



Recorder



Flow



Pressure



Temp



Analyzer



Level

Datasheet

Pressure Transmitter

SUP- PE100

Supmea[®]

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

The compact pressure transmitter adopts an imported-precision and highly stable diffused silicon sensing element. With a dedicated conditioning circuit, the measured electrical signal is converted into standard output signals such as current, voltage, or RS485 communication signals.

It is widely used in industrial sectors including petroleum, chemical processing, metallurgy, power generation, light industry, and environmental protection, enabling the measurement and control of gauge pressure, absolute pressure, or sealed reference pressure of various fluids.

Features

- Compact structure with a small and aesthetic design.
- Advanced diaphragm and oil-filled isolation technology
- High stability and reliability
- Vibration-resistant and resistant to radio-frequency interference
- 316L stainless steel isolation diaphragm structure
- High accuracy with an all-stainless-steel construction
- Supports voltage, current, and RS485 signal outputs
- Strong anti-interference capability with excellent long-term stability.
- Wide measuring range, supporting absolute, gauge and sealed reference pressure.

**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 silicon oil.

This brings a minutedisplacement of the sensing diaphragm proportional to the applied pressure . This resistance of theintegrated 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	
Medium temperature	(-20~85) ℃	
Environmental conditions		
Operating temperature	(-20 ~85) ℃	
Storage temperature	(-40 ~85) ℃	

Electrical Connection

(1) Hirschmann Structure Connection

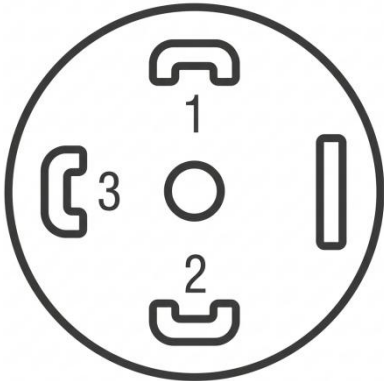


Fig.1 Hirschmann connector (DIN 175301-803 A)

