

A TRIVA TRUE VIEW BASED UPSCALER/VIDEO CONVERTER BOARD



@kaicolabs

FOR RETRO GAMING HARDWARE

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OVERVIEW

GBS control is an improved GBS8200 RGB to VGA converter board, and an alternative firmware for Tvia Trueview5725 based Upscaler / Video converter board.

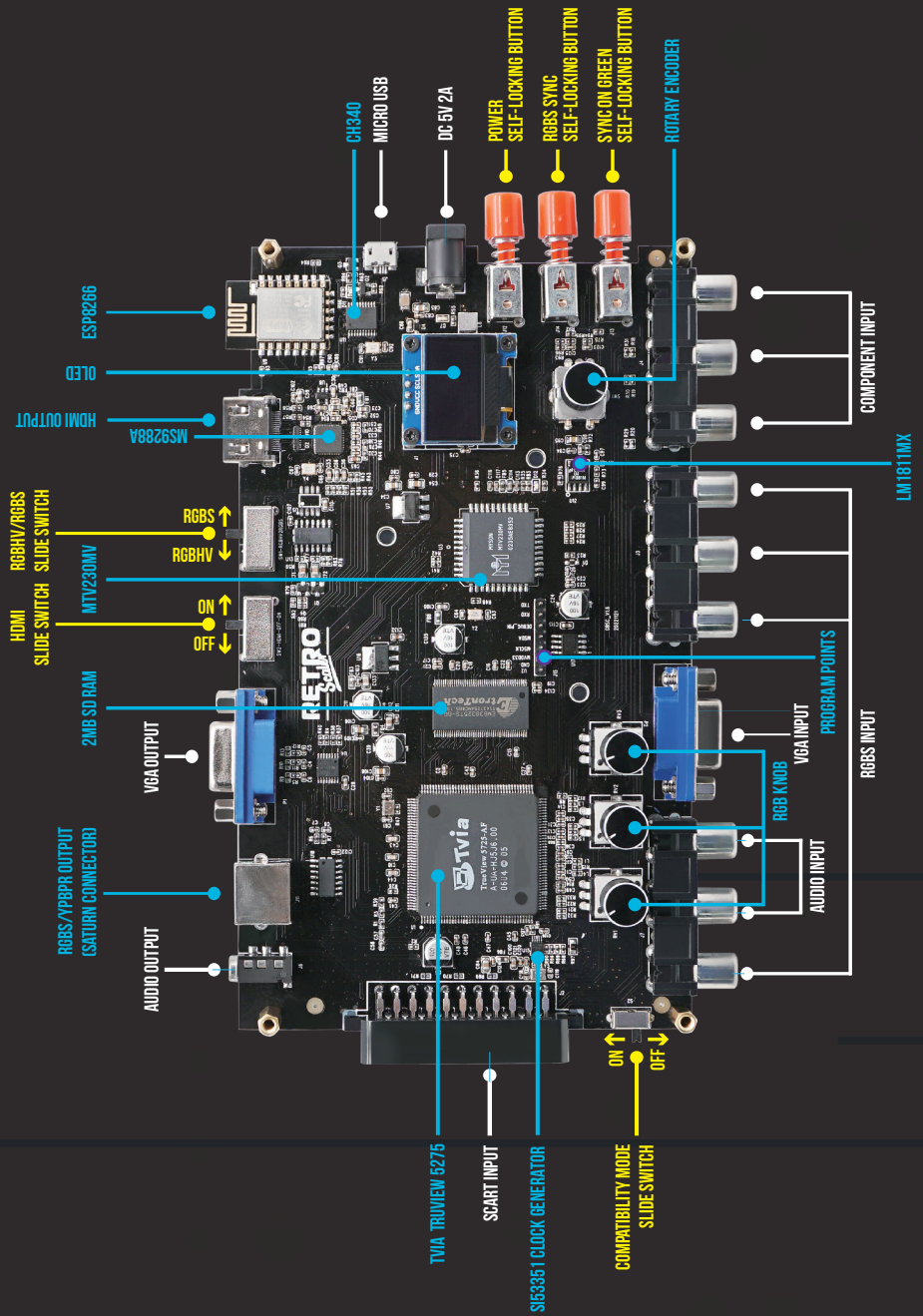
NOTE:

- 1) This device does not support composite and S-video inputs.
- 2) HDMI and VGA outputs will not work if connected at the same time. You will only be allowed to have one connected at a time.
- 3) If you want to switch the video input signal (when you have more than one input video source connected into this device), you need to power off the device first to avoid potentially damaging the device.

