



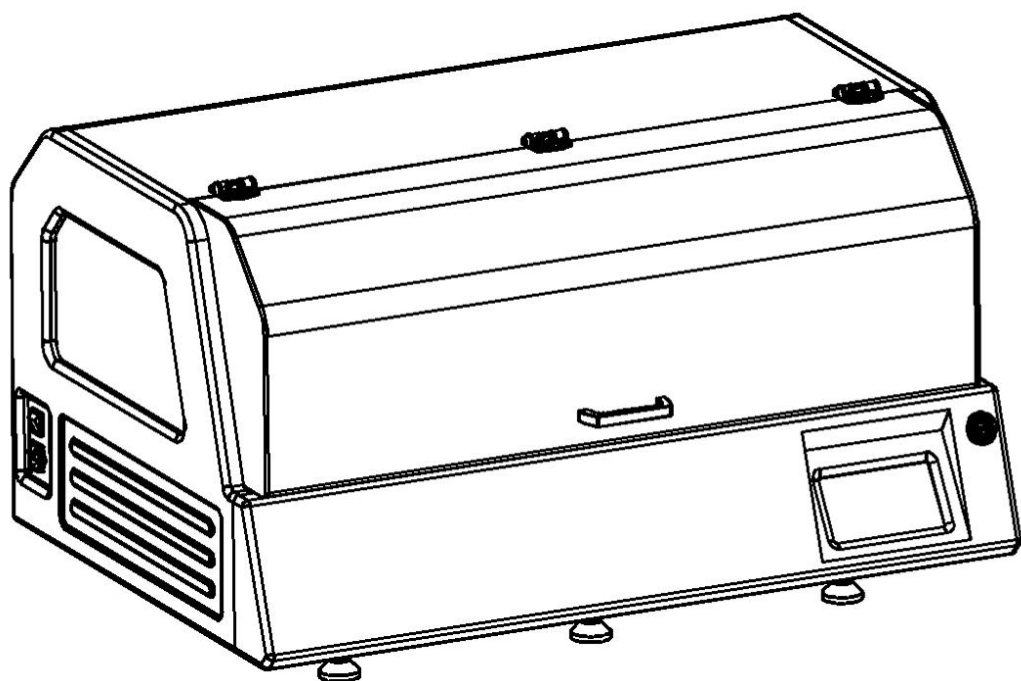
AMSS 330

Slide Stainer

Operation Manual

AMOS SCIENTIFIC PTY.LTD. ABN37 159 778 140

www.amos-scientific.com



This Operation manual introduces the instrument components, key features and using notes. Be sure to read these instructions before using the instrument.

Foreword:

Thanks for purchasing AMSS 330 Slide Stainer.

This Operation Manual offers important information about the stainer, including its functions, operation instructions and matters needing attention concerning safety. Please read this manual carefully before operating the instrument so that you can get a better understanding about the equipment. Please contact us in case of any questions, we will provide satisfactory solutions to you at any time.

Please keep this manual appropriately for later consultation.

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1、 Safety Matters

1.1 Overview

The Instruction Manual contains important safety instructions and information. The operation manual is an important part of the instrument, which the operator must be read carefully prior to startup and use in order to run safely. It will ensure personal safety and avoid instrument damage at a critical moment. Please keep the Manual near the instrument for easy reading.

This instrument was built and test in accordance with the safety regulations as specified below:

GB4793.1-2007 Medical Electrical Equipment First Part: Current Requirements for safety.

- ▲ **Notes:** The safety marks and protective device on both instrument and accessories may neither be removed nor modified, so as not to injure body or instrument.

1.2 Safety Warning

The following safety notes relating to transport, installation, calibration, operation, maintenance, cleaning and all aspects of the instrument. Every principal person must read carefully and carry out the mentioned strictly.

1.2.1 Warnings-Transport and Installation

- The instrument may only be transported or moved in an upright position always, the tilt angle should not exceed 45 degree!
- After installation, please drain water from reagent bottle of stain tank before transporting or moving!
- The input voltage has been preset at the factory, please check this setting complies with your local power requirement before connecting the instrument to the mains power!
- Please use the power cord provided. If power cord need change, ensure the power cord is with earth wire!
- Don't operate in rooms with explosion hazard !
- The protective devices on both instrument and accessories must neither be removed nor modified, in order to avoid injury to instrument or human body!
- In order to ensure the normal operation , the instrument shall be placed on a stable table to keep it balanced.
- Do not place any obstructions near the instrument to prevent the sight of the operator from being impacted .
- Make sure the ambient temperature and humidity meet the technical parameters of the regulations.
- This instrument is heavy. If the user needs to carry the equipment to elsewhere,

firstly turn off the power switch, remove the communication cable, and then four people carry by holding four corners of instrument. (Take care to avoid crush and fall, pay attention to protect two buttons on the front panel)

1.2.2 Warning-Operation

- Since the X, Y, Z axis of the instrument will do linear motion , any part of the operator cannot touch it to avoid danger.
- Turn off the glass safety protective covering before device operating, or device will not take any action.
- Device start hung in a start-pending status once open glass covering when device is in use.
- Since slide the blade is extremely sharp, improper operation leads to getting hurt when put slides onto the slide rack .
- When device is in use dryer module temperature is higher, beware of scalds when adding or removing slide holder and reagent.
- In the case of turning on the instrument , axis cannot be forced to move, or it would damage the instrument severely.
- During operation of this device, no liquid is allowed into this device.

1.2.3 Warning-Maintenance and cleaning

- Only authorized person can do the service and repair!
- Before cleaning, always switch off the instrument, disconnect the power plug, remove the knife holder completely and clean it separately. Remove the blade before cleaning the knife holder!
- Maintenance and cleaning must be done regularly according to instrument use frequency and number of specimen processed.
- Don't use any solvents containing acetone for cleaning!
- Make sure no liquid is entered into the device during maintenance and cleaning!
- Clean condensed waste of waste bottle regularly, sealing the bottle covering as unsealed status.
- Turn off the instrument with the mains switch and pull the mains plug before replacing the fuses! Only use fuses of the same specification and operation in this manual.

