

Consumer Guide

ASIC REPAIR CENTER WHATSMINER

BASED ON VERSION 2.08

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Package



1. ASIC REPAIR CENTER unit
2. Power supply
3. Power cable
4. Cable for hashboard connection

Device appearance

Front side



Upper side



Right side



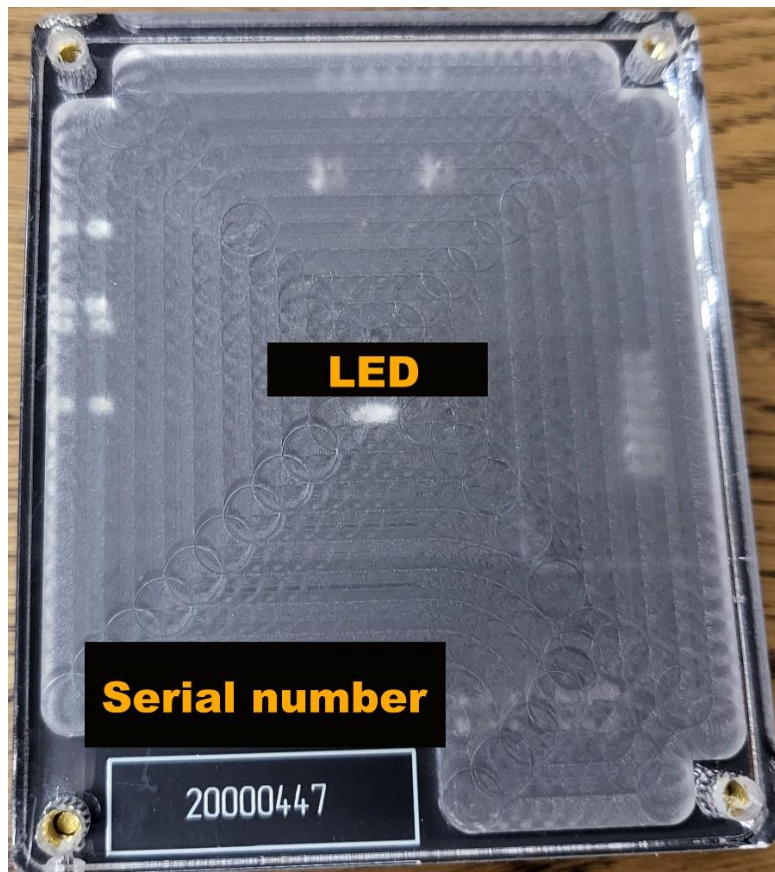
Connector for additional components

Bottom side



Dashboard connector

Back side



LED

Serial number

20000447

General information

The ASIC REPAIR CENTER WHATSMINER (ARC WM) device is designed to repair and diagnose mining hashboards.

The device helps to identify a faulty chip on the board, can restore the EEPROM without removing the device from the shelf, has the ability to edit the EEPROM, automatically detect the board, allows you to write your serial number to the hashboard.

At the moment, the device supports 120 hashboard models, the list of supported boards is growing. The list of available features is gradually expanding, thanks to constant software updates and extensive feedback from our customers.

Attention! In case of problems, we recommend that you refer to the repair manual or contact ARC technical support.

This device is not intended for domestic use and should be used by qualified personnel to test specific equipment.

Any non-professional use or actions, including use for purposes and / or conditions not provided for by the hardware or software complex of the device, leading to a breakdown of the device, entails the Seller's waiver of liability and refusal of warranty service.

Email: hello@asic.repair

Phone: [+7\(495\)924-70-10](tel:+7(495)924-70-10)

Phone: [+7\(985\)924-70-10](tel:+7(985)924-70-10)

Website: www.testers.asic.repair

Telegram chat for Russian speakers: <https://t.me/+kzS5RRN2MhA1N2Vi>

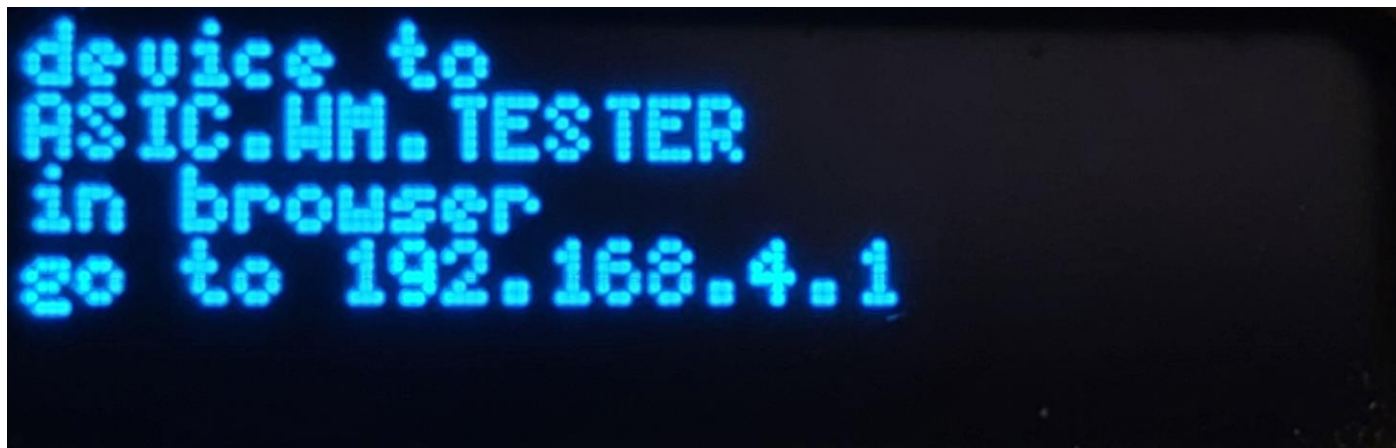
Telegram chat for English speakers: <https://t.me/+P5yhKS-rTU8xYjBi>

Initial setup

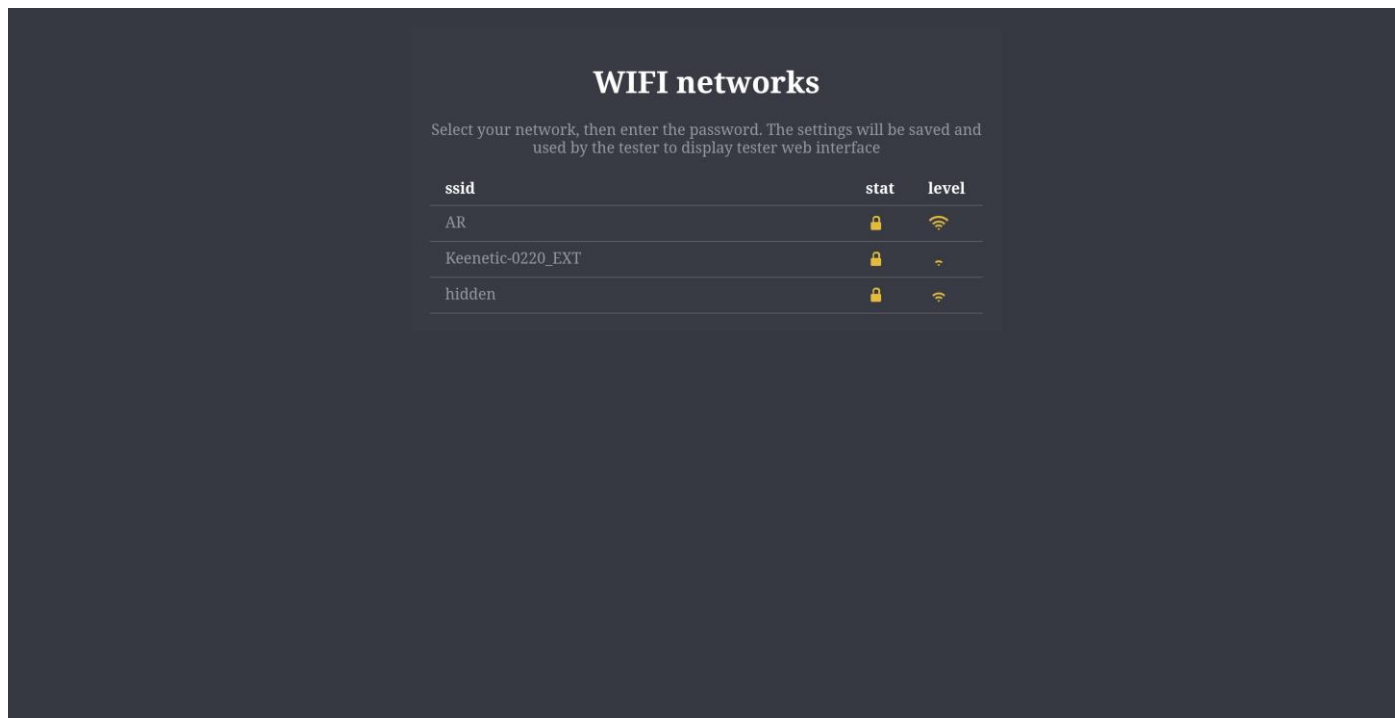
The tester requires an Internet Wi-Fi connection (2.4 Ghz).

