Gas density monitor
With calibration valve for recalibration
Model GDM-100-CV

WEgrid Products

Applications

- Medium and high-voltage switchgear
- Gas density monitoring of SF_6 gas in closed tanks
- Raising an alarm when defined limit values have been reached

Special features

- Functional check or recalibration possible without dismounting
- Case, wetted parts, shut-off valve and test connection from stainless steel
- Test connection and shut-off valve are welded to prevent leakage

Gas density monitor with calibration valve, model GDM-100-CV

Description

Electrical switch contacts
The gas density, for high-voltage switchgear, is a critical operating parameter. If the requiredgas density is not present, safe operation of the switchgear cannot be guaranteed.

The gas density measuring instruments from WIKA warn reliably against dangerously low gas quantities, even under extreme environmental conditions. Electrical switch contacts warn the switchgear operator if the gas density, on account of a leak, drops below a specified value.

Numerous fields of application
The WIKA gas density monitor is hermetically sealed and temperature compensated. Measured value fluctuations and erroneous alarms caused by changes in either ambient temperature or air pressure are therefore prevented.

Easy and fast functional check
With regard to switchgear safety, asset protection and environmental protection, it is common to perform functional checks on a regular basis. Article 5 of the EU regulation on fluorinated greenhouse gases provides for checking of the leakage detection system at least every 6 years if it contains > 22 kg SF_6 gas and the plant was installed after 01 January 2017.

With the help of the firmly welded calibration valve, the gas density monitor can be shut off from the process and recalibrated without having to disassemble it. This not only reduces maintenance time but also minimises the risks of SF_6 gas emissions and potential leakages during recommissioning.

In order to prevent unintended opening or closing of the shut-off valve, the latter can only be operated using a special tool and a torque spanner. When the shut-off valve is closed, the special tool cannot be removed. The special tool can be removed only after the shut-off valve is opened and the gas density monitor is thus again connected with the switchgear.

Gas density monitor

Nominal size
100

Calibration pressure P_E
To customer specification

Accuracy specifications
- ±1 % at an ambient temperature of +20 °C
- ±2.5 % at an ambient temperature of -20 … +60 °C and with calibration pressure in accordance with reference isochore (reference diagram KALI-Chemie AG, Hanover, prepared by Dr. Döring 1979)

Scale range
Vacuum and overpressure range with measuring span of 1.6 ... 25 bar (with an ambient temperature of 20 °C and gaseous phase)

Permissible ambient temperature
Operation: -20 ... +60 °C [-4 ... +140 °F], gaseous phase
Storage: -50 ... +60 °C [-58 ... +140 °F]

Process connection
G ½ B per EN 837, lower mount
Stainless steel, spanner flats 22 mm

Other connections and connection locations on request.

Pressure element
Stainless steel, welded
Gas-tight: Leak rate ≤ $1 \cdot 10^{-8}$ mbar · l / s
Test method: Helium mass spectrometry

Movement
Stainless steel
Bimetal link (temperature compensation)

Dial
Aluminium
The scale range is subdivided into red, yellow and green ranges

Pointer
Aluminium, black

Case

Selectable versions	
Option 1	Stainless steel, with gas filling
Option 2	Stainless steel, with filling liquid

Gas-tight: Leak rate ≤ $1 \cdot 10^{-5}$ mbar · l / s

Window

Selectable versions	
Option 1	Laminated safety glass
Option 2	Clear non-splintering plastic

Ring
Bayonet ring, stainless steel, secured by means of 3 welding spots

Permissible air humidity
≤ 90 % r. h. (non-condensing)

Ingress protection
IP65 per IEC/EN 60529

Weight
With gas filling: approx. 0.8 kg
With filling liquid: approx. 1.2 kg

High-voltage test 100 %
2 kV, 50 Hz, 1s

Switch contacts

Electrical connection
Cable socket with compression fitting M20 x 1.5
Wire cross-section max. 2.5 mm²

Number of switch contacts

Selectable versions	
Option 1	1 magnetic snap-action contact
Option 2	2 magnetic snap-action contacts
Option 3	3 magnetic snap-action contacts

Switching directions

Selectable versions	
Option 1	Falling pressure
Option 2	Rising pressure

Switching functions

Selectable versions	
Option 1	Normally open
Option 2	Normally closed
Option 3	Change-over contact (max. 2 switch points)

Circuits

Selectable versions	
Option 1	Galvanically connected (not for change-over contact)
Option 2	Galvanically isolated

Switching accuracy
Switch point = calibration pressure P_E: see accuracy specifications
Switch point ≠ calibration pressure P_E: Parallel to the reference isochore of the calibration pressure

