

EN

Dear Customers,

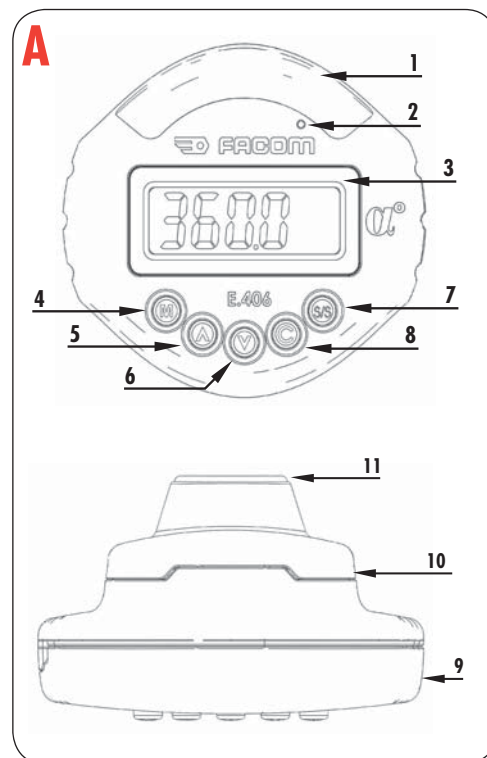
Thank you for purchasing our digital angle meter. This manual will help you to use the many features of your new digital angle meter. Before operating the digital angle meter, please read this manual completely, and keep it nearby for future reference.

**MAIN FEATURES**

- Digital angle value readout
- +/-2° accuracy (rotating 90° at speed of 30°/sec)
- CW and CCW operation
- Buzzer and LED indicator for the 9 pre-settable target torques
- 50 data memory for recall and joint torque auditing
- Auto Sleep after about 2 minutes idle
- Both AAA and rechargeable batteries are compatible

**NAMES AND FUNCTIONS OF PARTS**

- |                            |                          |
|----------------------------|--------------------------|
| 1. LED Indicator           | 7. Start/Setting button  |
| 2. Buzzer                  | 8. Power on/Reset button |
| 3. LCD Display             | 9. Communication Port    |
| 4. Pre-set angle selection | 10. Battery Compartment  |
| 5. Up button               | 11. Magnet               |
| 6. Down button             |                          |



**SPECIFICATIONS**

	E.406
Accuracy *1	±2° for 90° rotation @ 30°/sec
Display range	0 → 999,0°
Resolution	0,1°
Pre-setting No	9 sets
Range	1 → 360,0° (increment 1°)
Data memory size	BN : 50
PC Connectivity *2	No
Bright LED	6 LED / 1 Red+5 Green
Button	5
Battery	AAA x 2
Battery Life *3 (Continuous operation)	48 hrs.
Battery Life *3 (Standby)	1 Year
Operating Temperature	-10°C → 60°C
Storage Temperature	-20°C → 70°C
Humidity	Up to 90% non-condensing
Drop Test	1 m
Vibration Test *4	10 G
Environmental test *5	Pass
Electromagnetic compatibility test *6	Pass

Note:  
\*1: The accuracy of the readout is guaranteed from 0.0° to 360.0° and the test speed is 30°/sec. For maintaining accuracy, calibrate the meter at regular intervals (1 year recommended).

\*2: Use a special designed cable (accessory) to upload record data to PC.

\*3: Use two AAA batteries (Tested condition: Toshiba carbon-zinc R03UG battery)

\*4: Horizontal and vertical test

\*5: Environmental test:

- |                          |                   |
|--------------------------|-------------------|
| a. Dry heat              | e. Impact (shock) |
| b. Cold                  | f. Vibration      |
| c. Damp heat             | g. Drop           |
| d. Change of temperature |                   |

\*6: Electromagnetic compatibility test:

- |   |
|---|
| a. Electrostatic discharge immunity (ESD) |
| b. Radiated susceptibility                |
| c. Radiated emission                      |

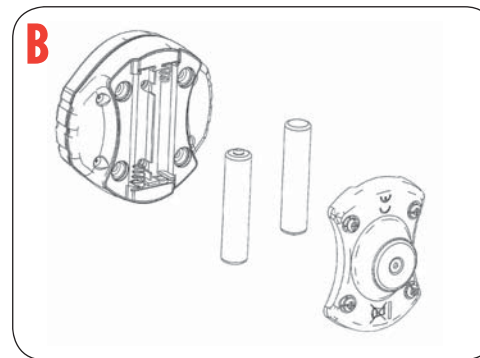
**BEFORE USING THE METER**

**BATTERY INSTALLATION**

- Remove the battery cover.
- Insert two AAA batteries matching the +/- polarities of the battery to the battery compartment.
- Put on the battery cap and rotate it tightly according to the following figures.

