



Grenton

Installation guidelines

2024



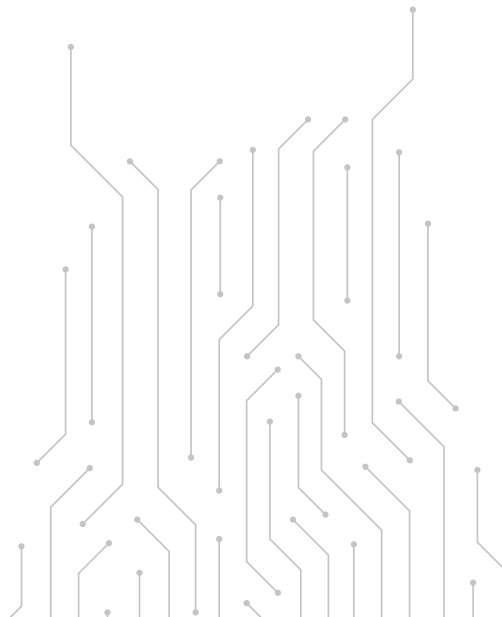
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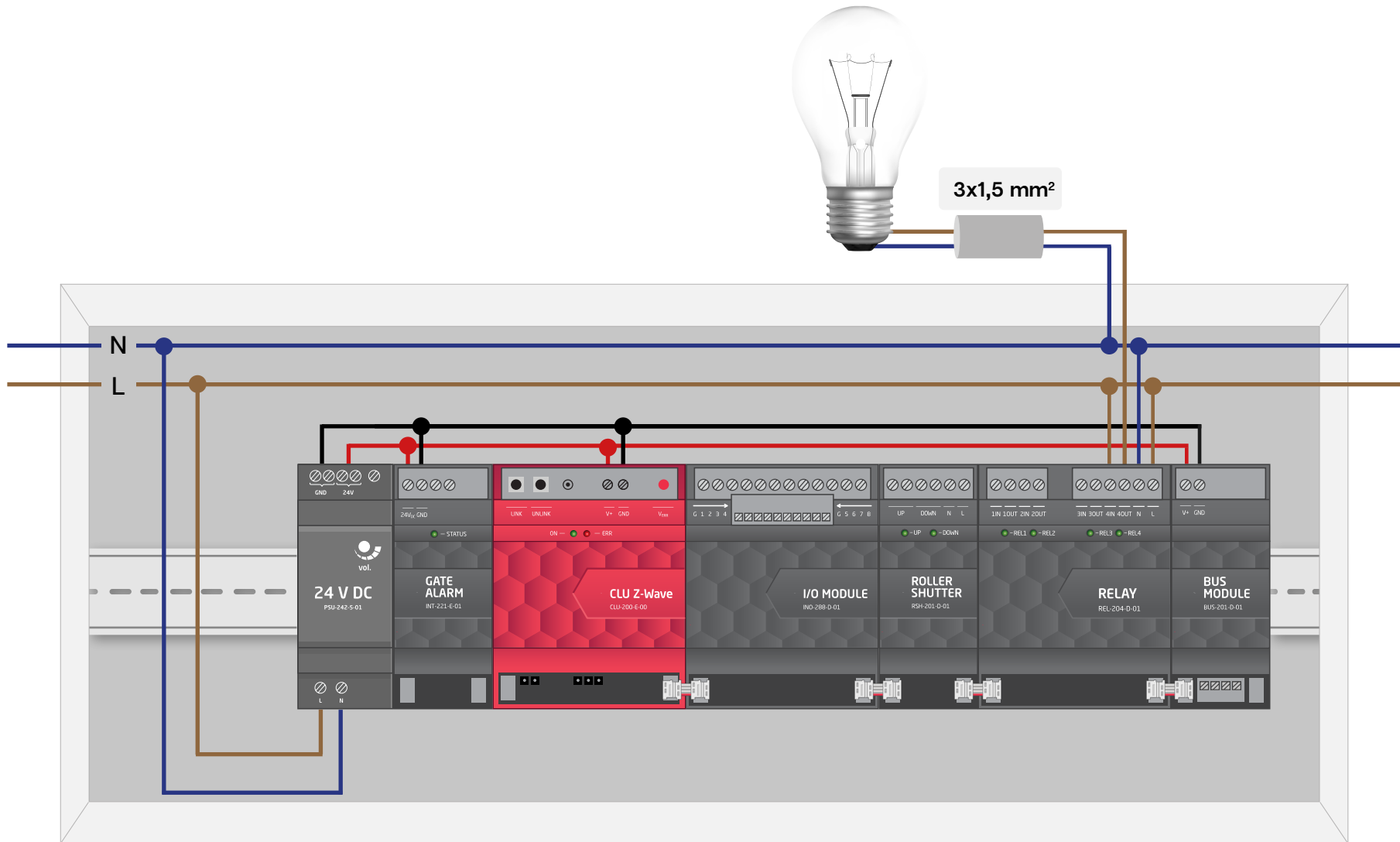
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Building wiring



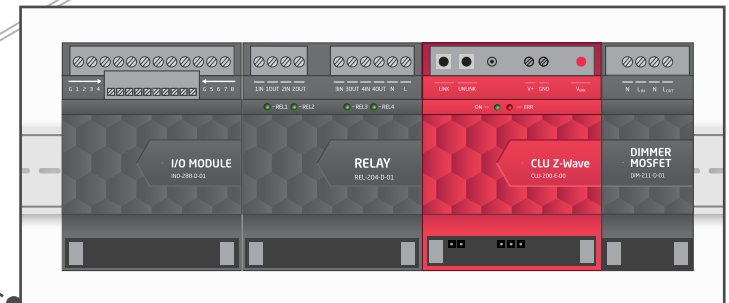
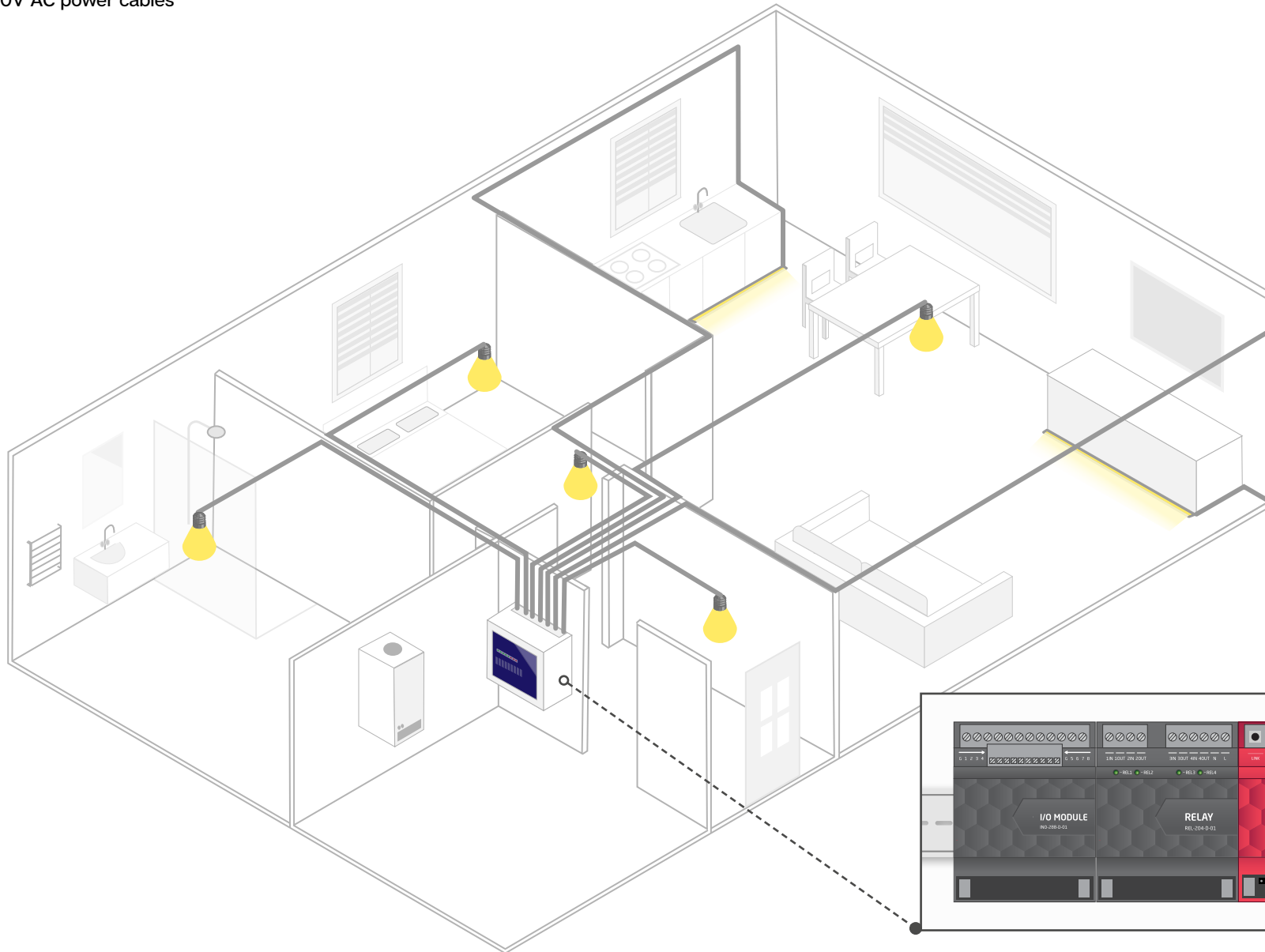
Electrical installation - 230V AC lighting

230V AC power cables




Electrical installation - 230V AC lighting

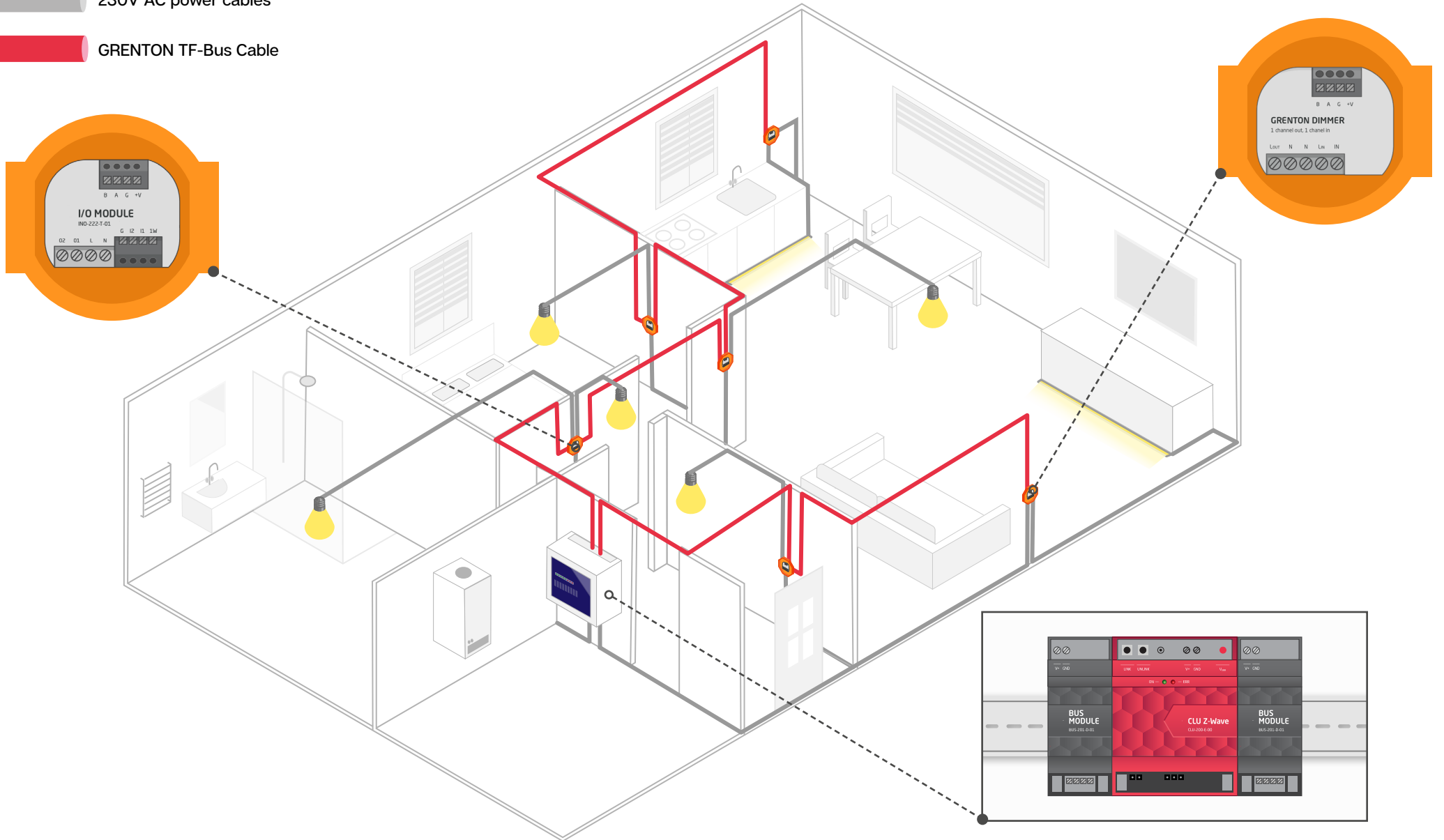
230V AC power cables



Electrical installation - 230V AC lighting

 230V AC power cables

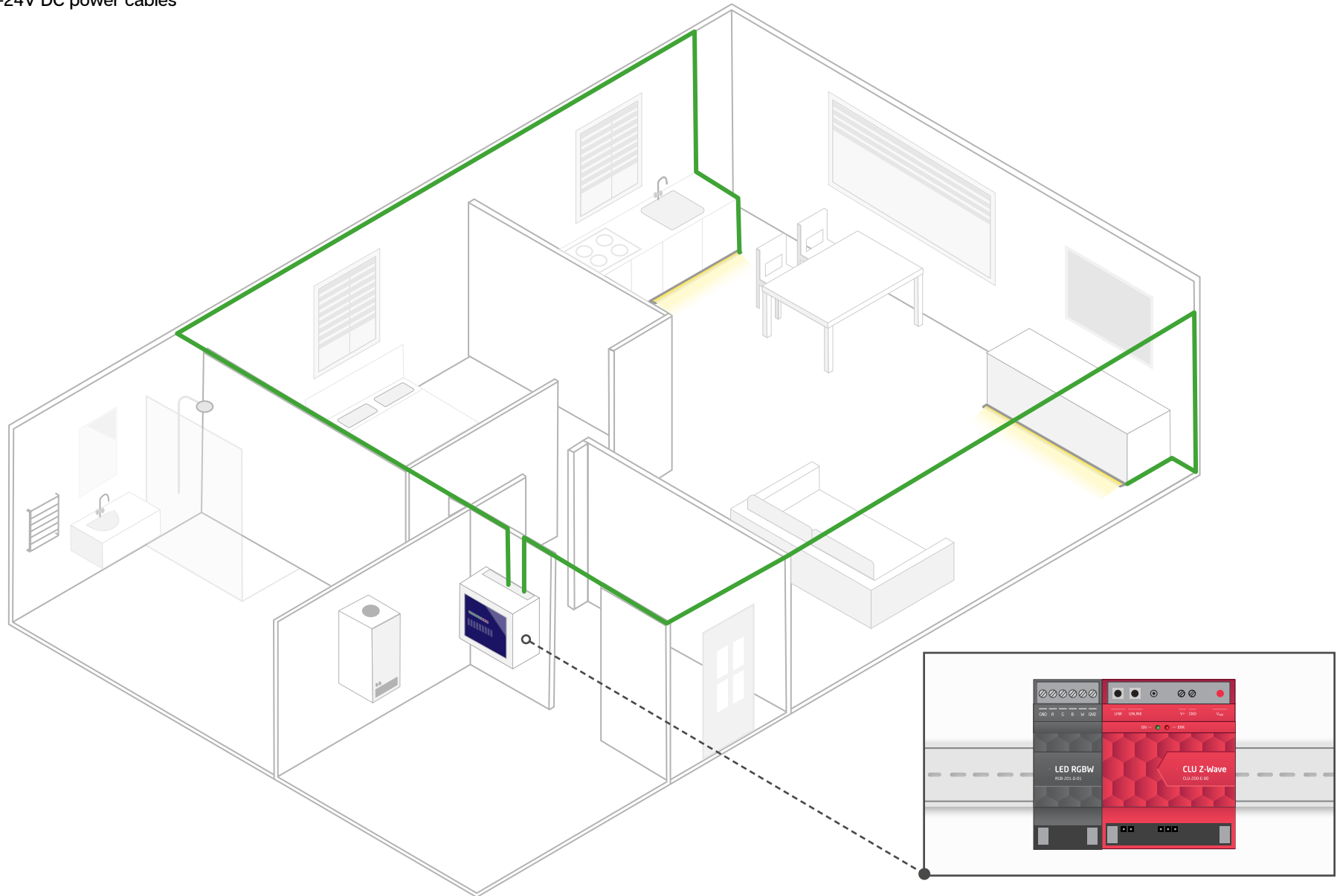
 GRENTON TF-Bus Cable



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Electrical installation - 12-24V DC lighting

12-24V DC power cables




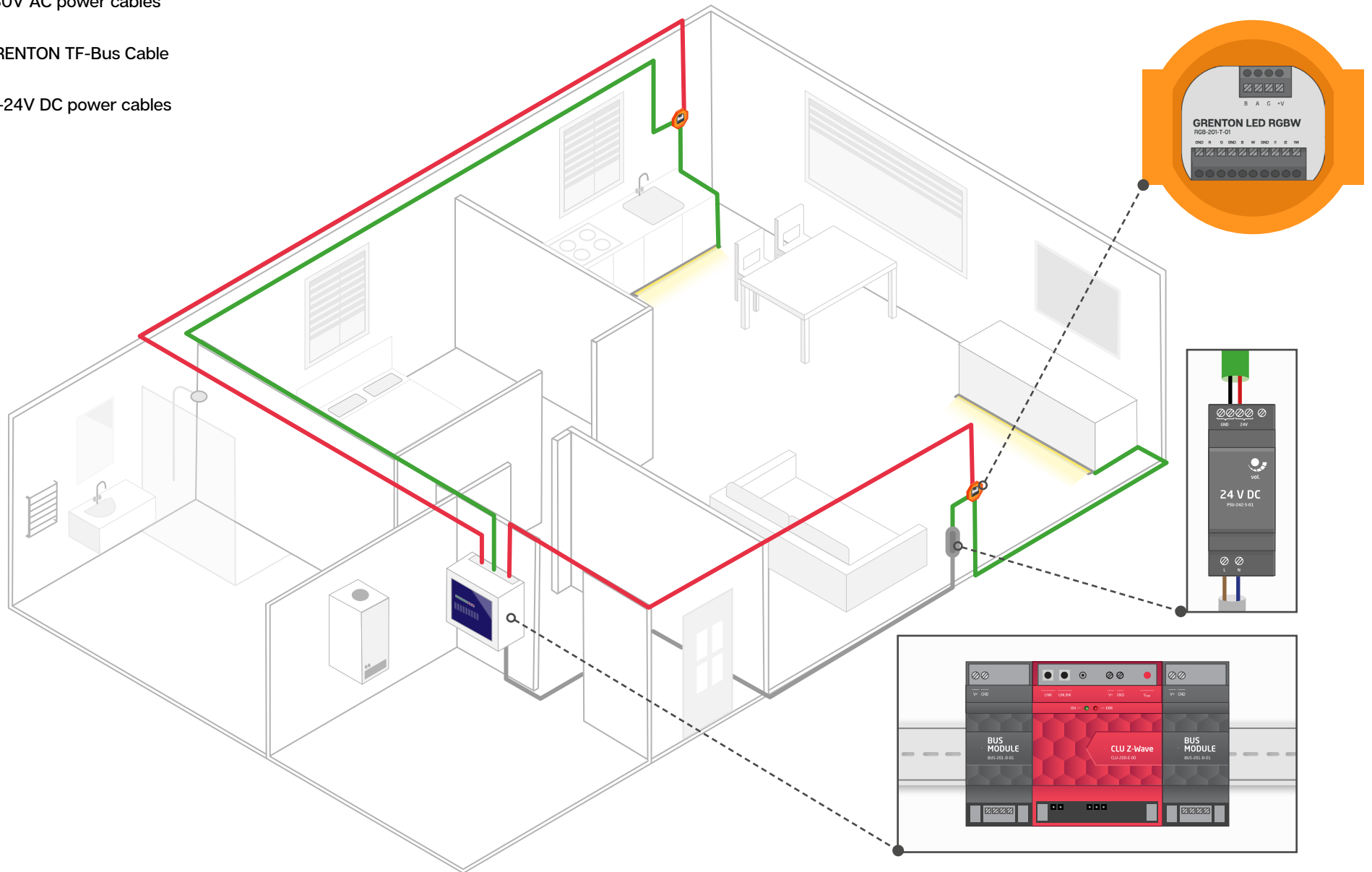
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Electrical installation - 12-24V DC lighting

 230V AC power cables

 GRENTON TF-Bus Cable

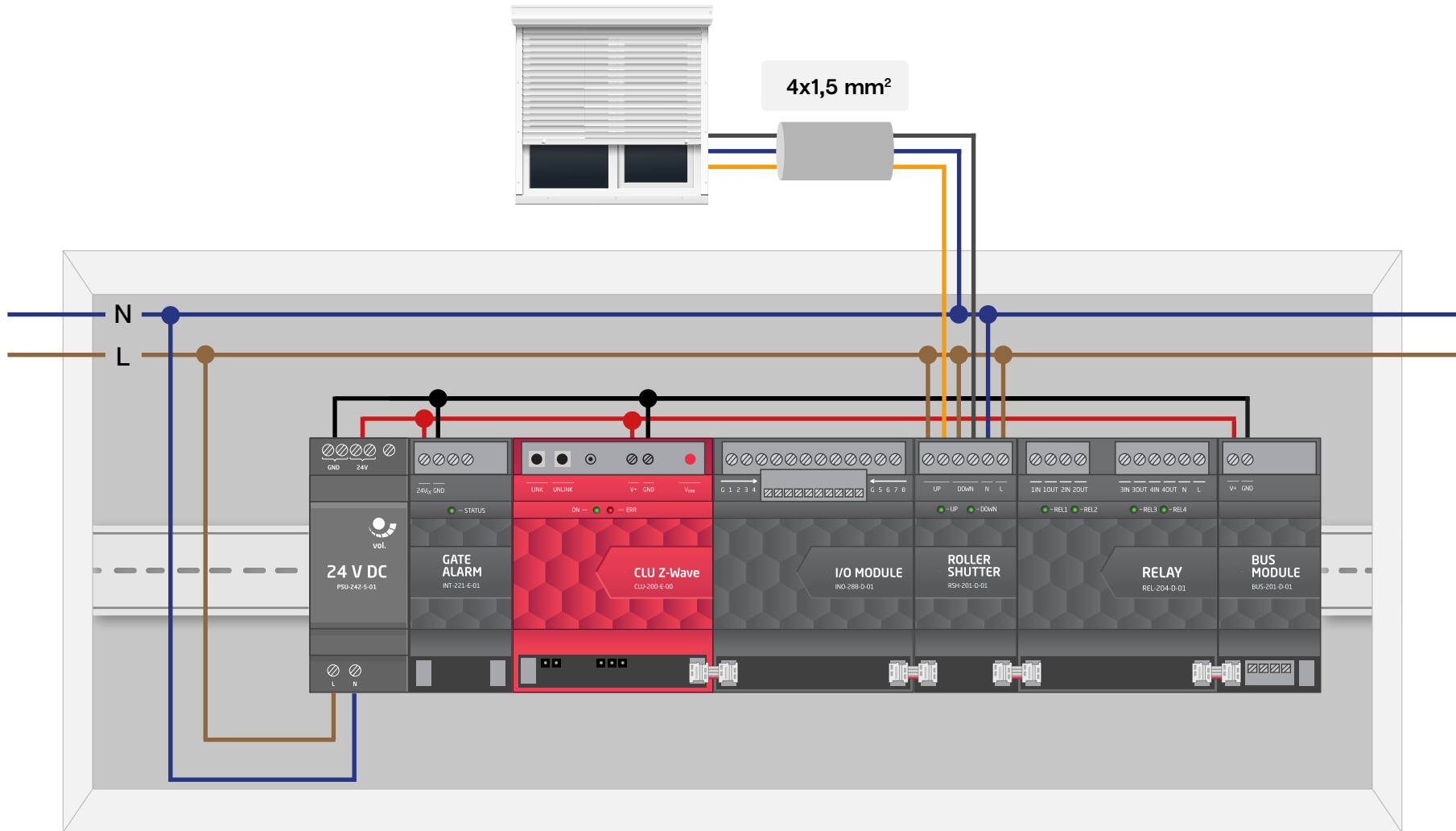
 12-24V DC power cables



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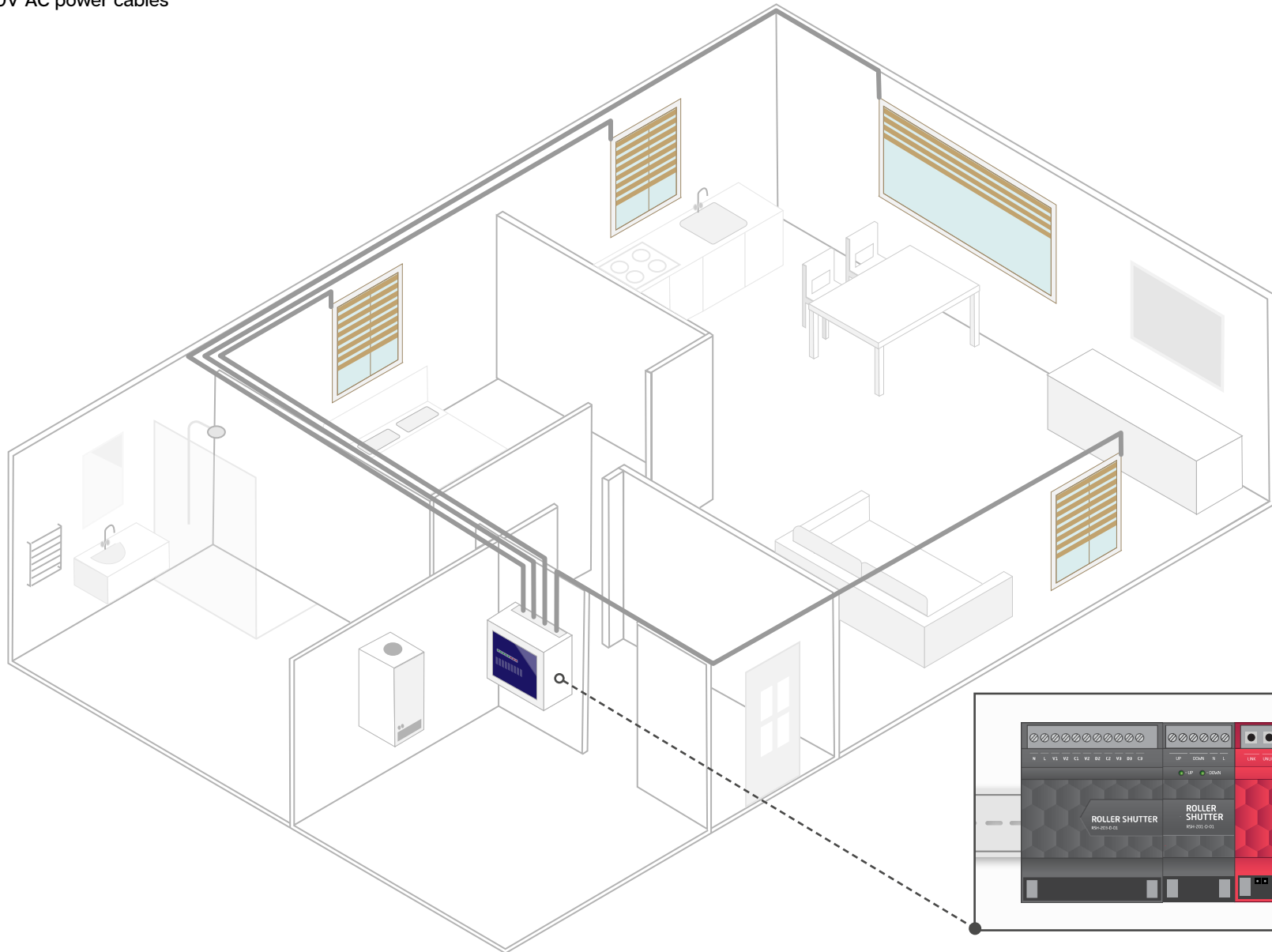
Electrical installation - roller shutters

230V AC power cables




Electrical installation - roller shutters

230V AC power cables

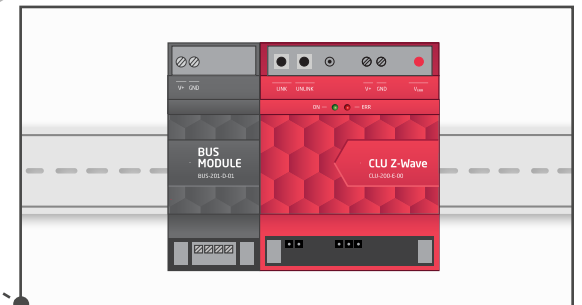
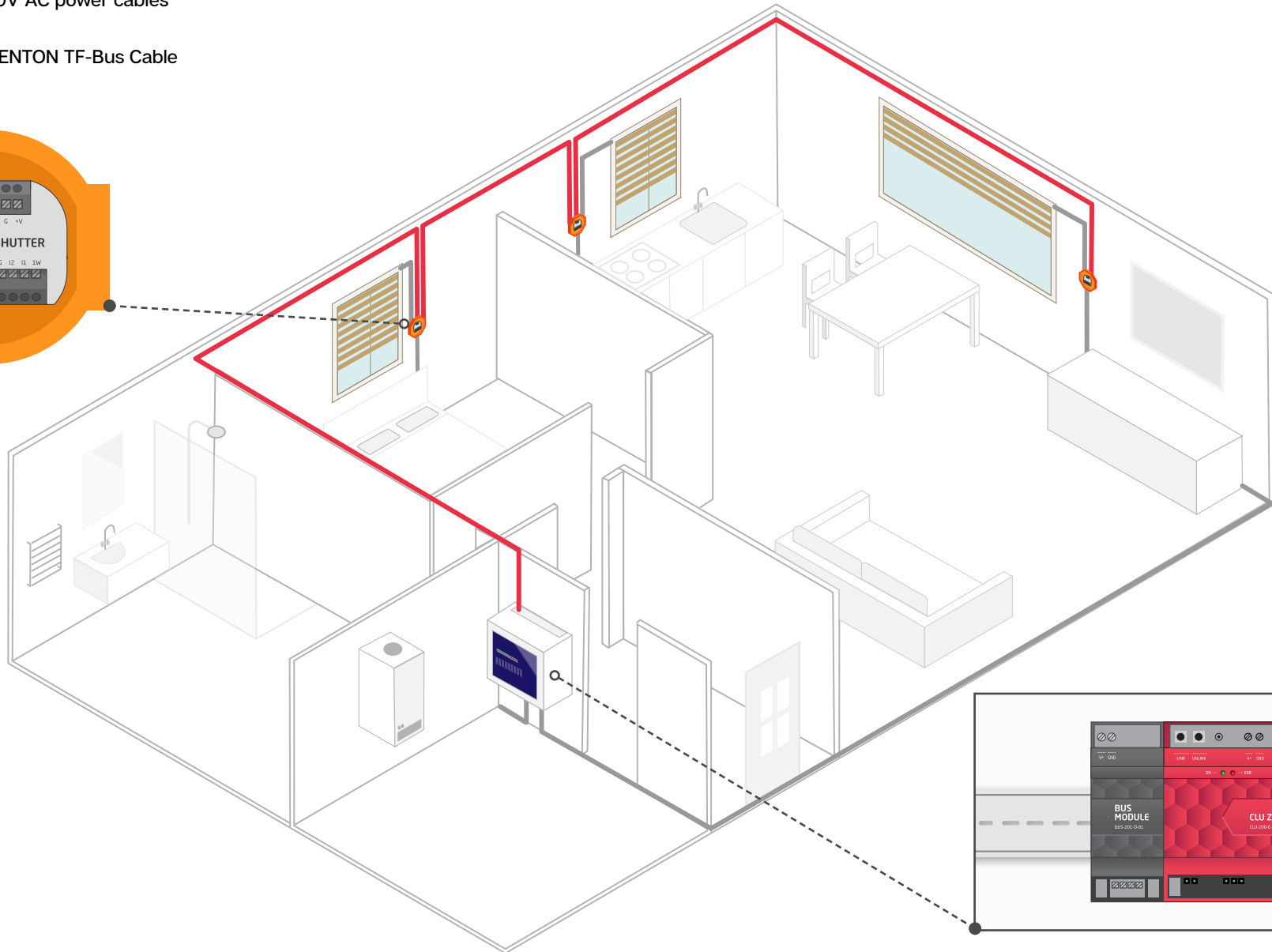
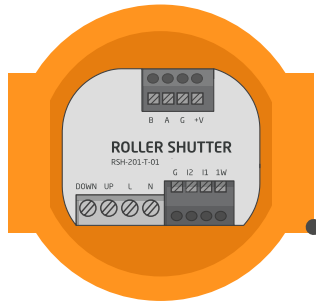


