



## Sentinel SB-1200

User Manual

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# 1.0 Machine Overview



Figure 1-1 Front Diagram



Figure 1-2 Back Diagram



**Figure 1-3 Top Diagram**



**Figure 1-4 Side Diagram**

# 2.0 Unpacking and Installation

## 2.1 Package Contents

Item Name	Picture	Quantity (Pcs)
Sentinel SB-1200		1
External Display		1
Power Cable		1
Bill Guides		2
Calibration Card		1
Cleaning Brush		1
Cleaning Cloth		1
Spare Fuse		1
User Manual		1

## 2.2 Installation and Use Location

As shown in figure 2-1, please keep clear of surrounding walls and reserve sufficient space for operation and maintenance.

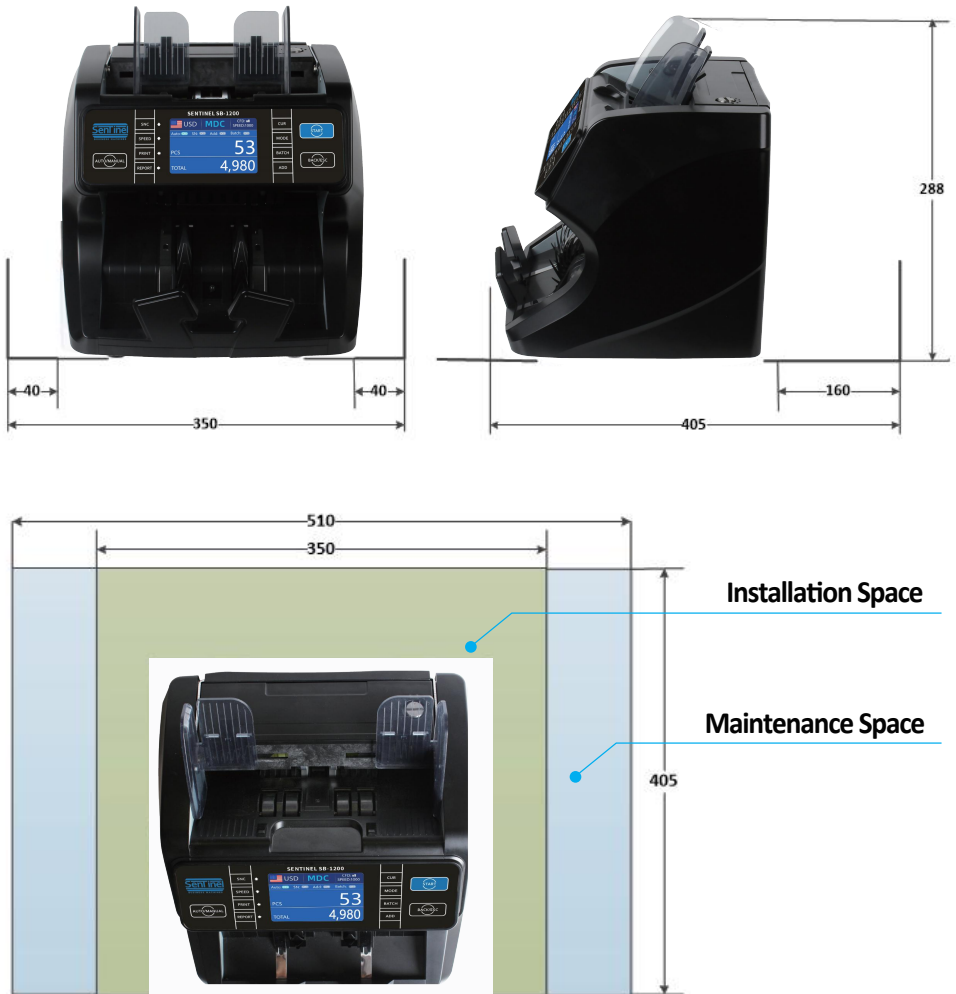


Figure 2-1 Installation and use location



## 2.3 Installation Instructions

### 2.3.1 Safety Precautions

- 1) This machine is designed specifically for indoor use. Do not install or use outdoors.
- 2) Place machine on a flat and stable surface.
- 3) Do not use or place combustible materials or items around or inside the machine.

