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VALUE COUNTER



USER MANUAL

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MAGNER[®]

VALUE COUNTER PRB

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Introduction

Dear Customer,

We would like to thank you for purchase of **Magner PRB**, two pocket banknote counter that recognizes value and authenticity of banknotes of different currencies, and sort them by orientation or by denomination.

The machine is intended for counting and sorting of US dollars, Euros and other world and local currencies (depending on client's choice and availability of certain currency's software). Authenticity verification is based on visible and infrared images of both sides of banknotes, and their magnetic and ultraviolet response as well.

Specifications

Hopper capacity, not more than.....	500 banknotes
Stacker capacity, not more than.....	200 banknotes
Reject pocket capacity, not more than	100 banknotes
Value counting speed ($\pm 10\%$).....	600/900/1200/1500 note/min
Banknote size.....	100—190 mm (width), 58—90 mm (length), 0,05—0,2 mm (thickness)
Batch select.....	1—999
Banknotes feed system.....	roller system of a friction type
Sensors	a line of photosensitive elements with an infrared and visible lighting, (CIS). Ultraviolet sensors (2 pcs. for transmitted light and 2 pcs. for reflected light). Multichannel magnetic sensors (1 pc. at the centre, 2 pcs. at the sides).
Display.....	Color TFT LCD 4.3" (11cm) with resistive touch sensor.
Power supply.....	100-240 VAC, ~50/60 Hz
Current consumption, not more than.....	2A (100 V) -1A (240 V)
Operating temperature range.....	10°C to 35°C
Relative air humidity at +25°C.....	40% to 80%
Atmospheric pressure.....	84 to 107 kPa (630 to 800 mm Hg)

Overall dimensions:

Height.....	345 mm
Width	305 mm
Depth	295 mm
Net weight.....	10 kg
Gross weight.....	13 kg
Average lifespan.....	7 years

Safety Precautions

To ensure long lifespan and a reliable operation of the counter, user should meet the following operation requirements and observe the below-mentioned safety precautions:

- 1 The counter's rotating parts are potentially hazardous for the user. Do not touch the gear as it may cause an injury. We highly recommend that the user avoid wearing any jewelry and loose clothes, and cover long hair when operating the machine.
- 2 Do not touch by wet hands the counter, the power supply plug and the power cord as it may cause an electric shock.
- 3 When closing the top cover, mind your fingers as you may squeeze them. At operation with an open top cover, make sure about its steady state. A sudden closing of the cover may cause an injury.
- 4 Avoid getting of any metal object or liquid into the counter.
- 5 Use an electric outlet with a protective earth contact (PE) to connect the counter to the power supply. The outlet should be located close to user's workplace.
- 6 Avoid usage of the power other than included in the delivery set; do not pull the power cord to disconnect it from the outlet, neither bend it nor twist.
- 7 If you do not use the counter for a long time, its power switch shall be in the «O» position. Upon work completion, disconnect the machine from the power supply.
- 8 The counter shall be installed on an even horizontal surface.
- 9 Do not use the machine at extremely high or low temperatures; avoid humidity and the exposition to direct sunlight.
- 10 When the counter is working, do not switch it off, do not pull the power plug out of outlet, do not open machine's cover. It may cause a damage of the counter.
- 11 Before cleaning the sensors of the path, make sure the counter is switched off.
- 12 When you are choosing the place of counter's installation, avoid the areas with high level of dust content.
- 13 At installation and use of the counter, keep some space sufficient for opening its upper part and getting access to the path.
- 14 To avoid any inflammation or short circuit, do not install the device in places where it may be at risk of a soot or steam exposure.

Delivery Set:

Banknote counter Magner PRB	1 pc.
Power cord.....	1 pc.
Stylus.....	2 pcs.
USB cable (A-B type).....	1 pc.
User manual.....	1 pc.
Package.....	1 set.
Banknote guide.....	2 pcs.

Appearance

Figure 1

- 1 Screw to adjust a gap between hopper's rollers.
- 2 Banknote guides.
- 3 Hopper.
- 4 Locks providing access to mechanism.
- 5 Control panel.
- 6 Reject pocket.
- 7 Stacker.
- 8 Stacker wheels.
- 9 Carrying handles.
- 10 Upper part.
- 11 Base.
- 12 Power switch.
- 13 Fuse.
- 14 Power connector.
- 15 Connector for an external printer or a video surveillance device.
- 16 USB port for PC connection.
- 17 Socket for external display.

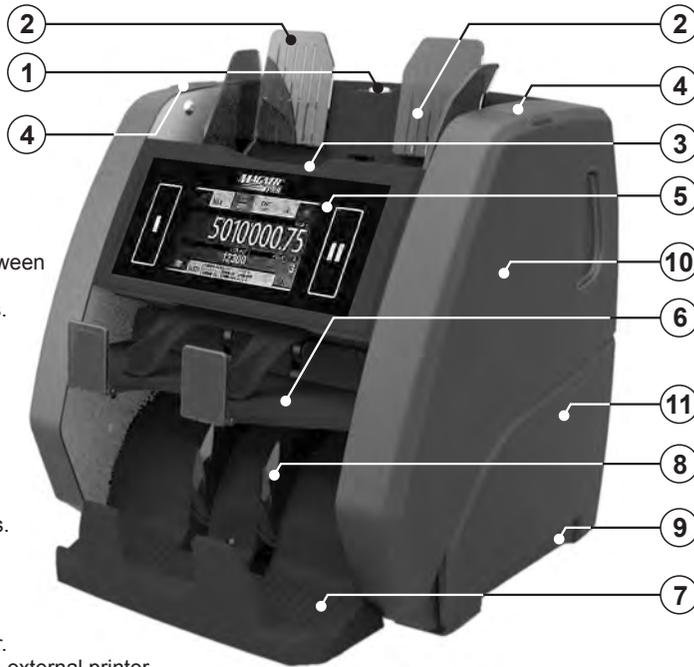
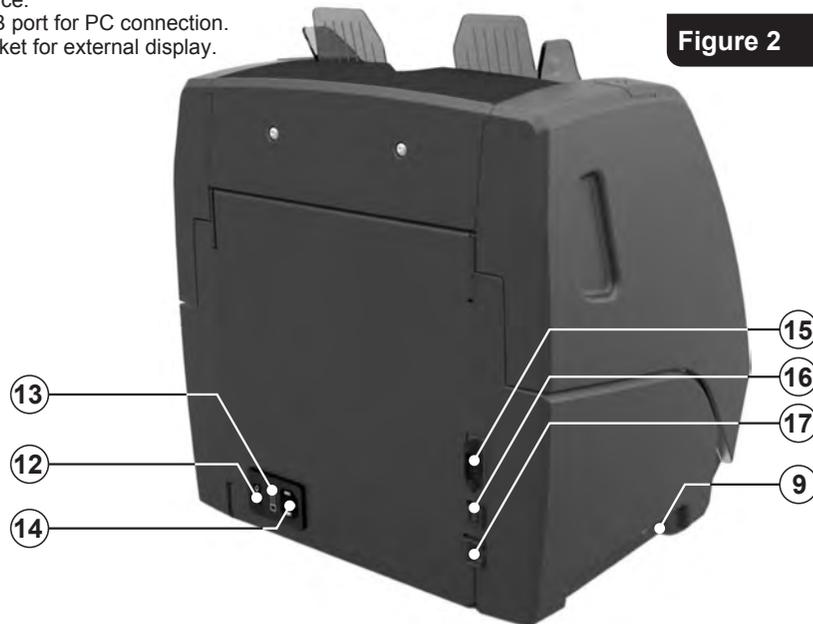


Figure 2



Control panel

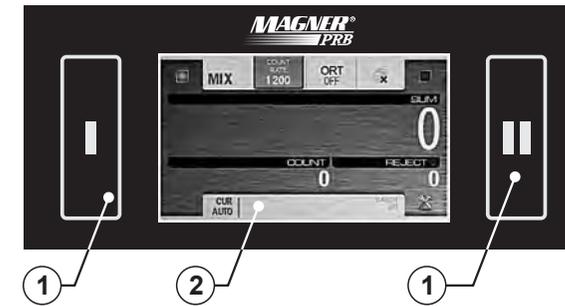


Figure 3

- 1 The softkeys for the start and user selection.
- 2 Touch screen display.

