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# BANKNOTE SORTER



# USER MANUAL

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User Manual  
Version 1.0 Int

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**DORS<sup>®</sup>**  
BANKNOTE SORTER  
**800**

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## Introduction

### Dear Customer,

We would like to thank you for purchase of **DORS 800**, two pocket banknote sorter that recognizes value and authenticity of banknotes of different currencies, and sort them by orientation or by denomination.

**DORS 800** (hereafter «sorter») is developed by **DORS LLC**, Russia, and manufactured by **DORS Industries (China) Ltd.**

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 (±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 sorter, user should meet the following operation requirements and observe the below-mentioned safety precautions:

- 1 The sorter'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 sorter, 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 sorter.
- 5 Use an electric outlet with a protective earth contact (PE) to connect the sorter 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 sorter 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 sorter 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 sorter 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 sorter.
- 11 Before cleaning the sensors of the path, make sure the sorter is switched off.
- 12 When you are choosing the place of sorter's installation, avoid the areas with high level of dust content.
- 13 At installation and use of the sorter, 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.

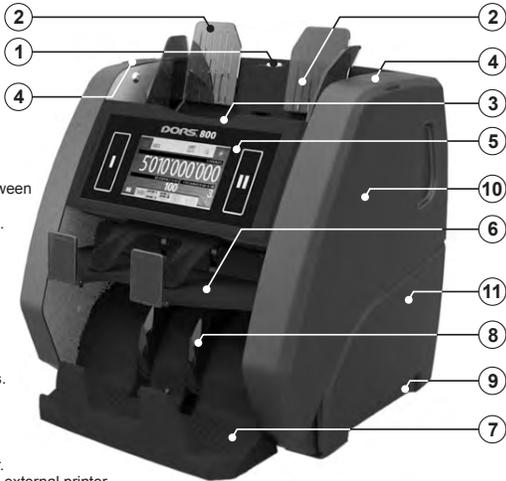
### Delivery Set:

Banknote sorter <b>DORS 800</b> .....	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.
Cleaning brush.....	1 pc.
Dry tissue.....	1 pc.

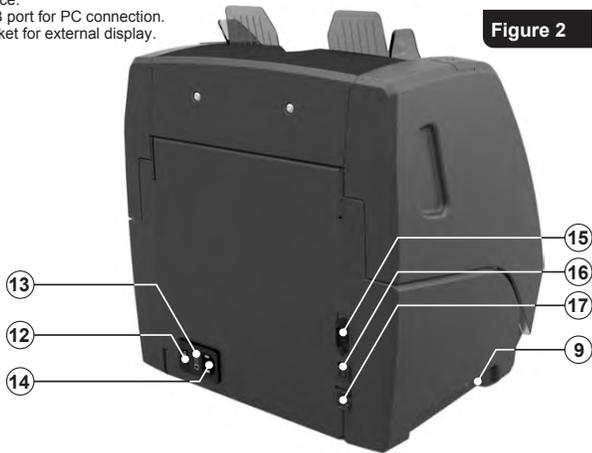
## Appearance

**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.



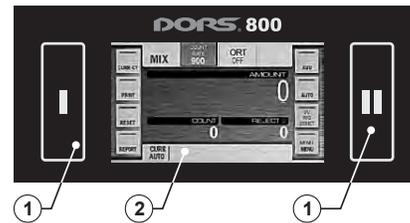
**Figure 2**



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DORS 800 BANKNOTE SORTER

## Control panel



**Figure 3**

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

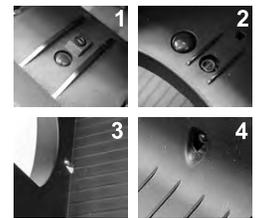
## External Sensors, path sensors and diverter

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

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

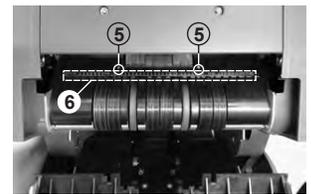
**Figure 4**

- 1 Hopper sensors
- 2 Reject pocket sensor
- 3,4 Stacker sensors



**Figure 5**

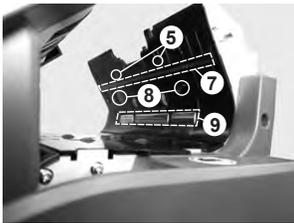
- 5 Lighting
- 6 Contact image sensor (CIS)



DORS 800 BANKNOTE SORTER

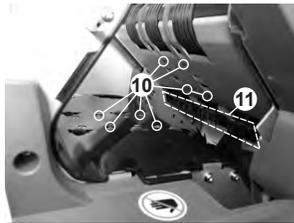
7

Figure 6



- 7 Contact image sensor
- 8 UV reflection sensors
- 9 Magnetic sensors

Figure 7



- 10 Counting sensors
- 11 Diverter

### 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 (Fig. 1, item 2) included in the delivery set:
  - 2.1 Take one banknote guide (Fig. 1, item 2) and match the tabs of the guide (see Fig. 8) with the slots of the banknote guide holder (see Fig. 9).
  - 2.2 Push the guide into the holder (see Fig. 10).
  - 2.3 To fasten the guide on the holder, move it down up to the stop (see Fig. 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.

