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TQ103

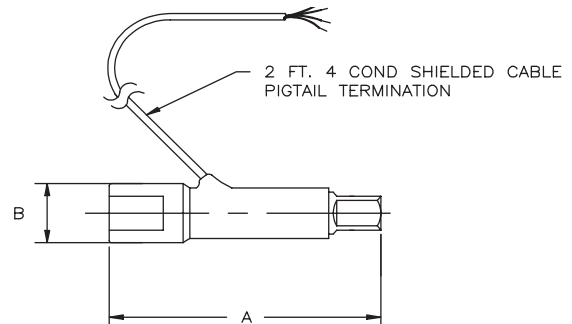
SOCKET EXTENSION REACTION TORQUE SENSOR

INSTRUCTION SHEET

M1644-1204



The OMEGA[®] TQ103 Series socket extension torque sensor is ideal for installation between a socket and drive to measure or verify bolt torque. The sensor can measure torque in both clockwise and counterclockwise directions. Any electronic display or control device which is compatible with strain gage transducers may be used with the sensor. The sensors are available in 1/4", 3/8", 1/2", and 3/4" square drives.



SPECIFICATIONS

RATED OUTPUT: 1 to 3mV/V Nominal
EXCITATION: 10Vdc, 20Vdc max
ACCURACY: 0.37% F.S.
NON-LINEARITY: 0.25% F.S.
HYSTERESIS: 0.25% F.S.
REPEATABILITY: 0.1% F.S.
ZERO BALANCE: 0.1% F.S.
OPERATING TEMP. RANGE: -65°F TO +250°F
COMPENSATED TEMP. RANGE: 70°F TO 170°F
THERMAL EFFECTS:
ZERO: 0.002% F.S./F
SPAN: 0.002% RDG/F
MAXIMUM LOAD:
SAFE: 150% F
ULTIMATE: 300% F.S.
BRIDGE RESISTANCE: 1000 OHMS
ANGULAR DEFLECTION AT F.S.: 3 DEG
CONSTRUCTION: Black anodized tool steel
ELECTRICAL: 2ft. of 4 conductor shielded cable, pigtail termination

WIRING

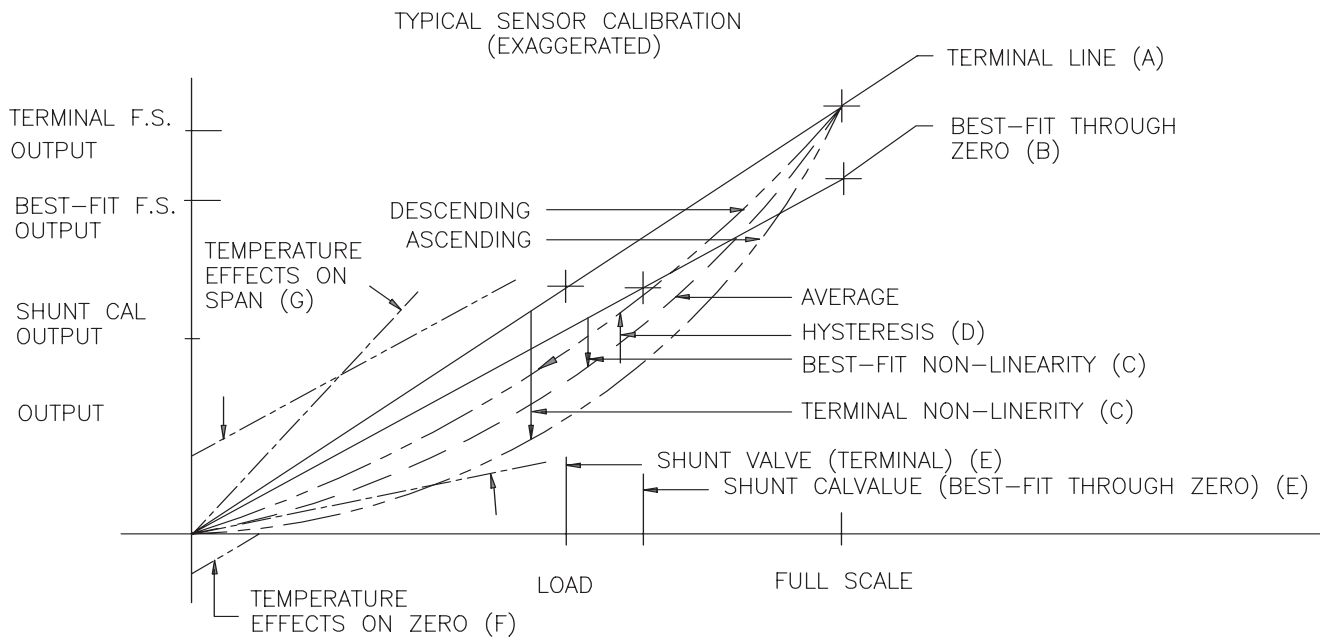
RED (+) Excitation
BLACK (-) Excitation
YELLOW (+) Signal
WHITE (-) Signal

DIMENSIONS

MODEL	SQUARE DRIVE SIZE	CAPACITY (in-lbs)	DIM	
			A	B (DIA)
TQ103-25	1/4"	25	3	1/2"
TQ103-50	1/4"	50	3	1/2"
TQ103-125	1/4"	125	3	1/2"
TQ103-200	3/8"	200	3	11/16"
TQ103-600	3/8"	600	3	11/16"
TQ103-1.5K	1/2"	1500	3.5	7/8"
TQ103-2.4K	1/2"	2400	3.5	7/8"
TQ103-6K	3/4"	6000	5	1-1/2"

GENERAL CALIBRATION PROCEDURE

To create the calibration curve furnished to you, the sensor is cycled through the operating range to develop a stable hysteresis loop. Known loads are then applied to the sensor by means of dead weights or a reference load cell in ascending or descending increments. The data recorded is then best fit to second degree equations which describe ascending, descending, and average calibration curves. These equations are incrementally solved to generate theoretical sensor outputs at various loads. The calibration sheet supplies you with data points whose meanings are defined in the Sensor Calibration diagram (see reverse side).



Terminal Non-Linearity (N/L): computed from deviations of ascending theoretical data from a straight line connecting the zero and full scale points.

Terminal hysteresis (HYS): computed from the differences between descending and ascending theoretical data.

Best fit through zero Non-linearity (BF/0): computed from deviations of average theoretical data from a straight line through zero with a slope which produces minimum deviations with average theoretical data.

Best fit through zero outputs and best fit through zero shunt cal values should be used when the sensor is assumed to be linear. If the instrumentation is capable of correcting the second order non-linearity, the average outputs and shunt cal output values should be used.



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WARNING: These products are not designed for use in, and should not be used for, human applications.



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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