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IMC01 Banknote Counter



User Manual 1.09

Contents

1.0 Machine Overview	01
2.0 Packing Open and Installation	03
2.1 Packing List	03
2.2 Installation and Use Location	04
2.3 Installation Instructions	05
2.3.1 Installation Warnings	05
2.3.2 Power Supply Connection	05
2.3.3 Banknote Guider Installation	05
3.0 Display and Operation Interface	06
3.1 Display Appearance	06
3.2 Operational Instructions for Function Keys	06
3.3 Display Interface	07
4.0 Operating Instructions	08
4.1 Start-up	08
4.2 Selection of Counting Mode	09
4.2.1 Single Currency Counting Mode	09
4.2.2 Automatic Recognition Mode	11
4.2.3 Multi-currency Counting Mode	12
4.2.4 Non-Volatile Memory for Currency Mode	13
4.3. Counting Function Options	13
4.3.1 Automatic Banknote Counting	13
4.3.2 SN Reading	14
4.3.3 Batch Setting	14
4.3.4 Accumulation	16
4.3.5 Face Function	16
4.3.6 Orient Function	16
4.4. Counting Speed Setting	17
4.5. Check Detail of Counting	17
4.5.1 Check the Serial Number	18
4.6. Print Information	18
4.6.1 Printer prints banknote data	18
4.6.2 Data transfer to PC	19
4.7. CFD Level	20
4.8. Face Function	20
4.9. ORI Function	21

5.0. Menu Setting	21
5.1. Service Menu	22
5.1.1 Read Sensor Values	23
5.1.2 CIS Calibration	23
5.1.3 MG/MT Waveforms	24
5.1.4 Password Setting	24
5.1.5 Auto Diagnostic	25
5.1.6 PCS Counted and Reset	26
5.1.7 Acquire CIS image	26
5.1.8 Detection Level	27
5.1.9 IP Address	27
5.1.10 Back to Default setting	28
5.1.11. Back to Default setting	28
5.2 Version Information	28
5.3 Time Setting	29
5.4 Language Selection	29
6.0. Software Upgrade	30
7.0. Maintenance	32
8.0. Technical Parameters	32

1.0 Machine Overview



Figure 1 - 1 IMC01 Front Diagram



Figure 1 - 3 IMC01 Top Diagram



Figure 1 - 2 IMC01 Back Diagram














Figure 1 - 4 IMC01 Side Diagram

2.0 Packing Open and Installation

2.1 Packing List

When you receive the package, open and check the packing list in the package.

Table 2 - 1 Packing List

Item Name	Picture	Quantity (pcs)	Description
Banknote Counter		1	Mixed denomination Banknote counter
External Display		1	External LED display screen with RJ12 cable
Power Cable		1	Power supply cable of American standard
		1	Power supply cable of European standard
		1	Power supply cable of United Kingdom's standard
Banknote Guiders		2	Install at the hopper
CIS Calibration Paper		1	Used for the CIS calibration
Nylon Brush		1	Clean the machine
Soft cleaning Cloth		1	Clean the CIS or the other sensors
Fuse		1	The backup fuse for the power protection
USB flash drive		1	USB flash drive with IMC01 manual and troubleshooting video
User Manual		1	

2.2 Installation and Use Location

As shown in figure 2-1, please stay away from the surrounding walls and reserve sufficient operation space for placement of banknotes, opening or closing of the cover plate, as well as for maintenance.

