

## Density Controller for SF<sub>6</sub> and other Gases

Type: FSG1 for indoor and outdoor use

The Density Controller Type FSG1 is designed specially to monitor the density of the SF<sub>6</sub> gas used to blanket high-voltage circuit breakers. It incorporates a tendency gauge for relative pressure, referenced to 20°C

- Pressure range 0...10 bar rel./ 145 psi rel.
- Pressure gauge (Ø 40 mm)
- Pressure connection concentric or angled in any of four directions
- High long term stability
- Precise switching accuracy
- Rugged construction  
IEC 60529 : IP 65
- Up to three micro switches



The Density Controller FSG1 uses a chamber filled with an identical gas as a reference. When the reference chamber and the switching enclosure are at the same temperature, a change in density in the latter will induce a pressure differential. The switching enclosure and the reference chamber are separated one from another by a metal bellow. A differential in pressure will cause a deformation of the bellow. This deflection motion is transferred via a switching rod with a switching plate to actuate the microswitch required for signaling purposes. The switching thresholds can be adjusted by way of lockable screws at the switching cam.

Up to three microswitches with double-throw contacts can be installed in the type FSG1. The contact outputs for the microswitches terminate in a appropriate multi pole socket inside the junction box. The corresponding connector cable passes to the outside world through a suitable cable gland.

The junction box cover, the cable gland, the connector cable and the plug-type connector form a unit that can easily be mounted and removed with just a screwdriver.

The pressure connection can be installed at the factory either concentric to the housing at the rear or angled in any of the four directions.

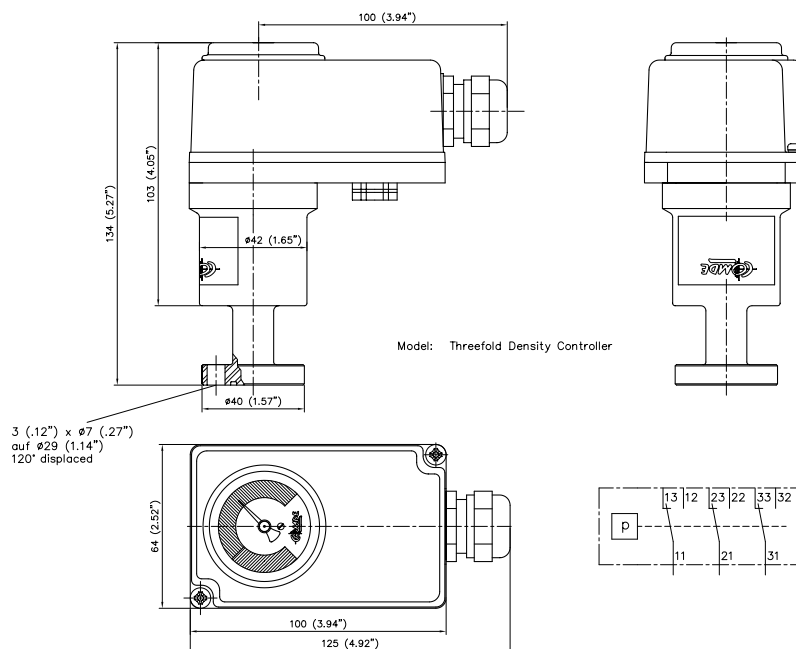
The analog pressure indicator with color-coded scale (Ø 40 mm) shows the relative pressure of the SF<sub>6</sub> gas, referenced to 20°C in the switching enclosure. If the density of the gas drops as a result of a leak, the change will be indicated by the pointer as it moves along the color-coded scale. The colors and the transition points along the scale can be specified by the customer. The microswitch response points are then calibrated to the specified values.

The arrangement of the measurement mechanism and the use of vibration-resistant microswitches eliminate any shock-induced chattering at the switching contacts.

The unit is equipped with a GORE-TEX® membrane vent to prevent condensation.

### Technical Data Density Controller FSG1

Range:	0 ... 10 bar rel. / 0... 145 psi rel.
Hysteresis:	< 0.1 bar / 1,5psi
Switching accuracy:	± 0.08 bar / 1,2 psi
Threshold:	≤ ± 0.05 bar / 0,7 psi
Leakage of reference chamber:	< 0.005 bar/Year (5 * 10 <sup>-9</sup> mbar * l * s <sup>-1</sup> )
Operating temperature:	-40...+70 °C / -40...+158°F
Storage temperature:	-50...+80 °C / -58...+176°F
Vibration (min. difference 0.05 bar from changeover point):	> 4 g (20...80 Hz)
Protection:	IEC 60529: IP 65
Connector:	Phoenix Combicon IEC 60947, max 2,5 mm <sup>2</sup>
Electrical Ratings	AC 250 V, 10 (2) A
Switch contacts load	DC 250 V, 0,2 (0,2) A
Charge resistive (inductive)	DC 125 V, 0,4 (0,25) A DC 60 V, 1,5 (0,4) A DC 48 V, 1,9 (0,7) A DC 30 V, 3,0 (2) A
Electric strength:	2kV (50/60 Hz) to ground
Surge:	IEC 61000-4-5 5 kV 1,2/50 µs to ground
Cable gland:	M25x1.5 EMV
Material:	
Pressure connection anodized:	AlSi1MgMn
Housing, powder coated RAL 9006 light grey ,dull:	GD-AlSi9MgMn 1.4541 / 1.4301
Reference system:	Acrylic glas
Window, resistant to UV, Ozone:	
Typeplate, resistant to UV, Ozone, Climate, chemicals and solvents:	3M Scotchcal folie 3690
Weight:	580 g



Type FS ...

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