External Sensors, path sensors and pocket switch

To open the path, press simultaneously the locks fixing an upper part (see Figure 1, item 4), and then, holding the hollows of the case, pull the upper part of the counter (see Figure 2, item 10) up to the stop. To close the path, push the upper part up to a click.

Figure 5, Figure 6, and Figure 7 show the external sensors, the path sensors and the pocket switch.

Figure 4

- 1 Hopper sensors
- 2 Reject pocket sensor
- 3 Stacker sensors

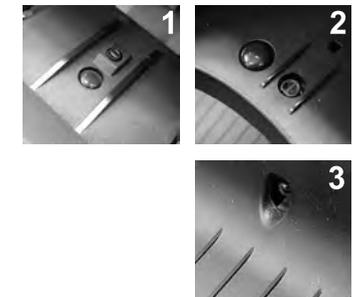


Figure 5

- 4 The UV transmission sensors/the input path sensors
- 5 Contact image sensor (CIS)

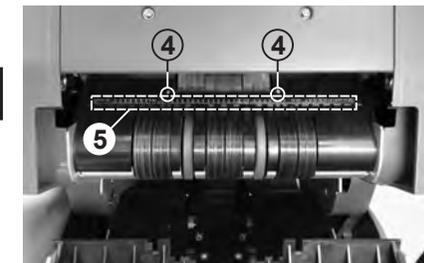
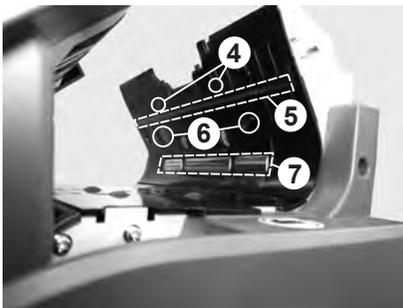
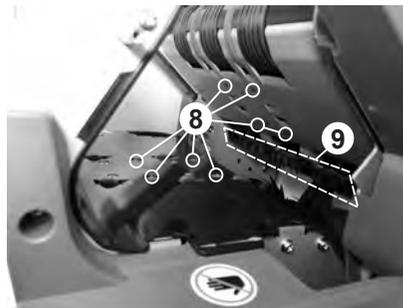


Figure 6



- 6 UV reflection sensors
- 7 Magnetic sensors

Figure 7



- 8 Counting sensors
- 9 Pocket switch

Preparing for Operation

- 1 Make sure that the safety precautions mentioned in the relevant section of the manual are kept.
- 2 Install the banknote guide (Figure 1, item 2) included in the delivery set:
 - 2.1 Take one banknote guide (Figure 1, item 2) and match the tabs of the guide (see Figure 8) with the slots of the banknote guide holder (see Figure 9).
 - 2.2 Push the guide into the holder (see Figure 10).
 - 2.3 To fasten the guide on the holder, move it down up to the stop (see Figure 11).
 - 2.4 Repeat points 2.1-2.3 for the second banknote guide.
 - 2.5 To check that the banknote guides are installed properly, move the guides manually aside, to the maximum and minimum; the movement shall be synchronous and without jerks.

To remove the guide (for example, before transportation), take the upper part of the guide, press it slightly and then pull it up.

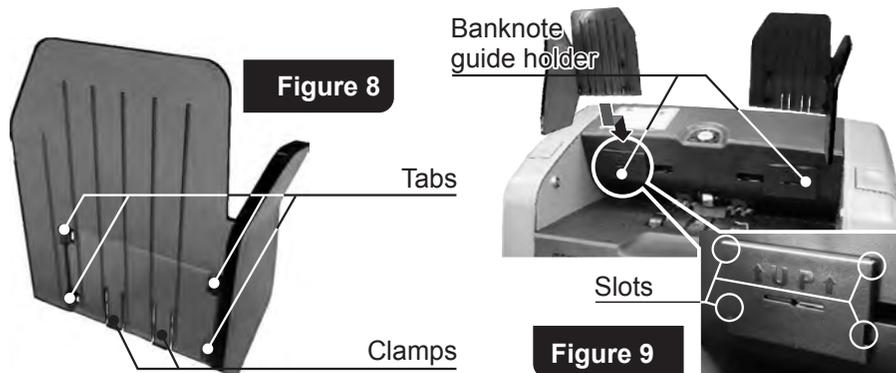


Figure 8

Figure 9

Figure 10



Figure 11

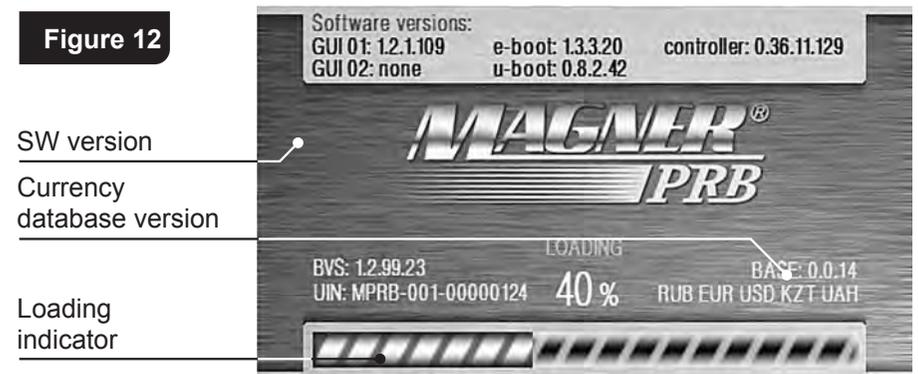


3. Connect the counter to electric outlet by power cord.

Operation

- 1 Make sure that the safety precautions mentioned in the relevant section of the manual are kept.
- 2 Use a power switch (Figure 2, item 12) to switch the counter on. After you have done it, a process of the firmware loading and self-testing is activated and an image (see Figure 12) appears on the graphical display (Figure 3, item 2). During self-test the loading indicator is moving, the stacker wheels (Figure 1, item 8) and the hopper rollers (Figure 1, item 3) are rotating.

Figure 12



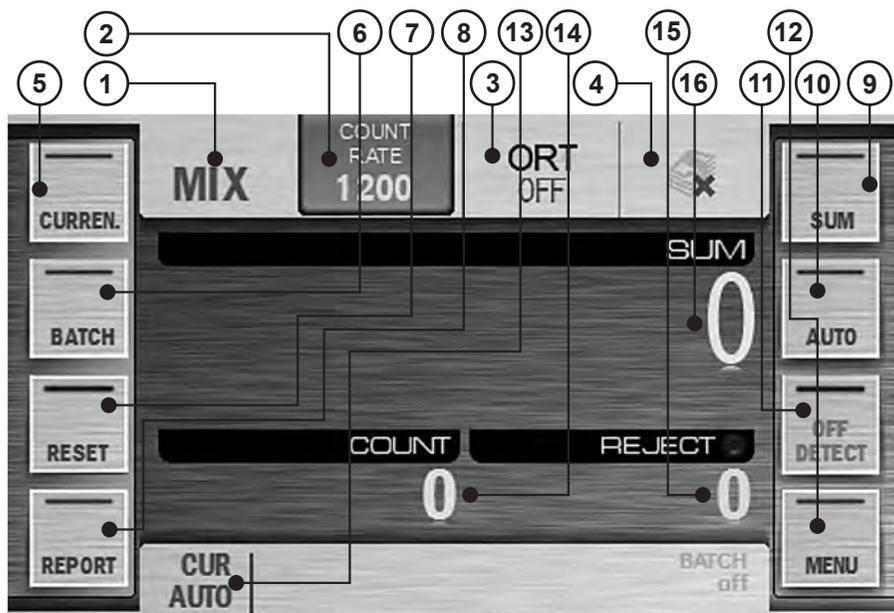
SW version

Currency database version

Loading indicator

After self-testing is over, you hear an audio signal, and the display shows the following picture (see Figure 13):