### 2.3.2 Power Supply Connection

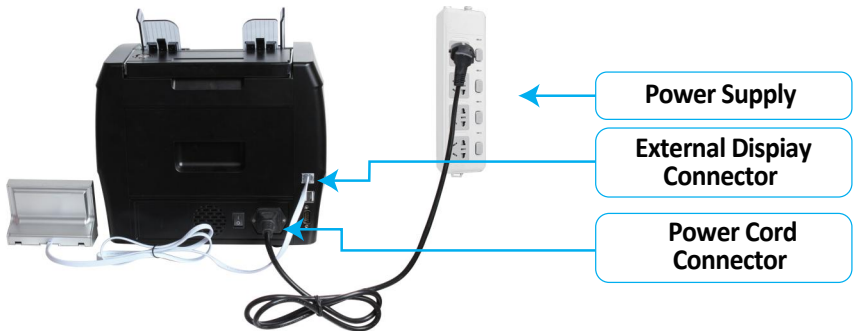


Figure 2-2 Power and External Display Connection

### 2.3.3 Bill Guide Installation



Figure 2-3 Bill Guides

# 3.0 Control Panel and Display

## 3.1 Control Panel

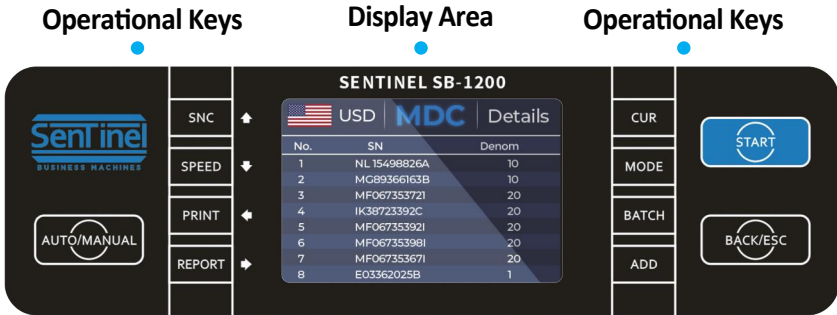


Figure 3-1 Display Appearance

## 3.2 Function Keys



**Auto/ Manual Key - Toggle between automatic start and manual start.**



**Navigation Keys**

**SNC**

**SNC Key - Activate or disable the serial number reading function.**

**SPEED**

**Speed Key - Change counting speed.**

**PRINT**

**Print Key - Print your count results.**

**REPORT**

**Report Key - Review your count results.**

- CUR** Currency Key - Select desired currency.
- MODE** Mode Key - Select counting. mode (hold to set CFD level).
- BATCH** Batch Key - Access batch counting function.
- ADD** Add Key - Activate or disable the adding function.
- START** Start Key - Start or restart counting.
- BACK/ESC** Back/ ESC Key - Stop the count or return to previous screen.

### 3.3 Display Interface

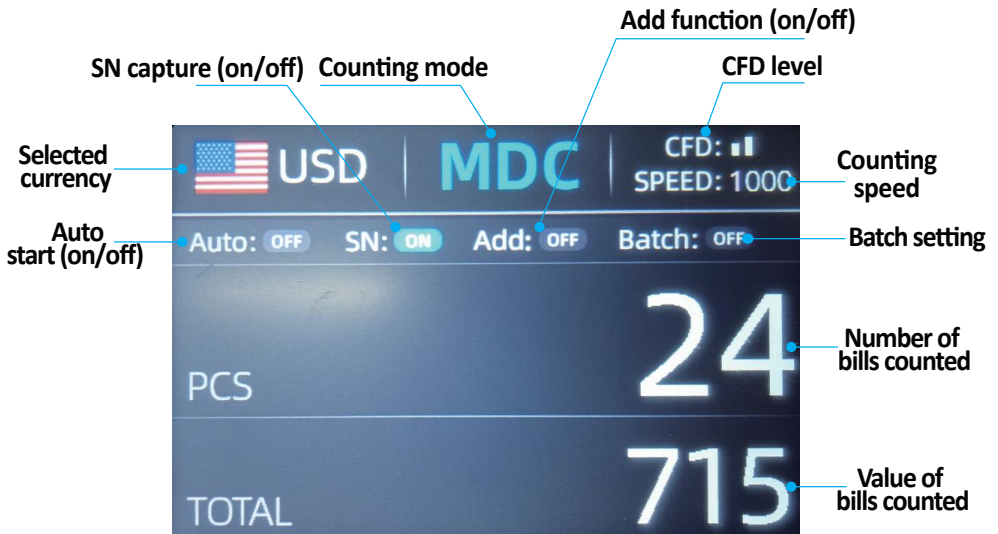


Figure 3-2 Main Display Interface

# 4.0 Operating Instructions

## 4.1 Start-up

After connecting the machine to a power source, flip the power switch to the on position. The machine will perform a brief self-check, which takes about 20 seconds.



