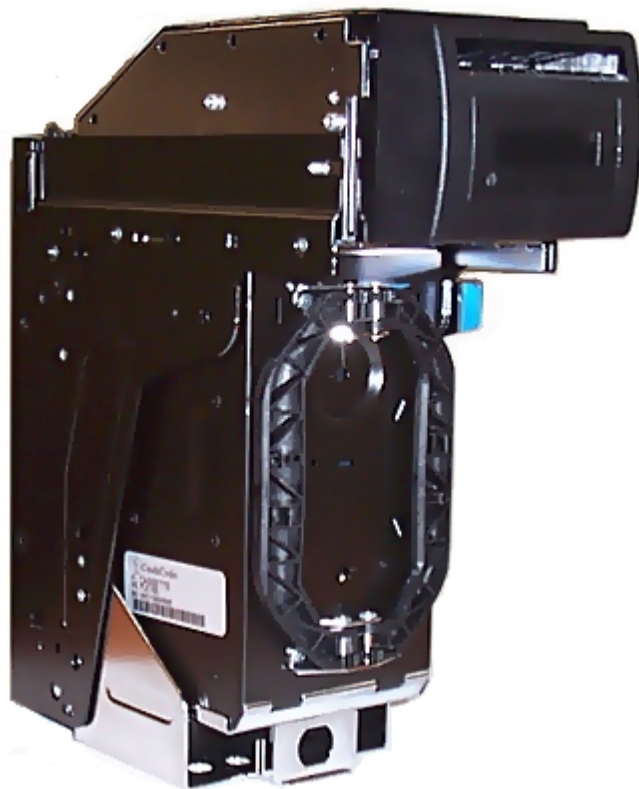


# CashCode FrontLoad Series

## FrontLoad Bill Validator

### Operation and Service Manual

#### Part 1. Operation Manual



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## INTRODUCTION

Congratulations! You have selected one of the most innovative cash-handling devices of its kind in the world—CashCode’s new generation of FrontLoad bill validators.

The FrontLoad bill validator is designed to help you with your high-security cash-handling needs—with break-through features CashCode has offered customers for years—including an easy-access clamshell design and a beltless, roller-based money transport system.

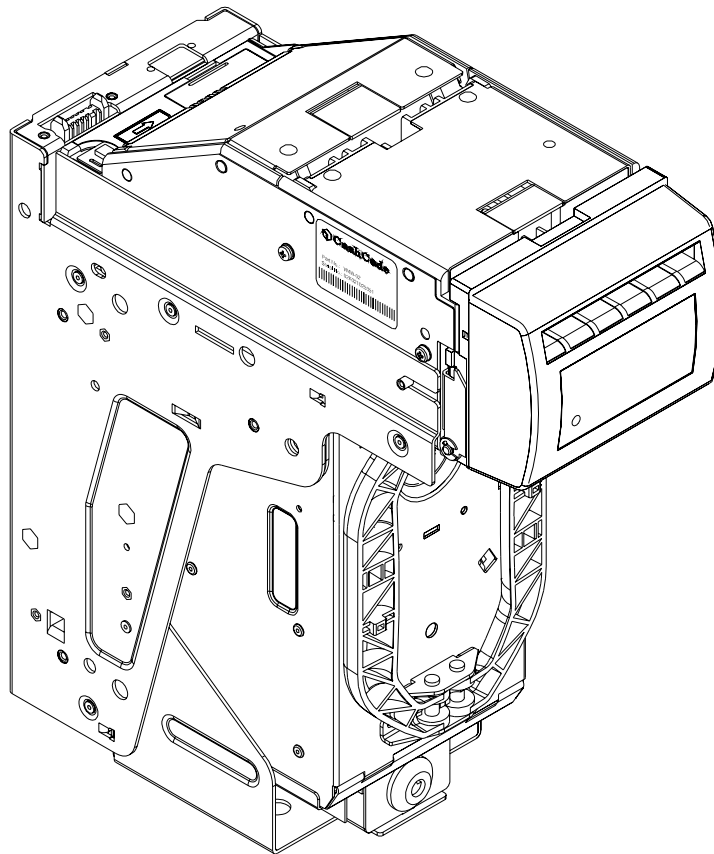
CashCode’s FrontLoad bill validator allows you to easily upgrade sensors and software, install high-capacity cassettes, validate multi-width currencies and rely on the most effective security technology in the industry.

This manual is designed to give you an easy overview of installation, use, and device upgrades for CashCode’s line of FrontLoad bill validators.

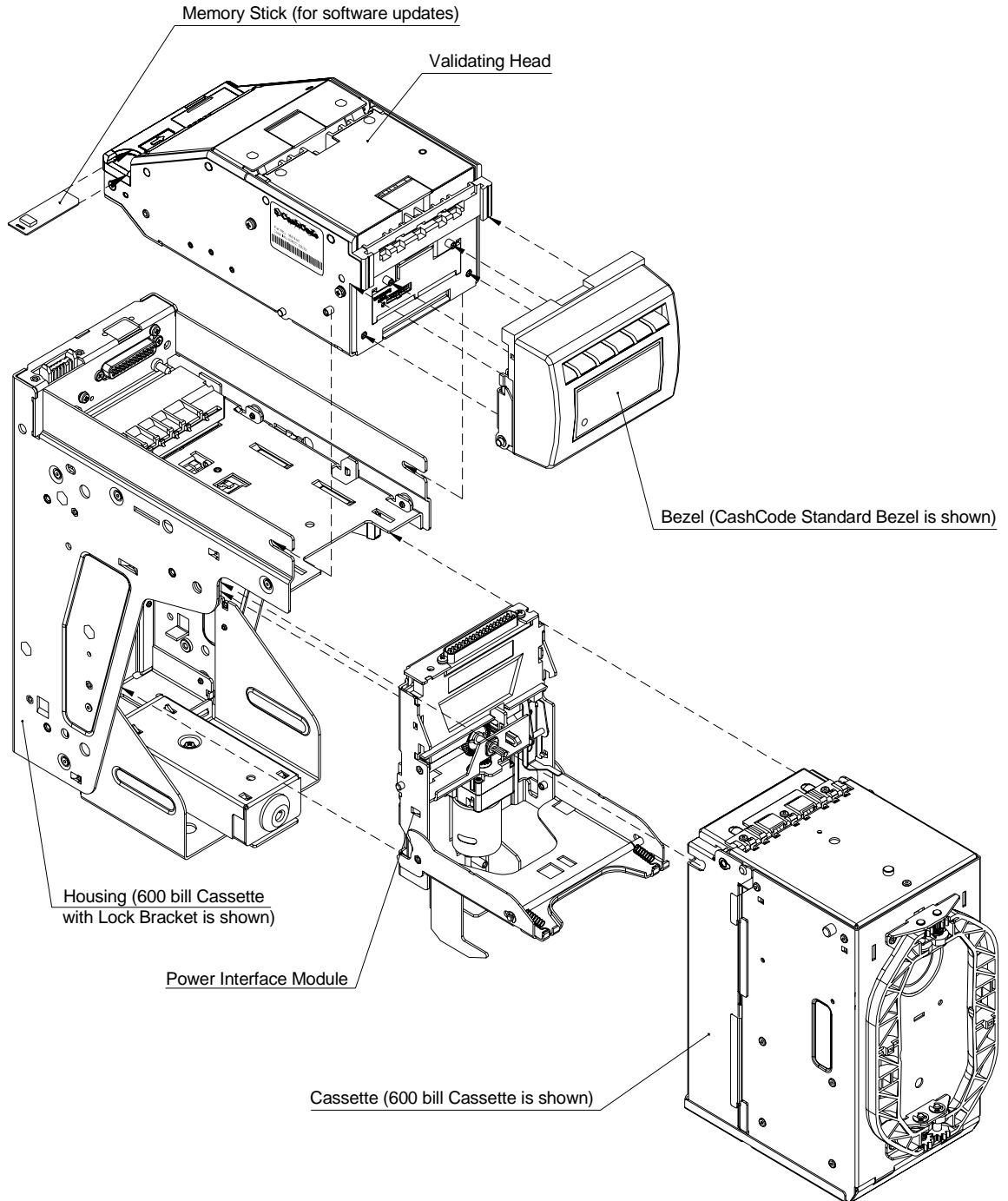
## PRODUCT OVERVIEW

CashCode's FrontLoad bill validator was developed to validate a wide variety of paper currencies. The design of the FrontLoad is based on modular principles. The unit's modular design provides extreme flexibility—allowing you to customize the bill validator to suit your individual requirements.

The CashCode FrontLoad bill validator provides front access to a lockable cassette.



The FrontLoad bill validator consists of six main modules. Each module is available in different variations, to suit your needs. The picture below illustrates the different modules, and gives part names.



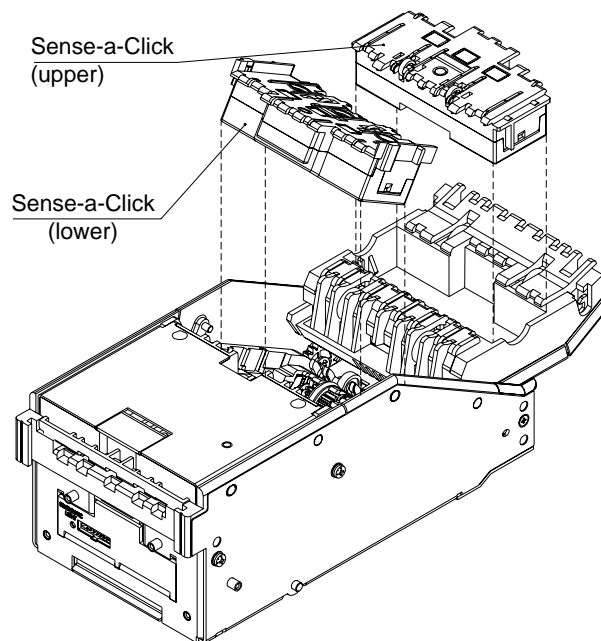
The transport mechanism can transport bills of different sizes from 62 to 82 mm wide, and from 125 to 172 mm long—which encompasses most currencies.

Some currencies have different widths depending on bill denomination. For accurate validation of such currencies, the **Validating Head** with a centering mechanism should be used. For currencies with a single width, the **Validating Head** with a fixed width path can be used.

Replaceable “**Sense-a-Click™**” sensor modules recognize and validate a specific currency—depending on the hardware installed in the “Sense-a-Click™” module.

The **Power Interface** module allows the freedom to choose interfaces—according to your own personal specifications.

The Lockable **Cassette** is used for temporary storage of validated bills. It can be locked with two standard ¾” tubular locks. The Cassette is available in two sizes: a 600 or 1000 bill variety. Cassette capacity refers to the space inside the Cassette used for bill stacking.



The Validating Head carries a set of Sense-a-Click™ modules

And bill capacity (600 or 1000 bills) refers to the amount of new bills that the **Cassette** can store. Street grade bills require more space and a lower amount of them can be stored.

The **Housing** joins all the other modules. Housing is permanently secured inside a gaming or vending machine. There may be a mechanism for locking the **Cassette** within the **Housing** (Lock Bracket), or there may be a Plain Bracket. The **Housing** also contains security switches, which detect Cassette removal.

Several **Bezel** styles are available for the FrontLoad.

**Software updates** can be easily completed with a **Memory Stick**.

Modular design allows the replacement of failed modules in the field—in just seconds!

## GENERAL SPECIFICATIONS

Insertion.....Lengthwise in 4 directions  
Validation rate.....Not less than 96% on first insertion  
Width of bill, in mm.....From 62 to 82

Maximum length of bill, in mm.....172  
Minimum length of bill, in mm.....124  
Bill escrow.....One bill

Time of identificaion.....2.5  
(from time of bill insertion to time  
that credit is issued, in seconds)

Full validation time, in seconds:

Multi-width FrontLoad .....4.5  
FrontLoad.....3.5

External interface:

- a. Opto-Isolated, 12 Volt CC FLBDP
- b. CCNET
- c. CC-BDPS
- d. Isolated Pulse Low Current, 12 Volt CC-IPL
- e. IGT NetPlex

Maximum stacking capacity of new bills in Cassette.....600 or 1000

Power supply voltage\*.....12 V.D.C.  $\pm$  1.0 V.  
or 24 V.D.C.  $\pm$  4.0 V.

Current consumption\*:

maximum operating current ..... 2.0 A.  
maximum standby current..... 0.2 A.

Power consumption\*, W:

Idle mode.....2.4 W.  
Validation mode.....12 W.

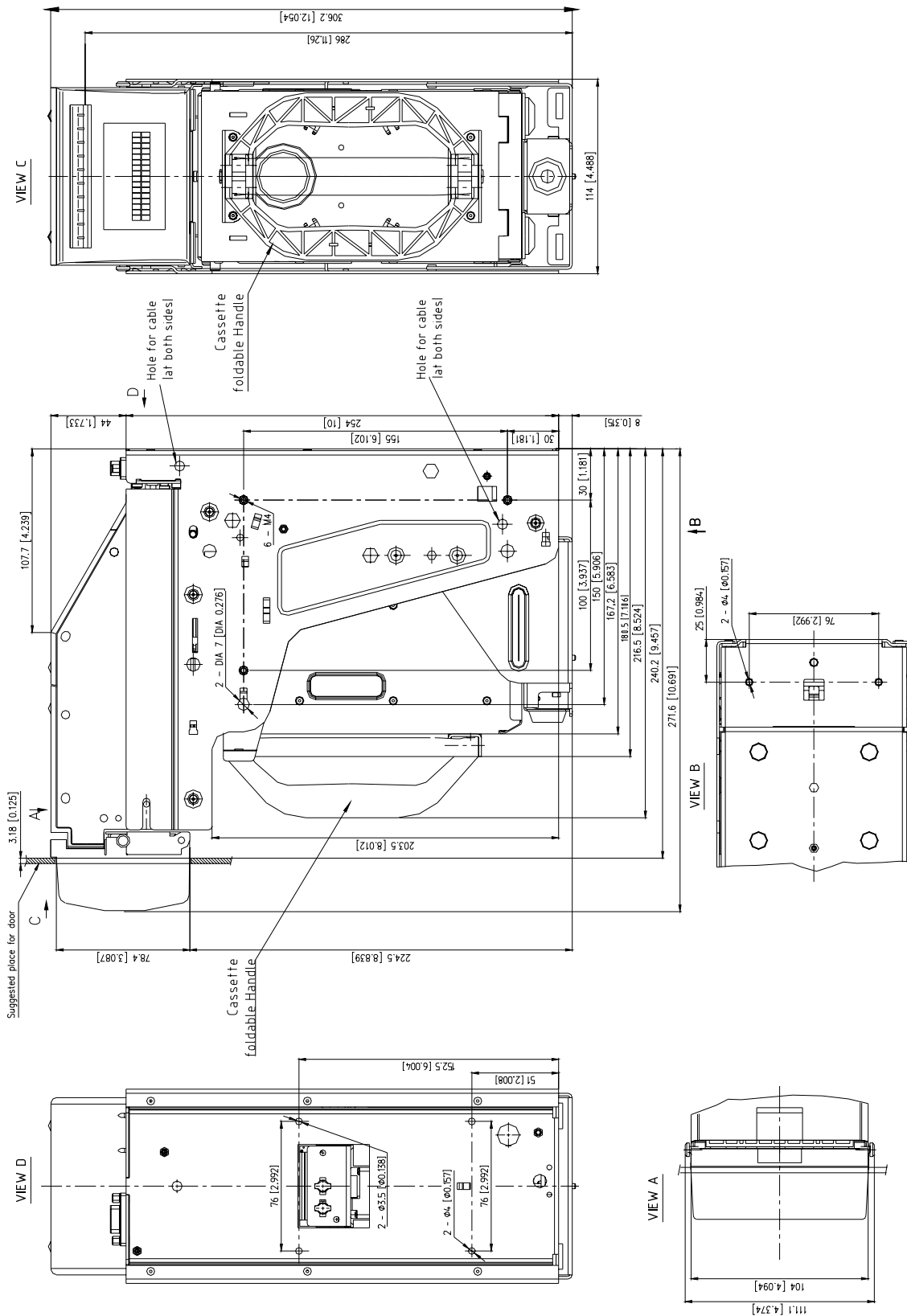
(\* = Parameters for validator without active light bezel)

Environment:

- a. Operating Temperature..... 0 °C to +50 °C
- b. Storage Temperature..... -5 °C to +60 °C
- c. Humidity (non-condensing)..... 30%-90%RH

