PWT25&PDWT25 Series

Wide Temperature Range High Accuracy Pressure Sensor

XRI's PWT25 series pressure sensor is a wide temperature range, multi-function, high accuracy pressure sensor. Utilizing advanced micro-machined silicon MEMS technology, unique oil-filled sensing capsule, robust EMI anti-interference design, stainless steel internal and external parts. All make PWT25 a pressure sensor with high precision, high reliability, and suitable for a variety of measurement applications. It furthermore provides electronic circuitry with a 10KHz frequency bandwidth. The series is configured with a variety of pressure connections and can provide a number of different electrical output signals and methods. The sensors offer a high degree of overload protection and measurement safety through their solid, all stainless steel construction. The highly modular design allows customers to quickly meet special customization requirements.

The PDWT25 differential pressure version is designed with a wet/wet differential pressure configuration as its base model. This innovative design accommodates dry/dry, dry/wet, and wet/wet differential pressure applications while maintaining consistent pricing and high cost-effective, eliminating the complexities of selecting between dry/dry, dry/wet, and wet/wet differential pressure types. It reflects XRI's corporate philosophy: "Customer First, Service First, Quality First."

About Us

- *XR Innovation, Inc. (XRI) is a vertically integrated company aimed at reaching the pinnacle of sensing with innovative and modern designs and manufacturing technologies.*
- *XRI is committed to offering high-end products with technology innovation, quality control and production efficiency.*
- *Portfolio includes pressure, temperature, flow, position, displacement, rotational speed, gas and others. The products are positioned for high-end applications, especially in aerospace, precision manufacturing, oil and gas and transportation vehicles.*
- *XRI adheres to the principle that company employees as a team are the most valuable asset, and focuses on building a company that values reliability, devotion and innovation.*
- *XRI firmly believes that 'Satisfying Customers' Wants is the Primary Mission of XRI.*

XRI is a "continuous improvement" company. Its product datasheets evolve as technology advances. Most update versions are on www.XRIINC.com

Specifications

Physical properties

Item	Description	
Range[1]	Absolute, Sealed gage , Gauge or Differential	
Unit	MPa	PSI
Absolute and Sealed gage Measurement Range	0-1	0-150
	0-2	0-300
	0-5	0-700
	0-10	0-1500
	0-35	0-5000
	0-70	0-10000
	Note: Other non-standard ranges or units can be customized	
Gage and Differential Measurement Range	0-0.01	0-1.5
	0-0.02	0-3
	0-0.05	0-7
	0-0.1	0-15
	0-0.2	0-30
	0-0.5	0-70
	0-1	0-150
	0-2	0-300
	0-5	0-700
	Note: Other non-standard ranges or units can be customized	
Accuracy (Combined Non-Linearity, Hysteresis and Repeatability[7])	A1: 0.2% FS[5] BFSL	
	A2: 0.1% FS[5] BFSL	
	*Other choices available upon request	
Over Presssure[2]	2 x FS[5] (Negative pressure side shall not exceed 1.5 MPa)	
Burst Presssure[3]	3 x FS[5] (Negative pressure side shall not exceed 1.5 MPa)	

Mechanical Properties

Item	Description
Pressure Connection	See configuration guide
Vibration Resistance	20g, Max 10-2500Hz; Shock<20ms
Housing Material	Typically 316L/17-4PH (*Other choices available upon request)
Test Medium	All gases and fluids compatible with 316L/17-4PH
Weight	⩽140g; Cable and connector weight extra

Temperature Properties[4]

Item	Description	
Compensated Temperature Range	-55°C~150°C or within this range	
Operating and Storage Temperature Range	-55°C~150°C	
Temperature Change Coefficient or Total Error Band[7]	EA、EB	
	Thermal Zero Shift	＜±1.5% FS[5]/100°C
	Thermal Sensitivity Shift	＜±1.5% FS[5]/100°C
	EC、ED、EE、EF	
	Total Error Band[6]	＜±0.25% FS[5]/100°C