FEATURES

- 1) Almost zero latency.
- 2) Supports most retro video game consoles.
- 3) Supports RGBS, RGSB, RGBS SCART, RGBHV, Component and VGA Inputs.
- 4) Supports RGBS, VGA, Component and HDMI Outputs.
- 5) Supports high fidelity audio output.
- 6) Built in Si5351 stable clock generator.
- 7) Supports Video image adjustment.
- 8) Ability to balance the amplitude of the three primary colour signals - R, G, B.
- 9) Supports upscaling up to 1080p.
- 10) Supports downscaling to 240p/288p (Only through the Saturn AV Connector).
- 11) No synchronization loss switching between 240p/480i, 480i/480p or 288p/576i.
- 12) Supported resolutions include:
(240p/288p/480i/480p/576i/576p/640p/720p/960p/1024p/1080i/1080p).
- 13) OLED Screen and WIFI web configuration pages help you make settings

FUNCTION MODULE INTRODUCTION



MICRO USB:

The micro-USB port only supports firmware updates and does not supply power to the device. If you need to update the firmware, please see the “firmware update” guide on page 14.

RGBS SYNC SELF-LOCKING BUTTON:

When you press down the RGBS Sync Self-locking button the LM1881 chip will “strip” the sync information from composite video. When the switch is not pressed down it will bypass the composite signal.

SYNC ON GREEN SELF-LOCKING BUTTON:

When the SYNC ON GREEN BUTTON is pressed down, this device will accept the VGA, RGBHV, RGSB signals. When the button is not pressed in, this device will accept the RGBS and Component (YPbPr) signals.

NOTE:

When this button is pressed, this device can extract and use the sync on green signal, so the RGSB signal (such as the progressive scan mode on the retro game console) is accepted, but the “SYNC ON GREEN SELF-LOCKING BUTTON” and the “RGBS SYNC SELF-LOCKING BUTTON” must be pressed simultaneously.

POWER SELF-LOCKING BUTTON:

When this button is pressed down, this device is POWERED ON.

DC 5V 2A:

Connect a suitable 5V2A, 2.1 x 5.5mm PSU.

HDMI OUTPUT:

Standard 3.5mm stereo headphone plug type connector. Outputs High-Fidelity audio.

DC 5V 2A:

Outputs a HDMI Digital signal.

RGBS/YPBPR OUTPUT (SATURN A/V CONNECTOR):

If you want to output RGBS (which you must through the Saturn A/V connector), you need to slide across the switch to “RGBHV/RGBS SLIDE SWITCH”. If you want Component signal output through the Saturn A/V connector, you also need to turn on the “RGBHV/Component Toggle” in the web settings page.



NOTE:

1. The HDMI Slide Switch must be switched to off if you want to output RGBS/Component signals through the Saturn AV Connector.
2. The GBSC only outputs lower resolutions such as 240p/288p through the Saturn AV Connector.

VGA OUTPUT:

Standard D-Sub15 (VGA) connector.

NOTE:

If you want to output VGA signals through this interface, The "HDMI SLIDE SWITCH" must be turned to "OFF".

HDMI SLIDE SWITCH:

Toggles the HDMI signal OFF and ON.

RGBHV/RGBS SLIDE SWITCH:

If you want to output RGBS signal, please slide this switch to "RGBS" side. In other cases, please keep RGBHV by default.

NOTE:

This function is used as RGBHV (VGA) to RGBS signal output.

SCART INPUT:

The European standard SCART interface can only receive RGBS signals. The less common Japanese JP21 SCART must be used with a converter.

