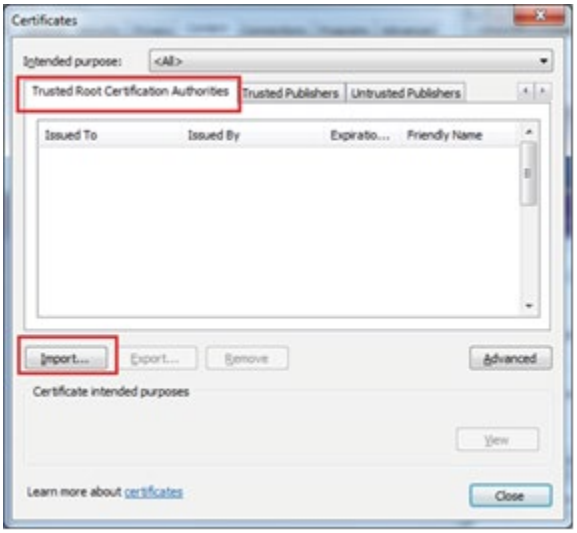
Register the server certificate signed by a Certificate Authority (CA) in the web browser of the client device as a "Trusted Root Certification Authorities." (This procedure is not necessary if you have already registered the certificate.)

■ For Windows devices (Windows 7 example)

Open the Internet Options screen on the web browser, select the "Content" tab, and click [Certificates].

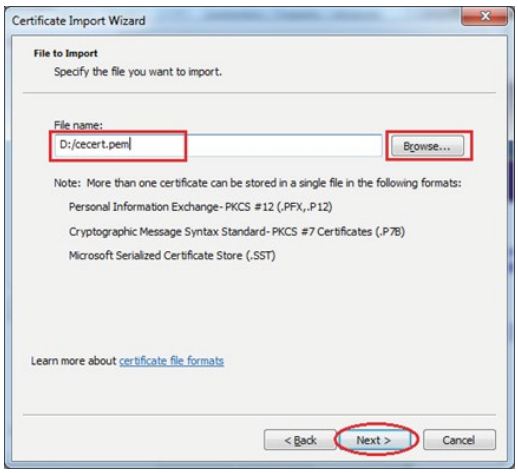


Select the "Trusted Root Certification Authorities" tab, and then click [Import...].

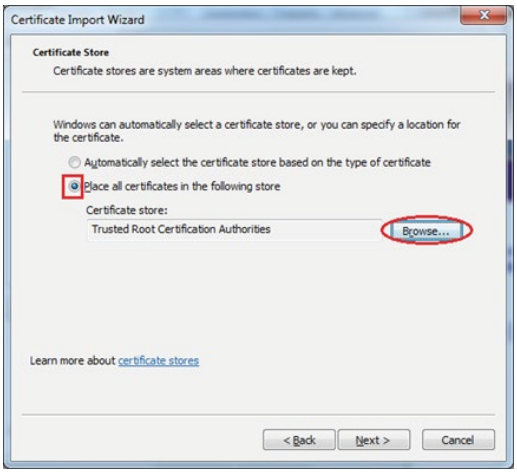


Click [Next].

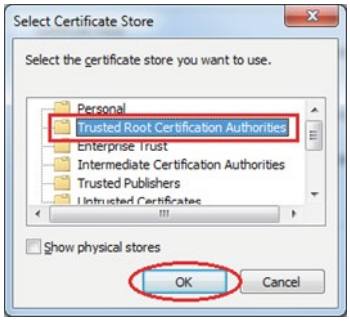
Click [Browse...], specify the Certificate Authority's certificate file signed on the server certificate (in this procedure: "cecert.pem"), and then click [Next].



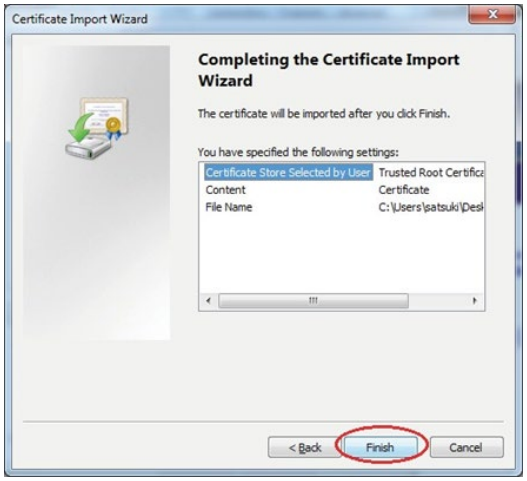
Select "Place all certificates in the following store" and click [Browse...].



