

# FaceStation 2

## INSTALLATION GUIDE

Version 1.27  
English  
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# Safety instructions

Please read this safety instructions before you use the product to prevent injury to yourself and others and to prevent property damage. The term 'product' in this manual refers to the product and any items provided with the product.

## Instructional icons



**Warning:** This symbol indicates situations that could result in death or severe injury.



**Caution:** This symbol indicates situations that may result in moderate injury or property damage.



**Note:** This symbol indicates notes or additional information.



## Warning

### Installation

**When using a high-capacity power supply, please pay special attention to avoid miswiring.**

- Miswiring may result in serious fire, electric shock, or product damage.

**Do not install or repair the product arbitrarily.**

- This may result in electric shock, fire, or product damage.
- Damages caused by any modifications or failure to follow installation instructions can void your manufacturer's warranty.

**Do not install the product in a place with direct sunlight, moisture, dust, soot, or a gas leak.**

- This may result in electric shock or fire.

**Do not install the product in a location with heat from an electric heater.**

- This may result in fire due to overheating.

**Install the product in a dry location.**

- Humidity and liquids may result in electric shock or product damage.

**Do not install the product in a location where it will be affected by radio frequencies.**

- This may result in fire or product damage.

### Operation

**Keep the product dry.**

- Humidity and liquids may result in electric shock, fire, or product damage.

**Do not use damaged power supply adapters, plugs, or loose electrical sockets.**

- Unsecured connections may cause electric shock or fire.

**Do not bend or damage the power cord.**

- This may result in electric shock or fire.



## Caution

### **Installation**

Please read this manual before installing the product to ensure a safe and correct installation.

When wiring the power cable and other cables, make sure to connect them with the power turned off for all devices involved.

- The product may malfunction.

Before connecting power to the product, double-check the manual to ensure that the wiring is correct, then connect the power.

Do not install the product under direct sunlight or UV light.

- This may result in product damage, malfunction, discoloration, or deformation.

Do not install the power supply cable in a location where people pass by.

- This may result in injury or product damage.

Do not install the product near magnetic objects, such as a magnet, TV, monitor (especially CRT), or speaker.

- The product may malfunction.

Keep the minimum distance between products when installing multiple products.

- The product may be affected by radio frequencies emitted by other products and the product may malfunction.

Use the IEC/EN 62368-1 approved power adapter that supports higher power consumption than the product. It is highly recommended to use the power adapter sold by Suprema.

- If the right power supply is not used, the product may malfunction.
- Refer to the **Power** in the product specifications for maximum current consumption specifications.

Use a separate power supply for the Secure I/O 2, electric lock, and the product.

- If connecting and using the same power supply, the product may malfunction.



## Caution

### **Operation**

**Do not drop the product or cause impacts to the product.**

- The product may malfunction.

**Do not disconnect the power supply while upgrading the firmware of the product.**

- The product may malfunction.

**Do not disclose the password to others and change it regularly.**

- This may result in illegal intrusion.

**Do not press buttons on the product by force or do not press them with a sharp tool.**

- The product may malfunction.

**Do not store your product in very hot or very cold places. It is recommended to use your product at temperatures from -20 °C to 50 °C.**

- The product may malfunction.

**When cleaning the product, mind the following.**

- Wipe the product with a clean and dry towel.
- If you need to sanitize the product, moisten the cloth or the wipe with a proper amount of rubbing alcohol and gently clean all exposed surfaces including fingerprint sensor. Use rubbing alcohol (containing 70% Isopropyl alcohol) and a clean, non-abrasive cloth like lens wipe.
- Do not apply liquid directly to the surface of the product.

**Do not use the product for anything other than its intended use.**

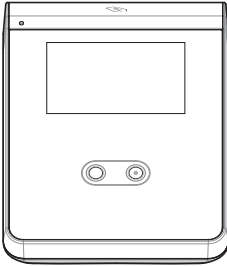
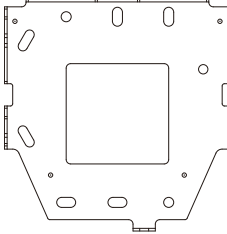
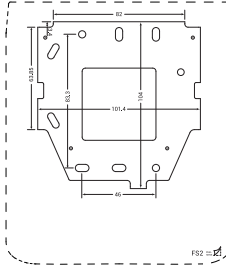
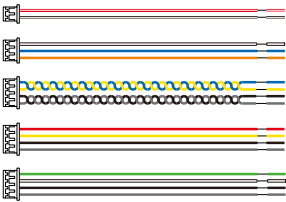



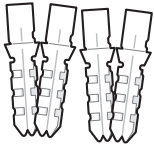
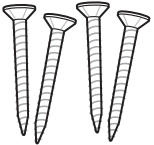


- The product may malfunction.

### **RTC Battery**

Use of an unapproved or incorrect type of battery may result in a risk of explosion. Discard the battery according to the appropriate regional or international waste regulations.

# Introduction

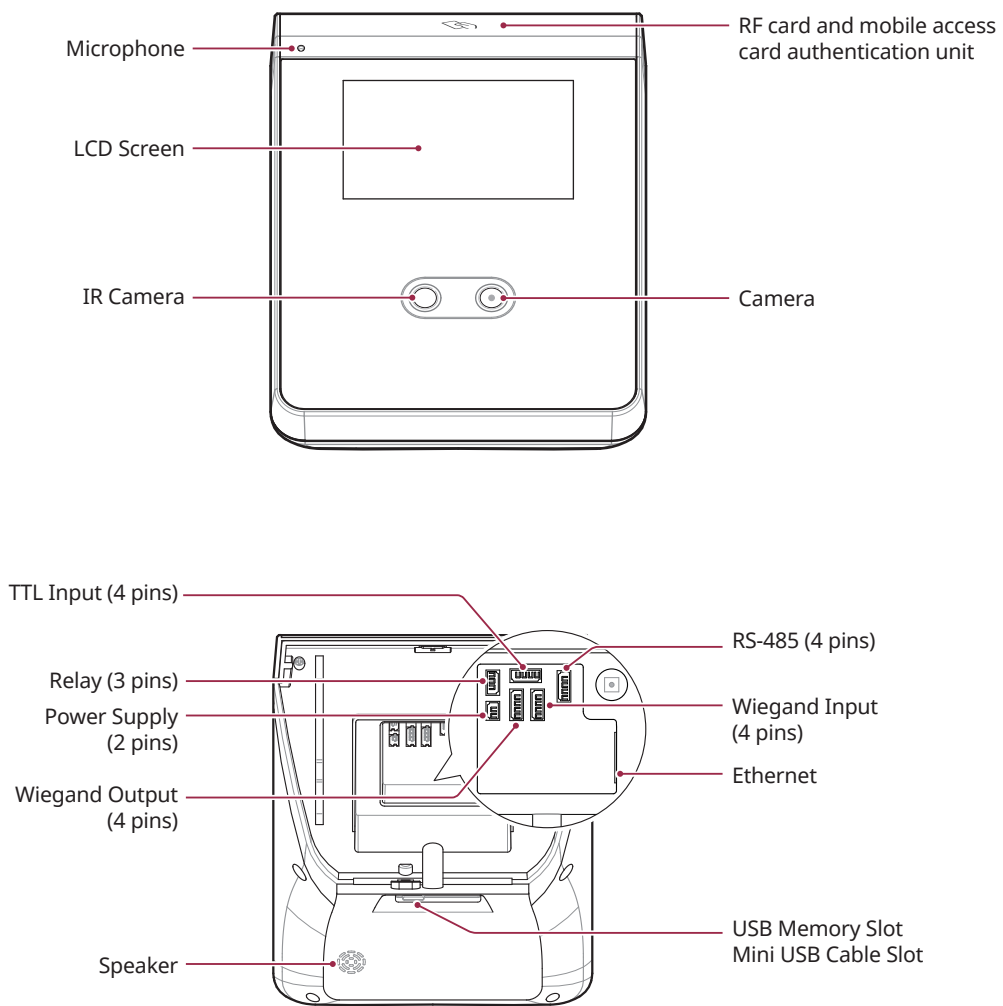
## Components

			
<b>FaceStation 2</b>	<b>Wall Bracket</b>	<b>Drilling Template</b>	
			
<b>Connection Cable</b> (1x2-pin, 1x3-pin, 3x4-pin)	<b>Diode</b>	<b>120 <math>\Omega</math> Resistor</b>	<b>Bracket Fixing Screw</b> (Star Shaped)
			
