



Recorder



Flow



Pressure



Temp



Analyzer



Level

Datasheet

Pressure Transmitter

SUP- PE100

Supmea[®]

Committed to process automation solutions

E-mail: info@supmea.com

www.supmea.com

Datasheet**Pressure Transmitter****SUP- PE100**

The SUP-PE100 Compact Pressure Transmitter is well suited for pressure monitoring in HVAC, data center cooling, liquid cooling, and general industrial applications. Featuring a high-stability piezoresistive silicon sensor, it provides accurate and reliable measurement for water, coolant, and other compatible fluids.

With multiple current, voltage, and RS485 output options, the PE100 enables flexible integration with PLC, BMS, and equipment control systems. Its compact and robust design makes it suitable for chilled and cooling water systems, pumps, heat exchangers, CDUs, and primary and secondary cooling loops.

Features

- Multiple pressure ranges from 0–35 kPa to 0–1.6 MPa for Data Center liquid cooling applications.
- Up to 0.2 accuracy class for precise pressure measurement.
- $\pm 0.2\%$ FS/year long-term stability for continuous liquid cooling monitoring.
- Compact design for easy integration into Data Center liquid cooling systems.
- Vibration-resistant for reliable operation in Data Center liquid cooling systems.
- 316L SS wetted parts with EPDM sealing, suitable for PG/EG, DI water, silicone oil and selected fluorinated dielectric fluids.
- 4–20 mA, multiple voltage outputs including 0–5 V and 0.5–4.5 V, and RS485 Modbus RTU for flexible Data Center liquid cooling integration.

**Pressure Transmitter****Principle**

The diffused silicon pressure sensor operates based on the piezoresistive effect. According to this principle, the pressure of the measured medium is transmitted to the sensing diaphragm of the silicon piezoresistive chip through an isolation diaphragm and filled silicone oil. This brings a minute displacement of the sensing diaphragm proportional to the applied pressure. The resistance of the integrated Wheatstone bridge on the diaphragm changes accordingly. The electronic circuit detects this change and converts it into a corresponding standard output signal representing the measured pressure.

Parameters

Input		
Measured variables	Gauge pressure, absolute pressure, sealing pressure	
Measuring range	-100kPa~0...10kPa~60MPa	
Output		
Transmitter output	Output type	Load resistance RL
	(4~20) mA	RL≤(U-10V)/0.02A
	(1 ~5)V	RL≥5kΩ
	(0~5)V	
	(0 ~ 10)V	
	(0.5 ~ 4.5)V	
	Note: U is the supply voltage, unit V	
Communication output	RS-485 interface, Modbus	
Power supply		
Power supply	Output type	Power supply range
	(4~20) mA	(10~32)V
	(0~5) V, (1~5) V	(8~32)V
	(0~10)V	(12~32)V
	(0.5 ~ 4.5)V	(4.75 ~ 5.25)V
Electrical interface	Refer to the wiring section	
Performance parameters		
Accuracy	0.2/ 0.25/ 0.5 level	
Long-term stability	±0.2%FS/year Note: Pressure ranges below 35 kPa are increased proportionally.	
Response time	Current and voltage output type: T 90 ≤10ms RS485 output type: T 90 ≤100ms	
Temperature drift	10kPa ≤ range ≤ 60kPa: 2%FS (within the temperature compensation range) 60kPa < range ≤ 60MPa: 1.5%FS (within temperature compensation range)	
Compensation temperature	10kPa ≤ range < 25kPa: (0 ~ 60)℃ 25kPa ≤ range ≤ 60kPa: (0 ~ 70)℃ 60kPa < range ≤ 60MPa: (-10 ~ 70)℃	
Insulation resistance	20MΩ , 500VDC	
Insulation strength	50Hz, 500VAC	
Protection level	IP65	
Process conditions		
Overload pressure	(0.035~10) MPa: 150%FS (10~60) MPa: 125%FS	
Proof pressure	(0.035~10)MPa: 150%FS	

