LANSO®



ZMJ100XD

Gas Density Monitor
With Reference Gas Chamber Principle

ZMJ100XD
Gas density monitor with reference gas chamber principle



Description

ZMJ100XD Density Monitors are used to monitor SF_6 gas density in sealed tanks. They are applied to indicate the gas density and to provide signal outputs when the density reaches the set values. They are designed to monitor High Voltage systems. They can provide multiple solutions to support new substations and the renovation and upgrading of existing substations.

Application

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

Features

- Higher accuracy from reference chamber temperature compensation technology .
- Class 1.0 display accuracy for full scale range.
- Suitable for indoor or outdoor installation.
- More accurate gauge indication values and contact switching values throughout the temperature range.
- Micro-switch that can switch freely between normally open and normally closed points.
- Up to 4 sets of switch contacts, multiple options such as double alarms and double locks can be realized, making monitoring more secure and reliable.
- High shock resistance. No need to fill oil, no oil leakage hazard.
- Normally closed contacts will not falsely alarm due to vibration.

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	≈ 1.0 kg
	Pressure Sensitive Element	Bellows

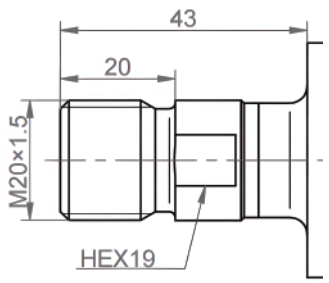
Note: Parameters marked with "※" can be customized according to user requirements; customization options are provided in the next chapter, "Gas Density Monitor / Optional Configurations".

Chapter 2 Gas Density Monitor / Optional Configurations

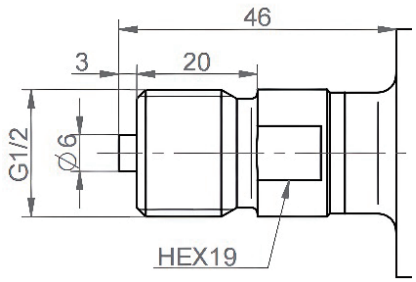
※1) Operating Temperature	Option 1	-40°C～+70°C
	Option 2	-30°C～+60°C
	Option 3	-40°C～+60°C
	Option 4	-60°C～+60°C
	Option 5	According to customer specification
※2) Protection Class	Option 1	IP65
	Option 2	IP66
	Option 3	According to customer specification
※3) Displayed Pressure Type	Option 1	Relative 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

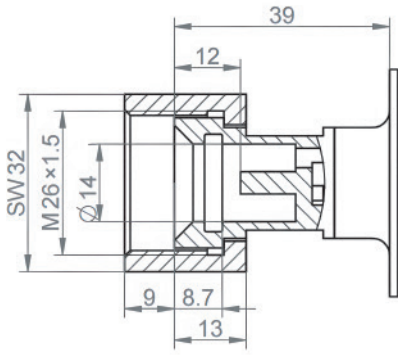
※9) Process Connection Size	Option 1	M20x1.5
	Option 2	G1/2
	Option 3	M26x1.5
	Option 4	M27x1.5
	Option 5	ϕ59 flange
	Option 6	Customizable flange, According to customer specification
	Option 7	According to customer specification