To setup your Wi-Fi network:

1. Power the ARC on;
2. After about a minute, it will inform you that the tester has been switched to access point mode, which means that any of your devices will see a Wi-Fi network with the name «ASIC.WM.TESTER»;
3. Connect to said network;
4. The Wi-Fi configuration web interface will be available at <http://192.168.4.1/>:




5. By going to the specified address, you will see a list of available Wi-Fi networks:



6. Choose your Wi-Fi network;
7. Enter the password for it;

8. Click «save and reboot» button:



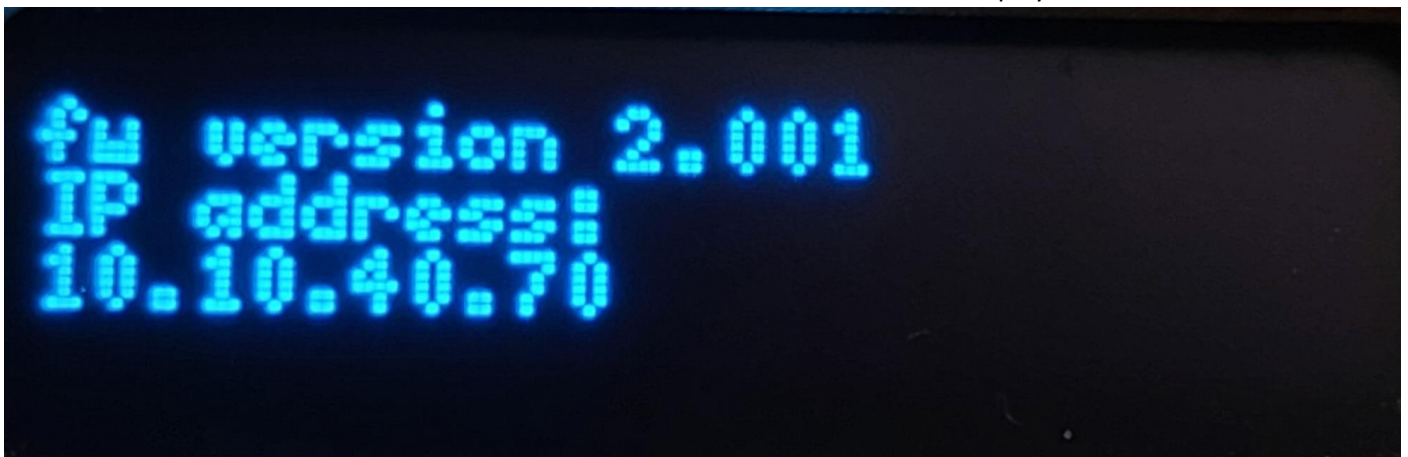
The screenshot shows a dialog box titled "Enter password" with a close button (X) in the top right corner. The text inside reads: "Enter the password for the selected network or enter the login and password manually". Below the text are two input fields: the first contains "AR" and the second contains four dots. At the bottom is a blue button labeled "Save and reboot".

9. The device will reboot and connect to your Wi-Fi network:



The screenshot shows a dialog box titled "Success" with a close button (X) in the top right corner. The text inside reads: "Success. Reboot..." and "Now, you may close this page".

10. The IP address where the tester's web interface will be available will be displayed on the device screen:



If you want to connect to another network, this can be done in the tester interface, for this you need to hold down the start button and insert the power cable, the button must be held for 5 seconds. If the Wi-Fi network is unavailable, tester will continue from step 2.

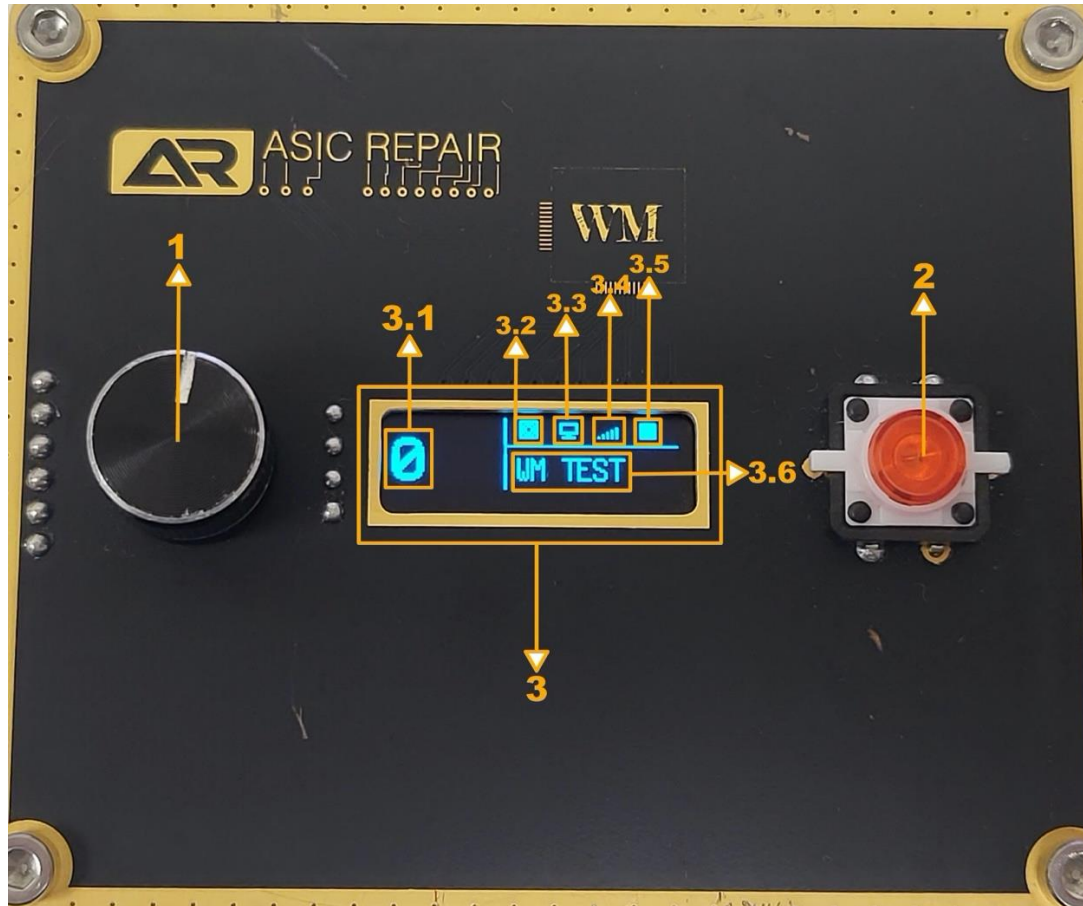
To connect the tester to the hashboard, you need to: connect the power cable to the USB-C port on the top of the tester, the other side to the power supply, and the power supply to the socket.



It is necessary to wait until the tester is fully loaded, then plug the connection cable into the lower part of the tester, and the other side into the corresponding connector on the hashboard. If the connection is successful, the board icon will be displayed (see item 3.2, in the «Tester interface» section).



Tester interface



1. Knob with button. Has 2 modes:

- a) pressing - the tester screen displays the IP address for accessing the web interface;
- b) turn – selection of the function of reading the EEPROM firmware of the hashboard, and writing the EEPROM firmware to the hashboard.

2. Start button. Depending on the selected function, it launches a hashboard test or EEPROM flashing. Pressing again stops the running function. The built-in LED serves as a status indicator. Lights up or flashes - the device is busy and performs a function, when it is not lit - the device is free.

3. Display. Information on the display: a crossed out square, means no connection:

- 3.1. Number of chips answering correctly;
- 3.2. Hashboard connection indication. Indicated by the board icon;
- 3.3 Indication of connection to the web interface. Indicated by the monitor icon;
- 3.4. Indication of connection to Wi-Fi, and signal strength. More "sticks" mean better signal strength;
- 3.5. Hashboard testing is indicated by the "Play" icon, and the absence of testing by the "Stop" icon;
- 3.6. Board model and function.