	(10~20)MPa: 125%FS
Burst pressure	200%FS
Medium temperature	(-20~85) °C
Wetted materials	Membrane material: 316L SS
	Process connection material: 304 SS or 316L SS
	Seal material: EPDM ; FKM optional
Environmental conditions	
Operating temperature	(-20 ~85) °C
Storage temperature	(-40 ~85) °C

(1) Hirschmann Structure Connection

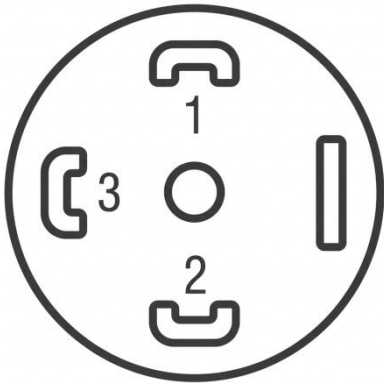


Fig.1 Hirschmann connector (DIN 175301-803 A)

Table 1 Wiring definition

No.	Current output	Voltage output	RS485
1	$V_{\text{supply+}}$	$V_{\text{supply+}}$	$V_{\text{supply+}}$
2	I_{out}	$V_{\text{supply-}}$	$V_{\text{supply-}}$
3	-	V_{out}	RS485-A
4	-	-	RS485-B

(2) Aviation Connector Connection



Fig.2 Diagram of aviation connector (M12x1)

Table 2 Wiring definition

No.	Current output	Voltage output	RS485
1	$V_{\text{supply+}}$	$V_{\text{supply+}}$	$V_{\text{supply+}}$
2	-	$V_{\text{supply-}}$	$V_{\text{supply-}}$
3	I_{out}	V_{out}	RS485-A
4	-	-	RS485-B

(3) Direct Lead Connection

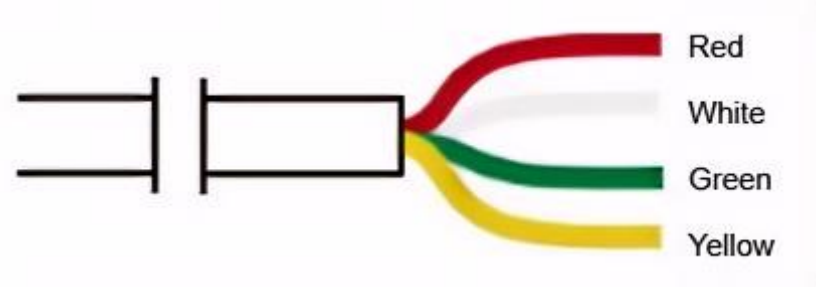


Fig.3 Lead wire diagram

Table 3 Wiring definition

No.	Current output	Voltage output	RS485
red	$V_{\text{supply}+}$	$V_{\text{supply}+}$	$V_{\text{supply}+}$
yellow	-	V_{out}	RS485-B
green	I_{out}	$V_{\text{supply}-}$	RS485-A
white	-	-	$V_{\text{supply}-}$

(4) Packard Connector

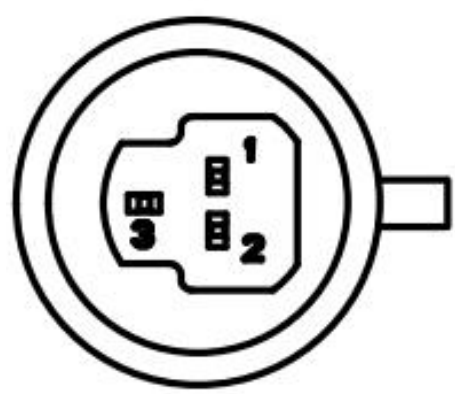


Fig.4 Packard connector wiring

Table 4 Wiring definition

No.	Current output	Voltage output
1	I_{out}	$V_{\text{supply}-}$
2	$V_{\text{supply}+}$	$V_{\text{supply}+}$
3	-	V_{out}

