

GENERAL SPECIFICATION

TSP100IV Series

REV. NO. 1.30



- ◆ Refer to the [online manual](#) for detail the product setup or uses.



Trademarks

For the ownership of other companies' trademarks mentioned in this document, see Trademarks (<https://star-m.jp/eng/trademarks.html>).

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 responsible 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 disassemble, 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.

Installation in the following locations 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.

Table of Contents

1. Product Overview	9
1.1. Model name	9
1.2. Product components (accessories and options)	10
1.3. Commercially available devices that can be used.....	11
1.4. Part names and functions	12
2. Product Specifications.....	15
2.1. General specifications.....	15
2.2. Paper specifications.....	21
2.3. USB interface.....	22
2.4. Ethernet interface.....	23
Basic function.....	26
2.4.1. Print protocol	26
Settings	27
2.4.2. IP address setting specifications.....	27
2.4.3. Web Configuration.....	29
2.4.4. TELNET server.....	30
2.4.5. Print disconnect warning	32
Convenient function.....	33
2.4.6. Star Micronics Cloud Service	33
2.4.7. Star CloudPRNT function.....	34
2.4.8. Star webPRNT function.....	37
2.5. Other interfaces	38
2.5.1. Printing on multiple interfaces	38
2.5.2. External device drive connector.....	40
2.6. Power specifications	41
2.7. Reliability specification.....	42
2.8. Environmental specifications.....	43
2.8.1. Temperature and humidity	43
2.8.2. Vibration and drop impact	43
2.8.3. Noise	44
2.8.4. Dust.....	44
3. Operating Portion and Functions.....	45
3.1. Test print	45
3.1.1. Test print mode (self-print mode).....	45
3.1.2. Hexadecimal dump print mode	45
3.1.3. Special function setting mode	46

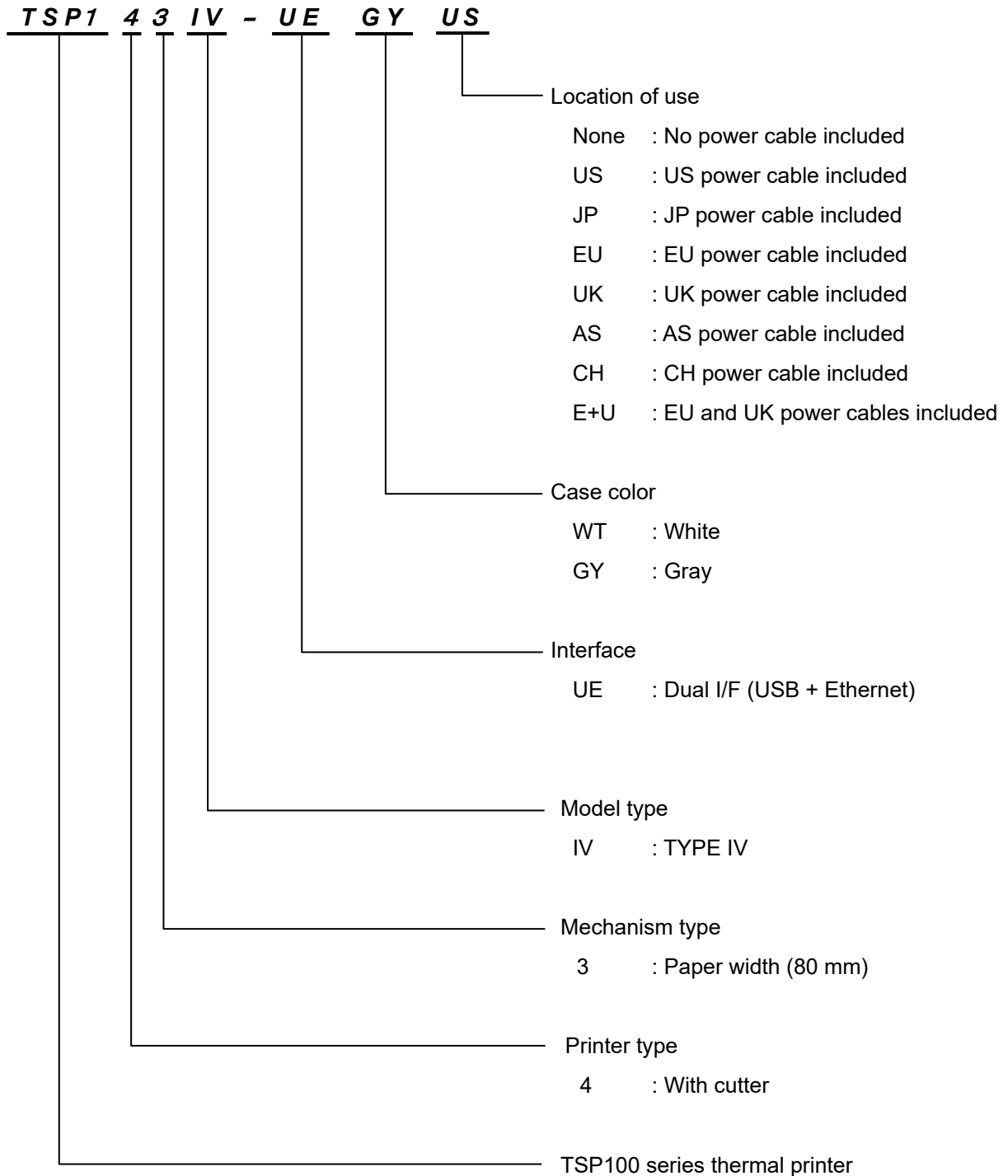
3.1.4. Initializing network settings	47
3.2. LED indications and errors.....	48
3.2.1. Automatic recovery error (online).....	48
3.2.2. Recoverable error (Offline).....	48
3.2.3. Unrecoverable error (Offline)	48
3.2.4. USB host status display	49
4. Related Regulations	50
4.1. Electrical safety, EMC	50
4.2. Environment.....	50
4.3. Energy Star	50
5. Maintenance.....	51
5.1. Daily maintenance	51
5.1.1. Exterior	51
5.1.2. Thermal head	51
5.1.3. Platen rubber roller.....	51
5.1.4. Paper holder.....	52
5.2. Handling paper jams	52
6. Memory switch.....	53
6.1. MSW0	53
6.2. MSW1	55
6.3. MSW2	57
6.4. MSW3	59
6.5. MSW4	64
6.6. MSW7	65
6.7. MSW8	66
6.8. MSWA.....	68
6.9. MSWB.....	69
6.10. MSWC.....	70
6.11. MSWE.....	71
6.12. MSWF	72
6.13. MSWR.....	73
7. Application Development	74
7.1. Control method	74
7.2. Software.....	74
8. Appendix	76
8.1. ARP/Ping execution example.....	76
8.2. Example procedures for registration of SSL/TLS certificates.....	77
8.2.1. Using a self-signed certificate	77
8.2.2. Using CA-signed certificates	88

8.2.3. Supplementary Information	97
8.2.4. Settings required for certificate registration on iOS 10.3 or later	98
8.3. Cypher suite support list.....	99
8.3.1. Star webPRNT, Web Configuration	99
8.3.2. Star CloudPRNT.....	100
8.4. TSP100IV/TSP100IIIILAN/TSP100IIIU/TSP100GT/TSP100IIU function comparison	101
8.5. Results of replacement with TSP100IV by usage situation	107

1. Product Overview

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

1.1. Model name



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)
- Paper roll guide
- Rubber feet (2)
- Safety guide
- Simple setup sheet

<Note>

Accessories vary depending on the region where the printer was purchased.

[Options]

- | | | | |
|---------------------|-------------------|---|---------------------------------|
| ● Buzzer unit | Model | : | BU01-24-A |
| | Connection | : | External device drive connector |
| ● Cash Drawer | Model | : | SMD146M, MCD36M |
| | 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 |
| ● Melody speaker | Model | : | MCS10 |
| | Connection | : | External device drive connector |
| ● Wireless LAN Unit | Model | : | MCW10 |
| | Connection | : | LAN port, USB-A port |

1.3. 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

Model : Zebra Technologies DS9208

[Setting conditions]

- USB device type : CDC

- Suffix : CR/LF

<Note>

Only one barcode reader can be connected (either the barcode reader listed above or the optional dedicated barcode reader [BCR-POP1]).

- HID device

Target device : HID devices with USB keyboard interface

<Note>

1) Simultaneous use with the optional barcode reader (BCR-POP1) or DS9208 is not possible.

- 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.

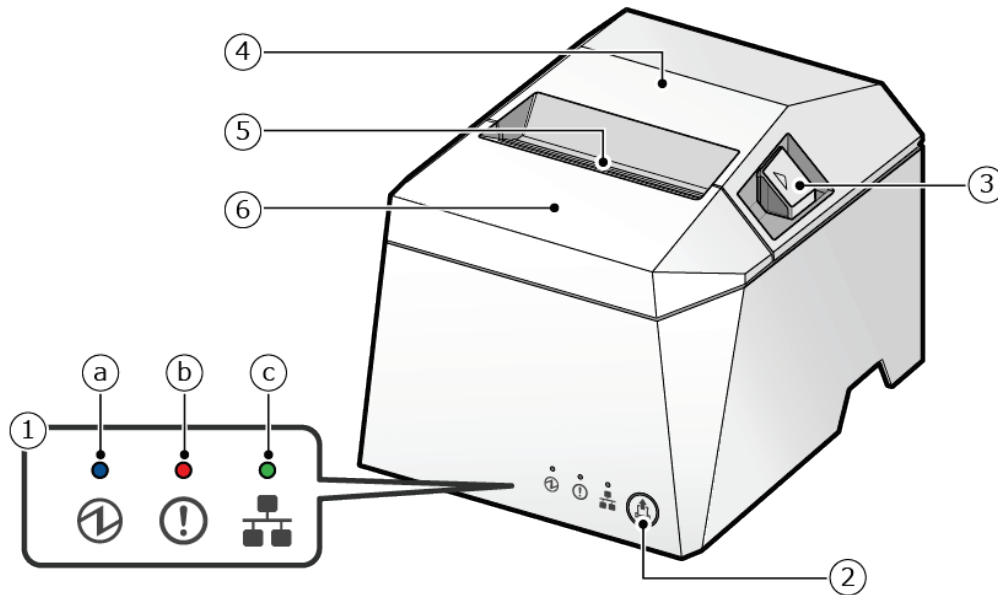
<Note>

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 "7 Application Development".

1.4. Part names and functions

[Front of main unit]



① LED

Indicates the printer status.

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

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

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

For details, see "3 Operating Portion and Functions."

② FEED button

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

For details, see "3 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.

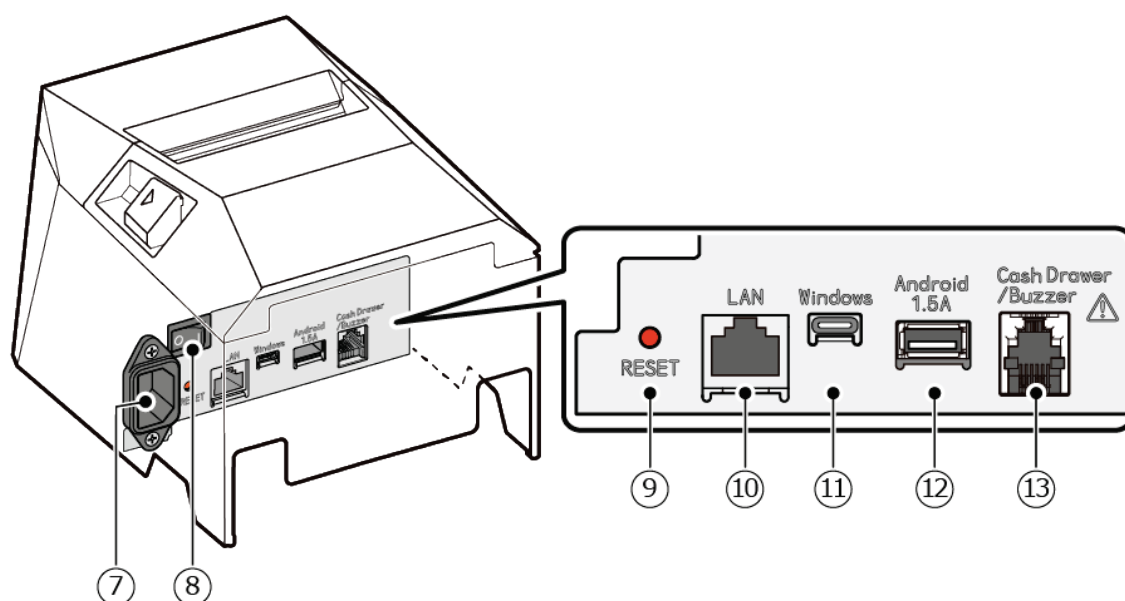
⑤ Paper exit

The printed paper is ejected from here.

⑥ Front cover

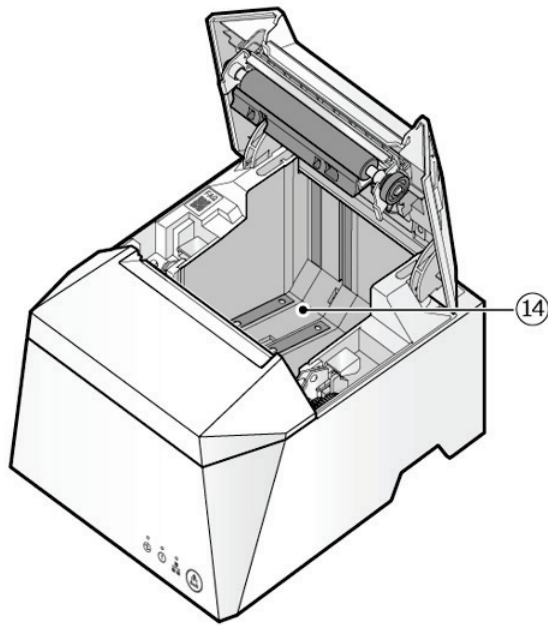
Remove this cover when resolving a cutter error.

