



A *Snap-on* Company

# Comptorq SG

ELECTRONIC  
TORQUE-ANGLE  
WRENCH



# IMPORTANT SAFETY INSTRUCTIONS



## **WARNING** *Risk of flying particles.*

Over-torquing can cause breakage. Force against flex stops on flex head can cause head breakage. An out of calibration angle wrench can cause part or tool breakage. Broken hand tools, sockets or accessories can cause injury. Excess force can cause crowfoot or flare nut wrench slippage.

- Read **this manual completely** before using ELECTRONIC WRENCH.
- To insure accuracy, work must not move in angle mode.
- For personal safety and to avoid wrench damage, follow good professional tool and fastener installation practices.
- Periodic recalibration is necessary to maintain accuracy.
- Wear safety goggles, user and bystanders.**
- Be sure all components, including all adaptors, extensions, drivers and sockets are rated to match or exceed torque being applied.
- Observe all equipment, system and manufacturer's warnings, cautions and procedures when using this wrench.
- Use correct size socket for fastener.
- Do not use sockets showing wear or cracks.
- Replace fasteners with rounded corners.
- To avoid damaging wrench:** Never use wrench with power off. Always turn ON wrench so applied torque is being measured.
  - Do not press **POWER**  while torque is applied or while wrench is in motion.
  - Never use this wrench to break fasteners loose.
  - Do not use extensions, such as a pipe, on handle of wrench.
  - Check that wrench capacity matches or exceeds each application before proceeding.
  - Verify calibration if dropped.
- Make sure ratchet direction lever is fully engaged in correct position.
- Verify calibration of wrench if you know or suspect its capacity has been exceeded.
- Do not force head of flex head drives against stops.
- Always pull - do not push - on wrench handle and adjust your stance to prevent a possible fall should something give.
- Do not attempt to recharge Alkaline cells.
- Store wrench in dry place.
- Remove batteries when storing wrench used for periods longer than 3 months.



## **WARNING** *Electrical Shock Hazard.*

Electrical shock can cause injury. Metal handle is not isolated. Do not use on live electrical circuits.

## **SAVE THESE INSTRUCTIONS**

### **Disclaimer**

Operation of Computorq SG Wrench is not warranted in a EU member state if operating instructions are not in that State's language. Contact CDI Torque Products if a translation is needed.

# Specifications

## Head Type

- Square drive 48 teeth, sealed flex

## Display

- DISPLAY TYPE: Dot Matrix LCD (192 x 65 Resolution)
- VIEWING DIRECTION: 6:00
- BACKLIGHT: WHITE (LED)

## Sealed Button Pad

- 🔘 **POWER** - ON/OFF and torque and angle re-zero
- ⏴ **ENTER** - measurement mode select and menu entry
- ⬆️ **UP** – increments torque and angle settings and menu navigation
- ⬇️ **DOWN** - decrements torque and angle settings and menu navigation
- U **UNITS** - units select (ft-lbs, in-lbs, Nm, Kgm, Kg-cm, dNm) and enter PSET (preset) menu
- 💡 **LCD BACKLIGHT** – Illuminates all screens and last peak torque or angle recall

## Functions

- **Set** - torque or angle target
- **Track** - real time display of torque or accumulated angular rotation with progress lights
- **Peak Hold** – 5 sec. flashing of peak torque or alternating peak torque/angle on release of torque
- **Peak Recall** - display last peak torque or peak torque/angle on button press
- **Memory** - display of last 1500 peak torque or peak torque/angle readings

## Accuracy

- Temperature: @ 22 C (72°F)
- Angle: ±1% of reading ±1° @ angular velocity > 10°/sec < 180°/sec
- Torque: 

|   |                |      |                                       |
|---|----------------|------|---------------------------------------|
|   | CW             | CCW  |                                       |
| { | ±2%            | ±3%  | of reading, 20% to 100% of full scale |
|   | ±4%            | ±6%  | of reading, 10% to 19% of full scale  |
|   | (unflexed) ±8% | ±10% | of reading, 5% to 9% of full scale    |

## Dimensions: Length / Weight/Drive

| Flex Head Model | Length   | Weight   | Square Drive | Fixed Head Model | Length   | Weight    | Square Drive |
|-----------------|----------|----------|--------------|------------------|----------|-----------|--------------|
| 2401CASG        | 14.1 in. | 2.1 lbs. | ¼ in.        |                  |          |           |              |
| 1002CASG        | 18.8 in. | 3.1 lbs. | ⅜ in.        |                  |          |           |              |
| 2503CASG        | 26.5 in. | 4.5 lbs. | ½ in.        |                  |          |           |              |
|                 |          |          |              | 6004CASG         | 48.7 in. | 10.9 lbs. | ¾ in.        |

## Preset Range

- **ANGLE: 0 to 360°** CW or CCW (Display Resolution 1°)
- **TORQUE:** (Display Range and Resolution as shown below)

| Flex Head Model | Fixed Head Model | ft-lb      | in-lbs     | Nm         | Kgm        | kg-cm      | dNm        | overload (ft-lb) |
|-----------------|------------------|------------|------------|------------|------------|------------|------------|------------------|
| 2401CASG        |                  | 1.00-20.00 | 12.0-240.0 | 1.36-27.12 | N/A        | 13.8-276.5 | 13.6-27.12 | 25               |
| 1002CASG        |                  | 5.0-100.0  | 60-1200    | 6.8-135.6  | N/A        | 69-1383    | 68-1356    | 125              |
| 2503CASG        |                  | 12.5-250.0 | 150-3000   | 16.9-339.0 | 1.73-34.56 | N/A        | N/A        | 312              |
|                 | 6004CASG         | 30.0-600.0 | 360-7200   | 40.7-813.5 | 4.15-82.95 | N/A        | N/A        | 750              |

**Operating Temperature:** 0°F - 130°F (-18°C - 54°C)

**Storage Temperature:** 0°F to 130°F (-18°C to 54°C)

**Measurement Drift:** ANGLE: -0.12 Angular Degrees per Degree C  
TORQUE: +0.01% of reading per Degree C

**Humidity:** Up to 90% non-condensing

**Battery:** Three "AA" Lithium Cells, up to 80 hours continuous operation

**Default Auto Shut-off:** After 2 minutes idle – (Adjustable, see Advanced Settings)

# User Instructions

- Basic Functions (Quick Start)

**PROGRESS LIGHTS**  
**Yellow** - First light indicates 40% of target torque or angle reached, Second indicates 60% of target reached, Third indicates 80% of target reached.  
**Green** - Indicates target torque or angle reached.  
**Red** - Indicates exceeded torque or angle target plus 4% or exceeded maximum Preset target.

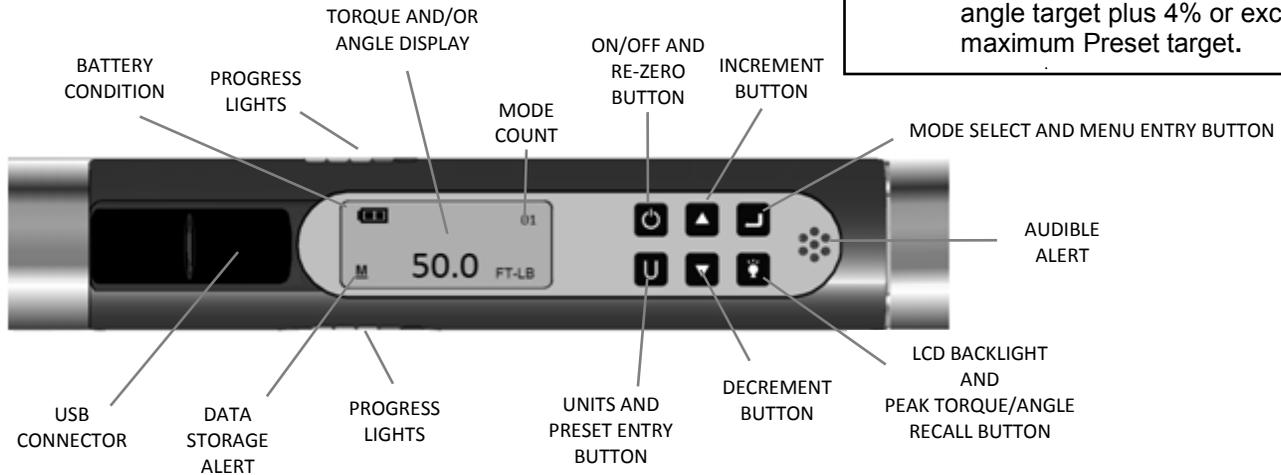


Figure 1

**Install three fresh lithium “AA” cells into handle of wrench. (“AAA” for 240 model)**

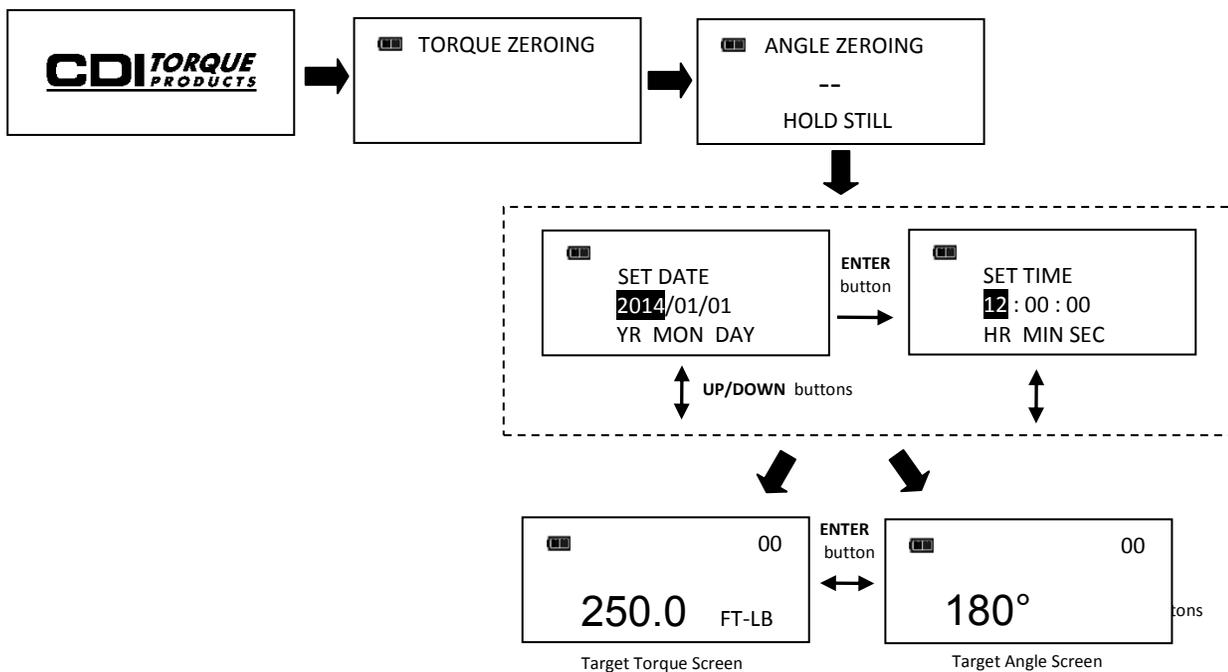
## Wrench Power On Sequence

### 1. Turn On Wrench.

While holding wrench still, momentarily press **POWER** button. CDI logo will be displayed followed by torque and angle re-zeroing screens. If real-time-clock has not been set, date and time entry screens are displayed (see Advanced Configuration section for entering date and time). After entering date and time or if time has been previously set, target TORQUE or ANGLE screen will now be displayed (depending on previous measurement mode selected).

### 2. Select Measurement Mode.

Toggle between target TORQUE and ANGLE screens by repeatedly pressing **ENTER** button.



*Note: When date and time is set for first time, In-Service date is also set and is used for calculating initial calibration interval (see "Setting Calibration Interval" in Advanced Configuration section).*

## Torque Mode

### 1. Set Target.

Use **UP/DOWN** buttons to change TORQUE target value.

### 2. Select Units of Measure.

Repeatedly press **UNITS** button while on target TORQUE screen until desired units are displayed.

### 3. Apply TORQUE.

Grasp center of handle, (DO NOT pull on battery end-cap) and slowly apply torque to fastener until progress lights display green and a ½ second audible alert and handle vibration alerts you to stop.

### 4. Release TORQUE.

Note peak TORQUE reading flashing on LCD display for 5 seconds. Pressing **BACKLIGHT** button while peak torque is flashing will continue to display value until button is released. Momentarily pressing **UP/DOWN, ENTER** or **UNITS** button will immediately return to target TORQUE screen. Reapplying TORQUE will immediately start another TORQUE measurement cycle.

### 5. Recall Peak TORQUE Reading

To recall last peak TORQUE measurement, press and hold **BACKLIGHT** button for approximately 3 seconds. Peak TORQUE will flash for 5 seconds.

## Angle Mode

### 1. Set target.

Use UP/DOWN buttons to change target ANGLE value.

### 2. Apply Torque and Rotate Wrench.

Grasp center of handle, (DO NOT pull on battery end-cap) and slowly apply torque to fastener and rotate wrench at a moderate consistent speed until progress lights display green and a ½ second audible alert and handle vibration alerts you to stop.

