Sauter GmbH
Tieringerstr. 11-15
D-72336 Balingen
E-Mail: info@sauter.eu
Tel: +49-[0]7433- 9976-174
Fax: +49-[0]7433-9976-285
Internet: www. sauter.eu

Instruction Manual
TB_10

DIGITAL TORQUE TESTER

Thank you for buying this series of Torque Tester.
Before using the instrument, please carefully read the instruction manual to use it in the right way. Please keep the manual well which can give you help in understanding the usage of the instrument or if it doesn't work right any longer out of any reason.
Our company reserves the right to correct this manual at any time, if changes have been made to any part of the contents.

Table of contents

1. Functions
2. Main Characteristics
3. Main Parameters
4. Description of Parts and Functions
5. Operation Environment
6. Operation Steps
7. Memory, saved value and Peak Capture Line
8. RS-232C Port and Connecting to PC
9. Precautions and Maintenance
10. Package List
11. Declaration of conformity

1. Functions

The Cap Torque Tester is a metrological instrument designed specially for testing opening and closure torque on bottles, jars, bulbs and more. Which is ideal for detecting and calibrating the power of open and closure with torque control, for the relative torsion torque testing and the torsion fracture parts testing. They are with high accuracy, also easy to operate and handy to carry out, widely used in electric, light industry, scientific research and so on.

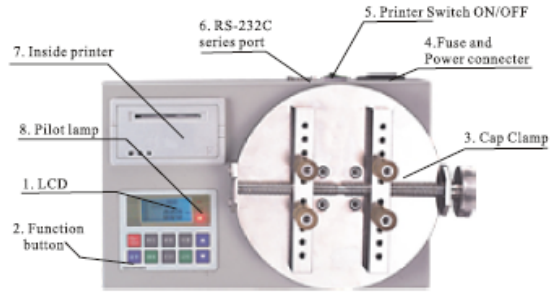
2. Main Characteristics

1. High accuracy and high resolution
2. Upper and lower limit, judgement and alarm light
3. Displays the direction of Torque
4. Blue Background illumination
5. Memory and printing of 10 tested values
6. Auto calculate the average of memory data;
7. Three units of N.m, kgf.cm and lbf. in and convertion automatically
8. Peak hold function, release the Peak hold function and set the peak clear time
9. Auto power off and set the power off time
10. RS-232C output, transmits the information to PC or printer.

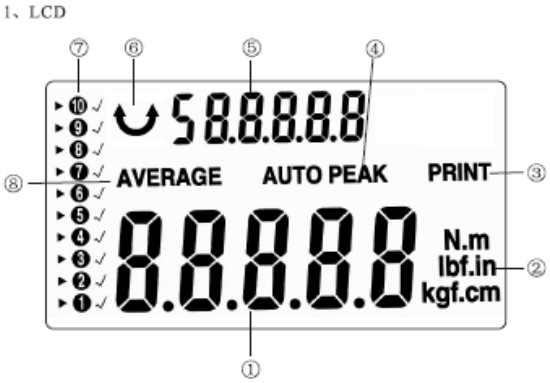
3. Main Parameters

TB 10:
Measurement range/ Resolution: N.m: 10/ 0.05
Kgf.cm: 102/0.05
Lbf.in: 88.5/0.05
Accuracy: ±0.5% FS
Power source: Input: AC220V 50Hz
Diameter: 15mm up to 200mm
Dimensions: L 123 x W 230 x H65mm
Weight: 5 kg

4. Description of parts and functions



1、LCD



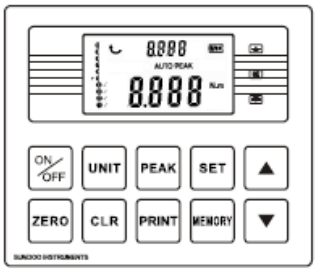
1. The torque value, in setting mode. It is the set value.
2. Unit: 3 units, N.m, kgf.cm and lbf.in, are optional and convert automatically
3. Prints the memorized data or single tested curve
4. Indication of peak mode, "PEAK" means the max torque value, "AUTO PEAK" means the peak value will be cleared after the set time.
5. Auto calculation of the average of memory data; in Set mode, indicates the function
6. Symbol of torque direction: "clockwise direction" and "counter clockwise direction"

Sauter GmbH
Tieringerstr. 11-15
D-72336 Balingen
E-Mail: info@sauter.eu
Tel: +49-[0]7433- 9976-174
Fax: +49-[0]7433-9976-285
Internet: www. sauter.eu

Instruction Manual
TB_10

7. Torque value reserving
"❶❷❸❹❺❻❼❽❾❿"10 grids; one torque data is memorized in one grid.
▸: means the value in the grid can be shown
√: means that the grid has saved the torque value
8. Torque value average indication

2. Front panel description



ON/OFF Power switch: Power on/ power off

ZERO Zero button: cleans to zero or cleans the peak value

UNIT Shift button of units → N.m → kgf.cm → lbf.in

CLR Delete or switch off background illumination, deletes the " √ " memory data. In average mode, it is the switch of background illumination.

