# AXIS A9210 Network I/O Relay Module
# AXIS A9910 I/O Relay Expansion Module



**Module 1 (AXIS A9210) labels:**
PoE+ · 12V · 24V
GND +12V — DC IN
GND NO COM NC — RELAY
GND I1 GND I2 — INPUT 1
GND +12V A B — RS485
O 1 O 2 I3 O 3 — I/O
GND +12V I/O 1 I/O 2 — I/O
STAT NET PWR RELAY
GND I4 — GND I5 — INPUT 2
CLASS 2 WIRING ONLY

**Module 2 (AXIS A9910) labels:**
STAT · EXP NET · PWR · RS485 OC · RELAY OC
+12V · COM · +24V
GND +12V — DC IN
GND NO COM NC — RELAY 1
GND NO COM NC — RELAY 2
GND NO COM NC — RELAY 3
GND NO COM NC — RELAY 4
GND +12V A B — RS485 1
GND +12V A B — RS485 2
ON · OFF
GND A B — EXP IN
NC A B — EXP OUT
GND +12V I/O 1 I/O 2 I/O 3 I/O 4 — AUX I/O 1
GND +12V I/O 5 I/O 6 I/O 7 I/O 8 — AUX I/O 2
GND +12V A B — RS485 3
GND +12V A B — RS485 4
CLASS 2 WIRING ONLY

# Electrical wiring drawings

# Power input and budget
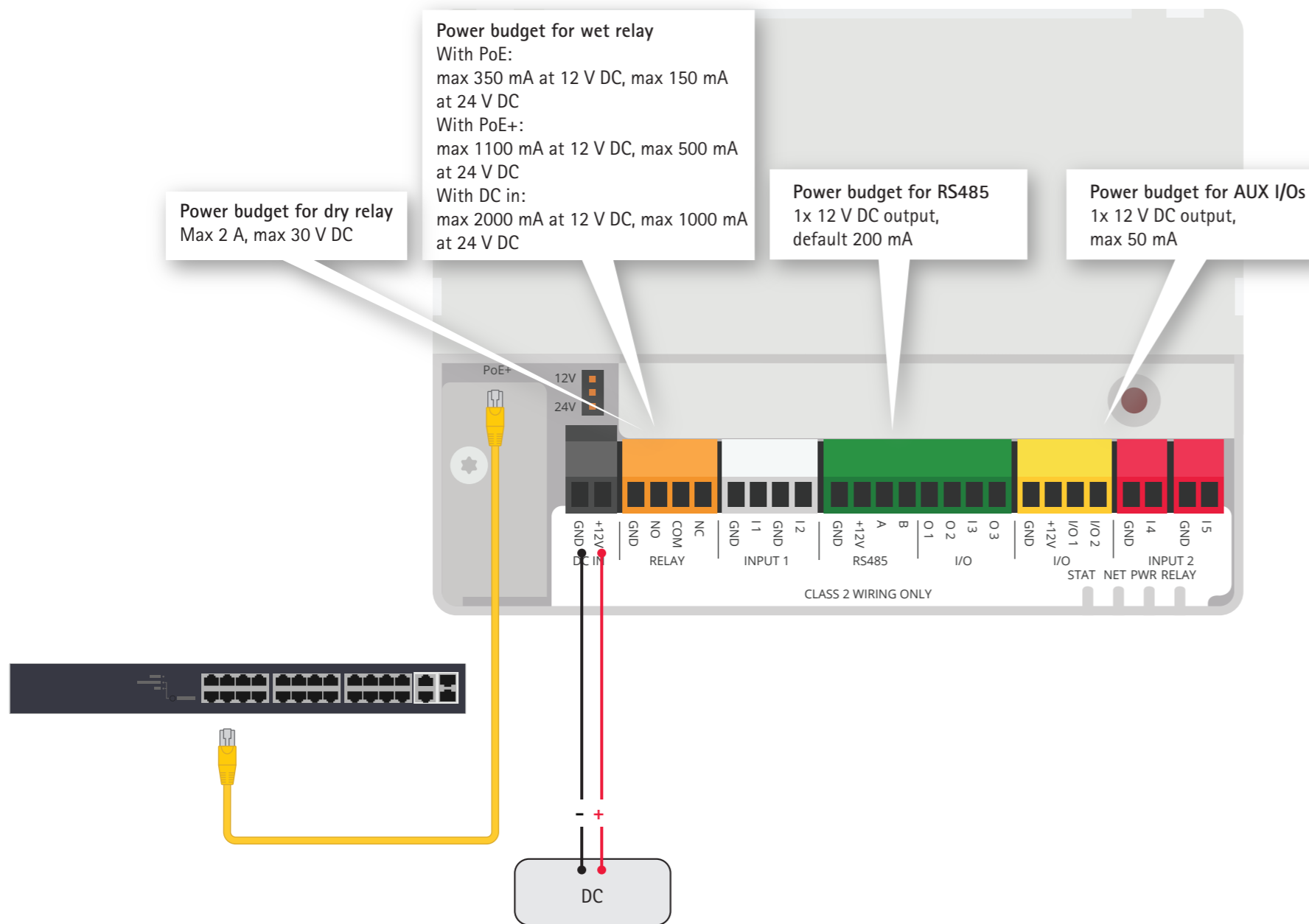
### Requirements

> Wire size for connectors:
> > CSA: AWG 28–16, CUL/UL: AWG 30–14

> DC power:
> > AWG 18-16 , qualified for up to 3 m (10 ft)

> Relay:
> > AWG 18-16, qualified for up to 30 m (98 ft)

> Ethernet and PoE:
> > STP CAT 5e or higher, qualified for up to 100 m (328 ft)

### Power priotity

> When PoE and DC are both connected before the device is powered, PoE is used for powering.