### 3. Release torque.

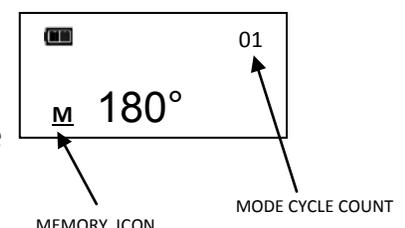
Note alternating peak TORQUE and ANGLE readings flashing on LCD display for 5 seconds. Pressing **BACKLIGHT** button while peak values are flashing will continue to display values until button is released. Momentarily pressing **UP/DOWN, ENTER** or **UNITS** button will immediately return to target ANGLE screen. Reapplying torque (ratcheting) before target screen is displayed will continue ANGLE accumulation as wrench is rotated.

### 4. Recall Peak ANGLE Reading

To recall last peak ANGLE measurement, press and hold **BACKLIGHT** button for approximately 3 seconds. Peak TORQUE and ANGLE will be displayed alternately for 5 seconds.

## Mode Cycle Count

Comptorq SG mode cycle count feature is used to indicate number of times wrench has reached target torque in torque measurement mode or target angle in angle measurement mode.



## Torque and Angle Mode Cycle Counting

1. Numerical counter located in top right of target torque or target angle screen will increment after each torque or angle cycle if applied torque or angle has reached target value.

2. When toggling between torque mode or angle mode using **ENTER** button or if target is changed, numerical counter will reset back to 00. counter WILL NOT reset when re-zeroing, on menu entry/exit or power down.

3. Memory icon will turn on indicating at least one torque or angle cycle data has been stored in memory.

## Data Download

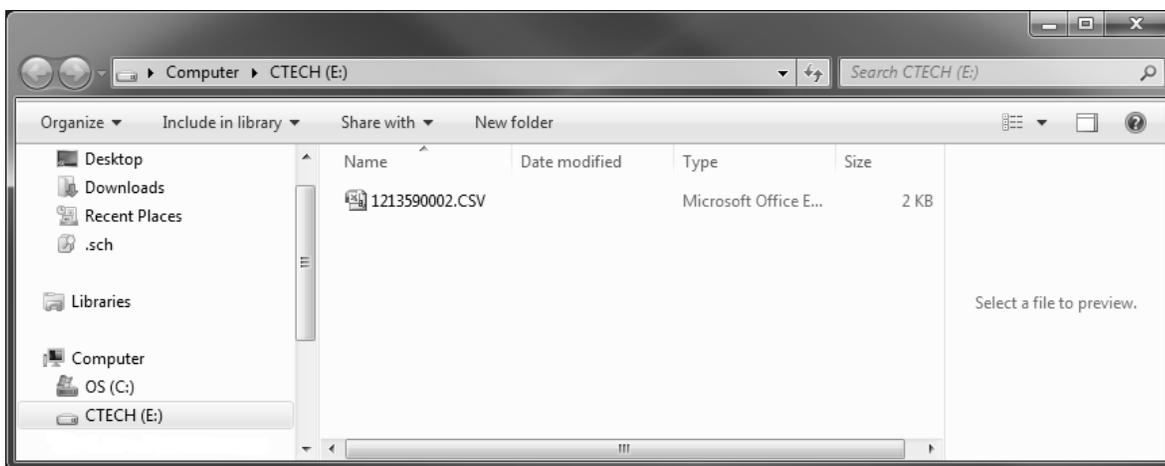
Torque and Angle data in memory can be downloaded to a computer via USB port.

1. Connect supplied USB cable from computer to wrench.
2. Computer will display "AutoPlay" window showing CTECH as a disk drive with option of using Windows Explorer to view files:



3. Click "Open Folder" selection to display CTECH Character Separated Value (.csv) file.

*Note: If "AutoPlay" does not start automatically, use Explorer to display CTECH drive contents.*



4. Open file using Microsoft Excel by double clicking on file name (Example: "1213590002.CSV") or "drag and drop" file to computer.
5. Data on wrench can be cleared by deleting file on the CTECH drive.

## Main Menu

Main menu displays wrench operational information.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Use **UP/DOWN** buttons to highlight menu selection then press **ENTER** button.

Menu Selections:

- EXIT - Exits Main menu and returns to target screen.
  - LANGUAGE - Displays language selection menu.
  - SET HEAD LENGTH - Displays wrench head length entry screen.
  - SHOW DATA - Displays stored torque and angle data.
  - CLEAR DATA - Clears stored torque and angle data.
  - CYCLE COUNT - Displays torque/angle cycle count screen.
  - SETTINGS - Displays advanced settings menu (see Advanced Settings Section).
  - CONFIGURE - Displays advanced configuration menu (see Advanced Configuration Section).
3. To select the language menu, press the **ENTER** button while **LANGUAGE** is highlighted then highlight the desired language and press the **ENTER** button.



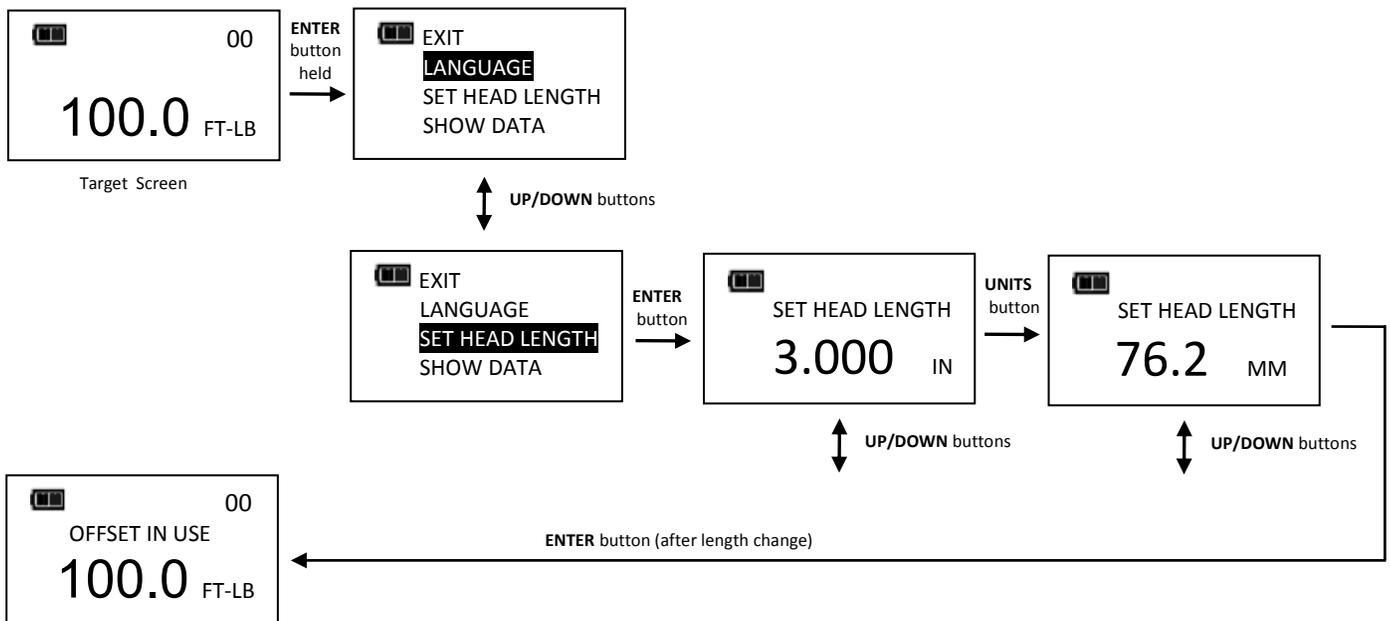
*Note: If French, Spanish or German language is selected, decimal mark selection menu is displayed. Comma or decimal point can be selected. English defaults to decimal point.*

- To exit Main menu and return to target torque or angle screen, press **ENTER** button while **EXIT** menu selection is highlighted.

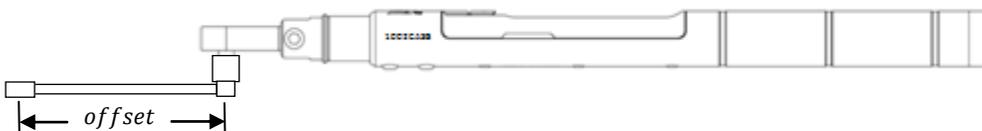
**Setting Head Length**

*Note: If wrench has an adapter or extension is added, length of adapter and/or extension being used can be entered to correct for a different length without requiring re-calibration.*

- To enter a head length, from target torque or angle screen, press and hold **ENTER** button for 3 seconds.
- With **SET HEAD LENGTH** menu selection highlighted, momentarily press **ENTER** button.
- Set Head Length screen is displayed next. default head length is length of head at calibration (zero for fixed head wrench). Use **UP/DOWN** buttons to increment/decrement head length. Pressing and holding **UP/DOWN** buttons will progressively increment/decrement value faster.
- Default units of length is in inches. Press **UNITS** button to change to millimeters.
- Pressing **ENTER** button after length is set returns to main menu. If length is changed from default, "OFFSET IN USE" message will be displayed on target screen.

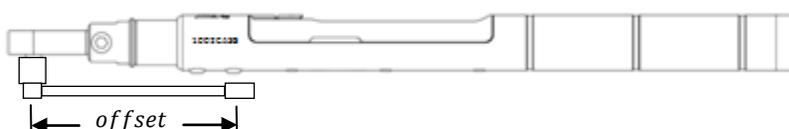


*Note: For a fixed length flex head, head length entered is offset length measured from center of drive to center of fastener.*



**Use of Negative Offsets**

*Note: Enter a negative value for offset when used in reverse direction.*



When length of an offset is negative, maximum fastener target is limited by following formulas:

240 in-lb wrench:

$$\text{Maximum Target Torque} = \text{offset} * 24 + 240$$

| Offset | Max Target |
|--------|------------|
| -1"    | 216 in-lb  |
| -2"    | 192 in-lb  |
| -3"    | 168 in-lb  |
| -4"    | 144 in-lb  |

100 ft-lb wrench:

$$\text{Maximum Target Torque} = \text{offset} * 7 + 100$$

| Offset | Max Target |
|--------|------------|
| -1"    | 93 ft-lb   |
| -2"    | 86 ft-lb   |
| -3"    | 79 ft-lb   |
| -4"    | 72 ft-lb   |

250 ft-lb wrench:

$$\text{Maximum Target Torque} = \text{offset} * 11 + 250$$

| Offset | Max Target |
|--------|------------|
| -1"    | 239 ft-lb  |
| -2"    | 228 ft-lb  |
| -3"    | 217 ft-lb  |
| -4"    | 206 ft-lb  |

600 ft-lb wrench:

$$\text{Maximum Target Torque} = \text{offset} * 14 + 600$$

| Offset | Max Target |
|--------|------------|
| -1"    | 586 ft-lb  |
| -2"    | 572 ft-lb  |
| -3"    | 558 ft-lb  |
| -4"    | 544 ft-lb  |

*Note: When using a negative offset, entering a target torque greater than maximum values above may cause an overtorque error before reaching fastener target torque and possibly damage wrench.*

### Viewing Stored Torque and Angle Data

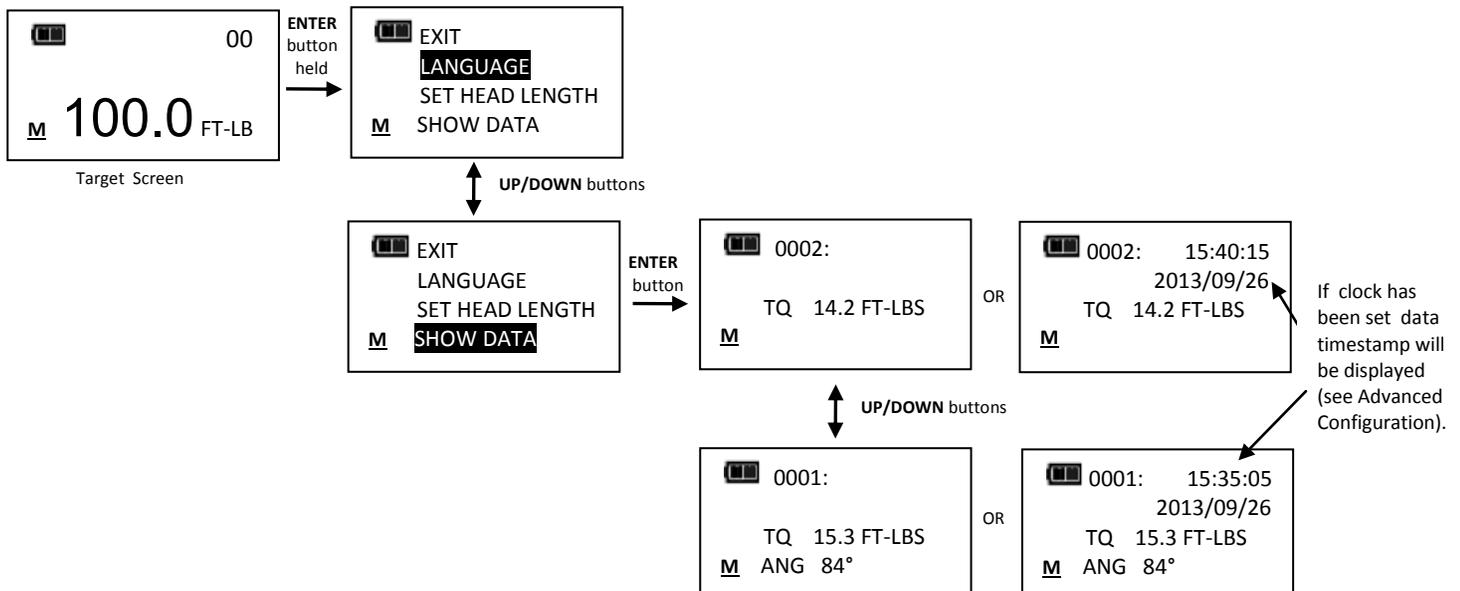
Torque data is stored in memory after each torque cycle if applied torque has reached target value. Torque and angle data is stored in memory after each angle cycle if applied angle has reached target value. Memory Indicator is displayed when data is stored in non-volatile memory.

