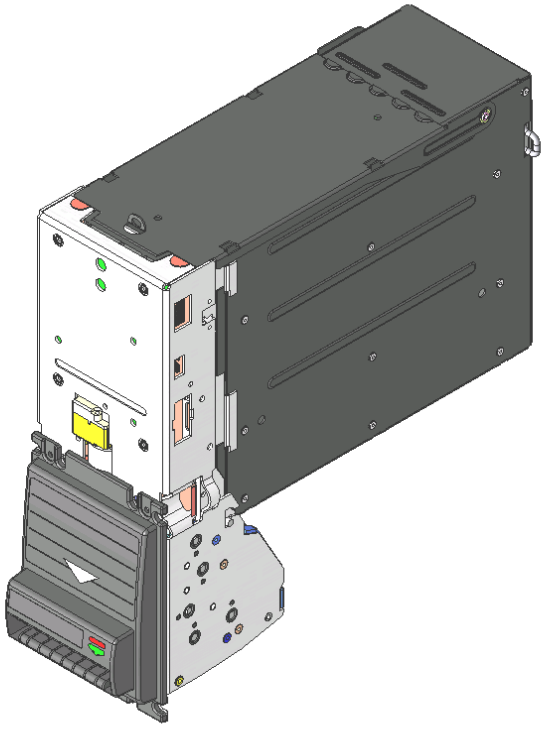
SM BackLoad Bill Validator

Operation and Service Manual

Part 1. Operation Manual



CONTENTS

INTRODUCTION

The scope of this document is to provide all technical information related to:

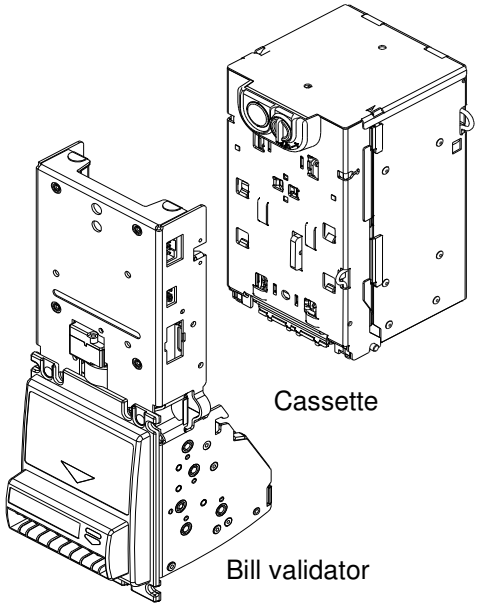
- Development of new equipment with the SM bill validator.
- Selection of the right configuration and part number.
- Installation of SM.
- Maintenance and service of SM.
- Repair of SM.

The Manual consists of two parts: part 1 – Operation Manual and part 2 – Service and Repair Manual.

PRODUCT OVERVIEW

The CashCode SM bill validator is typically installed on the front door (or the front panel) of a machine. Access to the cassette is from the rear side of the validator.

A complete **SM** unit consists of two parts – the **bill validator** itself and the **lockable removable cassette.**



SM has a fixed width bill path and is available for currencies 67mm or 71mm wide. These two implementations encompass most of the countries using fixed widths for their denominations.

SM has a very high acceptance rate, due to a set of advanced **sensors** and smart software that can precisely identify authentic bills from all known counterfeits.

Six multi-colour **optical sensors** collect images from both sides of the bill.

Patented **inductive sensors** evaluate magnetic properties of specialized ink.

Patented **dielectric sensors** detect authenticity of bill paper and special protective features of the bill.

All sensors have **auto-calibration** and do not require any manual adjustment. As a result, the validator keeps the same high acceptance level during its lifetime.

SM is capable of accepting bills inserted in **any** of four **directions** (any side forward, face up or face down).

An additional sensor allows reading of **bar-coded coupons** widely used in gaming applications.

The highest security level is provided by an **anti-stringing sensor** that can detect any sort of string, thread or film attached to a bill.

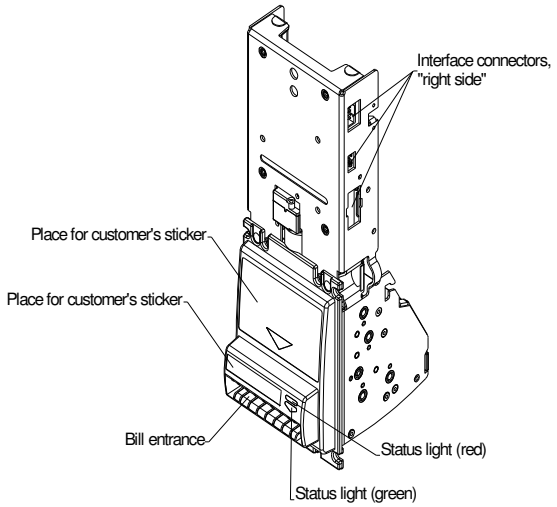
Following features make the **SM** highly efficient.

Beltless roller design minimizes maintenance of bill transport mechanism.

"**Clamshell**" design provides fast and easy access to the bill path.
Special rollers **prevent a bill jam** situation even with wet or worn bills.

Fast and easy **software updates** due to **CashCode Memory Stick**. An update is easily performed in seconds. The procedure does not require technical personnel, validator disconnection, or any tools.

SM operates at twice the speed than the previous ST series.



The features of **SM** allow it to be customised to any application quickly and easily.

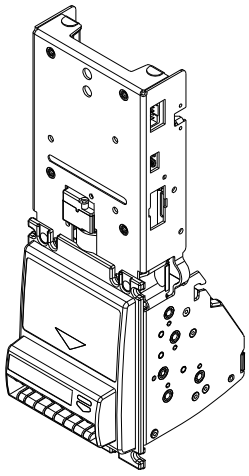
SM can be installed **STACKER UP** (common for vending equipment) or **STACKER DOWN** (used in amusement machines).

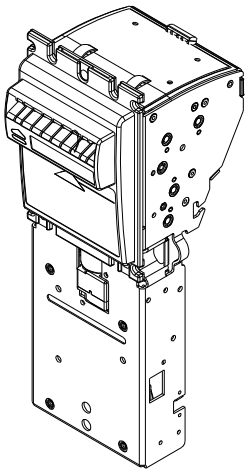
SM supports wide variety of **protocols** – Pulse, MDB, CC serial, CCNET, and BDP.

Typically, connectors are located at the right hand side of the validator. A left hand side connector option may be ordered for MDB applications.

A choice of standard plastic bezel or a metal bezel with vandal-proof features is available.

STACKER UP



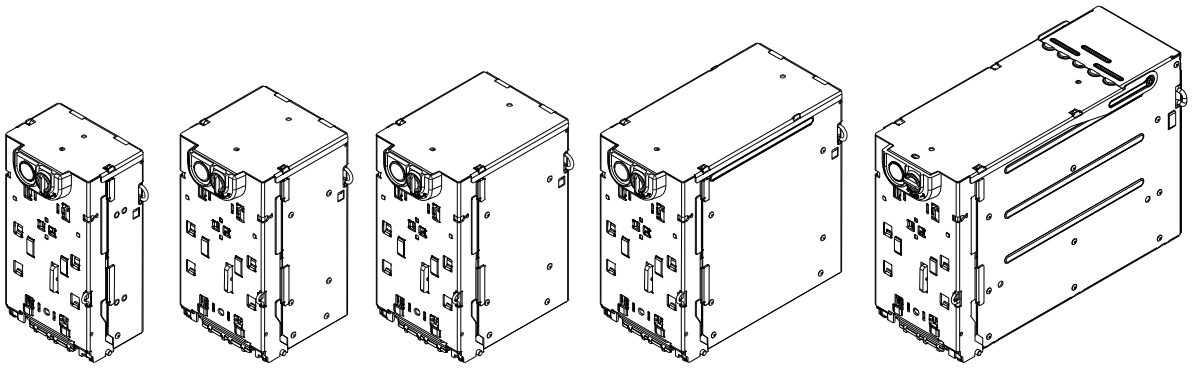


STACKER DOWN

The **Lockable Removable cassettes** used by SM are same as those used in earlier CashCode ST bill validators. These cassettes are capable of accepting either **67 mm** or **71 mm** wide bills and must be used with SMs that handle the same bill width. Improper combination of the cassette and the validator will result in validator failure. The cassettes are capable of stacking bills up to 160 mm in length.

Cassettes are available in following **sizes** – 170, 400, 600, 1000 and 1500 bills. Cassette capacity refers to the number of brand new bills that can be stored. Street grade bills require more space and as a result, the capacity may decrease.

As an option, cassettes may be equipped with the Seal Tab for additional security.



170 400 600 1000 1500

GENERAL SPECIFICATIONS

Acceptance:

Bills	lengthwise 4 ways
Barcoded coupons	lengthwise 2 ways
Validating rate	96% or higher on first insertion
Bill Path Width, in mm	67 or 71
Maximum length of bill, in mm	160
Minimum length of bill, in mm	120
Bill escrow	one bill

Barcode Coupon Specifications:

Encoding standard	ANSI/AIM BC2-1995, Uniform Symbology Specification – Interleaved 2 of 5
Narrow bar width, in mm	0.5 to 0.6
Wide/Narrow Bar Ratio	3:1
Number of characters	6 to 18
PCS Value (Print Contrast Signal)	0.6 min
Complete Validation cycle, in seconds	1.7

Supported Protocols:

24V Platform	MDB Single Price (SP, with adapter) Host Intelligence Interface (HII, with adapter)
12V Platform	Pulse, Opto-isolated CCSerial CCNET (TTL , RS232) BDP (TTL, RS232)
Maximum stacking capacity (new bills)	170, 400, 600, 1000, 1500
Memory programming	CashCode Memory Stick Network (CCNET only)
Power supply voltage	12 V DC ± 1 V 24 V AC or 34 V DC

Current consumption:

12 V DC operating mode, max	2 A
12 V DC idle mode	0.2 A

24 V AC or 34 V DC, operating mode (max)	2 A
24 V AC or 34 V DC, idle mode	0.2 A

Power consumption:

Idle mode (12 V DC)	2.5 W
Operating mode (12 V DC)	25 W
Idle mode (24 V AC or 34 V DC)	3.5 W
Operating mode (24 V AC or 34 V DC)	35 W

