

Intelligent Building Solutions

Installation Manual



CAP 2010 SR ACCESS CONTROL UNIT

- iButton based
- Surface mounting

CIB-tech

Introduction

The CAP 2010 SR is an iButton based access control device, part of the CIB-tech automation system.

The unit can control bi-directional access through one door. It accepts up to 1024 users and provides entry via the use of iButtons.

Additional Equipment Required

1. Functional CIB-tech system

A minimal number of essential CIB-tech components to make a functional CIB-tech system¹

2. iButton probe for entry request

Any generic iButton probe, further referred to as "Probe A"².

3. Request to Exit (REX) button or iButton probe for exit request (optional)

Either a generic iButton probe, further referred to as "Probe B", or a normally-open type (contact is closed when button is pressed) REX button can be used as a request-to-exit device².

4. Open door sensor (optional)

Normally open or normally closed type with voltage free contacts³.

5. Electric door lock

Fail safe (power to lock) or fail secure (power to open) strike lock/door bolt/magnetic lock.

6. Power supply for electric door lock

Refer to the electric door lock's characteristics to choose a suitable power supply. A power supply with battery backup is recommended.

Technical Specifications

Electrical characteristics

● **Power Supply**

The CAP 2010 SR functions as a node in a CIB-tech system, being powered from the CIB-tech system's power supply via the CIB-tech connector.

- Operating voltage range: 20 to 28V DC (nominal 24V DC)
- Supply current
 - Standby current (without probes attached): 17mA
 - Maximum current (without probes attached): 40mA
 - Typical standby current (with two probes attached): 25mA
 - Absolute maximum current (with two probes attached): 50mA

¹ See "CIB-tech installation manual" for details.

² IBS product CZ-2 M12-L may be used, or see "Recommended equipment to be used with CIB-tech" for other type of generic iButton probes.

³ See "Recommended equipment to be used with CIB-tech" for details

- **Relay output (for electric door lock)**

If an electric door lock with a DC power supply is used, an external suppressor diode must be used⁴.

- Rated AC voltage: 250V AC
- Rated DC voltage: - 26V DC (resistive load)
- Rated current: 6A

- **Communication with iButton**

- One wire bus implementation for single slave device on each canal:
 - one wire bus voltage levels: 0 - 5V

- **Signal Input**

- REX button: N.O. with voltage free contacts

- **Signal Output**

- External LED control:
 - output voltage levels: 0 – 5V (0V : off / 5V : on)
 - output current: 15mA

Mechanical characteristics

The CAP 2010 SR has a white, flat, wall-mounted enclosure with ventilation slots.

- Dimensions: 71mm W x 71mm L x 28mm D
- Weight: 80g

Environmental characteristics

- Operating temperature: 0°C to 65°C
- Storage temperature: -10°C to 70°C

Key Features

- Programmable via the CIB-tech system with dedicated software
- Controls unidirectional or bi-directional access through one door
- Provides access for up to 1024 users
- Users may be members of one of up to 30 groups with different access rights, based on a weekly schedule. Groups have individual access right expiration dates
- Support for a REX button, iButton probe for exit request
- Internal battery powered real-time clock. Clock keeps running in case of power failure
- Internally stored 1024-entry access log with time stamps
- Internally stored 1024-entry open door event log with time stamps
- Configurable relay output; normal-open or normal-closed (in power-off state relay contacts are always open)
- Two functional modes: open door momentarily or toggle door state
- Configurable keep-door-open time for the momentary-open mode
- Relay output remotely controllable via the CIB-tech system
- Internal bi-color LED indicating the state of the door lock (green: closed / red: open)
- Support for two bi-color external LEDs (for probe A and probe B) indicating a valid/invalid iButton or the standby state of the probe

⁴ IBS product PS 1213 D is a dedicated power supply for door locks: 12V AC and DC output, internal suppressor diode. Note that battery backup for door lock is not supported. Please verify whether it is suitable for your door lock!

Installation

The CAP 2010 SR is meant to be installed on a standard 60mm pattress box or on any flat surface such as a wall.

