# Micro-Volumn Spectrophotometer

# For Nucleic Acid and Protein

**Model No: YSA-301**

## User Manual

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## 6 Repair and Maintain

This product is an indoor Instrument.

Power off when you finish your work. Pull off the connector plug when there's long time no use of the Instrument and cover it with a cloth or plastic paper to prevent from dust.

Clean the pedestal by a clean soft cloth stained by alcohol. Clean smutches on the Instrument by soft cloth stained with cleaning cream .

## 7 Failure analysis and handling

| Phenomenon | Possible Causes | Processing Procedure |
|---|---|---|
| Equipment doesn't<br>Work after power on. | No power.<br>Switch failure.<br>Adaptor failure. | Check power.<br>Change switch.<br>Contact seller . |
| Touch screen not responsive | Fixed position deviates.<br>Screen failure . | Fix again.<br>Contact seller . |
| Measure result not accurate | Sample drop not complete.<br>Pedestal polluted. | Make sample to a complete column.<br>Clean the pedestal and blank calibrate. |

5.5.2 When user open one file, the datas in for file will display as follow:


Return to previous step, by pressing key “Esc” or click “Return” by mouse or by touch pen.

Read all data by press direction key ”↑” and key “ ↓” on keyboard, or click scroll Column on the screen.

On the bottom of the screen can see measurement type. When user need to print one result, choose one of the results by pressing key” ↑“ and ”↓ “, then press “Enter”. The point behind the result you choose will brighten. Get printing result by clicking “Print”. (User also can choose more than one）. User can operate by mouse or touch screen to choose results which need print. Click points behind results by mouse or touch pen, points brighten, then click “Print”.

5.5.3 User can connect YSA-301 to PC by USB, this moment, PC will identify YSA-301 as a U disk. Data in YSA-301 can be copied, but user can not operate YSA-301 when copy data. After copy, user have to power off and restart YSA-301 if want to continue measuring.



# 1 Introduction

Thank you for purchasing our Products: Micro-Spectrophotometer—YSA-301. This Manual for users contains function and operation of the Instrument. In order to use the instrument properly, please read this manual carefully before using the Instrument. Keep it for later use when you meet with difficulties.

## 1.1 Full set of equipment

| | |
|---|---|
| Micro-Spectrophotometer | 1Unit |
| Power Adaptor | 1Unit |
| USB Connector Line | 1PC |
| Mouse | 1PC |
| Touch Pen | 1PC |
| Printing Paper | 2 Rolls |
| Manual | 1PC |
| Warranty Certificate | 1PC |
| Approved Certificate | 1PC |

## 2 Specification

### 2.1 The Normal Operation Condition:

Ambient temperature：5°C ~ 35°C
The relative humidity：≤70%
Power Supply：DC24V 4A

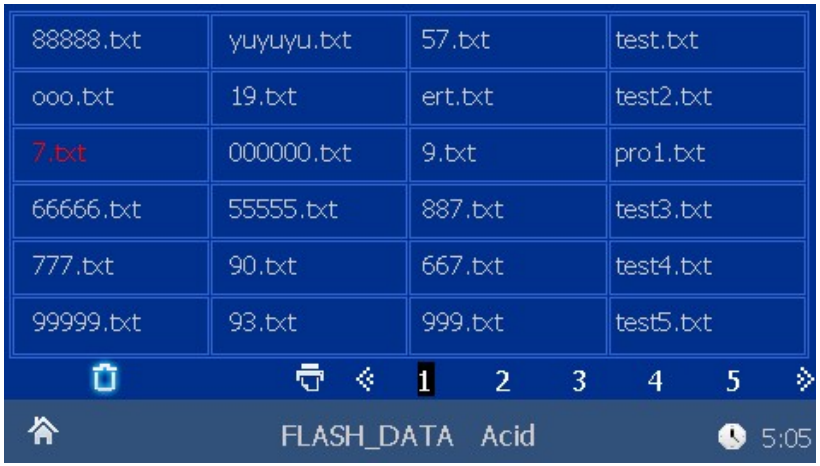
### 2.2 The basic parameters and performance

