

# MPM4841 Pressure Sensor



## Introduction

### Applications

- Machine manufacturing
- Petrochemical engineering
- Measurement and control
- Hydraulic and pneumatic
- Energy and water treatment

### Brief Introduction

MPM4841 pressure transmitter uses a high-stability, high reliability piezoresistive pressure sensing element and a special conditioning circuit to output a standard current or voltage signal. It is compact in size, excellent in quality, stable and reliable in overall performance. It is very suitable for general industry and cost effective.

We can also provide products that meet the requirements of our customers for their specified applications in a short period of time.

### Pressure Type

Gauge / Absolute / Sealed Gauge

### Pressure Range

Type A: 0bar~0.35bar...200bar

Type B: 0bar~250bar...600bar

### Output Signal

4mA~20mA DC

0V~10V DC

0.5V~4.5V DC

0V~5V DC

1V~5V DC

### Reference Accuracy

Max.  $\pm 0.5\%$ FS, see details on specifications

### Media

Liquids compatible with wetted material

### Certificates



## Specifications

### Pressure Ranges and Limits

Type	Range bar	Max. overpressure bar	Min. burst pressure bar	Pressure Type
A	0~0.35	1	5	G
	0~0.6	1.8	5	G
	0~1	3	5	G.A
	0~1.6	3	5	G.A
	0~2.5	5	10	G.A
	0~3	6	10	G.A
	0~4	8	12	G.A
	0~6	12	20	G.A
	0~10	20	30	G.A
	0~16	30	60	G.A
	0~25	50	75	G.A
	0~30	60	100	G.A
	0~40	80	120	S.A
	0~60	120	180	S.A
	0~100	200	300	S.A
	0~160	300	400	S.A
0~200	300	400	S.A	
B	0~250	400	500	S.A
	0~400	600	800	S.A
	0~500	750	1000	S.A
	0~600	750	1000	S.A

The above measurement range is also available in units of  $\text{kg/cm}^2$ , MPa and kPa etc.

See the pressure unit conversion table for details.

Overpressure: products performance is not affected within the nominal max. overload pressure range.

Burst Pressure: Damage the products beyond the nominal min. pressure range.

Pressure Type: G: gauge, A: absolute, S: sealed gauge.

Pressure Unit Conversion Table

Unit	Pa(N/m <sup>2</sup> )	kPa	MPa	bar	mbar
1 Pa(N/m <sup>2</sup> )	1	0.001	0.000001	0.00001	0.01
1 kPa	1000	1	0.001	0.01	10
1 MPa	1000000	1000	1	10	10000
1 bar	100000	100	0.1	1	1000
1 mbar	100	0.1	0.0001	0.001	1
1 mmH <sub>2</sub> O	9.807	0.009807	0.000009807	0.00009807	0.09807
1 kg/cm <sup>2</sup>	98070	98.07	0.0981	0.9807	980.7
1 atm	101300	101.3	0.1013	1.013	1013
1 mm Hg	133.3	0.1333	0.0001333	0.001333	1.333
1 psi	6895	6.895	0.006895	0.0689	68.948
Unit	mmH <sub>2</sub> O	kg/cm <sup>2</sup>	atm	mm Hg	psi
1 Pa(N/m <sup>2</sup> )	0.102	0.0000102	0.000009869	0.007501	0.000145
1 kPa	101.9716	0.0102	0.009869	7.501	0.145
1 MPa	101972	10.2	9.869	7501	145.038
1 bar	10197	1.02	0.9869	750.1	14.5038
1 mbar	10.1972	0.00102	0.0009869	0.7501	0.0145
1 mmH <sub>2</sub> O	1	0.0001	0.00009678	0.0734	0.001422
1 kg/cm <sup>2</sup>	10000	1	0.9678	734.2	14.224
1 atm	10330	1.033	1	760.1	14.68
1 mm Hg	13.62	0.001362	0.001316	1	0.0193
1 psi	704.3	0.0703	0.068	51.71	1

## Performance test standards and baseline test conditions

Test standard: IEC 61298-1

### Reference Condition

Temperature: 15°C ~25°C

Atmospheric Pressure: 860mbar~1060mbar

Relative Humidity: 45% ~75 %

Power Supply: 24 V DC

### Performance

Accuracy:  $\pm 0.5\%$  FS

Long-term Stability:  $\pm 0.3\%$ FS/ year (Max.)

