

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. Temperature sensing: NTC, Platinum thermistor elements available
3. Robust and compact construction
4. Customizable thread sizes (ISO standard)
5. Gauge and absolute pressure types available upon request
6. Pressure range: 0 bar to 20 bar (up to 40 bar available)
7. Operating temperature range: -40°C to +125°C
8. Pressure Electric output signal: Analog 0.5V to 4.5V



■ Recommended Applications

1. Cooling distribution unit, server of data center, industrial liquid cooling system
2. Household, industrial, and automotive heat pump
3. HVAC system

■ Part Number Code

1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Product Type		Pressure Range		Technology		Pressure Type		Output Type		Electrical Output		Optional Suffix		Pressure Port Type		Output Connector Type	
PSO	THINKING Pressure Sensor	501	500Kpa	3	Ceramic Capacitive sensing element	A	Absolute	A	Analog	2	0.5 VDC to 4.5VDC	C0001 to C9999 S0001 to S9999		1	M12 x 1.25, male	0	MQS 4 pin connector (TE Connectivity / AMP:1-967640-1)
PSN	THINKING Pressure & Temperature Sensor (NTC)	102	1000Kpa			G	Gauge							2	G3/8" -19 BSPP male	2	Packard Metri-Pack 12065287
PSP	THINKING Pressure & Temperature Sensor (Platinum)	152	1500Kpa	4	Ceramic Piezoresistive sensing element									5	G1/4" (BS5380) male		
		202	2000Kpa											6	G1/8" male		
		352	3500Kpa											7	G1/4" (ISO 1179 / DIN 3852) male		
		402	4000Kpa														

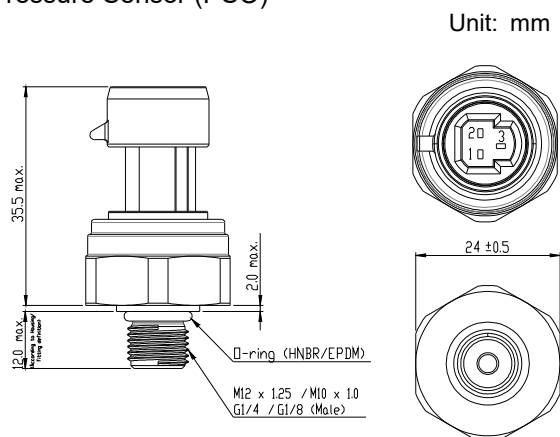
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Structure and Dimensions

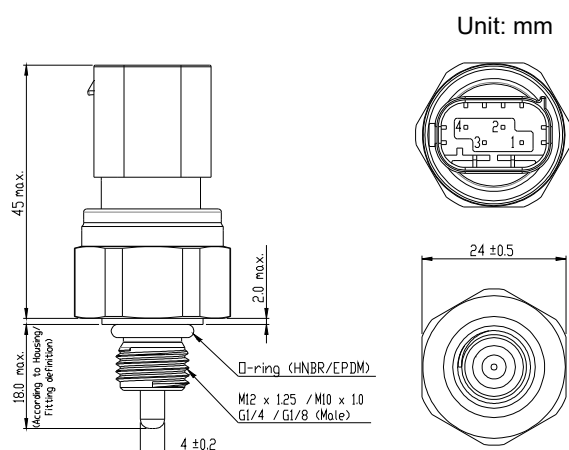
Pressure Sensor (PSO)



Pin Assignment

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

Pressure and temperature sensor (PSN)

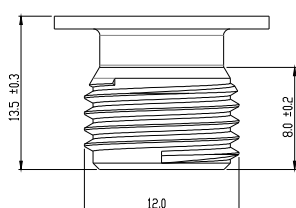


Pin Assignment

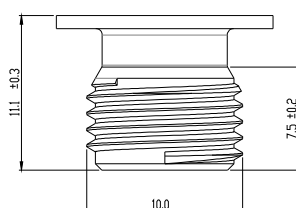
Connector	4 pin AMP: 967439-1	
	Pin No.	Assignment
	1	V _{supply} (-)
	2	V _{out}
	3	R _{NTC} NTC signal output
	4	V _{supply} (+)
Mating Connector	1-967640-1 (TE)	

