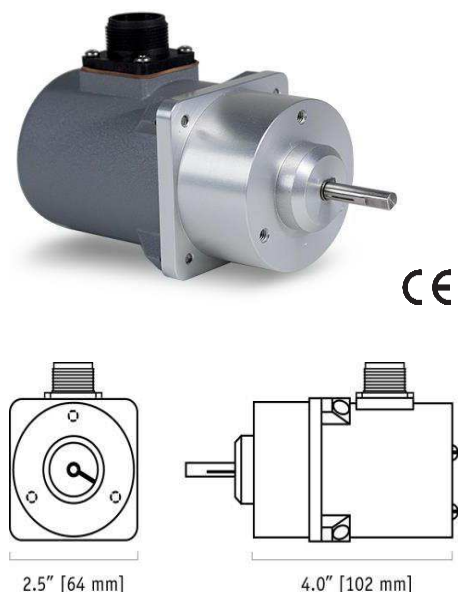




Celeco's model RT8420 provides extended rotational position feedback from as little as 1/8 of a turn f.s. all the way up to 200 turns f.s. The RT8420 combines the superb linearity and resolution of a plastic-hybrid potentiometer with the durability of Celeco's 4...20 mA circuit to provide an accurate 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
--------------------------	---------------------

Environmental

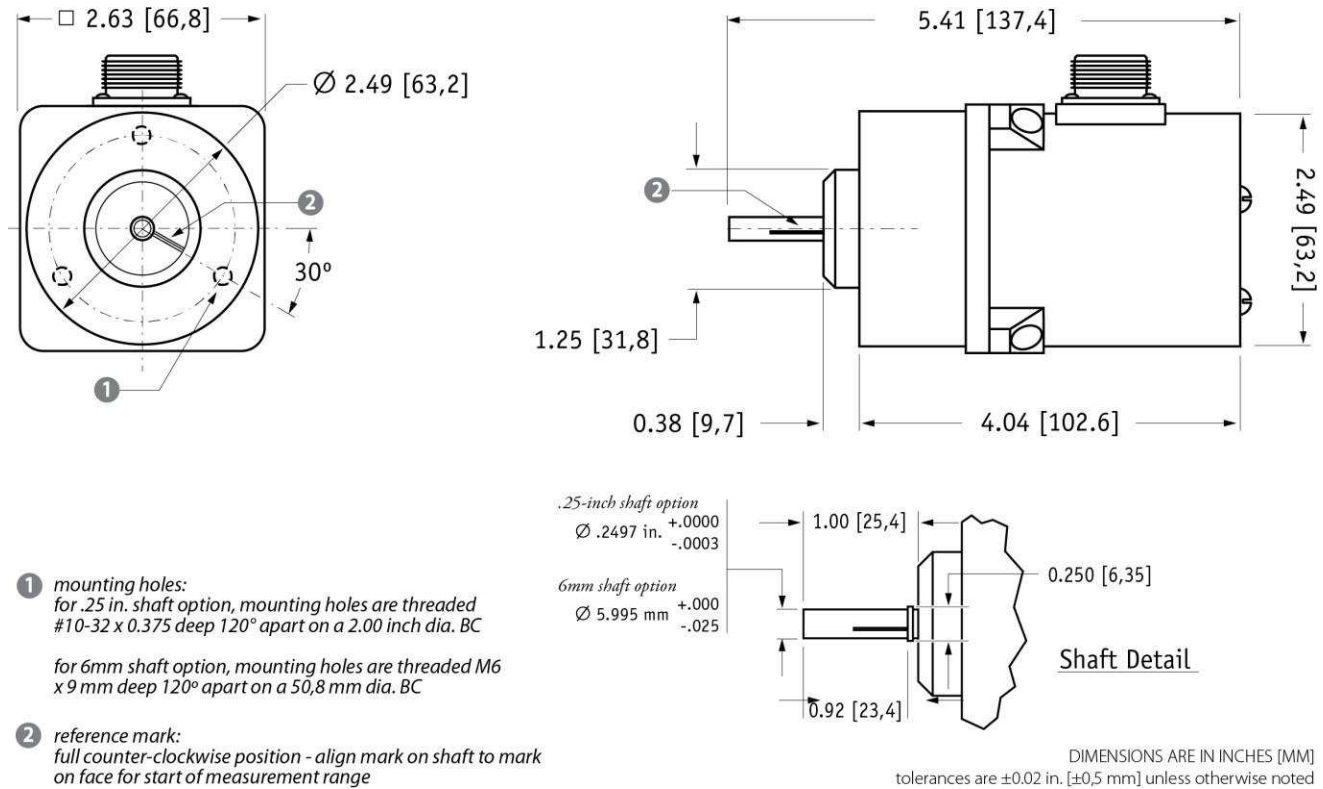
Enclosure	NEMA 4/4X/6, IP 67/68
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

CLICK HERE >
CONNECT WITH A SPECIALIST

RT8420

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

Outline Drawing



Ordering Information

Model Number

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

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.