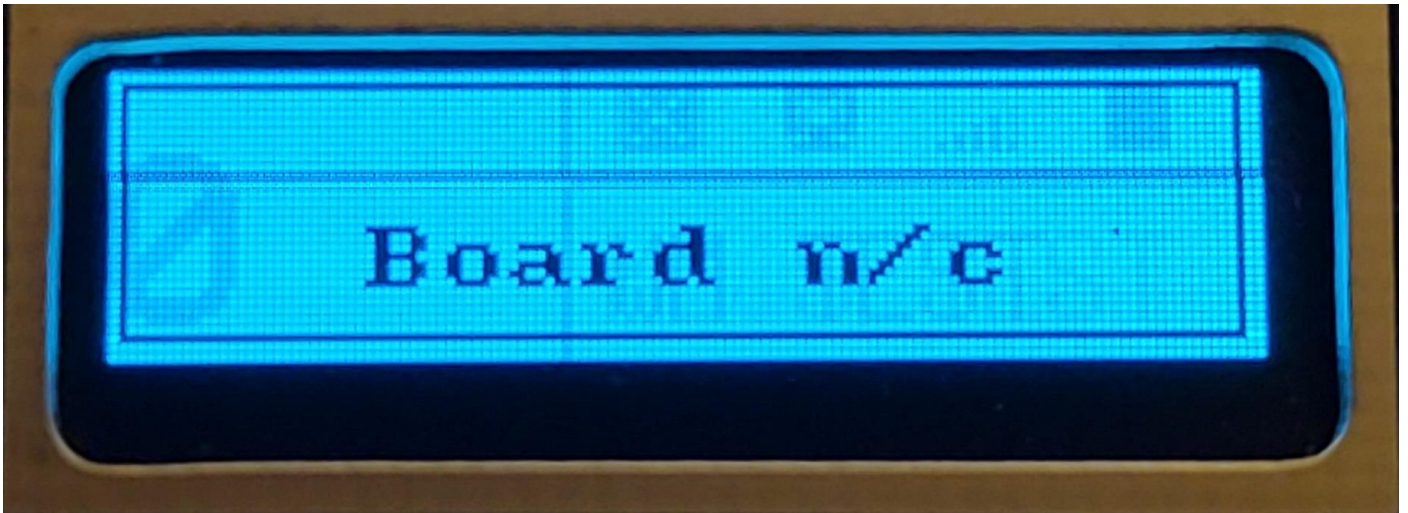
Tester interface. Display information



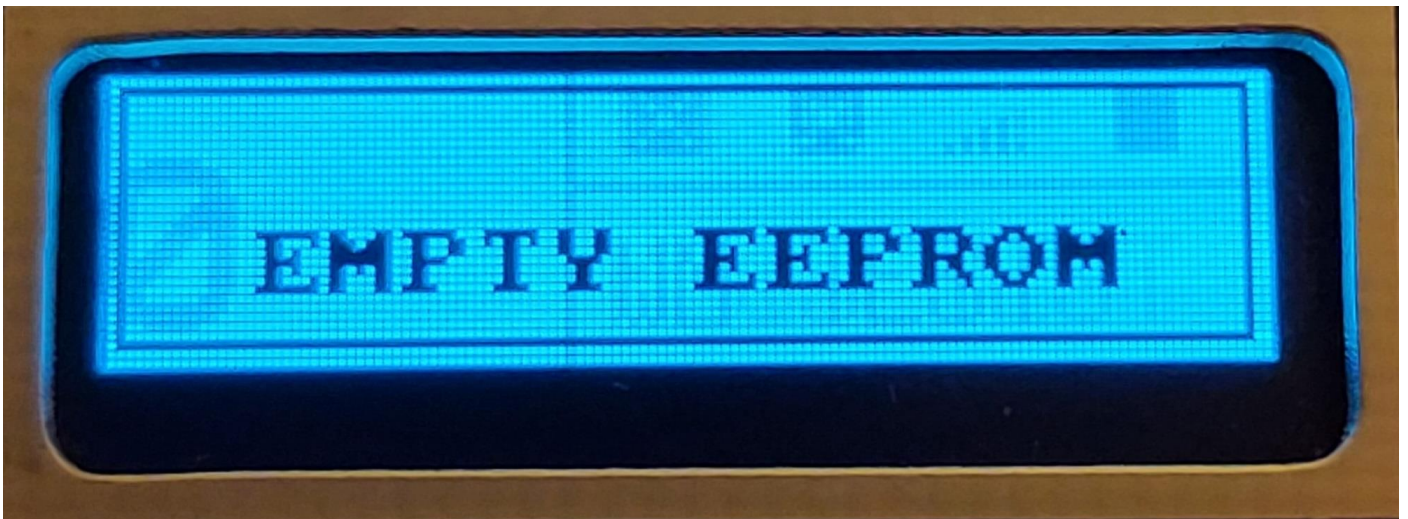
EEPROM read function. When you press the start button, copies the EEPROM firmware from the hashboard to the tester's memory. To switch to this mode, turn the encoder clockwise.



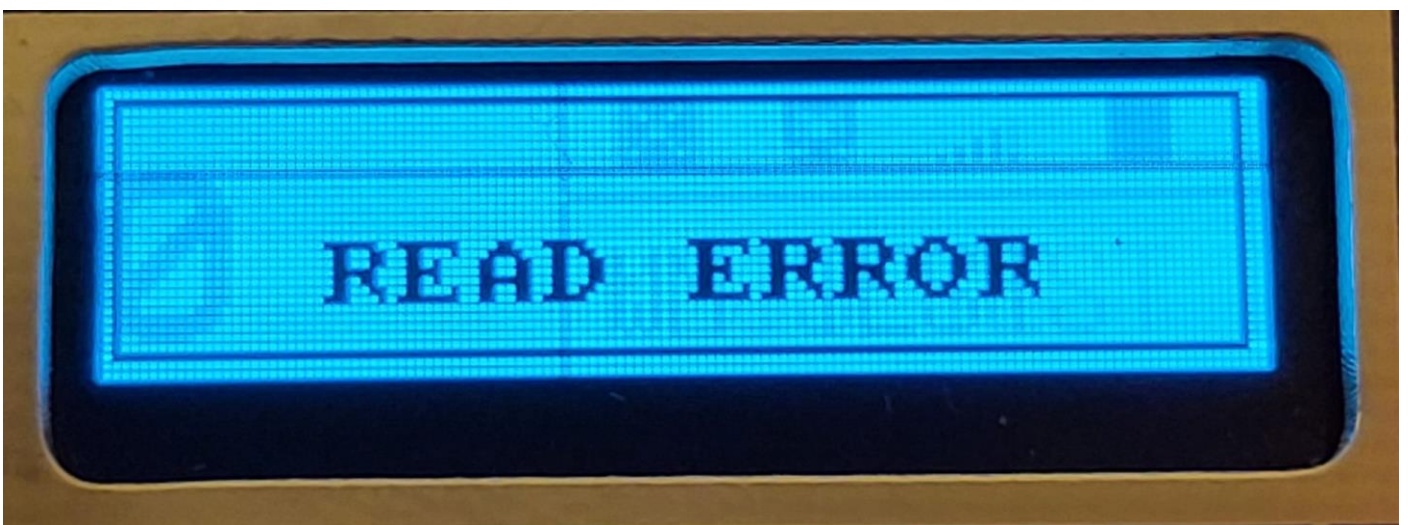
EEPROM write function. Designed to write the EEPROM firmware to the hashboard, read using the «EEPROM READ» function. To switch to this mode, turn the encoder clockwise.



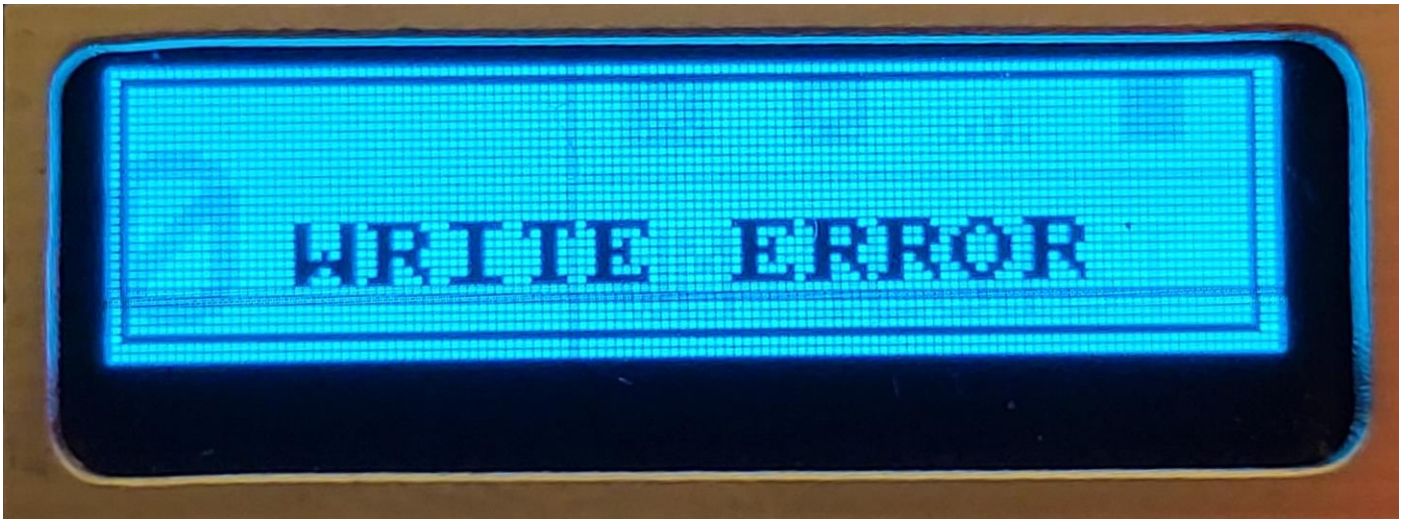
Hashboard not connected



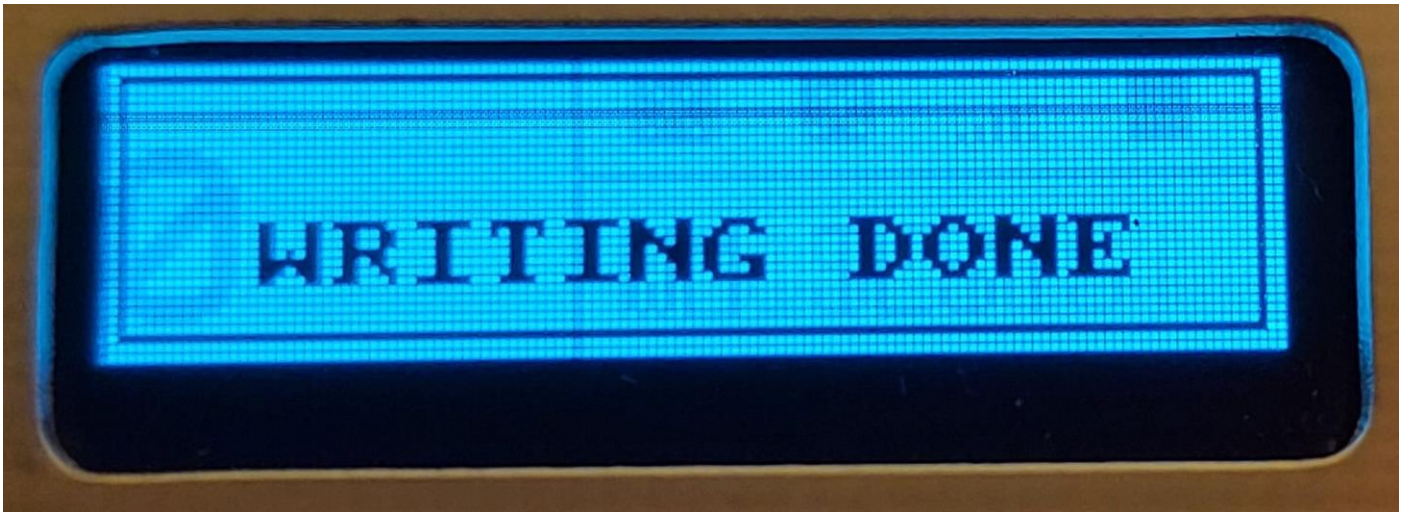
There is no saved EEPROM in the device's memory



EEPROM read error. The EEPROM chip may be damaged.



