

## T25 HIGH SPEED ROTARY TORQUE TRANSDUCER (US & METRIC)

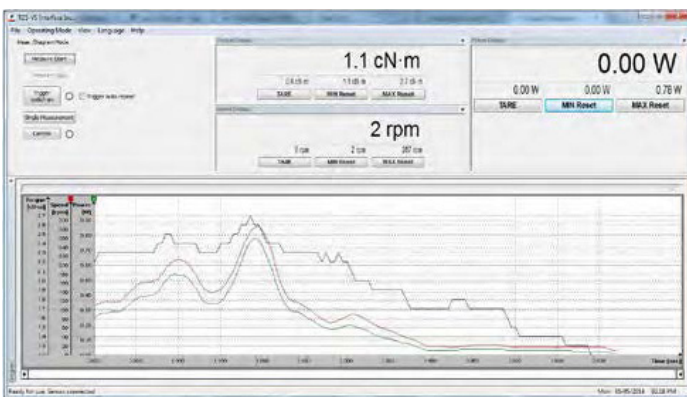
### FEATURES & BENEFITS

- Capacities from 0.1 to 5K Nm (0.885 to 44.3K lbf-in)
- 0.1% combined error
- Speed up to 30K RPM
- Unique design eliminates RPM dependent bearing friction effects
- Foot or float mount
- Remote activated on-shaft shunt calibration
- $\pm 5$  VDC output
- 12-28 VDC supply
- Contactless data transmission
- Digital electronics
- 10 kHz sample rate
- 16-bit resolution

### OPTIONS

- $\pm 0.05\%$  combined error
- Encoder for speed/angle measurement
- Keyed shaft per DIN 6885.1
- Right angle mating connector or cable assembly
- $\pm 10$  VDC output
- RS485 output
- USB output – includes encoder option and display, graphing and logging software (replaces  $\pm 5$ V output)

### SOFTWARE FOR USB OPTION



### STANDARD CONFIGURATION

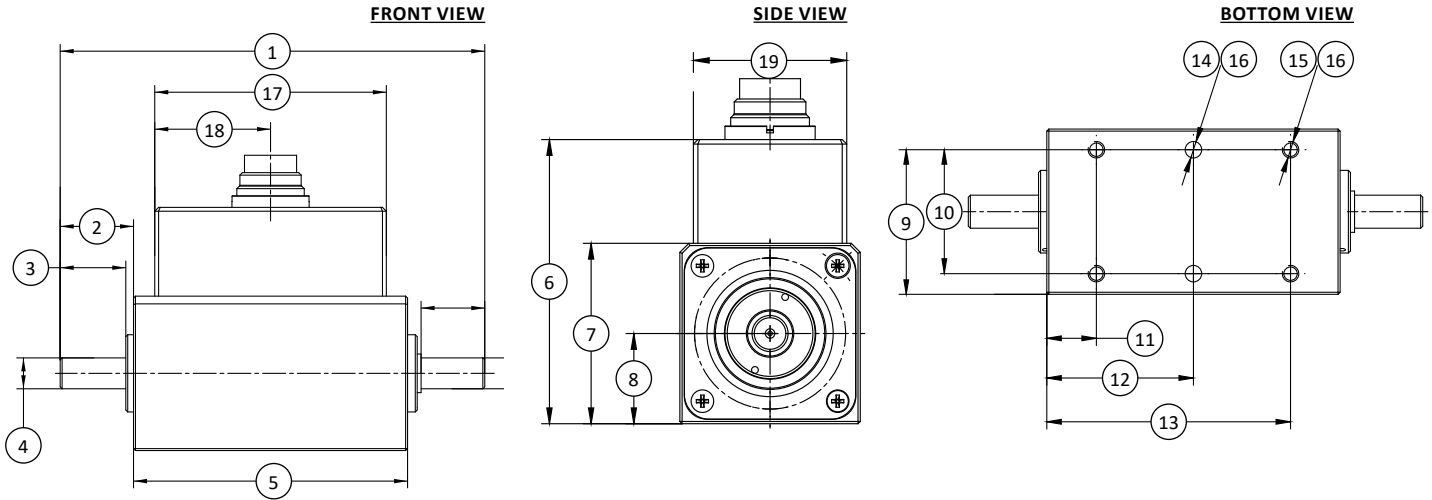


Model T25 (Shown)

### SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Combined Error – %FS	$\pm 0.1$	
Non-repeatability – %RO	$\pm 0.02$	
Resolution – bit	16	
TEMPERATURE		
Effect on Zero – %RO	$^{\circ}\text{C}$	$\pm 0.02$
	$^{\circ}\text{F}$	$\pm 0.01$
Effect on Output – %	$^{\circ}\text{C}$	$\pm 0.01$
	$^{\circ}\text{F}$	$\pm 0.006$
Compensated Range	$^{\circ}\text{C}$	+5 to +45
	$^{\circ}\text{F}$	+41 to +113
Operating Range	$^{\circ}\text{C}$	0 to +60
	$^{\circ}\text{F}$	+32 to +140
Storage Range	$^{\circ}\text{C}$	-10 to +70
	$^{\circ}\text{F}$	+14 to +158
ELECTRICAL		
Supply Voltage – VDC	+12 to +28	
Supply Current – mA	$\leq 60$	
Output – VDC	$\pm 5$	
Bandwidth – kHz – dB	1 – 3	
Sample Rate – kHz	10	
Calibration Signal – %FS	100	
Electrical Connection	12-pin binder series 581 (includes mate)	
Encoder Option	360 pulse/rev, 2-track, +5V TTL, 90° offset, quadrature encoder	
MECHANICAL		
Safe Overload – %RO	200	
Max Speed – RPM	Varies with capacity (see table)	
Shaft Material	Alloy steel	
Housing Material	Aluminum	
Level of Protection	IP50	

