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OPERATION MANUAL

**Model IST-M1, IST-M2, IST-M5, IST-M10
DIGITAL TORQUE METER**



1. Functions

The IST-M Series of Digital Torque Meter is a metrological instrument designed special for various torque testing and measuring, which is mainly use for the fracture test of bolts and also use for detecting and calibrating various large power screwdrivers and wrench 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, machinery manufactures, scientific research, and so on.

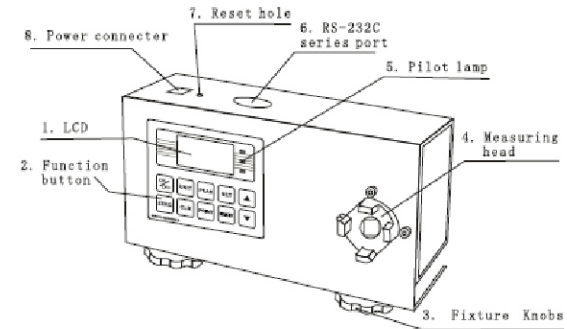
2. Specification

- 2.1 High accuracy and high resolution.
- 2.2 Upper and lower limit, judgment and alarm light.
- 2.3 Display the direction of Torque.
- 2.4 Blue background illumination.
- 2.5 Memory and print 10 test values.
- 2.6 Calculate the average of memory data automatically.
- 2.7 Three units N.m, kfg.cm and lbf.in and auto convert.
- 2.8 Peak hold function, Peak hold and set the peak clear time.
- 2.9 Auto power off and set the power off time.
- 2.10 Output data via series port (RS-232C)

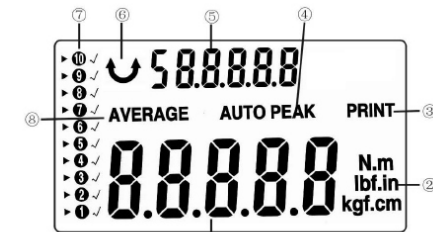
3. The Main Parameter

Model	IST-B1	IST-B2	IST-B5	IST-B10	IST-B20
Capacity(N.m)	1	2	5	10	20
Resolution(N.m)	0.0005	0.001	0.002	0.005	0.01
Accuracy	±0.5%				
Max bottle diameter	200mm				

4. Description of Part and Functions

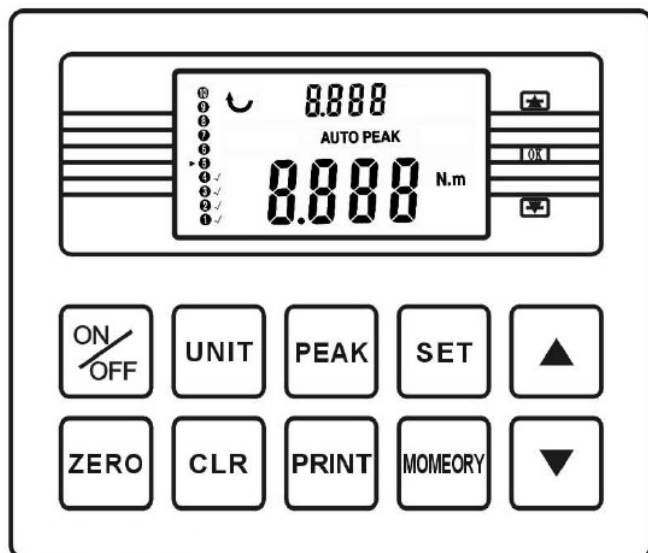


1. LCD



- ① The value of torque: in setting mode, the value of peak capture line.
- ② Unit
Choose 3 unit, N.m, Kfg.cm and Lbf. in, and convert automatic.
- ③ Print the memory data
- ④ Indication of peak mode, "PEAK" is hold the max torque value, "AUTO PEAK" is hold the max torque value and clean peak delay.
- ⑤ Auto calculate the average of memory data. In set mode, indicate the function. The direct direction is showed as "↶"; Reverse direction is showed as "↷"
- ⑥ The indication of torque direction
- ⑦ Memory data
" ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ " are 10 cases, one torque data is memorized in one case
▶| : is indicated the memory data and display it
√ : The case is memorized the data.
- ⑧ The average value of the memorized data.

2. Function button



Power switch, Power on or power off



Zero
Clean zero or clean the peak value



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



Delete the "√" memory data. Press this button for long time, all memory data will be deleted.



It is the switch of peak mode: peak hold, semi-peak hold, and track.
Track mode is default, when the meter is power on.



Print the memory data

A. When the output of RS-232C is set at Pr.1, it is for single test. Press "Print", the screen will show "Print" and print the tested curve while testing.

B. When the output of RS-232C is set at Pr.2, Press "print", the screen will flicker, and 10 groups of data and its analysis report will be printed.

C. When the output of RS-232C is set at PC, press "print", the screen will flicker and 10 groups of data will be transmitted to the computer.



Memorize the test value and calculate the average. Pressing the button keeps the test value showed on the screen in the meter. Pressing the button still makes the screen display "AVERAGE" and the average of all reserved value can be seen.