| | |
|---|---|
| Model | YSA-301 |
| Minimum sample Size | 0.5ul-2ul(2ul advised) |
| Path Length | 0.2mm or 1mm |
| Light Source/Light | Xenon flash lamp/>109 flashes |
| Detector Type | Ultraviolet silicon photocell |
| Wavelength Range | 230nm，260nm，280nm |
| Wavelength Range | ±6 nm |
| Spectral Resolution | ≤3nm（FWHM@Hg 253.7nm） |
| Absorbance Precision | 0.002Abs（1mm path length） |
| Absorbance Accuracy | ±1% |
| Absorbance Range | 0.02—80（equivalent 10mm） |
| Detection Concentration Range | 10ng/ul dsDNA ～ 4,000ng/ul dsDNA |
| Detection Time | <10s |
| Input Voltage | DC24V 4A |
| Power | 80W |
| Dimension | 210x280x166mm（WxDxH） |
| Weight | 2.5 kg |
| Save Type | 64M flash, 2GB SD Card |
| Software Compatibility | Windows ce |




Press key “Enter” to open this file. Or click by mouse or by touch pen on screen to open.

If users want to delete one file, choose the one, and press key “Tab”, the icon will brighten. See bellows:

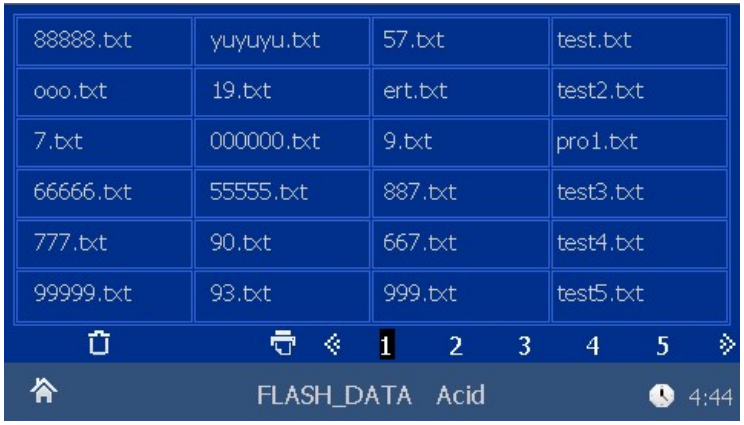



Then, press“Enter” to delete.

Or after choosing file, and click icon to delete by mouse or touch pen.

Press key “Tab”, when “View type” turn red. Press down direction key to choose file you need. Or click by mouse or by touch pen to choose, see below:


Press “Enter” (Touch “OK” or click “OK” by mouse) to see，see below. Or can press “Esc” (Touch “CANCEL” or click CANCEL by mouse)。



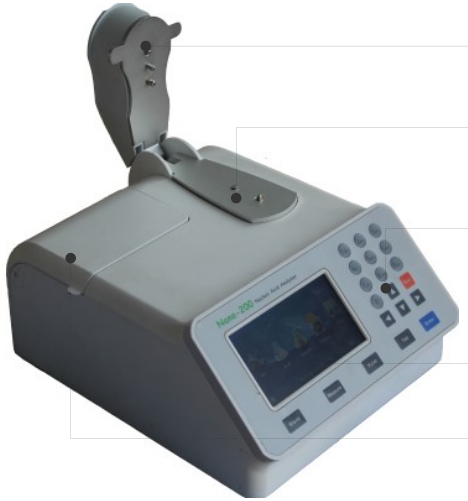

Choose files by up and down direction keys, turn pages by left and right direction keys. User can click file name by mouse or touch pen. Click page No. under the table can jump to the any page you want. Or click and to change pages.

After you chose a file（the file name will be turn red），press “Tab” to choose to make it brightened, as below:



# 3 Basic Operation

## 3.1 Structure description



Upper pedestal

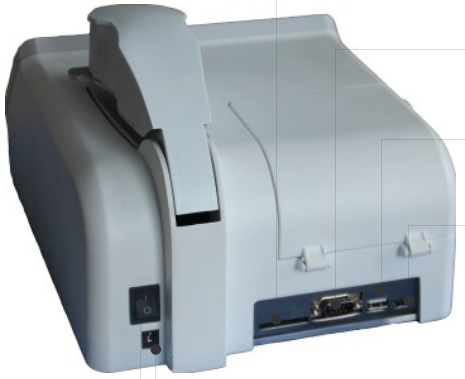
Lower pedestal

Panel

Touch screen

Printer

SD Card



RS232 Connector

USB to mouse

USB output

Power connector

Switch

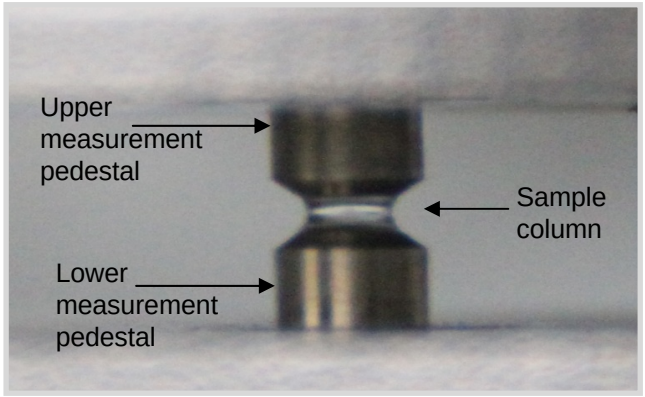
### 3.2 Sample size requirements

Although sample size is not critical, it is essential that the complete liquid column can be formed between the upper measurement pedestal and lower measurement pedestal to make sure the precision of the measurement.
It is best to use a precision pipettor (0-2ul) with precision tips to assure the precision of the sampling. If users are unsure about sample characteristics or pipettor accuracy, a 2ul sample is recommended.

### 3.3 Basic use for the pedestal

◆ With the upper pedestal open, pipette the sample (2ul) onto the lower pedestal.


◆ Lower the sampling arm, the sample column is automatically drawn between the upper and lower measurement pedestals. Then the measurement initiates.





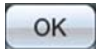

### 5.5 check history record

5.5.1 Choose “History” on the main interface, enter into the history interface, as below:

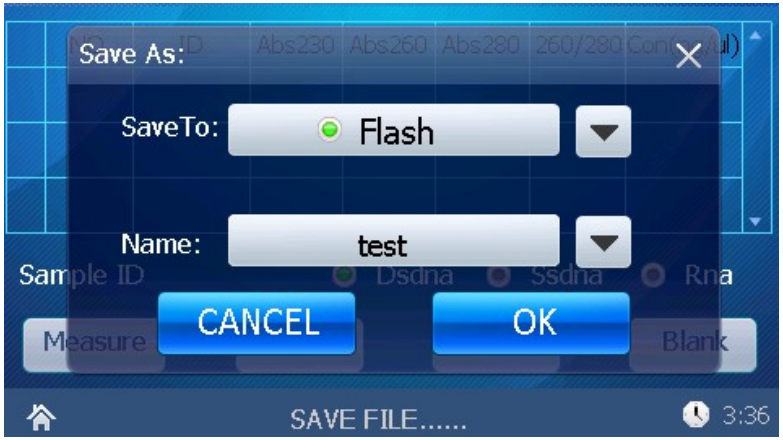

Press “Tab” to make “View scope” turn red, then, press down direction key to choose file position, also can click by mouse or touch pen. Notes, when spot behind the SD is gray, means SD card has not been active or without SD card. This moment, user has to choose “FLASH” as below：


Or choose position by clicking icon using mouse or by touch pen.

◆ Press “Tab”to make “Name”turn red，then press down direction key, or click“***” by mouse or keyboard，user will see tables as below, the left direction key is “backspace” key.

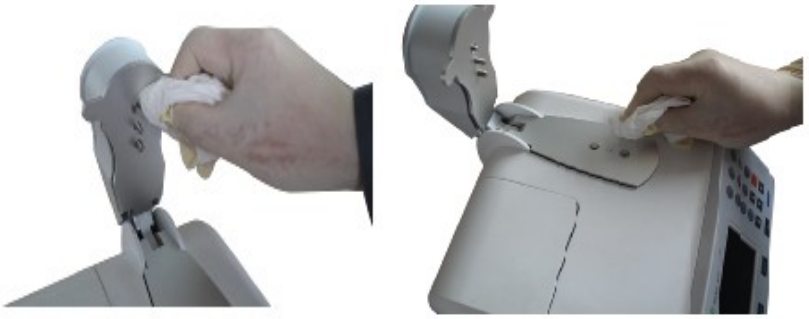

◆ After typing in a file name by keyboard or mouse, click 

by keyboard or mouse, press “Enter” on keyboard to finish typing. Press “Enter” again or click “OK” to save file. See below,（Notes：When type characters by keyboard, must make sure the previous one is black）. Or press “Esc”,（Or click “return”）to quit.






