

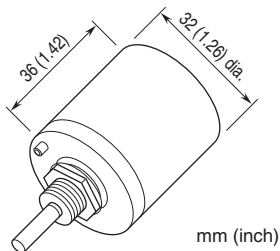
## Position Sensors

### BRUSHLESS ANGLE SENSOR

(90° use)

#### Functions & Features

- Providing a DC voltage output proportional to rotating angle
- No mechanical contact



### MODEL: NRA-1-T

#### ORDERING INFORMATION

- Code number: NRA-1-T

#### ACTION

1: Direct (the output increases when the input stem, as it is faced, is turned clockwise.)

#### POWER INPUT

**DC Power**

T: 5 V DC

#### RELATED PRODUCTS

- Angle sensor transmitter (model: PNS)

#### GENERAL SPECIFICATIONS

**Material**

**Housing:** ABS

**Shaft:** SUS303

**Leadwire:** UL1007 AWG24, 200 mm (7.87") long

#### INPUT SPECIFICATIONS

**Input:** Mechanical rotating angle

**Effective rotating angle:** Approx. -55° - +55° (110°)

**Linearity-assured range:** -45° - +45° (90°)

**Mechanical rotating angle:** Approx. -55° - +55° (110°)

**Torque:** 0.00147 N·m (0.00108 ft·lbs)

**Stopper strength:** 0.098 N·m (0.0723 ft·lbs)

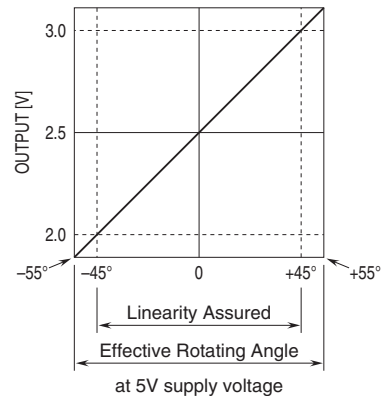
#### OUTPUT SPECIFICATIONS

**Output:** 40 - 60 % of excitation supply (within linearity-assured range)

**Output resistance:** Approx. 12 kΩ

**Output waveform:** Sinusoidal, full-wave rectified

**Output characteristics:** Proportional to the input angle within the linearity-assured range



#### INSTALLATION

**Power input**

- DC: 5 V DC  $\pm 10\%$

**Current consumption:** Approx. 2 mA

**Operating temperature:** -20 to +60°C (-4 to +140°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Environment:** Protect from strong magnetic field.

**Vibration:**  $\leq 2$  G (19.6 m/s<sup>2</sup>)

**Mounting position:** All directions

**Thickness of mounting panel:** 2.5 - 5 mm

(0.10" - 0.20")

**Weight:** 50 g (1.76 oz)

#### PERFORMANCE

"Span" means the output span of linearity-assured range.

**Linearity:**  $\pm 0.5\%$  (of span)

**Accuracy of the span:**  $\pm 7\%$  of excitation supply

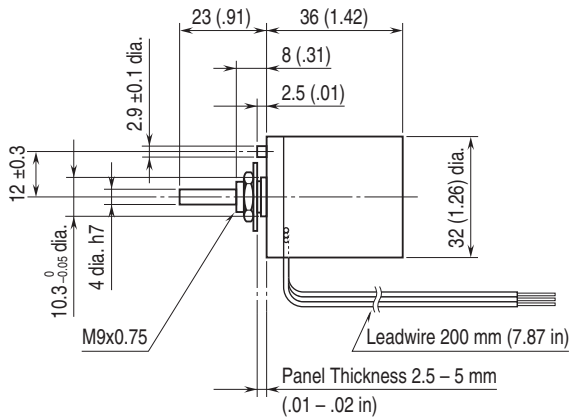
**Output accuracy with 0° input:**  $\pm 1\%$  of exc. supply

**Temp. coefficient:**  $\pm 0.009\%$  / °C ( $\pm 0.005\%$  / °F) or  $\pm 90$  ppm / °C ( $\pm 50$  ppm / °F) of span

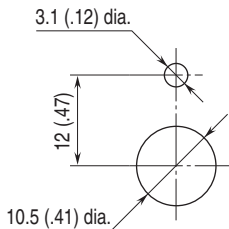
**Resolution:** Infinite

**Dielectric strength:** 1000 V AC @ 1 minute (circuit to housing)

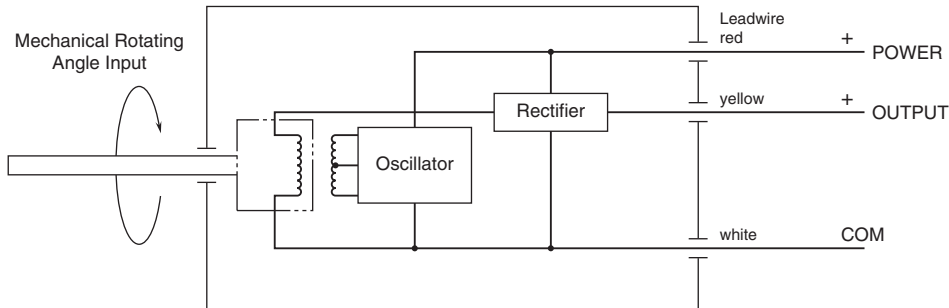
**EXTERNAL DIMENSIONS unit: mm (inch)**



**MOUNTING REQUIREMENTS unit: mm (inch)**



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.