

## Ladies and gentlemen!

This catalog contains products of the Russian trade mark "EMIS". EMIS is an abbreviation that stands for Electronic and Mechanical Measuring Systems. The EMIS company was founded in 2003 and for 18 years of its development has become the leader of the Russian market of automation equipment, making serious competition for international brands in Russia. The main products of our brand are vortex, Coriolis and electromagnetic flow meters, variable area flow meters (rotameters), intelligent pressure transmitters and metering skids for steam, associated petroleum gas, natural gas and various technical gases.

Having its own representative offices in the republics of Belarus and Kazakhstan, in 2019 CJSC "EMIS" has truly entered the international market of instrumentation and automation: EMIS products were certified in accordance with European directives according to ATEX, EMC, PED standards; the company took part in international oil and gas exhibition "ADIPEC-2019". To date, agency agreements have been concluded with partners in India and the United Arab Emirates. Company is constantly striving to expand the geography of its cooperation and product supply.

CJSC "EMIS" is a young and ambitious company that is constantly growing and developing, creating products for industrial automation with best technical characteristics, and thus forming its competitive advantages, which, in combination with a flexible and friendly pricing policy, make cooperation with us attractive and really profitable!

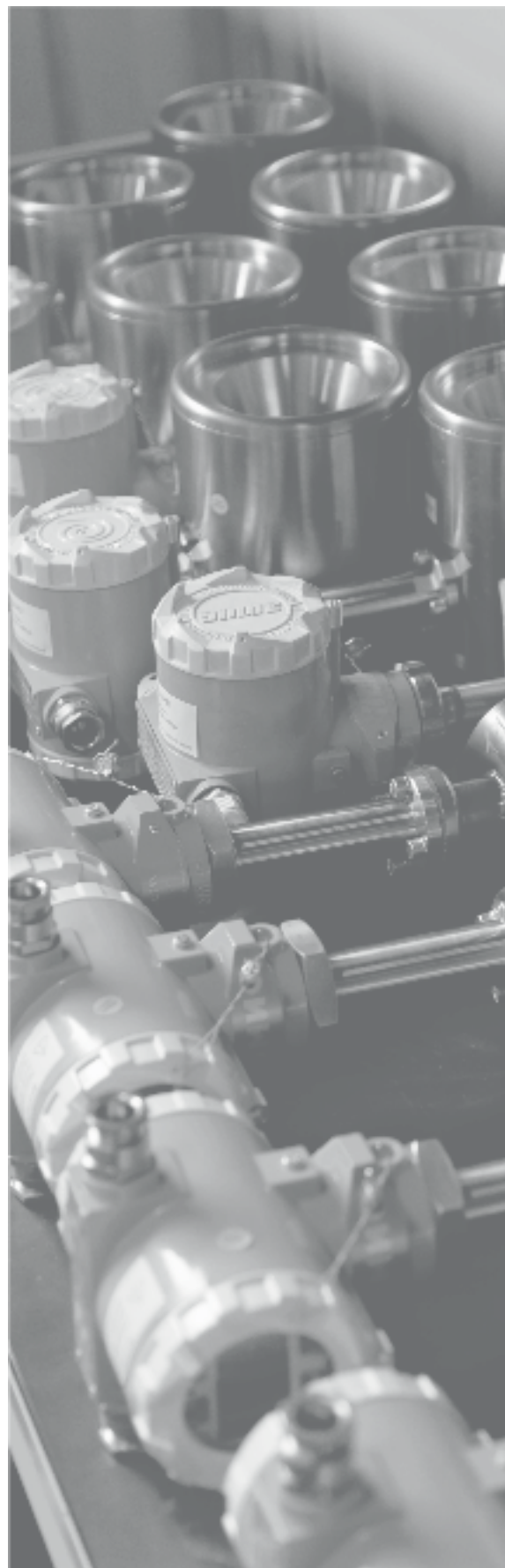
EMIS welcomes you with all Russian cordiality and goodwill on pages of this catalog and wishes you success in business, prosperity and well-being, and will be glad to cooperate with you!



*Chairman of the Board of Directors,  
Sergey Kayatkin.*

# MEASURING THE WORLD

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01



# PRESSURE TRANSMITTERS

EMIS-BAR

## Purpose

Designed for continuous measurement and conversion of gauge, absolute pressure, vacuum pressure, hydrostatic and differential (pressure difference) into a unified analog DC output signal of 4-20 mA with a digital signal superimposed on it in HART standard, as well as displaying the measured value on the display.

A wide range of design options allows you to make the best choice, depending on the tasks and operating conditions, including when working with low-temperature, high-temperature and aggressive mediums.