<b>PVC Anchor x4</b>	<b>Fixing Screw x4</b>	<b>Quick Guide</b>	<b>Open Source Software</b> <b>Guide</b>



- Components may vary according to the installation environment.
- The tilting bracket and thermal camera for FaceStation 2 is sold separately.
- When assembling the product with the bracket, you can use the included bracket fixing screw (Star Shaped) instead of the product fixing screw for enhanced security.
- For more details regarding the product, visit the Suprema website (<https://www.supremainc.com>) and refer to the user guide.

## Name and function of each part



Name	Description
<b>Microphone</b>	Delivers the voice of the user when the interphone is connected.
<b>LCD Screen</b>	Provides UI for operation.
<b>IR Camera</b>	Captures the infrared face image.
<b>Camera</b>	Captures an actual face image.
<b>RF card and mobile access card authentication unit</b>	Scans the card for entrance.
<b>Speaker</b>	Delivers sound.
<b>USB Memory Slot</b>	Connect USB memory. <ul style="list-style-type: none"> <li>Suprema Thermal Camera (TCM10-FS2) and USB memory cannot be used at the same time.</li> </ul>
<b>Mini USB Cable Slot</b>	Will be supported in the future.
<b>TTL Input (4 pins)</b>	Connect the TTL input cable.
<b>RS-485 (4 pins)</b>	Connect the RS-485 cable.
<b>Relay (3 pins)</b>	Connect the relay cable.

Name	Description
Power Supply (2 pins)	Connect the power supply cable.
Ethernet	Connect the Ethernet cable.
Wiegand Input (4 pins)	Connect the Wiegand input cable.
Wiegand Output (4 pins)	Connect the Wiegand output cable.

## Cables and connectors

### Power supply



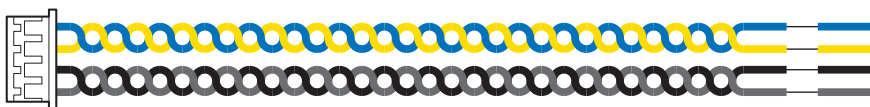
Pin	Name	Color
1	PWR +VDC	Red (white stripe)
2	PWR GND	Black (white stripe)

### Relay



Pin	Name	Color
1	RLY NO	White
2	RLY COM	Blue
3	RLY NC	Orange

### RS-485



Pin	Name	Color
1	485 TRXP	Blue
2	485 TRXN	Yellow
3	485 GND	Black
4	SH GND	Gray



## TTL input



Pin	Name	Color
1	TTL IN0	Red
2	TTL IN1	Yellow
3	TTL GND	Black
4	SH GND	Gray

## Wiegand input and output



Pin	Name	Color
1	WG D0	Green
2	WG D1	White
3	WG GND	Black
4	SH GND	Gray

## Correct face enrollment and authentication method

### Cautions for enrolling a face

- When enrolling a face, maintain a distance of 40 cm to 80 cm between the device and the face.
- Be careful not to change the facial expression. (smiling face, drawn face, wink, etc.)
- If you do not follow the instructions on the screen, the face enrollment may take longer or may fail.
- Be careful not to cover the eyes or eyebrows.
- Do not wear hats, masks, sunglasses or eyeglasses.
- Be careful not to display two faces on the screen. Register one person at a time.
- It is recommended for a user wearing glasses to enroll both faces with and without glasses.

### Cautions for authenticating a face

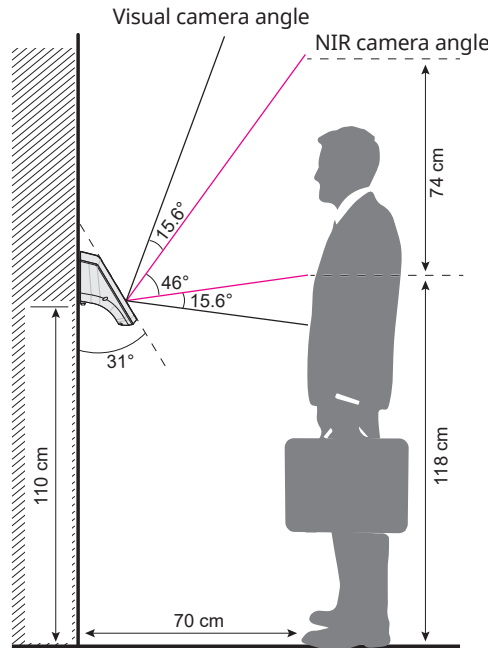
- Ensure that the face appears inside the guideline displayed on the screen of the device.
- If glasses have been changed, authentication may fail. If the face without glasses has been registered, authenticate the face without glasses. If only the face with glasses has been registered, authenticate the face with the previously worn glasses again.
- If a part of the face is covered with a hat, a mask, an eye patch, or sunglasses authentication may fail. Do not cover the face; allow the device to recognize both the eyebrows and the face.

# Installation

## Fixing the bracket and the product

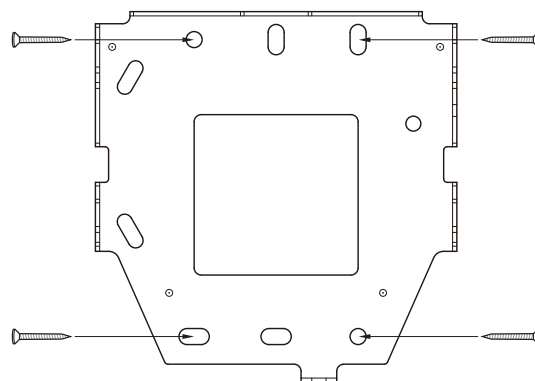
### Basic Bracket

1 Determine the correct position to install the bracket using the provided drilling template.



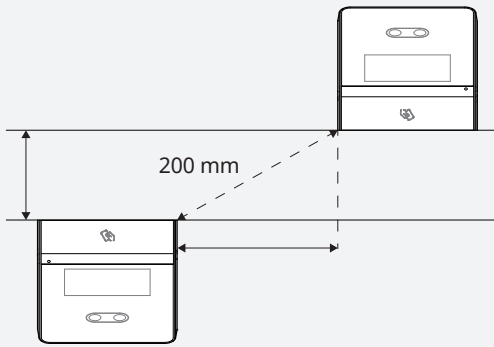
- The optimal height for installing device is 110 cm.
- Install the device where it does not reach the direct sunlight.
- Adjust the installation position so that the face is not exposed to direct sunlight when a user tries to authenticate.

