Tablet Hardness Tester YD-2

User's Manual

Shanghai Lorderan Scientific Instrument Co., Ltd

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Introduction

Thank you for choosing YD-2 Model Tablet Hardness Tester designed and manufactured by LORDERAN!

Before using this product, please read this User Manual carefully so that you can get a better user experience and improve your work efficiency.

Product Registration

Before using this product, please complete the attached <u>User Registration Card</u> in a few minutes and mail it to us, so that we may provide you with more efficient technical supports and other services.

Technical Services

For any problem in this product within the warranty period, any of our users may contact our Marketing Department. To ensure that this service can be implemented, please complete and return the <u>User Registration Card</u>.

If you have any question about this product, please find the answer in this User Manual first. If you are unsatisfied, please contact the product distributor or our Marketing Department.

Safe Use

Before installing and using the instrument, please read this manual carefully. If you have any question about its use and this manual, please contact our Marketing Department.

- Transport carefully. Do not tilt this product and place it upside down, and do not crash it.
- Check and protect all security warning labels.
- Do not use damaged or leaking products. Do not use damaged or worn power cords.
- Disconnect the power supply before maintenance or removal.

Contact Us

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Introduction

Brief Introduction

YD-2 Tablet Hardness Tester consists of chassis, control system, sensor parts, transmission parts, probe parts and printing parts, which is controlled by the precision automatic control system of single chip microcomputers. Meanwhile, it is characterized by high instrument automation, simple control, easy operation, accurate testing, high sensitivity, simple shape, and low noise.

YD-2 Tablet Hardness Tester's chassis consists of the bottom board, feet, box body, front panel, rear panel, etc.
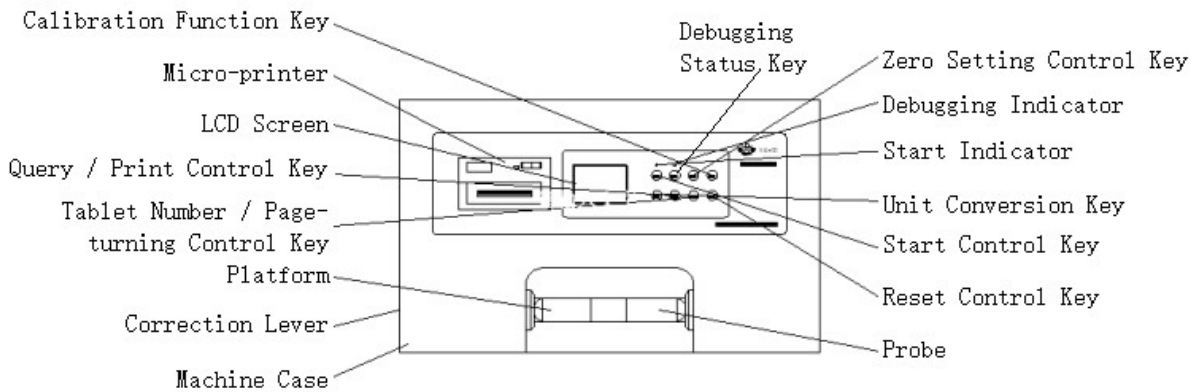
The front panel includes:
- Micro-printer
- LCD Screen
- Unit Conversion Key
- Tablet Number / Page-turning Control Key
- Debugging Status Key
- Debugging Indicator
- Start Indicator
- Start Control Key
- Query/Print Control Key
- Zero Setting Control Key
- Calibration Function Key
- Reset Control Key
- Product Name
- Manufacturer
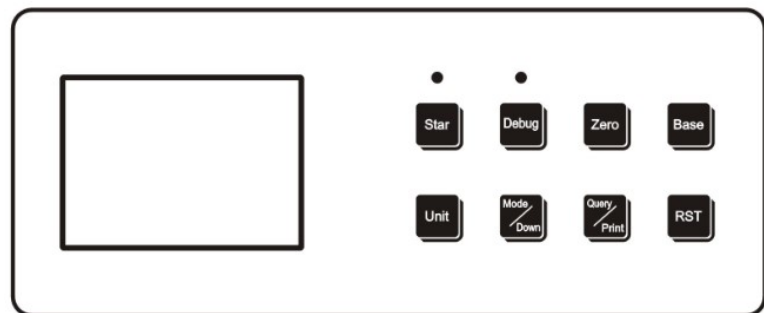
The rear panel includes:
- Power Switch
- AC Power Input Socket (Including Fuse Socket)
- Product Nameplate

Features

- Micro-printer

    Micro-printer uses the front-paper-changing embedded micro thermal-sensitive micro-printing, in order to print the test results and data processing results.

