LANSO®



ZMJ100XDR

Gas Density Monitor
With Reference Gas Chamber Principle

ZMJ100XDR
Gas density monitor with reference gas chamber principle



Description

Designed to monitor the density of SF_6 gas in hermetically sealed containers, it provides on-site display of gas density and triggers an alarm when the density reaches the set value. It features real-time remote transmission of SF_6 gas density variation data, enabling online remote monitoring. Suitable for the monitoring of high-voltage systems. It can be used for the support of new substation construction and intelligent upgrade of existing substations.

Features

- Gas compensation for higher set point accuracy, suitable for indoor or outdoor installation.
- Micro-switch, allowing free switching between normally open and normally closed contacts.
- Up to 4 pairs of contacts, supporting multiple options such as double alarm and double interlock, ensuring safer and more reliable monitoring.
- High vibration resistance, no oil filling required, no risk of oil leakage.
- Normally closed contacts will not cause false alarms due to vibration.
- RS485 bus interface, convenient for system expansion, facilitating telemetry and remote control functions.
- Strong resistance to electromagnetic interference.
- Class 1 accuracy display over full range, higher remote module accuracy, higher consistency between on-site display and remote transmission data.
- More accurate meter indication and contact switch- ing values across the full temperature range.

Application

- SF_6/Other Gas Insulated Switchgear (GIS)
- SF_6/Other Gas Insulated Circuit Breakers
- SF_6/Other Gas Insulated Pole-Mounted Switch
- SF_6/Other Gas Insulated Transformers
- SF_6/Other Gas Insulated Current Transformers or Voltage Transformers
- SF_6/Other Gas Insulated Busbar Systems

Product Introduction	https://www.lanso.com.cn/chanpinzhongxin/567.html
Product Description	https://www.lanso.com.cn/uploads/soft/20231108/1-23110Q42012942.pdf
Related Software	https://www.lanso.com.cn/ruanjianxiazai/

Chapter 1 Gas Density Monitor / Standard Specifications

Specifications

Environmental conditions	Case diameter	100mm
	Ambient temperature ※1)	-40°C～+70°C
	Humidity	≤95%RH
	Protection Class ※2)	IP65
	Leakage Rate	≤1×10^{-9} Pa·m^3/s (Helium Leak Testing)
Mechanical data	Measurement Principle	Reference Gas Chamber
	Contact Type	Micro-switch
	Displayed Pressure Type ※3)	Relative Pressure
	Measuring Medium ※4)	SF_6
	Measuring Range ※5)	-0.1～0.9MPa
	Measurement Accuracy ※6)	±1.0%FS (+20±1°C); ±1.8%FS (-20°C ~ +60°C) (gas phase)
	Set Point Accuracy ※7)	±1.0%FS (+20±1°C); ±1.8%FS (-20°C ~ +60°C) (gas phase)
	Indicator Dial Unit ※8)	MPa
	Housing Material	304 stainless steel
	Process Connection Size ※9)	M20×1.5
	Process Connection Direction ※10)	Radial
	Wire terminal	Pluggable, M20×1.5 connector gland
	Terminal Box Direction ※11)	Radial 3 o'clock
	Number of Contacts ※12)	1 ~ 4 sets
	Vibration Resistance	20 m/s^2
	Shock Rating	50g
	Window	Laminated safety glass
	Corrosion Protection ※13)	C4-M
	Weight	≈ 1.2 kg
	Pressure Sensitive Element	Bellows

Remote Performance	Power Supply	DC 24V
	Power Consumption	< 0.5W
	Communication Method ※14)	RS485
	Temperature Measurement Range※15)	-40°C～+70°C
	Temperature Measurement Accuracy	±1°C
	Pressure Measurement Accuracy ※16)	±0.5%FS
	P20 Measurement Accuracy ※17)	±1%FS (-40°C ~ +70°C) (gas phase)
	Communication Protocol ※18)	State Grid New Standard
	Communication Frequency	2.4 GHz
EMC Performance	Electrostatic Discharge Immunity Test	Level 4
	Conducted Disturbance Immunity Test	Level 3
	Electrical Fast Transient/Burst Immunity Test	Level 4
	Surge Immunity Test	Level 4
	Power Frequency Magnetic Field Immunity Test	Level 5
	Pulse Magnetic Field Immunity Test	Level 5
	Damped Oscillatory Magnetic Field Immunity Test	Level 5
	Radiated Electromagnetic Field Immunity Test	Level 3

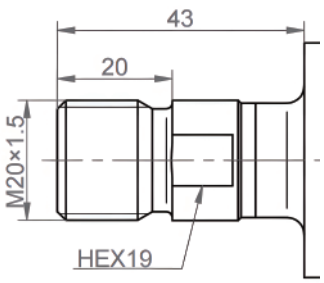
Note: Parameters marked with "※" can be customized according to user requirements; customization options are provided in the next chapter, "Gas Density Monitor / Optional Configurations".

