

**LANSO<sup>®</sup>**



**ZMJ60XDR**  
**Gas Density Monitor**

## ZMJ60XDR



### Features

- Higher accuracy from reference chamber temperature compensation technology.
- Suitable for indoor or outdoor installation.
- Micro-switch that can switch freely between normally open and normally closed points.
- Up to 4 pairs of switches, multiple options such as double alarms and double locks can be realized, making monitoring more secure and reliable.
- High shock resistance.

### Description

Ideal for monitoring the density of SF<sub>6</sub> gas in hermetically sealed containers, it features on-site density display and activates an alarm when the density reaches the alarm switchpoint. Suited for high-voltage system testing, it delivers multiple solutions—including support for new substation construction and upgrades to existing substations.

### Application

- SF<sub>6</sub>/Other Gas Insulated Switchgear (GIS)
- SF<sub>6</sub>/Other Gas Insulated Circuit Breakers
- SF<sub>6</sub>/Other Gas Insulated Pole-Mounted Switch
- SF<sub>6</sub>/Other Gas Insulated Transformers
- SF<sub>6</sub>/Other Gas Insulated Current Transformers or Voltage Transformers
- SF<sub>6</sub>/Other Gas Insulated Busbar Systems

- Normally closed contact will not false alarm due to vibration.
- The normally closed contact will not trigger a false alarm due to shock and vibration.
- Normally closed contacts will not trigger false alarms due to shock and vibration.
- Equipped with RS485 bus interface, enabling easy system expansion and facilitating remote measurement and remote control functions.
- Strong anti-electromagnetic interference capability.

Product Introduction	<a href="https://www.lanso.com.cn/chanpinzhongxin/576.html">https://www.lanso.com.cn/chanpinzhongxin/576.html</a>
Product Description	<a href="https://www.lanso.com.cn/uploads/soft/20230927/1-23092G525033V.pdf">https://www.lanso.com.cn/uploads/soft/20230927/1-23092G525033V.pdf</a>
Related Software	<a href="https://www.lanso.com.cn/ruanjianxiaizai/">https://www.lanso.com.cn/ruanjianxiaizai/</a>

## Chapter 1 Gas Density Monitor / Standard Specifications

### General specifications

<b>Environmental conditions</b>	<b>Ambient temperature</b> <sup>※1)</sup>	-30°C ~ +60°C				
	Humidity	≤95%RH				
	Protection Class	IP65				
	Leakage Rate	≤1×10 <sup>-9</sup> Pa·m <sup>3</sup> /s (Helium Leak Testing)				
<b>Mechanical data</b>	Measurement Principle	Reference chamber				
	Contact Type	Micro-switch				
	<b>Displayed Pressure Type</b> <sup>※2)</sup>	Relative Pressure				
	<b>Measuring Medium</b> <sup>※3)</sup>	SF <sub>6</sub>				
	<b>Alarm switchpoint Accuracy</b> <sup>※4)</sup>	Temperature range	+20°C	-30°C~+50°C	-40°C~+60°C	
		<b>First alarm switchpoint setting pressure abs. @ 20°C</b>				
		≤650kPa [kPa max]	±8	±10	±12	
		>650kPa~≤1000kPa [kPa max]	±8	±12	±14	
	>1000kPa [kPa max]	±10	±15	±16		
	<b>Indicator Dial Unit</b> <sup>※5)</sup>	bar				
	Housing Material	YL113				
	<b>Process Connection Size</b> <sup>※6)</sup>	M20×1.5				
	<b>Process Connection Direction</b> <sup>※7)</sup>	Radial or Axial				
Wire terminal	Plugable, wire diameter 0.2~2.5 mm <sup>2</sup>					
<b>Connector Gland</b> <sup>※8)</sup>	M20*1.5					
<b>Number of Contacts</b> <sup>※9)</sup>	1~4 sets					
<b>Dial Display</b> <sup>※10)</sup>	With main dial scale					
Vibration Resistance	The density monitor shall not exhibit false tripping of its alarm switchpoint, when subjected to sinusoidal vibration within the frequency range of 10Hz to 150Hz and an acceleration amplitude of 20m/s <sup>2</sup> .					
Shock Rating	70g / 3ms / 10000 times at all axes excited on process connection without damage to instrument					
Window	PC					
<b>Corrosion Protection</b> <sup>※11)</sup>	C4-M					
Weight	≈1.0kg					
Pressure Sensitive Element	316L Stainless Steel bellow					
<b>Electrical Performance</b>	Contact Electrical Parameters	10(1.5)A, 250V AC; 0.1(0.05)A, 250V DC				
	Insulation Performance	Insulation Resistance:>100 MΩ (DC 500V)				
	Power Frequency Withstand Voltage	2kV, 50/60 Hz, 1min				

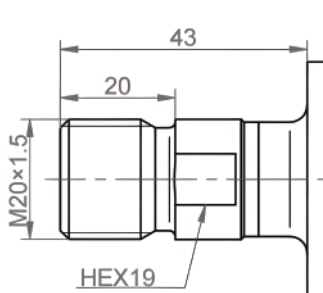
<b>Remote Transmitter Configuration</b>	Accuracy of transmitter	Pressure: $\pm 0.5\%FS$ . Temperature: $\pm 1^\circ C$ P20(Pressure at 20°C): $\pm 1.0\%FS$ .
	<b>Remote Transmitter Output Signal</b> <sup>※12)</sup>	RS485, Modbus-RTU

Note: Parameters marked with “※” can be customized according to user requirements; customization options are provided in the next chapter, "Gas Density Monitor - Optional Configurations".

