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Version 1.04

IMC08 Banknote Sorter
User Manual

Version 1.04

Contents

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1.0. Overview

1.1. Preface

Thank you for purchasing our product. The IMC08 is a professional, powerful counter and sorter, with a reject pocket. A reject pocket greatly enhances the value of the machine. Besides rejecting for counterfeits, the reject pocket can be used to help get all the bills facing the same direction to then be accepted at the bank. It has a convenient user-friendly interface, touch control panel and a variety of counting modes. All of these features come with a strong built-in counterfeit detection and high level of performance. This machine makes it invaluable in banks, casinos, supermarkets, movie theaters, retail shops and many other environments where paper currencies are used.

This user manual describes the operation steps and precautions for this product. In order to improve the use and working efficiency of the product, please read this manual carefully before using, so as to operate the product accurately. Please contact us if you encounter any problem.

We reserve the right to change the contents of this user manual at any time without notice.

Figure 1-1 IMC08 Banknote Sorter

1.2. Statement

This product is used for counting and sorting banknotes or bills. Our company does not assume any responsibility for any loss arising from the application of this product for any purpose other than the above without our company's permission, and for any loss caused by any modification of this product not by our company. Any liability is limited to the machine itself.

This product is used for counting and sorting banknotes described in the specification. Please do not use this product for any other purposes.

This product is only used in the corresponding countries or regions and may not be used in other countries or regions due to the difference between power supply specifications and safety standards.

Please understand that the contents of this manual are subject to change without prior notice.

This product may not be changed or modified in any form without the explicit written authorization of our company.

1.3. Abbreviation

Abbreviation	Definition
SDC	Single Denomination Counting
CNT	Counting Only
MDC	Mixed Denomination Counting
SDCV	Single Denomination Counting & Version Sorting
USD	United States Dollar

EUR	Euro
CAD	Canadian Dollar
GBP	Great Britain Pound
MXN	Mexican New Peso
CFD	Counterfeit Detection
SN	Serial Number
CIS	Contact Image Sensor
UV	Ultraviolet

Table 1-1 Abbreviations

2.0. Machine Overview

Hopper · Touch Panel · Banknote Guiders · TFT LCD Display · Reject Pocket · Impeller · Stacker

Figure 2-1 IMC08 Front View

Back Cover Handle

Speaker

Switch On/Off

Power Cord Receptacle

External Display Port

USB Port

RS232 Printer Port

Figure 2-2 IMC08 Back View

Feeding Gap Adjustable Screw

Banknote Processing Wheel
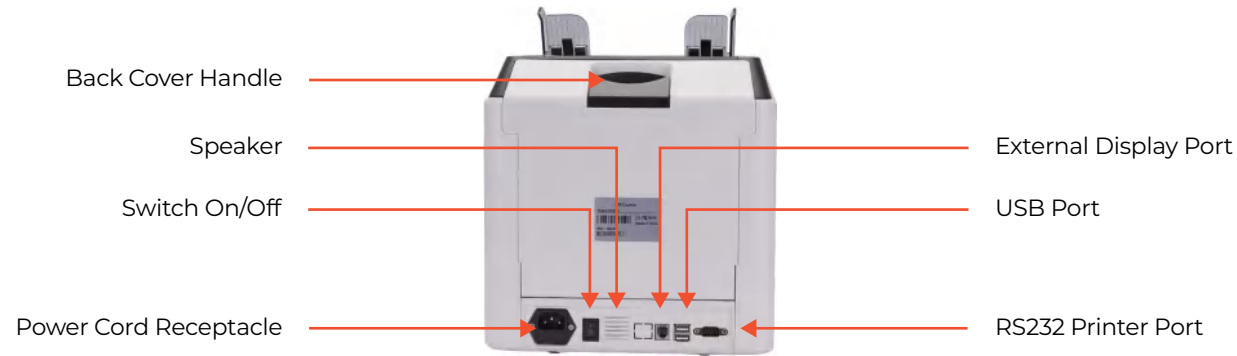
Figure 2-3 IMC08 Top View

Handle

Figure 2-4 IMC08 Side View

3.0. Packing Open and Installation

3.1. Packing List

When you receive the package, open and check the packing list in the package. If any item is damaged or missing, contact us.

Item Name	Picture	Quantity (pcs)	Description
Banknote Sorter		1	Banknote sorter
External Display		1	External LED display screen with RJ12 cable
Power Cord		1	U.S. Standard Power Supply Cable
		1	European Power Supply Cable
		1	UK Power Supply Cable
Banknote Guiders		2	Guides on top of the hopper

CIS Calibration Paper		1	Used for CIS calibration
Cleaning Brush		1	Used for machine cleaning
CIS cleaning Cloth		1	Used for cleaning the CIS sensors.
Fuse		1	This is a spare fuse. A fuse is already installed. Fuses ensure power protection and are required by electrical standards.
USB Flash Drive		1	USB flash drive with IMC08 manual and troubleshooting video
User Manual		1	

Table 3-1 Packing List

3.2. Installation Instructions

3.2.1. Safety Precautions

When using this product, the following basic safety precautions should always be followed to reduce the risk of fire, electric shock or injury to persons or animals.