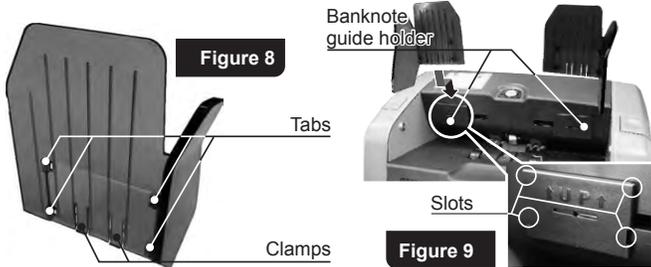


Figure 10



Figure 11



3. Connect the sorter 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 (Fig. 2, item 12) to switch the sorter on. After you have done it, a process of the firmware loading and self-testing is activated and an image (see Fig. 12) appears on the graphical display (Fig. 3, item 2). During self-test the loading indicator is moving, the stacker wheels (Fig. 1, item 8) and the hopper rollers (Fig. 1, item 3) are rotating.

Figure 12

SW version

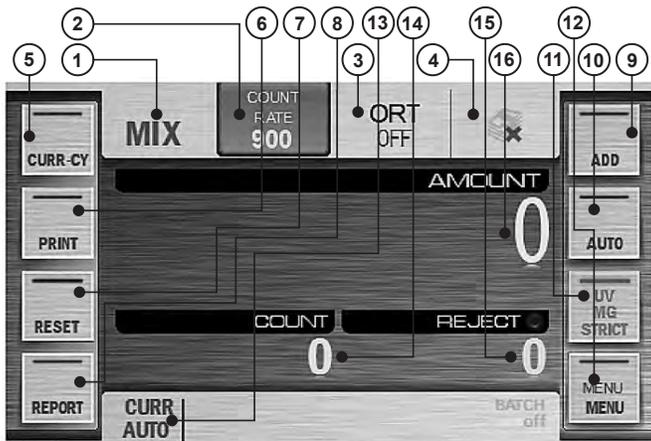
Currency database version

Loading indicator



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

Figure 13



- |  |  |
|--|--|
| 1. Key/indicator of counting mode;                             | 10. Automatic/ manual start key;                             |
| 2. Key/indicator of counting speed;                            | 11. UV, MG, optical density, strict CF detection ON/OFF key; |
| 3. Key/indicator of sorting mode;                              | 12. Settings menu key;                                       |
| 4. Key/indicator of batch mode (it's unavailable in MIX mode); | 13. Currency indicator/ currency selection hot key;          |
| 5. Currency selection key;                                     | 14. Number of counted banknotes;                             |
| 6. Key for printing of counting results;                       | 15. Number of rejected banknotes;                            |
| 7. Counting results clear key;                                 | 16. Amount of counted banknotes.                             |
| 8. Report key;   |  |
| 9. Accumulation mode key;                                      |  |

Now the sorter is ready to work under the factory settings as follows<sup>1</sup>:

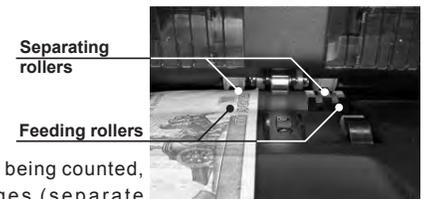
- Interface language is English.
- Currency is automatic currency detection by the first banknote in a batch.
- Counting mode is MIX.
- Start mode is automatic.
- Accumulation mode is off.
- Batch mode is off (because in MIX mode it's always disable).
- Counting speed is 900 banknotes per minute.
- Ultraviolet detection (UV) is off.

<sup>1</sup> If required, the factory settings may be replaced by user settings.

- Magnetic features detection (MG) is off.
- Banknote density detection (DENSITY) is on.
- Orientation sorting (ORIENT) is off.
- Data output method is a printer (in manual mode), connection rate is 9600.
- Extended visual mode is off.
- Sound volume is 50%.
- Screen brightness is 100%.
- Theme is by default.
- Stacker capacity is 200 banknotes.
- Reject pocket capacity is 50 banknotes.
- User profile is «I».

3. Adjust the feeder gap. The manufacturer presets the gap in accordance with the currencies to be counted. However, if the sorter often rejects the genuine banknotes and the report (see section «Operating Keys», «Key «REPORT» , Fig. 52 and Fig. 53) indicates «Small Notes Gap», «Double Note» or «Dimensions» 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», «Length» or «Dimensions», 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 sorter 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 sorter 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 Fig. 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 sorter.

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 Fig. 17).**

It includes two categories: «Detection» and «Count Rate», keys «POCKET LIMITS», «INFO», «PRINT», and «DET. & SPEED» are also available.

**Detection**

Each counting mode has own range of available detection.

In **COUNT** mode the transmissive UV control (**UV-T**) and the optical density control of banknotes (**DENSITY**) are available.

In **DEN** and **MIX** modes the available kinds of detection are: the reflective UV control (**UV-R**), magnetic marks control (**MG**), strict level of counterfeit detection (**STRICT**).

