

ASA Torque Tester

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No matter how excellent the quality of your electric screw driver is, if you don't know the correct torque in each operation and ensure correct use of torque in advance, you will not be able to make best use of it. By using torque tester, you can conduct setting of torque for electric screw driver and measure the torque of wrench or set the torque of various rotary tools. In addition, by using the optional accessories, you can transmit measured data to computer and use it in integrated production management system. The torque tester, with it easy operation, high precision and low cost, has been widely applied to the production of precision tools including electronic product, camera, watch, etc. and manufacturing industries like automobile, airplane and so on.

■ Application:

1. Torque test of electric screw driver, various torque tools and torque wrench.
2. Performance coefficient testing of various torque tools
3. Torque testing of other rotary tools (Adapter may be used)

Application cases of torque test data:

- * Prepare aperture parameters of reaming screw
- * Select screw based on torque value
- * Distinguish jolting (degree) based on tightness of screw cap
- * Breaking test of small parts
- *Quality control of plastic screw thread and small parts

■ Characteristics:

1. The maximum value, the minimum value and the average value of torque can be calculated
2. The display of torque value can return to zero automatically
3. The display of torque value can be calibrated automatically
4. The readings are displayed by LCD digits and are easy to read
5. When setting torque of tools, the peak value can be stored till reset so as to ensure accuracy
6. The elastic torque can be tested both clockwise and counterclockwise
7. Strain gauge is directly attached to torque sensor or and the self-attached anti-vibration fitting is designed simply.
8. It can be connected with external data processing control system
9. The torque tester adopts rechargeable battery which is small, light and convenient for carrying
10. Built-in output terminal is attached, which can transmit measured data to computer for processing (See Page 10 for detail)
11. It is provided with an AC power adapter which is applicable to 100V-240V power supply and adopts environmental nickel-hydrogen battery

ASA Torque Tester



Safety Precautions

Please read following safety precautions to ensure safe and correct use.

■ Before Use

- Before using the torque tester, please read operating manual and instruction on sealing tape pasted on torque tester.
- We assume no liability for failure of the torque tester caused by refitting, disassembly and use not based on operating manual.

■ In Use

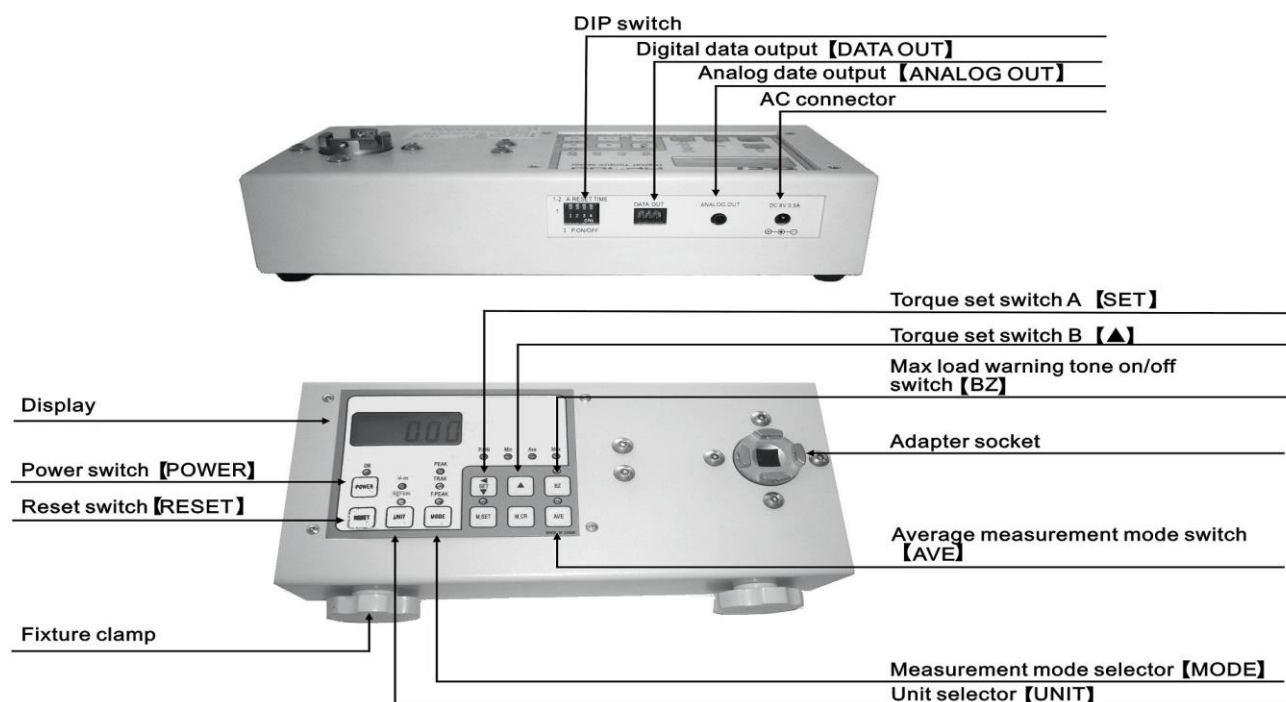
- The operational site shall be kept orderly so as to ensure no foreign matter is involved when using electric screw driver or other tools for measure.
- Except being inserted into torque tester, the electric screw driver shall not be directed at any other directions.
- If any abnormality of torque tester occurs, it shall be stopped for use and please contact to manufacturer or distributor.
- When electric tools are in use, the operators shall button sleeve and lappet well and zip clothes tightly.
- The operators shall not wear gloves when using electric tools so as not to affect normal connection of tools.

