

Instruction Manual ST 50-500

DIGITAL TORQUE TESTER



Modell: ST-50, ST-100, ST-200, ST-500

Thank you very much for buying a SAUTER Torque Tester series ST. We hope that you are pleased with your instrument of high quality and its big functional range. Before the first use, please read this instruction manual carefully in order to take full advantage of this device. So the tests can be performed in a correct way. If you have any queries, wishes or helpful suggestions, do not hesitate to call our service number.

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1. Specifications- see catalogue...

Model	ST-50	ST-100	ST-200	ST-500
Capacity	50N.m	100N.m	200N.m	500N.m
Resolution	0.02N.m	0.05N.m	0.1N.m	0.2N.m
Accuracy	±1%FS			
Peak frequency	2000HZ			
Testing speed	≤5000 rpm			
Power	220V ± 10%V 100W			
Dimensions	L360×W125×H250mm			
Weight	about 21.8kg			

2. Functions

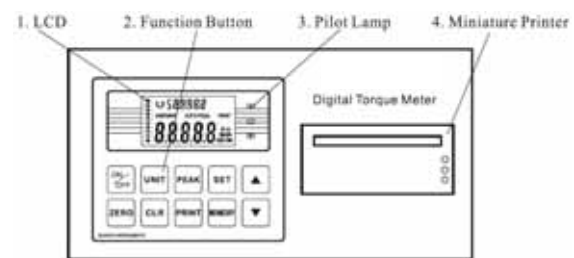
ST series of digital Torque Testers are instruments especially designed for various torque testing and measuring. It is ideal for detecting and calibrating many power screwdrivers and wrench with torque control. Applied for the relative torsion torque testing and the torsion fracture parts testing. It features high accuracy, is easy to operate and handy to carry. It is widely used in electric, machinery manufacture, scientific research etc.

3. Main Characteristics

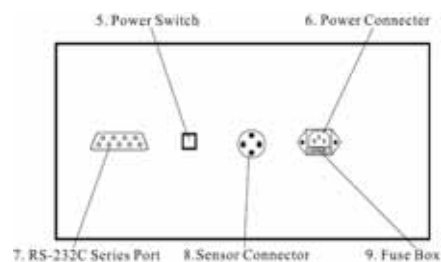
1. High accuracy and high resolution
2. Upper and lower tolerance limit set
3. Torque direction display
4. Blue background light
5. Storage and printing 10 groups of test values
6. Real-time printing single time tested curve
7. Auto calculating the average of memory data
8. Automatically conversion in three units (N.m, kgf.cm, ibf.in).
9. Peak- holding, auto- releasing and setting and setting the peak clear time.
10. Auto Power Off and Setting time
11. Printing 10 groups of data conserved in the test and the max. value, the average value, the eligible value and the incompetent value.
12. Port (RS-232C) output, connection of PC with matched software.

4. Parts and their Functions

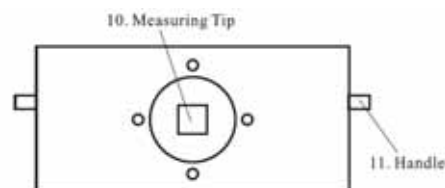
Picture 1: Front of the instrument



Picture 2: Back of the instrument



Picture 3: Sensor



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1. LCD

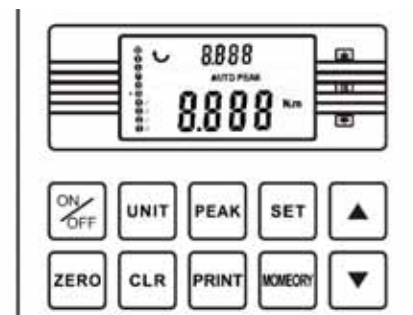
Picture 4:








1. The value of torque; in Setting mode, the data is the set value.
2. Unit: 3 units (N.m, kgf.cm, lbf.in) and automatically conversion.
3. Printing 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. Indication of auto calculating the average of memorized data and the function symbol in Set mode, symbol of torque direction.
6. Symbol of torque direction:
Clockwise direction ↻, counter clockwise direction ↺.
7. Torque value reserving:
There are 10 grids keeping the torque value, in every grid is saved one value.
▶ : means the value in the grid can be shown
✓ : the grid has stored the data


2. Function buttons


Picture 5:





-  Power on/ Power off
-  Zero button: cleans to zero and cleans peak value, or saves the settings.
-  Shift button of units
→ N.m → kgf.cm → lbf.in
-  Clear button:
This button has to be pressed to delete the data at which "▶" points at.
If  is pressed all the time, all the stored testing

data will be deleted.


