

Product introduction

Description

Sanitary pressure transmitter



vertical installation



horizontal installation

Sanitary pressure transmitter, designed for food and pharmaceutical industry, is suitable for CIP/SIP cleaning and sterilization. Smart compact design, the welded process diaphragm medium parts is made of high quality stainless steel 316L, roughness $\leq 0.4\mu\text{m}$, filling fluid with hygiene standard in line with FDA certification, variety of international standard process connections are available.

Main parameters

Pressure types	Gauge pressure
Measuring range	10kPa-2MPa, please refer to the ordering information chapter
Output signal	4-20mA、4-20mA+HART, customer
Reference accuracy	$\pm 0.2\%$ URL, $\pm 0.5\%$ URL, customer

Measuring medium

viscous, paste-like, adhesive, crystallising, particulates containing and contaminated media

Field of application

Pressure, level

Approvals



Technical specifications

Nominal value	Smallest calibratable span	Lower range limit (LRL)	Upper range limit (URL)	Overpressure limit*
20kPa	10kPa	-20kPa	20kPa	30kPa
35kPa	20kPa	-35kPa	35kPa	52.5MPa
100kPa	35kPa	-100kPa	100kPa	150kPa
200kPa	100kPa	-100kPa	200kPa	300kPa
700kPa	200kPa	-100kPa	700kPa	1050kPa
1MPa	500kPa	-100kPa	1MPa	1.5MPa
1.7MPa	1MPa	-100kPa	1.7MPa	2.55MPa
3.5MPa*	1.7MPa	-100kPa	2MPa	5.25MPa

The unit of the measuring range above can be converted into kg/cm²、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, 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
	Max value	±0.5TD% URL	20kPa、35kPa 100kPa、200kPa 700kPa、1MPa 1.7MPa、3.5MPa

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

≥ 20M Ω@ reference, 100VDC

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Technical specifications

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)

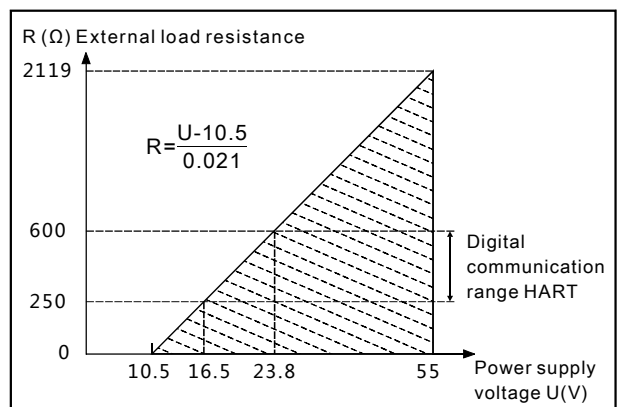
Environment condition

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	Sanitary fluid filling sensor : -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	ExialICT4(GYB13.1139X)**
*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 further information	

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



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(Note1)
m	Meter(Note1)
Note1: 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
L203G	20kPa	Range -20kPa-20kPa, smallest calibratable span 10kPa
L353G	35kPa	Range -35kPa-35kPa, smallest calibratable span 20kPa
L104G	100KPa	Range -100-100kPa, smallest calibratable span 35kPa
L204G	200kPa	Range -100kPa-200kPa, smallest calibratable span 100kPa
L704G	700kPa	Range -100kPa-700kPa, smallest calibratable span 200kPa
L105G	1MPa	Range -100kPa-1MPa, smallest calibratable span 500kPa
L175G	1.7MPa	Range -100kPa-1.7MPa, smallest calibratable span 1MPa
L355G	3.5MPa	Range -100kPa-2MPa, smallest calibratable span 1.7MPa

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
S	Diaphragm material	SS316L
H		Hastelloy C
S	Isolation fluid filling	Sillicon Oil, process temperature: -45-205°C
F		Fluorocarbonoil: Neobee M-20, process temperature: -10-180°C
F	Sensor Seal	Stainless steel welding seal

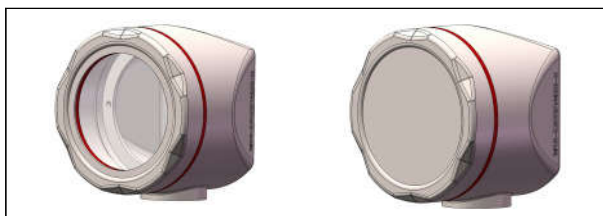
Diaphragm(S/H)



Electrical connection

Code	Item	Description
F1	Electrical connection	Stainless steel terminal, aviation plug M12*1 (4 pin) (H2), IP67, vertical mounting
F2		Stainless steel terminal, aviation plug M12*1 (4 pin) (H2), IP67, horizontal mounting

