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User's Guide

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Before You Get Started

Welcome to Secureuro's user's manual. Here you will find all the information you need on the product and the validation technology it uses, usage and other data regarding the operation of the equipment.

Please read this manual carefully before you start using the equipment.

Package Contents

Make sure that the Secureuro package you purchased contains the following items:

- One **power supply unit**, with a low-voltage cord ending in a jack connector.
- One **validator**.
- One collecting **tray** with a lid, for validated notes.
- One **serial cable** with DB-9 and RJ-45 (validation unit) connectors for external equipment.
- One **user's guide**.
- One **multimedia CD-ROM** containing, among other documents, the user's manual in electronic format.
- One **sticker** with a deterrence logo for the retail outlet.

If any of these items is missing, please contact your supplier.

Manual Structure

This manual is divided into the following chapters:

Chapter 1. Introduction to Secureuro's Validation Technology describes today's currency validation techniques and explains some useful theoretical concepts related to Secureuro which will help you understand the equipment before you start working with it.

Chapter 2. Product Description describes some technical features of the Secureuro validator, as well as the requirements for use.

Chapter 3. Procedure for Using Secureuro describes how to use the product step by step, from the installation and start-up procedure and the equipment configuration, to the banknote validation operation.

Chapter 4. Connection to Other Equipment offers some possibilities for attaching the equipment to personal computers in various environments and to point-of-sale terminals (POST), in order to simplify its integration in the shop.

Finally, a number of **appendices** include the most relevant technical data, such as technical specifications, upgrade accessories available for the equipment or planned for the immediate future, most common problems that may arise and how to solve them, and the product's certifications.

1. Introduction to Secureuro's Validation Technology

This chapter describes the fundamentals of the banknote validation theory on which Secureuro is based. This chapter contains:

- A description of some of the security mechanisms built into banknotes.
- The specific mechanisms built into Euro notes.
- Characteristics that must be fulfilled by a Euro note in order to be considered as valid.
- Security mechanisms built into the equipment to prevent it from being copied and to reject counterfeit notes designed to fool it.

Detection of Security Mechanisms Built into Banknotes

The security mechanisms that can be detected on a banknote can be classified into four groups:

- Detectable by **ultraviolet light (UV)**
- Detectable by **infra-red light (IR)**
- Detectable by **visible light (VL)**
- Detectable by **magnetic sensors**

Secureuro uses technologies for recognising patterns in the *visible* and *infra-red* spectra, because it is much more difficult to imitate their security mechanisms. Some security mechanisms based on UV light and on magnetic fields are easy to duplicate with commercial products so that they are not detected by simple products available on the market, such as UV lamps or magnetic pens.

Security Mechanisms Built Into Euro Banknotes

Listed below are some of the Euro banknote security features which Secureuro recognises:

- The physical dimensions of the notes.
- Infra-red properties of the various *inks and printing processes* (engraving, offset, etc.). Size, position, density, patterns and other specifications.
- *Metal holograms*, in both small denominations (across the note's width) and large denominations (the size of a small postage stamp). The position and dimensions are analysed.
- Position, location and physical dimensions of the *security thread*.

- Position, location and physical dimensions of the *iridescent band*.
- Position, location, physical dimensions, spectral analysis and pattern recognition of the different *watermarks*.

Secureuro analyses *six analogue signals* from the banknote which include many details pertaining to the paper and ink composition, as well as other extra items, such as holograms or security threads. These signals are synchronised with three other digital signals which provide information on distances.

In total, several dozens of parameters are obtained from the note and are compared to those obtained from the analysis of thousands of genuine notes. Only those banknotes which include these provisions are considered to be valid.

Counterfeit and Genuine Banknote Detection with Secureuro

The aforementioned operating mode has two important consequences with regard to Secureuro's behaviour:

1. A counterfeit note which incorporates all the security mechanisms checked by Secureuro will be accepted as **valid**. However, the cost of producing a forgery with these characteristics makes it unfeasible.
2. A genuine note which, owing to its physical condition, does not contain all the security parameters examined by Secureuro will be declared **invalid**.

This latter point affects notes with the following characteristics (the list is not exhaustive):

- Notes with fragments of paper missing or security items added to the paper (hologram, security thread). This includes scraped, perforated or torn notes, even if they have been repaired with adhesive tape.
- Notes with stains or other items stuck to them (e.g. adhesive or insulating tape).
- Folded or creased notes: unfold the notes before inserting them into the validator.
- Old notes that may have lost a considerable amount of ink owing to excessive use or having been washed accidentally.

