9360 SERIES

SINGLE AND DUAL OUTPUT ROTARY POSITION SENSOR

Introduction

The 9360 Series rotary sensor is a non-contacting Hall effect device with up to 360° of rotation and single or dual outputs. This rugged design is ideally suited for continuous rotation applications where reliability and durability are a priority. The sensor provides absolute position at power on and offers two completely isolated outputs. The packaging is similar to other BEI® devices and meets the severe durability requirements that are typical in off-highway and agriculture environments. This combination of magnet, sensor and sealed packaging offers excellent temperature stability and corrosion resistance. The sensor can be configured for Analog (voltage) or PWM output. These programmability features are configured at the factory and allow for greater flexibility in creating custom limited electrical angle outputs (i.e.±20° degrees for full scale) with short turnaround times.
Fully sealed, (meeting and/or exceeding IP67 and IP69K standards) the 9360 is resistant to contamination and moisture. An integrally molded 6-pin Metri-Pack or Ampseal connector makes a sealed connection with industry standard mating connectors. The 2 outputs are available in either inverse option (9360) or direct option (9362).



Features

- Fully programmable: The standard sensor provides 15°-360° electrical degrees. Multiple outputs with limited electrical angles up to 360° and temperature compensation are also available
- Compression molded Neodymium magnets: Provide excellent temperature stability and corrosion resistance
- Ratiometric analog output or PWM output: Reduced sensitivity to voltage changes
- Factory programming through connector: Allows for quick turn-around on custom electrical angles
- Sealed construction: IP66 / IP67, 6-pin I/O interface to Packard Electric Metri-Pack Pull-to-Seat 150.2 Series P/N 12162261 or P/N 12162260 connector; Ampseal 16 - 6 position, P/N 776433-1sealed receptacle housings 2-Row
- Temperature range: -40° to +125°C standard
- Operating life: 35M cycles; Over one million cycles at 1kg side load

SPECIFICATIONS

Mechanical

Range	0° to 360° with no stops/no spring,allowing for continuous rotations*
Spring/Rotor Return Direction Options	0° to 180° with spring return options 1 & 2; 0° to 360° with no spring option 3 (other, custom limited angles ranges available)
Mounting	2 x 4.5mm Ø on 32mm centers
Shaft	6mm Ø with 4.6mm flat
Termination	Metri-Pack or Ampseal
Housing	Glass filled PBT (Polybutylene terephthalate)
Life	35 M cycles; 1 M cycles w/1kg side load
Frequency Response	1 kHz minimum
Rotational Torque	0.025 - 0.110 N-m
Weight	35 grams (approx.)

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Electrical

Active Electrical Angle	15° to 360° in 15° increments (no spring option). 15° to 165° in 15° increments (spring option)
Input Voltage	5.0 V±0.25V DC
Overvoltage Protection	20V
Reverse Polarity Protection	Yes
Short Circuit Protection	10VDC
Output Signal	5% to 95% Analog Ratiometric/PWM*
Resolution	12 Bit
Accuracy	±0.6% of full scale at room temperature ±0.9% of full scale over operating temperature range
EMC	100 V/m (14 kHz-1 GHz range)
ESD	8kV
Input current	18mA maximum per output 36mA maximum total (both channels)

Environmental

Sealing	IP67 and IP69K per DIN 40050-9
Vibration	10G peak, 20 - 2,000 Hz
Humidity	95% RH @ 40° C
Liquid Exposure	Salt water, cola, motor oil, ethylene glycol, paint, diesel fuel
RoHS	Yes
Operating Temperature Range	-40°C to +125°C
Storage Temperature Range	-40°C to +125°C
Shock	50Gs, half-sine pulse, 5 msec duration

