



Eltek FLATPACK2 Rectifier Volts Setter User Guide

© Adam Maurer VK4GHZ

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Volts Setter is used to set the default start-up voltage of Eltek FLATPACK2 24 V or 48 V Rectifiers[#] using a serial terminal program running on a PC/laptop.

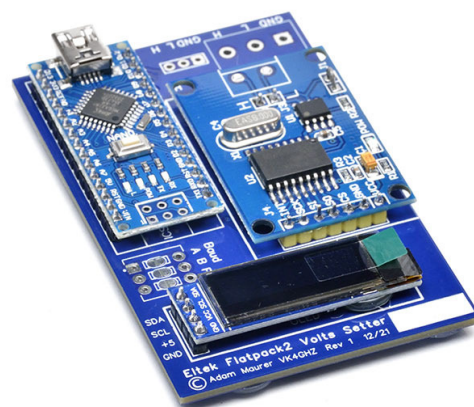
Once the FP2's start-up voltage has been set, **Volts Setter** can be disconnected and the FP2 will continue to power up at that set voltage.

Skill level required: BASIC

Ability to solder connectors & wires to temporarily connect to your FP2 interface board.

This device:

- Is not intended for permanent installation - use the VK4GHZ FLATPACK2 Touchscreen Controller kit
- Is not intended to simultaneously control multiple rectifiers, nor be an intelligent battery charger controller
- PCB size: 77 x 49 mm
- PC Terminal Interface: USB Mini B
- CAN Interface: BYO 3-way connector, 2.54 mm and 5.0 mm PCB pads
- OLED: 0.91"
- Powered from USB port
- Auto detect 24 V or 48 V FP2



CAN bus data is displayed on the OLED and can be shown on-demand via the serial terminal.

Eltek Compatibility

Volts Setter does not work with an Eltek Charger – Chargers use a different CAN bus protocol.

Volts Setter's firmware shares common code with the popular FLATPACK2 Touchscreen Controller kit which is known to work with the following variants:

- FLATPACK2 48/2000 HE 24115.105 Rev 3.2 (VK4GHZ)
- FLATPACK2 48/3000 HE 24119.105 Rev 3.1 (thanks Craig Whiteside)
- FLATPACK2 48/2000 HE 24115.115SC Rev 3.2 (VK4GHZ)
- FLATPACK2 48/3000 HE 24119.105 Rev 3.4 (thanks Tor, N4OGW)
- FLATPACK2 48/2000 HE 24115.105 Rev 4 (thanks Peter, VK5PW)
- FLATPACK2 48/2000 HE 24115.105 Rev 5.4 (thanks Colin, G4ERO)

- FLATPACK2 24V/2000 24115.200 Rev 3.2 (VK4GHZ)

Will it work with other variants not listed above?

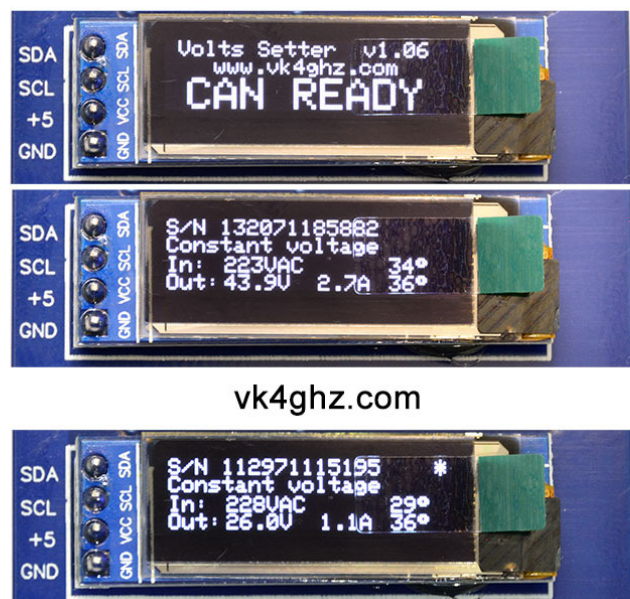
Possibly, however what you see above is what it's known to work with.