VGA INPUT:

Standard D-Sub15 (VGA) connector, accepts the VGA and RGBHV signals. It can also receive RGsB signals.

NOTE:

If you use this interface, you must press down the switch "SYNC ON GREEN SELF-LOCKING BUTTON".

COMPONENT INPUT:

Accepts the Component (YPBPR) signal.

NOTE:

The "SYNC ON GREEN SELF-LOCKING BUTTON" and "RGBS SYNC SELF-LOCKING BUTTON" must stay pressed in.

AUDIO INPUT:

Left and right audio input.

RGBS INPUT:

Accepts the RGBS Signal. We recommend you press the “RGBS SYNC SELF-LOCKING BUTTON” down to get a clean sync signal through the LM1881 chip when using RGBS.

NOTE:

If you are using this input for a progressive scan RGBS signal (normally 480p or 576p), please press down these two switches at the same time. The “RGBS SYNC SELF-LOCKING BUTTON” and “SYNC ON GREEN SELF-LOCKING BUTTON”.

RGB KNOB:

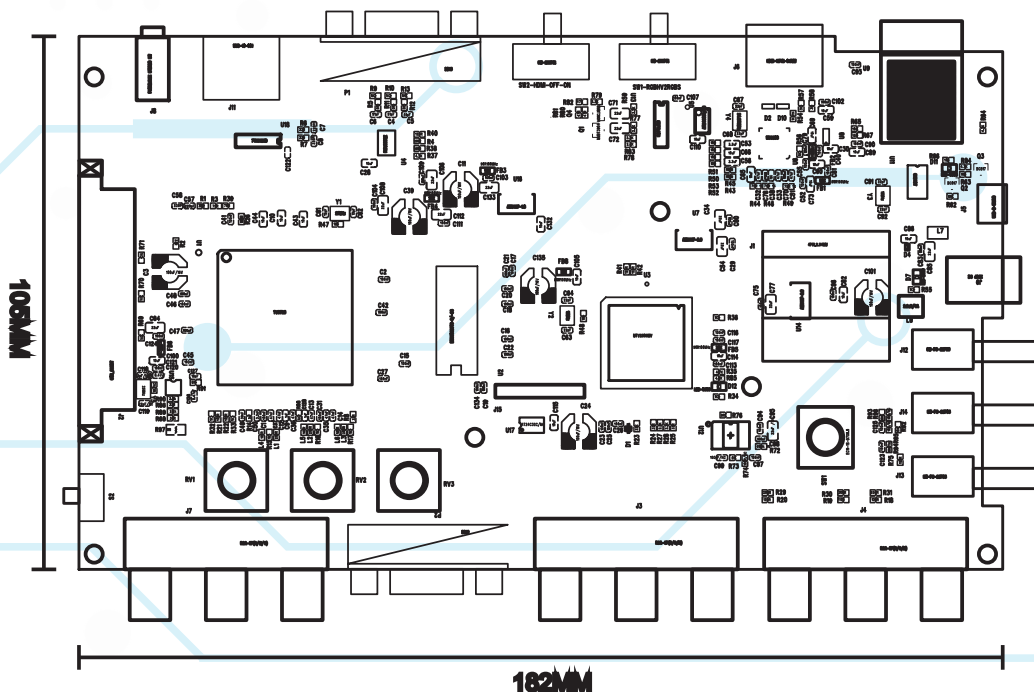
Adjust the red, green and blue signals intensity of the output images.

COMPATIBILITY MODE SLIDE SWITCH:

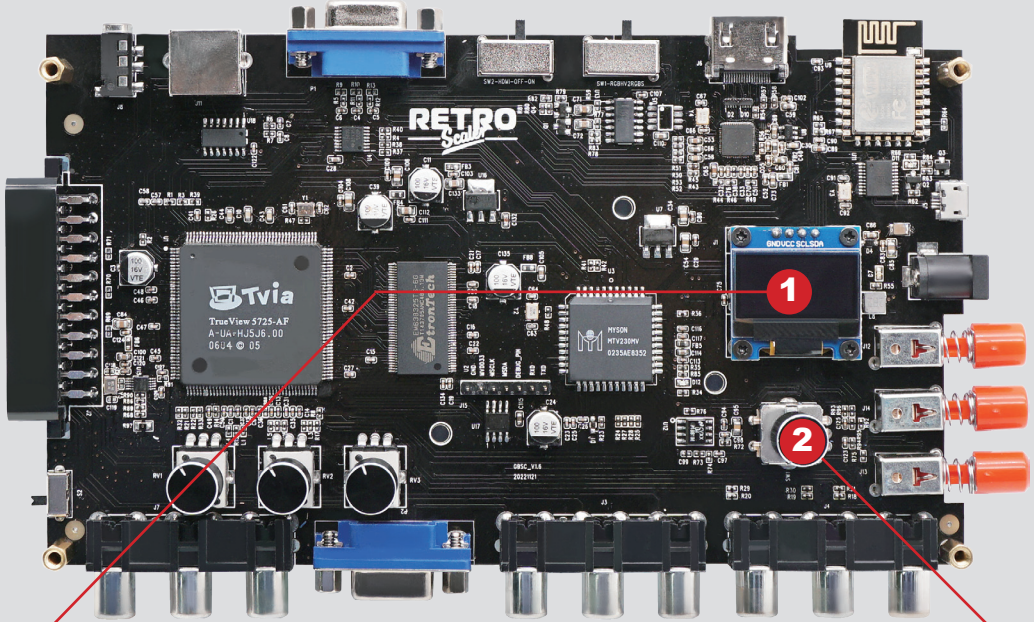
Toggles compatibility mode ON and OFF.

NOTE:

The “Sega 32x/Neo Geo AES” consoles require the compatibility mode slide switch to be turned ON. For best results restart the GBSC for the changes to take effect.



OLED SCREEN MENU INTRODUCTION



1 OLED MENU RESOLUTIONS:

- 1920 X 1080
- 1280 x 1024

PRESETS:

- Preset Slot:1
- Preset Slot:2
- Preset Slot:3
- Preset Slot:4
- Preset Slot:5
- Preset Slot:6
- Preset Slot:7
- Preset Slot: Back

- 1920 x 720
- 1280 x 960

MISC:

- Restart GBSC
- Restore Factory
- Back

- Pass-through
- Downscale
- Back

CURRENT SETTINGS:

- Output Resolutions
- Frequency
- Input single

2 ROTARY ENCODER

Actions: Use the control knob to switch menu items. Press down to confirm.

WEB GUI INTRODUCTION


LOGIN TO THE WEB GUI:

STEP1: Search for WIFI through phone or PC.

WifiName: gbscontrol

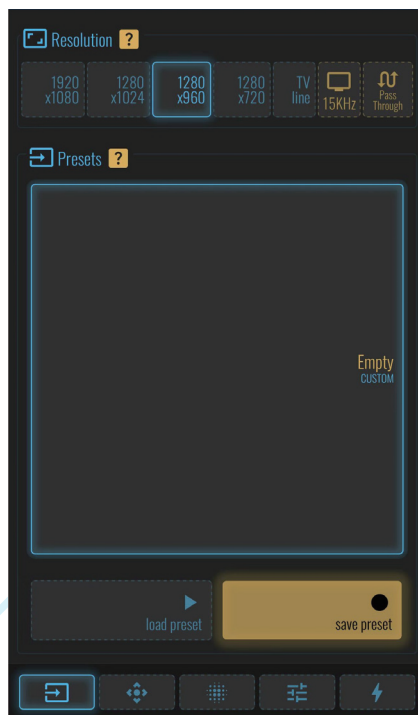
Password: qqqqqqqq

STEP2: Enter IP (192.168.4.1) or URL (http://gbscontrol) in the browser address bar and

STEP3: Click  to enter the configuration page.



Login Page



First Page

FIRST PAGE

1. Resolution:

- Your selection will also be used for startup. 1280x960 is recommended for NTSC sources. 1280x1024 for PAL.
- Use the “Matched Presets” option to switch between the two automatically (Preferences tab).
- Choose an output resolution from these presets.

