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vatten.[®]**

**VERTO
ELECTRICAL DESIGN
GUIDELINES**

29/12/2025

1 VERTO ELECTRICAL DESIGN GUIDELINES

1.1 Space-specific water metering

The Verto system, a wireless system for metering hot and cold domestic water, is installed according to the HVAC and electrical designs. The system comprises of

- space-specific meters
- meter units and unit displays (display is optional)
- a remotely readable collection unit.

Meters (1-4 meters/ meter unit) are installed in each space, and meter units are installed near the meters. The meter units are numbered at the factory in accordance with the space numbering on the site.

The same meter (V-15UD) works on both hot and cold water lines.

The Verto objects are in the MagiCad product database.

1.2 Installing the collection unit

Always install the collection unit before the meter units.

The collection unit needs a 230V electrical socket (can be freely placed in the space).

If the collection unit is read remotely via a Ethernet connection (TCP/IP), a data socket for an RJ45 network cable is required.

The electrical contractor must ensure that the cables are suitable for the building and meet the regulations for fire safety and electrical installations.

1. Install the collection unit in the main electrical cabinet or other suitable location. Make sure that it is in the range of the radio network and mobile network.
2. Do not install the collection unit side by side with strong current cables.
3. Connect the collection unit into a protective earthed fixed socket-outlet with a power source that is included in the device delivery.
4. Fix the collection unit with screws.
5. After installation, connect a voltage to the collection unit.

Two versions of the collection unit are available:

- EVG-SA HVAC no. 4466916, product no. WU0001, EVG-SA gateway SIM card (GSM)
- EVG-EA HVAC no. 4466917, product no. WU0002, EVG-EA gateway Ethernet

1.3 Installing the meter unit

The meter units EVH-RB are powered by a battery. The battery is replaceable, and the replacement may only be done by a maintenance provider authorised by Smartvatten. The battery is supplied by Smartvatten. Do not use any other type of battery in the equipment.

The meter unit EVH-R230 is equipped with a 230 V internal power source that is connected to the mains supply. In case of power outages, the EVH-R230 has emergency batteries.

The electrical contractor must ensure that the cables are suitable for the building and meet the regulations for fire safety and electrical installations.

1. Make sure to install the meter unit in the space whose number is shown on the meter unit casing.
2. Do not install the meter units in a position where their cable connections face upward. Other installation positions are acceptable.
3. Install the meter units near the meters in each space in compliance with electrical and fire safety regulations and in a manner that makes it easy to access and service the device. If service hatches are needed, their size must be at least 500 x 500 mm.

4. The flow sensors have a 1 m connecting cable. If necessary, replace the cable with a 10 m connecting cable.
5. The meters in the space (1 to 4 meters per space) are connected to one meter unit. If more than 4 meters are needed in the space, connect the extra meters to a separate meter unit.

Two versions of the meter unit are available:

- Battery powered EVH-RB HVAC no. 4466914, product no. WU0005
- Mains power EVH-R230 HVAC no. 4466915, product no. WU0003

1.4 Connecting the meters to the meter unit

1. Install the meter cables based on the information on the casing label (hot/cold water).
2. Install the cables in the order shown in Figure 1.

