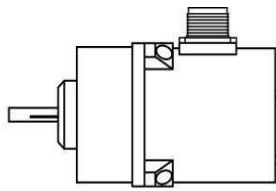


2.5" [64 mm]



4.0" [102 mm]

Celesco'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 Celesco'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.

Output Signal



*Optional 3-wire, 0...20mA output signal available.

RT8420

0-45° to 0-200 TURNS • 0..20mA • 4..20mA

Industrial Grade Rotational Position Sensor Absolute Rotary Position up to 200 turns Aluminum or Stainless Steel Enclosure Options IP68 / NEMA 6

General

Full Stroke Range	0-0.125 to 0-200 turns
Output Signal Options	4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy	0.15% to 1.25%, 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 10 lbs. radial and 5 lbs. axial
Starting Torque (25°C)	2.0 in-oz., max.
Weight, Aluminum	3 lbs. (6 lbs.) max.
(Stainless Steel)	
Enclosure	

Electrical

Input Voltage	see ordering information
Input Current	20 mA max.
Maximum Loop Resistance (Load)	(loop supply voltage - 8)/0.020
Circuit Protection	38 mA max.
Impedance	100M ohms@100 VDC, min.
Output Signal Adjustment:	
Zero Adjustment	from factory set zero to 50% of full stroke range
Span Adjustment	to 50% of factory set span
Thermal Effects, Zero	0.01% f.s./°F, max.
Thermal Effects, Span	0.01% f.s./°F, max.

EMC COMPLIANCE PER DIRECTIVE 89/336/EEC

Emission/Immunity	EN50081-2/EN50082-2
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Environmental

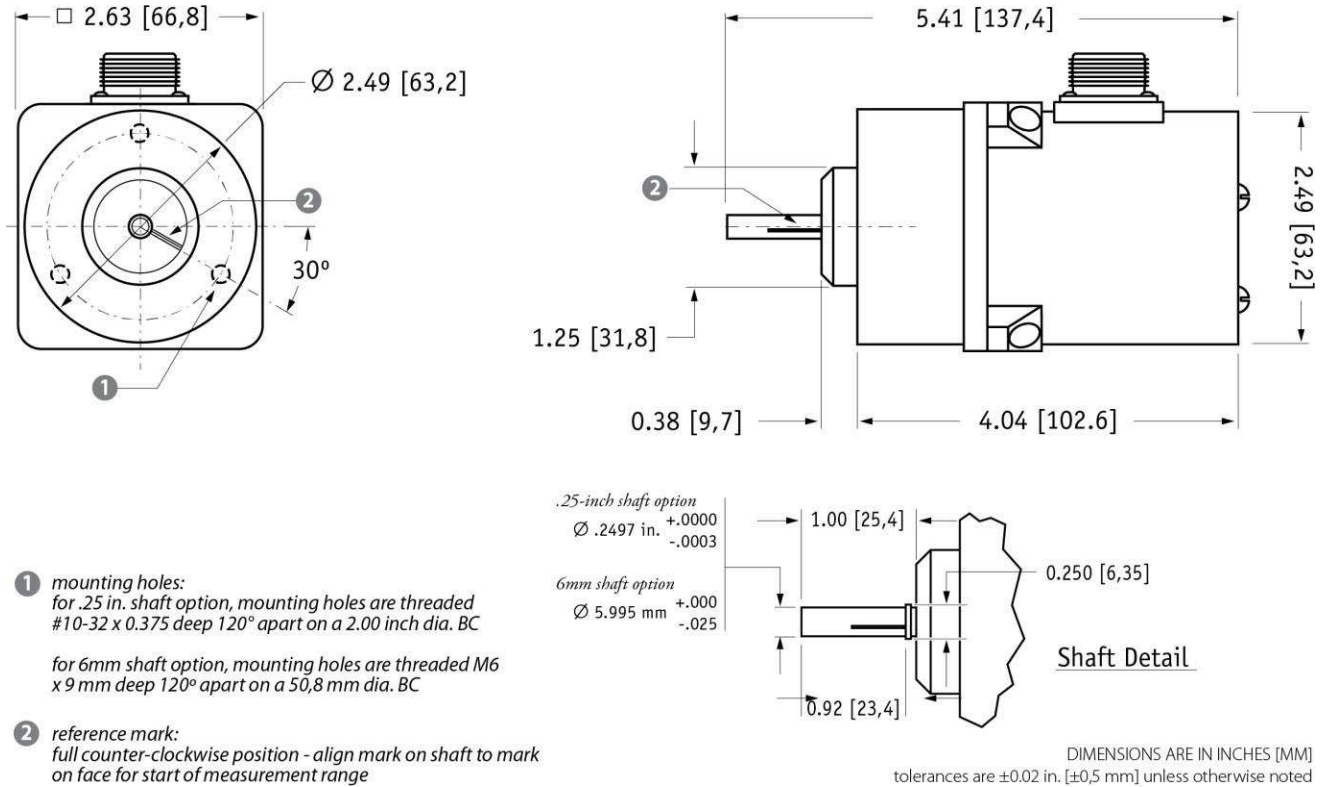
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

