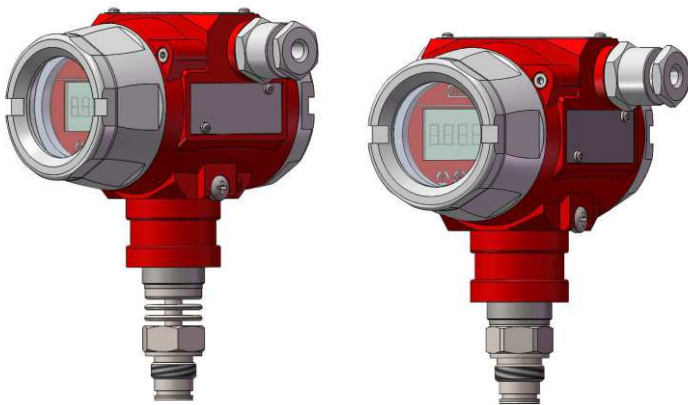


Product introduction

Description



With cooling element                      Standard

### Hygienic pressure transmitter

SMP858-TST differential pressure transmitter with monosilicon sensor is typically used in process or environmental applications for continuous measurement of pressure differences in liquids, vapors and gases. With reliable ex-proof construction and electronics, suitable in EX areas.

Main parameters

Pressure types	Gauge pressure
Measuring range	10kPa-10MPa, please refer to the ordering information chapter
Output signal	4-20mA, 4-20mA+HART, customer Modbus-RTU/RS485, customer
Reference accuracy	±0.2% URL, ±0.5% URL

Field of application

Pressure, level

Approvals



Measuring medium

The fluids which compatible with wetted parts

**Technical specifications**

**Measuring range and limit**

Nominal value	Smallest calibratable span	Lower range limit (LRL)	Upper range limit (URL)	Overpressure limit *
40kPa	10kPa	-40kPa	40kPa	1MPa
250kPa	25kPa	-100kPa	250kPa	4MPa
1MPa	100kPa	-100kPa	1MPa	6MPa
10MPa	1MPa	-100kPa	10MPa	20MPa

The unit of the measuring range above can be converted into kg/cm<sup>2</sup>, MPa and kPa. Provide other measuring range according to 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, minimum measuring range ≤ | URV - LRV | ≤ maximum measuring range.

\*Limit value of overpressure: depends on the pressure value of the parts with lowest pressure capacity

**Standard specifications and reference conditions**

Test standard: GB/T28474/IEC60770; Zero based-calibration span, Linear output, Silicon oil filling, 316L stainless steel isolated diaphragm

**Ambient temperature effects (Typical)**

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

**Performance specifications**

The overall performance including but not limited to 【reference accuracy】, 【environment temperature effects】 and other comprehensive error

Typical accuracy: ±0.2%URL

Stability: ±0.2%URL/ 1year

**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

**Reference accuracy**

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

Linear output accuracy	TD ≤ 10 (Note1)	±0.2%URL	Nominal value: 40kPa, 250kPa, 1MPa, 10MPa
	Max value	±0.5%URL	

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

Note 1: TD is Turn down, TD = URL / | URV - LRV |

**Vibration effects**

Vibration resistance	According to IEC60068-2-6, 10g RMS (25-2000HZ)
Impact resistance	According to IEC60068-2-27, 500g/1ms

**Technical Specifications**

**Output signal**

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

**Insulation resistance**

≥ 20MΩ@ reference, 100VDC

**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
Diaphragm capsule (isolated diaphragm and silicon oil filling) damping time: ≤0.2S
Startup after power off: ≤6S
Normal services after data recovery: ≤31S