Error writing EEPROM firmware to hashboard



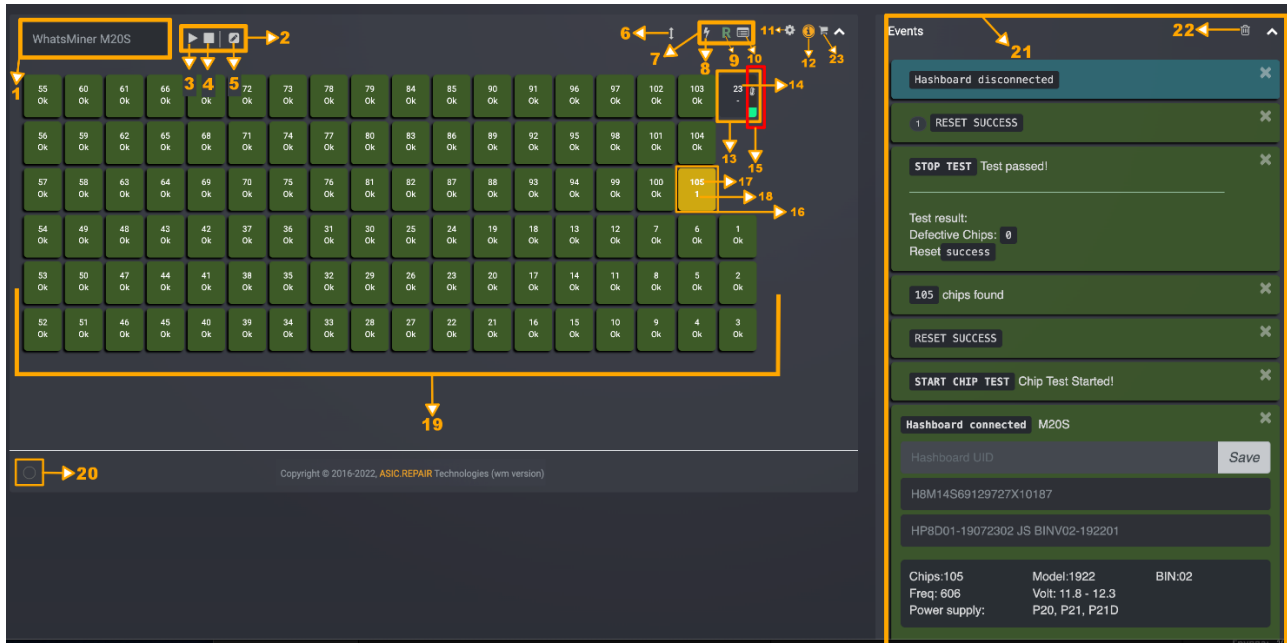
EEPROM firmware has been successfully flashed to the hashboard



RESET line testing failed

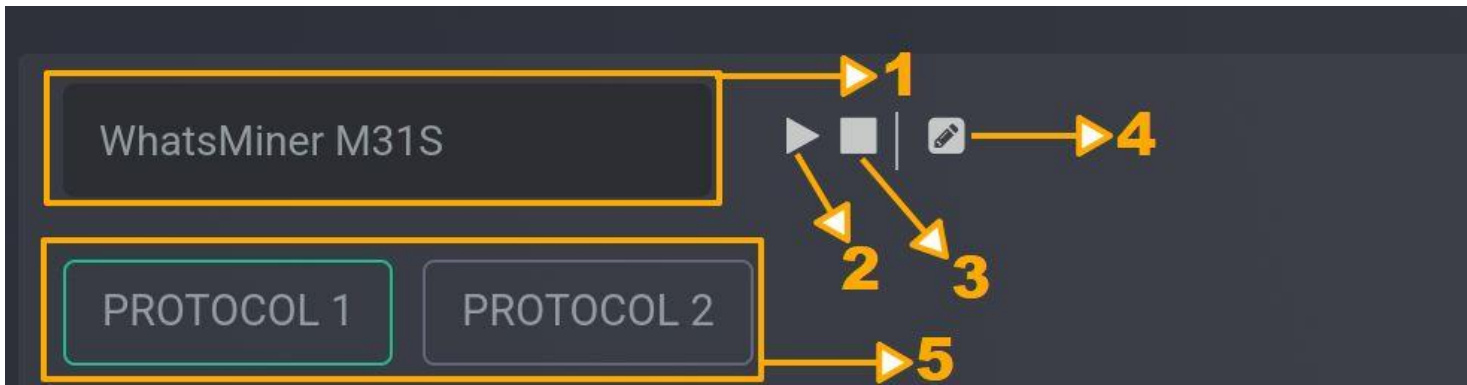
Tester web-interface

The main menu of the web interface of the tester



1. Hashbaord model. Detected automatically.
2. Test management section.
3. Run a test with selected test options.
4. Stop running test.
5. Advanced EEPROM firmware settings.
6. Flip the domain for the correct numbering of chips on the board.
7. Section for selecting hashbaord test configurations.
8. Advanced testing mode. (Displays on the map the response of each chip. In basic mode, only the number of chips is displayed).
9. RESET mode. Resets the RESET line after each polling cycle.
Outside of the test mode, "raises" or "lowers" the line. Convenient for testing.
10. Polling only selected chips. To activate, you must click on any chip (or several). Press this button to reset.
11. Tester settings, Wi-Fi network connections, language settings, etc.
12. Interactive manual.
13. Temperature sensor.
14. Temperature value.
15. Temperature sensor scale. Changes color depending on the actual temperature.
16. Board chip. When pressed, the tester will poll only the selected chips.
Color coding: grey – chip information not received; green – correct response received from the chip; yellow/red (flashing) – last responding chip; red – there is no answer or it is incorrect.
17. Chip number.
18. Number of chip responses. «OK» – correct response.
19. Chip map. Replicates the chip layout of a real board and displays the state of the chips.
20. Indicator of receiving data from the tester. Flashes green, when data from the tester is received. Helps to understand that the test process is not «frozen».
21. Information panel. Displays various events of the tester: testing process, information about the board, the need for software updates, the EEPROM editing process, etc.
22. Button for clearing the history of operations (log).
23. Shop.

Test management section



1. Hashboard model. Detected automatically.
2. Run a test with test options selected.
3. Stops test or EEPROM flashing.
4. EEPROM editor.
5. Selecting a test protocol. Since 2022, Whatsminer has released models with a new chip protocol. In case of an incorrect protocol selection, you will see 0 chips on a working board.

Section for selecting hashboard test configurations



1. Flip the domain for the correct numbering of chips on the board.
2. Advanced testing mode. Displays on the map the response of each chip.
3. RESET mode. Resets the RESET line after each polling cycle.
Outside of the test mode, "raises" or "lowers" the line. Convenient for testing.
4. Polling only selected chips. To activate, you must click on any chip (or several). Press this button to reset.
5. Tester settings, Wi-Fi network connections, language settings, etc.
6. Interactive manual.
7. Shop.

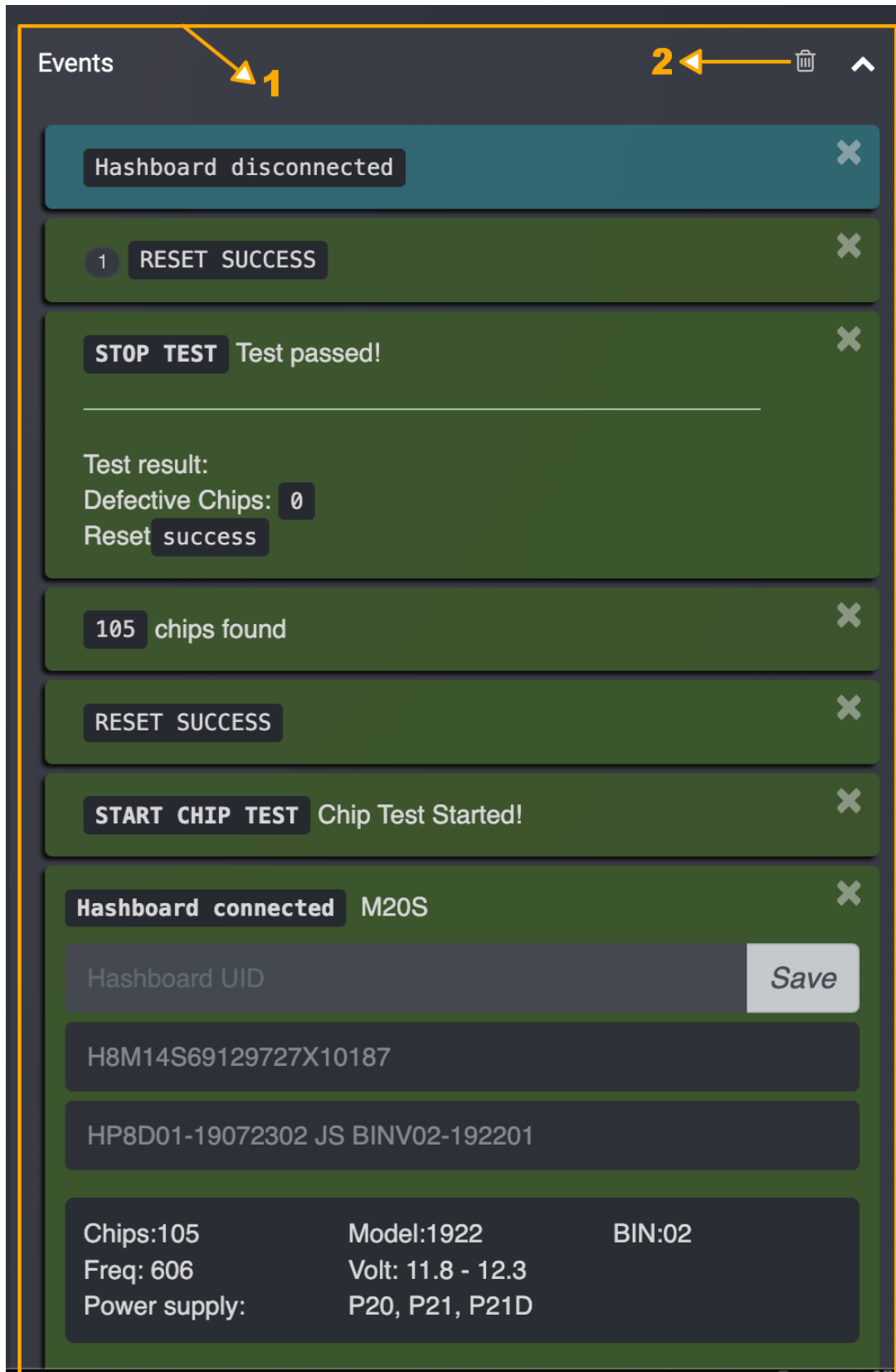
Dashboard chip map



Replicates the chip layout of a real board and displays the state of the chips.

