

Rotational Position Transducer

Precision Potentiometric Output
Ranges: 0-90° to 0-50 Turns
Industrial Grade



RT9101



Specification Summary:

GENERAL

Full Stroke Range Options 0-0.25 to 0-50 turns
 Output Signal Options voltage divider (potentiometer)
 Accuracy $\pm 0.50\%$ to $\pm 0.15\%$ full stroke *see ordering information*
 Repeatability $\pm 0.02\%$ full stroke
 Resolution essentially infinite
 Enclosure Material Options powder-painted aluminum or stainless steel
 Sensor plastic-hybrid precision potentiometer
 Potentiometer Cycle Life *see ordering information*
 Shaft Loading up to 35 lbs. radial and 5 lbs. axial
 Weight, Aluminum (Stainless Steel) Enclosure 5 lbs. (10 lbs.) max.

ELECTRICAL

Input Resistance Options 500, 1K, 5K, 10K or bridge, *see ordering information*
 Power Rating, Watt 2.0 at 70°F derated to 0 at 250°
 Recommended Maximum Input Voltage 30 V (AC/DC)
 Output Signal Change Over Full Stroke Range 94% $\pm 4\%$ of input voltage

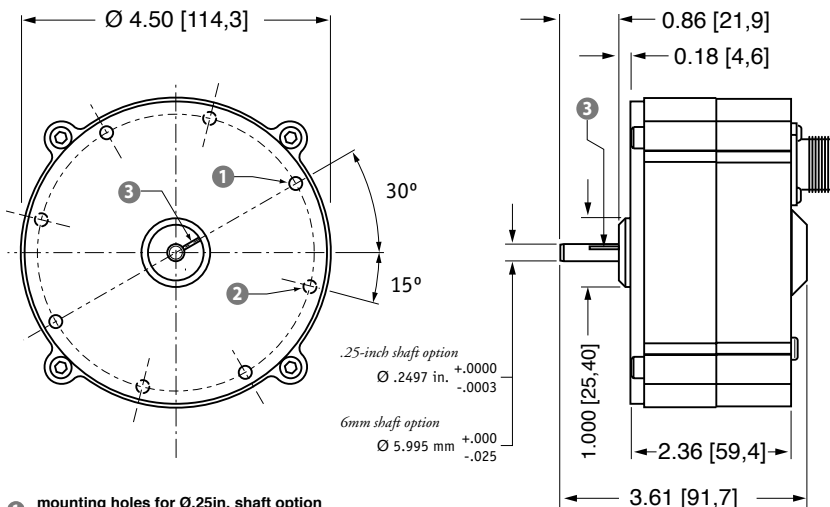
ENVIRONMENTAL

Enclosure NEMA 4/4X/6, IP 67/68
 Operating Temperature -40° to 200°F (-40° to 90°C)
 Vibration up to 10 G's to 2000 Hz maximum

Celeco's model RT9101 provides a voltage feed-back signal for rotational position. The sensing element of this device is a precision plastic-hybrid potentiometer which provided superb linearity and resolution.

This innovative sensor from Celeco, designed to meet tough NEMA-4 and IP67 environmental standards, is available in full-stroke measurement ranges of 1/4 to 50 turns. Because the sensor is potentiometric, the RT9101 is absolute and will maintain position information even after a loss of power.

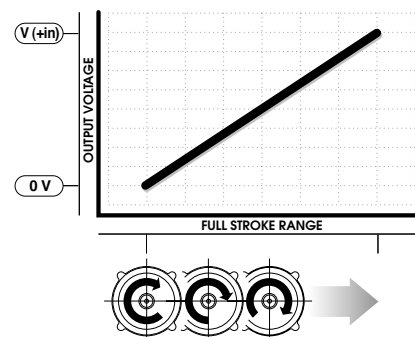
Outline Drawing



- 1 mounting holes for $\varnothing .25$ in. shaft option
#8-32 x 0.180 @ 90° apart on a 4.15 in. dia. BC (4 places)
- 2 mounting holes for $\varnothing 6$ mm shaft option
M4 x 4,5 mm @ 90° apart on a 105,4 mm dia. BC (4 places)
- 3 reference mark
full counter-clockwise position - align mark on shaft to mark on face for start of measurement range

ALL DIMENSIONS ARE IN INCHES [MM]

Output Signal



RT9101 • Rotational Transducer: Precision Potentiometric Output

Ordering Information:

Model Number:

RT9101- _____ - _____ **1** - _____ **1** - _____ **0**
order code: R A B C D E F G

Sample Model Number:

RT9101 - 0005 - 111 - 1110

- R** range: 5 turns (clockwise shaft rotations)
- A** enclosure: aluminum
- B** shaft diameter: .25 inches
- D** output signal: 500 ohm potentiometer
- F** electrical connection: 6-pin plastic connector

Full Stroke Range:




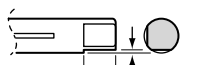
R order code:	0R25	0R50	0001	0002	0003	0005	0010	0020	0030	0050
clockwise shaft rotations, min:	0.25	0.50	1	2	3	5	10	20	30	50
accuracy (% of f.s.):	0.5%	0.5%	0.5%	0.5%	0.5%	0.2%	0.15%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5×10^6	2.5×10^6	2.5×10^6	2.5×10^6	2.5×10^6	5×10^5	2.5×10^5	2.5×10^5	2.5×10^5	2.5×10^5

*—number of times the sensor shaft can be cycled back and forth from beginning to end and back to the beginning before any measurable signal degradation may occur.

Enclosure Material:

A order code:	1	2
	powder-painted aluminum	303 stainless steel

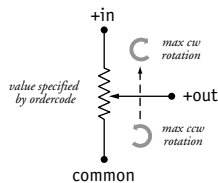
Shaft Diameter:

B order code:	1	2	3	4
	0.25-in. diameter	6 mm diameter	0.25-in. dia. w/flats	6 mm dia. w/flats
				
	.2497 in. (+.0000 - .0003)	5.995 mm (+.000 - .025)	0.33 in. 0.025 in.	8.4 mm 0.64 mm

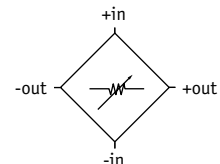
Output Signals:

D order code:	1	2	3	4	5
	500 ohm*	1000 ohm*	5000 ohm*	10,000 ohm*	adjustable bridge (0...30 mV/V)
					*tolerance = ±10%

circuit options: 1, 2, 3, 4



circuit option: 5 (adjustable bridge)



full scale output: adjustable from 0 to 30mV/V
 zero adjust: from factory set zero to 50% of full stroke

Ordering Information:

Electrical Connection:

<p>1</p> <p>6-pin plastic connector w/mating plug IP 67, NEMA 4X**, 6</p> <p>1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p>2</p> <p>10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6</p> <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>3</p> <p>6-pin metal connector w/mating plug IP 65, NEMA 4</p> <p>3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S</p>	<p>4</p> <p>25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6</p> <p>25 ft. x 0.2-in. dia. [7.5 M x 5 mm dia.] 24 AWG, shielded</p>																																										
<p>5</p> <p>100-ft. [30 M] waterproof cable IP 67, NEMA 4X**, 6P</p> <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>6</p> <p>10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p> <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>7</p> <p>100-ft. [30 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P</p> <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>																																											
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*-Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours. **-Applies to stainless steel enclosure only.