

# EC-Type Examination Certificate Measuring Instrument Directive

**Number: DK-0200-MI002-002**

Issued by FORCE-Dantest CERT, Denmark  
EC-notified body number 0200

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

**Issued to:**            **Flonidan DC A/S**  
                              **Islandsvej 29**  
                              **DK-8700 Horsens**

Reference No.:        80.976-016/07

Type of instrument: Diaphragm Gas Meter with Temperature Conversion

Type designation:    Gallus 2100 TCE / Uniflo G4  
                              The meter is placed on the market under two different names

Valid until:            August 30, 2017

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Approved by

  
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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:

EN 1359:1998/A1:2006

EN 12405-1:2005/A1:2006 with the following extension:

A.9 Electromagnetic susceptibility. Severity level 4 for electromagnetic fields caused by digital radio telephones (OIML D11, clause 12.1)

The instrument shall correspond to the following specifications:

### Type designation

Gallus 2100 TCE / Uniflo G4

### Description

Gallus 2100 TCE is a diaphragm gas meter with electronic index. The gas meter converts 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 mechanical measuring unit is mounted in a steel plate housing with either two-pipe or co-axial connections. 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 is fitted with a display showing the corrected accumulated volume in m<sup>3</sup> at base condition.

Functional errors activate a warning triangle on the display.

The calculator is supplied with a data interface which may be used for remote reading and coding of the calculator. Coding can only be made with special software after an electrical connection (jumper) has been mounted on the printed circuit board protected by the sealing plate, which again is secured by a verification label. The software used in the calculator has version number 00.2100.xx, where xx is a serial number for changes that 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.



## Technical documentation

FORCE-Dantest CERT File no. 80.976-016/07

### Technical data

Instrument type:	Diaphragm gas meter				
Accuracy class:	1,5				
Environment class:	M1, E2				
Climatic class:	-25°C to +55°C, condensing, closed outdoor location.				
Volume indication:	m <sup>3</sup> at base condition				
Maximum flow rate:	Q <sub>max</sub>	2,5	4	6	m <sup>3</sup> /h
Minimum flow rate:	Q <sub>min</sub>	0,016	0,025	0,04	m <sup>3</sup> /h
Transitional flow rate:	Q <sub>t</sub>	0,25	0,4	0,6	m <sup>3</sup> /h
Overload flow rate:	Q <sub>r</sub>	3	4,8	7,2	m <sup>3</sup> /h
Cyclic volume	V	1,2 dm <sup>3</sup>			
Gas family:	Fuel gasses of 1 <sup>st</sup> , 2 <sup>nd</sup> , and 3 <sup>rd</sup> family (EN 437:2003)				
Maximum pressure:	p <sub>max</sub>	0,5 barg			
Gas temperature range:	t <sub>m</sub>	-25 °C to +55 °C			
Base gas temperature:	T <sub>b,i</sub>	0 °C to 20 °C			
Base pressure:	p <sub>b</sub>	1013 mbar			
Base volume:	V <sub>b</sub>	0 – 999999999 m <sup>3</sup>			
Specified temperature:	t <sub>sp</sub>	20 °C			
Power supply	3 or 3.6 V Lithium battery, AA-cell, ER 6 according to IEC 86-1, "Primary batteries"				
Software version:	00.2100.xx, where xx is serial number for non-significant changes				

The meter is supplied with different connections:

Two-pipe, with centre distance 100 to 160 mm, threads from 1/2" to 5/4"

Mono-pipe (coaxial) 2"

## Verification

### Errors

Maximum permissible errors (MPE) according to Directive 2004/22/EC of the European Parliament and Council of March 31<sup>st</sup>, 2004 on measuring instruments (MID), Annex MI-002.

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  $Q_t \leq Q < Q_{max}$

When the errors between  $Q_t$  and  $Q_{max}$  all have the same sign, they shall all not exceed 1 %.

For  $t_{am}$  below 5 °C and above 35 °C, an additional increase of 0,5% to MPE is permitted for each interval of 10 °C.

### 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  $V_b$ .

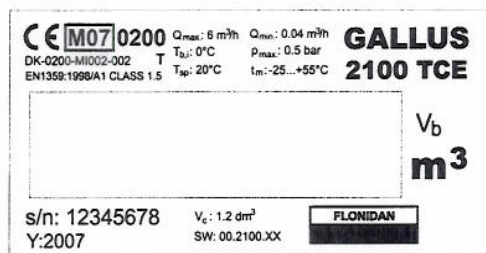
## Sealing

### 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 label or a wire seal placed over the joint between the front cover and the white plastic box.



Verification seal

Installation seal

## Labelling and inscriptions

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		
Maximum flow rate:	$Q_{max}$	2,5	4	6 m <sup>3</sup> /h
Minimum flow rate:	$Q_{min}$	0,016	0,025	0,04 m <sup>3</sup> /h
Ambient and gas temperature:	$t_m$	-25 °C ... +55 °C		
Base gas temperature:	$t_{b,i}$	0 °C to 20 °C		
Specified temperature:	$t_{sp}$	20 °C		
Maximum working pressure:	$p_{max}$	0,5 barg		
Converted volume:	$V_b$	m <sup>3</sup>		
Cyclic volume:	$V_c$	1,2 dm <sup>3</sup>		
Software version	:	00.2100.xx		
High ambient temperature resistant	:	T		

## Accompanying information

Rated operating conditions not included on the label:

- Transition flow rate:  $Q_t = 0,1 Q_{max}$
- Overload flow rate:  $Q_r = 1,2 Q_{max}$
- Climatic class: condensing, closed outdoor location
- Mechanical and electromagnetic environment classes: M1, E2
- Gas family: Fuel gasses of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> family (EN 437:2003)
- Power supply: Lithium battery, 3 or 3.6 V DC

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