If you have it working with a variant not listed above, contact VK4GHZ so this documentation can be updated.

0.91" OLED

The following information is displayed on the OLED:

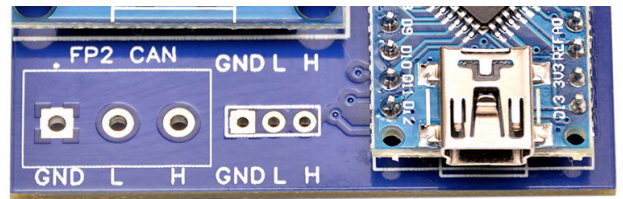
- Initial CAN module Ready/Fail status
- FP2 serial number
- Mode: constant voltage or walk-in
- VAC input
- VDC output
- Load current
- Intake temperature (C° or F°)
- Output temperature (C° or F°)
- Alarm and Warning messages



Connectivity – CAN Bus

Due to the unpredictable nature of a FP2 installation and random 3rd party FP2 interface boards, provision has been made to fit your own connector.

Volts setter PCB accommodates both standard
2.54 mm (0.1”) and 5.0 mm pitch 3-way connectors.



CAN Connectivity
5.0mm
2.54mm (0.1”)

Terminal Connectivity
USB Mini B



CAN GND must ultimately connect to FLAPACK2's –VE output

Failure to observe this may result in the CAN bus module being destroyed*

*** No returns or claims entertained**

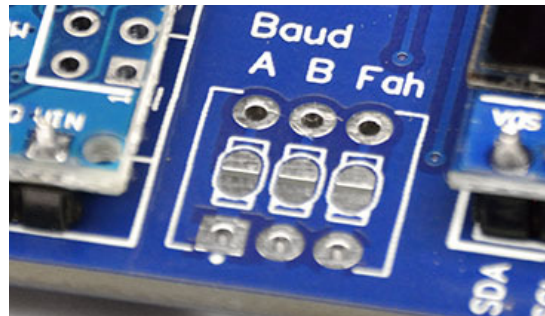
Connectivity – Serial Terminal

Use a standard USB Mini-B lead to connect to your PC/laptop for +5V power and serial terminal communications.

Terminal Baud Rates

Terminal baud rate (default 115200) can be preset via solder jumper pads **A** and **B** as per table below.

Baud	A	B
1200	Link	Link
9600	Open	Link
19200	Link	Open
115200 (d)	Open	Open



Temperature Display

Temperature (default Celsius) can be preset via solder jumper pads **Fah** as per table below.

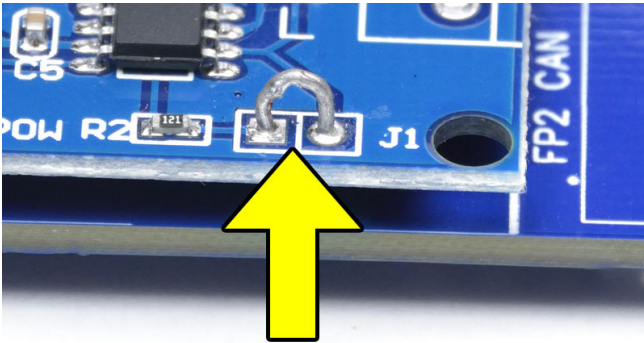
Temp	Fah
Fahrenheit	Link
Celsius (d)	Open

The PCB accommodates a standard 3-way DIP switch if setting changes are anticipated.

120 ohm CAN bus termination jumper link

As supplied, 120 ohm CAN bus termination resistor R2 is enabled via a jumper link.

To disconnect the CAN bus adapter board's 120 ohm termination, cut the J1 link with fine side cutters.