Figure 13



- | | |
|---|---|
| 1. Key/indicator of counting mode; | 9. Accumulation mode key; |
| 2. Key/indicator of counting speed; | 10. Automatic/ manual start key; |
| 3. Key/indicator of sorting mode; | 11. UV and MG detection ON/OFF key; |
| 4. Key/indicator of batch mode; | 12. Settings menu key; |
| 5. Currency selection key; | 13. Currency indicator/ currency selection hot key; |
| 6. Batch size/stacker capacity selection key; | 14. Number of counted banknotes; |
| 7. Counting results clear key; | 15. Number of rejected banknotes; |
| 8. Counted/ rejected banknotes report key; | 16. Amount of counted banknotes. |

Now the counter is ready to work under the factory settings as follow¹:

- Interface language is English.
- Currency is automatic currency detection by the first banknote in a batch.
- Counting mode is MIX.
- Start mode is automatic.
- Accumulation mode is off.
- Batch mode is off (because in MIX mode it's always disable).
- Counting speed is 1,200 banknotes per minute.
- Ultraviolet detection (UV) is off.

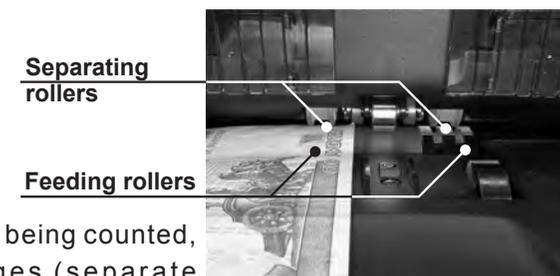
¹ If required, the factory settings may be replaced by user settings.

- Magnetic features detection (MG) is off.
- Banknote density detection (DENSITY) is off.
- Orientation sorting (ORIENT) is off.
- Extended visual mode is off.
- Sound volume is 50%.
- Screen brightness is – 100%.
- Theme selection is by default.
- Stacker capacity is 200 banknotes.
- Reject pocket capacity is 50 banknotes.
- User's profile is «1».

3. Adjust the feeder gap. The manufacturer presets the gap in accordance with the currencies to be counted.
However, if the counter often rejects the known-good banknotes and the report (see subsection «Operating Keys», «Key «REPORT» , Figure 52 and Figure 53) indicates «Small Notes Gap» and «Double Note» as the reason of the banknotes rejection, it is necessary to slightly turn screw 1 clockwise (toward «-») to reduce the gap (see Figure 1). If the rejection report indicates «Skew Error» and «Feed Error», it is necessary to slightly turn screw 1 counterclockwise (toward «+») to increase the gap (see Figure 1). The gap between separating rollers and feeding rollers should make one note to pass free between the rollers but to prevent two notes put together from passing (see Figure 14).

Figure 14

4. Adjust the banknote guides according to the length of the longest banknote in the batch being counted, align the batch edges (separate banknotes shall not protrude from the batch), and place it in the middle of the hopper avoiding its skew. The counter will start operation automatically. The count is stopped when the number of the notes equal to the stacker capacity has been counted. After the banknotes have been removed out of the stacker, the counter automatically resumes operation.



5. In case of an error, follow the advices of the «**Error Messages**» section.

Note:

Prepare the banknotes to be counted as shown in **Figure 15**, remove the banknotes that are torn, wet, grease or dirty.

Advice: For customer's convenience we suggest to use a stylus, a pen-shaped accessory designed to control the devices with a touch interface. The stylus will facilitate your work with the counter.

Two styluses for the resistive touch screens are the part of delivery set (see **Figure 16**).

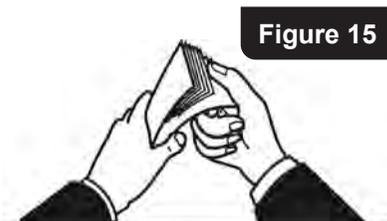


Figure 15



Figure 16

Setup Menu

To enter the user's settings menu, press the «**MENU**» key (see **Figure 13**).

The user's settings menu appears on the screen. In its left part, there are the submenu keys, in the right part there are the corresponding parameters. To save the changes and exit the menu, press the key. After the exit, the screen shows the selected settings. To exit the menu without saving the changes, press the key.

1 Submenu «**COMMON**» (see **Figure 17**).

It includes two categories: «Detection» and «Speed», keys «**POCKETS' LIMIT**», «**INFORMATION**», «**FACTORY RESET**» are also available.

Detection

UV is ultraviolet detection mode. When it's activated (**UV**), and a banknote with an increased UV fluorescence has been found (for example, a counterfeit printed on plain paper), the banknote goes to the reject pocket (the rejection causes are available in the «**REPORT**» submenu).

MG is magnetic features detection. When it's activated (**MG**), and a banknote without magnetic marks has been found, the banknote goes to the reject pocket (the rejection causes are available in the «**REPORT**» submenu).

DENSITY is banknote density detection that available only for **COUNT** mode. When it's activated (**DENSITY**) and a very dark banknote has been found (or two notes passed together) or a very transparent one, the banknote goes to the reject pocket (the rejection causes are available in the «**REPORT**» submenu).

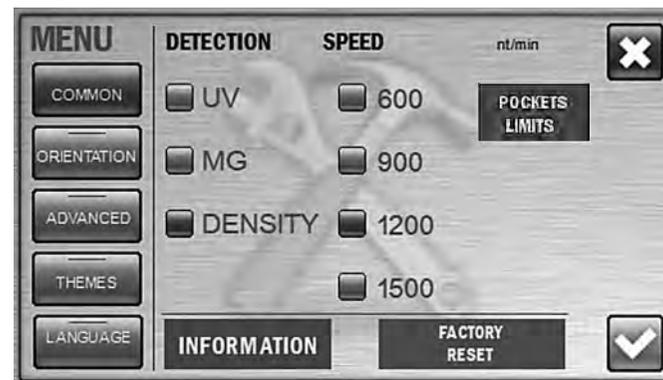


Figure 17

Speed

User can choose any of four counting speeds (600, 900, 1200, and 1500 banknotes per minute). The check-box opposite the selected speed is highlighted in blue. For counting of worn notes we suggest low speed (600 or 900 notes/min).

Attention: if **UV detection** is activated (**UV**), only two counting speeds (600 and 900 notes/min) are available.

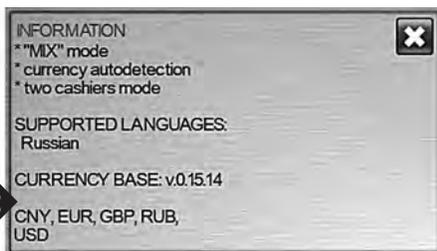
Information

This screen is contained the info on the device identifier (UIN), the firmware (FW) versions, the supported languages, the supported currencies, and the currency database version (see **Figure 18**, **Figure 19**). To view the text given below, move your finger across the screen from the bottom upwards and for the text above - from the top downwards.

Figure 18



Figure 19



POCKETS CAPACITY

Press the « **POCKETS LIMITS** » key to open the submenu of the pocket capacities selection (see Figure 20).