2 Fix the bracket firmly using fixing screws through the bracket to the position where FaceStation 2 will be installed.

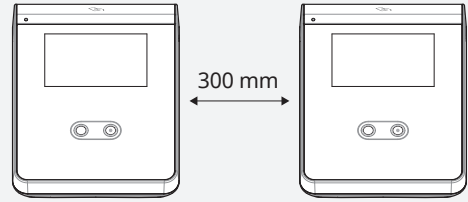




- If installing FaceStation 2 on a concrete wall, drill holes, insert PVC anchors, and fix them with fixing screws.
- To avoid RF interference, a minimum separation distance must be maintained.

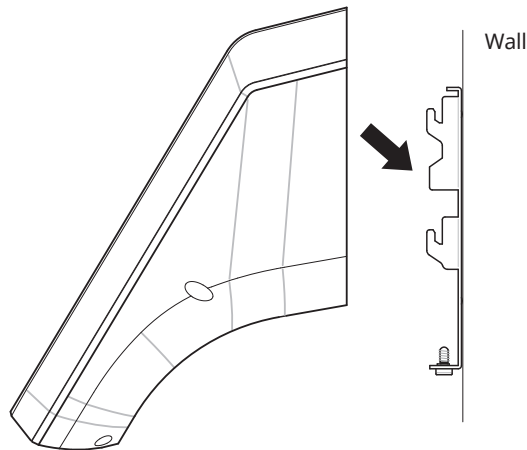


Wall

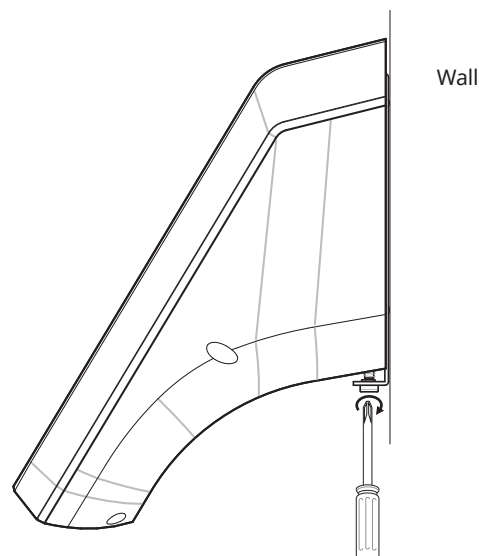


Wall thickness	Distance
100 mm	283 mm
120 mm	275 mm
150 mm	260 mm

**3** Install FaceStation 2 onto the fixed bracket.



**4** Connect FaceStation 2 to the bracket by rotating the product fixing screw of FaceStation 2.



## Tilting Bracket

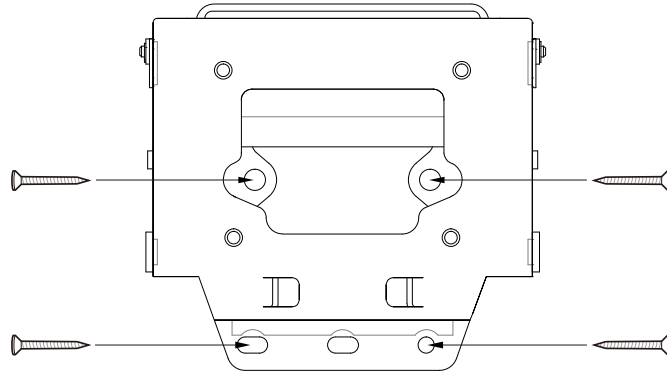
You can install the FaceStation 2 using a dedicated tilting bracket to allow angle adjustment when a user authenticates the face. The tilting bracket for FaceStation 2 is sold separately.

**1** Determine the correct position to install the product using the provided drilling template.



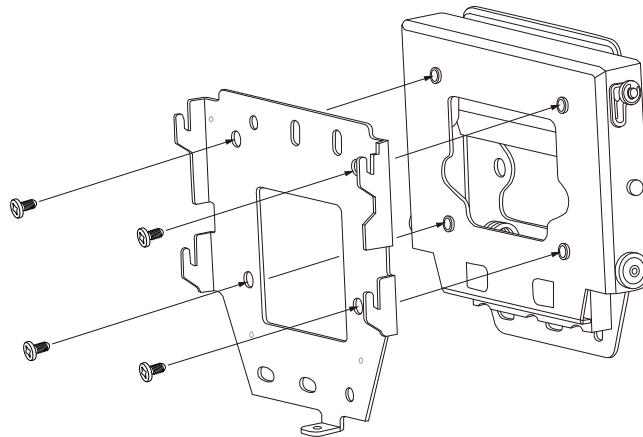
- The optimal height for installing device is 110 cm.
- Install the device where it does not reach the direct sunlight.
- Adjust the installation position so that the face is not exposed to direct sunlight when a user tries to authenticate.

**2** Fix the bracket firmly using fixing screws through the bracket to the position where FaceStation 2 will be installed.

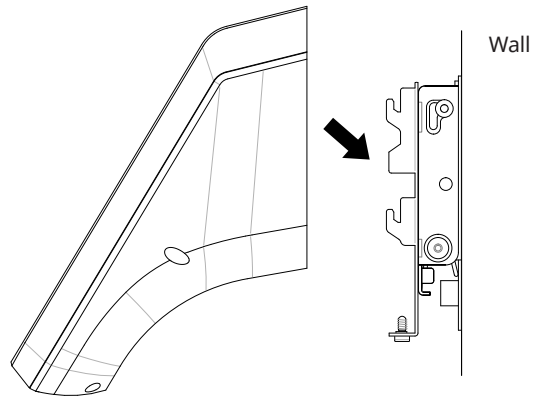


- If installing FaceStation 2 on a concrete wall, drill holes, insert PVC anchors, and fix them with fixing screws.
- To avoid RF interference, a minimum separation distance must be maintained.

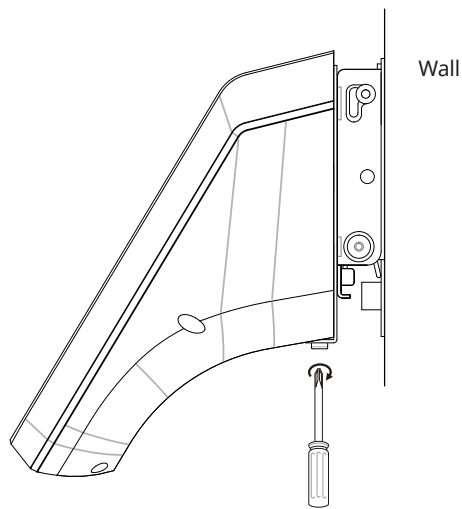
**3** Fix the bracket firmly to the tilting bracket.



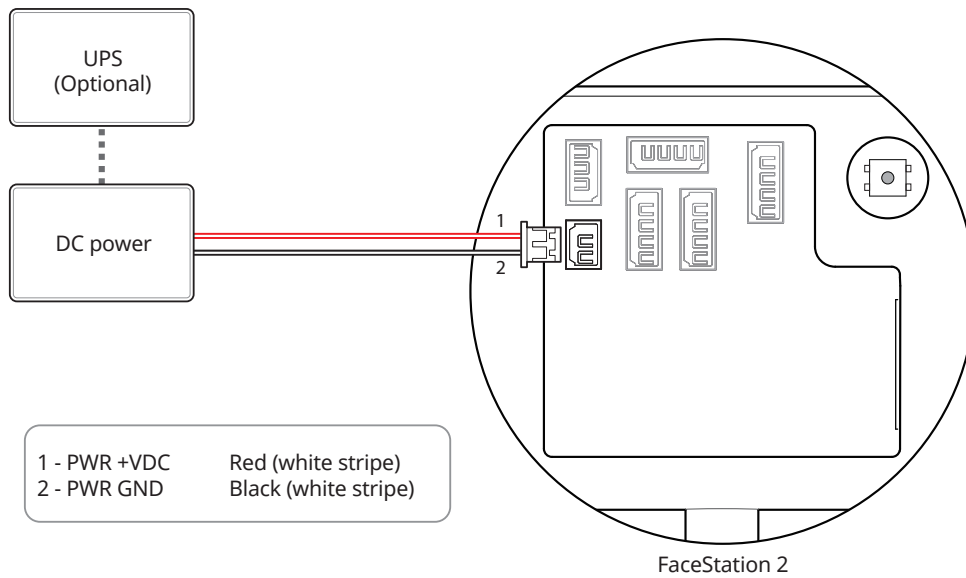
**4** Install FaceStation 2 onto the fixed bracket.