CLICK HERE >
CONNECT WITH A SPECIALIST

RT8420

0–45° TO 0–200 TURNS • 0..20mA • 4..20mA

Outline Drawing



Ordering Information

Model Number

RT8420- _____ **- 1 - 0**

order code: **R** **A** **B** **C** **D** **E** **F** **G**

Sample Model Number:

RT8420 - 0005 - 111 - 1110

- R** range: 5 turns (clockwise shaft rotations)
- A** enclosure: aluminum
- B** shaft diameter: .25 inches
- C** mounting style: face mount
- E** output signal: 4...20 mA signal increasing clockwise
- F** electrical connection: 6-pin plastic connector

Full Stroke Range:

R order code:	R125	OR25	OR50	0001	0002	0003	0005	0010	0020
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 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	5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵

R order code:	0030	0040	0050	0080	0100	0140	0180	0200
clockwise shaft rotations, min:	30	40	50	80	100	140	180	200
accuracy (% of f.s.):	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 x 10 ⁵	2.5 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.

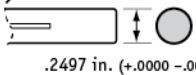

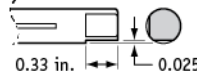
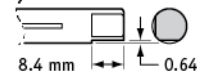
RT8420

0–45° TO 0–200 TURNS • 0..20mA • 4..20mA

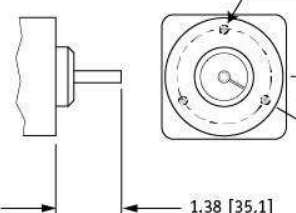
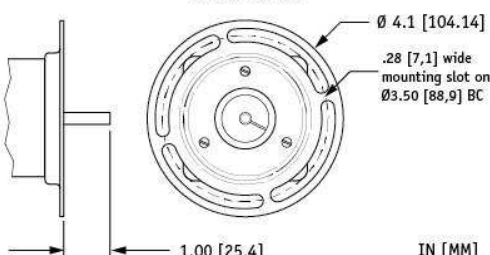
Enclosure Material:

A order code:	1	2
	powder-painted aluminum	303 stainless steel

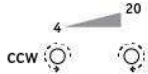
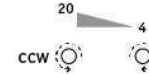
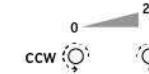
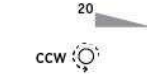
Shaft Diameter:

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

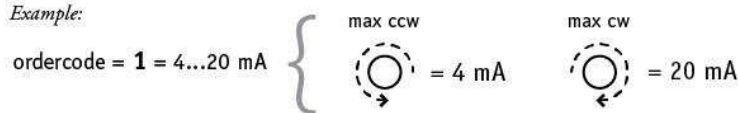
Mounting Style:

C order code:	1	2
	face mount	flange 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 1.38 [35,1]	Ø 4.1 [104.14] .28 [7,1] wide mounting slot on a Ø3.50 [88,9] BC 1.00 [25,4]
		IN [MM]

Output Signals:

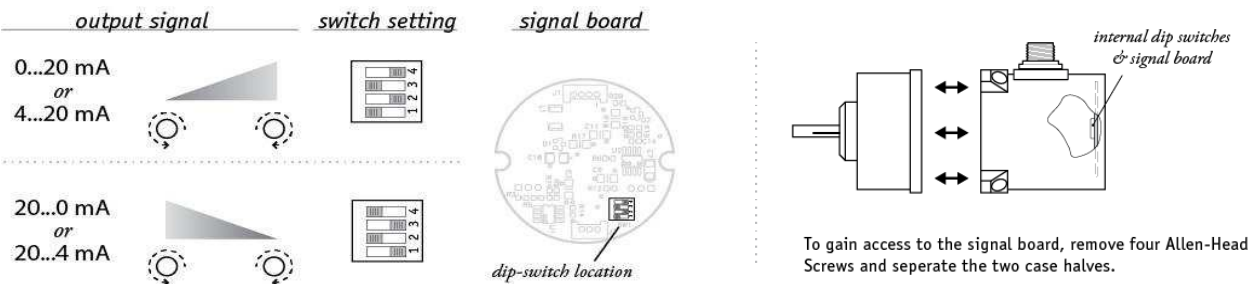
D order code:	1	2	3	4
output signal options:	4...20 mA	20...4 mA	0...20 mA	20...0 mA
				