## DIMENSIONS

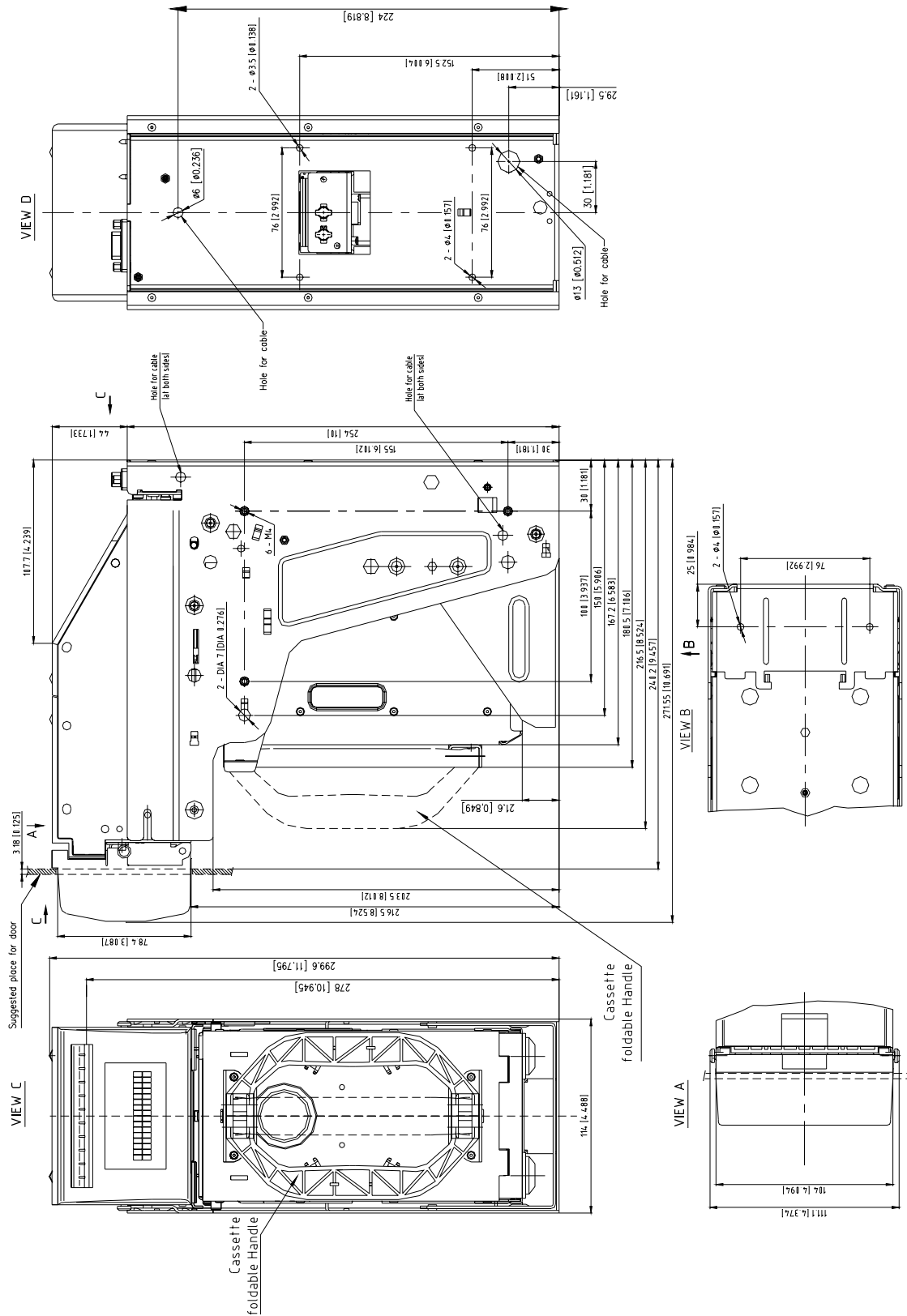
### BILL VALIDATOR WITH STANDARD BEZEL, 600 BILL CASSETTE AND LOCKING MECHANISM



DIMENSIONS

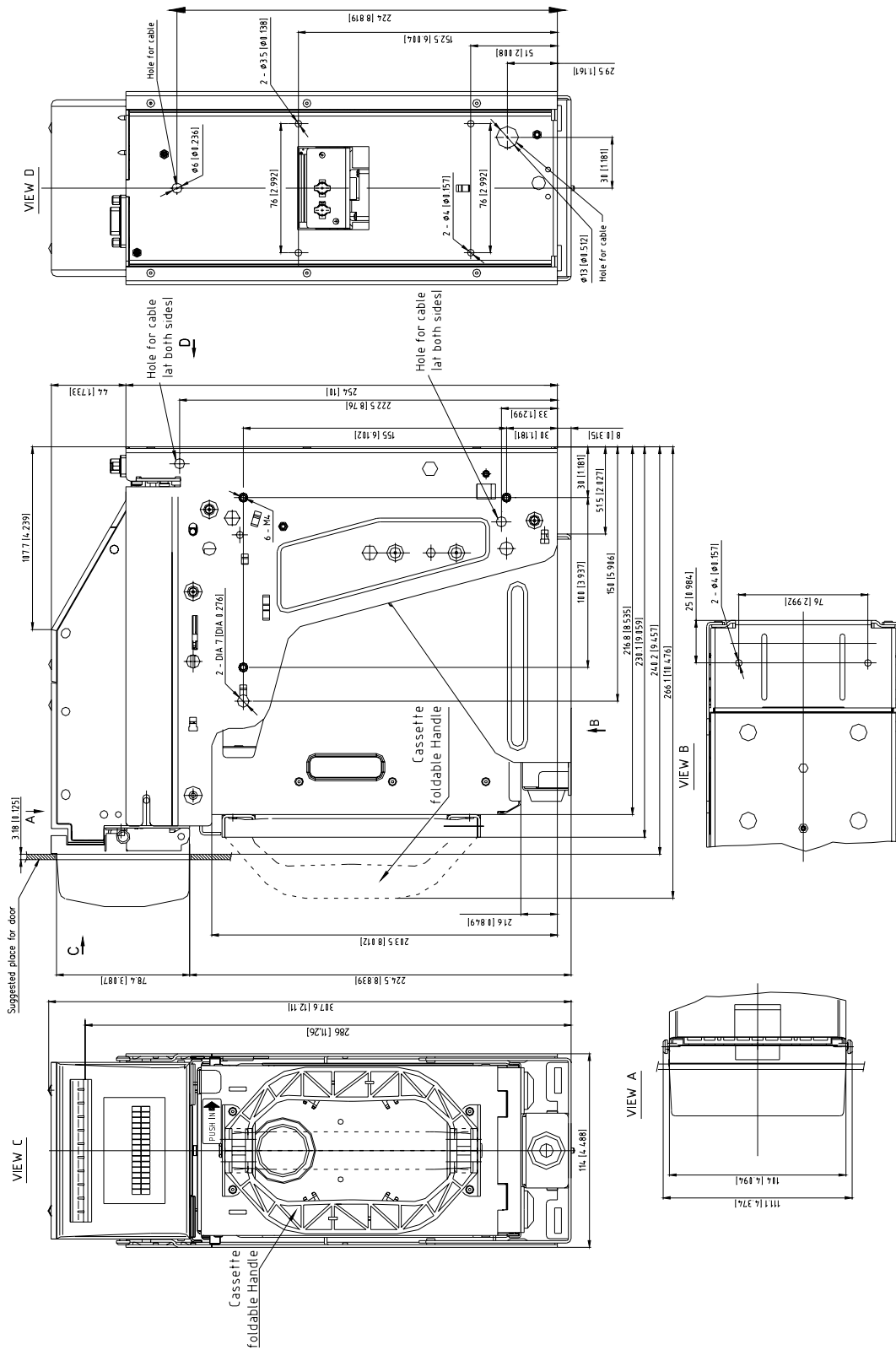


**BILL VALIDATOR WITH STANDARD BEZEL, 600 BILL CASSETTE AND NON-LOCKING MECHANISM**



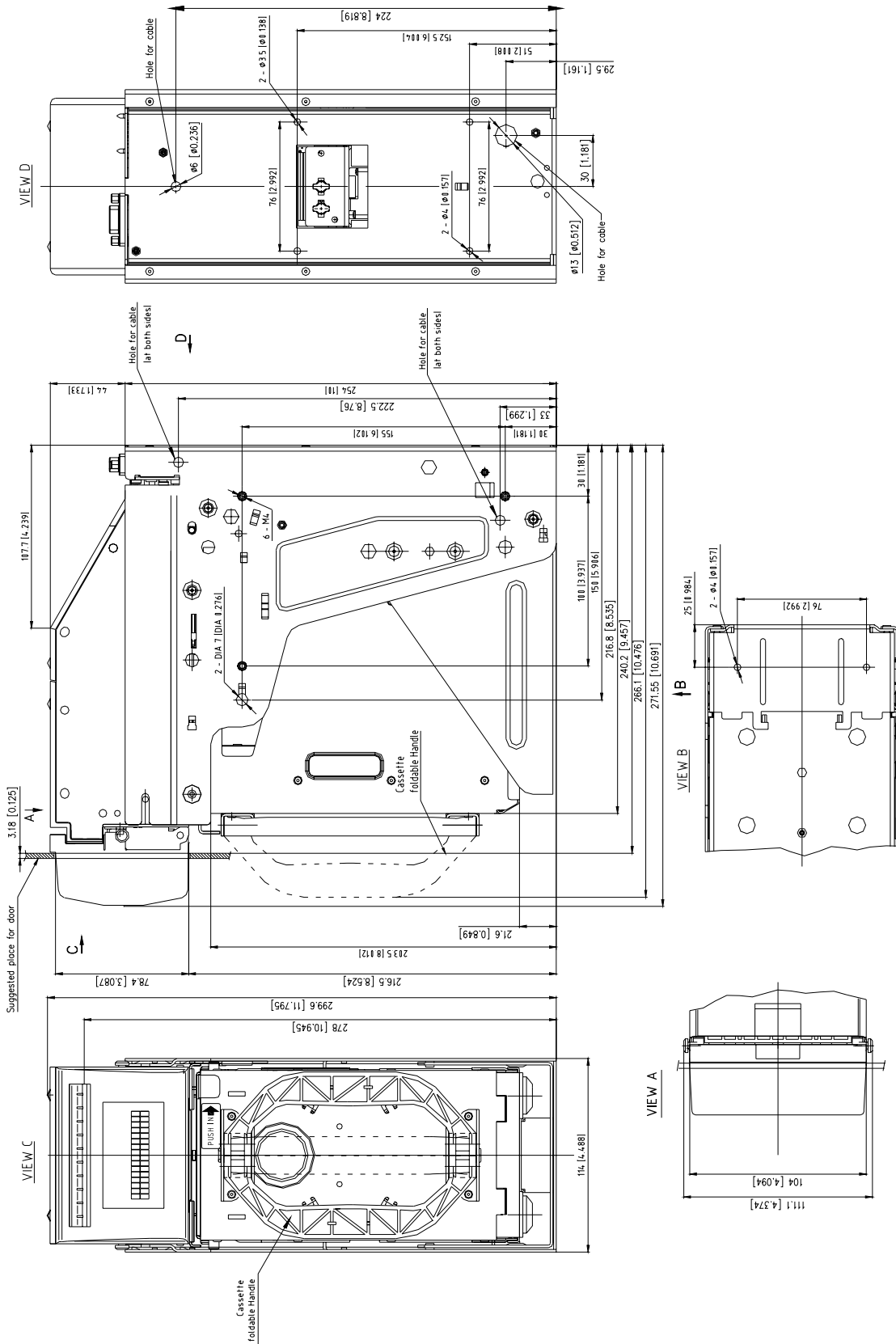
DIMENSIONS

**BILL VALIDATOR WITH STANDARD BEZEL, 1000 BILL CASSETTE AND LOCKING MECHANISM**



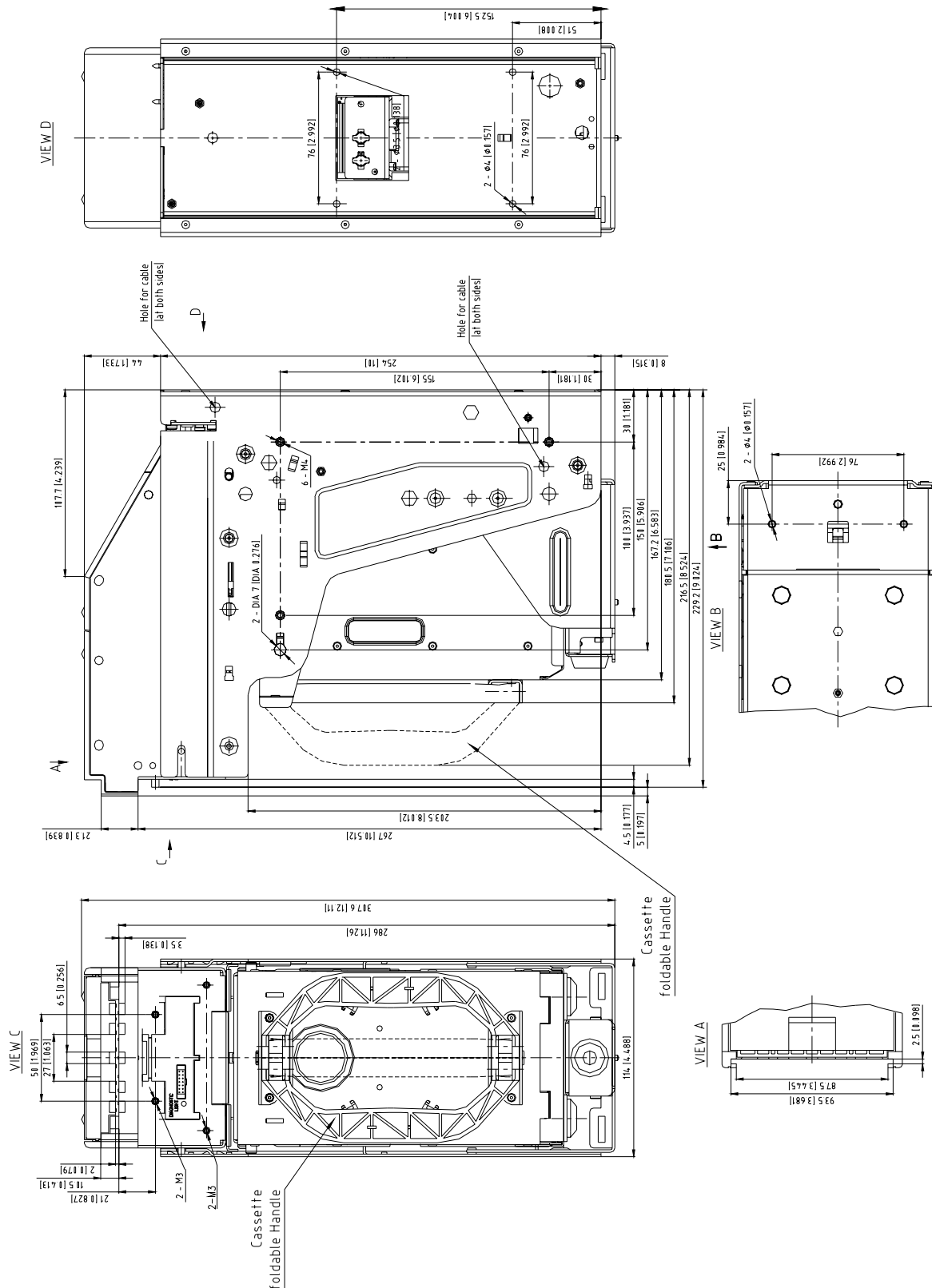
**DIMENSIONS**

**BILL VALIDATOR WITH STANDARD BEZEL, 1000 BILL CASSETTE AND NON-LOCKING MECHANISM**



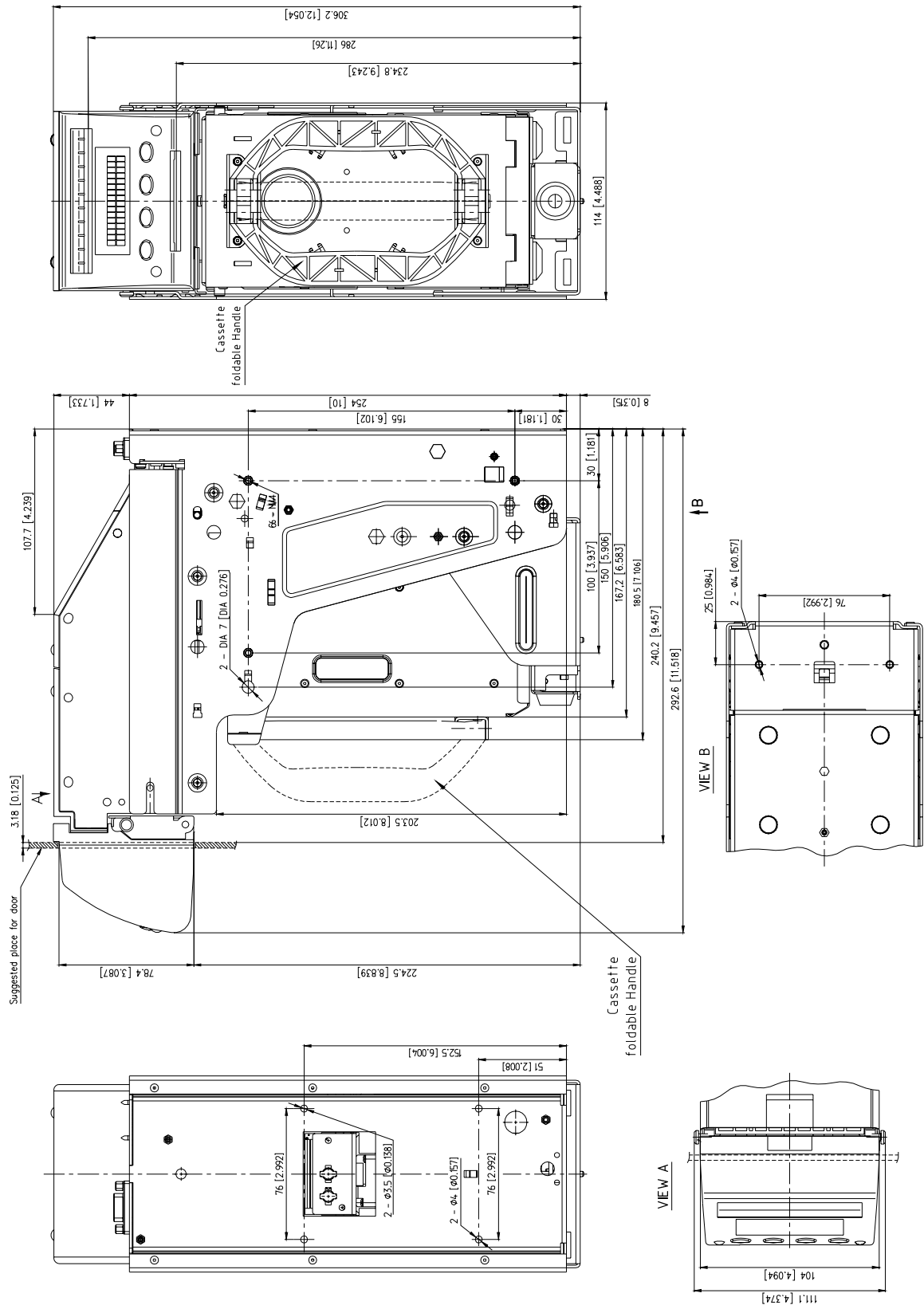
DIMENSIONS

**BILL VALIDATOR WITHOUT BEZEL, 600 BILL CASSETTE AND LOCKING MECHANISM**



DIMENSIONS

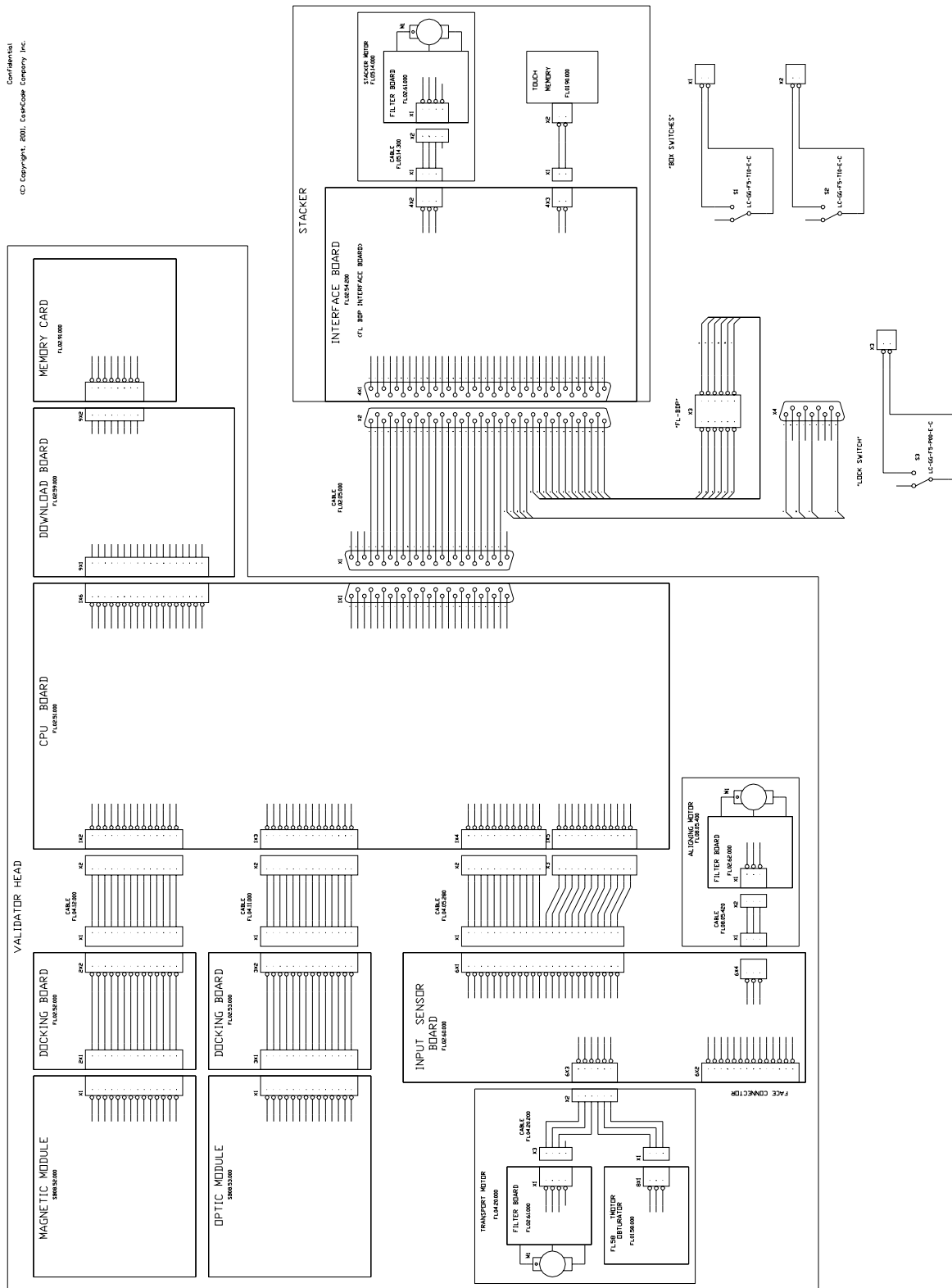
**BILL VALIDATOR WITH SMART CARD READER, 600 BILL CASSETTE AND LOCKING MECHANISM**



DIMENSIONS

GENERAL WIRING DIAGRAM

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GENERAL WIRING DIAGRAM

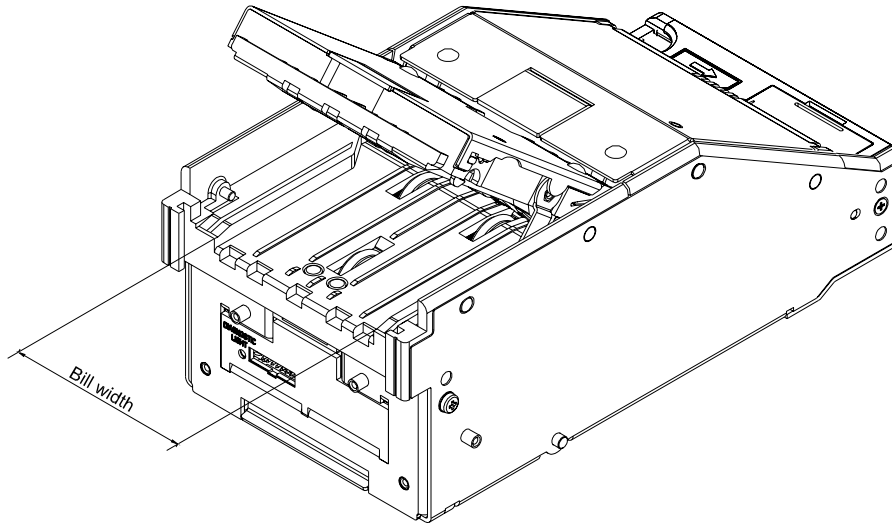
## MODULAR SYSTEM

A Modular System is an interchangeable group of parts—easily configurable to a user's specifications. Below is a more detailed description of each module and its features.

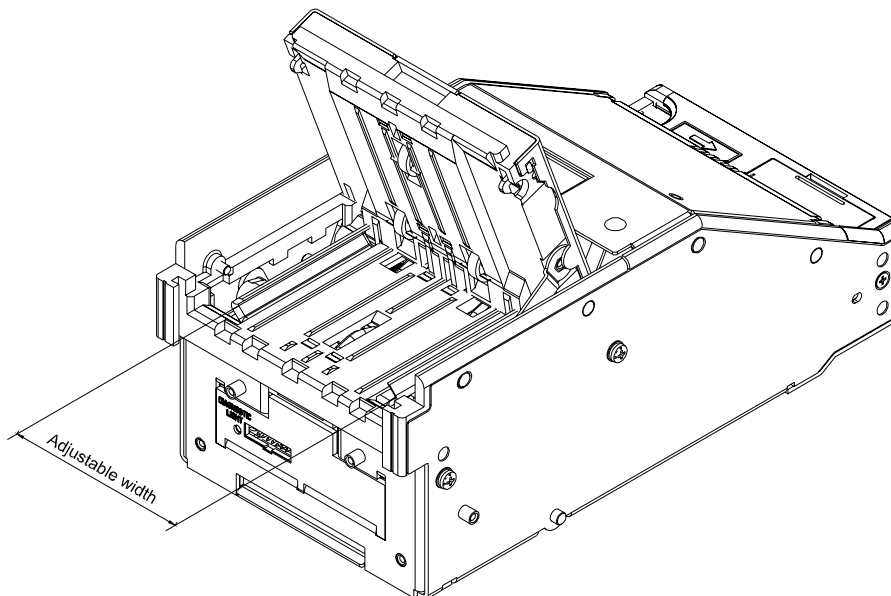
### VALIDATING HEAD

The **Validating Head** has the following options:

- 1) The Validating Head with a fixed width path is available for bill widths 62, 64, 66, 68, 70, 72, 74, 76, 78, 80 and 82 mm.



- 2) The Validating Head with a centering mechanism has a self-adjustable bill path. The width of the path is automatically adjusted to accommodate each bill. This type of Validating Head is useful for currency where the width of the bill depends on the denomination.



3) The “Model” of Validating Head reflects the type of electronics used inside, and determines the compatibility with other modules.

Part number	Description	Model	Availability
FLV-0110	Bill width 62 mm	A	
FLV-0210	Bill width 64 mm	A	
FLV-0310	Bill width 66 mm	A	yes
FLV-0410	Bill width 68 mm	A	
FLV-0510	Bill width 70 mm	A	yes
FLV-0610	Bill width 72 mm	A	
FLV-0710	Bill width 74 mm	A	
FLV-0810	Bill width 76 mm	A	
FLV-0910	Bill width 78 mm	A	
FLV-1010	Bill width 80 mm	A	
FLV-1110	Bill width 82 mm	A	
MFLV-2110	Multi-width centering mechanism	A	yes



Listed below is the appropriate Validating Head part number, which varies according to country.

Country (currency)	Validating Head part number
Argentina	FLV-0310
Australia	FLV-0310
Austria	MFLV-2110
Brazil	FLV-0310
Canada	FLV-0510
Chile	FLV-0510
China	MFLV-2110
Colombia	FLV-0510
Dominican Republic	FLV-0310
Euro	MFLV-2110
Great Britain	MFLV-2110
Hong Kong	MFLV-2110
Japan	MFLV-2110
Korea	MFLV-2110
Mexico	FLV-0310
New Zealand	MFLV-2110
Philippines	FLV-0310
Russia	MFLV-2110
Scotland	MFLV-2110
South Africa	FLV-0510
Ukraine	MFLV-2110
USA	FLV-0310
USA + Canada	MFLV-2110
USA + Mexico	FLV-0310
Venezuela	FLV-0510
Kazakhstan	MFLV-2110

## SENSE-A-CLICK® MODULES

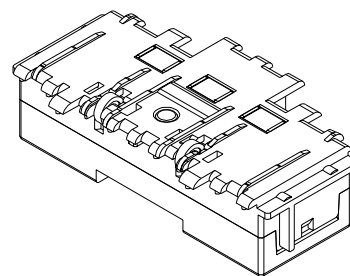
“Sense-a-Click™” is a set of two modules—one upper and one lower. In order to be compatible with each other, both modules must have the same part and model number.

The Sense-a-Click™ set offers the following options:

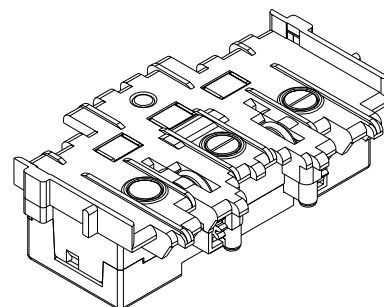
- Color and position of the optical sensors;
- Number and position of the Inductive sensors;
- Capacitive sensors;
- Model, which reflects the type of electronics housed inside, and determines the compatibility with other modules.

Depending on the bill type, the following Sense-a-Click™ part numbers are available:

Currency		Part Number for Sense-a-Click			Model
		Set of two modules	Upper module	Lower module	
Argentina	AR	FLS-1704	FLS-1704U	FLS-1704L	A
Australia	AU	FLS-1704	FLS-1704U	FLS-1704L	A
Brazil	BR	FLS-1704	FLS-1704U	FLS-1704L	A
