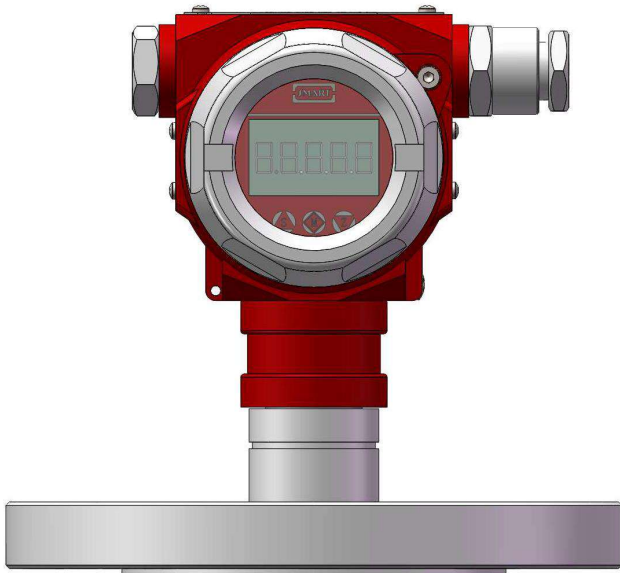


Product introduction

Description



Monosilicon pressure transmitter

Safety is the primary concern of food and pharmaceutical production. Sanitary pressure transmitter specifically designed for the food and pharmaceutical industry, adopts stainless steel external structure. And the wetted parts with superb stainless steel 316L diaphragm and complete welding technology, the polished finish  $\leq 0.4 \mu$ . Hygienic filling liquids in line with FDA standard. Suitable for CIP and SIP cleaning. Richen international standard process connection for optional.

Independent research and development of the core sensor and transmission technology, tens of millions of industrial field application test, hundreds of continuous improvement of design and manufacturing, fully automated equipment for factory inspection and records. Transmitter performance meet the national standard.

Main parameters

Pressure types	Gauge & Absolute pressure
Measuring range	10kPa -3MPa
Output signal	4-20mA, 4-20mA+HART, customer
Reference accuracy	$\pm 0.5\%$ F.S. optional $\pm 0.2\%$ F.S.

Measuring medium

Normal medium	Gas, Steam, Liquid
Special medium	The fluids which compatible with wetted parts

Field of application

Process Industry	Petrochemical, Chemical, Power, Steel, Cement, Papermaking
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Approvals



**Performance Parameter**

**Measuring range and limit**

Nominal value	Smallest calibratable span	Lower range limit(LRL)	Upper range limit(URL)	Overload limit
40kPa	10kPa	-40kPa	40kPa	1MPa
250kPa	25kPa	-100kPa	250kPa	4MPa
1MPa	100kPa	-100kPa	1MPa	6MPa
3MPa	300kPa	-100kPa	3MPa	15MPa

Above measurement range can be replaced by kg/cm<sup>2</sup>, MPa and kPa units .Which can provide other measurement range according to the requirements. Adjust requirements: lower range value (LRV) and upper range value (URV) can be adjusted within the scope of the upper and lower range limit, smallest calibratable span ≤ | URV-LRV | ≤ upper range limit.

**Standard specifications and reference conditions**

Test standard: GB/T28474 / IEC60770; zero based-calibration span, linear output, silicone oil filling, 316L stainless steel isolation diaphragm.

**Performance specifications**

The overall performance including but not limited to **【Reference accuracy】** , **【Environment temperature effects】** , **【Static pressure effects】** and other comprehensive error

Typical accuracy: ±0.2% URL

Stability: ±0.2% URL/year

**Reference accuracy**

Including linearity, hysteresis and repeatability. calibration temperature: 20°C±5°C

Linear output accuracy	Typical	±0.2% URL	Nominal value 40kPa, 250kPa 1MPa, 3MPa
	Max value	±0.5% URL	

The accuracy of square root output is 1.5 times of above linear reference output accuracy.

