

OWNER'S MANUAL

Digital Angle Meter AM Series



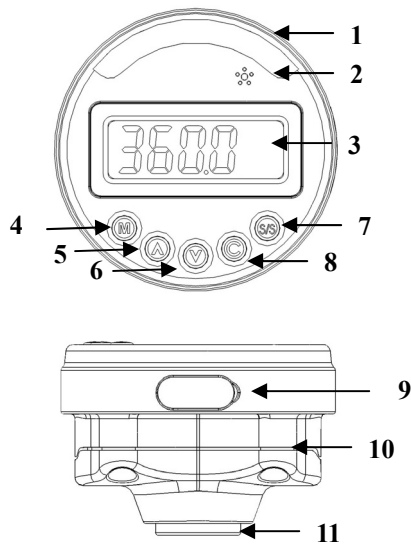
Dear User,

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

MAIN FEATURES

- Digital angle value readout
- +/- 2° (rotating 90° at speed of 30°/sec)
- CW and CCW operation
- Buzzer and LED indicator for the 9 pre-settable target angles
- 50 or 250 data memory for recall and angle auditing
- Auto power off after about 2 minutes idle
- AAA regular and rechargeable batteries are compatible

NAMES AND FUNCTIONS OF PARTS



1. LED indicator
2. Buzzer
3. LCD readout
4. Pre-set target angle selection button
5. Up button
6. Down button
7. Start/Setting button
8. Power on/Reset button
9. Communication port
10. Battery compartment
11. Magnet

SELECTION GUIDE

MODEL NO: AM-B

①
N
U

Example: AM-BN 、 AM-BU

① :

Communication	
N	No
U	Yes

SPECIFICATIONS

All Models		
Angle Accuracy *1	$\pm 2^\circ$ for 90° 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	BN	BU
	50	250
PC Connectivity *2	No	Yes
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	10G	
Environmental test *5	Pass	
Electromagnetic compatibility test *6	Pass	

*: See note on page 4

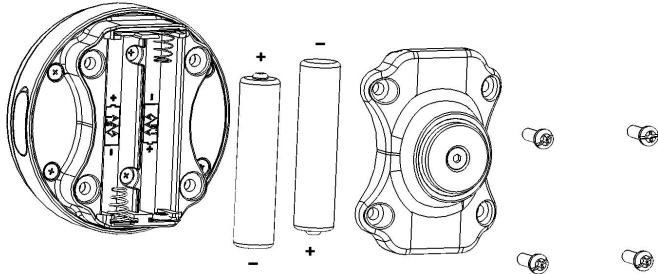
Note:

- *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
 - b. Cold
 - c. Damp heat
 - d. Change of temperature
 - e. Impact (shock)
 - f. Vibration
 - g. Drop
- *6: Electromagnetic compatibility test:
 - a. Electrostatic discharge immunity (ESD)
 - b. Radiation susceptibility
 - c. Radiation emission

BEFORE USING THE METER

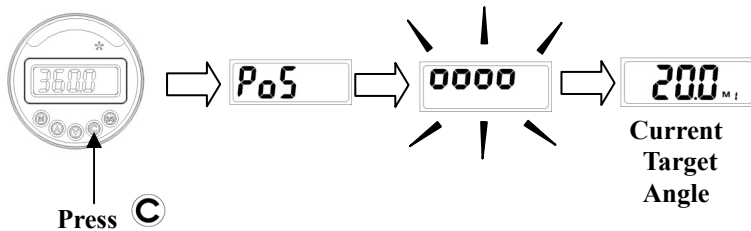
BATTERY INSTALLATION

- Loosen the screw of the battery cover.
- Insert two AAA batteries matching the -/+ polarities of the battery to the battery compartment.
- Fasten the screw of the battery cover.



POWER ON

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



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 **200 m** 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.

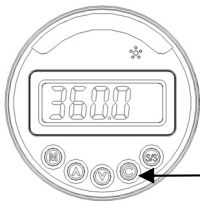


Caution:

During communication period (SEnd appears), the auto power-off function is disabled.

ZERO RESET

- Press **C** for zero reset.



Press **C**

- 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 rest, 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.



Low battery
indicator

Er4

If the meter does not reset successfully for a period of time, **Er4** will be shown. Press **Ⓢ** to do zero-reset again. Notice that during resetting process, never vibrate or shake the meter. Keep it rest.

Er5

Er5 shows that the meter does not work functionally, please do hardware reset. Refer to “**HARDWARE RESET**”.

