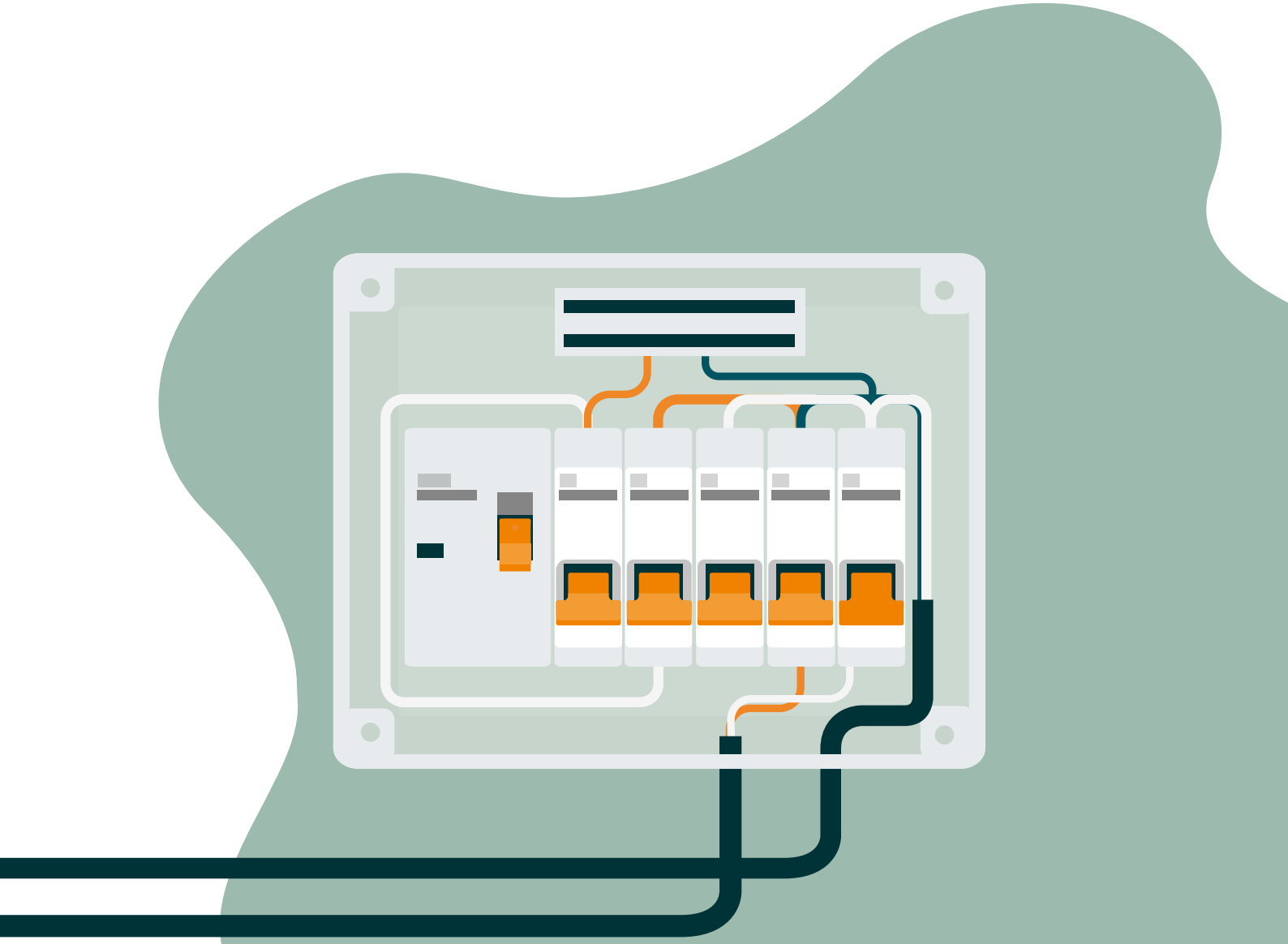
Installation manual

Home & Business



EV-Optimizer

02/2021
V1.0

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EV-Optimizer

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Safety warning

Carrying out electrical work at home or work can be dangerous. It must be carried out according to the applicable national safety standards and should be performed by a certified electrician. Because of safety reasons, it is necessary to turn off the installation before proceeding with the physical installation procedure.

Manual
Content

1.0 Home/Business

The EV-Optimizer has a Home version and a Business version.