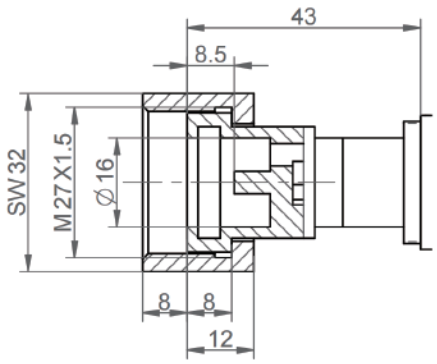
Option 1 M20*1.5



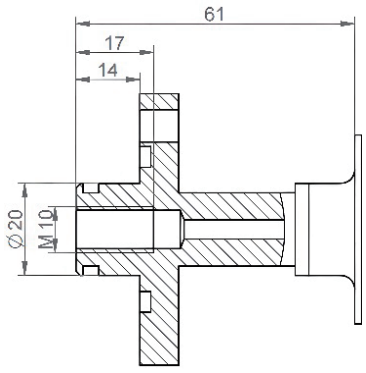
Option 2 G1/2



Option 3 M26*1.5

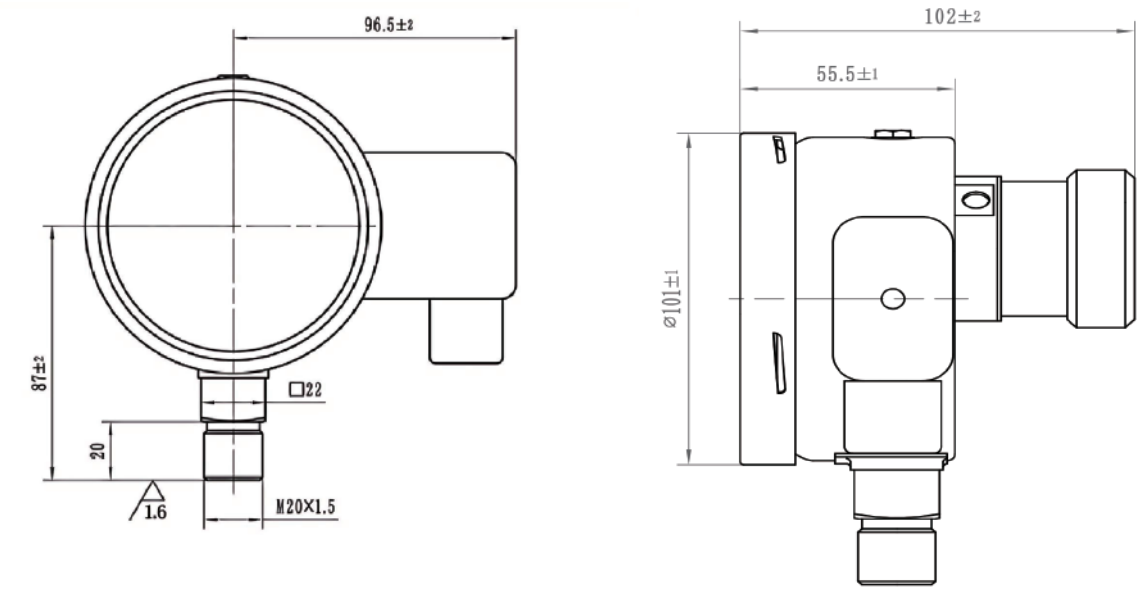


Option 4 M30*2

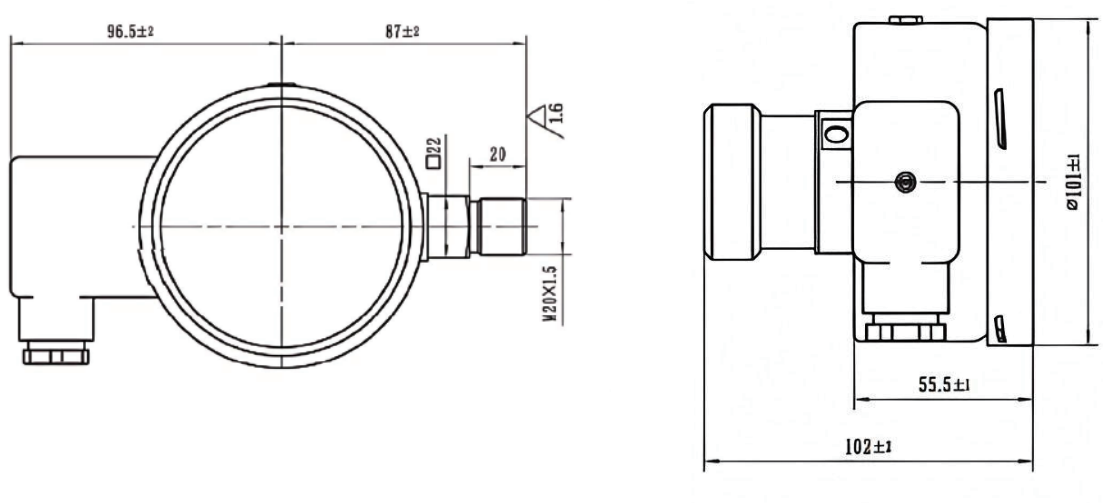


Option 5 ϕ59 flange