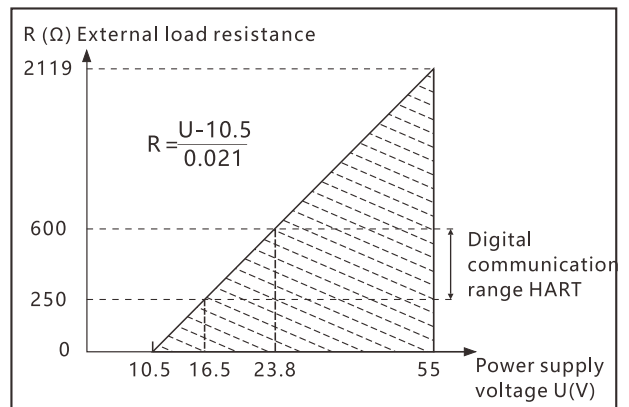
**Weight**

Net weight: about 1.43kg(without mounting brackets and process connection accessories)

**Power supply**

Item	Operating conditions
Standard	10.5-55VDC
HART protocol	16.5-55VDC, communication load resistance 250Ω
Modbus-RTU/RS485	5-32VDC
Load resistance	0-2119 Ω for working condition, 250-600Ω for HART protocol
Transmission distance	< 1000m
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, neobee M-20, process temperature: -10-125°C
	Silicon oil filling, process temperature: -40-120°C
Working humidity	0-95%RH
Protection class	IP67
Dangerous condition	ExdIICT6(GYB21.1691X)*
*Please contact engineers 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**
**Specific menu**
**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(Note1)
m	Meter(Note1)

Note1: length unit need mark medium density

**Measuring menu set**

Mark	State
URV	Upper range value, 20mA
LRV	Lower range value, 4mA

**Damping time**

Units	Setting range
S	0-100

**Analog output type**

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

**Alarmsignal**

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**

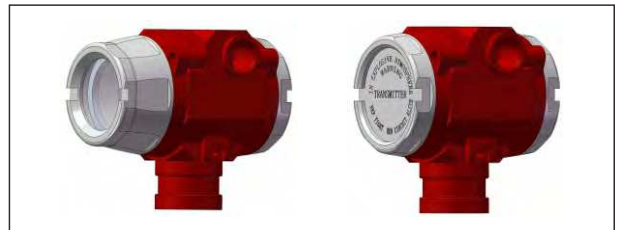
Code	Nominal value	Description
S403G	35kPa	Range -40kPa-40kPa, smallest calibratable span 10kPa
S254G	250kPa	Range -100kPa-250kPa, smallest calibratable span 25kPa
S105G	1MPa	Range -100kPa-1MPa, smallest calibratable span 100kPa
S106G	10MPa	Range -100kPa-10MPa, smallest calibratable span 7MPa
Adjust 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

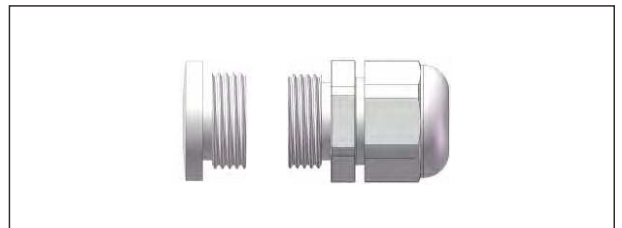
**Electrical connection**

Code	Item	Description
T1	Electrical connection	Aluminum-alloy terminal, 2 cable entry M20*1.5(F), red body, white cover
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

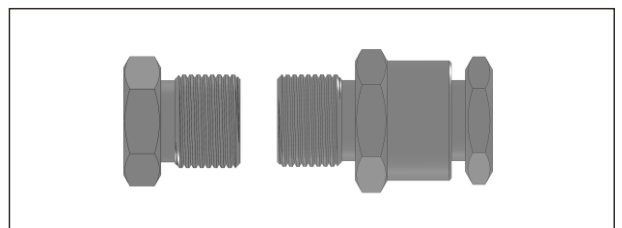
**Housing(T1)**



**Standard cable entry protective adaptor(R1)**



**Flame proof cable entry protective adaptor(R2/R3)**



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

**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
R		Modbus-RTU/RS485, power supply: 5-32VDC
A	Display	Without display
C		With LCD display