Figure 20



The stacker limit is the maximum number of banknotes that can be placed into the stacker. The limit has two possible values: 100 and 200 banknotes; as soon as the selected value is reached, the counter stops and resumes its operation after the banknotes are removed from the stacker (and pressing the «start» key, if the counter is in the manual start mode). The selected value of the stacker limit is highlighted in blue (see Figure 20). To change the setting, just press the required value (it became highlighted in blue).

The reject pocket has an adjustable limit value. As soon as the specified limit is reached, the counter stops and resumes its operation after the banknotes have been removed from the reject pocket (and pressing the «start» key, if the counter is in the manual start mode). The default (optimal) value of the reject pocket limit is 50 banknotes. The user can change the limit within the range of 25 to 100 banknotes. To change the limit, move a slider

to the required value. The slider moves by steps of 5 notes each (25 - 30 - 35 - etc.).

Attention! For counting of worn notes we suggest the reject pocket limit would be not more than 50 notes, otherwise it may cause unsmooth stacking or jamming of notes.

Note: All the banknotes that do not match to the counting/sorting criteria get into the reject pocket, including the notes with tears and other mechanical damages. To prevent any banknote damage, please choose such capacity of reject pocket that corresponds to physical condition of the counting notes.

FACTORY RESET

After the **FACTORY RESET** key is pressed, all the current user's settings are reset and the factory settings restored (see article 2 of section «Operation»). To exclude an accidental reset of the settings, you will be asked to confirm it (see Figure 49).

Attention: the settings are resetted only for the current user, while the settings of another user remain unchanged.

2 Submenu «Orientation sorting» (see Figure 21)

Orientation sorting is available for modes **MIX** and **DEN**. The selected mode of orientation sorting is displayed on the key/display **ORIENT OFF**. The banknotes may be sorted with the following settings:

OFF: The banknotes are counted regardless their orientation (see Figure 21).



Figure 21

FACE: The banknotes placed into the hopper with their faces up will get into the stacker (see Figure 22). The remained banknotes will be placed into the reject pocket. N.B.: to understand which side of certain currency's banknote is the face, refer to the web site of relevant Central Bank.

Figure 22



ORIENT: the banknotes placed into the hopper with their faces up and readable from the left to the right serial number (upside up) will get into the stacker (see Figure 23). The other banknotes will be transferred into the reject pocket.

Figure 23



AUTO: The banknotes with the same orientation as the first counted banknote in a batch (see Figure 24) will get into the stacker. The other banknotes will be transferred into the reject pocket.

Figure 24

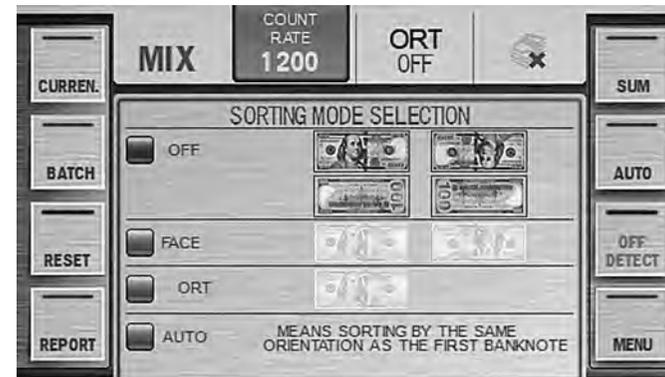


To get an access to the orientation sorting, press the hot keys « **ORT** **OFF** » (see Figure 25). By pressing **ORT** key, the dropdown menu «orientation sorting» appears. The required orientation may be selected by a repetitive pressing of the key **ORT** **OFF**; in this case, the modes will be selected in turn:

ORT **OFF**, **ORT** **FACE**, **ORT** **ORIENT**, **ORT** **AUTO**.

After the required mode has been selected, the dropdown menu automatically disappears in 7 seconds or at the moment when a count starts (automatic or manual). It is also possible to select a sorting mode by pressing directly the corresponding icon; in this case, the dropdown menu automatically disappears and the selected setting is displayed on the indicator.

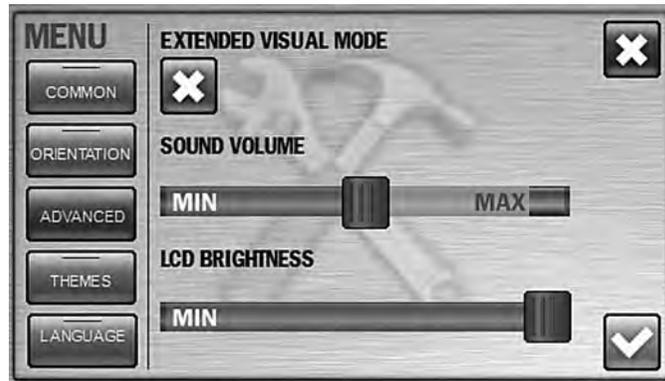
Figure 25



3 Submenu «ADVANCED»

It contains the settings of brightness and the sound volume as well as selection of the extended visual mode (see Figure 26).

Figure 26



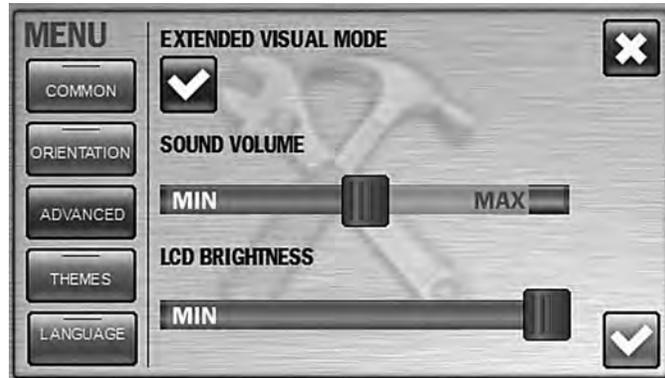
EXTENDED VISUAL MODE.

We suggest to use this mode if you work with the counter continuously and do not switch frequently between different modes.

When extended visual mode is activated (see Figure 27), the hot keys by the sides of the screen are removed and the font size for amount of counted notes become bigger (see Figure 28).

To get an access to the menu, press the  key. To recall the hot keys by the sides of the screen, press the middle area of the screen; a repeated pressing will hide the keys again.

Figure 27



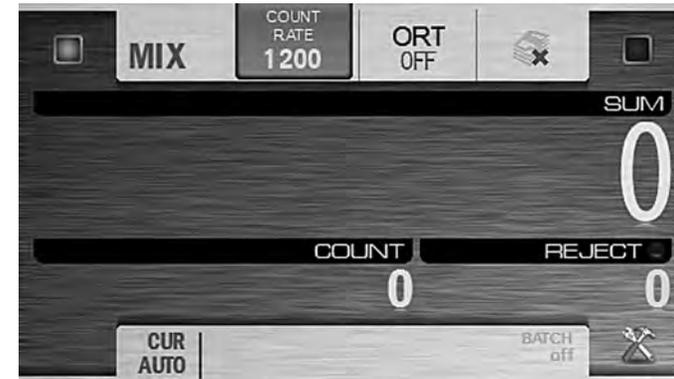
SOUND VOLUME

Moving the slider from the minimum (MIN) to the maximum (MAX), you increase the sound volume (see Figure 26). At extreme left position (MIN), the sound is off.

LCD Brightness

Moving the slider from the minimum (MIN) to the maximum (MAX), you increase the brightness of LCD screen (see Figure 26).

