Kalstein

Tissue processor

Model YR433

Instruction Manual

Thank you very much for purchasing our Kalsteins´s Tissue processor Model YR433

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

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With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

Table of contents

1 Important Information

1.1 Symbols and the Meanings

Danger、warning and cautions are shown in a gray frame, with the warning triangle signal  .

Manufacturer

Note: it is also an important information for user, which is shown in a gray frame, with a signal  .

Manufacturing Date

Item Number

Serial Number

IVD Medical Equipment

1.2 Personnel Qualification

Only trained laboratory workers can operate the tissue processor;
Please read this manual carefully and learn about all the technical features before you use this tissue processor .

1.3 Designated use

The operators can use this instrument safely and deal with samples, but they must operate according to this manual.
This instrument is a modular automatic tissue processor, which can do the following process for the tissue samples:

- Fix
- Dehydration
- Waxdip

Any other uses are considered improper! If violating the instructions, it may cause the accidents, personal injury, instruments or accessories' damage.

The intended use of the instrument is for the removal of water from human tissue before pathological analysis.

2 Safety

Please follow up the safety instructions and warnings.

2.1 Safety Cautions

Please don't remove or modify the protective devices on the instrument and accessories. Only certified and qualified maintenance personnel can repair instruments and replace components.

2.2 Warnings

- If the operator don't use the instrument as the ways that manufacturer requested, the protection provided by the instrument may be destroyed.
- It is the user's responsibility to ensure the EMC environment of the equipment so that the equipment can work properly.

2.3 Transportation & Installation

- Please keep the instrument up-right during transport!
- Please don't lift the instrument up by holding the carousel cover when transporting it!
- This instrument may not be operated in hazardous locations!
- The instrument may only be connected to the mains with the cable supplied together with the instrument and it may only be connected to the grounded sockets.

2.4 Operating the instrument

- The carousel may not be rotated manually! Severe damage will result from doing so!
- Caution when lowering the carousel! Kepp your fingers out of the space between the container lid and the upper rim of the container.
- The instrument equipped with vacuum function may only be operated with the aluminium containers supplied together with the instrument. It is very dangerous when the glass container which is combined to use with the vacuum accessories damages.
- While operating the instrument, no liquid may enter in contact with any electrical connections or the interior of the instrument.
- Warning! Use caution when handling solvents! Make sure premises are adequately ventilated! Explosion hazard!
- Spilled reagents have to be wiped away immediately. In case of long-term exposure, the instrument surfaces are only conditionally resistance to solvents.
- Always obverse worker's protection rules and use adequate protective gear (gloves, laboratory coats).

- The heated wax containers may only be used with paraffin. Under no circumstances may they be filled with solvents. When solvents heat, a highly explosive mixture builds up. Please don't lift the instrument up by holding the carousel when transporting it!
- Caution! The interior containers of the paraffin stations become very hot when the heating function is activated! Do not touch the upper rim of the containers with your hands! Risk of injury! Caution when handling hot paraffin! Risk of injury!

2.5 Cleaning

- Before cleaning the instrument, disconnect the main switch.
- When cleaning the instrument, no liquid may enter in contact with any electrical connections or the interior of the instrument.
- Spilled reagents have to be wiped away immediately. In case of long-term exposure, the instrument surfaces are only conditionally resistance to solvents.
- To clean the painted surfaces, the container platform and the control panel,do not use solvents containing acetone or xylene,neither use corrosive cleaning powders! Only mild household detergents may be used! The lacquered surfaces and the control panel are not resistant to xylene or acetone!