**Ambient temperature effects**

Within the range -20-80°C total impact ±0.2% URL/10K

**Power supply effects**

Zero and span change should not be more than ± 0.005% URL/V when power supply changes in 10.5/16.5-55VDC

**Loading effects**

Zero and span change should not be more than ± 0.05% URL/kΩ

**Vibration effects**

Vibration resistance According to IEC60068-2-6 , 10g RMS (25-2000HZ)

Impact resistance According to IEC60068-2-27 , 500g/1ms

**Output signal**

Signal	Type	Output
4-20mA	Linearity	Two wire
4-20mA+AHRT	Linearity	Two wire

**Insulation resistance**

≥20MΩ@ reference, 100VDC

Performance Parameter

Damping time

Total damping time constant: equal to the sum of damping time of amplifier and sensor capsule
Damping time of amplifier : 0-100S adjustable
Damping time of sensor capsule (isolation sensor diaphragm and silicon filling oil)≤0.2S
Startup after power off: ≤6S
Normal services after data recovery: ≤31S

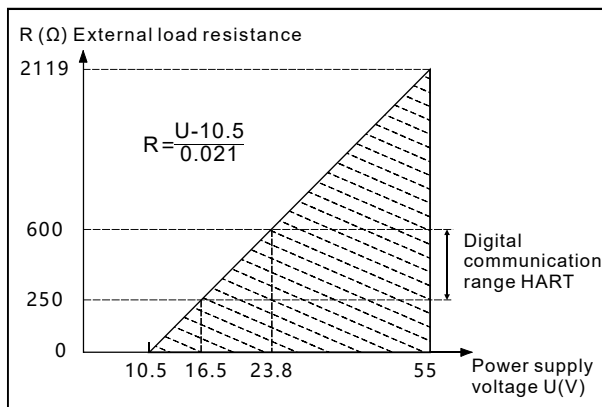
Weight

Net weight: about 0.6kg ( without mounting bracket and process connection adaptor )
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Power supply

Item	Operating conditions
Standard	10.5-55VDC
HART protocol	16.5-55VDC, communication load resistance 250Ω
Load resistance	0-2119Ω for operation, 250-600Ω for HART protocol
Transmission distance	<1000 meters
Power consumption	≤500mW@24VDC, 20.8mA

Power supply and load requirements



Environment condition

Items		Operational condition
Working temperature		-40-85°C, integrated LCD display:-20-70°C
Storage temperature		-40-110°C, integrated LCD display:-40-85°C
Media temperature		Hygienic fluid filling s:-10-125°C; with heat exchange connector: -10-250°C* Silicon oil filling: -40-120°C,with heat exchange connector:-40-300°C*
Working humidity		0-95%RH
Proction class		IP67
Dangerous condition	NEPSI	ExdIICT6(GYB16.1253X)** ExiaIICT4(GYB16.1965X)**
	CSA	Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80°C Class III (No.: 80020805)*
	IECEX	Ex db IIC T6 Gb, Ex tb IIIC T80 Db (IECEX NEP 19.0042X)* Ex ia IIC T4 Ga (IECEX NEP 19.0042X)*

\*Using heat exchange connector may lead to zero offset and temperature drift. The degree depends on mounting position and filling fluid

\*\*Please contact the engineer for details

## Technical specifications

## EMC environment

NO.	Test items	Basic standards	Test conditions	Performance level
1	Radiated interference	GB/T 9254/CISPR22	30MHz-1000MHz	OK
2	Conducted interference (DC power port)	GB/T 9254/CISPR22	0.15MHz-30MHz	OK
3	Electrostatic discharge immunity test (ESD)	GB/T 17626.2/IEC61000-4-2	4kV(Contact),8kV(Air)	B(Note2)
4	Immunity to radio frequency EM-fields	GB/T 17626.3/IEC61000-4-3	10V/m(80MHz-1GHz)	A(Note1)
5	Power frequency magnetic field Immunity test	GB/T 17626.8/IEC61000-4-8	30A/m	A(Note1)
6	Electrical fast transient / Burst Immunity test	GB/T 17626.4/IEC61000-4-4	2kV(5/50ns,100kHz)	B(Note2)
7	Surge immunity requirements	GB/T 17626.5/IEC61000-4-5	1kV(Line to line) 2kV(Line to ground) (1.2us/50us)	B(Note2)
8	Immunity to conducted disturbances induced by radio frequency fields	GB/T 17626.6/IEC61000-4-6	3V(150kHz-80MHz)	A(Note1)

(Note 1)Performance level A: The performance within the limits of normal technical specifications.

(Note 2)Performance level B: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage and data will not be changed.

