

Water meter VERTO 3.0, V-15U, VertoBlue

Issued to: **Vercon Oy**, Hopunkatu 11, FI38200, SASTAMALA, Finland

In respect of (type of instrument)

Verto V3.0, V-15U, VertoBlue ultrasonic water meter is intended for cold and heated water (class T70 according to OIML R49).

In accordance with

The water meter fulfills module B (Annex II) of EU directive 2014/32/EU on measuring instruments (MID), implemented in Swedish law by SWEDAC (The Swedish Board for Accreditation and Conformity Assessment) through

- STAFS 2016:1 Swedish Measuring Instruments Regulations
- STAFS 2016:2 Swedish Regulations and Guidelines concerning Water Meters.

Applicable essential requirements of MID 2014/32/EU

- Annex I Essential requirements
- Annex III Water meters (MI-001)

Harmonised standards and normative documents used

- OIML R49-1, and -2, edition 2013.

The evaluation was accomplished according to applicable parts of OIML R49-1 & R49-2:2013, which are equal to the normative documents referred to in the Official Journal of the European Union C 269 Nov 4, 2006 (but updated from 2006/2004 to 2013).

Further applied documents

- WELMEC 7.2, 2018 Software Guide
- WELMEC CT-001, 2019 (October) Corresponding Table

Rated operating conditions

Measurand:	Volume of water	Working positions:	H and V (↓)
Flow range:	$Q_3 = 1,6\text{m}^3/\text{h}$, R40	Water temperature:	0,1-70 °C (class T70 according to OIML R49)
Size:	DN15 (½")	Mechanical environment class:	M1
Climatic environment class:	+5 to +55 °C	Electromagnetic environment class:	E1

Validity

Originally issued: 2020-10-16 Expiry date: 2030-10-16

Issued by Notified body 0402 - RISE Research Institutes of Sweden

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The instrument must correspond with the following specifications:

1 Design of the instrument

1.1 Construction

Ultrasonic flow sensor V-15U (including ancillary fittings and a ball valve), apartment unit types EVH-RB, EVH-R230, and EVH-R230M and display unit EVN-R. The meter is intended to measure the water consumption in an apartment.

V-15U is intended for cold and heated water (T70 according to OIML R49).

The data from the sensor is interpreted as a cold water signal or a hot water signal by apartment unit channels 1-4 according to programming.

Manufacturer: Vercon Oy, SASTAMALA, Finland



Flow sensor V-15U



Apartment unit EVH-RB, EVH-R230, or EVH-R230M



Display EVN-R

1.2 Measurand sensor

The flow sensor V-15 U is always installed with accompanying fittings, ball valve and back flow valve (downstream). The ultrasonic flow sensor transmits data to the apartment unit.

1.3 Measurand processing

The wall mounted apartment unit EVH-RB, EVH-R230 and EVH-R230M receives data from the flow sensors. It can handle 1-4 sensors. Sensors for cold and/or hot water are connected to channels 1-4 according to programming. The apartment processes the data from the sensors for cold and hot water.

1.4 Indication of the measurement result in Display

The indication is presented on a separate display that can be mounted separately or on the apartment unit (if wall mounted the data is sent to the display using a 434 MHz radio link).

Display unit EVN-R has two flow measurement lines;

XXXXXX.XXX m³ (hot water)

XXXXXX.XXX m³ (cold water)

The volume information is updated typically once a second.

The display may be replaced without losing volume information.



1.5 Optional equipment and functions subject to MID requirements

Not applicable.

1.6 Technical documentation

For market surveillance, the construction and included components are described in this certificate and the following technical documentation:

Manual: Instruction for installation and use (in Finnish and Swedish), available at www.verto.fi

The metrological software is identified according to chapter 5.3.

1.7 Integrated equipment and functions not subject to MID

Not applicable.

2 Technical data

2.1 Rated operating conditions

Measurand

Volume of water expressed in m³, separate registers for hot and cold water.