Chapter 2 Gas Density Monitor / Optional Configurations

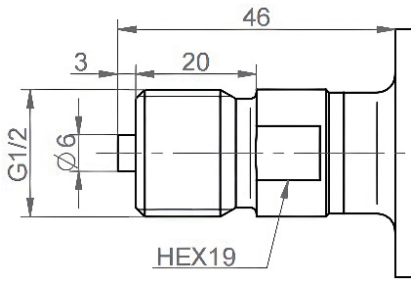
※1) Operating Temperature	Option 1	-40°C～+70°C
	Option 2	-30°C～+60°C
	Option 3	-40°C～+60°C
	Option 4	According to customer specification
※2) Protection Class	Option 1	IP65
	Option 2	According to customer specification
※3) Displayed Pressure Type	Option 1	Relative Pressure
	Option 2	Absolute Pressure
※4) Measuring Medium	Option 1	SF_6
	Option 2	SF_6+N_2
	Option 3	C_4F_7N-based gas mixture
	Option 4	CO_2+O_2-based gas mixture
	Option 5	According to customer specification
※5) Measuring Range	Option 1	-0.1～0.9MPa
	Option 2	0～1.0MPa
	Option 3	According to customer specification
※6) Measurement Accuracy	Option 1	±1.0%FS (+20±1°C); ±1.8%FS (-20°C ~ +60°C); ±2.3%FS (-30°C ~ -20°C) (60°C ~ 70°C) (gas phase)
	Option 2	±1.6%FS (+20±1°C); ±2.5%FS (-30°C ~ +70°C) (gas phase)
	Option 3	According to customer specification
※7) Set Point Accuracy	Option 1	±1.0%FS (+20±1°C); ±1.8%FS (-20°C ~ +60°C); ±2.3%FS (-30°C ~ -20°C) (60°C ~ 70°C) (gas phase)
	Option 2	±1.0%FS (+20±1°C); ±1.6%FS (-30°C ~ +60°C) (gas phase)
	Option 3	According to customer specification

※8) Indicator Dial Unit	Option 1	MPa
	Option 2	bar
	Option 3	psi
	Option 4	According to customer specification

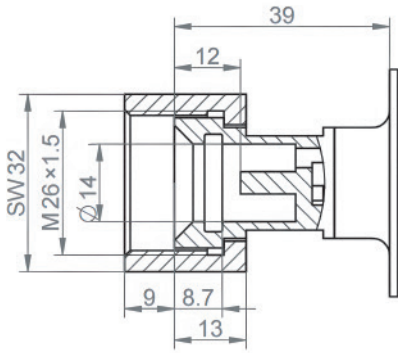
※9) Process Connection Size	Option 1	M20x1.5
	Option 2	G1/2
	Option 3	M26x1.5
	Option 4	M27x1.5
	Option 5	ϕ59 flange
	Option 6	Customizable flange, According to customer specification
	Option 7	According to customer specification