Based on standard and baseline test conditions, including linearity, hysteresis and repeatability.

### Ambient Temperature Effect

Zero Temperature Coefficient:

$\pm 0.05\%$ FS/°C ( $\leq 1$ bar)

$\pm 0.02\%$ FS/°C ( $> 1$ bar)

FS Temperature Coefficient:

$\pm 0.05\%$ FS/°C ( $\leq 1$ bar)

$\pm 0.02\%$ FS/°C ( $> 1$ bar)

### Power Supply Impact

Zero and FS changes do not exceed  $\pm 0.005\%$ FS/V

### Load Impact

Zero and FS changes do not exceed  $\pm 0.05\%$ FS/k $\Omega$

### Weight

A:  $\leq 150$ g

B:  $\leq 200$ g

### Vibration Environment

Vibration resistance: 10g(@20Hz~2000Hz) (IEC 60068-2-6 standard, under resonance conditions), available for vibration resistance up to 20g according to customer's requirements.

Impact resistance: 100g/11ms (IEC 60068-2-27 standard, mechanical shock)

### Output Signal

Output form	Output	Power Supply
2 wire	4mA~20mA DC	8~30V DC
3 wire	0V~10V DC	12~30V DC
3 wire	0.5V~4.5V DC	12~30V DC
3 wire	0V~5V DC	12~30V DC
3 wire	1V~5V DC	12~30V DC

### Service Life

Max. load cycle:  $10^7$  times

### Insulation Resistance

$\geq 100\text{M}\Omega@500\text{V DC}$

### Time Performance

Range	Response Time	Power-on Time
$\geq 350$ mbar	< 3ms	< 20ms

### Environmental Conditions

Item	Operation Condition
Medium Temperature	-10°C ~70°C
Ambient Temperature	-10°C ~70°C
Storage Temperature	-40°C ~80°C
Protection	IP65(B1 and B4 gauge type)
	IP67(B2 and B4 non-gauge type)

**Technical Parameter**

Output	4mA~20mA DC	0.5V~4.5V DC	1V~5V DC	0V~5V DC	0V~10V DC
Power Supply	8V~30V DC	12V~30V DC			
Power Consumption Current	≤22mA	≤7mA			
Load Resistance	≤ (U-8) /0.02 (Ω)	≥10kΩ			
Transmission Distance	< 1000m(@24V DC, load 250Ω)	< 5 m(@24V DC, load 10kΩ)			

**Electromagnetic Compatibility**

No.	Item	Standard	Testing Conditions	Performance
1	Radiation Interference (housing)	GB/T 9254/EN 55011	30MHz~1000MHz	OK
2	Conducted Interference (DC)	GB/T 9254/EN 55011	0.15MHz~30MHz	OK
3	Electrostatic Discharge Immunity	GB/T 17626.2/IEC 61000-4-2	4kV( contact ), 8kV( air )	A(*1)
4	Radio Frequency Magnetic Field	GB/T 17626.3/IEC 61000-4-3	10V/m(80MHz~1GHz)	A(*1)
5	Power Frequency Magnetic Field	GB/T 17626.8/IEC 61000-4-8	30A/m	A(*1)
6	Electrical Fast Burst Immunity	GB/T 17626.4/IEC 61000-4-4	2kV(5/50ns,100kHz)	A(*1)
7	Surge Immunity	GB/T 17626.5/IEC 61000-4-5	500V(12μs/50μs)	B(*2)
8	RF Induction Conduction Anti-harassment	GB/T 17626.6/IEC 61000-4-6	10V(150kHz~80MHz)	A(*1)

\*1: Performance class A, normal performance within the limits of the specifications

\*2: Performance class B, performance or function is temporarily reduced or lost, but can recover; keeps the actual operating conditions, storage and data unchanged.

