

Pressure Sensor: PSO/PSN/PSP Series



Pressure Sensor/Pressure and Temperature Integrated Sensor

■ Features

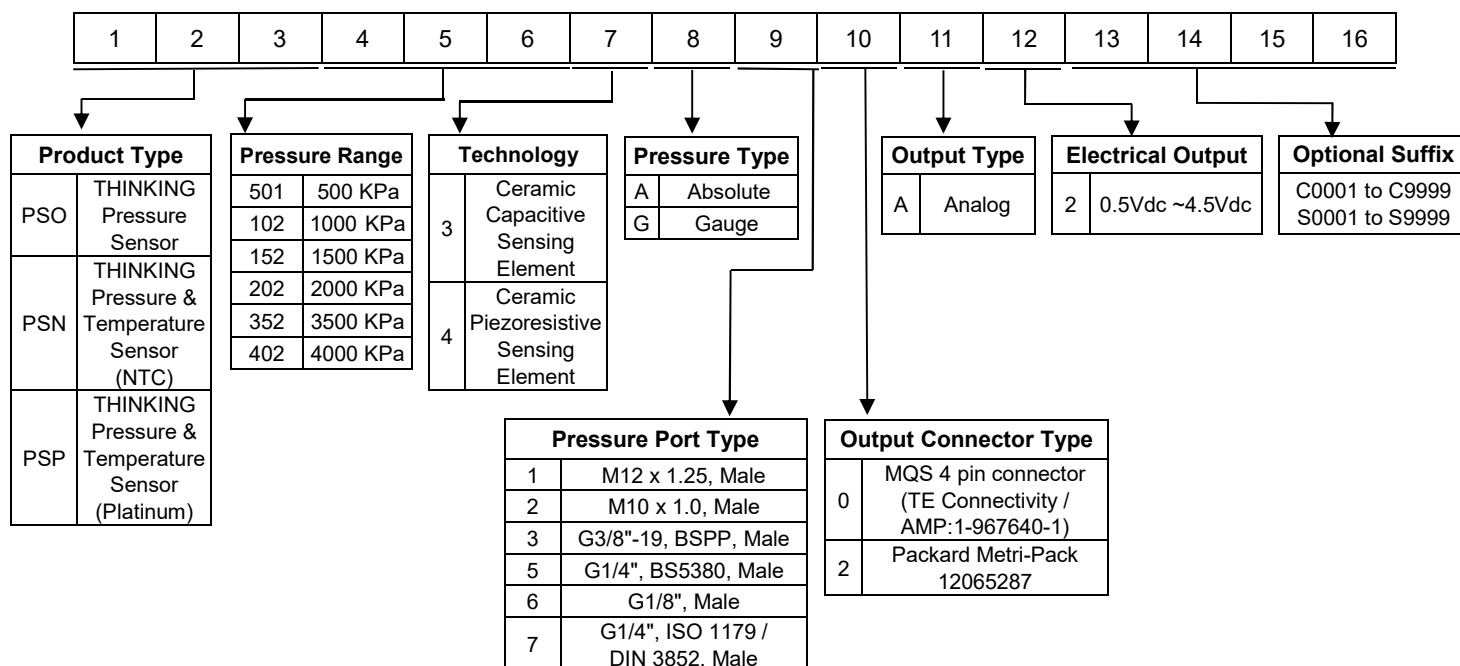
1. Pressure sensing only or pressure and temperature integrated sensing
2. Available with NTC thermistor or platinum temperature sensing element
3. Robust and compact construction
4. Customizable thread sizes (ISO standard)
5. Gauge and absolute pressure types available upon request
6. Pressure range: 0 KPa to 2000 KPa (up to 4000 KPa available)
7. Operating temperature range: -40°C ~ +125°C
8. Pressure electric output signal: Analog 0.5Vdc ~ 4.5Vdc



■ Recommended Applications

1. Coolant distribution unit, server of data center, industrial liquid cooling system
2. Heat pump for household, industrial, and automotive applications
3. HVAC system