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Electrical installation - roller shutters

 230V AC power cables

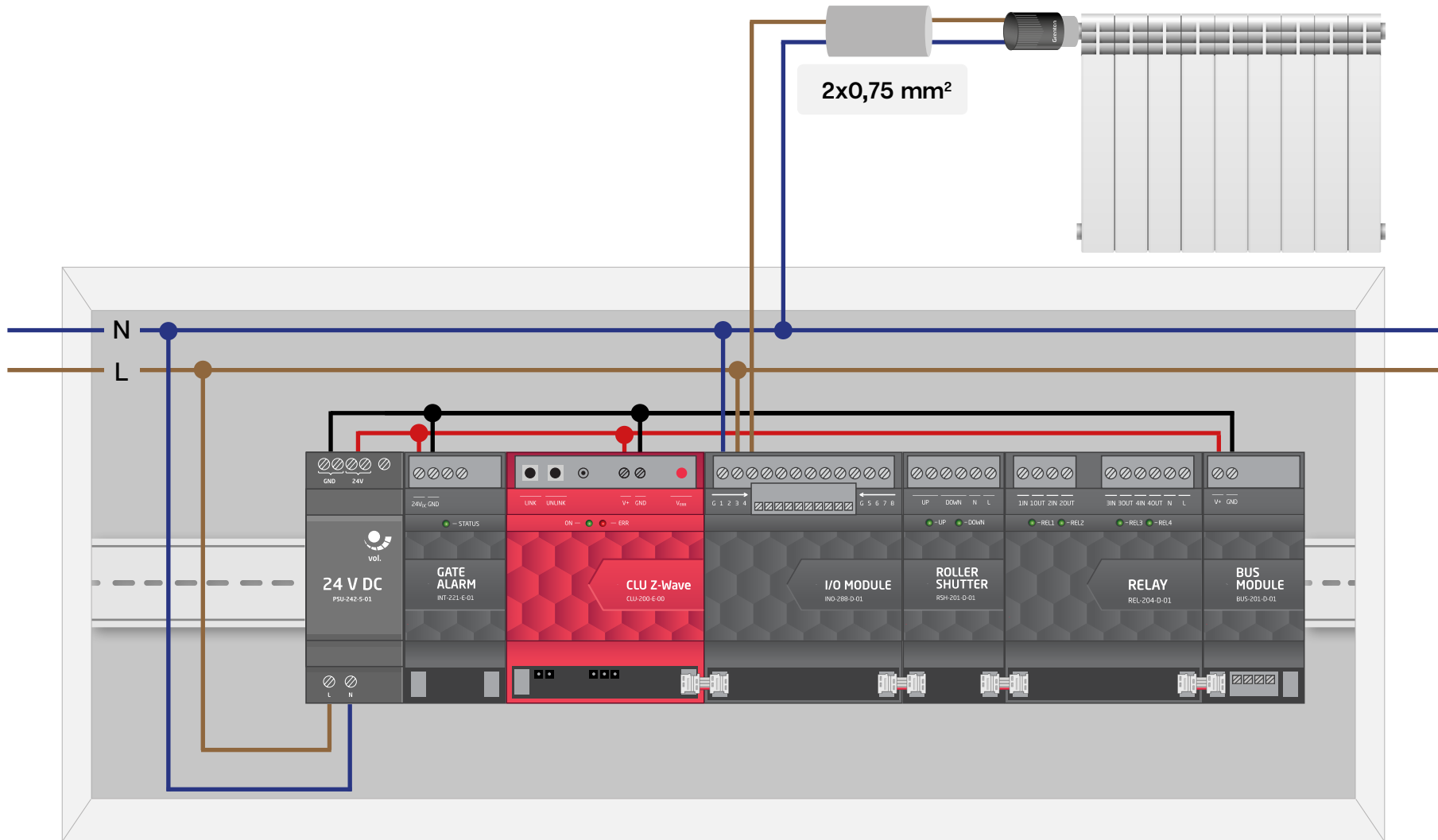
 GRENTON TF-Bus Cable



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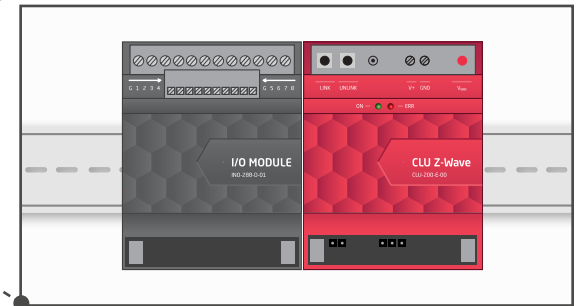
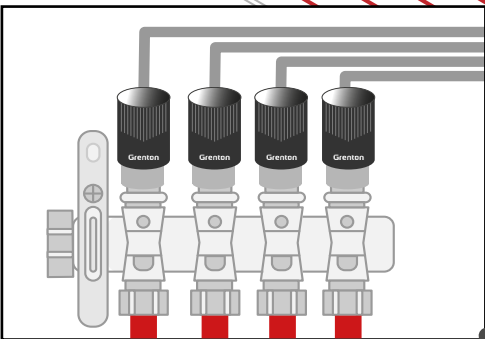
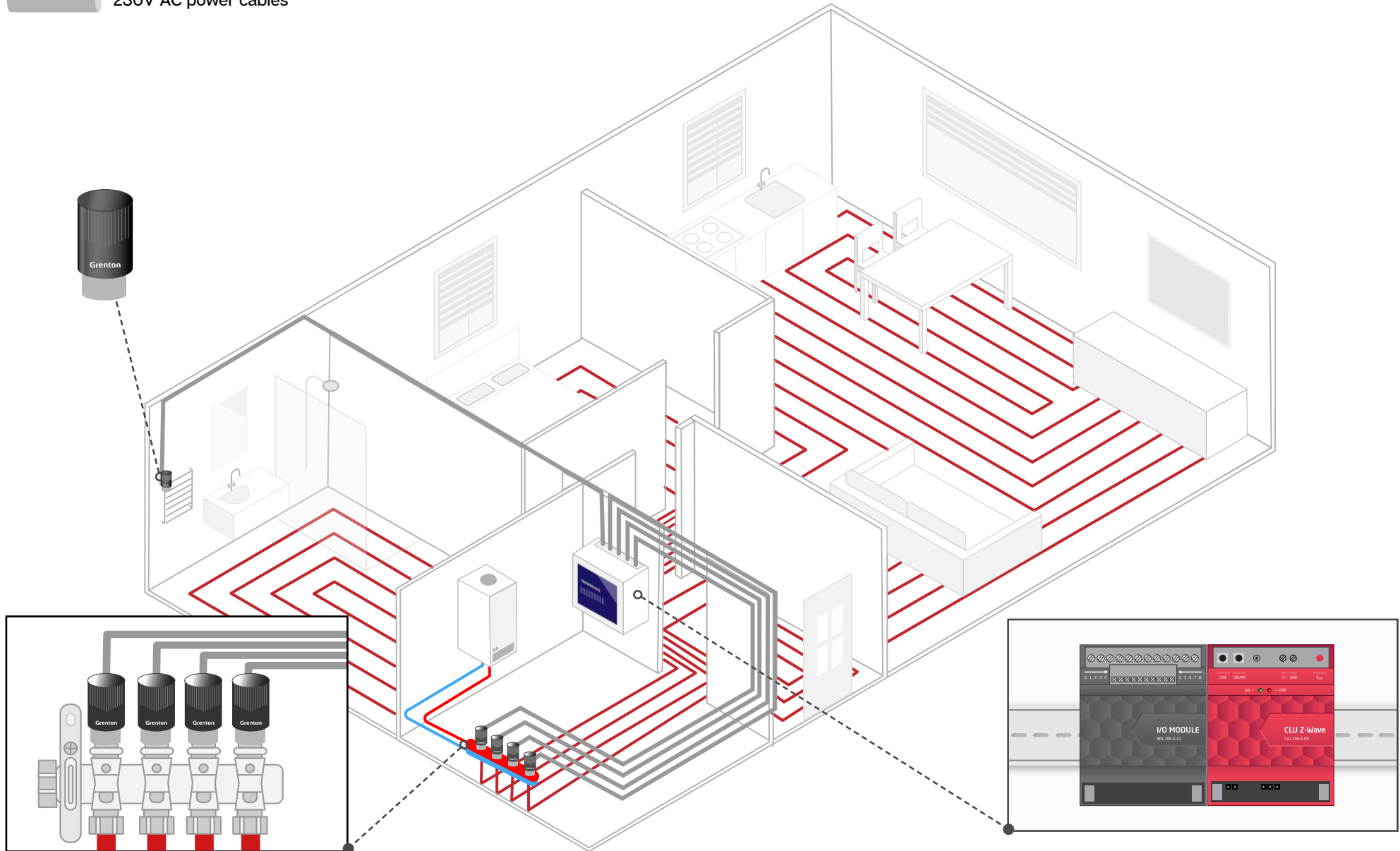
Electrical installation - heating

230V AC power cables



Electrical installation - heating

230V AC power cables

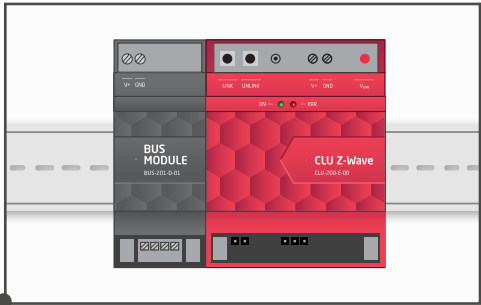
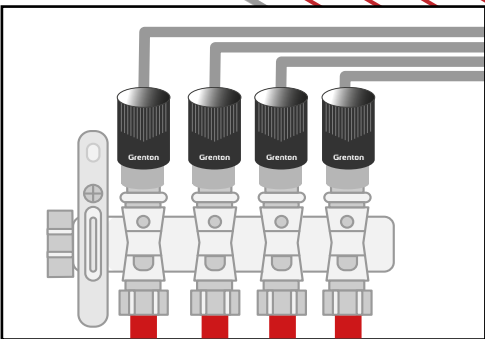
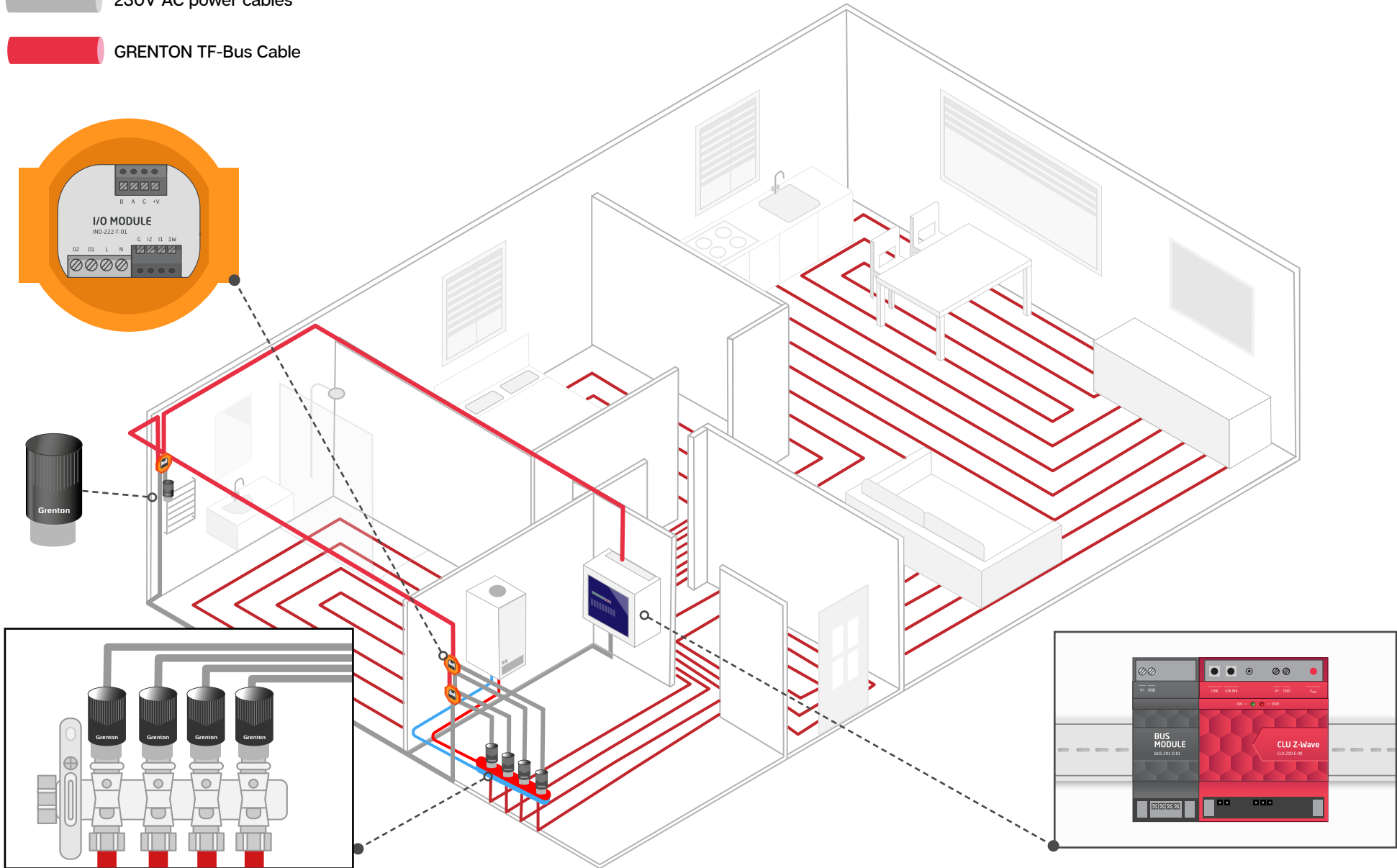


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Electrical installation - heating

230V AC power cables

GRENTON TF-Bus Cable

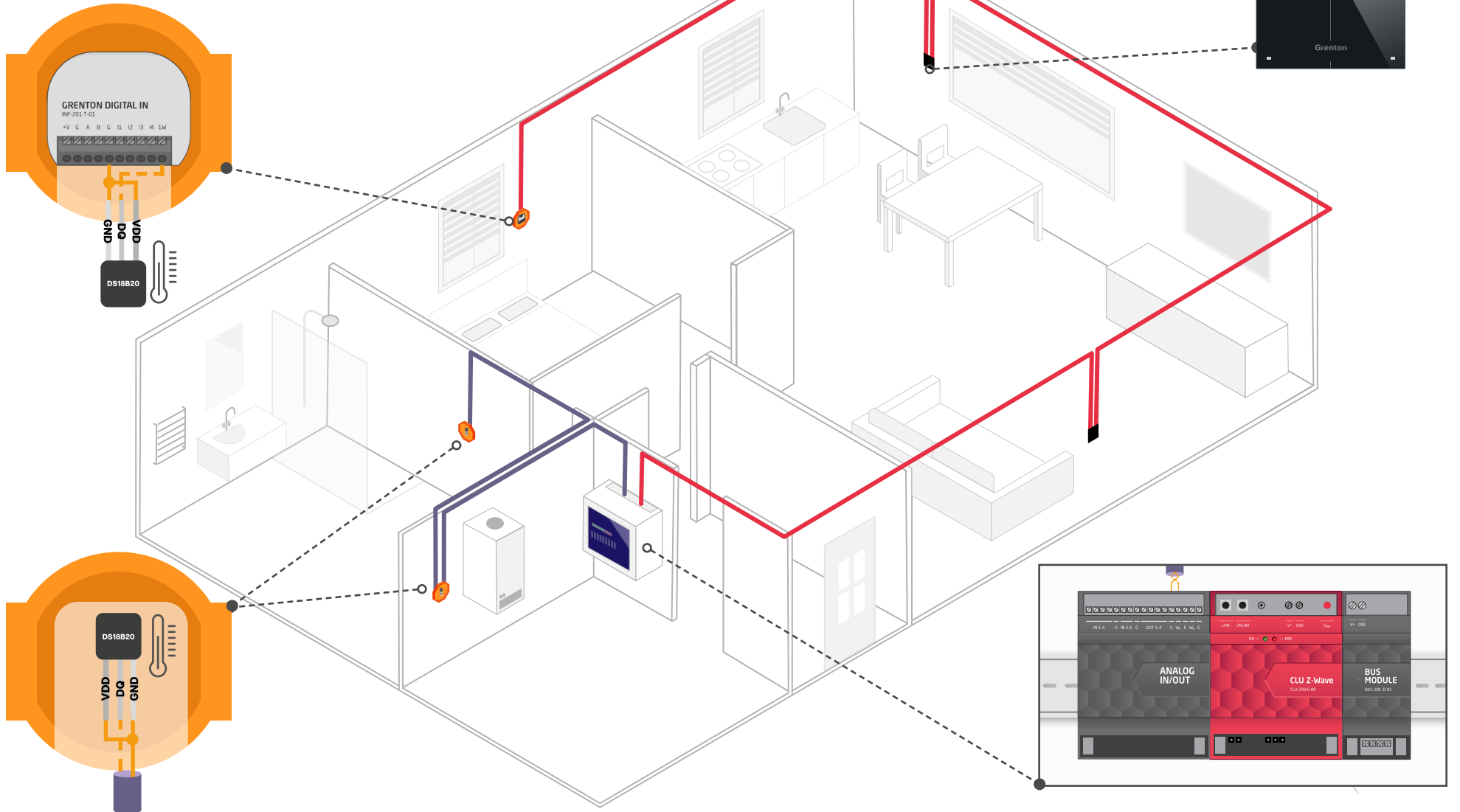


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Electrical installation - heating: temperature measurement

 Telecommunications cables

 GRENTON TF-Bus Cable

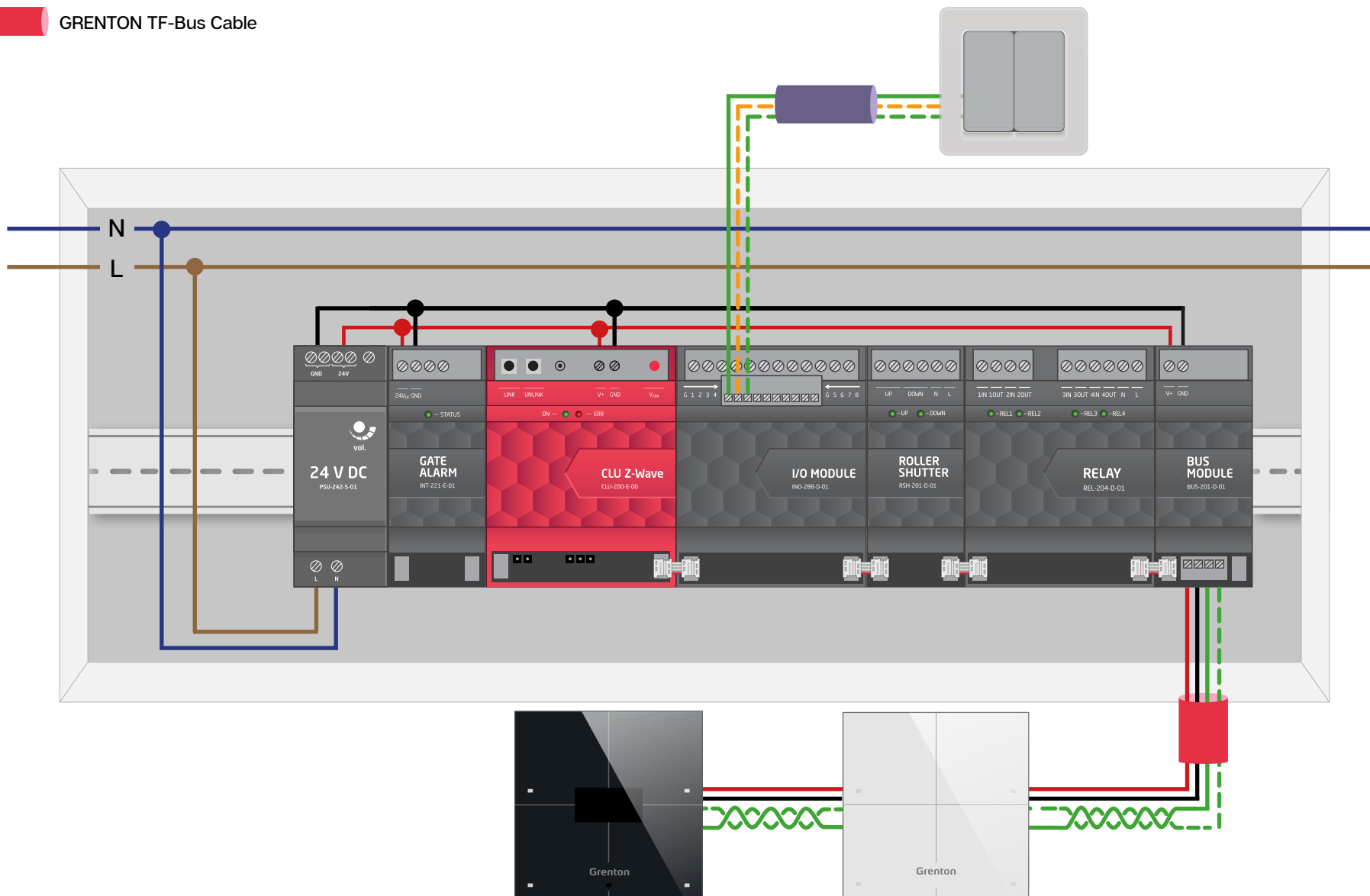


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Electrical installation - touch panels and switches

Telecommunications cables

GRENTON TF-Bus Cable

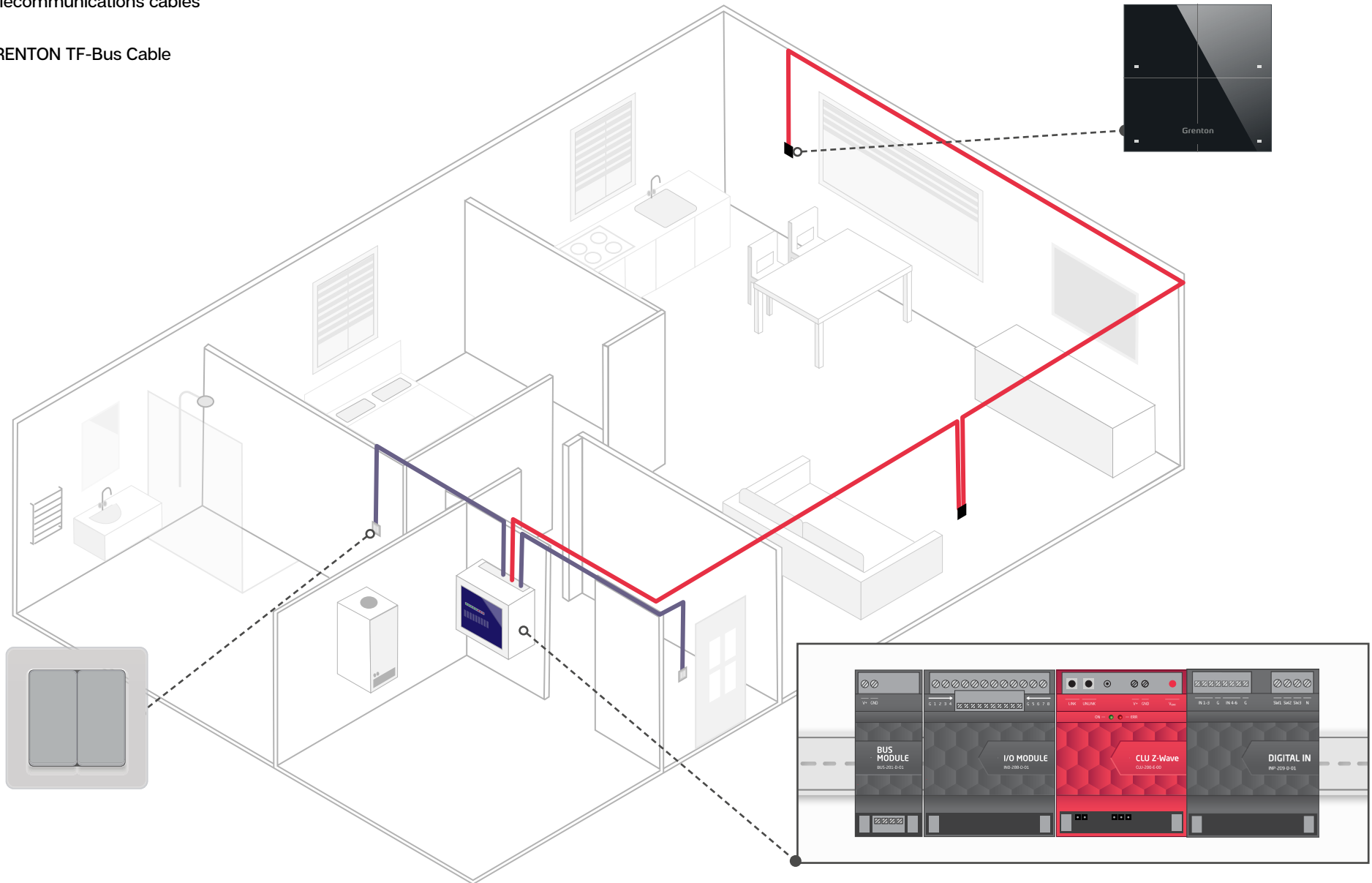


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Electrical installation - touch panels and switches

 Telecommunications cables

 GRENTON TF-Bus Cable

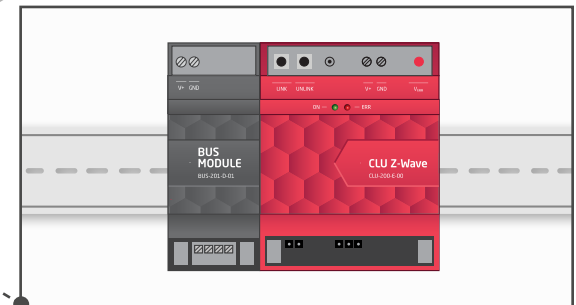
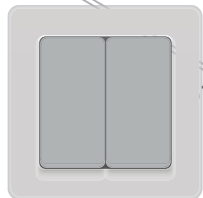
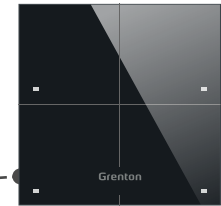
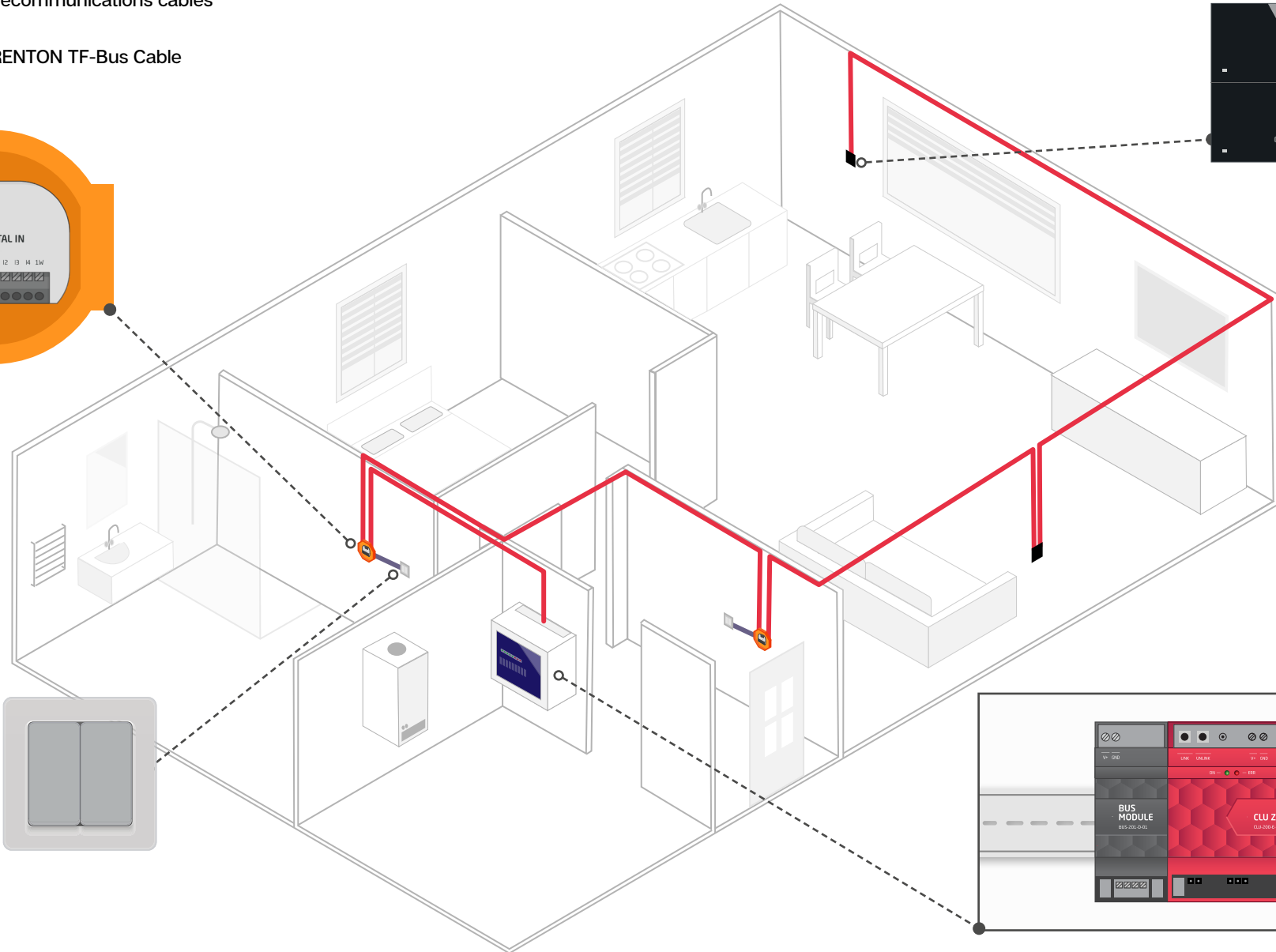
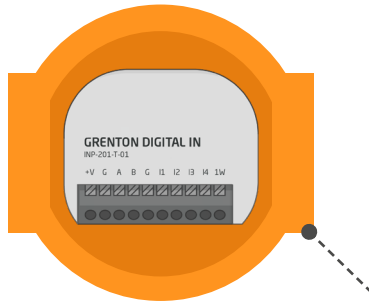


