



Digital Torque Wrenches – Torque & Angle Model – User Manual

Description

The Torque & Angle Model Digital torque Wrench is a state of the art hand-held device suitable for both torque auditing & torque application. As a precision tool, it is highly accurate as well as highly repeatable. For product portfolio cohesion, the Torque & Angle Wrench uses the same Organic LED display, membrane keypad, user interface and PC based data management software as other standard products within this range of electronic torque tools. Additionally, training time is kept to a minimum due to the ease of use of the tool itself.

Our products are demonstrated to have an accuracy of 1% or better, and are both simple to set and calibrate as well as coming with a fully traceable ISO 6789-2003 Certification.

The Torque & Angle Model Wrench has both visual and audible alarms that signal good or bad torque. Furthermore, there is a visual battery life indicator, alarms for preset value approach, fastener overload, range overload and maximum mechanical overload.

Recommended Use

The Torque & Angle Model Digital Torque Wrench is specifically designed for use in all industrial settings and applications where high accuracy and repeatability combined with a complete torque data management and control system are required.

Basic Characteristics

- **Accuracy** – Right hand side torque = 1%, Left hand side torque = 1% of actual reading.
- **Resolution** – 0.01 to 50Nm, 0.1 to 999Nm, 1 to 2000Nm
- **Alarms** – Preset value approach, range overload, mechanical overload, low battery and memory full
- **Memory Capacity** – 2094 values
- **Battery Life** – Sleep Mode: 5,000 hours, Operational Mode – Using Torque only modes: Up to 120 hours, Using Torque & Angle modes: Up to 60 hours, Using Optional Wireless mode with Torque only: Up to 40 hours, Using Optional Wireless mode with Torque & Angle: 25 hours.



Changing the Batteries

1. Unscrew the metal End Cap at the opposite end of the wrench to the ratchet head.
2. Remove the four AA cell batteries and replace with a new set.
3. Screw back on the metal End Cap.
4. Turn on the wrench and check to ensure the date and time are both set correctly.

Note:

Practical usage time for rechargeable batteries is shorter than for standard batteries. An optional extension adapter is available that can accommodate one extra rechargeable battery.

Ratchet Head Guidelines

- Store in a cool, dry location.
- Oil frequently to prevent ratchet head from becoming stiff and seizing.
- Do not exceed specified torques.
- Do not use external forces on ratchet e.g. a hammer.
- Max Torques:

$$1/4'' = 30\text{Nm}$$

$$3/8'' = 135\text{Nm}$$

$$1/2'' = 340\text{Nm}$$

Guidelines

The following are a set of general guidelines for using and storing the wrench that should be adhered to at all times.

- All torque tools are precision instruments and should be handled with care!
- Do not subject the tool to torque loads in excess of the model range!
- Do not use the tool to loosen fasteners tightened beyond maximum tool capacity!
- Using non-linear extensions may affect the accuracy of the readings!
- The use of torque extensions will increase the torque applied!



- Do not operate the tool unless it has been powered on and the display screen can be read clearly!
- Do not drop the tool or subject it to heavy impact blows!
- Ensure the tool is stored in a cool, dry location to protect from damage!
- Adhere to safety instructions!
- Torque should be applied to the centre of the torque wrench handle as torque is length dependant!

Modes of Operation

Torque reading start at 5% of maximum capacity with an accuracy of 1% beginning at 10% of maximum capacity (threshold to maximum span).

The following are the different modes available with the Torque & Angle Model Digital Torque Wrench:

- Language Mode
- Unit Mode
- Date Mode
- Set Mode
- Just Angle Mode
- Just Move Mode
- Preset Mode;
- Recall Mode
- Upload Mode
- Clear Mode
- Comms Mode

Language Mode

The languages of operation available to the user are: English, Chinese, French, German, Italian, Polish, Portuguese, Russian & Spanish.

1. Press  to scroll to the language menu.
2. Press  to enter the language menu.
3. Press   to scroll to language required.
4. Press  to confirm operation in this language.



Figure 1: Language Function

Unit Mode – Keypad Function

1. Press  to scroll to Units Menu.
2. Press  to enter Units Menu.
3. Press   to scroll to Units required.
4. Press  to confirm selected Units.



