Ceramic Cell Pressure Transmitters
Non-Metal Wetted Parts

HAWK ® Since 1971

ISO 9001 CERTIFIED

- Accuracy 0.25%, 0.5%
- Non-Metallic Wetted Parts for Excellent Corrosion Resistance
- Temperature Compensated
- Shock and Vibration Resistance
- Zero and Span Adjustments (4-20mA)
- False System Shutdown Prevention

PT 6 Series

HAWK PT6 series ceramic cell pressure transmitters and transducers have been designed for most chemical industrial pressure measurement applications at high quality performance and precision accuracy requirement. The non-metallic wetted parts(the parts contacted with the media directly) design let it use for applications where a typical metallic components could not withstand the process media such as acids, chlorines and etc.

The output signal of the sensing bridge is in converted to be a standardized current or voltage signal through surface mount technology circuit board. Each transmitter is inspected and calibrated to ensure it's 100% quality.

Typical Applications

- Chemical Industrial Engineering
- Chemical Process Control
- Chemical Pump Application
- Medical Equipments
- Environment Protecting Management
- Other Chemical Industrial Application

Specifications

PERFORMANCE

Accuracy at 25 C° (Linearity, Hysteresis, Repeatability):
< ±0.25% F.S.....PT63
< ±0.5% F.S.....PT64

Stability at 25 C°:
< ±0.2% F.S.(PT63)
< ±0.4% F.S.(PT64)

Thermal Zero Shift:
< ±0.02% F.S./ C°.....PT63
< ±0.04% F.S./ C°.....PT64

Thermal Span Shift:
< ±0.03% F.S./ C°

ENVIRONMENTAL

Operating Temperature Range:
-0.....70 C° (PP, PVC)
-25.....85 C°

Storage Temperature Range:
-25.....100 C°

Compensated Range:
-40.....135 C°

Weatherproof Rating (Enclosure):
IP65, NEMA4/4X or better

PHYSICAL DATA

Housing (Case):
304 Stainless Steel (316SS Option)

Fitting Materials:
PP, PVC or PVDF
Note: For high pressure applications, the fitting should be in metal material with PTFE coating (P>200PSI)

Ceramic Sensor:
Aluminum Oxide Al_2O_3 (96%)

Seal Material:
FPM(Viton), NBR(Buna Rubber), MVQ (Silicone Rubber), CR(Neoprene), EPDM(Ethylene Propylene), FFKM
Note: The wetted parts including fitting, ceramic sensor and sealing will be contacted with the media directly, please choose the appropriate material complied to your application.

Process Fitting (Connection):
1/2" NPT, 1/4" NPT, G1/2, G1/4, R1/2, R1/4, 7/16-20UNF, M20*1.5, M14*1.0, 9/16-18UNF,
Others on request

Electrical Connector:
Terminal Box to DIN43650 A-PG9 (IP 65)
Shutter Type Cable (IP 65)
Flexible Cable (IP 65)
Terminal Box to DIN43650 A-G ½ (IP 65)
M12 Cable (IP 65)

ELECTRICAL DATA

Voltage Output
Output Signal (Voltage, 3 Wires):
0-10V, 0-5V, 0.5-4.5V, 1-5V, 1-6V

Power Requirement (Voltage):
15-32VDC (Normal 24VDC, Voltage)

Load Resistance (Voltage):
>10K Ohms

Current Output
Output Signal (Current, 2 Wires):
4-20 mA

Power Requirement (Current):
10-32VDC(Normal 24VDC, Current)

Load Resistance (Current):
<(Supply Voltage -10V) / (0.02A)Ohms

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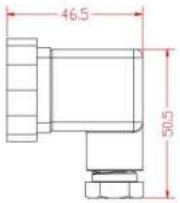
Electrical Compatibility

