

# Door Module

## INSTALLATION GUIDE

Version 1.41

English

EN 101.00.DM-20 V1.41

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# Safety information

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 the 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 in a place where it is exposed to direct sunlight or UV light.**

- This may cause product damage, malfunction, discoloring or distortion.

**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.

**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.

### Operation

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

- The product may malfunction.

**Ensure that the power is not cut off when a product firmware upgrade is in progress.**

- The product may malfunction.

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

- The product may malfunction.

**Use the product at a temperature of -20 °C to 60 °C. Do not keep the product at an extremely low or high temperature.**

- The product may malfunction.

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

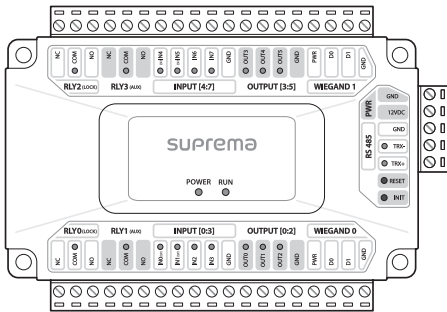
- Wipe the product with a clean and dry towel.
- If you need to sanitize the product, moisten the cloth or the wipe with a proper amount of rubbing alcohol and gently clean all exposed surfaces including the fingerprint sensor. Use rubbing alcohol (containing 70% Isopropyl alcohol) and a clean, non-abrasive 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.**

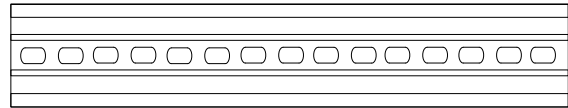
- The product may malfunction.

# Introduction

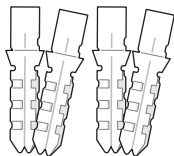
## Components



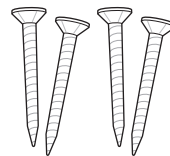
**Door Module**



**Wall Bracket**



**PVC Anchor x4**



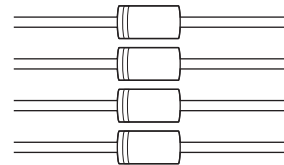
**Fixing Screw x4**



**Spacer x4**



**120  $\Omega$  Resistor**

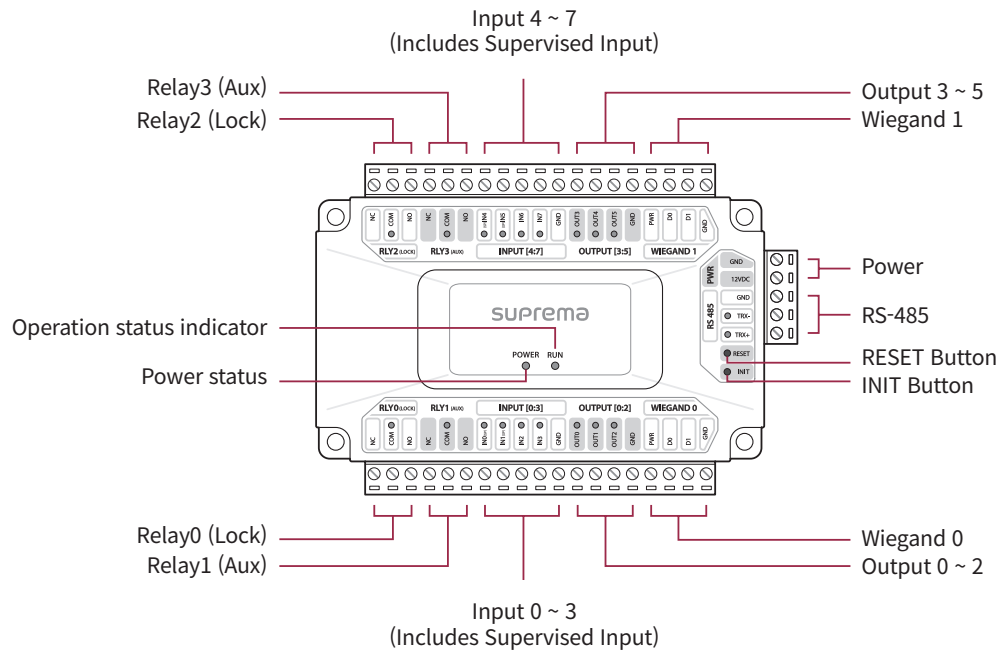


**Diode x4**



Components may vary according to the installation environment.