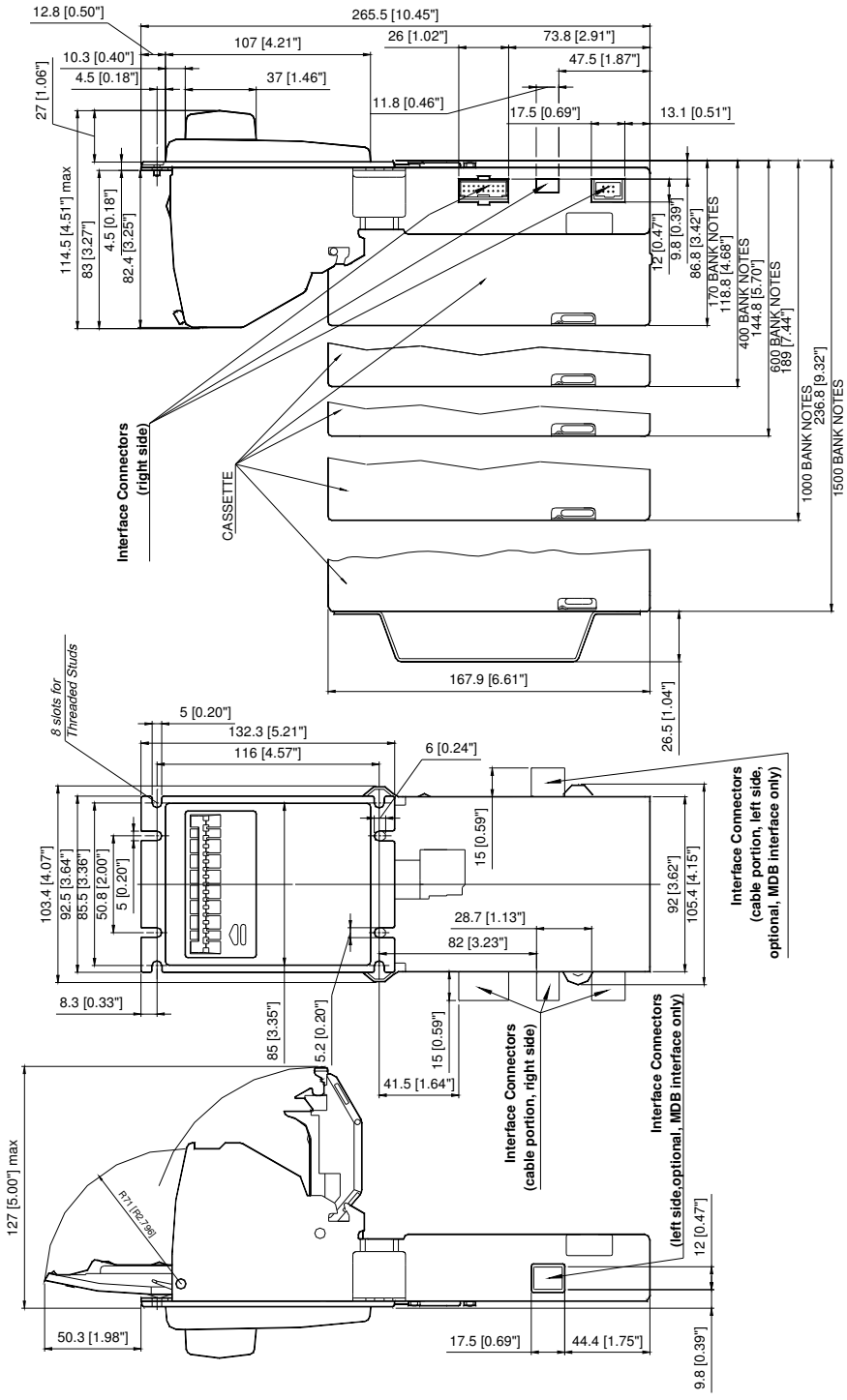
Environmental:

Operating temperature

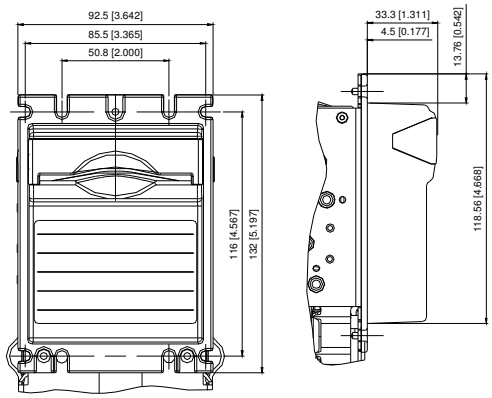
12 V Platform	0°C to +50°C
24 V Platform	-18°C to +60°C
Storage temperature	-30°C to +60°C
Humidity (non-condensing)	30%-90%RH
Validation **M.T.B.F**	750,000 cycles
Dimensions (WxHxD)	104x266x87 (with cassette 170 bills)
Weight (validator without cassette, with plastic bezel)	1.1 kg

Weight (blank cassette)	170	0.7 kg
	400	0.9 kg
	600	1.1 kg
	1000	1.3 kg
	1500	1.9 kg

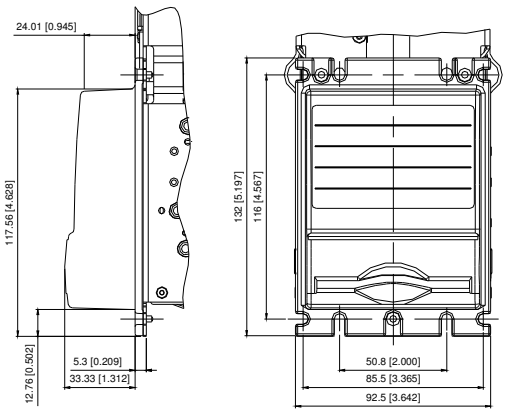
Dimensions


12.8 [0.50"]
265.5 [10.45"]
107 [4.21"]
26 [1.02"]
73.8 [2.91"]
10.3 [0.40"]
47.5 [1.87"]
4.5 [0.18"]
37 [1.46"]
27 [1.06"]
11.8 [0.46"]
17.5 [0.69"]
13.1 [0.51"]
114.5 [4.51"] max
83 [3.27"]
4.5 [0.18"]
82.4 [3.25"]
12 [0.47"]
9.8 [0.39"]
86.8 [3.42"]
170 BANK NOTES
118.8 [4.68"]
400 BANK NOTES
144.8 [5.70"]
600 BANK NOTES
189 [7.44"]
1000 BANK NOTES
236.8 [9.32"]
1500 BANK NOTES
Interface Connectors
(right side)
CASSETTE
167.9 [6.61"]
26.5 [1.04"]
8 slots for
Threaded Studs
5 [0.20"]
132.3 [5.21"]
116 [4.57"]
6 [0.24"]
103.4 [4.07"]
92.5 [3.64"]
85.5 [3.36"]
50.8 [2.00"]
5 [0.20"]
15 [0.59"]
92 [3.62"]
105.4 [4.15"]
Interface Connectors
(cable portion, left side,
optional, MDB interface only)
28.7 [1.13"]
82 [3.23"]
8.3 [0.33"]
85 [3.35"]
5.2 [0.20"]
15 [0.59"]
41.5 [1.64"]
Interface Connectors
(cable portion, right side)
Interface Connectors
(left side,optional, MDB interface only)
127 [5.00"] max
R71 [R2.796]
12 [0.47"]
50.3 [1.98"]
17.5 [0.69"]
44.4 [1.75"]
9.8 [0.39"]

