Bleskomat ATM

User Manual

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Product Description

The Bleskomat ATM is a next generation Bitcoin ATM which utilizes the Lightning Network to achieve near-instant, low-fee bitcoin payments. With its unique combination of features, even customers with little to no experience can buy (and spend!) their very first bitcoin in under a minute.

List of Features

- First-class support for **Lightning Network** (LN) the second-layer scaling solution for bitcoin – on-chain payments are not supported (by design!).
- **Low fees** – Transact with amounts as small as dozens of fiat cents
- **Near instant payments** – No more waiting for confirmations. Your customers can buy and spend bitcoin in under a minute.
- **Buy limit** – optionally set a per-trade buy limit to comply with local regulations and/or prevent speculators from emptying your bitcoin wallet.
- **Offline mode** – the ATM can facilitate trades without an internet connection
  - The ATM itself accepts cash and creates a cryptographic signature
  - The customer scans a QR code with their mobile device
  - The Bleskomat Platform checks the signature and then sends the payment
- **Online mode** – optionally connect the ATM to the internet via WiFi to:
  - Display real-time exchange rates
  - Detect availability or funding issues before customers insert cash
  - Enable remote management of the ATM via the Bleskomat Platform
- **Custom server** – Optionally run your own cloud infrastructure to manage your ATM and to facilitate Lightning Network payments on its behalf.

Bleskomat Platform

Each Bleskomat ATM comes with a new user account for the Bleskomat Platform. From the time you first login to your account, you are granted access to the platform for a limited-time free trial period. Instructions and credentials for accessing your Bleskomat Platform account were provided to you along with your Bleskomat ATM. To login to your account for the first time, visit the following web page:

https://www.bleskomat.com/start

Features of the Bleskomat Platform

- Support for several LN service providers

- Remotely manage your ATM's configurations

- View statistics and monitor your ATM

- Receive email alerts regarding funding or other issues

No Vendor Lock-in

You are not locked-in to our platform. We provide a free and open-source version of the platform that you can run on your own hardware or cloud infrastructure. Additional details including a list of features, setup guide, and other documentation can be found in the publicly available repository:

https://github.com/samotari/bleskomat-server

Technical Specifications

Below you will find a list of technical specifications with regards to the physical hardware components of the Bleskomat ATM.

Weight	8 kg
Outer case dimensions	20 cm (W) x 30 cm (H) x 24 cm (D)
Outer case material	1.5 mm iron
Lockable cash box capacity	300 bank notes
E-paper display size	400 x 300 (pixels), ~10.7 cm
External power supply	220-240 V (AC)
PCB power input	12 V, 1.5 A (DC)

External Components and Features

- E-paper display behind protective glass
- Stainless steel button
- 12V DC power plug

- Hook for anti-theft cable
- Hard plastic bill insert
- Coin insert with scratch resistant stainless steel
- Coin output with steel coin catch
- Steel outer case with matte, scratch resistant finish

Internal Components and Features

- Internal, removable mount system for components
- Bill acceptor with lockable cash box
- Coin acceptor with coin collection tray

Recommended Operating Conditions

This section includes a list of recommended ambient/environmental conditions for safe, continual operation of the Bleskomat ATM.

Temperature	Approx. 5 to 45 °C
Humidity	Below 55% RH

Additional Recommendations

See the below list of additional recommendations to help keep your Bleskomat ATM operational and in good condition:
- Avoid prolonged direct sunlight exposure to the e-paper display.
- Do not allow the ATM to be submerged in water.
- Do not place the ATM outside and unprotected during heavy rains.

Setup and Configuration

Your Bleskomat ATM comes ready with pre-installed firmware and configurations matching your new Bleskomat Platform user account. Once you've finished the account setup process, your ATM will be ready for operation.

Find the printed instruction sheet that was included with your Bleskomat ATM. There you will find the temporary login phrase for your new Bleskomat Platform user

account. When you have the sheet ready, visit the following web page in your browser:
https://www.bleskomat.com/start

Follow the step-by-step instructions on the web page to login and setup your user account. With this account you will be able to view a list of your ATMs, view aggregated as well as individual ATM statistics, and manage each of your ATMs' configuration options.

