

CD-2000

1.5 Pocket Multi-Currency Discriminator

OPERATING MANUAL



Important Safety Information

Always be careful when using the machine. To reduce the risk of fire, electrical shock, and other injuries, keep these safety considerations in mind when installing, using, and maintaining your machine:

Stability. Place the machine on a secure, stable surface. The machine can be seriously damaged if it falls.

Power Supply. Provide correct power to the machine, as listed on the back of the machine. If you are not sure of the type of power supplied to your office, call your electric company.

Grounding. If the plug has three prongs, it must be plugged into a grounded (three holes) outlet. Grounded plugs and outlets are designed for your safety - do not try to make a three-prong plug fit into a two-prong outlet by modifying the plug or outlet in any way. If you cannot insert the plug into your wall outlet easily, then the outlet should be inspected by a qualified electrician.

Please connect the supplied power cord to a grounded well wall outlet.

Overload. Do not plug too many electrical devices into a wall outlet or an extension cord. An overloaded outlet could be a reason of fire and electrical shock hazard.

Cleaning. Before cleaning the machine, unplug it from the power outlet. Clean exposed parts with a soft cloth slightly dampened with water. Do not use aerosol cleaners.

Gas Leaks. Never use any machine close to a gas leak. If you think gas is leaking, call the gas company immediately. A small electrical spark in the machine could cause a fire or explosion.

Precaution

When using the machine, these precautions should always be followed.

1. Never push objects of any kind into your machine through the case or cabinet openings.
2. Do not use your machine near water, in wet locations, or outdoors.
3. Do not allow anything to rest on the power cord, line cord, or PC interface cable.
Do not locate your machine where the cords can be damaged by persons walking on them.
4. Do not allow pets to chew the power cord or PC interface cable.
5. Use supplies or cleaning materials only as directed. Keep all supplies and materials out of the way of children.
6. The power supply turns this machine on and off. Make sure that your machine is installed near an outlet and is easily accessible.
7. Never remove covers or guards that require a tool for removal. There are no operator serviceable areas inside your machine. Refer servicing to authorized service personnel.
8. Never defeat interlock switches. This machine is designed to restrict operator access to

unsafe areas. Covers, guards and interlock switches are provided to ensure that the machine will not operate with covers opened.

9. Avoid direct viewing of the image sensor lights. The lamps are bright and, while not harmful, they may cause an annoying afterimage. Always keep the rear cover closed during operation and storage.
10. Risk of explosion If battery is replaced by an incorrect type. Dispose of used batteries according to the instruction.

Managing the performance of the machine

This unit has many sophisticated sensors. Without proper maintenance, it cannot last its good performance. Please read the “Daily Maintenance” section of this manual carefully, and do it everyday. When the performance is deteriorated on a sudden, please clean all the sensors first before calling a service.

Safety Notes

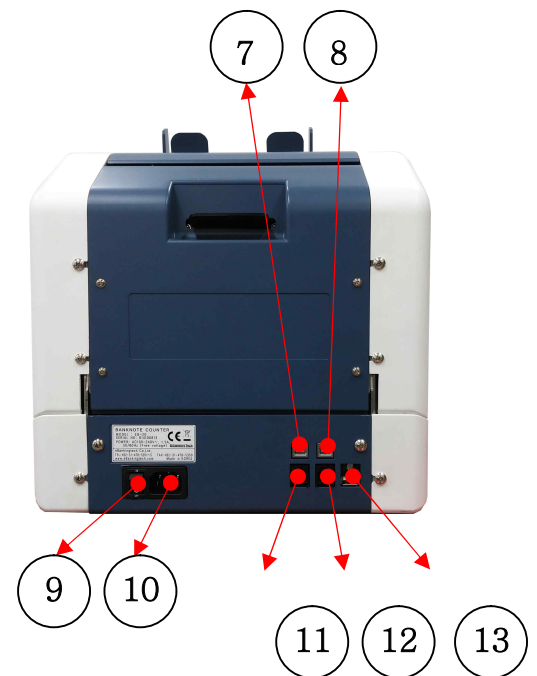
Your machine and the supplies are designed and tested to meet strict safety requirements. Included are safety agency examination and approval and compliance to established environmental standards.

Please read the following instructions carefully before operating your machine, and refer to them as needed to ensure the continued safe operation of your machine.

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1. Description of the Parts



NO	The name of the Parts	note
1	Guide for counting Note	Expansion Guide
2	Hopper	
3	Thickness Adjustment Screw	Gap Control screw
4	Button for Cover open	
5	Reject Pocket	
6	Stacker	
7	USB connector for Main board, LCD board	For debugging
8	USB connector for CIS board	
9	Power Switch	
10	Power Plug	
11	Connector for Thermal Printer	
12	Connector for external display	
13	Connector for S/W upgrade	Main, LCD, CIS

14		
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2. Function of Control Panel



Key	Description	Key	Description
1 P.SWITCH	Switching the function of stacker-pocket and reject-pocket.	CF	Counterfeit detection on/off.
3 SPEED	Speed setting. (Simple count mode only)	BAT	Preset number of notes.
7 PRINT	Printing receipt.	LEVEL	Adjusting UV, MG and density level key. Detailed sort mode. (FACE-ORIENT-SERIES-DENOM) by key combination with "MODE" key. "MODE" → "LEVEL"
8 REJECT	Checking cause of reject.	ADD	Cumulative count on/off.
9 C.REC	Checking counted record.	MODE	Count mode. (Option) (COUNT-SINGLE-MIX-MIX2-SERIAL) Count mode2. (MODE + LEVEL key) (FACE-ORIENT-SERIES-DENOM)
▲ MENU	Entering the user menu or UP key in the menu.	CUR	Changing the currency.
0 DISPLAY	Display type setting.	CLEAR BACK	Clearing counted number and total value or "ESC" function in the menu.
▼	DOWN key in the menu.	START STOP	Start & stop or "confirm" function in the menu.

