

Bottle lid torque meter manual

● Function

Digital bottle lid torque meter is an intelligent multi-functional measuring instrument which is designed for testing various kinds of bottle lid torque. It main used in testing and calibrating tighten force, parts torsional destructive testing, etc. With features of simple operation, high precision, easy to carry, complete functions etc. It's widely used in various kinds of electric, light industry, machinery manufacturing, research institutions, etc.

● Specifications

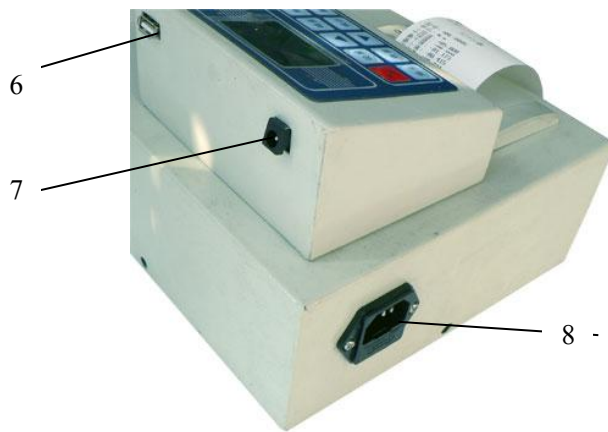
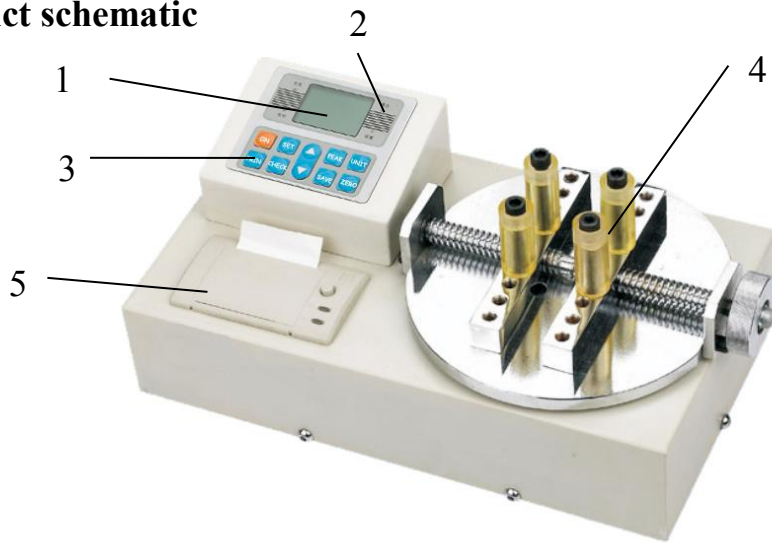
Type Index	With printer	ANL-P1	ANL-P2	ANL-P3	ANL-P5	ANL-P10	ANL-P20
	No printer	ANL-W P1	ANL-W P2	ANL-W P3	ANL-W P5	ANL-WP 10	ANL-WP 20
Measu ring range / Divisi on value	N·m	1.0000/0 .0001	2.0000/0 .0001	3.0000/ 0.0001	5.0000/ 0.001	10.000/ 0.001	20.000/ 0.001
	Kg·cm	10.200/ 0.001	20.400/ 0.001	30.600/ 0.001	51.000/ 0.01	102.00/ 0.01	204.00/ 0.01
	Lb·in	8.850/ 0.001	17.700/ 0.001	26.550/ 0.001	44.250/ 0.01	88.50/ 0.01	177.00/ 0.01
Precision		±1%					
Peak Value Sampling Frequency		2000HZ					
Power		7.2V 1.2VX6 Ni-MH Battery group					
Charging Time		4~6 Hours					
Continuous using time of battery		About 10 Hours					
Battery life		≥300 times					
Size		400mm×200mm×200mm					
Net Weight		12KG					
Power adapter		Input: AC 220V 50HZ Output: DC 10V 300mA					

● Main features

1. High precision, high resolution, quick sampling speed, full-screen display.
2. Adopting high precision torque sensor, with torque direction display.
3. Upper and lower limit value setting, red and green indicating lights and buzzer audible and visual alarm.
4. Three units can be switched each other (N·m、Kgf·cm、Lb·in).
5. Real-time, peak, automatic peak three models of optional switch.
6. Use USB interface and PC communications, synchronous test function can connect to the computer, computer synchronous display test force graph and the detailed test process, can save, print, doing all sorts of analysis.
7. Peak holding, remove automatically function, remove time to set freely.