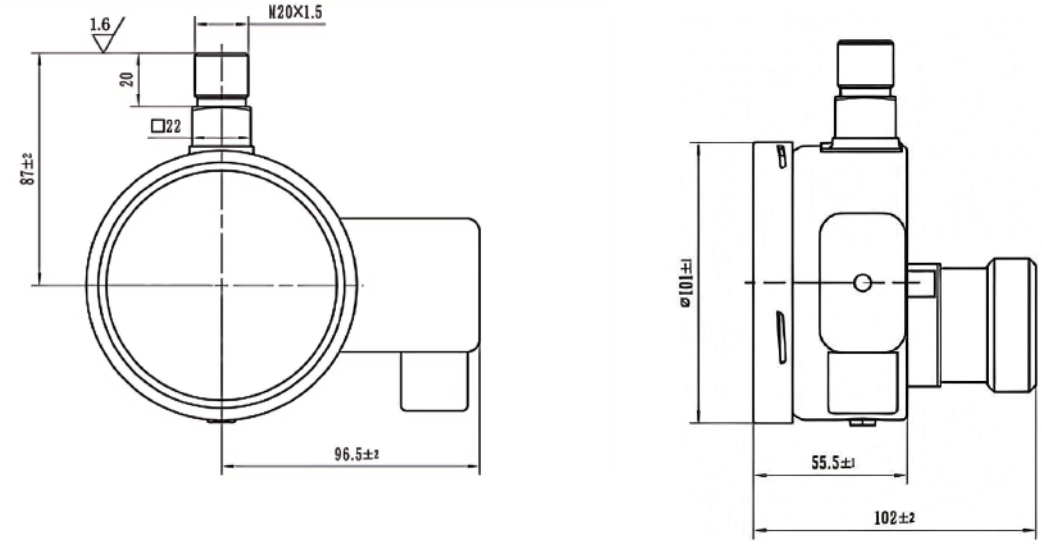
※10) Process Connection Direction	Option 1	Radial 3 o'clock
	Option 2	Radial 6 o'clock
	Option 3	Radial 9 o'clock
	Option 4	Radial 12 o'clock
	Option 5	Axial
	Option 6	According to customer specification



