

# Angle Position Sensors

## AN8 Sensors

Programmable, non-contact magnetic position sensors capable of continuous rotation



### Description

The AN8 Series sensors are non-contact, intrinsically linear angle position sensors. The sensors operate through the use of Hall Effect technology with magnetic fields generated by permanent magnets. They provide a linear change in voltage output (ratiometric to the input voltage) corresponding to an angular rotation of the input shaft.

### Features

- Angular position sensor with high tolerance for misalignment
- Non-contact angular position sensing and full 360° rotation
- Custom programming available for: angle range, slope, PWM output, custom magnets – contact factory
- No mechanical interface means no parts to wear out or jam
- Available with Delphi connector or 12" (305 mm) wire leads
- RoHS compliant
- IP67
- Maximum air gap of 5.5 mm (0.22")\*

### Typical Applications

- Implement (fork lift, agricultural trailer hitch, etc.) position sensing
- Steer, throttle by wire
- Gear selection
- Zero-contact encoder alternative
- Replacement for smart bearings
- Outboard trim sensing

### Environmental Specifications

Vibration	6g sinusoidal, 8 g RMS axial; 40Hz – 2 kHz all 3 axes
Operating Temperature	-40 °C to 125 °C (-40 °F to 257 °F) with Delphi connectors, -40 °C to 150 °C (-40 °F to 302 °F) with wire leads
Storage Temperature	-40 °C to 150 °C (-40 °F to 302 °F)
Ingress Protection	IP67

### Electrical Specifications

Input Voltage	5.0 VDC $\pm$ 10%
Output Voltage	10% to 90% of input (see graph for voltage vs. rotation angle characteristics)
Input Current	14 mA typ., 16 mA max.
Output Current	-8 mA to 8 mA
Output Accuracy	$\pm$ 3.5%
Output Linearity	$\pm$ 3.5%
Maximum Overvoltage	16 VDC
Absolute Max. Output Current	$\pm$ 30 mA
Output Type	Analog (PWM available)

### Mechanical Specifications

Housing Material	Glass Reinforced Plastic
Mechanical Travel	0° to 360° (continuous)
Mating Connector	Delphi Metri-pak 150.2 12162185; Terminal 1214075 / 2047680
Maximum Air Gap*	5.5 mm (0.22")
*with AS500106 magnet carrier	
Maximum Center-To-Center Offset	2 mm radial (magnet to center)

[www.switches-sensors.zf.com](http://www.switches-sensors.zf.com) ZF Electronics Systems Pleasant Prairie, LLC ("ZF") acquired the rights to the CHERRY branded switches and sensors in 2008. Although ZF divested its interest in the CHERRY name in 2015, the switches and sensors remain unchanged and are now sold under the ZF brand.

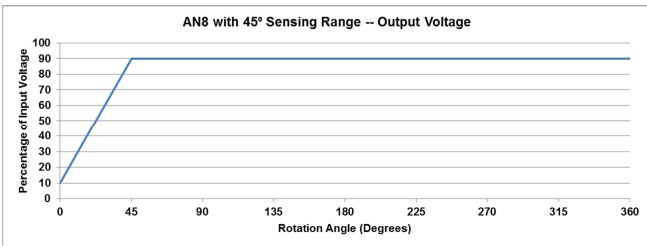
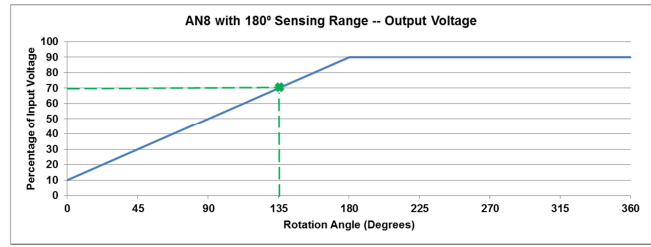
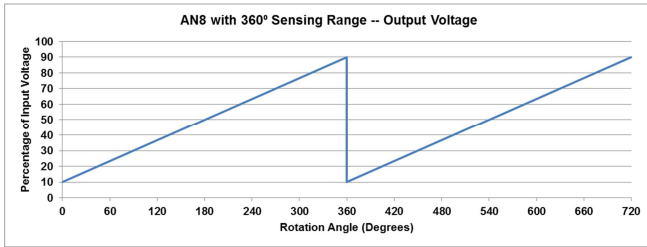


