SANGAN

SANGAN SANAT CO.

GAUGE PRESSURE TRANSMITTER
ABSOLUTE PRESSURE TRANSMITTER

SPT1002

FEATURES

- Suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure
- Outputs a 4~20mA DC signal corresponding to the measured pressure
- Quick response
- Remote set-up using communications
- Self-diagnostics
- Optional status output for pressure high/low alarm

PERFORMANCE SPECIFICATIONS

Reference accuracy of calibrated span (includes terminal-based linearity, hysteresis, and repeatability)	:	± 0.075% or ± 0.1% If TD>10 (TD=URL/SPAN): ±(0.0075×TD)% or ±(0.01×TD)%
Ambient temperature effects	:	-20...65°C: ±(0.15×TD+0.05)%×Span Every 10°C is ±0.08%×Span (TD=1) -40...-20°C & 65...85°C: ±(0.2×TD+0.05)%×Span
Overpressure effects	:	±0.05%×Span
Stability	:	±0.1%×Span /3 years
Power supply effects	:	±0.001% /10V (12~42V DC)

FUNCTIONAL SPECIFICATIONS

Mounting position effects	:	Rotation in diaphragm plane has no effect. Tilting up to 90° will cause zero shift up to 0.25kPa which can be corrected by the zero adjustment.
Output	:	Two wire 4~20mA DC output with digital communications, linear or square root programmable. HART protocol are superimposed on the 4~20 mA DC signal. Output range: 3.9 mA to 20.5 mA
Failure alarm (the mode can be selected)	:	Low Mode (min): 3.7 mA High Mode (max): 21 mA No Mode (hold): Keep the effective value before fault. Note: The standard setting of failure alarm is High Mode.
Response time	:	The amplifier damping constant is 0.1 sec; The sensor damping constant is 0.1~1.6 sec, it depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60 sec by software and added to response time.
Preheat	:	< 15s
Ambient temperature limits	:	-40 to 85°C -20 to 65°C with LCD display or fluorine rubber sealing

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FUNCTIONAL SPECIFICATIONS

Storage and transportation temperature limits	:	-50 to 85°C, -40 to 85°C with LCD display		
Working pressure limits (silicone oil)	:	From vacuum to upper range limits		
Explosion protected type	:	AA: ATEX: II 2 G D Ex db IIC T4/T5/T6 Gb Ex tb IIIC T80°C/T90°C/T130°C Ta = -40°C to +60°C	AB: ATEX: II 1 G Ex ia IIC T4-T6 Ga -40°C ≤T_{amb}≤ +40°C, T6 -40°C ≤T_{amb}≤ +50°C, T5 -40°C ≤T_{amb}≤ +85°C, T4	AC: ATEX: II 2 D Ex ia IIIC T80°C/T95°C/T130°C Da -40°C ≤T_{amb}≤ +40°C, T80°C -40°C ≤T_{amb}≤ +50°C, T95°C -40°C ≤T_{amb}≤ +85°C, T130°C

Span/ Range Limits		kPa	psi	bar	kgf/cm²
Gauge Pressure					
FG/RG	Span	0.6~6	0.087~0.87	6~60mbar	0.006~0.06
	Range Limits	-6~6	-0.87~0.87	-60~60mbar	-0.06~0.06
HG/SG	Span	2~40	0.29~5.8	0.02~0.4	0.02~0.4
	Range Limits	-40~40	-5.8~5.8	-0.4~0.4	-0.4~0.4
KG	Span	2.5~250	0.3625~36.25	0.025~2.5	0.025~2.5
	Range Limits	-100~250	-14.5~36.25	-1~2.5	-1~2.5
MG	Span	30~3000	4.35~435	0.3~30	0.3~30
	Range Limits	-100~3000	-14.5~435	-1~30	-1~30
NG	Span	0.1~10MPa	14.5~1450	1~100	1~100
	Range Limits	-0.1~10MPa	-14.5~1450	-1~100	-1~100
PG	Span	0.21~21MPa	30.45~3045	2.1~210	2.1~210
	Range Limits	-0.1~21MPa	-14.5~3045	-1~210	-1~210
QG	Span	0.4~40MPa	58~5800	4~400	4~400
	Range Limits	-0.1~40MPa	-14.5~5800	-1~400	-1~400
Absolute Pressure					
HA/SA	Span	2~40	0.29~5.8	0.02~0.4	0.02~0.4
	Range Limits	0~40	0~5.8	0~0.4	0~0.4
KA	Span	2.5~250	0.3625~36.25	0.025~2.5	0.025~2.5
	Range Limits	0~250	0~36.25	0~2.5	0~2.5
MA	Span	30~3000	4.35~435	0.3~30	0.3~30
	Range Limits	0~3000	0~435	0~30	0~30