Dimension

(1) Hirschmann Connector

① Upper limit of range < 1MPa

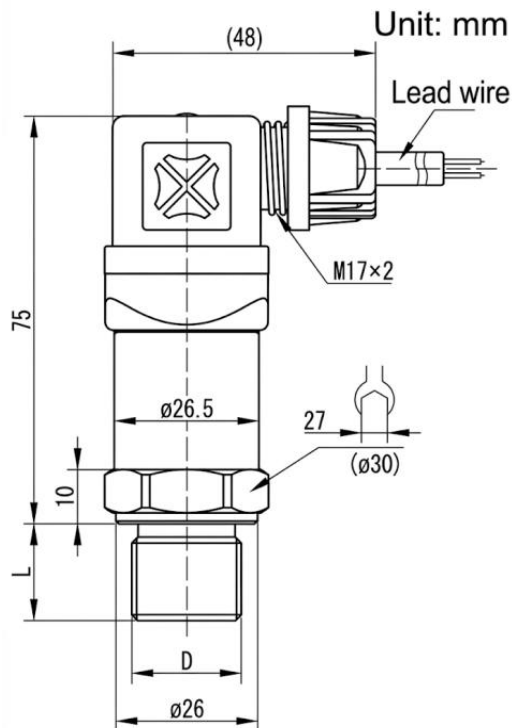


Fig.5 Dimensions of Hirschmann Connector Type

② 1MPa ≤ Upper limit of range ≤ 20MPa

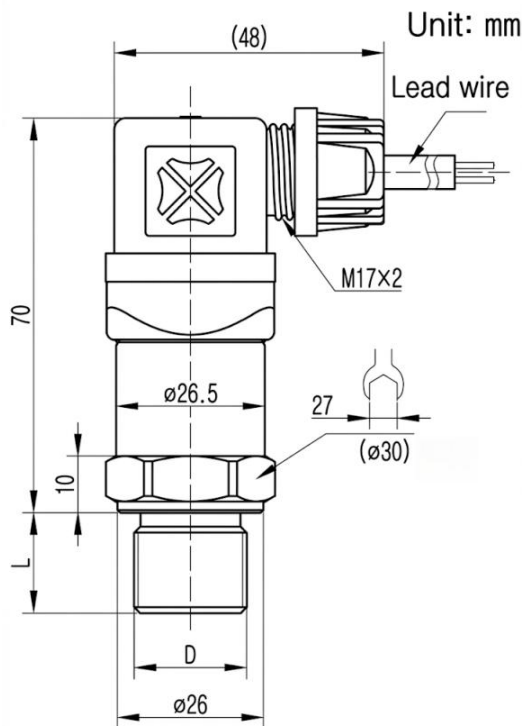


Fig.6 Dimensions of Hirschmann Connector Type

③ 20MPa < Upper limit of range ≤ 60MPa

Unit: mm

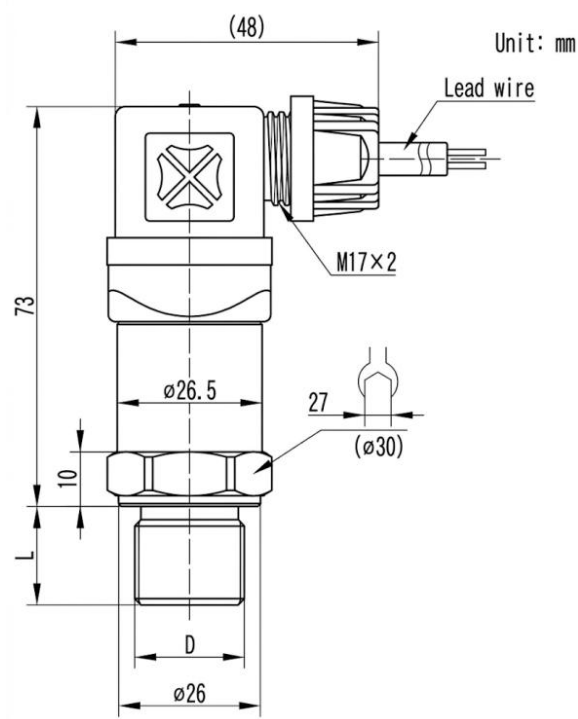


Fig.7 Dimensions of Hirschmann Connector Type

(2) Aviation Connector

(1) Upper limit of range <1MPa

Unit: mm

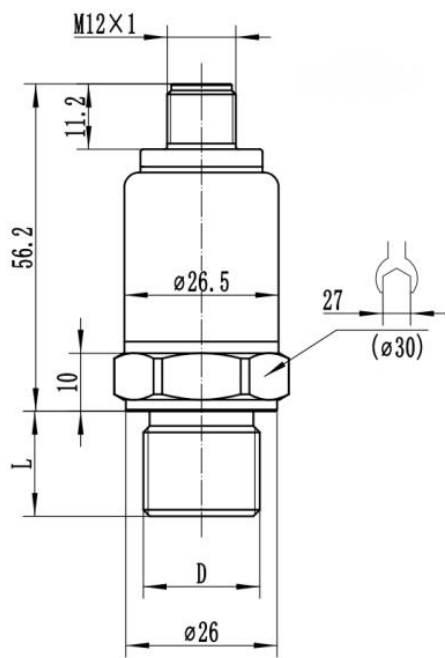


Fig.8 Dimensions of Aviation Connector Type

(2) $1\text{MPa} \leq \text{Upper limit of range} \leq 20\text{MPa}$

Unit: mm

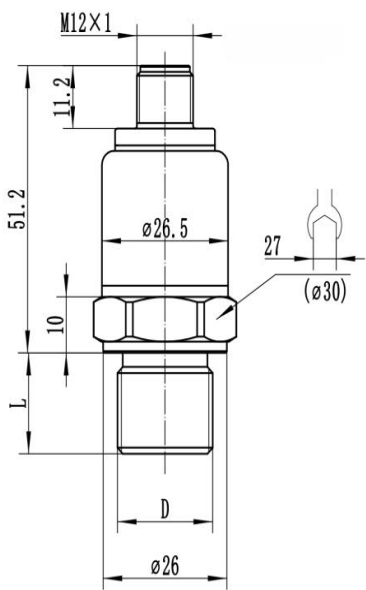


Fig.9 Dimensions of Aviation Connector Type

(3) $20\text{MPa} < \text{Upper limit of range} \leq 60\text{MPa}$

Unit: mm