## The lineup

02



03



04



05



06



07



**01** EMIS-BAR 143 / 153 / 193  
Differential pressure

**02** EMIS-BAR 163 / 164  
Level transmitter

**03** EMIS-BAR 183-188  
Differential and absolute pressure  
with remote dividing membranes

**04** EMIS-BAR 173 - 176  
Overpressure with remote  
control separating diaphragm

**05** EMIS-BAR 103 / 123  
Overpressure / Absolute pressure

**06** EMIS-BAR 113  
Overpressure open diaphragm

**07** EMIS-BAR 105 / 133  
Overpressure / Absolute pressure

## Technical characteristics

› Measured medium	gas (including oxygen), steam; liquid (including contaminated; liquids and liquid mixtures)
› Pressure of the measured medium, MPa	up to 69
› Temperature of the measured medium, °C	- 90 ... + 400 (using a medium separator)
› Ambient temperature, °C	- 60 ... + 85
› Operation of the LCD display, °C	- 42 ... + 85
› Accuracy, %	±0.04; ±0.065; ±0.1; ±0.15; ±0.2; ±0.25; ±0.5
› Output signals	analog: current 4-20 mA; digital based on the HART protocol including DD and FDT/DTM libraries.
› Explosion protection modifications	II 2G Ex db IIC T6...T4 Gb II 1G Ex ia IIC T6...T4 Ga II 1G Ex ia IIB T6...T4 Ga I M1 Ex ia I Ma; I M2 Ex db I Mb
› Ingress protection	IP 65; IP 66; IP 67; IP 68
› Membrane Material	316L Stainless Steel, Hastelloy NS-276, Tantalum, Monel, 316L with gold plating.
› Rangeability	up to 100: 1 (According to pressure sensor model)
› Mechanical connection	M20x1. 5; M44x1. 25; G1 / 2 external thread; 1 / 2NPT male, female thread for fitting type sensors; 1 / 4NPT internal thread for sensors flanged version.
› Certificates	ATEX, EMC



## Features and Benefits

- › The basic percentage error is up to ±0.04% of the measurement range.
- › Possibility of setting (including zero calibration, unit selection, and range readjustment) using the buttons directly in the hazardous area without compromising the explosion protection of the housing.
- › Minimal additional temperature error due to active temperature compensation in the measuring cell.
- › Ambient temperature with explosion protection -60...+85 °C.
- › Internal self-diagnosis, presence of DD and DTM files, current signal corresponds to NAMUR NE43.
- › Long-term stability-one of the best in the industry: no more than 0.1% of the measurement range for 5 years (0.02% of the range for 1 year).
- › Two-section housing of the electronic unit.
- › High overload capacity: up to 105 MPa.
- › Proprietary software EMIS-INTEGRATOR.
- › Average service life: 30 years.



01



## VORTEX FLOW METERS

EMIS-VIHR 200

### Purpose

The versatility, high reliability, ease of operation and stability of the EMIS-VIHR 200 vortex flow meters have made them widely used both for direct flow measurement of most process mediums and as part of commercial metering stations.

Vortex flow meters measure: air, associated petroleum gas, natural gas, carbon dioxide, nitrogen, hydrogen, oxygen, superheated and saturated steam, water-oil mixture, non-electrically conductive, polluted and aggressive liquids with a viscosity of up to 7 mPa\*s, water and heat carriers in heat supply systems, cold water supply systems, domestic hot water systems.

### The lineup

02



03



04



01 Standard version

02 Remote version

03 High temperature version

04 Mine version

## Technical characteristics

› Measured medium	liquid / gas / steam
› Nominal diameter, mm	15; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300
› Pressure of the measured medium, MPa	up to 30
› Temperature of the measured medium, °C	- 60 ... + 450
› Ambient temperature, °C	- 60 ... + 70
› Viscosity of the measured medium, mPa*s	up to 7
› Accuracy, %	when measuring the liquid flow rate $\pm 0.5$ when measuring gas flow rate $\pm 0.7$
› Output signals	pulse-frequency; analog: current 4-20 mA; digital based on the Modbus RTU protocol, with RS-485 interface; digital based on the HART protocol
› Explosion protection modifications	II 2G Ex db [ia Ga] IIC T6 ... T1 Gb II 2G Ex db ia [ia Ga] IIB T6 ... T1 Gb II 2G Ex db ia [ia Ga] IIC T6 ... T1 Gb
› Ingress protection	IP 66/68
› Supply voltage	12-27 V
› Certificates	ATEX, PED, EMC