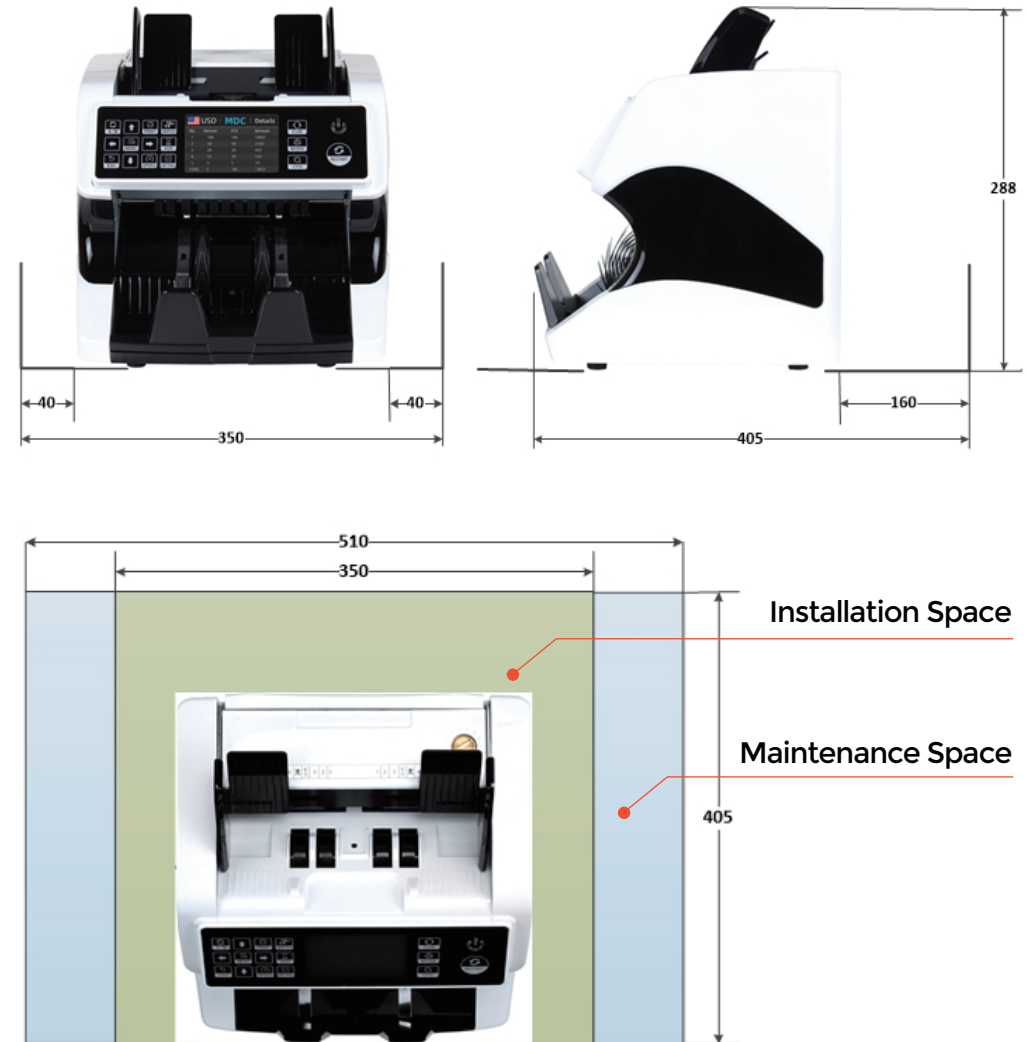


Figure 2-1 Installation and use location

2.3 Installation Instructions

2.3.1 Installation Warnings

- (1) This machine is specially designed for indoor use. Please do not install or use it outdoors.
- (2) Please do not install it in place that cannot bear the weight of this product or in places that are inclined or uneven.
- (3) Do not use or please combustible materials, inflammables and volatile items such as thinners around/inside this product.

2.3.2 Power Supply Connection

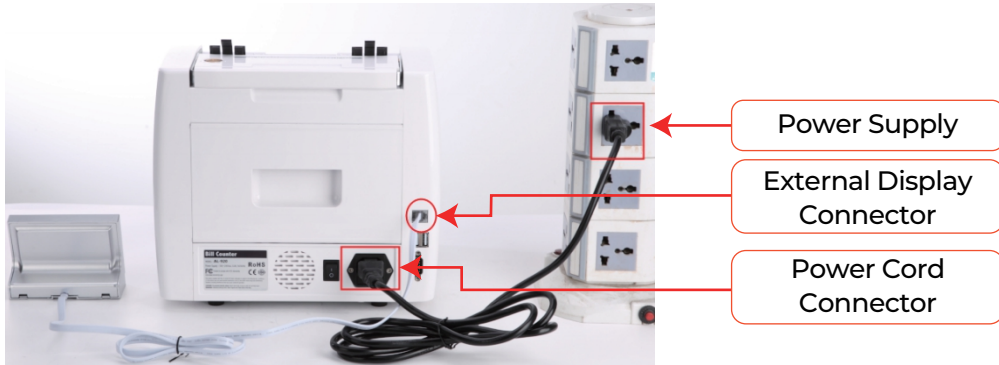


Figure 2-2 Power and External Display Connection

2.3.3 Banknote Guider Installation



Figure 2-3 Banknote Guider

3.0 Display and Operation Interface

3.1 Display Appearance

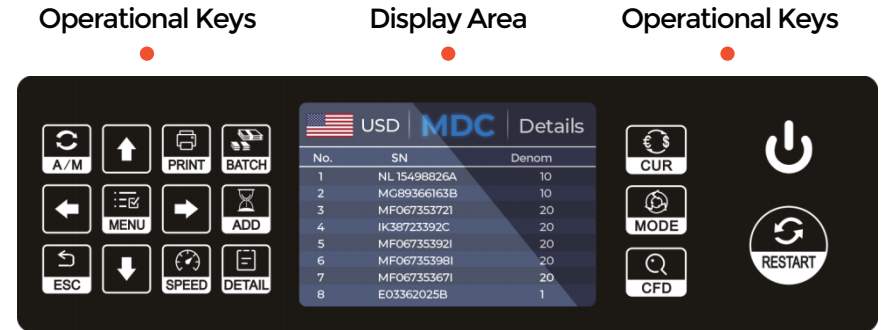


Figure 3-1 Display Appearance

3.2 Operational Instructions for Function Keys



Auto on key, to switch on/off the automatic operation. Auto: automatically counting as long as there is banknote on the hopper. Manual: manually counting by press the restart key.



Direction keys.



Print key, to print the counted banknotes information.



Batch key, to select the batch number.



Menu key, to enter the menu interface by long pressing the key until a beep sound.



Add key, to switch on/off the accumulation function.



Return key, to return to the previous interface.



Speed key, to select the different available counting speeds.



Detail key, to check the detail counted information.



Currency key, to select the one of currency, auto recognition or multi-currency mode for counting.



Mode key, to select CNT mode, SDC mode or MDC mode for counting.



CFD level key, to select the Counterfeit Detection Sensitivity level.



Restart key, to start counting, or to start other operations.



Power key, long press to enter the standby mode or resume to the working mode

3.3 Display Interface

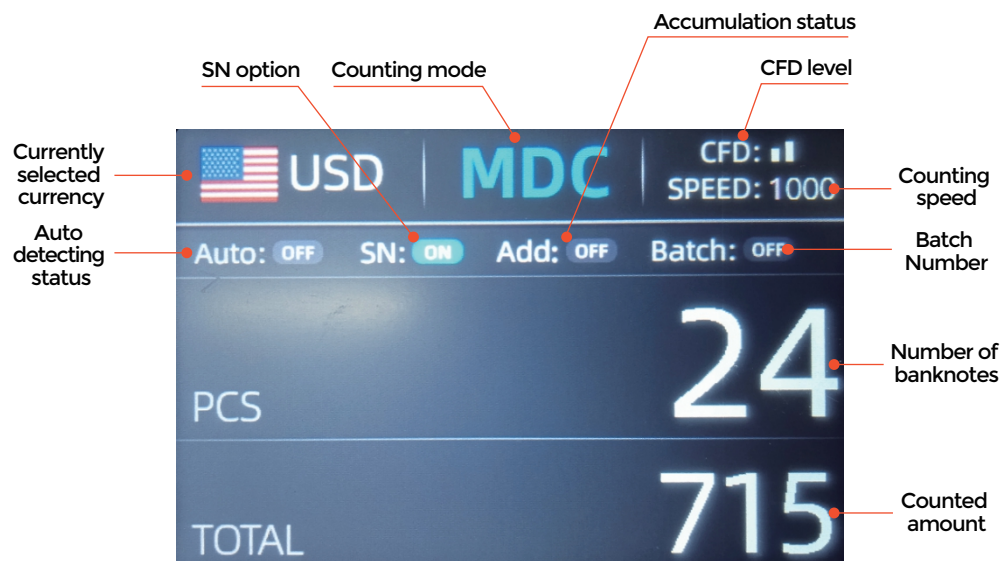


Figure 3-2 Main Display Interface

4.0 Operating Instructions

4.1 Start-up

Turn on the switch after connecting the machine to power supply. First, the machine enters the self-checking interface, as shown in Figure 4-1.



