Intelligent Monocrystalline Pressure/Differential Pressure Transmitters

P7 Series

P71

P75

P76

P78

Profile

P71/P75/P76/P78 intelligent pressure/differential pressure transmitters adopt the advanced leading high-precision silicon pressure and differential pressure sensor technology.

The single crystal silicon pressure and differential pressure sensor is located at the top of the metal body, away from the contact surface of the medium. To achieve mechanical isolation and thermal isolation; The sensor lead of glass sintering unit realizes high-strength electrical insulation with the metal substrate, which improves the flexibility of electronic circuits and the ability to withstand transient voltage protection. The circuit adopts a modular design with a microprocessor as the core and assisted by advanced digital isolation technology, so that the instrument has extremely high anti-interference and stability.

It uses Hart protocol for communication, which can be remotely operated through a Hart handheld communicator or a computer installed with Hart software to complete the measurement information configuration.Meanwhile the digital compensation technology is used, and the transmitter is compensated through the built-in temperature sensor to improve the accuracy, temperature drift is reduced.

The most user-friendly design of the external one-key reset function meets the requirements of safe operation in hazardous situations. The shortcut menu is convenient for operation, and can complete all parameter settings, which comprehensively improves the performance of the transmitter.

Features

◇Innovative dual compensation technology

◇0.075% high precision

◇Advanced monocrystalline silicon pressure sensor technology and packaging technology adopted

◇Modularization design with microprocessor as the core and assisted by advanced digital isolation technology, which makes it with high anti-interference and stability

◇24-bit ADC achieves high precision

Function Parameters

Range limit	Within the upper& lower limits of the measuring range, it can be adjusted arbitrarily. It is recommended to select a range code with the lowest possible turndown ratio to optimize performance
Output	Two-wire system 4-20mA, in line with NAMIR NE43 specification, superimposed digital signal (Hart protocol);Linear or square root output is optional.
Response time	The damping constant of the amplifier component is 0.1s; the time constant of the sensor is 0.1 to 1.6s, depending on the range and the range ratio. The additional adjustable time constant is: 0～100s
Zero point setting	Zero point and range can be adjusted to any value within the measurement range in the table, as long as: calibration range ≥ minimum range
Influence of installation location	The change of the installation position perpendicular to the diaphragm surface will not cause the zero drift effect. If the installation position and the diaphragm surface change more than 90°, the zero position in the range of <0.4kPa will be affected. It can be adjusted by adjusting the zero and there is no impact on the range.
Preheating time	<15s
Output signal limit	Imin=3.9mA, Imax=21.0mA
Fault warning	If the sensor or circuit fails, the automatic diagnosis function will automatically output 3.9 or 21.0mA (user can pre-set)
Alarm current	Low alarm mode (minimum): 3.9mA
High report mode (maximum)	21 mA
Alarm current default setting	High alarm mode

Performance Parameters

Measuring medium	Gas, steam, liquid
Accuracy	±0.2%,±0.075%,±0.1%(linearity, hysteresis and repeatability from zero)
Stability	±0.1%/3 years
Ambient temperature influence	≤±0.04%URL/10℃
Influence of static pressure	±0.05%/10MPa
Power supply	10 ~ 36Vdc(24Vdc recommended)
Power influence	±0.001%/10V (10 ~ 36Vdc), which can be negligible
Ambient temperature	-40℃ ~85℃
Measuring medium temperature	-40℃~120℃
Storage temperature	-40℃ ~105℃
Display	LCD, OLED
Module temp. shown on display	-20℃~70℃ (LCD), -40℃~80℃ (OLED)
Explosion-proof rating	Exd Ⅱ CT6， Exia Ⅱ CT4
IP Rating for Housing	IP65(P71); IP67(P75, P76, P78)

Overload and static pressure

	Range	Unilateral overload (negative end)	Unilateral overload (positive end)	Bilateral static pressure
A	1KPa	16MPa	16MPa	40MPa
B	6KPa	16MPa	16MPa	40MPa
C	40KPa	25MPa	25MPa	40MPa
D	400KPa	25MPa	25MPa	40MPa
E	4MPa	25MPa	25MPa	40MPa