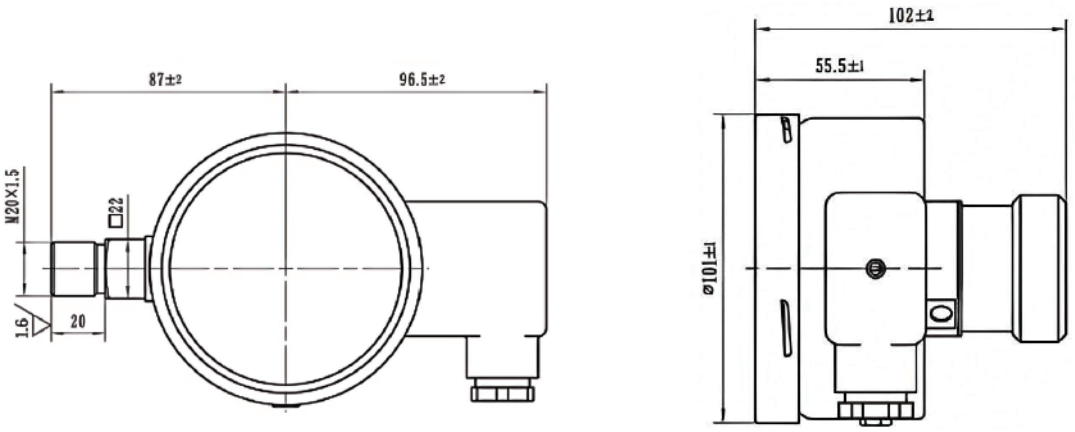
Radial 6 o'clock Dimension Diagram



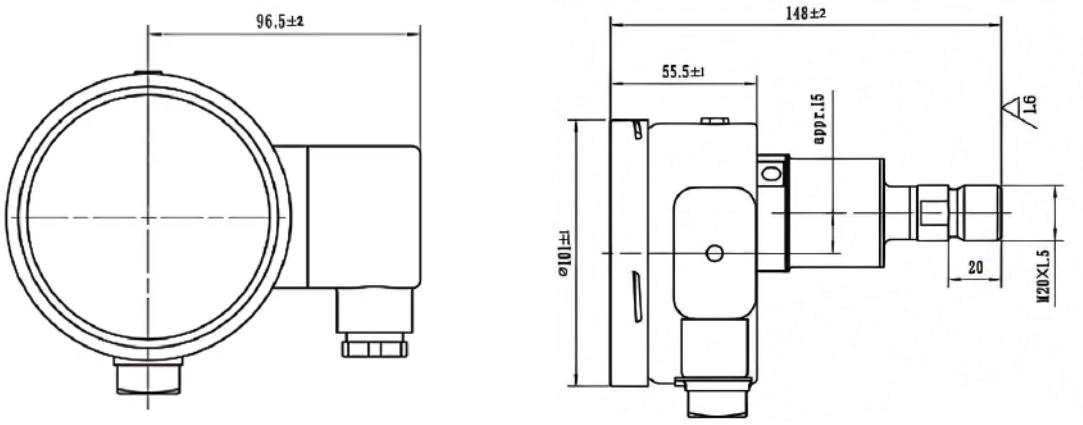
Radial 3 o'clock Dimension Diagram



Radial 12 o'clock Dimension Diagram



Radial 9 o'clock Dimension Diagram

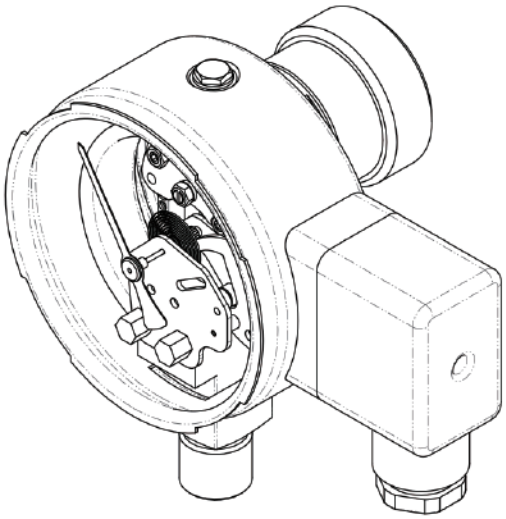


Axial Dimension Diagram

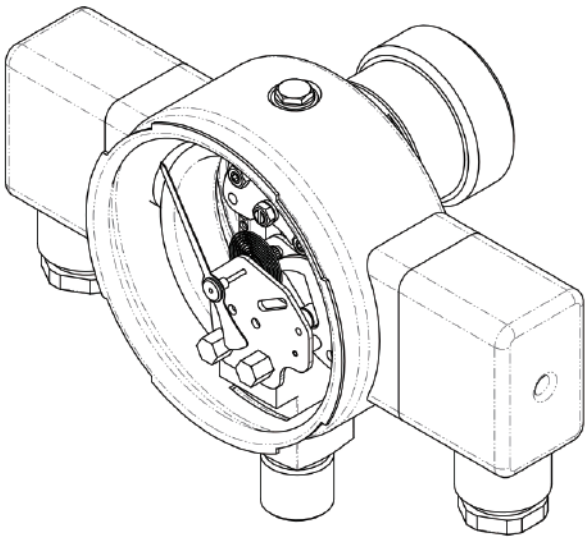
※11) Terminal Box Direction	Option 1	Radial 3 o'clock
	Option 2	Radial 9 o'clock
	Option 3	According to customer specification

※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

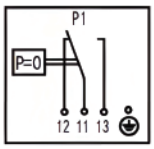


3 Sets of contacts

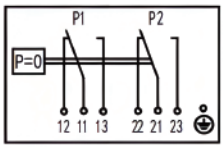


4 Sets of contacts

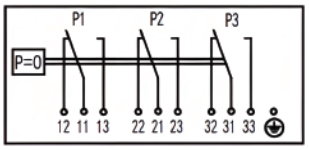
Micro-switch under non-pressurized conditions (P_{ref}=0) — For reference only; actual product may vary.



