NOVANCED WITNESS SYSTEMS LTD

2022

ORQUE MEASUREMENT AND CALIBRATION CATALOGUE



Advanced Witness Systems Ltd.

Advanced Witness Systems Ltd Torque Measurement & Calibration Catalogue 2022

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About Us

Advanced Witness Systems Ltd is a premier designer of torque calibration and control equipment, meeting national and international standards. Trading for over 25 years, our designers have extensive knowledge and experience in design and manufacture of torque instrumentation and control systems. For over 40 years, our Managing Director has been known internationally as specialist in torque and is heavily involved in developing national and international torque standards. He was also concept designer for the NPL National Torque Calibration Machine. Acclaimed to be and since proven to be one of the most accurate in the world.



We have supplied equipment in a variety of sectors including Aerospace, Sub Sea, Transport, Power Generation and Defence.

Over 30 years ago we first developed our Kepler torque tool calibration software. Now, in its latest version, Kepler 4 is our most advanced torque tool calibration software to date.

Some of the AWS Team

AWS products are designed and manufactured in the UK to comprehensive specifications and rigorously tested to fully comply with national and international standards. We have recently released two new machines for calibration of torque wrenches and torque screwdrivers to meet ISO 6789:2017.

Soon to be released are two machines to revolutionise torque measuring device calibration to BS EN 7882:2017.





Managing Director Mr Ron Sangster at the National Physical Laboratories where he was contracted as the Concept Designer and Consultant for the Master 2kNm Torque Calibration Machine.

UK based in Banbury Oxfordshire, near junction 11 of the M40, we are easily accessible from anywhere in the country. With our proximity to international airports we can be reached from anywhere in the world.

Testimonials



"We purchased a Torque Wrench Testing Machine designed by Advanced Witness Systems Ltd in 2018 and subsequently acquired UKAS approval to use the instrument for ISO 6789-2:2017 calibrations for a range of 0.15 N.m to 1500 N.m in 2019. We subsequently increased the range in 2020 to 2500 N.m with UKAS approval.

We have found the Testing Machine to meet all the stringent requirements placed on a calibration laboratory for this range of applied torque and the ISO specifications.

In addition to the Testing Machine, we use the Kepler 4 software for handling the data from the calibration methods for both ISO6789:2003 & ISO6789-2:2017. This was also designed and acquired from Advanced Witness Systems Ltd.

A specifically designed product for torque tool calibration, Kepler 4 handles and manipulates the data, also retaining the large amount of measurements required for ISO6789-2:2017.

We would recommend both these products without hesitation to any other laboratories who wish to carry out similar measurement requirements.

Should you have any questions in relation to this information, please do not hesitate to contact myself."

- Gary Thompson, GT Certification Ltd



"We at Metrology & Quality Services when looking for a torque measuring machine /system to satisfy the requirements of BS EN ISO 6789-2:2017 looked at the available options in the market place & concluded after demonstrations & extensive discussion that the system manufactured & sold by Advanced Witness Systems best suited our requirements.

We required a system that was reliable, easy to use for the operator; automatic as far as possible; satisfied UKAS requirements & with software that both satisfied the requirements of the standard & that we could work with the originators on to meet our specific requirements including calibration to the previous version of the standard. This was fully met by Advanced Witness Systems & with their total impartiality from a torque wrench manufacturing point of view was a massive bonus as the other systems in the market favour their own designs & have little regards of other makes!

The help & willingness to advise from the team at Advanced Witness Systems since the installation has proved to us that we certainly made the correct decision.

Should you wish to discuss our experiences further then do not hesitate to contact me"

- Graham Wilson, Metrology and Quality Services Ltd

Auvanceu wiines	
MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont business Centre	
Beaumont Close	
Banbury	
Ox16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	

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I SERIES TRANSDUCERS

Our I SERIES Torque Transducers are designed to work with our Professional Transducer Display. We produce Inline, Annular and Rotary I SERIES Transducers from 1Nm to 300,000Nm. They are unique with their inbuilt instrumentation PCB to eliminate signal loss.

I SERIES	PAGE
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1Nm Intelligent In-line Torque Transducers	7-8
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INTELLIGENT IN-LINE TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Intelligent In-Line Torque Transducer range (IITT), is designed to accurately measure torque values, in a variety of industries.

With optimised torque ranges, the transducer contains our Intelligent Instrumentation Package, outputting using CAN-BUS protocol to communicate with the AWS LTD Professional Transducer Display (PTD). This digital communication eliminates signal loss when using long lengths of cable, providing flexibility in communicating with other devices and systems. There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position.

A simple 2 step calibration. Stores serial & model number, capacity, calibration coefficient, units of calibration, and conversion to other torque units.

SPECIFICATIONS

Model: IITT-	1011	1012	1013	1014	1015	1016	1070	1017				
Ranges:	0.1- 2.5Nm	0.4- 10Nm	2- 50Nm	10- 250Nm	20- 500Nm	40- 1000Nm	60- 1500Nm	0.1- 3kNm				
Square Drive Size:	1⁄4"	1⁄4"	³ ⁄8"	1//" /2	³ ⁄4"	³ ⁄4"	1"	1 1⁄2"				
Accuracy:	Better tha	n 0.1% of read	ing from 10 to	0 100% of rated	output. See	calibration cert	ificate for full re	esults.				
Modes:	Peak: For 1 st Peak: S	 Run: For Dial-type and Electronic Wrenches and Screwdrivers. Peak: For Cam-type Wrenches and Screwdrivers. 1st Peak: For Click-type Wrenches and Screwdrivers, retains reading until manually cancelled or for 3 seconds if auto cancel option is chosen. 										
Communications:	Communi	cations via can	bus. (use wit	h the AWS PTI	D-1010 powe	r & display unit	:).					
Power and Display:	Requires	only a single D	.C power sup	ply (use with A	WS PTD-101	0, power and c	lisplay is provid	led).				
Overload	125%											
capability: Maximum mechanical overload:	160% of ra	ange stated.				g.						
Operating Temperature:	-10°C to +	-10°C to +50°C.										
Connector:		Mil C 26482 series. 6 pin. Shell size 10.										
CE:	2014/30/E	U			~	IGENTI	DUCER					
EMC:	BS EN 61	326-1:2013				INTELLITRATION INTELLITRATION INTELLITRATION INTELLITRATION INTELLITRATION INTELLITRATION	In Like					
NATO Stock No:	IITT-1012 IITT-1013 IITT-1014	: 6625-22-623- : 6625-22-623- : 6625-22-623- : 6625-22-623- : 6625-22-623-	1636 1857 1635			Control of the second s	a contraction of the second					

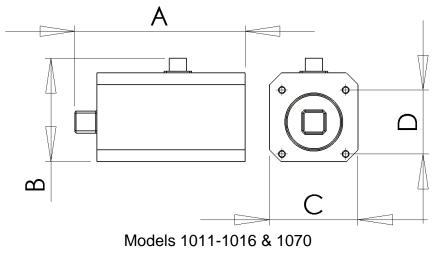
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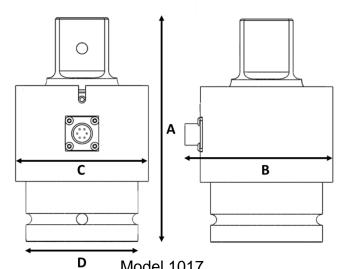


DIMENSIONS

Model		Dime	nsion		Face Mounting	Square	Weight
Model	А	В	С	D	Tapped Hole*	Drive	(Kg)
IITT-1011	100	75	60	36	M5	1/4"	1.0
IITT-1012	100	75	60	36	M5	1⁄4"	1.0
IITT-1013	100	75	60	36	M5	³ /8"	1.0
IITT-1014	115	75	60	40	M5	1/2"	1.2
IITT-1015	150	90	75	55	M5	3/4"	2.6
IITT-1016	150	90	75	55	M5	3/4"	3.3
IITT-1070	160	106	95	80	M5	1"	3.3
IITT-1017	160	106	95	80	N/A	1 1⁄2"	3.8

*The face mounting holes are in a square, centrally located around the square drive.





Model 1017

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	
Data was correct at tim	e of publication

1NM INTELLIGENT IN-LINE TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Intelligent In-Line Torque Transducer range (IITT), is designed to accurately measure torque values, in a variety of industries.

With optimised torque ranges, the transducer contains our Intelligent Instrumentation Package, outputting using CAN-BUS protocol to communicate with the AWS LTD Professional Transducer Display (PTD). This digital communication eliminates signal loss when using long lengths of cable, providing flexibility in communicating with other devices and systems.

There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position.

This transducer incorporates a mechanical overload protection stop at to prevent damage to the transducer. This transducer is either Male SQ drive to Male SQ drive or Male SQ drive to HEX drive. There are 2x M4 threaded holes in the reaction end and bottom surfaces for bolting.

A simple 2 step calibration.

Stores serial & model number, capacity, calibration coefficient, units of calibration, and conversion to other torque units.

SPECIFICATIONS

Model: IITT-	1018	1018H
Ranges:	0.04-1Nm	0.04-1Nm
Drive Size:	1⁄4" SQ	1⁄4" HEX

-10°C to +50°C.

Mil C 26482 series.

6 pin. Shell size 10. 2014/30/EU

BS EN 61326:2007

Accuracy:

Modes:

Overload Capacity: Power and

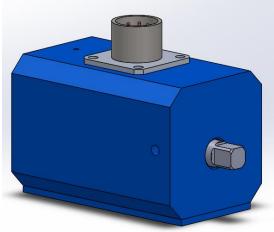
Display:

Maximum mechanical

Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results. Run: For Dial-type and Electronic Wrenches and Screwdrivers. Peak: For Cam-type Wrenches and Screwdrivers. 1st Peak: For Click-type Wrenches and Screwdrivers, retains reading until manually cancelled or for 3 seconds if auto cancel option is chosen. Communication: Canbus 120% AWS Professional Display Model 1010 or External Power Supply 10V and canbus or PC display units with appropriate software. 150% with stop

overload: Operating Temperature: Connector:

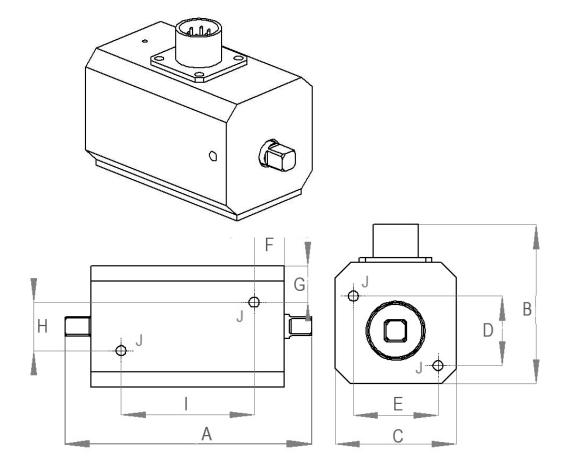
CE: EMC:



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DIMENSIONS

Model	Dimension								
	А	В	С	D	Е	F	G	Н	
IITT-1018	82	55	40	25	25	10	12	16	44



Mounting Tapped Hole "J"	Square Drive	Weight (Kg)
M4	Male ¼"	1.0

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION						
Advanced Witness Systems Ltd							
Unit 8							
Beaumont business Centre							
Beaumont Close							
Banbury							
Ox16 1TN							
Tel: +44 (0)1295 266939							
Email: sales@awstorque.co.uk							

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DESCRIPTION

The AWS Intelligent Annular Torque Transducer range (IATT), is designed to accurately measure torque values, in a variety of industries. They function either as a reaction torque transducer taking the reaction torque through the transducer, or with additional drive plates, attached to the flanges, to convert them to direct drive inline transducers.

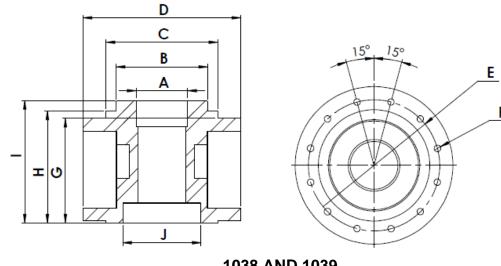
With optimised torque ranges, the transducer contains our Intelligent Instrumentation Package, outputting using CAN-BUS protocol to communicate with the AWS Professional Transducer Display (PTD). This digital communication eliminates signal loss when using long lengths of cable, providing flexibility in communicating with other devices and systems.

