

# Model 8150

## Position Sensor

### 7/8" Diameter

### 10 turn\* Non-Contacting

### Hall Effect



#### MODEL STYLES AVAILABLE

|      |                          |
|------|--------------------------|
| 8151 | 1/8" Shaft, 1/4" Bushing |
| 8153 | 1/8" Shaft, Servo Mount  |
| 8154 | 6 mm shaft, 3/8" Bushing |
| 8156 | 1/4" shaft, 3/8" Bushing |

#### ELECTRICAL<sup>1</sup>

|                                           |                                                                              |
|-------------------------------------------|------------------------------------------------------------------------------|
| Input Voltage                             | 4.5 to 5.5 Vdc nominal                                                       |
| Output Voltage                            | 0.2 Vdc (4%) to 4.8 Vdc (96%) Typical (see Feature Codes table)              |
| Output Overvoltage Limits                 | 10 Vdc to -0.3 Vdc; output may be shorted to ground or supply without damage |
| Output Current                            | ±15 mA maximum                                                               |
| Output Load                               | 1 kΩ Min., 10 kΩ typical                                                     |
| Supply Voltage Absolute Limits            | 20 Vdc Max., -10 Vdc minimum                                                 |
| Independent Linearity <sup>2</sup>        | ±0.5% (0.25% Available)                                                      |
| Hysteresis                                | 10° maximum (10 turn), 5° maximum (5 turn), 3° maximum (3 turn)              |
| Resolution                                | 0.88° for 3600° travel, 0.44° for 1800° travel, 0.27° for 1080° travel       |
| Supply Current                            | 8.5 mA typical, 12 mA maximum                                                |
| Dielectric Strength                       | 750 V rms                                                                    |
| Insulation Resistance                     | 1,000 MegΩ minimum                                                           |
| Electrostatic Discharge (ESD)             | Passes 2 kV human body model and 15 kV air discharge                         |
| Bulk Current Injection (BCI)              | Passes 2-500 MHz at 200 mA                                                   |
| Actual Electrical Travel                  | Same as mechanical travel                                                    |
| Temperature Coefficient of Output Voltage | ± 20 ppm/°C                                                                  |

#### MECHANICAL

|                                               |                                                                      |
|-----------------------------------------------|----------------------------------------------------------------------|
| Total Mechanical Travel                       | Up to 3600° continuous                                               |
| Bearing                                       | Bushing models use bronze sleeve, Servo model uses two ball bearings |
| Weight                                        | TBD                                                                  |
| Panel Nut Tightening Torque                   | 25 in. lb. maximum                                                   |
| Start/Run Torque (ES option adds 0.5 oz.-in.) | < 0.1 oz-in                                                          |

<sup>1</sup> Specifications subject to change without notice.

<sup>2</sup> Linearity is measured per voltage code range, inset by 1% of input voltage on each end.

\* Model available in 3 & 5 turn versions.

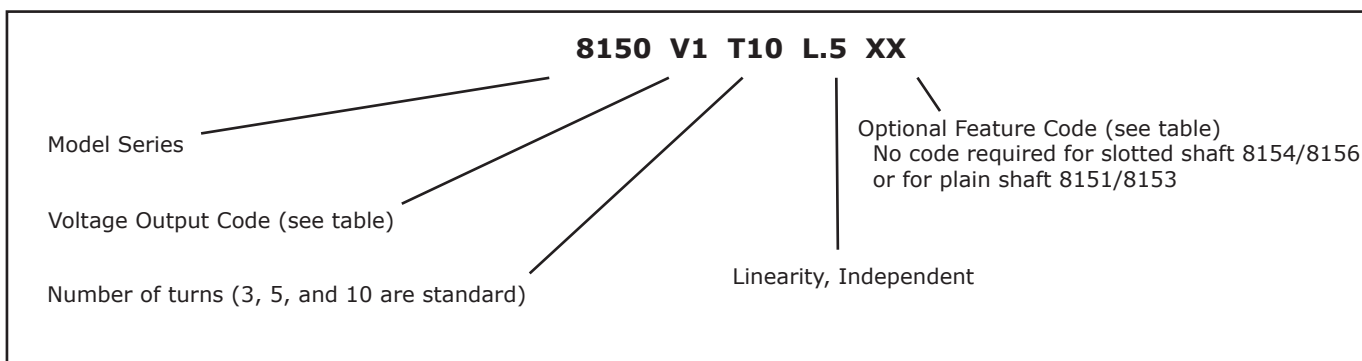


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## ENVIRONMENTAL

|                                     |                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature Range         | -40°C to +125°C                                                                                                                                                               |
| Shock                               | Per MIL R-39023, 6 ms Saw-tooth 100 G's                                                                                                                                       |
| Vibration                           | Per MIL R-39023, 10 G's, 100 to 500 Hz                                                                                                                                        |
| Moisture Resistance, Powered        | Per MIL 202G, Method 106G                                                                                                                                                     |
| Rotational Life                     | 8153: 50 million shaft revolutions with side load < 0.33 lb, 100 million with side load < 0.25 lb<br>all other models: 10 million shaft revolutions with up to 8 oz side load |
| Storage Temperature Range           | -55°C to +125°C                                                                                                                                                               |
| Ingress Protection Rating (IP Code) | IP50, IP66 available as option (feature code ES)                                                                                                                              |

