

# Magner S2500C User Manual



## **Magner International Corporation**

## Preface

Dear users:

Welcome to use the Banknote sorter produced by Magner International. This series of product applies to the counting, sorting and counterfeit detection of different currencies, and it has the functions of Banknote serial number scanning, recording, enquire and data management.

Please read this operation manual carefully before use and operate according to the requirements to ensure the product work normally.

## Notes

This product is used to sort and count the Banknotes.

In no events will MAGNER be liable for the damages caused by any other party without MAGNER's permission or any other purpose, including damages due to use the product for purposes not stated above, changes made by the person outside MAGNER or non-authorized dealer of MAGNER.

Please consult the authorized dealer or sales representative if you need to install or transport the product.

• This product is used to sort and count the Banknotes stated in the specification list.

Please don't use this product for other purposes.

• This product can only be used in corresponding countries or areas.

Due to the difference of power specification and safety standards, this product cannot be used in other countries or areas.

- The item recorded in this manual may change without prior notice. Thanks for your understanding.
- Our company is improving the product quality with unremitting efforts.

Therefore, the actual product may differ from the description in this

manual.

- MAGNER is not responsible for the infringements of the patent or other rights of the third party occur due to the use of materials in this manual.
- MAGNER is not responsible for the loss caused by the damages, deterioration and stealing of Banknotes, either for the compensation caused by the criminal acts like counterfeit, adulteration, destruction, etc.
- Forbid copying the contents in this manual for the purpose of making a profit.
- If the user changes or modifies the product arbitrarily without clear authorization of our company, then the user will lose the right to claim warranty of the product.
- This is A-level product. In our living environment, this product may cause radio interference, under which condition the user needs to adopt practical measures.

## Contents

Safety ca	autio	ns	6
•	War	ning symbols and explanation	6
•	Safe	ety cautions before use	6
	$\triangleright$	Installation	6
	$\triangleright$	Power	7
	$\triangleright$	Operation	7
	$\triangleright$	Maintenance	8
Instructio	on be	efore use	9
•	Inst	allation	9
•	Nan	ne and function of each part	11
	$\triangleright$	Front appearance	11
	$\triangleright$	Back appearance	11
	$\triangleright$	Banknote hopper	12
	$\triangleright$	Banknote stacker	12
	$\triangleright$	Explanation of operational key and LED display indicate	tor
	light	13	
Daily ope	eratio	on	14
•	Cau	itions	14
•	Met	hods to put in the Banknote s	14
•	Bas	ic operating steps	15
•	Fun	ctions of home page	19
•	Mer	nu function — basic	24
	$\triangleright$	Switch user	24
	$\triangleright$	User	24
	$\triangleright$	Statistics	25
	$\triangleright$	Version information	26
•	Mer	nu function — Senior (administrator privileges)	27
	≻	Sort setting	27

	$\triangleright$	Function settings	. 31
	$\triangleright$	System setting	. 32
•	Met	hod for opening/closing each part	. 35
	$\triangleright$	Top cover	. 35
	$\triangleright$	Back cover	. 36
	$\triangleright$	Dust collecting box	. 36
	$\triangleright$	Dust cover is optional	. 37
Routine	mair	ntenance	. 38
	$\triangleright$	Clean the Banknote hopper and identification sensor	. 38
	$\triangleright$	Clean the sensors at Banknote reject pocket / stacker	. 39
	$\triangleright$	Clean the banknote output path	. 39
	$\triangleright$	Clean the back device path	. 40
Troubles	shoo	ting	.41
•	Erro	or code list	.41
Others			. 42
•	Pro	duct specification list	. 42
•	Exte	ernal interface settings	. 45
	$\triangleright$	USB Interface (Device)	. 45
	$\triangleright$	USB interface (Host)	. 46
	$\triangleright$	Ethernet Interface	. 47
	$\triangleright$	Serial interface	. 47
	$\triangleright$	Power interface	. 49

## Safety cautions

This section introduces the relevant items that should be abided by during safely operation of this product, in order to avoid bringing damage to your body and property. Please read this manual carefully before use and operate the product correctly.

## • Warning symbols and explanation

The meanings of each iconic symbol are as follows:



Forbid operating item.

Items should be pay attention to while operating the product.

