Digital Tension Meter Instruction Manual

I. Introduction

1.1 Main use and scope of application

Hand-hold digital tension meter is a portable electronic digital measuring instrument that can measure the tension of filamentous and linear materials. It is widely used in wire and cable, textile and chemical fiber, metal wire, carbon fiber and other industries. It can accurately measure tension and systematically process data.

1.2 Product features

1.2.1 Three working modes——Real-time, Hold, and Peak can be switched at will.

1.2.2 cN, gf, OZ, Kgf, N, lb can be set 5000CN range below.

1.1.3 OZ, Kgf, N, lb four units can be set 100N range below.

1.2.3 Accuracy is 2.5% of full scale.

1.2.4 Can accurately measure the tension of 10 different materials.

1.2.5 Has USB communication function.

1.2.6 Has a thickness adjustment function.

1.2.7 Easy to store, and can store 41 sets of data.

II. Product model specifications

Model	AZSH-200cN	AZSH-500cN	AZSH-1000cN	AZSH-2000cN	AZSH-2500cN	AZSH-5000cN	AZSH-100N
Tension range	4~200.0（cN）	10~500.0（cN）	20~1000（cN）	40~2000（cN）	50~2500（cN）	100~5000（cN）	2~100N
* Measuring head width (mm)	65	65	65	65	116	116	116
** Calibration material textile PA monofilament	φ0.12mm	φ0.12~0.20mm	φ0.20~0.40mm	φ0.40~0.70mm	φ0.40~0.70mm	φ0.60~1.20mm	φ0.80~1.40mm
Size (mm)	270*118*55						
Net weight (g)	About 640g						
Power supply	3.7V lithium battery*2						

Description:

*: Depending on the model, the width of the lead frame and the distance between the outside of the two guide wheels are also different.

**: The company's calibration materials are suitable for 95% tension measurement. PA=Polyamide monofilament. If the diameter, hardness and shape of the material to be tested are significantly different from the calibration materials of the company, it is recommended that the customer provide 5 meters of the tested material for calibration.

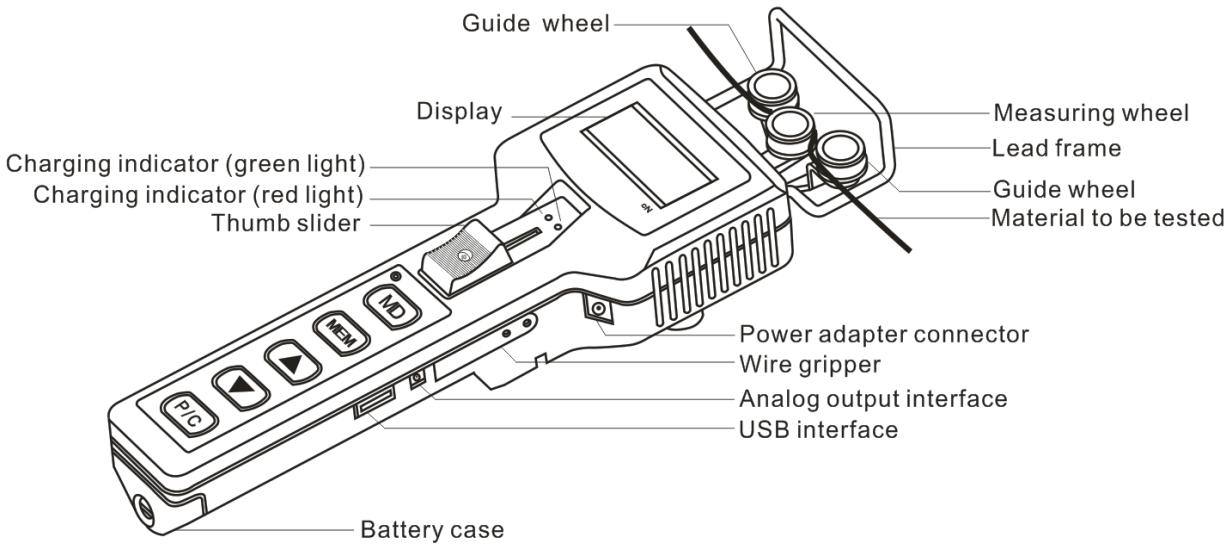
International tension unit:

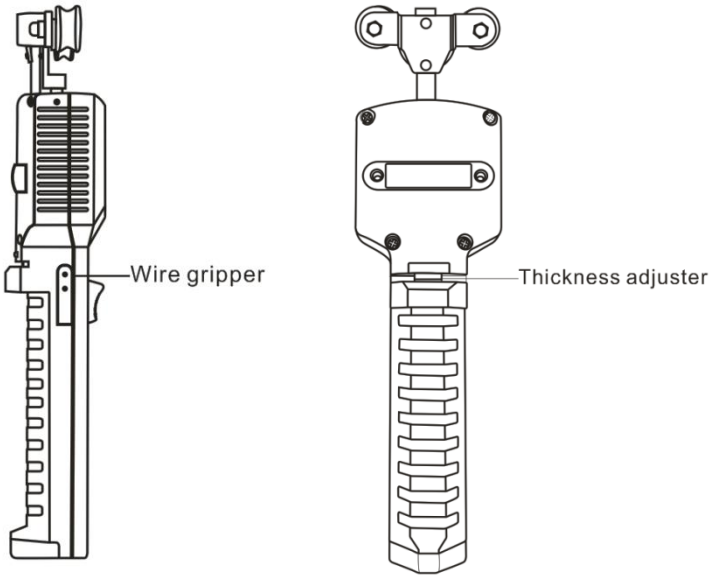
1CN=1.02g=0.01N；

100N=10.2kg=10000cN。

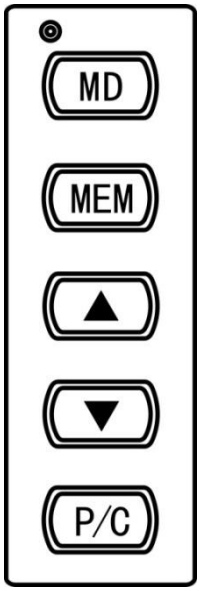
III. Overall structure

3.1 Exterior structure





3.2 Button description



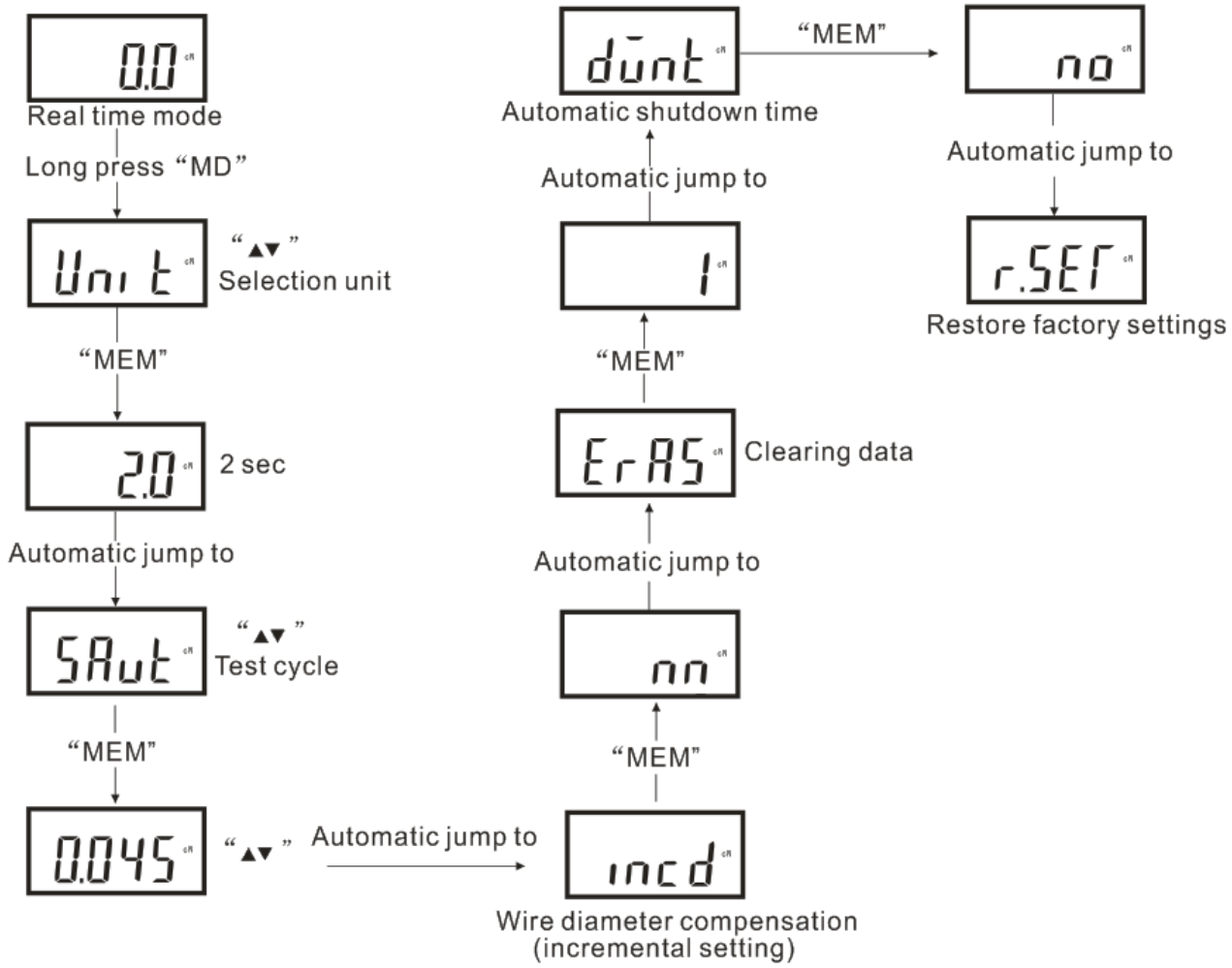
3.2.1 "MD": Operation mode selection / setting interface option / exit. In the measurement interface, press this button to switch the real-time mode (no character display on the screen), HOLD (hold mode), PEAK (peak mode); in the real-time mode, press and hold the "MD" for 3 seconds to enter the setting item interface. Press the “MD” on any interfaces to exit and return to the measurement interface.