- LCD Screen

    In the design of YD-2 Model Tablet Hardness Tester's display module, high-resolution LCD screen is chosen according to the demands of large amount of information and high intelligence. Therefore, the user may enjoy the intelligent operation as per screen prompts. Also, prompts in Chinese characters and quantitative indicators are given for each operation process.

- Debugging Status Key

    Debugging Status Key is a function key to start the non-measurement status. Only by entering this status can we achieve the zero setting and benchmark calibration of the instrument.

- Debugging Indicator

    Debugging Indicator is an indicator displaying the system's working status. When the indicator is on, it indicates that the system is in the setting status. In this status, zero setting and calibration work can be performed. Besides, there is no peak lock function in this status. When the indicator is off, it is in the status of normal hardness test.

- Tablet Number / Page-turning Control Key

    When you press the Model / Down Key, you may cycle the option system and choose the single-tablet mode or the group multiple-tablet test mode.
    Single-tablet test mode: 1 tablet is tested every time; group multiple-tablet test mode: there are 10 methods, including 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100; a certain number of tablets will be measured for each group, and data statistics and data processing are carried out for each group of the test data.
    In the query status, this key is used as a page-turning key for querying the test data of several trials, and the page-turning function can be recycled.

- Start Indicator

    Start Indicator ◎ is the indicator displaying the system's working mode. There are start and stop modes. When Start Indicator is on, it indicates that the system is in the test mode. When Start Indicator is off, it indicates that the system is in the stop mode.

- Start Control Key

    Start Control Key is a function key of testing status for the control system. Press Start key, and you can start the system and start the system; repress Start key, you can stop the test.

- Query/Printing Control Key

    Query/Print Control Key is a function key for the control system to query the previous test

data or print data. When pressing <u>Query/Printing Control</u> Key after completing the test, you may query the previous experimental data. If you want to print, press <u>Query/Printing Control</u> Key again to print the experimental data.

● Unit Conversion Key

Hardness Unit Conversion Key is to achieve the conversion of hardness measurement unit in Newtons (N) and kilograms (KG). This function can be used before and after measurement.

● Reset Control Key

When Reset Control Key <u>resets,</u> it is a function key of testing status for the control system. Press <u>Reset </u>key, you may stop the test and return to the original state.

● Zero Setting Key

Zero Setting Key: When the instrument is not tested and the hardness value is not zero, press this key, then the screen resets and displays 0000. This function should be used in the calibration status.

● Calibration Function Key

Calibration Function Key is to calibrate the instrument's benchmark parameters. This function should be used in the calibration status.

● Power Switch

Power Switch is the master switch controlling the operation of the entire instrument. When <u>Power Switch</u> is in <u>I</u> position, the power is turned on and the instrument starts. When <u>Power Switch</u> is in the <u>O</u> position, the power is cut off and the instrument stops.
<u>Make sure Power Switch is in the O position before connecting the AC power supply!</u>

● AC Power Input Socket

AC Power Input Socket is connected to 220V AC power source via the supplied <u>AC power cord</u>, which is used to provide power supply to the instrument.
Power Socket is located below AC Power Input Socket, including one 3A fuse and one spare fuse. It can avoid instrument damages arising from accidental conditions.
<u>In connection with the AC power, make sure AC power cord is securely connected to AC Power Input Socket!</u>
<u>In the replacement of fuse, make sure to verify the fuse specifications and models, so as to avoid unnecessary losses!</u>

● Control System

Control System consists of transformer, control panel (including CPU, ROM, AD, etc.), and display panel, which is used to control and coordinate other parts of the instrument.