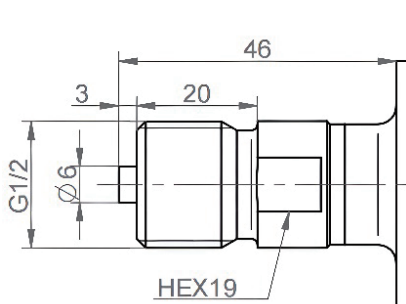
## Chapter 2 Gas Density Monitor / Optional Configurations

<b>※1) Operating Temperature</b>	Option 1	-30°C~+60°C			
	Option 2	-40°C~+80°C			
	Option 3	According to customer specification			
<b>※2) Displayed Pressure Type</b>	Option 1	Relative Pressure			
	Option 2	Absolute Pressure			
<b>※3) Measuring Medium</b>	Option 1	SF <sub>6</sub>			
	Option 2	SF <sub>6</sub> +N <sub>2</sub>			
	Option 3	C <sub>4</sub> F <sub>7</sub> N-based gas mixture			
	Option 4	CO <sub>2</sub> +O <sub>2</sub> -based gas mixture			
	Option 5	According to customer specification			
<b>※4) Alarm switchpoint Accuracy</b>	Option 1	Temperature range	+20°C	-30°C~+50°C	-40°C~+60°C
		<b>First alarm switchpoint setting</b>			
		<b>pressure abs. @ 20°C</b>			
		≤650kPa [kPa max]	±8	±10	±12
	>650kPa ~ ≤1000kPa [kPa max]	±8	±12	±14	
>1000kPa [kPa max]	±10	±15	±16		
Option 2	According to customer specification				
<b>※5) Dial Unit</b>	Option 1	bar			
	Option 2	kPa			
	Option 3	MPa			
	Option 4	psi			
	Option 5	According to customer specification			

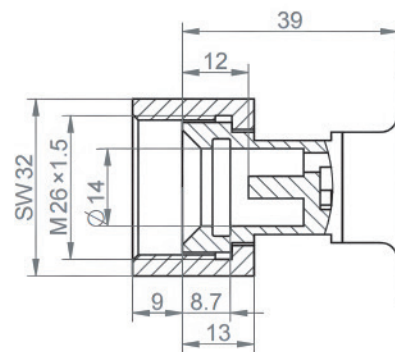
※6) Process Connection Size	Option 1	M20*1.5
	Option 2	G1/2
	Option 3	M26*1.5
	Option 4	M30*2
	Option 5	φ59 flange
	Option 6	Customizable flange, According to customer specification
	Option 7	According to customer specification



