

# 2+1 Pocket Banknote Full Fitness Sorter

WR8301



**USER MANUAL**

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# 1. Technical Parameters

## 1.1 - Specification & Dimension

Max dimension:	314mm X 348mm X 460mm
Net weight:	20.4 KGS
Sorting / counting speed:	900~1200 notes / min (Sorting Speed adjustable)
Banknote size:	Length125~170mm, width60 - 100mm,thickness0.075~0.15mm
Hopper capacity:	≥ 1000 notes
Stacker capacity:	200 notes * 2
Reject capacity:	100 notes
Display:	5" touch TFT screen
Power consumption:	≤ 150 W
Operating environment:	Temperature 0°C~40°C, relative humidity 30~90%

## 1.2 - 14 Kinds of Identification Techniques

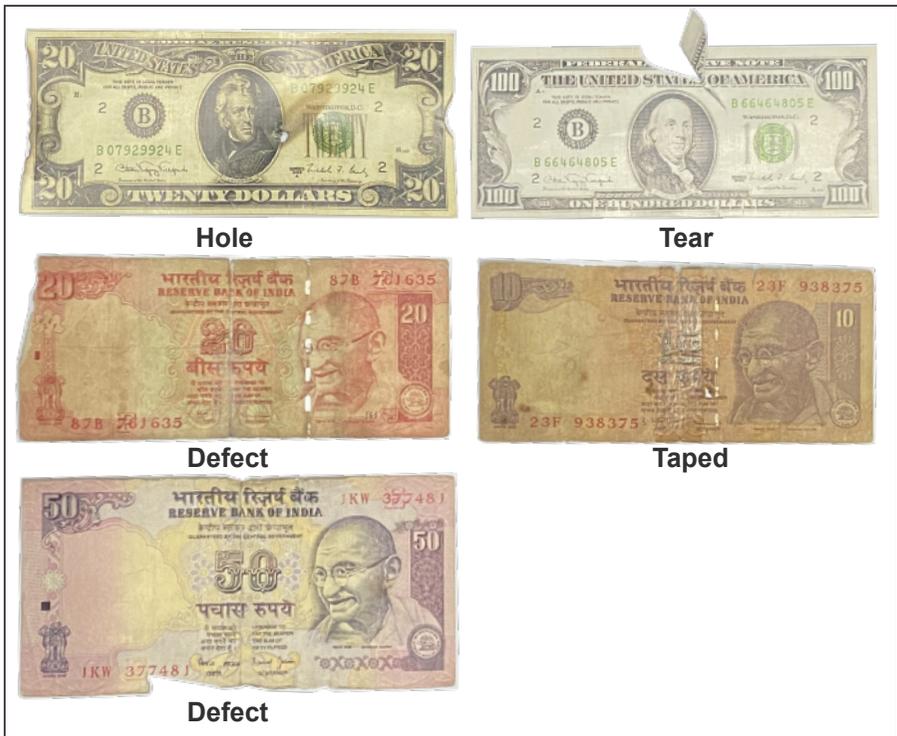
- 1.2.1 External dimensions of banknotes
- 1.2.2 Visible light reflection graphics (WHR)
- 1.2.3 Visible light perspective graphics (WHT)
- 1.2.4 Infrared ray reflection graphics (IRR)
- 1.2.5 Infrared ray perspective graphics (IRT)
- 1.2.6 UV graphics (UV)
- 1.2.7 Magnetic graphics (MG)
- 1.2.8 Metal thread magnetic features (SLMG)
- 1.2.9 Optically variable ink (POVD)
- 1.2.10 Elaborate hollow graphics (Hollow)
- 1.2.11 Watermark features (WRK)
- 1.2.12 Serial number (BNN)
- 1.2.13 Thickness features (THK)
- 1.2.14 Other Security features

