

T3 PRECISION-PEDESTAL MOUNT ROTARY TORQUE TRANSDUCER (US & METRIC)

FEATURES & BENEFITS

- Capacities from 0.1 to 20K Nm (0.88 to 177K lbf-in)
- Speed up to 15K RPM
- ± 5 VDC output
- 12-28 VDC supply
- Contactless data transmission
- Digital electronics with on-shaft shunt
- 0.1% combined error
- 10 kHz sample rate
- 16-bit resolution
- Very short overall length

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Combined Error – %FS		±0.1
Non-repeatability – %FS		±0.02
Resolution – bit		16
TEMPERATURE		
Effect on Zero – %RO / °C		±0.02
Effect on Output – % / °C		±0.01
Compensated Range	°C	+5 to +45
	°F	+41 to +113
Operating Range	°C	0 to +60
	°F	+32 to +140
Storage Range	°C	-10 to +70
	°F	+14 to +158
ELECTRICAL		
Supply Voltage – VDC		12 - 28
Supply Current – mA		≤ 60
Output – VDC		±5
Bandwidth – kHz – dB		1 – -3
Sample Rate – kHz		10
Calibration Signal – %FS		100
Electrical Connection		12-pin binder series 581 (includes mate)
ENCODER OPTIONS		
Capacities	0.1 - 1K Nm	360 pulse/rev, 2-track, +5V TTL, 90° offset, quadrature encoder
	0.88 - 8.85K lbf-in	
	2K - 20K Nm	60 pulse/rev, 1-track, +5V TTL,
	17K - 177K lbf-in	
MECHANICAL		
Safe Overload – %RO		200
Max Speed – RPM		Varies with capacity (see table)
Shaft Material		Alloy steel
Housing Material		Aluminum

STANDARD CONFIGURATION



MODEL T3 (Shown)

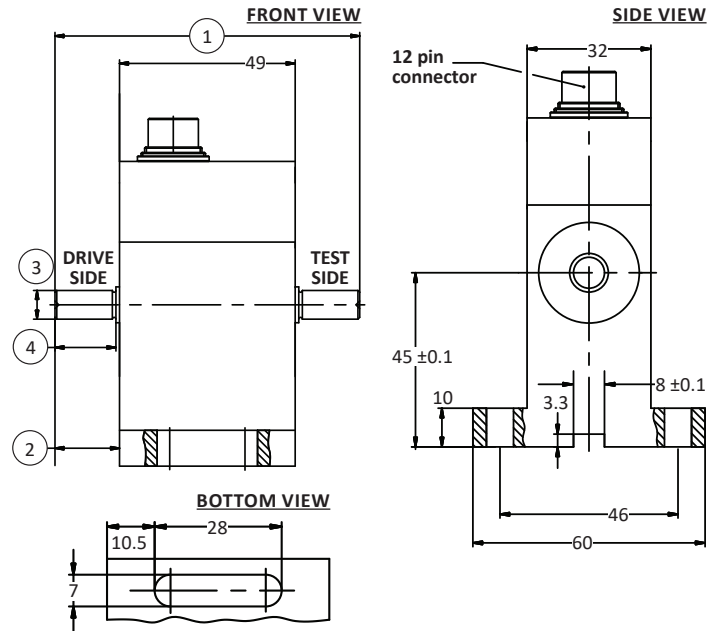
OPTIONS

- Speed and angle output - 360 pulse TTL, 2-tracks 90° offset, available on capacities up to 1K Nm (8.85K lbf-in) only
- Speed output - 60 Pulse TTL, 1-Track, available on capacities 2K Nm (17.7K lbf-in) and above
- +10V output
- RS485
- Keyed shafts - per DIN 6885.1
- $\pm 0.05\%$ combined error
- Mating cable assembly