Figure 4-1 Start-Up Screen

The machine will spin the banknote processing wheels several times before entering the main counting screen, as shown in figure 4-2.

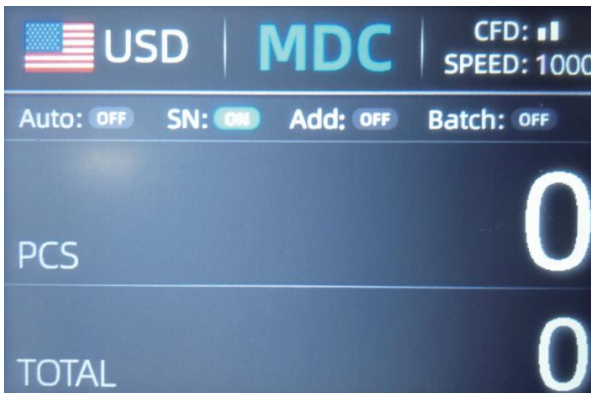



Figure 4-2 Main Counting Screen

## 4.2 Counting Mode

The default counting mode is MDC. You can cycle between the three counting mode options by pressing the  key on the control panel.

### 4.2.1 MDC Mode

In MDC mode, the counter will count all denominations of the selected currency, recording both the total value of the bills counted, as well as the total number of bills counted. In this mode, the counter has two available counting speeds - 800 or 1000 bills per minute.



Figure 4-3 MDC Mode



Figure 4-4 MDC Mode after counting

### 4.2.2 SDC Mode

In SDC mode, the counter will count a single denomination of the selected currency, recording both the total value of the bills counted, as well as the total number of bills counted. The denomination counted is based on the first bill scanned, and all other denominations will be rejected. This function can be used to sort bills manually. In this mode, the counter has two available counting speeds - 800 or 1000 bills per minute.



Figure 4-5 SDC Mode



Figure 4-6 SDC Mode after counting

### 4.2.3 CNT Mode

In CNT mode, the counter will only count the number of bills, and it does not track the denomination of the bills or the currency. **NOTE:** while using CNT mode, counterfeit detection is disabled. In this mode, the counter has three available counting speeds - 800, 1000, or 1200 bills per minute.



Figure 4-7 CNT Mode



Figure 4-8 CNT Mode after counting

## 4.3 Currency Options

While the counter is powered on, a flag and 3-digit currency code will appear in the top left corner of the display, indicating the current currency setting. The currency is set to USD by default. To change the currency, press the **CUR** key, use the arrow keys to highlight the desired currency, then press the **START** key.

### 4.3.1 Automatic Currency Recognition

When the currency is set to AUTO, the counter will automatically recognize the currency of the first bill it counts. The flag and 3-digit code for this currency will appear in the top left corner of the display, and the machine will count all denominations of the currency. All other currencies will be rejected.



Figure 4-9 Currency Selection Screen



Figure 4-10 Auto Counting Screen

### 4.3.2 Multi-currency Counting

When the currency is set to MULT, the machine can count mixed bills of the following currencies - USD, CAD, MXN and EUR. When MULT is selected as the currency, the only counting mode option is MDC.





Figure 4-11 Currency Selection Screen

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


Figure 4-12 Multi Currency Counting Results

## 4.4 Optional Counting Functions



### 4.4.1 Automatic Start

When automatic start is enabled, the machine will start counting as soon as bills are placed into the hopper. If automatic start is disabled, the machine will not start counting until you press the  key. Automatic Start is on by default, and can be enabled or disabled by pressing the  key.

### 4.4.2 Serial Number Capture

The  key is used to enable or disable the serial number capture function, and this function is enabled by default. When serial number capture is enabled, the serial numbers of the bills counted can be viewed in the counting report or printed for your records.

### 4.4.3 Batch Counting

The batch counting function is a convenient way to prepare bills for bundling or strapping. Press the  key to enter the batch menu, as shown in figure 4-13. Pressing the  key while in this menu will cycle the batch setting from off, 50 pieces and 100 pieces.