**Construction Material**

A: Welded

Housing: SS 316L

Sensor Housing: SS 304/SS 316L

Plug: PA

Diaphragm: SS 316L

Rectangle Sealing Ring: Viton

B: Assembled

Housing: SS 316L

O-ring: Viton

Sensor Housing:SS 316L

Plug: PA

Diaphragm: SS 316L

Rectangle Sealing Ring: Viton

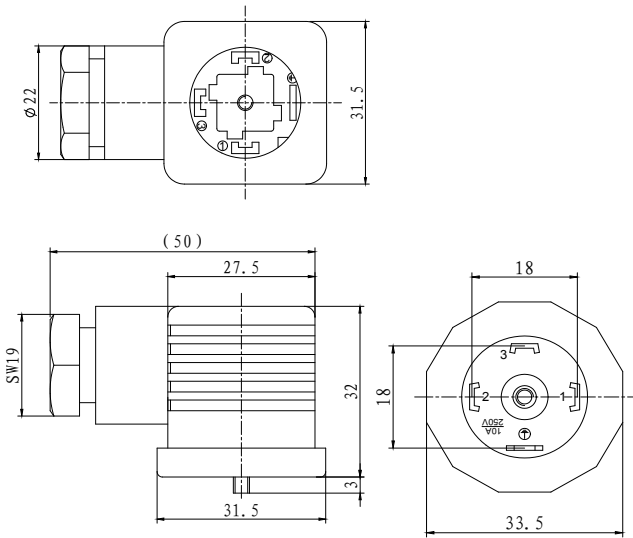
**Order Guide****Electrical Connection Code**

Code	Detail
B1	4-pin plug
B2	Cable Connection
B4	M12×1 Four-core Plug-in Connection

**Electrical Connection****Electrical definition of connector**

Pin	2-wire	3-wire
1	(+V)	(+V)
2	(0V/+OUT)	(GND)
3	Null	(+OUT)

## Diagram of connector



Applicable cable: 5-core with shielded sleeve OD:  $\phi 4.9$  mm

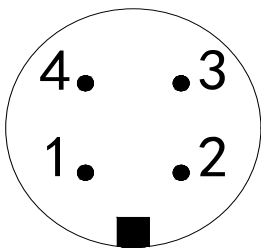
## Definition of cable wiring

Cable color	2-wire	3-wire
Blank	(+V)	(+V)
Red	(OV/+OUT)	(+OUT)
White	Null	(GND)

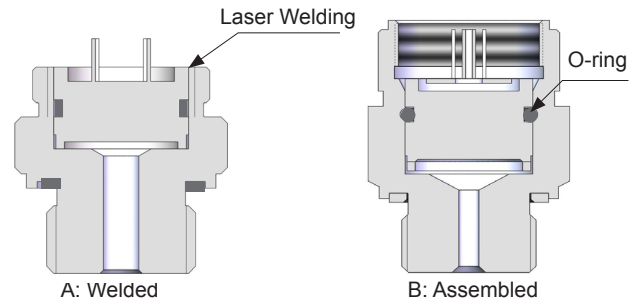
## Wiring definition of M12 $\times$ 1 four-core connector

Pin	2-wire	3-wire
1	(+V)	(+V)
2	Null	(GND)
3	(OV/+OUT)	(+OUT)

