

Water meter VERTO V-15M

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

In respect of (type of instrument)

Verto water meter Range10 (R10) for cold (T30) and hot water (T30/90), not produced after 2019-06-21
Verto water meter Range40 (R40) for cold and heated water (see operating conditions below).

In accordance with

The water meter fulfils 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 2006 (for R10). OIML R49-1, and -2, edition 2013 (for extension to R40).

The evaluation was accomplished according to applicable parts of OIML R49:2006 and 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.

Further applied documents

- OIML D 11 edition 2004 (E), General requirements for electronic measuring instruments
- WELMEC 7.2 Software Guide (Issue 4)
- WELMEC CT-001, Corresponding Table (Issue 2, Oct 2018)

Rated operating conditions

Measurand:	Volume of water	Working positions:	H and V (↓)
Flow range:	$Q_3 = 1 \text{ m}^3/\text{h}$, R10	Water temperature for R10:	0,1-90 °C (class T30 and T30/90 according to OIML R49)
Flow range:	$Q_3 = 1,6 \text{ m}^3/\text{h}$, R40	Water temperature for R40:	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: 2011-06-30 Expiry date: 2021-06-30 This certificate replaces earlier issues

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

Turbine flow sensor V-15M (including ancillary fittings and a ball valve), signal converter EVH-230-M (apartment unit) and display EVN-230-M or EVN-230-2016-1. The meter is intended to measure the water consumption in an apartment.

V-15M R10 is intended for both cold water (T30) and hot water (T30/90).

V-15M R40 is intended for cold and heated water (class T70 according to OIML R49).

The signal from the sensor is interpreted as a cold water signal or a hot water signal depending on which pulse signal input of the apartment unit is used.

The apartment unit is connected to a central unit EVS-230-M (not included in the certificate) through the power line network, and the system is controlled with alarms (see chapter 3 and 6.1).

Manufacturer: Vercon Oy, SASTAMALA, Finland



Pictures: Flow sensor V-15M



Apartment unit EVH-230-M and display EVN-230-M



Display EVN-230-2016-1

1.2 Measurand sensor

The flow sensor V-15 M is always installed with accompanying fittings and a ball valve including a strainer (upstream). The turbine flow sensor transmits pulses to the apartment unit.

1.3 Measurand processing

The wall mounted apartment unit EVH-230-M receives pulses 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 unit uses different algorithms for converting pulse to volume for cold and hot water (software version is marked on the circuit board).

1.4 Indication of the measurement result in Display

The indication is presented on a separate wall mounted display.

Display unit EVN-230-M has two lines;

WW: XXXXXX.XXX m³ (hot water)

CW: XXXXXX.XXX m³ (cold water)

The volume information on the display is updated from the apartment unit every 600 milliseconds (SW version V.2.0b), and once every second (SW version V.2.21)

The display may be replaced without losing volume information.

Display unit EVN-230-2016-1 has two lines;

⊗ 0.007m³ XXXXXX.XXX m³ (hot water)

⊗ 0.004m³ XXXXXX.XXX m³ (cold water)

The volume information on the display is updated from the apartment unit every 600 milliseconds (SW version V.2.0b), and once every second (SW version V.2.21)

The display may be replaced without losing volume information.

The unit has two types of reset functions

- reset of the display window every 60 seconds
- reset to the normal presentation window: time delay 5 minutes

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
Meter connection	G1/2"
Overall meter length	196 mm (including fittings and ball valve)
Width of flow sensor	48 mm
Reverse flow	Not possible (equipped with pressure relief valve)

Meter with flow range, R10	Q ₄ 1250 l/h Q ₃ 1000 l/h Q ₂ 160 l/h Q ₁ 100 l/h
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Water temperature range	0,1-90 °C, (T30 and T30/90 according to OIML R49)
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Meter with 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

3 Interfaces and compatibility conditions

Data is transferred through power line network (230 V) to a central unit EVS-230-M (not included in the certificate).

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.
- Straight pipe with length 200 mm upstream the flow sensor is required in the installation
- Horizontal and vertical (only ↓) working position.

Verification may be carried out in cold water also for hot water meters with R10. No special tests are required during verification.

4.3 Requirements for consistent utilisations

No special requirements identified.

By manufacturer estimated durability period is 12 years/1000 m³ at maximum temperature of 70°C.

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
See picture in 1.1.

- Software

Part	Model	SW vers.	Comment, identification of SW (Software)
Apartment unit	EVH-230-M	V.2.0b or V.2.21	SW v is marked on the circuit board
Display unit	EVN-230-M	V.1.6	SW v is marked on the circuit board. The SW v is displayed during start-up
Display unit	EVN-230-2016-1	V.1.07 or V.1.09	SW v is marked on the housing/label The SW v is displayed during start-up

5.4 Calibration-/adjustment procedure

The water meter is not adjustable (the inner tube is replaced). If the pulses directly from the flow sensor are used for testing, instead of reading the display, the MPE below (concerns R10) will be restricted to:

- +2 to -1,5 % for cold water
- +3 to -2,5 % for hot water at flow rates Q₂-Q₄.

6 Security measures

6.1 Sealing

- Type plate/label is a non-transferable label
- In case there is a separate fuse for the meter in the group centre, the fuse has to be sealed.
- Flow sensors can be delivered with sealable couplings and sealing wax can be used for casings when desired (not mandatory).

The metering system is controlled with alarms, and this replaces sealing of parts. The central unit EVS-230-M (not included in the certificate) gives the following information of the apartment units:

- Ok: The sensor is working.
- Break: The meter circuit of the sensor is broken.
- Short circuit: The meter circuit of the sensor has short circuit
- Leakage: Water flow has been going on more than four hours.
- No consumption: The sensor has not measured any consumption during one month.
- No connection: The central unit has not received contact to the apartment unit in a week.

6.2 Data logger

The volume is stored in the apartment unit and is updated at the display every 600 milliseconds.

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-385402** (where only 385402 is mandatory for R10)
- EU-type examination certificate number, **0402-MID-385402** (for R40)
- 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 (inside the Apartment unit)
- Permanent flow rate Q_3
- Flow rate range Q_3/Q_1 (R)
- Limits of temperature or temperature class
- Identification of the direction of flow
- Maximum permissible working pressure (PN-class)

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 P901403-03 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 SP MTvP901403, RISE 7P07770-01, 9P03549 and 9P07004.

9. Revision history

Issue	Dated	Description
1	2011-06-30	Certificate issued to: Vexve Water Metering. Turbine water meter Vesiverto V-15M
2	2018-05-25	Manufacturer's name and address changed to Vercon Oy (earlier Vexve Water Metering) Certificate updated to MID 2014/32/EU. Addition of new display EVN-230-2016-1
3	2019-10-18	New range of the water meter added: hot water meter (T30/70) with extended flow range R40.
4	2020-01-24	Meter with flow range R10 is out of production from 2019-06-21. New flow range R40 of the water meter added for cold or heated water 0,1 – 70 °C, (temperature class T70 according to OIML R49). Chapter 1.4 and 5.3: SW version V.2.1 for the Apartment unit deleted, was never produced. Chapter 5.3: SW version V.1.08 for the Display unit EVN-230-2016-1 deleted, was never produced.