## 1.3 - Technical Features

- 1.3.1 Conventional banknote verification and counting function
- 1.3.2 ATM banknote and circulating banknote sorting function
- 1.3.3 Different banknote sets, versions, orientations' sorting function
- 1.3.4 Adhesive tapes and other abnormal thickness banknote sorting function
- 1.3.5 Banknotes' information statistical management function and software system
- 1.3.6 Serial number recognition, identification and banknote information storage and input function
- 1.3.7 Printing function

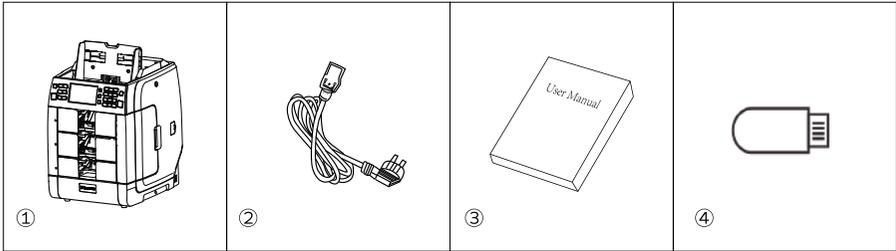
## 1.4 - Abnormal Banknotes Identification

- 1.4.1 Abnormal surface detection (Overlapping banknote, hold together banknote, distorted banknote)
- 1.4.2 Damaged banknote recognition (half, narrow, missed corners, holes, torn, stain, handwriting)



## 2. Packing List

- ① 1 Device
- ② 1 Power Line (Offer different countries and regions' requires)
- ③ 1 User manual
- ④ U Disk (optional)



### Steps of unpacking the Device

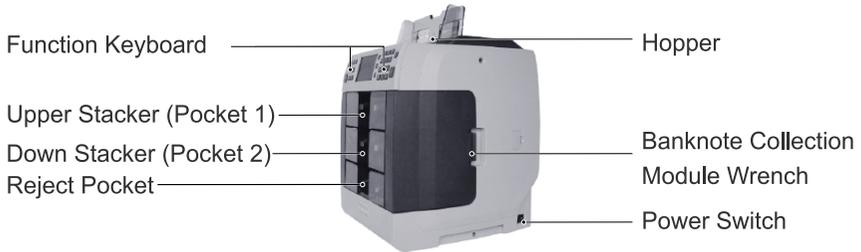
1. Take out the fixed foam, use both hands hold groove place on the bottom of the machine, lift it carefully from box. Machine is a little heavy, be careful.
2. Take out the protective foam from stackers, reject pocket and backside cover (open it).

**Attention : When moving the machine, need use both hands. It's easy to damage the equipment by moving at will.**



# 3. Related Functions

## 3.1 - Front View



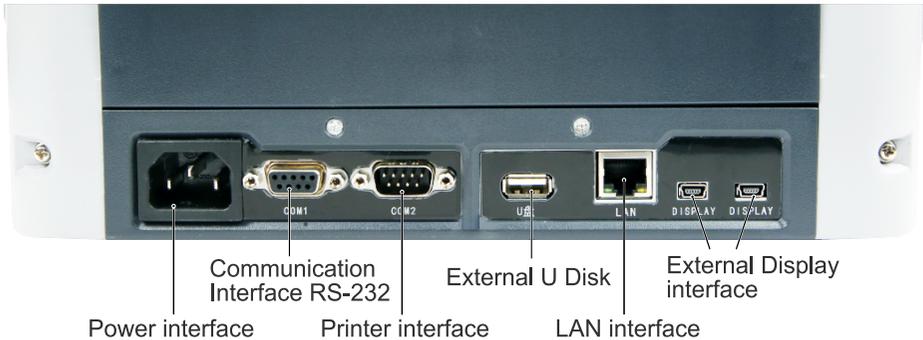
## 3.2 - Back View



## 4. Installation & Use

### Turn On/Off

Connected to a power socket with a ground wire through a power cord. Turn on the power switch to get power supply. Install the banknote inlet limit components, after the main display screen works normally, banknotes can be put in for counting and sorting. If you need to directly upload the serial number record, after connecting the network cable to the LAN interface, you can upload information to computer. If you need to print the sorting records or serial number information, you could connect it to the specified printer. Then set it in the machine system setting, select printing function (automatic & manual printing all can be set).