## Features and Benefits

- › High metrological stability of measurements.
- › Possibility of connecting an external pressure and temperature sensor (for the execution of an electronic unit with a computer "BB").
- › Version with 2-wire connection (power supply via the current loop of the 4-20 mA signal line).
- › Save measurement accuracy when changing process parameters.
- › The content of gas inclusions in liquids of not more than 2.5% by volume for transmitters of accuracy class 0.5% and not more than 4% for transmitters of accuracy classes 1 and 1.5%
- › Maintenance of working capacity with an accuracy of  $\pm 6.5\%$  with the content of gas inclusions in the liquid up to 15% by volume.
- › Proprietary software EMIS-INTEGRATOR.
- › Sensor resistance to water hammer.
- › Low pressure loss compared to constriction devices.
- › High temperature version (up to +450 °C).
- › Stable operation at high temperatures.
- › Filter the sensor signal using multiple filters.
- › A set of self-diagnosis functions.
- › Does not require periodic calibration.
- › Possibility to diagnose the device during operation without stopping the flow.
- › Manufacture of devices with flange mounting dimensions according to the following standards: ASME/ANSI, EN 1092-1.
- › Average service life: 15 years.



V.1



## **VORTEX FLOW METER FOR PPD**

(reservoir pressure maintenance systems)

EMIS-VIHR 200 PPD

### **Purpose**

PPD flowmeters are used to account for water injected into the reservoir during oil production to maintain reservoir pressure. This modification of the vortex flow meter is specially designed for measuring the medium under conditions of high pressure and the presence of mechanical and gas inclusions.

The reliability of the device is ensured by a special sensor design. This flow meter is used to measure: fresh water (river, lake), raw water (coming from oil treatment plants), reservoir water, Cenomanian water, oil-water mixtures, chemical and other liquid products that are not aggressive to the flow meter materials.

V.2



## **VORTEX FLOW METER FOR PPD**

(reservoir pressure maintenance systems) with vortex-acoustic signal pickup

EMIS-VIHR 200 PPD

### **Purpose**

Flow transmitters are designed to measure the volume flow of liquids in reservoir pressure maintenance systems, Cenomanian water, and other liquids at elevated pressure.

Flow converters can be used as part of automatic control and monitoring systems, local automation schemes using pulse-frequency signal, current signal and digital signal ModBus (RS-485) and HART.



## Technical characteristics

› Measured medium V1 / V2	V1 - Liquids, with mechanical properties impurities up to 1 g / l, and volume fraction gas inclusions-up to 15 % / V2 - Liquid
› Nominal diameter, mm	50; 80; 100, 150
› Pressure of the measured medium, MPa	up to 30
› Temperature of the measured medium, °C	0 ... + 100
› Ambient temperature, ° C	- 60 ... + 70
› Viscosity of the measured medium, mPa * s	up to 7
› Accuracy, % V1 / V2	V1 - from ± 0.5 / V2 - ± 1,0; ± 1,5; ± 3,0
› Output signals	pulse-frequency; analog: current 4-20 mA; digital based on the Modbus RTU protocol, with RS-485 interface; digital based on the HART protocol
› Explosion protection modifications, V1 / V2	V1 - II 2G Ex db [ia Ga] IIC T6 ... T1 Gb II 2G Ex db ia [ia Ga] IIB T6 ... T1 Gb II 2G Ex db ia [ia Ga] IIC T6 ... T1 Gb V2 - 1 Ex d IIC T5 Gb X
› Ingress protection	IP 66/68
› Certificates	ATEX, PED, EMC



## Features and Benefits V.1

- › Ability to measure contaminated and mineralized liquids.
- › Ability to measure the emulsion (up to 30% of the oil content in the liquid).
- › Measurement with a declared error in the presence of a gas phase of up to 4% by volume.
- › Maintaining operability with an error of ±6.5% in the presence of a gas phase in a liquid up to 15% by volume.
- › The ability to measure relatively low costs thanks to versions with built-in constrictions.
- › Operation at low ambient temperatures up to -60 °C.
- › Does not require periodic maintenance.
- › Proprietary software EMIS-INTEGRATOR software.
- › Remote data transfer, configuration via Modbus RTU (RS-485, USB) and HART.
- › Provides full interchangeability with flow transmitters used in reservoir pressure systems by connection dimensions and installation method, communication protocol.
- › Ability to adjust the pulse value and pulse duration.
- › Ability to diagnose the device on the site.
- › Implemented a solution with integrated heating of the LCD display of the electronic flow meter unit for explosion protection versions without intrinsically safe circuits.
- › Average service life: 15 years.

## Features and Benefits V.2

- › Resistant to pipeline vibration.
- › Design of the flowmeter with a narrowed flow path.
- › Interchangeability with other flow meters of pressure maintenance systems by connection dimensions.
- › Proprietary software EMIS-INTEGRATOR.
- › Does not require periodic maintenance.
- › Increased sensitivity to low flow rates:
  - DN 50/10-from 0.3 m<sup>3</sup> / h;
  - DN 100/50-from 1.2 m<sup>3</sup>/h.
- › Average service life: 15 years.