■ Precautions for using torque tester with screw driver

- It is prohibited to exceed the maximum torque value described in Technical indexes on Page 10; if the torque exceeds rated measuring value by 120%, it will damage interior of tester.
- The battery charger shall not be used for other batteries except NIMH battery, even the battery (Non-NIMH battery) is produced by its own manufacturer.
- The torque tester shall not be used for measuring of continuous impact tools like pneumatic screw driver or impact wrench,
- Please refer to instructions on Page 7 for use of battery charger,
- Please use designated product to connect data output port,
- When disconnecting, please bind the data wire well and avoid damaging PIN of connector,
- After test, please switch off power supply,
- Please don't knock or place heavy objects on display panel.
- Avoid excessively internal adjust when in calibration or other occasions.
- Handle with care and avoid heavy falling.
- The torque tester is very sensitive to environment, so avoid use it in following environments:
 1. Places where water, oil or other liquids spills
 2. Place with vibration, dirt or heat current
 3. Outdoor or places where electric spark may occur
 4. Environment with high temperature (proper humidity: 20%-65%, proper temperature: 15-35°C)
 5. Places with other factors that may damage the torque tester
- The torque tester shall not be stored in environment with high temperature and humidity so as not to reduce its performance.

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Parts name and function of torque tester



Functions

Part name	Function		
Power	Key switch : When power supply starts, the LED lights, if the tester is not operated within 10 minutes after being started (or torque load value is less than 10) , the power supply closes automatically..		
RESET	Return display data to zero.		
Display Screen	Display test unit		
		Model	Kgf-cm
		AP-2/AP-10	0.00
		AP-50/AP-100	0.0
		AP-300	0.0
UNIT	Select corresponding measuring units below based on customer's demand :N.m↔kgf-cm		
MODE	PEAK: lock display when the torque reaches peak value (press RESET to cancel). TRACK: displays change to current torque value. F.PEAK: lock display when the torque reaches first peak value.		
AC connector	Used for battery charging.		
ANALOG OUT	Output port of analog voltage data.		
DATA OUT	Output measured data. This function contributes to use the torque tester in data management control system.		
DIP switch	Used for timing setting of automatic reset..		
SET A	Beep alarm will occur when reaching the maximum torque load value.		
SET B [▲]	Beep alarm will occur when setting reaches preset torque.		
on/off switch for alarm of the max. load[BZ]	When starting this function, LED display light is on.		
Joint of adapter	Used for connecting torque tools when using test head or adapters of other types.		

