

# Model T7 Dual Range Precision-Pedestal Rotary Torque Transducer

Why the Interface model T7 Dual Range Precision-Pedestal Rotary Torque Transducer is the best in class:

- Integral mounting base
- Dual range capacities - 10:1 ratio  
(5/0.5 to 20K/2K Nm)  
(44.3/4.43 to 177K to 17.7K lb-in)
- $\pm 5$  VDC output
- Stainless steel shaft
- 5 kHz sample rate
- 12 to 28 VDC supply
- Digital electronics
- Contactless



T7 Dual Range Precision-Pedestal Rotary Torque Transducer

## OPTIONS

Speed & Angle Measurement - 360 Pulse TTL,  
2-Tracks 90° Offset, Available on capacities up to  
1,000 Nm only  
Speed Output - 60 Pulse TTL, 1-Track, Available on  
capacities 2,000 Nm & above  
 $\pm 10$  V Torque Output  
RS485  
High Speed to 12,000 RPM  
Keyed Shafts  
SAE Sized Shafts

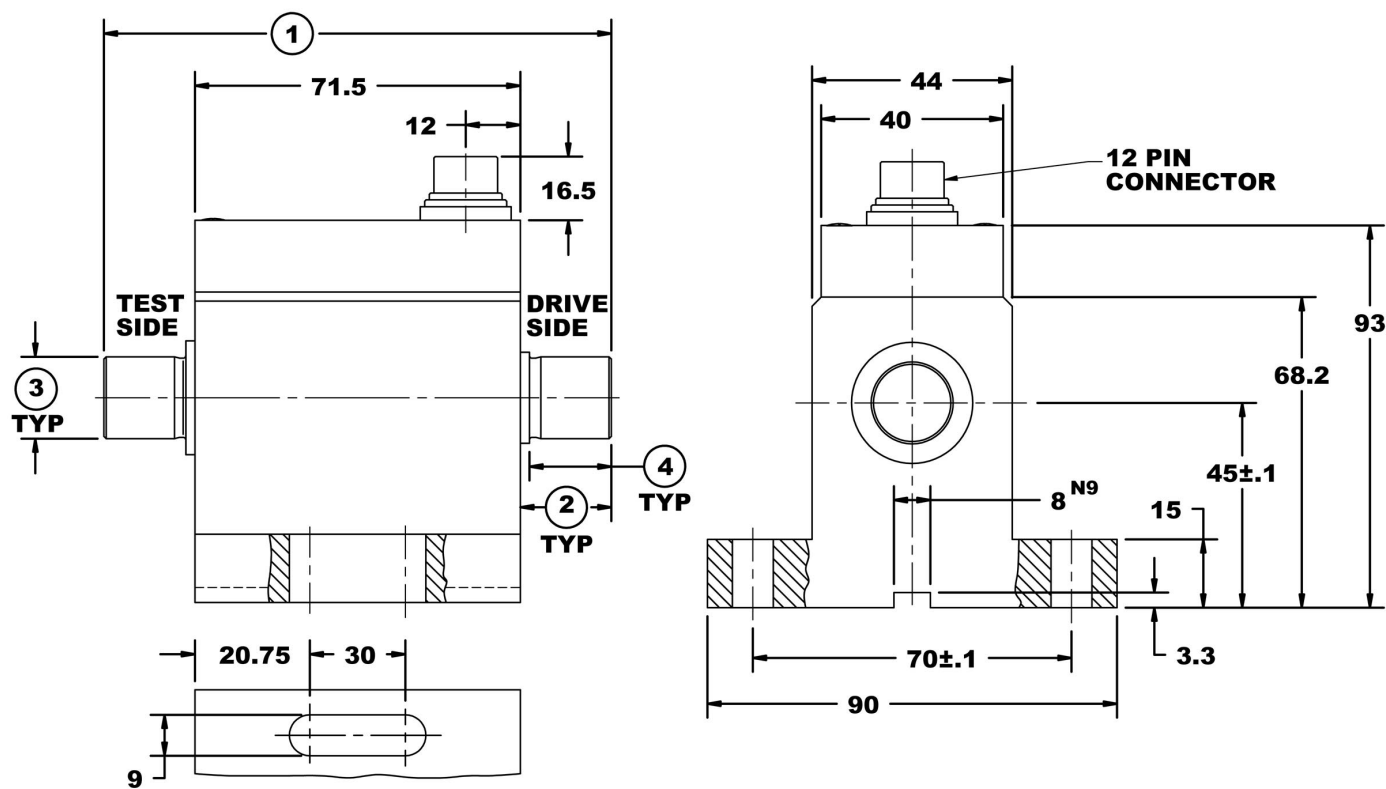
## SPECIFICATIONS

|                               |                                    |
|-------------------------------|------------------------------------|
| <b>ACCURACY – (MAX ERROR)</b> |                                    |
| Combined Error–% FS           | $\pm 0.1$                          |
| Nonrepeatability–%            | $\pm 0.02$                         |
| <b>TEMPERATURE</b>            |                                    |
| Effect on Zero–% RO/°C        | $\pm 0.02$                         |
| Effect on Output–%/°C         | $\pm 0.01$                         |
| Rated Range–°C                | +5 to +45                          |
| Operating Range–°C            | 0 to +60                           |
| <b>ELECTRICAL</b>             |                                    |
| Output–VDC                    | $\pm 5$                            |
| Bandwidth, Hz                 | 3 kHz-3dB                          |
| Calibration Signal–% RO       | 100                                |
| Speed Output - puls/rev.      | 60                                 |
| Supply Voltage–VDC            | 12 to 28                           |
| Supply Current–mA             | 60                                 |
