

PRO MIX EURO



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This is a complex technical device. This manual will help you to easily and quickly get acquainted with the device, its functions, and its capabilities. Please read this manual to ensure proper operation of the device. PRO INTELLECT TECHNOLOGY Co. Ltd. Offers the PRO COUNTER MIX EURO series of banknote counters, with the ability to recognize denomination, which are specially designed to verify EURO banknotes via infrared (IR), metallic thread (MT), 3D, and ultraviolet (UV) detection. The latest technology in detection and denomination recognition allows for expert verification of the authenticity of banknotes. In the «MIX» mode, the total value of a stack of mixed denomination EURO banknotes can be calculated in just a few seconds. In the «VAL» mode, the device will count, verify, and sort based on the denomination of the first banknote. In the «COUNT» mode, the device will use 3D detection to count and verify banknotes of a specific denomination by their length and width. The PRO COUNTER MIX EURO series of banknote counters are specially designed for EURO banknotes, but are capable of processing different types of currencies including USD, GBP, PLN, HUF, CZK, RON, NOK, CHF, and others.

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Functions

- 1 IR, MT, 3D and UV detection for EURO banknotes.
- 2 Recognition of EURO banknotes' denominations.
- 3 «**MIX**» mode – recognition and summation mode for a stack of EURO banknotes with mixed denominations via IR, MT, 3D and UV detection.
- 4 «**VAL**» mode – recognition and summation by one denomination (automatically determines the first banknote's denomination) and rejects banknotes with other denominations (for EURO banknotes).
- 5 «**COUNT**» mode – normal counting and summation mode with 3D and UV detection for banknotes of different currencies such as USD, PLN, GBP, CHF and others. Rejects banknotes from other denominations which have differences in size, in length and in width.
- 6 For all counting modes: MIX, VAL or COUNT, you can put the banknotes on the hopper with any orientation.
- 7 The counting speed in «**MIX**» and «**VAL**» modes is 1200 banknotes per minute.
- 8 Pass-through summation mode shows the total quantity of the counted banknotes for the session.
- 9 Displays the quantity of counted banknotes, by denomination, for the most recent count and for the entire session on an extra page on the display.
- 10 Batch extension mode (number keys from 0 to 9) works for all MIX, VAL and COUNT counting modes
- 11 Automatic and manual start modes
- 12 IR – infrared detection (16 levels)
- 13 MT – metallic thread detection (16 levels)
- 14 UV – ultraviolet detection (16 levels)
- 15 WD – detection by banknotes' length (8 levels, sensitivity of 2mm)
- 16 DD – detection by banknotes' width (8 levels, sensitivity of 2mm)
- 17 DEN – optical density detection (16 levels)
- 18 Large bright 192x62 pixel LCD display with backlighting
- 19 Ability to update software via PC
- 20 Possibility to connect to an external display



Figure 1

1. Hopper
2. Control panel
3. Carrying handle
4. Auxiliary hopper plates
5. Paper thickness adjustment screw
6. Power switch
7. Power cord
8. RS-232 port for connecting with PC
9. Rear cover
10. Stacker
11. Port for external display

Counting speed, Banknotes/min.	600/900/1200/1500
Hopper capacity, Banknotes	400
Stacker capacity, Banknotes	300
Suitable banknote size (LxW), mm	120x60 – 160x87
Thickness of countable banknote, mm	0.07 - 0.13
Power supply, V/Hz	~110-220/50-60
Power consumption, W	40
Net weight, Kg/Pounds	6 / 13.2
Dimensions, mm/inch.	270x252x250 / 10.6x9.1x9.8

Attention! This device is intended to operate from the power source 220V/50Hz. The user should use electric power cord with a ground contact. Do not use power cable or power cord without ground contact.