- 1.The device should be placed on a stable platform to avoid vibration, high temperature, moisture and bright light. Also, it needs to keep away form electrical appliances which may cause strong interference to the power grid (such as electric drills, welding machines, etc).
- 2.The machine is suitable for working at 0°C-40°C temperature. If it is below 0°C or over 40°C, it will make the machine difficult to work normally, even burned down.
- 3.The power supply used in the machine should be within the scope stipulated in the standard, beyond the scope will affect the normal use of the machine, or even burn out the machine. Input jack must have good grounding (ground wire in power supply), the machine should not be placed in a damp place, to avoid electric shock.
- 4.Please use both hands when moving the machine.Do not lift the cover, banknote feeding table wheel shaft or upper bracket etc to damage the machine.
- 5.Dust accumulation in the machine should be clear regularly, keep the rubber wheel, magnetic head, infrared tube, CIS, violet lamp and other devices clean, prevent dust accumulation affect the normal use of the machine, be sure to turn off the power when cleaning, unplug the power plug, cut off the power supply when it is not used for a long time or when the operator leaves.

# 5. Attention

## Matters Need Attention

1. Please connect the power supply of the machine with the terminal board with ground wire.
2. The Objects such as clamps, paper clips or rubber bands may damage the machine / equipment.

## Warning

This is an A grade machine, it may cause radio interference in our daily life. In this case, the users may be required to take practical action against interference.

**Banknotes should be classified according to the following characteristics :**

- Badly damaged banknotes
- Heavily defaced banknotes
- Crumpled Banknotes
- Banknotes with deep creases
- Folded Banknotes



Heavily defaced Banknotes with deep Badly damaged

**Put these banknotes away on other place for manual inspection.**

For the damaged banknotes especially, we suggest to use the following steps:



Vertically aligned banknotes



Fan out the right part of banknote bundle



Hold up your banknotes neatly



Bend in the middle of banknotes



All curved edges and corners need to be unfolded before the banknote is counted

## 6. Operation Manual

It can work directly under the factory default state or set the function on the startup interface.

Press the CUR button to select the currency counted, or press the mode button to enter mode setting and select related functions.

### 6.1 - Prepare Banknotes

- (1) Remove the binding belt as required
- (2) Handle according to internal rules
- (3) Bend the banknotes upward into a fan as shown below



- (4) Bend the banknotes downward into a fan as shown below



- (5) Sort out the stack of banknotes as shown below



(6) Make sure the edges of the banknotes are neat enough



(7) Eliminate the folded corners of the banknotes to make them flat enough

(8) Adjust the size of the hopper limit component, place the banknote neatly into the banknote hopper as shown below



*The limit component must be adjusted well*

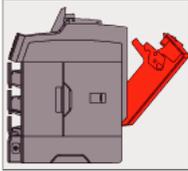
**Limit adjustment**



*Good preparation of banknotes can improve the banknotes processing efficiency and capacity.*

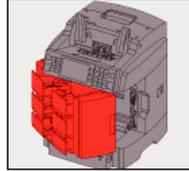
## 6.2 - Steps for turning on the machine, Clean up banknotes blocked, Handling of abnormal reminder

### • Turning the machine on



Open the back cover

*Close the upper transmission section*

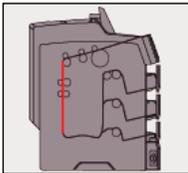


Open the side cover

*Close the lower transmission section*

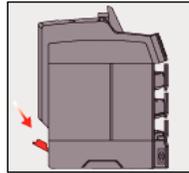
**If something going wrong during the sorting process of the banknotes, rectify the fault according to the following error message displayed.**