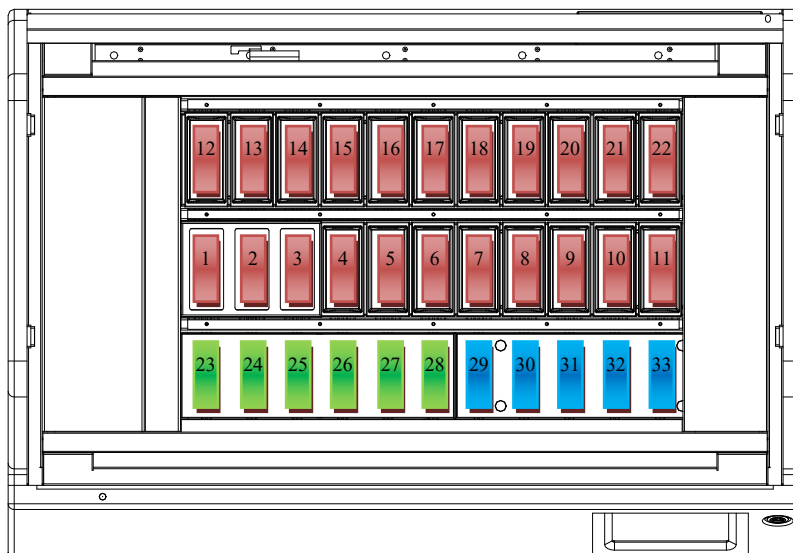
1.3 Safety Device Instruction

To better protect safety of operator, device is running only when glass cover is closed. Once glass cover opens during device running, program stops, X & Y axis suspended operation so as to prevent operator's physical contact to axis from injury to body.

2、 Performance & Parameters

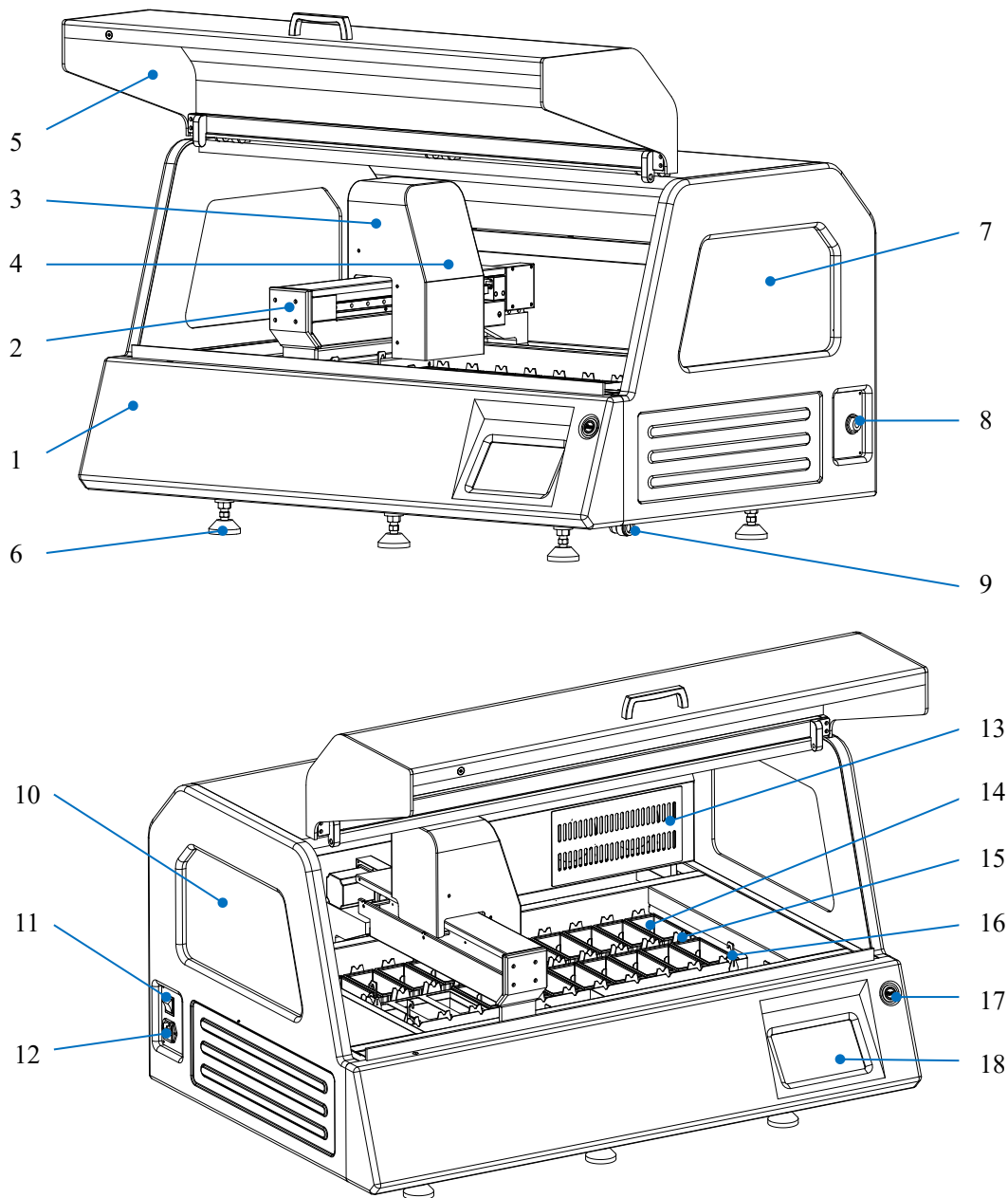
2.1 Overview- Instrument Components

AMSS 330 slide Stainer is an instrument used for staining tissues of animal, plant and human body. With microcomputer, touch screen control system, and mechatronics design to make functional automation, our device has reliable performance, complete functions and easy operation for clinicopathological analysis, and studies on plant and animal cells and microorganisms.