01



## CORIOLIS FLOW METERS

EMIS-MASS 260

### Purpose

Designed to measure mass flow rate, density, temperature and calculate the volumetric flow rate of liquids and gases for technological purposes and accounting and settlement operations at chemical, petrochemical, oil, food, pharmaceutical and other industries. The Coriolis measurement method is one of the most accurate and reliable today.

### The lineup

02



03



05



04



01 Standard version

02 Remote version

03 Compact version

04 Food grade / hygienic version

05 Compact remote version

## Technical characteristics

› Measured medium	liquid / gas / CNG / LPG
› Nominal diameter, mm	10; 15; 25; 40; 50; 80; 100; 150; 200
› Pressure of the measured medium, MPa	up to 25
› Temperature of the measured medium, °C	- 60 ... + 200
› Ambient temperature, °C	- 60 ... + 70
› Viscosity of the measured medium, mPa * s	up to 1500
› Accuracy, %	liquid flow ±0,1; ±0,15; ±0,2; ±0,25; ±0,5%; gas flow ±0,35; ±0,4; ±0,45; ±0,5; ±0,75%; temperature ±0,5; 1 °C; density of a liquid ±0,5; ± 1,0; ±2,0; ±5,0; ±10 kg / m <sup>3</sup> ; gas density ±1,0; ±2,0; ±5,0; ±10 kg / m <sup>3</sup> .
› Output signals	pulse - frequency (passive / active); analog: current 4-20 mA (passive / active); current 4-20 mA with digital HART protocol (passive) no extra charges.errors; digital based on the Modbus RTU protocol, with RS-485 interface; digital based on the Modbus TCP protocol, with an Ethernet interface; digital based on the HART protocol with DD and FDT/DTM libraries.
› Explosion protection modifications	ExA - II 2G Ex db ib IIA T6... T2 Gb; ExB - II 2G Ex db ib IIB T6... T2 Gb; ExC - II 2G Ex db ib IIC T6 ... T2 Gb (only for DN <100)
› Ingress protection	IP 66/67
› Certificates	ATEX, PED, EMC



## Features and Benefits

- › High accuracy of mass flow measurement and calculation of volume flow of liquids.
- › Calculation of the volumetric gas flow rate reduced to standard conditions.
- › Density measurement from 1 kg/m<sup>3</sup>.
- › Availability of automatic flow and density compensation by temperature.
- › 0.5 kg/m<sup>3</sup> density channel error (accuracy), 0.3 kg / m<sup>3</sup> for on-site and on-site calibration.
- › No additional error in the current output.
- › No additional error when measuring the return flow of the medium.
- › Additional Modbus register map adapted to ProLink (Micro Motion).
- › A set of safety switches to protect the metrological parameters of the device from unauthorized changes.
- › Adjustable damping time for measured flow and density readings.
- › Correction of the calibration coefficient for 8 arbitrary flow points.
- › Access to the menu with the built-in indicator and optical buttons for setting up and controlling the flow meter.
- › Certified net oil computer. Mass flowmeters have the ability to measure the concentration of substances in two-component media with a normalized error.
- › Ability to calculate the mass of high-viscosity liquids, non-Newtonian liquids, and liquids containing gas inclusions (up to 3 % gas).
- › The stainless steel flow part allows the EMIS-MASS 260 flow meter to be used for measuring the flow rate of food and aggressive media.
- › The absence of moving parts and flow obstacles guarantees stable operation over the entire service life and low operating costs.
- › Possibility to connect an external pressure sensor.
- › No requirements for straight sections or special flow shaping equipment.
- › Minimal pressure loss.
- › Resistant to industrial frequency vibrations.
- › Ability to diagnose the device on the site.
- › Proprietary software EMIS-INTEGRATOR.
- › Manufacture of devices with flange mounting dimensions according to the following standards: ASME/ANSI, EN 1092-1, including DIN 11851.
- › Average service life: 20 years.

01



## ELECTRO-MAGNETIC FLOW METERS

EMIS-MAG 270

### Purpose

EMIS-MAG 270 flow meters are designed to measure the volume flow of electrically conductive liquids moving at speeds from 0.1 m/s to 10 m/s, including aggressive, two-phase and contaminated liquids (including solid particles or suspensions) with a minimum specific electric conductivity of  $5 \times 10^{-4}$  S/m.

