

# NCAPS<sup>®</sup> Thin Profile Non-Contacting Angular Position Sensor

# 7000 Series

BEI now offers a standard, 360°, sealed, non-contacting rotary position sensor. This latest NCAPS<sup>®</sup> Thin Profile sensor is an off-the-shelf product ready to incorporate into multiple applications including; motor control, rotary position or steering angle.

This sensor offers all the advantages of the original NCAPS<sup>®</sup> such as true 360° absolute position sensing, one moving part, high tolerance to shaft misalignment and contamination. In addition to the above, this version features a sealed package, self-diagnostics, and multiple programmable outputs all in a thin profile. This shaft driven design incorporates a standard, “D-shape” one-inch diameter thru hole and a Packard Electric connector.



## NCAPS<sup>®</sup> Thin Profile Features

### Principle

Measurement of phase shift rather than magnitude of coupling signal

### Packaging Configurations

Sensor offered with or without housing for simple system integration

### Self-Diagnostics

Open, short circuit, and other failure conditions flagged with specific error codes

### Multiple Outputs

Each sensor can be programmed to give PWM, Analog, Saw Tooth or Dual Triangle outputs (see “Standard Outputs” on reverse side), up to 4 functional output channels per sensor

### Continuous 360° Signal

No “cross-over” or “dead-band” from 0 to 360 (using Triangle outputs)

### Integral Connector

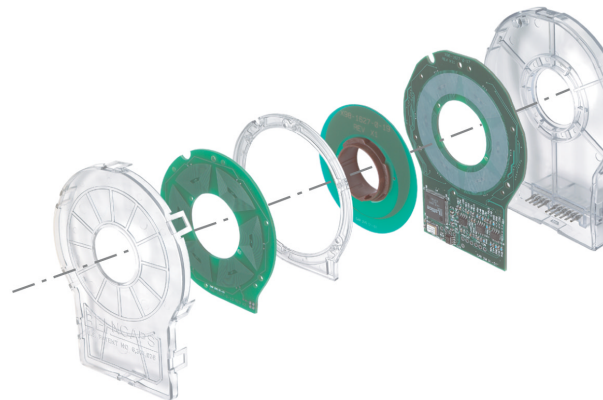
6-pin integrated I/O connector (mates with Packard Electric part no. 12064993) / 4-pin (for factory programming only)

### Sealed Housing

Housing designed to meet SAE J1455 specification sealing requirements (as it applies to automotive steering applications)

### Ultra Low Torque

Very low torque required to drive sensor

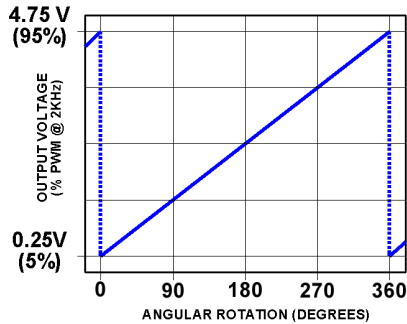


→ ← **Thin Profile**  
Less than 8mm  
(.315 in.)  
without housing

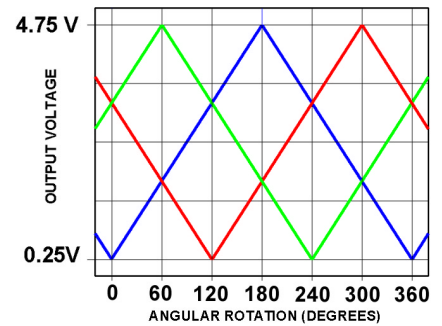
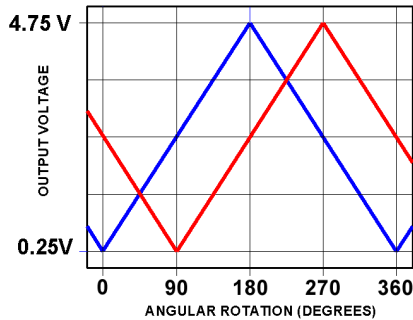


# NCAPS® Thin Profile 7000 Series

## Standard Outputs:



All outputs are generated from a Digital PWM Signal



Note: Modified outputs available in high quantity orders (typically >500 units)

## Electrical Specifications

Mechanical Input Range

Input Voltage

Input Current

Sensor Output

Accuracy/Linearity

Resolution

Frequency Response

Continuous 360° rotation

5.0V ±0.25Volts DC Standard

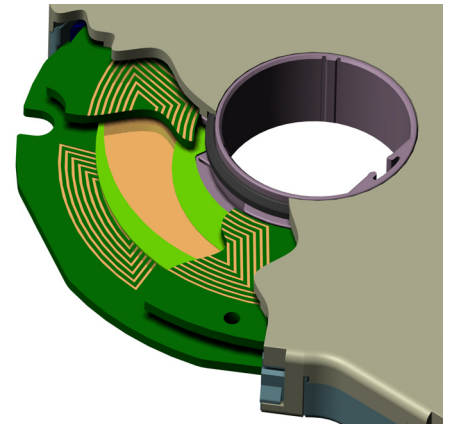
100mA maximum

Ratiometric

±1.5% MAX

Continuous analog/Less than 0.01  
mechanical degrees

100Hz minimum



## Environmental Specifications

Electromagnetic Compatibility

Vibration

Humidity

Operating temperature range

Storage temperature range

100V/meter, 15kHz – 1GHz range

Designed to meet stringent automotive and heavy equipment industry standards

90% relative humidity, non-condensing

-40°C to +85°C (Extended ranges available)

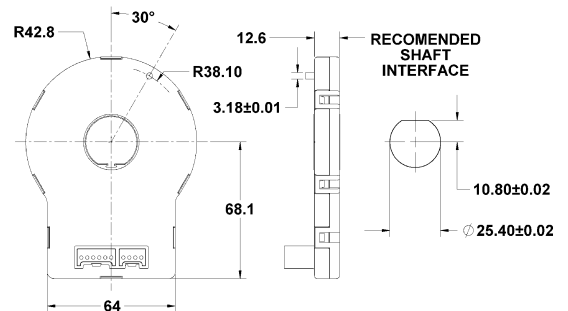
-50°C to +100°C

## NCAPS® Internal Assembly

Shown  
without  
housing



## Mating Shaft Interface



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