Your ATM's configuration options will only be updated automatically if it is in online mode – see Configure your ATM for online mode. It is possible to re-configure your ATM without internet access – see Manual ATM Configuration Instructions.

ATM Configuration Options

Below is a list of the possible configuration options for your Bleskomat ATM.

locale	The ISO 639-1 code for the language in which all text shown on the display will be written. The default value is en (English). The following is a list of supported languages: • cs - Čeština • en - English • es - Español • de - Deutsch
buyLimit	The per trade limit (in fiat value) which will be accepted by the ATM. When an inserted bill would cause the accumulated value to exceed the buy limit, the bill will be rejected. All coins will be rejected once the largest coin value would cause the limit to be exceeded.
wifi.ssid	WiFi network SSID. If empty, the ATM will not connect to any WiFi.
wifi.password	WiFi network's password.

Advanced ATM Configuration Options

The below list of options are available, but not recommended for normal use.

`apiKey.id`	The API key ID of the ATM. This is needed by the server to verify signatures created by the ATM.
`apiKey.key`	The API key secret that is used to generate signatures.
`apiKey.encoding`	The explicit encoding of the API key secret. This can be "hex", "base64", or empty-string to mean no encoding.
`callbackUrl`	The LNURL server base URL. In the case of the official Bleskomat Platform this is `https://ln.bleskomat.com/u`
`fiatCurrency`	The fiat currency symbol for which the ATM is configured; see ISO 4217.
`fiatPrecision`	The number of digits to the right of the decimal point when showing fiat currency amounts on the display.

`coinValues`	The value of coins for which the coin acceptor has been trained. Each value separated by a comma. Integers and decimal values are accepted. Examples:
	• EUR:
	  ○ `0.05,0.10,0.20,0.50,1,2`
	• CZK:
	  ○ `1,2,5,10,20,50`

`billValues`	Same as `coinValues`, but for the bill acceptor. Examples:
	• EUR:
	  ○ `5,10,20,50,100,200`
	• CZK:
	  ○ `100,200,500,1000,2000`

Changing your ATM's `fiatCurrency`, `coinValues`, and `billValues` options requires reprogramming the bill and coin acceptors. If you need to change your ATM's fiat currency, please contact us at support@bleskomat.com.

Manual ATM Configuration Instructions

To manually change your ATM's configuration options, follow these steps:
1. Power off the ATM by unplugging its power supply.
2. Remove the SD card from the PCB's SD card reader.
3. Insert the SD card into your computer's SD card reader.

4. The file system should mount automatically. If necessary, reformat the SD card with the FAT file system type.
5. If using the Bleskomat Platform:
   - While logged in, go to "Devices" in the management area.
   - Find the ATM in the list and click the download icon ⬇
   - Open the downloaded file in a text editor and modify the configurations as you like.
6. If **not** using the Bleskomat Platform:
   - Create a new file named "bleskomat.conf". The contents of the configuration file should follow "key=value" format where each key/value pair is on its own line. See Example bleskomat.conf for further details.
7. When done modifying the "bleskomat.conf" configuration file, copy the file to the SD card.
8. Un-mount the SD card's file system and then physically remove it from your computer.
9. Insert the SD card back into the PCB's SD card reader and plug-in its power supply.
10. The new configuration should be read and saved to internal memory. The configuration file will be deleted automatically from the SD card.

