

- Accuracy 0.5%, 1.0%
- Throttle Screw in Fitting
- Temperature Compensated
- Built in Amplifier
- Low Pressure Range from 250 mmH₂O to 6000 mmH₂O
- Zero and Span Adjustments (4-20mA)
- False System Shutdown Prevention

PT 3 Series



HAWK PT3 series ceramic cell pressure transmitters and transducers are designed to measure low pressure from 100mbar to 600mbar for many industrial applications or when considering the performance, reliability and cost.

The ceramic cell and metallic wetted parts can be compatible with majority of aggressive process fluids. The output signal of the sensing bridge is converted to be a standardized current or voltage signal through surface mount technology circuit board. This high level signal output with very low noise system is packaged in a rugged stainless steel housing to resist the harsh and extreme environment conditions.

Each transmitter is inspected and calibrated to ensure it's 100% quality.

Typical Applications

- Industrial OEM Engineering
- Hydraulic monitoring systems
- Industrial engines
- Pneumatic systems

- Compressor controls
- Pump applications
- Vehicle brake systems monitoring

- Refrigeration and HVAC systems
- Water Sprinkler Control
- Leaking Detection

Specifications

PERFORMANCE

Accuracy at 25 C° (Linearity, Hysteresis, Repeatability):

- < ±0.5% F.S....Typical(PT34)
- < ±1.5% F.S....Max(PT34)
- < ±1.0% F.S....Typical(PT35)
- < ±2.0% F.S....Max(PT35)

Stability at 25 C°:

- < ±0.4% F.S.

Thermal Zero Shift:

- < ±0.02% F.S./ C° (0/+70C°)

Thermal Span Shift:

- < ±0.04% F.S./ C° (-40/+135C°)

ENVIRONMENTAL

Operating Temperature Range:

- 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:

- 304SS, 316SS, 316LSS, Monel or Hast'C

Ceramic Sensor:

- Aluminum Oxide Al₂O₃ (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 1/2

(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):

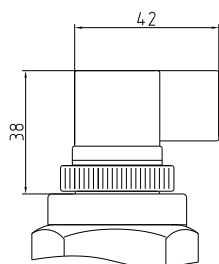
- ≧(Supply Voltage -10V) / (0.02A)Ohms

Electrical Compatibility

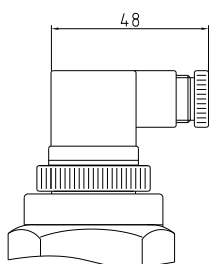
CE-Conformity

■ 2014/30/EU(EMC) EN 61326-1:2013

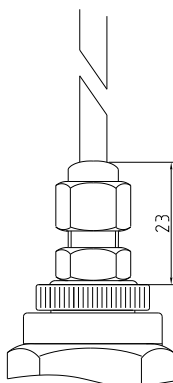
Dimensions (mm)



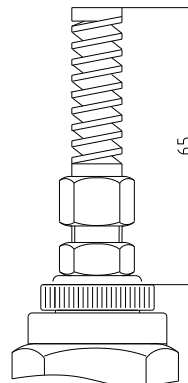
DIN 1/2" FEMALE



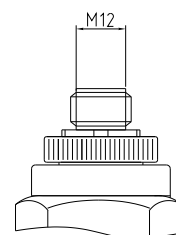
DIN 43650 A



SHUTTER CABLE



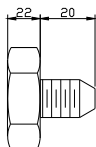
FLEXIBLE CABLE



M12 CONDUIT

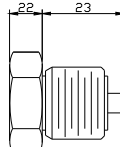


Code M9



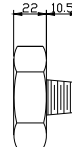
9/16"-18UNF(SAE)

Code MD



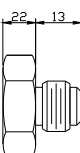
G1/2(1/2"PF)

Code M8



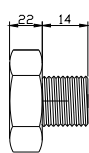
1/8NPT

Code M7



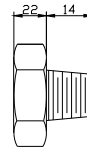
7/16"-20UNF(SAE)