### • Transfer partial error



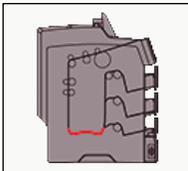
Position 1 / 2 / 3 banknotes blocked

*Inspect the upper transmission section and remove the blocked banknotes or currency fragments as needed.*



Open the bottom cover

*Inspect the bottom transmission section and remove the blocked banknotes or currency fragments as needed.*



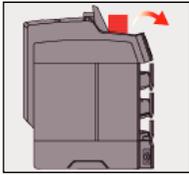
Check the banknote channels

*Check the upper and bottom parts of the transmission sections to remove the banknotes or currency fragments as needed*

**Banknotes Blocked**

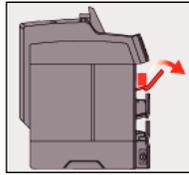
*Clear the banknotes blocked in the upper and bottom parts of the transmission sections.*

• **Take out the banknote**



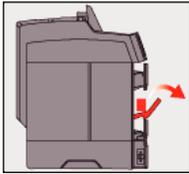
*Take the banknotes out from the banknotes hopper*

Clear the banknote hopper



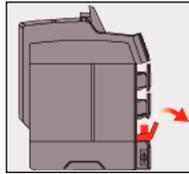
*Take the banknotes out from the first stacker*

Clear pocket 1



*Take the banknotes out from the second stacker*

Clear pocket 2



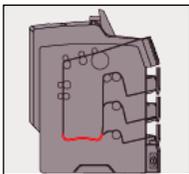
*Take the banknote out from the Reject pocket*

Clear banknote Reject pocket

**Stacker / Reject full**

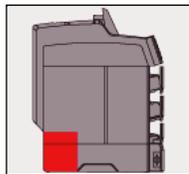
Take the banknotes out from the banknote stacker or reject.

• **Machine error**



*Open the bottom cover to take out the blocked banknotes or clean the position tube 4 / 5*

Position 4 / 5 blocked banknotes



*Check whether the Central shifter lever is damaged or not  
Check magnetic valve 1  
Check magnetic valve 2*

Abnormal magnetic valve

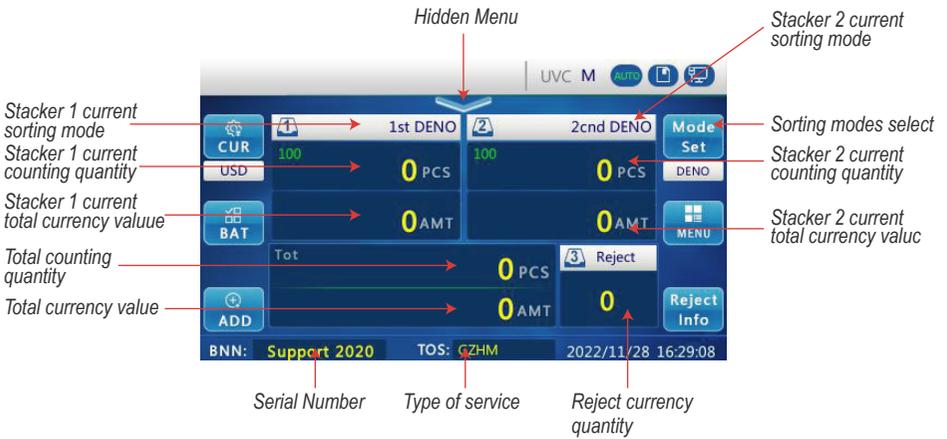
• **Message processing**

**The number of preset sheets is insufficient**

The banknote quantity does not match the preset value, Check the paper currency in the banknotes hopper, put in the more banknotes as required.