The Home version is only suitable in combination with 1 supply station and goes up to 40A. It is important to know that only the Home version can be connected to the P1 port! The Home version can also be connected with current transformers if there is no smart meter available.

The Business version is suitable for multiple supply stations with a maximum of 6 supply stations.
The Business version can only be installed with current transformers that are included.
Available in a range of 25 to 80A.

2.0 Installation EV-Optimizer

There are two ways to install the EV-Optimizer. Both ways are explained step by step. If you are using the P1-port, you may continue with 'installation with P1-port' (page 6). If you are using current transformers, you may continue with 'installation with current transformers'.

2.1 Installation with current transformers

For proper installation of the EV-Optimizer it is important that you follow the next steps carefully. Take the required safety measures and always turn off the power!

Step 1
Turn off the main power in the meter box by flipping the main fuse or by unscrewing the fuses.

Step 2
Remove the screws of the distribution board and open it.

Step 3
Decide where to place the 3 measuring current transformers that will be connected to the EV-Optimizer, and make sure they come out of the distribution board. Make sure to do this in a safe and secure manner. See image 2.

Image 2

Step 4
Unscrew the power cables of the 1st, 2nd, and 3rd phase just before or right behind the main fuse and guide the current transformers around the cables. The current transformer L1 needs to go around the 1st phase cable in the distribution board, L2 around the 2nd phase cable and L3 around the 3rd phase cable.

Step 5
Determine where the clamp of the EV-Optimizer will be placed and attach it to the wall using the fixing materials.

Step 6
Put the EV-Optimizer into the holder. If there is not enough space, there is a horizontal brace available.

Step 7
Insert the plug of the current transformers in the matching plugs (4) of the EV-Optimizer.
See image 3.

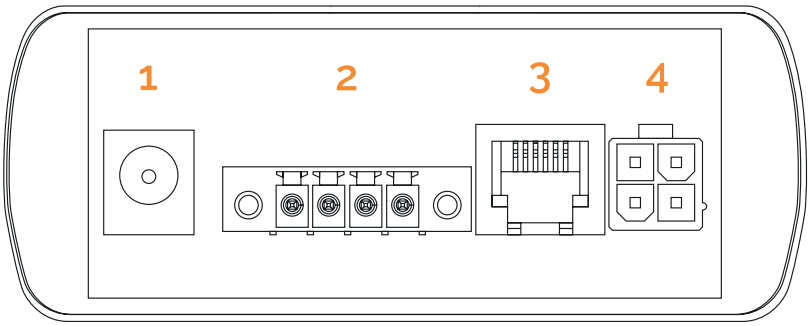


Image 3

Ports	
1	Power supplies
2	Connector charging station
3	P1 port
4	Coils

Step 8
Attach the 2 wires from 1 wire pair of the SF-UTP cable in the orange plug as shown on image 4 and insert the plug into the corresponding RS485-port (2) on the EV-Optimizer. See image 3.

Ensure that the 2 wires correspond with the connected wires of the modem in the supply station. See image 5 (page 6).

Step 9
Plug the 12V power to the EV-Optimizer to the corresponding connection (1) and insert the plug of the 12V power into the electrical outlet. See image 3.

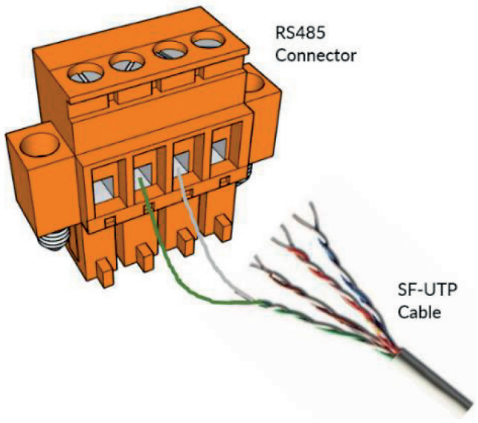


Image 4

Step 10
Now the LED-light(s) at the bottom of the EV-Optimizer should start to flash. Depending on where the main fuse is connected, one or two lights will be turned on. See image 1 (page 9)

Proceed to page 9.

2.2 Installation with P1 port

For proper installation of the EV-Optimizer it is important that you follow the next steps carefully. Take the required safety measures and always turn off the power!

