Input Module

INSTALLATION GUIDE

Version 1.04

English

EN 101.00.IM-120

suprema

SECURITY & BIOMETRICS

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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.

Compliance Information

Warning

Used to indicate warning information that could lead to serious injury or death if violated while using the product.

Caution

Used to indicate caution information that may result in minor injury or product damage if violated while using the product.

Info

Used to provide notes or additional information while using the product.

Note

Used to provide notes or additional information while using the product.

⚠ Warning

Install

Be especially careful of miswiring when using high-capacity power supplies.

- Serious fires, electric shocks, or product damage may occur due to miswiring.

Do not allow users to install or repair the product arbitrarily.

- Causes fire, electric shock, or injury.
- No free repair service will be provided if the product is damaged due to arbitrary installation or repair by the user.

Do not install the product in places exposed to direct sunlight, moisture, dust, or soot, or where gas may leak.

- May cause fire or electric shock.

When installing the product outdoors, make sure to install it in a shaded and well-ventilated area.

Do not use a completely sealed enclosure when installing the product outdoors.

- The internal temperature of the enclosure may rise due to direct sunlight, causing fire, electric shock, or product damage.

Do not install the product in places where heat is generated, such as near heaters.

- May cause fire or electric shock due to overheating.

Do not install in damp places.

- May cause electric shock or product damage due to moisture.

Do not install in places with electromagnetic interference.

- May cause electric shock or product damage.

Usage

Do not allow liquids such as water, beverages, or chemicals to enter the product.

- May cause fire, electric shock, or product damage.

Do not use damaged power adapters or plugs, or loose outlets.

- If connections are unstable, may cause fire or electric shock.

Do not bend or break the power cord excessively.

- May cause fire or electric shock.

⚠ Caution

Install

Read this manual carefully before installing the product to ensure safe and correct installation.

When wiring power cables and connectors, make sure to turn off the power to all devices you are connecting before wiring and connecting.

- Devices may malfunction.

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

Do not install the product in places directly exposed to sunlight or ultraviolet light.

- May cause product damage, malfunction, discoloration, or deformation.

Do not leave power cables in passageways.

- May cause bodily injury or product damage.

Do not install near strong magnetic objects such as magnets, TVs, CRT monitors, or speakers.

- The device may malfunction.

Use a power adapter that has IEC/EN 62368-1 approval and is rated above the power consumption of the terminal device. It is recommended to use the power adapters sold by Suprema.

- Using an unsuitable power supply may cause devices to malfunction.
- Refer to the Power in the product specifications for maximum current consumption specifications.

Usage

Do not drop or subject the product to shock.

- The device may malfunction.

Ensure the power supply is not interrupted during firmware upgrades of the product.

- The device may malfunction.

Do not press the product's buttons (touchpad) forcefully or use sharp tools to press them.

- The device may malfunction.

Use the product within -20 °C ~ 60 °C and store it at appropriate temperatures, not too low or too high.

- The device may malfunction.

Be careful when cleaning the product.

- Gently wipe the product surface with a clean, dry cloth.
- If disinfecting the product, dampen a clean cloth with a suitable amount of disinfectant alcohol and gently wipe the product surface. Use disinfectant alcohol that contains 70-75% isopropyl alcohol and a clean, lint-free soft cloth.
- Do not spray disinfectant directly onto the product.

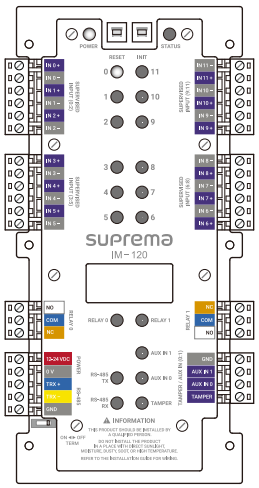
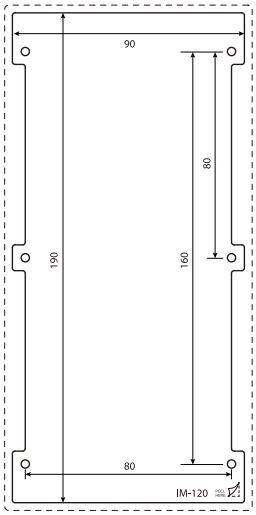
Do not use the product for purposes other than its intended use.

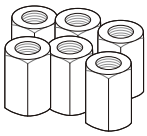
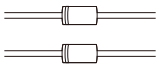
- The device may malfunction.

Getting Started

Provides initial procedures for getting started with the device.

Components

	
Input Module	Drilling Template

				
Fixing Screw x12	Spacer x6	Diode x2	Quick Guide	Open Source Software Guide

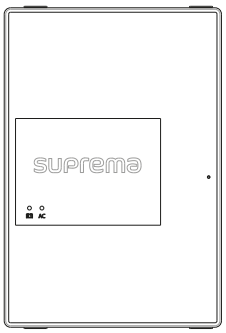
Info

- Components may vary according to the installation environment.

Accessory

This product can be purchased with the enclosure (ENCR-10) as an accessory, and you can install two products in one enclosure.

The enclosure includes a power status LED board, power distribution board, power supply, and tamper. Refer to Enclosure Installation for how to install the product in the enclosure.