| Electrical Connection         | 12-pin                             |
| <b>MECHANICAL</b>             |                                    |
| Safe Overload–% RO            | 200                                |
| Cyclic Load Rating–% RO       | $\pm 70$ peak                      |
| Max Speed - rpm               | Varies with capacity,<br>see table |
| Shaft                         | Stainless steel                    |
| Housing                       | Aluminum                           |

Model T7 Dual Range Precision Rotary Torque Transducer -  
Capacities 5/0.5 to 50/5 Nm

DIMENSIONS

| Nominal Dual Range Torque (Range 1/Range 2) |                   |       |                   |       |                    |       |                    |       |
|---------------------------------------------|-------------------|-------|-------------------|-------|--------------------|-------|--------------------|-------|
| Capacity (Nm)                               | 5/0.5             |       | 10/1              |       | 20/2, 30/3         |       | 50/5, 100/10       |       |
| Equivalent (lb-in)                          | 44.3/4.43         |       | 88.5/8.85         |       | 177/17.7, 265/26.5 |       | 443/44.3, 885/88.5 |       |
|                                             | inch              | mm    | inch              | mm    | inch               | mm    | inch               | mm    |
| ①                                           | 4.23              | 107.5 | 4.23              | 107.5 | 4.39               | 111.5 | 5.81               | 147.5 |
| ②                                           | 0.71              | 18    | 0.71              | 18    | 0.79               | 20    | 1.50               | 38    |
| ③                                           | 0.3148/<br>0.3144 | 8g6   | 0.3935/<br>0.3931 | 10g6  | 0.7087/<br>0.7082  | 18g6  | 0.7087/<br>0.7082  | 18g6  |
| ④                                           | 0.67              | 17    | 0.67              | 17    | 0.71               | 18    | 1.42               | 36    |