[Back of main unit]



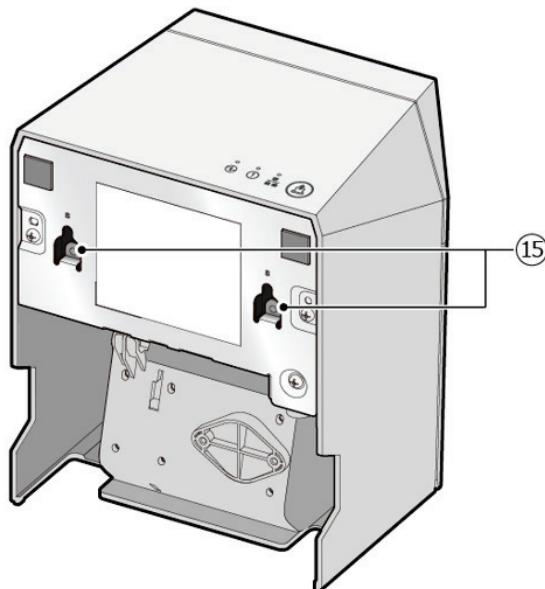
- ⑦ Power socket
Connect the power cable that comes with the main unit.
- ⑧ Power switch
Turns the power on/off.
- ⑨ Reset switch
Initializes the network settings of the main unit.
- ⑩ LAN port
Connect the LAN cable that comes with the main unit to connect to the network.
- ⑪ USB-C port
Connect the USB cable that comes with the main unit to connect a Windows 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)	
Top margin	11 mm			
Paper feed	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		
		Japanese characters: Special characters, 83 characters		
Japanese characters:				
Japanese characters:				

Item		Specifications		
		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		
		USB-C x 1		
		Ethernet x 1		
		DK-Port (External device drive connector)		
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.		
	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		

Item		Specifications	
External view	External dimensions	<ul style="list-style-type: none"> - 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 	
	Weight	Approx. 1.3 kg (not including paper roll)	(Reference figure)

[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) 57.5 ± 0.5 mm is in the case when the included roll paper guide is used.

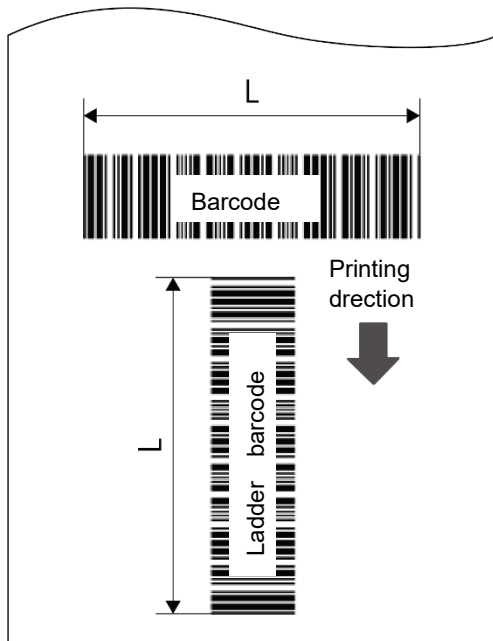
<Paper length>

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.
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>

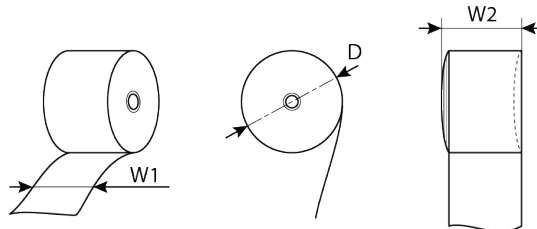
- 1) Chinese characters and Western characters inputs with UTF-8 code are supported.
- 2) Characters that can be printed with UTF-8 code are Western characters including the code page retained by the printer and the following Chinese characters.
 - Japanese characters
 - Chinese characters, GB18030 compliant 2-byte code
 - Traditional Chinese characters, BIG5
 - Hangul characters
- 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) If a paper jam occurs when printing at the top of the paper, feed the paper by approx. 1 mm (8 dot lines) after cutting.
- 2) The minimum paper length is 24 mm.
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.
- 3) 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.
- 4) 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.
- 5) Cutting position
The distance from the print start position to the cutting position is approximately 11 mm.
The distance from the print end position to the cutting position is approximately 2 mm.
- 6) Error is detected at the home position by the mechanical sensor.

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 $\phi 83$ (mm)
- Width (roll dimension) $80 + 0.5, -1$ (mm)/ $58 + 0.5, -1$ (mm)



- (4) Paper thickness : 49 to 85 μ m
- (5) Core inner diameter (mm)/outer diameter (mm) : Inner diameter $\Phi 12 \pm 1$ mm/Outer diameter $\Phi 18 \pm 1$ mm
- (6) Printing face : Outer surface of the roll
- (7) Recommended thermal paper

Manufacturer	Product name	Quality characteristics and use	Paper thickness (μ m)
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
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.**

2.3. USB interface

[USB-C port]

- (1) Standard : USB2.0 FULL-SPEED DEVICE
- (2) Device class : Printer Class
- (3) Connector : USB Type-C

[USB-A port]

- (1) Standard : USB2.0 FULL-SPEED HOST, USB BC1.2 CDP
- (2) Supplied power : 5 V @1.5 A (max)
- (3) Connector : USB Type-A

The operation of this port changes according to the connected device.

See below for supported devices and operations.

- 1) Customer display (SCD222U) and barcode reader (BCR-POP1)
This port communicates as a USB host and supplies 5 V @0.5 A power.
- 2) Android device (AOA compatible device with the OS version 9 or greater)
This port communicates as a USB host and supplies 5 V @1.5 A power.
- 3) USB BC1.2 CDP compliant devices (some Android devices, iOS devices, etc.)
Communication is not possible, but it supplies 5 V @1.5 A power.
- 4) USB devices other than the above
Communication is not possible, but it supplies 5 V @1.5 A power.

Note 1) If communication with the connected device is not possible, the situation will be indicated by LED. See "3.2 LED indications and errors."

- 2) **When connecting an Android device to the USB-A port for communication, start the Android device first, connect it to the printer with a USB cable, and then turn on the printer.**

Additionally, check that the Android OS version is 9 or greater.

However, the operation of the device is not guaranteed even if the conditions are met.

Before using such a device, conduct a thorough verification with the actual device.

2.4. 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) Supported protocol : TCP/IP v4

TCP/IP specifications

Layer	Protocol	Reception port	Usage
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	Printing/printer status acquisition
	Reset with authorization	22222/TCP	Force reset
	SDP (Star Discovery Protocol)	22222/UDP	Search for printers on network
	TELNET	23/TCP	Network settings
	HTTP	80/TCP	Network settings Star webPRNT Star CloudPRNT
	HTTPS	443/TCP	Network settings Star webPRNT Star Micronics Cloud Service*1 Star CloudPRNT
AMQPS	5671/TCP	Star Micronics Cloud Service*1	

- *1) Communication with Star Micronics Cloud Service is performed when the power is turned on, the status changes, or after a certain period of time has elapsed.**

(4) Network settings

Network settings can be checked by self-print. For details about self-print, see "3.1.1 Test print mode (self-print mode)."

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

Setting item	Input range	Initial value	Remark
IP Address	0.0.0.0 ~ 255.255.255.254	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	
DHCP Timeout	ENABLE / DISABLE	ENABLE	
DNS 1	0.0.0.0 ~ 255.255.255.254	8.8.8.8	
DNS 2	0.0.0.0 ~ 255.255.255.254	8.8.4.4	
"user" Login Password	- 1 to 31 characters - ASCII character - Case sensitive	"guest"	When changed from the initial value, the password is hidden by asterisks (*****).
"root" Login Password	- 1 to 31 characters - ASCII character - Case sensitive	"public"	Always hidden by asterisks (*****).
Web Refresh Time (Sec.)	1 ~ 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 Ver1.1 or later. F/W Ver1.0 is fixed to ENABLE.
TCP#9101	ENABLE / DISABLE	ENABLE	Supported with F/W Ver1.1 or later. F/W Ver1.0 is fixed to ENABLE.
LPR	ENABLE / DISABLE	ENABLE	Supported with F/W Ver1.1 or later. F/W Ver1.0 is fixed to ENABLE.
UDP#22222	ENABLE / DISABLE	ENABLE	Supported with F/W Ver1.1 or later. F/W Ver1.0 is fixed to ENABLE.
Telnet	ENABLE / DISABLE	DISABLE	Supported with F/W Ver1.1 or later. F/W Ver1.0 is fixed to ENABLE.
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 Service URL	1 to 511 characters	Blank	
Star CloudPRNT Polling time (Sec.)	1 to 7200 seconds	5	
Star CloudPRNT UserName	1 to 63 characters	Blank	
Star CloudPRNT Password	1 to 63 characters	Blank	
Star CloudPRNT HTTPS 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

Setting item	Input range	Initial value	Remark
Star CloudPRNT TLS1.2 Cipher Suites Encryption Level	HIGH + MEDIUM / MEDIUM	HIGH + MEDIUM	
Star CloudPRNT TLS1.3	ENABLE / DISABLE	ENABLE	

Basic function

2.4.1. Print protocol

2.4.1.1. 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.

2.4.1.2. 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.

Settings

2.4.2. IP address setting specifications

2.4.2.1. 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.

```
*****
Current IP Parameters Status
*****
IP Address      : xxx.xxx.xxx.xxx
                 (*Protocol)
Subnet Mask     : xxx.xxx.xxx.xxx
Default Gateway : xxx.xxx.xxx.xxx
```

- * *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

2.4.2.2. 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 "2.4.4 TELNET server" and "2.4.3 Web Configuration.")

2.4.2.3. 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 "2.4.4 TELNET server" and "2.4.3 Web Configuration.")

- The DHCP Request differs according to the DHCP Timeout setting. (See "3.1.3 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.

2.4.2.4. 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 "8.1 ARP/Ping execution example."

2.4.3. 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 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 10: Chrome 65, Microsoft Edge 41, Internet Explorer 11
- Windows 8.1: Firefox 59
- Windows 7: Internet Explorer 11
- macOS 10.13.4 High Sierra: Safari
- iOS 11.3: Safari
- Android 8.1.0: Chrome

For supported cipher suites when HTTPS is used, see "8.3.1 Star webPRNT, Web Configuration."

2.4.4. TELNET server

2.4.4.1. 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.

2.4.4.2. 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.

2.4.4.3. 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 (*****).

2.4.4.4. 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

2.4.4.5. 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

2.4.4.6. 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.

2.4.5. Print disconnect warning

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

(1) Link down [Physically disconnected]

See "3.2 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 "3.2 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 "2.4.4 TELNET server" and "2.4.3 Web Configuration.")

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

Print sample



Convenient function

2.4.6. Star Micronics Cloud Service

[General description]

By connecting the printer to Star Micronics Cloud, various services are provided for stores and developers.
For details, see our website www.starmicronicscloud.com.

2.4.7. Star CloudPRNT function

[General description]

The Star CloudPRNT function 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.

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

Communication data format : Compatible with REST/JSON format

Communication session start : Started from the product side.

[When not printing (*)] Printer information is sent to the server by POST request.

[When printing (*)] Print data is acquired from the server by GET request.

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

This communication session performs continual polling at the specified polling cycle.

<Request/response specifications between server and printer>

[Contents of request sent from printer to server (JSON format)]

```
"status"          : "<ASB Hex format>",
"printerMAC"     : "<Ethernet MAC address>",
"uniqueID"       : "<server assigned ID>",
"statusCode"     : " <description>",
"jobToken"       : "<token string>",
"printingInProgress" : bool,
"clientAction"   : [{
"request"        : "<request type>",
"result"         : "<request result>"
                }],
"barcodeReader" : [{
"name"           : "<device logical name>",
"status"         : { "connected": bool, "claimed": bool },
"scan"           : [ { "data": "<scanned barcode character sequence>", "symbology": "<symbology of scanned barcode>" } ]
                }],
"display"        : [{
"name"           : "<device logical name>",
"status"         : { "connected": bool }
                }
                ]
```

[Contents of response sent from server to printer (JSON format)]

```
"jobReady"        : true|false,
"mediaTypes"      : [ "<content media type>" ],
"jobToken"        : "<string token>",
"deleteMethod"    : "DELETE|"GET",
"clientAction"    : [ { "request": "<request type>", "options": "<request parameters>" } ],
"claimBarcodeReader" : [ "<device name>" ],
"display"         : [ { "name": "<device name>", "message": "<message markup>" } ]
```

<Web Configuration UI setting specifications>

The screenshot displays the Web Configuration UI. On the left is a navigation menu with categories: Home, Network Configuration, Display Status, System Access, and Manual. The 'CloudPRNT' option under Network Configuration is highlighted with a red circle. The main content area is divided into two sections: 'CloudPRNT' and 'HTTPS Client Settings'. The 'CloudPRNT' section includes a dropdown for 'CloudPRNT Service' (set to 'DISABLE'), a text input for 'Server URL', a text input for 'Polling time (Sec.)' (set to '5'), a text input for 'User Name', and a text input for 'Password'. Below these are 'submit' and 'cancel' buttons. The 'HTTPS Client Settings' section includes radio buttons for 'HTTPS trust level' (selected: 'Use trusted CA-Certificate list'), radio buttons for 'NTP Server' (selected: 'Use Star NTP service'), a dropdown for 'TLS1.2 Cipher Suites Encryption Level' (set to 'HIGH + MEDIUM'), and a dropdown for 'TLS1.3' (set to 'ENABLE'). Below these are 'submit' and 'cancel' buttons.

- Items set from the CloudPRNT menu of the product Web Configuration UI.
 - CloudPRNT Service: Set whether the service is enabled or disabled. Factory default setting = Disabled
 - server url: Enter the server URL such as "http://..."
 - default poll time: Enter the polling interval (seconds). Factory default setting = 5 sec
 - Username/Password : When necessary, register cloud server security information. (option)
 - HTTPS Client Settings : Set the certificate (PEM format) according to the server-side specifications when conducting secure communication with the server.
 - 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 "8.3.2 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 "8.3.2 Star CloudPRNT." Factory default setting = Enabled

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

2.4.8. Star webPRNT function

[General description]

The Star webPRNT function is a function for controlling the printer (print, cache drawer drive, etc.) from a network terminal device equipped with a web browser via the Network. This function controls the printer by sending XML data from the web application to the printer without using the printing application or printer driver for each OS.

Main advantages

- Native app for each OS is not necessary, and printing and other functions can be performed easily.
- The configuration is simple, and maintenance is relatively easy.
- Apps can be placed on the cloud.

[Specifications]

<Communication specifications>

TCP/IP version	: TCP/IP v4
Communication protocol	: HTTP/HTTPS
Data format	: XML Compatible with REST format
Communication session start	: Started from the terminal device side.
Communication session end	: Ended from the printer side.
TCP communication port number	: HTTP: TCP Port 80, HTTPS: TCP Port443
Character code	: ASCII, Code Page, UTF-8
Number of printer control commands that can be accepted (*1)	: 1
Number of simultaneous connection sessions (*2)	: Non-SSL/TLS connection: 6, SSL/TLS connection: 1

(*1) The printer will be busy until the printer control command processing of the series of XML data sent to the printer is completed.