**UV-T** and **UV-R** are respectively transmissive and reflective ultraviolet detection mode. When it's activated (  **UV-T**  **UV-R** ), 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 reasons of rejection 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 reasons of rejection 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 reasons of rejection are available in the «REPORT» submenu).

**STRICT** means the strict level of counterfeit detection. While at common level of detection only the key authenticity features of a banknote are examined, at the strict level  **STRICT** the additional authenticity features (if any) of a banknote are examined as well as the key ones.

**IMPORTANT:** when the strict level of detection is activated, some genuine notes can be rejected by a «suspect» reason.

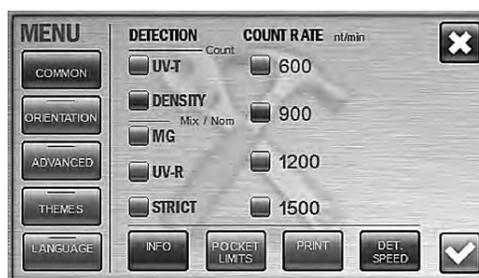


Figure 17

**Count Rate**

User can choose any of four counting rates (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-R** detection is activated (  **UV-R** ), 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 Fig. 18, Fig. 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



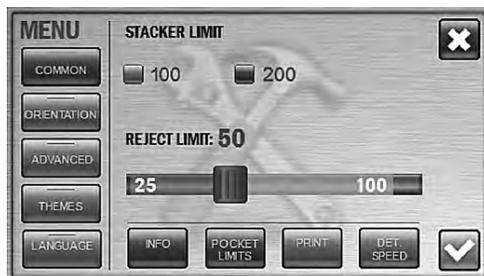
Figure 19



**POCKETS LIMIT**

Press the **POCKET 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 sorter stops and resumes its operation after the banknotes are removed from the stacker (and pressing the I or II key, if the sorter 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 sorter stops and resumes its operation after the banknotes have been removed from the reject pocket (and pressing the I or II key, if the sorter 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.

**PRINT**

By touching the button (**TEST PRINT**) the submenu **INFO OUTPUT METHOD** is opening (see Fig. 21).

This submenu allows to choose an external device for information output. The external device has to be **connected to jack 15 at Fig. 2:**

- **CCTV** means video surveillance system,
- **PRINTER (AUTO)** means the information is printed automatically,
- **PRINTER (MAN)** means the information is printed by touching the button (**TEST PRINT**) (see item 6 at Fig. 13).
- **DORS 85** means information output to external display DORS 85.
- **DORS 90** means information output to external display DORS 90.

Connection speed option allows to choose the speed of sorter's COM port. If an external device for information output is connected, the speed of its COM port should be equal to the speed of sorter's COM port.

The button (**TEST PRINT**) allows to output a test info to an external device. If an external device and a connection speed are correct, a message on successful setting will be output at relevant external device (a screen of CCTV or a printer's receipt).

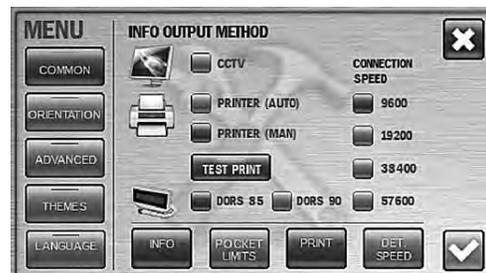


Figure 21

**2 Submenu «ORIENTATION SORTING» (see Fig. 22)**

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

**OFF:** The banknotes are counted regardless their orientation (see Fig. 22).

**FACE:** The banknotes placed into the hopper with their faces up will get into the stacker (see Fig. 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

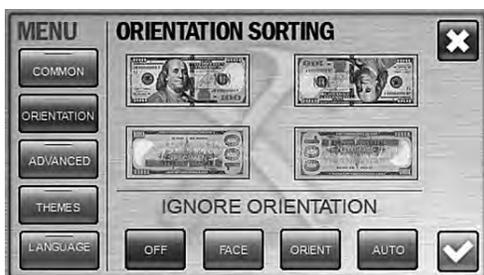


Figure 23



**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 Fig. 24). The other banknotes will be transferred into the reject pocket.



Figure 24

**AUTO:** The banknotes with the same orientation as the first counted banknote in a batch (see Fig. 25) will get into the stacker. The other banknotes will be transferred into the reject pocket.



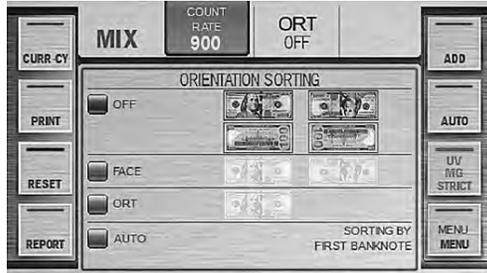
Figure 25

To get an access to the orientation sorting, press the hot keys «  » (see Fig. 26). By pressing ORT key, the dropdown menu «orientation sorting» appears (at certain factory setting, it's possible that this dropdown menu doesn't appear). The required orientation may be selected by a repetitive pressing of the key ; in this case, the modes will be selected in turn:

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.

