Pressure Transmitter

PI

Pressure transmitter is the most commonly used sensor in industrial productions. It is widely used in various industrial control environments, involved in water conservancy and hydro power, railway transportation, intelligent buildings, production control, aerospace, military industry, petrochemical, oil, electric power, ships, machine tools, pipes and so on.

The following is a brief introduction of principles and applications of some common pressure transmitters. They are used to measure the level, density and pressure of liquid, gas or steam, and then convert the pressure signal into standard current output or voltage signal output.

Pressure transmitters mainly include: ceramic piezoresistive pressure transmitter, capacitive pressure transmitter, diffused silicone pressure transmitter, strain type pressure transmitter, sapphire pressure transmitter, sputtering film pressure transmitter etc.

According to the measuring range, pressure transmitter can be divided into three types: general pressure transmitter (0.001MPa~100MPa), differential pressure transmitter (0~1.5kPa), and negative pressure transmitter. It transmits pressure signal into electronic equipment and then the pressure is displayed by computer. Its working principle is to convert the mechanical signal like liquid pressure or gas pressure into electric signal like current or voltage. The pressure has a linear direct proportional relation with the voltage or current, therefore, the voltage or current will increase with the increase of the pressure, and then a relationship expression between the pressure and voltage or current can be obtained to achieve the aim of measuring the gas and liquid pressure.

PI100 series

Micro pressure transmitter

Micro capacitive pressure transmitter

Economical and sanitary type

Economical type

Flange economical type

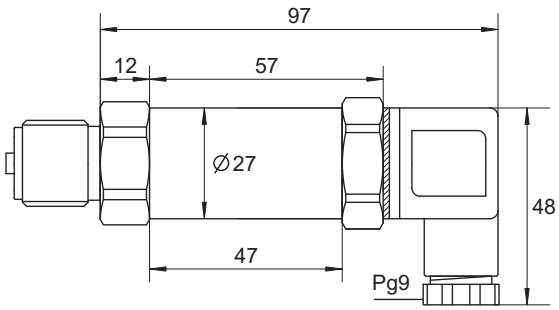
Smart display type (with output switch)

PI100 series product type

Intelligent display type

PI100 series structure diagram (for reference)

Typical product examples (the exact dimensions shall be subject to the actual)



Main technical parameters

Measuring range	Positive pressure		Negative pressure		Absolute pressure	
	Min range	Max range	Min range	Max range	Min range	Max range
	500Pa	260MPa	-80kPa	-100kPa	5kPa	60MPa
Accuracy grade	0.2%F.S., 0.5%F.S.					
Working voltage	12 ～ 30VDC，24VDC					
Output signal	4 ～ 20mA，0 ～ 20mA，1 ～ 5VDC，0 ～ 10VDC，0 ～ 5VDC，customized					
Temperature range	Compensation temperature		Medium temperature	Working temperature	Storage temperature	
	0 ～ 50℃，-10 ～ 80℃，customized		-25 ～ 85℃	-20 ～ 85℃	-40 ～ 125℃	
Temperature drift	0.02%F.S./℃					
Electrical connection	DIN, aviation joint, terminals,c ustomized					
Protection grade	IP65, IP67					
Thread connection	M20×1.5 external thread, G1/2" external thread , G1/4" external thread, customized					
Anti-vibration	20g, 20 ～ 5000Hz					
Anti-impact	100g, 11ms					
Shell material	SUS304 stainless steel, low copper aluminum alloy					
Service life	＞ 1×10^8 pressure cycling					

PI100 Series economical pressure transmitter selection table

Smart pressure transmitter

Product series	Pressure type	Measuring range	Signal output	Process connection material	Process connection	Temperature range	Pressure-obtained way	Electrical connection	Accuracy grade	Display type
PI100	-□	( )	□	□	□	□	□	□	-□	□

G: Gauge pressure; **N:** Composite gauge pressure (positive & negative pressure); **N:** Absolute pressure

Digit & unit, e.g.:(0~2.0MPa)

F: 4~20mA two-wire system; **H:** 4~20mA/Hart; **S:** RS485/Modbus RTU; **V:** 1~5VDC three-wire system; **Y1:** Customized;

