

# BILLYONE banknote validator

## Operator's manual

Rev. 1.08



## Operator's Manual



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STORICO REVISIONI			
Revisione n°	Data	Modifica	Note
Creazione	09.12.13		
Rev. 1.01	24.01.14	Inseriti header cctalk definitivi	
Rev. 1.02	14.04.14	Inseriti parametri per modalità impulsiva	
Rev. 1.03	24.04.14	Inseriti inibizione/abilitazione via Dip-Switch	
Rev. 1.04	13.05.14	Modifica settaggi Dip-Switch per funzionamento antifrode	
Rev. 1.05	14.05.14	Nuovo frontalino	
Rev. 1.06	01.07.14	Aggiornamento a versione firmware v. 2.02	
Rev. 1.07	04.11.14	Aggiornamento a versione firmware v. 2.06 e nuove valute	
Rev. 1.08	21.01.15	Aggiornamento a versione firmware v. 2.07	Inserita modalità bassa selettività

# 1. General

Dear Customer,

we would like to thank you and congratulate for your choice. We trust that you will appreciate the quality and performance of our BILLYONE note validator.

*Please read carefully this handbook, to obtain the most from your HYDROJET Station*

## 1.1 Host machine design

- The manufacturer takes all possible measures to ensure the quality of this unit. However, performance decay or circuit faults could occur at the end of the product's life. Please ensure safety operation by making use of fail-safe design procedures.
- Please allow enough space around the validator to ease removal of the unit or collection of the banknotes.

## 1.2 Mounting

- Do not obstruct the acceptor's air intakes or else proper cooling will not be possible
- Do not use the acceptor in extreme or widely changing temperature
- Do not expose the acceptor to direct sunlight or to incandescent lighting (> 3000 Lux)
- Do not use or store the acceptor in dusty areas or in presence of chemical vapours or sprays
- The acceptor is for indoor use only. Do not use it outside.
- When using the acceptor in presence of car exhausts or smoke, please clean and maintain the acceptor often and regularly.

## 1.3 Wiring

- Switch power supply off before connecting or disconnecting any cables.
- When wiring the connection cable, pay utmost attention to the specified power range and pin assignment. Wrong wiring may cause unit damage.
- Connect the power cable firmly.
- Do not pull or stretch the power cable.

## 1.4 Caution

- When opening the Upper/Lower lid, disconnect power to the acceptor.
- When closing the Upper lid, do not put your fingers through.
- Do not modify the Taiko unit. Doing so may damage the product.
- Do not bump or drop the acceptor.
- Do not wipe or clean with thinners or organic solvents.
- Do not let moisture or liquids into or onto the acceptor.
- Do not use the acceptor outside the temperature / humidity range.
- The following banknotes might not be properly accepted, or might jam or damage the Taiko:
  - a. Stained, worn, moistured, torn or wrinkled banknote
  - b. Dog-eared banknotes
  - c. Banknotes with incorrect cut dimensions or printing displacement
  - d. Oil-smearred bills or with foreign bodies (i.e. sticking tape, a.s.o.)

## 1.5 Disposal

- Dispose of this unit according to your Country's regulations for such types of industrial waste. This product is RoHS-compliant.

## 2. Package contents

The package contains the following items:

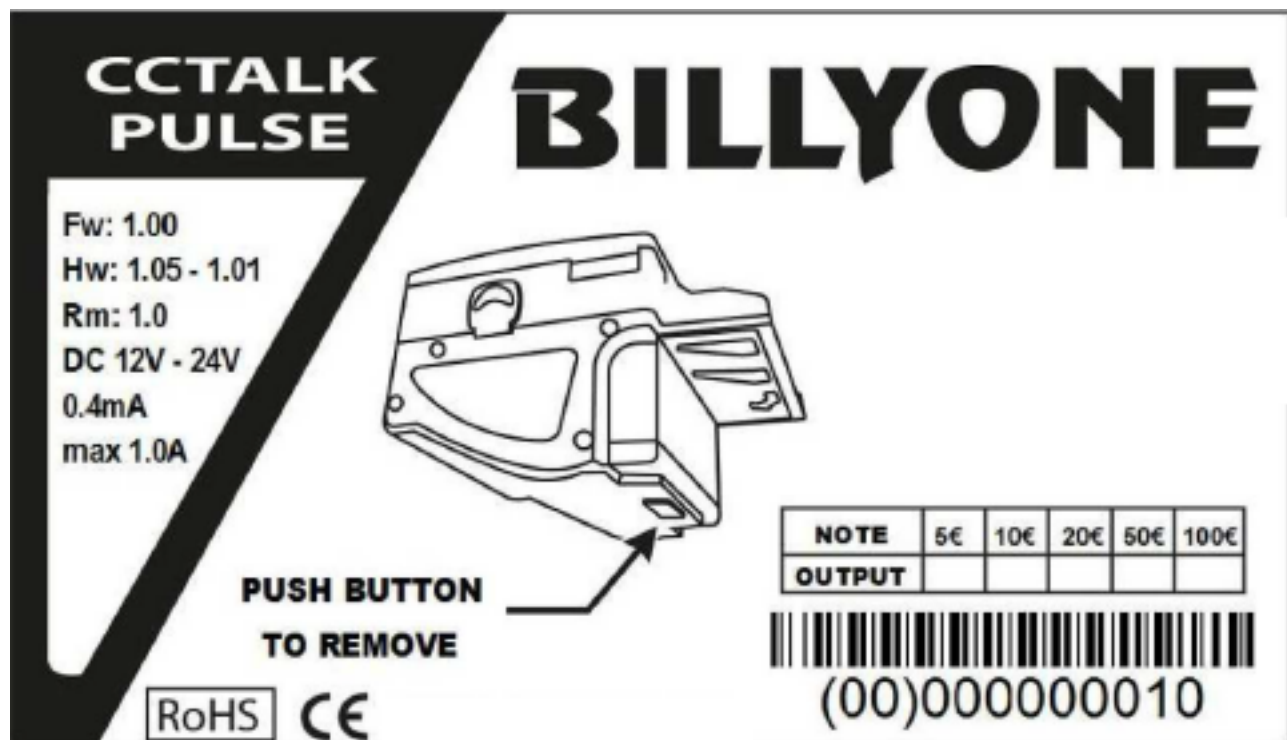
1. BillyOne note validator
2. Installation manual (this manual)

This unit has been carefully packed, with special attention to protect it against damages. However, if you find anything damaged or missing, please contact immediately your local distributor.

Upon receipt, please open the box and check if there are any damages, deficiencies or abnormalities, and in such case immediately report it to the forwarder and on the collection receipt.

## 3. Product description

Model: BILLYONE  
Protocol: ccTalk (non-encrypted / Pulse)  
Version HW: 1.05-03 (\*)  
Version FW: 2.06 (\*)  
Mechanical Revision RM: 2.0.0  
Power supply: +12V o +24V  
Current draw: 0,4mA (max. 1.0A)