Table 1 Wiring definition

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

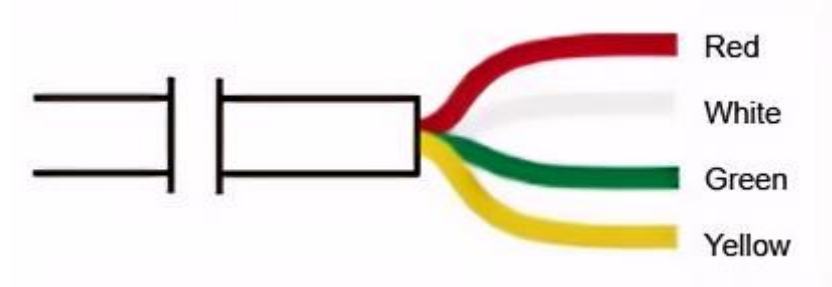


Fig.3 Lead wire diagram

Table 3 Wiring definition

Color	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

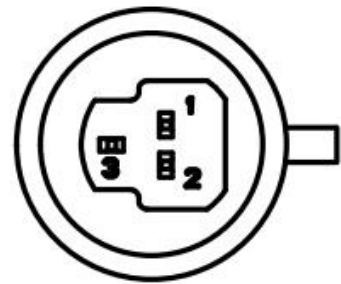


Fig.4 Packard connector wiring

Table 4 Wiring definition

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

Dimension

(1) Hirschmann Connector

① Upper limit≤1MPa

Unit: mm

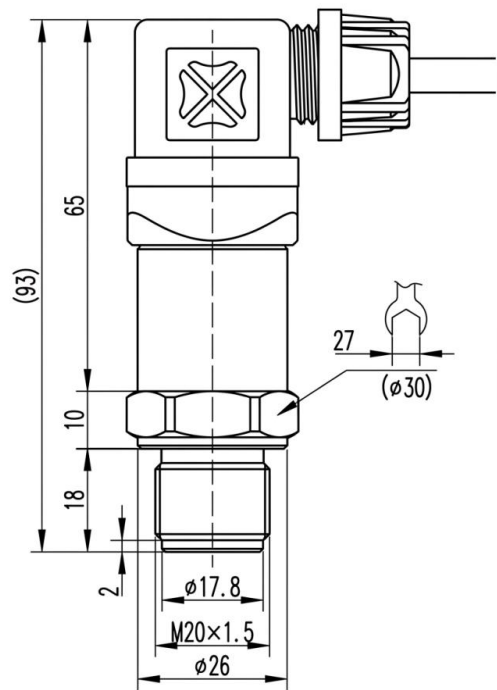


Fig.5

② 1MPa < upper limit of range ≤ 20MPa

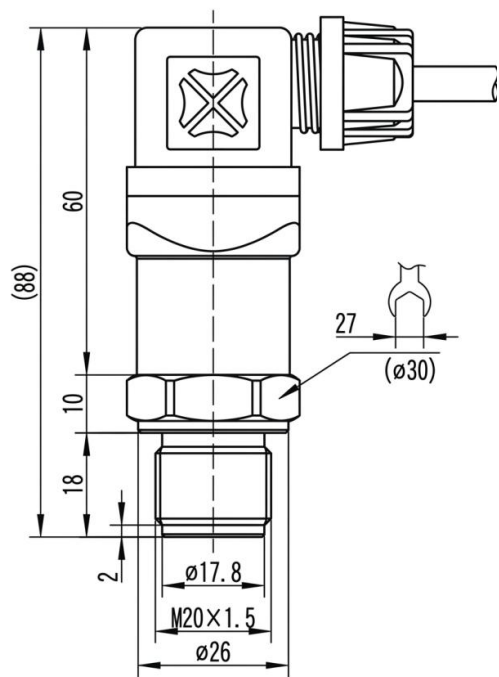


Fig.6

③ 20MPa < upper limit of range ≤ 60MPa