1. Temperature sensor.
2. Temperature value.
3. Temperature sensor scale. Changes color depending on the actual temperature.
4. Board chip. When pressed, the tester will poll only the selected chips.
Color coding: grey – chip information not received; green – correct response received from the chip; yellow/red (flashing) – last responding chip; red – there is no answer or it is incorrect.
5. Chip number.
6. Number of chip responses.
7. «OK» – correct response.
8. Chip number.
9. Chip ID (Advanced test mode)
10. Number of chip responses
11. Indicator of receiving data from the tester. Flashes green, when data from the tester is received. Helps to understand that the test process is not «frozen».
12. The chip is defective or the answer is incorrect.

Information panel (Log)



The screenshot displays the 'Information panel (Log)' interface. At the top, the 'Events' header is on the left, and on the right, there is a yellow arrow labeled '2' pointing to a trash icon (clear history button) and an upward arrow. Below the header, a list of events is shown, each with a close button (X) on the right. The events include:

- Dashboard disconnected
- 1 RESET SUCCESS
- STOP TEST Test passed!
- Test result:
Defective Chips: 0
Reset success
- 105 chips found
- RESET SUCCESS
- START CHIP TEST Chip Test Started!
- Dashboard connected M20S

The 'Dashboard connected M20S' event is expanded, showing a form with the following fields:

- Hashboard UID (with a 'Save' button)
- H8M14S69129727X10187
- HP8D01-19072302 JS BINV02-192201

At the bottom of the expanded event, there is a table of test results:

Chips:105	Model:1922	BIN:02
Freq: 606	Volt: 11.8 - 12.3	
Power supply:	P20, P21, P21D	

1. Displays various events of the tester: testing process, information about the board, the need for software updates, the EEPROM editing process, etc.
2. Button for clearing the history of operations (log).

EEPROM editor (tab 1)

The screenshot shows the 'EEPROM edit panel' with various input fields and buttons. Numbered callouts point to specific elements:

- 1: 'EEPROM edit panel' header
- 2: 'Preset eeprom' button
- 3: Upload icon
- 4: Download icon
- 5: 'User hashboard ID' input field
- 6: 'PCB serial sticker' input field
- 7: 'PCB chip serial sticker' input field
- 8: 'BIN timestamp' input field
- 9: 'Factory test' input field
- 10: 'CAL power' input field
- 11: 'Подробнее' (Details) button
- 12: 'Miner type' input field
- 13: 'Chip count' input field
- 14: 'Chip model' input field
- 15: 'Chip vendor' input field
- 16: 'Chip rev1' input field
- 17: 'Chip bin' input field
- 18: 'Chip rev2' input field
- 19: 'Leak current' input field
- 20: 'BIN type' input field
- 21: 'PCB factory' input field
- 22: 'PCB version' input field
- 23: 'PCB rev' input field
- 24: 'Write to HB eeprom' button
- 25: 'Save to preset' button

1. Connected hashboard EEPROM tab [**Current tab**].
2. EEPROM dump in the tester memory.
3. Load a dump from a file to tester memory.
4. Save EEPROM dump from the board to a file.
5. Hashboard serial number. Allows the user to assign their own serial number to identify the board.
6. Hashboard PCB sticker. Located near power connector.
7. Chip info sticker. Located in the lower part of the hashboard.
8. Timestamp.
9. Factory test.
10. CAL power.
11. 11. Detailed information about the board (show/hide additional information).
12. Board model.
13. Number of chips.
14. Chip model (Chip ID).
15. Chip manufacturer code.
16. Chip revision code.
17. Chip BIN.
18. Additional info.
19. Power supply setting Leak current.
20. Power supply setting BIN type.
21. Board manufacturer code.
22. Board version.
23. Board info.
24. Write a dump from tester memory to the board.
25. Save EEPROM from the hashboard to tester memory.

EEPROM editor (tab 2)

The screenshot shows the 'EEPROM editor (tab 2)' interface. At the top, there's a 'EEPROM edit panel' header. Below it, two tabs are visible: 'Dashboard eeprom' (highlighted with a yellow box and arrow 1) and 'Preset eeprom' (highlighted with a red box and arrow 2). The main form contains several input fields and buttons:

- 'User dashboard ID:' with a text input field (arrow 3).
- 'PCB serial sticker:' with a text input field (arrow 4).
- 'PCB chip serial sticker:' with a text input field (arrow 5).
- 'BIN timestamp:' with a text input field (arrow 6).
- 'Factory test:' with a text input field (arrow 7).
- 'CAL power:' with a text input field (arrow 8).
- A dashed box containing a section titled 'Подробно' (Detailed) with a toggle arrow (arrow 9). Inside this section:
 - 'Miner type:' with a text input field (arrow 10).
 - 'Chip count:' with a text input field (arrow 11).
 - 'Chip model:' with a text input field (arrow 12).
 - 'Chip vendor:' with a text input field (arrow 13).
 - 'Chip rev1:' with a text input field (arrow 14).
 - 'Chip bin:' with a text input field (arrow 15).
 - 'Chip rev2:' with a text input field (arrow 16).
 - 'Leak current:' with a text input field (arrow 17).
 - 'BIN type:' with a text input field (arrow 18).
 - 'PCB factory:' with a text input field (arrow 19).
 - 'PCB version:' with a text input field (arrow 20).
 - 'PCB rev:' with a text input field (arrow 21).
- At the bottom right, there are two buttons: 'Close' and 'Write to HB eeprom' (arrow 22).

1. Connected hashboard EEPROM tab.
2. EEPROM dump in the tester memory [**Current tab**].
3. Hashboard serial number. Allows the user to assign their own serial number to identify the board.
4. Hashboard PCB sticker. Located near power connector.
5. Chip info sticker. Located in the lower part of the hashboard.
6. Timestamp.
7. Factory test.
8. CAL power.
9. 11. Detailed information about the board (show/hide additional information).
10. Board model.
11. Number of chips.
12. Chip model (Chip ID).
13. Chip manufacturer code.
14. Chip revision code.
15. Chip BIN.
16. Additional info.
17. Power supply setting Leak current.
18. Power supply setting BIN type.
19. Board manufacturer code.
20. Board version.
21. Board info.
22. Write a dump from tester memory to the board.

Tester working modes

Before any testing, make sure:

- The tester is on and running (p. 8).
- Hashboard is connected to the tester.
- The board is recognized and its model is displayed on the tester display.
- Hashboard is powered by the correct voltage for the model.

External power is not needed to read/write EEPROM firmware.

After completing all the necessary procedures, do not forget to turn off the power of the hash board to prevent possible overheating.

1. RESET line testing

In this line of devices, it is important to make sure that the RESET line is working properly.

To do this, go to web interface (p. 7 i.10), find «Section for selecting hashboard test configurations» (p. 14). Press the «R» button, it will turn green, RESET line will be «raised».

If the board is OK, the green LED will light up on it. Press the «R» button again to turn off the mode, RESET line will be «lowered», LED will fade.

The procedure can be repeated several times by pressing the "R" button, thereby "raising" and "lowering" the RESET line, the corresponding notification of the test results will be reflected in the information panel (p. 16).

2. Temperature sensors testing

Regardless of the selected test mode, when starting the test, the temperature sensors are tested (p. 15 i.1).

3. Basic mode

To run a basic test, make sure the tester is in board test mode (for example «M21S TEST» is displayed).

Turn on test mode (p. 14 i.2), to do this, press the button on the tester (p. 9 i.2) or «Play» button («Test management section» p. 14 i.2) in web-interface (p. 7 i.10).

The test will be launched, the LED of the “start” button will flash on the tester, signaling a running test, the tester’s screen will display the number of chips found (the number of correct answers) (p.9 i.3.1).

To stop the test, press the button on the tester (p. 9 i.2) or «Stop» button («Test management section» p. 14 i.3) in web-interface (p. 7 i.10).

Detailed test results are reflected in the information panel, in case of using the web interface (p.23-25).

4. Basic mode with RESET line testing

Start a basic test (i.3), wait for the first test cycle to complete. The widget in the information panel (p. 23) will show 2 or more.

Press the «R» button, it will turn green («Section for selecting hashboard test configurations» p. 14 i.2), every test cycle will reset the RESET line.

The widget in the information panel will show if the RESET line test mode is enabled or disabled (p. 24).

Pressing the «R» button again will disable the RESET mode, the button turns grey.

5. Advanced mode

Start a basic test (i.3), click on "lightning" icon («Section for selecting hashboard test configurations» p. 14 i.1), it will turn green. The widget in the information panel will show if the advanced mode is enabled or disabled (p. 23).

In this mode, chips are polled according to their number (address).

Pressing the «lightning» button again ends the address polling, button turns grey, tester will switch to basic test mode. To stop the test, press the button on the tester (p. 9 i.2) or «Stop» button («Test management section» p. 14 i.3) in web-interface (p. 7 i.10).

6. Advanced mode with RESET line testing

To start testing start advanced mode (i.5), Click on the "R" button, it will turn green («Section for selecting hashboard test configurations» p. 14 i.2). At each test cycle, the RESET line will be reset and an address poll of the chips will be performed, according to its number (address). Information about the progress of testing will be displayed in the information panel of the web interface (p. 24).