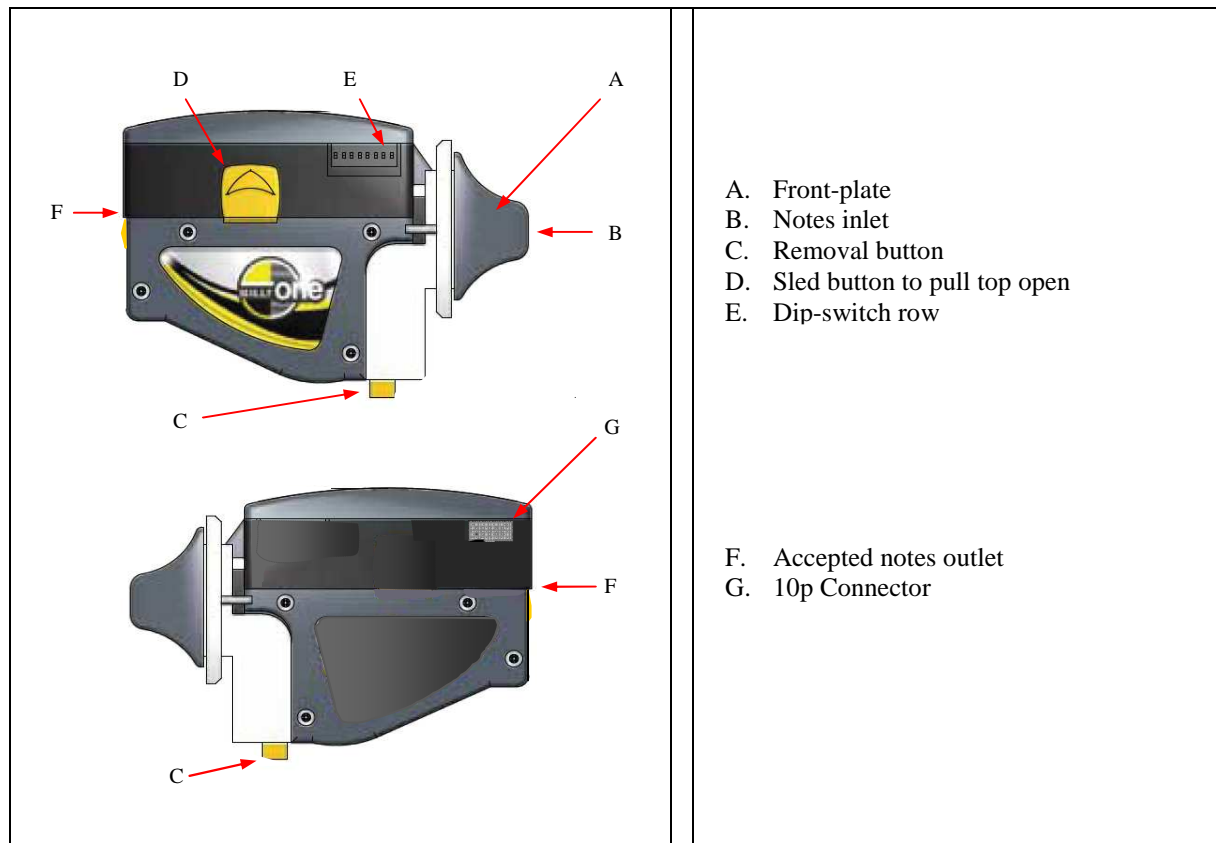


The label shows the data listed above, updated to the present versions of FW and HW.

The serial number shows the product identifier 'LB0', followed by the progressive production nr, made up of 7 digits. Example: LB0-0000012.

(\*) to-date: 04.11.2014

### 3.1 Parts description



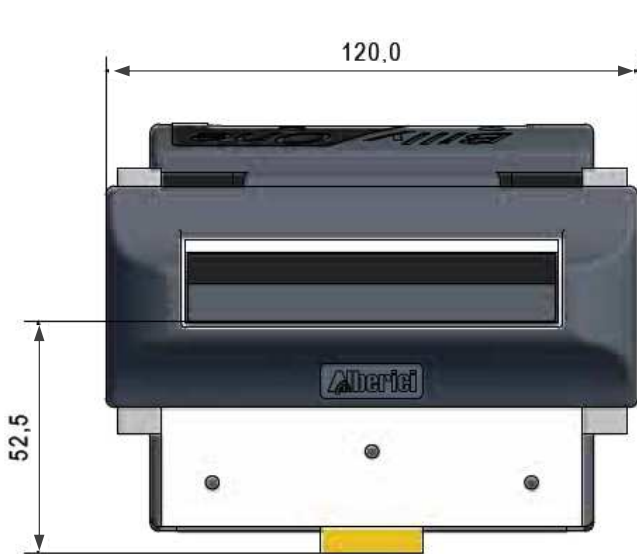
### 3.1 Technical Specs

ALIMENTAZIONE / POWER SUPPLY	12V / 24V   $\pm 5\%$
ASSORBIMENTO / CURRENT DRAW	200 mA (stand-by)   400 mA (work cycle, max 1 Amp)
PROTOCOLLI / INTERFACE	ccTalk / Pulse / MDB / SAS
TASSO DI ACCETTAZIONE / ACCEPTANCE RATE	> 95%
TECNOLOGIE DI RICONOSCIMENTO / SCAN TECHNOLOGY	Trasparenza e riflessione (sensori IR e sensori cromatici) VHR VHR transparency and reflection (IR and colour sensors)
VELOCITÀ DI VALIDAZIONE / VALIDATION SPEED	2 sec ca. (4 versi) / approx. 2 sec (any of 4 directions)
BANCONOTE COMPATIBILI / BANKNOTE SIZE	62 - 82,5 mm (larghezza/width) x 120 - 160 mm (lunghezza/length).
TEMPERATURA DI UTILIZZO / OPERATING TEMPERATURE	0°C ÷ 50°C (senza condensa/without condensation)
TEMPERATURA DI MAGAZZINO / STORAGE TEMPERATURE	-10°C ÷ 60°C (senza condensa/without condensation)
PESO / WEIGHT	0,565 Kg