Figure 4-1 Self-checking Interface

Please wait patiently for about 20 seconds, and the machine will spin the banknote processing wheel several times to conduct a self-check, and then enter the main interface as shown in Figure 4-2.




Figure 4-2 Counting Ready State Interface

4.2 Selection of Counting Mode

4.2.1 Single Currency Counting Mode

After the machine is turned on, the flag & currency graphic appears in the upper left corner, indicating that the machine is in the current currency counting mode.

The default mode is MDC mode. By pressing the key  of the control panel, three counting modes can be cyclically switched, and the 3 counting modes will be cyclically switched according to MDC-CNT-SDC sequence.

4.2.1.1 MDC Mode

As shown in Figure 4-3, the IMC01 is in MDC mode. In this mode, the IMC01 will count the banknotes of all denominations of the selected currency, and save the detail information of the counted banknotes at the same time, including the total amount and the total number of the banknotes in stacker, so as to facilitate users to check. In this mode, the IMC01 has 2 counting speed (800/1000 pcs/min) options.



Figure 4-3 Initial Interface of MDC Mode



Figure 4-4 Interface after MDC Counting

4.2.1.2 SDC Mode

As shown in Figure 4-5, the IMC01 is in SDC mode. In this mode, the IMC01 will count the banknotes of the same denomination of the selected currency with the first banknote counted as a reference, and save the detail information of the counted banknotes at the same time, including the total amount and the total number of the banknotes in stacker, so as to facilitate users to check. In this mode, the IMC01 has 2 counting speed (800/1000/min) options.



Figure 4-5 Initial Interface of SDC Mode



Figure 4-6 Interface after SDC Counting

You can use this function to sort the mixed bill manually.

4.2.1.3 CNT Mode

As shown in Figure 4-7, the IMC01 is in CNT mode. This mode does not limit the currency, and only count the number of banknotes. It only works with double note detection function and no other counterfeit detection function. In this mode, the IMC01 has 4 counting speed (800/1000/1200/1500 pcs/min) options.

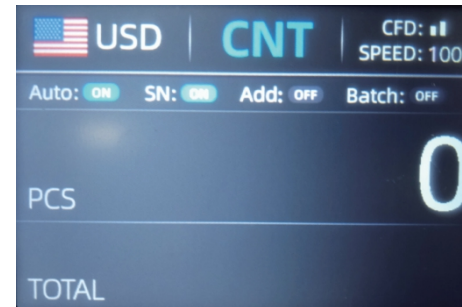


Figure 4-7 Initial Interface of CNT Mode



Figure 4-8 Interface after CNT Counting

Note: In the MDC and SDC mode, the IMC has the functions of image acquisition, magnetic detection, ultraviolet detection and double note detection. While in the CNT mode, there is only a double note detection function.

4.2.2 Automatic Recognition Mode



In the process of counting banknotes, the IMC01 uses the first banknote passing through the sensor as the judgment rule to recognize the banknotes of all denominations of the same currency. When banknotes of other currencies are recognized, the machine will alarm and stop. At this time, banknotes from other currencies need to be taken out, and the machine will continue counting. The machine can only recognize all of the currencies displayed in the currency selection interface.



Figure 4-9 Currency Selection Interface



Figure 4-10 Auto Recognition Counting Interface

Press the key , the currency selection interface is shown as Figure 4-9. Move the cursor to 'AUTO' by direction key (the default option is 'AUTO'), and then press the menu  key, the display screen will be automatically adjusted to the main interface, as shown in the Figure 4-10.

Example: Put a handful of USD into the IMC01 hopper to count. The interface of the IMC01 displays as Figure 4-11 at the end of counting. The currency in the upper left corner is identified as USD.



Figure 4-11 USD Counting Result

Take out the USD in the stacker, and then put the EUR into the machine to count. The display screen is showed as Figure 4-12.



Figure 4-12 EUR Counting Result

4.2.3 Multi-currency Counting Mode

Multi-currency Mix Counting: Banknotes of multiple currencies are mixed together and put into the IMC01 to count. The IMC01 can recognize all the first 4 currencies displayed on the currency selection interface.



As shown in Figure 4-9, press the key  to select 'MULT' shown in Figure 4-13, and then press the menu key , the display screen will be automatically adjusted to the main interface, as shown in the Figure 4-14.



Figure 4-13 Multi-Currency Selection



Figure 4-14 Multi-currency Counting Mode

Note: Only MDC mode is effective in the Multi-currency mode.

Example: Put a handful of banknotes (including USD, EUR, CAD, MXN) into the IMC01 hopper to count. The interface of the IMC01 displays as Figure 4-15 at the end of counting.

MULT		MDC		Details	
No.	Currency	PCS	Amount		
1	EUR	24	915		
2	USD	24	715		
3	MXN	17	4610		
4	CAD	10	265		


Figure 4-15 Multi-currency MDC Counting Result

4.2.4 Non-Volatile Memory for Currency Mode

The currency mode setting is non-volatile. For example, if you set multi-currency counting mode before power down the IMC01, next time the IMC01 is in multi-currency counting mode after power on. It is very convenient that you don't need to reselect the currency every time you power on the IMC01.

4.3 Counting Function Options

4.3.1 Automatic Banknote Counting

Press the key  to enable or disable the automatic banknote counting in the main interface.


The default setting of automatic counting is on. Every time the IMC01 resets, the setting will be reset to be on state.

