GY-4 Digital Fruit Sclerometer Manual

Thank you for purchasing GY-4 digital fruit hardness tester：

The fruit hardness tester has advantages of high precision,easy operation and carry.It can store data and input data to computer for statistical,It can be used together with a special test stand to increase measurement accuracy.

GY series fruit hardness tester has many specifications for the user to choose, users can choose the appropriate specifications of the instrument according to the load of the required test product force. The scientific use measurement range is 10% to 100% of full scale. The measurement department does not recommend using less than 1% of full scale.

I.Characteristics:

1.1 High-precision and high-resolution: LCD display, backlight function (backlight for night use), and screen number can reverse ;

1.2 Display battery capacity: 3 grid, 2 grid, 1 grid, automatic shutdown when the power is too low.

1.3 Setting function of gravity acceleration:users can input at your option the accurate value of gravity acceleration at the using place so as to make the testing and unit conversion be more accurate.

1.4 Function of peak value maintaining.Maintain the display of peak value until manually cleared to Zero.

1.5 Automatic peak function:Maintain the display of peak value for 10 seconds and then release automatically.

1.6 Data storage function.447 testing values can be stored.

1.7 Data output function.The data can be input into computer through data line for various analyses.

1.8 Automatic shutdown time setting: automatic shutdown time setting can be set for 10 minutes to 90 minutes automatically shutdown; 10 minutes no operation automatic shutdown,10 minutes for the default, the automatic shutdown can be set to the required automatic shutdown time, automatic shutdown set to 0, will not automatically shutdown.

1.9 High quality chargeable power supply,the charging voltage is available from 100V to 240V,which can accommodate most areas in domestic and at abroad.

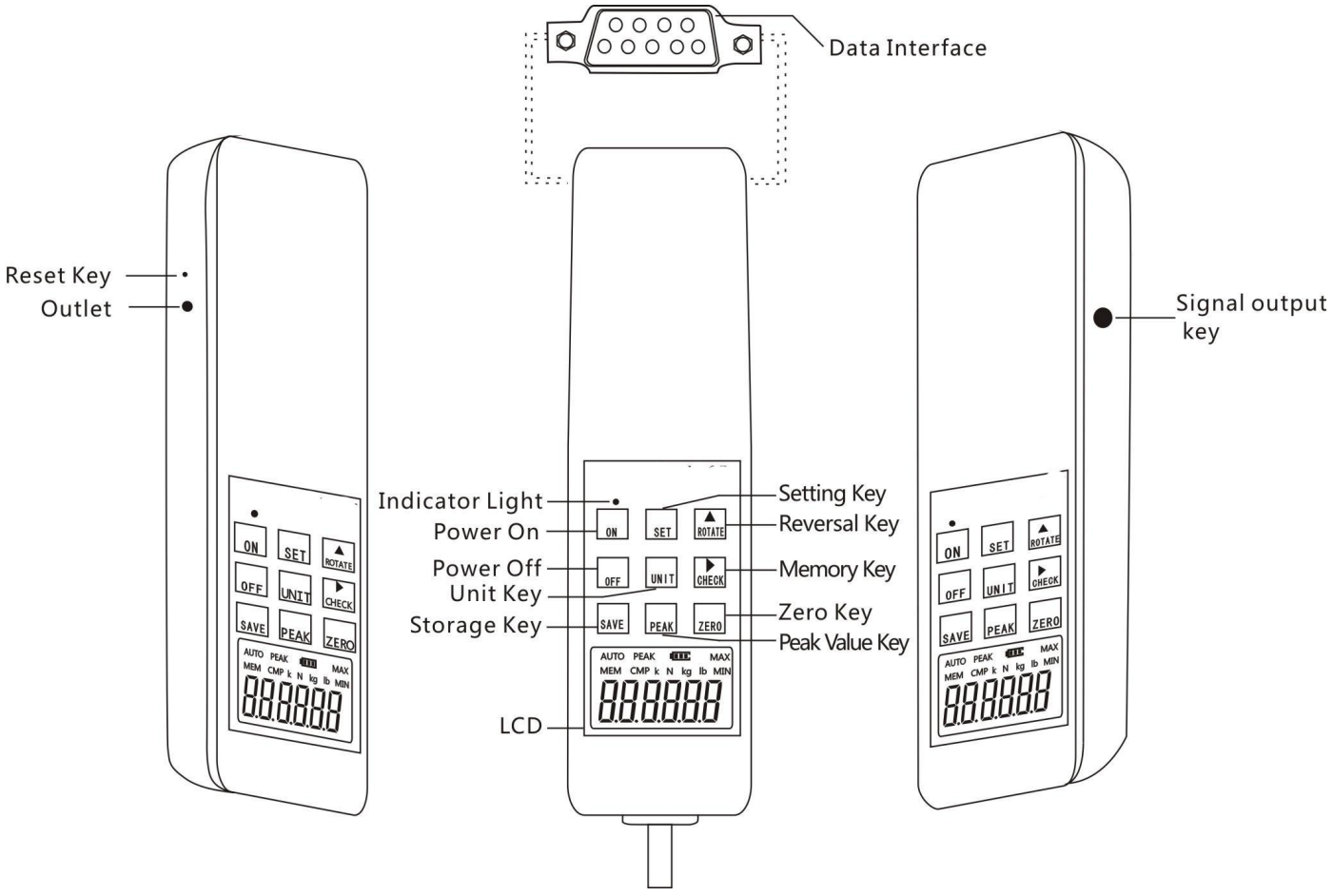
1.10 2 sets mounting dimensions,it is applied for most testing platforms domestic and foreign,easy for users to install it to platform.