2. Presets:

- If you want to save your customizations, first select a slot for your new preset, then save to or load from that slot.
- Selecting a slot also makes it the new startup preset.

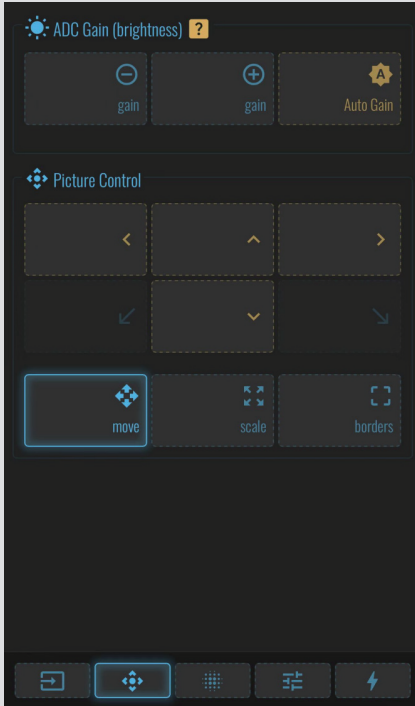
SECOND PAGE

1. ADC Gain(Brightness):

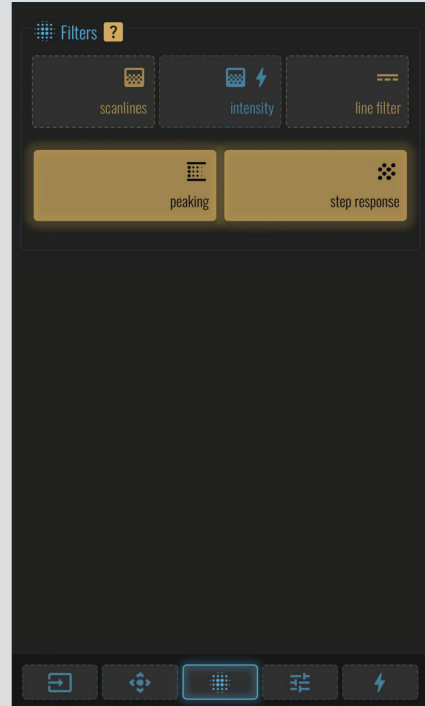
- Gain +/- adjusts the gain for the currently loaded preset.

2. Picture Control:

- Adjust the screen position, scale and borders.



Second Page



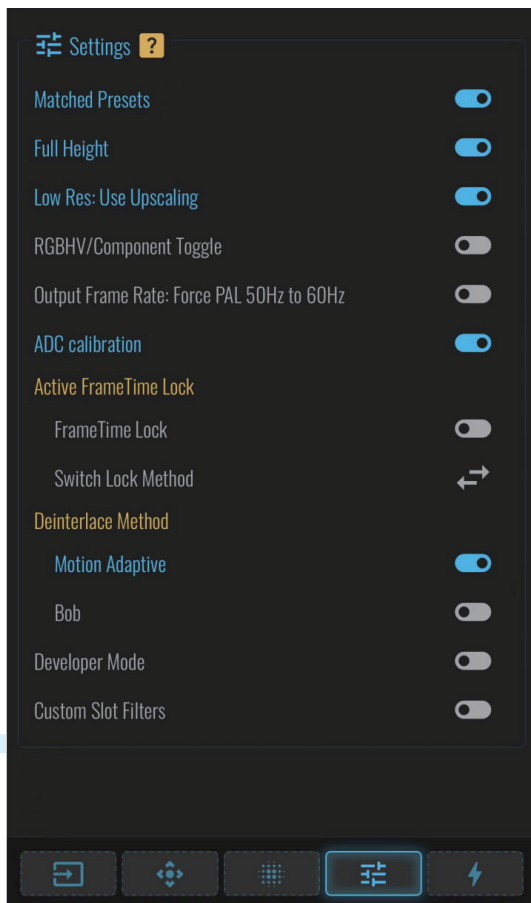
Third Page

THIRD PAGE

1. Filters:

- Scanlines only work with 240p sources. They look best with the Line Filter enabled.
- Peaking and Step Response are subtle sharpening filters and recommended.

