

SPT 200 SERIES

Smart Pressure Transmitter

iSOLV

Process Instrumentation



analytical

bulk flow

distance

flow

level

PRESSURE

temperature

industrial
communication

FLOTECH

Process Automation & Instrumentation

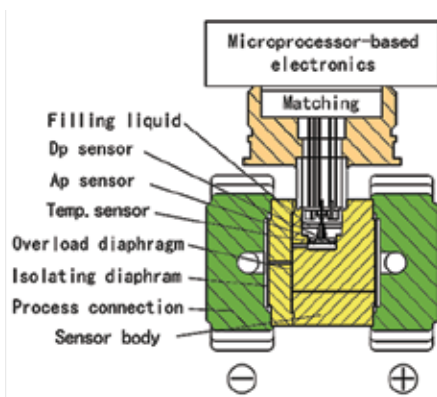
SPT200 Series Smart Pressure Transmitter

SPT200 Series Smart Pressure Transmitter are microprocessor based with HART® (Highway Addressable Remote Transducer) protocol communication. Automatic temperature compensation significantly improve stability in pressure measurement.

SPT200 Series Smart Pressure Transmitter are widely use in petrol chemical, chemical, oil & gas, steel, power plant, water & waste water, manufacturing and other industries. With the unique sensor technology, combined with diaphragm material available in various options, the industrial transmitters are suitable for almost all industrial gases and liquids.

Operating Principle

SPT200 -D

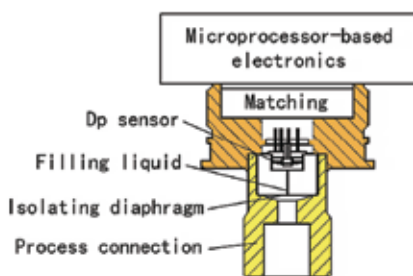


The differential pressure transmitter includes two functional units:

- Main unit
- Auxiliary Unit

The main unit includes a sensor and process connection. The completely welded sensor module is a twin-chamber system with an integral overload diaphragm, an absolute pressure sensor, a temperature sensor and the silicon differential pressure sensor. The absolute pressure sensor, which is only exposed to the pressure at the high pressure side, acts as a reference value to compensate for the static pressure. The temperature sensor as a temperature compensated reference value to compensate for the temperature drift.

SPT200 -G



The gauge pressure transmitter includes two functional units:

- Main unit
- Auxiliary Unit

The main unit includes gauge/temperature sensors and process connection. The low pressure span completely welded sensor module is a twin-chamber system with an integral overload diaphragm, and a silicon pressure sensor. The temperature sensor as a temperature compensated reference value to compensate for the temperature drift.

Features

- High accuracy, up to 0.04% FS
- Ranges up to 400 bar
- Compact, rugged construction
- Conforms to the HART protocol
- Automatic diagnostic function
- Local zero and span adjustment
- 2-wire system
- EEPROM
- Rangeability up to 100:1
- ATEX Approval : Ex ia IIC T4 Ga/Gb (Pending for Approval)

Specifications - SPT200

Type

Differential/Absolute Pressure Transmitter
(SPT200-D/SPT200-A)

Gauge Pressure Transmitter
(SPT200-G)