■ Part Number Code



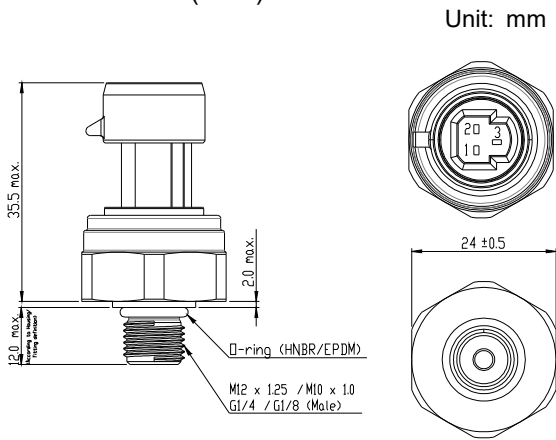
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Structure and Dimensions

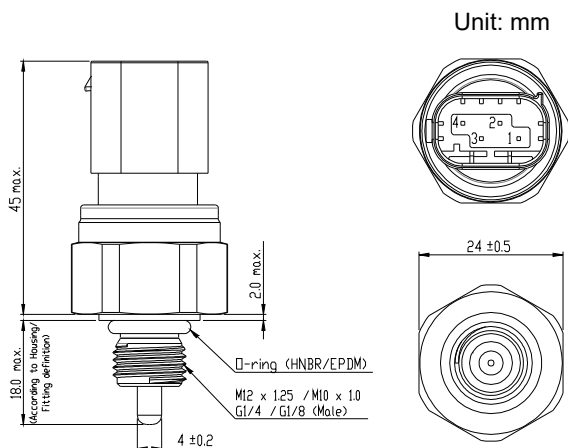
● Pressure Sensor (PSO)



● Pin Assignment

Connector	3 pin Packard Metri-Pack	
	Pin No.	Assignment
	1	V _{supply}
	2	GND
3	V _{out}	
Mating Connector	Packard Metri-Pack 12065287	

● Pressure and Temperature Sensor (PSN)



● Pin Assignment

Connector	4 pin AMP: 967439-1	
	Pin No.	Assignment
	1	GND
	2	V _{out}
	3	R _{NTC} NTC signal output
4	V _{supply}	
Mating Connector	1-967640-1 (TE)	

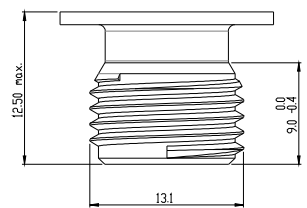
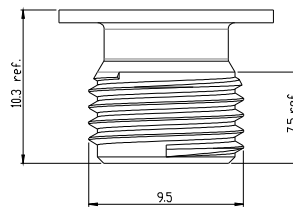
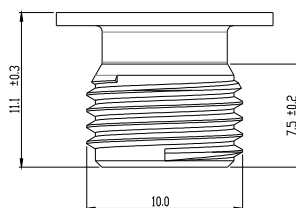
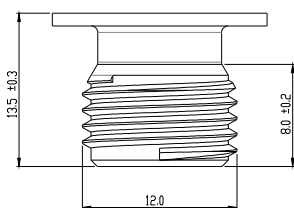
Pressure Port Type

M12 x 1.25 (Male) (ISO 6149)

M10 x 1.0 (Male) (ISO 6149)

3/8-24UNF (Male) (SAE J1926)

G1/4 (Male) (BS 5380)



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■ Electrical Characteristics