Canada	CA	FLS-1801	FLS-1801U	FLS-1801L	A
Chile	CL	FLS-1704	FLS-1704U	FLS-1704L	A
China	CN	FLS-1705	FLS-1705U	FLS-1705L	A
Colombia	CO	FLS-1704	FLS-1704U	FLS-1704L	A
Dominican Republic	DO	FLS-1704	FLS-1704U	FLS-1704L	A
Euro	EU	FLS-1704	FLS-1704U	FLS-1704L	A
Great Britain	GB	FLS-1704	FLS-1704U	FLS-1704L	A
Hong Kong	HK	FLS-1705	FLS-1705U	FLS-1705L	A
Mexico	MX	FLS-1705	FLS-1705U	FLS-1705L	A
New Zealand	NZ	FLS-1704	FLS-1704U	FLS-1704L	A
Philippines	PH	FLS-1704	FLS-1704U	FLS-1704L	A
Russia	RU	FLS-1704	FLS-1704U	FLS-1704L	A
South Africa	ZA	FLS-1704	FLS-1704U	FLS-1704L	A
Ukraine	UA	FLS-1704	FLS-1704U	FLS-1704L	A
USA	US	FLS-1704	FLS-1704U	FLS-1704L	A
USA + Canada	USCA	FLS-1901	FLS-1901U	FLS-1901L	A
Venezuela	VE	FLS-1705	FLS-1705U	FLS-1705L	A
Scotland	SL	FLS-1704	FLS-1704U	FLS-1704L	A
USA + Mexico	USMX	FLS-1704	FLS-1704U	FLS-1704L	A
USA+Great Britain	USGB	FLS-1704	FLS-1704U	FLS-1704L	A
China+Hong Kong	CN HK	FLS-1705	FLS-1705U	FLS-1705L	A
Kazakhstan	KZ	FLS-1704	FLS-1704U	FLS-1704L	A



Upper Module

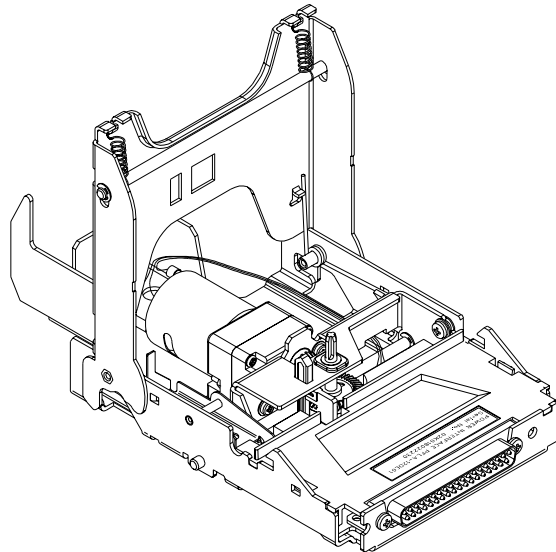


Lower Module

## POWER INTERFACE MODULE

The **Power Interface Module** offers the following options:

- 1) Input power: 12 VDC or 24 VDC;
- 2) Interface (see chart below for complete list of interfaces)
- 3) Model: reflects type of electronics inside (A – with linear voltage regulation, B – with switching voltage regulation). Model B provides higher power and must be used when additional modules are included in the FrontLoad Bill Validator (e.g. Smat Card Reader)
- 4) Connector for Cassette Touch Memory (Dallas Chip)—a system which helps manage cash flow and collects statistics from the Bill Validator.

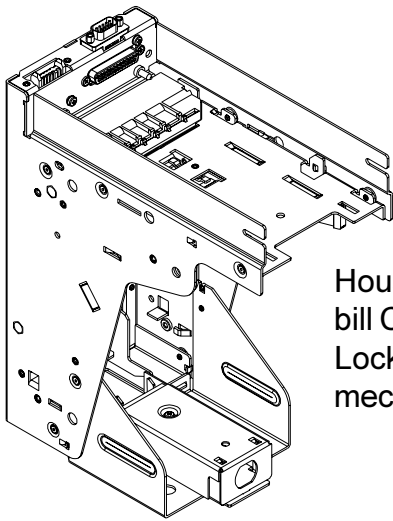


Part Number	Power	Interface	Model	Touch Memory Connector
FLP-1710	12 VDC	CC-FLBDP, IGT NETPLEX	A	No
FLP-2710	12 VDC	CC-BDPS, CCNET (single slave mode)	A	No
FLP-2810	12 VDC	CC-IPL (Isolated Pulse Low Current)	A	No
FLP-5710	24 VDC	CC-GPC22, CCNET (single slave mode)	B	No

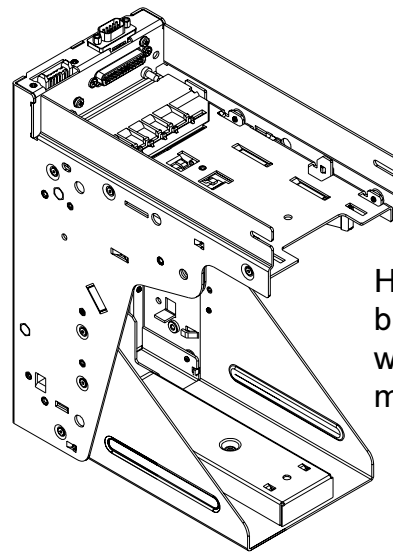
## HOUSING

**Housing** offers the following options:

- 1) Size of supporting bracket: 2 sizes are available—600 bill Cassettes and 1000 bill Cassettes;
- 2) Locking mechanism in supporting bracket: Lockable bracket and Plain bracket are available. Locking mechanism can operate with a 3/4" tubular lock.
- 3) Security switches. Housing is equipped with a "Cassette removal" security switch and, if the Lockable bracket option was selected, with an "Open lock" security switch. Both switches have Quick Connect terminals (0.110) and are able to communicate signals 5A at 250 VAC. Optionally, a second switch for the Cassette and a Switch for the Validating Head can be added.
- 4) Interface connectors: JAE 12 pin (standard), JAE + DB9 (use with Card Reader Bezel), JAE + USB.



Housing for 600 bill Cassette with Locking mechanism.



Housing for 1000 bill cassette without Locking mechanism.

The following combinations of features mentioned above are available:

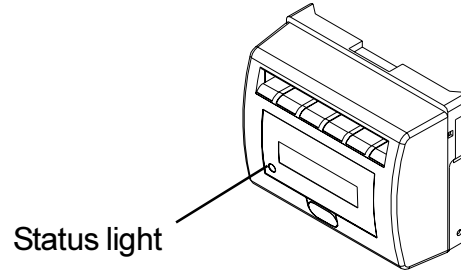
Part Number	Cassette size	Bracket	Optional security switches	Connectors
FLH-0110	600	Plain	None	Standard
FLH-0410	600	Lockable	None	JAE+DB9
FLH-0510	600	Plain	None	JAE+DB9
FLH-0810	600	Lockable	None	Standard
FLH-3110	1000	Plain	None	Standard
FLH-3410	1000	Lockable	None	JAE+DB9
FLH-3510	1000	Lockable	None	Standard
FLH-2010	1000	Plain	None	JAE+DB9

**BEZELS**

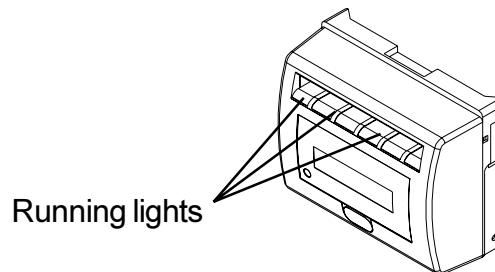
Several **Bezel** designs are available in order to make the CashCode Bill Validator compatible with different door styles. Normally, the Bill Validator is supplied with the Standard CashCode Bezel. Each type of bezel is available for different bill path widths (Path width for the bezel and Validating Head must be the same.)