> PoE and DC are both connected and PoE is currently powering. When PoE is lost, the device uses DC for powering without restart.

> PoE and DC are both connectedand DC is currently powering. When DC is lost, the device restarts and uses PoE for powering.

> When DC is used during startup and PoE is connected after the device has started, DC is used for powering.

> When PoE is used during startup and DC is connected after the device has started, PoE is used for powering.



**Power budget for wet relay**
With PoE:
max 350 mA at 12 V DC, max 150 mA at 24 V DC
With PoE+:
max 1100 mA at 12 V DC, max 500 mA at 24 V DC
With DC in:
max 2000 mA at 12 V DC, max 1000 mA at 24 V DC

**Power budget for dry relay**
Max 2 A, max 30 V DC

**Power budget for RS485**
1x 12 V DC output,
default 200 mA

**Power budget for AUX I/Os**
1x 12 V DC output,
max 50 mA

CLASS 2 WIRING ONLY

Adhere to local life safety code in all installations.
Illustration does not depict door monitors, REX devices, locks, controller power supply, network switch, battery backup and UPS.
Ensure that your power supplies and relays are rated for the intended purposes.
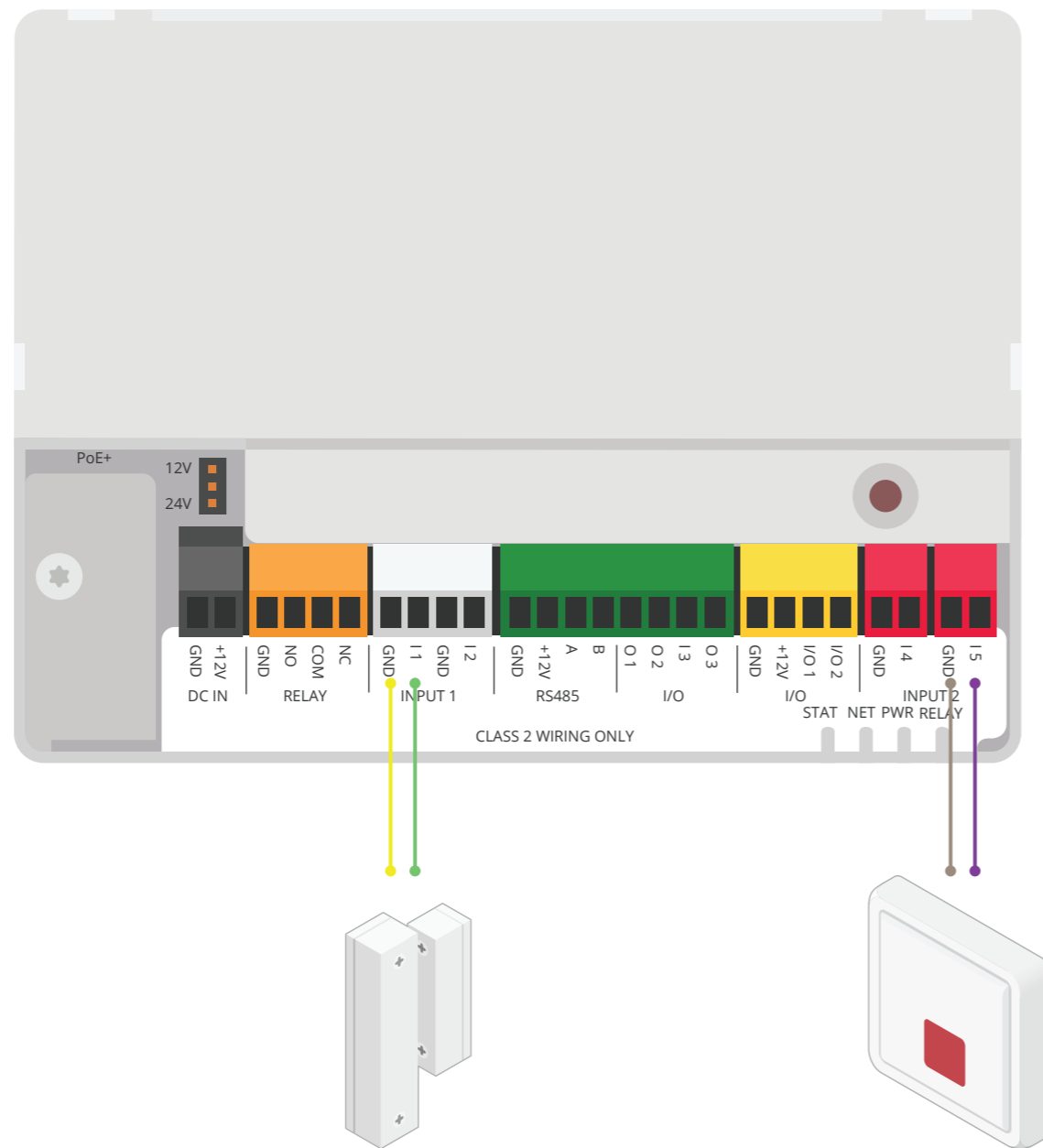This is just an example.

