DANAK
PROD Reg. No. 7026

FORCE Certification

EU-Type Examination Certificate

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

Issued to: **ITRON GmbH**
Hardeckstrasse 2
76185 Karlsruhe
Germany

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 (MID).

Type of instrument: Diaphragm Gas Meter

Type designation: G10 ACD e WL / G16 ACD e WL

Certificate No.: DK-0200-MI002-020

Date of issue: 2021-03-01

Valid until: 2031-03-01

Number of pages: 9, including appendix

Version: 8

This version is a renewal of this certificate
(This certificate replaces all earlier versions. All previous versions are withdrawn)

Approved by
Lars Poder
2021-03-01

Digitally signed by Lars Poder
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Project Manager

Certification Manager

The certificate is only valid with one digital signature from FORCE Certification. The original version of the certificate is archived in FORCE Certifications database and is sent in electronic duplicate to the customer. The stored version of the certificate at FORCE Certification prevails as documentation for its contents and validity.

The conformity markings may only be affixed to the above type approved equipment. The manufacturer's EU-Declaration of Conformity may only be issued, and the notified body identification number may only be affixed on the instrument when the production/product assessment module (D or F) of the Directive is fully complied with and controlled by a written inspection agreement with a notified body. This EU-type examination certificate may not be reproduced except in full, without written permission by FORCE Certification A/S.

FORCE Certification references:
Task no.: 120-33534.03 and ID. No.: 0200-MID-10134

History of the Certificate:

Revision	Issue date	Changes
Ver. 8	2021-03-01	Renewal of certificate

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 IV "Gas meters and Volume conversion devices (MI-002)"

For the instruments, the following harmonized standards will be applied:

- EN1359:1998/A1:2006 which is covered by use of
  - EN 1359:2017 Gas meters – Diaphragm gas meters.
  - EN 16314:2013 Gas meters – Additional functionalities.

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

- WELMEC Guide 7.2, Issue 2019. Software Guide
  The software fulfils the basic requirements for type P
  The software fulfils the requirements for extension S and I2
- WELMEC Guide 11.1, Issue 2017: Common application for utility meters
- WELMEC Guide 11.3, Issue 1, May 2012: Guide for sealing of Utility meters

Type designation

G10 ACD e WL / G10C ACD e WL / G16 ACD e WL / G16C ACD e WL

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.

The instruments must meet the following provisions:

1. Design of the instrument

1.1 Construction

GX ACD e WL is a diaphragm gas meter with electronic index; X being the size designator 10 or 16, C indicating a compact meter. The mechanical measuring unit is mounted in a steel plate housing with either two-pipe or mono-pipe (coaxial) connections. The housing is divided into an upper and a lower part which are assembled by folding a band or by screws.

1.2 Sensor

The measuring unit's movements are transmitted via an optical scanning to the electronic index. The calculator in the index registers the measured gas volume and calculate a volume corrected for the meter error determined during calibration (corrected volume).

1.3 Measurement value processing

The gas meter converts the measured (Corrected) volume to volume at base condition (converted volume).
The conversion is based on measured temperatures, a fixed set value of gas pressure and a fixed set conversion constant.

1.4 Indication of the measurement results

The calculator is fitted with a display showing the corrected volume or the converted accumulated volume in m^3 at base condition.

Functional errors activate an alarm symbol on the display.

1.5 Optional equipment and functions

Independent of the above options, the meter may be operated with temperature conversion or without temperature conversion.

1.6 Technical documents

Electronic index: FORCE Certification A/S File no. 120-21929 and 120-33534.
Gas meter: FORCE Certification A/S File no. 120-21929 and 120-33534.

1.7 Integrated equipment and functions not subject to MID requirements

None.

2. Technical data

2.1 Rated operating conditions

Measurand:
The Instrument type is a diaphragm gas meter which measures the corrected volume or the converted volume.

Volume indication:
m^3 at base condition or actual conditions.

Measurement range:
See table below.