1. To view stored torque and angle data, from target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **SHOW DATA** menu selection by pressing **UP/DOWN** buttons then press **ENTER** button to display Show Data screen.
3. In Show Data screen, scroll through each stored data record by pressing **UP/DOWN** buttons.

Example: 0002 = Show Data List Counter: TQ = Peak torque value

0001 = Show Data List Counter: TQ = Peak torque value: ANG = Peak angle value

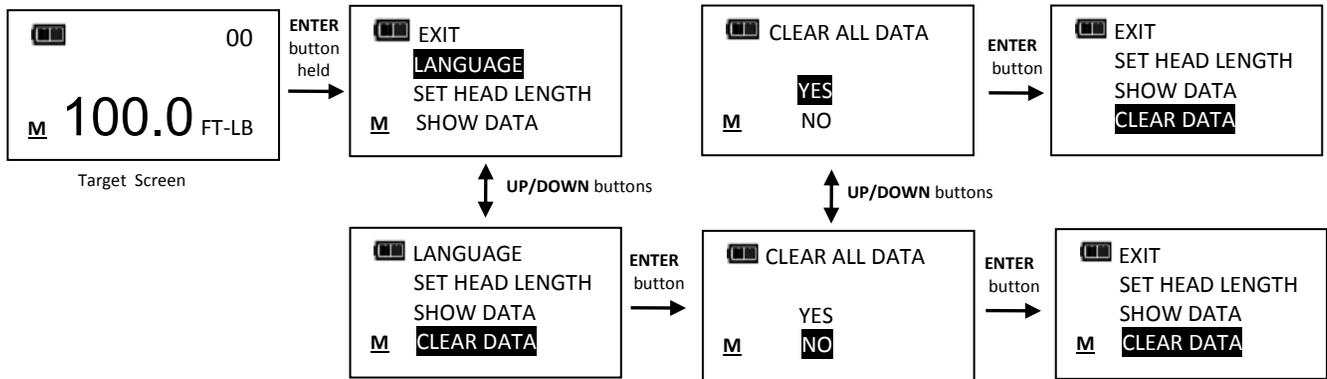
4. Pressing **ENTER** button while on Show Data screen returns to main menu.



*Note: A maximum of 1500 data records can be stored in memory. Memory full icon will be displayed when full and no more data is stored until memory is cleared.*

## Deleting Stored Torque and Angle Data

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **CLEAR DATA** menu selection using **UP/DOWN** buttons then press **ENTER** button to display CLEAR ALL DATA screen.
3. In CLEAR ALL DATA screen, highlight **YES** menu selection to delete all stored data, or **NO** menu selection to exit without deleting data.
4. Press **ENTER** button after making selection.

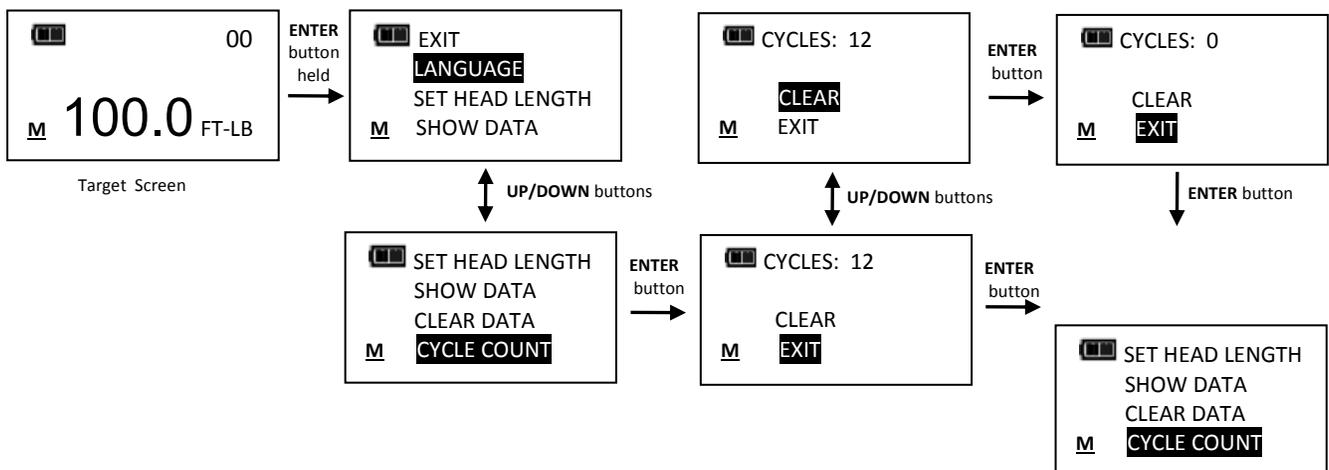


*Note: If wrench is Locked (see Preset Lock in Advanced section), Clear Data function is disabled.*

## Viewing and Clearing Wrench Cycle Counter

Each time torque or angle target is reached, wrench cycle counter is incremented. Maximum cycle count is 999999.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **CYCLE COUNT** menu selection using **UP/DOWN** buttons.
3. Press **ENTER** button to display CYCLES screen.
4. To exit CYCLE COUNT screen without clearing count, press **ENTER** button while **EXIT** menu selection is highlighted.
5. To reset wrench cycle count to 0, highlight **CLEAR** menu selection then press **ENTER** button.
6. **EXIT** menu selection is automatically highlighted after count is cleared. Press **ENTER** button to return to main menu.



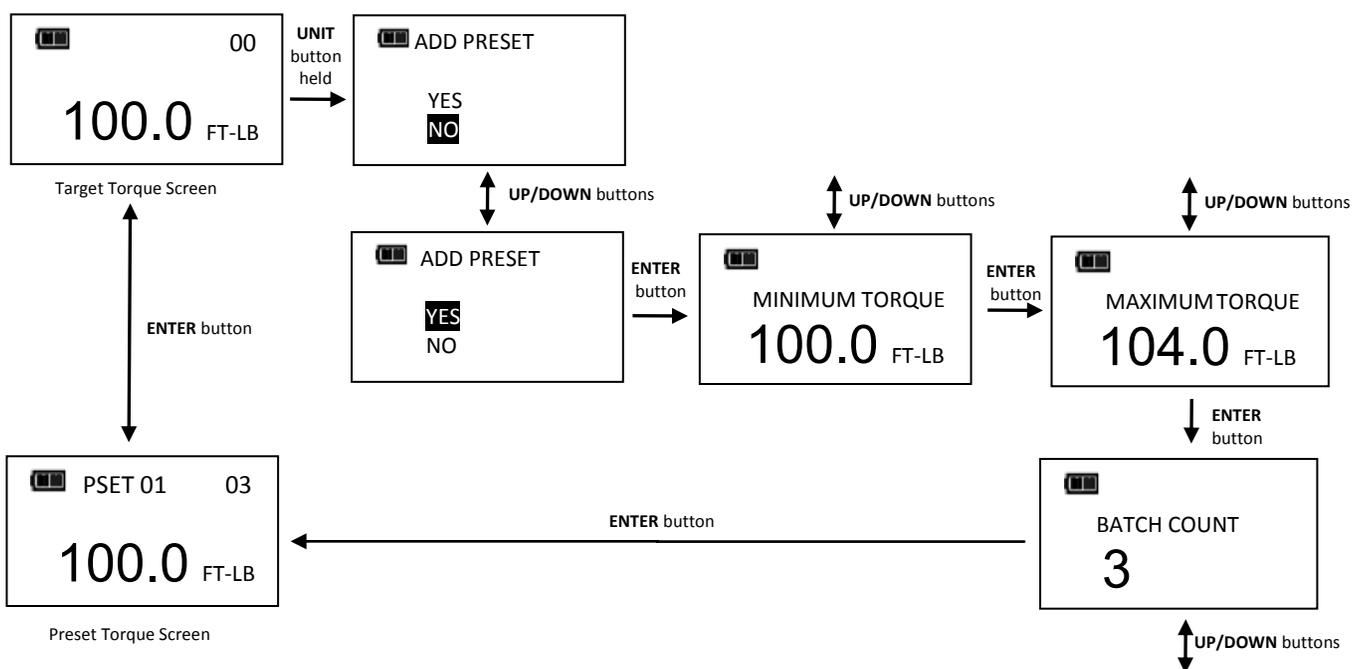
*Note: If wrench is Locked (see Preset Lock in Advanced section) Clear count function is disabled.*

## Target Presets (PSET)

PSET function gives user ability to configure 50 preset target torque or target angle settings, each with a minimum (target), maximum (over range) and batch count value. PSETs are stored in non-volatile memory so that they are retained while power is off.

## Adding a Torque Preset

1. From target torque screen, select units of measure.
2. Press and hold **UNITS** button for 3 seconds.
3. ADD PRESET confirmation screen is displayed. Highlight **YES** menu selection using **UP/DOWN** buttons then press **ENTER** button. **NO** menu selection returns to main menu without adding a PSET.
4. MINIMUM TORQUE screen is displayed. MINIMUM TORQUE is target value at which green progress lights, audible alert and vibrator turn on. Initial MINIMUM TORQUE value is value from target torque screen. MINIMUM TORQUE can be set to any value within wrench torque range by pressing **UP/DOWN** buttons. Once desired target torque value has been set, press **ENTER** button.
5. MAXIMUM TORQUE screen is displayed next. MAXIMUM TORQUE is torque value above which red progress lights turn on. Initial MAXIMUM TORQUE value will be MINIMUM TORQUE plus 4%. Maximum torque value can be set greater than MINIMUM TORQUE value to 10% above wrench maximum range by pressing **UP/DOWN** buttons. Once desired value has been set, press **ENTER** button.
6. BATCH COUNT screen is displayed next. Default value is zero. Batch count range is 0 to 99. Press **UP/DOWN** buttons to increment/decrement batch count. Mode Count increments each time target torque is reached if a batch count of zero is entered. Mode Count decrements if a non-zero batch count is entered and resets to batch count value when count reaches zero. Once desired value has been set, press **ENTER** button.
7. PSET target screen is displayed labeled with next available PSET number from 01 to 50.
8. To enter additional torque presets, repeatedly press **ENTER** button until target torque screen is displayed and repeat steps above.