CE-Conformity

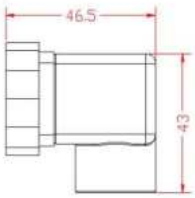
■ 2014/30/EU(EMC) EN 61326-1:2013

Dimensions (mm)

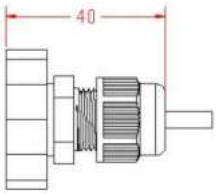
DIN 43650 A



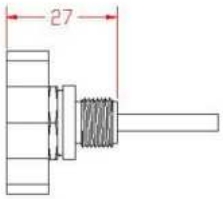
DIN 1/2" Female



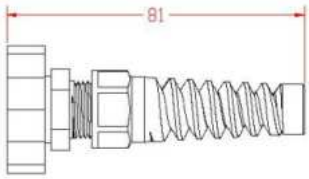
Shutter Cable



M12 Conduit



Flexible Cable



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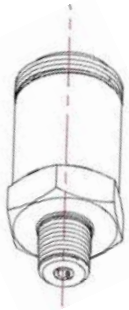
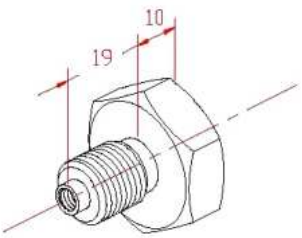


PT 6

Code ME

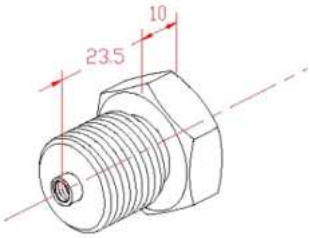


1/7" PF

Code MH

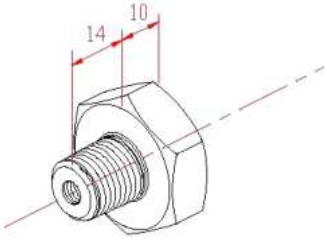
3/8" PF

Code MD



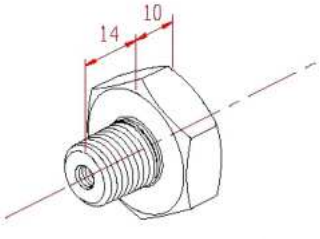
1/2" PF

Code MB



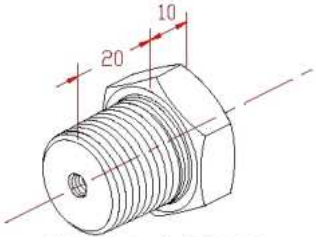
1/4" PT

Code M4



1/4" NPT

Code M2



1/2" NPT

Note: If you need the other process connections not listed, please contact with our distributors.

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Media Compatibility and Applications

Media compatibility must be considered when purchasing a pressure transducers and transmitters, Improper selection and application of the pressure transmitters and transducers could possible cause sensor failure and lead to possible damage or personal injury. The media to which the pressure sensors are going to be in contact with, must have compatibility with the Al_2O_3. In particular the data of weight loss found after a dipping of 80 hours at room temperature in some media have shown a good resistance to HCl (at 30% wt) and HNO_3 (at 60% wt). Therefore the ceramic cell has a very good chemical resistance. But the alumina is instead easily etched by even 1% solution of Fluorine acid (HF). For such applications, you can use HAWK ceramic pressure sensor combined diaphragm seal or the other HAWK Pressure sensors such as stainless steel thin film sensor or diaphragm micro-machined silicon sensor instead. The wetted parts of the transmitter including pressure fitting, ceramic cell and sealing will contact with the media directly. Selecting the suitable pressure fitting material and sealing material is very important.
Please refer to HAWK Corrosion table for detailed information.