Accuracy class:	1,5
Environmental conditions/influence quantities:	
Protection class	IP 54
Climatic environment	Closed location – non-condensing.
Mechanical	M1
Electromagnetic	E2

Model		G10C	G10	G16C	G16
Mechanical measuring unit		G10 ACD		G16 ACD	
Maximun flow rate	Q_{max} [m^3/h]	16		25	
Minimum flow rate	Q_{min} [m^3/h]	0,1		0,16	
Transitional flow rate	Q_t [m^3/h]	1,6		2,5	
Overload flow rate	Q_r [m^3/h]	19,2		30	
Cyclic volume	V [dm^3]	5			
Maximum pressure	p_{max} [barg]	0,5 barg for assembly Folded 1 barg for assembly Screwed			
		0,1 barg with high temperature options			
Lower temperature limit:	t_m [°C]	-10			
Upper temperature limit:	t_m [°C]	+40			
Storage temperature:	t_s [°C]	-30 to +60			
Base gas temperature:	$t_{b,i}$ [°C]	selectable to fixed value between 0 and 20			
Base pressure:	p_b [mbar]	1013,25			
Base volume:	V_b [m^3]	0 – 999999.999			
Specified temperature:	t_{sp} [°C]	20			
Specified pressure	p_{sp} [mbar]	selectable			
Connections	Two-pipe	250 mm (Compact), 280 mm, 290 mm, or 300 mm, DN 32 or DN 40			
	Mono-pipe (coaxial)	DN 40			

2.2 Other operating conditions

Gas family:	Fuel gasses of 1st, 2nd and 3rd family (described in EN 437).
Power supply:	3 or 3.6 V Lithium battery, AA, double AA or C-cell, ER 6 / ER20 according to IEC 86-1, "Primary batteries".
Estimated battery time:	Up to 20 years
Estimated life time for gas meter:	20 years
Option:	High ambient temperature resistant. (Marked with "T").

3. Interfaces and compatibility conditions

The calculator is supplied with a wireless interface which may be used for remote communication with the calculator. Remote communication is only for the non-metrological part of the firmware. The calculator is also supplied with an IR-port for communication but only for testing purpose. Coding via the IR-port can only be made with a special configuration software after an electrical connection (jumper) has been mounted on the printed circuit board and when the IR-port is enabled.
The printed circuit board is protected by the metrological cover, which again is secured by a verification seal. The software used in the calculator has version number 052400XX-YY, where XX and YY are of no significance to the measurement or in any other way may change the properties of the meter according to this EC-type examination certificate.

On start-up of the meter the index will show an abbreviated version of the software version number: 05 XX YY, where 05 is the metrological version, XX the application version, and YY the software type.

4. Requirements on production

The manufacturing and the configuration of the gas meter must be in accordance with this type approval and the documentation described in the manufactures quality system according to the certified MID module D.

5. Checking of instruments which are in operation

Instruments which are in operation shall be checked according to the national regulations.

5.1 Documents required for the test

User manual for the meter.

5.2 Special test facilities or software

The instruments can be verified and calibrated at the same facilities as for a new meter.
The meter can be read by use of a special Software called "DuoMeter" and by use of an IR transmitter.

5.3 Identification

Software and hardware

The identification of the software and hardware version and the checksum can be found in the meter service mode which can be reached by pressing the button for a period longer than 10 seconds.

SW version*	Checksum for metrological part of the software	PCB number** wireless M-bus
05.2400.XX-YY	8740	6024060-04-TT

*The first number is the version no. for the approved legal part of the software, the second (2400) is the product type and XX is the non-metrological version and YY refers to the product version

**The first number is a unique ID, the second (04) is the legal metrological number and the last number (TT) is a version number that do not include changes to metrology.

5.4 Verification

Errors

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

Unconverted volume
Ambient temperature t_{am}: -10°C to +40 °C
Maximum permissible errors: ±3 % for $Q_{min} \leq Q < Q_t$
±1,5 % for $Q_t \leq Q \leq Q_{max}$

Converted volume
Ambient temperature t_{am}: +5 °C to +35 °C
Maximum permissible errors ±3 % for $Q_{min} \leq Q < Q_t$
±1,5 % for $Q_t \leq Q \leq Q_{max}$

If the meter indicates the converted volume an additional increase of 0,5 % to MPE is permitted in the temperature interval 5 °C to 35 °C. Outside this temperature ranges an additional increase of 0,5 % is permitted in each interval of 10 °C.

The gas meter shall not exploit the MPEs or systematically favour any party.

Procedure
Verification is carried out at laboratory conditions. It is permitted to use air as verification gas. The verification is valid only for the display reading of converted volume V_b or corrected volume V_c.