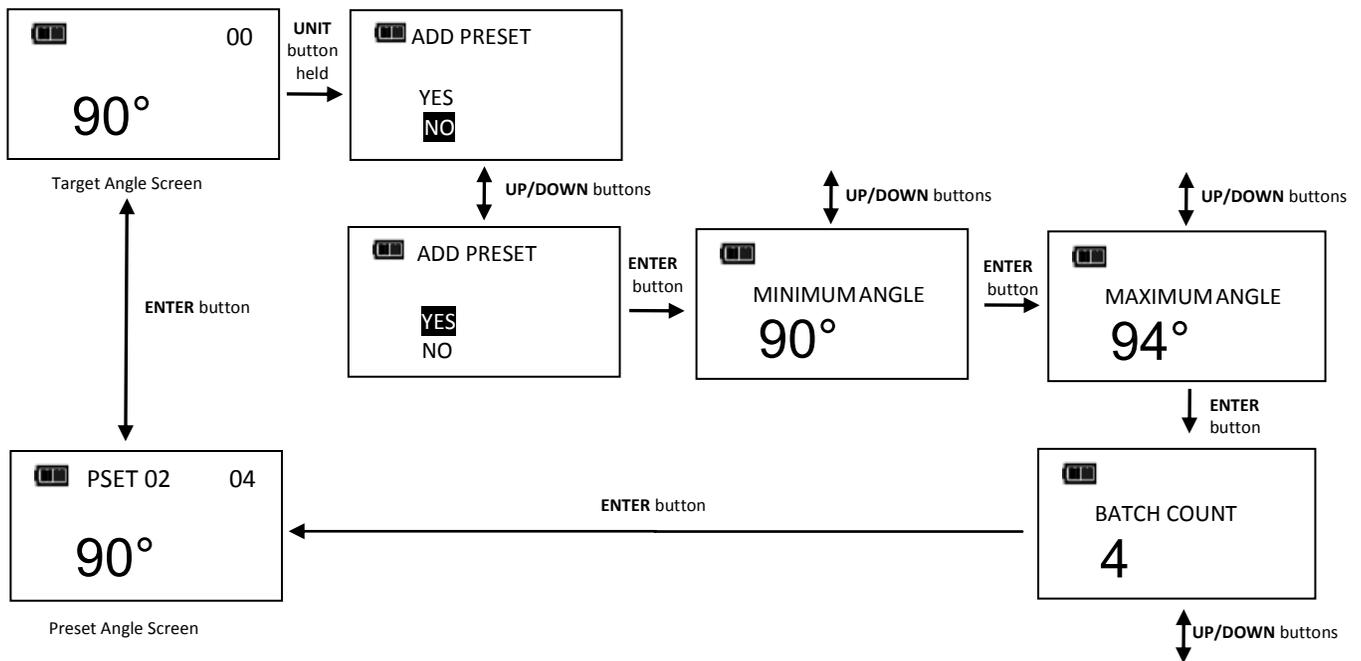


*Note: To select a stored PSET or manual target torque or angle mode, repeatedly press **ENTER** button until desired PSET or manual mode is displayed.*

## Adding an Angle Preset

1. From target angle screen, press and hold **UNITS** button for 3 seconds.
2. ADD PRESET confirmation screen is displayed. Highlight **YES** menu selection using **UP/DOWN** buttons then press **ENTER** button. **NO** menu selection returns to main menu without adding a PSET.
3. MINIMUM ANGLE screen is displayed. MINIMUM ANGLE is target value at which green progress lights, audible alert and vibrator turn on. Initial MINIMUM ANGLE value is value from target angle screen. MINIMUM ANGLE can be set from 0 to 360° by pressing **UP/DOWN** buttons. Once desired target angle value has been set, press **ENTER** button.

4. MAXIMUM ANGLE screen is displayed next. MAXIMUM ANGLE is angle value above which red progress lights turn on. Initial MAXIMUM ANGLE value will be MINIMUM ANGLE plus 4%. MAXIMUM ANGLE value can be set to any value greater than MINIMUM ANGLE by pressing **UP/DOWN** buttons. Once desired value has been set, press **ENTER** button.
5. BATCH COUNT screen is displayed next. Default value is zero. Batch count range is 0 to 99. Press **UP/DOWN** buttons to increment/decrement batch count. Mode Count increments each time target angle is reached if a batch count of zero is entered. Mode Count decrements if a non-zero batch count is entered and resets to batch count value when count reaches zero. Once desired value has been set, press **ENTER** button.
6. PSET target screen is displayed labeled with next available PSET number from 01 to 50.
7. To enter additional angle presets, repeatedly press **ENTER** button until target angle screen is displayed and repeat steps above.

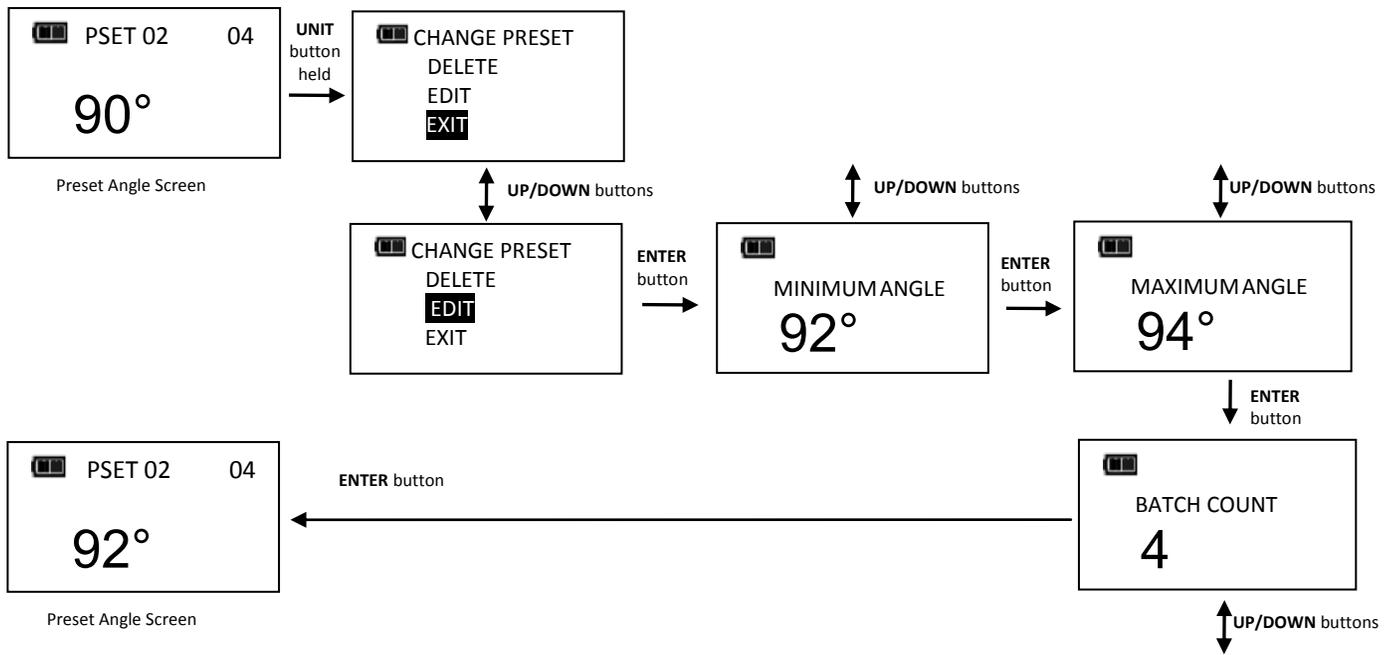


*Note: To select a stored PSET or manual target torque or angle mode, repeatedly press **ENTER** button until desired PSET or manual mode is displayed.*

### Editing a Preset

Edit PSET function gives user ability to edit stored PSETS on wrench.

1. From Preset screen to be edited, press and hold **UNITS** button for 3 seconds.
2. CHANGE PRESET screen is displayed.
3. Highlight **EDIT** selection using **UP/DOWN** buttons then press **ENTER** button.
4. **MINIMUM** TORQUE or ANGLE screen is displayed. Value can be changed by pressing **UP/DOWN** buttons. Once desired target torque or angle value has been set, press **ENTER** button.
5. **MAXIMUM** TORQUE or ANGLE screen is displayed next. Value can be changed by pressing **UP/DOWN** buttons. Once desired target torque or angle value has been set, press **ENTER** button.
6. **BATCH COUNT** screen is displayed next. Value can be changed by pressing **UP/DOWN** buttons. Once desired batch count value has been set, press **ENTER** button.
7. PSET target screen is displayed labeled with same PSET number.

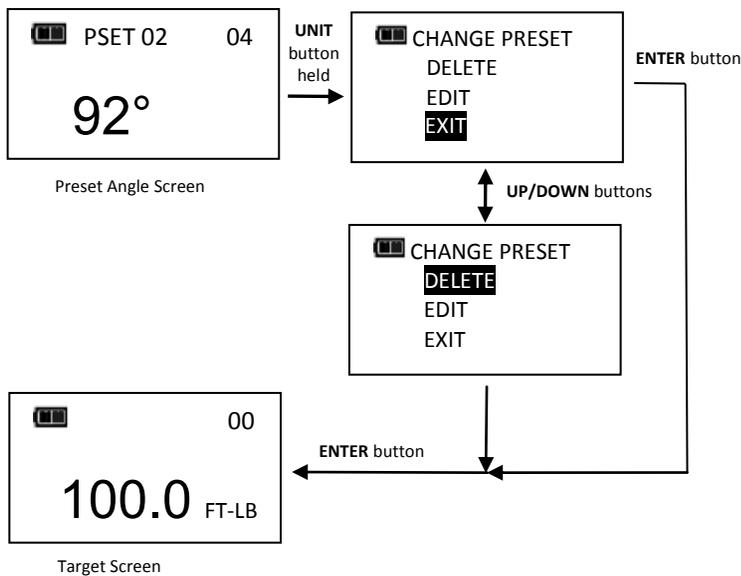


Note: Pressing **ENTER** button while **EXIT** menu selection is highlighted will exit without editing PSET.

### Deleting a Preset

Delete PSET function allows user to remove stored presets from wrench.

1. From Preset screen to be deleted, press and hold **UNITS** button for 3 seconds.
2. CHANGE PRESET screen is displayed.
3. Highlight **DELETE** menu selection using **UP/DOWN** buttons and press **ENTER** button.
4. Target screen is displayed and deleted PSET is no longer available for selection.



Note: Pressing **ENTER** button while **EXIT** menu selection is highlighted will exit without deleting PSET.

Note: When a PSET is deleted, all other stored PSET's will retain their original PSET numbers. When a new PSET is entered, it will be assigned first available PSET number in sequence.

## • Advanced Settings

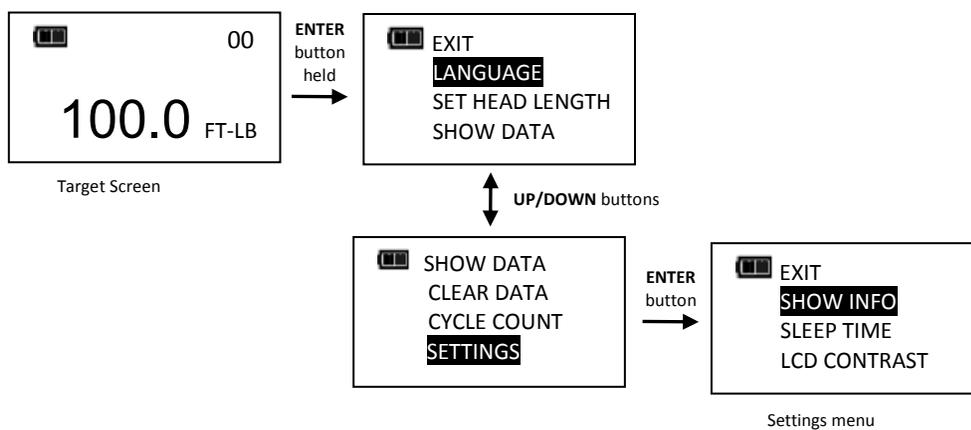
### Accessing Advanced Settings

Advanced settings are accessed from **SETTINGS** menu selection on main menu.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **SETTINGS** menu selection using **UP/DOWN** buttons.
3. Press **ENTER** button to display Settings menu.

Menu Selections:

- EXIT - Exits Settings menu and returns to target screen.
  - SHOW INFO - Displays wrench operational information.
  - SLEEP TIME - Displays power down interval setup screen.
  - LCD CONTRAST - Displays LCD contrast setup screen.
  - KEY BEEP - Displays button press beep enable/disable setup screen.
  - AUTO BACKLIGHT - Displays auto backlight enable/disable screen to turn on backlight during measurement.
  - TOGGLE BACKLIGHT - Displays **BACKLIGHT** button toggle or timeout enable/disable screen.
  - LANGUAGE - Displays the language selection screen.
4. To exit Settings menu and return to target torque or angle screen, press **ENTER** button while **EXIT** menu selection is highlighted.



*Note: All user configurable settings are stored in non-volatile memory and are retained while power is off.*

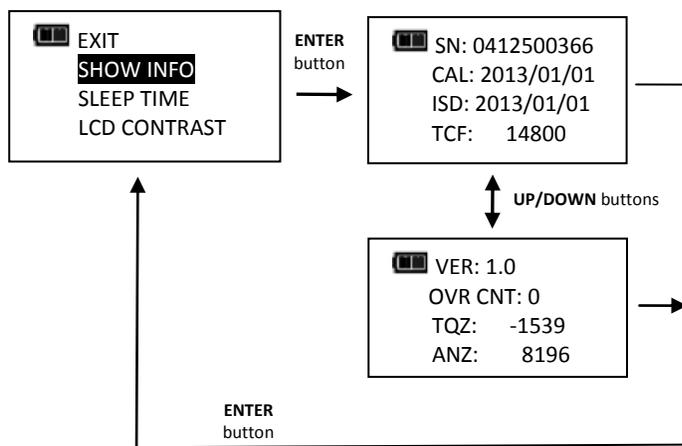
### Show Info

Show Info menu selection displays wrench operational information.

1. From Settings menu, press **ENTER** button while **SHOW INFO** selection is highlighted.
2. SHOW INFO screen is displayed.
3. **UP/DOWN** buttons are used to scroll screen.

Operational Information:

- SN: Serial number assigned to wrench.
  - CAL: Date of last wrench calibration.
  - ISD: In-Service Date.
  - TCF: Torque Calibration Factor.
  - ACF: Angle Calibration Factor.
  - VER: Software version.
  - OVR CNT: Overtorque Counter tracks how many times an over-torque event occurred on wrench (torque >125% of full scale).
  - TQZ: Torque Zero Offset.
  - ANZ: Angle Zero Offset.
4. Pressing **ENTER** button exits Show Info screen and returns to Settings menu.