3.2.2 “MEM”: Save data/view save data. In the “PEAK” mode, press the “MEM” to save the force value. If you press the “MEM” for a short time, the current force value will be saved. In the real-time mode, press the “MEM” to enter the data. Interface; in the "HOLD" mode, the first short press "MEM" to start saving data, the second short press "MEM" to indicate that the data has been saved successfully; in the setting item interface, press the "MEM" to view the next A setting item.

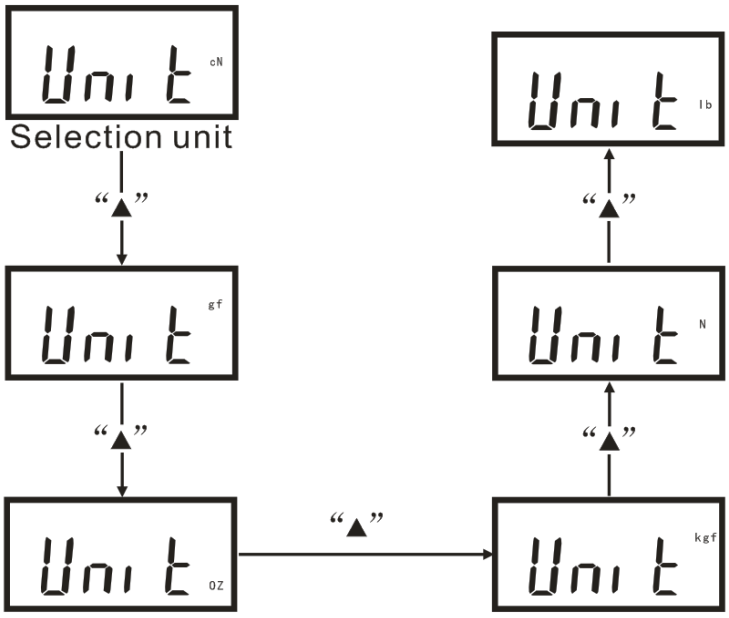
3.2.3 “P/C” : switch on/off, zero setting/delete. Press and hold the “P/C” for 3 seconds to turn on/ off; in the real-time and peak mode, press the “P/C” to clear the value; in the view data interface, press the “P/C” to delete the current force value.

