Precision digital gas density indicator
Model GDI-100-D

WEgrid
Products

Applications

- Internal and external SF_6 gas-insulated equipment
- High- and medium-voltage levels
- Maintenance and service facilities
- Temporary or continuous monitoring of the gas density, pressure and temperature of closed SF_6 gas tanks
- Recalibration of gas density monitors and gas density indicators

Special features

- High-precision on-site display
- Logger function with up to 3 measured values per second
- Communication and data exchange via WIKA-Wireless

Precision digital gas density indicator, model GDI-100-D

Description

General information

The model GDI-100-D precision digital gas density indicator adopts the concept of an analogue SF_6 gas density indicator, but operates, however, at such a high level that only digital sensor technology can cope with. The accuracy of digital measurement technology and the simplicity of an analogue gauge are brought together in the GDI-100-D, which in terms of performance, ease-of-use, and instrument features, is unmatched in SF_6 gas density measurement.

Temporary monitoring

SF_6 gas-filled switchgear must be monitored, following maintenance and new installation, for a specified time, in order to eliminate any leakage or defective maintenance. The GDI-100-D enables this temporary monitoring and records the parameters gas density, pressure and temperature.

Accuracy

The GDI-100-D is fitted with the high-precision sensor technology from the model CPG-1500 precision digital pressure gauge and determines the SF_6 gas density with an accuracy of 0.6 %. It is calculated from the parameters of pressure and temperature via a complex virial equation in the internal evaluation electronics. Pressure changes resulting from thermal effects will be compensated by this and will not affect the display value of the gas density. Pressure and gas density can be referenced to 20 °C through the temperature compensation. Furthermore, alongside the SF_6 functions, the full scope of functions of a CPG1500 are available.

Features

Through the new and innovative menu navigation, simple operation is ensured. The clear display, with integral bar graph display and large text area, assists with the effective analysis of the widest variety of measuring points.

ICS Schneider Messtechnik GmbH
Briesestraße 59
D-16562 Hohen Neuendorf / OT Bergfelde

Tel.: 03303 / 504066
Fax: 03303 / 504068

info@ics-schneider.de
www.ics-schneider.de

Sensor technology

Measuring range		
Gas density (SF$_6$)	0 ... 13 g/litre (2.1 bar abs. at 20 °C)	0 ... 60 g/litre (8.87 bar abs. at 20 °C)
Absolute pressure (SF$_6$ at 20 °C)	0 ... 2.1 bar	0 ... 8.87 bar
Absolute pressure	0 ... 2.5 bar	0 ...16 bar
Overload safety		
Sensor	3 times	
Indication	> 110 % FS or -10 % FS	
Accuracy (density measurement)	0.6 % FS	
Accuracy (pressure measurement)	0.05 % FS	
Compensated temperature range	-10 … +50 °C (14 ... 122 °F)	

Base instrument

Units	
Density units SF$_6$	g/litre, kg/m^3
Pressure units SF$_6$ at 20 °C	bar abs., psi abs., KPa abs., MPa abs. bar rel., psi rel., KPa rel., MPa rel.
Pressure units	Standard: psi, bar Can be set to: mbar, kg/cm^2, Pa, hPa, kPa, Mpa, mmH$_2$O, mH$_2$O, inH$_2$O, inH$_2$O (4 °C), inH$_2$O (20 °C), inH$_2$O (60 °F), ftH$_2$O, mmHg, cmHg, inHg, inHg (0 °C), inHg (60 °F), kp/cm^2, lbf/ft^2, kN/m^2, atm, Torr, micron, as well as user-defined units
Indication	
Display	5 ½ digit 7-segment display (incl. a large matrix area for auxiliary information) Bar graph, 0 ... 100 % Selectable backlighting
Rotatable case	The case is rotatable by 330°.
Resolution	4 ... 5 ½ digits; adjustable; depending on the selected pressure unit
Functions	
Communication	Integrated Bluetooth interface, configuration, data transfer and export with the WIKA app „myWIKA device" (available free of charge at the Google Play Store and Apple App Store)
Measuring rate	max. 3/s (density measurement) max. 50/s (pressure measurement)
Menu languages	Standard: English Selectable: German, Italian, French, Spanish, Russian and Polish
Memory	Integrated data logger
Menu functions	Density measurement: Power-off function, measuring rate, mean value filter, pressure rate, mean value (via adjustable interval), indicator damping Pressure measurement: Min./Max. alarm (visual), Power-off function, measuring rate, mean value filter, pressure rating, mean value (via adjustable interval), level indication, tare offset, indicator damping
Mean value interval	1 ... 300 seconds, adjustable
Data logger [2]	Cyclic logger: Automatic recording of up to 20,000 measuring values; Cycle time: Selectable from 1 ... 3,600 s in steps of 1 second or by measuring rate in the following steps: Density measurement: 1/s, 3/s Pressure measurement: 1/s, 3/s, 10/s and 50/s
Material	
Wetted parts	Stainless steel 316L
Case	Aluminium die-casting, nickel-plated
Voltage supply	
Power supply	3 x 1.5 V AA alkaline batteries
Battery life	Typically 2,000 ... 2,500 h (without backlighting and WIKA-Wireless not active)
Battery status display	Symbol display with 4 bars indicates the battery status in 25 % steps.