Electrical Properties

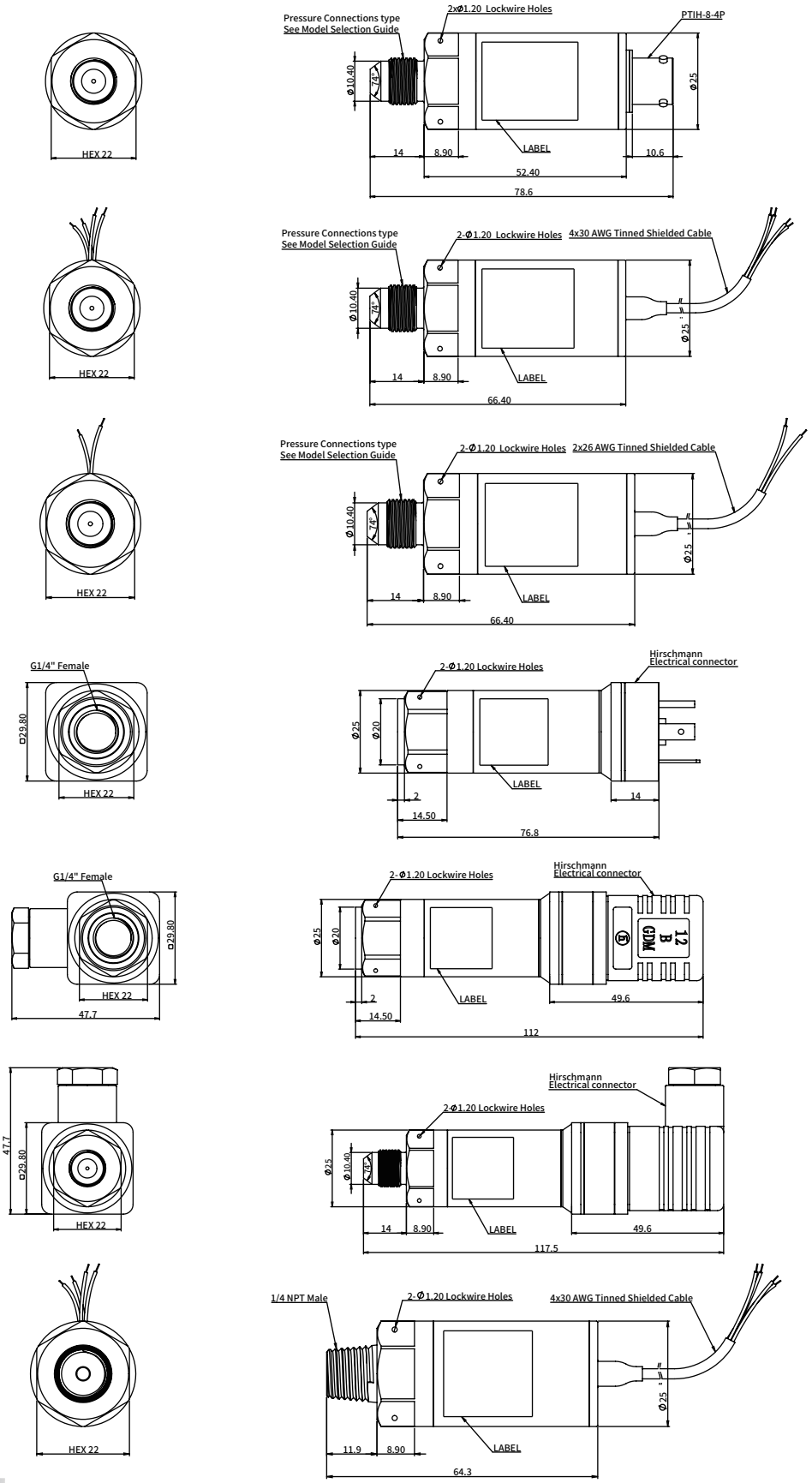
Item	Description
Excitation/Output	See configuration guide
Electrical Circuit Bandwidth	10KHz @3DB
Actual Frequency Response	This series is limited by the acoustic characteristics of the cavity. Fluids medium is approx 10KHz @3DB
	Note: Transducer frequency response is also related to how the transducer is installed. See XRI's official website www.XRIINC.com—Application Notes Section or consult XRI's after-sales service department for details.
Power-up Time	EA、EB＜1ms
	EC、ED、EE、EF＜200ms
Zero and Full Scale Output (Room Temperature)	Within ±5% of nominal value
	*Other choices can be customized
Insulation Resistance	⩾ 100MΩ @50VDC
Dielectric Strength	Leakage current⩽5mA @50VAC RMS
Max operating current	EC、ED、EE、EF＜25mA
Input Impedance	EA、EB＞5000Ω
Output Impedance	EA、EB 5000Ω (typical)
	EC、ED、EE、EF＜150Ω
Long-term Stability	Typically within ±0.1%FS[5]
Electrical Connection	See configuration guide, customizable