Part Number	Bill width, in mm
CashCode Standard Bezel	
FLB-2301	62 and 64
FLB-2311	66
FLB-2321	68
FLB-2331	70
FLB-2341	72
FLB-2351	74
FLB-2361	76
FLB-2371	78
FLB-2381	80
MFLB-2401	62 to 82
CashCode Bezel with running lights	
FLB-2101	62 and 64
FLB-2111	66
FLB-2121	68
FLB-2131	70
FLB-2141	72
FLB-2151	74
FLB-2161	76
FLB-2171	78
FLB-2181	80
MFLB-2201	62 to 82
CashCode Bezel with Digital Display	
FLB-3101	62 and 64
FLB-3111	66
FLB-3121	68
FLB-3131	70
FLB-3141	72
FLB-3151	74
FLB-3161	76
FLB-3171	78
FLB-3181	80
MFLB-3201	62 to 82

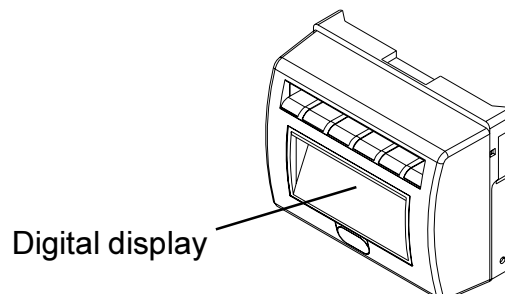
**Standard CashCode Bezel.** The status indication light is provided.



**CashCode Bezel with running lights.** The status light is combined with a running light wave in the entryway.

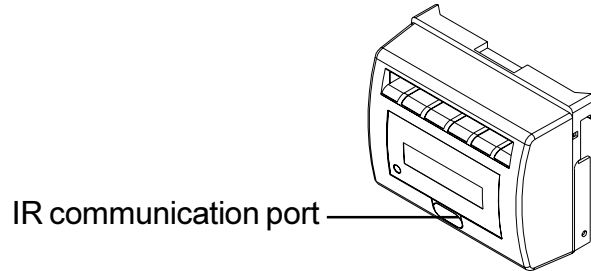


**CashCode Bezel with running lights and digital display.** In addition to running lights, a digital display of 2 lines (16 characters each) is provided. Users are able to create a cool custom message—in order to attract or instruct customers.

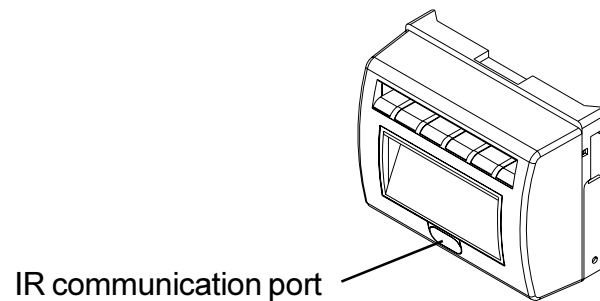


Part Number	Bill width, in mm
<b>CashCode Bezel with running lights and IR communication port</b>	
FLB-2501	62 and 64
FLB-2511	66
FLB-2521	68
FLB-2531	70
FLB-2541	72
FLB-2551	74
FLB-2561	76
FLB-2571	78
FLB-2581	80
MFLB-2601	62 to 82
<b>CashCode Bezel with Digital Display and IR communication port</b>	
FLB-3301	62 and 64
FLB-3311	66
FLB-3321	68
FLB-3331	70
FLB-3341	72
FLB-3351	74
FLB-3361	76
FLB-3371	78
FLB-3381	80
MFLB-3401	62 to 82

**CashCode Bezel with running lights and Infra Red communication port.** In addition to the running lights, an IR communication port is provided.

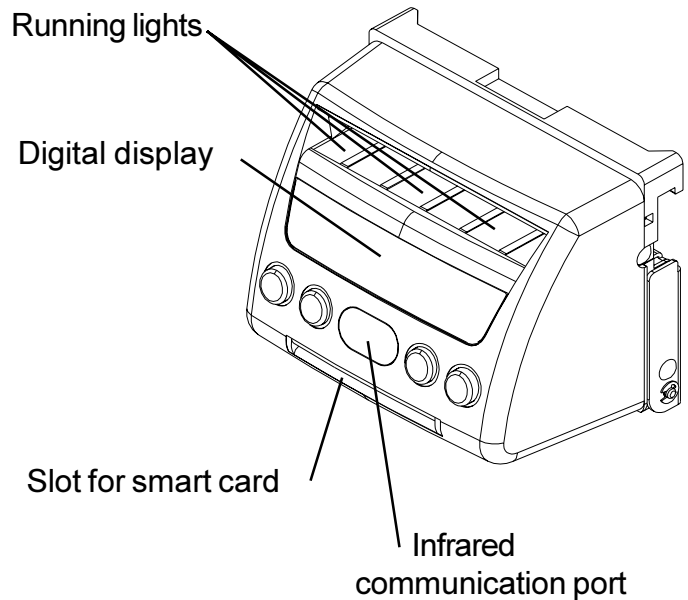


**CashCode Bezel with running lights, digital display and Infra Red communication port.** In addition to running lights and digital display, an IR communication port is provided.



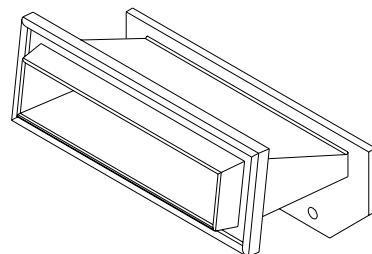
Part Number	Bill width, in mm
Smart Card Reader with Infrared communication port	
FLB-4401	62 and 64
FLB-4411	66
FLB-4421	68
FLB-4431	70
FLB-4441	72
FLB-4451	74
FLB-4461	76
FLB-4471	78
FLB-4481	80
MFLB-4501	62 to 82

**CashCode Bezel with Smart Card reader.**  
The Card Reader can support up to 4 different standards simultaneously.



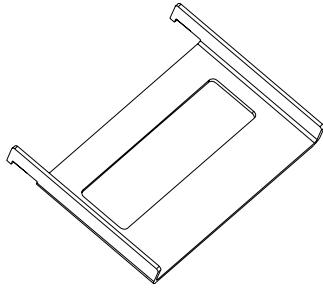
Part Number	Bill width, in mm
FLB-1011	66
FLB-1021	70

**CashCode Bezel for “Double Diamond”**  
Gaming machine. Available in two widths: 66 and 70 mm.



**ACCESSORIES**

Accessories, typically supplied with the Bill Validator, include an extractor (a special tool for replacing the Sense-a-Click® Lower module, part number **OPT-HW-FT01**) and a harness (cable) for external connections.



**OPT-HW-FT01**

If no special requirements have been specified, then the cable will automatically come with 12 “loose” wires at one side and a 12-pin JAE connector attached to the other side. The total length of cable is 1 meter. The chart below gives information about wire color and connection to the connector pin.

The harness part number is **FL-HS-JAE-05**.

A customized harness is also available, to suit your special needs.

Connector pin No.	Color of wire
1	Red
2	Brown
3	Yellow
4	Black
5	Blue
6	Gray
7	Pink
8	Orange
9	Green
Not connected	Tan
11	Violet
12	White

For a download via the interface connector, the following accessories must be used:

Power Interface Module used in FrontLoad Bill Balidator	Adapter part number	Interface
FLP-1710	<b>OPT-PS2-FL-PC</b>	CC-FLBDP, IGT NETPLEX
FLP-2710	<b>OPT-PS2-JAE-DB9</b>	FL-BDPS, CCNET (12V)
FLP-2810		CC-IPL
FLP-5710	coming soon	CC-GPC22, CCNET (24V)



**CASSETTE**

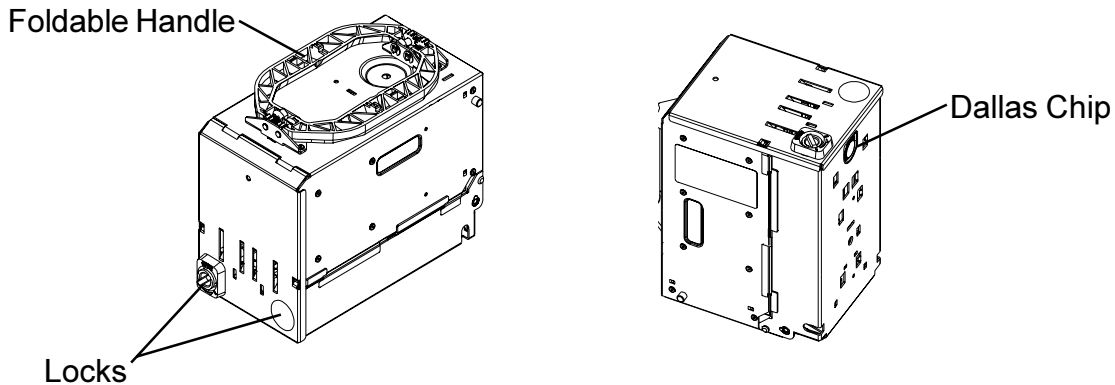
The **Cassette** stores validated bills and holds them in a stacked formation. The Cassette has a stacking mechanism and is typically equipped with a plastic lock. Users are encouraged to replace the plastic lock with the regular metal one. Users have a choice between one lock—or two locks for added security. A locking mechanism allows for the installation of a user’s security locks (one or two 3/4” tubular locks measuring  $1\frac{1}{16}”\pm\frac{1}{16}”$  or  $1\frac{1}{8}”\pm\frac{1}{16}”$ ).

The Cassette is available in two sizes—a 600 and 1000 bill storage capacity. Street grade bills require more space and as a result, less bills may be stored. The Cassette is supplied with a foldable handle, but where space inside the machine is limited, a premium Cassette may be ordered without a handle.

The Cassette can validate bills from 62 to 82 mm wide, and from 140 to 172 mm long. For bills from 125 to 150 mm in length, a modified Cassette may be ordered.

The Cassette may be ordered with mounting parts for installation of the Touch Memory (Dallas Chip). The Dallas Chip is located in the cassette housing. The proper type of Power Interface Module must be ordered to communicate with the Dallas Chip.

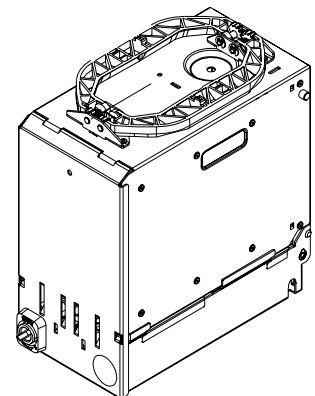
The Cassette is not included with the Bill Validator and must be ordered separately.



600 bill cassette

The following types of cassettes are available:

Part No.	Cassette capacity, bills	Bill length, mm	Handle	Dallas Chip
FLC-003	600	125 to 150	Foldable	no
FLC-103	600	140 to 172	Foldable	no
FLC-503	1000	125 to 150	Foldable	no
FLC-603	1000	140 to 172	Foldable	no



1000 bill cassette

For part numbers of other cassettes, please contact manufacturer.

## MEMORY STICK AND SOFTWARE UPDATE OPTIONS

CashCode FrontLoad Bill Validators are manufactured with pre-installed software, according to a user's order. A "Dummy Card" is installed in the Memory Stick slot, found in the Validating Head. Software updates are recommended whenever new currency is issued, or whenever a new series of counterfeit bills appear on the market.

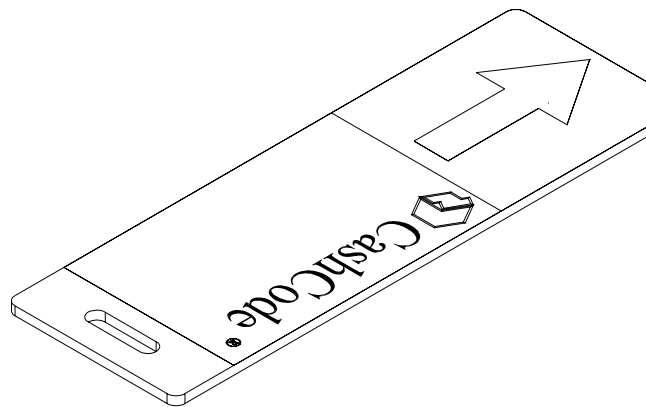
Software updates are offered in three options:

1) New software can be ordered with a single-download Memory Stick. In this instance, the Memory Stick with the new software may be easily installed into the slot on the Validating Head (existing Memory Stick or Dummy Card must be deleted from the slot). One Memory Stick is required for each FrontLoad Bill Validator operated. The Bill Validator will operate only if the Memory Stick is present in the slot. The software from the new Memory Stick is downloaded as soon as it is inserted into the Memory Stick slot, and the Validating Head is powered on.

2) New software can be ordered with a multi-download Memory Stick. The multi-download Memory Stick allows the operation of the FrontLoad Bill Validator without the presence of a Memory Stick in the Memory Stick slot. Thus the Memory Stick can be used for updating the next FrontLoad Bill Validator, depending on the number of licences ordered. Typically a multi-download Memory Stick is issued for a limited number of downloads, and therefore the number of licences required must be defined in the user's order.

3) A special Memory Stick can be ordered, which allows the download of new software via an interface connector. After the download, the Memory Stick must be present in the Validating Head at all times. If the host controller supports the CCNET interface, then the download can be done via the host controller (and local network). Other interfaces do not support this download feature. Downloads in this case can be completed with any personal computer (PC or laptop) and a CashCode adapter—which must be connected between the computer and interface connector of the FrontLoad Bill Validator. (The Validator must be temporarily disconnected from the host controller). For the download to be successful, the computer must have one free serial port (RS-232) to connect to the Validator.

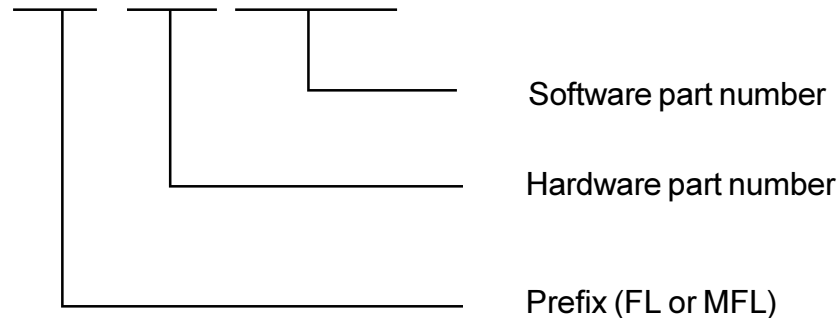
Instructions for Memory Stick replacement and software updates can be found in the chapter called "SOFTWARE UPDATES" on page 42.



## CHOOSING PART NUMBERS FOR THE BILL VALIDATOR

Final part numbers for the FrontLoad Bill Validator consist of two parts: a hardware part number and a software part number.

Example: **MFL-0101US1701**



The Prefix defines the device class. Here FL means “FrontLoad Bill Validator” and MFL means “Multi-width Front Load Bill Validator” (i.e. with a centering mechanism in the Validating Head).

The Hardware part number reflects the contents of the Bill Validator (i.e. Validating Head type, Housing type, etc.)

The Software part number reflects only country (currency) and depends on interface (and on the user’s specifications).

There is special software program for choosing part numbers. (Please see the enclosed CD-ROM program entitled “CONFIGURATOR.exe”.)

Before the user starts this program, the following information must be determined:

- **Country** (e.g. USA);
- **Interface** (e.g. CCNET)
- **Power** (e.g. 12VDC)
- Type of **Bezel** (e.g. Standard)
- **Housing** options (ie: Cassette size, locking mechanism, additional cassette security switch)

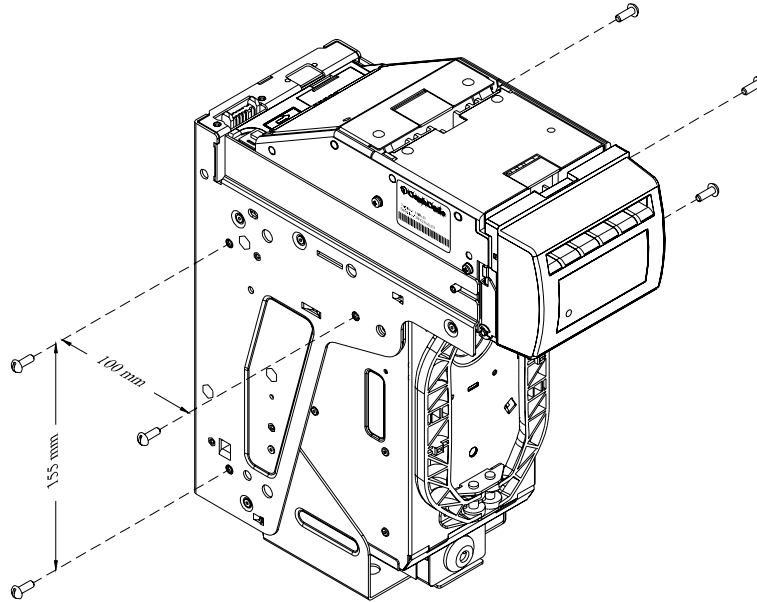
When the program runs, menus will appear with all available options, including a comprehensive help menu with detailed description and pictures.

Please keep in mind that Cassettes must be ordered separately. At least one Cassette per Bill Validator will be needed, but the user may order additional quantities of Cassettes (ie: to switch Cassettes when collecting money).

In case the combination of features selected by the user is not possible, the user will receive a message that the part number does not exist—and a letter to the CashCode Engineering department will be generated. This system was chosen because the total number of all possible part combinations can reach up to 70,000 combinations! As a result, part numbers are assigned gradually when an actual request is received.