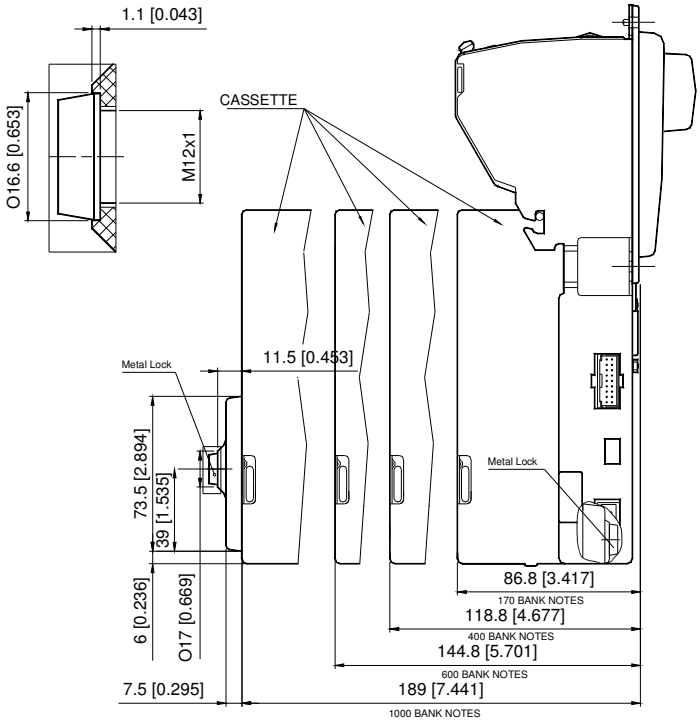
Metal Down Bezel



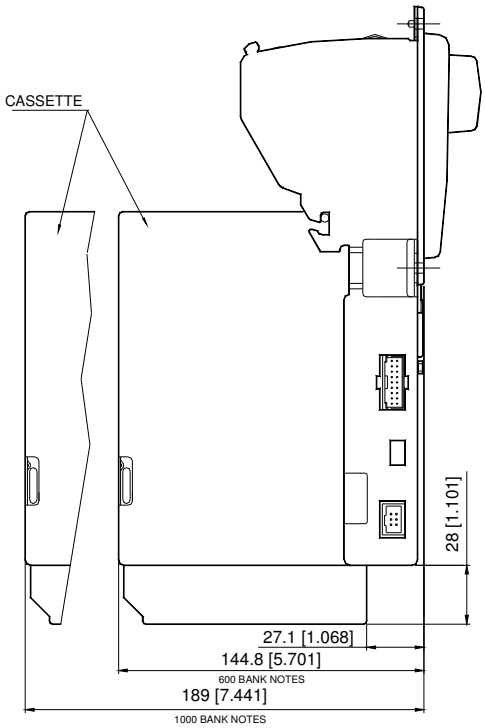
Metal Up Bezel



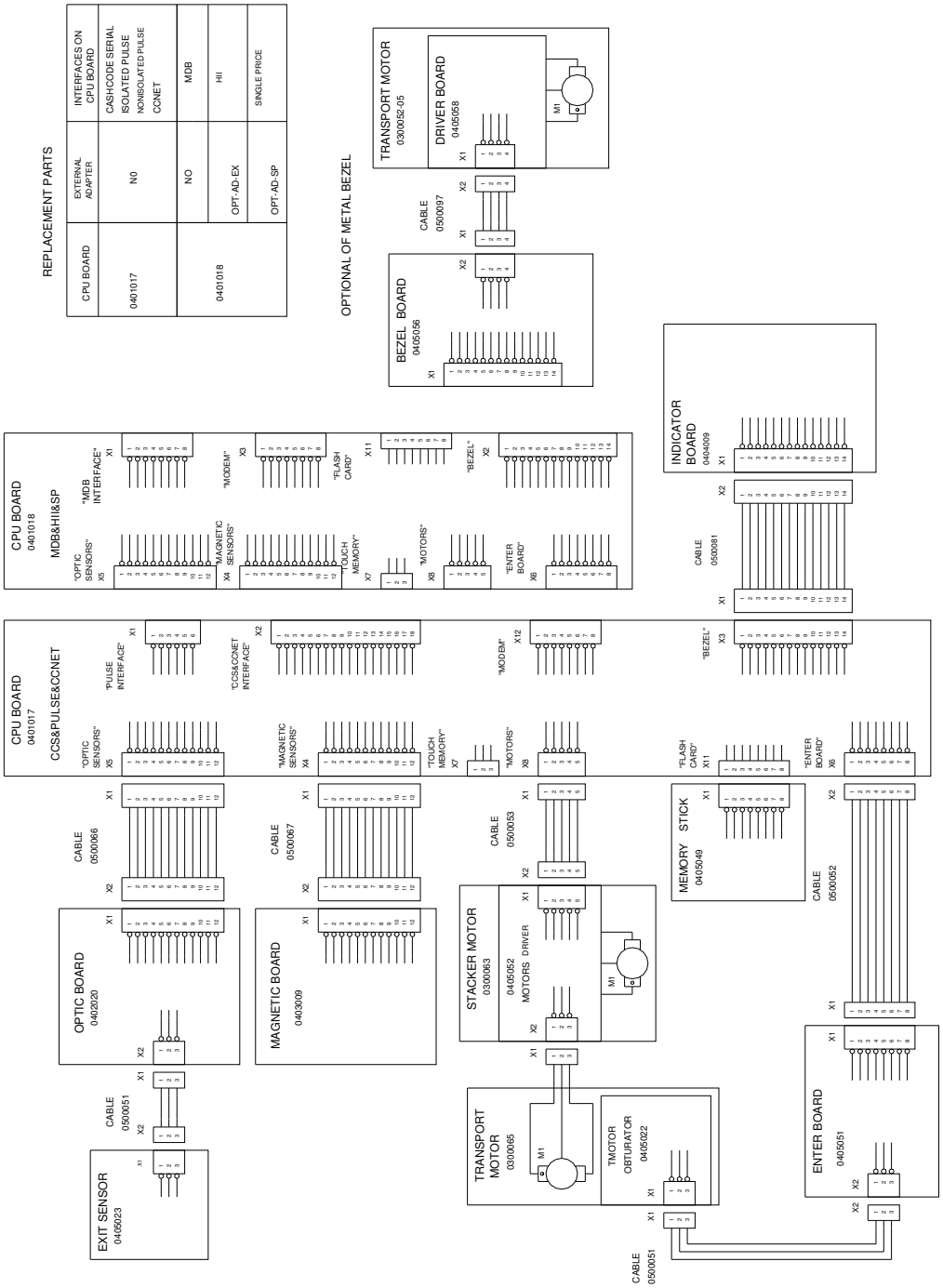
SM with 2 metal Locks



SM with 2 and 3 metal Locks



GENERAL WIRING DIAGRAM



CHOOSING SM FEATURES AND PART NUMBERS

Bill Validator

Following information helps in the choice of a proper SM bill validator:
- Currency (country);
- Protocol type (interface);
- Bezel style;
- Style of the cassette (regular or high security locks on the cassette);
- Indoor or outdoor application (coated boards are used for outdoor application);
- Left-side interface connector (this option is available for 24V platform).

Currency

The chart below lists countries currently supported by SM.

Country	Bill Width, mm
Argentina	67
Australia	67
Azerbaijan	71
Bolivia	71
Brazil	67
Canada	71
Chile	71
China	71
Colombia	71
Costa Rica	67
Eastern Caribbean	71
Egypt	71
Estonia	71
Guatemala	67
Honduras	67
Jamaica	71
Kuwait	71
Macedonia	71
Malaysia	67
Mexico	67
Peru	67
Philippines	67
Russia	71
South Africa	71
Tajikistan	67
Ukraine	71

Country	Bill Width, mm
USA	67
Venezuela	71

Countries listed below are supported by MSM, Multi width version of SM. For more details on MSM validator please refer to **CashCode MSM BackLoad Bill Validator Operation and Service Manual**. The width of bills handled by MSM for these countries varies from 62 to 78 mm.

Armenia	Mauritius
Australia	Moldova
Azerbaijan	Mongolia
Bangladesh	New Zealand
Belarus	Norway
Botswana	Poland
Bulgaria	Romania
China	Russia
Czech Republic	Saudi Arabia
European Union	Serbia
Georgia	Singapore
Hong Kong	Sweden
Hungary	Switzerland
India	Thailand
Japan	Turkey
Kazakhstan	Ukraine
Korea	United Kingdom
Kyrgyzstan	Uzbekistan
Macau	Vietnam
Malaysia	

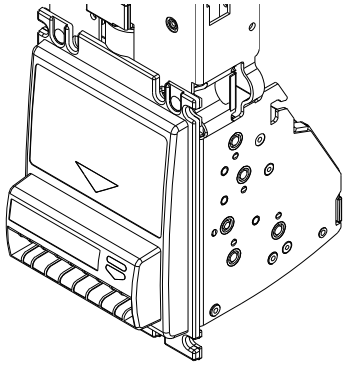
Protocol/Interface

For detailed description refer to “Interface Connection”.

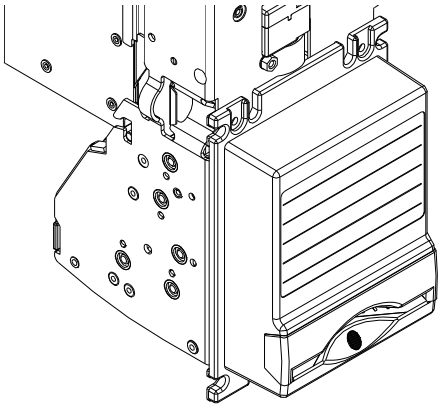
Bezel style

Three different styles of bezel are currently available:

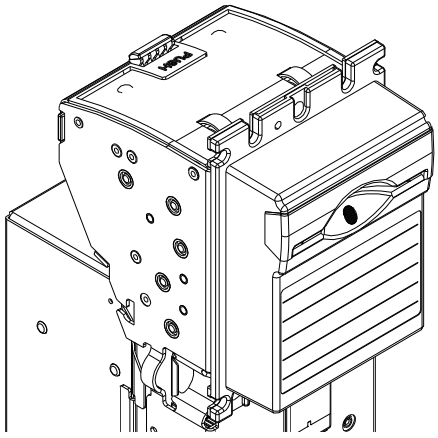
Standard plastic bezel. This bezel can be used for – STACKER UP and STACKER DOWN configuration. The bezel has a status indicator that glows GREEN when ready RED when busy. The indicator also helps as a diagnostic tool for service personnel. The bezel has 2 designated places to accommodate stickers of 35x12 mm and 76x48 mm size. A set of stickers is supplied with the SM for most of the countries.



The **Metal bezel** is developed to protect the SM from intentional damage or in environments subject to impacts from other objects. It also has a curved path to protect from inadvertent insertion of coins. A red/green light indicates the status of the validator. Customized stickers of size 76x48 mm can be applied on the bezel. The bezel is available in two configurations – STACKER UP or STACKER DOWN.



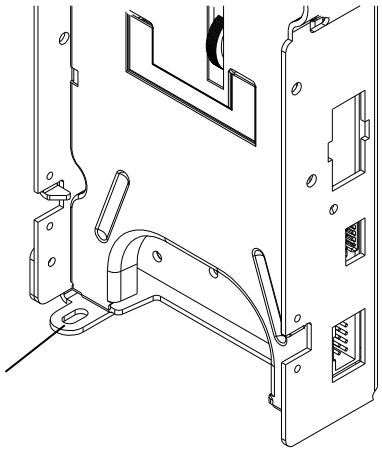
Metal Bezel (STACKER UP)



Metal Bezel (STACKER DOWN)

Cassette – High Security Locks

The SM bill validator is available with a 'gaming' bracket option. This allows installation of a cassettes equipped with the high security locks.

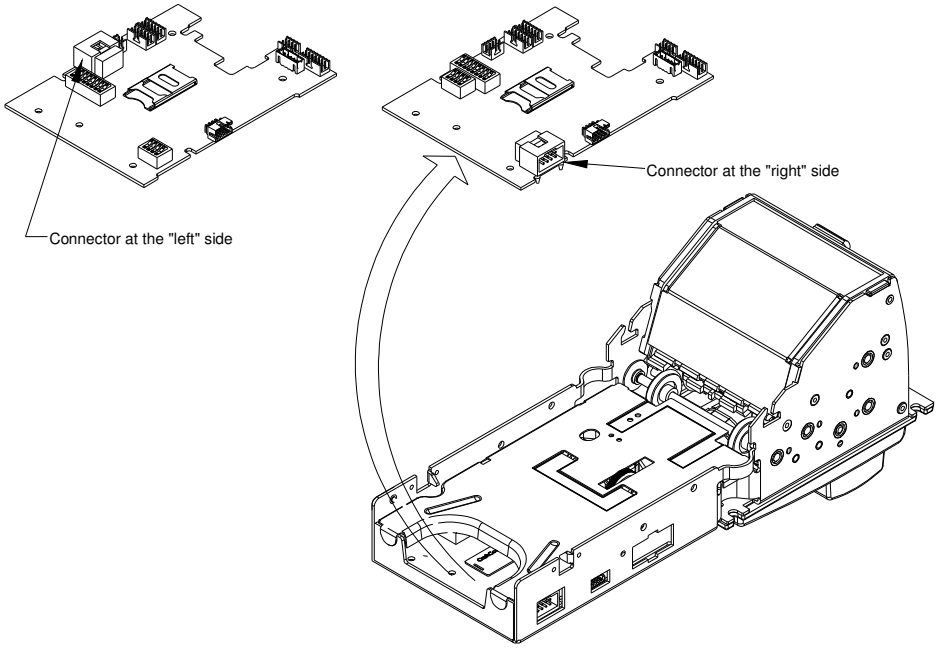


Indoor or outdoor application

The SM bill validator can be ordered with boards coated for outdoor applications.

