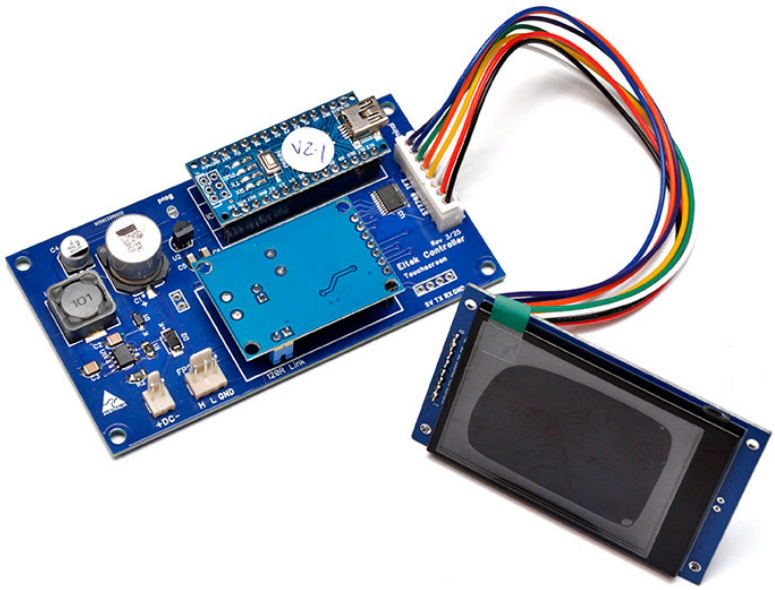
Eltek Flatpack2 Monitor

2.4” TFT User Guide

Revision: 2 April 2025



MCU: v2.1

Eltek Monitor can be used to supervise a single Eltek Flatpack2 24 V or 48 V rectifier being used as a general purpose Power Supply Unit.

Configuration settings are made via a USB connection to a terminal program running on your PC/laptop.

Once configured to your preferences, the cable can be disconnected.

The Eltek will power up each time to your preset Start Up voltage.

Skill level required: **MEDIUM**

Ability to solder connectors & wires to supplied connectors, connecting to your own Flatpack2 interface board.

Ability to drill, cut and file your enclosure’s front panel to mount the display.

Eltek Controller Compatibility:

The controller is known to work with many versions of the Flatpack2 rectifiers.

Compatibility List: https://vk4ghz.com/eltek-controller-compatibility/

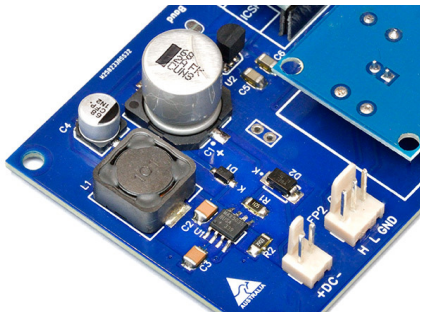
Will it work with Eltek Chargers?

No.

How many Eltek Rectifiers is it designed to work with?

This product is intended to supervise and control one rectifier.

Controller Board SMPS Power Supply



The Controller has its own Switch Mode Power Supply and is powered directly from your Eltek's DC output.

Input capacitor is a quality Panasonic aluminium 100V electrolytic.

SMPS chip is MAX5035 (or MAX5033), rated to 76V input.

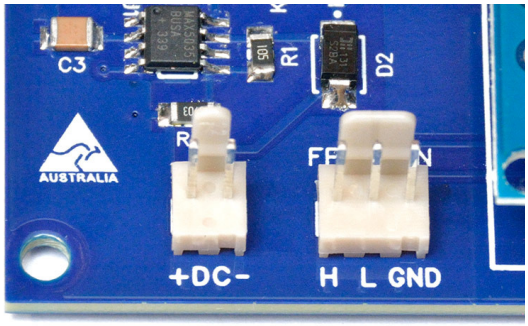
3V3 rail is provided by an MCP1702.

