Tomsk Electronic Company
is certified to the international standard
BS EN ISO 9001:2008, auditor NQA Russia

Scientific and Manufacturing
Enterprise

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Serial Production

Systems and Instruments
for Monitoring, Recording
and Control

MicroTEK Computing Units

SME Tomsk Electronic Company develops and manufactures instruments for monitoring, recording and control, including MicroTEK computing units and GSM gas detectors.

Key requirements of oil, gas and chemical industries are speed, accuracy and stability - it is to meet these requirements SME TEC is constantly updating the equipment it is producing and develops new goods mostly demanded by the actual market.

Purpose

- Metering of crude and commercial oil (GOST P 8.595, GOST P 8.615, MI 2693, Recommendations, approved by Edict №69. Russian Ministry of Industrial Power dated 31.03.2005)
- Fiscal and process metering of natural gas (GOST P 8. 8.586.1-5, GOST 30319.0-3, MI 3082)
- Metering of associated petroleum gas as per MR 113-03, GOST P 8.615, RD 39-083-91, RD 39-0148306-422
- Formation water metering
- Routine metering of material flows (heat, gas, water, electric power etc)

Features

- In-built spark proof circuits, not generating extra error, providing the required accuracy of metering
- Hook up to field equipment with no auxiliary equipment
- Flexible system configuration, matching any metering system structure
- Configurable and certified software
- Protection from unauthorized access, multi-level password system
- Hot backup, including computing device, measuring channels and operator's workstation
- Extension of the system due to its modular design without shutdown of metering operations
- The cost of the system will not increased proportionally

Field of application

- Quality and quantity metering systems for crude and commercial oil, gas and water to provide routine and commercial recording
- Metering units of product flows at oil refinery, petrochemical and metallurgical companies
- Stands testing for flow meters recording volume and weight
- Units for oil loading into railway, trucks and ships
- Oil and oil products metering in tank farms

IVK MicroTEK is a metrological supported system with certified software, calibration technique, using standard reference and certified metering technique.

It is possible to supply the following package equipment: IVK MicroTEK with Vizard operator's workstation, RemTEK electric drives for stop and control valves (package delivery including valves is possible), gas contamination control systems on the basis of GSM Gas Detectors.

IVK MicroTEK-01, 02, 04

- commercial and crude oil
- natural gas
- associated petroleum gas
- water
- routine metering of material flows

up to 24 measuring lines

It is supplied as a cabinet (dimensions are to be specified during the order placing). Package modular unit, its configuration depends on the facility structure.

IVK MicroTEK-07, 08

- crude oil
- natural gas

3 measuring lines

It is designed for strap-on installation.
Can not be expanded.