Left-side interface connector

The SM bill validator with MDB interface (24 V) can be ordered with the interface connector at the "left" side.



Cassette

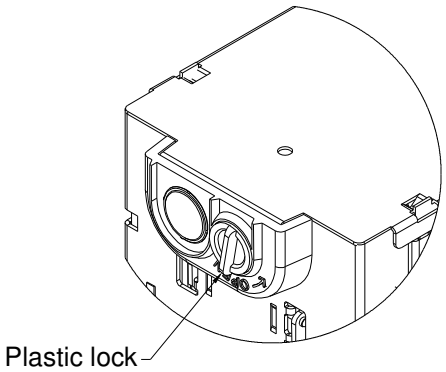
Cassettes for SM bill validator have the following options:

- the width of the bill, 67mm and 71 mm.
- capacity of the cassette. There are 5 sizes: 170, 400, 600, 1000, 1500 bills.
- security features. Up to 3 high security locks are available.

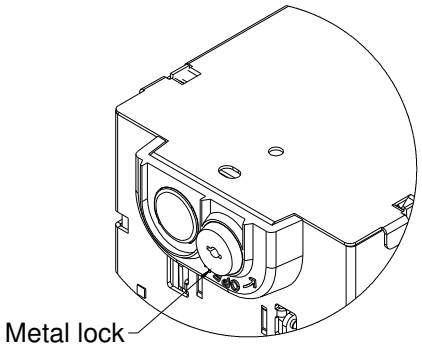
The cassette for 1500 bills is provided with a handle.

Security features

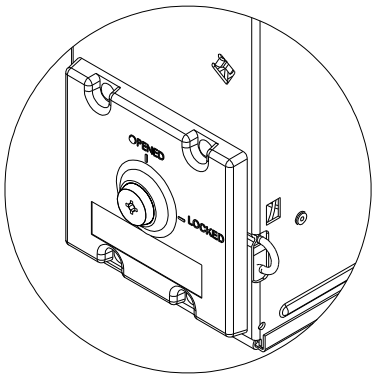
The cassette cover can be used without locks (plastic lock gives free access to bills)



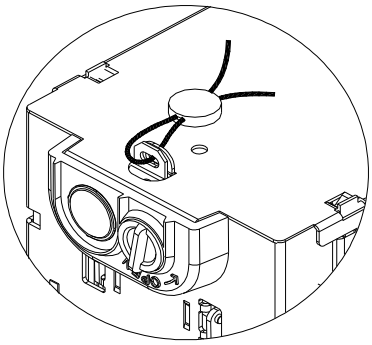
The cassette may also be equipped with a metal lock for additional security.



Cassettes (except 1500 and “gaming”) can be equipped with a lock to secure the cassette to the bill validator. The locking mechanism including the lock is available as part number OPT-MKCST-SL1.

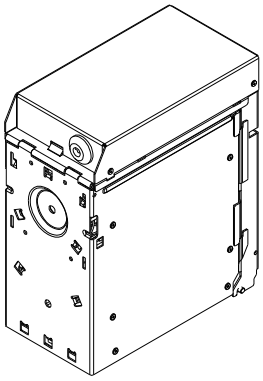


Cassettes (except “gaming”) may be ordered with an additional tab to apply a seal.

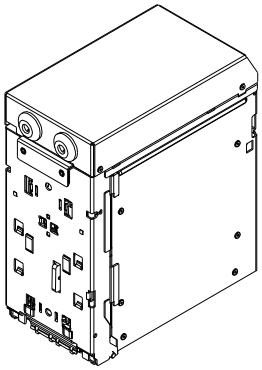


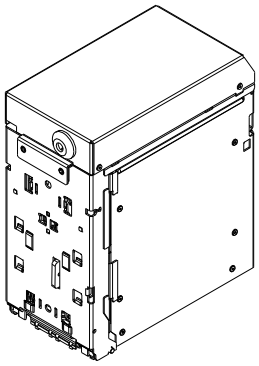
The “gaming” option is available for sizes 600 and 1000 only. This option has two variants – with 2 or 3 high security locks. The locks must be standard tubular locks ¾” in diameter and 11/16” to 1-1/16” in length.

One lock installed at the rear of the cassette secures the cassette to the bill validator.



Two additional locks secure the cover and provide the highest level of security.





The chart below lists available regular and gaming cassettes.

Width	Capacity	Standard			Gaming	
		Plastic lock	1 lock	2 locks	2 locks	3 locks
67	170	CST-17067-P0L	CST-17067-P1L	CST-17067-P2L	N/A	N/A
	400	CST-40067-P0L	CST-40067-P1L	CST-40067-P2L	N/A	N/A
	600	CST-60067-P0L	CST-60067-P1L	CST-60067-P2L	CST-60067-G0L-2	CST-60067-G0L-3
	1000	CST-1K067-P0L	CST-1K067-P1L	CST-1K067-P2L	CST-1K067-G0L-2	CST-1K067-G0L-3
	1500	CST-1K567-P0L	CST-1K567-P1L	N/A	N/A	N/A
71	170	CST-17071-P0L	CST-17071-P1L	CST-17071-P2L	N/A	N/A
	400	CST-40071-P0L	CST-40071-P1L	CST-40071-P2L	N/A	N/A
	600	CST-60071-P0L	CST-60071-P1L	CST-60071-P2L	CST-60071-G0L-2	CST-60071-G0L-3
	1000	CST-1K071-P0L	CST-1K071-P1L	CST-1K071-P2L	CST-1K071-G0L-2	CST-1K071-G0L-3
	1500	CST-1K571-P0L	CST-1K571-P1L	N/A	N/A	N/A

The chart below lists cassettes available with seal tabs.

Width	Capacity	With seal tab	
		Plastic lock	1 lock
67	170	CST-17067-P0L-S	CST-17067-P1L-S
	400	CST-40067-P0L-S	CST-40067-P1L-S
	600	CST-60067-P0L-S	CST-60067-P1L-S
	1000	CST-1K067-P0L-S	CST-1K067-P1L-S
	1500	CST-1K567-P0L-S	CST-1K567-P1L-S
71	170	CST-17071-P0L-S	CST-17071-P1L-S
	400	CST-40071-P0L-S	CST-40071-P1L-S
	600	CST-60071-P0L-S	CST-60071-P1L-S
	1000	CST-1K071-P0L-S	CST-1K071-P1L-S
	1500	CST-1K571-P0L-S	CST-1K571-P1L-S

Memory Stick and software update options

CashCode SM Bill Validators are supplied with pre-installed software, according to user's order. A "Dummy Card" is normally placed in the slot instead of a Memory stick. Software updates are released to accommodate new currency releases or to improve security against counterfeits. Software updates are offered in three options:

1) Single-download Memory stick.

The software from the new Memory stick is downloaded when it is first installed on the validator. This Memory stick must be left in its position for the Bill Validator to operate.

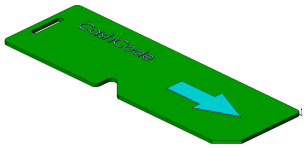
2) Multi-download Memory stick.

The multi-download Memory stick allows for updates of multiple SM validators depending on the number of licenses ordered.

3) Network Download Memory stick.

This memory stick allows the download of new software from the host controller. After the download, the Memory stick must be left in the Bill Validator.

Only CCNET protocol supports this download feature.



Part number for the SM bill validator reflects the hardware as well as software part numbers.

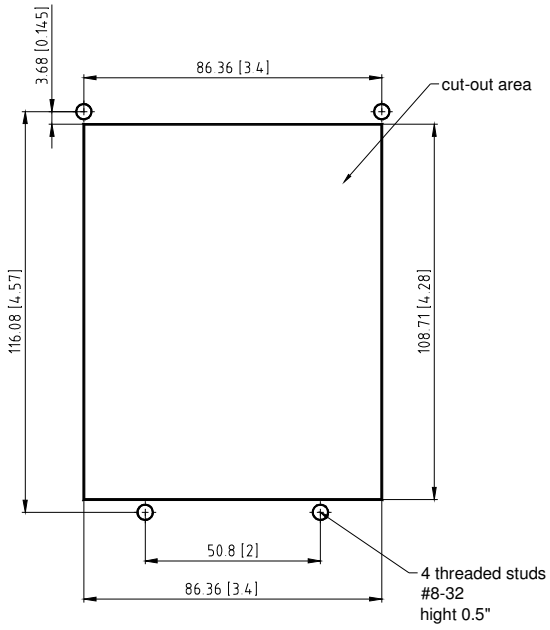
Example: **SM – 2005 US7712**

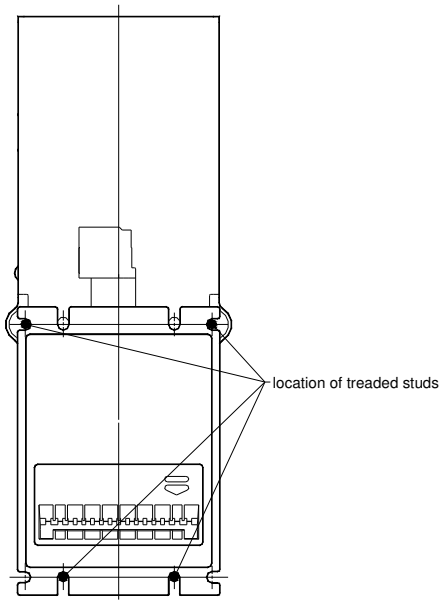
- US7712 — Software part number SM-US7712
- 2005 — Hardware part number SM-2005
- SM — SM series

INSTALLATION

Bill validator installation

The SM bill validator is usually installed on a door or a panel. The panel or door must have a rectangular cut-out and four threaded studs as per picture below.