## Setting Sleep Time

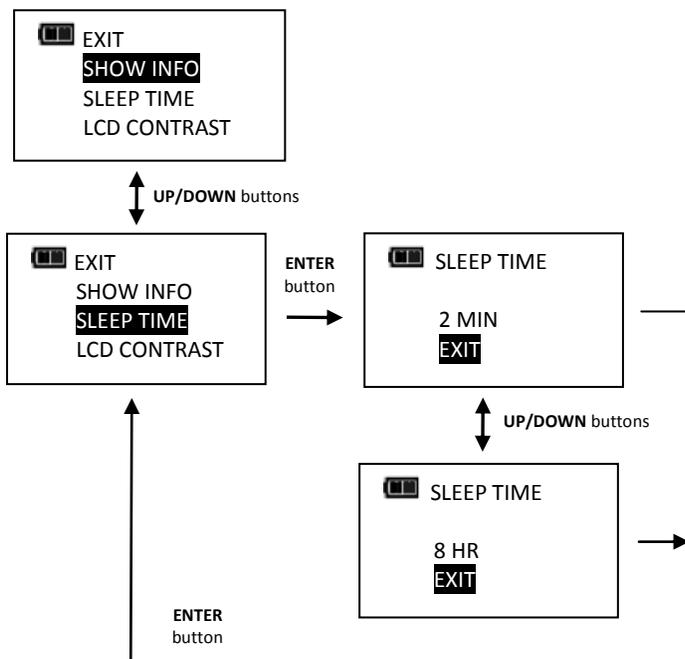
This function will allow user to set interval wrench enters power-down state following last applied torque or button press.

1. From Settings menu, use **UP/DOWN** buttons to highlight **SLEEP TIME** selection then press **ENTER** button.
2. SLEEP TIME screen is displayed.
3. Use **UP/DOWN** buttons to select sleep interval.

Selectable Intervals:

- 2 MIN (factory default)
- 5 MIN
- 10 MIN
- 30 MIN
- 1 HR
- 2 HR
- 8 HR

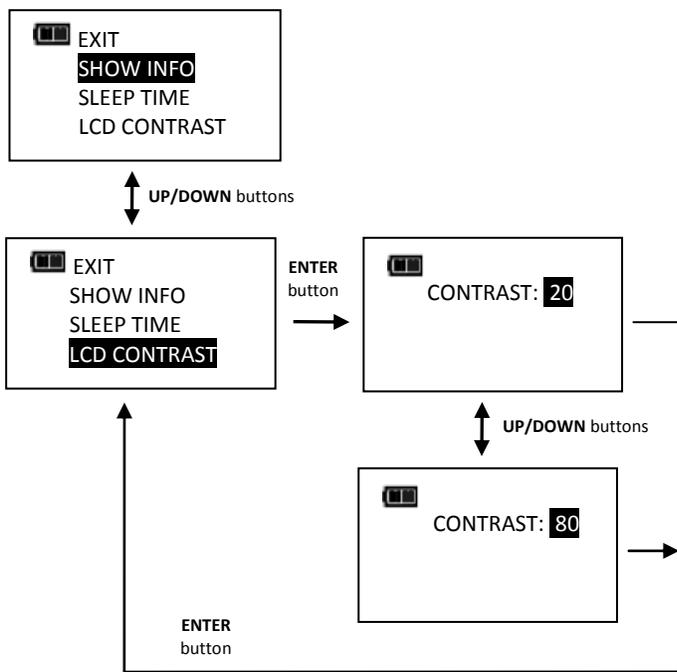
4. Press **ENTER** button to accept selection and exit to Settings menu.



## Setting LCD Contrast

This function will allow user to set LCD contrast for optimal viewing.

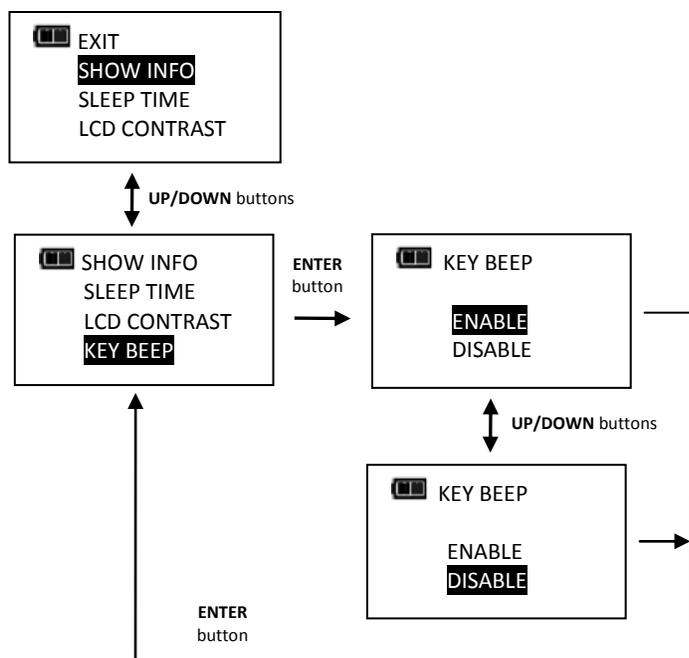
1. From Settings menu, use **UP/DOWN** buttons to highlight **LCD CONTRAST** selection then press **ENTER** button.
2. CONTRAST screen is displayed.
3. Use **UP/DOWN** buttons while viewing display to change contrast to desired level.  
Selectable levels: 20 to 80 in increments of 5 (factory default = 40).
4. Press **ENTER** button to accept selection and exit to Settings menu.



### Key Beep Setup

This function will allow user to enable or disable audio feedback when a button is pressed.

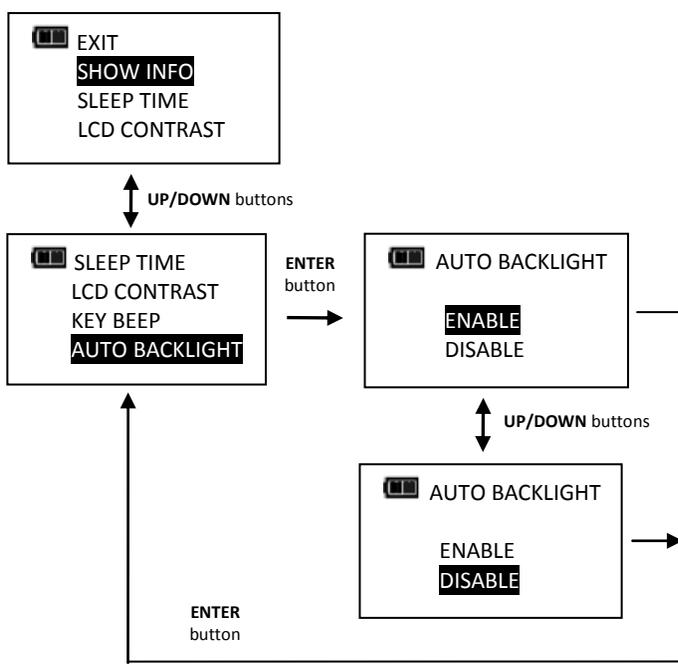
1. From Settings menu, use **UP/DOWN** buttons to highlight **KEY BEEP** selection then press **ENTER** button.
2. KEY BEEP screen is displayed.
3. Use **UP/DOWN** buttons to highlight **ENABLE** (factory default) or **DISABLE** selection.
4. Press **ENTER** button to accept selection and exit to Settings menu.



### Auto Backlight Setup

This function will allow user to enable or disable backlight from turning on during torque or angle measurement.

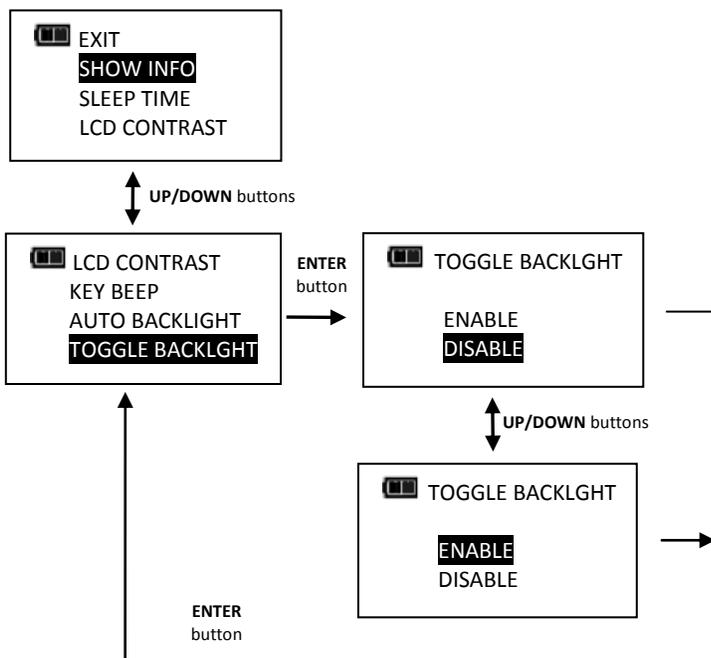
1. From Settings menu, use **UP/DOWN** buttons to highlight **AUTO BACKLIGHT** selection then press **ENTER** button.
2. AUTO BACKLIGHT screen is displayed.
3. Use **UP/DOWN** buttons to highlight **ENABLE** (factory default) or **DISABLE** selection.
4. Press **ENTER** button to accept selection and exit to Settings menu.



### Toggle Backlight Setup

This function will allow user to enable or disable backlight toggle function. If toggle mode is disabled, **BACKLIGHT** button turns on backlight and it automatically turns off after five seconds following any last button press. If toggle mode is enabled, a **BACKLIGHT** button press will turn on backlight and it will remain on until next **BACKLIGHT** button press.

1. From Settings menu, use **UP/DOWN** buttons to highlight **TOGGLE BACKLIGHT** selection then press **ENTER** button.
2. TOGGLE BACKLIGHT screen is displayed.
3. Use **UP/DOWN** buttons to highlight **ENABLE** or **DISABLE** (factory default) selection.
4. Press **ENTER** button to accept selection and exit to Settings menu.



*Note: Backlight will turn off when wrench powers down either by **POWER** button press or sleep time.*

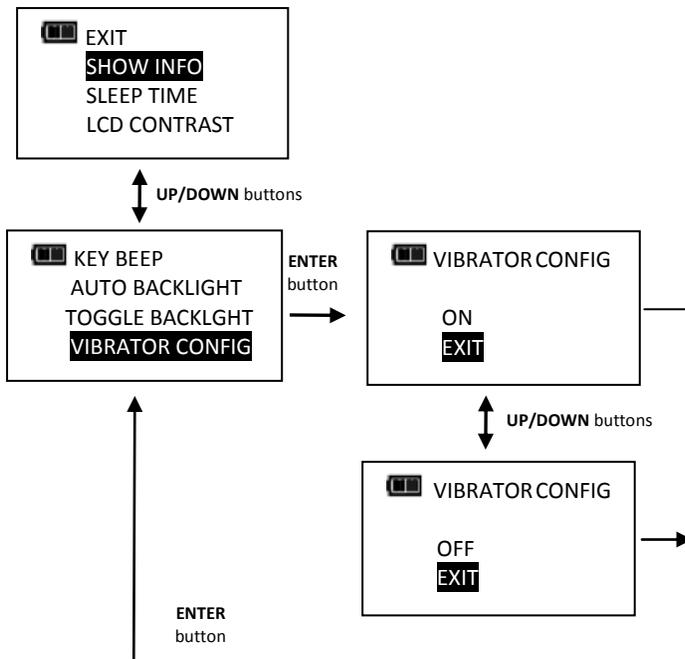
*Note: If toggle backlight is enabled and backlight is on, backlight will remain on during and after applying torque.*

### Vibrator Configuration

This function will allow user to configure vibrator for On or Off when target is reached for preference and/or battery power savings.

1. From Settings menu, use **UP**  /**DOWN**  buttons to highlight **VIBRATOR CONFIG** selection then press **ENTER**  button.
2. VIBRATOR CONFIG screen is displayed.

3. Use UP ▲/DOWN ▼ buttons to toggle ON or OFF selection.
4. Press ENTER ↵ button to accept selection and exit to Settings menu.



## • Advanced Configuration

### Accessing Advanced Configuration

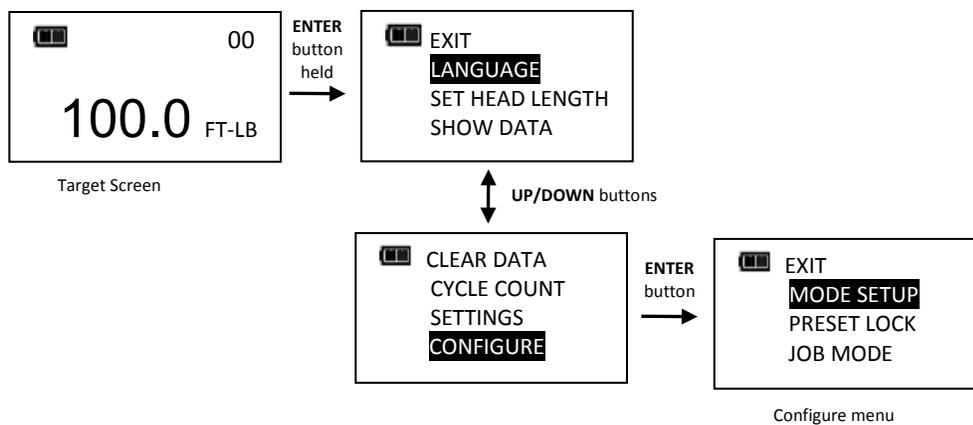
Advanced configuration is accessed from **CONFIGURE** menu selection on main menu.