Smart Direct-mounted Gauge/Absolute Pressure Transmitter P71

Gauge pressure range

Range code	Measuring range(KPa)	Accuracy/Stability
A	-6～6	±0.075%F.S of the range The maximum error per year is ±0.1% of range
B	-40～40	
C	-100～100	
D	-100～400	
E	-100～4000	
F	-100～40000	

Absolute pressure range and range

Range code	Measuring range(KPa)	Accuracy/Stability
A	0～40	±0.075%F.S of the range/ The maximum error per year is ±0.1% of range
B	0～250	
C	0～2000	

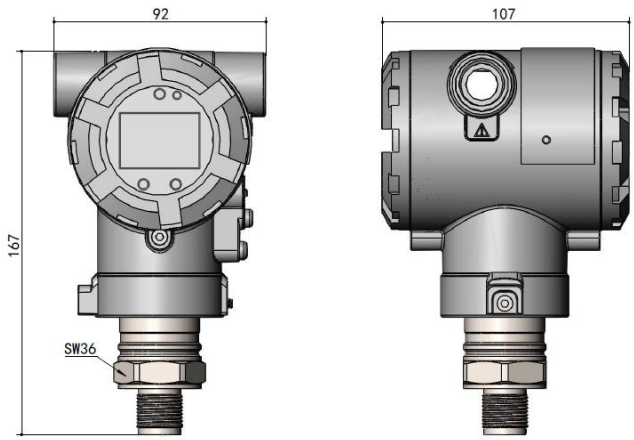
Gauge pressure overload limit

Range	1KPa A	6KPa B	40KPa C	100KPa D	400KPa E	4000KPa F	40000KPa G
Load limit	1MPa	2MPa	5MPa	7MPa	9MPa	10MPa	50MPa

Absolute pressure overload limit

Range	40KPa A	250KPa B	2000KPa C
Load limit	1MPa	4MPa	10MPa

Dimensions



Model Selection

Code	Type
GP	Smart Pressure Transmitter
AP	Smart Absolute Pressure Transmitter

Code	Gauge Pressure Range (KPa)	Absolute Pressure Range (KPa)
A	0～1～6	0～6～40
B	0～6～40	0～40～250
C	0～40～100	0～250～2000
D	0～100～400	
E	0～400～4000	
F	0～4000～40000	

Code	Output signal
H	4 ～ 20mA
S	4 ～ 20mA+Hart

Code	Display
M1	LCD
M2	OLED(Low temperature resistant -40℃)

Code	Process Connection
C1	M20*1.5 male
C2	G1/2 male
C3	G1/4 male
C4	1/2NPT male
C5	1/2NPT female
T	Special request

Code	Hazardous location certification (do not fill in for ordinary type)
E0	Non-explosion proof
E1	Flameproof, Exd Ⅱ CT6
12	Intrinsically safe, Exia Ⅱ CT4