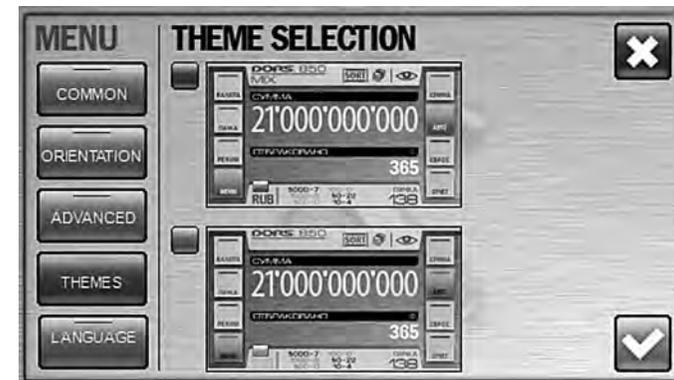
Figure 28



THEME SELECTION

You can choose one of the preset themes of graphic user interface (GUI). Chosen theme is marked by blue check-box at the left of theme (see Figure 29).

Figure 29



LANGUAGE

You can choose one of the preset languages. To select the language, press its name. The check-box at the left of the chosen language became blue instead of grey (see Figure 30).

Availability of the certain languages is depended on the software version of your counter.

Figure 30



Operating Keys

1. Keys **I** and **II** (START, USER PROFILE SELECTION, USER SELECTION)

1.1 The counter is able to save two various profiles with the unique settings. You can switch between them by pressing keys «I» and «II» (see Figure 3).

The profiles may be used by one user or by two users (it's the operation mode «Two tellers»).

According to the tasks to be solved and personal preferences, each user has possibility to choose any setting and any counting/sorting mode.

Indication of the selected profile is depended on the main screen's visual mode.

In the standard visual mode, the operating keys next to the active user key are highlighted in green. The figures given below show the control panel appearance for various users: at Figure 31 is for 1st user (I), at Figure 32 is for 2nd user (II).

Green highlight

Figure 31



Figure 32

Green highlight



In the extended visual mode, the highlighted parts are not only the active user's key but also the check-box in the upper corner of the screen. The figures given below show the control panel appearance for various users: at Figure 33 is for 1st user (I), at Figure 34 is for 2nd user (II).

Green highlight User «I»

Figure 33



Green highlight User «I»

Figure 34



1.2 Keys «I» or «II» are used for the start of count in the manual start mode. To start, press the button of the active user.

2 Key/indicator of the counting mode

The counter is counted banknotes in three modes: «COUNT», «MIX», «DEN». A mode is selected by a repetitive pressing of the mode key. At the same time this key is the indicator of the selected operation mode.

2.1 «COUNT» is a piece counting mode. The notes are counted without recognition of their denominations and counterfeit detection, the display is shown the number of the counted and rejected banknotes (see Figure 35).

Figure 35



2.2 Is the counting mode for mixed denominations of certain currency with their authentication, calculation of the total amount, the number of counted banknotes and amounts of each denomination.

The display is shown the total amount of the counted banknotes, the numbers of rejected and accepted banknotes (see Figure 36). The detailed report on each denomination's number and amount is available by pressing the key «REPORT» (submenu «Batch Report», see Figure 37). For more details on submenu «REPORT», see subsection Operating Keys (Key «REPORT»).

Figure 36



Figure 37

DENOM	COUNT	SUM
10 RUB	9	90
50 RUB	15	750
100 RUB	29	2'900
1'000 RUB	9	9'000
TOTAL	62	12'740

2.3 «DEN» is the counting mode for the certain denomination of banknotes with their authentication, calculation of the total amount and the number of counted banknotes. The denomination is recognized by the first banknotes in the batch. It's possible to choose the denomination manually (see submenu «CURRENCY»).

The display is shown the total amount of counted banknotes, the

numbers of rejected and accepted banknotes (see Figure 38). The detailed report on number and amount of counted notes for each denomination is available by pressing the «REPORT» key (see Figure 39, submenu «SUM Report»).

Figure 38

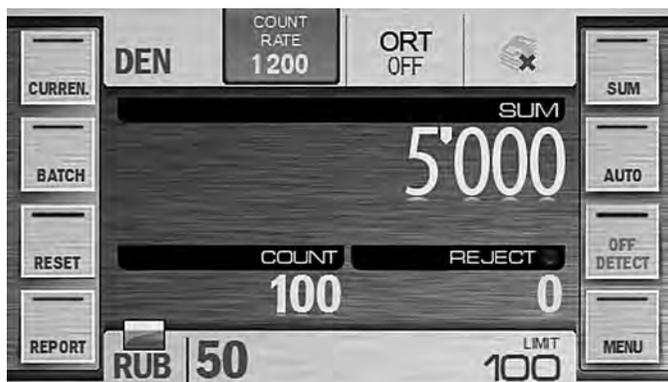
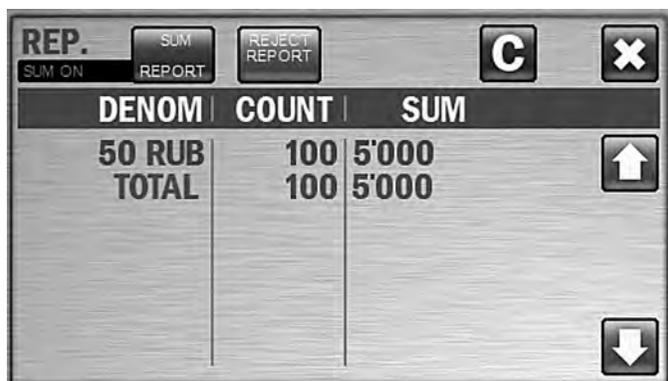


Figure 39

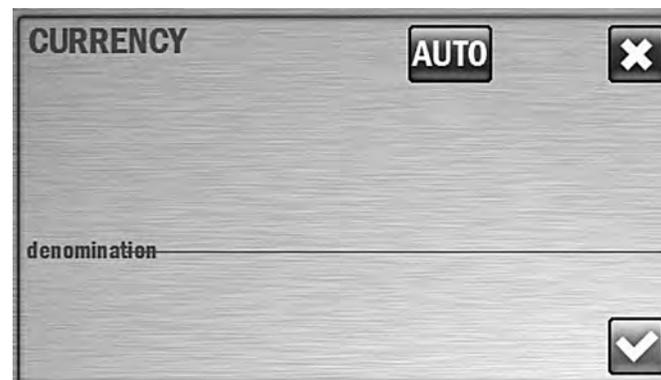


3 Key «CURRENCY»

3.1 By pressing the **CURRENCY** key, the **CURRENCY** submenu is appeared (see Figure 40), and a user can choose the currency to be counted and denomination. (The set of supported currencies is depended on the software version.) Currency selection is available only for modes «MIX» and «DEN», denomination selection is available only for mode «DEN».

By default, the automatic mode of currency recognition is activated; it means that the currency is recognized by the first banknote in the batch – the **AUTO** key is highlighted in blue.

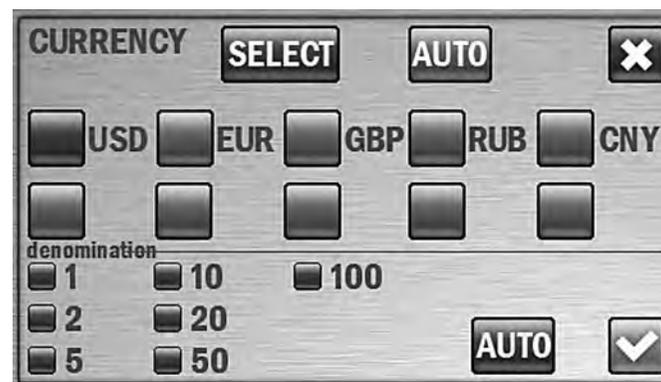
Figure 40



By pressing the **AUTO** key, the mode of manual currency selection is activated, the **SELECT** key highlighted in blue appears (see Figure 41). The list of hot currencies (up to 10) is appeared. These currencies can be counted with recognition of denominations and counterfeit detection. The check-box of selected currency is highlighted in blue. To select another currency, press its name and the color of the check-box at the left of this currency is switched to blue. The counter's memory can store more than 10 currencies that can be included into user's list of hot currencies. When the required currency is selected press the key, and the counter will be ready to count this currency; while the banknotes of other currencies will be transferred to the reject pocket.

