

# Angle Position Sensors

## AN9 Sensors

Thin, programmable, non-contact magnetic position sensors capable of continuous rotation with dual outputs



### Description

The AN9 Series sensors are non-contact, intrinsically linear angle position sensors with two independent outputs. 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
- Dual independent (fully redundant) outputs assure high reliability
- Custom programming available for: angle range, slope, PWM output, custom magnets – contact factory
- No mechanical interface means no parts to wear out or jam
- Comes with 18 AWG 305 mm (12") wire leads
- RoHS Compliant
- IP68\*
- 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	15g sinusoidal, 9.26g RMS axial; 40 Hz – 2 kHz all 3 axes
Operating Temperature	-40 °C to 125 °C (-40 °F to 257 °F)
Storage Temperature	-40 °C to 150 °C (-40 °F to 302 °F)
Ingress Protection	IP68*

\*submerged in 22±3 °C water for 1 hour at 2 m depth

### Electrical Specifications

Input Voltage	5.0 VDC ± 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	±3.5%
Output Linearity	±3.5%
Maximum Overvoltage	16 VDC
Absolute Max. Output Current	±30 mA
Output Type	Analog (PWM available)

### Mechanical Specifications

Housing Material	Glass Reinforced Plastic
Mechanical Travel	0° to 360° (continuous)
Maximum Air Gap**	5.5 mm (0.22")
**with AS500106 magnet carrier	
Maximum Center-To Center Offset	2 mm radial (magnet to center)

Note: When used with AS500106 Magnet Carrier; user is responsible for determining characteristics when using other magnets.

### Products

Sensing Range

Wires

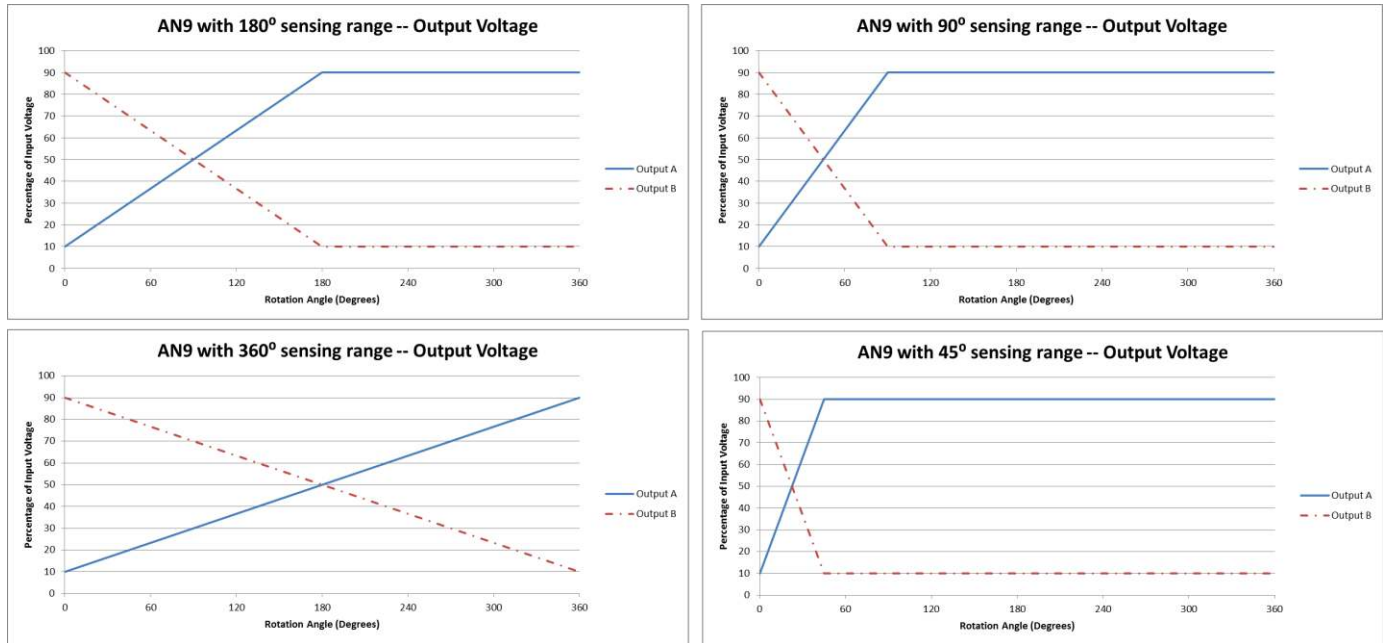
[www.switches-sensors.zf.com](http://www.switches-sensors.zf.com)



**Part Number (Sensor)**

AN920031	180°	18 AWG x 305 mm (12")
AN920032	360°	18 AWG x 305 mm (12")
AN920035	45°	18 AWG x 305 mm (12")
AN920036	90°	18 AWG x 305 mm (12")

**Sensor Output**



**Dimensions mm (inches)**