4: Stainless steel 304; **6:** Stainless steel 316; **Y2:** Customized;

M: External thread M20x1.5(inner diametersΦ3);
G: External thread G1/2″(inner diametersΦ3); **Y3:** Customized;

C: Normal temperature type<80℃; **T:** High temperature type<200℃;
Y4: Customized;

A: Standard type; **B:** Flush type; **C:**Half-flush type;

H: Hirschmann joint; **Y5:** Customized;

2: ±0.2%; **5:** ±0.5%; **Y6:** Customized;

A: Without on-site display;
C: LCD digital range display;
Y7: Customized;

PI200 series

High temperature sanitary type

Intelligent static pressure type

High temperature intelligent type

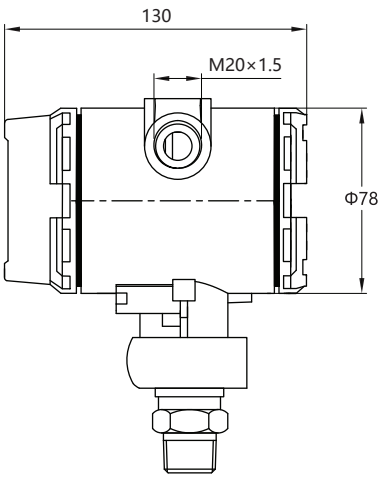
Flange static pressure type

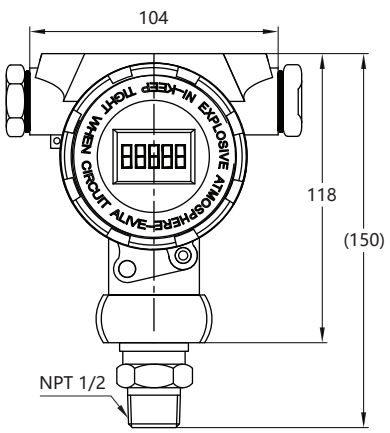
High temperature stainless steel sanitary type

High temperature stainless steel sanitary type

PI200 series structure diagram (for reference)

Typical product examples (the exact dimensions shall be subject to the actual)





PI2000

Main technical parameters

Measuring range	Positive pressure		Negative pressure		Absolute pressure	
	Min range	Max range	Min range	Max range	Min range	Max range
	5KPa	70MPa	-5KPa	-100KPa	10KPa	3.5MPa
Accuracy class	0.2%F.S.，0.5%F.S.					
Working voltage	12 ～ 30VDC，24VDC					
Output signal	4 ～ 20mA，0 ～ 20mA，1 ～ 5VDC，0 ～ 10VDC，0 ～ 5VDC，customized					
Temperature range	Compensation temperature		Medium temperature	Working temperature	Storage temperature	
	0 ～ 50℃，-10 ～ 80℃，customized		-25 ～ 85℃	-20 ～ 85℃	-40 ～ 125℃	
Temperature drift	0.02%F.S./℃					
Electrical connection	Terminals,customized					
Protection grade	IP67					
Thread connection	M20×1.5 external thread，G1/2" external thread, G1/4" external thread，customized					
Anti-vibration	20g，20 ～ 5000Hz					
Anti-impact	100g，11ms					
Shell material	low copper aluminum alloy					
Service life	＞ 1×10^8 pressure cycling					

PI200 series standard pressure transmitter selection table

Standard pressure transmitter

G: Gauge pressure; **N:** Composite gauge pressure (positive & negative pressure); **N:** Absolute pressure

Digit & unit, e.g.:(0~2.0MPa)

F: 4~20mA two-wire system; **H:** 4~20mA/Hart; **S:** RS485/Modbus RTU; **V:** 1~5VDC three-wire system; **Y1:** Customized;

4: Stainless steel 304; **6:** Stainless steel 316; **Y2:**Customized;

M: External thread M20x1.5(inside diametersΦ3);
G: External thread G1/2"(inside diametersΦ3); **Y3:** Customized;

C: Normal temperature type80℃; **T:** High temperature type200℃;
Y4: Customized;

A: Standard type; **B:** Flush type; **C:** Half-flush type;

2: ±0.2%; **5:** ±0.5%; **Y5:** Customized;

A: Without on-site display;
C: LCD digital range display;
Y6: Customized;

S: Standard type (non-explosion-proof)
I: Intrinsic safety type Exia II CT6;
D: Flame-proof type Exd II CT6;
Y7: Customized;

Product series	Pressure type	Measuring range	Signal output	Process connection material	Process connection	Temperature range	Pressure-obtained way	Accuracy class	Display type	Explosion proof grade
PI200	-□	( )	□	□	□	-□	□	□	□	□

Note: The default electrical connection is M20×1.5. Please advise if want customized.