Er--

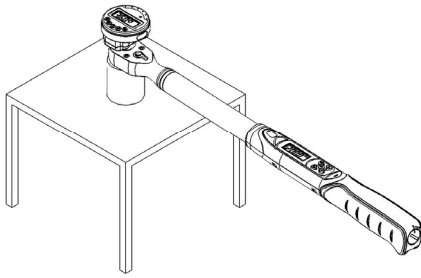
If the meter rotates too fast, **Er--** will be shown. Do press **Ⓢ** to zero reset the meter.

OPERATION

FAST GETTED START

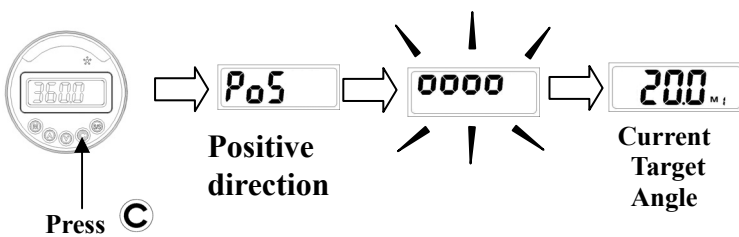
- Press **C** to power on.
- Press **M** or **▲** **▼** to set target angle.
- Press **S/S** to start the angle measurement.
- Start rotation.
- Rotation stop and the LCD will be flashing.
- Now press **M** to record angle or
press **C** to clear or
press **S/S** to count from current angle.

Step 1: PUT THE METER ON THE WRENCH



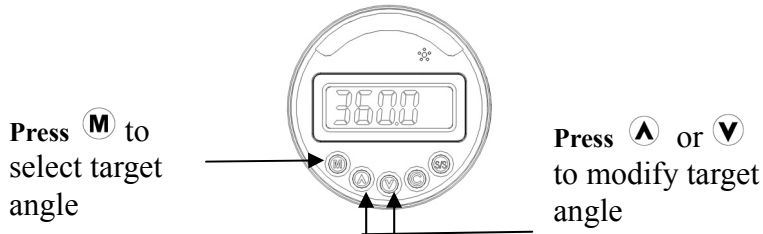
Step 2: POWER ON THE METER AND RESET

- 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”



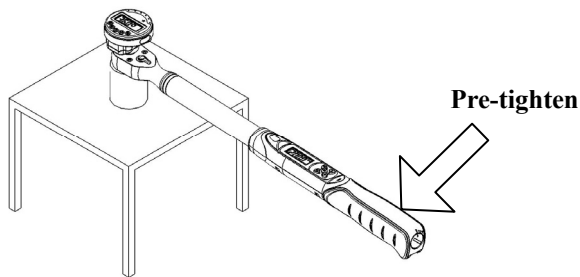
Step 3: SET TARGET ANGLE

- Press **M** to select the pre-set target angle (M1~M9).
- Or press **▲** or **▼** to modify the current target angle. Note that the target angle will be saved automatically with the current **M** number.



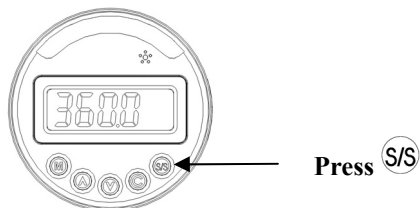
Step 4: PRE-TIGHTEN WRENCH

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



Step 5: START TO MEASURE ANGLE

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



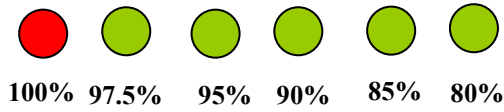
Step 6: STOP AND WAIT FOR LCD FLASHING

- 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:

1. There are 6 LEDs to indicate the current angle reaching 80%, 85%, 90%, 95%, 97.5% and 100% of target angle.



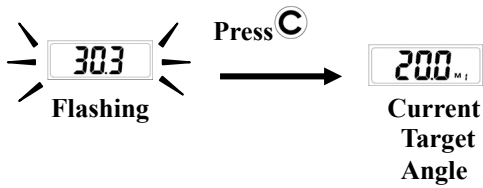
2. There is also a buzzer to indicate the reaching level of target angle. Interval sound means it reaches over 80% and long sound means it reaches over 100% of target angle.

((...(((... ...))...)) → over 80%

(((((((((... ...)))))))) → over 100%

Step 7: CLEAR ANGLE VALUE or CALCULATING ANGLE AGAIN or SAVE ANGLE RECORD

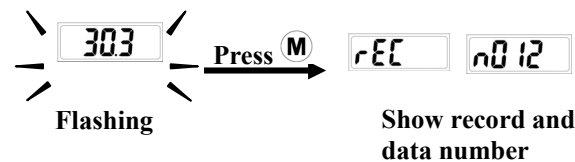
- Pressing **C** will clear the current angle.