### 3.2 Dimensions



Left view



Front view



View from top

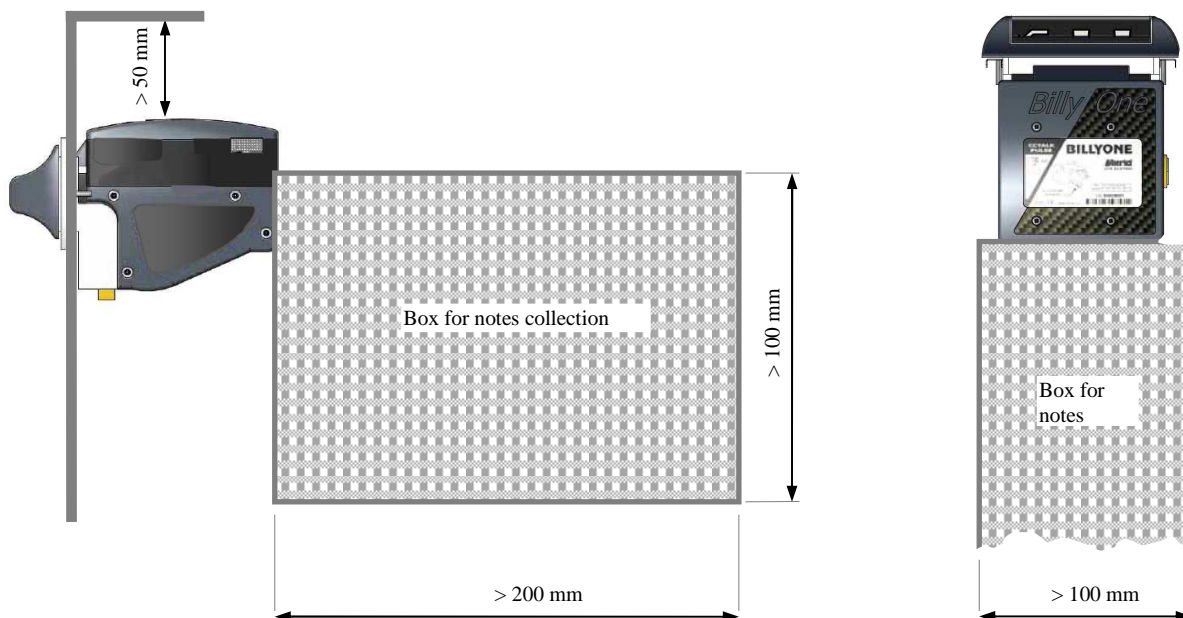
**N.B.: All measures in mm**

## 4. Mounting instructions

### 4.1 General

Installation	Preferably indoors; always integrated into cabinets suited to the place of use.
Positioning	Level mounting on plate (protected against vibrations and shocks). Allow at least 50 cm free space on the device, in order to operate with ease when opening or removing it. Leave the back of the device free from obstacles, not to hinder accepted notes.
Notes stacker	Not available
Light	Prevent direct sunlight from hitting the inlet: use incandescent lamps in the working environment. Gradient of incidence of the light: $> / = 15$ degrees.

The collecting box for the accepted notes should be placed behind the device and below his lower profile. Its recommended minimum size is:  
min. 100 mm useful height,  
min. 100 mm in width, and  
min. 200 mm in length.

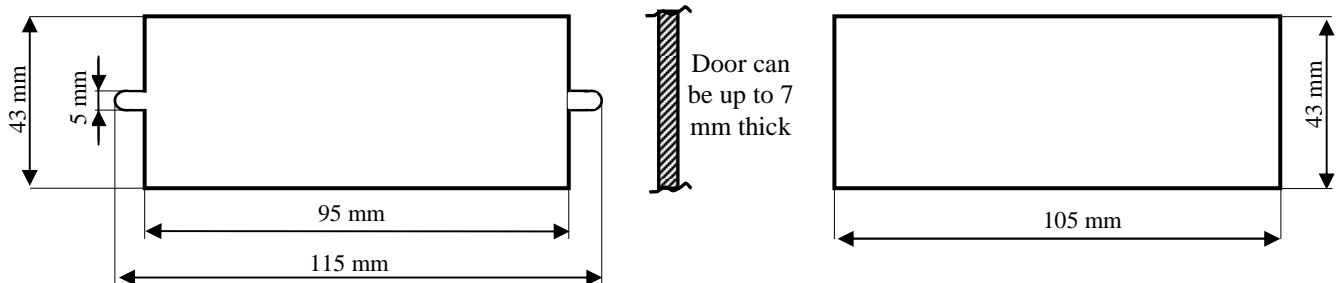




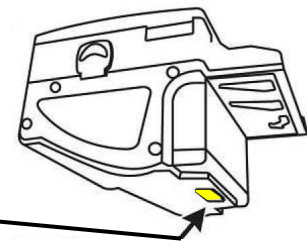
## 4.2 Mechanical fitting

1. Mounting panel must be up to 7 mm thick.

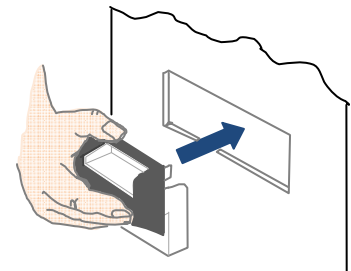
Cut out a window as shown in figure below, size 43mm (height) x 95mm (width). Even a simple rectangular cut-out of 43mm (height) x 105mm (width) will do.



2. To release the main body from the front plate, press the yellow button C (see page 6), located under the validator, and slide the body backward until it comes out.