**Display module (C)**



**Terminals**

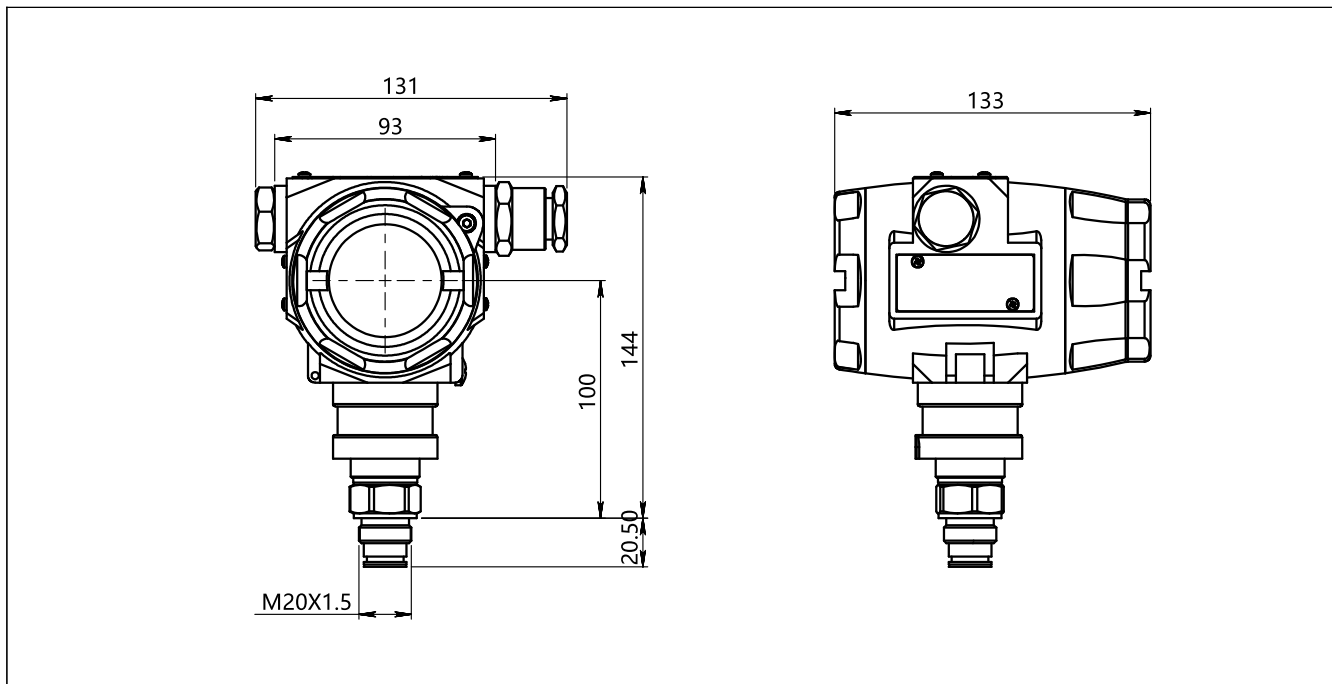


**Process connection select instruction**

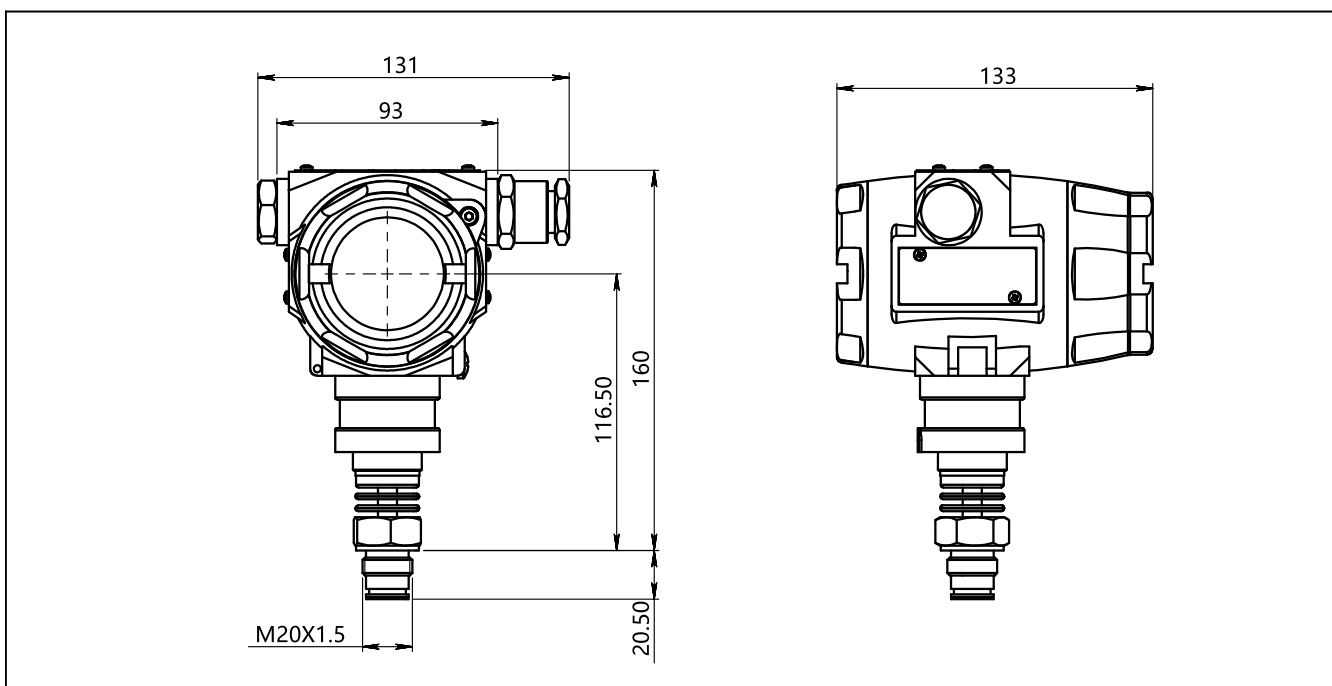
Code	Items	Description
4	Process connector material	Stainless steel, SUS304
6		Stainless steel, SUS316
NT	Connection type	Standard connection, medium temperature: -25-85°C
HT		With cooling element, suitable for medium temperature: -40-150°C
F	Isolated fluid filling	Hygienic fluid filling, Neobee M-20, process temperature: -10-180°C