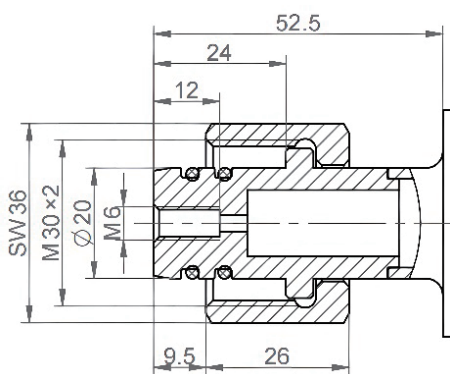
Option 1 M20\*1.5



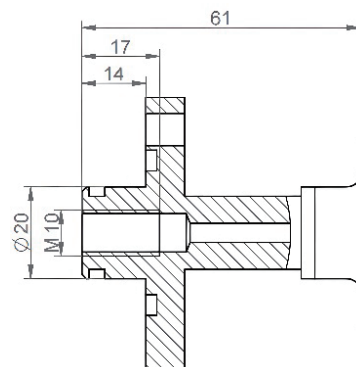
Option 2 G1/2



Option 3 M26\*1.5

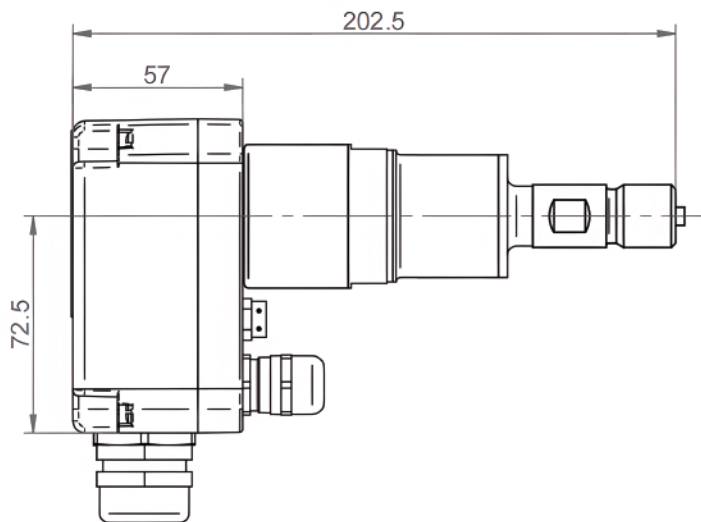


Option 4 M30\*2

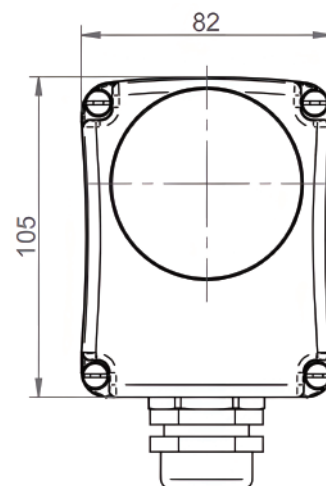


Option 5 φ59 Flange

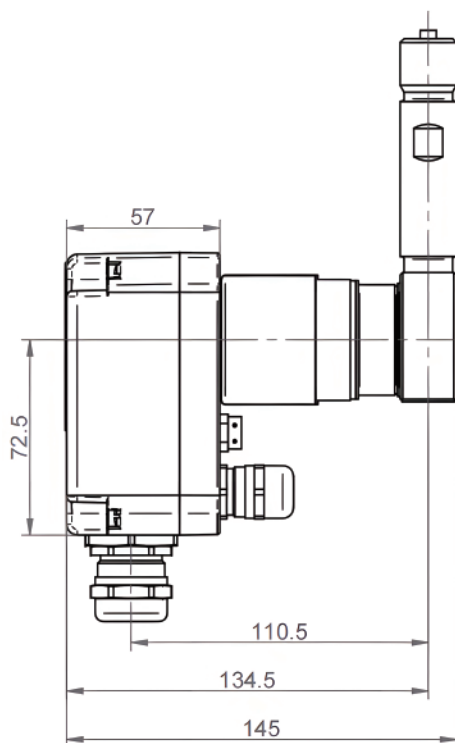
※7) Process Connection Direction	Option 1	Axial
	Option 2	Radial 3 o'clock
	Option 3	Radial 6 o'clock
	Option 4	Radial 9 o'clock
	Option 5	Radial 12 o'clock
	Option 6	According to customer specification



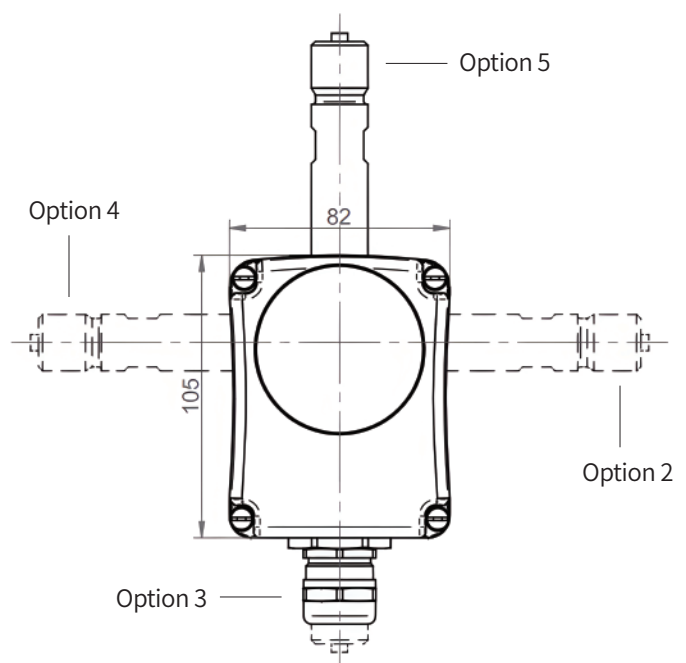
Axial Side View (with Remote Transmitter)



Axial Front View (with Remote Transmitter)

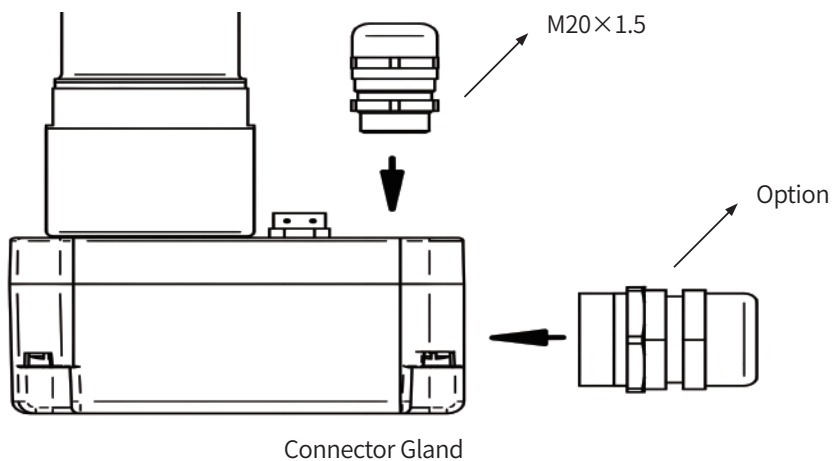


Radial Side View (Option 5 Shown)



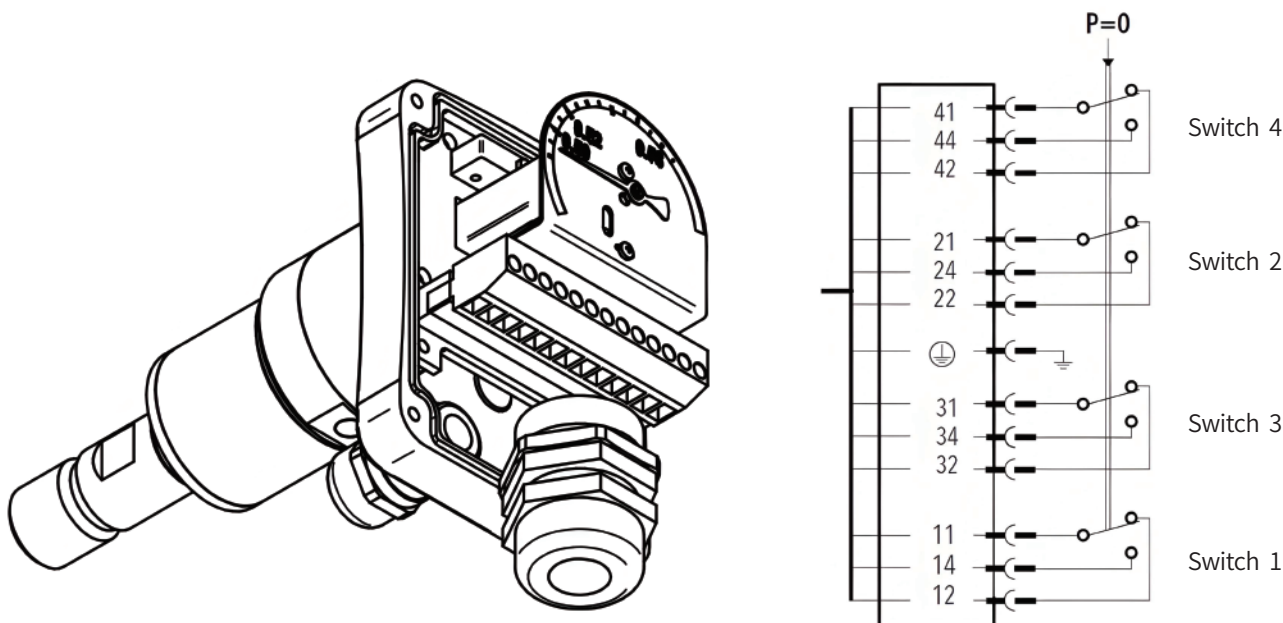
Radial Front View (with Remote Transmitter)