● Sensor Parts

Sensor parts consist of precision pressure sensors, which are used to convert the pressure

into electrical signals

- Transmission Parts

Transmission parts consist of the motor and transmission device, which are used to exert pressure to the tablet.

- Probe Parts

Probe parts consist of the probe and the platform, with the probe being connected to transmission parts and the platform being connected to the sensor for placing tablets. It should be used with particular care, and the force on the probe and the platform shall not exceed 200N.

Specifications

Test range	2-199.9 N
Resolution	0.1 N or 0.01 kg
Hardness accuracy	±0.5% (Max. Range)
Probe procession range	2-40 mm
Diameter of tablet can be tested	2~40 mm
Diameter display resolution	0.1 mm
Test Time	≯20 Seconds/Tablet
Max. Number of Test Tablets in Each Group	100 Tablets
Continuous Operating Time	More Than 24 Hours
Power	220V/ 50Hz, 110V/ 60 Hz, 60 W
Dimension	500x300x160 mm
Weight	10 kg

Environmental Requirements

Usage temperature	$+18℃ \sim +28℃$
Store temperature	$-10℃ \sim +50℃$
Humidity	20% ~ 80 % RH

GB quality single-phase three-hole AC power supply is used and the reliable grounding is guaranteed!

Installation

Check and Examination

The user shall open the package, take out the User Manual, the instrument and its accessories, carefully check as per Packing List attached to User Manual, and then inspect the appearance of the instrument and its accessories. If any error or damage occurs, please contact our Marketing Department immediately.

Instrument Placement

The instrument should be placed on a solid horizontal bench or table, and a cushion should be placed between the instrument and the bench.

The instrument should be cleaned regularly, in order to avoid excessive dust and protect the normal use of the instrument.

Power Connection

One end of the supplied AC Power Cord is plugged to AC Power Input Socket on the rear panel of the instrument and the other end is plugged to Power Supply AC Socket.

Change of Printing Paper

This product selects the front-paper-changing embedded thermal-sensitive printer. Before putting in new paper, you should carefully look at the circling direction of paper, because only one side of the thermal sensitive paper is coated with thermal sensitive materials and the other side is the common white paper. If the printing paper is put inversely, the thermal sensitive materials should not contact the thermal sensitive printing head. When the printer is working, it will be unable to print the desired reports.

The general process for paper feeding is as follows:

① The user shall fasten the lower edge of the front cover of the printer with fingernails and pull out the front cover.

② The user shall open a roll of printing paper, and put it into the paper silo (there is a layer of glue on the outermost layer. To prevent the glue from sticking to the thermal sensitive sheet of printing head, this section of paper shall not remain in the paper silo). Afterwards, the front cover should be closed and pushed inward. On hearing a click, the silo door will be locked and the paper feeding operation is completed.
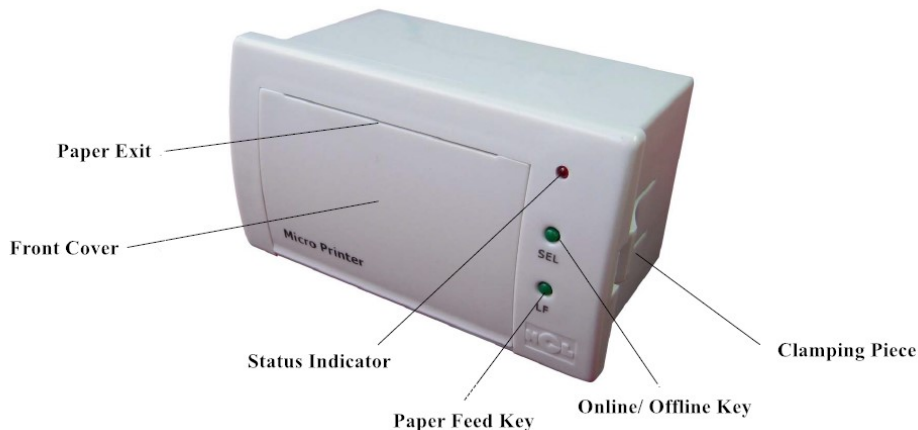
Printer Indicator, Key Switch and Feed Operation

There is one indicator and two key switches on the panel of thermal sensitive printer. One key is marked with SEL, and the other key is marked with LF

The indicator is used to indicate the working state of the printer and the need of paper feeding. When the light is on, the printer is online and it can print the host data. When the light is off, the printer is offline and it cannot accept the host data. However, if the light flashes, it indicates that the printer is in short of paper.