## Diagram of M12 $\times$ 1 four-core connector

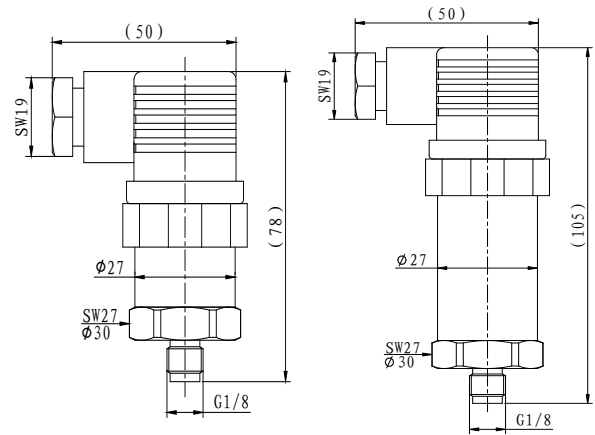


## Schematic Diagram of Parts Contacting with the Medium

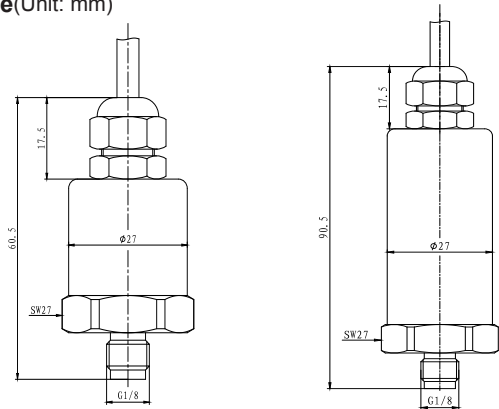


## Dimension Diagram

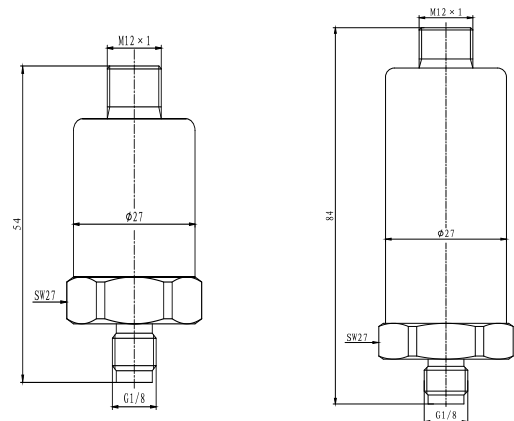
### B1 Type (Unit: mm)



