

Differential Pressure Transmitters


DPT2 Series

- Accuracy 0.5%, 1.0%
- Fluid and Gas applications
- Temperature Compensated
- Built in Amplifier
- False System Shutdown Prevention
- Shock and Vibration Resistance
- Zero and Span Adjustments

HAWK DPT2 series ceramic cell differential pressure transmitters and transducers have been designed for most industrial pressure measurement applications at high quality performance and precision accuracy requirement including fluids and gases. 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 Application

- Cartridge filter
- Self-cleaning filter
- Flow control
- Heat exchanger
- Pump applications

- Plant quality control equipment
- Liquid Level measurements
- Energy and water managements
- Laboratory testing equipment

Specifications

PERFORMANCE

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

<±0.5%-Typical, ±1.0%-Max F.S.(DPT24)

<±1.0%-Typical, ±1.5%-Max F.S.(DPT25)

Stability at 25 CO:

< ±0.4% F.S.

Thermal Shift:

See the range table

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:

304 Stainless Steel-Standard, 316SS,

Ceramic Sensor:

Aluminum Oxide Al₂O₃ (96%)

Seal Material:

FPM(Viton)-Standard, NBR,
 Silicone Rubber, CR(Neoprene),
 EPDM(Ethylene Propylene), FFKM

Note:

The wetted parts including housing, fitting, ceramic sensor and sealing will be contacted with the media directly, please choose the appropriate material complied to your application.

Process Connection:

Standard...1/8"PT-F

Option..., G1/8-F or 1/8"NPT-F

Tube Fitting:

Brass Tongren Compression tube fitting, SS316 Ferrule Tube fitting, Push-in Tube fitting, Others on request

Electrical Connector:

Terminal Box to DIN43650(IP 65)

Shutter Type Cable(IP 65)

Flexible Cable(IP 65)

Female 1/2" DIN(IP 65)

1/2" NPT Male Conduit(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):

