

# XPass 2

## INSTALLATION GUIDE

Version 1.06A

English

EN 101.00.XP2 V1.06A

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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.

**Install the product in a well-ventilated and cool place away from direct sunlight to prevent overheating when installing it outside.**

**Do not place the product inside the sealed enclosure when installing it outside.**

- It increases the internal temperature of the enclosure and this may result in electric shock, fire, or malfunction.

**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.

**Do not seal around the product with silicone, etc. when installing it on the wall.**

- 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.

**The product is powered by Class 2 Power supply with 12 VDC or 24 VDC; or by UL 62368-1 listed PoE Power Source Equipment (PSE).**

**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.

**For PoE, the maximum distance from PSE is 100 meters or 328 feet.**

**Do not connect and use the power supply and Power over Ethernet (PoE) simultaneously.**

- The product may malfunction.

**It is recommended to use the enclosure if the product is installed outside.**

- The product may malfunction if the water-resistant and dust-resistant features are damaged.



## 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 store your product in very hot or very cold places. It is recommended to use your product at temperatures from -35 °C to 65 °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.**

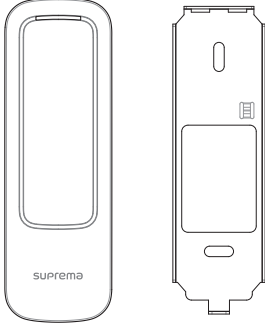
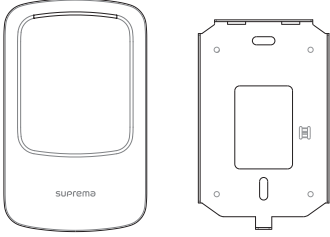
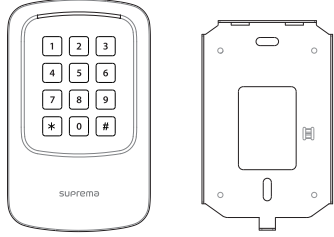




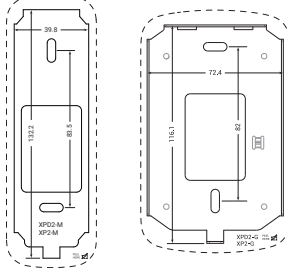






- The product may malfunction.

