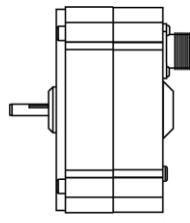


4.5" [114 mm]



2.4" [59 mm]

The RT9510 is an incredibly simple device which provides a regulated 0...10 VDC rotational-position feedback signal with a 14.5...40 VDC unregulated input voltage.

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 RT9510 is absolute and will maintain position information even after a loss of power.

Output Signal



*Optional 0...5 Vdc output signal available.

RT9510

0–90° to 0–50 Turns • 0...5, 0...10 VDC

Industrial Grade Rotational Position Sensor

Absolute Rotary Position up to 50 turns

Aluminum or Stainless Steel Enclosure Options

IP68 / NEMA 6

General

Full Stroke Range	0-0.25 to 0-50 turns
Output Signal Options	0...5, 0...10 VDC
Accuracy	0.15% to 0.3% full stroke, see ordering information
Repeatability	± 0.05% 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	3 lbs. (6 lbs.) max.

Electrical

Input Voltage	14.5-40 VDC (10.5-40 VDC for 0...5 volt output)
Input Current	10 mA max.
Output Impedance	1000 ohms
Maximum Load	5000 ohms.
Zero Adjustment	from factory set zero to 50% of full stroke range
Span Adjustment	to 50% of factory set span

EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity	EN50081-2/EN50082-2
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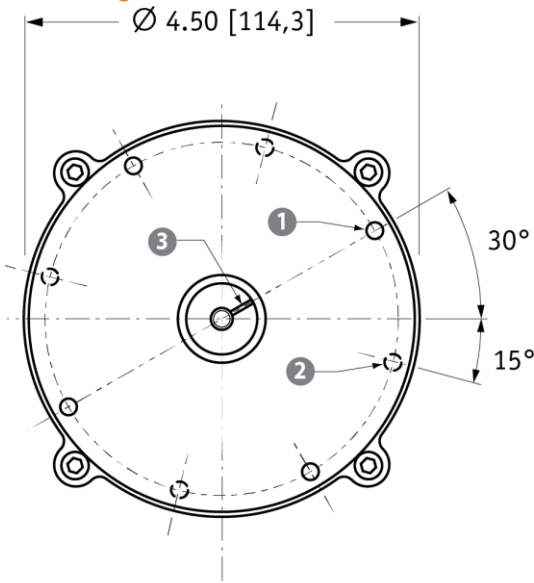
Environmental

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

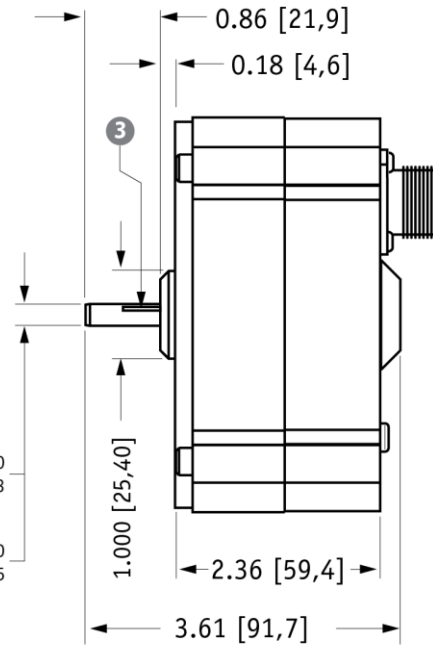
RT9510

0–90° to 0–50 Turns • 0...5, 0...10 Vdc

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



.25-inch shaft option
Ø .2497 in. +.0000
-.0003

6mm shaft option
Ø 5.995 mm +.000
-.025

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

Ordering Information

Model Number:

RT9510 - - - **1** - **1** - - **0**

order code: R A B C D E F G

Sample Model Number:

RT9510 - 0005 - 111 - 1110

- R range: 5 turns (clockwise shaft rotations)
- A enclosure: aluminum
- B shaft diameter: .25 inches
- E output signal: 0...10 VDC signal increasing clockwise
- F electrical connection: 6-pin plastic connector

Full Stroke Range:

R order code:	R125	0R25	0R50	0001	0002	0003	0005	0010	0020	0030	0050
clockwise shaft rotations, min:	0.125	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%	0.3%	0.2%	0.15%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5 x 10 ⁶	2.5 x 10 ⁶	2.5 x 10 ⁶	2.5 x 10 ⁶	2.5 x 10 ⁶	2.5 x 10 ⁶	5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 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

RT9510

0–90° to 0–50 Turns • 0...5, 0...10 Vdc

Output Signals:

order code:

1	2	3	4
0...10 VDC	10...0 VDC	0...5 VDC	5...0 VDC
ccw cw	ccw cw	ccw cw	ccw cw
input voltage: 14.5...40 VDC		10.5...40 VDC	