1) Place the machine on a flat and stable surface.
2) Do not place the machine in dusty or dirty environments.
3) Do not place the machine in direct sunlight or near heat sources.
4) Always disconnect the power cord before performing maintenance on the machine.
5) Always connect the machine to a grounded electric outlet.
6) Use only power cords provided by MUNBYN.
7) Do not use the machine outdoors.
8) Do not expose the machine to liquids.
9) This machine contains moving parts and sharp edges. Always be careful. Do not touch the components inside the machine while it is running. Keep jewelry, long hair, ties, and lanyards away from the machine at all times.
10) Please be careful to avoid any foreign objects, such as coins or staples, falling into the unit, as it may cause damage to the machine.
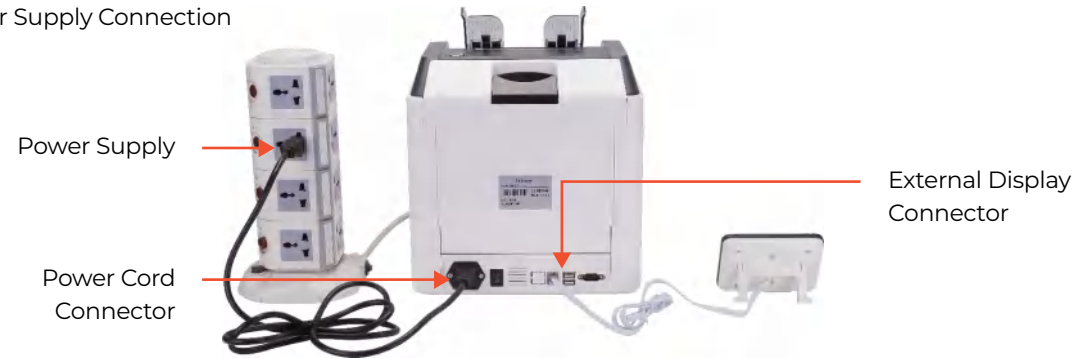
3.2.2. Power Supply Connection

Power Supply

Power Cord Connector

External Display Connector

Figure 3-1 Power and External Display Connection

3.2.3. Banknote Guider Installation

Figure 3-2 Banknote Guider Installation
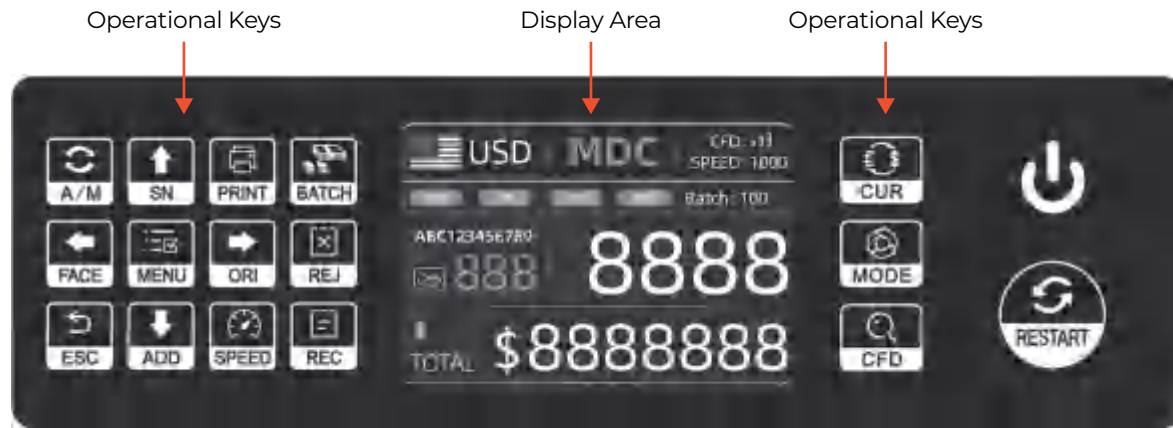
4.0. Operation Interface

4.1. Display Overview

Figure 4-1 Display Appearance

4.2. Operational Instructions for Function Keys

CUR key is used to select the type of currency.

MODE key is used to select CNT (Count), SDC mode or MDC mode for counting.

CFD key is used to select counterfeit detection sensitivity level.

POWER key is used enter the standby mode (long press), or press quickly to wake.

RESTART key is used to start counting or other operations. It also clears the current counting result.

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

SN or ↑ key, turn on the serial number recognition function. In Batch mode, press it to increase the batch number by 1. Move cursor up in Menu.

PRINT key. If the machine connects to a printer, press it to print receipt when report screen displayed.

BATCH key is used to turn the batch function on/off. Each time press the Batch button, 100, 50, 0 will be displayed in turn.

FACE or ← key is used to perform face sorting function on/off in SDC mode. In Batch mode, press it to increase batch number by 10; Move cursor left in Menu.

MENU key is used with a long press to enter the menu or press it to confirm the selection.

ORI or → key is used to toggle the orient sorting function on/off in SDC mode. In Batch mode, press it to decrease the batch number by 10. Move cursor right in Menu.

REJ key is used to show the rejected bills and the reason for the rejection. Long press to set the capacity of reject pocket (max. 100 bills).

ESC key allows you to go back to previous screen or clear the input.

ADD or ↓ key is used to toggle the cumulative add function on/off. In Batch mode, press it to decrease batch number by 1. Move cursor down in Menu.

SPEED key, allows you to select the different available counting speeds.

REC key is used to view the counting result report.