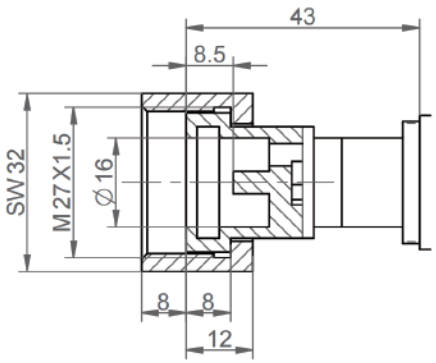
Option1 M20*1.5



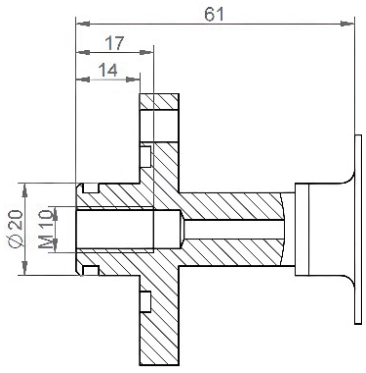
Option2 G1/2



Option3 M26*1.5

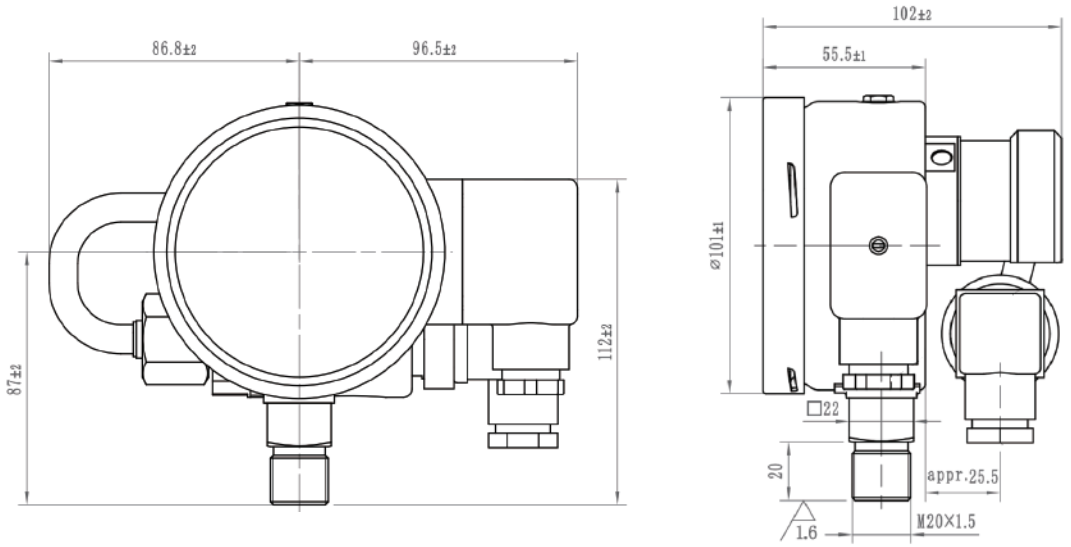


Option4 M30*2

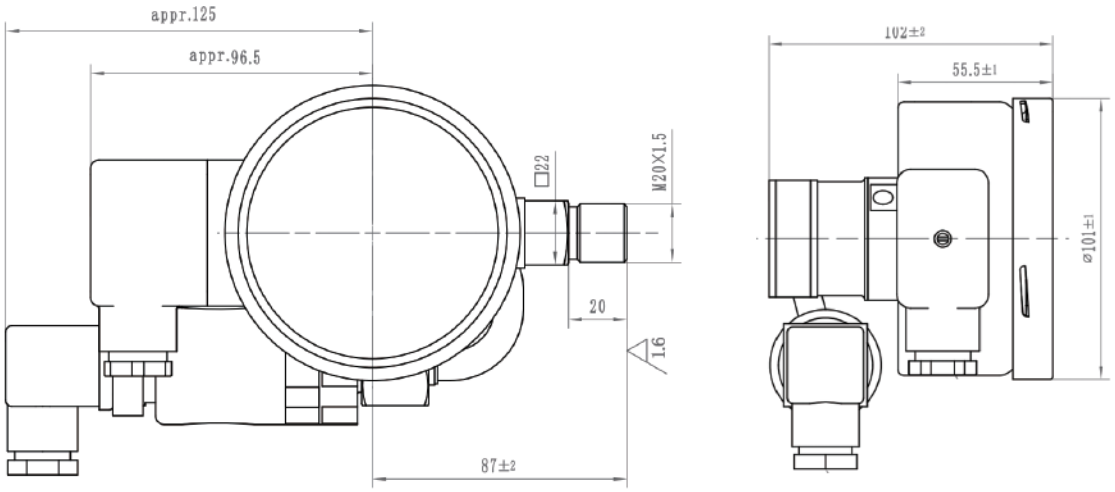


Option5 ϕ59 flange

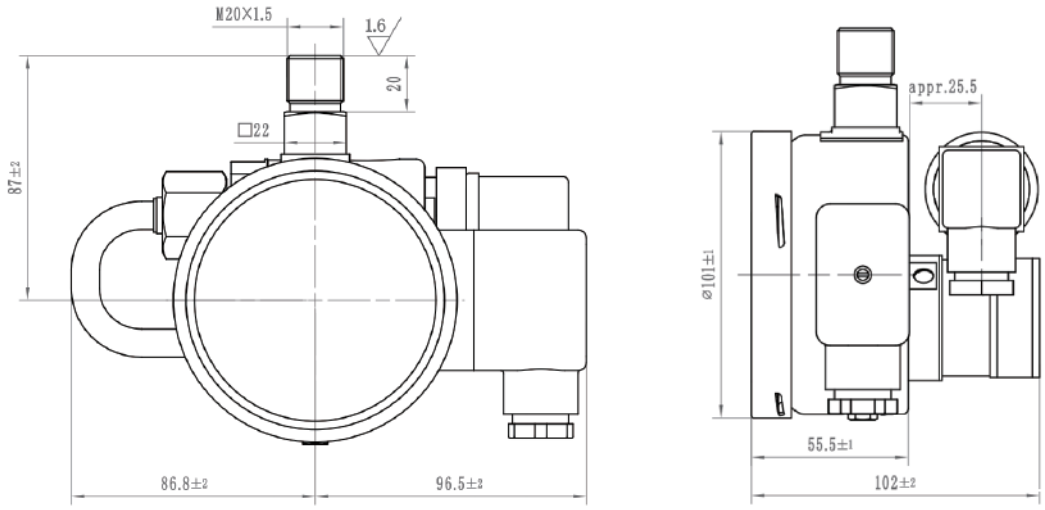
※10) Process Connection Direction	Option 1	Radial 3 o'clock
	Option 2	Radial 6 o'clock
	Option 3	Radial 9 o'clock
	Option 4	Radial 12 o'clock
	Option 5	Axial
	Option 6	According to customer specification