S		Silicon oil filling, process temperature: -45-205°C
S	Isolated diaphragm material	Stainless steel, SUS316L
H		Hastelloy C
M01	Process connection specifications	M20*1.5 male, GB/T193-2003, ISO261
G02		G1/2 male, GB/T7307, ISO228, BS2779
G03		G1 male, GB/T7307, ISO228, BS2780
G07		G1-1/2 male, GB/T7307, ISO228, BS2781

Product drawing and dimension

SMP858-TLT-S standard drawing and dimension ( unit:mm)



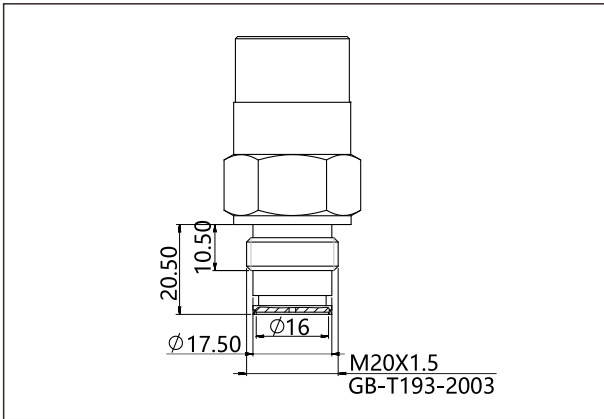
SMP858-TLT-S standard drawing and dimension with cooling element ( unit:mm)