Code MB



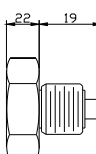
R 1/4(1/4"PT)

Code M4



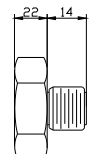
1/4"NPT

Code ME



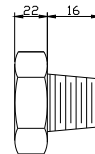
G1/4(1/4"PF)

Code MK



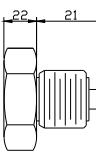
M14*1.0

Code M3



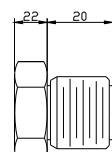
3/8"NPT

Code MH



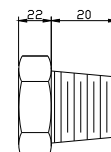
G3/8(3/8"PF)

Code MJ



M20*1.5

Code M2



1/2"NPT

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

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	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
1=Recommended, 2=Satisfactory, 3=Poor, 4=Marginal, 5=Not Recommended A=Available N/N=Not Available																
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	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/Gasoline(most)	Chemicals/Solvents(most)	Petroleum Oils(most)	Dynamic Applications	FDA Compliant
1=Recommended, 2=Satisfactory, 3=Poor, 4=Marginal, 5=Not Recommended A=Available N/N=Not Available																		
Buna N(Nitile), NBR	120	-40	5	4	2	4	4	4	2	2	5	2	5	3	4	3	2	A
Fluorocarbon(Viton), FPM	200	-15	4	3	1	1	1	3	2	1	4	3	2	2	2	1	1	A
Ethylene-Propylene(EPDM), P.C	150	-55	4	1	2	1	1	5	2	2	1	3	5	5	2	5	1	A
Fluorosilicone, VMQ	180	-60	5	5	4	1	1	1	4	3	3	3	2	1	3	3	3	N/A
Neoprene, CR	120	-35	5	5	2	2	2	2	2	3	5	3	3	5	5	2	1	N/A

Pressure Range

Scale:inH₂O

Code	J14	J16	J19	J20	J21	J22	J23	J24	J25	J26	J27	
Range	10	20	30	40	50	60	80	100	150	200	250	
Overload	20	40	60	80	100	120	160	200	300	400	500	

Code	JCM	JCN	JCO	JCP	JCQ	JCQA	JCR	JCS	JCT	JCU		
Range	+10	+15	+20	+30	+50	+60	+100	+150	+200	+250		
Overload	+20	+30	-40	+60	+100	+120	+200	+300	+400	+500		

Scale:mbar

Code	H5	H6	H7	H8	H9	H10	H11	H12	H13	H15	H16	H17
Range	25	30	35	40	50	60	80	100	150	200	250	300
Overload	50	60	70	80	100	120	160	200	300	400	500	600

Code	H19	H20	H21	HCI	HCK	HCM	HCO	HCP	HCT	HCU	HCW	HCY
Range	400	500	600	+25	+30	+50	+80	+100	+200	+250	+300	+500
Overload	800	1000	1200	+50	+60	+100	+160	+200	+400	+500	+600	+1000

Scale:mmH₂O

Code	H16	H17	H18	H19	H20	H21	H22	H23	H24	H26	H27	H28
Range	250	300	350	400	500	600	800	1000	1500	2000	2500	3000
Overload	500	600	700	800	1000	1200	1600	2000	3000	4000	5000	6000

Code	H30	H31	H32	HCU	HCW	HCY	H0A	H0B	H0F	H0G	H0I	H0J
Range	4000	5000	6000	+250	+300	+500	+800	+1000	+2000	+2500	+3000	+5000
Overload	8000	10000	12000	+500	+600	+1000	+1600	+2000	+4000	+5000	+6000	+10000