※8) Connector Gland	Option 1	M20×1.5
	Option 2	M25×1.5
	Option 3	M30×2
	Option 4	According to customer specification



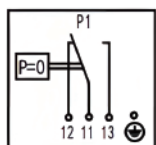
※9) Number of Contacts	Option 1	1 set
	Option 2	2 sets
	Option 3	3 sets
	Option 4	4 sets

Based on micro-switch requirements for specific applications

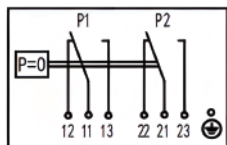


Microswitches under non-pressurized conditions (Pref=0)

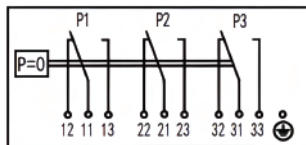
For reference only; actual product may vary.



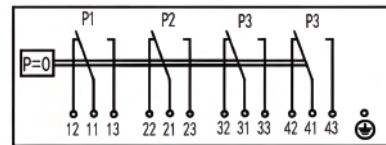
Option 1



Option 2



Option 3



Option 4

<b>Micro-switch Parameters</b>	Electrical Rating	0.5A 5VDC / 10(3)A 250V AC
	Electrical Life	≥10,000 operations
	Contact Resistance	≤50mΩ
	Insulation Resistance	≥100MΩ (500VDC test voltage)

<b>※10) Dial Display</b>	Option 1	With main scale
	Option 2	With main scale + full-scale indicator
	Option 3	Without main scale/full-scale indicator (equivalent to density switch)
	Option 4	According to customer specification

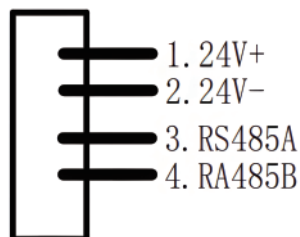
Note: See Chapter 3 for detailed specifications of ※10 options.

<b>※11) Corrosion Protection</b>	Option 1	C4-M
	Option 2	C5-H
	Option 3	According to customer specification

<b>※12) Remote Transmission</b>	Option 1	RS485 Modbus_RTU
	Option 2	4~20mA
	Option 3	According to customer specification

