

SF₆ GAS DENSITY MONITORS FOR BOTH INDOOR AND OUTDOOR INSTALLATIONS, FILLED

MODEL: SPG-100

SPECIFICATIONS

These instruments are manufactured to monitor the electrical operations on hermetically sealed systems containing Sulphur Hexafluoride gas (SF₆). The indication and electrical operations are calibrated to the gas density (isochore) based on the changes of pressure and temperature relations. The SPG-100 is suitable for both indoor and outdoor installations to meet most of the applications demanded on market.

The oil filled executions are particularly suitable for installations when vibrations are apparent.

Switchgear is hermetically sealed and filled with SF₆ gas. The material properties of SF₆ gas which are essential for such applications, such as the electrical disruptive strength or the electric light arc quenching capability, are dependent on the density of the SF₆ gas. The required SF₆ gas density depends on the respective application. This means that the functional safety of the entire system is strongly dependent on the density of SF₆ gas which is why it must be monitored.



SPG-100
錶內充油型

GENERAL CHARACTERISTICS

NOMINAL DIAMETERS (mm)

錶圓直徑
100 (DN100)

ACCURACY

精度等級
±1,0% at +20°C of Ambient Temp.
±2,5% within the Ambient Temperature
Ranges between -20°C...60°C related
to the calibrated pressure of the
reference isochore
精度等級±1,0% 溫度 20°C
精度±2,5% 溫度-20°C...60°C

POINTER

指針
Black Aluminum
鋁

PRESSURE FOR FILLING

錶面注入壓力點
Colors Sectors as per Customer's
Specification. Refer to Attachment 1
參照附錄 1

ALARM CONTACTS

警報接點/開關功率
Non-Adjustable Contacts with
Antitampering Sealing:
-On Air with Magnetic Block
(80%Ag-20%Ni, 10µm Gold-Plated)
-Maximum Contact Rating with
Non-Inductive Ohmic Load
Filled: 20W / 20VA, Maximum 1A
最大接點負載: 20W / 20VA
最大接點電壓: DC 250 V
接點材料: 80%銀-20%鎳, 10µm 鍍金

WINDOW

錶玻璃
Safety Glass
材質: 安全錶玻璃

TECHNICAL FEATURES

AMBIENT TEMPERATURE

環境溫度
-20...+60°C

CASE

錶殼
Fully Welded Stainless Steel AISI 304
Filled with Silicon Dielectric Oil
Leakage Rate ≤ 1·10⁻⁵ mbar·1/s
(Helium Leak Test with Mass
Spectrometer)
Hermetically Sealed Design
材質: 不鏽鋼
密封性: 洩漏率 ≤ 1·10⁻⁵ mbar·1/s

PROTECTION DEGREE

防護等級
IP 65 as per EN 60 529 / IEC 529

RING

上殼

Bayonet Lock, Stainless Steel AISI 304
with Antitampering Sealing
不鏽鋼 AISI 304

MOVEMENT

傳動機芯

Stainless Steel with Bimetallic
Temperature Compensator
材質: 不鏽鋼
溫度補償方式: 雙金屬連接

STORAGE TEMPERATURE

儲藏溫度

-50...+60°C

GAS SEAL

密封性

Leakage Rate $\leq 1 \cdot 10^{-8}$ mbar·l/s
(Helium Leak Test with Mass
Spectrometer)

DIAL

錶盤

White Aluminum with Black Markings
鋁, 刻度盤分 紅-橘-綠三色區間
錶面刻度指示: 阿拉伯數字式

PRESSURE CONNECTION

壓力接口

Fully Welded Stainless Steel AISI 316
M20 x 1,5
G1/2B Thread (EN 837), SW22
材質: 不鏽鋼 AISI 316
壓力接口 G1/2B

RANGES

壓力範圍

Refer to Attachment 1
參照附錄 1

WEIGHT

重量

1.2 KG

PRESSURE ELEMENT

壓力測量敏感元件

Welded Stainless Steel AISI 316
Leakage Rate $\leq 1 \cdot 10^{-8}$ mbar·l/s
(Helium Leak Test)
不鏽鋼 AISI 316 焊接
密封性: 洩漏率 $\leq 1 \cdot 10^{-8}$ mbar·l/s

ELECTRICAL CONNECTION

電氣接口

Junction Box with Cable Gland
M20 x 1,5 – PG 13,5 (2,5 mm²)
接線盒電纜線接口 M20x1.5
Big Cable: 64 mm

