HPM768 Ceramic Sanitary Pressure Transmitter

Nanjing Hangjia Electronic Technology Co.,Ltd.

Overview

HPM768 ceramic capacitive pressure transmitter uses imported ceramic sensor as a sensitive element,it directly detects the pressure signal by flush membrane. Ceramic has the characteristics of high elasticity, wear resistance, corrosion resistance, and fast heat dissipation, which makes the transmitter very good thermal stability and extremely low temperature drift. The minimum range of this product can reach 500Pa, and the anti-overload capability can reach dozens of times of the full range, which completely solves the problem of poor overload capability in small ranges and it is very suitable for micro-pressure measurement.

Since the ceramic sensor is free of any filling fluid, there is no process contamination, and its dry ceramic diaphragm is not affected by the installation orientation. The clamp end face of this product is exposed directly to detect the pressure, which can prevent scaling, unsanitary and viscous pressure blockage and other problems. It is widely used in food, medicine, winemaking and other hygienic industries and measures the pressure of media where scaling may occur.

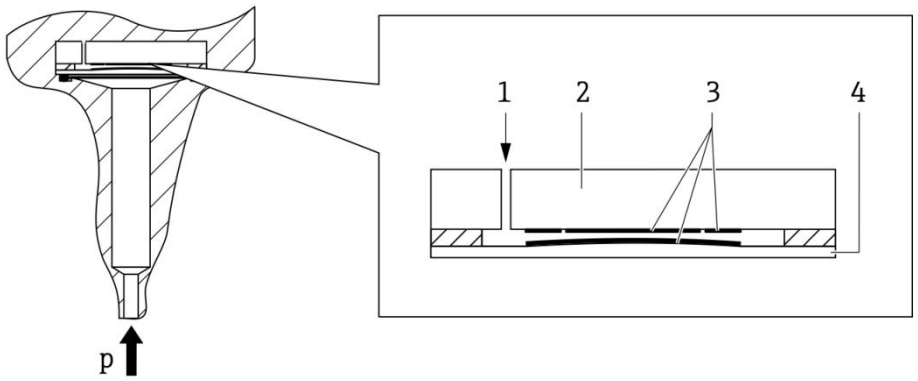
Typical application

- Absolute and gauge pressure measurement of gases, vapors or liquids in industrial process control
- Food Industry
- Pharmaceutical Industry

Features

- All stainless steel casing
- Ceramic capacitor core
- Micro pressure measurement, high overload pressure
- Dry core without any filling fluid
- Flush membrane structure, easy to clean, anti-scaling
- Media temperature up to 130 ℃, up to 150 ℃ in 60 minutes
- LCD smart meter display

Measurement principle



Ceramic sensor

1. Atmospheric pressure 2. Ceramic substrate 3. Electrode 4. Ceramic isolation diaphragm

The ceramic sensor is a non-oil filled type sensor (dry type sensor). Process pressure acts directly on the robust ceramic diaphragm, causing the diaphragm to deform. Measure the change of capacitance proportional to the pressure of the electrodes and the ceramic substrate.

Advantage:

- The maximum overload resistance is 40 times the nominal pressure.
- 99.9% ultra-pure ceramic.
- Extremely high chemical stability, comparable to Hastelloy C.
- High mechanical stability.
- Can be used in absolute vacuum.
- Ultra-high surface finish R ≤0.3 um (11.8 uin).

Technical Performance

Range (gauge pressure)										
Rated range (kPa)	2.5	1 0	20	40	100	200	400	1000	2000	4 000
Minimum range (kPa)	0.5	1	2	4	10	20	40	100	200	400
Overload (kPa)	200	4 00	600	600	1000	1800	2500	4 000	4000	6 000
Vacuum resistance (kPa)	8 0	7 0	5 0	0	0	0	0	0	0	0
Note: Composite pressure can be measured										

Range (absolute pressure)									
Rated range (kPa)	10	20	40	100	200	400	1000	2000	4 000
Minimum range (kPa)	1	2	4	10	20	40	100	200	400
Overload (kPa)	400	600	600	1000	1800	250 0	4 000	4000	6 000
Pressure resistance (kPa)	0	0	0	0	0	0	0	0	0

Measuring medium	
Media type	Various liquids and gases compatible with contact materials

Output signal/power	
Standard	4~20mA / Vs = 12 ~ 32 V_{DC}
Standard	4~20mA + HART / Vs = 12 ~ 32 V_{DC}

