

## Electromagnetic flow transducers **EMIR- PRAMER- 550**



ZAO "PromServis" started production of EMIR- PRAMER- 550 electromagnetic flow transducers in 2006.

Electromagnetic flow transducers only measures conducting liquids. While conducting liquid is moving, electromoving force is being induced in it.

Electromoving force data is read with the help of electrodes and is transferred to the electronic transducer tube. Measuring data path of the electronic transducer tube lets intensify, filter, digitize a measured signal and then form frequency output signal proportional to the flow-rate of the secondary equipment.

Our experts managed to create a device with certain competitive advantages. Among them are the following: wide dynamic range (1/1000), accuracy ( $\pm 1\%$  in the flow-rate range), a possibility to measure a reversible stream, transducer self-diagnostic functions. To create electronical transducers we use high-precision hardware components and unique methods of digital signal processing, a calibration system which provides the required metrological characteristics as well as a rugged construction of fluoroplastic lining primary transducer produced in cooperation with our partners. Now ZAO "PromServis" produces transducers with DN 15 - DN 150.

The special feature of EMIR-PRAMER-550 electronic transducer (an EMIR-PRAMER-550-I version) is RS485 digital front-end output which optimizes calibration process procedure of the transducer and makes it possible to organize data-measuring networks. The electronic transducer also has the functions of a flow meter, so it can register liquid volume in both directions, measure the current flow rate, time of unfailling service and transfer these data upon dispatching computer request over ModBUS RTU.

Electromagnetic flow transducers EMIR- PRAMER- 550 are registered in State Register of Measuring Instruments, N<sup>o</sup>27104-08.

Electromagnetic flow transducers EMIR- PRAMER- 550 are protected by utility model patent N<sup>o</sup> 48409.

Nominal diameters (DN): 15; 25; 32; 40; 50; 65; 80; 100; 150 mm.

DN, mm	Flow-rate value, m <sup>3</sup> /h													
	Class (1:100)		Class A (1:250)			Class B (1:500)			Class C (1:1000)		Class D (1:1000)		Class E	
	Q <sub>min</sub>	Q <sub>max</sub>	Q <sub>min</sub>	Q <sub>t1</sub>	Q <sub>max</sub>	Q <sub>min</sub>	Q <sub>t2</sub>	Q <sub>t1</sub>	Q <sub>max</sub>	Q <sub>min</sub>	Q <sub>t2</sub>	Q <sub>t1</sub>	Q <sub>max</sub>	
15	0,06	6	0,024	0,06	6	0,012	0,024	0,06	6	0,006	0,024	0,06	6	
25	0,16	16	0,064	0,16	16	0,032	0,064	0,16	16	0,016	0,064	0,16	16	
32	0,25	25	0,100	0,25	25	0,050	0,100	0,25	25	0,025	0,100	0,25	25	
40	0,4	40	0,160	0,40	40	0,080	0,160	0,40	40	0,040	0,160	0,40	40	
50	0,6	60	0,240	0,60	60	0,120	0,240	0,60	60	0,060	0,240	0,60	60	
65	1,0	100	0,400	1,00	100	0,200	0,400	1,00	100	0,100	0,400	1,00	100	
80	1,6	160	0,640	1,60	160	0,320	0,640	1,60	160	0,160	0,640	1,60	160	
100	2,5	250	1,000	2,50	250	0,500	1,000	2,50	250	0,250	1,000	2,50	250	
150	6,0	600	2,400	6,00	600	1,200	2,400	6,00	600	0,600	2,400	6,00	600	

Transducers of standard version are produced in Class-B version

**Controlled liquid characteristics:**

- temperature range - 1 to 150 °C
- process pressure limit - up to 1,6 MPa or 2,5 MPa
- ionic conductivity - 10<sup>-3</sup> до 10 sm/m

Relative accuracy range at flow-rate and volume conversion into electric signal output depending on transducer class (flow-rate dynamic range ( $Q_{min}/Q_{max}$ )), %:

Class A transducers (1:100):

- $Q_{max}$  to  $Q_{min}$  ..... ± 1;

Class B transducers (1:250):

- $Q_{max}$  to  $Q_{t1}$  ..... ± 1;
- $Q_{t1}$  to  $Q_{min}$  ..... ± 2;

Class C transducers (1:500):

- $Q_{max}$  to  $Q_{t1}$  ..... ± 1;
- $Q_{t1}$  to  $Q_{t2}$  ..... ± 2;
- $Q_{t2}$  to  $Q_{min}$  ..... ± 5;

Class D transducers (1:1000):

- $Q_{max}$  to  $Q_{t1}$ .....  $\pm 1$ ;
- $Q_{t1}$  to  $Q_{t2}$ .....  $\pm 2$ ;
- $Q_{t2}$  to  $Q_{min}$  .....  $\pm 5$ ;

Class E transducers (1:1000):

- $Q_{max}$  to  $Q_{min}$  .....  $\pm 1$ .

Transducer instrument threshold - up to  $Q_{max}/1000$ . Class A,B,C transducers relative accuracy at flow-rate range  $Q_{min}$  to  $Q_{max}/1000$  are not rated.

Pressure differential across a transducer flow passage - up to 6 kPa

### Operating Condition

Transducer constant voltage unit has the following characteristics:

- output current constant voltage  $12^{+1,2}_{-1,8}$  V;
- switching load current at least 400 mA

**It is recommended to use BP-2/12-03 power box produced by ZAO "PromServis".**

Power input - up to 6 W

Resistance to mechanical stress GOST R 52931-2008 - L1;

GOST 14254-96 - IP65 protection rating;

Average time between failures - no less than 75000 hours;

Mean recovery time - up to 4 hours;

Average lifetime - 15 years

- Ambient Temperature Range - -10 to +55 °C
- relative humidity at  $t = +35$  °C and lower up to 95% (No Condensation)
- barometric pressure - 84 to 106,7 kPa

Calibration interval - 4 years

Warranty period - 4 years