Housing(F1)



Housing(F2)



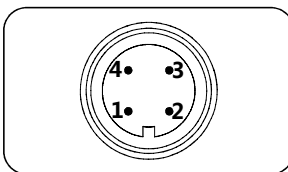
Aviation plug, M12*1, 4 pin(H2)



Aviation plug, M12*1, 4 pin(H2)

Aviation plug, M12*1, 4 pin(H2)

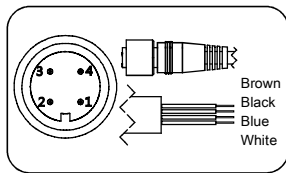
label	Two wires
1	Power+
2	
3	Key-z
4	Power-



Product selection instruction

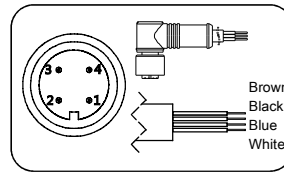
Electrical connection accessories

Aviation plug straighter(J1)



label	Two wires
1/Brown	Power+
2/White	
3/Blue	Key-z
4/Black	power-

Aviation plug elbow(J1)



label	Two wires
1/Brown	power+
2/White	
3/Blue	Key-z
4/Black	Power-

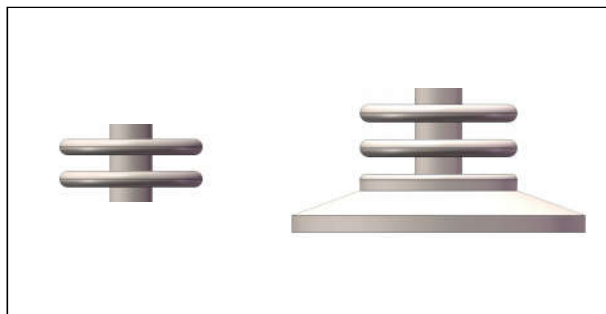
Transmission module

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)



Cooling element connector (HT)