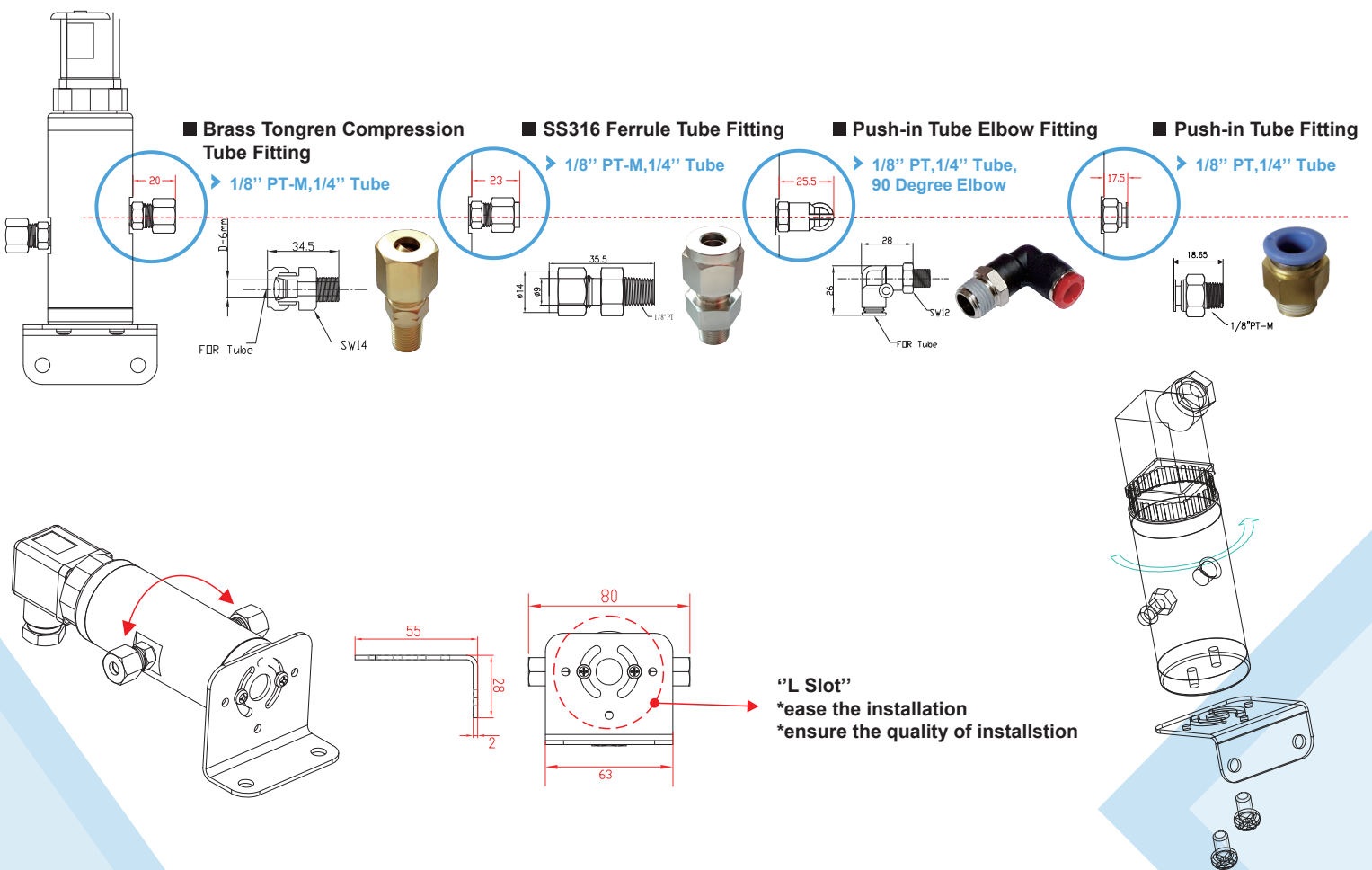
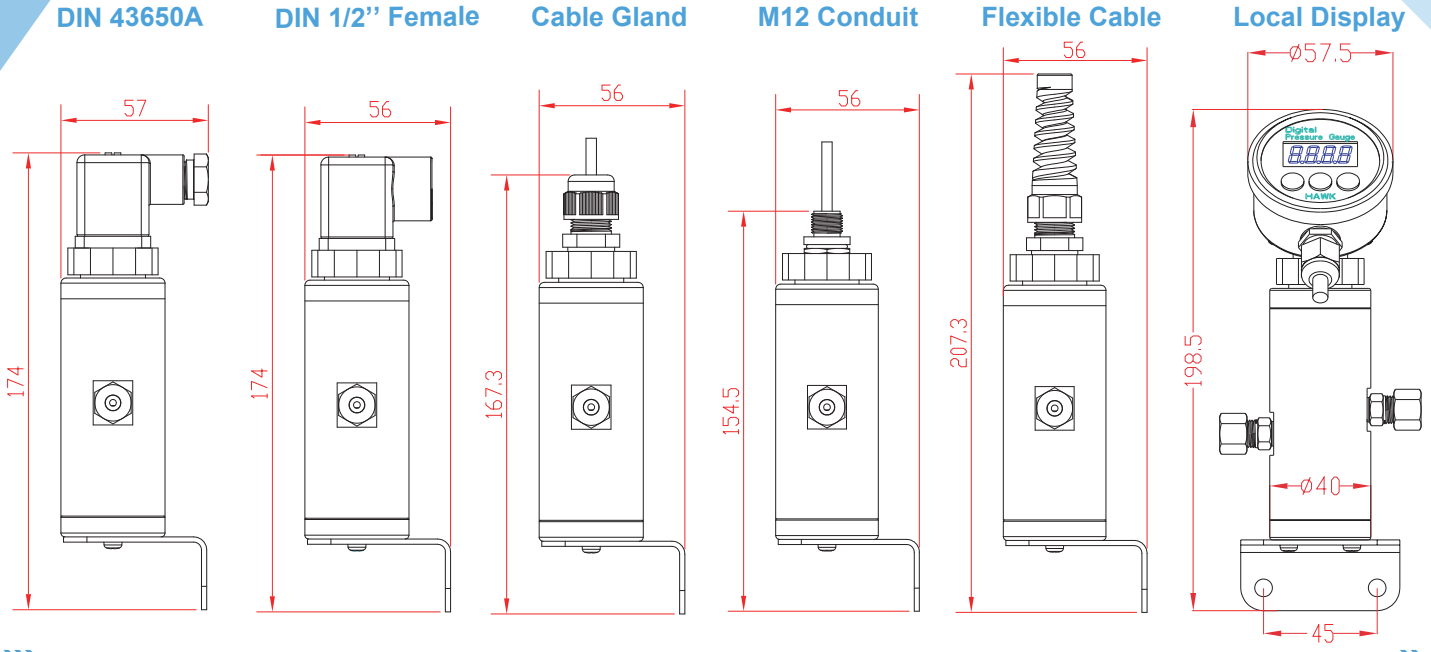


Differential Pressure Transmitters

HAWK
Since 1971



Dimensions(mm)

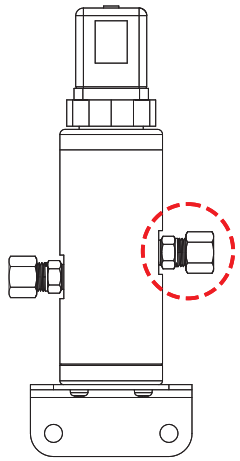


Note: If you need the other process connections not listed, please contact with our distributors.