### B2 Type (Unit: mm)



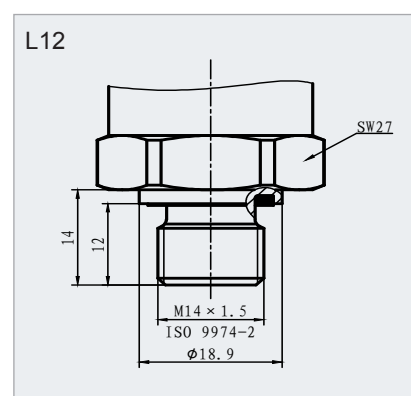
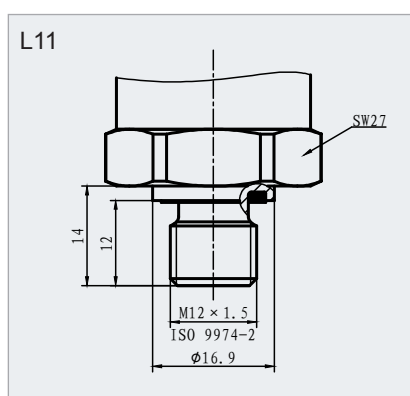
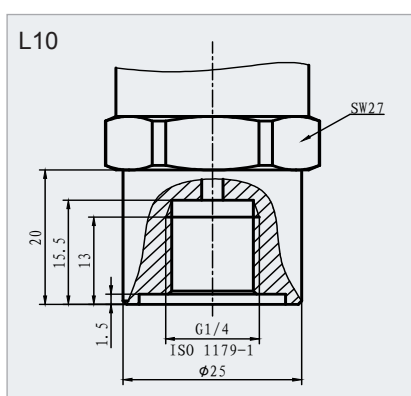
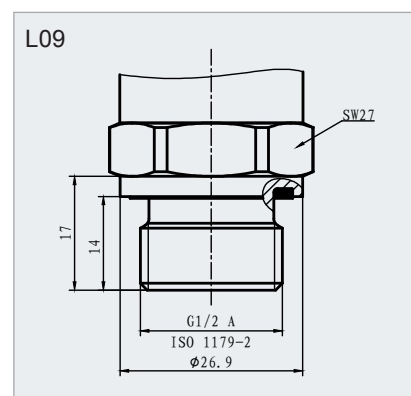
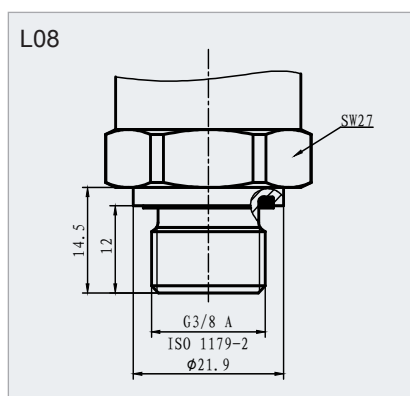
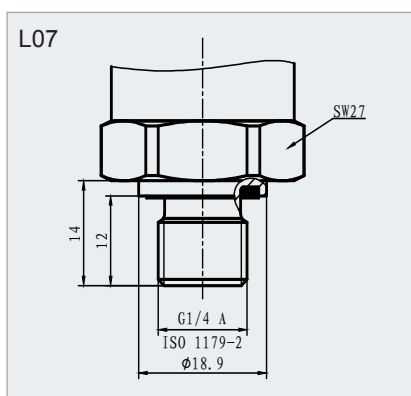
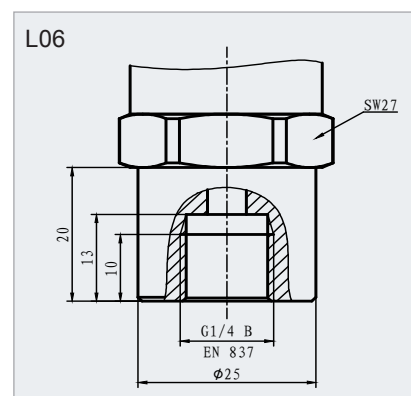
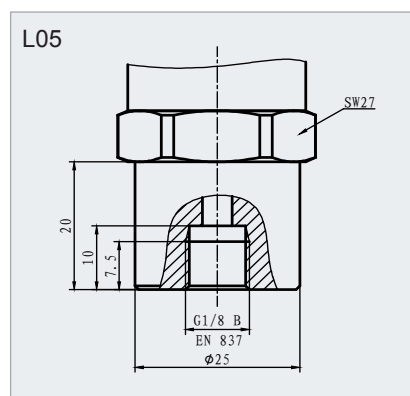
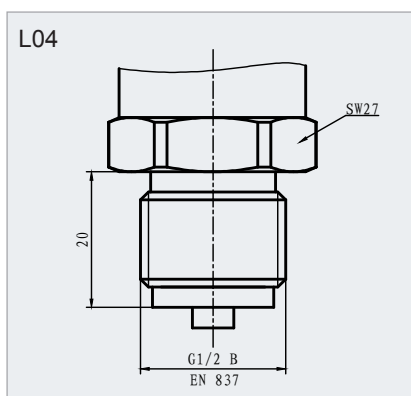
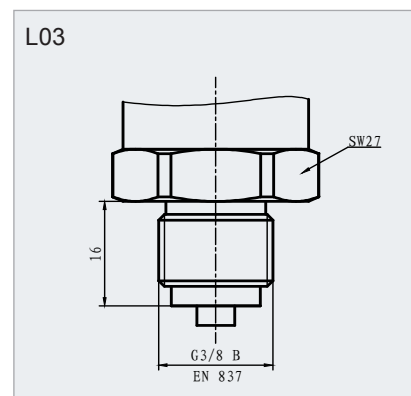
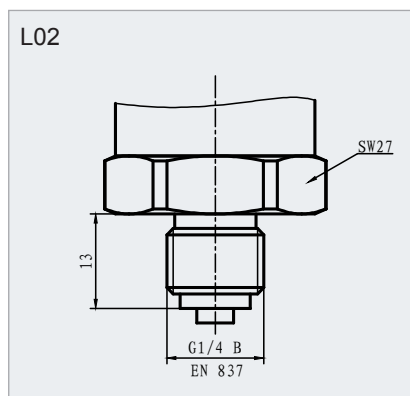
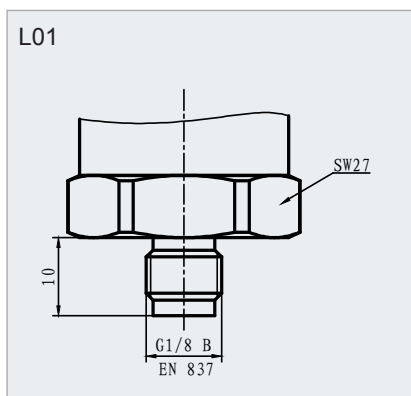
### B3 Type (Unit: mm)



