SCHNEIDER
MESSTECHNIK

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

Applications

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

Special features

- On-site display with switch contact
- Temperature-compensated and hermetically sealed, therefore no influence of temperature fluctuations, differences in level and atmospheric pressure fluctuations
- Compensation possible for gas mixtures
- Functional check or recalibration possible without dismounting, in accordance with EU regulation no. 517/2014 on fluorinated greenhouse gases
- Test connection is welded to prevent leakage

Gas density monitor with calibration valve, model GDM-100

Description

The WIKA gas density measuring instruments provide reliable warnings against dangerously low gas levels, even under extreme ambient conditions. Electrical switch contacts warn the plant operator when the gas density drops below defined levels due to leakage.

Via the on-site display, the pressure based on 20 °C [68 °F] can be read directly on the instrument.

With regard to switchgear safety, asset protection and environmental protection, it is common to perform functional checks on a regular basis. Article 5 of EU regulation no. 517/2014 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 commissioned 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.

When connecting a recalibration instrument (e.g. model ACS-10 or model BCS-10) to the recalibration valve, the gas density monitor is automatically disconnected from the gas compartment and a recalibration can be performed. Following the recalibration process, the recalibration instrument can then be disconnected from the recalibration valve and the connection to the gas compartment is re-established automatically.

The recalibration valve is also available as a retrofit solution for gas density monitors already installed in the field, as model GLTC-CV, and can be mounted between the gas compartment and gas density monitor.

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Gas density monitor

Nominal size
100

Calibration pressure P_E
To customer specification

Accuracy specifications
- ±1 % at an ambient temperature of +20 °C [68 °F]
- ±2.5 % at an ambient temperature of -20 … +60 °C [-4 ... +140 °F] 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 (at an ambient temperature of 20 °C [68 °F] 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: Leakage 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 fill fluid

Gas-tight: Leakage 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 fill fluid: approx. 1.2 kg

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

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 fill fluid: 20 W / 20 VA, max. 1 A

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

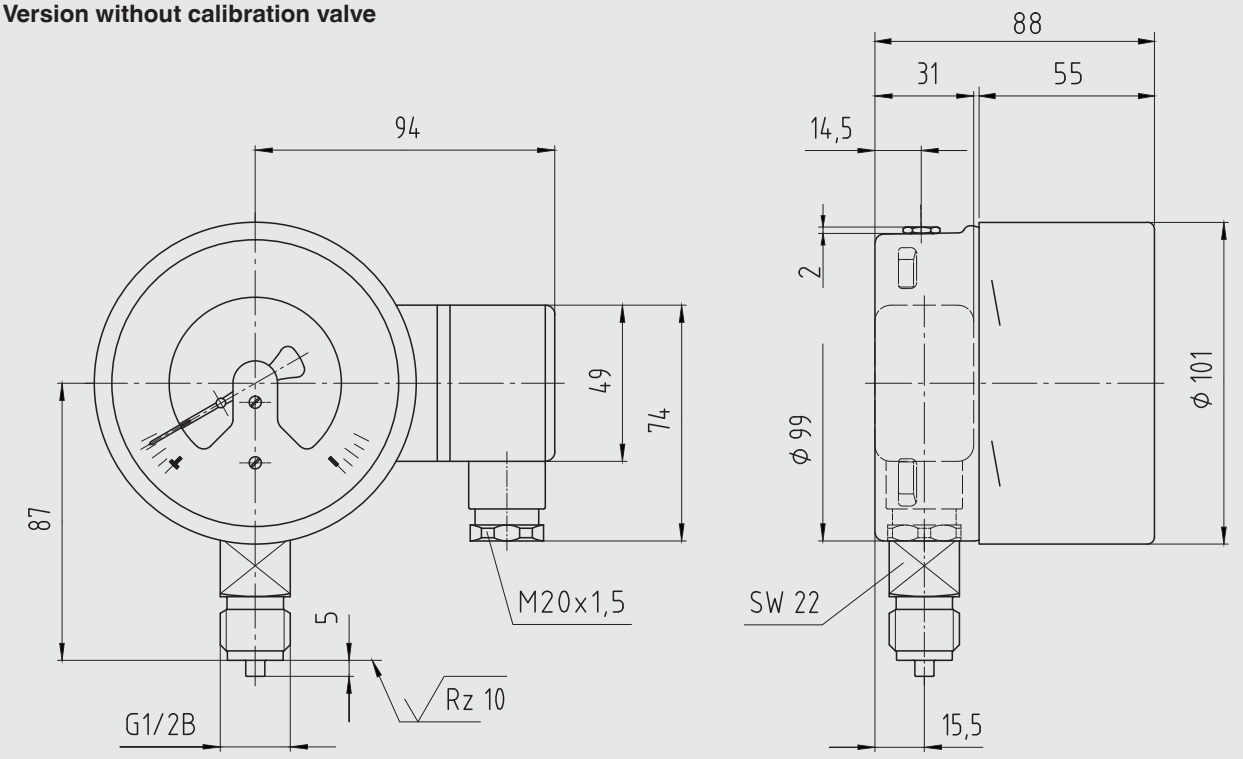
Further information on magnetic snap-action contacts in data sheet AC 08.01

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.