Step 1
First, check if the smart meter meets SMPR 4,0 to 5.0. If this is not the case, the next steps cannot be carried out and the EV-Optimizer has to be installed with current transformers instead.

Step 2
Determine where the clamp of the EV-Optimizer will be placed and attach it to the wall using the fixing materials.

Step 3
Put the EV-Optimizer into the holder. If there is not enough space, there is a horizontal brace available.

Step 4
Plug the data cable in the smart meter in the corresponding connection. See image 6. Plug the other side in the connection (3) of the EV-Optimizer. See image 3 (page 5).

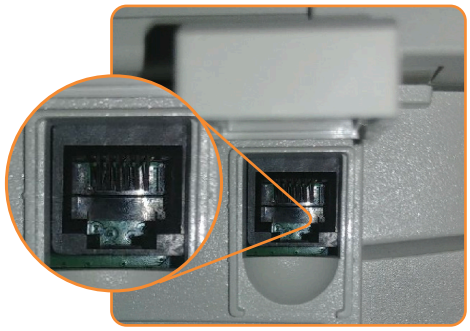


Image 6

Step 5
Attach the 2 wires from 1 wire pair of the SF-UTP cable in the orange plug as shown on image 4 (page 5) and insert the plug into the corresponding RS485-port (2) on the EV-Optimizer. See image 3 (page 5). Ensure that the 2 wires correspond with the connected wires on the modem in the supply station. See image 5.

Step 6
Now the LED-light(s) at the bottom of the EV-Optimizer should start to flash. Depending on where the main fuse is connected, one or two lights will be turned on. See image 1 (page 9).