As shown in Figure 4-16, pressing the  key is needed every time when you put banknotes in the hopper to start counting.





Figure 4-16 Auto Banknote Detecting Off

4.3.2 SN Reading

The key  is used to enable or disable the SN reading function in the main interface. The default setting of SN reading is on. Every time the IMC01 resets, the setting is reset to be on state.

4.3.3 Batch Setting

Press the key  to select the batch number in the banknote counting interface, the screen display is shown in Figure 4-17. By pressing the key  of the control panel, the batch number will be cyclically switched according to 100-50-0 sequence.

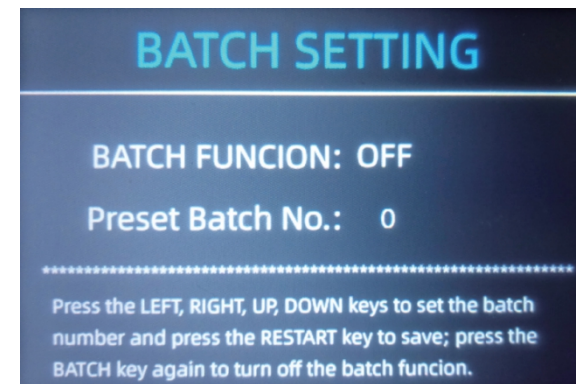






Figure 4-17 Batch Setting Interface

The batch number will be increased by 10 by pressing the key , or decreased by 10 by pressing the key  until it becomes 0. And it will be increased by 1 by pressing the key , or decreased by pressing the key .

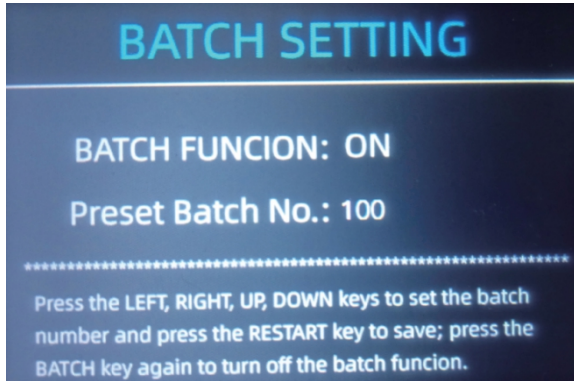


Figure 4-18 Batch Setting Interface

Press the  key to return to the main interface if you confirm the batch number.



Figure 4-19 Batch Number Indicator

Note: the stacker maximum capacity is 200 bills, so the batch number should be less or equal to 200.

4.3.4 Accumulation

Press to enable the accumulation function.

In any counting mode, the accumulation function of the number of the banknotes can be enabled by pressing the key .

4.3.5 Face Function

This function is available by pressing the FACE key in SDC mode until “FACE” is displayed on the main screen.

It allows the user to sort the banknotes based on whether they are loaded into the hopper face up or face down. This first note in the hopper determines the sorting and counting orientation. If the first note through the machine is face up, all notes in the hopper that are face up will end up in the stacker, and the other notes will end up in the reject pocket. Total number and value will be displayed on the main screen.

4.3.6 Orient Function

This function is available by pressing the ORI key in SDC mode until “ORI” is displayed on the main screen. This function allows the user to count and sort the notes by one of 4 orientations. The first note in the hopper determines the counting orientation. Any time a note passes through the machine and does not conform to the orientation determined by the first note, the machine will reject this note into the reject pocket. Total amount and number of the notes will be displayed on the home screen.

4.4 Counting Speed Setting


There are four counting speed options: 1500, 1200, 1000 and 800 (Note: 1500 and 1200 are the only optional in CNT mode). The default speed is 1000 in three modes. If setting is required, different counting speed can be switched by pressing the key  in any counting mode.



Figure 4-20 IMC01 Speed Indicator


4.5 Check Detail of Counting

In the MDC or SDC mode, press the  key upon the completion of counting to enter the interface shown in the following figure to check the details of counting.

No.	Denom	PCS	Amount
1	100	5	500
2	50	1	50
3	20	5	100
4	10	4	40
5	5	4	20
6	2	0	0
7	1	5	5
TOTAL		24	715

Figure 4-21 Detail Denomination Information

4.5.1 Check the Serial Number



As shown in Figure 4-22, if the SN reading is on, press the  key again, the banknote's serial number will be shown in the following figure.

No.	SN	Denom
1	MF06735398I	20
2	MF06735392I	20
3	MB14530600C	50
4	MF06735372I	20
5	E46705560A	1
6	E46705555A	1
7	MD86811796A	10
8	IK38723392C	20

Figure 4-22 Serial Number Information

4.6 Print Information

4.6.1 Printer prints banknote data

When the external printer has been connected and can be printed, after counting, press the  key to enter the print interface shown in Figure 4-23, and then press the  key, the printer starts print.

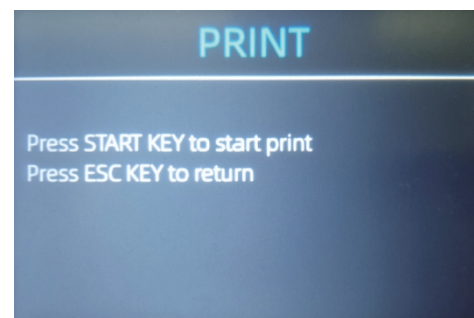


Figure 4-23 Printer Interface

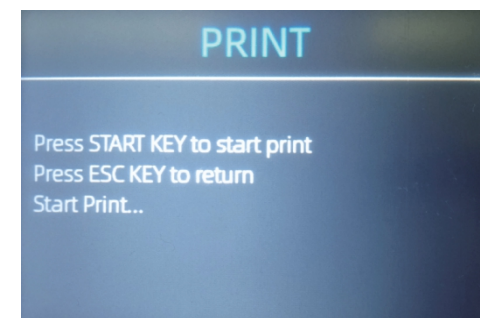


Figure 4-24 Start Printing

4.6.2 Data transfer to PC

The data is transmitted to the computer for display through the DB9 serial cable.

