# picoELCOR 2

SMART METER WITH
INTEGRATED VOLUME
CONVERSION AND
TRANSMISSION MODULE

# picoELCOR 2

## Descrizione

picoELCOR-2 is a SMART diaphragm gas meter which integrates the electronic index, volume conversion, datalogger and GPRS or LTE modem with mechanical diaphragm gas meter body. Solid mechanical design, proven technology and use of the latest low power microprocessor technology with high processing power brings to customer guarantee of smooth functioning and space for future software and hardware extensions. The volume measurement principle is based on measuring of gas flowing through mechanical units. Each unit has four measuring chambers, separated by synthetic diaphragms. The mechanical movement is transfered via gears to a crankshaft moving the valves.

Rotating movement is scanned by tamper proof optical element. This optical element ensures maximum protection against an external magnetic fields helping to eliminate tampering of the meter. The base volume is calculated on the basis of precise measurement of the pressure, temperature and using conversion formula. Pressure and temperature transducer is integrated into the gas meter body. The electronic index with LCD display, controlled by two button keypad (accessible after opening of the front cover) gives the information about measured volume and offers user friendly interface to the customer for reading of data. The integrated battery powered GPRS or LTE modem transfers the collected data via cellular network. The LTE modem is available in variants LTE-Cat1 and LTE-Cat NB. Power supply is realized by two separate lithium batteries (EVC battery and modem battery) enabling to power the device for up to 15 years (metrological part).

## Technical Data

| | |
|---|---|
| Class protecion | IP 65 (EN 60529) |
| Operating pressure | Max 0,5 Bar |
| Operating temperature | - 25°C ÷ +55°C |
| Control panel | 2 button keypad shielded by the front cover |
| Display | Alphanumeric multisegment LCD with icons, always ON |
| Temperature measurement range | - 25°C ÷ +55°C |
| Pressure measuring range (absolute, MID certified) | 0,8 - 1,6 Bar |
| Total accuracy (MPE) | 1,50% |
| Communication interface | optical interface ( IEC 62056-21), modem GPRS or LTE |
| Digital output | 1 digital output - pulse, binary or analog output (*) |
| Battery power supply (metrology) | Lithium battery pack (D cell) SAFT LS33600, Battery life >15 years (**) |
| Battery power supply (modem) | GPRS: lithium battery pack HBL-03 o HBL-03U (SAFT LS33600), up to 8 years battery life<br>LTE Cat 1: lithium battery pack HBL-04U (SAFT LS26500), up to 5 years battery life<br>LTE Cat NB: 1x or 2x SAFT LS 17500 (A cell), up to 7 or 12 years battery life |

**measurement period 30 s; data archive archiving period 1 hour; generating output pulses with frequency f ≤ 1 Hz; daily communication with the device (local or remote) for 2 min; local operation of the device (buttons) once a week for 5 min; flashing the firmware of the device (locally or remotely) once a year; ambient temperature: -25 °C to +55 °C; segment display permanently on; power battery SAFT LS33600

| | |
|---|---|
| Approval | MID: TCM 143/22-5864, Atex: FTZÚ 22 ATEX 0047X Ex II -/2 G IIB T4 o Ex II -/2 G IIB T3 (modem LTE Cat1), EN 1359, EN 12405-01, EMC |

| | |
|---|---|
| Compliant with resolution ARG / GAS 631/13 (Ex / 155/08) and with UNI / TS 11291 regulations | |
| Firmware | remotely upgradeable in compliance with WELMEC 7.2 |

*(CL-O module is required for the analog output 4-20mA)

## Transducers
- High-precision and stability during the life
- Digital technology
- Semiconductor temperature sensor
- (MPE <0,1% of measured value; Kelvin degrees)
- Piezoresistive Pressure sensor
- (MPE <0,25% of measured value.)

## Output
- 1 digital output, configurable as pulse or output or analog output.
- Low frequency pulse output configurable (converted volume, base volume, etc.).
- Analog output (4 - 20 mA)- made with CL-O Module.

## Display
- LCD with 10 digit and icons
- Continuos show of data, display always on



explenation of indicated value   icons

1 2 3 4 5 6 7 8 9
numbers of menu's level
menu level's icon
measurement unit
enter button available

## Communication's interface
- Optical interface (IEC 62056-21)
- GSM / GPRS / SMS or LTE-Cat 1 or LTE-Cat modem or LTE-Cat M1

## Communications protocols
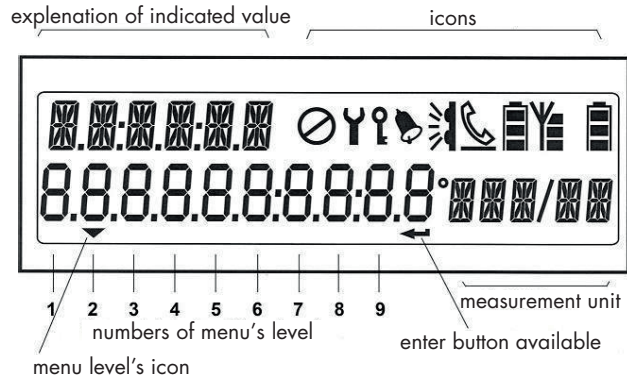- CTR (UNI-TS 11291-3)

## Data security
- Multi-Level Password.
- Security switches hardware.
- Data encryption AES128.
- Anti-Tamper Alarm (front panel opening).

