

T12 SQUARE DRIVE TORQUE TRANSDUCER (US & METRIC)

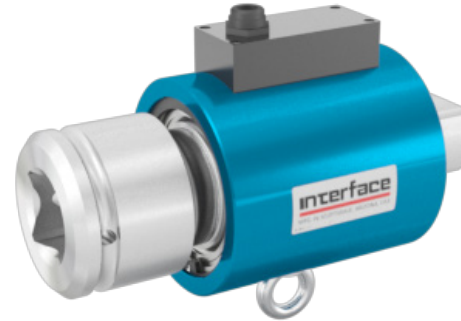
FEATURES & BENEFITS

- Capacities from 0.10 to 5K Nm (0.88 to 44K lbf-in)
- ±5 VDC output
- 12 to 28 VDC supply
- Contactless - no slip rings

SPECIFICATIONS

		Standard	Enhanced
ACCURACY – (MAX ERROR)			
Combined Error – %FS		±0.25	±0.1
Non-repeatability – %FS		±0.05	±0.02
TEMPERATURE			
Effect on Zero – %RO / °C		±0.05	±0.02
Effect on Output – % / °C		±0.02	±0.01
Rated Range	°C	+5 to +45	+5 to +45
	°F	+41 to +113	+41 to +113
Operating Range	°C	0 to +60	0 to +60
	°F	+32 to +140	+32 to +140
ELECTRICAL			
Torque Output – VDC		±5	±5
Bandwidth – kHz – dB		1 – 3	3 – 3
Calibration Signal – %RO		100	100
Supply Voltage – VDC		+12 to +28	+12 to +28
Supply Current – mA		60	60
Electrical Connection – pin		8 or 12	8 or 12
Resolution – bit		12	16
Sample Rate – kHz		10	10
MECHANICAL			
Safe Overload – %RO		200	200
Max Speed – RPM		Varies with capacity (see table)	Varies with capacity (see table)
Housing Material		Aluminum	Aluminum

STANDARD CONFIGURATION



MODEL T12 (Shown)

OPTIONS

- Angle measurement - 360 pulse TTL, 2-tracks 90° offset, available on capacities up to 1K Nm only
- +10 V torque output
- Enhanced accuracy – combined error ±0.1%
- RS485 output (requires enhanced accuracy)

ELECTRICAL CONNECTION

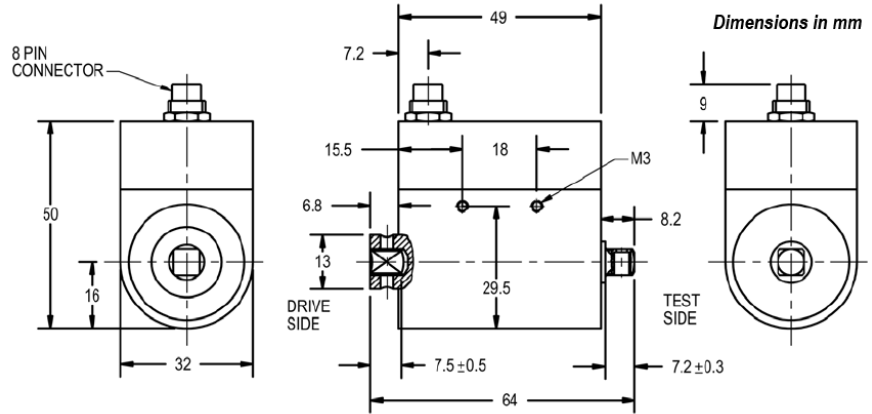
Pin	8-PIN ELECTRICAL CONNECTION	
	Function	Description
1	Supply (+)	12-28 VDC
2	Supply (GND)	0 VDC
3	Signal (+)	±5 VDC
4	Signal (GND)	0 VDC
5	Cal. Control	L < 2.0V / H > 3.5V
6	Option Angle A	TTL
7	Option Angle B	TTL
8	NC	–

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	NC	–
D	Signal (GND)	0 VDC	NC	–
E	Supply (GND)	0 VDC	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 < 2.0 / H > 3.5V	NC	–
L	NC	–	RS485 Option	RS485 (A)
M	Housing	–	Housing	–