### **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

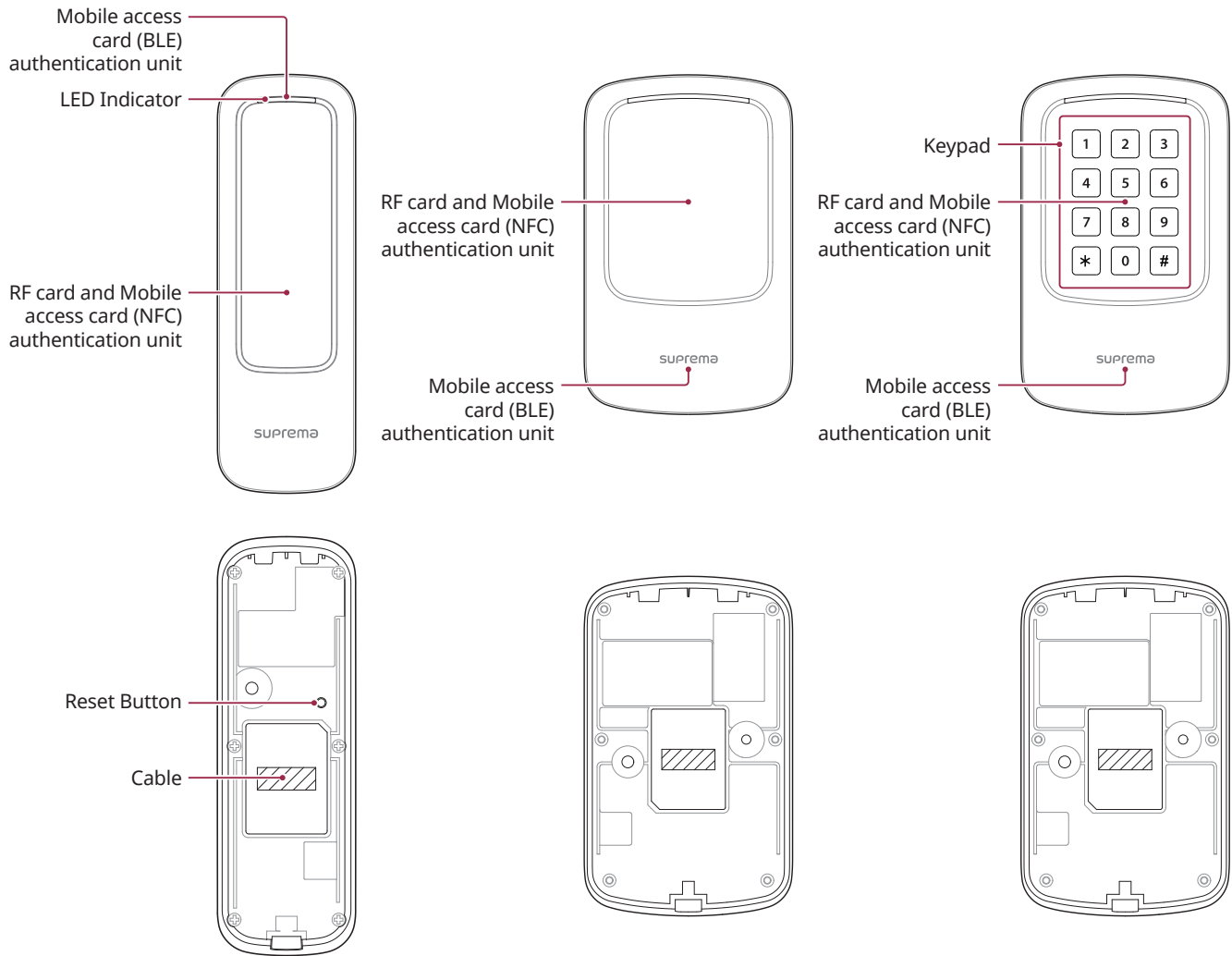
## Components

|   |   |  |   |
|---|---|--|---|
|    |    |   |   |
| <p><b>Device and Wall Bracket<br/>(XP2-MDPB)</b></p>                                | <p><b>Device and Wall Bracket<br/>(XP2-GDPB)</b></p>                                | <p><b>Device and Wall Bracket<br/>(XP2-GKDPB)</b></p>                                |   |
|    |    |   |   |
| <p><b>PVC Anchor x2</b></p>   | <p><b>Fixing Screw x2</b></p>   | <p><b>Bracket Fixing Screw<br/>(Star Shaped)</b></p>                                 |   |
|  |  |   |  |
| <p><b>Diode</b></p>   | <p><b>Drilling Template</b></p>   | <p><b>Shrink Tube</b></p>  | <p><b>120 Ω Resistor</b></p>  |
|  |  |  |  |
| <p><b>Quick Guide<br/>(XP2-MDPB)</b></p>  | <p><b>Quick Guide<br/>(XP2-GDPB)</b></p>  | <p><b>Quick Guide<br/>(XP2-GKDPB)</b></p>  | <p><b>Open Source Software<br/>Guide</b></p>  |



- Components may vary according to the installation environment.
- 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.

## Name and function of each part



| Name  | Description  |
|---|--|
| <b>LED Indicator</b>  | Indicates the operational status of the device with the color of the LED. <ul style="list-style-type: none"> <li>• Green solid: Authentication success</li> <li>• Red solid: Authentication failure</li> <li>• Blue/Sky blue blinking: Normal operation</li> <li>• Blue/Green blinking: When initializing network settings</li> <li>• Green blinking: Waiting for an input</li> <li>• Green/White blinking: Connecting with the Airfob Pass (BLE) application of Suprema</li> <li>• White blinking: Connecting with the Device Manager application of Suprema</li> </ul> |
| <b>RF card and Mobile access card (NFC) authentication unit</b> | Reads RF card or Mobile access card (NFC) for entering and exiting.  |
| <b>Mobile access card (BLE) authentication unit</b>             | Reads Mobile access card (BLE) for entering and exiting.   |
| <b>Reset Button</b>   | Initialize the device.   |
| <b>Cable</b>  | <ul style="list-style-type: none"> <li>• Power cable</li> <li>• RS-485 cable</li> <li>• Wiegand output cable</li> <li>• LED input cable</li> <li>• Beep Input cable</li> <li>• Tamper cable</li> </ul>   |

**Keypad**

Used to authenticate by entering the card ID directly. If you want to enter the ID directly, change the authentication method settings in BioStar 2.

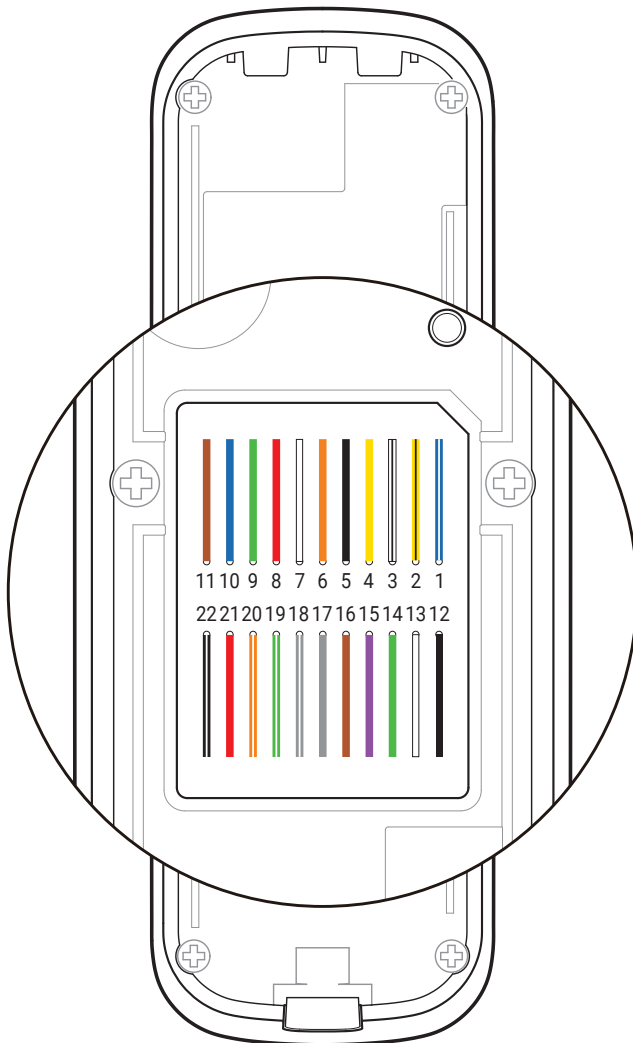
- 0 ~ 9: Enters number.
- \*: Separates the FC code from the ID when entering the Wiegand card ID.
- #: Used to finish entering.



Only the XP2-GKDPB model supports the keypad.

**Cables**

This document describes cable information based on the shape of the XP2-MDPB model. The same cable configuration is also used for XP2-GDPB and XP2-GKDPB models.



| Pin | Name     | Color                 |
|-----|----------|-----------------------|
| 1   | 485 TRXP | Blue (White stripe)   |
| 2   | 485 TRXN | Yellow (Black stripe) |
| 3   | 485 GND  | White (Black stripe)  |
| 4   | ENET RXN | Yellow                |
| 5   | ENET RXP | Black                 |
| 6   | ENET TXN | Orange                |
| 7   | ENET TXP | White                 |
| 8   | ENET VB1 | Red                   |
| 9   | ENET VB1 | Green                 |
| 10  | ENET VB2 | Blue                  |
| 11  | ENET VB2 | Brown                 |
| 12  | WG GND   | Black                 |
| 13  | WG D1    | White                 |
| 14  | WG D0    | Green                 |
| 15  | TTL IN0  | Purple                |
| 16  | TTL IN1  | Brown                 |
| 17  | TTL GND  | Gray                  |
| 18  | RLY NO   | Gray (White stripe)   |
| 19  | RLY COM  | Green (White stripe)  |
| 20  | RLY NC   | Orange (White stripe) |
| 21  | PWR +VDC | Red                   |
| 22  | PWR GND  | Black (White stripe)  |



