EU TYPE-EXAMINATION CERTIFICATE

0402-MID-C600001

Issued by Notified Body No. 0402 according to Directive 2014/32/EU MID annex II Module B, regarding:

Water meter, V-15U, VertoBlue

Issued to

VertoNordic Oy

Jasperintie 290, FI-33960 Pirkkala, Finland

In accordance with

Annex II Module B of the Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments, implemented in Swedish law by SWEDAC Regulation STAFS 2016:1 and STAFS 2022:4 Regulation and Guidelines concerning water meters. RISE Certification Rule SPCR 302 has been applied.

Type of instrument and type designation

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

Conclusion of the examination

For the instruments mentioned in this Certificate, the following essential requirements of Directive 2014/32/EU apply:

- Annex I, Essential requirements
- Annex III, (MI-001), Water meter

For the instruments, the following harmonized standards or normative documents will be applied:

- OIML R49-1, and -2, edition 2013, Water meters for cold water and hot water

For the instruments, the following technical specifications will be applied additionally:

- WELMEC CT-001, 2019 (Oktober) Corresponding table
- WELMEC 7.2, Software Guide (Issue 2023)

The measuring instrument's technical design which is described below complies with the above-mentioned essential requirements. With this Certificate, permission is given to attach the number of this Certificate to the instruments that have been manufactured in compliance with this Certificate.

Rated operating conditions

Measurand:	**Volume of water**	Working positions:	**H and V**
Flow range:	**Q_3 = 1,6m³/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**

Originally issued: 2020-10-16
Valid until: 2030-10-16

The validity of this certificate can be verified at RISE homepage. This certificate replaces earlier issues.

Martin Tillander

Certificate 0402-MID-C600001 | issue 6 | 2024-04-15

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

2022-11-20

The instruments must meet the following provisions:

1. Design of the instrument

1.1 General description/Construction

Ultrasonic flow sensor V-15U (including ancillary fittings and a ball valve or shorter couplings), apartment unit types EVH-RB, EVH-R230, and EVH-R230M and display units EVN-R, EVN-RB and EVN-RC. 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: VertoNordic Oy, Pirkkala, Finland.

Flow sensor V-15U

Flow sensor V-15U

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

Display EVN-R

Display EVN-RB

Display EVN-RC

1.2 Measurand sensor

The flow sensor V-15 U is installed with 2 variant of accompanying fittings, short couplings or 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 results 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 units EVN-R, ENV-RB and ENV-RC has two flow measurement lines;
XXXXXX.XXX m^3 (hot water)
XXXXXX.XXX m^3 (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

None identified.

1.6 Technical documents

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 m^3, separate registers for hot and cold water.

Measurement range etc.

Pressure	PN 10
Working position	Horizontal and vertical
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) or 110 mm (including short couplings)
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
Water temperature range	0,1-70 °C, (T70 according to OIML R49)

Environmental conditions / 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)

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 utilization

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.
- Meters with couplings, total length 196 mm: Either straight pipe length 200 mm (upstream) is required for the flow sensor or flow straightener is used. If straightener is used, straight pipe length 200 mm is not needed.
- Meters with couplings, total length 110 mm: No need for straight pipe length or flow straightener
- Horizontal and vertical working position.

4.3 Requirements for consistent utilizations

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 Documents required for the test

No special requirements identified.

5.2 Special test facilities or software

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 and checksum	Comment, identification of SW (Software)
Apartment unit	EVH-R230, EVH-230M or EVH-RB	V.1.3 Checksum: FABFC3A or V.1.4 Checksum: B68F6B71 V1.6.7 Checksum:0x12BD4ABE	SW version is readable from the display units service view
Display unit	EVN-R	V.1.3 Checksum: F5EAA01C or V.1.4 Checksum: 527C8CA2 V.1.6.7 Checksum: 0x94F8AE92	SW version is readable from the service view
	EVN-RB EVN-RC	V.1.6.7 Checksum: 0x94F8AE92	SW version is readable from the service view
Flow sensor	V-15U	1.96 or 1.97 or 2.0	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 millilitre resolution. The display values are updated once a second.

7. Labelling and inscriptions

7.1 Information to be borne by the instrument

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 with MID article 21

The instrument shall be marked in accordance with MID article 21 which e.g. describes the CE-marking together with M, year of marking and the id number of the notified body responsible for 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 RISE files 9P07507 and P113577.

9. Revision history

Certificate

Issue	*Dated*	*Description*
1	2020-10-15	Certificate issued.
2	2022-02-24	Certificate revised, update with reduction of pulses from flow sensor and new SW version (minor change). Vercon Oy has changed name to VertoNordic Oy.
3	2022-05-16	Certificate revised, update for the use of two versions of couplings, new total length 110 mm and old 196 mm.
4	2023-03-20	Certificate revised, new typo in clause 2.1 (working position).
5	2023-04-17	Certificate revised, new address to the manufacturer and removal of old measurement instrument name. Added a new software version of flow sensor.
6	2024-04-15	Certificate revised, new displays was added and new software version and checksum.