◆ When the measurement is complete, open the upper pedestal and wipe the sample from both the upper and lower pedestals using a soft laboratory wipe. Simple wiping prevents sample carryover in the pedestals.



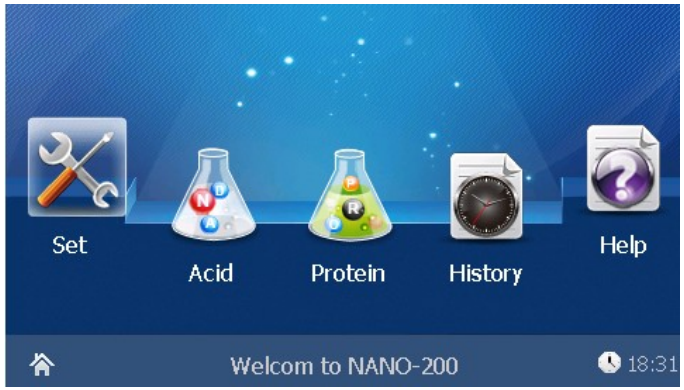
## 4 Installation

Insert the output end of power supply adapter into power connector in the back of instrument, and connect the other end with network voltage (AC100-AC240V). Connect mouse to USB port to make operation more active.

# 5 Software operation

## 5.1 Main interface

Main interface composed by “Set” “Acid” “Protein” “History” “Help”, click left button on mouse to enter interface you need, or use up and down keys then press “enter” to choose interface.




**Set：** System set **Acid：** Acid detect
**Protein：** protein detect **History：** check history records
**Help：** Documents for help.

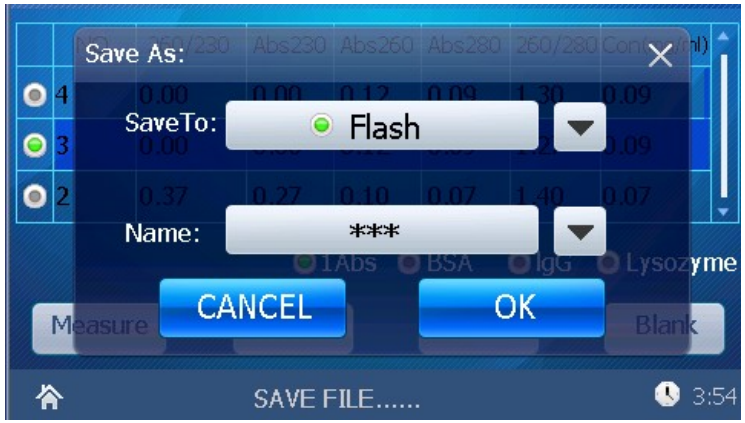
Click this icon, system will return to main interface.

## 5.2 Set interface

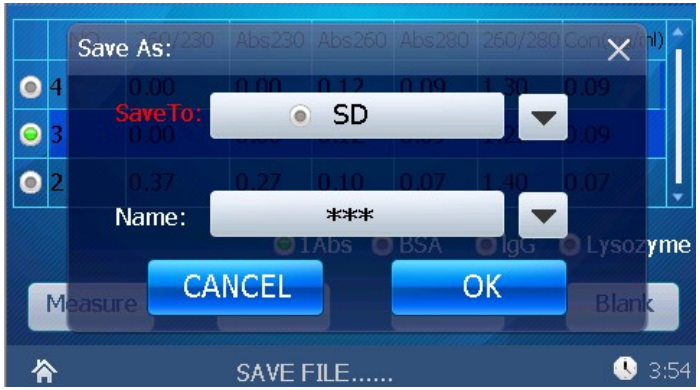
Enter into “Set” interface by mouse or by touch screen, press key “Esc” or click close to quit.




◆Press“Enter” or click “Save” by mouse or touch pen, enter into save interface as below:




◆ Press “Tab” to make ”Save To” turn red, press down direction key to choose save position, or click （Notes, when spot behind the SD is gray, means SD card has not been active or without SD card. This moment, user has to choose “FLASH” as below)




◆ Or choose position by clicking button using mouse or by touch pen.


5.4.7 When user want to skim measurement data, press “Tab” to make table in a red frame, as above. Skim tables by press up and down direction key, also can Scroll through the table using the slider bar on the right of the window. Sample type indicated on the table is the one chosen.