# 7. Function Interfaces

## 7.1 - Operation Interface



## 7.2 - Sorting Modes Setting

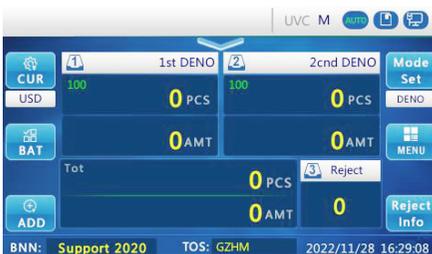
Press "Mode set" to enter the mode setting interface (Pic 1), there are 8 modes for single currency to be selected. Then press "Start" to enter the next detail menu of this function, adjust or view according to the content (Pic 2). Click "return" on the screen or press "C" physical button to automatically return to the main menu interface. The current settings are showed on the main interface mode state (Pic 3).



Pic 1



Pic 2



Pic 3



Pic 4

## 7.3 - Menu Setting

Press "MENU" button to enter the menu selection interface, press the navigation button to select the required function, and then press "Start" to enter the detail interface of this function, follow the content to set them. Tap "Back" on the screen or press the "C" physical key, the main menu will be automatically returned to the main menu.



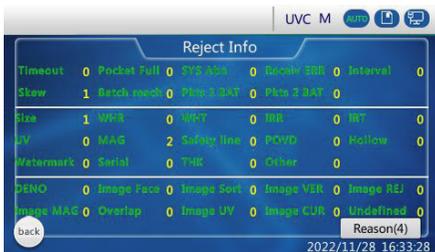
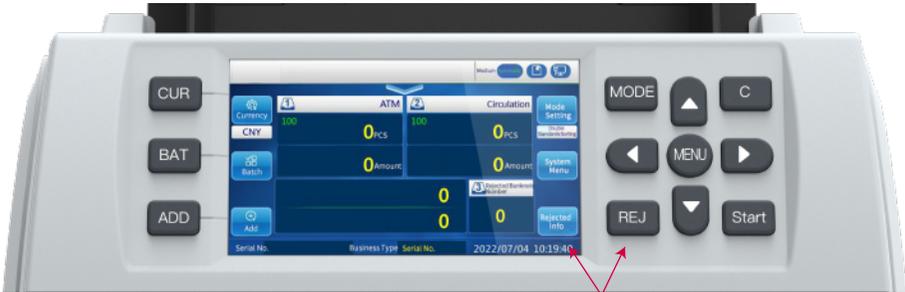
Pic 1



Pic 2

## 7.4 - Reject Information Checking

Click the "Reject Info" on the screen or press the "REJ" physical button enter the banknote reject information interface to check the reject reason and quantity of reject banknotes. Click "Reason" to get more detailed information about each reject note. (Press ↓ button to check the detailed alarm code of single banknote by pressing the menu button). Tap "Back" on the screen or press the "C" physical button to automatically returned to the main menu interface. (See images below)



Pic 1



Pic 2

### Reject information explain:

Hardware notice:

- Time out - Currency image timeout
- SYS Abn - System abnormal
- Interval - Too close, interval error
- Batch reach - Batch preset quantity reach
- Pkts 1 BAT - Stacker1 / Pocket 1 reach batch quantity
- Pkts 2 BAT - Stacker2 / Pocket 2 reach batch quantity
- Pocket full-Stacker1 / 2 full, clear them
- Receive ERR - Error for the outlet currency
- Skew - Incorrect inlet, not right position

Identification notice:

- Size - Currency size error
- WHR - White light reflection error
- WHT - White light trans - illumination error
- IRR - Infrared Ray reflection error

IRT - Infrared Ray trans-illumination error    UV - UV light error  
 MG - Magnetic graphic Error    Safety Line - Currency metal line error  
 POVD - Light variation graphic error  
 Hollow - Elaborate hollows on the currency error  
 Watermark - Watermarks on the currency error    Serial - Serial Number error  
 THK - Thickness error    Other - Other error