Differential Pressure Transmitters



Tube Fitting Installation



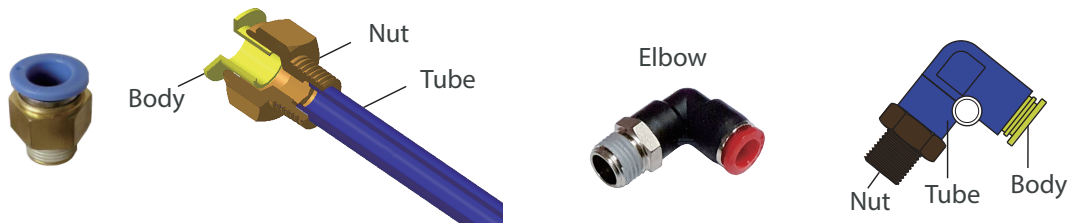
Surface Mounting

Insert two #6 screws through mounting ear holes on 2" centers.

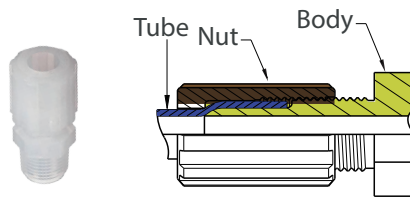
Pipe Mounting

1. Please cut tubing squarely and clean tube end to remove burrs
2. Kindly slide nut and sleeve onto tubing, place threaded end of nut face out.
3. Insert the tube into the fitting. Ensure the tube is bottomed on the fitting shoulder.
4. Assemble nut to body, and tighten "hand-tight" first.
5. Use a wrench to tighten the pressure connection.
6. For the soft metal tubing, please make 1.5-2.5 wrench turns.

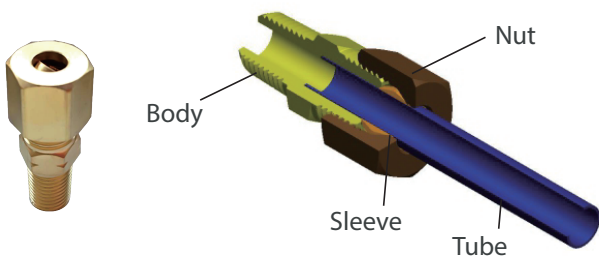
Plastic Push-in Tube Fitting



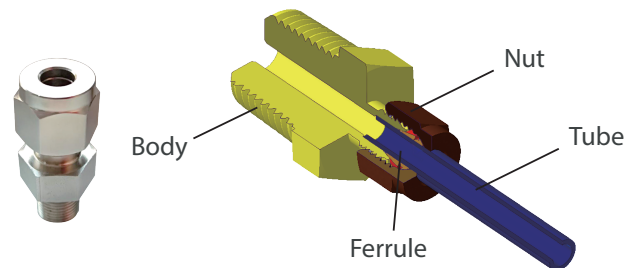
PFA/PTFE/PVDF Flare Compression Tube Fitting