To install the device:

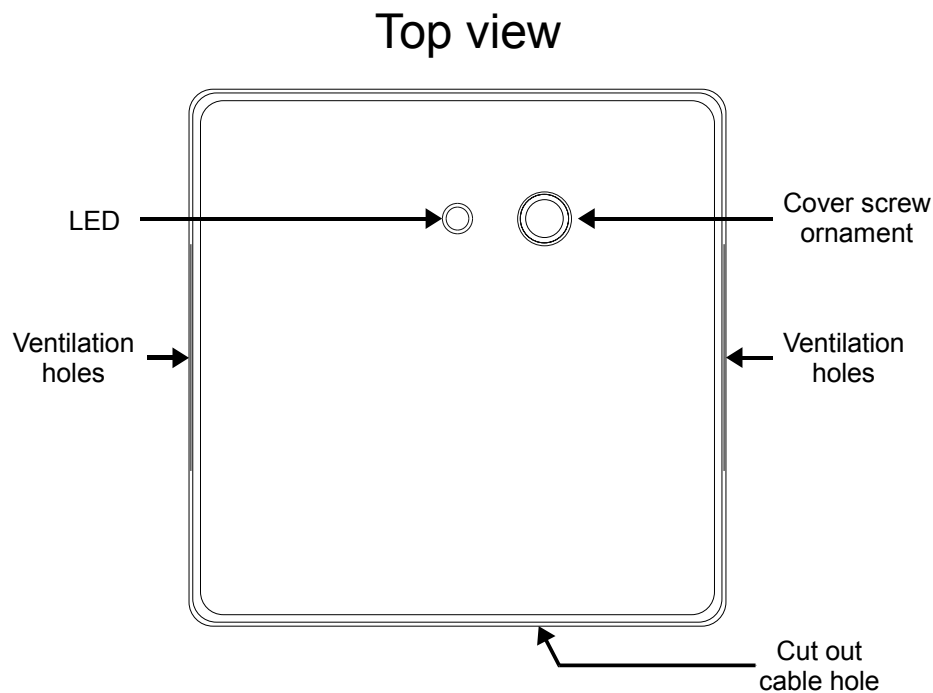
- remove the cover screw ornament, unscrew the cover screw and remove the top cover of the device;
- pull the cables through the cable hole on the base of the device or cut out the side cable hole;
- mount the base of the device via the two mounting holes;
- connect the wires to the device (see connection diagrams below);
- replace the top cover of the device, tighten the cover screw and replace the screw ornament.

Part description

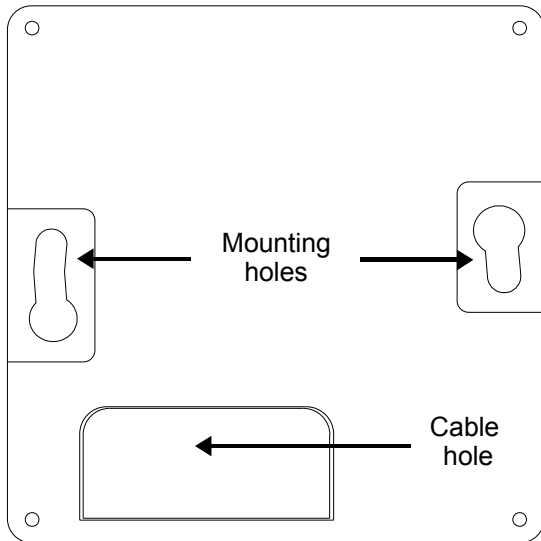
- **LED:** indicator LED for door lock state
 - green: closed
 - red : open
- **Cover screw and ornament:**
 - fastening the top cover of the device
 - plastic ornament hiding the cover screw
- **Ventilation slots:**
 - slots on the sides of the enclosure;
- **Cable hole:**
 - cable entry hole on the bottom of the device;
- **Cut out cable hole:**
 - location where the plastic box can be cut out for an alternate cable entry point.