Caution: Many counterfeiters artificially age and even tear and repair their notes with adhesive tape, because a forged banknote can be effectively disguised when it appears very worn. We recommend that you never accept banknotes which are repeatedly declared by Secureuro to be an **"INVALID NOTE"**.

Mechanisms Against Banknote Forgers and Validator Replicas

Secureuro is a high-technology product which enhances your business' security. Special attention has been paid to two security aspects:

1. Secureuro **cannot** be "copied" by potential fraudulent competitors who might attempt to sell it at a lower price.
2. It is impossible to find out **how** Secureuro works in order to make forgeries that might "deceive" it.

Secureuro's security is based on three main pillars:

1. **Complexity of signal analysis:** by capturing and analysing 9 signals in a combined fashion, it is virtually impossible to deduce the internal algorithms in the system's firmware, even by watching these signals in an oscilloscope. Subsequent signal processing is highly sophisticated and includes pattern recognition algorithms, fuzzy logic and rules inferred by expert systems.
2. **Protection against firmware reading:** the "key" routines of the validation algorithms reside in the micro-controller's internal Flash RAM memory which, once loaded, cannot be read from outside the micro-controller.
3. Firmware updates will be public, but will incorporate an **encryption system based on asymmetrical keys** which will prevent the firmware from being disassembled through reverse engineering.

2. Product Description

This chapter describes the banknote validator, which is the main element of the Secureuro system.

Characteristics of the Secureuro Validator

- Secureuro is a **counter-top** validator.
The person receiving the note is the one interested in validating it, and can examine it before accepting it. We recommend that the note's appearance be inspected visually, particularly the existence and quality of the hologram.
- Secureuro can validate **all the denominations of Euro notes** existing on 1 January 2002 (€5, €10, €20, €50, €100, €200 and €500). Secureuro does not recognise other banknotes or coins.
- Secureuro can display the total amount of the validated notes **both in Euros and in any other currency of the Euro zone** (according to the configuration).
- Secureuro is designed to operate with an **external power supply**, connected to the mains via the adapter supplied with the system, or to a vehicle's electrical system by means of an optional power cord.
- Secureuro is a **standalone** system.
It does not need to be connected to other equipment in order to operate normally, although it has a serial port that enables its attachment to a PC or point-of-sale terminal (POST) for providing the following functions:
 - Communication of different types of messages regarding the validation being performed.
 - Updating of the validator's internal programs (firmware).
- Secureuro is ideal for transactions involving small numbers of banknotes.
Secureuro may not be adequate for validating large batches of banknotes, as it does not include an automatic note feeder, the validation time is close to ½ second, and it does not classify the validated notes.

Operation with Euro Banknotes

How to insert the notes

The banknotes can be inserted into the validator in any of four possible positions, but always lengthways, never sideways.

Validation reliability

Secureuro is capable of detecting counterfeit banknotes produced with the technologies currently used by forgers.

Because Secureuro's firmware can be updated, it will be capable of detecting forgeries made in the future with technologies which are unknown today.

Rejection rate

The rejection rate for genuine Euro notes is lower than 1%.

3. Procedures for Using Secureuro

This chapter describes the main operations that can be performed with the equipment. Here you will find out how to:

- Position the equipment in the retail outlet in order to ensure optimum performance.
- Start up the equipment and save energy.
- Configure the equipment in order to adapt it to your personal preferences.
- Validate banknotes.
- Reset the validator or change the currency for the validated total.

Practical Hints for Using the Validator

- Usual location and use:
 - Place the validator within sight of the person handing over the notes (e.g. the customer). The notes should never disappear from the person's visual field, since otherwise the customer may question whether a note declared "invalid" was actually the one handed over.
 - Avoid locations where the notes may fall on the floor.
 - Get used to inserting the notes properly. This will avoid alarms caused by misaligned or jammed notes.
 - Insert the notes one by one, waiting until the previous note has come out completely onto the rear tray and a decision regarding its genuineness has been issued.
 - If the validator declares a note to be "invalid", it should be the last one placed on the collecting tray (on top of the notes validated previously). In a small percentage of instances, this may not be the case, and for this reason some attention should be paid to the notes coming out of the validator. If an invalid note is "hidden" underneath a valid one, it could be accepted in error.
 - Before the customer is informed that a note is not accepted, it should be validated several times. As soon as the message "**Valid XXX EURO note**" is displayed, you will know that it will be accepted as such by your bank.
 - If a note is validated several times and the message "**INVALID NOTE**" is displayed repeatedly, it is probably counterfeit, although it could be genuine.

