

RT8101

0–45° to 0–200 Turns • Voltage Divider

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



GENERAL

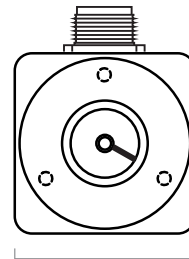
| | |
|--|--|
| Full Stroke Range Options | 0-0.125 to 0-200 turns |
| Output Signal Options | voltage divider (potentiometer) |
| Accuracy | see ordering information |
| Repeatability | ± 0.05% full stroke |
| Resolution | essentially infinite |
| Enclosure Material Options | powder-painted aluminum 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 (Stainless Steel) Enclosure | 3 lbs. (6 lbs.) max. |

ELECTRICAL

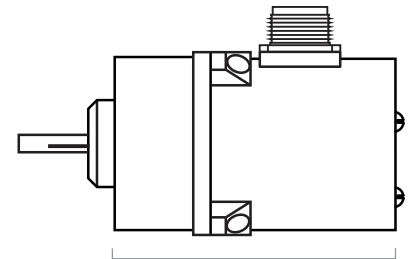
| | |
|---|----------------------------------|
| Input Resistance Options | see ordering information |
| Power Rating, Watt | 2.0 at 70°F derated to 0 at 250° |
| Recommended Maximum Input Voltage | 30 V (AC/DC) |
| Output Signal Change Over Full Stroke Range | 94% ±4% of input voltage |

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 |



2.5" [64 mm]

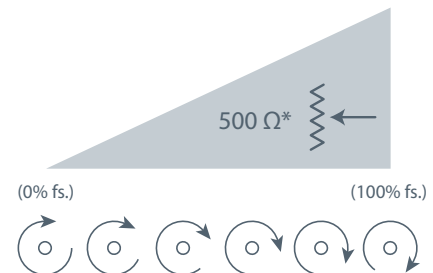


4.0" [102 mm]

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.

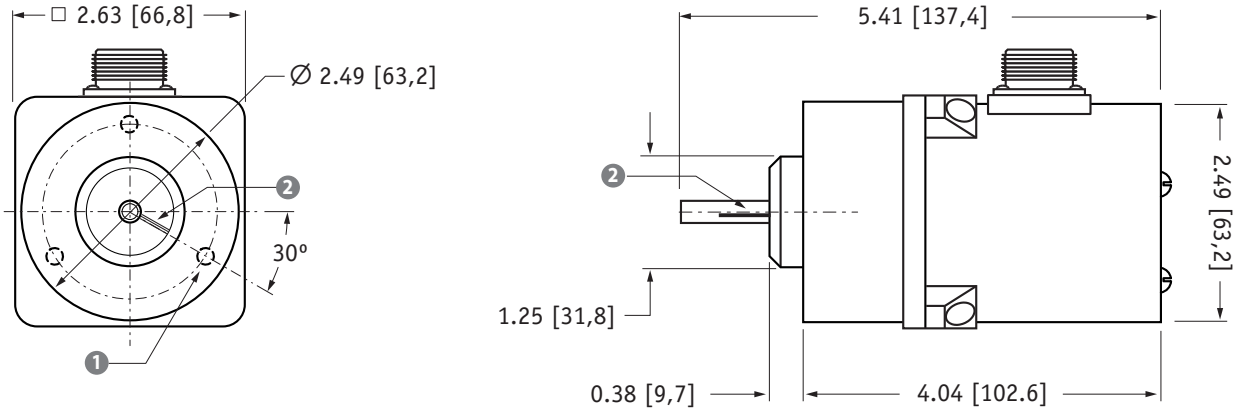
The RT8101 provides extended rotational position feedback from as little as 1/8 of a turn f.s. all the way up to 200 turns f.s. Because the sensor is potentiometric, the RT8101 is absolute and will maintain position information even after a loss of power.

Output Signal:



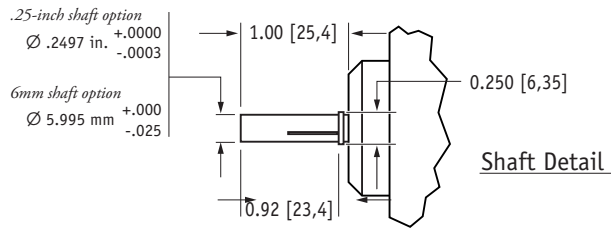
*—1K, 5K, 10K-ohm and bridge circuit also available. see ordering info.

Outline Drawing:



- 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



DIMENSIONS ARE IN INCHES [MM]
tolerances are ±0.02 in. [±0,5 mm] unless otherwise noted

Ordering Information:

Model Number:

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

Sample Model Number:

RT8101 - 0005 - 111 - 1110

- R range: 5 turns (clockwise shaft rotations)
- A enclosure: aluminum
- B shaft diameter: .25 inches
- C mounting style: face mount
- D output signal: 500 ohm potentiometer
- 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 | 0120 | 0140 | 0180 | 0200 |
|---------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| clockwise shaft rotations, min: | 30 | 40 | 50 | 80 | 100 | 120 | 140 | 180 | 200 |
| accuracy (% of f.s.): | 0.15% | 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 | 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.

