

Panel Mount, Single Output, Non-Contact Angle Sensors

Features

- Long life of 50 million cycles
- Reliable, durable magnetic circuit, Hall IC technology
- Ø28mm panel mount, single output, non-contacting angle sensors
- 360° (endless) rotational angle
- 0.08W power rating
- Clamp voltage range of 0.4V to 4.6V
- Low impedance allows low load resistance
- No sliding electrical contacts, no dither input
- Detection of disconnection and failure in the diagnostic domain at the upper and lower ends of output
- Waterproofing available as an option
- Optional built-in magnet shield to reduce interference from external magnetic field and to isolate sensors from magnetic noise found in nearby motors
- Customizable detection angle and gradient polarity available as an option
- RoHS compliant
- Washer and hexagonal nut mounting hardware included

Applications

- Electric vehicles, i.e. pedal and steering positions, a variety of undercarriage electronically controlled devices
- Construction /Agricultural machinery, i.e. angle detection of rotating parts
- Medical equipment, i.e. electric wheelchairs, precision positioning equipment for patient diagnosis or surgery
- Other applications requiring magnetically operated angle detection, high reliability and very long life

Electrical Characteristics

Supply Voltage	5 ± 0.5V
Current Consumption	≤ 16mA without load
Power Rating	0.08W
Electrical Rotational Angle	20° to 360°
Linearity	≤ 1% Full Scale
Output Voltage	0.4V to 4.6V at Vdd = 5.0V
Minimum Clamp Voltage	0.4V at Vdd = 5.0V
Maximum Clamp Voltage	4.6V at Vdd = 5.0V
Load Resistance	10kΩ
Maximum Rated Voltage	12V
Maximum Reverse Voltage	0.3V
Hysteresis	≤ 0.2% Full Scale
Resolution	1.25mV at Vdd = 5.0V



Mechanical Characteristics

Mechanical Rotational Angle	360° (endless)
Rotational Torque	≤ 5mN·m (≤ 51gf·cm, 0.708 oz·in)
Push Shaft Strength	≤ 98N (static load in vertical direction)
Pull Shaft Strength	≤ 98N (static load in vertical direction)
IP Rating	IP50, IP65 (Option)

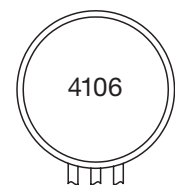
Environmental Characteristics

Operating Temperature Range	-40°C to +125°C
Storage Temperature Range	-40°C to +125°C
Rotational Life	50 million cycles
Temperature Cycle	-40°C ⇄ +125°C, 100 cycles
Low Temperature Exposure	-40°C, 1,000 hours
High Temperature Exposure	+125°C, 1,000 hours
Vibration	25G, 10-2,000Hz, 12 hours
Shock	100G, 3ms, 18 times
Electromagnetic Susceptibility	200 V/m, 1MHz to 1GHz
Electrostatic Discharge	±8kV contact discharge, ±15kV air discharge, IEC-61000-4-2

Marking

Manufacturing Date 4-Digit Code

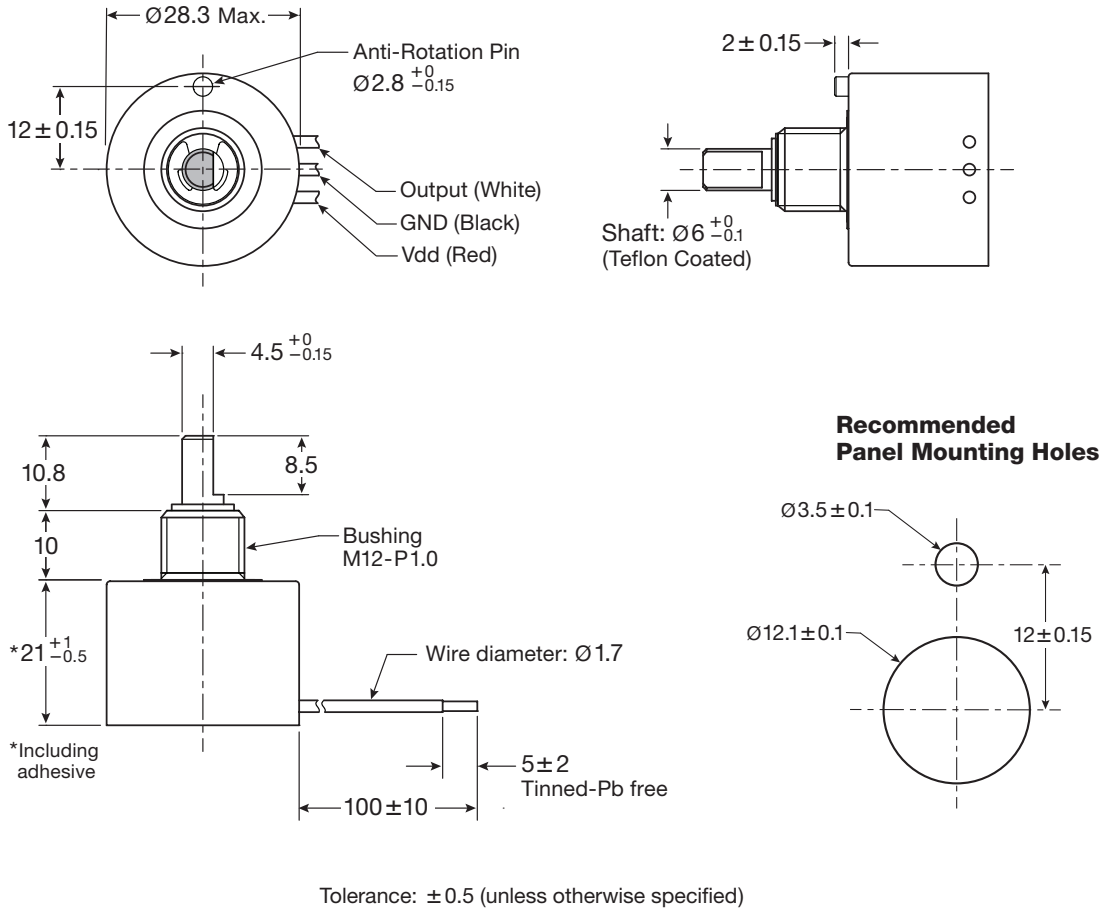
- 4 = Last Digit of the Year (one digit)
- 1 = Month (one digit or letter):
 - 1 – 9 Jan to Sep
 - X = Oct
 - Y = Nov
 - Z = Dec
- 06 Day of the Month (two digits)