4.3. Display Interface

- Counting mode
- Add Option
- SN Option
- Currently selected currency
- Auto Detection Mode
- Quantity of rejected bills
- ORI/FACE Option
- CFD Level
- Counting Speed
- Batch Number
- Quantity of accepted banknotes
- Total counted amount
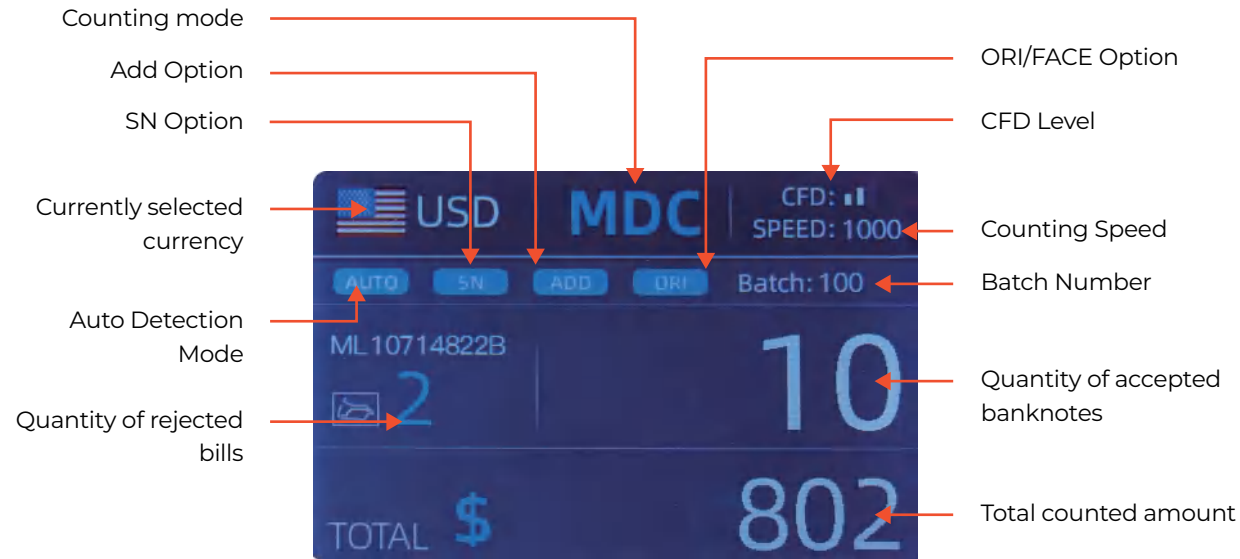
Figure 4-2 Main Display Interface

5.0. Operating Instructions

5.1. Start-up

Turn on the power switch after connecting the machine to power. The machine will enter the self-checking interface, as shown in Figure 5-1.

Figure 5-1 Self-checking Interface

The self-checks will take about 30 seconds. During this time, the machine will spin the banknote processing wheel several times, and then enter the main interface as shown in Figure 3-2.

5.2. Placing Banknotes

Avoid counting wet, excessively dirty or significantly folded banknotes.
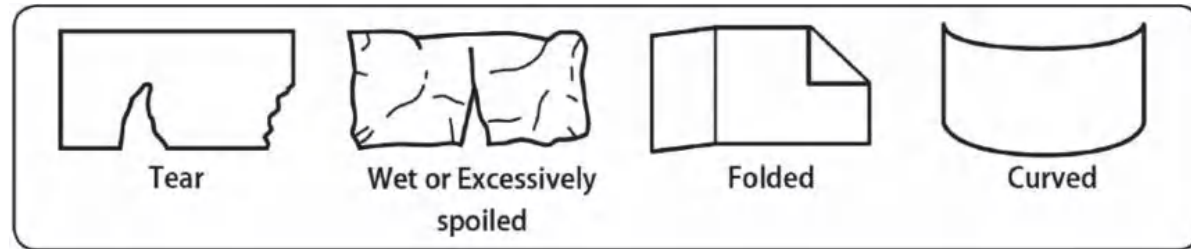
Figure 5-2 Damaged Notes

Check for foreign matter (paper chips, rubber bands, clips, dust etc.) mixed with notes.
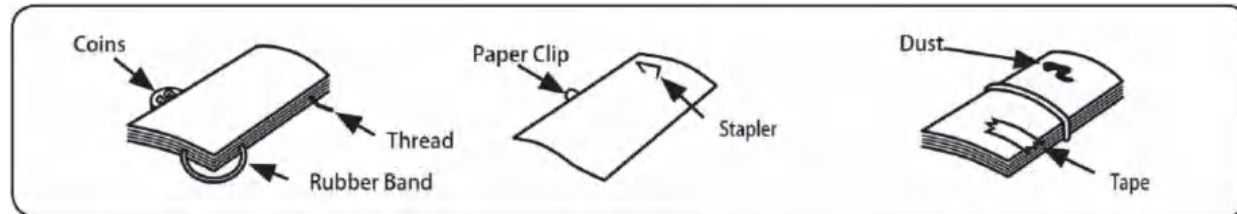
Figure 5-3 Foreign Matter Mixed with Notes

Remove folds from notes beforehand. Spread and separate brand-new notes as they can sometimes be slightly adhesive.
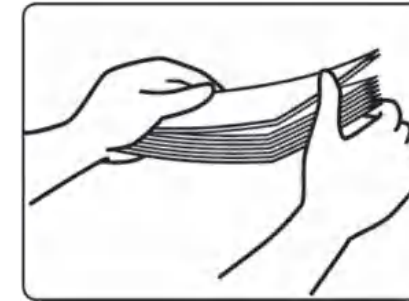
Figure 5-4 Separate Brand-New Notes
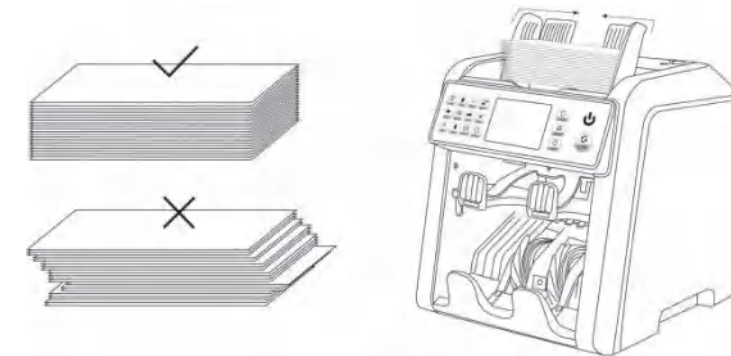
Figure 5-5 Banknotes Alignment

5.3. Currency Selection

Press the CUR key to enter the currency selection. As shown in Figure 5-6, the display will show AUTO, MULT and the installed currencies, press the ↑ ← → ↓ keys to select the one you need, press the MENU key to confirm your selection.