- 8. Large storage, can save 99 groups of test data.
- 9. Without automatic shutdown function, time can be set freely.

● **Product schematic**

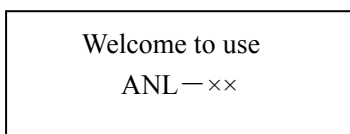


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|------------|--------------------|--------------------|--------------------|
| 1, LCD | 2, Indicating lamp | 3, Function keys | 4, Special fixture |
| 5, Printer | 6, USB interface | 7, Charging socket | 8, Power socket |

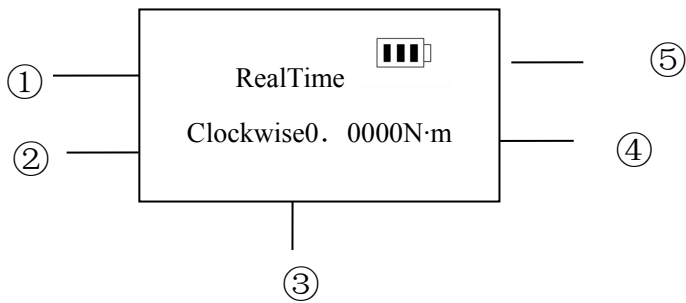
1. LCD display window


A. Boot display

Boot display welcome to use and the manufacturers' information



B. User main interface display

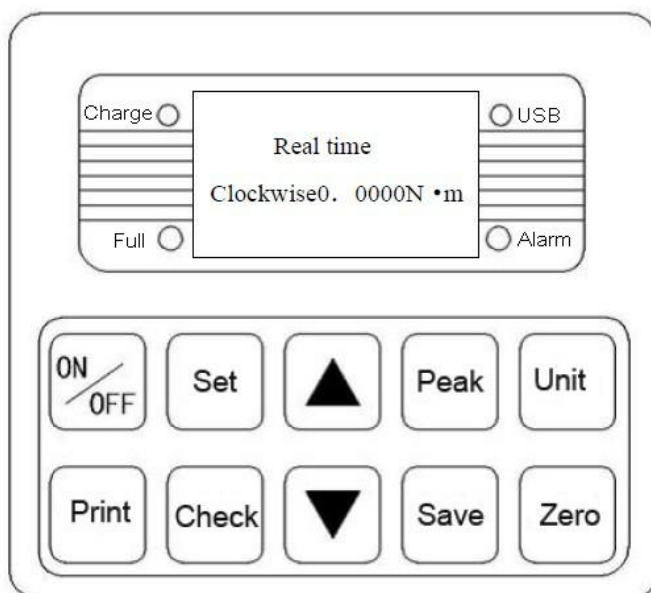


- ① Measurement model: the measurement model can be divided into three kinds: Real-time, Peak, Automatic peak according to user's setting.
- ② Measuring reverse direction
- ③ Measurement force value
- ④ Measurement units: N·m, kgf·cm, lb·in three units can be chose freely according to requirements.
- ⑤ The battery power indicator: when the battery is in low power, it will display“”, or inserting matching battery, the red upper limit indicate light fast blinking, it needs to charge.

2. Indicating lamp

- ① Upper limit: When using the mating power adapter to charge, show the red light.
- ② Lower limit: When the power is charged full, show the green light.
- ③ Printer: When used with the instrument with printer function.
- ④ Communication: top and bottom limitation alarm, When measuring value above the upper limit value, this indicator is red and peak sound alarm. When measuring value below the lower limit value, this indicator is green and peak sound alarm.

● Button Introductions



- a. ON/OFF Button: Can be used to start-up and shut down.
- b. Printer button: The instruments with printer, click this button, print the internal measured data of instrument(Except no printing function).
- c. Set Button: When in measuring interface, users can enter into setting menu through this button.
- d. Check Button: When in measuring interface, press this button to check the saved measuring data, click again return measurement model.
- e. "▲"Button: In users setting interface, press this button can modify setting items upward., In parameter setting, click this button can modify data, in checking interface, press this button, can check the last data.
- f. "▼"Button: In users setting interface, click this button can modify setting items downward., In parameter setting, click this button can move the site,to choose the modified digits; In checking interface, press this button to check the next data.
- g. Peak Button: Used to switch Real-time, Peak, Automatic peak three measure modes.
- h. Save Button: Used to save the measurement data.
- i. Unit Button: Used to switch N·m, kgf·cm, Ib·in three units.
- j. Zero Button:
 - ① When in real-time measurement, click this button can correct zero
 - ② When in peak and automatic peak, click this button can clear peak, revert to zero
 - ③ When in checking interface, click this key for three times can delete all records, each time click this button the time intervals between should no more than 3 seconds, more than 3 seconds the before number is invalid, start counting at this time.
 - ④ When in user setting interface, click this button will not save the data and turn back to the upper interface.