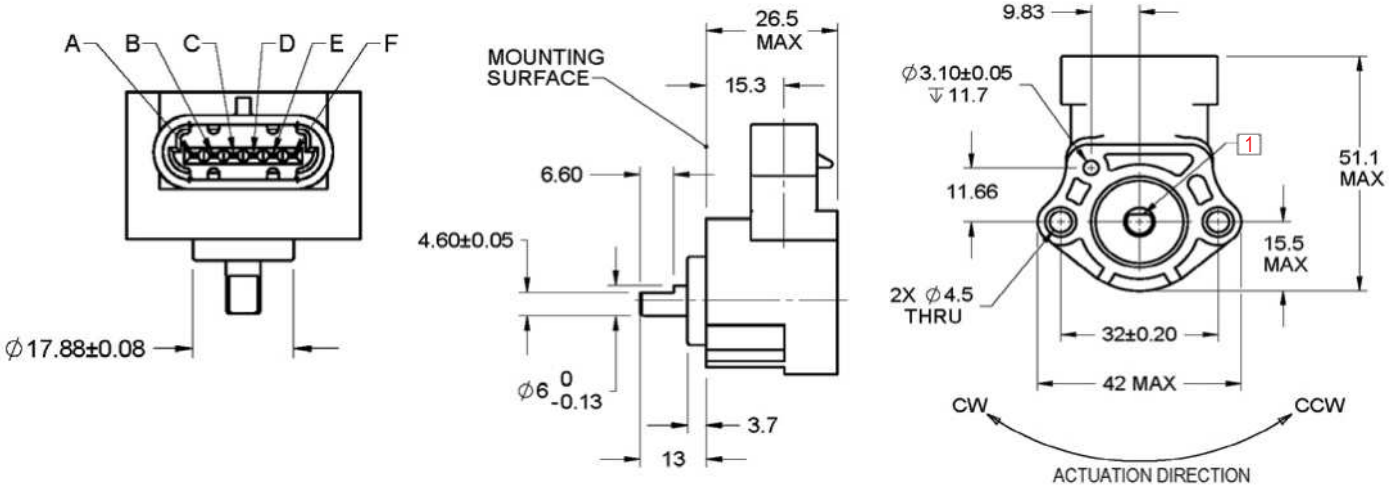
*Different outputs and mechanical range(s) available

DIMENSIONS

TOLERANCES, UNLESS OTHERWISE NOTED: x.x= +/- 0.3 x.xx= +/- 0.13

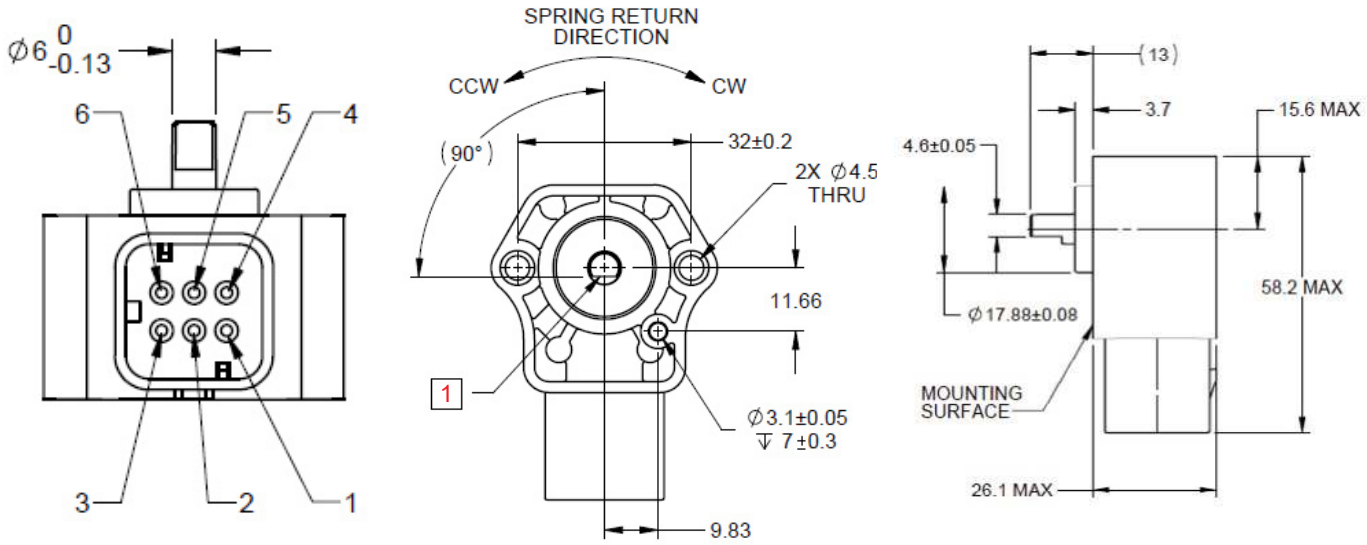
All dimensions are in millimeters

MetriPack connector (9360, 9361 & 9362 Option)

