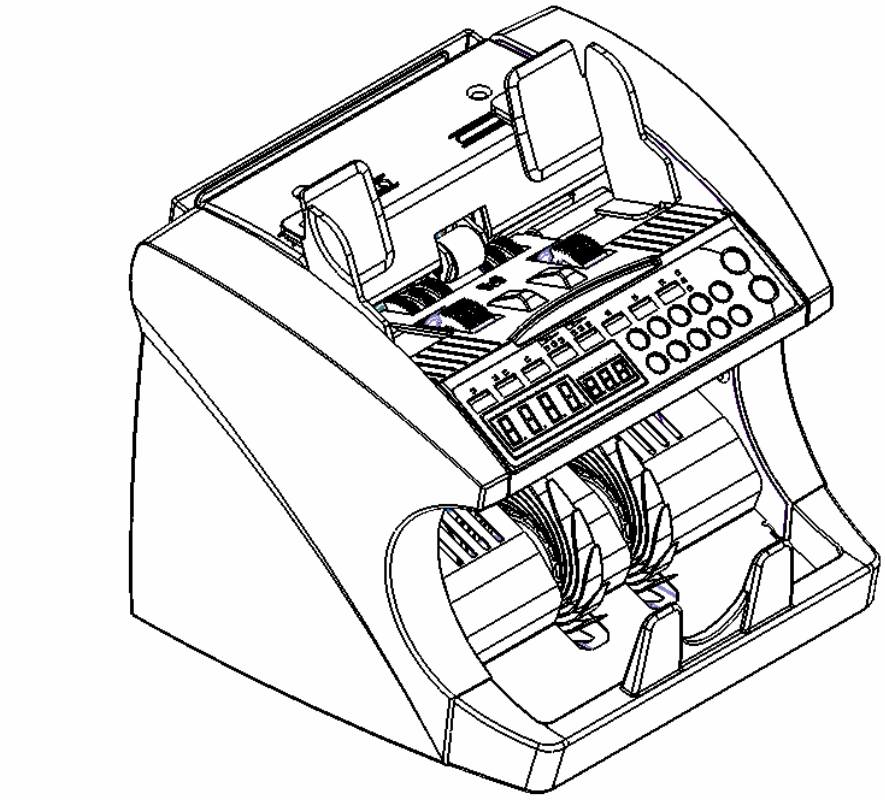
User's Manual

HC-150 Series



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1. Introduction

The Model HC-150 Series Currency Counter offers outstanding performance at an affordable price. Its compact new design features super high speed counting with simplicity of operation with optional counterfeit note and denomination detection.

Using various technologies, the HC-150 series displays currency status.

With a wide range of features and options, the HC-150 series is also designed for rugged reliability, even in the most demanding applications.

Model Applications : HC-150 Series

Model	HC-150	HC-150D
Counting	✓	✓
USD Detection	N/A	✓
EURO Detection	N/A	N/A
Local Currency Detection	N/A	N/A

✓ : Applicable
N/A : Not Applicable

2. Installation and Precautions

2.1 Counter Location

-The surface should be smooth, level and sturdy.
-No exposure to direct sunlight or chemicals.
-Avoid placing the machine in extremely hot areas.

