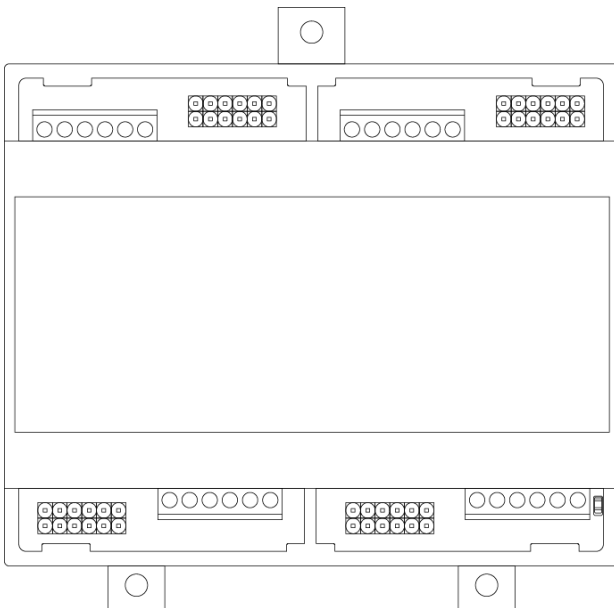


Klevio Extender



Instruction Manual





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Introduction



The Klevio Extender module (also known as the Klevio relay extension box or DC9) is a component which can be used to control up to 9 additional doors with a Klevio Omni device. Extenders can be chained together, allowing control of up to 144 additional doors with a single Omni.

This manual outlines the installation procedure for the Extender, as well as technical data and troubleshooting.



Enclosure



The enclosure can be mounted on a DIN rail via a spring-loaded latch.

It can alternatively be mounted to a wall with 3x 4mm screws through the latches (1 front, 2 back).

Fig. 1: Klevio Extender enclosure





Electrical Connections

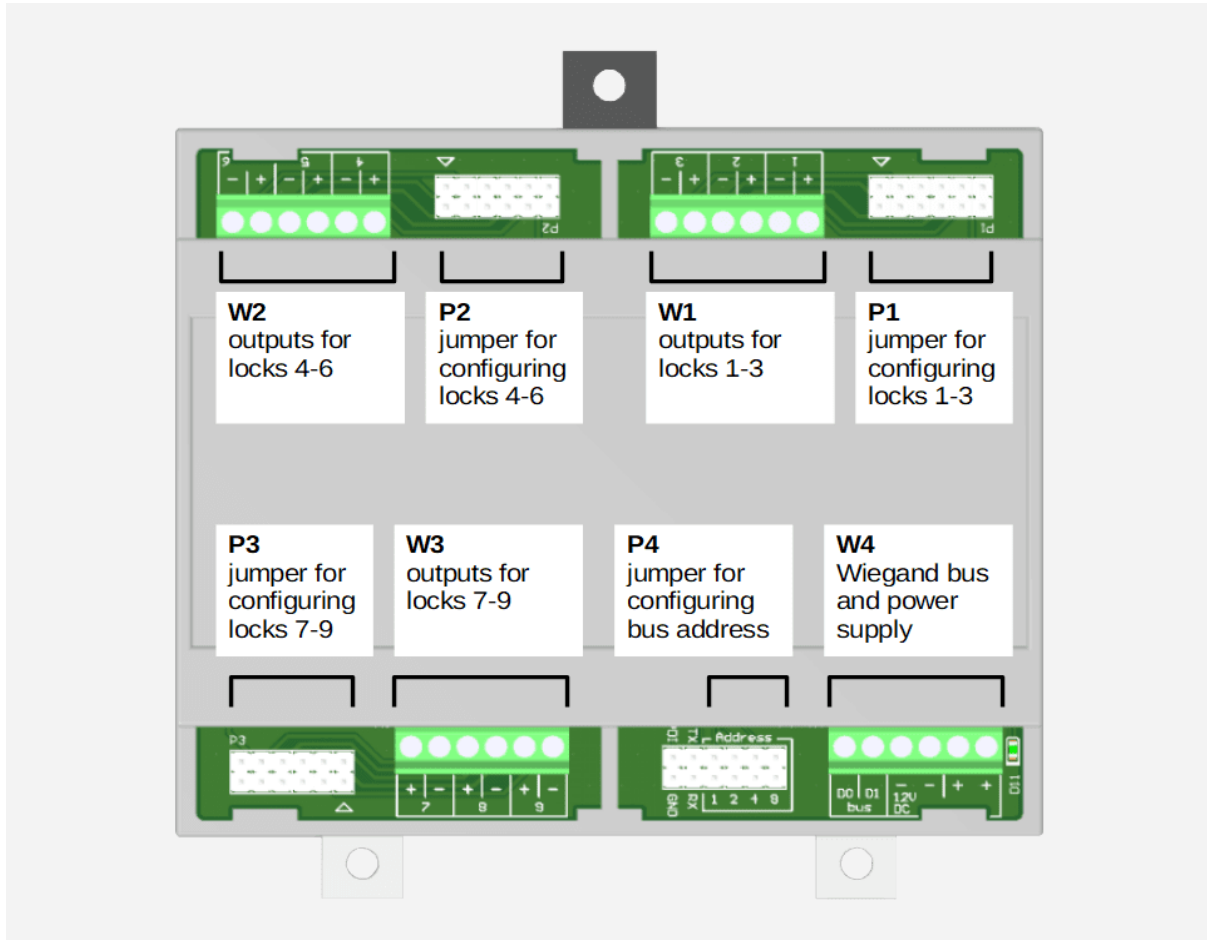
Each Extender can control 9 locks (6 front, 3 back) on terminals W1, W2 and W3