IV. Menu function introduction

4.1 System function settings

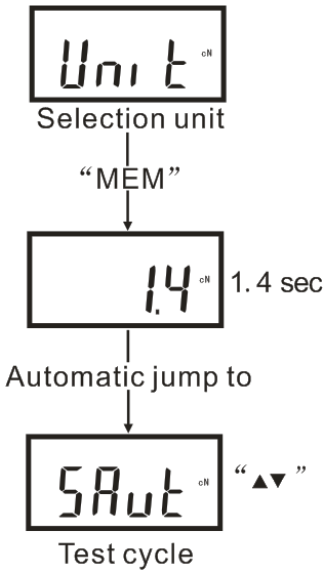


4.2 Unit selection



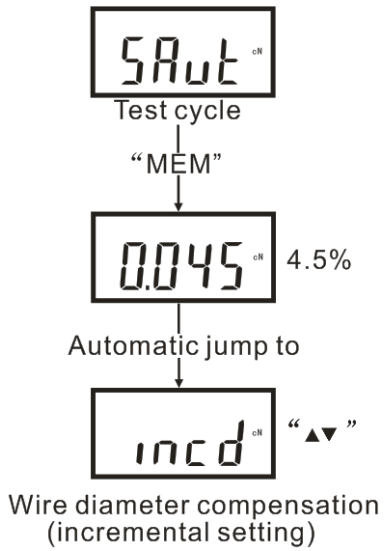
4.3 Test cycle

The unit is seconds for the "HOLD" mode. For example, if you select “1.4” seconds, when the force is applied in “HOLD” mode, the instrument display will flash a set of data every 1.4 seconds and automatically save it, and each set of data contains the maximum value, the minimum value and the average value.



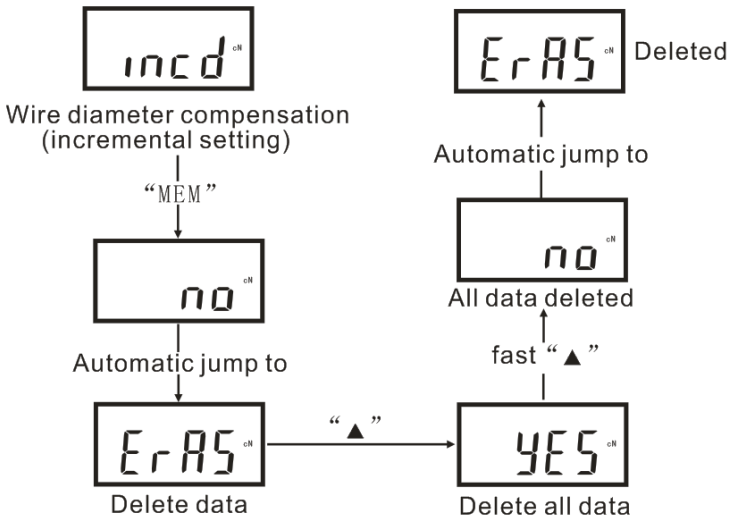
4.4 Wire diameter compensation (incremental setting)

The unit is “%”. For example, the full scale is 50N, and the test result is 48N, then the accuracy is 4%. At this time, a suitable compensation, such as 0.045 (4.5%), can be selected to reduce the error.



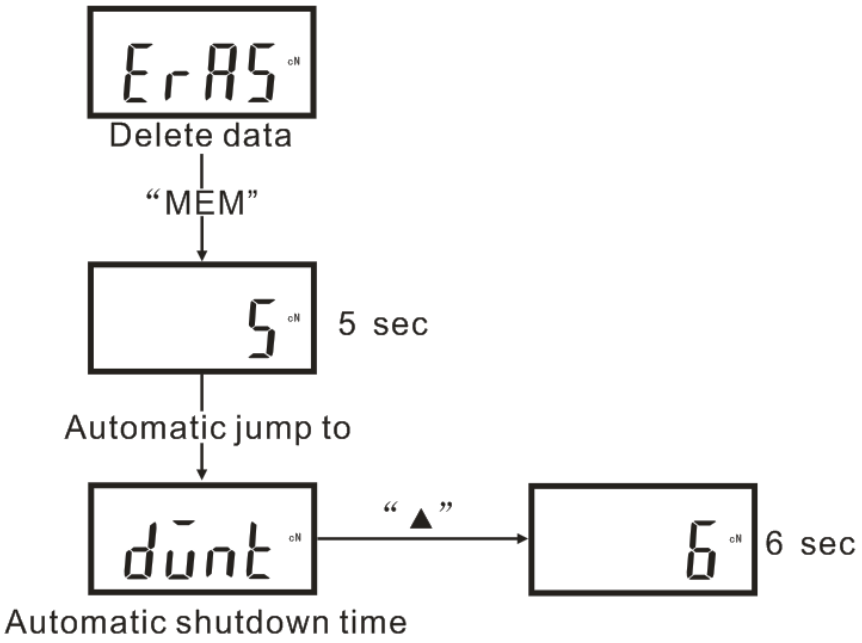
4.5 Clearing data

Delete all data stored in the instrument. “YES” is deleted all. When “YES” is displayed, press “▼” to select to confirm the deletion. Press "MD" to exit without deleting data. As shown below:



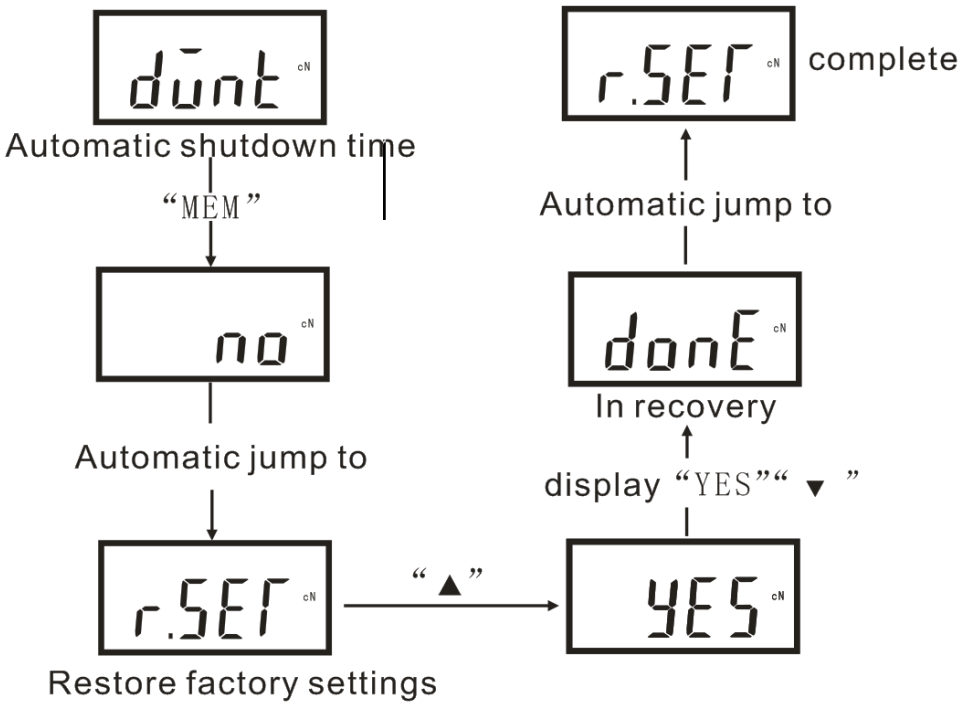
4.6 Automatic shutdown time

Can set automatically shut down if the instrument does not be operated for 0-15 minutes, “0” is not automatically shut down, press “▲ ▼” to select the automatic shutdown time.



4.7 Restore factory settings

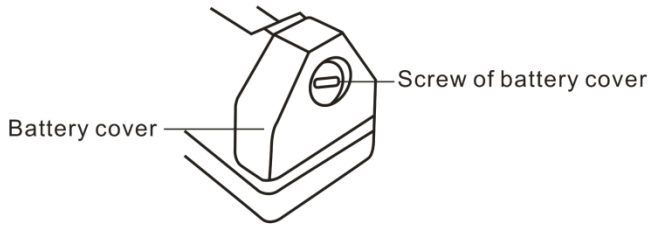
To restore the factory settings, press "▲" to restore the factory settings. When "YES" is displayed, press "▼" to confirm the factory reset. As shown below:



V. Battery installation and replacement

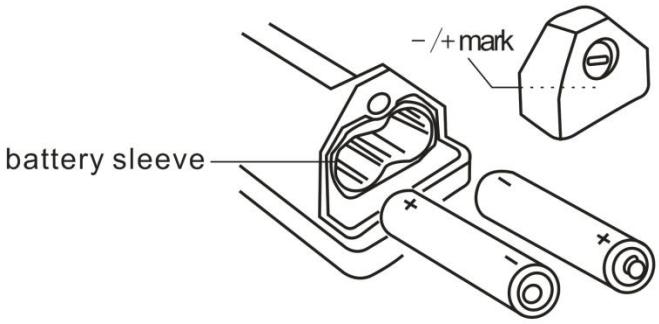
5.1 When “B” appears in the upper right corner of the LCD screen, it indicates that the battery is low. Please charge it immediately or replace the battery.