In general, when validating the same note 3 times or more, the validator should behave as follows:

- A counterfeit note always generates the message **"INVALID NOTE"**.
- A genuine note in poor condition (see the specific cases in the section "Counterfeit and Genuine Banknote Detection with Secureuro") may always generate the message **"INVALID NOTE"**. It is up to you whether to accept it or not, even though the validator cannot tell it apart from a forged note because it cannot find the security mechanisms that must be present on a genuine note. In any event, we recommend that it be rejected as a means of payment, because a good way of concealing forgeries consists precisely in artificially ageing them.
- A genuine note may generate several **"INVALID NOTE"** messages, but it will generate some **"Valid XXX EURO note"** messages (except in those cases mentioned earlier).

Over time, we will get used to the way genuine Euro banknotes look. In businesses where large numbers of notes are handled, it may not be necessary to validate all of them, but only those which seem suspicious, or large-denomination notes.

Bear in mind that Secureuro cannot attest to the *authenticity* of a banknote, a task that corresponds to the competent authority. However, when a note generates the message **"INVALID NOTE"** repeatedly, the likelihood of it being counterfeit is very high. Even in this case, we recommend that you avoid expressions such as "This is a fake note" in front of your customers. It is much preferable to use expressions like "The validator will not accept it", or "The bank may not accept it".

Power Consumption

The validator switches between two states, according to the keys pressed and the activities carried out by the user. The figure below shows the possible actions and the status of the validator in each of them.

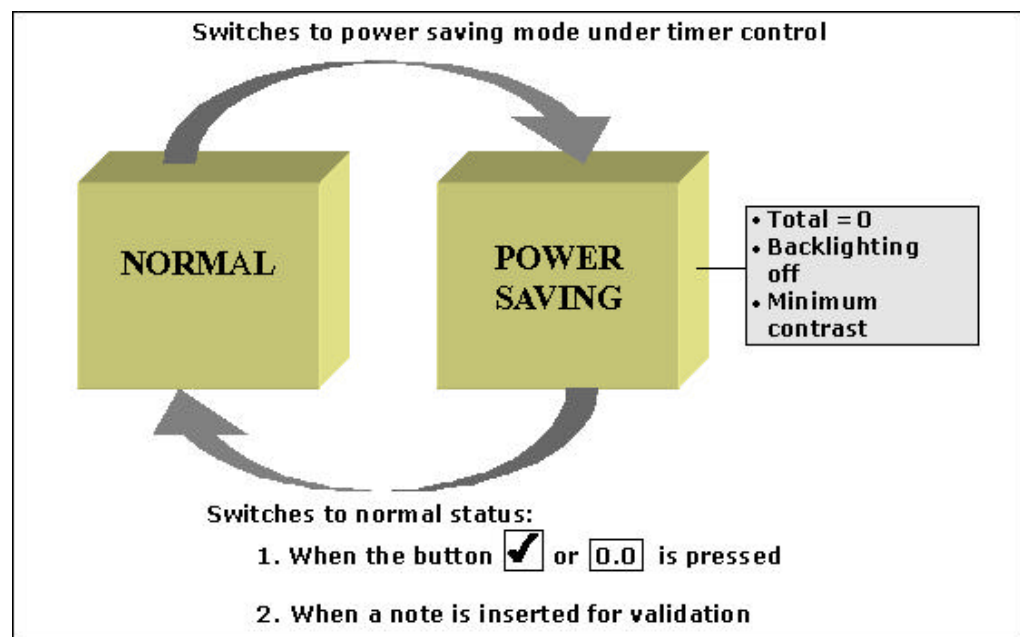


Figure 1. Validator states and possible user actions

As shown in the figure, the validator switches from **Normal** status to the **Power saving** mode after a certain period of inactivity set by a timer that can be customised from the configuration menu.

The validator changes from **Power saving** to **Normal** status in the following cases:

1. When the button is pressed.
2. When the button is pressed, in addition to returning to Normal status, the currency used for displaying the existing total changes.
3. When a note is inserted, the validator returns to Normal status and validates the note.

Validator Start-up

To start up the equipment for the first time:

1. Install the document output tray at the rear of the validator.
2. Make sure that the top registration lid is locked in the correct position.