During this time, the printer does not accept other printer control command processing requests, and the printer returns busy to the host as an end code element. After returning busy, the printer issues an RST packet to the host.

For the XML element specifications, refer to the "Star webPRNT User's Manual" available on the STAR website.

(*2) If there are connection requests that exceed this value simultaneously, the printer immediately issues an RST packet to the host.

(In this case, the element and busy status returned to the host in (*1) above will not be returned.)

(*3) For supported cipher suites, see "8.3.1 Star webPRNT, Web Configuration."

<Star webPRNT SDK>

An SDK that can be used when creating a web application to control the printer using this function is available.

The SDK includes JavaScript and HTML samples that generate XML documents and control communication between the terminal and printer.

For the SDK and XML element specifications, refer to the "Star webPRNT User's Manual" available on the STAR website.

2.5. Other interfaces

2.5.1. 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 "6.11 MSWE."

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

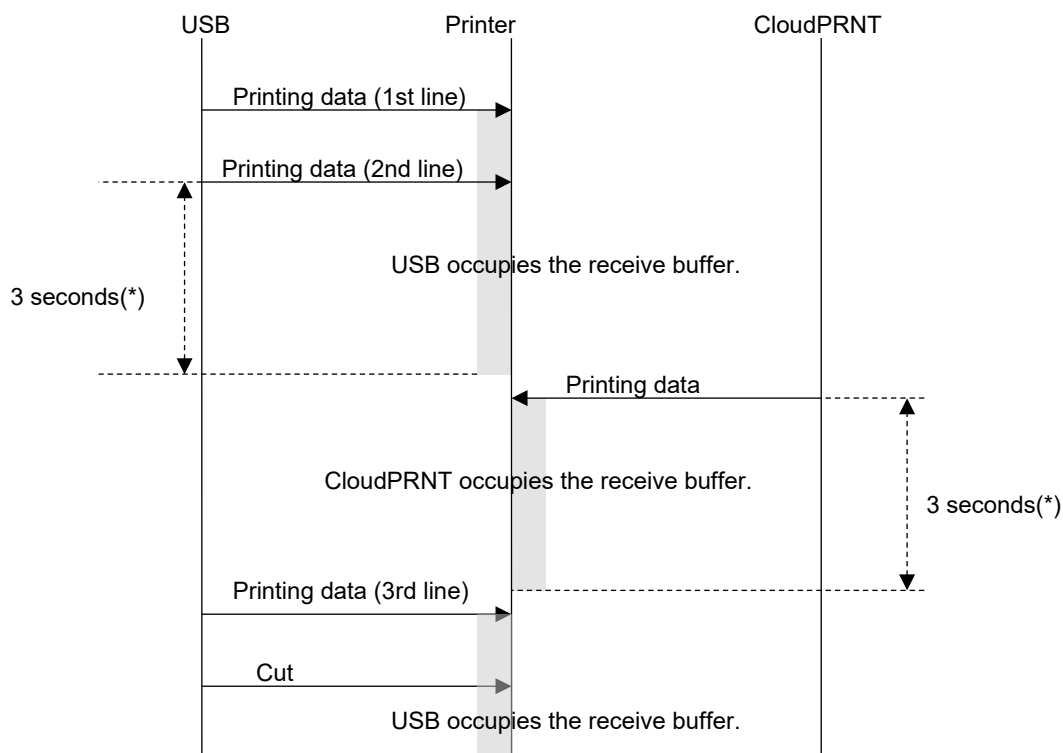
	USB TYPE A (CDP)	USB TYPE C	Wired LAN
iOS	-	-	✓
Android	✓	✓	✓
Windows	-	✓	✓
Linux	-	✓	✓
Mac	-	✓	✓

<Limitations>

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.

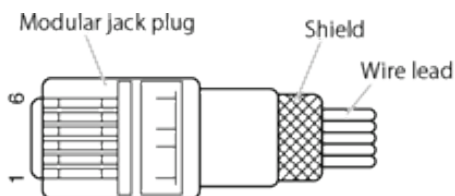
2.5.2. External device drive connector

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.

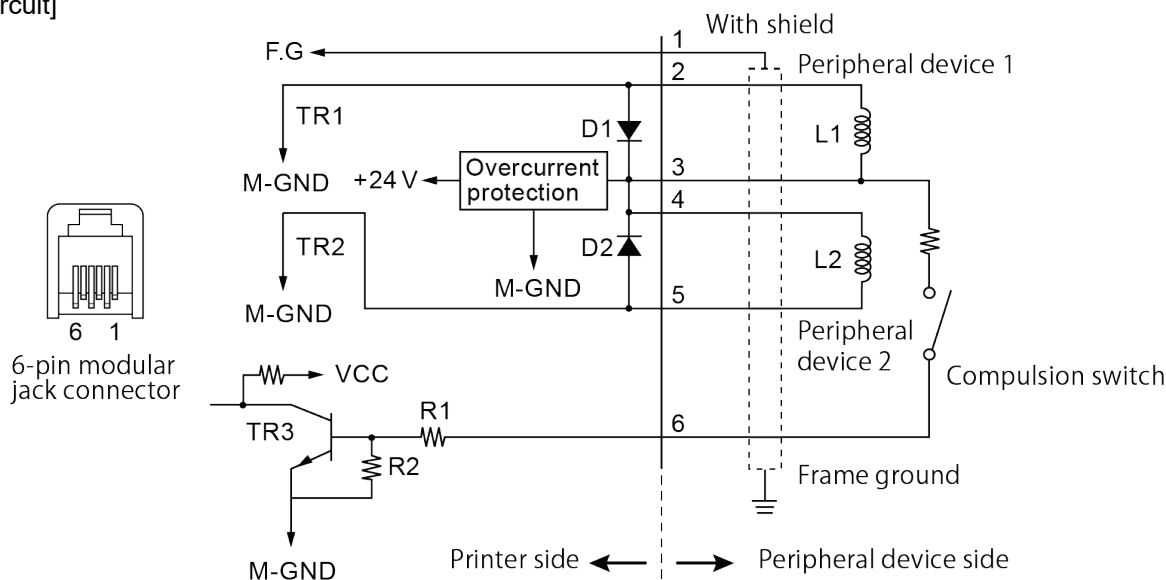
[Recommended cable]

RJ11 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 k Ω , R2 = 47 k Ω

- 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 can be found in the status.
 - 5) L1 and L2 must be at least 24 Ω .

2.6. Power specifications

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

(1) Power input

Voltage : 100 to 240 VAC \pm 10%

Current : 1.4 A

Frequency : 50/60 Hz

(2) Power consumption

- 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)

2.7. Reliability specification

- (1) Life Mechanical : 20 million lines
 - Head : 100 km (100 million pulses) * Average printing rate: 12.5%, head average resistance value change rate $\pm 15\%$ or less
 - Cutter : 2 million cuts (79.5 mm width paper)/1 million cuts (57.5 mm width paper)

Note 1) The end of a part's life is defined as the point when the part starts to fail due to wear.

- 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.**
There may be trouble in printing or cutting if you change the paper width.

- (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.)

- (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.

2.8. Environmental specifications

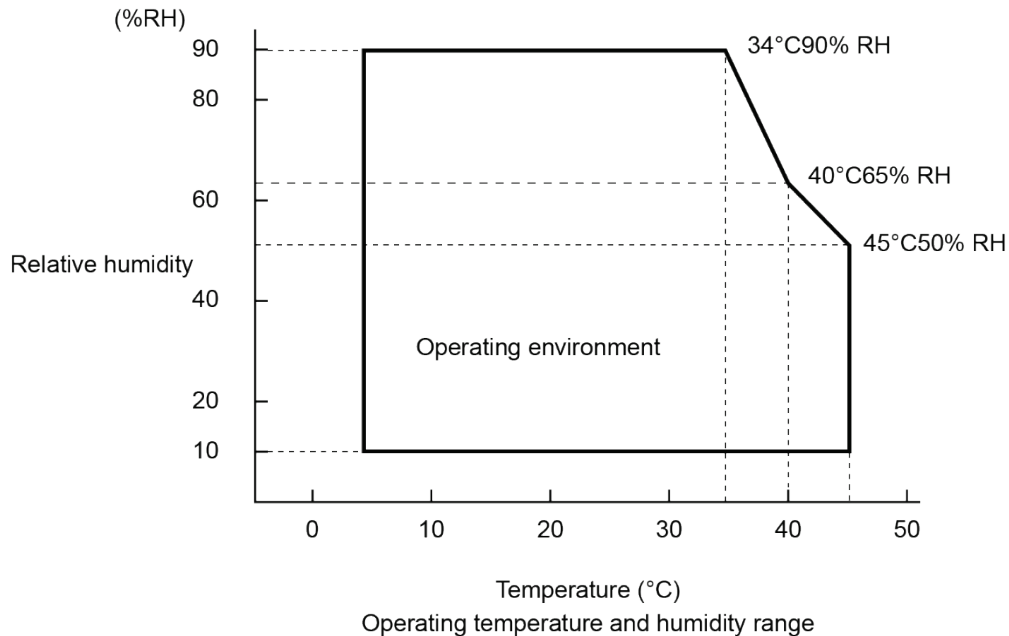
2.8.1. Temperature and humidity

(1) During operation

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.")



(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).

2.8.2. 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

No external or internal appearance problems or operational failures must occur after applying vibration.

(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

No external or internal appearance problems or operational failures must occur after dropping.

(3) Drop impact (when not packaged)

- Drop height : 5 cm
- Direction of drop : 4 sides, side support
- Number of Drops : One for each direction

No external or internal appearance problems or operational failures must occur after being dropped while it is not operated.

2.8.3. 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.

2.8.4. Dust

The dust that is present in a normal office environment has no effect on the printer's operation.

3. Operating Portion and Functions

3.1. Test print

3.1.1. Test print mode (self-print mode)

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

There are two ways to go into the test print mode as follows.

<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>

After turning on the power, open the printer cover and press and hold the Feed button for 5 seconds or more. Release the button when the blue LED starts flashing.

Close the printer cover when the blue LED is flashing and the red LED is off.

If you unintentionally press the Feed button and the indication is not in the state of blue LED flashing and red LED off, press the Feed button until the blue LED flashes and the red LED goes off, and then close the printer cover.

After the blue LED flashes and the red LED goes off, the printer is reset and the test print mode is activated.

After the test print is completed, the printer automatically returns to the normal mode.

3.1.2. Hexadecimal dump print mode

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

Release the button when the blue LED starts flashing. (Note: Release the button while the blue LED is flashing.) If the blue LED turns on while holding down the button, turn off the power and start over.

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.

3.1.3. Special function setting mode

Procedure for special function settings) A -> B -> C -> D

A) Going into the special mode

Open the cover. + Press and hold the Feed button. + Turn on the power.

-> Blue LED flashes (0.25 sec. cycle) for 5 sec.

-> Blue LED illuminates.

-> Release the Feed button.

-> Press the Feed button 3 times.

-> The printer goes into the special mode.

B) Selecting Modes

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

B1 Blue LED off/Red LED on = Cutter setting mode

B2 Blue LED off/Red LED flashing (0.5 sec. cycle) = DHCP timeout setting mode

B3 Blue LED on/Red LED on = USB serial number setting mode

B4 Blue LED flashing (0.5 sec. cycle)/Red LED off = MSW initialization mode

-> Close the cover. -> The setting mode is determined.

C) Settings selection

C1 Cutter setting mode -> Every time the Feed button is pressed, the LED indication changes between C1-1 and C1-2. -> Go to D: Saving the settings.

C1-1 Blue flashing (0.25 sec. cycle) = Cutter enabled

C1-2 Red flashing (0.25 sec. cycle) = Cutter disabled

C2 DHCP timeout setting mode -> Every time the Feed button is pressed, the LED indication changes between C2-1 and C2-2. -> Go to D: Saving the settings.

C2-1 Blue flashing (0.25 sec. cycle) = DHCP timeout enabled

C2-2 Red flashing (0.25 sec. cycle) = DHCP timeout disabled

C3 USB serial number setting mode -> Every time the Feed button is pressed, the LED indication changes between C3-1 and C3-2. -> Go to D: Saving the settings.

C3-1 Blue flashing (0.25 sec. cycle) = USB serial number enabled

C3-2 Red flashing (0.25 sec. cycle) = USB serial number disabled

C4 MSW initialization mode

MSW initialization -> Hardware reset

D) Saving the settings

Press and hold the Feed button for 1 second. = Settings are saved.

-> Hardware reset

3.1.4. Initializing network settings

By executing network setting initialization, 2.4 Ethernet interface, (4) Network settings are initialized.

There are two methods to initialize the network settings.

<How to initialize by pressing the reset switch on the back when turning on the power>

Turn on the power while pressing the reset switch on the back using a fine-tipped pen or the like to go into the network setting initialization mode.

When the Network LED (green) flashes, release the reset switch.

If you press and hold the Feed button, the printer is reset and the initialization of the network settings is completed. Then, release the Feed button.

After the initialization of the network settings is completed, the printer automatically returns to the normal mode.

<How to initialize by opening the printer cover after turning on the power>

With the power on, open the printer cover and press and hold the Feed button for 5 seconds or more.

Release the button when the blue LED starts flashing.

Press the Feed button once and when the blue LED is flashing and the red LED is flashing, close the printer cover.

If you unintentionally press the Feed button once or more and the indication is not in the state of blue LED flashing and red LED flashing, press the Feed button until the blue LED flashes and the red LED flashes off, and then close the printer cover.

When the blue LED illuminates and the red LED goes off and the network setting initialization is completed, the printer goes into the test print mode after the printer is reset. In the network setting initialization, the test print prints only the network settings.

After the test print is completed, the printer automatically returns to the normal mode.

3.2. LED indications and errors

3.2.1. Automatic recovery error (online)

Error type	Power LED	Error LED	Cause	Restoration method
High head temperature detection (Stop printing)	Flashing (1 sec. cycle)	Off	Head temperature is hot.	Automatically recovers when head temperature drops.
High board temperature detection (Stop printing)	Flashing (4 sec. cycle)	Off	Board temperature is hot.	Automatically recovers when the board temperature drops.
F/W rewriting (Stop printing)	Flashing alternately (Irregular cycle)	Flashing alternately (Irregular cycle)	Printer F/W is being rewritten.	Automatically recovers when F/W rewriting is completed.