II.Technical Parameters:

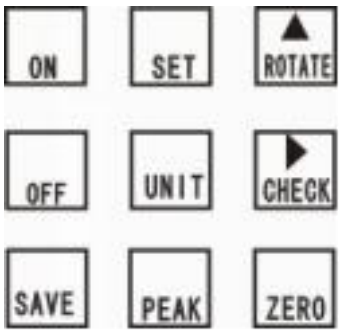
Model	GY-4	
Unit	Kg/cm2($\times 10^5$ pa)	
Seaming Chuck Diameter	Φ11.1mm	Φ7.9mm
Measurement Range	0.2～15 Kg/cm^2 ($\times 10^5$ pa)	0.4～30 Kg/cm^2 ($\times 10^5$ pa)
Division Value	0.01 Kg/cm^2	
Indication Error	±0.5%	
Accuracy	±1%	

Depth Pressed by Seaming Chuck	10mm
Power	Charging 100-220V/AC;Battery continuous working time: 8 ~ 10 hours.
Power Supply Mode	AA NI-MH battery /220V AC charging 4 ~ 6 hours.
Stability	Temperature drift 0.2uV/℃（0-60℃）;Zero drift ≤ 0.1%/8 hours/FS
Working Temperature	5℃～35℃
Relative Temperature	0～+60℃
Relative Humidity	15％～80％RH
Working Conditions	No hypo center and corrosive medium
Net Weight	About 590g
Outline Dimension	245×66×37mm

III.Configuration:



IV.Button Introduction



4.1 **ON button**

Press the button,And the power will on.After the tester is turned on, the zero drift value of the analog signal may be displayed on the screen before the zero key is reset,then just need press the zero key.

4.2 **OFF button**

In the boot state, press this button, the power shut down, but the preservation of the data stored does not disappear.When powered up (i.e., display model and measuring interface 0.0), according to the shutdown button is no response at this time

4.3 **Save button**

The test data displayed on the screen can be saved by pressing this button at the peak measuring interface state. In the state of the function setting interface, press this key to save the parameters of the set. MEM displays when the test data is stored in the machine.the tester can store 447 data.

4.4 **Peak Button**

Press this button each time, the switching of display of "PEAK", display of "AUTO PEAK" and disappearance of "PEAK" can be realized. That is, the switching of peak value maintaining, automatic release of peak value maintaining and real-time load value mode.