* Statistical processing control (SPC) refers to monitoring of the change on production process used for quality control in statistical method.

ASA Torque Tester

■ Selection of Joint for Measurement

Some "joint for measurement" is attached to this product.

At the time of measurement of a tool, the joint corresponding to a tool is surely used.

■ ASJ Joint

ASJ joint is used for measurement of an electric driver.

In case joint is chosen, tolerance level is checked and it is cautious of exaggerated torque enough.

■ ASJ joint (coiled-spring compression system)

Model Of ASJ joint	Torque range (kgf.cm)
SJ-03	0.2-2.5
SJ-10	1.5-10.0
SJ-50	5.0-50.0
ASJ-100	50.0-300.0



The bolt omission prevention function was newly carried in joint. By attaching an omission prevention screw, if a bolt separates from a plinth, it will race, and it does not decompose and trouble is not caused to work. (However, when it continues racing, a ridge may be worn out and torque value may change.) Moreover, by wear, the metal fatigue, etc. of a screw, where a spring is closed, it is left, and a bolt may jump out with the pressure.

The cautions on use

The load more than the measurement range is not applied by any means.

It checks before use whether grease is attached to bolt and bearing.

After use is kept where a spring is surely loosened.

The number of times of an exchange standard is about 2500 times.

When the following condition comes out, use is stopped and new joint is used.

-When there is wear of a bend and a ridge

-When there is sound etc.

ASA Torque Tester

■ Operation instructions

First check battery charging state. When power starts and battery capacity is insufficient, "LOBAT" will be displayed.

In such case, please charge the battery with battery charger for at least 3 hours but no more than 6 hours.

1. Ensure stability of the torque tester.
2. Select required measurement unit 【UNIT】. (N. m $\longleftrightarrow$ kgf.cm)
3. Zero adjustment. Select the 【MODE】 to "TRACK" and simultaneously press 【SET】 and 【▲】 for no more than 2 seconds. This can adjust the tester to zero. (Note: if pressed for more than 2 seconds, it will become another mode. In such case, please press 【RESET】 and repeat zero adjustment setting) .
4. The selection mode switch is "PEAK" or "F. PEAK"
 - In "PEAK" mode, the screen displays the maximum measured value, so the display does not change. The maximum measured value for model AP-100 is 10N.n and corresponding display value is 15. Please measure within this range.
 - In "F. PEAK" mode, the screen displays the maximum value achieved for the first time in test period;
5. Please press 【RESET】 to clear display.
6. Please use test head to measure the torque of electric screw driver according to detailed description below.
7. Test head can be altered to measure tools of other types. (Refer to "Use adapter converter to measure the torque value of non-electric screw driver")
8. After measurement, please be sure to turn off power supply and pull tools away from socket.

■ How to use SJ Joint to measure the torque of electric screw driver

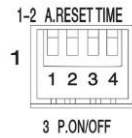
1. Insert SJ Joint into socket of electric torque tester and then place electric screw driver head to be measured in test head.
2. Select reverse rotation of electric screw driver (REV) to make the spring of test head a little loose; the spring can be slightly rotated by hand.
3. Press RESET to make readings return to zero.
4. Select FOR rotation of electric screw driver till it stops automatically and the spring has already been tightened at this moment.
5. When screw driver stops rotation, the display screen will display torque value of this screw driver.
6. Select reverse rotation of electric screw driver (REV) to make the spring of test head loose and then press RESET to clear readings.
7. Repeat operations above to determine readings of torque value. Adjust to proper torque value by referring to test torque parameters table of electric screw driver

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■ Function description

DIP switch: be sure to switch off power supply before replacing DIP switch.

·Automatic reset



DIP switch setting

Switch number		A.RESET TIME		P.ON/OFF	
		1	2	3	4
Time to auto-reset ¹	1 sec	ON	ON	—	—
	2 sec	OFF	OFF	—	—
	5 sec	ON	ON	—	—
	OFF	OFF	OFF	—	—
Data output	Printer ON ²	—	—	—	—
	Printer OFF	—	—	—	—

Note:

- After starting automatic reset function, the RESET does not function.
- Data output
 - Computer monitoring software can be selected; refer to operation Manual of Monitoring Software of ASA torque Meter for specific functions.