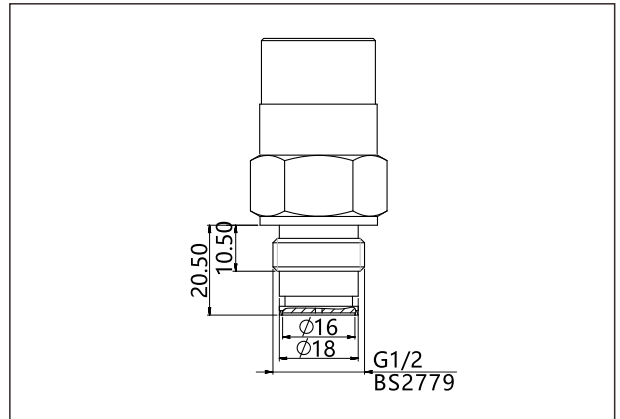
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Product drawing and dimension

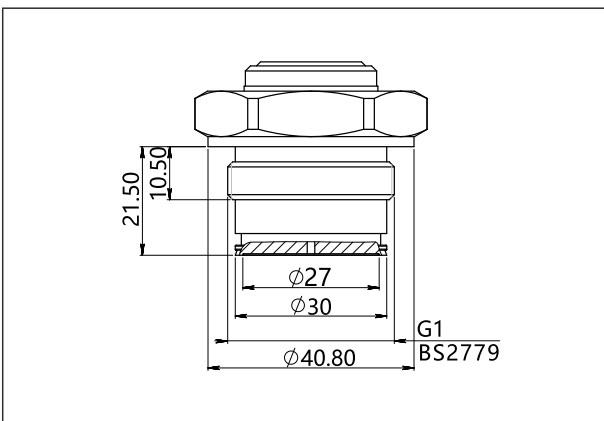
Process connection (M01)(unit: mm)



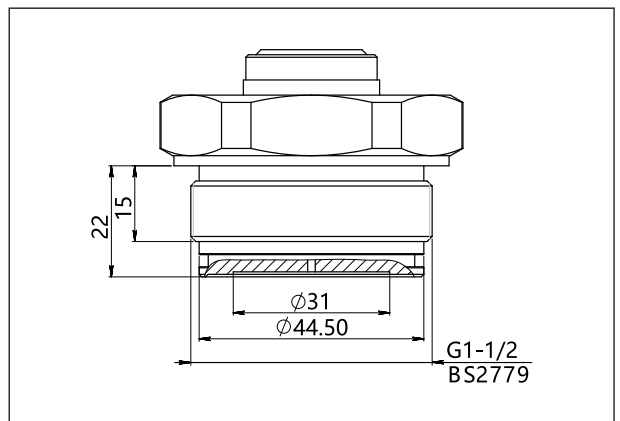
Process connection (G01)(unit: mm)



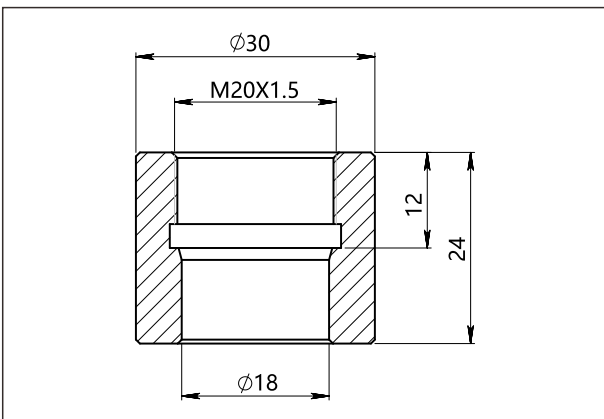
Process connection (G03)(unit: mm)