## Name of each part

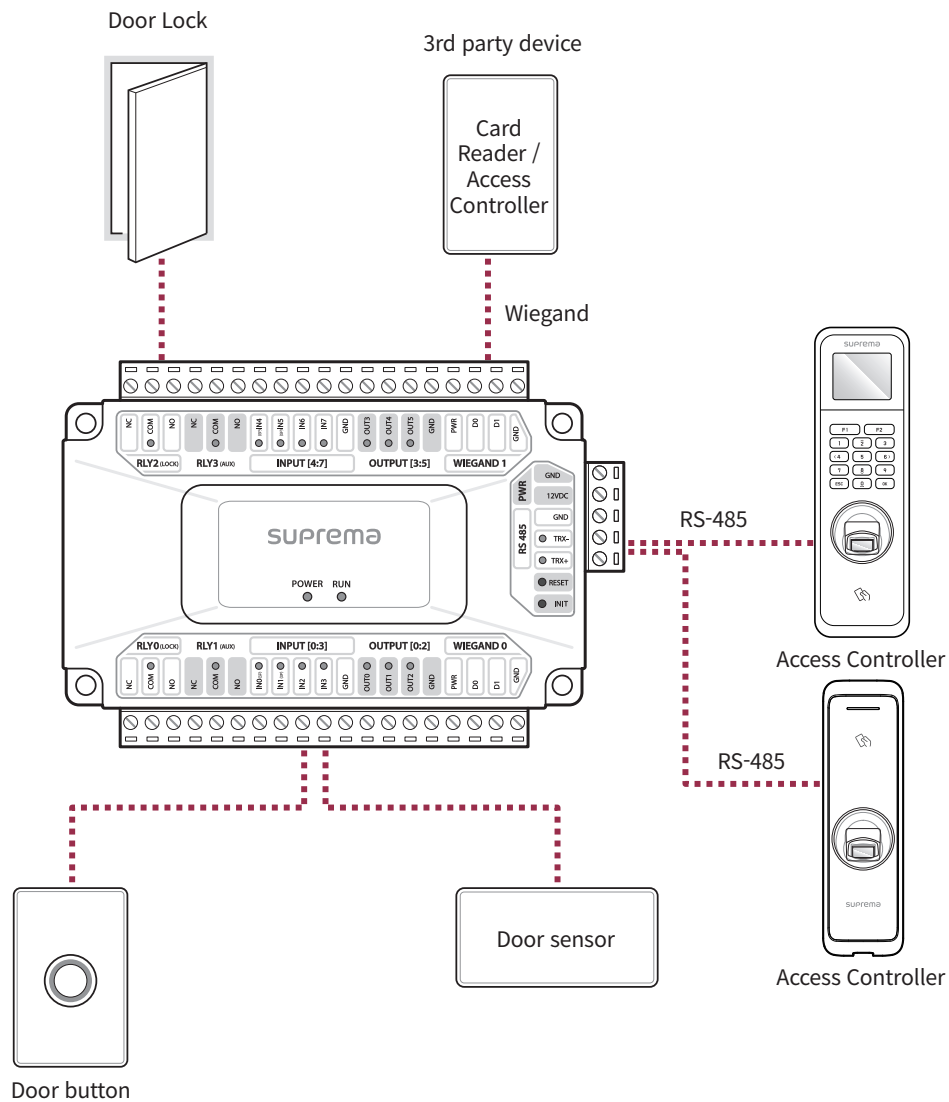


- Press INIT button to reset DM-20 interworking with a device and then connect to another device.
- If you use the supervised input, refer to below details for LED status.
  - Orange: Open
  - Red: Short
  - Green: On
  - Off: Off

## Installation Example

DM-20 is connected with various I/O and Wiegand and can be compatible with 3rd party device.

It can be used supervised input, a supervised connection is a four-state connection to determine if the connection is Open, Short, On, Off.



# Installation

DM-20 can be mounted with bracket or spacer.