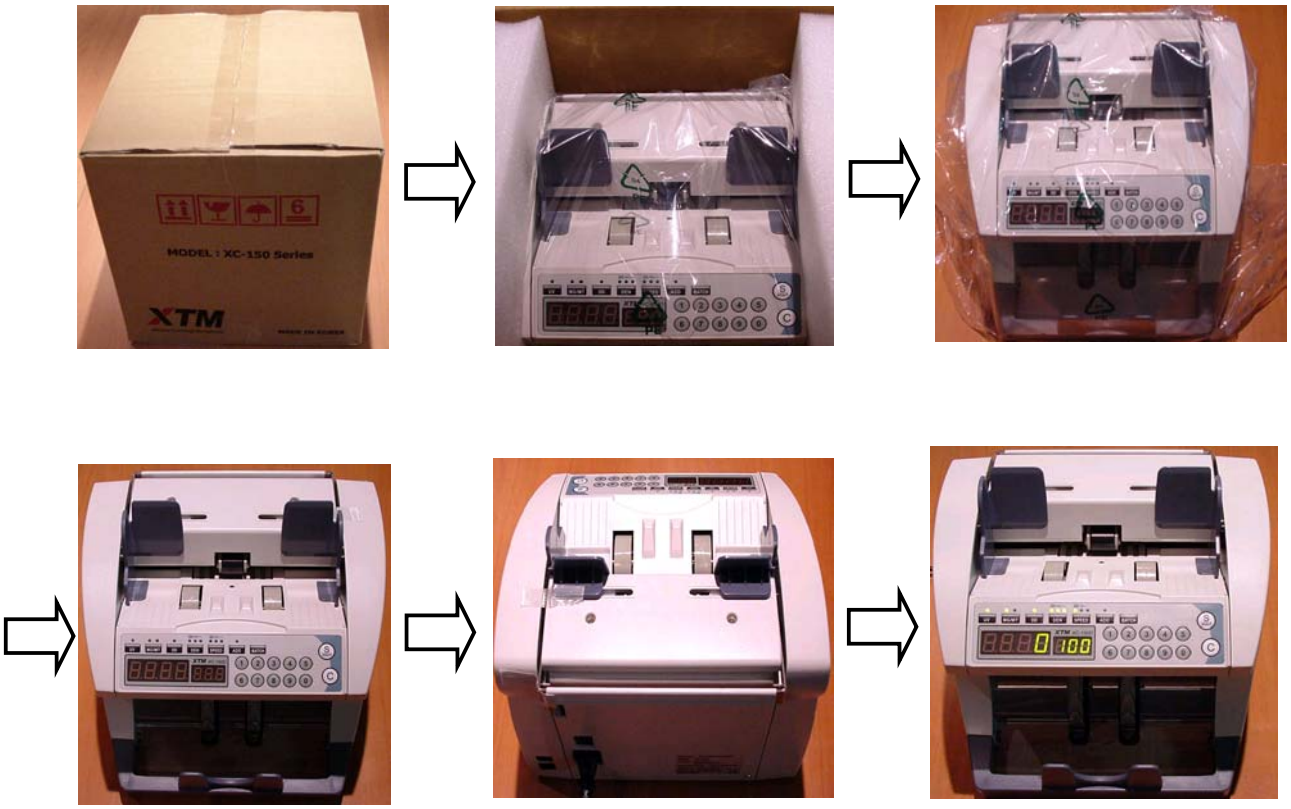
-Do not install in an environment with extreme temperature changes.

-Do not install in a highly dusty area or where the machine is exposed to vibration.

2.2 Power Requirements

Free Voltage: 90~ 264VAC, 50/60Hz (Auto Ranging)

2.3 Installation



-Remove the banknote counter from the box.
-Remove the packing vinyl from the banknote counter.
-Set the counter on a sturdy and level surface.
-Connect the power cord from the banknote counter into a convenient A/C outlet.
-Switch the power to “ON” mode. When initializing the banknote counter will beep and check the sensors. After initialization is -complete, the detector will display “0” and “100”, if there are no errors.

If the operation panel displays “0” and “100”, the machine is calibrated and ready for use.