Pressure Sensor	Specifications
Excitation (Vexc)	4.9Vdc ~ 5.1Vdc
Operating Current	10 mA max. @ 5V
Pressure Range	0 ~ 2000 KPa
Output	0.5Vdc (0 KPa) ~ 4.5Vdc (2000 KPa)
Accuracy	±1% FS
Total Error Band (-20°C to +30°C)	±2% FS
Total Error Band (+30°C to +85°C)	±3% FS
Operating Temperature Range	-40°C ~ +125°C
Response Time	10 ms Typ.
Proof Pressure	4000 KPa (or 2X)
Burst Pressure	6000 KPa (or 3X)
Short Circuit Protection	Yes
Reverse Polarity Protection	Yes
High Voltage Protection	28 Vmax
Ingress Protection Rating	IP67
Temperature Sensor	Specifications
R25°C	10 KΩ ± 1%
B25°C / 85°C	3435K ± 1%, 3950K ± 1%, 3975K ± 1% (Customizable)
Thermal Response Time (Test in stirred water)	$\tau < 4$ seconds (25°C → 85°C, $T1 = 25 + (85-25) * 63.2 \% = 62.9^{\circ}\text{C}$)

Notes

1. Unless otherwise specified, all parameters are measured at 25°C, 60%RH
2. Output is ratiometric to excitation voltage
3. Overvoltage and reverse polarity protect by internal supply voltage limiter

■ Operating Environment

- Operating Temperature Range: -40°C ~ +125°C
- Storage Temperature Range: -40°C ~ +125°C
- Proof Pressure: 4000 KPa
- Burst Pressure: 6000 KPa
- Ingress Protection Rating: IP67

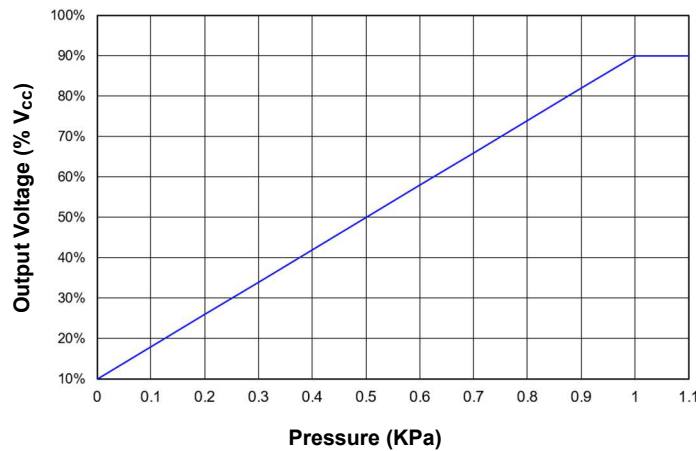
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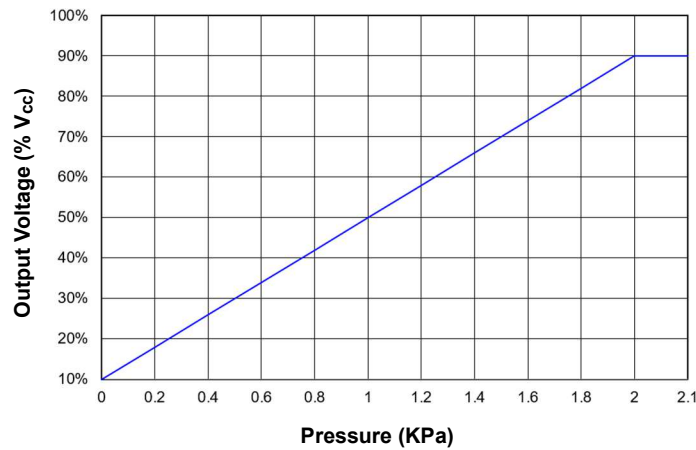


■ Pressure Output Transfer Curve

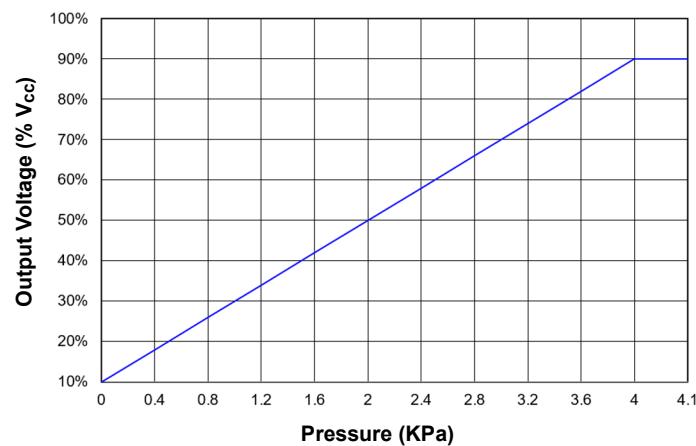
1000KPa Pressure Output Characteristic Curve