**Menu function**

**Transmission module type**

Output signal	Local control	Remote control
4-20mA+HART	LCD/3 buttons on body	HART
4-20mA	LCD/3 buttons on body	-

**LCD display unit**

Display mode	Details
PV	Process variable shows on main screen, percentage and progress bar shows on secondary screen
mA	Current shows on main screen, percentage and progress bar shows on secondary screen
%	Percentage shows on main screen, percentage and progress bar shows on secondary screen

**Unit**

Unit	Definition
kPa	Kilopascal
MPa	Megapascals
bar	Bar
psi	Pounds per square inch
mmHg	Millimetre(s) of mercury@0°C
mmH2O	Millimeter of water@4°C
mH2O	Meter of water@4°C
inH2O	Inches of water@4°C
ftH2O	Feet of water@4°C
inHg	Inches of mercury@0°C
mHg	Meter mercury column@0°C
TORR	Torr
mbar	Millibar
g/cm2	Gram per square centimeter
kg/cm2	Kilogram per square centimeter
Pa	PA
ATM	Standard atmospheric pressure
mm	Millimeter(Note 1)
m	Meter(Note 1)
Note 1: length unit need mark medium density	

**Measuring menu set**

Mark	State
URV	Upper range value
LRV	Lower range value

**Damping time**

Units	Setting range
S	0-100

**Analog output type**

Parameters	Output type
mA LINER	Linearity
mA $\sqrt{\quad}$	Square root

**Alarm signal**

Parameters	Alarm signal
ALARM NO	None
ALARM H	20.8mA
ALARM L	3.8mA

**Fix output**

Parameters	Fix output value
FIX/C NO	None
3.8000	3.8000mA
4.0000	4.0000mA
8.0000	8.0000mA
12.000	12.000mA
16.000	16.000mA
20.000	20.000mA
20.800	20.800mA

**Quick menu**

Parameter	Instruction
PV=0	Set current output to zero value, used to correct the error caused by static pressure and installation.
Zero adjustment	4mA re-range with pressure
Span adjustment	20mA re-range with pressure
Restore factory setting	Restore backup data when error

Product selection instruction

Sensor select instruction

Code	Nominal value	Description
S403G	40kPa	Range -40kPa-40kPa, smallest calibratable span 10kPa
S254G	250kPa	Range -100kPa-250kPa, smallest calibratable span 25kPa
S105G	1MPa	Range -100kPa-1MPa, smallest calibratable span 100kPa
S305G	3MPa	Range -100kPa-3MPa, smallest calibratable span 300kPa

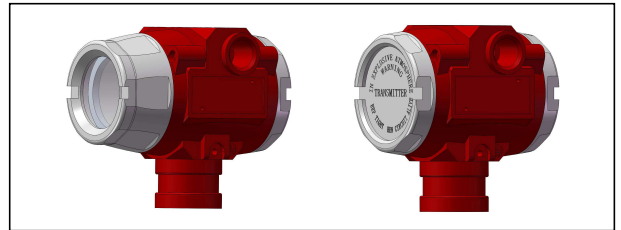
Adjust requirements: lower range value (LRV) and upper range value (URV) can be adjusted within the scope of the upper and lower range limit, minimum measuring range  $\leq |URV - LRV| \leq$  maximum measuring range

Code	Position	Instruction
F	Sensor seal	Stainless steel welding seal

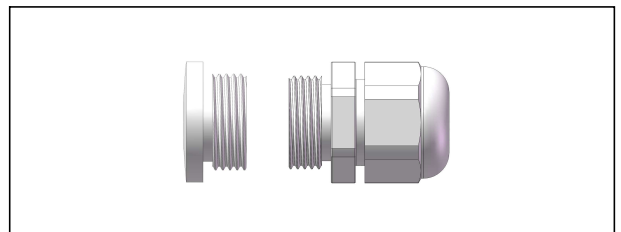
Electrical connection

Code	Item	Description
T1	Electrical connection	Aluminum-alloy terminal, 2 cable entry M20*1.5(F), red body, white cover
T2		Aluminum-alloy terminal, 2 cable entry M20*1.6(F), blue body, white cover
R1	Cable entry protector	Waterproof connector M20X1.5 one side, blind plug another side, PVC material, 6-8mm diameter cable only, IP67
R2		Flame proof, 1/2 NPT(F) one side, blind plug another side, stainless steel material, 6-8mm diameter cable only, IP67
R3		Flame proof, M20X1.5(F) one side, blind plug another side, stainless steel material, 6-8mm diameter cable only, IP67