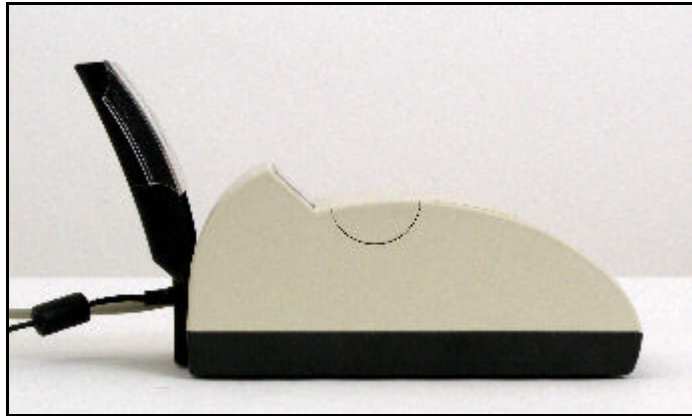



Figure 2. Detail of the registration lid and the output tray

3. Plug the power adapter into a 100-240V AC outlet. It is not necessary to configure the voltage. Make sure that the green LED on the power supply lights up. If you are planning to use the validator in a vehicle, you must purchase the 12 VDC or 24 VDC adapter, which is sold separately. Ask your provider or visit our Web page.
4. Insert the power plug into the back of the validator ( 9 V).
5. Make sure that after a few seconds the following message appears on the validator display:

SECUREURO V X. XX

where X.XX is the equipment version.

Note: The red indicator lamp (alarm) located above the pushbuttons will blink for a moment and will then turn off. If it remains on, the unit may be malfunctioning. See **Appendix B. Troubleshooting Common Problems**.

Secureuro Configuration


Secureuro has a number of options which simplify its adaptation to your work environment. These options enable you to customise aspects such as:

- The personal password for accessing the configuration menu.
- The use of a voice module (in models which include this option).
- The backlighting, contrast and sound levels.
- The alternative currency used for displaying the totals.
- The timing for switching to the power saving mode.

These parameters are changed as follows.

Accessing the Configuration Menu

To change any of the customisation options:



1. In stand-by mode (when the screen displays "Please insert note"), keep the "Accept" button  pressed for 3 seconds.





The following screen will be displayed after 3 seconds.

PASSWORD 0 1 2 3 4 5 6 7 8 9





2. Enter your password (default factory password: '0000').

To enter the password, use the "Accept"  and "Cancel"  pushbuttons, according to the following:

- : move the cursor () one position to the right.
- : enter the digit that appears above the cursor (.

Example:

To enter the factory password '0000', press the  button four times. The asterisk '*' (character entry symbol) appears each time you press .

The table below shows the sequence of operations needed for entering the password '1456' and accessing the first option of the **Configuration** menu.

To....	Press....	The screen displays...
Access the configuration	<input checked="" type="checkbox"/> (for 3 seconds)	PASSWORD 0 1 2 3 4 5 6 7 8 9 ▲
Select '1'	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 ▲
Enter '1'	<input checked="" type="checkbox"/>	PASSWORD 0 1 2 3 4 5 6 7 8 9 * ▲
Select '4'	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 * ▲
"	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 * ▲
"	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 * ▲
Enter '4'	<input checked="" type="checkbox"/>	PASSWORD 0 1 2 3 4 5 6 7 8 9 ** ▲
Select '5'	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 ** ▲
Enter '5'	<input checked="" type="checkbox"/>	PASSWORD 0 1 2 3 4 5 6 7 8 9 *** ▲
Select '6'	0.0	PASSWORD 0 1 2 3 4 5 6 7 8 9 *** ▲
Enter '6'	<input checked="" type="checkbox"/>	PASSWORD 0 1 2 3 4 5 6 7 8 9 **** ▲
		MENU Language

You will hear two beeps, indicating that you have entered the configuration menu.



Notes:


- If you enter an **invalid password**, the following message will appear:


<< INVALID PASSWORD >>




and the validator will return to the idle status (message "**Pl ease i nsert note**").

- If you enter a **valid password**, the configuration menu will appear with the first configurable parameter, **the language**.

Once you have accessed the configuration menu, the pushbuttons  and  *behave differently*, as indicated by small arrows located next to them:

 : moves to the next menu item (next option).

 : accepts the option proposed on the screen.

- The last menu option is "**Exi t**". If you accept it (by pressing ) , you will quit the configuration menu. When you leave the menu, you will be asked to confirm whether you want to **SAVE** the changes made (even if no option has been changed). Use the keyboard arrows with the same meaning as in the menu:  to move forward,  to accept. If you are not sure of what you have done, select "**No**" and "**Accept**" to avoid the risk of modifying the equipment's configuration.
- When you move through the options offered by a menu item, the last one is always "**Exi t**". If you accept it, you will return to the menu and the name of the menu item you were at will appear.

Menu Map and Configuration Options

The figure below shows the menus and the menu options which are available in the configuration.