PI300 series

Standard differential pressure type

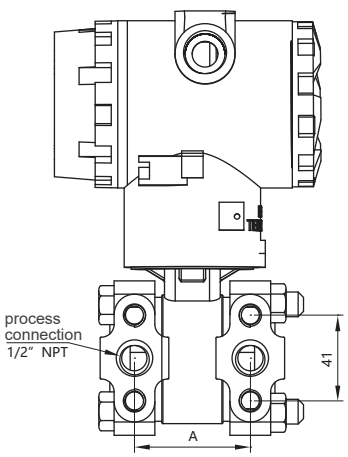
Single-flange differential pressure type

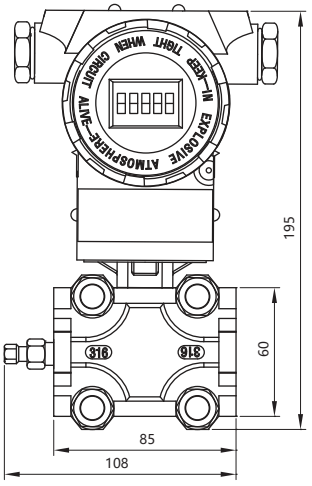
Double-flange differential pressure type

Stainless steel double-chuck sanitary differential pressure

PI300 series structure diagram (for reference)

Typical product example (the exact dimensions shall be subject to the actual)