### The lineup

02



03



01 Standard version

02 Mine version

03 Food grade / hygienic version

## Technical characteristics

› Measured medium	electrically conductive liquids
› Nominal diameter, mm	15; 20; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300; 350; 400; 450
› Pressure of the measured medium, MPa	up to 32
› Temperature of the measured medium, °C	-40...+180
› Ambient temperature, °C	Integrated version: -40...+50 Remote execution: -40...+75
› Accuracy, %	±0,5; ±1,0; ±5
› Output signals	pulse-frequency; analog: current 4-20 mA; digital based on the Modbus RTU protocol, with RS-485 interface; digital based on the HART protocol; alarm sound
› Explosion protection modifications	1 Ex db [ia] IIC T6...T3 Gb X; PB Ex d I X
› Ingress protection	IP 65; IP 66; IP 67; IP 66/ 67



## Features and Benefits

- › A wide choice of lining materials and electrodes allows the EMIS-MAG 270 flow meter to be used with aggressive mediums.
- › Efficiency at high pressures of the medium - up to 32 MPa.
- › Flow measurement of two-component and contaminated liquids (including solid particles or suspensions).
- › The accuracy of flow measurement is not related to changes in the viscosity and density of the medium.
- › Wide size range.
- › Proprietary software EMIS-INTEGRATOR.
- › Installation of the flow meter on horizontal, vertical and inclined sections of the pipeline.
- › Absence of mechanical elements and elements protruding in to the flow part.
- › Low pressure loss.
- › Average service life: 15 years.



01



## METAL VARIABLE AREA FLOW METERS (rotameters)

EMIS-META 215

### Purpose

Metal rotameters can be used at high pressure and temperature of the measured medium, providing the ability to measure the flow rate of various gases and liquids, including aggressive ones.

The EMIS-META 215 series rotameters are easy to install and can convert the flow rate value to a standard 4-20 mA analog signal or to a digital signal based on the HART protocol. Rotameters are used in systems of automatic control, regulation and control of technological processes in various industries, in stationary technological installations, pumping facilities.

### The lineup

02



03



01 Vertical version

02 Horizontal version

03 Food grade / hygienic version

## Technical characteristics

› Measured medium	liquid / gas / oxygen
› Nominal diameter, mm	15; 25; 40; 50; 80; 100; 150
› Measuring range liquid/gas, m <sup>3</sup> /h	2.5 to 100/ 0.07 to 3000
› Pressure of the measured medium, MPa	up to 32
› Temperature of the measured medium, °C	-40...+100; -40...+420; -80...250
› Ambient temperature, °C	-60...+70
› Viscosity of the measured medium, mPa * s	up to 250
› Accuracy, %	±1; ±1,5; ±2,5; ±4
› Output signals:	Analog: current 4-20 mA; digital based on the HART protocol; up to 2 limit switches
› Explosion protection modifications:	1 Ex ib IIB T4...T2 Gb; 1Ex d IIB T4...T2 Gb/Gbc
› Ingress protection	IP 65; IP 67



## Features and Benefits

- › The universal principle of operation allows to use the variable are flow meters (rotameters) for measuring the flow rate of any gases, liquids and steam.
- › Ability to work in chemically aggressive environments (in anti-corrosion version Ft).
- › Possibility to calibrate the scale according to the customer's request.
- › Displays the current and accumulated volume on the LCD display.
- › HART output interface.
- › Possibility of remote control of readings (using output signals).
- › Possibility to set limit switches with adjustable setting.
- › Version of the rotameter with a horizontal position on the pipeline.
- › Possibility of heating the measuring tube of the rotameter.
- › Manufacturing of devices with flange mounting dimensions according to the following standards: ASME/ANSI, EN 1092-1, including DIN 11851.
- › Average service life: 10 years.



01



## **LIQUID QUANTITY COUNTER**

EMIS-MERA 300

### **Purpose**

The meter is designed to measure the mass (mass flow rate) of liquid, oil and gas mixture, crude oil and petroleum products (here in after-the-measured medium) and use the information obtained for technological and commercial purposes and accounting and settlement operations. The meter is used in automated group measuring installations, stationary technological installations, ground-based mobile means of refueling and pumping, and in commercial accounting systems.

### **The lineup**

01



02



**01** Standard execution

**02** Flanged version



## Technical characteristics

› <b>Measured medium</b>	liquid / oil and gas mixture/crude oil
› <b>Standard sizes, t / day</b>	30; 60; 120; 210; 480
› <b>Pressure of the measured medium, MPa</b>	up to 6.3
› <b>Temperature of the measured medium, °C</b>	0...+135
› <b>Ambient temperature, °C</b>	- 50...+80
› <b>Viscosity of the measured medium, cSt</b>	up to 1500*
› <b>Accuracy</b>	±1; ±1,5; ±1,75; ±2,0; ±2,5%
› <b>Output signals</b>	pulse mode; digital based on the Modbus RTU protocol, with RS-485 interface
› <b>Explosion protection modifications</b>	With electric heating: 1 Ex d e IIB +H <sub>2</sub> T4 Gb X Without electric heating: 1 Ex d IIC T6...T4 Gb X 0 Ex ia IIC T6...T4 Ga X
› <b>Ingress protection</b>	IP 67
› <b>Acceptable volume fraction content free gas in the oil and gas-water mixture</b>	2...50%; up to 75% - special design

\*For sizes 210 and 480

## Features and Benefits

- › The verification time is 40 minutes.
- › Self-diagnosis of the device.
- › Ability to adjust the weight and duration of the output pulse.
- › Ensuring the safety of operation of secondary instrumentation and control equipment due to galvanically isolated interface lines.
- › Proprietary software EMIS-INTEGRATOR.
- › Standalone version with battery power supply.
- › Remote data transmission using the LoRaWAN protocol.
- › Maintaining debit archives (daily, monthly) with a configurable retention period (without using secondary equipment).
- › Average service life: 10 years.