## INSTALLATION

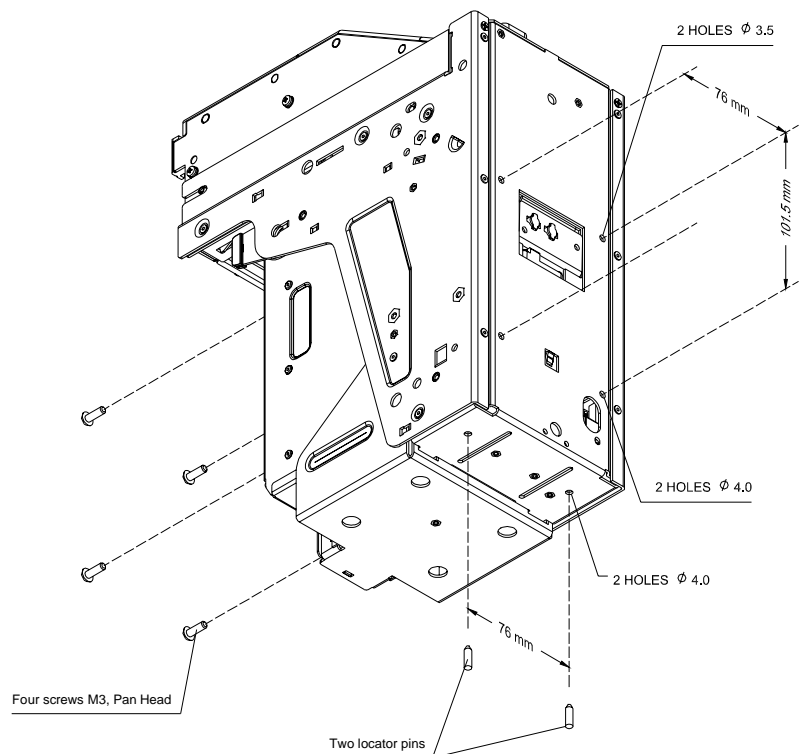
The Bill Validator is installed by using (3) M4 screws on each side of the FrontLoad frame. The length of these screws should not be longer than required, otherwise they may protrude through the inside of the frame.



If the position of the mounting screws is different than the position of the mounting holes provided in the target equipment, then additional frame mounting components may be required.

The FrontLoad Bill Validator can also be secured through the holes in the rear wall of the Housing. In this case, M3 screws and locator pins can be used.

For dimensions of the mounting holes, please refer to the dimensional drawings (page 8 to 13).



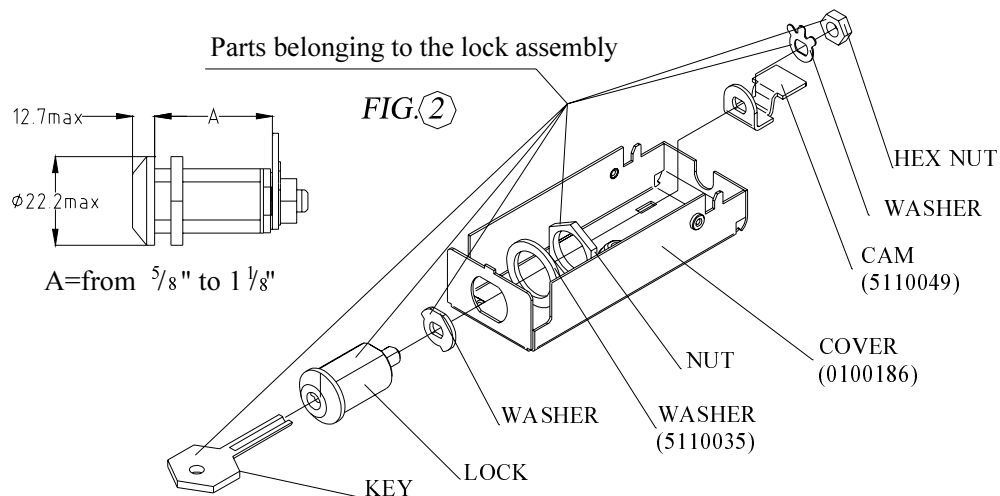
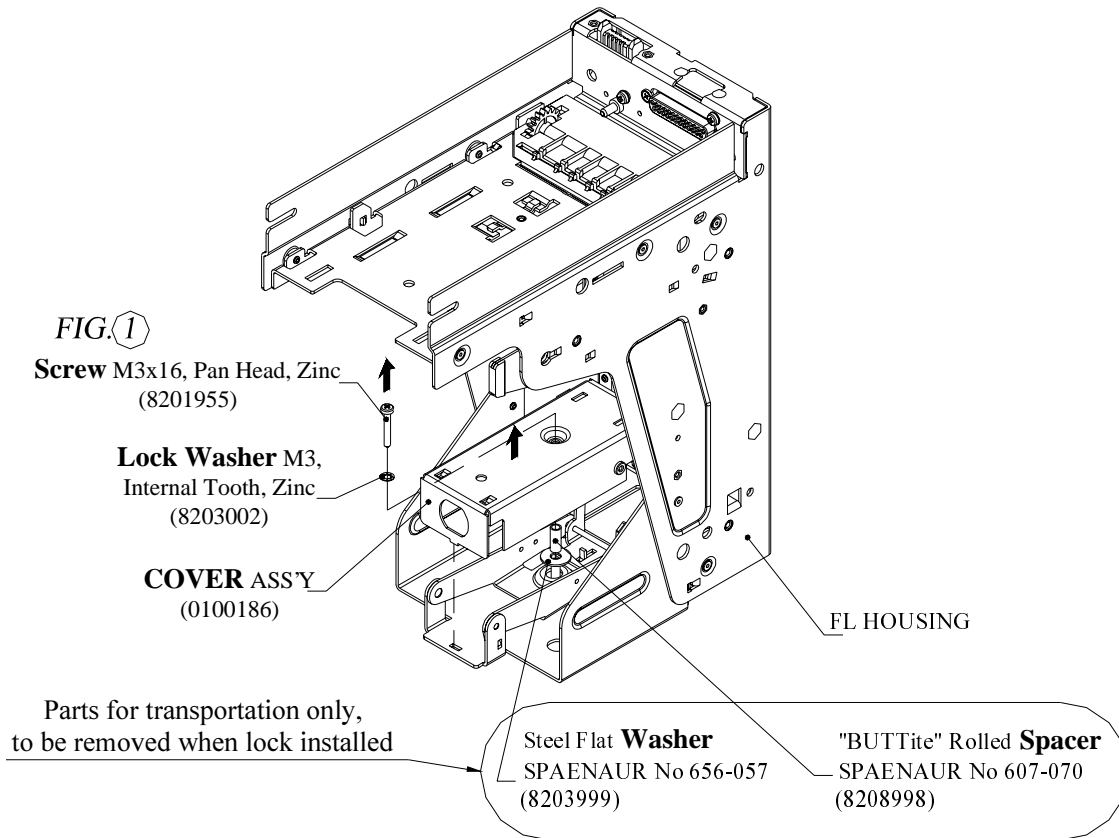
**LOCK INSTALLATION TO BILL VALIDATOR BASE (600 BILLS)**

Step #1. Remove the Screw and Lock Washer from the Lock Cover. DO NOT DISCARD!  
(FIG. 1)

Step #2. Remove and discard the Washer and Spacer (FIG. 1)

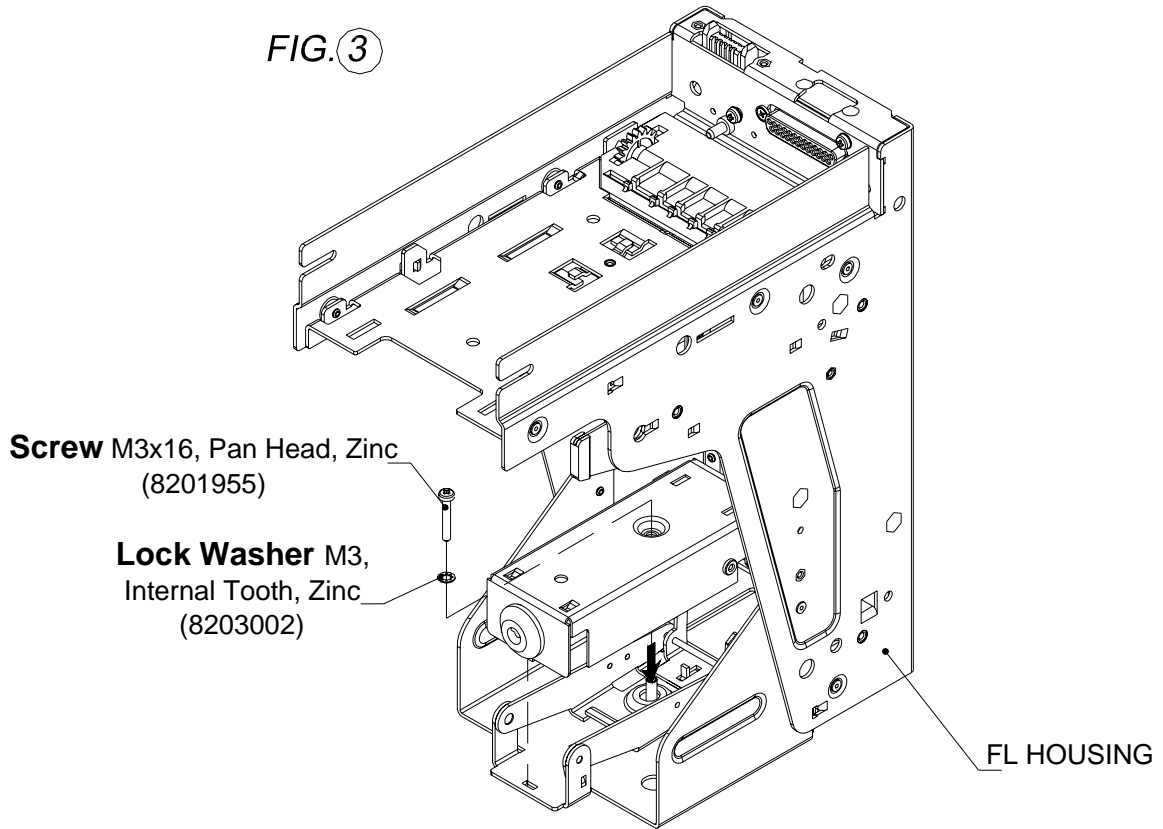
Step #3. Install the Lock and parts as shown in FIG. 2

Step #4. Install the Cover, Screw and Lock Washer that were removed in Step #1 (see Fig.3)



**LOCK INSTALLATION TO BILL VALIDATOR BASE (600 BILLS) (continued)**

FIG. 3



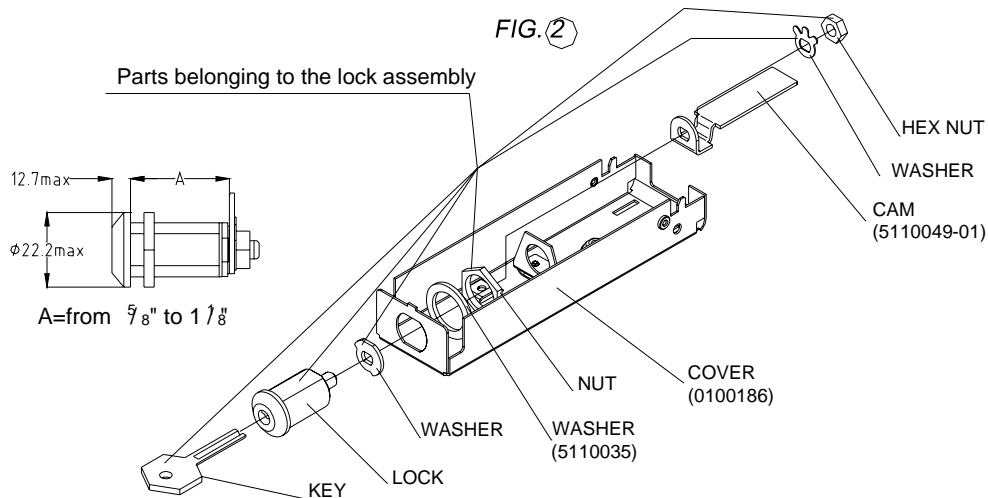
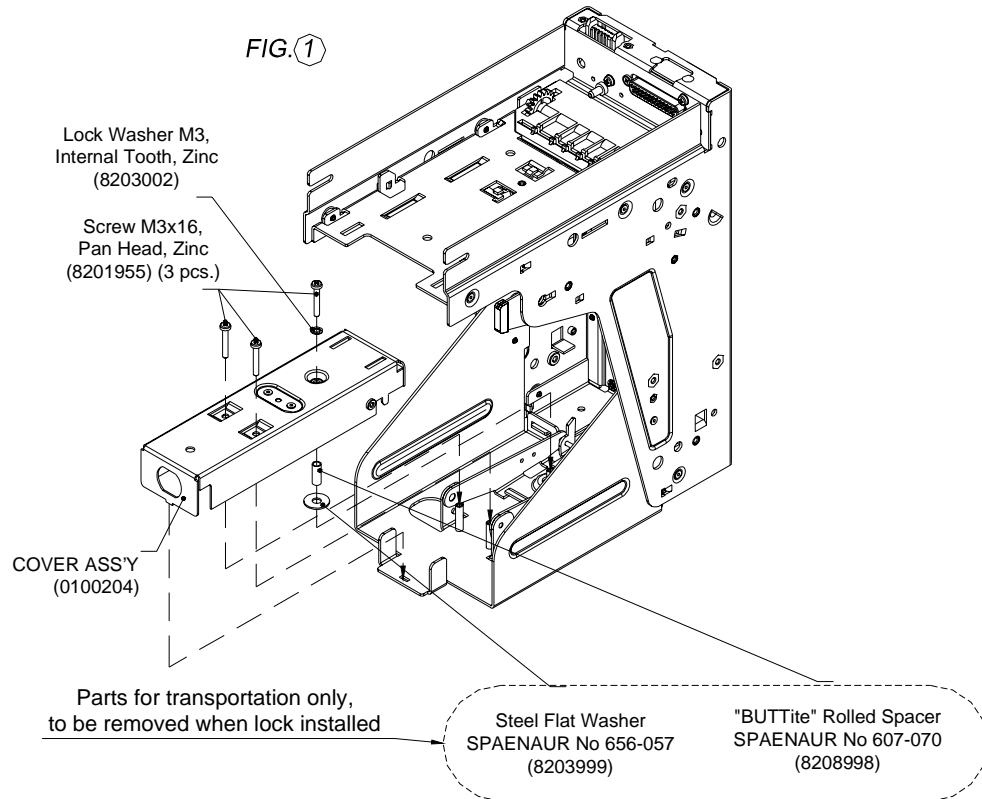
## LOCK INSTALLATION TO BILL VALIDATOR BASE (1000 BILLS)

Step #1. Remove the Screw and Lock Washer from the Lock Cover. DO NOT DISCARD!  
(FIG. 1)

Step #2. Remove and discard the Washer and Spacer (FIG. 1)

Step #3. Install the Lock and parts as shown in FIG. 2

Step #4. Install the Cover, Screw and Lock Washer that were removed in Step #1 (see FIG. 3)

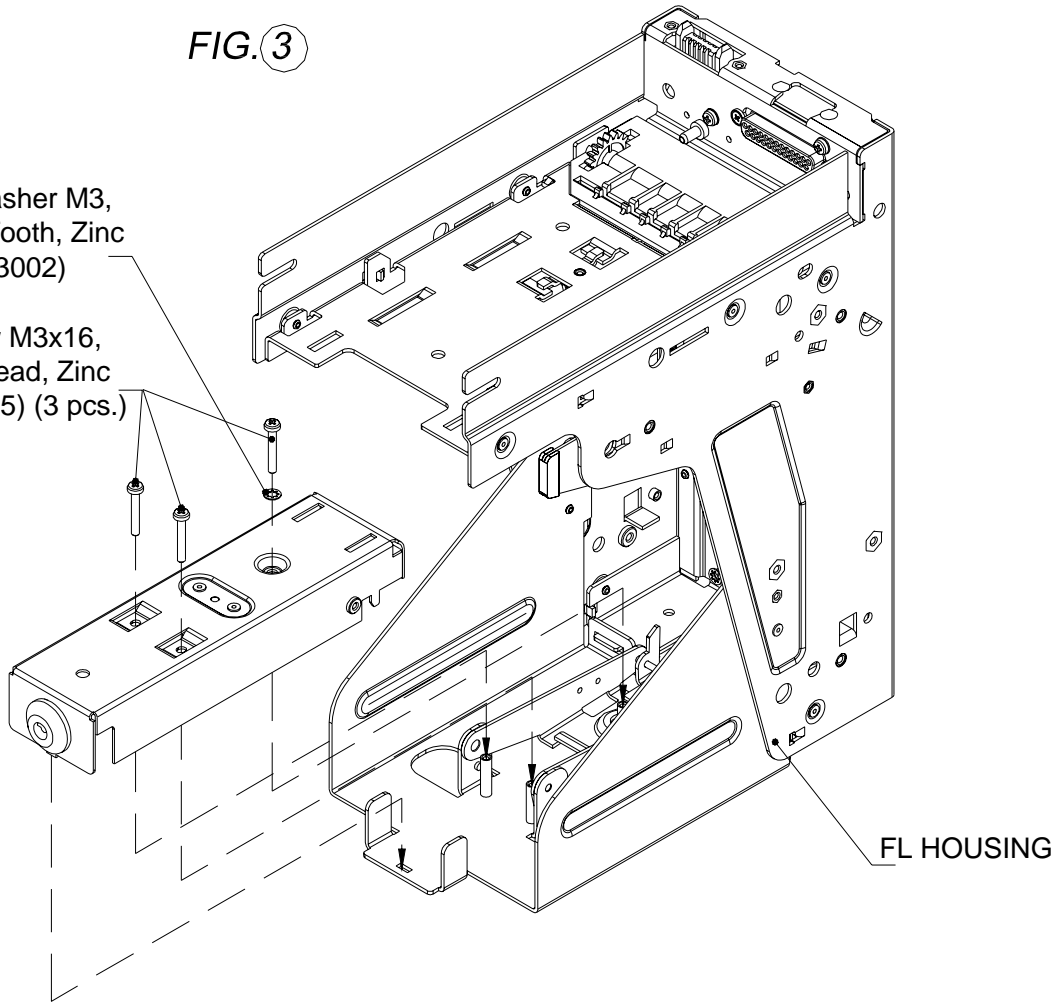


**LOCK INSTALLATION TO BILL VALIDATOR BASE (1000 BILLS) (continued)**

FIG. 3

Lock Washer M3,  
Internal Tooth, Zinc  
(8203002)