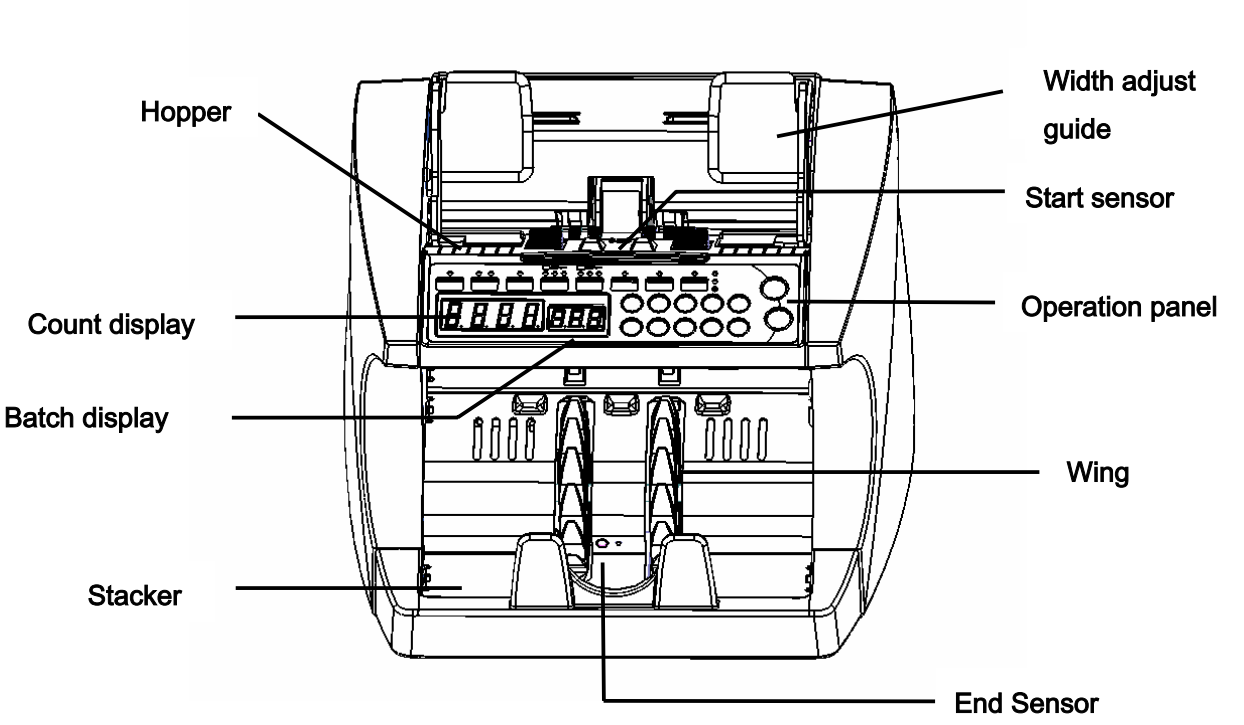
-Check the status of machine using service mode function. Users of models, which have counterfeit detection, must select the type of counterfeit detection to be used before using the count function.

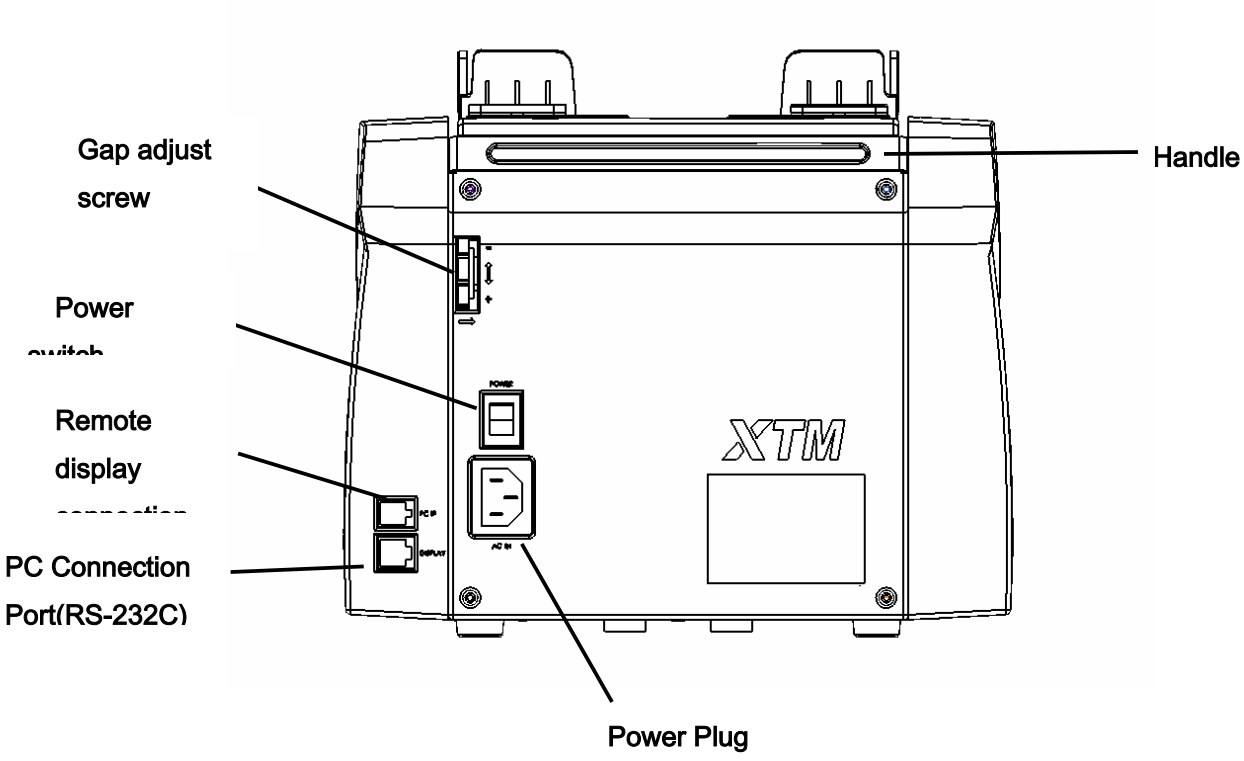
Precaution
If the initialization doesn’t work properly, please refer to the error code on the back of the user’s guide.
If it still doesn’t work properly, please contact your local Hedman distributor for service.