Enclosure Material:

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

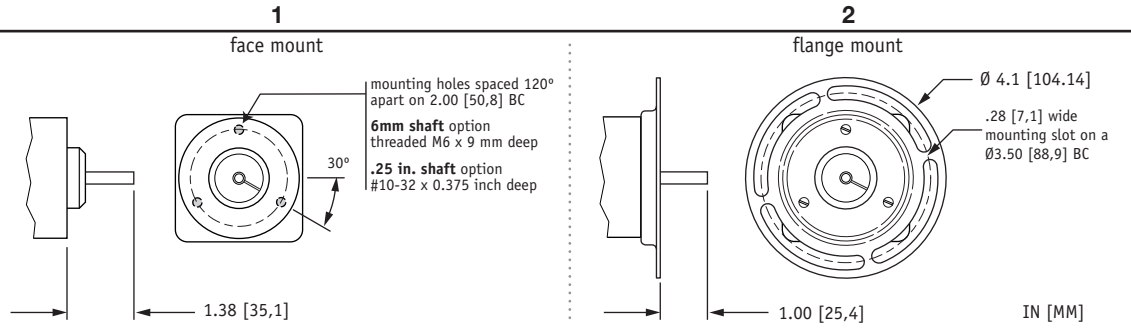
Shaft Diameter:

| 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 |

Ordering Information (cont.):

Mounting Style:

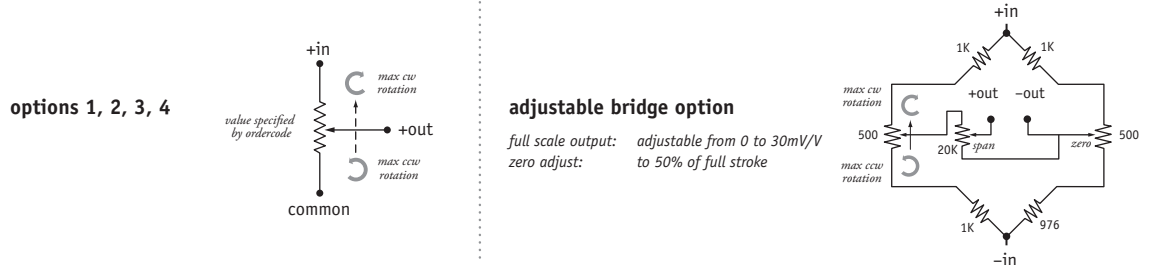
① order code:



Output Signals:

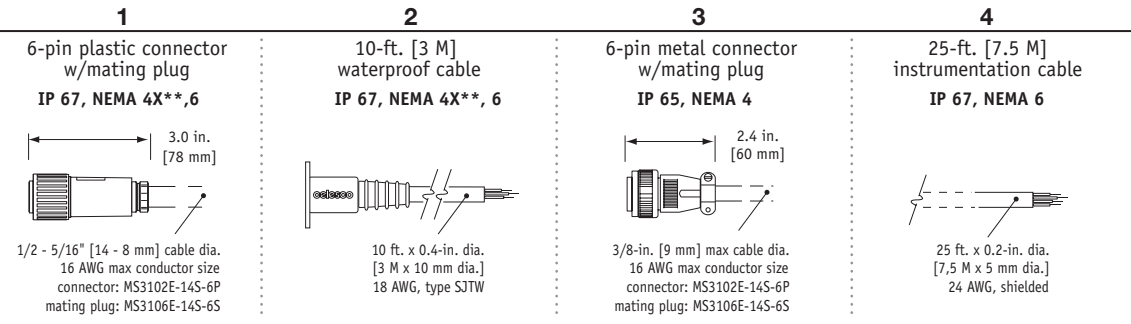
① order code:

| | 1 | 2 | 3 | 4 | 5 |
|-------------------|------------------------|---|-----------|-------------|---------------------------------|
| available ranges: | 500 ohm* all ranges | 1000 ohm* not available for .125-turn (R125) and .25-turn (OR25) range options | 5000 ohm* | 10,000 ohm* | adjustable bridge (0...30 mV/V) |
| | | | | | *tolerance = ±10% |

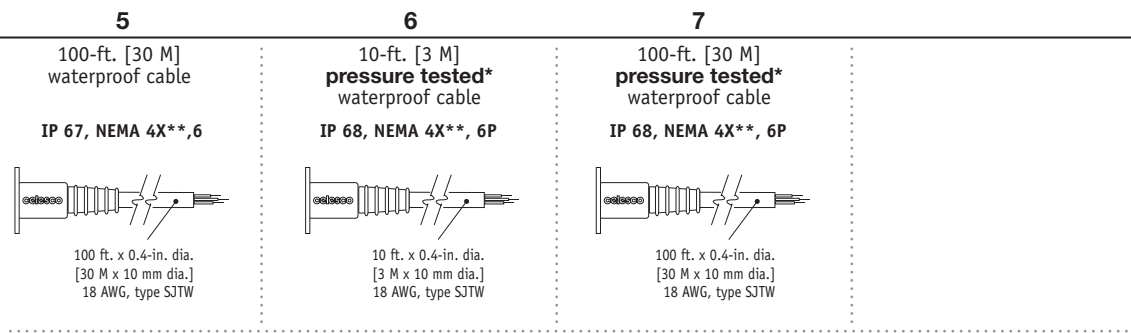


Electrical Connection:

① order code:



② order code:



| 6-pin Mating Plug | | | Waterproof Cable | | | Instrumentation Cable | | |
|-------------------|----------|--------|------------------|----------|--------|-----------------------|----------|--------|
| pin | standard | bridge | color code | standard | bridge | color code | standard | bridge |
| A | + in | + in | WHITE | + in | n/a | RED | + in | + in |
| B | common | - in | BLACK | common | n/a | BLACK | common | - in |
| C | + out | - out | GREEN | + out | n/a | GREEN | + out | + out |
| D | - | + out | | | | WHITE | - | - out |

contact view

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

version: 8.0 last updated: November 19, 2013