 Peak button:
This button is the switch of Peak mode, peak hold, semi-peak hold and track. Track mode is default when the instrument is powered on.


 Print button:
All the stored data can be printed out by pressing this button (output to PC serial port).


 Memory button:
With this button test values can be saved and the average value can be calculated. By pressing this button continuously, the test value is shown on the screen of the device. Keeping the button pressed, "AVERAGE" will be displayed, which means that the calculated average of all reserved values is shown.


 Possible Settings:

1. Upper and lower tolerance limit
2. Peak hold and auto-releasing function (1-30 sec)
3. Automatic Power off and its time (1-60 min.)
4. RS-232C port output
5. Background illumination




 Arrow key **up**:

1. In Memory mode, by pressing this button once, The symbol will forward one case. If on the right of the case appears "✓", it means that this case has already saved the tested value; the next tested value will take place of this value and will be saved in this case.
2. In Set mode, the  button has to be pressed Once and the data will increase one case. Pressing it for more than 2 seconds, the data it will increase continuously.




 Arrow key **down**:

1. In Memory mode, by pressing this button once, the symbol will backward one case. If on the right of the case appears "✓", it means that this case has already saved the tested value; the next tested value will take place of this value and will be saved in this case.
2. In Set mode, the  button has to be pressed Once and the data will increase one case. Pressing it for more than 2 seconds, the data it will increase continuously.

3. Pilot lamp of upper and lower limit

-  means: upper limit alarm
 -  means: normal, o.k.
 -  means: lower limit alarm
- The measured value should be within the preset value,

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Within the minimum range of deviation, then the normal indicator light will appear as , the value is qualified. When the measured value exceeds the upper limit, the symbol  will appear and alarm to say that there is a measuring error. When the measured value is below the lower limit, the symbol  will appear and alarm to say that there is a measuring error, the measured value is not within the scope of the test results.

4. Miniature Printer

It is possible to print 10 memorized data, max. and min. value, average, qualified and unqualified values.

5. Printer Switch On/Off

6. Power connector

7. Communication port

RS-232C port transmits the tested data to PC.

8. Sensor Connector

9. Fuse Box

10. Measuring tip: Combined with various clamps, it transmits the torque load to the sensor.

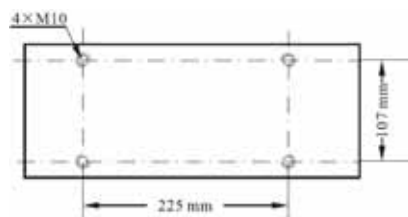
11. Handle

5. Working Process

1. Before starting the measurement, the tester has to be fixed on the working table to prevent it from moving during the tests.

Picture 6:


Dimensions of the board installation






2. Normally, the value is zero if the meter is on. If it isn't, the Zero button has to be pressed to clean.



3. The Unit button has to be pressed to choose the required unit.




4. The upper and lower tolerance limit can be set, the automatic power off time, the peak auto-release time, RS-232C output connection option and background illumination switch option. It has to be proceeded as follows:




By pressing the  button the first time, the display shows "HIDT", the current frame stands for Automatic alarm limit.




The buttons   have to be pressed to change the current value.




By pressing the  button the second time, the display shows "LODT", the number of the box shows the current


lower limit of the automatic alarm. The buttons   have to be pressed to change the current value.


By pressing the  button the third time, the display shows "P.OFF", the number of the box shows the current self- moving off of the time. The buttons   have to be pressed to change the current value.

By pressing the  button the fourth time, the display shows "A.PE", the figures show the peak box automatically the lifting of time. The buttons   have to be pressed to change the current value.

By pressing the  button the fifth time, the display shows "LE.SET", the figures show the PC box or Pr.1,Pr.2, according to the buttons   to change the current status.