- Read this manual before operation
- The manual should be available to operator
- Do not use this device under the following conditions:
 - The device is not resting on a level surface
 - The device is in an excessively dusty or polluted room
 - The device will be exposed to vibration while in use
 - The device is exposed to direct sunlight or strong directional interior lighting
- Do not operate the device with wet hands
- During operation, do not touch the moving parts of the counter
- Do not expose to water (or other liquid). Avoid foreign objects, paper clips, and staples
- Avoid dropping the device
- When finished be sure there are no banknotes in the hopper or transport system
- Clean the device regularly and service the device as needed at a licensed service center to ensure the device will function within its specified parameters
- Do not disassemble, repair or attempt to update the counter on your own. This can result in damage to the device or injury to the operator
- If the device was exposed to cold for an extensive period of time, it is necessary to keep it at the room temperature for no less than 6 hours, when the device has not been stored in a box. If the device has been stored in a box while expose to cold temperature, allow the device to sit at room temperature for 12 hours prior to use.

Remember! The producer is in no way responsible for damage to the device or injury to the operator in the event of incorrect operation /care of the device.

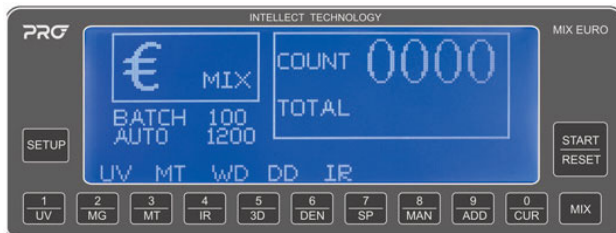


Figure 2

«**MIX**» button. Selects counting modes: **MIX**, **VAL**, **COUNT**

«**START/RESET**» button. Continues counting, resets error messages, returns to the main menu of the current counting mode

The digit buttons 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 are used for entering number value in batch mode. Press the necessary digit buttons to enter the number value in batch mode and the display will show the desired value for **MIX**, **VAL**, and **COUNT** counting modes. To reset the value, press the «**0**» button 3 times or hold it for a few seconds.

«**SETUP**» button. Enters / Exits into the settings change mode. Press this button and the display will show the following menu in «**MIX**» mode:



Figure 3

1. «**UV**» button turns on / off UV (ultraviolet) detection
2. «**MG**» button turns on / off MG (magnetic) detection
3. «**MT**» button turns on / off MT (metal thread) detection
4. «**IR**» button turns on / off IR (infrared) detection
5. «**3D**» button turns on / off DD (width) detection. To turn on or turn off the WD (length) detection, press and hold the «**3D**» button for a few seconds until the cursor moves to WD. Then use the «**3D**» button to enable or disable the detection.
6. «**DEN**» button turns on / off the DEN (optical density and double banknotes) detection
7. «**SP**» button changes the counting speed. For «**MIX**» or «**VAL**», set the counting speed between 900 and 1200 banknotes per minute. For «**COUNT**» mode, set the speed in the range 600/900/1200/1500 banknotes per minute.
8. «**MAN**» turns on / off automatic start mode. In automatic mode (on the display the AUTO indicator is lit, see Fig. 2), the device starts counting automatically after you put banknotes on the hopper. In the manual mode (on the display the MUL indicator is lit instead of AUTO, see Fig. 2), the device starts counting only after pressing «**START/RESET**».
9. «**ADD**» button turns on / off the banknote summation mode. This mode only works in «**MIX**» or «**VAL**» modes. Additional pages show the quantity, value and a list of banknotes by denomination (regardless of the summation mode) after each counting.



Figure 4

If the summation mode is on, the «ADD» indicator will be lit.

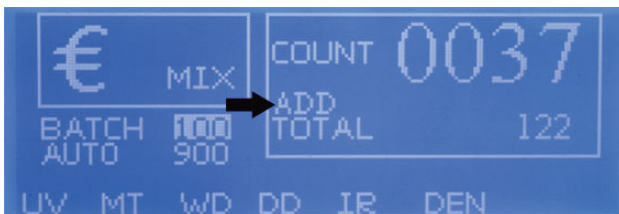


Figure 4a

After removing banknotes from the stacker, an additional page is available which shows the total quantity (on the upper left corner), total value (in the center), and a list of the banknotes' quantity by denominations.



Figure 5

Attention! Before turning on the summation mode, reset the «TOTAL» value by holding the «0» button for 4 seconds.