5.4.8 **Save data**

◆ When need save, Press “Tab” to make “Save” turn gray, as below:




◆ **Touch：Calibrate touch screen**

Enter into “Touch” interface, Click “OK” or press “Enter” on keyboard to start calibrate, click “CANCEL” or “Esc” on keyboard to quit.


Notes：After calibration, system will prompt to restart. Click ok to restart equipment.

◆ **Parameter：** factory Parameter

◆ **Time：** time setting

Click left mouse button or keys to enter into “Time” interface, as follow:

Press “Tab” to choose setup type, then press left and right direction keys to increase or decrease.

Example: When setting up “Hour”, press “Tab” , only when HOUR turn red can increase or decrease the valve. Click ”OK” or press “Enter” to finish.

**5.3 Nucleic Acids measurement**

5.3.1 Choose（Acid ) on main interface, enter into interface of Nucleic Acids measurement

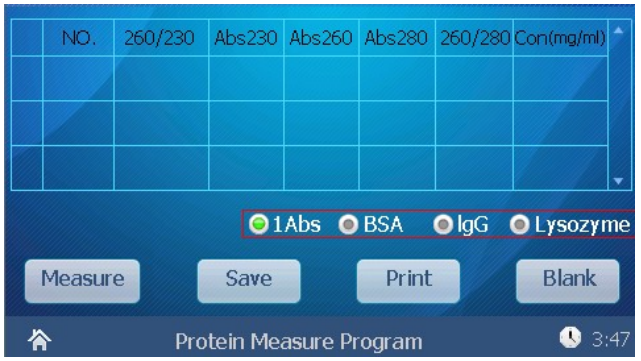

5.3.2 Choose sample type (Dsdna、 Ssdna、Rna, default setting is Dsdna).

（Choose sample type frame by key “Tab”, and choose one type by direction keys, as below, click spot behind type by click mouse or touch pen. )




5.4.2 Choose sample type（1Abs、BSA、lgG，Lysozyme default setting is 1Abs）.

（Choose sample type frame by key “Tab”, and choose one type by direction keys, as below, click spot behind type by click mouse or touch pen. )




5.4.3 Create a blanking by using suitable solution. Blank solution is normally solvent to dissolve the targeting molecular and it needs to be the same with the samples in PH and ionic concentration. Load a 2ul blank sample onto the lower pedestal and lower the upper pedestal into the 'down' position. Click 'Blank' button to make a blank. At this moment, the button “Blank” is gray, when it recover to default color, calibration is finished, Wipe the sample from both the upper and lower pedestals using soft laboratory wipe.

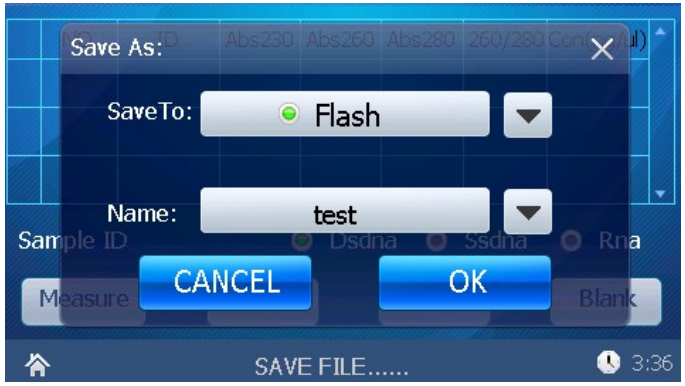
5.4.4 Load a 2ul sample solution onto the lower pedestal and low down the upper pedestal into the ‘down’ position. Click “Measure” （or key “Measure” on the keyboard）.At this moment, the button “Blank” is gray when it recover to default color, the measurement result will display on the table.

5.4.5 When the measurement is complete, use a new dust-free paper to wipe the pedestals. In this way, the users can do next measurement. If measure the same kinds of samples, the users needn’t to re-blank. It is advisable to do the blanking every 15min at least.

5.4.6 Users need to print one result, press “Tab” to choose the table in a red frame , then choose one result by keyboard, press “Enter”, the spot behind the result will brighten, and press ”Print” to start print. (If user want to print more than one result, just need choose your target ones, spots should be brightened).

When users operate by mouse or touch pen, Scroll through the table using the slider bar on the right of the window, click the spot behind results to make spot brightened, and click “Print” to start print.