## ORDERING INFORMATION



## CODES

| Voltage Output Codes |               |
|----------------------|---------------|
| V0                   | ≤ 3% to ≥ 96% |
| V1                   | 4% to 96%     |
| V2                   | 5% to 95%     |
| V3                   | 10% to 90%    |
| V4                   | 15% to 85%    |
| V5                   | 20% to 80%    |
|                      |               |
|                      |               |

When V0 is used the angle specified is the theoretical angle over which the output would vary if the output could actually reach 0% and 100% of Vcc.

| Optional Feature Codes |                                                          |
|------------------------|----------------------------------------------------------|
| no code                | 8151, 8153 plain shaft. 8154, 8156 slotted shaft         |
| SS                     | Slotted Shaft (8151, 8153 only. Not used for 8154, 8156) |
| FS                     | Flatted Shaft                                            |
| LT                     | Linearity Data                                           |
| SL                     | Shaft Lock (8156 only)                                   |
| CW                     | Reverse Direction                                        |
| HT                     | High Torque (8156 only)                                  |
| ES                     | Seal IP66 (8154, 8156 only)                              |

When multiple feature codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

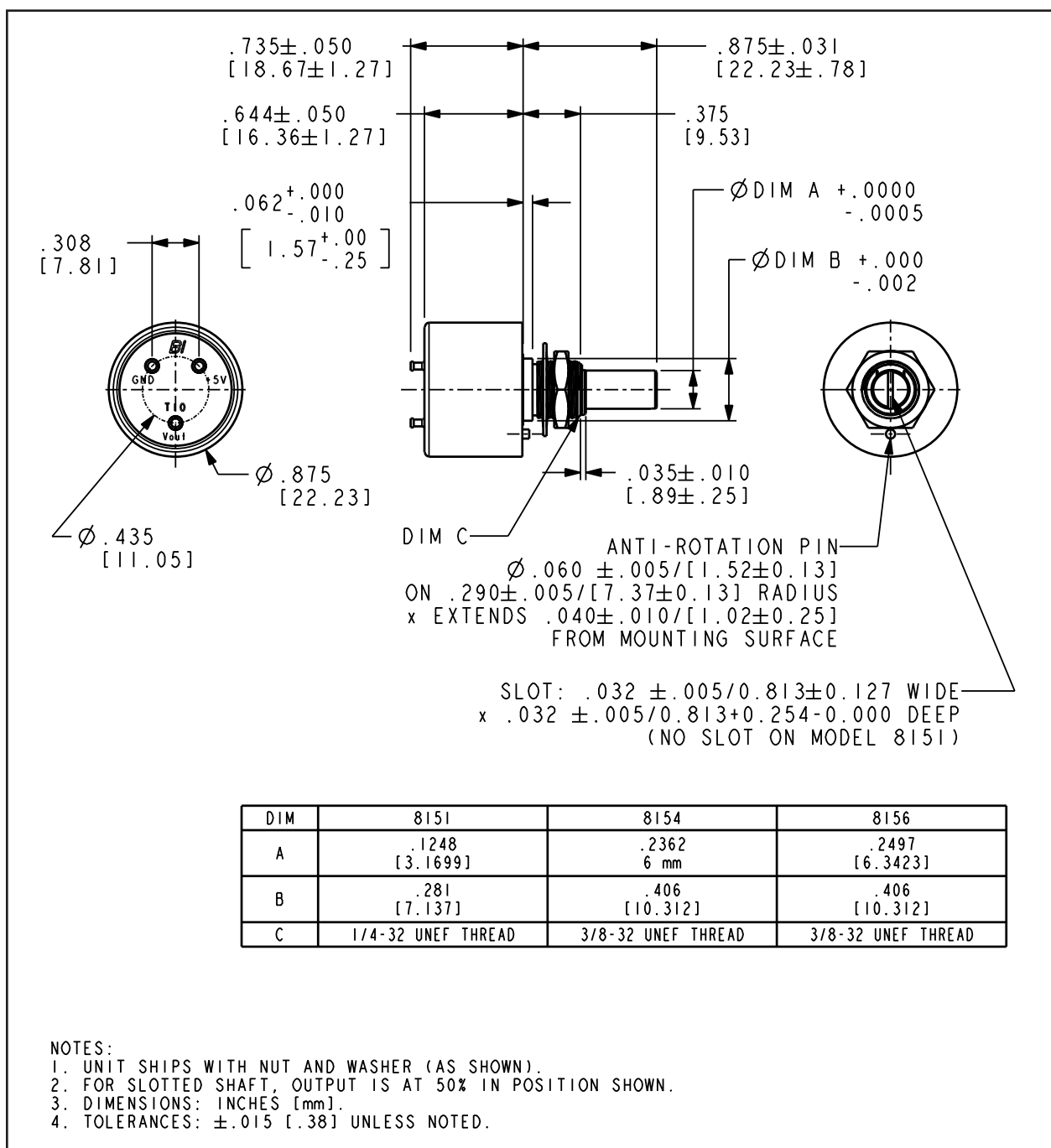
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## MATCHING TURNS COUNTING DIALS

**8151: RBJ, 2601, 2641**

**8154, 8156: RB, 2126, 2606, 2606S, 2607, 2607S, 2626, 2627, 2646, 2646S, 2647, 2647S**

## OUTLINE DRAWING (bushing mounts)



# Model 8150

## OUTLINE DRAWING (8153 servo mount)