By pressing the  button the sixth time, the display shows "LIGHT", the figures show box "ON" or "OFF". "ON" means that the backlight is on, "OFF" means that the backlight is off. The buttons   have to be pressed to change the current status.

By pressing the  button the sixth time, all changes of the settings will be saved and the instrument returns to the test state.

Note: In the process of setting, the "home" button has to be pressed to save the settings of  to return to the test state.

5. After the measurements the instrument has to be turned off. It has to be put back into its toolbox to be preserved safely.

6. Working Environment

Temperature: 0°C up to 40°C

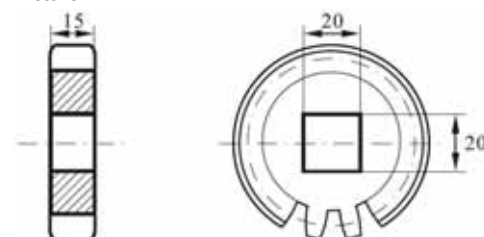
Humidity: 35% RH up to 65% RH (Relative Humidity)

No vibrancy and no cautery around!

7. Measuring Tip and its connecting Dimensions

In the following illustration the dimensions of the connection are shown.

Picture 7:

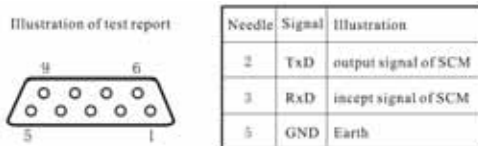


Tooth number: 18 Modulus: 3 Lentiform angle: 20°

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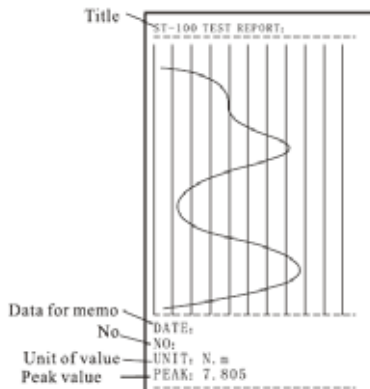
8. Port Output

The port output for RS-232C level should be supported by the external equipment likewise matching RS-232C level. RS-232C data output is as follows:



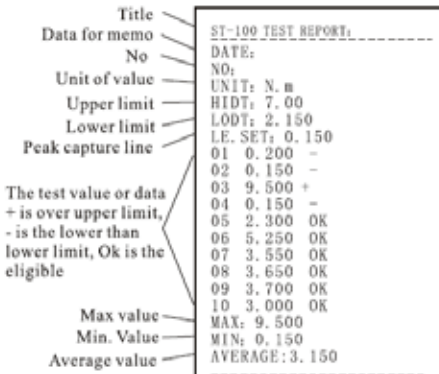
If RS-232C output is set at Pr.1, the single tested curve will be printed .

If is being pressed and appears on the screen, the printed curve will be printed simultaneously during the process of testing (picture 8)
Picture 8:



If RS-232C output is set at Pr.2, the screen will flicker.

When is being pressed, ten groups of data and the analysis report will be printed (please refer to picture 9)
Picture 9:



If RS-232C output is set at PC, the screen will flicker and

when is being pressed, ten groups of data will be transmitted to the PC.

9. Parts List

Number	Parts Name	Quantity
1	Digital torque meter body	1
2	Power wire	1
3	Sensor connector	1
4	M10X40 inter-angle screws	4
5	M10 inter-angle wrench	1
6	RS-232C port connector	1
7	Software CD	1
8	Manual	1
9	Qualification certificate	1

10. Declaration of Conformity



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Konformitätserklärung


Declaration of conformity for apparatus with CE mark
Konformitätserklärung für Geräte mit CE-Zeichen
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con marca CE
Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms with the following standards.
Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
Français Nous déclarons avec cette responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
Español Manifestamos en la presente que el producto al que se refiere esta declaración está a de acuerdo con las normas siguientes
Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Digital Torque Gauge: SAUTER ST

Mark applied	EU Directives	Standards
	89/336/EEC, 93/31/EEC, 93/68/EEC; 2004/108/EC	EN 51329-1:1997

Date: 07.01.2009

Signature: 
SAUTER GmbH
Management

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