#### • Safety cautions before use

- Installation
  - When installing and moving this product, please contact with our sales representative or authorized dealer. If the product isn't installed correctly, then there is risk of overturning, electric shock, fire or burning.



While installing and moving this product, please make sure that the bracket or the anti-overturning fixture used for fixing is installed correctly. Otherwise it will lead to accident.



While installing and operating the product, please reserve enough space to ensure that the cover can open and close freely.



Please avoid installing the Banknote sorter at the following places:

- · Away from volatile combustible matter or curtain within 1 meter.
- · Away from heating appliances like electric heater, electric radiator, etc.

within 1 meter.

- · Place exposed to direct wind like air-conditioner, ventilator scoop, etc.
- · High-temperature, moisture, low-temperature.
- With long-time direct sunshine.
- ·With much dust.



Forbid pressing or impacting, for example, place heavy object or liquid on the equipment.

#### Power



Please don't remold, dispose or maintain the power cables and the power plug arbitrarily. Furthermore, please replace the three-pole power plug with double-pole power plug.



- Please abide the following items in order to avoid the electric shock or fire caused by damage of power cables.
  - Please don't drag the power cables while pulling out the power plug.
  - Don't place any object on the power cable.
  - Don't let the power cables pass across the heat source.
  - · Don't bend or squeeze the power cables.
  - Don't trample or twist the power cables.
  - · Don't spill the chemical materials onto the power cables.
  - · Don't tie up the power cables while using.
  - · Don't fix it with stapler.

#### Operation



Please operate the Banknote sorter in the environment stipulated in this manual; otherwise, it may cause fire and electric shock.

During the process of operating the product, please don't turn off the power, pull out the power plug or open the cover plate of Banknote sorter.

 $\sim$ 

Please don't miss the paper clip and the staple inside the Banknote sorter or in the gap in order to avoid their contacting with circuit and thus leading to fire.



Please remember to turn off the power when needing to contact the inside of machine for check with fingers.



Forbid contacting the LCD and button with sharp materials like ball pen, nail, etc.

#### Maintenance

Please contact with our sales representative or authorized dealer.
 If the maintenance is not thorough, then it may cause fire, electric shock or hurt.



When smoke, peculiar smell and abnormal noise occur to the Banknote sorter, please stop using it immediately, turn off the power, pull out the power plug from the socket and then contact with our sales representative or authorized dealer.



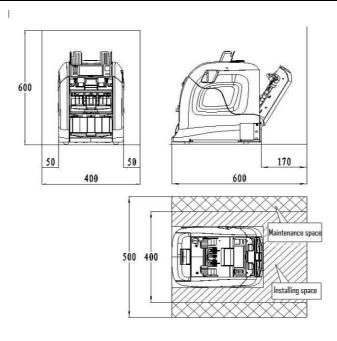
Please check and clean the power plug and the power cables regularly. When power plug or power cable has been damaged, please stop using the Banknote sorter and contact with nearby dealer for change.

## Instruction before use

## Installation

If you need to install the Banknote sorter, please contact with nearby point of sale or our designated dealer.

- This product is designed for internal use; please don't install it outside the room.
- Please don't install the Banknote sorter at the place that cannot bear the weight of it and either install the Banknote sorter at a slanting or uneven place.
- Please install the Banknote sorter at a place that can do daily management sufficiently.
- Please reserve adequate operating space for filling of Banknotes and opening or closing of cover plate, and also the space for maintenance.



Unit: 🚥

- Name and function of each part
- > Front appearance



> Back appearance



#### > Banknote hopper



> Banknote stacker



#### > Explanation of operational key and LED display indicator light

#### · Operational key:

The Banknote sorter has five operational keys, MENU MODE ADD CLEAR STOP, corresponding with the five function buttons in the home page, that are, "MENU", "MODE", "ADD", "CLEAR", "START/STOP".

The physical buttons are effective when the machine is in the home page.

#### · LED display indicator light:

- The LED display indicator light is green when powering on the Banknote sorter.
- 2) When counting the Banknotes, the LED display indicator light will be red when Banknotes are returned in the reject pocket.
- After removing the Banknotes at the reject pocket, the LED display indicator light will come back to green.

## **Daily operation**

### Cautions

- · Please don't handle wet or heavily polluted Banknotes.
- Please don't handle broken or severely wrinkled Banknotes; otherwise Banknote jamming will occur.
- Please confirm whether there are sundries, pin, stitching needle or rubber band attached on the Banknotes; otherwise malfunction or Banknote jamming will occur.
- Please scatter the new Banknote s and then put in, otherwise Banknote jamming will occur.