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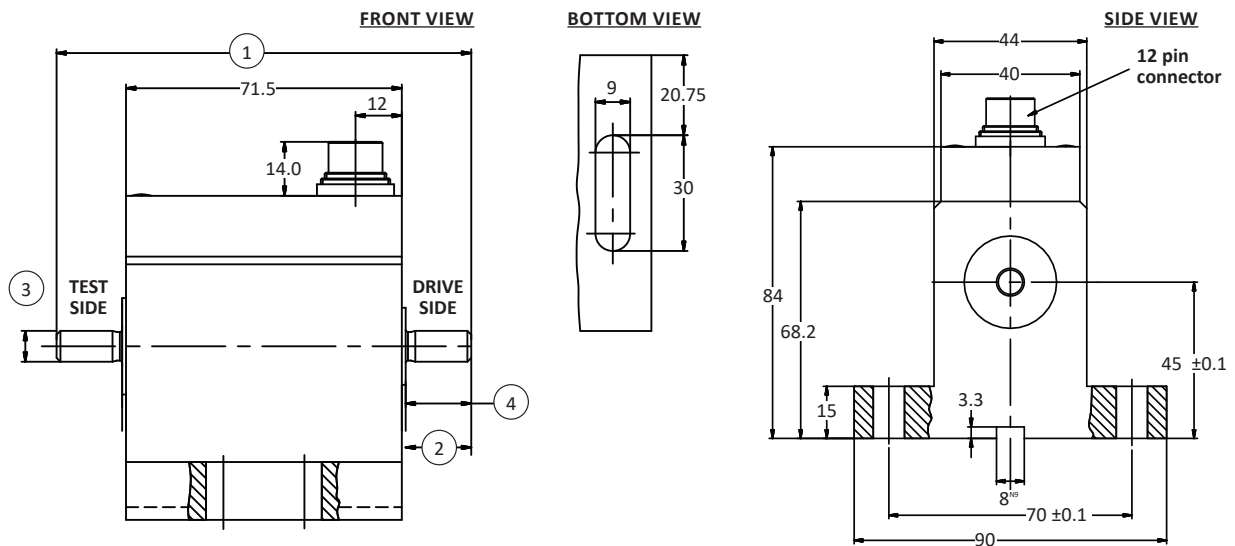
DIMENSIONS

See Drawing	CAPACITIES			
	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	0.1, 0.2	0.88, 1.77	0.5, 1	4.43, 8.85
	mm	in	mm	in
(1)	85	3.35	85	3.35
(2)	18 TYP	0.71 TYP	18 TYP	0.71 TYP
(3)	8g6 TYP	0.3148 / 0.3144 TYP	8g6 TYP	0.3148 / 0.3144 TYP
(4)	17 TYP	0.67 TYP	17 TYP	0.67 TYP