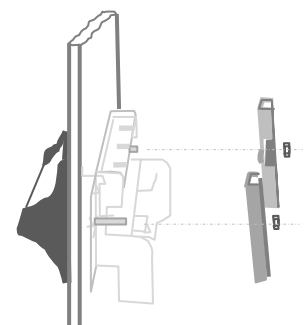


3. Remove from the front plate the two hex nuts holding the two fixing brackets. Fit the front plate in the window provided on the panel (see point 1).



4. Fasten the front plate to the door by the 2 fixing brackets and their fixing nuts.

Take care not to tighten the nuts too much.



5. Insert the inlet of the note validator in the cut-out, and push the unit frontward, until it hooks in. Make sure that the validator and its bezel are securely fixed to the door.



To remove the device, perform the above procedure from end to start.

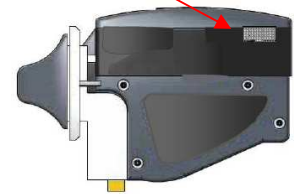
## 4.3 Electrical connection

### 4.3.1 10p interface connector



This connector is located on the right side of the validator

10p connector



CCTALK			
DATA	1	2	-
-	3	4	GND
-	5	6	-
12/24 Vdc	7	8	GND
-	9	10	12/24 Vdc

PULSE			
INH+	1	2	-
-	3	4	GND
-	5	6	-
12/24 Vdc	7	8	GND
VEND	9	10	12/24 Vdc

Pin	Signal	Function	Pin	Signal	Function
1	CCT	CCT Data (active low)	6	NC	Not connected
2	NC	Not connected	7	Vcc	+ 12 / 24 Vdc (Power supply)
3	NC	Not connected	8	Vss	GND (Power supply)
4	NC	GND	9	NC	Not connected
5	NC	Not connected	10	Vcc	+ 12 / 24 Vdc (Power supply)

Pin	Signal	Function	Pin	Signal	Function
1	INH+	Inhibit (GND = enabled)	6	NC	Not connected
2	NC	Not connected	7	Vcc	+ 12 / 24 Vdc (Power supply)
3	NC	Not connected	8	Vss	GND (Power supply)
4	NC	GND	9	VEND	Credit out (active low)
5	NC	Not connected	10	Vcc	+ 12 / 24 Vdc (Power supply)

The BillyOne validator is designed for 12 Vdc or 24 Vdc power supply: it recognizes which voltage is present, and adjusts itself automatically to it. Once connected, take care that the cable is protected against any mechanical stress or accidental pull.



Make use of quality components for the wiring, complying with the current draw values, as for example:

Socket	IDC socket	Socket for flat cable
Wire	AWG24 (UL1061)	Flat cable, pitch 1,27 mm AWG28 (UL2651/UL20012)

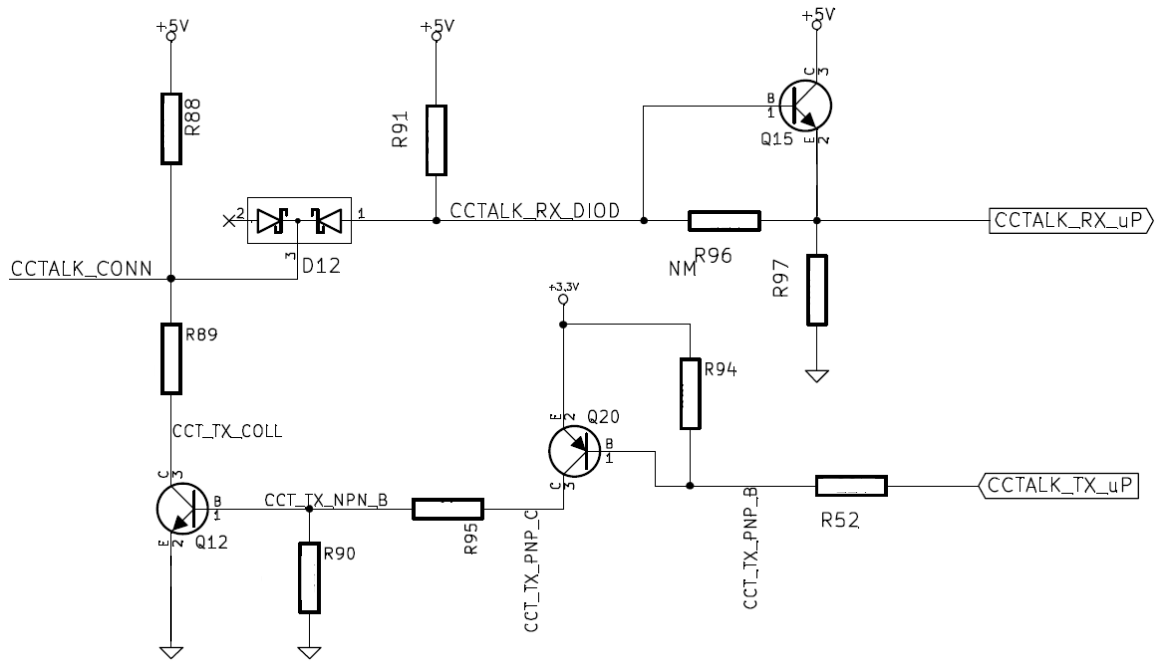
To connect the validator to the machine board:

1. Make sure the power is off.
2. Insert the cable into the 10p connector.
3. Turn on the power and test for correct operation.