IVK MicroTEK-09

- commercial and crude oil

5 measuringlines + camera control unit

Designed to be located to 19 inch stand.
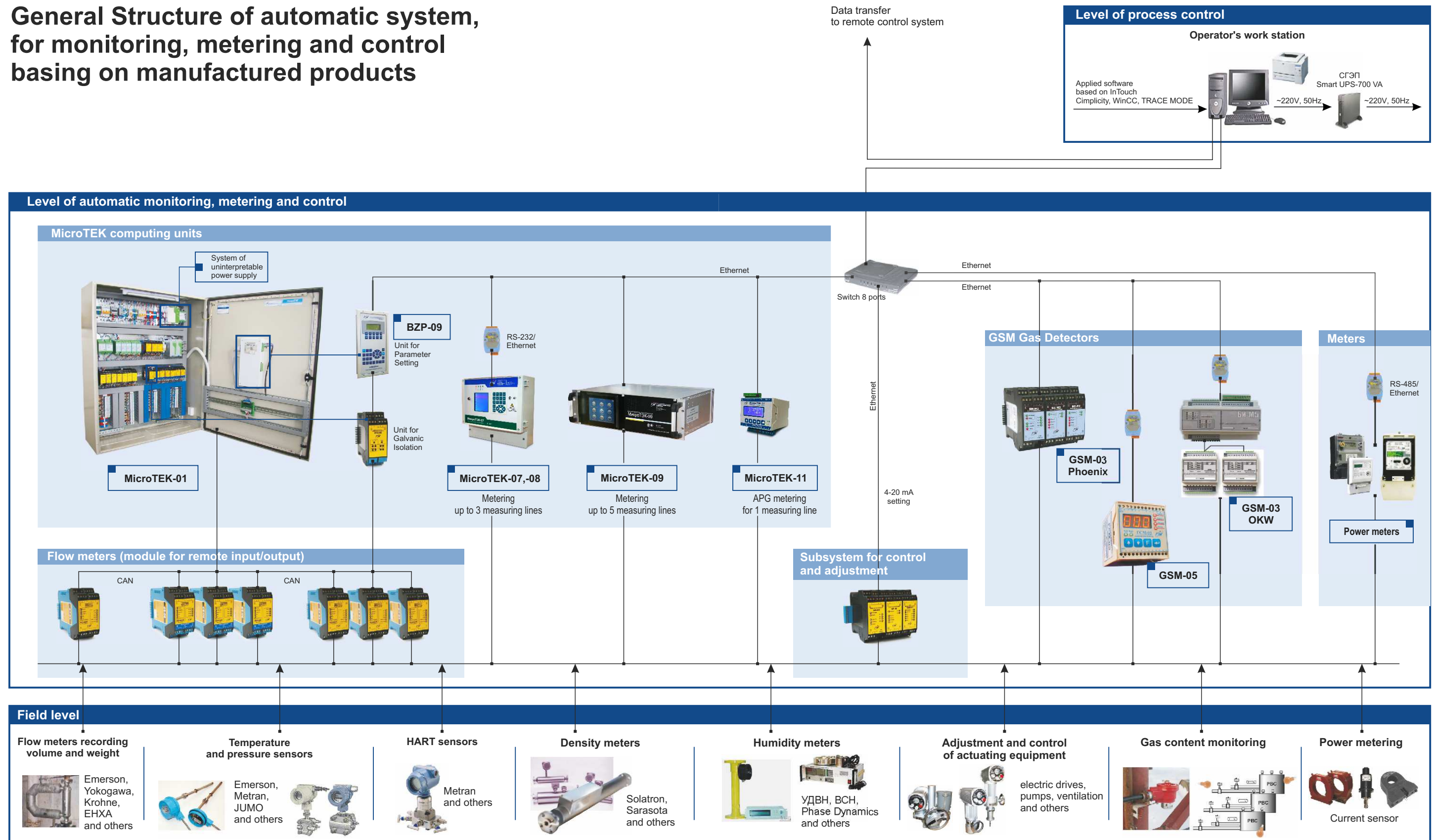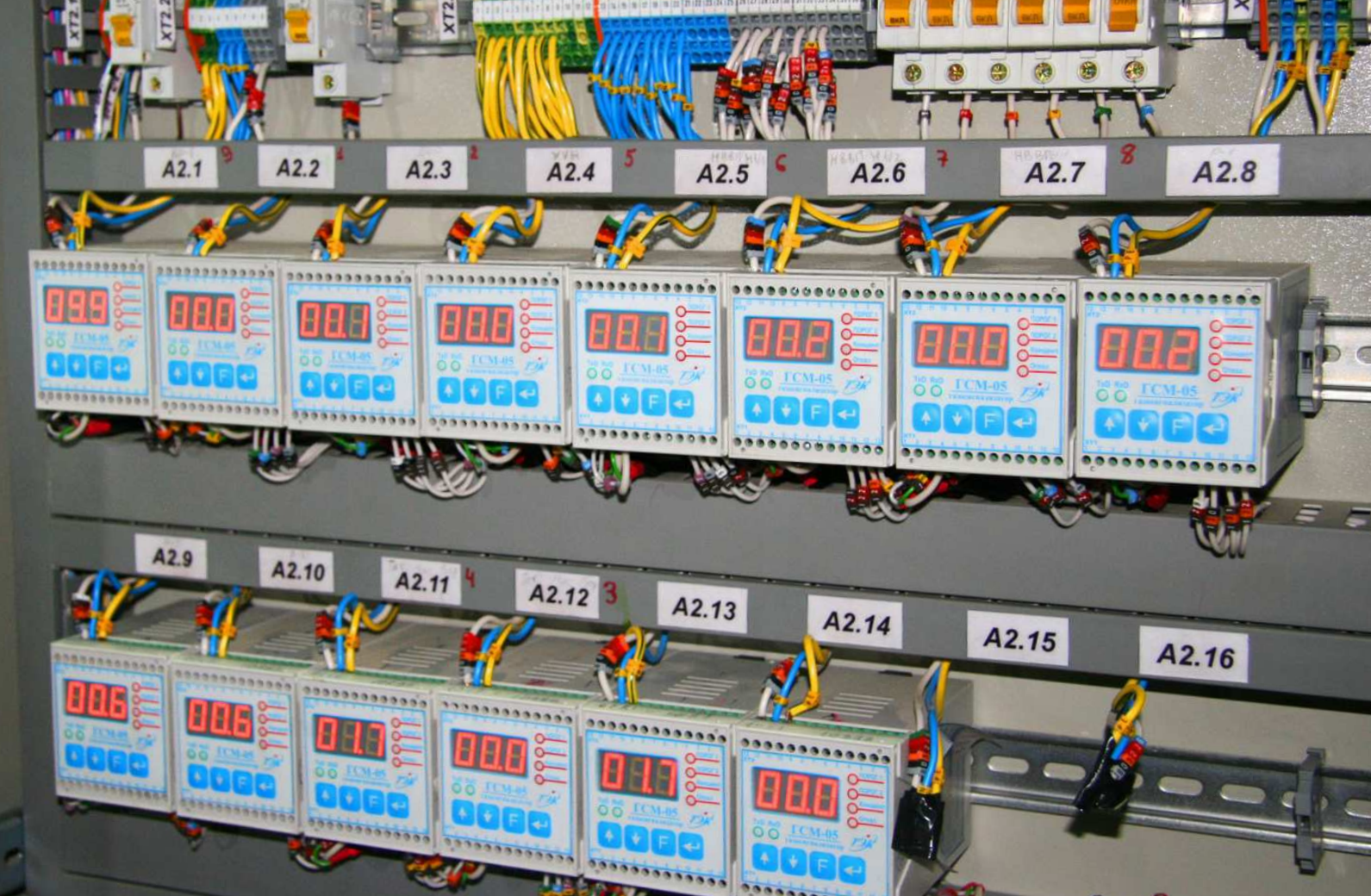Can not be expanded.