- Outputs can be configured in groups of 3 using special jumpers on headers P1, P2 and P3 as:
 - **volt-free contacts** (same as OP1/OP2 on Klevio console, rated max. 48V / 2A, no fuse) or
 - **powered outputs** (same as STR-/STR+, 12V max. 500 mA, protected with a resettable fuse).
- Extender requires a 12V DC power supply connected to terminal W4.
- Extender is controlled via a Wiegand bus connected to terminal W4.
 - Up to 16 Extenders can be chained on the single bus.
 - For chaining, each Extender must have a unique address set via jumpers on header P4.
- Using Wiegand bus requires a Klevio Omni device with v3 console and updated software.

Uses the same kind of terminals as on the Klevio console (flat-head screwdriver, 3.5 mm pitch).



Fig. 2: Electrical connections on the front of the Extender module



W4 terminal

Fig. 3: Table of W4 terminal connections

	Name	Comment
1	D0	Wiegand bus connection D0, connects to D0 on Omni
2	D1	Wiegand bus connection D1, connects to D1 on Omni
3	-	Power supply and bus ground.
4	-	Terminals 3 and 4 are shorted together.
5	+	12V DC power input.
6	+	Terminals 5 and 6 are shorted together.



Volt-free/powerd output selection

Outputs are configured using special jumpers with 6x2 pins (Fig. 4) on headers P1, P2 and P3.

For each group of 3 outputs the Extender will ship with two kinds of jumpers that can be placed onto the 6x2 headers. The jumpers are color coded and labeled for clarity: red jumpers are for 12V powered outputs, and green jumpers are for volt-free contacts. **The jumpers must be oriented so that the triangle symbol on the jumper and the Extender line up.**

The installer will need to place the correct jumper (depending on the use case) in the position before installing and powering up the Extender.

Fig. 4: Powered and volt-free output jumpers

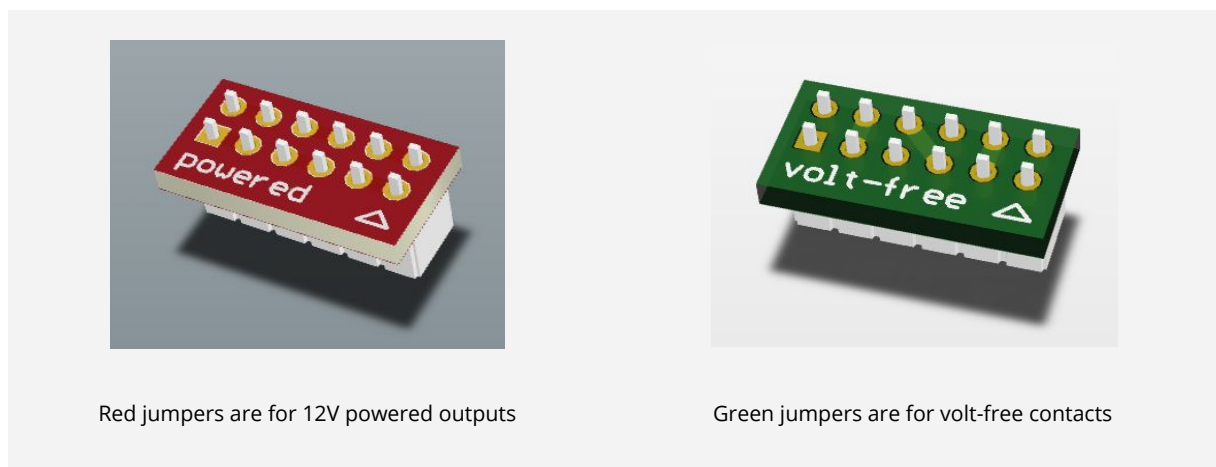
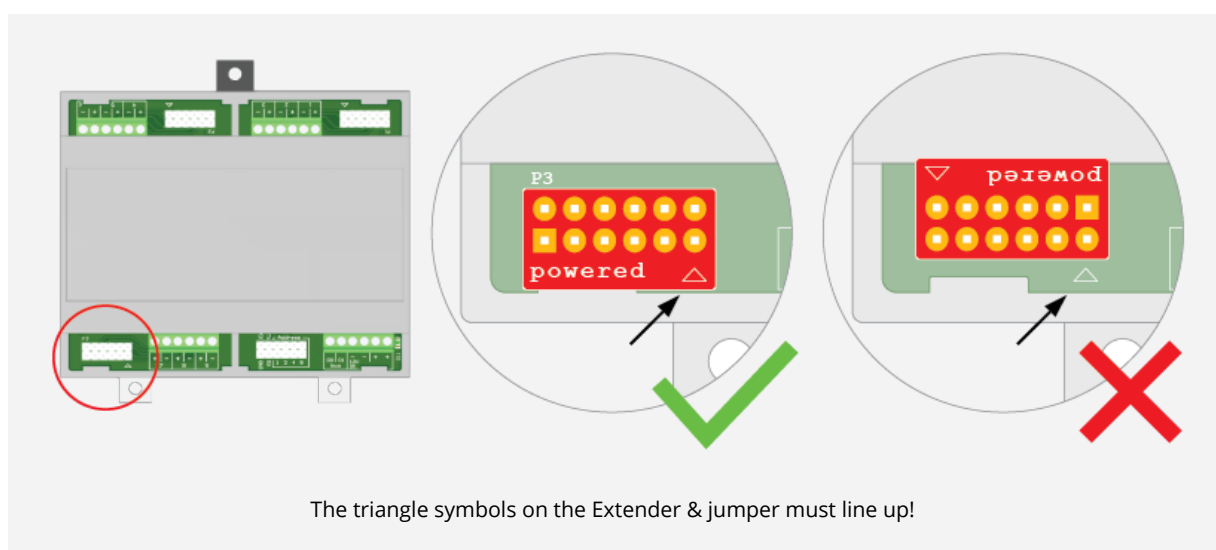