Figure 2: Unit Function

Note:

The following units of measurement are available;

Kgf.cm – kgf.m – cN.m – N.m – ozf.in – lbf.in – lbft.ft

Date Mode – Keypad Function

1. Press  to scroll to the Date menu.
2. Press  to enter Date menu.
3. Press   to set the minute and hour.
4. Press  to confirm.
5. Repeat steps 3 & 4 to set the date, month and year.

Track Mode

As torque is applied, the driver will actively display the applied torque reading from 5% up to the maximum span of the device. Upon removal of the load, the display will return to zero.

1. Press  to scroll to Track Mode.
2. Press  to operate in Track Mode.



Figure 3: Track Function Graph

Peak Mode

In Peak mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press  to scroll to Peak mode.
2. Press  to operate in Peak mode.
3. Press  to store the peak value recorded if required.

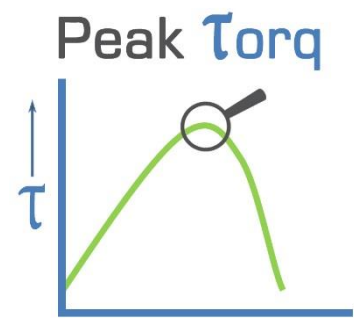


Figure 4: Peak Function Graph

Just Angle Mode

In Just Angle Mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold. The angle turned from 5% of the tool span until maximum torque reading is also displayed. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press  to scroll to Just Angle mode.
2. Press  to operate in Just Angle mode.
3. Press  to store the peak torque and peak angle values if necessary. If storage is not required, then apply a new load to test again.

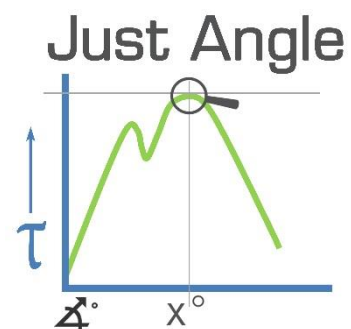


Figure 5: Just Angle Function Graph

Just Move Mode

In Just Move Mode, the torque recorded after a pre-defined number of degrees (Defined in Set Mode) will remain on the OLED display when the load is removed, as long as the torque loaded is above the 10% of maximum capacity threshold. The final torque and final angle measurements will also be displayed. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press  to scroll to Just Move Mode.
2. Press  to operate in Just Move Mode.
3. Press  to store the Just Move torque along with the final peak torque and angle values. If storage is not required, then apply a new load to test again.

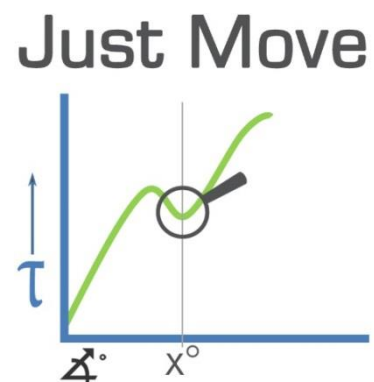


Figure 6: Just Move Function Graph

Set Mode

This mode allows the user to set limits for the torque + angle applied or measured. The operator can choose to set torque values by % or tolerance. During operation the OLED display will be green when approaching the preset tolerance and will change to red if exceeded.

The user can choose from the following Set Modes;

- Set Torque
- Set Torque & Angle
- Set Just Move Preset

Set Mode Torque

1. Press  to scroll to set mode.
2. Press  to select set mode.
3. Press   to select set by % or set by tolerance.
4. Press   to scroll to required preset number i.e. 1 to 99.
5. Press  to confirm preset number selected.
6. Press   to set nominal value and  to confirm.
7. Press   to set your low value and  to confirm.
8. Press   to set your high value and  to confirm.

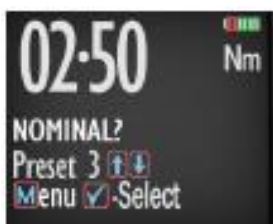


Figure 7: Nominal Preset



Figure 8: Low Preset



Figure 9: High Preset

9. Once the parameters have been confirmed the operator can find the task within preset mode. Use **M** to select preset mode from the main menu and find the task.



Figure 10: Set & Preset Functions

Set Mode – Torque & Angle

1. Press **M** to scroll to Set mode.
2. Press  to select Set mode.
3. Press   to select **Torque & Angle**.
4. Press   to scroll to required preset number i.e. 1 to 99.
5. Press  to confirm preset number selected.
6. Press   to set reference torque value and  to confirm.
7. Press   to set angle low value and  to confirm.
8. Press   to set angle high value and  to confirm.