1: Offers composite ranges such as from 5~100kPa Absolute Pressure.
2: Pressure exposure not exceeding proof pressure does not affect transducer performance.
3: Burst Pressure is a safety upper limit. Over this value transducer may be permanently damaged.
4: Temperature effects are related to sensor accuracy variations within the compensation temperature range.
5: FS= Full scale.
6: Error based on deviations away from the best endpoint fit straight line calibration.
7: Reference to ISA 37.1-1975(R1982).

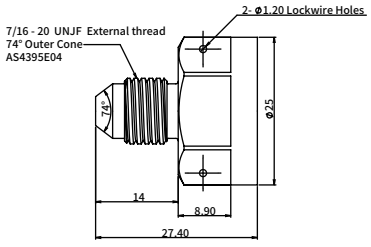
Electrical Connection Definition

Connection Type	Pin or wire color	Purpose					
		EA	EB	EC	ED	EE	EF
E1	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
	E/5						
	F/6						
E2	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
	E/5						
	F/6						
E3	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
	E/5						
E4	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
E5	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
E6	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
E7	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
E8	Red	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	Green	Vout+	Vout+		Vout+	Vout+	Vout+
	White	Vout-	Vout-			Vout-	Vout-
	Black	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
E9	Red			Vin+			
	Black			Vin-			
E12	1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	2	Vout+	Vout+		Vout+	Vout+	Vout+
	3	Vout-	Vout-			Vout-	Vout-
	E	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-

Transducer outline dimensions



Pressure connection



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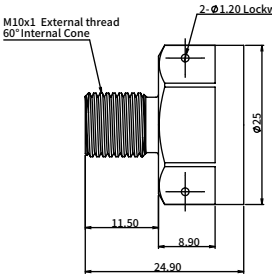

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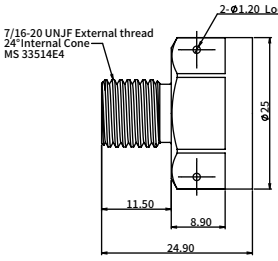

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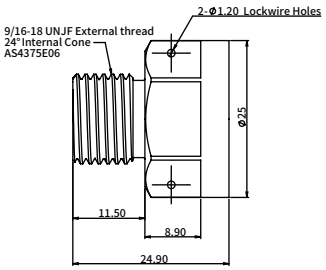

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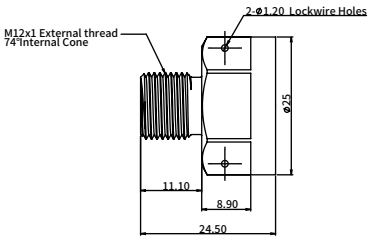

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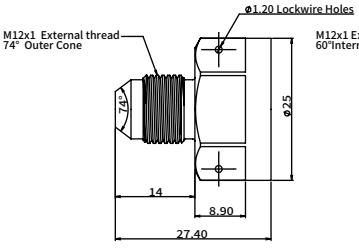