3 Components and specifications

3.1 Technical Specifications

Model：YR433
Supply voltage：AC 220~240V，50-60Hz
Rated power：300W
Power fuse：φ5X20 mm, 5A　AC220 V
Working temperature：room temperature to 70℃
Operating ambient temperature：+15 C℃ to +40 ℃
Relative humidity of air：20-80 %，non-precipitating

Dimensions

Diameter：Ø660mm ； Ø780mm
Height：600-720mm
Net weight：65Kg ； 75kg

Paraffin stations

Quantity：3pcs
Capacity：1L; 2L
Nominal voltage/rated frequency：AC 220~240V，50-60Hz
Power per station：80W
Setting Range of the temperature：0-85℃

Reagent stations

Quantity：9cs

Capacity：1.2L; 2.3L

Sample basket

Quantity：1pc

Capacity：50pcs embedding cassettes；100pcs embedding cassettes

Programs

Quantities:10sets，free selectable

Programmable time per station：2000 minutes

Dripping time：0-30 seconds

Vacuum pressure difference：around 0.5bar（Only for the tissue processors with vacuum function）

3.2 Instruction

The YR433 is an automatic tissue processor used for the fixation、dehydration and infiltration of histological tissue samples with fixatives、alcohol、solvent and paraffin wax.

The reagent stations numbered 1-9 are used to contain reagents. Stations 10-12 are heated, temperature controlled wax baths that can be filled with either wax pellets or molten paraffin wax.

Embedding cassettes used to hold the tissue samples, are placed into the tissue basket. The basic instrument is designed for a single tissue basket. The basket or the baskets are moved clockwise from station to station. To ensure thorough infiltration, the basket containing has the function of agitation regularly. During processing as the tissue basket moves from station to station there is a delay period of 30 seconds during which time the basket is suspended above the station. This ensures that there is a minimal reagent carryover from station to station.

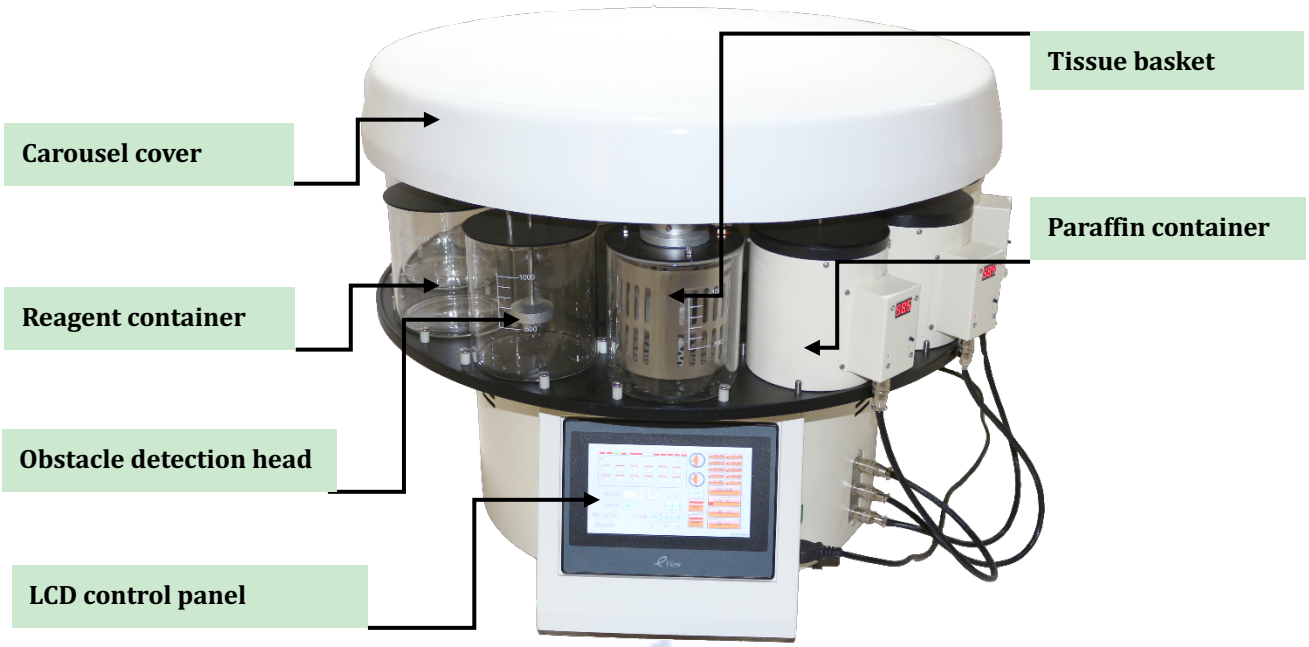
All instrument functions are activated through the control panel. Real time is displayed via LED. The instrument can be operated in manual and automatic processing mode. Automatic processing is controlled via 10 different programs which can be individually set up, altered and edited. If a power failure occurs, the instrument will stop running, once mains power is restored, processing will be resumed where it had been interrupted.