Tightening torque, test connection: 40 Nm ±10 %
Gas-tight: Leakage rate ≤ $1 \cdot 10^{-8}$ mbar · l/s

Dimensions in mm

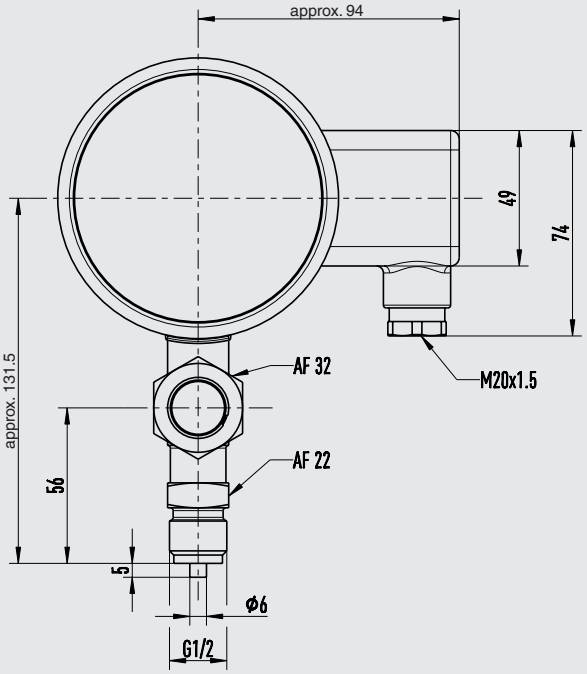
Version without calibration valve

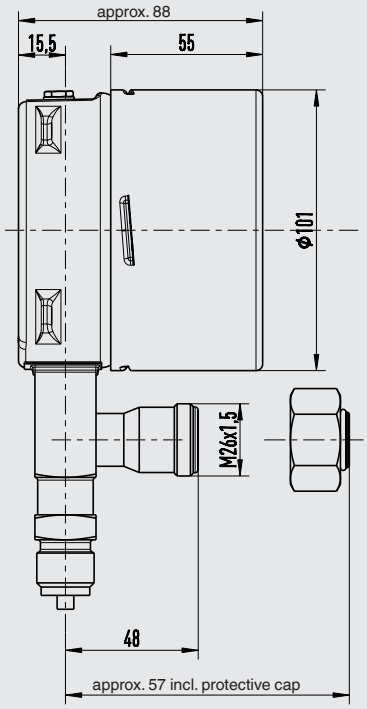


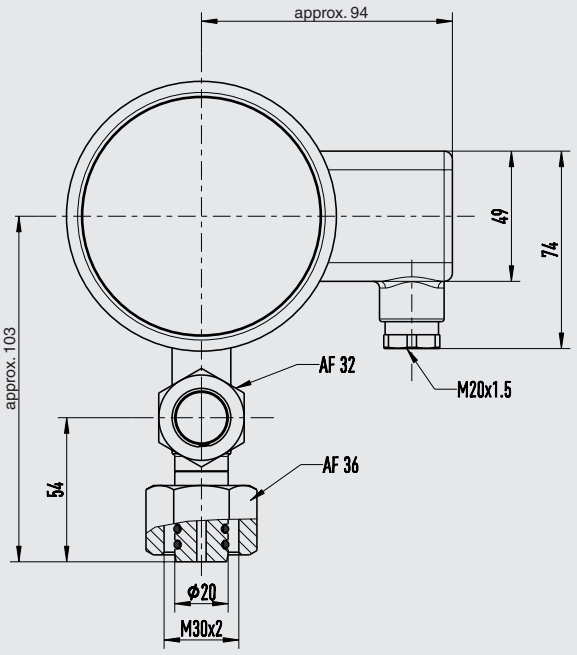
Version with calibration valve

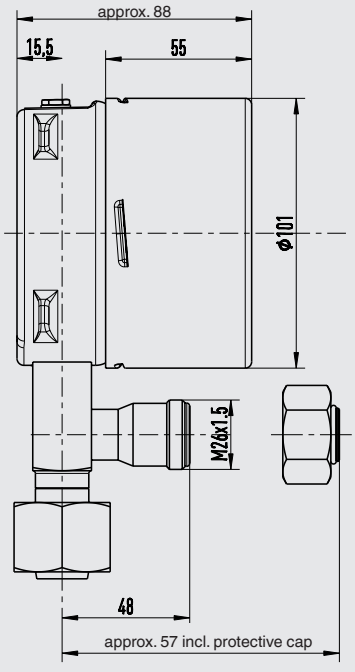
Any arrangement of the test valve possible

Other process connections on request









Approvals

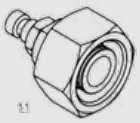
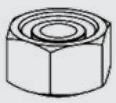
Logo	Description	Country
CE	**EU declaration of conformity**	European Union
	Low voltage directive	

Manufacturer‘s information and certificates

Logo	Description
-	**China RoHS directive**

→ Approvals and certificates, see website

Accessories for version with calibration valve

	Description	Order number
	Recalibration valve for retrofitting to gas density monitors and other leakage detection systems already installed in the field, model GLTC-CV Any arrangement of the test valve possible Other process connections on request	14484687 See WIKA data sheet SP 61.16
	Adapter from test connection (M26 x 1.5) to quick coupling	14146937
	Protective cap for test connection (M26 x 1.5)	14193772
	Calibration system for SF_6 gas density measuring instruments	See WIKA data sheet SP 60.08