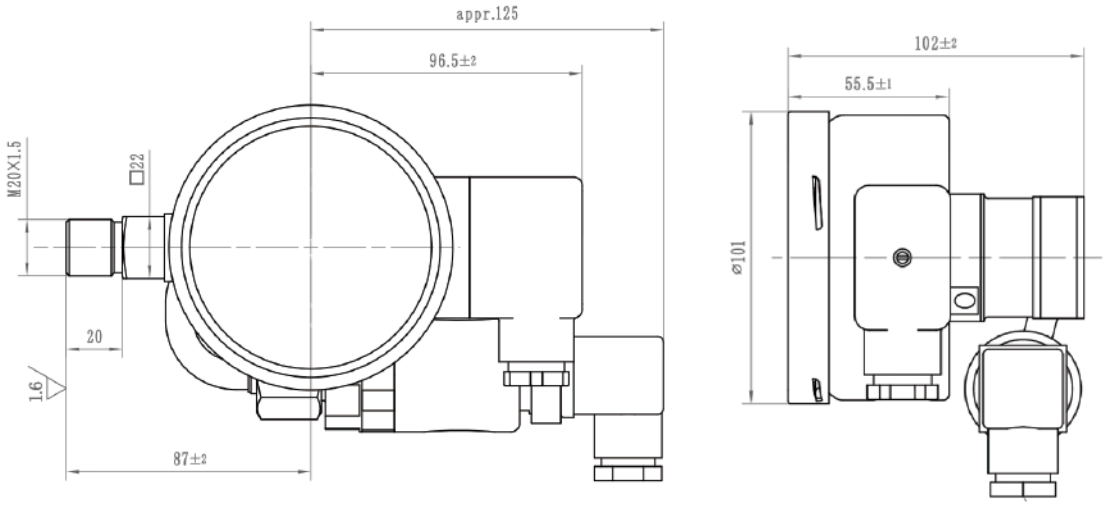
Radial 6 o'clock Dimension Diagram



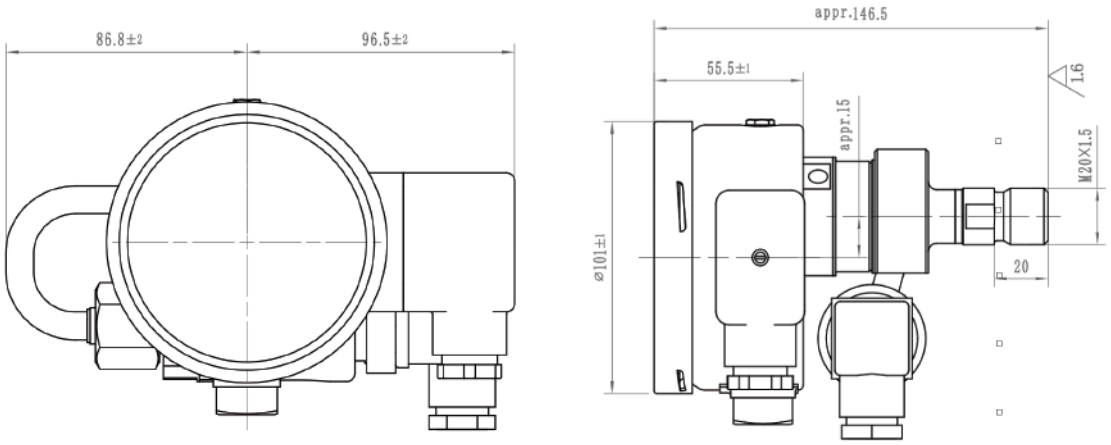
Radial 3 o'clock Dimension Diagram



Radial 12 o'clock Dimension Diagram



Radial 9 o'clock Dimension Diagram

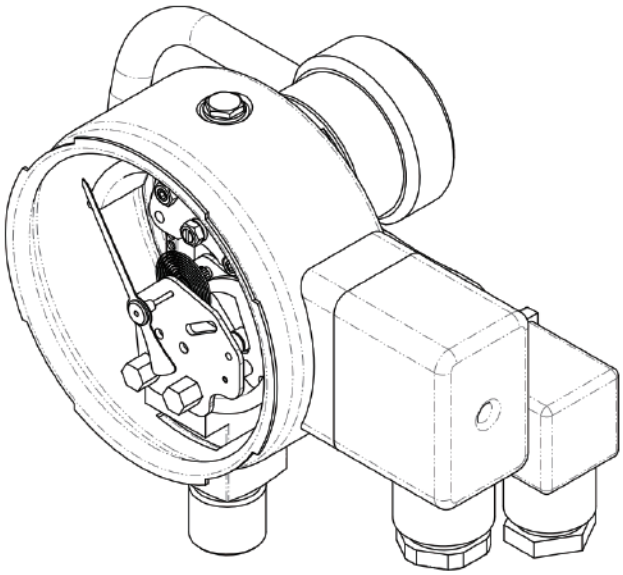


Axial Dimension Diagram

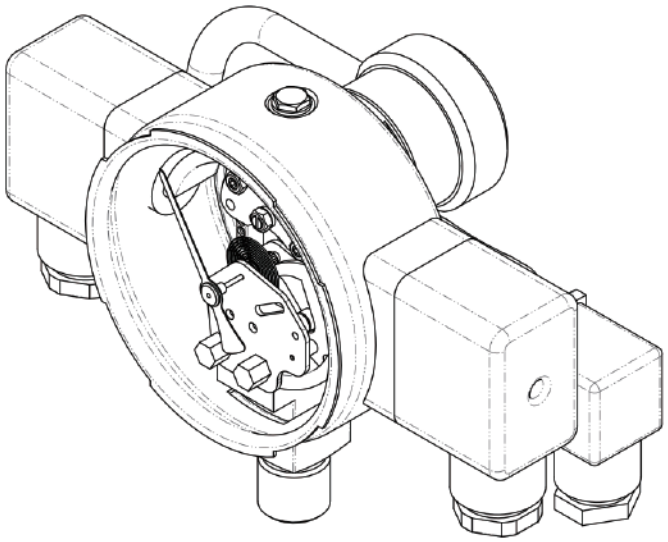
※11) Terminal Box Direction	Option 1	Radial 3 o'clock
	Option 2	Radial 9 o'clock
	Option 3	According to customer specification