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OVERLOAD PRESSURE LIMITS

Span	40kPa		250kPa (KG/GA)	3MPa (MG/MA)
	(HG)	(SG)		
OPL	1MPa	7MPa	4MPa	15MPa
Span	10MPa(NG)		21MPa(PG)	40MPa(QG)
OPL	20MPa		50MPa	50MPa
Span	6KPa		40KPa	
	(FG)	(RG)	(HA)	(SA)
OPL	1MPa	7MPa	1MPa	7MPa

INSTALL

Supply & load requirements	:	24V DC supply, R≤(Us-12V)/Imax kΩ, Imax=23 mA. Maximum voltage limited: 42V DC, Minimum voltage limited: 12V DC, 15V DC (with LCD display) 230Ω to 600Ω for digital communication
Electrical connection	:	The electrical connection is made via cable entry M20x1.5 The screw terminals are suitable for wire cross-sections up to 2.5mm^2
Process connection	:	Default Process Connection: ½" NPT (F) thread, it can be changed to ½" NPT,G½" ,M20x1.5 (M) thread and vacuum clamp connection

PHYSICAL SPECIFICATIONS

Isolating diaphragm	:	316L stainless steel/Hastelloy C
Process connector	:	316 stainless steel
Fill fluid	:	Silicone oil
Amplifier housing	:	Aluminum with epoxy resin coat
Housing gasket	:	Perbunan (NBR)
Name plate and tag	:	304 stainless steel
Weight	:	1.6kg
Degrees of protection	:	IP67

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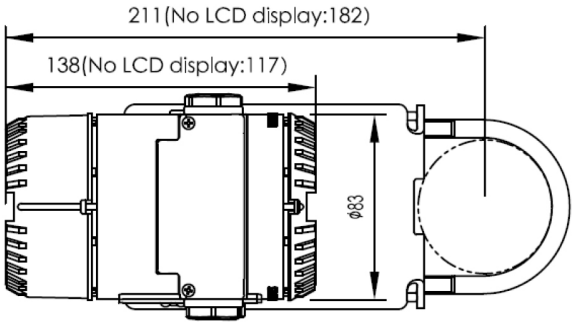
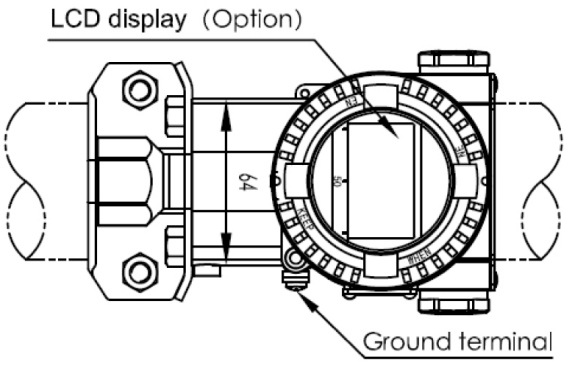
DIMENSIONAL DRAWING

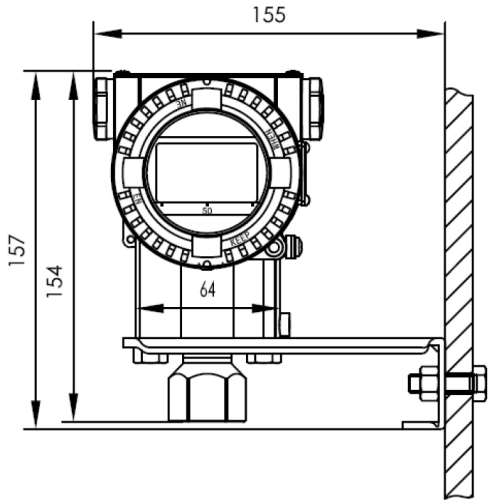
Horizontal Impulse Piping Type(side face)



