

User's Manual



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1. Overview

1.1 Specifications

Accuracy	$\pm 0.3\%$		
Selectable Units	N.m, N.cm, kgf.cm, lbf.in , lbf.in	Overload	120% of F.S.
Display	Matrix LCD with Backlight	Data Memory	1000 data
Measurement Mode	Track, Peak , Preset, First Peak, Double Peak, Auto Peak, Auto First Peak	Outputs	USB-B, Set point, RS232
Power	3.6VDC Ni-MH rechargeable batteries	Dimensions	197 x 180 x 83 mm
Charger/ Adaptor	Universal USB/BM charger, Input:110~240VAC	Weight	1.5 kg(main unit)
Environment	Operating: -10 to 40°C, 20 to 80% RH, Storage : -20 to +50°C , 5 to 95%RH		

1.2 Models

There are four models in this series cap torque tester, the capacities and resolutions is on back cover.

1.3 keystroke



Power : Push for 2 seconds to power On or Off.



Store/Print : Through the system settings can be stored or print the current measured value; In number input, change to another digit or item.



Zeroing/Exit : During Measurement, Zeroing.; In Menus: Back or.



Up/Mode : During Measurement: Changes Test Mode.
In Menus: Moves selection up or increases the value;



Menu/Enter: During Measurement: Enter the menus.
In Menus, Select or Enter.



Down: During Measurement, Changes Test Mode.

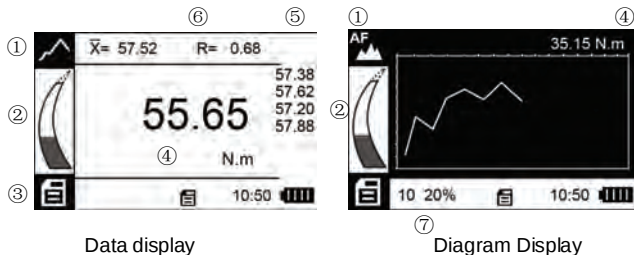


Fig 1-1

1.4 LCD Screen

① Test mode

- Track; Peak;
- Preset; First Peak;
- Auto Peak; Auto First

Peak

② Analog bar and Direction Icon

Indicates current position in whole capacity. When the bar

enters the area enclosed by dotted line, means overload.

Clockwise(CW): ; Counterclockwise(CCW): .

③ **Storage/print setting** store; print.

④ **time and Power**

⑤ **Torque value and Unit**

⑥ **Datalist** : Save the five-point measurements in the Peak and First Peak.

⑦ **Statistics**: X :average; R:variance criterion.

⑧ **Prompt**: First Peak/Double Peak: Drop ratio

Preset: under lower limit ; between the limits ; over upper limit .

2. Operation

2.1 Installation

Please fix the torque tester on the workbench or a test stand. **See Appendix A-2 Dimensions.**

2.2 Adapter Selection

Select the drive adapter.

2.3 Power on/off

Press  for 2 seconds to power On or Off.

2.4 Testing

After completion of the test preparation, testing can be done.

2.4.1 Select Units

The torque gauge has a variety of measurement units, select the appropriate unit.

2.4.2 Select Test Mode

This series torque tester has 5 kinds of measurement test mode can choose. You can select it by press  under the measure interface, Or can change it in menus (**See 3.2.3 Test Mode**).

 **Track:** The real time measuring mode, under this mode, press the zero key the torque gauge will be cleared (remove tare).

 **Peak:** Peak readings will not change until a higher value is measured. Under this mode, press  the zero

key the torque gauge will update the display immediately.

 **Preset:**The tolerance limits can be set for GO/NG measurement also. If you set the alarm on and a valid limit,

The icon , ,  will be displayed for within limit, lower than lower limit or exceed upper limit.

 **First Peak:** In this mode, the gauge can capture the first peak value of force, when the force value decreased to reach the drop ratio. The drop ratio can be set in menus.

 **Auto Peak:**In this mode, the peak capture will be updated in the time interval set in menus automatically

 **Auto First Peak:**The first peak capture will be updated in the time interval set in menus automatically

2.5 Zeroing

Press  to clear the torque gauge in track mode for removing the tare.

