

NCS-PT105 II S Series Pressure Transmitter



Brief introduction

NCS-PT105 II S series Smart Pressure Transmitter with advanced, mature, reliable **Piezoresistive Silicon Sensors** has been designed meticulously by combining advanced microprocessor technology and digital capacitance measurement techniques. The powerful functions and high-speed computing capability of the microprocessor make it have excellent qualifications such as intelligent, high-precision, high reliability, stable zero and so on. Its LCD can display many physical parameters such as pressure, temperature, current. It can be realized zero adjustment, range settings and other features by key-press operation, and easy to on-site tests.

NCS-PT105 II S series Smart Pressure Transmitter supports HART, FF, Profibus PA protocol and can measure pressure, differential pressure, liquid level, flow, and other industrial parameters. It can be widely used in the petroleum, chemicals, electricity, and metallurgical industries, etc.

According to the type of measurable pressure:

Model	Pressure type
NCS-PT105 II S SG	Gauge pressure transmitter
NCS-PT105 II S SA	Absolute pressure transmitter

Model	Type of communication protocol
NCS-PT105 II H	HART
NCS-PT105 II F	FF H1
NCS-PT105 II P	PROFIBUS PA

As an open transitional communication protocol, HART protocol achieves digital transmission on the existing analog transmission lines, and can be compatible with existing analog signal control system. FF H1, PROFIBUS PA as a new digital communication protocol can be used in the connection of field devices in control field. International Standard Protocol IEC61158-2 is used in its physical layer. And FF H1, PROFIBUS PA is fieldbus in a real sense.

- **Size of Smart Transmitters as Figure 1 shows:**

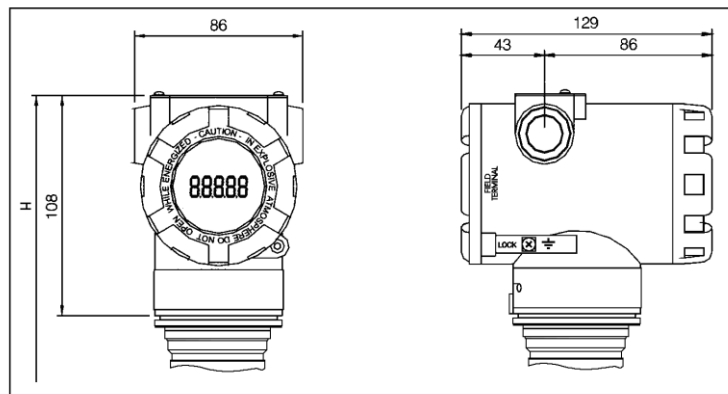


Figure 1 Size of NCS-PT105 II S Smart Transmitter (Unit: mm)

- Components of Smart Transmitter are shown in Figure2:

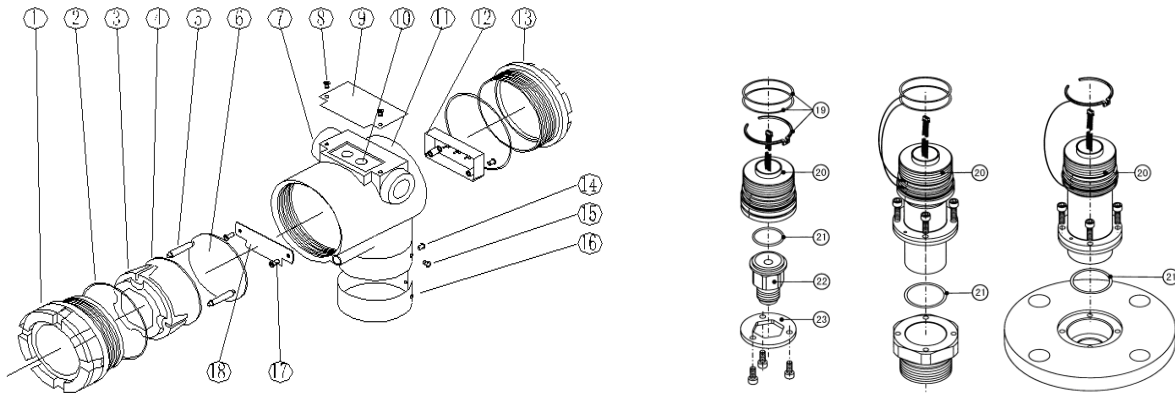


Figure2 The Exposed view and components of HART Smart Transmitter

1	Front cover	2	O-ring	3	LCD cover	4	Electronics/ LCD	5	Post
6	Communication board	7	Wire hole	8	Screw	9	Name plate	10	Zero/span Adjustment hole
11	Housing	12	Pin/block	13	Rear cover	14	Screw/cove r lock	15	Screw/name plate
16	Name plate	17	Screw	18	Terminal	19	O-ring	20	Sensor
21	O-ring	22	Flange /adapter	23	Flange				

CAUTIONS: The electronics/terminal and electronics/communication of FF Smart Transmitter are identical with those of PA Smart Transmitter, but the components of those are different with the components of HART Smart Transmitters, and the size and shape of those are alike. As a result, the installation of FF Smart Transmitter and PA Smart Transmitter is identical with HART Smart Transmitter except the fixation screws position of terminal cards. So, the figures about the components of FF, PA Smart Transmitter are not supplied.