3.2.2. Recoverable error (Offline)

Error type	Power LED	Error LED	Cause	Restoration method
Cover open error	On	On	The cover is open.	Close the cover.
No paper error	On	Flashing (1 sec. cycle)	Out of paper.	Set the paper.

3.2.3. Unrecoverable error (Offline)

Error type	Power LED	Error LED	Cause	Restoration method
Auto-cutter error	Off	Flashing (0.25 sec. cycle)	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)	The power supply voltage is abnormal (in standby)	Repair is necessary.
Head thermistor error	Flashing (1 sec. cycle)	Flashing (1 sec. cycle)	Head thermistor resistance is abnormal.	Repair is necessary.
FLASH error	Off	Flashing (4 times)	FLASH access error	Repair is necessary.
EEPROM error	Flashing (0.5 sec. cycle)	Flashing (0.5 sec. cycle)	EEPROM access error	Repair is necessary.
RAM error	Off	On	External RAM access error	Repair is necessary.
F/W rewrite error	Off	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.

Network link status indication

Type	Network LED	Cause	Restoration method
Link up	On	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]	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.

3.2.4. USB host status display

Type	Power LED	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)
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)

4. Related Regulations

4.1. 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)	
Mexico	UL CoC	-
Australia/New Zealand	-	RCM (EMI Class A)
Japan	-	VCCI (EMI Class A)
India	BIS	-
Taiwan	RPC (EMI Class A)	
Russia/Belarus/Kazakhstan	EAC	-

4.2. Environment

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

4.3. Energy Star

Energy Star Program conformance

5. Maintenance

To enable comfortable and safe use, conduct maintenance periodically.

The maintenance interval should be every 6 months or after printing one million lines.

Carefully read the following precautions before maintenance.

Warning

- Turn the power off, and pull the power plug out of the electrical outlet before carrying out 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 the 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.
- After cleaning the thermal head, do not turn on the power until the alcohol has completely dried.

5.1. Daily maintenance

5.1.1. Exterior

- Wipe off the dirt on the plastic section using a soft, dry 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, methanol, 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 debris, dust and paper particles from the paper holder as well as any other objects that may have accumulated.

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. 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

6.1. 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	Enabled	Disabled	*2
4	Destination specifications	SBCS (Single-byte character	MBCS (Multi-byte character	*4
3	(Reserved)			
2	<FF> code	Form feed	Cut	
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 adopted.	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.

6.2. 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 of the 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)	-

6.3. MSW2

Bit	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 Speed (Max. 250 mm/sec)
"1"	0	1	Medium Speed (Max. 180 mm/sec)
"2"	1	0	Low Speed (Max. 100 mm/sec)
"3"	1	1	(Reserved)

*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>

6.4. 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) dot	72mm (576dot)	48 characters
			51mm (408dot)	34 characters
			48mm (384dot)	32 characters
			50.8mm (406dot)	33 characters
1	ANK	15(12+3) dot	72mm (576dot)	38 characters
			51mm (408dot)	27 characters
			48mm (384dot)	25 characters
			50.8mm (406dot)	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) dot	72mm (576dot)	22 characters
			51mm (408dot)	15 characters
			48mm (384dot)	14 characters
			50.8mm (406dot)	15 characters
	Half-width kanji characters	13(0+12+1) dot	72mm (576dot)	44 characters
			51mm (408dot)	31 characters
			48mm (384dot)	29 characters
			50.8mm (406dot)	31 characters
1	Full-width kanji characters	30(3+24+3) dot	72mm (576dot)	19 characters
			51mm (408dot)	13 characters
			48mm (384dot)	12 characters
			50.8mm (406dot)	13 characters
	Half-width kanji characters	15(1+12+2) dot	72mm (576dot)	38 characters
			51mm (408dot)	27 characters
			48mm (384dot)	25 characters
			50.8mm (406dot)	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) dot	72mm (576dot)	48 characters
			51mm (408dot)	34 characters
			48mm (384dot)	32 characters
			50.8mm (406dot)	33 characters
1	ANK	15(12+3) dot	72mm (576dot)	38 characters
			51mm (408dot)	27 characters
			48mm (384dot)	25 characters
			50.8mm (406dot)	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) dot	72mm (576dot)	22 characters
			51mm (408dot)	15 characters
			48mm (384dot)	14 characters
			50.8mm (406dot)	15 characters
1	Chinese character	30(3+24+3) dot	72mm (576dot)	19 characters
			51mm (408dot)	13 characters
			48mm (384dot)	12 characters
			50.8mm (406dot)	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) dot	72mm (576dot)	44 characters
			51mm (408dot)	31 characters
			48mm (384dot)	29 characters
			50.8mm (406dot)	31 characters
1	ANK	15(12+3) dot	72mm (576dot)	38 characters
			51mm (408dot)	27 characters
			48mm (384dot)	25 characters
			50.8mm (406dot)	27 characters

*2) Code page

When SBCS is set

n	MSW3-F	MSW3-E	MSW3-D	MSW3-C	MSW3-B	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 French)
"09"	0	0	0	0	1	0	0	1	Codepage 865 (Nordic)
"0A"	0	0	0	0	1	0	1	0	Codepage 866 (Cyrillic Russian)
"0B"	0	0	0	0	1	0	1	1	Codepage 855 (Cyrillic Bulgarian)
"0C"	0	0	0	0	1	1	0	0	Codepage 857 (Turkey)
"0D"	0	0	0	0	1	1	0	1	Codepage 862 (Israel (Hebrew))
"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 Latin-
"21"	0	0	1	0	0	0	0	1	Codepage 1250 (Windows Latin-
"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-KBL)
"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-D	MSW3-C	MSW3-B	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 Page)

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"

6.5. 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 (576dot)
"1"	0	0	1	51mm (408dot)
"2"	0	1	0	48mm (384dot)
"3"	0	1	1	50.8mm (406dot)
"4"	1	0	0	(Reserved)
"5"	1	0	1	(Reserved)
"6"	1	1	0	(Reserved)
"7"	1	1	1	(Reserved)

6.6. MSW7

bit	Function	OFF/"0"	ON/"1"	Remark
F	ASB function (Ethernet)	Enabled	Disabled	*2
E				
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				
5				
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 is used, this function automatically sends printer status information when the print port (TCP #9100) is connected.

If the USB-A 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.

6.7. 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

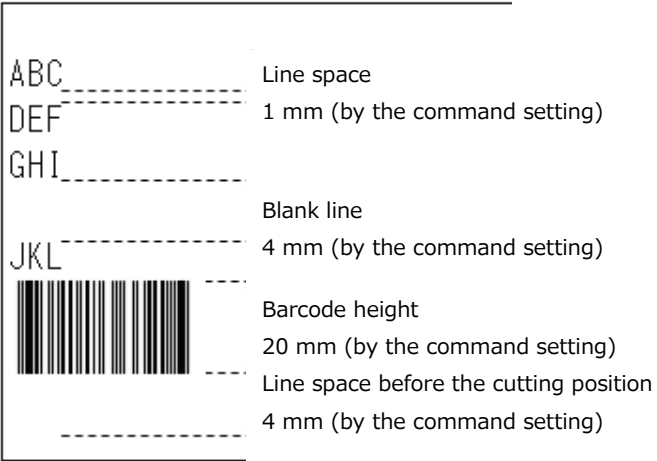
If enabled, font A is automatically replaced by font B.

*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
<p>Vertical paper saving disabled</p>	 <p>ABC _____ Line space DEF _____ 1 mm (by the command setting) GHI _____ _____ Blank line JKL _____ 4 mm (by the command setting) _____ Barcode height _____ 20 mm (by the command setting) _____ Line space before the cutting position _____ 4 mm (by the command setting)</p>
<p>Vertical paper saving enabled</p>	 <p>ABC _____ ↓ Line space DEF _____ ↑ 0.25 mm (25% of 1 mm) GHI _____ ↓ Blank line _____ ↑ 1 mm (25% of 4 mm) JKL _____ ↓ Barcode height _____ ↓ 5 mm (25% of 20 mm)</p>

6.8. MSWA

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

6.9. 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

6.10. 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				

6.11. 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)

6.12. 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				

6.13. 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				
4				
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	11mm
"C"	1	1	0	0	(Reserved)
"D"	1	1	0	1	(Reserved)
"E"	1	1	1	0	(Reserved)
"F"	1	1	1	1	(Reserved)

If the top margin setting is 10 mm or less, make sure that the print paper length (cut length) does not exceed 50 mm. (If cut paper remains, paper jam may occur. There is no print paper length limitation when the cut paper is removed.)

7. Application Development

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

7.1. Control method

StarPRNT emulation

7.2. Software

| Software developer's kit |

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.
StarXpand SDK for ReactNative	This is a software developer's kit for controlling the printer from a native application with ReactNative.
StarPRNT SDK	This is a software developer's kit for controlling the printer from a native application.
Star webPRNT SDK	This is a software developer's kit for printing from various devices such as PCs and tablets via a web browser. With this, multi-platform application can be achieved.
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.
CloudPRNT SDK	Star CloudPRNT is a protocol that can print from a remote server.

| Driver |

Name	General description	Operating environment
Star Windows Driver	A Windows printer driver and printer utility are provided. The Windows printer driver is used when printing from Windows applications. The printer utility is used to perform various settings of the printer.	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

| Utility |

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	Printer driver installation utility, setting utility, SteadyLAN setting utility, and USB serial number setting utility are provided.	Windows

| Other |

Name	General description
StarXpand SDK User's Manual	https://www.star-m.jp/starxpandsdk-oml.html
StarPRNT SDK User's Manual	https://www.star-m.jp/products/s_print/sdk/starprnt_sdk/manual/ios_swift/en/index.html
webPRNT User's Manual	https://www.star-m.jp/products/s_print/sdk/webprnt/manual/en/index.htm
PassPRNT User's Manual	https://www.star-m.jp/products/s_print/sdk/passprnt/manual/ios/en/index.html
CloudPRNT User's Manual	https://www.star-m.jp/products/s_print/CloudPRNTSDK/Documentation/ja/index.html

| Download |

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

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

| Authentication process for apps for MFi certified printers |

If you are going to design and develop an iOS application for Star Micronics MFi certified printers and register it on the Apple iTunes App Store, check the URL below.