2.6 Storage/Print

Measured results can be stored in the torque gauge, so that you can review or print them later.

Under the measure interface, Press  to save value measured, and the save icon  will be displayed.

3. Menus

3.1 Menus Structure

Measurement 	Unit
	Group
	Test Mode
Memory 	Browse
	Print All
	Print Selected
	Upload
	Delete Selected
	Delete All
System 	Display Mode
	Auto Power Off
	Backlight
	Key Tone
	Language
	Date/Time
	Diagram scale
	Key Setting
	Display Direction
	Default Setting
Calibration 	Information

3.2 Measurement



Fig.3-1

3.2.1

Unit(Fig.3-1)

3.2.2 Group

When several test samples need to be measured, the samples can be coded into groups. The range is 01-99.



Fig.3-2

3.2.3 Test Mode

Test mode can be selected. There are 4 kinds of mode: Track, Peak, Auto Peak and First Peak. See 2.4.3 Select Test Mode also.

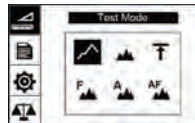


Fig.3-3

① Preset

In the Tolerance menu, program upper and lower limit for GO/NG Measurement.
The upper limit value must be greater than the lower limit, and both limit value cannot be greater than 110% of the rated capacity.

② First Peak

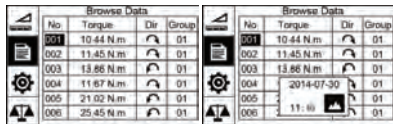
With 5% increase or decrease in the drop ratio of the adjustment amount setting.

③ Auto Peak

The Peak time should be set(Fig.3-6)

3.3 Memory

In this menu, browse the data in memory or delete it/them and Print data.



No.	Torque	Dir.	Group
001	10.44 N.m		01
002	11.45 N.m		01
003	13.86 N.m		01
004	11.67 N.m		01
005	21.02 N.m		01
006	25.45 N.m		01

No.	Torque	Dir.	Group
001	10.44 N.m		01
002	11.45 N.m		01
003	13.86 N.m		01
004	2014-07-30		01
005	11: 55		01
006			01

Fig.3-8



can display some information for this datum.



Fig.3-4

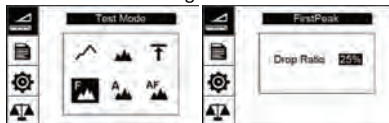


Fig.3-5

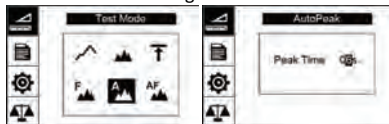


Fig.3-6

3.3.1 Browse Data

The greatest number is the most recent data.

Move the cursor to a datum, push

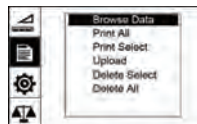


Fig.3-7

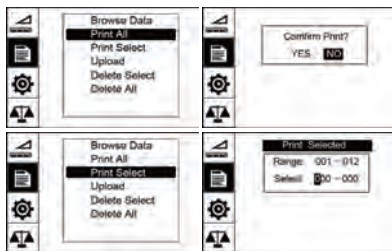


Fig.3-9

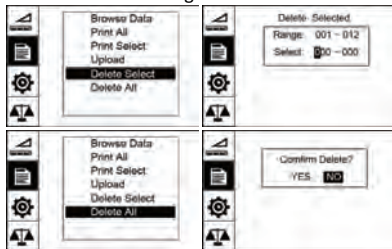


Fig.3-10

and no any operation. 5 minutes is default. You can change it for a longer or shorter standby.

3.4.3 Back light

The torque tester can turn off backlight, some time interval after no measuring and no

3.3.2 Print data

You can print the data with "Print All" or "Print Select".

3.3.3 Delete data

There are 2 methods to delete the data.

Delete selected: Delete data in number range selected.

Delete All.

Before delete data, a warning window will pop up for further confirmation.

3.4 System setting

3.4.1 Display Mode

There are two display modes: Digital and Graphic.