2-①. 

When press this key, you can swap the function of stacker-pocket and reject-pocket.

2-②. 

It is the SPEED key which has 4 different speeds. Whenever you press this key, it will be forwarding as shown under.

900/min, 1100/min, 1300/min, 1500/min

You can change the counting speed only in the count mode.

2-③. 

By pressing this key, you can print receipt.

2-④. 

By pressing this key, you can check the cause of reject.

2-⑤. 

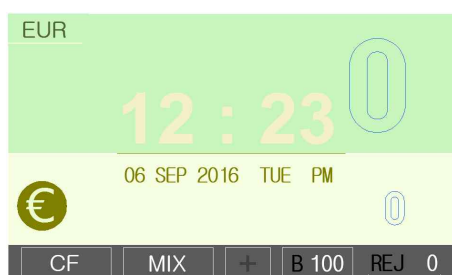
By pressing this key, you can check the counted record.

2-⑥. 

By pressing UP key, you can enter user menu or move to the previous line in the menu.

2-⑦. 

By pressing this key, you can change display type.



EUR	Denom	Count	Amount
	5	0	0
CF	10	0	0
MIX	20	0	0
	50	0	0
ADD	100	0	0
	200	0	0
B 100	500	0	0
REJ 0	Total	0	€ 0



By pressing DOWN key, you can move to the next line in the menu.



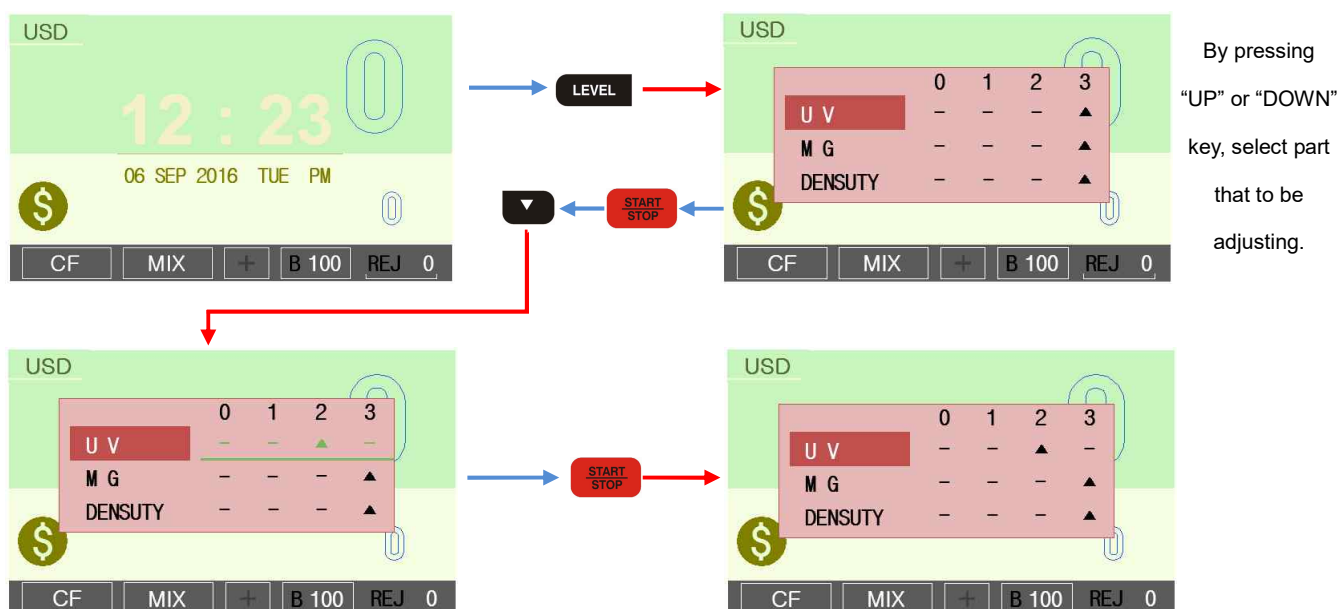
This key can be used to detect counterfeit note by pressing it. When counterfeit note or suspected notes were detected while counting, the counterfeit/suspected note will be stacked in the reject pocket without stopping the counting operation.



When press BAT key, you can select batch number, which is already registered (0-25-50-75-100). or if you want to select a special batch number, please use number key
When the counted number reaches at the batch number, the machine will stop automatically.

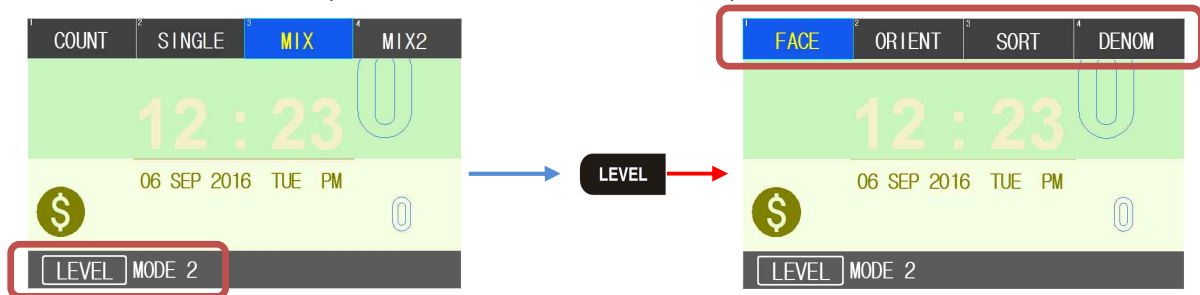


By pressing LEVEL key, you can adjust UV, MG, DENSITY level.