## • Methods to put in the Banknote s

- Please straighten the Banknotes completely, align them and put them in vertically (place them at the inner side).
- Please put in the Banknotes according to the direction shown in the following figure.



## • Basic operating steps

#### 1. Turn on the power

• Start initialization automatically. The system will enter initialization page, see the following figure:



• After the system finishes the initialization, the Banknote sorter will skip to login page automatically:

Login	1	2	3
User: <b>Password</b> :	4	5	6
Login Guest	7	8	9
	Delete	0	Clear

• Input the user account and the password, then click "Login" to skip to home page:



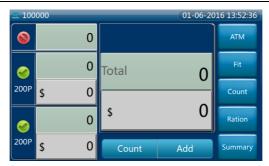
#### 2. Select counting mode

•

 Click the "MODE" button on the right side to enter the page of mode selection as following:



Select the needed mode. For example, click "Count" button and then click "Exit" or "Back" button, the page will skip to home page, and the mode at the home page will become to the count mode.



#### 3. Start counting

Place the Banknotes on the hopper, then the Banknote sorter will start counting automatically.

The page will update the number of Banknotes synchronously.

During the process of counting Banknotes, only the "START/STOP" button is effective.

Note: The Banknote hopper can maximum hold 500 pieces of Banknotes. When the Banknote number is more than 500 pieces, please put them in separately.

#### 4. Stop counting

The Banknote sorter will stop counting under the following conditions. Please operate according to the method of counting restart.

	Conditions for stopping counting	Methods to restart counting
1	The banknotes in the hopper have finished counting.	Place the banknotes inside the hopper.

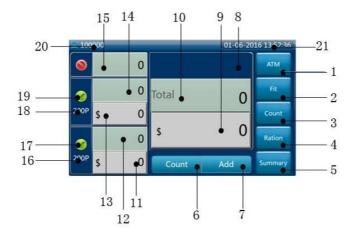
Magner S2500C User Manual

2	When the banknotes at the stacker(s) are full.	Take out the banknotes	
3	When the banknotes at the reject pocket are full.	at the stacker(s) or reject pocket	
		Remove the errors,	
4	Errors occur.	referring to the section	
		of "Troubleshooting".	
5	When the "PAUSE" button is pressed	Press the "START"	
Э	down.	button again.	

## 5. End (zero clearing)

Under the status of end counting, take out the Banknotes in the stacker and click the "Clear" button to clear the data.

## • Functions of home page



#### **Function explanation:**

- 1. "ATM" button: click to enter ATM mode.
- 2. "Fit" button: click to enter Fit mode.
- 3. "Count" button: click to enter Count mode.
- 4. "Ration" button: click to enter Ration mode.
- 5. "Summary" button: click to enter Summary mode.
- 6. Current sorting mode display area, corresponding with the page of mode selection.
- Current add mode display area, corresponding with the "Add" button. White indicates that the Banknote sorter is in "Add" mode and gray indicates that the Banknote sorter is in "Non-add" mode.
- 8. Information prompting area: It is used to show the errors or the

prompting information during the running of Banknote sorter.

 Display area of total Banknote amount: It is used to display the current amount of counted Banknotes. Click this area to enter "Note statistics summary" page:

Note statis	1-2015 08:16:49)			
Denom	Pcs	Denom	Pcs	
100	50	5	1	
50	30	2	0	
20	10	1	0	1/1
10	5			
Total Pcs	96	Total value	6755	Print
Exit	🛨 Inqu	iring note info		Back

Note: It is not available under "Count" mode.

- 10. Display area of total Banknote number: It is used to display the current number of counted Banknotes (excluding number of Banknotes at the reject pocket). Click this area to enter "Note statistics summary" page. Note: It is not available under "Count" mode.
- Display area of Banknote amount at Banknote stacker 1: display the current Banknote amount at Banknote stacker 1. Click this area to enter "STK1 note info" page:

STK1 r	STK1 note info (12-31-2015 08:16:23)						
No.	SN.	Denom	Time				
1	CY12345601	50	2015-02-03 17:00	Black			
2	CY12345602	100	2015-02-03 17:01				
3	CY12345603	50	2015-02-03 17:02				
4	CY12345604	100	2015-02-03 17:03	1/8			
5	CY12345605	50	2015-02-03 17:04				
E>	Exit 📩 🖈 Inquiring note info						

Note: It is not available under "Count" mode.