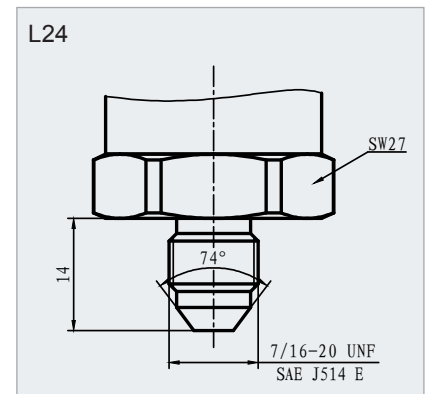
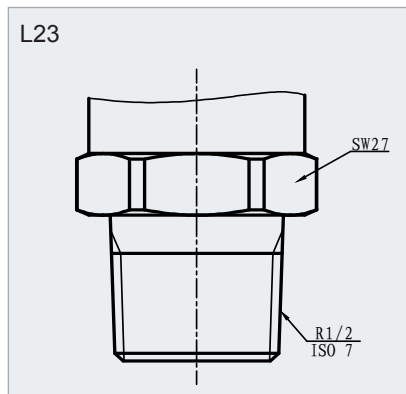
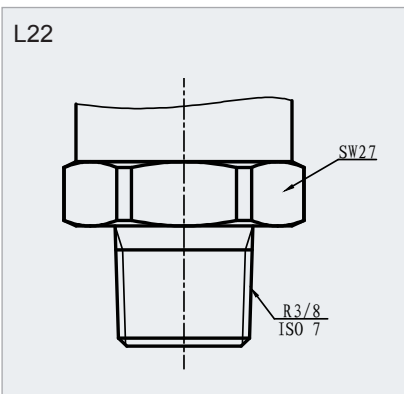
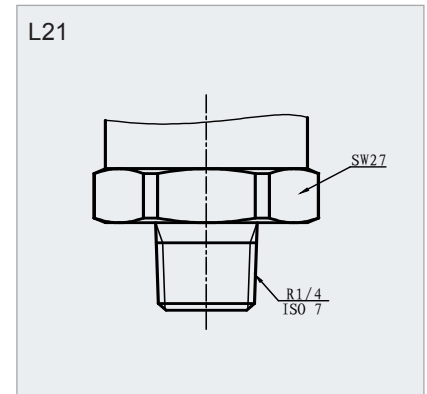
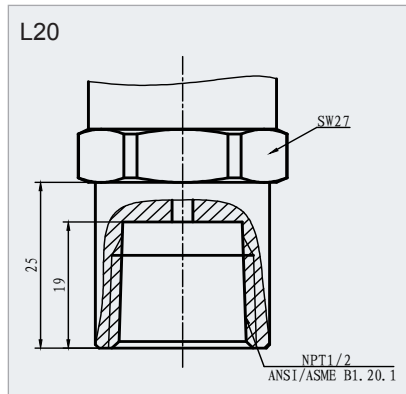
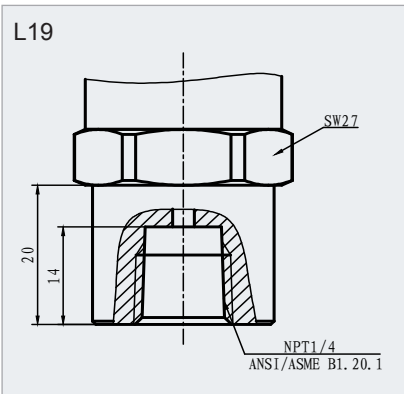
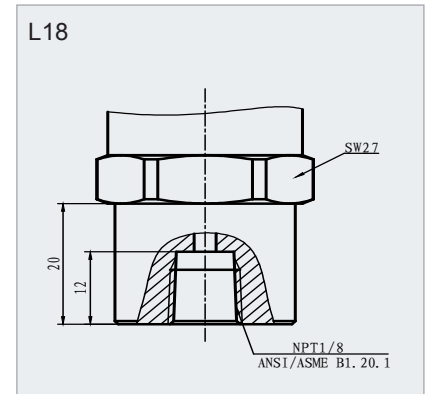
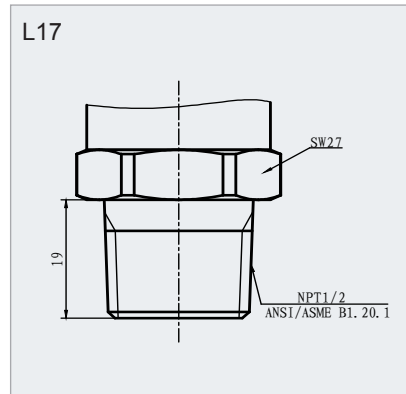
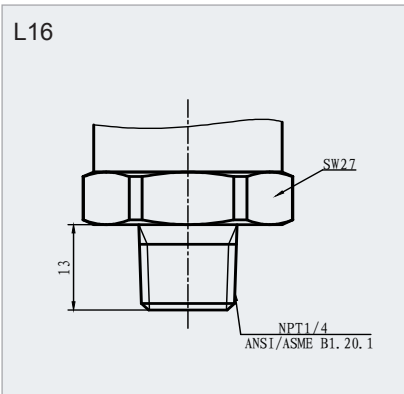
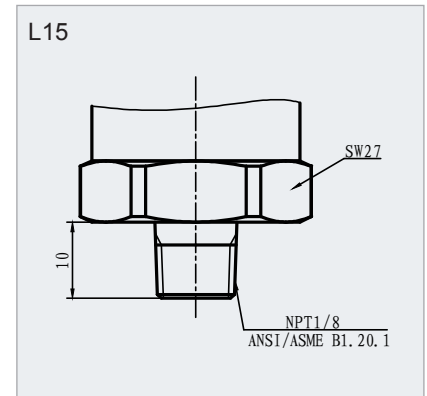
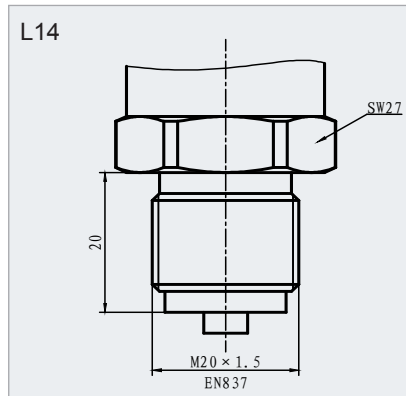
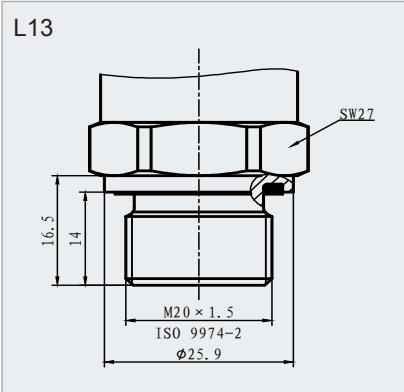
## Process Connection Code