Brass Tongren Compression Tube Fitting



SS316 Ferrule Tube Fitting



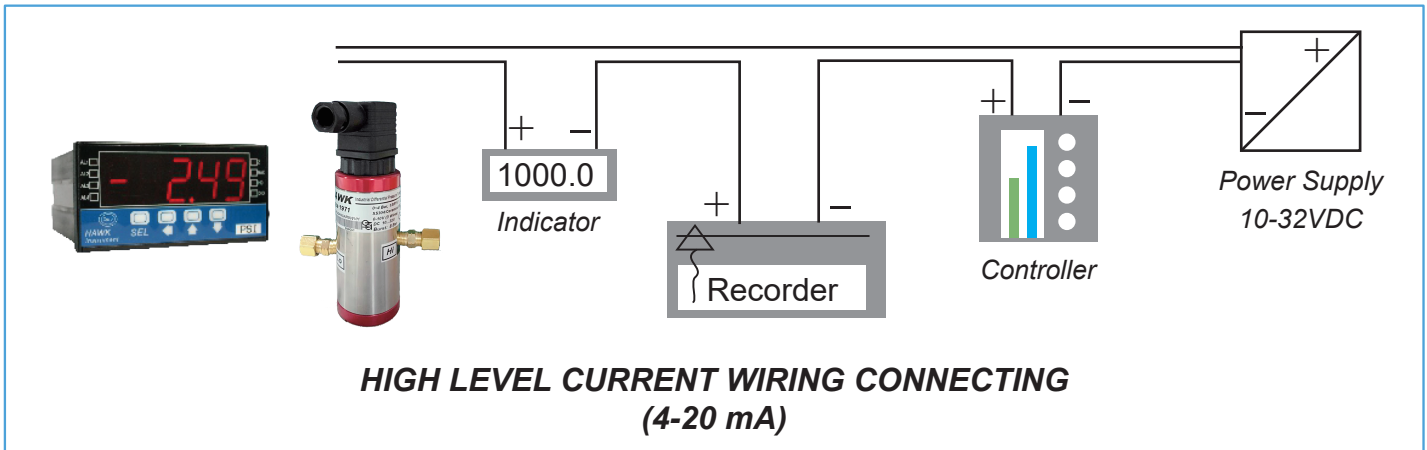
Differential Pressure Transmitters



Application

Current Output Unit

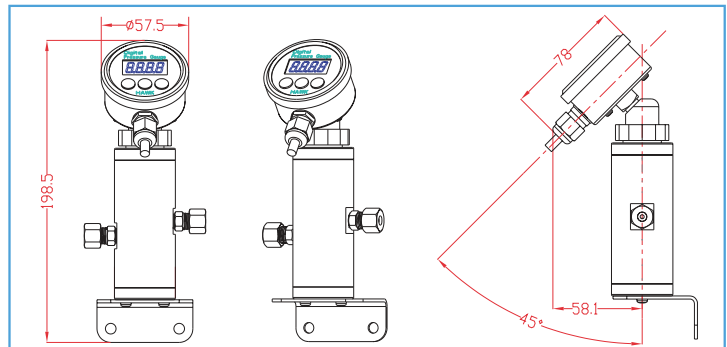
The digital indicator with a 4-20mA output units are designed to have current flow in one direction only. The maximum supply voltage for 4-20mA current output transmitter is 32 VDC. The minimum supply voltage is dependent upon the loop resistance of the circuit. The load limitation chart shows the minimum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



Display

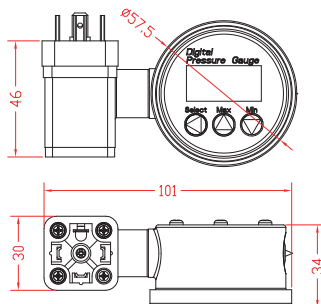
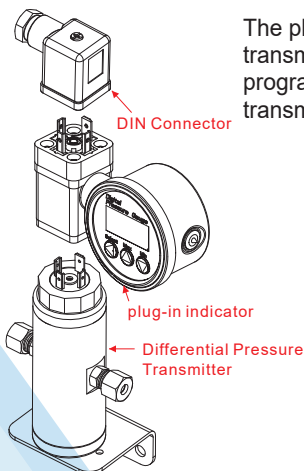
LED/LCD Local display option

The local LED/LCD display with analog current/voltage output and limit switch is available on option. The indicator allows programming via the front panel buttons. It can configure the display parameters (decimal point position, damping, etc.) and switching output (set point, hysteresis, etc.) The measured minimum and maximum values also can be indicated. Furthermore, an access protection can be activated in the menu system.



Plug-in LED/LCD indicator accessories

The plug-in LED/LCD indicator provides an ideal solution for a local display with simultaneous signal transmitter body and the DIN connector without the additional wiring or power source. Due to its universal programmability and easy mounting, it is possible to retrofit the plug-in indicator even to pressure transmitters which are already in use.