PI300

PI300 Series standard type Main technical parameters

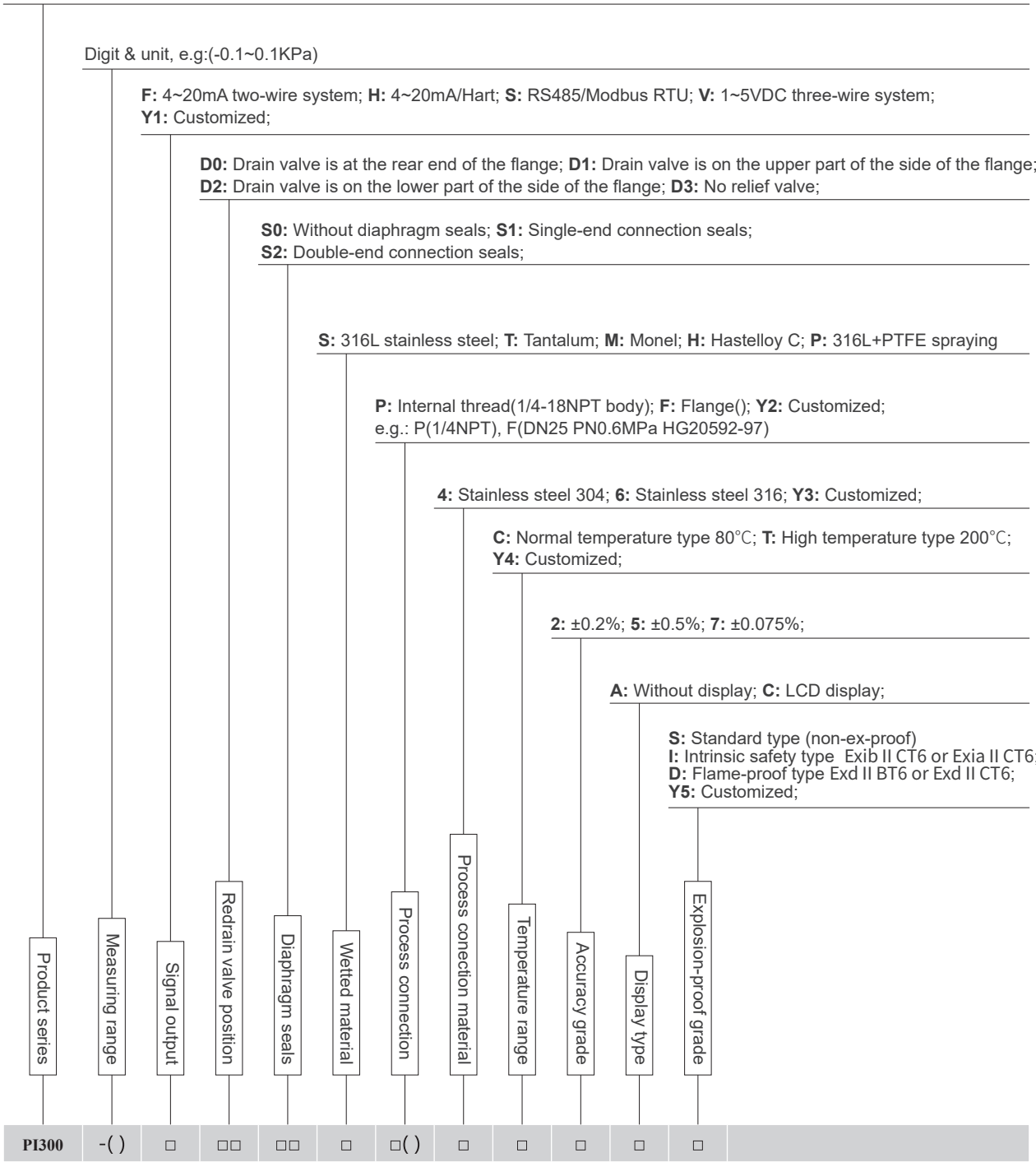
Measuring range	Positive pressure		Negative pressure		Absolute pressure	
	Min range	Max range	Min range	Max range	Min range	Max range
	200Pa	10MPa	-200Pa	-10MPa	20KPa	6.8MPa
Accuracy grade	0.075%F.S., 0.2%F.S., 0.5%F.S.					
Working voltage	13 ~ 45VDC, 24VDC					
Output signal	4 ~ 20mA, 4 ~ 20mA/HART, customized					
Temperature range	Compensation temperature		Medium temperature	Working temperature	Storage temperature	
	0 ~ 50℃, -10 ~ 80℃, customized		-25 ~ 85℃	-20 ~ 85℃	-40 ~ 125℃	
Temperature drift	0.02%F.S./℃					
Electrical connection	Terminals					
Protection grade	IP67					
Thread connection	M20×1.5 external thread, G1/2"NPT internal thread, 1/4" internal thread, customized					
Anti-vibration	20g, 20 ~ 5000Hz					
Anti-impact	100g, 11ms					
Shell material	Low copper aluminum alloy					
Service life	> 1×10^8 pressure cycling					

PI300 series economical type Main technical parameters

Measuring range	Positive pressure		Negative pressure	
	Min range	Max range	Min range	Max range
	500Pa	350KPa	-500Pa	-300KPa
Accuracy grade	0.2%F.S., 0.5%F.S.			
Working voltage	12 ~ 30VDC, 24VDC			
Output signal	4 ~ 20mA, 0 ~ 20mA, 1 ~ 5VDC, 0 ~ 10VDC, 0 ~ 5VDC, customized			
Temperature range	Compensation temperature	Medium temperature	Working temperature	Storage temperature
	0 ~ 50℃, -10 ~ 80℃, customized	-25 ~ 85℃	-20 ~ 85℃	-40 ~ 125℃
Temperature drift	0.02%F.S./℃			
Electrical connection	DIN, Terminals, customized			
Protection grade	IP65, IP67			
Thread connection	M20×1.5 external thread, G1/2" external thread, G1/4" internal thread, customized			
Anti-vibration	20g, 20 ~ 5000Hz			
Anti-impact	100g, 11ms			
Shell material	SUS304 stainless steel, low copper aluminum alloy			
Service life	> 1×10^8 pressure cycling			