SPECIFICATIONS

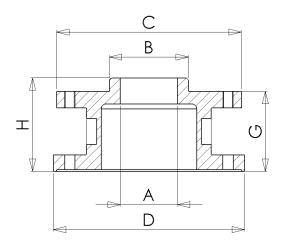
Model: IATT-	1038	1039	1031	1032	1033	1034	1035	1046	1036	1037	
Ranges (kNm):	2	3	5	10	20	50	100	120	200	300	
Accuracy: Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results.											
Modes:	 Run: For Dial-type and Electronic Wrenches and Screwdrivers. Peak: For Cam-type Wrenches and Screwdrivers. 1st Peak: For Click-type Wrenches and Screwdrivers, retains reading until manually cancelled or for 3 seconds if auto cancel option is chosen. 										
Communications:	Communica signals, sho	tions via C	AN-BUS. (When used	with the A				ys the		
Power and Display: Overload capability:	Requires on (when used 125%				ay is provic	led).					
Maximum mechanical overload:	160% of ran	ge stated.			Ć				1		
Operating Temperature:	-10°C to +50)°C.							-	2	
Temperature coefficient:	On Zero: 0.0 On Span: 0.						0	0			
Connector:	= = ==	MIL C 26482 series. 6 pin. Shell size 10.									
CE:	2014/30/EU					22		6	10	//	
EMC:	BS EN 6132	26-1:2013					10	10			

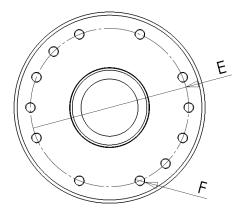
DIMENSIONS

Dim mm	1038/ 1039	1031	1032	1033	1034	1035	1046	1036	1037
Α	39	55	55	70	125	125	125	205	205
В	69	76	76	95	219.92	219.92	219.92	239.92	239.92
С	84.1	177.8	177.8	212	315	315	315	520	520
D	119	184	184	212	315	315	315	520	520
E	99.06	152.4	152.4	195	290	290	290	492	492
F	M5X0.8	M10X1.5	M10X1.5	M10X1.5	M16X2.0	M16X2.0	M16X2.0	M16X2.0	M16X2.0
G	79	77	77	97	126	126	126	130	130
н	84.5	90	90	76	110	110	110	146	146
I	92.5	-	-	-	-	-	-	-	-
J	59	-	-	-	-	-	-	-	-
No. Bolts	24	24	24	24	40	40	40	68	68



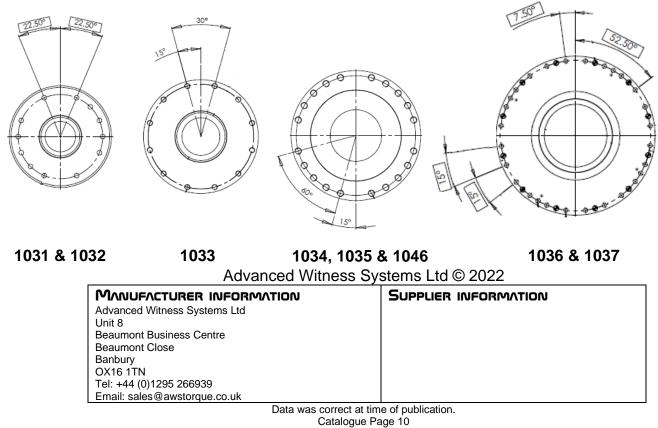
1038 AND 1039





F

1031 AND ABOVE



INTELLIGENT ROTARY TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Intelligent Rotary Torque Transducer range (IRTT), is designed to accurately measure torque values in a rotating shaft, in a variety of industries. With optimised torque ranges, the transducer contains our Intelligent Instrumentation Package, outputting using CAN-BUS protocol to communicate with the AWS LTD Professional Transducer Display (PTD). This digital communication eliminates signal loss when using long lengths of cable, providing flexibility in communicating with other devices and systems. The IRTT can be produced with different adapters depending on its use including square (standard) and keyway (option).

A simple 2 step calibration.

Stores serial & model number, capacity, calibration coefficient, units of calibration, and conversion to other torque units.

SPECIFICATIONS

Model: IRTT-	1042	1043	1044	1045
Ranges:	2-50Nm	10-250Nm	20-500Nm	40-1000Nm
Square Drive Size:	³ /8"	1/2"	3⁄4"	3⁄4"

Accuracy:	Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results.					
Modes:	 Run: For Dial-type and Electronic Wrenches and Screwdrivers. Peak: For Cam-type Wrenches and Screwdrivers. 1st Peak: For Click-type Wrenches and Screwdrivers, retains reading until manually cancelled or 					
Communications:	for 3 seconds if auto cancel option is chosen. Communications via can bus. (When used with the AWS PTD-1010 that converts and displays the signals, shows mode selected, transducer details and output in RS232serial form).					
Power and Display:	Requires only a single D.C power supply (used with AWS PTD-1010, power and display is					
	provided).					
Adapter:	The IRT can be produced with shaft ends					
	suitable to its intended function.					
Speed:	Standard 20,000 RPM					
Overload capability:	125%					
Maximum mechanical overload:	160% of range stated.					
Operating Temperature range:	-10°C to +50°C.					
Connector:	Mil C 26482 series. 6 pin. Shell size 10.					
CE:	2014/30/EU					
EMC:	BS EN 61326:2007					
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Advanced Wit Unit 8 Beaumont bus Beaumont Clo Banbury OX16 1TN Tel: +44 (0)12	se					

A Series Transducers

Our A SERIES Torque Transducers are designed to work with any existing analogue torque system.

We produce Inline, Annular and Rotary A SERIES Transducers from 1Nm to 300,000Nm.

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1Nm Analogue In-line Torque Transducers	15-16
Analogue Annular Torque Transducers	17-18
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ANALOGUE IN-LINE TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Analogue In-Line Torque Transducer range (AITT), is designed to accurately measure torque values, in a variety of industries.

With optimised torque ranges, the transducer uses a standard analogue connection through a male MIL C connector, from a full active Wheatstone bridge, outputting a mV reading. There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position.

SPECIFICATIONS

Model: AITT-	2011	2012	2013	2014	2015	2016	2017
Ranges:	0.12-3Nm	0.4-10Nm	2-50Nm	10-250Nm	20- 500Nm	40- 1000Nm	0.1- 3kNm
Square Drive Size:	1⁄4"	1⁄4"	3/8"	1/2"	3⁄4"	3⁄4"	1 ½"

Accuracy:	Better than 0.1% of reading from 10 to 100% of rated of	output. See calibration certificate for full results.
Signal output	2 mV/V Strain gauge	
Communication:	mV analogue output	
Bridge Impedance	350 Ω	
MAX Voltage and Current Requirement	10V DC 30mA	
Power and Display:	Requires a stable DC power supply and mV reading meter.	
Overload capability:	125%	
Maximum mechanical overload:	160% of range stated.	
Operating Temperature:	-10°C to +50°C.	TRANSDUCER
Connector:	Mil C 26482 series. 6 pin. Shell size 10.	TO FROM the first the state of
CE: EMC:	2014/30/EU BS EN 61326:2007	



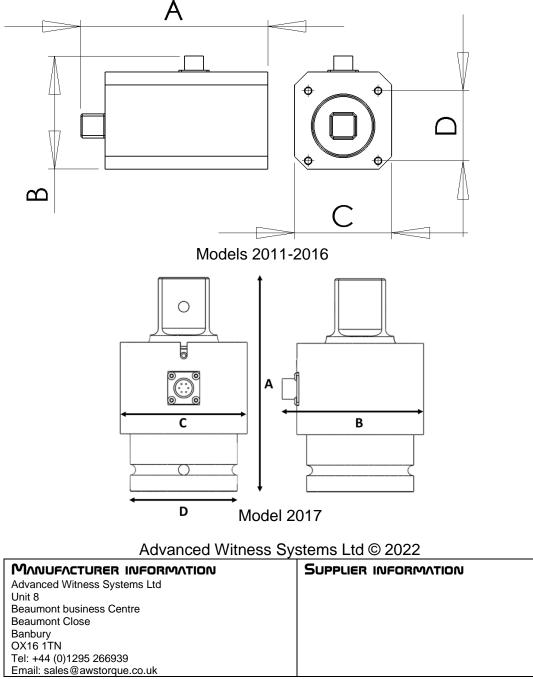


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DIMENSIONS

Model		Dime	nsion		Face Mounting	Square	Weight
Model	А	В	С	D	Tapped Hole*	Drive	(Kg)
AITT-2011	100	75	60	36	M5	1⁄4"	1.0
AITT-2012	100	75	60	36	M5	1⁄4"	1.0
AITT-2013	100	75	60	36	M5	³ ⁄8"	1.0
AITT-2014	115	75	60	40	M5	1/2"	1.2
AITT-2015	150	90	75	55	M5	³ /4"	2.6
AITT-2016	150	90	75	55	M5	3/"	4.5
AITT-2017	160	106	95	80	N/A	1 1⁄2"	3.8

*The face mounting holes are in a square, centrally located around the square drive.



1NM ANALOGUE IN-LINE TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Analogue In-Line Torque Transducer range (AITT), is designed to accurately measure torque values, in a variety of industries.

With optimized torque ranges, the transducer uses a standard analogue connection through a male MIL C connector, from a full active Wheatstone bridge, outputting a mV/V reading.

There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position. The vertical position allows it to be mounted in ISO torque wrench calibration machines.

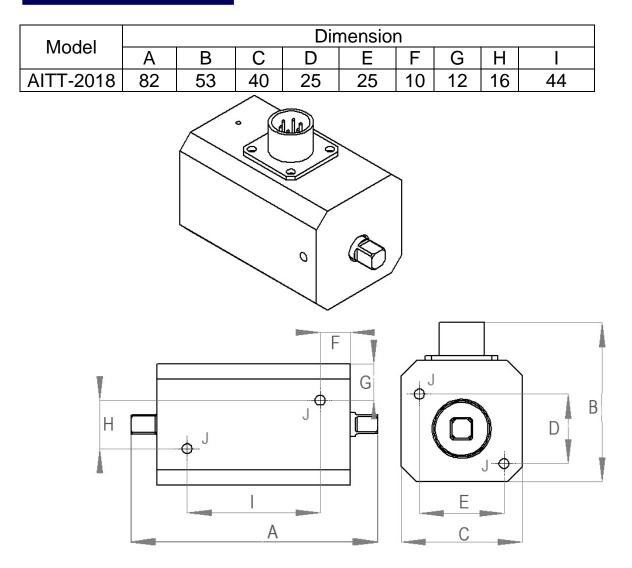
This transducer incorporates a mechanical overload protection stop to prevent damage to the transducer. This transducer can either be Male SQ drive to Male SQ drive or Male SQ to Male HEX drive. There are 2x M4 threaded holes in the reaction end and bottom surfaces for bolting.

SPECIFICATIONS

Model: AITT-	2018	2018H
Ranges:	0.04-1Nm	0.04-1Nm
Drive Size:	1⁄4"	1⁄4" HEX

Accuracy:	Better than 0.1% of reading from 10 to 100% of ra	ted output. See calibration certificate for full results.
Signal output	2 mV/V Strain gauge	
Communication:	mV	
Overload Capacity:	120%	
Bridge Impedance	350 Ω	
MAX voltage and current requirement	10V DC 30mA	
Power and Display:	Dedicated mV/V display and power supply.	
Maximum		6
mechanical overload:	150% with stop	LINE
Operating Temperature:	-10°C to +50°C.	ANALOGUE IN-LINE ANALOGUE IN-LINE ANALOGUE TRANSDUCER
Connector:	Mil C 26482 series. 6 pin. Shell size 10.	TORQUE No. 270 TORQUE No. 270 Model No. 0.02-INM systems (June
CE: EMC:	2014/30/EU BS EN 61326:2007	Advandury. United

DIMENSIONS



Mounting Tapped Hole "J"	Square Drive	Weight (Kg)
M4	Male ¼"	1.0

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION					
Advanced Witness Systems Ltd						
Unit 8						
Beaumont business Centre						
Beaumont Close						
Banbury						
OX16 1TN						
Tel: +44 (0)1295 266939						
Email: sales@awstorque.co.uk						

ANALOGUE ANNULAR TORQUE TRANSDUCER

DESCRIPTION

The AWS Analogue Annular Torque Transducer range (AATT), is designed to accurately measure torque values, in a variety of industries. They function either as a reaction torque transducer taking the reaction torque through the transducer, or with additional drive plates, attached to the flanges, convert them to direct drive inline transducers.

With optimised torque ranges, the transducer uses a standard analogue connection through a male MIL C connector, from a full active Wheatstone bridge, outputting a mV reading.

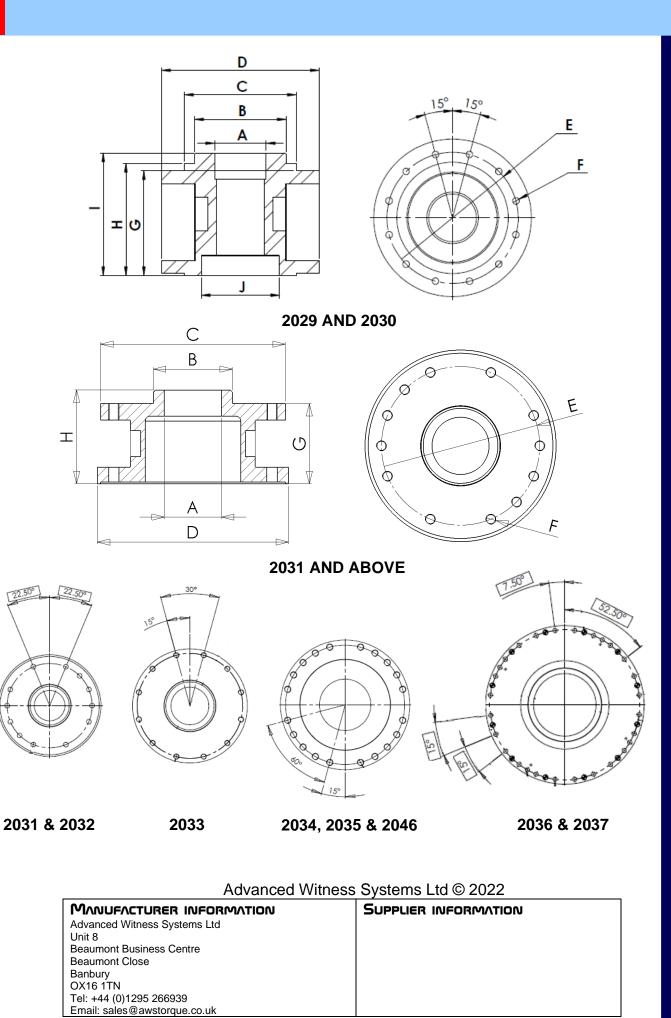
Specifications

Model: AATT-	2029	2030	2031	2032	2033	2034	2035	2046	2036	2037
Ranges (kNm):	2	3	5	10	20	50	100	120	200	300

Accuracy:	Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results.
Signal Output	2mv/v
	Strain gauged bridge
Power and Display:	Requires a stable DC power supply and mV reading meter.
Overload capability:	125%
Bridge Impedance	350Ω
Max Voltage and Current Requirement	10V 30mA DC
Maximum mechanical overload:	160% of range stated.
Operating Temperature:	-10°C to +50°C.
Temperature coefficient:	On Zero: 0.01% per °C On Span: 0.03% per °C
Connector:	Mil C 26482 series. 6 pin. Shell size 10.
CE:	2014/30/EU
EMC:	BS EN 61326:2013

DIMENSIONS

Dim	0000/								
Dim	2029/	2031	2032	2033	2034	2035	2046	2036	2037
mm	2030								
Α	39	55	55	70	125	125	125	205	205
В	69	76	76	95	219.92	219.92	219.92	239.92	239.92
С	84.1	177.8	177.8	212	315	315	315	520	520
D	119	184	184	212	315	315	315	520	520
E	99.06	152.4	152.4	195	290	290	290	492	492
F	M5X0.8	M10X1.5	M10X1.5	M10X1.5	M16X2.0	M16X2.0	M16X2.0	M16X2.0	M16X2.0
G	79	77	77	97	126	126	126	130	130
Н	84.5	90	90	76	110	110	110	146	146
I	92.5	-	-	-	-	-	-	-	-
J	59	-	-	-	-	-	-	-	-
No.	24	24	24	24	40	40	40	68	68
Bolts									



ANALOGUE ROTARY TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD Analogue Rotary Torque Transducer range (ARTT), is designed to accurately measure torque values in a rotating shaft, in a variety of industries.

