

PROFESSIONAL TORQUE TOOL TESTER



OPERATING MANUAL



Advanced Witness Systems Ltd

1005

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Professional Torque Tool Tester

Operating Manual

(Model No: 1005)

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DESCRIPTION.

The Advanced Witness Systems Professional Torque Tool Tester (**AWS PTTT**) is a wide range of torque measuring devices specifically aimed to calibrate/test torque wrenches and torque screwdrivers of all types using the available modes of operation. These being Run, First Peak and Peak.

Each PTTT is designed to high standards and wide range to ensure that wrenches and screwdrivers in the market place do not require the overlap of two ranges for a wrench test or calibration. This is accomplished by using a 5 digit display, high performance electronics and firmware to ensure a better than 1% of reading accuracy from 4% to 100% of range of each.

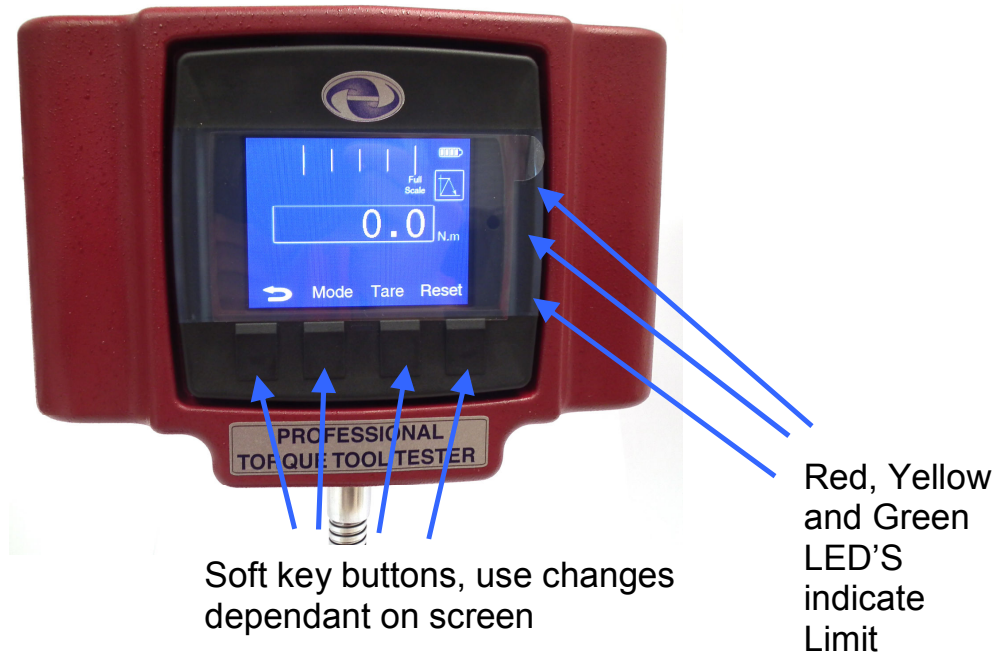
The bright coloured LCD screen displays readings in digits form with an additional analogue bar graph for ease of viewing a varying signal. Graphical presentations on the screen depict the mode of operation selected. 4 soft keys with the screen labelling of their functions make for easy operation of the instrument. These same keys are used to program any limits required. Two rows of L.E.D's either side of the screen show the state of the limits in conjunction with colour change of the digits on the display as the measurements are made.

The PTTT can be mounted on a bench or wall /stanchion with 4 bolts. The display, using a fully flexible but stiff swan neck allows the user to position the instrument display for ease of reading.