Setting

A. set the upper and lower limit

B. set the capture line of peak

C. set the time of auto power off (choose 1-60 minutes, 0 is not power off automatic)

D. set the time of auto clean peak (1-10 seconds)

Press set button, the HILT is displayed on LCD, to set the upper limit.



Add 1

A. In memory mode, press it one time, symbol will forward one case.

B. In setting mode, press it one time, the value will increase one.






Reduce 1

A. In memory mode, press it one time, symbol will backward one case.

B. In setting mode, press it one time, the value will decrease one.

3 .The Pilot lamp of upper and lower limit

-  Pilot lamp of upper limited alarm
-  Pilot lamp of normal
-  Pilot lamp of lower limited alarm

4 .Communicating port

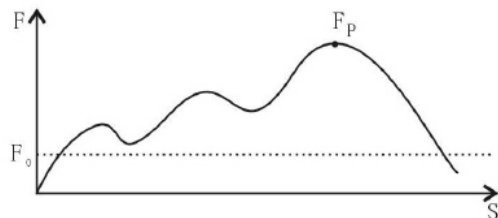
RS-232C series port to connect printer.



5. Operation

1. Before starting measurement or test, please fig the tester on bench to prevent the tester from moving in the torque measurement or test.
- .2. Please connect the power supply and press the key on/off. Normally, the value is zero, when the meter turns on. If the value is not zero, please press zero button to clean zero.
3. Press unit button to choose the unit as you required.
4. If test need compare, please set the upper and tower limit value.
5. According to your requirement, please choose the suitable mode.
There are 3 modes to choose, Peak, AUTO PEAK and track.
6. After the test, turn off meter and put them into the toolbox.

6. About Memory and Peak Capture Line

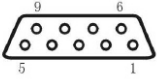
If you need to use the memory function, Please set the Peak capture line “F”. In the test, the meter will remember the Peak value, which is above “F”. The value is absolute value. When the value is lower than” F”, it is one test. If the peak value is lower that “F” in one test, the peak value is not memorized.



When one peak value 15 saved, the saved case will show””, and the”” will be up to lower location. The meter can memorize 10 values. If the value is more than 10 values, the new value cover original 10 values in memory. Press “ ” can view the memorized value. The data will be showed on the area of data. If you need the average value of the memorized value, press “memo”, the average value will be showed the small display area. Press “memo” again, to return the memory mode.

7. About The Output of RS 232 Series Port and Print

7.1 Illustration of connection pin and test report



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

Labels for the test report:

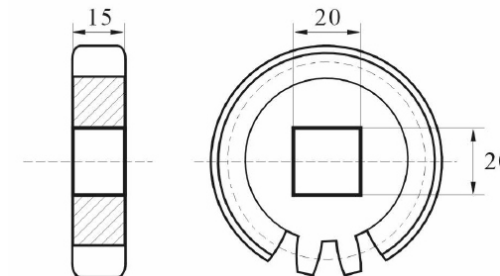
- Title
- Data for memo
- No
- Unit of value
- Upper limit
- Lower limit
- Peak capture line
- The test value or data + is over upper limit, - is the lower than lower limit, Ok is the eligible
- Max value
- Min. Value
- Average value

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ST-1 TEST REPORT:-----
DATE:
NO:
UNIT: N.m
HLDI: 0.700
LOBY: 0.215
LE. SET: 0.015
01 0.020 -
02 0.015 -
03 0.950 +
04 0.015 -
05 0.230 OK
06 0.525 OK
07 0.355 OK
08 0.365 OK
09 0.370 OK
10 0.300 OK
MAX: 0.950
MIN: 0.015
AVERAGE:0.315
                    
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7.2 Connection and Dimension of Measuring Tip

Follow is the ichnography of the connector



8. Precautions and Maintains

1. Before starting measurement or test, please firm the tester on bench to prevent the tester from moving in the torque measurement or test.
2. Do not apply a torque above the capacity. Otherwise the meter maybe damaged and caused danger.
3. Do not hit or put something on the LCD.
4. Do not press button with pointed tools, nail and speculated tools.
5. Do not using the meter in the places where is with water, oil or other liquid. Should use the meter in the place, shady, dry and no shock.
6. Do not open the rear cover or adjust the nice adjusting resistance. And do not adjust the fine adjust resistor.
7. Do not loose the fixture screw- on the connector.
8. Do not plug in or out the plug with wet hand, to avoid electrical shock.
9. Clean dirt and dust from gauge with soft cloth. After dipping cloth in the neutral detergent water and squeeze out water, and clean dirt with the cloth.
Attention: Do not use volatile chemical liquid to clean the meter, such as Ben-zone, thinner, alcohol, etc.
10. In the using and delivering procedure, please move the meter smoothly and slightly.
11. Please never disassemble, repair, and modify the meter by yourself. Or these may cause malfunction of the meter.
12. If there's something wrong with it, please contact with original sales department or take it to the correlative instrument departments to maintain.