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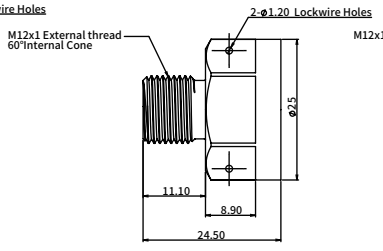

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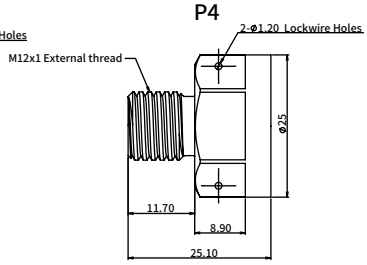

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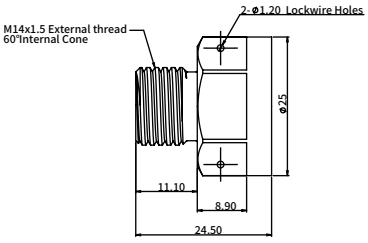

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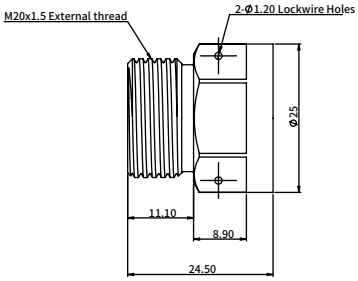

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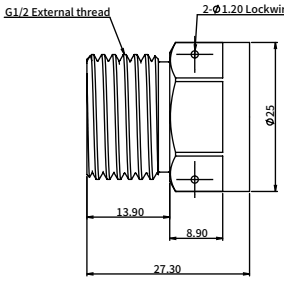

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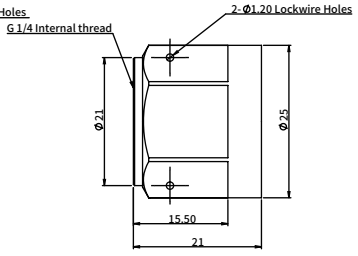

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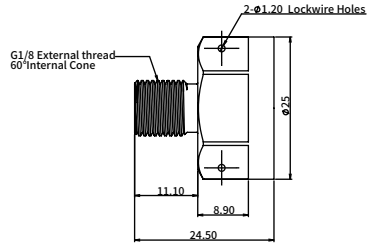

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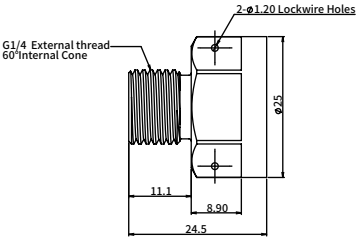

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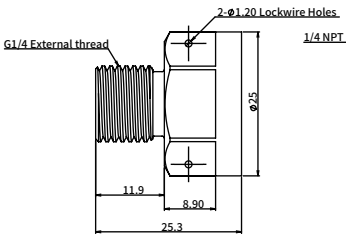

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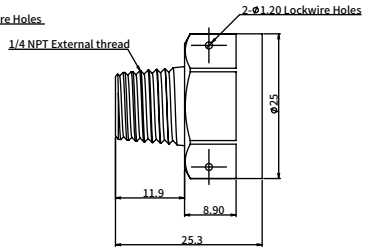

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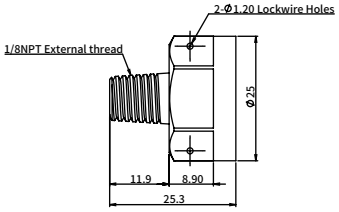

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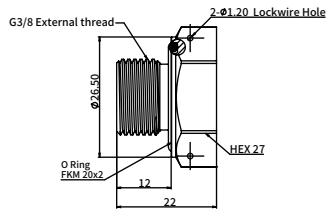