Rear View

Unit: mm

Dimensional Drawings and Tolerances

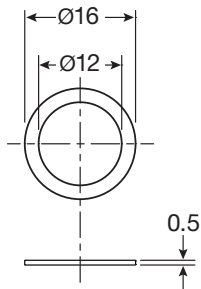


Mounting Hardware

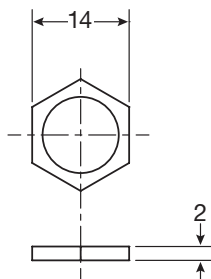
Flat Washer and Hexagonal Nut

Unit: mm

Flat Washer
Material: Cold Rolled Steel,
Ni Plating

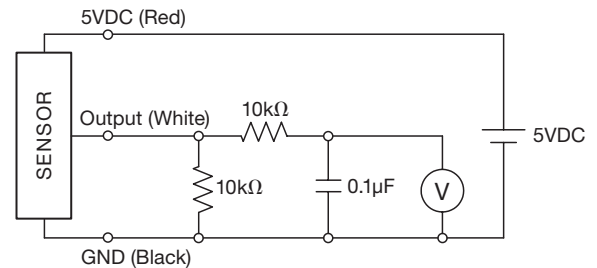


Hexagonal Nut
Material: Carbon Steel Wire
Rods for Cold Heading,
Trivalent Chromate Plating

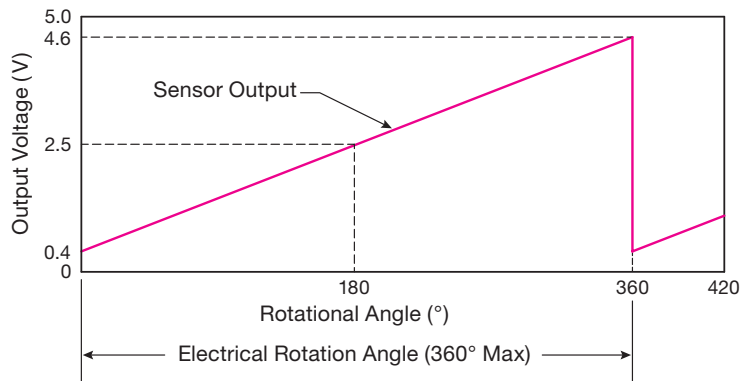


Electrical Schematic

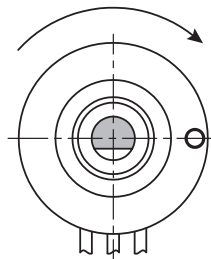
Evaluation Circuit



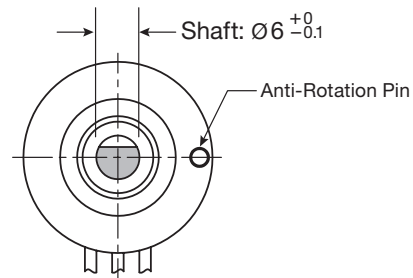
Output Characteristics



Direction of Output Increase (CW)



Output 0.4V (0°)



Output 2.5V (180°)

Shaft: $\varnothing 6^{+0}_{-0.1}$

Anti-Rotation Pin

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