

# FUTEK MODEL TRS805

## NON-CONTACT SHAFT TO SHAFT ROTARY TORQUE SENSOR



DRAWING NUMBER: FI1328-B

INCH [mm] | R.O. = Rated Output

**TORQUE CONNECTIONS**

POWER	GROUND	SIGNAL OUTPUT	GROUND
RED PIN F	BLACK PIN A	GREEN PIN C	WHITE PIN D

**ANGLE CONNECTION**

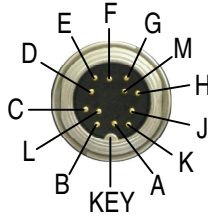
POWER	GROUND	SIGNAL (ANGLE 1)	N/C
RED PIN F	YELLOW PIN E	BLUE PIN H	PIN G

**SHUNT CAL CONNECTIONS**

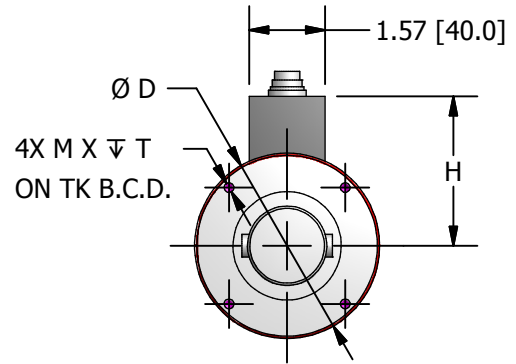
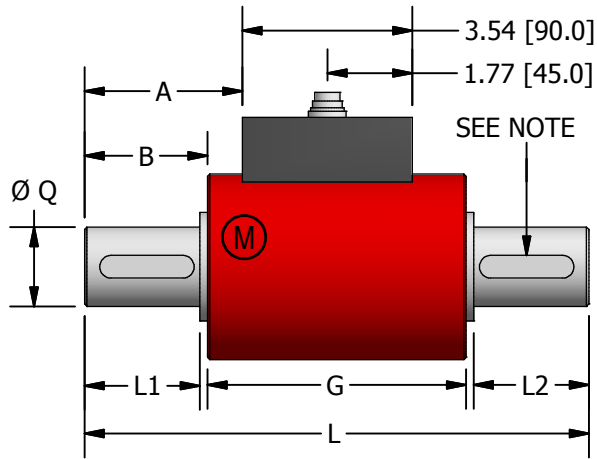
POWER	GROUND
PURPLE PIN K	YELLOW PIN E

**SHIELD CONNECTIONS**

SHIELD	N/C
FLOATING PIN M	PIN J



BINDER RECEPTACLE  
09-0331-90-12  
(MATING CONNECTOR  
99-2030-09-12  
NOT INCLUDED)



**NOTE:**

(M) = MEASURING SIDE

- \* FEATHER KEYWAYS PER DIN 6885 & COME PRE-INSTALLED
- \* 12 mm P9 W X 50 mm L (200 - 1,000 N-m)
- \* 12 mm P9 X 110 mm L (2,000 - 5,000 N-m)

CAPACITY in-lb [N-m]	L	L1	L2	Ø D	Ø Q	A	B	G	H	TK	M	T
1.8 [0.2]	6.32 [160.5]	0.63 [16]	0.63 [16]	2.28 [58]	0.35 [9]	0.93 [23.5]	0.75 [19]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
4.4 [0.5]	6.32 [160.5]	0.63 [16]	0.63 [16]	2.28 [58]	0.35 [9]	0.93 [23.5]	0.75 [19]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
8.9 [1]	6.26 [159]	0.63 [16]	0.63 [16]	2.28 [58]	0.35 [9]	0.87 [22]	0.69 [17.5]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
17.7 [2]	6.42 [163]	0.71 [18]	0.71 [18]	2.28 [58]	0.39 [10]	0.94 [24]	0.77 [19.5]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
44.3 [5]	6.42 [163]	0.71 [18]	0.71 [18]	2.28 [58]	0.39 [10]	0.94 [24]	0.77 [19.5]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
88.5 [10]	6.54 [166]	0.79 [20]	0.79 [20]	2.28 [58]	0.47 [12]	0.98 [25]	0.81 [20.5]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
177 [20]	6.54 [166]	0.79 [20]	0.79 [20]	2.28 [58]	0.47 [12]	0.98 [25]	0.81 [20.5]	4.80 [122]	2.01 [51]	1.81 [46]	M5	0.39 [10]
442.5 [50]	7.09 [180]	1.10 [28]	1.10 [28]	3.07 [78]	0.87 [22]	1.71 [43.5]	1.34 [34]	4.45 [113]	2.60 [66]	2.52 [64]	M6	0.47 [12]
885 [100]	7.09 [180]	1.10 [28]	1.10 [28]	3.07 [78]	0.87 [22]	1.71 [43.5]	1.34 [34]	4.45 [113]	2.60 [66]	2.52 [64]	M6	0.47 [12]
1770 [200]	10.51 [267]	2.36 [60]	2.40 [61]	3.86 [98]	1.65 [42]	3.29 [83.5]	2.54 [64.5]	5.39 [137]	3.07 [78]	3.43 [87]	M6	0.47 [12]
4425 [500]	10.51 [267]	2.36 [60]	2.40 [61]	3.86 [98]	1.65 [42]	3.29 [83.5]	2.54 [64.5]	5.39 [137]	3.07 [78]	3.43 [87]	M6	0.47 [12]
8851 [1000]	10.51 [267]	2.36 [60]	2.40 [61]	3.86 [98]	1.65 [42]	3.29 [83.5]	2.54 [64.5]	5.39 [137]	3.07 [78]	3.43 [87]	M6	0.47 [12]
17,702 [2000]	16.47 [418]	4.80 [122]	4.80 [122]	5.83 [148]	2.76 [70]	5.93 [150.5]	4.96 [126]	6.54 [166]	4.09 [104]	5.20 [132]	M8	0.63 [16]
44,254 [5000]	16.47 [418]	4.80 [122]	4.80 [122]	5.83 [148]	2.76 [70]	5.93 [150.5]	4.96 [126]	6.54 [166]	4.09 [104]	5.20 [132]	M8	0.63 [16]