Code	Electrical connection
D1	M20*1.5
D2	User specified

Code	Special requirement
T	User specified

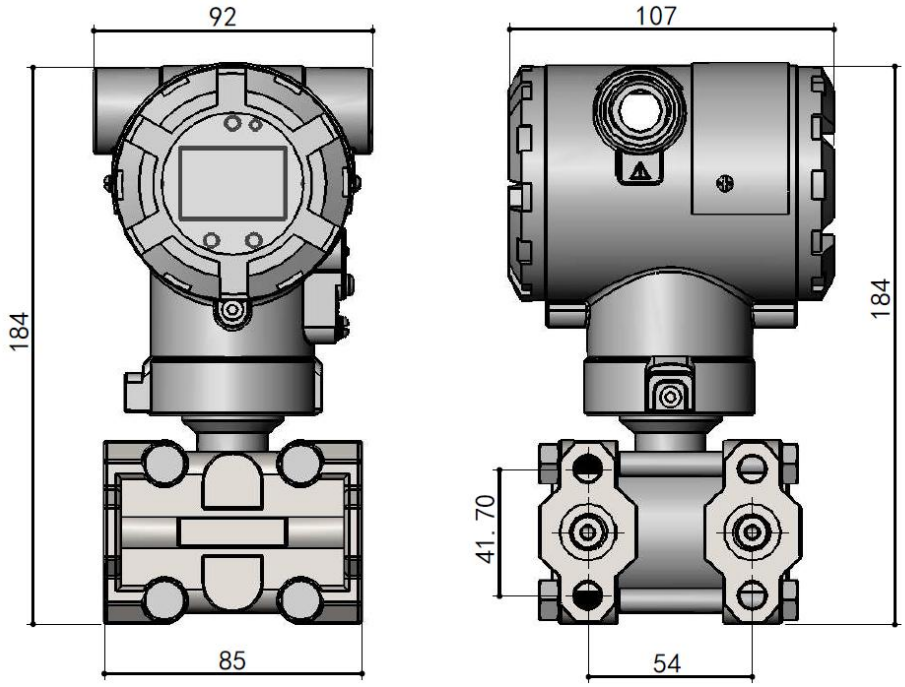
GP	A	H	M1	C1	E1	D1	T	Model No. example

P75 Intelligent High-precision Monocrystalline Differential Pressure Transmitter

Measuring Range

Range code	Measuring range(KPa)	Accuracy/Stability
A	-1～1	±0.075%F.S of the range; The maximum error per year is ±0.1% of range
B	-6～6	
C	-40～40	
D	-100～100	
E	-100～400	
F	-100～4000	

Dimensions



Model Selection

Code	Type
DP	Smart Differential Pressure Sensor

Code	DP Range (KPa)
A	0～0.2～1
B	0～1～6
C	0～6～40
D	0～40～100
E	0～100～400
F	0～400～4000

Code	Output Signal
H	4 ～ 20mA
S	4 ～ 20mA+Hart
J	Square root 4 ～ 20mA

Code	Display
M1	LCD
M2	OLED（Low temperature resistant -40℃）

Code	Pressure Connection
C0	NPT1/4 + Φ14
C1	NPT1/2
C2	M20*1.5
C3	Integrated three valve group

Code	Structure material		
	Flange	Drain/exhaust	Diaphragm
21	304 SS	304 SS	316 SS
22	316 SS	316 SS	316 SS
23	316 SS	316 SS	Hastelloy C
24	316 SS	316 SS	Monel alloy
25	316 SS	316 SS	Tantalum
26	Hastelloy C	Hastelloy C	Hastelloy C
27	Hastelloy C	Hastelloy C	Tantalum
28	Monel alloy	Monel alloy	Monel alloy

Code	Relief valve
X0	Vent valve
X1	Drain valve

Code	Mounting bracket
B0	Without mounting bracket
B1	Tube bending bracket
B2	Board-mounted bending bracket
B3	Tube mounted flat bracket

Code	Hazardous location certification (do
E0	No explosion-proof
E1	Flame-proof, Exd Ⅱ CT6
E2	Intrinsically safe, Exia Ⅱ CT4

Code	Electrical connection
D1	M20*1.5
D2	User specified

DP	A	H	M1	C1	21	X0	B1	E1	D1	Model No. Example

P76 Intelligent Monocrystalline Flat Diaphragm/Cylinder Flange Liquid Level Transmitter

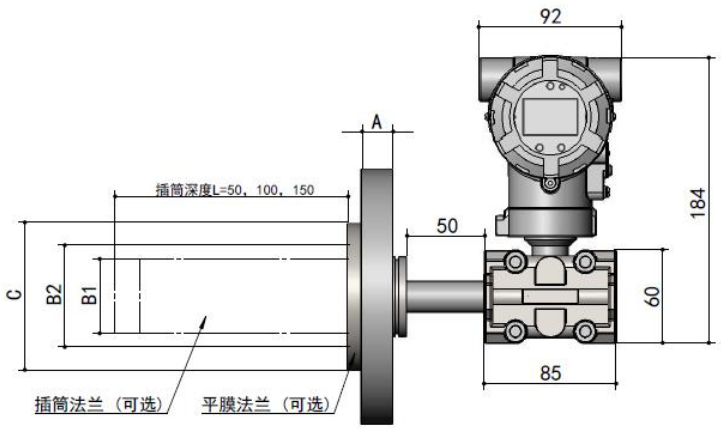
Measuring Range

Range code	Min Range(KPa)	Max Range(KPa)	Rated pressure (maximum)
B	1	6	Rated pressure of liquid level flange
C	6	40	
D	40	400	
E	400	4000	