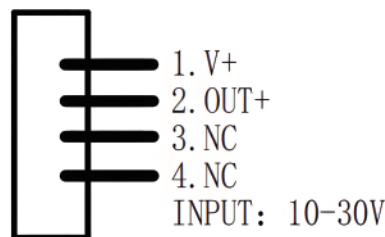
**Output Signals**

Transfer wiring diagram



Option 1 Modbus\_RTU

Transfer wiring diagram



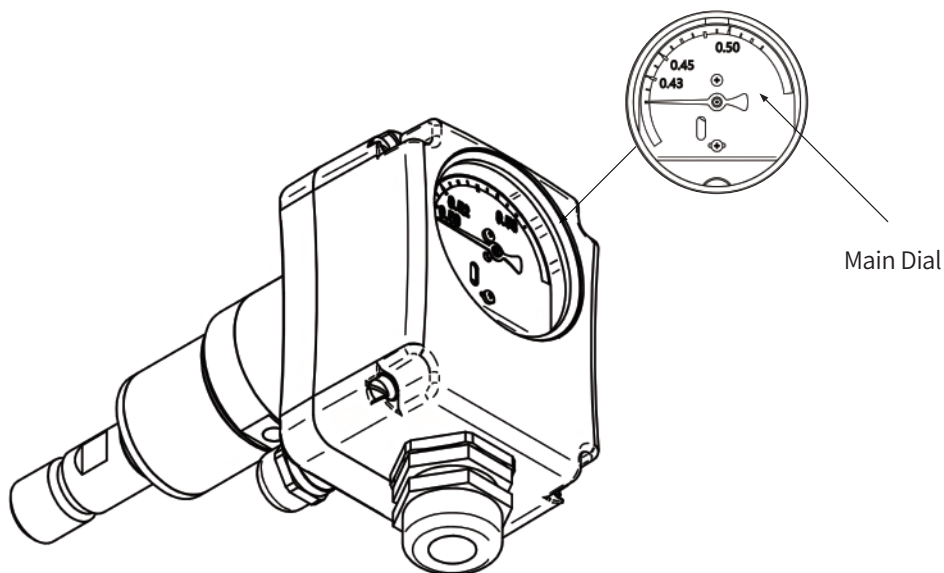
Option 2 4~20mA

## Chapter 3 Gas Density Monitor / Dial Display

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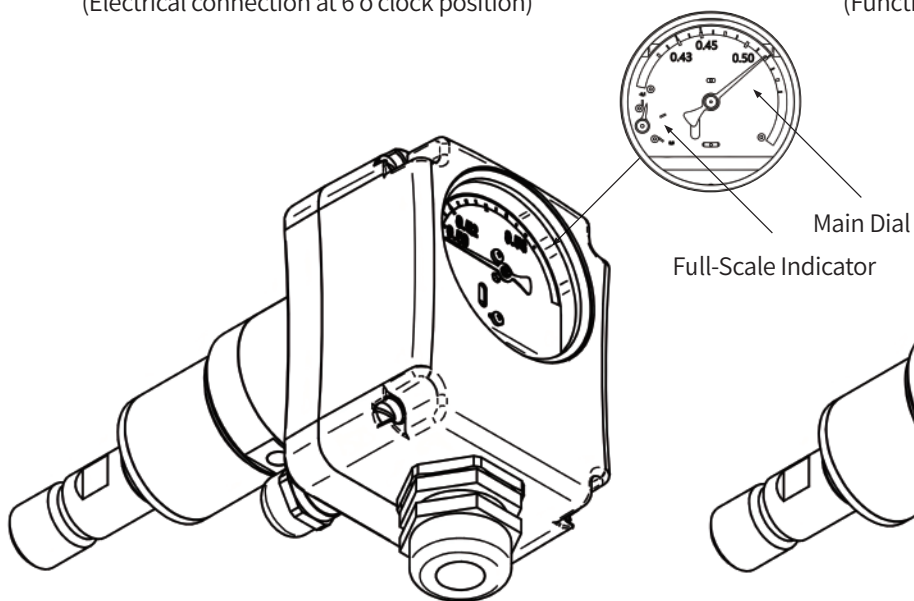
### Option 1: With main scale

(Electrical connection at 6 o'clock position)



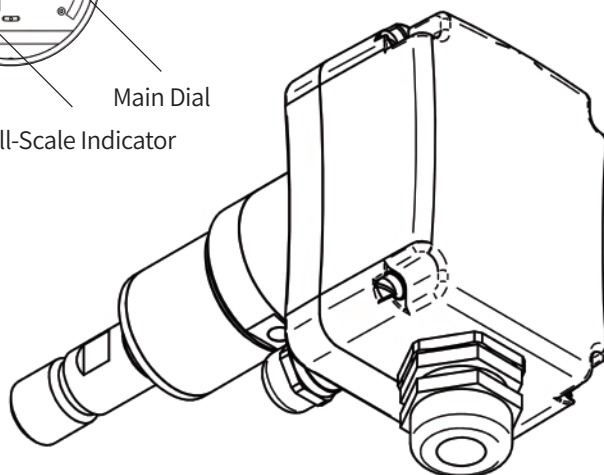
### Option 2: With main scale + full-scale indicator

(Electrical connection at 6 o'clock position)

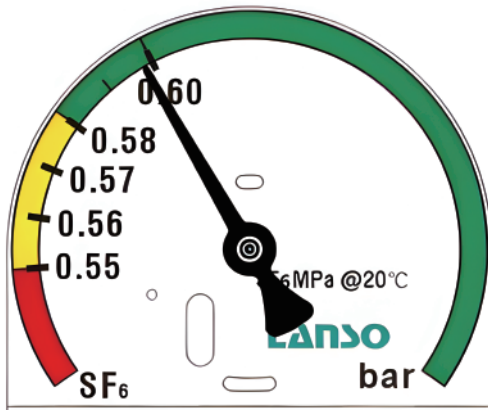


### Option 3: Without main scale/full-scale indicator

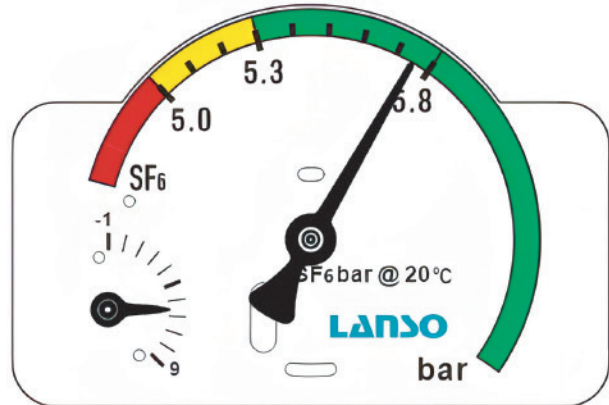
(Functionally equivalent to density switch)