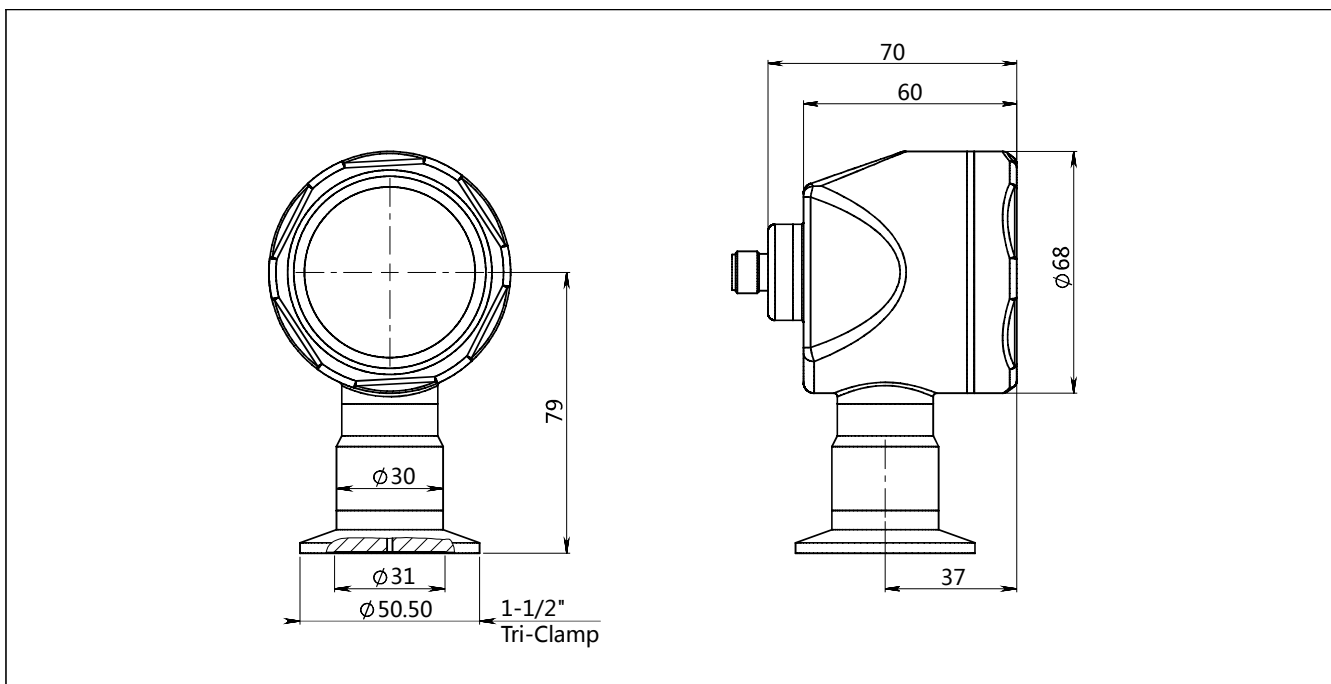


Process connection select instruction

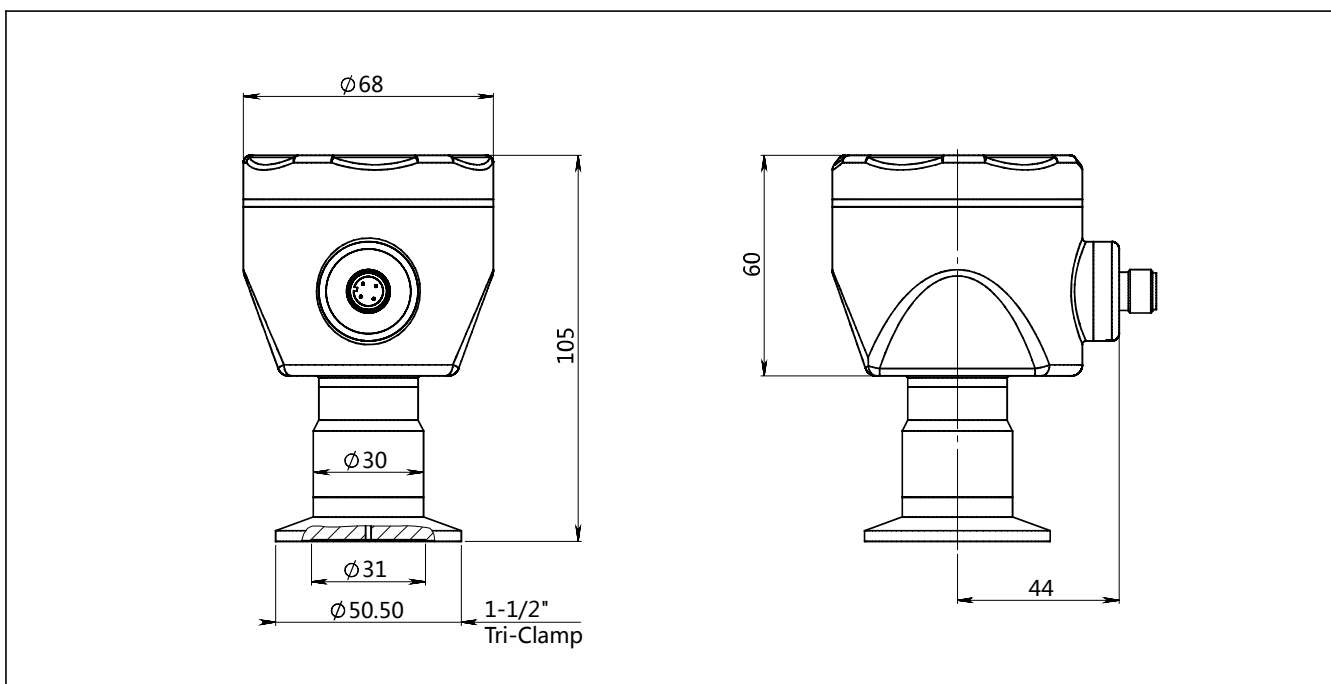
Code	Items	Description
4	Process connector material	Stainless steel, SUS304
6		Stainless steel, SUS316
NT	Connection type	Standard connection, medium temperature: -25-85°C
HT		Cooling element connector, medium temperature: -40-150°C
F	Isolation fluid filling	Sanitary fluid filling, Neobee M-20, process temperature: -10-180°C
S		Silicon oil filling, process temperature: -45-205°C
S	Isolation diaphragm material	Stainless steel, SUS316L
H		Hastelloy alloy
K01	Process connection specifications	Tri-Clamp 1-1/2"
K02		Tri-Clamp 2"
K03		DIN32676 DN32
K04		DIN32676 DN40
K05		DIN32676 DN50
K06		ISO2852 DN38
K07		ISO2852 DN40
K08		ISO2852 DN51
K09		DIN11851 DN25
K10		DIN11851 DN40
K11		DIN11851 DN50
K12		SMS DN1-1/2"
K13		SMS DN2"
K14		IDF DN1-1/2"
K15		IDF DN2"
K18		DRD
K20		Plug in tube flush sanitary-clamp