Tank number:
 1-22 reagent tanks , 1-3 can
 be worked as dryer module
 23-28 access tank
 29-33 water tank

Tank position



- | | | |
|------------------------------|-----------------------|-------------------------|
| 1、 Main frame | 7、 right window | 13、 air filter |
| 2、 left & right shift device | 8、 water inlet | 14、 reagent tank |
| 3、 front & back shift device | 9、 water outlet | 15、 agitation equipment |
| 4、 up & down shift device | 10、 left window | 16、 hanging basket |
| 5、 glass covering | 11、 power switch | 17、 "run/pause" button |
| 6、 supporting feet | 12、 electrical socket | 18、 touch screen |

2.2 Performance Index

This equipment is operated as multi hanging baskets staining principle. With mechanical movement mode and follow pre-set program to run multi hanging basket with sliders. Soaking sliders in different reagent tanks with proper order for some time to achieve effect of slide stain treatment.

- ⊙ Large capacity. With fixed program, up to 6 hanging baskets can be operated simultaneously automatically, without manual participation.
- ⊙ High efficiency. Equipment can run with up to 12 hanging baskets simultaneously, adding new basket and removing finished basket to follow equipment prompts.
- ⊙ Easy operation. Large touch screen displays all working status directly and clearly.
- ⊙ Flexible programming. Program can be started from any out-in-tank and finished back to empty out-in-tank. Up to 25 steps are allowed during that processing, (in and out of out-in-tank did not included in the 25 steps) to adapt to different process and test.
- ⊙ 15 different program templates can be stored to satisfy different slider treatment, washing function and front-baking (optional) provided.
- ⊙ Shaking function. Basket is slightly shaking up and down in any reagent tank during automatic operation, so sliders and reagents have fully contact and reacting.
- ⊙ Carbon filter function to reduce influence caused by reagent evaporation.
- ⊙ Unique hanging basket drain design. During operation, basket hanging out of reagent tanks is accompanied by a strong shake. This effectively reduces residual reagents on hanging basket and slides to improve reagent efficiency.

2.3 Technical Data

- ⊙ Surroundings requirements:
 - Working temperature: +10°C—35°C
 - Working humidity: <80%, defrosting
 - Working pressure: (86~106) KPa;
- ⊙ Power supply: 220 V AC/110VAC
- ⊙ Frequency: 50/60 Hz
- ⊙ Power: <350 VA
- ⊙ Fuse specification: 3A
- ⊙ Security classification: Class I- Type B
- ⊙ Sample slide quantity: 300-600 slides per hour according to program
- ⊙ Load capacity: 12 baskets running maximum
- ⊙ Basket capacity: 30 sample sliders
- ⊙ Site quantity: 27
- ⊙ Reagent sites: 19 at least

- ⊙ Wash sites: 5
- ⊙ Dryer sites: none or 3 (optional)
- ⊙ upload/download sites: 6
- ⊙ reagent sites capacity: 450ML
- ⊙ Incubation time settings: 0 second to 99 minutes 59 seconds
- ⊙ Program storage capacity: 15, each program with 25 steps maximum
- ⊙ Colorful touch screen: 7 Inch
- ⊙ Outside dimension (LxWxH): 1050x680x600mm
- ⊙ Weight: about 116kg

3、Preparing before use

3.1 Installation Site requirement

- ⊙ Put the instrument on a steady table to ensure the instrument base is in horizon when the instrument is running.
- ⊙ Ensure more than 20cm space around the equipment and 60cm above the equipment for door opening.
- ⊙ The reagents used for this instrument is flammable, keep instrument away from fire.
- ⊙ The working temperature and humidity must be in accord with the data in the manual.

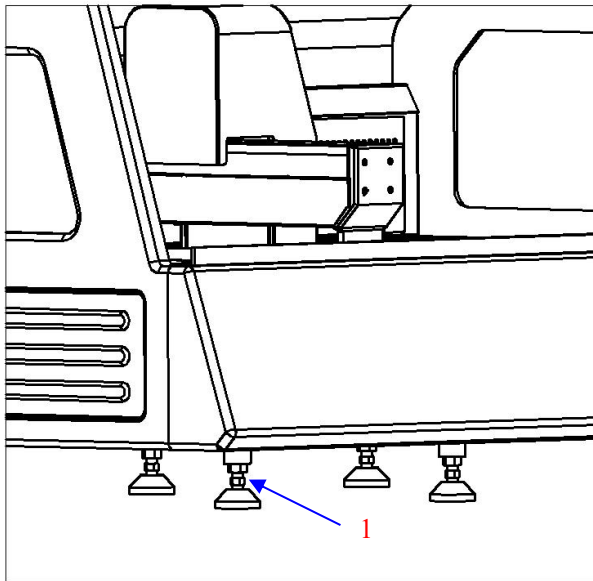
▲ Attention: Instruments must be installed in a ventilated environment, do not operate in rooms with explosion hazard.

3.2 Factory Standard Configuration

- | | |
|---------------------------------------|--|
| ⊙ main frame | 1 set |
| ⊙ hanging basket(slide loading frame) | 6 piece |
| ⊙ dryer module | 0/1 set (optional ordering) |
| ⊙ reagent tank and cover | 22/19 sets(22 sets including dryer tanks, 19 sets exclude dryer tanks) |
| ⊙ water inlet pipe | 1 piece |
| ⊙ water outlet pipe (blue) | 1 piece |
| ⊙ Reagent tank clamp tool | 1 set |
| ⊙ power cord | 1piece |
| ⊙ fuse (3A) | 2 pieces |
| ⊙ operation manual | 1 set |

● please check and confirm above standard configuration upon opening the box, and if you have any question, please feel free to contact us. If there is any special request, please inform us before ordering.