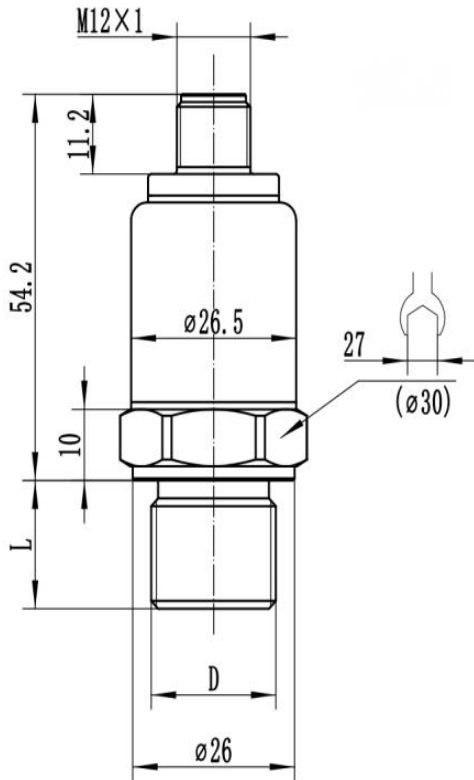


Fig.10 Dimensions of Aviation Connector Type

(3) Lead Wire

① Upper limit of range < 1MPa

Unit: mm

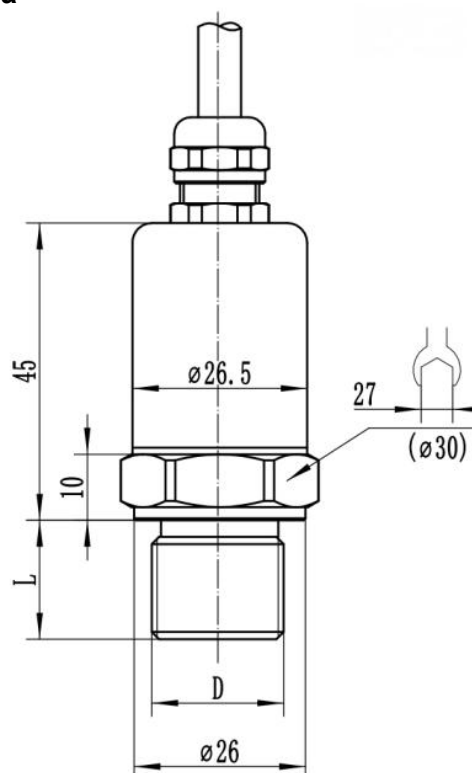


Fig.11 Dimensions of Lead Wire Type

② $1\text{MPa} \leq \text{Upper limit of range} \leq 20\text{MPa}$

Unit: mm

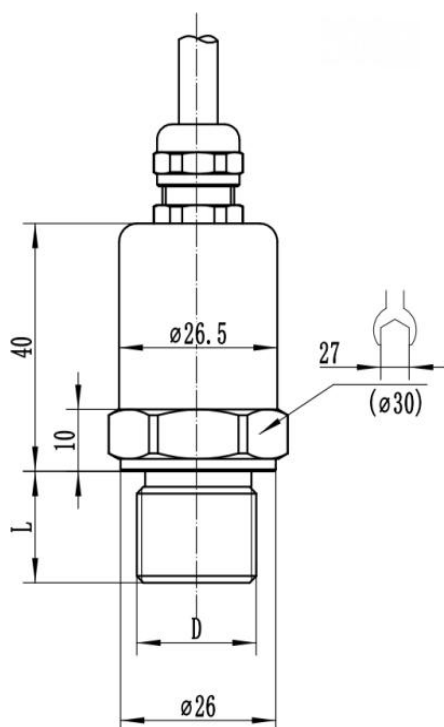


Fig.12 Dimensions of Lead Wire Type

③ 20MPa < Upper limit of range ≤ 60MPa

Unit: mm

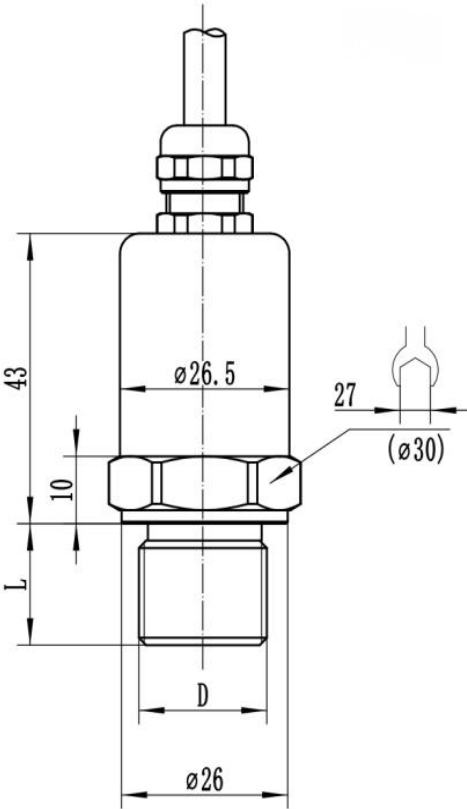


Fig.13 Dimensions of Lead Wire Type

(4) Packard Connector

④ Upper limit of range < 1MPa

Unit: mm

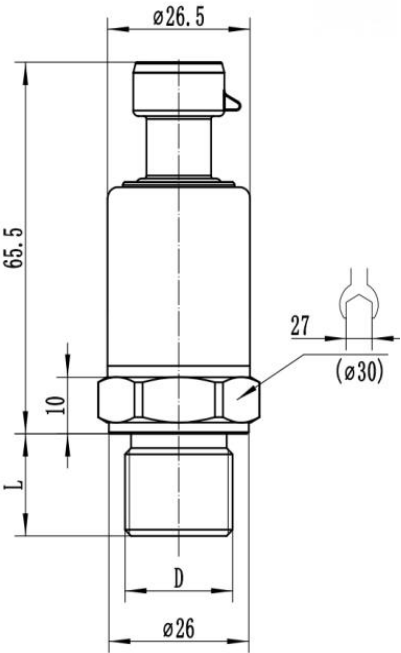


Fig.14 Dimensions of Packard Connector Type

⑤ $1\text{MPa} \leq \text{Upper limit of range} \leq 20\text{MPa}$

Unit: mm

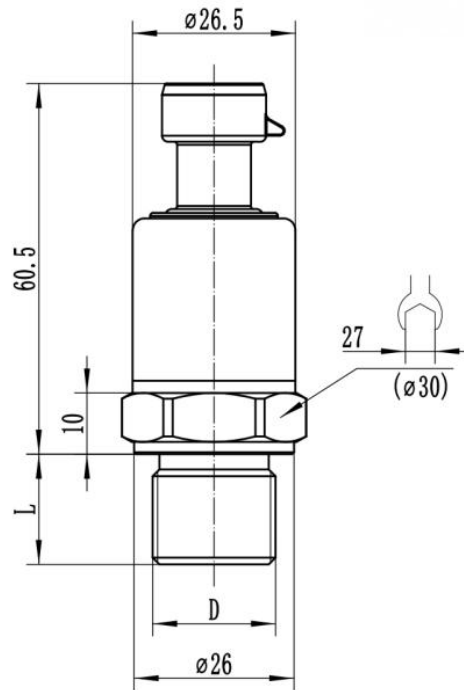


Fig.15 Dimensions of Packard Connector Type