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Electrical installation - touch panels and switches

 Telecommunications cables

 GRENTON TF-Bus Cable

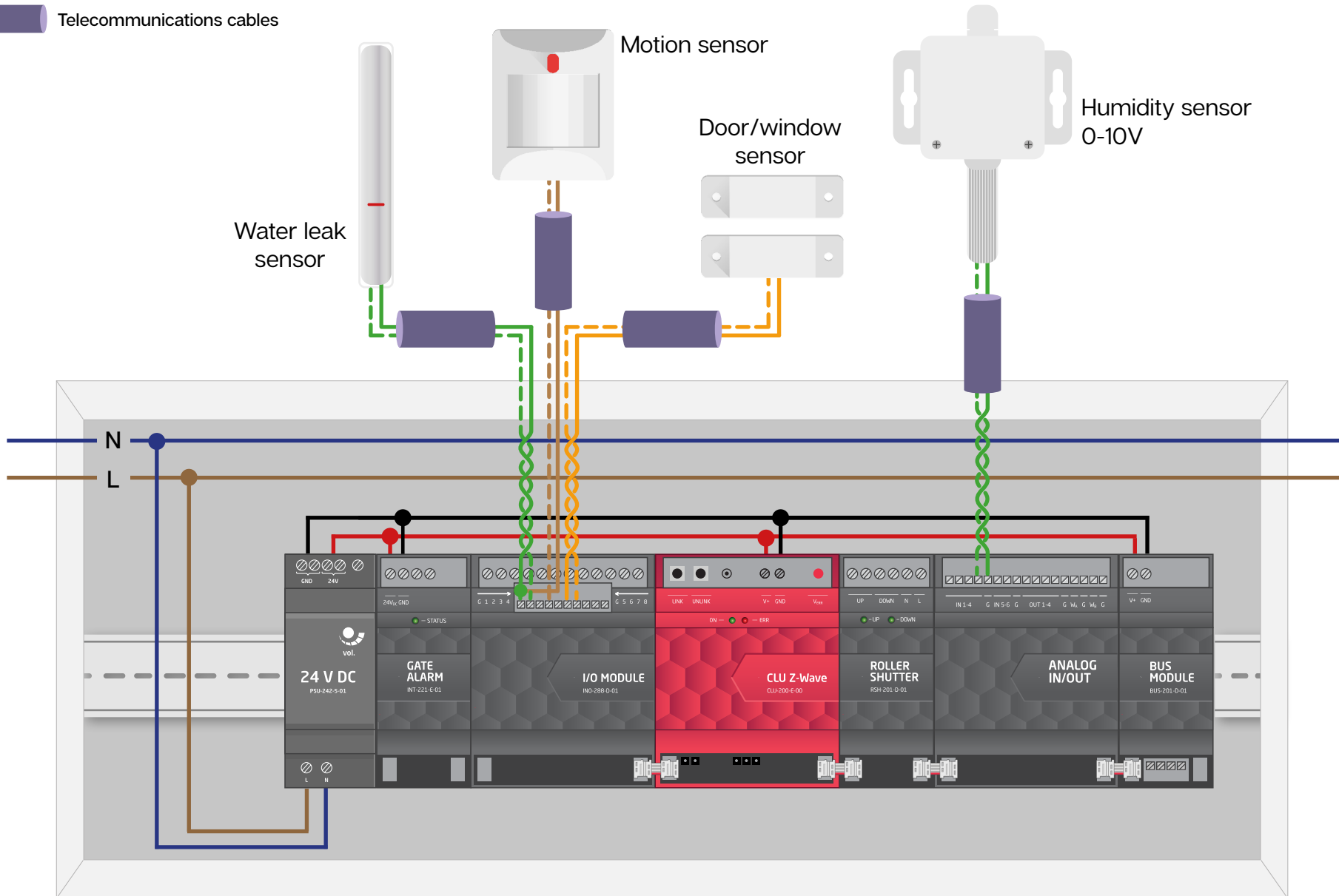


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Electrical installation - sensors

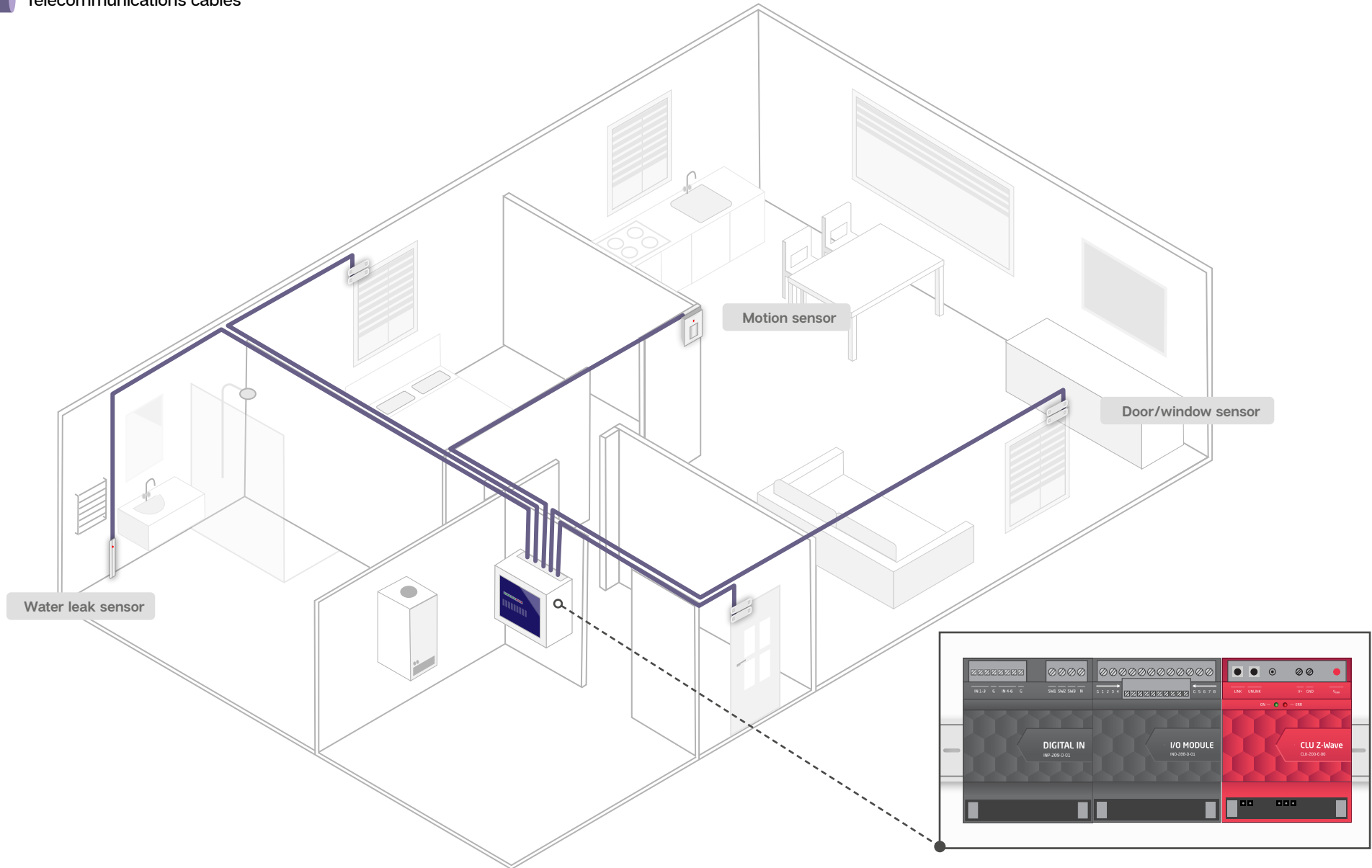


Telecommunications cables



Electrical installation - sensors

Telecommunications cables

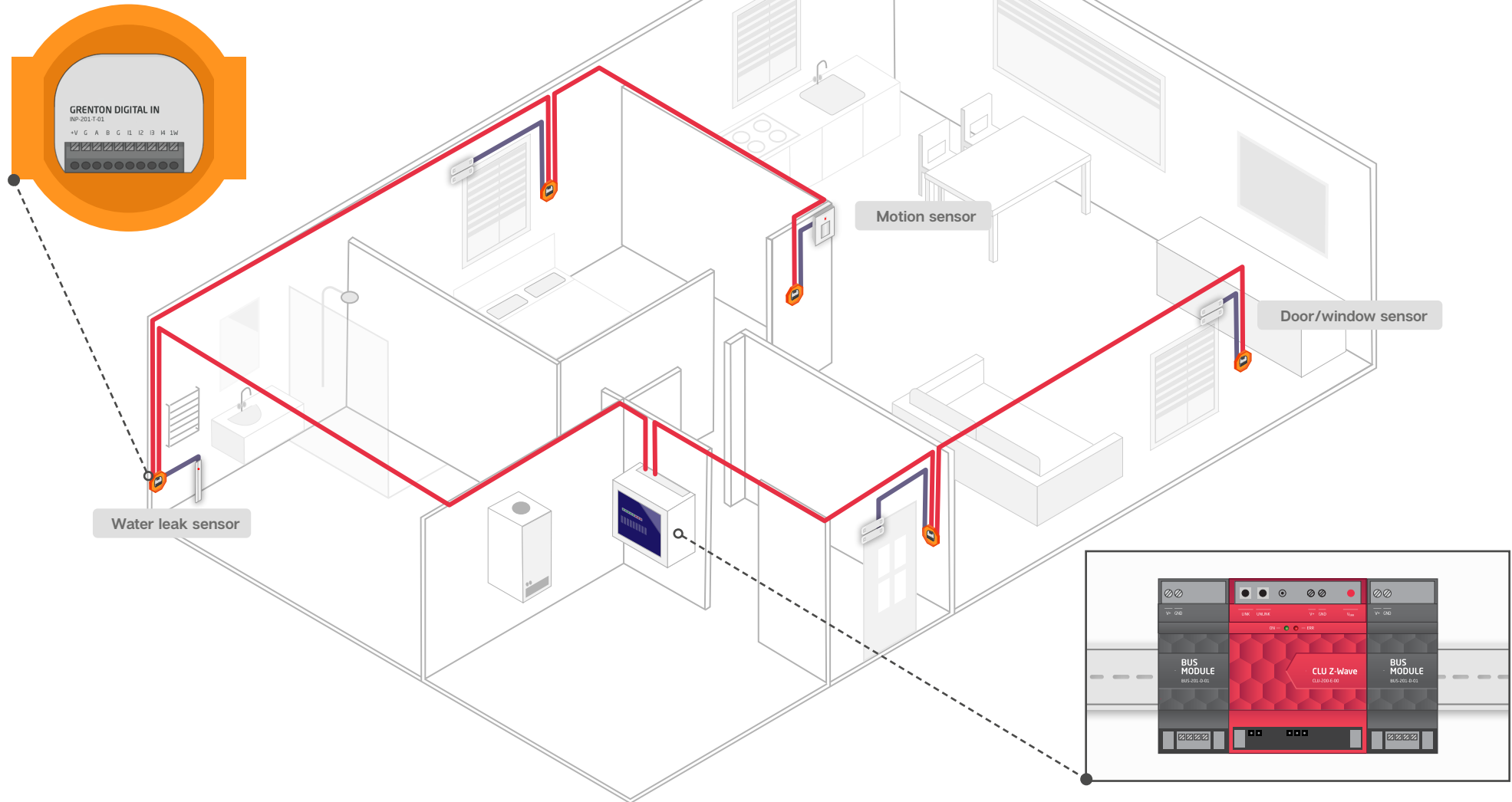


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Electrical installation - sensors

 Telecommunications cables

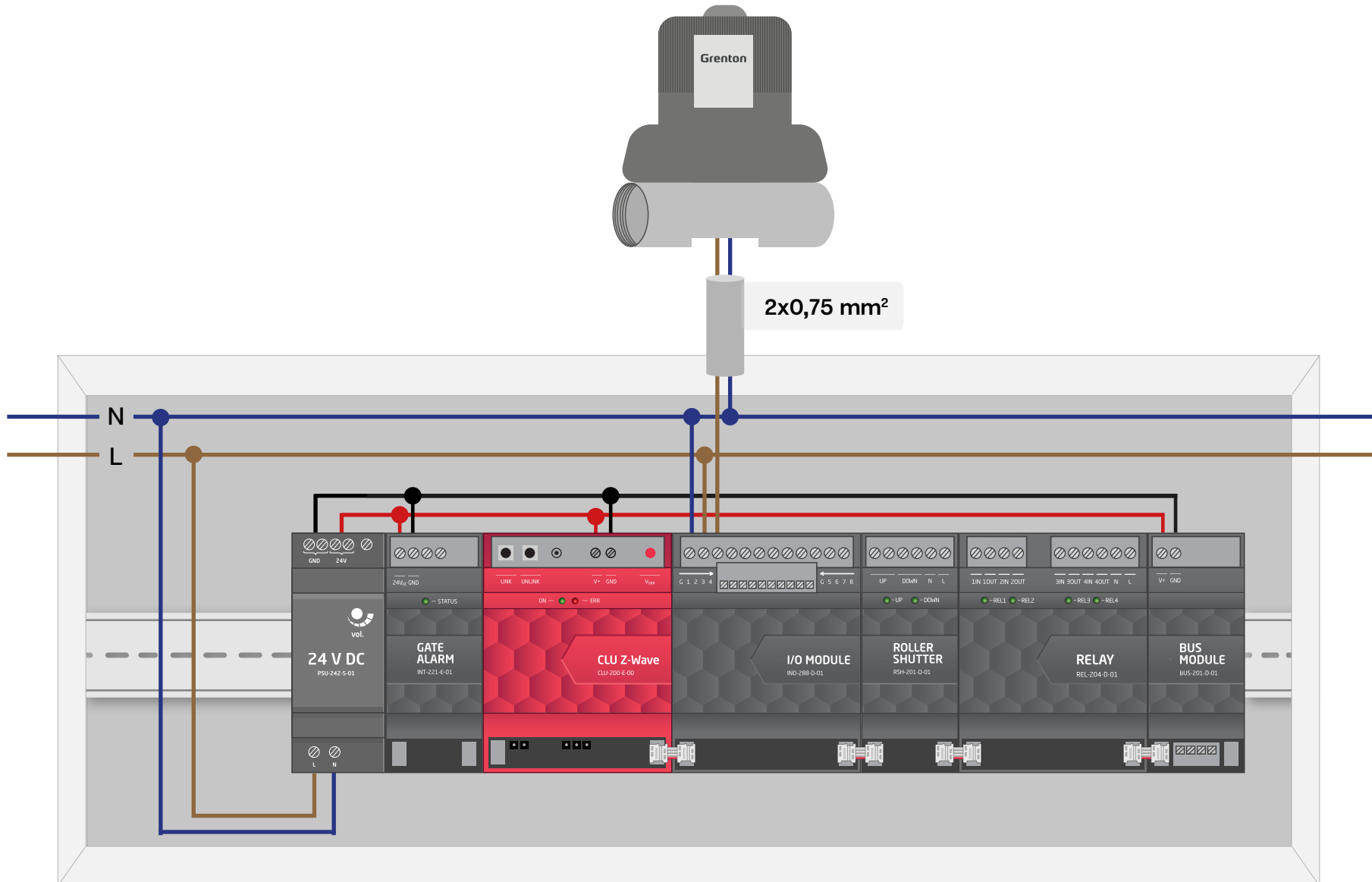
 GRENTON TF-Bus Cable



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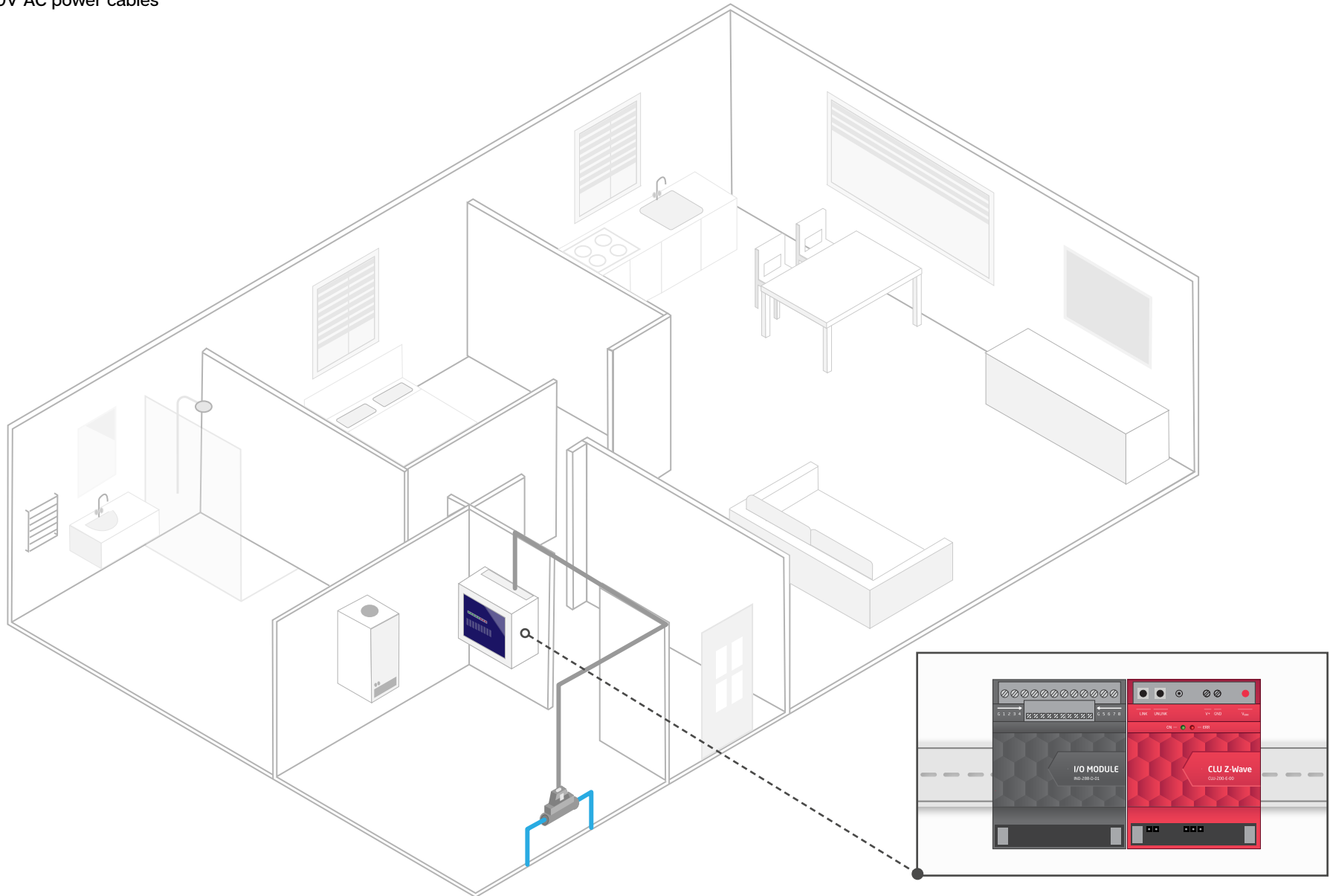
Electrical installation - water valves

230V AC power cables



Electrical installation - water valves

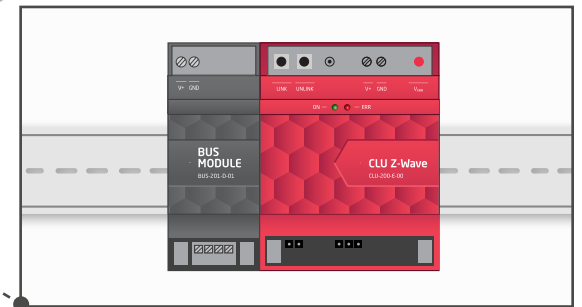
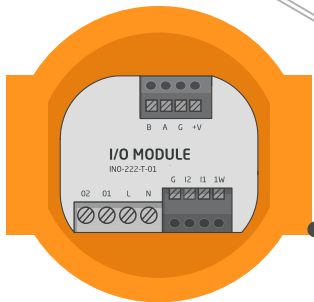
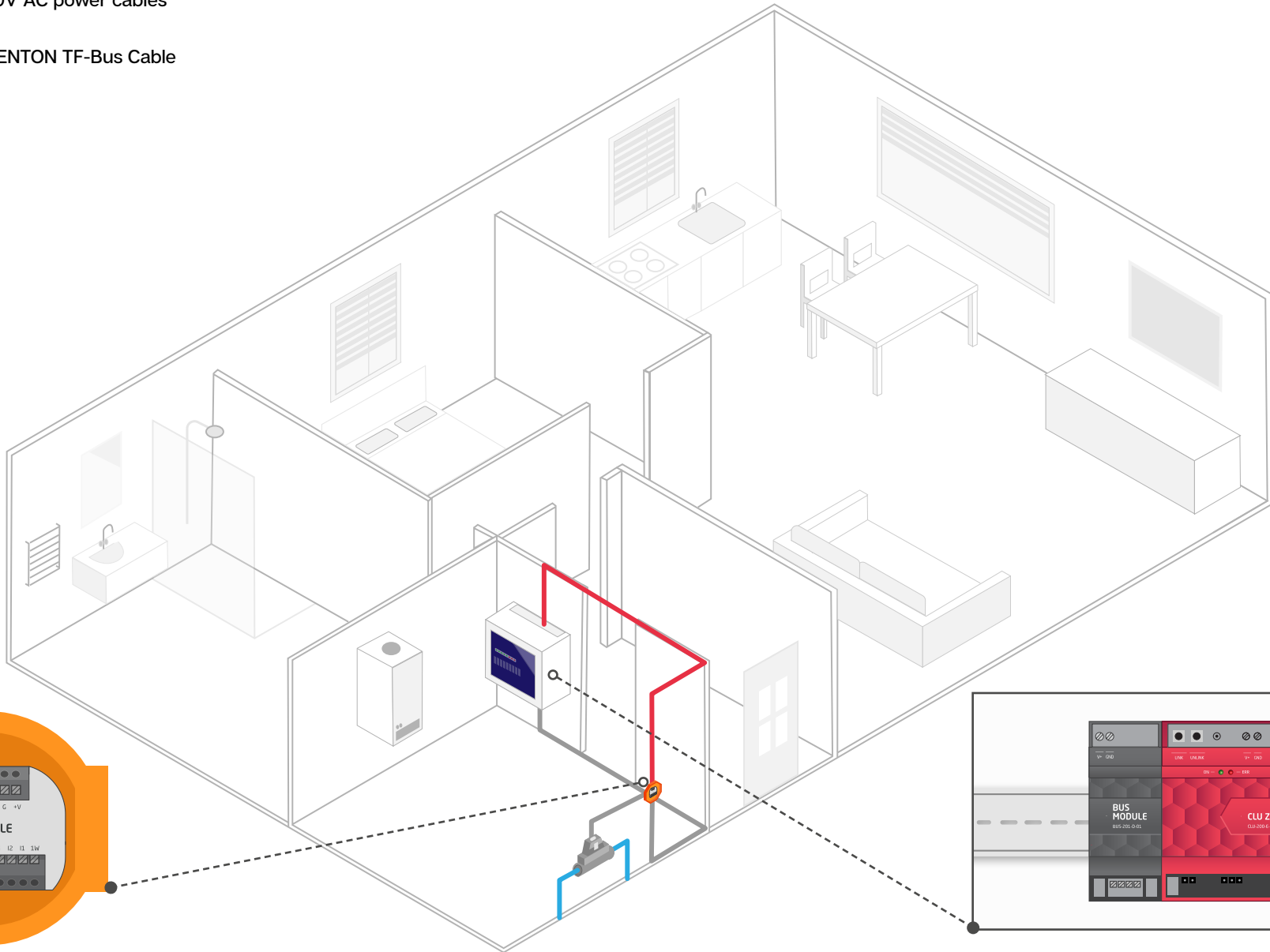
230V AC power cables



Electrical installation - water valves

 230V AC power cables

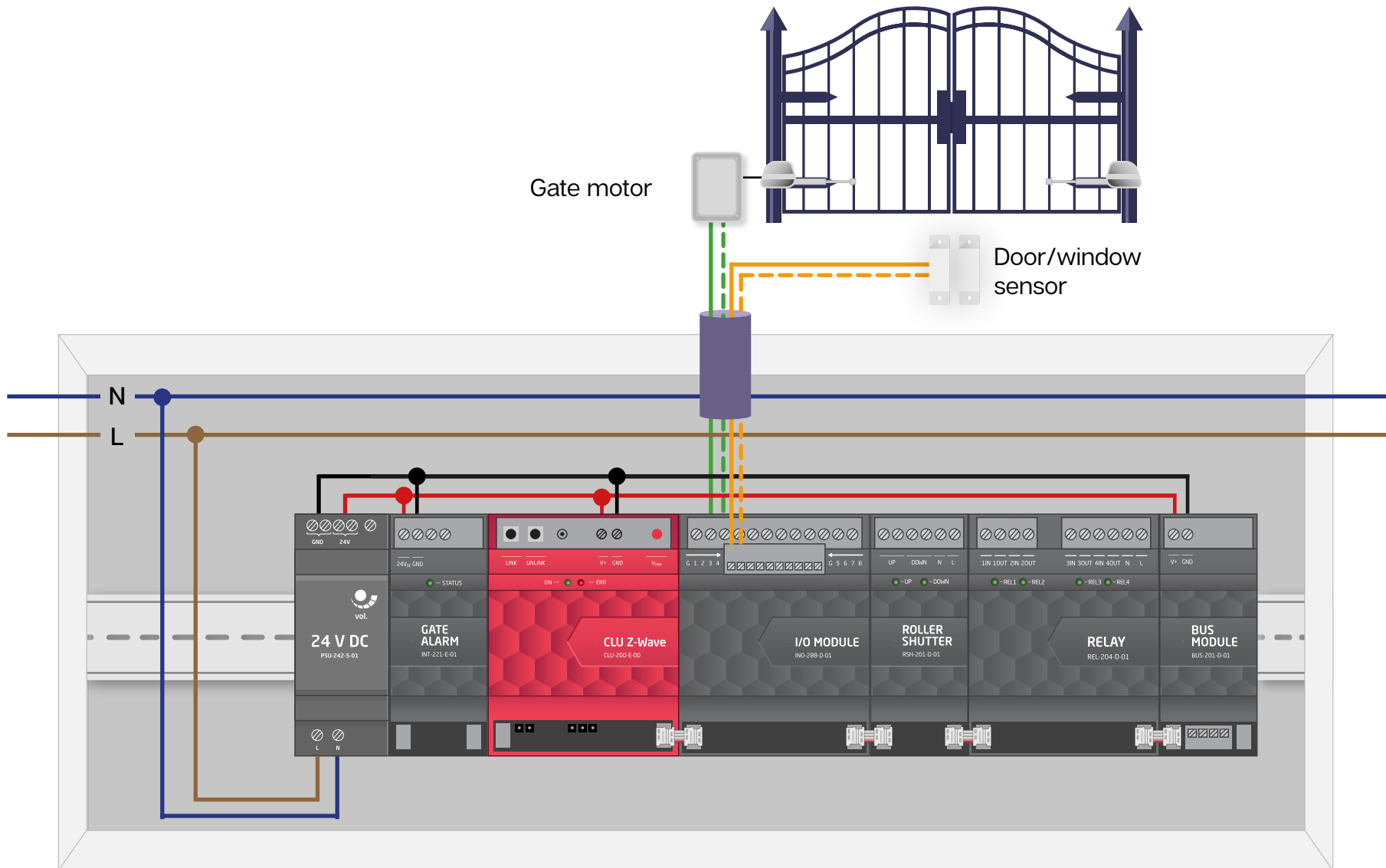
 GRENTON TF-Bus Cable



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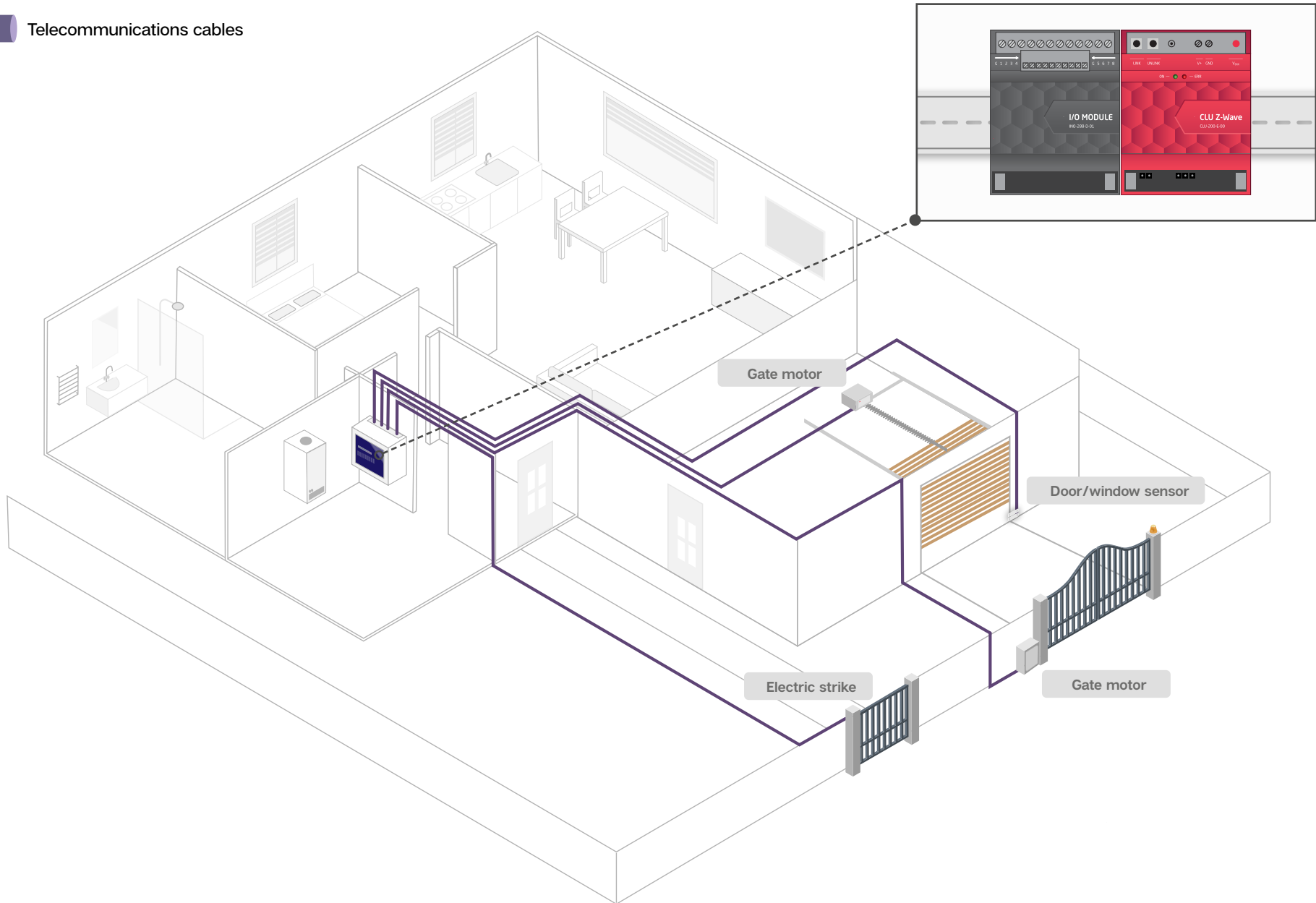
Electrical installation - gates