Pressure Port Type

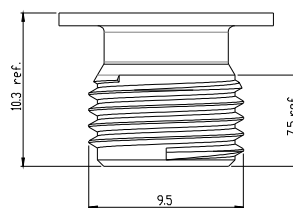
M12 x 1.25 (Male) (ISO 6149)



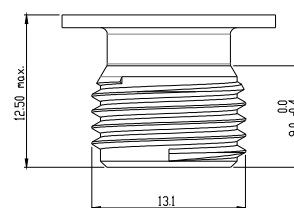
M10 x 1.0 (Male) (ISO 6149)



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



G1/4 (Male) (BS 5380)



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■ Electrical Characteristics

Pressure Sensor	Specifications
Excitation (Vexc)	4.9 to 5.1 VDC
Operating Current	10 mA max. @ 5V
Pressure Range	0 – 20 bar
Output	0.5Vdc (0 KPa) to 4.5Vdc (2000 KPa)
Accuracy	±1% FS
Total Error Band (-20°C~ +30°C)	±2% FS
Total Error Band (+30°C~ +85°C)	±3% FS
Operating Temperature Range	-40°C to +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	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, $T1 = 25 + (85-25) * 63.2 \% = 62.9\text{ °C}$)

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

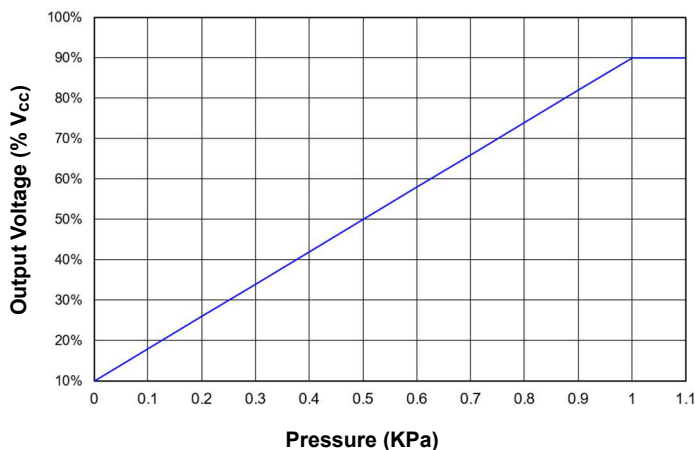
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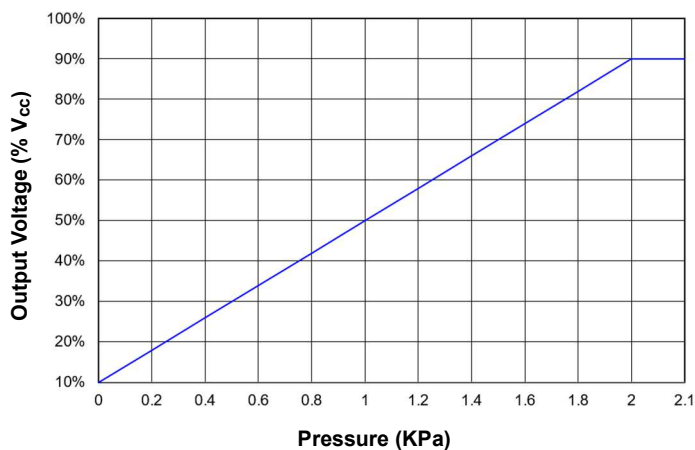