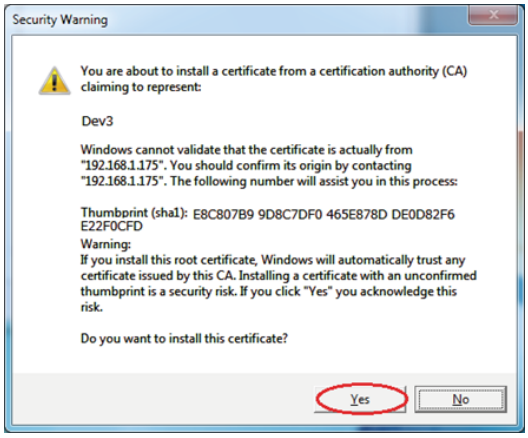
Select "Trusted Root Certification Authorities" and then click [OK].



Click [Finish].

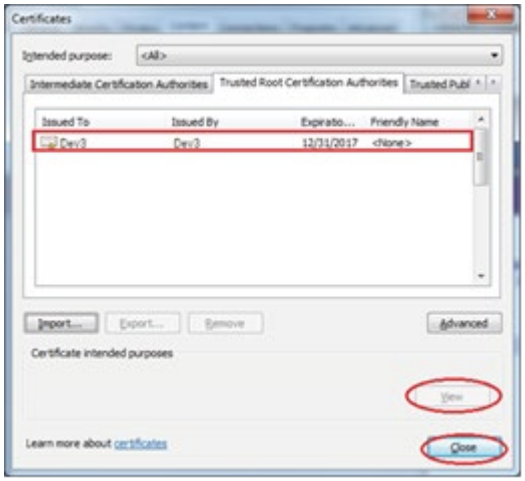


Click [Yes]. (The following example: The Certificate Authority (CA) name "Dev 3" is an example of a certificate authority's name imported to printer.)

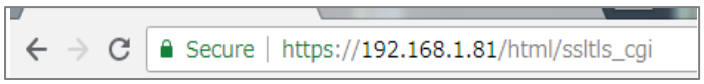


Click [OK].

Check that the Certificate Authority has been registered. Click [View], confirm the details of the certificate, and then click [Close].



Turn on the printer power again. It becomes possible to access the printer web screen with an address beginning with "https://."

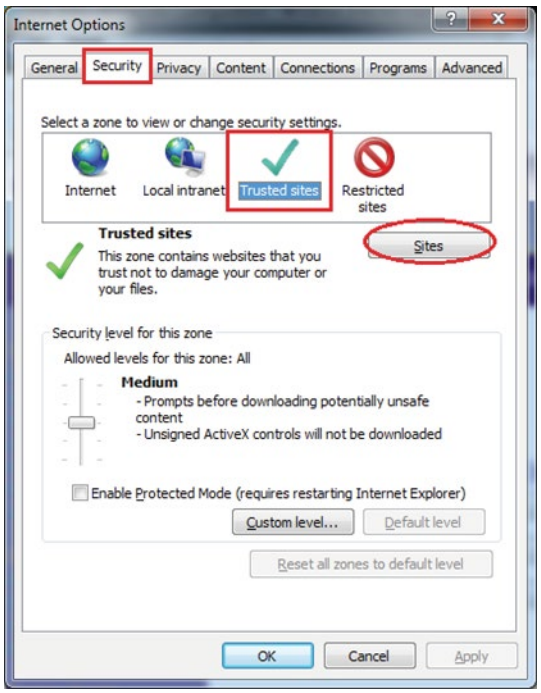


However, depending on the client device environment, you may need to add the address as a "Trusted sites." (See "10.2.3. Supplementary Information.")

