

# BioEntry R2

# **INSTALLATION GUIDE**

Version 1.02  
English

EN 101.00.BER2 V1.02A

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# Safety instructions

Observe the following instructions to use the product safely and prevent any risk of injury or property damage.

## Warning

Noncompliance of instructions could lead to serious injury or death.

### Installation

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

- A fire or electric shock may occur.

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

- A fire or electric shock may occur due to overheating.

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

- Otherwise, a product damage or electric shock may occur due to moisture.

**Install the product in a place with no electromagnetic interference.**

- Otherwise, a product damage or electric shock may occur.

**The user should not install or repair the product independently.**

- A fire, electric shock, or personal injury may occur.
- If the product has been damaged due to independent installation or repair of the product by the user, free A/S service will not be provided.

### Operation

**Do not allow liquids such as water, beverages, or chemicals get into the product.**

- A fire, electric shock, or product damage may occur.

## Caution

Noncompliance of instructions could lead to minor injury or product damage.

### Installation

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

- Product damage or physical injury may occur.

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

- A product failure may occur.

**If installing the product outside where the product is completely exposed, it is recommended to install the product together with the enclosure.**

**Use a separate power supply for Secure I/O 2, electric lock and BioEntry R2 respectively.**

- If connecting and using the power supply to these devices together, the devices may malfunction.

**Keep the minimum separation distances between the devices when install multiple devices.**

- Otherwise, RF performance is affect to the other device, the devices may not operate normally.

## Operation

**Do not drop the product or apply an impact to the product.**

- A product failure may occur.

**Be careful not to contaminate or damage the fingerprint contact unit with a dirty hand or foreign substances.**

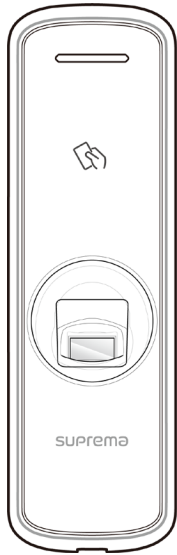
- Deterioration in fingerprint authentication performance and a product failure may occur.

**When cleaning the product, wipe the product with a soft and dry cloth and no water, benzene or alcohol.**

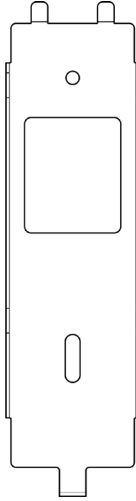
- Otherwise, a product failure may occur.

# Introduction

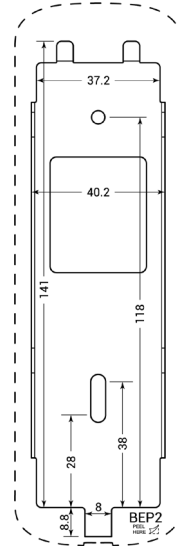
## Components



BioEntry R2



Wall Bracket



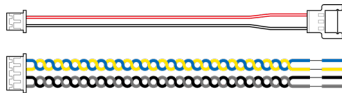
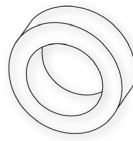
Drilling Template



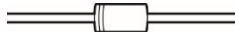
PVC Anchor x2



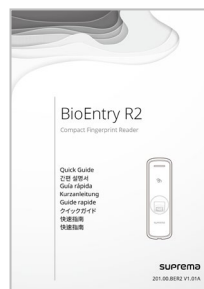
Fixing Screw x2

Connection Cable  
(2 pins, 4 pins)