2.4 Precautions during Installation

Insert the power cord securely in the back receptacle.
Place the banknote counter close to the wall outlet.
If an extension cord is needed, ensure the capacity is over 250V, 8A and does not extend more than 6 feet.
If you want to move the banknote counter, turn off the power before unplugging.

3. Guide to Components

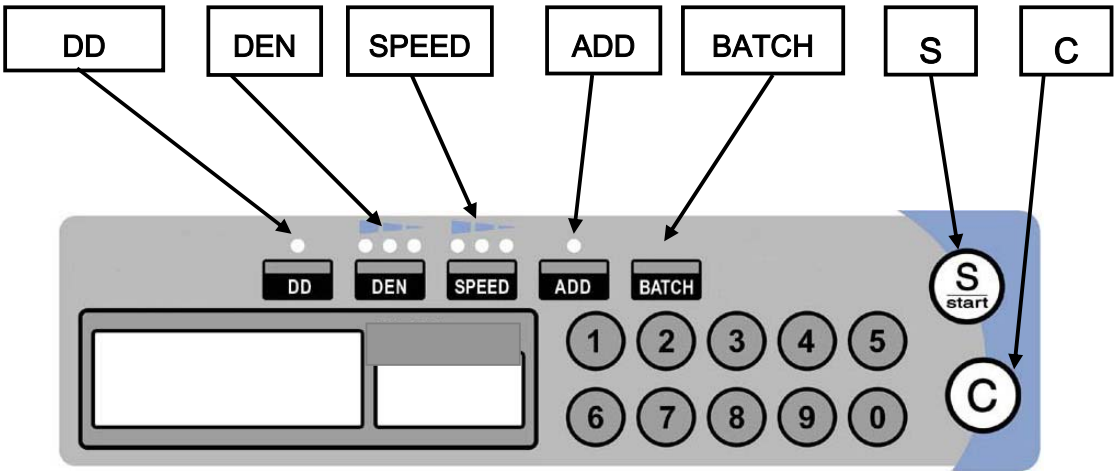




No.	Component	Function
1	Hopper	Set currency here The start sensor is located in the hopper. The hopper includes the guide to set the banknote width.
2	Stacker	Counted banknotes are stacked here.
3	Adjustment Guide	Adjusts the guide's width to the note size for the stable feeding into the banknote counter.
4	Start Sensor	Detect's banknotes in the hopper.
5	End Sensor	Detect's banknotes in the stacker.
6	Operation Panel	Provides the buttons to choose the operation mode and the indicators to show the machine state.
7	Counting Indication	This indicator shows the number of sheets counted. The indicator has 4 digits LED, and it displays from 0 to 9999.
8	Batch Indication	Indicates the batch number or displays a error message in an error mode.
9	Power Switch	Main power ON/OFF Switch.
10	Remote Display Connection Port	The banknote counter can be connected to an optional display.
11	PC Connection Port (RS-232C)	(Optional) - the banknote counter can be connected to PC through a serial communication, RS-232C.