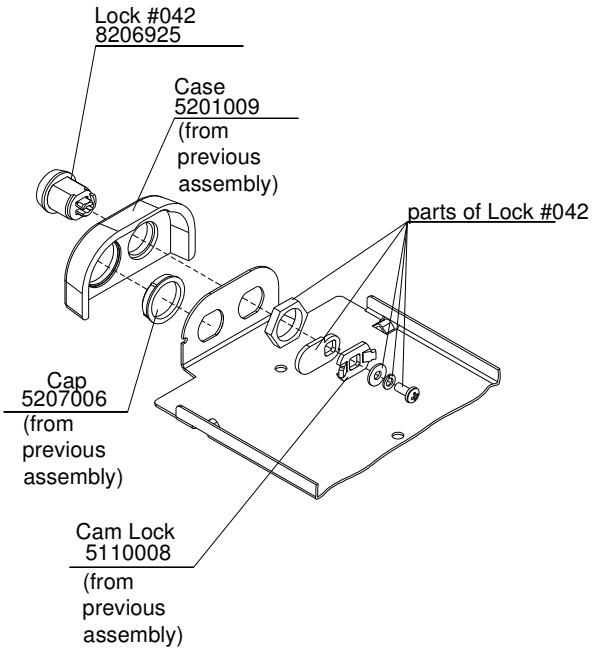




Cassettes

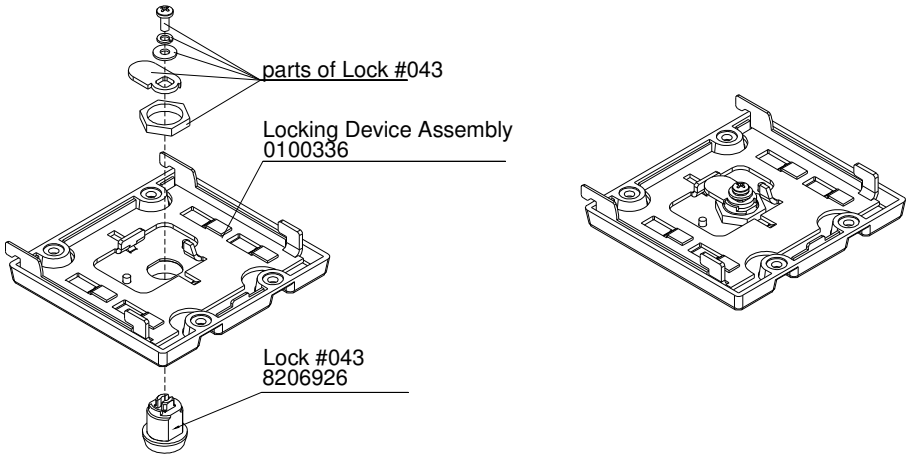
Metal lock installation

Open the cassette cover. Remove screw from the plastic handle at the cassette cover. Disassemble the metal lock and install it on the cassette cover as shown below

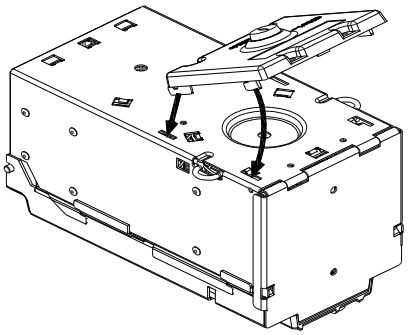


Locking mechanism installation

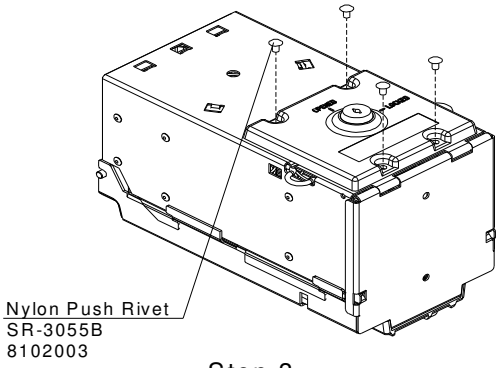
Disassemble the metal lock and install it on the Locking Device Assembly as shown. The cam of the lock is shown in “LOCKED” position. Perform this step if the lock is not installed on the locking device.



Insert the key into the lock and turn it to the “OPENED” position. Insert two tabs of the locking device into the slots in the cassette. Rotate the locking mechanism and insert two other tabs of the locking device into the corresponding slots in the cassette. Turn the key to the “LOCKED” position.



Step 2



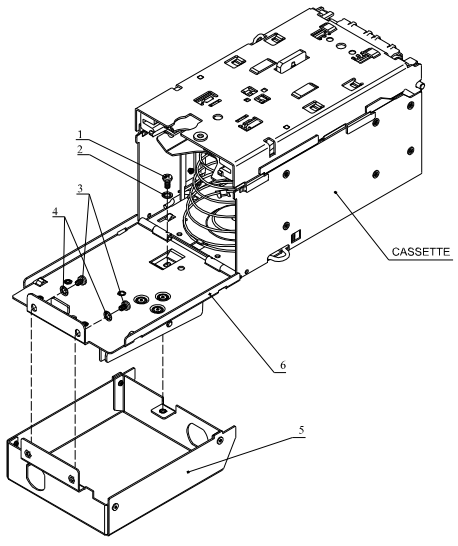
Step 3

Secure the locking mechanism with 4 plastic push rivets.

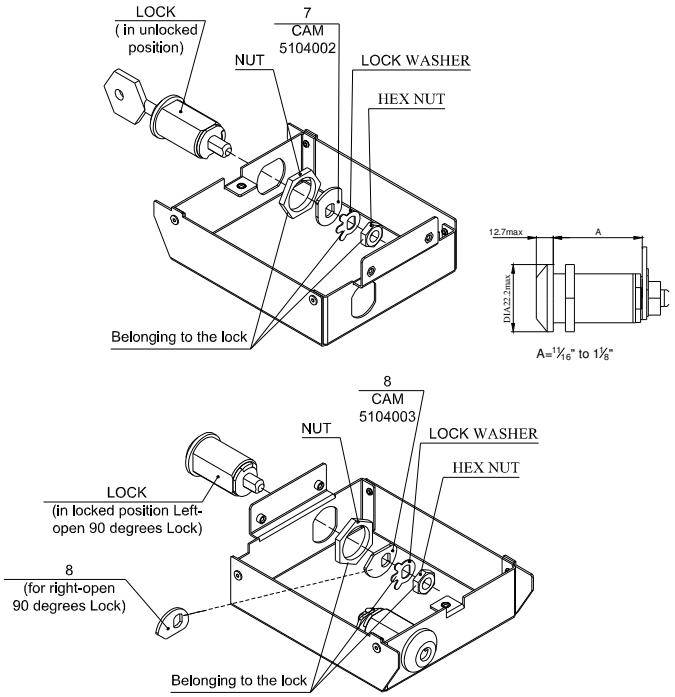
Installation of high security locks ("gaming" cassette with 2 locks)

- Locks should be ¾" DIA size
- Locks should be 11/16" to 1-1/8" length (distance from mounting surface to the cam)
- The angle between the locked and unlocked position of the cam should be 90 degrees in any rotation.
- Pay attention to cam 8 orientation for left- and right-open locks.

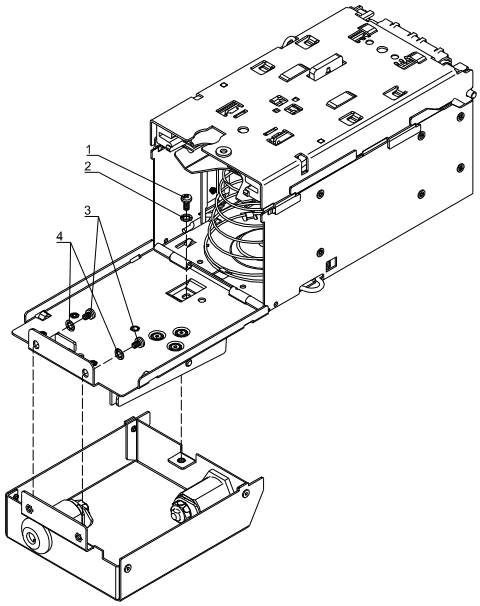
Open the cassette
Remove screw 1 (M3x6) and washer 2.
Remove screws 3 (M3x4) and washers 4.
Remove faceplate 5 from the cassette cover 6.



Mount the locks and the cams 7 and 8 into the faceplate 5 as shown below.

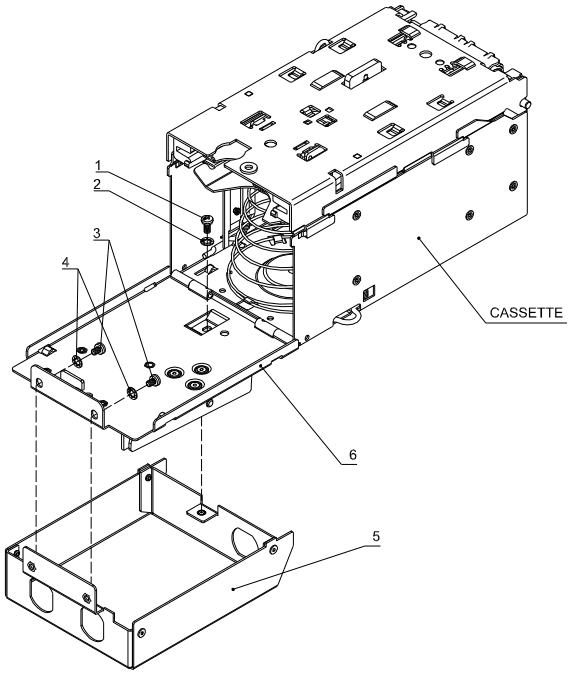


Mount the faceplate 5 back to its original place (first insert tabs of the faceplate into the holes of the cassettes cover then lock it with the screw 1and washer 2, screws 3 and washers 4)