10. «0/CUR» button resets the display

- Hold the «0/CUR» button for 2 seconds to reset the value of «COUNT»
- Hold the «0/CUR» button for 4 seconds to reset the value of «TOTAL»
- Hold the «0/CUR» button for 6 seconds to reset the value of «BATCH»

- Connect the power cord to the device and connect to a 220V/50Hz power supply. The power cord should have a ground contact.
- Turn the power switch ON.
- The counter runs a diagnostic and is then ready for operation.

The device has 3 counting modes:

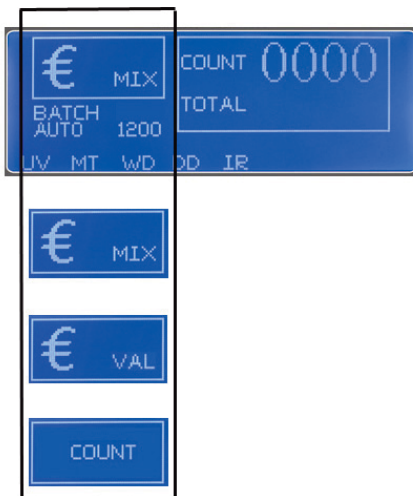


Figure 6

«**COUNT**» - Normal counting mode, counts banknotes' quantity. It is suitable for counting different types of currencies in the world, including USD, GBP, PLN, etc. We recommend using this mode for medium to large volumes of counting. The recommended maximum load of banknotes on the hopper is 400 banknotes.

The counting speed in this mode is 600/900/1200/1500 banknotes per minute. In this mode you can quickly count banknotes with UV and/or 3D detection.

When counting in this mode, the counter is not sensitive to the placement of the banknotes, irrelevant marks, dirt, a banknote's loss of color, crumpled banknotes or banknotes with curved edges or corners (unless using 3D detection, in which case it will be sensitive to crumpled banknotes and banknotes with curved edges or corners).

«**VAL**» - Recognition and summation by one denomination mode (automatically determined by the first banknote's denomination). Uses IR, MT, 3D and UV detection, and rejects banknotes with other denominations. This mode is designed only to count EURO

banknotes from the 2002 series. The counting speed in this mode is 900/1200 banknotes per minute. We recommend using this mode to count and verify banknotes of one denomination by IR detection for small and medium volumes. The recommended maximum load of banknotes on the hopper is 200 banknotes. In this mode, the counter is sensitive to the placement of the banknotes, irrelevant marks, dirt, a banknote's loss of color, crumpled banknotes, banknotes with curved edges or corners, and taped or glued banknotes. When there is a suspicious banknote or a banknote of another denomination, the counter will give an error.

«**MIX**» - Recognition and summation mode for a stack of EURO banknotes with mixed denominations. This mode is designed to count only EURO banknotes from the 2002 series. The counting speed in this mode is 900/1200 banknotes per minute. This mode is recommended for counting and verification of a stack of banknotes with mixed denominations by IR, MT, 3D and UV detection with a small volume. The recommended maximum load of banknotes on the hopper is 100 banknotes. In this mode, the counter is sensitive to the correct placement of banknotes, irrelevant marks, dirt, a banknote's loss of color, crumpled banknotes and banknotes with curved edges or corners. Select the «**VAL**», «**COUNT**», or «**MIX**» mode by pressing the «**MIX**» button.

8 «**COUNT**» mode – counts banknotes from different countries



Figure 7

If you choose the «**COUNT**» mode, the counter only does normal counting:

- Counts banknotes' quantity «**COUNT**»
- Summation «**TOTAL**»
- Batch mode «**BATCH**»
- Optical density detection «**DEN**»
- Ultraviolet detection «**UV**»
- **3D** (DEN+WD+DD) detection, WD detection by banknotes' length and DD detection by banknotes' width. Can reject banknotes of another denomination during the counting process, if they differ by geometric dimensions.

The bottom line of the display shows the detection type, which includes UV, WD, DD, and DEN.