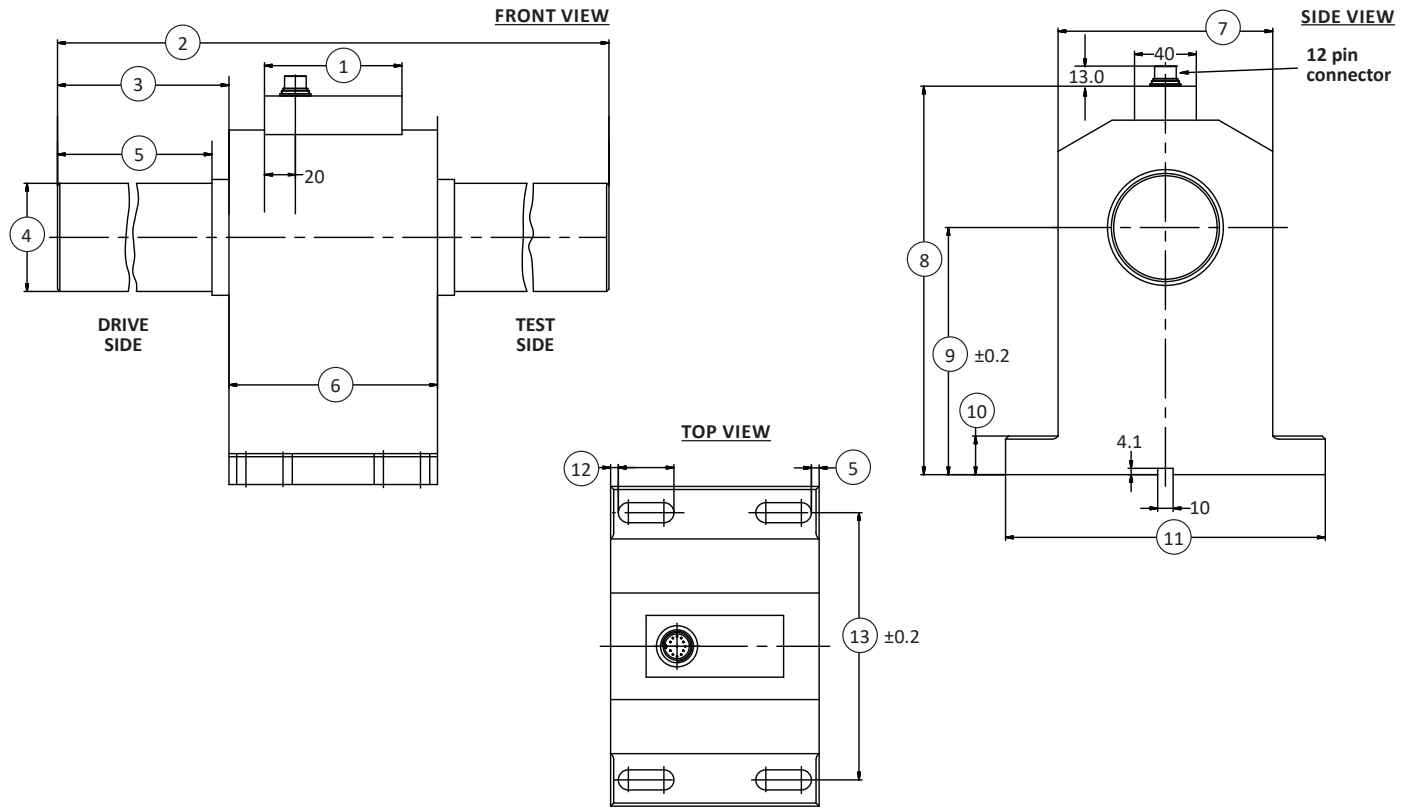


DIMENSIONS (CONTINUED)

See Drawing	CAPACITIES							
	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	2, 5	17.7, 44.3	10	8.85	20, 30	177, 265	50, 100	443, 885
	mm	in	mm	in	mm	in	mm	in
(1)	107.5	4.23	107.5	4.23	111.5	4.39	147.5	5.81
(2)	18 TYP	0.71 TYP	18 TYP	0.71 TYP	20 TYP	0.79 TYP	38 TYP	1.50 TYP
(3)	8g6 TYP	0.3148 / 0.3144 TYP	10g6 TYP	0.3935 / 0.3931 TYP	18g6 TYP	0.7087 / 0.7082 TYP	18g6 TYP	0.7087 / 0.7082 TYP
(4)	17 TYP	0.67 TYP	17 TYP	0.67 TYP	18 TYP	0.71 TYP	36 TYP	1.42 TYP



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DIMENSIONS (CONTINUED)

See Drawing	CAPACITIES							
	Metric (Nm)	US (lbf-in)	Metric (Nm)	US (lbf-in)	Metric (Nm)	US (lbf-in)	Metric (Nm)	US (lbf-in)
	200, 500	1.77K, 4.43K	1K	8.85K	2K, 5K	17K, 44.3K	10K, 20K	85.5K, 177K
	mm	in	mm	in	mm	in	mm	in
(1)	89	3.50	89	3.50	89	3.50	89	3.50
(2)	217	8.54	262	10.31	377	14.84	470	18.50
(3)	43.5 TYP	1.71 TYP	66 TYP	2.60 TYP	121 TYP	4.76 TYP	140 TYP	5.51 TYP
(4)	32g6	1.2595 / 1.2598	50g6	1.9685 / 1.9675	70g6	2.7559 / 2.7547	110g6	4.3307 / 4.3293
(5)	38 TYP	1.50 TYP	58 TYP	2.28 TYP	110 TYP	4.33 TYP	120 TYP	4.72 TYP
(6)	130	5.12	130	5.12	135	5.31	190	7.48
(7)	115	4.53	115	4.63	139	5.47	210	8.27
(8)	190.4	7.50	190.4	7.50	251.5	9.90	318	12.52
(9)	112	4.41	112	4.41	160	6.30	215	8.46
(10)	20	0.79	20	0.79	25	0.98	40	1.57
(11)	175	6.89	175	6.89	207	8.15	300	11.81
(12)	30 TYP	1.18 TYP	30 TYP	1.18 TYP	36 TYP	1.42 TYP	45 TYP	1.77 TYP
(13)	145	5.71	145	5.71	173	6.81	260	10.24