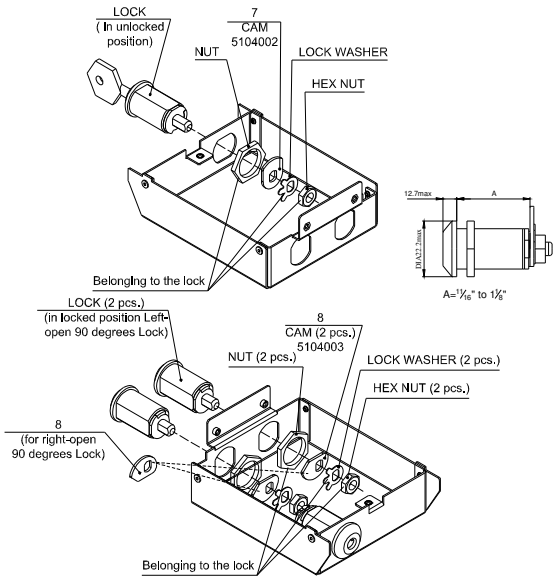


Installation of high security locks ("gaming" cassette with 3 locks)

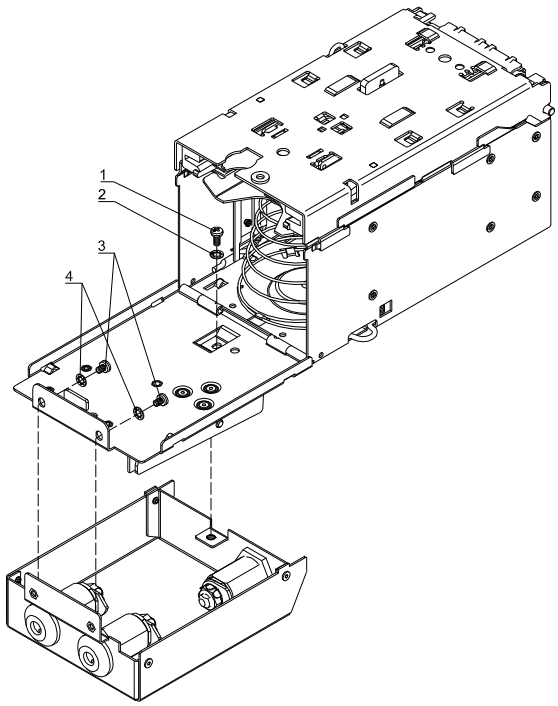
Open the cassette
Remove screw 1 (M3x6) and washer 2.



Remove screws 3 (M3x4) and washers 4.
Remove faceplate 5 from the cassette cover 6.
Mount the locks and the cams 7 and 8 into the faceplate 5 as shown below.



Mount the faceplate 5 back to its original place (first insert tabs of the faceplate into the holes of the cassettes cover then lock it with the screw 1and washer 2, screws 3 and washers 4).



INTERFACE CONNECTION

SM offers a wide variety of interface/protocol options through 12 Volt and 24 Volt platforms.

Type 1: 24 Volt DC/AC – This device is primarily suited for MDB (vending applications) Use of additional adaptors also makes it suitable for Single Price (SP) and Host Intelligence Interface (HII).

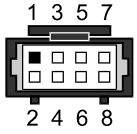
Type 2: 12 Volt DC – This device is suited for Amusement, Gaming, Kiosk and Transportation applications. Following protocols can be configured.

Isolated Pulse.
CashCode Serial.
Bi-Directional.
CCNET

For detailed interface descriptions, please refer to Protocol Description Manuals available from the CashCode website at http://support.cashcode.com

24 Volt version (Type1, CPU Board 0401018):

Pin Assignment
(cable connector):



Molex, Part #: 15-04-5084, 1 pc;
50-57-9304, 2 pcs;
16-02-0086, 8 pcs

The supplied harness OPT-HS-MDB connects the validator to a regular Multi Drop Bus.

Signal descriptions:

TERMINAL	SIGNAL	FUNCTION
1	DC/AC POWER RET	POWER
2	34V DC/24V AC	POWER
3	GROUND	GROUND
4	ADDITIONAL OUTPUT	AUXILIARY OUTPUT
5	MASTER RECEIVE	MASTER RECEIVE INPUT
6	ADDITIONAL INPUT	AUXILIARY INPUT
7	COMMON	COMMUNICATION'S COMMON
8	MASTER TRANSMIT	MASTER TRANSMIT OUTPUT

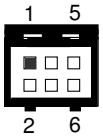
The additional circuits (AUXILIARY OUTPUT, AUXILIARY INPUT) are used by the external adapters in the implementation of SP and HII.

For connecting to equipment with Single Price Interface, the **Single Price Adapter (OPT-AD-SP)** is used.

For connecting to equipment with the Host Intelligence Interface, the **Host Intelligence Interface Adapter (OPT-AD-HII)** is used.

12 Volt version (Type2, CPU Board 0401017):

Assignment (cable connector):



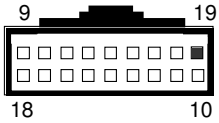
Molex, Part #:15-04-5064, 1 pc;
50-57-9303, 2 pcs;
16-02-0096, 6 pcs..

Harness OPT-HS-12V-06P is used to connect to this 6 pin socket.

Signal descriptions:

TERMINAL	SIGNAL	FUNCTION
1	+ 12 V DC Power	Power Supply (+)
2	Ground	Power Supply (-)
3	Pulse Output 1	Pulse Signal
4	Pulse Output 2	Pulse Signal
5	Inhibit Line (+)	Enable/Disable Validator
6	Inhibit Line (-)	

Assignment (cable connector)



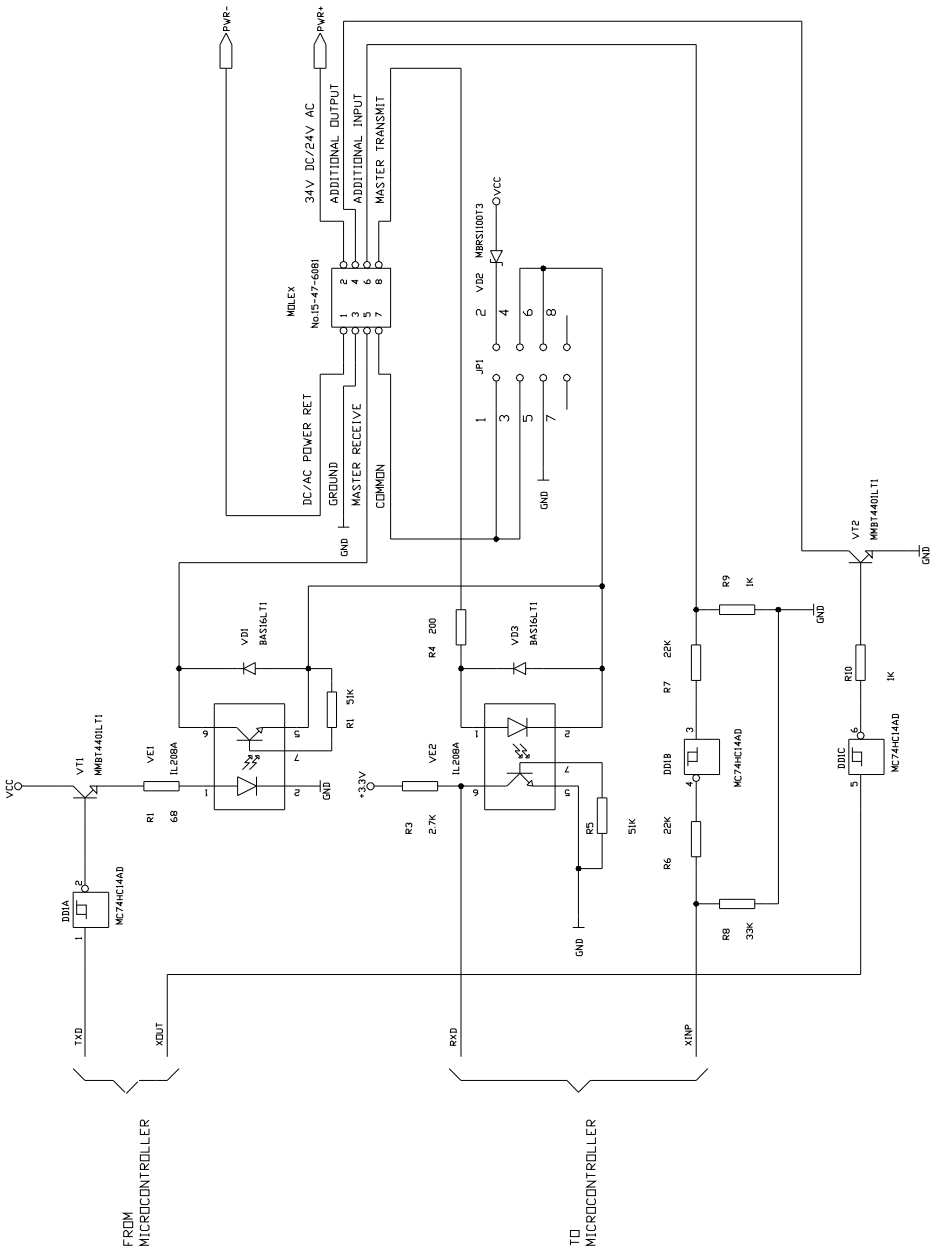
AMP, Part #:102398-7, 1 pc;
102536-7, 1 pc;
102681-4, 1 pc.