IVK MicroTEK-11

- associated petroleum gas

1 measuring line

Designed to be installed to DIN-bar, 35 mm.
Can not be expanded.

General Structure of automatic system, for monitoring, metering and control basing on manufactured products

Data transfer
to remote control system

Level of process control

Operator's work station

Applied software
based on InTouch
Cimplicity, WinCC, TRACE MODE

СГЭП
Smart UPS-700 VA

~220V, 50Hz   ~220V, 50Hz

Level of automatic monitoring, metering and control

MicroTEK computing units

System of
uninterpretable
power supply

BZP-09

Unit for
Parameter
Setting

Unit for
Galvanic
Isolation

Ethernet

Switch 8 ports

Ethernet
Ethernet

RS-232/
Ethernet

MicroTEK-01

MicroTEK-07,-08

Metering
up to 3 measuring lines

MicroTEK-09

Metering
up to 5 measuring lines

MicroTEK-11

APG metering
for 1 measuring line

Ethernet

4-20 mA
setting

GSM Gas Detectors

**GSM-03
Phoenix**

**GSM-03
OKW**

GSM-05

Meters

RS-485/
Ethernet

Power meters

Flow meters (module for remote input/output)

CAN   CAN

**Subsystem for control
and adjustment**

Field level

**Flow meters recording
volume and weight**

Emerson,
Yokogawa,
Krohne,
EHXA
and others

**Temperature
and pressure sensors**

Emerson,
Metran,
JUMO
and others

HART sensors

Metran
and others

Density meters

Solatron,
Sarasota
and others

Humidity meters

УДВН, ВСН,
Phase Dynamics
and others

**Adjustment and control
of actuating equipment**

electric drives,
pumps, ventilation
and others

Gas content monitoring

РВС
РВС
РВС

Power metering

Current sensor

www.npptec.ru

TOMSK **ELECTRONIC** COMPANY

GSM Gas Detectors

Purpose

GSM gas detectors are aimed for constant control in order to detect explosive concentrations of flammable gases, vaporized fluids and their mixtures of IIA, IIB, IIC групп T1, T2, T3, T4 in hazardous areas and premises of all classes, outside units and open areas by means of thermo chemical and semi-conducting technique with ambient temperature from - 60 to + 50°C.