SEL key controls whether the printer is online or offline. When the printer is online (light on), press SEL key, and the printer will be offline (light off); vice versa.

LF key is used for the paper advance operation of the printer. When the printer is offline (light off), press LF key and the printer will continue to advance paper. The printer will stop paper advance after pressing LF key again.

Self-Test of Printer

When the printer has paper, VANCL carries out the self-test printing operation. Self-test printing consists of power-on self-test printing and in-operation self-test printing.

In the self-test printing mode, the printer will automatically print out a few lines of Chinese characters and two Western characters and icons.

① Power-on Self-Test Printing
Operation Order: Power off - Press LF key (or SEL key) - Power on - Release LF key (or SEL key). Afterwards, the printer enters the self-test printing program.

② In-operation Self-Test Printing
Operation Order: Press SEL key, and the printer is offline. Later, press LF key, press SEL key, release the two keys simultaneously, and the printer enters the self-test printing program.

Calibration

Zero Setting of Hardness

Firstly, the user shall start the instrument and preheat. If Hardness LCD Screen does not display 0000, the instrument should enter the debug status. When the debugging function light is on, press the zero setting key, so that Hardness LCD Screen displays 0000. Press the Calibration Function Key again to exit the debugging status.

Hardness Correction

① The user shall install Weight Hook on the Correction Lever on the left side of the instrument.
② Hold the instrument by hand and set it vertically, so that the left side is placed down on a flat soft table and Weight Hook is exposed outside the table.
③ Start up, press the Debugging Status Key, and make the instrument enter the debugging status; press the Zero Setting Key and set the hardness value to be 000.0N (00.00KG).
④ Hang 5KG standard weight on Weight Hook, and the hardness value should be 049.0N (± 0.5N). Be careful to operate it and do not collide it with force.
⑤ If the displayed value is incorrect, press Calibration Function Key, and set the hardness value to 049.0N (± 0.5N)
⑥ Remove 5KG standard weight, press the Zero Setting Key, and set the hardness value to 000.0N.
⑦ Repeat steps ⑤~⑥ until the value reaches 000.0N in unloading and reaches 049.0N in loading.
⑧ Place the instrument on the table horizontally, press Debugging Status Key, and exit the debugging status until the hardness correction is completed.

PS: After the calibration, if the display is "--- N", press Debugging Status Key AGAIN, and press Zero Setting Key, then press Debugging Status Key.

Operation

Power on

The user shall put the instrument's <u>power switch</u> into I position. When the power indicator is on, the instrument starts, and it will work normally after preheating for about 30 minutes.

Tablet Number Preset

When the instrument starts, the system is in the initial state, and the system control mode is automatically preset to the single-tablet test mode, i.e., 1 tablet is tested every time.

To change the preset mode, the user can press <u>Mode</u> key, and the preset mode is switched into the group multiple-tablet test mode, i.e., 10 tablets are tested for each group; repeatedly press <u>Mode</u> key, the user may switch between 1, 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100 tablets/group and other modes.

Test

First of all, the tested tablets should be placed on the test bench, which is between the probe and the test bench and then press <u>Start</u> key, the probe will automatically move to the left, start to test the tablet diameter, and apply squeezing pressure to the tested tablets, so that LCD screen displays increasingly larger value; when the tested tablets are broken because of squeezing pressure, the maximum hardness value is reached and locked by the system, the instrument buzzer sounds, and the hardness value is the hardness of the tested tablets; the first test is completed.

If the group multiple-tablet test mode is selected, the instrument will automatically start the second test; the probe automatically switches and moves about 10 mm to the right, then the probe automatically switches and moves to the left, and the second test is started. In this process, the residual broken tablets should be rapidly removed with the supplied <u>brush</u>, and the second tested tablet should be placed on the test bench for testing.