With optimised torque ranges, the transducer uses a standard analogue connection through a male MIL C connector, from a full active Wheatstone bridge, outputting a mV reading. The ARTT can be produced with different adapters depending on its use including square (standard) and keyway (option).

Specifications

Model: ARTT-	2041	2042	2043	2044	2045
Ranges:	0.4-10Nm	2-50Nm	10-250Nm	20-500Nm	40-1000Nm
Square Drive Size:	1/4"	³ /8"	1/2"	3⁄4"	³ / ₄ "

Accuracy:

Signal Output: Communications: Power and Display:

Adapter:

Speed:

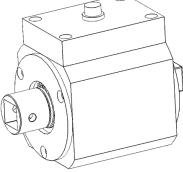
Overload capability: Bridge Impedance:

Max Voltage and Current Requirement: Maximum mechanical overload: Operating Temperature:

Connector:

CE: EMC:

Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results. Analogue mV N/A Requires a stable DC power supply and mV reading meter. The IRT can be produced with shaft ends suitable to its indented function. Standard 20,000 RPM 125% 350 Ω 10V DC 30mA 160% of range stated. -10°C to +50°C. Mil C 26482 series. 6 pin. Shell size 10. 2014/30/EU BS EN 61326:2007



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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	

N SERIES TRANSDUCERS

Our N SERIES Torque Transducers are designed to work with other manufacturer's intelligent display systems.

We produce Inline, Annular and Rotary N SERIES Transducers from 1Nm to 300,000Nm.

N SERIES	PAGE
N-Type In-line Torque Transducers	21-22
1Nm N-Type In-line Torque Transducers	23-24
N-Type Annular Torque Transducers	25-26
N-Type Rotary Torque Transducers	27

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N-Type In-line Torque Transducer

DESCRIPTION

The AWS LTD N-type In-Line Torque Transducer range (NITT), is designed to accurately measure torque values, in a variety of industries.

With optimised torque ranges, the transducer outputs a mV signal proportional to the supply voltage and torque. The transducer contains a memory chip in which a small selection of parameters, including serial number, model number, and calibration value, are held, compatible for setting some manufacturers display units.

There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position.

SPECIFICATIONS

Model: NITT-	3011	3012	3013	3014	3015	3016	3017
Ranges:	0.1- 2.5Nm	0.4-10Nm	2-50Nm	10- 250Nm	20- 500Nm	40- 1000Nm	0.1-3kNm
Square Drive Size:	1⁄4"	1⁄4"	3⁄8"	1⁄2"	3⁄4"	3/4"	1 1⁄2"

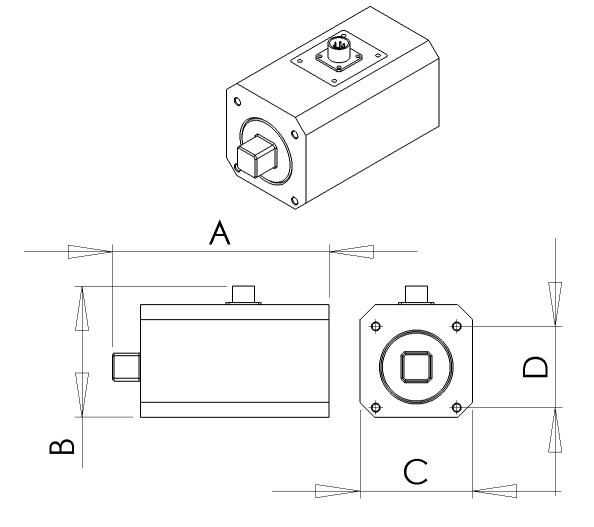
Accuracy: Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results. Signal Output: 2mV/V Communications: Not Applicable Bridge 350Ω Impedance: 10V DC 30mA Max Voltage and Current **Requirements:** Power and Requires DC power supply and Dedicated mV meter Display: Overload 125% capability: Maximum 160% of range stated. mechanical overload: Operating -10°C to +50°C. Temperature: Mil C 26482 series. Connector: 6 pin. Shell size 10. CE: 2014/30/EU EMC: BS EN 61326:2007



DIMENSIONS

Model	Dimension				Face Mounting	Square	Weight
Model	Α	В	С	D	Tapped Hole*	Drive	(Kg)
NITT-3011	100	75	60	36	M5	1/4"	1.0
NITT-3012	100	75	60	36	M5	1/4"	1.0
NITT-3013	100	75	60	36	M5	³ ⁄8"	1.0
NITT-3014	115	75	60	40	M5	1/2"	1.2
NITT-3015	150	90	75	55	M6	3⁄4"	2.6
NITT-3016	150	90	75	55	M6	3/4"	4.5

*The face mounting holes are in a square, centrally located around the square drive.



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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	

1NM N-TYPE IN-LINE TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD N-Type In-Line Torque Transducer range (NITT), is designed to accurately measure torgue values, in a variety of industries.

With optimized torque ranges, the transducer uses a standard analogue connection through a male MIL C connector, from a full active Wheatstone bridge, outputting a mV/V reading.

The transducer contains a memory chip in which a small selection of parameters, including serial number, model number, and calibration value, are held, compatible for setting some manufacturers display units.

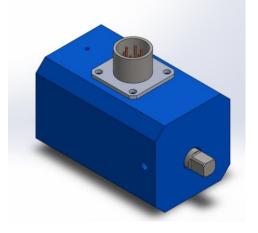
There is an option (using the In-line Transducer Mounting Bracket, purchased separately) to bench mount the transducer in either a vertical or horizontal position. The vertical position allows it to be mounted in ISO torgue wrench calibration machines.

This transducer incorporates a mechanical overload protection stop at 110% of full scale to prevent damage to the transducer. This transducer is can either be Male SQ drive to Male SQ drive or Male SQ to Male HEX drive. There are 2x M4 threaded holes in the reaction end and bottom surface for bolting.

SPECIFICATIONS

Model: NITT-	3018	3018H
Ranges:	0.04-1Nm	0.04-1Nm
Drive Size:	1/4"	1⁄4" HEX

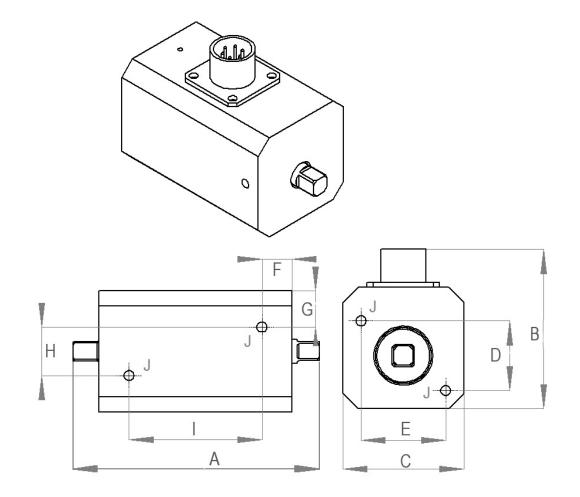
Accuracy:	Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results.
Signal output	2 mV/V Strain gauge
Communication:	Not Applicable
Overload Capacity:	120%
Bridge Impedance	350 Ω
MAX voltage requirement	10V DC 30mA
Power and Display:	Requires DC power supply and Dedicated mV meter
Maximum mechanical overload: Operating Temperature: Connector:	150% with stop -10°C to +50°C. Mil C 26482 series. 6 pin. Shell size 10.
CE: EMC:	2014/30/EU BS EN 61326:2007



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DIMENSIONS

Madal				Di	mensic	n			
Model	А	В	С	D	Е	F	G	Н	I
NITT-3018	82	53	40	25	25	10	12	16	44



Mounting Tapped Hole "J"	Square Drive	Weight (Kg)
M4	Male ¼"	1.0

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorgue.co.uk	

N-TYPE ANNULAR TRANSDUCER

DESCRIPTION

The AWS N-type Annular Torque Transducer range (NATT), is designed to accurately measure torque values, in a variety of industries. They function either as a reaction torque transducer taking the reaction torque through the transducer, or with additional drive plates, attached to the flanges, convert them to direct drive inline transducers.

With optimised torque ranges, the transducer outputs a mV signal proportional to the supply voltage and torque. The transducer contains a memory chip in which a small selection of parameters, including serial number, model number, and calibration value, are held, compatible for setting some manufacturers display units.

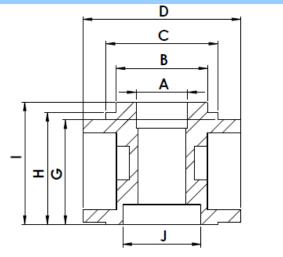
SPECIFICATIONS

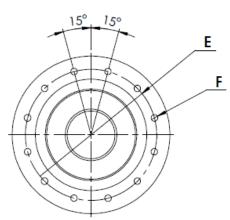
Model: NATT-	3038	3030	3031	3032	3033	3034	3035	3046	3036	3037
Ranges (kNm):	2	3	5	10	20	50	100	120	200	300

Accuracy:	Better than 0.1% of reading from 10 to 100% of rated output. See calibration certificate for full results.
Communications:	2 wire EEPROM instrument set up program.
Power and Display:	Can be used with a mV/V display, but is also compatible with other manufacturers' displays.
Overload capability:	125%
Maximum mechanical overload:	160% of range stated.
Maximum bridge supply voltage:	10V
Temperature range:	-10°C to +50°C.
Temperature coefficient:	On Zero: 0.01% per °C On Span: 0.03% per °C
Connector:	Mil C 26482 series. 6 pin. Shell size 10.
CE:	2004/108/EEC
EMC:	BS EN 61326:2013
Signal Output	2mv/v
	Strain gauged bridge
Bridge Impedance	350Ω
Max Power Requirement	10V 20mA DC

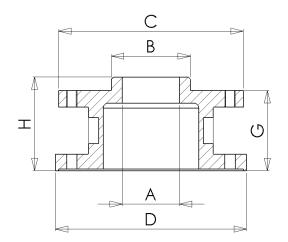
DIMENSIONS

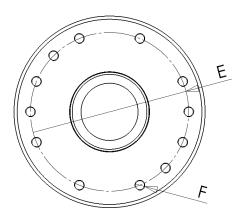
Dim mm	3038/ 3030	3031	3032	3033	3034	3035	3046	3036	3037
Α	39	55	55	70	125	125	125	205	205
В	69	76	76	95	219.92	219.92	219.92	239.92	239.92
С	84.1	177.8	177.8	212	315	315	315	520	520
D	119	184	184	212	315	315	315	520	520
Е	99.06	152.4	152.4	195	290	290	290	492	492
F	M5X0.8	M10X1.5	M10X1.5	M10X1.5	M16X2.0	M16X2.0	M16X2.0	M16X2.0	M16X2.0
G	79	77	77	97	126	126	126	130	130
Н	84.5	90	90	76	110	110	110	146	146
I	92.5	-	-	-	-	-	-	-	-
J	59	-	-	-	-	-	-	-	-
No. Bolts	24	24	24	24	40	40	40	68	68



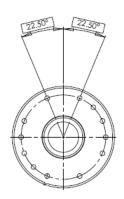


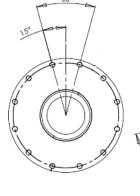
3038 AND 3030

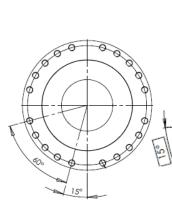




3031 AND ABOVE







3031 & 3032

3033

3034 & 3035

3036 & 3037

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Advanced Witness Systems Ltd						
Unit 8						
Beaumont Business Centre						
Beaumont Close						
Banbury						
OX16 1TN						
Tel: +44 (0)1295 266939						
Email: sales@awstorque.co.uk						
Catalagua Daga 26						

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N-TYPE ROTARY TORQUE TRANSDUCER

DESCRIPTION

The AWS LTD N-type Rotary Torque Transducer range (NRTT), is designed to accurately measure torque values in a rotating shaft, in a variety of industries.

With optimised torque ranges, the transducer outputs a mV signal proportional to the supply voltage and torque. The transducer contains a memory chip in which a small selection of parameters, including serial number, model number, and calibration value, are held, compatible for setting some manufacturers display units.

The NRTT can be produced with different adapters depending on its use including square (standard) and keyway (option).

SPECIFICATIONS

Model: NRTT-	3041 3042		3043	3044	3045	
Ranges:	0.4-10Nm	2-50Nm	10-250Nm	20-500Nm	40-1000Nm	
Square Drive Size:	1/4"	3/8"	1/2"	3⁄4"	3⁄4"	
Keyway Size:	Multiple sizes					

Better than 0.1% of reading from 10 to 100% of rated output. See calibration

Accuracy:

Unit 8

Beaumont Business Centre

Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk

Beaumont Close Banbury OX16 1TN

certificate for full results. Signal Output: 2mV/V Not Applicable Communications: Bridge Impedance: 350Ω 10V DC 30mA Max Voltage and Current Requirement: Power and Display: Requires DC power supply and Dedicated mV meter The IRT can be produced with shaft ends Adapter: suitable to its indented function. Speed: Standard 20,000 RPM Overload capability: 125% Maximum mechanical 160% of range stated. overload: **Operating Temperature:** -10°C to +50°C. Mil C 26482 series. Connector: 6 pin. Shell size 10. CE: 2014/30/EU EMC: BS EN 61326:2007 Advanced Witness Systems Ltd © 2022 SUPPLIER INFORMATION MANUFACTURER INFORMATION Advanced Witness Systems Ltd

DISPLAYS & BENCH TESTERS

Our Professional Transducer Display and Bench Testers use our unique inbuilt instrumentation PCBs to eliminate signal loss. Whether using one of our Intelligent Transducers, or a Bench Tester, the models accommodate your torque and budget requirements.