*Note: If wrench has been locked (see Preset Lock and Job Mode), a password entry is required to enter Configure menu.*

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **CONFIGURE** menu selection using **UP/DOWN** buttons.
3. Press **ENTER** button to display Configure menu.

Menu Selections:

- EXIT - Exits Configure menu and returns to target torque or angle screen.
  - MODE SETUP - Displays wrench mode setup menu.
  - PRESET LOCK - Displays Preset lock menu.
  - JOB MODE - Displays Job mode menu.
  - CALIBRATION - Displays wrench calibration menu (password protected).
  - SET DATE/TIME - Displays clock date and time entry screens.
  - SET CAL INTRVAL - Displays calibration interval setup screen (requires clock date and time setup).
4. To exit Configure menu and return to target torque or angle screen, press **ENTER** button while **EXIT** menu selection is highlighted.



*Note: All user configurable settings are stored in non-volatile memory and are retained while power is off.*

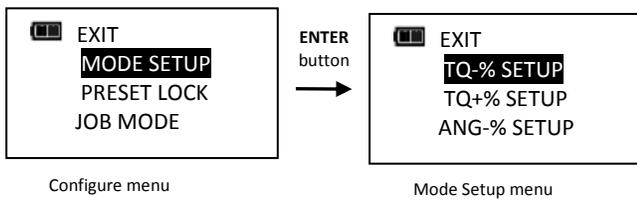
### Mode Setup

Mode setup menu allows user configure target torque and angle minus and plus tolerances and enable/disable Torque THEN Angle mode and Torque AND angle mode.

1. From Configure menu, press **ENTER** button while **MODE SETUP** selection is highlighted.
2. Mode Setup menu is displayed.

Menu Selections:

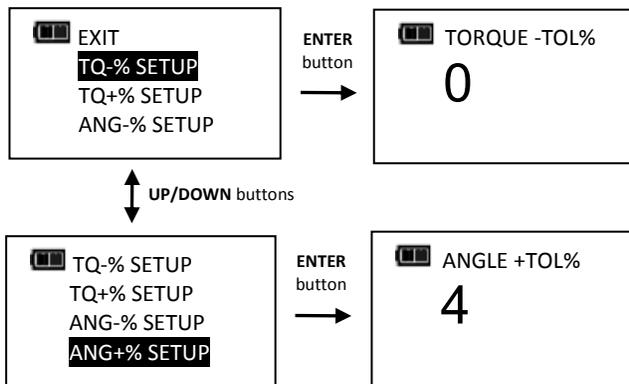
- EXIT - Exits Mode setup menu and returns to Configure menu screen.
  - TQ-% SETUP - Displays target torque minus tolerance entry screen.
  - TQ+% SETUP - Displays target torque plus tolerance entry screen.
  - ANG-% SETUP - Displays target torque minus tolerance entry screen.
  - ANG+% SETUP - Displays target torque plus tolerance entry screen.
  - THEN DISABLED - Displays THEN Mode enable/disable screen.
  - AND DISABLED - Displays AND Mode enable/disable screen.
3. Use **UP/DOWN** buttons to highlight menu selections.
  4. Press **ENTER** button while **EXIT** menu selection is highlighted to return to Configure menu.



### Setting Target Tolerances

This function will allow user to set plus and minus tolerances for torque and angle targets.

1. From Mode Setup menu, use **UP/DOWN** buttons to highlight tolerance selection to setup (TQ-%, TQ+%, ANG-% ANG+%) then press **ENTER** button.
2. Tolerance screen is displayed.
3. Use **UP/DOWN** buttons to change tolerance value. Range is 0 to 10% ( factory default for minus tolerance is 0% and 4% for plus tolerance).
4. Press **ENTER** button to accept selection and exit to Mode Setup menu.



*Note: Green progress lights turn on at target minus -% TOL.*

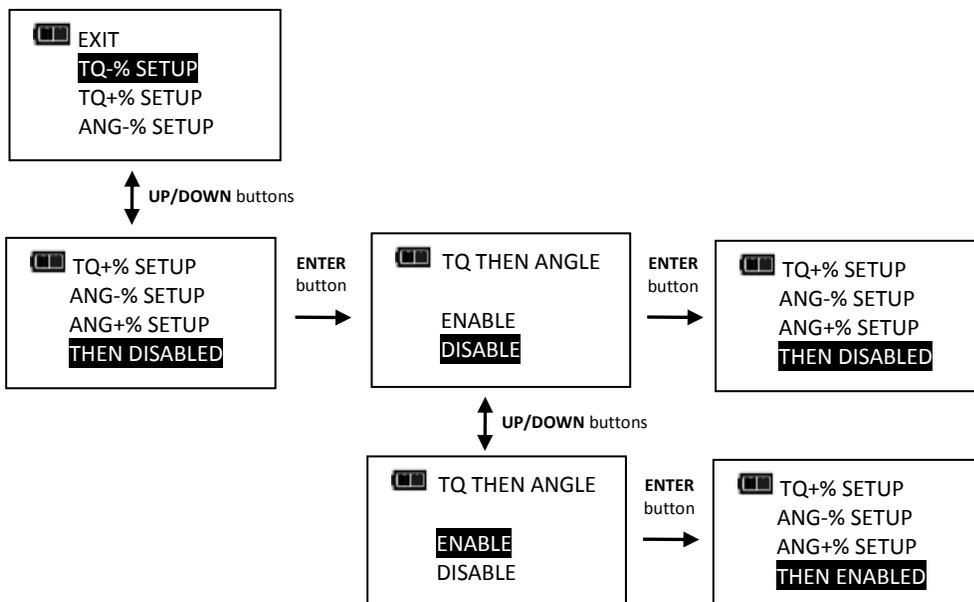
*Note: Red progress lights turn on above target plus +% TOL.*

*Note: Plus tolerance is added to minimum Preset value to define initial maximum value when a Preset is first added.*

### Enable/Disable Torque THEN Angle Mode

This function will allow user to enable or disable Torque THEN Mode.

1. From Mode Setup menu, use **UP/DOWN** buttons to highlight **THEN DISABLED** (factory default) selection then press **ENTER** button.
2. TQ THEN ANGLE enable/disable screen is displayed.
3. Use **UP/DOWN** buttons to select ENABLE or DISABLE selection.
4. Press **ENTER** button to accept selection and exit to Mode Setup menu.

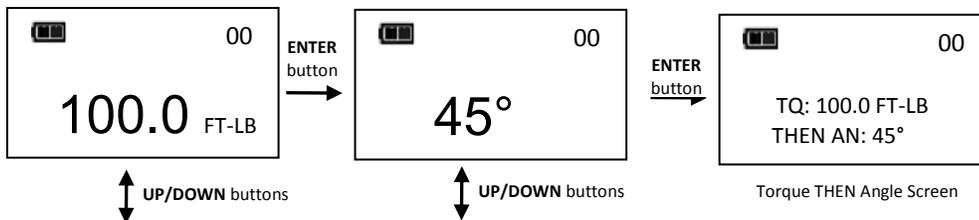


*Note: Menu selection indicates current configuration (ENABLED or DISABLED).*

## Torque THEN Angle Mode

Torque THEN Angle mode is setup by first setting a target torque and units then a target angle before selecting Torque THEN Angle mode. In Torque THEN Angle mode, when applied torque reaches target torque, wrench automatically switches to angle mode for angle measurement. Progress lights indicate applied torque progress while torque is measured and angle when angle is measured. If torque is below target torque when angle reaches target angle, green progress lights will not turn on and if angle exceeds maximum angle, red progress lights turn on indicating a potential problem with fastener.

1. From target torque screen, use **UP/DOWN** buttons to set target torque and **UNITS** button to select torque measurement units then press **ENTER** button.
2. Angle target screen is displayed. Use **UP/DOWN** buttons to set target angle then press **ENTER** button.
3. Torque THEN Angle mode screen is displayed.
4. Apply torque until target is reached then rotate wrench to target angle.



*Note: **UNITS** button can be used to select torque units while on Torque THEN Angle screen.*

*Note: Torque cycle is not recorded in memory unless both torque and angle reach targets.*

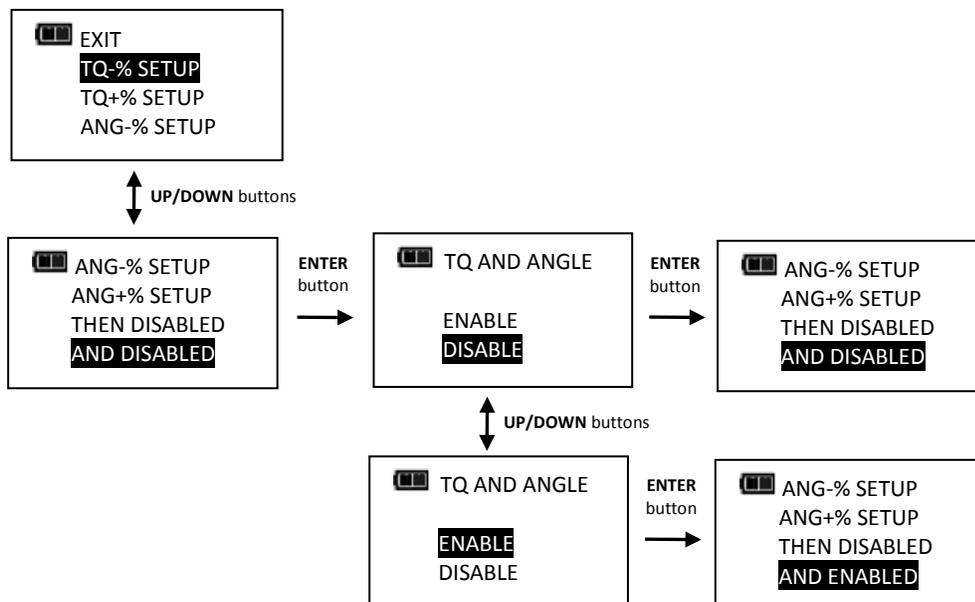
*Note: Red progress lights turn on if torque exceeds 110% of wrench full scale or if angle exceeds target + plus tolerance while in manual mode.*

*Note: Torque THEN Angle Presets are entered by pressing and holding Units button while on Torque THEN Angle screen. MAXIMUM TORQUE defaults to full range plus 10%. Refer to "Adding a Torque Preset" and "Adding an Angle Preset" in Basic section for parameter entry.*

## Enable/Disable Torque AND Angle Mode

This function will allow user to enable or disable Torque AND Mode.

1. From Mode Setup menu, use **UP/DOWN** buttons to highlight **AND DISABLED** (factory default) selection then press **ENTER** button.
2. TQ AND ANGLE enable/disable screen is displayed.
3. Use **UP/DOWN** buttons to select ENABLE or DISABLE selection.
4. Press **ENTER** button to accept selection and exit to Mode Setup menu.

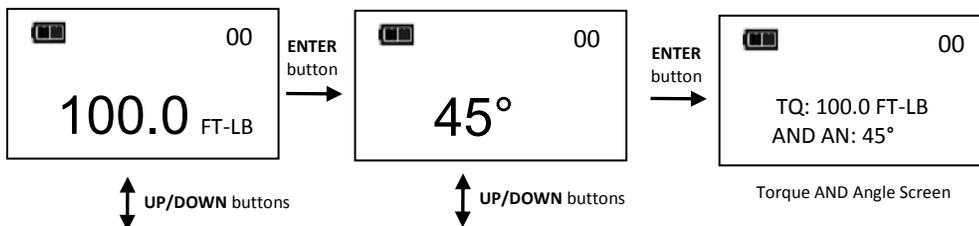


*Note: Menu selection indicates current configuration (ENABLED or DISABLED).*

## Torque AND Angle Mode

Torque AND Angle mode is setup by first setting a target torque and units then a target angle before selecting Torque AND Angle mode. In Torque AND Angle mode, torque and angle are measured simultaneously. Yellow progress lights track torque measurement. When both torque and angle reach their targets, green progress lights turn on and torque and angle data record is stored. If either of measurements exceed their upper tolerance, red progress lights turn on.

1. From target torque screen, use **UP/DOWN** buttons to set target torque and **UNITS** button to select torque measurement units then press **ENTER** button.
2. Angle target screen is displayed. Use **UP/DOWN** buttons to set target angle then press **ENTER** button until Torque AND Angle mode screen is displayed.
3. Apply torque and rotate wrench until both targets are reached.