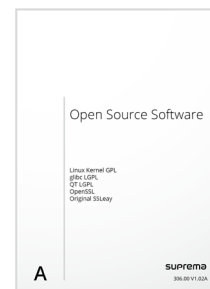
Ferrite Core

120  $\Omega$  Resistor

Diode



Quick Guide

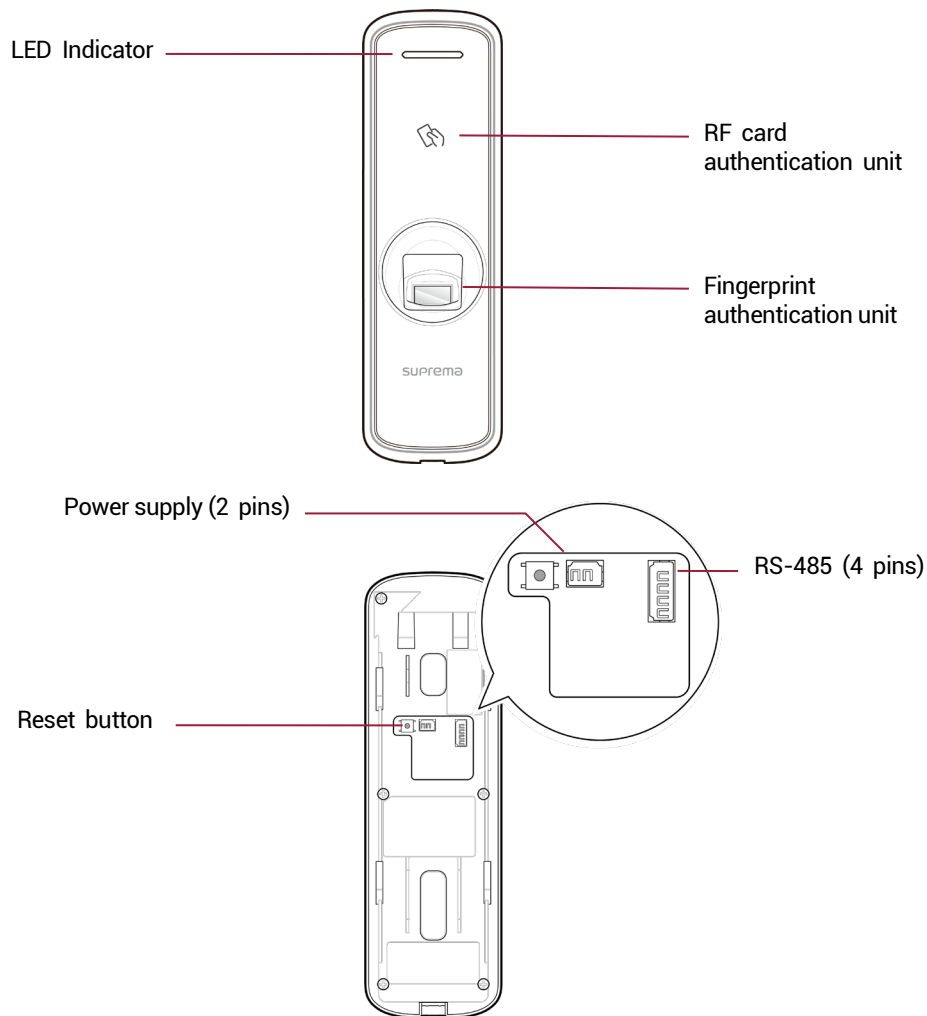


Open Source Software Guide

### NOTE

- Components may vary according to the installation environment.

## 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>• Magenta blinking: When migrating the database</li> </ul>
<b>RF card authentication unit</b>	Reads RF cards for entering and exiting.
<b>Fingerprint authentication unit</b>	Reads fingerprints placed on it for entering and exiting.
<b>Power supply (2 pins)</b>	Connect the power supply cable.
<b>RS-485 (4 pins)</b>	Connect the RS-485 cable.
<b>Reset button</b>	Initialize the device.

## Cables and connectors

### Power supply



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

### RS-485



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

## How to enroll a fingerprint

In order to improve the fingerprint authentication rate, register the fingerprint correctly. BioEntry R2 can recognize a fingerprint even if the angle and position of a user's fingerprint input change. If you register the fingerprint with attention to the following matters, the authentication rate can be improved.

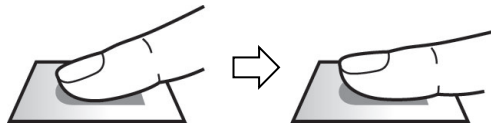
### Selecting a finger for fingerprint input

- In preparation for the case that the fingerprint of a specific finger cannot be used, for example if the user is lifting a load with one hand or a finger gets hurt, up to 10 fingerprints for each user can be registered.
- In the case of a user whose fingerprint cannot be recognized well, the authentication rate can be improved by enrolling the same finger twice repeatedly.
- If a finger has a cut or the fingerprint is blurry, select another finger for the fingerprint.
- It is recommended to use the index finger or the middle finger when scanning the fingerprint. The authentication rate can be reduced if it is difficult to place another finger at the center of fingerprint sensor accurately.



