

# Rotational Transducer

- ▼ Up to 200 Turns
- ▼ Industrial Grade
- ▼ Precision Potentiometric Output



# RT8101

## Specification Summary:

### GENERAL

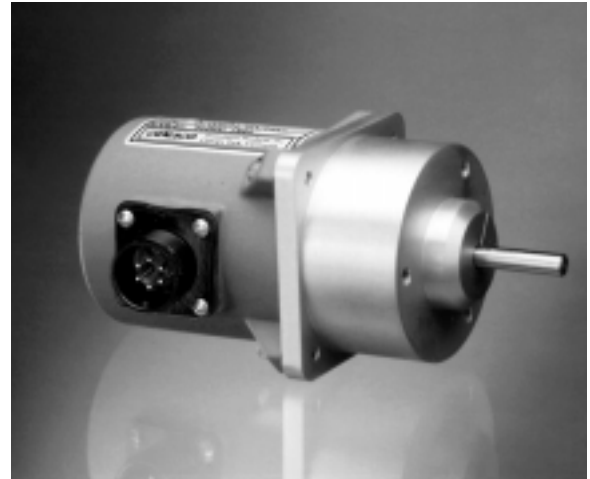
Full Stroke Ranges ..... 0-0.125 to 0-200 turns, see ① next page  
 Output Signal ..... voltage divider (potentiometer)  
 Accuracy .....  $\pm 0.30$  to  $0.15\%$  full stroke, see ②  
 Repeatability .....  $\pm 0.02\%$  full stroke  
 Resolution ..... essentially infinite  
 Enclosure Material ..... powder-painted aluminum or stainless steel, see ③  
 Sensor ..... plastic-hybrid precision potentiometer  
 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 Resistance .... 500, 1K, 5K, 10K ohms ( $\pm 10\%$ ) or adjustable bridge, see ④  
 Power Rating, Watts ..... 2.0 at 70° F (derated to 0 @ 250°F)  
 Recommended Maximum Input Voltage ..... 30 V(AC or DC)  
 Output Signal Change Over Measurement Range ..... 94%  $\pm 4\%$  of input voltage

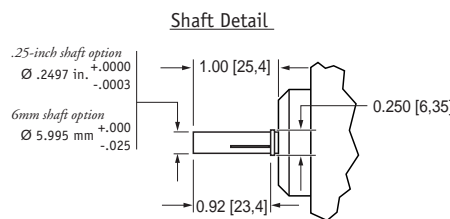
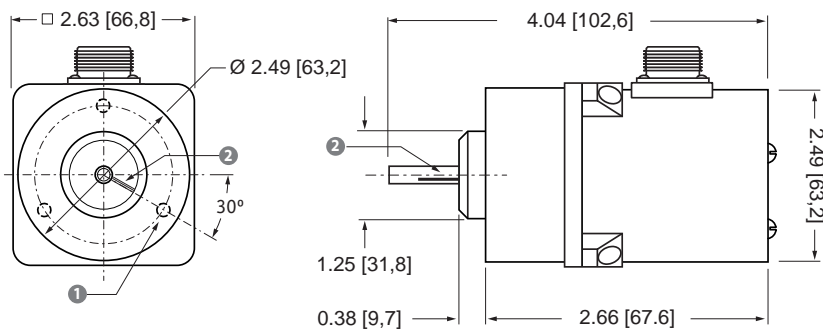
### ENVIRONMENTAL

Enclosure Design ..... NEMA 4/4X/6, IP67/68, see ⑤ and ⑥  
 Operating Temperature ..... -40° to 200°F



Celeco's model RT8101 provides a voltage feedback signal for rotational position. The sensing element of this device is a precision plastic-hybrid potentiometer which provides superb linearity and resolution.

