MPM4736

Smart Pressure Transmitter with Low Power Consumption & Digital Output

Applications

- Hydrology and water resources
- Petrochemical
- Electric power
- Machinery manufacturing
- Hydraulic and pneumatic control

Features

- Extremely low power consumption, automatic sleep, low power consumption
- Pressure and temperature measurement
- Digital temperature compensation and non-linear correction technology
- RS485 communication interface

Introduction

MPM4736 Pressure Transmitter is a high-accuracy, high-stability smart pressure measurement instrument. It utilizes a piezoresistive OEM pressure sensor and a smart transmitter processing circuit, enhanced by a specialized algorithm to achieve precise measurement. The transmitter is capable of measuring both pressure and temperature, with data output via the RS485 interface. It features ultra-low power consumption, automatically entering standby mode when not communicating, reducing standby power consumption to as low as 10μA.

Specifications

Range	-100kPa…0kPa ～ 10kPa…100MPa
Overpressure	⩽ 2 times FS or 110MPa (min. Value is valid)
Pressure type	Gauge G, Absolute A, Sealed Gauge S, Positive/ Negative N
Accuracy	Refer to"Measuring Range & Accuracy Table"
Temperature accuracy [a]	±0.5° C (-20° C~ 80° C)
	±0.75° C (-30° C~ -20° C)
Long-term stability	±0.25%FS/year
Compensation temperature	-10°C ~70°C
Operating temperature	-30°C ~ 80° C (B1, B3)
	-20° C~ 70° C (B2, cable material: PE, PVC)
	-20° C~ 80° C(B2, cable material: PUR)
Storage temperature	-40°C ~ 85° C (B1, B3)
	-20°C ~ 85° C (B2)
Vibration	20g, 20Hz ～ 2000Hz
Shock	20g, 11ms
IP rating	IP65
Weight	⩽ 240g

a Temperature accuracy: The measured temperature is the ambient temperature.

Measuring Range & Accuracy Table

Gauge Pressure G

Unit	Measuring Range	Accuracy	Overpressure	Code
kPa	0 - 7	±0.5%FS	15	K007
	0 - 10		20	K010
	0 - 20	±0.25%FS	40	K020
	0 - 25		50	K025
	0 - 40		100	K040
	0 - 50		100	K050
	0 - 60		100	K060
	0 - 70		100	K070
	0 - 80		200	K080
	0 - 90		200	K090
	0 - 100		200	K100
	0 - 160		300	K160
	0 - 200		400	K200
	0 - 250		500	K250
	0 - 300		600	K300
	0 - 400		1000	K400
	0 - 500		1000	K500
	0 - 600		1000	K600
	0 - 700		1400	K700
	0 - 800		1600	K800
	0 - 900		1800	K900
MPa	0 - 1	±0.25%FS	2	M1D0
	0 - 1.6		3	M1D6
	0 - 2		4	M2D0
	0 - 2.5		5	M2D5
	0 - 3		6	M3D0
	0 - 3.5		6	M3D5
psi	0 - 1.5	±0.5%FS	3	P1D5
	0 - 3	±0.25%FS	6	P003
	0 - 5		10	P005
	0 - 10		15	P010
	0 - 15		20	P015
	0 - 30		45	P030
	0 - 60		150	P060
	0 - 100		150	P100
	0 - 160		300	P160
	0 - 200		300	P200
	0 - 300		450	P300
	0 - 500		750	P500

Unit	Measuring Range	Accuracy	Overpressure	Code
mbar	0 - 70	±0.5%FS	150	m070
	0 - 100		200	m100
	0 - 200	±0.25%FS	500	m200
	0 - 250		500	m250
	0 - 400		1000	m400
	0 - 500		1000	m500
	0 - 600		1200	m600
	0 - 700		1400	m700
	0 - 800		1600	m800
	0 - 900		1800	m900
bar	0 - 1	±0.25%FS	2	B001
	0 - 1.6		3	B1D6
	0 - 2		4	B002
	0 - 2.5		5	B2D5
	0 - 3		6	B003
	0 - 4		10	B004
	0 - 5		10	B005
	0 - 6		10	B006
	0 - 7		14	B007
	0 - 8		16	B008
	0 - 9		18	B009
	0 - 10		20	B010
	0 - 16		30	B016
	0 - 20		40	B020
	0 - 25		50	B025
	0 - 30		60	B030
	0 - 35		60	B035

