

Part No. 8881

# LASER<sup>®</sup>

## Magnetic Digital Angle Meter

angle measurement 1-360°

### Instructions



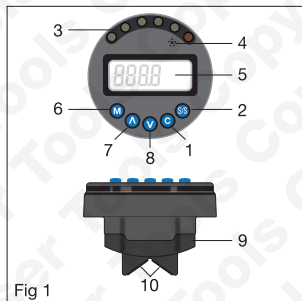
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## Introduction

A digital magnetic angle gauge, for application of torque angle to a fastener once the applied torque value has been reached. It measures 1-360° with  $\pm 2\%$  accuracy, and can be fixed to standard and insulated torque wrenches, ratchets and power bars. Particularly useful for use on high-voltage applications. Before operating the meter, please read these instructions completely, and keep them nearby for future reference.

- Digital angle value readout.
- $\pm 2^\circ$  (rotating  $90^\circ$  at speed of  $30^\circ/\text{sec}$ ).
- CW and CCW operation.
- Buzzer and LED indicator for the 9 pre-settable target angles.
- 50 data memory for recall and angle auditing.
- Auto power-off after approximately 2 minutes idle.
- AAA 1.5V regular and rechargeable batteries are compatible.

## Controls



Ref.	Description
1	POWER-ON (reset) button
2	Start/Setting button
3	LED indicator panel
4	Buzzer
5	LCD Display
6	Pre-set angle selection button
7	UP button
8	DOWN button
9	Battery compartment cover
10	Magnet mount

## Instructions

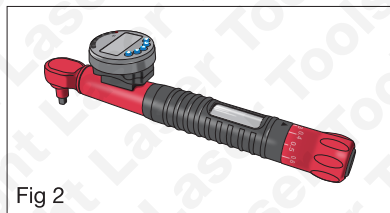
### Battery Installation:

Refer to Figure 1: Remove the four screws securing the battery compartment cover (9) to gain access to the battery compartment. Insert two AAA batteries ensuring the battery polarity is as indicated at the rear of the battery compartment.

### Quick-Start Procedure:

- Switch the instrument ON by pressing the **C** power button (1 in Figure 1).
- When LCD display shows degrees, set desired angle by pressing UP or DOWN button (or select a pre-set angle with button **M**).
- Press **Start/Setting** button (2 in Figure 1) to start the angle measurement.
- Start rotation.
- LEDs indicate progress; stop when red LED flashes.
- Then press **M** to record angle, **C** to clear, or **S/S** to count from current angle.

### Operation:



Adjust torque wrench to specified torque setting.

Refer to Figure 2: place the 8881 instrument onto the torque wrench.

If the specified torque setting requires an addition angle of turn after the initial torque figure has been reached, then apply torque and tighten the fastener to this specified initial torque figure.

## Instructions

Switch the instrument ON by pressing the **C** power button (1 in Figure 1).

Initially the LCD screen will display **PoS**

This is direction of applied torque: **PoS** = clockwise; **nEG** = counter-clockwise. To change, long-press **S/S** (to enter the set-up menu), then UP or DOWN button to select the direction. After setting, press **S/S** repeatedly to come out of the set-up menu and return to target angle screen.



**Note: Do not move, vibrate or shake the instrument during this initial setting process — keep it still.**

Set desired angle by pressing UP or DOWN button (or select a pre-set angle with button **M**).

Press **Start/Setting** button (2 in Figure 1) to start the angle measurement. Start rotation.

LEDs indicate progress; first green LED lights up at 80% of target angle. Stop when red LED flashes (over 99.5% of target angle).

Buzzer sounds (beeping from 80% of target angle, continuous tone from 99.5%).

Then:

Press **C** to clear current angle.

Or press **S/S** to calculate angle again from current angle.

Or press **M** to record the current value and then clear the current angle.

**Auto power-off:** after approximately 2 minutes idle.

**Hardware Re-set:** If instrument appears to be malfunctioning, perform a hardware re-set:

- Use a pin to depress the re-set button accessed through the hole in the back of the instrument, or:
- Remove and reinstall batteries

## Instructions

### Set-up Menu:

From the current target angle screen, long-press **S/S** to enter the **set-up menu**.

You can now access the **direction** menu, the **record** menu and the **record/clear-all** menu.

**Direction:** This is direction of applied torque: **PoS** = clockwise; **nEG** = counter-clockwise. To change, long-press **S/S** (to enter the set-up menu), then UP or DOWN button to select the direction. After setting, press **S/S** repeatedly to come out of the set-up menu and return to target angle screen.