Product drawing and dimension

Standard drawing and dimension with display(C)/ without display (A)vertical installation(F1)(unit:mm)

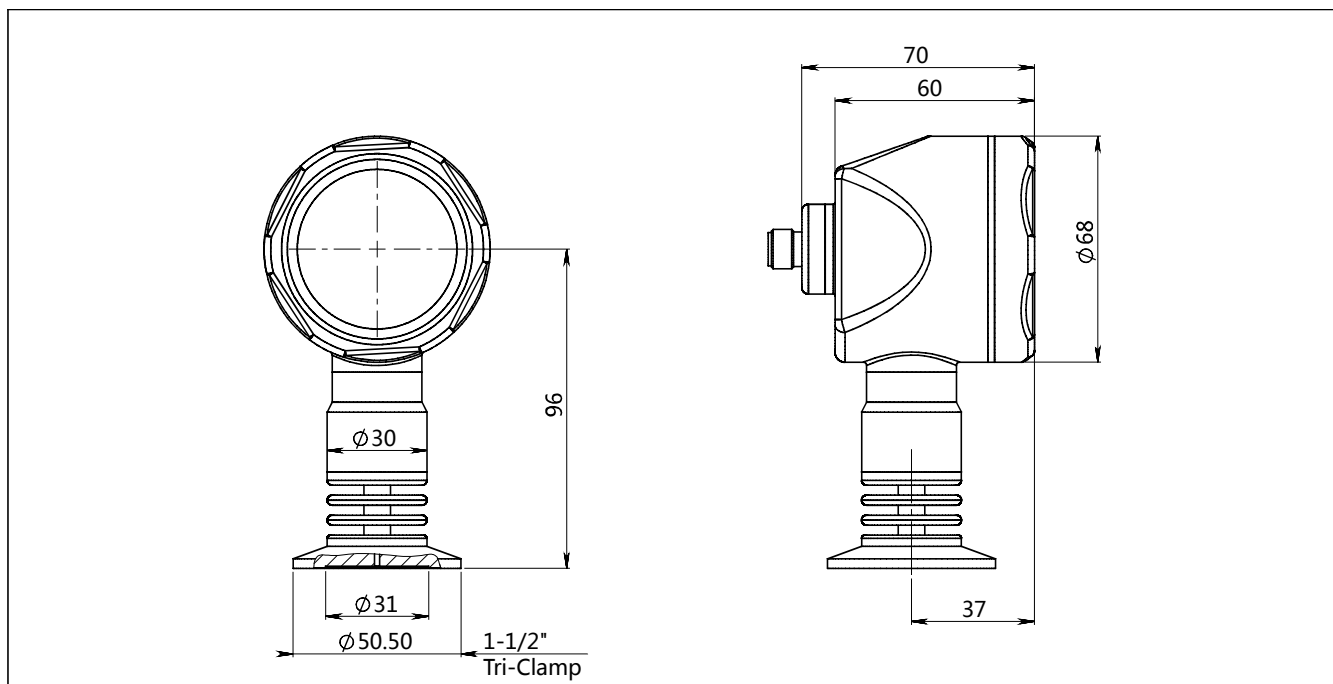


Standard drawing and dimension with display© / without display(A) horizontal installation(F2)(unit:mm)