Key combination with “MODE” key, you can select detailed sort mode.

“MODE” → “LEVEL” (FACE-ORIENT-SERIES-DENOM)



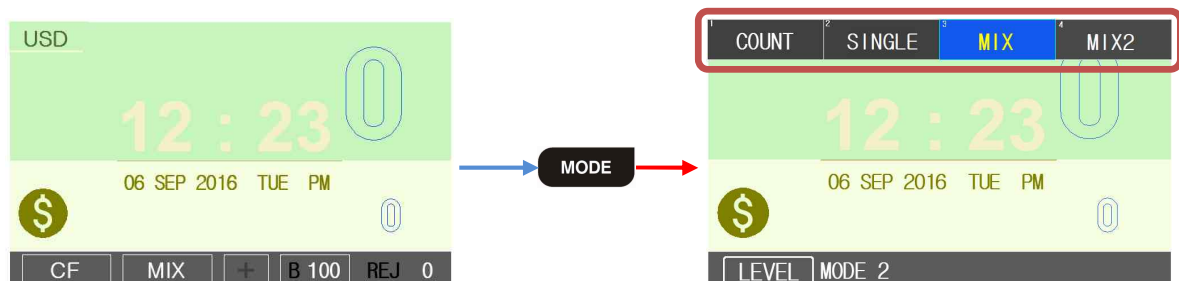
2-⑩ ADD

When press ADD key, the accumulated total of notes will be shown on the LCD screen when they have been counted. By pressing CLEAR/BACK key user can clear the counted value.

2-⑩ MODE

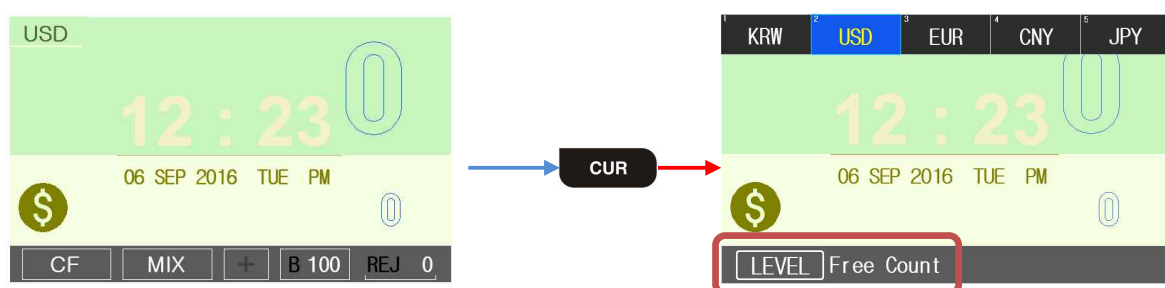
By pressing MODE key, you can select the operating mode

COUNT / SINGLE / MIX / MIX2 / SERIAL (Option)



2-⑩ CUR

By pressing CUR key, you can select currency or Free count MODE.



2-⑩



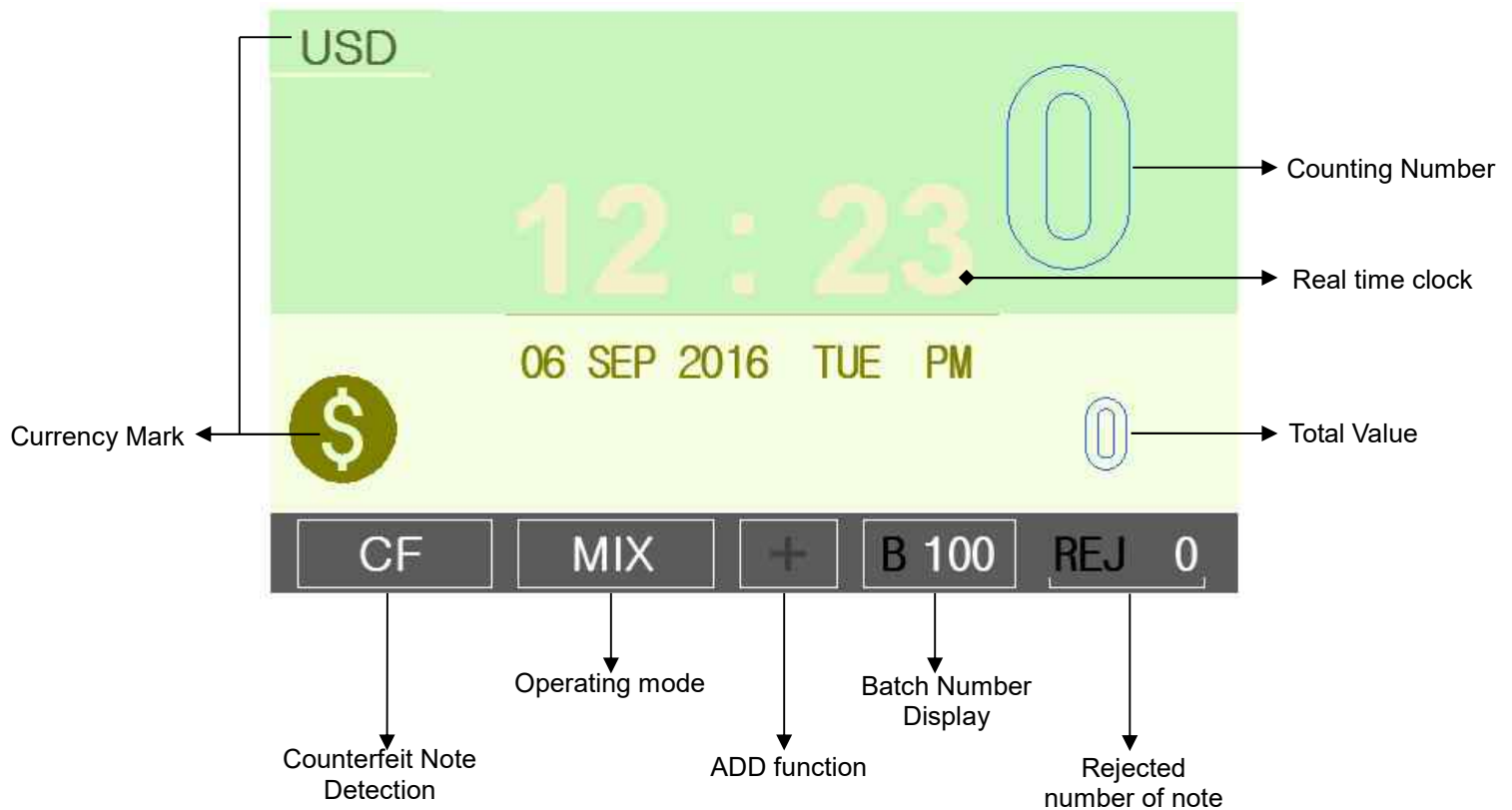
After counting - By pressing CLEAR/BACK key, you can clear counted number and total value.
On the other condition - CLEAR/BACK key performs going to previous step or deleting previous text.