NOTE: This is only recommended if bottom cable entry is not possible;

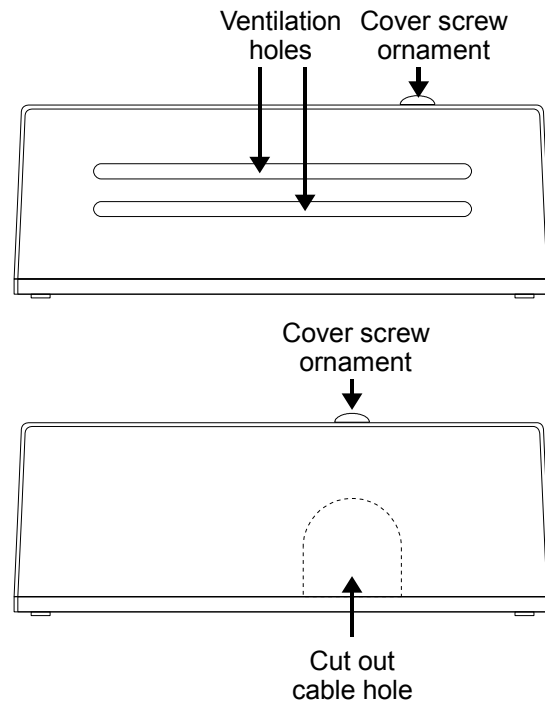
- **Mounting holes:**
 - holes for mounting the device on a standard 60mm pattress;



Bottom view

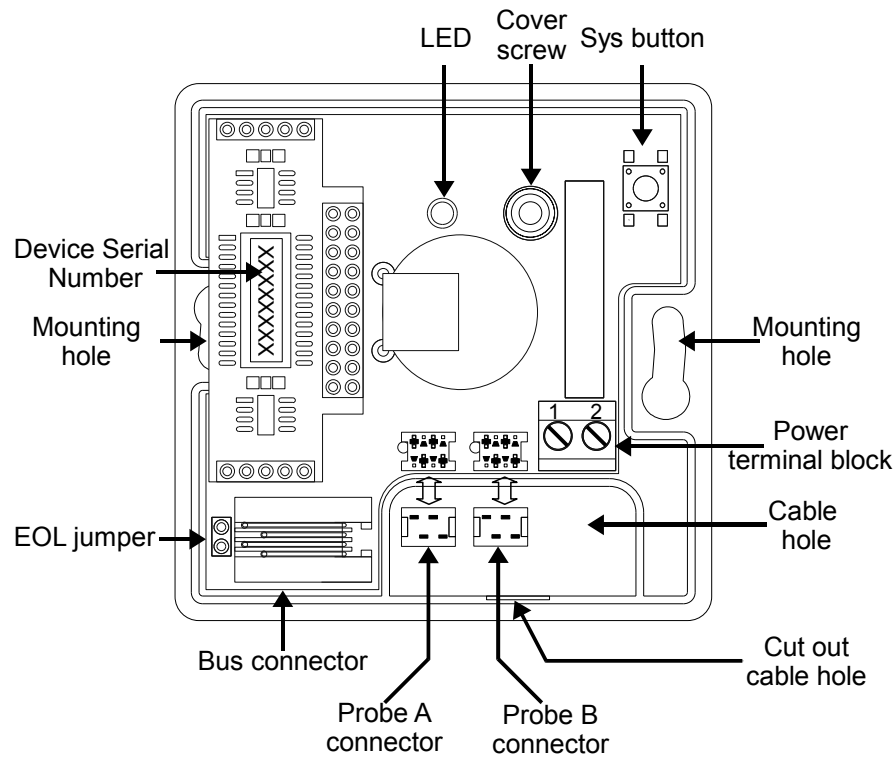


Side view



- **Sys button:**
 - pushbutton for CIB-tech system configuration
- **Bus connectors:**
 - 4P4C modular jack connectors for CIB-tech connection¹
- **EOL jumper:**
 - CIB-tech system's End Of Line jumper¹
- **Device serial number:**
 - Unique serial number
 - used to identify every CIB-tech device
 - This number is also electronically encoded in the device.
- **Probe A connector:**
 - micro match, plug in connector for connecting iButton probe A (see details below)
- **Probe B connector:**
 - micro match, plug in connector for connecting iButton probe B or REX button (see details below)
- Terminal block: voltage-free relay contacts
 1. Relay contact 1
 2. Relay contact 2

¹ See "CIB-tech installation manual" for details.