2000KPa Pressure Output Characteristic Curve



4000Kpa Pressure Output Characteristic Curve



Absolute Output Voltage

V_{out} : Output voltage

V_{max} : 4.5Vdc

V_{min} : 0.5Vdc

P: Input pressure (KPa)

$$V_{out} = V_{min} + \frac{P_{in} - P_{min}}{P_{max} - P_{min}} \times (V_{max} - V_{min})$$

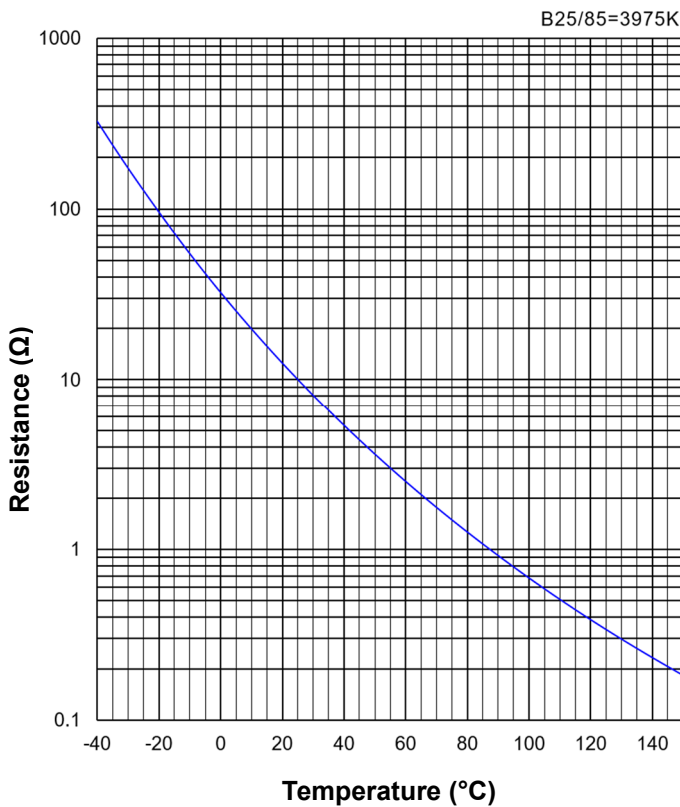
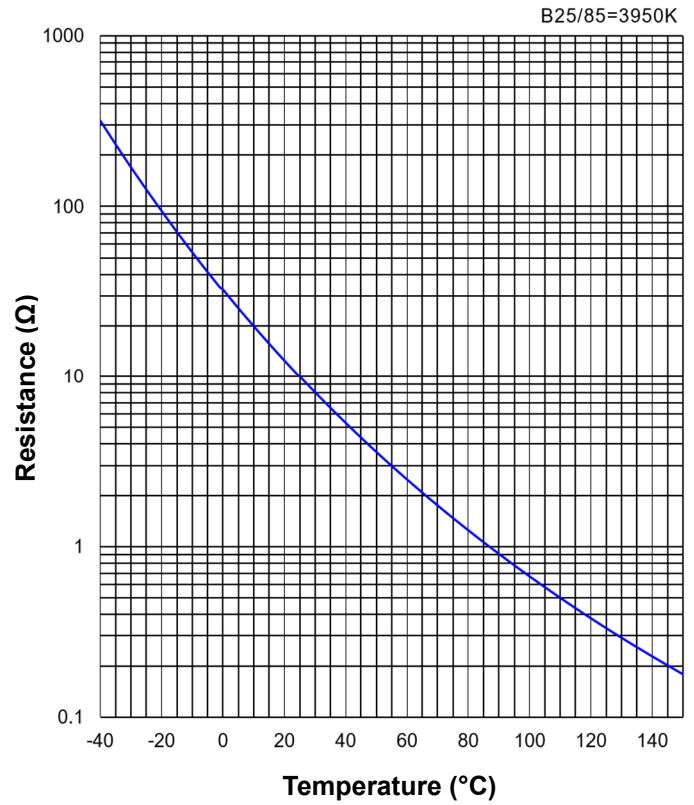
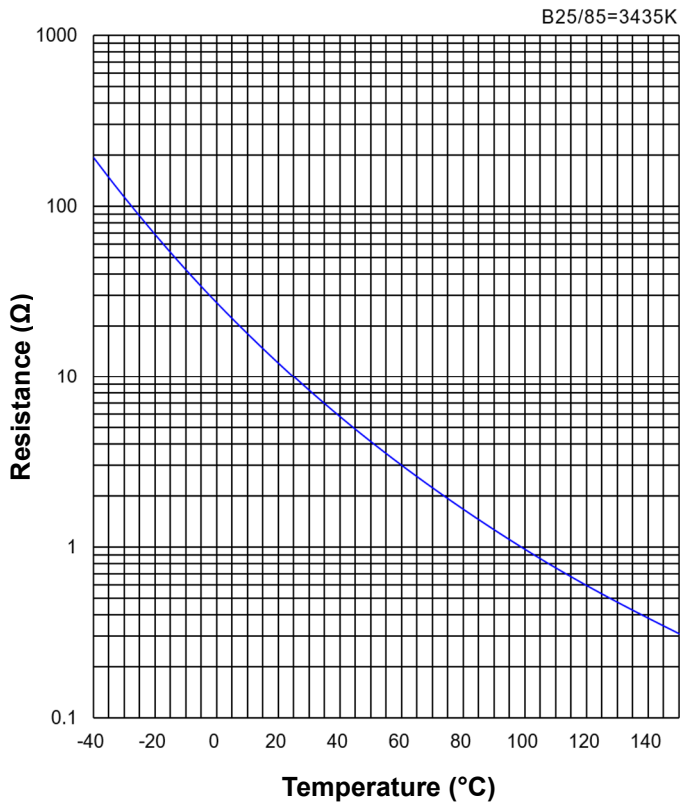
$$P = P_{min} + \frac{V_{out} - V_{min}}{V_{max} - V_{min}} \times (P_{max} - P_{min})$$

