



CMK-02 VOLUME CORRECTOR

The microcomputer CMK-02 Volume Corrector is supplied either from battery or from mains, and may be used in gas measuring systems where high measurement accuracy, reliability and servicing simplicity is required at competitive price.

The features of the CMK-02 corrector, including the possibility of extending with additional measurements, enable to apply the device in measuring systems where, till now, it was necessary to use much more expensive flow computers. The device complies with domestic and European Union standards.

The CMK-02 Volume Corrector is the device operating in 3V technology, made with the use of double side surface mounting (SMT).



CHARACTERISTIC FEATURES

- Possibility of monitoring the instantaneous gas flow by means of signals from the high or low frequency transmitters (HF and LF) of gas meters provided with pulse transmitters (i.e. turbine and rotary ones).
- Access to the terminal strips and replacement of batteries without opening the electronics container.
- Four line LCD display that maintains contrast in the whole range of permissible ambient temperature and simple, intuitive operation of the corrector with the help of four keys assures easy communication with the corrector.
- Daily data memory for the period of last 5 years.
- Two digital inputs and two digital outputs with programmed function (e.g. alarm protecting against exceeding of the ordered power).
- Two independent serial transmission channels.
- One cable for supplying and data transmission, consistent with RS-GA22.
- Multilevel data access protection system.
- Minimum 5 year operating period without battery replacement, confirmed in exploitation.
- Calculation algorithms of volume correction for natural gas, propane-butane, nitrogen, air, carbon dioxide, etc.

BASIC FUNCTIONS

Conversion of the real gas volume, measured by the gas meter, to the volume at base conditions ($p=101,325$ kPa, $T=273,15$ K; in some countries this may vary) that is the ground for clearing accounts with the gas supplier. The volume corrector performs calculation based on the number of LF pulses of the gas meter that measures the gas volume at operating conditions, as well as based on the measurements of the gas temperature and pressure. The compressibility coefficient is calculated either by the SGERG 88 or AGA NX19 methods.

COMMUNICATION

Two output serial ports, operating independently, give possibility to monitor simultaneously the gas flow and read the data (also by the modem).

Reading the data from the corrector is performed with the help of MAC.exe (DOS) or GMWin.exe (Windows) software. It is possible to program the corrector with the help of the keypad or service software.

The programming functions executed with the help of the keypad are activated by the microswitch accessible after taking off the seal and opening the battery compartment casing.

All service actions are written down in the volume corrector's memory together with the service engineer's ID code.



Certificates and approvals

Type approval: Decision No. ZT 923/2000
issued by Central Office of Measures

ATEX: KDB04ATEX220, Ex marking: II 2G EExiaIIBT3

Operating conditions

Ambient temperature range: $-25^{\circ}\text{C} \div +55^{\circ}\text{C}$
Gas temperature range: $-20^{\circ}\text{C} \div +50^{\circ}\text{C}$
Relative humidity: max 95%, at 55°C
IP protection: IP54

Pressure range

standard: up to 0,6 MPa
optional: up to 10 MPa*

* in sub-ranges depending on the built-in
pressure converter

Technical data

Microprocessor system

Processor: INTEL 386EX
Programme memory: 2MB/4MB FLASH
Data memory: 256 kB RAM
24-bit A/C converter
Internal real time clock
Two serial transmission channels

Sensors and measuring converters

Temperature sensor Pt 1000, class A
Absolute pressure converter

Communication

Liquid crystal display.
(4 lines, 20 characters in the line).
Foil keypad, four keys.
Two independent RS-GAZ2 serial transmission
channels (up to 115200 bauds).
OPTO-GAZ optical connection, active
without additional external supply.
Co-operation with PSTN, GSM,
and GPRS modems.

Supply

- Internal battery - 2 x 3,6V lithium batteries
(with polymer fuses) sufficient for at least
5 years of operation
- External battery - from the battery of the CAK-02
Transmission Converter (only during data
transmission through the CAK-02);
from the accumulator co-operating with the solar
battery via CAKGSM-02
- External mains - via the CZAK-02 Transmission
Converter with power supply, or the CBS-02
Signalling Barrier

NOTICE

- In any configuration the CMK-02 is equipped
with batteries, as in point (a)
- During data transmission, and when using HF signals,
it is necessary to connect the external supply
(not applicable for the data transmission via OPTOGAZ).

Overall dimensions and weight

Length (without glands) x width x height:
239x193x50 mm, weight 2,5 kg with batteries.

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