Full-scale indicator is optional

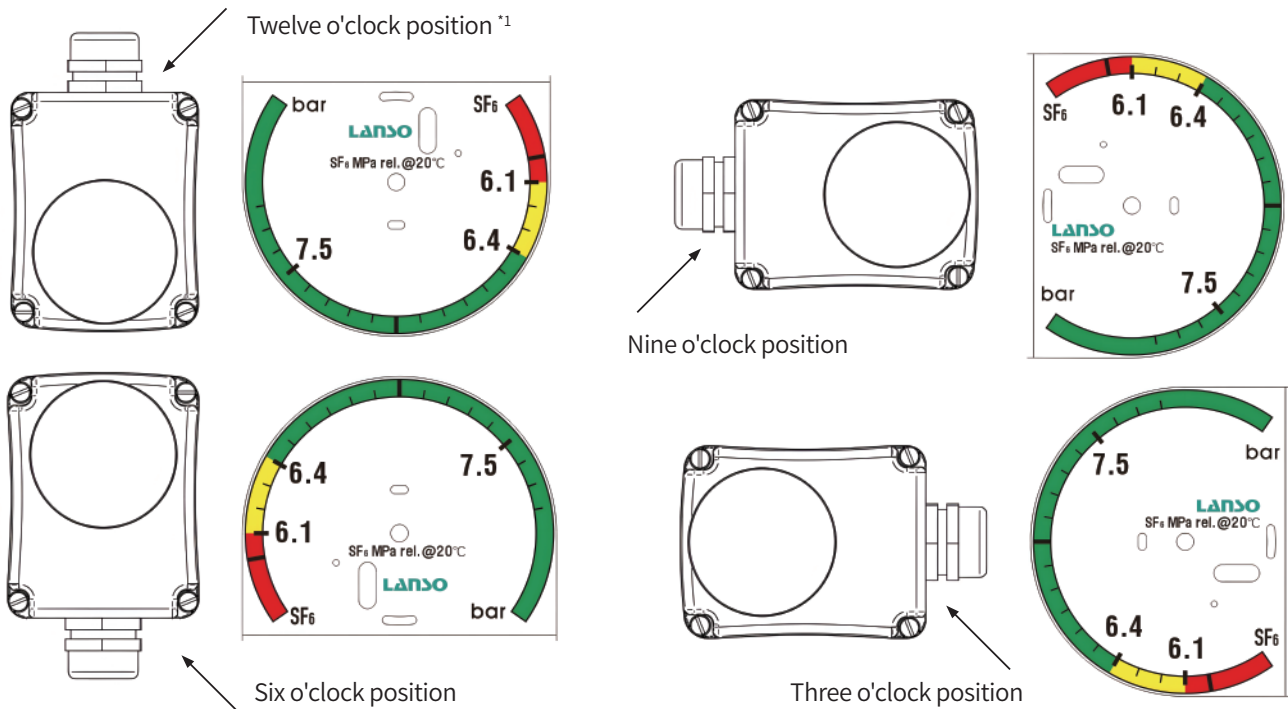


Dial without a full-scale indicator



Dial with a full-scale indicator

Dial direction adjustable via pressure interface position

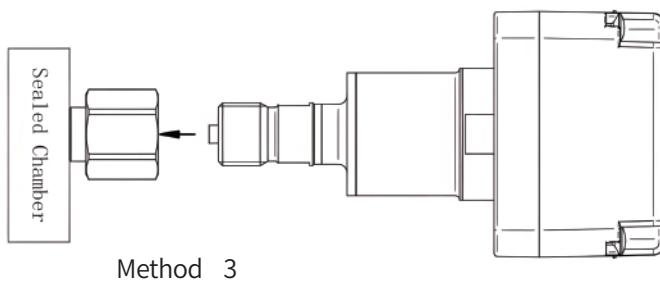
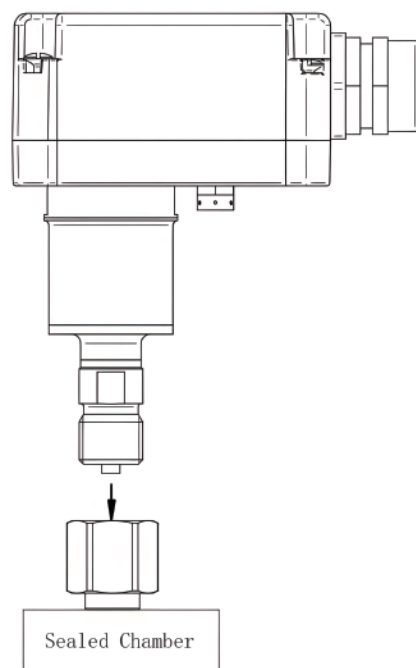
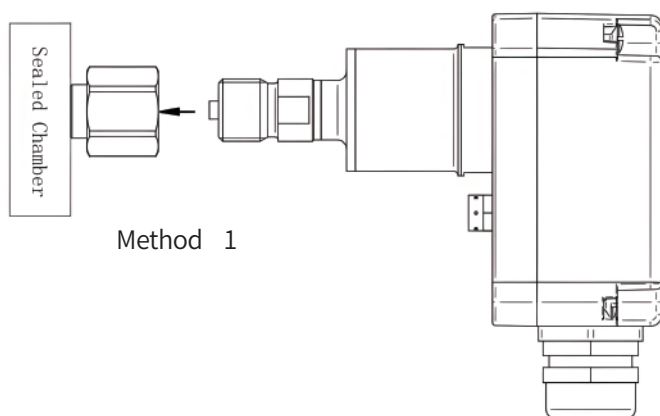


\*1 Indoor Use Only at 12 o'clock

Dial Display Content	Indication Unit	bar, MPa, kPa, psi, etc.
Pressure Type	Relative Pressure (no marking); Absolute pressure (marked "abs.")	
Color Zones	Green: Safe pressure range; Yellow: Alarm zone (equipment inspection required); Red: Danger zone (equipment operation prohibited)	
Full-Scale Indicator	Approximate pressure value (may exceed main scale range); Accuracy: $\pm 2.5\%$ of full scale	
Accuracy Class	Meter accuracy at 20°C constant temperature	
Brand Marking	"LANSO" logo	

## Chapter 4 Gas Density Monitor / Installation Diagrams

	Indoor	Outdoor
Installation Orientation	No restrictions	See Installation Methods 1, 2, 3 <sup>*1</sup>
Recommended Accessories	None	Weatherproof cover, thermal insulation cotton

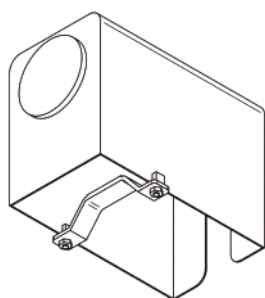


\*1 During installation, ensure the unit is not mounted upside down, as this may cause water leakage.