Fig. 5: Correct jumper placement (powered or volt-free)





Bus address selection

Bus address selection is necessary when more than one Extender module is being controlled by a single Klevio Omni.

Bus address is configured using ordinary 2-pin jumpers (2.54mm PCB connectors), the same kind as is currently used on the Klevio console.

To get the address of the box, sum all the numbers that are printed under the placed jumpers. Address is 0 if no jumpers are placed (default).

Fig. 6: Bus address selection

Address jumper				Address
1	2	4	8	
				0
placed				1
	placed			2
placed	placed			3
		placed		4
placed		placed		5
	placed	placed		6
placed	placed	placed		7
			placed	8
placed			placed	9
	placed		placed	10
placed	placed		placed	11
		placed	placed	12
placed		placed	placed	13
	placed	placed	placed	14
placed	placed	placed	placed	15



Connection to Klevio Omni

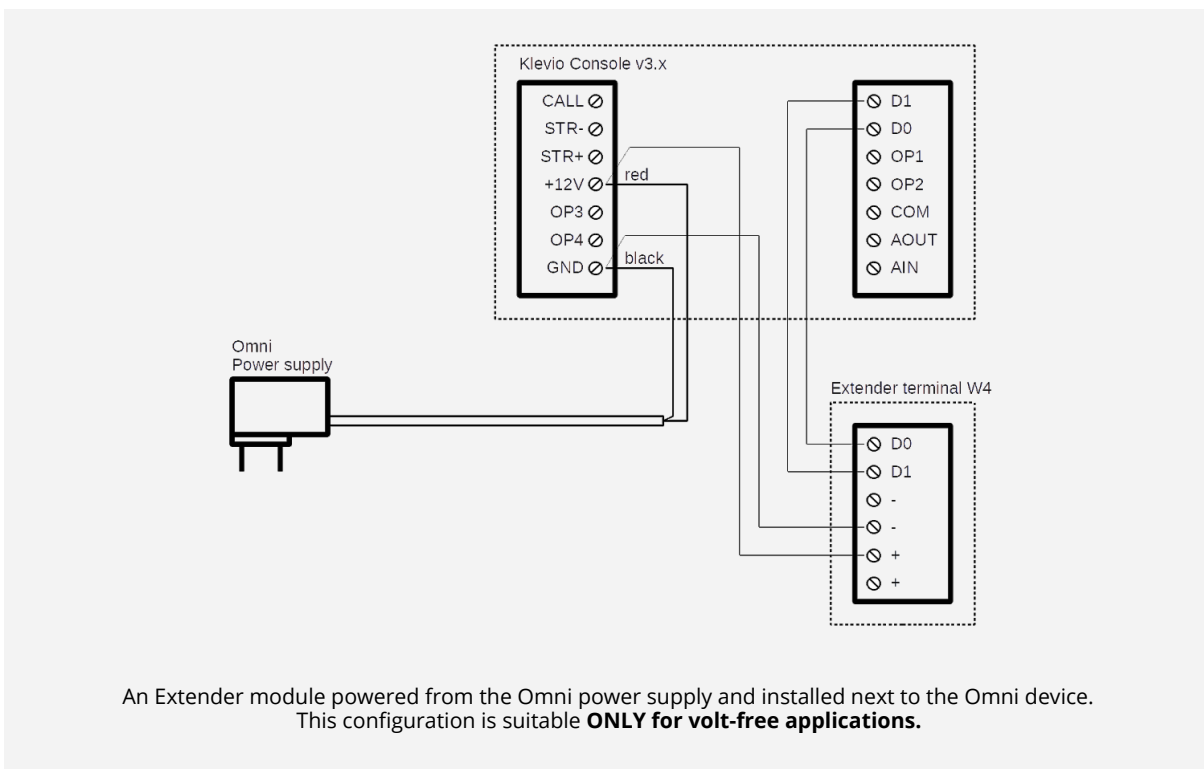
These are the basic connections to the Klevio Omni device. The Extender module automatically detects how it is connected to the Omni. There is no configuration necessary. For longer cable runs see [“Notes for longer cable runs”](#).

There is approx. 1V of voltage drop on the powered outputs (e.g. if input voltage to the relay box is 12V then a powered output that has been switched on will have approx. 11V on the terminal).

The Extender has been designed for use cases where relays are only engaged for a short amount of time (for example, strikes that are only energized while someone is entering a building). **It should not be used where relays must be engaged continuously.** It contains a safety feature where it will automatically disengage any output that has been continuously engaged for more than 1 hour. It will also turn off in case of overheating.