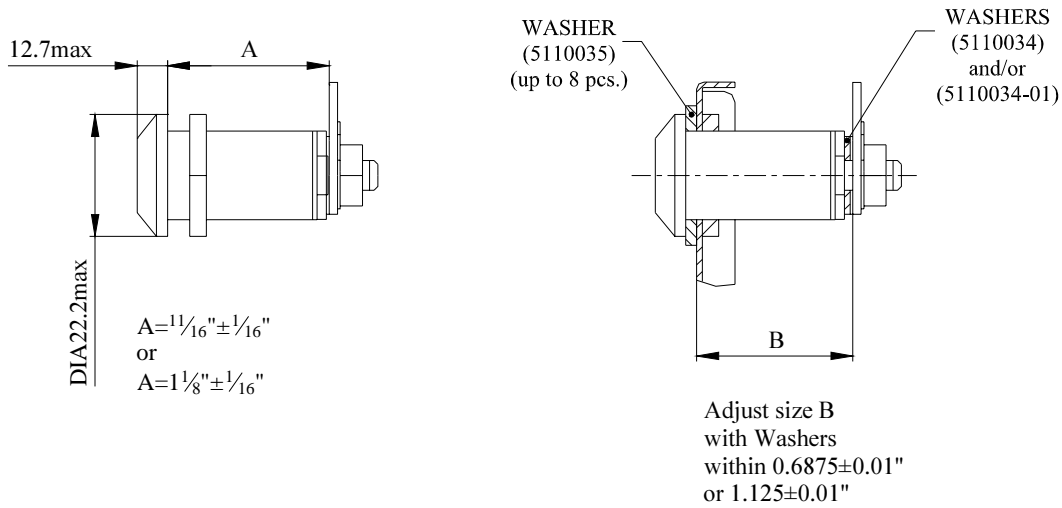
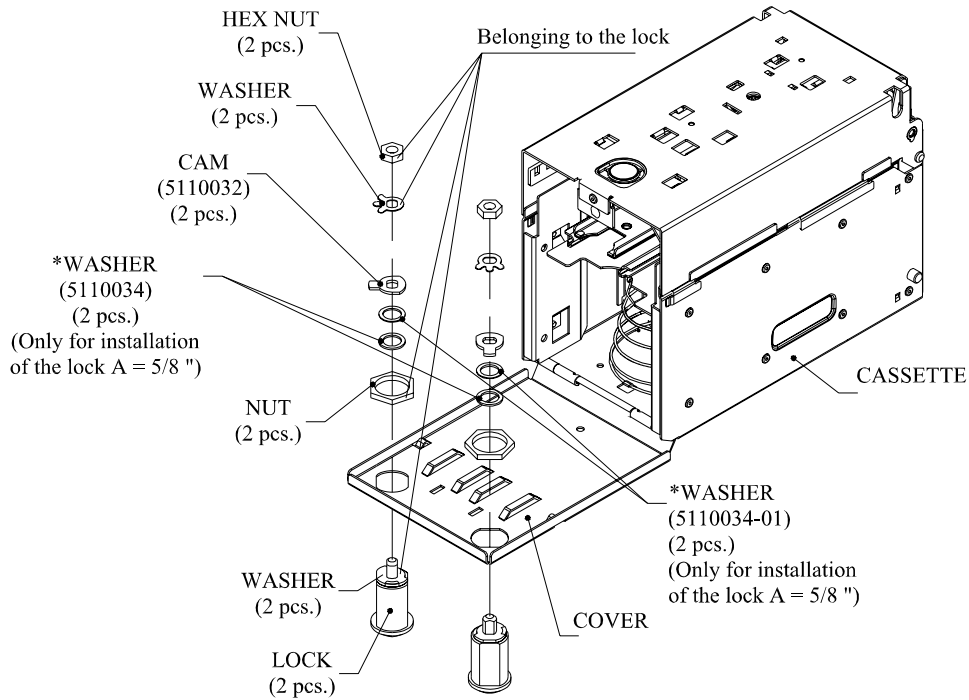
Screw M3x16,  
Pan Head, Zinc  
(8201955) (3 pcs.)





## LOCK INSTALLATION TO CASSETTE

In order to install the security locks into the Cassette, open the Cassette cover, remove the plastic lock and plug, and follow the diagram shown below:



## INTERFACE CONNECTION

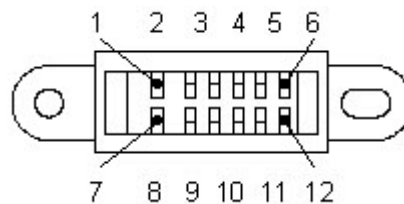
The FrontLoad bill validator has the flexibility to offer 4 different hardware interface options:

- Type 1-Opto-Isolated, 12 Volt CC FLBDP- or IGT NetPlex
- Type 2-RS232 levels, 12 Volt CCNET (single slave mode) or CC-BDPS
- Type 3-Isolated Pulse Low Current, 12 Volt CC-IPL
- Type 4-RS232 levels, 24 Volt DC, CCNET (single slave mode) or CC-GPC22

For detailed Interface descriptions please order corresponding Interface Description manual or Download from Web site: [www.cashcode.com](http://www.cashcode.com).

The type of interface hardware depends on the base assembly interface module.

Pin Assignment (cable connector):



**Socket DR1-12-2SC-FO (JAE);**  
**Contact DR-SC20-1-7000 (JAE).**

Signal descriptions for the Opto-Isolated version (Type1):

TERMINAL	SIGNAL	FUNCTION	ACTIVITY
1	+12 V DC	POWER	---
2	M-RES	MASTER RESET	LOW
3	+12V DC	INTERFACE POWER	---
4	GND	INTERFACE GROUND	---
5	LED+	LED ANODE	---
6	NC	NOT CONNECTED	---
7	GND	POWER GROUND	---
8	TXD	TRANSMITTED DATA	HIGH/LOW
9	RXD	RECEIVED DATA	HIGH/LOW
10	NC	NOT CONNECTED	---
11	LED-	LED CATHODE	---
12	NC	NOT CONNECTED	---

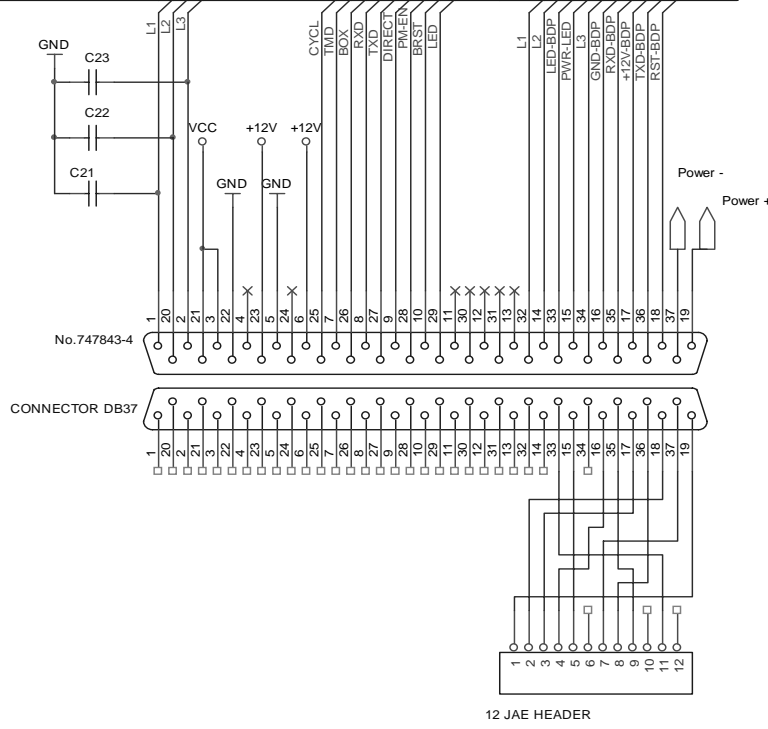
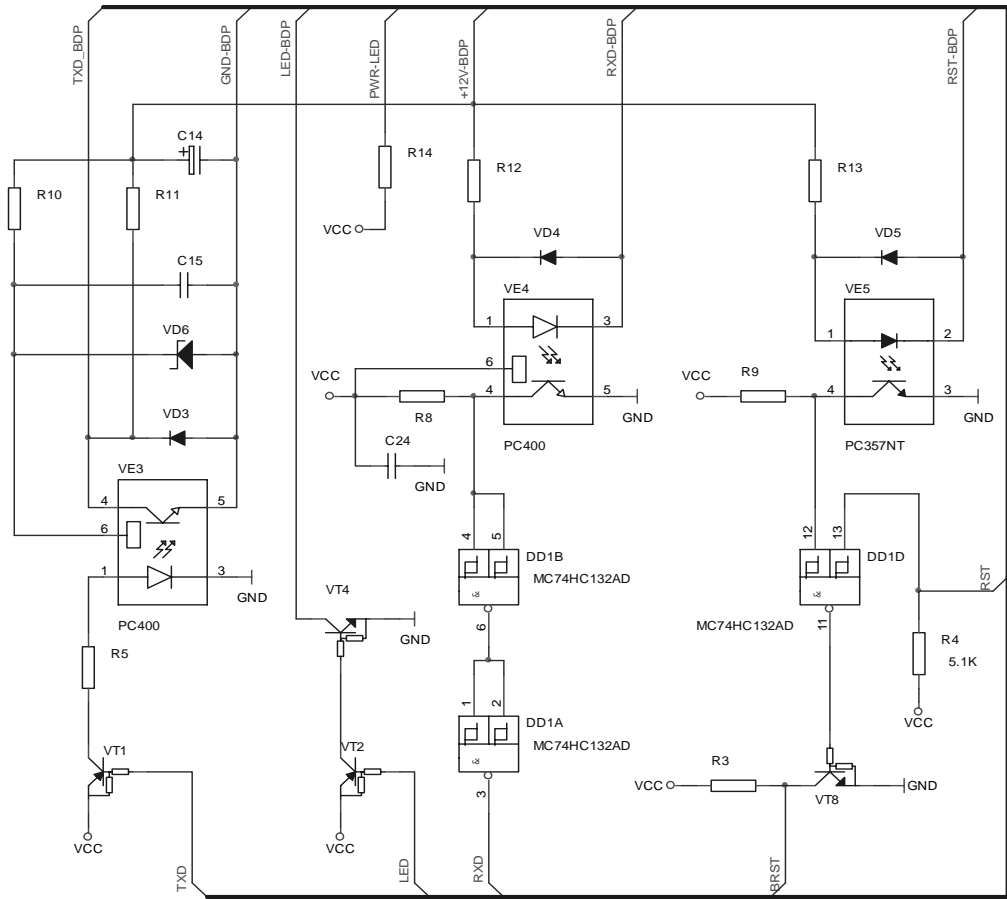
**Signal Descriptions for the RS232 12Volt version (Type2, Type3)**

TERMINAL	SIGNAL	FUNCTION	ACTIVITY
1	+12V DC	POWER	-
2	M-RES	MASTER RESET	LOW
3	NC	NOT CONNECTED	-
4	GND	INTERFACE GROUND	-
5	NC	NOT CONNECTED	-
6	NC	NOT CONNECTED	-
7	GND	GROUND POWER	-
8	TxD	TRANSMITTED DATA	HIGH/LOW
9	RxD	RECEIVER DATA	HIGH/LOW
10	NC	NOT CONNECTED	-
11	NC	NOT CONNECTED	-
12	NC	NOT CONNECTED	-

**Signals Description for RS232 24 Volt version (Type4):**

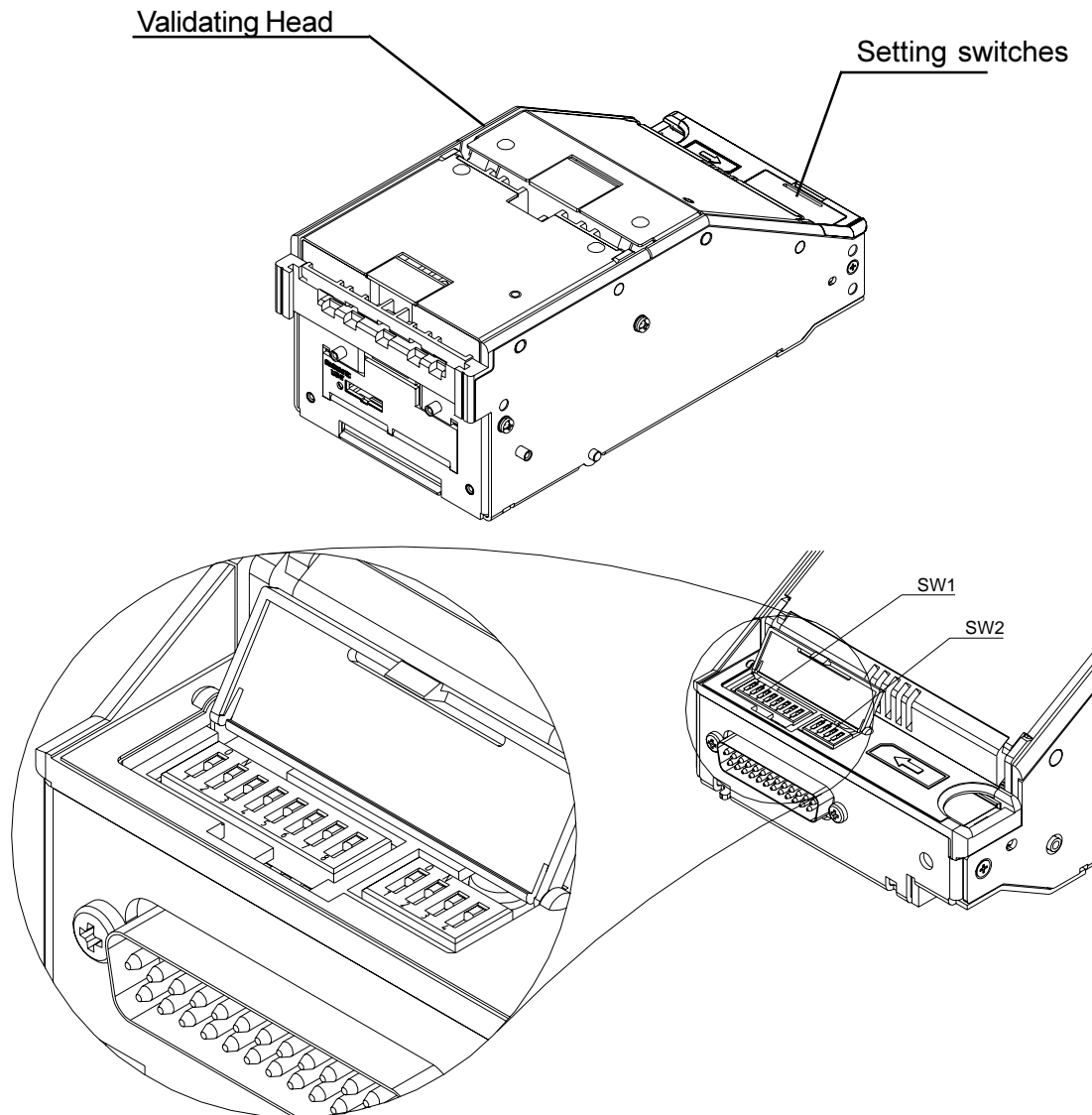
TERMINAL	SIGNAL	FUNCTION	ACTIVITY
1	GND	GROUND POWER	-
2	M-RES	MASTER RESET	LOW
3	NC	NOT CONNECTED	-
4	GND	GROUND INTERFACE	-
5	NC	NOT CONNECTED	-
6	NC	NOT CONNECTED	-
7	+24V DC	POWER	-
8	TxD	TRANSMITTED DATA	HIGH/LOW
9	RxD	RECEIVER DATA	HIGH/LOW
10	NC	NOT CONNECTED	-
11	NC	NOT CONNECTED	-
12	NC	NOT CONNECTED	-

INPUT/OUTPUT CIRCUITS OPTO-ISOLATED VERSION



## SWITCH SETTING

Setting switches can be found in the rear of the Validating Head, under the transparent cover.



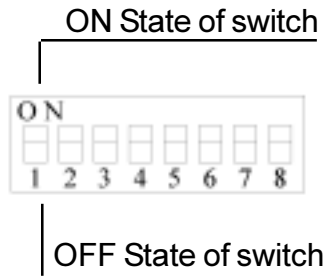
**The Bill Validator operates in two basic modes: Validation Mode and Service Mode.**

**Validation Mode:** An illuminated red status light means the Bill Validator is not ready to validate currency. The number of red flashes between pauses indicates the corresponding number for trouble-shooting or for repair—which can be compared to a chart provided in the user's manual.

**Service Mode:** This is the mode for programming and testing the CashCode Bill Validator.

An illuminated red status light without flashes means the Bill Validator requires inspection for trouble-shooting or repair purposes.

A series of (8) position DIP switches (SW1) define the settings and program the Bill Validator to recognize and validate a variety of different bill denominations.

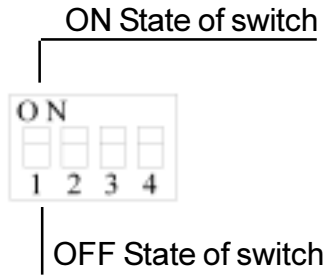


DIP SWITCH SW1 SETTINGS:

SWITCH	ON	OFF
SW1.1	Denomination #1 Enable	Denomination #1 Disable
SW1.2	Denomination #2 Enable	Denomination #2 Disable
SW1.3	Denomination #3 Enable	Denomination #3 Disable
SW1.4	Denomination #4 Enable	Denomination #4 Disable
SW1.5	Denomination #5 Enable	Denomination #5 Disable
SW1.6	Denomination #6 Enable	Denomination #6 Disable
SW1.7	Denomination #7 Enable	Denomination #7 Disable
SW1.8	Denomination #8 Enable	Denomination #8 Disable

For a complete explanation of switch descriptions, please see the software version description.

The (4) position DIP switches (SW2) are defined below:



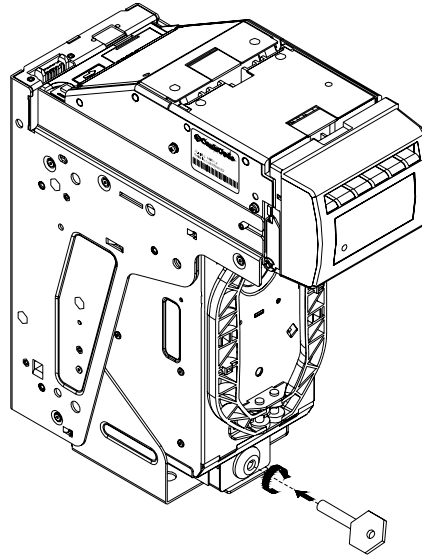
PARAMETER	SWITCH	ON	OFF
<b>Orientation of the bill</b>	<b>SW2.1</b>	Four-Way	One-Way
	<b>SW2.2</b>	Reserved	Reserved
<b>Interface communication speed</b>	<b>SW2.3</b>	9600 BPs	19200 BPs
<b>Mode</b>	<b>SW2.4</b>	Service Mode	Validation Mode

For additional information on switch features and explanations, please see the software description for your particular bill validator.