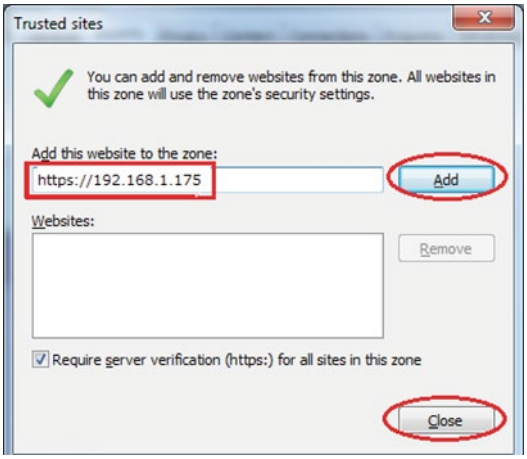
10.2.3. Supplementary Information

Depending on the client device environment, you may need to add the address as a "Trusted Sites" in the web browser.
The following is an example of settings using Internet Explorer (Windows).

Select "Trusted Sites" from the "Security" tab in Internet Options, and then click [Sites].



Enter the printer's IP address (the domain value of the certificate) beginning with "https://." Click [Add], and then click [Close].

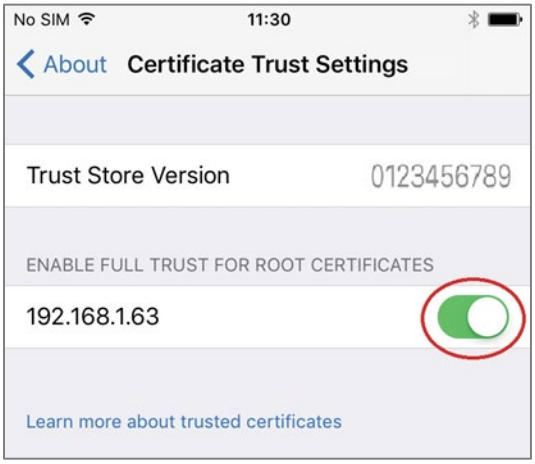


After returning to the Internet Options screen, click [OK] to exit.

10.2.4. Settings required for certificate registration on iOS 10.3 or later

In iOS 10.3 or later, if you manually install a certificate, the certificate is not automatically trusted for SSL communication. Settings on iOS are shown below as reference information because settings on iOS devices are required.
(For details, refer to the Apple's website. https://support.apple.com/ja-jp/HT204477)

1. According to the procedure in "3. Import the certificate to the web browser, ■ For iOS devices" in "10.2.1. Using a self-signed certificate" import the certificate.
2. Select "Settings" > "General" > "About" > "Certificate Trust Settings."
3. Enable trust for the certificate by "Enable full trust for root certificates."



10.3. Cypher suite support list

The cypher suites supported by each service that uses SSL/TLS communication are the following.

(✓: Supported, -: Not supported)

10.3.1. Web Configuration

Service name		Web Configuration
Firmware version		1.0~
Cypher suite name	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	-
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	-
	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	-
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA	-
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	-
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	-
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	-
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	-
	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	-
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	-
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	-
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	-
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	-
	TLS_RSA_WITH_AES_128_GCM_SHA256	-
	TLS_RSA_WITH_AES_256_GCM_SHA384	-
	TLS_RSA_WITH_AES_128_CBC_SHA	✓
	TLS_RSA_WITH_AES_128_CBC_SHA256	-
	TLS_RSA_WITH_AES_256_CBC_SHA	✓
	TLS_RSA_WITH_AES_256_CBC_SHA256	-
	TLS_RSA_WITH_3DES_EDE_CBC_SHA	✓
	TLS_RSA_WITH_RC4_128_SHA	✓
	TLS_RSA_WITH_RC4_128_MD5	✓

10.3.2. Star CloudPRNT

Service name		Star CloudPRNT			
Firmware version		1.0~			
TLS1.3		ENABLE(*)		DISABLE	
Encryption level setting value of TLS 1.2 cipher suite		HIGH + MEDIUM(*)	MEDIUM	HIGH + MEDIUM(*)	MEDIUM
Cypher suite name	TLS_AES_128_GCM_SHA256	✓	✓	-	-
	TLS_AES_256_GCM_SHA384	✓	✓	-	-
	TLS_CHACHA20_POLY1305_SHA256	✓	✓	-	-
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	✓	-	✓	-
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	✓	-	✓	-
	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	✓	-	✓	-
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA	✓	-	✓	-
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	✓	-	✓	-
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	✓	-	✓	-
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	✓	-	✓	-
	TLS_RSA_WITH_AES_128_GCM_SHA256	✓	-	✓	-
	TLS_RSA_WITH_AES_256_GCM_SHA384	✓	-	✓	-
	TLS_RSA_WITH_AES_128_CBC_SHA	✓	✓	✓	✓
	TLS_RSA_WITH_AES_128_CBC_SHA256	✓	-	✓	-
	TLS_RSA_WITH_AES_256_CBC_SHA	✓	✓	✓	✓
	TLS_RSA_WITH_AES_256_CBC_SHA256	✓	-	✓	-
	TLS_RSA_WITH_3DES_EDE_CBC_SHA	✓	✓	✓	✓
	TLS_RSA_WITH_RC4_128_SHA	✓	✓	✓	✓
	TLS_RSA_WITH_RC4_128_MD5	✓	✓	✓	✓