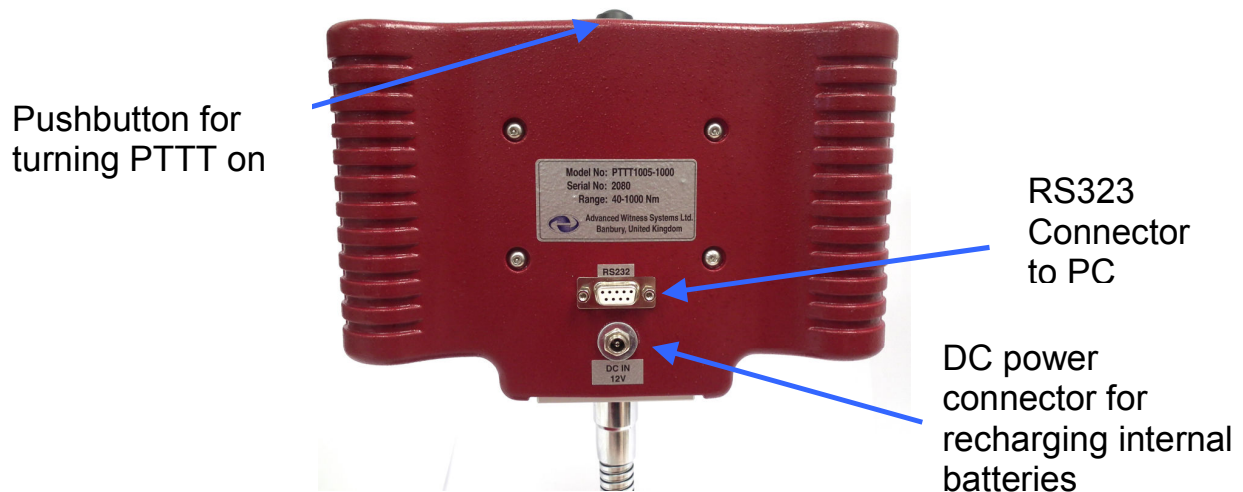
Powered by internal rechargeable batteries enables the PTTT to be field portable. Auto power down extends battery life. Batteries are charged using the supplied mains plug top charger. Battery charge state and charging indication are shown at switch On, by the LCD display for instrument integrity check. Battery state is also shown whilst the PTTT is ON.

A RS232 output facilitates the logging of torque values into other devices and software such as an optional **AWS KEPLER LITE 3** Software programs. Kepler 3 enables accurate, quick and traceable calibrations of torque tools. Kepler 3 and its variants include the ability to produce certificates, labels, bar graphs and reports.

Front:



Rear:



SPECIFICATION**MODEL RANGE AND SIZE CHART.**

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

Wide Dynamic Response flat to 1 kHz in all modes.

Multi-Coloured dual LED Limit State Indication with additional digit colour change when limits selected.

Modes: Run, Peak and 1st Peak, with optional limit selection. Modes selected by soft keys. Graphical icons show mode selected.



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.

LCD Display: 70mm X 52mm Bright Full Colour Sunlight Readable LCD Display of 5 Digit Active Reading, with Analogue Bar Graph, Mode Selection graphics, Battery State and indication of charging.

Power: Internal Rechargeable Batteries allow it to be used in the field. Auto power off function extends life of the display. Supplied with 12V DC plug top charger.

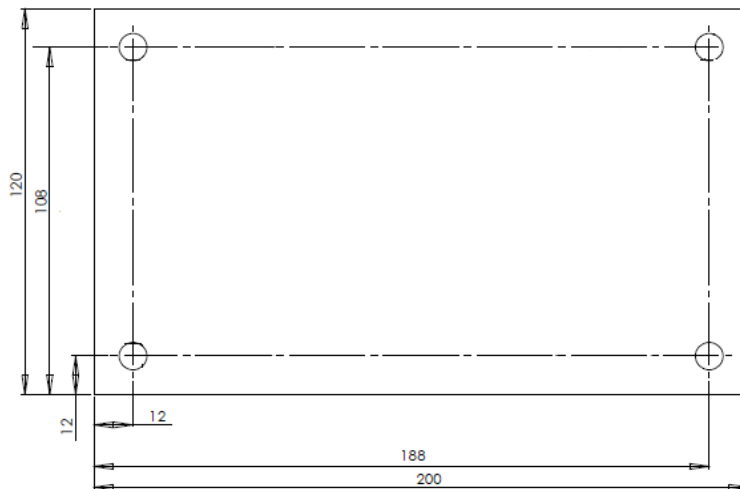
Accuracy:	Better than 1% of reading from 4 to 100% of Rated output. See Calibration certificate for full results.
Data Output:	Female RS232 connection
Overload capability:	125%
Maximum mechanical overload:	160% of Range stated.
Operating temperature:	+5°C to +50°C.
Temperature coefficient:	On Zero: 0.01% per °C On Span: 0.03% per °C
Weight:	1000Nm 5.2 Kg 250Nm 4.5 Kg 50Nm 3.8 Kg 10Nm 3.7 Kg
Size:	160mm x 220mm x 200mm
CE:	2004/108/EEC
EMC:	EN 61326:2007
NATO Stock No:	PTTT-1005-50: 6625-22-623-1637 PTTT-1005-1000: 6625-22-623-16348

INSTALLATION**Box Contents:**

- 1x PTTT-1005
- 1x Mains plug top charger with UK or EU mains connections
- 1x Operating Manual
- 1x Calibration Certificate

Instrument Mounting details

The PTTT is supplied ready for bench mounting. Ensure that the mounting location is sufficiently secure before mounting the unit. The unit does not come supplied with mounting bolts or screws. The mounting holes have a diameter of 8.5mm. Mounting hole centre locations are shown below (dimensions are in mm).