**Currency sorting notice:**

DENO - Denomination of currency image error  
 Image Face - Face of the Image (currency) error  
 Image Sort - Currency image sorting error  
 Image VER - Version of currency image error  
 Image REJ - Machine refuse to sort the image  
 Image MAG - Magnetism of the currency image error  
 Overlap - Currency overlapping together  
 Image UV - Currency image UV error  
 Image CUR - Wrong Currency Image, other currency  
 Undefined - Other reject reasons

**7.5 - Sub-menu Operation**

**7.5.1 - Mode Setting**

Press the “Mode set” button to enter the mode setting interface, press the navigation button or click the screen, and select the required mode from the 8 sorting modes displayed, press “OK ” on the screen or the or physical “start” to confirm and it will return to the home screen. (The home screen displays the selected mode)



Pic 1



Pic 2

### 7.5.2 - Speed Setting / Sorting Level / Identify Level

Press the “Mode set” button to enter the mode setting interface, press the navigation button or click the “RS” to select the required speed from the three levels speed choices. Press “OK” or physical “Start” on the screen to confirm, and it will return to the home screen.

The “SORT” is for sorting levels, same operation as “RS”, there are 5 levels.

The “IDENTIFY” is for the identify levels, also 5 levels.



Pic 1



Pic 2



Pic 3

### 7.5.3 - Stackers (Pockets) setting

Press the “Mode Set” button to enter the mode setting interface → Press the “Mode Details” button or click the “Menu” physical button to change the definition of each stackers (pockets) to meet the requires of different users. → Press “OK ” or “Start” physical button to confirm, and it will return to the home screen. The setting method of stakcer 2 is the same as Stacker 1. (In some modes definitions, there are limits on the stackers setting to avoid some conflicts. In some modes, all definitions such as face / fitness / version all can be set freely).



Pic 1



Pic 2



Pic 3

### 7.5.4 - Restore factory settings

Press the "Mode set" button to enter the mode setting interface → Press the navigation button or tap the "Reset" → Press the "OK" or physical "Start" button return to the home screen. Once the mode restores factory settings, it can quickly correct the disordered settings.

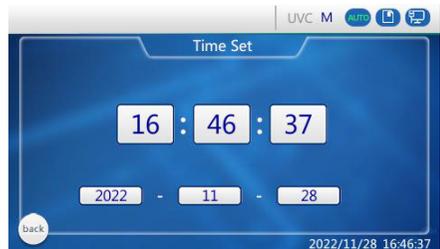


### 7.5.5 - Time Settings

Press "Menu" to enter the system menu → "System Settings" → "Time Set", press "Start" or touch the screen directly to enter, select the time items which need to be modified, then press "Start" to save and log out.



Pic 1



Pic 2

### 7.5.6 - Restore factory settings

Press "Menu" → Select "System Settings" → Select "Storage Set", can change when to clean up the storage based on capacity percent (%) or the date (WD), also can change the storage media. The "Save" button to save setting and return to the home screen. The "format" button to clean up all storage.



Pic 1



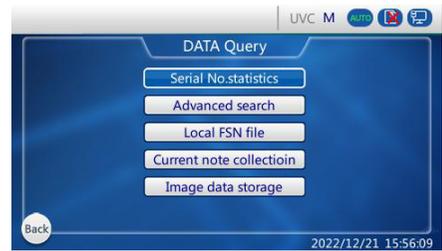
Pic 2

### 7.5.7 - Data Query

Press "System Menu" → Select "Data Query", the Serial Number/Advanced search / Local FSN file / Current note collection / Image data storage can be viewed and exported.