(*) Factory default setting value

10.4. TSP143IV-UE/ TSP143IV-UEWB/TSP143IIILAN/TSP143IIIU/TSP143GT/TSP143IIU function comparison

The function comparison is shown in the table below.

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
Print speed Effective printing width 72 mm	High speed	250mm/sec	250mm/sec	250mm/sec	250mm/sec	250mm/sec	150mm/sec	
	Medium speed	180mm/sec	180mm/sec	180mm/sec	180mm/sec	180mm/sec	100mm/sec	
	Low speed	100mm/sec	100mm/sec	100mm/sec	100mm/sec	100mm/sec	62.5mm/sec	
Print speed Effective printing width 51 mm	High speed	220mm/sec	220mm/sec	220mm/sec	220mm/sec	250mm/sec	150mm/sec	
	Medium speed	180mm/sec	180mm/sec	180mm/sec	180mm/sec	180mm/sec	100mm/sec	
	Low speed	100mm/sec	100mm/sec	100mm/sec	100mm/sec	100mm/sec	62.5mm/sec	
Print speed Reduced printing No variations between printing widths	High speed with vertical reduction ratio of 75%	150mm/sec	150mm/sec	150mm/sec	150mm/sec	Not supported	150mm/sec	
	Medium speed with vertical reduction ratio of 75%	100mm/sec	100mm/sec	100mm/sec	100mm/sec	Not supported	100mm/sec	
	Low speed with vertical reduction ratio of 75%	62.5mm/sec	62.5mm/sec	62.5mm/sec	62.5mm/sec	Not supported	62.5mm/sec	
	High speed with vertical reduction ratio of 50%	100mm/sec	100mm/sec	100mm/sec	100mm/sec	Not supported	100mm/sec	
	Medium speed with vertical reduction ratio of 50%	100mm/sec	100mm/sec	100mm/sec	100mm/sec	Not supported	100mm/sec	
	Low speed with vertical reduction ratio of 50%	62.5mm/sec	62.5mm/sec	62.5mm/sec	62.5mm/sec	Not supported	62.5mm/sec	
Top margin	-	11mm	11mm	11mm	11mm	11mm	3~11mm	
Printing width	-	80mm paper : 72mm 58mm paper : 48mm, 50.8mm, 51mm	80 mm paper: 72 mm 58 mm paper: 48 mm, 50.8mm 51mm	80 mm paper: 72 mm 58 mm paper: 51mm	80 mm paper: 72 mm 58 mm paper: 51mm	80 mm paper: 72 mm 58 mm paper: 51mm	80 mm paper: 72 mm 58 mm paper: 51mm	
Paper specifications (paper thickness)	-	49～85μm	49 to 85 μm	53 to 85 μm	53 to 85 μm	65 to 85 μm	65 to 85 μm	
Decal function	-	No	No	Yes	Yes	No	No	
Barcode printing	-	Supported	Supported	Supported	Supported	Not supported	Not supported	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
USB (device function)	Connector	USB-C	USB-C	Not provided	USB-B	USB-B	USB-B	
	USB Class	Printer Class	Printer Class	Not supported	Printer Class	Printer Class	Printer Class	
	Product ID	0X0003	0X0003	Not supported	0x0003	0x0005	0x0003	
	Hub usage	No limitation	No limitation	Not supported	No limitation	No limitation	Not recommended	
USB (host function)	Connector	USB-A	USB-A	USB-A	USB-A	Not provided	Not provided	
	Communication with peripherals	Possible	Possible	Not possible	Possible	Not supported	Not supported	
	Communication with iOS	Not possible	Not possible	Not possible	Possible	Not supported	Not supported	
	Communication with Android	Possible	Possible	Not possible	Not possible	Not supported	Not supported	
USB (host function)	USB power supply	Max1.5A When connected to a BC1.2 CDP compliant device: Max 1.5 A When connected to other devices: Max 0.5 A	Max1.5A When connected to a BC1.2 CDP compliant device: Max 1.5 A When connected to other devices: Max 0.5 A	Max1.0A	Max2.4A When connected to a supported iOS device: Max 2.4 A When connected to a BC1.2 CDP compliant device: Max 1.5 A When connected to other devices: Max 0.5 A	No	No	
Wired LAN	Connector	RJ-45 8P modular jack connector	RJ-45 8P modular jack connector	RJ-45 8P modular jack connector	Not provided	Not provided	Not provided	
Wireless LAN	Standard	2.4GHz:IEEE802.11b/g/n/ax 5GHz:IEEE802.11a/n/ac/ax	No	No	No	No	No	
Bluetooth	Standard	Bluetooth V5.0 Classic (BR/EDR)	No	No	No	No	No	
Network function	Star webPRNT function	Supported	Supported	Not supported	Not supported	Not supported	Not supported	
	Star Micronics Cloud Service	Supported	Supported	Not supported	Not supported	Not supported	Not supported	
	SSL/TLS communication	Supported	Supported	Not supported	Not supported	Not supported	Not supported	
	Star CloudPRNT function	Supported	Supported	Not supported	Not supported	Not supported	Not supported	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
Memory switch	MSW<2>8	Print startup (page/line unit) control	Print startup (page/line unit) control	Print startup (page/line unit) control	Print startup (page/line unit) control	Not supported	Not supported	