https://www.star-m.jp/eng/products/s_print/apple_app_mfi.html

8. Appendix

8.1. 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
```

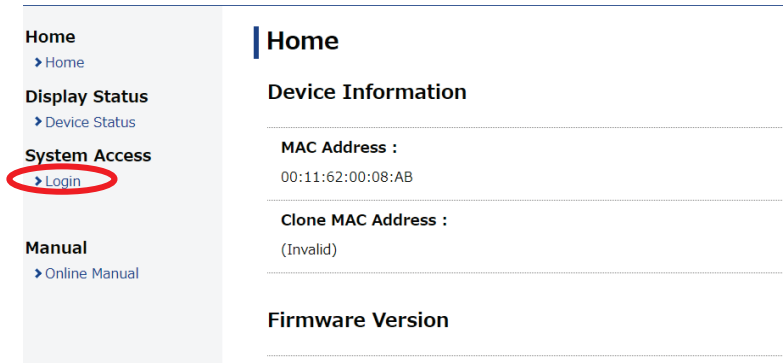
8.2. Example procedures for registration of SSL/TLS certificates

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.

8.2.1. 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.

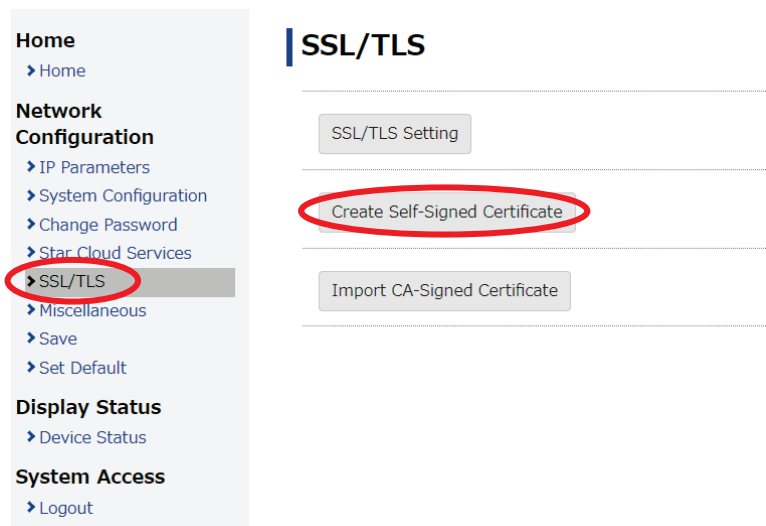


Enter the following username and password, and then click [OK]. Username: "root", Password: "public" (factory default setting)

The screenshot shows a 'Sign in' dialog box. It displays the URL 'http://192.168.1.81' and a warning: 'Your connection to this site is not private'. There are two input fields: 'Username' with the text 'root' and 'Password' with masked characters '.....'. At the bottom, there are two buttons: 'Sign in' and 'Cancel'.

Click [SSL/TLS].

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.

Self-Signed Certificate

Country Name (2 letter code)
JP

State or Province Name
Shizuoka

Locally Name (eg, city)
Shizuoka

Organization Name (eg, company)
Star Micronics

Organization Unit Name (eg, section)
Software Dev.

Domain
192.168.1.81

Expiration Date (eg, YYYY/MM/DD)
2020 / 12 / 1

create download delete

The following screen appears when you successfully create a certificate.

Create Self-Signed Certificate OK.

Please execute "Save" menu if these settings are correct.

Return to [Previous page <SSL/TLS Setting>](#)
(Don't use "Back" button of browser to return.)

2. Enable the printer self-signed certificate setting.

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

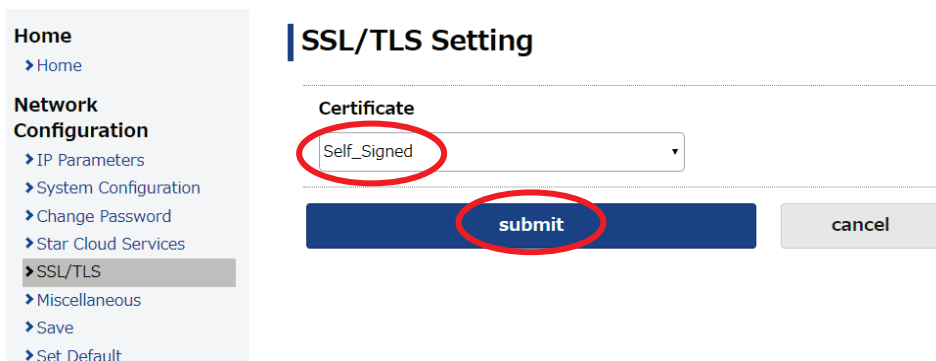
SSL/TLS

SSL/TLS Setting

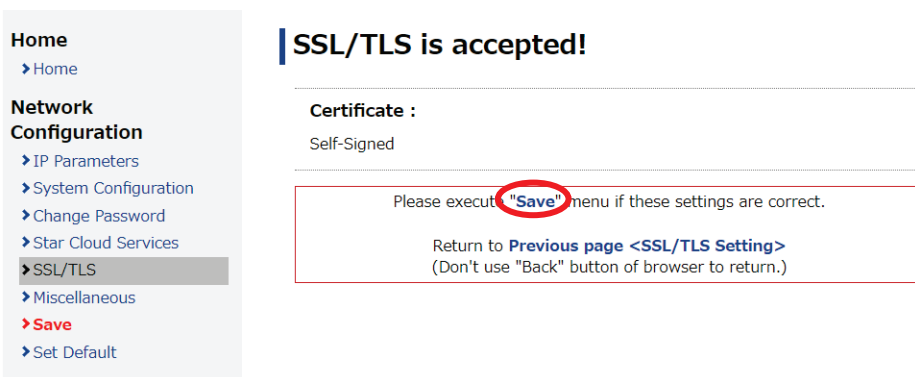
Create Self-Signed Certificate

Import CA-Signed Certificate

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



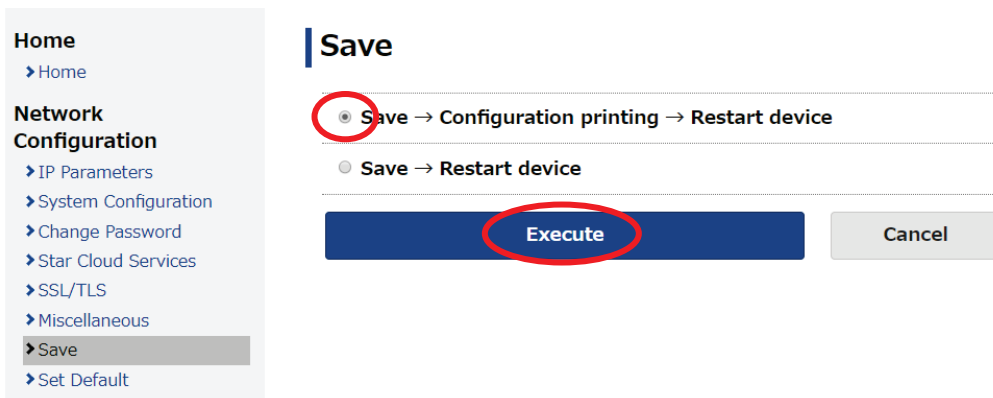
The following will be displayed. Confirm that Certificate: Self-Signed.



Click "Save" and, 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



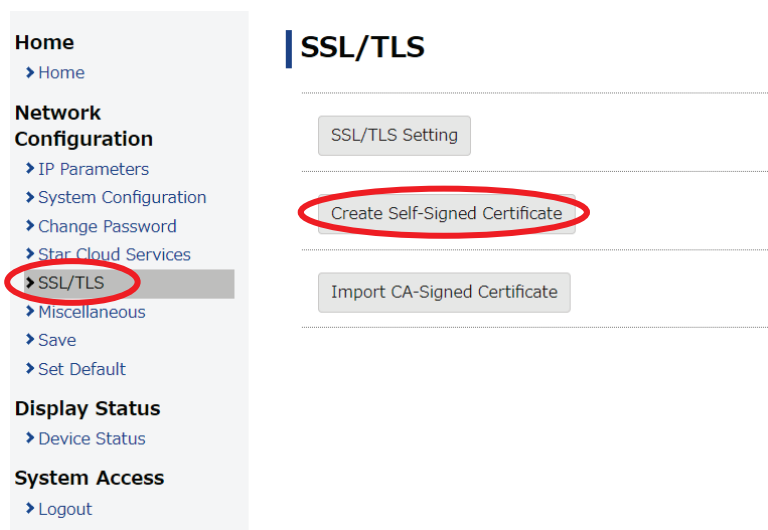
The procedures for creating the printer self-signed certificate are completed.

3. Import the certificate to the web browser.

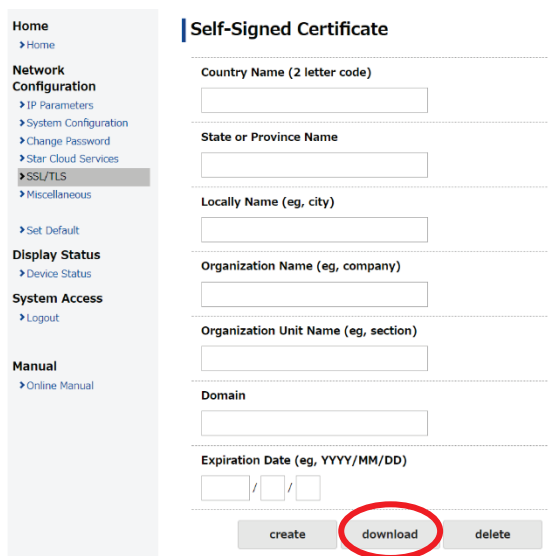
Import the created certificate in the NIC to the web browser of the client device.

■ For Windows devices (Windows 7 example)

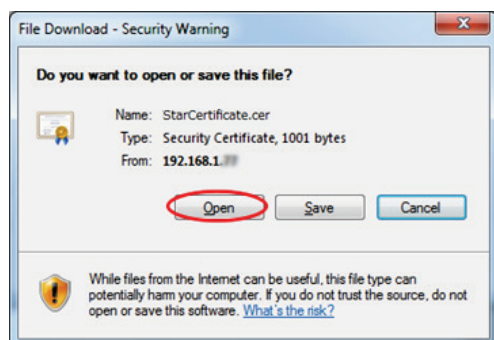
Click [SSL/TLS]. Click [Create Self-Signed Certificate].



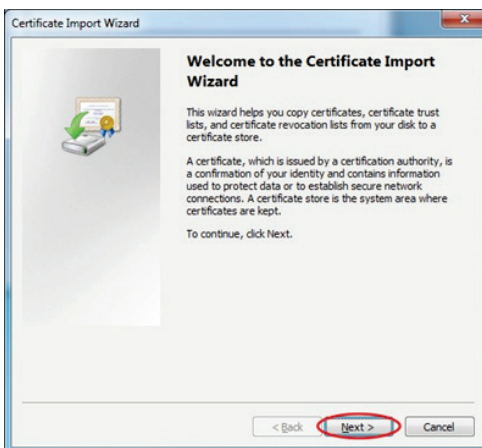
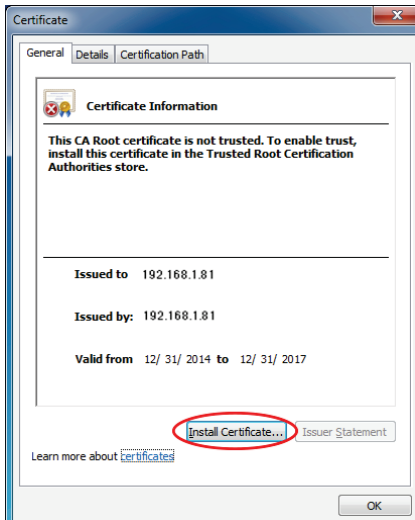
Click [Download] and save a certificate file (name is optional) to any place in Windows.
(In this procedure, save this file as "StarCertificate.cer.")



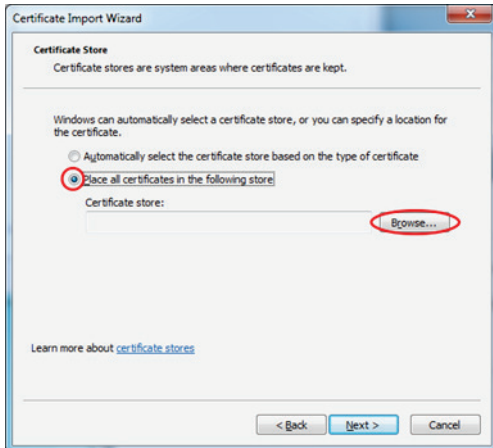
On the client device, double-click the saved certificate file and click [Open].



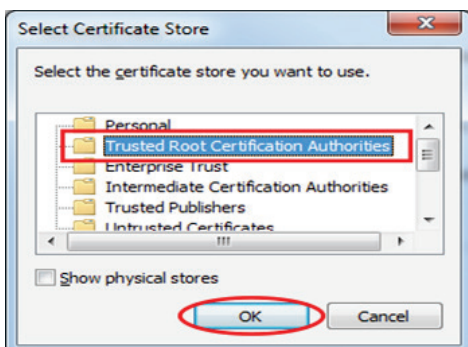
Click [Install Certificate...].



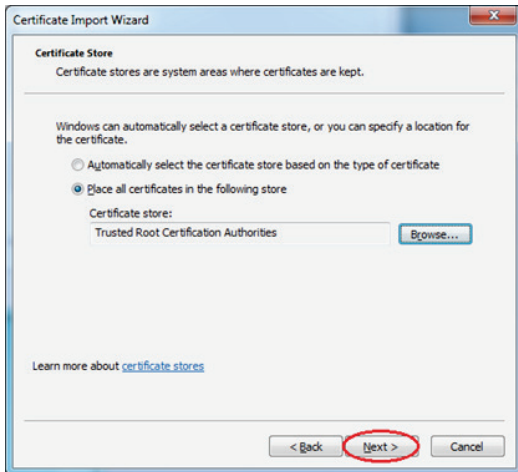
Select "Place all certificates in the following store" and then click [Browse...].



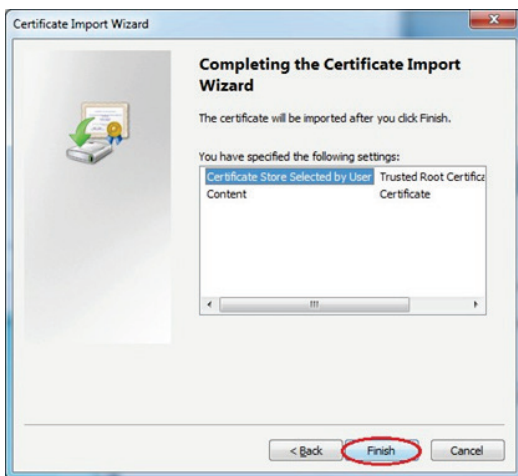
Select "Trusted Root Certification Authorities" and then click [OK].



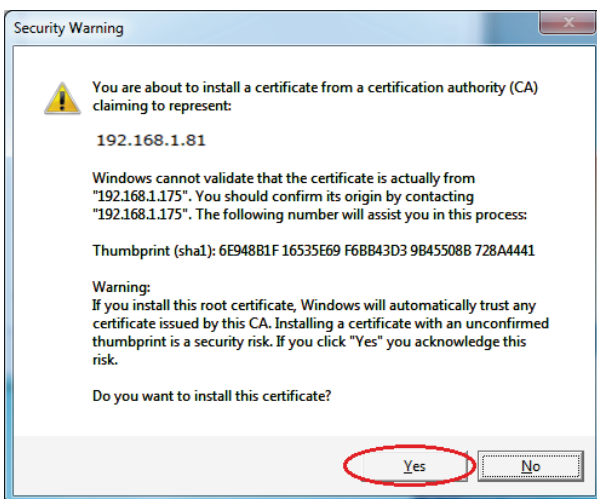
Click [Next].



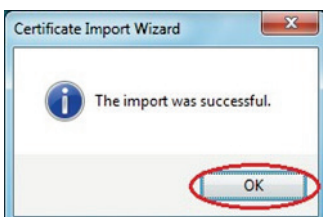
Click [Finish].



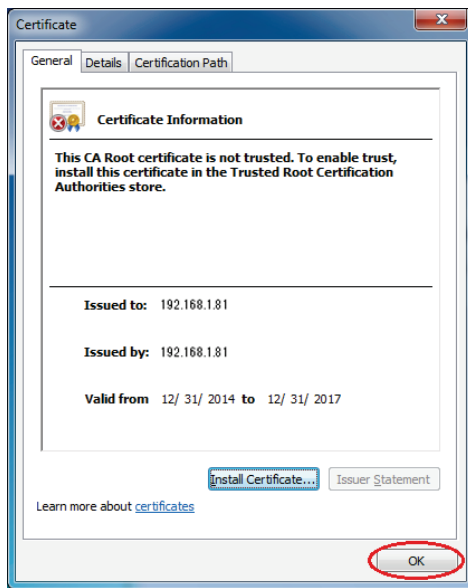
Click [Yes] when the following message appears.



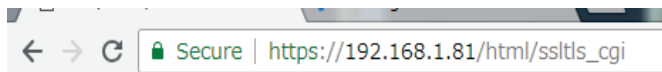
Click [OK].



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 "8.2.3 Supplementary Information."

[References]

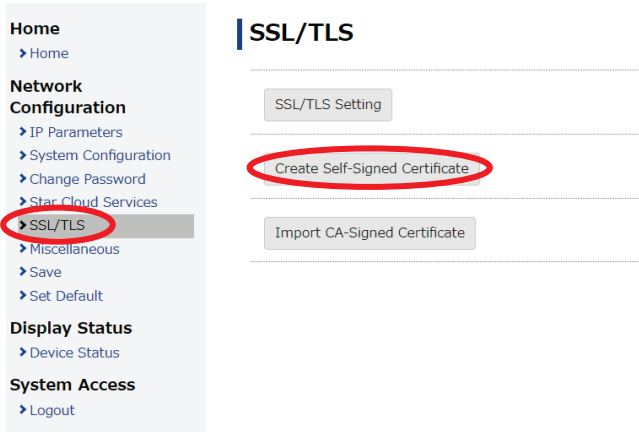
When importing a certificate file to the web browser on Windows 8/8.1/10, you must activate certificate manager, "certmgr.msc" in Windows administrative tools, and then perform the following procedure.

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

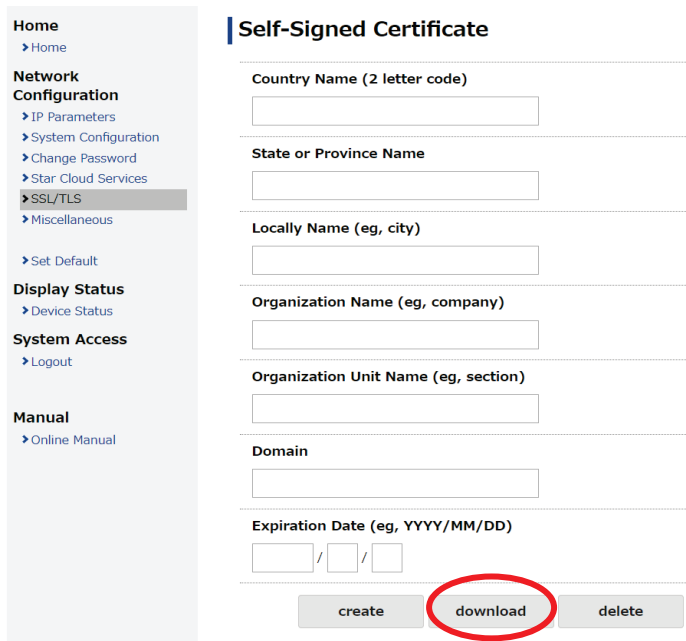
■ For iOS devices

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].

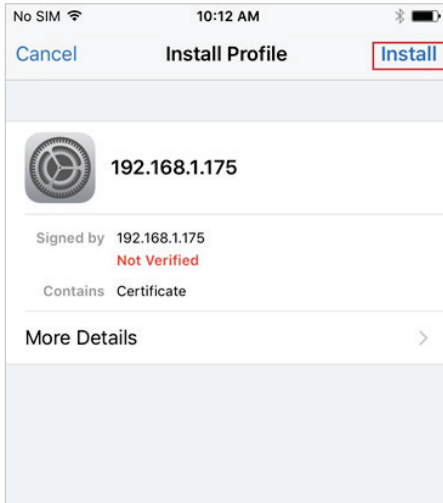
Note: For iOS devices, you need to use Safari because the certificate download is not permitted in browsers other than Safari.



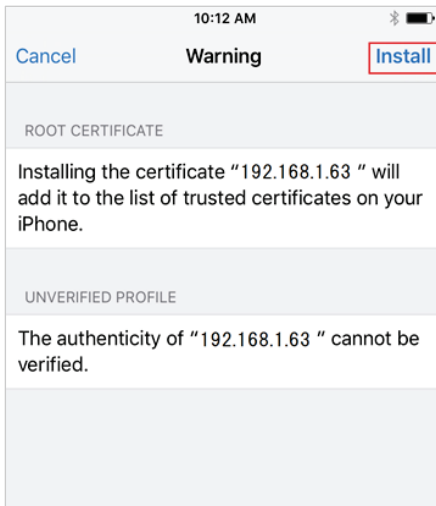
Select [Download].



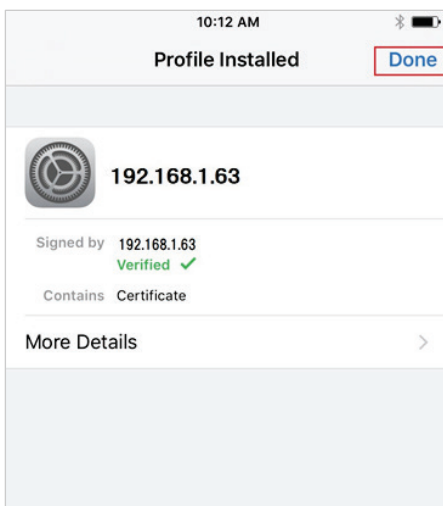
Select [Install] when the following screen appears.



Select [Install] when the following screen appears.



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

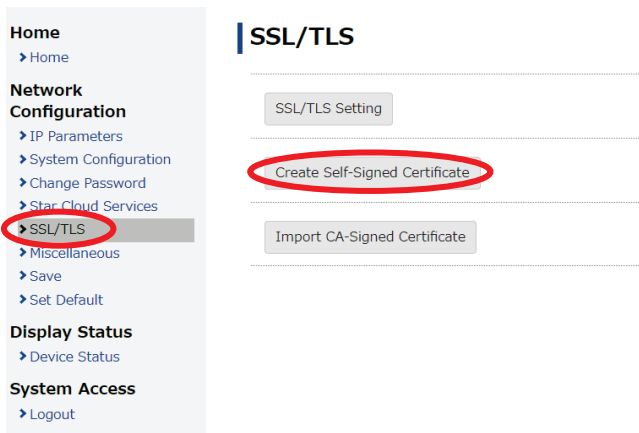


Turn on the printer power again. It becomes possible to access the printer web screen with an address beginning with "https://."

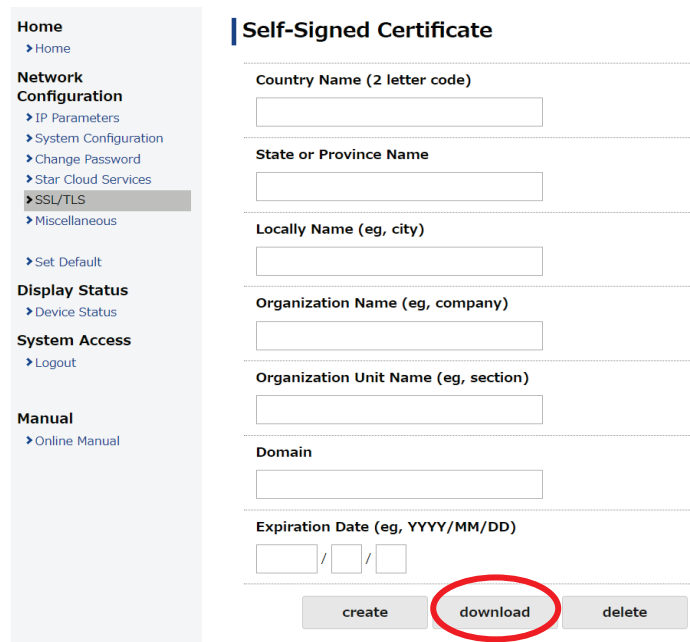
If you use iOS 10.3 or later, additional settings are necessary on the iOS side. Therefore, refer to "8.2.4 Settings required for certificate registration on iOS 10.3 or later."

■ For Android devices

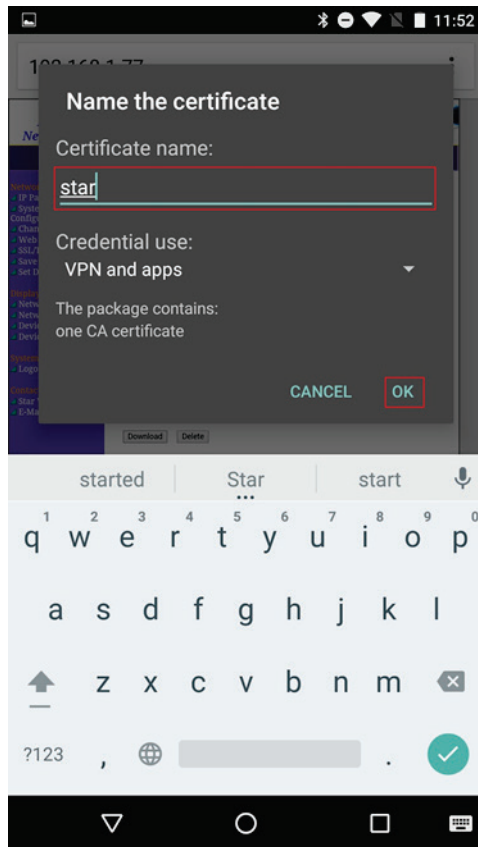
Go to the printer's IP address (in this procedure: http://192.168.192.63) on Chrome, and log in as root privilege. Select "SSL/TLS," and then select [Create Self-Signed Certificate].