■ Pressure Output Transfer Curve

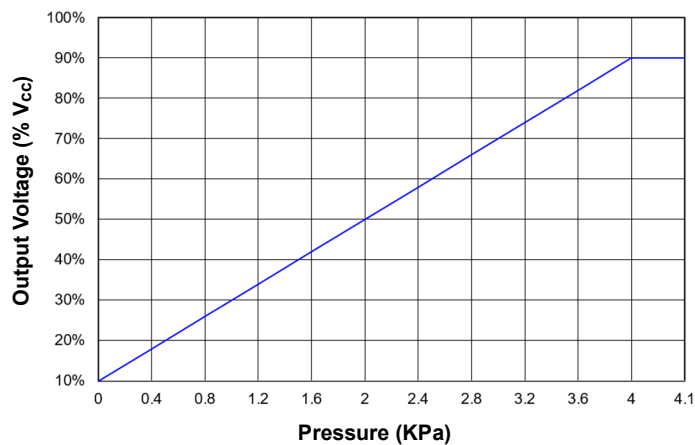
1000KPa Pressure Output Characteristic Curve



2000KPa Pressure Output Characteristic Curve



4000Kpa Pressure Output Characteristic Curve



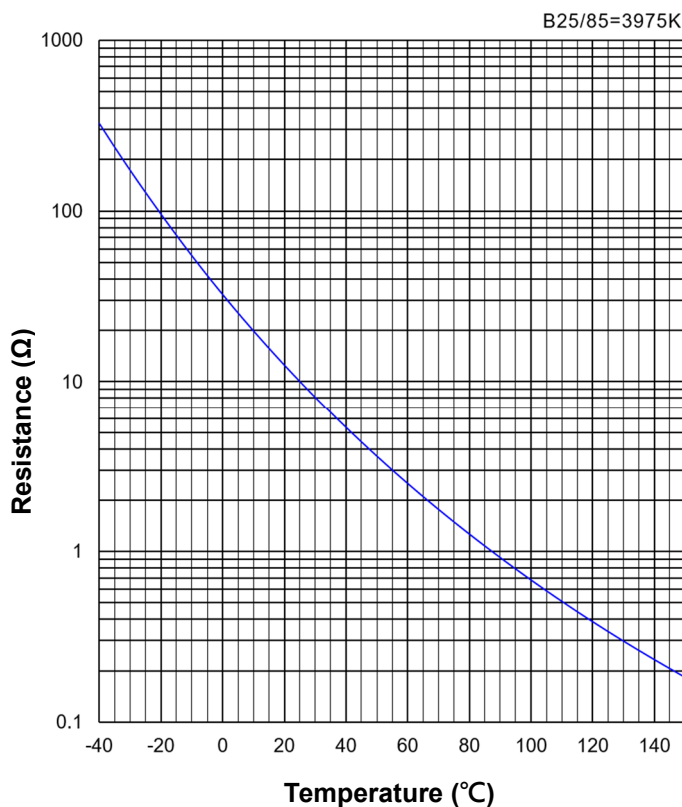
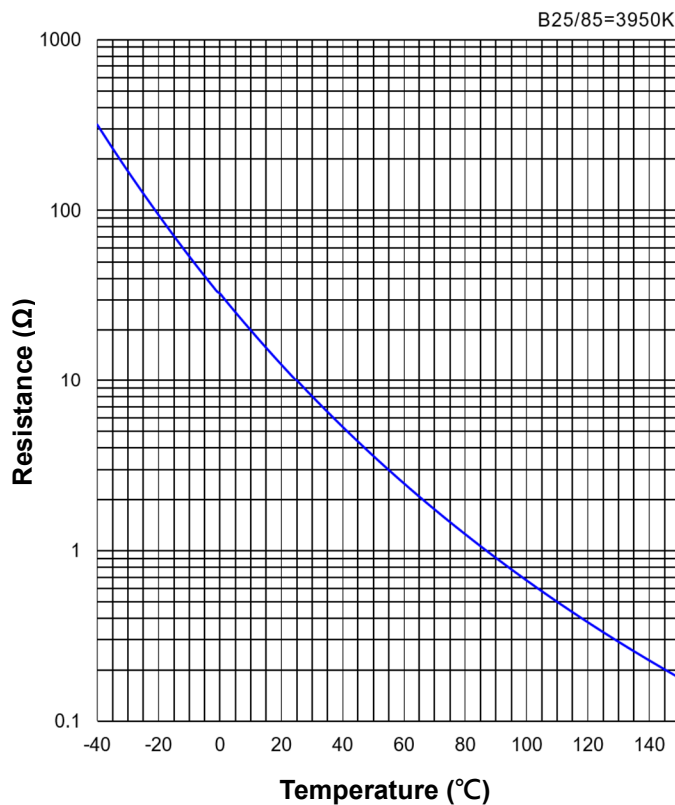
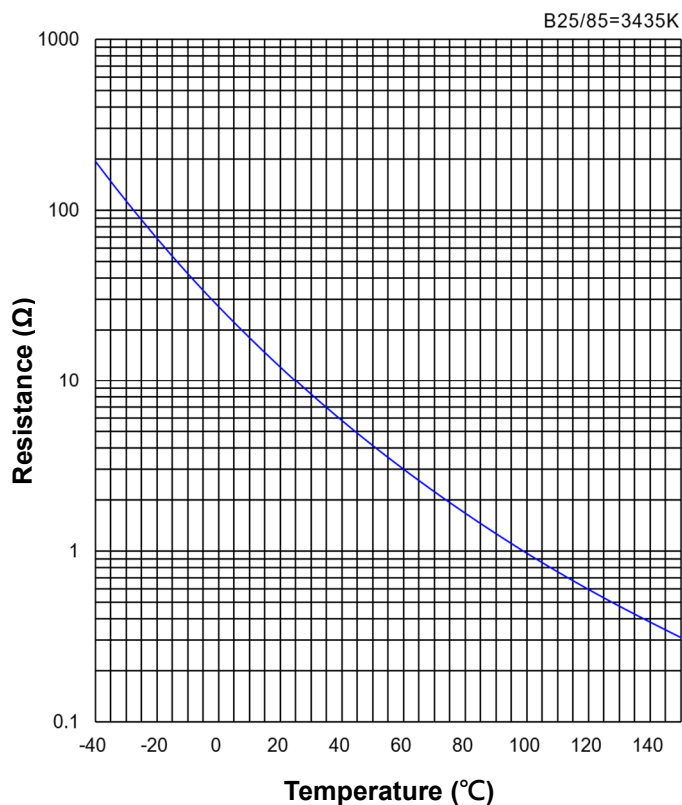
Absolute Output Voltage
 $V_{out} = \frac{P}{250} + 0.5$
 V_{out} : Output voltage
 V_{cc} : 5.0VDC
P: Input pressure (KPa)