6. Security measures

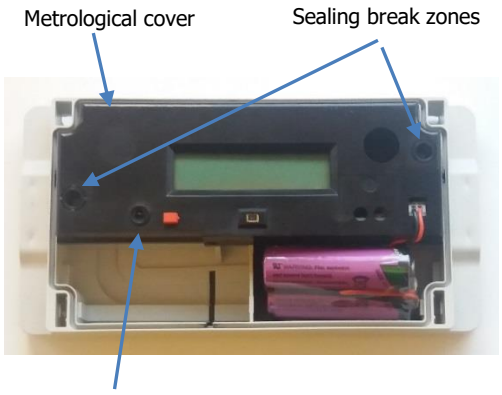
The sealing consists of a metrological seal and an installation seal.

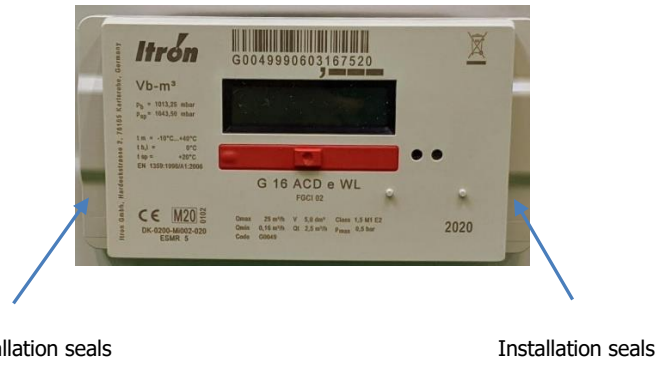
6.1 Mechanical seals

Verification sealing
The index is mounted to the mechanical measuring unit, by pressing metal parts into the index. There is no other sealing between index and mechanical measuring unit.
The printed circuit board is protected by a metrological cover, which again is secured by a metrological seal.
The Metrological seal is a plastic pin formed on the bottom part of the cabinet, which penetrates a hole in the metrological cover and locks the metrological cover.

A "Break-Zone" (a weak area) is made in the front surface of the metrological cover in the area around the plastic pin. This has the effect, that if an attempt is made of removing the metrological cover by force, it will break in a very visible way, leaving clear evidence that the Index has been tampered or attempted to be tampered.

Installation sealing
The front cover is secured by two installation seals, one on each side of the index. The installation seals are small plastic caps which are pressed and locked into a hole in the cover and index.





6.2 Software seals

The metrological Software is protected by passwords and use of a metrological switch (jumper) which must be mounted on the printed circuit board (PCB) before programming. The PCB is protected by the metrological seal, which cannot be removed without damage to the index after installed.

7. Labelling and inscriptions

7.1 Information to be enclosed with the instrument

Rated operating conditions not included on the label:

Mechanical and electromagnetic environment classes	:	M1, E2
Transitional flow rate	:	Q_t [m^3/h]
Overload flow rate	:	Q_r [m^3/h]
Climatic class	:	non-condensing, closed location
Storage temperature, t_s	:	-30 °C to +60 °C

Gas family: Fuel gasses of 1st, 2nd and 3rd family (EN 437).
Power supply: Lithium battery, 3 or 3.6 V DC.
Software version number.
Legal software checksum.
Suitable for significantly different ambient and gas temperatures.
Instructions for installation, maintenance, repairs, permissible adjustments.
Instructions for correct operation and any special conditions of use.

7.2 Markings and inscriptions

According to Directive 2014/32/EU Article 21 and 22, and Annex I paragraph 9 and EN1359 paragraph 8 *Markings* and EN16314 paragraph 8 *Markings* the following inscriptions must appear on the label.

Conformity marking (CE + M + Year of affixing + NB no.)
EU-type examination certificate number
Manufacturer designation or logo and address
Type, production year and serial number

Maksimum flowrate	:	Q_{max}
Minimum flowrate	:	Q_{min}
Maximum working pressure, P_{max}	:	bar(g)
Cyclic volume, V	:	dm^3
Accuracy class	:	1,5
Ambient temperature:		
Lower temperature limit, t_m	:	-10 °C
Upper temperature limit, t_m	:	+40 °C
Gas temperature (if different from ambient)		
Lower temperature limit, t_g	:	-10 °C
Upper temperature limit, t_g	:	+40 °C
Base gas temperature, $t_{b,i}$	:	0 to 20 °C
Specified temperature, t_{sp}	:	20 °C
Base Pressure, P_b	:	1013,25 mbar
Specified pressure:P_{sp}	:	selectable to fixed value, default value 1013,25 mbar.
Volume (base or corrected), V_b or V_c	:	m^3
High ambient temperature resistant (Option)	:	T
Applied European Standard	:	EN1359:1998/A1:2006

8. Figures

Compact model ACD G10C/G16C e WL

ACD G10/G16 e WL