Comparison of relationship between flange and min range

Liquid level flange	Nominal diameter	Minimum range
Flat Diaphragm type	DN 50/2"	10KPa
	DN 80/3"	1KPa
	DN 100/4"	1KPa
Cylinder	DN 50/2"	16KPa
	DN 80/2"	1KPa
	DN 100/4"	1KPa

Dimensions



Model Selection

Code	Type
LT	Intelligent Flat Diaphragm Flange Liquid Level Transmitter
CT	Intelligent Cylinder Flange Liquid Level Transmitter

Code	Pressure Measuring Range(KPa)
B	1 ～ 6
C	6 ～ 40
D	40 ～ 400
E	400 ～ 4000

Code	Output Signal
H	4 ～ 20mA
S	4 ～ 20mA+Hart

Code	Display
M1	LCD
M2	OLED（Low temperature resistant -40℃）

Structure material

Code	Flange Material	Code	Diaphragm	Code	Coating
22	304SS	N1	316L SS	T1	None
23	316SS	N2	Hastelloy C	T2	PTFE
		N3	Monel alloy		
		N4	Tantalum		
		N5	Titanium		

Code	Mounting Dimensions
C1	DN50
C2	DN80
C3	DN100
C4	2”
C5	3”
C6	4”
C7	User specified

Code	Cylinder length（mm）
L10	0(Flat flange)
L11	50
L12	100
L13	150
LT	User specified

Code	Capillary length（m）
F0	None
F1	1m
F2	2m
F3	3m
F4	User specified

Code	Mounting bracket
A1	Without mounting bracket
A2	Tube bending bracket
A3	Board-mounted bending bracket
A4	Tube mounted flat bracket

Code	Hazardous location certification (do not fill in for ordinary type)
E0	No explosion-proof

									E1	Flameproof, Exd Ⅱ CT6	
									E2	Intrinsically safe,Exia Ⅱ CT4	
										Code	Electrical connection
										D1	M20*1.5
										D2	User specified
LT	B	H	M1	22	C1	L10	F1	A1	E0	D1	Model No. Example

P78 Intelligent Monocrystalline Dual-remote Flat Diaphragm/Cylinder Flange Liquid Level Transmitter