Torque setting

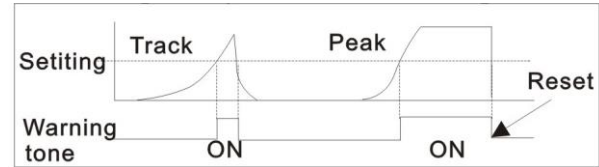
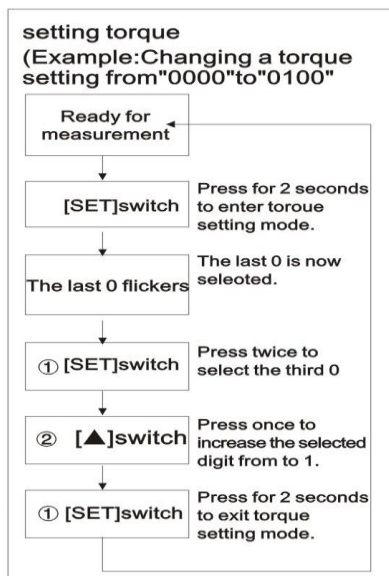
Electric tester is provided with alarm device which will produce beep alarm when reaching the maximum torque load.

Beep alarm will also occur when torque setting is altered.

Torque setting can be altered as per needs. When beep alarm occurs, it means the set torque value has been finished with measurement.

Example (torque value is set as 100)

Data can be output only when measured value reaches 100.



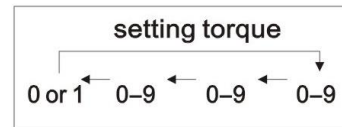
Set functions of torque buttons

Buttons used



① SET

- Press the button for 2 seconds to enter torque setting mode and press again for 2 seconds to quit it.
- When tester is in torque setting mode, the four-digit display can be adjusted with one digit each time



Use SET to select digits for adjustment. The selected digit flashes. When pressing SET each time, the next digit near left is selected (or, the leftmost digit is selected and the rightmost digit is to be selected after pressing the button.)

② Upward button (▲): When test is in torque setting mode, press this button to increase selected value with 1 increased for each time of pressing

Note: The leftmost value can only be 0 or 1

③ RESET: Press this button to make tester enter test preparation state. When tester is in torque setting mode, press this button to cancel setting and quit torque setting state.

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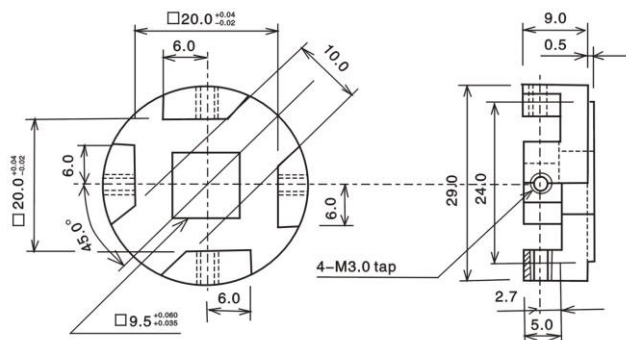
■ Use of socket

Except test or threaded rod, joint adapter can also be used to insert tool head into socket for torque test. Pay attention to followings when using joint adapter.

Precautions in using joint adapter

- Make sure the adapter is firmly inserted into socket

- Make sure the adapter will not break in test
 - Joint adapter shall not be used when vertical torque exceeds 10kg
 - Don't use this torque tester to measure impact tools
- Strictly follows other torque measuring principles,



■ Battery charger

Please use special charger of tester for battery charging.

Please switch off power supply when charging. When charging for the first time, the battery shall be fully charged in 6 hours.



