GAS DENSITY SENSOR RS485/MODBUS

Density sensor for SF₆ and other gases

Continuous density and temperature measurement Digital output signal RS485 Modbus for density, pressure and temperature Compliant with IEC61850 Extremely drift-free signal Maintenance-free



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Gas Density Sensor 8775 RS485/Modbus

Unique electronic SF₆ gas density monitoring with quartz tuning fork

The Trafag gas density sensor type 8775 was specifically designed for the monitoring of insulation gases. This unique patented sensor technology opens new paths for the energy distributing industry to realize comprehensive trend analysis and monitoring. The digital output signal RS485/Modbus measures directly and continuously the gas density and the signal of the gas temperature.



Advantages

- Continuous digital output signal RS485/Modbus usable for SF₆ trend analysis
- Compliant with IEC61850
- Maintenance-free
- Wide density range 0-10 bar SF₆-pressure at 20°C
- Electromagnetic compatibility (EMC) according EN/IEC 61000-4
- Outdoor application without additional protection
- Density measurement of all gases possible
- Facilitates compliance with greenhouse gas regulations

Operating principle of the electronic gas density sensor

The constant resonant frequency of a quartz oscillator under vacuum is compared with the resonant frequency of an identical quartz situated in the sample gas. The difference in the resonant frequency is proportional to the density of the sample gas. This difference is processed into a digital output signal. Because the density is directly measured and not calculated from a pressure and a temperature sensor, the density signal is free from themperature measurement errors, which detoriorate accuracy greatly. Furter, the quartz sensor output is extremely stable, outperforming almost any pressure sensor.



Finit element stress analysis of an oscillation tuning fork



Technical data Gas Density Sensor 8775			
Principle	Oscillating quartz measurement	Resolution of density	13 bit
Material pressure connection	1.4435 (AISI316L)	Resolution of temperature	10 bit
Material tube	1.4301	Reaction time RS485 interface	< 500 ms
Operating & Media temperature	-40 +80 °C	O-Ring	EPDM
Measuring range	0 0.85 MPa / 0 60 kg SF_6/m^3	Humidity	98% relative (55°C)
Accuracy of density	±1.0% FS typ., ±1.8% FS max.	Degree of protection	IP65
Accuracy of temperature	±1.0% FS typ.	Vibration	15 g (max. 6 mm), 5 2000 Hz
Output signal	RS485/Modbus (RTU)	Shock	100 g / 6 ms
Supply voltage	10 32 VDC	Weight	~200-400 g

Electrical connections and wiring diagram





Dimensions











Adapters







For other available pressure connections: See data sheet www.trafag.com/H72502



Data sheet www.trafag.com/H72519