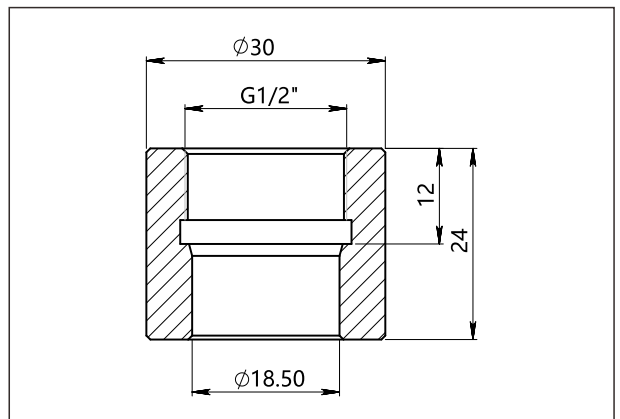
Process connection (G07)(unit: mm)



Welding adaptor(Z3)(unit:mm)



Welding adaptor(Z4)(unit:mm)



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## Ordering information chapter

Item	Parameters	Code	Instruction	(*)Fast delivery available	
	Model	SMP858-TST	Monosilicon gauge pressure transmitter		
Sensor	Separator	-	Detailed specifications as following		
	Pressure range code	S403G	Nominal value(URL): 40kPa(gauge pressure)		
		S254G	Nominal value(URL): 250kPa(gauge pressure)		
		S105G	Nominal value(URL): 1MPa(gauge pressure)		
		S106G	Nominal value(URL): 10MPa(gauge pressure)		
	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	*	
		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	H	4-20mA+HART two wire, power supply: 16.5-55VDC	*	
		F	4-20mA two wire, power supply: 10.5-55VDC		
		R	Modbus-RTU/RS485, power supply: 5-32VDC		
	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, medium temperature: -25-85°C	*	
		HT	Cooling element connector, medium temperature: -40-150°C		
	Isolated filling fluid	F	Hygienic fluid filling, Neobee M-20, process temperature: -10-180°C	*	
		S	Silicon oil filling, process temperature: -45-205°C	*	
Isolated diaphragm material	S	SUS316L	*		
	H	Hastelloy C			

## Ordering information chapter

	Process connection specifications	M01	M20*1.5 male, GB/T193-2003, ISO261, measuring range 250kPa-10MPa	
		G01	G1/2 male, GB/T7307, ISO228, BS2779, measuring range 250kPa-10MPa	
		G03	G1 male, GB/T7307, ISO228, BS2780, measuring range 20kPa-10MPa	
		G07	G1-1/2 male, GB/T7307, ISO228, BS2781, measuring range 20kPa-5MPa	
Additional options	Separator	-	Detailed specifications as following	
	Process connection accessory	/Z3	Welding connector, M20*1.5 female	*
		/Z4	Welding connector, G1/2 female	*
	Calibration report	/Q1	Calibration report provided by our company	*
	Approvals (multiple)	/E1	Flame proof certificate, ExdIICT6, NEPSI	*
		/I1	Intrinsic safety certificate, ExiaIICT4, NEPSI	*
		/F3	CE certificate	*
	Wetted parts requirements	/G1	Degrease treatment	
		/G2	Electropolishing	

**Factory settings and parameters**

Item	Menu mark	Factory setting value
Tag position	None	0(No specific settings)
Analog output type	4mA	Liner
Display mode	DISP	PV
Alarm signal	ALARM	No

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

**Approvals**

**Factory certificate**

Certification organization	Intertek
Quality management system	ISO9001-2008
Scope of certification	Design and production of pressure transmitter
Registration number	110804039

**CE**

Certificate organization	ISET
License scop	SMP858 series pressure transmitter
Mark	CE
EMC instructio	2014/30/EU
Standard	EN61326-1: 2013
Registration numb	IT051353LG161207

**Flame proof certificate**

Certification organization	NEPSI
License scope	SMP858 pressure transmitter
Explosion-proof mark	ExdIICT6
Working environmental temperature	-25-+60°C
Maximum medium temperature	+80°C
Registration number	GYB21.1691X



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