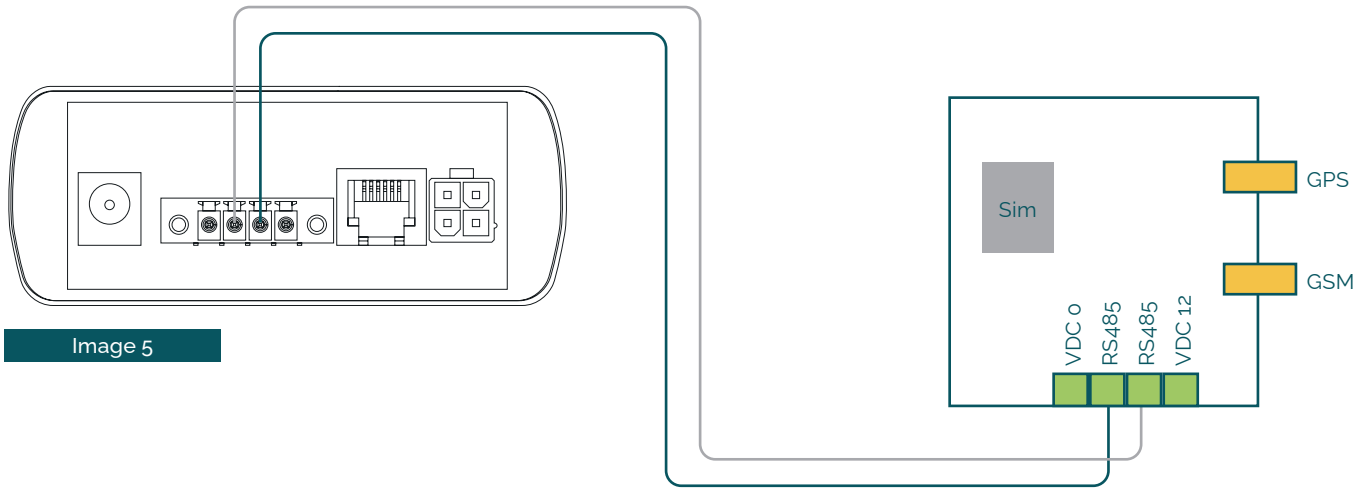


Image 5

3.0 New RS485 interface on Elvi

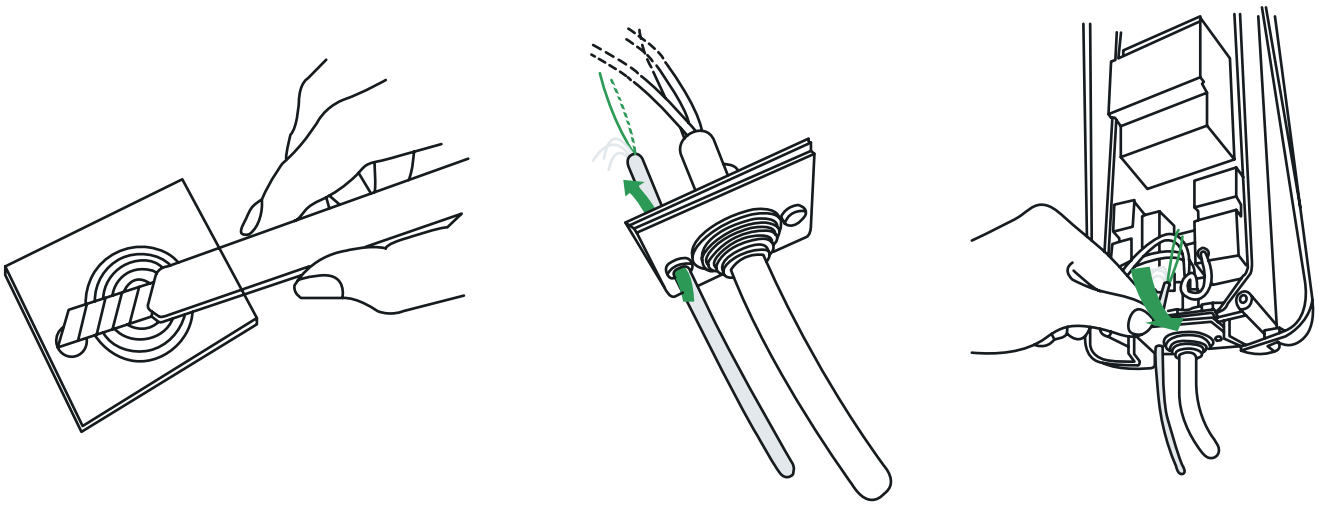
The new Elvi-hardware contains an external RS485-interface that can be connected through a Dynamic Load Balance-system such as the EVBox Smart Charging. Often the RS485-interface uses a fixed serial cable. This cable is mostly a CAT5 / CAT6-networkcable of which 2 wires (A and B) are connected to the terminal strips 3 and 4 on the DIN-rail in the Elvi Walldock.

RS485-wiring details

RS485-wiring exists of an A- and B-wire that needs to be a twisted pair. It is recommended to use the green and white/green wire for the connections A and B of the RS485-interface.

Guide the RS485-cable in the Walldock

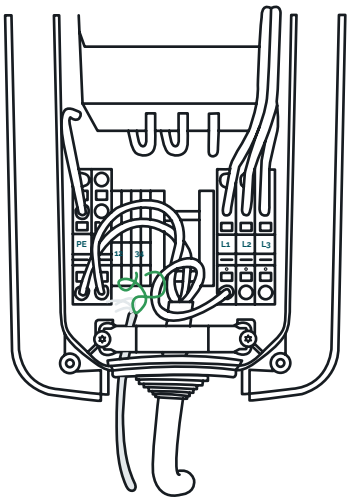
Guide the RS485-cable in the Walldock with the same cable gland as the supply cable.
Cut an extra gap in the cable gland for the serial cable.



Elvi v2 Installation manual Addendum – part number 999500-024

Connect the A- and B-wires to the connectors in the Walldock

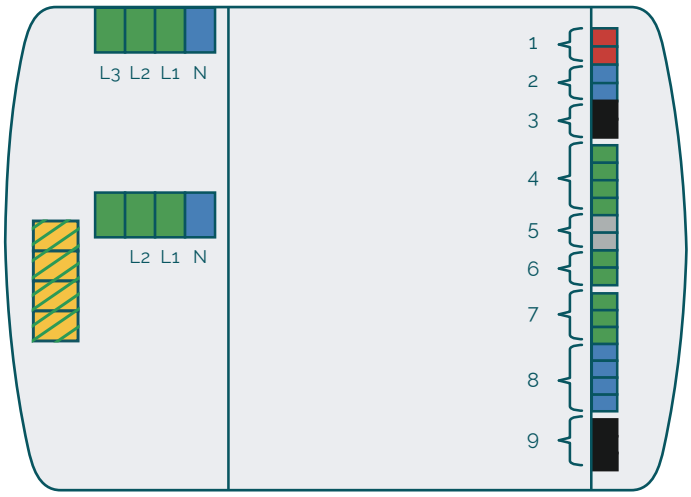
Connect the A- and B-wires to the Walldock as shown in the diagram. The A- and B-wires have to be connected to the smaller DIN-rail connectors 3 and 4, as shown in the diagram.



