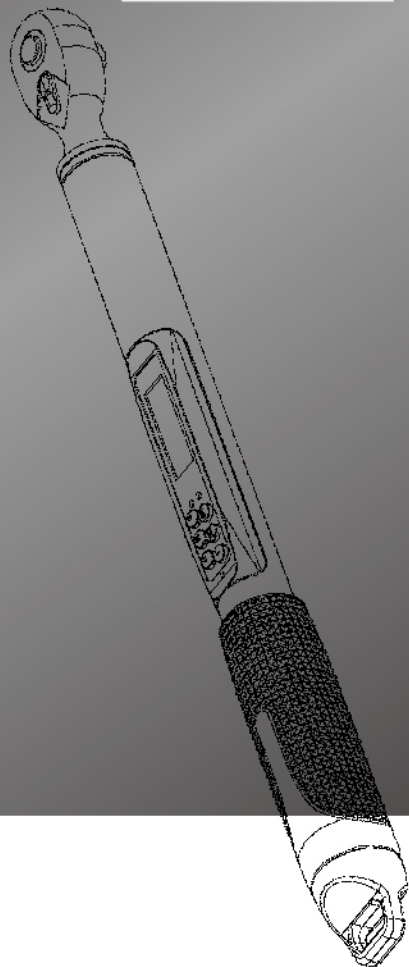


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***Digital Angle  
Torque Wrench  
Series***  
*User Guide*

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***Digital Angle Torque  
Wrench Series***

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## Dear customer :

We appreciate your support purchasing our product –digital torque wrench. In order to learn the advantages of the product well, please kindly read the instruction carefully before you adjusting to any settings. Also please keep this manual for your reference in the future.

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## 1. Product overview

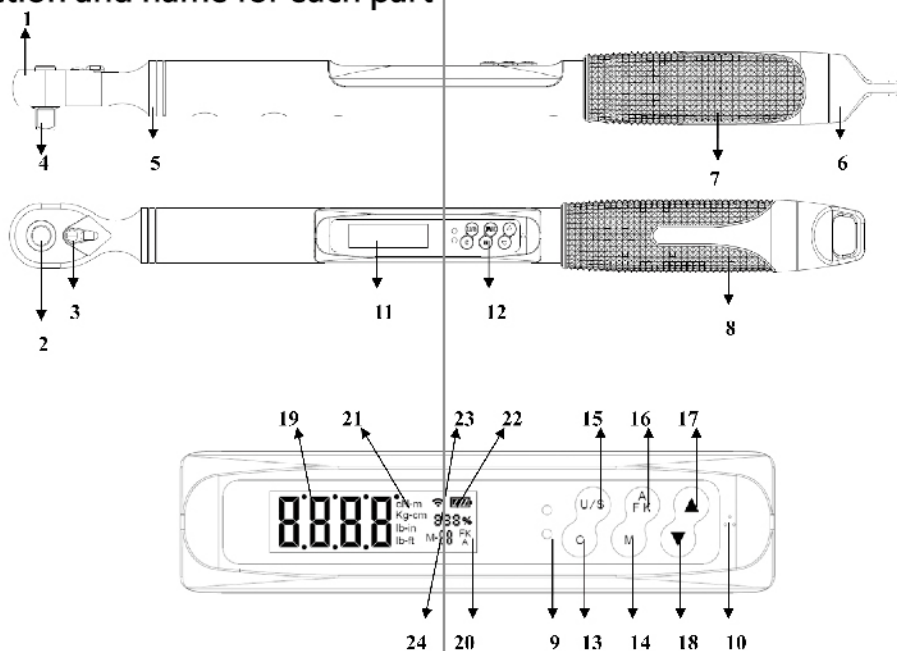
As a result of torque measurement and calibration requires strict certification, torque instruments must possess good temperature, precision, and resolution capabilities, and must also have the ability to correct for disturbances (ESD and EMI). And while the characteristics of peripheral components must meet specification requirements, measurement chip specifications must also meet requirements. Because of this, the simplification of peripheral passive elements can enable an instrument to accurately measure torque values, which will not only save cost, but also improve maintenance and assembly quality, and lessen the chance of damage to the used objects.

## 2. Product features

Simple multifunctional operation, vibration resistance, can preset torque value, unit switching, mode switching, memory & storage, digital up & down increments, power-saving mode, LED flashing & audible alarm, etc..

- 2.1 Digital torque and angle degree value display.
- 2.2 LCD backlight display.
- 2.3 Can be used in both clockwise and counterclockwise directions.  
Accuracy:  
CW $\pm$ 1.5% (clockwise)  
CCW $\pm$ 2.5% (counterclockwise)  
Accuracy:  $\pm$ 2°Angle
- 2.4 Can store 30 memory values.
- 2.5 Power saving mode (enters power-saving mode after 2 minutes).
- 2.6 Have buzzer and LED flashing indicators.
- 2.7 Low voltage detector (reminds user of battery life).
- 2.8 Four kinds of torque units, options include: N-m, Kg-cm, lb-ft, lb-in.
- 2.9 Can use a common or rechargeable battery.

