EC-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MI002-021

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

In accordance with The Danish Safety Technology Authority's statutory order no. 339 of 29th March 2010 on changes to statutory order no. 436 of 16th May 2006 which implements the Directive 2004/22/EC of the European Parliament and Council of March 31st, 2004 on measuring instruments (MID).

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

Reference No.:	80.976-095/09
Type of instrument:	Diaphragm Gas Meter with temperature conversion
Type designation:	Gallus e
Valid until:	May 30, 2021
Number of pages:	7, including appendix
Date of issue:	May 30, 2011
Version:	Original

Approved by

Hans Falster
Director

Processed by

Kurt Rasmussen
Certification Manager

The conformity markings may only be affixed to the above type approved equipment. The manufacturer's 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.

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Appendix to
EC-Type Examination Certificate
Measuring Instrument Directive

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Applied standards and documents:

Directive 2004/22/EC on measuring instruments, Annex I and MI-002.
EN 1359:1998/A1:2006. Gas meters – Diaphragm gas meters. Section 6.5.4.1, 6.5.5, and B.2.3.
EN 12405-1:2005/A1:2006. Gas meters – Conversion devices – Part 1. Volume conversion.
WELMEC Guide 7.2, Issue 4, may 2008. Software Guide (Measuring Instruments Directive 2004/22/EC).

The software fulfils the basic requirements for type P and specific requirements I2
The software fulfils the requirements for extension S and D.

The instrument shall correspond to the following specifications:

Type designation

Gallus e

Description

Gallus e is a diaphragm gas meter with electronic index. 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. The upper and the lower part held together by glue and a crimped steel belt. The measuring unit includes a mechanical blockage which prevents registration of more than one cyclic volume in case of reverse flow through the meter.

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 calculates a volume corrected for the meter error determined during calibration. The calculator may also convert the measured 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. The calculator is fitted with a display showing the corrected volume or the converted accumulated volume in m^3 at base condition.

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The meter is available with the following options:

Designator	Description	Example
WL	Radio communication	Gallus e WL
SW	Wired communication	Gallus e SW
(blank)	Without communication module	Gallus e
V	With valve	Gallus eV

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

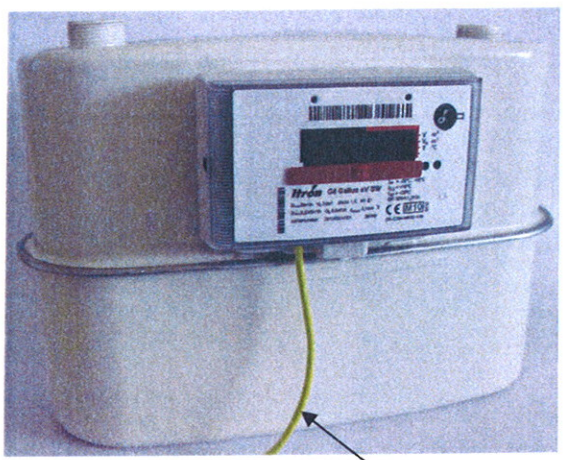
Examples:	Description:
Gallus e	Gallus e meter without valve and without communication module
Gallus e WL	Gallus e meter without valve and with wireless communication
Gallus eV SW	Gallus e meter with valve and wired communication

Functional errors activate a warning triangle on the display.

The calculator is supplied with an IR communication interface which may be used for remote reading and coding of the calculator. Coding can only be made with special configuration software after an electrical connection (jumper) has been mounted on the printed circuit board. 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 012400XX-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: 01 XX YY.

The meter is resistant to high ambient temperature and suitable for significantly different ambient and gas temperatures.



SW option

Technical documentation

FORCE Certification A/S File no. 80.976-085/09 (electronic index)

FORCE Certification A/S File no. 80.976-095/09 (gas meter)

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Technical data

Instrument type: Diaphragm gas meter
Accuracy class: 1,5
Environment class: M1, E2
Climatic environment:
Lower temperature limit: -25 °C
Upper temperature limit: +55 °C
Open or closed location – non-condensing.
Volume indication: m^3 at base condition or actual conditions

Model		Two-pipe	Mono-pipe
Maximum flow rate[1)]	Q_{max} [m^3/h]	6	6
Minimum flow rate[1)]	Q_{min} [m^3/h]	0,016	0,016
Transitional flow rate[1)]	Q_t [m^3/h]	0,25	0,25
Overload flow rate[1)]	Q_r [m^3/h]	7,2	7,2
Maximum pressure[2)]	p_{max}[barg]	0,5	0,5
Nominal diameter	[mm]	DN20 or DN25	DN20
Central distance between connections[3)]	[mm]	90-110 130-160 210-250	N/A

1) $Q_{max}/Q_{min} \geq 150$, $Q_{max}/Q_t \geq 10$ and $Q_r/Q_{max} \geq 1,2$.
2) If high temperature option, p_{max} = 0,1 barg
3) Depending on model

Cyclic volume V 1,2 dm^3
Gas family: Fuel gasses of 1st, 2nd and 3rd family (EN 437:2003)
Gas temperature range:
Lower temperature limit: t_m -25 °C
Upper temperature limit: t_m +55 °C
Base gas temperature: $t_{b,i}$ 0 to 20 °C
Storage temperature: t_s -40 °C to +60 °C
Base pressure: p_b 1013 mbar
Base volume: V_b 0 – 99999.9999 m^3
Specified temperature: t_{sp} 20 °C
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"