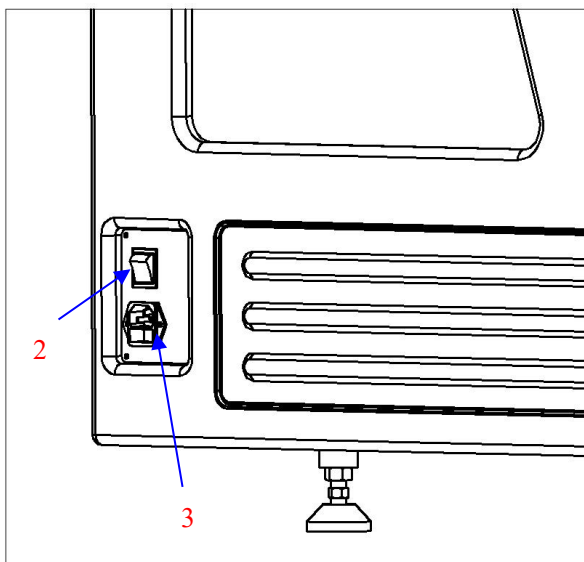
3.3 Installation



3.3.1 Instruction fixation

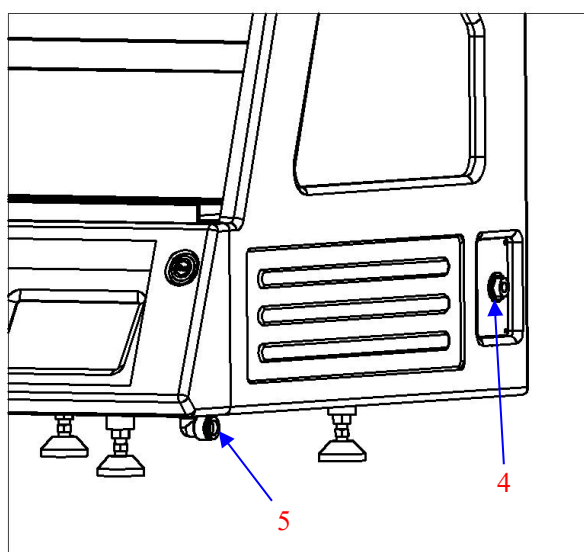
Place the instrument in right place, release the six locking nuts (1), rotate and adjust them separately to the level of instrument, then tighten the locking nuts again.

● Note: If you need to move the fixed instrument the above steps must be repeated.



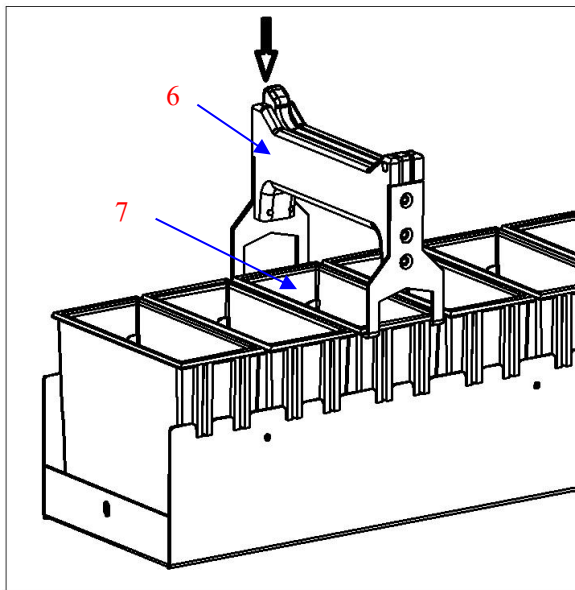
3.3.2 Connecting the power cord

Power switch (2), control power outlet (3), connect power cord to control power outlet (3).



3.3.3 Water inlet and outlet pipe connection

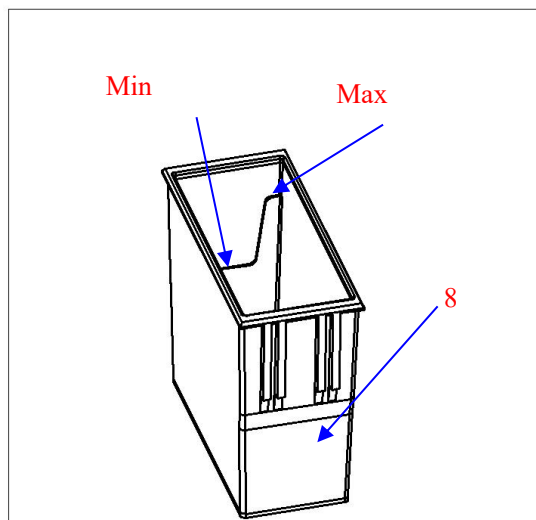
Water inlet joint (4), water outlet joint (5) Connect pipes to inlet and outlet joints separately, the other end of the inlet pipe is connected to the water pipe (pressure range 0.05-0.2MPa).



3.3.4 Reagent tank clamping operation

Press down button on reagent tank clamp tool (6), open back clip and put into card slot of reagent tank (7), release the button, then reagent tank (7) is picking up for reagent changing.

● Note: Beware of reagent spilling from tanks and avoid further pollution.