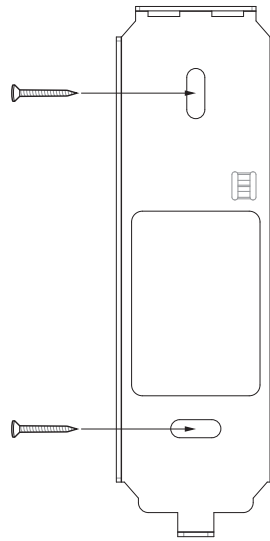
# Installation

## Fixing the bracket and the product



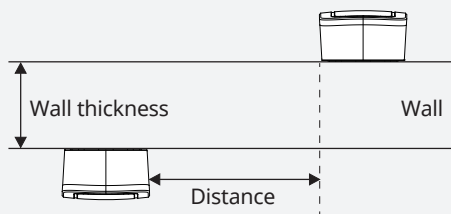
This document describes the installation method using XP2-MDPB model. Install XP2-GDPB and XP2-GKDPB models in the same way.

- 1 Determine the correct position to install the bracket using the provided drilling template. Fix the bracket firmly using fixing screws through the bracket to the position where XPass 2 will be installed.

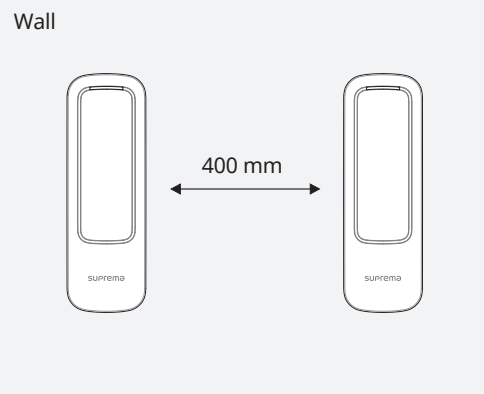


- If installing XPass 2 on a concrete wall, drill holes, insert PVC anchors, and fix them with fixing screws.
- To avoid RF interference, a minimum separation distance must be maintained.

### – XP2-MDPB

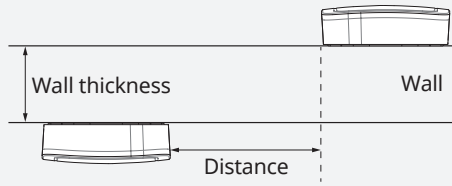


| Wall thickness | Distance |
|----------------|----------|
| 100 mm         | 360 mm   |
| 120 mm         | 360 mm   |
| 150 mm         | 300 mm   |

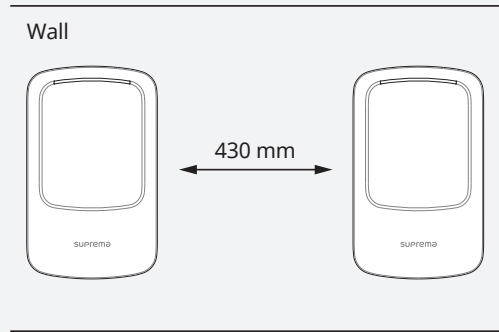




– XP2-GDPB, XP2-GKDPB

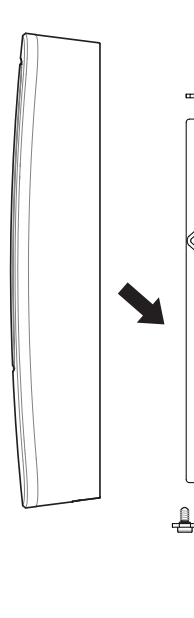


| Wall thickness | Distance |
|----------------|----------|
| 100 mm         | 400 mm   |
| 120 mm         | 380 mm   |
| 150 mm         | 380 mm   |

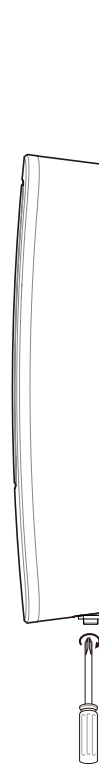


- When using Suprema Mobile Access, install a minimum distance of 1 m between devices to avoid BLE interference.

2 Install XPass 2 onto the fixed bracket.

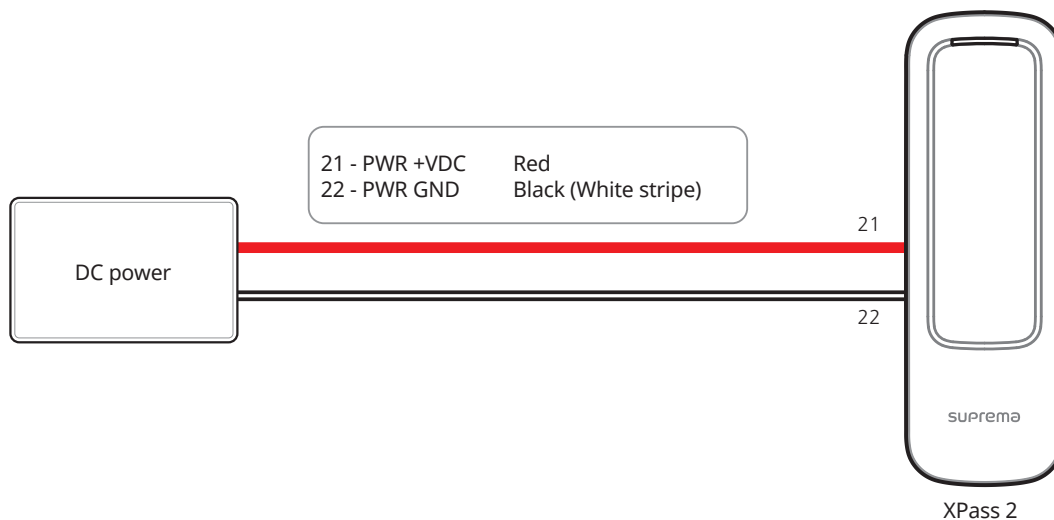


### 3 Assemble XPass 2 with the bracket by rotating the product fixing screw.



- 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.