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PERFORMANCE PARAMETERS

CAPACITY		MAX RPM	SPRING RATE	MOMENT OF INERTIA ¹ (Kg•m ²)		MAX THRUST LOAD ²		MAX SHEAR LOAD ²	
Nm	lbf-in		(NM/rad)	Drive Side	Test Side	N	lbf	N	lbf
0.1	0.88	15,000	1.8x10 ¹	1.9x10 ⁻⁶	2.8x10 ⁻⁷	30	6.74	0.9	0.20
0.2	1.77	15,000	1.8x10 ¹	1.9x10 ⁻⁶	2.8x10 ⁻⁷	30	6.74	1.2	0.27
0.5	4.43	15,000	1.2x10 ²	1.9x10 ⁻⁶	2.8x10 ⁻⁷	30	6.74	2.9	0.65
1	8.85	15,000	1.2x10 ²	2.0x10 ⁻⁶	2.8x10 ⁻⁷	30	6.74	2.9	0.65
2	17.7	12,000	4.4x10 ²	1.0x10 ⁻⁵	8.1x10 ⁻⁶	62	13.9	8.5	1.91
5	44.3	12,000	4.4x10 ²	1.0x10 ⁻⁵	8.1x10 ⁻⁶	62	13.9	8.5	1.91
10	88.5	12,000	1.7x10 ³	1.0x10 ⁻⁵	8.2x10 ⁻⁶	62	13.9	28	6.29
20	177	12,000	4.5x10 ³	1.2x10 ⁻⁵	9.9x10 ⁻⁶	62	13.9	43	9.67
30	265	12,000	4.5x10 ³	1.2x10 ⁻⁵	9.9x10 ⁻⁶	62	13.9	65	14.6
50	443	12,000	8.5x10 ³	1.3x10 ⁻⁵	1.2x10 ⁻⁵	62	13.9	64	14.4
100	885	12,000	8.4x10 ³	1.3x10 ⁻⁵	1.2x10 ⁻⁵	62	13.9	64	14.4
200	1.77K	7,000	9.2x10 ⁴	1.3x10 ⁻³	8.0x10 ⁻⁴	760	171	350	78.7
500	4.43K	7,000	9.2x10 ⁴	1.3x10 ⁻³	8.0x10 ⁻⁴	760	171	420	94.4
1K	8.85K	7,000	3.1x10 ⁵	1.6x10 ⁻³	1.1x10 ⁻³	760	171	800	180
2K	17K	5,500	7.2x10 ⁵	5.3x10 ⁻³	4.3x10 ⁻³	1,100	247	860	193
5K	44.3K	5,500	8.0x10 ⁵	5.4x10 ⁻³	4.3x10 ⁻³	1,100	247	860	193
10K	85.5K	3,500	3.1x10 ⁶	4.0x10 ⁻²	3.7x10 ⁻²	2,800	629	2.3K	517
20K	177K	3,500	3.7x10 ⁶	4.0x10 ⁻²	3.8x10 ⁻²	2,800	629	2.3K	517

1 = Without encoder option

2 = Unsupported shaft

ELECTRICAL CONNECTION

Pin	12-PIN ELECTRICAL CONNECTION		12-PIN RS485 OPTION	
	Function	Description	Function	Description
A	NC	—	NC	—
B	Option Angle B	TTL	Option Angle B	TTL
C	Signal (+)	±5 VDC (±10 VDC)	NC	—
D	Signal (GND)	0 VDC	NC	—
E	Supply (GND)	0 VDC, TTL	Supply (GND)	0 VDC
F	Supply (+)	12-28 V	Supply (+)	12-28 VDC
G	Option Angle A	TTL	Option Angle A	TTL
H	NC	—	NC	—
J	NC	—	RS485 Option	RS485 (B)
K	Cal. Control	L < 2.0V / H > 3.5V	NC	—
L	NC	—	RS485 Option	RS485 (A)
M	Housing	—	Housing	—