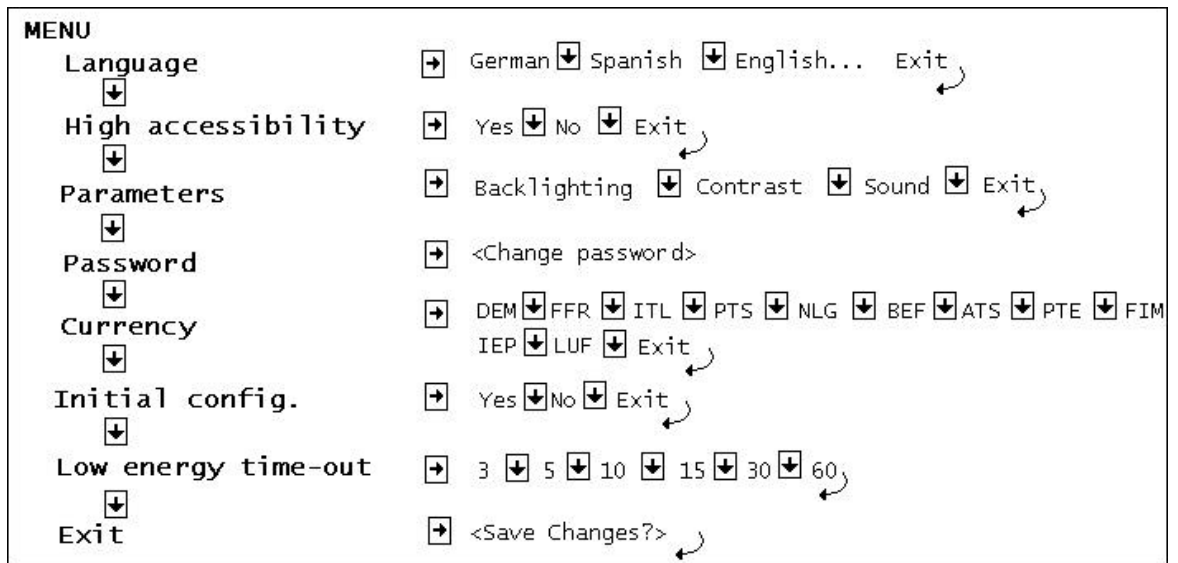


Figure 3. Available menus and configuration options

Enable the voice module

After accessing the High accessibility menu, choose "Yes" if you want to enable the optional voice module, or "No" if this module is not installed or you want to disable it. For more details on the voice module, see the section "Voice Module" in the appendices.

Set the default time-out

This option enables you to set the time-out for switching to power saving status. The following values are available:

3, 5, 10, 15, 30 or 60 minutes.

Adjust the backlighting, contrast and sound

When you access the **Parameters** menu, a control bar appears indicating the parameter's adjustment level.



Each time you press , the parameter value increases. When you have reached the value you want, press and it will be set when you exit the menu and save the changes.

Change the password

You can change the password to prevent other people from modifying the equipment configuration without your authorisation, in a similar way to the procedure for accessing the **Configuration** menu.

To change the password:

1. In the item **Password**, enter the current password.
2. Next, enter the new password.

3. Confirm the new password and make a note of it. Remember that if you lose it, you will not be able to configure your equipment again and you must contact your service representative.

Choose the alternative currency used for displaying totals

This option enables you to choose the alternative currency used for displaying the total amount of validated money. It works in a similar way to the "Language" item. The available currency codes are:

DEM, FRF, ITL, PTS, NLG, BEF, ATS, PTE,
FIM, IEP, LUF.

Restore the initial configuration

"Initial config." restores the initial factory-set configuration parameters. It works in a similar way to other options in which the possible values are "Yes" or "No".

Caution: Use this option carefully. Remember that when the initial configuration is restored, the operating language can change, making it difficult to reconfigure the equipment.

Exit from the Configuration menu

There are two ways of leaving the **Configuration** menu at any time:

1. Pressing the "Accept" button for 3 seconds (i.e. ,): Save changes and quit.
2. Pressing the "Cancel" button for 3 seconds (i.e. ,): Ignore changes and quit.

In both cases, you will be asked to confirm whether you want to "Exit and save the changes" or "Exit and ignore the changes", respectively. If you choose "Yes", the action will be executed (Save or Ignore Changes) and you will quit the configuration menu and enter the stand-by mode ("Please insert note"). If you choose "No", the action is cancelled and you remain in the configuration menu.

Note: Bear in mind that when you quit the configuration menu, the accrued total retains the value existing before accessing the menu.

Recommendations for Validating Banknotes

Follow these recommendations before you validate banknotes:

1. Never insert notes with *staples* or *clips* into the validator, since they can distort the validation process and damage the mechanism.
2. Notes *repaired with adhesive tape* may cause jams. If a note has not been repaired properly, it may be declared "invalid". Special care should be taken with this type of notes, because it is a common way of concealing defects in many counterfeit notes. If the validator generates the message "INVALID NOTE" repeatedly, do not accept the note.
3. Do not insert *several notes at once*. Secureuro only operates when the notes are inserted by hand, one by one. Inserting more than one note can cause jams and even damage the validator.