Sharing power supply with Klevio Omni (volt-free only)

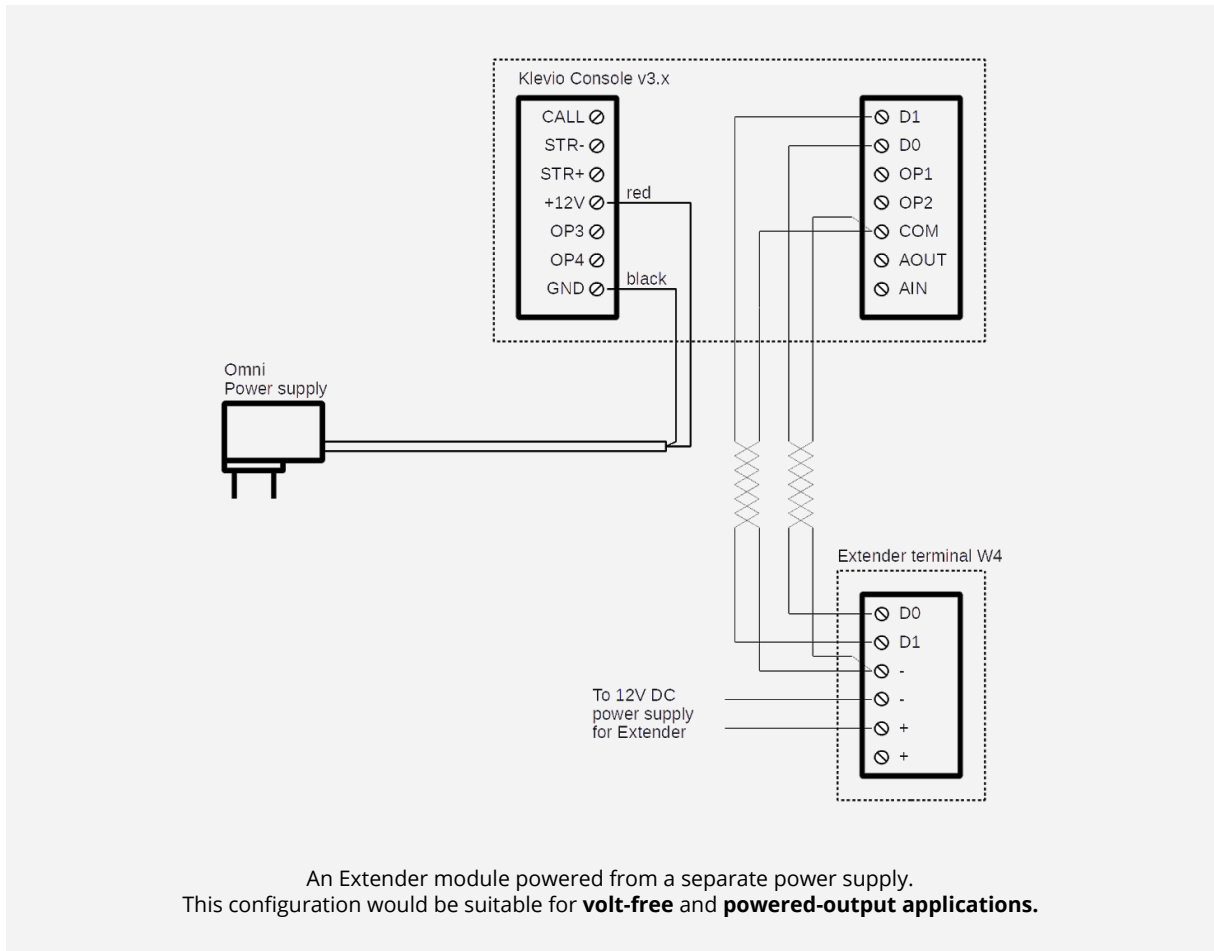
Fig. 7: Wiring diagram for an installation where an Omni device and an Extender module share a power supply





Powering the Extender with a separate power supply

Fig. 8: Wiring diagram for an installation where the Omni device and the Extender module have separate power supplies



- Use separate wires for the power supply connection to the Extender module and for ground connection for the Wiegand bus.
- For Wiegand bus, use 2 pairs (e.g. from a CAT-5 cable). Connect D0 and COM on one pair and D1 and COM on the other pair. Twist the COM wires from both pairs together and connect them to the COM terminal on the Klevio Omni device and the - terminal on the Extender.
- Each Extender can be powered by its own 12V DC power supply. In that case, all Extenders and the Omni must share a ground connection.



Notes for longer cable runs

- The Extender module has been tested with 20m 0.2mm² CAT-5 cable to the Klevio Omni device.
- Avoid routing the Wiegand bus wires parallel to wires with mains voltage.



Example Installations



The Extender can be installed in different ways depending on the context and existing setup - the diagrams on the following pages show only a few common examples. If you require a different type of installation, or simply require technical support, please [contact your Klevio representative](#) for assistance.