# Input 1 and 2

## Application

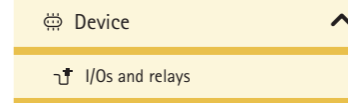Please refer to product datasheet for details and the device's web interface for power states

## Requirements

I/Os as inputs: AWG 24, qualified for up to 200 m (656 ft)

## Configuration in the device´s web interface

1. Go to Device > I/Os and relays

   ⊟ Device ⌄

   ⬚ I/Os and relays

2. Configure input port for door postion sensor

   **AXIS A9210**    AXIS A9910

   I/O´s

   ● I1 (I1) ⌃
   Input

   I1

   Name

   Door Position Sensor

   Direction

   ⊡→

   Normal state

   Current state: Circut open

   Supervised ⬤○

3. Configure input port for alarm button

   ● Alarm Button (I5) ⌃
   Input

   I5

   Name

   Alarm Button

   Direction

   ⊡→

   Normal state

   Current state: Circut open

   Supervised ⬤○



PoE+ | 12V | 24V

GND +12V | GND NO COM NC | GND I1 GND I2 | GND +12V B A O1 O2 I3 O3 | GND +12V I/O1 I/O2 | GND I4 GND I5
DC IN | RELAY | INPUT 1 | RS485 | I/O | I/O | INPUT 2
 | | | | STAT NET PWR RELAY

CLASS 2 WIRING ONLY

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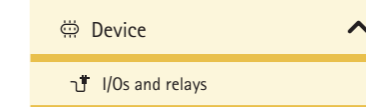This is just an example.

# Supervised input
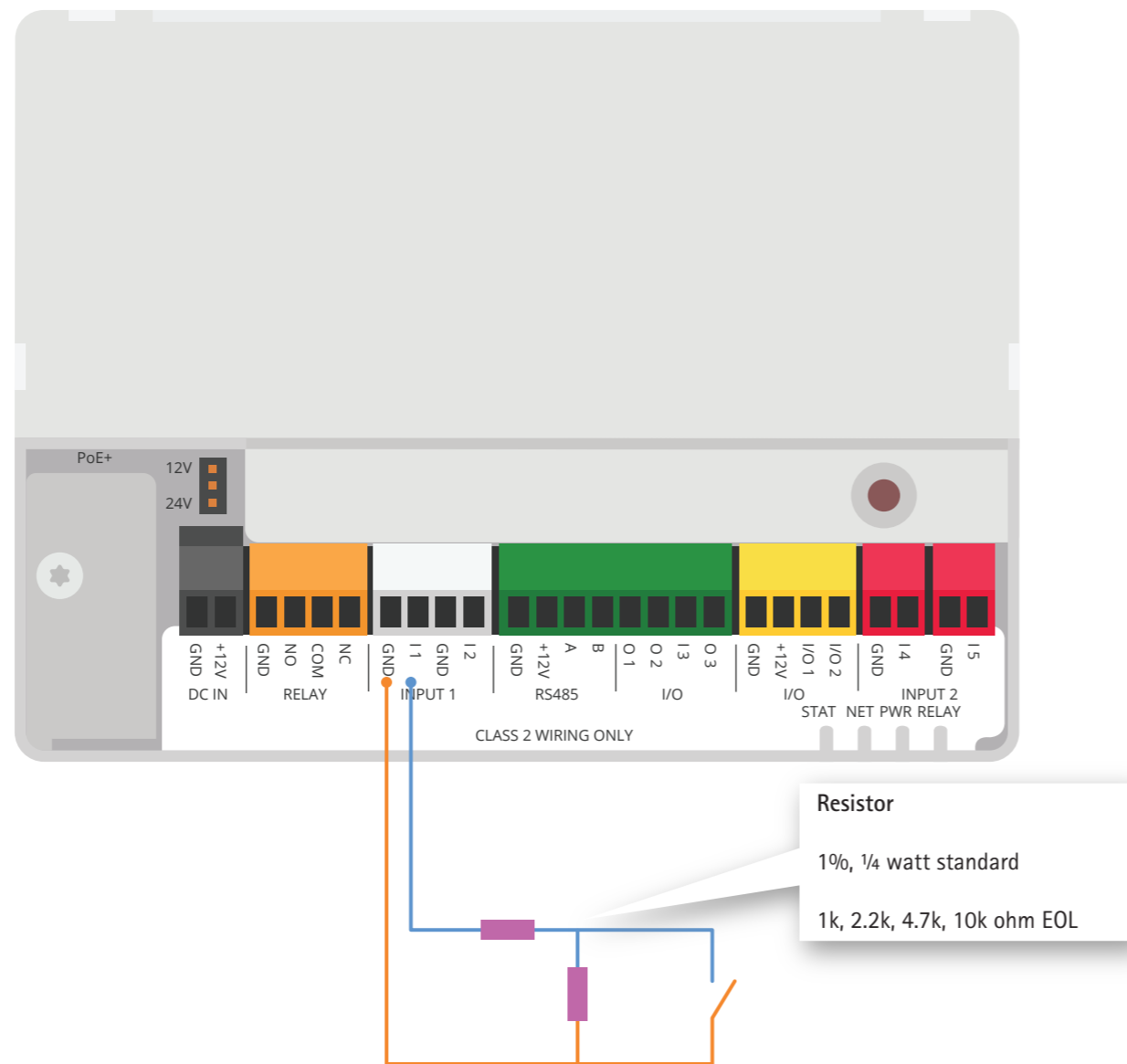
## Requirements

I/Os as inputs (applied to all inputs; IN 1–5, AUX IO1 and IO2):
AWG 24, qualified for up to 200 m (656 ft)