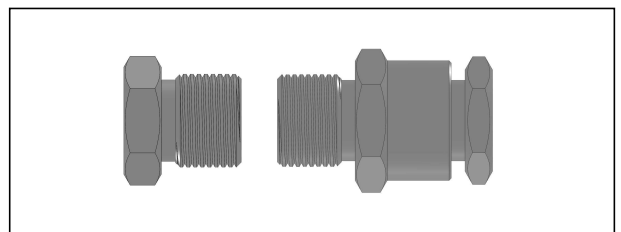
Housing(T1)



Standard cable entry protective adaptor(R1)



Flame proof cable entry protective adaptor(R2/R3)

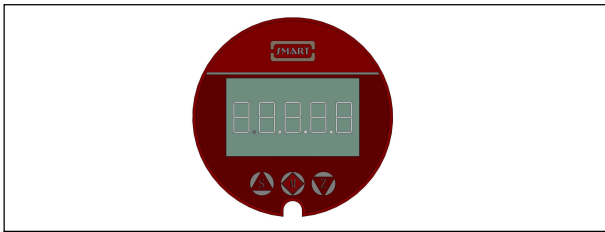


Product selection instruction

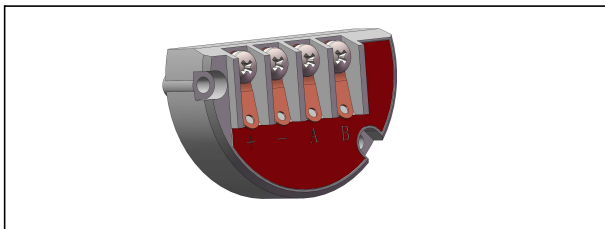
Transmission module

Code	Items	Description
F	Output signal	4-20mA two wire, power supply: 10.5-55VDC
H		4-20mA+HART two wire, power supply: 16.5-55VDC
A	Display	Without display
C		With LCD display

Display module (C)