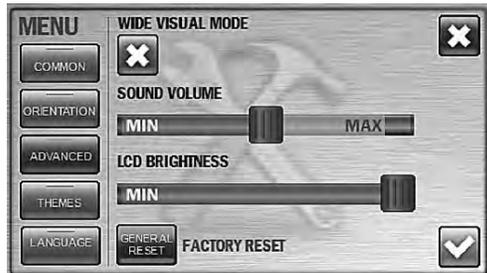
Figure 26



### 3 Submenu «ADVANCED»

It contains the settings of brightness and the sound volume as well as selection of the Wide Visual Mode and Factory Reset button (see Fig. 27).

Figure 27



#### WIDE VISUAL MODE

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

When Wide Visual Mode is activated (see Fig. 28), the hot keys by the sides of the screen are removed and the font size for amount of counted notes become bigger (see Fig. 29).

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 28

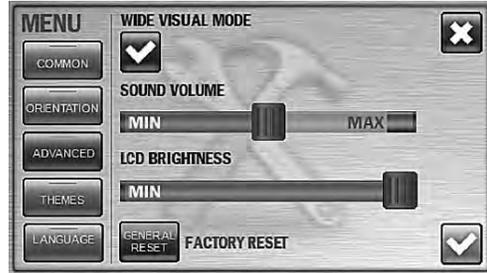
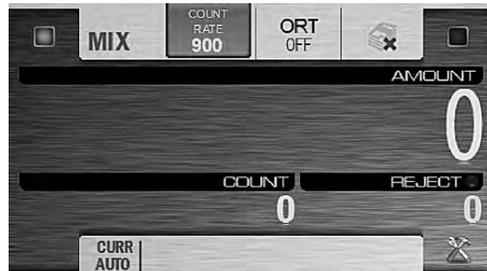


Figure 29



#### SOUND VOLUME

Moving the slider from the minimum (MIN) to the maximum (MAX), you increase the sound volume (see Fig. 28). 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 Fig. 28).

#### FACTORY RESET

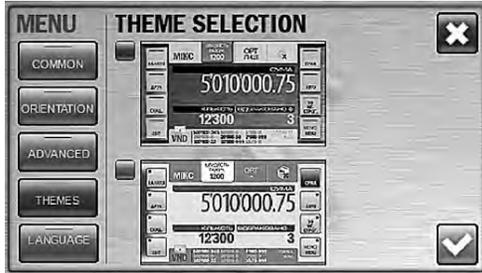
After the key is pressed, all the current user's settings are reset and the factory settings restored (see article 2 of section «Operation»). To exclude an accidental reset of the settings, you will be asked to confirm it (see Fig. 47).

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

#### 4 Submenu «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 Fig. 30).

Figure 30



5 Submenu «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 Fig. 31).

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

Figure 31



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

1.1 The sorter is able to save two various profiles with the unique settings. You can switch between them by pressing keys «I» and «II» (see Fig. 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 Fig. 32 is for 1st user (I), at Fig. 33 is for 2nd user (II).

Figure 32

Green highlight

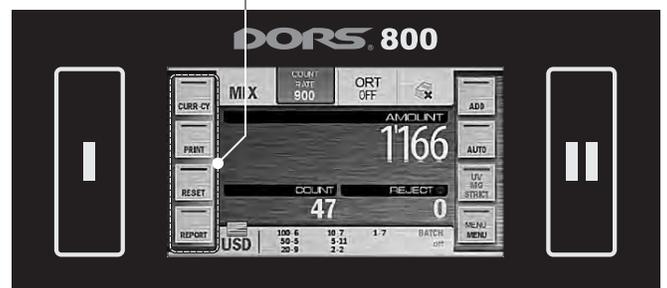


Figure 33

Green highlight



WIDE VISUAL MODE

In the Wide 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 Fig. 34 is for 1st user (I), at Fig. 35 is for 2nd user (II).

Green highlight User «I»

Figure 34



Green highlight User «II»

Figure 35



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 sorter 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 Fig. 36).

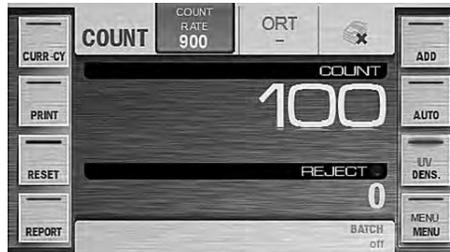


Figure 36

2.2 MIX 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 Fig. 37). The detailed report on each denomination's number and amount is available by pressing the key «REPORT» (submenu «Batch Report», see Fig. 38). For more details on submenu «REPORT», see subsection Operating Keys (Key «REPORT»).

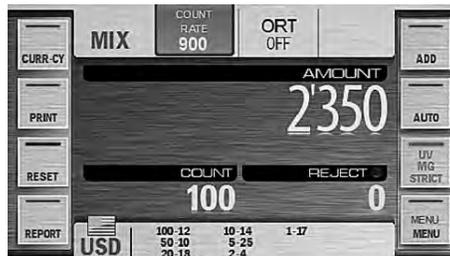


Figure 37

DENOM	COUNT	AMOUNT
2 USD	4	8
5 USD	25	125
10 USD	14	140
20 USD	18	360
50 USD	10	500
100 USD	12	1'200
<b>TOTAL</b>	<b>100</b>	<b>2'350</b>

Figure 38

**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, and the recognition of denomination's issue. The denomination and its issue are 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 Fig. 39). The detailed report on number and amount of counted notes for each denomination is available by pressing the «**REPORT**» key (see Fig. 40, submenu «**SUM Report**»).