How to Insert Euro Notes

Secureuro can validate all the denominations of Euro notes.

Euro notes can be inserted **with either side facing up and in any forward direction (i.e. the front or the hologram side)**, but always lengthways.

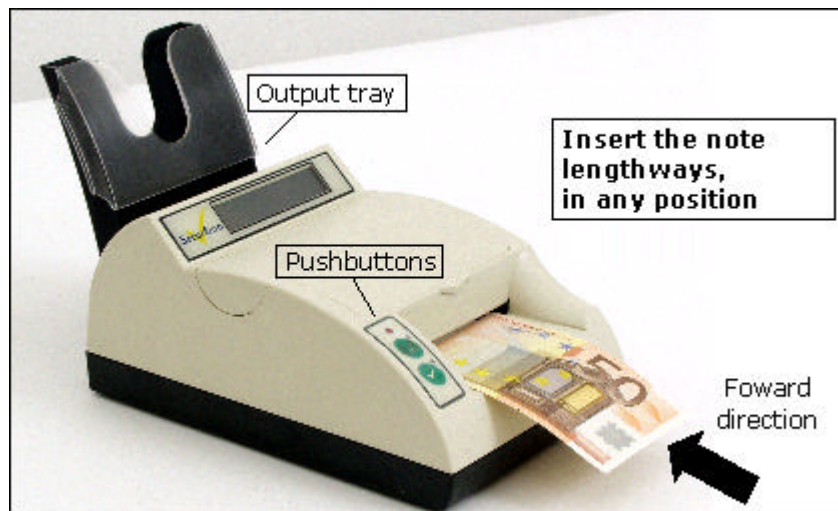


Figure 4. How to insert Euro notes

Bear in mind that the note must be inserted next to the *left edge* of the input slot (the side where the pushbuttons are located). If the note is very far from the left guide, the validator will:

- Light up the alarm LED.
- Display the message "Please align note".
- Emit a beep.

The validator will then wait until the note is inserted correctly.

The validator does not detect the note until it has been inserted a few millimetres into the input slot. Once the note has been detected, it is moved forward to the output tray, and a “verdict” on its validity is given in less than one second. Next, the note is placed on top of those remaining in the output tray.

Validation Results

When validating a note, the equipment generates one of two possible verdicts:

1. **Valid note:** It emits a short beep and the screen displays "**Valid XXX EURO note**" and the accrued total in Euros. The validator waits for the next note to be inserted.
2. **Invalid note:** It emits 5 short beeps, the red indicator lamp lights up, the display shows "**INVALID NOTE. PRESS ACCEPT**" and the validator stops until the button is pressed. This note is not added to the accrued total.

Notes:

- The message "**INVALID NOTE**" does not necessarily mean that the note is counterfeit. A small number of authentic notes in circulation may not be recognised correctly by the validator and generate the message "**INVALID NOTE**". In these cases, we suggest that the same note be validated again (and even a third time).
- If a note is unsuccessfully validated several times and at one point it is accepted as a "**Valid XXX EURO note**", it may be considered to be genuine. A counterfeit note will always be rejected as an "**INVALID NOTE**".
- The authenticity of Euro notes can only be attested by the central banks of the Euro zone countries. Therefore, the validator should be used only for detecting possible counterfeit notes which must subsequently be sent to the competent authority.
- The validator may display the two following messages to indicate an operational problem:
 1. "**Mal function xx**": please call your service representative.
 2. "**Note jammed**": try to remove the bill from the validator through the input or output slots, or by lifting the top registration lid.

Resetting the Validator and Changing the Currency for the Validated Total

After validating a batch of notes, the validator will display the total amount in Euros on the screen. To reset this total (for instance, when accepting payment from the next customer), press the "Cancel" button () before inserting the first note of the new batch.

If you press repeatedly while the validator is in stand-by status (waiting for the next note to be inserted), the total validated amount in Euros (€) will change to its equivalent in the selected local currency, and vice versa.

4. Connection to Other Equipment

Although Secureuro is a standalone system, it can be attached to other equipment such as computers, point-of-sale terminals or systems equipped with RS-232 connections, in order to improve its performance.

Features Available Through Connections to Other Equipment

- Connections must be made by means of a standard RS-232 interface. The functions available with this interface include:
 - Emitting alarms to other equipment when invalid notes are detected or other events occur (malfunction, jam)
 - Communicating the validated total to a POST
 - Unloading and updating the firmware
 - Diagnostics

The attached equipment must have adequate software for performing the above functions.

