

SF6 Gas Density Monitors with magnetic snap-action contacts

SF6 氣體密度繼電器使用手冊



ENERGIE

Innovating the Energy Technology

Contents

1. Safety instructions
2. General information
3. Description, application
4. Mechanical connection
5. Wiring details
6. To set desired value indicator
7. Ingress protection IP
8. Admissible ambient temperatures
9. Maintenance and servicing / cleaning
10. Power ratings
11. Overcurrent protection devices
12. Repairs / Complaints

1. Safety instructions

The appropriate national safety regulations (i.e. VDE 0100) must be observed when installing, putting into operation and running these instruments. Do not work on gauge while under voltage. Serious injuries and/or damage can occur should the appropriate regulations not be observed. Only appropriately qualified persons should work on these instruments.

2. General information

Gas density monitors are modified pressure measuring instruments with electrical accessories. Gas density monitors combine both measuring and switching functions in one single instrument.

Temperature influences that have an effect on the confined SF6 gas are compensated by means of a compensation system. Each density monitor is specially adapted to the specific application conditions of the switchgear it is intended for (pure SF6 gas, gas compounds, calibration pressure, switching points ...).

During transportation or storage gas density monitors might warm up or cool down. Temperatures that are different from the reference temperature (20 °C) lead to pointer deflections. This is absolutely normal, because the compensation system is working.

In order to ensure that the instruments have sufficiently adjusted to the ambient temperature, they have to be exposed to a temperature of 20 ± 2 °C for at least 2 hours. Subsequently in an unpressurized condition the pointer will be within the tolerance bar.

3. Description, application

The built-in electric alarm contacts (magnetic snap-action) are auxiliary current switches which open and close the connected electrical circuits at the set points via the contact arm, which is driven by the main instrument pointer.

4. Mechanical connection

According to the general technical regulations for pressure gauges, respectively (i.e. EN 837-2). When screw-fitting the gauges the force required for this must not be applied through the case or terminal box but just through the spanner flats (with suitable tool) provided for this purpose.



Installation with open-end wrench

5. Wiring details

The electrical connections should be made by qualified electricians. Connection details and switch functions are given on the instrument type plate. Connection terminals and ground terminal are appropriately marked. The main connection line to be provided must be dimensioned for maximum instrument power consumption and comply with IEC 227 or IEC 245. Power ratings and overcurrent protection devices see overleaf!

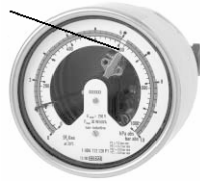
6. To set desired value indicator

As a standard the alarm contacts of SF6 gas density monitors are non-adjustable, i.e. they cannot be re-adjusted later on. Therefore the risk of unintentionally mis-adjusting the alarm contacts is eliminated.

If on express request by the customer the contacts have to be adjustable, re-adjustments can be carried out as follows:

The desired value can be set via the adjustment lock in the window by means of the re-adjustment key provided (at the terminal box of standard instruments).

Desired value indicators (red set pointer)



7. Ingress protection IP

The type of enclosure to EN 60 529 for protection against external influences depends on the basic instrument and is found in the respective data sheet.

8. Admissible ambient temperatures

The permissible ambient temperatures for alarm contacts is -20 to +70 °C. Where this span exceeds the permissible temperature limits for the instrument to which the contacts are fitted, the limits for the instrument apply (see data sheet).

9. Maintenance and servicing / cleaning

The instruments require no maintenance or servicing. The instruments should be cleaned with a damp cloth moistened with soap solution. For cleaning inside the instrument the mains power supply should be disconnected by means of the plug box or plug connection. It must be ensured that all the parts are dry before the power is switched on again.

10. Power ratings

Table 1: Maximum contact rating

Maximum contact rating with non-inductive (ohmic) load	Magnetic snap-action contact	
	Gas filled gauges	Liquid filled gauges
Maximum voltage (MSR) Ueff	250 V	250 V
Current ratings:		
Make rating	1.0 A	1.0 A
Break rating	1.0 A	1.0 A
Continuous load	0.6 A	0.6 A
Maximum load	30 W/50 VA	20 W/20 VA

Note: None of the limit values for voltage, current and capacity are to be exceeded!

We recommend the following load values to ensure safe, continuous operation:

Table 2: Recommended contact ratings with different nominal voltages and instrument versions

Voltage (DIN IEC 38) DC / AC	Magnetic snap-action contact					
	Gas filled gauges			Liquid filled gauges		
	ohmic load		inductive load	ohmic load		inductive load
V	DC mA	AC mA	cosφ>0.7 mA	DC mA	AC mA	cosφ>0.7 mA
230	100	120	65	65	90	40
110	200	240	130	130	180	85
48	300	450	200	190	330	130
24	400	600	250	250	450	150

Note: The switching current must not be less than 20 mA with low voltages for switching reliability reasons.

11. Overcurrent protection devices

No overcurrent protection devices are installed in the instruments.

Should overcurrent protection devices be required we recommend the following values in accordance with EN 60 947-5-1.

Voltage 24 V: 2 A

Voltage 250 V: 1 A

Data refers to miniature fuses M and a maximum short circuit current 100 A.

For higher loads, and instruments with liquid-filled cases, we recommend contacting our local distributor for more information.

12. Repairs / Complaints

Repairs are to be carried out by the manufacturer only. The instruments must not be opened, as this would result in indication and switching point errors. The density monitors have to be exposed to a specific temperature long enough (at least 2 hours) to ensure temperature equalization.

Technical alteration rights reserved.

ENERGIE Corporation



85 Renhuagong 3rd. Road, Dali District, Taichung 41278, Taiwan, R.O.C.