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■ R-T Characteristic Curves



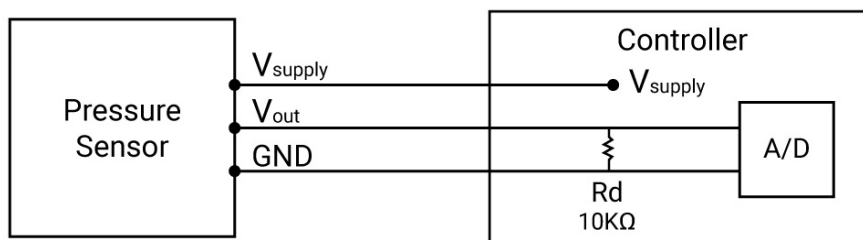
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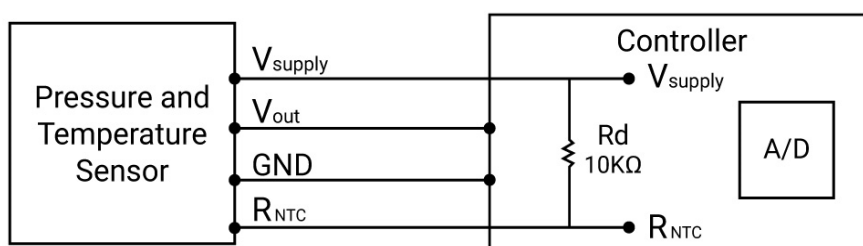
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■ Electric Scheme

- Pressure Sensor



- Pressure and Temperature Sensor



■ Mounting Torque

Suggested installation torque: $8 \pm 1 \text{ N}\cdot\text{m}$