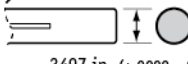
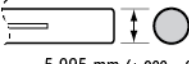
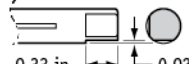
RT8420

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

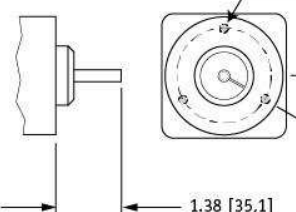
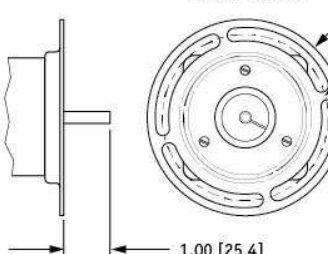
Enclosure Material:

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

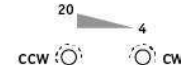
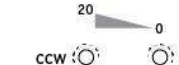
Shaft Diameter:

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:

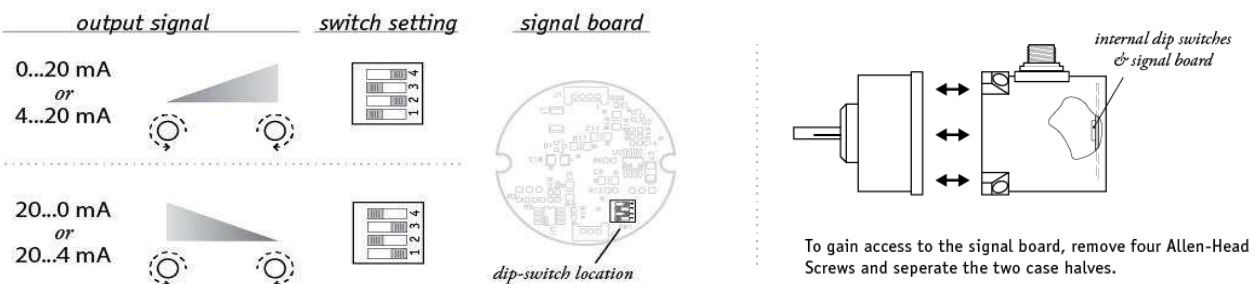
D order code:	1	2	3	4
output signal options:	4...20 mA	20...4 mA	0...20 mA	20...0 mA
				
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%	
wiring configuration:	2 – wire		3 – wire	
input voltage:	8 – 34 vdc		14 – 29 vdc	

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.



RT8420

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

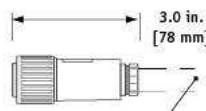
Electrical Connection:

Order code:

1

6-pin plastic connector
w/mating plug

IP 67, NEMA 4X, 6**

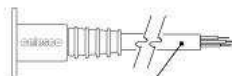


1/2 - 5/16" [14 - 8 mm] cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

2

10-ft. [3 M]
waterproof cable

IP 67, NEMA 4X, 6**

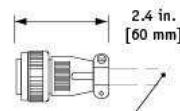


10 ft. x 0.4-in. dia.
[3 M x 10 mm dia.]
18 AWG, type SJTW

3

6-pin metal connector
w/mating plug

IP 65, NEMA 4



3/8-in. [9 mm] max cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

4

25-ft. [7.5 M]
instrumentation cable

IP 67, NEMA 6



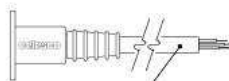
25 ft. x 0.2-in. dia.
[7.5 M x 5 mm dia.]
24 AWG, shielded

Order code:

5

100-ft. [30 M]
waterproof cable

IP 67, NEMA 4X, 6**

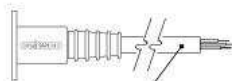


100 ft. x 0.4-in. dia.
[30 M x 10 mm dia.]
18 AWG, type SJTW

6

10-ft. [3 M]
pressure tested*
waterproof cable

IP 68, NEMA 4X, 6P**

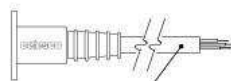


10 ft. x 0.4-in. dia.
[3 M x 10 mm dia.]
18 AWG, type SJTW

7

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

6-pin Mating Plug

pin	2-wire	3-wire
A	8...34 vdc	14...29 vdc
B	4...20 mA out	common
C	-	0...20 mA out
D	case ground	-



contact view

Waterproof Cable

color code	2-wire	3-wire
WHITE	8...34 vdc	14...29 vdc
BLACK	4...20 mA out	common
GREEN	case ground	0...20 mA out

Instrumentation Cable

color code	2-wire	3-wire
RED	8...34 vdc	14...29 vdc
BLACK	4...20A out	common
WHITE	n/a	n/a
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.

Notes: { * -Test pressure: 100 feet [30 meters] H₂O (40 PSID); Test Medium: Air; Duration: 2 hours.
** -NEMA 4X applies to stainless steel enclosure only.

[CLICK HERE >](#)
CONNECT WITH A SPECIALIST

NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

te.com/sensors

TE Connectivity, TE, TE Connectivity (logo) and Every Connection Counts are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make to determine the suitability of each such product for the specific application.

© 2021 TE Connectivity Corporation. All Rights Reserved.

Version # 02/2021