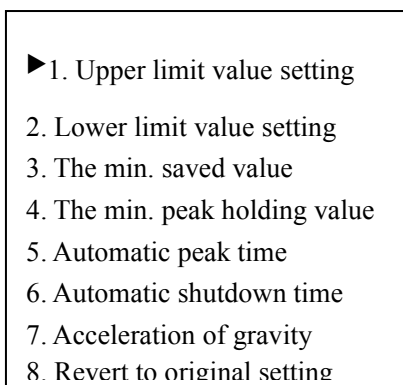
- 1. Special fixture: include rubber column and M8 screw.
- 2. Printer: print out the saved measuring data, used with the instrument with printer function.
- 3. The communication interface: USB interface output, used to connect computer.
- 4. Charging socket
- 5. Power socket: only the printer type have the power socket, used for connecting with external power and charging.

● Operating environment

- 1. Operating temperature: $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$.
- 2. Operating humidity: $\leq 90\% \text{RH}$.
- 3. No vibration source around and no corrosive environment.

● Operating procedures

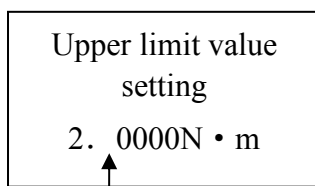
1. Before using digital bottle lid torque meter, check the power, to make sure enough power. If the battery power is not enough, please charge. (You can use the instrument during charging).
2. Use the attached M8 inner-hexagon spanner to install the special fixture(4 pcs) on the measuring panel.
3. Under normal circumstances, turn on the power switch, if the display data is not zero, please click the "Zero" button to reset, reset the torque value to zero.
4. Before the test, need to set Upper/Lower limit value, The min. saved value, The min. peak holding value, Automatic peak time, Automatic shutdown time, Acceleration of gravity...specific operating procedures as below:
 - a. In the main interface, the first time click "set" button to enter into user setting interface, the screen shows as follows:



Click ▲ or ▼ button to choose set items, when in users setting item, click the set button to enter into Parameter setting interface.

- b. Parameter setting interface

In user's setting interface, click the set button to enter into setting interface as follow:



Setting parameter instructions: (Upper limit value for example)

Click “▲”button and “▼”button to shift and modify data, click “SAVE ” button at this time to save datas, will turn back to users setting interface, can set the next item. (If click zero button to return, will not modify data and return to user setting interface, not save the data you set). When all items are set and saved, click"ON/OFF" key to shutdown, then click "ON/OFF" button again to boot and enter into main interface. The set datas can not bigger than the max. load value.

① Upper limit value setting: users according to requirements to set the upper limit value, when reaching the upper limit value, automatic audible and visual alarm, the upper limit value should be lower than full range.

② Lower limit value setting : users according to requirements to set the lower limit value, when reaching the lower limit value, automatic audible and visual alarm, the lower limit value should be lower than the set upper limit value.

③ Min. saved value setting: users set the min. saved value according to storage needs, the data smaller than this value will not be saved.

④ Min. peak holding value setting: users according to peak value, automatic peak value measurement needs to be set freely, the value smaller than this value can not be peak saved.

⑤ Automatic peak time setting: user according to the condition of measured automatically peak value to set from 1-99 seconds freely.

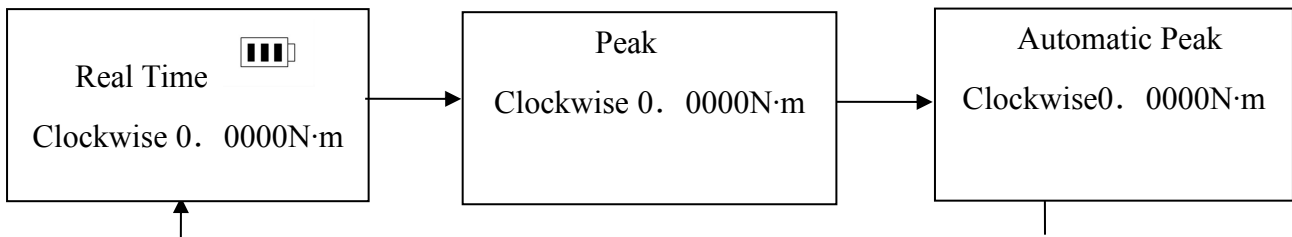
⑥ Automatic shutdown time setting: In no operating condition, the automatic shutdown time can be set from 0 minute to 9 minutes freely (When set to 0 minute means to remove the automatic shutdown time).