**Wall Mounting**

The PTTT can be wall mounted. To wall mount the PTTT start by loosening the screws in the base plate. Only fully remove the M4 screws located close to the corners of the base plate. Remove the base cover, and unplug the inline cable plugs and sockets. Unscrew the neck from the base and place it in the alternative-mounting hole (covered by black blanking plug).

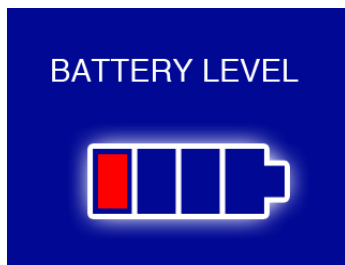
Re-screw the neck to the base cover, re-attach the inline sockets and plugs and fit the cover back onto the transducer base plate. Tighten the loose screws in the base plate and replace the M4 corner screws.

QUICK START GUIDE.

The AWS PTTT has 4 soft key buttons and 1 pushbutton. The soft key button effects are dependant on what the screen shows. A summary of the effects can be found on page 12.

Press and hold the **push button** to turn the unit on.
The screen will show the current battery level followed by the range of the PTTT

Note: The PTTT has an inbuilt battery power save, which powers down the display after 5 minutes from when any of the 4 buttons was last pushed. The PTTT can be turned off at any point by pressing and holding the far left soft key.

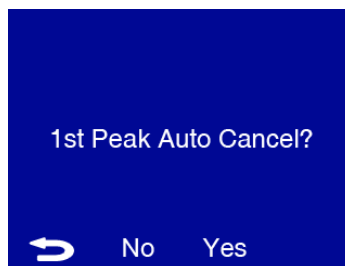
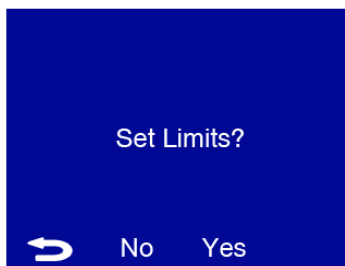


BATTERY LEVEL



PREVIOUS SET-UP PROMPT

The user is prompted to select either the previous set-up “yes” or “no”. If “yes” is selected the PTTT will use the settings selected at its last power down. If “no” is selected the user will then be prompted to select 1st peak auto cancel, and/or limits, units of measurement, limit range set (if set limits is selected) and the mode of operation.

1st PEAK AUTO CANCEL PROMPT

SET LIMIT PROMPT

UNITS.

The PTTT uses 4 Units of measurement Nm, cNm, Lbf.Ft and Lbf.In. These are selected for the displayed torque value and setting the limits. Selected units can be changed mid-reading by pressing back twice and reselecting a new unit.

**LIMITS.**

Set the target torque limit to the required setting, see key chart on page 12 on how to use buttons for limit value setting.
 Set the upper limit to the maximum permissible torque reading.
 Set the lower limit to the minimum permissible torque reading.

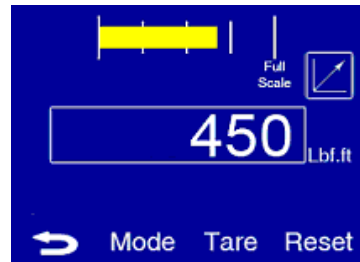
When the reading is within the lower and upper limit the green LED's will light up. If the torque reading is at or above the upper reading the red LED's will light up. If the torque reading is at or below the lower limit the yellow LED's will light up.

Additionally in Peak and 1st Peak modes the Digits on the display will match the colour of the limit indicating LED's.

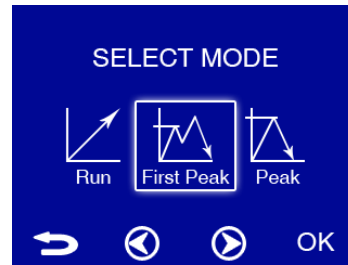
MAXIMUM TORQUE LIMIT.

The yellow ribbon graph at the top of the display shows the percentage of maximum torque applied at a given torque reading. If the bar is flashing the maximum torque range of the PTTT has been exceeded.

Warning: do not exceed the MAXIMUM TORQUE RANGE doing so could permanently damage the PTTT and void its warranty



EXAMPLE READING SHOWING
MAXIMUM TORQUE LIMIT



MODE SELECTION

MODES.









The PTTT works in three different modes. Each mode has a different use and they can be switched between easily. The display will show which mode it is currently in by a pictographic graph representing the mode

RUN: Run mode continually displays the actual torque applied to the transducer. This mode can be used to check the calibration of dial and electronic types of indicating torque tools.