Performance	
Accuracy*	± 0.25 %FS (typ.) ±0.1 % FS (Customized)
Long term stability	± 0.50 % FS/year, ≤100kPa ± 0.25 %FS/year, > 100kPa
Resolution	Current output: 1 uA Display unit: can be set
Response time	about 50 ms
Response time	≤5s
*Accuracy according to IEC 60770 (non-linearity, hysteresis, repeatability)	

Temperature drift characteristics	
Compensated temperature range	- 20 ~ 80℃
Zero temperature drift	± 1.0 %FS (within temperature compensation range)
Full temperature drift	± 1.0 %FS (within temperature compensation range)

Environmental conditions	
Temperature range	Medium temperature: -40 ~ 125 ℃ +135 °C , max 60 min Ambient temperature: -40 ~ 85 ℃, no LCD display -30~80 ℃, with LCD display Storage temperature: -40-85 ℃
Protection class	IP 65

Electrical protection	
Short circuit protection	Yes
Reverse polarity protection	No damage, the circuit does not work

Mechanical stability	
Vibration	20g (20~5000Hz)
Impact Resistance	50g (11ms)

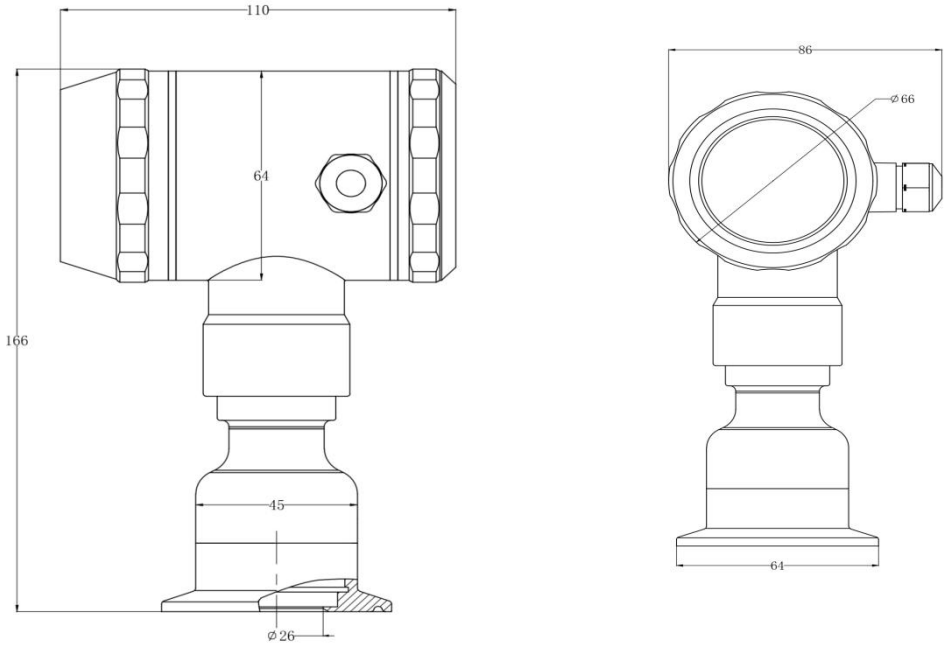
Insulation

Insulation resistance	> 200MΩ @ 500VDC
Dielectric strength	<2 mA @ 500VAC 1min

Structural Materials

Option code	Part	Description
S4	Housing Shell	304
S6		316L
S6	Pressure port	316L
HC		Hastelloy C 276
DF		PVDF
M6	Sensor	Ceramic Al_2O_3 99.9%
FK	O-ring	Fluorine rubber FKM
FF		Perfluoroelastomer FFKM
EP		EPDM
SI		Silicone rubber

Structural Drawings(unit:mm)



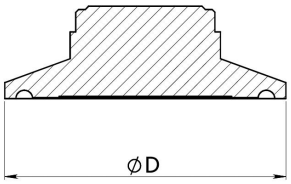
Note:

1. The dimensions listed in the figure may change with the update of the process
2. The figure is only the side view of the outer casing and the Tri-Clamp 2” process interface. Please consult the sales engineer for other specifications.