**5** Connect FaceStation 2 to the bracket by rotating the product fixing screw of FaceStation 2.



## Power supply connection



- Use the IEC/EN 62368-1 approved power adapter that supports higher power consumption than the product. If you wish to connect and use another device to the power supply adapter, you should use an adapter with a current capacity which is the same or larger than the total power consumption required for the terminal and another device.
  - Refer to the **Power** in the product specifications for maximum current consumption specifications.
- DO NOT extend the length of power cable when using the power adapter.
- Use a separate power supply for Secure I/O 2, the electric lock, and the product respectively. If connecting and using the power supply to these devices together, the devices may malfunction.
- Be aware of the distance between the FaceStation 2 and the power supply when using a separate power supply. The power supply should be installed as close as possible to the device. If not properly connected, the device may malfunction. We recommend that use 16 AWG or 18 AWG cables if the distance between the device and the power supply is too far. The distance that can be connected may vary depending on the cable specifications and installation environment.

Cable standard	Max. extended length
16 AWG	150 m
18 AWG	136 m
20 AWG	90 m

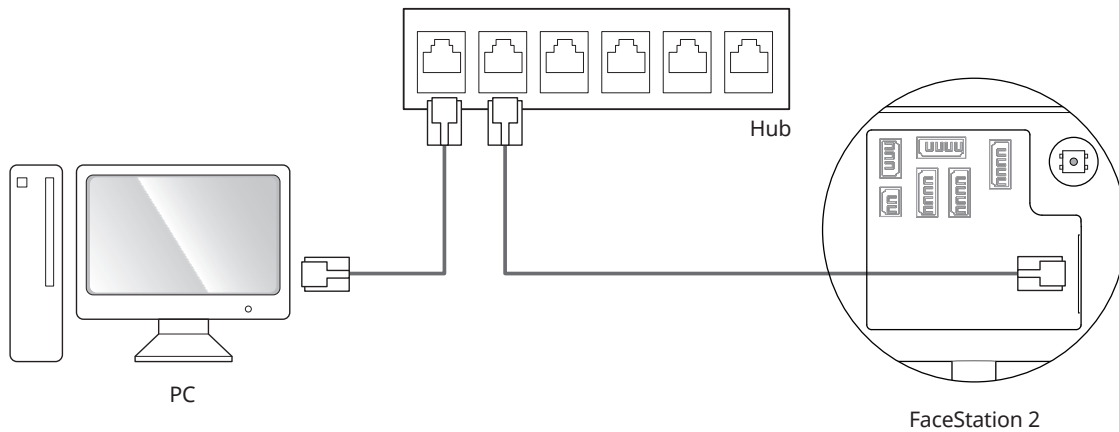
- Do not use the CAT5 UTP 2-Wire for power supply purpose.

## Network connection

### TCP/IP

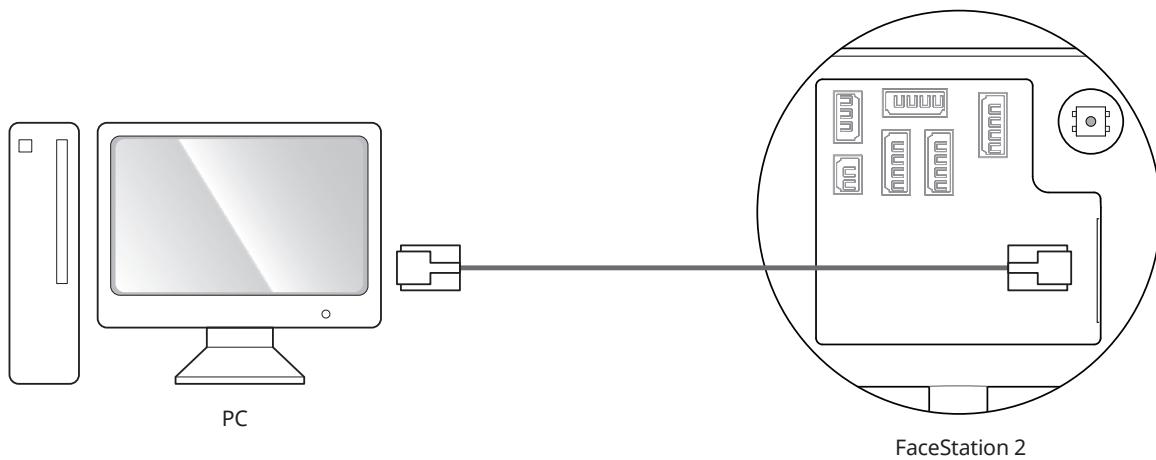
#### LAN connection (connecting to a hub)

You can connect the product to a hub using a general type CAT-5e cable.



#### LAN connection (connecting to a PC directly)

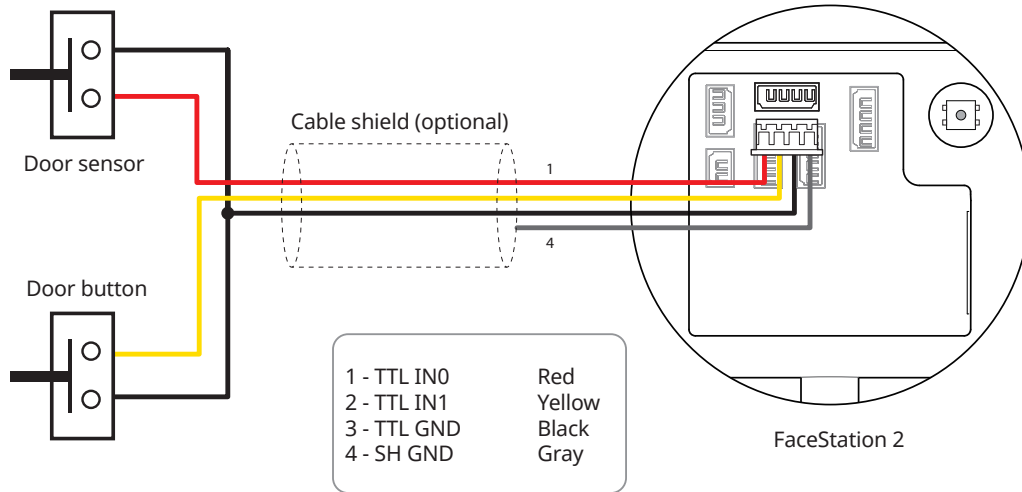
FaceStation 2 has an automatic MDI/MDIX function so that it can be connected to a PC directly using a normal straight type CAT-5e cable or a cross cable.



- When you use a gigabit network switch, please see below information.
  - Use a Cat5e UTP(Unshielded Twisted Pair) cable.
  - Use all 4 pairs (8 lines) of cable for network connection.
  - Do not use the pair of cable for other purpose.