Pressing the «R» button again will disable the RESET mode, the button turns grey.

7. Advanced mode with chip select

Start basic (i.3), or advanced mode (i.5). Click on any chip (or several), this will turn on the advanced testing mode (p. 15 i.4), if it was not enabled.

In this mode, the address polling of the selected chips will take place, according to their number (address). Information about the progress of testing will be displayed in the information panel of the web interface (p. 16).

To reset the mode, press the button in the form of a card («Section for selecting hashboard test configurations» p. 14 i.4).

To stop the test press the button on the tester (p. 9 i.2) or «Stop» button («Test management section» p. 14 i.3) in web interface (p. 7 i.10).

8. EEPROM read

Sometimes you need to save an EEPROM dump of the hashboard, for this you can use the corresponding function in the web interface.

To switch to this mode in the tester, you need to turn the knob clockwise and select the "EEPROM READ" function, or use the EEPROM editor via the web interface.

To start the function, press the button on the tester (p. 10) and wait for the process to finish. If successful, the tester will display the board model, for example M31S. The dump will be saved to the internal memory of the tester and is available for editing in the web interface (i. 10). Detailed information about the process of reading the dump is displayed in the information panel of the web interface.

To access the function via the web interface (p. 7 i.10) press the «EEPROM editor» button (p. 14 i.4) and go to the Connected hashboard EEPROM tab (p. 17).

Press the «save dump» button (p. 17 i.4). Dump will be saved to a file on your drive. Detailed information about the reading process is displayed in the information panel on the right (p. 27).

9. EEPROM write

Sometimes it is required to restore a damaged EEPROM in a hashboard. To do this, you can use the tester presets, do this by reading it from a working hashboard (i.5) and further writing in the faulty one or recovering from file.

To switch to this mode in the tester, you need to turn the knob clockwise and select the "EEPROM WRITE" function. Make sure that the read dump is in the tester's memory, for example «M31S EEPROM WRITE» is displayed.

To write EEPROM, press the button on the tester (p. 10), wait for the process to finish. If there is no read EEPROM in the tester's memory, you will receive a corresponding warning (p. 11), then you will need to perform i.8.

If successful, the display will show «WRITING DONE», and the tester will switch to auto-detection of the model. Detailed information about the recording process is displayed in the information panel of the web interface.

To restore EEPROM from a file, you need to open the web interface (p. 7 i.10), press the «EEPROM editor» button (p. 14 i.4) and select Connected hashboard EEPROM (p. 17).

Press «upload» button to select a file (p.17 i.3). Select the dump file, upon successful upload, the information from the file will be displayed on the editor page in the corresponding editor fields. Information can be changed if needed. (i.10).

To write a dump to the tester's memory or to the board, click the corresponding button (p. 17 i. 24–25).

Detailed information about the recording process will be displayed in the information panel on the right (p. 27).

10. EEPROM editor

The tester allows you to change the service information contained in the EEPROM of the hashboard, for this purpose, the EEPROM editing function is present in the web interface. With its help, you can read and write hashboard EEPROM, edit the information contained in EEPROM, save and restore EEPROM through files, restore a dump from onboard stickers.

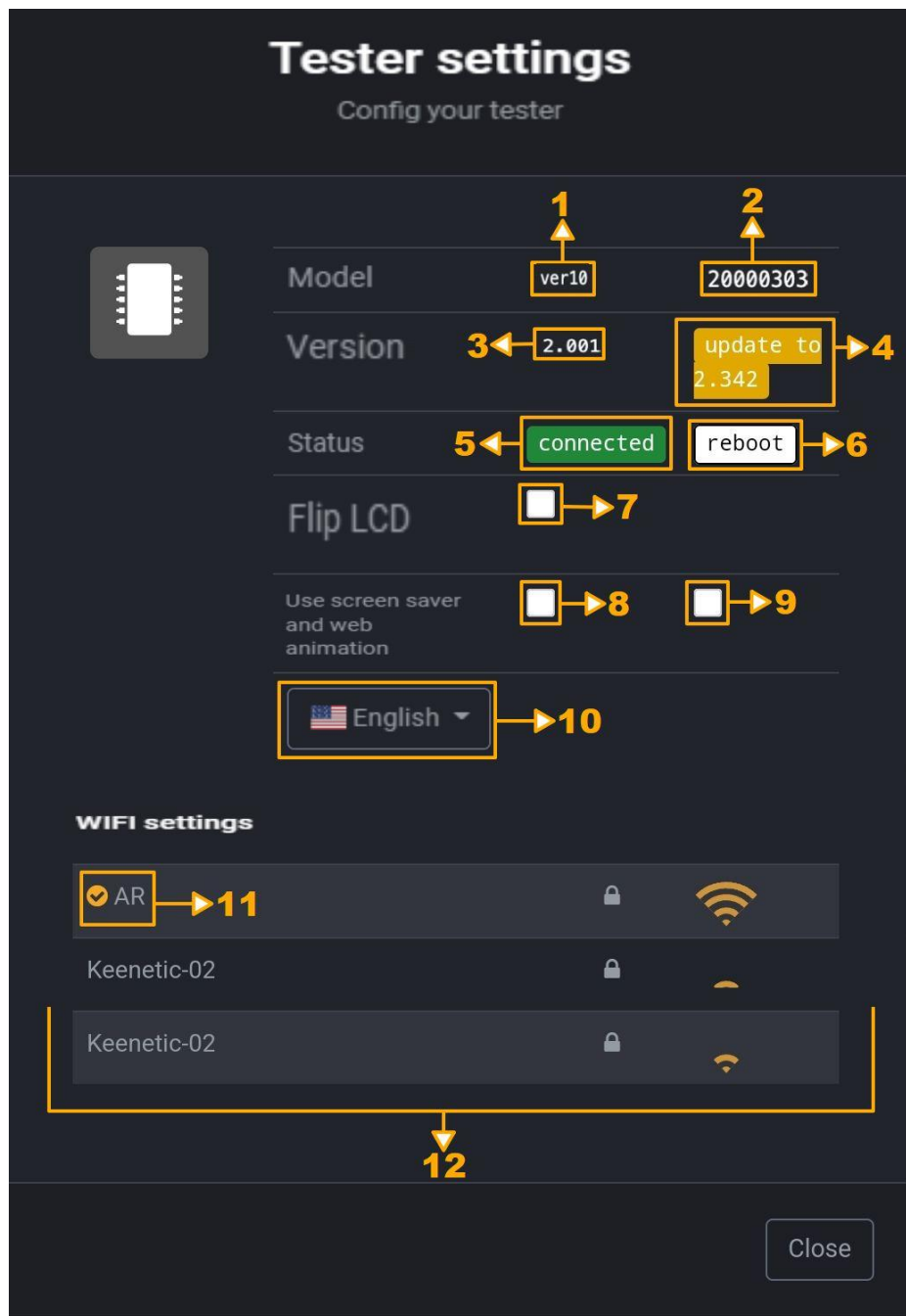
To edit an EEPROM, open web interface (p.7 i.10). Press the «EEPROM editor» button (p. 14 i.4). Edit the necessary service information of a connected hashboard (p. 17), saved dump (p. 18), or load a dump from a file.

If necessary, write the changed information to the memory of the tester (p.17 i.24), hashboard EEPROM (p.17 i.25) or to a file.

Detailed information about the editing and recording process will be displayed in the information panel on the right.

If the EEPROM is damaged, you will see a corresponding message in the information panel on the right. In this case, you can restore it from the stickers located on the hashboard in the dashboard widget (p.29), or in the EEPROM editor, in the appropriate fields (p. 17 i. 6–7).

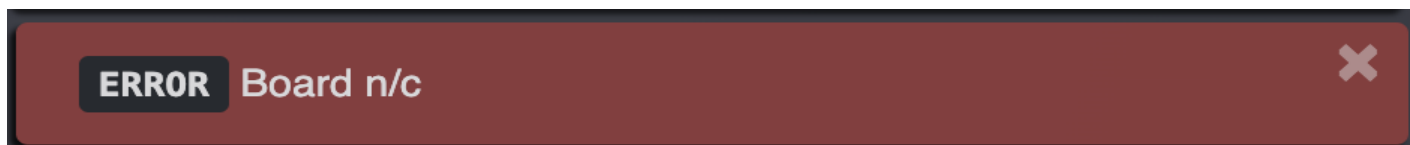
Settings Menu



1. Model (hardware version).
2. Serial number.
3. Current software version.
4. Latest software version, available for download (**p. 28**).
5. Tester connection status.
6. Reboot button.
7. Button to flip the image on the LCD.
8. Automatic screen off, to prevent screen burn.
9. Animation effect on the web interface (tester sleep mode indication).
10. Language selection menu.
11. Indicator of connection to your Wi-Fi network.
12. Wi-Fi network list.

When the settings are changed, the tester will flash a red LED.