PEAK Peak: It is the switch of peak mode; peak hold, semi-Peak hold and Track. Track mode is standard mode, as soon as the instrument is powered on.

PRINT Print: if "print" set is pressed, the value data can be output to PC and be saved as "Excel" format and analysis can be saved, printed etc.

MEMORY Memory: Memorizes the test value and calculates the memory data. In the memory mode, press the button again and the instrument calculates the average value of the memory data.

SET Setting:
A. sets the upper and lower limit
B. sets the capture line of peak
C. sets the time of auto power off (choose 1-60 min., 0 means "not power off automatically".
D. sets the time of auto clean peak (1-10 seconds)
If the SET button is pressed, the HIDT is displayed on the LCD, to set the upper limit. The button "▲▼" has to be pressed to change the value. If it is pressed again, the LODT is displayed on the LCD to set the lower limit. By pressing "▲▼" buttons, the value can be changed. If the SET button is pressed the third time, the LE.SET is displayed on the LCD, the data shown is the min. memory data. By pressing "▲▼", the value can be changed. (In the test, the data which is less than it, is not saved).
If the SET button is pressed the fourth time, the P.OFF is displayed on the LCD, the time of auto power off is shown on the display. By pressing "▲▼" the value of time can be changed.
If the button is pressed the fifth time, the A.PE is displayed on the LCD, the time of auto clean peak is shown on the value display. By pressing "▲▼", this value can be changed.
If the button is pressed the sixth time, on the display "RS-232" will be shown, in the data frame will appear PC or PRINT. By pressing "▲▼", the mode can be changed. "PC" stands for outputting the data to a computer with RS-232 output; "Print" stands for transferring the data to a printer to print them, if required.
If the button is pressed the seventh time, all the changed settings will be kept, returning to Test state.
If SET is pressed during setting, the setting is saved and the instrument returns to Test state.

▲ Add 1
A. In memory mode, if this symbol is pressed one time, the symbol will forward one case. If " √ " is on the right of this case, it means that this case has saved the torque value; if testing is continued, the torque value, which has been saved, will be auto cleaned and then save the new tested value on this case. If " √ "is not on the right of the case, it means: this case is an empty case and the new tested torque value will automatically be saved into this case.
B. In set mode, if this symbol is pressed one time, the value will increase. If this button is pressed for 2 seconds, the data will increase continuously.

▼ Reduce 1 (arrow key down)
A. In memory mode, if this symbol is pressed, it will backward one case. If " √ " is on the right of this case, it means that this case has saved the torque value; if testing is continued, the torque value, which has been saved, will be auto cleaned and then save the new tested value on this case. If " √ "is not on the right of the case, it means this case is an empty case and the new tested torque value will automatically be saved into this case.

3. Rubber support for the fixture of bottles
4. Fuse and power connector. Inside Fuse, the tester is protected from electric currency overload.
5. Printer switch ON/OFF
6. Communication port:
RS-232C series port outputs the value data to PC or printer and other devices from outside.
7. Micro printer:
Prints 10 groups of memory data: max, min and average value of memory data, eligible and ineligible values.

Sauter GmbH
Tieringerstr. 11-15
D-72336 Balingen
E-Mail: info@sauter.eu
Tel: +49-[0]7433- 9976-174
Fax: +49-[0]7433-9976-285
Internet: www. sauter.eu

Instruction Manual
TB_10

8. The pilot lamp of upper and lower limit

Pilot lamp of upper limited alarm

Pilot lamp of normal

Pilot lamp of lower limited alarm
(pilot of switch ON/OFF)

5. Operation environment

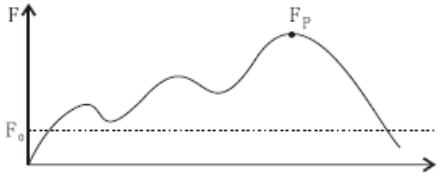
Temperature: 0 to 40°C
Relative humidity: 35% to 65% RH
No vibrancy and no cautery around.