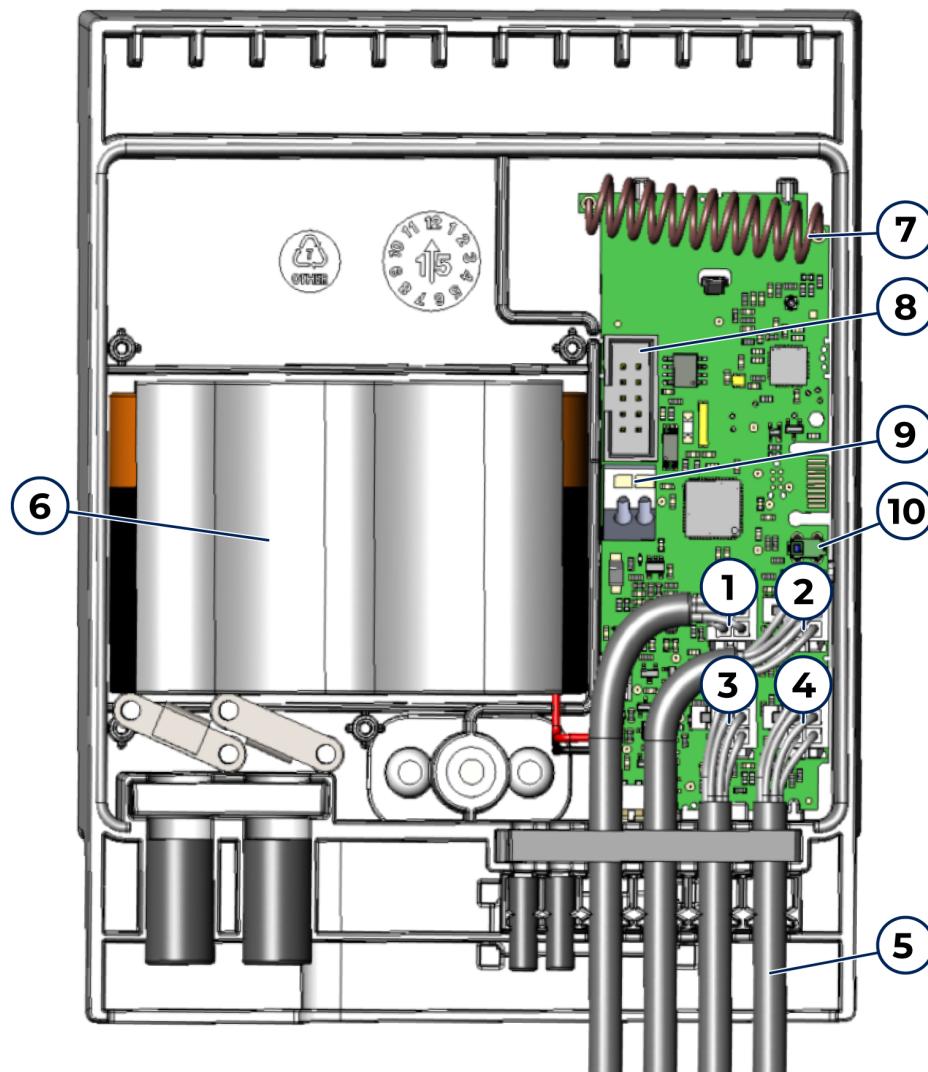


Figure 1: Installing cables to the meter unit EVH-RB

1	Meter cable connection	6	Battery
2	Meter cable connection	7	Antenna
3	Meter cable connection	8	Connector for additional element

Table continued...

4 Meter cable connection

5 Meter cables

9 Connector for DC power source

10 Cover switch

3. Connect both ends of the meter cable before powering up the meter unit.
4. With the EVH-R230 meter unit, first install the meter cables as with the battery powered meter unit EVH-RB.
5. After this, install the cables.

