reev

Installation guide for the reev Balancer gateway

(Version 07/2024)

This guide applies to pre-configured charging stations connected via LTE.

1. Safety instructions

- The steps described in this installation guide should only be carried out by a qualified electrician who can assess and execute each step safely based on their technical training and knowledge of the relevant standards.

- To ensure the correct functionality of the reev Balancer, it must be installed according to the steps outlined. The details of the installation must be recorded in the attached installation protocol. If the steps specified in this installation guide are not followed properly or are documented incorrectly, this may lead to malfunctions during operation. This could result in an overload of the mains connection, damage to the installed devices, electric shocks, or fires.

- The reev Balancer will only be activated once the fully completed installation protocol has been sent to reev GmbH (by email to support@reev.com).

- Please observe the following warning notice:

⚠️ **Danger: Sections marked with this symbol indicate electrical voltage, posing a risk to life and health.**

- reev GmbH is not liable for any damage resulting from improper installation or for damage caused by inadequate or incorrect documentation.

2. Contents of the reev Balancer gateway

Table 1 shows the components included in the reev Balancer Gateway. If any parts of the delivery are damaged, please contact reev GmbH or your authorised dealer.

Table 1

Item	Quantity
Energy meter TQ EM420	1
Teltonika router RUT241 (incl. Modbus TCP/MQTT Gateway)	1

Table 2 shows additional components required for installation, which do not affect the functionality of the reev Balancer.

Table 2

Item	Quantity
Current transformers (5A secondary current required)	3
3-pole B16 circuit breaker	1
Network patch cable (RJ45)	1

3. Preparation for installation

The components of the reev Balancer gateway are not protected against water and dust. Depending on the installation location, we recommend installation within an enclosure that meets at least IP54 protection class. To establish a connection via LTE, it is essential that the Teltonika router is positioned in a location with sufficient signal strength. Depending on the situation at the installation site, this may require positioning the Teltonika router outside the enclosure.

4. Charging infrastructure

The charging stations must be installed according to the official installation instructions provided by the respective manufacturers. To avoid phase imbalance, the reev Balancer requires information on the phase rotation of the installed charging stations. This information must be documented in the installation protocol, which can be accessed via the QR code in the bottom right corner of this document.

5. Data connection of the charging stations

For pre-configured charging stations with an internet connection via LTE, there is no need for a connection between the charging stations, the Teltonika Router, and the switch.

Note: If a LAN connection is required for the Teltonika router, the RJ45 WAN port of the Teltonika Router must be connected to the local network. A list of the specific ports that the router can use locally for a successful LAN connection can be found here. Alternatively, please contact our support team at support@reev.com.

6. Installation of the energy meter (the correct installation is schematically shown on page 2.)

Install the supplied TQ EM420 energy meter and appropriately sized current transformers (with at least accuracy class 1 and 5A secondary current – see wiring diagram on page two (2) according to the manufacturer's installation instructions. Please ensure that the transformer ratio is documented in the installation protocol.

To protect the energy meter, please use the 3-pole circuit breaker.

Then connect one of the two LAN ports of the TQ EM420 energy meter to the LAN port of the Teltonika router to provide it with Ethernet connectivity.

7. Documentation of the installation

Complete the attached installation protocol and send it digitally to support@reev.com. Alternatively, please use our installation protocol, accessible via the QR code in the bottom right corner of this document.

Please attach two photos of the control cabinet to your email, clearly showing all wiring and connections (including current transformers and switch). This will enhance the quality of our support services in case any issues arise.

8. Appendix

Wiring diagram see page 2

Component Data Sheets:

Energy meter TQ EM420

Teltonika router RUT241

Scan/click the QR code to download the installation protocol

PRE-CONFIGURED CHARGING STATION WITH CONNECTION VIA LTE

⚠ DANGER

Risk of fatal electric shock at the connections of the current transformers
Due to the type of connection, there is a mains voltage of 230V on the conductors k/s1 and l/s2!
— Place a warning at this location with this information to prevent accidents.

Other consumers

L1 L2 L3

OUT

Note:
charging stations connect directly to the reev Balancer via LTE

Security fuses
3x 10/16A

Charging stations

Energy meter TQ EM420

L1 L2 L3 2

LAN LAN 3

L1 L2 L3 N 1 4

Local network, if LAN connection is required

Main switch

L1 L2 L3

IN

Teltonika router RUT241

SIM

LAN 1 WAN 2

4 3

5 (Backside)

Socket

l/s2

K/s1

l/s2

Current transformer

K/s1

⚡
Danger:
see warning on the left!

l/s2

K/s1

0 0 0 0 1

kWh

Utility company energy meter

L1 L2 L3   N   Meter fuse

Public power grid 230/400V

Energy meter TQ EM420	Note: connection takes place before all other consumers
Port/Terminal	**Function**
1	External conductor inputs L1, L2, L3
2	External conductor outputs L1, L2, L3
3	Teltonika router
4	Neutral conductor N

Teltonika router RUT241	
Port/Terminal	**Function**
1	LAN connection
2	WAN connection
3	SIM card slot
4	Socket
5	LTE Antennas

- - - -	Data cable
———	Cable