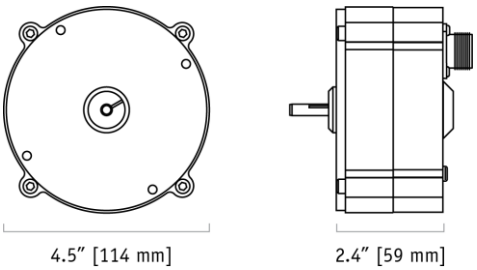


RT9101

0–90° to 0–50 Turns • Voltage Divider

Industrial Grade Rotational Position Sensor

Absolute Rotary Position up to 50 turns

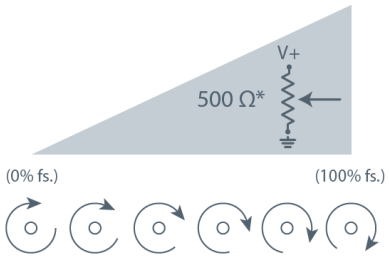
Aluminum or Stainless Steel Enclosure Options

IP68 / NEMA 6

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

This innovative sensor from Celesco, 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.

Output Signal



—1K, 5K, 10K-ohm and bridge circuit also available. see ordering info.

General

Full Stroke Range	0-0.25 to 0-50 turns
Output Signal Options	voltage divider (potentiometer)
Accuracy	see ordering information
Repeatability	± 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.

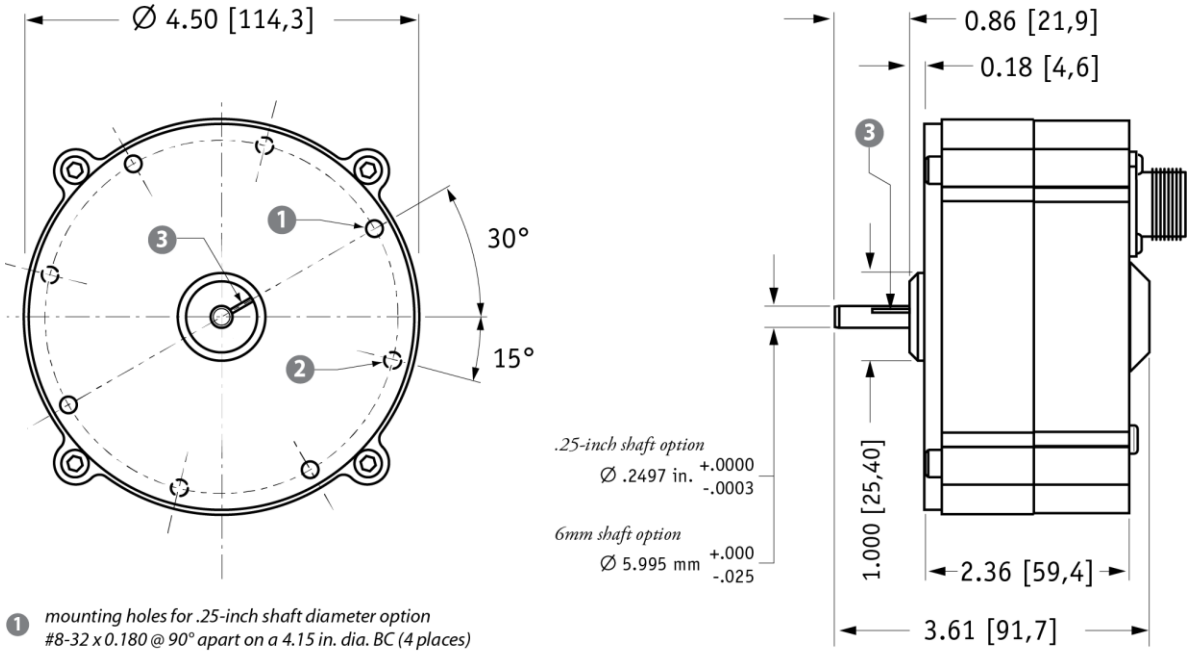
Electrical

Input Resistance Options	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% ±4% of input voltage

Environmental

Enclosure	see ordering information
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

Outline Drawing



1. *mounting holes for .25-inch shaft diameter option*
   #8-32 x 0.180 @ 90° apart on a 4.15 in. dia. BC (4 places)
2. *mounting holes for 6-mm shaft diameter 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

DIMENSIONS ARE IN INCHES [MM]
tolerances are ±0.02 in. [±0,5 mm] unless otherwise noted

Ordering Information

Model Number:

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

Sample Model Number:

RT9101 - 0005 - 111 - 1110

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

Full Stroke Range:

Ⓡ *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.):	0.3%	0.3%	0.3%	0.3%	0.3%	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:

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

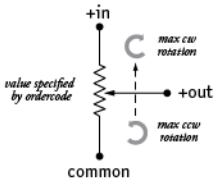
Shaft Diameter:

Ⓑ *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

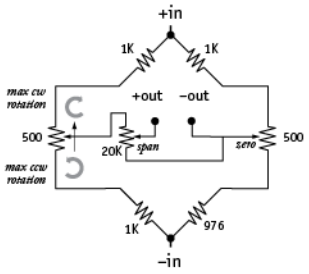
Output Signals:

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

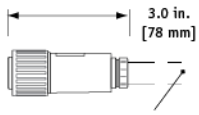
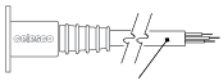
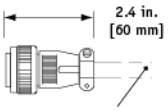


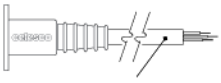
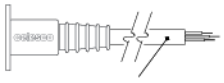
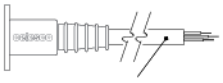
circuit option: 5 (adjustable bridge)



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

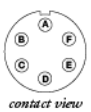
Electrical Connection:

order code:	1	2	3	4
	6-pin plastic connector w/mating plug	10-ft. [3 M] waterproof cable	6-pin metal connector w/mating plug	25-ft. [7.5 M] instrumentation cable
	IP 67, NEMA 4X,6**	**IP 67, NEMA 4X**, 6**	**IP 65, NEMA 4**	**IP 67, NEMA 6**
				
	1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW	3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded

order code:	5	6	7
	100-ft. [30 M] waterproof cable	10-ft. [3 M] **pressure tested*** waterproof cable	100-ft. [30 M] **pressure tested*** waterproof cable
	IP 67, NEMA 4X,6**	**IP 68, NEMA 4X**, 6P**	**IP 68, NEMA 4X**, 6P**
			
	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW

6-pin Mating Plug

pin	standard	bridge
A	+ in	+ in
B	common	– in
C	+ out	– out
D	-	+ out



contact view

Waterproof Cable

color code	standard	bridge
WHITE	+ in	n/a
BLACK	common	n/a
GREEN	+ out	n/a

Instrumentation Cable

color code	standard	bridge
RED	+ in	+ in
BLACK	common	– in
GREEN	+ out	+ out
WHITE	-	– out

**–Test pressure: 100 feet [30 meters] H_2O (40 PSID); Test Medium: Air; Duration: 2 hours. **–Applies to stainless steel enclosure only.*

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