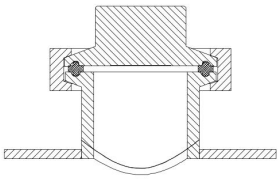
Pressure Port

Ordering code K505、K640、K910

Dimension



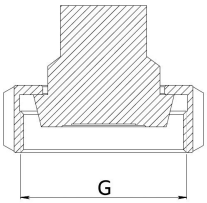
Installation Diagram



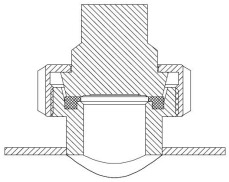
Standard	Size	Diameter(ϕD)	Code
Tri-Clamp	1-1/2″	50.5	K505
Tri-Clamp	2″	64	K640
Tri-Clamp	3″	91	K910
ISO 2852	DN38	50.5	K505
ISO 2852	DN40~51	64	K640
ISO 2852	DN70~76.1	91	K910
DIN 32676	DN32~40	50.5	K505
DIN 32676	DN50	64	K640
DIN 32676	DN65	91	K910

Ordering code KD40、KD50

Dimension



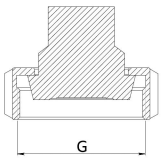
Installation Diagram



Standard	Size	Dimension(G)	Code
DIN 11851	DN40	Rd 65*1/6	KD40
DIN 11851	DN50	Rd 78*1/6	KD50

Ordering code KS112、KS2

Dimension



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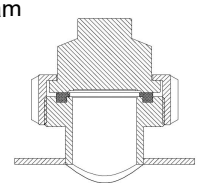
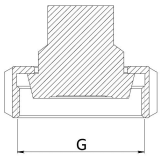


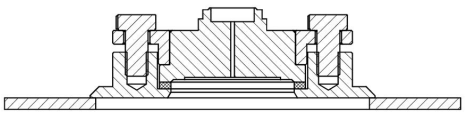
Standard	Size	Dimension(G)	Code
SMS	1-1/2″	Rd 60*1/6	KS112
SMS	2″	Rd 70*1/6	KS2

Ordering code KDRD

Dimension



Installation Diagram

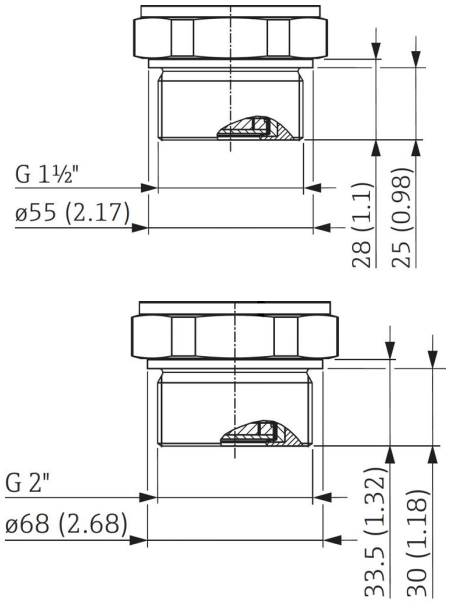


Recommended gasket size: 64*48*2

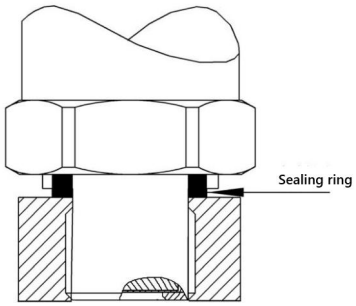
Standard	Size	Code
DRD	DN50	KDRD

Ordering code KG112、KG2

Dimension： mm(in)



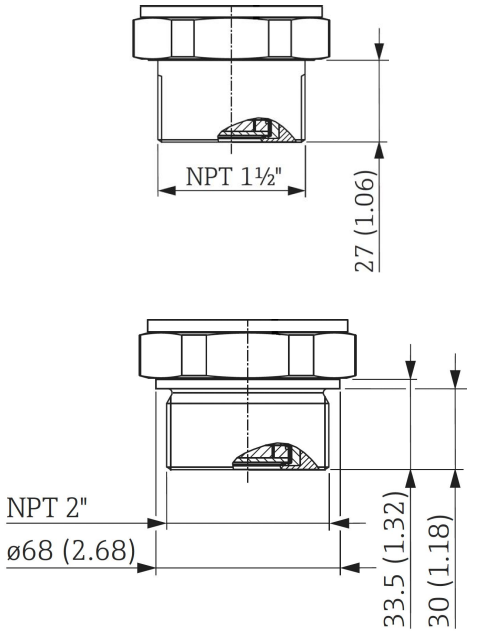
Installation Diagram



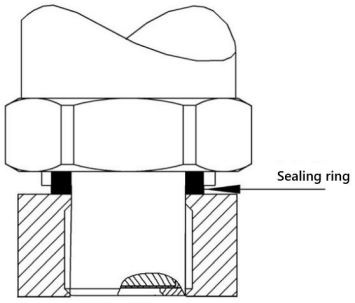
Size	Code
G 1 1/2″ Flush diaphragm	KG112
G 2″ Flush diaphragm	KG2