Terminals



Isolation diaphragm

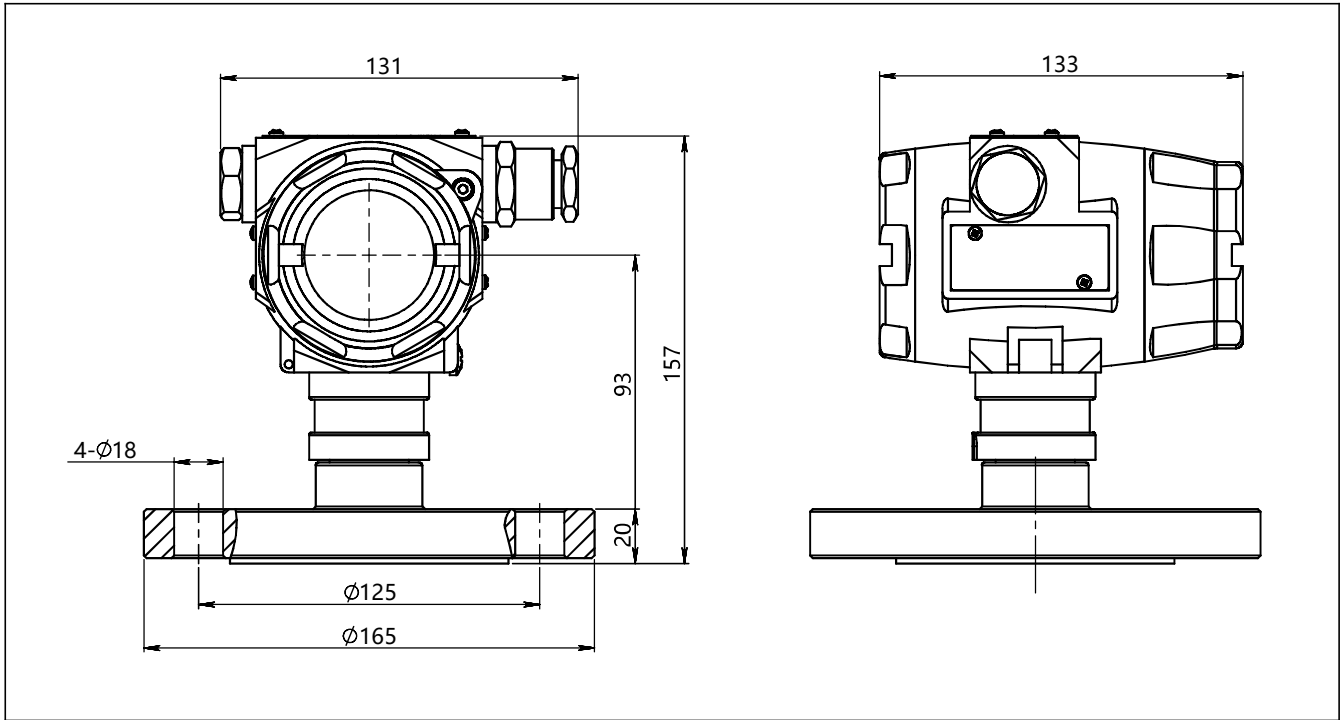


Process connection select instruction

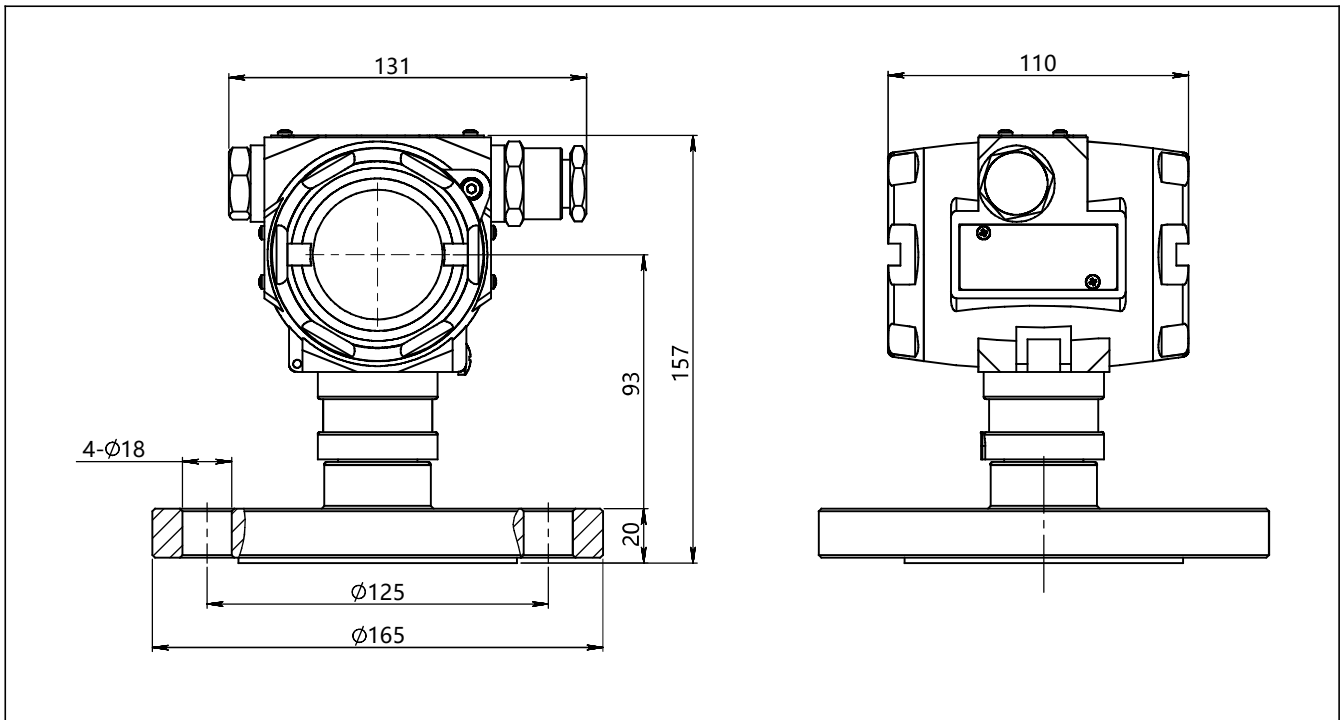
Code	Items	Description
4	Process connector material	Stainless steel, SUS304
6		Stainless steel, SUS316
NT	Connection type	Standard connection, medium temperature: -25-85°C
HT		With Cooling Element, suitable for medium temperature -40-150°C
UT		With capillary element, suitable for medium temperature -40-300°C
S	Isolation fluid filling	Silicon oil, process temperature: -45-205°C
H		High-temperature silicon oil, process temperature: 0-315°C
S	Isolation diaphragm material	Stainless steel, SUS316L
T		Tantalum
P		SUS316 + PTFE cover
M		Monel
H		Hastelloy alloy C
8		Tantalum + PTFE cover
9		Hastelloy C + PTFE cover

