

# Rotational Transducer

- ▼ Up to 200 Turns
- ▼ Industrial Grade
- ▼ 4...20 mA Output Signal



# RT8420



## Specification Summary:

### GENERAL

Full Stroke Ranges ..... 0-0.125 to 0-200 turns, see ① next page  
 Output Signal ..... 4 - 20 mA (2-wire), 0 - 20 mA (3-wire), see ④  
 Sensitivity, 2-wire ..... 16 mA/full stroke,  $\pm 0.25\%$   
 Sensitivity, 3-wire ..... 20 mA/full stroke,  $\pm 0.25\%$   
 Accuracy .....  $\pm 0.30$  to  $\pm 0.15\%$  full stroke, see ②  
 Repeatability .....  $\pm 0.05\%$  full stroke, max.  
 Resolution ..... essentially infinite  
 Enclosure Material ..... powder-painted aluminum or stainless steel, see ④  
 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 Voltage ..... 12 to 40 VDC  
 Input Current ..... 20 mA, max.  
 Loop Resistance (Load) ..... (loop supply voltage - 12) / 0.02, max.  
 Circuit Protection ..... 38 mA maximum  
 Impedance ..... 100 M $\Omega$  @ 100 VDC, min.  
 Zero and Span Adjustment ..... 2:1 turndown

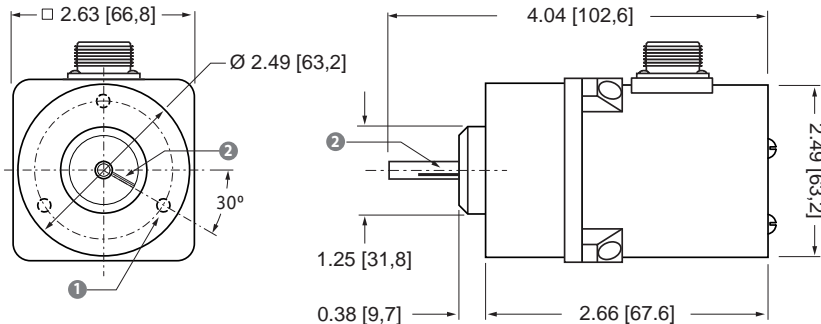
### ENVIRONMENTAL

Enclosure Design ..... NEMA 4/4X/6, IP 67/68, see and ⑥  
 Operating Temperature ..... -40° F to 200°F  
 Thermal Effects  
 Zero ..... 0.01% full stroke / °F, max.  
 Span ..... 0.01% / °F, max.  
 Vibration ..... up to 10 G's to 2000 Hz max.

Celeco's model RT8420 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. The RT8420 combines the superb linearity and resolution of a plastic-hybrid potentiometer with the durability of Celeco's 4...20 mA circuit to provide an accurate and reliable electrical signal over all ranges.

Additionally, the RT8420 has fully accessible zero and span settings allowing precise matching of the output signal to the required measurement.

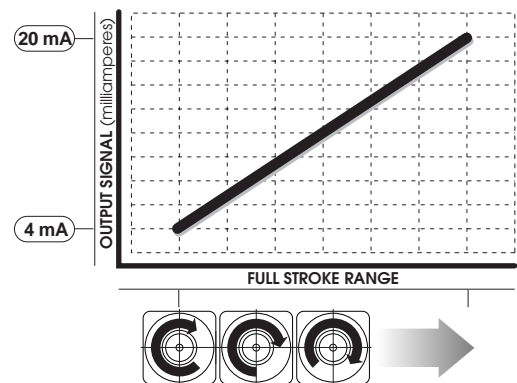
EMC COMPLIANCE PER DIRECTIVE 89/336/EEC  
 Emission / Immunity ..... EN50081-2 / EN50082-2



- 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)

**Ordering Information**

**Model Number:**

**RT8420-** \_\_\_\_\_ - \_\_\_\_\_ - **1** \_\_\_\_\_ - **0**  
 order code:      **R**      **A**      **B**      **C**      **D**      **E**      **F**      **G**

**Full Stroke Range:**

<b>R</b> 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>		




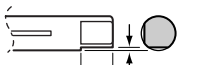
<b>R</b> order code:	<b>0040</b>	<b>0050</b>	<b>0060</b>	<b>0080</b>	<b>0100</b>	<b>0120</b>	<b>0140</b>	<b>0160</b>	<b>0180</b>	<b>0200</b>
clockwise shaft rotations, min:	40	50	60	80	100	120	140	160	180	200
accuracy (% of f.s.):	0.15 %									
potentiometer cycle life*:	2.5 x 10 <sup>5</sup>									

\*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 measurable degradation of the output signal occurs.

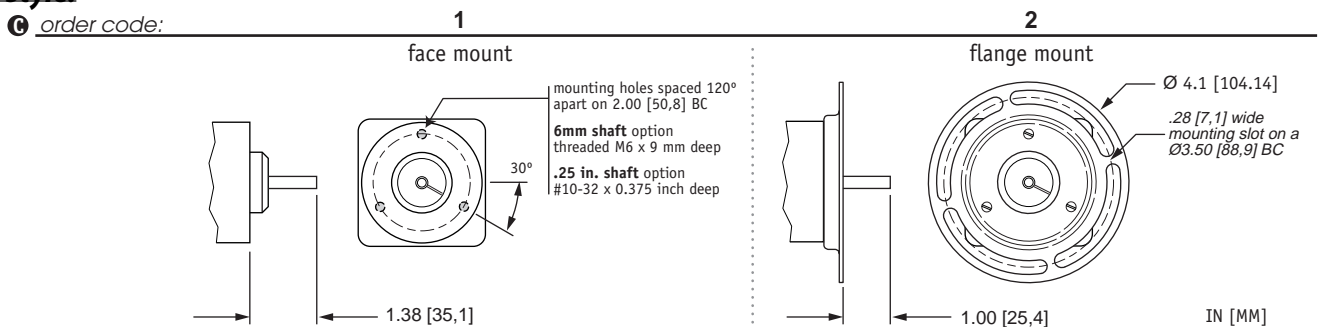
**Enclosure Material:**

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

**Shaft Diameter:**

<b>B</b> 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 -0.0003)	5.995 mm (+.000 -0.025)	0.33 in.      0.025 in.	8.4 mm      0.64 mm

**Mounting Style:**



# RT8420 • Rotational Transducer • 4...20 mA Output Signal

## Output Signals:

	1	2	3	4
④ output signal configuration:	4...20 mA, 2-wire	20...4 mA, 2-wire	0...20 mA, 3-wire	20...0 mA, 3-wire

## Electrical Connection:

	1	2	3	4																																																												
⑤ electrical connection:	6-pin plastic connector and mating plug	10 ft. waterproof cable	6-pin metal connector and mating plug	25 ft. instrumentation cable																																																												
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⑤ IP rating:	67	67, 68*	67	67																																																												
⑥ NEMA rating:	6, 4X**	6, 4X**	4	6																																																												

note: \*requires factory submersion test

\*\*applies to stainless steel enclosure, see ③

## Sample Model Number

**RT8420-0005 - 1 1 1 - 1 1 1 0**  
order code: ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

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