⑦ Acceleration of gravity setting: users can according to area of the position to set the acceleration value, native machine is acquiesced as 9.794.

⑧ Revert to original setting: users' improper operation or change data many times will appear confusion, can through this item setting to make the 1~7 data return to factory setting.

4. Before the test, to choose measurement models

In the householder interface of real-time measurement model, when the first time to click the "peak" button to enter the peak measurement model, the second time to click the "peak" button to enter automatic peak measurement model, then the third time to click the "peak" button will back to real-time measurement model, so order cycle, as shown below:



5. To choose the measurement units before the testing.

In any measurement model, the first time click the "Unit" button will show N·m unit, and enter into Kg·cm unit displaying, the second time click "Unit" button will enter into lb·in unit display.

6. In testing, click the "save" button will save measured data.

Note: During the testing process, when the measurement value exceeds the upper limit value, the communication indication lamp would become red and the buzzer would give out alarm; when the measurement value is less than the lower limit value, the communication indication lamp would become green and the buzzer would give out alarm. When the measurement value exceeds 120% of the peak load, the transducer would probably be damaged; when the measurement value exceeds 150% of the peak load, the system would surely be damaged. When the warning reminder of "Serious Overload" appears, the machine would automatically be shut down and enter into the status of automatic protection. At this time, the machine shall be start up again. When the warning reminder of "Serious Overload" is displayed on the displayer, the user can enter into the User Setup Interface

by pressing the button of “Setup”. By utilizing the button of “▼”, he/she can select to restore the initial setup item. After that, he/she shall press the button of “Setup” and the displayer would then display the reminder for input of the password. The input of password is as follows: “▲”, “▼”, “Peak-value Pattern”, “Save”, “▲”, “▼”, “Peak-value Pattern” and “Save” (in sequence). After input of the password, the system can be restored (if this fails, please contact with the manufacturer).

7. After the testing, click “Check” button to check the saved data, Through clicking “▲” button and “▼” button to display the last and next saved datas.

8. After using, click "ON/OFF" button to turn off the power, put the instrument in box.

● USB Output

This instrument communicates with the upper computer through USB and the MODBUS-RTU communication protocol is adopted by it. Specific connecting method of the instrument and software is as follows:

1. Use the straight-through cable to connect this instrument and the computer as well as male connector of the USB and this instrument. Female connector of RS-232 shall be connected to the computer.

2. Switch on power supply of the instrument and let it be on the measurement interface.

3. Put the disk attached to the machine into the optical drive of the computer and open path of the software of serial port: Optical Drive\aliyiqi\AutoTest.exe.

4. Click the button of “System” in lower part of the window of the software and the dialog box of “System Setting” would pop up. The user can then select corresponding serial ports of the computer among the communication ports. Specific procedures of operation are as follows:

① Right-click “My Computer” and select “Property”. The dialog box of “System Property” will pop up and the user shall select the optional field of “Hardware” from it and click the button of “Device Manager”:

② After the dialog box of “Device Manager” is pop up, the user can view the serial port number (sub-item) of the port options:

③ Return to the dialog box of “System Setup” which has popped up, select corresponding serial port number among the communication ports (for instance, 5) and press the button of “Confirm”:

④ Shut down the software and double-click the button of AutoTest.exe again. At this time, the user can inspect whether the serial ports have been connected. There are many kinds of inspection methods: Exert some force to transducer of the instrument and check whether the torque value on upper side of the software window is pulsing accordingly. If it is pulsing, it would mean that the connection is completed; otherwise it would mean that the connection is not completed.

⑤ Click the button of “Setup” on lower part of the software window and the dialog box of “Parameter Setup” will pop up. The user shall, according to needs of the testing, fill in relevant data. For details of values of parameters, please refer to the description of the step of 6-4-b. After completion of the data input, please press the button of “Confirm”. If the setup is successful, the data displayed on lower part of the software window will be changed accordingly.