Example bleskomat.conf

Below is an example bleskomat.conf file with "key=value" formatting. Each configuration option is on its own line.

```
apiKey.id=xxxx
apiKey.key=xxxxxxxx
apiKey.encoding=hex
callbackUrl=https://ln.bleskomat.com/u
locale=en
fiatCurrency=EUR
fiatPrecision=2
buyLimit=200.00
coinValues=0.05,0.10,0.20,0.50,1,2
billValues=5,10,20,50,100,200
wifi.ssid=WIFI_NETWORK_NAME
wifi.password=WIFI_NETWORK_PASSWORD
```

Configure your ATM for online mode

It is possible to operate your Bleskomat ATM in online mode by connecting it to a WPA2-encrypted WiFi network. The configuration options required to enable online mode are `wifi.ssid` and `wifi.password` as shown below:

```
wifi.ssid=WIFI_NETWORK_NAME
wifi.password=WIFI_NETWORK_PASSWORD
```

Replace the "WIFI_NETWORK_NAME" with your WiFi network's SSID and "WIFI_NETWORK_PASSWORD" with the password.

See Manual ATM Configuration Instructions for detailed step-by-step instructions for configuring your Bleskomat ATM.

Security Best Practices

The recommendations made here are not hard rules, but suggestions to help you improve your physical and digital security. It is by no means everything that you could be doing, but it's a solid start.

Physical security of your Bleskomat ATM is important. **Do not leave the Bleskomat ATM unattended**, especially outdoors. Empty the cash box and coin collection tray regularly.

If holding your own bitcoin, use a **hardware wallet** for long-term storage. Keep only an amount of funds necessary for normal short-term usage in a Lightning Network node or LN service provider account. Monitor your accounts for unusual activity.

Use a password manager to randomly generate a unique password for each of the services that you use – this is especially important for your Bleskomat Platform account.

Enable second factor authentication (2FA) for every account that supports it – especially high-value accounts such as email. Do **not** use SIM or phone number as an account recovery method.

Maintenance

How to take care of and maintain your Bleskomat ATM for long-life and smooth operation.

Cleaning the bill acceptor

We recommend to clean the bill acceptor's optical sensors once every two months or as needed. Dirt, dust, and other residue can lead to bad note acceptance and other performance degradation. Please refer to the step-by-step instructions below for how to clean your bill acceptor's optical sensors:

1. **Power-off** the Bleskomat ATM:
   - Unplug its external power supply.

2. **Remove the internal mount system**
   from the ATM. Place on a solid surface.
   - This makes it possible to access the internal components.

3. **Open the note path**
   - Slide the red catch to the left (1)
   - Lift up the top half of the unit (2)

4. **Clean note path and sensors**
   - Use a dry cloth and/or compressed air, to ensure there is no dirt or debris.
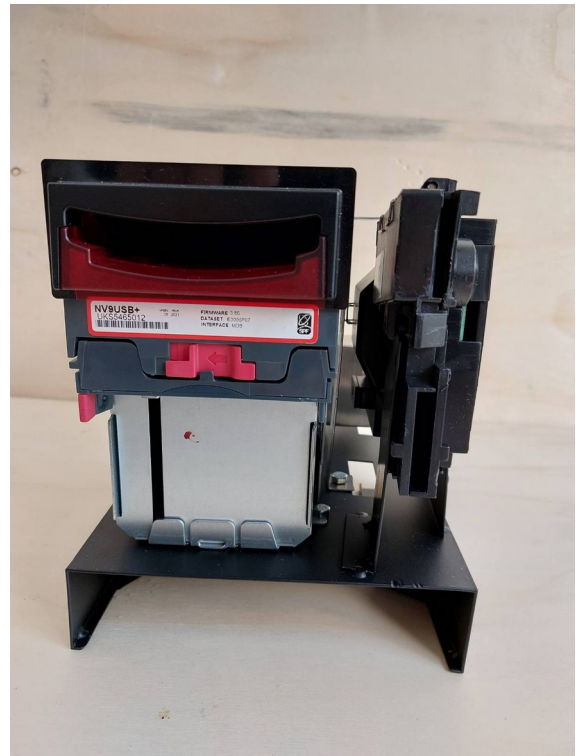   - Pay attention to sensor locations and drive belts.

Replacing the bill acceptor's drive belts

We recommend to replace the bill acceptor's drive belts once per year or as needed. For replacement belts, please contact us at support@bleskomat.com. Please refer to the step-by-step instructions below for how to replace your bill acceptor's drive belts:

1. **Power-off** the Bleskomat ATM:
   - Unplug its external power supply.