Product drawing and dimension

Drawing and dimension with display(C)(unit:mm)



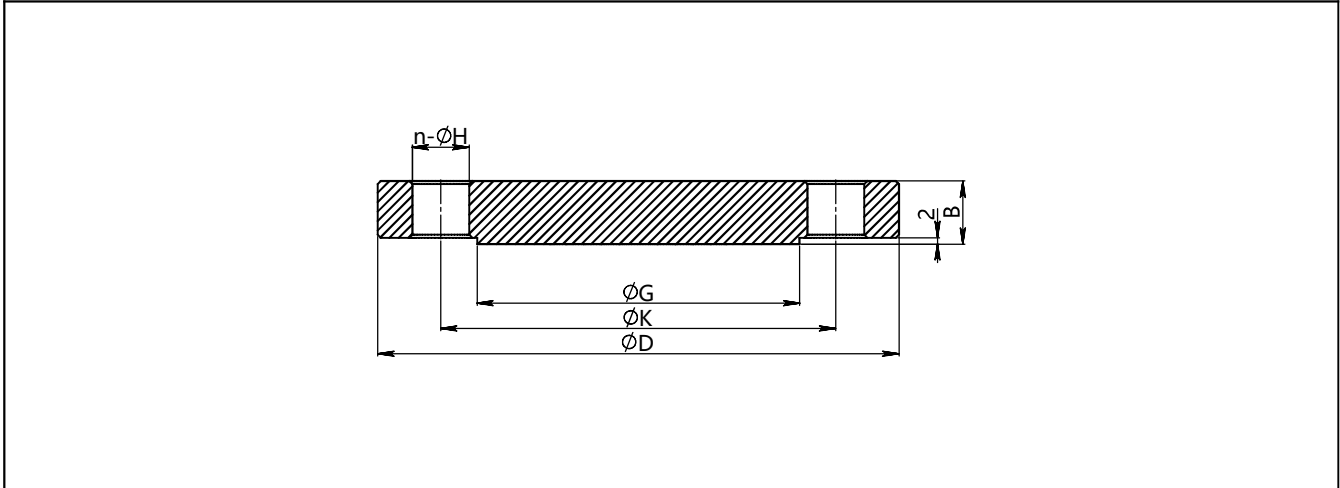
Drawing and dimension without display(A)(unit: mm)



Disclaimer: all the data used in the product description is not legally binding. Relevant technical details may be changed due to further improve

Product drawing and dimension

Process connection (H01, H05, H06) (unit: mm)



Standard	Specification	Outer diameter(ΦD)	Thickness(B)	Hole circumference(ΦK)
HG/T20592-2009	DN50PN10	165	19	125
HG/T20592-2009	DN80PN10	200	20	160
HG/T20592-2009	DN100PN10	200	20	160
Raised face diameter(ΦG)	Hole diameter(ΦH)	Number(n)	Corrugation size(ΦM)	
102	18	4	56	
138	18	8	71	
158	18	8	71	

**Ordering information chapter**

Item	Parameters	Code	Instruction	(*) fast delivery available
	Model	SMP858-TST	Monosilicon diaphragm pressure transmitter	
Sensor	Separator	-	Detailed specifications as following	
	Pressure range code	S403G	Nominal value: 40kPa	*
		S254G	Nominal value: 250kPa	*
		S105G	Nominal value: 1000kPa	*
		S305G	Nominal value: 3000kPa	
	Pressure type	G	Gauge pressure type	*
Sensor seal	F	Stainless steel welding seal	*	
Electrical connection	Separator	-	Detailed specifications as following	
	Electrical connection	T1	Aluminum-alloy terminal,2 cable entry M20*1.5(F), red body, white cover	*
		T2	Aluminum-alloy terminal,2 cable entry M20*1.6(F), blue body, white cover	
	Cable entry protector	R1	Waterproof connector M20X1.5 one side , blind plug another side, PVC material,6-8mm diameter cable only, IP67	*
		R2	Flame proof, 1/2 NPT(F) one side, blind plug another side, stainless steel material, 6-8mm diameter cable only, IP67	*
		R3	Flame proof, M20X1.5(F) one side, blind plug another side, stainless steel material, 6-8mm diameter cable only, IP67	*
Output	Separator	-	Detailed specifications as following	
	Output signal	F	4-20mA two wire, power supply: 10.5~55VDC	*
		H	4-20mA+HART two wire, power supply: 16.5~55VDC	*
	Display	C	LCD display	*
		A	Without LCD display	*
Process connection	Separator	-	Detailed specifications as following	
	Process connector material	4	Stainless Steel SUS304	*
		6	Stainless steel SUS316	*
	Connection type	NT	Standard connection, suitable for medium temperature -25-85°C	*
		HT	With cooling element, suitable for medium temperature -40-150°C	*
		UT	With capillary element, suitable for medium temperature -40-300°C	*
	Isolation fluid filling	S	Silicon oil, process temperature: -45-205°C	*
		H	High-temperature silicon oil, process temperature: 0-315°C	*