## Power supply connection



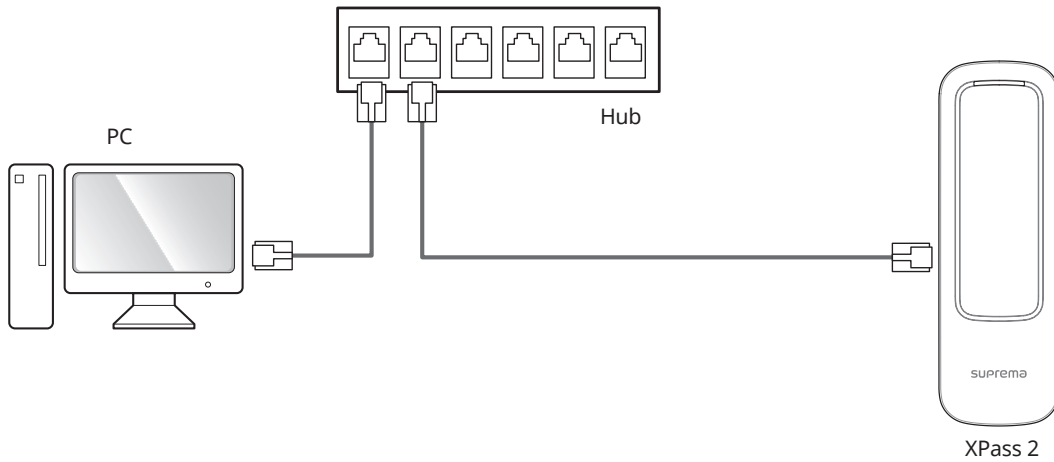
- Use the IEC/EN 62368-1 approved power adapter that supports higher power consumption than the product. If you wish to connect and use another device to the power supply adapter, you should use an adapter with a current capacity which is the same or larger than the total power consumption required for 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.

## 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. RS-485 connection

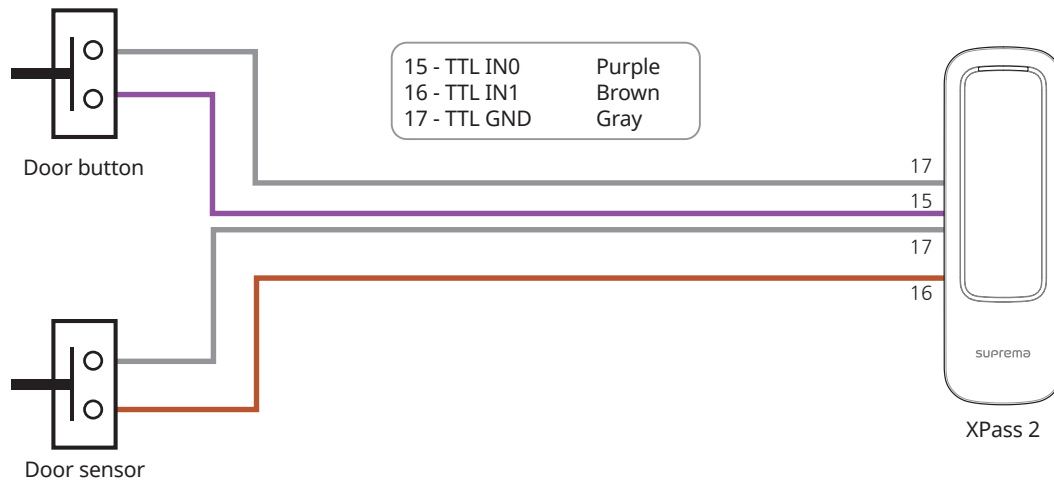


#### LAN connection (connecting to a PC directly)

XPass 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, not a cross cable.