01



## LEVEL SWITCHES

for liquid and bulk media / mediums

EMIS-SIGNAL

### Purpose

Level switches are designed for use in technological and alarm systems for signaling the levels of liquid and bulk media, in automatic process control systems, in pump protection systems against dry operation, in systems for detecting the presence of liquids in rooms and in other systems.

The switches can be used indoors and outdoors in a wide range of climatic conditions. The switches have no moving parts, are resistant to vibration and shock, and do not require adjustment during operation.

### The lineup

02



03



04



**01** Threaded for bulk and liquid media/mediums

**02** Liquid threaded / threaded with extended sensor

**03** Liquid flanged / flanged with extended sensor

**04** Liquid high-temperature / high-temperature with extended sensor

**\* All presented level switches can also be manufactured for bulk media/mediums.**

## Technical characteristics

› Measured medium	liquid, bulk materials
› Absolute pressure range of the controlled medium, MPa for threaded connection / for flanged connection:	-0,1...10 / -0,1...25
› Temperature of the measured medium, °C	-60... +290
› Ambient temperature, °C	-60...+75 (from -70 °C to +75 °C with thermal cover)
› Output signals	SPDT contact;
› Explosion protection modifications:	1 Ex db IIC T6...T2 Gb X; Ex tb IIIC T80°/T95°C/ T130°C/T190°/T290°C Db
› Ingress protection	IP 66/67
› Resistance to external magnetic field	constant 400 A/m; AC 400 A/m, at 50 Hz
› Service life, years, not less	12
› Cable entry threads	M20 x 1.5
› Materials used	Electronic unit housing: Aluminum alloy Vibrating Fork: Stainless Steel



## Features and Benefits

- › Low susceptibility to mechanical wear of all components, including the vibrating fork.
- › No moving mechanical parts: no wear and tear, no maintenance required, and a long service life is guaranteed.
- › Lack of moving parts that can jam during operation.
- › Easy installation and commissioning (no media filling and calibration required).
- › Large selection of standardized process connections for all areas of application.
- › Reliable level measurement - regardless of installation position, foam, viscosity and grain size.
- › Possibility of installation in any position at the desired height of the switching point.



01



## ENERGY METERING SKIDS

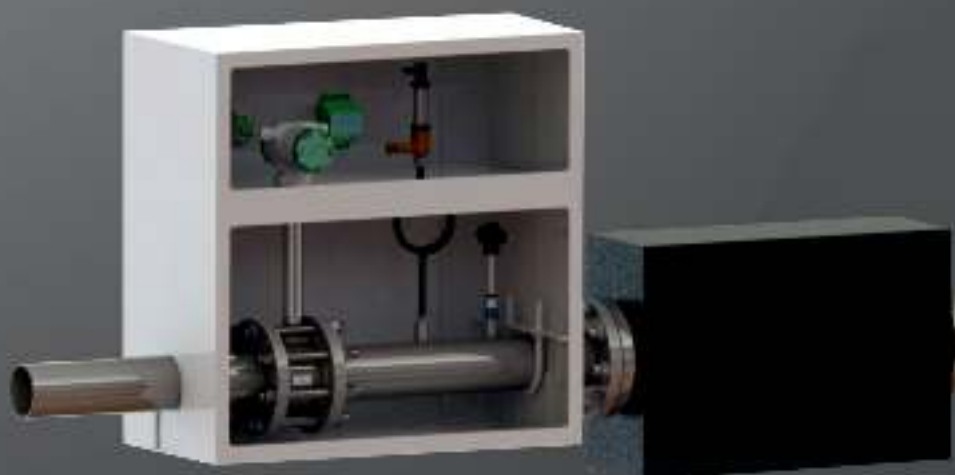
EMIS-ESKO 2210

### Purpose

The universal metering skid is used for commercial metering of saturated and superheated steam, associated petroleum gas, gas mixtures, liquids and aqueous solutions. The skids are also applicable for measuring thermal energy in closed and open heat supply systems, cooling systems, as well as in PPD systems. The skid is applicable for automated control and management of technological processes at industrial enterprises, gas distribution stations, oil and gas production enterprises, in conditions of round-the-clock operation.