Sealing Materials vs Common Applications

Sealing Materials 1=Recommended, 2=Satisfactory, 3=Poor, 4=Marginal, 5=Not Recommended A=Available N/N=Not Available	Common Application Conditions															
	Gasoline, Naphtha	Benzene, Toluene	Aliphatic Hydrocarbon	Alcohol	Ester	Ketones (MEK)	Ethyl Acetate	Water	Organic Acid	Animal/Vegetable Oil	Aromatic Solvent	Oxidized Solvent	High Consistency Alkali	Low Consistency Alkali	High Consistency Inorganic Acid	Low Consistency Organic Acid
Buna N(Nitile), NBR	1	3	5	1	4	4	4	1	4	1	3	5	2	2	4	2
Fluorocarbon(Viton), FPM	1	1	2	1	4	2	5	1	5	1	1	5	5	4	1	1
Ethylene-Propylene(EPDM), P.C	5	3	5	1	2	1	1	1	5	2	5	1	1	1	2	1
Fluorosilicone, VMQ	4	4	3	1	4	2	3	2	2	3	5	4	1	1	4	2
Neoprene, CR	2	5	5	1	4	3	5	1	4	2	4	5	1	1	2	1

The materials and applications listed are the most commonly used. There are a lot of compound variations designed for specific applications.
For demanding applications, please supply all detailed to our application engineers for a recommendation or go to:
www.efunda.com

Sealing Materials 1=Recommended, 2=Satisfactory, 3=Poor, 4=Marginal, 5=Not Recommended A=Available N/N=Not Available	Common Application Conditions																	
	High Temp Limit CO	Low Temp Limit CO	Steam< 250 (C°)	Steam< 120 (C°)	Permeation/Vacuum	Fluorescent/Sunlight	Weathering/Ozone	Refrigerant/Freon(most)	Wear/Abrasion	Compression Set	Brake Fluids	Transmission Fluids	Steering Fluids	Fuels/Gasline(most)	Chemicals/Solvents(most)	Petroleum Oils(most)	Dynamic Applications	FDA Compliant	NFS61(Drinking Water)
Buna N(Nitile), NBR	120	-40	5	4	2	4	4	4	2	2	5	2	5	3	4	3	2	A	A
Fluorocarbon(Viton), FPM	200	-15	4	3	1	1	1	3	2	1	4	3	2	2	2	1	1	A	N/A
Ethylene-Propylene(EPDM), P.C	150	-55	4	1	2	1	1	5	2	2	1	3	5	5	2	5	1	A	A
Fluorosilicone, VMQ	180	-60	5	5	4	1	1	1	4	3	3	3	2	1	3	3	3	N/A	N/A
Neoprene, CR	120	-35	5	5	2	2	2	2	2	3	5	3	3	5	5	2	1	N/A	N/A

Ceramic Cell Pressure Transmitters
Non-Metal Wetted Parts

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Pressure Range

Scale:psi

Code	P25	P28	P31	P32	P33	P35	P38	P39	P41	P42	P43	P44	P45	P46	P48	P49	P50	P50A	P51	P52
Range	3	5	10	15	20	30	50	60	100	150	160	200	250	300	400	500	600	750	800	1000
Overload	6	10	20	30	40	60	100	120	200	300	320	400	500	600	800	1000	1200	1500	1600	2000

Code	P53	P54	P56	P58	P59	P60	P60A	P62	PV1	PCA	PCB	PCC	PCD	PCE	PCF	PCG	PCH	PCJ	PCK
Range	1500	2000	3000	4000	5000	6000	7500	10000	VAC	VAC/15	VAC/30	VAC/60	VAC/100	VAC/150	VAC/160	VAC/200	VAC/300	VAC/500	VAC/600
Overload	3000	4000	6000	8000	10000	12000	10000	12000	15	30	60	120	200	300	320	400	600	1000	1200

Scale:bar

Code	R06	R07	R08	R1	R09	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
Range	0.2	0.25	0.3	0.4	0.5	0.6	1	1.6	2	2.5	3	3.5	4	5	6	7	10	16	20
Overload	0.8	1	1.2	0.8	1	1.2	2	3.2	4	5	6	7	8	10	12	14	20	32	40

