

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.

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

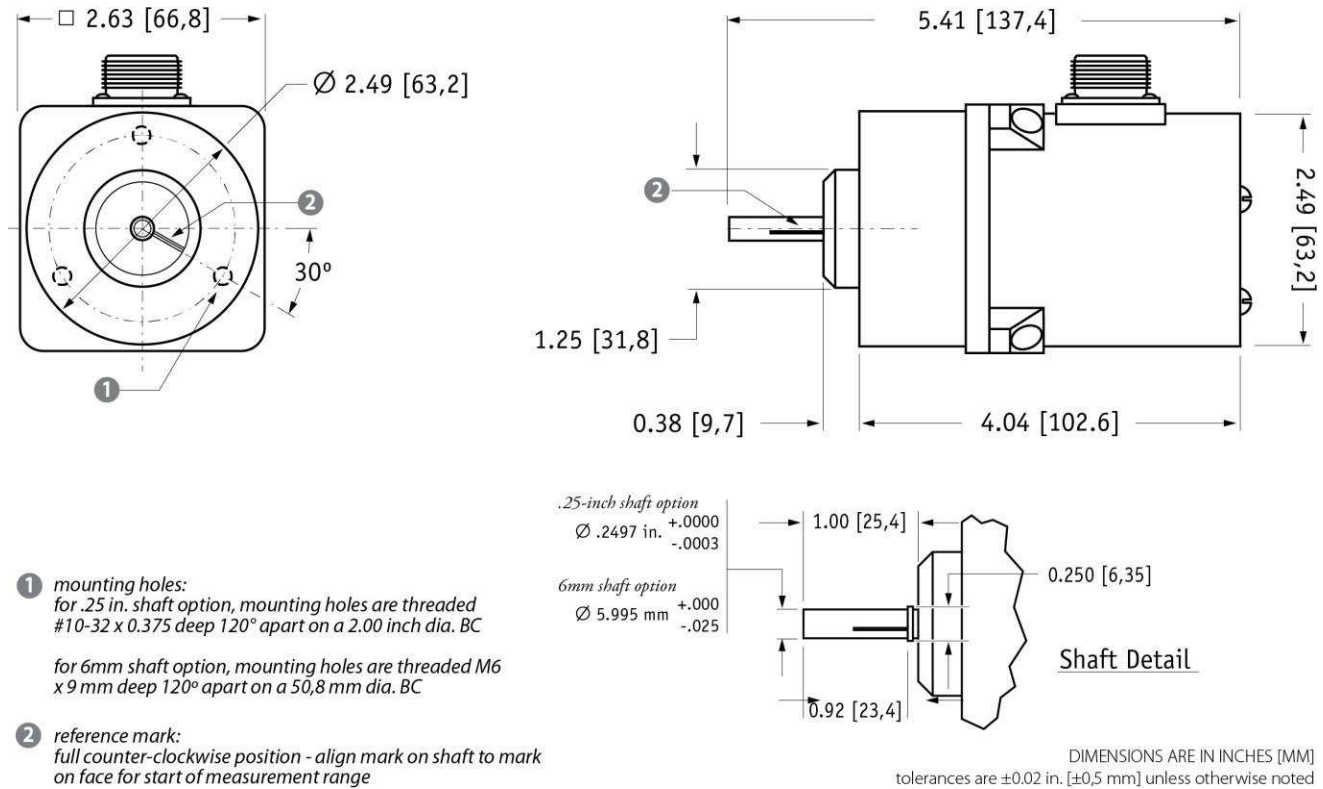
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

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CONNECT WITH A SPECIALIST

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Outline Drawing



Ordering Information

Model Number

RT8420- order code: **R** **A** **B** **C** **- 1** **D** **E** **F** **0** **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.