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SHEET 1 OF 3

# FUTEK MODEL TRS805

# NON-CONTACT SHAFT TO SHAFT ROTARY TORQUE SENSOR

DRAWING NUMBER: FI1328-B

INCH [mm] | R.O.= Rated Output

## SPECIFICATIONS:

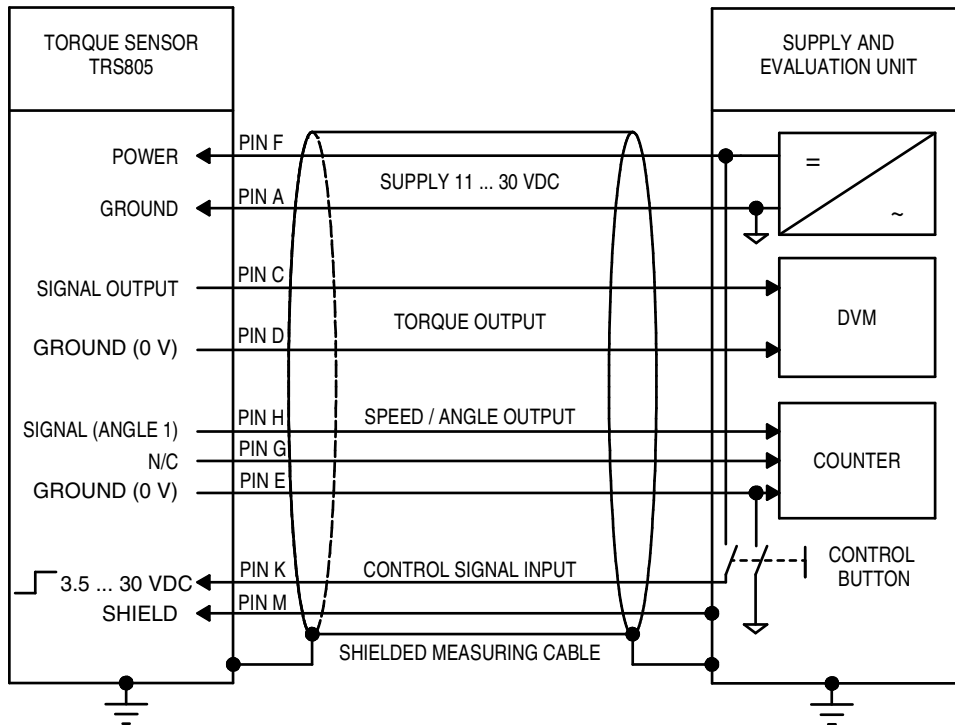
RATED OUTPUT	± 10 VDC
SAFE OVERLOAD	150% of R.O.
ZERO BALANCE	± 0.1% of R.O.
EXCITATION	11-30 VDC
NONLINEARITY	± 0.1% of R.O.
HYSTERESIS	± 0.1% of R.O.
NONREPEATABILITY	± 0.1% of R.O.
TEMP. SHIFT ZERO	± 0.003% of R.O./°F (± 0.005% of R.O./°C)
TEMP. SHIFT SPAN	± 0.005% of R.O./°F (± 0.01% of R.O./°C)
COMPENSATED TEMP. OPERATING TEMP.	50 to 140°F (10 to 60°C)
MATERIAL (HOUSING)	ANODIZED ALUMINUM
HOUSING (200-1000 Nm)	STAINLESS STEEL
PROTECTION	IP40
CUT-OFF FREQUENCY	1 kHz @ -3 dB
AMPLIFIER RESOLUTION	16 bit DAC