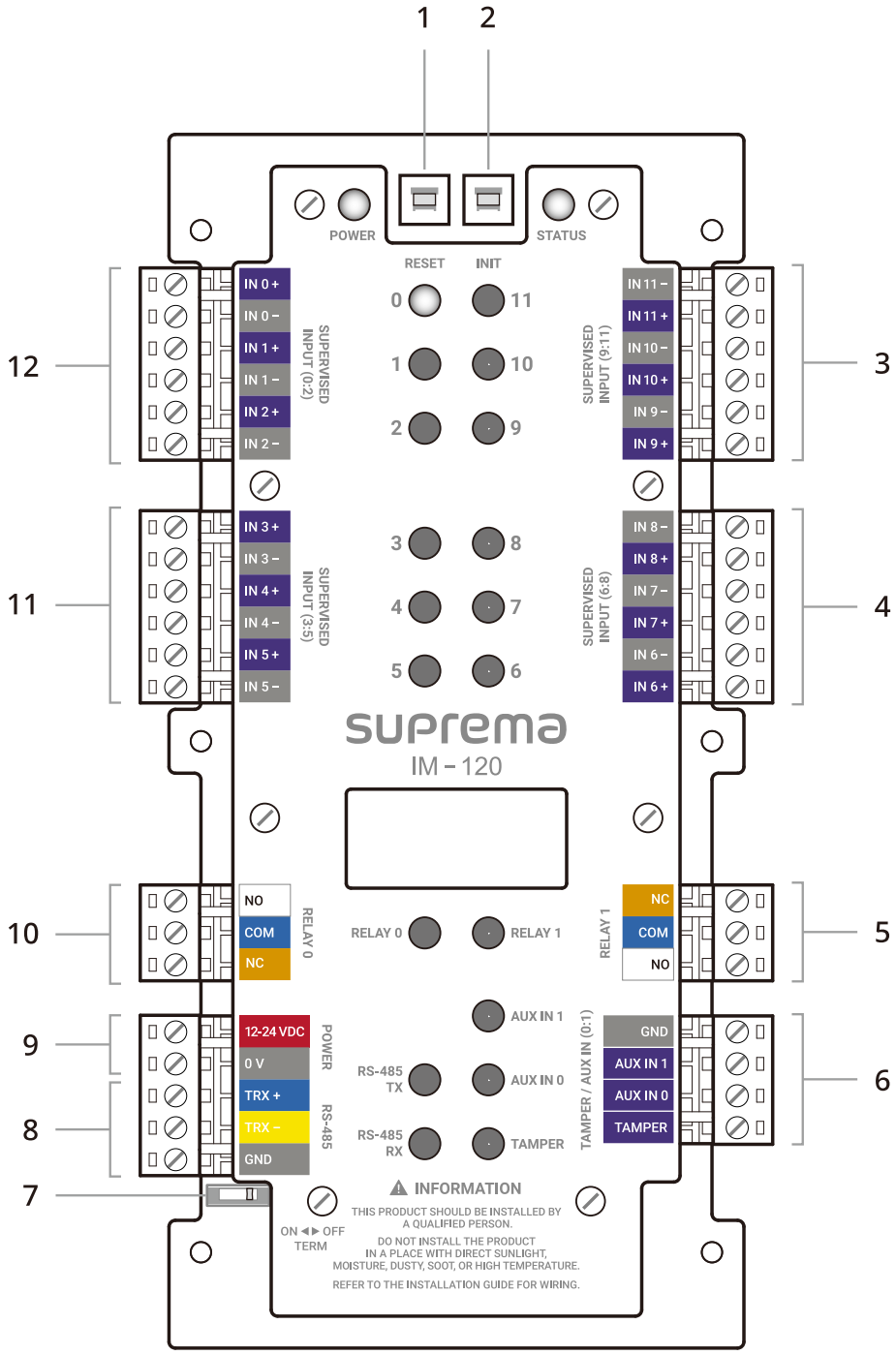


ENCR-10

Info

- The ENCR-10 is designed to be mounted on a wall for use. Install it at a safe and convenient height without restrictions on installation height.
- The ENCR-10 components include screws for housing fixation, screws for product fixation, and screws for power device connection. Use each screw correctly according to its purpose.
  - Fixing screws for the enclosure (diameter: 4 mm, length: 25 mm) x4
  - Fixing screws for the device (diameter: 3 mm, length: 5 mm) x6
  - Fixing screws for the power supply cable (diameter: 3 mm, length: 8 mm) x1

Name and function of each part



No.	Name
1	**RESET** button
2	**INIT** button

No.	Name
3	**SUPERVISED INPUT (9:11:)** connection
4	**SUPERVISED INPUT (6:8:)** connection
5	**RELAY 1** connection
6	**TAMPER** or **AUX IN (0:1:)** connection
7	**RS-485** termination resistor switch
8	**RS-485** connection
9	**POWER** connection (DC 12 or 24 V)
10	**RELAY 0** connection
11	**SUPERVISED INPUT (3:5:)** connection
12	**SUPERVISED INPUT (0:2:)** connection

Info

- Press the **INIT** button for more than 2 seconds after initializing the product linked to the device to connect it to another device.
- Press the **RESET** button to reboot the product.

