smart vatten®
VERTO

HVAC DESIGN GUIDELINES

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1 SMARTVATTEN VERTO HVAC DESIGN GUIDELINES

1.1 Space-specific water metering

The Smartvatten 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 flow sensors
- household units and unit displays
- a remotely readable collection unit.

Flow sensors (1–4 sensors / household unit) are installed in each household, and household units are installed near the sensors. The household units are numbered at the factory in accordance with the household numbering on the site.

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

The Smartvatten Verto objects are in the MagiCad product database.

1.2 Placement of flow sensors, hot and cold water

The connectors and a stop valve are included in the delivery of the flow sensor. The connector after the sensor is equipped with an integrated non-return valve with a pressure relief function (activation pressure 10 bar).

1. Install the flow sensors into a horizontal or vertical pipe paying attention to the flow direction indication arrow on the sensor body.

   The flow sensors come factory-equipped with a laminar flow equalizer. If you remove the laminar flow equalizer, install a straight cable section of 200 mm before the flow sensor.
2. Place the flow sensors so that they are easy to service. Make sure that their installation must meet the regulations for fire safety and electrical installations.
3. If you place the devices inside a casing or suspended ceiling, install a service hatch measuring at least 500 x 500 mm in the location of the devices.
4. We do not recommend installing the devices in the footings of kitchen cupboards or other cramped spaces. The cabinets under the kitchen sink must be waterproofed in case of possible leaks.

1.3 Basic connections of the equipment

The water pipes should be designed so that each household is only connected to the domestic water network at one point. The circulation of hot water should be designed so that it ends before the flow sensor.

The pipe system from the flow sensor to the usage sites should be designed to minimize the waiting time for hot domestic water.

1.3.1 Hot domestic water circulation

The circulation of hot domestic water can in some cases make water metering more difficult. The Smartvatten Verto system enables two or three hot domestic water flow sensors to be connected to the same household unit in order to reduce the waiting time for hot domestic water.

In such cases, the household unit automatically calculates the readings from all of the flow sensors belonging to the same household. Cold domestic water can usually be metered with just one flow sensor.

1.3.2 Two risers

When water enters via two different routes, four flow sensors are required.

The household unit is powered by a battery or 230V electrical power.

1.4 Naming the household units

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

1.5 Installing the unit display

1.5.1 Installing the unit display EVN-RB

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 household temperature and humidity measuring. Take this into account when determining the installation location.
4. The unit display and the household 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.
5. Install the unit display to the wall mount.

EVN-RB HVAC no. 4466934

1.5.2 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 household temperature and humidity measuring. Take this into account when determining the installation location.
4. The unit display and the household 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

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

The metering data is transmitted securely from the collection unit to the VertoLive 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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