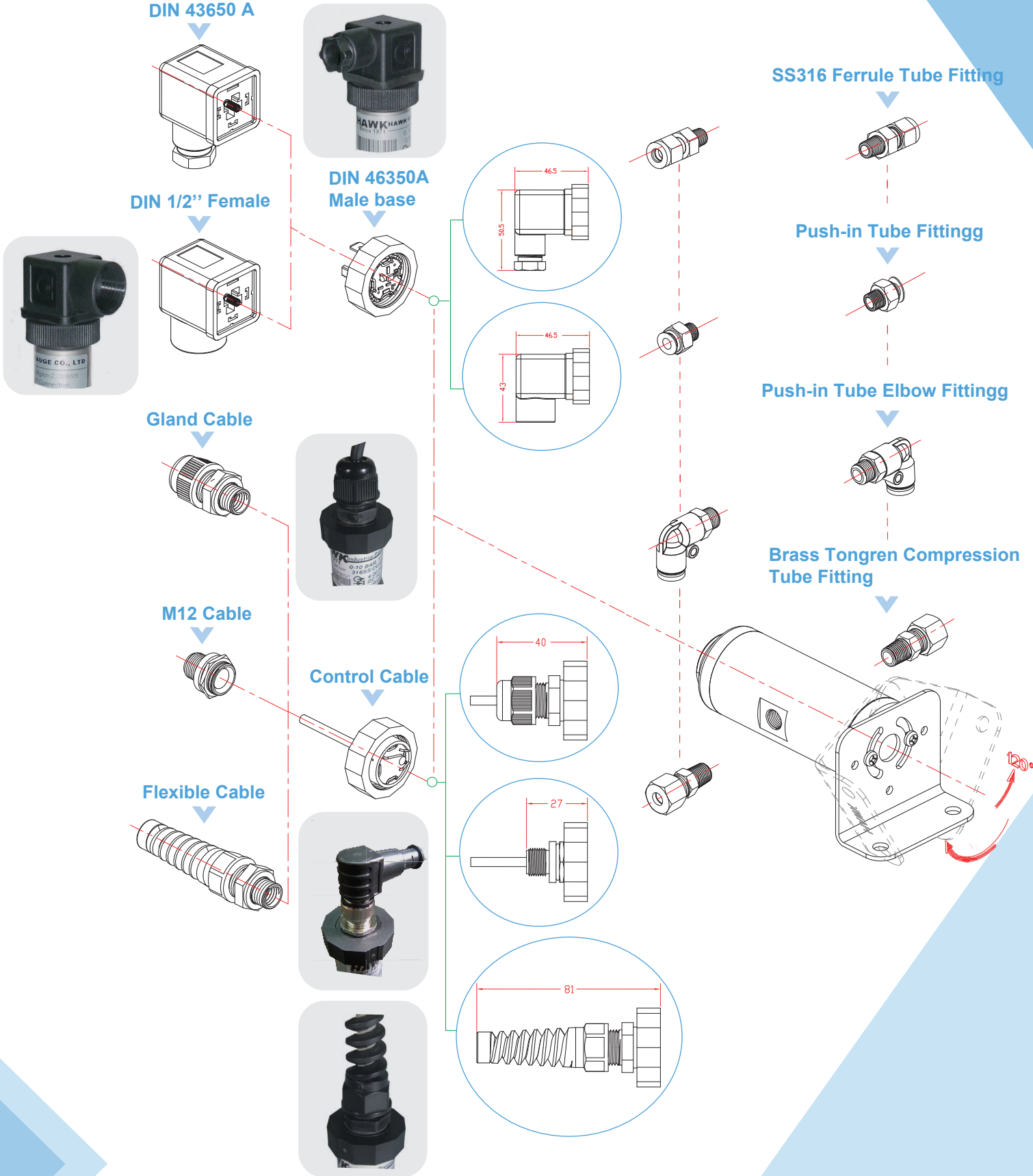




Differential Pressure Transmitters



Drawings





Differential Pressure Transmitters



Media Compatibility and applications

Media compatibility must be considered when purchasing a differential pressure transducers and transmitters ,Improper selection and application of the differential pressure transmitters and transducers could possible cause sensor failure and lead to possible damage or personal injury. The media to which the differential pressure sensors are going to be in contact with, must have compatibility with the AI O . In particular the data of weight loss found after a dipping pf 80 hours at room temperature in some media have shown a good resistance to Hcl (at 30% wt) and HNO (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 the 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 housing, pressure fitting, ceramic cell and sealing will contact with the media directly. Selecting the suitable housing, 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
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 for detailed information.

Sealing Materials	Common Application Conditions																		
	High Temp Limit C°	Low Temp Limit C°	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	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