Precautions

- The charging shall not exceed 6 hours.
- Except nickel-hydrogen battery, no other batteries shall be used.
- The tester shall not be used when charging.
- When screen displays LOBAT, stop measuring and charge the battery.
- The battery charger is only used for charging battery of tester.
- Please don't place objects on charger box. Do not fiercely pull the electric wire or use the wire for tying.
- When connecting or disconnecting charger, be sure to switch off the power supply.
- Disassembly of battery is not allowed.



Dangerous!

- The charging time shall not exceed 6 hours so as to avoid overheating, damage or fire accident of battery.

■ How to recharge

1. Please switch off power supply of torque tester and plug battery charger in power supply.
2. When charging is over, pull out electric wire, open tester switch and check display on screen.
3. Place battery charger in proper position after it cools down.

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■ Data output type

Use output data wire and computer monitoring software (available from distributors) to transmit measured data to computer (except AP-300).

■ Customer service

· Maintenance

1. Maintenance caused by following situations must be charged:

- (1) Failure or damage caused by improper use, improper reassembly or repair.
- (2) Socket, switch or instrument interior is added with oil.
- (3) The instrument is damaged falls in transportation.
- (4) Damage caused by fire accident, gas explosion, earthquake, water immersion, abnormal power supply or other natural disasters.
- (5) Service for replacing parts in calibration, inspection and test.

2. In 3 months after inspection or calibration is completed, necessary inspection of the same part is not charged.

(Such case does not belong to situations in charged items (1)-(4) mentioned above.

· Transportation or treatment cost incurred in maintenance service is borne by customer. Any question,

■ Precautions

The product is provided with environmental rechargeable battery together with the machine. According to laws in different countries and regions, it is illegal to discard waste battery in urban rubbish dump. Please consult local officials in charge of managing solid waste for recovery or disposal of waste battery.



■ Inspection and calibration

The unique sensing mechanism adopted by this tester can ensure long-term accuracy. The tools used for checking its accuracy is also provided. Even though, we suggest returning the torque tester back to manufacturer for inspection annually. (Please be noted that this service is charged).

Delivery of tester shall comply with precision standard of our company. Considering different use conditions of tester, long-term use will affect the precision. Therefore, our company provides calibration and necessary inspection service; meanwhile, we suggest using the regular calibration document attached with this tester.

Ni-MH

■ Precautions in returning back tester for calibration or maintenance.

1. Place tester in original toolbox so as to avoid damage in transportation.
2. Except original objects in toolbox, no other objects shall be placed in the box. Self-made mounting plate, tool or standby tool head shall not be placed in. Our company assumes no liability hereto.
3. Please describe failure in detail.

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■ Failure recovery

If functional defect of this tester occurs, please remove the failure according to following guide. If the failure still cannot be solved after contrast treatment, please contact ASA Company or distributors

Defect	Cause	Solution
"LOBAT" displayed	Low battery	Charge the battery according to description on Page9 If the failure still exists, please contact manufacturer or distributors
No display on display screen	The tester is not used for a long time or the battery is discharged naturally for a long time	Close power, open it after charging (no more than 6 hours) and observe whether there is display. If there is still no display, please contact manufacturer or distributor.
Displayed value fails to return to zero	Zeroing setting is not conducted	Conduct zeroing setting
Constant change of displayed value	"TRACK" is selected	Change to "PEAK" mode
Battery can not be charged	The connecting wire of battery charger is possibly not inserted into socket completely.	Check whether the wire is Battery can not be charged properly connected
	Wrong connection of wiring plug	Connect battery charging socket
		If failure still exists after operations above, please contact manufacturer or distributors
	Service life of battery ends	Send to manufacturer for repair
"LOBAT" is displayed again after completion of charging	Insufficient charging	Recharge for no more than 6 hours
Display screen displays values in position where display is not required.	May be caused by noise occurring in power supply	Press rest button to clear screen