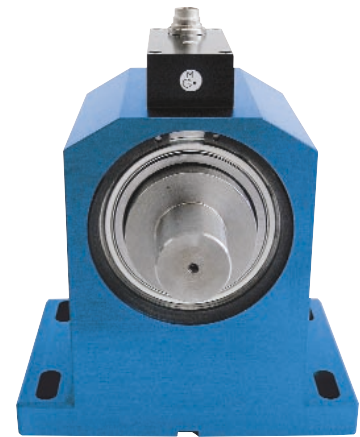
Dimensions in mm

# Model T7 Dual Range Precision-Pedestal Rotary Torque Transducer -

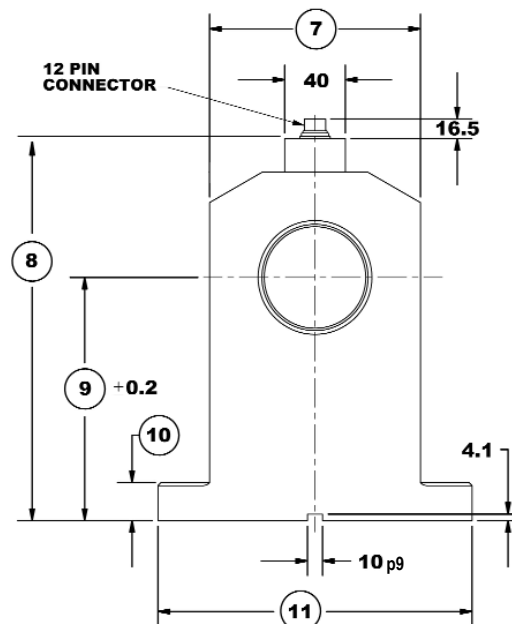
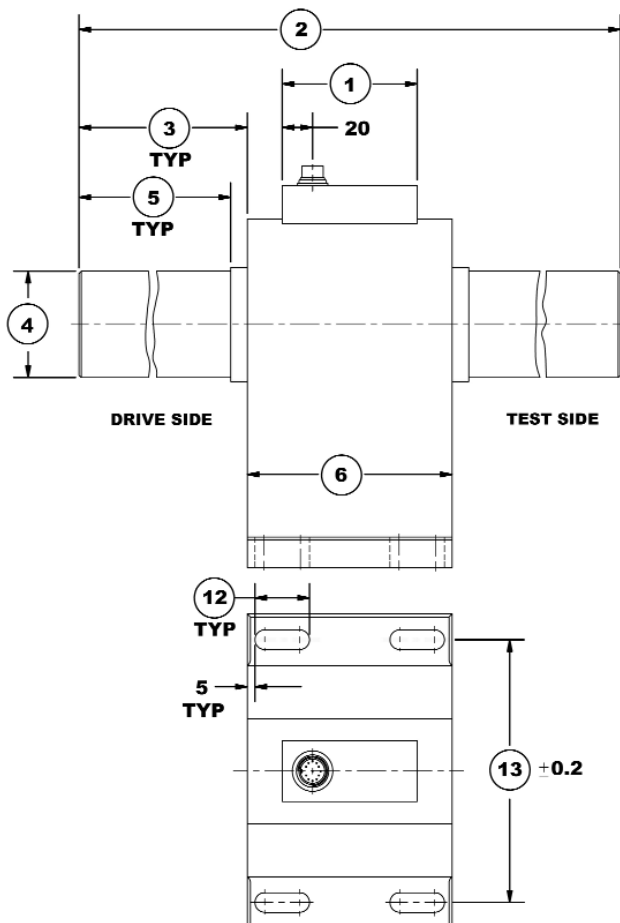
Capacities 200/20 to 20K/2K Nm

## DIMENSIONS

| Nominal Dual Range Torque (Range 1/Range 2) |                                 |       |               |       |                          |       |                        |        |
|---------------------------------------------|---------------------------------|-------|---------------|-------|--------------------------|-------|------------------------|--------|
| Capacity (Nm)                               | 200/20, 300/30, 500/50          |       | 1K/100        |       | 2K/200, 5K/500           |       | 10K/1K 20K/2K          |        |
| Equivalent (lb-in)                          | 1.77K/177, 2.65K/265, 4.43K/443 |       | 8.85K/885     |       | 17.7K/1.77K, 44.3K/4.43K |       | 88.5K/8.85K 177K/17.7K |        |
|                                             | inch                            | mm    | inch          | mm    | inch                     | mm    | inch                   | mm     |
| ①                                           | 3.50                            | 89    | 3.50          | 89    | 3.50                     | 89    | 3.50                   | 89     |
| ②                                           | 8.54                            | 217   | 10.31         | 262   | 14.84                    | 377   | 18.50                  | 470    |
| ③                                           | 1.71                            | 43.5  | 2.60          | 66    | 4.76                     | 121   | 5.51                   | 140    |
| ④                                           | 1.2595/1.2598                   | 32 h6 | 1.9685/1.9675 | 50 h7 | 2.7559/2.7547            | 70 h7 | 4.3307/4.3293          | 110 h7 |
| ⑤                                           | 1.50                            | 38    | 2.28          | 58    | 4.33                     | 110   | 4.72                   | 120    |
| ⑥                                           | 5.12                            | 130   | 5.12          | 130   | 5.31                     | 135   | 7.48                   | 190    |
| ⑦                                           | 4.53                            | 115   | 4.53          | 115   | 5.47                     | 139   | 8.27                   | 210    |
| ⑧                                           | 7.50                            | 190.4 | 7.50          | 190.4 | 9.90                     | 251.5 | 13.50                  | 343    |
| ⑨                                           | 4.41                            | 112   | 4.41          | 112   | 6.30                     | 160   | 8.46                   | 215    |
| ⑩                                           | 0.79                            | 20    | 0.79          | 20    | 0.98                     | 25    | 1.57                   | 40     |
| ⑪                                           | 6.89                            | 175   | 6.89          | 175   | 8.15                     | 207   | 11.81                  | 300    |
| ⑫                                           | 1.18                            | 30    | 1.18          | 30    | 1.42                     | 36    | 1.77                   | 45     |
| ⑬                                           | 5.71                            | 145   | 5.71          | 145   | 6.81                     | 173   | 10.24                  | 260    |