2. **Remove the internal mount system** from the ATM. Place on a solid surface.
   - This makes it possible to access the internal components.

3. **Open the note path**
   - Slide the red catch to the left (1)
   - Lift up the top half of the unit (2)

4. **Remove note track**
   - Press gray release tab (1) to remove inner note track from the unit.

5. **Remove old belts**
   • Press both drive wheels inwards (2) to create slack in the belts. This slack will allow you to the remove belts.

6. **Replace with new belts**
   • Place new belts onto drive wheels, push them inwards to give enough slack to place the belts into position.

Clearing a jam in the bill acceptor

It is possible that a bank note can get stuck in the bill acceptor's note path. This requires manual intervention to fix. Please refer to the step-by-step instructions below for how to clear a jam in your bill acceptor:

1. **Power-off** the Bleskomat ATM:
   • Unplug its external power supply.

2. **Locate and unscrew four mounting screws** which connect the internal mount system to the outer case.
   • Remove the coin collection tray to access the screws from inside the case.

3. **Remove the internal mount system** from the case. Place on a solid surface.
   - Lift and slightly tilt the mount system while still inside the case to be able to remove it.
   - Removing the mount system enables easy access to the internal components.

4. **Open the note path** of the bill acceptor.
   - Slide the red catch to the left (1)
   - Lift up the top half of the unit (2)

5. **Clear Jammed Note**
   - If note can be seen in upper note path, remove note and proceed to next step.
   - If note is in lower note path, lift inner note track.
     - Push gray release tab (1)
     - Lift inner note track (2)
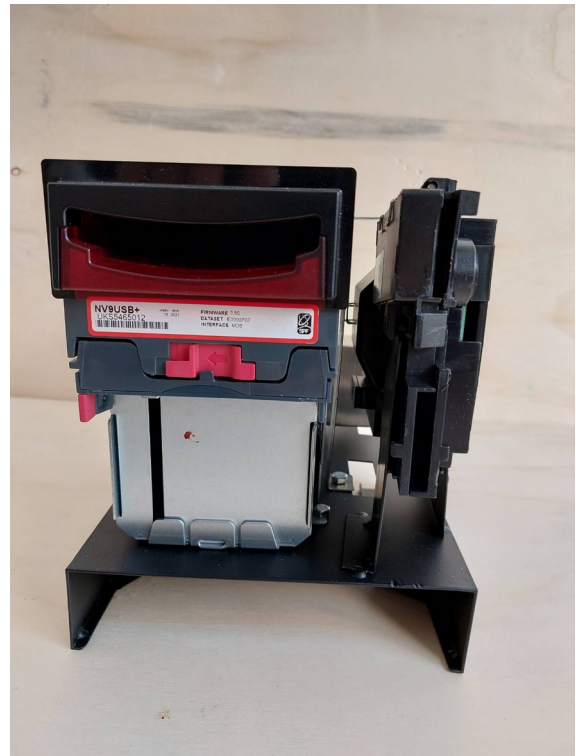   - Remove note from lower path