	ccw ↻ ↻ cw	ccw ↻ ↻ cw	ccw ↻ ↻ cw	ccw ↻ ↻ cw
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%	
wiring configuration:	2 - wire		3 - wire	
input voltage:	8 - 34 vdc		14 - 29 vdc	

Example:



Output Signal Selection:

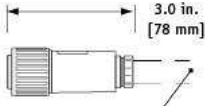
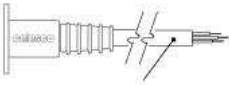
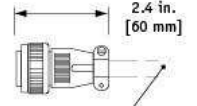
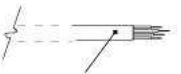
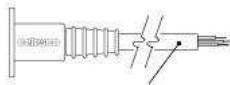
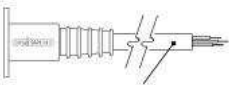
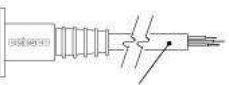
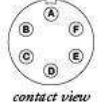
The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match signal values to the beginning and end points of the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



RT8420

0–45° TO 0–200 TURNS • 0..20mA • 4..20mA

Electrical Connection:

<p>1</p> <p>order code:</p> <p>6-pin plastic connector w/mating plug IP 67, NEMA 4X** ,6</p>  <p>3.0 in. [78 mm]</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>2</p> <p>10-ft. [3 M] waterproof cable IP 67, NEMA 4X** , 6</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>3</p> <p>6-pin metal connector w/mating plug IP 65, NEMA 4</p>  <p>2.4 in. [60 mm]</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>4</p> <p>25-ft. [7.5 M] instrumentation cable IP 67, NEMA 6</p>  <p>25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded</p>																																										
<p>5</p> <p>order code:</p> <p>100-ft. [30 M] waterproof cable IP 67, NEMA 4X** ,6</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>6</p> <p>10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X** , 6P</p>  <p>10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW</p>	<p>7</p> <p>100-ft. [30 M] pressure tested* waterproof cable IP 68, NEMA 4X** , 6P</p>  <p>100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW</p>																																											
<p>6-pin Mating Plug</p> <table border="1"> <tr> <th>pin</th> <th>2-wire</th> <th>3-wire</th> </tr> <tr> <td>A</td> <td>8...34 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>B</td> <td>4...20 mA out</td> <td></td> </tr> <tr> <td>C</td> <td>-</td> <td>0...20 mA out</td> </tr> <tr> <td>D</td> <td>case ground</td> <td>-</td> </tr> </table>  <p>contact view</p>		pin	2-wire	3-wire	A	8...34 vdc	14...29 vdc common	B	4...20 mA out		C	-	0...20 mA out	D	case ground	-	<p>Waterproof Cable</p> <table border="1"> <tr> <th>color code</th> <th>2-wire</th> <th>3-wire</th> </tr> <tr> <td>WHITE</td> <td>8...34 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>BLACK</td> <td>4...20 mA out</td> <td></td> </tr> <tr> <td>GREEN</td> <td>case ground</td> <td>0...20 mA out</td> </tr> </table> <p>Instrumentation Cable</p> <table border="1"> <tr> <th>color code</th> <th>2-wire</th> <th>3-wire</th> </tr> <tr> <td>RED</td> <td>8...34 vdc</td> <td>14...29 vdc common</td> </tr> <tr> <td>BLACK</td> <td>4...20A out</td> <td></td> </tr> <tr> <td>WHITE</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>GREEN</td> <td>case ground</td> <td>0...20 mA out</td> </tr> </table>		color code	2-wire	3-wire	WHITE	8...34 vdc	14...29 vdc common	BLACK	4...20 mA out		GREEN	case ground	0...20 mA out	color code	2-wire	3-wire	RED	8...34 vdc	14...29 vdc common	BLACK	4...20A out		WHITE	n/a	n/a	GREEN	case ground	0...20 mA out
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Notes: { * -Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours.
** -NEMA 4X applies to stainless steel enclosure only.

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NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

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