## Ordering information chapter

	Isolation diaphragm material	S	SUS316L	*	
		T	Tantalum		
		P	SUS316 + PTFE cover		
		H	Hastelloy C	*	
		8	Tantalum + PTFE cover		
		9	Hastelloy C + PTFE cover		
	Process connection	H01	HG/T 20592-2009 DN50PN10 Flange	*	
		H05	HG/T 20592-2009 DN80PN10 Flange	*	
Additional options	Separator	-	Detailed specifications as following		
	Calillary length	LXX	Length range from 0-10m		
		Display mode	/D1	According to your requirement	*
			Calibration report	/Q1	Calibration report provide by our company
		/Q2		Calibration report provide by chinese authorised third party	*
		Approvals	/E1	Flame proof certificate, ExdbIICT6Gb, ExtbIICT80 Cdb, IECEx or NEPSI	*
			/I1	Intrinsic safety certificate, ExialIICT4Ga, IECEx or NEPSI	*
			/E2	Flame proof certificate, CSA Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80°C Class III	
			/F3	CE certificate	*
		Wetted parts treatment	/G1	Ungrease treatment	*
			/G2	Electropolishing treatment	*

## Factory settings and parameters

Item	Menu mark	Factory setting value
Tag position	None	0(No specific settings)
Analog output type	mA	Liner
Display mode	DISP	PV
Alarm signal	ALARM	No

Item	Menu mark	Factory setting value
Damping value	DAMP	0(No specific settings)
4mA Lower range value	LRV	According to the order value
20mA Upper range value	URV	According to the order value
Process unit	U	According to the order

Approvals

Factory certificate

Certification organization	Intertek
Quality management system	ISO9001-2015
Scope of certification	Design and production of pressure transmitter
Registration number	110804039

CE

Certificate organization	ISET
License scope	SMP858 series pressure transmitter
Mark	CE
EMC instruction	2014/30/EU
Standard	EN61326-1: 2013
Registration number	IT051353LG161207

Flame proof certificate

Certificate organization	NEPSI	IECEX	CSA
License scope	SMP858 pressure/differential pressure transmitter		
Explosion-proof mark	ExdIICT6	Ex db IIC T6 Gb, Ex tb IIIC T80°C Db	Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80°C Class III
Working temperature	-20°C to +55°C	-20°C to +60°C	-40-60°C
Maximum medium temperature	+80°C		
Registration number	GYB16.1253X	IECEX NEP 19.0042X	80020805

Intrinsic safety certfite

Certificate organization	NEPSI	IECEX
License range	SMP858 series pressure/ differential pressure transmitter	
Explosion-proof mark	ExialIICT4	Ex ia IIC T4 Ga
Ambient temperature	-40°C to +60°C	-20°C to +60°C
Medium maximum temperature	+120°C	
Registration number	GYB16.1965X	IECEX NEP 18.0008X
Intrinsically safe parameter description	Maximum input voltage:20VDC	Maximum input voltage:28VDC
	Maximum input current:100mA	Maximum input current:93mA
	Maximum input power:0.7w	Maximum input power:0.65w
	Maximum internal equivalent parameters Ci(uF):0	
	Maximum internal equivalent parameters Li(mH):0.01	Maximum internal equivalent parameters Li(mH):0

Approvals

RoHS

Certificate organization	ECM
License scope	SMP858 pressure/differential pressure transmitter
Mark	RoSH
Instruction	2011/65/EU
Certification criteria	IEC62321-1:2013 IEC62321-5:2014 IEC62321-2:2013 IEC62321-6:2015 IEC62321-4:2014 IEC62321-7-1:2015
Registration number	0H180504.SLIUQ05



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