Clearing a jam in the coin acceptor

It is possible that a coin or foreign object can get stuck in the coin acceptor's coin path. This requires manual intervention to fix. Please refer to the step-by-step instructions below for how to clear a jam in your coin acceptor:
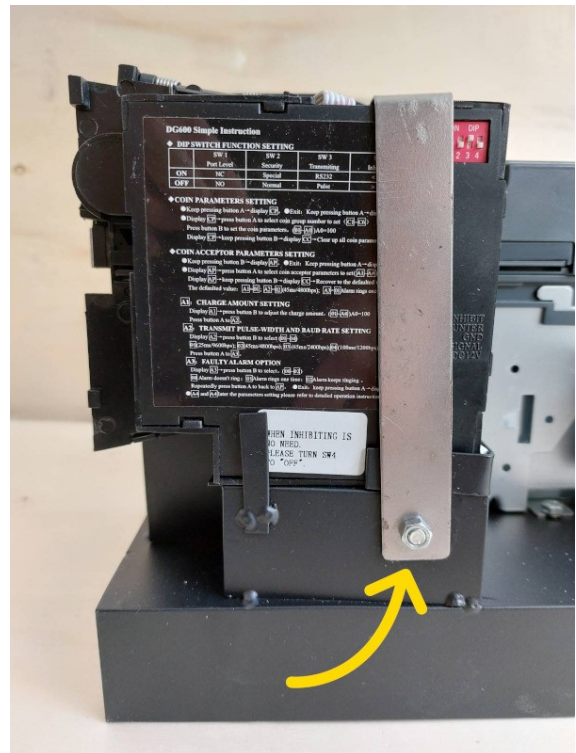
1. **Power-off** the Bleskomat ATM:
   - Unplug its external power supply.

2. **Locate and unscrew four mounting screws** which connect the internal mount system to the outer case.
   - Remove the coin collection tray to access the screws from inside the case.

3. **Remove the internal mount system** from the case. Place on a solid surface.
   - Lift and slightly tilt the mount system while still inside the case to be able to remove it.
   - Removing the mount system enables easy access to the internal components.

4. **Locate and loosen** but do not remove the screw located on the left side of the coin acceptor mounting bracket.
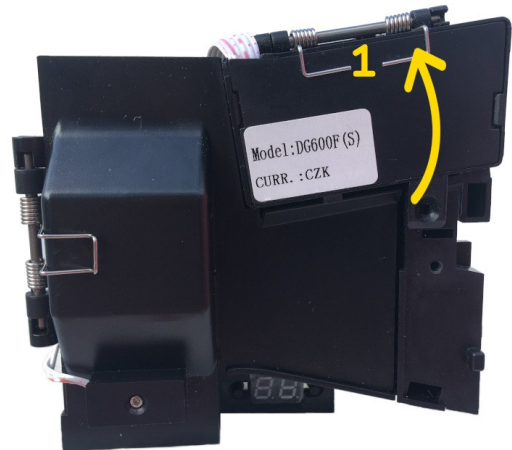
5. **Locate and unscrew** the screw located on the right of the coin acceptor mounting bracket.
   - It should now be possible to rotate the mounting bracket toward the back of the coin acceptor. This will allow the removal of the coin acceptor.

6. **Clear the upper coin path** by gently but firmly twisting the upper spring hinge (1) in the upwards direction.

7. **Clear the back and lower coin paths** by gently but firmly twisting the back spring hinge (2) away from the coin acceptor.
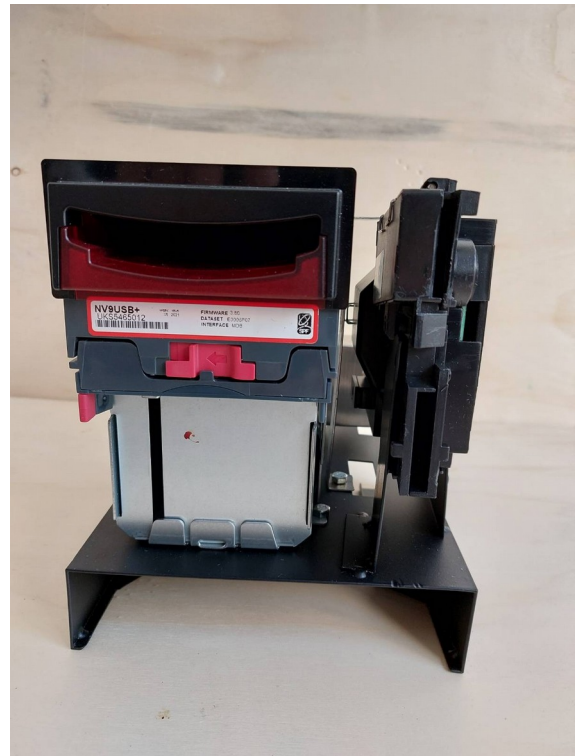   *   Allow any stuck coin or foreign object to fall out of the coin acceptor.

