DANAK
PROD Reg. No. 7025

FORCE Certification

EU-Type Examination Certificate

Measuring Instrument Directive

Certificate number: 0200-MID-02784

Issued by FORCE Certification A/S, Denmark
EU-notified body number 0200

In accordance with the Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on measuring instruments (MID).

Issued to: **gAvilar B.V.**
Kamerlingh Onnesweg 63
3316 GK Dordrecht
The Netherlands

Type of instrument: Gas-volume conversion device type 1

Type designation: gAVC 1000

Valid until: 28-09-2027

Number of pages: 5, including appendix

Date of issue: 28-09-2017

Approved by

Lars Poder

2017-09-21

Digitally signed by Lars Poder
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Project Manager

Certification Manager

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FORCE Certification references:

Task no.: 117-25681.02 and ID. No.: DK-0200-MID-02784

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Appendix to
EU-Type Examination Certificate
Measuring Instrument Directive

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Revision history

Revision	Issue date	Changes
0200-MID-02784	28-09-2017	Original certificate

Applied standards and documents:

EN 12405-1:2005/A2:2010
Welmec 7.2 2015

Type designation

gAVC 1000

Description

gAVC 1000 is a gas-volume conversion device type 1 which converts volume as a function of temperature only (T conversion). gAVC 1000 consist of a calculator and a temperature sensor. gAVC 1000 has a display for indication of volume at base condition (converted volume). gAVC 1000 is supplied with a temperature sensor for measurement of the gas temperature and has a pulse input for connection to the pulse output of the gas meter.

Based on the measured gas temperature and the entered gas pressure, the measured gas volume is converted to volume at base condition. The conversion is based on a fixed constant representing gas composition and base condition.

The counter has the following functions:

- Count of measured volume (unconverted)
- Conversion from actual gas temperature and set gas pressure to base temperature and pressure (calculation of converted volume)
- Registration of historical data (consumption, max. flow rate and alarms)

The temperature measurement is carried out using a temperature sensitive resistor (NTC). The NTC resistor is mounted on a cable.

Converted volume is read out on the display with 0, 3 or 4 decimals (programmable).

gAVC 1000 is supplied with a data interface which may be used for remote reading and coding. Coding can only be made with special software after an electrical connection (jumper) has been mounted on a printed circuit board protected by the sealing plate, which is again secured by a verification label. The software used has a version number 02.1000.xx, where xx is a serial number for changes that are of no significance to the measurement or in any other way changes the properties of the meter according this EC-type examination certificate.

The counter is write protected by means of a jumper mounted under the sealing plate.

Functional errors activate a warning triangle on the display.

Technical documentation

FORCE task no. 117-25681.02

Technical data

Instrument type:		Gas-volume conversion device type 1
Environment class:		M2, E2
Climatic class:		Condensing, closed location.
Ambient temperature:	t_{am}	-25°C to +55°C
Power supply:		3 or 3.6V Lithium battery, AA-cell, ER 6 according IEC 86-1, "Primary batteries"
Volume indication:		m^3
Pressure range:		0 – 0.5 barg
Gas temperature range:	t	-25°C to +55°C
Base gas temperature:	t_b	0°C, 15°C or 20°C
Base pressure:	p_b	1013,25 mbar
Base volume:	V_b	0 – 999999999 m^3
Conversion constant:	K	fixed
Max. pulse frequency:		2.0 Hz
Min. pulse duration:		50 ms
Min. pulse interval:		250 ms
Software version:		02.1000.xx, where xx is serial number for non-significant changes

Verification

Errors

Maximum permissible errors according Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on measuring instruments (MID), Annex IV (MI-002).

MPE = 0.5%.

Procedure

Verification is carried out at reference conditions and the accuracy test is performed at three gas temperatures: T_{min}, T_{max}, and $T = (T_{min} + T_{max})/2$. The error is calculated for base volume.

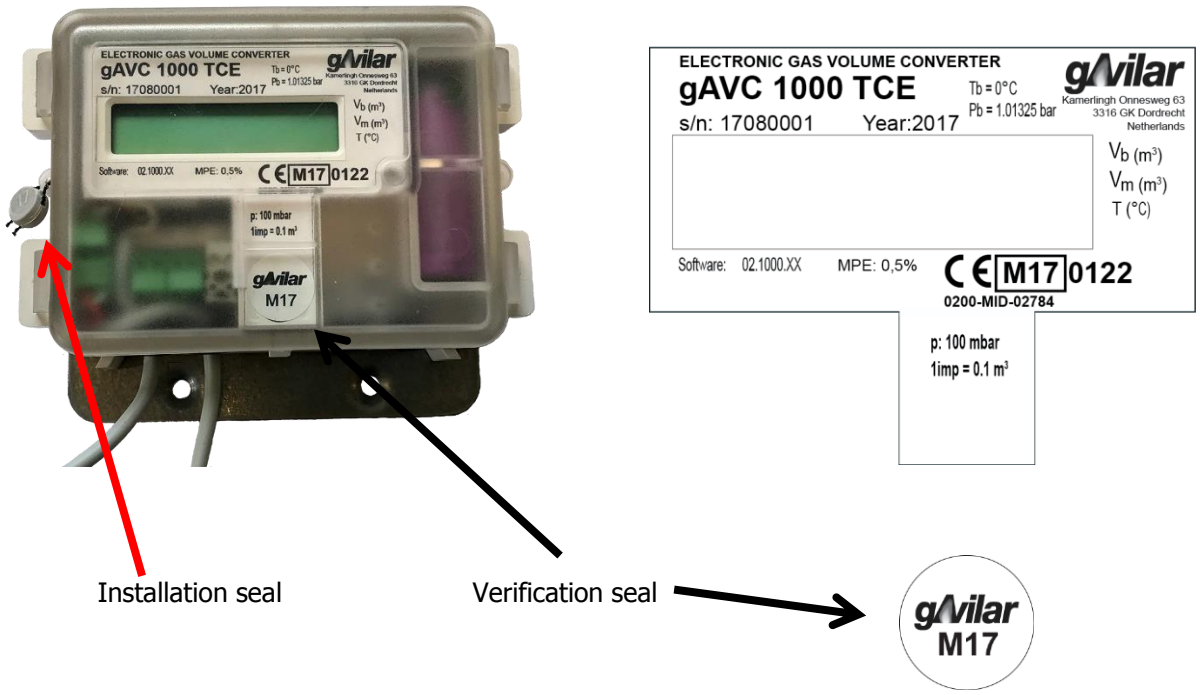
Sealing

Verification sealing

Verification label designed as a void label which contains verification mark and year is placed over the screw on the sealing plate. This also secures the coding label.

Installation sealing

The transparent front cover can be secured by a sealing placed on the side of the cabinet.



Labeling and inscriptions

Type approval mark
EU-type examination certificate number
Manufacturer designation or logo and address
Type, production year and serial number
MPE at reference condition
Software version
Notified body number
Converted volume V_b in m^3
Base conditions, T_b = … K, p_b = … bar

Accompanying information

Environmental temperatures; $t_{amb,max}$ = … °C, $t_{amb,min}$ = … °C
Gas temperature; t_{max} = … °C, t_{min} = … °C
Gas pressure; p_{max} = … bar, p_{min} = … bar
Environmental classes; M2, E2
Climatic class; condensing, closed location
Condition for compatibility with volume gas meter