◆ After typing in a file name by keyboard or mouse, press “Enter” on keyboard to finish typing. Press “Enter” again or click “OK” to save file. See below,（Notes：When type characters by keyboard, must make sure the previous one is black）. Or press “Esc”,（Or click “return”）to quit.




**5.4 Protein A280 measurement**

5.4.1 Protein A280 measures the protein’s absorbance at 280nm and calculates the concentration (mg/ml) .

Like the Nucleic Acid mode, the Protein A280 records 10mm equivalent data. Choose “Protein” on main interface, enter in interface of Protein A280 measurement, as below:




5.3.3 Create a blanking by using suitable solution. Blank solution is normally solvent to dissolve the targeting molecular and it needs to be the same with the samples in PH and ionic concentration. Load a 2ul blank sample onto the lower pedestal and lower the upper pedestal into the 'down' position. Click 'Blank' button to make a blank. At this moment, the button “Blank” is gray, when it recover to default color, calibration is finished, Wipe the sample from both the upper and lower pedestals using soft laboratory wipe.

5.3.4 Load a 2ul sample solution onto the lower pedestal and low down the upper pedestal into the ‘down’ position. Click “Measure” （or key “Measure” on the keyboard）.At this moment, the button “Blank” is gray when it recover to default color, the measurement result will display on the table. Default concentration unit is ng/ul .

5.3.5 When the measurement is complete, use a new dust-free paper to wipe the pedestals. In this way, the users can do next measurement. If measure the same kinds of samples, the users needn’t to re-blank. It is advisable to do the blanking every 15min at least.

**Remind:**

**◆ When measure different concentration samples, please measure them in order of from low to high concentration.**

**◆ If find the measure result is higher for same concentration, Please re-blank it.**

5.3.6 Users need to print one result, press “Tab” to choose the table in a red frame , then choose one result by keyboard, press “Enter”, the spot behind the result will brighten, and press ”Print” to start print. (If user want to print more than one result, just need choose your target ones, spots should be brightened).

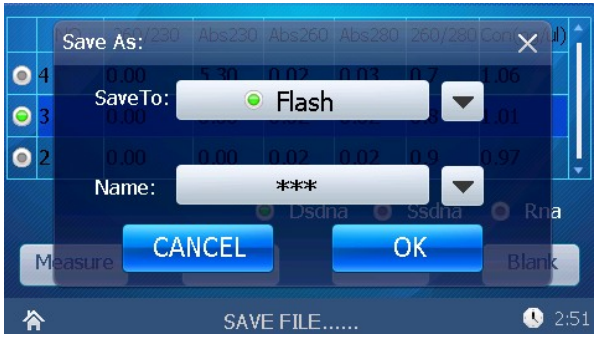
When users operate by mouse or touch pen, Scroll through the table using the slider bar on the right of the window, click the spot behind results to make spot brightened, and click “Print” to start print.


5.3.7 When user want to skim measurement data, press “Tab” to choose table in a red frame, as above. Skim tables by press up and down direction key, also can Scroll through the table using the slider bar on the right of the window. Sample type indicated on the table is the one chosen.

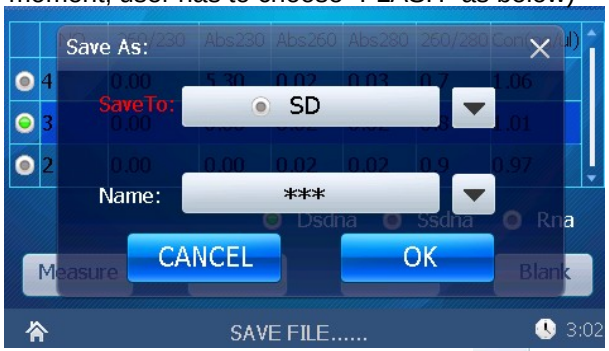
5.3.8 **Save data**

◆ When need save, Press “Tab” to make “Save” turn gray, as below:


◆ Press“Enter” or click “Save” by mouse or touch pen, enter into save interface as below:




◆ Press “Tab” to make ”Save To” turn red, press down direction key to choose save position, or click  （Notes, when spot behind the SD is gray, means SD card has not been active or without SD card. This moment, user has to choose “FLASH” as below)




◆ Or choose position by clicking button  using mouse or by touch pen.

◆ Press “Tab”to make “Name”turn red, then press down direction key, or click“***” by mouse or keyboard, user will see tables as below, the left direction key is “backspace” key.