Displays & Bench Testers	PAGE
Professional Transducer Display	29
Professional Torque Tool Tester	30
Professional Calibration Torque Unit	31

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PROFESSIONAL TRANSDUCER DISPLAY

DESCRIPTION

The PTD is designed for powering and displaying the readings from AWS Intelligent Torque Transducer ranges (I Series). The PTD features a bright, full colour LCD graphic display, showing the torque reading, both in large 6 digits, and analogue bar graph. The PTD features Run, Peak and 1st Peak mode operation, unit and limits selection via front *panel soft keys*. When using the limits features, external yellow, red and green LEDs indicate whether torque values are low, high or acceptable, and the 6 digit reading changes colour. The PTD displays torque in Nm, cNm, Lbf.Ft, Lbf.In and Ozf.In. RS232 output enables the PTD to be connected to a PC for direct input into ADMS Kepler 4 Calibration and Conformity Software (sold separately).

The 1010M is designed for use with the AWS UTWCM (Sold separately). The models 1010B and 1010H have internal rechargeable batteries for portable operation. These models also indicate the battery level status. The 1010H is a more rugged option for demanding environmental climates. The AWS Professional Transducer Display (PTD) is available in three versions: 1010M, 1010B and 1010H. All versions casings have a rugged solid design for withstanding shock & impact damage.

SPECIFICATIONS

Model: PTD- Specification LCD Display:	 6 Digit 	1010B Internal rechargeable batteries. X 52mm Bright, Full Colour, S	1010-H Internal rechargeable batteries. Heated display for use at sub-zero temperatures. Rated to IP 67.
	from 12V DC charger. • 70mm • 6 Digit	batteries. X 52mm Bright, Full Colour, S	
LCD Display:	• 70mm • 6 Digit	X 52mm Bright, Full Colour, S	sub-zero temperatures. Rated to IP 67.
LCD Display:	 6 Digit 	X 52mm Bright, Full Colour, S	
		Active Reading ue Bar Graph	Sunlight Readable LCD Display
Power:	 Battery 1010M – 1010B/H 	Unit, Limit Selection and Sett State and Indication of Charg Mains powered from 12V DC - Internal Rechargeable Batte extends life of the display. Sup	ging (1010B/H). charger eries allow for portable use. Auto power off
Accuracy:	Better tha Transduc		100% F.S.D when used with AWS Intelligent Torque
Limit Selection:	Low, Pas	s, High	
Units:	Nm, cNm	n, LbfFt, LbfIn, OzfIn	
Data Output:		Standard Female Connector	
Operating temperatu		: -10 to +50°C 20 to +50°C	
Temperature coeffic		0.01% per °C : 0.03% per °C	
Mode:	UN TE 1 st PEAK	PEAK	0
Weight:	1.6 Kg		PL PL
Size:	160mm >	x 220mm x 200mm	
CE:	2014/30/	EU	TRANSCRIPTIONAL CONTROLLER DISPLAY
EMC:	EN 6132	6-1:2013	
NATO Stock No: Screenshots:	5980-22-	623-1641	
	 ● -123450 Lbitt ● Mode Tare Reset e selection. Centre: Readin 		

Left: Graphical mode selection. Centre: Reading screen showing mode/ units selected and analogue bar graph. Right: Battery level warning

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PROFESSIONAL TORQUE TOOL TESTER

DESCRIPTION

The AWS LTD Professional Torque Tool Tester range (PTTT), the companies' premier bench mounted tester range, for calibrating, testing and certifying hand torque tools.

The PTTT features a bright, full colour LCD graphic display, showing the torque reading, both in large 6 digits, and analogue bar graph. A flexible neck means the full colour display can be easily read from any position. It has internal rechargeable batteries for portable operation. Featuring Run, Peak and 1st Peak mode operation (selectable to allow use with all types of torque tool), unit and limits selection via front panel soft keys. When using the limits features, external yellow, red and green LEDs indicate whether torgue values are low, high or acceptable, and the 6 digit reading changes colour. The display also indicates the battery level status. The RS232 output enables the PTTT to be connected to a PC for direct input into ADMS Kepler Torque Tool Calibration Software (sold separately). This allows for quick, accurate and precise calibration of torque tools.

SPECIFICATIONS

Model: PTTT-1005-	10	50	250	1000
Ranges:	0.4 - 10Nm	2 - 50Nm	10 - 250Nm	40 - 1000Nm
Square Drive Size:	1/4"	3/8"	1/2"	3/4"

Better than 1% of reading from 4 to 100% of Rated output. See Calibration certificate for full Accuracy: results. Run: For Dial-type and Electronic Wrenches and Screwdrivers Modes: Peak: For Cam-type Wrenches and Screwdrivers. 1st Peak: For Click-type Wrenches and Screwdrivers, retains reading until manually cancelled or for 3 seconds if auto cancel option is chosen. 70mm X 52mm Bright Full Colour Sunlight Readable LCD Display of 6 Digit Active Reading, with LCD Display: Analogue Bar Graph, Mode Selection graphics, Battery State and indication of charging. Optional limit selection with colour indication shows whether a reading is Above Limit, Below Limit and Within Limit. All functions are selected and changed by soft keys. Internal Rechargeable Batteries allow it to be used in the field. Auto power off function extends life Power: of the display. Supplied with 12V DC power supply for charging batteries and mains power. Data Output: Female RS232 connection Overload capability: 125% Maximum mechanical 160% of Range stated. overload: +5°C to +50°C. IP67. Operating temperature: Temperature coefficient: On Zero: 0.01% per °C On Span: 0.03% per °C **Torque Standard:** BS 7882:2017 2014/30/EU CE NATO Stock No: PTTT-1005-50: 6625-22-623-1637 PTTT-1005-1000: 6625-22-623-16348 ScreenShots: SELECT MODE **BATTERY LEVEL** 123450

 \odot Mode Tare Reset OK Left: Graphical Mode selection. Centre: Reading Screen Showing mode/ units selected and Analogue Bar graph. Right: Battery level warning

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION					
Advanced Witness Systems Ltd						
Unit 8						
Beaumont Business Centre						
Beaumont Close						
Banbury						
OX16 1TN						
Tel: +44 (0)1295 266939						
Email: sales@awstorque.co.uk						
Data was corre	ect at time of publication					

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PROFESSIONAL CALIBRATION TORQUE UNIT

DESCRIPTION

The AWS LTD Professional Calibration Torque Unit (PCTU), our entry level bench mounted tester for production line or lower cost requirements for testing hand torque tools.

With Multiple mode and unit selection as well as a tilting display providing a variety of viewing angles, it does not compromise on function or accuracy, displaying more precise torque values than any other entry level torque tool tester.

The range is designed to calibrate all types of torque wrenches and torque screwdrivers, and has been selected to cover the large majority of torque tools without having to use two instruments for a single tool type.

The RS232 output enables the PCTU to be connected to a PC for direct input into ADMS Kepler Torque Tool Calibration Software (sold separately). This allows for quick, accurate and precise calibration of torque tools.

SPECIFICATIONS

Model: PCTU-1006-	10	50	250	1000			
Ranges:	0.4 - 10Nm	2 - 50Nm	10 - 250Nm	40 - 1000Nm			
Square Drive Size:	1/4"	3/8"	1/2"	3/4"			
Accuracy:	Better than 1% of rearing the results.	ading from 4 to 100%	of Rated output. See Ca	libration certificate for full			
Units:	Nm and Lbf.Ft or cN	m and Lbf.In Selectab	le (Dependant on Range	e).			
Modes:		and Electronic Wrencł type Wrenches and S e Wrenches and Scre	crewdrivers				
Display:	5 X 12.5mm digit LE	5 X 12.5mm digit LED. Adjustable viewing angle through 90°. LED's indicate selected mode and units. Selection and functions are changeable by four pushbuttons.					
Power:				to power off function extend charging batteries and main			
	power.						
Mounting:	Wall or bench/pedes	stal mountable via 4 h	ole 8 mm dia bolt fixings	(bolts not supplied).			
Data Output:	Female RS232 conn	ection.		_			
Overload capability:	125%		PROFESSIONAL CALIBR	ATION C			
Maximum mechanical overload:	160% of Range state	ed.	PROFESSIONAL CALIBRI TORQUE UNIT	(reser)			
Operating temperature:	+0°C to +50°C.		A 00000				
Temperature coefficient:	On Zero: 0.01% per On Span: 0.03% per		CALE FILE NM	TARE			
CE:	2014/30/EU						
EMC:	EN 61326: 2007						
Torque Standard:	BS 7882:2017						

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MANUFACTURER INFORMATION

Advanced Witness Systems Ltd Unit 8 Beaumont Business Centre Beaumont Close Banbury OX16 1TN Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk

SUPPLIER INFORMATION

TRANSDUCER ANCILLARIES

A selection of products which can be used with AWS Transducers, Displays and Bench Testers, and also in association with other manufacturers Transducers & Displays.

Transducer Ancillaries	PAGE
Precision Torque Adapters	33-34
Multiway Transducer Switch Box	35
Intelligent Instrument Transducer Cable	36
Transducer Cables	37

Advanced Witness Systems Ltd Catalogue 2022 Data was correct at time of publication. Catalogue Page 32

PRECISION TORQUE ADAPTERS

Hex-Square Adapters

DESCRIPTION

The AWS LTD Hex-Square precision calibration adapters, designed to improve the accuracy and reduce the uncertainty in torque calibration & apparatus. Our precision hex-square adapters cover a range of the most commonly used square drive and hex sizes. Because of this they can be used on a variety of different calibration machines and apparatus. They are manufactured to high tolerances out of hardened stainless steel to eliminate corrosion and increase the lifetime of the adapters. They are laser engraved with the size and model number for easy identification.

Specifications

Part No:	Size:						
CM105	1"	F	SQ	to	36	F	HEX
CM150	1"	F	SQ	to	1/4"	F	HEX
CM151	1"	F	SQ	to	6	F	HEX
CM152	1"	F	SQ	to	10	F	HEX
CM153	1"	F	SQ	to	17	F	HEX
CM154	1"	F	SQ	to	19	F	HEX
CM155	1"	F	SQ	to	22	F	HEX
CM156	1"	F	SQ	to	27	F	HEX
CM106	3/4"	F	SQ	to	36	F	HEX
CM113	3/4"	F	SQ	to	19	F	HEX
CM107	1/2"	F	SQ	to	19	F	HEX

Part No:	Size:						
CM111	1/2"	F	SQ	to	17	F	HEX
CM135	1/2"	F	SQ	to	17	F	HEX
CM109	3/8"	F	SQ	to	10	F	HEX
CM110	3/8"	F	SQ	to	17	F	HEX
CM112	3/8"	F	SQ	to	19	F	HEX
CM171	3/8"	Μ	SQ	to	1/4"	F	HEX
CM172	3/8"	М	SQ	to	1/4"	М	HEX
CM108	1/4"	F	SQ	to	10	F	HEX
CM170	1/4"	М	SQ	to	1/4"	F	HEX
CM173	1/4"	Μ	SQ	to	1/4"	Μ	HEX

Keyway-Square Adapters

DESCRIPTION

The AWS LTD Keyway-Square precision calibration adapters, designed to improve the accuracy and reduce the uncertainty in torque calibration & apparatus. Our precision keyway-square adapters cover a range of the most commonly used square drive and keyway sizes. Keyways can be produced to specific standard as well as non-standard sizes. Because of this they can be used on a variety of different calibration machines and apparatus. They are manufactured to high tolerances out of hardened stainless steel to eliminate corrosion and increase the lifetime of the adapters. They are laser engraved with the size and model number for easy identification.

ECIFIC	ΛΤΙ	ons	5			
		9	Size:			
1/2"	F	SQ	to	35	F	KEY
3/4"	F	SQ	to	35	F	KEY
1"	F	SQ	to	35	F	KEY
	1/2" 3/4"	1/2" F 3/4" F	1/2" F SQ 3/4" F SQ	3/4" F SQ to	Size: 1/2" F SQ to 35 3/4" F SQ to 35	Size: 1/2" F SQ to 35 F 3/4" F SQ to 35 F



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Square-Square Adapters

DESCRIPTION

The AWS LTD Square-Square precision calibration adapters, designed to improve the accuracy and reduce the uncertainty in torque calibration & apparatus. Our precision square-square adapters cover a range of the most commonly used square drive sizes. Because of this they can be used on a variety of different calibration machines and apparatus. They are manufactured to high tolerances out of hardened stainless steel to eliminate corrosion and increase the lifetime of the adapters. They are laser engraved with the size and model number for easy identification.