- 12. Display area of Banknote number at Banknote stacker 1: display the current number of Banknote s at stacker 1. Click this area to enter "STK1 note info" page. Note: It is not available under "Count" mode.
- Display area of Banknote amount at Banknote stacker 2: display the current Banknote amount at Banknote stacker 2. Click this area to enter "STK2 note info" page. Note: It is not available under "Count" mode.
- 14. Display area of Banknote number at Banknote stacker 2: display the current number of Banknote s at stacker 2. Click this area to enter "STK2 note info" page. Note: It is not available under "Count" mode.
- 15. Display area of Banknote number at Banknote reject pocket: display the current number of Banknote s at Banknote reject pocket. Click this area to enter "Note information of Reject pocket" page:



- 16. Display area of batch at Banknote stacker 1: Display the batch value at Banknote stacker 1.
- Display area of mark at Banknote stacker 1: green indicates Banknote stacker 1 is not full, red and flash indicates Banknote stacker 1 is full. Click this area to enter "Mode" page:

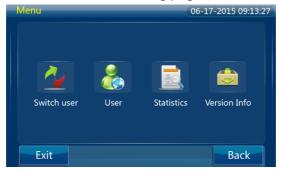
	STK 1	STK 2
Fitness	ATM+Fit+Unfit	ATM+Fit+Unfit
Denom	Mix	Mix
ORT	All	All
Version	All	All
Batch	200	200

- 18. Display area of batch at Banknote stacker 2: Display the batch value at Banknote stacker 2.
- Display area of mark at Banknote stacker 2: green indicates Banknote stacker 2 is not full, red and flash indicate Banknote stacker 2 is full. Click this area to enter "Mode" page:
- 20. Display area of current logged user: It is void when a guest logs in.

21. Display area of current system time: Display current system time.

#### • Menu function — basic

Log in with the operator account or the guest account and click the "menu" button to enter the following page:



#### Switch user

Function: used to stacker the current logged-in user and return to the login page.

#### > User

Function: function page for users like operator.

- Change password: change the current logged-in user's password.
- Export: export the FSN data.
- Banknote counting and sorting grade: After putting down one piece of banknote, the banknote sorter will identify automatically and display the upper and lower CS sorting grade information of the banknote.



#### > Statistics

Function: enquire the statistical information according to different conditions.



• Today: enquire today's statistical summary information. Refer to the below figure:

Summ	nary BillIn	fo:	06-17-2	015 09:17:53
No.	Pcs	Value	Time	
1	100	10000	2015-02-03 17:00	
2	110	11000	2015-02-03 17:01	
3	120	12000	2015-02-03 17:02	1/6
4	130	13000	2015-02-03 17:03	$\bigcirc$
5	140	14000	2015-02-03 17:04	
E	xit 🔺	Inquiring no	te info	Back

- History: enquire the statistical summary information according to the time. Same as above figure.
- SN enquiry: enquire the detail Banknote information according to the serial number. Refer to the below figure: (SN function is optional.)

No.	SN.	Denom	Time
1	GN4566999	50	2015-03-03 17:00
2	GN4566999	100	2015-03-03 17:01
3	GN4566999	50	2015-03-03 17:02
4	GN4566999	100	2015-03-03 17:03
5	GN4566999	50	2015-03-03 17:04

#### Version information

Function: enquire the machine model and version information of the inside programs.



## • Menu function — Senior (administrator privileges)

Log in with the administrator account and click the "menu" button to enter the following page:



#### Sort setting

Function: Set the sorting mode, sorting parameters, currency type, blacklist and counterfeit grade.



Mode: used to set the detail parameters for the 9 sorting types,
 e.g. the user-defined mode is as following:

#### Magner S2500C User Manual



Parameters: set the sorting parameters in different dimensions.
Click the sorting parameters to enter the page of sorting programs, please see the following figure:



There are five sorting programs in total, and the default sorting program is among 1~5. The sorting parameter grades that correspond with each sorting program are from high to low, that is, the sorting program 1 is the strictest and the sorting program 5 is the loosest.