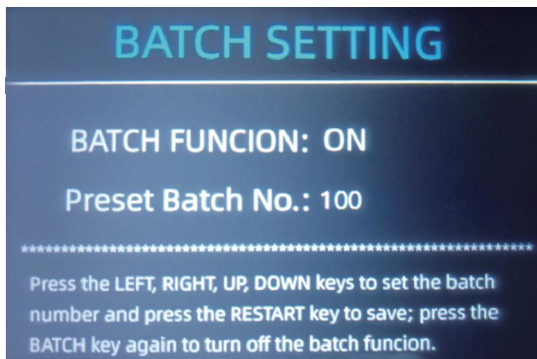


Figure 4-13 Batch Menu



The batch quantity can be changed by pressing the arrow keys. Pressing the **◀** key will increase the batch by 10, pressing the **▶** key will decrease the batch by 10, pressing the **⬆** key will increase the batch by 1, and pressing the **⬇** key will decrease the batch by 1. After confirming the batch quantity, press the **START** key to return to the main counting screen.

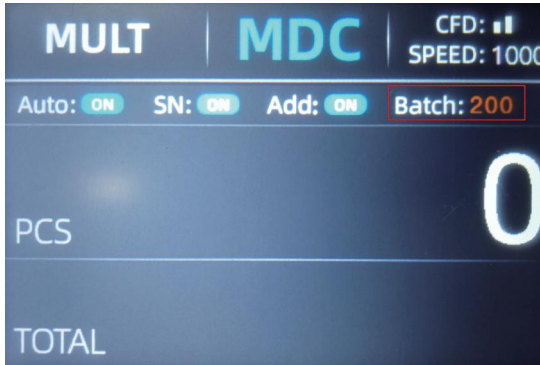


Figure 4-14 Batch Number

**NOTE:** The stackers maximum capacity is 200 bills, so the batch should be less or equal to 200.

#### 4.4.4 Adding Function

During normal operation, the count is reset with every new batch of bills placed into the hopper. The adding function allows you to keep a running total for large counting jobs. The adding function is disabled by default, and can be enabled by pressing the **ADD** key.

#### 4.5 Counting Speed

While in MDC and SDC counting mode, there are two available counting speeds - 800 and 1000. While in CNT mode, there are three options - 800, 1000 and 1200. The default counting speed for all three counting modes is 1000. The counting speed can be changed by pressing the **SPEED** key.



Figure 4-15 Speed Indicator

## 4.6 Count Detail Report

After performing a count in MDC or SDC mode, you can view the count details by pressing the **REPORT** key. The report includes the total number of bills counted, the total value counted, as well as a breakdown of each denomination counted. Press the **BACK/ESC** key to return to the main count screen.

USD		MDC		Details	
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 4-16 Count Details

If serial number capture was enabled during the count, you can view the serial numbers of the bills counted by pressing the **REPORT** key a second time.

USD		MDC		Details	
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 4-17 Serial number Report

## 4.7 Count Detail Printing

If the machine is connected to a printer, the count details can be printed. After performing a count, press the **PRINT** key to enter the print menu.

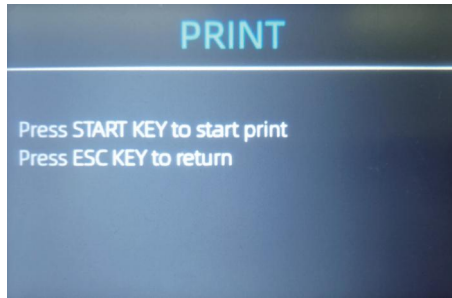


Figure 4-18 Print Menu

Press the **START** key to print the count details. If serial number capture was enabled during the count, the serial numbers of the bills counted will be printed as well.

## 4.8 Counterfeit Detection Level (CFD)

Counterfeit detection sensitivity can be adjusted by pressing and holding the **MODE** key until you hear a beep. Press the **MODE** key again to cycle between the three available sensitivity options.



Figure 4-19 Counterfeit Detection Level

**NOTE:** Setting the CFD level to zero will disable counterfeit detection entirely.

# 5.0 Maintenance

Regular cleaning and calibration are required to maintain optimal operation of your bill counter.

## 5.1 Cleaning the Machine

Circulated bills collect dust, dirt and grime that can impair the operation of your bill counter's sensors and feeding system. Any dirt or dust stuck to the sensors can cause error messages and erroneous counting results. Regular cleaning is required for reliable counting.