※12) Number of Contacts	Option 1	1 set
	Option 2	2 sets
	Option 3	3 sets
	Option 4	4 sets (requires an additional terminal box)

Number of micro-switches is selected based on customer application

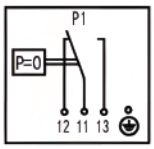


3 Sets of Contacts

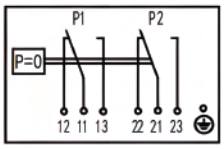


4 Sets of Contacts

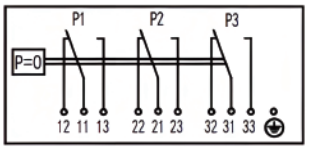
Micro-switch under non-pressurized conditions (P_{ref}=0) — For reference only; actual product may vary.



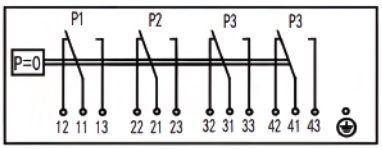
Option 1



Option 2



Option 3



Option 4

Micro-switch Parameters	Electrical Rating	0.5A 5VDC/10(3)A 250V AC
	Electrical Life	Operating life ⩾ 10000 cycles
	Contact Resistance	⩽50mΩ
	Insulation Resistance	⩾ 100MΩ (test voltage 500V DC)
	Power Frequency Withstand Voltage	2000V, 50/60 Hz, 1 min

※13) Corrosion Protection	Option 1	C4-M
	Option 2	C5-M
	Option 3	According to customer specification

※14) Communication Method	Option 1	RS485
	Option 2	4~20mA
	Option 3	According to customer specification

※15) Temperature Measurement Range	Option 1	-40°C～+70°C
	Option 2	According to customer specification

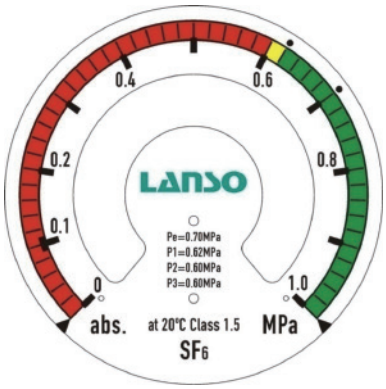
※16) Pressure Measurement Accuracy	Option 1	±0.5%F.S
	Option 2	±0.2%F.S
	Option 3	According to customer specification

※17) P20 Measurement Accuracy	Option 1	±1%FS (-40°C ~ +70°C) (gas phase)
	Option 2	±0.6%FS (-40°C ~ +70°C) (gas phase)
	Option 3	According to customer specification

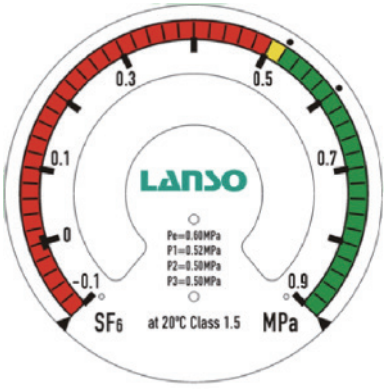
※18) Communication Protocol	Option 1	Modbus RTU (Compliant with State Grid Q/GDW 12355.4-2023 "Smart Substation Technical Specification Part 4: Digital Instruments")
	Option 2	Compliant with LANSO proprietary protocol
	Option 3	According to customer specification

