

# Rotational Transducer

- ▼ Up to 200 Turns
- ▼ Industrial Grade
- ▼ Precision Potentiometric Output



# RT8101

## Specification Summary:

### GENERAL

Full Stroke Ranges ..... 0-0.125 to 0-200 turns, see ① next page  
 Output Signal ..... voltage divider (potentiometer)  
 Accuracy .....  $\pm 0.30$  to  $0.15\%$  full stroke, see ②  
 Repeatability .....  $\pm 0.02\%$  full stroke  
 Resolution ..... essentially infinite  
 Enclosure Material ..... powder-painted aluminum or stainless steel, see ③  
 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 Resistance .... 500, 1K, 5K, 10K ohms ( $\pm 10\%$ ) or adjustable bridge, see ④  
 Power Rating, Watts ..... 2.0 at 70° F (derated to 0 @ 250°F)  
 Recommended Maximum Input Voltage ..... 30 V(AC or DC)  
 Output Signal Change Over Measurement Range ..... 94%  $\pm 4\%$  of input voltage

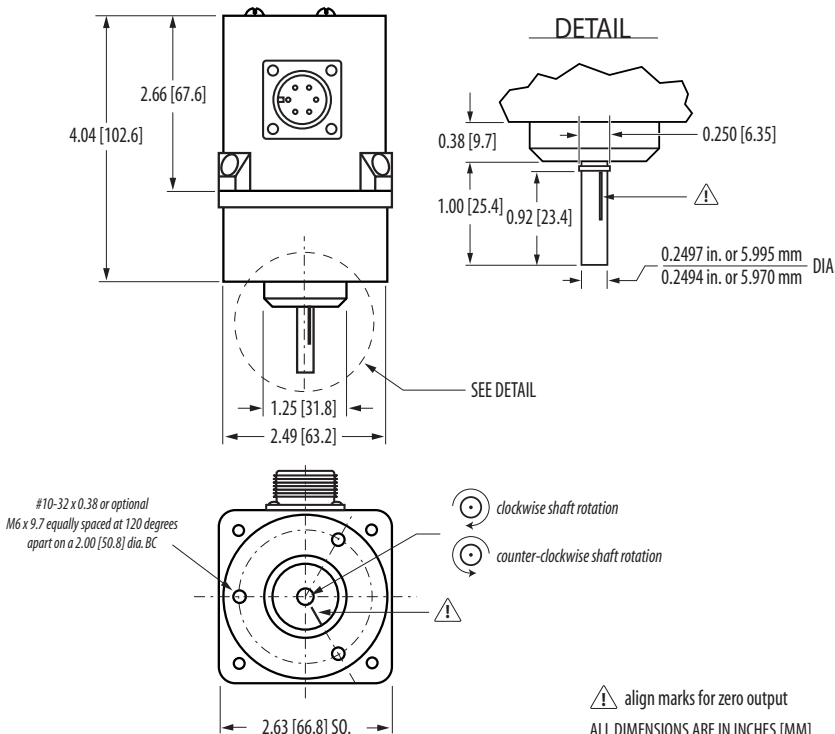
### ENVIRONMENTAL

Enclosure Design ..... NEMA 4/4X/6, IP65/67/68, see ⑤ and ⑥  
 Operating Temperature ..... -40° to 200°F

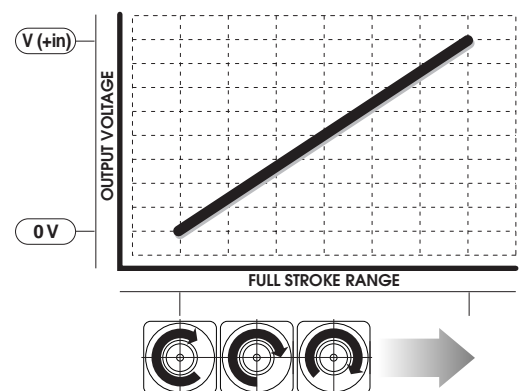


Celeco's model RT8101 provides a voltage feedback signal for rotational position. The sensing element of this device is a precision plastic-hybrid potentiometer which provides superb linearity and resolution.

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.



## Electrical Output Signal:



Latin Tech, Inc.

# RT8101 • Rotational Transducer • Potentiometric Output

## ▼ Ordering Information

### Model Number:

**RT8101-** \_\_\_\_\_ - \_\_\_\_\_ **1** - \_\_\_\_\_ **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 measureable degradation of the output signal occurs.*

### Enclosure Material:

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

### Mounting Configuration and Shaft Diameter:

| <b>B</b> order code: | <b>1</b>           | <b>2</b>      |
|----------------------|--------------------|---------------|
| shaft diameter:      | 0.25 inch diameter | 6 mm diameter |
| mounting holes:      | 10-32 x 0.25 in.   | M6 x 10 mm    |

### Output Signals:

| <b>D</b> order code: | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>  |
|----------------------|----------|----------|----------|----------|---|
| ④ sensing circuit:   | 500 Ω    | 1K Ω     | 5K Ω     | 10K Ω    | 0...30 mV/V adjustable bridge   |
|                      |          |          |          |          | full scale output: adjustable from 0 to 30mV/V<br>zero adjust: from full retraction to 50% of full stroke<br> |

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## Electrical Connection:

⑤ order code:

|                        | 1   | 2                       | 3                                     | 4                            |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
|------------------------|---|-------------------------|---------------------------------------|------------------------------|--------|---------|---------|------------|---------|----------|----------|--|----------|--|-------------|--|----------|--------|-----------|---------------|--------------|--|-----------|--|---|-------------|--|----------|--------|---------|---------|------------|---------|----------|----------|--|----------|--|-------------|--|----------|--------|-----------|-----------|--------------|-----------|-----------|------------|--|------------|
| 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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| connections            |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| standard               | bridge  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| A = +IN                | A = +IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| B = COMMON             | B = -IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| C = +OUT               | C = -OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
|                        | D = +OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| connections            |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| standard               | bridge  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| WHT = +IN              | not available   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| BLK = COMMON           |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| GRN = OUT              |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| connections            |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| standard               | bridge  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| A = +IN                | A = +IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| B = COMMON             | B = -IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| C = +OUT               | C = -OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
|                        | D = +OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| connections            |   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| standard               | bridge  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| RED = +IN              | RED = +IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| BLK = COMMON           | BLK = -IN   |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| GRN = OUT              | WHT = -OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
|                        | GRN = +OUT  |                         |                                       |                              |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| IP rating:             | 67  | 67, 68*                 | 65                                    | 67                           |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |
| NEMA rating:           | 6, 4X**   | 6, 4X**                 | 4                                     | 6                            |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |               |              |  |           |  |   |             |  |          |        |         |         |            |         |          |          |  |          |  |             |  |          |        |           |           |              |           |           |            |  |            |

note: \*requires factory submersion test

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

## ▼ Sample Model Number

**RT8101-0005 - 1 1 1 - 1 1 1 0**  
order code: R A B C D E F G

Specifications: Full Stroke Range: 5 turns (5 clockwise shaft rotations)  
 Enclosure Material: powder-painted aluminum  
 Shaft Diameter: 0.25 inches  
 Mounting Holes: 10-32 x 0.250 in.  
 Output Signal: 500 ohm voltage divider  
 Electrical Connection: 6-pin plastic connector