**NOTICE: the K-2PC-000003 dongle allows to drive the BillyOne Cctalk validator from a USB port.**



### 4.3.2 ccTalk Interface circuit



### 4.3.3 Supported ccTalk headers

#### Supported specs

##### CcTalk supported specifications list

1. cctalk Generic Specification Issue 3.2
2. cctalk Expansion for Bill Validators Issue2.1

#### Supported commands

##### CcTalk supported commands list

###### 1. Core Commands

- Header 192 - Request build code
- Header 244 - Request product code
- Header 245 - Request equipment category id
- Header 246 - Request manufacturer id
- Header 254 - Simple poll

###### 2. Core Plus Commands

- Header 001 - Reset device
- Header 004 - Request comms revision
- Header 241 - Request software revision
- Header 242 - Request serial number

###### 3. Bill Validator Commands

- Header 145 - Request currency revision
- Header 152 - Request bill operating mode
- Header 153 - Modify bill operating mode
- Header 154 - Route bill
- Header 156 - Request country scaling factor
- Header 157 - Request bill id
- Header 159 - Read buffered bill events
- Header 197 - Calculate ROM checksum
- Header 213 - Request Option flags
- Header 216 - Request data storage availability
- Header 227 - Request inhibit status
- Header 228 - Modify master inhibit status
- Header 230 - Request inhibit status
- Header 231 - Modify inhibit status
- Header 247 - Request variable set

## 5 Dip-Switch setting

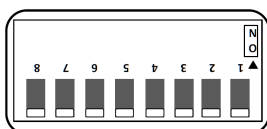
The Dip-Switches allow to set the communication mode (interface protocol) and other useful features. The DS row is located on the left side of the validator.

### 5.1 Validator settings

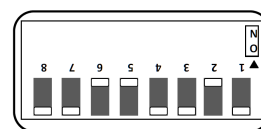
SW Nr	DIP-SWITCH FUNCTION							
SW 1	OFF	Normal acceptance - High security			ON	Widened acceptance – Low security		
SW 2	OFF	Anti-fraud with warning enabled, (see ** in Table at page 15), 5 attempts + temporary inhibit			ON	Anti-fraud with warning disabled, (see * in Table at page 15)		
SW 3 and SW 4	SW 3	SW 4	<i>Set up of slot luminescence</i>					
	OFF	OFF	Changing colours					
	ON	OFF	Green					
	OFF	ON	Blue					
	ON	ON	White					
SW 5	<i>Serial modes (Dip-Sw8=OFF)</i>			<i>Pulse Mode (Dip-Sw8=ON)</i>				
	SW 5	Function			SW 5	Pulse width		
	OFF	n.d.			OFF	100msec./100msec.		
	ON	n.d.			ON	200msec./200msec.		
	<i>Serial modes (Dip-Sw8=OFF)</i>			<i>Pulse Mode (Dip-Sw8=ON)</i>				
SW 6 and SW 7	SW 6	SW 7	Operating mode (protocol)			SW 6	SW 7	Pulse number
	OFF	OFF	ccTalk			OFF	OFF	5 euro = 1 pulse
	ON	OFF	n.d.			ON	OFF	5 Euro = 5 pulses
	OFF	ON	n.d.			OFF	ON	10 Euro = 5 pulses (5 € disabled) [v. 2.02 on]
	ON	ON	n.d.			ON	ON	5 Euro = 10 pulses [v. 2.02 on]
SW 8	OFF	Serial mode (Select by Dip-switch 6 + 7: ex. ccTalk: SW6=OFF e SW7=OFF)						
	ON	Pulse mode						

#### Example of how to set the communication interface by DS5, DS6, DS7

Ex. 1: for operation in ccTalk mode, move the dip-switch to OFF:



Ex. 2: for operation in Pulse mode, 1 € = 1 pulse, 200mA pulse length, set to 5 fraud attempts:



**Please pay attention: after any change in the DS settings, power must be turned off and then on again, so that the validator can detect the set operation mode.**

#### 4.3.2.1 Disabling / Enabling banknote denominations

##### 4.3.2.1 Enable/Disable programmed denominations

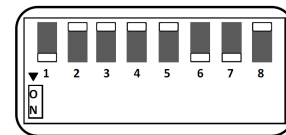
All the notes of the programmed currency are factory enabled. The denominations are stocked in the validator memory. It is possible to disable/re-enable one (or more) denomination(s) by following the steps described below:

###### - *Disabling banknotes*

Move DS No. 1, DS No. 6 and DS 7 to ON position.