(1) Use the DB9 serial cable to connect the IMC01 to the computer, then turn on the computer.

(2) Open the serial port tool (such as RS232 Hex Com Tool), select the serial port corresponding to the IMC01, and set the baud rate to 9600, as shown in the figure below.

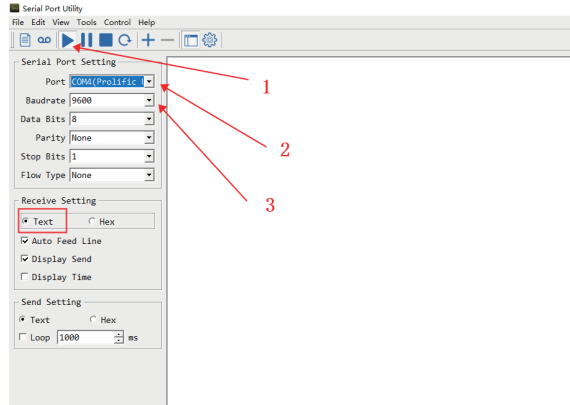


Figure 4-25 The serial port tool settings

(3) Click the "PRINT" button of IMC01, and then click the "RESTART" button, IMC01 will transmit the data to the serial port tool, as shown in the figure below.

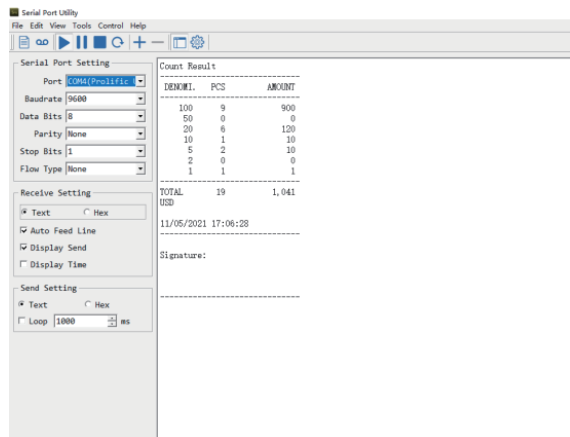


Figure 4-26 The serial port tool settings

This is a tutorial video link for transferring IMC01 data to a computer:

<http://munbyn.biz/DatatransferttoPC>

4.7 CFD Level



There are 3 adjustable CFD levels. By pressing the  key, the CFD level graphic appearing in the upper right corner will change.



Figure 4-27 CFD Level

Note: CFD level 0, means no counterfeit detection, the most strictly detection is level 3.

4.8 Face Function

To turn on the Face Function by long pressing the  key until a beep sound, as shown in the following figure.

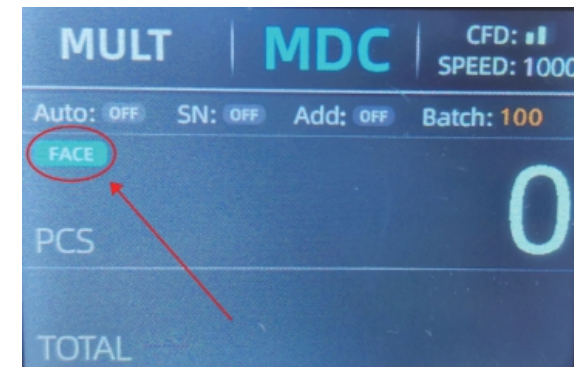


Figure 4 -28 Face Function

Note: After turning on the "Face" function, the banknote counter will automatically stop and alarm when it detects that the face of the banknote is different from the previous banknote.

4.9 ORI Function

To turn on the Face Function by long pressing the  key until a beep sound, as shown in the following figure.

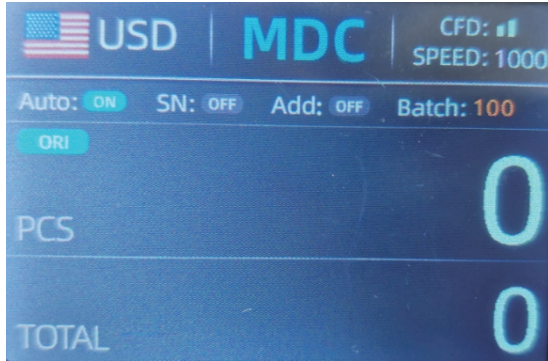


Figure 4-29 ORI Function

Note: After turning on the "ORI" function, the banknote counter will automatically stop and alarm when it detects that the side of the banknote is different from the previous banknote.

5.0 Menu Setting

To enter the menu interface by long pressing the  key until a beep sound, as shown in the following figure.

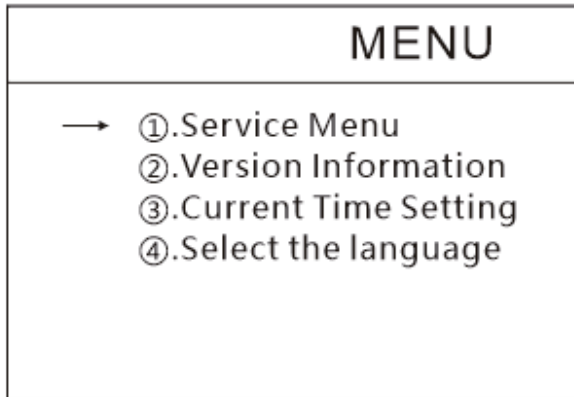



Figure 5-1 Menu Interface

5.1 Service Menu

Press the  key to enter service menu, you will be requested to input a password with the following interface. The default password is 9999.