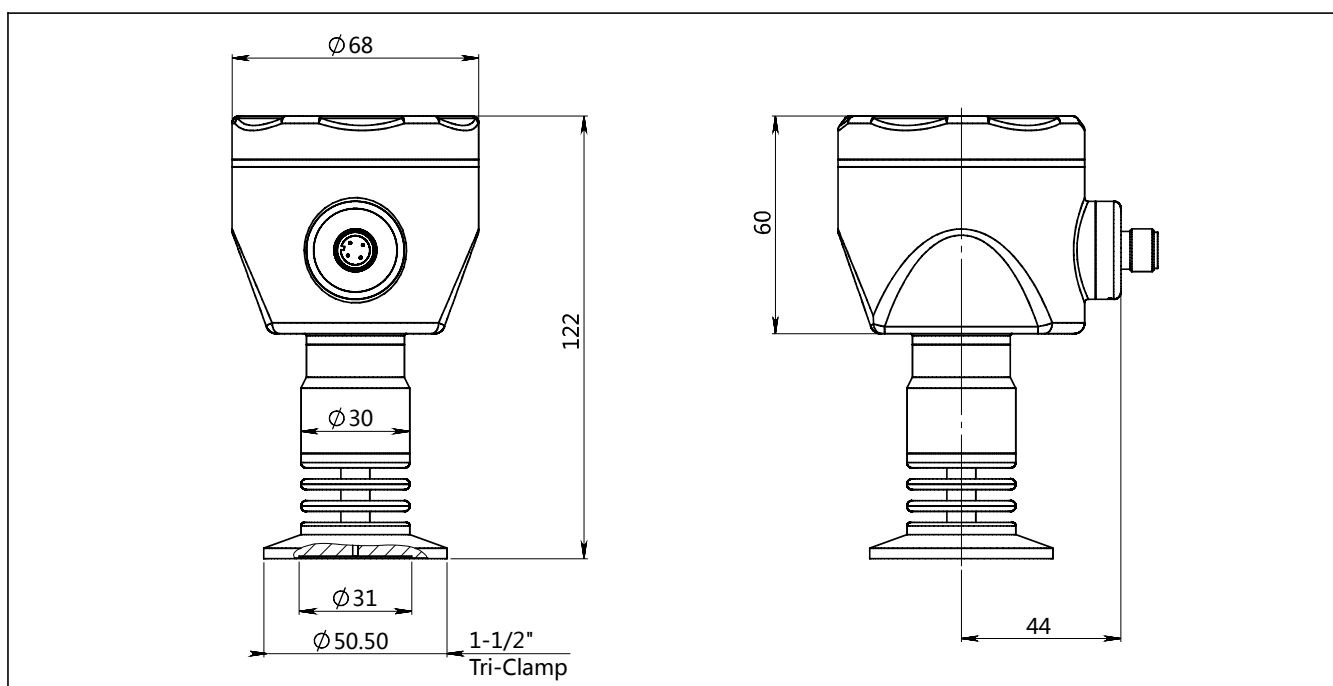


Product drawing and dimension

High-temperature drawing and dimension with display(C)/ without display (A) vertical installation(F1)(unit:mm)



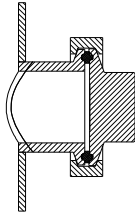
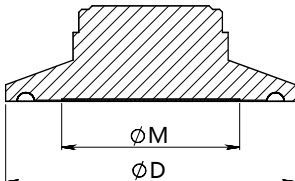
High-temperature drawing and dimension with display(C)/ without display (A) horizontal installation(F2)(unit:mm)



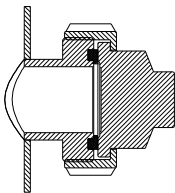
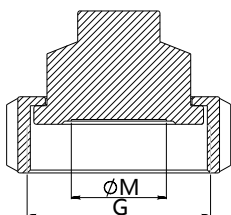
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Product drawing and dimension

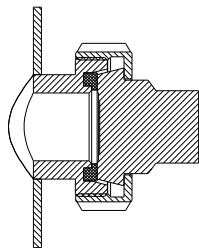
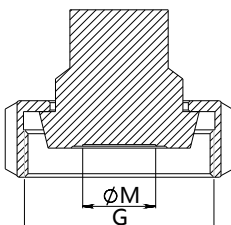
Process connection (K01-K08)(unit: mm)

Installation Sketches			
			
Dimension			
			
Standard	Specification	Size(ΦD)	Diaphragm size (ΦM)
Tri-Clamp	1-1/2"	50.5	31
Tri-Clamp	2"	64	42
DIN32676	DN32	50.5	31
DIN32676	DN40	50.5	31
DIN32676	DN50	64	42
ISO2852	DN38	50.5	31
ISO2852	DN40	64	42
ISO2852	DN51	64	42

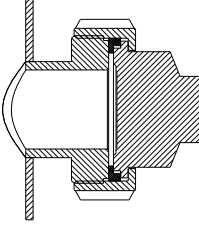
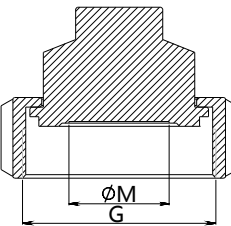
Process connection (K12-K13)(unit: mm)

Installation Sketches			
			
Dimension			
			
Standard	Specification	Size(G)	Diaphragm size(ΦM)
SMS	1-1/2"	Rd 60*1/6	31
SMS	2"	Rd 70*1/6	42

Process connection (K09-K11)(unit: mm)

Installation Sketches			
			
Dimension			
			
Standard	Specification	Size(G)	Diaphragm size(ΦM)
DIN11851	DN25	Rd 52*1/6	20
DIN11851	DN40	Rd 65*1/6	31
DIN11851	DN50	Rd 78*1/6	42