Ordering code KN112、KN2

Dimension： mm(in)



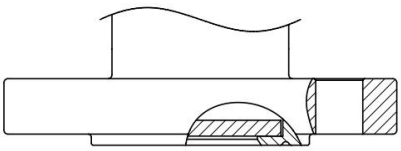
Installation Diagram



Size	Code
NPT 1 1/2″ Flush diaphragm	KN112
NPT 2″ Flush diaphragm	KN2

Ordering code KF、KASM**

Dimension



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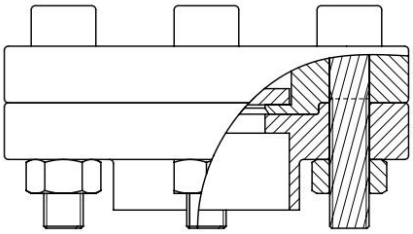
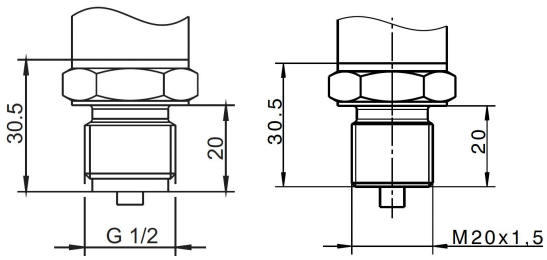


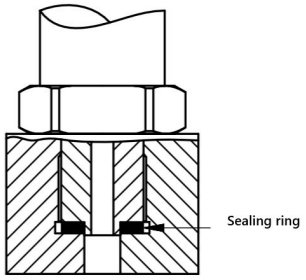
Standard	Size	Code
HG/T 20592 Flange	DN25-DN80	KF**
EN/DIN Flange	DN25-DN80	KF**
ASME Flange	1“-4”	KASM

Ordering code P1、G12

Dimension

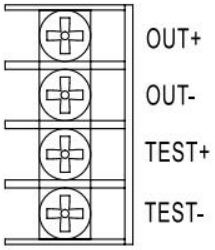
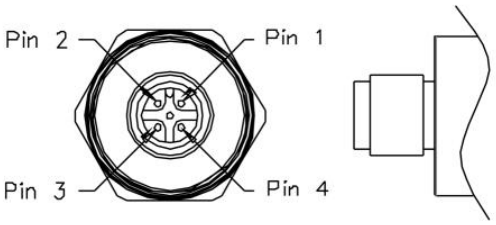


Installation Diagram



Size	Code
M20×1.5	P1
G1/2	G12

Electrical Connection

Cable gland with terminal block in housing	M12*1
	

2-Wire 4-20mA current output			
	Power supply+ (+V)	Power supply-(0V/+OUT)	N/A
Cable gland Terminals inside the housing	OUT+	OUT-	
M12*1	1	2	3，4
Cable outlet	Red	Black	

Ordering Code

Model Type	HPM768 Sanitary Pressure Transmitter
Measuring Range	(X1～X2)kpa, X1 is range lower limit, X2 is upper limit
Code	**Output Signal**
B1	(4-20)mA
B8	Hart
Code	**Process Connection**
K505	Tri-Clamp 1-1/2" ISO 2852 DN38/ DIN 32676 DN32~40
K640	Tri-Clamp 2" ISO 2852 DN40-51 /DIN 32676 DN50
	Tri-Clamp 3〞
K910	ISO 2852 DN70～76.1
	DIN 32676 DN65
KD40	DIN 11851 DN40
KD50	DIN 11851 DN50
KDRD	DRD DN50
KS112	SMS 1-1/2〞
KS2	SMS 2〞
KF25	DN25 Flange
KF40	DN40 Flange
KF50	DN50 Flange
KASM	ASME Flange
KG112	G 1 1/2" Flush diaphragm
KN112	NPT 1 1/2" Flush diaphragm
G12	G1/2'' male
Code	**Electrical Connection**
C5	M12*1
C5X	M12*1 with cable
C9	Cable gland with terminal block(default)
Code	**Liquid Contact**
S6	316L
DF	PVDF
HC	Hastelloy C
Code	**Additional Functions**
G	Gauge Pressure
S	Sealed Gauge Pressure
A	Absolute Pressure
FK	FKM sealing ring
FF	FFKM sealing ring
SI	Silicone rubber
ED	Ethylene Propylene Diene Monomer