NOTE: The EOL resistors are installed at the end of the circuit, as close to the sensor as possible

## Configuration in the device´s web interface

1. Go to Device > I/Os and relays

   ⚙ Device  ⌃

   ⏻ I/Os and relays

2. Configure input port for supervised input

   AXIS A9210    AXIS A9910

   I/O´s

   ● Door Postion Sensor
   Supervised Input

   I1

   Name

   Door Position Sensor

   Direction

   →

   Normal state

   Current state: Circut cut

   Supervised  ⬤

   ⓘ In API's, supervised input ports work differently frrom supervised I/O ports. For more information, see "Supervised I/O in VAPIX® Library.

   ◉ Parallel-first connection with a 22kΩ parallel resistor and a 4.7kΩ serial resistor

   ◉ Serial first connection



**Resistor**

1%, ¼ watt standard

1k, 2.2k, 4.7k, 10k ohm EOL

Labels on terminal blocks:
+12V GND | GND NO COM NC | GND I1 GND I2 | GND +12V A B O1 O2 I3 O3 | GND +12V I/O1 I/O2 | GND I4 GND I5

DC IN | RELAY | INPUT 1 | RS485 | I/O | STAT | NET PWR RELAY

PoE+  12V  24V

CLASS 2 WIRING ONLY

INPUT 2

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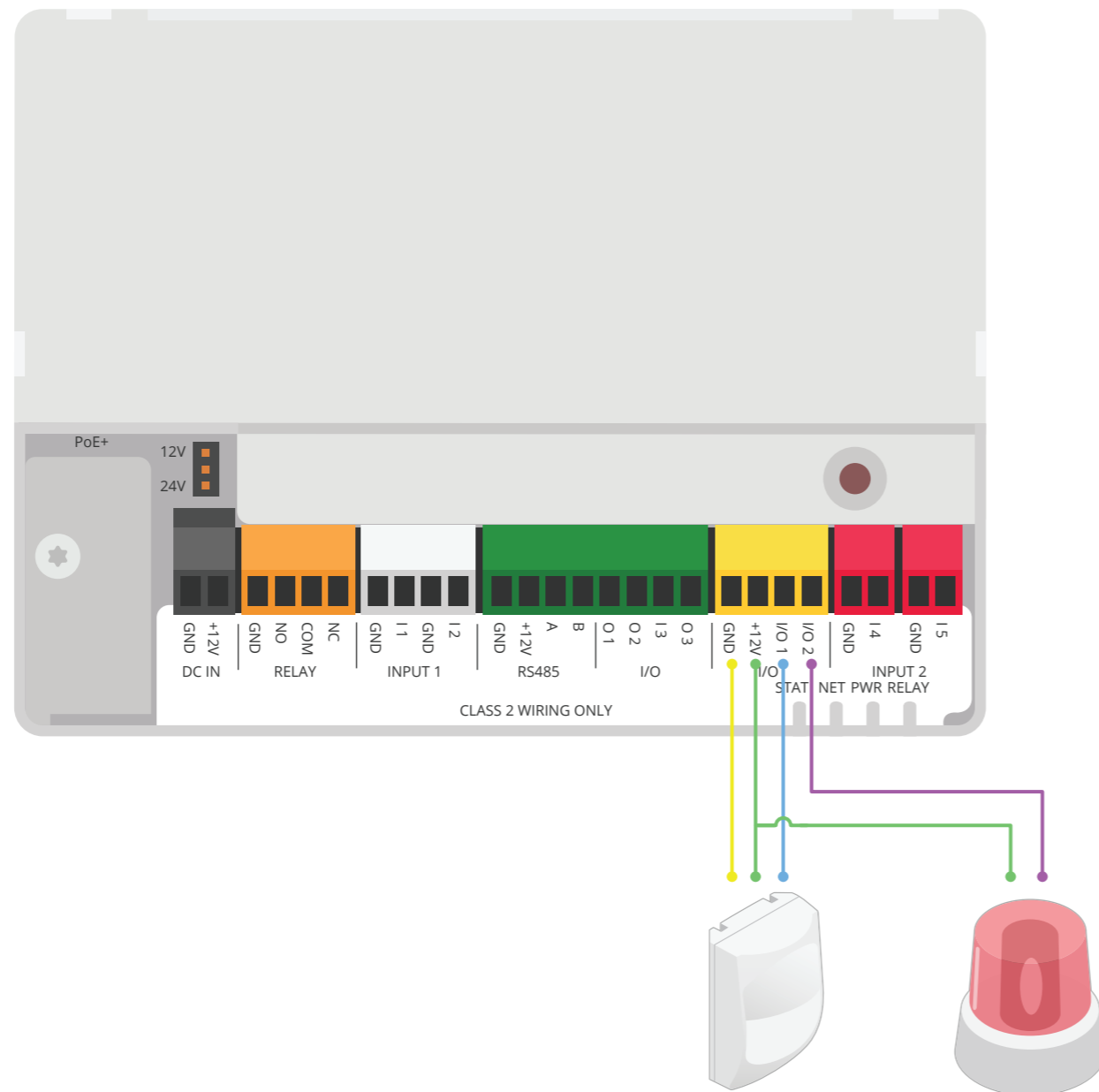This is just an example.