SPECIFICATIONS

Part No:				Size	:		
CM132	1/2"	F	SQ	to	3/8"	F	SQ
CM139	3/8"	F	SQ	to	3/8"	F	SQ
CM140	1/4"	F	SQ	to	1/4"	F	SQ
CM141	1/4"	F	SQ	to	3/8"	F	SQ
CM142	1"	F	SQ	to	1.5"	М	SQ
CM146	1"	F	SQ	to	3/4"	М	SQ
CM147	1"	F	SQ	to	1/2"	М	SQ
CM148	1"	F	SQ	to	3/8"	М	SQ
CM149	1"	F	SQ	to	1/4"	М	SQ
CM143	3/4"	F	SQ	to	1"	М	SQ
CM164	3/4"	F	SQ	to	1/2"	М	SQ
CM165	3/4"	F	SQ	to	3/8"	М	SQ

Part No:				Size	:		
CM166	3/4"	F	SQ	to	1/4"	Μ	SQ
CM160	1/2"	F	SQ	to	3/4"	Μ	SQ
CM167	1/2"	F	SQ	to	3/8"	Μ	SQ
CM168	1/2"	F	SQ	to	1/4"	Μ	SQ
CM144	1/2"	F	SQ	to	1"	М	SQ
CM159	3/8"	F	SQ	to	3/4"	М	SQ
CM162	3/8"	F	SQ	to	1/2"	М	SQ
CM169	3/8"	F	SQ	to	1/4"	М	SQ
CM145	3/8"	F	SQ	to	1"	М	SQ
CM157	1/4"	F	SQ	to	1"	М	SQ
CM158	1/4"	F	SQ	to	3/4"	М	SQ
CM161	1/4"	F	SQ	to	1/2"	М	SQ
CM163	1/4"	F	SQ	to	3/8"	Μ	SQ

Annular Transducer Mounting Adapters

The AWS LTD Annular Transducer Mounting Adapters, which are bespoke designed to fit any mounting arrangement, and designed to improve the accuracy of calibration results. They can be used to turn one of our high torque Annular Transducers into a high torque Inline Transducer. They are manufactured to high tolerances out of hardened stainless steel to eliminate corrosion and increase the lifetime of the adapters. They are laser engraved with the size and model number for easy identification.

Unique Custom-Design Adapters

AWS LTD can custom design & manufacture unique high tolerance adapters for customers who require something specific that is not part of our range. These will be designed & checked to meet the customers' specification, manufactured to high tolerances, and plated to eliminate corrosion and increase the lifetime of the adapters. They are laser engraved with the size and custom model number for easy identification.

MANUFACTURER INFORMATION	SUPPLIER INFORMATION				
Advanced Witness Systems Ltd					
Unit 8					
Beaumont Business Centre					
Beaumont Close					
Banbury					
OX16 1TN					
Tel: +44 (0)1295 266939					
Email: sales@awstorgue.co.uk					

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MULTI-WAY TRANSDUCER SWITCH BOX



DESCRIPTION

The AWS Ltd Multiway Transducer Switch Box (TSB) is designed to be used with the AWS Universal Torque Wrench Calibration Machine (UTWCM) and Professional Transducer Display (PTD). It switches between and provides continuous power (for thermal stability) to a number of AWS Intelligent Torque Transducers or Intelligent Instrumented Transducer Cables.

The Transducer Switch Box simultaneously powers the multiple transducers and the Professional Transducer Display. There are connectors on the back for RS232 output to a PC, and for communication with the PTD and UTWCM.

The PTD is connected to the TSB via a single cable, which connects to the Auxiliary port on the Display. The RS232 output data is generated by the PTD. The UTWCM is also connected to the TSB via a single cable, allowing the UTWCM to be run in automatic operation.

Specification

Power:	Mains powered from 12V DC charger
Inputs:	4/6 off 6 Way Mil C Spec connectors
Outputs:	3 off 9-pin D Standard Female Connector:
	RS232 Output
	1010 Display
	UTWCM
Size:	17cm x 11cm x 9cm
Weight:	0.5 Kg



Model	1057-4	1057-6		
Number of Transducers	4	6		

Cables to use with the TSB can be supplied depending on specific customer requirements.

INTELLIGENT INSTRUMENTED TORQUE TRANSDUCER CABLE



The AWS LTD Intelligent Instrumented Torque Transducer Cable (IITC), is designed to convert standard mV/V transducers from any manufacturer into truly intelligent digital transducers.

The cable contains our Intelligent Instrumentation Package, outputting using CAN-BUS protocol to communicate with the AWS LTD Professional Transducer Display (PTD). This digital communication eliminates signal loss when using long lengths of cable, providing flexibility in communicating with other devices and systems.

A simple 2 step calibration.

Stores serial & model number, capacity, calibration coefficient, units of calibration, and conversion to other torque units.

Each cable is calibrated only to a specific dedicated transducer, remaining unique to that transducer.

Modes: Communications: Power and Display: Connector: 

Communications via can bus. (When used with the AWS PTD-1010 power & display unit). D.C power supply (When used with AWS PTD-1010, power and display is provided). Mil C 26482 series to Mil C 26482 series. 6 pin. Shell size 10.

Model: IITC-1008-	1	2	5	10
Length:	1m	2m	5m	10m



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MANUFACTURER INFORMATION
Advanced Witness Systems Ltd
Unit 8
Beaumont Business Centre
Beaumont Close
Banbury
OX16 1TN
Tel: +44 (0)1295 266939
Email: sales@awstorgue.co.uk

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Intelligent Torque Transducer Connector Cable

The AWS LTD Intelligent Torque Transducer Cable (ITC), used to connect any AWS LTD Intelligent (I Series) Transducer to the AWS LTD Professional Transducer Display (PTD). It has a female MIL C connector transducer-end, and a male MIL C connector display-end. These cables come in a selection of standard lengths, or if a specific length is required, we will manufacture one to specification.

Model: ITC-1009-	1	2	5	10
Length:	1m	2m	5m	10m



N-SERIES Torque Transducer Cable

The AWS LTD N-SERIES Torque Transducer Cable range (NTC), our basic cable for connecting our A SERIES and N SERIES transducers to other manufacturers displays which use MIL-C or LEMO connectors for signal input. These cables come in a selection of standard lengths, or if a specific length is required, we will manufacture one to specification.

Model: NTC-	2008	2009	2010
Female Connector:	6 Pin MIL-C	6 Pin MIL-C	10 Pin MIL-C
Male Connector:	6 Pin MIL-C	10 Pin LEMO	10 Pin LEMO

These cables come in a selection of standard lengths, or if a specific length is required, we will manufacture to specification.

Model: NTC-20##-	1	2	5	10
Length:	1m	2m	5m	10m

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Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorgue.co.uk	

CALIBRATION MACHINES

Our Torque Calibration Machines are for calibrating Torque Tools and Transducers to the latest International Torque Standards.

Calibration Machines	PAGE
Torque Wrench Calibration Machine	39-40
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UNIVERSAL

TORQUE WRENCH CALIBRATION MACHINE



Photo above shows a UTWCM with AWS Intelligent Inline Torque Transducers, Professional Transducer Display, and Laptop/Computer running ADMS Kepler 4 Software for Calibration & Conformity to ISO 6789:2017 Parts 1 and 2.

DESCRIPTION

The all new AWS Universal Torque Wrench Calibration Machine (UTWCM) provides an efficient means of calibrating and testing manually operated torque wrenches to ISO 6789:2017, ISO 6789:2003 or company specific standards and specifications.

The UTWCM is available in 4 versions; Automatic or Semi-automatic operation and ranges up to either 1500Nm or 3000Nm. All versions apply the force to the tool via a linear carriage stepper motor and an AWS microcontroller. An important feature is the minimization of parasitic forces applied to the torque wrench handle, due to the method of mounting the torque wrench. All versions of the machine can be used with our new ADMS Kepler 4 software to speed up completion of the calibration & certification process to ISO 6789:2017, ISO 6789:2003 or type approval for manufacturers.

The automated UTWCM uses AWS Intelligent Inline Torque Transducers (IITT's) and a Professional Transducer Display (PTD) to provide feedback to the microcontroller, automatically detecting a first peak signal for setting type wrenches, stopping the machine and returning to zero, greatly speeding up the calibration process and reducing operator input.

The semi-automatic UTWCM, using its push buttons, controls the force on the tool. It relies on the operator to detect the target torque and stop the machine.

SPECIFICATION

Model: UTWCM -	1500 - S	1500 - A	3000 - S	3000 - A
Range:	1500 Nm	1500Nm	3000 Nm	3000 Nm
Manual or Semi-	Semi -	Automatic	Semi -	Automatic
Automatic:	Automatic	Automatic	Automatic	Automatic

SHARED FEATURES

- Designed to calibrate/test wrenches up to either 1,500 or 3,000 N·m.
- Removes the need for operators to apply high application forces to the handle of large torque wrenches. Force is applied using inbuilt AWS proprietary firmware, a stepper motor and linear track system.

- Hand controls for fast movement or jog facilitate quick setting up of individual wrenches.
- Multiple safety features ensure that the machine, transducers and torque wrench are not overloaded in operation or over driven due to a wrench fault.
- Inbuilt microcontroller for accurate control of force applied and operation speeds. Four different preprogrammed, switch selected speed settings for different ranges of tools. The microcontroller ensures the adherence to the minimum target torgue approach times, complying with the ISO standard 6789:2017, for the capacity of wrench being calibrated.
- Parasitic forces acting on the wrench during calibration are greatly reduced by the method of mounting the torque wrench.



UTWCM with 60N·m Torque Wrench

- Multiple or single transducer cassette variations for different transducer manufacturers are available or built to suit customer requirements.
- To accommodate wrenches with fixed heads the transducer mounts in our carraiges can be rotated 360 ° in steps of 30°.

AUTOMATED FEATURES

AWS PTD to the correct range.

• A Customer's existing transducers can be converted into IITTs using AWS's Intelligent Instrumented Transducer Cables. Each cable has an inline module converting the analogue output of the transducer into a digital torque signal for display on the PTD.



 Connecting an AWS IITT automatically programs the Simple and Intuitive Handheld Controller

When operating the AWS PTD in First Peak mode for click wrenches, the machine will run a complete operation cycle automatically.

DIMENSIONS

Dimensions for mounting on floor:

UTWCM-1500: Approx. 77cm D by 205cm W by 135cm H. Footprint is approx. 77cm D by 165cm W. UTWCM-3000: Approx. 77cm D by 266cm W by 135cm H. Footprint is approx. 77cm D by 165cm W. Depth, Width and Height can be altered if required within certain parameters.

MORE INFORMATION ON THE INTELLIGENT INLINE TORQUE TRANSDUCERS RANGE. PROFESSIONAL TRANSDUCER DISPLAY AND KEPLER 4 SOFTWARE IS AVAILABLE IN SEPARATE DATA SHEETS ON THE AWS WEBSITE WWW.AWSTORQUE.CO.UK.

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MANUFACTURER INFORMATION Advanced Witness Systems Ltd Unit 8 **Beaumont Business Centre Beaumont Close** Banbury OX16 1TN Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk

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UNIVERSAL TORQUE SCREWDRIVER CALIBRATION MACHINE



Photo above shows a UTSCM with Control Box, Handheld Controller, and an Intelligent Inline Torque Transducer.

DESCRIPTION

The all new AWS Universal Torque Screwdriver Calibration Machine (UTSCM) for compliance to ISO 6789:2017 provides an efficient means of calibrating and testing manually operated torque screwdrivers to international or company specific standards and specifications.

The UTSCM applies torque to the screwdriver via a tooth belt drive and an AWS microcontroller, the torque achieved is measured by 1 of 3 AWS Intelligent Inline Torque Transducers (IITT's), connected to an in-built Professional Transducer Display to automatically detect a peak signal.

The UTSCM can be used with our new ADMS Kepler 4 software to speed up completion of the calibration & certification process to ISO 6789:2017, 2003 or type approval for manufacturers.

With the variation in torque screwdriver operation, the UTSCM using a microcontroller, runs through a learning cycle before calibration to record the shape of the torque curve, ensuring the torque is applied at the correct rate meeting the ISO standard. As required by the standard, the number of operations are selectable, capturing each reading consecutively, greatly reducing the time for the calibration & certification process.

Due to the great variation in screwdriver handles, grip adaptors are bespoke designed to fit a specific model. This to minimise the uncertainty of torque screwdriver alignment, ensuring it is within $\pm 2^{\circ}$ of vertical alignment, as required by the standard.

FEATURES

- Designed to calibrate/test screwdrivers up to 30 N·m.
- Inbuilt microcontroller and display for accurate control of torque applied and operational speed. The microcontroller learns the shape of the torque curve, ensures adherence to the minimum and maximum target torque approach times, complying with the ISO standard, for the setting of the screwdriver being calibrated.
- The screwdriver type can be selected, to be either cam, dial (indicating) or click type.
- Auto operation meaning the number of consecutive operations can be selected, either 1, 3, 5 or 10 as required by the standard and then started with the push of a button.

- An in-built 3-Way Transducer Switch Box keeps the AWS Intelligent Transducers powered continually, aiding temperature stability. This allows quick selection of transducers. The controller automatically interrogates and displays the correct transducer range.
- Interchangeable handle adaptors each designed to accurately fit the model of torque screwdriver to minimise the uncertainty of adaptor alignment and ensure the screwdriver is within ± 2° of vertical.
- Height adjustable transducer carriage taking into account varying torque screwdriver lengths.
- Pendant control for fast movement or jog facilitate quick calibration set up of individual screwdrivers.
- Safety features ensure that the machine, transducers and screwdriver are not overloaded in operation or over driven due to a fault.
- 3/8"- 1/4" female square drive compatible with a range of torque transducers.
- A customer's existing transducers may be converted into IITTs using AWS's Intelligent Instrumented Transducer Cables. Each cable has an inline module converting the analogue output of the transducer into a digital torque signal for display on the PTD.
- 70mm X 52mm Bright, Full Colour, Sunlight Readable LCD Display built into the microcontroller.
- Soft keys, in conjunction with the graphics, allow selection of the required Mode, Measurement Unit, and Limit Selections.
- Active 6 Digit display. Accuracy better than 1% of reading from 4% to 100% full scale deflection of the selected transducer when used with AWS Intelligent Torque Transducers.
- For viewing difficult to read indicating type screwdrivers, an optional flexible probe camera is available. This connects to a PC via USB.

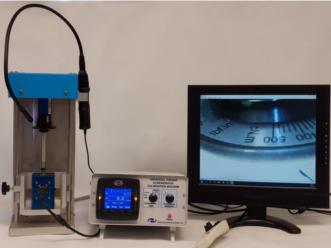


Photo above shows a UTSCM with Control Box, Handheld Controller, and an Intelligent Inline Torque Transducer. The optional flexible probe camera is streaming a view of the dial to the PC via USB.

DIMENSIONS

Dimensions for mounting on benches/ tables: Approximately 31cm L by 45cm W by 45cm H. UTSCM Weight: 16.5kg with an AWS IITT transducer, Control Box Weight: 5kg

More information on the Intelligent Inline Torque Transducers range and Kepler 4 software is available in separate data sheets on the AWS website www.awstorque.co.uk.