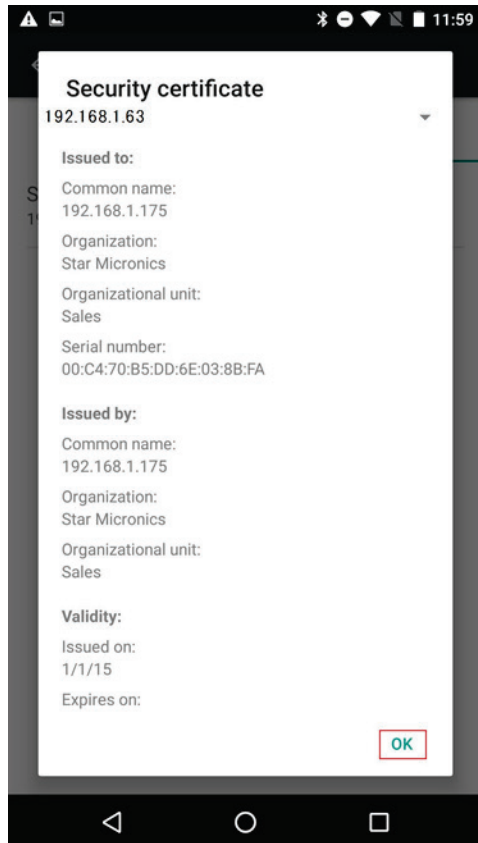
Select [Download].



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

8.2.2. 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."

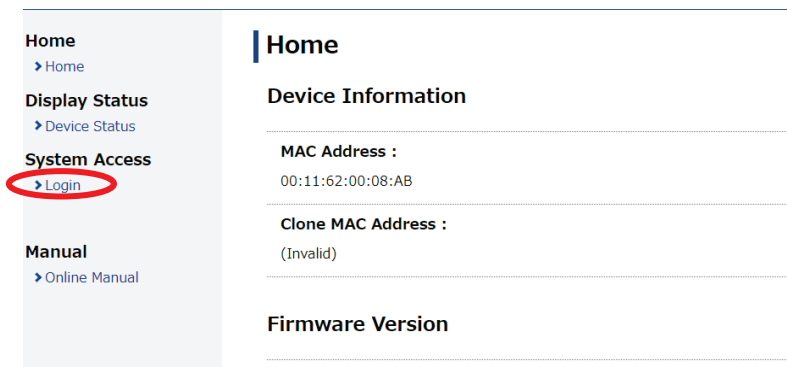
1. Prepare the server certificate and private key.

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.

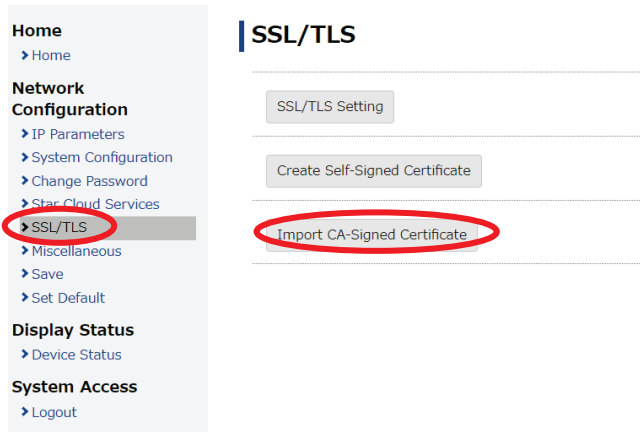
Access the printer's IP address (in this procedure: <http://192.168.1.81>), and then log in with root privilege.



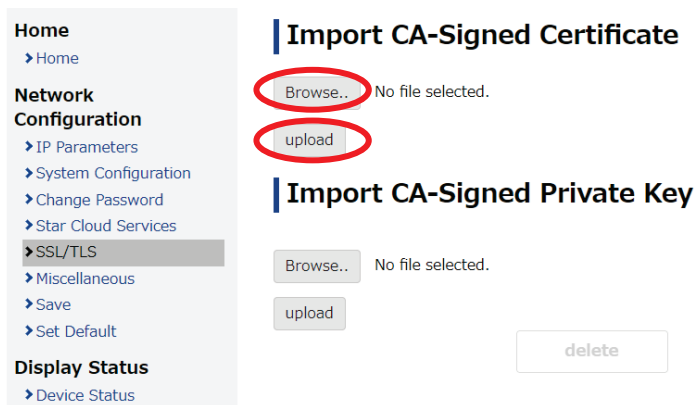
Enter the following username and password, and then click [OK]. Username: "root", Password: "public" (factory default setting)

The screenshot shows a 'Sign in' dialog box. At the top, it displays the URL 'http://192.168.1.81' and a warning: 'Your connection to this site is not private'. Below this are two input fields: 'Username' with the text 'root' and 'Password' with six asterisks. At the bottom right, there are two buttons: 'Sign in' and 'Cancel'.

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

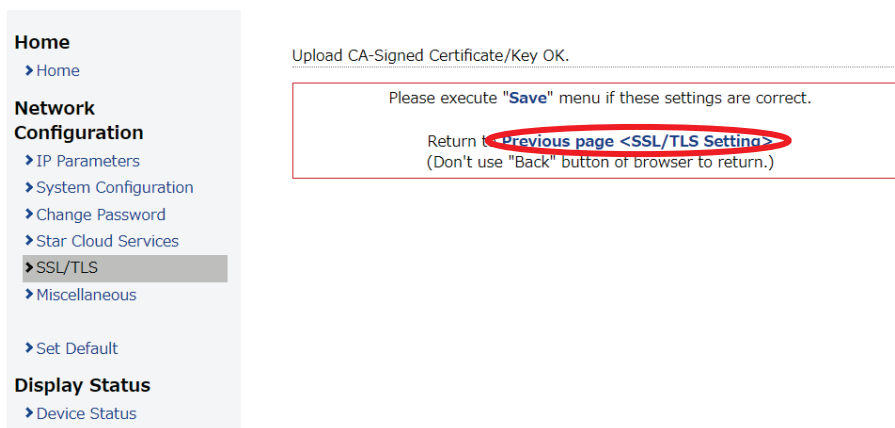


Click [Browse] in the "Import CA-Signed Certificate" column. Select the certificate file to import from the client device's file dialog, and then click [upload].

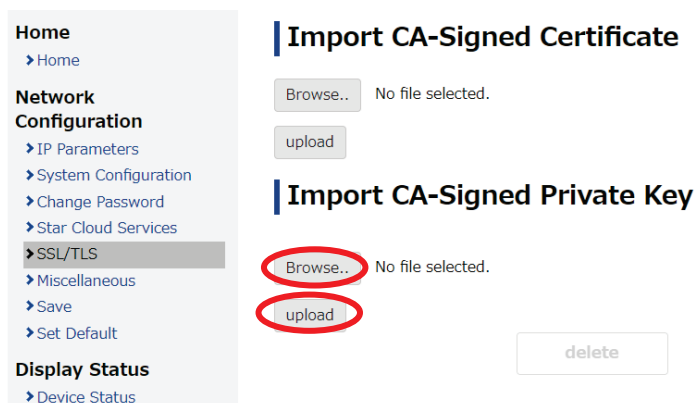


The following screen appears when importing has been successful.

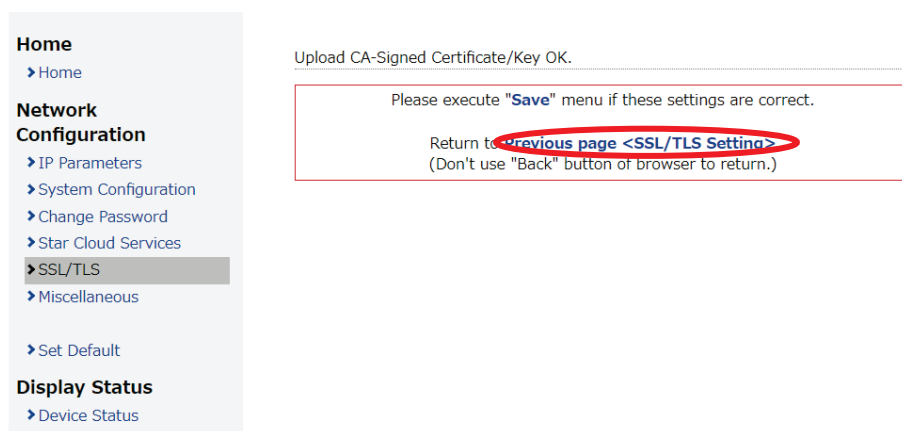
Click "Return to Previous page" to return to the previous page, and continue to register the private key.



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].

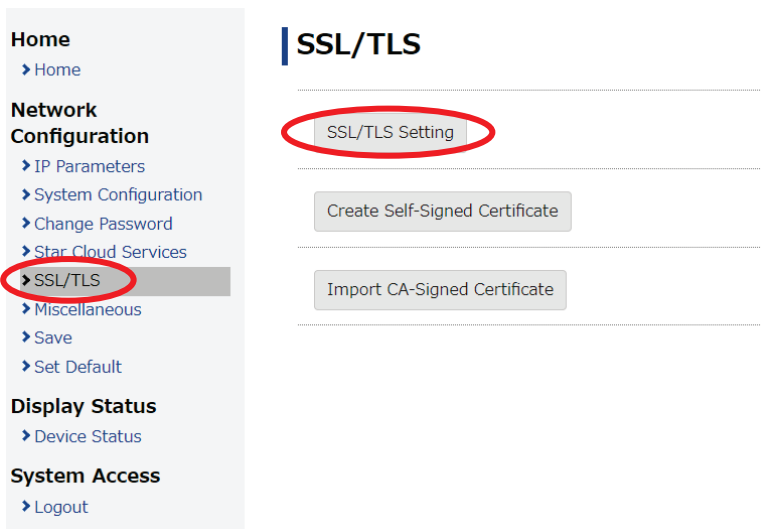


The following screen appears when importing has been successful.

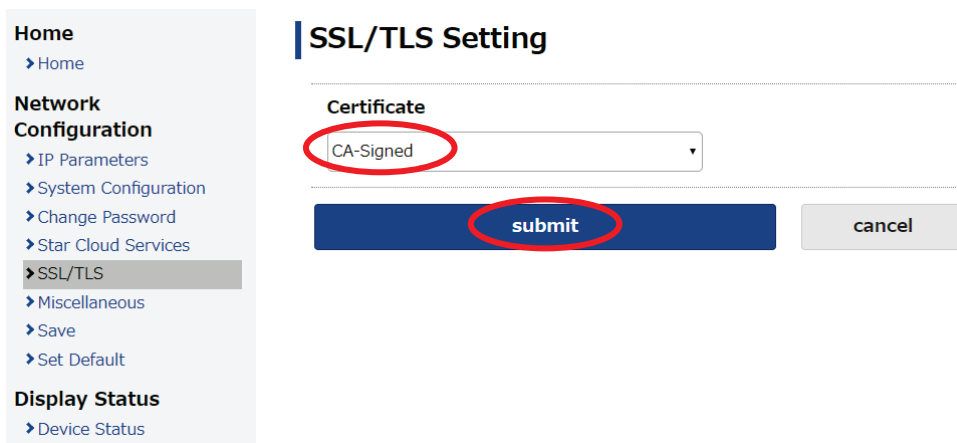


The registration is complete.

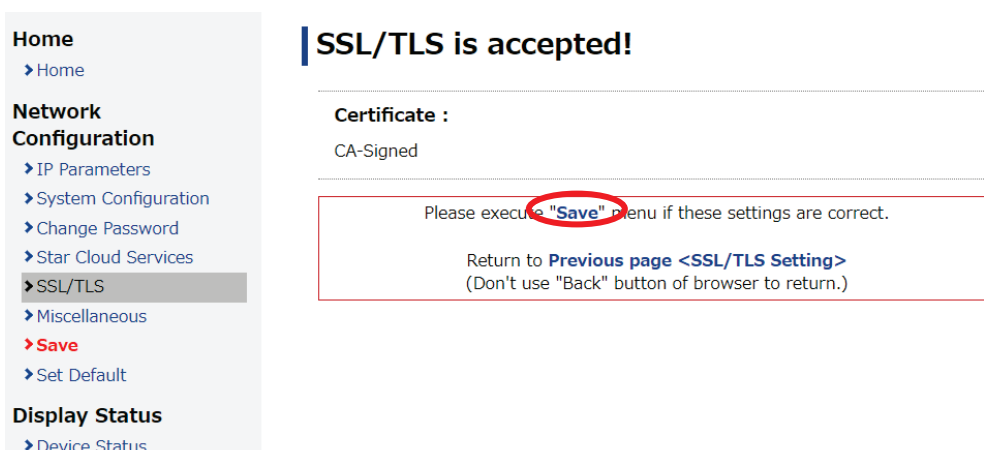
3. Enable the CA-signed certificate setting.
Click [SSL/TLS]. Click [SSL/TLS Setting].



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

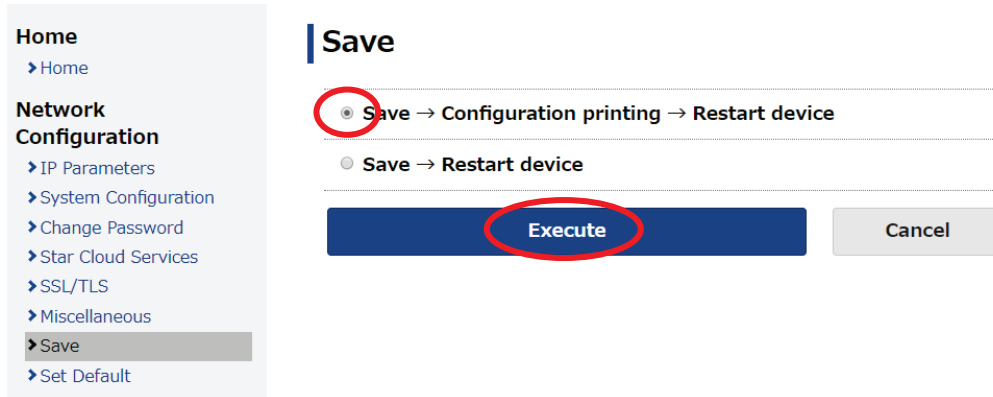


The following will be displayed. Confirm that Certificate: CA-Signed.



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

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



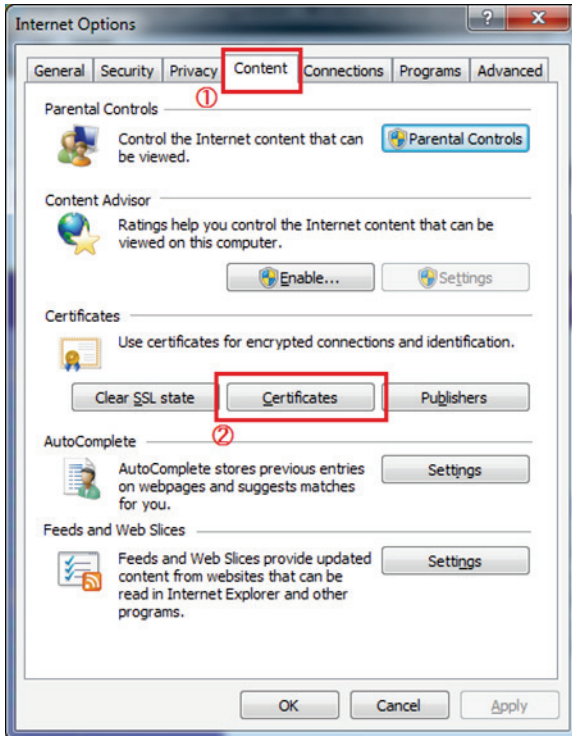
Importing a server certificate and a private key to the printer is complete.

[Registering in the web browser]

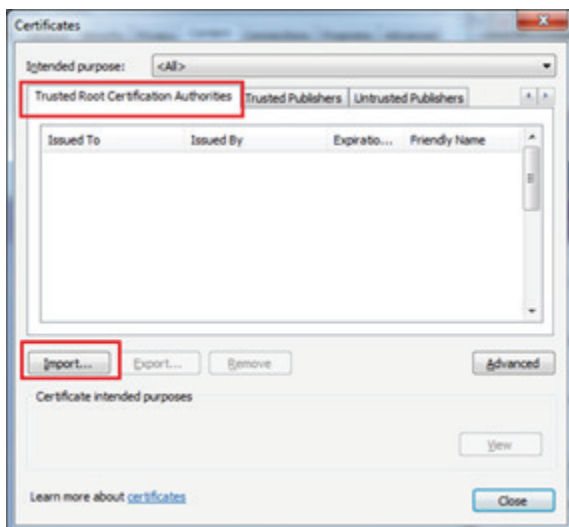
Register the server certificate signed by a Certificate Authority (CA) in the web browser of the client device as a "Trusted Root Certification Authorities". (This procedure is not necessary if you have already registered the certificate.)

■ For Windows devices (Windows 7 example)

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



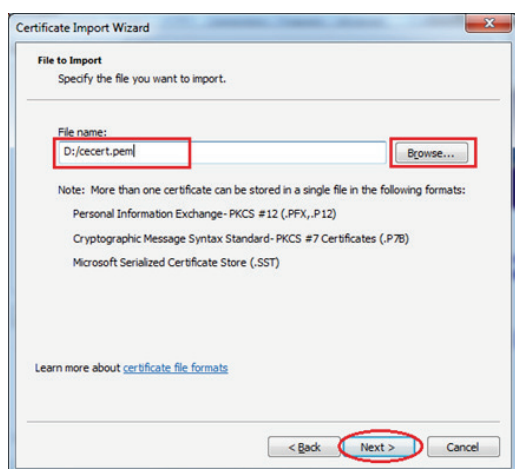
Select the "Trusted Root Certification Authorities" tab, and then click [Import...].



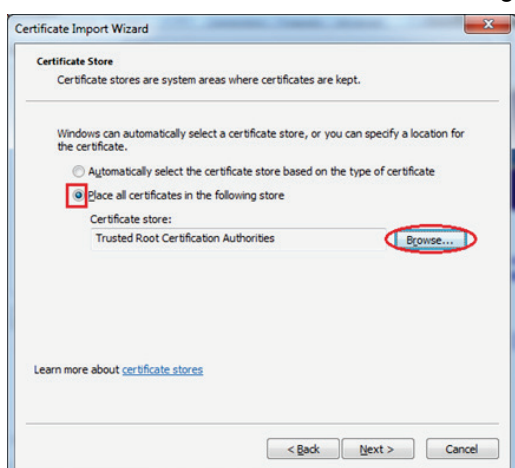
Click [Next].



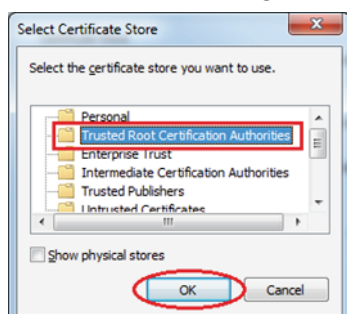
Click [Browse...], specify the Certificate Authority's certificate file signed on the server certificate (in this procedure: "cecert.pem"), and then click [Next].



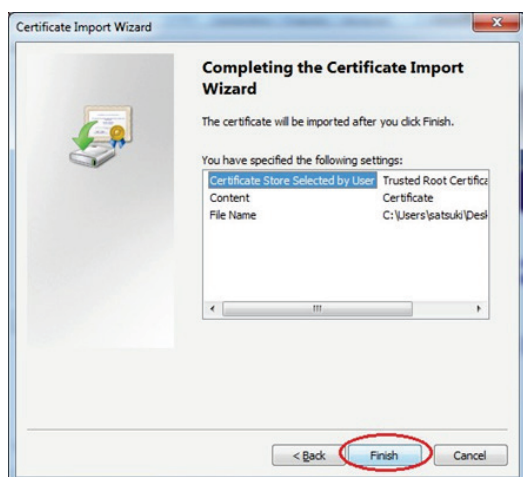
Select "Place all certificates in the following store" and click [Browse...].



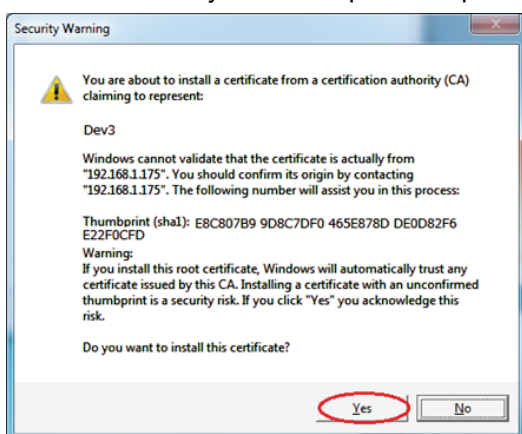
Select "Trusted Root Certification Authorities" and then click [OK].



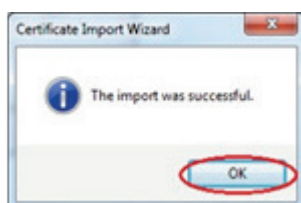
Click [Finish].



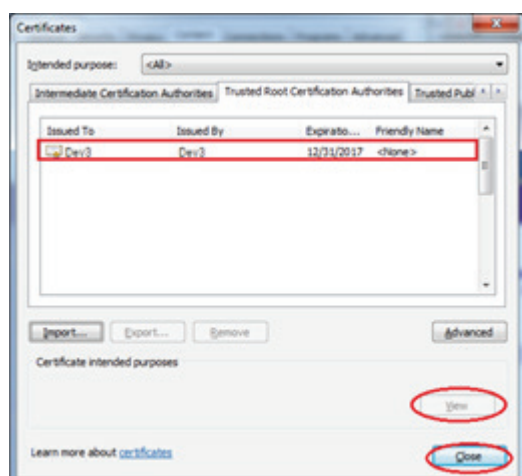
Click [Yes]. (The following example: The Certificate Authority (CA) name "Dev 3" is an example of a certificate authority's name imported to printer.)



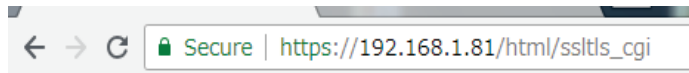
Click [OK].



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://."



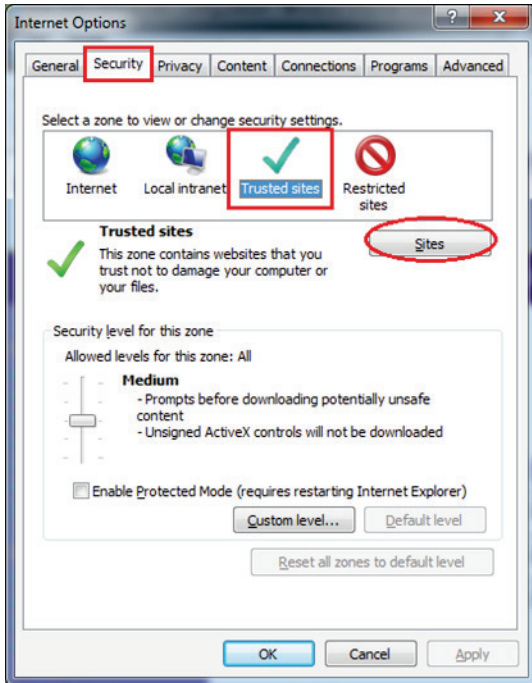
However, depending on the client device environment, you may need to add the address as a "Trusted sites."
(See "8.2.3 Supplementary Information.")

8.2.3. Supplementary Information

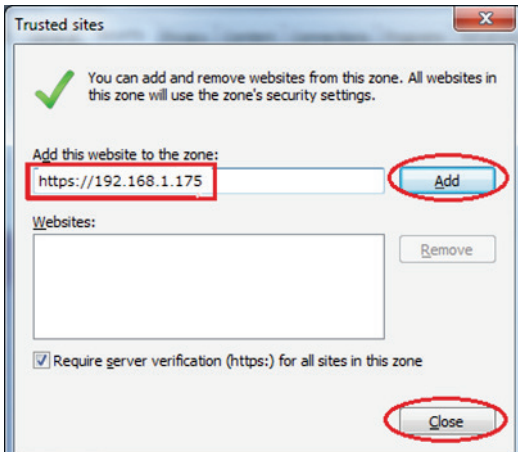
Depending on the client device environment, you may need to add the address as a "Trusted Sites" in the web browser.

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].



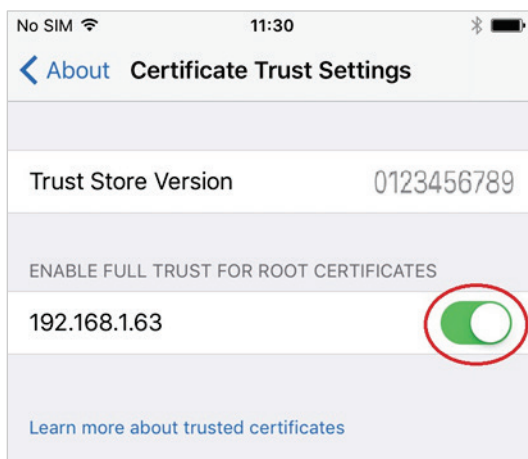
After returning to the Internet Options screen, click [OK] to exit.

8.2.4. 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 "8.2.1 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."



8.3. Cypher suite support list

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

(✓: Supported, -: Not supported)

8.3.1. Star webPRNT, Web Configuration

Service name		webPRNT 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	✓	

8.3.2. 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_S HA256	✓	-	✓	-
	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_SHA 256	✓	-	✓	-
	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