Example installation 1: Single Extender, powered from Kleivio supply

Fig. 9: Wiring diagram for a single Extender, powered from Kleivio supply

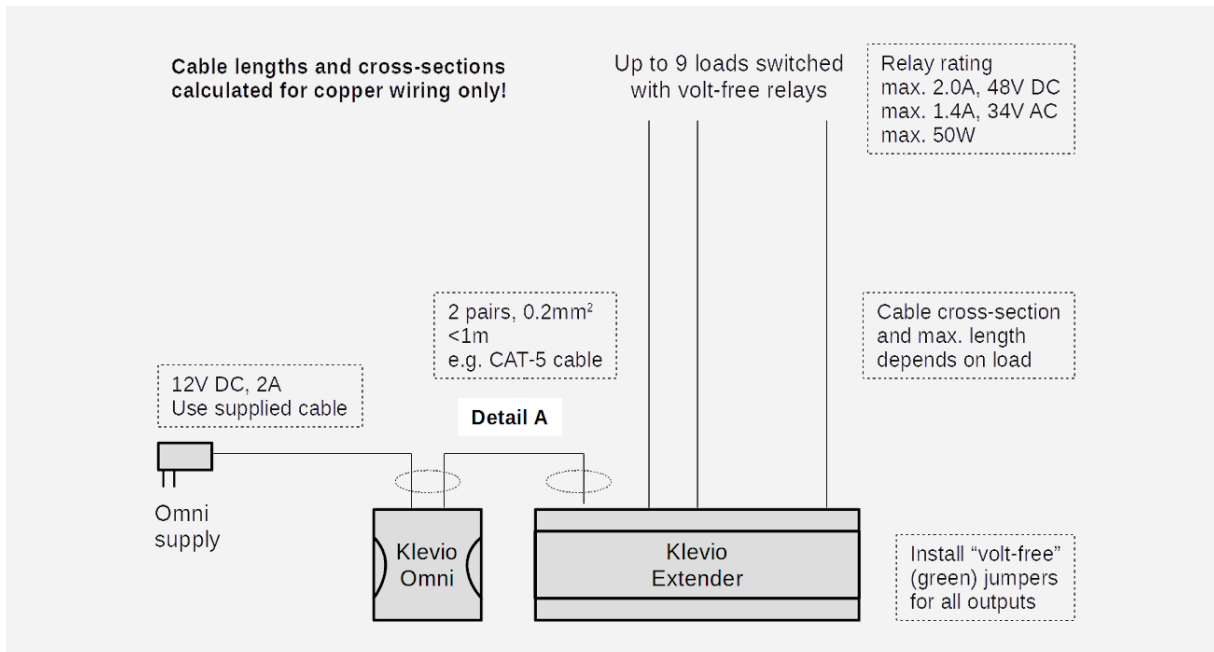
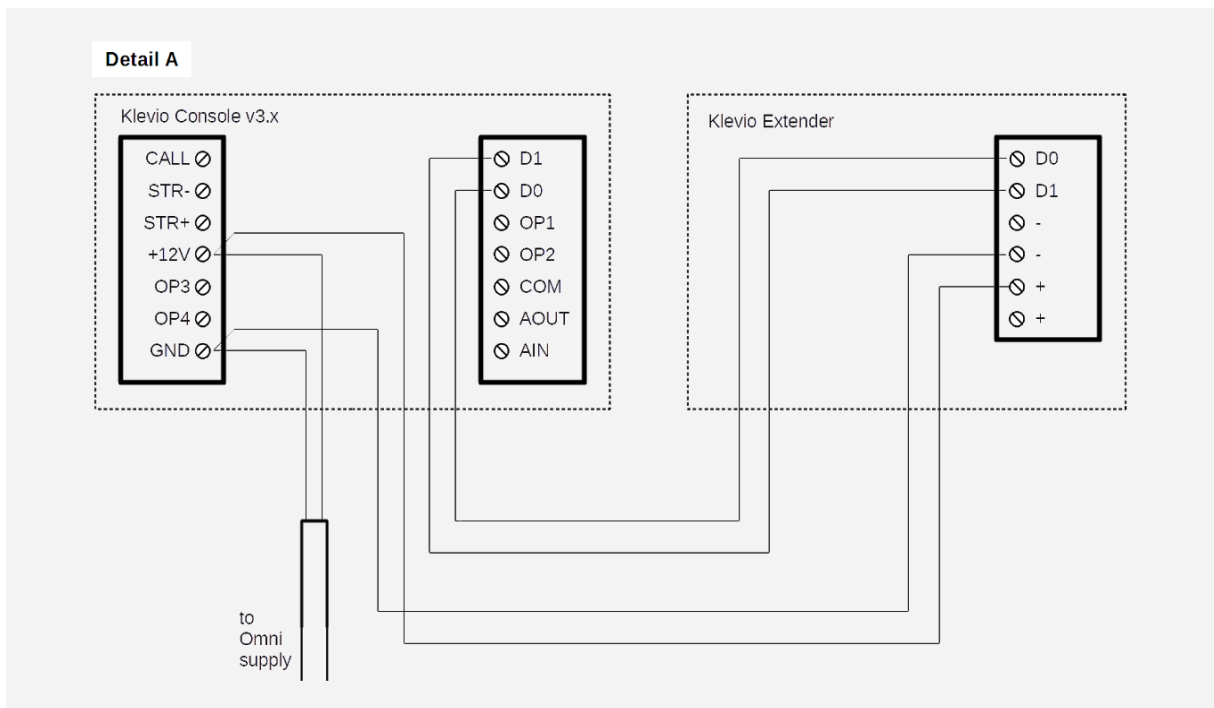