Chapter 3 Gas Density Monitor / Dial Display

Relative Pressure or Absolute Pressure selectable

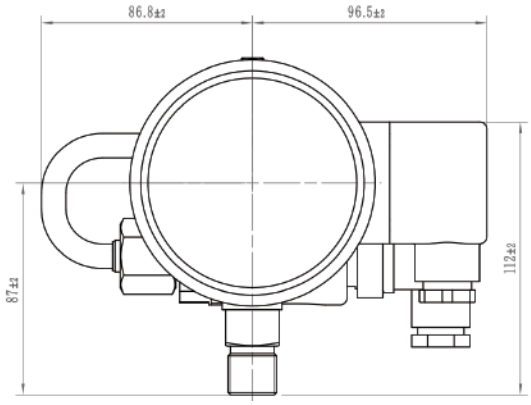


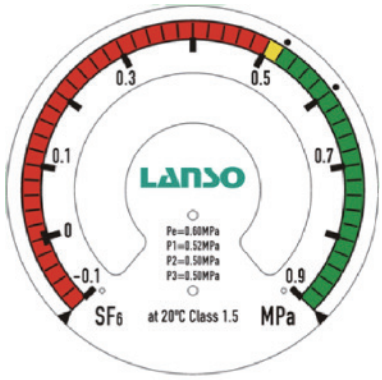
Absolute Pressure Dial



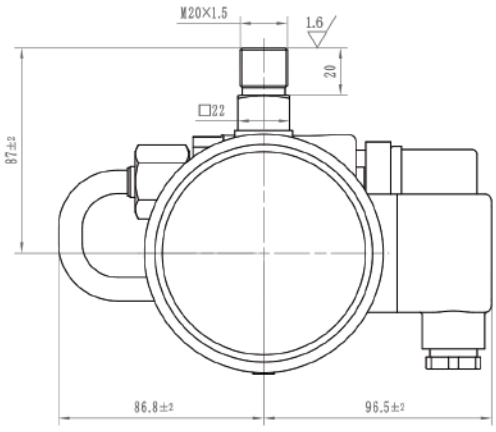
Relative Pressure Dial

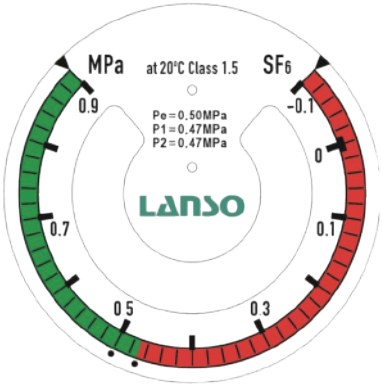
Dial direction adjustable via pressure interface position



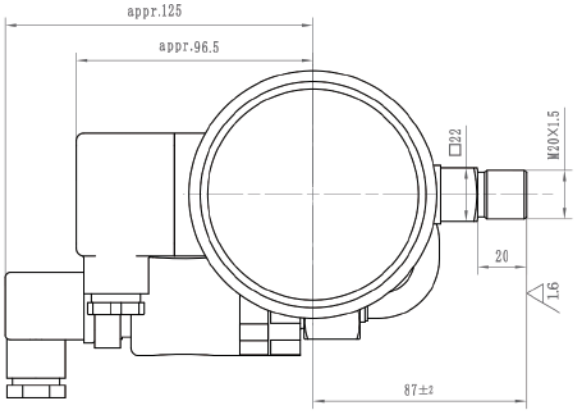


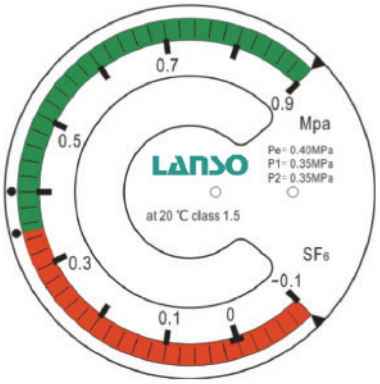
Front Mount Dial



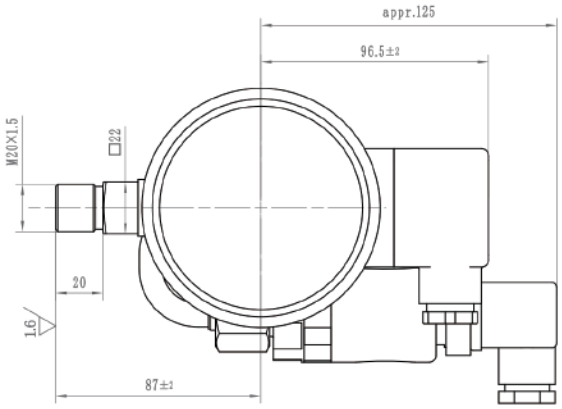


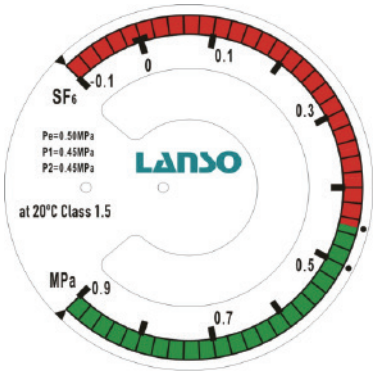
Inverted Mount Dial





Side Mount Dial (3 o'clock)