Telecommunications cables



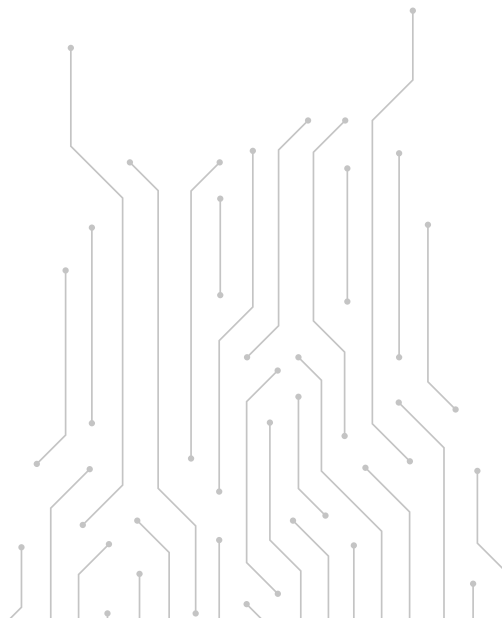
Electrical installation - gates

Telecommunications cables

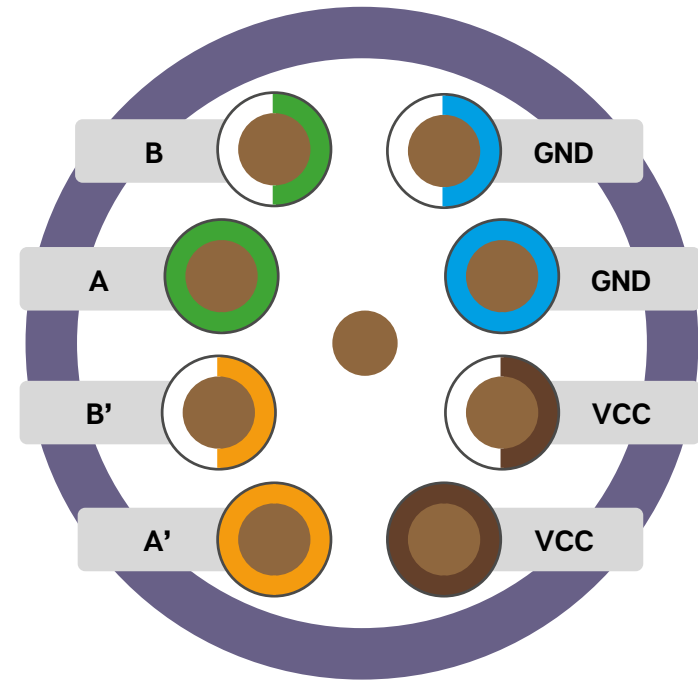
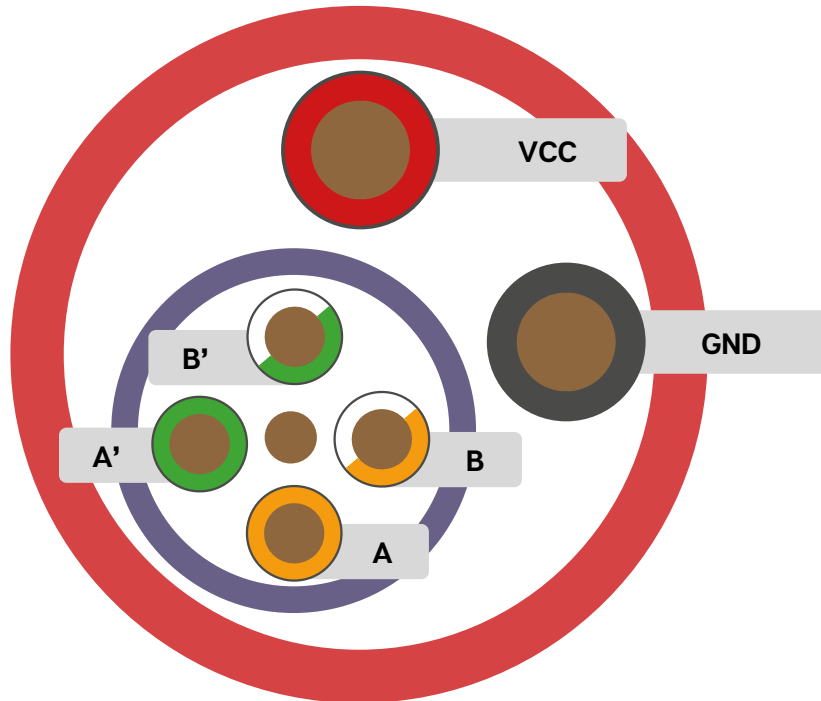
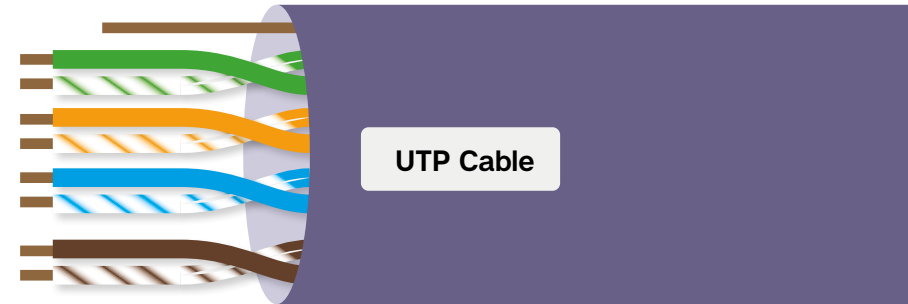


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Grenton TF-Bus

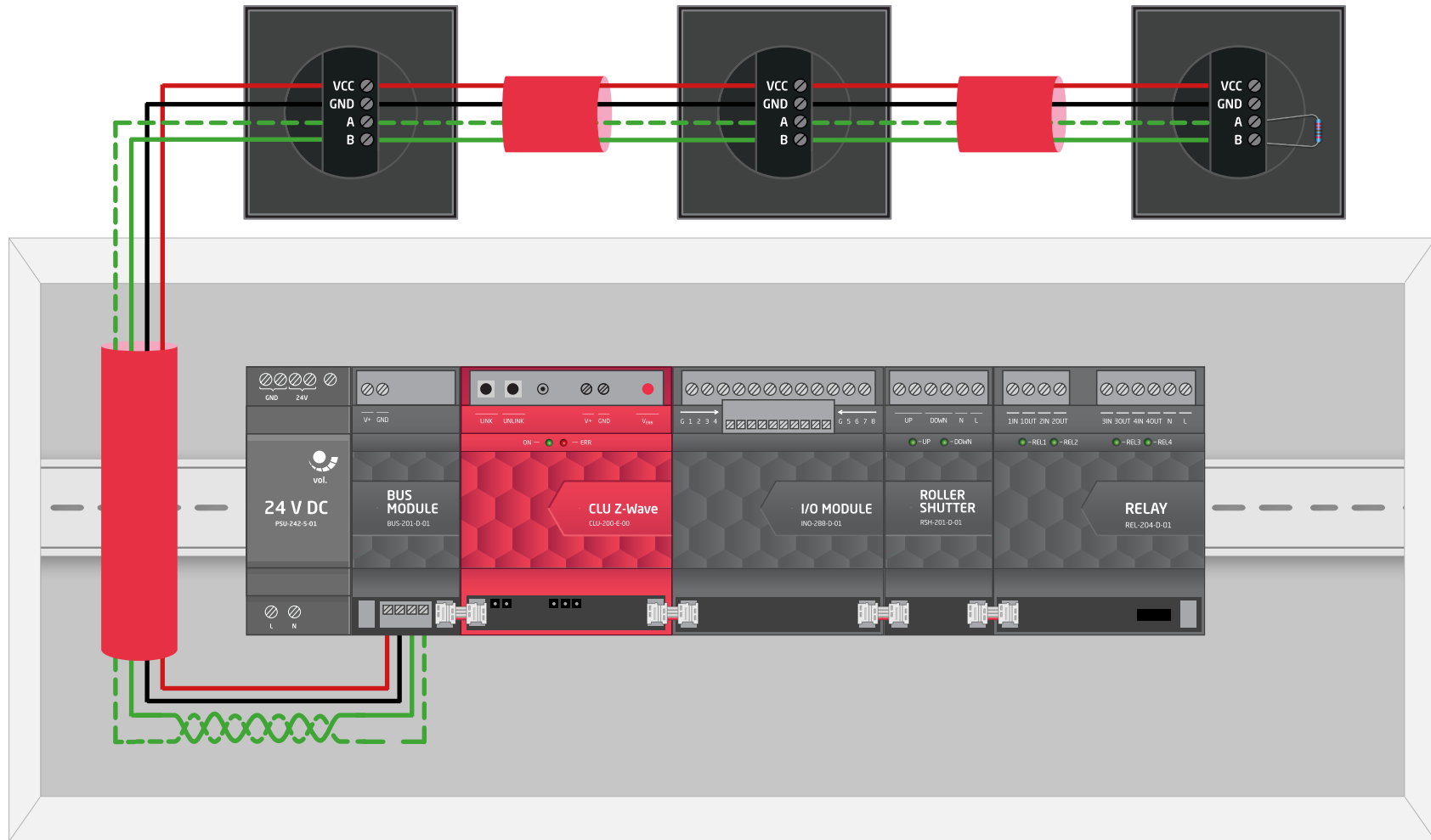


Bus cable - requirements



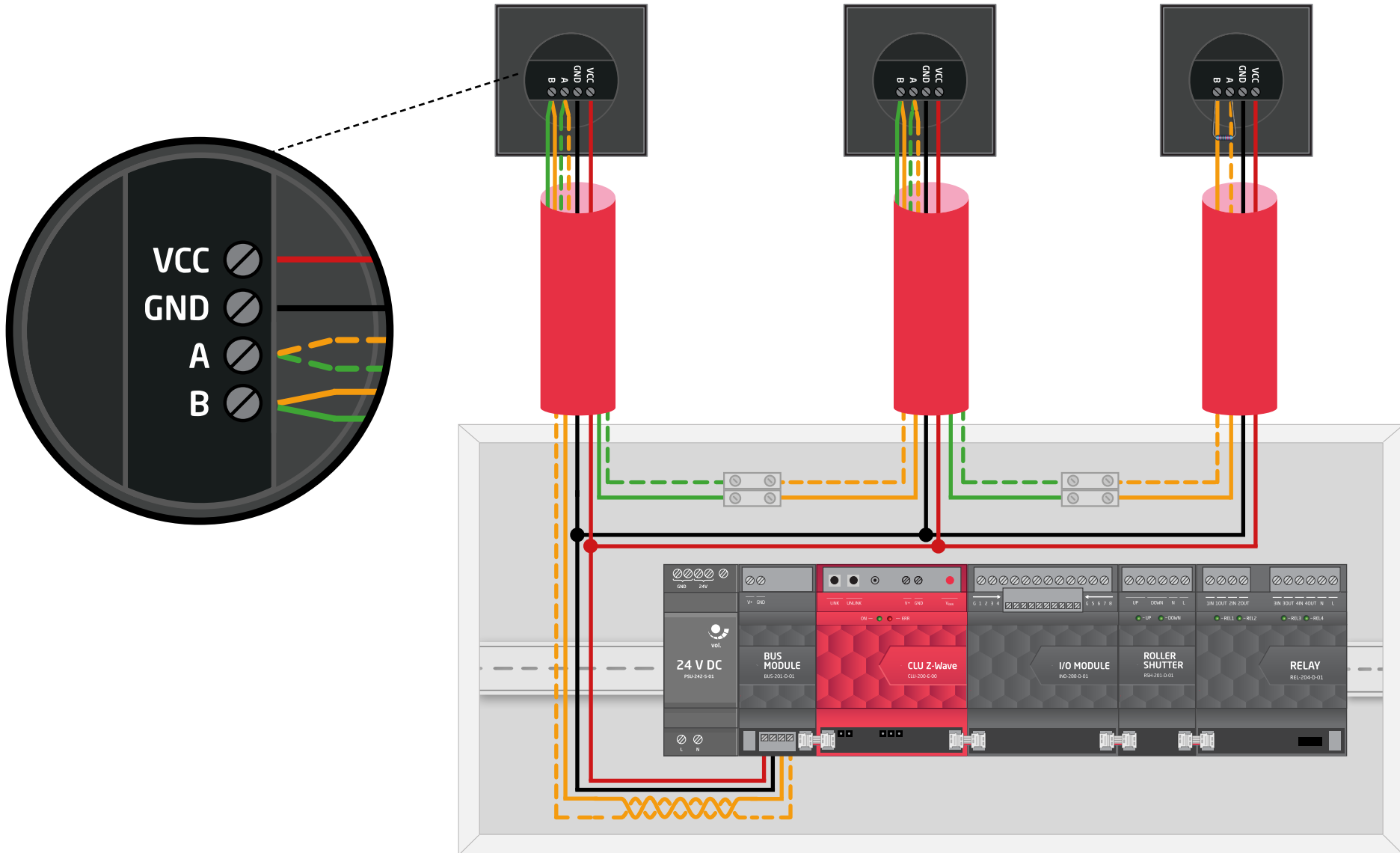
Serial data communication wiring

 GRENTON TF-Bus Cable

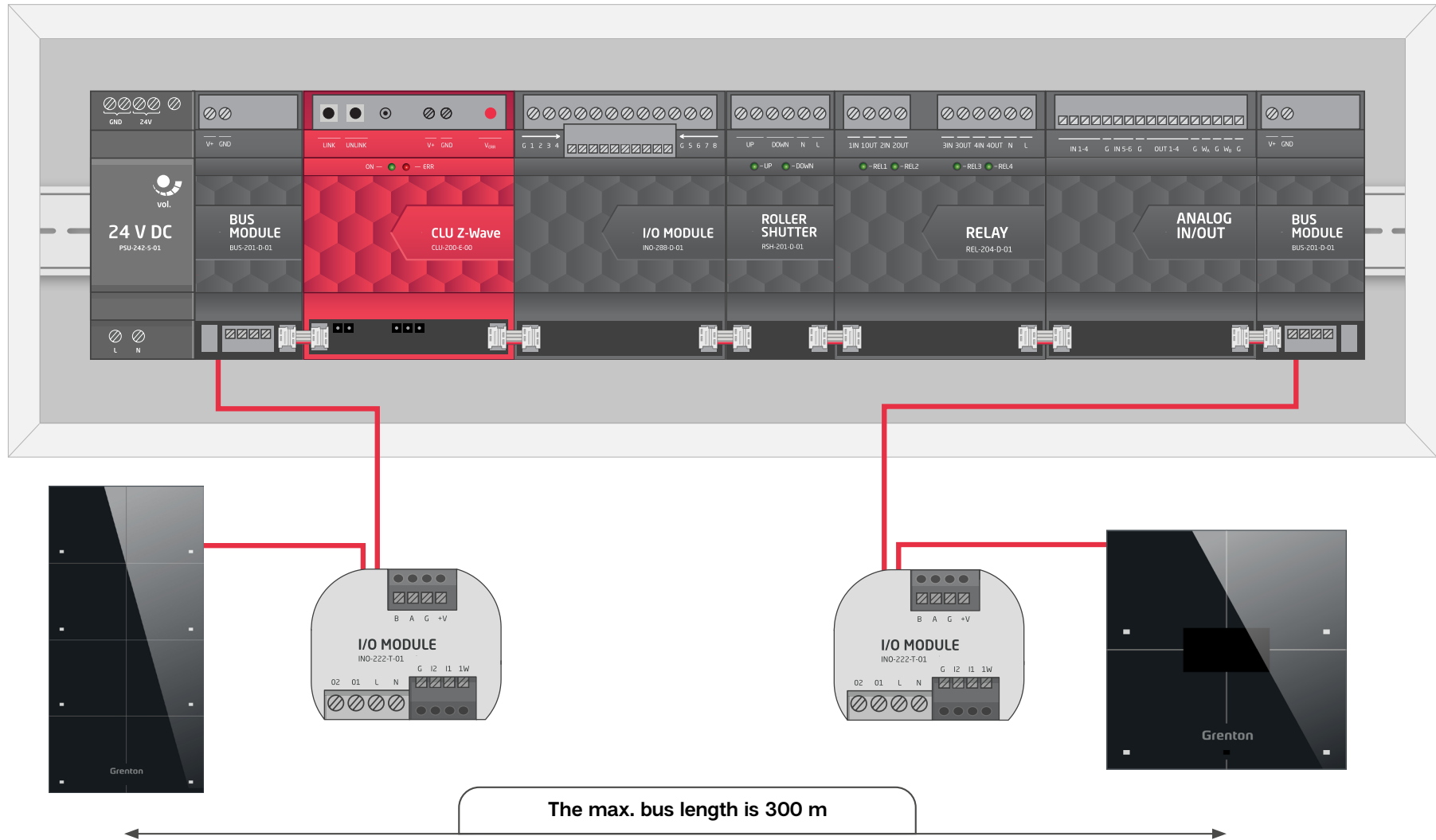


Star data communication wiring - bus "straightening"

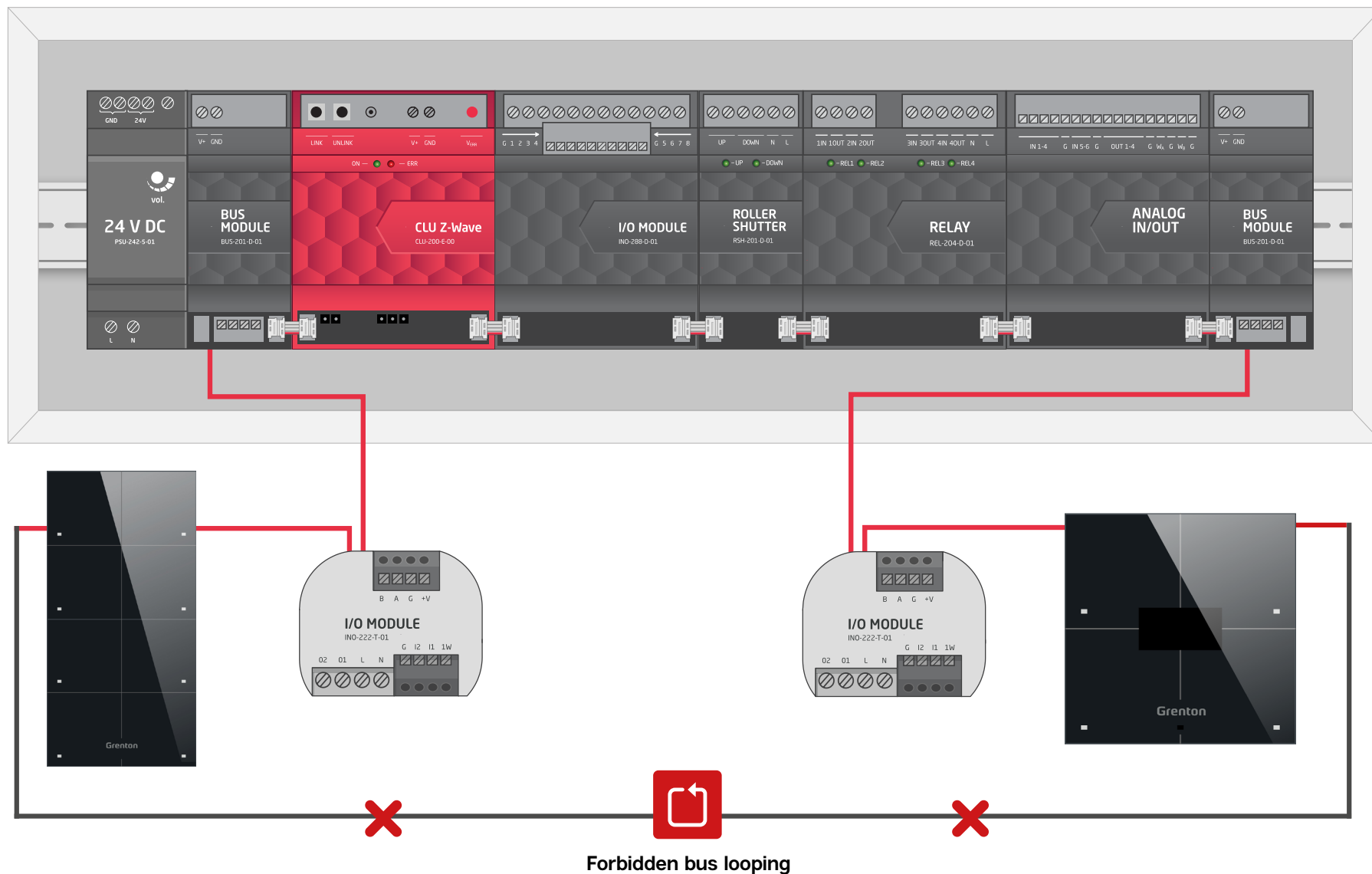
 GRENTON TF-Bus Cable



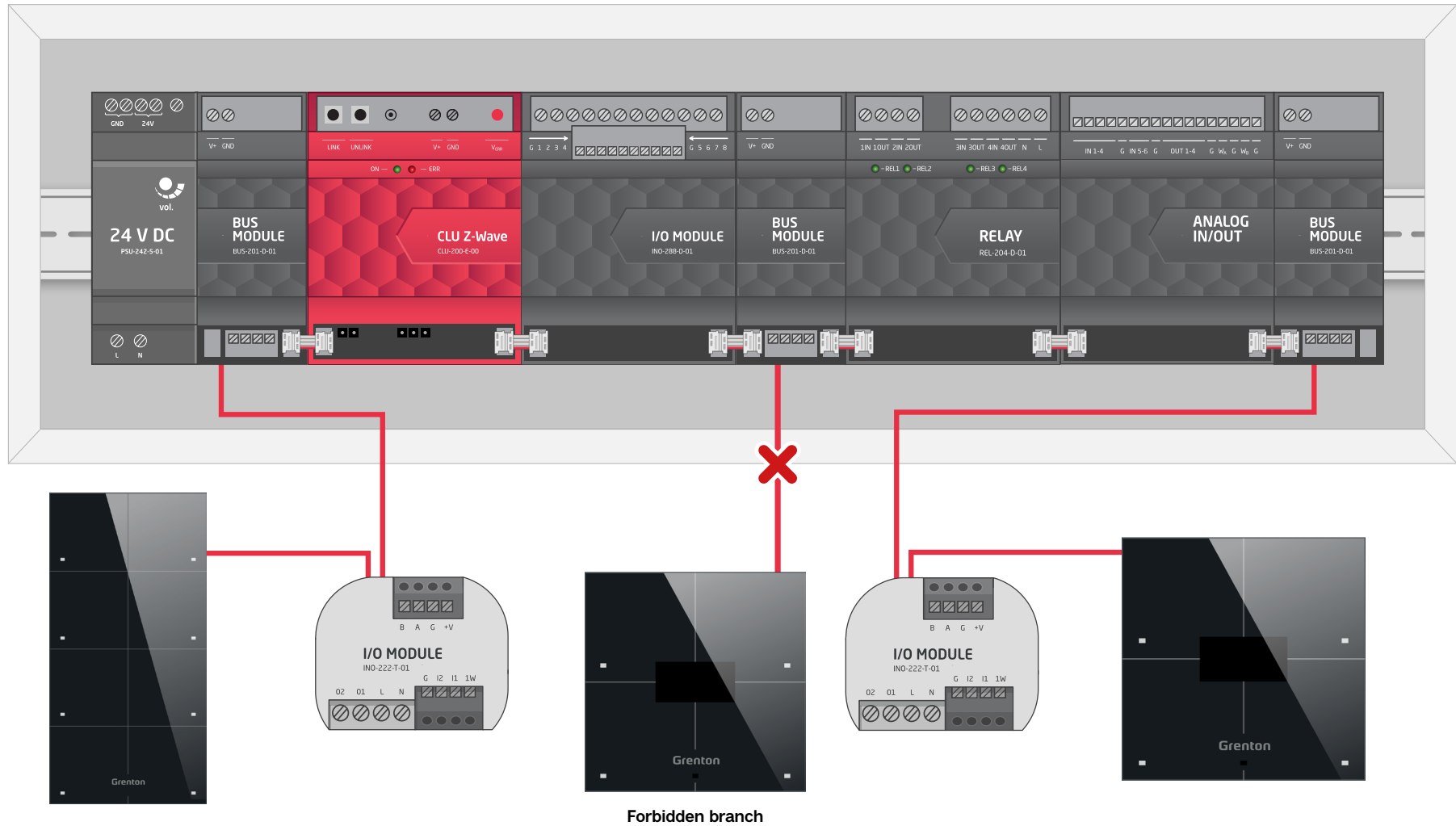
Bus length



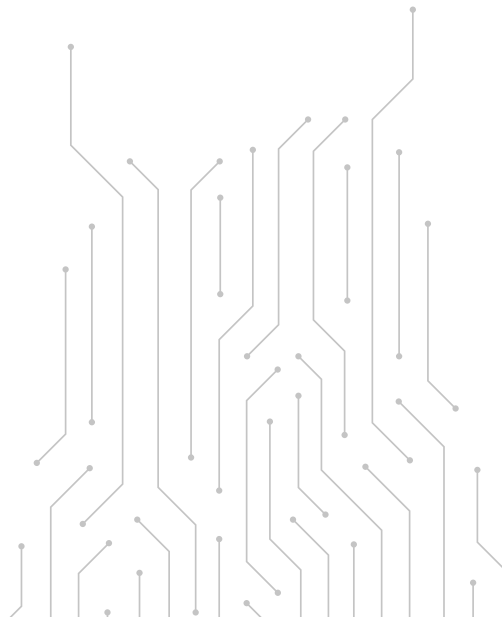
Forbidden bus looping



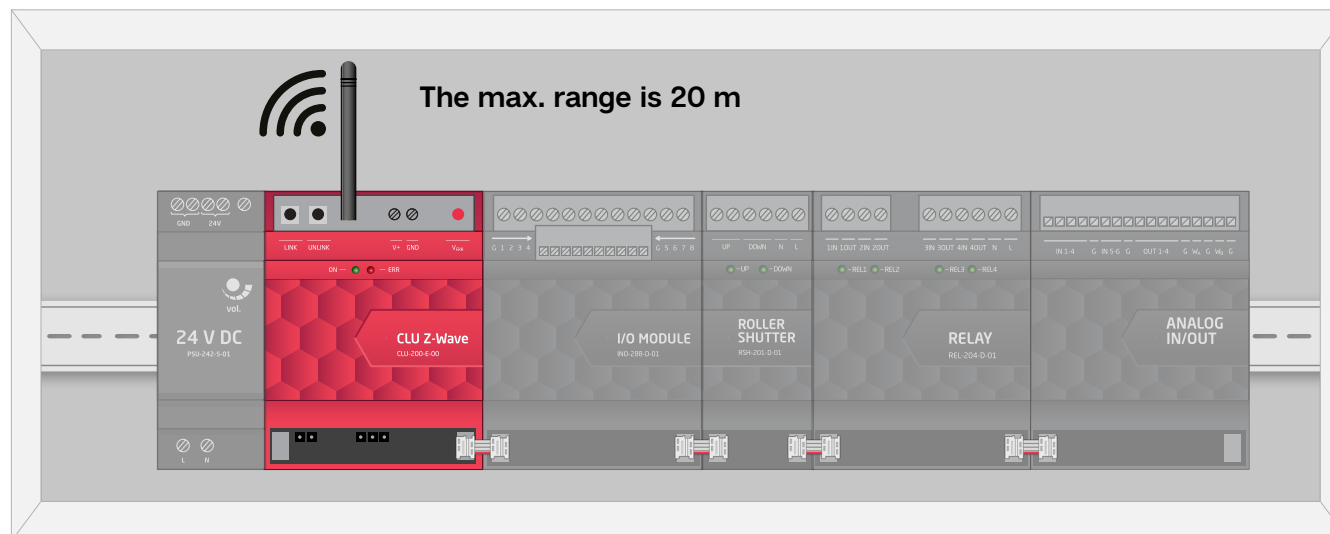
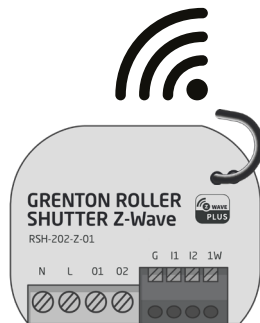
Forbidden branching