Fig. 10: Detail A





Example installation 2: Single Extender, powered from a separate supply

Fig. 11: Wiring diagram for a single Extender, powered from a separate supply

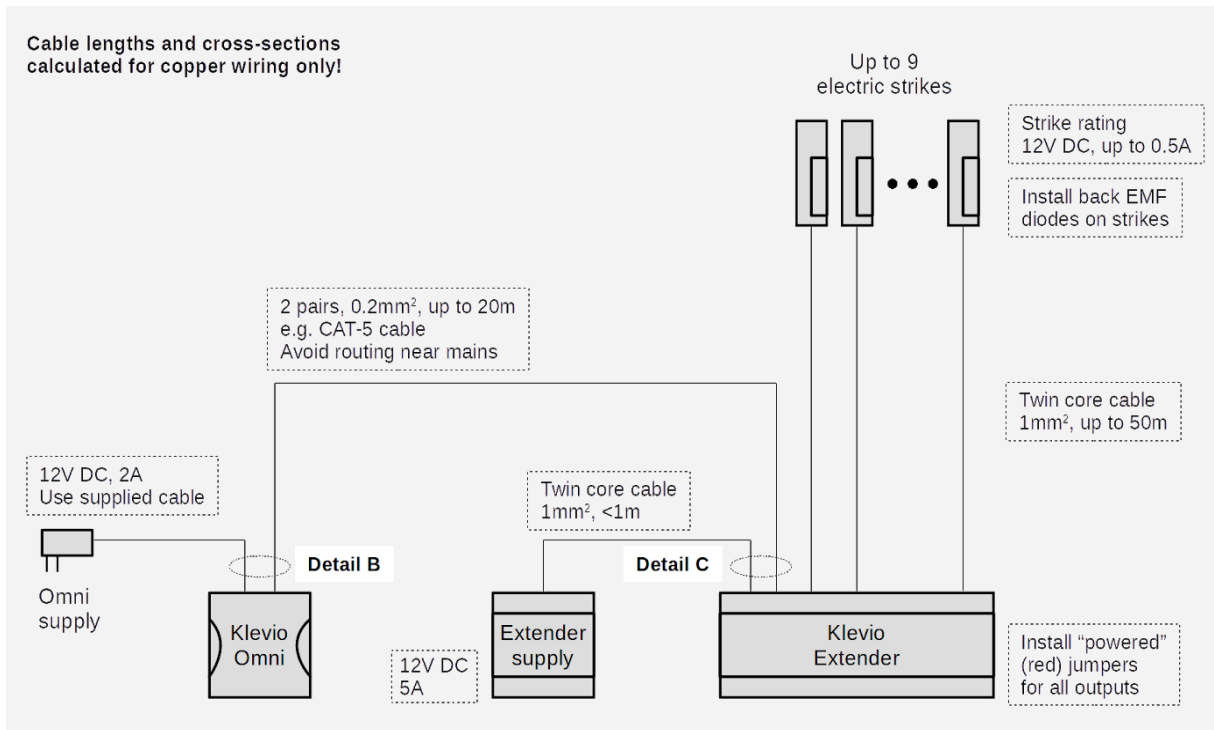
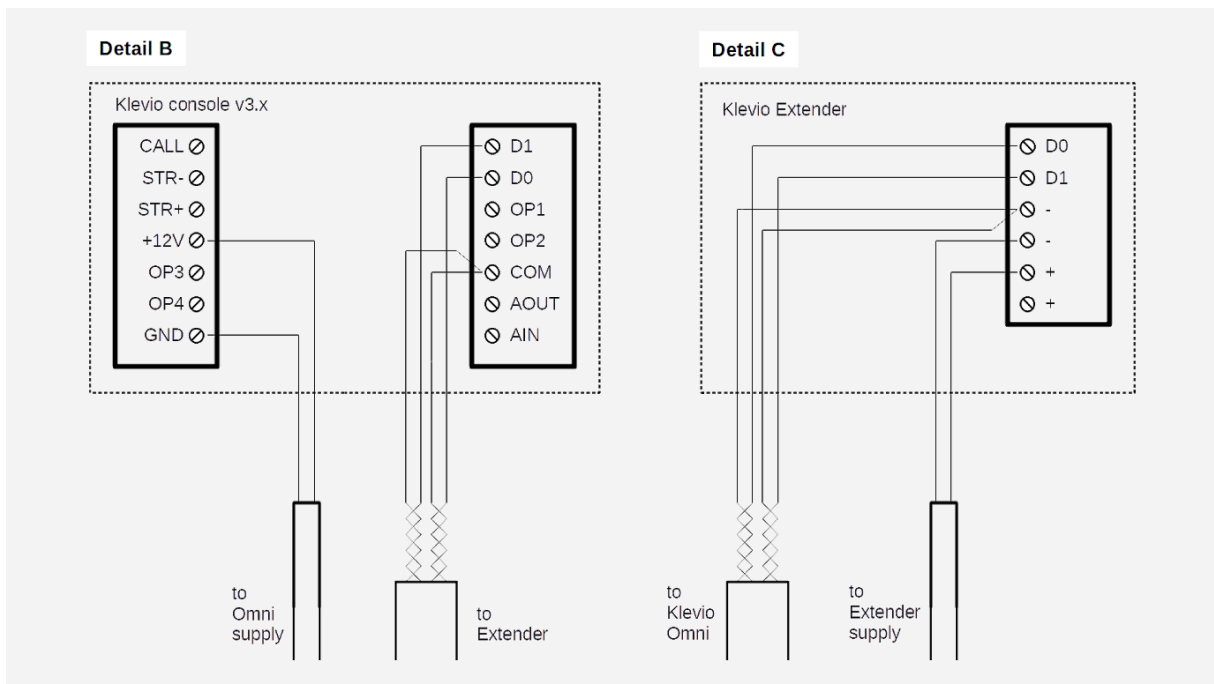