### Fingerprint enroll method

- 1 Place the finger with the fingerprint to be registered on the fingerprint authentication unit and press the finger gently for better authentication.



- 2 After a beep sounds, scan the fingerprint of the registered finger again (scan the fingerprint of a finger to be registered twice).

#### NOTE

##### Cautions for enrolling a fingerprint

When a fingerprint is recognized, it is compared with the initially registered fingerprint, so the initial fingerprint enroll is the most important. Pay attention to the following matters when enrolling the fingerprint.

- Place the finger deep enough to contact with the sensor completely.
- Place the center of the fingerprint in the center of the sensor.
- If a finger has a cut or the fingerprint is blurry, select another finger for the fingerprint.
- Scan the fingerprint correctly without moving according to the instruction on the screen.
- If you make the finger upright so that the contact area with the sensor has decreased or the angle of finger has warped, fingerprint authentication may not be performed.



##### When the fingerprint recognition fails

BioEntry R2 can recognize a fingerprint regardless of a change of season or finger condition. However, the authentication rate may vary according to the external environment or fingerprint input method.

If the fingerprint authentication cannot be done smoothly, it is recommended to take the following measures.

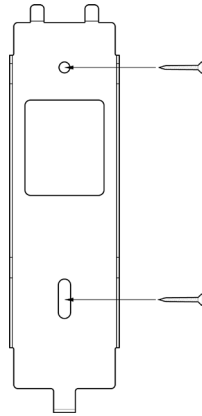
- If the finger is smeared with water or sweat, dry off the finger and then scan the finger.
- If the finger is too dry, blow your breath on the fingertips and then scan the finger.
- If the finger has a cut, register the fingerprint of another finger.
- The initially registered fingerprint often may have not been scanned correctly, so register the fingerprint again according to 'Cautions for enrolling a fingerprint'.



# Installation

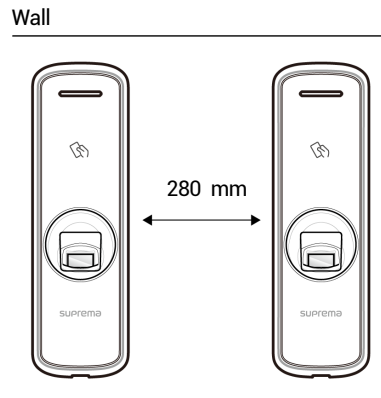
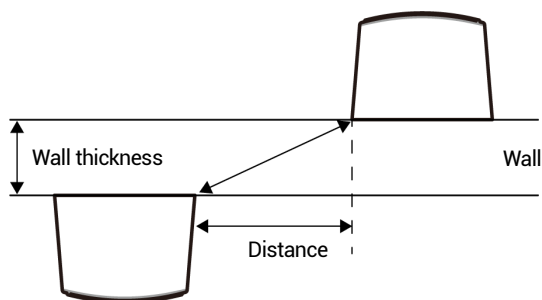
## Fixing the bracket and the product

- 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 BioEntry R2 will be installed.



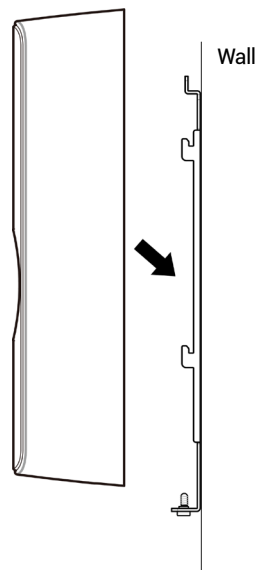
**NOTE**

- If installing BioEntry R2 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.