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

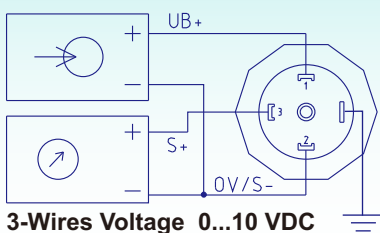
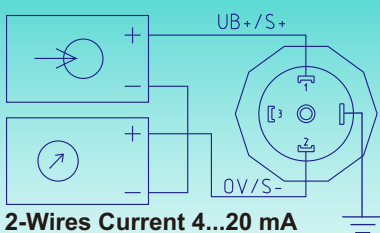
Electrical Connection



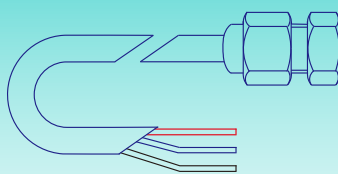
Note: If you need the other electrical connections not listed, please contact with our distributors.

Writing

DIN Connection

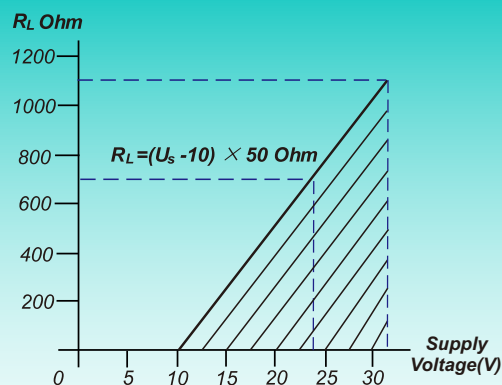


Cable Connection



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.

Order Information

Example:

P-2A-PT3 **5** **R** **S** **M** **2** **A** **000** **F** **026** **V** **H** **Z** **X**

4 0.5% **5** 1.0%

P-2A-PT35RSM2A000FO26VH-ZX

R Relative **A** Absolute

S 316SS	M Monel	H Hast'C
W 316LSS	A 304SS	L Others

M Male	F Female	W Weld
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		

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

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

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

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

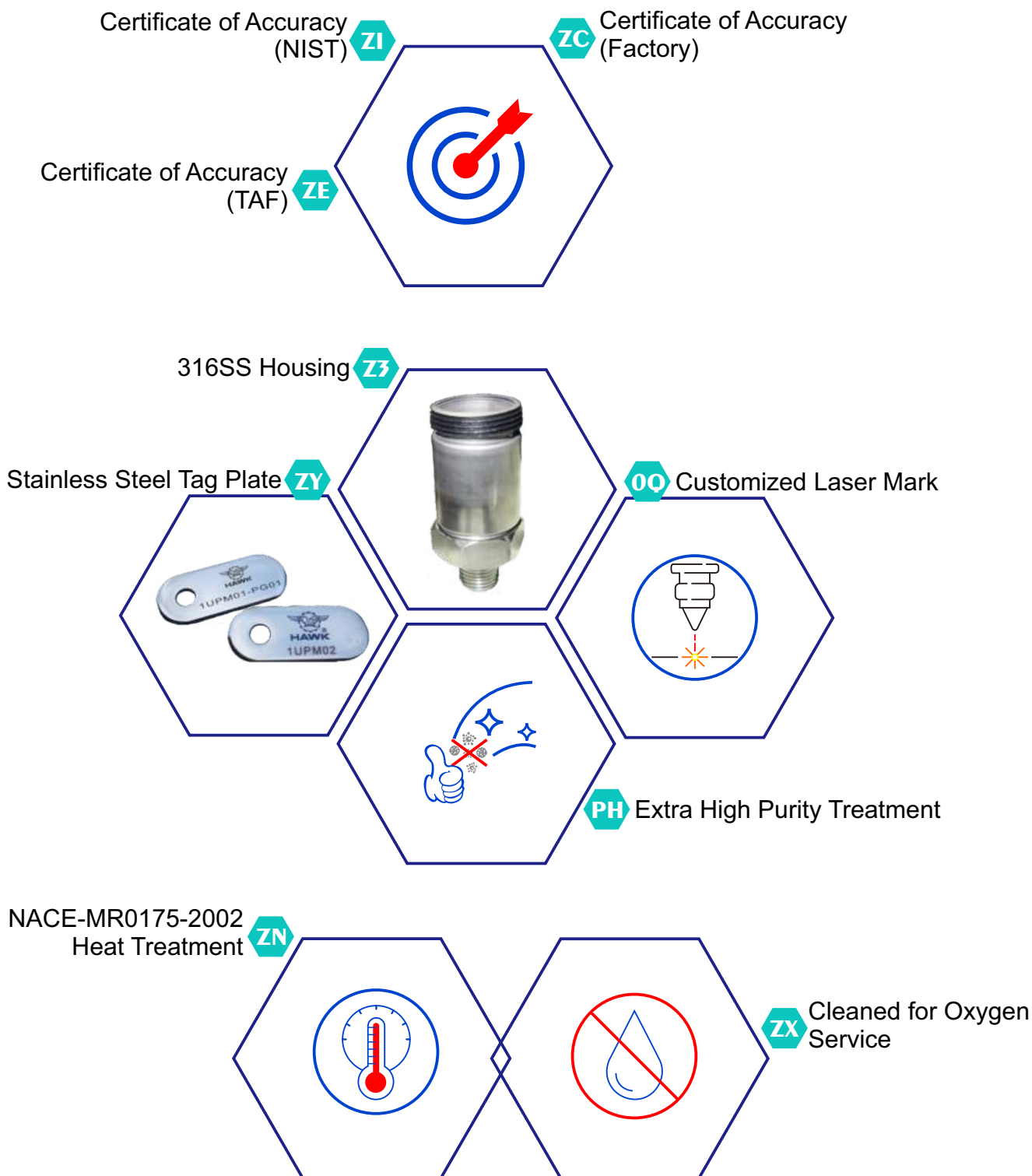