Max T.:2.0000 Min T.:0.0000 Min save:0.0000 Acceleration:9.794

- ⑥ First of all, make sure that the serial ports have been connected. Then press the button of “Begin” to carry out the synchronization test.
- ⑦ After completion of the test, the user shall click the button of “Save” or “Shut Down”. If the button of “Save” is pressed, the test curve would be saved into the software; if the button of “Shut Down” is pressed, the test curve would not be saved into the software.

⑧ Introduction of the software interface:

A. On the upper side, there are Display Area of Torque Value, Display Area of Time and Number of Testing Times.

B. On the left side, there are Upper Limit Line, Lower Limit Line, Indication Line, Specification Display, Display Curve, Erase Curve and Derive Curve.

Specification Display: Just as its name implies, it means specification(model number and measurement range) display of the instrument.

Upper Limit Line: When the box in front of the upper limit line is checked, there is display of horizontal line of the torque value of upper limit on the display window of curve.

Lower Limit Line: When the box in front of the lower limit line is checked, there is display of horizontal line of the torque value of lower limit on the display window of curve.

Indication Line: Within the display window of curve, the mouse would be shown as a cross. When position of the mouse (cross) moves, the display areas of torque value and time would be changed accordingly.

Display Curve: By pressing this button, the user can jump out of the dialog box of “Curve Selection”, select test items which need to be displayed and then select the times of testing which needs to be displayed.

Erase Curve: If the user presses this button, the currently displayed curve would be erased. However, it does not mean that the currently displayed curve would be deleted from the software.

Derive Curve: If the user presses this button, the dialog box of “Derive Curve” would pop up. The user shall, after selecting the format of figures of curves which are needed and the saving path, press the button of “Confirm”.

C. On the lower side, there are buttons of Setup, Begin, Shut Down, Report Form, System, Help, Delete and Exit.

The buttons of Setup, Begin, Shut Down and System have been introduced previously.

Report Form: If the user presses this button, the dialog box of “Preview of Curve Data Selection” would pop up. The user shall, first of all, select size of frequency of the sampling point. Then he/she shall select the test items which need to be displayed or times of test which need to be displayed. Finally, he/she shall press the button of “Excel”.

● **Note, maintenance and repair**

- Please do not overload the testing torque, must used within the scope of testing range, or will damage the instrument, more probable is causing dangerous.
- Don't knock LCD screen, put objects on the LCD screen.
- Do not use nails, with his nails, edge tool or sharp objects to press the function keys.
- Please do not use torque tester in water, oil or other liquid splashed place, Put the torque tester in cool, dry and no vibration place.

- Do not open the lid of the back, more cannot adjust inside trimming resistor.
- Don't loosen the setscrew in the head of torque tester.
- Please use the matching battery to charge, or will cause circuit fault, even fire. The AC charger should be inserted into socket fully, then to use, loose plug may cause short-circuit and cause shock or fire.
- Do not use the other power except the charger's rated voltage, or will cause electric shock or fire.
- Please don't use wet hand pull out or insert plug, or will cause electric shock.
- Please use the soft cloth to clean the machine, immerse the dry cloth into water with cleaner, wring out after the removal of dust and dirt. Do not use vaporific chemical substance, such as essential oil, thinner, alcohol etc.
- Handle with care during using and carrying process.
- Do not disassemble, repair or reconstruction this machine. These actions may cause permanent fault.
- If broken down, please contact with the original place of purchase or our company.
- Within one month from the date of buying, if customers found product quality problems under normal use and without appearance damage cases, they can change the same specifications and type product rely on original sales invoice, effective warranty card and complete product packaging in the original place of purchase or our company. After the replacement, product continues originating products' warranty period and continuation clause.
- Since the date of sale for one year, under normal using condition, if the products appear non-artificial fault, it's in the scope of warranty (Users open the machine voluntarily or maintain in other maintenance point, the warranty will not apply), customers rely on original sales invoice, effective warranty card to contact with he original place of purchase, can get our company free guaranteed for one year. The freight through the warranty paid by customer.
- For the products which are more than replacement period and the guarantee period, customers can inquire in the original place of purchase about the maintenance matters or contact with our company, we can provide a pay-needed maintenance service.

● Packing list

NO.	Name	Quantity
1	Bottle lid torque meter	1 set
2	Footing	4 Pcs
3	Special fixture	4 Pcs
4	M6 inner-hexagon spanner	1 Pc
5	M8 inner-hexagon spanner	1 Pc
6	Charger	1 Pc
7	Straight join line	1 Pc
8	Mating Software CDS	1 Pc
9	Manual	1 Pc
10	Product inspection certificate	1 Pc
11	Product warranty card	1 Pc