

## VERTOBLUE | HVAC DESIGN GUIDELINES

### Household-specific water metering

The VertoBlue system, a wireless system for metering hot and cold domestic water, is installed in households according to the HVAC and electrical designs. The VertoBlue water metering system is a comprehensive service concept from Finland. The system comprises household-specific flow sensors, household units and household displays as well as a remotely readable collection unit for the building or housing company. The system requires no cabling.

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.**

With the household display, residents can easily track their own water consumption in real time. Alternatively, water consumption can be tracked with the VertoMobile mobile app (iOS, Android).

Metering data can be viewed in numerical and graphical form using the browser-based VertoLive service programme. For billing purposes, metering data is transferred to property management software using a compatible export file or interface. Further information on compatible software and interface solutions is available at [verto.fi/vertolive](https://verto.fi/vertolive).

The system can be configured to send any alerts to the mobile phone number or email address of the building manager or maintenance company, for example.

Our maintenance partner network ensures a comprehensive maintenance service all over Finland, and our competent customer service personnel provide a personal service throughout the country as well.

Our system has a five-year warranty. The warranty requires an approved commissioning inspection. When installation is nearing completion, the plumbing contractor arranges the commissioning inspection procedure with the device manufacturer in good time (at least two weeks in advance).

The VertoBlue symbols are in the MagiCad product database.

### Placement of flow sensors

Install the flow sensors into a horizontal or vertical pipe (flow direction: downward flow) paying attention to the flow direction indication arrow on the sensor body. The flow sensors come factory-equipped with a laminar flow equaliser. If the laminar flow equaliser is removed, a straight section of 200 mm before the flow sensor must be observed in the installation.

The flow sensors (total length 196 mm) must be placed so that they are easy to service, and their installation must meet the regulations for fire safety and electrical installations. If the devices are placed inside a casing or suspended ceiling, a service hatch measuring at least 500 x 500 mm should be installed in the location of the devices.

We do not recommend installing the devices in the footings of kitchen cupboards or other cramped spaces. The stop valve before the sensor is included in the Verto delivery.

To avoid impurities that could adversely affect water metering, it is advisable to install water filter of the same size as the pipe inside the building's water supply pipes.

The non-return valve has a special-made pressure relief function, activation pressure 7 bar.

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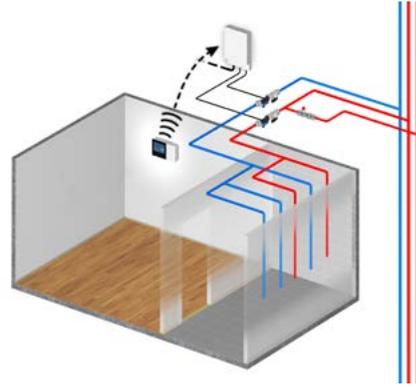
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## Basic connection of the equipment

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.

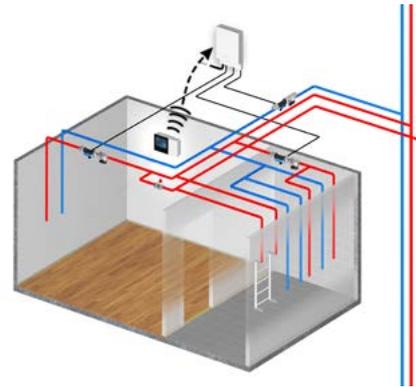
The pipe system from the flow sensor to the usage sites should be designed to minimise the waiting time for hot domestic water.



## Hot domestic water circulation

The circulation of hot domestic water can in some cases make water metering more difficult. The VertoBlue 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.

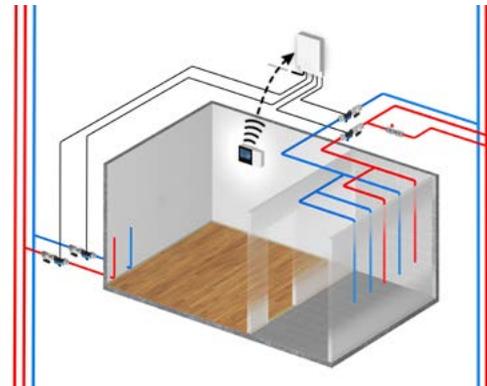
In such cases, the household unit automatically calculates the readings from all of the flow sensors belonging to the same household. Cold domestic water can usually be metered with just one flow sensor.



## Two risers

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

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



## Naming the household units

The household units should be named according to the household numbers on the site (e.g. A01, A02, A03, B04, B05, etc.).

The household numbers should be provided to Verto when the order is placed.

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## Household-specific household display EVN-R

As from the beginning of 2018, a Ministry of the Environment decree regulates that household-specific water meters be installed so that they are easy to service and read (Decree of the Ministry of the Environment on Water supply and sewer systems of properties, Section 10). Furthermore, according to the Measuring Instrument Directive of the European Union, residents shall have the opportunity to effortlessly track the water consumption of their household without requiring any auxiliary equipment to do it.

The VertoBlue system's household display enables residents to track their consumption of hot and cold domestic water separately within the home. The household display can be placed in a dry space in the apartment using the wall mount that is included in the delivery. The household display is attached to the wall mount by a magnet. It is recommendable to install the display at the height of 180 cm in the entryway or hallway of the household.

As an additional service, the household display features household temperature measuring. This should be observed when determining the installation location.

Once the household unit has been connected, the display device and the household unit are paired where necessary in accordance with separate instructions, see Installation and user instructions.



## 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 NBloT technology (mobile network) or a broadband connection.

1-4 main water meters equipped with impulse transmitters can be connected to the collection unit. These water meters must be located in the same building with the collection unit. As cabling, use a shielded twisted pair cable.

Avoid installing weak current cables and strong current cables side by side.

To avoid impurities that could adversely affect water metering, it is advisable to install water filter of the same size as the pipe inside the building's water supply pipes.

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