

Gas density transmitter With field case Model GD10-F

Applications

- Gas density monitoring of closed SF₆ tanks
- For outdoor installation in SF₆ gas-insulated switchgear

Special features

- Measuring ranges from 0 ... 10 to 0 ... 80 g/litre
- Output signal 4 ... 20 mA, 2-wire
- Temperature compensated and hermetically sealed, therefore no influence temperature, by atmospheric pressure fluctuation or differences in altitude
- Wetted parts and case made of stainless steel, fully welded
- Ingress protection IP 67, field case, excellent long-term stability, high EMI performance

Description

The gas density transmitter is electronically compensated. The compensation follows the nonlinear behavior of SF₆ gas. The basic principle is the calculation following virial equation. The gas density transmitter picks up the physical variables pressure and temperature of the SF₆ gas contained in the device (tank). The current gas density is ascertained from both variables by means of an electronic evaluation system. Thermal induced pressure changes are dynamically compensated and do not affect the output signal.

The gas density transmitter generates a density proportional, standardized signal of 4 ... 20 mA.

A recalibration of the zero signal as well as maintenance service will no longer be necessary due to the high long-term stability of the gas density transmitter.



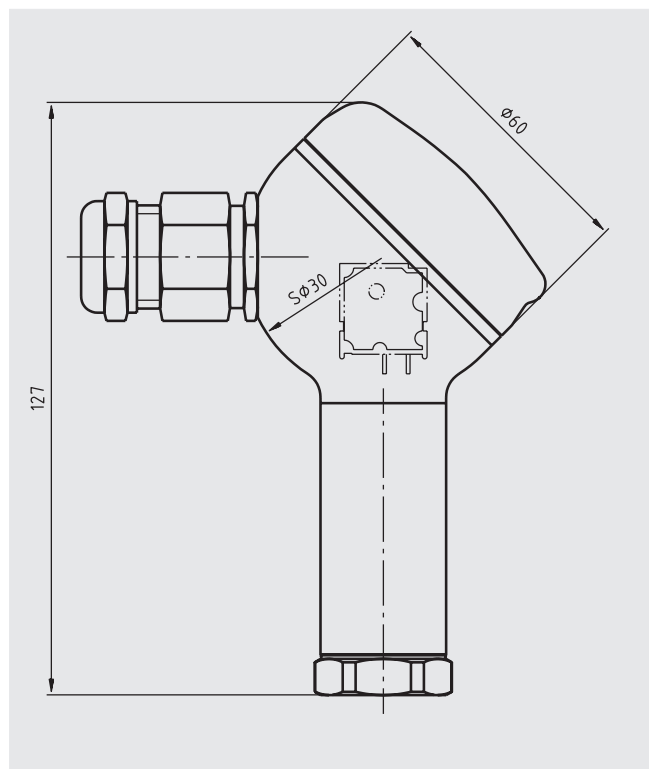
Gas density transmitter, model GD10-F

As a standard, wetted parts are made of stainless steel. The hermetically welded measuring cell guarantees high long-term tightness. The specific structure of the measuring cell requires absolutely no internal sealing elements so that any leakage of the instruments can be excluded. Due to these features the gas density transmitter is also independent of atmospheric pressure fluctuations and variations of the mounting height.

The EMI properties of the transmitter are tested according to industrial standards (see page 3) and guarantee a safe pick-up of the signal which is especially suited to conditions prevailing in high-voltage switching units.