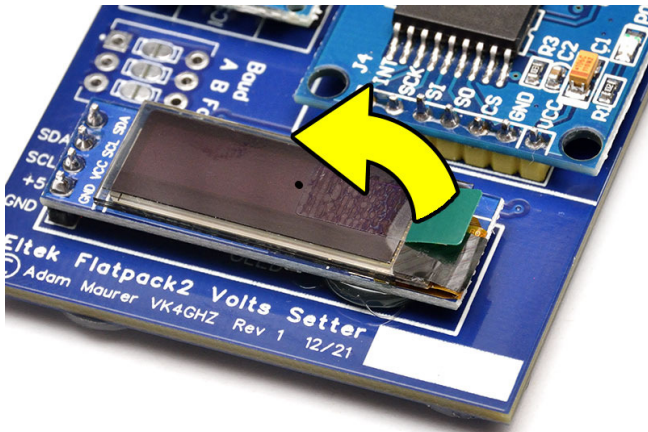


Cut link to remove 120 ohm termination

OLED Protective Layer

To prevent scratches, the OLED is shipped with the protective layer fitted.

Peel off protective layer with the green tab.



Termite Terminal Program

Termite is free for personal and commercial use, simple to configure and use, and “just works”.

https://www.compuphase.com/software_termite.htm

Termite also has a HEX view mode, ideal for working with microcontrollers etc.

VK4GHZ FLATPACK2 Touchscreen Controller

<https://vk4ghz.com/product/eltek-flatpack2-24-48v-touchscreen-controller-kit/>

Before First Use

Fabricate CAN bus interface lead to suit (**check your wiring**) with matching connector soldered to PCB.

If Fahrenheit is desired bridge **Fah** jumper pads.

Preset your desired terminal baud rate (default 115200) with Baud A B jumper pads.

To Use

Connect Volts Setter via USB lead to your PC/laptop.

Volts Setter will power up.

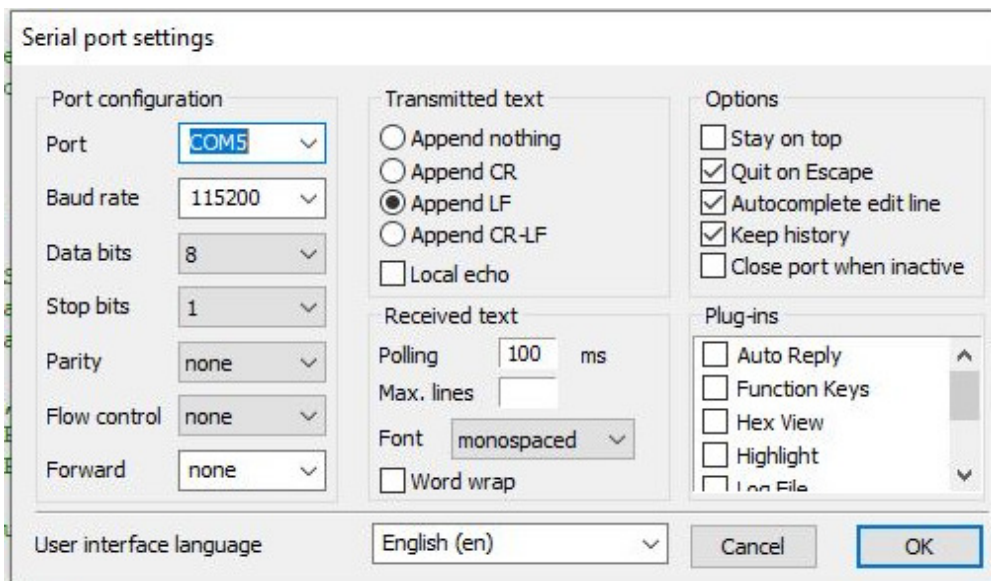
Open Termite and select correct Com port.

Set baud rate (default 115200) to match the **Baud A B** jumper pad configuration.

Set to 8N1.

Deselect Hex view and other plug-ins (if selected).

Set end of line terminator as **Append LF** as per example below



CR or CR-LF
Terminator
is not recognised.

Connect to FP2 CAN bus via the lead you have fabricated.

Power up FLATPACK2.

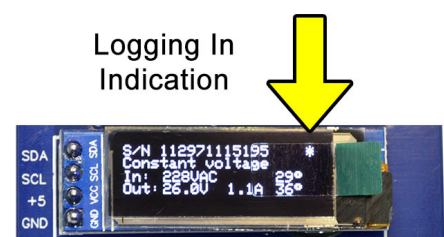
Logging In

Devices connected to a FP2 must routinely “log in” to the FP2, otherwise a timeout occurs and control is lost.