*Note: **UNITS** button can be used to select torque units while on Torque AND Angle screen.*

*Note: Torque THEN Angle Presets are entered by pressing and holding Units button while on Torque THEN Angle screen. Refer to "Adding a Torque Preset" and "Adding an Angle Preset" in Basic section for parameter entry.*

*Note: Torque cycle is not recorded in memory unless both torque and angle reach targets.*

*Note: Red progress lights turn on if torque exceeds target + plus tolerance or if angle exceeds target + plus tolerance while in manual mode.*

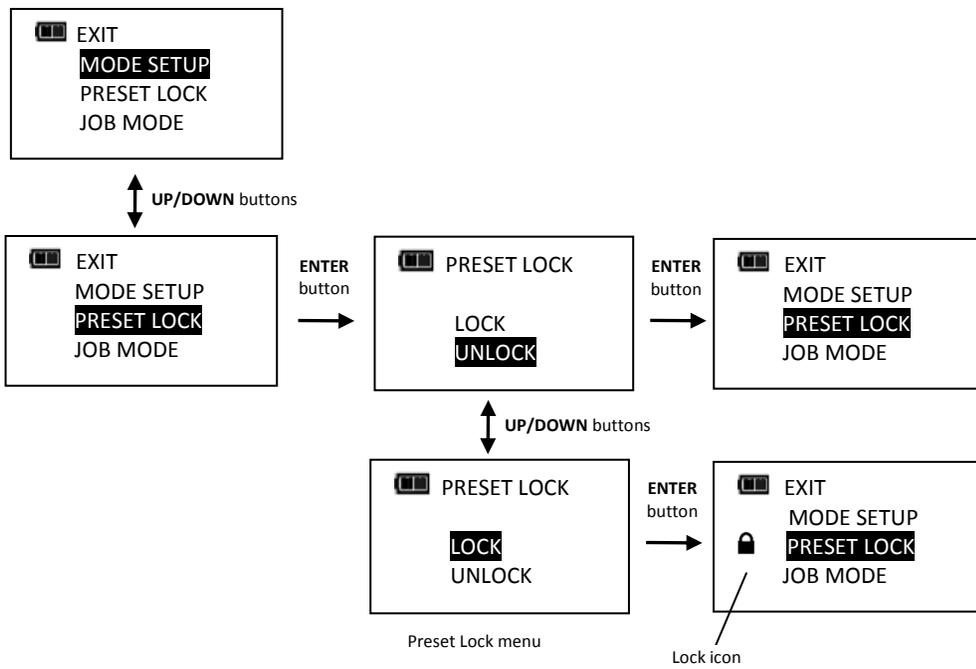
*Note: Red progress lights turn on if torque exceeds maximum torque or if angle exceeds maximum angle in Preset mode.*

## Preset Lock

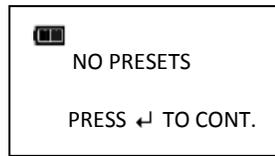
Preset Lock function allows user to lock wrench so that only configured presets are accessible. No other presets can be configured and manual target torque and angle modes are not accessible when locked.

*Note: When Preset Lock is enabled, password entry is required to re-enter Configure menu (Contact CDI Repair Center regarding Configure password).*

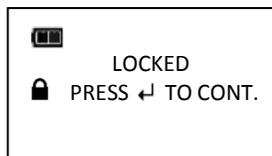
1. From Configure menu, use **UP/DOWN** buttons to highlight **PRESET LOCK** selection then press **ENTER** button.
2. Preset Lock enable/disable screen is displayed.
3. Use **UP/DOWN** buttons to select LOCK or UNLOCK selection.
4. Press **ENTER** button to accept selection and exit to Configure menu.



Note: If LOCK is selected without a Preset configured, following screen is displayed:



Note: When Preset Lock is enabled, Clear Memory function is disabled and displays following Locked message if attempted:

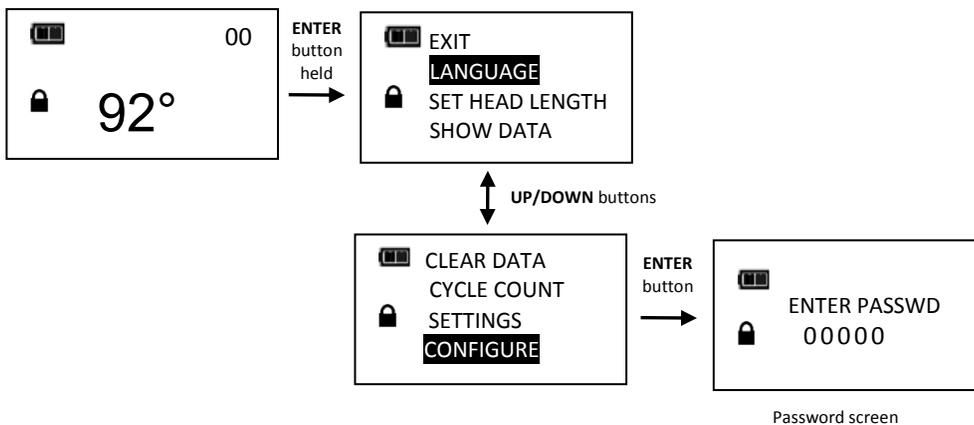


Note: When Preset Lock is enabled, Clear Cycle count function is disabled and displays Locked message if attempted.

### Preset Unlock

When Preset Lock is enabled, a password is required to access Configure menu. Refer to CompuTorq SG Calibration Manual for Configure password.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight **CONFIGURE** menu selection using **UP/DOWN** buttons.
3. Press **ENTER** button to display Password screen.
4. Follow password entry procedure found in CompuTorq SG Calibration manual.

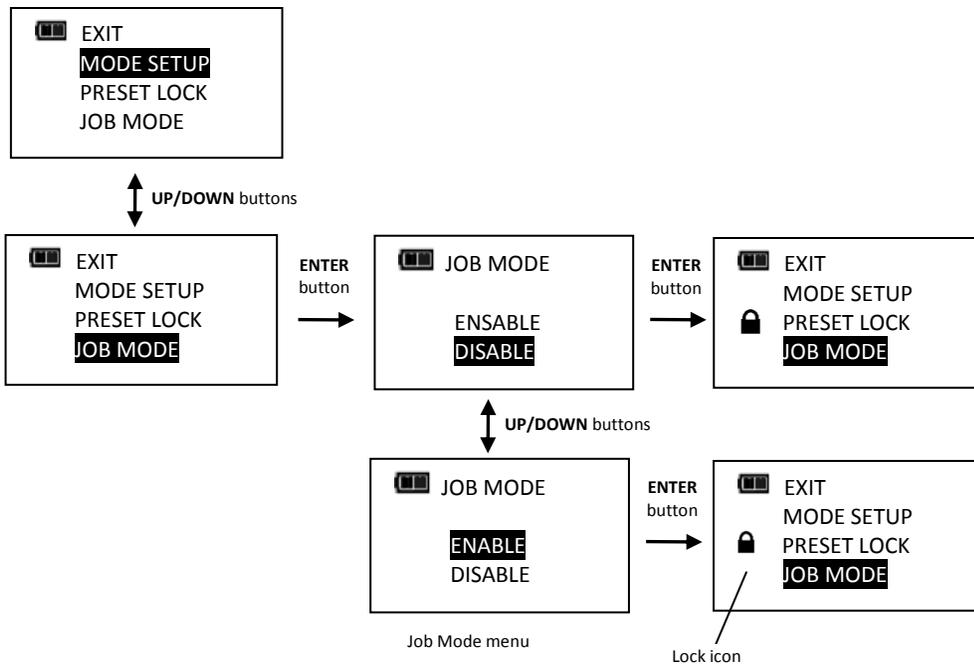


### Job Mode

Job Mode function allows user to enable or disable wrench preset Job mode. When in Job mode, wrench executes presets in order configured and automatically switches to next preset when batch count reaches zero. When in Job mode wrench is locked and Preset lock icon is displayed.

Note: When Job mode is enabled, password entry is required to re-enter Configure menu (Refer to Computorq SG Calibration Manual for Configure password).

1. From Configure menu, use **UP/DOWN** buttons to highlight **JOB MODE** selection then press **ENTER** button.
2. Job Mode enable/disable screen is displayed.
3. Use **UP/DOWN** buttons to select ENABLE or DISABLE.
4. Press **ENTER** button to accept selection and exit to Configure menu.



Note: Text "JOB" is displayed between PSET number and batch count when enabled.



## Calibration

Calibration menu is password protected. Contact CDI Repair Center regarding Calibration menu.



## Setting Date and Time

Set Date/Time function allows user to set real-time-clock date and time for time stamping data records, recording last calibration date and notifying user of an expired calibration interval.

Note: When date and time is set for first time, In-Service date is also set and is used for calculating initial calibration interval (see "Setting Calibration Interval" in Advanced Configuration section).

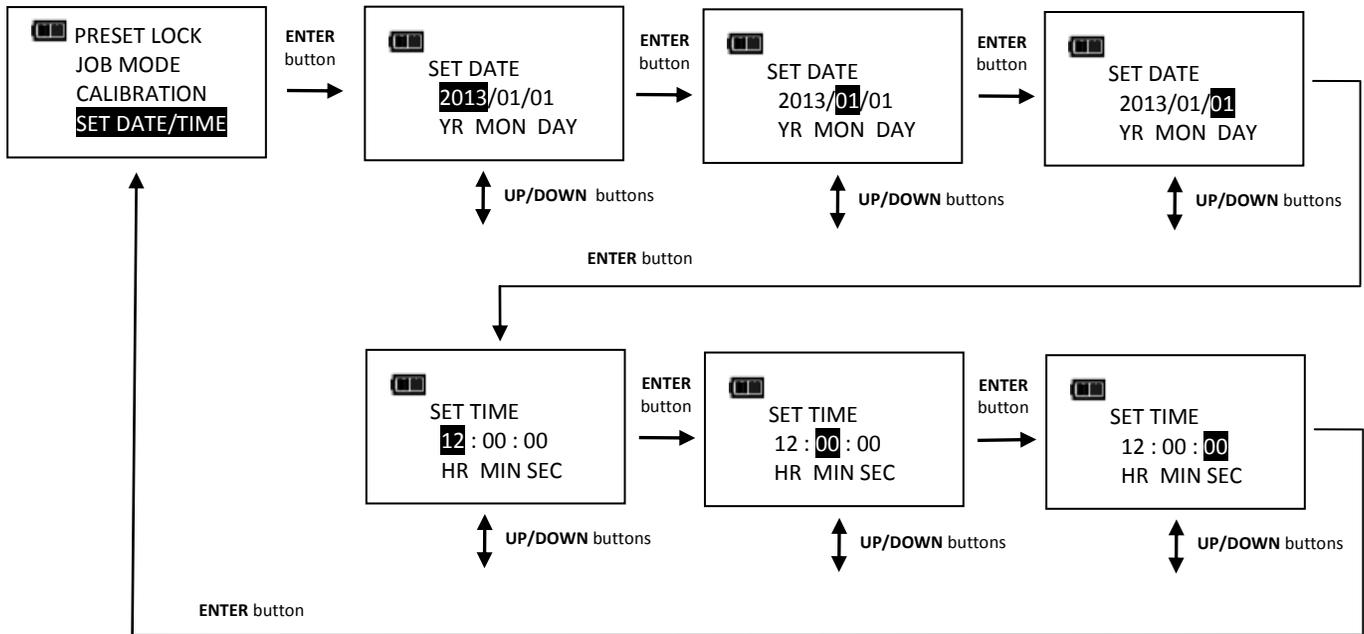
1. From Settings menu, use **UP/DOWN** buttons to highlight **SET DATE/TIME** selection then press **ENTER** button.
2. SET DATE screen is displayed with year highlighted.
3. Use **UP/DOWN** buttons to set year then press **ENTER** button to highlight month.
4. Use **UP/DOWN** buttons to set month then press **ENTER** button to highlight day.
5. Use **UP/DOWN** buttons to set day then press **ENTER** button.
6. SET TIME screen is displayed with hour highlighted.

7. Use **UP/DOWN** buttons to set hour then press **ENTER** button to highlight minutes.
8. Use **UP/DOWN** buttons to set minutes then press **ENTER** button to highlight seconds.
9. Use **UP/DOWN** buttons to set seconds then press **ENTER** button.
10. Clock is set and Configure menu is displayed.

*Note: Year selection will scroll up from 2013. Month selection will scroll from 1 to 12. Day selection will scroll from 1 to 31.*

*Note: Hour selection will scroll through 0 to 23. Minute and Second selections will scroll through 0 to 59.*

*Note: If batteries are removed from wrench for longer than 20 minutes, clock will revert to default settings and must be re-entered at power on.*



### Setting Calibration Interval

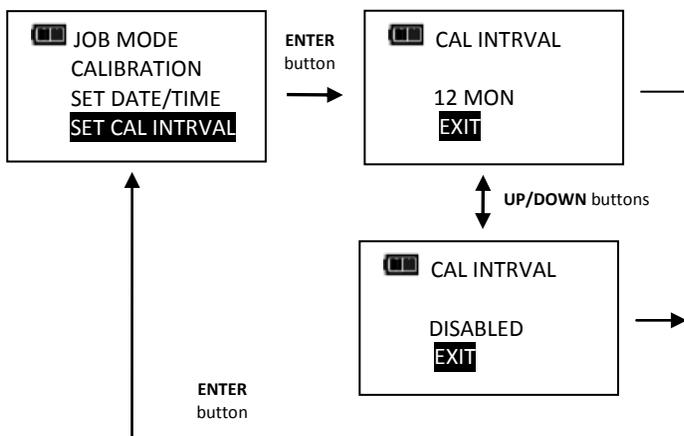
This function will allow user to set calibration interval for when "CAL NEEDED" message will be displayed.