4.0 G4 Connection

The EV-Optimizer is connected to the EV-Box G4 series with other connectors. This one is made for 2 instead of 4. The wire pair is connected in the same way as the connector with 4 pins. See image 4, page 5.

G4 update - BusinessLine 1.2



Connection group	Description
1 - 2 pin, red	External relay
2 - 2 pin, blue	kWh meter
3 - 3 pin, black	RS485 hub-satellite communication
4 - 4 pin, green	Inputs: 4(1-2) Unused; 4(3-4) RCBO Temp. Sensor
5 - 2 pin, gray	RS485 smart charging communication *The port is also used for the RS485 Configuration Tool. You cannot operate the tool and SmartGrid module together
6 - 2 pin, green	Temperature sensor
7 - 3 pin, green	Pilot
8 - 4 pin blue	LED ring
9 - 3 pin, black	Lock motor

5.0 Main fuse or circuit breaker

First, determine whether the main fuse contains a fuse or a circuit breaker.

Now that the EV-Optimizer has been installed, you can verify if it is placed in the right way.
If it concerns a fuse, there should be 2 lights turned on.

If it concerns a circuit breaker, there should be 1 light turned on. (see image 1 (b))

If this is not displayed correctly, it can be changed with the button next to the lights.

1 light: circuit breaker
2 lights: fuse

Now contact the supplier of the supply station to verify the connection
(smart grid connected) The EV-Optimizer is now ready to be used!

⚠ EV-Optimizer is not responsible for calamities
resulting from incorrect installations by third parties.

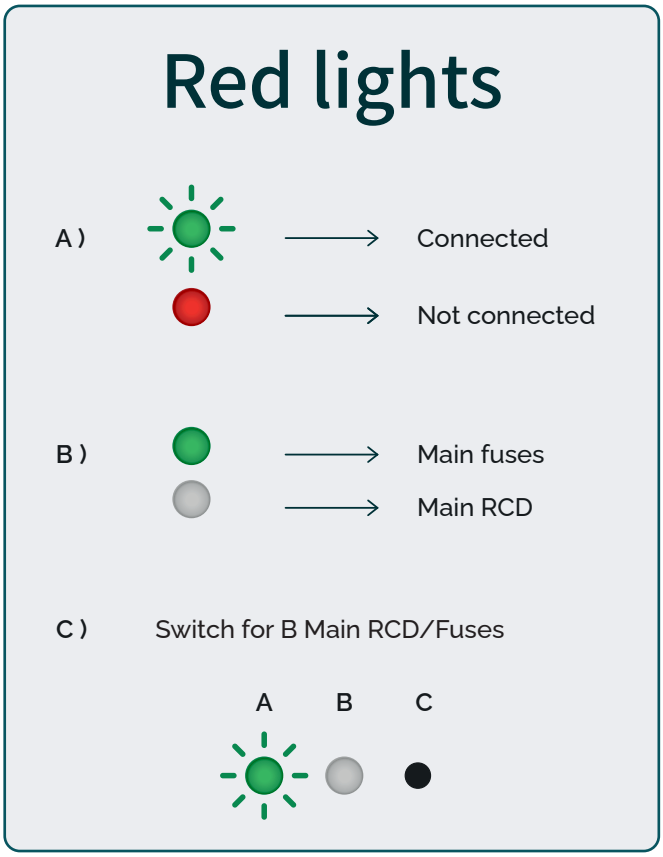


Image 1

6.0 Troubleshooting LED Indication

Red: No connection with the EV-Box
Check the connection of the data cable! Use 1 wire pair, not 2 different wire pairs.
Turn the wire pair around.

Flashing green: Connection with the supply station
The flashing speed is equal to the power consumption. If the power usage goes up, theLED indicator will flash faster.

Continuing green (of the first light): The EV-Optimizer is still in programming mode
The second lamp needs to be constantly turned on, if it concerns a fuse. Put the rotary switch (in the EV-Optimizer) from 5 to 6 inside the EV-Optimizer.

7.0 Correct cable specification

SF UTP Cable

Rexel article number
2700306076

Technische Unie article number
3128246