## Function and name for each part



- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| 1.Reversible ratchet                  | 13.Power / clear button           |
| 2.Quick release button                | 14.Memory select button           |
| 3.Forward and reverse selection lever | 15.Unit selection button          |
| 4.Square head ratchet torque          | 16.Mode selection                 |
| 5.Decoration Ring                     | 17.Up button                      |
| 6.Battery cover                       | 18.Down button                    |
| 7.Handle                              | 19.Torque value display           |
| 8.Non-slip of the handle              | 20.F/K/A (Follow/Peak Angle Mode) |
| 9.LED indicator                       | 21.Unit display                   |
| 10.Buzzer                             | 22.Battery display                |
| 11.LCD display monitor                | 23.Percentage display             |
| 12.Button                             | 24.Memory group number display    |

### 3. Technical specifications

Precision	CW±1.5% (clockwise) CCW±2.5% (counterclockwise)
Accuracy	+/- 2°
Maximum angle measure	720°
Memory capacity	30 data sets
LED	2 LED(1 GREEN + 1 RED )
Vibration warning	Yes (if torque achieves a setting value of 90 %, the vibration warning will begin)
Operating modes	Peak hold(K) / Track(F) / Angle(A)
Units	N·m 、 Kg·cm 、 lb·ft 、 lb·in
Battery life	Standby mode:1 year Continuous operation:110 hours
Operating temperature/ storage temperature	-10 ~ 60°C / -20°C ~ 70°C
Humidity	Up to 90% non-condensing.
Drop test	1 meter
Shaking test	10 G
Service life test	10000 times
Environment test	Pass
EMC test	Pass

Notes1 : According to ISO6789 2003, a specified measuring range from 20% to 100% of the maximum torque value of the respective tool.

Notes2 : Accuracy of Angle : 1° for 90° rotation @ 45°/sec

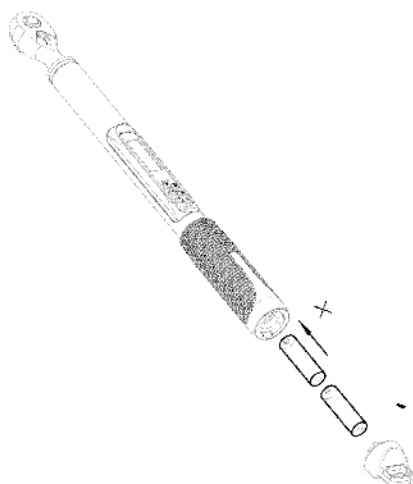
### 4. Before using the wrench

#### 4.1 Battery installation

4.1.1 Open battery cover.

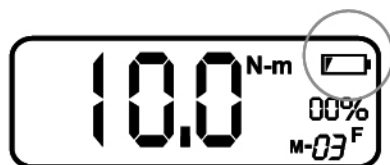
4.1.2 Insert battery, make sure polarity is correct.

4.1.3 Replace the battery cover.



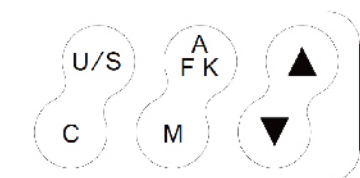
#### 4.2 Low voltage notification

It will display a low battery symbol in the upper right corner of the LCD display when the battery voltage drops below 2.3 volts, and it will shut off after several seconds.



## 5. Product functions

The six keys and their symbols are as follows :



### Name of keystroke    Function of keystroke

**C key**                      Power and clear

**U/S key**                    Unit selection

**M key**                      Memory selection

**F/K/A key**                Mode selection

**▲ (UP) key**              Increases number

**▼ (DOWN) key**        Decreases number

#### 5.1 Power and Clear

Press the C key to turn on the instrument. After the backlit LCD flashes, the display will be show 0000, and then enter the operating mode. When this product is used for the first time, it will display the product's smallest operating value after entering the operating mode. The units are preset as N-m, the memory will display the first set, the mode will be tracking mode F, the percentage position will display 0%, and the battery scale will show the voltage detected at that time (all 30 memory data sets will have the same preset value).

**Turn Off** : Press C key and hold 3 seconds to switch off.

**Clear** : Press C key to reset (when device turned on)

#### 5.2 Unit switching

This product provides international standard metric units of N-m, metric units of Kg-cm, and British units of lb-in and lb-ft. The units will change each time the U/S key is pressed, in the order of N-m, Kg-cm, lb-in, and lb-ft; the preset units are N-m.

#### Torque unit conversion table :

	lb-in	lb-ft	N-m	Kg-cm
1 lb-in	1	0.083	0.113	1.152
1 lb-ft	12	1	1.356	13.83
1 N-m	8.851	0.737	1	10.2
1 Kg-cm	0.868	0.072	0.098	1

#### 5.3 Memory function

All memory data sets are preset as the smallest value. To set a memory value, press the M KEY, and the digit on the far right of the M-01 display will begin to flash; use ▲ (up) or ▼ (down) to select the memory data set (up and down keys can be held down for continuous increase or decrease. Press the M Key after selected, will leave the select mode to stop flash.