3.2 To select a new set of hot currencies, press the **SELECT** key, and submenu «FAST ACCESS Currencies»² will appear (see Figure 42, Figure 43).

Figure 41



² Another way to enter the **FAST ACCESS CURRENCIES** menu is to press any check-box and hold it for 2 seconds.

Figure 42



Figure 43



Keys   allow scrolling of the list of available currencies. If scrolling is available these keys are blue, otherwise they are grey.

To create a currencies set, press one by one the check-boxes at the left of the required currencies (the color of the boxes will become blue), then press the confirmation  key, after that you come back to the «Currency» submenu. If it is required to cancel selection and exit the submenu without saving the changes, press the  key.

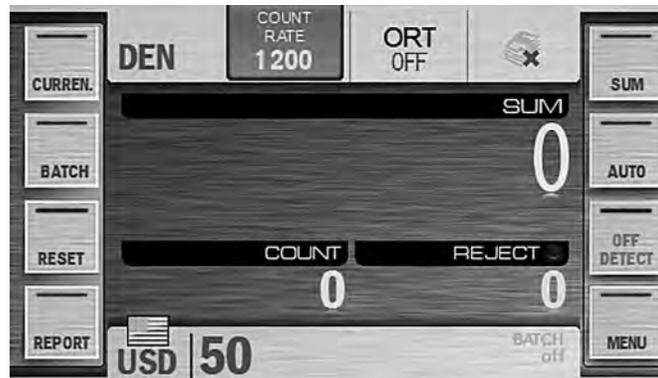
3.3 In the «DEN» mode it is possible to count banknotes of the selected currency with a manually chosen denomination value. In submenu «CURRENCY», all possible denominations of the selected currency are shown below the the list of hot currencies (Figure 41). By default the «auto denomination» mode is activated, i. e. a denomination is detected by the first note in the batch; in this case the check-boxes at the left of denominations are highlighted in blue. If it's required that the banknotes of the certain denomination get into the stacker, press the

the required denomination; in this case, the check-box at the left of selected value become blue while the other check-boxes become grey (see Figure 44). For the user's convenience, the selected value of denomination in mode «DEN» is shown on the main screen at the right of the selected currency (see Figure 45). To return to automatic denomination mode, press the «AUTO» key at the right of the denominations list (see Figure 44).

Figure 44

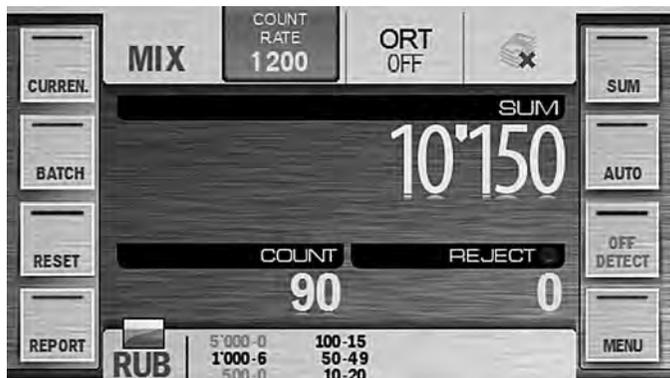


Figure 45



The indicator of the selected currency (or the AUTO mode) is in the bottom left corner of the main screen (see Figure 13, Figure 45). This indicator is also a hot key for submenu «CURRENCY» (it's useful for extended visual mode where side buttons are hidden). To the right of the indicator the couples of (denomination - number of counted notes) are presented (available for MIX and DEN modes); the counted denominations are marked by bold text (see Figure 46).

Figure 46



4 Key «BATCH»

Press the «BATCH» key to call the **BATCH** submenu that is available for modes «DEN» and «COUNT» (and unavailable in mode «MIX») (see Figure 47) which provides possibility to select the batch size and the stacker limit.

Figure 47



You can enter **BATCH** mode by pressing the key (for the batch size > 0) and disabled by pressing the key. By pressing the key you cancel the unsaved changes and exit to the main menu. The batch size is set with the numerical keys. Any batch size since 1 until 999 is available. Key is used to clear the current batch size. Single pressing of the key deletes the digit from the right to the left.

There is an information bar below the batch size which contains the main information from the main screen (the number of the counted banknotes, the current batch size (if it was selected), the stacker capacity, the reject pocket capacity). The fast access key to **BATCH** mode is available on the

main screen in the top right corner (see Figure 13). means that batch mode is off. means that batch mode is on.

The batch size is indicated on the main screen in the bottom right corner (see Figure 48). Once the batch size is reached, the indicator is started to blink, and in 10 seconds message «**BATCH IS READY**» is appeared on the screen. If the number of the banknotes in the stacker is less than the batch size, the message is: «**add X**», where **X** is the number of banknotes required for the batch of the selected size, in 10 seconds message «**ADD BANKNOTES**» is appeared on the screen.

Note : The batch size indicator is also the hot key for a quick access to the «**BATCH**» submenu.

Figure 48



In the **BATCH** submenu a user can change the stacker capacity. The current value of the stacker capacity is highlighted in blue (see Figure 47).

To change the setting, it is sufficient to press the required value (new value become highlighted in blue).

In the middle of the screen (see Figure 47) there is the information bar which contains info on the counted and rejected banknotes, the current batch size and the stacker capacity.

5 Key «RESET»

Key is used to clear the counting results of the stacker after it has been emptied (the reject pocket shall also be empty). To avoid an accidental data reset, confirmation is required. (see Figure 49).

A long pressing (about two seconds) on the center of main menu is cleared the results without confirmation (the function is the most useful for the extended visual mode).

Figure 49



6 Key «REPORT»

By pressing the «REPORT» key, the REPORT submenu is appeared (see Figure 50), it makes you to look through the information on the counted and rejected banknotes.

Figure 50

DENOM	COUNT	SUM
10 RUB	47	470
50 RUB	691	34'550
100 RUB	58	5'800
1'000 RUB	18	18'000
TOTAL	814	58'820

The report on the counted banknotes is available in two versions:

- Batch report  ;
- Sum report .

For both versions, there are the columns of «denomination», «count», «sum».

Denomination is the column where all denominations of counted banknotes are listed

Count is the list of banknotes number for all listed denominations.

Sum is the total amounts for all denominations.

Total is the total number and the total amount of all counted banknotes.

The batch report (see Figure 50) shows all the counted banknotes that got into the stacker during the last counting.

If the accumulation mode (ADD) is on , the batch report will include the total amount of the banknotes counted in this mode.

The sum report (see Figure 51) is listed all the banknotes counted since the moment the counter's switched on (see article 2 of subsection Operation).

The  key is used to clear the reports. To avoid an accidental clearing of the results, confirmation is required (see Figure 49).

Key  is used for exit from the submenu.

Figure 51

DENOM	COUNT	SUM
50 RUB	200	10'000
TOTAL	200	10'000

A report on the rejected banknotes is available in two versions:

- reject pocket report (Blue highlight)  ;
- Advanced reject pocket report (Green highlight) .

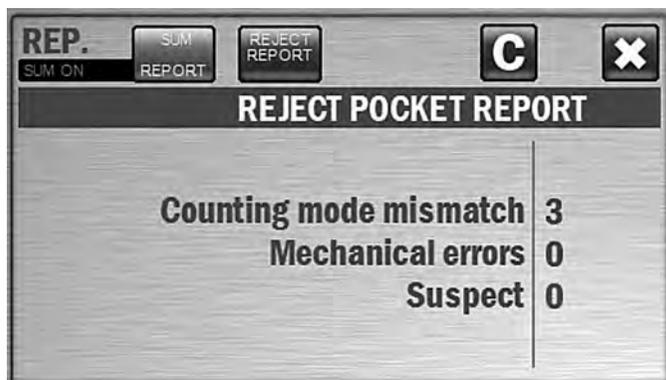
The reject pocket report (see Figure 52) is contained possible reasons of rejection and the number of banknotes rejected due to each of these reasons.