Code	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26	R27	R28	R29	R30	R31	R32	RV1	RCA	RCB
Range	25	30	35	40	50	60	70	100	160	200	250	300	350	400	500	600	700	-1/0	-1/0.6	-1/1
Overload	50	60	70	80	100	120	140	200	320	400	500	600	700	800	1000	1200	1400	1	1.2	2

Code	RCC	RCD	RCE	RCF	RCG	RCH	RCI	RCK	RCP	RCR	RCT	RCW	RCX
Range	-1/1.5	-1/2	-1/2.5	-1/3	-1/4	-1/5	-1/6	-1/9	-1/15	-1/19	-1/24	-1/30	-1/40
Overload	3	4	5	6	7	10	12	18	30	38	48	60	80

Scale:kg/cm²

Code	G06	G07	G08	G1	G09	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15	G16
Range	0.2	0.25	0.3	0.4	0.5	0.6	1	1.6	2	2.5	3	3.5	4	5	6	7	10	16	20	25
Overload	0.4	0.5	0.6	0.8	1.0	1.2	2	3.2	4	5	6	7	8	10	12	14	20	32	40	50

Code	G17	G18	G19	G20	G21	G22	G23	G24	G25	G26	G27	G28	G29	G30	G31	G32	GV1	GCA	GCB	GCC
Range	30	35	40	50	60	70	100	160	200	250	300	350	400	500	600	700	-1/0	-1/0.6	-1/1	-1/1.5
Overload	60	70	80	100	120	140	200	320	400	500	600	700	800	1000	1200	1400	1	1.2	2	3

Code	GCD	GCE	GCF	GCG	GCH	GCI	GCK	GCP	GCR	GCT	GCW	GCX
Range	-1/2	-1/2.5	-1/3	-1/4	-1/5	-1/6	-1/9	-1/15	-1/19	-1/24	-1/30	-1/40
Overload	4	5	6	8	10	12	18	30	38	48	60	80

Note: If you need the other ranges not listed, please contact with our distributors.

Electrical Connection

DIN 1/2" Female

Flexible Cable

M12 Conduit

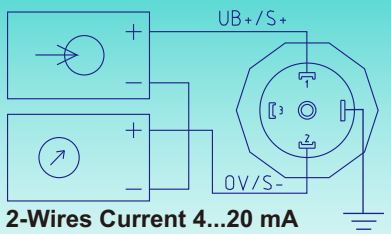
DIN 43650 A

Gland Cable

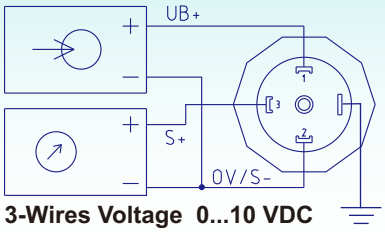
Note: If you need the other electrical connections not listed, please contact with our distributors.

Writing

DIN Connection

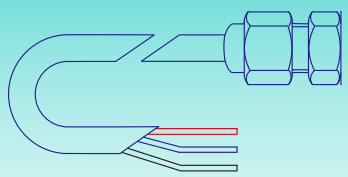


2-Wires Current 4...20 mA



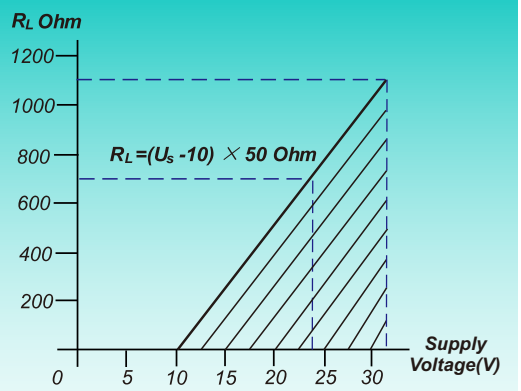
3-Wires Voltage 0...10 VDC

Cable Connection



RED-SEE TABLE
WHITE-SEE TABLE
BLACK-SEE TABLE

Output	Red	Black	White	Green
Voltage	+ V Supply	- V Supply	Output	Grounding
Current	+ V Supply	- V Supply	NC	Grounding



The diagram shows the optimum ratio between the load and supply voltage of the 4-20mA transmitter.