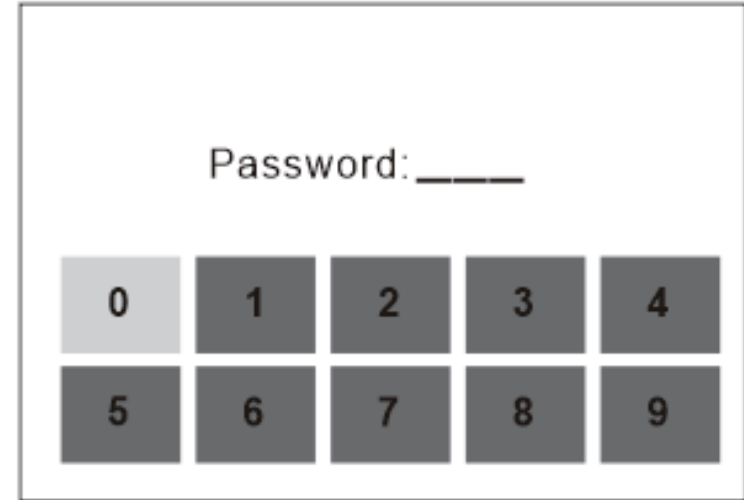


Figure 5-2 Password Interface

After input the password, the interface showed in Figure 5-3 will be displayed. Use the cursor to select with sub-menu you want to enter, and press MENU button to confirm, and press ESC button to quit.

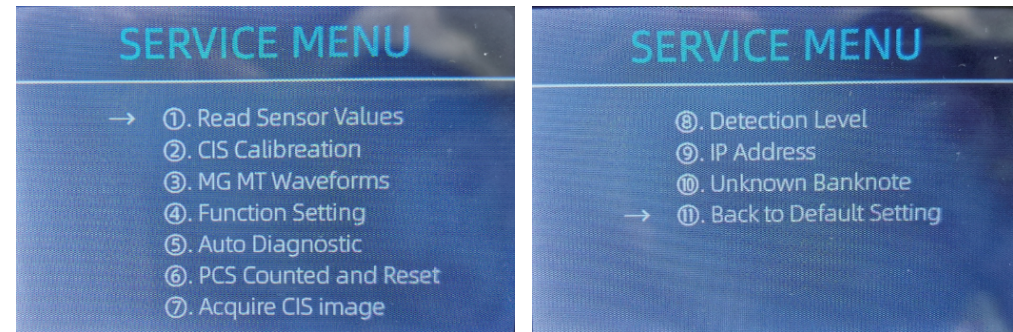


Figure 5-3 Service Menu

5.1.1 Read Sensor Values

1:PS1L VALUE	0.107V
2:PSIR VALUE	0.110V
3:STACKER VALUE	0.099V
4:HOPPER H VALUE	0.113V
5:HOPPER L VALUE	0.091V
6:UV R VALUE	0.051V
7:UV L VALUE	

Figure 5-4 Sensor Values

As shown in Figure 5-4, the sensors values are only for engineer to check whether any sensor has a malfunction. If you meet any problem about use, please take a photo of this page and contact us.

5.1.2 CIS Calibration

SERVICE MENU
1.Clear CIS 2.Put the white paper 3.Press the START Button

Figure 5-5 CIS Calibration Steps

If you meet cases about banknote detection errors, please try to calibrate the CIS. The CIS calibration steps are shown in Figure 5-5. For more detail instruction, we recommend you to see the maintenance manual or watch the video: <https://bit.ly/2C17fom>.

5.1.3 MG/MT Waveforms

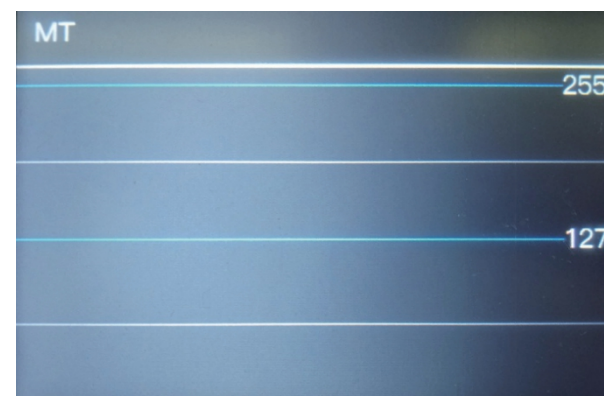


Figure 5-6 MG/MT Waveforms

5.1.4 Function Setting

To enter the Function Setting interface by press the  key, as shown in the following figure.

Use the cursor to select with sub-menu you want to turn on/off, and press MENU button to confirm, and press ESC button to quit.

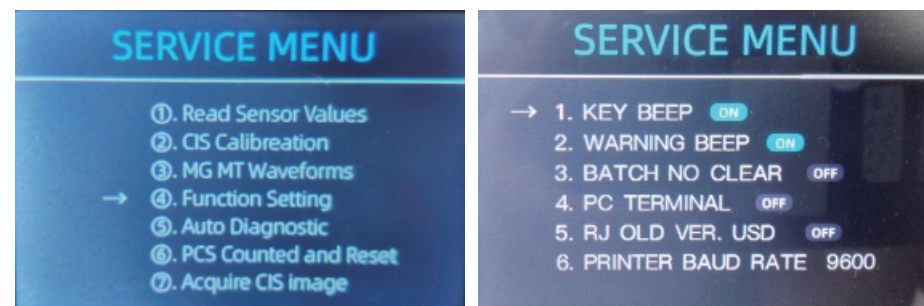


Figure 5-7 MG/MT Waveforms

5.1.4.1 KEY BEEP

Move the cursor to the KEY BEEP option, press the MENU button to turn on or off the key beep.

5.1.4.2 WARNING BEEP

Move the cursor to the WARNING BEEP option, press the MENU button to turn on or off the warning beep.

5.1.4.3 BATCH NO CLEAR

After turning on this setting, the data of the previous batch will not be clear, and will be accumulated to the next batch.

5.1.4.4 PC TERMINAL

This feature is still in internal testing.

5.1.4.5 RJ OLD VER. USD

After enabling this function, the old version of banknotes will be rejected and it is not recommended to enable it.

5.1.4.6 PRINTER BAUD RATE

Switch the baud rate of the IMC01 serial port to 9600 or 115200.