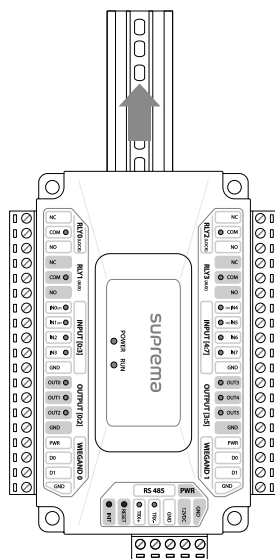
## Mounting the Bracket

1 With the fixing screws for the bracket, mount the bracket firmly onto the surface where DM-20 is to be installed.



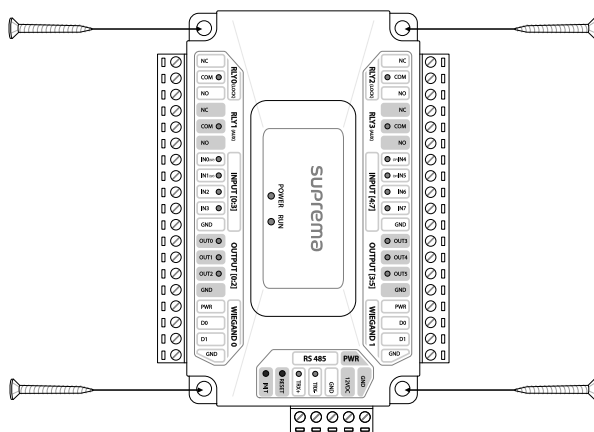
- If DM-20 should be installed onto a concrete wall, make a hole with a drill, and then insert a PVC anchor into the hole before screwing the fixing screw.

2 Attach DM-20 onto the mounted bracket.



## Mounting the Spacer

1 With the fixing screws and spacers for DM-20, mount the bracket firmly onto the surface where DM-20 is to be installed.

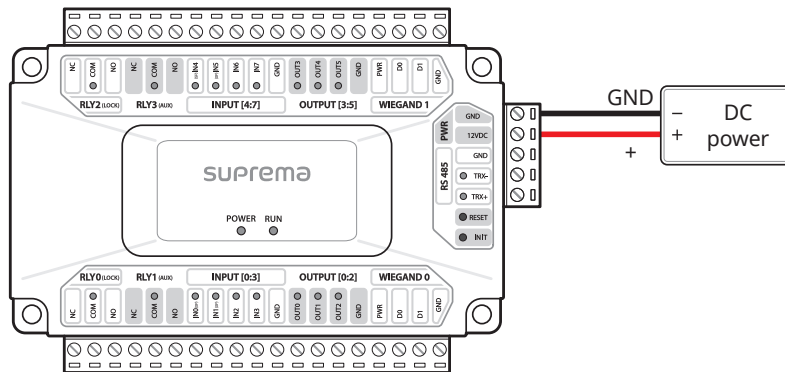


- If DM-20 should be installed onto a concrete wall, make a hole with a drill, and then insert a PVC anchor into the hole before screwing the fixing screw.