4.5 **SET button**

Press this key to enter the setting interface in the real-time measurement interface; When setting the interface, press this button to enter the required Settings.

4.6 **ROTATE button**

This key is only effective in testing interface,when press this button,measured value display will be rotated 180 degrees.

4.7 **CHECK button**

When pressing this button, the stored testing data will be displayed on the screen. “MEM” words flashing. First show stored times, after 2 seconds automatically show stored data. Press ZERO button back to testing interface.

4.9 **ZERO button**

After pressing this button, the testing value on the screen will be cleared.

Notice: when need clear the gauge, can only in real-time testing interface. In Peak interface and Auto peak interface can not clear the gauge

Select lighter fixtures or remove the added load to clear again.

In Checking interface, press this button for 4 seconds, all stored testing data will be completely cleared. (Under some conditions, the clearing may not be completed. Power off and power on again to execute the function, all the memorized data can be cleared.)

V.Screen Display Declaration

5.1 **PEAK**

When Peak is displayed,it indicates peak mode(Peak maintaining mode),and screen will display the peak

value until manual zero clearing.When AUTO PEAK is displayed,it indicates AUTO PEAK(automatic release mode of peak maintaining),and the peak value will be maintained for 2 seconds and then it cleared automatically.When the "PEAK" is not displayed, the "track mode" (real-time load value mode), the value on the screen changes with the change of the load.

5.2 **MEM**

When the measurement data is stored, "MEM" will display. The "MEM" flickers when you view the measurement data by the "check" key.

VI.Data Storage

6.1**Date Storage**

Only under the status of peak value maintaining (PEAK), when the test is completed, the test data will be stored by press the SAVE key, with "MEM" on the display, and the stored data will be saved after the shutdown. When viewing the stored data with the "view" key, the "MEM" flashes, first the number of stored times, and the value of the store automatically after 1 second. Press "zero" key to return directly to the measurement interface. Data can also be fed into a computer for analysis. The tester can store 447 data.

6.2 **Memory Clearing**

Press the "check" key to enter the storage data interface, press the "Zero" button for more than 4 seconds, and all the stored data will be erased.The word "MEM" disappeared.

The tester can connect to the computer and input the test data into the computer. Check, print test times, average, maximum, minimum, and determine whether the test results meet the set requirements.

VII.Other Functional Descriptions:

7.1 **Printing Function Description：**

The stored test data from the data line to the computer under this function.

A, after the running the carry CD, open the folder and then click the "data export procedure" file, then click "setup. Exe file", then click the "next" to "next", "done".

B, this tester is connected to the computer with usb data cable, under the conditions of instrument for boot, to display on the LCD panel is zero, double-click the desktop "dynamometer communication software 3.0. Exe" shortcuts, after in the pop-up window, click on the "receive", storage of test data, through the output cable to the computer. After receiving the data, click "print" and click "print" in the pop-up window to print.

7.2 **Synchronous test function specification:**

This function can display the synchronization test curve, data and other functions of the test.

A.after running the CD, will have the folder, open and then click the "synchronous test software" file, then click "install. EXE file", then click the "next" to have been some "next", "done".

B. For specific operation steps, please download the "digital push pull meter synchronized test function demonstration" in the problem bar on the company's home page, and refer to the operation of this demonstration.

7.3 **resolve the state of the dead machine:**

When measuring instrument crash, press the "reset" key on the left side of the instrument.

VIII.Setting The Acceleration of Gravity

Press the "Set" button in the start up state, and the "TEST" is displayed, then press "up" button 7 times and then Enter  (G.SET) gravity acceleration setting.According to the position of the region set gravity acceleration value,the default value is 9.800

IX.Correction Method

1、The test software can be used with a computer that indicates simultaneously curve of test force with a detailed record about it,which can be saved and printed for various analysis,See the CD information for optional functions.