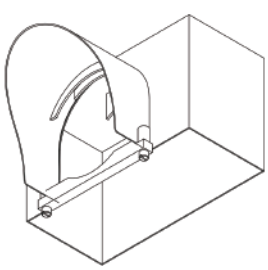
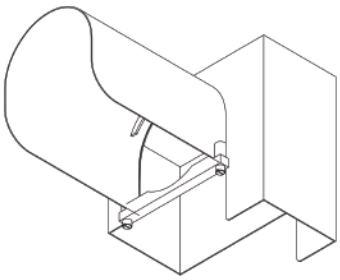
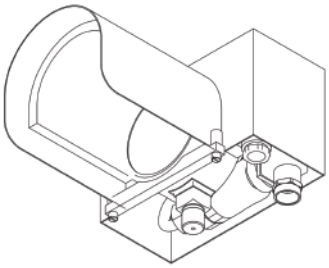
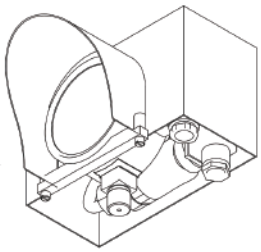
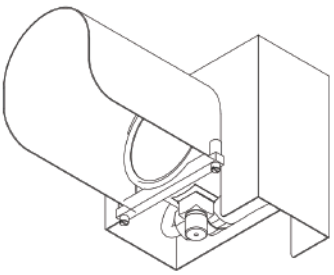
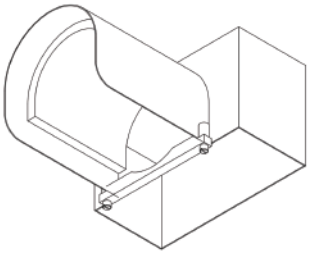
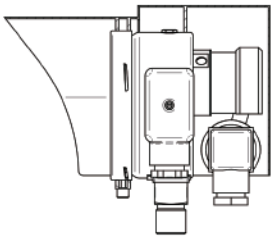
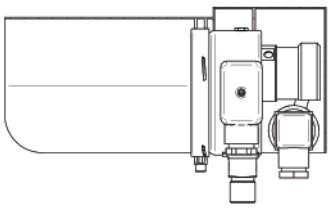
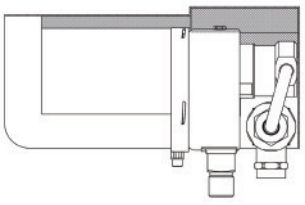
Side Mount Dial (9 o'clock)

Dial Display Content	Indication Unit	Indication Unit
	Pressure Type	Pressure Type
	Color Zones	Green: Safe pressure range; Yellow: Alarm zone (equipment inspection required); Red: Danger zone (equipment operation prohibited)
	Accuracy Class	Accuracy Class
	Brand Marking	Brand Marking

Chapter 4 Gas Density Monitor / List of Optional Auxiliary Materials

Water Protection Measures

Weatherproof cover	Option 1	Standard weatherproof cover
	Option 2	Extended brim weatherproof cover
	Option 3	Weatherproof cover + thermal insulation sponge
	Option 4	According to customer specification