The equipment has a delayed start function with a maximum delay of 30 days, which can meet any holiday dehydration requirements of customers.

3.3 Standard delivery——packing list

1. Body machine: 1 unit
2. Mains cable: 1 pc
3. Reagent glass container： 9 pcs
4. Paraffin container: 3 pcs
5. Power cord of paraffin container： 3 pcs
6. Tissue basket: 1 pc
7. Fuse Φ5×20 5A: 2 pcs
8. Manual： 1 pc

3.4 Description of the instrument



4 Installation

4.1 Location conditions

- Stable and plane installation surface.
- The instrument is forbidden to be installed at the window to avoid strong sunlight.
- To ensure that the heat sink is fully operational, please leave at least 15 cm space between around the instrument.
- Oil and chemical vapors must not be present near the work area.

The installation site must be well ventilated and there must not be any source of ignition. The instrument may not be operated in hazardous locations!

4.2 Electrical connection

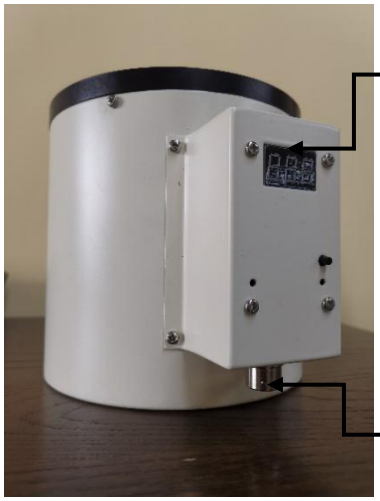
The instrument may only be connected to the mains with the cable supplied together with the instrument and it may only be connected to the grounded sockets.
When connecting the power cord, make sure that the power switch is on ("O" = off).
Be sure to turn off or disconnect the power cord when plugging in or unplugging the paraffin container connection cord.

Connecting the power cord

Please connect the power cord plug to the connection socket on the back of the instrument. Then plug the power cord into the wall outlet.

Connecting the connecting cables of paraffin containers (Warning: be sure to turn off or unplug the power cord, insert or unplug the plug)

Please connect the 3pcs paraffin container connection cables to the body machine and the paraffin container separately.