**NOTE:** Please move the power switch to the off position before cleaning. Do not use any liquids or chemicals in the cleaning process.

### 5.1.1 Clean the Hopper Sensor

As shown in Figure 5-1, clean the hopper sensor with a nylon brush or cleaning cloth.

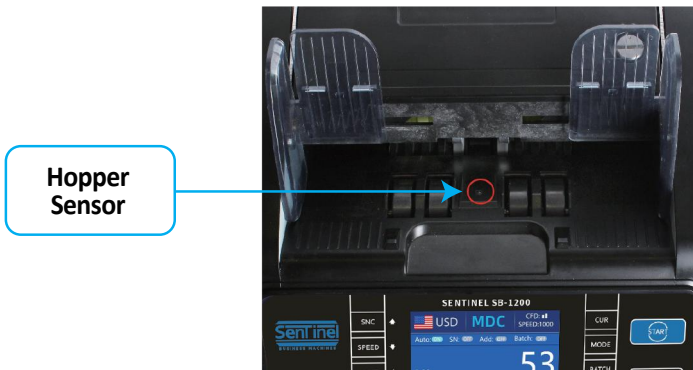


Figure 5-1 Hopper sensor

## 5.1.2 Clean the Bill Feeding Wheel

As shown in Figure 5-2, clean the bill feeding wheel with a nylon brush or cleaning cloth.

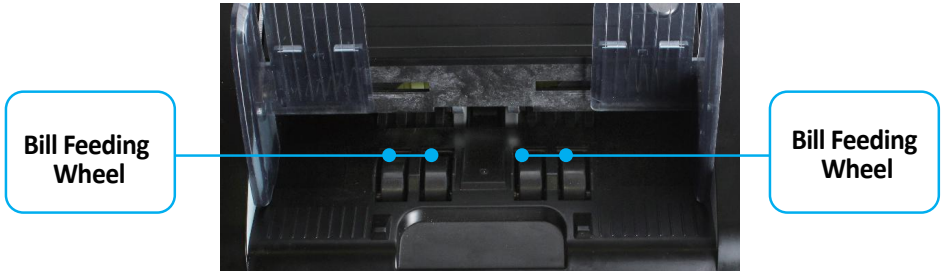


Figure 5-2 Bill Feeding Wheel

## 5.1.3 Clean the Feed Gap

As shown in Figure 5-3, clean the feed gap with a nylon brush.

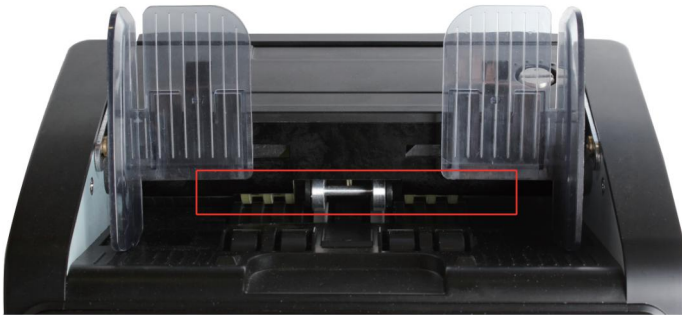


Figure 5-3 Feed Gap

### 5.1.4 Clean the Stacker Sensors

As shown in Figure 5-4, clean the stacker sensors with a nylon brush or cleaning cloth.

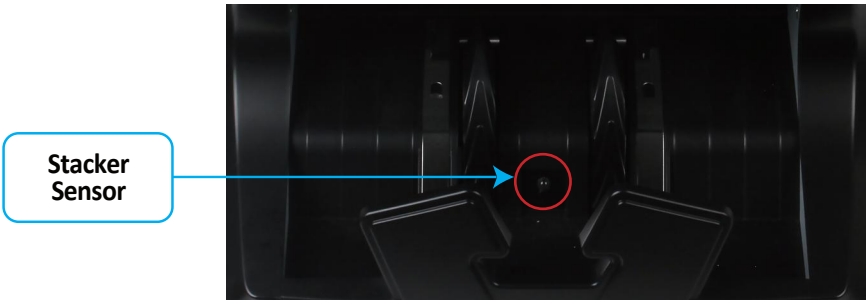


Figure 5-4 Stacker Sensors

## 5.2 Cleaning the Internal Sensors

Open the back cover to access and clean the internal sensors.