	MSW<2>5,4	Print speed (High, Medium, Low)	Print speed (High, Medium, Low)	Print speed (High, Medium, Low)	Print speed (High, Medium, Low)	Print speed (High, Medium, Low)	Print speed (High, Medium, Low)	
	MSW<2>2-0	Print density (Normal, ±1 to ±3)	Print density (Normal, ±1 to ±3)	Print density (Normal, ±1 to ±3)	Print density (Normal, ±1 to ±3)	Print density (Normal, ±1 to ±3)	Print density (Normal, ±1 to ±3)	
	MSW<4>2-0	Printing width (72 mm, 48 mm, 50.8 mm, 51 mm)	Printing width (72 mm, 48 mm, 50.8 mm, 51 mm)	Printing width (72 mm, 51 mm)	Printing width (72 mm, 51 mm)	Printing width (72 mm, 51 mm)	Printing width (72 mm, 51 mm)	
	MSW<7>C	ASB function (USB-C)	ASB function (USB-C)	ASB function	ASB function	Not supported	Not supported	
	MSW<7>8	NSB function (USB-C)	NSB function (USB-C)	NSB Function	NSB Function	Not supported	Not supported	
	MSW<8>9,8	Vertical reduced printing (100%, 75%, 50%)	Vertical reduced printing (100%, 75%, 50%)	Vertical reduced printing (100%, 75%, 50%)	Vertical reduced printing (100%, 75%, 50%)	Not supported	Not supported	
	MSW<B>F	Not supported	Not supported	Data timeout (Enabled, Disabled)	Data timeout (Enabled, Disabled)	Not supported	Not supported	
	MSW<B>E	Communication connection state detection (Enabled, Disabled)	Communication connection state detection (Enabled, Disabled)	Communication connection state detection (Enabled, Disabled)	Communication connection state detection (Enabled, Disabled)	Not supported	Not supported	
	MSW<C>1	USB serial number (Enabled, Disabled)	USB serial number (Enabled, Disabled)	Not supported	USB serial number (Enabled, Disabled)	USB serial number (Enabled, Disabled)	USB serial number (Enabled, Disabled)	
	MSW<F>8	Cutter operation (Enabled, Disabled)	Cutter operation (Enabled, Disabled)	Not supported	Not supported	Not supported	Not supported	
	MSW<0>E-C	Special location of use	Special location of use	Not supported	Not supported	Not supported	Not supported	
	MSW<0>A-8	Multi-byte character	Multi-byte character	Not supported	Not supported	Not supported	Not supported	
	MSW<0>5	SHIFT-JIS Kanji Character Mode	SHIFT-JIS Kanji Character Mode	Not supported	Not supported	Not supported	Not supported	
	MSW<0>4	Destination specifications	Destination specifications	Not supported	Not supported	Not supported	Not supported	
	MSW<1>6	Font type (Font-A, Font-B)	Font type (Font-A, Font-B)	Not supported	Not supported	Not supported	Not supported	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
Memory switch	MSW<1>4	Zero style	Zero style	Not supported	Not supported	Not supported	Not supported	
	MSW<1>3-0	International characters	International characters	Not supported	Not supported	Not supported	Not supported	
	MSW<2>C	180° inversion	180° inversion	Not supported	Not supported	Not supported	Not supported	
	MSW<3>F-8	Code page	Code page	Not supported	Not supported	Not supported	Not supported	
	MSW<3>5	Chinese characters per line	Chinese characters per line	Not supported	Not supported	Not supported	Not supported	
	MSW<3>4	Characters per line	Characters per line	Not supported	Not supported	Not supported	Not supported	
	MSW<3>0	Amount of line feed	Amount of line feed	Not supported	Not supported	Not supported	Not supported	
	MSW<7>F	ASB function (Ethernet)	ASB function (Ethernet)	Not supported	Not supported	Not supported	Not supported	
	MSW<7>B	NSB function (Ethernet)	NSB function (Ethernet)	Not supported	Not supported	Not supported	Not supported	
	MSW<7>6	ASB function (wireless LAN)	Not supported	Not supported	Not supported	Not supported	Not supported	
	MSW<7>5	NSB function (wireless LAN)	Not supported	Not supported	Not supported	Not supported	Not supported	
	MSW<7>0	Error sound playback function	Error sound playback function	Not supported	Not supported	Not supported	Not supported	
	MSW<8>F-C	Horizontal reduced printing	Horizontal reduced printing	Not supported	Not supported	Not supported	Not supported	
	MSW<8>7	Reduced printing and barcode processing	Reduced printing and barcode processing	Not supported	Not supported	Not supported	Not supported	
	MSW<8>3	Horizontal paper saving	Horizontal paper saving	Not supported	Not supported	Not supported	Not supported	
	MSW<8>2	Vertical paper saving	Vertical paper saving	Not supported	Not supported	Not supported	Not supported	
	MSW<B>C	Print data processing after recovery from an error	Print data processing after recovery from an error	Not supported	Not supported	Not supported	Not supported	