LED Status Indicator

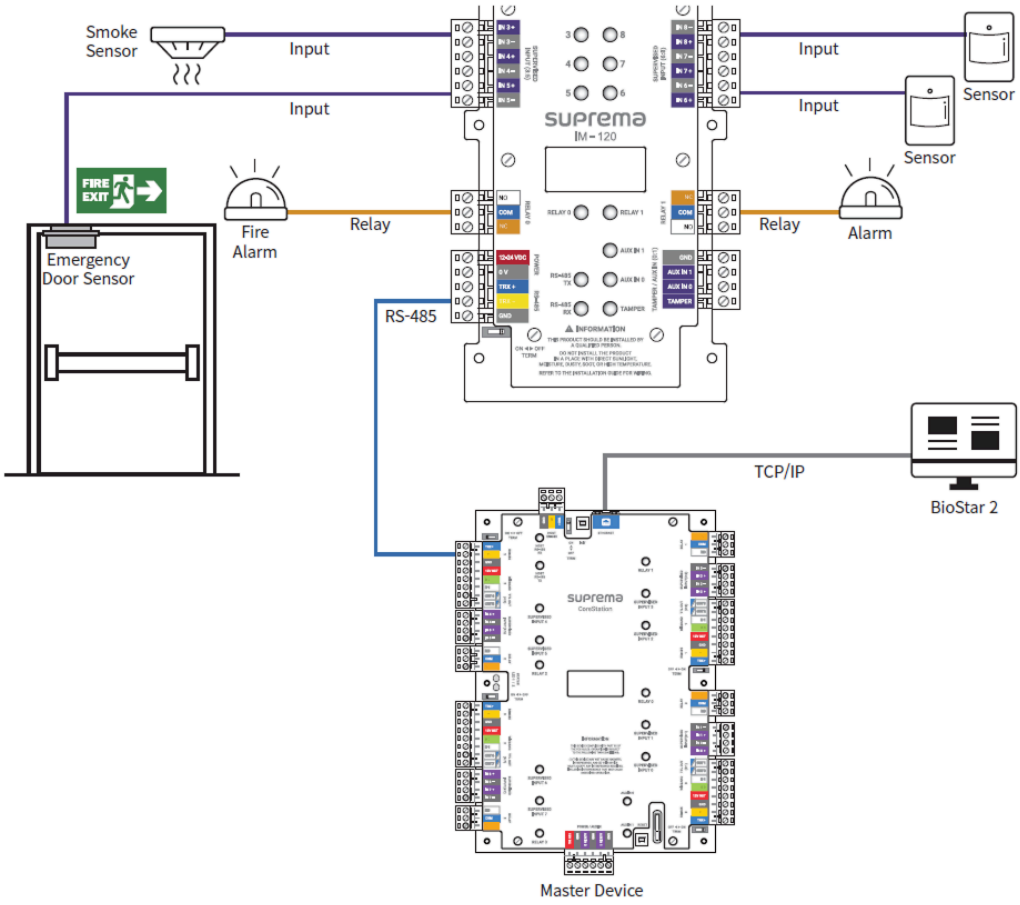
You can check the product operating status by the color of the LED status indicator.

Item	LED	Status
POWER	Red Lit	Power On
STATUS	Green Lit	Connected status via secure session
	Blue Lit	Not connected to the master device
	Pink Lit	In the process of upgrading firmware
	Yellow Lit	Communication error due to different key or packet loss in OSDP causing RS-485
	Sky Blue Lit	Connected status without secure session
	Green blinking	Final input waiting status during configuration initialization
	Green Lit	Configuration initialization completed
SUPERVISED INPUT (0~11)	Red Lit	Receiving input signal status
RELAY (0, 1)	Red Lit	Relay Operation
RS-485 TX	Orange blinking	In the process of transmitting RS-485 data
RS-485 RX	Green blinking	In the process of receiving RS-485 data
AUX IN (0, 1)	Orange Lit	In the process of receiving AUX signal
TAMPER	Orange Lit	Tamper action

Installation example

This product supports immediate relay actions for input detected in real-time in conjunction with BioStar X, and can also perform relay actions or log data for inputs detected when disconnected from the master device.

Supports 1-channel RS-485 for network with the master device, 12 channels of Supervised Input for detecting short circuits, on, off states, and 2-channel relay, 2-channel AUX input, and 1-channel tamper input.