Figure 5-6 Currency Selection Interface

5.3.1. AUTO (Automatic Recognition Mode)

In the process of counting banknotes, the IMC08 uses the first banknote passing through the sensor as the template to recognize banknotes of all denominations of the same currency. When banknotes of other currencies are recognized, they will be sent to the reject pocket. The machine can only recognize the currencies displayed in the currency selection interface.

Figure 5-7 Auto Recognition Counting Interface

Example: Use a handful of USD bills into the IMC08 hopper to count. The interface of the IMC08 displays as Figure 5-8 at the end of counting. The currency in the upper left corner is identified as USD.

Figure 5-8 USD Counting Result

Take out the USD in the stacker, and then put a EUR banknote into the machine to count. The display screen is showed as Figure 5-9.

Figure 5-9 EUR Counting Result

5.3.2. MULT (Multi-Currency Mode)

Multi-Currency Mix Counting: Banknotes of multiple currencies are mixed together and put into the IMC08 to count. The IMC08 can recognize any of the first 3 currencies displayed on the currency selection interface.
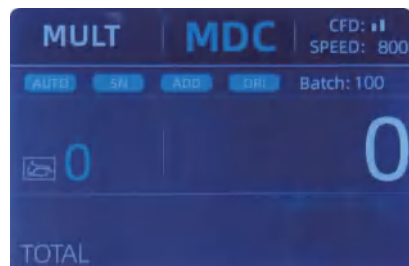
Figure 5-10 Multi-currency Counting Mode

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

Example: Put a handful of banknotes (including USD, EUR, GBP) into the IMC08 hopper to count. The interface of the IMC08 displays as the following figure at the end of counting.

Figure 5-11 Multi-currency MDC Counting Result

5.3.3. Non-Volatile Memory for Currency Mode

The currency mode setting is non-volatile. For example, if you set multi-currency counting mode before you power down the IMC08, next time the IMC08 will be in multi-currency counting mode after power on. It is a convenience that you will not need to reselect the currency every time you power on the IMC08.

5.4. Counting Mode Selection

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 MODE key of the control panel, three counting modes can be toggled in an MDC-CNT-SDC-SDCV sequence.

5.4.1. MDC Mode

As shown in the following figure, the IMC08 is in MDC mode. In this mode, the IMC08 will count the banknotes of all denominations of the selected currency, and the total amount and number of banknotes are displayed on the screen. Any suspicious notes or other currency notes will be sent to the reject pocket. In this mode, the IMC08 has 2 counting speed (800/1000 pcs/min) options.

Figure 5-12 MDC Mode

5.4.2. SDC Mode

As shown in the following figure, the IMC08 is in SDC mode. This mode allows the user to count and sort the banknotes by one denomination which is automatically determined by the first note scanned in a stack. This can be useful to be sure that there is no other denomination banknote in a large strap of one denomination. The first banknote in the hopper determines the counting and sorting denomination. Any time a note passes through the IMC08 and does not conform to the denomination determined by the first note, the IMC08 will reject this not into

the reject pocket. The total amount and number of banknotes will be displayed on the screen. In this mode, the IMC08 has 2 counting speed (800/1000/min) options.

Figure 5-13 SDC Mode

5.4.3. CNT Mode

As shown in the following figure, the IMC08 is in CNT mode. This mode does not limit the currency, and only counts the number of banknotes. It only works with the double note detection function and no other counterfeit detection function. In this mode, the IMC08 has 4 counting speed (800/1000/1200/1500 pcs/min) options.
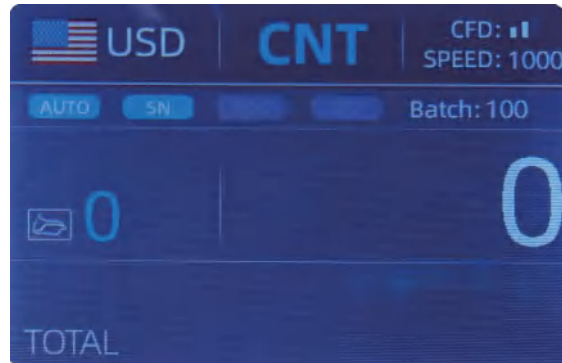
Figure 5-14 CNT Mode

Note: While in the CNT mode, there is only a double note detection function but no any counterfeit detection functions.

5.4.4. SDCV Mode

As shown below, the IMC08 is in SDCV mode. This mode allows the user to count and sort notes by one version which is automatically determined by the first note scanned in a stack. This can be useful to be sure that there are not notes of other versions in a large strap of one version. The first banknote in the hopper determines the counting and sorting version. Any time a note passes through the IMC08 and does not conform to the version determined by the first note, the machine will reject this note into the reject pocket. The total amount and number of banknotes will be displayed on the screen. In this mode, the IMC08 has 2 counting speed (800/1000/min) options.

Figure 5-15 SDCV Mode

5.5. Counting Function Options

5.5.1. Automatic Banknote Counting

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

After turning the IMC08 on it will default to the automatic counting mode, an "AUTO" will be displayed on the main screen. In this mode the IMC08 start counting automatically.

Figure 5-16 AUTO Function Indicator

To operate with the manual counting mode, by pressing the AUTO key, the "AUTO" indicator will be off.
In this mode, the IMC08 stops counting automatically, and the RESTART key must be pressed to start each count.