	MSW<E>B-8	I/F switching wait time	I/F switching wait time	Not supported	Not supported	Not supported	Not supported	
	MSW<F>9	Paper feed with the feed button	Paper feed with the feed button	Not supported	Not supported	Not supported	Not supported	
	MSW<R>B-8	Top margin setting	Top margin setting	Not supported	Not supported	Not supported	Not supported	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
DIP switches	DSW1-1	Not provided	Not provided	Not used	Not provided	Always ON	Always ON	
	DSW1-2	Not provided	Not provided	Network diagnostic mode	Not provided	Always ON	Always ON	
	DSW1-3	Not provided	Not provided	IP address acquisition time-out setting	Not provided	Not provided	Not provided	
	DSW1-4	Not provided	Not provided	Initialize network settings	Not provided	Not provided	Not provided	
Emulation and command	Emulation command	StarPRNT	StarPRNT	STAR Graphic Mode	STAR Graphic Mode	STAR Graphic Mode	STAR Graphic Mode	There are differences in the supported commands for each model. Refer to the command specifications for details.
	DK control command	When error occurs DK control possible	When error occurs DK control possible	When error occurs DK control possible	When error occurs DK control possible	When error occurs DK control not possible	When error occurs DK control not possible	
Special mode	Test print mode	Supported	Supported	Supported	Supported	Supported	Supported	There are differences in the operation for each model. Refer to the Product Specifications Manual for details.
	Network setting initialization mode	Supported	Supported	Supported	Not supported	Not supported	Not supported	There are differences in the operation for each model. Refer to the Product Specifications Manual for details.
High head temperature detection	Protection function	Yes	Yes	Yes	Yes	Yes	Yes	
High board temperature detection	Protection function	Yes	Yes	Yes	Yes	Yes	Yes	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
Exterior	Exterior color: White model	Ultra-WHITE	Ultra-WHITE	Ultra-WHITE	Ultra-WHITE	Ice-WHITE	WHITE/O-WHITE	
	Exterior color: Gray model	GRY	GRY	GRY	GRY	Piano-Black	GRY	
External dimensions	-	Approx. 140 x 169 x 123 mm (Width) x (depth) x (height)	Approx. 140 x 169 x 123 mm (Width) x (depth) x (height)	Approx. 142 x 204 x 132 mm (Width) x (depth) x (height)	Approx. 142 x 204 x 132 mm (Width) x (depth) x (height)	Approx. 142 x 204 x 132 mm (Width) x (depth) x (height)	Approx. 142 x 204 x 132 mm (Width) x (depth) x (height)	
Weight	-	Approx. 1.3 kg (Excluding paper)	Approx. 1.3 kg (Excluding paper)	Approx. 1.68 kg (Excluding paper)	Approx. 1.68 kg (Excluding paper)	Approx. 1.76 kg (Cutter model. Excluding paper)	Approx. 1.72 kg (Cutter model. Excluding paper)	
Power consumption	Standby power	Approx. 4.2 W Without power supply from USB-A	Approx. 3.5 W Without power supply from USB-A	Approx. 3.5 W Without power supply from USB-A	Approx. 3.5 W Without power supply from USB-A	Approx. 4.4 W	Approx. 0.05 W (system off) Approx. 0.76 W (print ready)	
	Operating power	Approx. 43 W (without external power supply)	Approx. 43 W (without external power supply)	Approx. 47 W (without external power supply)	Approx. 47 W (without external power supply)	Approx. 55 W	Approx. 30 W	When continuously printing ASCII characters
Cutter	Life	Cutter life: 2 million cuttings	Cutter life: 2 million cuttings	Cutter life: 2 million cuttings	Cutter life: 2 million cuttings	Cutter life: 1 million cuttings	Cutter life: 1 million cuttings	
	Lock release method	Knob type	Knob type	Knob type	Knob type	Driver type	Driver type	
Operating portion	Power switch	Yes (bottom of the product)	Yes (bottom of the product)	Yes (side of the product)	Yes (side of the product)	Yes (side of the product)	No	
	Sleep switch	No	No	No	No	No	Yes	
	LED	POWER/ERROR: blue/red Bluetooth: blue Network: green	POWER: blue ERROR: red Network: green	POWER: blue ERROR: red	POWER: blue ERROR: red	POWER: green ERROR: red	POWER: green ERROR: red	
Packing	Packing box dimensions	Approx. 213 x 213 x 215 mm (Width) x (depth) x (height)	Approx. 213 x 213 x 215 mm (Width) x (depth) x (height)	Approx. 269 x 214 x 240 mm (Width) x (depth) x (height)	Approx. 269 x 214 x 240 mm (Width) x (depth) x (height)	Approx. 273 x 218 x 245 mm (Width) x (depth) x (height)	Approx. 269 x 214 x 240 mm (Width) x (depth) x (height)	