## Compressibility formulas

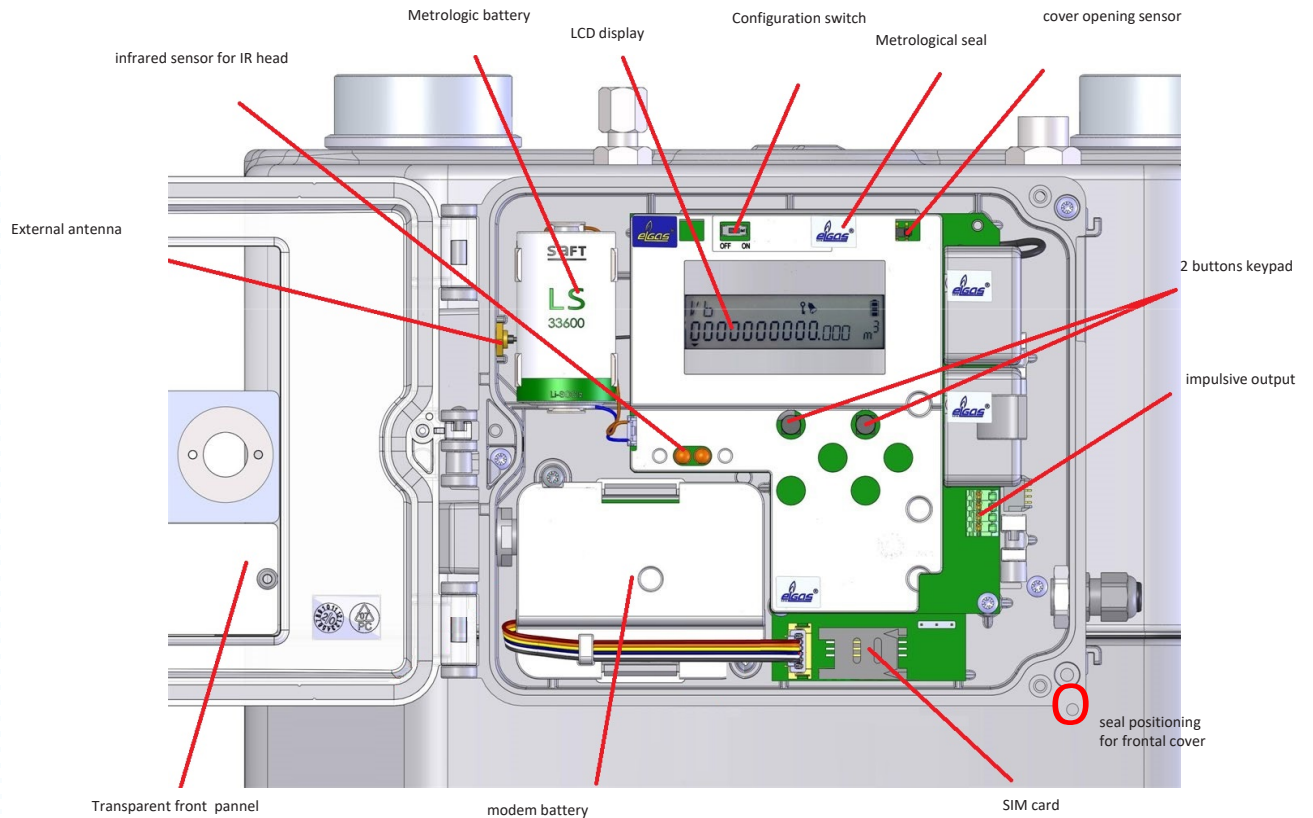| | |
|---|---|
| AGA-8 92DC | AGA 8-G1 |
| AGA NX-19mod | AGA 8-G2 |
| SGERG-88 | K=1 (Standard) |

## On field verification and calibration
Il PicoELCOR-2 can be equipped with a thermowell and a pressure tap for an easy metrological verification on field
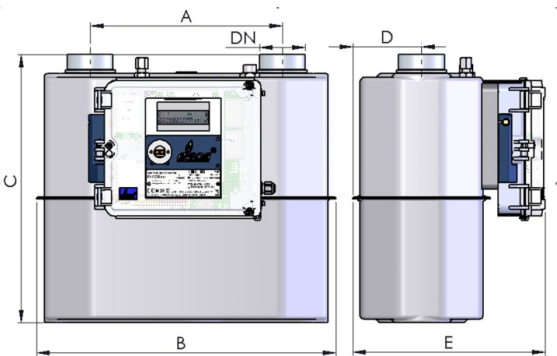
## Software
For the initial configuration, on field settings and basic data administration, the **COMPASS** software is supplied. This software is a user-friendly tool allowing easy configuration and maintenance of the picoELCOR-2 thanks a follwed step by step procedure.

# Main components

Metrologic battery
LCD display
Configuration switch
cover opening sensor
Metrological seal
infrared sensor for IR head
External antenna
2 buttons keypad
impulsive output
seal positioning for frontal cover
Transparent front pannel
modem battery
SIM card

## Connections and flow

| Model | Cyclic Vol. (dm³) | Connection DN | Qmin (m³/h) | Qmax (m³/h) |
|---|---|---|---|---|
| picoElcor-2 G10 | 5,6 | 1 1/4" | 0,10 | 16 |
| | 5,6 | 2" | 0,10 | 16 |
| picoElcor-2 G16 | 5,6 | 2" | 0,16 | 25 |
| picoElcor-2 G25 | 11,2 | 2 1/2" | 0,25 | 40 |

## Sizes and weights

| Model | Dimension (mm) | | | | | Weight (Kg) |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | |
| picoElcor G10 | 250 | 393 | 345 | 92 | 252 | 6,90 |
| | 280 | 393 | 345 | 92 | 252 | 6,90 |
| picoElcor G16 | 280 | 393 | 345 | 92 | 252 | 6,90 |
| picoElcor G25 | 335 | 456 | 361 | 141 | 352 | 11,2 |

## Product range


Rotary piston gas meters


Turbine gas meters


Gas pressure regulators


Electronic volume correctors


Diaphragm gas meters


Smart meters

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