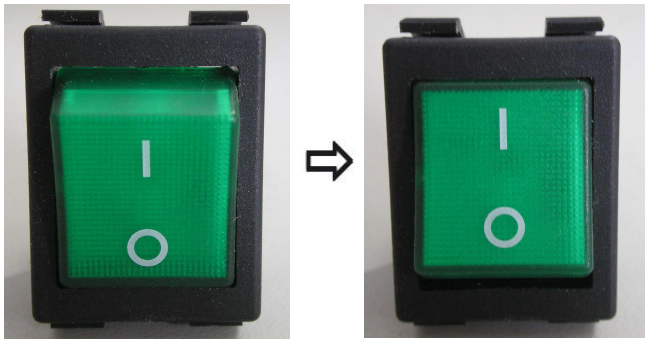
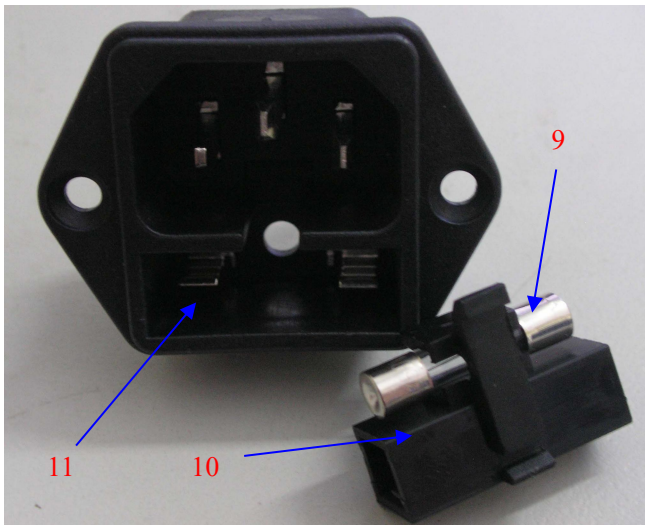


3.3.5 Adding reagents

Reagent tank (8) has high and low steps, which represent for maximum and minimum reagent limits, adding of reagents must be within their area.

3.4 Electric Connection

- The voltage has been preset at the factory. Before connecting the instrument to the power, please check that this setting complies with the local power requirements of your laboratory.
- Connect the instrument to a grounded power socket, to avoid accident.
- It is better to use the power cable provided or use an extension cord with a ground wire



⊙ Insert the fuse(9) into the fuse socket (10) as it is showed in the Fig and insert the whole fuse socket into the socket (11).

● **Attention:** Cut off the power supply and then pull the plug before changing the fuse. To ensure trouble-free operation of the instrument, make sure to comply with the instruction in the operation manual.

⊙ Power off as the left fig shows and Power on as right fig shows

⊙ when power on touch screen displays, it will take a period of time to initialize the program.

4、 Operation Instruction

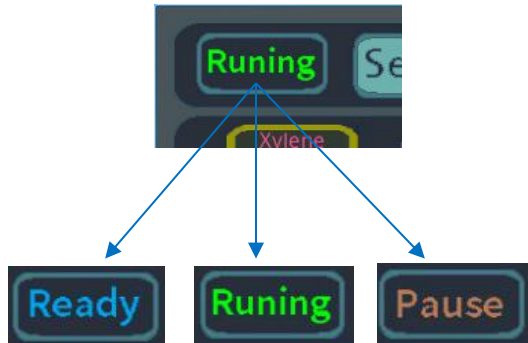
4.1 Main Operation Introduction

Reliable power connection and then turn on the instrument, the LCD touch screen will be displayed the main menu after program initialization several minutes as fig showing.



● Don't touch the screen until the program initialization finishing!

The main interface is composed of menu and display section, all of the operating parameters setting and running status display are all through this interface, the details be described below:



⊙ **Current running status**

Current running status for “Ready” 、 “Runing”and “Pause”。

Ready: ready for running program

Runing: program is running

Pause: program stops



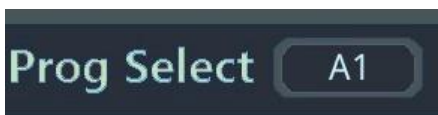
⊙ **Staining program parameter setting button**

Press” Setup” button to enter staining program parameter setting for stain tank position, reagent management and procedure programming etc.



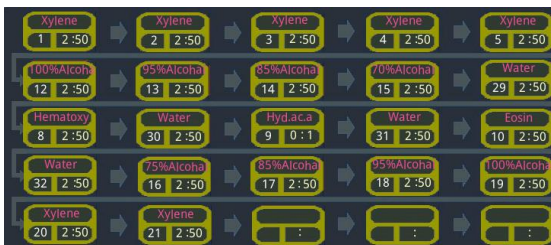
⊙ **Manual operation button**

Press “Func” button to enter manual operation



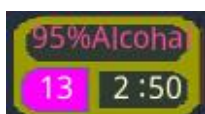
⊙ **Stain program selecting button**

Press “Prog Select A1” button to select required stain program, and current running program name indicated.

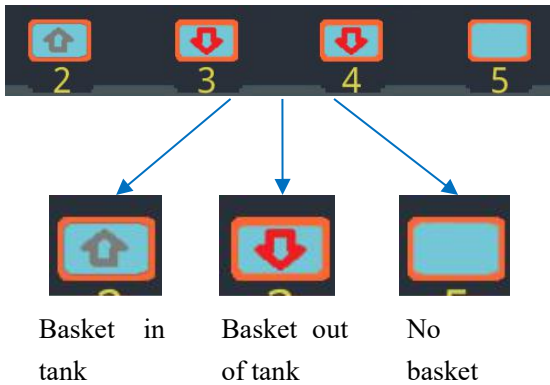


⊙ **Current running program status**

Indicated for current running steps, hanging basket position, current program name and running time etc.



For example, see photo on the left, tank no#13, reagent is 95% Alcohol, remaining soaking time is 2:50, colorful ground for tank means hanging basket is running there.