### The lineup

02



01 Metering skid EMIS-ESKO 2210

02 Metering skid with autonomous power source

## Technical characteristics

› Measured medium	gases: oxygen, nitrogen, argon, hydrogen, ammonia, natural gas, associated petroleum gas (APG); saturated or superheated steam; water pumped into injection wells of PPD systems; liquids and aqueous solutions; helium concentrate
› Nominal diameter, mm	15; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300
› Pressure of the measured medium, MPa	1,6; 2,5; 4; 6,3; 16; 20; 30
› Temperature of the measured medium, °C	Standard version "100": -60 ...+100; Standard version "250": -60 ...+250; High temperature version "320": -60 ...+320; High temperature version "450": -60 ...+450
› Ambient temperature, °C	- 60...+ 70
› Accuracy, %	IR of the mass of the gas flow rate and volume given to standard conditions: ±1,0; ±1,5; ±2,5; ±3 IR vapour mass: ± 3; IR of liquid mass: ± 2; IR of thermal energy: ± 4; ± 5
› Output signals	Digital based on Modbus RTU protocol, with RS-485/RS-232 interface; digital based on the Modbus TCP protocol, with an Ethernet interface; GSM; GPRS
› Explosion protection modifications	"Exd" - explosion-proof enclosure for measuring transducers included in the complex; "Exi" - intrinsically safe circuit for measuring transmitters included in the complex
› Ingress protection	for transmitters: not less than IP 65; for the design and measurement converter and functional equipment: not less than IP 20
› Number of accounting points	up to 24

## Features and Benefits

- › Ability to measure both superheated and saturated steam.
- › Ability to measure wet steam.
- › Remote data transmission (including wireless).
- › Versatility of the skid due to the ability to measure various media, a wide range of standard sizes, dynamic and temperature range of the measured media-liquid, steam and gas.
- › Open list of flow, pressure, and temperature transmitters.
- › The design of the skid allows for replacement or repair of the pressure sensor, metrological diagnostics of the flow meter, as well as replacement of the flow sensor electronics during operation, without stopping the flow of the medium.
- › Possibility of providing design documentation for project preparation.
- › Archives and real-time clock.
- › Possibility of using a metering skid based on a thermoelectric generator or solar battery.
- › Average service life: 12 years.



## PADDLE TYPE FLOW SWITCH

EMIS-POTOK 236

### Purpose

The vane flow switch EMIS-POTOK 236 is a solution for monitoring the presence/absence of liquid flow in the pipeline. The flow switch is used to protect pumps, motors and other equipment from overheating caused by low flow or no flow and is used in automatic control systems, process control systems in the energy, chemical, petrochemical, food, paper and other industries. The flow switch is designed for installation in a pipeline.

The flow switch has a general industrial design and is designed for operation in hazardous areas.



## THERMAL ANEMOMETRIC FLOW SWITCH

EMIS-POTOK 285

### Purpose

The EMIS-POTOK 285 thermal anemometric flow switch is a solution for monitoring the presence/absence of flow in a pipeline. The flow switch is used to protect pumps, motors and other equipment from overheating caused by low flow or no flow, and is used in automatic control systems, process control systems in the energy, chemical, petrochemical, food, paper and other industries.

## Technical characteristics

### EMIS-POTOK 236

› Measured medium	liquid
› Nominal diameter, mm	32 ... 250
› Pressure of the measured medium, MPa	up to 5
› Temperature of the measured medium, °C	-30...+150 – for non-explosion-proof versions -50...+130 -for explosion-proof design
› Ambient temperature, °C	-50...+60
› Viscosity of the measured medium, mPa*s	up to 400
› Output signals	SPDT-contact
› Explosion protection modifications:	1 Ex d IIC T6...T4 Gb X
› Ingress protection	IP 65
› Pressure loss, MPa	up to 0.2
› Contact switching capacity	1A, 220 V AC 24 V DC SPDT

### EMIS-POTOK 285

› Measured medium	liquid, gas
› Nominal diameter, mm	25 ... 700
› Pressure of the measured medium, MPa	up to 10
› Temperature of the measured medium, °C	-50... +75
› Ambient temperature, °C	-50...+70
› Output signals	SPDT-contact; relay contact; NPN contact; PNP contact; analog current 4-20 mA
› Explosion protection modifications:	1 Ex d IIB T6 Gb X
› Ingress protection	IP 65
› Pressure loss, MPa	up to 0.2
› Contact switching capacity	2A/220 V AC (relay output); 1A /24 V DC (relay output); 400mA/ 24 V DC (PNP and NPN)

## Features and Benefits EMIS-POTOK 236

- › Does not contain any electronic components.
- › No configuration required.
- › Simple design.
- › High operating pressure.
- › Forward and reverse flow operation.
- › Wide ambient and operating temperature range.
- › Performance in particularly viscous media.
- › The minimum permissible ambient temperature of -50°C allows the use of a flow switch in the far north;
- › Average service life: 12 years.