2、The AUTO PEAK is for automatic record of test values,with which,the instrument can record automatically the test values.Press Check to read the data in details.The programs can be used by keying in the CD data,which can indicate automatically max,min,values,average values,tolerance values etc.For the user to analyze and use (see the corresponding instructions on the CD), the interface is friendly when the data is exported to the computer, and it can be used in the normal start up interface through the supporting data line connecting machine.

3、The Super memory function can keep 447 test values can be saved manually by pressing PEAK(once).And,they can be saved automatically by pressing AUTO PEAK(twice).By pressing VIEW,the values saved can be reviewed one by one.The programs can be used by keying in the CD data,Which save the data by the computer.

4、Backlight function.Press the "SET" button when starting up,TEST will be showed on the screen,then press "ROTATE" button 8 times and enter the SET key to setting the backlight:Under this setting project, with the "ROTATE" key or"CHECK "button, if choose"  (YES), " to open backlight, choose"  (NO) "to close backlight, selected according to" save "button to save and return to the project Settings interface.

5、By pressing PRINT,the reversing indication of 180°can be shown by the LCD screen,for convenience of reading s from various angles.

6、By pressing PEAK twice,the AUTO PEAK is shown on the LCD screen..Press the "Set" button when starting up,TEST will be showed on the screen,then press "ROTATE" button 6 times and press the SET key to enter  （PE.SET） the automatic peak saving time setting.unit in seconds,The default value is 10, with "ROTATE" and" CHECK"key Settings.

7、Automatic shutdown time setting can be set 10 minutes to 90 minutes automatic shutdown, also can set not automatic shutdown. Turn the instrument, press the "SET" button, display is "TEST", press "ROTATE" five times at this time press" SET "key to enter  (OFFT) after the automatic shutdown time setting: under this setting project, with the"ROTATE "key or" CHECK"button, can be set to 10 minutes to 90 minutes automatically shut down, also can be set" 00 "automatic shutdown. If you choose not to turn off automatically, press "SAVE" to complete the setting. That is, return to the options screen. The device is set to 10 minutes by default.

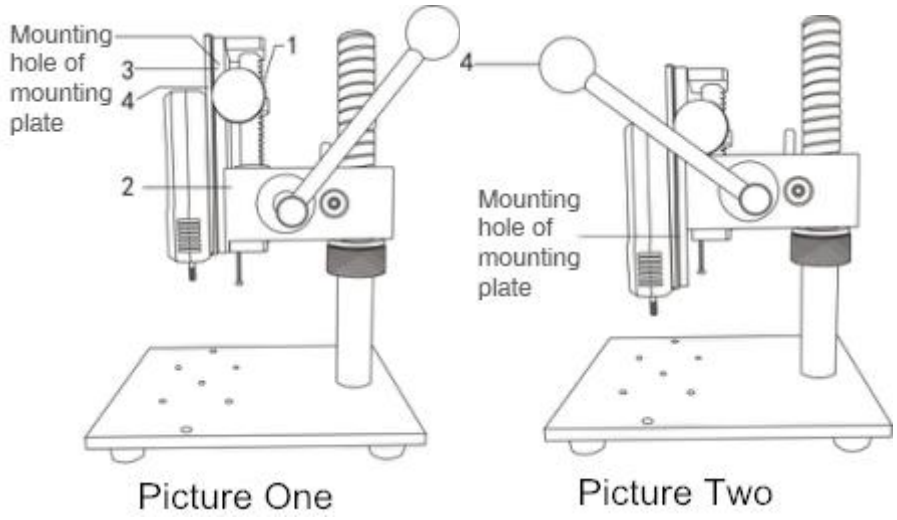
8、The battery capacity is shown by 1,2 and 3 dots.With too low power,the instruments turns off automatically.