8.4. TSP100IV/TSP100IIILAN/TSP100IIIU/TSP100GT/TSP100IIU function comparison

The function comparison is shown in the table below.

Function	Detail	TSP100IV	TSP100IIILAN	TSP100IIIU	TSP100GT	TSP100IIU	Remark
Print speed Effective printing width 72 mm	High speed	250mm/sec	250mm/sec	250mm/sec	250mm/sec	150mm/sec	
	Medium speed	180mm/sec	180mm/sec	180mm/sec	180mm/sec	100mm/sec	
	Low speed	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	250mm/sec	150mm/sec	
	Medium speed	180mm/sec	180mm/sec	180mm/sec	180mm/sec	100mm/sec	
	Low speed	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	Not supported	150mm/sec	
	Medium speed with vertical reduction ratio of 75%	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	Not supported	62.5mm/sec	
	High speed with vertical reduction ratio of 50%	100mm/sec	100mm/sec	100mm/sec	Not supported	100mm/sec	
	Medium speed with vertical reduction ratio of 50%	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	Not supported	62.5mm/sec	
Top margin	-	11mm	11mm	11mm	11mm	3~11mm	
Printing width	-	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 to 85 μm	53 to 85 μm	53 to 85 μm	65 to 85 μm	65 to 85 μm	
Decal function	-	No	Yes	Yes	No	No	
Barcode printing	-	Supported	Supported	Supported	Not supported	Not supported	
USB (device function)	Connector	USB-C	Not provided	USB-B	USB-B	USB-B	
	USB Class	Printer Class	Not supported	Printer Class	Printer Class	Printer Class	
	Product ID	0X0003	Not supported	0x0003	0x0005	0x0003	
	Hub usage	No limitation	Not supported	No limitation	No limitation	Not recommended	

Function	Detail	TSP100IV	TSP100IIIILAN	TSP100IIIU	TSP100GT	TSP100IIU	Remark
USB (host function)	Connector	USB-A	USB-A	USB-A	Not provided	Not provided	
	Communication with peripherals	Possible	Not possible	Possible	Not supported	Not supported	
	Communication with iOS	Not possible	Not possible	Possible	Not supported	Not supported	
	Communication with Android	Possible	Not possible	Not possible	Not supported	Not supported	
	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	Max1.0A	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	
LAN	Connector	RJ-45 8P modular jack connector	RJ-45 8P modular jack connector	Not provided	Not provided	Not provided	
Network function	Star webPRNT function	Supported	Not supported	Not supported	Not supported	Not supported	
	Star Micronics Cloud Service	Supported	Not supported	Not supported	Not supported	Not supported	
	SSL/TLS communication	Supported	Not supported	Not supported	Not supported	Not supported	
	Star CloudPRNT function	Supported	Not supported	Not supported	Not supported	Not supported	
Memory switch	MSW<2>8	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)	
	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)	
	MSW<4>2-0	Printing width (72 mm, 48 mm, 50.8 mm, 51 mm, 52 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)	

Function	Detail	TSP100IV	TSP100IIIILAN	TSP100IIIU	TSP100GT	TSP100IIU	Remark
	MSW<7>C	ASB function (USB-C)	ASB function	ASB function	Not supported	Not supported	
	MSW<7>8	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%)	Not supported	Not supported	
	MSWF	Not supported	Data timeout (Enabled, Disabled)	Data timeout (Enabled, Disabled)	Not supported	Not supported	
	MSWE	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)	Not supported	USB serial number (Enabled, Disabled)	USB serial number (Enabled, Disabled)	USB serial number (Enabled, Disabled)	
	MSW<F>8	Cutter operation (Enabled, Disabled)	Not supported	Not supported	Not supported	Not supported	
	MSW<0>E-C	Special location of use	Not supported	Not supported	Not supported	Not supported	
	MSW<0>A-8	Multi-byte character	Not supported	Not supported	Not supported	Not supported	
	MSW<0>5	SHIFT-JIS Kanji Character Mode	Not supported	Not supported	Not supported	Not supported	
	MSW<0>4	Destination specifications	Not supported	Not supported	Not supported	Not supported	
	MSW<1>6	Font type (Font-A, Font-B)	Not supported	Not supported	Not supported	Not supported	
	MSW<1>4	Zero style	Not supported	Not supported	Not supported	Not supported	
	MSW<1>3-0	International characters	Not supported	Not supported	Not supported	Not supported	
	MSW<2>C	180° inversion	Not supported	Not supported	Not supported	Not supported	
	MSW<3>F-8	Code page	Not supported	Not supported	Not supported	Not supported	
	MSW<3>5	Chinese characters per line	Not supported	Not supported	Not supported	Not supported	
	MSW<3>4	Characters per line	Not supported	Not supported	Not supported	Not supported	
	MSW<3>0	Amount of line feed	Not supported	Not supported	Not supported	Not supported	
	MSW<7>F	ASB function (Ethernet)	Not supported	Not supported	Not supported	Not supported	
	MSW<7>B	NSB function (Ethernet)	Not supported	Not supported	Not supported	Not supported	
	MSW<7>0	Error sound playback function	Not supported	Not supported	Not supported	Not supported	

Function	Detail	TSP100IV	TSP100IIIILAN	TSP100IIIU	TSP100GT	TSP100IIU	Remark