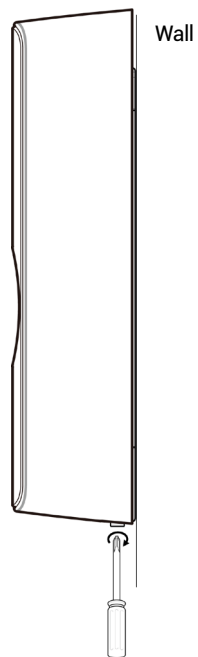


Wall thickness	Distance
100 mm	250 mm
120 mm	250 mm
150 mm	180 mm

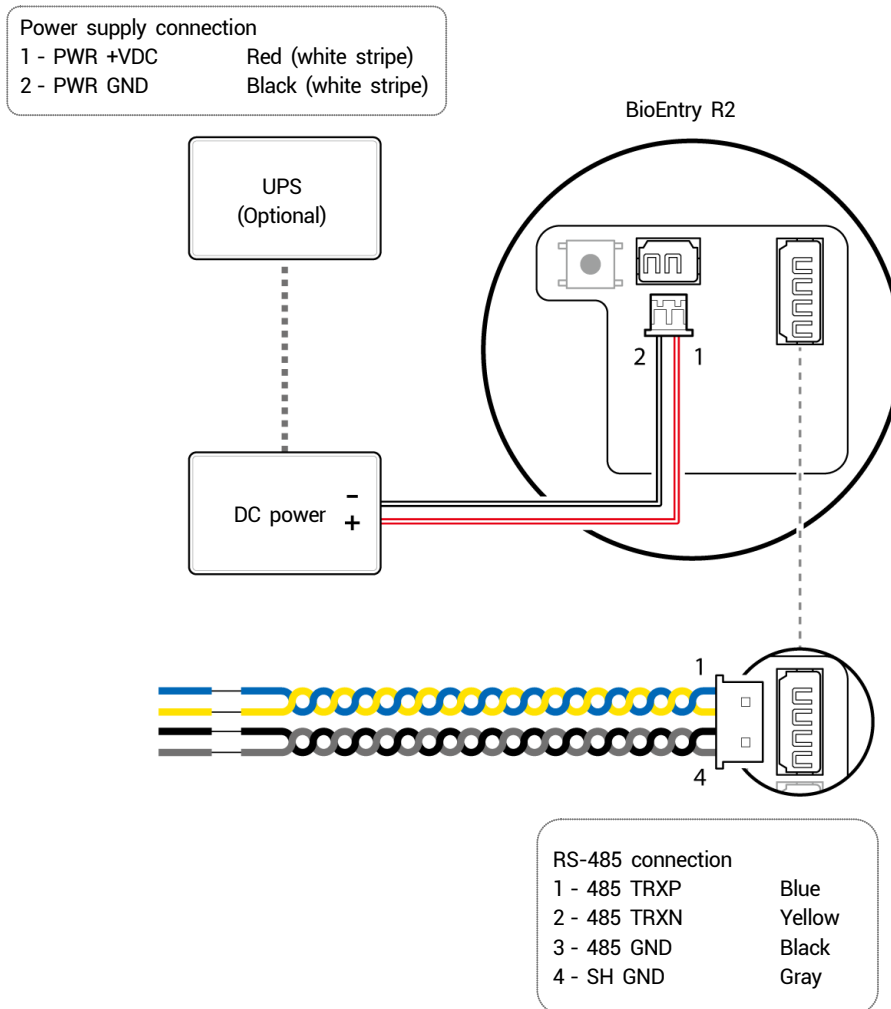
- 2** Install BioEntry R2 onto the fixed bracket.



- 3** Connect BioEntry R2 to the bracket by rotating the product fixing screw.



## Connecting the cables



### NOTE

- Use a power supply adaptor of DC 12 V ( $\pm 10\%$ ) with a minimum of 1,500 mA which has obtained the approval of IEC/EN 60950-1. If you wish to connect and use another device to the power supply adaptor, you should use an adaptor with a current capacity which is the same or larger than the total power consumption required for the terminal and another device.
- Use a separate power supply for Secure I/O 2, the electric lock, and the BioEntry R2 respectively. If connecting and using the power supply to these devices together, the devices may malfunction.
- 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.
- If Xpass is connected to the master device, only card authentication can be used.

## Resetting the RS-485 connection

- 1 Turn the power on.
- 2 Press and hold the reset button for more than a second. The device LED displays green.
- 3 The RS-485 connection is reset once you hear a beep sound.

### NOTE

- Reset the RS-485 connection of BioEntry R2 if you want to disconnect the RS-485 connection with a master device and reconnect it to another master device.