**View angle record:** From the current target angle screen, long-press **S/S** to enter the **set-up menu**. When in the **direction** menu, press **S/S** again to enter the **record** menu: use **UP** or **DOWN** buttons to access records, number **n001**, **n002**, etc. Selected record will alternate between (for example) **n001 / 45°**, **n002 / 90°**, etc. (If there are no recorded records, **nonE** will display.) To clear a single record, press the UP or DOWN buttons to select the record number you wish to delete, then press **C** twice (**dEL** will be displayed). To exit the set-up menu, press **S/S** repeatedly to come out of the set-up menu and return to target angle screen.

**To clear all records:** Enter the **record/clear-all** menu; press **C** twice to delete all record data (**dEL** will be displayed). If you press **C** once, **no?** will be displayed. Thus, if you wish to abandon, press **S/S** repeatedly to come out of the set-up menu and return to target angle screen.

### Error Messages:

**Low Battery:** If the battery voltage is too low, a battery symbol will be displayed on the LCD screen. Replace the batteries.

**Er4:** This error message will be shown if the instrument does not re-set successfully. Press **C** to re-set again. **Note:** Do not move, vibrate or shake the instrument during this initial setting process — keep it still.

**Er5:** This error message will be shown if there is a malfunction. Refer to **Hardware Re-set** above.

**Er - :** If the instrument/torque wrench is rotated too quickly, this error message will be shown. Press **C** to re-set again.

## Specifications

Angle Accuracy *1:	$\pm 2^\circ$ for $90^\circ$ rotation @ $30^\circ/\text{sec}$
Display range:	0-999.0°
Resolution:	0.1°
Target memory:	9 sets
Target range:	1-360.0° (increment 1°)
Data memory size:	50
Bright LED:	6 LEDs (5 Green + 1 Red)
Battery *2:	1.5 V (AAA x 2)
Operating Temperature:	-10°C-60°C
Storage Temperature:	-20°C-70°C
Humidity:	Up to 90% non-condensing
Drop Test:	1 metre
Vibration Test *3:	10G
Environmental test *4:	Pass
Electromagnetic compatibility test *5:	Pass

\* See following notes:

1. The accuracy of the readout is guaranteed from  $0.0^\circ$  to  $360.0^\circ$  and the test speed is  $30^\circ/\text{sec}$ . For maintaining accuracy, calibrate the meter at regular intervals (1 year recommended).
2. Two AAA batteries are supplied.
3. Horizontal and vertical test.
4. Environmental test: dry heat; cold; damp heat; change of temperature; impact (shock); vibration and drop.
5. Electromagnetic compatibility test: electrostatic discharge immunity (ESD); radiation susceptibility (RS) and radiation emission (RE).

## Precautions



- The following instructions are for guidance only. For actual torque figures and settings, refer to OEM-derived data such as the vehicle manufacturer's data or Autodata.
- To ensure operator safety, use the instrument in accordance with these written instructions.
- Do not shake or drop the instrument. Avoid areas of severe vibration.
- Do not store or operate the instrument at high temperatures or in conditions of high humidity, dampness or condensation.
- The instrument is not waterproof. Do not let the instrument get wet, or use in damp or wet conditions.
- Keep the instrument clean and in good condition; do not use organic solvents (such as alcohol or paint thinners) to clean.
- Do not expose the instrument to dust, sand or grit.
- Do not press down on the LCD display panel.
- If the instrument is not to be used for a long period, remove the battery to avoid harmful leakage.
- Do not mix battery types or combine used batteries with new ones.
- Protect the instrument from electromagnetic fields and static electricity.
- Dispose of batteries according to local authority guidelines.
- No liability is accepted for incorrect use of this product — do not use the product for tasks it is not designed for. Use the product correctly and with care. Failure to do so may cause damage and/or personal injury and will invalidate the warranty.

Our products are designed to be used correctly and with care for the purpose for which they are intended. No liability is accepted by the Tool Connection for incorrect use of any of our products, and the Tool Connection cannot be held responsible for any damage to personnel, property or equipment when using the tools. Incorrect use will also invalidate the warranty.

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It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.



**Safety First. Be Protected.**

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8881\_Instructions\_V4



CE compliant: approved to  
EN 550011 : 2007 Group 1 Class A,  
EN 61000-6-2 : 2005.



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this tool please recycle it

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#### Guarantee

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