**T7 Dual Range Precision-Pedestal Rotary Torque Transducer**



Dimensions in mm

**T7 DUAL RANGE PRECISION-PEDESTAL ROTARY TORQUE TRANSDUCER PERFORMANCE PARAMETERS**

| CAPACITY (Nm)<br>(Range 1/ Range 2) | MAX RPM  |         | SPRINGRATE<br>(Nm/rad) | MOMENT OF INERTIA, J (Kgx <sup>m</sup> ²) |                      | MAX THRUST LOAD<br>(N) |
|-------------------------------------|----------|---------|------------------------|-------------------------------------------|----------------------|------------------------|
|                                     | Standard | Special |                        | Drive Side                                | Test Side            |                        |
| 5/0.5                               | 8,000    | 12,000  | 2.4x10 <sup>2</sup>    | 9.7x10 <sup>-6</sup>                      | 7.9x10 <sup>-6</sup> | 50                     |
| 10/1                                | 8,000    | 12,000  | 7.2x10 <sup>2</sup>    | 1.0x10 <sup>-5</sup>                      | 7.9x10 <sup>-6</sup> | 50                     |
| 20/2                                | 8,000    | 12,000  | 2.2x10 <sup>3</sup>    | 1.1x10 <sup>-5</sup>                      | 9.9x10 <sup>-6</sup> | 300                    |
| 30/3                                | 8,000    | 12,000  | 2.8x10 <sup>3</sup>    | 1.1x10 <sup>-5</sup>                      | 9.9x10 <sup>-6</sup> | 1,000                  |
| 50/5                                | 6,000    | 12,000  | 5.4x10 <sup>3</sup>    | 1.4x10 <sup>-5</sup>                      | 1.1x10 <sup>-5</sup> | 1,600                  |
| 100/10                              | 6,000    | 12,000  | 8.0x10 <sup>3</sup>    | 1.4x10 <sup>-5</sup>                      | 1.2x10 <sup>-5</sup> | 2,600                  |
| 200/20                              | 4,000    | 7,000   | 3.7x10 <sup>4</sup>    | 1.3x10 <sup>-3</sup>                      | 8.0x10 <sup>-4</sup> | 3,200                  |
| 300/30                              | 4,000    | 7,000   | 5.4x10 <sup>4</sup>    | 1.3x10 <sup>-3</sup>                      | 8.0x10 <sup>-4</sup> | 7,500                  |
| 500/50                              | 4,000    | 7,000   | 8.1x10 <sup>4</sup>    | 1.3x10 <sup>-3</sup>                      | 8.0x10 <sup>-4</sup> | 7,500                  |
| 1,000/100                           | 4,000    | 7,000   | 1.9x10 <sup>5</sup>    | 1.6x10 <sup>-3</sup>                      | 1.1x10 <sup>-3</sup> | 10,000                 |
| 2,000/200                           | 3,500    | 5,500   | 5.1x10 <sup>5</sup>    | 5.4x10 <sup>-3</sup>                      | 4.2x10 <sup>-3</sup> | 18,000                 |
| 5,000/500                           | 3,500    | 5,500   | 7.8x10 <sup>5</sup>    | 5.5x10 <sup>-3</sup>                      | 4.3x10 <sup>-4</sup> | 32,000                 |
| 10,000/1,000                        | 3,000    | 3,500   | 3.1x10 <sup>6</sup>    | 4.1x10 <sup>-2</sup>                      | 3.6x10 <sup>-2</sup> | 125,000                |
| 20,000/2,000                        | 3,000    | 3,500   | 3.1x10 <sup>6</sup>    | 4.1x10 <sup>-2</sup>                      | 3.7x10 <sup>-2</sup> | 200,000                |

**ELECTRICAL CONNECTION**

| 12-PIN T7 DUAL RANGE |                |                     |
|----------------------|----------------|---------------------|
| Pin                  | Function       | Description         |
| A                    | NC             | -                   |
| B                    | Option Angle B | TTL                 |
| C                    | Signal (+)     | +5 VDC              |
| D                    | Signal (GND)   | 0 VDC               |
| E                    | Supply (GND)   | 0 VDC               |
| F                    | Supply (+)     | 12-28 VDC           |
| G                    | Option Angle A | TTL                 |
| H                    | Signal 2 (+)   | +5 VDC              |
| J                    | NC             | -                   |
| K                    | Cal. Control   | L < 2.0 / H > 3.5 V |
| L                    | NC             | -                   |
| M                    | Shield         | Transducer Housing  |