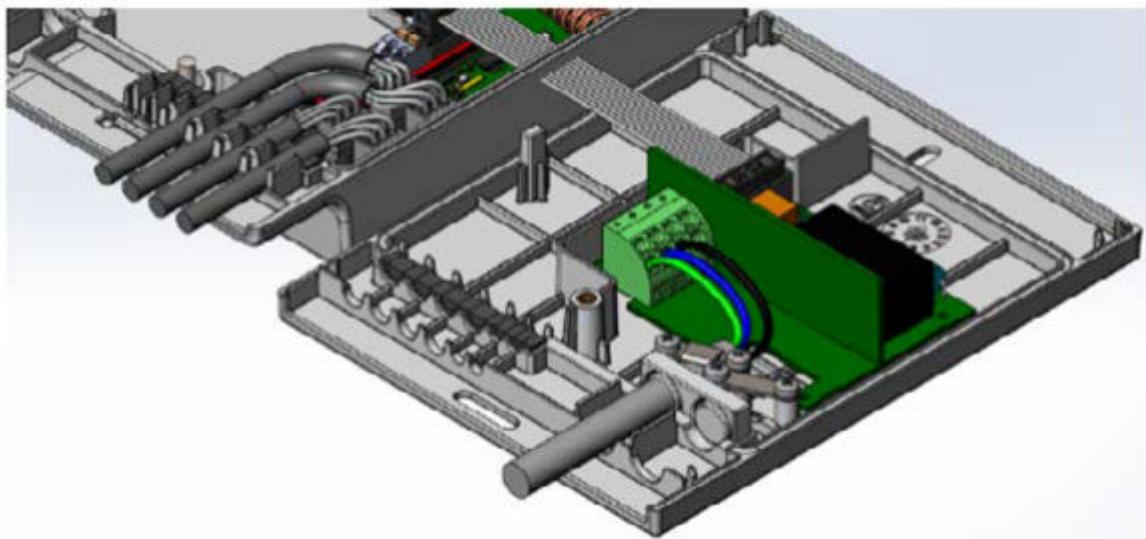


Figure 2: Installing cables to the 230 V meter unit EVH-R230

6. Connect the backup battery connector to the meter unit EVH-R230, or the battery connector to the meter unit EVH-RB. Route the cables as shown in the images. Make sure that the cable does not get caught between the inner walls of the casing.