Method of operation: Use a flat-blade screwdriver to unscrew the battery cover at the rear of the instrument counterclockwise. As shown below:



5.2 Put two 5th 3.7V lithium batteries into the battery sleeve and insert the battery according to the positive and negative indications of the internal battery.

As shown below:



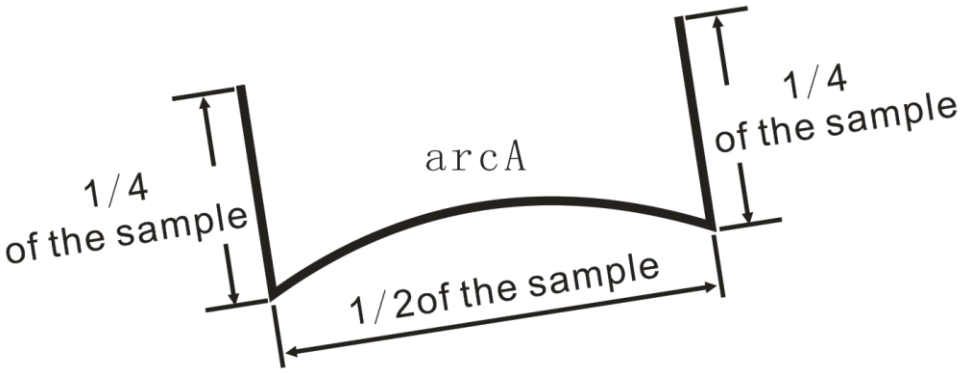
5.3 Tighten the battery cover clockwise.

VI. Thickness adjuster

6.1 When we use the “3 roller” principle tension measurement method, even if the linear tension is constant, the increase in material diameter will result in an increase in the tension reading. The instrument's dedicated thickness adjuster system automatically converts to an external roller to compensate for this effect. The thickness adjuster measures diameter to 0.01mm and can be used as a factor in computer calibration formulas.

The thickness adjuster is located on the back of the instrument and pushes the thumb slider forward. The two metal blocks are separated to form a seam that can be inserted into the material.

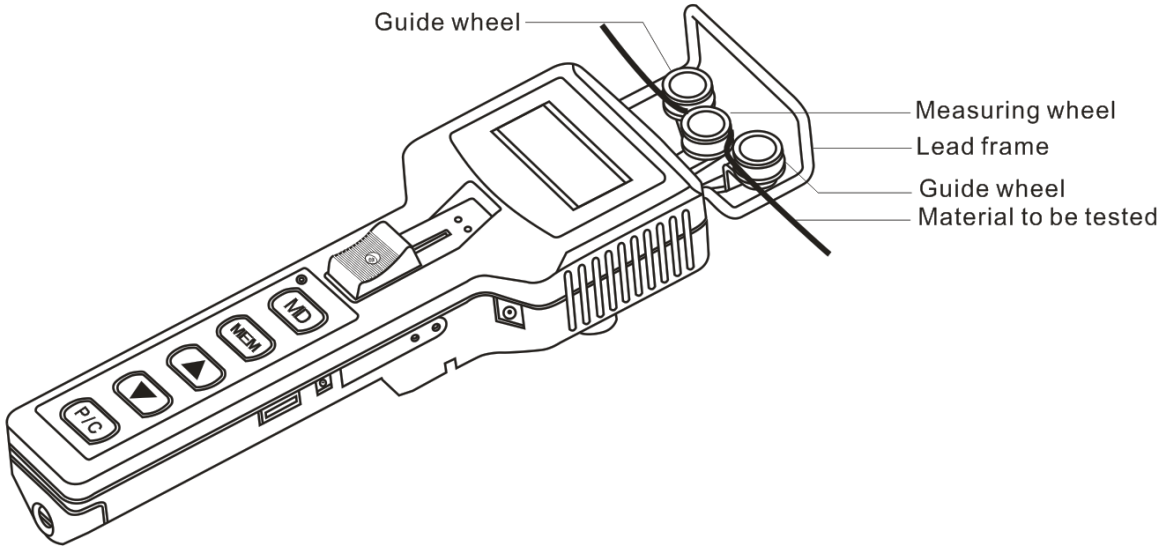
6.2 When using monofilaments, wires and other non-bend materials, the sample must be fully prepared before inserting the thickness adjuster. Use pliers to bend the sample as shown below. Keep the monofilament in the "A" arc as shown below and then bend the sample into the thickness adjuster.