Signal descriptions:

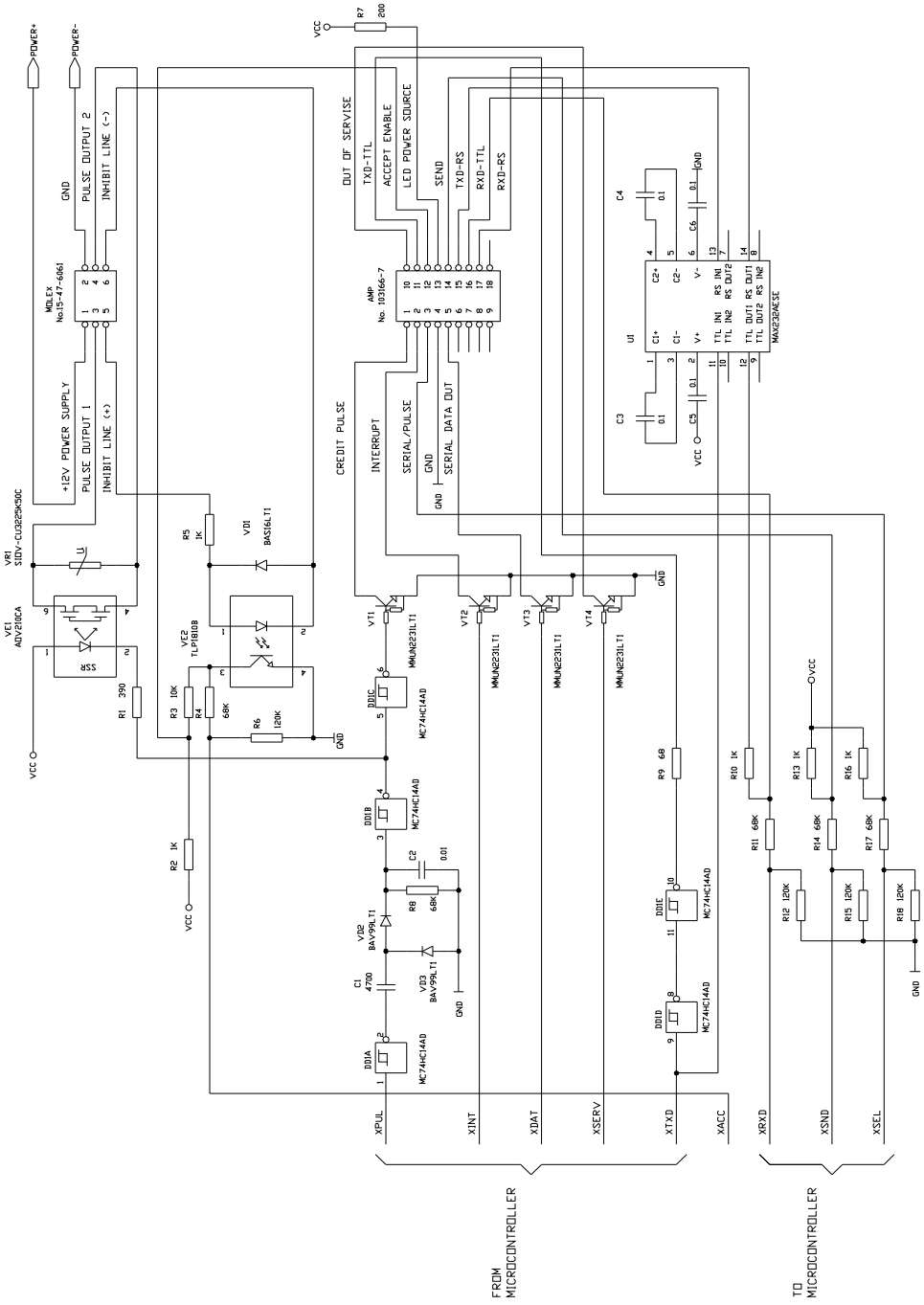
TERMINAL	SIGNAL	FUNCTION
1	Credit Pulse	Pulse Signal NIP Interface (output)
2	Interrupt	Availability to transfer a status message (output)
3	Serial/Pulse Select	Interface type (input)
4	Ground	Signal Ground
5	Serial Data Output	An eight bit status message (output)
6	Not connected	----------
7	Not connected	----------
8	Not connected	----------
9	Not connected	----------
10	Out of Service	Busy or Failure
11	TXD-TTL	Transmit data (TTL level)
12	Accept Enable	Enable accept bill (input)
13	LED Power Source	200 ohm to 5 VDC (output)
14	Send	Control system signal initiating transfer a status message (input)
15	RXD-RS232	Receive Data (RS232 level)
16	RXD-TTL	Receive Data (TTL level)
17	TXD-RS232	Transmit data (RS232 level)
18	Not connected	----------

INPUT/OUTPUT CIRCUITS

For 24 Volt CPU board 0401018



For 12 Volt CPU board 0401017



SWITCH SETTINGS

The DIP switches are located at the CPU board.

The SM bill validator operates in two modes: Validation Mode and Service Mode.

Validation Mode: This is the mode for normal operation.

Service Mode: This is the mode for programming and testing.

A set of 8 DIP switches defines the settings and programs the Bill Validator to recognize and validate different denominations or define other parameters.

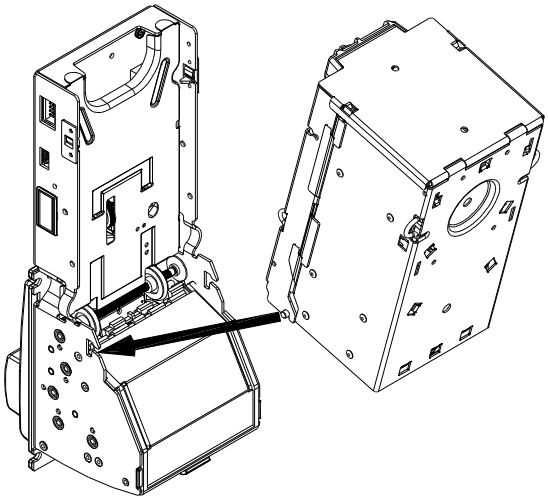
A set of 4 DIP switches defines the settings of interface type.

For a complete explanation of switch description, please see the software User's Guide (enclosed to each bill validator and available at http://support.cashcode.com

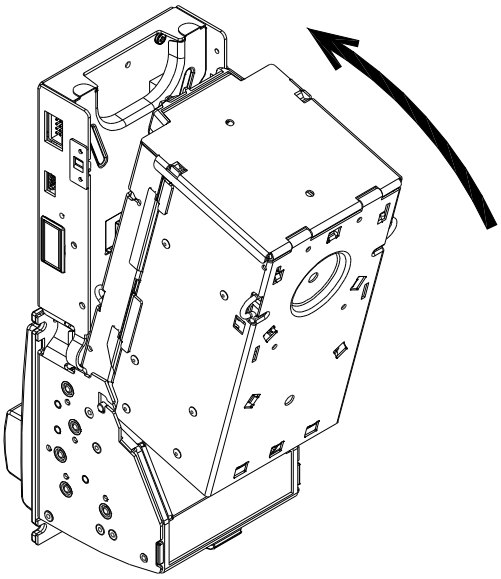
MAINTENANCE AND SERVICE

Cassette Removal And Installation

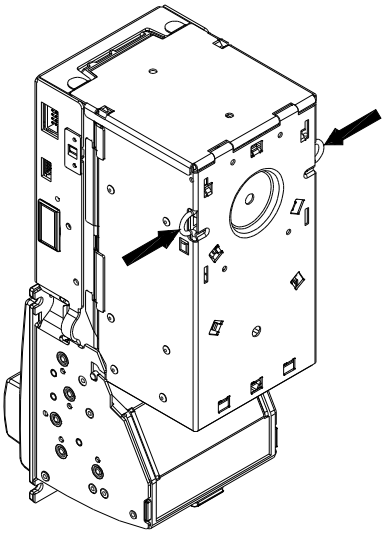
To install the cassette into the bill validator direct two bosses of the cassette to corresponding slots in the validator housing.



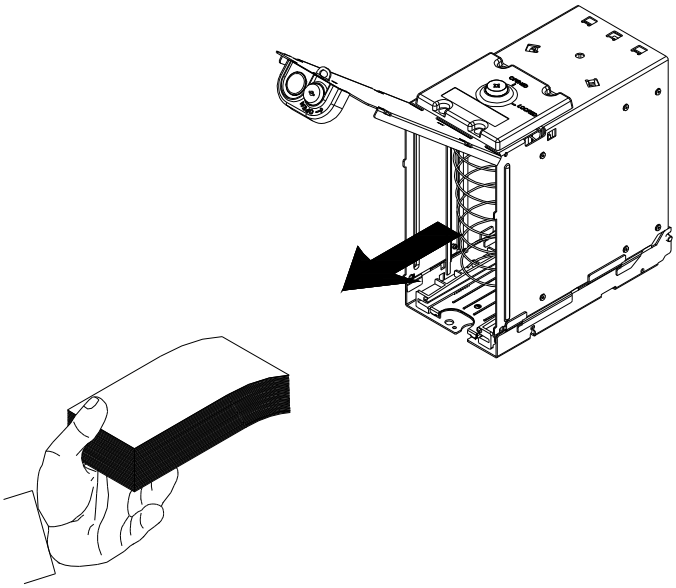
Rotate the cassette in the direction of arrow till fasteners of the cassette hook the latches at the validator housing. This action can be done for all types of cassettes whether they are equipped with second metal lock or not, as well as for the "gaming" cassette.



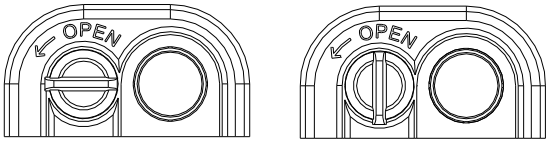
To remove the cassette, squeeze the two fasteners at the rear side of the cassette and pull the cassette. If the cassette carries additional locks, unlock them first.



To collect bills from the cassette unlock security locks and open the cover. Remove bills. Close the cover.



no lock variant
positions of plastic handle



unlocked position locked position

Periodic Maintenance

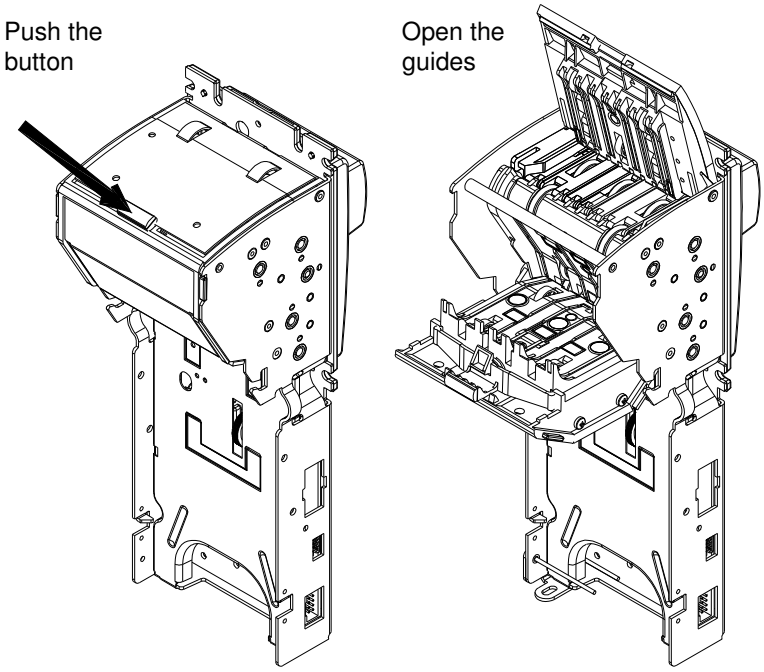
During normal operation dust and dirt accumulate on the optical sensors and the rollers. This could result in reduced acceptance rate. It is recommended to clean the bill path as explained below every 6 months or 60,000 bills whichever comes first.