4. Guide to Control Panel

< Control Panel for HC-150 >



In order to use the banknote counter correctly, please read the instructions carefully.

The function of "C" Key (Clear Key)
Clears all displayed information.
Clears error codes and restarts machine.
Releases a jammed note.
* Once you press the "C' key, if the jam is not cleared, you will need to manually remove the currency from the inside of the machine.

The function of "S" Key (Start Key)
Restarts machine after detecting abnormal currency.
* After removing abnormal currency the "S" function will continue to count the rest of banknotes on the hopper.
While operating in the manual count mode it functions as the Start key.

The function of Number Keys: "0" ~ "9"
Use this key to input the number that will be counted.
* For example, if you want to count 90 sheets, put "9"and "0", and then "90" will be set as the number of the batch count.

The function of "Batch indicator"
Displays the number of sheets of banknotes in which you have entered to be counted.

The function of "Count Indicator"
Displays the number of sheets that have been counted.

The function of "DD" Key
Detects the size of the banknote.

* If the width of banknote differs from the first note passed through the machine by more than 4mm, the counter will display “dF” error and will stop.
In the “DD” mode, the counting speed will be set to 1,200 sheets automatically even in HIGH speed.

Setting up the “DD” Key
In the size detection mode:

●	●●●	●●●	●	
DD	DEN	SPEED	ADD	BATCH
ON	AUTO	HIGH	OFF	

In the simple counting mode:

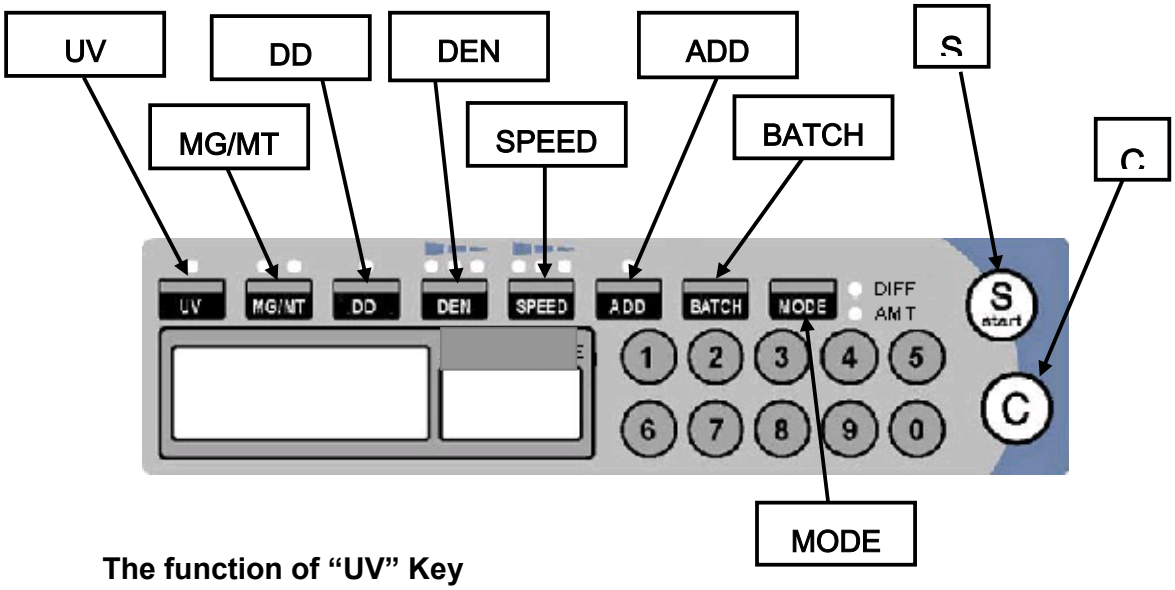
●	●●●	●●●	●	
DD	DEN	SPEED	ADD	BATCH
OFF	AUTO	HIGH	OFF	