Dimensions in mm

Field case



Wiring details

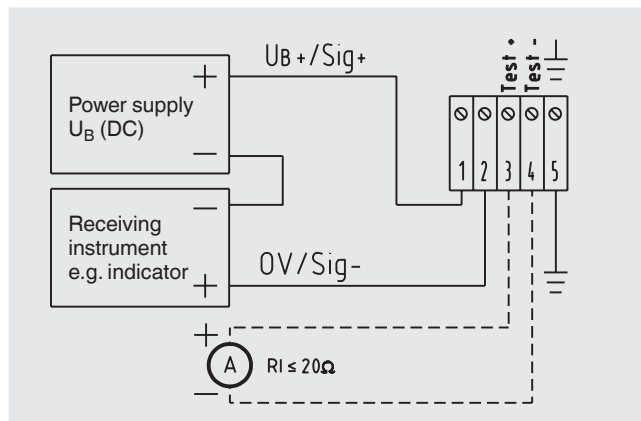
Clamp 1: U_B+ / Sig+

Clamp 2: 0V / Sig-

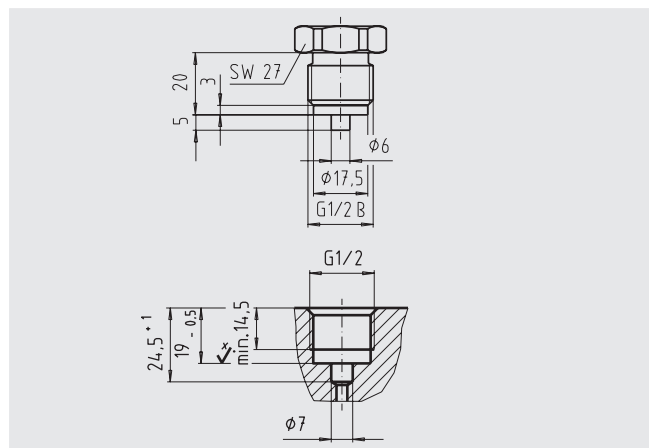
At clamp 3 and 4 the output signal can be measured by connecting an ammeter without having to disconnect the measuring circuit.

Clamp 5 is connected to the case to enable the connection of a shielding here. There is no specific ground wire required.

2-wire connection



Process connection, socket



Specifications

Specifications, model GD10-F							
Density ranges	g/Litre	10	16	25	40	60	80
(Pressure ranges related to 20 °C)	(bar abs.)	(1.64)	(2.59)	(3.97)	(6.16)	(8.87)	(11.33)
Over pressure safety	bar abs.	14	14	14	29	29	67
Burst pressure of sensor	bar abs.	17	17	17	35	35	80
Designed for sensing	pure SF ₆ gas						
Principle	piezoresistive						
Pressure reference	absolute pressure						
Process connection	G ½ B male (other connections on request)						
Materials							
■ Wetted parts	stainless steel						
■ Case, terminal case	stainless steel						
Internal transmitting fluid	synthetic oil						
Power supply U _B	DC 10 ... 30 V						
Signal output and Maximum load R _A	4 ... 20 mA, 2-wire, R _A ≤ (U _B - 10 V) / 0.02 A with R _A in Ohm and U _B in Volt						
Accuracy	-40 °C: 3 % of span, 20 °C: 1 % of span, 60 °C: 2.3 % of span (optimal accuracy point) -40 °C: 4 % of span, 20 °C: 2 % of span, 60 °C: 3.3 % of span (beginning and end of measuring range)						
1-year stability	≤ 0.3 % of span (at reference conditions)						
Permissible ambient temperature							
■ Nominal temperature	-40 ... +60 °C (-40 ... +140 °F) [gas phase!]						
■ Storage temperature	-40 ... +80 °C (-40 ... +176 °F)						
CE conformity	EN 61326-1						
EMC directive	2004/108/EC, EN 61326 Emission (Group 1, Class B) and Immunity (industrial locations)						
High voltage strength	DC 750 V (wiring versus case)						
Electro-magnetic immunity (EMI) / RFI per IEC 61000-4	IEC 61000-4-2 (ESD): test level 4 (8 kV) IEC 61000-4-3 (Field): test level 3 (10 V/m) IEC 61000-4-4 (Burst): test level X (±2 kV) IEC 61000-4-5 (Surge): test level 2 (±1 kV) IEC 61000-4-6 (Conducted RFI): test level 3 (10 V)						
Cable gland	Cable gland M20 x 1.5						
Electrical connection	internal terminal screws, cross section max. 2.5 mm ²						
Wiring protection	protected against reverse polarity and overvoltage						
Ingress protection	IP 67 per EN 60529 / IEC 529						
Weight	max. 0.5 kg						
Dimensions	see drawing						