Application	For gas, steam, liquid	
Range Ratio	100:1	
Accuracy	±0.075% (Standard) / ±0.04% (Optional)	
Stability	±0.1%×Span /3 years	
Power Supply Effects	±0.001% /10V (12~36V DC)	
Zero and Span	• Local adjustment • HART Communicator • PC configuration software	
Measuring Range	4 ~ 400mbar / 25 ~ 2500mbar / 0.3 ~ 30bar	up to 400 bar
Static Pressure Effects	±(0.025%URL+0.05%Span)/ 10MPa	N/A
Overpressure Effects	±0.05% × Span /10MPa	±0.05% × Span
Mounting Position Effects	Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.4 kPa (40 mmH ₂ O) which can be corrected by the zero adjustment.	Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.25 kPa which can be corrected by the zero adjustment.
Process Connection	Flange with fixing thread 7/16-20 UNF and 1/4-18 NPT female thread on both sides	Standard: ½" NPT female thread Others: ½" NPT male, G1/2 female, M20x1.5 female, ¼" NPT male
Power Supply	<ul style="list-style-type: none"> • 24VDC supply, $R \leq (U_s - 12V) / I_{max}$ kΩ, $I_{max} = 23$ mA. • Max. voltage limit: 36VDC, Minimum voltage limit: 12VDC ; 15VDC (with LCD display) • 230Ω to 600Ω for digital communication 	
Output	<ul style="list-style-type: none"> • 4-20 mA (2 wire system) communication • HART Protocol • Linear or Square Root programmable 	
Response Time	<ul style="list-style-type: none"> • 0.1 sec (amplifier damping constant) • 0.1-1.6 sec (sensor damping constant) 	
Turn-on Time	< 15 seconds	
Ambient Temperature Limits	<ul style="list-style-type: none"> • -40°C to 85°C • -20°C to 65°C with LCD display 	
Storage and Transportation Temperature Limits	<ul style="list-style-type: none"> • -50°C to 85°C • -25°C to 85°C with LCD display 	

Technical Specifications (cont.)

Type	Differential Pressure Transmitter (SPT200-D)	Gauge/ Absolute Pressure Transmitter (SPT200-G/SPT200-A)
One-way Overload Pressure Limit	The maximum one-way overload pressure is maximum working pressure	
Approvals	ATEX : Ex d IIC T6 (Pending for Approval) ATEX : Ex ia IIC T4 (Pending for Approval)	
Failure Mode Alarm	Low Mode (min): 3.6 mA High Mode (max): 21 mA No Mode (hold): Keep the effective value before the fault.	
Working Pressure Limits (Silicone oil)	16MPa, 25MPa, 40MPa	From vacuum to upper range limits
Static Pressure Limits	3.5kPa abs. to max. working pressure	N/A
Sensor Body	316L Stainless Steel	N/A
Isolating Diaphragm	<ul style="list-style-type: none"> Standard: 316L Stainless Steel Optional: Hastelloy C 	<ul style="list-style-type: none"> Standard: 316L Stainless Steel Optional: Hastelloy C
Cover Flange	316 Stainless Steel	N/A
Nuts and Bolts	Stainless Steel	N/A
Process Connector	316 Stainless Steel	
Liquid Fill	Silicone oil/Fluorinated oil	
Amplifier Housing	Aluminum with epoxy paint	
Degree of Protection	IP67	
Name plate and tag	304 Stainless Steel	
Cable Entry	M20 x 1.5 (wire cross-sections up to 2.5mm ²)	
Process Connection Gasket	Perbunan (NBR) or Buna-N /Viton (FKM) /Teflon (PTFE)	N/A
Weight	3.3 kg	1.6 kg

**For other requirement, please contact Flotech for availability*

Optional: Level and Remote Seal Pressure Transmitter



SPT200- Level

Measuring Range
Fill Fluid
Fluid Medium

0 – 1kPa ~ 3MPa
Silicone Oil, Vegetable Oil
High Temperature, High Viscosity,
Corrosive , Easy to Precipitate

Isolating Diaphragm

316L / Hastelloy C / Gold plated
on 316L / FEP or PFA plated
on 316L / Tantalum



SPT200-Remote

Measuring Range
Fill Fluid

0 – 1kPa ~ 3MPa
Silicone Oil, High Temperature
Silicone Oil, Ultra - high-
temperature silicone oil ,
Vegetable Oil