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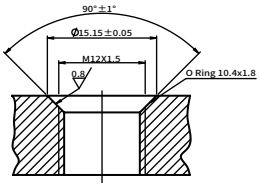
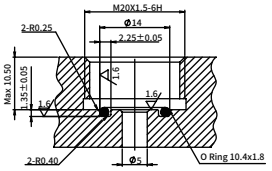
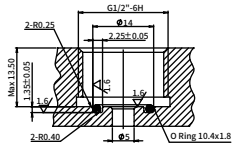


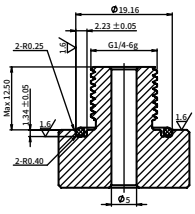
Recommended seal method for P8



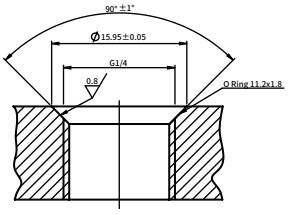
Recommended seal method for P10



Recommended seal method for P11

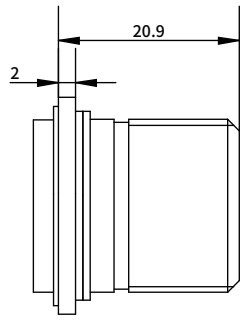


Recommended seal method for P12

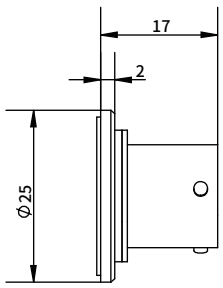


Recommended seal method for P25

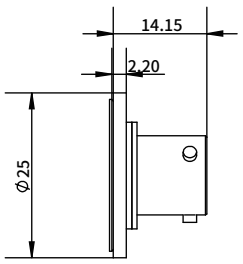
Electrical Connector



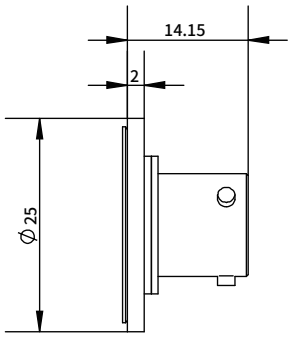
E1
6 Pin, D38999/25YB98PN



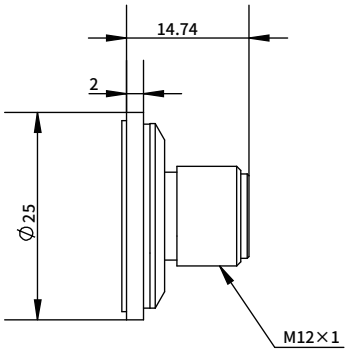
E2
6 Pin, MIL-C-26482 Series II Shell Size 10



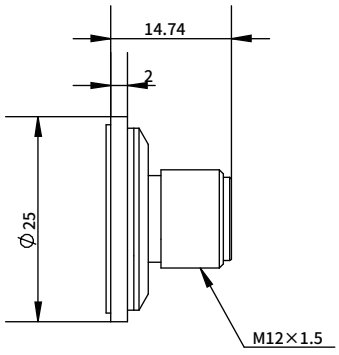
E4
4 Pin, MIL-C-26482 Series I Shell Size 8