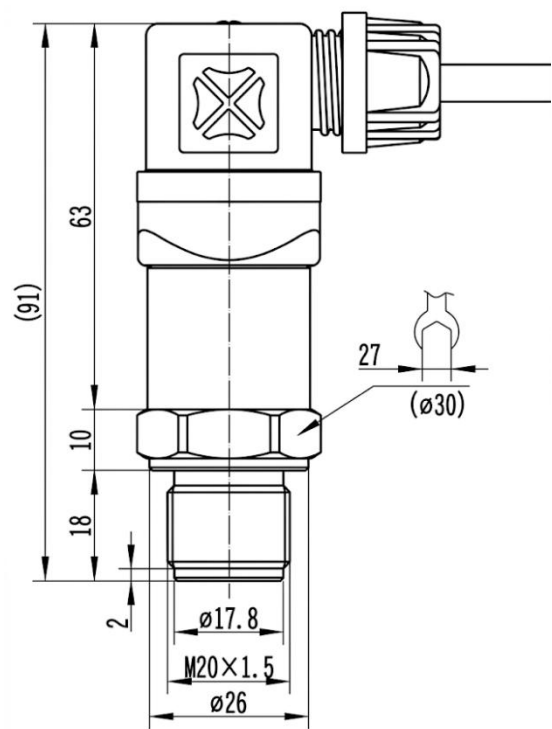


Fig.7

(2) Aviation Connector

① Upper limit ≤ 1MPa

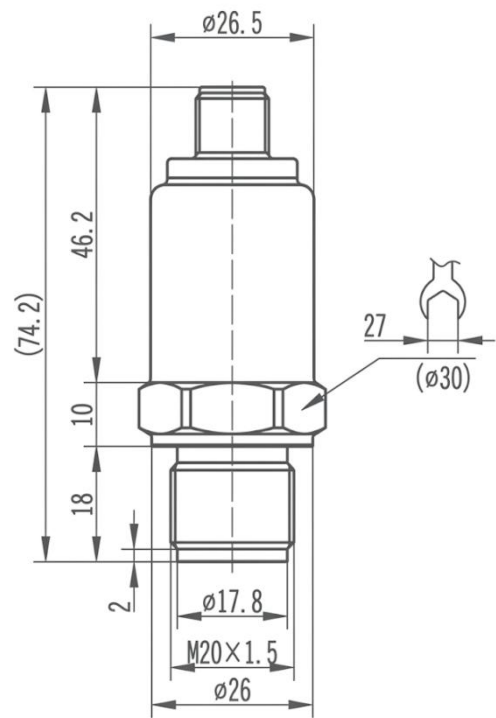


Fig.8

② 1MPa < upper limit of range ≤ 20MPa

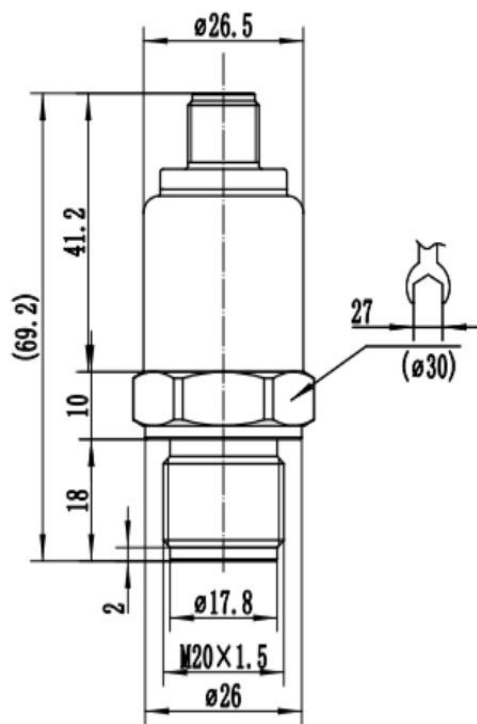


Fig.9

③ 1MPa < upper limit of range ≤ 20MPa

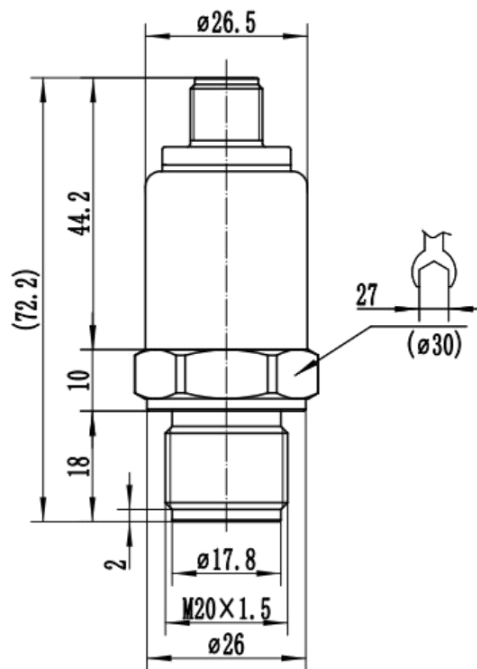


Fig.10

(3) Lead Wire

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

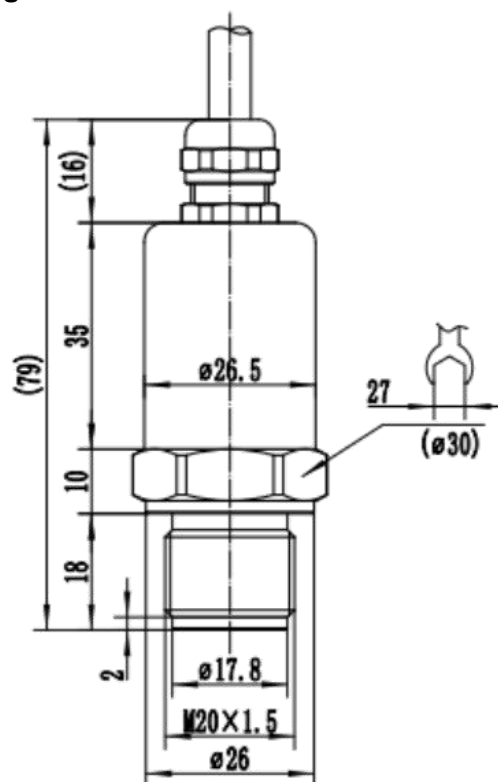


Fig.11

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

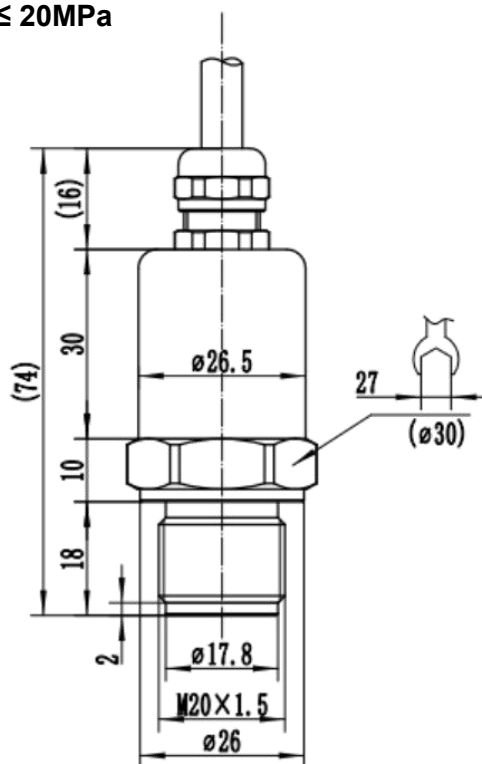


Fig.12

③ 1MPa < upper limit of range ≤ 20MPa

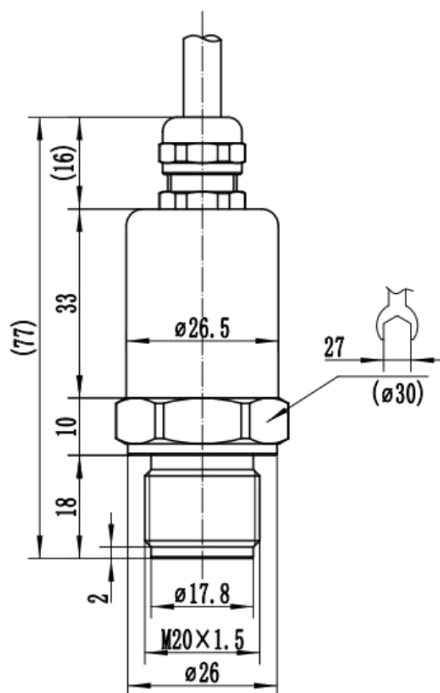