⑥ $20\text{MPa} < \text{Upper limit of measuring range} \leq 60\text{MPa}$

Unit: mm

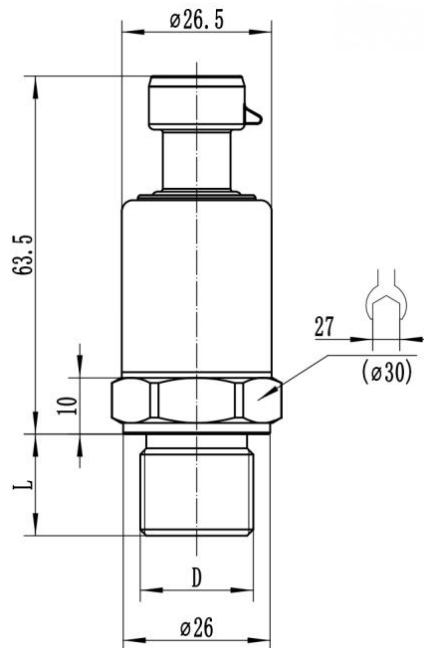


Fig.16 Dimensions of Packard Connector Type

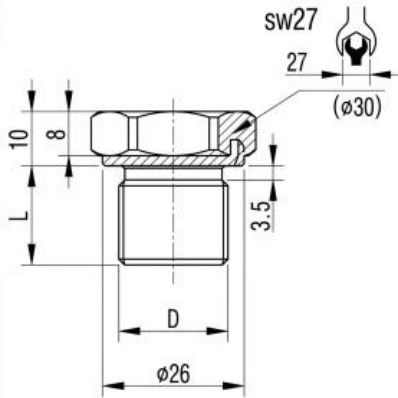
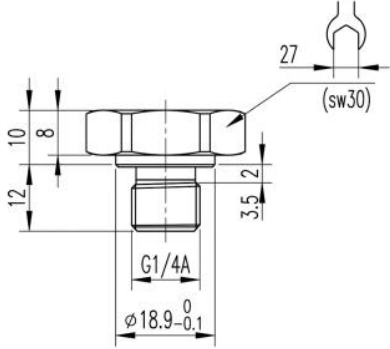
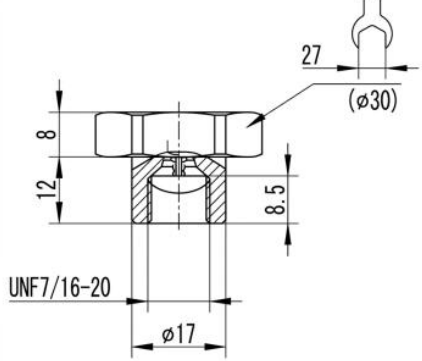
Process Connection

Process connections: standard M20×1.5 thread, G1/4 B thread,

G1/2 B thread, NPT 1/4 thread, NPT 1/2 thread, M14×1.5 thread, 7/16-20UNF thread, etc. Special

threads need to be customized.

Table 5 Thread size

	Thread type D	Thread length L (mm)
	M20×1.5	18
	G1/4	15
	G1/2	18
	NPT 1/4	15
	NPT 1/2	18
	M14×1.5	15
 G1/4A thread	 7/16-20UNF thread	

Material

Shell material: 304SS or 316LSS

Membrane material: 316LSS

Process connection material: 304SS or 316LSS

Ordering code

SUP-PE100								Description
Sensor type	G							gauge pressure