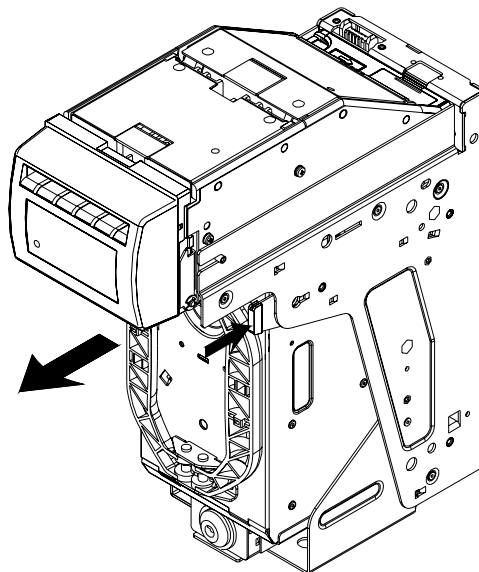
## MAINTENANCE and SERVICE

### Collecting Bills

To collect bills from the CashCode bill validator, simply open the lock on the base assembly and pull out the Cassette (please see diagram below).



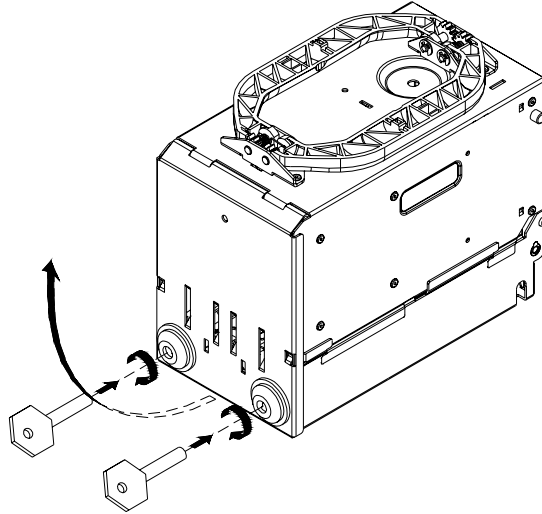
Pressing the right lever releases the Cassette for easy removal.



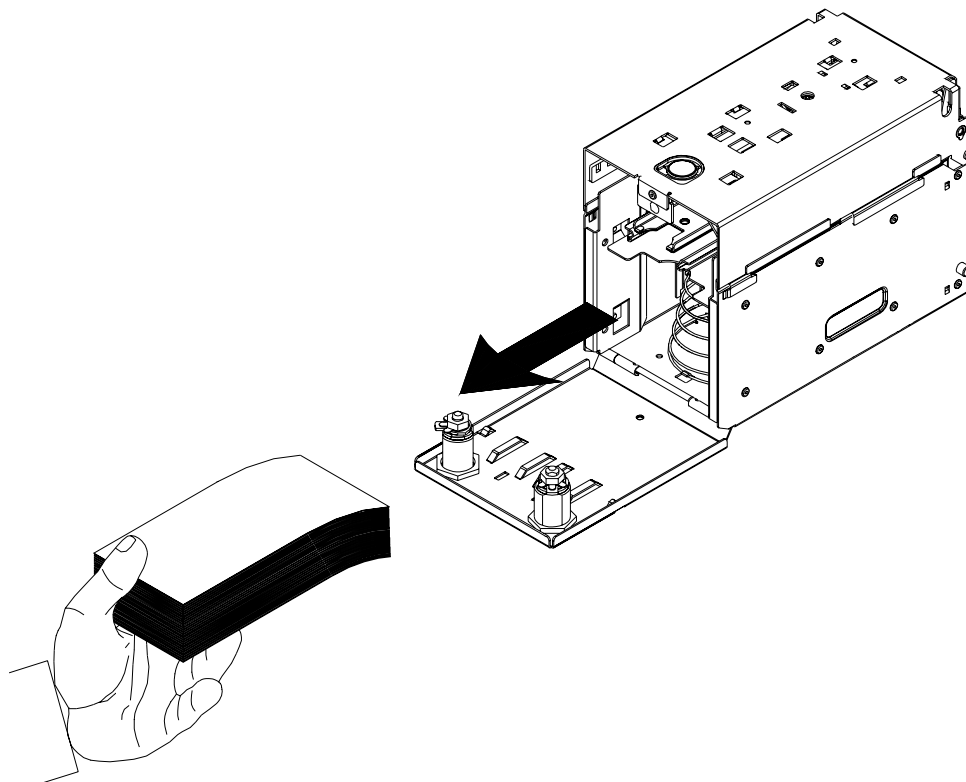
To replace the Cassette, close the Cassette cover, insert the Cassette into the FrontLoad frame, and turn the key to lock the Cassette back into place.



To open the Cassette cover, simply open the locks—located on the Cassette cover (as shown in diagram below).



The Cassette cover will then open easily, and the validated pack of bills can then be removed as a neat stack.



## SOFTWARE UPDATES

The FrontLoad Bill Validator is shipped with pre-installed software, according to a user's purchase order.

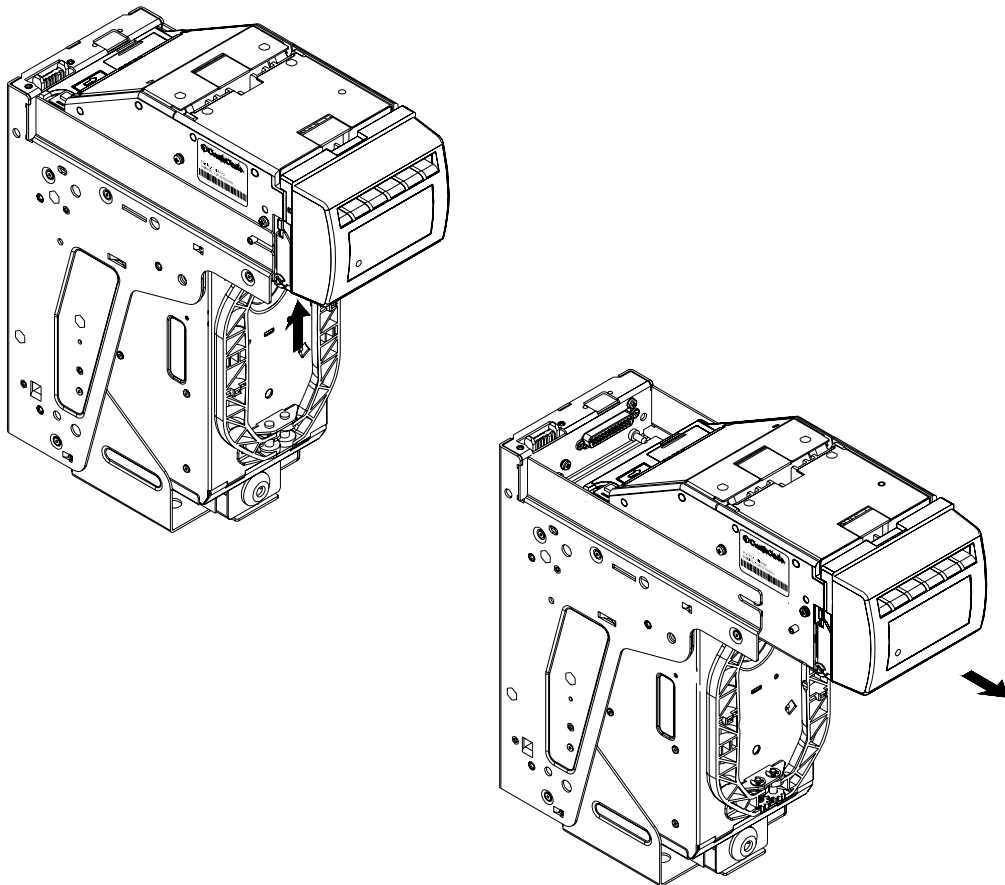
To ensure the proper operation of the FrontLoad Bill Validator, software updates can be ordered according to the original FrontLoad Part Number—available “off-the-shelf.” If a custom version is required, please contact your friendly CashCode Customer Service representative.

In this case, software is quickly and easily downloaded via a serial flash memory stick. No tools are required.

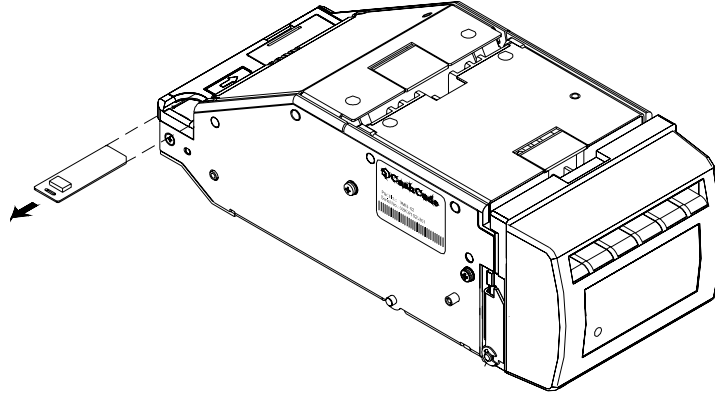
### Download procedure for a single-download Memory Stick:

**Step 1.** Turn Power OFF.

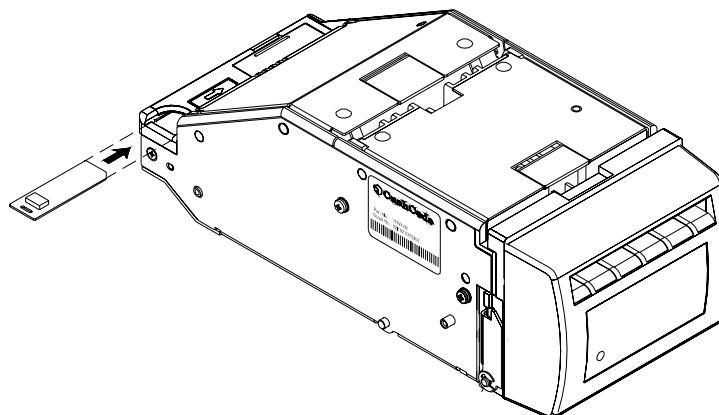
**Step 2.** Lift up the Latch under the Validating Head, and Remove the Validating Head from the Housing.



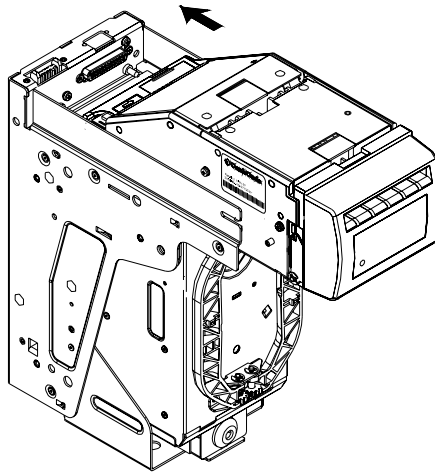
**Step 3.** Remove the Dummy Card (or Memory Stick) from the Memory Stick slot of the Validating Head (please see diagram below).



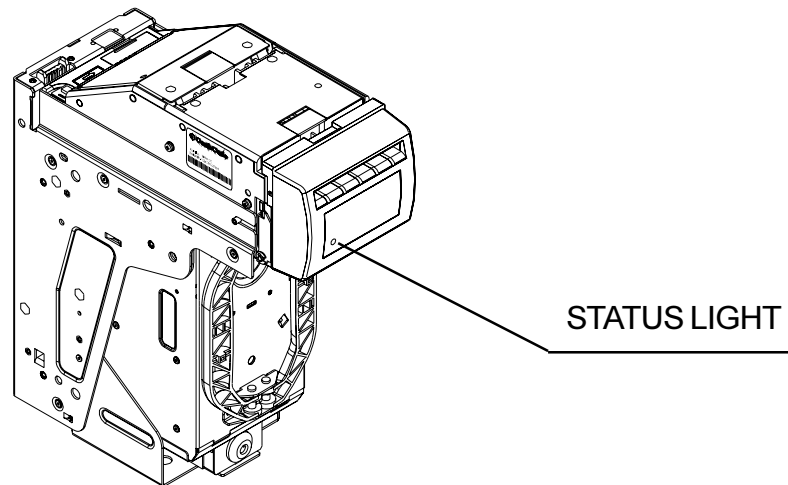
**Step 4.** Insert the new CashCode Memory Stick into the Memory Stick slot of the Validating Head (please see diagram below).



**Step 5.** Insert the Validating Head into the Housing.



**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 FrontLoad 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. Next, turn the Power ON. In a few seconds, the Status Light will turn green.

The Memory Stick can be used to download other Bill Validation software, until the number of preordered licenses has expired.

### Download procedure via interface connector:

In order to properly complete an interface download, the Memory Stick must be present in the Memory Stick slot at all times—before and during the download. (This slot is located in the Validating Head.)

1. When the FrontLoad Bill Validator has a CCNET protocol, the software download can be completed via the host controller (refer to CCNET Protocol Description).

2. For a direct download via the interface connector, please follow the instructions below:

**- Step 1.** Turn power OFF.

**- Step 2.** Disconnect the interface connector from the Bill Validator.

**- Step 3.** Remove the Validating Head from the Housing, and set Mode Switch to Service mode (see page 36).

**- Step 4.** Install the Validating Head into the Housing.

**- Step 5.** Connect the CashCode Adaptor (see page 23 for exact type): a) to the Computer, b) to the interface connector of the Bill Validator, and c) to the power outlet (AC 100-250V).

**- Step 6.** From the computer, run the latest software version of the **FL\*\*\*.exe** program.

**- Step 7.** Follow the instructions displayed on the computer screen.

**- Step 8.** After completing step 7, disconnect the CashCode Adaptor: a) from the power outlet, b) from the Bill Validator, and c) from the Computer.

**- Step 9.** Remove the Validating Head from the Housing, and set Mode Switch to Validation mode (see page 36).

**- Step 10.** Install the Validating Head into the Housing.

**- Step 11.** Connect the interface connector to the Bill Validator.

**- Step 12.** Turn power ON.

### 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 completed successfully, the status light will turn green. Should the download be unsuccessful, the status light will turn red, but short green flashes of light will alternate with the long red light (“green flashes on red”).

The following table lists possible errors which may take place during a download:

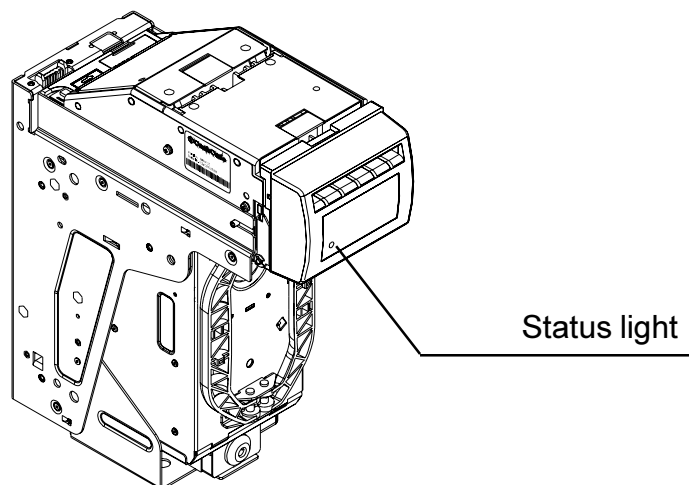
STATUS OF DIAGNOSTIC LIGHT	ERROR DESCRIPTION	FAULT - HANDLING
1 GREEN FLASH ON RED	External interface ERROR in CCNET Download mode	1. Verify that software is suitable for CCNET download. 2. Repeat procedure.
2 GREEN FLASHES ON RED	Memory Stick CRC ERROR	1. Turn POWER OFF, remove and insert the Memory Stick again, turn POWER ON. 2. Replace Memory Stick with the new one.
3 GREEN FLASHES ON RED	Incorrect data in Memory Stick	1. Verify that the software is suitable to the Validator type. 2. Insert correct type of CashCode Memory Stick.
4 GREEN FLASHES ON RED	Memory Stick is not inserted	Properly insert the Memory Stick.
5 GREEN FLASHES ON RED	Wrong type of Memory Stick	Insert the correct type of CashCode Memory Stick.
6 GREEN FLASHES ON RED	Failure during download	1. Turn POWER OFF, remove and insert the Memory Stick again, turn POWER ON. 2. Replace Memory Stick with the new one.
7 GREEN FLASHES ON RED	Operation ERROR of Memory Stick interface	1. Turn POWER OFF, remove and insert the Memory Stick again, turn POWER ON. 2. Replace Memory Stick with the new one.

## TROUBLE-SHOOTING

CashCode's FrontLoad Bill Validator is equipped with a self-diagnostic feature to aid in repair and maintenance. After the power to the Bill Validator is turned ON, the Bill Validator begins its self-diagnostic operation.

If the self-diagnostic test is passed, then the Status light will turn green. If an error is detected, then the Status light on the front of the Bill Validator will blink red.

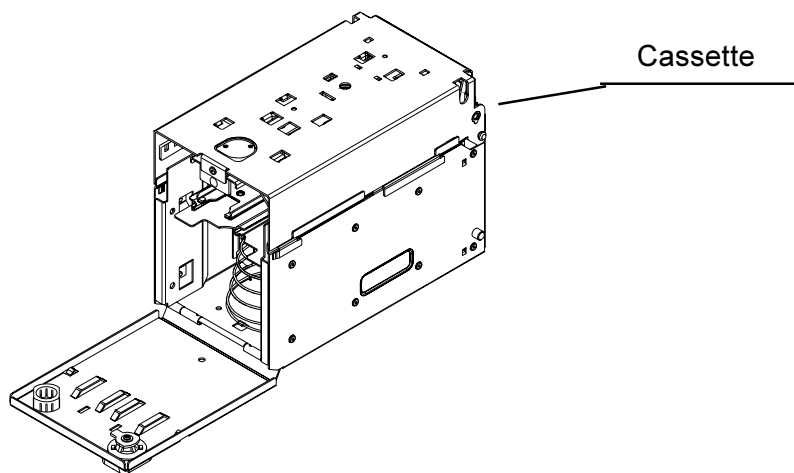
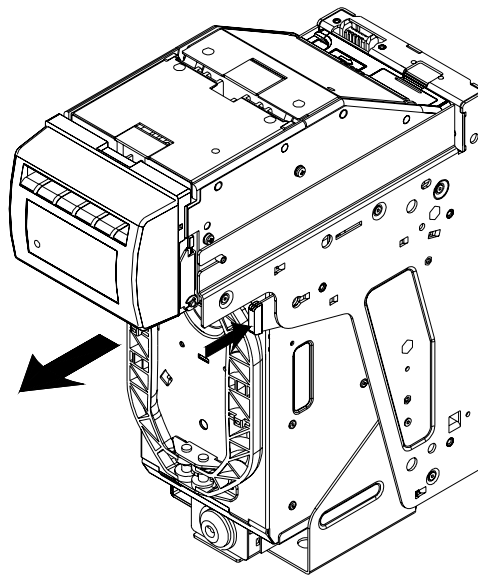
The number of times the red light flashes on the Bill Validator, corresponds to a number listed in the trouble-shooting and repair section of the user's manual.



