

## Gas Density Monitors



Gas Density Monitor  
**Densistat D56/D56i0**  
for SF<sub>6</sub> and other gases  
for outdoor or indoor use

## Densistat D56 / D56i0

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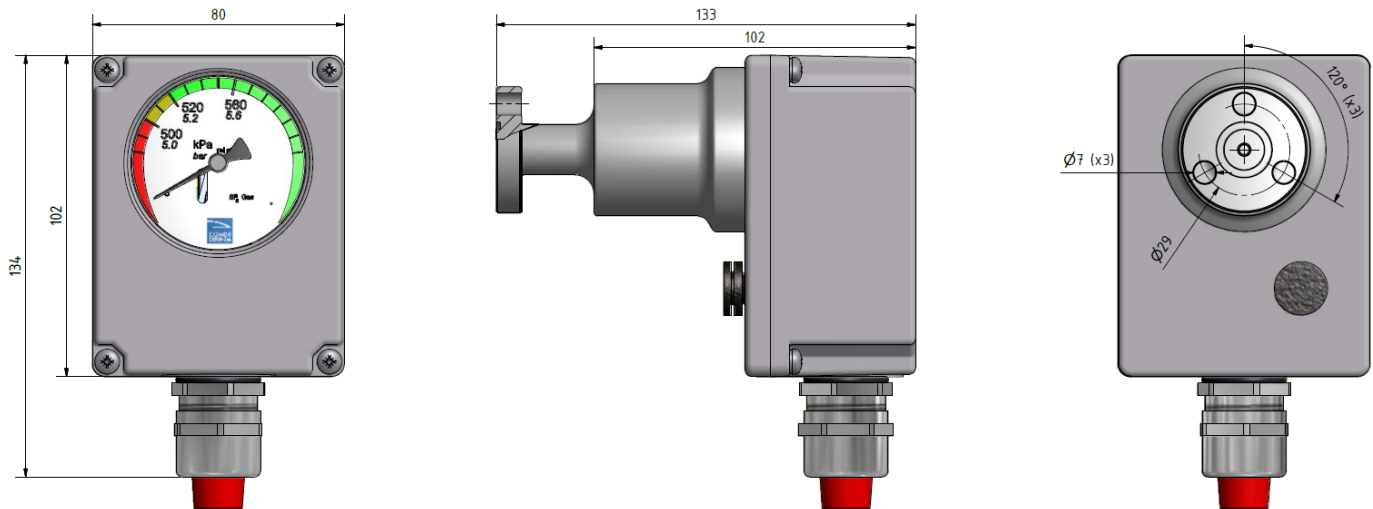
The Densistat D56 / D56i0 incorporates an analog gauge for relative pressure, referenced to 20 °C. The type D56i0 also features a zero pressure indicator. Microswitches inside the device respond reliably to any decreases in the density and pressure of the SF<sub>6</sub> insulating gas. The pressure connection is either straight or angled (several options are available).

- Pressure range 0 ... 10 bar rel.  
(0 ... 145 psi rel.)
- Various pressure connectors available
- High switching accuracy and long-time stability
- Rugged design (IP 67 / IP X5)
- Up to 4 microswitches
- Analog pressure gauge, can be calibrated
- Additional zero pressure dial (Model D56i0)



## Densistat D56 / D56i0

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### Design

The D56 consists of the following principal components:

- Strong aluminum die-cast housing with cable gland
- Analog pressure gauge with colored scale (55 mm diameter)
- Additional zero pressure dial (only D56i0)
- Electronic PCB with up to four microswitches and terminal block, switching function configurable as NO or NC
- Aluminum pressure connector
- Reference gas bellows, filled with SF<sub>6</sub> gas

The cover with cable gland and the connecting cable with connectors form a single unit that is easy to dismantle with a screwdriver. The device can be supplied with a concentric pressure connection or various angled connections.

### Operating principle

The Densistat D56 / D56i0 monitors gas density by way of a reference chamber filled with SF<sub>6</sub> gas. The gas and reference chambers are separated by a metal bellows. A density and pressure difference between the two chambers deflects the metal bellows. The movement of the bellows is transmitted by a switch rod. A switching plate activates the microswitches whose purpose is to indicate a pressure drop.

The operating points for triggering the signal can be set at the factory according to the customer's requirements by way

of lockable screws (plungers). Up to four microswitches with changeover contacts can be installed in the housing. The microswitches are installed on a circuit board together with a multipole terminal block within the housing. The connecting cable is connected to the terminal block and exits the device through a cable gland.

The analog pressure gauge shows the relative pressure of the SF<sub>6</sub> gas, referenced to 20 °C in the gas chamber. A change in gas density attributable to a leak is indicated by deflection of the needle. The colors and transitions on the dial can be specified by the customer and calibrated to the relevant values.

The arrangement of the measuring mechanism and the use of vibration-resistant microswitches rule out any shock-induced chattering at the switching contacts. In order to prevent condensation, the unit is equipped with a Gore-Tex® equalizing membrane.



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### Technical Data

Indicator	Analog indicator Ø 55 mm
Connector	Phoenix Combicon or PTR terminal clamp
Cable gland	M25 × 1,5 EMC
Microswitches	3 or 4 included, max. 2.5 mm <sup>2</sup> IAW IEC 60947
Protection	IP 67 / IP X5 IAW IEC 60529
Vibration stability	> 4 g (20 ... 80 Hz), 0.05 bar from switching point

Pressure range	0 ... 10 bar rel. / 0 ... 145 psi rel.
Hysteresis	< 0.1 bar / 1.5 psi (typ.)
Indicator tolerance at 20 °C	± 0.1 bar / 1.5 psi
Switching accuracy	± 0.08 bar / 1.2 psi
Response threshold	± 0.05 bar / 0.7 psi
Reference chamber leakage rate	< 0.005 bar/year (5 * 10 <sup>-9</sup> mbar * l * s <sup>-1</sup> )

Electric strength	2 kV (50/60 Hz) to ground
Rated surge voltage	5 kV (1.2/50 µs) to ground IAW IEC 61000-4-5
Electric switch rating, Resistive load (inductive load)	AC 250 V, 10 (2) A DC 250 V, 0.2 (0.2) A DC 220 V, 0.25 (0.2) A DC 125 V, 0.4 (0.25) A DC 110 V, 0.5 (0.3) A DC 60 V, 1.5 (0.4) A DC 48 V, 1.9 (0.7) A DC 24 V, 3.0 (2) A

Operating temperature	-40 ... +70 °C / -40 ... +158 °F -60 ... +70 °C / -76 ... +158 °F (optional)
Storage temperature	-60 ... +80 °C / -76 ... +176 °F
Weight	590 g

Material pressure connection	AlSi1MgMn, anodized
Material housing and connection box	AlSi12, powder coated RAL 9006
Material reference gas bellows system	Stainless steel 1.4541 (bellows) / 1.4301 (bellows housing)
Material indicator window	Plexiglas molding compound 8N
Material type plate, resistant to UV, ozone, climate, chemicals, and solvents	3M Scotchcal foil 3690

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