Differential Pressure Transmitters



Pressure Range

Code	Range	Max pressure in one side port	FS/OC
G04 R04	0....0.1 kg/cm ² , Bar	H-Port<1 kg/cm ² , Bar ; L-Port<1 kg/cm ² , Bar	TC-0<0.20%
G06 R06	0....0.2 kg/cm ² , Bar	H-Port<1 kg/cm ² , Bar ; L-Port<1 kg/cm ² , Bar	TC-0<0.12%
G07 R07	0....0.25 kg/cm ² , Bar	H-Port<1 kg/cm ² , Bar ; L-Port<1 kg/cm ² , Bar	TC-0<0.12%
G08 R08	0....0.3 kg/cm ² , Bar	H-Port<2 kg/cm ² , Bar ; L-Port<2 kg/cm ² , Bar	TC-0<0.10%
G1 R1	0....0.4 kg/cm ² , Bar	H-Port<2 kg/cm ² , Bar ; L-Port<2 kg/cm ² , Bar	TC-0<0.10%
G09 R09	0....0.5 kg/cm ² , Bar	H-Port<2 kg/cm ² , Bar ; L-Port<2 kg/cm ² , Bar	TC-0<0.08%
G2 R2	0....0.6 kg/cm ² , Bar	H-Port<2 kg/cm ² , Bar ; L-Port<2 kg/cm ² , Bar	TC-0<0.08%
G3 R3	0....1 kg/cm ² , Bar	H-Port<2 kg/cm ² , Bar ; L-Port<2 kg/cm ² , Bar	TC-0<0.04%
G3Z R3Z	0....1 kg/cm ² , Bar	H-Port<4 kg/cm ² , Bar ; L-Port<4 kg/cm ² , Bar	TC-0<0.08%
G4 R4	0....1.6 kg/cm ² , Bar	H-Port<3.2 kg/cm ² , Bar ; L-Port<3.2 kg/cm ² , Bar	TC-0<0.04%
G4Y R4Y	0....1.6 kg/cm ² , Bar	H-Port<10 kg/cm ² , Bar ; L-Port<10 kg/cm ² , Bar	TC-0<0.08%
G6 R6	0....2.5 kg/cm ² , Bar	H-Port<5 kg/cm ² , Bar ; L-Port<5 kg/cm ² , Bar	TC-0<0.04%
G6Z R6Z	0....2.5 kg/cm ² , Bar	H-Port<10 kg/cm ² , Bar ; L-Port<10 kg/cm ² , Bar	TC-0<0.08%
G9 R9	0....4 kg/cm ² , Bar	H-Port<8 kg/cm ² , Bar ; L-Port<8 kg/cm ² , Bar	TC-0<0.04%
G9Z R9Z	0....4 kg/cm ² , Bar	H-Port<20 kg/cm ² , Bar ; L-Port<20 kg/cm ² , Bar	TC-0<0.08%
G11 R11	0....6 kg/cm ² , Bar	H-Port<12 kg/cm ² , Bar ; L-Port<12 kg/cm ² , Bar	TC-0<0.04%
G11Z R11Z	0....6 kg/cm ² , Bar	H-Port<20 kg/cm ² , Bar ; L-Port<12 kg/cm ² , Bar	TC-0<0.08%
G13 R13	0....10 kg/cm ² , Bar	H-Port<20 kg/cm ² , Bar ; L-Port<12 kg/cm ² , Bar	TC-0<0.04%
G14 R14	0....16 kg/cm ² , Bar	H-Port<32 kg/cm ² , Bar ; L-Port<12 kg/cm ² , Bar	TC-0<0.04%
G16 R16	0....25 kg/cm ² , Bar	H-Port<50 kg/cm ² , Bar ; L-Port<12 kg/cm ² , Bar	TC-0<0.04%
P21	0....1 PSI	H-Port<15 PSI, L-Port<15 PSI	TC-0<0.20%
P25	0....3 PSI	H-Port<15 PSI, L-Port<15 PSI	TC-0<0.12%
P28	0....5 PSI	H-Port<15 PSI, L-Port<15 PSI	TC-0<0.12%
P28Y	0....5 PSI	H-Port<30 PSI, L-Port<30 PSI	TC-0<0.10%
P31	0....10 PSI	H-Port<30 PSI, L-Port<30 PSI	TC-0<0.04%
P31Y	0....10 PSI	H-Port<60 PSI, L-Port<60 PSI	TC-0<0.08%
P32	0....15 PSI	H-Port<30 PSI, L-Port<30 PSI	TC-0<0.04%
P32Z	0....15 PSI	H-Port<60 PSI, L-Port<60 PSI	TC-0<0.08%
P35	0....30 PSI	H-Port<60 PSI, L-Port<60 PSI	TC-0<0.04%
P35Y	0....30 PSI	H-Port<150 PSI, L-Port<150 PSI	TC-0<0.08%
P38	0....50 PSI	H-Port<150 PSI, L-Port<150 PSI	TC-0<0.04%
P38Y	0....50 PSI	H-Port<300 PSI, L-Port<300 PSI	TC-0<0.08%
P39	0....60 PSI	H-Port<150 PSI, L-Port<150 PSI	TC-0<0.04%
P39Y	0....60 PSI	H-Port<300 PSI, L-Port<300 PSI	TC-0<0.08%
P41	0....100 PSI	H-Port<300 PSI, L-Port<300 PSI	TC-0<0.04%
P41Y	0....100 PSI	H-Port<600 PSI, L-Port<600 PSI	TC-0<0.08%
P42	0....150 PSI	H-Port<300 PSI, L-Port<300 PSI	TC-0<0.04%
P44	0....200 PSI	H-Port<300 PSI, L-Port<300 PSI	TC-0<0.04%
P46	0....300 PSI	H-Port<600 PSI, L-Port<600 PSI	TC-0<0.04%
P49	0....500 PSI	H-Port<1000 PSI, L-Port<1000 PSI	TC-0<0.04%