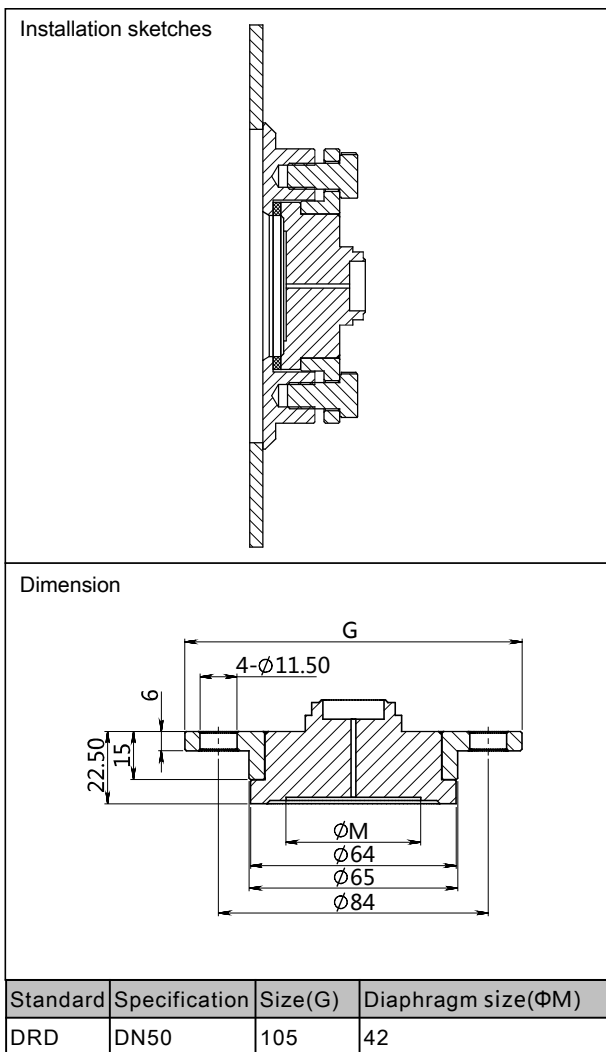
Process connection (K14-K15)(unit: mm)

Installation Sketches			
			
Dimension			
			
Standard	Specification	Size(G)	Diaphragm size(ΦM)
IDF	1-1/2"	IDF 1-1/2"	31
IDF	2"	IDF 2"	42

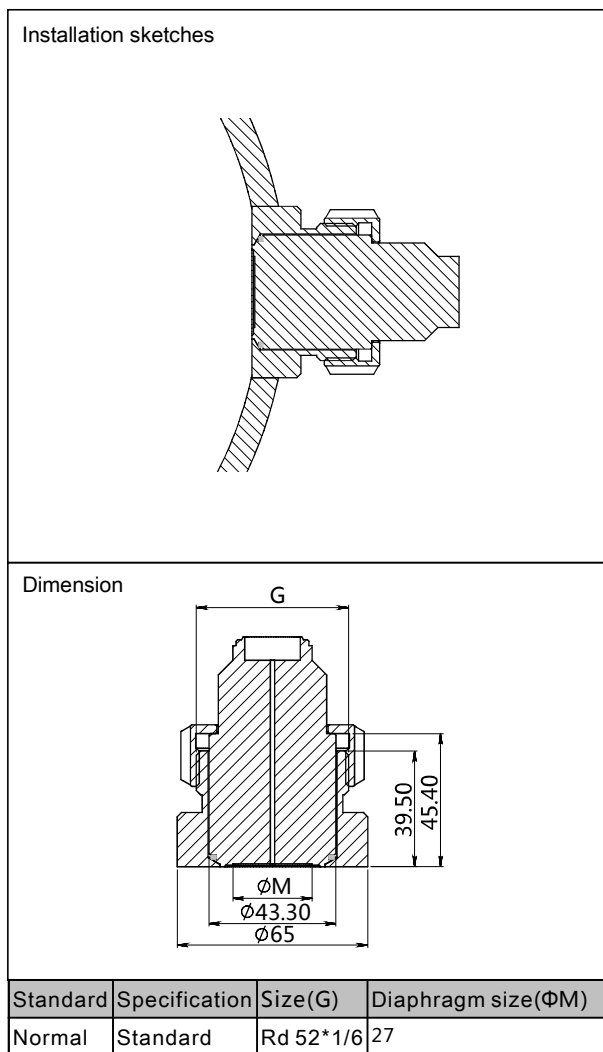
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Product drawing and dimension