Wireless protocols



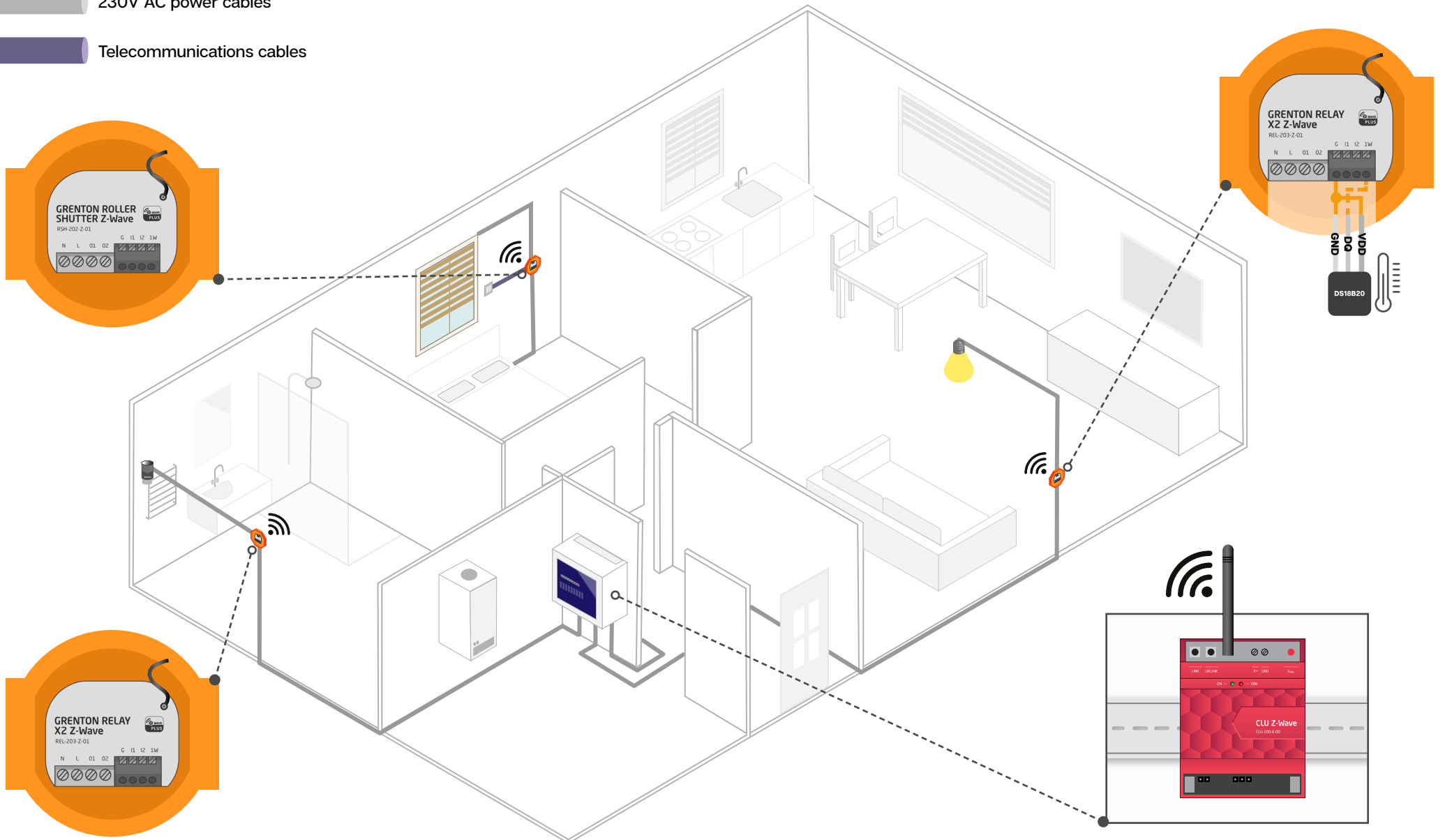
Z-Wave



Electrical installation - Z-Wave modules

230V AC power cables

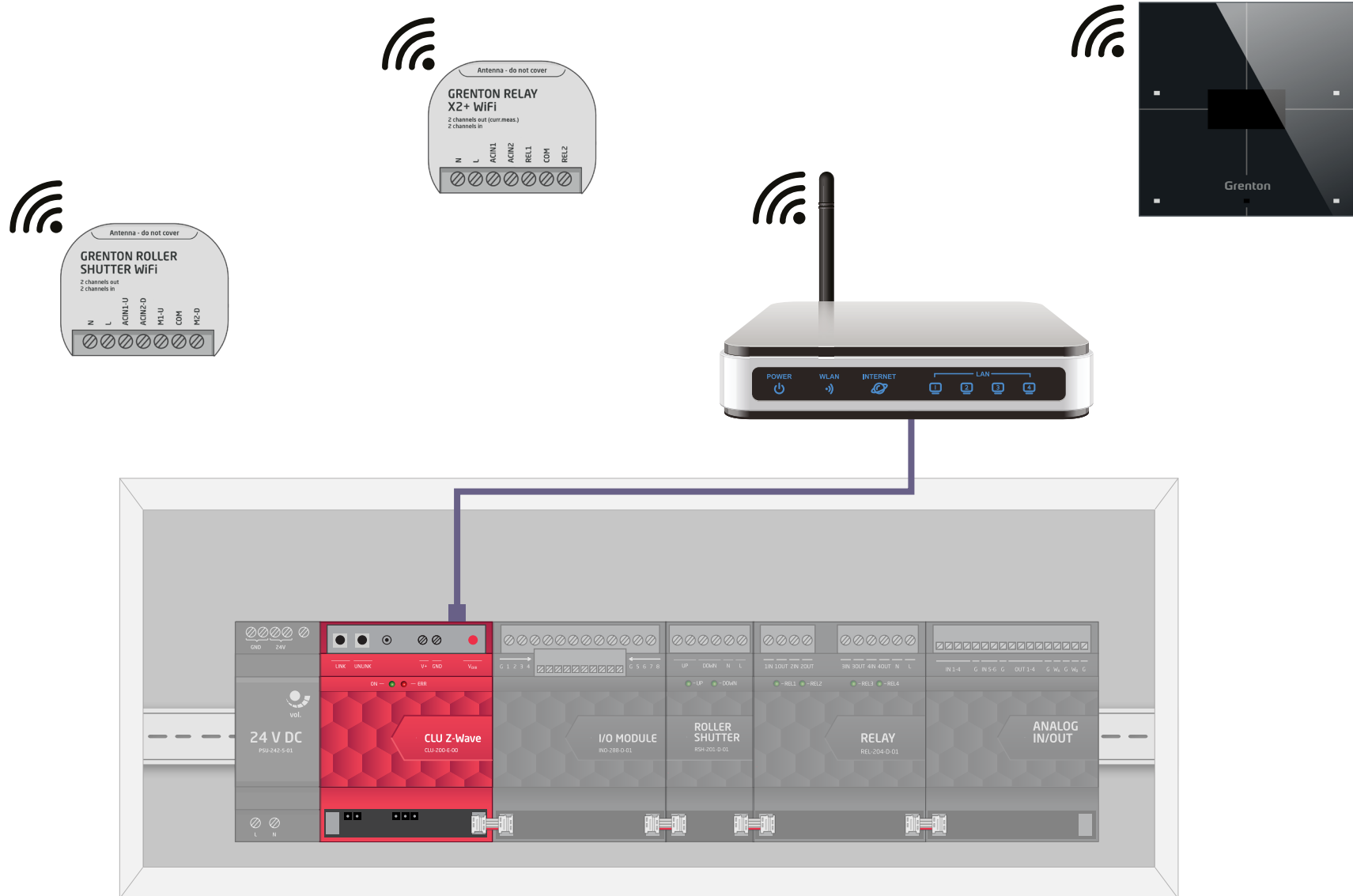
Telecommunications cables



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System including Wi-Fi modules and CLU

Telecommunications cables



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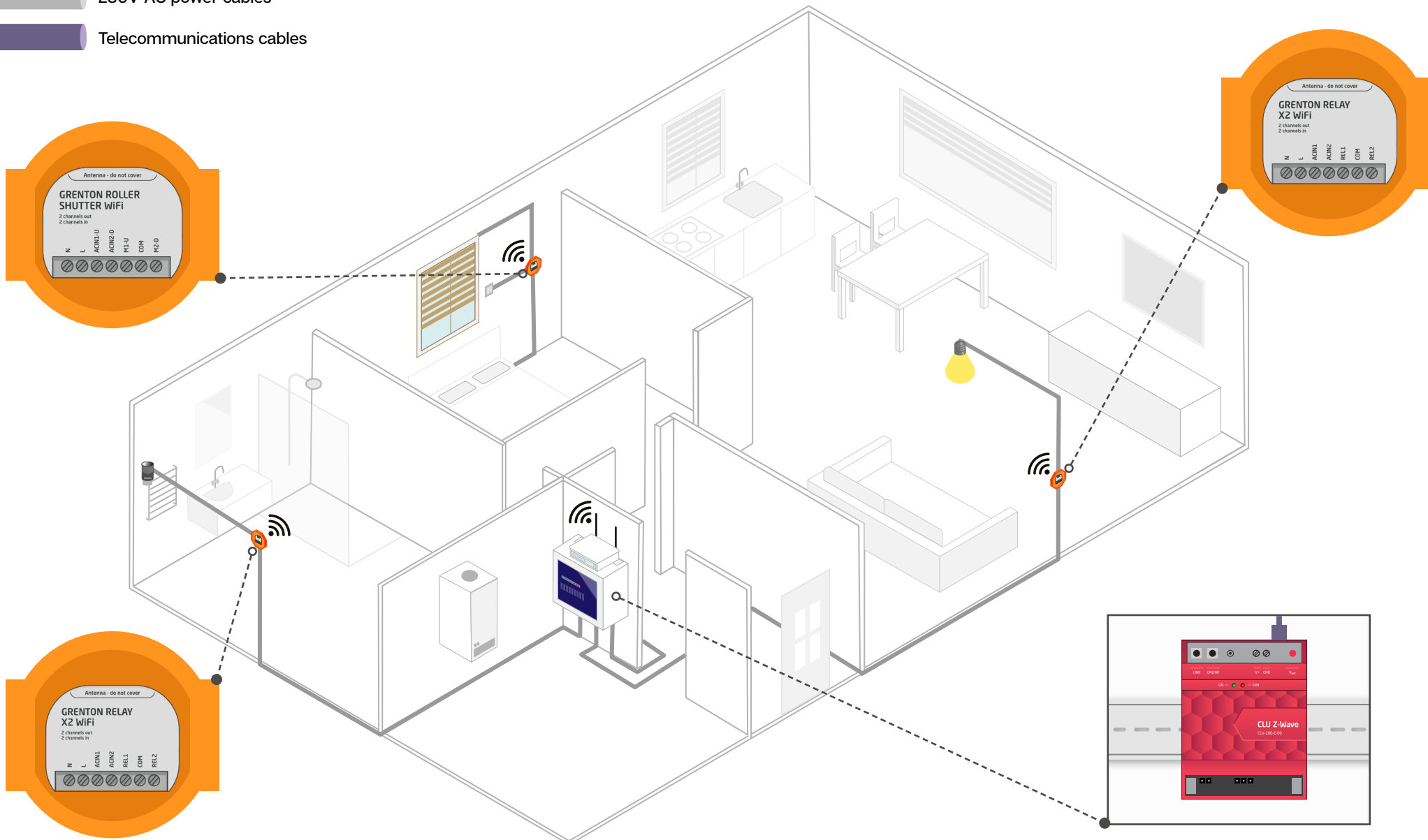
System including Wi-Fi modules without CLU



Electrical installation - Wi-Fi modules

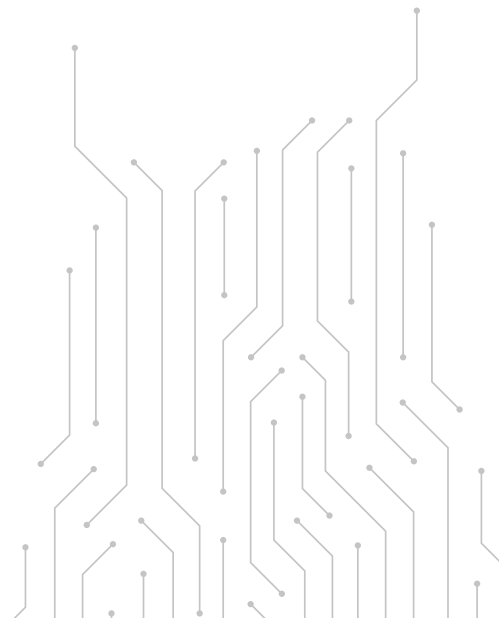
230V AC power cables

Telecommunications cables



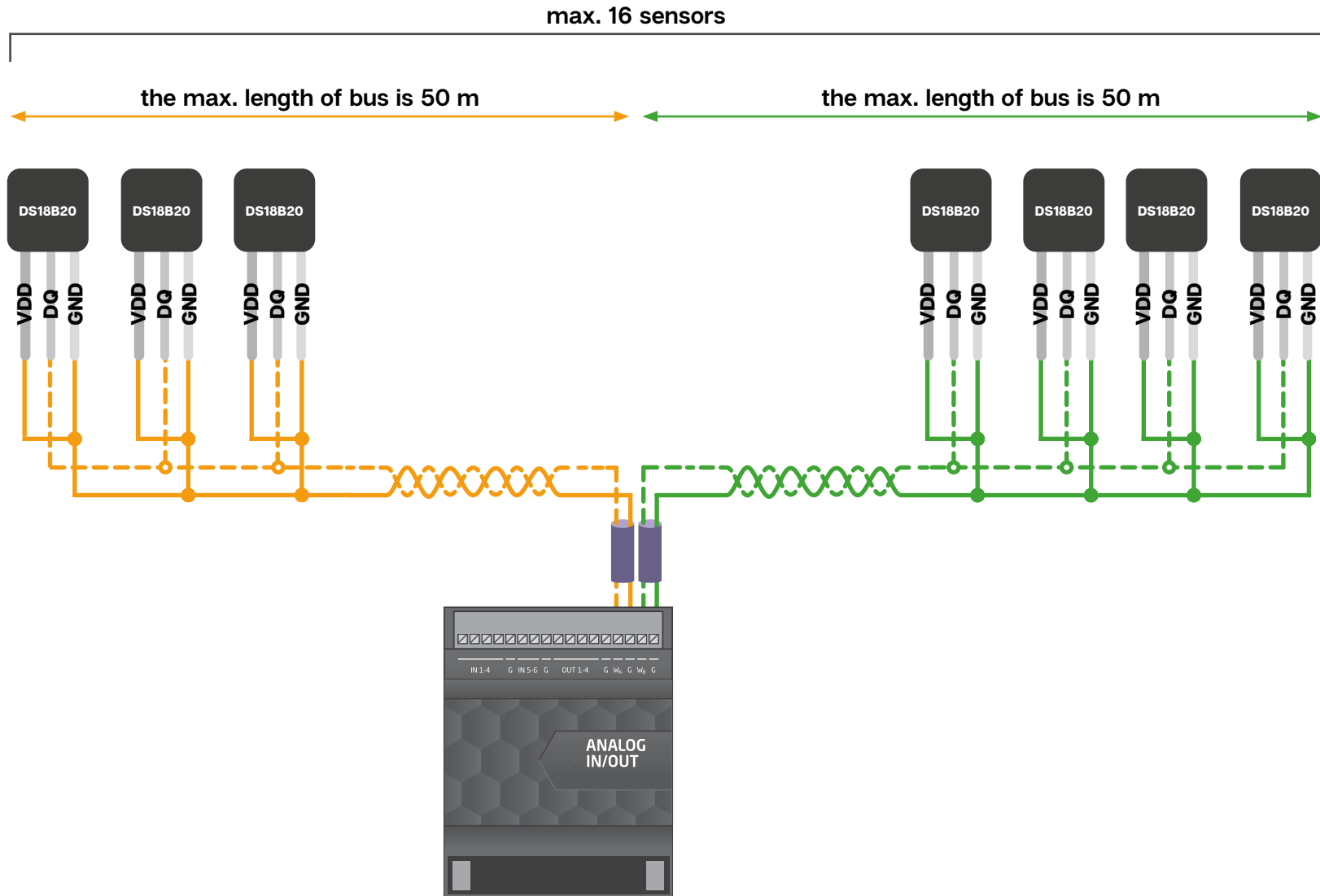
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1-Wire bus



Data communication wiring

Telecommunications cables

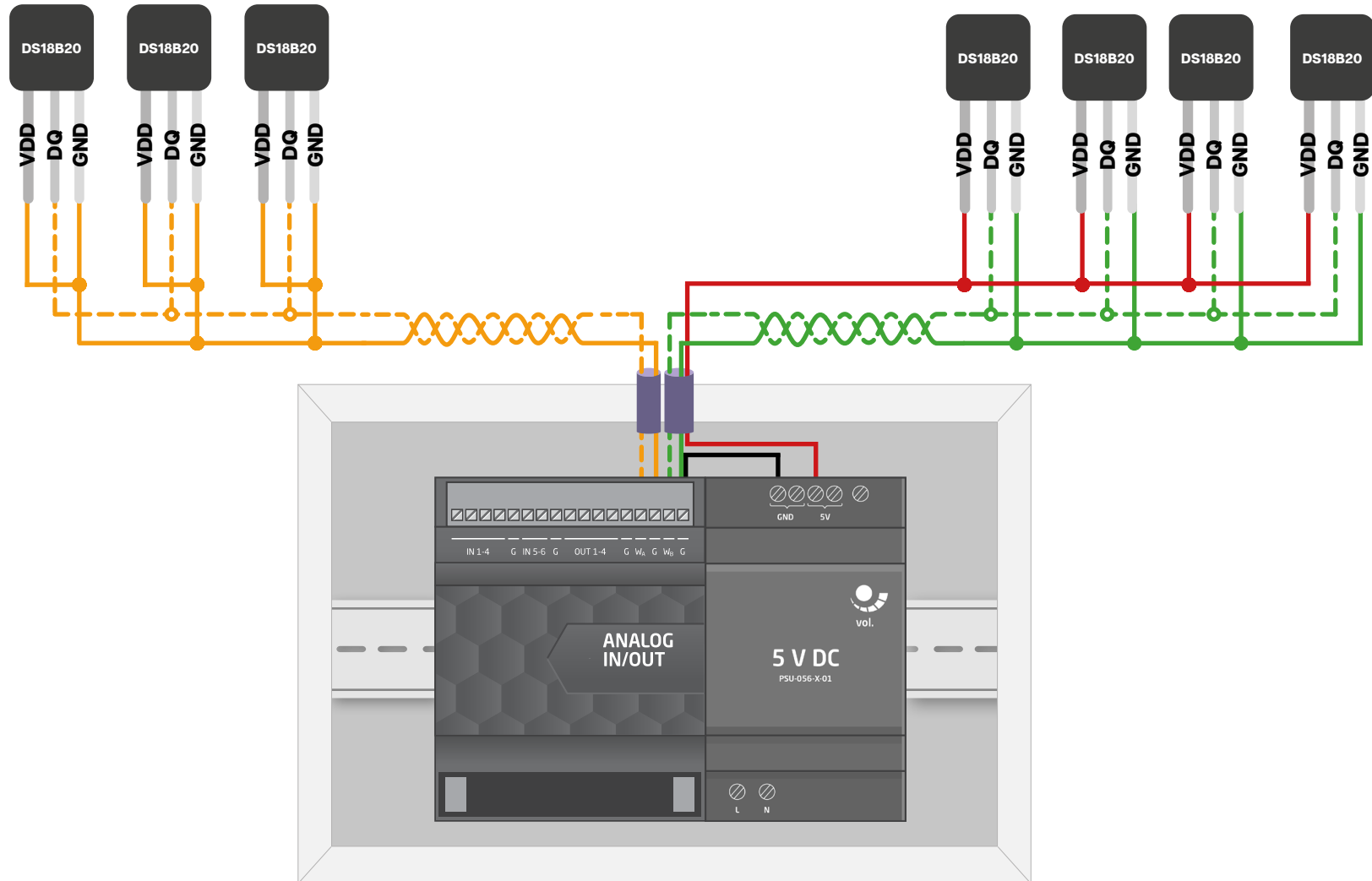


Analog IN/OUT module - sensors connection

Telecommunications cables

Two-wire connection (power directly from the data line - "parasite power")

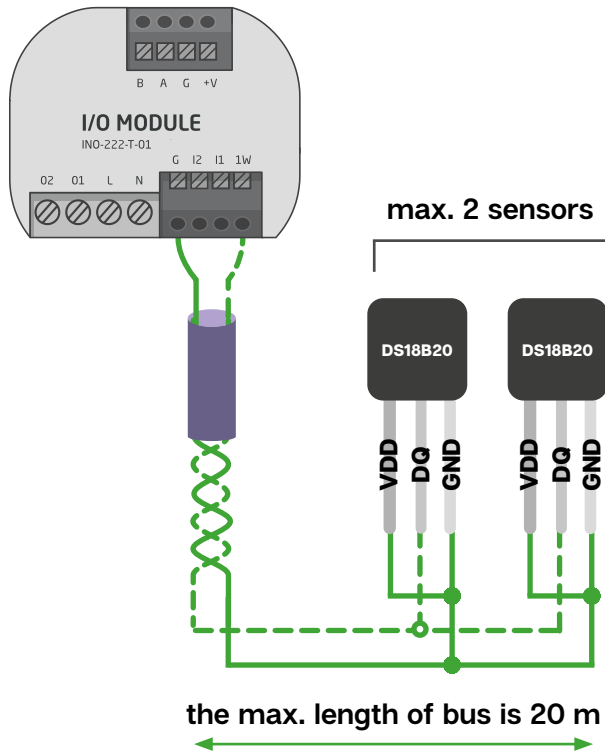
Three-wire connection (power from an external power supply unit)



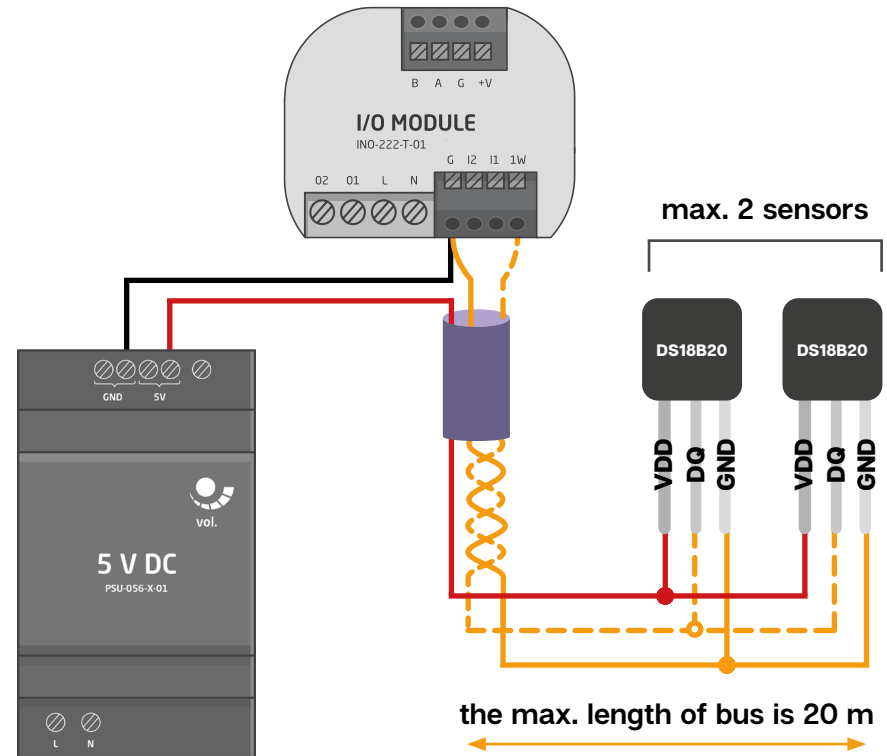
Flush-mounted modules - sensors connection

Telecommunications cables

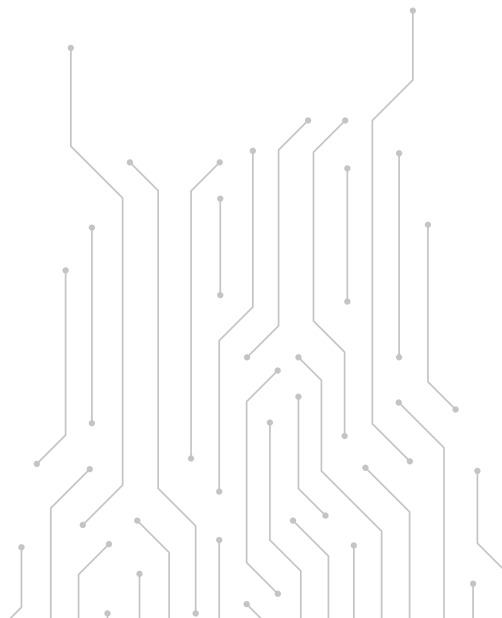
Two-wire connection (power directly from the data line - "parasite power")



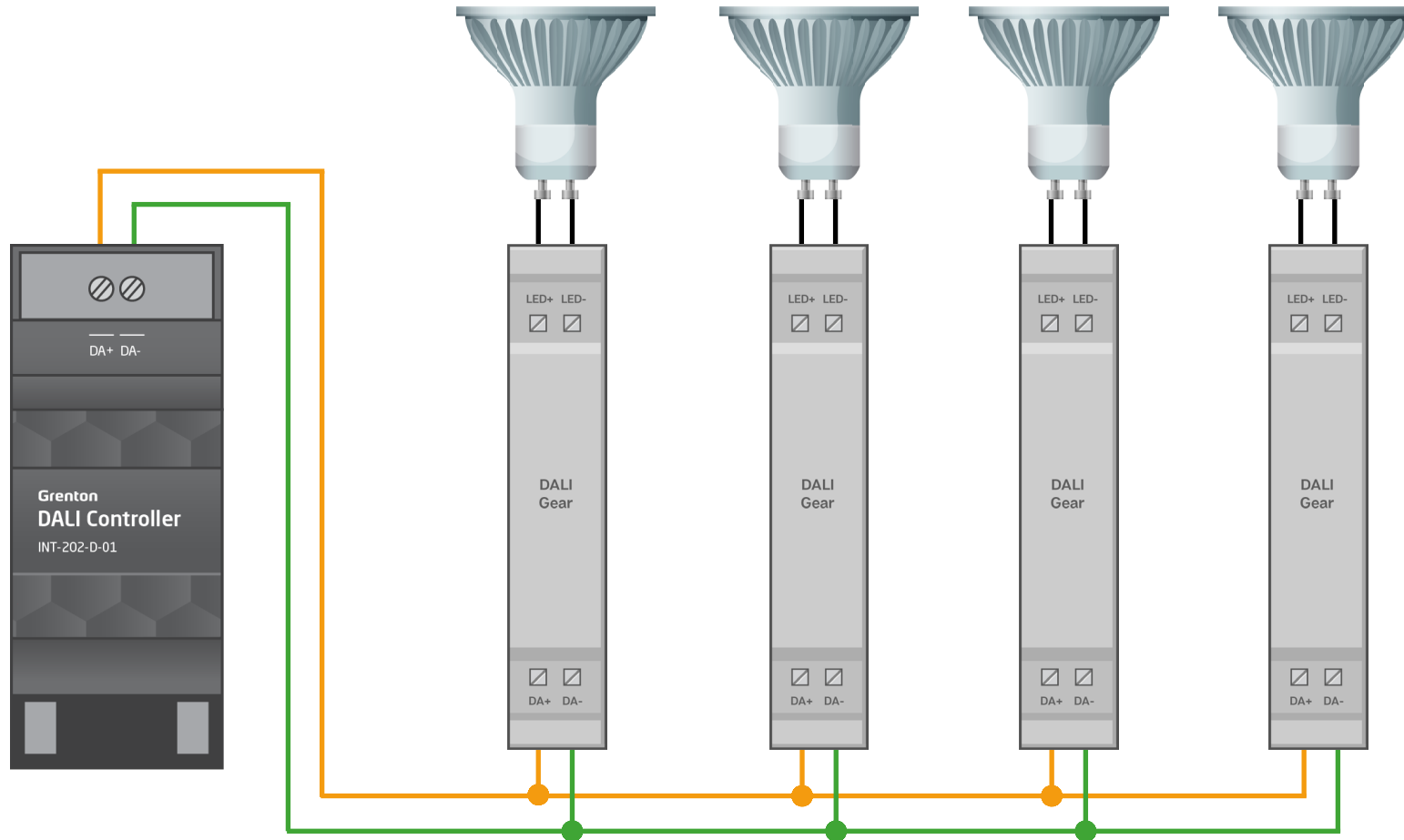
Three-wire connection (power from an external power supply unit)