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■ R-T Characteristic Curves



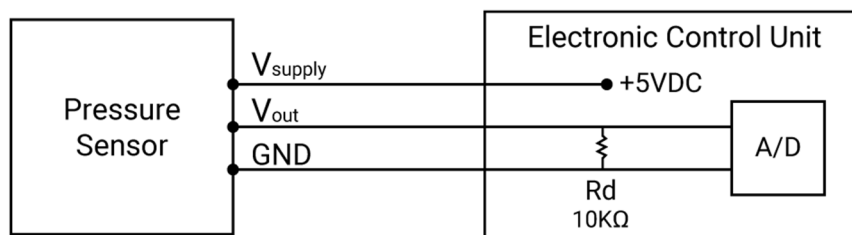
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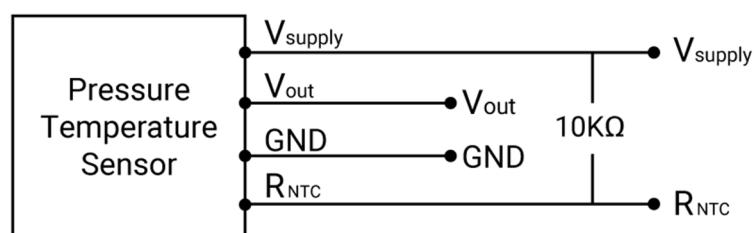
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■ Electric Scheme

- Pressure Sensor



- Pressure and Temperature Sensor



■ Mounting Torque

Suggested installation torque: 8 ± 1 N*m