

Flatpack2 Control

Web-based version

User Manual

v.1.0.4

Rev.2017-2021

Important: Flatpack2 Control AC cable is NOT INCLUDED into assembly. Please purchase yourself AC cable required for your country/region and wire it in accordance with PCB marking: L, N and Ground. Incorrect wiring of AC cable will highly possible damage Flatpack2 and Flatpack2 Control.

Important: DC connector is not included into the assembly. Correct connector should be purchased and soldered/screwed separately in accordance to your application. PCB is designed to support wide variety of DC connectors. Alternatively, DC wires can be soldered directly to the PCB:

1. Wiring and connecting the Flatpack2 Control

AC wiring

AC cable has to be purchased separately and securely wired to PCB before connecting Flatpack Control to Flatpack2 rectifier. Make sure AC wires are connected correctly.

DC wiring

You do not have to connect DC wires for initial Flatpack Control setup. DC connector and DC wiring can be completed later.

Make sure you verify and understand the required power/load for your application before choosing DC connector type and DC wire size.

2. Initial Flatpack2 Control setup

2.1 Connecting to Flatpack2 Control WiFi network

Flatpack Control is designed to provide dedicated SSID/Access Point over 2.4GHz network Channel 1.

Default SSID: **FLATPACK2**

Default pass: **fp223344**

Important: Default SSID is **hidden (non-broadcasting)**, hence it will not appear in the WiFi networks list. User have to setup manual connection to hidden network with above provided credentials and WPA2 security mode.

Important: it is highly recommended user to change default password before start using the Flatpack Control.

Flatpack Control WiFi network is only accessible when Flatpack Control is ON.

Any 2.4GHz WiFi capable device (i.e PC, laptop, tablet, smartphone) can be used to connect to Flatpack Control WiFi.

Once manual connection to hidden network is set, the SSID will appear in the network list and can be managed commonly (saved, set to reconnect automatically, etc.)

Connecting to Flatpack Control WiFi network is necessary only for setup purposes only and not required during common Flatpack Control operations.

2.2 Accessing Flatpack2 Control web setup page

Common web browser (i.e. Explorer, Edge, Safari, Firefox, Chrome, etc) is required to access Flatpack2 Control web setup page.

Once Flatpack Control is ON and loaded, the IP address will at bottom left corner of the TFT display (in this example 192.168.4.1):



This is Flatpack Control IP address, which is set automatically and cannot be changed.

To access the Flatpack2 Control web setup page, open web browser in your device and type the following in the address field:

<http://IPAddress/dashboard>

(Using the above example screenshot the address is <http://192.168.4.1/dashboard>)

The following page should appear, confirming you are successfully connected to setup:



2.3 Entering Flatpack2 Serial number

This is mandatory step. Flatpack2 Control will not display rectifier's data till correct Serial No entered and submitted.

Enter 2 digits per field, no spaces. Below is the example:



Once Serial No entered, press Submit button. Simple confirmation page will appear, informing that Serial is entered and accepted. At this stage Flatpack2 Control should establish connectivity with rectifier (it may take up to 5-10 seconds) and monitoring data should appear on TFT display:



Please note that Load (A_{DC} or DC Amperes) will appear only when rectifier is connected and supplying load to DC application, i.e charger, etc. If there is no load connected, the A_{DC} will continue to display zeroes.

3. Additional options of Flatpack2 Control setup

3.1 Hardening WiFi (recommended)

It is highly recommended user to change at least WiFi password from default. This will help to prevent any unauthorised access to the device via WiFi.

It is also recommended to change SSID from default.