Fig. 12: Details B & C





Example installation 3: Two Extenders, powered from separate supplies

Fig. 13: Wiring diagram for two Extenders, powered from separate supplies

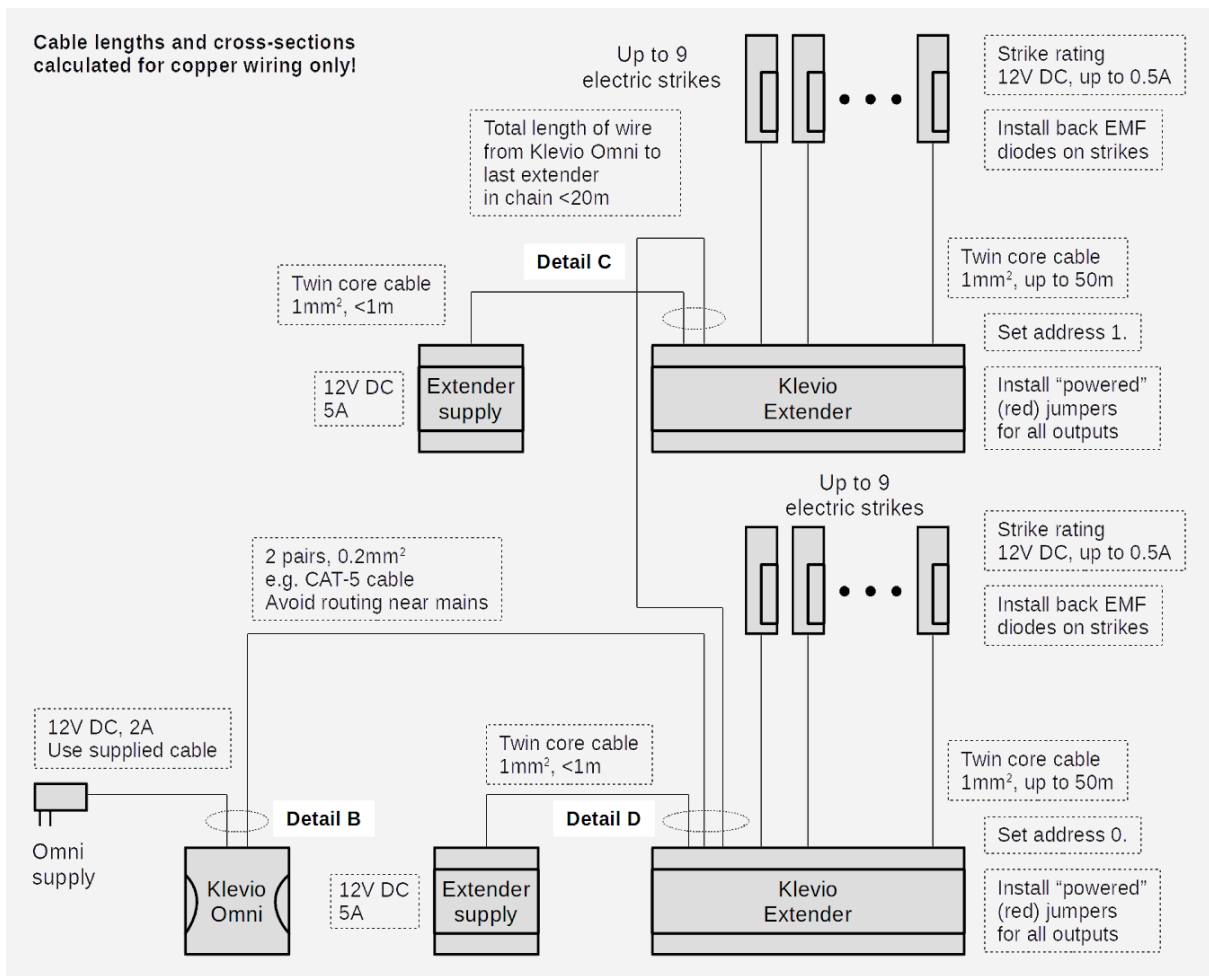
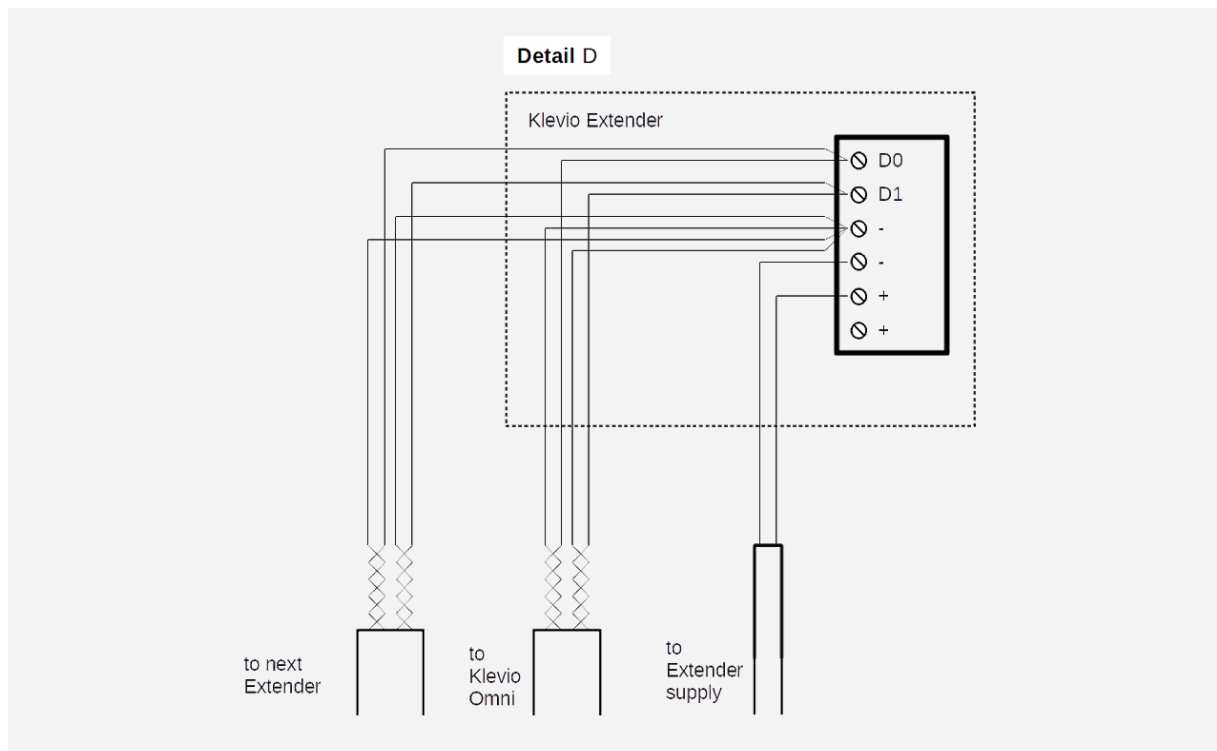