Code	Process Connection	Standard
L01	G1/8 B male(≤400bar)	EN 837
L02	G1/4 B male	EN 837
L03	G3/8 B male	EN 837
L04	G1/2 B male	EN 837
L05	G1/8 female(≤400bar)	EN 837
L06	G1/4 female	EN 837
L07	G1/4 A male	ISO 1179-2
L08	G3/8 A male	ISO 1179-2
L09	G1/2 A male	ISO 1179-2
L10	G1/4 female	ISO 1179-1
L11	M12X1.5 male	ISO 9974-2
L12	M14X1.5 male	ISO 9974-2
L13	M20X1.5 male	ISO 9974-2
L14	M20X1.5 male	EN 837
L15	NPT1/8 male(≤400bar)	ANSI/ASME B1.20.1
L16	NPT1/4 male	ANSI/ASME B1.20.1
L17	NPT1/2 male	ANSI/ASME B1.20.1
L18	NPT1/8 female(≤400bar)	ANSI/ASME B1.20.1
L19	NPT1/4 female	ANSI/ASME B1.20.1
L20	NPT1/2 female	ANSI/ASME B1.20.1
L21	R1/4 male	ISO 7
L22	R3/8 male	ISO 7
L23	R1/2 male	ISO 7
L24	7/16-20UNF male	SAE J514 E

## Process Connection Dimension (Unit: mm)







MPM4841		-		-		-		-		-		-		-	
Pressure Type															
	Gauge														
	Absolute														
	Sealed Gauge														
Unit															
	bar														
	mbar														
	kPa														
	MPa														
	psi														
	Other														
Range															
Positive Pressure								Negative Pressure							
A	0bar~0.35bar							P	3	5					
	0bar~0.6bar							P	6	0					
	0bar~1bar							1	P	0					
	0bar~1.6bar							1	P	6					
	0bar~2.5bar							2	P	5					
	0bar~3bar							3	P	0					
	0bar~4bar							4	P	0					
	0bar~6bar							6	P	0					
	0bar~10bar							1	0	0					
	0bar~16bar							1	6	0					
	0bar~25bar							2	5	0					
	0bar~30bar							3	0	0					
	0bar~40bar							4	0	0					
	0bar~60bar							6	0	0					
	0bar~100bar							1	0	1					
	0bar~160bar							1	6	1					
0bar~200bar							2	0	1						
B	0bar~250bar							2	5	1					
	0bar~400bar							4	0	1					
	0bar~500bar							5	0	1					
	0bar~600bar							6	0	1					
	Other							X	X	X					