In the group multiple-tablet test mode, the value displayed by LCD screen is automatically decremented by 1 after each test; and the displayed value is the number of remaining tablets in the group test.

Print

After the single-tablet test or the group multiple-tablet test is completed, press <u>Print</u> key, and <u>Micro-printer</u> will print the test results and statistical results automatically.

In the group multiple-tablet test process, press the print button, and <u>Micro-printer</u> will automatically print the test results and statistical results of tested tablets.

Shutdown

The instrument's <u>power switch</u> should be placed in the <u>O</u> position. The instrument will be shut down when the power indicator turns off.

Operation Examples

① Boot and Preheat;
② Zero Setting;
③ Preset of Tablet Number;
④ Place tested tablets on the test bench, begin to test and read the hardness value;
⑤ Remove debris, and repeat ④ for the group test;
⑥ After the group test is completed, query the print test results;
⑦ Repeat ④~⑥ when repeating the same test.

⑧ Shut down after completion of the test.

Maintenance

The box and parts should be cleaned regularly. Do not clean with the steel brush, otherwise it will damage the instrument.
After each test, the probe parts and transmission parts must be wiped to prevent causing damage to the instrument.

Troubleshooting

● Boot but do not start
Check whether the power supply voltage and the wiring are normal, and whether the fuse is intact. In the installation process, refer to the rated voltage value calibrated on Product Nameplate of the instrument.

● Probe parts are not moving

Check whether the motor and the wiring capacitance are intact

● The printer does not print

Check whether the micro-printer and the wiring are intact.

If the instrument still does not work properly after adopting the above troubleshooting measures, do not disassemble by yourself. Please contact our Marketing Department.

● Printer paper and ribbon cartridge for Hardness Tester YD-2 & YD-3

Please check the video below for how to change the printer paper,
https://www.facebook.com/lorderanINC/videos/142208953295458

Thermal Printer Paper

Printer Ribbon

Packing List

YD-2 Tablet Hardness Tester package includes:

- YD-2 Model Tablet Hardness Tester -- 1 set
- Power cord ---1 pc
- Brush -- 1 pc
- Small box --- 1 pc
- Hook --- 1 pc
- Thermal Sensitive Printing Paper --- 1 roll
- User Manual ----- -- 1 copy
- Warranty Certificate --- 1 copy
- User Registration Card -- 1 copy
- Certificate of Conformity -- 1 copy

Warranty Certificate

● The scope of warranty is YD-2 Model Tablet Hardness Tester.
● The warranty is valid in one year from the date of shipping.
● The warranty certificate shall come into force only after the user completes the User Registration Card and mail it to us.
● If, within the warranty period, the instrument fails during the normal use, our company is responsible for free maintenance services after presenting this warranty certificate. However, the damages arising from flood, fire, earthquake or other disasters are not covered in this warranty.
● Within the warranty period, if any of the following situations occurs, our company will charge the material fees and maintenance fees as the case may be.
● Failure to present this warranty certificate, or nonconformity to this warranty certificate, or false records and alterations;
● Damages arising from nonconformity of the operating environment indicated in User Manual;
● Damages arising from unauthorized removal, installation, filling, expansion, movement or modification without the consent from our company;
● Damages arising from the maintenance made by any person who is not our technician without the consent from our company.
● Sensor failure caused by overloading or collision
● This warranty certificate cannot be reissued in case of missing. Please keep it properly.
● This warranty certificate applies only to Mainland China.

Cautions

● The correct usage and proper maintenance may extend the service life of the instrument. Please follow the instructions in User Manual.
● When the power supply voltage of the operating environment is unstable, please install the voltage regulator. Particular attention should be paid to the power supply, temperature and humidity stipulated in User Manual, and the instrument should be maintained properly. The power supply should be grounded reliably.
● The instrument and the environment should be kept clean. Do not remove the parts or move the internal parts of the instrument.
● If the instrument fails, you should stop using it, promptly notify the dealer or our company, and inform us of the instrument model, ex-factory number and fault phenomena.

User Registration Card

    User Name
    User Address
    Post Code_____Email
    Tel._____Fax
    Product Name
    Product Model_____Product No.

                      Seal of the User