



Nm

## ATDTD-S

### Square Drive Static Torque Transducer

The DTD-S range of static/reaction torque transducers have a square drive and are designed specifically for the measurement of direct torque, particularly in a calibrating or testing Torque Tools QA environment. Typical uses include measuring the fastening or breakaway torque of bolts and nuts and they are also ideal for calibrating automated torque screwdrivers, spanners and wrenches.

All ranges are constructed from stainless steel and are environmentally protected to IP65 as standard. The sensor is provided with an integral cable gland and 3 metres of cable on ranges up to 1000Nm, thereafter electrical connection is made by a robust bayonet lock military connector for quick and easy connection purposes, a mating half is also supplied with 3 metres of cable fitted.

The DTD-S can be customised to suit your particular application, including custom drive sizes and fixing configurations, as well as versions with sealing to IP68 submersible for applications where operating conditions are particularly harsh or involve total submersion. Please consult our expert sales team to discuss your application in detail.

#### FEATURES

- Capacities: 0-10Nm to 0-50kNm
- 2mV/V Output (1.5mV/V on 50kNm model)
- Environmental Protection: IP65
- Accuracy:  $\leq \pm 0.1\%$  / Rated Capacity
- Custom Capacities to 200kNm+
- Robust Construction
- Industry Standard Square Drive Mechanical Connections
- UKAS Traceable Calibration Certificate Included
- 3 Year Warranty

Ideal to measure the fastening or breakaway torque of bolts and nuts.



#### OPTIONS

- IP67 + IP68 Submersible/Underwater/Subsea Versions Available
- Custom Drive Sizes and/or Dimensions
- Custom Capacities
- Amplified Analogue Outputs: 4-20mA /  $\pm 10$ Vdc / 0-10Vdc / 0-5Vdc
- RS485 Digital Output: ASCII, Modbus or CAN Protocol
- Equivalents to Other manufacturers Available
- Internal Shunt Calibration Facility
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation.
- USB Version (via DSC-USB)
- High Temperature Versions
- Vacuum Application Versions
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- Fatigue Rated Versions
- Rationalised/Standardised Outputs
- Wireless Version (via T24 Instrumentation)



## APPLICATIONS

- Quality Assurance Departments
- Torque Tool Testing
- Measuring Fastening or Breakaway Torque of Bolts & Nuts
- Calibrating Automated Torque Screwdrivers, Spanners & Wrenches
- In-Line Torque Measurement
- Portable Torque Testing Equipment
- Robotics

## SPECIFICATION

Rated Capacity (RC)	Nm	0-10, 0-20, 0-50, 0-100, 0-200, 0-250, 0-500, 0-1000, 0-2k, 0-5k, 0-10k, 0-20k, 0-50k
Operating Modes	Clockwise (CW)/Counter-Clockwise (CCW) / Clockwise (CW) & Counter-Clockwise (CCW)	
Sensitivity (RO)	mV/V	2 nominal, 1.5 on 50,000Nm
Zero Balance/Offset	±%/Rated Output	<1
Output Symmetry (CW vs. CCW)	±%/Rated Output	<0.25% typical
Non-Linearity	±%/Full Scale Output	<0.1
Hysteresis	%/Full Scale Output	<0.1
Repeatability	±%/Full Scale Output	<0.1
Temperature Effect on Zero	±%/Full Scale Output/ °C	<0.010
Temperature Effect on Output	±/Reading/ °C	<0.010
Bridge Resistance	Ohms	700 nominal
Insulation Resistance	Megaohms	>5000 @ 50Vdc
Excitation Voltage	Volts AC or DC	10 recommended (2-15 acceptable)
Operating Temperature Range	°C	-20 to +80
Compensated Temperature Range	°C	+20 to +70
Storage Temperature Range	°C	-20 to +80
Safe Overload	% of Rated Capacity	150
Ultimate Overload	% of Rated Capacity	300
IP Rating (Environmental Protection)		IP65
Weight		See Dimension Table
Fatigue Rating		10 <sup>8</sup> cycles typical
Cable Length (as standard)	metres	3
Cable Type		4-core screened PUR, Ø4.6mm
Construction		Stainless Steel
Resolution		1 part in 250,000 (with appropriate instrumentation)