## Products

Part Number (Sensor)	Sensor (incl. AS500106 magnet)	Sensing Range	Wires	Connectors	Terminals
AN820001	CU103601	180°	N/A	Packard Metri-pack	1214075 / 2047680
AN820002	CU103602	360°	N/A	Packard Metri-pack	1214075 / 2047680
AN820003*	CU103603	45°	N/A	Packard Metri-pack	1214075 / 2047680
AN820031	-----	180°	18 AWG x 305 mm (12")	N/A	N/A
AN820032	-----	360°	18 AWG x 305 mm (12")	N/A	N/A
AN820033*	-----	45°	18 AWG x 305 mm (12")	N/A	N/A

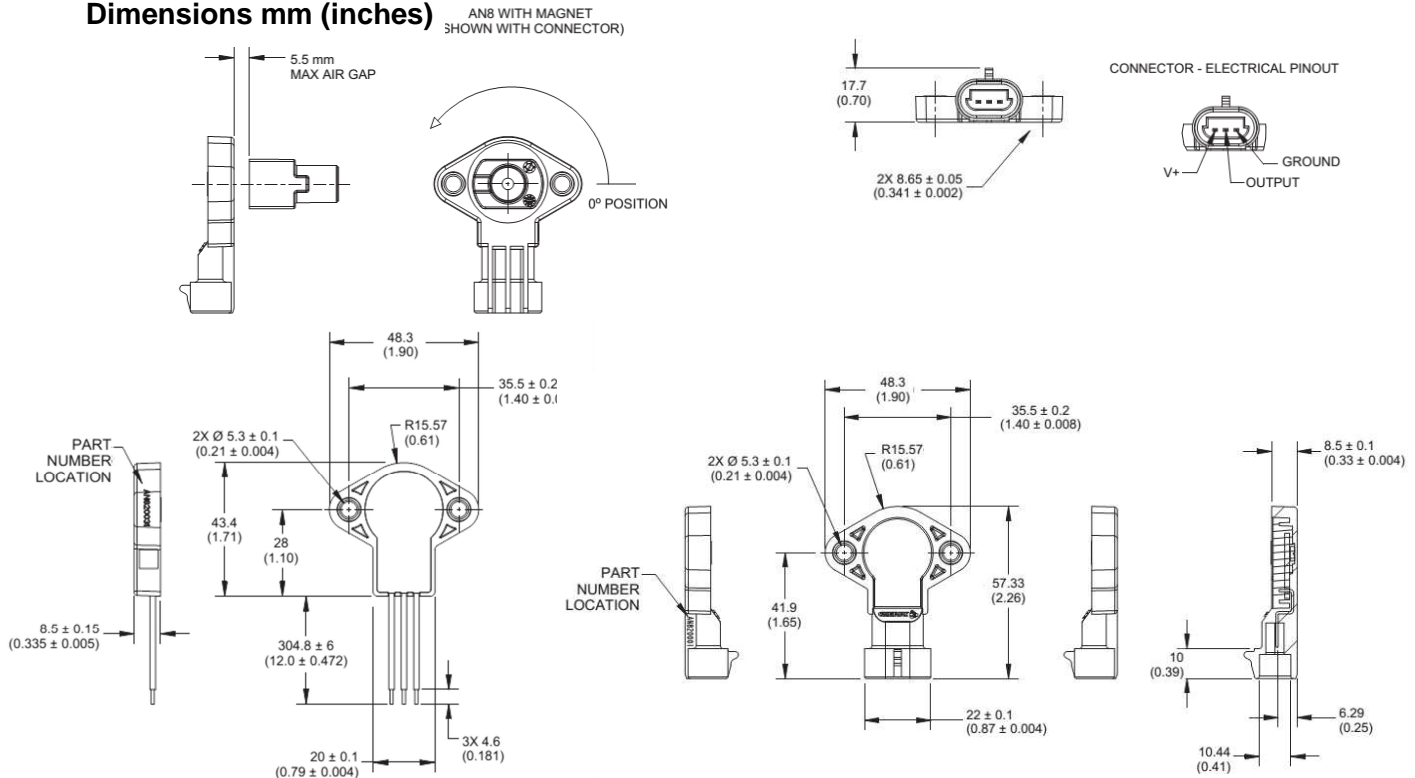
\*Not commonly stocked

## Sensor Output



These charts show the output voltage as a percentage of the input voltage for a given angle of rotation.  
 Example: 180° sensing range, magnet rotated 135°, output voltage will be 70% of input voltage (see dashed lines in graph above).

## Dimensions mm (inches)



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