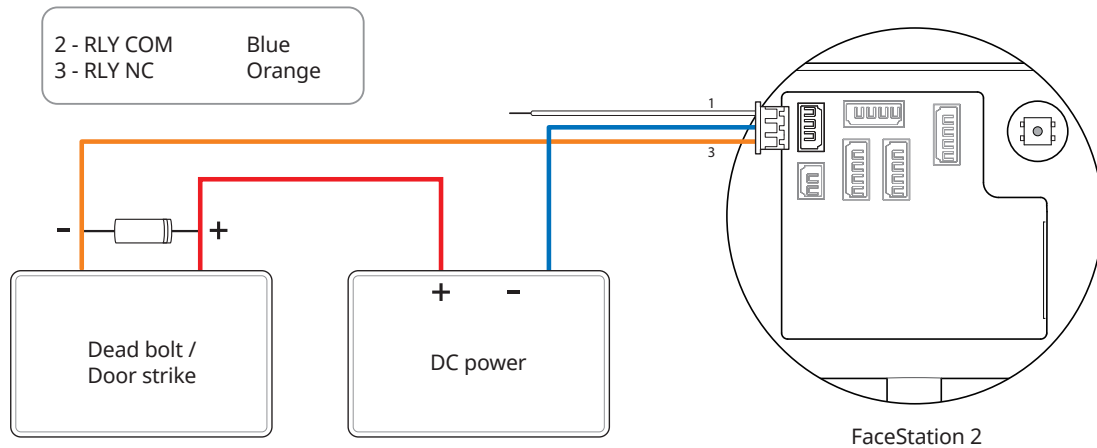
## TTL input connection



## Relay connection

### Fail Safe Lock

In order to use the Fail Safe Lock, connect N/C relay as shown in the figure below. There is normally a current flowing through the relay for the Fail Safe Lock. When the relay is activated, blocking the current flow, the door will open. If the power supply to the product is cut off due to a power failure or an external factor, the door will open.



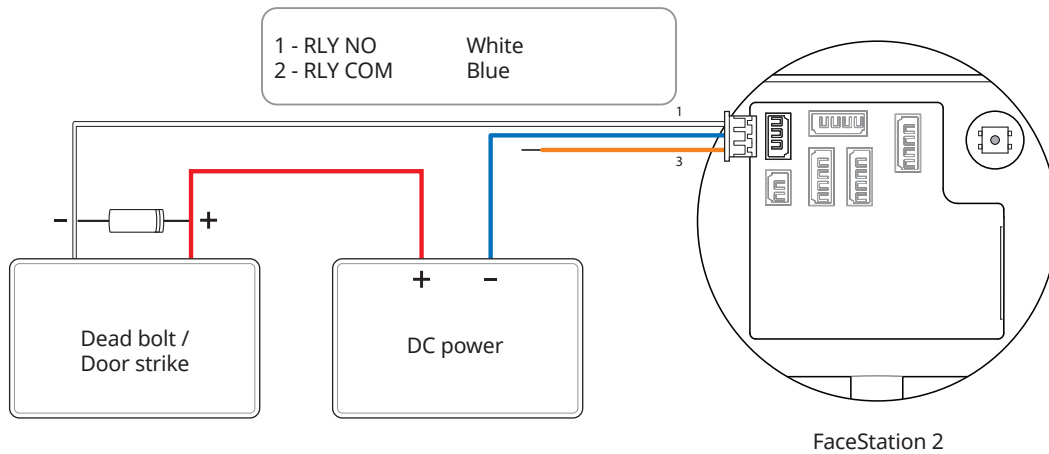
- Install a diode at both sides of the door lock wire as shown in the figure to protect the relay from the reverse current, which occurs when the door lock operates.
- Use a separate power supply for FaceStation 2 and the door lock.
- Suprema's standalone intelligent readers contain internal relays that can directly lock/unlock doors without external controllers for added convenience. For access control applications in need of security, however, it is NOT recommended to use the internal relay of a reader to prevent any tampering attacks which can potentially trigger the door unlock. For such applications, it is highly recommended to use a separate relay unit for a lock control such as Suprema's Secure I/O 2, DM-20 or CoreStation installed at a secure side of a door.



Take caution of the installation direction of the diode. Install the diode close to the door lock.

## Fail Secure Lock

In order to use the Fail Secure Lock, connect N/O relay as shown in the figure below. There is normally no current flowing through the relay for the Fail Secure Lock. When the current flow is activated by the relay, the door will open. If the power supply to the product is cut off due to a power failure or an external factor, the door will lock.