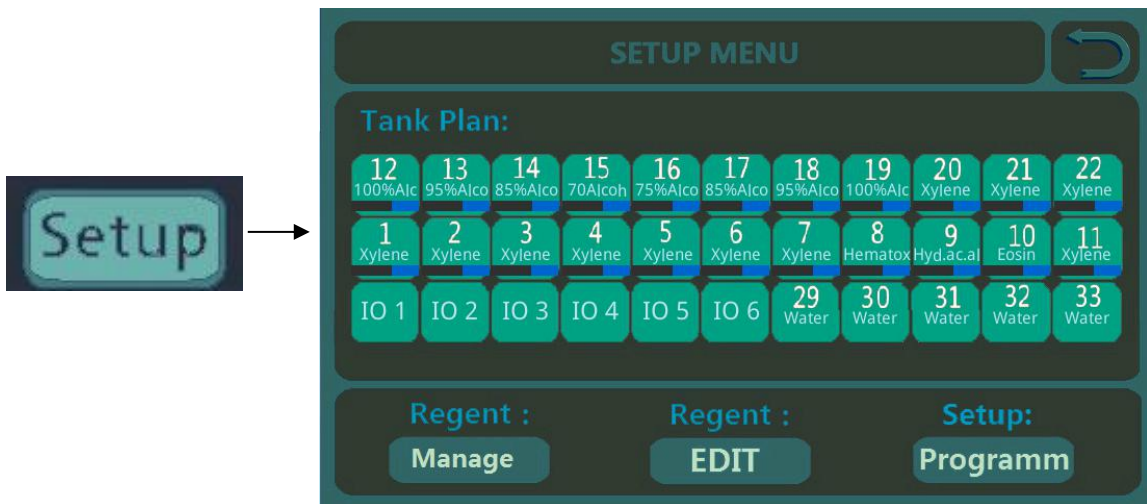


⊙ **Hanging basket status**

Indicated six hanging basket status with tanks: basket in tank, basket out of tank, no basket.

4.2 Program Parameter Setting

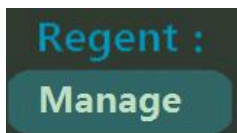
Press “Setup” button, and “SETUP MENU” indicated



Tank Plan:												
12	13	14	15	16	17	18	19	20	21	22		
100%Alc	95%Alco	85%Alco	70Alcoh	75%Alco	85%Alco	95%Alco	100%Alc	Xylene	Xylene	Xylene		
1	2	3	4	5	6	7	8	9	10	11		
Xylene	Xylene	Xylene	Xylene	Xylene	Xylene	Xylene	Hematox	Hyd.ac.al	Eosin	Xylene		
IO 1	IO 2	IO 3	IO 4	IO 5	IO 6	29	30	31	32	33		
						Water	Water	Water	Water	Water		

⊙ **Tank and related reagent status**

Indicate current tank no# and its reagent name



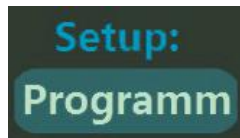
⊙ **Reagent management button**

Press this button to enter into reagent management menu, given usage and actual usage count of reagent can be set and display.



⊙ **Reagent edit menu button**

Press this button to enter into reagent edit menu, tank number for corresponding reagent type and name of optional reagent can be edited.



⦿ **Stain program edit button**

Press this button to edit and save 15 build-in stain programs.



⦿ **Back to previous interface**

4.2.1 Reagent management

Press Reagent Manage button, enter into actual management interface (enter password 123), see photo below, display all tank reagent type, given usage and actual usage count.

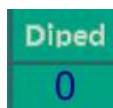


Tank	Reagent Name	Total Times	Diped	Tank	Reagent Name	Total Times	Diped
1	Xylene	500	0	12	100%Alcohol	500	0
2	Xylene	500	0	13	95%Alcohol	500	0
3	Xylene	500	0	14	85%Alcohol	500	0
4	Xylene	500	0	15	70%Alcohol	500	0
5	Xylene	500	0	16	75%Alcohol	500	0
6	Xylene	500	0	17	85%Alcohol	500	0
7	Xylene	500	0	18	95%Alcohol	500	0
8	Hematoxy	500	0	19	100%Alcohol	500	0
9	Hyd.ac.a	500	0	20	Xylene	500	0
10	Eosin	500	0	21	Xylene	500	0
11	Xylene	500	0	22	Xylene	500	0



⦿ **Set for total usage**

press number on screen to set for total usage of reagent, this value can be set according to limit use of reagent.



⦿ **Actual usage**

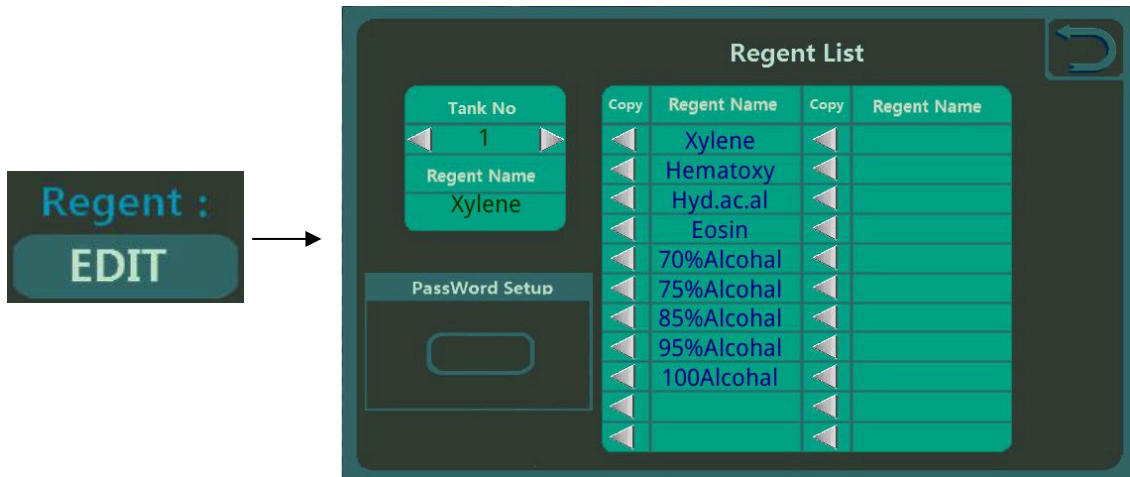
According to actual usage status , reagent usage displays, when value is larger than set value, color of value changes to red, at that time, there is blue usage progress bar shown under corresponding tank number to remind operator change reagent. Once reagent is changed, press number area and reset to zero.