Timeout period is ~ 12 seconds.

Volts Setter will log in every 5 seconds to maintain communications.

Logging in is indicated by * top right on OLED.



Terminal Commands

Available commands are shown on the Terminal.

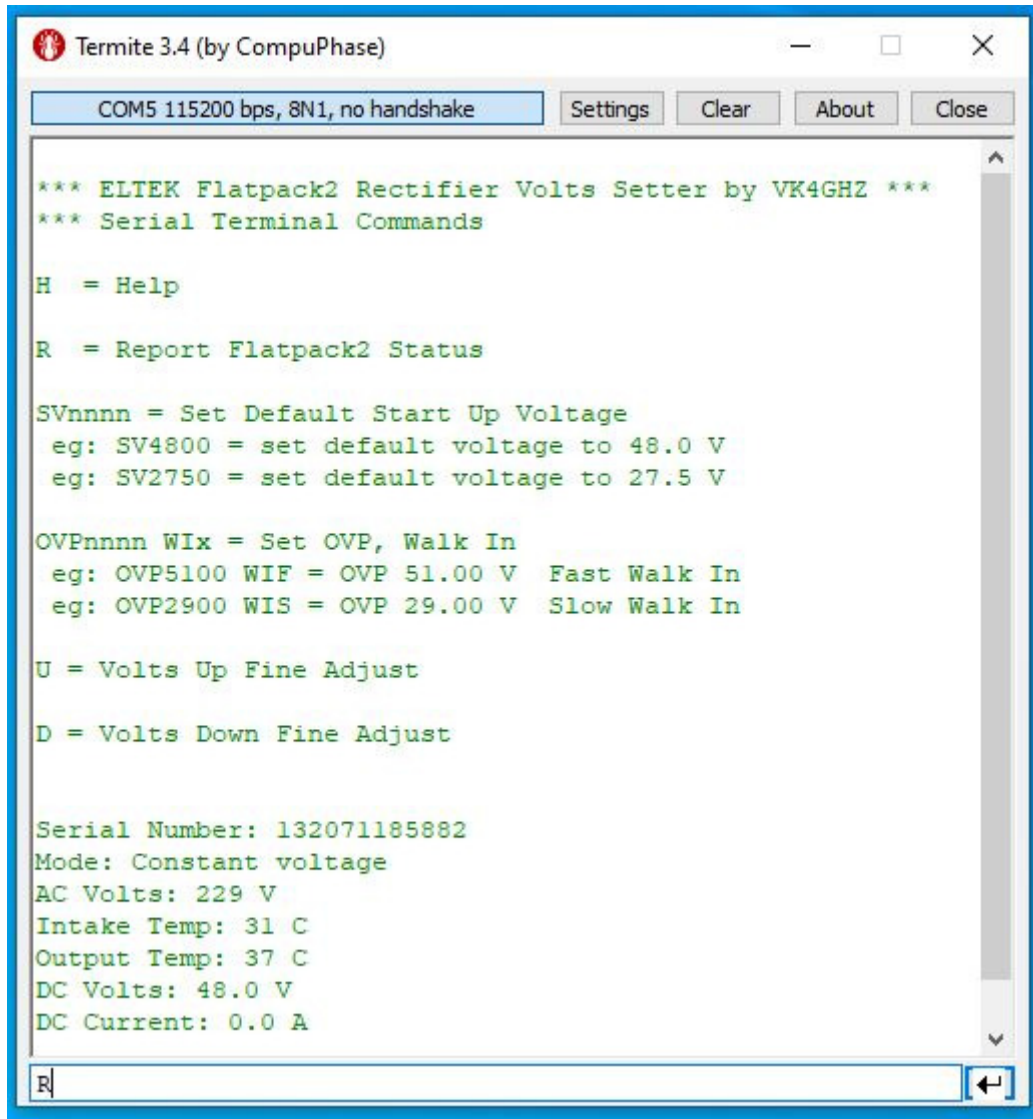


All commands are finished with **<ENTER>**

For Help, press **H** followed by **<Enter>** or just press **<ENTER>**

FLATPACK2 status is displayed constantly on the OLED.