«Counting mode mismatch» means banknotes do not correspond to the selected settings and the operation modes (for example, a mix of various denominations is counted in the DEN mode or user tried to count different currencies in one batch).

«Mechanical errors» means a banknote skew in the path which prevents their correct recognition.

«Suspect banknotes» means banknotes do not correspond to the key features of the specified currency.

Figure 52



The advanced reject pocket report (see Figure 53) is contained more exact reason of rejection for each rejected note.

The number (NO) means the number of the banknote in the reject pocket.

The **REJECT REASON** column is included the reason of rejection and the sequence number of each rejected note in the counted batch (in the brackets). The complete list of reject reasons is given in Table 1.

The **C** key is used to clear the reports. To avoid an accidental clearing of the results, confirmation is required (see Figure 49).

Figure 53



Table 1

Rejection reason	Description	Teller's actions
Suspect note	Currency and denomination are detected, but authenticity is suspected.	Remove the banknote and recount it. In case of repeated rejection, verify the authenticity of the banknote using currency reference book and multifunctional detector like DORS 1250 or DORS 1300.
Unknown note	Banknote does not match the main currency features, currency and denomination cannot be recognized.	Remove the banknote and recount it. In case of repeated rejection, verify the authenticity of the banknote using currency reference book and multifunctional detector like DORS 1250 or DORS 1300.
Currency (X Y) where X – currency, Y – denom.	In MIX or DEN modes the currency of banknote does not match the specified one.	Remove the banknote.
denom (X Y) where X – currency, Y – denom.	In DEN mode the denomination of banknote does not match the specified one.	Remove the banknote.
Orientation	Banknote orientation does not match the specified one.	Place the banknote into the hopper according to the specified orientation.
Small notes gap	Continuous chain (short side of note is too long or the gap between two notes is too short).	Remove the banknotes that got stuck together. Adjust the feeder gap («-») means gap decrease) for operation with the thinner banknotes. To get the required gap, turn screw 1 (Figure 1) clockwise.
Double note	A double banknote or a very dark banknote has been detected.	Remove the banknote. If required, adjust the feeder gap («-») means gap decrease) for operation with thinner banknotes. To get the required gap, turn screw 1 (Figure 1) clockwise.
Transparent note	A very transparent banknote has been detected.	Remove the banknote.

Table 1

Rejection reason	Description	Teller's actions
Dimensions	A banknote has difference with the average dimensions of the first five notes in a batch (the difference is exceeded 20 mm by the long side of note or 10% of its short side).	Remove the banknote. Adjust the feeder gap (if required) according to article 3 of section « Operation ».
Skew error	The banknote skew angle exceeds 14°.	Adjust the hopper's guides in accordance with the length of the longest note in the batch. If required, adjust the banknote feeder gap («+» means gap increase) for operation with thicker banknotes. To get the required gap, turn screw 1 (Figure 1) counterclockwise.
UV error	A banknote with an increased level of UV luminescence is found.	Remove the banknote and recount it. If the high level of UV luminescence is a feature of this type of banknotes, switch off UV detection.
MG left, MG center, MG right	A banknote with wrong MG marks is found.	Remove the banknote.
Scanner error	Banknote scanning error.	Place the banknote into the hopper and recount.
Feed error	Short side of the banknote is exceeded 120mm (for example, a banknote has passed with a large skew, the banknotes got stuck together).	Remove the banknotes and recount them. If required, adjust the feeder gap.
Couldn't sort	Banknote feed error.	Remove the banknotes and recount them.
Note quota overflow	There are more banknotes fed than required by the current mode (batch size, stacker capacity).	Remove the banknotes and recount them.

7 Key «ADD»

By pressing the «**ADD**» key, the accumulation mode is switched on  or switch off . The accumulation mode is intended for summing up of the number of the counted banknotes by denominations and calculation of their total amount; the new counting result will be added to the number counted before. To clear the results, press the «**RESET**» key.

Please pay attention that in the course of a count you see on the screen the number and the amount of current batch (in MIX and DEN modes) while when a count is finished you see the total number and total amount of all the banknotes counted since the start of accumulation mode.

8 Key «AUTO/MAN»

Key «**AUTO/MAN**» (see Figure 13) switches the counter between automatic start mode  and manual start mode .

An automatic start mode means the counter is started to count automatically as soon as the banknotes have been placed into the hopper. A manual start mode means the user have to push  or  keys (depending on the selected user profile) to start a count.

9 Key «DETECTION»

Key «**DETECTION**» has three status:



means the detection is off.



means **UV** detection is on (in **COUNT** mode).



means **UV** detection and / or **MG** detection (according to the user's settings in the «**Detection**» submenu) is on (in **MIX** or **DEN** mode).

MESSAGES IN COURSE OF OPERATION

Table 2. Error messages

Error Messages	Reason	Teller's actions
P.O.S.T. ERROR	An error occurred during self-testing of the counter (at its switching on), the sensors are covered by foreign object.	Switch off the machine. Remove banknotes and/or foreign objects from the hopper, the stacker, the reject pocket, and the path. Then switch on again. If the error is reappeared, call a technician.
S.M.A.R.T. ERROR	An error occurred during self-testing of the counter (before the start of a count), the sensors are covered by foreign object.	Switch off the machine. Remove banknotes and/or foreign objects from the hopper, the stacker, the reject pocket, and the path. Then switch on again. If the error is reappeared, call a technician.
Overcurrent	The banknotes are jammed. A foreign object in the path blocks the gear and causes the overcurrent.	Switch off the machine. Open the path, and remove the jammed banknotes, the foreign objects.
Switch error	The banknotes get jammed. Foreign object in the path blocks the switch between the hopper and the reject pocket.	Open the path, remove the jammed banknotes, foreign objects from switch area.
Calibration error	The calibration error is occurred during the self-test.	Switch off the machine. Open the path and remove the banknotes, the foreign objects blocking CIS (see item 3, Figure 5, Figure 6). Then switch on again. If the error is reappeared, call a technician.

Table 2

Error Messages	Reason	Teller's actions
Note's jam, clean the path! 	A banknote is jammed in the path during counting.	Remove banknotes from the hopper, open the path and remove the banknotes from there. The red circles on the picture are marked the places of possible jams.
Batch error	More banknotes than required were placed into the stacker in the batch mode	Remove the banknotes from the stacker, and recount the batch.
Counting error please, re-count	Counting error	Clean the stacker, and recount the banknotes.
Feed error	Incorrect feeding of the banknotes.	Remove banknotes from the hopper, open the path and remove the banknotes from there. Adjust the hopper's guides according to the length of the longest banknote in the batch, level the batch edges (separate banknotes shall not to protrude from the batch), and place them in the hopper avoiding their skew.

Table 3. Info messages

Messages	Reason	Teller's actions
Path's open 	The path is open, the upper part is open.	Close the path.
Path's closed Path cleaning	After the path is closed, the self cleaning of the path is in progress.	Wait till cleaning of the path is over.