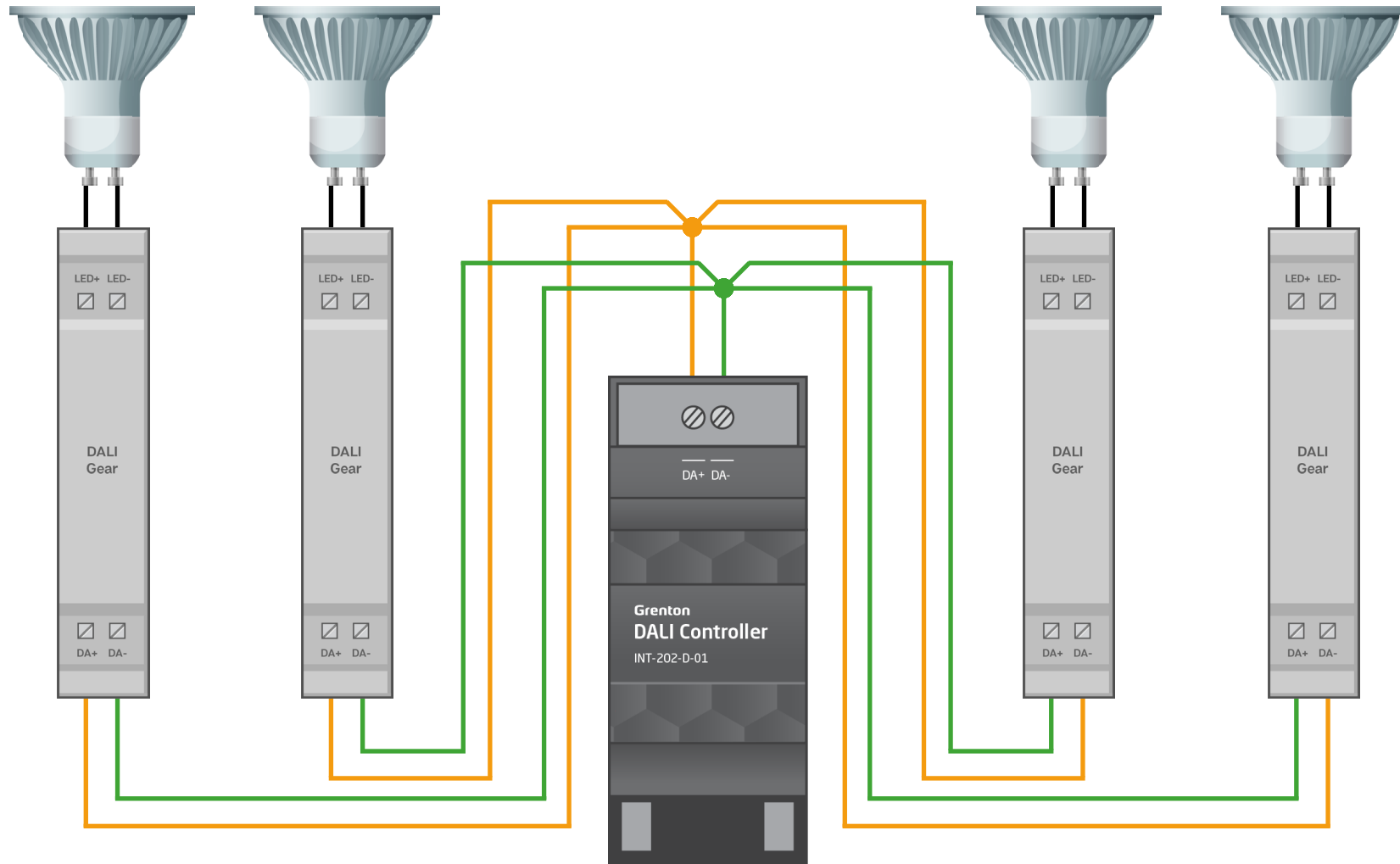
DALI bus



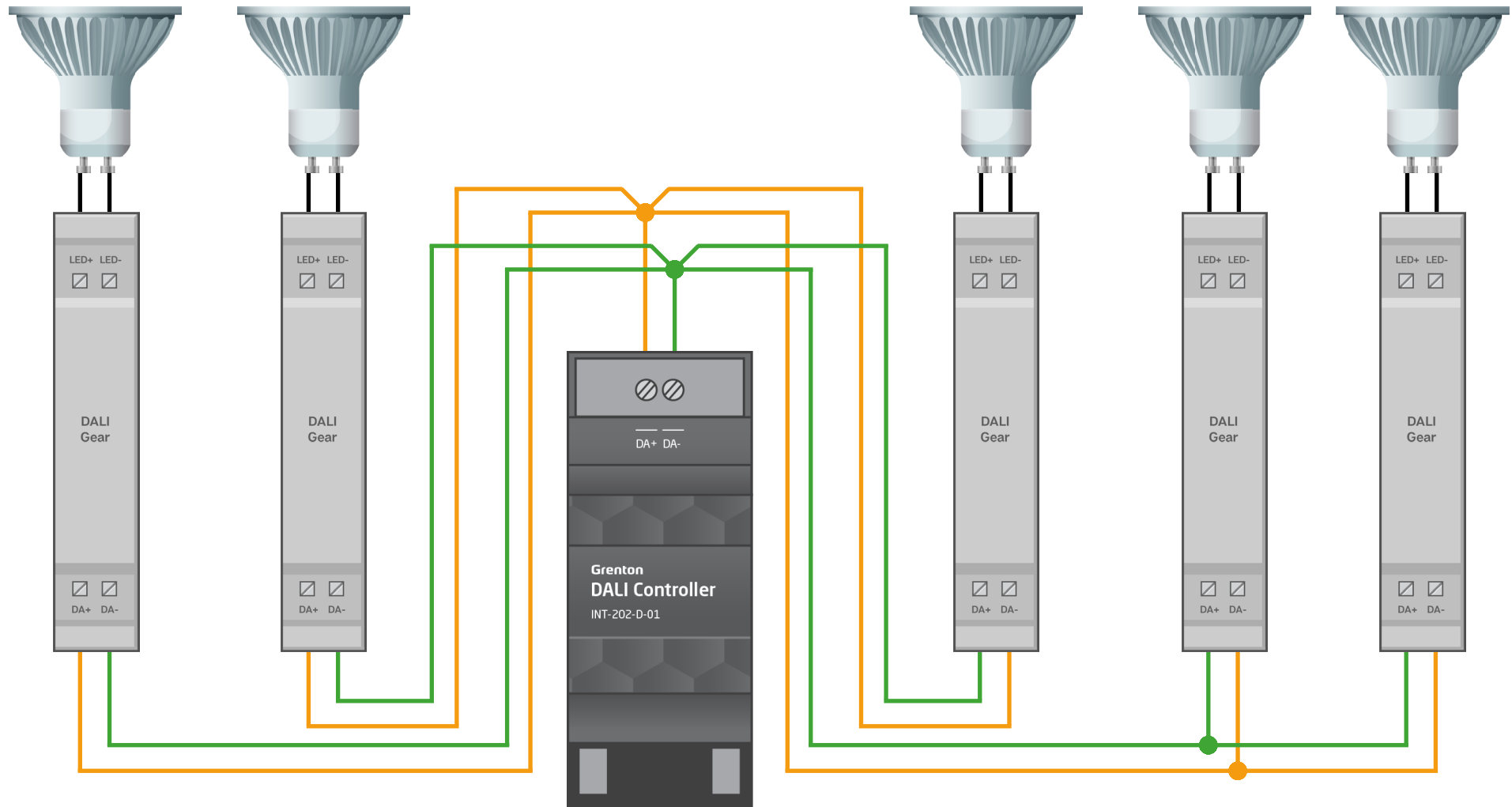
Serial data communication wiring



Star data communication wiring

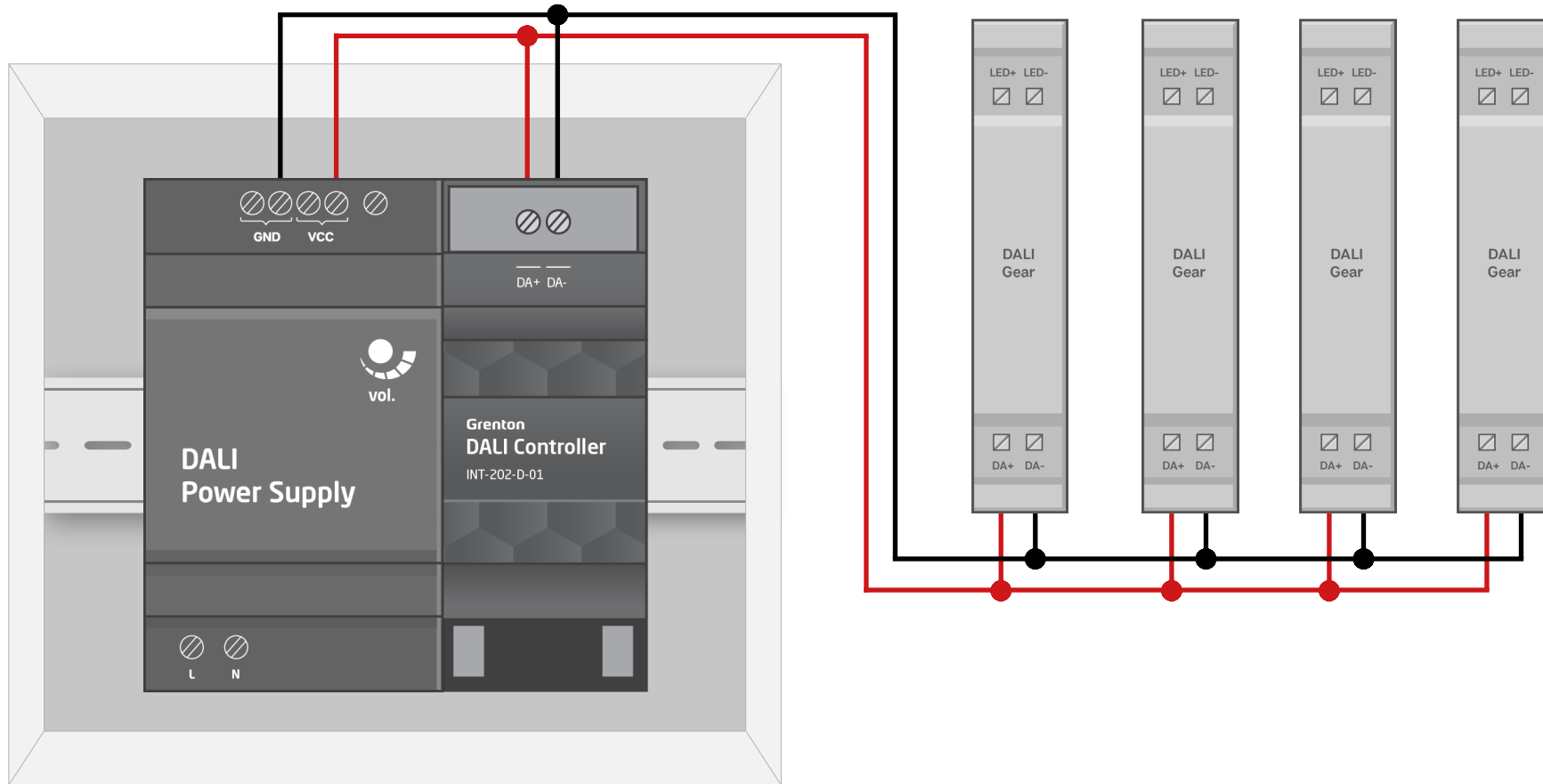


Mixed data communication wiring



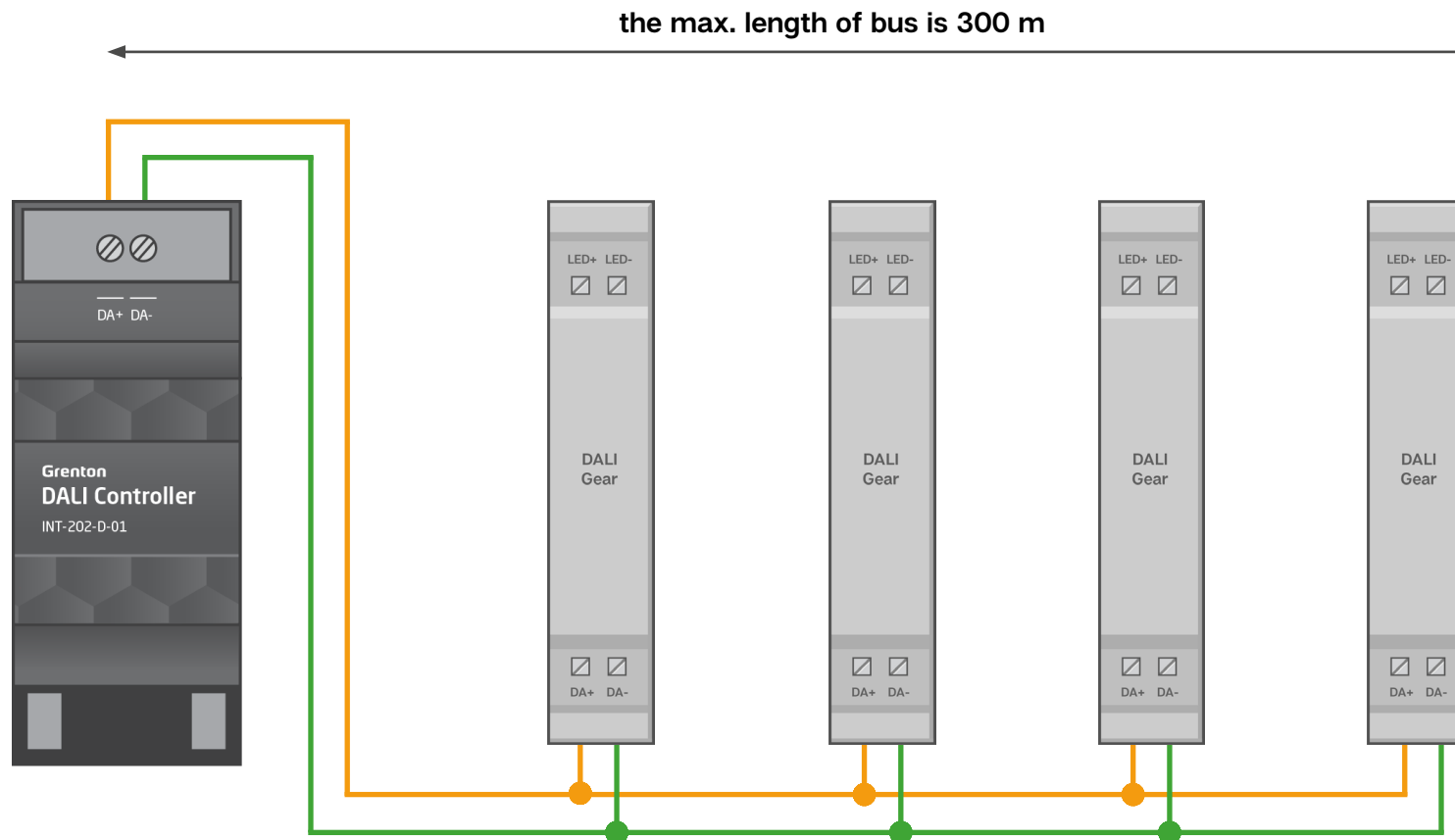
Bus power supply

The maximum output current of the power supply unit is 250 mA



DALI bus - requirements

- Recommended cable cross-section is 1.5 mm²
- No polarity for the DALI bus
- Looping, short-circuiting the bus or connecting other buses are not allowed
- DALI bus voltage is 13-20V

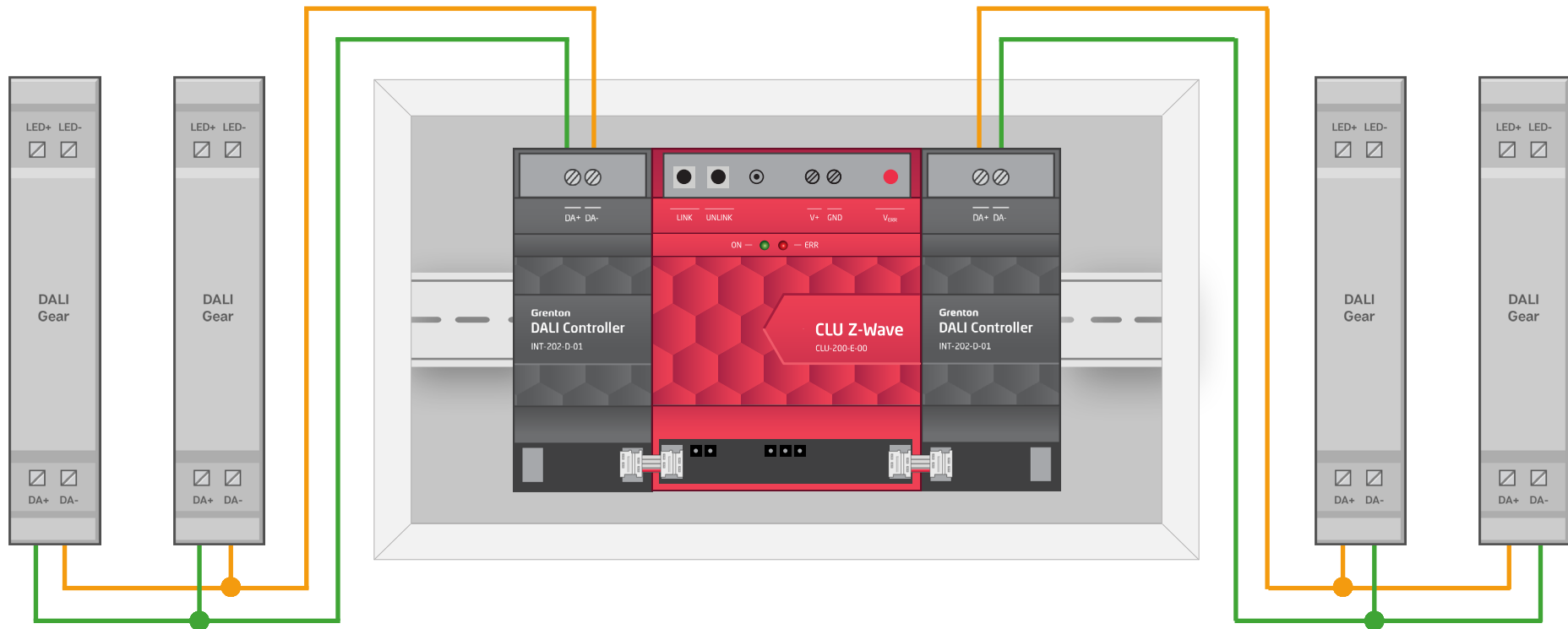


Number of ballasts

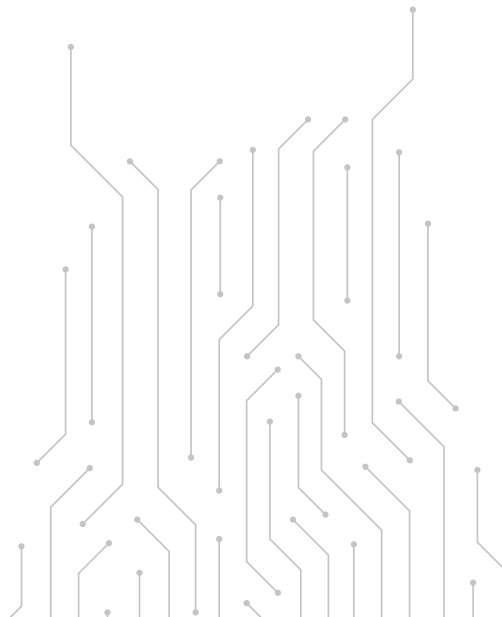
max. 128 ballasts per 1 CLU

max. 64 ballasts per 1 DALI Controller

max. 64 ballasts per 1 DALI Controller

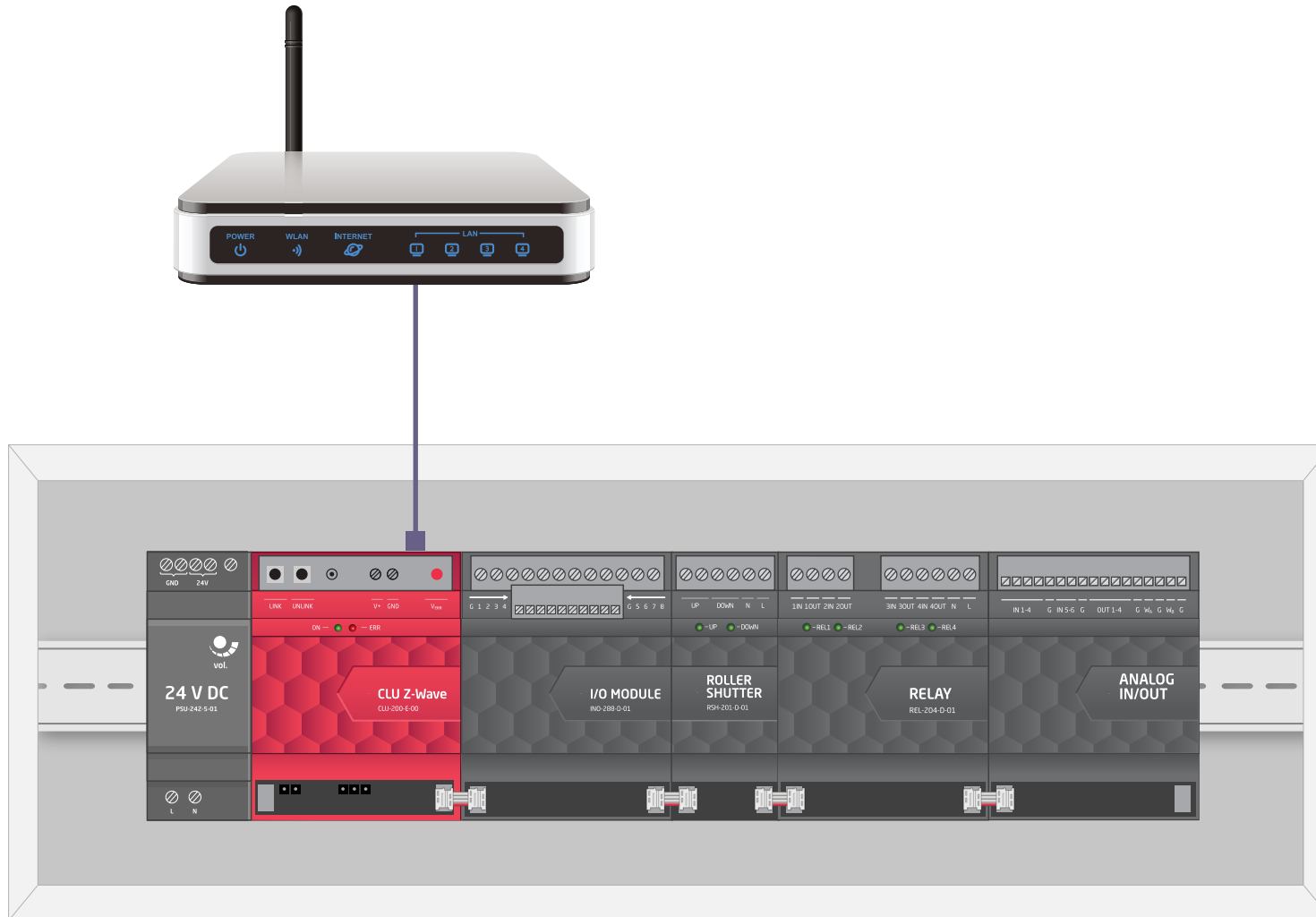


System communication



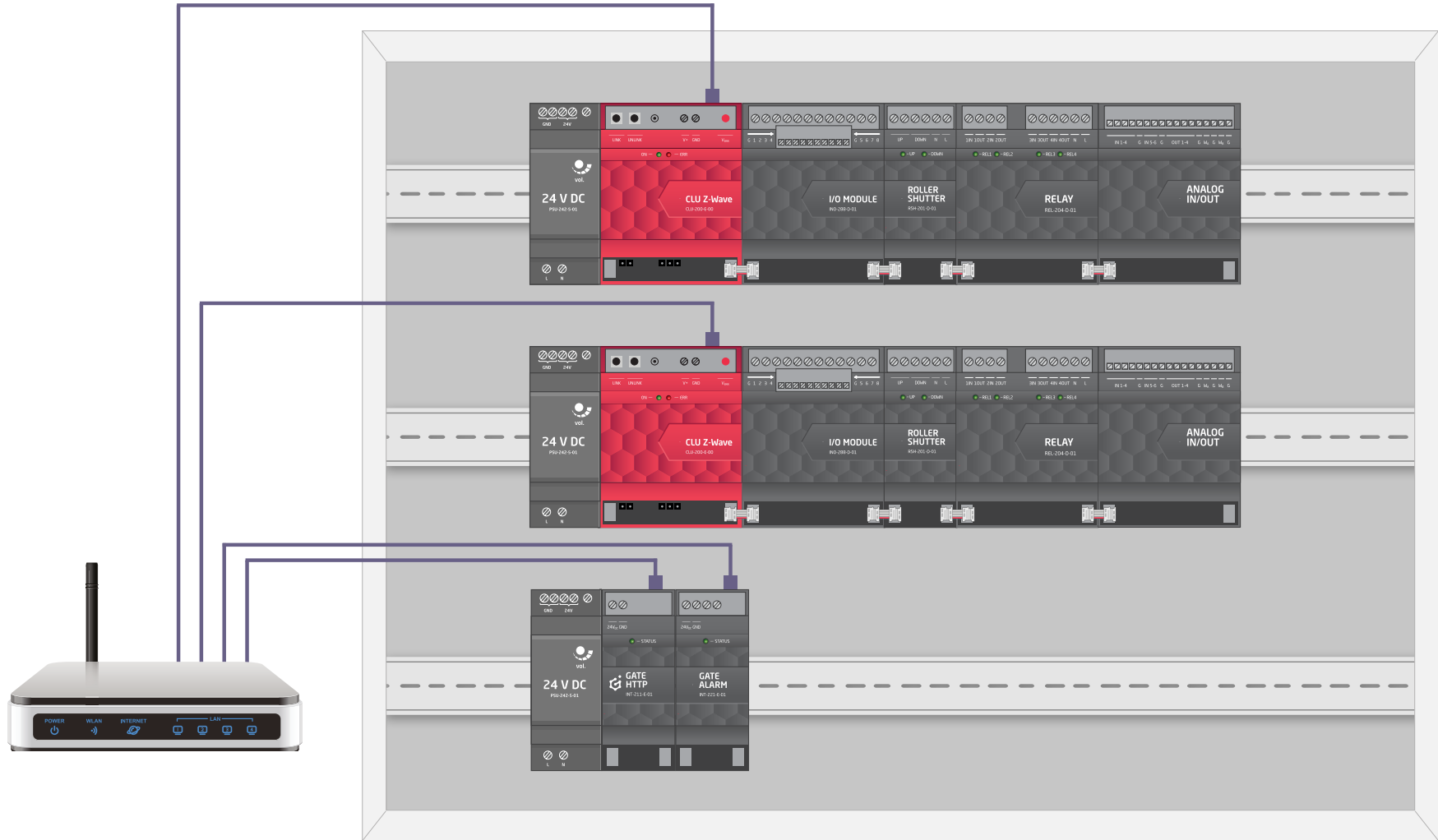
System with the one CLU class device

Telecommunications cables



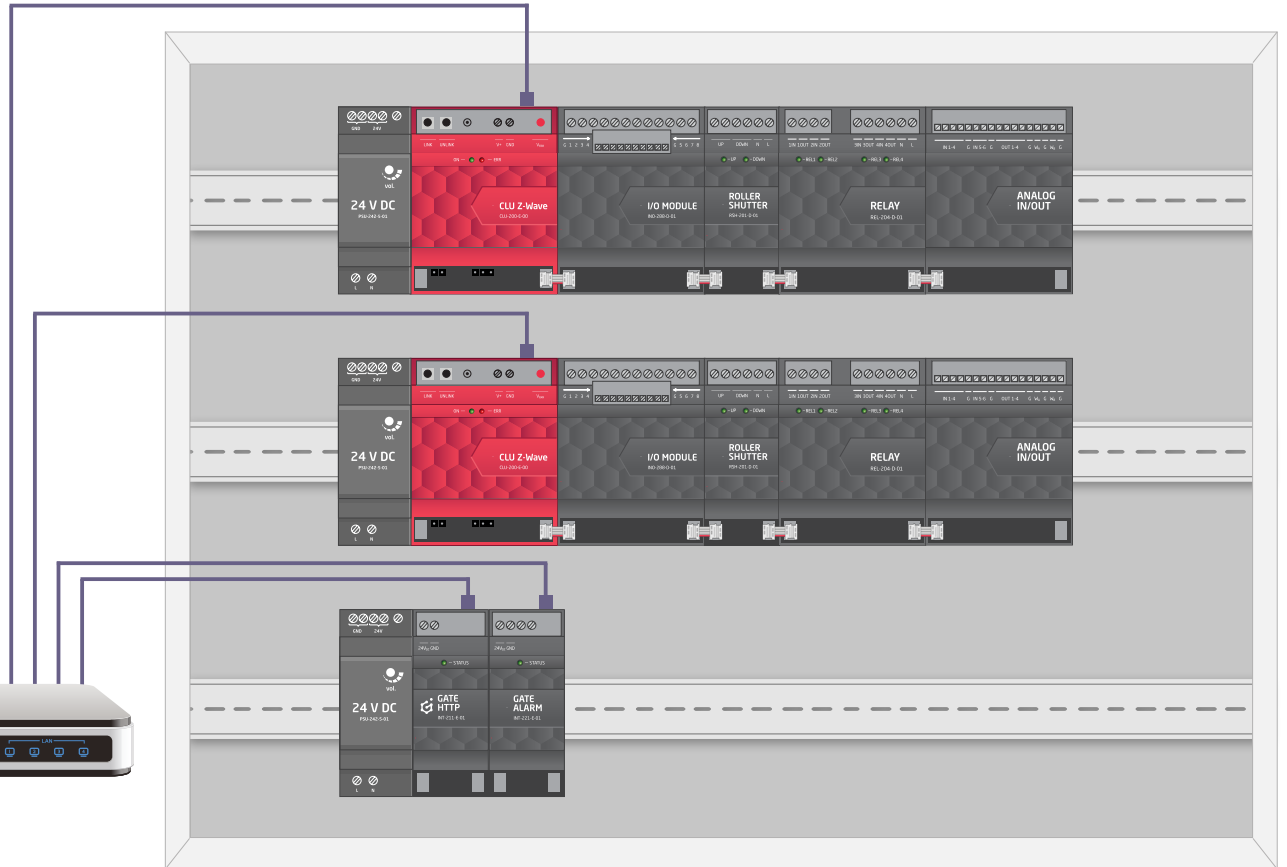
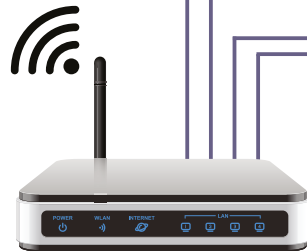
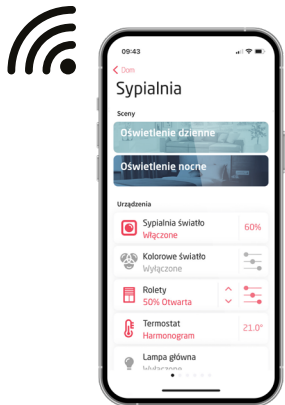
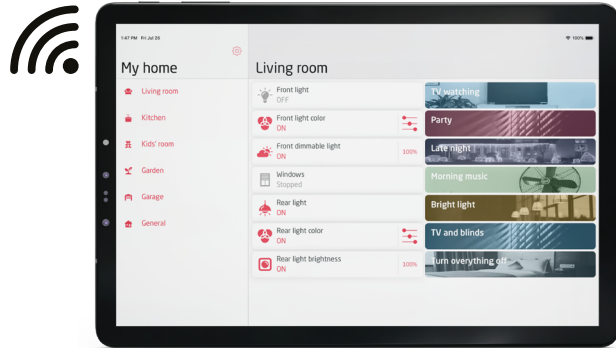
System with several CLU class devices

Telecommunications cables

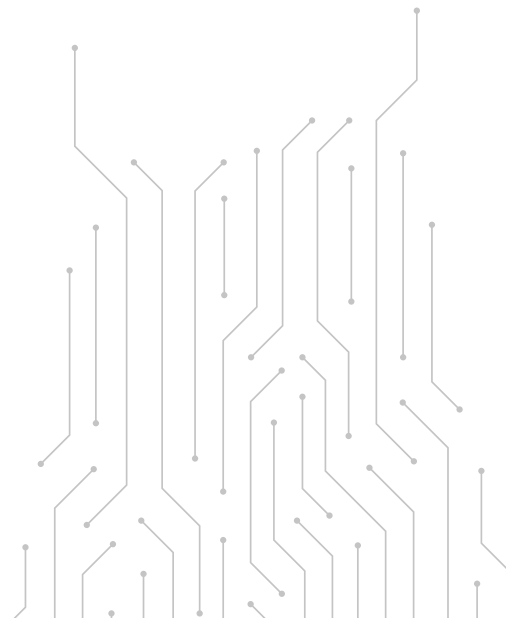


Mobile devices

Telecommunications cables



System power supply

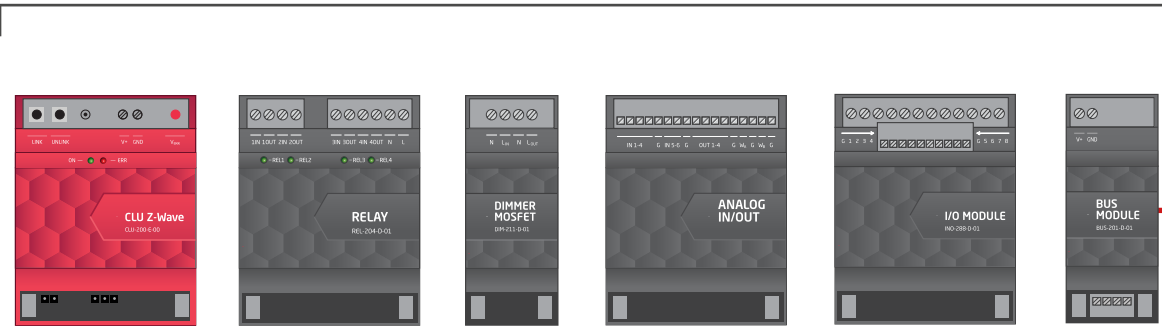


Power supply unit selection

The power of the power supply unit should be calculated by summing:

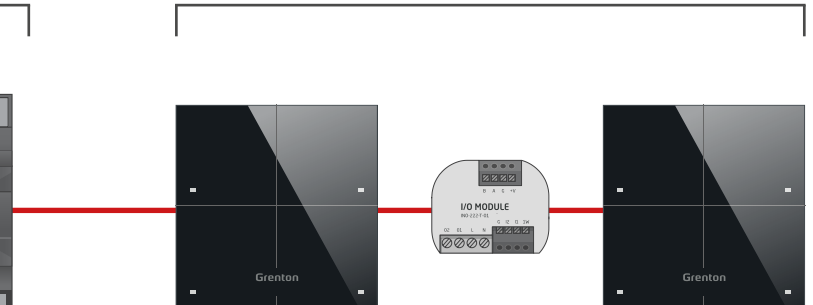
- The current power consumption of all modules in the system,
- 30% of the buffer taking into account voltage drops on the bus and possible expansion of the system

DIN-mounted modules



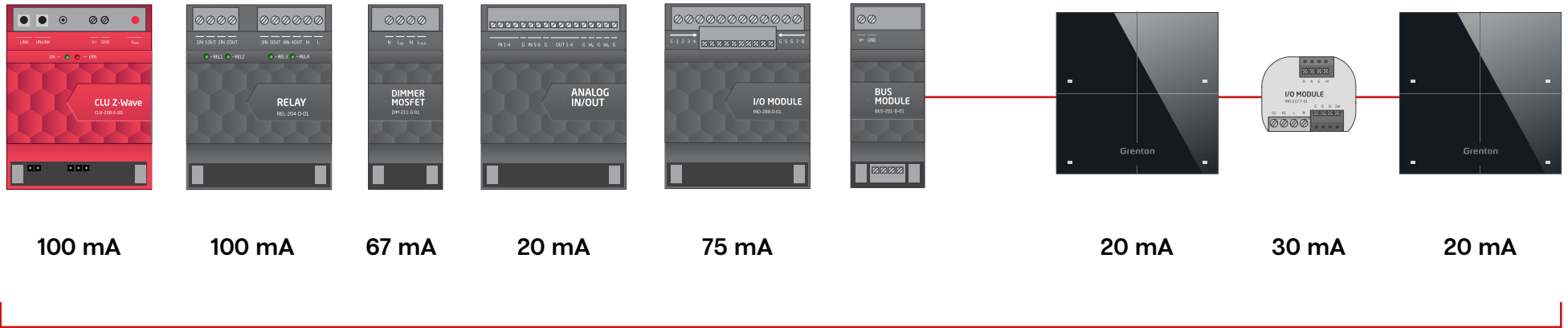
Power consumption

Touch panels and flush-mounted modules



Power consumption
+
Voltage drop

Power supply unit selection - example



Max. summary power consumption for above modules is **432 mA**

Max. summary power consumption + 30% buffer

$$432 \text{ mA} + 30\% = 561.6 \text{ mA}$$

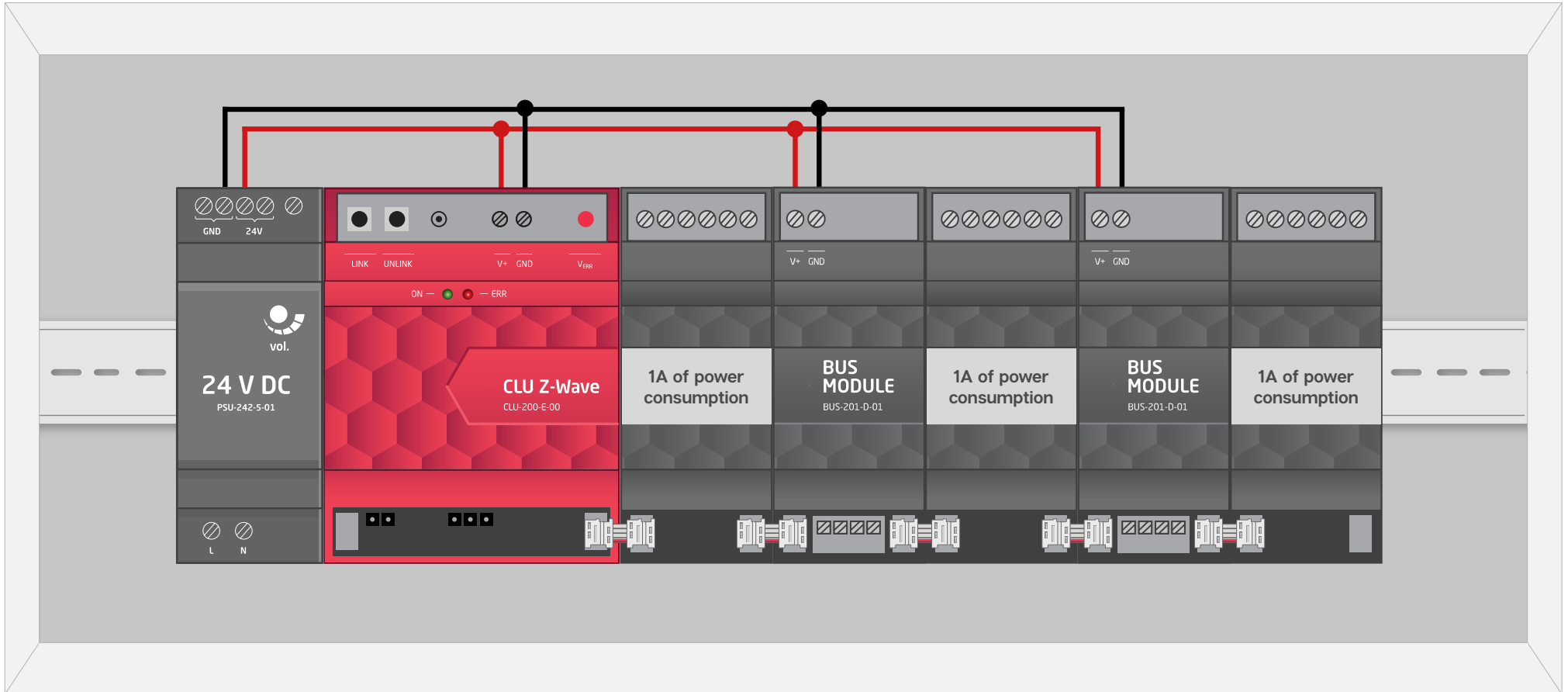
Min. power of a power supply unit = **561.6 mA**