Connection to Computers and Point-of-Sale Terminals with PC and DOS/Windows architectures

- The serial cable is connected to the validator's serial port.
- Function for transferring the data of each validation to the POST. This enables the following information to be communicated to the PC/POST:
 - Whether the note is valid or invalid.
 - In the case of valid notes, their denomination.
 - In the case of invalid notes, the characterisation code that enables determination of the reason why its validity cannot be assured (absence of one or more security mechanisms on the note or other reasons).
- Diagnostic functionality: this provides information on the current configuration of the validator, such as:
 - Version of the loaded firmware.
 - Selected configuration variables.
 - Operational statistics stored in the validator's internal memory.
- Firmware updating functionality:

- This enables a file to be downloaded to the validator via the serial port. The monitor resident in the validator will check the authenticity of this file.
- This file can be obtained by any method: diskette, CD-ROM, FTP transfer via the Internet, and software and data distribution tools such as SMS, Tivoli or others.

Connection to Point-of-Sale Terminals with non-PC Architectures

In the near future we have plans to develop software versions that can be run from various POSTs with non-PC architectures and operating systems other than DOS and the Microsoft Windows family.

Appendix A. Secureuro Technical Specifications

The Secureuro product has the following technical specifications :

- Power supply unit
 - Universal input voltage (100 – 240 VAC, 47/63 Hz) without switches
 - Consumption: 0.4 A
 - 1.5 m low-voltage cord
 - Plug in the output to the validation unit
 - Output: 9 V, 1.33 A DC
- Temperature ranges
 - Operating: 32 to 104 °F (0 to 40 °C)
- Slip-preventing system
 - The validator has a slip-proof base and can optionally be attached to a counter, POST cabinet or vehicle to prevent it from moving while it is being used.
- Dimensions
 - Validation unit without tray: 8.66" x 5.90" x 3.93" (220 x 150 x 100 mm)
 - With standard tray supplied with the equipment: 10.62" x 5.90" x 5.90" (270 x 150 x 150 mm)
- Weight:
 - Validation unit: 2.20 lb (1 kg)
 - Marketing unit: 3.30 lb (1.5 kg)
- Work load:
 - **Standard operation:** designed for validating 1,000 notes per week.
 - **Life cycle:** all properly maintained units will fulfil the following minimum life cycles (whichever occurs first):
 - 5 years of standard operation.
 - 250,000 validated notes.

Appendix B. Troubleshooting Common Problems

This appendix includes a description of common problems and malfunctions that may arise during the validator's use.

Power Supply Problems

Start-up problems:

Unplug the power supply unit plug from the validator and plug it in again. Make sure that the green LED on the power supply lights up and, after a few seconds, the red alarm LED blinks and then goes off. The LCD screen displays the message:

SECUREURO V X. XX

If neither the LCD screen nor the LED lights up, the reason may be:

1. No current is reaching the outlet to which the plug is connected. Check whether the green LED on the power supply lights up.
2. Power supply or validator malfunction. Call your service representative.

If the red alarm LED lights up permanently, the validator has detected a malfunction. Call your service representative.

Configuration Problems

Problem: The messages appear in a different language on the LCD screen

Select your language by following the instructions listed in the section "Secureuro Configuration". You must keep count of the options, since they will appear in the currently configured language.

Problem: The start-up and operating procedures seem to be all right, but no message appears on the LCD display

The LCD screen contrast may be set too low. Try adjusting it to a higher value according to the instructions listed in the section "Secureuro Configuration". Position the LCD screen so that you can read the messages.

Problem: When you press "Accept" (in the absence of alarms) the total amount displayed changes to a currency different from the local currency

Configure your local (or alternative) currency as described in the section "Secureuro Configuration".

Jams

Problem: The notes are inserted with difficulty until they are halfway through and then go in at the adequate speed

Possible mechanical failure. Call your service representative.

Problem: The notes become jammed within the transit area (underneath the registration lid)

If the number of jams is greater than one note per 100 (different) notes, the problem may be caused by some obstruction under the bridge of the sensors. You can try to remove it with a piece of thin card (e.g. a visiting card): open the registration lid and insert the piece of card into the slot between the metal surface and the plastic bridge located under the LCD display. Move it carefully several times towards the edges of the note path. If the problem persists, contact your service representative.

Problem: The notes become jammed when they come out of the rear tray

Remove the note collecting tray by inserting a flat screwdriver or a letter opener in the rear slot and prising open. Make sure that there is no obstruction in the output slot and replace the tray. Check that the output tray is located in its working position and is perfectly anchored to the rear part of the validator. If the problem persists, contact your service representative.