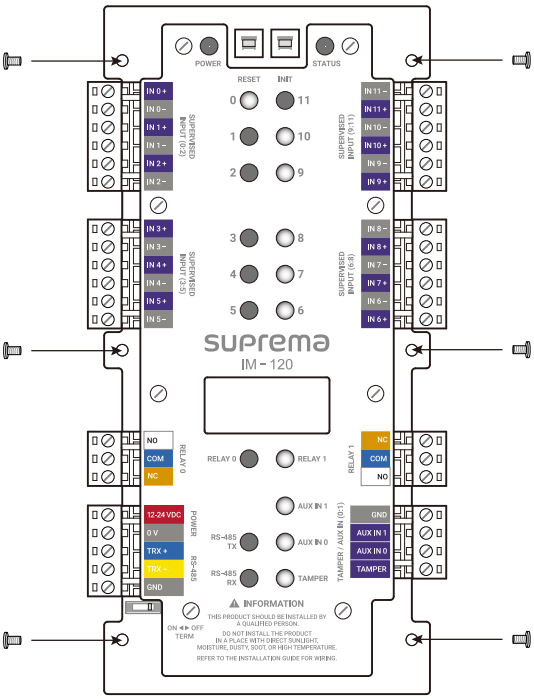


Installation

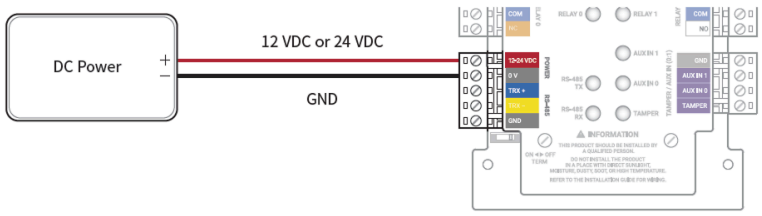
Provides the complete installation procedures and connection examples required for the device.

Product Fixation

1. Secure the spacer with fixing screws at the location where the product will be mounted.
2. Tighten the product onto the secured spacer using fixing screws.



Power supply connection



Caution

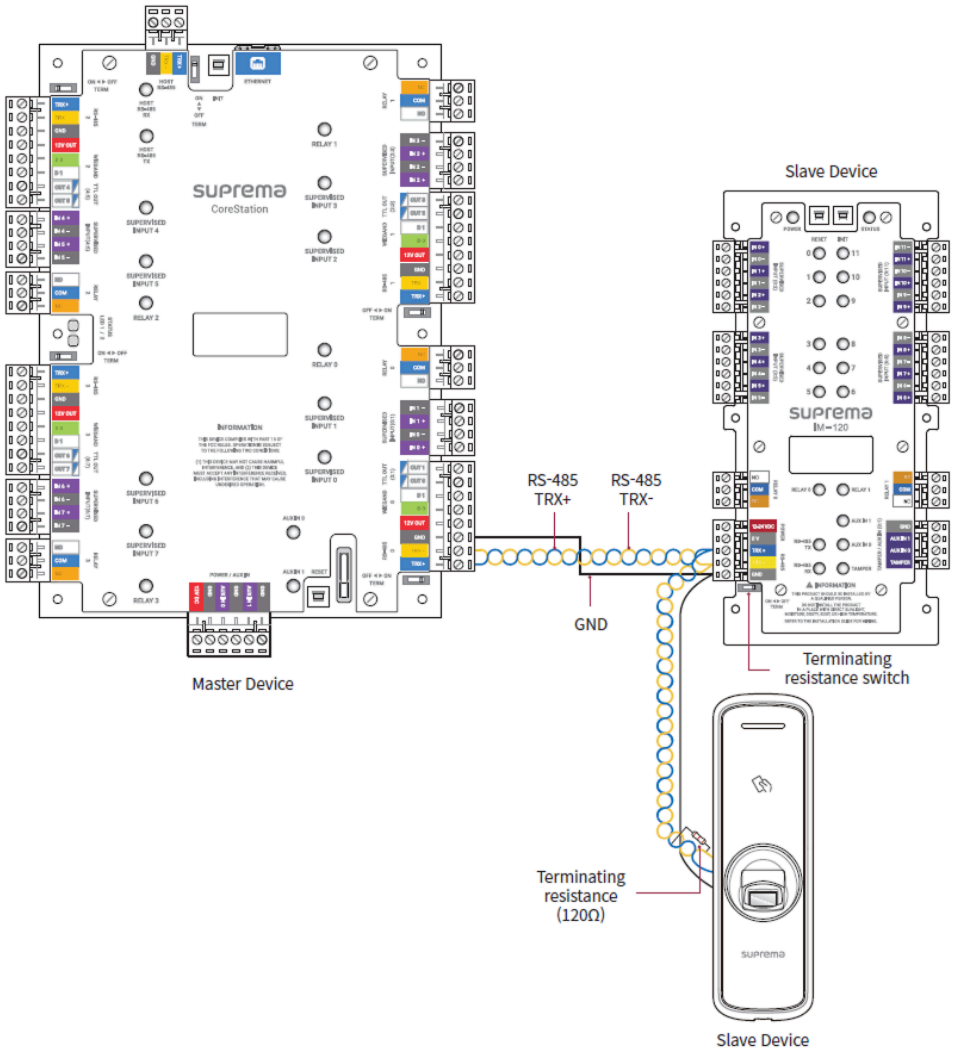
- Make sure to use separate power for the access control device and products.
- Use the IEC/EN 62368-1 approved power adapter that supports higher power consumption than the product. If you wish to connect and use another device to the power supply adapter, you should use an adapter with a current capacity 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.

Info

It is recommended to connect and use an Uninterruptible Power Supply (UPS) to prevent power failure.

RS-485 Connection

You can connect the product to the master device.