Figure 39



Figure 40



### 3 Key «CURRENCY»

**3.1** By pressing the **CURRENCY** key, the **CURRENCY** submenu is appeared (see Fig. 41), 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 (see Fig. 42).

In the bottom left corner of the screen there is a list of auto currencies ( **AUTO-CURR** ), i.e. those currencies that can be recognized automatically (if more than one currency is chosen).

The letters on the Fig. 41 have the following meanings:

- A:** Number of auto currencies chosen by user. In order to delete any of those currency, just push its name in the list of auto currencies.
- B:** Number of all available auto currencies (it's depended on a software version). If a user tries to exceed this number, the blinking message on unavailability is appeared on a screen
- C:** Total number of currencies stored in sorter's non-volatile memory (it's depended on a software version). In the middle of a screen there is a list of currencies. If the number of currencies in this list (C) is more than 8, you can slide this list using buttons .

**CURRENCY not more 5 than**  
press shortly to add/remove AUTODETECT CURRENCY  
press and hold to select a single currency

In order to add any currency to Auto currencies list (A), tick a box left of a currency name (or click a currency name). A color of a box is changed from grey to blue to confirm your choice.

Repetitive click deletes a currency from the Auto currencies list.

When you press and hold (at least 1 second) a currency name, it chooses the currency as a single one.

**NOTE:** if the only currency is chosen, its name is appeared at the top of a screen (see Fig. 42); also at the main screen a sign is replaced with a name of chosen currency (at Fig. 43 it's USD - ).

Figure 41



Figure 42



Figure 43

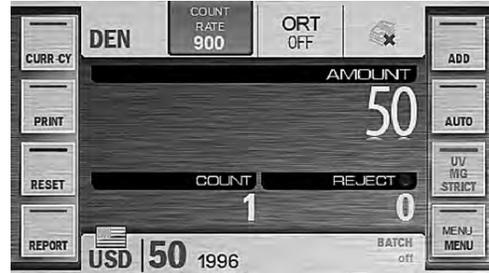


Figure 44



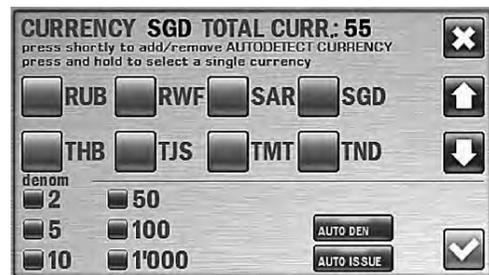
3.2 In the «DEN» mode it is possible to count banknotes of the selected currency with a manually chosen denomination value. Choose a single currency, and the list of Auto Currencies at bottom left corner of the screen will be replaced with a list of all denominations of selected currency (see Fig. 42). 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 Fig. 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 Fig. 43). To return to automatic denomination mode, press the **AUTO DEN** key at the right of the denominations list (see Fig. 42).

Figure 45



3.3 The DEN mode has the option of banknote sorting by a year of their issue (a year when they were put in circulation). When you activate this option, the sorter will accept only the banknotes of the same currency, denomination, and year of issue as the first note of a batch. All other banknotes will be rejected. Touch a button **AUTO ISSUE** to activate this option (a button will be highlighted in blue). The year of issue of the counted banknotes will be indicated in a main screen of DEN mode at the right of denomination's value (see Fig 45).

Figure 46



### 3.4. Singular currency.

Depending on a currency set of your sorter, it can handle so-called singular currencies. A singular currency is one whose properties are sensibly different from other currencies that makes impossible to recognize it automatically along with other currencies.

If a singular currency is chosen, it's impossible to add any other currency to Auto Currencies list.

To cancel a choice of a singular currency, just choose any other currency.

In currencies list a singular currency is marked by different color (see Fig. 46 where it marked by yellow).

A symbol of selected currency (or **AUTO** mode symbol) is at the bottom left corner of a main screen (see Fig. 37 and Fig. 43). This symbol is also a hot key to get access to **CURRENCY** submenu (it's useful, for example, when an extended visual mode is activated).

**In the MIX mode**, right of a currency symbol there is a list of denominations of this currency with numbers of counted notes where counted denominations are bold (see Fig. 37).

#### 4 PRINT key

The key (  ) makes printed the results of counting, under conditions that a relevant printer is connected to the sorter

and a manual printing mode (  ) is activated (refer to p. 18, Fig. 21).

#### 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 Fig. 47).

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 47

**Attention!**  
An option of reset confirmation can be disabled in your sorter.

#### 6 Key «REPORT»

By pressing the «REPORT» key, the **REPORT** submenu is appeared (see Fig. 48), it makes you to look through the information on the counted and rejected banknotes.

Figure 48

DENOM	COUNT	AMOUNT
10 USD	12	120
20 USD	18	360
<b>TOTAL</b>	<b>30</b>	<b>480</b>

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

– Batch report (  ); – Session report (  ).