2-⑩



By pressing START/STOP key you can manually start the machine.
(It needs to activate the manual count mode)
On the other condition – START/STOP key performs to enter selected menu or values.

3. Overview of Display (LCD)



Currency mark : which currency is now operating

CF: Counterfeit note detection activation

COUNT / SINGLE / MIX / MIX2 / SERIAL: operating mode

ADD : ADD function on/off

BATCH function : Display the batch number

REJECT : Rejected number of banknote.

Total Value : total value of counted noted (Max 9 digit)

Real time clock : Real time clock

Counted number : number of notes (Max 3 digit)

4. Operating

Placing Bills onto the Hopper

It is very important to place the bills onto the hopper correctly because recognition performance of the bills is highly affected by the arrangement of the bills. Please avoid counting bills in bad condition such as wet, excessively dirty, spoiled, folded, curled notes and with foreign material like clips, bands, etc. Sometimes it causes malfunction of the machine.

Counting

If ADD mode was set, the cumulative number will be displayed.

If an error occurs during operation and the machine stops, then an error message will be displayed. To clear the error, press start/stop key. The machine will try to solve the problem automatically, but if it fails to clear a jam or there are some other mechanical errors, remove jammed bills manually. Then press the start/stop key again to clear error message.

COUNT MODE (By pressing MODE key)

The machine can count the bills without any denomination recognition.

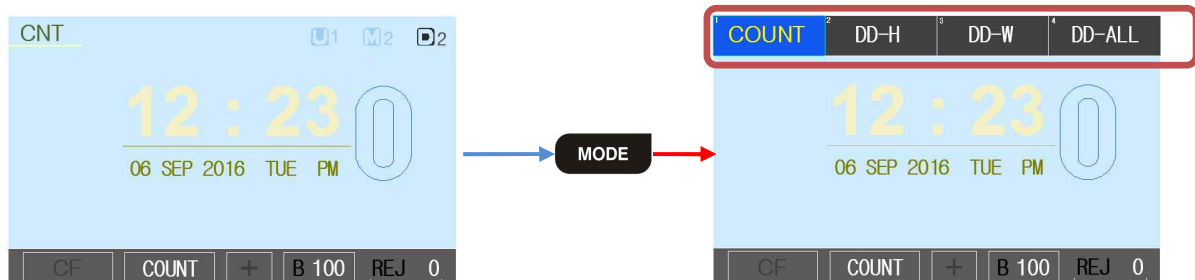
This mode is only for simple counting that selected currency without counterfeit detection.



FREE COUNT MODE (By pressing CUR + LEVEL key)

The machine can count the bills without CIS image recognition.

Counterfeit detection by UV/MG, different denomination detection by size sensor is available.

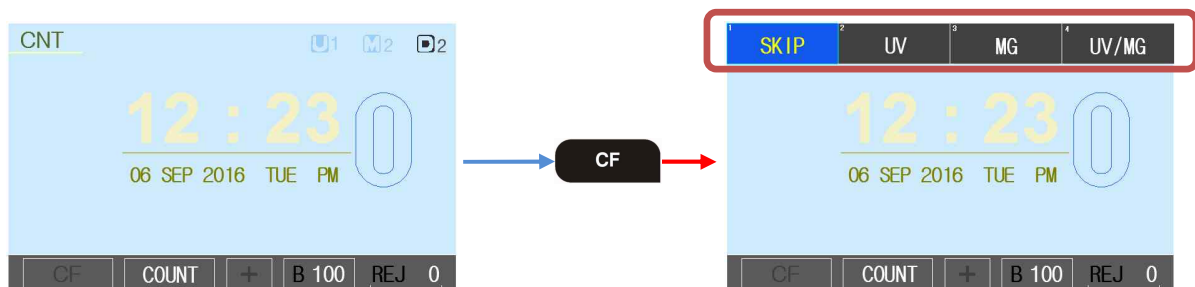


COUNT : simple counting.

DD-H : different denomination detection by height.

DD-W : different denomination detection by width.

DD-All : different denomination detection by height + width.