Cleaning the e-paper display

Please refer to the step-by-step instructions below for how to clean the e-paper display:

1. **Power-off** the Bleskomat ATM:
    *   Unplug its external power supply.

2. **Locate and unscrew four mounting screws** which connect the internal mount system to the outer case.
    *   Remove the coin collection tray to access the screws from inside the case.

3. **Remove the internal mount system** from the case. Place on a solid surface.
   - Lift and slightly tilt the mount system while still inside the case to be able to remove it.
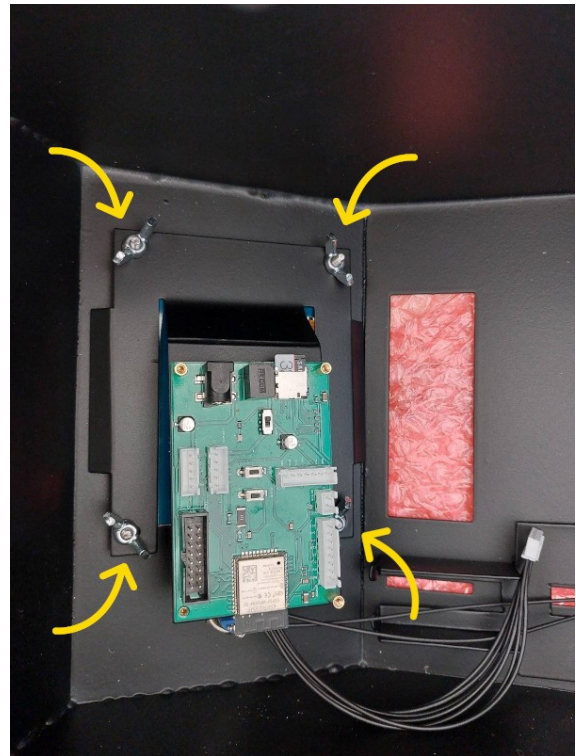   - Removing the mount system enables easy access to the internal components.

4. **Place the outer case on its front face on a solid surface.**
   - This makes it easier to access the e-paper display from inside.

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5. **Locate and unscrew** the four screws at each corner of the display mount system from inside the case.
   - Be careful while removing the display as the protective glass will move freely once the screws are loosened.
   - Remove the cable from the e-paper display by un-plugging the connector from its socket.

6. **Clean the protective glass and e-paper display with a dry cloth.**
   - Use caution while cleaning electronics.
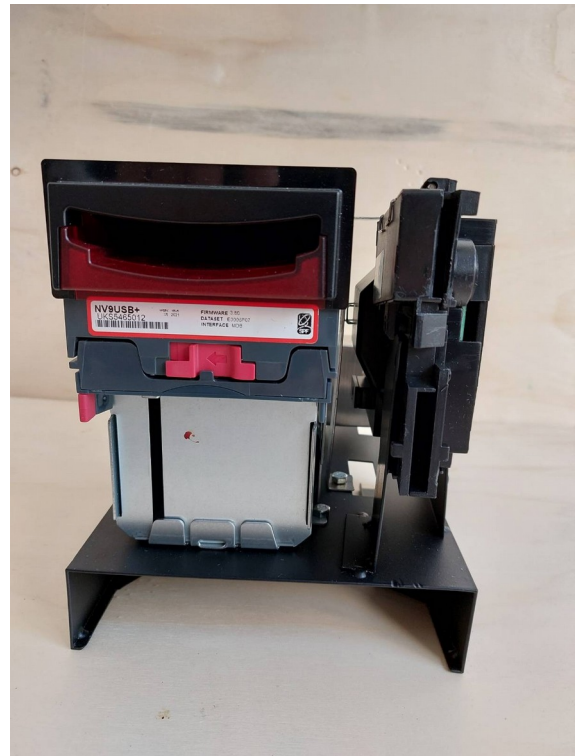
7. **Remount the e-paper display.**
   - Place the protective glass over the front of the e-paper display.
   - Place e-paper display and glass together back into the display mount.
   - Secure the display by screwing the screws back into the display mount.