Turn power on: the front plate LED will light up white.

Insert the banknote that you want to disable. The LED will blink yellow 3 times when the note is returned, to mean that the note has been disabled. Insert the following banknote that you want to inhibit, or switch power off and on again.

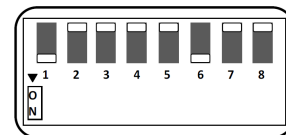


###### - *Enabling banknotes*

Move DS No. 1 and DS No. 6 to ON position.

Turn power on: the front plate LED will light up white.

Insert the banknote that you want to enable. The LED will blink green 3 times when the note is returned, to mean that the note has been enabled. Insert the following banknote that you want to enable, or switch power off and on again.



When finished, put all the DS in their original position (eg. for operating in ccTalk, all DS must be in OFF position).

**NOTICE:** enabled and disabled banknotes are signalled at device switch-on, depending on the number of coloured flashes from the faceplate LED.

The LED in the front panel flashes as many times as the total number of the programmed denominations; e.g., for the EURO, it flashes 5 times (1st flash = € 5 banknote, 2nd flash = € 10 note, 3rd flash = € 20 banknote, 4th flash = € 50 banknote, 5th flash = 100 € banknote). If the LED flashes green, the bill is enabled; if it flashes yellow, the note is disabled.

For example, if the denominations of 5, 10, 50 Euro are set to be accepted, and the denominations from 20 and 100 Euros are set to be inhibited, the 1st, 2nd, and 4th flashings will be in green colour, while the 3rd and 5th flashing will be in yellow.

## 6. Maintenance

### 6.1 Messages

The number of red flashes emitted from the front plate allows to check the possible reason for malfunction.

nr of red flashes	Description
1	Validator is open
2	Jammed banknote
3	Fraud attempted
5	Adjust optics
7	-
9	Low power supply
11	Check encoder+motor efficiency
12	-
14	ROM error

The banknote reader is equipped with a security device that is activated in the event of fishing fraud attempts repeated over a period of time.

This device can be set through the dip-switch SW2 to operate in a "soft" mode (\* DS2 = ON) or in "extended" mode (\*\* DS2 = OFF).

#### (\* Dip-Switch SW2 ON

**Any attempt** at "fishing" will cause the note to be rejected, without showing any visible signal.

#### (\*\*) Dip-Switch SW2 OFF

Attempt	Validator reaction	Do as described below
1°	Remains in service	-
2°	Remains in service	-
3°	> error (3 red flashes)	Reset (switch off then on)
... n° ...	> error (3 red flashes)	Reset (switch off then on)

*After the 5th fraud attempt (3 yellow flashes), it is necessary to wait for automatic restore of service. Take care not to switch the device off.*

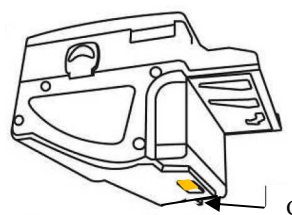
NOTICE: no error status is communicated to the machine, so that the latter does not go out of service, and then continue to maintain the other functions working.

### 6.2 Cleaning

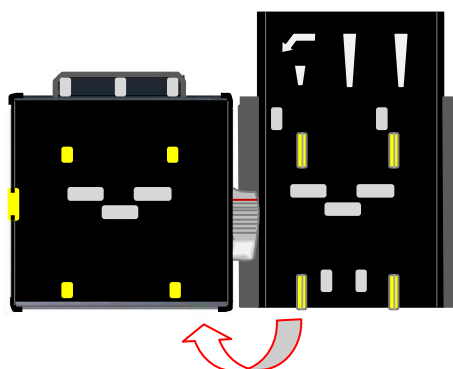
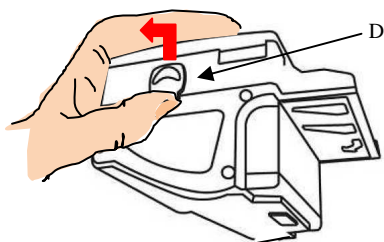
#### 6.2.1 Manual cleaning

The ability of acceptance may decrease due to the accumulation of dust and cellulose dust released by banknotes during transit, or because of residues or sprays, which may spread on the detecting sensors and on transmission parts. It is therefore recommended that you **clean these parts at least monthly**, as indicated below.