**POWER ON AND RESETTING THE METER**

- Press **C** to power on the meter.
- Usually press **C** to reset the meter before using it.



**FAST GETTED START**

- Press **C** to power on.
- Press **M** or **A** or **V** to set target angle.
- Press **S/S** to start the angle measurement.
- Start rotation.
- Rotation stop and the LCD will be flashing.
- Now press **M** to record angle or press **C** to clear or press **S/S** to count from current angle.



E.306



E.316

- |                                   |   |                                      |  |
|-----------------------------------|---|--------------------------------------|--|
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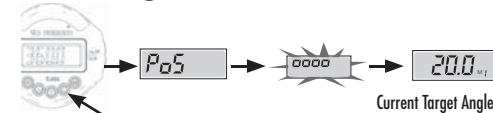
Instruction manual

E.406  
903592

NUen-E.406/0811

## POWER ON

- Gently press **C** to power on.



Press **C**

Note: First the direction sign **Pos** or **NEG** will show.

Then the LCD shows **0000**. It indicates the meter is under resetting process. Finally if the reset process is completed, the target angle will be shown. For example **20.0** is shown.

**Caution:**  
During resetting process, never vibrate or shake the meter. Keep it rest.

## AUTO POWER OFF

- The meter will auto power off after about 2 minutes idle for power saving.

**Caution:**  
During communication period (**SEND** appears), the auto power-off function is disabled.

## ZERO RESET

- Press **C** for zero reset

- Usually press **C** to zero reset the digital angle meter before using the meter. It will guarantee a better accuracy.

**Caution:**  
1. During resetting process, never vibrate or shake the meter. Keep it rest.  
2. If **Er4** shows. Refer to "ERROR MESSAGE" section.

## HARDWARE RESET

- To do hardware reset, use a pin to touch the reset button which is located in the hole of the meter back.
- Another way is remove battery and re-install it.
- If the meter does not work functionally, please do hardware reset.

## ERROR MESSAGE

**LOW VOLTAGE INDICATOR**  
If the battery voltage is too low, the meter will display a battery symbol and then turn off. Replace batteries.

**Er4** If the meter does not reset successfully for a period of time, **Er4** will be shown. Press **C** to do zero-reset again. Notice that during resetting process, never vibrate or shake the meter. Keep it rest.  
**Er5** shows that the meter does not work functionally, please do hardware reset. Refer to "HARDWARE RESET".

If the meter rotates too fast, **Er---** will be shown.

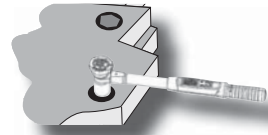
Do press **C** to zero reset the meter.

## OPERATION

### FAST-GETTED START

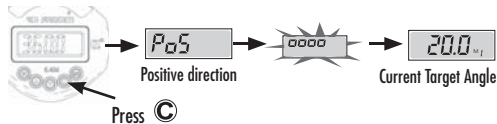
- Press **C** to power on.
- Press **M** or **A/V** to set target angle.
- Press **S/S** to start the angle measurement.
- Start rotation.
- Rotation stop and the LCD will be flashing.
- Now press **M** to record angle or press **C** to clear or press **S/S** to count from current angle.

### 1- PUT THE METER ON THE WRENCH



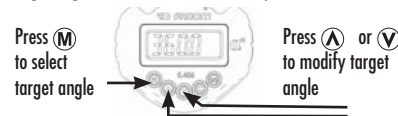
### 2- POWER ON THE METER AND RESET

- Press **C** to power on the meter or reset it.
- Finally the current target angle will be shown.
- Make sure the direction. If you want to change to direction, please refer to "CHANGE ANGLE DIRECTION".



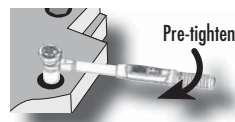
### 3- SET TARGET ANGLE

- Press **M** to select the pre-set target angle (**M1**→**M9**).
- Or press **A/V** to modify the current target angle. Note that the target angle will be saved automatically with the current **M** number.



### 4- PRE-TIGHTEN WRENCH

- Hold on your wrench to pre-tighten the screw. (eliminate the backlash of wrench)



### 5- START TO MEASURE ANGLE

- Press **S/S** to start the angle meter and immediately pull your wrench.



### 6- STOP AND WAIT FOR LCD FLASHING

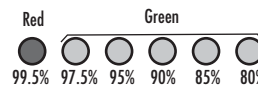
- As the angle meter does not move for a few second, the LCD screen will be flashing and the current angle is holding on screen.

It also means the meter stop calculating angle.



## Note

- There are 6 LEDs to indicate the current angle reaching 80%, 85%, 90%, 95%, 97.5% and 99.5% of target angle.