The function of “DEN” Key
Adjusts the density of the banknote can be adjusted at four levels;
AUTO/HIGH/MIDDLE/LOW
“AUTO” is set as the default.
*In the “AUTO” mode, the machine detects the density of the first note passed through the machine and sets the density standard for all currency passed. Therefore, if a very dirty currency is detected first, the Double Error (db) could be displayed.
HIGH, MIDDLE or LOW can be used depending on the type of currency fed:
HIGH: Thick, dark or dirty currency.
MIDDLE: Median between high level and low level currency
LOW: Thin, bright, currency.
AUTO: Uses the density value of the first passed currency in the hopper.
*If you turn the switch off, and then back on, the counter will return to the initialization of the latest mode.

The function of “SPEED” Key
Counting speed varies as follows:
HIGH : 1,500 sheets/min
MIDDLE : 1,200 sheets/min
LOW : 1,000 sheets/min
* If you turn the switch off, and then back on, the banknote counter will return to the initialization of the latest mode.
* If the counterfeit detection “UV” or “MG/MT” key is turned on, the counting speed will be set to LOW automatically (1000 sheets/min.).
* In the amount or different denomination detection mode, if the “DIFF”, “AMNT” key is turned on, the counting speed will be limited to MIDDLE speed, automatically.

The function of “ADD” Key
Adds each batch together.
* “C” (Clear) key, the cumulative number will be reset. If the “ADD” mode is released, the data is saved in memory. Therefore if you go back to “ADD” mode, the last cumulative number is displayed.

< Operation Panel of HC-150D >



The function of “UV” Key
Detects counterfeit bills using the UV (Ultra Violet) sensor.
* The default is that UV is ON under counterfeit detection mode for all kinds of currency.

The function of “MG/MT” Key
In the “MG/MT” mode, the counter detects a counterfeit using the MG/MT (Magnetic) sensor.

The default setting is different according to the currency being used:

●●	●●	●●
MG ON	MT ON	MG/MT ON
USD	EURO	RMB

* For USD: MG is only ON by default. But when MG and MT are all ON, this is only for detecting the counterfeit bill of $100. Please be careful not to count the other denominations except $100 in this setting.

Counterfeit detection mode

●	●●	●	●●●	●●●	●	
UV	MG/MT	DD	DEN	SPEED	ADD	BATCH
ON	ON	ON	AUTO	HIGH	OFF	

In the simple counting mode

●	●●	●	●●●	●●●	●	
UV	MG/MT	DD	DEN	SPEED	ADD	BATCH
OFF	OFF	ON	AUTO	HIGH	OFF	

*In the counterfeit detection mode, the counting speed will be 1,000 sheets.
In case of the damaged currency, dirty currency, or taped currency, the counter may display the CF error.
If this error occurs, pass the bill through the counter again. If this error is still displayed, the currency is suspicious as a counterfeit.

5. Counting

5.1 Precaution

Before starting, adjust the guide to fit the banknote size.

Check the key setting.

Folded or curled currency should be straightened before placing in the hopper.

Damp or badly stained currency should be removed.

Ensure no coins, clips, or pieces of paper are in the bundle of currency.

While counting, if there are any error messages, take the currency out, and then pass through it again. If the error occurs again, it could be counterfeit.

Correct

Incorrect

5.2 Various Counting Methods

Auto/Manual Counting

In manual counting, place the currency in the hopper, and press the “S” key. The counter will start counting.

In auto counting, once you place the currency in the hopper, the counter starts counting automatically without pressing any key.

Set up for manual counting

Turn the power switch on, pressing the “S” key, the counter will enter into the service mode.

Press the “BATCH” key, and select the AUTO or MANUAL.

If the AUTO is on, the counter mode will be auto.