INSTALLATION LOCATIONS

安裝地點

Indoor and Outdoor Installations
符合室內與室外安裝

HIGH VOLTAGE TEST

高壓測試

2 kV, 50Hz, 1s (Internal Circuit)
2 kV 50 Hz, 1s (針對殼體內部電路)

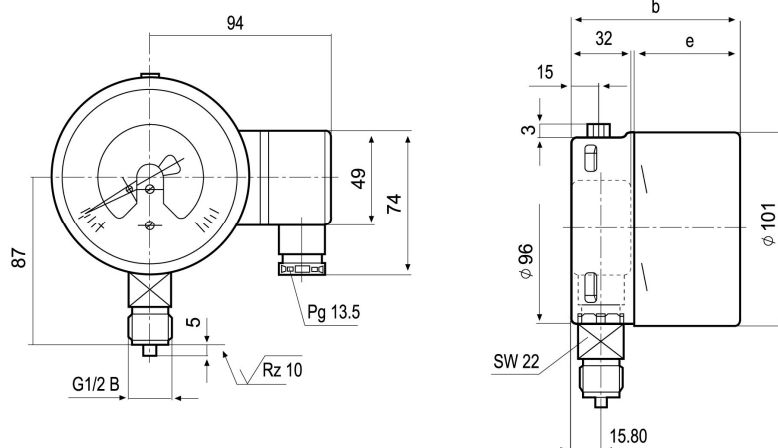
OPTIONS & ACCESSORIES

Junction Box on the Left

Contact Adjustment Adjustable

Removable Junction Box – PG13,5

DIMENSIONS (MM)



DIMENSIONS (MM)	b	e
Single/Double Contacts with Isolating Layers	96	63
Triple Contacts with Isolating Layers	96	63

POWER RATINGS: MAXIMUM CONTACT RATING

MAXIMUM CONTACT RATING WITH NON INDUCTIVE (OHMIC LOAD)	MAGNETIC SNAP-ACTION CONTACT	
	GAS FILLED GAUGES	LIQUID FILLED GAUGES
Maximum Voltage 最大接點電壓(MSR)	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

RECOMMENDED CONTACT RATINGS

VOLTAGE (DIN IEC 38) DC / AC	MAGNETIC SNAP-ACTION CONTACT					
	GAS FILLED GAUGES			LIQUID FILLED GAUGES		
	Ohmic Load		Inductive Load $\cos\phi>0,7$	Ohmic Load		Inductive Load $\cos\phi>0,7$
V	DC mA	AC mA	mA	DC mA	AC mA	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: Please refer to the user's manual for detailed maximum power ratings and recommendations.

Attachment 1

附錄 1

Pressure For Filling 錶面注入壓力點 (PF)	5.0 kg/cm ² • G	5.5 kg/cm ² • G	6.0 kg/cm ² • G
Pressure Range 壓力範圍	-760mmHg to 9.0 kg/cm ² • G	-760mmHg to 9.0 kg/cm ² • G	-760mmHg to 9.0 kg/cm ² • G
Calibration Temp. 校正溫度	+20° C	+20° C	+20° C
Scale Marking 標示範圍			
Red Sector 紅色標示區	-760mmHg up to 4.0 kg/cm ² • G	-760mmHg up to 4.5 kg/cm ² • G	-760 mmHg up to 5.0 kg/ cm ² • G
Orange Sector 橘色標示區	4.0 kg/cm ² • G up to 4.5 kg/cm ² • G	4.5 kg/cm ² • G up to 5.0 kg/cm ² • G	5.0 kg/cm ² • G up to 5.5 kg/cm ² • G
Green Sector 綠色標示區	4.5 kg/cm ² • G up to 9.0 kg/cm ² • G	5.0 kg/cm ² • G up to 9.0 kg/cm ² • G	5.5 kg/cm ² • G up to 9.0 kg/cm ² • G
Calibration at Press 校正壓力 (PC)	4.5 kg/cm ² • G	5.0 kg/cm ² • G	5.5 kg/cm ² • G
表面壓力設定第一點 (PS1)	4.5 kg/cm ² • G	5.0 kg/cm ² • G	5.5 kg/cm ² • G
表面壓力設定第二點 (PS2)	4.0 kg/cm ² • G	4.5 kg/cm ² • G	5.0 kg/cm ² • G
最大接點電壓	DC 250 V	DC 250 V	DC 250 V