EBC-1000

Front Load One Pocket Currency Discriminator

OPERATING MANUAL

Thank you for purchasing the Royal Sovereign Front Load One Pocket Currency Discriminator, EBC-1000. This manual will provide you with safety information, instructions for optimal use, and proper care and maintenance for your product. Please read this manual carefully before operating.

CONTENTS

SAFETY INSTRUCTIONS

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

⚠ WARNING

1. Place the machine on a secure, stable surface. The machine can be seriously damaged if it falls.
2. Provide the correct power to the machine, as listed on the back of the machine.
3. If the plug has three prongs, it must be plugged into a grounded (three hole) 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.
4. Do not plug too many electrical devices into a wall outlet or into an extension cord.
5. Before dusting the machine, unplug it from the power outlet. Clean exposed parts with a soft cloth slightly dampened with water. Do not use aerosol cleaners.
6. Never use any machine close to a gas leak. If you think gas is leaking, call your gas company immediately. A small electrical spark in the machine could cause a fire or an explosion.

⚠ CAUTION

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.
4. Do not place your machine where the cords can be damaged.
5. Use supplies or cleaning materials only as directed. Keep all supplies and materials out of reach from 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. Refer servicing to authorized service personnel.
8. Never alter the interlock switches. This machine is designed to restrict the operator access to unsafe areas. Covers, guards, and interlock switches are provided to ensure that the machine will not operate when the covers are open.
9. Avoid direct viewing of the image sensor lights. The lamps are bright and, while not harmful, may cause an annoying afterimage. Always keep the rear cover closed during operation and storage.

Managing the Performance of the Machine
This unit has many sophisticated sensors. To ensure a long life, please read the "Daily Maintenance" section of this manual carefully. If the performance becomes deteriorated, please clean all the sensors first before calling your Royal Sovereign Customer Service.

Safety Notes
Your machine and the supplies are designed and tested to meet strict safety requirements. 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.
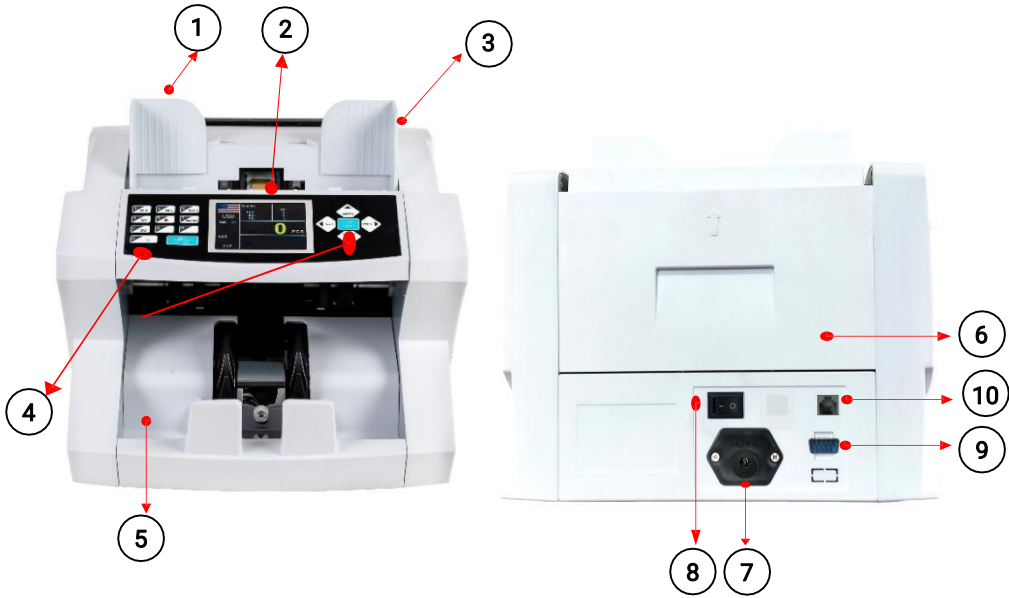
BOX CONTENTS

Bill Counter

Power Cord

External Display

PRODUCT VIEW

No.	Parts	Note
1	Guide for Counting Notes	Expansion guide
2	Hopper	
3	Thickness Adjustment Screw	Gap control screw
4	Control Panel	
5	Stacker	
6	Back Cover	
7	Power Plug	
8	Power Switch	
9	Printer Port	
10	External Display Port	

CONTROL PANEL

Key	Description/Action
	Clear the screen By pressing this key, you can clear the counted number and total value after counting. If you would like to go back to the main screen, press this key.
	Manual / Auto Counting This key can be used to choose between Manual counting or Auto counting.
	MG (Magnetic) Counterfeit Detection Magnetic sensors detect chemical properties of the specially formulated iron inks used by the U.S. Bureau of Engraving and Printing.
	Add Mode This key can be used to turn on Add mode. This mode will count the bills placed into the hopper and add that amount to the next bills counted.
	UV (Ultraviolet) Counterfeit Detection Ultraviolet sensors detect and verify the presence of UV security strips embedded in U.S. currency.