FOURTH PAGE



SETTINGS

1. Matched Presets

- If enabled. default to 1280x960 for NTSC 60 and 1280x1024 for PAL 50 (does not apply for 720p/1080p presets).

2. Full Height:

- Some presets default to not using the entire vertical output resolution, leaving some lines black.
- With Full Height enabled, these presets will instead scale to fill more of the screen height. (This currently only affects 1920 x 1080).

3. Low Res: Use Upscaling

- Low Resolution VGA input: Pass-through or Upscale.
- Low resolution sources can be passed through directly or you can choose to upscale them.
- Upscaling may have some border / scaling issues but is more compatible with displays.

4. RGBHV/Component Toggle

- The default output mode is RGBHV. This is suitable for use with VGA cables or HDMI converters.
- An experimental YPbPr mode can also be selected - However, compatibility is still not 100%.

5. Output Frame Rate: Force PAL 50Hz to 60Hz

- If your TV does not support 50Hz sources (displaying unknown format, no matter the preset), try this option.
- If the frame rate is not smooth, please try reboot.

6. ADC calibration

- GBS Control calibrates the ADC offsets on startup.
- In case of color shift problems, try disabling this function.

7. Active Frame Time Lock

- This option keeps the input and output timings aligned, fixing the horizontal tear line that can appear sometimes.
- Two methods are available. Try switching methods if your display goes blank.

8. Deinterlace Method

- GBS Control detects interlaced content and automatically toggles deinterlacing.
- Bob Method: Essentially no deinterlacing, no added lag but some flickering.
- Motion Adaptive: Removes flicker, adds 1 frame of lag and shows some artefacts in moving details.
- If possible, configure the source for progressive output. Otherwise, using Motion Adaptive is recommended.

9. Developer Mode (For details, please visit the sixth page / page 13)

- Enables the developer menu which contains various debugging tools.

Note: Non-professionals do not set parameters at will.

10. Custom Slot Filters

- When enabled, saved slots will recover their own filter preferences.
- When disabled, saved slots will maintain current filter settings.

FIFTH PAGE

1. System

- Enable OTA (Over The Air)
- Restart GBS Control
- Initialize all settings of the GBS Control board

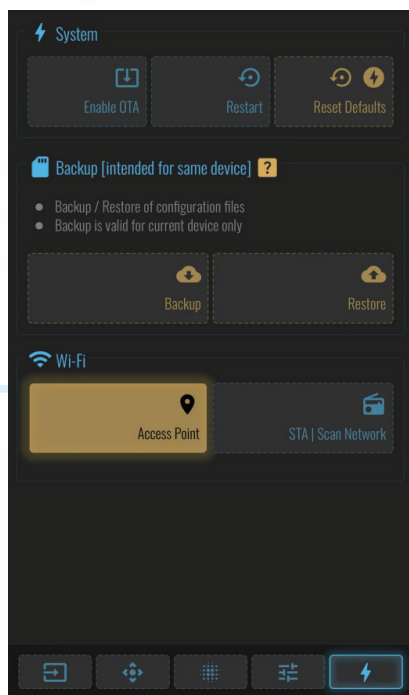
2. Backup:

Note: Intended for same device

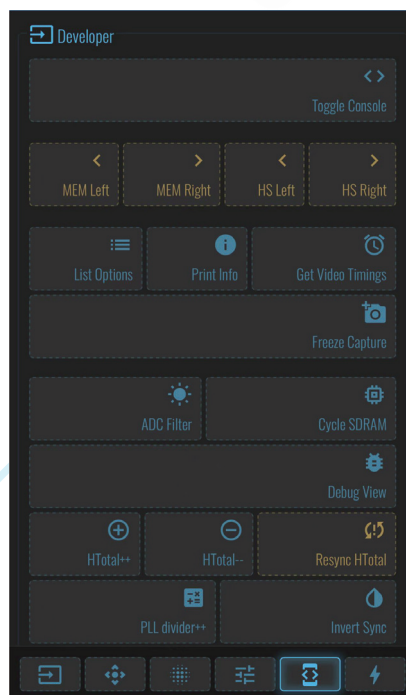
- Backup / Restore of configuration files
- Backup is valid for current device only

3. WIFI:

- Search for nearby wireless networks. You can use GBSC Control to access the Internet.