#### 5.4 Tracking mode F / peak mode K / Angle mode A

**Tracking mode:** (preset as tracking mode at time of first use)

After setting a value (assuming the value is 50N-m), the force applied by the wrench will gradually increase from 0000. When force is applied, the displayed value will change as the user applies different amounts of force; the reading will increase as force increases, and decrease as force decreases. The reading will jump to 50 N-m when the user relaxes his grip and lets up.

**Peak mode:**

After setting a value (assuming the value is 50N-m), the force applied by the wrench will gradually increase from 0000. When force is applied, the displayed value will change as the user applies different amounts of force; the reading is the final torque value. After the display flashes 10 sec. (no actions or buttons will be effective at this time), it will automatic back to the original setting data or press the C key to return to the selected value, or apply force again and the measured torque value will rise from 0000.

**Angle mode :**

After setting a degree (assuming is 50°), the force applied by the wrench will gradually increase from 0°. When force is applied, the displayed degree will change as the user applies different amounts of force. It will cross-display the final degree and torque value when user stops force the wrench, 10 seconds flashing (no actions or buttons will be effective at this time), it will automatic back to the original setting data or press the C key to return to the selected value, or apply force again and the measured angle degree will rise from 0°.

#### 5.5 Measurement range selection

Values can be freely selected as long as force is not being measured or memory selection has not been performed. After completing torque measurement in either mode, the selected value can be displayed.

#### 5.6 ▲(UP) / ▼(DOWN) selection

Pressing the ▲ (up) key once will cause the value on the far right to increase by one; pressing the key continuously will cause the value to increase continuously. Pressing the ▼ (down) key once will cause the value on the far right to decrease by one.

#### 5.7 LED & Buzzers

The green LED will come on and there will be a beep each time a key is pressed. In the tracking mode, the two LEDs will be green and red. For example: when the set torque value is 20N-m, the reading will begin to change from 0000 as soon as the user begins to apply force. It approach the preset value 80% , the green light will now begin to flash and the buzzer will be heard. As the applied torque approaches the preset value, the green light will flash faster, and the buzzer will buzz faster. When the applied torque reaches the preset value 100%, the green light will remain on and the buzzer will continue to sound. When the torque exceeds the preset value (101%), the red light will come on, and the buzzer will continue to sound; the buzzer sound will decrease gradually as force is relaxed. The peak mode is the same as the tracking mode, but the LED and buzzer will stop once force is relaxed.

In the angle mode, the two LEDs will be green and red. For example: when the set angle degree is 20°,



the reading will begin to change from 0° as soon as the user begins to apply force. It approach the preset value 80% , the green light will now begin to flash and the buzzer will be heard. As the applied torque approaches the preset value, the green light will flash faster, and the buzzer will buzz faster. When the applied reach the preset degree 100%, the green light will remain on and the buzzer will continue to sound. When it exceeds the preset degree (101%), the red light will come on, and the buzzer will continue to sound; the buzzer sound will decrease gradually as force is relaxed.

### 5.8 Vibration warning

For example : when if the set torque value is 20N-m, the reading will begin to change from 0000, it will start to vibrate once the torque value reached to 90%, and it will stop when the force is relaxed lower than 90% of preset value.

Vibration operation will automatically stop under angle mode.

### 5.9 LCD percentage display

The ordinary display is 0%

In tracking mode, if the set torque value is 20N-m, the display will show 50% after force increases from 0N-m to 25N-m, and so on. The torque value will decrease after force has been relaxed, and the display will return to the torque setting value after force has completely relaxed. The peak mode is the same as the tracking mode, but the displayed value will be the percentage of the final torque after force is no longer applied, the Maximum is 100%.

In angle mode, if the set degree is 50°, the display will show 50% after force increases from 0° to 25°, and so on. The displayed value will be the percentage of the final degree after force is no longer applied, the Maximum is 100%.

### 5.10 Low voltage display

The LCD battery display has four increments. Greater or equal to 3V is shown as completely charged; less than 2.8V is shown as 3 increments, less than 2.6V is shown as 2 increments, and less than 2.4V is shown as one increment; when there is less than 2.3V, all functions will cease, and the instrument will turn off after the LCD battery indicator flashes for 5 sec.

### 5.11 Reset memory function

Press and hold the C key + ▼ (down) key; after 5 sec., all values stored in memory reset to the preset factory values.



### 5.12 Backlight switch

Press the C key + ▲ (up) key to turn the backlight on or off; the backlight is preset as on.



### 5.13 Reset

In order to make accurate data, press C key each time before using the device. On state is prohibited to press C key to avoid get the error initial value.

### 5.14 Power saving mode

Enter power-saving mode after 2 minutes without using the device, press C key to wake up.

### 5.15 Overload Warning

Switch on or reset when screen continued to appear 110%, it means the device have been forced exceeds the maximum standard torque value 110%, may result in the products' damage or accuracy error.