

CERTYFIKAT BADANIA TYPU WE
EC TYPE EXAMINATION CERTIFICATE
Nr PL-MI002-1450CQ0002

Certification Office of INiG-PIB hereby states that the:

Diaphragm gas meters

measuring series: **UG G1,6 UG G2,5 UG G4 HybridSmart**

issued to: **APATOR METRIX S.A.
ul. Grunwaldzka 14,
83-110 Tczew, Polska**

manufacturing site: **APATOR METRIX S.A.
ul. Grunwaldzka 14,
83-110 Tczew, Polska**

meets the essential requirements covered by the Directive 2014/32/UE of The European Parliament and of the Council of 26th February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (OJEU of 2014 L 96) on the basis of EU type examination according to Annex IV (MI-002) of Directive 2014/32/EU and at the same time the requirements of Regulation issued by Minister of Development of 2nd June 2016 on requirements for measuring instruments, Annex no. 2 (Polish Journal of Laws of 2016 item 815)


document of reference: **PN-EN 1359:2004 [EN 1359:1998]
PN-EN 1359:2004/A1:2006 [EN 1359:1998/A1:2006]**

test reports: **10/GM/2009, 33/GM/2010, 36/GM/2012, 21/GM/2015**

pages: **7**

certificate is valid until: **9th June 2025**

Certification Office
Manager


Magdalena Swat



Director of the Oil and Gas Institute
National Research Institute


Maria Ciechanowska

Kraków, 05-01-2021

2nd edition, replaces the 1st edition of 10-06-2015

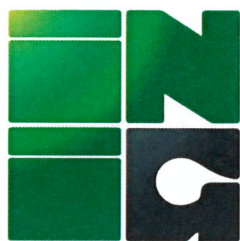


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AC 010



Appliance

Diaphragm gas meters

Measuring series

UG G1,6 UG G2,5 UG G4 HybridSmart

Design of the instrument

HybridSmart Diaphragm gas-meter consists of three units: measurement (battery), case and hybrid index.

Measurement unit (battery) consists of two measuring chambers containing diaphragms, separating element and timing mechanism that consists of sliders coupled with gear wheels, paddle shifters, crankset, central wheel and bevel gear differential.

Case unit consists of upper part and lower part tightly connected by band clip. Bushing, magnetic clutch with external and internal magnet sub-assembly and driving pinion are placed in the upper part of the case.

Hybrid Index is equipped with autodiagnostic system and controls the gas-meter operation within the following scopes:

- number of days to planned supply battery replacement;
- upper and critical limit of flowrate;
- maximum error of daily gas consumption;
- system error;
- interference detection (electromagnetic field, cover removal);
- state of valve – open/closed (optional)

Gas-meter may be equipped with integrated internal remote-controlled ball valve.

Technical documentation – list of figures

No.	Gas meters	Fig no.	Remarks
1	Gas-meters UG V=1,2 dm ³ HybridSmart	SN00000H	main assembly drawing
2	Gas-meters UG V=2,2 dm ³ HybridSmart	SY00000H	main assembly drawing



Technical data

Gas-meter trade name	gas-meter size	Maximum flowrate Q_{max}	Minimum flowrate Q_{min}	cyclic volume V	Distance between connections
-	-	m^3/h	m^3/h	dm^3	mm
1	2	3	4	5	6
UG G1,6	G1,6	2,5	0,016	1,2	0 ÷ 250
UG G2,5	G2,5	4	0,025 or 0,016	1,2	0 ÷ 250
UG G4	G4	6	0,040 or 0,025 or 0,016	1,2 or 2,2	0 ÷ 250

Gas-meter class 1,5

Mechanical Class M1

Maximum operating pressure p_{max} .. 50 kPa (0,5 bar)

Ambient temperature range t_m -25÷55°C

Gas temperature range t_g -25÷55°C

Resistance to high ambient
temperature T (at 10kPa / 0,1 bar / according to EN 1359)