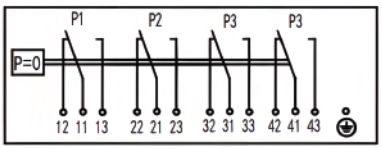
Option 1



Option 2



Option 3



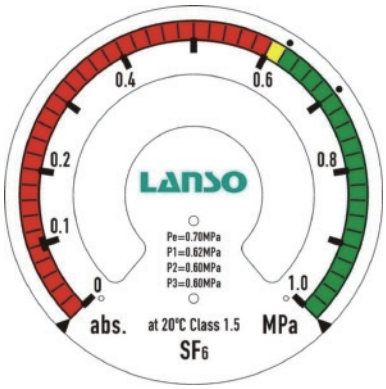
Option 4

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

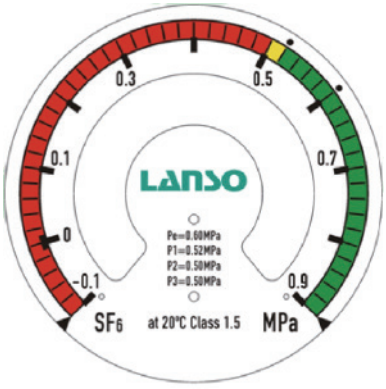
※13) Corrosion Protection	Option 1	C4-M
	Option 2	C5-M
	Option 3	According to customer specification

Chapter 3 Gas Density Monitor / Dial Display

Relative Pressure or Absolute Pressure selectable

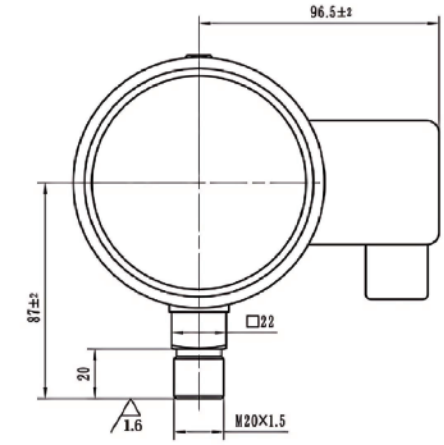


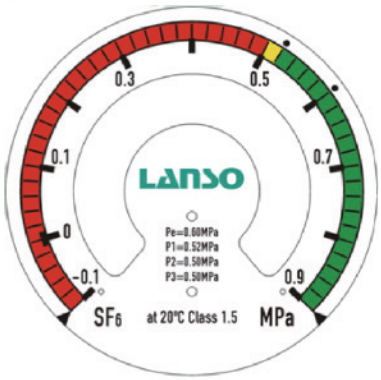
Absolute pressure dial



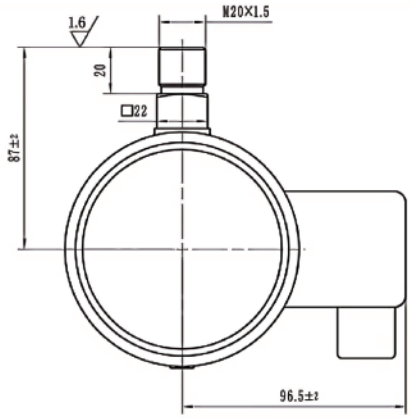
Relative pressure dial

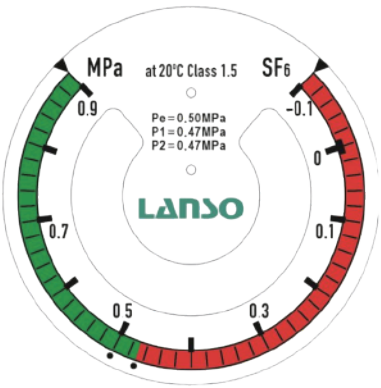
Dial direction adjustable via pressure interface position