5.1.5 Auto Diagnostic

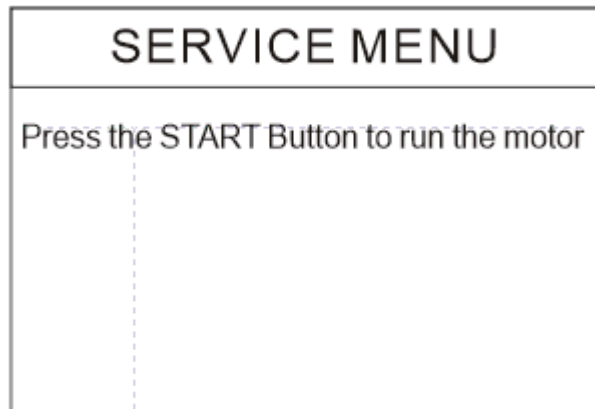


Figure 5-8 Auto Diagnostic

This is for production and professional servicing purpose.

5.1.6 PCS Counted and Reset

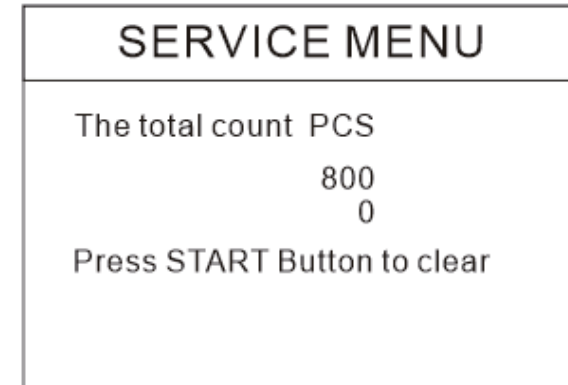


Figure 5-9 PCS Counted and Reset

This is to tell you the total quantity of counted bills in this counter since last time clearing to zero.

5.1.7 Acquire CIS image

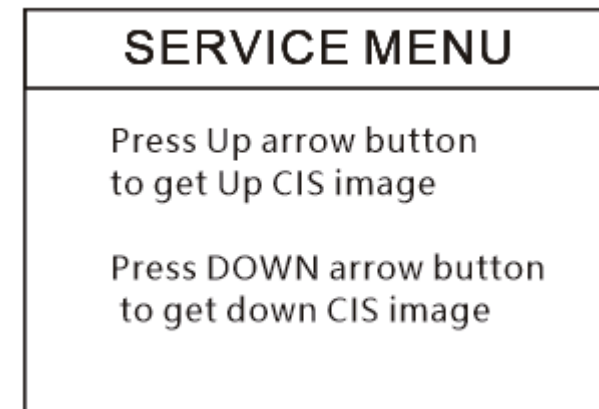


Figure 5-10 Acquire CIS Image

This is for servicing purpose.

5.1.8 Detection Level

CF LEVEL		
→ MT	5	EGP
UV	5	
MG	4	
SN COMPARE	5	
DB	5	
CIS IR	5	

Figure 5-11 CF Level

As shown in Figure 5-11, you can use the left and right direction key to select, and up and down direction key to change the sensitivity levels. The currency code in the right part is indicating for which currency you are operating.

Note: Please do not change without communicating with us.

5.1.9 IP Address

SERVICE MENU	
Device IP	192 168. 11. 2
Sever IP	192 168. 11. 1
UP and DOWN to modify	
LEFT and RIGHT to select	

Figure 5-12 IP Setting

This is only for engineering use.

5.1.10 Unknown banknote

This is for production and professional servicing purpose.

5.1.11 Back to Default setting

As shown in Figure 5-13, press the menu key to reset all of the settings you changed before.

SERVICE MENU	
⑧.	Detection Level
⑨.	IP Address
→ ⑩.	Back to Default Setting

Figure 5-13 Back to the Default Setting

5.2 Version Information

VERSION	
Main:	2. 0 02021000
Image:	3. 0
FPGA:	03C00210
HW:	CIS09C4:sxc
ID:	30 :30 :89 :C :2A: B6 :E7 :A7

Figure 5-14 Version Information

You are available to check the version information.

5.3 Time Setting

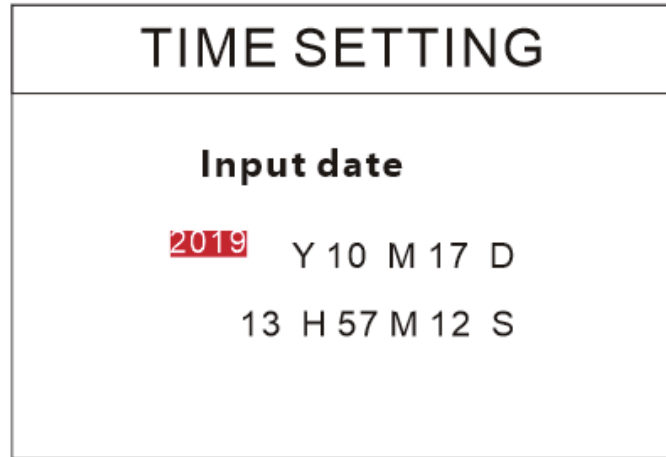


Figure 5-15 Time Setting

As shown in Figure 5-15, you can set the date or time according to your preference.

5.4 Language Selection

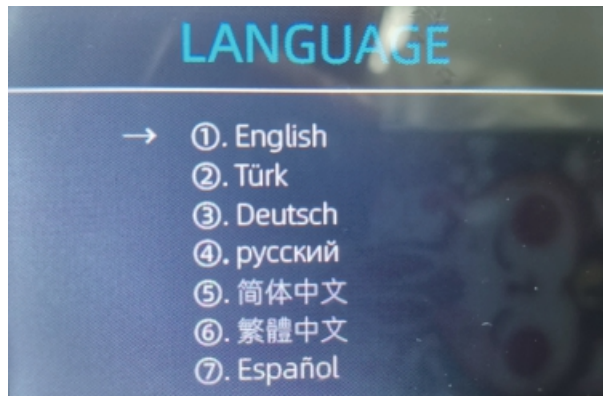


Figure 5-16 Language Selection

You are available to set the language you like.

6.0 Software Upgrade

USB Flash Drive upgrade method is adopted for the software upgrade of this product. Please upgrade the software according to the following steps.