For a correct use, any combination of load resistance and supply voltage, choose the slant line area.

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Order Information

	Accuracy	Reference	Wetted Parts	Process Connection Style	Process Connection Size	Electrical Connection	Cable Length	Output Signal	Pressure Range	Seal Material	Option	
P-2A-PT6	3	R	P	M	2	A	000	F	K3	V	H-	Z X

P-2A-PT63RPM2A000FK3VH-ZX

Accuracy

3	0.25%
4	0.5%

Reference

R	Relative
A	Absolute

Wetted Parts

P	PP	C	PVC
D	PVDF	7	316SS with PTFE Lining

Process Connection Style

M	Male	F	Female	W	Weld

Process Connection Size

2	1/2"NPT	3	3/8"NPT	4	1/4"NPT
D	G1/2	H	G3/8	E	G1/4
G	R3/8	B	R1/4	J	M20*1.5
K	M14*1.0	9	9/16"-18UNF	7	7/16"-20UNF
0L	Others				

Electrical Connection

A	DIN 43650	D	1/2" Female DIN	F	Gland Cable
P	Flexible Cable	M	M12 Cable	L	Others

Cable Length

000	No Wire	0M1	0.1m	1M1	1.1m
05M	5m	10M	10m	01F	1 Feet
10F	10 Feet	25F	25 Feet		.....and so on.

Output Signal

A	0...10 VDC	B	0...5 VDC	C	1...5 VDC		
D	0.5..4.5 VDC	E	1...6 VDC	F	4...20 mA	L	Others

Pressure Range

Please refer to the range table and write down the code you need.

Vacuum Compound Pressure

Seal Material

B	NBR (Buna Rubber)	V	FPM (Viton)	S	MVQ (Silicone Rubber)		
N	CR (Neoprene)	E	EPDM(Ethylene Propylene)	K	FFKM	L	Others

Option

ZX	Cleaned for Oxygen Service	ZC	Certificate of Accuracy (Factory)	ZE	Certificate of Accuracy (TAF)
ZN	NACE-MR0175-2002 Heat Treatment	PH	Extra High Purity Treatment	ZI	Certificate of Accuracy (NIST)
ZY	Stainless Steel Tag Plate	Z3	316SS Housing	0Q	Customized Laser Mark

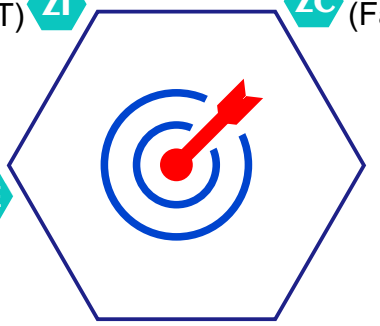
3 R P M 2 A 000 F K3 V H- Z X

Option

Certificate of Accuracy (NIST) ZI

ZC Certificate of Accuracy (Factory)

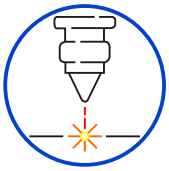
Certificate of Accuracy (TAF) ZE



316SS Housing Z3

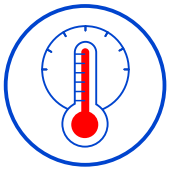
Stainless Steel Tag Plate ZY

0Q Customized Laser Mark



PH Extra High Purity Treatment

NACE-MR0175-2002 Heat Treatment ZN



ZX Cleaned for Oxygen Service

Accessories

***
The over-pressure protectors are designed to protect the pressure instrument against short pressure peaks which may exceed the max operating pressure range.