⦿ **Back to previous interface**

4.2.2 Reagent edit

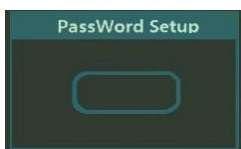
See photo below, press “Reagent EDIT” button and enter into edit interface (enter password 123) , edit for all reagent type and name of optional reagent to corresponding tank number.



- ⊙ **Select tank number**
press arrow tips on left and right to select reagent to tank number, pre-fixed reagent name shown on bottom.
For example: Tank number #1, reagent is Xylene



- ⊙ **Edit and select reagent**
Press reagent area on photo to edit and add reagent type and name, left arrow tip to add reagent to selected tank.



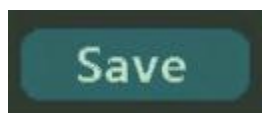
- ⊙ **Change password**
Press “PassWord Setup” button to change password for “reagent management” “reagent edit” and “stain program edit”.

● Notes: operator should keep the password, missing that will prevent operation from working for above mentioned three programs.



- ⊙ **Back to previous interface**

4.2.3 Stain program edit



⊙ Select program to edit
Press program name area, enter into program select and edit screen. Device provide 15 programs for selecting and editing.◦

- Press name area to edit program name for easy identification and select.
- Press program select area to edit selected program.

⊙ Edit program
See photo, set for current reagent tank number and incubating time.

- Press tank area to edit current tank, reagent type shown afterwards.
- Press time area to edit current incubating time.

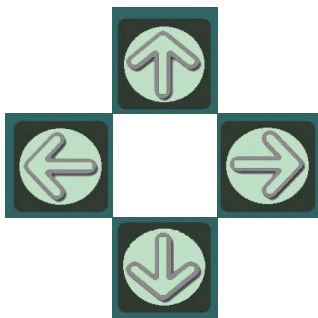
Note: when tank number shows "0", no processing executes, program will skip the step.

⊙ Save program
Press "Save" button as photo, changed program is saved.

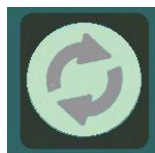
⊙ Back to previous interface

4.3 Manual operation

Press “Func” button, manual operation screen display.



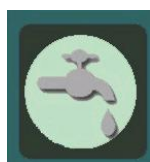
- ⊙ Operation button for front and rear, left and right
Press arrow tips once to have hanging basket one step move of each direction, press button with longer time for more steps move.



- ⊙ Return-to-zero button
Press “Return-to-zero” button, current running program stops, hanging basket return to zero for high and low, front and rear, left and right directions.



- ⊙ Back to main menu



- ⊙ Wash solenoid valve switch button
Press “Wash solenoid valve switch button” to control wash solenoid valve for opening and closing wash function.



⦿ Hook basket button

Press “hook basket” button to control hook movement from reserve position and hanging basket.



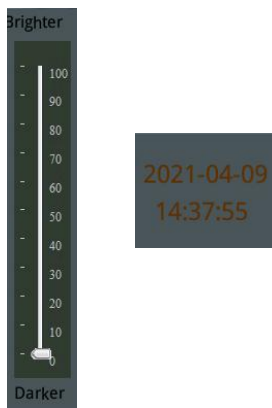
⦿ High-low movement button

Press “High-low movement button” to control hook movement for high and low.



⦿ Program running button

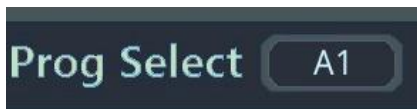
Press “program running button: to start and pause current running program. This button has the same function as mechanical button on front panel.



⦿ Screen brightness adjustment and system time setting

Drag the cursor to adjust screen brightness. Press time area for longer time to set system time.

4.4 Stain program select



Programm select And Alias edit					
Prog Select	Alias Edit	Prog Select	Alias Edit	Prog Select	Alias Edit
<input checked="" type="checkbox"/> Prog 01:	Prog 01	<input checked="" type="checkbox"/> Prog 06:	Prog 06	<input checked="" type="checkbox"/> Prog 11:	Prog 11
<input checked="" type="checkbox"/> Prog 02:	Prog 02	<input checked="" type="checkbox"/> Prog 07:	Prog 07	<input checked="" type="checkbox"/> Prog 12:	Prog 12
<input checked="" type="checkbox"/> Prog 03:	Prog 03	<input checked="" type="checkbox"/> Prog 08:	Prog 08	<input checked="" type="checkbox"/> Prog 13:	Prog 13
<input checked="" type="checkbox"/> Prog 04:	Prog 04	<input checked="" type="checkbox"/> Prog 09:	Prog 09	<input checked="" type="checkbox"/> Prog 14:	Prog 14
<input checked="" type="checkbox"/> Prog 05:	Prog 05	<input checked="" type="checkbox"/> Prog 10:	Prog 10	<input checked="" type="checkbox"/> Prog 15:	Prog 15

Press “Prog Select” button to open program dialog, 15 programs are selectable, press check button in front of program and select.

4.5 Recommended stain program

Hematoxylin eosin stain techniques, recommended steps as following:

1、 Xylene	5 minutes;	11、 Water	3 minutes;
2、 Xylene	5 minutes;	12、 Eosin	2 minutes;
3、 100%Alcohol	5 minutes;	13、 Water	2 minutes;
4、 95%Alcohol	3 minutes;	14、 75%Alcohol	2 minutes;
5、 85%Alcohol	3 minutes;	15、 85%Alcohol	2 minutes;
6、 70%Alcohol	2 minutes;	16、 95%Alcohol	2 minutes;
7、 Water	3 minutes;	17、 100%Alcohol	2 minutes;
8、 Hematoxylin	5 minutes;	18、 Xylene	2 minutes;
9、 Water	3 minutes;	19、 Xylene	2 minutes;
10、 Hydrochloric ethanol	1 second;		

Operator can change steps according to actual needs.