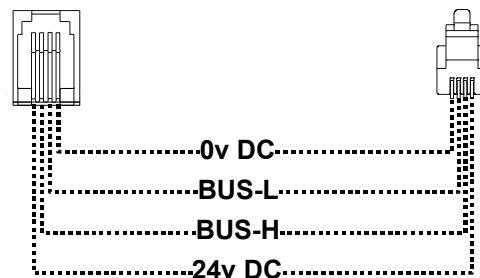
Wiring diagrams

Connection to CIB-tech system:

Use the CAP 2010 SR device's 4P4C modular jack connector to connect it to the CIB-tech systems bus. This device is meant to be the last element of a CIB-tech bus line.

If the device must be used as not the last element in the CIB-tech systems (chain-like) bus, a Bus Linker¹ can be used. In such situations the EOL jumper must be removed².

BUS connection



¹ IBS product BL-1C2RJ92RJ or compatible device can be used. See IBS product list for details.

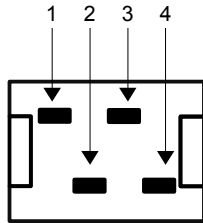
² See "CIB-tech installation manual" for details.

Connecting the input devices

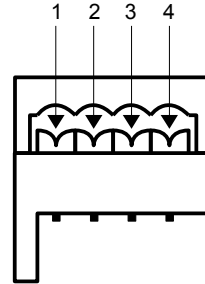
Micro match connectors are used for connecting the iButton probes.

Micro match connector pin-out:

Top view



Side view



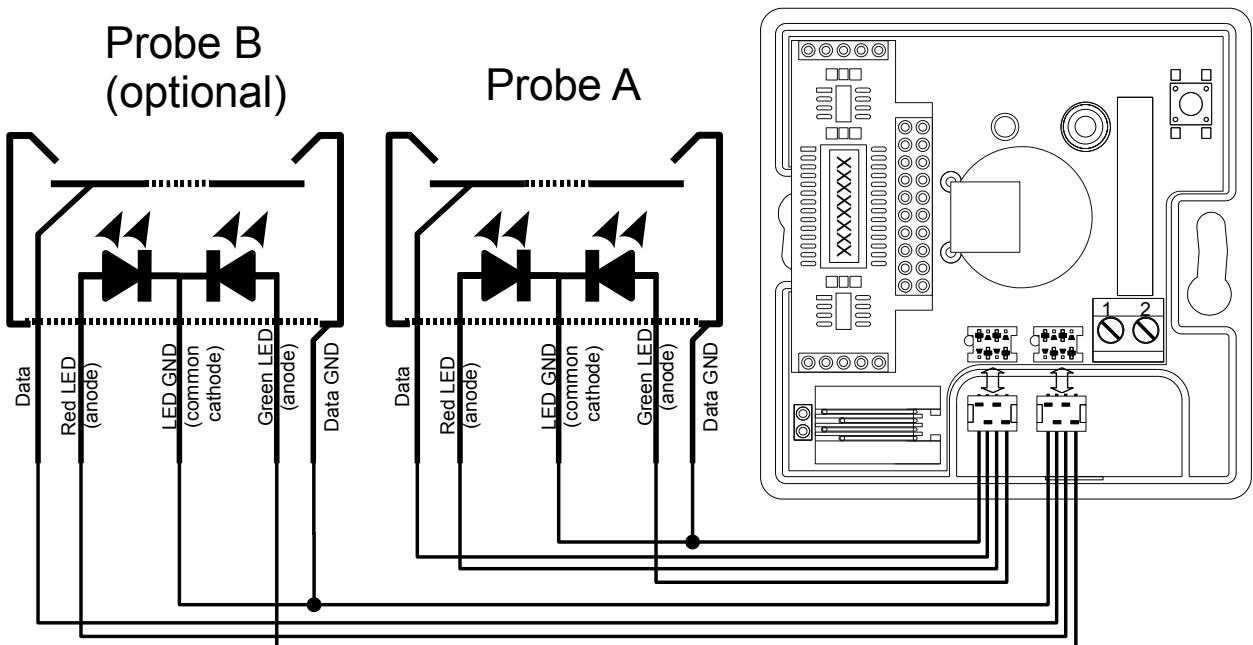
Micro match connector pin-out for Probe A:

1. Probe A - GND
2. Probe A - Data
3. Probe A - Red LED control
4. Probe A - Green LED control

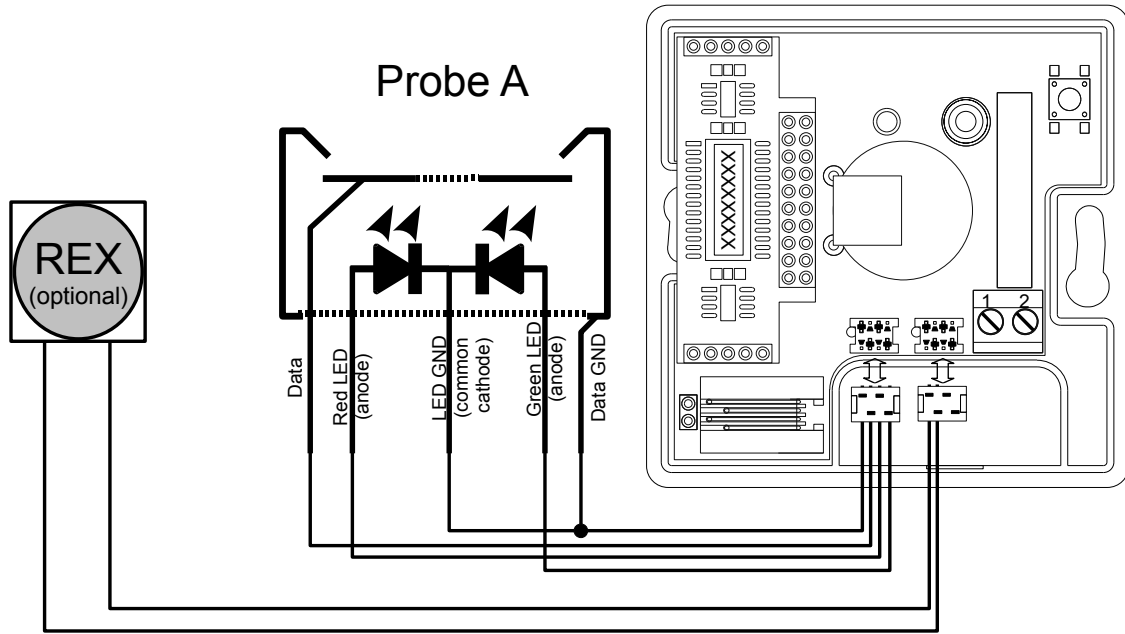
Micro match connector pin-out for Probe B:

1. Probe B - GND / REX input contact 1
2. Probe B - Data / REX input contact 2
3. Probe B - Red LED control
4. Probe B - Green LED control

Connection example for two iButton probes:



Connection example for one iButton probe and REX button:

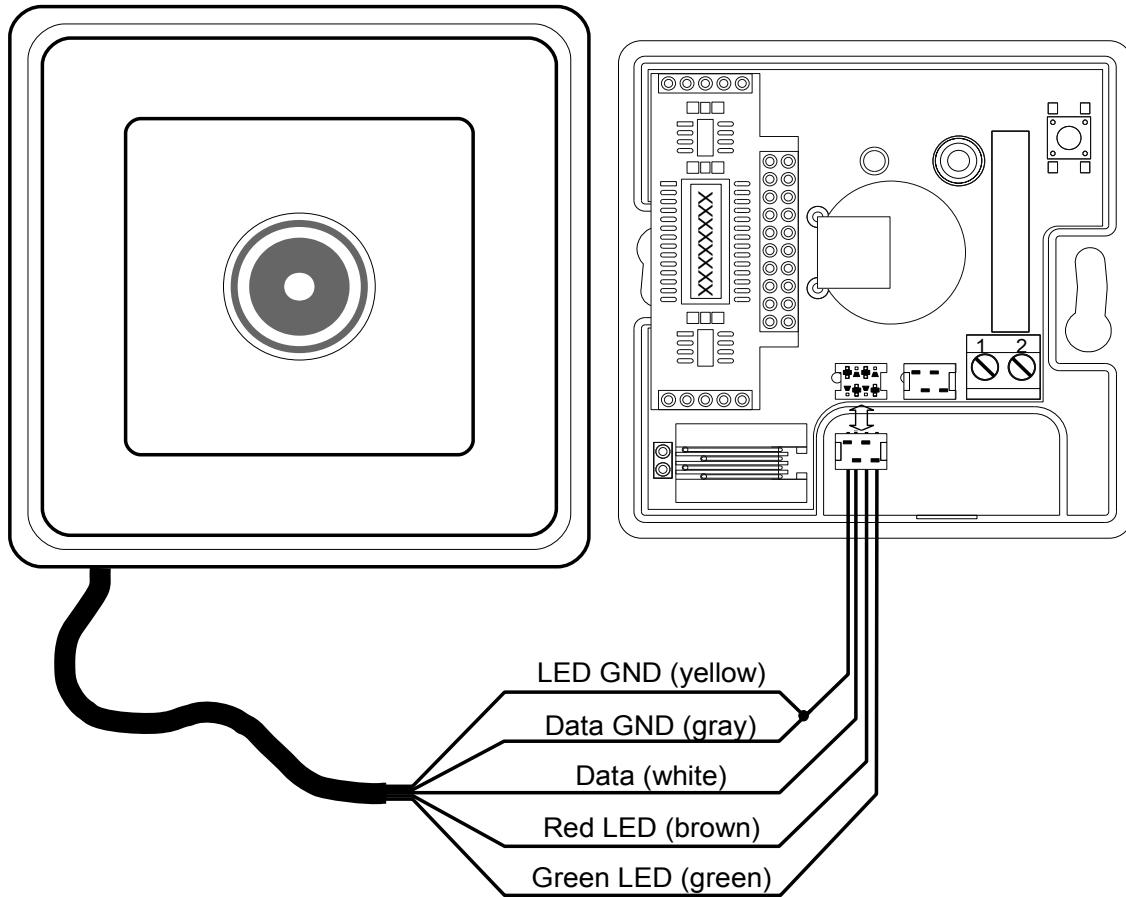


NOTE: Most iButton probes don't have built-in LEDs. For these readers the LED control output of the CAP 2010 SR is not connected.

We recommend the use of iButton probes with built-in common cathode, bi-color LED.