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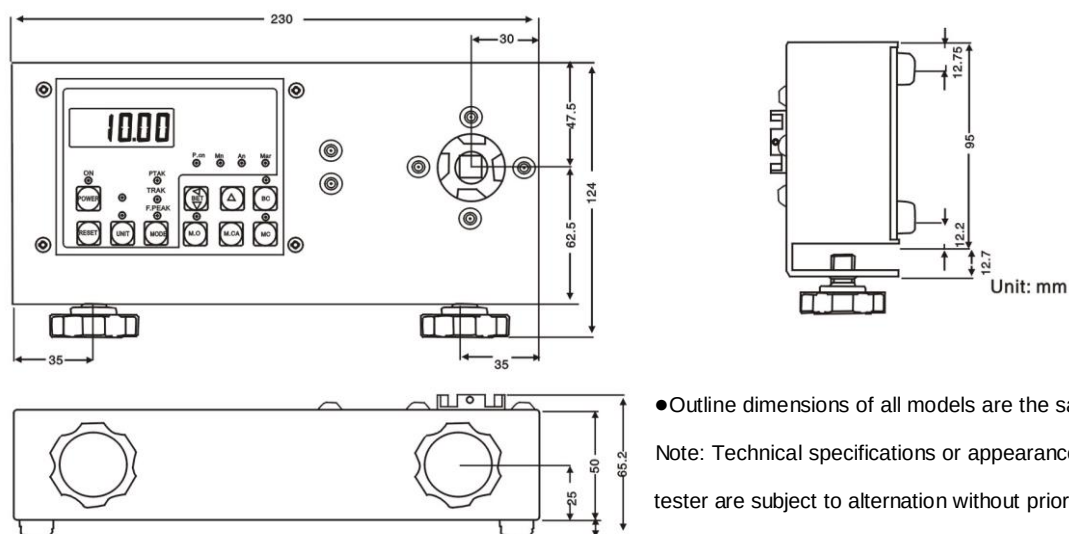
■ Technical indexes of torque tester

Model		AP-2	AP-10	AP-50	AP-100	AP-300
Peak value range	N.m	0.003-0.200	0.015-1.000	0.075-5.00	0.15-10.00	0.45-30.00
	Kgf-cm	0.03-2.00	0.15-10.00	0.75-50.0	1.5-100.0	4.5-300.0
Accuracy		In $\pm 0.5\%$ range				
Power supply		Five 1.2V nickel-hydrogen batteries 1,000mA				
Charging time		About 6 hours				
Continuous using time after fully charging		8 hours				
Battery service life		It can be charged for about 300 times.				
Size (mm)		Refer to figurer				
Weight		1.8kg				
Charger		Work under 100-240W AC power supply (50 or 60Hz), output 7.3-8V DC current(0.4A)				

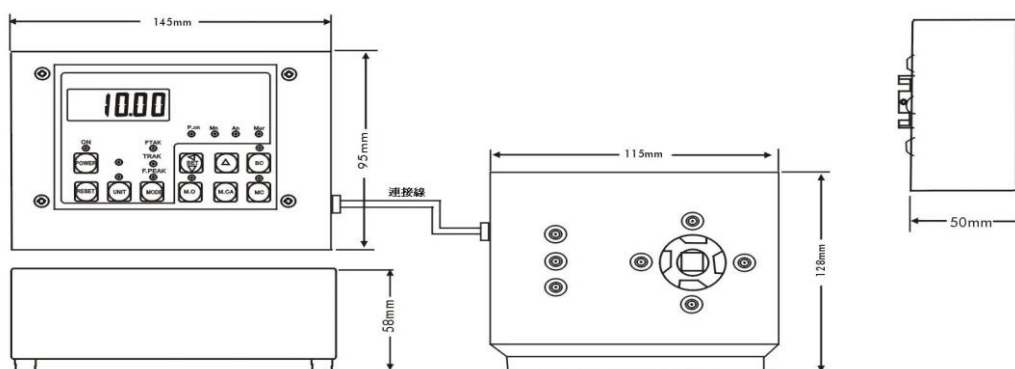
- Torque exceeding measuring range of torque tester shall not be measured.
- Service life of battery is related to operating conditions; so the battery makes no warranty

■ Outline drawing

- AP-02/AP-10/AP-50/AP-100



- AP-300



**For any inquiry,
Contact your dealer.**



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