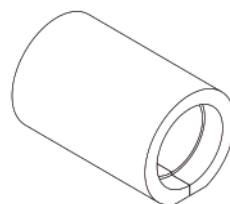
## Chapter 5 Gas Density Monitor / List of Optional Auxiliary Materials

### Water Protection Measures

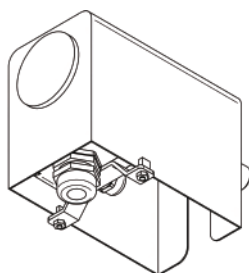
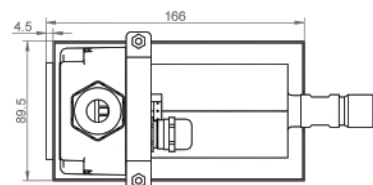
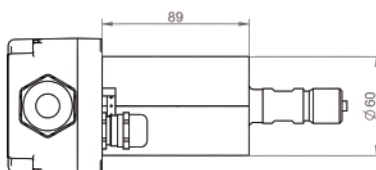
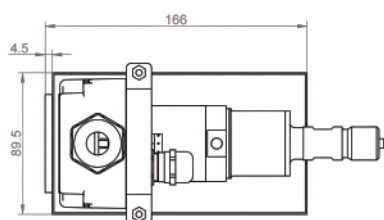
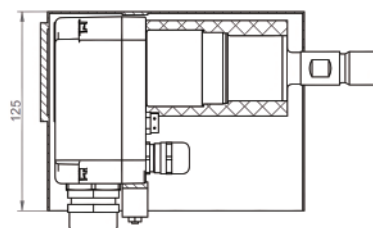
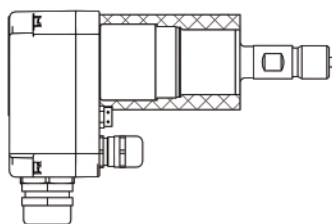
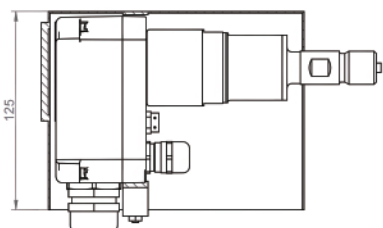
<b>Weatherproof Cover</b>	Option 1	Weatherproof cover
	Option 2	Thermal insulation sponge (indoor use)
	Option 3	Weatherproof cover + thermal insulation sponge



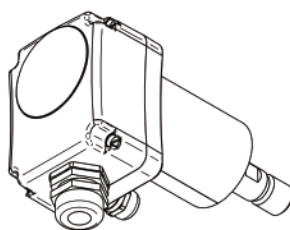
Rain Shield



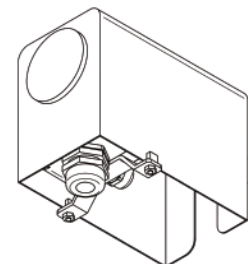
Thermal Insulation Sponge



Option 1  
Rain Shield



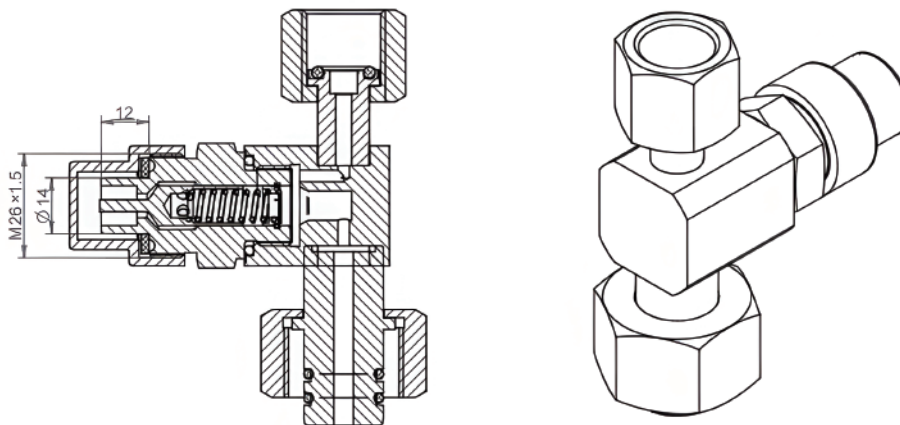
Option 2  
Thermal Insulation Sponge



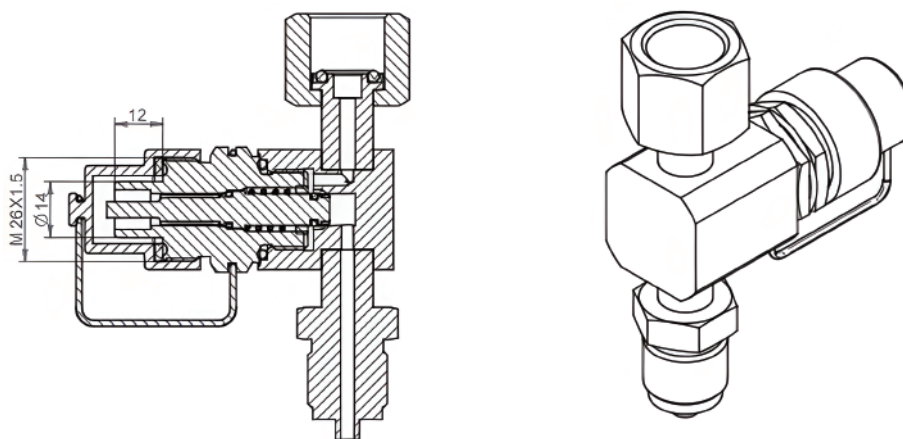
Option 3  
Rain Shield + Thermal Insulation Sponge