Replacing the e-paper display

For replacement parts, please contact us at support@bleskomat.com. Please refer to the step-by-step instructions below for how to replace the e-paper display:

1. **Power-off** the Bleskomat ATM:
   - Unplug its external power supply.

2. **Locate and unscrew four mounting screws** which connect the internal mount system to the outer case.
   - Remove the coin collection tray to access the screws from inside the case.

3. **Remove the internal mount system** from the case. Place on a solid surface.
   - Lift and slightly tilt the mount system while still inside the case to be able to remove it.
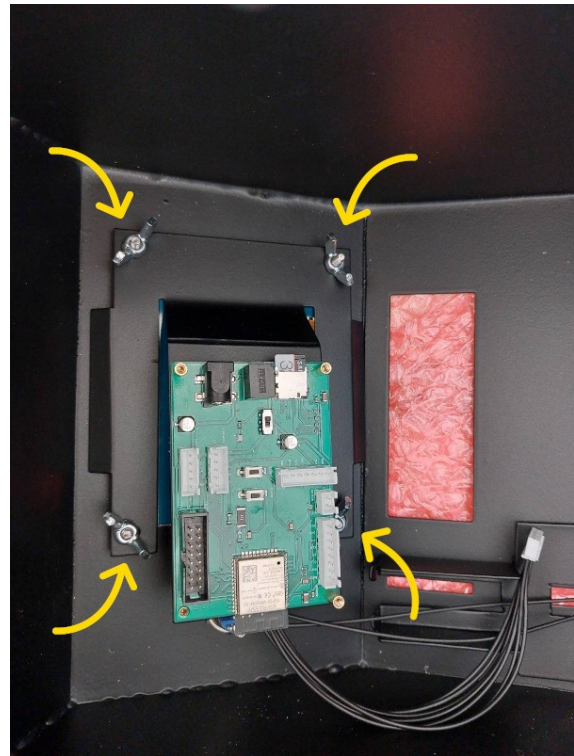   - Removing the mount system enables easy access to the internal components.

4. **Place the outer case on its front face on a solid surface.**
   - This makes it easier to access the e-paper display from inside.

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5. **Locate and unscrew** the four screws at each corner of the display mount system from inside the case.
   - Be careful while removing the display as the protective glass will move freely once the screws are loosened.
   - Remove the cable from the e-paper display by un-plugging the connector from its socket.

6. **Remove the e-paper display** by unscrewing the screws located at each corner of the display.
   - Be careful while removing the display as the protective glass will move freely once the screws are loosened.
   - Remove the cable from the e-paper display by un-plugging the connector from its socket.

7. **Connect the new e-paper display.**
   - Plug the cable's connector to the new e-paper display's socket.

8. **Remount the e-paper display.**
   - Place the protective glass over the front of the e-paper display.
   - Place e-paper display and glass together back into the display mount.
   - Secure the display by screwing the screws back into the display mount.

Troubleshooting

How to diagnose common problems with your Bleskomat ATM. If you are unable to resolve an issue yourself, please contact us at support@bleskomat.com.

All bank notes rejected

This could be caused by a few different issues:

- Incorrect currency data set configured
- Notes not included in the configured currency data set
- Note path obstructed – see Clearing a jam in the bill acceptor

Bill acceptor runs slowly or intermittently

This could be caused by any of the following:

- Foreign object in note path
- Incorrect power supply voltage or under current
- Unit damage

Support

Bleskomat s.r.o. strives to provide a smooth setup and on-boarding experience to its customers. Please reach out to us via email by contacting support@bleskomat.com with your questions or inquiries. We will do our best to respond within a reasonable amount of time.

Legal

Please refer to your copy of the Customer Agreement for details regarding the specific obligations of Bleskomat s.r.o and your rights as our customer.

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