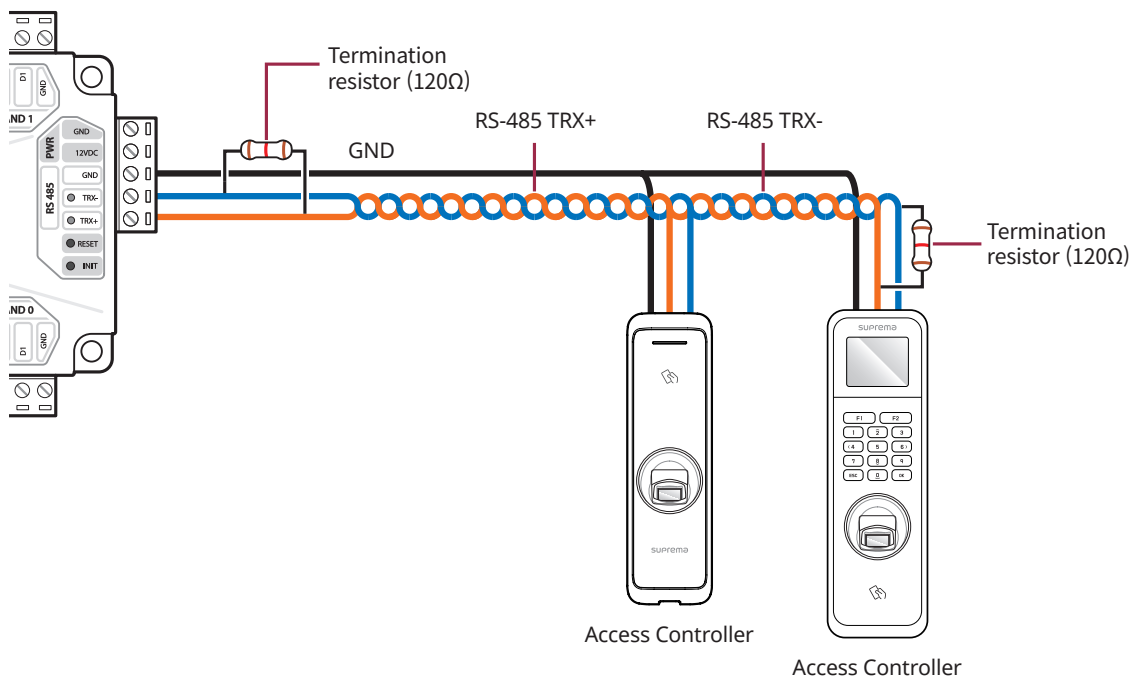
## Power connection

- Do not share the power with the access controller.
- 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.



## RS-485 connection

- RS-485 should be AWG24, twisted pair, and maximum length is 1.2 km.
- Connect a termination resistor ( $120\Omega$ ) to both ends of a RS-485 daisy chain connection. It should be installed at both ends of the daisy chain. If it is installed in the middle of the chain, the performance in communicating will deteriorate because it reduces the signal level.
- Up to 31 card readers or up to 7 fingerprint devices with 24 card readers can be connected with DM-20. (If Xpass set to master device, fingerprint devices cannot be connected as slave device.)



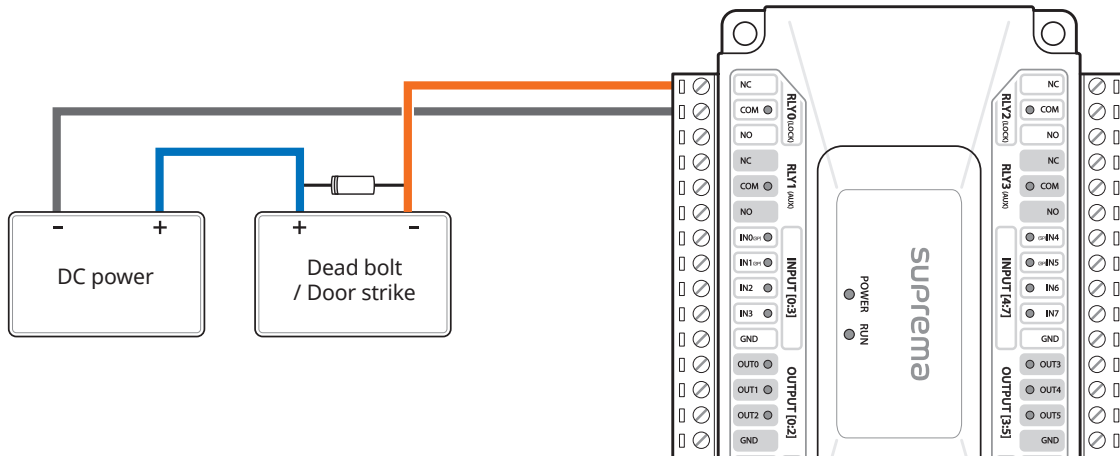
# Relay

## Fail Safe Lock

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



- 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.

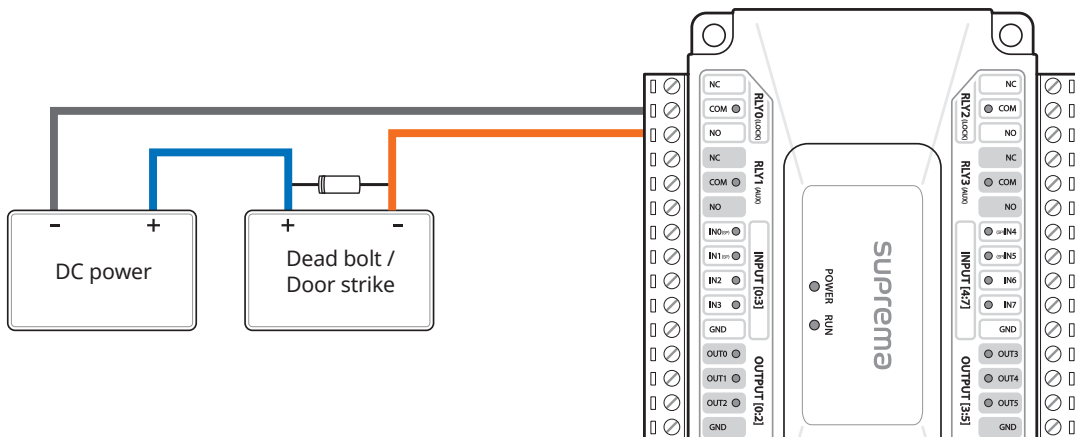


## Fail Secure Lock

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.