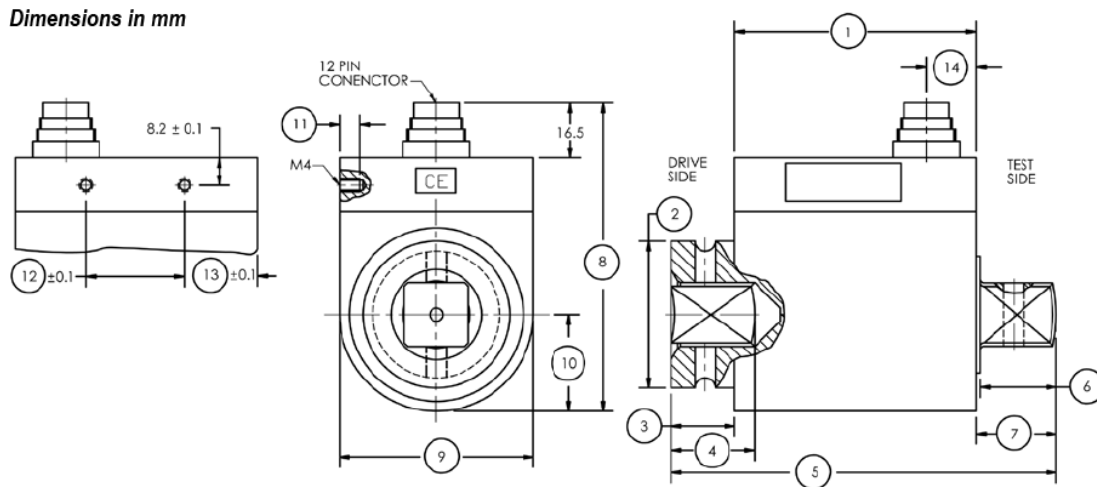
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DIMENSIONS

1/4" DRIVE	
CAPACITIES	
Metric (Nm)	U.S. (lbf-in)
0.1	0.85
0.2	1.77
0.5	4.43
1	8.85
2	17.7
5	44.3
10	88.5
15	133
20	177



DIMENSIONS (CONTINUED)



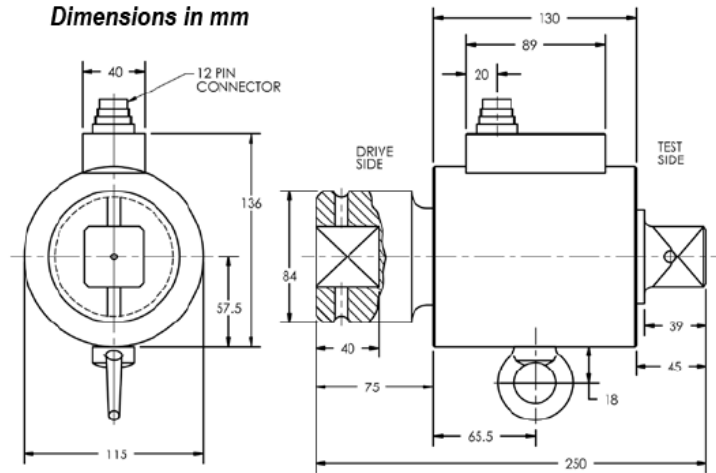
See Drawing	CAPACITIES							
	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	35, 50, 63	310, 442, 558	100, 160, 200	885, 1.41K, 1.77K	300, 500	2.26K, 4.43K	1K	8.85K
	3/8"		1/2"		3/4"		1"	
mm	in	mm	in	mm	in	mm	in	
(1)	71.5	2.82	71.5	2.82	72.5	2.86	72.5	2.86
(2)	22	0.87	29.8	1.17	44	1.73	54	2.13
(3)	11	0.43	13	0.51	19	0.75	29	1.14
(4)	11.2	0.44	15.9	0.63	23.9	0.94	28.6	1.13
(5)	94.5	3.72	100.5	3.96	115.5	4.55	130.5	5.14
(6)	10.7	0.40	15.4	0.61	22.9	0.90	27.6	1.09
(7)	12	0.47	16	0.63	24	0.95	29	1.14
(8)	59	2.32	59	2.32	76	2.99	76	2.99
(9)	40	1.58	40	1.58	58	2.29	58	2.29
(10)	20	0.79	20	0.79	29	1.14	29	1.14
(11)	5	0.20	5	0.20	6	0.24	6	0.24
(12)	41.5	1.64	41.5	1.64	29.5	1.16	29.5	1.16
(13)	15	0.591	15	0.591	22	0.87	22	0.87
(14)	12	0.47	12	0.47	15	0.59	15	0.59

