

# Rotational Position Transducer

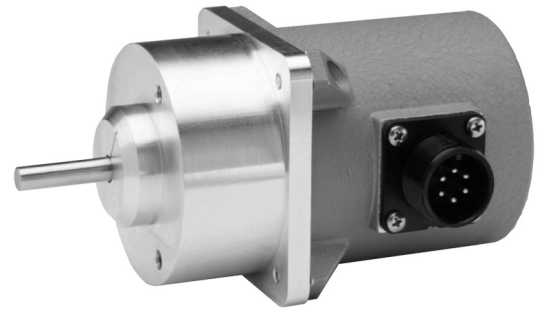
0...5, 0...10 VDC Output

Ranges: 0-45° to 0-200 Turns

Industrial Grade



# RT8510



## Specification Summary:

### GENERAL

Full Stroke Range Options ..... 0-0.125 to 0-200 turns  
Output Signal Options ..... 0...5, 0...10 VDC  
Accuracy ..... *see ordering information*  
Repeatability .....  $\pm 0.05\%$  full stroke  
Resolution ..... essentially infinite  
Enclosure Material ..... powder-painted aluminum or stainless steel  
Sensor ..... plastic-hybrid precision potentiometer  
Potentiometer Cycle Life ..... *see ordering information*  
Shaft Loading ..... up to 10 lbs. radial and 5 lbs. axial  
Starting Torque (25°C) ..... 2.0 in.-oz., max.  
Weight, Aluminum (Stainless Steel) Enclosure ..... 3 lbs. (6 lbs.) max.

### ELECTRICAL

Input ..... 14.5-40 VDC (10.5-40 VDC for 0...5 volt output)  
Input Current ..... 10 mA maximum  
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's to 2000 Hz maximum

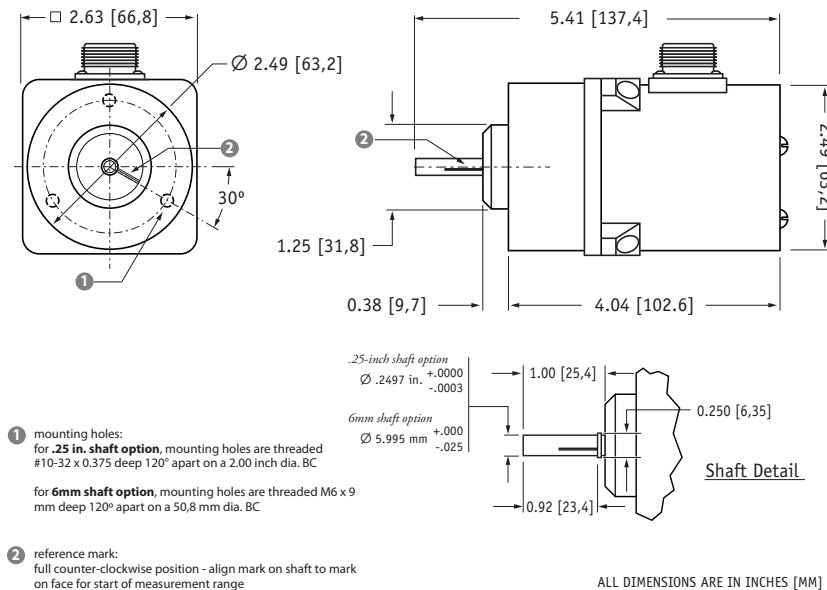
### EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity ..... EN50081-2 / EN50082-2

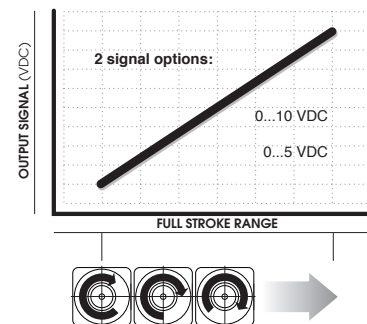
The RT8510 can operate from an unregulated 14.5 to 40 VDC power supply while providing a regulated output signal over it's full range from 1/8 of a turn up to 200 turns. It provides a 0 - 10 VDC position feedback signal proportional to the rotational position of the shaft

As a member of Celesco's innovative family of NEMA-4/ IP67 rotational transducers, the RT8510 offers numerous benefits including a zero and span adjust and a potentiometric sensor which provides an "absolute" feedback signal that is unaffected by power loss.