A	U	t	o		o	N	

To change the mode, press the “BATCH “,

If the AUTO is off, the counter mode will be in the manual mode.

A	U	t	o		o	F	F

If the power switch is turned off, and back on, the manual mode will be set.

BATCH Counting

Allows user to select the number of banknote to count.

* If you turn the power switch on, the counter is set at 100 sheets by default. To change the number, press the “BATCH” key, and the batch display scrolls up in numerical order. (5>10>20>25>50>100)

To clear the “BATCH” mode, press the “C” key, then the batch display will show “0”.

Counterfeit Detection

Detects a counterfeit during counting. Before starting, press the “UV, MG/MT” key, the corresponding LED will be on.

*If the counter detects a counterfeit note, the beep will sound 3 times, it will then display “CF/CF2”. The counter will stop automatically.

For “CF”, remove just the top note in the stacker, and then press the “C” or “S” key to continue.

For “CF2”, remove the top two notes, and then press the “C” or “S” key to continue.

6. Error Messages

While counting, if the counter detects an error, the message will display the Error and Status Messages on the operation panel as follows:

No	Message	Definition	Description and Solution
1	JAn	Jam Error	Currency is jammed in the counter. → Remove the jammed currency.
2	Fdn	Feeding Error	Feeding error occurs. → Check currency status in the hopper.
3	Chn	Chain Error	Detects a currency longer than 30% of standard or two sheets passing through without separation. → Check the currency status in the stacker.
4	Sh Sh2	Short Error	Detects a currency shorter than 50% of standard or a banknote was damaged. → Check the currency status in the stacker.
5	hF hF2	Half Error	A half currency is detected in the horizontal direction. → Check the currency status in the stacker.
6	db db2	Double Error	Double sheets have passed together without separation or a dirty note has passed. → Check clearance between the base roller and reverse roller. → Check the currency status in the stacker.
7	dF dF2	Different Error	In the DD mode, a different width currency, which is more than 4 mm in the vertical direction, is detected or the currency is passed after detecting dF error. If the DD mode is off, and the width is more than 12 mm.
8	SEv	Skew Error	A skew error has occurred. → Rearrange the currency in the hopper.

No	Message	Definition	Description and Remedy
9	CF CF2	Counterfeit Error	A counterfeit note is detected. → Check the currency status.
10	StA	Stacker Error	The machine starts counting another batch while currency remains in the stacker. → Remove the currency from the stacker, and then start another batch.
11	BAt	Batch Count Error	A batch error has occurred. → Recount whole banknotes in the stacker.

Errors during Initialization

Once the power is turned on, the machine performs a self-diagnosis. If the counter detects an error, the message will display the error code and status messages on the operation panel as follows:

<Errors that the user can correct>

No	Message	Definition	Cause and Description
1	E01	Start Sensor Error	When turning the power switch on, the START sensor detects a currency or the sensor is dirty. → Remove the currency or clean the sensor.
2	E02	End Sensor Error	When turning the switch on, the END sensor detects a currency or the sensor is dirty. → Remove the currency or clean the sensor.
3	E03 E04	IR Sensor Error	When turning the switch on, the IR sensor in the machine detects a currency or the sensor is dirty. → Remove the currency from the machine or clean left and right upper and lower sensors.
4	E08	IR Level Difference Error	When turning the switch on, the level value of IR sensor between left and right is different. → Remove the currency or check the sensor or clean.