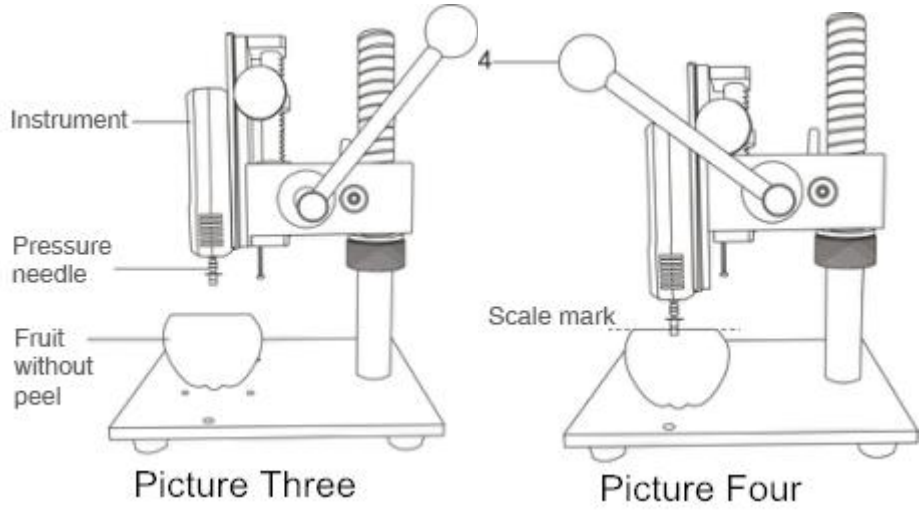
9、The quick reset of the accidental death machine is arranged on the side of the reset button, and it can

be turned off by pressing the reset switch with hard objects.

X. Testing

1、Fix the Digital Fruit Sclerometer on the Test





A、Loosen “Adjusting handle 1”,slide it down until the upper end of “Part 2”(Two M3 holes are exposed at the upper end of “Mounting plate 3”).Use two M3*6 cross recessed pan head screws to pass through the two M3 hole at the upper end of “Mounting plate”,fix the adapter plate and the "Mounting plate 3" together.Finally,loosen “Adjusting handle 1”,restore the position,and then tighten the "adjust the handle 1" to fix it.(As picture one shows)

B、When the handle 4 is pressed down, the two mounting holes at the bottom of the mounting plate can be exposed. Install the bottom two holes of the instrument on the mounting plate 3 with mounting screws and pad. (As picture two shows)

C、Follow as two operations above,tighten four screws.

2、Select the appropriate probe **(Note: When the probe with diameter of 11 is selected, the hardness value displayed by the instrument is the actual fruit hardness value; when the probe with diameter of 8 is selected, the instrument shows the hardness value of 2 times the actual fruit hardness)** , Mount the probe to the instrument's test bar with a threaded sleeve. (As picture three shows)

3、Before testing:Peel the fruit about 1cm 2 .During testing:Align the center of fruit and Press needle vertically,the result will be more accurate.(As picture three shows)

4、Start to test:Press “ON/OFF” key to turn on the sclerometer,wait 1-2 seconds to enter the measuring

interface(Press “ZERO” key if the value is not zero).Press the Handle,make the Press needle into the flesh until arrive at Scale Mark.The value shows on the Digital Fruit Sclerometer is the hardness of the fruit.(As picture four shows)

5、After testing:Remove the Digital Fruit Sclerometer and Pressure needle,clean all the items and put them back into the box for the next using.

XI.Attention

1、 Notes

a、When the power is running low ,it need to charge 4~6 hours can be normal using.

b、 Must use the RS232 computer cable in the company's allocating accessories

c、Any error operation may damage the instrument or cause serious accident.This manual indicates important matters about how to prevent accidents and the usage of instrument,please read this instructions carefully before using,keep it securely in preparation for reading again.

2、 Warning:

a、When in a destructive test,please wear protective masks and gloves to prevent splashes hurt you.

b、Do not use damaged or seriously bent pressure needle.

C、Do not use the Digital Fruit Sclerometer exceed the maximum load,or it will damage the sensor even cause the accident.

d、 When the test value exceed the 100% full scale,the Digital Fruit Sclerometer will buzzing all the time,please reduce the load immediately or release the load.