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MANUFACTURER INFORMATION Advanced Witness Systems Ltd Unit 8 Beaumont Business Centre Beaumont Close Banbury OX16 1TN Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk SUPPLIER INFORMATION

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UTSCM SCREWDRIVER HANDLE Adapters



Photo above shows various AWS solid torque screwdriver handle adapters.

DESCRIPTION

The all new AWS Universal Torque Screwdriver Calibration Machine (UTSCM) for compliance to ISO 6789:2017 provides an efficient means of calibrating and testing manually operated torque screwdrivers to international or company specific standards and specifications.

There are numerous screwdriver handle designs which AWS have addressed for this machine with a range of adapters available for the UTSCM. Solid Adapters grip one specific model of torque screwdriver. Square Drive and Adjustable Adapters are designed to accommodate a variety of different torque screwdriver models.

All types of adapters comply fully with the ISO 6789:2017 Part 1 requirement that the torque screwdriver must be held within $\pm 2^{\circ}$ of vertical.

Adapters for models of torque screwdrivers not listed are available on request.

SOLID ADAPTER FEATURES

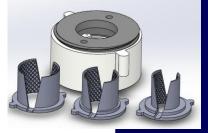
- 30Nm rated torque.
- Accurate fitting of a specific model of torque screwdriver handle.
- Simple design for easy interchangeability.
- Produced in specialised plastics for strength and fatigue life.

Adjustable Adapter Features

- 10Nm rated torque.
- Produced in specialised plastics for strength and fatigue life.
- Chuck / collet hybrid design accommodates a wide range of torque screwdriver models.
- Adapts to knurled, fluted and a variety of cushion grip handles.
- Simple to switch between different screwdriver models for fast turnaround time.
- A set of flexible knurled Top Hats included for gripping more difficult torque screwdriver shapes while retaining tool surface finish.
- Easy tightening and untightening of the adapter using included tool.



30mm-45mm



Adjustable Adapter 15mm-30mm

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SQUARE DRIVE ADAPTER FEATURES

- 30Nm rated torque.
- 1/4" Male Square drive adapter.
- Aluminium construction with precision square drive.

LIST OF AVALIABLE ADAPTERS

Solid Adapters

For solid adapters for a specific manufacture's model of torque screwdriver, please contact AWS stating the screwdriver model.

Square Drive Adapters

Adapter Model	Torque Range	Handle Diameter Range	Drive	Screwdriver Model
2040-ASQ1	0-30Nm	N/A	1/4" Male SQ	Various

Adjustable Adapters

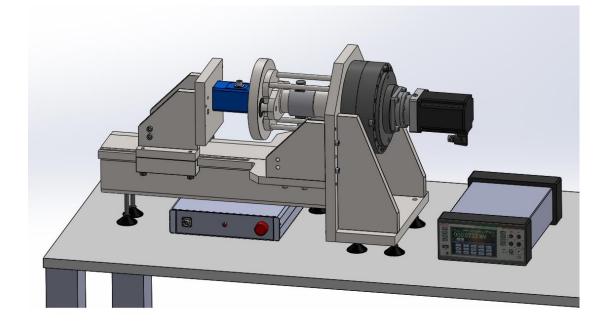
Adapter	Torque	Handle	Number of	Flexible	Screwdriver
Model	Range	Diameter	teeth	Knurled Top	Model
		Range		Hat Sizes	
2040-AA1	0-10Nm	15mm -36mm	4	20mm ID	Various
				27mm ID	
				34mm ID	
2040-AA2	0-10Nm	30mm-45mm	4	38mm ID	Various
				45mm ID	

Please note: AWS has researched a wide variety of torque screwdriver shapes and sizes. Our adapters grip an extensive range of torque screwdriver handles however there may be a particular that we have not been able to research. If in doubt please contact

AWS.

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Advanced Witness Systems Ltd				
Unit 8				
Beaumont Business Centre				
Beaumont Close				
Banbury				
OX16 1TN				
Tel: +44 (0)1295 266939				
Email: sales@awstorque.co.uk				

2KNM UNIVERSAL TORQUE CALIBRATION MACHINE



Bench mounted machine with Torque Transducer Sliding Carriage, 2kNm Master Transducer and Voltmeter. AWS 2014-IITT 250Nm Torque Transducer shown as device under test (Sold Separately).

DESCRIPTION

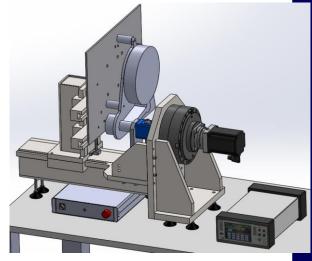
The AWS 4Nm-2000Nm Universal Torque Calibration Machine (3020-UTCM) is designed to provide a compact, efficient way to calibrate torque measuring devices to BS EN 7882:2017, BS EN:7996:2018 or international standards without the need for beams and weights. The machine uses two AWS Master Transducers (2000Nm and 100Nm) with very high accuracy, stability and low uncertainty. The master transducers output to an extremely accurate 6.5 digit computing digital voltmeter to display the applied torque and to attain the required uncertainty of measurement (Certificate of conformity provided).

The UTCM uses a high ratio anti backlash gearbox and stepper motor drive to apply and hold up to 2kNm torque. This is controlled by a pushbutton pendant controller removing the need for the operator to apply weights altogether (eliminating operator fatigue) and speeding up the calibration.

An additional Torque Tester Extension carriage with horizontal or additionally vertical fittings for a variety of torque measuring devices is available as an option (Sold Separately).

FEATURES

- Electronic drive system and push button pendant control, eliminating the need for the operator to manually apply torque.
- Easily interchangeable inline master transducers for high accuracy and low uncertainty readings of the nominal torque. Range from 4 Nm to 2kNm.
- High ratio anti-backlash gearbox for precise torque application.

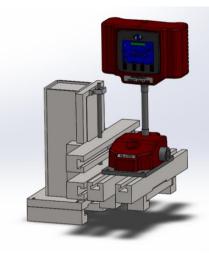


UTCM with Tool Tester Extension and Vertical Mounted Torque Tester fittings. Acratork L2 shown as example device under test.

• Greatly reduced calibration times.

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- Sliding carriage for calibration of standard sized torque transducers up to a 1" square drive.
- Bench or Pedestal mounting options available.
- Optional additional sliding carriage and fittings for calibration of a wide variety of torque measuring and calibration devices. Multi-axis T slot system for pick up of a range of fixing positions.
- Use with AWS Precision Torque Adaptors each designed to accurately fit the model of torque testing device to minimise the uncertainty of adaptor alignment.
- Additional alternative bed position for additional vertical height adjustment, covering the wide variety of torque measuring devices available.
- High accuracy 6½ digit meter used to display the nominal torque readout from the master transducers to attain the required uncertainty of measurement.
- Jog function to precisely apply small increments of torque.



Torque Tester Extension with fittings for horizontal mount Torque Testers. AWS 1005 shown as device under test. (Sold separately)

OPTIONS

		Opt	ons	
	3020 - Universal Torque Calibration machine (UTCM)	Tool Tester Extension	Vertical Mounting Extension (Requires Tool Tester Extension)	
Model No.	3020	3020-E	3020-EV	
Description	Calibration of torque transducers from 4Nm-2000Nm with square drives from ¼" to 1".	Additional fittings for calibration of vertical and horizontal mounting Torque Testers.	Additional fittings for calibration of large vertical or wall mounted Torque Testers.	

DIMENSIONS

Approx. dimensions for mounting on benches/tables: 94cm (length) x34cm (width) x40cm (height) Approx. Weight (Kg):

Main Body (Without	Transducer	Torque Tester Sliding Carriage	2kNm Transducer
Transducers & Carriages)	Sliding Carriage	(Depending on options)	Cassette
90.0	16.7	24 - 40.5	

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Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorgue.co.uk	

2NM UNSUPPORTED CALIBRATION WHEEL



DESCRIPTION

The AWS LTD 2Nm Unsupported Calibration Wheel is designed for calibration of torque measuring devices from 0.04Nm - 2 Nm using the principle of weights/beams at a known distance. The precision method wheel includes a precision drive machined into the boss to fit a wide range of devices to be calibrated. The boss is easily interchangeable if an alternative drive size is required. The calibration wheel uses kg and g masses. Precision weight pans and counterweight set; cables; suspension hooks and a robust carry case are included. A UKAS calibration is available on request.

SPECIFICATION

- Uncertainty of Measurement better than 0.045% of reading.
- Both 1/4" Square and 1/4" Hex drive as standard for calibration of a wide range of torque measuring devices.
- Cable, hooks and precision weight pan and counterweight set included.
- Designed to be used with kg and g weights.
- Easily interchangeable boss for alternative drive sizes.
- UKAS calibration available on request.
- Precision masses available (See page 46).

Dimensions

Overall Diameter: 104mm Thickness: 10mm across boss Length of cable: approximately 400mm per side

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WEIGHTS SET FOR 2NM UNSUPPORTED CALIBRATION WHEEL



Product images are for illustrative purposes only and may differ from the actual product.

DESCRIPTION

AWS can provide a set of 15 precision brass weights for calibrations up to 2Nm. A calibration certificate is included and the weights are supplied in a robust carry case. Additionally, a UKAS calibration is available on request.

SPECIFICATION

- Metric kg and g weights.
- M1 Tolerance weights set as standard.
- Other Tolerances available on request.
- Robust carry case included.
- UKAS calibration available on request.

Table of weights provided

Mass	Quantity	Mass	Quantity
1g	1	100g	1
2g	2	200g	2
5g	1	500g	1
10g	1	1kg	1
20g	2	2kg	2
50g	1		



Product images are for illustrative purposes only and may differ from the actual product.

MORE INFORMATION ON OUR PRODUCT RANGE IS AVAILABLE IN SEPARATE DATA SHEETS ON THE AWS WEBSITE WWW.AWSTORQUE.CO.UK.

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MANUFACTURER INFORMATION
Advanced Witness Systems Ltd
Unit 8
Beaumont Business Centre
Beaumont Close
Banbury
OX16 1TN
Tel: +44 (0)1295 266939
Email: sales@awstorque.co.uk

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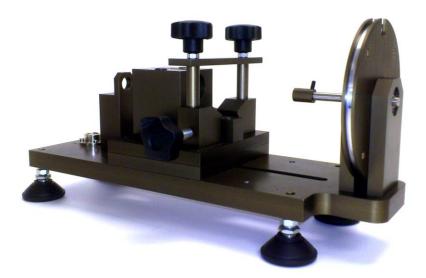
DESCRIPTION

The AWS LTD 2Nm Calibration Machine (CR1020), designed to calibrate torque transducers, torque watches and torque screwdrivers, up to 2 Nm.

It is highly accurate and uses a disc and weights to apply torque. Weights applied at a known distance on the circumference of the disc via balanced suspension cords and weight pans. The Versatile 2Nm calibration machine enables the tool to be accurately positioned, and held for calibration. Adjustable levelling feet with the spirit level indication allow it to be used on a variety of bench surfaces.

SPECIFICATIONS

Capacity:	0.05 cNm to 2.5 N.m.
Uncertainty of measurement:	+/- 0.2%
Mounting:	Bench mounted with levelling indication and adjustment.
Maximum mechanical overload:	125% of Range stated.
Operating temperature:	20°C.
Directions of use:	Clockwise and anti-clockwise calibration. +/-270 degrees of rotational freedom to accommodate torque watches
Capability:	All types of torque watch, AWS IITT-1011 and third party torque transducers. It can also be used with a variety of other very small torque measuring devices.



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MANUFACTURER INFORMATION Advanced Witness Systems Ltd

Unit 8 Beaumont Business Centre Beaumont Close Banbury OX16 1TN Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk

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CALIBRATE 3X FASTER WITH THE AWS

UNIVERSAL TORQUE WRENCH CALIBRATION MACHINE

We set out below the real major cost, time and operator advantages against manual operation, with typical proven examples.

About the Universal Torque Wrench Calibration Machine

The AWS Universal Torque Wrench Calibration Machine (UTWCM) for calibrating and testing manually operated torque wrenches to ISO 6789:2017, ISO 6789:2003 or company specific standards. Available in 2 versions, 1.5kN·m or 3kN·m, it removes the requirements for operators applying high application forces to the handle of large torque wrenches. The inbuilt microcontroller accurately controls the force applied and the operational speeds. This ensures the adherence to the minimum target torque approach times, complying with ISO 6789:2017. Parasitic forces are reduced to minimal levels by the method of mounting and controlling the applied force. It can be used with our Kepler 4 software to further increase productivity, eliminate data entry errors, comply with ISO 6789:2017 & 2003, and produce certificates.

Return on Investment – ISO 6789:2017:

- Users already meeting ISO 6789:2017 by manual means find it is very time consuming and requires quite some skill and operator effort, typically requiringan oscilloscope for checking the final 20% of the applied torque is below the timing requirementset out in the standard.
- Time taken can be up to an hour and a half, and very dependent on operator skill.
- Using the AWS UTWCM, typical calibration time is <u>60 minutes</u>, and with much less operator skill& effort.
- Considerable time saving, generating faster throughput of torque wrenches.
- Using the AWS UTWCM is <u>1/3 quicker</u> than the manual method.
- Payback can be as short as <u>9 months*</u>.

Original Calibration Time	90 mins
New Calibration Time	60 mins
Payback	9 months*

Return on Investment – ISO 6789:2003:

- Using the AWS UTWCM to meet ISO 6789:2003,typical calibration time is only 20 minutes.
- Using the UTWCM is <u>3 times faster</u>, increasing throughput and reducing errors, with less operator skill.
- Payback estimated to be as short as <u>3 months**</u>.

Original Calibration Time	60 mins
Calibration Time with UTWCM	20 mins

Typical timings for the various calibrations are shown overleaf.

*Based on approximate cost of UTWCM, 6 calibrations per day, £35/hour hourly rate. **Based on approximate cost of UTWCM, 12 calibrations per day, £35/hour hourly rate.