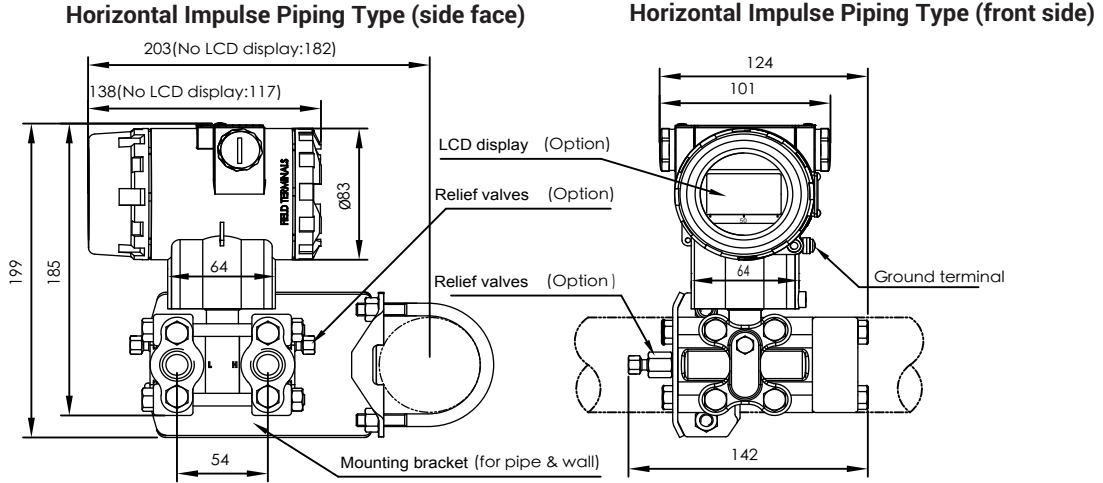
Fluid Medium

High Temperature 400 deg C,
High Viscosity, Corrosive ,
Easy to Precipitate

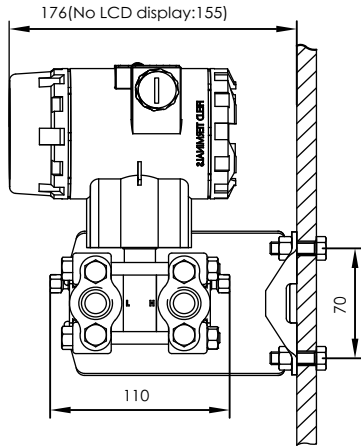
Isolating Diaphragm

316L / Hastelloy C / Gold plated
on 316L / FEP or PFA plated
on 316L / Tantalum

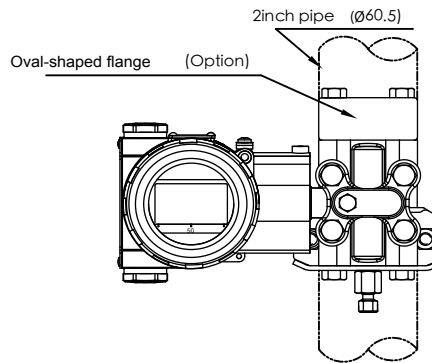
Dimensions (In mm) & Installations (SPT200-D)



Horizontal Impulse Wall mounting Type

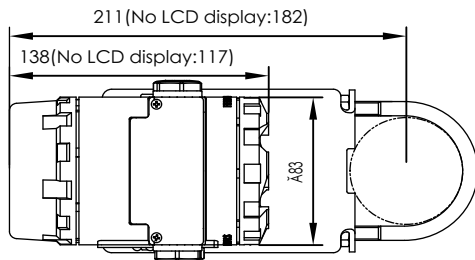


Vertical Impulse Piping Type

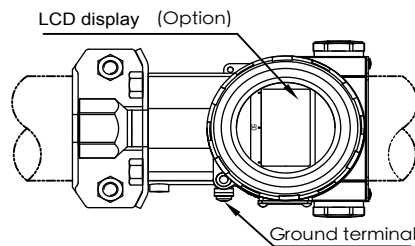


Dimensions (In mm) & Installations (SPT200-G)