Both operations are performed via 2.4GHz WiFi setup. Connect to Flatpack2 Control web setup page and scroll down to the following section:



2.4GHz WiFi setup (optional)

Update network parameters:

SSID:

SSID Pass:

Factory default network settings:
SSID: FLATPACK2 / pass: fp223344):

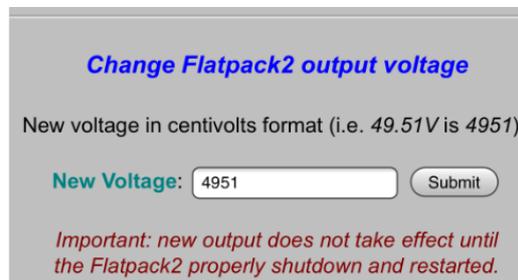
Enter new settings in **SSID** and **SSID Pass** fields. Make sure both fields are completed before clicking Submit. If you wish to change SSID password only and leave SSID to default, enter *FLATPACK2* in the **SSID** field and new password in **SSID Pass** field.

WiFi settings can be reset to default by clicking Reset button at any time.

Flatpack2 Control has to be restarted after making any changes in WiFi setup.

3.2 Changing rectifier's output DC Voltage

DC output Voltage can be changed at Flatpack2 Control web setup page within following section:



Change Flatpack2 output voltage

New voltage in centivolts format (i.e. 49.51V is 4951):

New Voltage:

Important: new output does not take effect until the Flatpack2 properly shutdown and restarted.

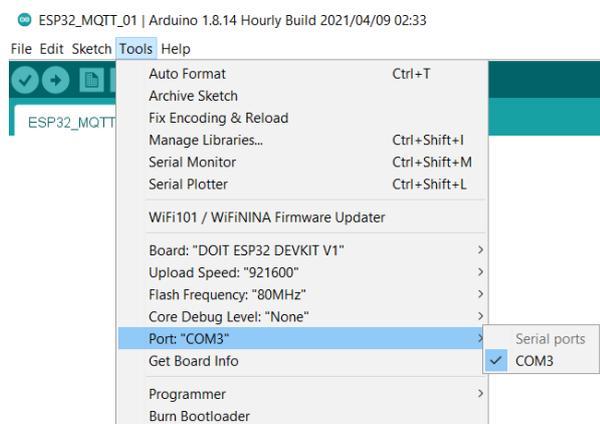
Make sure that Voltage setup instructions are strictly followed.

4. WiFi reset options

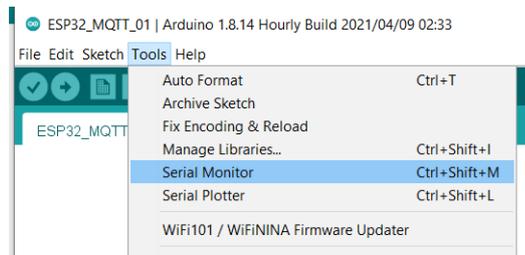
4.1 Forgotten custom SSID or Password

Make sure that custom SSID and Password is always saved somewhere. If those settings forgotten or lost and Flatpack2 Control web setup page cannot be accessed, then the default WiFi settings should be restored via Console. The following steps are required:

1. Download and install Arduino IDE: <https://www.arduino.cc/en/software>
2. Disconnect Flatpack2 Control from rectifier and AC
3. Connect ESP32 via USB to the computer with installed Arduino IDE
4. Launch Arduino IDE. Make sure that proper COM port is selected in Arduino IDE



5. Launch Serial Monitor



6. Press Reset button on ESP32 once. Some output should be visible in Serial monitor, confirming that connection is established:

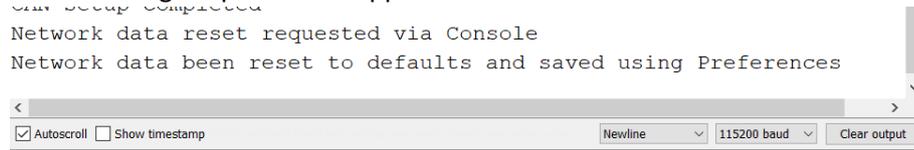


If there is no data visible in the Serial Monitor, then there is no connection. Make sure all settings are correct and try again.

7. Type **9** in the command line at the top of the Serial Monitor and press **Send** button:



The following output should appear in Serial Monitor window:



8. Disconnect cable from ESP32 USB and connect Flatpack2 Control to rectifier. Network settings should now be returned to default.