6.3 Move the thumb push slider forward, place the sample into the slit, and slowly reset the thumb slider. The sample should be fixed between two metal blocks, and the end of the sample should be placed under the wire clamp.

VII. Operation steps

7.1 Press the “P/C” to turn on the instrument and select the appropriate test mode and unit.
7.2 Push the thumb slide forward until the outer two guide wheels extend out of the lead frame.
7.3 Place the sample in the measuring wheel and slowly release the thumb slider until it returns to its original position and the LCD will start to display the test data. (Note: Do not allow the thumb slider to quickly retract, otherwise it will affect the accuracy and damage the instrument.) As shown below:

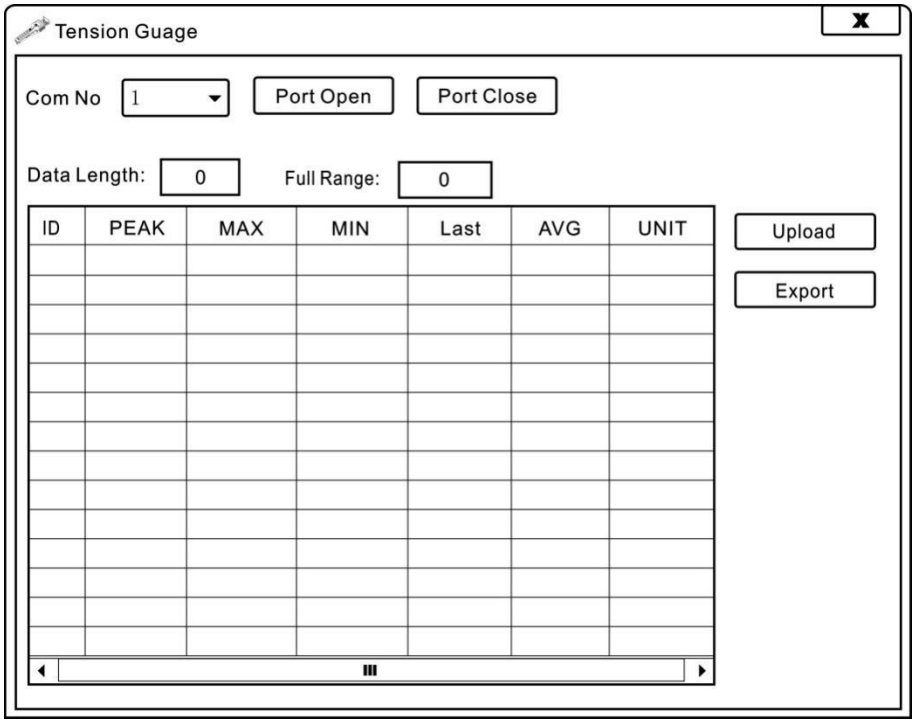


VIII. Data output

The storage data can be transferred to the computer via the USB interface, and the data can be

processed by the software produced by the manufacturer.

The software interface is as follows:



Use the CD provided by the manufacturer, install the communication software on the computer, and then connect the hand-hold digital display tension meter and computer with the data cable when the hand-hold digital tension meter is turned on. Double-click the software icon to open the software and select “Com No”. Port number)", click "Port Open", and then click "Upload". At this time, the stored data in the instrument will appear on the form, indicating that the host computer has been successfully connected, and the purpose of reading the stored data has been achieved.

IX. Repair and maintenance

9.1 The measuring and guiding wheels should be inspected regularly to ensure their light and smooth operation.

9.2 Under normal usage time and load, we recommend a verification period of one year.

9.3 Do not use it when using it, and try to avoid bumping and falling.

9.4 Do not overload the device to avoid damage to the instrument's sensor.

9.5 It is strictly forbidden to disassemble the instrument at will. If you encounter any problems, please contact our company in time.

9.6 Do not use any corrosive solution during cleaning.

9.7 When not using the instrument for a long time, remove the battery.

X. Packing list

1	Hand-hold digital tension meter	1
2	Instruction manual	1
3	Certificate	1
4	Inspection certificate	1
5	Desiccant	1
6	USB data cable	1
7	12V charger (big head)	1
8	Online software (CD)	1