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	



CALIBRATE 10X FASTER WITH THE AWS

UNIVERSAL TORQUE SCREWDRIVER CALIBRATION MACHINE

We set out below the real major cost, time and operator advantages against manual operation, with typical proven examples.



The all new AWS Universal Torque Screwdriver Calibration Machine (UTSCM), for calibrating and testing manually operated torque screwdrivers to ISO 6789:2017, ISO 6789:2003 or company specific standards. Designed to calibrate or test all known types, makes & models of torque screwdrivers and torque watches up to 30 Nm. The number of consecutive operations can be selected as required by the standard. Interchangeable handle adapters are designed to accommodate various models of torque screwdriver, minimising uncertainty. The microcontroller performs a learning cycle before calibration, recording the shape of the tool's torque curve, ensuring the correct rate of the applied torque meets the ISO standard. The UTSCM can be used with our Kepler 4 software to further increase productivity and eliminate data entry errors.

Return on Investment – ISO 6789:2017:

- Users already meeting ISO 6789:2017 by manual means find it is very time consuming and requires quite some skill, typically requiring an oscilloscope for checking the final 20% of the applied torque is within the 0.5-1 second required by the standard.
- Time taken can be up to 4 hours, and very dependent on operator skill.
- Using the AWS UTSCM, typical calibration time is <u>25 minutes</u>, and with much less operator skill.
- Considerable time saving, generating faster throughput of torque screwdrivers.
- Using the AWS UTSCM is <u>10 times faster</u> than the manual method.
- Payback can be as short as a phenomenal <u>8 days*</u>.

Original Calibration Time	240 mins
Calibration Time with UTSCM	25 mins
Payback	8 days*

Return on Investment – ISO 6789:2003:

- Using the AWS UTSCM to meet ISO 6789:2003, typical calibration time is only <u>4 minutes.</u>
- Using the UTSCM is 10 times faster, increasing throughput and reducing errors, with less operator skill.

45 mins

4 mins

Original Calibration Time

Calibration Time with UTSCM

Payback estimated to be as short as <u>1 month**</u>.

Typical timings for the various calibrations are shown overleaf. *Based on approximate cost of UTSCM& 3 transducers, 12

"Based on approximate cost of UTSCM& 3 transducers, 12 calibrations per day, £35/hour hourly rate. "Based on approximate cost of UTSCM& 3 transducers, 24 calibrations per day, £35/hour hourly rate.

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MANUFACTURER INFORMATION Advanced Witness Systems Ltd Unit 8 Beaumont Business Centre Beaumont Close Banbury OX16 1TN Tel: +44 (0)1295 266939	SUPPLIER INFORMATION	
Email: sales@awstorque.co.uk		

ADMS SOFTWARE

Our software arm

ADVANCED DATA & MEASUREMENT SERIES

designs and produces torque tool and torque transducer calibration, uncertainty calculation and certification software for use with PC's.

Our software can be used to improve calibration accuracy & efficiency, tracking tools & customers, and removing the need for spreadsheets.

Our Kepler 4 software is our most comprehensive torque tool calibration software on the market today, for the calibration and certification of torque wrenches to BS EN ISO 6789:2017, 2003 or your own in-house standards, and for keeping track of each individual wrench.

ADMS Software	PAGE
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Kepler 4 Conformity	55-56
Kepler 4 Calibration	57-58
Kepler 4 Software Comparison	59

KEPLER 4 FOR 2017 COMBINED

The combined program for the calibration and certification of torque wrenches to BS EN ISO 6789:2017, BS EN ISO 6789:2003 or your own in-house standards, and for keeping track of each individual wrench.



Kepler 4 is built around a new works orders database, which ties together the customer, tool, model, reading & certificate.

KEY CONFORMITY FEATURES

- Complies with ISO 6789:2017 Part 1, allowing the automatic calculation of the mean deviation and mean value for each setting.
- Also calculates the deviation for each reading, and indicates by colour whether the reading is within tolerance to the selected standard.

Key Calibration Features

- Complies with ISO 6789:2017 Part 2, allowing the automatic calculation using new formulae of the mean, deviation & combined uncertainty of each set of readings, for each torque tool.
- Calibrates both square and hexagonal drive wrenches.
- Full tracking of tools calibration performance and history. Produce a report listing tools that require calibrating.
- The ability to calculate average values of uncertainties Bod, Bint and BI over the last 10 calibrated tools of the same model.
- The ability to Colour the Calibration, to apply colour indicators to the results to show whether the deviation is within tolerance for the tool type as defined in ISO 6789:2017 Part 1. This can also be displayed on printed reports.

KEY SHARED FEATURES INCLUDE

- Powerful search function allows historic calibration and conformity certificates to be easily found from searching by customer, tool or model; works order number or certificate number.
- Bespoke templates easily created for certificates, reports and labels. Auto or manual certificate numbering.
- Option to operate in 6789:2003 to allow phased migration to 6789:2017.
- Tool performance & data input via COM port and keyboard. Option for bar code direct entry.
- A Miscellaneous Tools feature, allowing storage of non-torque tool information for use in recording the calibration of Miscellaneous Tools, generating overdue tool reports, and certificate front pages.
- Exporting of results data as a csv file for use in other programs.
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OTHER FEATURES INCLUDE

• All certificate print details recorded. Enables exact reproduction ensuring full traceability.

Re

- Multiple operator accounts for users, maintainers & administrators (with passwords).
- Cloning facility speeds multiple data entry.
- Import and Export reports into text or spreadsheet formats for more efficient database backup.
- Databases can be converted from Kepler 3, 2002 and 2000 allowing faster start up for previous customers.
- Databases can be stored locally or on a server for more efficient backup.
- Multiple translations available, including the facility to create your own translation.
- Data output and report generation collated and filtered from any combination of good and out of tolerance tools.
- Comprehensive user manual.
- Free demonstration and 6 months full help and support included in purchase.
- Certificate conversion available on enquiry.

SYSTEM REQUIREMENTS:

Minimum Screen Resolution: 1280x768. Software is a .NET application using an SQL Database. Minimum System: i5 Processor or equivalent, 4GB RAM, on board graphics. Keyboard & Mouse Interface.

Disclaimer: This datasheet may not reflect the latest version of the software. For more information, visit our website: www.awstorque.co.uk.

Also Available as separate Conformity and Calibration versions		
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MANUFACTURER INFORMATIONSUPPLIER INFORMATIONAdvanced Witness Systems LtdInit 8Beaumont Business CentreBeaumont CloseBanburyOX16 1TNTel: +44 (0)1295 266939Email: sales@awstorque.co.uk		
Data was correct at time of publication. Catalogue Page 54		

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KEPLER 4 FOR CONFORMITY

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- A Miscellaneous Tools feature, allowing storage of non torque tool information for use in recording the calibration of Miscellaneous Tools, generating overdue tool reports, and certificate front pages.
- Exporting of results data as a csv file for use in other programs.

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OTHER FEATURES INCLUDE

- Option to operate in 6789:2003 to allow phased migration to 6789:2017.
- Multiple operator accounts for users, maintainers & administrators (with passwords).
- Cloning facility speeds multiple tool data entry.
- Import and Export reports into text or spreadsheet formats for more efficient database backup.
- Databases can be converted from Kepler 3, 2002 and 2000 allowing faster start up for previous customers.
- Multiple translations available, including the facility to create your own translation.
- Comprehensive user manual.
- Free demonstration and 6 months full help and support included in purchase.
- Certificate conversion available on enquiry.

SYSTEM REQUIREMENTS:

Minimum Screen Resolution: 1280x768. Software is a .NET application using an SQL Database. Minimum System: i5 Processor or equivalent, 4GB RAM, on board graphics. Keyboard & Mouse Interface.

Disclaimer: This datasheet may not reflect the latest version of the software. For more information, visit our website: www.awstorque.co.uk.

ALSO AVAILABLE: KEPLER 4 FOR CALIBRATION, AND KEPLER 4 COMBINED

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	

10.000 N.m

0.400 N.m

Reading 1

New Works Order

0011 Testing Top

18/01/2018 09:02:27

<u>_</u>

118.09.02.23

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2.000 N.m

All Works Order

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KEPLER 4 FOR CALIBRATION

The program for the calibration of torque wrenches to BS EN ISO 6789:2017 Part 2, BS EN ISO 6789:2003 or your own in-house standards, and for keeping track of each individual wrench.



Kepler 4 is built around a new works orders database, which ties together the customer, tool, model, reading & certificate.

KEY FEATURES INCLUDE

Complies with BS EN ISO 6789:2017 Part 2, allowing the automatic calculation using new formulae of the mean, deviation and combined uncertainty of each set of readings, for each torque tool.

0

- Powerful search function allows historic calibration and conformity certificates to be easily found from searching by customer, tool or model; works order number or certificate number.
- Calibrates both square and hexagonal drive wrenches.
- Full tracking of tools calibration performance and history. Produce a report listing tools that require calibrating.
- The ability to calculate average values of uncertainties Bod, Bint and BI over the last 10 calibrated tools of the same model.
- Bespoke templates easily created for certificates, reports and labels. Auto or manual certificate numbering.
- Auto or manual certificate numbering.
- Tool performance & data input via COM port and keyboard. Option for bar code direct entry.
- All certificate print details recorded. Enables exact reproduction ensuring full traceability.
- Option to operate in 6789:2003 to allow phased migration to 6789:2017.



- The ability to Colour the Calibration, to apply colour indicators to the results to show whether the deviation is within tolerance for the tool type as defined in ISO 6789:2017 Part 1. This can also be displayed on printed reports.
- A Miscellaneous Tools feature, allowing storage of non torque tool information for use in recording the calibration of Miscellaneous Tools, generating overdue tool reports, and certificate front pages.

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OTHER FEATURES INCLUDE

- Exporting of results data as a csv file for use in other programs.
- Multiple operator accounts for users, maintainers & administrators (with passwords).
- Cloning facility speeds multiple data entry.
- Import and Export reports into text or spreadsheet formats for more efficient database backup.
- Databases can be converted from Kepler 3, 2002 and 2000 allowing faster start up for previous customers.
- Databases can be stored locally or on a server for more efficient backup.
- Multiple translations available, including the facility to create your own translation.
- Data output and report generation collated and filtered from any combination of good and out of tolerance tools.
- Comprehensive user manual.
- Free demonstration and 6 months full help and support included in purchase.
- Certificate conversion available on enquiry.

SYSTEM REQUIREMENTS:

Minimum Screen Resolution: 1280x768. Software is a .NET application using an SQL Database. Minimum System: i5 Processor or equivalent, 4GB RAM, on board graphics. Keyboard & Mouse Interface.

Disclaimer: This datasheet may not reflect the latest version of the software. For more information, visit our website: www.awstorque.co.uk.

ALSO AVAILABLE: KEPLER 4 FOR CONFORMITY, AND KEPLER 4 COMBINED

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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	
Data was correc	t at time of publication.



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KEPLER 4 SOFTWARE COMPARISON

			Kepler 4			
Feature	Kepler Lite 3	Kepler 3	Conformity	Calibration	Combined	
	✓	✓				
Complies with ISO 6789:2003 and BS EN 26789:2003 torque standards.	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	
Full tracking of tool tightening performance.						
Full tracking of tools calibration performance and history.	✓	√	✓	✓	✓	
Tool performance & data input via COM port and keyboard. Option for	\checkmark	\checkmark	\checkmark	\checkmark	✓	
bar code direct entry.	✓	✓	✓		✓	
Shows torque out of limits for selected tool.	✓ ✓	▼ ✓	▼ ✓	▼ ✓	✓ ✓	
Automatically calculates average and deviation of each set of readings.	*	•	v	•	v	
User generated database for tool types and torque parameters required.	✓	✓	~	✓	✓	
Data output and report generation collated and filtered from any combination of good and out of tolerance tools. Uses include monthly reports, etc.	~	~	√	✓	~	
Calibration Instrument/Machine/Inspection details.	✓	✓	✓	✓	✓	
Bespoke templates easily created for your certificates, reports and labels.	✓	~	~	✓	~	
Auto or manual certificate numbering.	✓	√	✓	✓	 ✓ 	
All certificate print details recorded. Enables exact facsimile	✓	~	~	✓	✓	
reproduction.	✓	✓	✓	✓	✓	
Select different printers for readings, labels, and reports/certificates.	v	V	√	~	~	
Translation screens and print out can be converted to the language of your choice.	✓	~	✓	✓	✓	
Multiple operator accounts (With password protection).	✓	✓	\checkmark	\checkmark	\checkmark	
Produce a report listing tools that require calibrating.		✓	✓	✓	✓	
Tool identification and serial number identification.		√	✓	✓	✓	
Fast tool search by user set criteria.		✓	✓	✓	✓	
Tool area and station location.		✓	✓	✓	✓	
Cloning facility speeds multiple tool data entry.		✓	✓	✓	✓	
Colour configuration.		✓	✓	✓	✓	
Complies with BS EN ISO 6789:2017 Part 1, allowing the automatic						
calculation of the mean deviation and mean value for each setting.			\checkmark		\checkmark	
Calculates the deviation for each reading, and indicates by colour whether the reading is within tolerance to the selected standard.			✓		✓	
Complies with BS EN ISO 6789:2017 Part 2, allowing the automatic calculation using new formulae of the mean, deviation and combined uncertainty of each set of readings, for each torque tool.				~	~	
Full tracking of tools calibration performance and history. Produce a report listing tools that require calibrating.				✓	~	
Production Line capabilities, for hourly or daily tool reliance performance.				~	~	
Model readings can be analysed to generate average bod, bint and bl values from 10 or more tools, to be used for future tools.			✓	✓	~	
Instrument database which allows combination of 5 instrument items, such as TD/Lead/Display.			✓	✓	✓	
Standards database, including ISO 6789:2017 & 2003 pre-entered.			✓	✓	✓	
Historic calibration and conformity certificates can be found from searching by customer and tool, by works order number, or by certificate number.			\checkmark	\checkmark	~	
User generated databases for customers, instruments, tools, models, & standards.			✓	✓	~	
Fast tool entry from model database.			✓	✓	✓	
· · · · · · · · · · · · · · · · · · ·		}	✓ ✓	 ✓	✓ ✓	
Import signatures as pictures.			✓ ✓	✓ ✓	✓ ✓	
Implementation of works order tracking system.		 				
New simplified and improved screen layouts.			✓	✓	✓	
New system using .NET framework and sequel databases.			\checkmark	\checkmark	\checkmark	

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MANUFACTURER INFORMATION Advanced Witness Systems Ltd Unit 8 Beaumont Business Centre Beaumont Close Banbury

OX16 1TN

Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk SUPPLIER INFORMATION

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Wireless Telemetry Load Measurement

Our Wireless Telemetry Load Measurement System, designed primarily for load lifting systems.