Sealed Gauge Pressure S

Unit	Measuring Range	Accuracy	Overpressure	Code
MPa	0 - 3.5	±0.25%FS	7	M3D5
	0 - 4		10	M4D0
	0 - 5		10	M5D0
	0 - 6		10	M6D0
	0 - 7		10	M7D0
	0 - 8		15	M8D0
	0 - 9		15	M9D0
	0 - 10		15	M010
	0 - 16		30	M016
	0 - 20		30	M020
	0 - 25		37.5	M025
	0 - 30		45	M030
	0 - 35		52.5	M035
	0 - 40		60	M040
	0 - 50		75	M050
	0 - 60		90	M060
	0 - 70		100	M070
	0 - 80		100	M080
	0 - 90		100	M090
	0 - 100		110	M100

Unit	Measuring Range	Accuracy	Overpressure	Code
bar	0 - 35	±0.25%FS	70	B035
	0 - 40		100	B040
	0 - 50		100	B050
	0 - 60		100	B060
	0 - 70		100	B070
	0 - 80		150	B080
	0 - 90		150	B090
	0 - 100		150	B100
	0 - 160		300	B160
	0 - 200		300	B200
	0 - 250		450	B250
	0 - 300		525	B300
	0 - 350		375	B350
	0 - 400		600	B400
	0 - 500		750	B500
	0 - 600		900	B600
	0 - 700		1000	B700
	0 - 800		1000	B800
	0 - 900		1000	B900
	0 - 1000		1100	B01K

psi	0 - 500	±0.25%FS	750	P500
	0 - 600		1500	P600
	0 - 700		1500	P700
	0 - 800		1500	P800
	0 - 900		1500	P900
	0 - 1000		1500	P01K
	0 - 2000		3000	P02K
	0 - 3000		4500	P03K
	0 - 4000		6000	P04K
	0 - 5000		7500	P05K
	0 - 6000		9000	P06K
	0 - 7000		10500	P07K
	0 - 8000		12000	P08K
	0 - 9000		13500	P09K
	0 - 10000		15000	P10K

Absolute Pressure A

Unit	Measuring Range	Accuracy	Overpressure	Code
kPa	0 - 40	±0.5%FS	100	K040
	0 - 50		100	K050
	0 - 60		100	K060
	0 - 70		100	K070
	0 - 80		200	K080
	0 - 90		200	K090
	0 - 100		200	K100
	0 - 160	±0.25%FS	300	K160
	0 - 200		400	K200
	0 - 250		500	K250
	0 - 300		600	K300
	0 - 400		1000	K400
	0 - 500		1000	K500
	0 - 600		1000	K600
	0 - 700		1400	K700
	0 - 800		1600	K800
	0 - 900		1800	K900

Unit	Measuring Range	Accuracy	Overpressure	Code
MPa	0 - 1	±0.25%FS	2	M1D0
	0 - 1.6		3	M1D6
	0 - 2		4	M2D0
	0 - 2.5		5	M2D5
	0 - 3		6	M3D0
	0 - 3.5		6	M3D5
	0 - 4		6	M4D0
	0 - 5		10	M5D0
	0 - 6		10	M6D0
	0 - 7		14	M7D0
	0 - 8		16	M8D0
	0 - 9		18	M9D0
	0 - 10		20	M010
	0 - 16		30	M016
	0 - 20		30	M020
	0 - 25		37.5	M025
	0 - 30		45	M030
	0 - 35		52.5	M035
	0 - 40		60	M040
	0 - 50		75	M050
	0 - 60		90	M060
	0 - 70		100	M070
	0 - 80		100	M080
	0 - 90		100	M090
	0 - 100		110	M100

Unit	Measuring Range	Accuracy	Overpressure	Code
mbar	0 - 400	±0.5%FS	1000	m400
	0 - 500		1000	m500
	0 - 600		1200	m600
	0 - 700		1400	m700
	0 - 800		1600	m800
	0 - 900		1800	m900

Unit	Measuring Range	Accuracy	Overpressure	Code
bar	0-1	±0.5%FS	2	B001
	0-1.6	±0.25%FS	3	B1D6
	0-2		4	B002
	0-2.5		5	B2D5
	0-3		6	B003
	0-4		10	B004
	0-5		10	B005
	0-6		10	B006
	0-7		14	B007
	0-8		16	B008
	0-9		18	B009
	0-10		20	B010
	0-16		30	B016
	0-20		40	B020
	0-25		50	B025
	0-30		60	B030
	0-35		60	B035
	0-40		100	B040
	0-50		100	B050
	0-60		100	B060
	0-70		140	B070
	0-80		160	B080
	0-90		180	B090
	0-100		200	B100
	0-160		300	B160
	0-200		300	B200
	0-250		375	B250
	0-300		350	B300
	0-350		525	B350
	0-400		600	B400
	0-500		750	B500
	0-600		900	B600
	0-700		1000	B700
	0-800		1000	B800
	0-900		1000	B900
	0-1000		1100	B01K