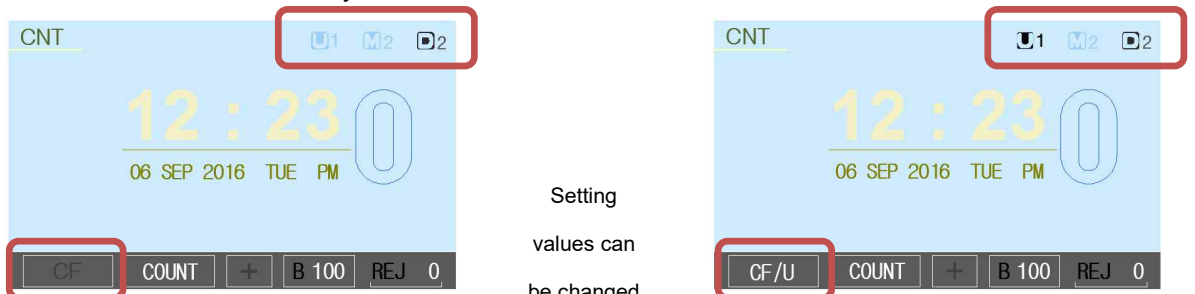


SKIP : counterfeit detection off.

UV : detect counterfeit by UV.

MG : detect counterfeit by MG.

UV/MG : detect counterfeit by UV + MG.

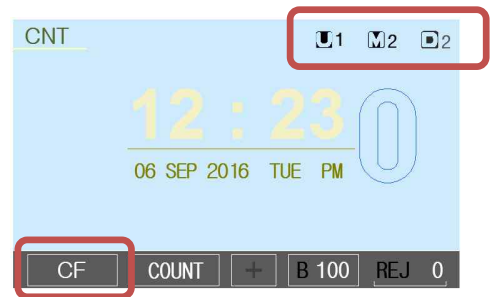


Setting
values can
be changed
by pressing
the LEVEL
key.



SINGLE MODE (By pressing MODE key)

The machine can catch the different denomination bill while counting.



ORIENT-SORT MODE (By pressing MODE + LEVEL key)

The machine can catch the different orientation bill while counting.



FACE-SORT MODE (By pressing MODE + LEVEL key)

The machine can catch the different face bill while counting.



SERIES-SORT MODE (By pressing MODE + LEVEL key)

The machine can catch the different series(version) bill while counting.



DENOM-SORT MODE (By pressing MODE + LEVEL key)

The machine can count only specified denomination bill.



MIX MODE (By pressing MODE key)

The machine can make the value counting for mixed notes and total amount will be displayed on the screen.



MIX2 MODE (By pressing MODE key)

The machine is stopping to count the other denomination during operation.

The last 2 notes counted was read the value on the screen and added it on screen.



SINGLE / MIX / MIX2 + ADD MODE

When the machine is setting up ADD MODE at each MODE, the counting starts from “0” of both Quantity and Value, and total Quantity and Value will be displayed at Stacker empty.

(Option)

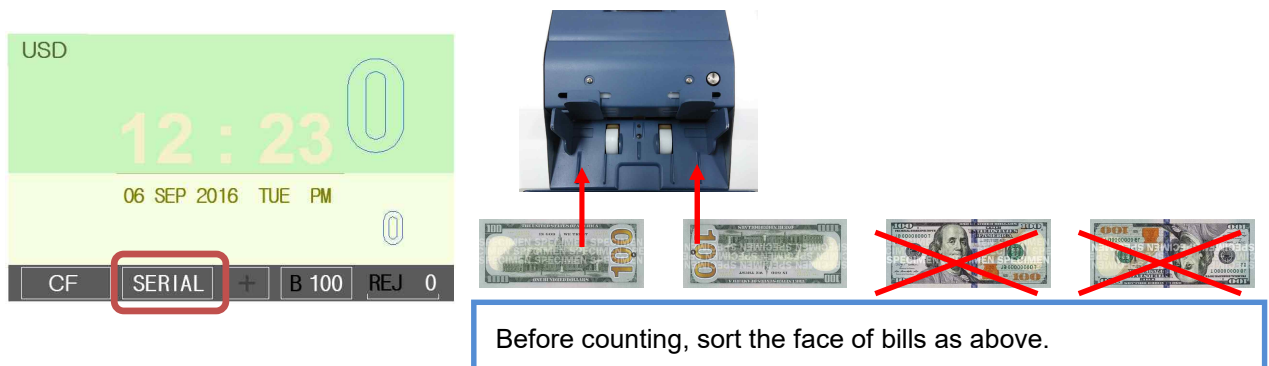
SERIAL MODE (By pressing MODE key)

The machine can recognize the serial number of bill while counting

After counting – By pressing “7” key, you can print receipt with serial number.

This mode is only for USD currency.

In this mode // counting speed cannot be changed



Serial Mode Selection

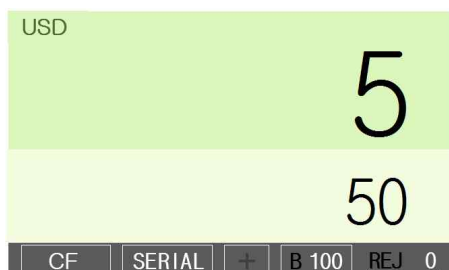
By pressing “  → 2 → 4 → 1 ”

‘1’, ‘0’,  ,  스위치를 사용하여 선택

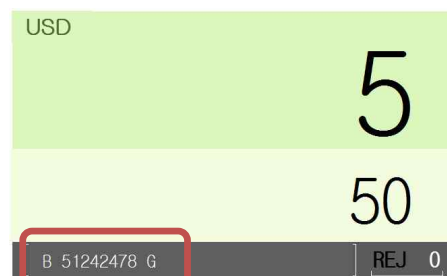
‘0’ : no display the serial # for counting (picture 1)