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Wireless Telemetry Load Pin	67-68
Wireless Telemetry Anti 2-Block	69-70

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DESCRIPTION

The AWS Wireless Telemetry Load Measurement System is designed primarily for load lifting systems.

Multiple Load Links, each with its own digital telemetry transceivers with self-contained batteries, send the data of the loads to a Gateway Router, which acts as a slave Modbus RTU device. In this application a Modbus to Canbus converter to a PLC is part of the full lifting system. The Canbus enables the system to work with the lifting systems Canbus operating data bus. Alternatively a wireless display may be used over the gateway router for improved portability.

Additional is a Load Pin for an attached jib crane and a safety Anti 2-Block telemetry switch, again self-powered. The Anti 2-Block switch also comes with a weight and chain.

- Each load transducer (link and pin) and Anti 2-Block switch have a unique ident number with which to identify their readings.
- Battery state indicators in the telemetry data show when batteries need changing.
- Each load link and pin is supplied with a calibration certificate traceable to UK national standards.
- The whole system comes programmed ready for use.
- Each cell and unit are to IP67 and operating temperature range of -25 to +55°C.
- Note the router and converter require external power.
- Meets the CE RED directive, and FCC regulations.

For efficient operation, minimum maintenance and long battery life, the load link, load pin and switch go to minimum power requirements until woken up when needed.

This application shown in use in a marina is for lifting large boats/vessels from the water for storage or maintenance with a power driven, hydraulic motors controlled system using a remote portable telemetry, manual operating system. The Load Links tell the operator how much he is lifting and how well balanced. The Load Pin and Anti 2-Block switch enable the operator to lift individual units on and off the vessel.

The systems can also be used in marinas /harbours for jetties, platforms etc., in factories for moving large items such as tanks and engines.



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These are the parts for the system:

TELEMETRY LOAD LINK

- Range 5 to 250 Tonne
- Transmission Distance up to 200m
- For use with standard shackles
- 5 Step Linearisation
- Auto Power Down
- Sealed to IP67

For more information, please see the Telemetry Load Link Datasheet.

Telemetry Load Pin

- Strain Gauged Internally
- Capacity 25 Te
- 5 Step Linearisation
- Auto Power Down
- Transmission Distance up to 200m
- Sealed to IP67

For more information, please see the Telemetry Load Pin Datasheet.

TELEMETRY ANTI 2-BLOCK

- Fully weatherproof
- Fail safe operation
- 5 & 10kg bob-weight options
- ATEX version available
- Auto power down
- Transmission distance up to 200m

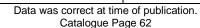
For more information, please see the Telemetry Anti 2-Block Datasheet.

GATEWAY ROUTER

- Communicates with all other telemetry modules
- Acts as a Modbus Slave device, storing module readings & status' in read-only registers
- Controls wakeup and sleep of all modules on its network
- Networks can be set up with unique keys, ensuring no clash between nearby operating networks.
- Can be used to control and alarm lifting actuators, engine control generators and pump.

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CANBUS/MODBUS CONVERTER

- Sends out data held in Modbus registers as Canbus messages
- Canbus message ID matches the telemetry module ID
- Can be used to control and alarm lifting actuators, engine control generators and pumps using the Canbus message system

WIRELESS TELEMETRY LOAD DISPLAY

- Performs advanced operations with telemetry module readings for local monitoring
- Can be configured to perform individual load link/ load cell measurements or in combinations to show such things as bow or stern load when lifting boats or as a total load measurement
- Range of 800m
- For more information, please see the Load Display Datasheet.

EXTERNAL ANTENNA FOR GATEWAY ROUTER

- Replaces the Gateway Router's internal antenna for when the Gateway Router is mounted within a metal enclosure, so that the antenna can be mounted externally.
- 60cm cable attached to Antenna as standard, but additional 3m and 5m extensions are available.
- Range of 800m.













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WIRELESS TELEMETRY LOAD DISPLAY

DESCRIPTION

The Wireless Telemetry Load Display allows users to perform advanced operations with load link and load cell readings for local monitoring. It can be configured to perform individual load link/ load cell measurements or in combinations to show such things as bow or stern load when lifting boats or as a total load measurement.

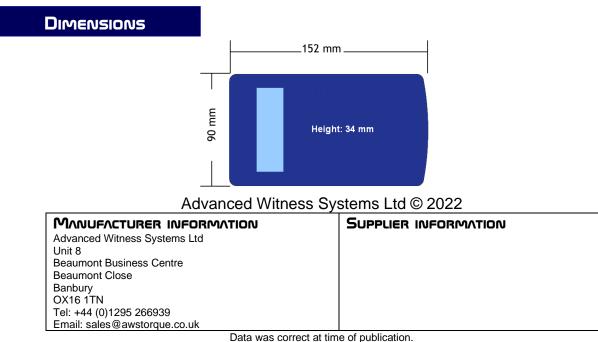


Specifications

- Range of 800m
- Supports two modes of operation
 - Pre-configured list (Define a set of up to 24 telemetry modules, such as load links, load pins etc. and configure overload and under load values)
 - Summing groups (Add the value of two or more telemetry modules together)
- Sealed to IP67 in a robust handheld enclosure
- ATEX version available

Features & Benefits

- Simple operator interface
- Overload indication and alarm
- User controlled backlight
- Tare/ Zero/ Gross functions
- Uses readily available Energizer L91 batteries
- Long battery life: 50 days at 12 sessions of 5 minutes per day; 54 hours continuous
- Operating temperature range of -10°C to +50°C



WIRELESS TELEMETRY LOAD LINK

DESCRIPTION

The Wireless Telemetry Load Link is a strain gauged link with an inbuilt battery powered wireless transceiver which communicates with our AWS Wireless Telemetry Load Measurement System. With a simple to change extra-long life battery, and a large range of load capacities, it is ideal for applications in systems where running cables to a load link is not possible.



SPECIFICATIONS

- Range 5 to 250 Tonne
- Transmission Distance up to 200m
- For use with standard shackles
- 5 Step Linearisation
- Auto Power Down
- Sealed to IP67
- Meets the CE RED directive, and FCC regulations.

FEATURES & BENEFITS

- Long battery life
- Error free data transmission
- Active repeater to extend transmission range
- Remote on/off
- Environmentally sealed
- Internal aerial
- Other capacities available on request

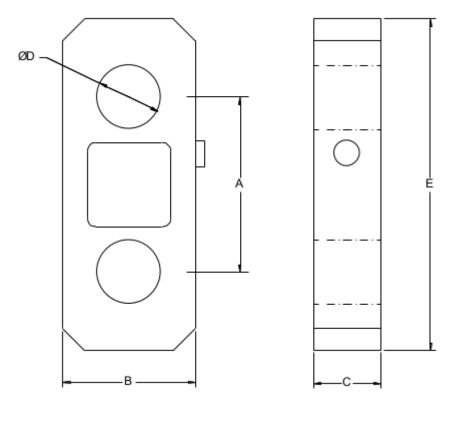
Specifications					
Capacities	5-250	tonne			
Radio Frequency	2.4	GHz			
Accuracy (above 10% of FSD)	±0.05	% of reading			
Compensated Temp. Range	-10 to +40	°C			
Operating Temp. Range	-20 to +60	°C			
Temp. Coefficient on Zero	<0.005	% FRO/°C			
Temp. Coefficient on Span	< 0.003	% FRO/°C			
Safe Overload	150	%			
Ultimate Overload	400	%			
Insulation	>500 @100Vdc	MΩ			
Environmental Protection	IP67				

Specifications subject to change without notice

DIMENSIONS

Capacity (te)	A	В	С	DØ	E	Weight (Kg)
5	137	105	41.5	30	193	1.5
12	149	105	41.5	38	239	2.0
25	160	125	55	53	284	4.5
35	175	138	55	60	335	5.5
50	198	150	75	73	375	10.0
100	275	220	120	100	500	28.0
150	300	260	120	110	550	50.0
200	325	290	159	135	660	75.0
250	365	304	189	145	720	90.0

All dimensions in mm



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MANUFACTURER INFORMATION Advanced Witness Systems Ltd

Unit 8 Beaumont business Centre Beaumont Close Banbury Ox16 1TN Tel: +44 (0)1295 266939 Email: sales@awstorque.co.uk

SUPPLIER INFORMATION

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WIRELESS TELEMETRY LOAD PIN

DESCRIPTION

The Wireless Telemetry Load Pin is a strain gauged pin with a local battery powered wireless transceiver which communicates with our AWS Wireless Telemetry Load Measurement System. With a simple to change extra-long life battery, and a large range of load capacities, it is ideal for applications in systems where running cables to a load pin is not possible. The transceiver can be mounted within 3m of the Load Pin, in an easy to access location for battery changing.



Specifications

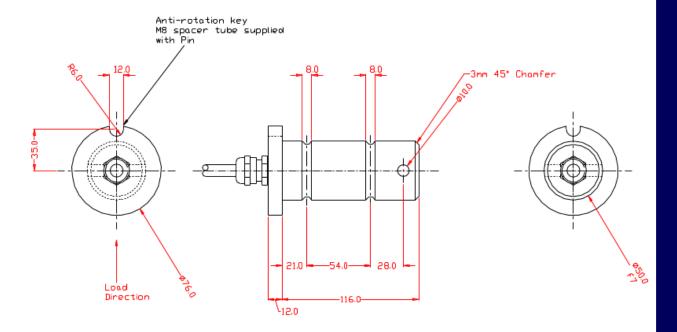
- Stainless Steel
- Strain Gauged Internally
- Capacity 25 Te
- 5 Step Linearisation
- 3m cable from Load Pin to its transceiver
- Auto Power Down
- Transmission Distance up to 200m
- Sealed to IP67
- Meets the CE RED directive, & FCC regulations.

FEATURES & BENEFITS

- Long battery life
- Error free data transmission
- Active repeater to extend transmission range
- Remote on/off
- Environmentally sealed
- Other capacities available on request

Specification					
Capacity	5-1000	tonne			
Radio Frequency	2.4	GHz			
Accuracy (above 10% of FSD)	±0.05	% of reading			
Compensated Temp. Range	-10 to +40	°C			
Operating Temp. Range	-20 to +60	°C			
Temp. Coefficient on Zero	<0.005	% FRO/°C			
Temp Coefficient on Span	<0.003	% FRO/°C			
Safe Overload	150	%			

DIMENSIONS



MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorque.co.uk	

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WIRELESS TELEMETRY ANTI 2-BLOCK

DESCRIPTION

The Wireless Telemetry Anti 2-Block is an Anti 2-Block detector with a local battery powered wireless transceiver which communicates with our AWS Wireless Telemetry Load Measurement System. It is ideal for applications in systems where running cables to an Anti 2-Block is not possible. The transceiver can be mounted within 3m of the Anti 2-Block, in an easy to access location for battery changing. It can be supplied with or without its weight & chain.



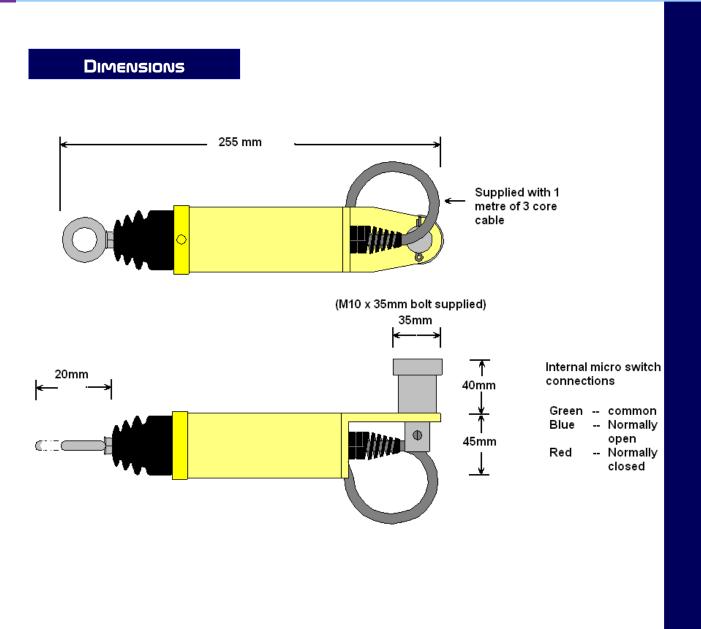
SPECIFICATIONS

- Robust construction for reliability
- Fully weatherproof
- Fail safe operation
- 5 & 10kg bob-weight options
- 3m cable from Anti 2-Block to its transceiver
- ATEX version available
- Simple to install
- Auto power down
- Transmission distance up to 200m
- Meets the CE RED directive, and FCC regulations.

FEATURES & BENEFITS

- Long battery life
- Error free data transmission
- Active repeater to extend transmission range
- Remote on/off
- Environmentally sealed
- Contacts are broken mechanically
- Unit pivots from boom head & always follows the angle of the hoist rope





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MANUFACTURER INFORMATION	SUPPLIER INFORMATION
Advanced Witness Systems Ltd	
Unit 8	
Beaumont Business Centre	
Beaumont Close	
Banbury	
OX16 1TN	
Tel: +44 (0)1295 266939	
Email: sales@awstorgue.co.uk	



Advanced Witness Systems Ltd Unit 8, Beaumont Business Centre, Beaumont Close

Unit 8, Beaumont Business Centre, Beaumont Close Banbury, Oxfordshire OX16 1TN Telephone: +44(0)1295 266939 sales@awstorque.co.uk www.awstorque.co.uk