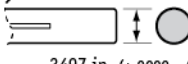
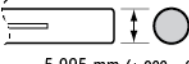
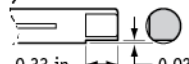

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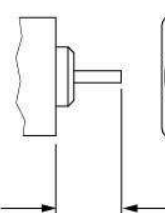
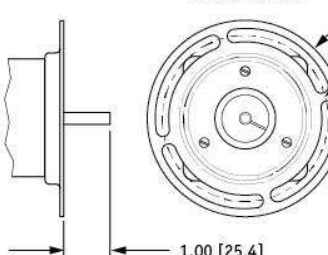
Enclosure Material:

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


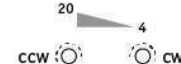


Shaft Diameter:

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:

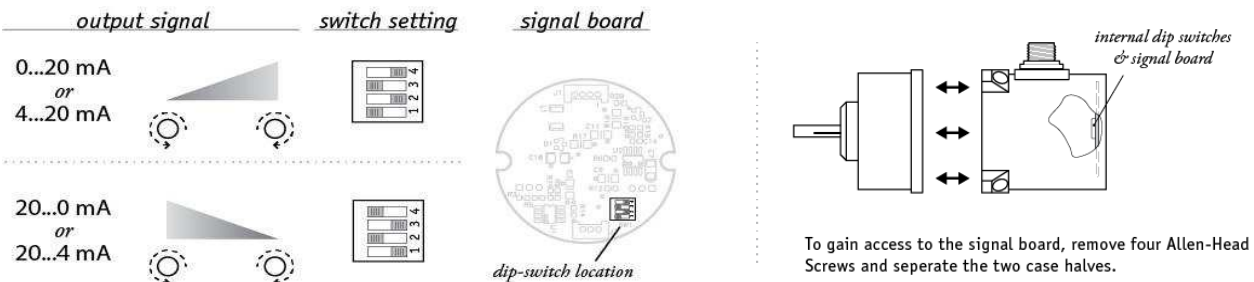
D order code:	1	2	3	4
output signal options:	4...20 mA	20...4 mA	0...20 mA	20...0 mA
				
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%	
wiring configuration:	2 – wire		3 – wire	
input voltage:	8 – 34 vdc		14 – 29 vdc	

Example:

ordercode = 1 = 4...20 mA { max ccw = 4 mA max cw = 20 mA

Output Signal Selection:

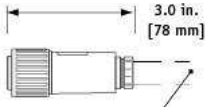
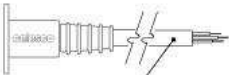
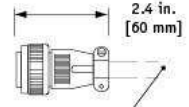

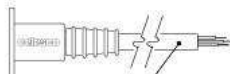
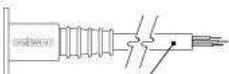
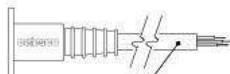
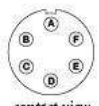
The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match signal values to the beginning and end points of the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



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Electrical Connection:

1			2			3			4		
order code:			order code:			order code:			order code:		
6-pin plastic connector w/mating plug IP 67, NEMA 4X**,6			10-ft. [3 M] waterproof cable IP 67, NEMA 4X**, 6			6-pin metal connector w/mating plug IP 65, NEMA 4			25-ft. [7.5 M] instrumentation cable 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:			order code:			order code:			order code:		
100-ft. [30 M] waterproof cable IP 67, NEMA 4X**,6			10-ft. [3 M] pressure tested* waterproof cable IP 68, NEMA 4X**, 6P			100-ft. [30 M] pressure tested* waterproof cable 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			Waterproof Cable			Instrumentation Cable					
pin	2-wire	3-wire				color code	2-wire	3-wire	color code	2-wire	3-wire
A	8...34 vdc	14...29 vdc				WHITE	8...34 vdc	14...29 vdc	RED	8...34 vdc	14...29 vdc
B	4...20 mA out	common				BLACK	4...20 mA out	common	BLACK	4...20A out	common
C	-	0...20 mA out				GREEN	case ground	0...20 mA out	WHITE	n/a	n/a
D	case ground	-	contact view						GREEN	case ground	0...20 mA out

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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