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

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

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

**Amount** is the total amounts for all denominations.

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

The batch report (see Fig. 48) 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 session report (see Fig. 49) is listed all the banknotes counted since the moment the sorter'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 Fig. 47).

Key  is used for exit from the submenu.

Figure 49

DENOM	COUNT	AMOUNT
2 USD	18	36
5 USD	98	490
10 USD	57	570
20 USD	71	1'420
50 USD	44	2'200
100 USD	53	5'300
<b>TOTAL</b>	<b>403</b>	<b>10'078</b>

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

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

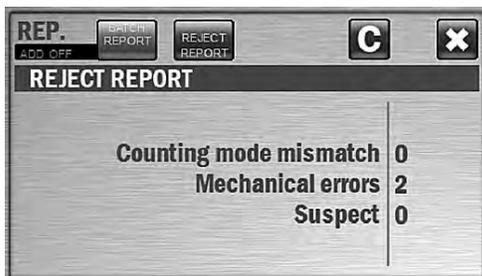
The reject pocket report (see Fig. 50) is contained possible reasons of rejection and the number of banknotes rejected due to each of these reasons.

«**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 50



The advanced reject pocket report (see Fig. 51) is contained more exact reason of rejection for each rejected note.

The number (NO) means the number of the banknote in the reject pocket (in some cases like «double» error, the number in the list can be different from a note's number in a real batch).

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

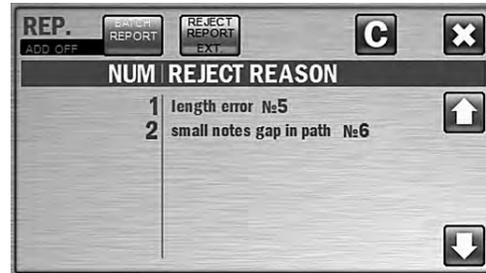


Figure 51

Table 1

Rejection reason	Description	Teller's actions
<b>Suspect note</b>	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.
<b>Unknown note</b>	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.
<b>Currency (X Y) where X – currency, Y – denom.</b>	In <b>MIX</b> or <b>DEN</b> modes the currency of banknote does not match the specified one.	Remove the banknote.
<b>denom (X Y) where X – currency, Y – denom.</b>	In <b>DEN</b> mode the denomination of banknote does not match the specified one.	Remove the banknote.
<b>Orientation</b>	Banknote orientation does not match the specified one.	Place the banknote into the hopper according to the specified orientation.
<b>Small gap in path</b>	Continuous chain in path (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 <b>screw 1</b> (Figure 1) clockwise.
<b>Small gap in feeder</b>	Continuous chain between separating and feeding rollers (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 <b>screw 1</b> (Figure 1) clockwise.

Table 1

Rejection reason	Description	Teller's actions
<b>Double note: dark</b>	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 <b>screw 1 (Figure 1)</b> clockwise.
<b>Double note: transparent</b>	A very transparent banknote has been detected.	Remove the banknote.
<b>Dimensions</b>	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 <b>article 3</b> of section « <b>Operation</b> ».
<b>Skew error</b>	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 <b>screw 1 (Figure 1)</b> counterclockwise.
<b>UV Reflection or/and UV Transmission</b>	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-T or/and UV-R.
<b>MG</b>	A banknote with wrong <b>MG</b> marks is found.	Remove the banknote.
<b>Scanner error</b>	Banknote scanning error.	Place the banknote into the hopper and recount.
<b>Length</b>	Short side of the banknote is exceeded 120mm (a probable reason can be: a banknote has passed with a large skew or the banknotes got stuck together).	Remove the banknotes and recount them. If required, adjust the feeder gap.

Table 1

Rejection reason	Description	Teller's actions
<b>Couldn't sort</b>	Banknote feed error.	Remove the banknotes and recount them.
<b>Note quota overflow</b>	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 Fig. 13) switches the sorter between automatic start mode  and manual start mode .

An automatic start mode means the sorter is started to count automatically as soon as the banknotes have been placed into the hopper.

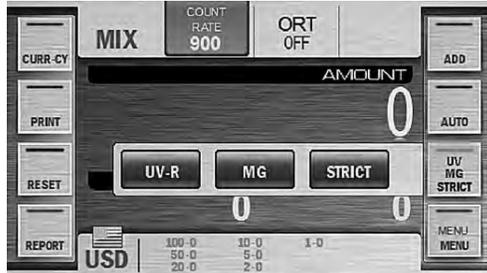
A manual start mode means the user have to push  or  keys (depending on the selected user profile) to start a count.