6. Operation

1. Connecting power source, press switch ON/OFF (input: AC220V50HZ)
2. Normally, the value is zero, when the meter turns on. If the value is not zero, please press Zero button to clean to zero.
3. Press the unit button to choose the required unit.
4. If auto alarm function is needed, the SET button has to be pressed to set the upper and lower limit.
5. According to the requirements, the suitable mode has to be chosen. There are 3 modes to choose:
   - Peak
   - Auto- peak
   - Track (Track mode is the standard mode, when the instrument is powered on)
6. The width can be adjusted by the nut on the right of the support; the rubber support has to be used to fix the bottles.
7. With RS-232C output all the data can be transferred and saved to PC, Analysis, and printed on PC.
8. After the tests, the instrument has to be turned off and has to be put back into the toolbox.

7. Memory, saved value and Peak Capture Line

When using the memory function, the suitable memory min capture line “F” has to be chosen. During the test, no preference of the direction of torque testing, when the torque value is bigger than min capture line “F”, the max value of this test has to be memorized, when the torque test is back below the min capture line, it means that one test is finished (shown in following diagram).



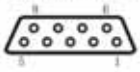
The max value “F” is saved, " ✓ "is displayed on the left screen, arrowhead " ► "shows auto rise one grade, ready for the next memory test.

When the min capture set is bigger than torque test, the memory function will not take effect.
This instrument is able to save 10 tested values, with the 11th, the first value will be replaced; by pressing "⊡⊡", the memory location can also be chosen. A small numeral column will show the memorized test of this location.
If all the average of the memory data has to be checked, the “Memory” button has to be pressed and AVERAGE is displayed on the LCD. A small numeral column shows all the average values of the memorized data. The “Memory” button has to be pressed to return to Memory state.

8. RS-232C Port and Connecting to PC

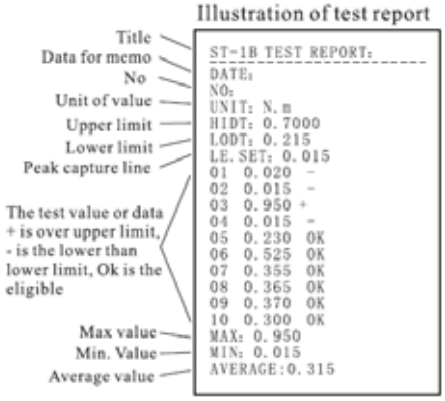
The output of the instrument is according to RS-232C standard, the matching printer must be adapted to RS-232C, the tested data can be transmitted to the computer. If the “PRINT” button is pressed, the tested data can be printed.
1. When RS-232C is chosen to transmit to “PRINT”, the data can be transmitted to the printer directly, test needle and printer sample is shown in following diagram:

Illustration of test needle



Needle	Signal	Illustration
2	TxD	output signal of SCM
3	RxD	incept signal of SCM
5	GND	Signal

Illustration of test report



2. If RS-232C is chosen to transmit to “PC”, the data can be transmitted to the computer; set is as follows:
a. The torque instrument has to be connected well to the PC with the RS-232C port cable.
b. The instrument has to be turned on, it has to be in working state. RS-232C has to be set to the state of output to PC. For the setting details please refer to “setting button”, page 2.

Sauter GmbH
Tieringerstr. 11-15
D-72336 Balingen
E-Mail: info@sauter.eu
Tel: +49-[0]7433- 9976-174
Fax: +49-[0]7433-9976-285
Internet: www. sauter.eu

Instruction Manual
TB_10

9. Precautions and Maintenance

1. The torque instrument may not be applied above its capacity, otherwise it may be damaged.
2. Do not hit or put anything on the LCD.
3. Do not press buttons with pointed tools, nails or speculated tools.
4. Do not use the instrument in following surroundings:
with water, oil or other liquids. The instrument should be placed shady, dry and shockless.
5. The rear cover may not be opened and the adjusting resistance may not be adjusted.
6. The fixing screw on the connector may not be loosened.
7. To avoid electrical shocks, the adapter may not be plugged in or out with wet hands.
8. Dirt and dust has to be cleaned from the instrument with a soft cloth. After dipping the cloth into neutral detergent water, it has to be squeezed out and the dirt has to be cleaned with it.
Attention: Do not use volatile chemical liquid to clean the instrument, such as Ben-zone, thinner, alcohol, etc.
9.The instrument has to be moved smoothly and slightly when it is in use or in transportation.
10. Never disassemble, repair or modify it by yourself. If any of this should be performed, it may cause damage on the instrument.
11. If there is anything wrong with it, please contact with our sales department directly.

10. Package list

Model	Parts Name	Quantity
1	Main body	1
2	Power cable	1
3	RS-232 port connector	1
4	Clamps	4
5	Key of tool box	2
6	M8 Inter-angle spanner	1
7	Software CD	1
8	Manual	1

11. Declaration of conformity

SAUTER GmbH

Konformitätserklärung

Digital Torque Gauge: SAUTER TB 10