5.5.2. Serial Number Reading

The SN key is used to enable or disable the function that reads the banknote's Serial Number.

After turning the IMC08 on, the default is to turn on this function. An "SN" will be displayed on the main screen. The SN reading function records the unique serial numbers of the counted banknotes. This function is available for the following currencies as of this writing: USD, EUR, GBP, CAD, MXN.

Figure 5-17 SN Function Indicator

5.5.3. Add Function

This function is toggled on via the ADD key. It is used to cumulatively add the counting results of multiple counts to the total. When the add function is activated, an "ADD" indicator will be displayed on the main screen. Press the ADD key again to disable the add function.

Figure 5-18 Add Function Indicator

5.5.4. 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.

5.5.5. 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 fist 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.

Figure 5-19 Orient Function Indicator

5.5.6. Batch Setting

Press the BATCH key to select the batch number in the banknote counting interface, the screen display is shown in Figure 5-20. By pressing the BATCH key of the control panel, the batch number will be toggled in a 100-50-0 sequence.
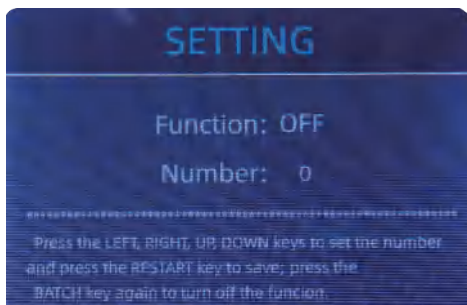
Figure 5-20 Batch Setting Interface

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.
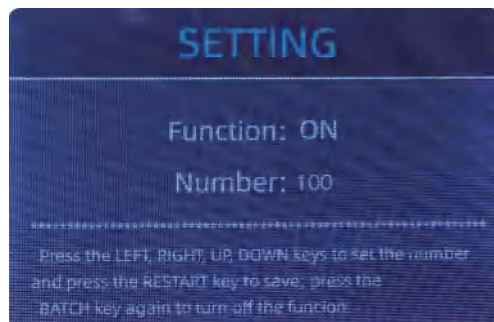

Figure 5-21 Batch Setting Interface

Press the ESC key to return to the main interface to confirm the batch quantity.

Figure 5-22 Batch Number Indicator

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

Batch function is used to select a batch quantity for a specific counting process. The IMC08 counts a preset number of notes and then stops counting when the batch number has been reached, even if the notes remain in the hopper. When the banknotes are removed from the stacker, the IMC08 will continue count up to the preset batch quantity to create another batch.

5.6. 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 a specific setting is needed, different counting speed can be switched by pressing the SPEED key in any counting mode.

Figure 5-23 IMC08 Speed Indicator

5.7. Check Detail of Counting

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

Figure 5-24 Detail Denomination Information

5.7.1. Check the Serial Number

As shown in the above figure, if the SN reading is on, press the REC key again, and the banknote's serial numbers will be shown as in the following figure. Press the ↓ ↑ key to browse the listed serial numbers.

Figure 5-25 Serial Number Information

5.8. Print Information

5.8.1. Printer prints banknote data

When the external printer has been connected press the PRINT key after counting. This enters the print interface. To print, press the PRINT key again, the printer starts printing.
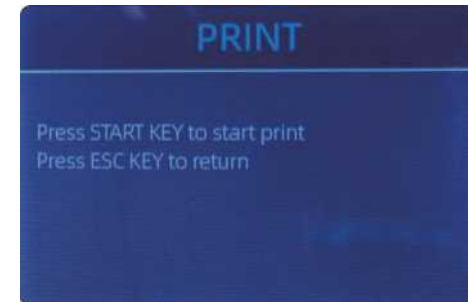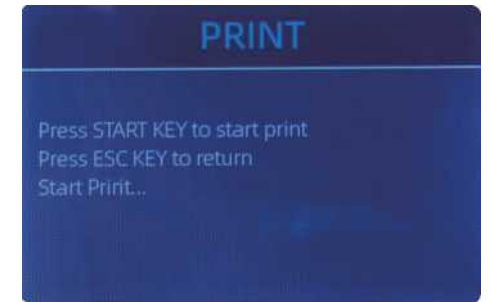

Figure 5-26 Printer Interface

Figure 5-27 Start Printing

5.8.2. 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 IMC08 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 IMC08, and set the baud rate to 9600, as shown in the figure below.
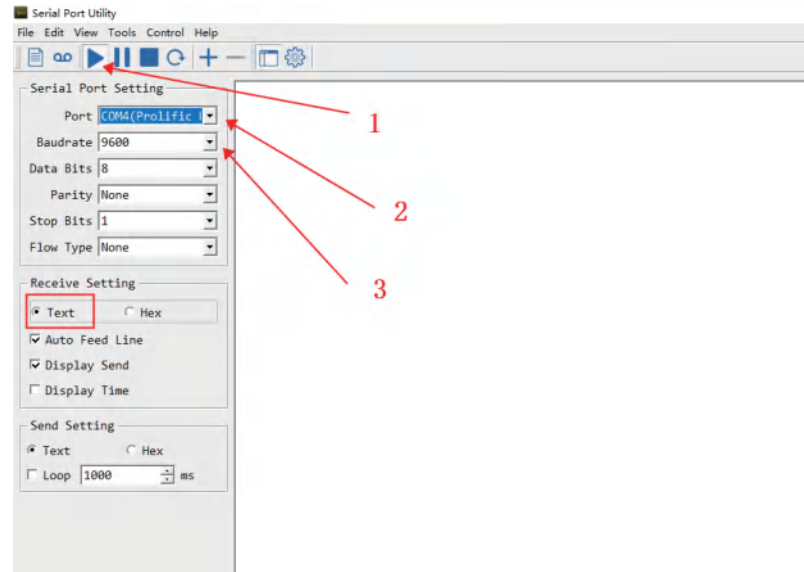
Figure 5-28 The serial port tool settings