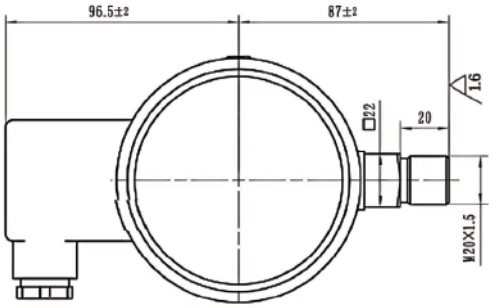


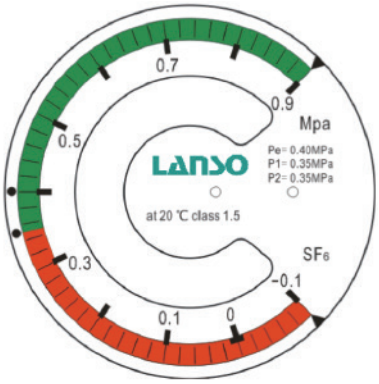
Front Mount Dial



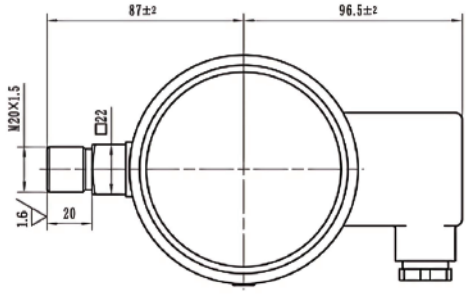


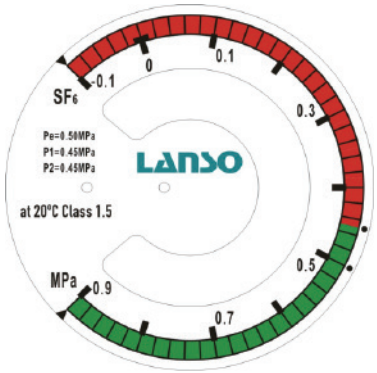
Inverted Mount Dial





Side mount dial (3 o'clock)





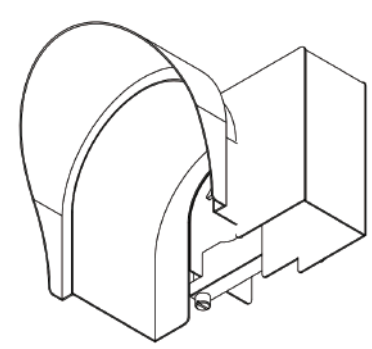
Side mount dial (9 o'clock)

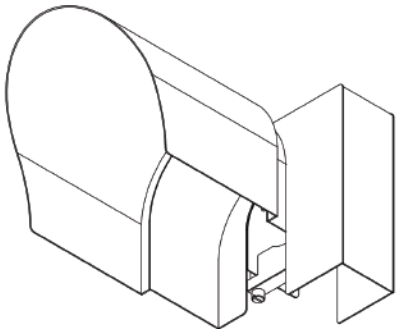
Dial Display Content	Indication Unit	bar, MPa, psi, etc.
	Pressure Type	Relative Pressure (no marking); Absolute pressure (marked "abs.")
	Color Zones	Green: Safe pressure range; Yellow: Alarm zone (equipment inspection required); Red: Danger zone (equipment operation prohibited)
	Accuracy Class	Meter accuracy at 20°C constant temperature
	Brand Marking	"LANSO" logo

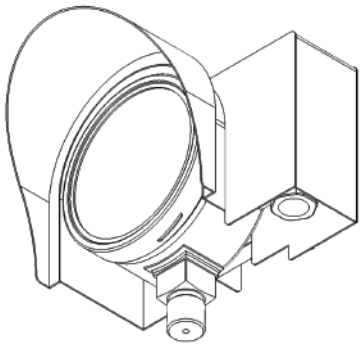
Chapter 4 Gas Density Monitor / List of Optional Auxiliary Materials

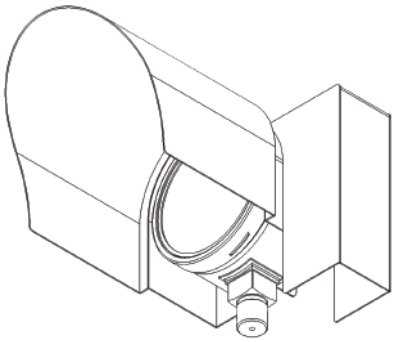
Water Protection Measures

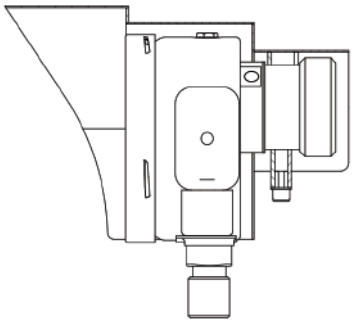
Weatherproof cover	Option 1	Standard weatherproof cover
	Option 2	Extended brim weatherproof cover
	Option 3	According to customer specification