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

Differential Pressure Transmitters

HAWK
Since 1971



Electrical Connection

DIN 43650 A



DIN 1/2" Female



Gland Cable



Control Cable



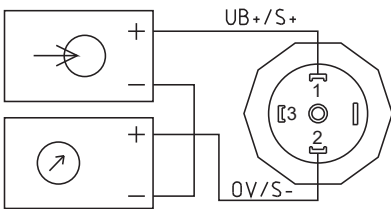
Flexible Cable



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

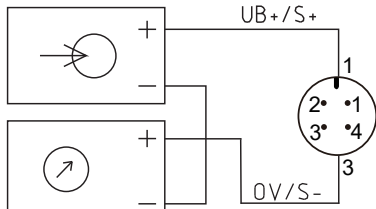
Wiring

DIN Connector



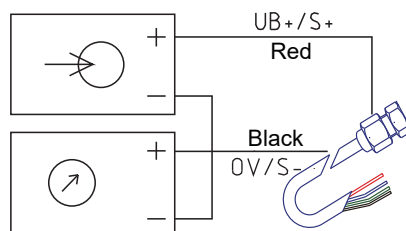
2-Wires Current
4...20 mA

M12 Connector

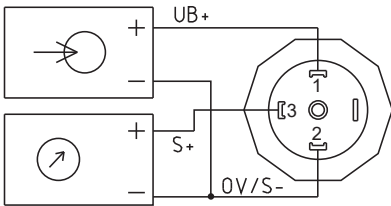


2-Wires Current
4...20 mA

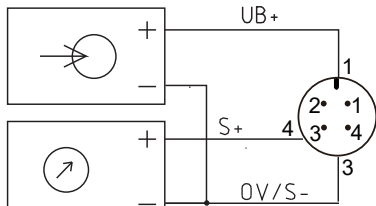
Gland Cable Connector



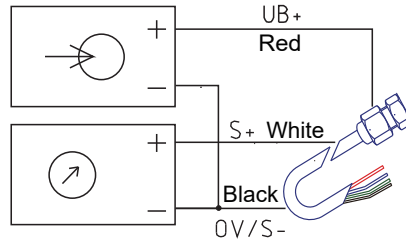
2-Wires
Current
4...20 mA



3-Wires Voltage
0...10, 1...5, 0.5...4.5 VDC

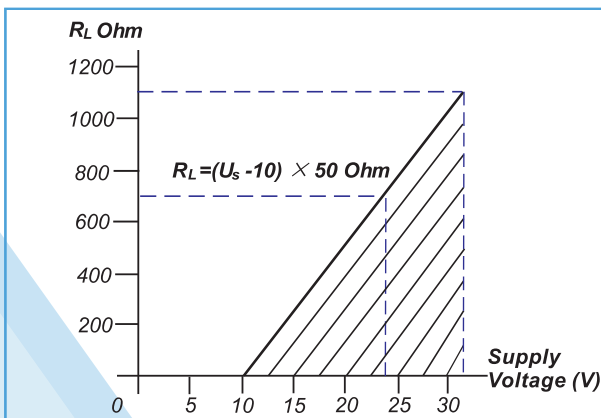


3-Wires Voltage
0...10, 1...5, 0.5...4.5 VDC



3-Wires
Voltage
0...10, 1...5,
0.5...4.5 VDC

Load Resistance(Current Output)



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.