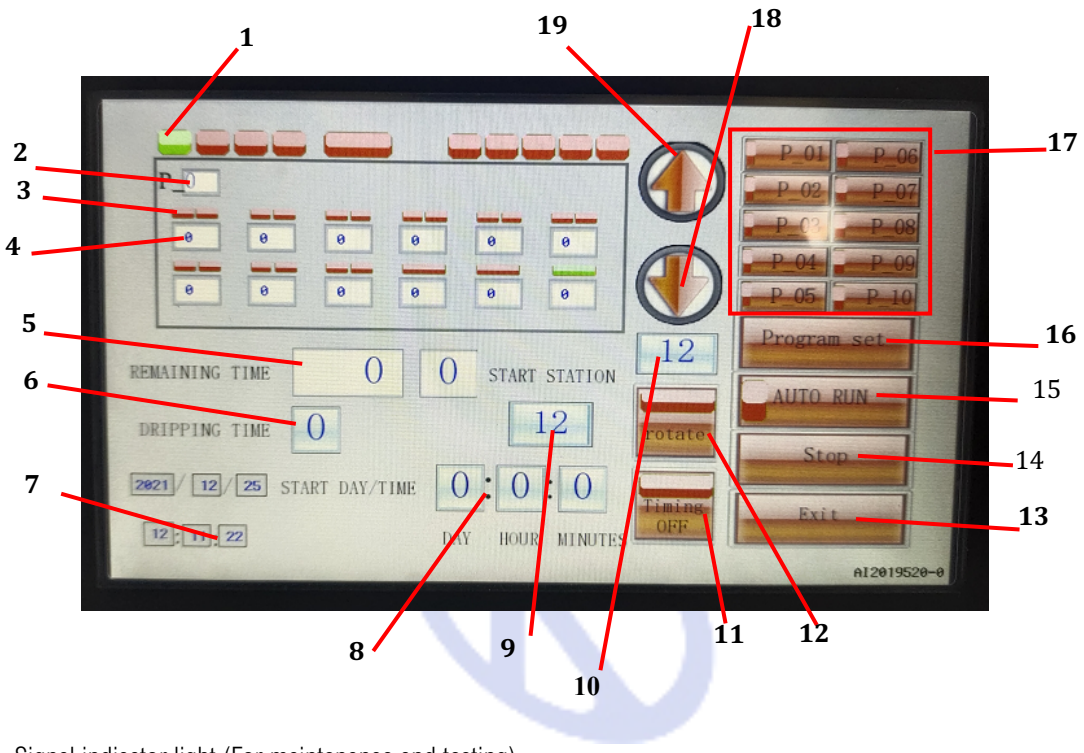


5 Operation

5.1 Display window

- **Main operation interface**

  The following figure shows the main operation display screen after the power-on self-test



1. Signal indicator light (For maintenance and testing)
2. Program number: display the current preset program selected.
3. Station running indicator light: 12 stations in total. There are 2 indicator lights per station (The left one presents the current running station, the right one presents the current running station is vacuumed <Instruments with vacuum function only>).
4. Designated working time of station (minutes): display the working time of the current station.
5. Remaining time: display the remaining time for the current station. （minutes - seconds）
6. Dripping time: display the current program, the dripping time between each container (calculated in seconds) , to make the contamination carried a minimum. (30 seconds is generally recommended to set).
7. Current date and time display: Display the current date and time.
8. Timing setting: According to the working time requirement, you can set the starting time of the program. (Day - hour - minutes)
9. Start station: Display the current container station where the sample basket is located.
10. Target container station: when you need to operate manually, enter the target container station that you want to move to (when entering the target container station , please make sure the current container station of the tissue basket is same as the starting container station displayed on the screen, if not, please enter the correct

station number, then rotate to the correct position manually).

11. Timing: When the device needs to delay the starting, enter the time of timing, press the timing button to start the procedure without pressing the button “AUTO-RUN” button.The automatic mode will run when the set time is reached.

12. Rotate: When operating manually, press the button “rotate” after entering the target container station, the tissue basket will rotate to the top of the target container station automatically.

13. Exit：When you want to end the current program, press the button “Exit”.

14. Stop：When you want to stop the current program, press the button “Stop”.

15. AUTO-RUN: When selecting auto mode, press the button “AUTO-RUN” after selecting the preset program, the program will run automatically.

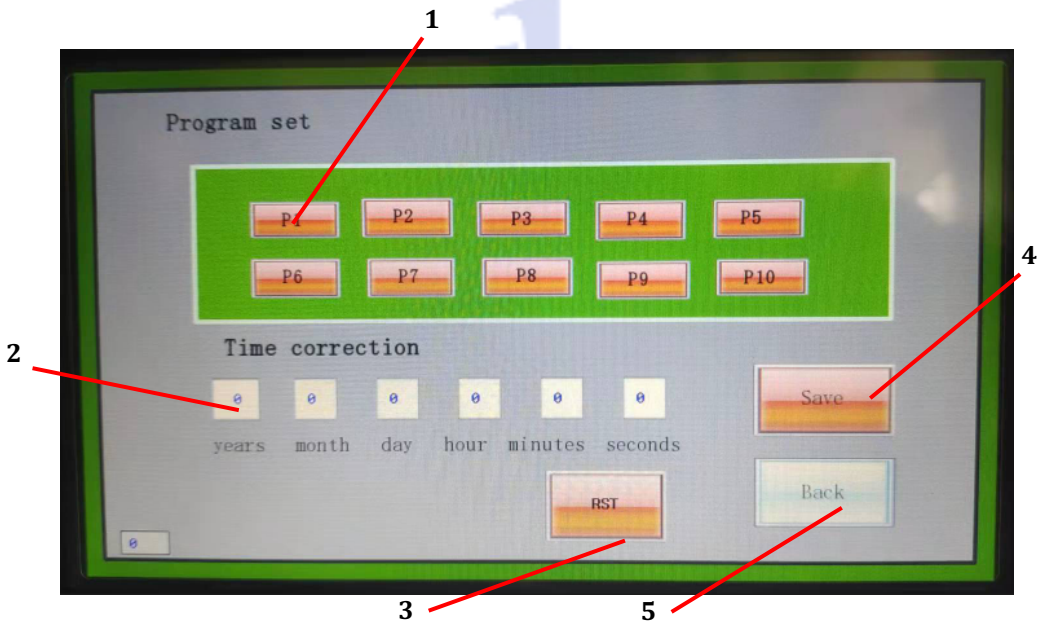
16. Program set: Press this button to jump to the interface of preset program automatically (see program setting interface for details).