- There is also a buzzer to indicate the reaching level of target angle. Interval sound means it reaches over 80% and long sound means it reaches over 99.5% of target angle.

((..((..((.. (■) ..))..))..)) → over 80 %  
(((((((.. (■) ..))))))))) → over 99.5 %

### 7- CLEAR ANGLE VALUE or CALCULATING ANGLE AGAIN or SAVE ANGLE RECORD

- Pressing **C** will clear the current angle.



- Pressing **S/S** will calculate angle again from current angle.

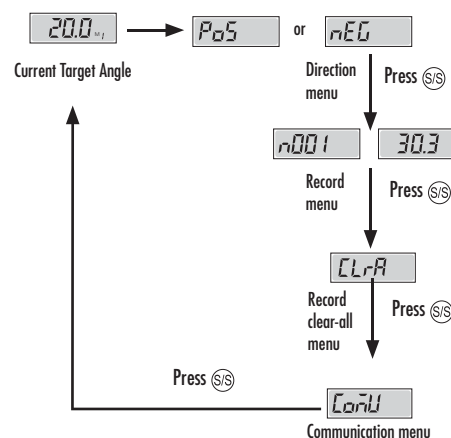


- Pressing **M** will record the current value and then clear the current value.



## SET UP MENU INTRODUCTION

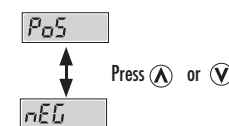
- From the current target angle screen, long press **S/S** to go into setup menu. Continuously press **S/S** can visit the direction menu, record menu, record clear-all menu and communication menu. Finally press **S/S** again to skip out the setup menu and go back to the current target angle screen.



## CHANGE ANGLE DIRECTION

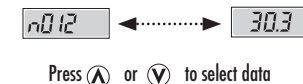
- Visit the **direction menu**, press **A/V** to select the direction. **Pos** (Positive) means clockwise direction and **NEG** (negative) is counter-clockwise direction.

- After setting the direction, continuously press **S/S** to skip out the setup menu and go back to the current target angle screen.



## VIEW ANGLE RECORD

- Visit the **record menu**, press **A/V** to select the data number and view it.



- If no record exists, **nonE** will be shown.

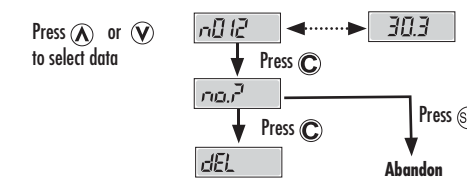
- Continuously pressing **S/S** will skip out the setup menu and go back to the current target angle screen.

## CLEAR A SINGLE RECORD

- Visit the **record menu**

- Press **A/V** to select the data number you want to delete.

- Press **C** twice to delete the current data. (**dEL** will be shown)

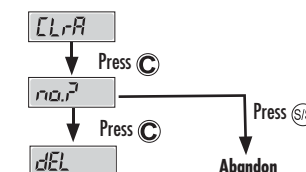


- If press **C** once, **n012** will be shown. If you want to abandon, just press **S/S** to skip out this menu.

- Continuously pressing **S/S** will skip out the setup menu and go back to the current target angle screen.

## CLEAR ALL RECORDS

- Visit the **record clean-all menu**
- Press **C** twice to delete the all record data. (**dEL** will be shown)



- If press **C** once, **n012** will be shown. If you want to abandon, just press **S/S** to skip out this menu.

- Continuously pressing **S/S** will skip out the setup menu and go back to the current target angle screen.

## MAINTENANCE AND STORAGE

**ATTENTION:**  
One-year periodic recalibration is necessary to maintain accuracy. Please contact your local dealer for calibrations.

### CAUTION:

- Do not shake violently or drop meter.
- Do not leave this meter in any place exposed to excessive heat, humidity, or direct sunlight.
- Do not use this apparatus in water. (it is not waterproof)
- If the meter gets wet, wipe it with a dry towel as soon as possible. The salt in seawater can be especially damaging.
- Do not use organic solvents, such as alcohol or paint thinner when cleaning the meter.
- Keep this meter away from magnets.
- Do not expose this meter to dust or sand as this could cause serious damage.
- Do not apply excessive force to the LCD panel.

### BATTERY MAINTENANCE

- When the meter is not going to be used for an extended period of time, remove the batteries.
- Keep a spare battery on hand when going on a long trip or to cold areas.
- Do not mix battery types or combine used batteries with new ones.
- Sweat, oil and water can prevent a battery's terminal from making electrical contact. To avoid this, wipe both terminals before loading a battery.
- Dispose of batteries in a designated disposal area. Do not throw batteries into a fire.