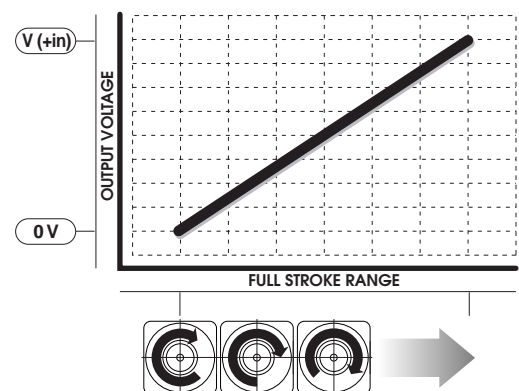
The RT8101 provides extended rotational position feedback from as little as 1/8 of a turn f.s. all the way up to 200 turns f.s. Because the sensor is potentiometric, the RT8101 is absolute and will maintain position information even after a loss of power.



- ① mounting holes  
for .25 in. shaft option, mounting holes are threaded #10-32 x 0.375 deep 120° apart on a 2.00 inch dia. BC  
for 6mm shaft option, mounting holes are threaded M6 x 9 mm deep 120° apart on a 50,8 mm dia. BC
- ② 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]

## Electrical Output Signal:



**celesco**

Celeco Transducer Products, Inc.  
 20630 Plummer Street • Chatsworth, CA • 91311  
 tel: (800) 423-5483 • (818) 701-2750 • fax: (818) 701-2799  
[www.celesco.com](http://www.celesco.com) • [info@celesco.com](mailto:info@celesco.com)

# RT8101 • Rotational Transducer • Potentiometric Output

## Ordering Information

### Model Number:

**RT8101-** \_\_\_\_\_ **1** \_\_\_\_\_ **0**  
order code:                      R                      A                      B                      C                      D                      E                      F                      G

### Full Stroke Range:

<small>R</small> order code:	<b>R125</b>	<b>OR25</b>	<b>OR50</b>	<b>0001</b>	<b>0002</b>	<b>0003</b>	<b>0005</b>	<b>0010</b>	<b>0020</b>	<b>0030</b>
① clockwise shaft rotations, min:	0.125	0.25	0.50	1	2	3	5	10	20	30
② accuracy (% of f.s.):	0.30 %						0.20 %	0.15 %		
potentiometer cycle life*:	2.5 x 10 <sup>6</sup>						5 x 10 <sup>5</sup>	2.5 x 10 <sup>5</sup>		

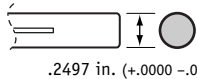

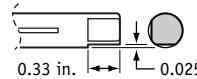
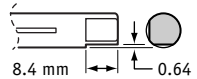
<small>R</small> order code:	<b>0040</b>	<b>0050</b>	<b>0060</b>	<b>0080</b>	<b>0100</b>	<b>0120</b>	<b>0140</b>	<b>0160</b>	<b>0180</b>	<b>0200</b>
clockwise shaft rotations, min:	40	50	60	80	100	120	140	160	180	200
accuracy (% of f.s.):	0.15 %									
potentiometer cycle life*:	2.5 x 10 <sup>5</sup>									

*\*note: potentiometer cycle life is defined as the minimum number of times the sensor can be cycled back and forth, from beginning to end, before any measureable degradation of the output signal occurs.*

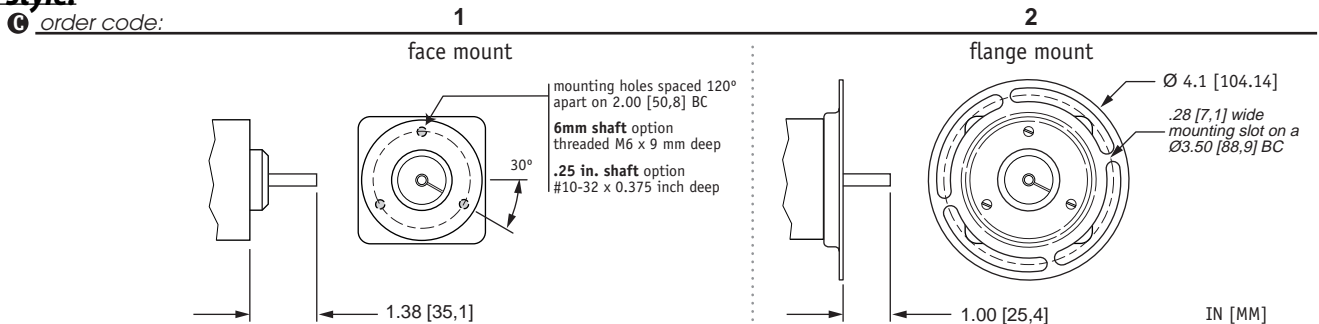
### Enclosure Material:

<small>A</small> order code:	<b>1</b>	<b>2</b>
③	powder-painted aluminum	303 stainless steel

### Shaft Diameter:

<small>B</small> order code:	<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

### Mounting Style:



# RT8101 • Rotational Transducer • Potentiometric Output

## Output Signals:

④	① order code:	1	2	3	4	5
	sensing circuit:	500 Ω	1K Ω	5K Ω	10K Ω	0...30 mV/V adjustable bridge
						<p>full scale output: adjustable from 0 to 30mV/V</p> <p>zero adjust: from full retraction to 50% of full stroke</p>

## Electrical Connection:

⑤	⑥	① order code:	1	2	3	4																												
		electrical connection:	6-pin plastic connector and mating plug	10 ft. waterproof cable	6-pin metal connector and mating plug	25 ft. instrumentation cable																												
			<table border="1"> <tr> <td rowspan="2">contact view</td> <td colspan="2">connections</td> </tr> <tr> <td>standard</td> <td>bridge</td> </tr> <tr> <td></td> <td>A = +IN B = COMMON C = +OUT</td> <td>A = +IN B = -IN C = -OUT D = +OUT</td> </tr> </table>	contact view	connections		standard	bridge		A = +IN B = COMMON C = +OUT	A = +IN B = -IN C = -OUT D = +OUT	<table border="1"> <tr> <td colspan="2">connections</td> </tr> <tr> <td>standard</td> <td>bridge</td> </tr> <tr> <td>WHT = +IN BLK = COMMON GRN = OUT</td> <td>not available</td> </tr> </table>	connections		standard	bridge	WHT = +IN BLK = COMMON GRN = OUT	not available	<table border="1"> <tr> <td rowspan="2">contact view</td> <td colspan="2">connections</td> </tr> <tr> <td>standard</td> <td>bridge</td> </tr> <tr> <td></td> <td>A = +IN B = COMMON C = +OUT</td> <td>A = +IN B = -IN C = -OUT D = +OUT</td> </tr> </table>	contact view	connections		standard	bridge		A = +IN B = COMMON C = +OUT	A = +IN B = -IN C = -OUT D = +OUT	<table border="1"> <tr> <td colspan="2">connections</td> </tr> <tr> <td>standard</td> <td>bridge</td> </tr> <tr> <td>RED = +IN BLK = COMMON GRN = OUT</td> <td>RED = +IN BLK = -IN WHT = -OUT GRN = +OUT</td> </tr> </table>	connections		standard	bridge	RED = +IN BLK = COMMON GRN = OUT	RED = +IN BLK = -IN WHT = -OUT GRN = +OUT
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		IP rating:	67	67, 68*	67	67																												
		NEMA rating:	6, 4X**	6, 4X**	4	6																												

note: \*requires factory submersion test \*\*applies to stainless steel enclosure, see ③

## Sample Model Number

**RT8101-0005 - 1 1 1 - 1 1 1 0**  
order code:      R      A      B      C      D      E      F      G

Specifications: Full Stroke Range: 5 turns (5 clockwise shaft rotations)  
 Enclosure Material: powder-painted aluminum  
 Shaft Diameter: 0.25 inches  
 Mounting Style: face mount  
 Output Signal: 500 ohm voltage divider  
 Electrical Connection: 6-pin plastic connector