1st PEAK: 1st Peak mode will display the first peak in a torque signal that is detected. This 1st peak can be used to check the calibration of click type torque tools. To send the displayed torque reading to a PC via RS232 press **RESET** button, this will also reset the memory and the display to zero. If **AUTO CANCEL** is chosen at the start or from a previous set up then the reading will be held for approximately 3 seconds before being transmitted. The memory reset and the display reset to zero, ready for the next reading.

PEAK: Peak mode will show the maximum torque value that was detected. Reducing the torque will display the highest detected peak torque. This can be used to check the calibration of cam and beam types of torque tools. To send the displayed torque reading to a PC via RS232 press **RESET** button, which will also reset the memory and display to zero.

KEY CHART

Soft key Symbol	Effect	Screens where used.
	Accept input/selected item.	Select units, select mode, set limits
	Back to previous screen, push and hold to turn unit off.	Select units, select mode, set limits, reading
	Increase selected number. Cycles back to zero.	Set limits
	Move right between different mode selections/ units of numbers. Cycles back to first number.	Set limits, select mode, select units
	Move left between different mode selections/ units of numbers.	Select mode, select units
	Cycle through RUN, 1 st PEAK and PEAK.	RUN, 1 st PEAK and PEAK reading
	Tares the reading to zero.	RUN reading
	Allows another reading to be taken.	1 st PEAK and PEAK reading

CONNECTING TO A PC VIA RS232

The following information is used when configuring the PTTT to a PC via RS232. This information is also required to configure the PTTT to **AWS KEPLER LITE 3**.

RS232 SETUP: Bits per second: 19200
Data bits: 8
Parity: none
Stop bits: 1
Flow control: none

CALIBRATION GUIDE.

To calibrate, place the PTTT into Calibration Mode. By pressing and holding the furthest left and furthest right soft key buttons while switch on the PTTT. Note that calibration values are in Nm only.

BUTTON Functions (as shown on the display)

- INC** Increases the N.M. Range selected number, cycles through zero.
- >/TARE** Pressing moves the selected digit to the right, this cycles back through. Pressing and holding the button will tare the reading.
- CAL** This will calibrate the transducer to the selected Nm range.
- STORE** Will store the selected N.M. range.

ORDER OF CALIBRATION

1. Fit PTTT in suitable Calibration machine. Activate calibration mode by pressing and holding the furthest left and furthest right soft key buttons while turning on.
2. Use the **INC** and **>/TARE** button to Change the N.M. RANGE to the maximum range of the PTTT. Press **STORE** to store this number.
3. Press and hold **>/TARE**. Apply the amount of torque selected in N.M. RANGE. Allow this to settle for 2 Minutes.
4. Press **CAL** and the reading will show the applied torque.
5. Press and hold **INC** to turn the unit off. The PTTT is now calibrated.

CLASSIFICATION OF TORQUE TOOLS.

For tools that can be calibrated on this device see ISO 6789.

Indicating Torque Tools: Type I

Class A: wrench, torsion or flexion bar

Class B: wrench, rigid housing with scale or dial display

Class C: wrench, rigid housing and electronic measurement

Class D: screwdriver, with scale or dial display

Class E: screwdriver, with electronic measurement

Setting Torque Tools: Type II

Class A: wrench, adjustable, graduated or with display

Class B: wrench, fixed adjustment

Class C: wrench, adjustable, non-graduated

Class D: screwdriver, adjustable, graduated or with display

Class E: screwdriver, fixed adjustment

Class F: screwdriver, adjustable, non-graduated

Class G: wrench flexion bar, adjustable, graduated

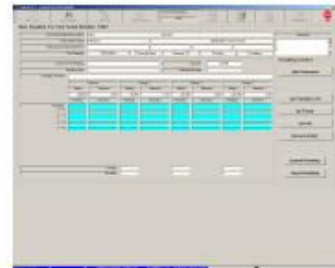
KEPLER LITE 3

"The entry level programme for production line and stand alone testing, performance verification, logging and tracking of torque tools."



KEY FEATURES INCLUDE:

- Full tracking of tool tightening performance
- Shows torque out of limits for selected tool
- Automatically calculates average and deviation of each set of readings
- Data input via COM port and keyboard. Option for bar code direct entry



New Reading Screen



Main Screen

- User generated database for tool types and torque parameters required
- Complies with ISO 6789 and BSEN 26789 torque
- Multiple operator accounts (With password protection)

- Bespoke templates easily created for your certificates, reports and labels
- Full tracking of tools calibration performance and history
- Auto or manual certificate numbering
- Data output and report generation collated and filtered from any combination of good and out of tolerance tools. Uses include monthly reports, etc.



Report Screen



Report Configuration Screen

- Select different printers for readings, labels, and reports/certificates

KEPLER LITE 3



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