Problem: Some notes become jammed

Very new or very creased notes can jam inside the validator. To avoid this, change the note position by rotating it or turning it over, and try again.

You can also try inserting the notes along their smoothest side.

Effect of Direct Sun or Halogen Light

Problem: The validator indicates that all the notes (or a very high percentage of them) are "invalid"

Check the operation with Euro notes only, ranging from very new notes to very worn ones. Make sure that the registration lid is in position and properly anchored. Try carrying out the test in a closed room, and not outdoors. If the problem persists, the validator may have lost the calibration it received originally at the factory, owing to a knock or to negligent use. In this case, it will need to be recalibrated. Contact your service representative.

The Secureuro validator is designed for operating in all types of commercial environments; however, infra-red light from the sun or other sources can affect its operation. Whenever possible, avoid working in conditions where the equipment can receive bright infra-red light directly through the input or output slot, i.e., when the front and rear of the validator are facing the sun (or another source of IR light). Keep in mind that the notes piled up in the output tray can reflect the light toward the inside of the validator.

The main effect of the light on the validator is that it will increase the number of genuine notes which are rejected, and may even reject every single note being validated.

In these cases (working outdoors or with a source of IR light nearby) it will usually be sufficient to change the validator's orientation to prevent direct light from reaching its interior. Rotate the validator on its own axis approximately 90 degrees and check its operation again. Keep trying new positions until you find one where it recognises most of your own notes as valid. If you cannot find an adequate position, try protecting the validator against the sun or its reflection with a sunshade. Remember that a working position which is adequate at certain times and seasons may be inadequate at others.

Other Problems

Problem: One of the pushbuttons does not work

Turn the validator off and on. If the problem persists, contact your service representative.

Validating Notes in Poor Condition

See the chapter "Introduction to Secureuro's Validation Technology".

Customer Service

You can contact the Secureuro customer service at the number:

902.193.291

The Secureuro Web Page

If in doubt, visit the Secureuro Web page:

www.secureuro.com

This page includes various areas of interest which are listed below.

User area

Here you will find information and recommendations for using Secureuro, selected industry news, types of forgeries detected, etc.

Firmware updating area

By means of the serial cable supplied for connecting your Secureuro validator to the COM1 or COM2 port of your PC, you can download the latest version of the firmware.

Updating the firmware is advisable in the following cases:

- If enhancements are incorporated into the internal operation of our programs (higher speed, greater validation accuracy, higher communication speed, etc.).
- If a new forgery technique not contemplated by the recognition algorithms is developed.
- If a type of note appears which causes a very high number of rejections in Secureuro (owing to production tolerance issues pertaining to one of its security elements).

It is very easy:

1. First download the update program onto your PC (follow the instructions posted on our Web page).
2. Next, connect your PC to the validator using a serial port (COM1/COM2).
3. Run the program you downloaded.

A window appears where you need to define the port (COM1/COM2) the validator is connected to.

4. Click on "Download" and your validator's firmware version will be updated in a few seconds (this can take up to 2 minutes).

The equipment will now use the new firmware version.

Appendix C. Optional Accessories for Secureuro

Ask your provider about the availability and prices of the following accessories and options.

Power Supplies

- Adapter for automobile with 12 VDC battery.
- Adapter for automobile with 24 VDC battery.
- Power supply with separate cable.
- Cables for the "power supply with separate cable" with other non-continental European plugs (UK, USA, etc).

Connection Cables

- Standard serial RS-232 for PC or similar equipment (identical to the one supplied with the validator).

Supports

- Mounting on raised tray for desktop anchoring.

Voice Module (according to model)

Designed specifically for visually handicapped people, it emits the validation messages (not the configuration messages) by means of a pre-recorded voice.

It includes a loudspeaker which integrates inside the validator and an external output (jack-type) for headphones which, when used, disables the internal loudspeaker.

Appendix D. Certifications and Standards

Secureuro complies with the following certifications:

- Electromagnetic compatibility tests (CE):
 1. Generic, emissions EN-50081-1
 - 1.1 EN-55022 (conducted emissions)
 - 1.2 EN-55022 (radiated emissions)
 2. Generic, immunity EN50082-1
 - 2.1 EN 61000-4-2
 - 2.2 EN 61000-4-3
 - 2.3 EN 61000-4-4
 - 2.4 EN 61000-4-5
 - 2.5 EN 61000-4-6
 - 2.6 EN 61000-4-11
 - 2.7 EN 61000-3-2
 - 2.8 EN 61000-3-3
- Low-voltage electrical safety regulations: standard EN 60950.
- Manufacture and service processes: subject to the ISO-9000 set of standards.

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