Optimal parameters of the power supply unit for this example

24 VDC 600 mA

System power supply



24V DC power supply unit

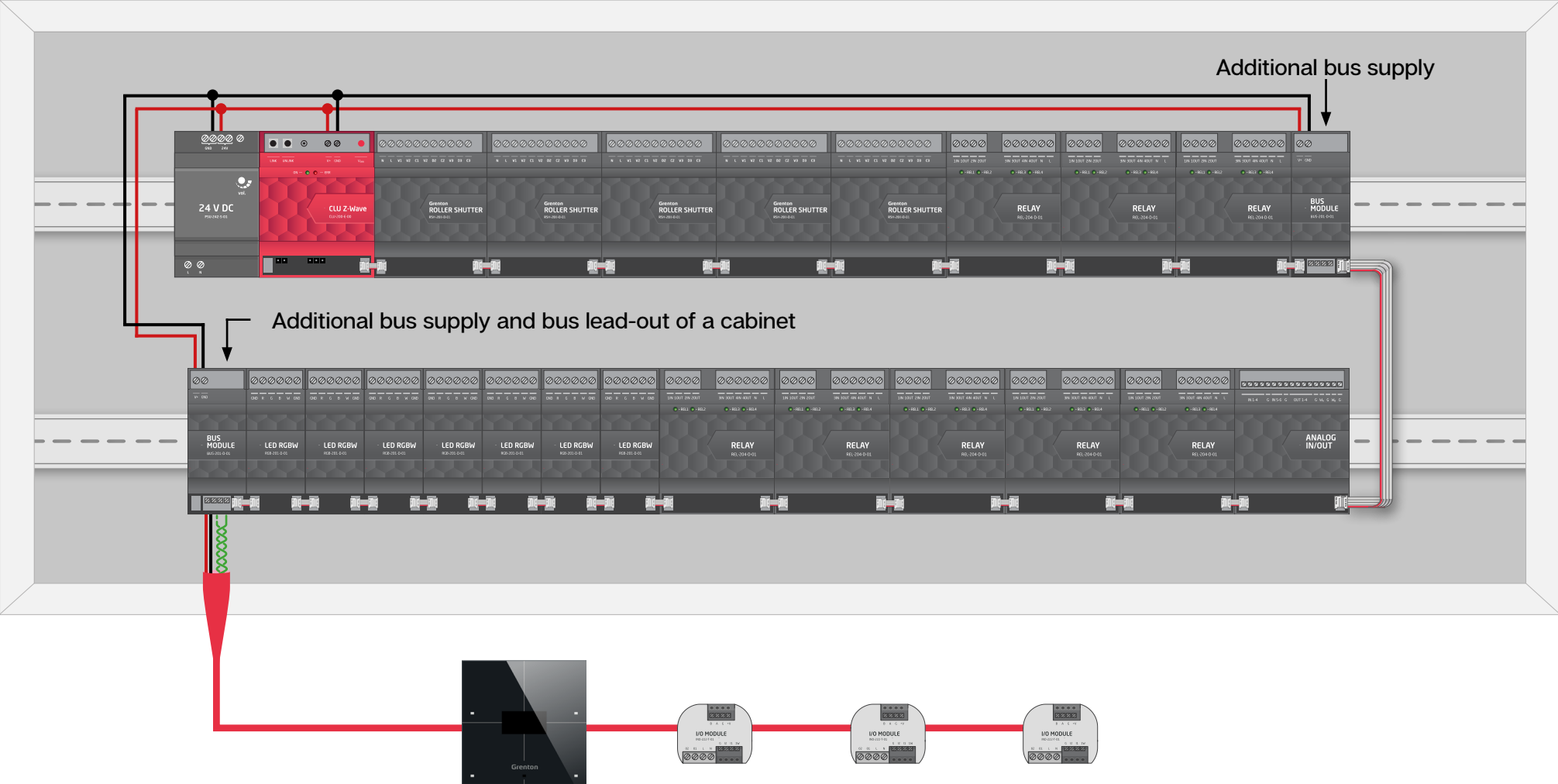
Min. 3A

System power supply - 1st example

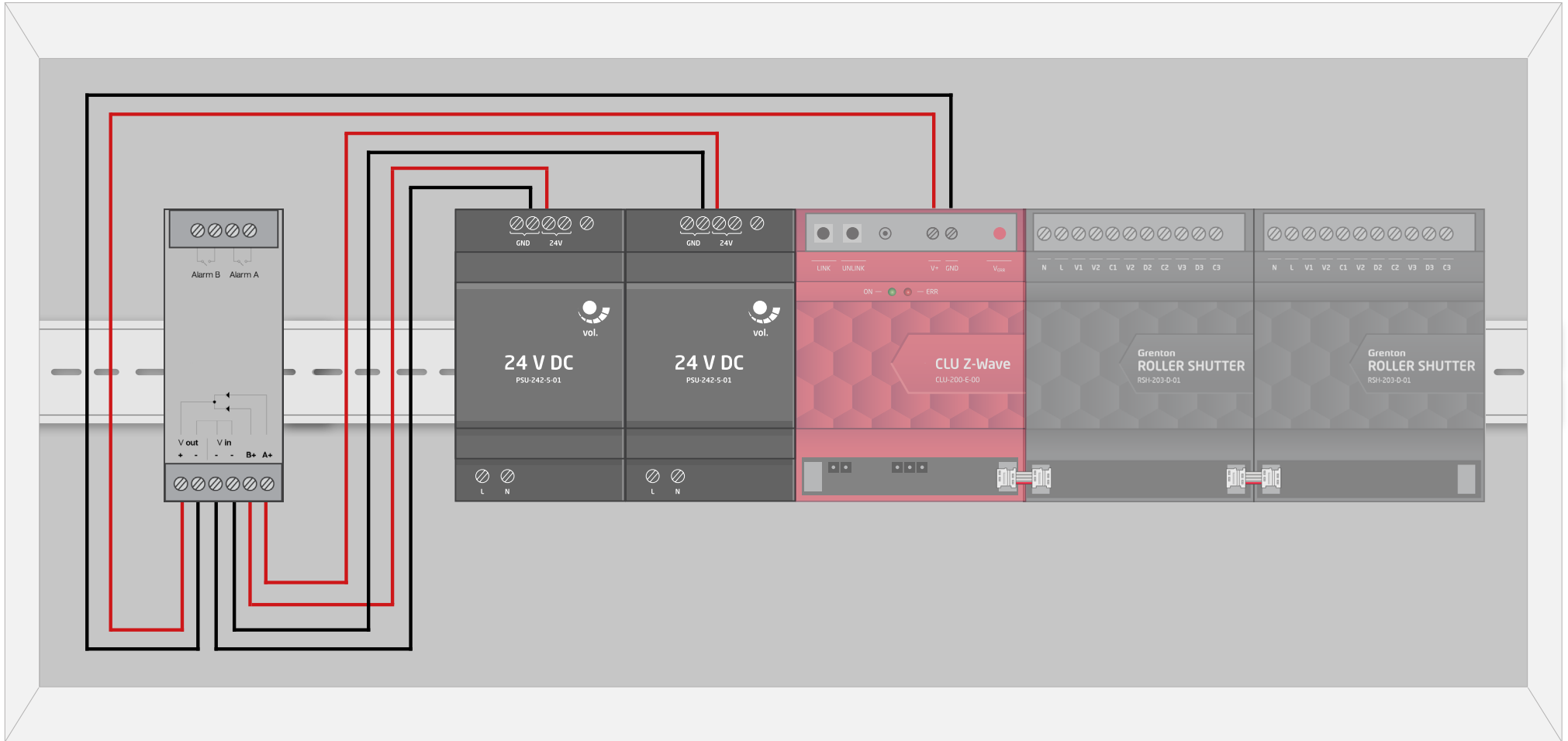


System power supply - 2nd example

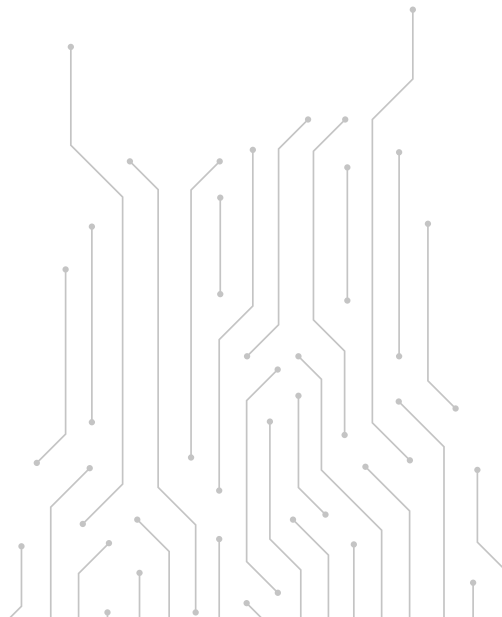
GRENTON TF-Bus Cable



Power supply of the system using a redundancy module

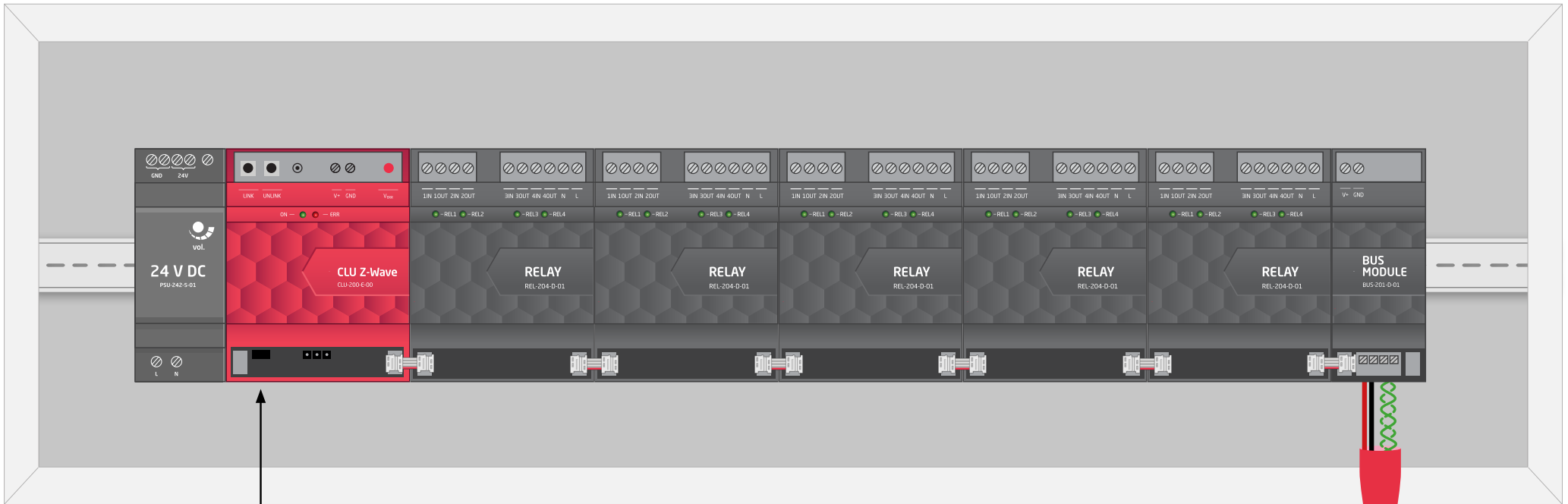


Bus termination

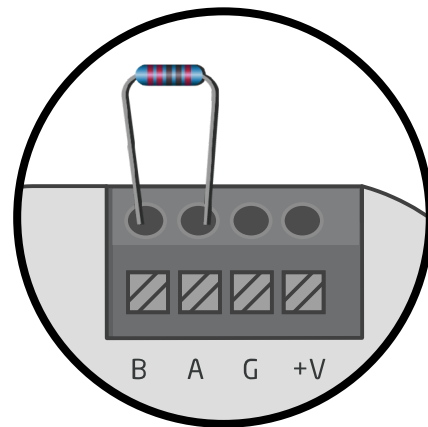


Bus termination

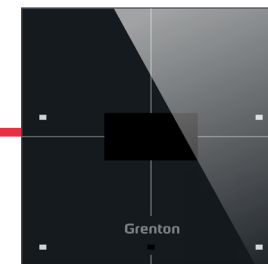
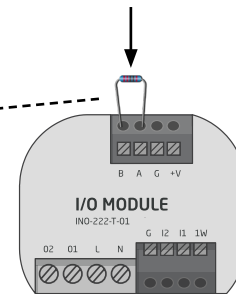
GRENTON TF-Bus Cable



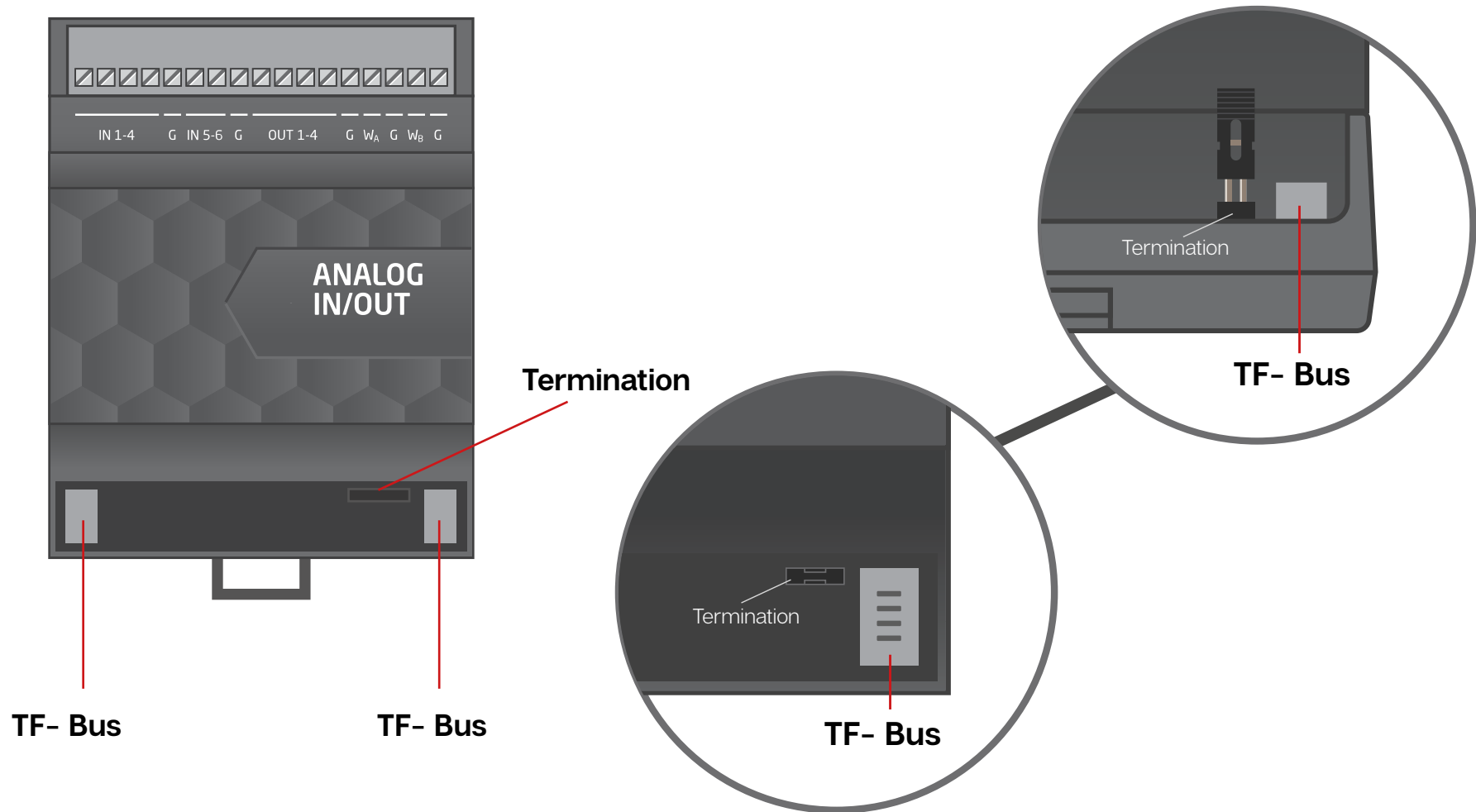
Termination jumper
2.54 mm



Resistor 120 Ω

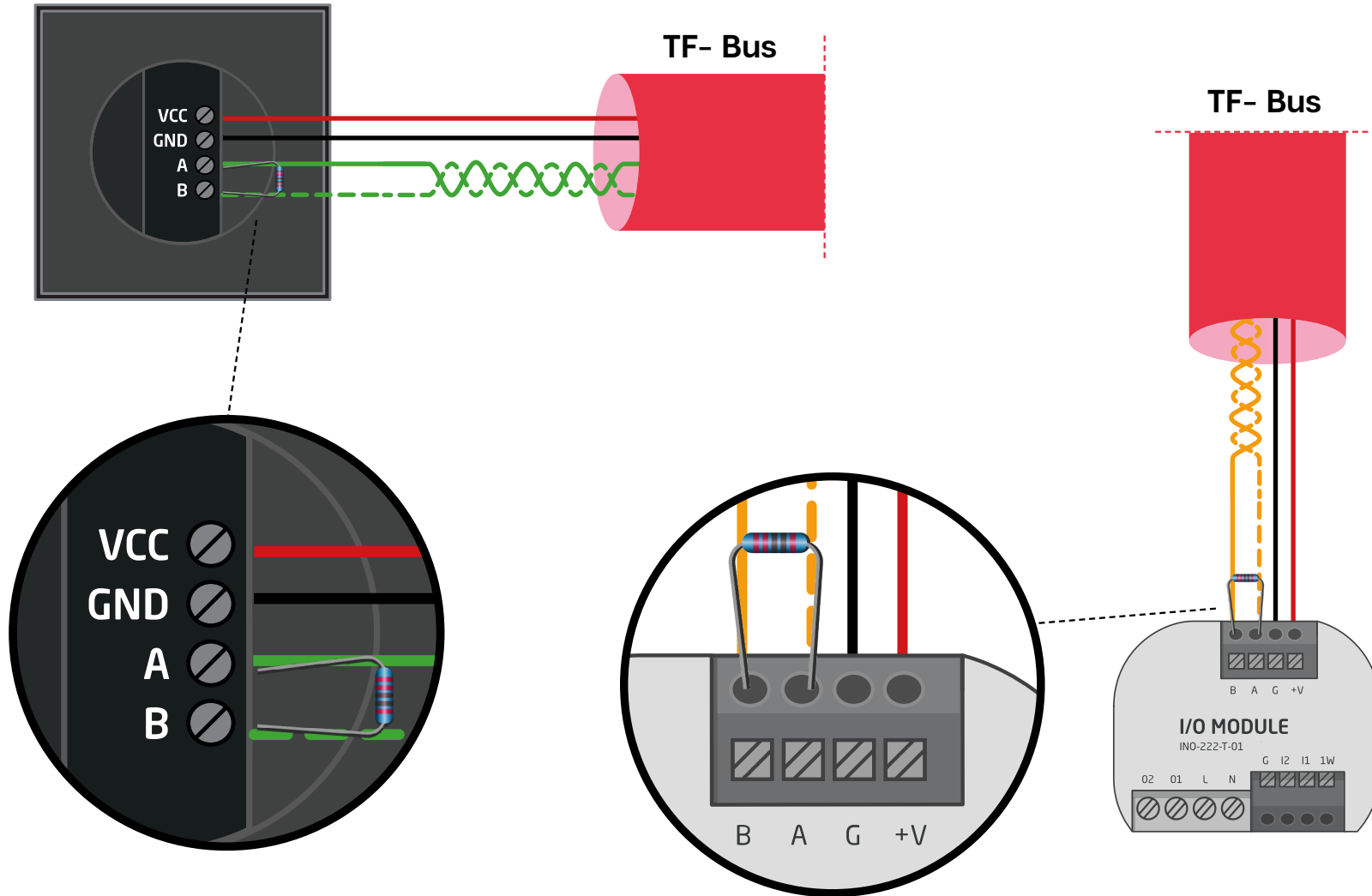


Termination - DIN modules

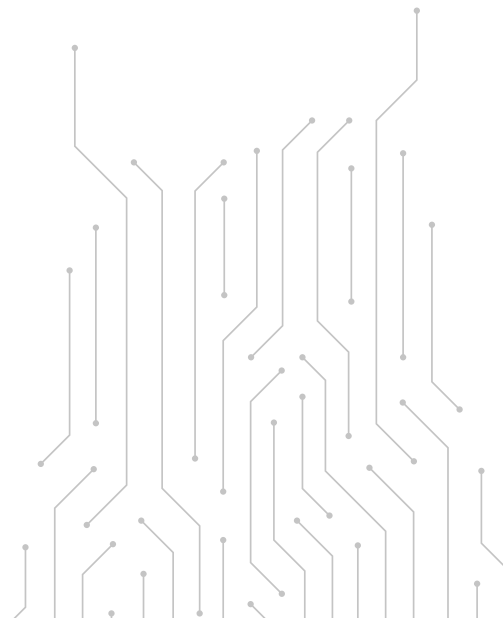


Termination - touch panels and flush-mounted modules

 GRENTON TF-Bus Cable



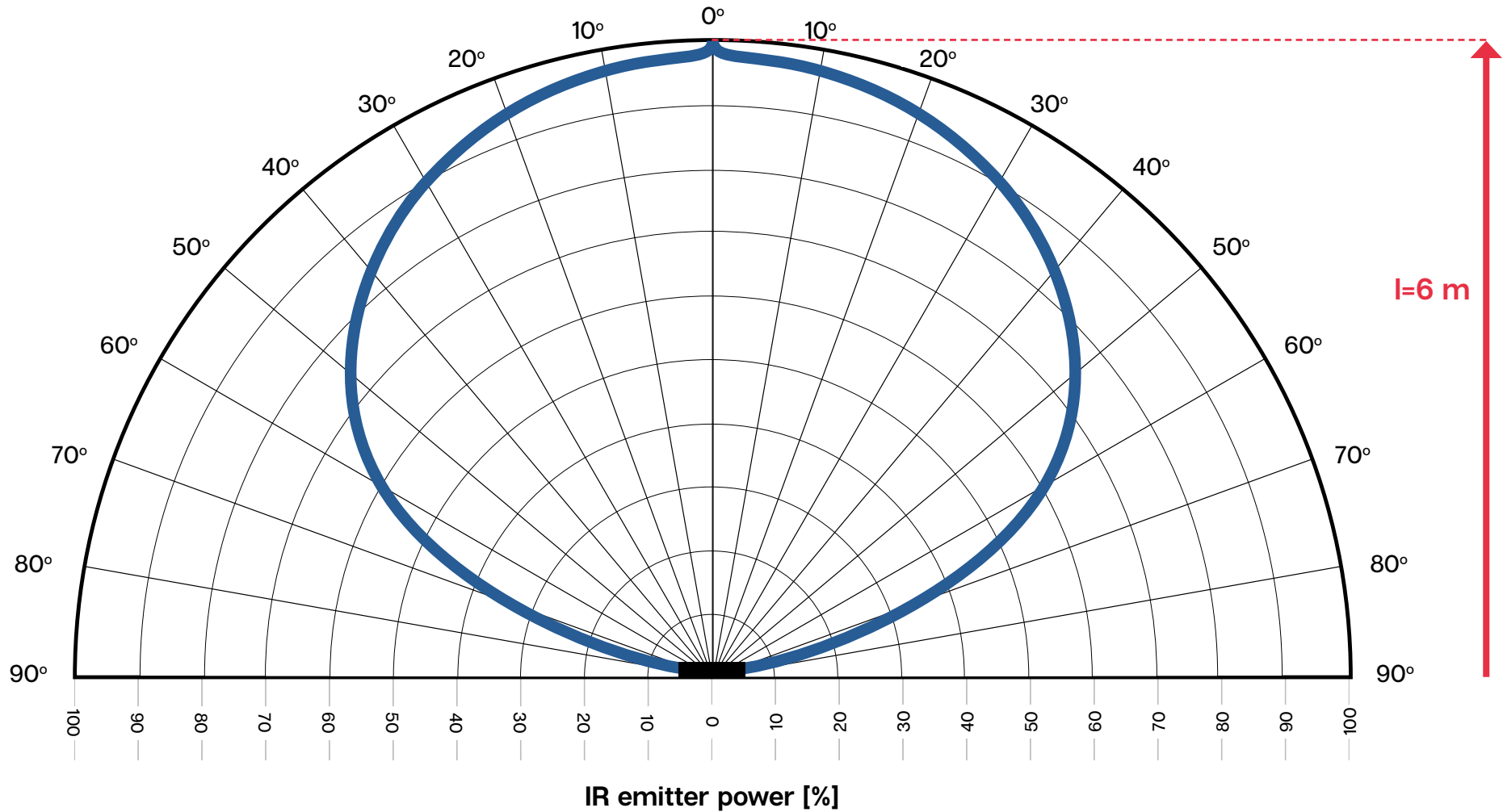
Multisensor



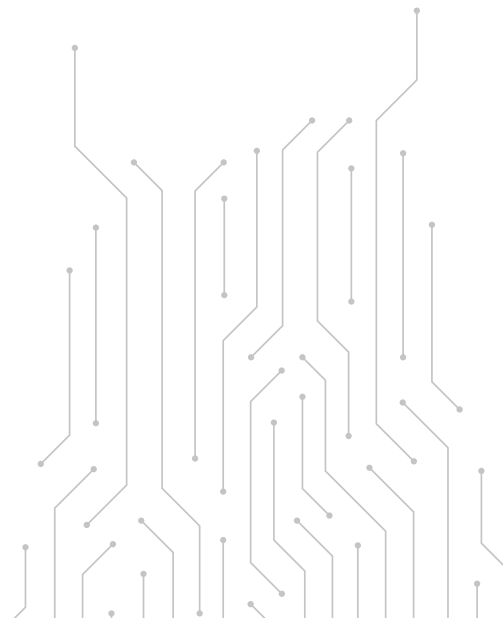
Placement - reading of sensor measurements



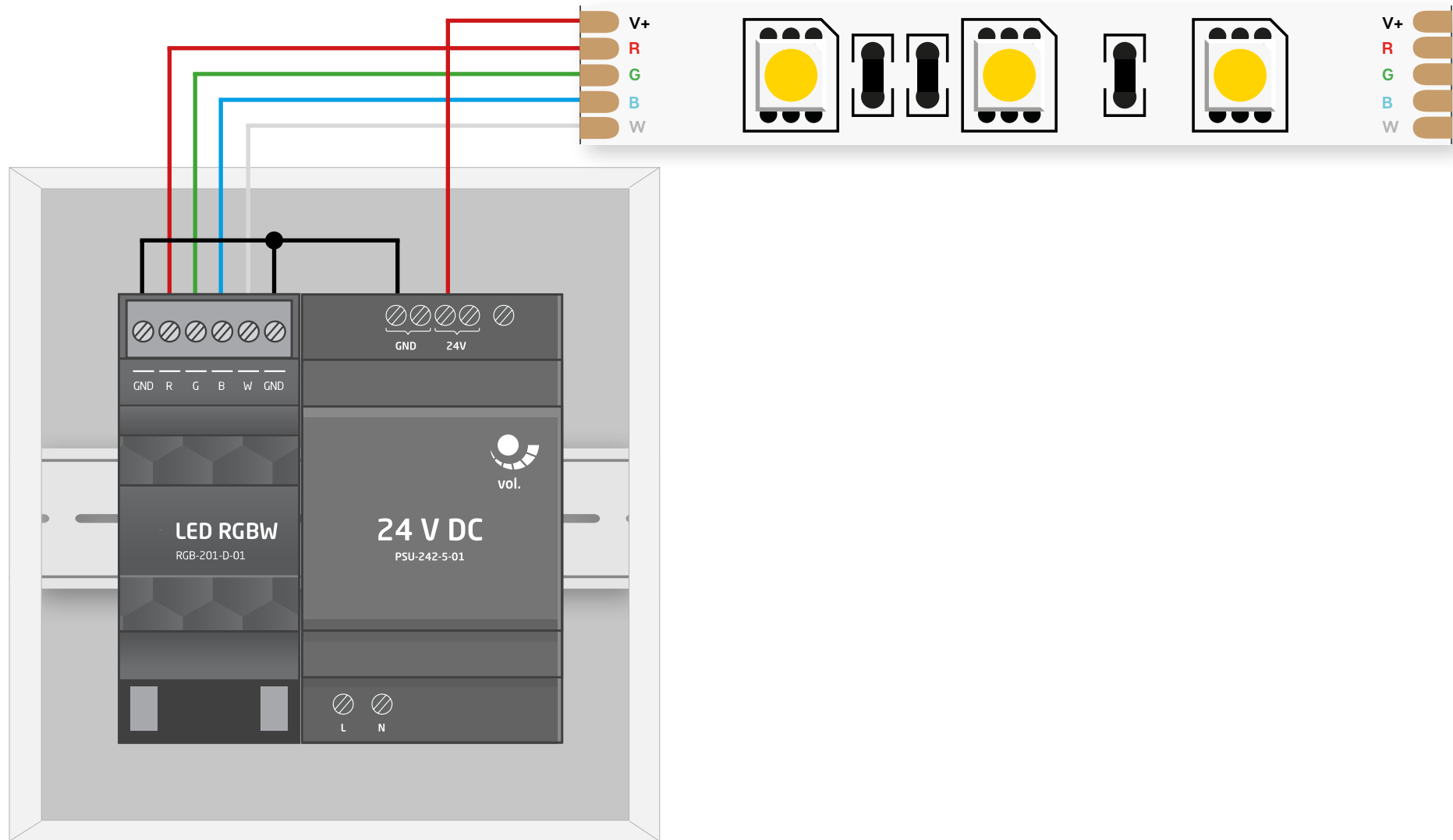
Radiation characteristics of IR emitter and operation range