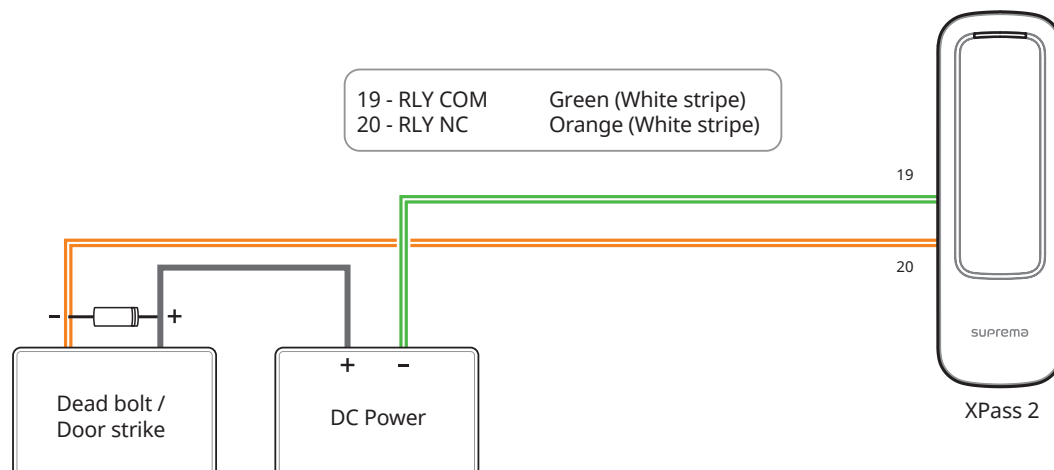
## TTL input connection



## 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.



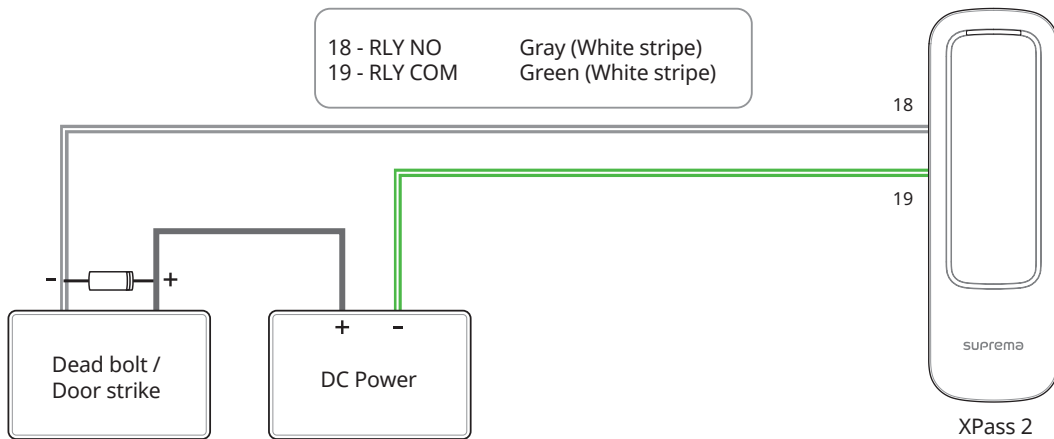
- Install a diode at both sides of the door lock wire as shown in the figure to protect the relay from the reverse current, which occurs when the door lock operates.
- Use a separate power supply for XPass 2 and the door lock.
- Suprema's standalone intelligent readers contain internal relays that can 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.