PI300 series Standard differential pressure transmitter selection table

Standard differential pressure transmitter



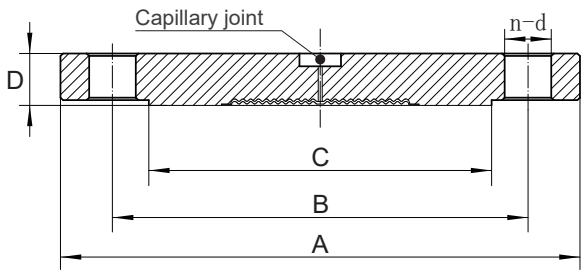
Note: The default electrical connection is M20×1.5. Please advise if want customized. Below is the diaphragm information:

Flange diaphragm seals (optional accessories for PI300 series standard differential pressure transmitters)

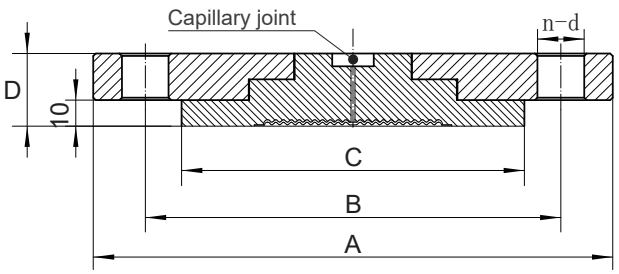
PRODUCT DESCRIPTION

- Connected with pressure and differential pressure transmitter, made up of diaphragm measurement systems.
- Excellent over-voltage protection structure, superior temperature stability, fully welded solid and reliable seal design.
- Various materials and specifications of diaphragms can be selected, suitable for different ranges of corrosive medium.
- Suitable for high temperature or low temperature mediums, or highly viscous mediums with impurity.
- Used for pressure, differential pressure, level, flow, interface and density measurement.

Structure



fixed



movable

Flange size and specification

Nominal diameter (DN)	Nominal pressure (MPa)	Raised face diameter C	Outer diameter A	Thickness D	Center distance of the screw holes b	Number of screw holes n	Drill holes diameter d	Notes
DN25	1	65	115	16	85	4	14	If installing the movable flange, then flange thickness should be D+8.
	2	65	115	16	85	4	14	
DN40	1	84	150	18	110	4	14	
	2	84	150	18	110	4	14	
DN50	1	99	165	20	125	4	14	
	2	99	165	20	125	4	14	
DN80	1	132	200	20	160	8	18	
	2	132	200	24	160	8	18	

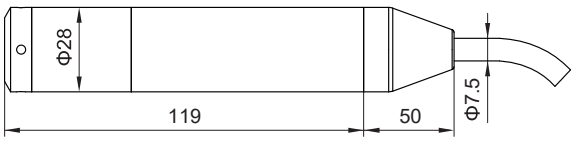
PI600 series Submersible pressure level transmitter

Submersible sanitary type

Submersible type-1

Submersible type-2

PI600 series Submersible pressure level transmitter (for reference)