**NOTE:** Please move the power switch to the off position before cleaning. Do not use any liquids or chemicals in the cleaning process

## 5.2.1 Open the Back Cover

As shown in Figure 5-5, open the back cover.



Figure 5-5 Open Back Cover

## 5.2.2 Open the Internal Cover

As shown in Figure 5-6, open the internal cover. Press the handle down firmly to release the internal cover.

The Handle  
of Internal  
Back Cover

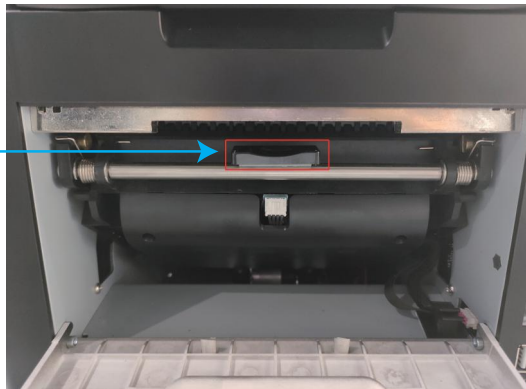


Figure 5-6 Internal Cover handle

### 5.2.3 Clean the Lower CIS Bar and UV Sensor

As shown in Figure 5-7, clean the lower CIS bar with a cleaning cloth and clean the UV sensor with a nylon brush.

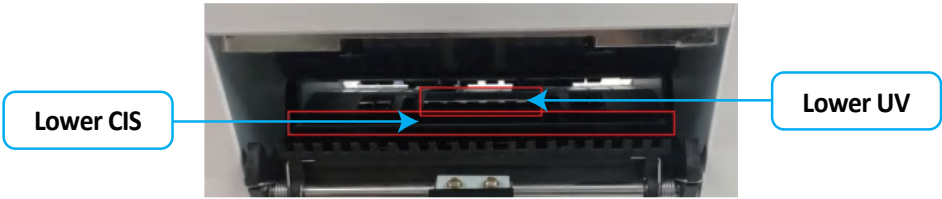


Figure 5-7 Lower Sensors

### 5.2.4 Clean the Upper CIS Bar

As shown in Figure 5-8, clean the upper CIS bar with a cleaning cloth.

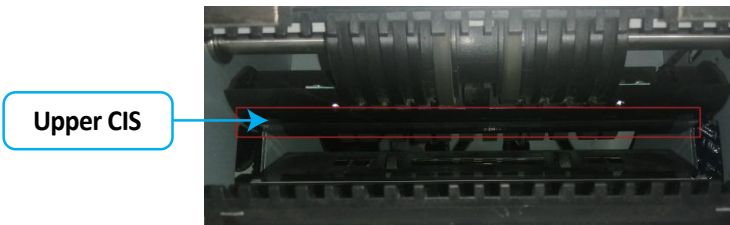


Figure 5-8 Upper CIS Bar

## 5.3 Bill Jams

In the event a bill gets stuck in the machine, turn the power switch to the off position, then rotate the bill feeding wheel towards the front of the machine, as shown in Figure 5-9.



Figure 5-9 Wheel Rotation



## Bill jams can be caused by the following:

- 1) Foreign Objects - the bill channel is blocked by a foreign object (rubber band, paper clip, tape, etc). Open the back cover, remove any foreign objects or debris, and clean the internal sensors.
- 2) Feed Gap - the feed gap is set either too tight or too loose. Calibrate the feed gap as described in section 5.4.
- 3) Damaged Bill - the jammed bill was defective in one way or another, as shown in Figure 5-10. It is not recommended to count damaged bills.



Figure 5-10 Bill Damage

## 5.4 Feed Gap Calibration

A properly calibrated feed gap will ensure smooth counting and trouble-free operation. Bill jamming, double bill errors, chain note errors, and half note errors can be caused by a misaligned feed gap. The feed gap may also need to be adjusted when counting new, mint condition bills or when counting heavily circulated bills. The feed gap can be fine-tuned by adjusting the feed gap screw.