CONNECTOR	12 pin Binder Series #581 (09-0331-90-12)
ACCESSORIES AND RELATED INSTRUMENTS AVAILABLE	CERTIFICATE OF CONFORMANCE
CALIBRATION (STD)	5 pts CW AND CCW
CALIBRATION (AVAILABLE)	15 Vdc
CALIBRATION EXCITATION	WITH SENSOR FULLY CONNECTED, APPLY 11-30 VDC TO PIN K & E TO GENERATE 5 VDC NOM. OUTPUT
SHUNT CALIBRATION	

## ENCODER SPECIFICATIONS:

EXCITATION	INTERNAL VOLTAGE
OUTPUT	IMPULSE (TTL)
SPEED MEASUREMENT	1 X 60 PULSES/REV.
ROTATIONAL SPEED	SEE NEXT PAGE

## CONNECTION DIAGRAM OF 12 PIN BUILT-IN CONNECTOR



# FUTEK MODEL TRS805

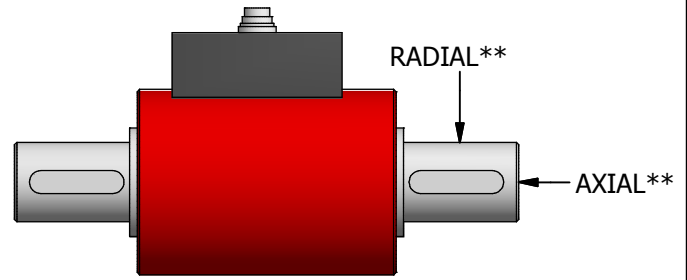
# NON-CONTACT SHAFT TO SHAFT ROTARY TORQUE SENSOR

DRAWING NUMBER: FI1328-B

INCH [mm] | R.O.= Rated Output

### TORSIONAL STIFFNESS AND INERTIA OF MASS

CAPACITY in-lb [N-m]	TORSIONAL STIFFNESS in-lb/ rad [N-m/ rad]	MEASURE END INERTIA OF MASS lb-in <sup>2</sup> [kg-cm <sup>2</sup> ]	DRIVE END INERTIA OF MASS lb-in <sup>2</sup> [kg-cm <sup>2</sup> ]
1.8 [0.2]	88.5 [10]	0.0005 [0.0015]	0.0479 [0.14]
4.4 [0.5]	88.5 [10]	0.0005 [0.0015]	0.0479 [0.14]
8.9 [1]	1593 [180]	0.0018 [0.0054]	0.0547 [0.16]
17.7 [2]	2,213 [250]	0.0205 [0.06]	0.0581 [0.17]
44.3 [5]	3,983 [450]	0.0205 [0.06]	0.0581 [0.17]
88.5 [10]	4,602 [520]	0.0273 [0.08]	0.065 [0.19]
177 [20]	5,133 [580]	0.0273 [0.08]	0.065 [0.19]
442.5 [50]	80,542 [9,100]	0.1845 [0.54]	0.3964 [1.16]
885 [100]	119,485 [13,500]	0.1845 [0.54]	0.3964 [1.16]
1,770 [200]	531,045 [60,000]	1.367 [4]	2.84 [8.3]
4,425 [500]	885,075 [100,000]	1.435 [4.2]	2.84 [8.3]
8,851 [1,000]	1,194,851 [135,000]	1.435 [4.2]	2.84 [8.3]
17,702 [2,000]	4,602,388 [520,000]	20.84 [61]	29.07 [85]
44,254 [5,000]	6,372,537 [720,000]	20.84 [61]	29.07 [85]



NOTE:

\*\*MAXIMUM LOAD ALLOWED, NOT FOR MEASUREMENT

### LOW SPEED VERSION

CAPACITY in-lb [N-m]	LOW SPEED RPM	WEIGHT lbs [Kg]	MEASURING END WEIGHT lbs [Kg]	MEASURING END RADIAL FORCE lbf [N] MAX.	MEASURING END AXIAL FORCE lbf [N] MAX.	DRIVE END WEIGHT lbs [Kg]	DRIVE END RADIAL FORCE lbf [N] MAX.	DRIVE END AXIAL FORCE lbf [N] MAX.
1.8 [0.2]	20,000	1.8 [0.8]	0.15 [0.07]	2.2 [10]	11 [50]	0.55 [0.25]	22 [100]	11 [50]
4.4 [0.5]	20,000	1.8 [0.8]	0.44 [0.2]	5.5 [25]	11 [50]	0.55 [0.25]	34 [150]	11 [50]
8.9 [1]	20,000	1.8 [0.8]	0.44 [0.2]	11 [50]	11 [50]	0.55 [0.25]	44 [200]	11 [50]
17.7 [2]	20,000	3.1 [1.4]	0.44 [0.2]	22 [100]	11 [50]	0.55 [0.25]	44 [200]	11 [50]
44.3 [5]	20,000	3.1 [1.4]	0.44 [0.2]	44 [200]	11 [50]	0.55 [0.25]	44 [200]	11 [50]
88.5 [10]	20,000	3.1 [1.4]	0.44 [0.2]	44 [200]	11 [50]	0.55 [0.25]	44 [200]	11 [50]
177 [20]	20,000	3.1 [1.4]	0.44 [0.2]	44 [200]	11 [50]	0.55 [0.25]	44 [200]	11 [50]
442.5 [50]	12,000	4.4 [2]	4.8 [2.2]	44 [200]	22 [100]	6.6 [3]	88 [400]	176 [800]
885 [100]	12,000	4.4 [2]	6.6 [3]	88 [400]	44 [200]	6.6 [3]	176 [800]	176 [800]
1,770 [200]	8,000	11 [5]	7.7 [3.5]	88 [400]	44 [200]	22 [10]	440 [2,000]	440 [2,000]
4,425 [500]	8,000	11 [5]	15.4 [7]	220 [1,000]	110 [500]	22 [10]	440 [2,000]	440 [2,000]
8,851 [1,000]	8,000	11 [5]	22 [10]	440 [2,000]	220 [1,000]	22 [10]	440 [2,000]	440 [2,000]
17,702 [2,000]	5,000	39.6 [18]	88 [40]	880 [4,000]	440 [2,000]	88 [40]	2,200 [10,000]	2,200 [10,000]
44,254 [5,000]	5,000	39.6 [18]	176 [80]	2,200 [10,000]	1,100 [5,000]	176 [80]	2,200 [10,000]	2,200 [10,000]

### HIGH SPEED VERSION

CAPACITY in-lb [N-m]	HIGH SPEED RPM	WEIGHT lbs [Kg]	MEASURING END WEIGHT lbs [Kg]	MEASURING END RADIAL FORCE lbf [N] MAX.	MEASURING END AXIAL FORCE lbf [N] MAX.	DRIVE END WEIGHT lbs [Kg]	DRIVE END RADIAL FORCE lbf [N] MAX.	DRIVE END AXIAL FORCE lbf [N] MAX.
1.8 [0.2]	50,000	1.98 [0.9]	0.02 [0.011]	2.2 [10]	11 [50]	0.44 [0.2]	22 [100]	11 [50]
4.4 [0.5]	50,000	1.98 [0.9]	0.07 [0.034]	5.5 [25]	11 [50]	0.44 [0.2]	34 [150]	11 [50]
8.9 [1]	50,000	1.98 [0.9]	0.13 [0.06]	11 [50]	11 [50]	0.44 [0.2]	44 [200]	11 [50]
17.7 [2]	50,000	3.3 [1.5]	0.18 [0.08]	17 [75]	11 [50]	0.44 [0.2]	44 [200]	11 [50]
44.3 [5]	50,000	3.3 [1.5]	0.22 [0.1]	22 [100]	11 [50]	0.44 [0.2]	44 [200]	11 [50]
88.5 [10]	50,000	3.3 [1.5]	0.33 [0.15]	22 [100]	11 [50]	0.44 [0.2]	44 [200]	11 [50]
177 [20]	50,000	3.3 [1.5]	0.44 [0.2]	22 [100]	11 [50]	0.44 [0.2]	44 [200]	11 [50]
442.5 [50]	30,000	4.62 [2.1]	0.84 [0.38]	44 [200]	22 [100]	5.5 [2.5]	68 [300]	22 [100]
885 [100]	30,000	4.62 [2.1]	1.10 [0.5]	44 [200]	22 [100]	6.6 [3]	68 [300]	22 [100]
1,770 [200]	20,000	11.22 [5.1]	1.32 [0.6]	88 [400]	44 [200]	8.8 [4]	88 [400]	44 [200]
4,425 [500]	20,000	11.22 [5.1]	2.64 [1.2]	88 [400]	44 [200]	8.8 [4]	88 [400]	44 [200]
8,851 [1,000]	20,000	11.22 [5.1]	4.84 [2.2]	88 [400]	44 [200]	8.8 [4]	88 [400]	44 [200]
17,702 [2,000]	10,000	39.6 [18]	22 [10]	880 [4,000]	440 [2,000]	88 [40]	880 [4,000]	440 [2,000]
44,254 [5,000]	10,000	39.6 [18]	55 [25]	880 [4,000]	440 [2,000]	176 [80]	880 [4,000]	440 [2,000]