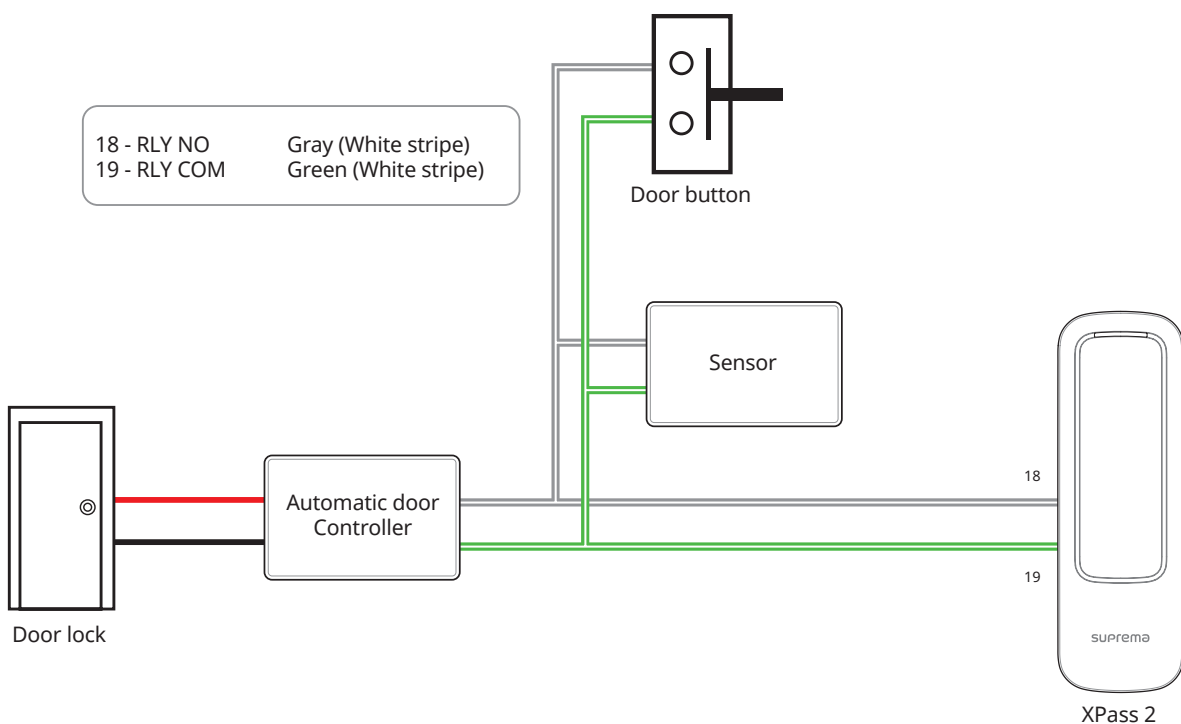


- Install a diode at both sides of the door lock wire as shown in the figure to protect the relay from the reverse current, which occurs when the door lock operates.
- Use a separate power supply for XPass 2 and the door lock.
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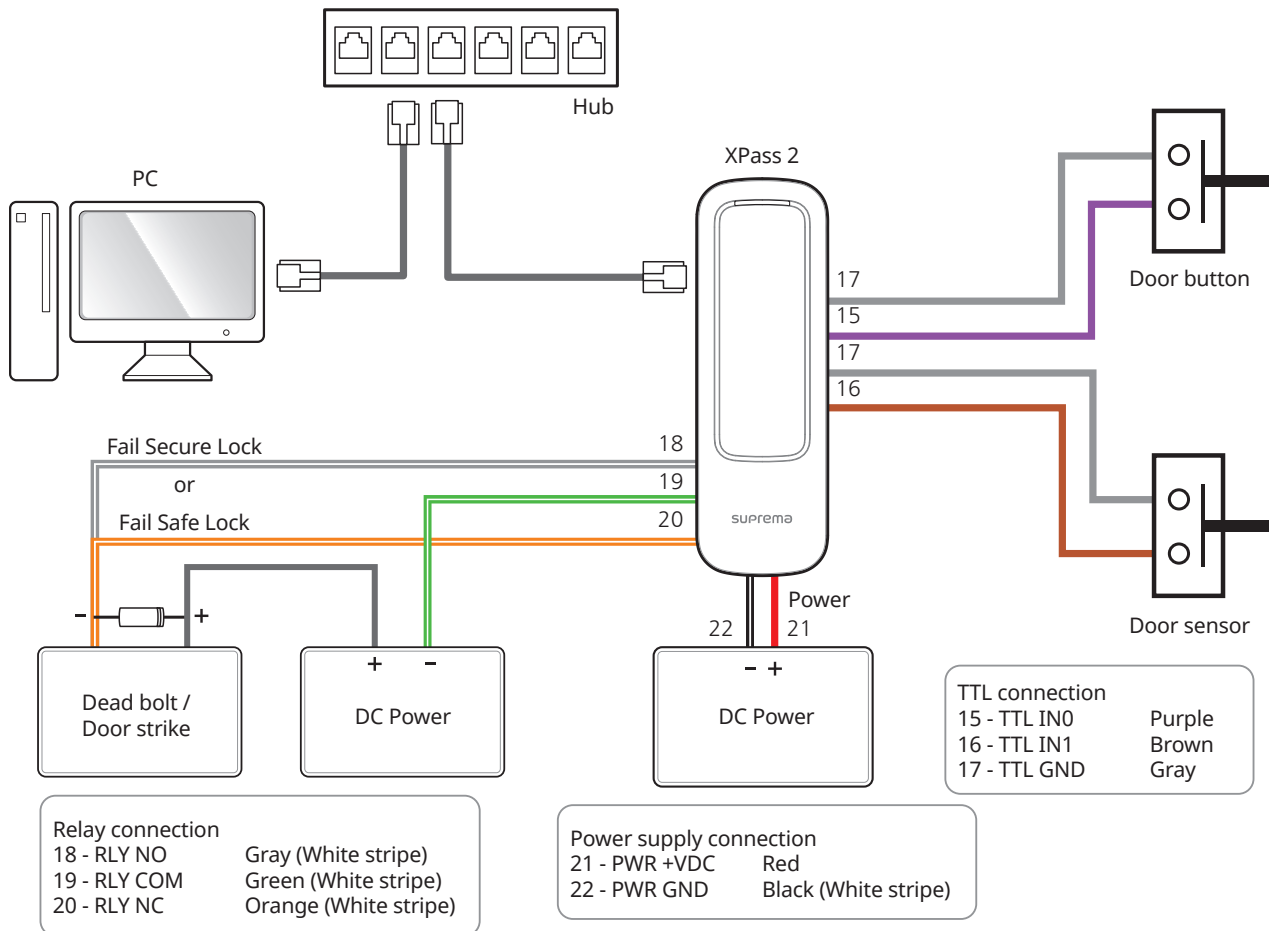
- Take caution of the installation direction of the diode. Install the diode close to the door lock.

### Automatic door connection



## Connecting as a standalone

XPass 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.

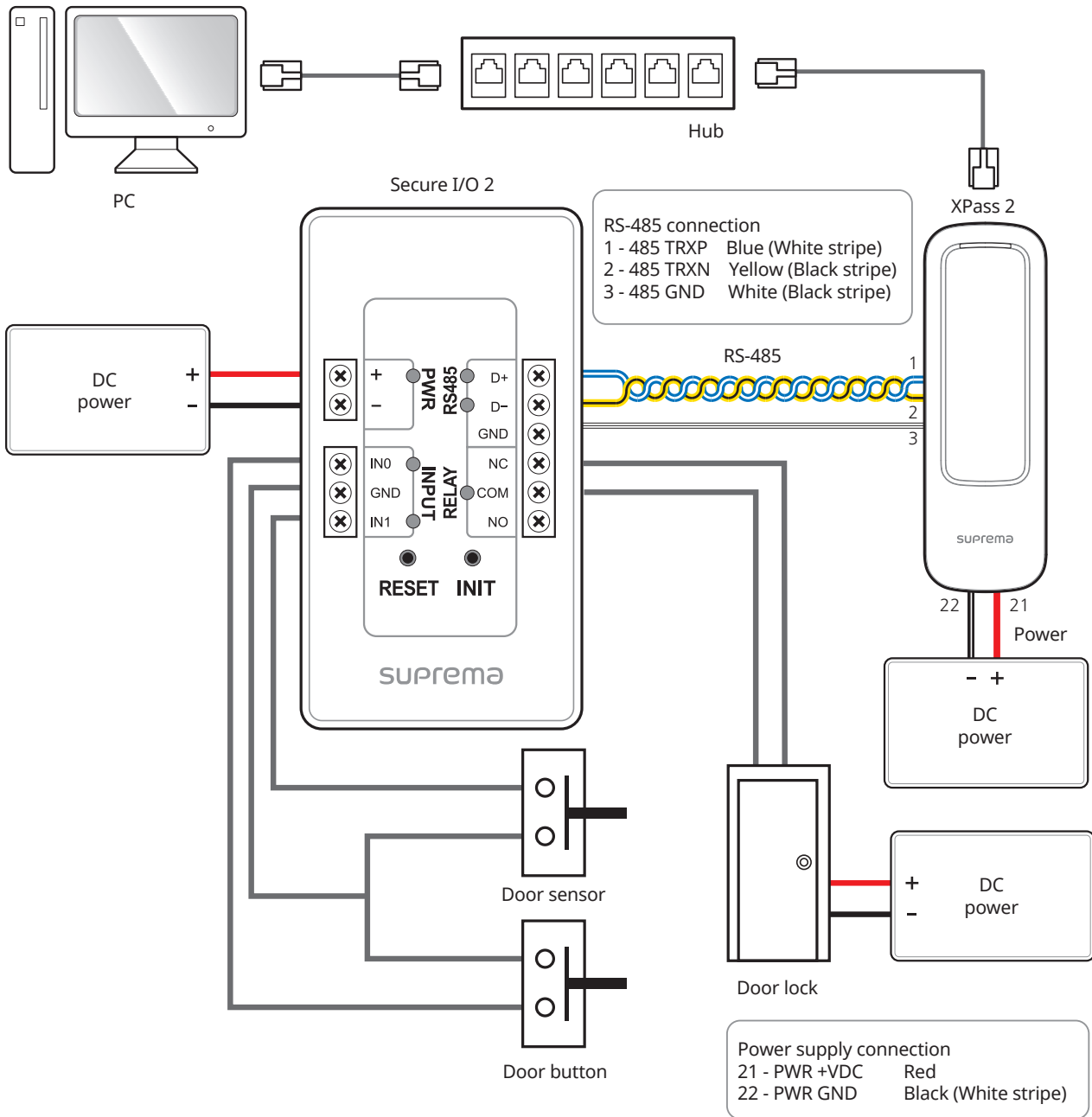


- XPass 2 can be used as a multi-door controller with the slave devices with the RS485 cable. The slave devices are used as dummy readers and authentication is performed in the master device.
- If Xpass 2 is connected as the master device, only card authentication is available on the slave device.
- Up to 31 slave devices can 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 XPass 2 with the RS-485 cable. Security can be maintained even if the connection between XPass 2 and Secure I/O 2 has been lost or the power supply to BioEntry W2 has been shut off due to external factors.