The currently effective sorting program number will be displayed on the top right corner of page. Select the sorting program and click the "Start" button, then the selected program will be effective. Click "Restore" button and the five sorting programs will restore to the default setting.

Select the sorting program and click "Edit" button, then the parameters of the selected program can be changed.

Sorting set select	06-17-2015 09:25:43
On Editing: Sorting pro	gram 1
Currency Sorting	Banknote
Exit	Back

The sorting program being edited will be displayed on the top of page. The sorting program can be set through three kinds of methods:

- According to genius banknote: Place one piece of standard banknote and the sorter will read out the sorting parameters of the banknote. Then set according to the sorting parameters.
- According to sorting parameters: Take the thirteen sorting parameters (like soil) as dimension, set the sorting parameter of all types of banknotes corresponding with the currency at the same time.
- According to banknote type: Take the year and denomination as dimension to set the sorting parameters of each banknote type. Herein, the sorting parameters for currency of USD 100 are as following:

Sort:	Sort: USD100 Ver.Color			2016-03-01 16:37:41		
	ATM	Fit		1		2
Soil:	185	150		1	2	3
Stain:	160	120	1/3	4	5	6
Graff:	160	120		7	8	9
Fold:	0	0	Save	<u> </u>		
Hole:	235	235	All	Delete	0	Clear
Ex	Exit					

Notes: The sorting parameters totally include following the 13 items: Soil, Stain, Graffiti, Tape, Fold, Hole, Missing Corner (M-C), Dog-ear, Missing Edge (M-E), Tear, Wrinkle, Watermark, Deinked, the parameter setting range is 0-255 and the corresponding parameters of the same Fit Banknotes should not be greater than the parameters ATM Banknote.

• Currency: set the Banknote types to be sorted for the current machine. (Some of currencies are available for different clients, please enquire with local distributor.)



Counterfeit grade: can set the counterfeit grade of visible light, UV, infrared and magnetic to 0~15.



• Blacklist management: enquire, add, delete and clear the blacklist.

Blacklist n	nanagement	06-17	06-17-2015 09:34:40	
Nur	n Blacklist SN			
1	5D4567801			
2	5D4567802		Add	
3	5D4567803	1/6	Del	
4	5D4567804		Clear	
	5D4567805			
Exit			Back	

#### Function settings

Function: configure the machine settings, image settings, data grabbing... etc.



- Setting: set the startup mode, dustproof cover mode, counting mode, and speed setting when the stacker or reject pocket is full.
- Image: set the serial number identification, serial number image saving function, and whole image saving function.
- Other: set whether to delete the data in the machine when export the FSN data, set the "Mode locked" and set the "After-sale service Tel No".
- DBL Level: set the level of multiple Banknote detection, range is 0-7.
- REJ Batch: set the batch value for Banknote reject pocket, range is 0-100.
- Data grabbing: includes FSN configuration, local settings, network settings and bank settings.

#### System setting

Function: set the system time, system language and user management.



- Time: set the system time of the machine and set the format of time.
- Language: set the system language of the machine, including Chinese and English.
- · User: used to enquire, add, or delete the operator account.
- · Screen: Set the LCD protection time and screen brightness.
- · Login: Set whether to login automatically with last account.

## Mode selection

Click the "mode" button on the main page, and the user can choose one from the 9 sorting modes. (The modes may be different, please check with local distributor.)



- ATM/Fit: used to simultaneously sort the ATM banknotes and circulation banknotes.
- ATM: used to sort the ATM banknotes.
- Fit: used to sort the circulation banknotes.
- Single: sort the banknotes according to the different denominations. The user can choose to sort the banknotes according to the first and the second denominations, or according to the designated denomination. Only for counterfeit identification, not for sorting.
- Face/ORT: sort the banknotes according to different faces/orientations of banknotes. Under Face/ORT mode it could detect counterfeit banknotes.
- Version: sort the banknotes according to different versions of banknotes. Under Version mode it could detect counterfeit banknotes.
- Mixed: used to count the amount and the number of banknotes, only for counterfeit identification, not for sorting.
- Count: used to count the number of banknotes, under Count mode neither counterfeit detection nor sorting function is workable.
- Custom: you can customize sorting options for sorting banknotes according to your needs.

## • Method for opening/closing each part

Note: Make sure to open / close each part with specially made handle, or you may pinch your fingers if grip other parts.