Function	Detail	TSP143IV-UEWB	TSP143IV-UE	TSP143IIILAN	TSP143IIIU	TSP143GT	TSP143IIU	Remark
Accessories	Wall mounting bracket	No *See Remark column.	No *See Remark column.	Yes	Yes	Yes	Yes	TSP100IV is equipped with wall mount holes on the bottom of the product.
	CD	No *See Remark column.	No *See Remark column.	No *See Remark column.	No *See Remark column.	Yes	Yes	Software, drivers, and related documents for TSP100IV and TSP100III are available on the website.
	Switch cover	No	No	Yes	Yes	Yes	No	
	Sample paper roll	No	No	Yes	Yes	Yes	Yes	
Accessories	LAN cable	No	WHT model: Cable color: Black GRY model: Cable color: Black 1.0 m cable	WHT model: Cable color: White GRY model: Cable color: Black 1.0 m cable	No	No	No	
	USB cable	WHT model: Cable color: White GRY model: Cable color: Black Without ferrite core USB A-C 1.8m	WHT model: Cable color: White GRY model: Cable color: Black Without ferrite core USB A-C 1.8m	No	WHT model: Cable color: White GRY model: Cable color: Black Without ferrite core USB A-B 1.8m	Cable color: Gray With ferrite core USB A-B 1.8m	Cable color: Gray With ferrite core USB A-B 1.8m	
Other	Compliant specifications	8 countries US,CA,EU,UK,MX, AU,NZ,JP	13 countries US,CA,EU,UK,CN, MX,AU,NZ,JP,TW,R U,BY,KZ	14 countries US,CA,EU,UK,CN, MX,AU,NZ,JP,IN, TW,RU,BY,KZ	14 countries US,CA,EU,UK,CN, MX,AU,NZ,JP,IN, TW,RU,BY,KZ	9 countries US,CA,EU,CN,MX, AU,NZ,JP,IN	8 countries US,CA,EU,CN,MX, AU,NZ,JP	
	Energy Star	Certified. Indicated on the standard nameplate.	Certified. Indicated on the standard nameplate.	Certified. Indicated on the standard nameplate.	Certified. Indicated on the standard nameplate.	Not certified	Certified. A sticker is attached.	
	Online manual	Yes	Yes	Yes	Yes	No	No	