Vacuum Compound Pressure

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

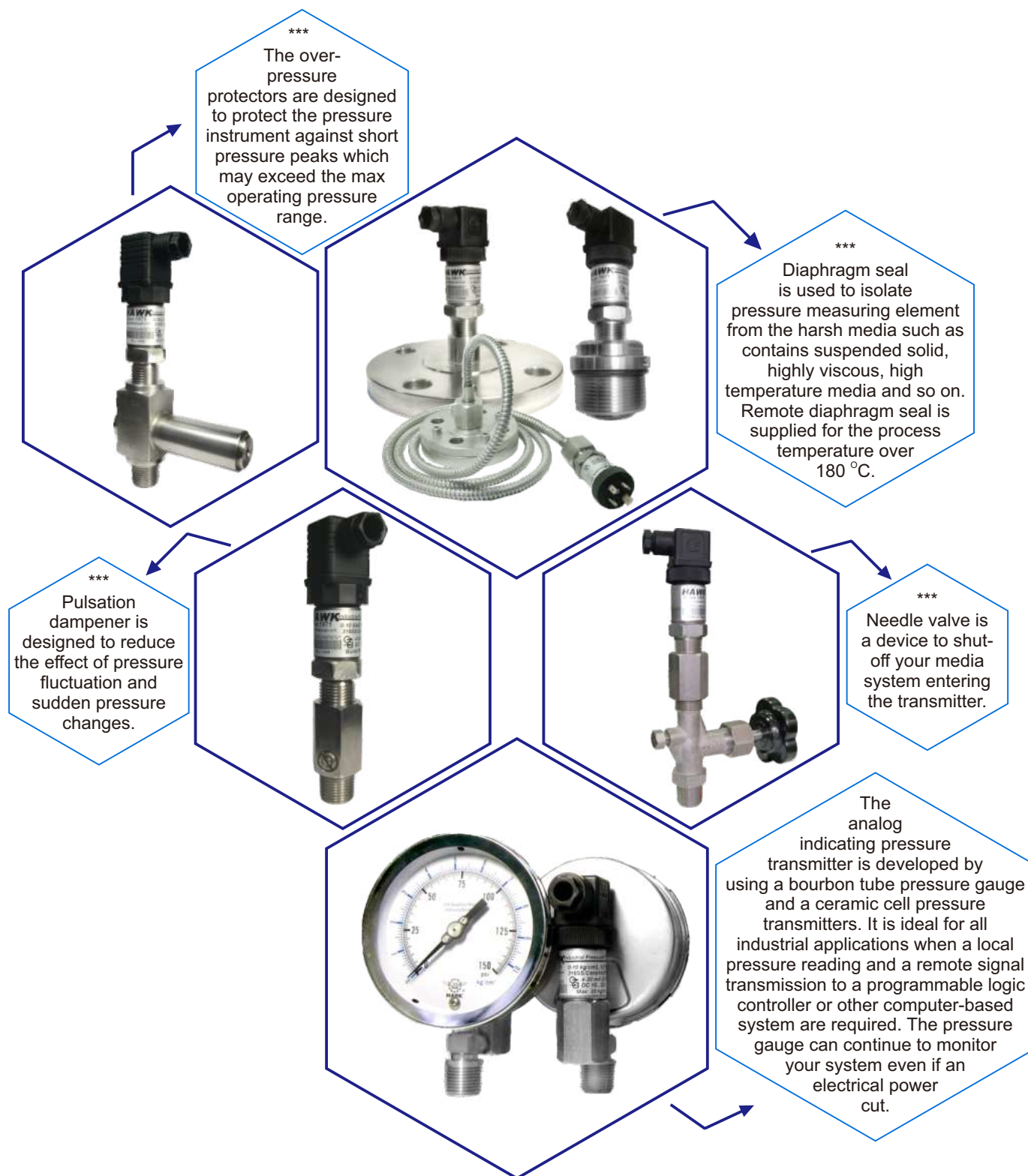
ZX Cleaned for Oxygen Service	ZC Certificate of Accuracy (Factory)	ZE Certificate of Accuracy (TAF)
ZN NACE-MR0175-2002 Heat Treatment	PH Extra High Purity Treatment	ZI Certificate of Accuracy (NIST)
ZY Stainless Steel Tag Plate	Z3 316SS Housing	0Q Customized Laser Mark

3 **R** **S** **M** **2** **A** **000** **F** **026** **V** **H** **Z** **X**

Option

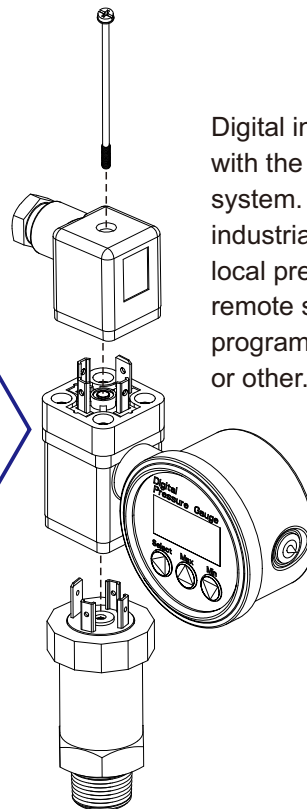
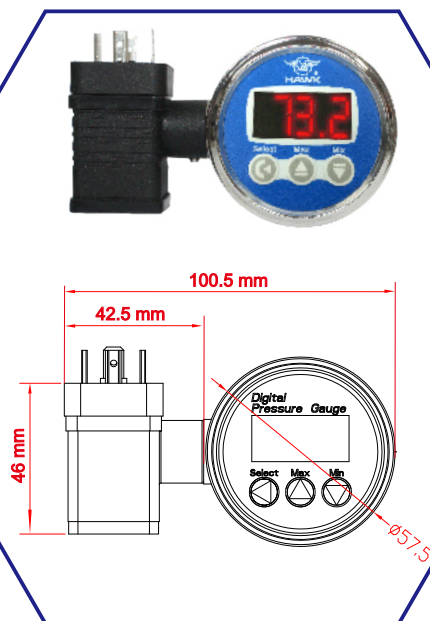


