FUTEK
ADVANCED SENSOR TECHNOLOGY, INC.

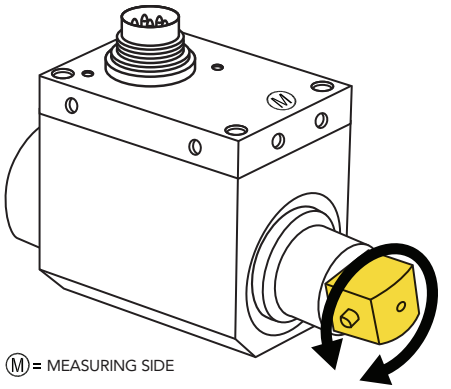
MODEL TRD605

Non-Contact Square-Drive Rotary Torque Sensor with Encoder

FEATURES

- Utilizes strain gauge technology
- Angle speed feedback included
- Compact size
- Can operate up to 7000 RPM

Active end



– Output (CCW)
+ Output (CW)

SPECIFICATIONS	
PERFORMANCE	
Nonlinearity	±0.2% of RO
Hysteresis	±0.1% of RO
Nonrepeatability	±0.2% of RO
Rotational Speed	7000 RPM Max
ELECTRICAL	
Bandwidth	3 kHz
Typical Noise	<50 mV p-p
Rated Output (RO)	±5 VDC
Excitation (VDC or VAC)	11 to 26 VDC, 1 Watt
Connection	12 pin Binder Series #581 (09-0331-90-12)
MECHANICAL	
Safe Overload	150% of RO
Material	Aluminum (Housing) Steel Alloy (Shaft)
IP Rating	IP40
TEMPERATURE	
Operating Temperature	–13 to 176°F (–25 to 80°C)
Compensated Temperature	41 to 122°F (5 to 50°C)
Temperature Shift Zero	±0.01% of RO/°F (±0.02% of RO/°C)
Temperature Shift Span	±0.01% of Load/°F (±0.02% of Load/°C)
CALIBRATION	
Calibration Test Excitation	12 VDC
Calibration (standard)	Certificate of Conformance
Calibration (available)	5-pt CW & CCW
Shunt Calibration	With sensor fully connected apply 11–26 VDC to Pins A & K to generate 5 VDC nom output
ENCODER	
Output	Impulse (TTL)
Pulses per Revolution	2 × 360
Excitation	5 VDC, 40 mA max
Angle 1	Leading Pulse
Angle 2	Trailing Pulse (90°)
CONFORMITY	
RoHS	2014/30/EU
CE	Declaration of Conformity

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WARNING: DO NOT CONNECT OR DISCONNECT WITH THE POWER ON.

TORQUE CONNECTIONS

PIN	COLOR	DESCRIPTION
C	Green	+ Voltage Output
D	White	– Voltage Output
E	Black	Ground
F	Red	Power Supply

ANGLE CONNECTOR CODES

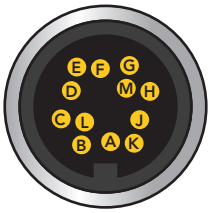
PIN	COLOR	DESCRIPTION
B	Blue	Signal (Angle 1)
E	Black	Ground
G	Brown	Signal (Angle 2)
H	Orange	Power

SHUNT CAL CONNECTOR CODES

PIN	COLOR	DESCRIPTION
A	Yellow	Ground
K	Purple	Power

SHIELD CONNECTOR CODES

PIN	COLOR	DESCRIPTION
M	Braided	Connected to Chassis



MASS MOMENT OF INERTIA (kg × cm²)

ITEM #	Measuring End	Drive End
FSH02024	0.013	0.0157
FSH02025	0.013	0.0157
FSH02026	0.055	0.011
FSH02027	0.055	0.011
FSH02028	0.069	0.1
FSH02029	0.069	0.1
FSH02030	0.069	0.1
FSH02031	0.68	1.0
FSH02032	0.68	1.0
FSH02033	0.68	1.0
FSH02034	2.45	3.25