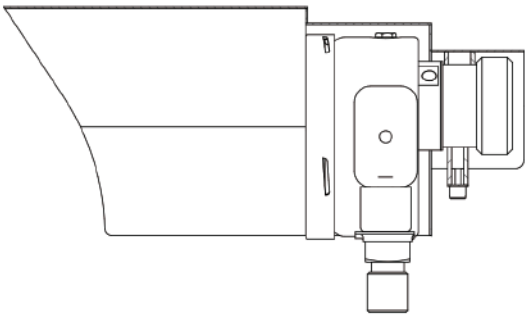










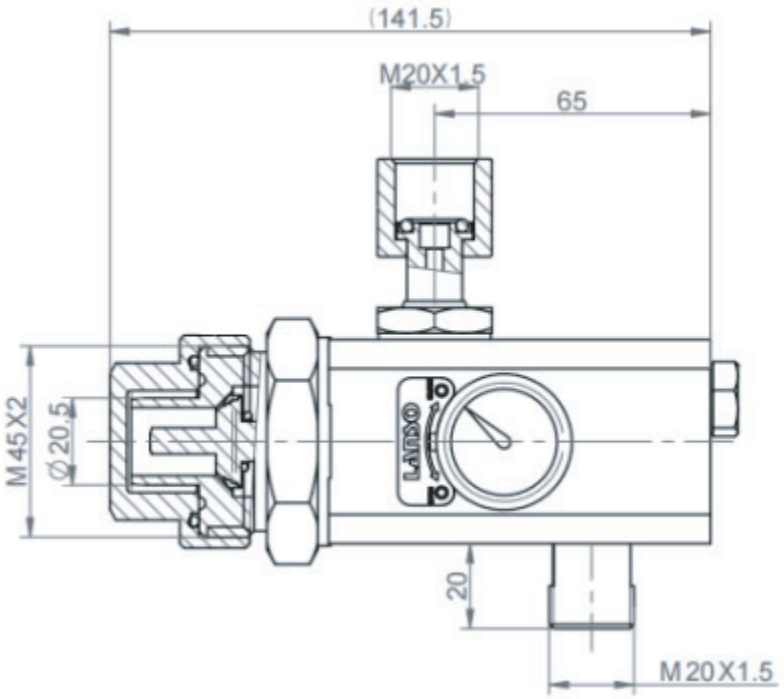


Option 1Standard weatherproof cover

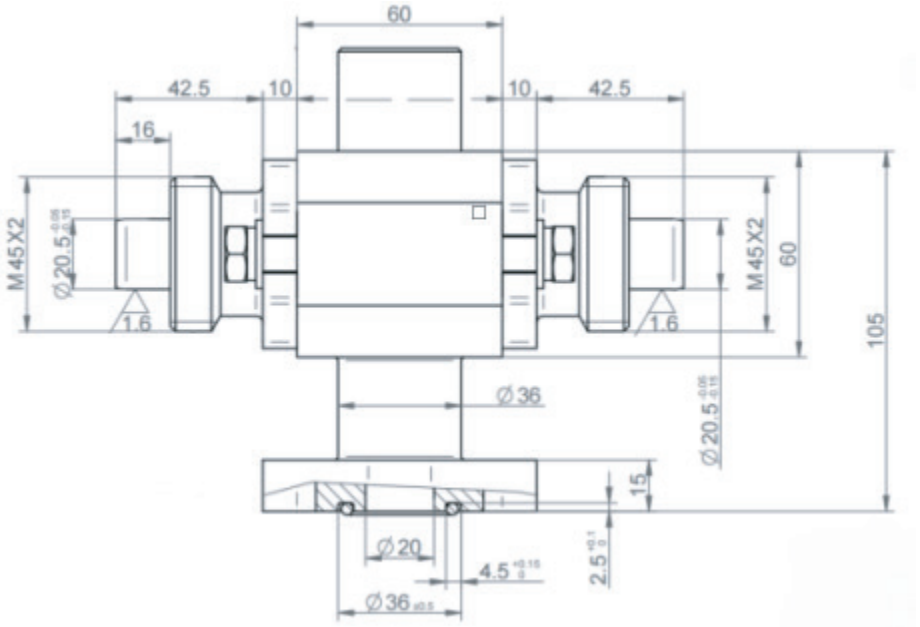
Option 2 Extended brim weatherproof cover