To report status on the serial terminal, press **R** followed by **<Enter>**



```
Termite 3.4 (by CompuPhase)
COM5 115200 bps, 8N1, no handshake  Settings  Clear  About  Close

*** ELTEK Flatpack2 Rectifier Volts Setter by VK4GHZ ***
*** Serial Terminal Commands

H = Help

R = Report Flatpack2 Status

SVnnnn = Set Default Start Up Voltage
eg: SV4800 = set default voltage to 48.0 V
eg: SV2750 = set default voltage to 27.5 V

OVPnnnn WIX = Set OVP, Walk In
eg: OVP5100 WIF = OVP 51.00 V  Fast Walk In
eg: OVP2900 WIS = OVP 29.00 V  Slow Walk In

U = Volts Up Fine Adjust

D = Volts Down Fine Adjust

Serial Number: 132071185882
Mode: Constant voltage
AC Volts: 229 V
Intake Temp: 31 C
Output Temp: 37 C
DC Volts: 48.0 V
DC Current: 0.0 A

R
```

No Terminal Response?

You have already checked your wiring (?), so check terminal settings and check baud rate jumper pads match.



Text transmitted from Terminal must end with a LF only.

Setting Default Start Up Voltage

Example: 48 V model FP2

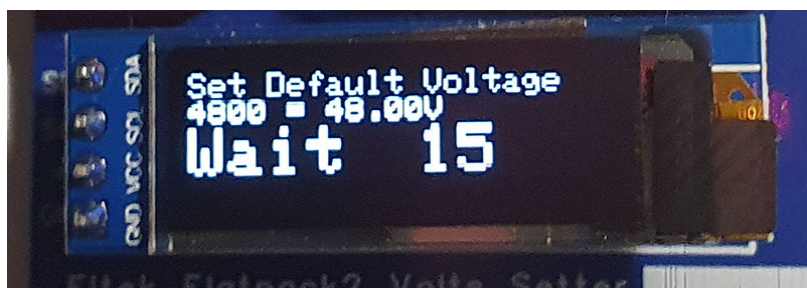
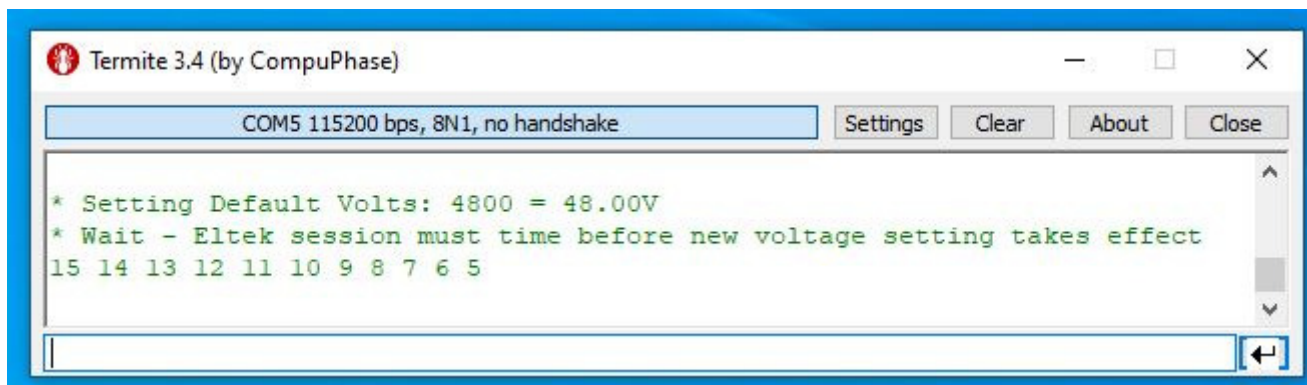
To set default start-up voltage to 48.0 V, enter **SV4800** followed by **<ENTER>**



For new voltage to take effect, a timeout must occur (minimum 12 second wait).