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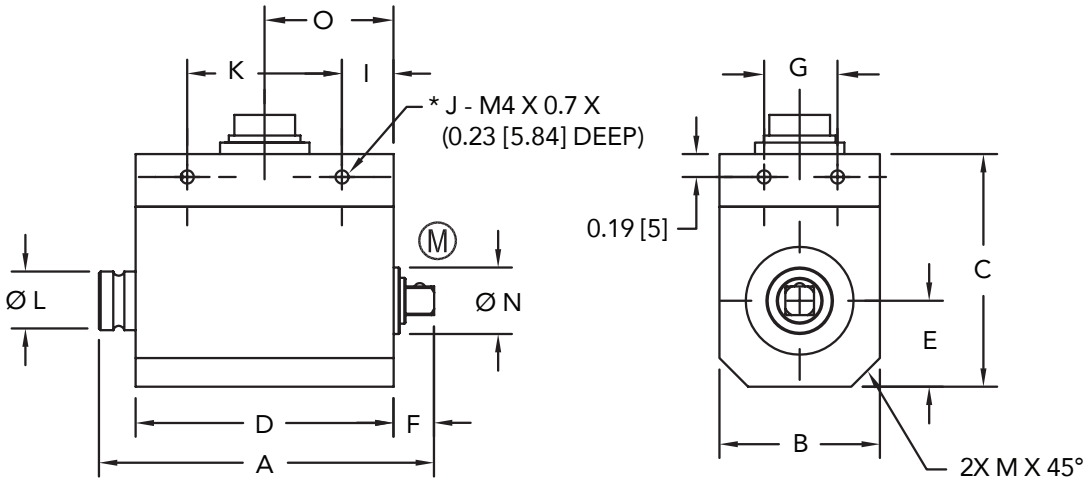
CAPACITIES

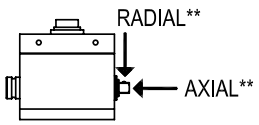
ITEM #	Nm [in-lb]	Sq. Drive	A	B	C	D	E	F	G	J	I	K	ØL	M	ØN	O	**Max Axial Force lb [N]	**Max Radial Force lb [N]	Torsional Stiffness Nm/rad
FSH02024	12 [106]	1/4"	2.95 [75]	1.1 [28]	2.04 [52]	2.28 [58]	0.55 [14]	0.33 [8.5]	0.31 [8]	6	0.43 [11]	-	0.51 [13]	0.32 [8]	0.39 [10]	1.46 [37]	34 [150]	7 [30]	1200
FSH02025	18 [159]																		1200
FSH02026	50 [443]	3/8"	3.97 [101]	1.49 [38]	2.28 [58]	2.32 [59]	0.75 [19]	0.84 [21.5]	0.55 [14]	8	0.47 [12]	1.38 [35]	0.98 [25]	0.40 [10]	0.67 [17]	1.50 [38]	112 [500]	13.5 [60]	6100
FSH02027	63 [558]																		6100
FSH02028	100 [885]	1/2"	4.17 [106]	1.49 [38]	2.28 [58]	2.32 [59]	0.75 [19]	1.02 [26]	0.55 [14]	8	0.47 [12]	1.38 [35]	0.98 [25]		0.67 [17]	1.50 [38]	157 [700]	22.5 [100]	10100
FSH02029	150 [1328]																225 [1000]	22.5 [100]	10100
FSH02030	160 [1416]																		10100
FSH02031	250 [2213]	3/4"	5.31 [135]	2.28 [58]	2.99 [76]	2.52 [64]	1.14 [29]	1.57 [40]	1.18 [30]	8	0.55 [14]	1.41 [36]	1.57 [40]		1.18 [30]	1.57 [40]	450 [2000]	34 [150]	63600
FSH02032	300 [2655]																		63600
FSH02033	500 [4425]																		63600
FSH02034	1000 [8851]	1"	6.97 [177]	2.87 [73]	3.54 [90]	2.87 [73]	1.43 [36.5]	2.26 [57.5]	1.77 [45]	8	0.55 [14]	1.77 [45]	1.97 [50]	0.71 [18]	1.57 [40]	1.73 [44]	900 [4000]	56 [250]	127000

DIMENSIONS inches [mm]



Ⓜ = MEASURING SIDE

TORQUE SENSOR WITH SQUARE DRIVE PER DIN 3121 E, F, G & H
* ANTI-ROTATION HOLES, NOT TO BE USED TO SUPPORT LOAD
** MAXIMUM LOAD ALLOWED, NOT FOR MEASUREMENT



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