Differential Pressure Transmitters

HAWK
Since 1971

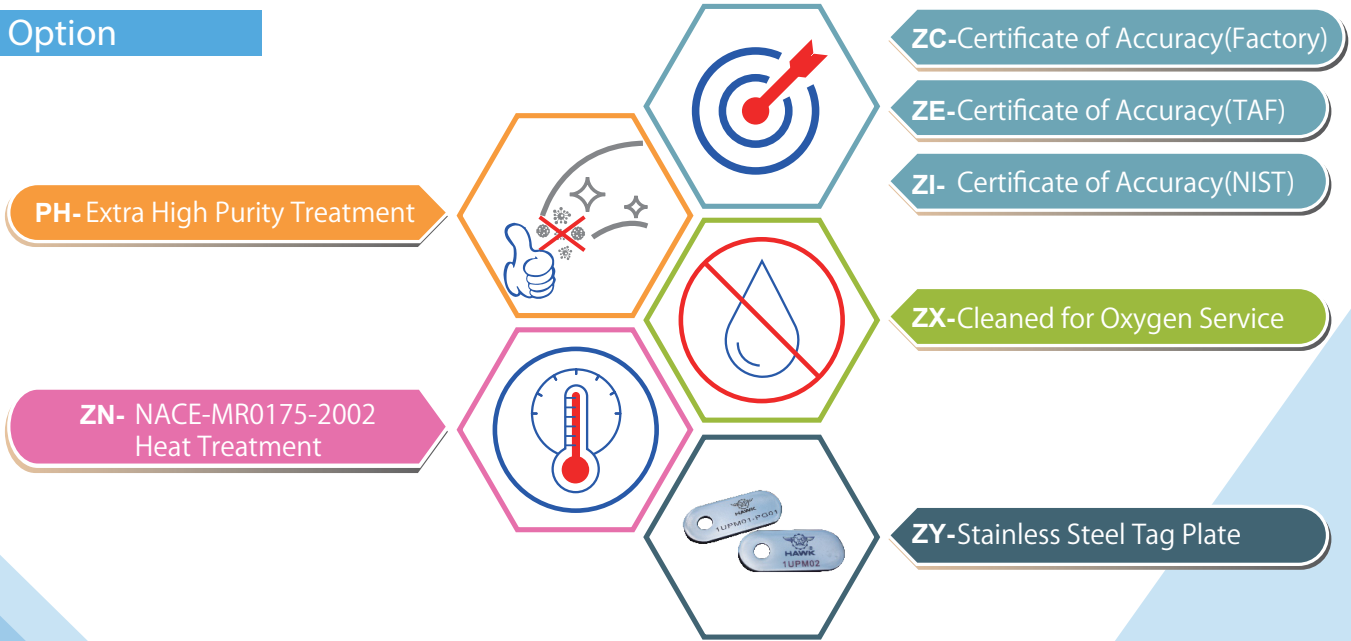


Order Information

Model: P-2D-DPT24DS2AA000FG3V-XX

Accuracy	Reference	Wetted Parts	Process Connection	Electrical Connection	Cable Length	Output Signal	Pressure Range	Seal Material
DPT2	4	D	S	2A	A	000	G3	V
4-0.5% 5-1.0%	D-Differential	S-316SS M-Monel H-Hast'C W-316LSS A-304SS D-PVDF C-PVC P-PP L-Others	F8-1/8"NPT-F FF-G1/8-F FC-1/8"PT-F 2A-SS316 Ferrule Tube Fitting 1/4" 0P-Brass Tongren Compression Tube Fitting 1/4" 0R-Plastic Push-in Tube Fitting 1/4" 0U-Plastic Elbow Push-in Tube Fitting 1/4" 0N-PFA/PTFE/PVDF Thread Flare Fitting 1/4" 0G-PFA/PTFE/PVDF Elbow Thread Flare Fitting 1/4"	A-DIN 43650 A D-1/2" Female DIN F-Gland Cable P-Flexible Cable M-Circular M12 L-Others	000-No Wire 0M5-0.5M 0M7-0.7M 01M-1M 02M-2M 03M-3M 8F3-8.3Feet 10F-010Feet 20F-20Feet 30F-30Feet 99F-99Feet ...	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 VDC L-Others	Please refer to the range table and write down the code you need.	B-NBR (Buna Rubber) V-FPM (Viton) S-MVQ (Silicone Polymer) N-CR (Neoprene) E-EPDM (Ethylene Propylene) K-FFKM L-Others

Option



Differential Pressure Transmitters

P-2D

Limited Warranty and Liability

HAWK GAUGE CO.,LTD warrants all its electrical instruments to be free from defects in materials and workmanship. HAWK Agrees to repair or replace any pressure transmitter or transducer 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 wiring, 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.

Unless otherwise specified in a manual or warranty card, or agree to in a writing signed by HAWK GAUGE office, HAWK Pressure products shall be warranted for one year 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: MKDP2DDPT2A3-E