<Errors that required a authorized Hedman distributor>

No	Message	Definition	Cause and Description
1	E01	Start Sensor Error	If user can't remedy the error, please call to dealer.
2	E02	End Sensor Error	
3	E03 E04	IR Sensor Error	
4	E08	IR Level Difference Error	
5	E09	Serial EEPROM Error	
6	E14	Encoder Error	The Encoder Error.
7	E21	CSU-L Sensor Error	The left IR sensor on the CSU has an error because of bad connection between MCU and CSU.
8	E22	CSU-R Sensor Error	The right IR sensor on the CSU has an error because of bad connection between MCU and CSU.
9	E23	LL Sensor Error	When the left IR sensor detects a currency, a bad connection, or sensor error.
10	E24	RR Sensor Error	When the right IR sensor detects a currency, a bad connection, or sensor error.
11	E25	UV_R Error	When the UV sensor detects a currency, a bad connection, or sensor error.
12	E26	UV_T Error	When the UV sensor detects a currency, a bad connection, or sensor error.
13	E27	UV_U Error	The REFL_UV signal error. When the UV sensor detects a currency, a bad connection, or sensor error.
14	E28	UV_V Error	The REFL_UV signal error. When the UV sensor detects a currency, a bad connection, or sensor error.
15	E29	MR1 Error	MR1 sensor error. When the MR sensor detects a magnetic substance a bad connection, or sensor error.

No	Message	Definition	Cause and Description
16	E30	MR2 Error	MR2 sensor error. When the MR sensor detects a magnetic substance, a bad connection, or sensor error.
17	E32	Security Code Error	Interface error. CSU error or Program error.
18	E34	CSU Encoder Error	Encoder signal error on CSU.

7. Maintenance

7.1 Maintenance for Sensors

When the Start sensor and End sensor are dirty, use a brush or a dry cloth, clean the sensor (see the picture).

SENSOR

7.2 Maintenance of Rollers

When the rollers are dirty, use a cloth moistened with isopropyl alcohol to clean the rollers.

ROLLER

7.3 Adjustment of the Separation Gap between rollers

A. Insert a currency between the rollers, and then test the resistance.
The gap needs to be adjusted to ensure proper insertion of one sheet of currency. To set for the correct resistance pass a double currency through the rollers, if double currency fits through rollers, readjust the resistance to allow for only one sheet to pass through.

B. <When the gap needs to be widened>
When a Feeding error or Short error occurs frequently, the gap needs to be widened. By turning knob in the "+" direction, the gap can be adjusted as in "A" to the proper fit.

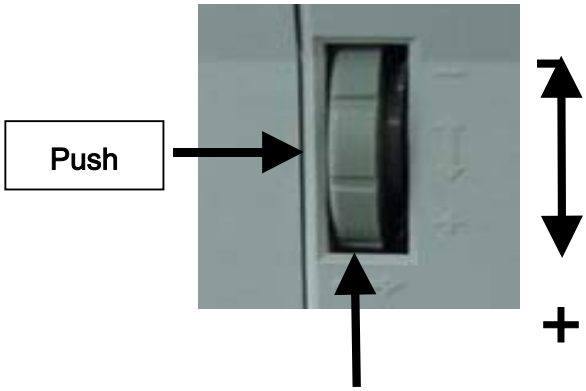
C. <When the gap needs to be narrowed>
When a Double error or Chain error occurs frequently, the gap needs to be narrowed. By turning knob in the "-" direction, the gap can be adjusted as in "A" to the proper fit.

After adjustment of the gap, the errors occur continuously, please contact your authorized Hedman distributor for service.

Teeth Position

Insert

Insert



8. Trouble shooting guide

No	Error	Solutions
1	Short Error	Some instances there are malfunctions of the Encoder. ➔ Check the encoder signal is normal. ➔ Check and Remove the clip, scrap paper, coin or debris. ➔ Check the sensor L and R which are located close to a stacker inside machine.
2	Half Error	➔ Adjust the guide correctly. ➔ Check and Remove the clip, scraps, coin or debris.
3	Different Error	➔Check the roller gap and adjust the gap if required. ➔ Check the encoder signal is normal.
4	Chain Error	➔Check the roller gap and adjust the gap if required.
5	Double Error	➔Check the roller gap and adjust the gap if required. ➔Check 'DEN' mode is proper for the applied currency.
6	Jam Error	➔ Remove the jammed currency. ➔ Straighten the currency and set correctly. ➔Check the roller gap and adjust the gap if required. ➔Check the sensor L and R which located close to a stacker inside machine.

9. Upgrade

The counterfeit detector can be easily upgraded for new currencies by replacing the EPROM.

Please contact your dealer for more details.