Accessories



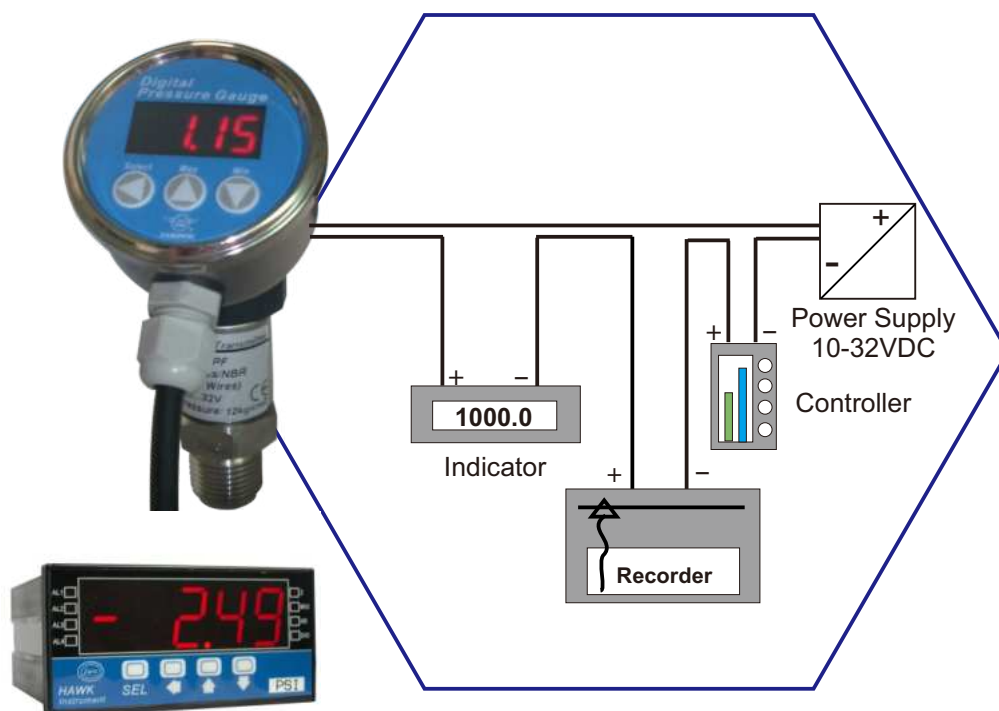
Accessories

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.

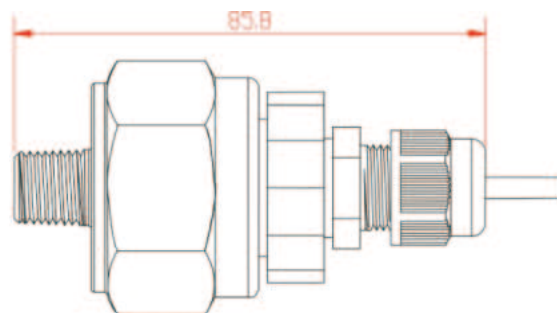
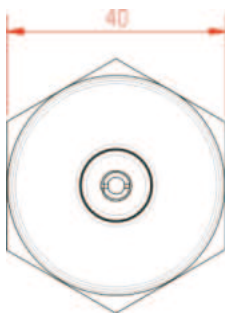
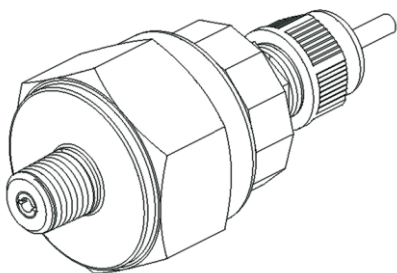
High Level Current Wiring Connecting (4-20 mA 2 wires Loop Power)