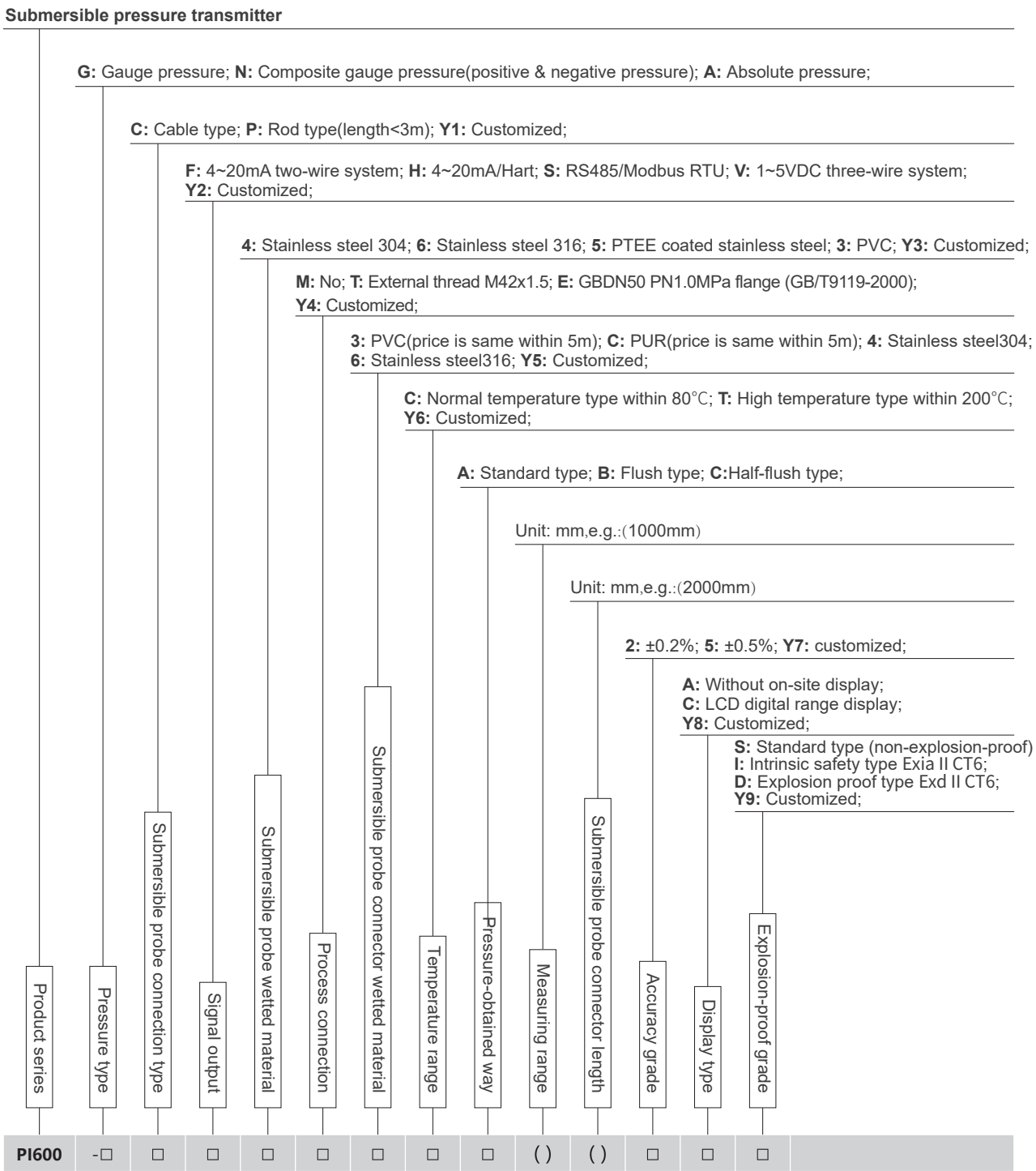
PI633

Main technical parameters

Measuring range	Positive pressure		Negative pressure		Absolute pressure	
	Min range	Max range	Min range	Max range	Min range	Max range
	2KPa	2MPa	-2KPa	-100KPa	5KPa	2MPa
Accuracy grade	0.2%F.S.，0.5%F.S.					
working voltage	12 ～ 30VDC，24VDC					
Output signal	4 ～ 20mA，0 ～ 20mA，1~5VDC,0~10VDC,0~5VDC,customized					
Temperature range	Compensation temperature		Medium temperature	Working temperature	Storage temperature	
	0 ～ 50℃，-10 ～ 80℃，customized		-10 ～ 70℃	-10 ～ 70℃	-20 ～ 70℃	
Temperature drift	0.02%F.S./℃					
Electrical connection	Directly lead, terminals, customized					
Protection grade	Submersible probe: IP68 ; Junction box:IP67					
Thread connection	M20×1.5 external thread，flangeDN50 PN1.0MPa，customized					
Anti-vibration	20g，20 ～ 5000Hz					
Anti-impact	100g，11ms					
Housing material	SUS304 stainless steel, SUS316 stainless steel					
Service life	＞ 1×10^8 pressure cycling					

PI600 series Submersible pressure level transmitter

Submersible pressure transmitter



Note: The default electrical connection is M20×1.5. Please advise if want customized.