CONTROL PANEL

Key	Description/Action
	IR (Infrared) Counterfeit Detection Infrared sensors detect double and half notes and verify proper dimensional specifications of banknotes.
	View the bill count report This key can be used to show the counting details.
	DD (Dimensional) Counterfeit Detection The dimensional detector measures the width of the center of each bill, looking for odd sizes.
	Machine will enter setting mode (with password) This key can be used to enter the setting menu of the machine. Please note that you'll need PASSWORD (8888) to enter the service menu.
	Start Key This key can be used to start counting your bills or to resume counting once an error is cleared. If you would like to go back to the main screen, press this key.

CONTROL PANEL

Key	Description/Action
MODE	**Change the counting mode** This key can be used to select the bill counting mode. You can select CNT (Count Mode), VALUE (Mixed Mode), and VER (Sort Mode).
CUR	**Change the currency mode** This key can be used to select which currency you will be counting. 1. USD – United States Dollar 2. CAD – Canadian Dollar 3. EUR – Euro 4. KRW – South Korean Won
PRINT	**Print Function** This key can be used to print a detailed count report
BATCH	**Batch Mode** This key can be used to count in batch mode. Press the 10 numeric batch keys from 0 to 9 to set the batch number. The batch function will be On. When clearing the batch number, press the "BATCH" key, enter 0, and wait 5 seconds (or press the "START" key) for the batch function to turn off.

PRODUCT OPERATION

1. PLACING BILLS INTO HOPPER

It is very important to place the bills into the hopper correctly because recognition performance of the bills is highly affected by the arrangement of the bills. Please avoid counting bills in bad conditions such as wet, excessively dirty, folded, curled notes, or with foreign material like clips, bands, etc., as it may cause a malfunction of the machine.

2. SELECTING AUTOMATIC/MANUAL COUNTING

The machine is preset to Automatic Mode.

In Automatic Mode, when the hopper sensor detects banknotes on the hopper, the machine will automatically start to count the bills.

To change to Manual Mode, press the "M.A" key and the "AUTO" will remove from your screen (right image).

In Manual Mode, the machine will not count the bills automatically even though the bills are on the hopper. When the user presses the "START" key manually, the machine will count the notes.

While counting, the machine will display the number of the bills on the TFT display. The machine might stop counting when it meets the conditions described below:

- No bills on the hopper
- The number of the bills counted is the same as the batch number set in Batch Mode.
- Errors have occurred.

When the machine finishes counting without errors, the final number of counted bills will be displayed on the TFT screen.
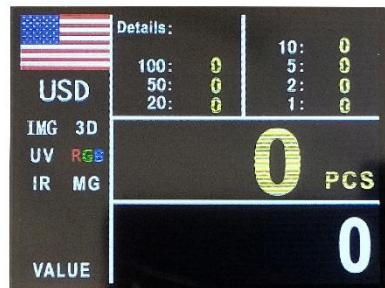
3. COUNTING

- To count banknotes, place them in the hopper. The machine will start counting banknotes automatically if in AUTO Mode. If in MANUAL Mode, the user must press the "START" key. The machine will stop calculating when the hopper is empty. Pieces of counted banknotes will be shown on the display.

- If an error occurs during operation and the machine stops, an error message will be displayed. To clear the error, press the "C" key. The machine will solve the problem automatically, however if it fails to clear a jam or there is some other mechanical error, please remove the jammed bills manually and check the error messages in the troubleshooting section. Then, press the "C" key again to clear the error message.

COUNT MODE

In this mode, the machine is only counting the bills without any denomination recognition and without counterfeit detection. To turn on the counting mode, press the "MODE" key on the control panel. The display will show CNT, which means the mode is active.


VALUE MODE

In this mode, the machine can count a mixed bundle of banknotes from different denominations. To turn on value mode, press "MODE" key on the control panel. The display will show VALUE, which means the mode is active.