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

Multi port Valve Schematic Diagram



Ball Valve



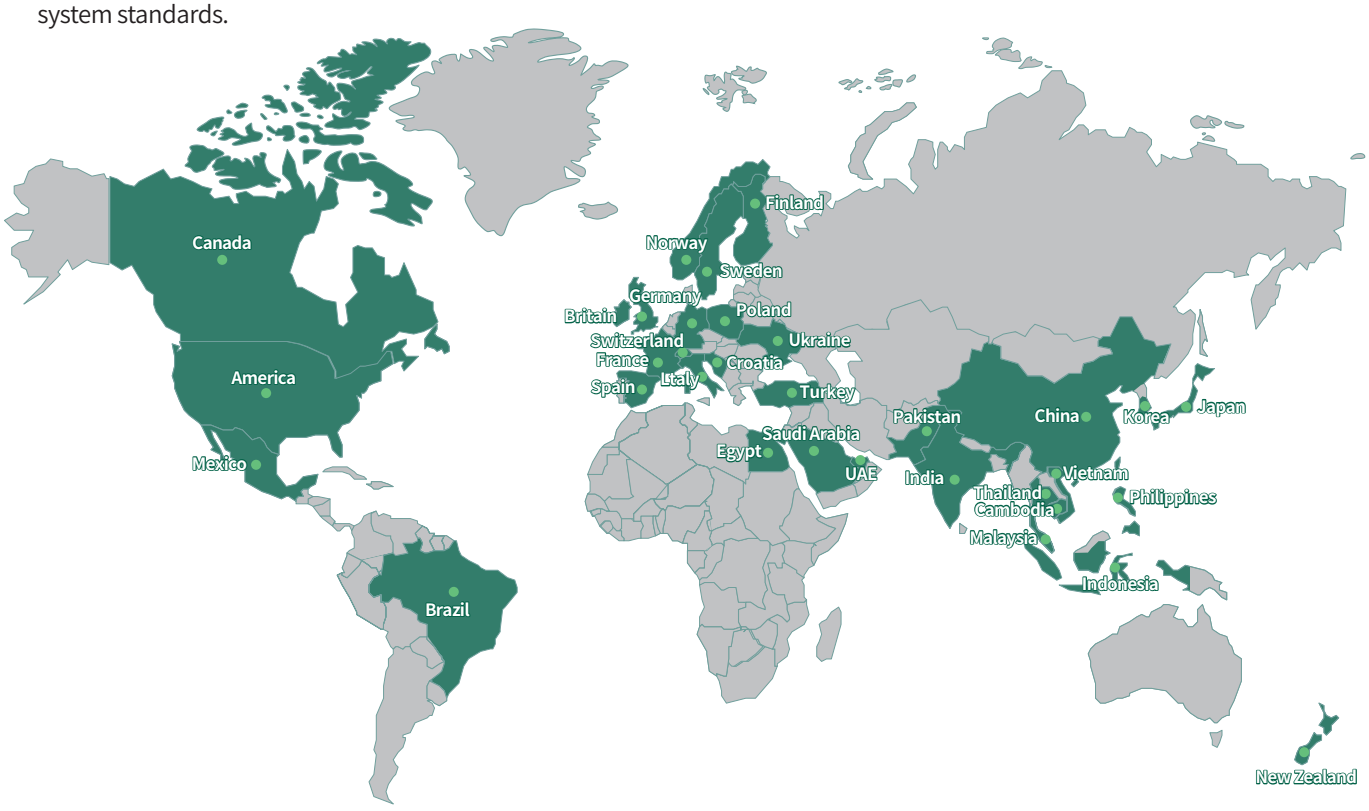
Needle Valve

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.



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