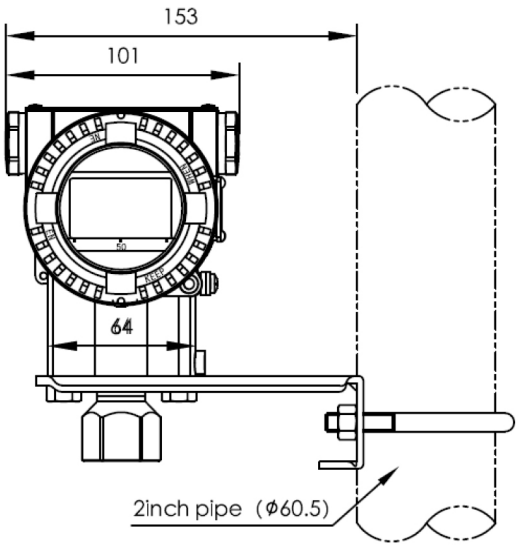
Horizontal Impulse Piping Type(front side)



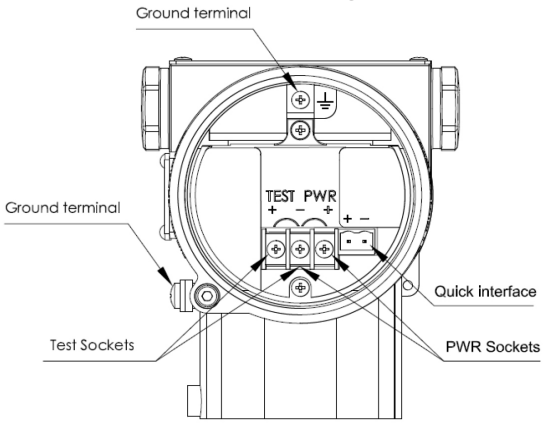
Horizontal Impulse Wall mounting Type



Vertical Impulse Piping Type



Terminal Configuration



All dimensions are in mm.

NOTE: Quick interface functionally equivalent to the signal terminal.

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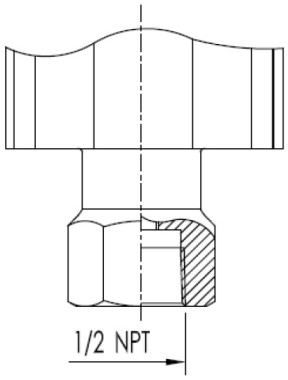
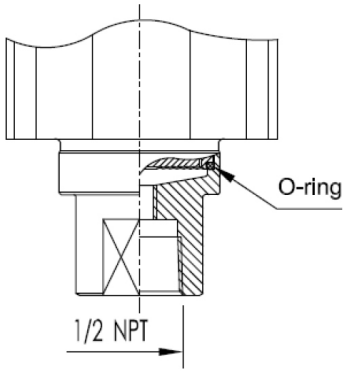
PROCESS CONNECTIONS DESCRIPTION

Default Process Connection (NA):



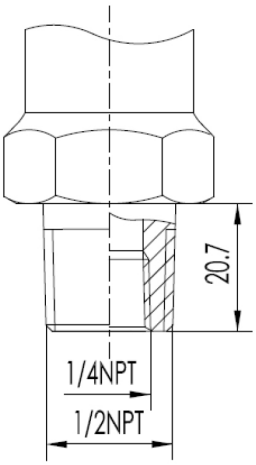
MG/NG/PG/QG/MA Span



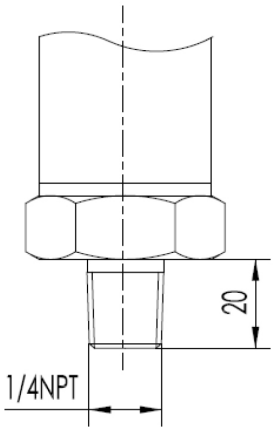
FG/HG/RG/SG/HA/SA/GA/KG Span

Other forms of Process Connection:

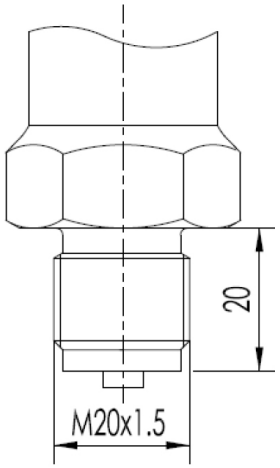
NB



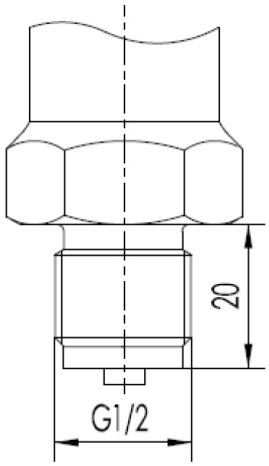
NC



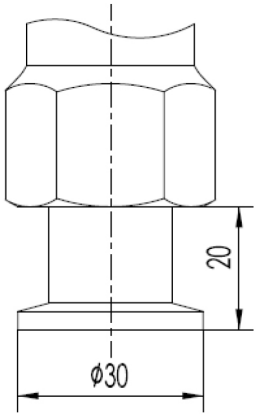
MA



GA



V*



*Vacuum Clamp Connection DIN 28403 KF16 / ISO 2861

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ORDERING CODES

Required

1. APPROVAL

AA	Hazardous area; ATEX: II 2 G D[1]	
AB	Hazardous area; ATEX: II 1 G[1]	
AC	Hazardous area; ATEX: II 2 D[1]	
B	Non-hazardous area	B

2. OUTPUT DISPLAY

1	2-wire 4-20mA HART; +LCD	
2	2-wire 4-20mA HART; None	2

3. PRESSURE TYPE

G	Gauge	G
A	Absolute	

4. APPLICATION

1	Standard	1
2	Diaphragm seal	

5. SENSOR RANGE; SENSOR OVERLOAD LIMIT

FG	-60~60 mbar / -0.87~0.87 psi gauge; 1MPa	FG
HG	-0.4~0.4 bar / -5.8~5.8 psi gauge; 1MPa	
KG	-1~2.5 bar / -14.5~ 36.25 psi gauge; 4MPa	
MG	-1~30 bar / -14.5~435 psi gauge; 15MPa	
NG	-1~100 bar / -14.5~1450 psi gauge; 20MPa	
PG	-1~210 bar / -14.5~3045 psi gauge; 50MPa	
QG	-1~400 bar / -14.5~5800 psi gauge; 50MPa	
RG	-60~60 mbar / -0.87~0.87psi gauge; 7MPa	
SG	-0.4~0.4 bar / -5.8~5.8 psi gauge; 7MPa	
HA	0~0.4 bar / 0~5.8 psi abs.; 1MPa	
KA	0~2.5 bar / 0~36.25 psi abs.; 4MPa	
MA	0~30 bar / 0~435 psi abs.; 15MPa	
SA	0~0.4 bar / 0~5.8 psi abs. 7MPa	

6. REFERENCE ACCURACY

1	±0.075% set span	
2	±0.1% set span	2

7. PROCESS CONNECTION

NA	½" NPT (F)	NA
NB	½" NPT (M) (Containing ¼" NPT (F) thread)	
NC	¼" NPT (M)	
MA	M20 x 1.5 (F)	
GA	G ½"	
V	Vacuum clamp connection ISO 2861[2]	
R	Remote seal	

8. DIAPHRAGM MATERIAL

1	316 stainless steel - Silicone oil	1
2	Hastelloy C - Silicone oil	

Additional Option

9. SPECIAL FUNCTION

N	None	N
AA	Degrease cleansing treatment (Oxygen measurement)	

10. INTEGRAL INDICATOR

N	None	
A1	LCD display	A1
A2	Backlit LCD display	

11. ACCESSORY

N	None	
AL	Mounting bracket, 304 stainless steel	
AM	Mounting bracket, Carbon steel galvanized	
AN	Sun shade	AN
AP	Capillary	

12. ACCESSORY MOUNTED

N	None	
A1	Cooling tower	A1
A2	Manifold	
A3	Siphon	

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13. ADDITIONAL OPTIONS APPLY ONLY TO THE RANGE RG/SG/SA[3]: O-ring material

N	None	
AN	Perbunan (NBR)	
AF	Viton (FKM)	**AF**
AP	Teflon (PTFE)	

14. MARKING

N	None	
A1	Position number marked on name plate	
A2	Tagging (TAG)	**A2**

Ordering Example : SPT1002-B-2-G-1-FG-2-NA-1 + N-A1-AN-A1-AF-A2

NOTES

1.Refer to page 02

2. Vacuum Clamp Connection ISO 2861, applies only to the range of less than 2,5 bar.

3. Additional options apply only to the range RG/SG/SA, need to choose a suitable O-ring material according to the measuring medium, the default option is NBR.

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