Dashboard explanations (widgets)



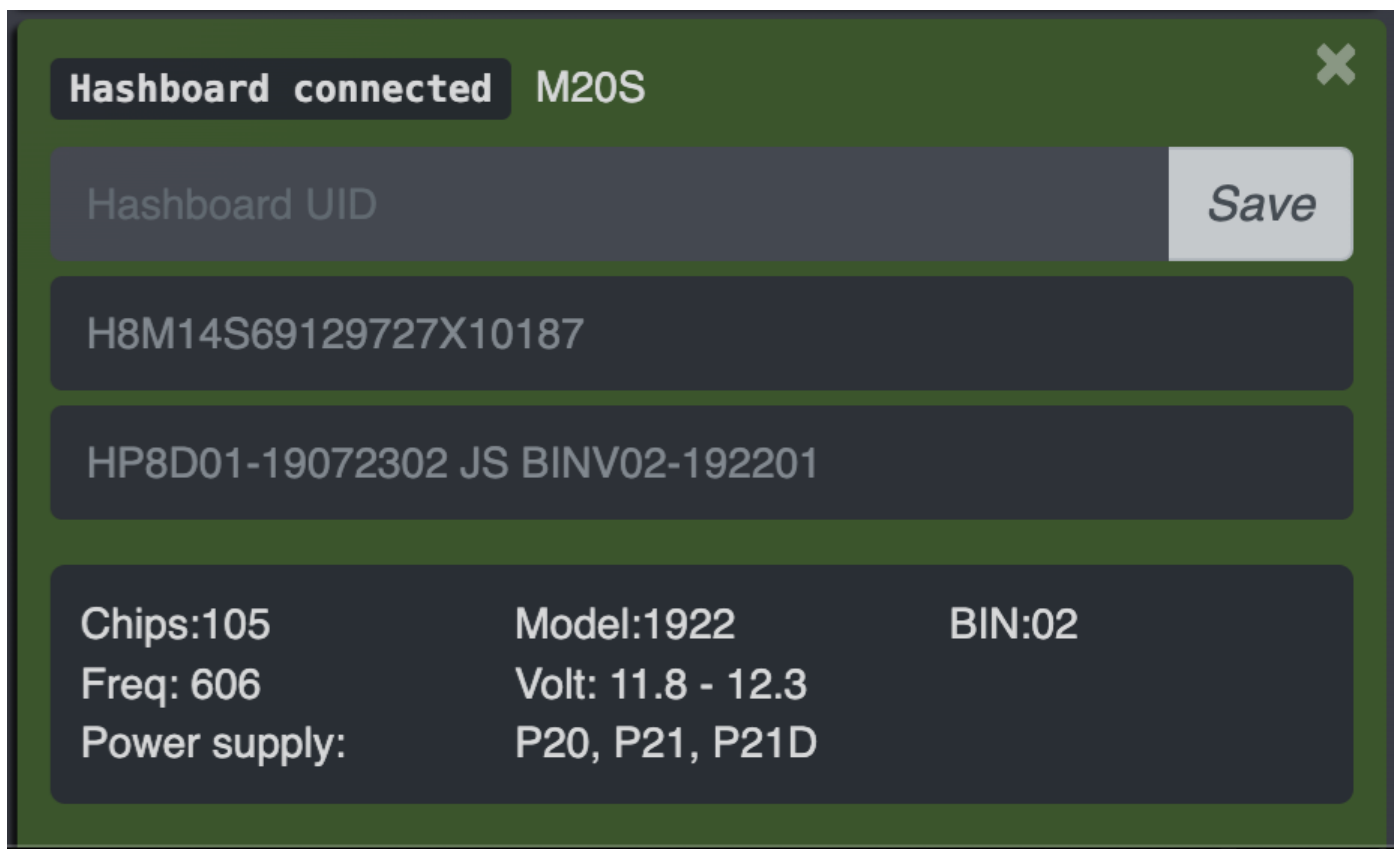
Hashboard not connected.
In some cases, the tester may malfunction, refer to the repair manual.



Hashboard model not defined.



Indicates that the read EEPROM is missing in the tester's memory (p. 20 i. 8).



Chips:105	Model:1922	BIN:02
Freq: 606	Volt: 11.8 - 12.3	
Power supply:	P20, P21, P21D	

This widget provides brief information about the connected hashboard.

Contains information that the board is connected to the tester; hashboard name, frequency/hashrate/voltage; serial number of the board.

START CHIP TEST Chip Test Started!



Test start notification.

RESET SUCCESS



RESET line test successful.

1 RESET SUCCESS



RESET line test successful, count of successful tests.

RESET FAIL



RESET line test failed.

2 RESET FAIL



RESET line test failed, count of failed tests.

TEST PROTOCOL Protocol version 2



Test protocol.

TEST Test step # 9



The number of repetitions of the test.

check power



Make sure the hashboard is powered.

105 chips found



Information about the number of detected chips. In this case, all chips on the hashboard are found.

0 chips found



Information about the number of detected chips. In this case, not all chips are detected,
one or more are faulty.

ERROR unknown answers



Distorted responses received from board, which cannot be identified.

STOP TEST Test passed!



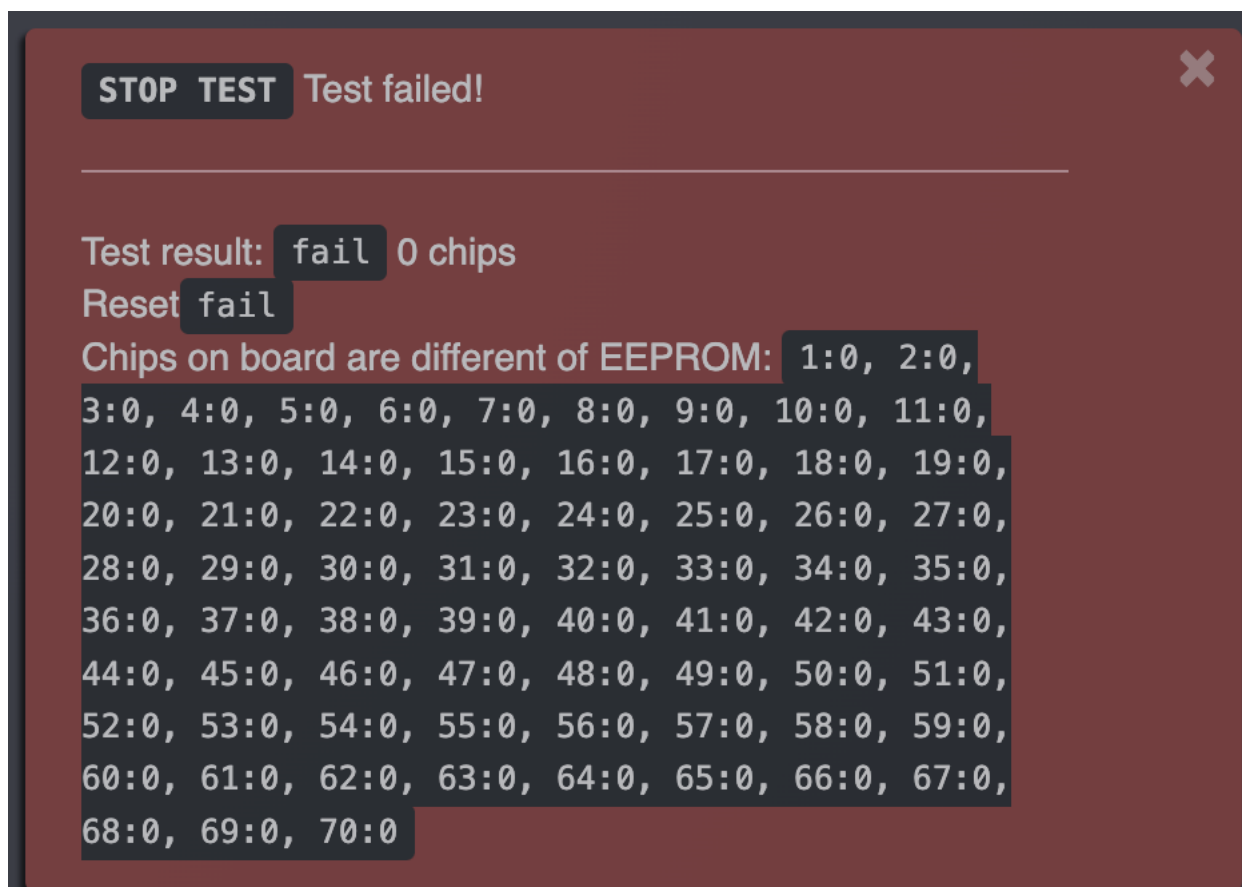
Test result:

Defective Chips: 0

Reset success

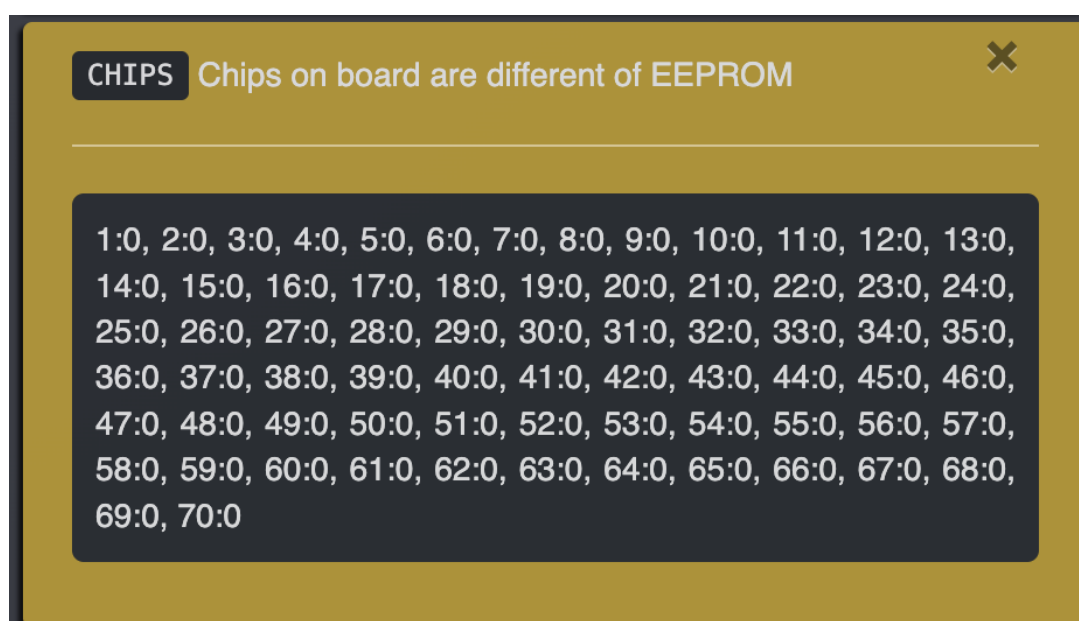
Test passed successfully.