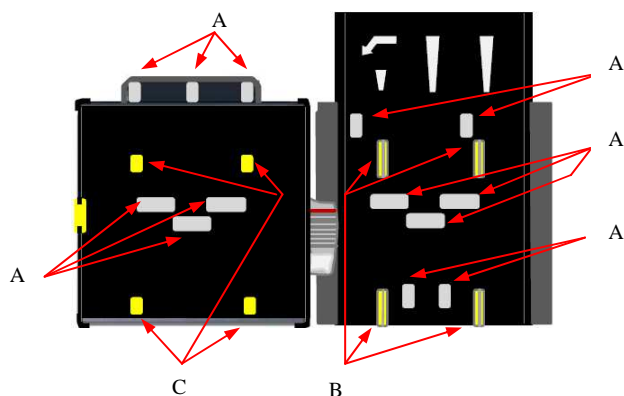
1. Turn off the power and unplug the cable from the 10-pin connector interface. Press the yellow button C, located under the reader, to release the main body from the faceplate, and slide it backwards. *frontalino, e farlo slittare all'indietro fino a estrarlo.*



2. Move the D button upward, hold it while sliding the cover backwards; then lift the latter up and rotate it 180° to the right side.



3. Gently wipe the sensors with a clean, lint-free tissue, or with a cotton swab, or with a small sponge, possibly moistened with isopropyl alcohol.
4. Completely remove the dust and residues from the 4 silicone rollers, and from the 4 elastic matching wheels which are located in the lower surface of the upper lid. To remove the most stubborn dirt from rollers and wheels, use *isopropyl alcohol*.



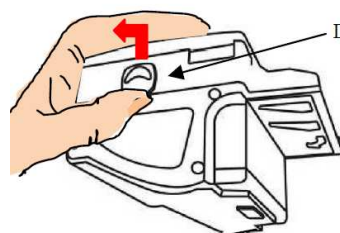
**PAY ATTENTION:** *do not use organic detergents (ex. alcohol, thinners or petrol). Use only isopropyle alcohol.*

- A. Sensors
- B. Rollers
- C. Elastic matching wheels

## 6.4 Jammings

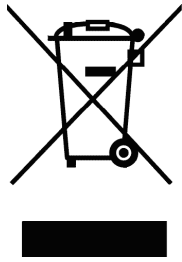
**CAUTION!** Turn off pèower before opening its upper lid.

Open the top cover by pressing D, as described in section 6.2.1 (point 2), and pull out the stuck banknote (as well as any other objects that will hinder the transit).





## 7. Disposal of the product



### **WARNING! DISPOSE OF ACCORDING TO THE GOVERNING LAW IN YOUR COUNTRY!**

This equipment may not be treated as household waste. Instead, it must be handed over to the applicable collection point for the recycling of electric and electronic equipment. By ensuring that this product is dised of correctly, you will help to prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact the Dealer where you purchased this product.

## 8. Terms of Guarantee

The manufacturer will fix malfunctions arising from production faults in this machine or parts of it within 12 months from the date of sale.

All communications referring to guarantee repairs or replacements must be accompanied by the product serial number and the copy of the sale invoice.

To obtain your guarantee repair, please send the part to the Dealer where you purchased the machine, together with the following documents:

- copy of the sale invoice
- delivery note stating "returned for guarantee repair"
- detailed report of the problem found and the circumstances in which it occurs.

Before sending the product, please get in touch with your Dealer; very malfunctions can be fixed via a simple phone call, saving you costs and time.

Alberici S.p.a. will verify that warranty is applicable, i.e. that problem is not caused by:

- transport damages
- damages from incorrect installation or wrong configuration
- installation in premises or areas not complying with the prescribed safety requirements
- intentional or unwilling tampering
- wrong or careless use or maintenance
- non-compliance with precautions prescribed (see Chapter 4. Caution)
- natural disasters, vandalisms, intentional or unintentional damage

Guarantee is considered automatically expired if outer and inner labels are missing.

Transport costs of repaired products are at the Customer's charge.

## 9. Customer Service

A.u.S. will be pleased to offer all the necessary information on use, ordinary maintenance and technical service. Please call (+43) 01 271 66 00 and specify if your request concerns information on use or technical support.

### **Appendix 1: List of available currencies <sup>1</sup>**

EUROPEAN COMMUNITY	Euro
UNITED KINGDOM	Pound Sterling
CROATIA	Kuna
CZECH REPUBLIC	Kruna
AUSTRALIA	Dollar
HUNGARY	Florint
ROMANIA	Leu
ISRAEL	Sheqalim

Please contact us for any further currencies that you may need

<sup>1</sup> at 04.11.14



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