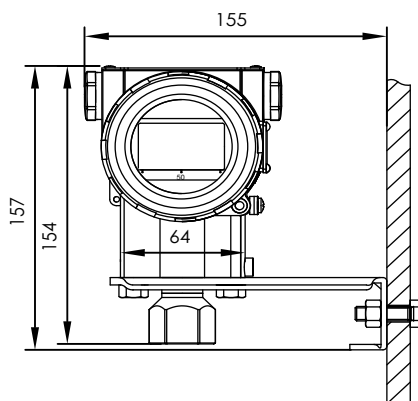
Horizontal Impulse Piping Type (side face)



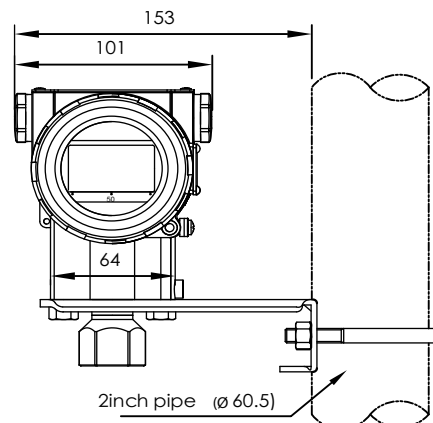
Horizontal Impulse Piping Type (front side)



Horizontal Impulse Wall Mounting Type



Vertical Impulse Piping Type



Ordering Information

(Example)

SPT200-D	SPT200-D - Differential Pressure Transmitter SPT200-A - Absolute Pressure Transmitter
A	Accuracy A - Reference Accuracy $\pm 0.04\%$ B - Reference Accuracy $\pm 0.075\%$
C	Span C - 0-400Pa \sim 40kPa (0-40 \sim 4000 mmH2O) / (0-4 \sim 400mbar) D - 0-2.5kPa \sim 250kPa (0-0.25 \sim 25 mH2O) / (0-25 \sim 2500mbar) F - 0-30kPa \sim 3MPa (0-3 \sim 300 mH2O) / (0-0.3 \sim 30bar)
SS	Diaphragm fill fluid SS - 316L stainless steel Silicone oil SF - 316L stainless steel Fluorinated oil HS - Hastelloy C Silicone oil HF - Hastelloy C Fluorinated oil
W1	Working pressure W1 - 16MPa W2 - 25MPa W3 - 40MPa
P2	Process connections P1 - 7/16-20 UNF and 1/4-18 NPT female thread, No relief valve P2 - 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at end of flanges P3 - 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at the upper part of the flange side P4 - 7/16-20 UNF and 1/4-18 NPT female thread, Relief valve at the lower part of the flange side PR - Remote Seal
U	Process connector gasket U - Perbunan (NBR) V - Viton (FKM) T - Teflon (PTFE)
S3	Special function N - None S1 - Degrease cleansing treatment (Oxygen measurement must be with fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa, <60°C) S2 - Anti-lightning function S3 - Square root output
M1	Mounting bracket N - None M1 - SS304 M2 - SS316
X	Process connector accessory N - None X - Stainless steel oval-shaped flange with 1/2 NPT female thread Y - Stainless steel D-shaped connector with M20x1.5 male thread
L	Integral indicator N - None L - LCD display Z - Backlit LCD display
X	Explosion protection type N - None X - Exd (pending for approval) A - Exia (pending for approval)
T2	Tag name plate - - None T2 - Hanging Stainless Steel Plate