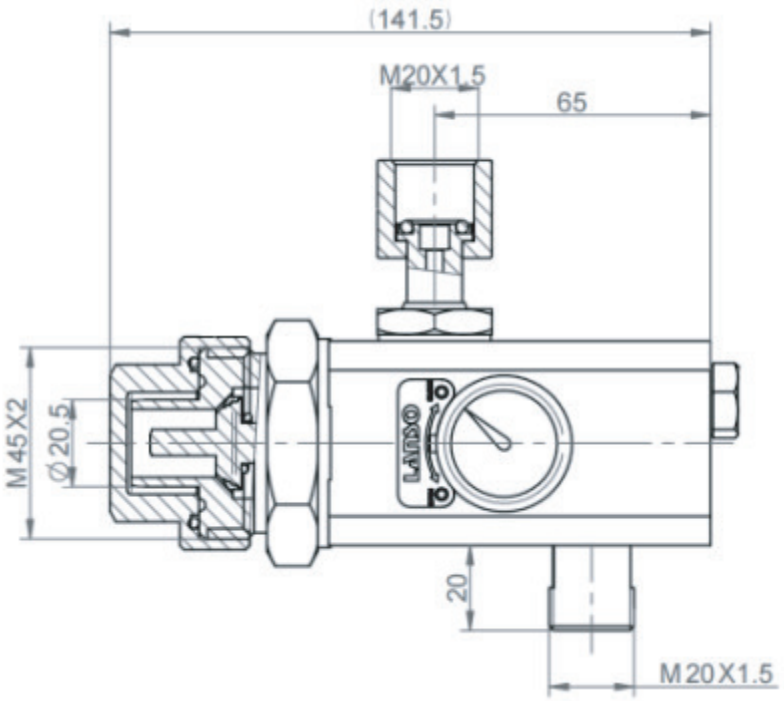
Option 1
Standard weatherproof cover

Option 2
Extended brim weatherproof cover

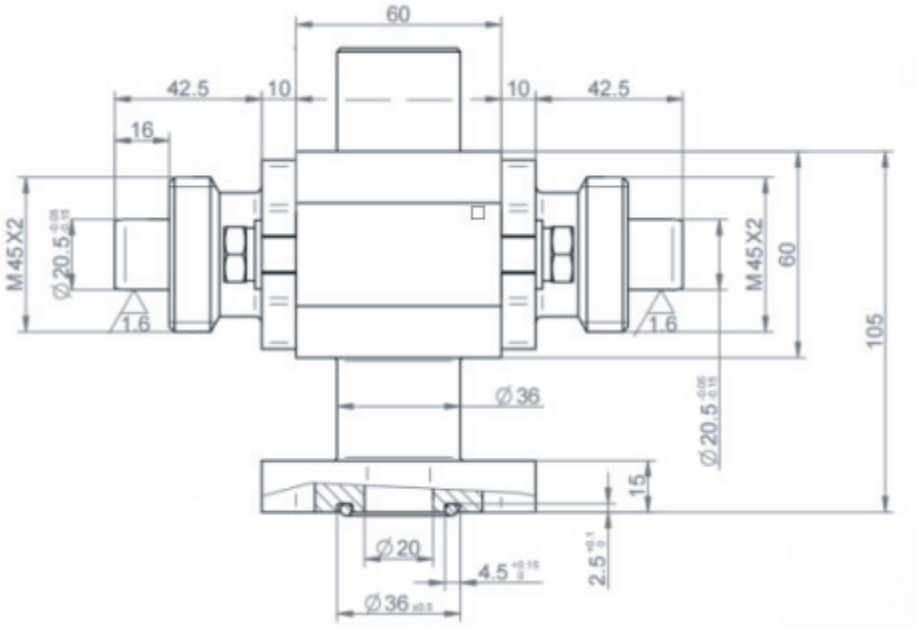
Option 3
Weatherproof cover
+ thermal insulation sponge

Other Optional Items	Multi-port valve	Ball valve, needle valve

Multi port Valve Schematic Diagram



Ball Valve



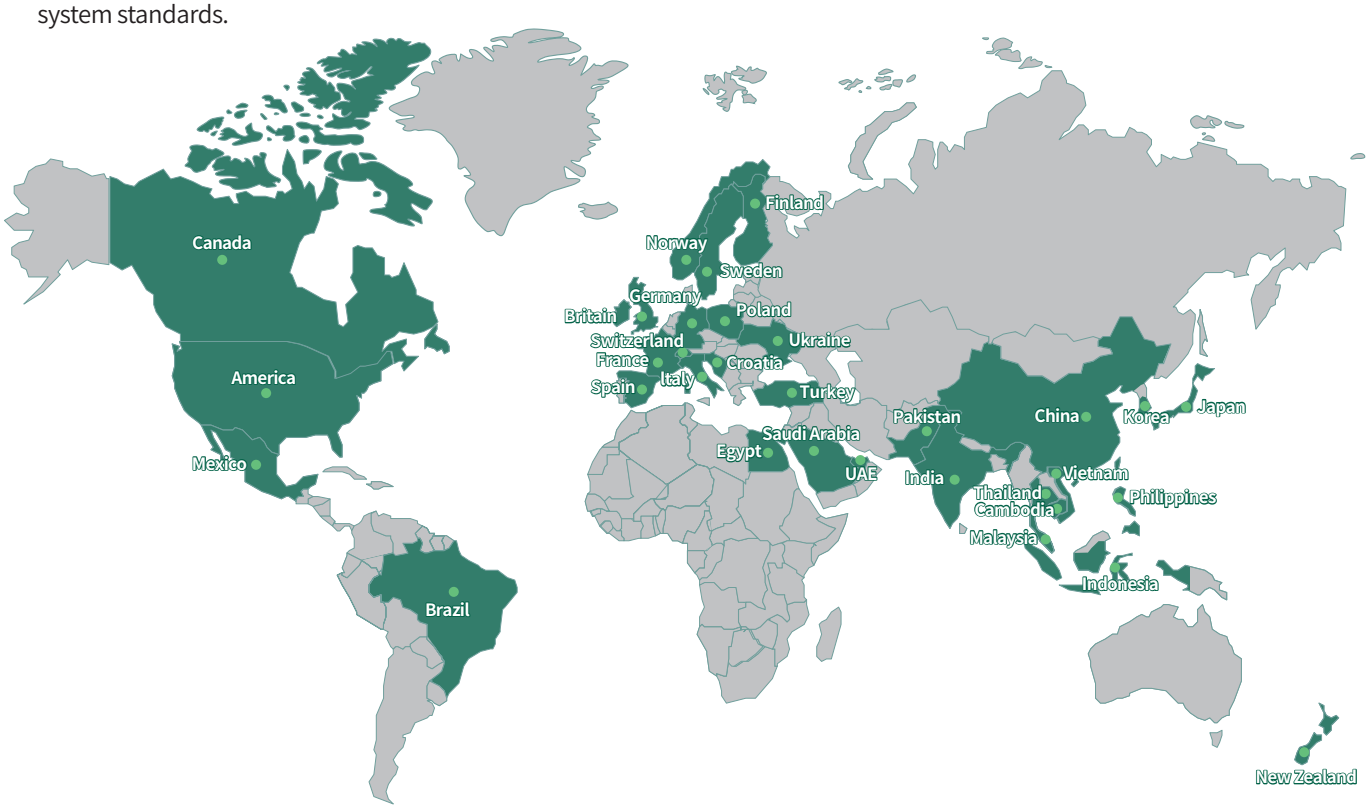
Needle Valve

Global Leader, Reliable Quality

Lanso Konly (Shanghai) Instruments Co., Ltd. is an innovation-driven high-tech enterprise, focusing on globally leading SF_6 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.

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