Index measuring range 99999,99 m^3

Communication 868 Mhz wireless M-Bus according to EN 13757-3 & OMS

Nominal cyclic volume V 1,2 dm^3 or 2,2 dm^3

Nominal size of connections DN20÷DN25

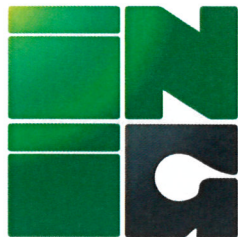
Membrane type EFFBE or SMI

Weight ~3 kg

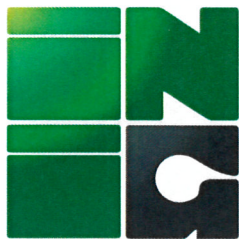
Family of gases Gaseous fuels: family 1,2 & 3 acc. to EN 437

Additionally it was confirmed that:

Gas-meters UG G1,6; UG G2,5; UG G4 HybridSmart fulfills the requirements of EN 16314:2013



Nominal cyclic volume V	1,2 dm ³
	UG: 100 mm or 110 mm or 130 mm
	UG-F: 0 mm or 100 mm or 110 mm or 130 mm
	UG-NL : 220 mm
Distance between connections	UG-EN: 0 mm or 130 mm or 160 or (6") 152,4 mm
	UG-DE : 250 mm
	UG-MG 110 mm or 130 mm or 160 or (6") 152,4 mm
Nominal cyclic volume V	2,2 dm ³
	UG-NL : 220 mm
	UG-EN: 0 mm or 130 mm
Distance between connections	UG-DE : 250 mm
	UG-MG 110 mm or 130 mm or 160 or (6") 152,4 mm
Interfaces and compatibility conditions	
<p>Gas-meter's index is equipped with encoder and a communication module, which enables to remote reading of the meter. Gas-meters use the AMR- automatic Meter Reading. Communication is done via the protocol Wireless M-Bus according to specification OMS (Open Metering System) based on standard EN 13757-4. Frequency 868 MHz.</p>	
Requirements on production, putting into use and utilisation	
<u>Production.</u>	
<p>During production the following checks and inspections are being carried out:</p>	
<ul style="list-style-type: none">- 100% inspection of incoming goods (the quantity inspection), statistical quality inspection;- tests during production: dimensional check, 100% leak test, statistical check of torque and statistical check of bending moment,- final tests: checking internal and external tightness, marking, checking the operation of meter (selection of change gears), calibration.	
<p>Final tests consists also of checking the permissible errors of indication and pressure absorption in accordance with paragraph A.2.1. of EN 1359:1998/A1:2006.</p>	
<u>Installation, utilisation and repair.</u>	
<p>Requirements concerning installation, utilisation and repair are described in operation and maintenance manual provided with the gas-meter.</p>	



Control of the measuring tasks of the instrument in use

Gas-meters are subject to conformity assessment according to directive 2004/22/EC (MID). In order to make a proof of performed conformity assessment the appropriate manufacturer's symbols are being stamped. Separate national legislation determine the date when gas-meter should be submitted to next legalization after completion of conformity assessment.

Security measures

Index of gas-meter HybridSmart is protected against the interference by 4 seals each two of them are located on each side of cover, and metrological seal on the lower part of index.

Additionally index is equipped with antiburglar sensors (optional). This sensor detects external magnetic field, removal of front cover or the cover which protects communication module. The Alarms are recorded in internal memory and available via radio communication.

Marking requirements

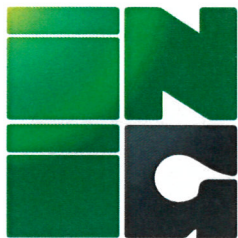
Each gas-meter should bear a marking plate on index or as a separate plate having at least the following information:

- a) identification mark or manufacturer's name;*
- b) CE mark, additional metrology marking, identifying number of notified body*
- c) accuracy class of the meter;*
- d) meter's serial number and year of production;*
- e) maximum flowrate Q_{max} (m^3/h);*
- f) minimum flowrate Q_{min} (m^3/h);*
- g) maximum working pressure, p_{max} (bar);*
- h) nominal cyclic volume, V (dm^3);*
- i) number and issue year of standard of object;*
- j) ambient temperature range, if higher than $-10^{\circ}C$ to $40^{\circ}C$;*
- k) gas temperature range, if different from ambient temperature range;*
- l) additional marking required by legislation, e.g. the number of type examination certificate;*

If gas-meter is resistant to high ambient temperature it should be additionally mark with „T” symbol.