Measurement range etc

Pressure	PN 10
Working position	Horizontal and vertical (only ↓)
Power supply	230 VAC or 230 via external adapter (EVH-230), or internal battery (EVH-RB)
Meter connection	G1/2"
Overall meter length	196 mm (including fittings and ball valve)
Width of flow sensor	36 mm
Reverse flow	Not possible (equipped with pressure relief valve)

Meter flow range, R40	Q ₄ 2000 l/h Q ₃ 1600 l/h Q ₂ 64 l/h Q ₁ 40 l/h
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Water temperature range	0,1-70 °C, (T70 according to OIML R49)
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Environments classes / influence quantities

Mechanic	class M1
Electromagnetic	class E1
Ambient temperature limits	+5°C to +55°C
Humidity	condensing
Location	closed

Water temperature range	0,1-70 °C, (T70 according to OIML R49)
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Software specification according to Welmec Guide 7.2:

Software type	P
Risk class	C
Extension	T, D, I

3 Interfaces and compatibility conditions

Data is transferred wirelessly from the apartment units to a central unit EVG-S or EVG-E (not included in the certificate) using 434 MHz radio. Configuration data is delivered from the central unit to the apartment unit, and further to the display.

4 Requirements on production, putting into use and utilisation

4.1 Requirements on production

No special requirements identified.

4.2 Requirements on putting into use

- The flow sensors must be mounted in accordance with the installation instruction listed in 1.6.
- Either straight pipe length 200 mm (upstream) is required in the flow sensor or flow straightener is used. If straightener is used, straight pipe length 200 mm is not needed.
- Horizontal and vertical (only ↓) working position.

4.3 Requirements for consistent utilisations

No special requirements identified.

By manufacturer estimated durability period is 15 years/1000 m³ at maximum temperature of 70°C. Model EVH-RB has replaceable battery pack.

5 Control of the measuring tasks of the instrument in use

5.1 Documentation of the procedure

No special requirements identified.

5.2 Special equipment or software, if applicable

No special requirements identified.

5.3 Identification of hardware and software

- Hardware description
See 1.1 through 1.4.

- Software description

Part	Model	SW version	Comment, identification of SW (Software)
Apartment unit	EVH-R230, EVH-230M or EVH-RB	V.1.3 (Checksum:7FABFC3A)	SW version is readable from the display units service view
Display unit	EVN-R	V.1.3 (Checksum:F5EAA01C)	SW version is readable from the service view
Flow sensor	V-15U	1.96	SW version is readable from the display units service view

5.4 Calibration-/adjustment procedure

The water meter is not adjustable.

6 Security measures

6.1 Sealing

Type plate is a non-transferable label or laser engraved on sensor.

The metering system is controlled with alarms, and this replaces sealing of parts. The central unit (not included in the certificate) receives and monitors the following information of the apartment units:

- Sensor disconnection/communication error
- Sensor exchange
- Sensor reported error bits
- Leakage (prolonged uninterrupted flow)
- External supply disconnection
- Apartment unit enclosure opened

6.2 Data logger

The official cumulative water volume is stored in and maintained by the apartment unit. The values are stored and handled in one milliliter resolution. The display values are updated once a second.

7 Labelling and inscriptions

7.1 Information to be borne by and to accompany the instrument (MID, Annex I, chapter 9)

The type plates/labels mounted on the instrument shall contain at least the following information:

- EU-type examination certificate number, **0402-MID-C600001**
- Manufacturer's name, registered trade name or registered trade mark
- Manufacturer's postal address (according to MID 2014, chapter 2, article 8, clause 6)
- Type identification
- Year of manufacture
- Serial number
- Permanent flow rate Q3
- Flow rate range Q3/Q1 (R)
- Limits of temperature or temperature class
- Identification of the direction of flow
- Maximum permissible working pressure (PN-class)
- Information on required straight pipe length or flow straightener

7.2 Conformity marking in accordance to MID article 21

The instrument shall be marked in accordance to MID 2014/32/EU article 21 which e.g. describes the CE-marking together with M, year of marking and the notified body number (module D or F).

8. Testing and examination

Testing and examination have been carried out in accordance with Evaluation Report 9P07507-01 in accordance with Directive 2014/32/EU Annex II, module B, paragraph 5. The principal characteristics, approval conditions are set out in this certificate. The plans, schematic diagrams and documentations are recorded under reference files RISE 9P07507.

9. Revision history

Issue	Dated	Description
1	2020-10-15	Certificate issued to: Vercon Oy. Ultrasonic water meter Verto 3.0, V-15U, VertoBlue.