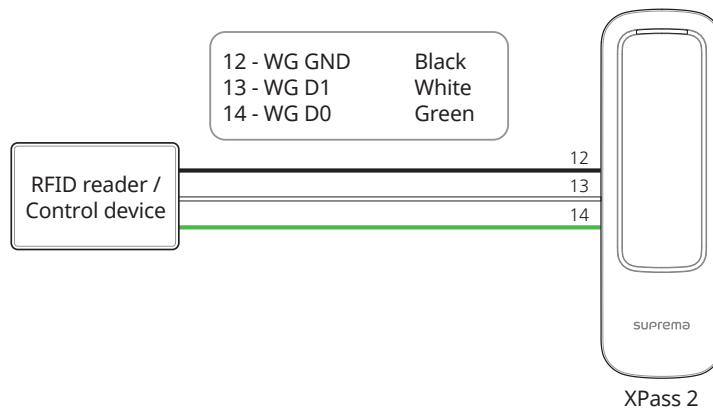
- Use the RS-485 cable with AWG24, twisted pair, and less than 1.2 km in length.
- If connecting with a RS-485 daisy chain, connect the termination resistor (120 Ω) to both ends of the daisy chain connection. If connected to the middle line, the signal level becomes smaller and the communication performance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





## Wiegand connection

Use as a Wiegand input/output device



## Resetting Network Settings

- 1 Turn the power on.
- 2 Press and hold the reset button on the rear of device until the device restart automatically.
- 3 Connect the device with default values.
  - TCP/IP address: DHCP address assignment (If DHCP address assignment is failed, 169.254.x.x will be set.)
  - Server mode: Disabled
  - RS-485: Default, 115200 bps
- 4 Change the TCP/IP address or RS-485 information.
- 5 Turn the power off later on and then check the network setting is properly.

## Restoring the Factory Defaults

This will delete all data and root certificate on the device and reset the settings.

- 1 Turn the power on.
- 2 Press the reset button three times quickly.
- 3 When the green LED is blinking, press the reset button again.



- If there is no root certificate on the device, you cannot restore the factory defaults.

# Product specifications

| Category     | Feature  | Specifications   |
|--------------|--|--|
| Credential   | RF Option  | 125 kHz EM & 13.56 MHz MIFARE, MIFARE Plus, DESFire, DESFire EV1/EV2/EV3 <sup>1)</sup> , FeliCa  |
|              | RF Read Range <sup>2)</sup>  | EM/MIFARE/DESFire: 50 mm, FeliCa: 30 mm  |
|              | Mobile   | NFC, BLE   |
| General      | CPU  | 1 GHz  |
|              | Memory   | 4 GB Flash + 64 MB RAM   |
|              | Crypto Chip  | Supported  |
|              | LED  | Multi-color  |
|              | Sound  | Multi-tone Buzzer  |
|              | Operating Temperature  | -35 °C ~ 65 °C   |
|              | Storage Temperature  | -40 °C ~ 70 °C   |
|              | Operating Humidity   | 0 % ~ 95 %, non-condensing   |
|              | Storage Humidity   | 0 % ~ 95 %, non-condensing   |
|              | Dimension (W x H x D)  | <ul style="list-style-type: none"> <li>• <b>XP2-MDPB</b>: 48 x 144.7 x 27 (mm)</li> <li>• <b>XP2-GDPB</b>: 80 x 130 x 25 (mm)</li> <li>• <b>XP2-GKDPB</b>: 80 x 130 x 25 (mm)</li> </ul>   |
|              | Weight   | <ul style="list-style-type: none"> <li>• Device                             <ul style="list-style-type: none"> <li>– <b>XP2-MDPB</b>: 144 g</li> <li>– <b>XP2-GDPB</b>: 220 g</li> <li>– <b>XP2-GKDPB</b>: 235 g</li> </ul> </li> <li>• Bracket                             <ul style="list-style-type: none"> <li>– <b>XP2-MDPB</b>: 30 g (Including washer and bolt)</li> <li>– <b>XP2-GDPB</b>: 52 g (Including washer and bolt)</li> <li>– <b>XP2-GKDPB</b>: 52 g (Including washer and bolt)</li> </ul> </li> </ul> |
|              | IP Rating  | IP65, IP67   |
|              | IK Rating  | IK08   |
| Certificates | <ul style="list-style-type: none"> <li>• <b>XP2-MDPB, XP2-GDPB</b>: CE, UKCA, KC, FCC, IC, RCM, BIS, SIG, RoHS, REACH, WEEE, ETL Listed to UL 294</li> <li>• <b>XP2-GKDPB</b>: CE, UKCA, KC, FCC, IC, RCM, BIS, SIG, TELEC, RoHS, REACH, WEEE, ETL Listed to UL 294</li> </ul> |  |
| Capacity     | Max. User  | 200,000  |
|              | Max. Card  | 200,000  |
|              | Max. Text Log  | 1,000,000  |