Field of application

GSM gas detectors are used at oil and gas facilities including main pipelines as well as chemical, petro-chemical, oil refinery and other branches of industry.
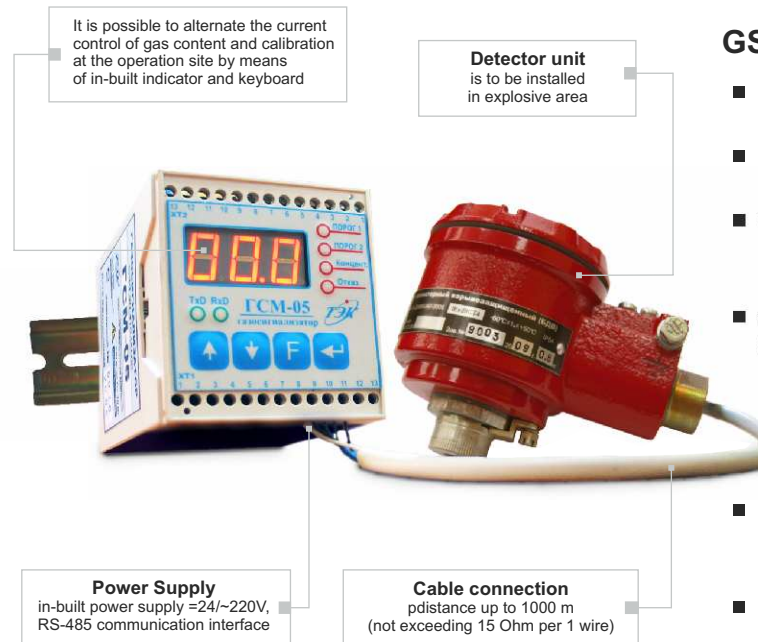
Functions

■ point control over gas content at the distance up to 1000 meters (resistance of each strand is not more than 15 Ohm)

■ light alarm when reaching ultimate concentrations from 0 to 50% of lower flammability level

■ formation of alarm limits – Limit 1, Limit 2, their values are setup by the software

■ feeding sensor is switched off when the gas ultimate concentration is reached in order to avoid failure (extension of the sensor service life)

■ producing analogue signal (4-20 mA) proportional to gas content through RS-485 interface and Modbus RTU protocol

■ availability of in-built and exterior calibration and checkup tools, providing user friendliness when installing to the facility (KSO-03 and GSM Wizard Software)

GSM-03 Modular Gas Detector

GSM-05 Features

■ modular design: from 1 to 20 control points

■ in-built feeding bus and interface between modules, which eases assembly and setup

■ availability of Ethernet Modbus TCP/IP to transfer data to upper level

■ availability USB 2.0 interface to setup the gas detector when connecting to PC

■ discrete outcome type – switching contact

Power Supply
=24/~220V

Interface unit
for scanning of alarm sensors, transfer of data to the upper level through communication interface

Alarm unit
for data receipt and conversion from detector unit, 2 thresholds adjustable from 0 to 50% of lower flammability level

GSM-05 Gas Detector

It is possible to alternate the current control of gas content and calibration at the operation site by means of in-built indicator and keyboard

Detector unit
is to be installed in explosive area

Power Supply
in-built power supply =24/~220V, RS-485 communication interface

Cable connection
pdistance up to 1000 m
(not exceeding 15 Ohm per 1 wire)

GSM-05 Features:

■ one control point

■ moderate dimensions

■ extended ranges of feeding voltage from 110 to 220 V

■ setting up parameters for calibration and gas detectors by means of in-built keyboard

■ digital indication of current gas content at the front panel of the device

■ discrete output types – switching contact