Unit	Measuring Range	Accuracy	Overpressure	Code
psi	0 - 5	±0.5%FS	10	P005
	0 - 10		15	P010
	0 - 15		20	P015
	0 - 30	±0.25%FS	45	P030
	0 - 60		150	P060
	0 - 100		150	P100
	0 - 160		300	P160
	0 - 200		300	P200
	0 - 300		450	P300
	0 - 400		750	P400
	0 - 500		750	P500
	0 - 600		1500	P600
	0 - 700		1500	P700
	0 - 800		1500	P800
	0 - 900		1500	P900
	0 - 1000		1500	P01K
	0 - 2000		3000	P02K
	0 - 3000		4500	P03K
	0 - 4000		6000	P04K
	0 - 5000		7500	P05K
	0 - 6000		9000	P06K
	0 - 7000		10500	P07K
	0 - 8000		12000	P08K
	0 - 9000		13500	P09K
	0 - 10000		15000	P10K

Positive/Negative Pressure N

Unit	Measuring Range	Accuracy	Overpressure	Code
kPa	- 25 - 0	±0.5%FS	50	V025
	- 40 - 0		100	V040
	- 60 - 0		100	V060
	- 100 - 0		150	V100
	- 3 - +3		10	C033
	- 5 - +20		30	C520
	- 5 - +25		30	C525
	- 15 - +15		30	C015
	- 20 - +20		30	C020
	- 25 - +25		50	C025
	- 30 - +30		50	C030
	- 50 - +50		100	C050
	- 100 - +60		150	C16B
	- 100 - +100		300	C11B
	- 100 - +150		300	C1B5
	- 100 - +300	±0.25%FS	500	C13B
	- 100 - +500		1000	C15B
	- 100 - +900		2000	C19B
	- 100 - +1000		2500	C11K
	- 100 - +1500		3000	C1K5
	- 100 - +1600		3000	C1K6
	- 100 - +2000		3000	C12K
	- 100 - +2400		5000	C24K
	- 100 - +2500		5000	C25K
	- 100 - +3000		6000	C30K
	- 100 - +3500		7000	C35K

Unit	Measuring Range	Accuracy	Overpressure	Code
bar	- 0.25 - 0	±0.5%FS	0.5	VD25
	- 0.4 - 0		1	V0D4
	- 0.6 - 0		1	V0D6
	- 1 - 0		1.5	V1D0
	- 0.03 - +0.03		0.1	C0D3
	- 0.05 - +0.2		0.3	C052
	- 0.05 - +0.25		0.3	C5D5
	- 0.15 - +0.15		0.3	CD15
	- 0.2 - +0.2		0.3	C0D2
	- 0.25 - +0.25		0.5	CD25
	- 0.3 - +0.3		0.5	C003
	- 0.5 - +0.5		1	C005
	- 1 - +0.6		1.5	C0D6
	- 1 - +1		2	C101
	- 1 - +1.5		3	C1D5
	- 1 - +3	±0.25%FS	5	C103
	- 1 - +5		10	C105
	- 1 - +9		20	C109
	- 1 - +10		25	C110
	- 1 - +15		30	C115
	- 1 - +16		30	C116
	- 1 - +20		30	C120
	- 1 - +24		50	C124
	- 1 - +25		50	C125
	- 1 - +30		60	C130
	- 1 - +35		70	C135

psi	-15 - 0	±0.5%FS	20	PF00
	-15 - +10		20	PF10
	-15- +15		45	PF15
	-15- +30	±0.25%FS	150	PF30
	-15 - +50		150	PF50
	-15 - +80		300	PF80
	-15- +100		300	PF1B
	-15 - +150		450	P1B5

Note: The specified accuracy applies within the compensation temperature range of -10° C to 70° C. Test standard: GB/T 17614.1-2015/IEC60770-1:2010