# Configurable Aux I/O

## Application

Please refer to product datasheet for details and the device's web interface for power states
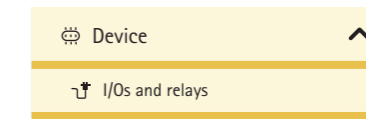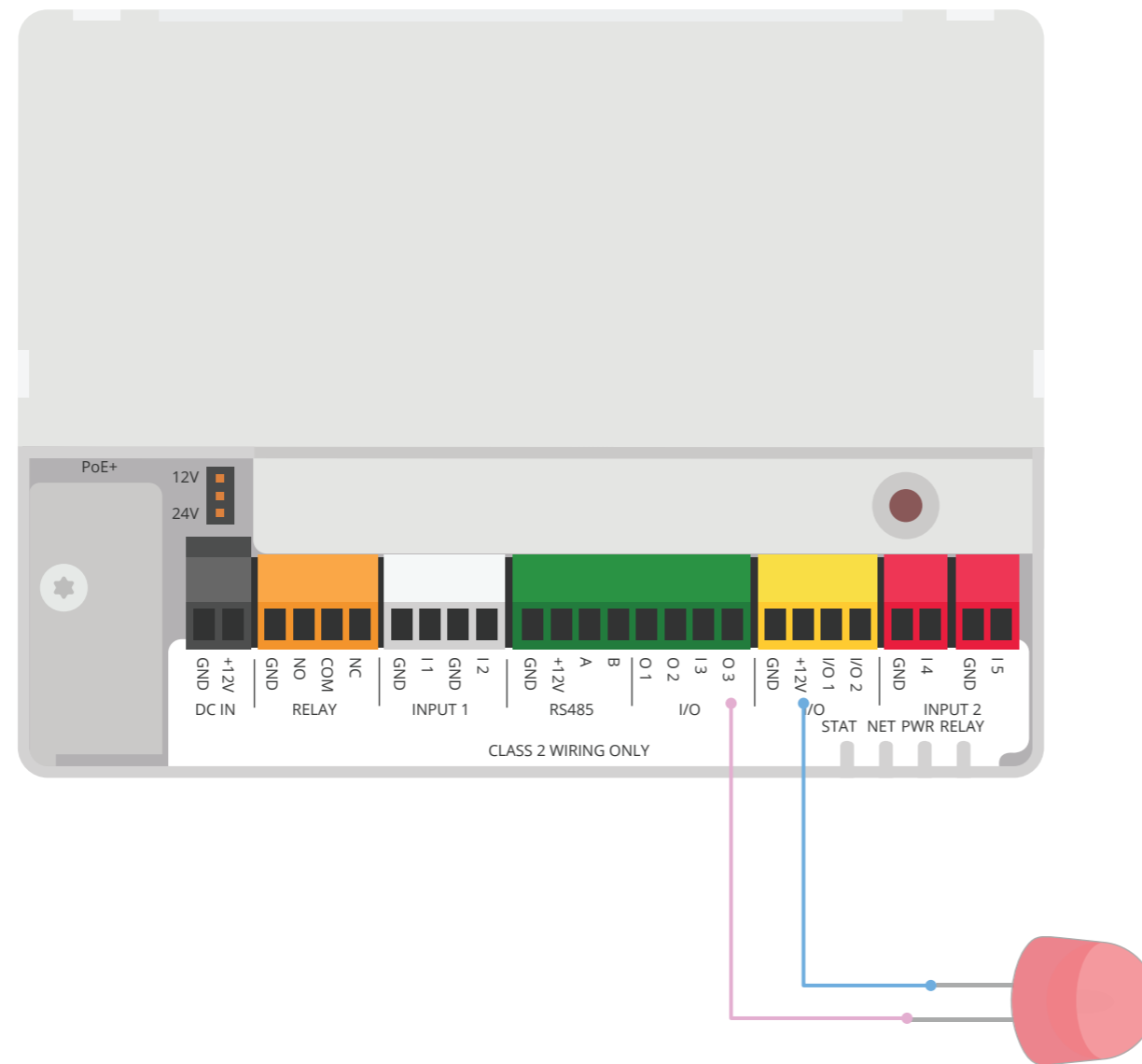
## Requirements

I/Os as inputs: AWG 24, qualified for up to 200 m (656 ft)

Power out I/O: 1x 12 V DC output, max 50 mA



## Configuration in the device's web interface

1.  Go to Device > I/Os and relays

    Device ⌄

    I/Os and relays

2.  Configure I/O for PIR/REX

    **AXIS A9210**    AXIS A9910

    I/O´s

    ● PIR / REX (I/O 1) ⌃
    Input

    Name

    PIR / REX

    Direction

    Normal state

    Current state: Circut open

    Supervised ◯

3.  Configure I/O for alarm button

    ● Alarm Button (I/O 2) ⌃
    Output

    Alarm ◉

    Name

    Alarm

    Direction

    Normal state

# Output wiring

## Application

Please refer to product datasheet for details and the device's web interface for power states
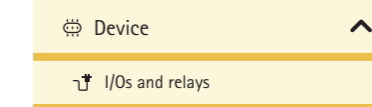
## Requirements