Fifth Page



Sixth Page

SIXTH PAGE

Developer

- To enter the developer page, please jump to the fourth page. (settings)  and turn on the Developer Mode.

Note: This page is a deep debugging mode for developers. Please do not make changes if you are not a professional.

FIRMWARE UPDATE GUIDE

STEP 1: Download the NodeMCU-pyFlasher

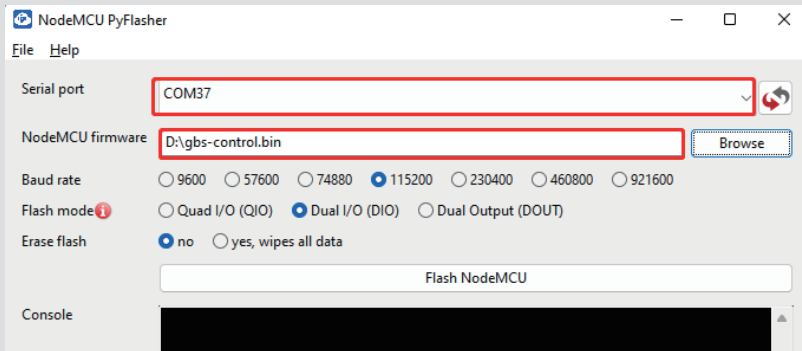
(<https://github.com/marcelstoer/nodemcu-pyflasher/releases>)

GBS Control Firmware

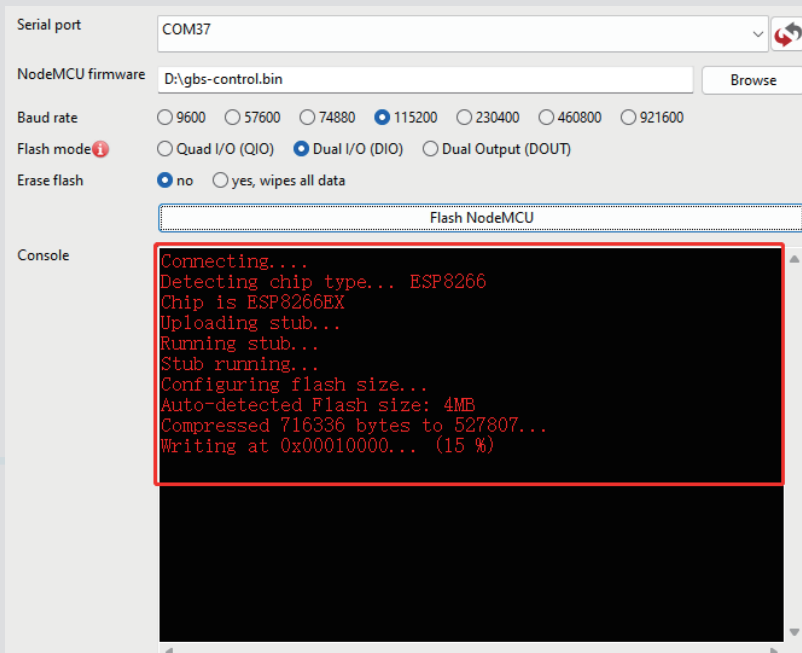
(<https://github.com/RetroScaler/GBSC>)

STEP 2: Open “nodemcu-PyFlasher”

14 Connect the GBS Control to your computer using the Micro-USB cable. Select the proper COM port for your computer and choose the latest GBS Control firmware.



STEP 3: Click “Flash NodeMCU”, then wait for the installation to complete.



NOTES:



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@kaicolabs

KAICO LABS

Unit 14 Elgar Business Centre | Moseley Road | Hallow
Worcester | WR2 6NJ | United Kingdom
E: info@kaicolabs.com | T: +44 (0)115 871 2427 | W: www.kaicolabs.com

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USER MANUAL