Volts Setter will wait 15 seconds to ensure a timeout, and then log back in again.

15 second countdown is seen on both terminal and OLED display.

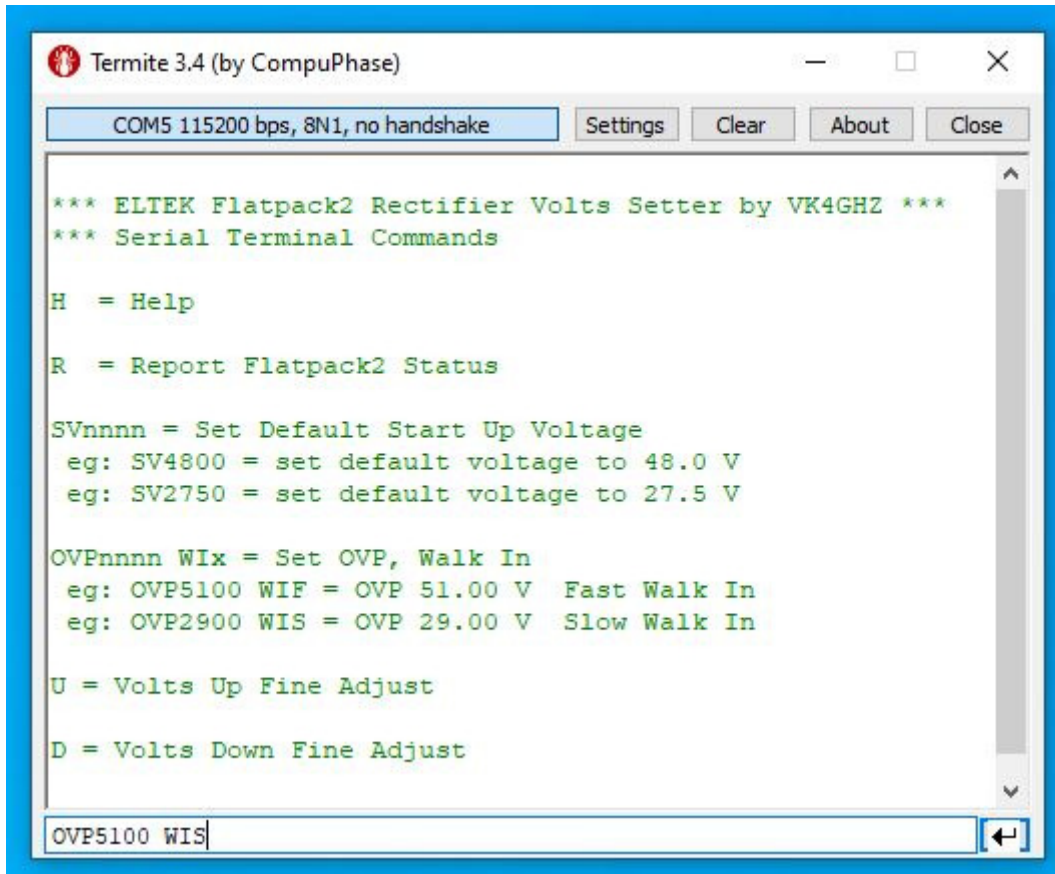


		Voltage Adjustment Range	
FP2 Model	Default	Min	Max
24 V	26.75 V	21.75 V	28.8 V
48 V	53.5 V	43.5 V	57.6 V

Setting Over Voltage Protection and Walk In

Example: 48 V model FP2

To set OVP to 51.0 V and Walk In to Slow, enter **OVP5100 WIS** followed by **<ENTER>**



(Note single space between **zero** and **W**)

Adjusting Voltage Up & Down

Small real-time changes (100 mV per command) can be made to tweak the output voltage using the U and D commands.



These voltage changes will not affect the default start-up voltage previously set.

OVP and Walk In must be set before Up and Down tweaks can be made.

Warnings & Alarms

If an alarm state or warning state (or both) is available, the appropriate message is displayed on the OLED.