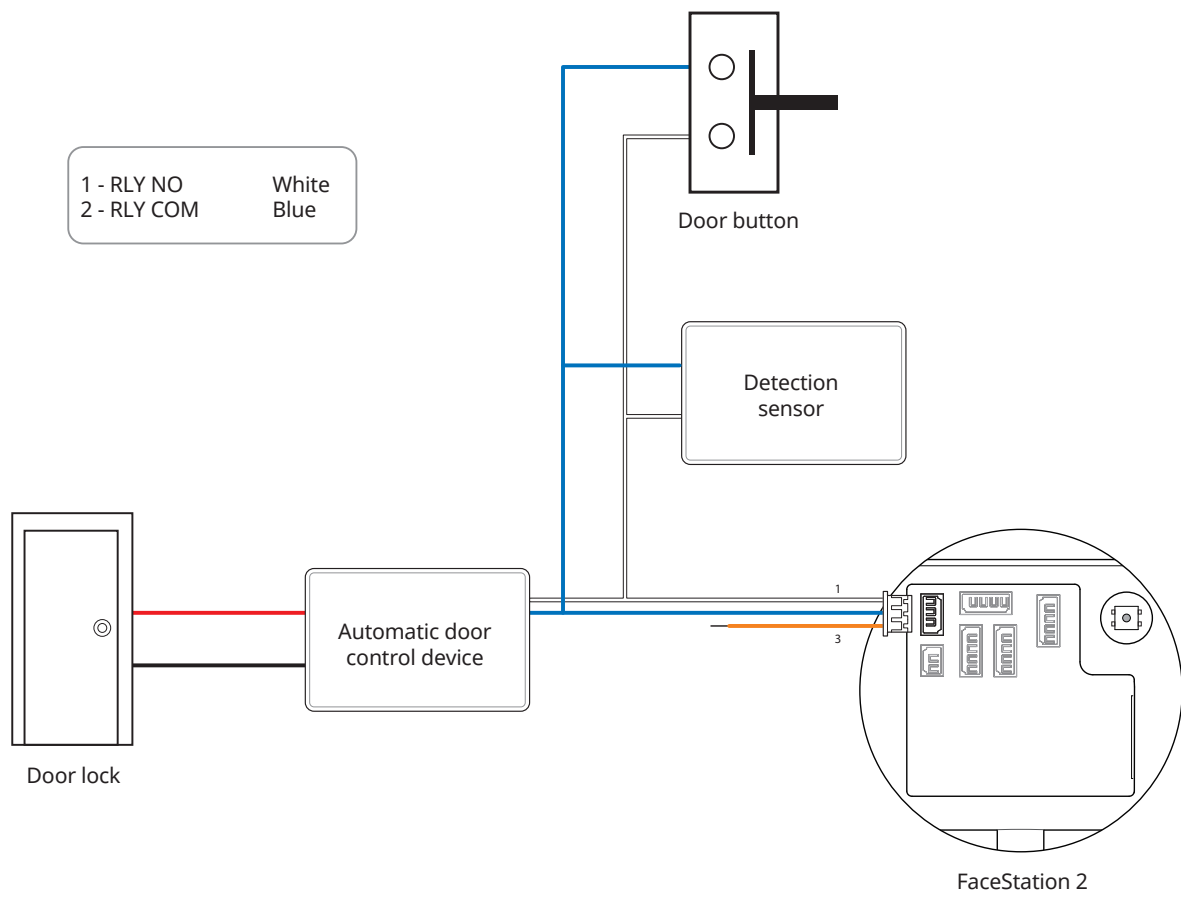


- Install a diode at both sides of the door lock wire as shown in the figure to protect the relay from the reverse current, which occurs when the door lock operates.
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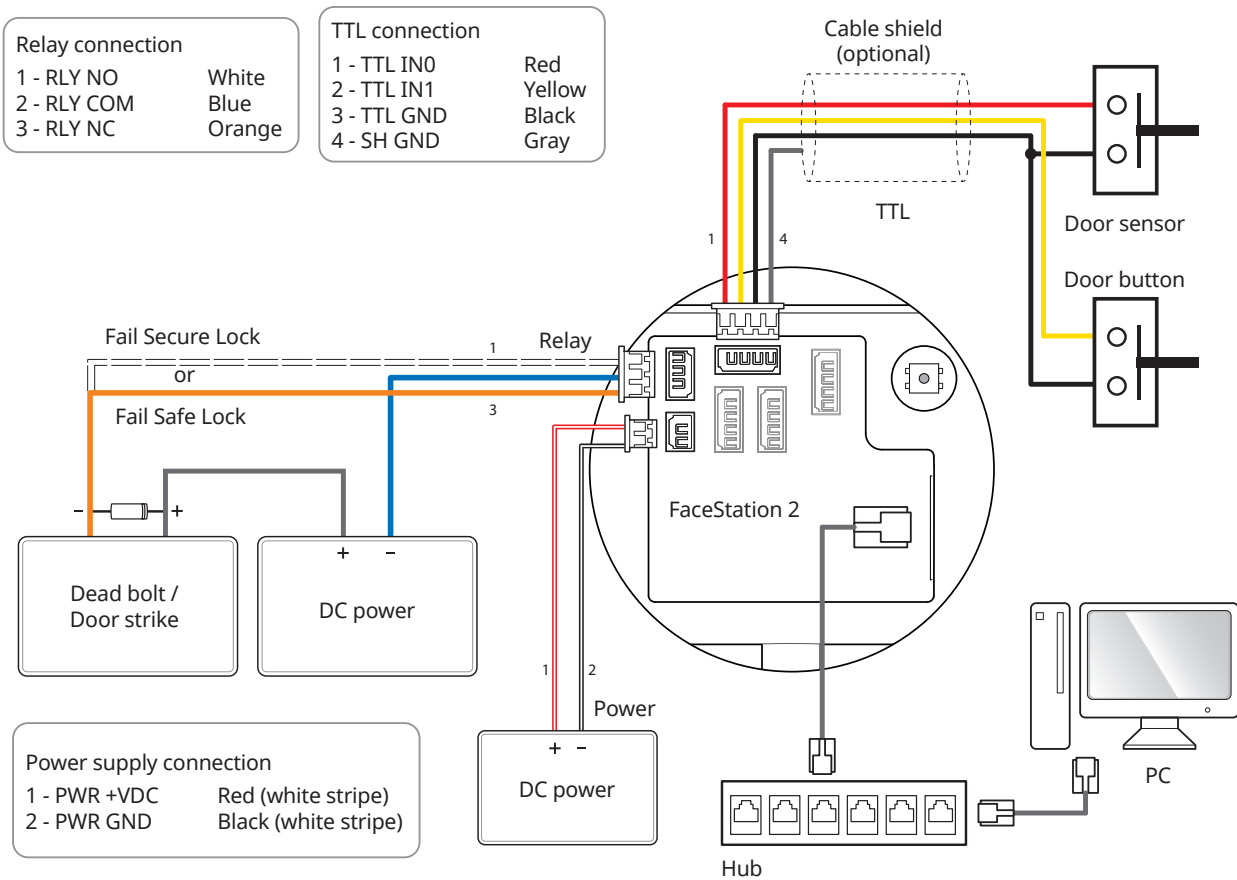
Take caution of the installation direction of the diode. Install the diode close to the door lock.

## Automatic door connection



## Connecting as a standalone

FaceStation 2 can be connected to the door lock, door button, and door sensor directly without connecting a separate I/O device.



Suprema's standalone intelligent readers contain internal relays that can directly lock/unlock doors without external controllers for added convenience. For access control applications in need of security, however, it is NOT recommended to use the internal relay of a reader to prevent any tampering attacks which can potentially trigger the door unlock. For such applications, it is highly recommended to use a separate relay unit for a lock control such as Suprema's Secure I/O 2, DM-20 or CoreStation installed at a secure side of a door.

