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SIGNAL-5 Manual Methanometer

Certificate: ATEX

Technical Parameters:

Model	I M1 Ex ia I
Measured gas	CH4, methane
Range, preciseness	0 - 3% CH4, ± 0.3% of CH4 volume quantity
Range, preciseness (orient. measurement only)	3 – 30% CH4, ± 0.5 + 0.35 (C-3) of CH4 volume quantity
Range, preciseness (orient. measurement only)	30 – 99.9% CH4, ± 10% of CH4 volume quantity
Period of continuous operation on battery	At least 10 hours
Threshold exceeding signalisation	Light, acoustic Pulses 0.3 – 1.2 s
Service life of the device	At least 3 years
Battery service life	At least 1 year or 400 charging cycles
Working position	Any
Ambient temperature	0°C - +40°C
Relative humidity	Up to 100% without cond.
Protection	IP 54, except for the sensor chamber
Dimensions	150 x 90 x 40 mm
Weight	0.4 kg

Use:
A portable SIGNAL-5 methanometer is intended for continuous automatic checking and measuring of methane in mine air in the range from 0 to 100% of the methane volume quantity. It emits light and sound signal when maximum methane concentration is reached. The analyzer is intended for measuring in the underground of mines with methane occurrence.

Description:
The device consists of a methanometer and an exchangeable (removable) battery block. The methanometer case is divided to two parts. In the upper part there is a printed board, sensor and sound indicator. In the middle of the methanometer cover there is a rectangular sight glass. Numerical indicators are situated under it. Under a round sight glass below there is a red LED of emergency signalisation. On the right side there are two pushbuttons. The battery block is connected to the lower part of the methanometer case to a connector by means of XS1 and XS2 contacts. The methanometer is equipped with a strap band for carrying. The voltage block contains two batteries with a limiting resistor and a fuse sealed over with a sealing compound.

A microprocessor ensures control of a sensor operating mode, showing necessary data on indicators, memory of the setting and continuous deviations. It is controlled by means of two pushbuttons – a functional (operating) KP and a pushbutton (recording – recording to the memory) for confirming KII setting. The KP pushbutton serves for switching on the methanometer after connecting the battery block and for checking the voltage on batteries when the device is used.

The KII pushbutton is used for setting and adjusting the methanometer; we recommend that it is sealed during the methanometer operation. The methanometer can be programmed in the required language (e.g. Czech, Russian, English, Spanish, etc.). It has two operating modes – StC calibration mode (setting, adjusting) and StP measuring mode (common operating mode). Methane concentration measurement, switching over of measurement ranges and entry of necessary data to the memory is performed in the measuring mode. The calibration mode is used for setting the processor (for every new sensor – measuring element), its calibration and viewing entries in the memory.

The function of the methanometer is based on the stabilisation of sensor temperature with a single element. Measuring is based on the principle of thermal catalytic methane burning on the sensor in the concentration range from 0 to 10% of methane volume parts. In this method the sensor temperature is compared (measured) to the ambient temperature. The analyzer automatically changes to the conductometric measurement method in the concentration range higher than 10% to 99.9%. A range of measurement (0 – 99.9%) of the volume methane quantity. The number of digits on the numerical display – three. Setting the emergency signalling. The range of the signal emission threshold control from 0.5 to 4.5% of volume methane quantity. Data are shown on a three-digit display with seven segment LEDs. Measurement range indication: (0-“X”)% - 0.01% of volume methane quantity, (“X” – 99.9)% - 0.1% of volume methane quantity.

The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user’s guide for this product and any engineering consultation about possible uses.

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