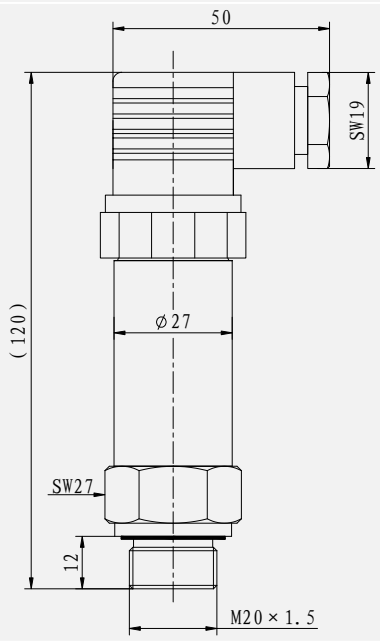
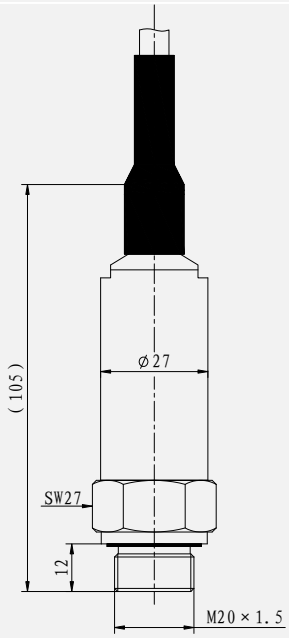
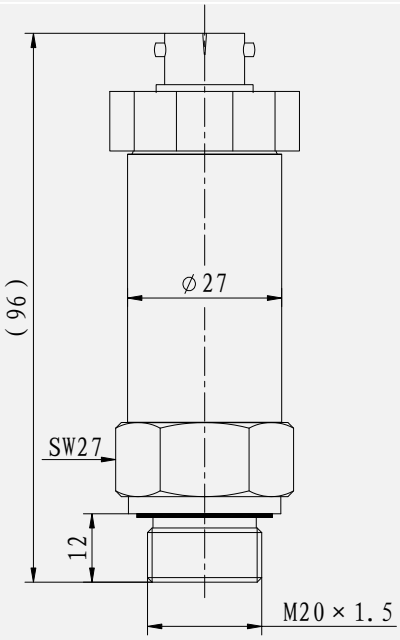
For other measurement ranges, please contact MICROSENSOR.

Output Signals

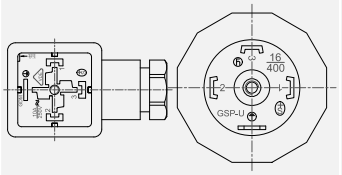
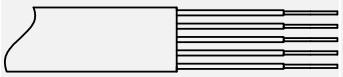
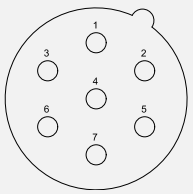
Output signal	Supply voltage	Output type	Load resistance
RS485, ASCII communication protocol (R4) RS485, MODBUS_RTU communication protocol (R8)	3.6V~28V DC	4-wire	The RS485 bus supports up to 99 devices.

Outline Construction

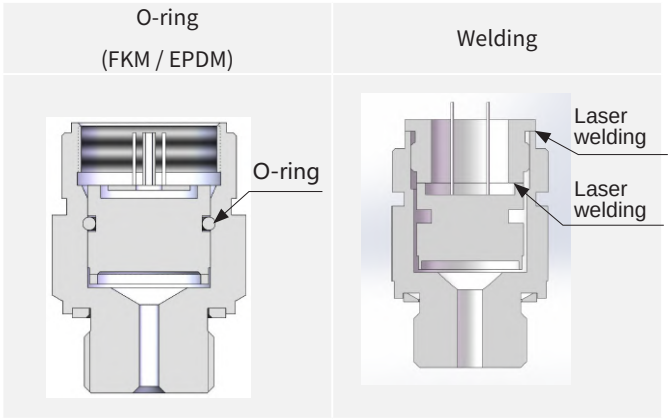
Unit: mm

4-pin connector (B1)	Cable (B2)	7-pin connector (B3)
		

Electrical Connection

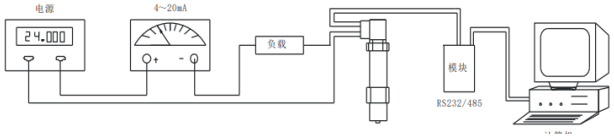
	4-pin connector (B1)	Cable (B2)	7-pin connector(B3)
Definition			
	RS485 4-wire	RS485 4-wire	RS485 4-wire
(+V)	1	Red	1
(+OUT)/ (-V)	2	Black	2
RS485A	3	Yellow / Green	4
RS485B	⏚	White	5