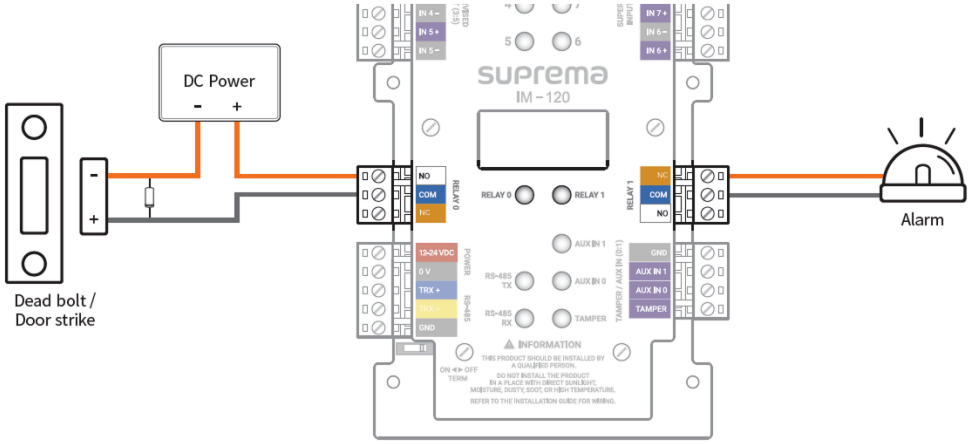


Info

- Use AWG26 or larger for RS-485 cables, and all wiring must comply with ANSI/NFPA 70 standards.
- Use an AWG24 twisted pair with a maximum length of 1.2 km for the RS-485 cable.
- It is recommended to use RS-485 cables with a characteristic impedance of 120 Ω.
- Connect termination resistors (120 Ω) at both ends of the RS-485 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. Set this product's termination resistor switch to ON.

Relay Connection

You can control the entrance door locking mechanism or alarm system with the relay of this product. Refer to the guide of the device to be connected and connect the relay as NC or NO.



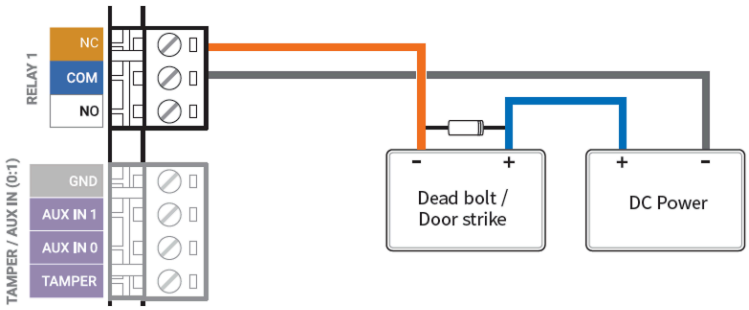
Fail Safe Lock

In order to use the Fail Safe Lock, connect the **NC** 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.

Info

Connect a diode to both ends of the power input as shown in the figure below when installing a deadbolt or a door strike. Make sure to connect the Cathode (direction to the stripe) to the + part of the power while paying attention to the direction of the diode.

Do not connect the relay of this product in duplicate to the device connected to the relay port of the master device.



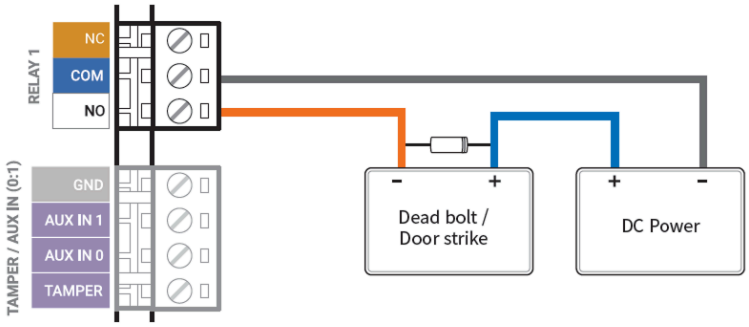
Fail Secure Lock

In order to use the Fail Secure Lock, connect **NO** 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.

Info

Connect a diode to both ends of the power input as shown in the figure below when installing a deadbolt or a door strike. Make sure to connect the Cathode (direction to the stripe) to the + part of the power while paying attention to the direction of the diode.

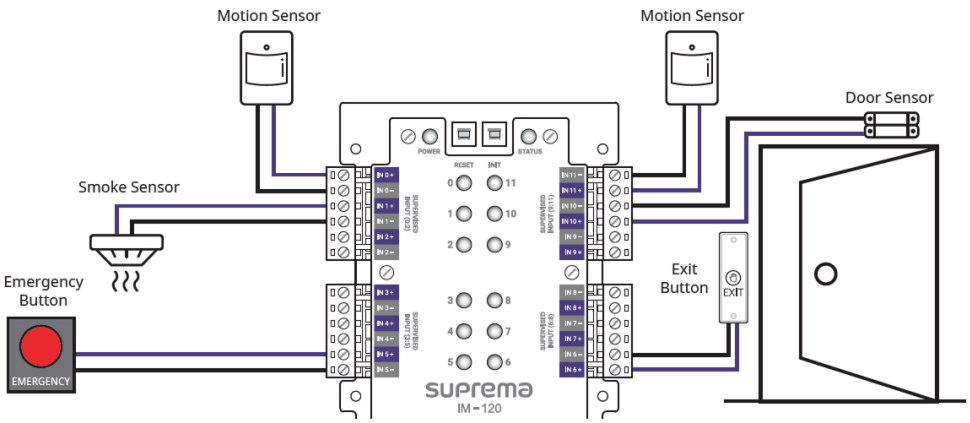
Do not connect the relay of this product in duplicate to the device connected to the relay port of the master device.