## Outline Drawing



## Output Signal



**RT8510-**\_\_\_\_\_ **-** \_\_\_\_\_ **-** \_\_\_\_\_ **1** \_\_\_\_\_ **0**  
*order code:*     **R**     **A**     **B**     **C**     **D**     **E**     **F**     **G**

<b>R</b>	range:	5 turns (clockwise shaft rotations)
<b>A</b>	enclosure:	aluminum
<b>B</b>	shaft diameter:	.25 inches
<b>C</b>	mounting style:	face mount
<b>E</b>	output signal:	0...10 VDC signal increasing clockwise
<b>F</b>	electrical connection:	6-pin plastic connector

<b>®</b> <i>order code:</i>	<b>R125</b>	<b>0R25</b>	<b>0R50</b>	<b>0001</b>	<b>0002</b>	<b>0003</b>	<b>0005</b>	<b>0010</b>	<b>0020</b>
clockwise shaft rotations, min:	0.125	0.25	0.50	1	2	3	5	10	20
accuracy (% of f.s.):	1.25%	1.25%	0.5%	0.5%	0.5%	0.2%	0.2%	0.15%	0.15%
potentiometer cycle life*:	$2.5 \times 10^6$	$2.5 \times 10^6$	$2.5 \times 10^6$	$2.5 \times 10^6$	$2.5 \times 10^6$	$5 \times 10^5$	$5 \times 10^5$	$2.5 \times 10^5$	$2.5 \times 10^5$

[illegible]

<b>1</b>	<b>2</b>
<b>order code:</b>	
powder-painted aluminum	303 stainless steel

<b>B</b> <i>order code:</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	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

**1** face mount

mounting holes spaced 120° apart on 2.00 [50,8] BC

**6mm shaft option**  
threaded M6 x 9 mm deep

**.25 in. shaft option**  
#10-32 x 0.375 inch deep

30°

1.38 [35,1]

**2** flange mount

Ø 4.1 [104,14]

.28 [7,1] wide mounting slot on a Ø3.50 [88,9] BC

1.00 [25,4]

IN [MM]

# RT8510 • Rotational Transducer: 0...5, 0...10 VDC Output Signal

## Ordering Information:

### Output Signals:

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

Example:

ordercode = **1** = 0...10 VDC

### Electrical Connection:

<b>F</b> <i>order code:</i>	1	2	3	4																								
	<p>6-pin plastic connector w/mating plug <b>IP 67, NEMA 4X**, 6</b></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>10-ft. [3 M] waterproof cable <b>IP 67, NEMA 4X**, 6</b></p> <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>6-pin metal connector w/mating plug <b>IP 65, NEMA 4</b></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>25-ft. [7.5 M] instrumentation cable <b>IP 67, NEMA 6</b></p> <p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																								
<b>F</b> <i>order code:</i>	5	6	7																									
	<p>100-ft. [30 M] waterproof cable <b>IP 67, NEMA 4X**, 6</b></p> <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>10-ft. [3 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X**, 6P</b></p> <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>100-ft. [30 M] <b>pressure tested*</b> waterproof cable <b>IP 68, NEMA 4X**, 6P</b></p> <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>																									
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Notes: { \* -Test pressure: 100 feet [30 meters] H<sub>2</sub>O (40 PSID); Test Medium: Air; Duration: 2 hours.  
\*\* -NEMA 4X 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.