NOT AVAILABLE: Recognition and summation by denomination, IR detection and MT detection.

8.1 Counting Operation

ATTENTION! In order to avoid errors during counting, examine banknotes and put aside the following:

- Any banknote that has been repaired with white paper, has been exposed to water or “washed”, and any banknote that is dirty or torn

ATTENTION! Adjust the auxiliary hopper plates (Figure 1-4) in accordance with the banknotes’ size.

Banknotes should be placed in a neat stack before being placed into the hopper!

- Banknotes are to be placed in the hopper
- The counter will start counting banknotes automatically after one second
- Display will show the quantity of counted banknotes
- Repeat again up to Table 8.1, when necessary
- Press and hold “0” button to reset display when finished
- If an error occurs during counting, see Table “**Error codes**”

8.2 Batch mode

- Enter a number corresponding to the amount of banknotes for the desired batch size on the display by pressing the digit buttons from 0 to 9 on the control panel
- Repeat from the beginning of Table 8.1, when necessary
- Remove banknotes from the stacker
- Add banknotes if necessary
- Press the “0” button 3 times or press and hold the “0” button until the display has been reset
- If an error occurs during counting, repeat all these operations from the beginning of Table 8.2.

This mode works for all counting modes.

8.3 Summation mode

Summation mode displays the total quantity of counted banknotes in a session in the «TOTAL» line. To begin summation mode, you have to reset the value of «TOTAL» by holding the “0” button for 4 seconds.

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«VAL» mode – counts and verifies banknotes’ denominations

This counting mode counts and recognizes a EURO banknote’s denomination (determined by the first banknote’s denomination in a stack) and rejects banknotes with other denominations. The bottom line shows the detections with are being used, including UV, MT, WD, DD, IR and DEN.



Figure 8

In this mode, the counter is sensitive to the correct position of banknotes, irrelevant marks, dirt, banknote's loss of color, crumpled banknotes, banknotes with curved edges or corners, and banknotes that have been taped or glued.

9.1 Counting operation

ATTENTION! Adjust the auxiliary hopper plates (Figure 1-4) in accordance with the banknotes' size.

ATTENTION! The recommended maximum load of banknotes on the hopper is 100 banknotes.

ATTENTION! In this mode, the counter is very sensitive to position of banknotes. Banknotes should be placed in a neat stack before being placed into the hopper (see Figure 9):

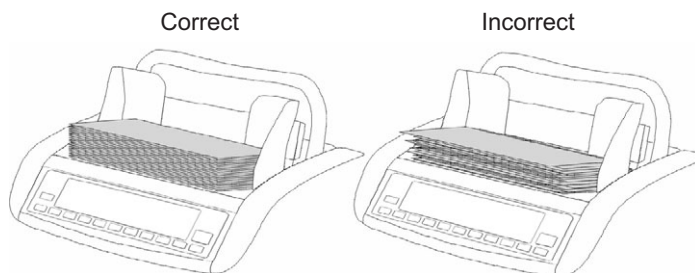


Figure 9

- Place the banknotes on the hopper as shown in Figure 9
- The counter will start counting banknotes automatically after one second
- Display will show the quantity and total amount of counted banknotes:



Figure 10

9.2 Errors during banknote counting:

In terms of authentic banknotes, the counter may give error codes due to the following reasons:

- 1 Banknotes being incorrectly placed or unevenly laid on the hopper (see Table 9.1)
- 2 Crumpled, torn, damaged banknotes, or banknotes with irrelevant marks
- 3 Banknotes have misplaced IR marks, a metallic strip on the figure, the image shifted,

not because of the homogeneity of the production process during making banknotes. This banknote is solvent. When an error occurs, the result will not be recorded in the counter's memory, so you can remove the suspicious banknote (lying on the top) from the stacker, and place it back on the hopper again.

If an error occurs again on the same banknote, put it upside down on the hopper again. If the above steps do not help, the banknote cannot be recognized as an authentic one and other methods of verification should be used, such as UV or IR.

If an error occurs during counting, you can also reference the Error Code Table.