Fig. 14: Detail D





LED Indicator

A green LED indicator near the W4 terminal shows the status of the Extender module.

Fig. 15: A list of different LED indicator blinking patterns and what they mean

	Pattern	Meaning
Idle (heartbeat)	one flash-1s pause one flash-1s pause ...	Power on and working normally.
Error	quickly blinking on-off-on-off	Errors on the Wiegand bus. D0/D1/GND have not been correctly connected to the Klevio Omni. The indicator will automatically reset to idle 10s after receipt of a valid command from the Klevio console. See troubleshooting
Off	continuously off	No power on the 12V input. The Extender is not working correctly.
On	continuously on	The Extender is not working correctly. Power cycle the Extender. If the indicator doesn't reset to idle, replace the Extender. See troubleshooting



Troubleshooting



LED indicator shows errors, relays not working reliably

Check wiring of D1, D0 and GND or COM.

If using the simple D1/D0/GND connection using twin core wires, switch to twisted pairs as described in [“Powering the Extender with a separate power supply”](#).

It is important that the Extender and Omni share a common ground connection. If they are powered from separate power supplies, connect a wire directly from the Extender’s “12V DC -” terminal to the Omni’s “COM” terminal. If the Omni is connected to an intercom system, then GND could be used instead. See [“Powering the Extender with a separate power supply”](#).

Do not route D1, D0 parallel to cables with mains voltage!

LED indicator continuously on

This can be caused by a bad power supply or a power supply with insufficient current rating.

Check if power supply meets the requirements in the “Power supply current rating” table under [“Technical data”](#).



Technical Data



Power supply

Fig. 16: Klevio Extender module power supply data

<i>Power supply voltage rating</i>	9.6 - 14.4 V DC
<i>Power supply current rating</i>	0.10 A + 0.05 A for each volt-free contact used + 0.55 A for each powered output used
<i>Power consumption (no load on powered outputs)</i>	standby: approx. 0.2 W all relays activated: approx. 6W

Relay ratings

Volt-free contact setting

Low voltage use only. Do not connect any terminals on the Extender to mains power.

Fig. 17: Klevio Extender relay ratings for a volt-free contact setting

<i>Maximum switching current</i>	2.0 A DC / 1.4 A AC
<i>Maximum switching voltage</i>	48 V DC / 34 V AC
<i>Maximum switching power</i>	50 W



Powered output setting

Note: The rated current of the supply that powers the Extender must be high enough to supply the loads that will be connected to the powered outputs.

Fig. 18: Klevio Extender relay ratings for a powered output setting

<i>Voltage</i>	12V DC
<i>Max. current per output</i>	0.50 A

Wire terminals

Fig. 19: Klevio Extender wire terminal data

<i>Wire cross section</i>	Solid up to 1.5 mm ² / 16 AWG Stranded up to 1 mm ² / 16 AWG
<i>Strip length</i>	5 - 6 mm
<i>Type</i>	screw terminal, M2 flat-head



Customer Support

Need help with Klevio Extender?

Contact our Customer support team at support@klevio.com

You can also speak to us directly via our chat service on www.klevio.com

Additional information is also available on our customer support website at help.klevio.com

Legal & safety

The Extender module should only be used in official Klevio installations with the intent to enable the Klevio smart access system.

The Extender module:

- is intended for indoor use only,
- shall be kept away from water or excessive humidity,
- shall be kept away from children,
- should not be used or stored close to heaters, fireplaces or other sources of heat.

Read our legal documentation at www.klevio.com/legal.html

About Klevio

Visit our website at www.klevio.com

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