Supervised Input Connection

You can connect fire detection sensors, heat detection sensors, burglar sensors, door sensors, exit buttons, etc. **SUPERVISED INPUT** Terminals 0~11 can detect voltage flowing through the circuit to monitor the device's short circuit, open circuit, on, and off states, and can also be used as general input.

Set the actions based on the product's status in BioStar X and monitor the input status.

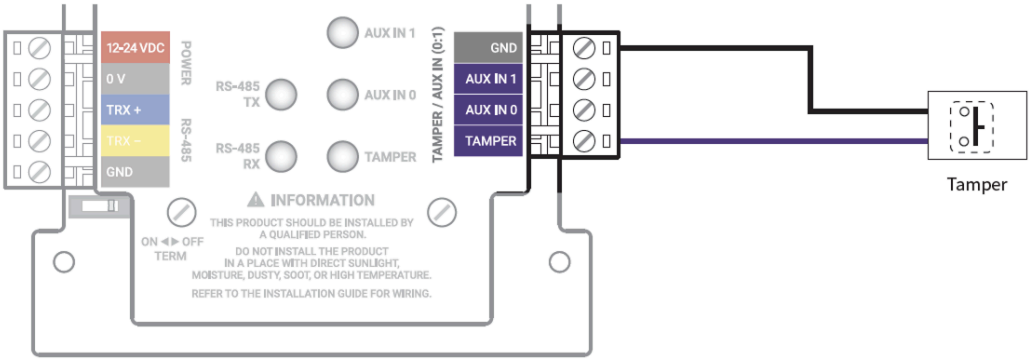


Info

- Do not connect the product's inputs in duplicate to the devices connected to the master device's input ports.
- This product can connect resistors of 1kΩ, 2.2kΩ, 4.7kΩ, and 10kΩ. After connecting the appropriate resistor to the input device, set the resistor value the same in BioStar X.

Tamper Connection

It can trigger an alarm or leave an event log if the product is detached from its installation due to external factors.

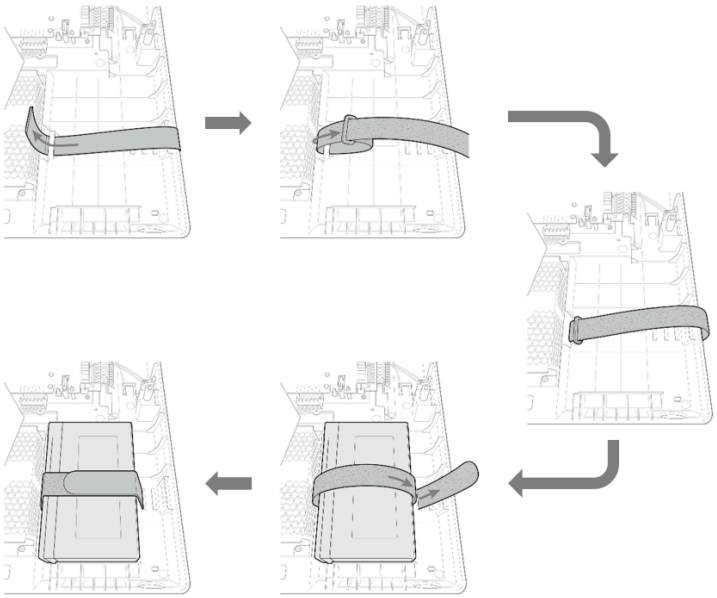


Enclosure installation

For physical and electrical protection, the product can be installed inside the enclosure (ENCR-10). The enclosure includes a power status LED board, power distribution board, power supply, and tamper. The enclosure is sold separately.

Backup battery fixing

Insert the battery Velcro strap into the case, then secure the battery.

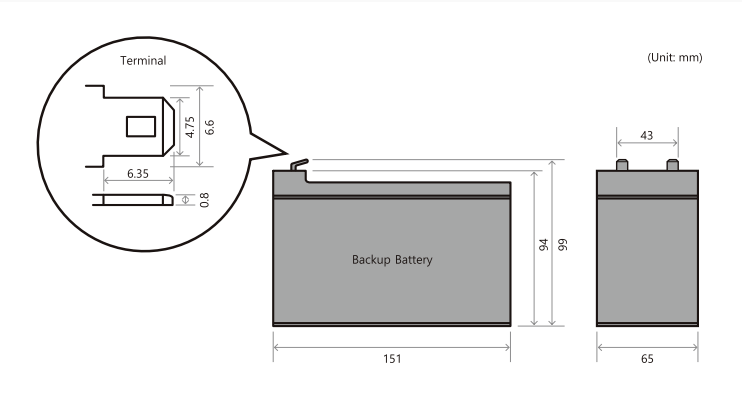


Caution

Use a backup battery that is 12 VDC specification and 7 Ah or higher. This product has been tested with the 'ES7-12' product from 'ROCKET', and it is recommended to use products equivalent to 'ES7-12'.