10.5. Restrictions at the time of product replacement

Operational limitations when replacing TSP143IIU/TSP143IIU+/TSP143IIIU/TSP143IIILAN/TSP143IIIW/TSP143IIIBI/TSP143GT with TSP143IV-UE/ TSP143IV-UEWB are as follows.

Diver version used			Software after replacement						
			StarWindowsSoftware V3.0.0 or later *V3.8.0 or later for WLAN/Bluetooth	Star PRNT SDK V5.15.0 or later *V5.19.0 or later for WLAN/Bluetooth	StarXpand SDK ReactNative V 1.1.0 or later	StarXpand SDK Native V2.4.0(iOS)/ V1.4.0(Android) or later	Star JavaPOS Driver V1.13.13 or later	Star CUPS Driver V4.8.0(Mac)/ V3.12.0 (Linux) or later	PassPRNT V2.5.0 or later
Printer before replacement	Host OS	Software	TSP143IV-UE/TSP143IV-UEWB						
TSP143II(IU/LAN /W/BI) TSP143II(U/U+) TSP143GT	Windows	-futurePRNT earlier than V7.0.0							
TSP143III(U/LAN /W/BI) TSP143II(U/U+) TSP143GT		-futurePRNT V7.0.0 or later (including OPOS)	Replacement is possible with the migration tool. There are functional limitations (https://www.star-m.jp/migration-assistant-oml.html)						
TSP143(IIIU/LAN /W/BI) TSP143II(U/U+) TSP143GT		-futurePRNT V7.0.0 or later (JavaPOS only)					Rewritable with setting change. - Make the logicalName in Jpos.xml the same. - Use TSP100IV in Jpos.xml and change portName according to the manual.		
TSP143III(U/LAN /W/BI) TSP143II(U/U+) TSP143GT	Windows Android iOS	-StarPRNTSDK Earlier than V5.15.0 for each		Rewritable with setting change. - Make the PortName specification the same.					

Diver version used			Software after replacement						
			StarWindowsSoftware V3.0.0 or later *V3.8.0 or later for WLAN/Bluetooth	Star PRNT SDK V5.15.0 or later *V5.19.0 or later for WLAN/Bluetooth	StarXpand SDK ReactNative V 1.1.0 or later	StarXpand SDK Native V2.4.0(iOS)/ V1.4.0(Android) or later	Star JavaPOS Driver V1.13.13 or later	Star CUPS Driver V4.8.0(Mac)/ V3.12.0 (Linux) or later	PassPRNT V2.5.0 or later
Printer before replacement	Host OS	Software	TSP143IV-UE/TSP143IV-UEWB						
		(*) UWP is not supported on USB models.		- In case of USB, make the USB serial number the same.					
TSP143III(U/LAN /W/BI) TSP143IIU+	Windows Android iOS	-StarXpand SDK ReactNative earlier than V1.1.0			Rewritable with setting change. - Make the identifier property the same.				
TSP143III(U/LAN /W/BI) TSP143IIU+	Android iOS	StarXpand SDK Native (*) TSP143IIU+ does not support iOS.				Rewritable with setting change. - Make the identifier property the same.			
TSP143III(U/LAN /W/BI)	Windows Android iOS	-PassPRNT Earlier than V2.5.0 for each (*) UWP is not supported on USB models.							Rewritable with setting change. - Make the port query the same.
TSP143III(U/LAN /W/BI) TSP143II(U/U+) TSP143GT	Mac Linux	-CUPS earlier than V4.8.0 (Mac)/ earlier than V3.12.0 (Linux)						Rewritable with setting change. - For a LAN/WLAN printer, make the IP address the same.	

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