1. From Settings menu, use **UP/DOWN** buttons to highlight **SET CAL INTRVAL** selection then press **ENTER** button.
2. CAL INTERVAL screen is displayed.
3. Use **UP/DOWN** buttons to change calibration interval.

Selectable Intervals:

- 12 MON (factory default)
- 6 MON
- 3 MON
- DISABLED

4. Press **ENTER** button to accept selection and exit to Configure menu.



*Note: Clock Date and Time must be set before calibration interval will function. If batteries are removed from wrench for longer than 20 minutes, clock will revert to default settings and must be re-entered at power on.*

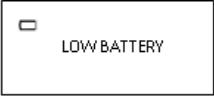
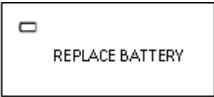
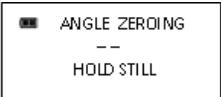
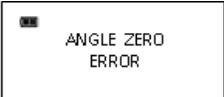
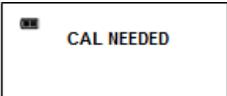
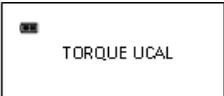
*Note: Calibration interval is calculated from either IN-Service Date or last Calibration date (see SHOW INFO menu) depending on which is more recent date. When clock Date is greater than IN-Service or Last Calibration date, plus Cal Interval, "CAL NEEDED" message will be displayed on power up and after a re-zero. Pressing **ENTER** button will continue to target menu. Applying torque while "CAL NEEDED" message is displayed will immediately display torque or angle measurement and return to target menu when released.*

*Note: As an alternative to calibration interval, a Calibration Cycle Counter is provided in Calibration menu (Contact CDI Repair Center regarding Calibration menu) Each time a measurement cycle reaches target torque, calibration cycle counter is incremented. When torque is recalibrated, calibration counter is automatically reset to zero. User can disable calibration interval check and use number of cycles since last calibration to decide when to recalibrate.*

*Note: If an invalid date is entered and Calibration interval is enabled, an unintended "CAL NEEDED" message may be displayed. Either disable the calibration interval or enter a correct date.*

## • Troubleshooting

*Note: If any of following issues persist, return wrench to CDI repair center.*

| Issue   | Possible Cause  | Resolution  |
|---|---|---|
| Wrench does not turn on when POWER button pressed.                                  | Dead/No batteries   | Replace batteries   |
|   | Software glitch   | Cycle power using end-cap   |
| Torque reading out of spec.   | Calibration required  | Recalibrate   |
|   | Incorrect head length entered   | Enter correct offset head length  |
| Wrench did not retain settings while batteries were removed.                        | Batteries removed before setting were saved in non-volatile memory.                     | Clear data, re-enter settings and press and hold POWER button to power down wrench before removing batteries. |
|    | Low battery   | Press ENTER button to continue using wrench and replace batteries soon.                                       |
|   | Dead battery  | Press POWER button to turn off wrench and replace batteries.  |
|  | Torque applied while zeroing  | Remove torque and re-zero   |
|   | Wrench over torqued   | Recalibrate   |
|   | Wrench improperly calibrated  | Recalibrate   |
|   | Torque sensor failure   | Return to Factory   |
|  | Wrench moving during zeroing  | Place wrench on stable surface  |
|   | Gyro unstable   | Return to Factory   |
|  | ENTER button pressed during angle zeroing (Aborted zeroing to access menus)             | Press POWER button to re-zero   |
|  | Over 125% of full scale torque applied  | Cycle power using POWER button and recalibrate  |
|  | Wrench rotated too fast during angle measurement  | Press POWER button to re-zero   |
|  | Calibration interval exceeded or invalid date entered with calibration interval enabled | Calibrate wrench or press ENTER to continue. Disable calibration interval if not required.                    |
|  | Memory error  | Clear data memory   |
|  | Torque uncalibrated   | Calibrate torque  |
|  | Angle uncalibrated  | Calibrate angle   |

- **USE OF ADAPTORS, EXTENSIONS AND UNIVERSALS**

Anytime an adaptor, extension or universal is used with a torque wrench in such a way that fastener distance is different than torque wrench square drive distance at calibration, an adjustment to head length is required to get a proper fastener torque reading.

When using wobble extension or a universal, do not exceed more than 15 degrees of offset from perpendicular drive. Do not use a long extension with flex-drive at full flex.

- **CALIBRATION**

**Contact your CDI sales representative for calibration services or refer to CompuTorq SG Calibration Manual.**

- **CERTIFICATION**

This torque-angle wrench was calibrated at factory using angular displacement and torque measurement instruments that are traceable to National Institute of Standards and Technology (N.I.S.T.). Torque parameters comply with ISO 6789-2003 and ASME B107-28-2010. Note: no U.S. or International Standards exist for angle wrenches.

|   |
|---|
| <b>IMPORTANT!</b> Calibration events are recorded in wrench memory which provides evidence to void factory certification. |
|---|

- **MAINTENANCE / SERVICE**

Clean wrench by wiping with a damp cloth. DO NOT use solvents, thinners or carburetor cleaners. DO NOT immerse in anything. Service and repairs are to be done by CDI Service Center only. Contact your CDI Torque Products representative. Ratchet head repair kits can be ordered from a CDI Representative.

NOTES: - If display shows persistent "**TORQUE ZERO ERROR**" at power on, wrench is damaged and must be returned for repair  
- If display shows "**ANGLE ERROR**" in angle mode, fastener rotation speed has exceeded capacity of wrench.  
- Wrench must be held still during angle zeroing. Motion is indicated by alternating dashes "- -" on display  
- Remove battery when stored for extended periods (Note: clock will revert to default settings).

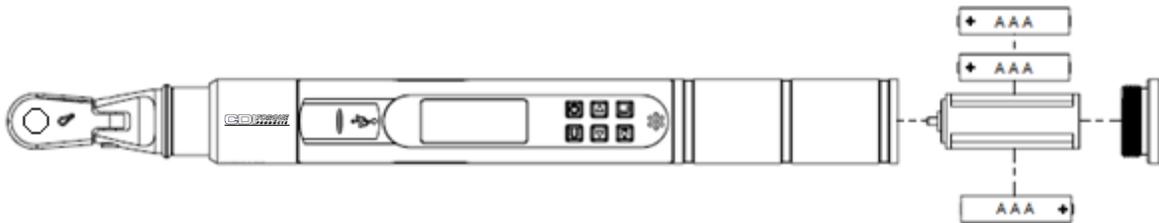
- Battery Replacement

Note: When replacing batteries, real-time-clock will maintain date and time for 20 minutes.

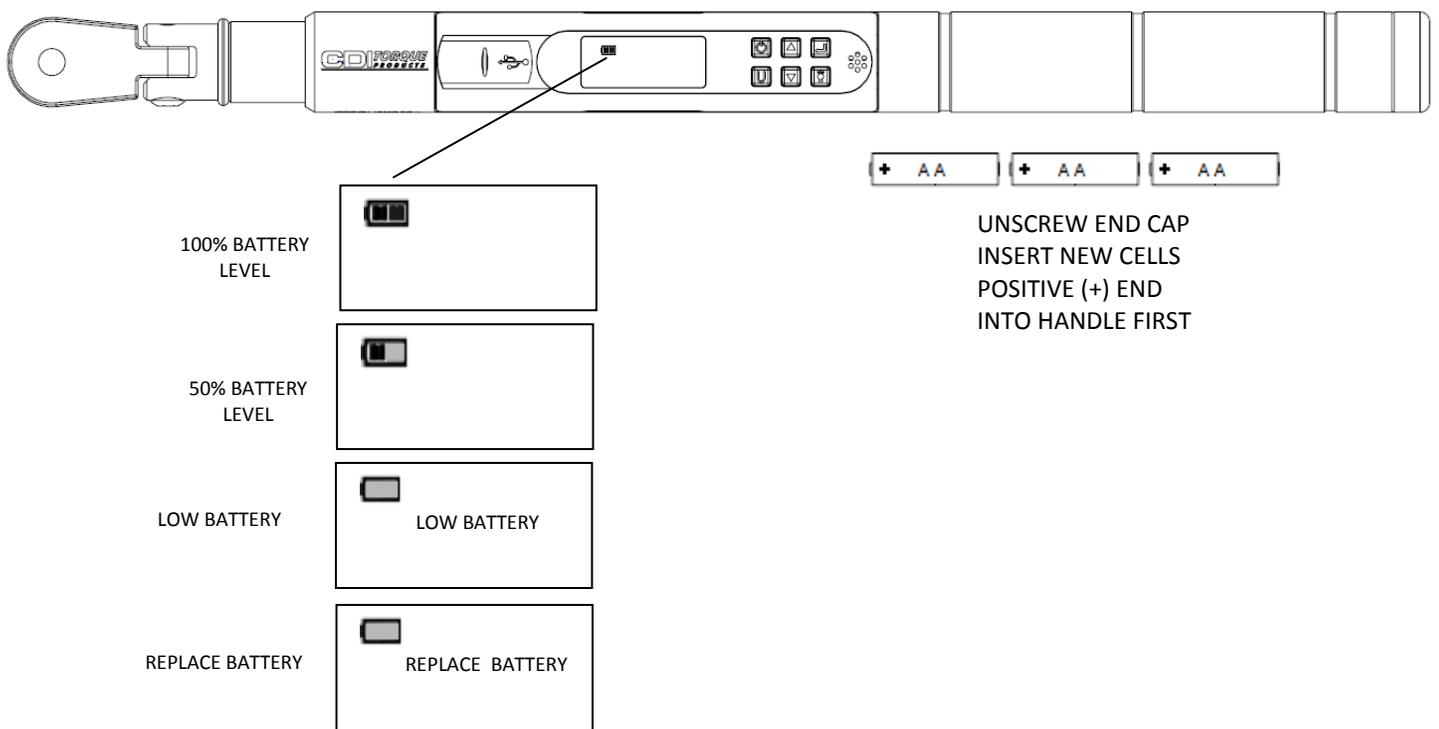
Note: Turn End Cap counter-clockwise to unscrew.

**Replace 240 models with three Lithium "AAA" cells only.**

Batteries should be installed in carrier prior to carrier installation into wrench.  
 Battery negative contacts should be oriented with carrier springs.



**Replace all other models with three Lithium "AA" cells only.**



Note: When Replace Battery screen is displayed wrench will no longer operate until batteries are replaced. Only **POWER** button functions which immediately turns off wrench.

- Memory Indicators

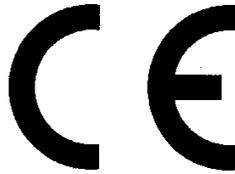
|                |  |  |
|----------------|--|--|
| DATA IN MEMORY |  | Less than 1500 torque and angle records stored in memory.  |
| MEMORY FULL    |  | 1500 torque or angle records stored in memory. New records will not be recorded until memory is cleared. |
| MEMORY ERROR   |  | Memory read or write error. Return to Factory if occurs.   |

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**Specialty Tools**

19220 San Jose Avenue  
 City of Industry, CA 91748  
 Toll Free: (800) 284.4460  
 Phone: (626) 965.0668  
 Fax: (626) 810.2759

**EC Declaration of Conformity**

Manufacturer:  
 Snap-On Specialty Tools  
 19220 San Jose Ave.  
 City of Industry, CA 91748  
 USA

Herewith declare that the Products: Electronic Torque Wrench.  
 Series: COMPUTORQ SG Series.  
 Models: 2401CASG, 1002CASG, 2503CASG, 6004CASG.

These products are in conformity with the provisions of the following EC directives when installed in accordance with the installation instructions contained in the product documentation.

- 2009/19/EC - EMC Directive
- 2011/65/EU - Restriction of certain hazardous substances (RoHS).
- 2012/19/EU - Waste electrical and electronic equipment (WEEE).

And that the standards referenced below have been applied:

- EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
- EN 55011:2009 Industrial, scientific and medical equipment. Radio-frequency disturbance characteristics. Limits and methods of measurement. Radiated Emissions.
- EN 61000-4-2:2008-12 Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test.
- EN 61000-4-3; Ed. 3-2:2010-04 Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test
- EN 61000-4-8; 2009-09 Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test

Year of CE marking: 2014

Company Authorized to Compile the Technical File:  
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Director, Engineering: Nathan Lee  
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 City of Industry CA, 91748  
 June 2014



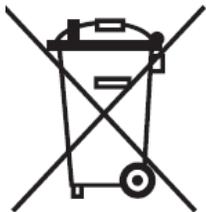


A **Snap-on** Company

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