| Category   | Feature                           | Specifications   |
|------------|-----------------------------------|--|
| Interface  | Ethernet                          | Supported (10/100 Mbps, auto MDI/MDI-X)  |
|            | RS-485                            | 1 ch Master or Slave (Selectable)  |
|            | RS-485 Communication Protocol     | OSDP V2 compliant  |
|            | Wiegand                           | 1 ch Input or Output (Selectable)  |
|            | TTL Input                         | 2 ch Inputs  |
|            | Relay                             | 1 Relay  |
|            | Tamper                            | Supported  |
| Electrical | Power                             | <ul style="list-style-type: none"> <li>Voltage: 12 Vdc</li> <li>Current: Max. 0.5 A</li> </ul>       |
|            |                                   | <ul style="list-style-type: none"> <li>Voltage: 24 Vdc</li> <li>Current: Max. 0.3 A</li> </ul>       |
|            |                                   | <ul style="list-style-type: none"> <li>PoE: IEEE 802.3af compliant, 44-57 VDC Max. 350 mA</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 ports are pulled up with 4.7 k $\Omega$ .)                                 |
|            | Wiegand Output VOH                | Min.: 4.8 V  |
|            | Wiegand Output VOL                | Max.: 0.2 V  |
|            | Wiegand Output Pull-up Resistance | Internally pulled up with 1 k $\Omega$   |
|            | Relay                             | 2 A @ 30 VDC Resistive load<br>1 A @ 30 VDC Inductive load   |

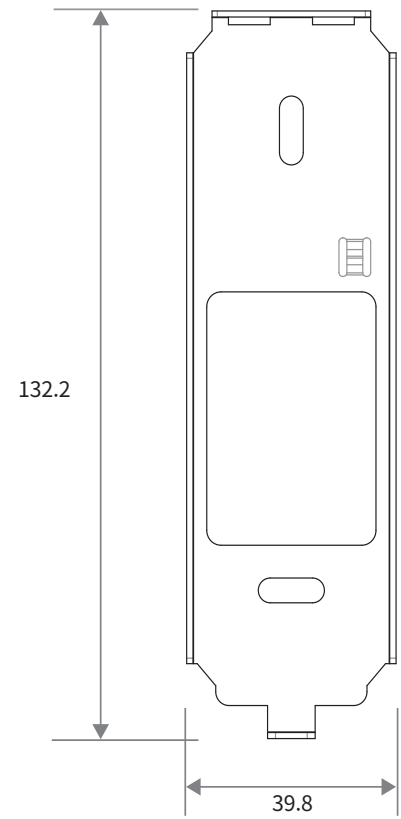
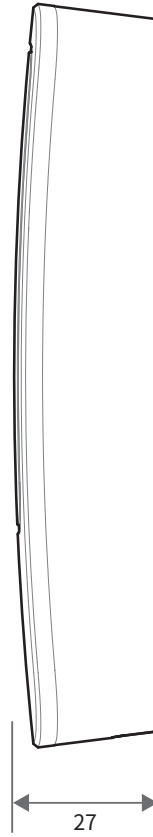
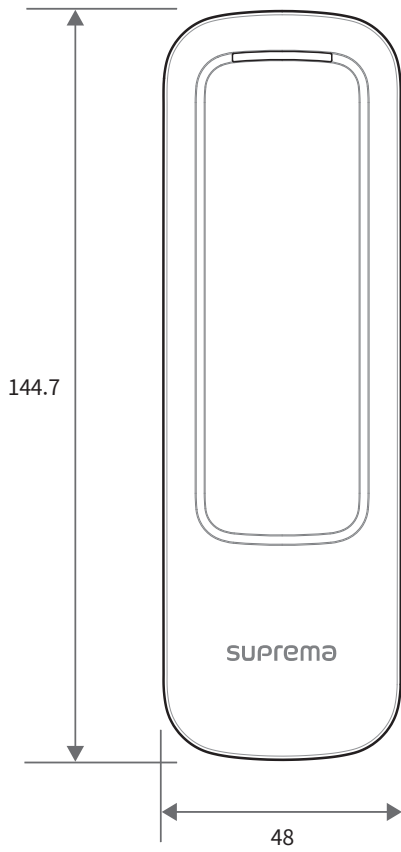
- 1) DESFire EV2/EV3 cards are supported by having backward compatibility of DESFire EV1 cards. CSN and smart card functions are compatible with XPass 2.
- 2) RF read range will vary depending on the installation environment.

## Dimensions

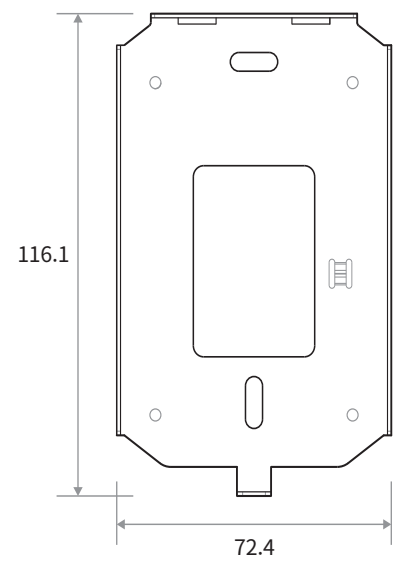
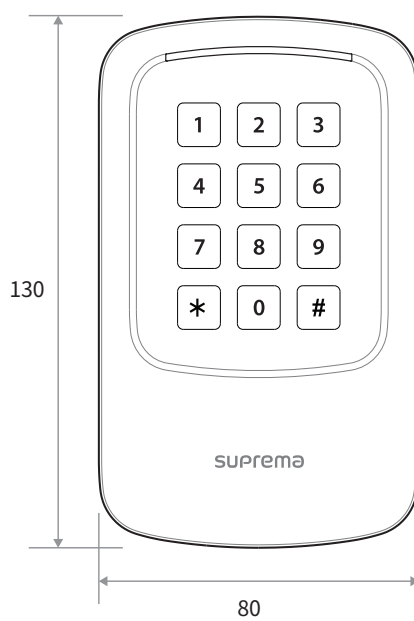
(Unit: mm)

\* The tolerance is  $\pm 0.3\text{mm}$ .

### XP2-MDPB



### XP2-GDPB, XP2-GKDPB



## 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.

## EU Declaration of Conformity (CE)

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: 2.1dBm
- 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.

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Version 3, 29 June 2007

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