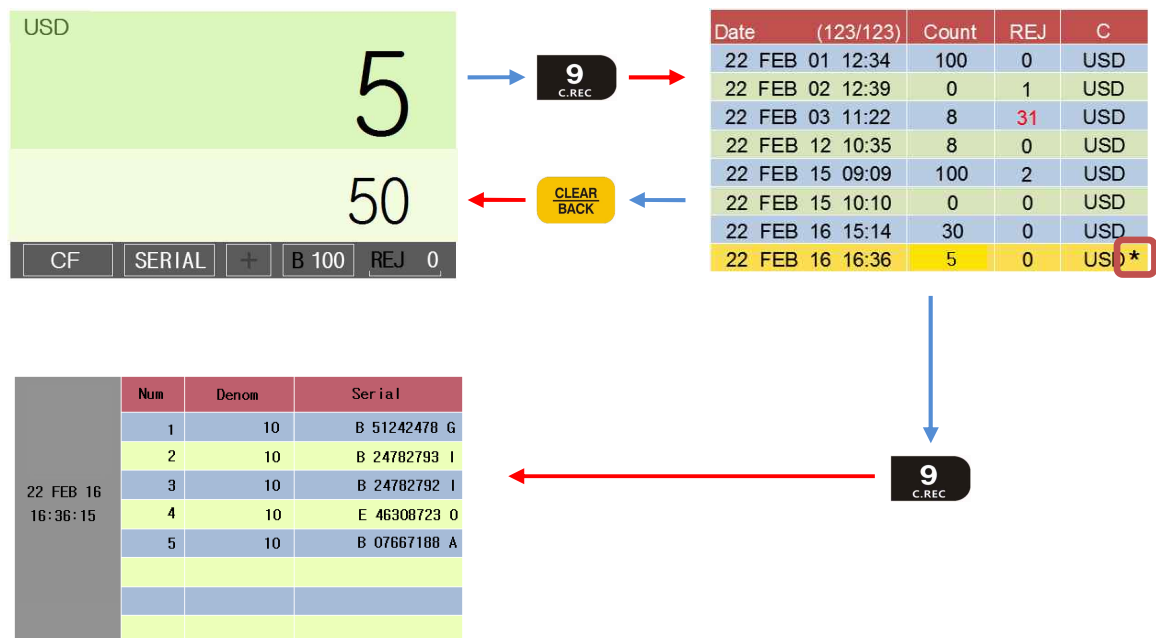
‘1’ : displaying the serial # for counting (picture 2)

<picture 1>



<picture 2>





In the file list, ' USD * ' is the file indicator to check the each serial number detailed as above.


Deposit function

By pressing “  → → 4 ” user can enable or disable the deposit function.

After counting, press “7” to print the receipt.
At this time, selection pop-up menu is displayed on the screen.

- YES : Add to grand-total

- NO : Do not add to grand total




First time or after clear the grand total

- YES : Add to grand total

- NO : Do not add to grand total

- END : Add to grand total and finish the grand total function.



From second time or other case

By pressing “  ” user can print / clear / check the grand total values.

SUB 1 BAT 4	N	Time	Count	Amount	START STOP	SUB 1 BAT 4	Denom	Count	Amount
	1	17:48:14	10	1,000			1	0	0
	2	17:49:16	100	10,000			2	0	0
	3	17:55:10	50	5,000			5	0	0
	4	17:59:19	6	600			10	0	0
		166			CLEAR BACK		20	0	0
	T T L	16,600					50	0	0
							100	10	1,000
					Total		10	1,000	

Checking the counted record

By pressing 9(C.REC) key, user can check the counted record.

The machine can save counted records. (maximum 16,000 cases)

If full, the oldest record will be replaced by each new record.

<Normal case>

Date	(123/123)	Count	REJ	C
22 FEB 01 12:34		100	0	USD
22 FEB 02 12:39		0	1	USD
22 FEB 03 11:22		8	31	USD
22 FEB 12 10:35		8	0	USD
22 FEB 15 09:09		100	2	USD
22 FEB 15 10:10		0	0	USD
22 FEB 16 15:14		30	0	USD
22 FEB 16 16:36		100	0	USD

Select row
that want to
check.

Date	(119/123)	Count	REJ	C
22 FEB 01 12:34		100	0	USD
22 FEB 02 12:39		0	1	USD
22 FEB 03 11:22		8	31	USD
22 FEB 12 10:35		8	0	USD
22 FEB 15 09:09		100	2	USD
22 FEB 15 10:10		0	0	USD
22 FEB 16 15:14		30	0	USD
22 FEB 16 16:36		100	0	USD

Denom	Count	Amount
1	1	1
2	1	2
5	1	5
10	1	10
20	1	20
50	1	50
100	1	100
Total	8	188

Denom	Count	Amount
1	1	1
2	1	2
5	1	5
10	1	10
20	1	20
State Normal		
Check NO		

<Counted number is "0">

Date	(117/123)	Count	REJ	C
22 FEB 01 12:34		100	0	USD
22 FEB 02 12:39		0	1	USD
22 FEB 03 11:22		8	31	USD
22 FEB 12 10:35		8	0	USD
22 FEB 15 09:09		100	2	USD
22 FEB 15 10:10		0	0	USD
22 FEB 16 15:14		30	0	USD
22 FEB 16 16:36		100	0	USD

Date	(4/123)	Count	REJ	C
22 FEB 01 12:34		100	0	USD
22 FEB 02 12:39		0	1	USD
22 FEB 03 11:22		150	1	USD
22 FEB 12 10:35		8	0	USD
22 FEB 15 09:09		100	2	USD
State Normal				
Check NO				

<Reject pocket full or error occurred while counting.>

Date	(178/123)	Count	REJ	C
22 FEB 01 12:34		100	0	USD
22 FEB 02 12:39		0	1	USD
22 FEB 03 11:22		8	31	USD
22 FEB 12 10:35		8	0	USD
22 FEB 15 09:09		100	2	USD
22 FEB 15 10:10		0	0	USD
22 FEB 16 15:14		30	0	USD
22 FEB 16 16:36		100	0	USD



	Denom	Count	Amount
	1	1	1
	2	1	2
	5	1	5
	10	1	10
	20	1	20
State	POCKET FULL		
Check	NO		

The menu key usage in this mode			
	select previous case		select next case
	1Page down		1Page up
	10 Pages down		10 Pages up
	100 Pages down		100 Pages up
	Searching by time		
	Confirm the menu		Escape the menu

Selecting Add Function

ADD function provides a cumulative count, to the operator. For example, if someone tries to count up to 400, but the machine cannot count over 300, which is maximum capacity of the Stacker. But pressing **ADD** key, then try to count again. The machine counts and stops when the stacker is full. After removing those notes from the Stacker, you can begin counting again, and the total counted number will be increased from the previous total.