Other Optional Items	Gas Supplement & Calibration Fittings	Gas supplement connector, calibration adapter
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Gas Charging Calibration Connector Schematic



Charging Connector

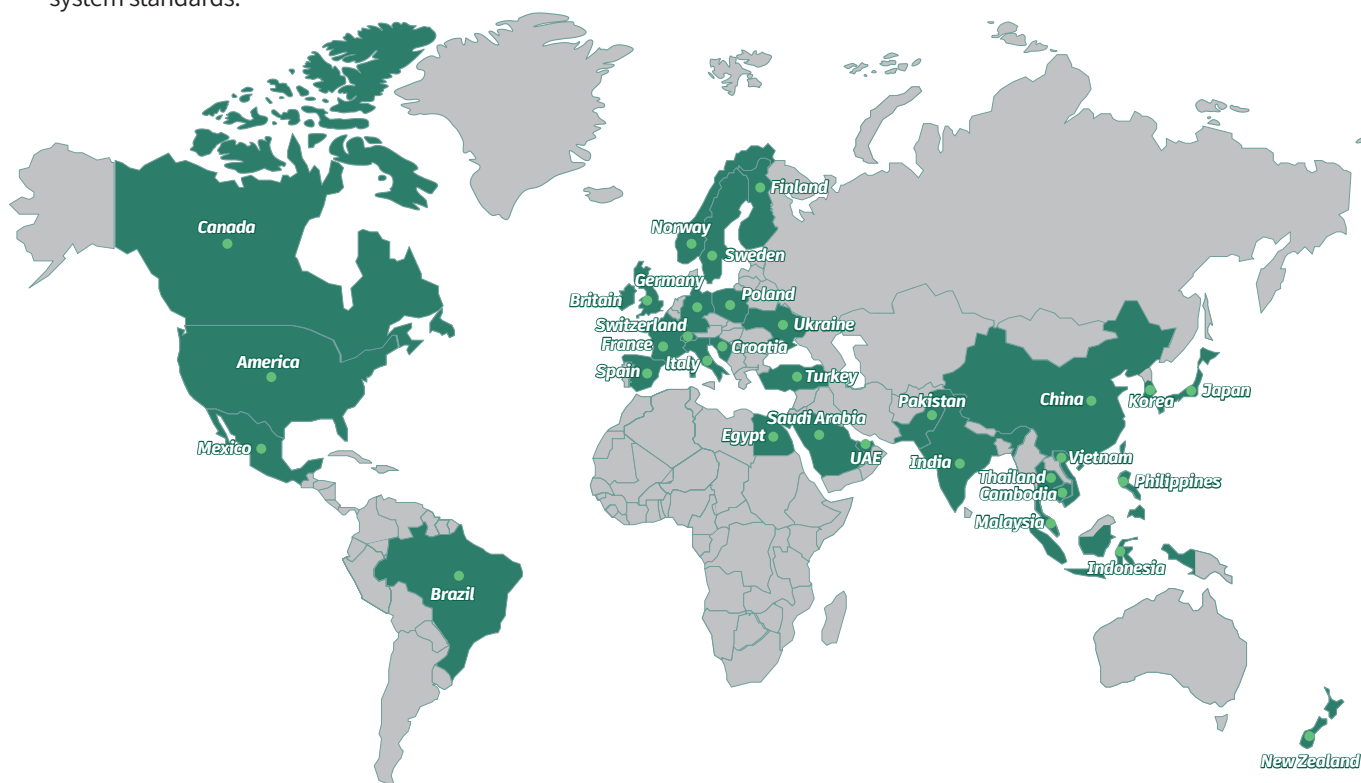


Calibration Connector

Lanso Konly (Shanghai) Instruments Co., Ltd. is an innovation-driven high-tech enterprise, focusing on globally leading SF<sub>6</sub> and alternative insulating gas monitoring solutions, as well as a series of digital transformer accessories. The company has established a full industry-chain ecosystem covering R&D, production, marketing, and service, empowering the safe operation of power equipment worldwide.

Relying on independent research and development, the company has obtained more than 50 patents and received authoritative certifications such as National High-Tech Enterprise, Little Giant Enterprise, and 2024 Shanghai Manufacturing Individual Category Champion. Its products are exported to more than 20 countries and regions globally. The company has established deep cooperation with international giants such as ABB, Schneider, and Siemens, as well as leading domestic enterprises including Taikai Group, Sieyuan Electric, and Pinggao Group etc.

The company strictly controls product quality management, establishing a full-process quality traceability system from raw material procurement to finished product delivery. Through a series of scientific and rigorous measures, it ensures product stability and reliability, and has been certified under the ISO9001 and ISO14001 quality management system standards.



## Lanso Konly (Shanghai) Instruments Co., Ltd.

**Address:** No. 50, Lane 3679, Jindu Road, Xinzhuang IndustriaZone, Minhang District, Shanghai

**Postal Code:** 201108

**Phone:** (+86)021-54420482

**Website:** [www.lansoinstruments.com](http://www.lansoinstruments.com)

**Email:** [info@lanso.com.cn](mailto:info@lanso.com.cn)

**Customer Service Hotline:** 400-820-1296