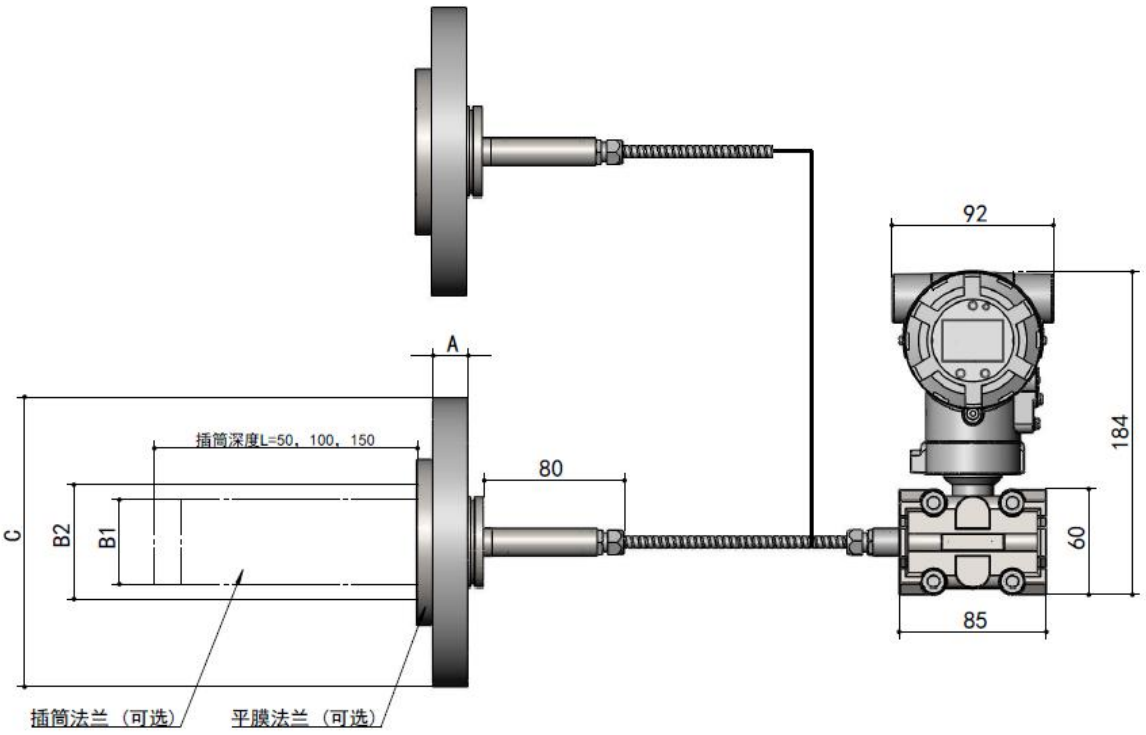
Measuring Range

Range code	Min Range(KPa)	Max Range(KPa)	Rated pressure (max)
B	1KPa	6KPa	Rated pressure of liquid level flange
C	6KPa	40KPa	
D	40KPa	400KPa	
E	400KPa	4MPa	

Comparison of relationship between flange and min range

Flange	DN	Min range	
		Unilateral remote transmission	Bilateral remote transmission
Flat Diaphragm	DN 50/2"	10KPa	10KPa
	DN 80/3"	6KPa	1KPa
	DN 4"	6KPa	1KPa
Cylinder	DN 50/2"	10KPa	10KPa
	DN 80/2"	6KPa	1KPa
	DN 4"	6KPa	1KPa

Dimensions



Model Selection

Code	Type
DY	Intelligent remote differential pressure transmitter
GY	Intelligent remote pressure transmitter

Code	Pressure measurement range（KPa）
B	1~6
C	6~40
D	40~250
E	250~4000

Code	Output
H	4~20mA
S	4~20mA+Hart

Code	Display
M1	LCD
M2	OLED(Low temperature resistant -40℃)

Structure material					
Code	Flange Material	Code	Diaphragm material	Code	Coating
22	304 SS	N1	316L SS	T1	None
23	316 SS	N2	Hastelloy C	T2	PTFE
		N3	Monel alloy		
		N4	Tantalum		
		N5	Titanium		
		N6	PTFE sprayed		

Code	Mounting Dimensions
C1	DN50
C2	DN80
C3	DN100
C4	2”
C5	3”
C6	4”
C7	User specified

Code	Remote transmission device
Y0	Single flat flange type
Y1	Double flat flange type
Y2	Single cylinder flange type
Y3	Double- cylinder flange type
Y4	One flat one cylinder flange type

Code	Capillary length
X0	1m
X1	2m
X2	3m
X3	User specified

								Code	Cylinder length（mm）			
								10	0(Flat flange)			
								11	50			
								12	100			
								13	150			
								T	User specified			
									Code	Mounting bracket		
									B0	Without mounting bracket		
									B1	Tube bending bracket		
									B2	Board-mounted bending bracket		
									B3	Tube mounted flat bracket		
										Code	Hazardous location certification (do not fill in for ordinary type)	
										E0	None explosion-proof	
										E1	Flameproof, Exd Ⅱ CT6	
										E2	Intrinsically safe,Exia Ⅱ CT4	
											Code	Electrical connections
											D1	M20*1.5
											D2	User specified
DY	B	H	M1	22 N1 T1	C1	Y0	X0	10	B0	E0	D1	Model No. Example