The Add function is On/Off by pressing ADD key and clears counted value by CLEAR/BACK key.

Selecting Batch Function

BAT key is used to select preset batch number. In the batch count mode, the machine stops counting when the counted number reaches at the set number, even though the bills remain on the Hopper. User can edit batch number by pressing BAT key + 1~9 number key.

Selecting Automatic/Manual

In AUTOMATIC mode, when the hopper sensor detect banknote on the hopper, machine will automatically start to count the bill.

In MANUAL mode, the machine will not count the bills automatically even though the bills are onto the hopper. When user presses START key manually, the machine will start to count.

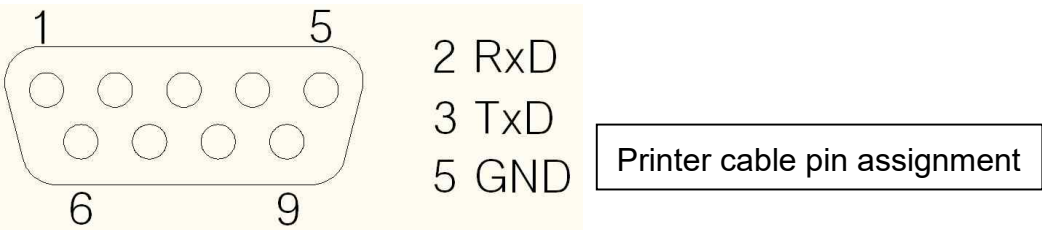
While counting, the machine will display the number of the bills on LCD display and it stops working when it meets the conditions described as below;

- No bills on the hopper
- The number of the bills counted is the same as the batch number to be set in BATCH mode.
- Errors have occurred.

When the machine finishes counting without errors, the number of counted bills will be displayed on the LCD screen.

Thermal Printer Guide

Available Printers



Most of standardized printers will be interwork with our product.

The following printer models are verified to interwork with our product.

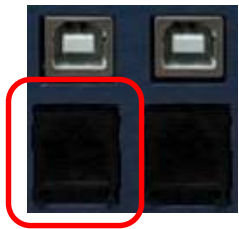
Model	Manufacturer	Normal Receipt	Receipt with Serial number
CT-S280	CITIZEN	O	X
STP-103	BIXOLON	O	O
SP250	SEOROTECH	O	O

Printer Setting

- Set the baud rate 9600 BPS / 115200 BPS for serial number print.
- Connect power and serial cable
- Insert the paper
- Power switch on

EB-20 Setting

- Connect printer serial cable to port P/P



- Power switch on
- Set the baud rate

“User Menu” → “2.External Device”
→ “2.Printer Baudrate”
→ “2.Printer 9600 bps”

For normal receipt

“User Menu” → “2.External Device”
→ “2.Printer Baudrate”
→ “5.Printer 115200 bps”

For receipt with serial number

Operating Printer

- Press **7** PRINT key after counting banknote.
(User can print again and again by pressing the down key until reset the values on the screen.)

Normal receipt		
=====		
EUR	VALUE	LIST
=====		
DATE	26 FEB 16	12:34
=====		
DENO		UNITS
VALUE		
=====		
5		40
200		
10		20
200		
20		0
0		
50		16
800		

Receipt with serial number		
=====		
USD	VALUE	LIST
=====		
DATE	26 FEB 16	12:34
=====		
DENOM		UNITS
VALUE		
=====		
1		1
1		
2		1
2		
5		1
5		
10		1
10		
20		1
20		
50		1
50		
100		1
100		
=====		
TOTAL		7
188		
Signature : _____		
<Serial Number List>		
=====		
DENOM	Serial Image	

Printer Error

- Check the printer and EB-20 settings.
- Check the cable pin assignment.

5. USER MENU

(Press  Key)

No	Title	Description
1	Display type for value - Default(default) - Toggled - Detail 1 - Detail 2	Default : The total count & value are displays on the screen. Toggled : The total value & each denomination value pages are alternately displays on the screen. (It's related to mix, sort mode) Detail 1 : Each denomination value pages are displays on the screen after 2 seconds from the end of counting. (It's related to mix, sort mode) Detail 2 : Display type-2 pages are displays on the screen. (It's related to mix, sort mode)
2	External Device - External Display - Printer Baudrate - Absence Message - Serial Print	External display & printer baud-rate setting Printer Baudrate : Printer baudrate setting. Absence Message : Not in use. Serial Print : Serial Display setting.
3	Time Set - Date & Time Set - Time Display - Disabled - Enabled(default) - Clock Calibration - Short Calibration(10s) - Long Calibration(32s) - Reset Calibration	Date & Time Set : Time setting of real time clock function. Time Display : If set "Enable" Displays RTC on the screen. Clock Calibration : Not in use.

