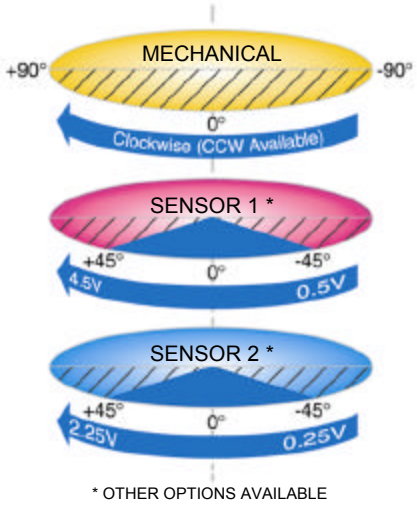
Dual Output Hall Effect Sensor
Fully Redundant, Non-Contacting Rotary

9900 Series

The BEI Sensors 9900 Series offers a non-contacting Hall effect sensor in a rugged design, ideally suited for tight packaging constraints while providing superior reliability and durability. Unlike most similar products, the 9900 provide the full redundancy of two independent Hall detectors in a common package (single output sensors also available). Each Hall detector is rigidly supported to meet the severe durability requirements of demanding applications as automotive and off-highway. Rotating sintered magnets enable the stationary detectors to perform with improved accuracy and reliability, including excellent temperature stability and corrosion resistance. One-time factory programmability allows for greater flexibility in design and custom outputs.

Fully sealed, (meeting and/or exceeding IP66/IP67 standards) the 9900 is impervious to contamination and moisture. An integrally molded, 6-pin connector makes a sealed connection with industry standard Packard Electric connectors.



* OTHER OPTIONS AVAILABLE

9900 Series Features:

Rotating magnet/Fixed sensor configuration
Provides improved accuracy and reliability

Two independent outputs for redundancy
Full redundancy assures back-up safety

Fully programmable
Outputs; offset, gain, slope and temperature compensation

Sintered Alnico-8 magnets
Provide excellent temperature stability and corrosion resistance

Ratiometric Output

Factory programming through connector
After completion of assembly provides high accuracy

Sealed construction
IP66/IP67, 6-pin I/O Interface to Packard Electric Connector

Extended temperature range
-40º to +150ºC available optionally

Return spring (CW standard, CCW optional)
Eliminates mechanical backlash

Extended operating life
35 million operational cycles

Ordering Information:

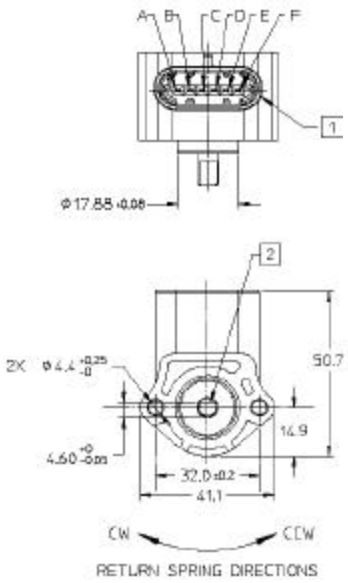
990X XXX XX XX
- Temperature Rating: Blank = Standard 85C, HT = 125C
- Spring Return: CW = Clockwise, CCW = Counter Clockwise, NS = No Spring Return
- Electrical Angle: ie. 090 = ±45°, 120 = ±60°
- Number of Sensors: 1 = Single Output, 2 = Dual Output

SAMPLE: 9902 090 CW
- Standard 85C
- CW = Clockwise Spring Return
- 090 (±45°) Electrical Angle
- Dual Output

BEI SENSORS

ISO9001 Certified/QS9000 Registered

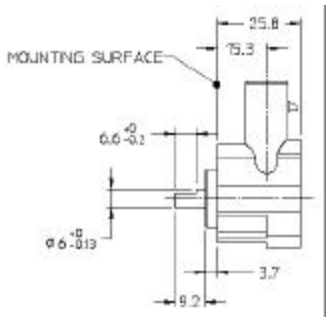
Dual Output Hall Effect Sensor
9900 Series



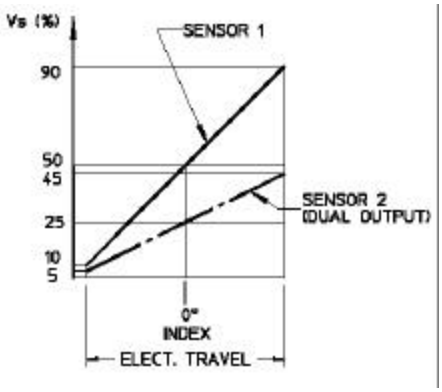
1 Connector mates with Packard Electric METRI-Pack 150.2 series (pull-to-seat 6 pin sealed connector assemblies) (i.e. 12162261, 12162260 or 12162210)

2 Shaft flat is shown with:
sensor 1 output at 50% Vs (input voltage).
sensor 2 output at 25% Vs (input voltage).

CONNECTOR PIN OUTPUT		
	SENSOR 1	SENSOR 2
Vs (input)	F	B
GROUND	E	A
OUTPUT	C	D



NOTE: All dimensions are shown in millimeters.



(Typical Sensor Output)

Mechanical Specifications

Mechanical Travel	-90° to +90° (180° total rotation)
Frequency Response	1,000Hz minimum
Rotational Torque	0.025 – 0.110 N-m
Weight	35 grams (approx.)

Electrical Specifications

Mechanical Input Range	-45° to +45° (other angles available)
Input Voltage	5.0 V ±0.25V DC
Input Current	10mA maximum per output 20mA maximum total
Sensor 1 Output	0.5V - 4.5V
Sensor 2 Output	0.25V – 2.25V (Different output voltage range for sensor outputs available as a custom option)
Accuracy	±2.0% of full scale at room temperature ±3.0% of full scale over operating temperature range
Resolution	Analog (continuous)

Environmental Specifications

Electromagnetic Compatibility	100V/meter, 14kHz – 1GHz range
Vibration	10G peak, 20 – 2,000 Hz
Shock	50Gs, half sine pulse, 5 m sec duration
Side Load	1kg for 1 million cycles
Operating temperature range	-40°C to +85° C (wider operating temperature –40° to +150°C available as a custom option)
Storage temperature range	-55°C to +105°C (-55°C to +165°C)