17. Program pre-save area: Ten sets of settable programs from P_01—P_10, which can be set and save according to the actual requirements. For example: When pressing the button “P_01”, the first program will run.

18. Arrow down button: Control the lowering of the device when operating manually.

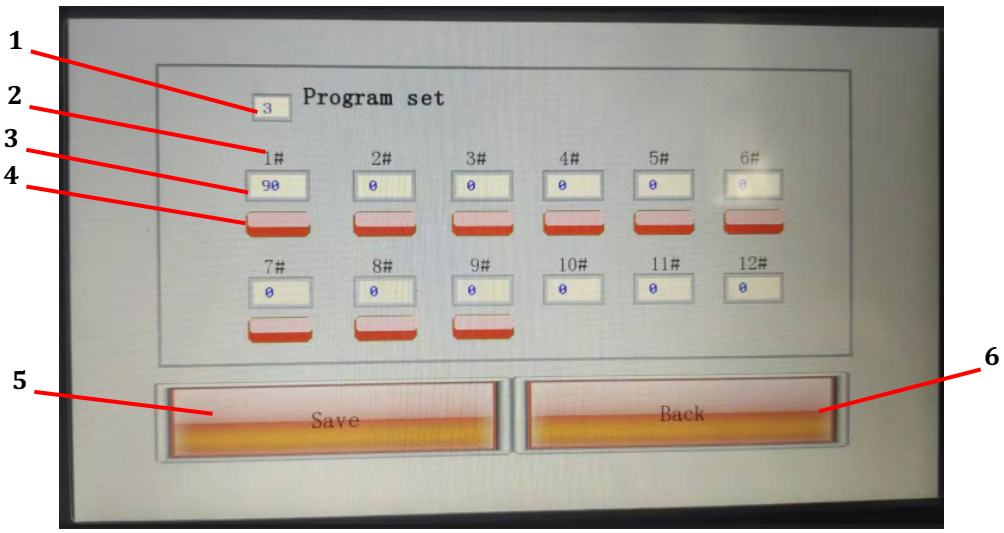
19. Arrow up button：Control the rise of the device when operating manually.

- Program Settings selection interface



1. Preset program buttons: P1-P10.
2. Time correction: Local time correction.
3. RST: Enter the new time and save it by pressing the button “Save”.
4. Back: Return to the previous interface.

- **Program setting interface**



1. Program number: Display the current program number.
2. Station number: 1#-12#, 12 stations in total.
3. Time setting window: set the running time of each container station (minutes).
4. Vacuum selection button: select if open the vacuum function for each container. Green means open, red means close. (Instruments with vacuum function only)
5. Save: Save all settings.
6. Back: return to the upper menu.