3) Click the "PRINT" button of IMC08, and then click the "RESTART" button, IMC08 will transmit the data to the serial port tool, as shown in the figure below.
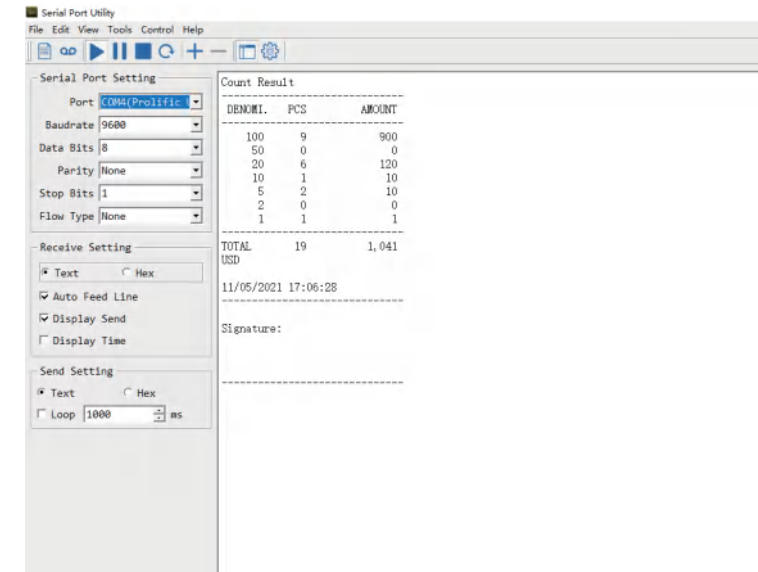
Figure 5-29 Banknote data display

This is a tutorial video link for transferring IMC08 data to a computer:
http://munbyn.biz/DatatransfertoPC

5.9. CFD Level

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

Figure 5-30 CFD Level

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

6.0. Menu Setting

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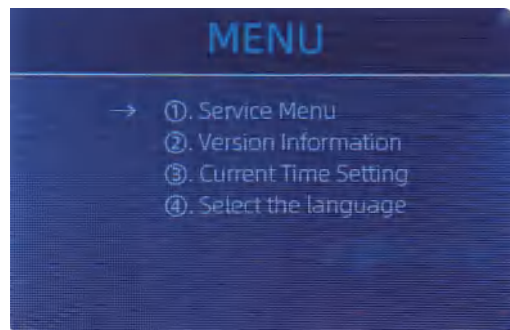

Figure 6-1 Menu Interface

User the arrows to select which sub-menu you want to enter, and press MENU key to confirm, and press menu button to confirm, and press ESC key to quit.

6.1. Service Menu

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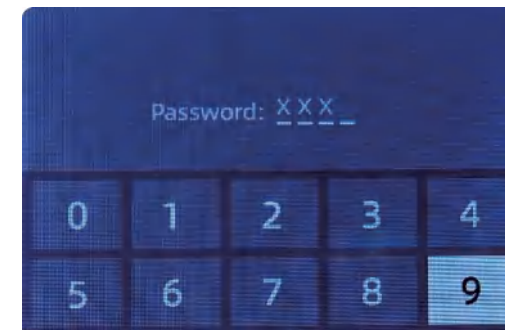

Figure 6-2 Password Interface

After inputting the password, the interface showed in Figure 6-3 will be displayed. Use the cursor to select the sub-menu you want to enter, and press MENU button to confirm, or press ESC button to quit.

Figure 6-3 Service Menu

6.1.1. Read Sensor Values

Figure 6-4 Sensor Values

Tech support may ask you to provide this information. As shown in the above figure, the sensors values are for the engineers 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.
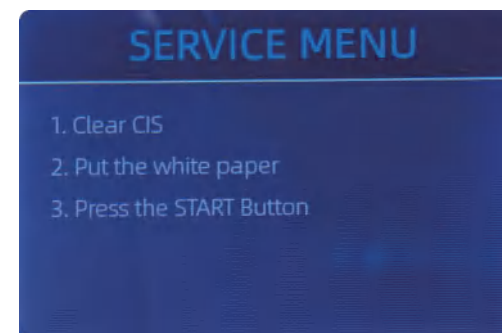
6.1.2. CIS Calibration

Figure 6-5 CIS Calibration Steps

If you have problems with 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 review the reference manual or watch the following video: https://bit.ly/2C17fom

The contact image sensor (CIS) of the machine has been calibrated properly from the factory. With regular, use, the sensor's sensitivity decreases which can lead to image errors. To resolve the issue, the IMC08 can be re-calibrated using the white calibration paper that came with the machine.
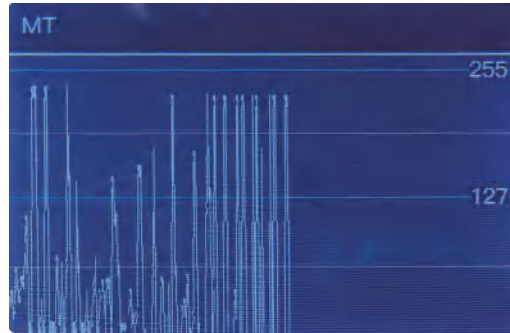
6.1.3. MG MT Waveforms
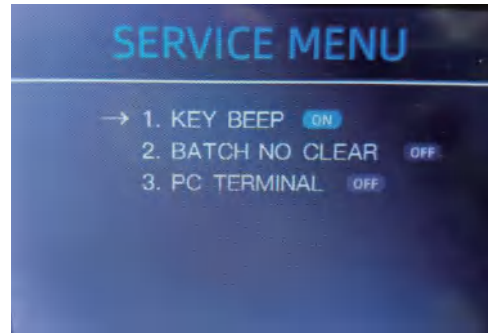

Figure 6-6 MG MT Waveforms

6.1.4. Function Setting

Figure 6-7 Function Setting

6.1.4.1. KEY BEEP

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

6.1.4.2. BATCH NO CLEAR

Choose "BATCH NO CLEAR" to toggle this setting.