Pic 1



Pic 2

### 7.5.8 - Fitness Setting

Press "Menu" → "Fitness Settings", there are 16 fitness for select to change. We have 5 levels to select. Usually, we use the medium level - level 3 to modify 16 old and new parameters. "ATM" is for ATM machine, "CIRC" is currency which suit for circulation. The PIC 2 as an example, ATM value for each item is 150, but CIRC only 90. So the value of ATM currency is higher than CIRC's. "Reset" is for Restore factory settings.



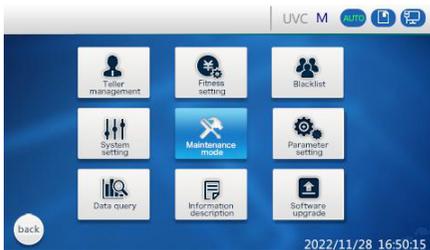
Pic 1



Pic 2

### 7.5.9 - Maintenance Mode

Press “Menu” button → Select “Maintenance Mode” - Click it on screen or press “Start” button. We can see it contain Master control, Image Device Adjust, Cash sorting test, Calibration test, Machine Aging Test, Data Acquisition and Hardware test. This function is only used by debugging and maintenance personnel, machine user should operate under the guidance of the technician.



Pic 1



Pic 2

In this mode, the “CUR Data Acquisition” is very important, if machine users find the machine can not sorting certain currency well. They can enter this mode → Turn on the All DA Mode → Sorting the certain currency → Transfer Data to our engineer, our engineer will use this data to update the software. When update confirmed, we will send back to machine users for machine updates. (As below)



Pic 1



Pic 2

## 7.5.10 - Master Control-IO Signal Set & Motor Set

### 7.5.10.1 - IO Signal Set

Select “Maintenance Mode” → Select “IO Signal Set” → To correct the parameters of each infrared tube in the channel.



Pic 1



Pic 2

### 7.5.10.2 - Motor Settings

Select “Maintenance Mode” → Select “Motor Set” → Here we can adjust the speed of the banknote inlet motor and banknote transfer motor and check the status of the stackers’ lifting motor and dial rod .



## 7.5.11 - CIS Adjust

"Maintenance Mode" → "CIS adjust" → A sensor for up CIS,B sensor for bottom CIS. Users can adjust different parameters - Static VAR / RTK (real - time kinematic) VAR / THK (thickness)VAR / UV VAR / ALC(all light transmission compensation). After adjusted all parameters, press “Start Cal” to write the parameters in the machine. It will notice us the adjusting is success or failed.

RLR - Red light reflection    GLR - Green light reflection    BLR - Blue light reflection  
 IRR - Infrared ray reflection    UVR - UV reflection    WHT - White light transmission  
 IRT - Infrared ray transmission



Pic 1



Pic 2

### 7.5.12 - Cash sorting test

"Maintain Mode" → "Cash sorting test", the interface will show the parameters for the new and old sorting items of the current banknotes and will provide reference data for sorting banknotes. Users can adjust these parameters to fit different sorting requires.



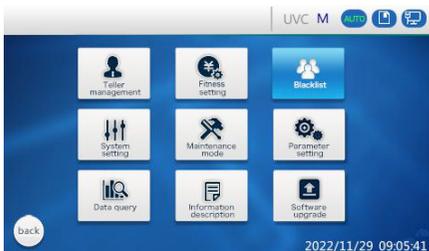
Pic 1



Pic 2

### 7.5.13 - Blacklist

Press "Menu" → "Blacklist", You can view, add, modify, and delete blacklist information. The blacklist information is directly displayed in the table. If there is no blank content in the table, it means there is no blacklist information record.



Pic 1



Pic 2

## 7.5.14 - Parameter Setting

Press “Menu” to enter the menu, select “Parameter Settings” and press “Start” or just touch it to enter, here need you to enter the password “000000”. Then you can adjust Device parameters, Counterfeit identify features, Identify level, Currency set, Sorting mode, CNY version and Denomination.