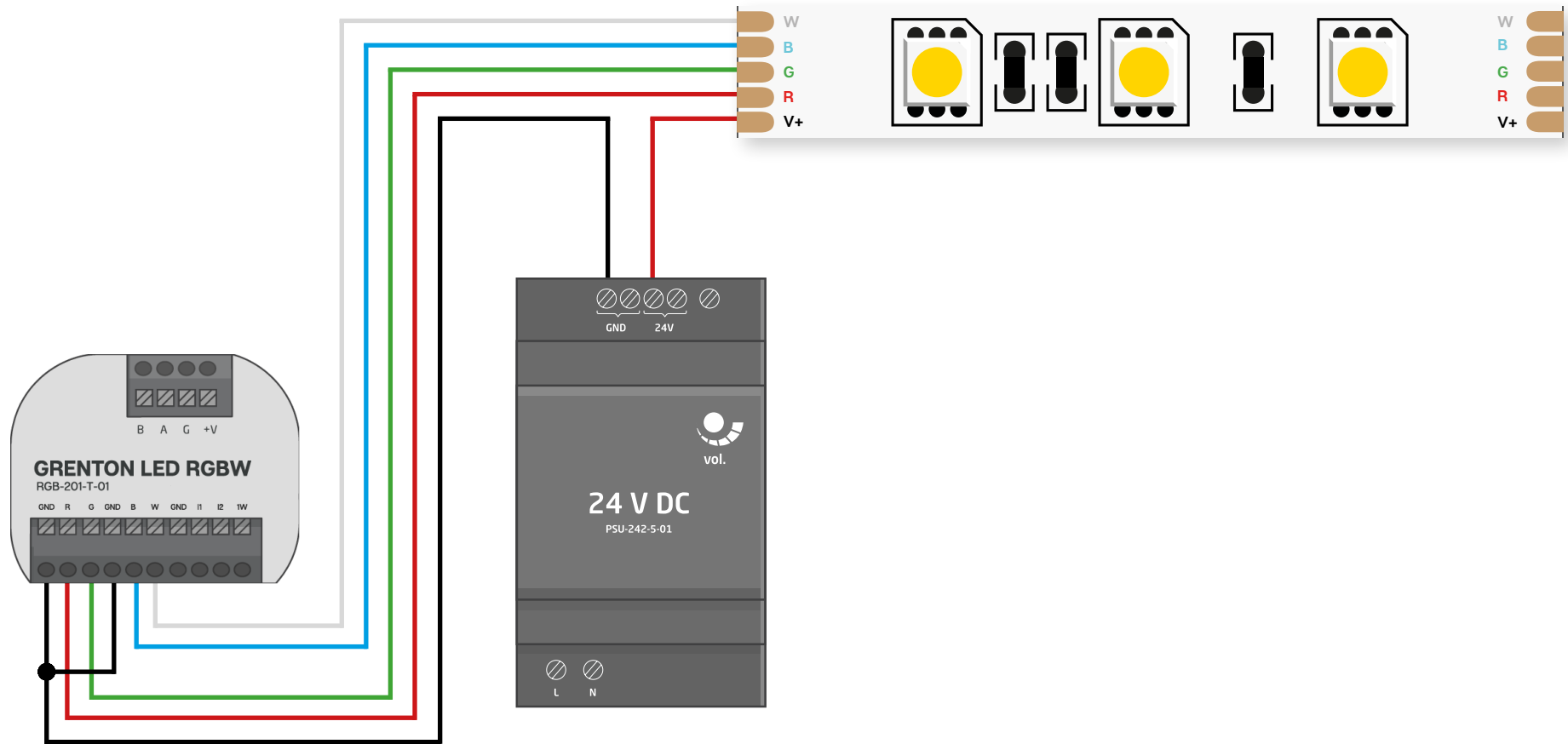
LED strips control



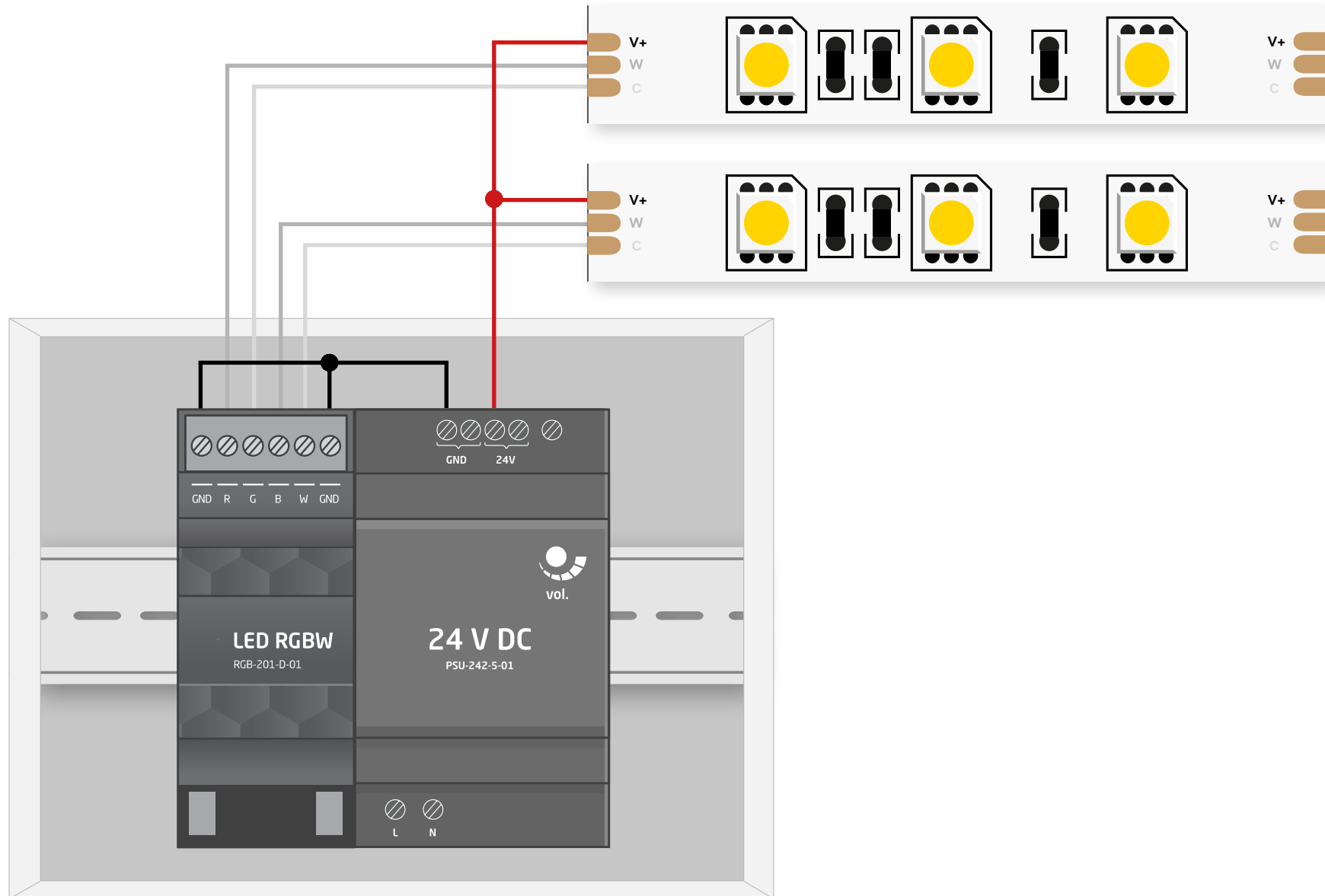
Wiring diagram - RGBW LED strips



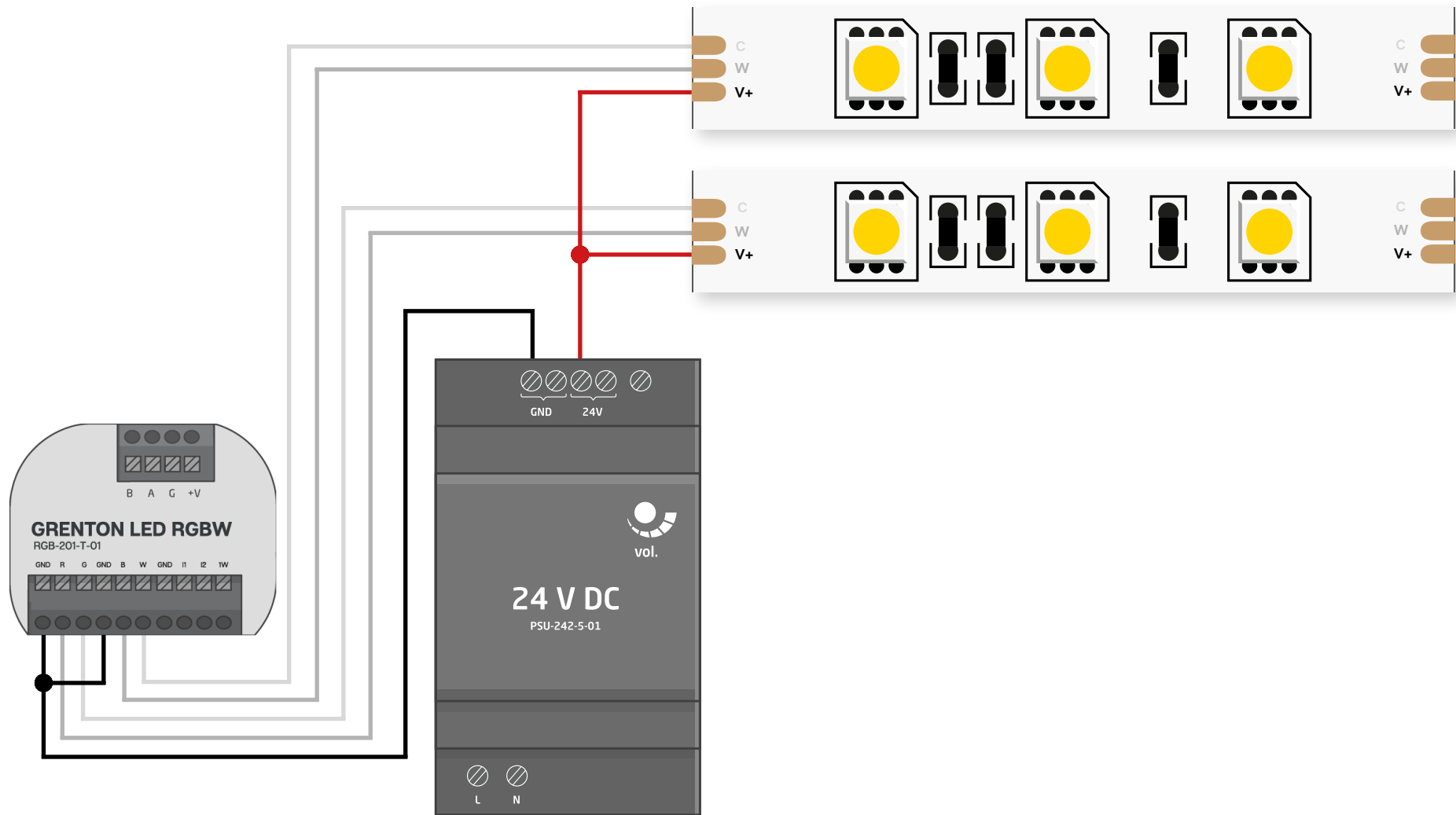
Wiring diagram - RGBW LED strips



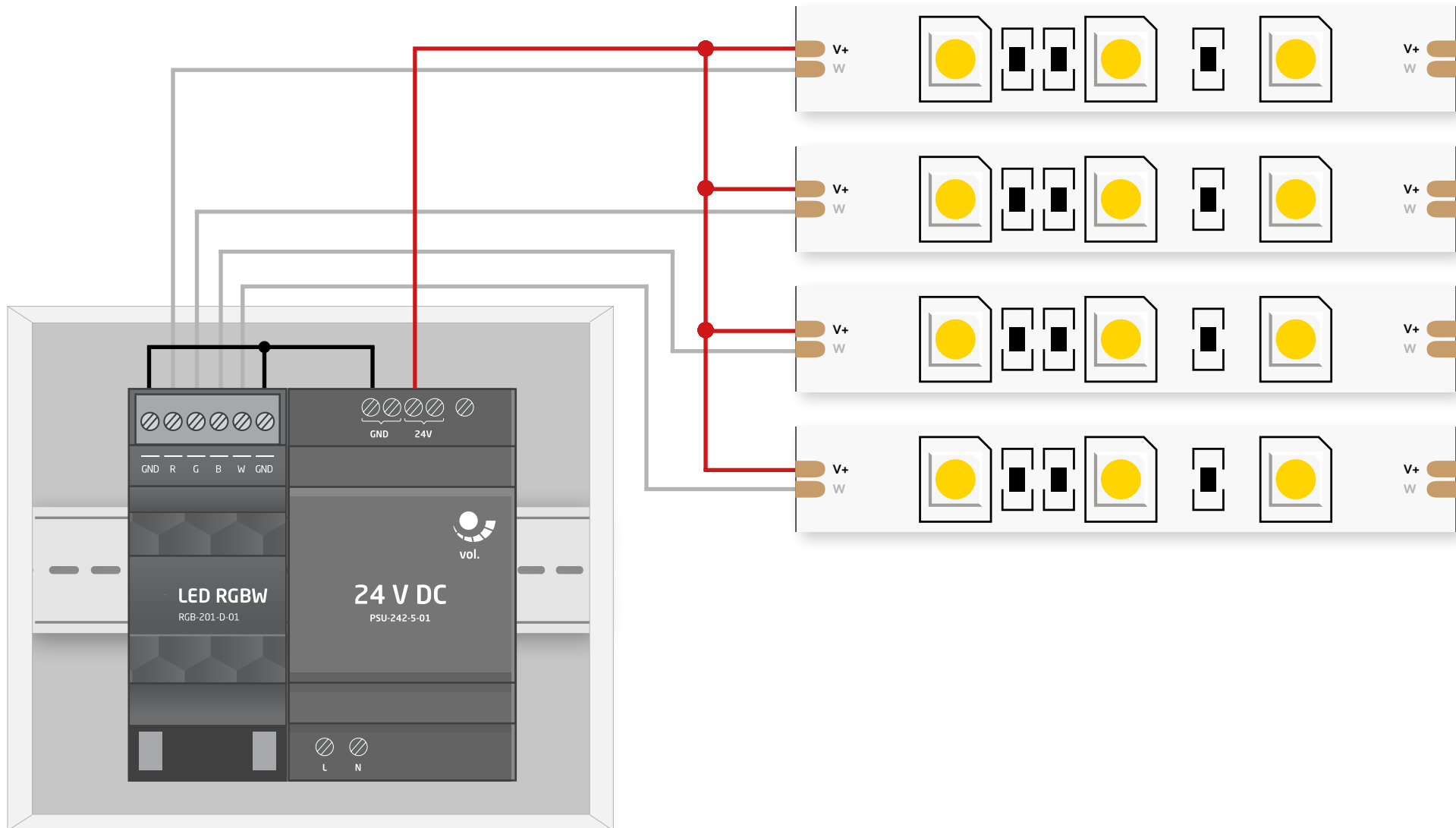
Wiring diagram - CTT LED strips



Wiring diagram - CTT LED strips

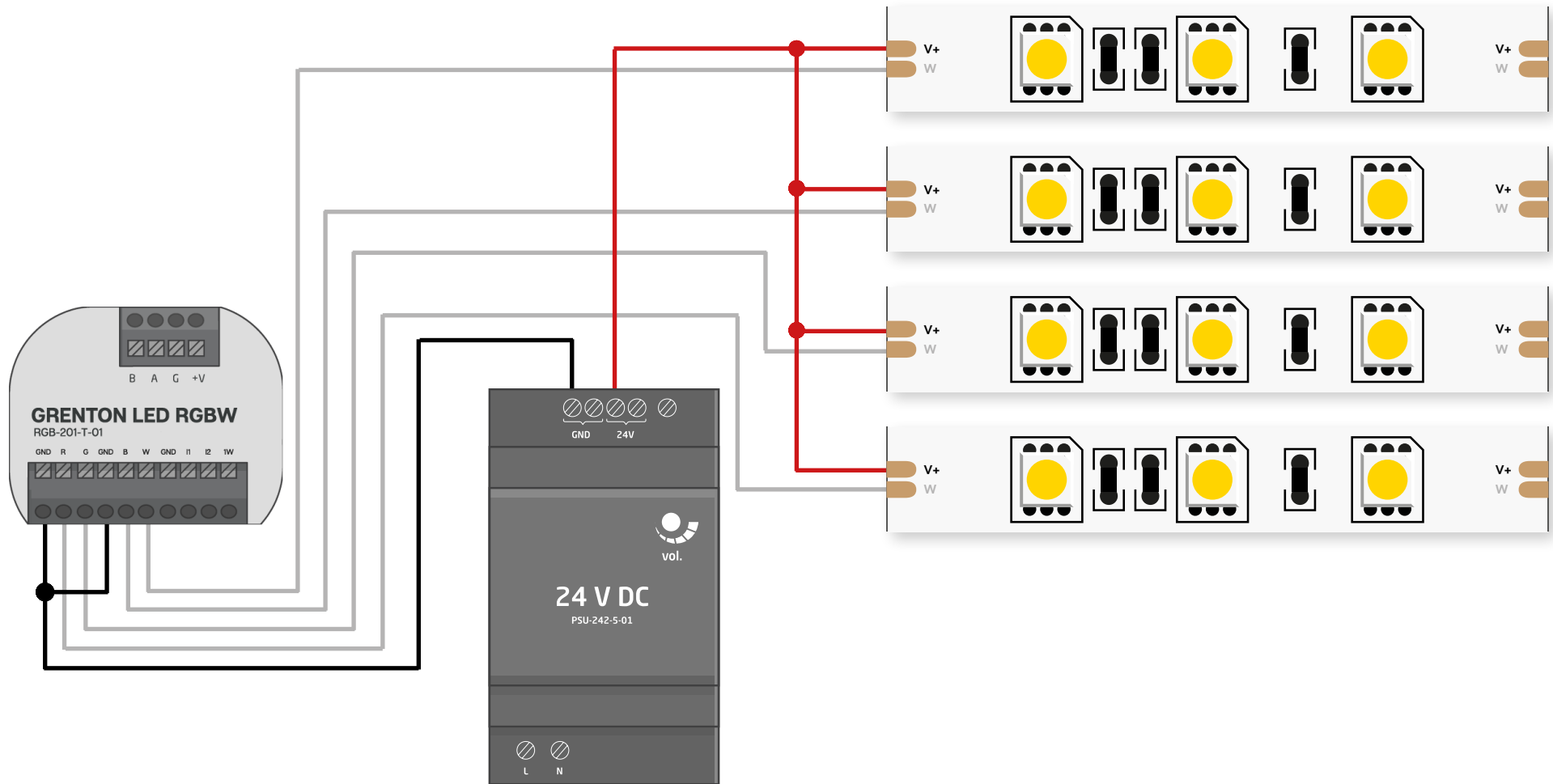


Wiring diagram - W LED strips

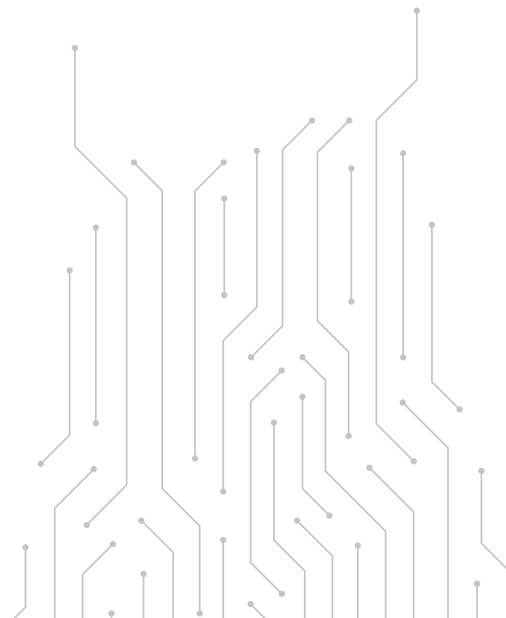


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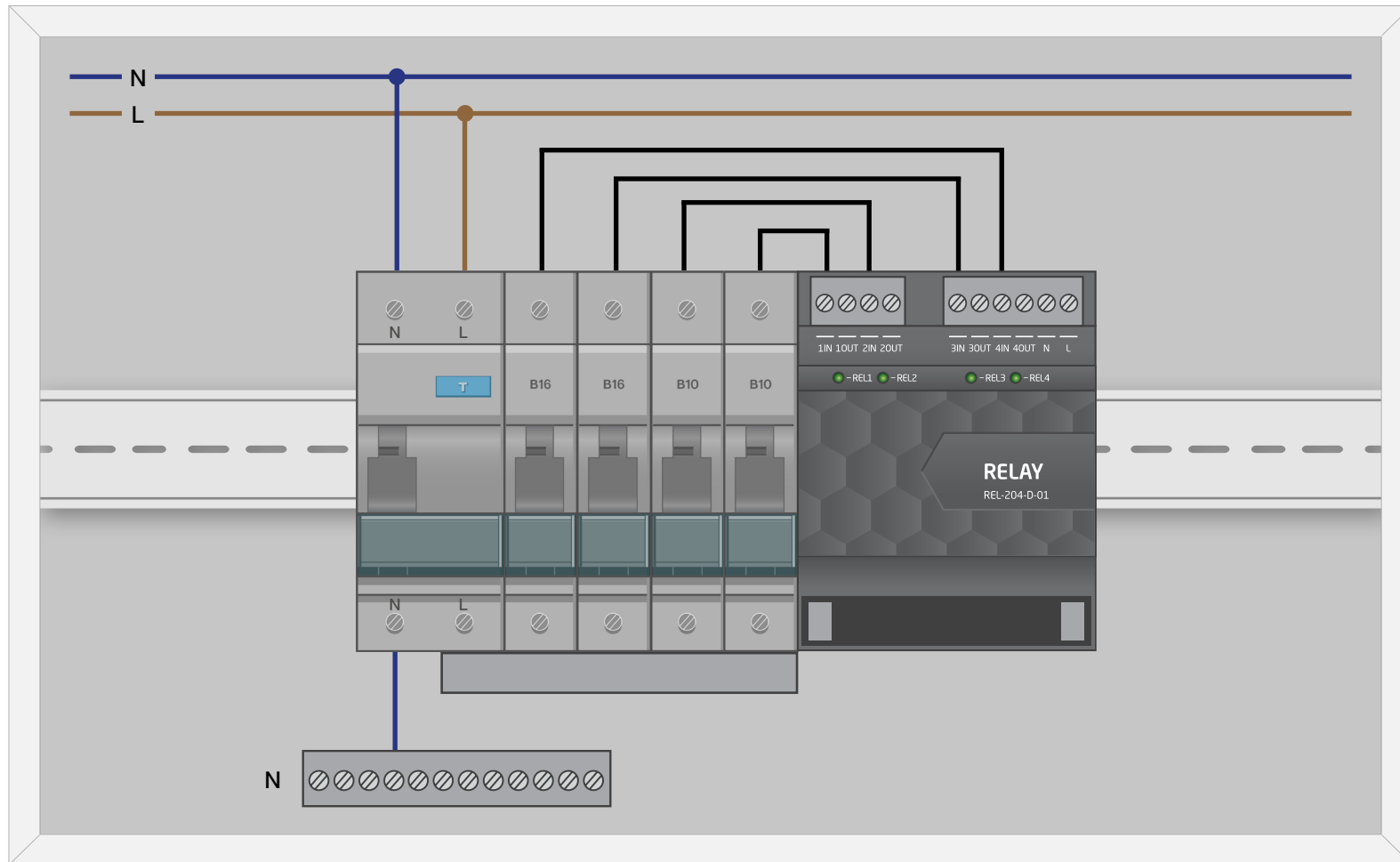
Wiring diagram - W LED strips



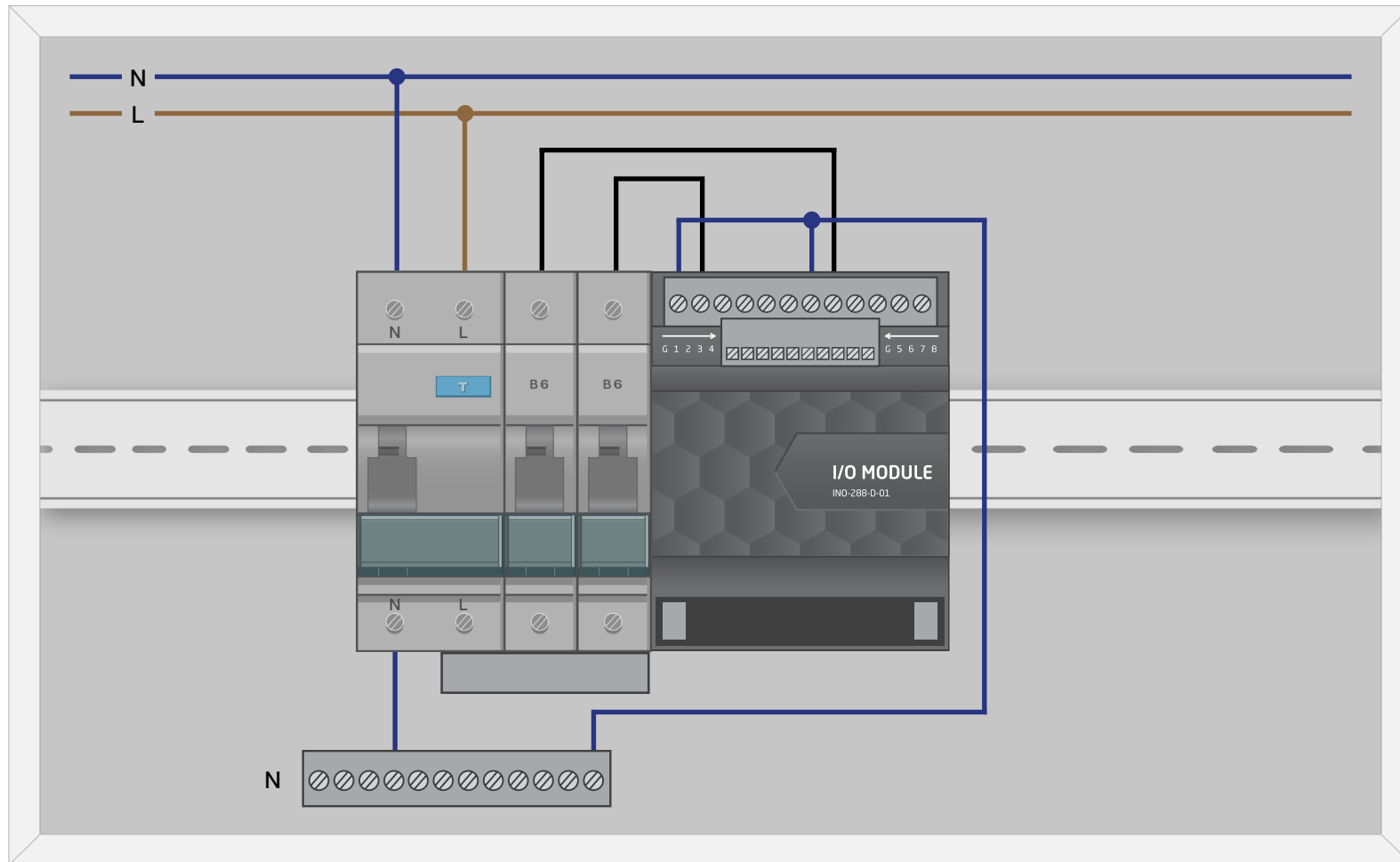
Modules protection



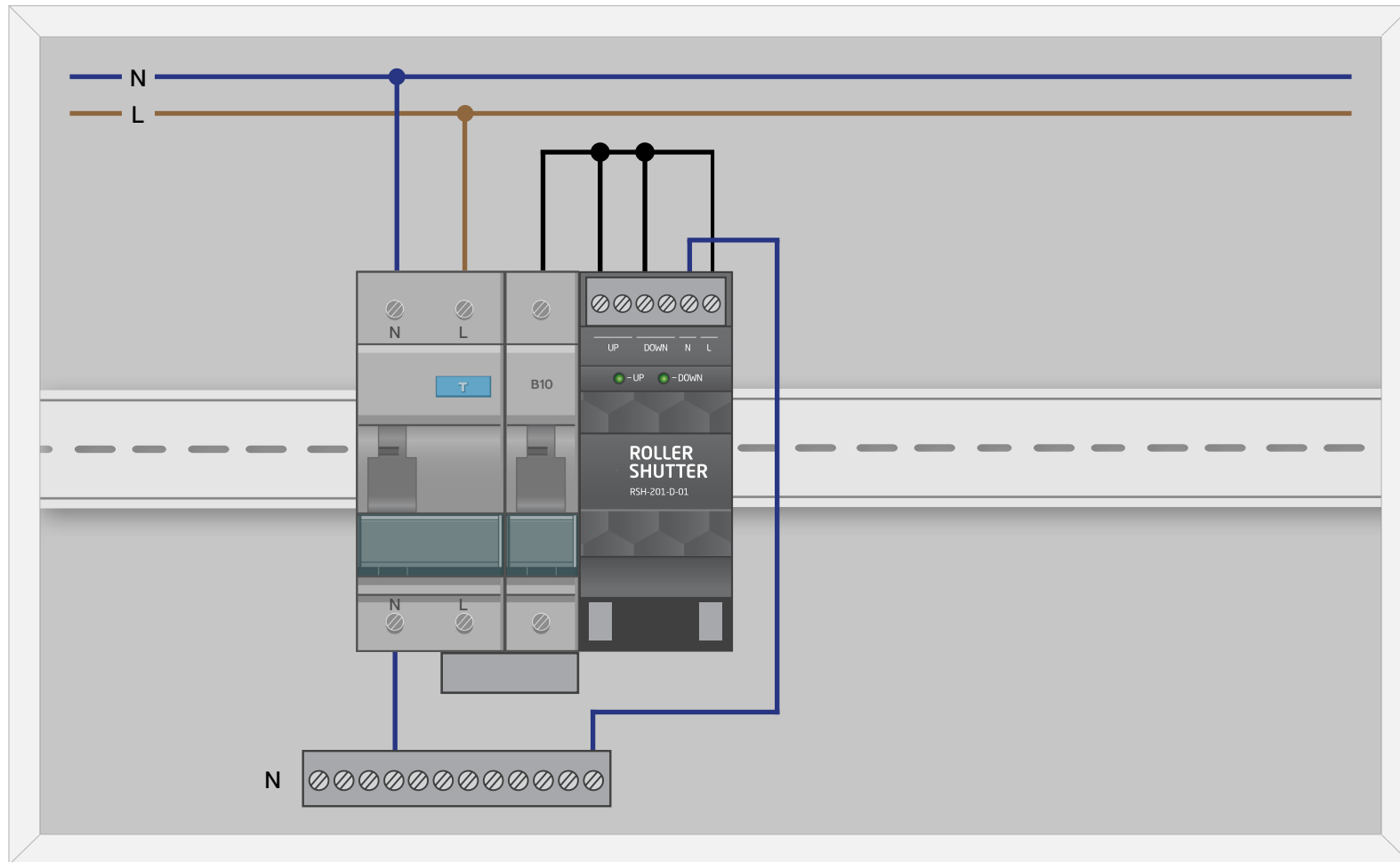
Residual current circuit breakers and overcurrent circuit breakers for Relay module



Residual current circuit breakers and overcurrent circuit breakers for I/O 8/8 module



Residual current circuit breakers and overcurrent circuit breakers for Roller Shutter module



Residual current circuit breakers and overcurrent circuit breakers for Dimmer MOSFET module