***
Diaphragm seal is used to isolate pressure measuring element from the harsh media such as contains suspended solid, highly viscous, high temperature media and so on. Remote diaphragm seal is supplied for the process temperature over 180 °C.

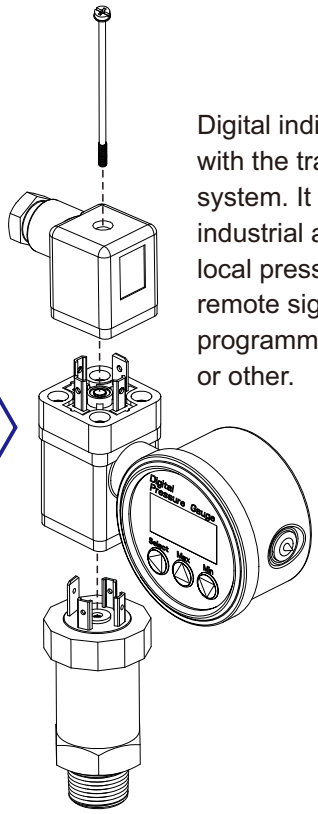
***
Pulsation dampener is designed to reduce the effect of pressure fluctuation and sudden pressure changes.

***
Needle valve is a device to shut-off your media system entering the transmitter.

The analog indicating pressure transmitter is developed by using a bourbon tube pressure gauge and a ceramic cell pressure transmitters. It is ideal for all industrial applications when a local pressure reading and a remote signal transmission to a programmable logic controller or other computer-based system are required. The pressure gauge can continue to monitor your system even if an electrical power cut.

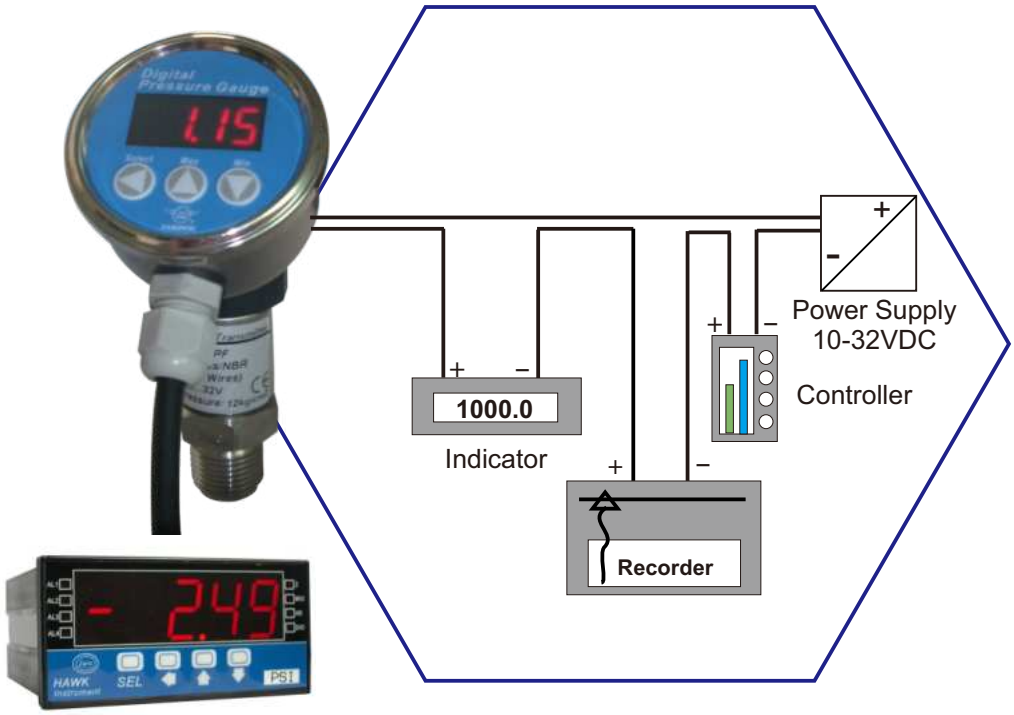
Accessories

Plug-in Digital Indicator



Digital indicating can be used with the transmitter for your system. It is ideal for all industrial applications when a local pressure reading and a remote signal transmitter to a programmable logic controller or other.