SORT MODE

In this mode, the machine is set to calculate one given denomination. The denomination is set automatically according to the first banknote when counting. If the machine detects another denomination, the counting will stop, and an error code will appear. To turn on the sort mode, press the "MODE" key on the control panel. The display will show VER, which means the mode is active.
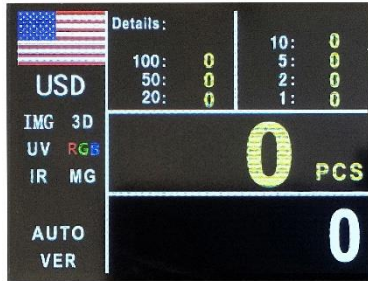
4. **ADD MODE**

In this mode the unit will count multiple stacks of bills while keeping track of the total amount of bills counted. To switch to ADD Mode, shortly press the "ADD" key. Place the first stack of bills to be counted on the hopper. The unit will start counting automatically. The number of bills will be displayed on screen. When ready to count the next stack of bills, empty the stacker and add the new stack to be counted on the hopper. The unit will continue counting and add the new count to the total.
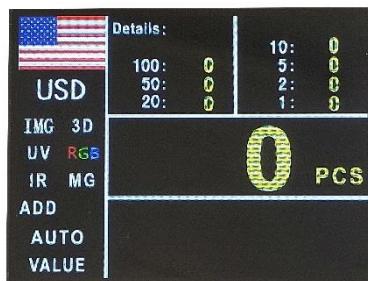
5. BATCH MODE

To use Batch Mode, press the "BATCH" key. You may use all number keys (1-9) to manually select your desired batch size.

The machine will start counting automatically after bills are placed on the feeding desk. When it reaches the set batch quantity it will automatically stop (even though bills are still in the hopper) and the number of bills counted will be displayed on the screen. When the hopper is emptied, the machine will automatically continue to count to the preset batch quantity again. Set the number to "0" and press the "BATCH" key again to switch off Batch Mode.

6. MENU

To enter the Service Menu, press the "SET" key and enter the password: 8888. This Menu will display:

1.User Setting 2.Version 3.Parameters Setting
4.Data Collect 5.Maintenance

From here the user can check on setting parameters, however it is not recommended that the user makes any changes. These settings are to be used by repair technicians.

7. THERMAL PRINTER (OPTIONAL)

Available Printers: Compatible via RS232 Printer. Only recommend to use with Royal Sovereign Thermal Printers.

This machine cannot use both the printer and external display at the same time. Before connecting printer, please unplug the external display and restart the bill counter. Connect a transfer cable to the printer input (shown on page 5). After counting banknotes and back in the main display, manually press the "PRINT" key.

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ERROR MESSAGES & TROUBLESHOOTING

Error Code	Error Cause	Error Solution
ERROR_FEED_SENSOR	Feed sensor error	Clean the sensor. If error continues, sensor may need to be changed. Contact Royal Sovereign if error persists.
ERROR_COUNT_IR_ON	IR counting sensor ON error	
ERROR_COUNT_IR_OFF	IR counting sensor OFF error	
ERROR_MOTOR_OR_CODER	Motor or encoder eroor	
ERROR_RGB_ON	RGB sensor ON error	
ERROR_RGB_OFF	RGB sensor OFF error	
ERROR_LENGTH_ON	Length sensor ON error	
ERROR_LENGTH_OFF	Length sensor OFF error	
ERROR_MT_SENSOR	Main MG sensor error	

ERROR MESSAGES & TROUBLESHOOTING *(Continued)*

Error Message	Cause of Error	Solution
E01	Note tilt	Remove the first bill from the stacker. Press "START" to continue counting.
E02	Double note	
E03	RGB no signal	
E04	Length error	
E05	Width error	
E06	Size error	
E07	No magnetic	
E08	No magnetic from left/right MG sensor	

ERROR MESSAGES & TROUBLESHOOTING *(Continued)*

Error Message	Cause of Error	Solution
E09	RGB error	Remove the first bill from the stacker. Press "START" to continue counting.
E10	Chain notes	
E11	Denomination error	
E12	UV error	
E13	The size does not correspond with the color	
E14	Denomination classification error	
E15	Magnetic denomination error	
E16	No IR calculation results	

ERROR MESSAGES & TROUBLESHOOTING *(Continued)*

Error Message	Cause of Error	Solution
E17	RGB Color Suspicious	Clean the sensor. If error continues, sensor may need to be changed. Contact Royal Sovereign if error persists.
MOTOR JAM	Motor jamming	
COUNT IR JAM	Note jamming on IR counting sensor	
RGB SENSOR JAM	Note jamming on RGB sensor	
NO BANKNOTE	No note (Please check feed sensor)	
COUNT IR ERROR	IR counting sensor error	

Elimination of General Errors

a) Self-test error

The machine will automatically go through the self-test after it is turned on. If the self-test proves to be successful, the machine will turn on counting face. If the self-test finds a problem, before turning to counting face, the machine will show the exact problem which is detected.

b) Unsmooth counting or inaccurate counting

Generally, the feeding mechanism can be adjusted in the following two ways to eliminate these kind of problems:

1. Feeding clearance adjustment (left image)

The adjustment of the feeding clearance should be conducted with reference to the banknotes to be counted. Turn the adjusting knob clockwise (to the direction of "+") to increase feeding clearance, counterclockwise (to the direction of "-") to decrease the feeding clearance.