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

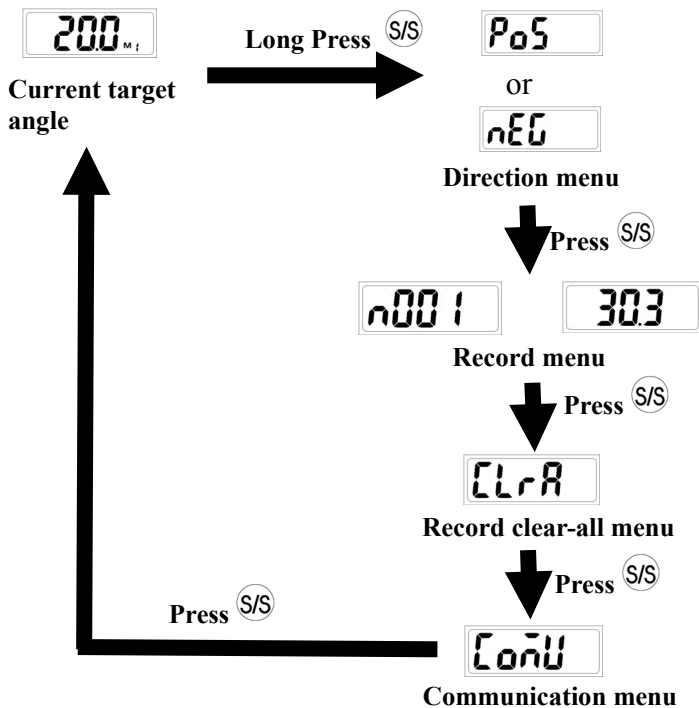


- Pressing **M** will record the current value and then clear the current value.



SETUP 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 \uparrow or \downarrow 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 \blacktriangle or \blacktriangledown to select the data number and view it.

$n0\ 12$ \longleftrightarrow 303

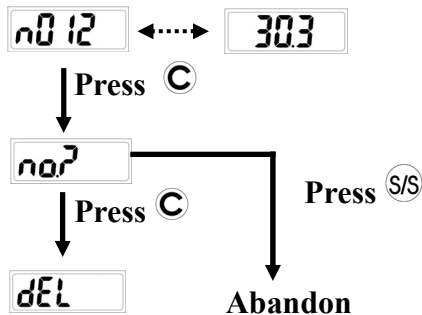
Press \blacktriangle or \blacktriangledown
To select data

- 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 \blacktriangle or \blacktriangledown to select the data number you want to delete.
- Press C twice to delete the current data.
(dEL will be shown)

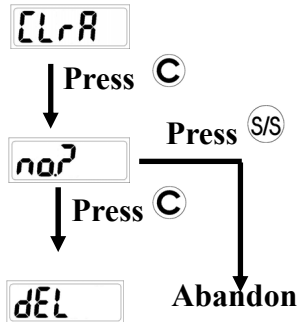
Press \blacktriangle or \blacktriangledown
To select data No



- If press C once, $nor?$ 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 clear-all menu**
- Press **C** twice to delete the all record data.
(**dEL** will be shown)



- If press **C** once, **nor?** 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.

COMMUNICATION

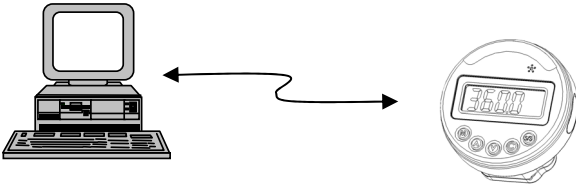


Precaution:

1. **Communication function is only supported on some models. Check the model no. and its specification before using communication function.**
2. **Do not insert the plug of communication cable into angle meter that does not support communication function.**

CONNECTING COMMUNICATION CABLE

- Turn off power and then connect the accessory cable between the COM port of PC and meter.



UPLOADING RECORD DATA

- Make sure the connection between PC and meter is normal.
- Visit the **communication menu** (`ComU` shows). Press \blacktriangle or \blacktriangledown to start communication function. (`SEnd` will be shown)
- Use PC to start the uploader program.
- In uploader program, first select the correct COM port No.
- Next, select the file path to save the uploaded data.
- Finally, press “upload” button to transmit the records to PC.
- The uploaded data is then shown on the column and saved in the *.csv file. Use Microsoft Excel to view *.csv file.



CAUTIONS:

Refer to the uploader program user guide for the detail operations.

MAINTENANCE AND STORAGE

ATTENTION:

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



CAUTION:

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

BATTERY MAINTENANCE

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

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