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### DIMENSIONS

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)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	0.1, 0.2, 0.5, 1, 2, 5	0.885, 1.77, 4.43, 8.85, 17.7, 44.3	10	88.5	20, 30, 50, 100	177, 266, 443, 885	200, 500	17.7K, 4.43K	1K	8.85K	2K, 5K	17.7K, 44.3K
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
(1)	110	4.33	110	4.33	163	6.42	234	9.21	234	9.21	372	14.6
(2)	19	0.75	19	0.75	36.5	1.44	56.5	2.22	56.5	2.22	114	4.49
(3)	17	0.70	17	0.70	35	1.38	55	2.17	55	2.17	110	4.33
(4)	8	0.31	10	0.40	18	0.71	32	1.30	42	1.65	70	2.76
(5)	71	2.80	71	2.80	90	3.54	120	4.72	120	4.72	144	5.67
(6)	63	2.48	63	2.48	88	3.46	118	4.65	118	4.65	163	6.42
(7)	40	1.57	40	1.57	65	2.56	95	3.74	95	3.74	140	5.51
(8)	20 <sup>±0.05</sup>	0.79 <sup>±0.002</sup>	20 <sup>±0.05</sup>	0.79 <sup>±0.002</sup>	32.5 <sup>±0.05</sup>	1.28 <sup>±0.002</sup>	47.5 <sup>±0.05</sup>	1.87 <sup>±0.002</sup>	47.5 <sup>±0.05</sup>	1.87 <sup>±0.002</sup>	70 <sup>±0.05</sup>	2.76 <sup>±0.002</sup>
(9)	35	1.38	35	1.38	55	2.17	82.5	3.25	82.5	3.25	120	4.72
(10)	30	1.18	30	1.18	45	1.77	70	2.76	70	2.76	100	3.94
(11)	12	0.47	12	0.47	15	0.59	20	0.79	20	0.79	25	0.98
(12)	35.5 <sup>±0.05</sup>	1.40 <sup>±0.002</sup>	35.5 <sup>±0.05</sup>	1.40 <sup>±0.002</sup>	45 <sup>±0.05</sup>	1.77 <sup>±0.002</sup>	60 <sup>±0.05</sup>	2.36 <sup>±0.002</sup>	60 <sup>±0.05</sup>	2.36 <sup>±0.002</sup>	72 <sup>±0.05</sup>	2.83 <sup>±0.002</sup>
(13)	59	2.32	59	2.32	75	2.95	100	3.94	100	3.94	119	4.68
(14)	4	0.16	4	0.16	6	0.24	8	0.31	8	0.31	12	0.47
(15)	M4x0.7		M4x0.7		M6x1		M8x1.25		M8x1.25		M12x1.75	
(16)	8	0.31	8	0.31	8	0.31	14	0.55	14	0.55	20	0.79
(17)	60	2.4	60	2.4	60	2.4	60	2.4	60	2.4	60	2.4
(18)	30	1.18	30	1.18	30	1.18	30	1.18	30	1.18	30	1.18
(19)	34	1.34	34	1.34	34	1.34	34	1.34	34	1.34	34	1.34

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### PERFORMANCE PARAMETERS

CAPACITY		WEIGHT		MAX RPM	SPRING RATE	MOMENT OF INERTIA – (Kg•m <sup>2</sup> )		MAX THRUST LOAD**		MAX SHEAR LOAD**	
Nm	lbf-in	kg	lbs			NM/rad	Drive Side	Test Side	N	lbf	N
0.1	0.89	0.5	1.10	30,000	1.80E+01	9.20E-06	2.50E-07	43	9.67	1.5	0.34
0.2	1.77	0.5	1.10	30,000	1.80E+01	9.20E-06	2.50E-07	58	13.0	2	0.45
0.5	4.43	0.5	1.10	30,000	9.40E+01	9.20E-06	2.50E-07	240	54	3	0.67
1	8.85	0.5	1.10	30,000	9.40E+01	9.20E-06	2.50E-07	240	54	3	0.67
2	17.7	0.5	1.10	30,000	3.70E+02	9.20E-06	2.50E-07	480	108	7	1.57
5	44.3	0.5	1.10	30,000	7.70E+02	9.20E-06	2.60E-07	900	202	16.5	3.71
10	88.5	0.6	1.32	30,000	8.80E+02	9.30E-06	3.40E-07	1.05K	236	21	4.72
20	177	1.5	3.31	20,000	5.10E+03	1.20E-04	6.80E-06	2.3K	517	44	9.89
30	266	1.5	3.31	20,000	5.10E+03	1.20E-04	6.80E-06	2.3K	517	44	9.89
50	443	1.5	3.31	20,000	9.60E+03	1.20E-04	7.40E-06	5K	11.2K	142	31.9
100	885	1.5	3.31	20,000	9.60E+03	1.20E-04	7.40E-06	5K	11.2K	142	31.9
200	1.77K	4.8	10.6	15,000	8.90E+04	5.40E-04	4.40E-04	10K	2.25K	275	61.8
500	4.43K	4.8	10.6	15,000	1.30E+05	5.40E-04	4.40E-04	13K	2.92K	400	89.9
1K	8.85K	5.1	11.2	15,000	1.70E+05	6.40E-04	5.30E-04	20K	4.5K	920	207
2K	17.7K	19	41.9	12,000	6.30E+05	5.70E-03	5.10E-03	34K	7.64K	1.25K	281
5K	44.3K	19	41.9	12,000	9.60E+05	5.80E-03	5.20E-03	64K	14.4K	2.9K	652

### 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	–

**Notes\*\***

Allowable without significant effect on measurement and applies to unsupported shaft only