

ULTRASONIC GAS METERS

G4EUS

FIELD OF OPERATION

The ultrasonic gas meters are designed and manufactured to measure the volume of natural gas, having maximum working pressure of 0.5 bar within a measurement range of 0.04-6 m³.

The ultrasonic measurement unit is made by Panasonic.

STANDARD

The meter complies with EN 14236:2007, UNI/TS 11291_1~UNI/TS11291_8.

CONSTRUCTION

The meters are made from pressed steel ensuring robustness, external tightness, resistance against external and internal corrosion and resistance to high environment temperatures. The ultrasonic measurement unit is mounted inside the meter case on the run way of the gas flow. The meter is populated with a shut off valve on the inlet path and can be controlled locally or remotely.

The electronic circuit, including the ultra sonic sensor module, is powered from a local battery with life time of min. 10 years. The electronic parts are distributed in two compartments: one having metrological functionalities - completely sealed, and the second having: communication modem, valve driver, and battery monitor functionalities. The battery is placed in the second compartment. This compartment can be opened without breaking the metrological seal.

CHARACTERISTICS

Constructive

- LCD custom design display, 8 digits for volume values and 5 digits for OBIS codes;
- Lithium battery having minimum 10 years life time;
- Optical port according to EN 62056-21;
- GSM/GPRS or M-Bus radio modems (169MHz or 868MHz) for communication interface;
- Volume compensation with temperature;
- Class of protection: IP54.

Display

- The volume value is displayed in cubic meters with 3 or 4 decimals;
- The LCD display sequence can be changed through the display mode button.



Stored values

The ultrasonic gas meter has a non-volatile memory in which the billing values are stored, as well as the recorded events, as follows:

- The daily consumption values for the last 70 days;
- The last 2 billing records;
- The events register, with a capacity of 180 events, with the following parameters for each event:
 - Date and hour for each event recording;
 - Type of event;
 - ID number of the operator who generated the event (if applicable);
 - Previous and new value of the parameter used for volume calculation (if applicable);
 - The total volume value in reference conditions at the moment when the event was recorded.
- Main events recorded:
 - Battery missing
 - 10% of battery remaining life
 - 90% of events register full
 - Events register full
 - Opening of the metrological compartment
 - Opening of the battery compartment
 - Measured temperature exceeding the working temperature range (-25°C...+55°C)
 - Back flow recorded
 - Error when closing the valve
- Other potential events:
 - Clearing of the events register;
 - Changing of the value of the base temperature;
 - Changing of the tariff program;
 - Battery replaced;
 - Updating the firmware version of the communication card

Communication interface

The ultrasonic gas meter has two serial communication interfaces: one optical interface for local communication purpose and another one with radio modem for remote communication purpose - both of them are using DLMS/COSEM protocol.

The optical interface complies with EN 62056-21 and the protocol used at application level is DLMS/COSEM. The optical port is designed for configuration, metrological checking or data reading, having a communication speed of 9600bps, 8 bits of data and even parity.

The remote communication interface can be populated with M-Bus radio modem having 169MHz/868MHz carrier frequency acc. with EN 13757-3 and EN 13757-4 or GSM/GPRS modem using DLMS/COSEM protocol.

METROLOGICAL CHARACTERISTICS

Operating conditions

- Temperature: -25°C... +55°C;
- Humidity: 95% at atmosphere temperature 0~35°C, for $T_a > 35^\circ\text{C}$ max amount of water vapor is 37.6 g/m^3 .
- Measurement range: 0 to $7.2 \text{ m}^3/\text{h}$;
- Measurement performance: 40 to 600L/ within $\pm 3\%$, 600 to 6000L/h within $\pm 1.5\%$ acc. with EN 14236:2007 accuracy class 1.5;
- Pressure loss: less than 200 Pa acc. with EN 14236:2007;

Displayed values (acc. with UNI/TS 11291_6)

- Data and hour in format: dd_mm_yy; hh_mm;
- Current tariff;
- Redelivering station ID;
- Diagnostic;
- Total volumes in base conditions;
- Total volumes in alarm mode;
- ID of current billing period;
- Total volume for each tariff;
- End of previous billing period;
- Total volumes in base conditions for previous billing period;
- Total alarm volumes recorded at the end of previous billing period;
- Tariff ID used for previous billing period;
- Max conventional gas flow for previous billing period;
- Status of the meter such as: unconfigured; normal; service;
- Status of shut-off valve.

Programmed values, can be done locally or remotely restricted with user and password: (acc. with UNI/TS 11291_6)

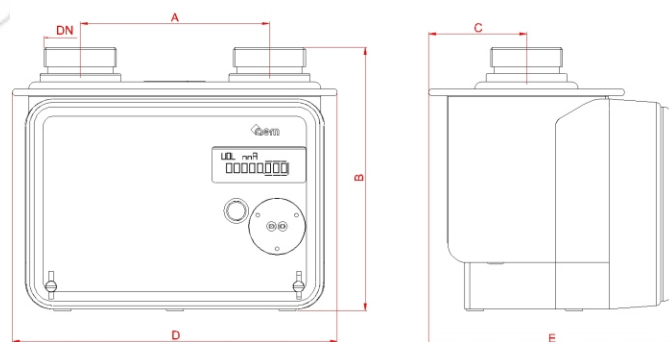
- For configured mode:
 - Current day time: dd_mm_yy;
 - Current hour time: hh_mm_ss;
 - ID of redelivering point

- For normal mode:

- ID of redelivering point;
- Current day time and hour time;
- T_b and P_b used to compensate the volumes;
- Communication parameters;
- Billing plan;
- Update for communication software.

Data such as billing of 3 period times, total volume in alarm mode, max conventional gas flow are according with UNI/TS 11291-6.

PIPING AND MOUNTING DIMENSIONS



SIZE	A	B	C	D	E	DN
G4	110	153	57	190	145	G1 1/4" (ISO 228)

OPTIONAL CHARACTERISTICS

- Communication modem could be radio M-Bus 169MHz/868MHz or GSM/GPRS modem;
- Logo with personalized barcode

STANDARDS AND TECHNICAL NORMS

EN 14236:2007; EN 62056-21; EN 13757-2; EN 13757-3; EN 13757-4; UNI/TS 11291_1~UNI/TS 11291_8;