Max. switching voltage
AC 250 V

Switching power
With gas filling: 30 W / 50 VA, max. 1 A
With filling liquid: 20 W / 20 VA, max. 1 A

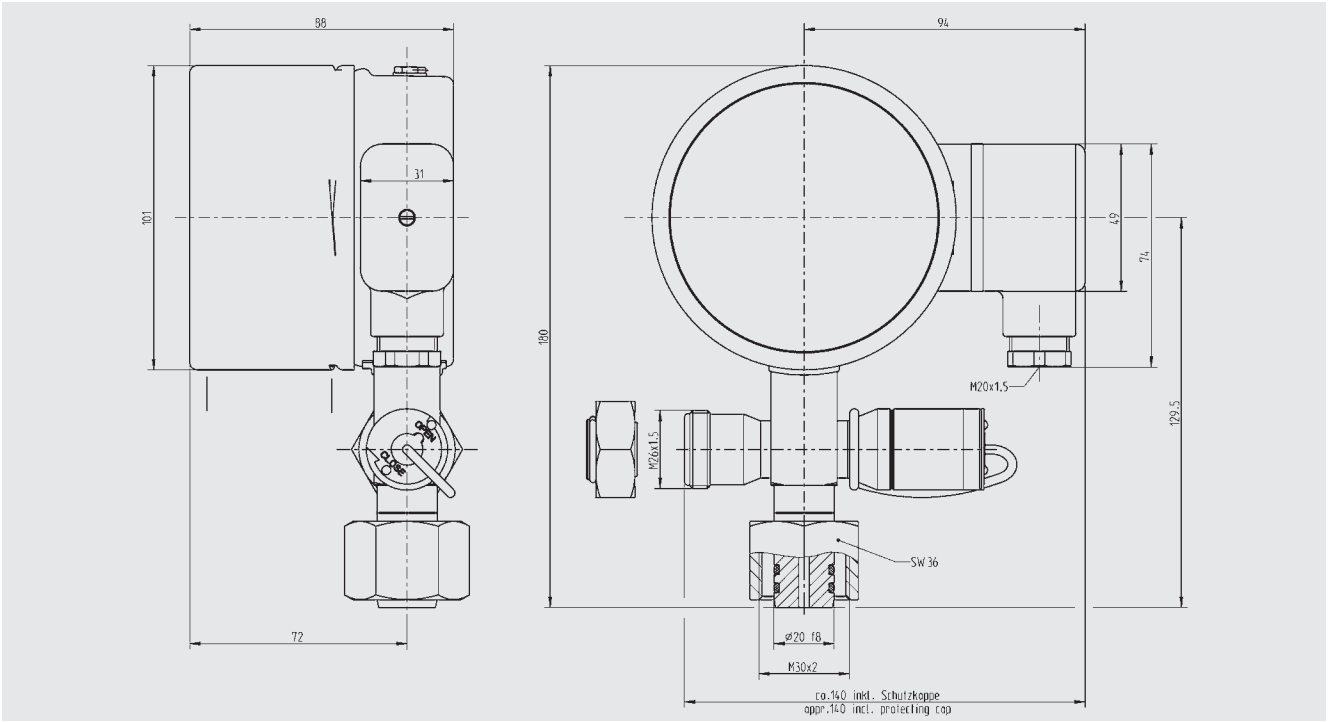
Material of switch contacts
80 % Ag / 20 % Ni, gold-plated

Further information on magnetic snap-action contacts in data sheet AC 08.01

Calibration valve
All weld seams are qualified in accordance with DIN EN ISO 15613 in combination with DIN EN ISO 15614-1 and DIN EN ISO 15614-12 by the notified body TÜV Süd.

Shut-off valve tightening torque: 1.2 Nm ±10 %
Test connection tightening torque: 60 Nm ±10 %

Dimensions in mm



Approvals

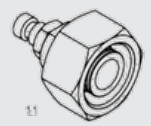
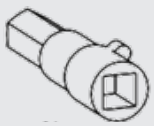
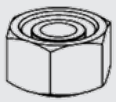
Logo	Description	Country
CE	**EU declaration of conformity** Low voltage directive	European Union

Manufacturer's information and certificates

Logo	Description
-	**China RoHS directive**

Approvals and certificates, see website

Accessories

	Description	Order number
	Adapter from test connection (M26 x 1.5) to RECTUS quick coupling	14146937
	Tool set for actuating the shut-off valve	14232498
	Socket wrench insert for shut-off valve (SQ 5.2 mm 1/)	14146708
	Protection cap for test connection (M26 x 1.5)	14193772
	Protection cap for shut-off valve (silicone)	14183253

Ordering information

Model / Process connection / Pressure unit / Measuring range / Filling pressure / Switch configuration / Gas mixture / Options / Accessories

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de