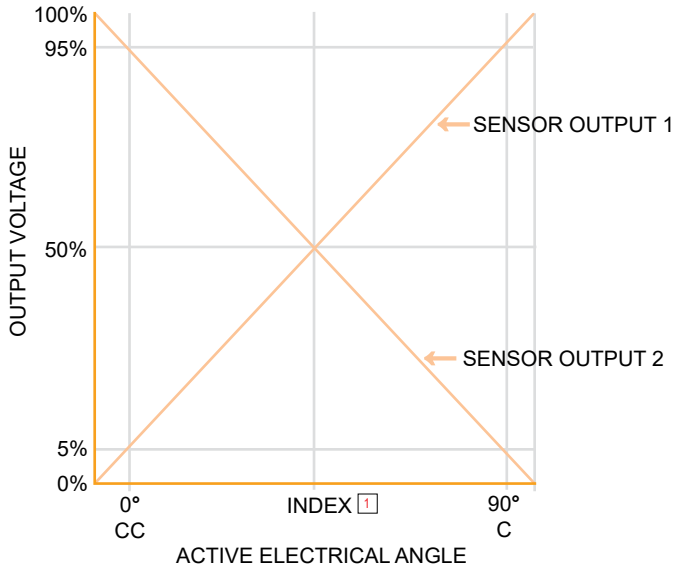


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Ampseal connector (9360A Option)



Output signal 9360

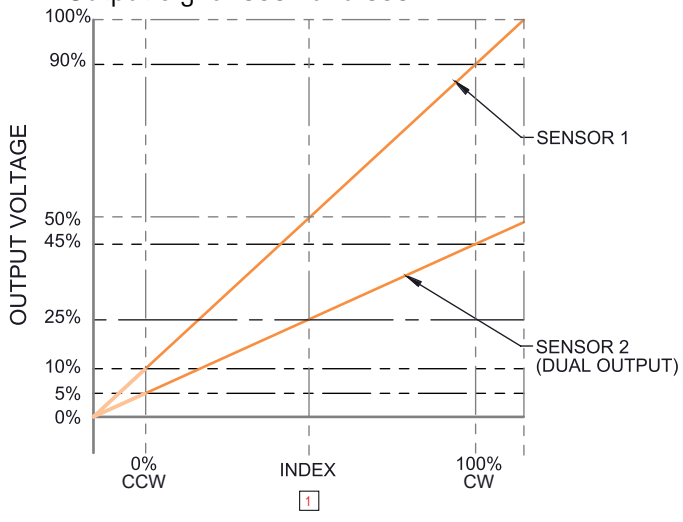


Connector Pin Outputs 9360

	METRI-PACK		AMPSEAL	
	SENSOR 1	SENSOR 2	SENSOR 1	SENSOR 2
Vs	F	B	1	4
OUTPUT	C	D	2	5
GROUND	E	A	3	6

1 SHAFT FLAT IS SHOWN WITH SENSOR AT 50%±3% VOLTAGE (INDEX)

Output signal 9361 and 9362



Connector Pin Outputs 9361 and 9362

	METRI-PACK	
	SENSOR 1	SENSOR 2
Vs	F	B
OUTPUT	C	D
GROUND	E	A

1 SHAFT FLAT IS SHOWN WITH SENSOR 1 AT 50%±3% VOLTAGE (INDEX)
SHAFT FLAT IS SHOWN WITH SENSOR 2 AT 25%±3% VOLTAGE (INDEX)

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ORDERING OPTIONS

Use this diagram, working from left to right to construct your model number

9360 - - -

Family

9360: Dual Channel - Inverse Outputs
9361: Single Channel
9362: Dual Channel - Direct Outputs

Termination

Blank: Metri-Pack
A: Ampseal 16 - 6 position (for 9360 only)

Standard Electrical Angles

015 = +/- 7.5°; 030 = +/-15°; 045= +/- 22.5°,
060 = +/- 30°, etc. up to 360 = +/- 180°
NOTE: Other angles available, consult factory

Spring/ Rotor Return Direction

1: Counter Clockwise Spring Return
2: Clockwise Spring Return
3: No Spring, Continuous Rotation
*Spring return: available for active electrical angles
15° to 165° only

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