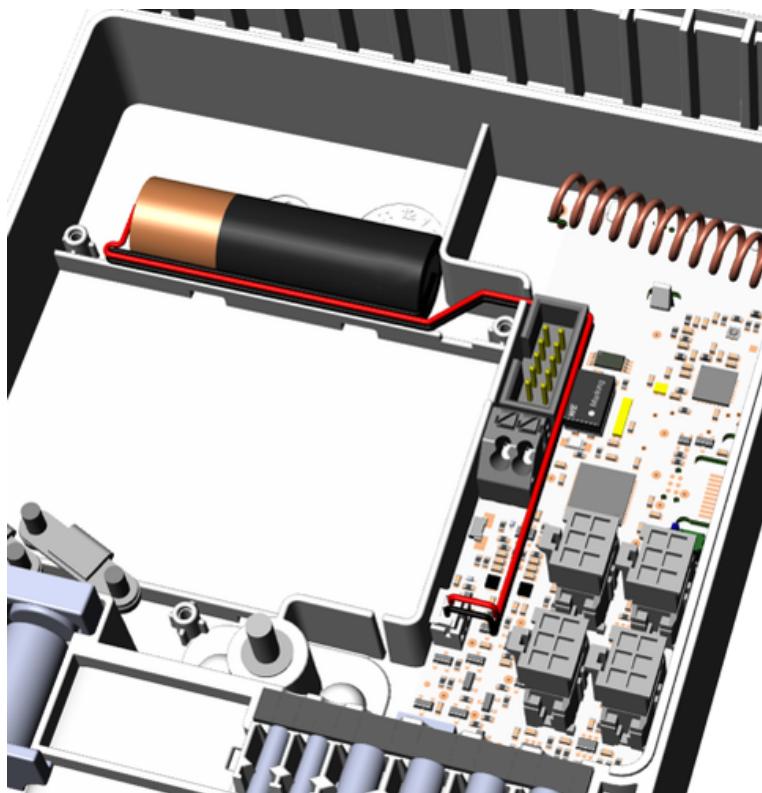


Figure 3: EVH-R230, connecting the backup battery

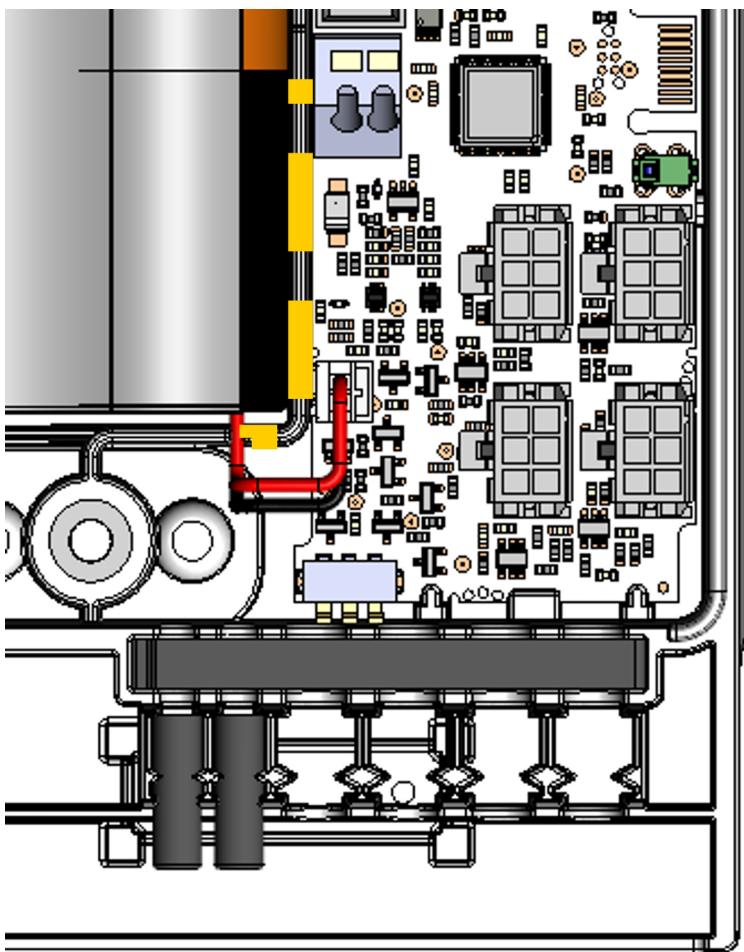


Figure 4: EVH-RB, connecting the battery pack

1.5 Naming the meter units

1. Name the meter units according to the space numbers on site (e.g. A01, A02, A03, B04, B05, etc.).
2. Provide Smartvatten with the space numbers when placing the order.

1.6 Data transmission between the meter units and the collection unit

Transmission of data between the meter units and the collection unit is accomplished via a wireless LoRa radio connection.

1.7 Installing the unit display

1.7.1 Installing the unit display EVN-RB

1. Remove the battery pull tab before first use.
2. Place the unit display in a dry space using the wall mount that is included in the delivery.
3. Install the wall mount in the entryway or hallway. The recommended installation height is 160 cm.
4. The unit display also features temperature and humidity measuring. Take this into account when determining the installation location.

5. The unit display and the meter unit are usually delivered pre-paired, and they must be installed in the space indicated on the casing label. Otherwise, inform Smartvatten of the serial number of the unit display. For the EVN-RB unit display, the pairing is done in the cloud service.
6. Install the unit display to the wall mount.



EVN-RB HVAC no. 4466934

1.7.2 Installing the unit display EVN-RC

1. Place the unit display in a dry space using the wall mount that is included in the delivery.
2. Install the wall mount in the entryway or hallway. The recommended installation height is 160 cm.
3. The unit display also features temperature and humidity measuring. Take this into account when determining the installation location.
4. The unit display and the meter unit are usually delivered pre-paired, and they must be installed in the space indicated on the casing label. Otherwise, inform Smartvatten of the serial number of the unit display. For the EVN-RC unit display, the pairing is done in the cloud service.
5. Connect the EVN-RC unit display to the 5-12 V DC power supply with a USB-C connector.
 1. For surface mounting, you can separately order the white, plug-mounted power adapter WU00064, and a 2 m long USB-C cable.
 2. For box mounting, you can separately order the power adapter WU00062, which comes with a grommet and strain relief.



More detailed electrical design instructions and examples can be found on our home pages.

3. Measure the length of the cord as shown in the figure.



4. Fasten the strain relief and the grommet of the power adapter firmly on the back of the wall mount.



6. Install the unit display to the wall mount.



EVN-RC HVAC no. 4466933

1.8 The collection unit and the property's main water meters

The metering data is transmitted securely from the collection unit to the Smartvatten platform cloud service by means of mobile network or a broadband connection.

1. Connect 1–4 main water meters equipped with impulse transmitters to the collection unit. As cabling, use a shielded twisted pair cable.
These water meters must be located in the same building with the collection unit.
2. Do not install weak current cables and strong current cables side by side.
3. To avoid impurities that could adversely affect water metering, install a water filter of the same size as the pipe inside the building's water supply pipes.

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