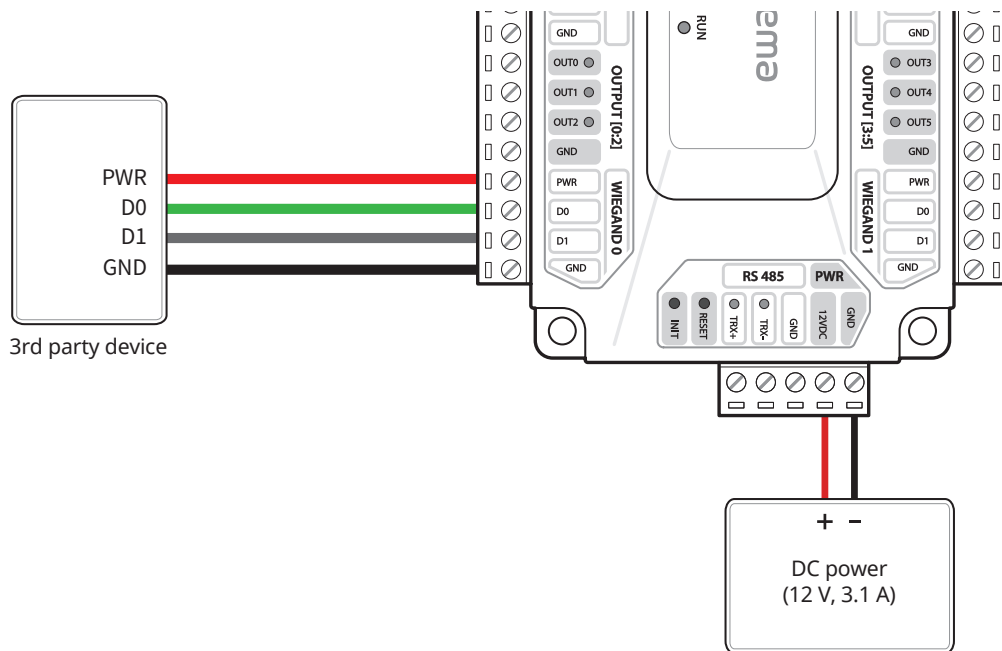


- Connect a diode to both ends of the power input as shown in the figure below when installing a deadbolt or a door strike. Make sure to connect the Cathode (direction to the stripe) to the + part of the power while paying attention to the direction of diode.