Basic Parameter

Measure object	liquid、gas、stream
Power	9~32V dc (FF、PA) 9~17.5VDC (FF、PA; explosion-proof) 11.9~42VDC (HART) 11.9~30VDC (HART; explosion-proof)
Output	Analog: 2 wire 4~20mA Digital: HART, FF and PA signal
Load resistant	0~1500ohm (common) 250~550ohm (use HART)
Insulation	Voltage between terminal and housing: 500Vrms (707VDC)
Display	Optional 6 bits digital number or 5 bits characters LCD display
Temperature	Work temperature: -40 ~ 85℃ (without display)

	<p>-30 ~ 70°C (with display)</p> <p>-30 ~ 60°C (explosion-proof IC)</p> <p>Store temperature: -40 ~ 100°C (without display)</p> <p>-40 ~ 85°C (with display)</p>
Humidity scale	5%~100%RH
Start time	≤ 5 seconds
Refresh time	0.2 seconds
Dump adjusting	Constant of time 0~15 seconds

Performance specification

Precision	±0.075% of the select range. If the select range <1/10 maximum of the range, the precision is ±[0.025+0.005× (maximum range/select range)]% of select range
Temperature effect	Effect of every change of 28°C (50°F) Select range ≥0.1 maximum range: ±[0.019% of maximum range +0.125% of select range] ; Select range <0.1 maximum range: ±[0.025% of maximum range+0.125% of select range].
Long time stability	In 12 months, ±0.1% of maximum range
Static pressure effect	±0.25%/13.8MPa of maximum range
Location installed effect	The maximum of the zero point movement is 0.24kPa
Power effect	< 0.005%/V of range calibrated
Explosion-proof	intrinsically safety Ex ia II C T4
Proof level	IP65
Vibration effect	IEC 60068-2-6 Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)
Electromagnetic compatibility	<p>IEC 61000-4-2 Electromagnetic compatibility (EMC)- Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test</p> <p>IEC 61000-4-3 Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test</p> <p>IEC 61000-4-4 Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test</p> <p>IEC 61000-4-6 Electromagnetic compatibility (EMC) - Part 4-6: Testing and</p>

	measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields IEC 61000-4-8 Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
--	---

Physical specification

Electrical connection	1/2-14 NTP Female
Weight	1.6kg (with LCD) 1.0kg (without LCD)

Appendix 1 Type of Smart Transmitter selection

●supply ○not supply

Model	Type	SG	SA
NCS-PT105 II S SG	Gauge pressure transmitter	●	○
NCS-PT105 II S SA	Absolute pressure transmitter	○	●
Code	Range		
0	200 mbar(20 kPa)		
1	350 mbar(35 kPa)		
2	1bar(100 kPa)		
3	3.5 bar(350 kPa)		
4	7 bar(700 kPa)		
5	10 bar(1 MPa)		
6	25 bar(2.5 MPa)		
7	35 bar(3.5 MPa)		
8	60 bar(6 MPa)		
9	100 bar(10 MPa)		
A	350 bar(35 MPa)		
Code	Range		
F	FF protocol		
P	PA protocol		
H	HART protocol		
D	DP protocol		
Code	Range	SG	SA
Code	Material of process connection	SG	SA
	Material of screw thread and flush fitting diaphragm		
GA	ISO 228 G1/2 , inside hole 3 mm	●	●
GE	ISO 228 G1/2 (outside),G 1/4(inside)	●	●
GH	ISO 228 G1/2 , inside hole 11.4mm	●	●
RA	ANSI 1/2 MNPT,1/4 FNPT	●	●
RD	ANSI 1/2 MNPT, inside hole 11.4 mm	●	●
RH	ANSI 1/2 FNPT	●	●
GL	JIS B0202 PF 1/2(male)	●	●
RL	JIS B0203 Pt 1/2(male)	●	●
GP	M20×1.5, inside hole 3mm	●	●
Code	Material of process connection	SG	SA
	EN/DIN flange and flush fitting diaphragm		
CP	DN 32 PN 25/40 B1,304	●	●
CQ	DN 40 PN 25/40 B1,304	●	●
B3	DN 50 PN 25/40 A,304	●	●

C3	DN 50 PN 63 B1,304	•	•
B4	DN 80 PN 25/40 A,304	•	•
Code	Material of process connection	SG	SA
	ANSI flange and flush fitting diaphragm		
AE	1 1/2"150 1bs RF,304	•	•
AQ	1 1/2"300 1bs RF, 304	•	•
AF	2"150 1bs RF,304	•	•
JR	2"150 1bs RF,304 with ECTFE coating	•	•
AR	2"300 1bs RF,304	•	•
AG	3"150 1bs RF,304	•	•
JS	3"150 1bs RF,304 with ECTFE coating	•	•
AS	3"300 1bs RF,304	•	•
AH	4"150 1bs RF,304	•	•
JT	4"150 1bs RF,304 with ECTFE coating	•	•
AT	4"300 1bs RF,304	•	•
Code	Material of process connection	SG	SA
	JIS flange and flush fitting diaphragm		
KF	10K-50A RF,AISI 304	•	•
Code	Material of seal ring	SG	SA
A	FKM Viton seal ring	•	•
B	EPDM seal ring	•	•
D	Kalrez seal ring	•	•
E	Chemraz seal ring	•	•
F	NBR seal ring	•	•
1	FKM Viton, degreasing, seal ring	•	•
2	FKM Viton, rinse, seal ring	•	•
Code	Display	SG	SA
M	LCD module	•	•
NCS-PT105 II S SG 5 H 2D A M		Selection example	

Note: If the range is not noted, the range is the maximum range.