- (1) The upgrade file needs to be moved to the root directory of the USB Flash Drive. (please do not change the file name or format of the upgrade file, and there cannot be two or more upgrade files in the root directory of the USB Flash Drive)
- (2) Insert the USB Flash Drive into the USB interface at the rear of the machine. Make sure the power is off before insert the USB Flash Drive.

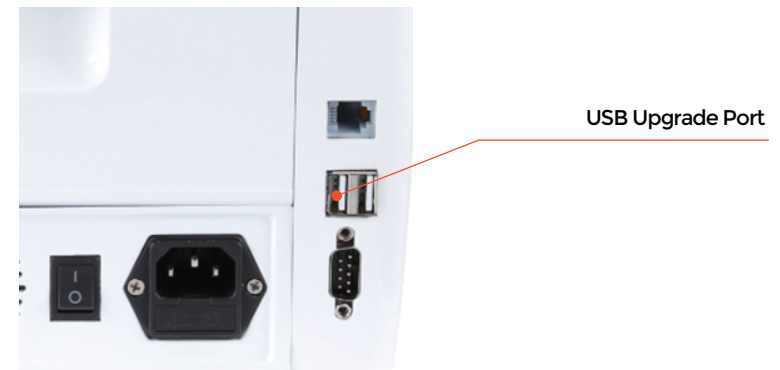


Figure 6-1 USB Upgrade Port

- (3) Turn on the IMC01, and the machine will automatically recognize the upgrade file. Upon successful recognition, the machine will read the file first.

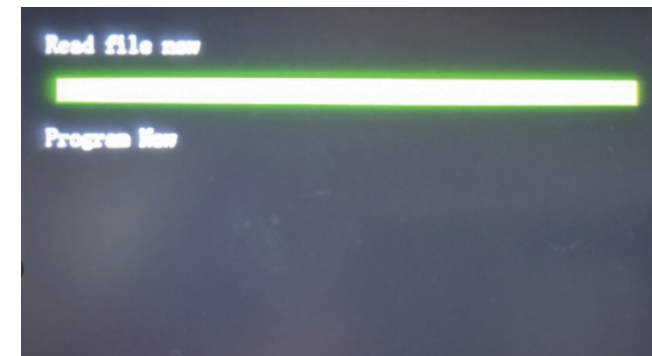


Figure 6-2 Upgrade File Reading

(4) And program the file to the IMC01.

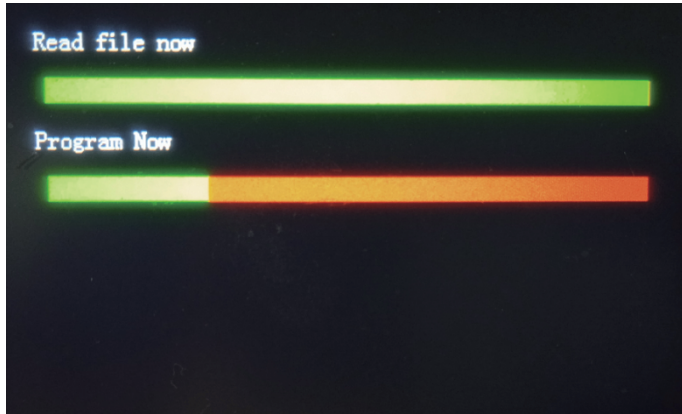


Figure 6-3 Program the Upgrade File

(5) After finish the programming, unplug the USB Flash Drive and turn off the machine.

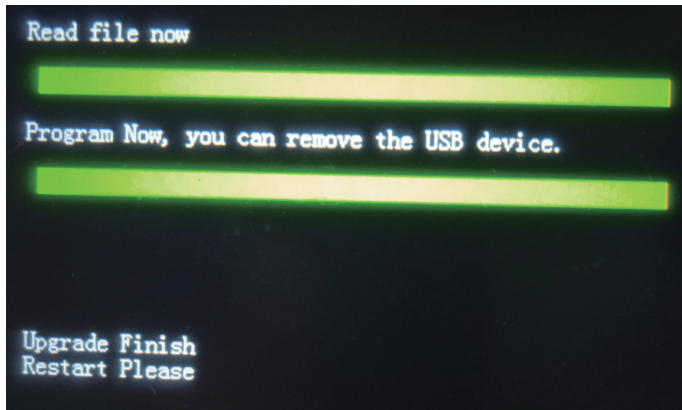


Figure 6-4 Program Finish

(6) Turn on the machine to enter the main interface. Software upgrade has been finished.

7.0 Maintenance

After starting the machine, it will go on self-check automatically. If the preset window shows the error code or tell you to clean the sensors, generally speaking, it is because of dust on the surface or sensor blocked by notes. So please clear the dust on the surface with brush or soft cloth, or take the notes away. Then restart the machine.

For more troubleshooting methods, please refer to the IMC01 maintenance manual.

8.0 Technical Parameters

Table 8-1 Technical Parameters

Counterfeit Detection	Image (2 CIS Sensors), Magnetic, Infrared, Ultraviolet
Error Detection	Double note detection, half note detection, chain note detection
Available currencies	US/CA version: USD, EUR, CAD, MXN, GBP
	EU/UK version: EUR, USD, GBP, CHF, PLN, SEK, NOK, DKK
Options	Thermal printer connection
Interfaces	RS-232, 2 × USB, RJ12
LCD Display	3.5 inches TFT LCD display, 320×480
Keypad	Touch panel keypad
Hopper Capacity	500 bills
Stacker Capacity	200 bills
Counting Speed	800, 1000 pcs/min (MDC & SDC MODE)
	800, 1000, 1200, 1500 pcs/min (CNT MODE only)
Size of Countable Notes	50x110 ~ 90x190 mm
Thickness of Countable Notes	0.075 ~ 0.15 mm
Power Consumption	≤80W
Power Supply	AC 100V-240V,50-60Hz
Weight	6.5 kg
Dimension	270 × 245 × 288 mm



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If you meet any problem during using the IMC01, please contact us.