

RSYN

Angular Position Sensor

■ Measurement range $\pm 30^\circ$

■ RVDT

■ Linearity 0.5 %

■ Output signal [supply voltage]

RSYN 8-30: 13 mV/V per $^\circ$ [7.5 Vrms]

RSYN 11-30: 11 mV/V per $^\circ$ [7.5 Vrms]



RSYN angular position sensors are non-contact transducers that incorporate proprietary rotor and coil designs. Their basic construction eliminates items such as slip rings, rotor windings, contact brushes or wipers that degrade over time and impair reliability. At the same time the coil design achieves extraordinarily high output and low noise.

RSYNs offer enhanced tolerance to shock and vibration. Shock survival to 30 g with an 11 ms half-sine form and vibration tolerance to 20 g over 15 to 2000 Hz make these transducers the obvious choice where severe conditions are expected. RSYNs are also resistant to humidity and salt mist. Excellent performance over a temperature range of -67°F to 221°F (-55°C to 105°C) provides a significant advantage over comparable rotary sensors.

RSYN angular position sensors are compact. They are available in two sizes: the RSYN-8-30 which is 0.750 inches (19.05 mm) in diameter, and the RSYN-11-30 which is 1.06 inches (26.92 mm) in diameter. The coil design comprises a primary and two secondary windings all placed in the stator. There are no windings in the rotor. The secondary windings act as pickup coils detecting the flux change caused by rotation of the rotor.

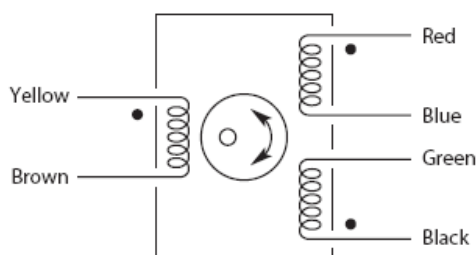
The stator core is a lamination stack of highly permeable magnetic alloy material and the rotor is made of the same material. A very small air gap separates these components. This combination provides for an "all-iron" flux path that provides for very high efficiency resulting in a very high signal to noise ratio and a very low temperature coefficient of scale factor. The linear AC output represents the rotor shaft angle position providing the user with exceptional resolution even over very small angular ranges. Both models offer the flexibility of six output leads to provide for a variety of connection schemes. Both models are factory calibrated over $\pm 30^\circ$. They may be over ranged to $\pm 35^\circ$, a total of 70° if necessary.

■ Applications

Long life and high reliability in aggressively hostile environments such as:

- Rotary Valve Position for Process Industries
- Position Feedback of Head Box Spinnerets' for Paper or Plastic
- Hydrostatic Transmissions for Heavy Off Road Vehicles
- Rudder Position on Boats

■ Wiring



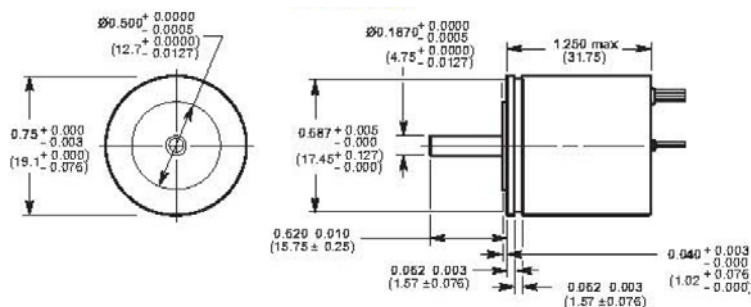
Connect Green to Blue for differential output.

Specifications

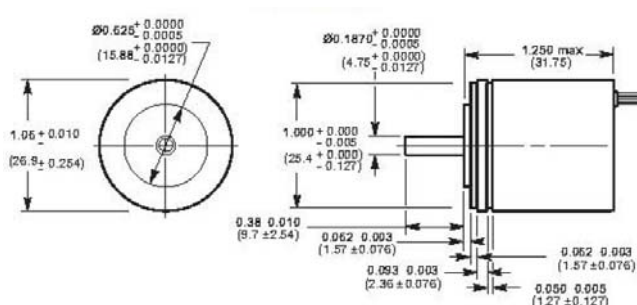
Parameter	RSYN 8-30	RSYN 11-30
Range:	±30°	±30°
Input voltage, nominal:	7.5 V _{rms}	7.5 V _{rms}
Input frequency:	3 kHz	3 kHz
Primary DCR, nominal:	62 Ohm	46 Ohm
Secondary DCR, nominal:	92 Ohm	53 Ohm
Input impedance:	424 Ohm (@ null)	270 Ohm (@ null)
Output impedance:	341 Ohm (@ full scale)	199 Ohm (@ full scale)
Phase shift:	+5°	+7°
Sensitivity:	0.013 V/V per degree, ±5 %	0.011 V/V per degree, ±5 %
Linearity:	±0.5 % of full scale output	±0.5 % of full scale output
Operating temperature range:	-67 ... +221 °F (-55 ... +105 °C)	-67 ... +221 °F (-55 ... +105 °C)
Temperature coefficient of FS:	0.02 %/K	0.02 %/K
Null voltage:	0.5 % of full scale output	0.5 % of full scale output
Shock, 3 axes, ms. half sine	30 g	30 g
Vibration, 3 axes, random, 15 ... 2000 Hz	20 g	15 g
Torque:	0.06 in-oz (0.4 mNm)	0.06 in-oz (0.4 mNm)
Weight:	1.58 oz (45 gram)	2.3 oz (65 gram)
Bearings, matched and preloaded:	ABEC3	ABEC3
Axial shaft bearing load capacity:	10 lbs (4.54 kg)	10 lbs (4.54 kg)
Radial shaft bearing load capacity:	10 lbs (4.54 kg)	10 lbs (4.54 kg)

Dimensions

Model RSYN 8-30:



Model RSYN 11-30:



All dimensions in inches, values in brackets in mm, approx. values.

These drawings are for information only and not intended for construction purpose. Please ask for detailed drawings.

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.