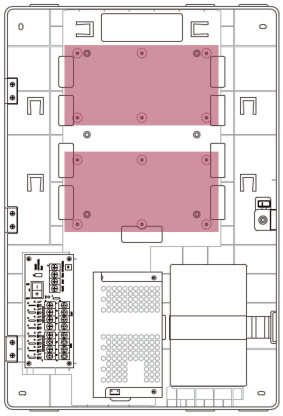
Info

- The backup battery is sold separately.
- Be sure to check the size and shape of the backup battery terminals. If the size of the backup battery exceeds the recommended specifications, it may not fit in the case or the case may not close after installation. Additionally, if the shape and size of the terminals are different, you will not be able to connect the battery using the provided cable.

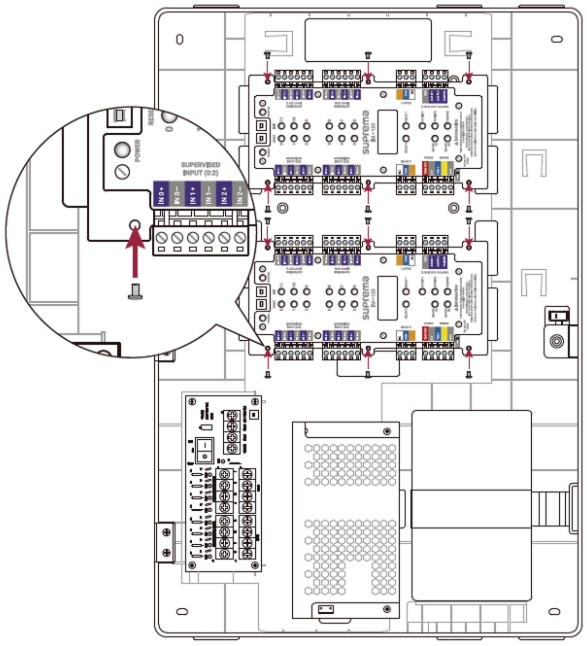


Product Fixation

1. Check the location to mount the product in the enclosure. You can install 2 products in 1 enclosure.



2. Place the product in the enclosure according to the mounting location and secure it with screws.

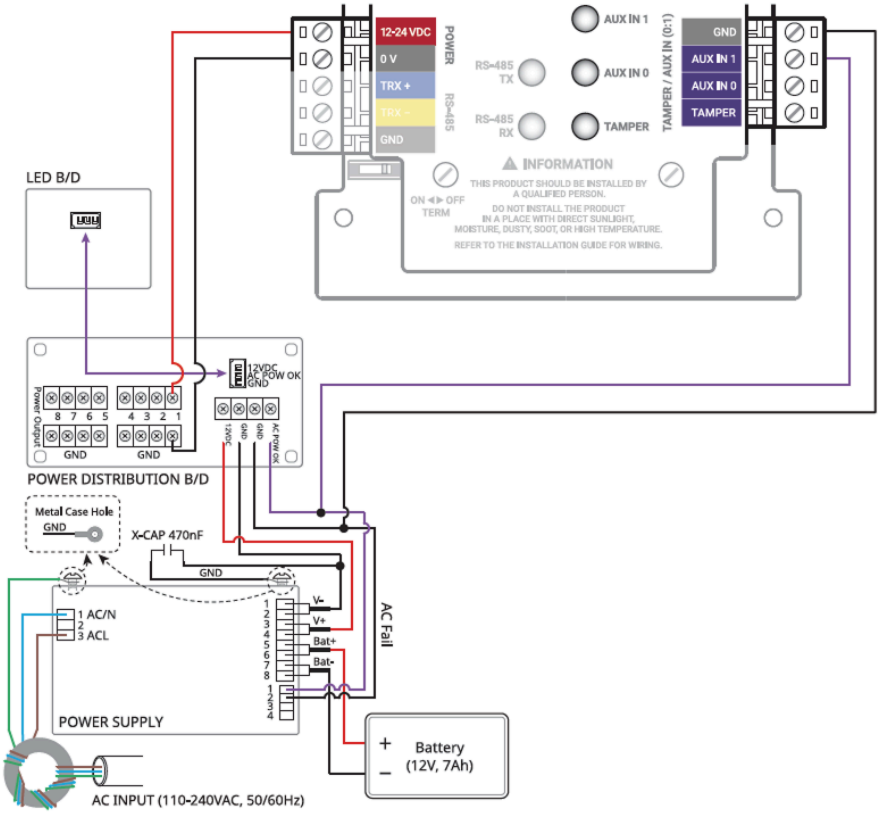


Info

- The ENCR-10 is designed to be mounted on a wall for use. Install it at a safe and convenient height without restrictions on installation height.
- The ENCR-10 components include screws for housing fixation, screws for product fixation, and screws for power device connection. Use each screw correctly according to its purpose.
  - Fixing screws for the enclosure (diameter: 4 mm, length: 25 mm) x4
  - Fixing screws for the device (diameter: 3 mm, length: 5 mm) x6
  - Fixing screws for the power supply cable (diameter: 3 mm, length: 8 mm) x1

Power and AUX input connection

To prevent power interruptions, you can connect an uninterruptible power supply (UPS), and contact outputs from power outage detectors or other devices can be connected to the AUX IN terminal.