Pic 1



Pic 2



Pic 3

### 7.5.14.1 - Device Parameters setting

In the sub - menu interface of “Parameter Settings” → Select “Device Para”, then users can select what they need or not to fit different fitting requires, such as reject capacity, reject upload, save mode, user count abnormal tips, USD version and so on.



Pic 1



Pic 2

### 7.5.14.2 - Counterfeit Identify

“Parameter Settings” → Select “Counterfeit Identify” → Press “Start” or touch it on screen to enter. You can turn on or turn off the 18 identify functions as required. Press “Back” button to save and log out.



Pic 1



Pic 2

### 7.5.15 - Software Upgrade

Press “ Menu” → Select “Software Upgrade.”

Place the upgraded files in the U - disk and insert it into the USB port,select the mode which need to be upgraded, press “start” to upgrade the software. Select “Smart Update”, it will automatically recognize the latest version of the software to update.



Pic 1



Pic 2

## 7.6 - UVC Sterilization Function(Optional)

"Menu" → "Parameter Setting" → "Device Para"→ "next page" to the second page→ Click "UVC module" on/off button, then you can turn on or off the UVC sterilization function. The UVC icon prompt is displayed at the top of the home screen.



Pic 1



Pic 2



Pic 3

UVC function is optional, you can choose to add it or not.

Notes:

Every place need password in the machine is "000000".

You can just use this button ( → ) 6 times or just enter on the screen.



Pic 1



Pic 2

## 7.7 - Power On Code Self - check and Elimination Methods

Fault code	Fault self-check	Content elimination methods
182	Banknote delivery coded disc fault	Check the banknote delivery motor or clean groove type optocoupler
183	Banknote input coded disc fault	Check the banknote input motor or magnetic encoder component
195	Abnormal signal of side cover	Re-open and close the banknote collection module, press "Start" to clear
196	Abnormal signal of bottom cover	Re-open and close the central and bottom banknote outlet component, press "Start" to clear
197	Abnormal signal of back cover	Enable and close the Identification module, then press "Start" to clear
401	Check the banknote inlet signal	Avoid direct light or check the optocoupler componentz
404	Check left position of 0	Clean up the dust or re-calibrate
406	Check right position of 0	Clean up the dust or re-calibrate
407	Check position 1	Clean up the dust or re-calibrate
409	Check position 2	Clean up the dust or re-calibrate
411	Check left position of 3	Clean up the dust or re-calibrate
412	Check right position of 3	Clean up the dust or re-calibrate
413	Check left position of 4	Clean up the dust or re-calibrate
414	Check right position of 4	Clean up the dust or re-calibrate
415	Check left position of 5	Clean up the dust or re-calibrate
416	Check right position of 5	Clean up the dust or re-calibrate
423	Check position DO	Clean up the dust or re-calibrate
424	Check counting 2	Clean up the dust or re-calibrate
425	Check position D1	Clean up the dust or re-calibrate
426	Check position D1	Clean up the dust or re-calibrate
449	Check the collecting signal of stacker 1	Clean up the dust or re-calibrate
447	Check the collecting signal of Reject pocket	Clean up the dust or re-calibrate
451	Check the collecting signal of note-issuing outlet 2	Clean up the dust or re-calibrate

Fault code	Fault self-check	Content elimination methods
464	Check counting 0	Clean up the dust or re-calibrate
488	Signal abnormal in flip 0 position	Clean up the dust or re-calibrate
489	Signal abnormal in flip 1 position	Clean up the dust or re-calibrate
490	Port 2 position abnormal	Check the lifting motor of stacker 2 or clean up the optocoupler dust
492	Port 1 position abnormal	Check the lifting motor of stacker 1 or clean up the optocoupler dust
494	Abnormal signal for reject pocket full	Clear banknote refunding mouth or clean infrared tube
496	Satcker 2 full -abnormal signal	Clear stacker 2 or clean infrared tube
498	Satcker 1 full -abnormal signal	Clear stacker 1 or clean infrared tube



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