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«MIX» mode – counts with summation of banknotes' denominations

This counting mode recognizes the denominations of EURO banknotes and completes counting and summation operations for a stack of banknotes of mixed denominations. The bottom line of the display shows the active detection types, which include UV, MT, WD, DD, IR and DEN.

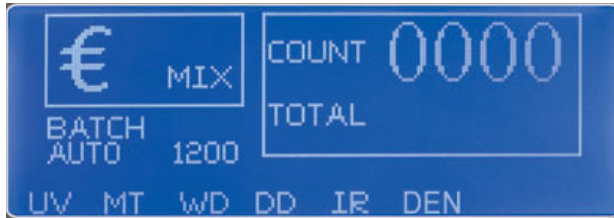


Figure 11

To get started, repeat the counting operation (see Table 9.1 and 9.2). To avoid additional errors during counting, it is recommended to pre-sort banknotes by their size (for example, a 5 EURO banknote is significantly different in size from other denominations), starting with larger denominations and progressing to smaller ones.

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Adjustment of sensors

Each counting mode («MIX», «VAL» or «COUNT») incorporates individual detections and settings. Below are the initial factory settings of detection for each counting mode:

1 – Counting mode

2 – Viewing mode for checking which detection and functions are turned on. Set the counter to counting mode 1 and press the «**SETUP**» button to enter this mode. To enable or disable detections or functions, press the appropriate button. Detections and functions are described in paragraph 5 of the control panel functions.

3 – Viewing mode for checking sensitivity levels of detection. Set the counter to counting mode 1 and hold the «**SETUP**» button for 2 seconds to enter this mode. To change the sensitivity level, press the corresponding button several times. To change the sensitivity levels of UV, MT, or IR detection, press the appropriate button («**UV**», «**MT**», or «**IR**»). The levels will vary from 0 to 16. A sensitivity level of 0 means the detection is

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disabled. In the event of the errors “Suspect IR Check again”, “Suspect MT Check again”, or “Suspect UV Check again”, increase the sensitivity level of the IR, MT or UV detection by 1. Press the «**SETUP**» button to save and exit.

For counting EURO banknotes in «**MIX**» or «**VAL**» mode, the settings from the figure below are recommended. Warning! When you enable or disable detections and change their sensitivity levels, the counter will save the settings for future use. Improper settings can generate unexpected errors when counting.



Figure 12

To count currencies of various countries in the «**COUNT**» mode, the manufacturer set the following detections in mode 2 and sets the following initial configuration levels of detection in mode 3. These setting listed in the figure below are based on average levels and can be changed by the user depending on the type of currency.

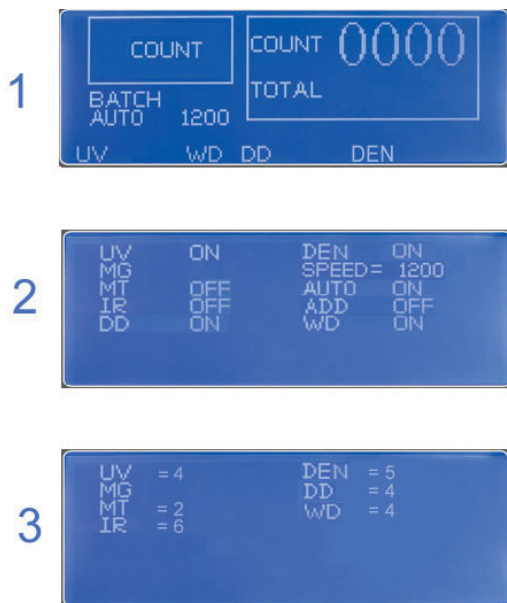


Figure 13

By default, the counter enables the following detections:

UV – Ultraviolet detection

3D detection (DEN + DD + WD) – When counting old, decrepit or worn banknotes with curved edges or corners, and if all banknotes are the same size, it is recommended to disable detection of the width DD and detection of the length WD. Using only the detection of optical density DEN and UV prevents extraneous errors.