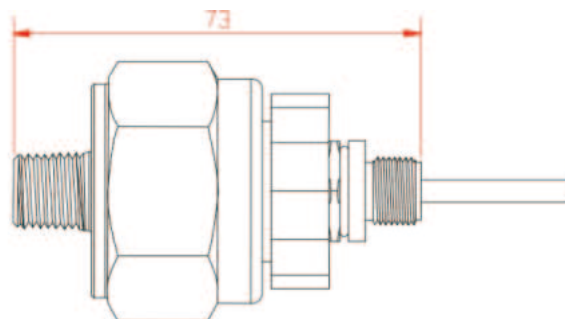
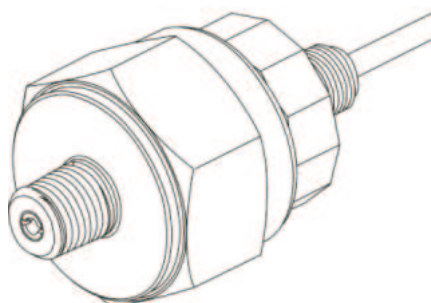
The pressure transmitter 4-20mA output units are designed to have current flow in one direction only. The maximum supply voltage for 4-20mA current output transmitter is 32VDC. The minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum 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.

Drawings

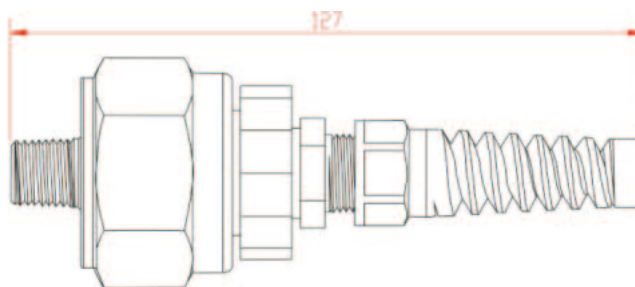
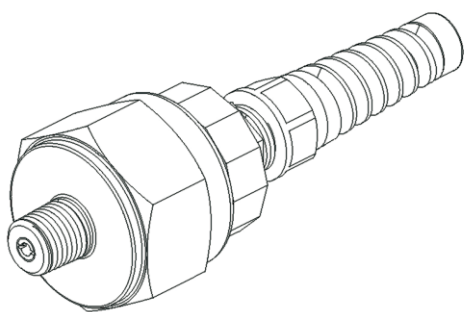
Code 4F



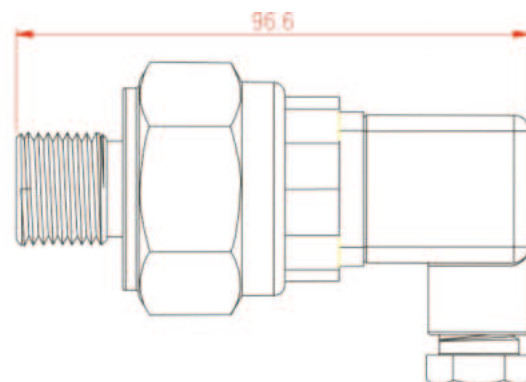
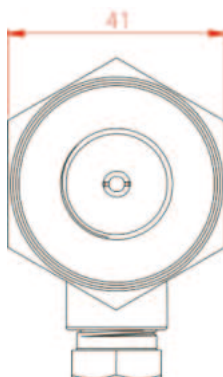
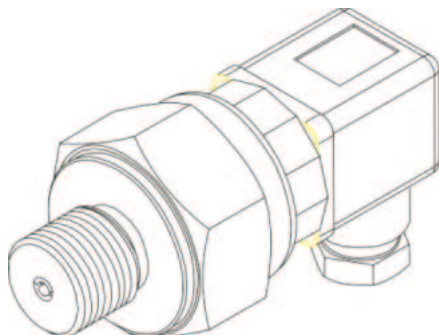
Code 4M



Code 4P



Code 2A



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: MKDP2APT3A2-E