### 9 Key «DETECTION»

Key «**DETECTION**» provides a fast access to detection modes associated with a chosen counting mode. In **MIX** or **DEN** mode this key calls a pop-up menu (ahead of a main screen) where you can turn on/off such kinds of detection as **UV-R**, **MG**, **STRICT** (see Fig. 52). An activated kind of detection is highlighted by blue color (see Fig. 52), an deactivated one becomes grey:

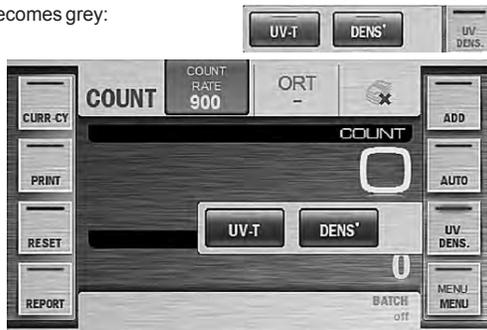


Figure 52



In **COUNT** mode this key calls a pop-up menu (ahead of a main screen) where you can turn on/off such kinds of detection as **UV-T**, **DENSITY** (see Fig. 53). An activated kind of detection is highlighted by blue color (see Fig. 53), an deactivated one becomes grey:

Figure 53



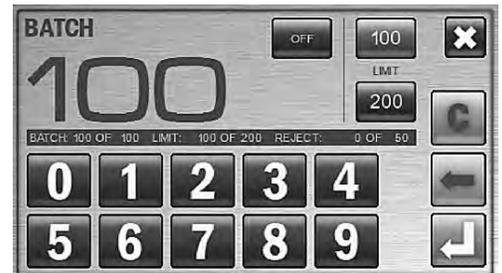
**Note:** a text on the key **DETECTION** is highlighted depending on chosen kind of detection.

#### 10 Key «BATCH»

Press the  key to call the BATCH submenu that is available for modes «DEN» and «COUNT» (and unavailable in «MIX» mode) (see Fig. 54) which provides possibility to select the batch size and the stacker limit. 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.

Figure 54



The fast access key to **BATCH** mode is available on the main screen in the top right corner (see Fig. 55).  means that batch mode is on.

 means that batch mode is off.

The batch size is indicated on the main screen in the bottom right corner (see Fig. 55). 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 to complete 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 55



In the **BATCH** submenu a user can change the stacker capacity. The current value of the stacker capacity is highlighted in blue. To change it, it's sufficient to press the required value (new value become highlighted in blue).

**Note:** under the current batch size there is an information bar which contains info on the counted and rejected banknotes, the current batch size and the stacker capacity (see Fig. 54).

## MESSAGES IN COURSE OF OPERATION

Table 2. Error messages

Error Messages	Reason	Teller's actions
<b>P.O.S.T. ERROR</b>	An error occurred during self-testing of the sorter (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.
<b>S.M.A.R.T. ERROR</b>	An error occurred during self-testing of the sorter (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.
<b>Overcurrent</b>	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.
<b>Switch error</b>	The banknotes get jammed. Foreign object in the path blocks the diverter between the hopper and the reject pocket.	Open the path, remove the jammed banknotes, foreign objects from diverter's area.
<b>Calibration error</b>	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 3. Messages in course of count

Messages	Reason	Teller's actions
 <p><b>Note's jam, clean the path!</b></p>	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.
<b>Batch error</b>	More banknotes than required were placed into the stacker in the batch mode	Remove the banknotes from the stacker, and recount the batch.
<b>Count error, uncertain amount</b>	In a process of a count an uncertain amount of banknotes are put to the stacker.	Clean the stacker, and recount the banknotes.
<b>Feed error</b>	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.
 <p><b>Banknote path is open</b></p>	The path is open, the upper part is open.	Close the path.
<b>Banknote path is closed Clearing the path</b>	After the path is closed, the self cleaning of the path is in progress.	Wait till cleaning of the path is over.
<b>Banknote path is closed Note is jammed in path</b>	There are banknotes or foreign objects in closed path.	Open path, remove banknotes or foreign objects.
<b>Banknote path is closed Remove banknotes from hopper</b>	There are banknotes in hopper or hopper's sensor is covered by a foreign objects.	Remove banknotes or foreign objects from hopper.
<b>Banknote path is closed Clean the pockets</b>	There are banknotes in the stacker and/or in the reject pocket.	Remove banknotes from the stacker and/or from the reject pocket.

Table 3

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

Table 3

Messages	Reason	Teller's actions
<b>Calibration. Please, wait till operation completion</b>	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.
<b>There are no banknotes. Feed error</b>	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.
<b>Reset confirmation</b>	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 sorter if you do not use it.
- 2 Wipe the sorter external parts with a dry clean lint-free tissue.
- 3 After work is completed and the sorter 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 sorter is switched off and the power cord disconnected from the power supply!

## TROUBLESHOOTING

Table 4

Failure	Elimination method
<b>The sorter fails to switch on</b>	Make sure about the sorter 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
<b>The display shows the message not described in the «Error Messages» table</b>	Switch off the sorter and then switch it on. If the sorter still doesn't work, call the technician.
<b>An abnormal noise level or foreign sounds inside the machine</b>	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.

## SUPPORT AND WARRANTY

**DORS** authorizes the local distributors to provide after-sales technical support to the customers. In case of machine's malfunctioning, please contact your local supplier. If you fail to get support from your supplier, please inform us at web site [www.dors.com](http://www.dors.com).

To avoid any misunderstanding, we ask you to read the terms and conditions of the machine's operation, its transportation and storage, the warranty conditions.

**DORS** reserves its right to cancel the warranty if a customer violates the rules listed in the **Warranty Conditions** section.