Means that the number of answered chips corresponds to the number of chips in the selected model.



Test failed.

Test failure information. The results indicate the number of chips found, different from the number for this model, the results of RESET line testing and analysis of Chip ID responses, for compliance with information in EEPROM.



The model written in EEPROM differs from the Chip ID contained in the chip response.

START EEPROM WRITE



Informing about the launch of EEPROM writing.

EEPROM WRITE FAIL



Tester could not write EEPROM.

START EEPROM READ



Start reading hashboard EEPROM. EEPROM is read from the hash board and stored in the tester's memory.

EEPROM READ FAIL



The tester was unable to read hashboard EEPROM.

EEPROM READ DONE



Successful completion of the hashboard EEPROM reading. EEPROM from the hashboard has been successfully written to the tester's memory.

EEPROM WRITE EEPROM WRITE SUCCESS



EEPROM writing completed successfully.

Hashboard disconnected

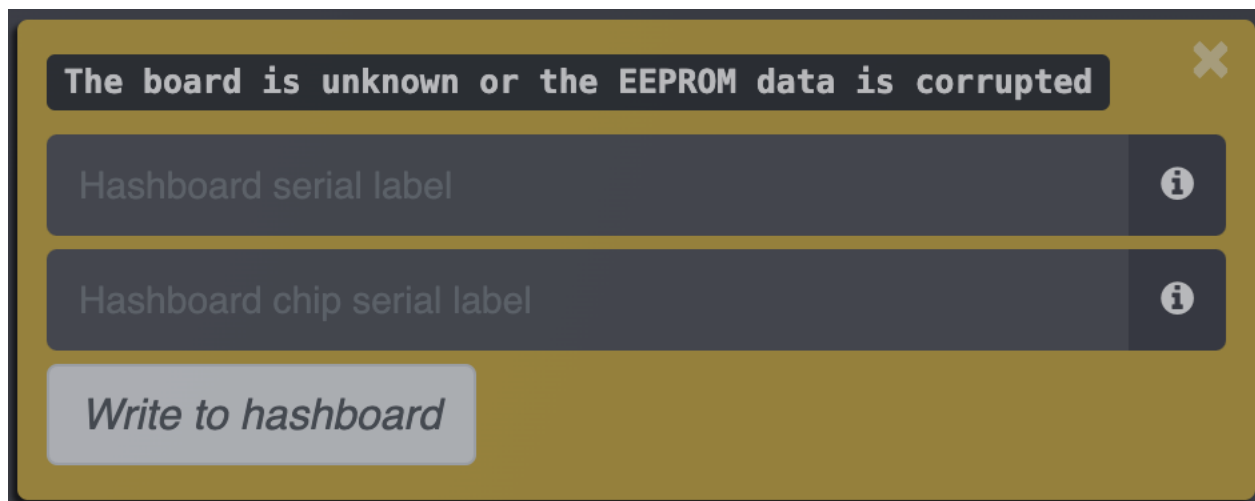


Board disconnected from the tester.

EEPROM EDIT WRITE chip_model = 1968

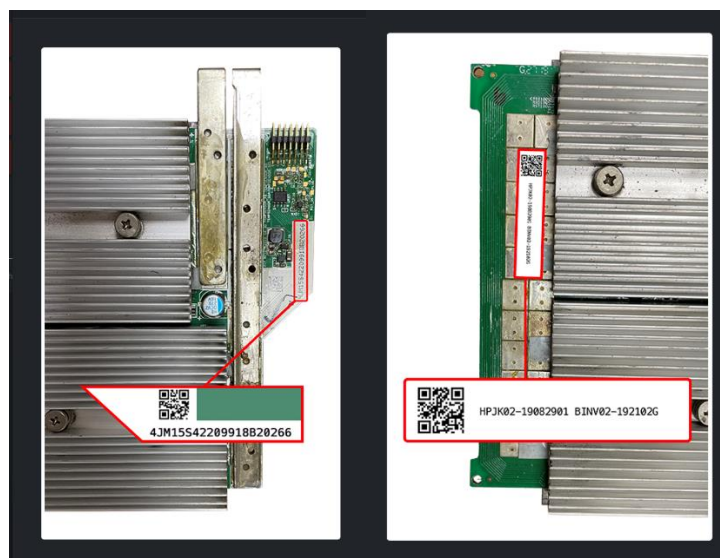


Notification of successful field change in the EEPROM editor.

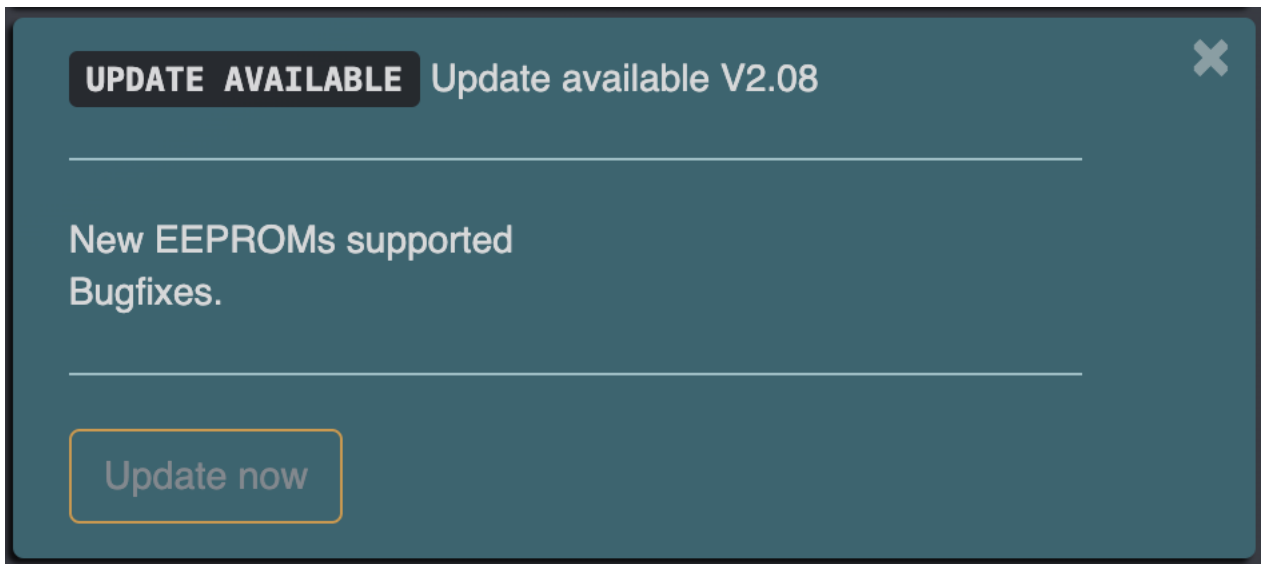


Hashboard is undefined or EEPROM is corrupted. This widget allows you to restore EEPROM from stickers on the board. For clarification, click on the "i" button on the right.

Before proceeding with the firmware, make sure that the test equipment is working, the problem may be in the cable or tester components, or the stability of the board connection. There may also be a problem with the EEPROM chip on the board.

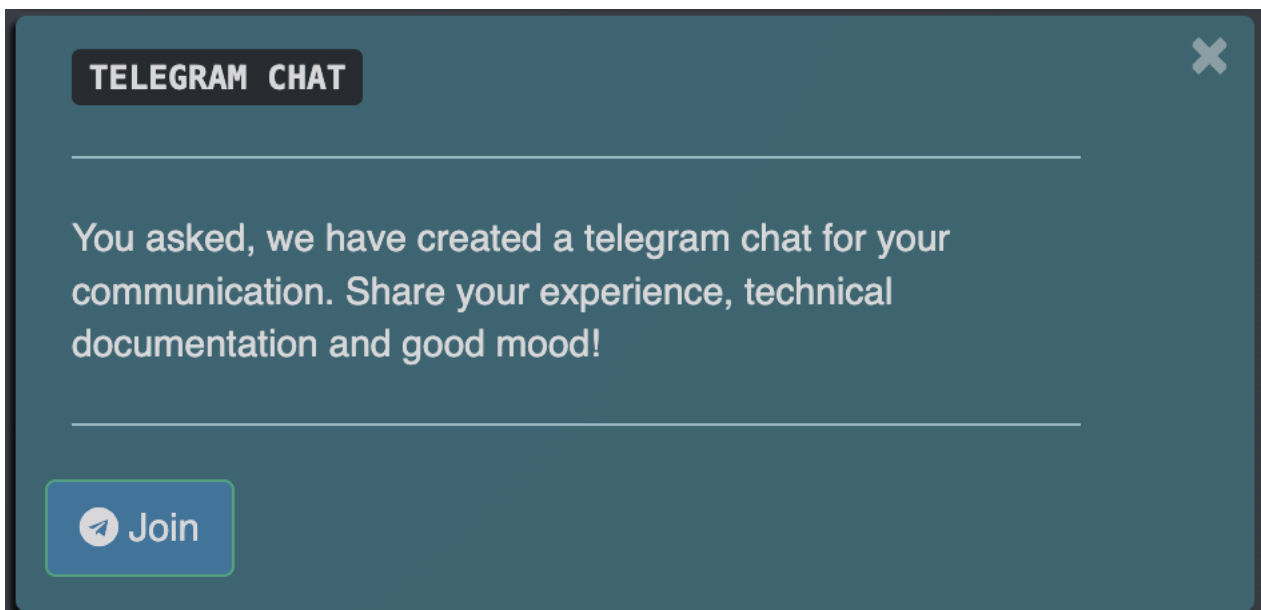


Shows the location of the stickers on the hashboard. Appears when you click the "i" button on the widget above.



Informing about the availability of new software for update.

Informing about the availability of new software. In this widget, information about the list of changes and new features appears. Update requires a stable internet connection, when updating, do not turn off the power.



Button to go to telegram chat. There you can communicate, ask for support, exchange user experience.