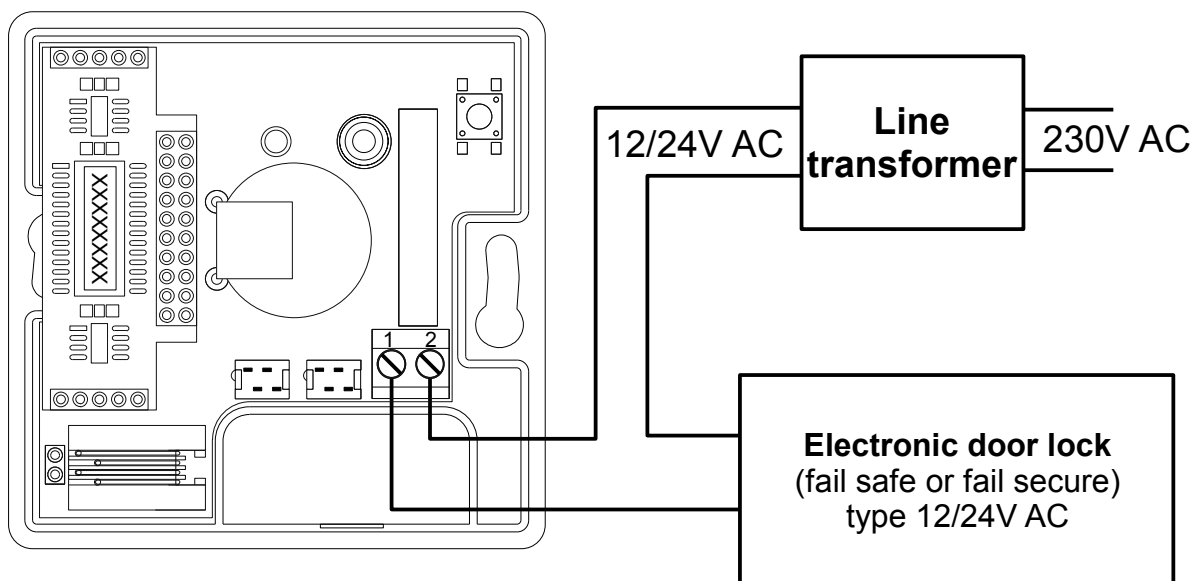
Due to the nature of the micro match connectors, it is necessary to connect all the GND signals in an external node and connect only one GND wire to the micro match connector of the CAP 2010 SR.

Connection example for one CZ-2 M12-L flush mounted iButton probe:

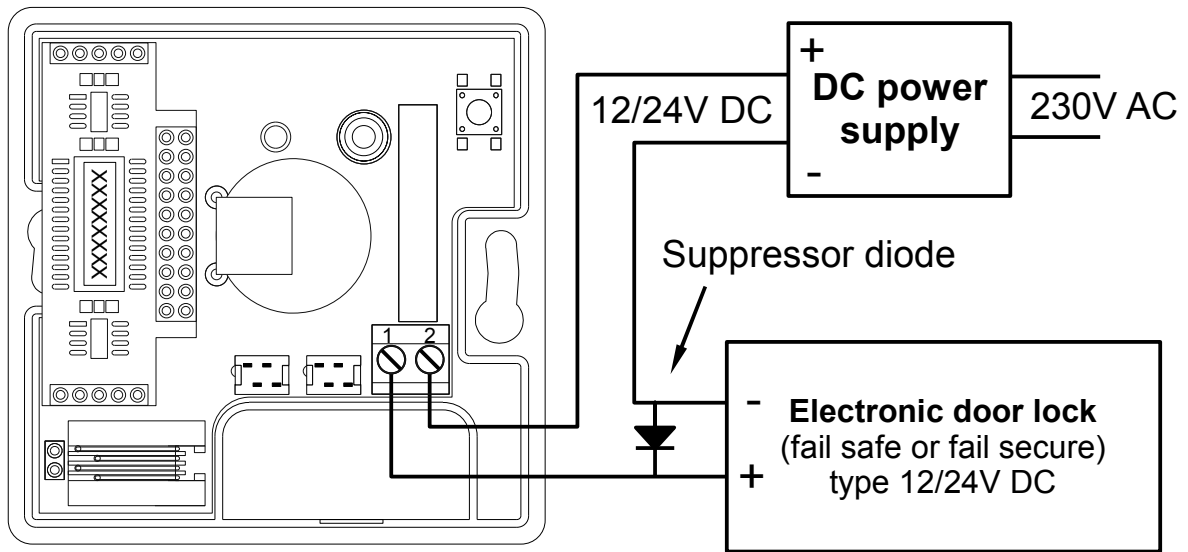


Connecting the electronic door lock

Connection example for AC-type electronic door lock:



Connection example for DC-type electronic door lock:



NOTE: an external suppressor diode (ex. 1N4001) is required.

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