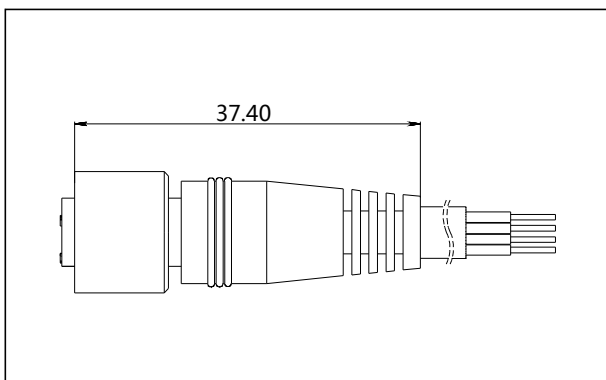
Process connection (K18) (unit: mm)



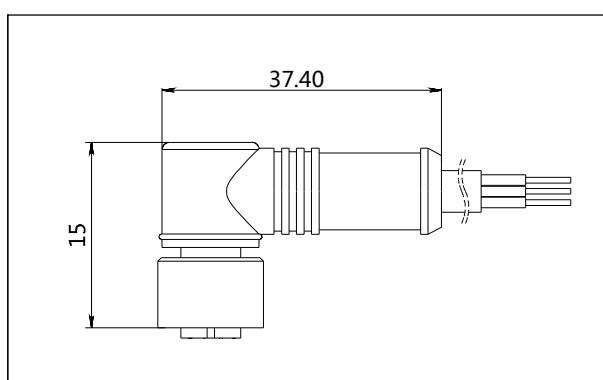
Process connection (K20) (unit: mm)



Aviation female plug straighter(J1) (unit: mm)



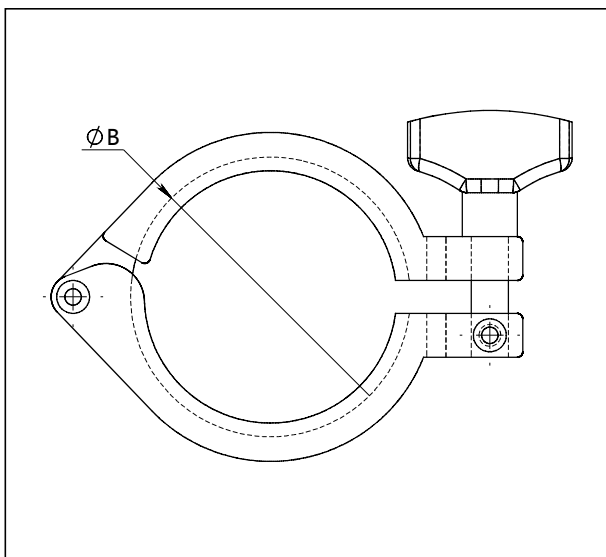
Aviation female plug elbow(J2) (unit: mm)



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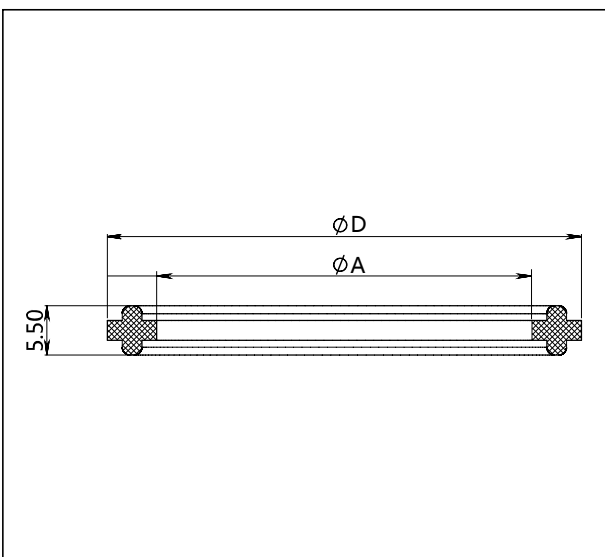
Product drawing and dimension

Clamp(G1-G2)(unit: mm)



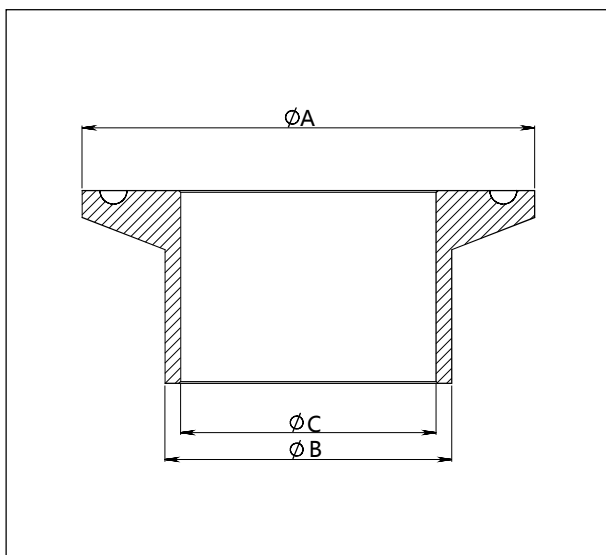
Standard	Specification	Dimension(ΦB)
Tri-Clamp	1-1/2"	53.9
Tri-Clamp	2"	67.4