Marking should be visible and permanent in normal operating conditions of gas-meter.

If gas meter is intended to use outdoors, it should be additionally marked with the symbol H3.



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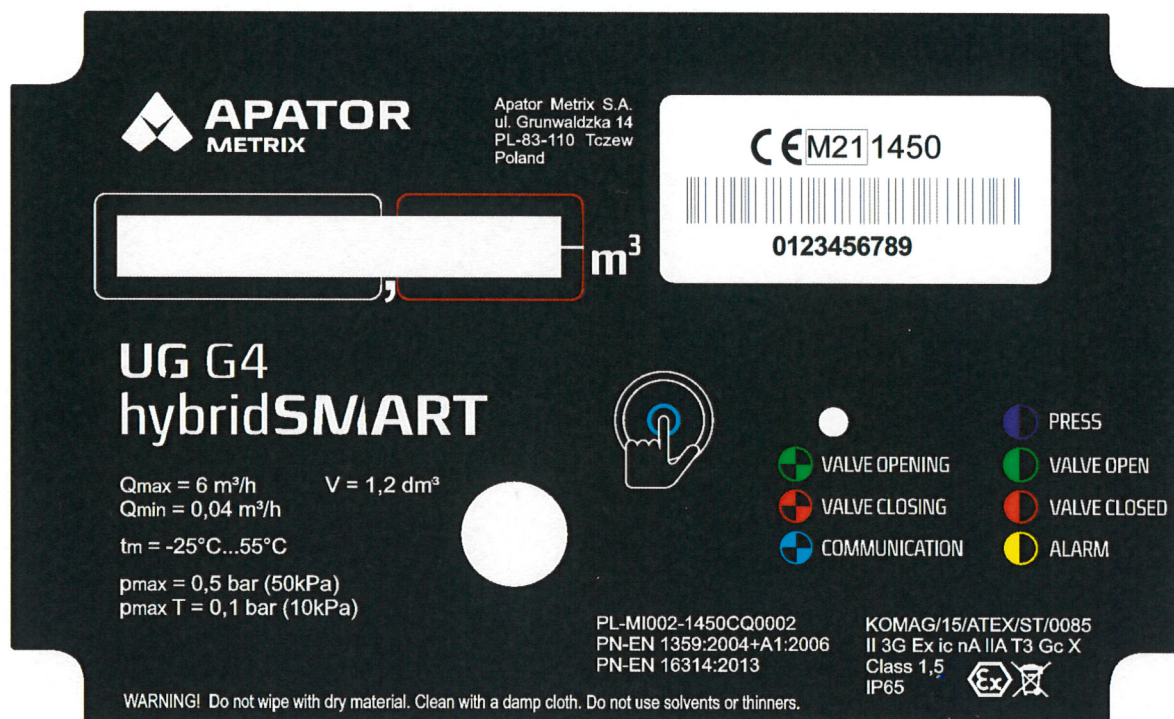
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Labelling and inscriptions



Gas-meter marking example



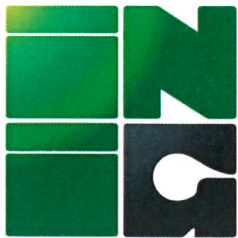
Manufacturer's mark- metrological - xx - periodically alternating year

Kraków, 05 - 01 - 2021

Certification
Office Manager

Magdalena Swat

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Table of certificate's revisions PL-MI002-1450CQ0002		
Edition No.	Description of introduces changes	Date
1	-	10.06.2015
2	Page 1 Removal of standard EN 16314 from the documents of reference, Page 3 Adding the information on the compliance of gas meters with EN 16314, removal of K2v marking;	05.01.2021

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