	A							absolute pressure
	B							sealed gauge pressure
Measuring range	1A							-100-0kPa
	1B							-100-100kPa
	1C							-100-1000kPa
	5M							0-35kPa
	1Q							0-50kPa
	1S							0-100kPa
	2A							0-0.6MPa
	2B							0-1MPa
	2C							0-1.6MPa
	2D							0-2.5MPa
	2E							0-4MPa
	2H							0-10MPa
	2K							0-20MPa
	XX							others
Accuracy		K						Level 0.5
		G						Level 0.25
		F						Level 0.2
Output and power supply			A1					Two-wire 4-20mA
			A2					1-5V, 24VDC
			A3					0-10V, 24VDC
			A4					0-5V, 24VDC
			S6					0.5-4.5V, 24VDC
			A6					0.5-4.5V, 5VDC
			XX					others
Process connection				L2				M20×1.5 external thread
				G2				G1/2 external thread
				G1				G1/4 external thread
				G7				G1/2 external thread (ED seal)
				G6				G1/4 external thread (ED seal)
				NA				NPT1/4 external thread
				NC				NPT1/2 external thread

	L1					M14×1.5 external thread
	AJ					7/16-20UNF external thread
	AK					7/16-20UNF internal thread
	XX					others
Diaphragm and process connection		A				316LSS, 304SS
		B				316LSS, 316LSS
		X				others
Electrical interfaces, housing material and protection level		WA				Hirschmann connector, 304SS, IP65
		WB				Hirschmann connector, 316LSS, IP65
		WG				Aviation connector, 304SS, IP65
		WH				Aviation connector, 316LSS, IP65
		W9				Aviation connector, 304SS, IP68
		W0				Aviation connector, 316LSS, IP68
		WN	Direct lead wire, 304SS, IP65			
		WP	Direct lead, 316LSS, IP65			
		D1	Packard connector, 304SS, IP65			
		XX	others			
Cable length			02	2m		
			05	5m		
			10	10m		
			00	0m		
			XX	others		
Accessories					PA	Carbon steel threaded base
					PB	Threaded base 304SS
					PD	304SS condenser bend