I/Os as output: AWG 24

Cable length varies depending on the specification of connected peripheral

Power out I/O: 1x 12 V DC output, max 50 mA

## Configuration in the device´s web interface

1. Go to Device > I/Os and relays

   ⊞ Device ⌃

   ⬑ I/Os and relays

2. Configure output for LED

   **AXIS A9210**    AXIS A9910

   I/O´s

   ● LED (O 3) ⌃
   Output

   LED ⬤

   Name

   LED

   Direction

   ⊣◯

   Normal state

   ⤙⬩    ⬩—⬩

# Relay wiring
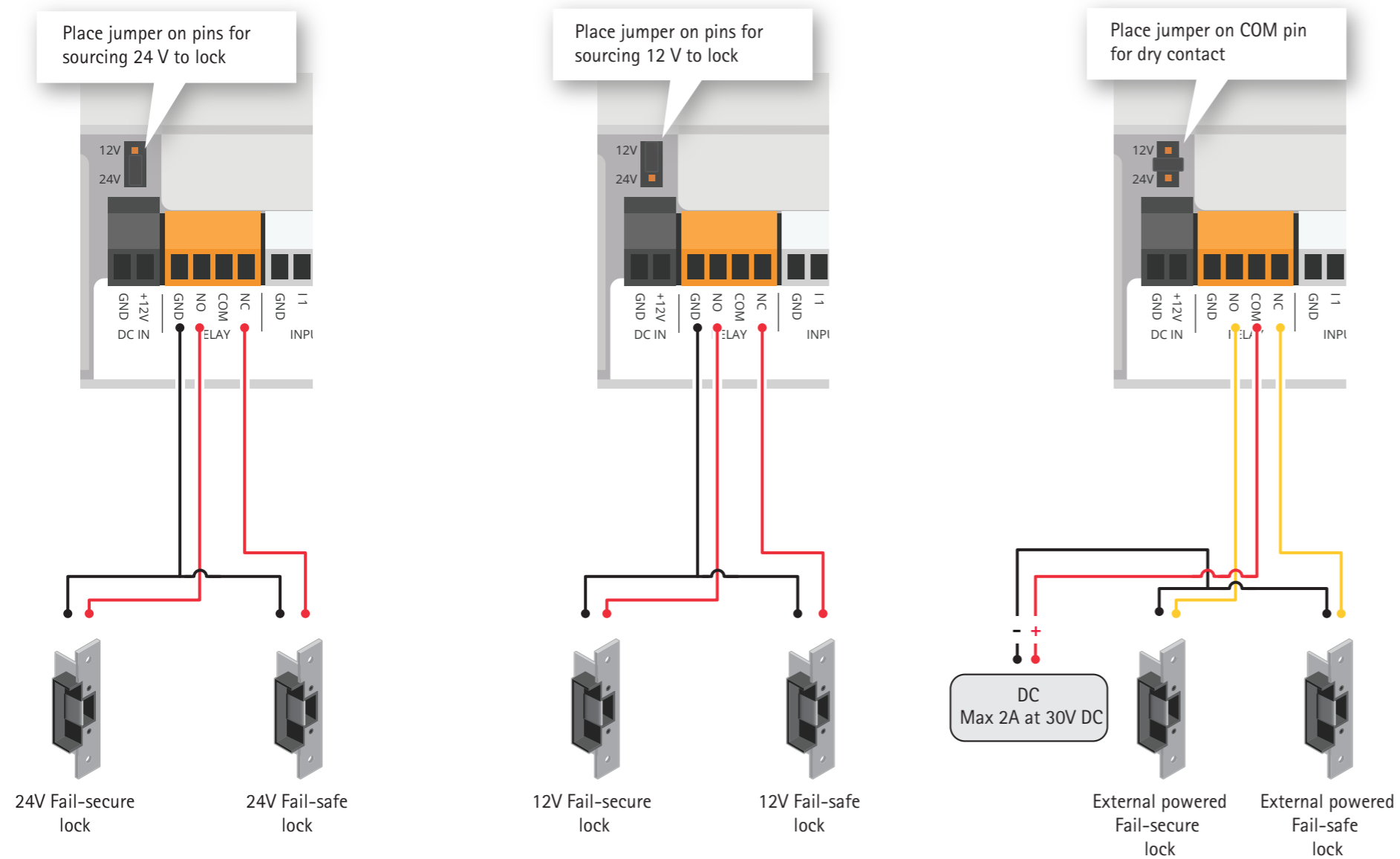
## Requirements

Relay: AWG 18-16, qualified for up to 30 m (98 ft)