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DIMENSIONS (CONTINUED)

1 1/2" DRIVE – Nominal Torque CAPACITIES	
Metric (Nm)	U.S. (lbf-in)
2K	17K
5K	44.3K



PERFORMANCE PARAMETERS

CAPACITY		SQUARE in	MAX RPM	SPRING RATE NM/rad	MOMENT OF INERTIA – J (Kg•m ²)		MAX THRUST LOAD	
Nm	lbf-in				Drive Side	Test Side	N	lbf
0.1	0.88	1/4	3,000	1.8x10 ¹	2.1x10 ⁻⁶	2.3x10 ⁻⁷	15	3.37
0.2	1.77	1/4	3,000	1.8x10 ¹	2.1x10 ⁻⁶	2.3x10 ⁻⁷	20	4.5
0.5	4.43	1/4	3,000	1.2x10 ²	2.1x10 ⁻⁶	2.3x10 ⁻⁷	30	6.74
1	8.85	1/4	4,000	1.2x10 ²	2.1x10 ⁻⁶	2.3x10 ⁻⁷	40	8.99
2	17.7	1/4	4,000	3.0x10 ²	2.1x10 ⁻⁶	2.4x10 ⁻⁷	50	11.2
5	44.3	1/4	4,000	3.5x10 ²	2.1x10 ⁻⁶	2.4x10 ⁻⁷	50	11.2
10	88.5	1/4	4,000	7.3x10 ²	2.1x10 ⁻⁶	2.7x10 ⁻⁷	50	11.2
15	133	1/4	4,000	7.3x10 ²	2.1x10 ⁻⁶	2.7x10 ⁻⁷	100	22.5
20	177	1/4	4,000	7.3x10 ²	2.1x10 ⁻⁶	2.7x10 ⁻⁷	100	22.5
35	310	3/8	3,000	8.6x10 ³	9.8x10 ⁻⁶	1.1x10 ⁻⁵	1,300	292
50	443	3/8	3,000	1.0x10 ⁴	9.9x10 ⁻⁶	1.1x10 ⁻⁵	1,600	360
63	558	3/8	3,000	1.1x10 ⁴	1.0x10 ⁻⁵	1.1x10 ⁻⁵	1,900	427
100	885	1/2	2,500	1.2x10 ⁴	1.6x10 ⁻⁵	1.1x10 ⁻⁵	2,600	585
160	1.42K	1/2	2,500	1.5x10 ⁴	1.6x10 ⁻⁵	1.2x10 ⁻⁵	3,200	719
200	1.77K	1/2	2,500	1.5x10 ⁴	1.6x10 ⁻⁵	1.2x10 ⁻⁵	3,200	719
300	2.66K	3/4	2,500	8.8x10 ⁴	9.8x10 ⁻⁵	7.7x10 ⁻⁵	5,500	1.24K
500	4.43K	3/4	2,500	8.8x10 ⁴	9.8x10 ⁻⁵	7.7x10 ⁻⁵	7,500	1.69K
1K	8.85K	1	1,500	1.3x10 ⁵	2.1x10 ⁻⁴	1.1x10 ⁻⁴	10,000	2.25K
2K	17.7K	1 1/2	1,000	2.1x10 ⁵	3.5x10 ⁻³	1.8x10 ⁻³	18,000	4.05K
3K	26.6K	1 1/2	1,000	2.3x10 ⁵	3.5x10 ⁻³	1.8x10 ⁻³	22,500	5.06K
5K	44.3K	1 1/2	1,000	2.7x10 ⁵	3.5x10 ⁻³	1.8x10 ⁻³	32,000	7.19K