## Wiegand

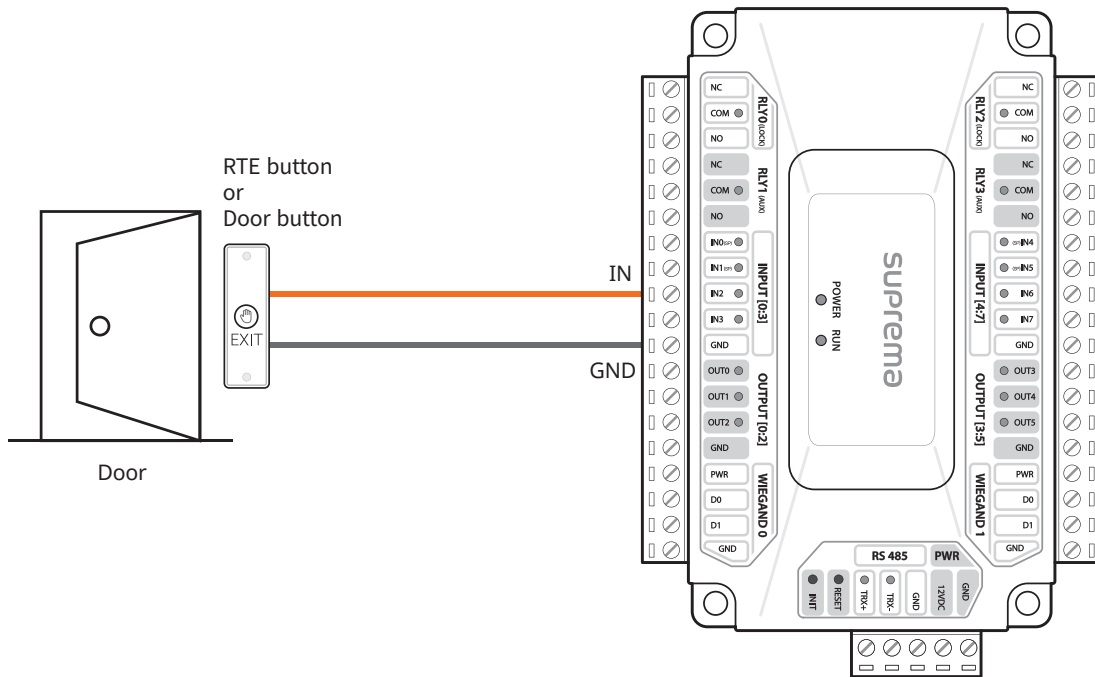
If the power is shared by Wiegand devices, it is recommended to connect 12 V and 3.1 A to DM-20.



- You can use 12 V, Max. 1.5 A for Wiegand devices. If you connect a device that needs 1.0 A to **WIEGAND 0**, **WIEGAND 1** deliver only 500 mA.

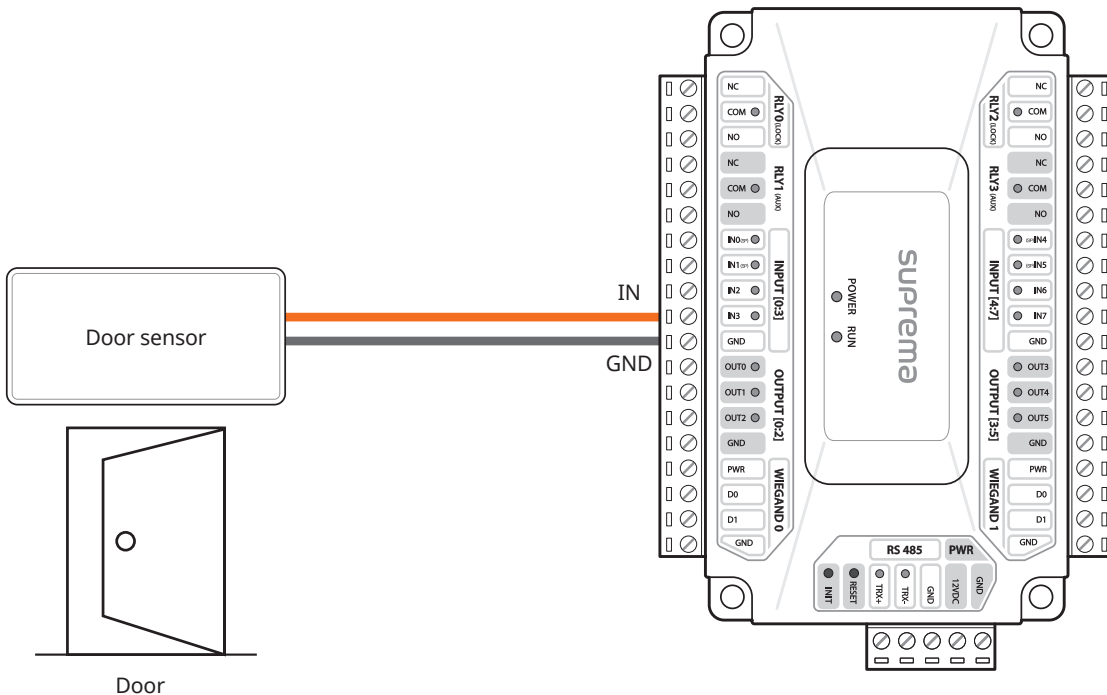
## Door button

IN0(SP), IN1(SP), IN4(SP), IN5(SP) terminals support the supervised input, and it operates always as N/C(normally closed). If you want to connect with non-supervised input, use IN2, IN3, IN6, IN7 terminals.