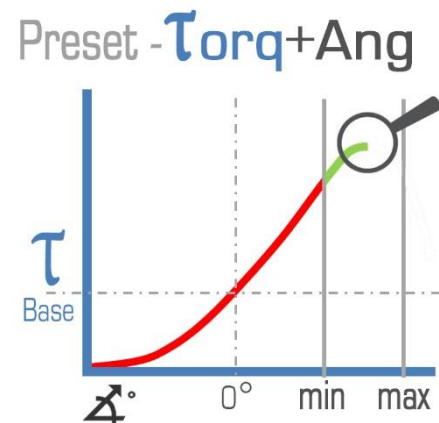


Figure 11: Set Torque & Angle Function Graph

Set Mode – Just Move

Just Move allows the user to measure torque after rotation of a pre-defined number of degrees. Degrees will count once load applied is above 5% of the maximum tool span. Torque will be captured at the angle defined here.

1. Press  to scroll to Set mode.
2. Press  to select Set mode.
3. Press   to select **Just Move**.
4. Press   to scroll to required preset number i.e. 1 to 99.
5. Press  to confirm preset number selected.
6. Press   to set just move preset angle and  to confirm.

Just Move

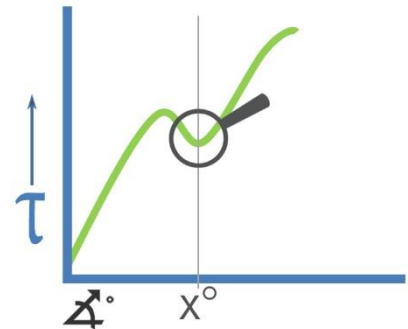


Figure 12: Set Just Move Function Graph

Preset Mode

In Preset mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold.

- **Passing Minimum Value** – The green LED on the keypad will flash, and the buzzer will sound intermittently, while the OLED display will change to orange.
- **Passing Nominal Value** – The green LED on the keypad will turn on, and the buzzer will sound continuously, while the OLED display will change to green.
- **Passing Maximum Value** – The red LED will flash continuously, and the buzzer will sound continuously, while the OLED display will change to red.

Preset Torq

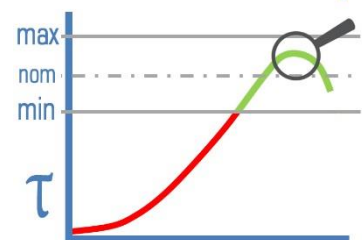


Figure 13: Preset Function Graph



1. Press  to scroll to preset mode.
2. Press  to enter preset mode.
3. Press   to select your preferred Preset Number i.e. 1 to 99.
4. Press  to operate within this preset parameter.
5. Press  to store the applied torque if required.

Recall Mode

This mode allow the user to view the stored torque and angle data. Only locations containing data will be displayed. Note that as data is stored, the locations are populated sequentially from 01 to 2094.

1. Press  to scroll to recall mode.
2. Press  to enter and view memory locations, results and functions.
3. Press   to scroll though locations that contain data.

Upload Mode

This mode allows the user to upload stored torque data. In upload mode, the driver must be connected to a PC running the PC Front-End Software (PCFE) via the ISB port on the Driver and the PC.

1. Press  to scroll to upload mode.
2. Press  to enter upload mode.
3. Press  to select "From" &   for end location to be uploaded.
4. Press  to confirm "From" location.



5. Press  to select "To" &   for end location to be uploaded.
6. Press  to confirm, press  again when asked are you sure.

Comms Mode

This mode allows the user to select the method of communication. The standard model allows communication by standard USB cable to the included software. For communication by ASCII or BINARY the wrench will need physical modifications in advance.

1. Press  to scroll to Comms mode.
2. Press  to enter Comms mode.
3. Press   to select the method of communication &  to confirm.

Note: For standard communication to the included software program, select "PCFE".

Clear Mode

This mode allows the user to clear the stored data from an individual range of locations. Before clearing the selected range and as a safety precaution, the user will be asked are they sure they wish to clear selected data. This can be done by pressing the confirm button.

1. Press  to scroll to clear mode.
2. Press  to enter clear mode.
3. Press   to select "From" range to be cleared and press  to confirm.
4. Press   to select "To" range to be cleared and press  to confirm.
5. Press  to confirm and you will be asked if you are "Sure".
6. Press  to confirm and that range of data is cleared from the wrench memory.