No	Title	Description
4	Counting Setup - Auto/Manual Start - Manual - Auto(default) - Counting Type - Counting Enable - Counting Disable(default) - Stacker Time Set (15 / 30(default) / 60 seconds) - Deposit	Auto/Manual Start : Auto / Manual start setting. Counting Type : When the machine notifying to user by beep sound, machine can count added note or not (It's relate to stacker time set) Stacker Time Set : Passed note remains on the stacker after 15 / 30(default) / 60 seconds, machine notify to user by beep sound until remove it. Deposit : Deposit function on/off
5	Pocket Capacity Set - Stacker Pocket Capacity - reject Pocket Capacity	Stacker pocket capacity(0/100/200/400) and reject pocket capacity(20/40/60/80/100) set.
6	My Device Information - Software Version - Counted Record - Display style	Software version : Software version & Serial number Counted Record : Machine can save 16,000 records. If full, the oldest record will be replaced by each new record. Display style : Background color setting.
7	Language	Language setting

6. Error messages & Troubleshooting

ERROR		
Message	Cause	Solution
CASE OPENED	Front or rear case is opened.	Check the front and rear cover.
POCKET FULL	Stacker or reject pocket is full.	Remove all notes in the stacker/reject.
ENCODER ERROR	Motor is in abnormal condition.	Check the Main/Sub motors.
FEEDING ERROR	Something detected on the hopper sensor, but nothing inserted into the machine.	Check the hopper sensor.
ERROR CIS ROCK-UP	CIS process has not successfully done.	Remove all notes and count again.
JAM OCCURRED	Jam error occurred	Remove all notes and count again.
ERROR NOTE SEPARATE	The gap between passed two notes is too narrow. (chained)	Check the note and count again.
SEARCH CURRENCY FAIL	Unknown currency has detected.(only in auto-currency mode)	Check the banknote.

NOTIFICATION		
Message	Cause	Solution
REMOVE ALL NOTES	Banknote is remained in the stacker or reject pocket.	Remove the banknote from stacker or reject pocket.
INCOMPLETE BATCH	Batch count not complete.	Count more banknote.
CLEAR COUNT	If the count result remained on the screen, Pocket switch function is not available.	Clear the count result.
CLEAN UP CIS	Something in the sensor surface.	Clean the CIS sensor.
PRINTING...	Print operation in progress.	Print operation in progress.

REJECT		
Message	Cause	Solution
CHAIN OCCURRED	2 or more notes have passed at the same time or chained.	Remove all notes and count again.
SKEW ERROR	Note passed with skewed left or right.	Check the note and count again.
SEPARATE FAIL	2 or more notes have chained on the separator.	Remove all notes and count again.
DOUBLE PASSED	2 or more notes have passed at the same time.	Remove all notes and count again.
DIFFERENT DENOM	Different denomination detected in sort mode.	
DIFF FACE/ORIENT	Different Face or Orient detected in sort mode.	
OVER COUNT	Over count on value-batch mode.	
DAMAGED NOTE_S	Passed note is contaminated or damaged.	Check the note.
SUSPECT UV 1	suspected to counterfeit by UV	Check the note.
SUSPECT UV 2	suspected to counterfeit by UV	Check the note.
SUSPECT UV 3	suspected to counterfeit by UV	Check the note.
SUSPECT IR_A	suspected to counterfeit by IR	Check the note.
SUSPECT IR_C	suspected to counterfeit by IR	Check the note.
SUSPECT MG-1	suspected to counterfeit by MG	Check the note.
SUSPECT MG-2	suspected to counterfeit by MG	Check the note.
SUSPECT MG-3	suspected to counterfeit by MG	Check the note.
IMAGE GET FAIL	Failed to recognize image.	Check the note.
IMAGE ERROR	Abnormal banknote image has recognized.	Check the note.
UNKNOWN NOTE	Unknown banknote has detected.	Check the note.

DIFFERENT HEIGHT	Different vertical-size banknote has detected.	Check the note.
DIFFERENT SIZE	Different horizontal-size banknote has detected.	Check the note.
DOUBLE DETECTION	2 or more notes have passed at the same time.	Remove all notes and count again.
CIS HEIGHT	Abnormal vertical-size note is detected on CIS.	Check the note.

7. Specifications

Item	Specification
Dimension (W x D x H)	286[W] x 296[D] x 321[H] mm
Weight	Approx. 11kgs
Hopper capacity	300 pcs
Stacker capacity	200 pcs
Reject capacity	60 pcs (max 100 pcs)
Display Type	400 x 240 color Graphic LCD
Banknote Size Range	W: 100 ~ 190, H: 50 ~ 100
Banknote thickness range	0.05 ~ 0.2mm
Counting Speed	900/1100/1300/1500
Preset Batch Number	1 – 999
Counterfeit Detection	MG, MT, UV, FL, IR
Power Requirements	100-240VAC, 50~60Hz, 1.5A
Power Consumption	Standby: 10w, Operation: 30w

Notes:

- This machine specification can be changed without any notice
- The contents of this user's guide also can be changed.

8. Daily care

We recommend you to clean the sensors with brush or dried cloth. When cleaning the sensors, please do not use any chemicals and watery cloth.



9. Product warranty

Thank you for purchasing our product.

If a failure occurs due to defects,

Contact your dealer or product manufacturer to repair or compensate the product.

All process about warranty is in accordance with our terms of warranty.

< Terms of warranty >

Warranty coverage

- A failure occurred under normal condition, 1-year warranty from date of purchased product.

Warranty exclusion

- A failure occurred by customer's negligence or incorrect operation.
- A failure occurred by alternation of product or repair from non-certified service engineer.
- A failure occurred by input power.
- A failure occurred by non-official consumables.
- A failure occurred by natural disasters.

After the expiry of the warranty period

- If repair is required, the customers have to pay for visit, repair or consumable cost.

Securement of A/S parts

- If the product is discontinued, warranty to supply A/S parts during 5-years.