Base instrument	
Permissible ambient conditions	
Operating temperature	-10 ... +50 °C (14 ... 122 °F)
Medium temperature	-10 ... +50 °C (14 ... 122 °F)
Storage temperature	-20 ... +70 °C (-4 ... +158 °F)
Relative humidity	< 95 % r. h. (non-condensing)
Case	
Dimensions	approx. 100 x 150 x 59 mm (3.9 x 5.9 x 2.3 in)
Process connection	G ½ B
Ingress protection	IP65
Weight	Standard: incl. batteries approx. 680 g (1.5 lbs) with protective rubber cap: approx. 820 g (1.81 lbs)

1) The user-defined units can only be set via the "My WIKA Device" software. The GDI-100-D must be fitted with WIKA-Wireless.
2) To use the logger function, "myWIKA device" software is needed. The logger data can be downloaded as CSV file.

WIKA-Wireless [1]	
Frequency range	2,400 ... 2,500 MHz
HF output power	max. 2 dBm (+ 2 dBi)
Number of channels	
Classic	79
Low Energy	40
Channel spacing	
Classic	1 MHz
Low Energy	2 MHz
Bandwidth	1 or 2 MHz
Output power	4 dBm / 10 mW Maximum output power under fault conditions for Ex ia: 490 mW
Process connection	G ½ B

1) Requires Bluetooth® 2.1 (PC or smartphone)

Approvals

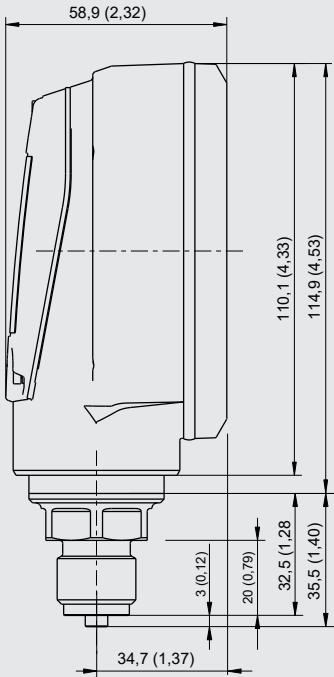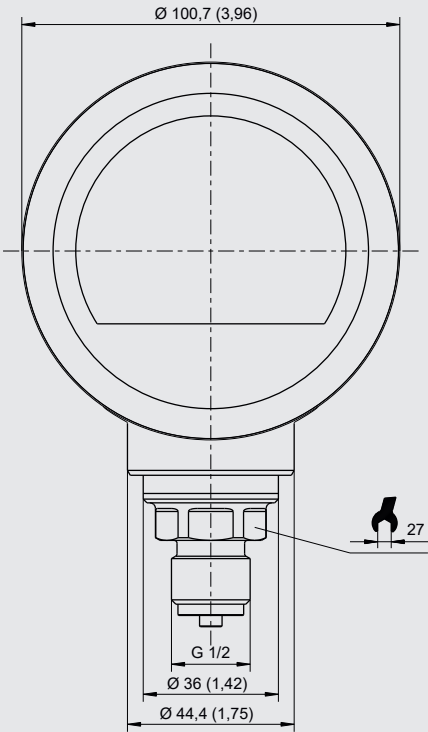| Logo	Description	Country
CE	**EU declaration of conformity** ■ RoHS directive ■ RED directive EN 300 328 harmonised frequency range 2,400 … 2,500 MHz is used; Bluetooth® Classic, max. transmission power 10 mW. The instrument may be used without limitations in the EU and also CH, NO and LI.	European Union

Certificates

Certificate	
Calibration [1]	3.1 calibration certificate per EN 10204
Recommended recalibration interval	1 year (dependent on conditions of use)