High Level Current Wiring Connecting (4-20 mA 2 wires Loop Power)



The pressure transmitter 4-20mA output units are designed to have current flow in one direction only. The maximum supply voltage for 4-20mA current output transmitter is 32VDC. The minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum supply voltage required for given loop resistance. We suggest that the electrical shield should be connected to the system loop circuit ground to improve electrical noise rejection. For minimum noise susceptibility, avoid installing the transducer and transmitter's cable in a conduit that may contains a high current AC power cables. If possible, avoid installing the cable near inductive equipments.

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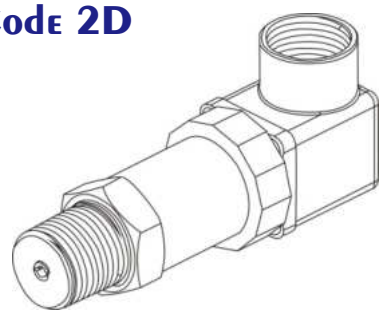
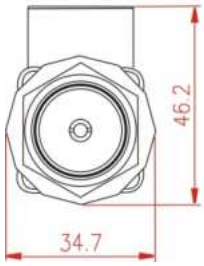
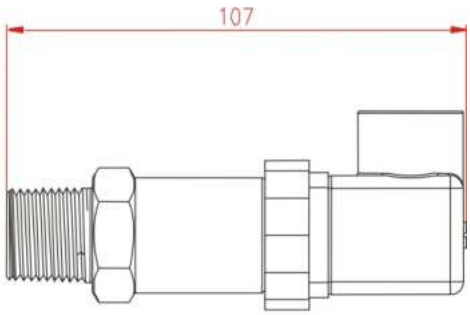
Drawings

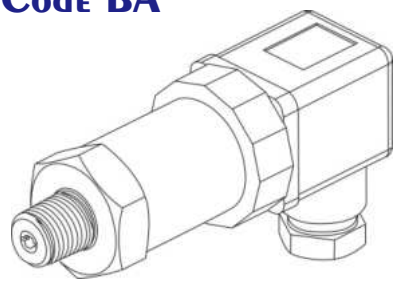
Code 2D

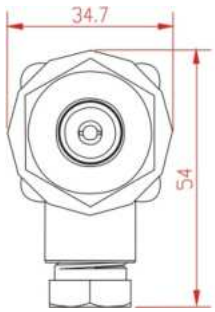


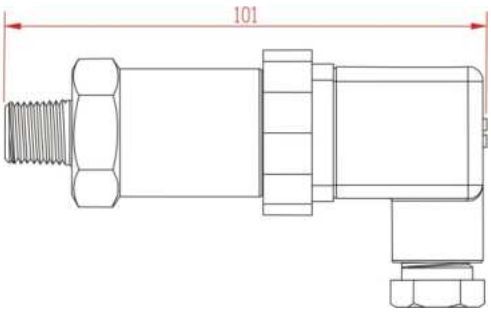




Code BA







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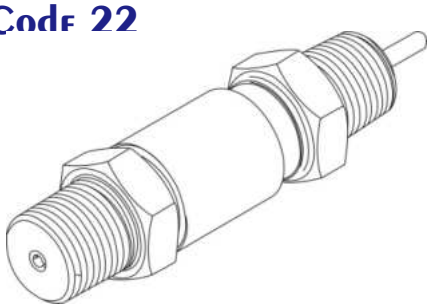