## Door sensor

IN0(SP), IN1(SP), IN4(SP), IN5(SP) terminals support the supervised input, and it operates always as N/C(normally closed). If you want to connect with non-supervised input, use IN2, IN3, IN6, IN7 terminals.



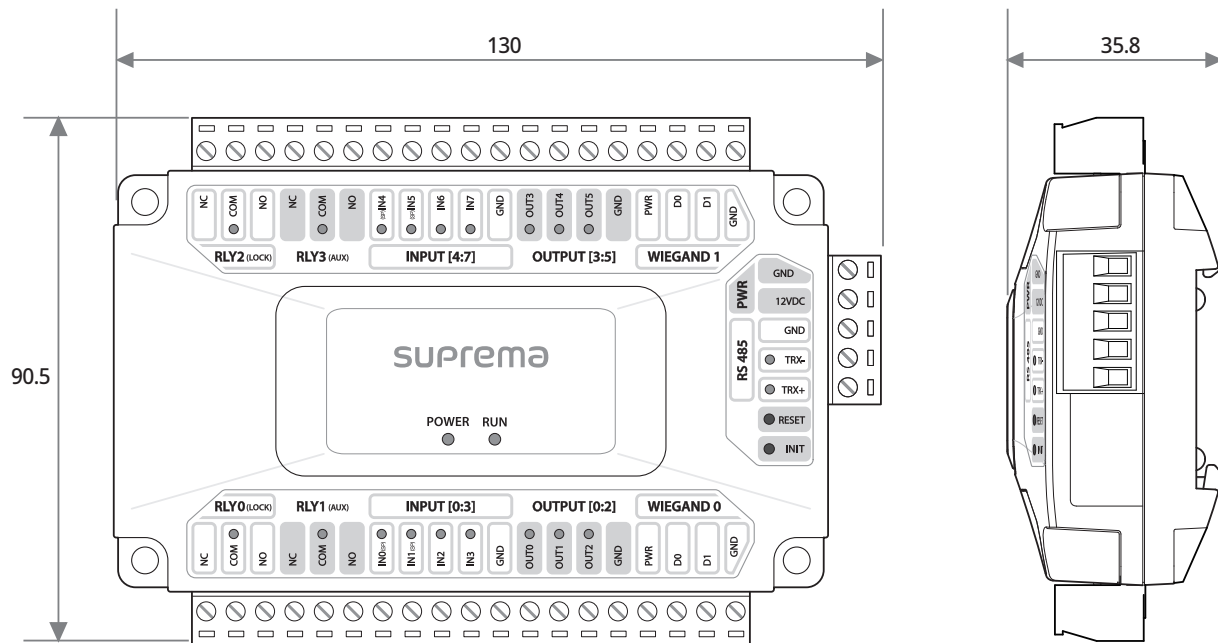
# Product Specifications

Category	Feature	Specification
General	Model	DM-20
	CPU	Cortex M3 72 MHz
	Memory	128 KB Flash, 20 KB SRAM
	LED	Multi-color <ul style="list-style-type: none"> <li>• Power x1</li> <li>• Relay x4</li> <li>• TTL Input x4</li> <li>• Supervised Input x4</li> <li>• TTL Output x6</li> <li>• RS-485 x2</li> <li>• Run x1</li> </ul>
	Operating Temperature	-20 °C ~ 60 °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)	130 x 90.5 x 35.8 (mm)
	Weight	220 g
	Certificates	CE, UKCA, KC, FCC, RoHS, REACH, WEEE
Interface	RS-485	1 ch
	RS-485 Communication Protocol	OSDP V2 compliant
	TTL Input	4 ch
	TTL Output	6 ch
	Supervised Input	4 ch
	Relay	4 Relays
	Wiegand	2 ch Inputs <ul style="list-style-type: none"> <li>• Voltage: 12 Vdc</li> <li>• Current: Max. 1.5 A</li> </ul>
Electrical	Power	<ul style="list-style-type: none"> <li>• Voltage: 12 Vdc</li> <li>• Current: Max. 3.1 A</li> </ul>
	Relay	2 A @ 30 VDC Resistive load 1 A @ 30 VDC Inductive load

# Dimensions

(Unit: mm)

\* The tolerance is  $\pm 0.3$  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 B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, it 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.
- **Modifications:** Any modifications made to this device that are not approved by Suprema Inc. may void the authority granted to the user by the FCC to operate this equipment.

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