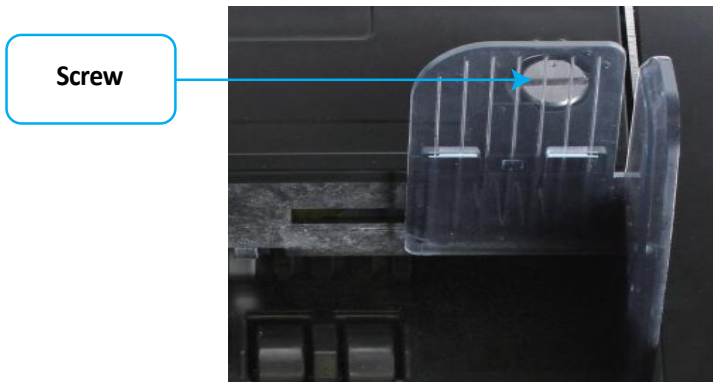


Figure 5-11 Feed Gap Screw

Turn the feed gap screw clockwise to make the feed gap wider, and counterclockwise to make the feed gap narrower.



Figure 5-12 Wider



Figure 5-13 Narrower

**Fine tune the feed gap as follows:**

- 1) Disable automatic start by pressing the  key.
- 2) Insert a single bill into the gap between the rollers, as shown in Figure 5-14.

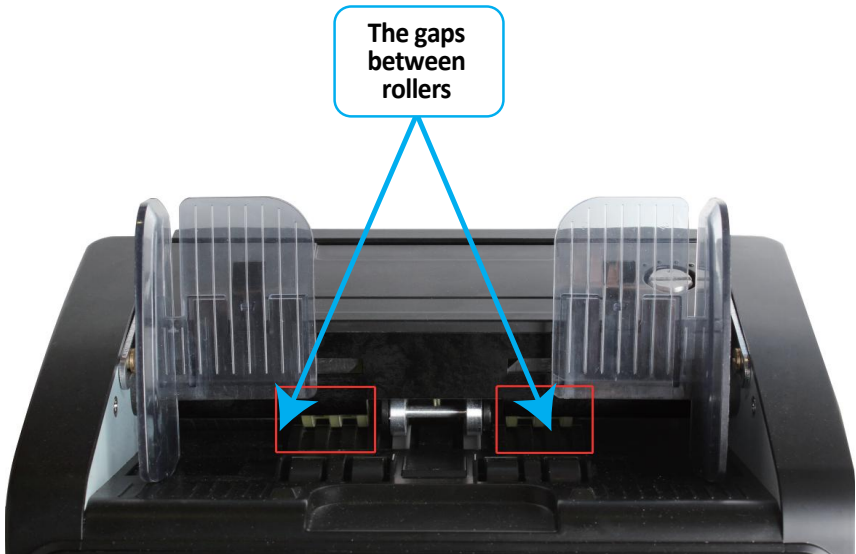


Figure 5-14 Feed Gap



Figure 5-15 Check The Gap

- 3) If the bill does not fit into the gap, or is hard to fit into the gap, this means the feed gap is set too small. Rotate the feed gap screw clockwise to open the gap wider.
- 4) If the bill fits loosely into the gap, or you can fit more than one bill at once, this means the feed gap is set too wide. Rotate the feed gap screw counterclockwise to reduce the gap.
- 5) Use the banknote to check both sides of the gap between rollers. Fine tune the feed gap screw until the bill can be inserted into both sides smoothly.



Figure 5-16 Fine Tune The Feed Gap

# 6.0 Technical Specifications

<b>Counterfeit Detection</b>	<b>Image (Dual CIS), Magnetic, Infrared, Ultraviolet</b>
<b>Error Detection</b>	<b>Double note detection, half note detection, chain note detection</b>
<b>Supported Currencies</b>	<b>USD, CAD, MXN, EUR, GBP, CHF, COP and CRC</b>
<b>Hopper Capacity</b>	<b>500 bills</b>
<b>Stacker Capacity</b>	<b>200 bills</b>
<b>Counting Speed</b>	<b>800, 1000 pcs/min (MDC &amp; SDC MODE)</b>
	<b>800, 1000, 1200 pcs/min (CNT MODE only)</b>
<b>Size of Countable Notes</b>	<b>50×110 ~ 90×190 mm</b>
<b>Thickness of Countable Notes</b>	<b>0.075 ~ 0.15 mm</b>
<b>Power Supply</b>	<b>AC 100V-240V,50-60Hz</b>
<b>Weight</b>	<b>6.5kg (14.3 lbs)</b>
<b>Dimension</b>	<b>270×245×288mm (10.6×9.6×11.3 Inches)</b>