## Configuration in the device´s web interface

1. Go to Device > I/Os and relays

   ⚙ Device  ︿

   ⧉ I/Os and relays

2. Configure relays

   Relays

   ● Lock (Relay)  ︿

   Relay 0  ⬤

   Name

   Lock

   Direction

   ⟻



Place jumper on pins for sourcing 24 V to lock

Place jumper on pins for sourcing 12 V to lock

Place jumper on COM pin for dry contact

12V
24V

GND | +12V | GND | NO | COM | NC | GND | I 1
DC IN | RELAY | INPUT

DC
Max 2A at 30V DC

24V Fail-secure lock

24V Fail-safe lock

12V Fail-secure lock

12V Fail-safe lock

External powered Fail-secure lock

External powered Fail-safe lock

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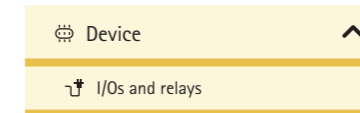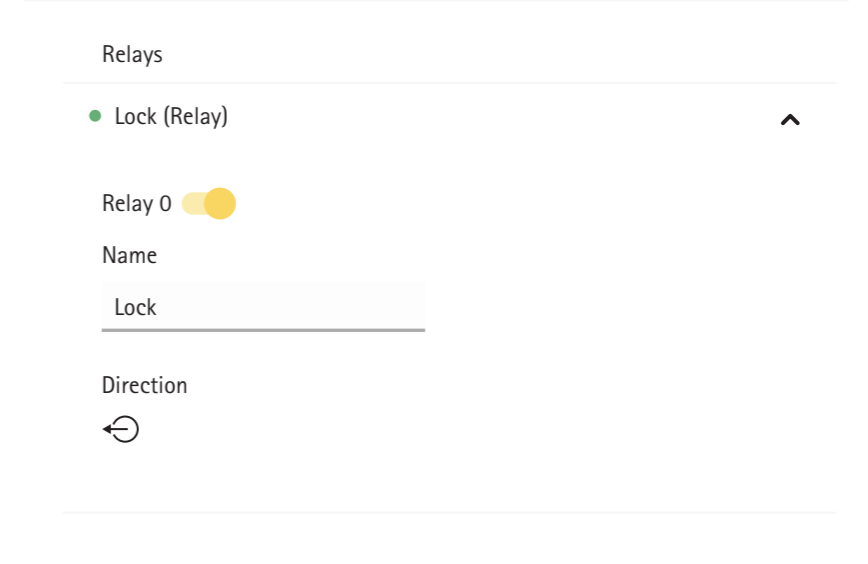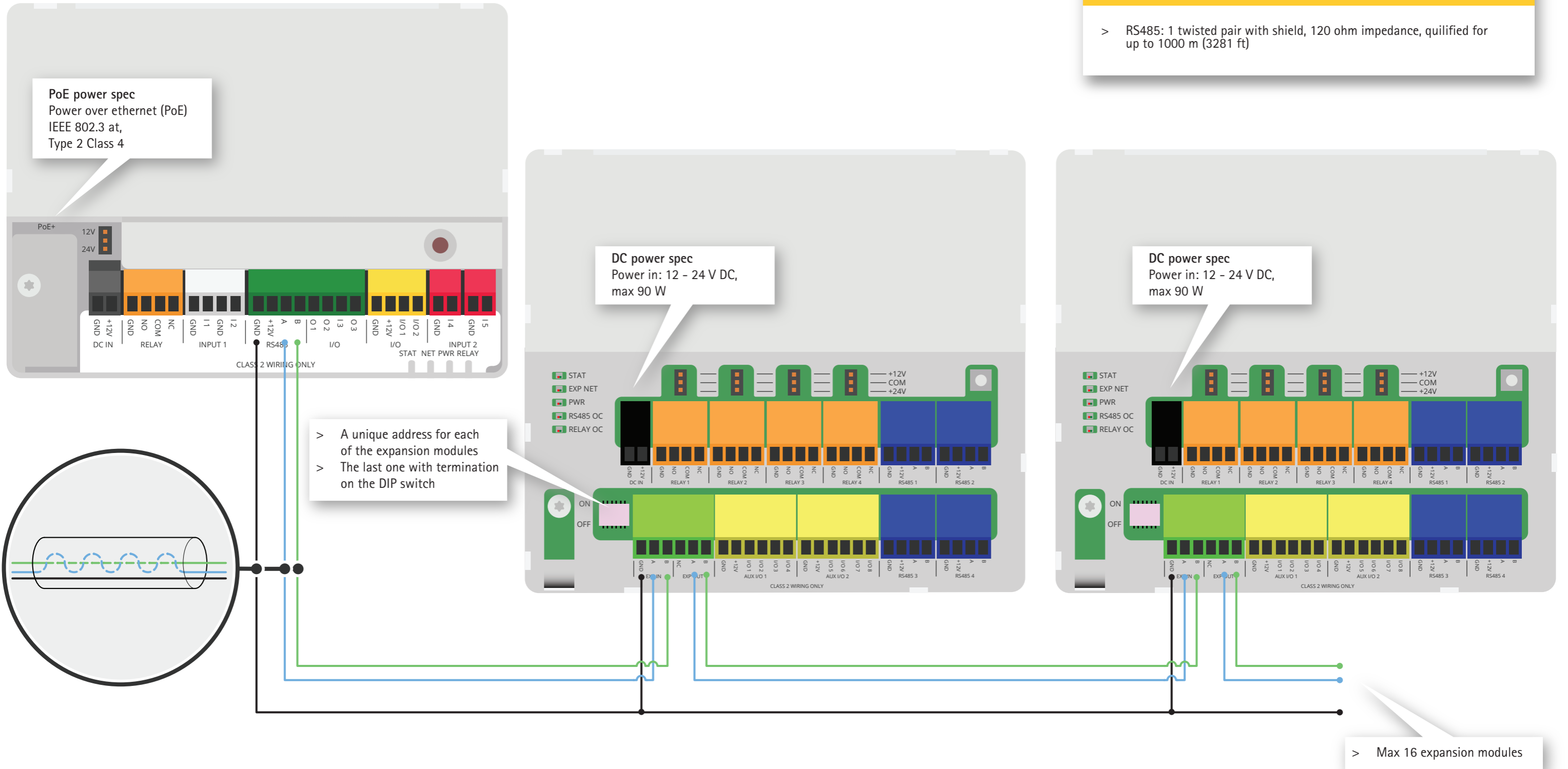This is just an example.