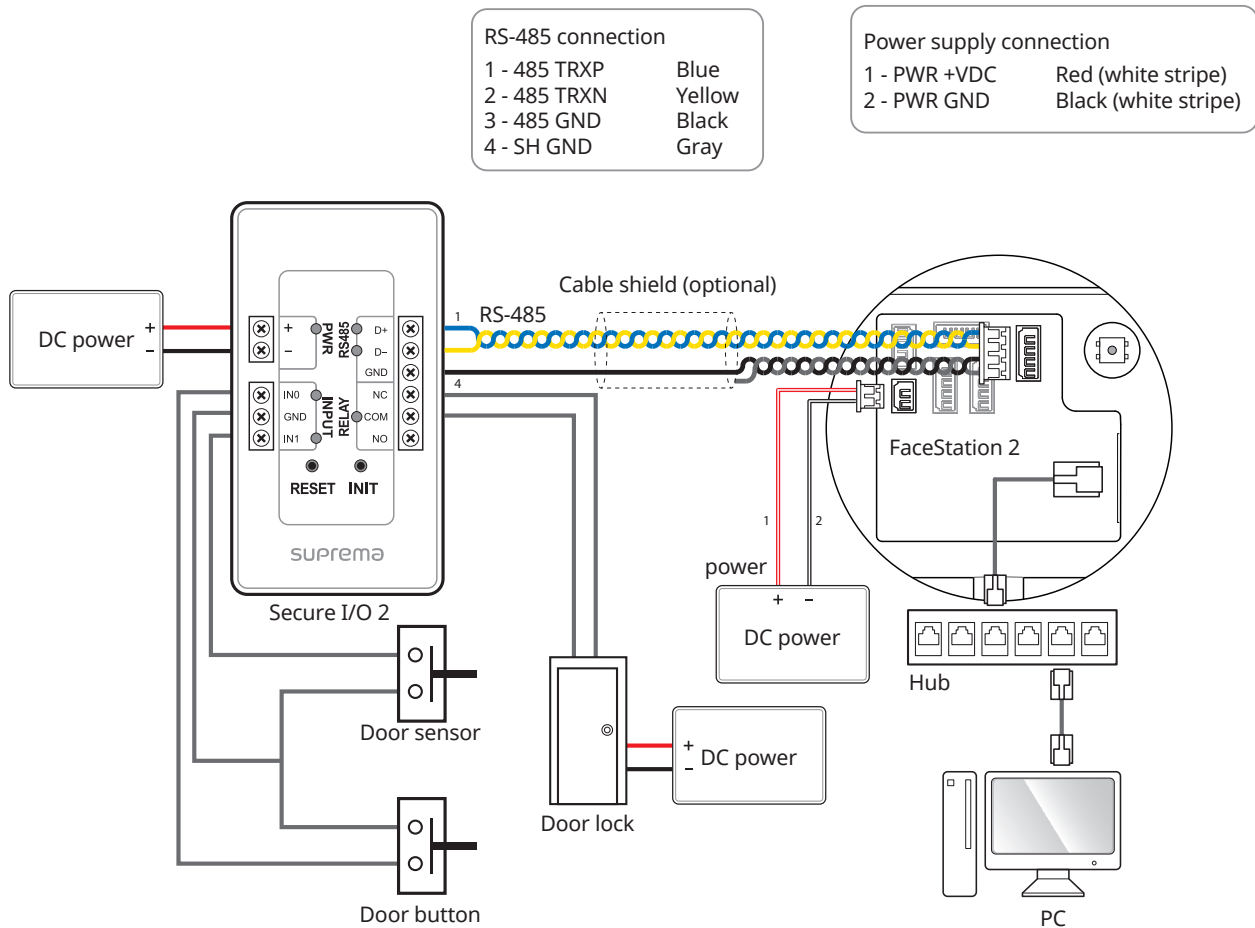


- FaceStation 2 can be used as a multi-door controller with the slave devices with the RS485 cable. The slave devices are used as dummy readers and authentication is performed in the master device.
- If a fingerprint authentication device is configured as a slave device in FaceStation 2, you cannot add another FaceStation 2 as a slave device.
- If the fingerprint authentication device is the master device, FaceStation 2 cannot be added as a slave device.
- When you connect FaceStation 2 as a slave device while FaceStation 2 is the master device, only one FaceStation 2 can be added as a slave device.
- If FaceStation 2 is configured as a slave device for the face authentication terminal, you can connect one additional Secure I/O 1 and DM-20 each.
- If FaceStation 2 is configured as a slave device for the face authentication terminal, you cannot connect additional OM-120.
- The maximum number of slave devices available to connect varies according to the authentication method, number of users, and number of devices. Also note that the number of slave devices affects the authentication speed.
- A master device can control 31 slave devices. The bandwidth of RS485 allows for up to 7 fingerprint authentication devices to be connected.
- For more information, contact the Suprema technical support team (<https://support.supremainc.com>).

## Connecting to Secure I/O 2

Secure I/O 2 is an I/O device, can be connected to FaceStation 2 with the RS-485 cable. Security can be maintained even if the connection between FaceStation 2 and Secure I/O 2 has been lost or the power supply to FaceStation 2 has been shut off due to external factors.

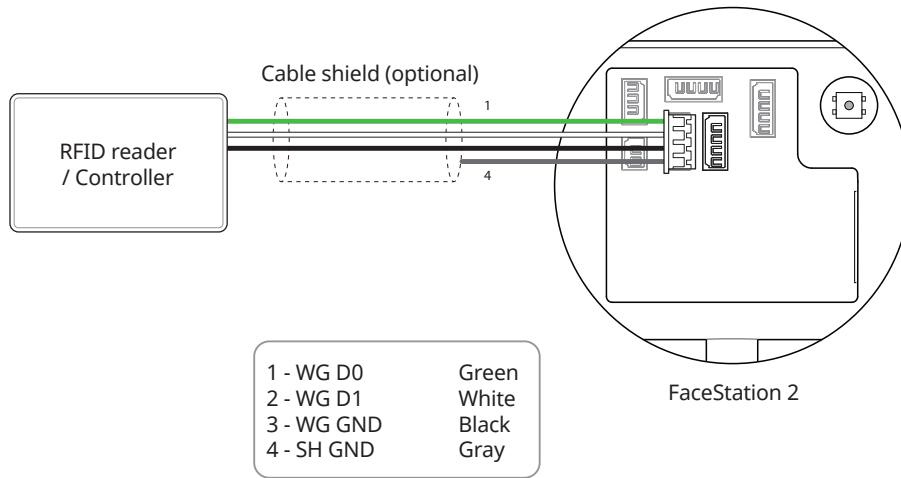
- Use an AWG24 twisted pair with a maximum length of 1.2 km for the RS-485 cable.
- If connecting with a RS-485 daisy chain, connect the termination resistor (120  $\Omega$ ) to both ends of the daisy chain connection. If connected to the middle line, the signal level becomes smaller and the communication performance will deteriorate. Make sure to connect it to both ends of the daisy chain connection.



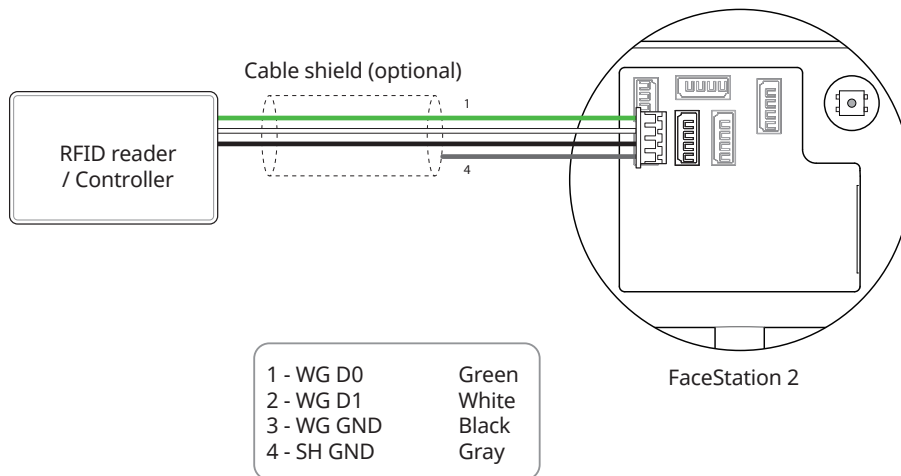
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- If a fingerprint authentication device is configured as a slave device in FaceStation 2, you cannot add another FaceStation 2 as a slave device.
- If the fingerprint authentication device is the master device, FaceStation 2 cannot be added as a slave device.
- When you connect FaceStation 2 as a slave device while FaceStation 2 is the master device, only one FaceStation 2 can be added as a slave device.
- If FaceStation 2 is configured as a slave device for the face authentication terminal, you can connect one additional Secure I/O 1 and DM-20 each.
- If FaceStation 2 is configured as a slave device for the face authentication terminal, you cannot connect additional OM-120.
- The maximum number of slave devices available to connect varies according to the authentication method, number of users, and number of devices. Also note that the number of slave devices affects the authentication speed.
- A master device can control 31 slave devices. The bandwidth of RS485 allows for up to 7 fingerprint authentication devices to be connected.
- For more information, contact the Suprema technical support team (<https://support.supremainc.com>).