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

6.1.4.3. PC TERMINAL

This is for production and professional servicing purpose.

6.1.4.4. RJ OLD VER. USD

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

6.1.4.5. PRINTER BAUD RATE

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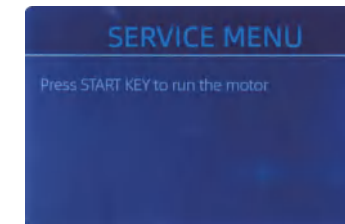
6.1.5. Auto Diagnostic

Figure 6-8 Auto Diagnostic

This is for production and professional servicing purpose.

6.1.6. PCS Counted and Reset

If you select "PCS Counted and Reset," you will see the following interface. This interface displays the total quantity of counted banknotes in this counter since last time someone reset this to zero. We provide a hidden setting for distributors to clear this number for after-sales service.
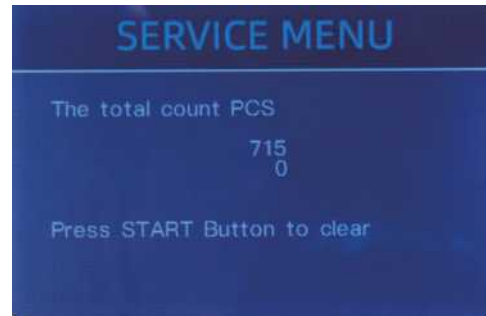

Figure 6-9 PCS Counted and Reset

6.1.7. Acquire CIS image

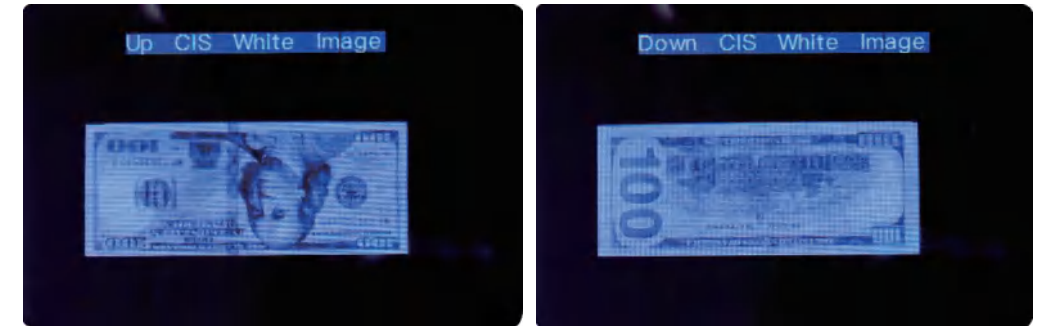Press ↑ to browse the top CIS white image, and press ↓ to browse the bottom CIS image, as the following figures show.

Figure 6-10 Acquire CIS Image

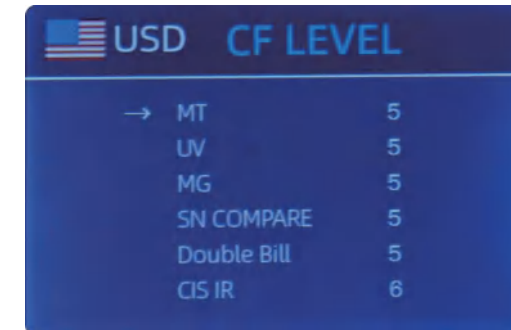This is for servicing purpose.

6.1.8. Detection Level

Figure 6-11 CF Level

As shown in Figure 6-10, you can use the left and right direction key to select, and up and down direction key to change the sensitivity levels in the sensors. The currency code in the right indicates the currency you are operating.

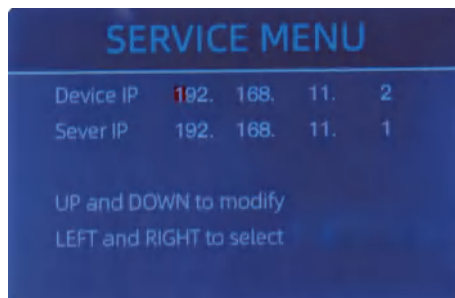Note: Please do not change without communicating with us.

6.1.9. IP Address

Figure 6-12 IP Setting

This is only for engineering use.

6.1.10. Unknown Banknote

This is for production and professional servicing purpose.

6.1.11. Back to Default setting

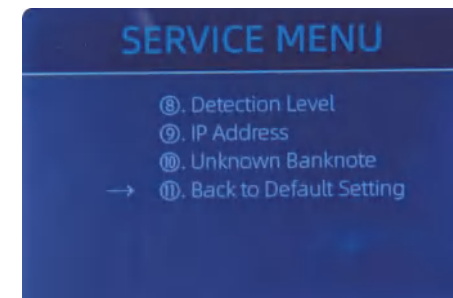As shown in Figure 6-13, press the MENU key to reset to factory defaults.