Additional Accessories: Manifold

- 2W - 2 Way Manifold, SS304, 1/4" NPTF
- 3W - 3 Way Manifold, SS304, 1/4" NPTF
- 5W - 5 Way Manifold, SS304, 1/4" NPTF
- 2Y - 2 Way Manifold, SS304, 1/2" NPTF
- 3Y - 3 Way Manifold, SS304, 1/2" NPTF
- 5Y - 5 Way Manifold, SS304, 1/2" NPTF
- 2S - 2 Way Manifold, SS316, 1/4" NPTF
- 3S - 3 Way Manifold, SS316, 1/4" NPTF
- 5S - 5 Way Manifold, SS316, 1/4" NPTF
- 2T - 2 Way Manifold, SS316, 1/2" NPTF
- 3T - 3 Way Manifold, SS316, 1/2" NPTF
- 5T - 5 Way Manifold, SS316, 1/2" NPTF

Ordering Code: (Example)

SPT200-D	A	C	SS	W1	P2	U	S3	M1	X	L	X	T2	2W
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Ordering Information

(Example)

SPT200-G

SPT200-G - Gauge Pressure Transmitter

A

Accuracy

- A** - Reference Accuracy $\pm 0.04\%$
- B** - Reference Accuracy $\pm 0.075\%$

C

Span

- C** - 0-2kPa~40kPa / (0-200~4000 mmH2O) / (0-20~400mbar)
- D** - 0-2.5kPa~250kPa / (0-0.25~25 mH2O) / (0-25~2500mbar)
- F** - 0-30kPa~3MPa / (0-3~300 mH2O) / (0-0.3~30bar)
- G** - 0-0.1MPa~10MPa / (0-1~100bar)
- J** - 0-0.21MPa~21MPa / (0-2.1~210 bar)
- I** - 0-0.4MPa~40MPa / (0-4~400 bar)
- K** - 0-2kPa~40kPa / (0-200~4000 mmH2O) / (0-20~400mbar) [Overload protection 7MPa]

SS

Diaphragm fill fluid

- SS** - 316L stainless steel Silicone oil
- SF** - 316L stainless steel Fluorinated oil
- HS** - Hastelloy C Silicone oil
- HF** - Hastelloy C Fluorinated oil

P1

Process connector accessory

- P1** - 1/2-NPT female thread
- P2** - 1/2-NPT male thread (Containing 1/4-NPT female thread)
- P3** - M20x1.5 female thread
- P4** - G 1/2 female thread
- P5** - Vacuum Connection DIN 28403 KF16 / ISO 2861
- P6** - 1/4-NPT male thread
- PR** - Remote Seal

S2

Special function

- N** - None
- S1** - Degrease cleansing treatment (Oxygen measurement must be with fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa, <60°C)
- S2** - Lightning Protection

M1

Mounting bracket

- N** - None
- M1** - **SS304**
- M2** - SS316

L

Integral indicator

- N** - None
- L** - LCD display
- Z** - Backlit LCD display

X

Explosion protection type

- N** - none
- X** - Exd (pending for approval)
- A** - Exia (pending for approval)

T2

Tag name plate

- - None
- T2** - Hanging Stainless Steel Plate

Additional Accessories: Manifold

- 2W** - 2 Way Manifold, SS304, 1/4" NPTF
- 3W** - 3 Way Manifold, SS304, 1/4" NPTF
- 5W** - 5 Way Manifold, SS304, 1/4" NPTF
- 2Y** - 2 Way Manifold, SS304, 1/2" NPTF
- 3Y** - 3 Way Manifold, SS304, 1/2" NPTF
- 5Y** - 5 Way Manifold, SS304, 1/2" NPTF
- 2S** - 2 Way Manifold, SS316, 1/4" NPTF
- 3S** - 3 Way Manifold, SS316, 1/4" NPTF
- 5S** - 5 Way Manifold, SS316, 1/4" NPTF
- 2T** - 2 Way Manifold, SS316, 1/2" NPTF
- 3T** - 3 Way Manifold, SS316, 1/2" NPTF
- 5T** - 5 Way Manifold, SS316, 1/2" NPTF

Ordering Code: (Example)

SPT200-G

A

C

SS

P1

S2

M1

L

X

T2

2W

REGIONAL NETWORK

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Certificate 14-SG1244744-PDA