3、To solve crash,please insert a needle into the “RSET” hole which is on the right of the sclerometer to turn off the instrument

4、Safety Precaution

a、Please use the matched charged,or it will cause circuit failure even a fire.

b、Do not use power that exceed the rated voltage of charger,or it will cause electric shock even a fire.

c、Do not unplug or insert charger with wet hands,in case cause the electric shock.

d、Do no unplug charger by pulling line directly,in case the line is broken and cause electric shock.

e、 Please clean the instrument with soft cloth,put the cloth into the cleaner water,wring the cloth out and then clean dust and dirt(Attention:do not use the highly volatile chemical to clean the instrument,such as propellant,thinner,alcohol).

f、Do not operate the instrument in the following environments:

①Humid environmen ②Dust environment

③The place of using oil and chemicals ④Epicentre surroundings

g、Please use and store instrument in required temperature and humidity,or it will cause failure.

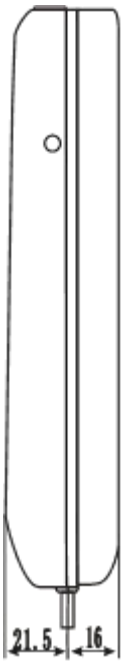
h、Do not dismantle,repair or restructured the instrument by yourself,it will cause permanent damage.

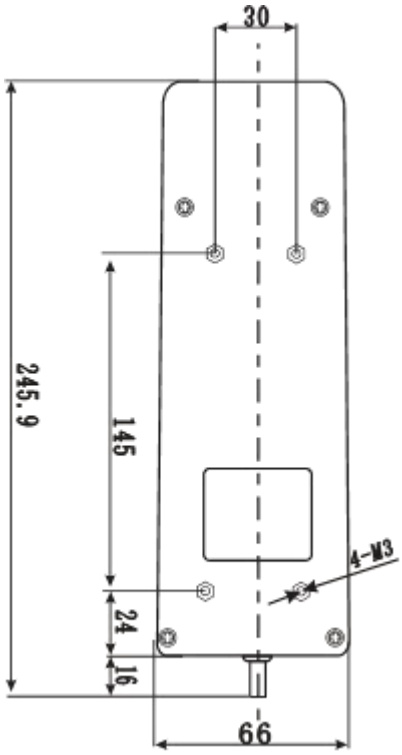
i、Other safety precaution not mention.

J、Affirm items before the GY-4 digital fruit hardness tester's repair

	Symptom	Cause or Phenomenon	Treatment
Power	Press "On" button No display	Batteries has no electricity	Recharge
	Can't charge	Charging use specification does not meet the converter	Please confirm AC110V⟶DC9.4V AC220V⟶DC9.4V
	The charging indicator is not on	The battery is too low and needs a wake-up time.	If the indicator light is not bright, the light will be charged for half an hour. If the instrument is normal, the light will be renewed.
Testing Value	The test value is inaccurate.	Error is too big	Need to return to factory
Other	System halted accidentally	Press any key to have no reaction.	Press"reset"key

XII.Figure and installation dimension diagram (the two holes on the installation diagram are for fixed use on the special measuring rack, and the measuring frame is self-matched)





2 sets of installation dimensions, respectively: 4-M4—40×90
4-M3—30×145

XIII.Packing List

NO.	Name	Quantity
1	Digital Fruit Sclerometer	1 Set
2	Pressure needle （ ⌀ 11.1mm ,⌀ 7.9mm）	1 each
3	M3*8/M3*12 Cross screw	4 each
4	M6 Screw	2 Pieces
5	Spring Washerφ3	8 Pieces
6	RS232 Cable	1 Piece
7	Companion software CD	1 Piece
8	Charger	1 Piece
9	Manual	1 Piece
10	Certificate of Inspection	1 Piece
11	Certificate and Warranty Card	1 Piece
12	Desiccant	1 Bag