3D detection is designed for rejecting banknotes of a different size. When properly set, the 3D detection (DD's and WD's sensitivity levels) can count the banknotes of one denomination and reject banknotes of another denomination, if the banknotes' denominations are different in length or width. Most of the currencies in the world differ in length and/or width by at least 3mm. For these kinds of currencies, the sensitivity levels DD=4 and WD=4 are set by default. If the banknotes only differ by 2mm, set the desired sensitivity level of width DD=3 or length WD=3. If the banknotes differ by 4mm, you can set the sensitivity levels width DD=6 or length WD=6. In the event of the error "Suspect width Check again" with banknotes of the same size, increase the sensitivity level of DD by 1 value. In the event of the error "Suspect length Check again" with ban-

knotes of the same size, increase the sensitivity level of WD by 1 value. If the counter allows banknotes of different sizes to pass through, reduce the sensitivity levels of DD and WD by 1 value.

To change the sensitivity levels of DD, press the button «**3D**» in mode 3. To change the sensitivity levels of WD, hold the button «**3D**» for a few seconds until the cursor appears. Then set the desired level by using the button «**3D**».

Optical density detection DEN is designed to estimate the density of banknotes and identify double banknotes. Different currencies' density can vary greatly. By default, the sensitivity level of the optical density detection is set to the medium level DEN=5. To change the sensitivity levels of DEN, press the button «**DEN**» in mode 3.

In the event of the error "Double notes Check again" during counting, increase the sensitivity level of DEN by 1 value. If the counter skips double banknotes, reduce the level of DEN by 1 value.

Press the «**SETUP**» button to save the sensitivity level of detection and exit.

12 Adjustment of the slot size and its correct setting

12.1 It is important to remember, for different currencies, depending on the thickness of the banknotes, you must correctly adjust the slot (Figure C position 4) between the upper and lower feed rollers. Adjusting the feeder slot size is possible by using the paper thickness adjustment screw (Fig. 1-5). Turn the screw counterclockwise to decrease the feeder slot size and clockwise to increase the size. Adjusting the feeder slot size should be done smoothly, with adjustments of no more than 2-5 degrees (1/10 division). The feeder slot should be larger for excessively worn banknotes, dirty banknotes and USD. The feeder slot should be smaller for "new" banknotes and EURO banknotes.

- If adjusting the feeder slot size results in the sensor responding slowly, slow separation of joined banknotes, irregular stacking of banknotes, error "Suspect IR Check again" and/or "Suspect MT Check again", then the slot size should be smoothly increased.

- If adjusting the feeder slot size results in "Chain notes Check again" and/or "Double notes Check again" error codes occurring frequently, then the slot size should be smoothly decreased.

To check whether the setting of the feeder slot is correct, it is necessary to run the following steps:

1. Turn off the power.
2. Prepare two banknotes (in medium usage condition or nearly new).
3. To properly set up the kicker rollers (Figure B, position 2) and feed rollers as shown in Figure B (smooth side facing you, with ribbed lining out of sight), turn the kicker rollers (Figure B, position 2) so that they will set to the position as shown in figure B.

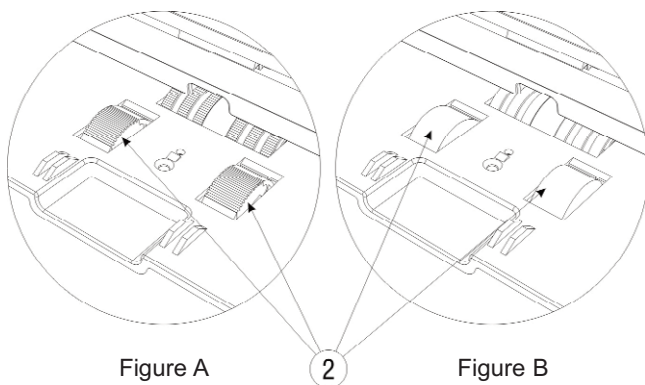


Figure A

Figure B

4. Take one banknote and check the lower boundary of the slot. For this, one banknote should freely pass between the upper feed rollers (Figure C, position 1) and the lower feed rollers (Figure C) position 3). If one banknote cannot pass through between the upper and lower feed rollers, increase the slot by 2-5 degrees (1/10 division) and check again.