## Features and Benefits EMIS-POTOK 285

- › No moving mechanical parts, customization on the workflow.
- › Reliable and durable.
- › Forward and reverse flow operation.
- › The minimum permissible ambient temperature of -50°C allows the use of a flow switch in the far north;
- › Gauge pressure of the working medium up to 10 MPa;
- › Installation in large diameter pipelines.
- › Installation on vertical and inclined pipelines.
- › The flow switch is designed to operate in both liquid and gaseous mediums.
- › The flow switch has a general industrial design and is designed for operation in hazardous areas.
- › Wide range of output signals.
- › Average service life: 8 years.



## TRANSFORMER TYPE POWER SUPPLY UNIT

EMIS-BREEZE 90

### Purpose

EMIS-BRIZ 90 power supply units are mainly used for powering sensors (pressure flow rate, level, etc.) of general industrial non-explosion-proof design in automatic control, regulation and control of technological processes in various industries, in stationary technological installations, in commercial accounting systems.



## PULSE TYPE POWER SUPPLY UNIT

EMIS-BREEZE 100

### Purpose

EMIS-BREEZE 100 power supply units are designed for powering industrial automation, process control equipment, control and measuring devices, electromagnetic drives, fans, programmable controllers and other DC loads.



## Technical characteristics

### EMIS-BREEZE 90

› Type	transformer type
› Number of channels	2/4
› Supply voltage, V	187 ... 242, with a frequency of 50±1 Hz
› Maximum load current, mA	100/250
› Output voltage, V	24 (±0,2%)
› Mounting	DIN rail or panel mount (version 1 and 1K)
› Ambient temperature, °C	-10...+50
› Ingress protection	IP 20 for DIN version IP 30 for panel design

### EMIS-BREEZE 100

› Type	Pulse type
› Number of channels	1
› Power supply voltage, V	100...265, frequency 45...65 Hz
› Maximum load current, A	1
› Output voltage, V	24
› Rail mounting	DIN
› Ambient temperature, °C	-40...+55
› Ingress protection	IP 20

## Features and Benefits EMIS-BREEZE 90

- › Galvanic isolation of output channels.
- › The channels have overload and short circuit protection.
- › Compact size.
- › Block activation indication for each channel.
- › The blocks do not cause industrial interference.
- › High reliability.

## Features and Benefits EMIS-BREEZE 100

- › Convenience of connection and control of system operation.
- › Convenience of installation.
- › No electromagnetic interference affecting the operation of other system components.
- › Protection against overheating, overload and short circuit at the output, as well as the presence of an input fuse that is triggered in case of internal malfunctions in the unit.





## PULSE TYPE POWER SUPPLY UNIT

EMIS-BREEZE 250

### Purpose

EMIS-BREEZE 250 power supply units are designed to power industrial automation, process control equipment, control and measuring devices, electromagnetic drives, fans, programmable controllers and other DC loads.



## TRANSFORMER TYPE POWER SUPPLY UNIT

EMIS-BREEZE 500

### Purpose

EMIS-BREEZE 500 power supply units are mainly used for powering sensors (flow rate, pressure, level, etc.) of general industrial non-explosion-proof design in systems of automatic control, regulation and control of technological processes in various industries, in stationary technological installations, in commercial accounting systems, at low temperatures (-60 °C).

## Technical characteristics

### EMIS-BREEZE 250

› Type	Pulse type
› Number of channels	1
› Supply voltage, V	from AC mains voltage 184...264 V, frequency 45...65 Hz
› Maximum load current, mA	250
› Output voltage, V	24
› Rail mounting	DIN
› Ambient temperature, °C	-40...+55
› Ingress protection	IP 20

### EMIS-BREEZE 500

› Type	Ttransformer type
› Number of channels	1
› Supply voltage, V	187 ... 242, frequency 50±1 Hz
› Maximum load current, mA	500
› Output voltage, V	24 (±0,2%)
› Rail mounting	DIN
› Ambient temperature, °C	-60...+50
› Ingress protection	IP 20

## Features and Benefits EMIS-BREEZE 250

- › Convenience of connection and control of system operation.
- › Convenience of installation.
- › No electromagnetic interference affecting the operation of other system components.
- › Protection against overheating, overload and short circuit at the output, as well as the presence of an input fuse that is triggered in case of internal malfunctions in the unit.

## Features and Benefits EMIS-BREEZE 500

- › Convenience of connection
- › Monitoring the system operation.
- › Convenience of installation.
- › Operation at low temperatures (up to -60 °C).
- › Overload and short-circuit protection at the output, the presence of an input fuse that works in case of internal malfunctions in the unit.