Eg.: 601, the first two digits are valid, the third digit is 10<sup>x</sup>, the unit is the one selected by the customer, default unit bar

1P6, P is the decimal point, the unit is the one selected by the customer, default unit bar

Output Signal															
	4mA~20mA DC / 2 wire														E
	0.5V~4.5V DC / 3 wire														K
	1V~5V DC / 3 wire														F
	0V~5V DC / 3 wire														J
	0V~10V DC / 3 wire														V

Accuracy															
	±0.50%														1
	Other														X

Electrical Connection																
	Hirschmann DIN 175301-803 A														B	1
	Cable Connection														B	2
	M12×1 Four-core Plug-in Connection														B	4
	Other														X	X

Process Connection

Process connection	sealing	thread	standard																	
G1/8 B	waterline	male	EN 837																	L 0 1
G1/4 B	waterline	male	EN 837																	L 0 2
G3/8 B	waterline	male	EN 837																	L 0 3
G1/2 B	waterline	male	EN 837																	L 0 4
G1/8	waterline	female	EN 837																	L 0 5
G1/4	waterline	female	EN 837																	L 0 6
G1/4 A	face	male	ISO 1179-2																	L 0 7
G3/8 A	face	male	ISO 1179-2																	L 0 8
G1/2 A	face	male	ISO 1179-2																	L 0 9
G1/4	face	female	ISO 1179-1																	L 1 0
M12X1.5	face	male	ISO 9974-2																	L 1 1
M14X1.5	face	male	ISO 9974-2																	L 1 2
M20X1.5	face	male	ISO 9974-2																	L 1 3
M20X1.5	waterline	male	EN 837																	L 1 4
NPT1/8	thread	male	ANSI/ASME B1.20.1																	L 1 5
NPT1/4	thread	male	ANSI/ASME B1.20.1																	L 1 6
NPT1/2	thread	male	ANSI/ASME B1.20.1																	L 1 7
NPT1/8	thread	female	ANSI/ASME B1.20.1																	L 1 8
NPT1/4	thread	female	ANSI/ASME B1.20.1																	L 1 9
NPT1/2	thread	female	ANSI/ASME B1.20.1																	L 2 0
R1/4	thread	male	ISO 7																	L 2 1
R3/8	thread	male	ISO 7																	L 2 2
R1/2	thread	male	ISO 7																	L 2 3
7/16-20UNF	flare	male	SAE J514 E																	L 2 4
Other																				X X X
Construction Material, Diaphragm, Process Connection, Housing																				
	SS 316L   SS 316L   SS 316L																			2 4
	Other																			X X

**Order Notes**

There are three kinds of cable material for cable outlet: polyurethane material, polyethylene material and polyvinyl chloride material. In the absence of special indication, according to the supply of polyurethane cable; Polyurethane cable is soft and has good wear resistance. Polyethylene cable is suitable for most occasions, with good economy; PVC cable has good flame retardancy.


The default length of the cable is 1.5m, if you need other lengths, please note in the order.

## Disclaimer

All data is for products description only and is not legally efficient.

Details may be subject to change due to further improvements.

### Name and content of hazardous substances in the product

Component Name	Hazardous substances					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Sensing Element	×	○	○	○	○	○
Circuit	×	○	○	○	○	○
Housing	○	○	○	○	○	○
Plug	×	○	○	○	○	○
The above form is made in accordance with the provision of SJ/T 11364						
<p>○: Indicates that the content of the hazardous substance in all homogeneous materials of the part is below the limit requirement specified in GB/T 26572. It meets the environmental requirements of the EU RoHS Directive</p> <p>×: Indicates that the harmful substance is at least in a certain homogeneous material of the part exceeding the limit requirement of GB/T 26572. It meets the environmental requirements of the EU RoHS Directive.</p>						
	The number in the logo indicates the environmentally friendly service life is 10 years under normal use.					
	Some components may also have an environmentally friendly life mark, and their protection life is based on the number in the logo.					

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