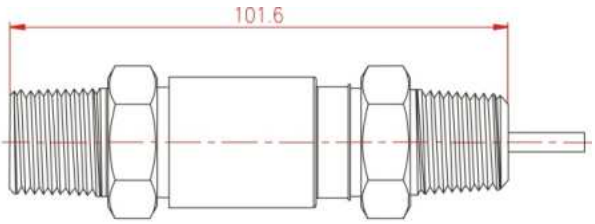

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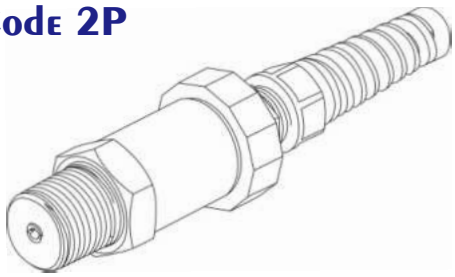

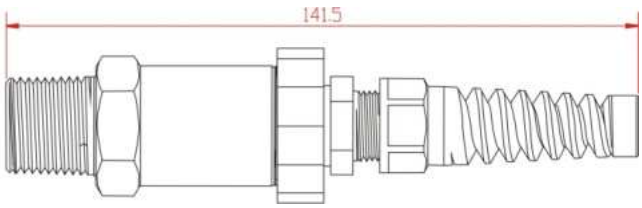

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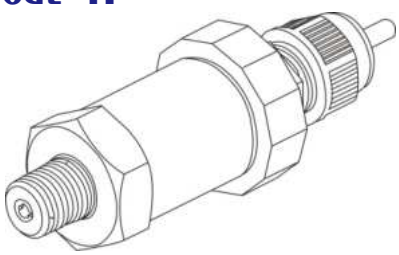

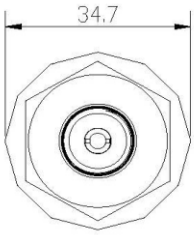

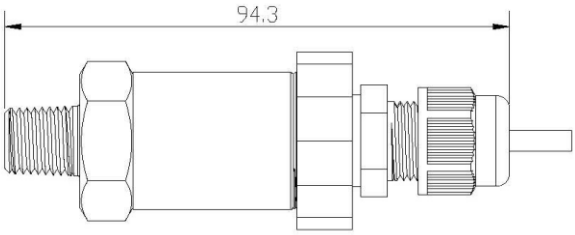

Limited Warranty and Liability

HAWK GAUGE CO.,LTD warrants all its mechanical instruments to be free from defects in materials and workmanship. HAWK agrees to repair or replace any thermometers if returned to our factory, transportation charges prepaid, and after which examination reveals is to be defective due to faculty workmanship or material.
This warrant should not apply to subject to the following terms and conditions:

A. The product has not been subjected to misuse, neglect, abuse , accident, incorrect mounting, improper use or misapplication such as negligence, accident, vandalism, shock or vibration.

B. The performance of any system of which HAWK's products are a component part.

C. The product has not been exposed to any other service, range or environment of greater severity than that for which the products were designed.

D. The product has not been altered or repaired by anyone except HAWK GAUGE or its authorized service agencies.

E. The serial number or date code has not been removed, defaced or changed.

F. The actual pressure&temperature occurring exceed the values specified for HAWK Thermometer.

Unless otherwise specified in a manual or warranty card, or agree to in a writing signed by HAWK GAUGE office, HAWK Thermometer products shall be warranted for one years from the date of sale.

This warranty is in lieu of all other warranties expressed or implied, and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use of misuse of instruments sold by it. No agent is authorized to assume for it any liability except as set forth above.

Note

HAWK GAUGE CO.,LTD reserves the right to make product improvements and change its specifications at any time stated throughout this brochure without notification. Please contact the factory on all critical dimensions and specifications for verification.
HAWK GAUGE is not expert in the customer's technical field and therefore doesn't warrant suitability of it's product for the application selected by customer.

Data Sheet No: MKDP2APT6A2-E