## FIRMWARE UPGRADE

Among the advantages of **DORS 800** there is the remote way of firmware (FW) update by means of Internet. If a customer has Internet connection, there

is no need to call technician for update. Just choose the time frame for update (we suggest to do it every two weeks) and your machine will be updated with new fake and real notes recognition as well as with other improvements automatically.

**For firmware upgrading**, use application «**BVS Update**» that can be downloaded from the site: <http://dors.com/service/download>.

**For FW upgrading, use the following equipment:**

- 1 A personal computer (PC) with installed operation system Windows (Windows XP and higher) with the Internet connection and installed program «**BVS Update**».
- 2 The USB cable (A-B type) (from the delivery set).

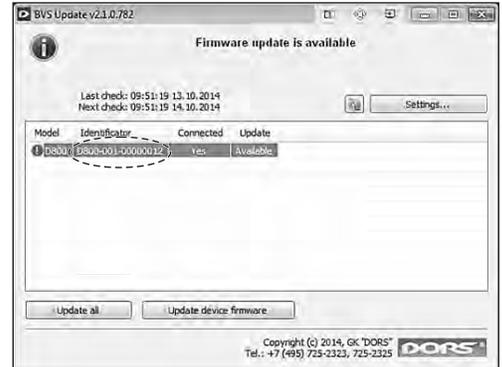
**FW upgrading procedure:**

- 1 Connect USB port of **DORS 800** (item 16 at Fig. 2) to your PC by USB cable.

**Attention: avoid to connect USB cable to the jack for external display (item 17 at Fig. 2), it may cause its damage!**

- 2 Switch on the sorter.
- 3 Run **BVS Update** application on your PC, the icon with logo  appears in the taskbar's tray of your desktop, click its icon.

Figure 56

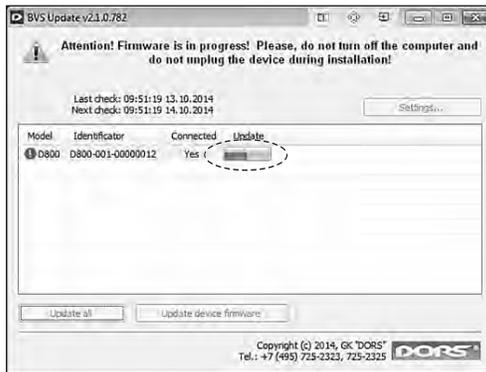


- 4 Use the mouse left button to select the connected sorter, and press the «**Update device firmware**» key (see Fig. 56), the process of upgrading starts, and the progress bar is appeared in the **Update column** (see Fig. 57). The progress bar will also appeared on the screen of the sorter.

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

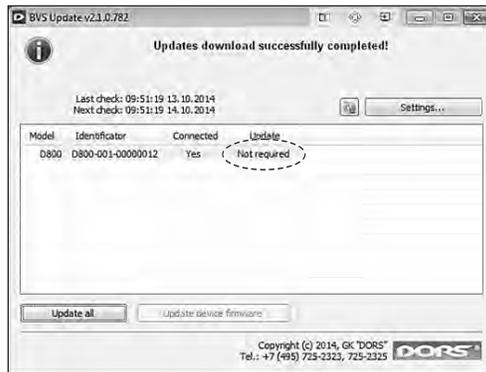
It may cause serious injury of the sorter and make impossible the further updates outside your supplier's workshop.

Figure 57



- 5 Wait till the «Updates download successfully completed!» message appears in the program window, the sorter is started its self-testing (see article 2 of subsection «Operation»). Then the application requests the update server again and shows the message «not required» in the UPDATE column. (see Fig. 58).

Figure 58



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

## WARRANTY CONDITIONS

- 1 The Manufacturer provides **ONE YEAR WARRANTY PERIOD** since the date of a purchase.
- 2 The Warranty does not apply to the below mentioned accessories:
  - a Fuse;
  - b Power cord;
  - c User manual.
- 3 **The Manufacturer disclaim** its responsibility in the following cases:
  - a The sorter was used for other purpose than described in this Manual;
  - b Terms and conditions of the sorter's installation and operation given in the user manual were violated;
  - c The machine has the evidences of unqualified repair;
  - d Design or circuit of the sorter was changed;
  - e The trouble was caused by the force majeure circumstances, accidents, intended or careless acts (failures to act) of the consumer or the third party;
  - f There are damages caused by putting inside the sorter some foreign objects, substances, liquids, insects.
- 4 **The Warranty does not apply to** the following troubles:
  - a the mechanical damages done after the sorter was handed over to the consumer;
  - b the damages caused by mismatch of the local standards of the power, telecommunication, cable networks and similar external factors to the sorter's specifications.
- 5 The regular maintenance of **DORS 800** executed by a trained technician is mandatory for this kind of equipment and the cost of such maintenance doesn't covered by Manufacturer's warranty. From other hand, the same professional maintenance keeps the machine reliable and extends its lifespan.
- 6 **The Manufacturer disclaims its responsibility for a possible direct or indirect damage to people, domestic animals and property if this damage** was caused by ignorance or violation of the terms and conditions of sorter's operation and installation, intended or careless acts (failures to act) of the consumer or the third party or the force majeure circumstances.