- > Top cover
  - · Open



Close

.



## > Back cover

· Open



### · Close



Dust collecting box



- Dust cover is optional
  - · Open



· Close



# **Routine maintenance**

The sensor will be attached with dust and dirt after using for a long time, which would lead to malfunction and/or errors, please clean it according to the following steps to ensure the product durability.

	Make sure the power is off when clean the	
Caution	inside.	
	Otherwise may cause electric shock or body hurt.	
	Do not use neutral detergent, alcohol,	
	diluents, and/or compound wax to clean the	
	product.	
	Otherwise may cause product discoloration,	
	breakage and poor running	

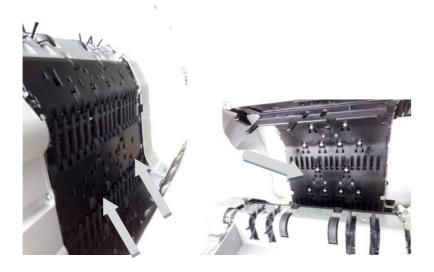
> Clean the Banknote hopper and identification sensor

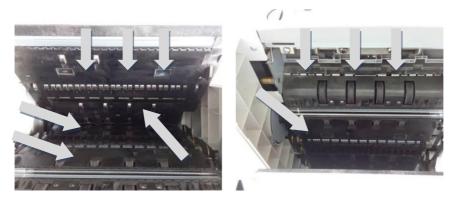


> Clean the sensors at Banknote reject pocket / stacker



> Clean the banknote output path





## > Clean the back device path

<u>Note</u>: It's forbidden to clean the inner channel of machine by any material with alcohol. Otherwise the damage caused by this is not covered by the warranty. Please use the brush or wipe to clean the inner channel.

# Troubleshooting

# • Error code list

Error code	Meaning	
0000001	Main motor error	
0000002	Banknote feeding motor error	
0000004	Banknote jamming error	
0000008	Banknote feeding / jamming error	
00000010	Banknote jamming error in the data grabbing path	
0000020	Banknote jamming error at the bending path	
00000040	Banknote output path error	
0000080	Banknote feeding error	
00000100	Electromagnet 1 switching error	
00000200	Electromagnet 2 switching error	
00000400	Banknote jamming error at stacker 1	
00000800	Banknote jamming error at stacker 2	
00001000	Banknote jamming error at reject pocket	
00002000	Top cover lift up error	
00004000	CIS module error	
0008000	Reading magnetic module error	
00010000	Thickness measurement module error	

# Others

# • Product specification list

No.	Index category	Function	Parameters and related performance
1	Scope	Currency support	USD, EURO and more (for details please enquire with local distributor)
		Banknote dimension	Length: 120-160mm Width: 62-82mm
	Product	Structure form	Vertical type
2	structure	Hopper	1
		Stacker	2 stackers + 1 reject pocket
		Display	Colorful LCD Touch screen Chinese & English interface
3	3 Banknote capacity	Capacity of Banknote hopper	500 pieces x 1
		Capacity of Banknote stacker	200 pieces x 2
		Capacity of Banknote reject pocket	100 pieces x 1
		Counting speed	900 pieces/minute
4	Sorting	Sorting speed	750 pieces/minute
	requirements	Face/Orientation	4 Directions
		Damage notes sorting	Soil, tape, graffiti, stain, hole, tear, dog-ear, missing corner, missing edge, fold, wm, soft, deink.
5	Serial number (SN) recognition and scan	SN recognition & matching	Dual counterfeit detecting, dual sorting, dual banknote serial number recognition & match, banknote serial number storage, face distinction is not needed for one time sorting, identify the counterfeit and sort the banknote while

			recognizing the serial number.	
	SN Enquire	Can enquire according to the serial number, time, operator number and batch number, and analyze the counting statistic data.		
		Identification Status	1) Can scan and recognize the Banknote serial number when the sorting, counterfeit identification and other functions are turned on.	
		Status identification Data storage	2) The machine itself can scan and identify the Banknote (no need to connect with the computer, no need to upload pictures for computer to recognize)	
			You can use the three storage mode at the same time, or choose one or two storage modes.	
6	6 Conventional index	Data storage Serial number recognition speed	1) The machine has its own storage function and it can store 5,000,000 numbers;	
			2) U disk storage	
			3) Data upload, Ethernet interface, USB Interface	
			750 pieces/minute	
		Number Management	Upload data, print report, etc.	
		Continuous working time	≥4 hours	
		Power supply	100-240V±10%,50/60HZ	
		Power Consumption	Working: 130W; Standby: 20W	
		Noise	No-load noise : ≤65db; Load noise: ≤70db	
7		Preparation time for startup	≤30 seconds	
	Data i	Data interface	USB Interface Host: 2 pieces, connecting U disk	