## WIRING DIAGRAM

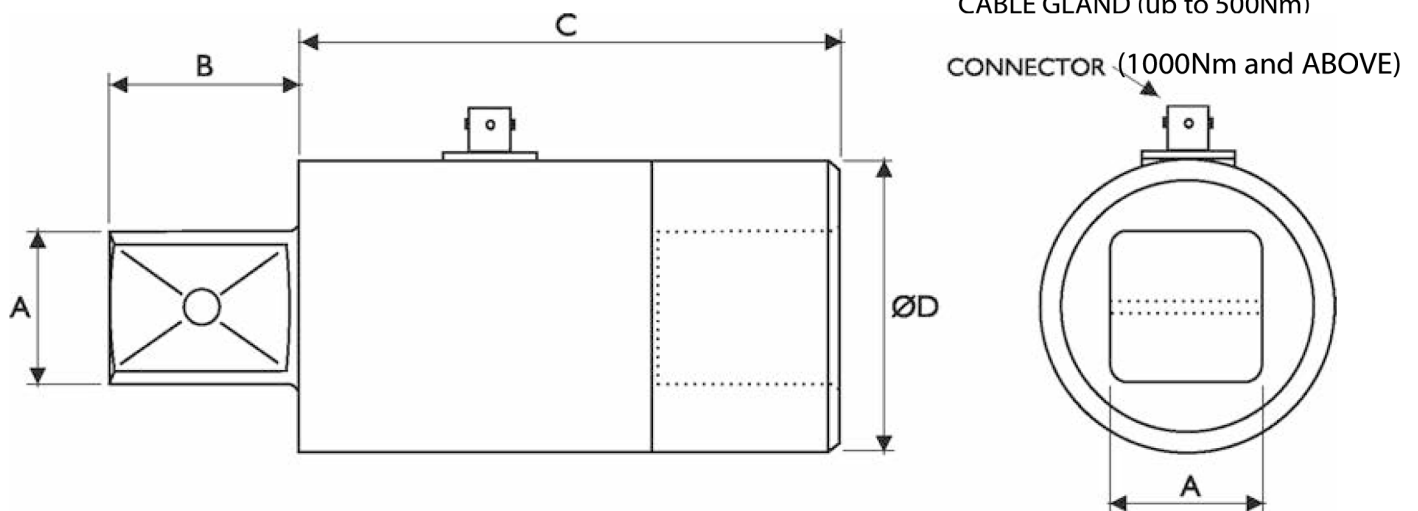
Wire	Designation
Red	+ve excitation
Blue	-ve excitation
Green	+ve signal (clockwise)
Yellow	-ve signal
Screen	To ground - not connected to sensor body



**DIMENSIONS (mm)**

RANGE (Nm)	Square Drive A inch	B	C	ØD	WEIGHT (kg)
0-10	0.250	7.5	48	25	0.2
0-20	0.250	7.5	48	25	0.2
0-50	0.375	11.5	58	35	0.5
0-100	0.500	15.5	58	35	0.5
0-200	0.750	23	79	54	1.4
0-250	0.750	23	79	54	1.4
0-500	0.750	23	79	54	1.4
0-1000	1.000	28	79	54	1.4
0-2000	1.500	38	95	70	3.0
0-5000	2.000	45	130	90	6.0
0-10,000	2.500	55	165	110	13.0
0-20,000	3.000	68	212	130	20.0

Note: Dimensions were revised in August 2016 to make the sensor more compact.





■ ORDERING CODES

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DTD-S	10Nm	003	000	DTD-S-10Nm-003-000
DTD-S	20Nm	003	000	DTD-S-20Nm-003-000
DTD-S	50Nm	003	000	DTD-S-50Nm-003-000
DTD-S	100Nm	003	000	DTD-S-100Nm-003-000
DTD-S	200Nm	003	000	DTD-S-200Nm-003-000
DTD-S	250Nm	003	000	DTD-S-250Nm-003-000
DTD-S	500Nm	003	000	DTD-S-500Nm-003-000
DTD-S	1000Nm	003	000	DTD-S-1000Nm-003-000
DTD-S	2000Nm	003	000	DTD-S-2000Nm-003-000
DTD-S	5000Nm	003	000	DTD-S-5000Nm-003-000
DTD-S	10,000Nm	003	000	DTD-S-10,000Nm-003-000
DTD-S	20,000Nm	003	000	DTD-S-20,000Nm-003-000