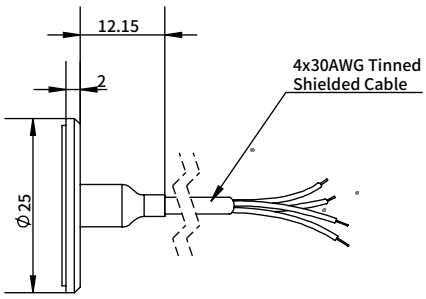
E5
PTIH-8-4P



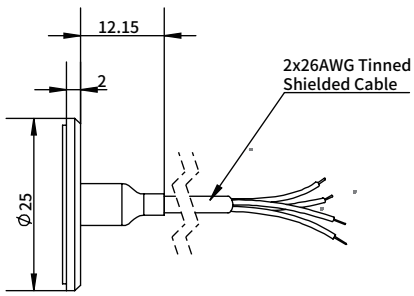
E6
4 Pin M12×1



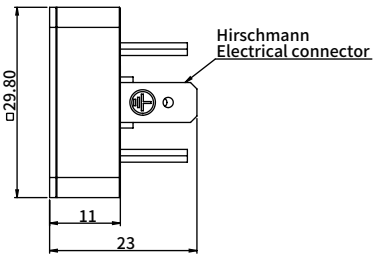
E7
4 Pin M12×1.5



E8
4x30AWG (1m length) Tinned Shielded Cable



E9
2x26AWG (1m length) Tinned Shielded Cable



E12
DIN43650

Configuration guide

Base Model

PWT25 Absolute, Sealed gage

PDWT25 Gage and Differential

Electrical Properties

EA 0~100mv output, 10VDC supply, output proportional to supply voltage, 4-wire

EB 0~100mv output, 8-16VDC supply, output independent of supply voltage, 4-wire

EC 4~20mA output , 12~28VDC power supply, high precision digital compensation, 2-wire

ED 0.5~4.5V output, 8~32VDC power supply, high precision digital compensation, 3-wire

EE 0~5V output, 8~32VDC power supply, high precision digital compensation, 4-wire, output common mode 2.5V (typical)

EF 0~10V output, 14~32VDC power supply, high precision digital compensation, 4-wire, output common mode 5V (typical)

Electrical Connector

E1 6 Pin D38999/25YB98PN

E2 6 Pin MIL-C-26482 Aviation Connector, Series 1, Size 10 Shell

E3 5 Pin MS83723/90Y1005PN

E4 4 Pin MIL-C-26482 Aviation Connector, Series 1, Size 8 Shell

E5 PTIH-8-4P

E6 4 Pin M12×1

E7 4 Pin M12×1.5

E8 4x30AWG (1m length) Tinned Shielded cable

E9 2x26AWG (1m length) Tinned Shielded cable

E12 DIN43650 Removable (* Within -40~80°C)

Other choices available upon request;
Electrical connectors E6, E7, and E12 are not compatible with the compensated temperature TD.

Pressure Connections

P1 7/16-20 UNJF External Thread (74° External taper, AS4395E04)

P2 M10×1 External Thread（60° Internal taper）

P3 7/16-20 UNJF External Thread (24°Internal taper，MS33514E4)

P4 9/16-18 UNJF(24°Internal taper，AS4375E06)

P5 M12×1 External Thread (74°Internal taper)

P6 M12×1 External Thread （74°External taper）

P7 M12×1 External Thread （60°Internal taper）

P8 M12×1.5 External Thread

P9 M14×1.5 External Thread （60°Internal taper）

P10 M20×1.5 External Thread

P11 G1/2 External Thread

P12 G1/4 Internal Thread

P13 G1/8 External Thread （60°Internal taper）

P14 G1/4 External Thread （60°Internal taper）

P25 G1/4 External Thread

P26 1/4 NPT External Thread

P28 1/8 NPT External Thread

P32 G3/8 External Thread

Other choices available upon request

Temperature Compensation

TA 25°C~80°C

TB -20°C~125°C

TC -40°C~125°C

TD -55°C~150°C

TE -10°C~50°C

TF -20°C~80°C

TG -40°C~80°C

Accuracy

A1 0.2%FS BFSL

A2 0.1%FS BFSL

Other choices available upon request

Calibration report

CA 6 points room temperature pressure calibration data

CB 5 temperature points pressure data

Range	Unit	Pressure types
(0-70)	MPa **A**	Absolute
(-0.1~5)	MPa **G**	Gage
(-0.1~70)	MPa **S**	Sealed Gage
(-1.5~5)	MPa **D**	Differential

Special requests

S： Refer to the purchase contract

Example: PWT25 -EC -E3 -P6 -TA -A1 -CA -(0-20)MPaA -S