RusTechnology
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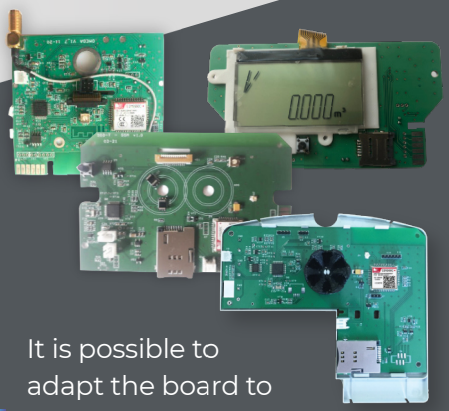
Electronic counting mechanism with telemetry module

Automatic transmission of readings to the data collection server, remote control of the shut-off valve, monitoring of leaks and exceeding the maximum flow rate.

Meters equipped with an electronic counting mechanism of Rustechnology LLC **fully comply with all standard technical requirements** for household gas meters.

Main advantages:

- Alphanumeric LCD display.
- High quality PCB antenna.
- Resistance to ultraviolet radiation.
- Extended temperature range from -40 to +60 °C.
- Proprietary data transfer protocol, low load on GSM networks.
- Two independent power supplies - for the metrological and telemetric parts of the board.
- Reduced power consumption, telemetry power LiPo 2000mAh 4.2 - 3.4V.
- Digital thermal correction.
- Possibility of setting the overpressure constant.
- Communication session diversity module - increasing the reliability of transmission in "difficult" areas at times, since the sessions are separated in time.



- It is possible to adapt the board to any type of membrane natural gas meter.

Storage and transfer of archives to the server:

- Accumulated volume reduced to standard conditions.
- Consumption and temperature values averaged over an hour.
- Archives of accidents, emergency situations, events.

GPRS or NB-IoT version

The GSM GPRS/NB-IoT controller supports internal firmware and fast data exchange with the server.

SERIES OF DEVICES	SUPPORTED NATURAL GAS METERS		
Membrane natural gas meters with electronic counting mechanism ■ Controlled parameters: archives of meter readings, emergency situations, events, interventions, impacts, according to standard technical requirements for household gas meters. ■ 10 years battery life ■ integration with billing systems ■ user's personal account	 Gas meter **OMEGA ETK GSM G4**	 Gas meter **SCHETPRIBOR SGD-G4**	 Gas meter **VEKTOR SGV G4 GSM**
	 Gas meter **ELSTER GSM G4**	 Gas meter **PIETRO FIORENTINI**	

Display modes:

- measured volume of gas (m3), reduced to a standard value at a temperature of +20 °C;
- instantaneous gas flow rate (m3/h), reduced to standard value at +20°C;
- gas temperature (°C);
- values of the supply voltage of the metrological and telemetric batteries;
- set value of absolute gas pressure (kPa);
- current date and time;
- next communication session;
- factory number;
- emergency situations and events;
- stages of data transfer to the server.

Shut-off valve control:

- Remote control of the shut-off valve can be performed from the server by the system operator.
- Automatic closing of the valve occurs when consumption > 1.25Qmax or when the case is opened.
- Leakage control with open valve.

Comparison of PCB boards for meters

№	Parameter	RusTechnology		Pietro Fiorentini	
		Implement.	Advantages	Implement.	Flaws
1	**Controller**	STM-8	consumption is 1.5 times lower; the possibility of reducing the battery capacity of the metrological part	STM-32	use of third-party libraries, high CPU load, high power consumption
2	**GSM GPRS/NB-IoT Controller**	SIM-800/ SIM-7020	supports internal firmware, fast data exchange with STM-8;	Cinterion BGS	one solution for GPRS and NB-IoT
3	**Telemetry Power**	LiPol 2000 mAh	minimum battery capacity	Li14Ah D-size	high battery cost
4	**Calibration**	Infrared + Bluetooth	optimization of calibration and maintenance; no wires needed; up to 100 simultaneously calibrating devices	IR only	you need to connect the IR connector
5	**Data transfer**	proprietary protocol	low load on GSM networks, fast transmission, perfect for NB-IoT	redundant private protocols	high load on the GSM network, long connection time of the GPRS, high battery discharge
6	**Communication sessions optimization**	session diversity module	increasing the reliability of transmission in "difficult areas" at times, since the sessions are separated in time	missing	possible problems with network overload, multiple sessions and failures as a result of increased battery discharge, high GPRS traffic
7	**Server software**	handed over to the customer with open source	the customer can customize; without third-party modules and libraries; maximum performance		
8	**Internet traffic GSM**		minimized to 0.5 KB per session		more than 20 KB per session
9	**Data storage**	Internal GSM module memory 32 MB	large amount of integrated memory in the microcontroller	EEPROM 12 KB	small amount of memory, additional costs for powering the microcircuit
10	**Service support**		instant response		slow and costly response
11	**Information security**		maximum security		it is impossible to ensure confidentiality and prevent illegal processing of personal data
12	**Possibility to update internal software**		implemented on demand		only GSM module, without metrological part