1) Calibrated in vertical mounting position with process connection facing downwards
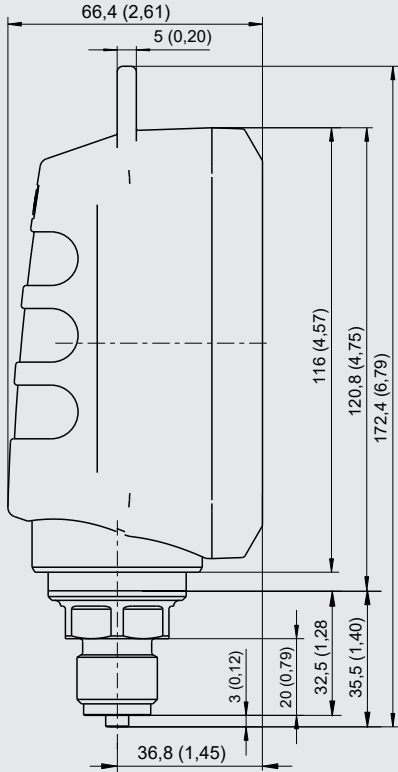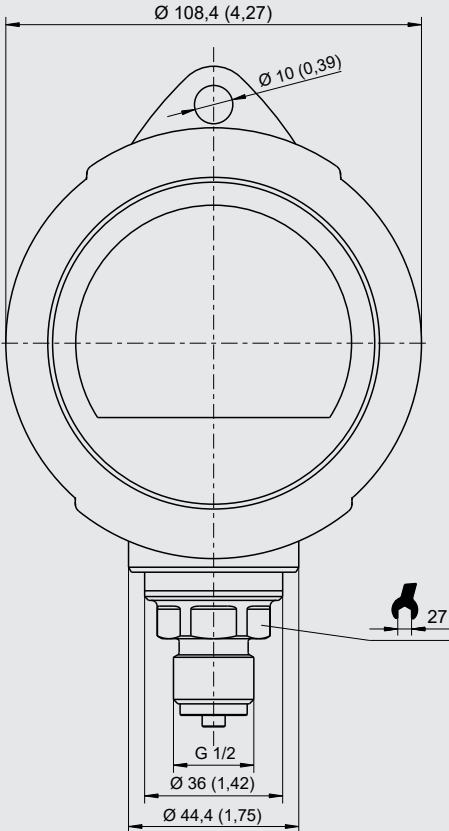
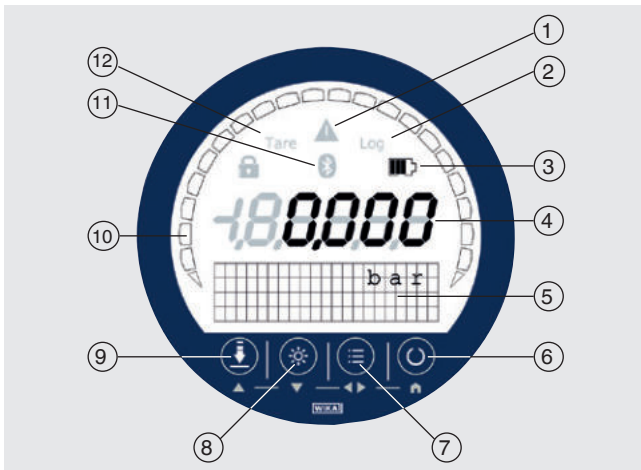Approvals and certificates, see website

Dimensions in mm (in)

Without protective rubber cap

Ø 100,7 (3,96)

58,9 (2,32)

110,1 (4,33)

114,9 (4,53)

27

3 (0,12)

20 (0,79)

32,5 (1,28)

35,5 (1,40)

34,7 (1,37)

G 1/2

Ø 36 (1,42)

Ø 44,4 (1,75)

With protective rubber cap

Ø 108,4 (4,27)

Ø 10 (0,39)

66,4 (2,61)

5 (0,20)

116 (4,57)

120,8 (4,75)

172,4 (6,79)

27

3 (0,12)

20 (0,79)

32,5 (1,28)

35,5 (1,40)

36,8 (1,45)

G 1/2

Ø 36 (1,42)

Ø 44,4 (1,75)

Front foil

1. **Warning notice for:**
   - Exceeding or dropping below the pressure/density range
   - Exceeding or dropping below the temperature range
   - Logger memory is more than 90 % full
   - Instrument error or battery status < 10 %
2. **Log:** Logger function active/inactive
3. Battery status
4. Pressure / density display
5. Matrix field serves as menu and secondary display
6. **ON/OFF button**
7. **Menu button**
   Calling up the menu
8. **LIGHT button**
   Turning the backlighting on and off
9. **ZERO button**
   The current pressure value will be set to "0" (gauge) or reference pressure (abs.)
10. Bar graph indicates the current pressure/density graphically
11. **WIKA-Wireless:** WIKA Wireless active/inactive
12. **Tare:** TARE active/inactive

App "myWIKA device"
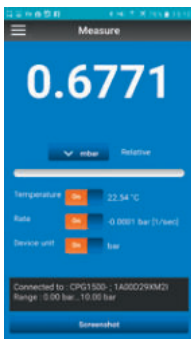
Via the "myWIKA device" app and the WIKA-Wireless connection, the instrument can be conveniently configured for log routines through a mobile phone. During the density measurement, the value is displayed in the required unit directly on the phone. Moreover, further parameters like temperature and pressure can be checked. It is also possible to retrieve more detailed instrument information directly from the WIKA website. In addition, the app allows configuration, control and saving of log procedures.

Logs that have been saved on the mobile phone can be transferred to a PC and be processed as required.

For iOS-based mobile phones, the app is available in the Apple Store under below link.

Download here

For mobile phones with an Android operating system, the app is available in the Play Store under below link.

Download here

Scope of delivery

- Precision digital gas density indicator, model GDI-100-D
- Operating instructions
- 3.1 calibration certificate per DIN EN 10204
- 3 x 1.5 V AA alkaline batteries
- Protective rubber cap (option)