Table 3

Messages	Reason	Teller's actions
Remove notes from the stacker	The number of notes in the stacker is equal to the stacker capacity.	Remove the banknotes from the stacker. The machine resumes counting automatically (in the automatic start mode) or after key I (II) is pressed (in the manual start mode).
Remove notes from reject pocket	The number of notes in the reject pocket is equal to its capacity.	Remove the banknotes from the reject pocket.
Add banknotes	The hopper is empty while the number of notes in the stacker is less than the required batch size (in the AUTOMATIC START mode).	Add banknotes to the hopper, the machine resumes counting automatically.
Add banknotes and press start	The hopper is empty while the number of notes in the stacker is less than the required batch size (in the MANUAL START mode).	Add banknotes to the hopper, press key I (II).
Clean the pockets	Counting settings/modes were changed after a count is finished.	Remove the banknotes from the stacker and the reject pocket.
Batch is ready	A batch of required size is counted.	Remove the banknotes from the stacker and resume counting.
Function is unavailable	You tried to choose the function unavailable for the current counting mode (for example, tried to choose a currency in the COUNT mode or a batch size in the MIX mode).	Switch to the correct counting mode and then choose the required function.
Self-testing. Please, wait till operation completion	The self testing is in progress.	Wait till the message box is disappeared.

Table 3

Messages	Reason	Teller's actions
Calibration. Please, wait till operation completion	The sensors are in course of calibration (the calibration is ran automatically at the moment of switching on and then every 30 minutes).	Wait till the message box is disappeared.
There are no banknotes. Feed error	It is impossible to take banknotes out of the hopper.	Adjust the hopper's guides according to the length of the longest note in the batch. Adjust the feeder gap if required («+» means gap increase) for operation with thicker banknotes. To get the required gap, turn screw 1 (Figure 1) counterclockwise.
Reset confirmation	The machine is going to be reset to the factory setting.	Confirm or cancel the reset to the factory setting.

MAINTENANCE

According to experience of the world vendors, we suggest to call the technician for the professional maintenance every 90 days. If you use the machine more than one shift a day and the most of counted banknotes are dirty and soiled, more frequent maintenance is required.

On a daily basis:

- 1 Switch off the banknote counter if you do not use it.
- 2 Wipe the counter external parts with a dry clean lint-free tissue.
- 3 After work is completed and the counter switched off, clean the sensors from dust and fine particles with a soft lint-free tissue or a soft bristle brush. The sensors 1-8 shown on **Figure 4**, **Figure 5**, **Figure 6**, **Figure 7** shall be cleaned. In case of strong soiling, it is allowed to wipe the sensor with the lint-free tissue wetted with isopropyl alcohol.

Attention! Before cleaning the sensors, make sure that counter is switched off and the power cord disconnected from the power supply!

TROUBLESHOOTING

Table 4

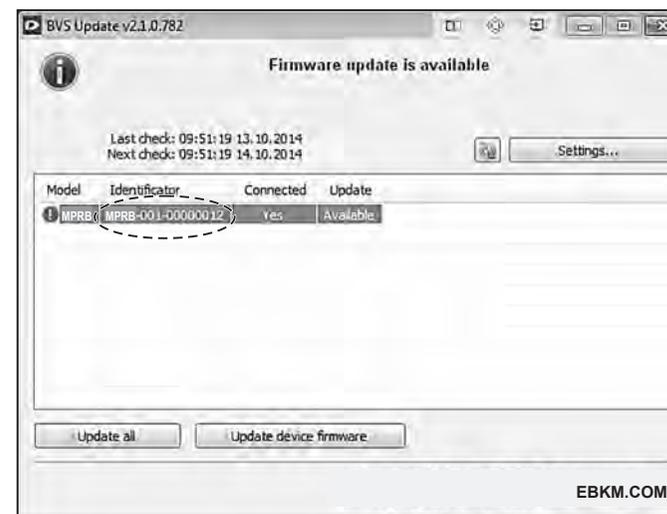
Failure	Elimination method
The counter fails to switch on	Make sure about the counter connection to the power supply and the power cord plugging into the connector on the back of the machine. Make sure that the power switch is in position «I». If these terms are observed but the machine still fails to switch on, call the technician
The display shows the message not described in the «Error Messages» table	Switch off the counter and then switch it on. If the counter still doesn't work, call the technician.
An abnormal noise level or foreign sounds inside the machine	Switch off the machine. Call the technician.

TRANSPORTATION AND STORAGE

The machine in the original package can be shipped by sea (in containers), by railway (in closed wagons), by air (in the pressurized modules) and by cargo (in covered truck or in container with water-resistant top) along the paved roads. The transportation conditions: temperature - 30 to + 50°C, relative humidity up to 98% without water condensation at 25°C and atmosphere pressure 84 to 107 kPa (630 to 800 mm Hg).

The machine in the original package can be stored in a heated and ventilated warehouse, at the temperature of +5°C to +40°C and a relative humidity not exceeding 80% at +25°C. A warehouse should be free of the aggressive agents (acid and alkali vapors) that might cause corrosion.

Figure 54

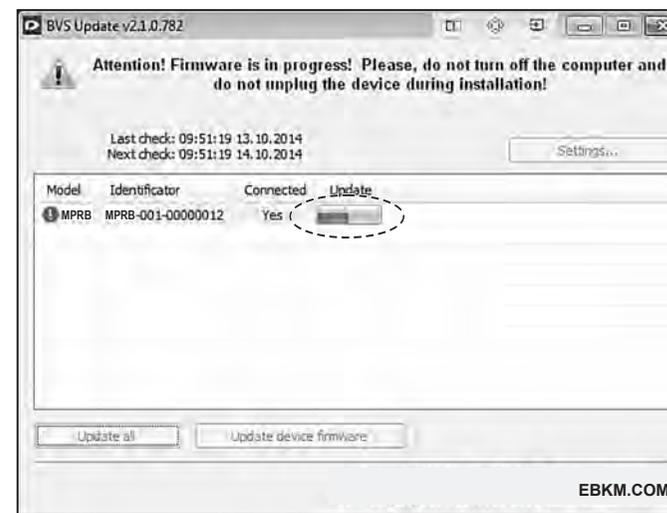


- Use the mouse left button to select the connected counter, and press the «Update device firmware» key (see Figure 54), the process of upgrading starts, and the progress bar is appeared in the Update column (see Figure 55). The progress bar will also appeared on the screen of the counter.

Attention! Do not disconnect USB cable from the counter, do not switch off the counter, and do not disconnect the power cord during upgrading.

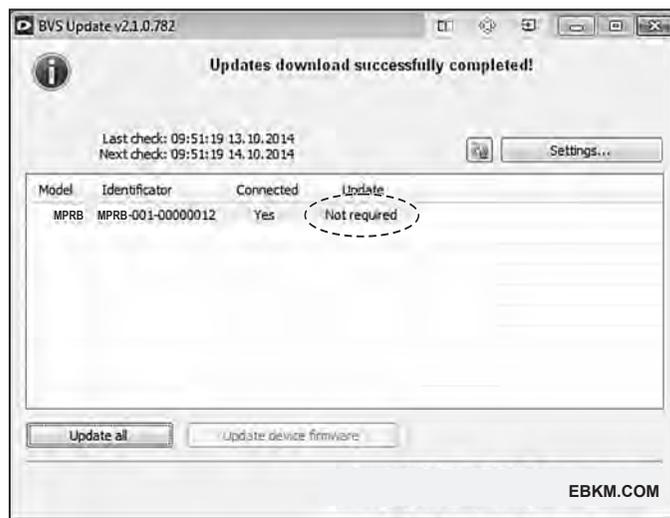
It may cause serious injury of the counter and make impossible the further updates outside your supplier's workshop.

Figure 55



- 5 Wait till the «**Updates download successfully completed!**» message appears in the program window, the counter is started its self-testing (**article 2 of subsection «Operation»**). Then the application requests the update server again and shows the **message «not required»** in the

Figure 56



- 6 Close the application «**BVS Update**».
7 Wait till self-testing is over, and switch off the counter.
8 Disconnect the USB cable.
9 Switch on the counter again, wait till self-testing is over, and the updated machine is ready for operation.