4.6 Automatic stain procedure

Default values operation steps for first use:

- ⊙ Power on, enter into reagent and tank edit screen to set up for reagent type and matching for reagent and tank. (see photo 4.2.2)
- ⊙ Enter into reagent management screen set up for maximum usage of all reagent types. (see photo 4.2.1)
- ⊙ Enter into program edit screen, operator can change preset program, set up for needed stain program and save it. (see photo 4.2.3)
- ⊙ Fill reagent into tanks as preset position, note that reagent added amount needs between upper and lower limit.
- ⊙ Make sure water inlet and outlet pipe are well connected, open external connection switch of water inlet pipe, maintain normal water pressure.
- ⊙ Place ready-for-stain hanging basket to in/out tank position, close glass covering.
- ⊙ Select program to be run from main screen (see 4.4), press "START/PAUSE" button on front panel, program start to run.
- ⊙ Program operation process displays on the screen, when hanging basket finishes program, it goes back to in/out tank position with Beep reminder.
- ⊙ Once all hanging baskets finish program, operator needs to close external connection switch of water inlet pipe and reagent tank cover, then power off.

Operation steps for daily use:

- ⊙ Open glass covering, remove covering of reagent tank, check reagent see if amount meets requirement.
- ⊙ Power on the device, enter into reagent management screen, check actual usage of reagent (see 4.2.1); If it approaches to maximum usage, replace reagents.
- ⊙ Make sure water inlet and outlet pipe are well connected, open external connection switch of water inlet pipe, maintain normal water pressure.
- ⊙ Place ready-for-stain hanging basket to in/out tank position, close glass covering.
- ⊙ Select program to be run from main screen (see 4.4), press “START/PAUSE” button on front panel, program start to run.
- ⊙ Program operation process displays on the screen, when hanging basket finishes program, it goes back to in/out tank position with Beep reminder.
- ⊙ Press “START/PAUSE” button when adding or removing hanging basket during program running, re-press again to continue.
- ⊙ If adding-basket quantities are more than in/out tanks, pay attention to device running status. Avoid situation that no in/out tank can be used for hanging basket when program finishes. When hanging basket finishes program, it goes back to in/out tank position with Beep reminder and screen tip, then operator can take out finished hanging basket.
- ⊙ Once all hanging baskets finish program, operator needs to close external connection switch of water inlet pipe and reagent tank cover, then power off.

5、 Cleaning and Maintenance

5.1 Cleaning the instrument

- ⊙ Cleaning the appearance

Use the dry cloth to clean the outside and wet cloth to clean the areas always be touched when operate the instrument.

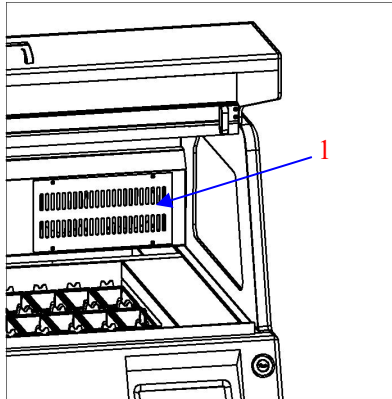
Cleaning of instrument is the premise of getting high quality slides, operator needs to arrange regular or irregular cleaning for instrument depending on slide amount to ensure a better production slide.

- Only authorized person may do the service and repair!
- Do not cleaning until the machine switch off and disconnect the power plug, clean separately.
- Do not use corrosive liquids to clean the instrument.
- Ensure that no liquids enter the interior of the instrument when cleaning!
- Do not power on till instrument is drying after cleaning.

⊙ Waste disposal

Waste generated by equipment operation is mainly waste liquid, all waste disposal needs to be treated according to relevant standards.

⊙ Filter replacement



● Unscrew the four screws from filter cover then open it, take out the filter and replace a new one, see photo.

● To maintain its effectiveness, suggest replacing of filters for every three months for normal use.

5.2 Reagent maintenance

Specific operation refers to reagent management 4.2.1

- ⊙ Set the usage limit value in the reagent management, zero the usage after each new added reagent.
- ⊙ if the background of a reagent in management interface turns to red, the reagent usage has reached limit, replacing is must.
- ⊙ use the reagent cylinder clamp tool correctly to replace reagent to avoid equipment damage resulting from reagent overflow in the cylinder.
- ⊙ When adding reagent, the amount must be controlled between the maximum and minimum limit positions.

6、 Common trouble shooting

Here are some common failures, causes and solutions

Type	Performance	Cause	Judgement	Remedy
All doesn't work when power on	No brightness for display screen	No connection to external power supply.	Plug in power supply and turn on the device power switch	Plug in power supply.
		Fuse broken circuit.	Take out the fuse, use a multimeter to measure its internal resistance, infinity indicates fuse failure.	Replace a new fuse
		No output for the switch power supply.	Measure the switch power output with a multimeter DC gear. No output indicates switch power supply failure.	Replace switch power supply.
		No output of the voltage regulator.	Measure the 3.3v output end on the main board with the multimeter DC gear. No 3.3V output indicates voltage regulator failure.	Replace voltage regulator.
	LCD screen display ok, device doesn't work after pressing "START" button.	Glass covering not close, Safety protection program turns on for protection.	Observe whether glass covering is closed.	Close glass covering.
buzzer beep	Buzzer beeps intermittently during device operation	Program finished	Buzzer beeps for three times when program finished.	Remove finished hanging baskets.
		Program finished, no out-tank position for finished basket.	Observe whether out-tank positions are all full.	Remove finished hanging baskets.
	Buzzer beeps constantly during device operation	Junks in the reagent tank prevents basket in.	Remove hanging basket manually and check	Take out junk and put back hanging basket manually, close covering then re-start.

Please contact us before automatic tissue processing for any unsolved problems.

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