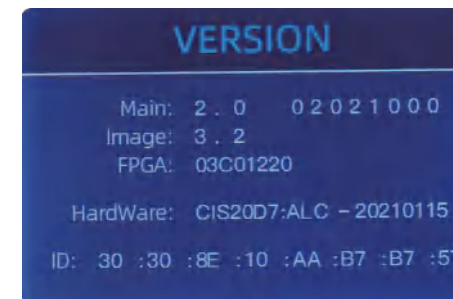Figure 6-13 Back to the Default Setting

6.2. Version Information

Figure 6-14 Version Information

MUNBYN
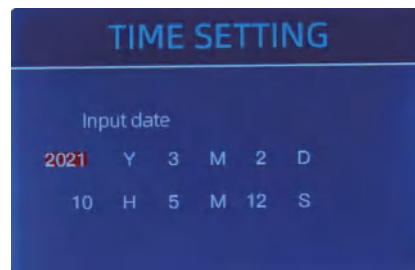
Displays the version information.

6.3. Time Setting

Figure 6-15 Time Setting
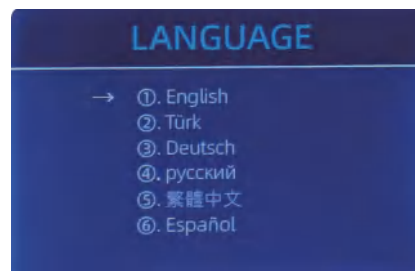
Sets time and/or date setting.

6.4. Language Selection

Figure 6-16 Language Selection

Used to select a language.

MUNBYN

7.0. Software Update

You may need to upgrade the machine. To do this, use a USB flash drive to upgrade this product. Please upgrade the software using 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) Turn the power off to the machine. Insert the USB flash drive into the USB interface at the rear of the machine.
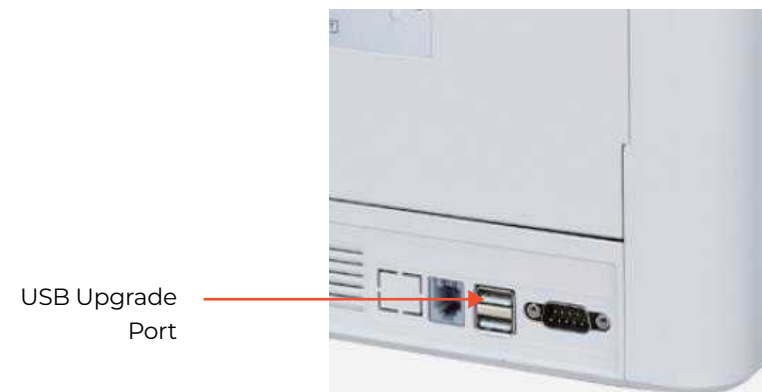

USB Upgrade Port

Figure 7-1 USB Upgrade Port

3) Turn on the IMC08, and the machine will automatically recognize the upgrade file. Upon successful recognition, the machine will read the file first.
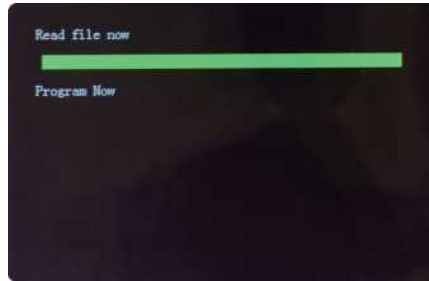
Figure 7-2 Upgrade File Reading

4) Next it will program the file into the machine.
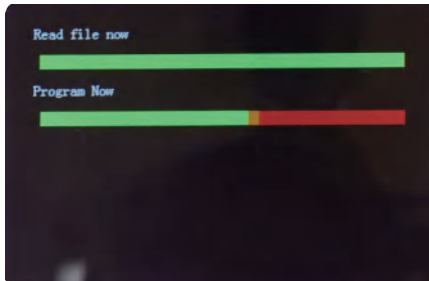
Figure 7-3 Program the Upgrade File

5) After the programming has completed, unplug the USB flash drive and turn off the machine.
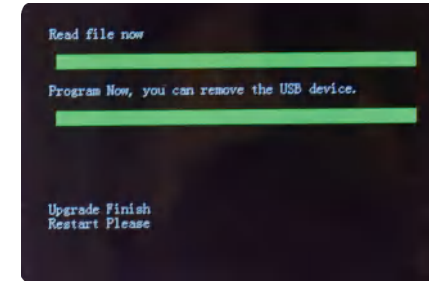
Figure 7-4 Program Finish

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

Scan the QR code for Facebook online chat

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If you meet any problem during using the IMC08, please contact us.

8.0. 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 IMC08 maintenance manual.

9.0. Technical Parameters

Counterfeit Detection	Image (2 CIS Sensors), Magnetic, Infrared, Ultraviolet
Available currencies	US/CA version: USD, EUR, GPB, CAD, MXN
	EU/UK version: EUR, USD, GBP, CHF, PLN, SEK, NOK, DKK
Options	Thermal printer connection
Software Upgrade	Upgraded by USB flash drive
Interface	RS-232: Printing USB: Software upgrade, counting log storage
LCD Display	3.5 inches TFT display, 320×480
Keypad	Touch panel keypad Power Key: Standby mode <->Working mode
Hopper Capacity	500 bills

Stacker Capacity	200 bills
Reject Pocket Capacity	80 bills
Counting Mode	MDC (Mixed Denomination Counting), SDC (Single Denomination Counting), CNT (Number Counting Only), SDCV (Single Denomination Counting by Version)
Counting Functions	Sort, Orientation, Face, Batch, Add
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	0.08~ 0.12 mm
Power Consumption	≤80W
Power Supply	AC 100V-240V,50-60Hz
Certifications	CE, FCC, ROHS, ECB
Net Weight	9.4 kg
Net Dimension	280x260x650

Table 9-1 Technical Parameters