5. Take two banknotes and check the upper boundary of the slot. For this, two banknotes should not pass through between the upper and lower feed rollers. If two banknotes pass through between the upper and lower feed rollers, reduce the slot by 2-5 degrees (1/10 division) and then check again.

6. If the slot's lower and upper boundary are set correctly in accordance with paragraphs 4 and 5, the slot is set correctly.

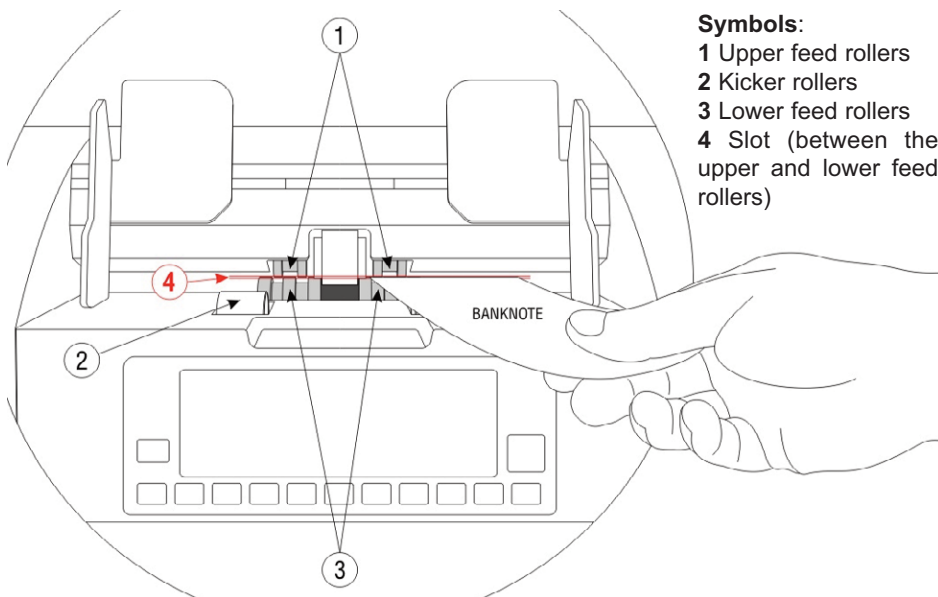


Figure C

Symbols:

- 1 Upper feed rollers
- 2 Kicker rollers
- 3 Lower feed rollers
- 4 Slot (between the upper and lower feed rollers)

Technical Maintenance

In order to provide the best functioning of the device, it is necessary to comply with the following simple requirements:

- Switch off the device, when not in use
- Clean the hopper and stacker with a clean dry cloth. Sensors can cause errors when dirty.
- It is recommended to carry out preventive measures, including partial disassembling of the counter each 30 days by an engineer in the service center.

13

Error codes

System errors (appears on the display immediately after you turn on the counter)

Code	Message	Reason
CHECK HOPPER SENSOR	Hopper sensor is blocked by banknotes or is dirty	Remove banknotes from the hopper, or clean the sensor.
CHECK STACKER SENSOR	Stacker sensor is blocked by banknotes or is dirty	Remove banknotes from the stacker, or clean the sensor.
CHECK LOWER LEFT/RIGHT IR	Lower left/right IR counting sensor is either dirty or failed	Contact the service center.
CHECK UPPER LEFT/RIGHT IR	Upper left/right IR counting sensor is either dirty or failed	
CHECK SPEED SENSOR	Speed sensor is either dirty or failed	
CHECK MOTO SENSOR	Counter's motor operation error	
MESSAGE ERROR	Memory error	

Error codes during counting process:

Code	Message	Reason
Chain notes Check again	Banknotes have passed through without being properly separated	1. Remove banknotes from the stacker and repeat the counting procedure 2. Adjust the slot, see Table 12
Double notes Check again	The device has detected a banknote with a different density than expected, indicating possible counterfeit or two banknotes are stuck together	1. Remove banknotes from the stacker and repeat the counting procedure 2. Adjust the slot, see Table 12 3. Set a lower DEN sensitivity level, see Table 11
Suspect UV Check again	The banknote has exhibited suspicious UV properties	1. Remove the banknotes from the stacker and take away the suspicious banknote (lying on the top). Repeat the counting procedure 2. Use additional verification methods for the suspicious banknote, for example, viewing UV or IR detectors 3. Set a lower UV sensitivity level, see Table 11
Suspect width/length Check again	Banknote with different width/length detected	1. Remove the suspicious banknote (lying on the top). Check the banknote, and see whether it has different denomination or there is a different width or length from the other counted banknotes 2. If the error occurs on the banknote, which has the same denomination with the other counted banknotes, increase the DD/WD sensitivity level by 1 value
Suspect MT IR Check again	1. Counted type of currency is not EURO	1. The « MIX » or « VAL » modes are only for counting EURO banknotes
	2. Counted banknotes of mixed denominations in « VAL » mode	2. The « VAL » mode is only for counting banknotes of the same denomination
	3. Incorrect placement banknotes in the counter	3. Banknotes should be placed in a neat stack on the hopper! You must align banknotes in a neat stack without distortion (see the detail in Table 9.1).
	4.1. Error occurs on the same banknote: 4.2 Crumpled or torn banknote, banknote has extraneous marks, damaged figure, dirt and or other foreign matter, or banknote has curved edges, corners, has been taped or banknote has lost its color 4.3 The authentic banknote has misplaced IR marks, a metallic strip on the figure, the image shifted, not because of the homogeneity of the production process during making banknotes.	4.1 Please reference Table 9 4.2 Remove the suspicious banknote (lying on the top) from the stacker, and put it on the hopper again. Press the « START/RESET » button. 4.3 If the error occurs again on the same banknote, the banknote cannot be recognized as an authentic one and other methods of verification should be used, such as UV or IR.
	5. Improperly adjusted slot	Adjust the slot (see Table 12)
Titled Check again	Torn banknote or banknote with curved edges or corners	Remove the suspicious banknote (lying on the top) and repeat the counting procedure
Half note Check again	Improper passing of banknote or passing of half banknote	Remove the suspicious banknote (lying on the top) and repeat the counting procedure
Jam Check again	Jam in the hopper	Remove the banknotes from the hopper and repeat the counting procedure

Manufacturer guarantees proper functioning of the device during the warranty period since the date of sale under condition of compliance with maintenance and storage procedures described in this manual. After unpacking the device please keep the package and technical description. Warranties are canceled in the event that the device was not transported in the original packaging or maintenance procedures were violated. Manufacturer is not responsible for device malfunction as a result of improper maintenance, storage and transportation including mechanical failures. In case of the device failure during the warranty period, the customer has the right to have it repaired in our service center for free.

The service center accepts equipment for cleaning due to dust and mud, however cleaning equipment from dust and mud is not included in the warranty and is charged separately.

Warranty service does not include any training for equipment maintenance or other use of the device (connection, testing, customizing, preventive works etc.) which the customer can complete on their own by referencing the attached manual.

The device frequently showing error codes on authentic banknotes is not necessarily a malfunction. If this occurs, adjust the slot size, detection or sensitivity of detection.

Producer is entitled to introduce updated software, not described in the current manual.

Warranty service is not available in the following cases:

- Absence of a warranty card, an incorrectly filed warranty card, or other invalid card
- If operation or maintenance rules mentioned in the manual were violated
- If there is mechanical damage to the equipment
- If there are foreign objects or liquid inside of the device
- If the seal portions of the device have been opened or tampered with
- If the device has been connected to a power supply without a ground contact or to an unstable power source.

The present warranty does not apply to batteries, cable adaptors, power units, safety fuses, belts, lamps, brushes, external displays, power cords, external structural elements, parts of the body of the product or any other parts which have a naturally limited period of service including failures caused by power supply failures.

Replaced defective parts are to be considered the property of the producer.

The owner delivers faulty equipment to the service center at their own expense.

