

Water meter Vesiverto V-15M

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

In respect of (type of instrument)

Water meter for cold (T30) and hot water (T30/90).

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 Measuring Instruments Regulations
- STAFS 2016:2 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

- OIMR R49-1, and -2, edition 2006

The evaluation was accomplished according to applicable parts of OIML R49:2006 and OIML R49:2013 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)

Rated operating conditions

Measurand:	Volume of water	Working positions:	H and V (↓)
Flow range:	$Q_3 = 1 \text{ m}^3/\text{h}$, R10	Climatic environment class:	+5 to +55 °C
Size:	DN15 (½")	Mechanical environment class:	M1
Water temp:	0-90 °C (T30 and T30/90)	Electromagnetic environment class:	E1

Validity: Originally issued: 2011-06-30

Expiry date: 2021-06-30

Issued by Notified body 0402 - RISE Research Institutes of Sweden

Martin Tillander

Kerstin Mattiasson

Certificate No. 0402-MID-385402 | issue 2 | 2018-05-25

RISE Research Institutes of Sweden AB | Certification
Box 857, SE-501 15 Borås, Sweden
Phone: +46 10-516 50 00
certifiering@ri.se | www.ri.se



7P07770

During 2017 SP changed name to
RISE Research Institutes of Sweden.
This certificate was earlier issued by SP, Sweden



Accred. no. 1002
Certification of
Products
ISO/IEC 17065

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, both as a cold water meter (T30) and a hot water meter (T30/90). 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 3 and 6.1).

Manufacturer: Vercon Oy, SASTAMALA, Finland



Picture: 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 V.2.0b (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. 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. The display may be replaced without losing volume information.

The unit has a 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), version 5/2018

The metrological software is identified according to 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

Flow range, R10

Q₄ 1250 l/h

Q₃ 1000 l/h

Q₂ 160 l/h

Q₁ 100 l/h

Water temperature range

0-90 °C, T30 and T30/90

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)

Environments classes / influence quantities

Mechanic

class M1

Electromagnetic

class E1

Ambient temperature limits

+5°C to +55°C

Humidity

condensing

Location

closed

Straight pipe with length 200 mm upstream the flow sensor.

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.
- Horizontal and vertical (only ↓) working position.

Verification may be carried out in cold water also for hot water meters. 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	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	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 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 plate/label mounted on the instrument shall contain at least the following information:

- EU-type examination certificate number, **0402-MID-385402** (where 385402 is mandatory)
- Manufacturer's name, registered trade name or registered trade mark
- Manufacturer's postal address (according to MID, 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 has 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 and RISE 7P07770-01.