# Wiegand connection

Use as a Wiegand input device



Use as a Wiegand output device



# Product specifications

Category	Feature	Specification
Credential	Biometric	Face
	RF Option	<ul style="list-style-type: none"> <li>• <b>FS2-D</b>: 125kHz EM &amp; 13.56MHz MIFARE, MIFARE Plus, DESFire, DESFire EV1/EV2/EV3<sup>1)</sup>, FeliCa</li> <li>• <b>FS2-AWB</b>: 125kHz EM, HID Prox &amp; 13.56MHz MIFARE, MIFARE Plus, DESFire, DESFire EV1/EV2/EV3<sup>1)</sup>, FeliCa, iCLASS SE/SR/Seos</li> </ul>
	RF Read Range <sup>2)</sup>	EM/HID Prox/MIFARE/DESFire/FeliCa/iCLASS: 30 mm
	Mobile	<ul style="list-style-type: none"> <li>• <b>FS2-D</b>: NFC</li> <li>• <b>FS2-AWB</b>: NFC, BLE</li> </ul>
	Live Face Detection	Supported
General	CPU	1.4 GHz Quad Core
	Memory	8 GB Flash + 1 GB RAM
	Crypto Chip	Supported
	LCD Type	4" color TFT touch
	LCD Resolution	800 x 480 pixels
	Sound	24 bit/Voice DSP (echo cancel)
	Operating Temperature	-20 °C ~ 50 °C
	Storage Temperature	-40 °C ~ 70 °C
	Operating Humidity	0 % ~ 80 %, non-condensing
	Storage Humidity	0 % ~ 90 %, non-condensing
	Camera	CMOS
	Camera Resolution	720 x 480
	Camera Angle	<ul style="list-style-type: none"> <li>• Visual Lens: Diagonal 92.7°</li> <li>• IR Lens: Diagonal 58°</li> </ul>
	Dimension (W x H x D)	140.9 x 197.5 x 86.2 (mm)
Weight	<ul style="list-style-type: none"> <li>• Device: 555 g</li> <li>• Bracket (Including washer and bolt): 74 g</li> </ul>	
Certificates	CE, UKCA, KC, FCC, IC, RCM, BIS, SIG, RoHS, REACH, WEEE	
Capacity	Max. User	30,000 <sup>3)</sup>
	Max. Credential (1:N)	<ul style="list-style-type: none"> <li>• Fingerprint: 10,000<sup>4)</sup></li> <li>• Face: 4,000</li> </ul>
	Max. Credential (1:1)	<ul style="list-style-type: none"> <li>• Fingerprint: 100,000<sup>4)</sup></li> <li>• Face: 30,000</li> <li>• Card: 30,000</li> <li>• PIN: 30,000</li> </ul>
	Max. Text Log	5,000,000
	Max. Image Log	50,000

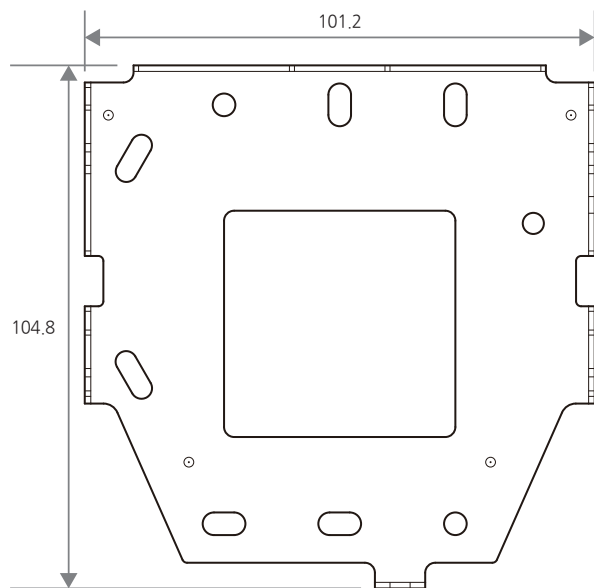
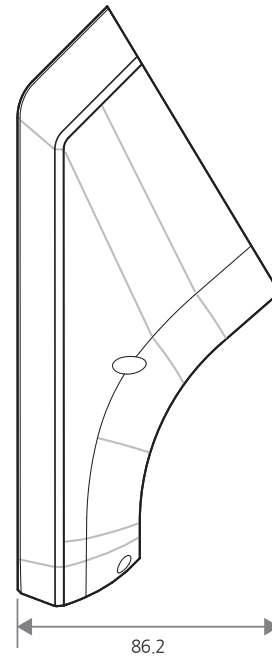
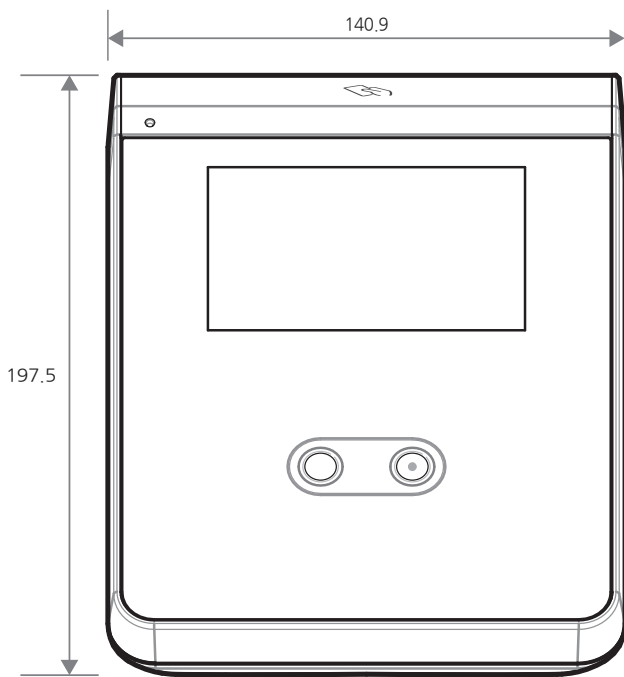


Category	Feature	Specification
Interface	Wi-Fi	<ul style="list-style-type: none"> <li>FS2-D: Not supported</li> <li>FS2-AWB: Supported (Built-in, IEEE802.11 b/g)</li> </ul>
	Ethernet	Supported (10/100/1000 Mbps, auto MDI/MDI-X)
	RS-485	1 ch Master or Slave (Selectable)
	RS-485 Communication Protocol	OSDP V2 compliant
	Wiegand	1 ch Input, 1 ch Output
	TTL Input	2 ch Inputs
	Relay	1 Relay
	Intercom	Supported
	USB	USB 2.0 (Host)
	Tamper	Supported
Electrical	Power	<ul style="list-style-type: none"> <li>Voltage: 24 Vdc</li> <li>Current: Max. 1.2 A</li> </ul>
	Switch Input VIH	<ul style="list-style-type: none"> <li>Min.: 3 V</li> <li>Max.: 5 V</li> </ul>
	Switch Input VIL	Max.: 1 V
	Switch Pull-up Resistance	4.7 k $\Omega$ (The input pots are pulled up with 4.7 k $\Omega$ .)
	Wiegand Output VOH	More than 4.8 V
	Wiegand Output VOL	Less than 0.2 V
	Wiegand Output Pull-up Resistance	Internally pulled up with 1 k $\Omega$
	Relay	2 A @ 30 VDC Resistive load 1 A @ 30 VDC Inductive load

- 1) DESFire EV2/EV3 cards are supported by having backward compatibility of DESFire EV1 cards. CSN and smart card functions are compatible with FaceStation 2.
- 2) RF read range will vary depending on installation environment.
- 3) The number of users registered without having any credential data.
- 4) If a device with a fingerprint sensor is connected as a slave, the slave device can be used for fingerprint authentication.

# Dimensions

(Unit: mm)



## FCC compliance information

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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This product is CE marked according to the provisions of the Radio Equipment Directive (RED) 2014/53/EU. Hereby, Suprema Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/EU.

- Bluetooth Transmit Power: -0.1 dBm
- Bluetooth Frequency: 2402~2480 MHz
- NFC Frequency: 13.56 MHz
- RFID Frequency: 13.56 MHz + 125 kHz

For more information, contact us at the following contact information.

Suprema Inc.

Website: <https://www.supremainc.com>

Address: 17F Parkview Tower, 248, Jeongjail-ro, Bundang- gu, Seongnam-si, Gyeonggi-do, 13554, Rep. of KOREA

Tel: +82-31-783-4502 / Fax: +82-31-783-4503

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Version 3, 29 June 2007

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17F Parkview Tower, 248, Jeongjail-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 13554, Rep. of KOREA

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