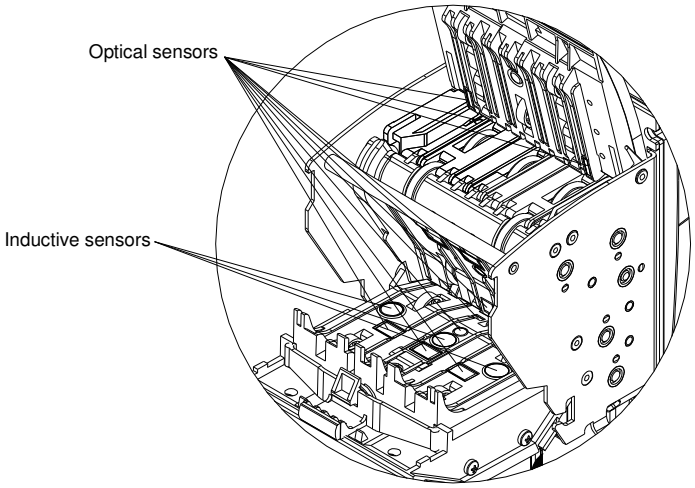
Remove the cassette.
Open the clamshell by pushing the button as shown below.
Ensure:
No scratches present on the guides and optical sensors.
No dirt or cracks present on the surface of the transport rollers
No dirt on the surface of the optical sensors.
The entire bill path is clean of paper debris or residue.

All dirt must be cleaned with soft moistened cloth. Isopropyl Alcohol is recommended for cleaning excessively dirty rollers.

DO NOT USE ACETONE OR PETROLEUM BASED PRODUCTS AS THEY COULD CAUSE DAMAGE TO PLASTIC PARTS.

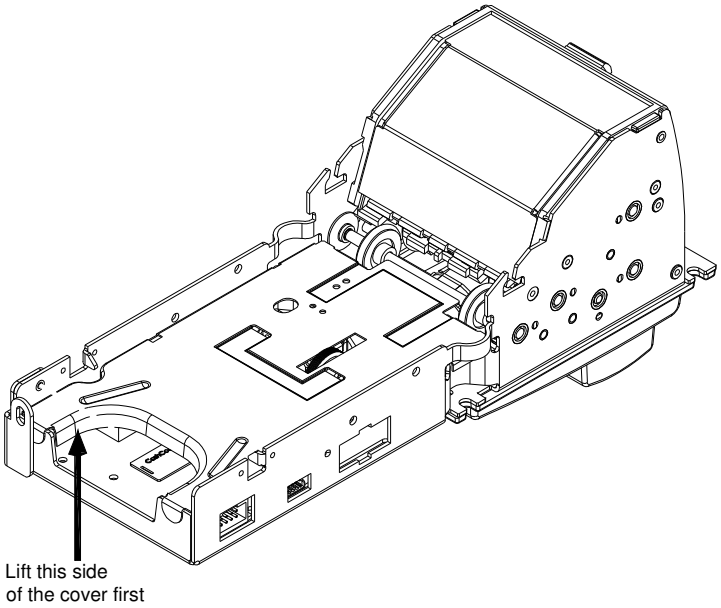
Inspect the cassette chamber to see no bill fragments or paper residue is left behind.
This may be blown away with the use of compressed air.



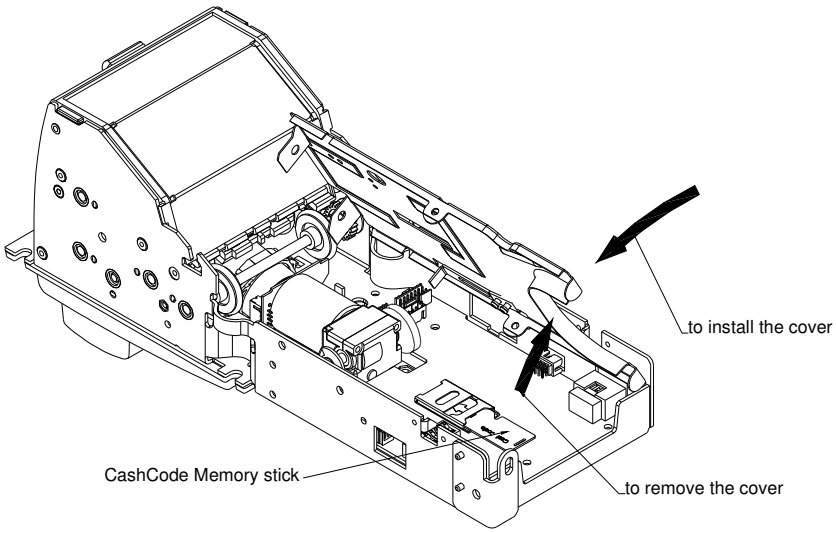


Access to the DIP switches and Memory stick

Remove the back cover by gently lifting it as instructed by the label. DIP switches and Memory stick are located on the CPU board.



When placing cover back, place the right side of the cover first, as shown.



The location of switches and Memory stick on CPU board may vary.

SOFTWARE UPDATES

To ensure the proper operation of the SM Bill Validator, software updates can be ordered according to the original SM part number.

The SM Bill Validator is shipped with pre-installed software, according to a user's ordered specifications.

Download procedure for a single-download Memory Stick:

Step 1. Turn Power OFF.
Step 2. Remove Cassette and open CPU cover.
Step 3. Remove the Dummy Card (or Memory stick) from the Memory stick slot of the CPU Board.
Step 4. Insert the new CashCode Memory stick into the Memory stick slot of the CPU Board.
Step 5. Close cover and insert cassette.
Step 6. Turn Power ON and wait until the download process is completed. During the download, a red-green status light will blink. Once the download is completed, the diagnostic light will turn green. Should the light stay red; this means there is no communication between the SM Bill Validator and the host controller. A single-download Memory stick must be present in the Bill Validator at all times.

Download procedure for the multi-download Memory Stick:

Please refer to the instructions concerning the single-download Memory stick. Follow steps 1, 2, 4, 5 and 6. After the successful completion of step 6, follow steps 1, 2, 3 and 5.

The Memory Card can be used to update more units, until the number of licenses is reached.

Download procedure via interface connector:

Software update through the interface connector can be performed when a Network Download Memory stick is installed on the validator. This memory stick must be present in the Bill validator at all times.

This method is best suited to update a large numbers of validators implementing CCNET protocol. The host controllers will normally be networked and access the software files from a central source. They will then update the validators using CCNET DOWNLOAD command set.

Software Update Diagnostics

Normally, the download process will be accompanied by a blinking red-green status light for about 1 minute. If the download has competed successfully, the status light will turn green. Should the download be unsuccessful, the status light will emit short green flashes followed with a longer red flash ("green flashes on red").

The following table lists description of errors, based on status of indicator flashes.

Number of flashes (Green on Red)	Error Description	Fault – Handling
1	External interface error in CCNET Download mode	1. Verify that software is suitable for CCNET download. Repeat procedure.
2	Memory stick CRC error	1. Turn power off, remove and insert the Memory stick again, turn power on. Replace Memory stick with the new one.
3	Incorrect data in Memory stick	1. Verify that the software is suitable to the Bill Validator type. Insert correct type of CashCode Memory stick.
4	Memory stick is not inserted	Properly insert the Memory stick.
5	Wrong type of Memory stick	Insert correct type of CashCode Memory stick.
6	Failure during download	1. Turn power off, remove and insert the Memory stick again, turn power on. Repeat procedure.
7	Memory stick operation error	1. Turn power off, remove and insert the Memory stick again, turn power on. Replace Memory stick with new one.

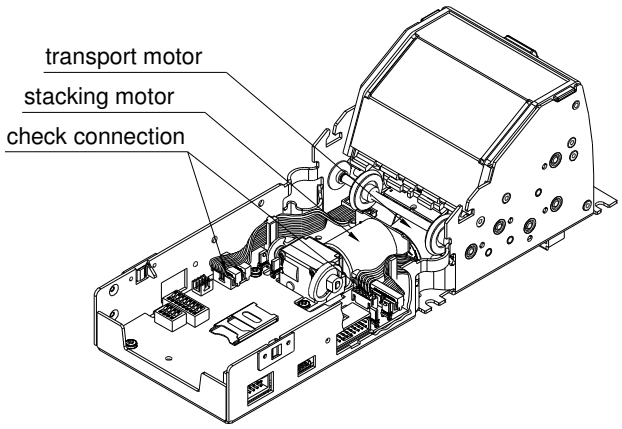
TROUBLESHOOTING

CashCode SM Bill Validator is equipped with a self-diagnostic feature to aid in repair and maintenance. At power on, the Bill Validator performs a self-diagnostic test. On completion of this the status light will turn green if no errors are detected. The light will flash red if an error is detected. The

number of red light flashes is an indication of a specific problem or malfunction. A detailed list of these errors and corrective action is provided below.

Operation Mode Diagnostics

Number of red flashes	Error description	Fault - handling
1	Cassette is removed from the bill validator	Check if cassette is installed correctly
2	Wrong type of sensors or no communication with sensors	Check reliability of electrical connection to processor board
3	Cassette is full	Replace the cassette with empty one
4	Mechanical jam in cassette or stacker motor failure	1. Remove the cassette from the bill validator and remove jammed bill 2. Turn power on and check stacking motor operation
5	Failure of dielectric sensors	
6	Failure of optical sensors	Open the guides and clean optical sensors.
7	Failure of inductive sensors	Open the guides and clean inductive sensors.
8	Failure of transport motor	1. Open the guides and clean the bill path. 2. Remove the cassette from the bill validator and open the cover. Check mechanical and electrical connections
11	Bill pathway is not empty	Open the guides and check the condition of the bill path
12	Bill jam in entry slot of the cassette. No credit issued.	Remove the cassette from the bill validator and clean the bill path.



TECHNICAL SUPPORT

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