BATTERY POWERED
GAS VOLUME CONVERSION DEVICE
with integrated GSM/GPRS/SMS modem
nanoELCOR

Technical specification

Housing	polycarbonate
Dimensions (w x h x d)	233 x 178 x 47 mm
Weight	1.3 kg
Protection class	IP 65 (EN 60529)
Working temperature	-25°C to +70°C
Control panel	2 button keypad
Display	alphanumeric backlit LCD display
Power supply	2 lithium battery packs; LP-07 (modem) and LP-08 (corrector) operating time more than 5 years in defined condition
Measuring temperature range	-25°C to +60°C
Measuring pressure ranges (bar, absolute)	
- narrow ranges	0.8 - 2.5; 1.6 - 5.2; 3 - 10
- standart ranges	0.8 - 5.2; 2 - 10; 4 - 20; 7 - 35; 14 - 70
- wide ranges	0.8 - 10; 4 - 70
Accuracy	<0.5 % from measured value (MID) <0.15 % typically from measured value
Communication interface	optical interface IEC62056-21:2002 GSM/GPRS/SMS modem
Communication speed	optical interface (IEC62056-21:2002): 9.6 - 38.4 kbit/sec
Digital inputs	3 digital inputs (configurable as LF or binary)
Digital outputs	2 digital outputs (configurable as pulse or binary output)
Analog outputs	up to 2 analog outputs using external CL1 module; 4-20mA

Approvals

Approved according to the European metrology standard EN 12405-01 and 2004/22/EC (MID)	TCM 143/11 - 4891
ATEX approval for installation into hazardous area	FTZU 11 ATEX 0247X
Classification (according to EN 60 079-0, EN 60 079-11)	ZONE 0, ZONE 1, ZONE 2

Accessories

Standard delivery	user's manual
	TELVES - service and data collection software

Optional accessories

Installation material	thermowell, mounting kit, three-way tap (type DN 3 PN 100)
Module of current loop (analog output)	CL-1 (4 - 20mA)
Separation and communication modules	DATCOM-K3
Optical probes	infrared head HIE-03 (RS-232), infrared head HIE-04 (USB)

Possible installations

Stand alone	on the wall, on pipe
Integrated	on diaphragm meter

UltraSlim design - thinnest industrial gas volume conversion device with GSM/GPRS modem

Standalone or integrated solution

Designed to be mounted on diaphragm gas meters from G10 size

GSM/GPRS/SMS modem embedded

High accuracy and stability of measurement

Metrological firmware remote update in accordance with **WELMEC 7.2**

ATEX approved for hazardous area **ZONE 0, ZONE 1 and ZONE 2**

Compliant with MID metrological standard according to **2004/22/EC and EN12405-1+A2**

Certificate according to EN ISO 9001:2001

CE M 10 1383, 1026, 0889

Basic description

nanoELCOR compact volume conversion device with integrated GSM/GPRS/SMS modem is based on modern components ensuring accurate calculation of volume and measurement of pressure and temperature with high accuracy. nanoElcor is designed for converting of gas volume in operating conditions to gas volume in standard conditions according to state equation. For that purpose, it reads pulses from gas meter, measures gas temperature and pressure.

nanoELCOR gas volume conversion device belongs to the new generation of Elgas devices. It´s based on well-proven technology and takes full advantage of modern processor architecture like low energy consumption and high computing performance.

nanoELCOR was designed to be easily mounted on diaphragm gas meters from G10 size. It is possible to replace batteries without breaking metrological seal.

All informations are available on alphanumerical LCD display combined with icons clearly showing all measured data and device´s working regimes. Two keys keypad enables intuitive operation of the device.

nanoELCOR is power feeded from two separated lithium batteries where one battery is dedicated for volume conversion part and second one ensures power feeding of the modem. nanoELCOR lasts more than 5 years without replacing of batteries in full configuration including communication once a day.

Integrated GSM/GPRS/SMS modem provides remote transfer of archived data. Commonly mounted internal antenna can be replaced with external high efficiency type.