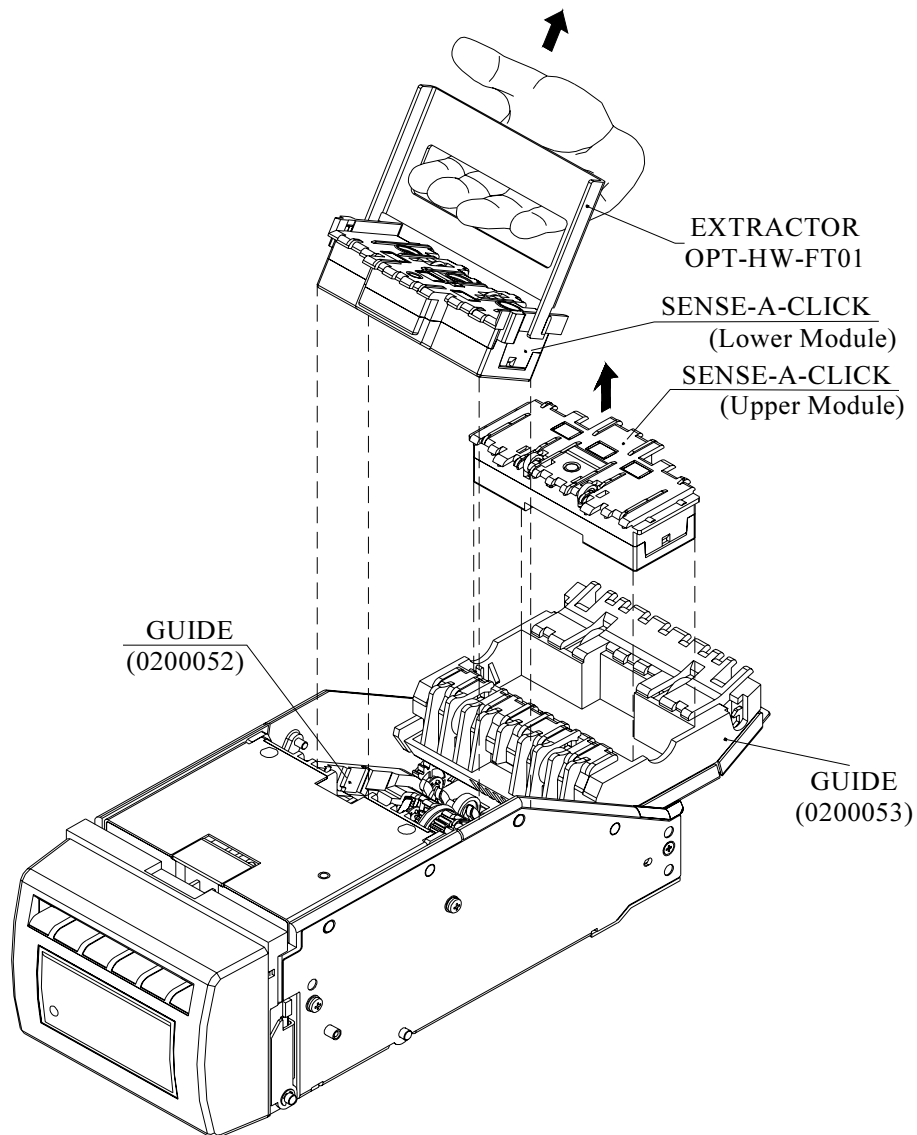
## OPERATION MODE DIAGNOSTICS

The following tables are intended for the trouble-shooting and repair of your CashCode Bill Validator. The charts illustrate the actions needed to correct a problem—which correspond to the number of times the Status light flashes when there is an error. References to pages and part numbers can be found in the “Service Edition” version of the Operation and Service Manual.

NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
1. RED	CASSETTE IS REMOVED FROM BILL VALIDATOR	CHECK IF CASSETTE IS INSTALLED CORRECTLY	

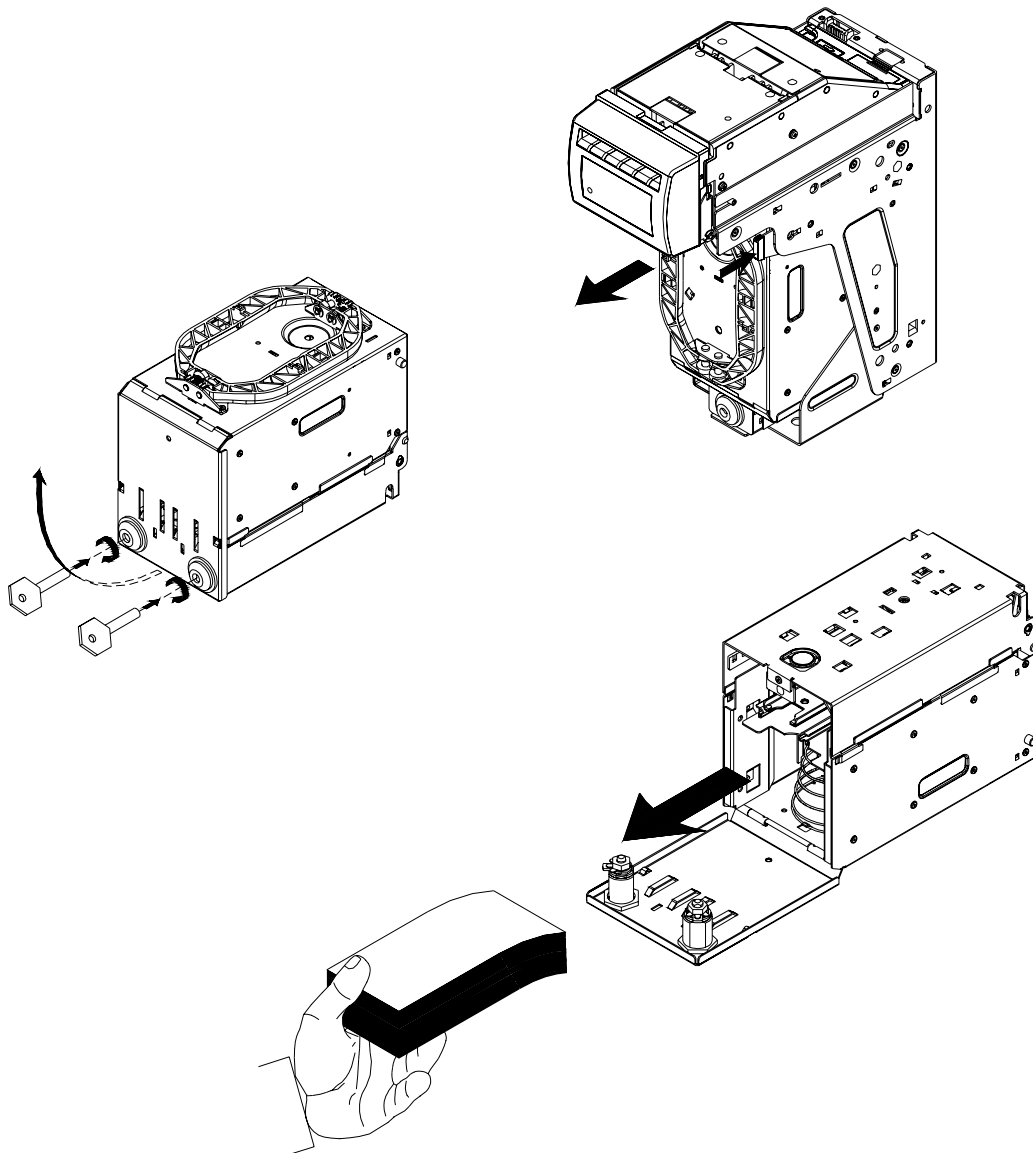


NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
2. RED	AN ERROR OCCURED DURING CPU EXCHANGE WITH SENSE-A-CLICK MODULES	1. DISCONNECT POWER FROM VALIDATOR. 2. OPEN COVER, CHECK IF SENSE-A-CLICK MODULES ARE PROPERLY INSTALLED. 3. VERIFY THAT SENSE-A-CLICK MODULES CORRESPOND TO THE CORRECT SOFTWARE TYPE/VERSION.	





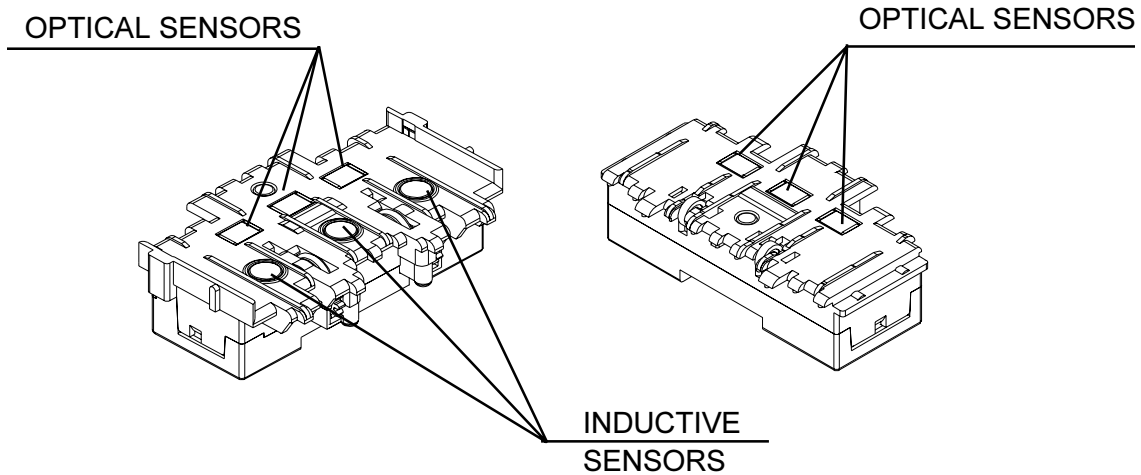
NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
3. RED	CASSETTE IS FULL	REMOVE CASSETTE, EMPTY CASSETTE AND INSERT EMPTY CASSETTE .	
4. RED	MECHANICAL JAM IN CASSETTE OR STACKER MOTOR FAILURE	1. REMOVE CASSETTE FROM BILL VALIDATOR HOUSING AND EXTRACT CRUMPLED / JAMMED BILL. 2. TURN POWER ON AND CHECK IF STACKER MOTOR ROTATES.	



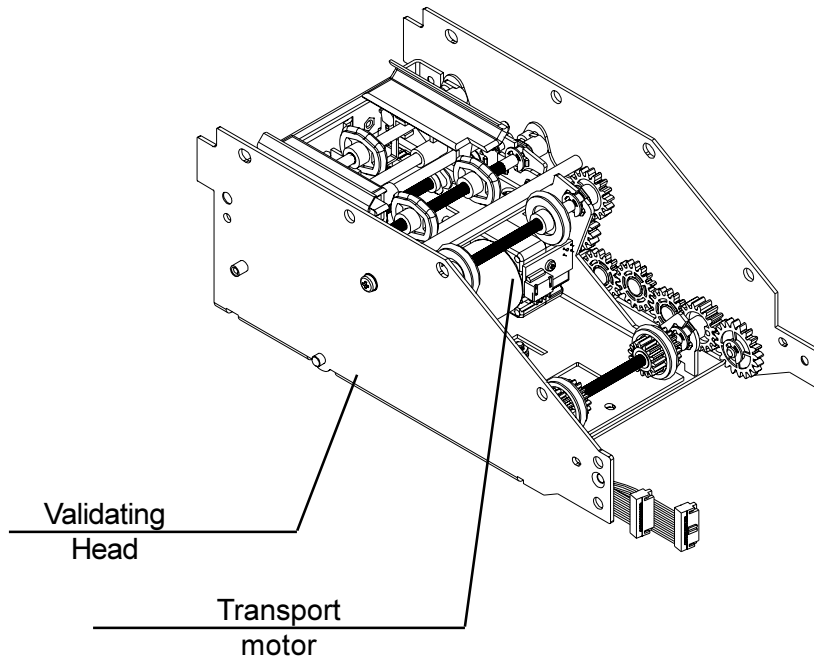
NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
5. RED	FAILURE OF DIELECTRIC SENSORS	1. CHECK IF SENSE-A-CLICK MODULE CORRESPONDS TO THE CORRECT SOFTWARE TYPE/VERSION. 2. REPLACE SENSE-A-CLICK MODULE.	
6. RED	FAILURE OF OPTICAL SENSORS	1. OPEN VALIDATOR HEAD GUIDE, CLEAN OPTICAL SENSORS (PLEASE SEE MAINTENANCE SECTION FOR CLEANING DETAILS ON THESE SENSORS). 2. REMOVE SENSE-A-CLICK MODULE. CHECK CONNECTORS. 3. CHANGE SENSE-A-CLICK MODULE.	

NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
7. RED	FAILURE OF INDUCTIVE SENSORS	1. OPEN VALIDATOR HEAD GUIDE, CLEAN INDUCTIVE SENSORS (PLEASE SEE MAINTENANCE SECTION FOR CLEANING OF THESE SENSORS). 2. REMOVE LOWER SENSE-A-CLICK MODULE WITH INDUCTIVE SENSORS AND CHECK CONNECTORS. 3. CHANGE LOWER SENSE-A-CLICK MODULE.	

“SENSE-A-CLICK”

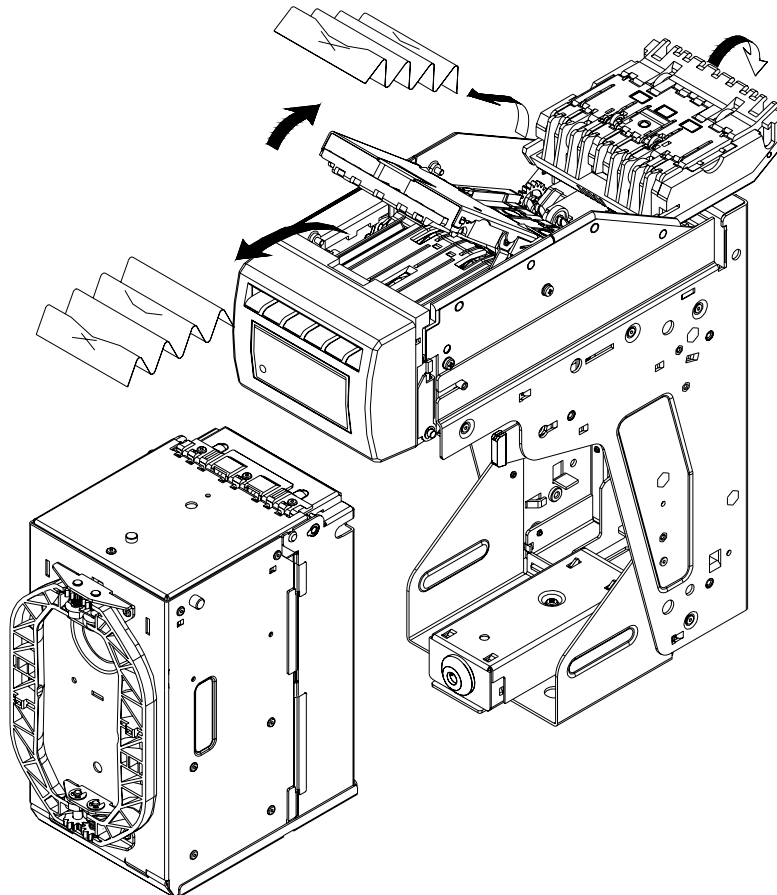


NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
8. RED	FAILURE OF TRANSPORTING MOTOR	1. OPEN VALIDATOR HEAD GUIDE, CLEAN PATH. 2. CLOSE VALIDATOR HEAD GUIDE. 3. IF VALIDATOR DOES NOT START, TURN OFF POWER, RELEASE VALIDATOR HEAD AND CHECK RECEIVING PATH. 4. INSERT VALIDATOR HEAD AND TURN POWER "ON".	



TROUBLE-SHOOTING

NUMBER OF STATUS LIGHT FLASHES	ERROR DESCRIPTION	FAULT - HANDLING	NOTE
9. RED	SPEED OF TRANSPORTING MOTOR IS TOO FAST	CHECK POWER SUPPLY VOLTAGE.	
10. RED	FAILURE IN ALIGNMENT MECHANISM	1. OPEN VALIDATOR HEAD GUIDE. CHECK TO SEE IF PATH IS CLEAN. 2. CLOSE GUIDE AND TURN OFF POWER. AFTER FIVE SECONDS, TURN POWER "ON". THE ALIGNMENT MECHANISM WILL SELF-ADJUST.	
11. RED	BILL PATHWAY IS NOT EMPTY	OPEN RECEIVING PATH AND CHECK THAT IT IS CLEAN.	
12. RED	BILL JAM IN ENTRY SLOT OF CASSETTE. NO CREDIT ISSUED.	REMOVE CASSETTE FROM BILL VALIDATOR AND CLEAN PATH.	
13. RED	OVERLOAD OF TRANSPORT MOTOR	OPEN VALIDATOR HEAD GUIDE AND CHECK TO SEE IF PATH IS CLEAN.	



## TECHNICAL SUPPORT

Thank you for your business—we hope that you enjoy your CashCode Bill Validator. Should you have any Sales or technical question, CashCode offers Customer Service to assist you.

How to contact us:

CashCode Corporate Headquarters:

CashCode Company Inc.  
553 Basaltic Road  
Concord, Ontario  
Canada L4K 4W8

Phone: 905-303-8874  
Fax: 905-303-8875  
E-mail: [marketing@cashcode.com](mailto:marketing@cashcode.com)  
Website: [www.cashcode.com](http://www.cashcode.com)