O-ring (M1-M2) (unit: mm)



Standard	Specification	尺寸 (ØD)	Size(ΦA)
Tri-Clamp	1-1/2"	50.5	35
Tri-Clamp	2"	64	47.8

Welding adaptor(Z1-Z1)(unit : mm)



Standard	Specification	Size(ΦA)	Size(ΦB)	Size(ΦC)
Tri-Clamp	1-1/2"	50.5	38	35.6
Tri-Clamp	2"	64	51	48.6

Ordering information chapter

Item	Parameters	Code	Instruction	(*)fast delivery available
	Model	SMP858-TLF	Piezoresistive silicon gauge pressure transmitter	
Sensor	Separator	-	Detailed specifications as following	
	Pressure range code	L203G	Nominal value(URL): 20kPa	
		L353G	Nominal value(URL): 35kPa	
		L104G	Nominal value(URL): 100kPa	*
		L204G	Nominal value(URL): 200kPa	*
		L704G	Nominal value(URL): 700kPa	*
		L105G	Nominal value(URL): 1MPa	*
		L175G	Nominal value(URL): 1.7MPa	*
		L355G	Nominal value(URL): 3.5MPa	
Electrical connetion	Separator	-	Detailed specifications as following	
	Electrical connetion	F1	Stainless steel terminal, aviation plug M12*1 (4 pin) (H2), IP67,vertical mounting	*
		F2	Stainless steel terminal, aviation plug M12*1 (4 pin) (H2), IP67,horizontal mounting	*
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	*
	Display	C	LCD display	*
		A	Without LCD display	
Process connection	Separator	-	Detailed specifications as following	
	Process connector mial	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	*
	Isolation fluid filling	F	Sanitary Filling Fluid, Neobee M-20, process temperature: -10-180°C	*
		S	Sillicon Oil, process temperature: -45-205°C	*
	Isolation diaphragm material	S	SUS316L	*
		H	Hastelloy C	
	Process connection specifications	K01	Tri-Clamp 1-1/2", max mesuring range: 2MPa	*
		K02	Tri-Clamp 2", max mesuring range: 2MPa	*
		K03	DIN32676 DN32, max mesuring range: 1.6MPa	
		K04	DIN32676 DN40, max mesuring range: 1.6MPa	
		K05	DIN32676 DN50, max mesuring range: 1.6MPa	
		K06	ISO2852 DN38, max mesuring range: 4MPa	
		K07	ISO2852 DN40, max mesuring range: 4MPa	
		K08	ISO2852 DN51, max mesuring range: 2.5MPa	

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Ordering information chapter

		K09	DIN11851 DN25, max measuring range: 2.5MPa	
		K10	DIN11851 DN40, max measuring range: 2.5MPa	
		K11	DIN11851 DN50, max measuring range: 2.5MPa	
		K12	SMS DN1-1/2", max measuring range: 2.5MPa	
		K13	SMS DN2", max measuring range: 2.5MPa	
		K14	IDF DN1-1/2", max measuring range: 2MPa	
		K15	IDF DN2", max measuring range: 2.MPa	
		K18	DRD, max measuring range: 2.5MPa	
		K20	Plug in tube flush sanitary-clamp, max measuring range: 2MPa	
Additional option	Separator	-	Detailed specifications as following	
	Process connection accessory	/J1	Aviation plug (straighter) with 2m cable, 4 pin, M12*1, IP67	*
		/J2	Aviation plug (elbow) with 2m cable, 4 pin, M12*1, IP67	
	Calibration report	/G1	1.5" Clamp	*
		/G2	2" Clamp	*
		/M1	1.5" O-ring	*
		/M2	2" O-ring	*
		/Z1	Welding adaptor, Tri-Clamp1-1/2	*
		/Z2	Welding adaptor, Tri-Clamp2"	*
	Calibration report	/Q1	Calibration report provided by our company	*
	Approvals (multiple)	/I1	Intrinsic safety certificate, ExiaIICT4, NEPSI	*
		/F3	CE certificate	*

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
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

Licence scope	PRESSURE TRANSMITTER
Standard	EN61000-6-2 : 2005 EN61000-6-4 : 2007
Registered number	AC/0100708



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