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

CE



GENERAL

Full Stroke Range Options	0-0.25 to 0-50 turns
Output Signal Options	0...5, 0...10 Vdc
Accuracy	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

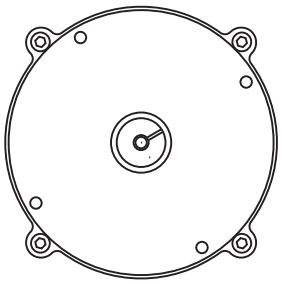
Input Voltage	14.5-40 VDC (10.5-40 VDC for 0...5 volt output)
Input Current	10 mA max.
Output Impedance	1000 ohms
Maximum Load	5000 ohms.
Zero Adjustment	from factory set zero to 50% of full stroke range
Span Adjustment	to 50% of factory set span

ENVIRONMENTAL

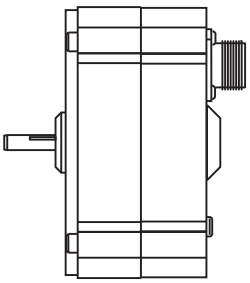
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

EMC COMPLIENCE PER DIRECTIVE 89/336/EEC

Emission/Immunity	EN50081-2/EN50082-2



4.5" [114 mm]

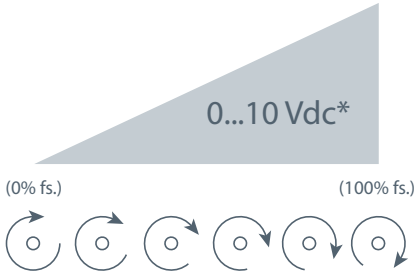


2.4" [59 mm]

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:

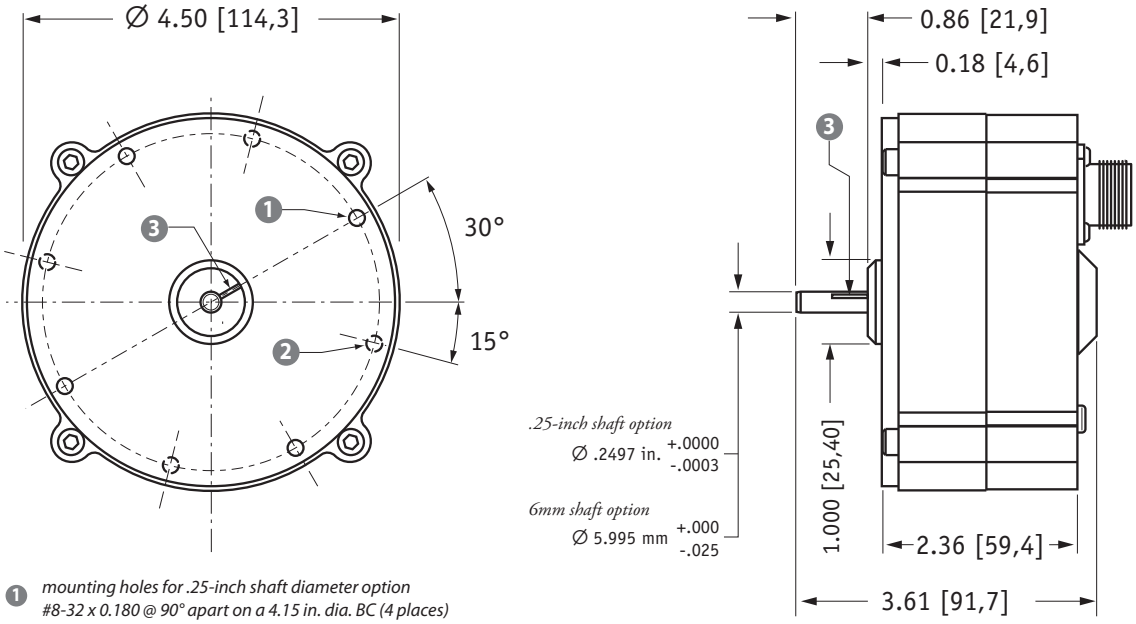


**Optional 0...5 Vdc output signal available.*

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celesco

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:

RT9510-_____ **-** __ __ **1** **-** **1** __ __ **0**
order code: Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ

Sample Model Number:

RT9510 - 0005 - 111 - 1110

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

Full Stroke Range:

Ⓡ *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*:	2.5×10^6	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

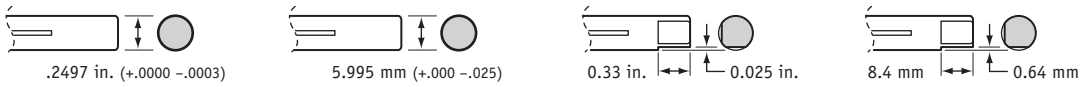
**–number of times the sensor shaft can be cycled back and forth from beginning to end and back to the beginning before any measurable signal degradation may occur.*

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



Ordering Information (cont.):

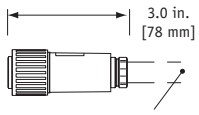
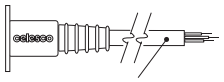
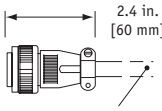
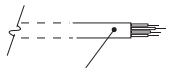
Output Signals:

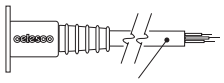
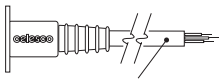
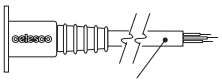
order code:	1	2	3	4
output signal options:	0...10 VDC	10...0 VDC	0...5 VDC	5...0 VDC
	0 → 10, ccw cw	10 → 0, ccw cw	0 → 5, ccw cw	5 → 0, ccw cw
input voltage:	14.5...40 VDC		10.5...40 VDC	

Example:

ordercode = **1** = 0...10 VDC { max ccw = 0 VDC; max cw = 10 VDC

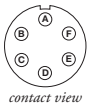
Electrical Connection:

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	signal
A	input voltage
B	output signal
C	common



contact view

Waterproof Cable

color code	signal
WHITE	input voltage
GREEN	output signal
BLACK	common

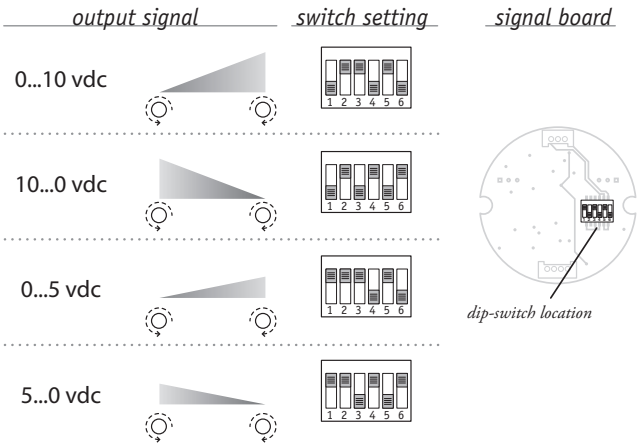
Instrumentation Cable

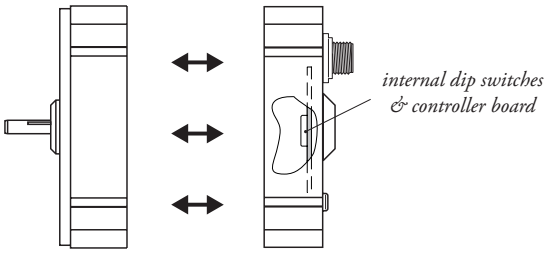
color code	signal
RED	input voltage
GREEN	output signal
BLACK	common

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

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.





To gain access to the signal board, remove four Allen-Head Screws and seperate the two case halves.