2. The paper guide adjustment (right image)

The position of the paper guide should be in accordance with the length of the banknotes to be counted . When the length of the banknotes changes, the paper guide should be adjusted accordingly.

c) The elimination of the electricity cut-off

The possible reason for the electricity cut-off of the machine could be the burn-out of a fuse. Contact Royal Sovereign for repair.

NOTE: The power switch must be off, and power cord should be unpulled when conducting the above adjustments.

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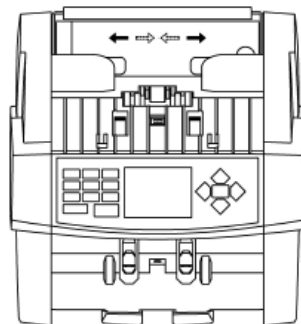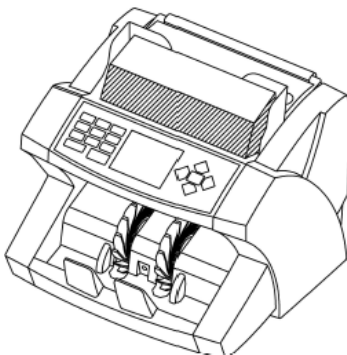
DAILY CARE

WARNING: Before dusting, turn the power switch off and disconnect the power cord from the machine. It is very important to clean all the sensors in the machine with a soft brush to avoid any paper particles or dust from sticking to the light transmitter or the light-receiver sensors. It is important to clean the inside of the machine occasionally. See below for cleaning cards which can clean the internal parts of the bill counter.

If necessary, the glass surfaces of the detectors may also be wiped with a soft cloth damped with alcohol.

To get the best results out of your bill counter, Royal Sovereign recommends using **Royal Sovereign Cleaning Cards (RBC-CLN)** to remove dirt, dusts, oils, and other contaminates from your bill counter. With the machine on, simply run the cleaning card through the machine like a bill. This cleaning card will run through and clean the sensors of dirt and other contaminates. Cleaning cards are recommended to be used after every 100 cycles.

CAUTION:
DO NOT CHANGE THE POSITION OF THE DETECTORS AND/OR OPTICAL SENSORS.

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SPECIFICATIONS

Model	EBC-1000
Dimensions (WxDxH)	10.6″ W x 9.7″ D x 9.6″ H
Weight	10.6 lbs.
Hopper Capacity	500 pcs
Stacker Capacity	200 pcs
Display Type	TFT
Currencies	USA, CAD, EUR, KRW
Counting Speed	1,200 pcs/min
Preset Batch Number	1 – 999 pcs
Counterfeit Detection	IMG, MG, IR, DD
Power Requirements	Input: AC100-240V, 50/60Hz Output: DC24V, 2.75A

ONE YEAR LIMITED WARRANTY

Royal Sovereign International, Inc. warranties this product to be free from defects in material and workmanship for a period of one (1) year. This warranty is extended to the original purchaser only.

This warranty only covers products that are properly installed, properly maintained, and properly operated in accordance with the instructions provided. This limited warranty does not cover any failures or operating difficulties due to normal wear and tear, accident, abuse, misuse, alteration, misapplication, improper installation, or improper maintenance and service by you or any third party.

Returned product will not be accepted without a Return Authorization number. To request a Return Authorization number, please visit us at www.royalsovereign.com. All transportation costs for the return of damaged product or parts will be the responsibility of the purchaser. Return defective product, in original packaging, to the address below.

Royal Sovereign International, Inc. requires reasonable proof of your date of purchase from an authorized retailer or distributor. Therefore, you should keep your receipt, invoice, or canceled check from the original purchase. The limited warranty shall be limited to the repair or replacement of parts which prove defective under normal use and service within the warranty period.

Royal Sovereign International, Inc. (and its affiliated companies) SHALL HAVE NO LIABILITY WHATSOEVER TO PURCHASER OR ANY THIRD PARTY FOR ANY SPECIAL, INDIRECT, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above exclusion and limitations may not apply to you.

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