5.2 Operating Instructions

Auto-run Settings

1. Switch on the instrument with the mains switch on the right of the instrument.
The instrument does a start-up run.
The main operation interface is displayed.
Press “Program set” button to enter into the interface “Program Settings selection interface” .Then select the programs you wish to edit from P1-P10. For example, selecting P1, just press the “P1” button to enter into the setting interface. Then touch the time setting window to set the required running time for the 12 stations. The rest programs can be done with the same operations.
Select if the current station is vacuumed (Instruments with vacuum function only) by touching the vacuum selection button to make it be green (Red means this station is not vacuumed).
Save this program after all data is entered and return after operation. (The first time you switch on the instrument, you need to set the program, and when you use it again, you can use it directly for the saved program)

2. After the program preset, press the program P1-P10 button ,then the light of selecting programs is on, (please check the starting station: the station that the sample basket located is same as the station number of starting station displayed on the screen).
Next, press the button “AUTO RUN” to enter into the automatic running state. If you want to stop the program during the process, please press the button “Stop”.

1. After stopping, you can operate by manual. When you press the button “AUTO RUN” again,the automatic

running mode will be restored to continue to run the unfinished program. (It is forbidden to set programs and manual operation when the automatic program is running). After entering the automatic operation state, the indicator light of the container station will light up one by one when running to a certain container station. If this container station will be vacuumized, the indicator will light up. (Vacuum indication is only for equipment with vacuum function). After the automatic running is completed, a tip window will pop up and alarm will be sounded.

3. Start the timer, firstly, you need to select a program to run, and then enter the day, hour and minute respectively in the timer setting window. After all the above settings are done, press the timer button on the interface, the device will enter the standby state, and when the time is up, the device will start running automatically until the program is finished.

Manual run settings

1. Manual operation is not available when the program is not stopped or exited during the process of automatic running. Other than that, manual operation is available.
2. Firstly, make sure if the starting station is correct, then enter the container station number you want to reach in the target container station, and then press the button “rotate ”. The container station will be rotated to the target station according to the entered station .
3. The arrow up and arrow down buttons can control the movement of the tissue basket at any time.

Time correction

Press the button "Program set" to enter into the program setting interface, then just touch the corresponding value you want to change to modify it.

5.3 Instructions for use

2. The current container station number should be strictly consistent with the container station of the tissue basket in the using process. Otherwise the actual dehydration time will be different from the set time.
3. Mount the corresponding reagent containers onto the corresponding stations (10, 11, 12 are wax containers).

Install the tissue basket, then select the program “P_01”, then press the button “AUTO-RUN” to enter into the auto running status.

(similar to others) The buzzer alarms when the program is finished, indicating the dehydration is completed.

4. Press the button "↑" to raise the tissue basket to the highest point, then remove the tissue basket. The whole dehydration process finished.
5. The machine has automatic fault alarm function. Under the auto running status, when the wax has not melted in the paraffin station during the process of the tissue basket are changing the station, the machine will stop running in the previous container and pop up tips and alarm tips.

6 Cleaning and maintenance

6.1 Cleaning

Do not use xylene for cleaning. Xylene vapor is heavier than air and will burn at a considerable distance from a heat source. Risk of fire!
To avoid scratching the surface of the instrument, use only plastic spatulas for cleaning - do not use any metal tools!

Instrument housing and worktop

- All common laboratory cleaning products (e.g., Paraguard or xylene alternatives) that are suitable for removing paraffin can be used to clean the work area.
- Avoid prolonged contact of organic solvents with the instrument surfaces.

Wax containers

Important!
The wax container is continuously heated to approx. 70°C. Risk of injury!

- When replacing the new paraffin wax, clean the inner surface of the container with cotton paper or paper towel to absorb the residual paraffin wax. Then fill with new paraffin wax. (Empty the wax container when the device is not in use for a long time)

6.2 Maintenance

This tissue processor can be considered maintenance-free. To ensure its trouble-free functioning over a prolonged period of time, we still recommend:

- Clean the instrument carefully every day.
- Remove dust from the ventilation slots on the back of the instrument with a brush or vacuum cleaner periodically.
- Mop up spilled reagents immediately.

7 Troubleshooting

7.1 Common Troubleshooting

- The instrument does not start working according to the pre-start setting. Check if the preset switch setting is correct.
- The instrument does not start normally, check if the fuse is damaged.

7.2 Fuse replacement

Firstly, turn the instrument off and unplug the power cord.
Then use a screwdriver to remove the fuse base on the power connector.
And then replace it with a new fuse.