	Serial interface:1 piece, connecting the external display device Device: 1 piece, connecting the computer Ethernet: 1 (Gigabit Ethernet), connecting the banking system
Working temperature and humidity	0℃~40℃, 20%~90%(40℃)
Storage temperature and humidity	-40°C∼60°C,10∼95%(40°C)
Upgrade mode	Upgrade at site (offline), online upgrade (optional)
Overall size	313 (W)×434(D)×431(H) mm
Net weight	21.0Kg



## > USB Interface (Device)

The banknote sorter is configured with one USB B-type socket which works under high-speed mode and complies with USB2.0 communication protocol, mainly used to connect the PC for equipment upgrading.

The USB connector adopts standard USB B-type socket, and the interface signal is defined as shown in Table 1.6-1:

Pin	Signal name
1	VBUS(+5V)

Magner S2500C User Manual

2	D-
3	D+
4	GND

#### Table 1.6-1 USB interface signal definition

USB connector (Device) is as shown in the following Fig.1.7:



Fig.1.7 USB connector (Device)

## > USB interface (Host)

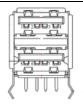
The banknote sorter is configured with one USB A-type double-layer socket which complies with USB2.0 communication protocol and is used for U disk connection, banknote data uploading, operation information recording and offline equipment upgrading;

The USB connector adopts USB standard A-type double-layer socket, and the interface signal is defined as following:

Pin	Signal name
1/5	VBUS(+5V)
2/6	D-
3/7	D+
4/8	GND

#### USB interface signal definition

USB connector (Host) is as shown in the following Figure:



USB connector (Host)

### Ethernet Interface

The banknote sorter is configured with one gigabit Ethernet which meet 1000BASE-T standard in IEEE802.3, mainly used to connect with the banking system. Ethernet interface signal is defined as in Table 1.6-3:

Pin	Signal name	Explanation	
1	TX_D1+	Transmit data +	
2	TX_D1-	Transmit data -	
3	RX_D2+	Receive Data +	
4	BI_D3+	Bi-directional data +	
5	BI_D3-	Bi-directional data -	
6	RX_D2-	Receive Data -	
7	BI_D4+	Bi-directional data +	
8	BI_D4-	Bi-directional data -	

Table 1.6-3 Ethernet interface signal definition

Ethernet connector is as shown in the following Figure:



#### Ethernet connector

### > Serial interface

The banknote sorter is configured with one serial interface, mainly used

for connecting with the external display. And the interface parameters are as followings:

- 1) Data transmission: Serial asynchronous
- 2) Handshake mode: RTS/CTS, XON/XOFF
- 3) Level:

MARK = -3 to -15 V Logic "1"/OFF;

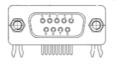
SPACE = +3 to +15 V Logic "0"/ON;

- 4) Baud rate (bps): 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- 5) Data bit: 8 or 7 bits
- 6) Parity: None, odd, or even
- 7) Stop bit: 1 bit or 2 bits
- 8) Connector: D-SUB9F (9-hole connector)

Pin	Signal name	Signal direction	Function
1	Power (+5V)	Output	Supply power to the external device
2	RXD	Input	Data input terminal
3	TXD	Output	Data output terminal
4	DTR	Output	Data terminal ready
5	SG	_	Signal ground
6	DSR	Input	Data set ready
7	RTS	Output	Request to send
8	CTS	Input	Clear to send
9	Power (+5V)	Output	Supply power to the external device

 Table 1.6-4
 Serial interface signal definition

9-hole connector is as following figure:



#### 9-hole connector

#### > Power interface

Power Interface is used for connecting the banknote sorter with the AC power network, and the pin definition is as following table:

Pin	Signal name
1	L
2	Ν
3	GND

Power interface signal definition

Power connector is as following:



**Power connector**