Fig.13

(4) Packard Connector

① Upper limit ≤ 1MPa

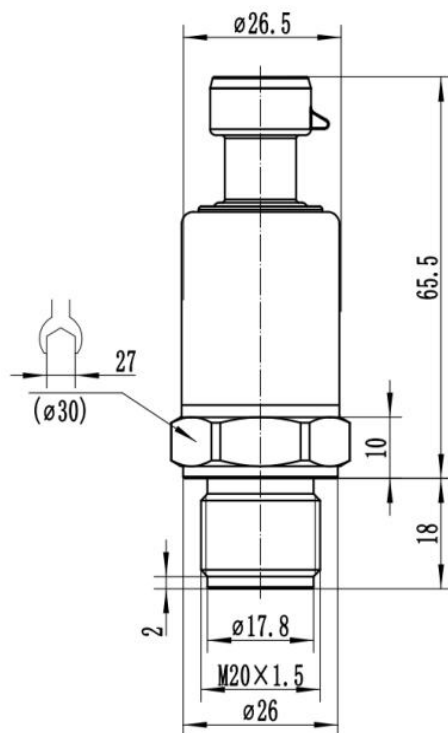


Fig.14

② 1MPa≤Upper limit≤20MPa

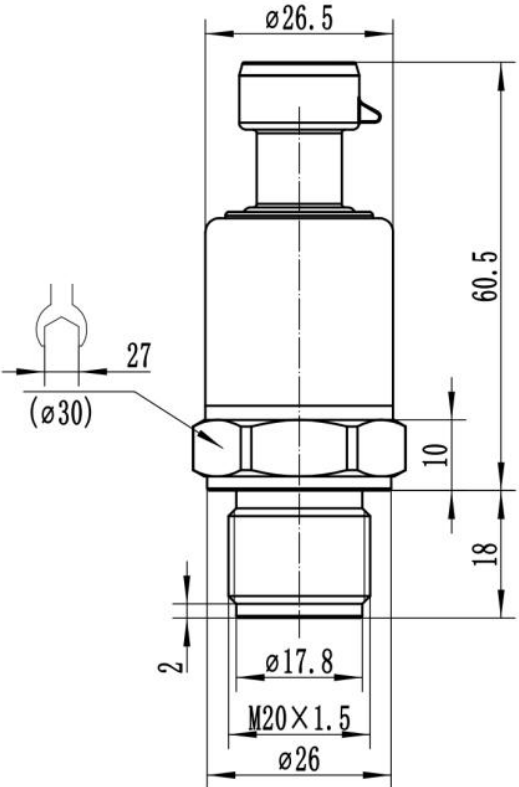


Fig.15

③ 20MPa≤Upper limit≤60MPa

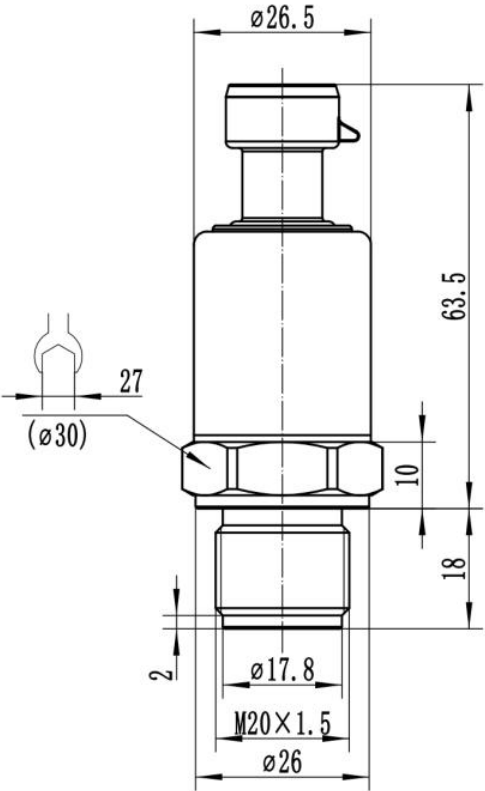


Fig.16

Ordering code

SUP-PE100										Description
Sensor type	G									gauge pressure
	A									absolute 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
				A5						RS485, 24VDC
				XX						others
Process connection				L2						M20×1.5 external thread
				G2						G1/2 external Thread
				G1						G1/4 external Thread
				NA						NPT1/4 external Thread
				NC						NPT1/2 external Thread
				L1						M14×1.5 external thread
				XX						others
Diaphragm and process connection					A					316LSS, 304SS
					B					316LSS, 316LSS
					X					others
							WA			Hirschmann connector, 304SS, IP65
							WB			Hirschmann connector,

Electrical interfaces, housing material and protection level	WG			316LSS, IP65
	WH			Aviation connector, 304SS, IP65
	W9			Aviation connector, 316LSS, IP65
	W0			Aviation connector, 304SS, IP68
	WN			Aviation connector, 316LSS, IP68
	WP			Direct lead, 304SS, IP65
	D1			Direct lead, 316LSS, IP65
	X			Packard connector, 304SS, IP65
				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