Example:

ordercode = 1 = 0...10 VDC

= 0 VDC
 = 10 VDC

Electrical Connection:

order code:

1	2	3	4
6-pin plastic connector w/mating plug IP 67, NEMA 4X**,6	10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6	6-pin metal connector w/mating plug IP 65, NEMA 4	25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6
 3.0 in. [78 mm]		 2.4 in. [60 mm]	
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

5	6	7
100-ft. [30 M] waterproof cable IP 67, NEMA 4X**,6	10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P	100-ft. [30 M] pressure tested* waterproof cable 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	Waterproof Cable	Instrumentation Cable																								
<table border="0"> <tr> <td>pin</td> <td>signal</td> </tr> <tr> <td>A</td> <td>input voltage</td> </tr> <tr> <td>B</td> <td>output signal</td> </tr> <tr> <td>C</td> <td>common</td> </tr> </table>	pin	signal	A	input voltage	B	output signal	C	common	<table border="0"> <tr> <td>color code</td> <td>signal</td> </tr> <tr> <td>WHITE</td> <td>input voltage</td> </tr> <tr> <td>GREEN</td> <td>output signal</td> </tr> <tr> <td>BLACK</td> <td>common</td> </tr> </table>	color code	signal	WHITE	input voltage	GREEN	output signal	BLACK	common	<table border="0"> <tr> <td>color code</td> <td>signal</td> </tr> <tr> <td>RED</td> <td>input voltage</td> </tr> <tr> <td>GREEN</td> <td>output signal</td> </tr> <tr> <td>BLACK</td> <td>common</td> </tr> </table>	color code	signal	RED	input voltage	GREEN	output signal	BLACK	common
pin	signal																									
A	input voltage																									
B	output signal																									
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color code	signal																									
RED	input voltage																									
GREEN	output signal																									
BLACK	common																									
contact view																										

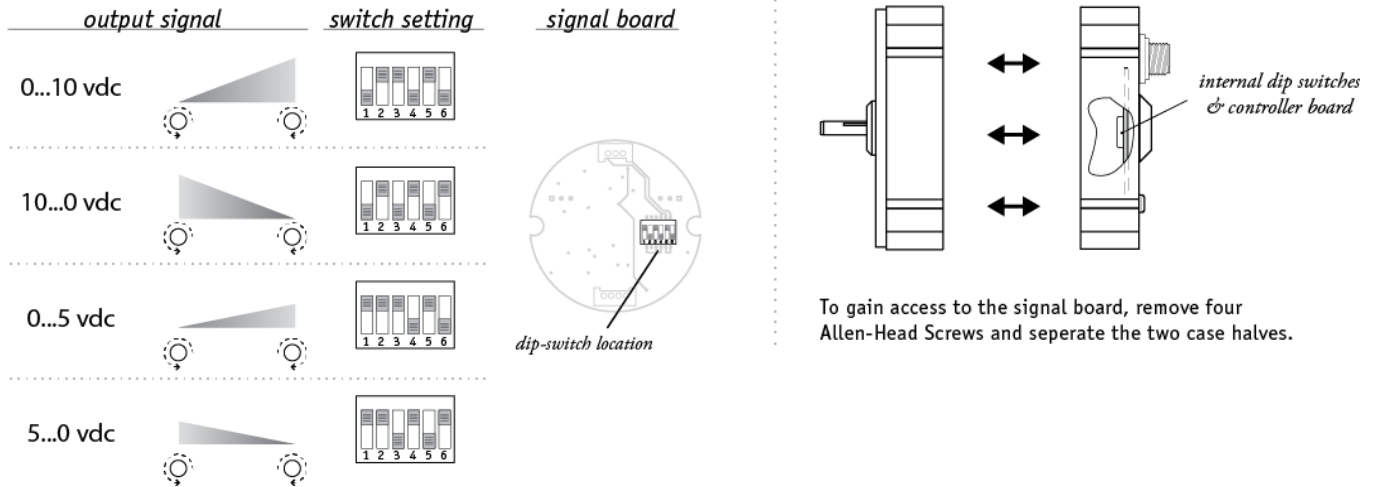
*-Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours. **-Applies to stainless steel enclosure only.

RT9510

0–90° to 0–50 Turns • 0...5, 0...10 Vdc

Output Signal Selection:

The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match signal values to the beginning and end points of the stroke.



19 Waterman Ave. Toronto, Ont. M4B1Y2
Tel: 416-445-5500 Fax: 416-445-1170
Toll Free: 1-800-465-1600
Email: sales@intertechnology.com
Website: www.intertechnology.com

TE.com/sensorsolutions

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RT9510 12/01/2015