	MSW<8>F-C	Horizontal reduced printing	Not supported	Not supported	Not supported	Not supported	
	MSW<8>7	Reduced printing and barcode processing	Not supported	Not supported	Not supported	Not supported	
	MSW<8>3	Horizontal paper saving	Not supported	Not supported	Not supported	Not supported	
	MSW<8>2	Vertical paper saving	Not supported	Not supported	Not supported	Not supported	
	MSWC	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	Not supported	Not supported	Not supported	Not supported	
	MSW<F>9	Paper feed with the feed button	Not supported	Not supported	Not supported	Not supported	
	MSW<R>B-8	Top margin setting	Not supported	Not supported	Not supported	Not supported	
DIP switches	DSW1-1	Not provided	Not used	Not provided	Always ON	Always ON	
	DSW1-2	Not provided	Network diagnostic mode	Not provided	Always ON	Always ON	
	DSW1-3	Not provided	IP address acquisition time-out setting	Not provided	Not provided	Not provided	
	DSW1-4	Not provided	Initialize network settings	Not provided	Not provided	Not provided	
Emulation and command	Emulation command	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 not possible	When error occurs DK control not possible	
Special mode	Test print mode	Supported	Supported	Supported	Supported	Supported	There are differences in the operation for each model. Refer to the Product Specifications Manual for details.

Function	Detail	TSP100IV	TSP100IIIILAN	TSP100IIIU	TSP100GT	TSP100IIU	Remark
	Network setting initialization mode	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	
High board temperature detection	Protection function	Yes	Yes	Yes	Yes	Yes	
Exterior	Exterior color: White model	Ultra-WHITE	Ultra-WHITE	Ultra-WHITE	Ice-WHITE	WHITE/O-WHITE	
	Exterior color: Gray model	GRY	GRY	GRY	Piano-Black	GRY	
External dimensions	-	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. 1.68 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. 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. 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: 1 million cuttings	Cutter life: 1 million cuttings	
	Lock release method	Knob type	Knob type	Knob type	Driver type	Driver type	
Operating portion	Power switch	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	Yes	
	LED	POWER: blue ERROR: red Network: green	POWER: blue ERROR: red	POWER: blue ERROR: red	POWER: green ERROR: red	POWER: green ERROR: red	

Function	Detail	TSP100IV	TSP100III LAN	TSP100III U	TSP100GT	TSP100IIU	Remark	
Packing	Packing box dimensions	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)		
Accessories	Wall mounting bracket	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.	Yes	Yes	Software, drivers, and related documents for TSP100IV and TSP100III are available on the website.	
	Switch cover	No	Yes	Yes	Yes	No		
	Sample paper roll	No	Yes	Yes	Yes	Yes		
	LAN cable	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	No	
	USB cable	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	13 countries US,CA,EU,UK,CN,MX ,AU,NZ,JP,TW,RU,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.	Not certified	Certified. A sticker is attached.		
	Online manual	Yes	Yes	Yes	No	No		

8.5. Results of replacement with TSP100IV by usage situation

Operational limitations when replacing TSP100IIU/TSP100IIU+/TSP100IIIU/TSP100IIILAN/TSP100IIIW/TSP100IIIBI/TSP100GT with TSP100IV are as follows.

Diver version used			Software after replacement					
			StarWindowsSoftware V3.0.0 or later	Star PRNT SDK V5.15.0 or later	StarXpand SDK ReactNative V 1.1.0 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	TSP100IV USB/LAN					
TSP100IIIU/LAN/WLAN TSP100IIU/IIU+, TSP100GT	Windows	- futurePRNT earlier than V7.0.0						
TSP100IIIU/LAN/WLAN TSP100IIU/IIU+, TSP100GT		- 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)					
TSP100IIIU/LAN/WLAN TSP100IIU/IIU+, TSP100GT		- 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 the manual.		
TSP100IIIU/LAN/WLAN TSP100IIU/IIU+, TSP100GT	Windows Android iOS	- StarPRNTSDK Earlier than V5.15.0 for each (*) UWP is not supported on USB models.		Rewritable with setting change. - Make the PortName specification the same. - In case of USB, make the USB serial number the same.				
TSP100IIIU/LAN/WLAN TSP100IIU+	Windows Android iOS	- StarXpand SDK ReactNative earlier than V1.1.0			Rewritable with setting change. - Make the identifier property the same.			

Diver version used			Software after replacement						
			StarWindowsSoftware V3.0.0 or later	Star PRNT SDK V5.15.0 or later	StarXpand SDK ReactNative V 1.1.0 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	TSP100IV USB/LAN						
TSP100IIIU/LAN/WLAN	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.
TSP100IIIU/LAN/WLAN TSP100IIU/IIU+, TSP100GT	Mac Linux	- CUPS earlier than V4.8.0 (Mac)/ earlier than V3.12.0 (Linux)						Rewritable with setting change. - For a LAN printer, make the IP address the same.	

STAR MICRONICS CO., LTD.

Special Products Division

<https://www.starmicronics.com/support/>