High accuracy and stability of temperature and pressure transducers gurantee troublefree long time operation.

nanoELCOR front face

Key features

- Designed to be mounted on diaphragm gas meter
- One channel gas volume conversion device (PTZ)
- Embedded GSM/GPRS/SMS modem
- Slim design
- 3 digital inputs
- 2 digital outputs
- Long battery life
- Approved for installation in ZONE 0

Diaphragm gas meter with nanoELCOR

Connectivity

- optical port compatible with IEC62056-21:2002
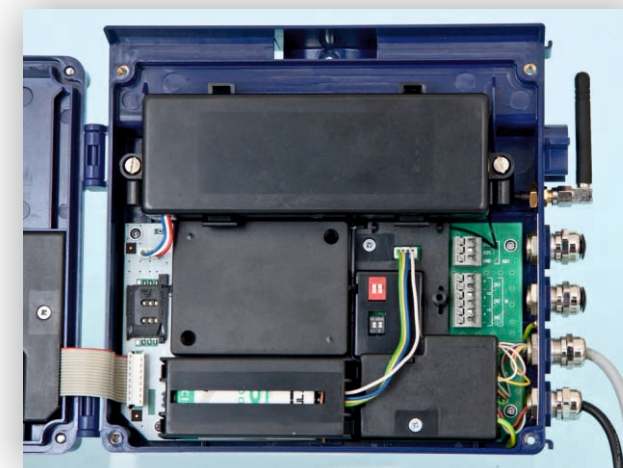- quad band GSM/GPRS/SMS modem

TCP/IP protocol is supported. The device is equipped with communication protocols ELGAS version 2, CTR and MODBUS®.

Telemetry features

Device is equipped with functions which are standard for telemetric systems. It enables monitoring excesses of set limits, sending alarms to control centre and others.

Software

For setting, communication with the device and basic data administration Telves software is supplied . This software is highly sophisticated tool which allows you easy parametrization and maintenance of the device.

Internal arrangement

Temperature sensor

- Pt-1000 probe
- Length 50 mm, Ø 5.7 mm
- Two-wire, cable lenght: 0.7 (2.5) m
- Accuracy: <0.1% from measured value

Pressure transducer

- External pressure transducer
- Cable lenght: 0.7 (2.5) m
- Silicon piezorezistive sensor
- Connection - thread M12 x 1,5
- Accuracy: <0.25 % from measured value

Accuracy of measurement

- Maximum error: < 0.5 % from measured value
- Typical error: < 0.15 % from measured value

Digital inputs

3 digital inputs:
- 2 LF inputs (max. 10 Hz, reed contact or Wiegand)
- 1 tamper input

Digital outputs

2 digital outputs (configurable as):
- Pulse output (primary volume, standard volume, odorization control)
- Binary output (alarm etc.)
- Analog output - realized through CL-1 module (4 - 20 mA)

Compressibility formulas

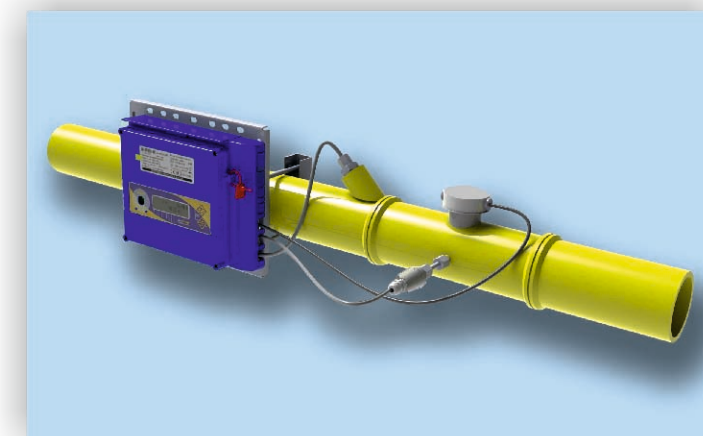|	
- AGA-8 92DC	- AGA 8-G1
- AGA NX-19mod	- AGA 8-G2
- SGERG-88	- Fixed

Display and keypad

- Alphanumeric LCD display with backlit
- 2-button keypad
- Displaying of measured current values and pre-set parameters

Error conditions

The device indicates and stores different error´s conditions which can be set as alarm status, e.g.:
- Tampering of gas meter
- Full audit log
- Low capacity of battery warning (3 months in advance)
- Exceeding of measured range of pressure and temperature
- Exceeding of upper limit of flow rate

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Memory

- Memory type: FLASH, 2 MB
- Data archive: 14300 records (flexible - according to configured parameters), programmable period: 1 - 60 min
- Daily archive: 400 records
- Status archive: over 500 records, contains formation and Extinction of errors, date and time.
- Monthly archive: 25 records
- Audit log: over 500 records, contains changes of parameters.

Data protection

- Password system
- Switch, inside the device
- Encryption, AES-128

Communication interface

- Optical interface (IEC62056-21:2002)
- GSM/GPRS/SMS modem