3.4.2 Power Off

The torque tester can turn the power off automatically, some time interval after no measuring

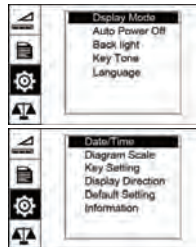


Fig.3-11

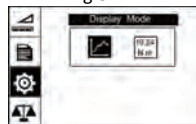


Fig.3-12

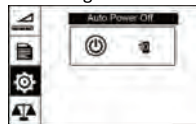


Fig.3-13

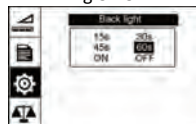


Fig.3-14

any operation. You can select this time or turn it on or off always.

3.4.4 Date/Time

3.4.5 Diagram scale

The ordinate range selection When **printing** the chart. There are 4 kinds of type: 20%,50%,100% of F.S.

3.4.6 Key Setting

The key  is a multifunction key.

It can be set as "store the current display value(Storage)" or "print the recent data (Print)". "Storage" is default.

3.4.7Default Setting



Fig.3-19

When the artificial error, and do not know how to restore, the gauge can be restored to factory settings. it will lose that some information set by customs. Restoring to Default Setting, the password must be enter and a prompt must be confirmed.

Password:1 2 3.

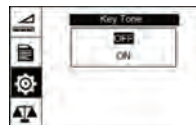


Fig.3-15

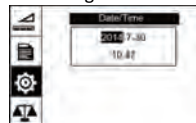


Fig.3-16

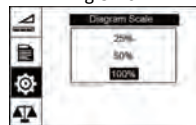


Fig.3-17

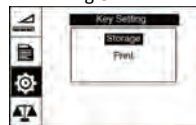


Fig.3-18

4. Communication Ports

There are two kinds of port for recharging and communicating with PC and the other equipment.



MultifunctionPort USB/Recharge
Fig.4-1

4.1 USB/Recharge

Use this port, you can connect the gauge to the computer for

transform data to PC in accordance with USB2.0.

Or recharging with connecting the recharger.

4.2 Multifunction port

The assignment of pins is shown in Table 4-1.

4.3 RS-232

Table 4-1 Pin Assignment

Pin #	Description	
1	RS232	Tx
2		Rx
3		Gnd
4	Setpoint Output B	
5		
6	Common	
7	Setpoint Output A	
8		

RS232 specifications	
Data word length	8 bit
Stop bit	1 bit
Parity	None
Baud rate	9600,19200,38400
Hardware Flow Control	None

5. Calibration

Because of the sensor material performance or the influence of external factors, there may be errors in a certain range after a period of time use. Should send the torque gauge to a specialized testing organization for calibration.

If you have some standard force weights or the other standard load and some test stand, you may calibrate it also.

- ① Mount the torque gauge.
- ② Remove the tare by use of the key .
- ③ Enter Calibration interface, as Fig 5-1. (**Password: 1 2**

3)

④ Load a standard force. Now the value in standard input area is just equal to the current measured value. Wait a moment for the force stability.

- ⑤ Press  and  to input the standard force value.
- ⑥ Press  to enter the next calibration. Press  can interrupt the calibration.

NOTE:

- ① Set the unit of force to the unit used in calibration previously (as shown in 3.2.1 Unit)
- ② Ensure that the tare weight of attachment has been removed before calibration.
- ③ You can do any point or points calibration from 1 to 5 point, we recommend 5 points calibration.

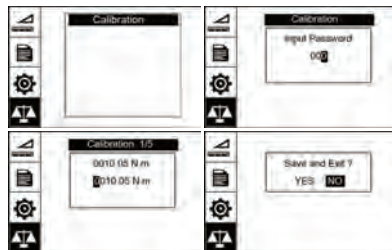
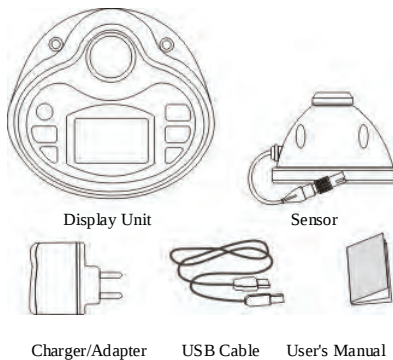


Fig 5-1

Appendix

A-1 Packing List



A-2 Dimension