# Expansion connection 1 - separated power

**PoE power spec**
Power over ethernet (PoE)
IEEE 802.3 at,
Type 2 Class 4

**DC power spec**
Power in: 12 – 24 V DC,
max 90 W

**DC power spec**
Power in: 12 – 24 V DC,
max 90 W

> A unique address for each of the expansion modules
> The last one with termination on the DIP switch

> Max 16 expansion modules

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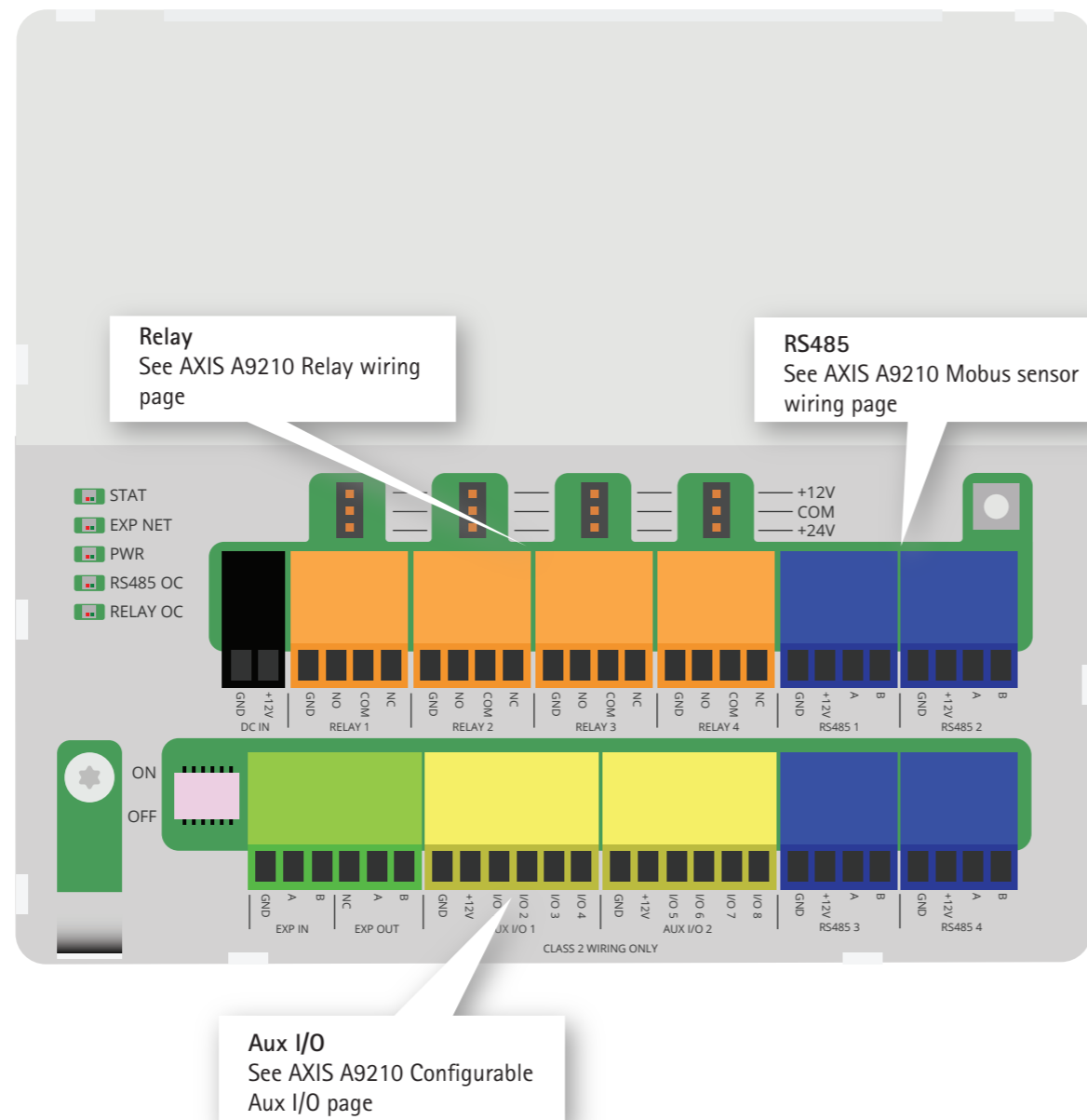This is just an example.

# Expansion module - AXIS A9910

## Requirements

> Wire size for connectors:
>   > CSA: AWG 28 – 16
>   > CUL/UL. AWG 30 – 14

> DC power: AWG 18 – 16, qualified for up to 3 m (10 ft)

> Relay: AWG 18 – 16, qualified for up to 30 m (98 ft)

> Ethernet and PoE: STP CAT 5e or higher, qualified for up to 100 m (328 ft)

> I/Os as input: AWG 24, qualified for up to 200 m (656 ft)

> RS485: 1 twisted pair with shield, 120 ohm impedance, quilified for up to 1000 m (3281 ft)



**Relay**
See AXIS A9210 Relay wiring page

**RS485**
See AXIS A9210 Mobus sensor wiring page

**Aux I/O**
See AXIS A9210 Configurable Aux I/O page

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