High ambient temperature resistant
Suitable for significantly different ambient and gas temperatures
Estimated life time for gas meter: 20 years
Estimated battery life time: 15 years

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Software

Version no.:	012400XX-YY
	01 is the version no. for the approved legal part of the software
	2400 is the type no.
	XX is the application no.
	YY refers to the hardware.
Display:	In the display is shown 01 XX YY on start-up
Checksum:	Legal software ver. 01 has the checksum 10799
Main PCB	6024800-01-0001: For wired M-bus
	6024801-01-0001: For option board

Verification

Errors

Maximum permissible errors (MPE) according to Directive 2004/22/EC of the European Parliament and Council of March 31st, 2004 on measuring instruments (MID), Annex MI-002 and Commission Directive 2009/137/EC of November 10th, 2009.

Ambient temperature t_{am}: -25 °C to +55 °C

Maximum permissible errors

For t_{am}: +5 °C to +35 °C

±3 % for $Q_{min} \leq Q < Q_t$

±1,5 % for $Q_t \leq Q < Q_{max}$

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 range 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.

Sealing

Verification sealing

There are two main verification seals on the index. One seal for the electronical part and one seal for the mechanical part. Both seals are marked with the Itron logo. The electronical part is also sealed with a secondary seal on the left side.

Installation sealing

The transparent 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.

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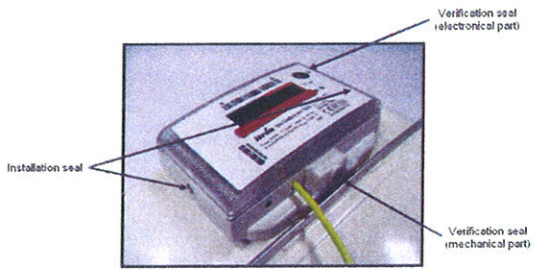
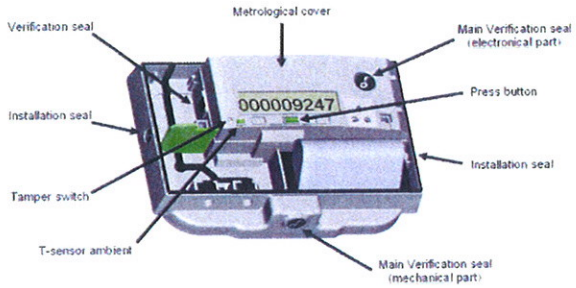
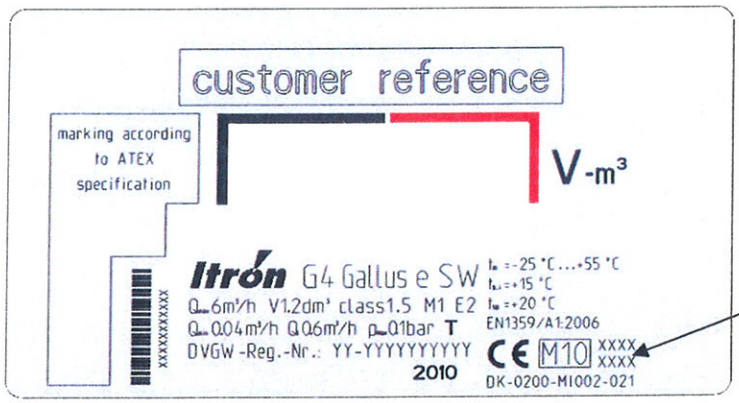




Labelling and inscriptions



XXXX is the Notified Body number for the approval of the quality assurance of the production process

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

Applied European Standard		:	EN 1359:1998/A1:2006
Class		:	1,5
Flow rates:			
Maximum flow rate			Q_{max} [m^3/h]
Minimum flow rate			Q_{min} [m^3/h]
with the condition that $Q_{max}/Q_{min} \geq 150$, $Q_{max} \leq 7{,}2\ m^3/h$, $Q_{min} \geq 0{,}016\ m^3/h$			
Ambient and gas temperature:			
Lower temperature limit:	t_m	:	-25 °C
Upper temperature limit:	t_m	:	+55 °C
Base gas temperature:	$t_{b,i}$	:	0 to 20 °C
Specified temperature:	t_{sp}	:	20 °C
Maximum working pressure:	p_{max}	:	0,5 barg with folded assembly
	p_{max}	:	0,1 barg with high temperature option
Volume:	V_b or V_c	:	m^3
Cyclic volume:	V	:	1,2 dm^3
High ambient temperature resistant		:	T

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Accompanying information

Rated operating conditions not included on the label:

- Transition flow rate, Q_t
  with the condition $Q_{max}/Q_t \geq 10$
- Overload flow rate, Q_r
  with the condition $Q_r/Q_{max} \geq 1,2$
- Climatic class: non-condensing, open or closed location
- Storage temperature, t_s: -40 °C to +60 °C
- Gas family: Fuel gasses of 1st, 2nd and 3rd family (EN 437:2003)
- Power supply: Lithium battery, 3 or 3.6 V DC
- Software version number: 012400XX-YY
- Legal software checksum: 10799

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

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