## Resetting the baud rate of RS-485

- 1 Turn the power on.
- 2 Press and hold the reset button for more than 2 seconds. When the device change to setup mode, the green LED is blinking.
- 3 Depending on the number of times the reset button was pressed, the baud rate changes. You can recognize the baud rate according to the LED color.

The number of times	Baud Rate	LED Color
1	9600	Cyan
2	19200	Blue
3	38400	Magenta
4	57600	White
5	115200	Red

- 4 The LED blinks for 5 seconds with the color set as the above. The baud rate is set once you hear a beep sound.

### NOTE

- If you do not press the reset button after changing to the setup mode, the baud rate is set to 115200.

## Product specifications

Category	Feature	Specification
		BER2-OD
Credential	Biometrics	Fingerprint
	LF card option	EM
	HF card option	MIFARE, MIFARE Plus, DESFire EV1/EV2, FeliCa
	NFC card	지원
	RF read range *	MIFARE/DESFire/EM/HID Prox/iCLASS : 50 mm, FeliCa: 30 mm
General	CPU	1.0 GHz
	Memory	32MB Flash + 32MB RAM
	LED	Multi-color
	Sound	Multi-tone Buzzer
	Operating temperature	-20°C - 50°C
	Storage temperature	-40°C - 70°C
	Operating humidity	0% - 80%, non-condensing
	Storage humidity	0% - 90%, non-condensing
	Dimension (W x H x D)	50mm x 164mm x 37.5mm
	Weight	Device: 158g Bracket: 39g (Including washer and bolt)
Certificates	CE, FCC, KC, RoHS, REACH, WEEE	
Fingerprint	Image dimension	272 x 320 pixels
	Image bit depth	8bit, 256 grayscale
	Resolution	500 dpi
	Template	SUPREMA / ISO 19794-2 / ANSI 378
	Extractor	MINEX certified and compliant
Interface	RS-485	1ch Master / Slave (Selectable)
	Tamper	Supported
Electrical	Power	Voltage: DC 12V, Current: Max. 600 mA * Use 12VDC, 1.5A power supply.

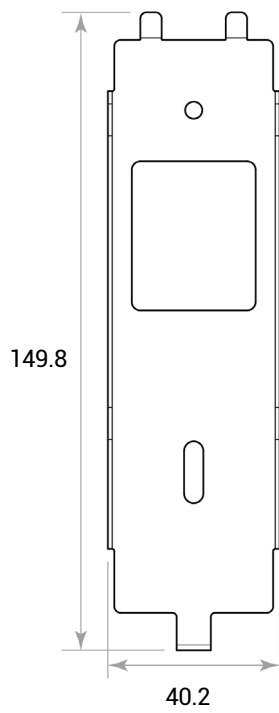
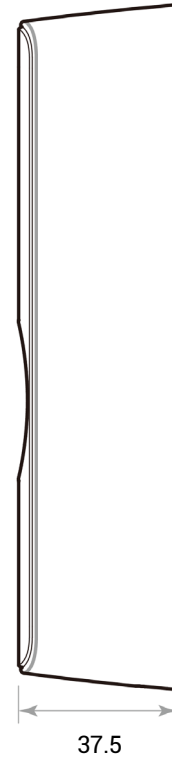
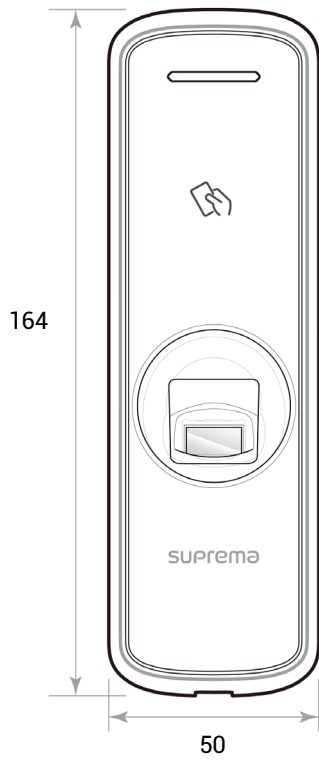
\* RF read range will vary depending on the installation environment.

\* DESFire EV2 cards are supported by having backward compatibility of DESFire EV1 cards. CSN and smart card functions are compatible with BioEntry R2.

## Dimensions

(Unit: mm)

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



## 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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

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Version 3, 29 June 2007

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