Sensor Sealing

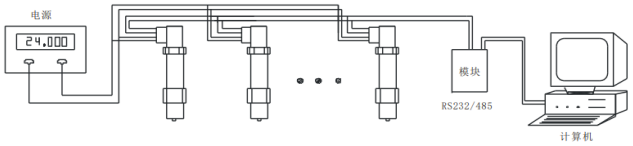


Application Examples

Wiring for On-Site Calibration Using a Computer



Network Application of Transmitter with RS485 Interface



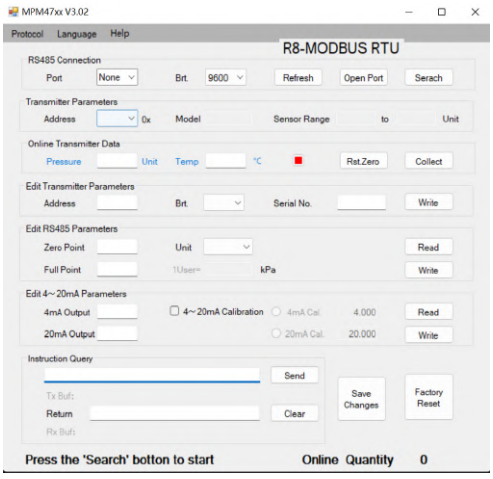
Construction Materials

Wetted parts
Isolated diaphragm: SS 316L/Tantalum/Titanium
Pressure port: SS 304/SS 316L/Hastelloy C/Titanium
Non-wetted parts
Housing: SS 304/ SS 316L/Titanium
Cable: PE/PUR

Auxiliary Software

RS485 Transmitter software
47XX software
Used with an RS485 converter module, this software enables reading basic internal information from RS485 transmitters, including transmitter address, real-time pressure, and temperature values.

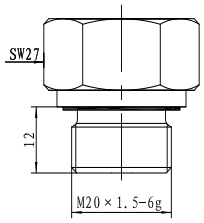
Note: The “47XX” programming software is available for download from our official website: www.microsensorcorp.com.



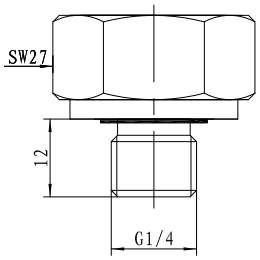
Process Connection

Unit: mm

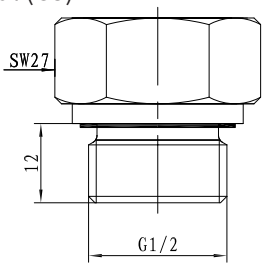
M20× 1.5 Male, face seal (C1)



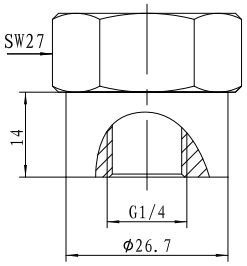
G1/4 Male, face seal (C2)



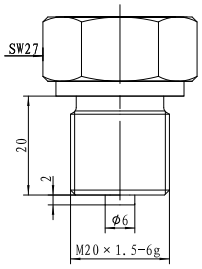
G1/2 Male, face seal (C3)



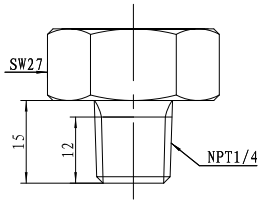
G1/4 Female, waterline seal (C4)



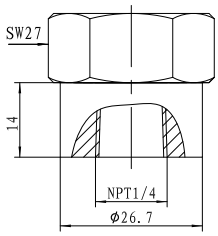
M20×1.5 Male, waterline seal (C5)



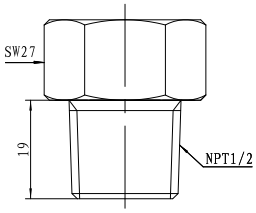
NPT1/4 Male (C6)



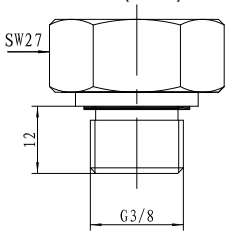
NPT1/4 Female (C8)



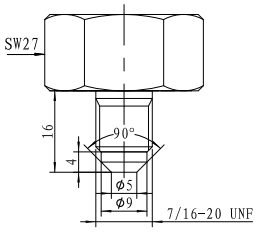
NPT1/2 Male (C10)