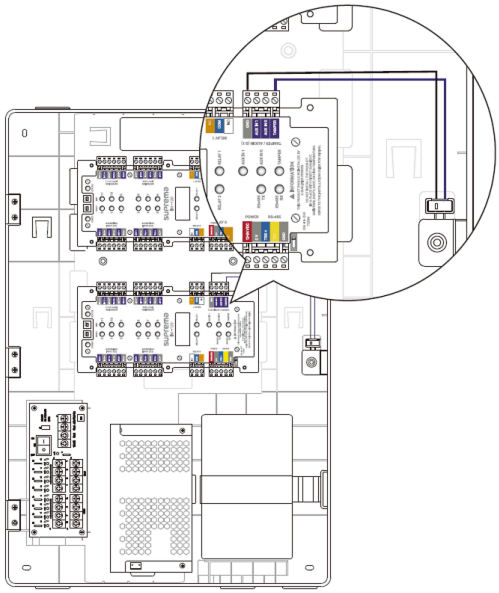


Caution

- Make sure to use separate power for the access control device and products.
- 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 backup battery that is 12 VDC specification and 7 Ah or higher. This product has been tested with the 'ES7-12' product from 'ROCKET', and it is recommended to use products equivalent to 'ES7-12'.

Tamper Connection

If the enclosure is opened due to external factors, it can trigger an alarm or leave an event log.



Info

For more detailed information on product installation, contact Suprema Technical Support Team.

Product Specifications

Provides key specifications of the product, including size, features, and performance.

General

Model Name	**IM-120**	
CPU	**Cortex M3 72 MHz**	
Memory	**512 KB Flash + 64 KB SRAM**	
LED	**Multi-color**	• **POWER: 1ea** • **STATUS: 1ea** • **RS-485 TX: 1ea** • **RS-485 RX: 1ea** • **SUPERVISED INPUT: 12ea** • **RELAY: 2ea** • **AUX IN: 2ea** • **TAMPER: 1ea**
Operating Temperature	**-20 °C ~ 60 °C**	
Storage Temperature	**-40 °C ~ 70 °C**	
Operating Humidity	**0 % ~ 95 %, non-condensing**	
Storage Humidity	**0 % ~ 95 %, non-condensing**	
Authentication	**CE, UKCA, KC, FCC, RCM, RoHS, REACH, WEEE**	

Capacity

Max. Text logs	**10 ea per port**[1)]

Interface

Input	**12 ch**[2)]
Supervised Input	**12 ch**[2)]
RS-485	**1 ch**
RS-485 Communication Protocol	**OSDP V2 compliant**
Relay	**2 relays**
AUX Input	**2 ch (AC POWER FAIL)**
Tamper	**1 ch**

Electrical

Power	**12 Vdc**	**Current: Max. 0.2 A**
	24 Vdc	**Current: Max. 0.1 A**
Switch Input VIH	**Max.: 5 V (Dry Contact)**	
Relay	**5 A @ 30 VDC Resistive load**	

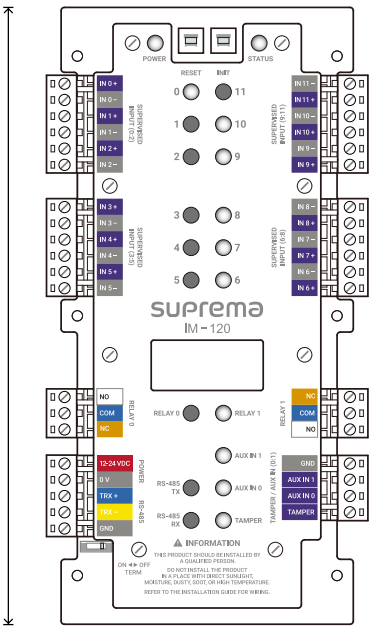
Dimensions and Weight

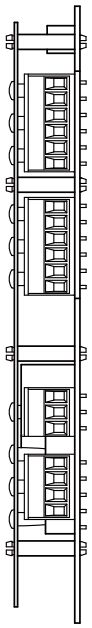
The dimensional tolerance is ±0.3 mm.

Width: 90 mm

Depth: 21 mm

Height: 190 mm





Weight: 203 g

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1) Up to 10 events that occurred when the network connection was lost will be saved per port, and when there are more than 10 events, the events will be deleted in the order they occurred from the log.

2) You can choose to use either Input or Supervised input.

Info

Product specifications are subject to change without notice for performance improvement.

Regulatory Information

Provides information on regulations and certifications complied with by the product.

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.

> **Info**
>
> 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. Do not install or operate this device and its antenna in conjunction with any other antenna or RF transmission device.

For more information, please contact us via the contact details below.

Suprema Inc.

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

Appendices

Includes legal notices contained in the product.

Disclaimers

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- Except as expressly stated in an agreement between you and Suprema, Suprema assumes no liability whatsoever, and Suprema disclaims all warranties, express or implied including, without limitation, relating to fitness for a particular purpose, merchantability, or noninfringement.
- All warranties are VOID if Suprema products have been: 1) improperly installed or where the serial numbers, warranty date or quality assurance decals on the hardware are altered or removed; 2) used in a manner other than as authorized by Suprema; 3) modified, altered or repaired by a party other than Suprema or a party authorized by Suprema; or 4) operated or maintained in unsuitable environmental conditions.
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