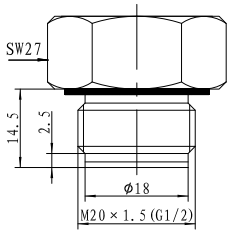
G3/8 Male, waterline seal (C16)



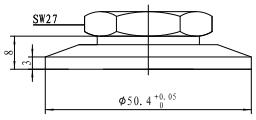
7/16-20 UNF Male, 90° cone seal (C26)



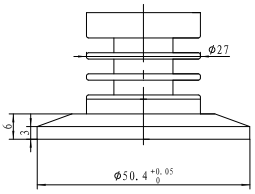
M20×1.5 or G1/2 flush diaphragm (PC1/PC3)



DN25 Clamp (PD1)



DN25 Clamp connection with heat sink (PD1s)



Order Guide

MPM4736	Smart Pressure Transmitter								
	Code	Pressure type							
	G	Gauge/ Sealed gauge pressure							
	S								
	A	Absolute pressure							
	N	Negative pressure							
		Range	Measuring range -100kPa…0kPa ～ 10kPa…100MPa						
		XXXX	Range-specific code						
			Code	Output signal					
			R4	RS485, ASCII					
			R8	RS485, MODBUS_RTU					
				Code	Power supply				
				V15	3.6V ～ 28V DC				
					Code	Accuracy			
					A1	±0.25%FS			
					A2	±0.5%FS			

Code	Construction material		
	Isolated diaphragm	Pressure port	Housing
22	Stainless steel 316L	Stainless steel 304	Stainless steel 304
23	Stainless steel 316L	Stainless steel 316L	Stainless steel 304
24	Stainless steel 316L	Stainless steel 316L	Stainless steel 316L
25	Tantalum Ta1	Stainless steel 316L	Stainless steel 304
35	Tantalum Ta1	Hastelloy C	Stainless steel 304
40	Titanium TA1	Titanium TC4	Titanium TC4

Code	Sensor sealing
00	FKM (standard)
01	EPDM (optional by operating temp. and medium compatibility)
02	Welding (optional by operating temp. and medium compatibility)
03	Integral sintering (optional only for PC1, PC3, PD1, and PD1s)

Code	Process connection	
C1	M20× 1.5 Male, face seal	
C2	G1/4 Male, face seal	
C3	G1/2 Male, face seal	
C4	G1/ 4 Female	
C5	M20×1.5 Male, waterline seal	
C6	NPT1/4 Male	
C8	NPT1/ 4 Female	
C10	NPT1/2 Male	
C16	G3/8 Male, face seal	
C26	7/16-20 UNF Male, 90° cone seal	
PC1	Flush diaphragm M20× 1.5 Male	0kPa ～ 40kPa…35MPa
PC3	Flush diaphragm G1/ 2 Male	
PD1	Hygienic DN25 clamp connection	0kPa ～ 40kPa…3.5MPa
PD1s	Hygienic DN25 clamp connection with heat sink	

MPM4736	G	M1D6	R4	V15	A1	22	00	C2	The complete spec.

Order Guide

Code	Process connection sealing
N	None (C4, C6, C8, C10, C26, PD1, and PD1s)
1	NBR
2	FKM (standard)
3	EPDM
4	Copper (C5)

Code	Electrical connection
B1	4-pin connector
B11	4-pin connector with 1.5 m PVC cable
B2	Cable
B3	7-pin connector
B31	7-pin connector with 1.5 m PVC cable

Code	Cable material
N	None (non-cable connection option)
P1	PE (standard)
P2	PUR

Code	Cable length (Unit: m)
N	None (non-cable connection option)
L01	1
L1.5	1.5
L02	2
L03	3
L04	4
L05	5
L06	6
L07	7
L08	8
L09	9
L10	10

Code	Accessory
N	No accessories required
Yb5	Yb junction box (5-core terminals)
Yc5	MS200 (5-core terminals)
Yd	PD140
Ye	Ye (without indicator)
MS01	Polymer plug
D01	Damping gasket

2	B2	P1	L10	Yb	The complete spec.

Notes

1.The sensor O-ring material options are FKM and EPDM. The minimum operating temperature for FKM is -20° C, while for EPDM, it is -40° C.

2.If a metrology verification certificate is required, or there are any other special requirements, please consult with the MICROSENSOR and specify them in the order.