CAN bus data displayed:

- PSU Serial Number
- Mode (Walk-in / Constant Volts)
- Intake temperature (°C or °F)
- Out temperature (°C or °F)
- Mains input voltage
- Output voltage
- Load current
- Warning messages (if present)
- Alarm messages (if present)

- DC Power Output (calculated from V x I)

Connections to your own Eltek Flatpack2 Breakout Board:



Power: Use supplied 2-way 0.1" polarised connector.
Connect to FP2 DC output
\+ > Eltek DC Output +ve
\- > Eltek DC Output -ve

CAN bus: Use supplied 3-way 0.1" polarised connector.
Connect to FP2 CAN bus
H > CAN High
L > CAN Low
GND > Eltek DC Output -ve

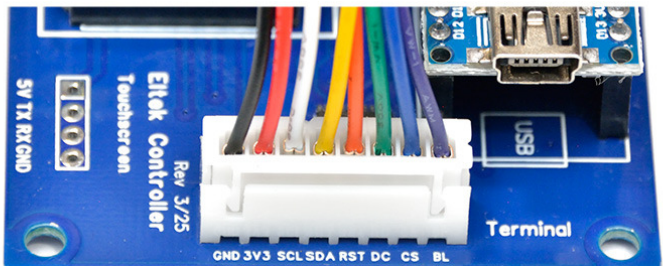
2.4" TFT Screen Connection

Use supplied 8-way XH2.54 lead.

XH connector is polarised on controller board.

XH connector is NOT polarised on TFT screen

CHECK THE COLOURS MATCH AT BOTH ENDS



GND > GND – Black

3V3 > VCC – Red

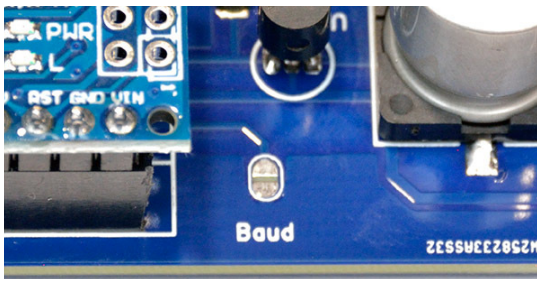
BL > BL - Purple

Configuration – USB Terminal Baud Rate

Default terminal baud rate is 57,600.

This can be changed to 19,200 by soldering a bridge link across the Baud solder pads.

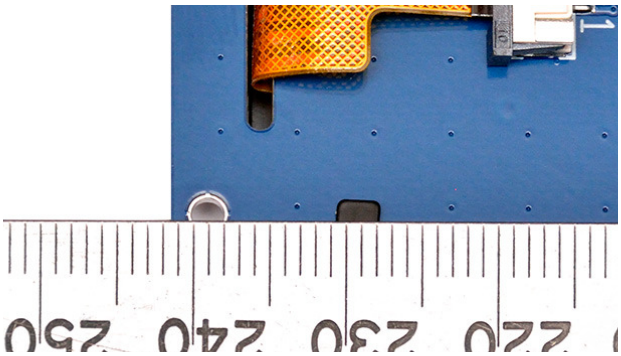
- No solder bridge link: 57,600 (default)
- With solder bridge link: 19,200



2.4” TFT Screen Mounting

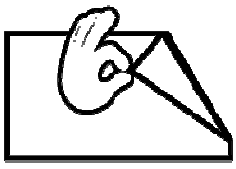
This is left up to you to suit your own installation.

M2 hardware (not supplied) will be required.



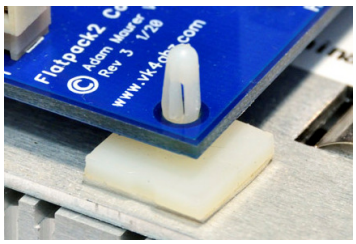
Screen Protective Layer

To prevent scratches, remove protective layer film **AFTER** the screen cut out and mounting holes have been prepared in the enclosure, and you are ready for final screen installation.



Controller board mounting suggestion

Use M3 standoffs (not supplied) to fix PCB to a flat surface.

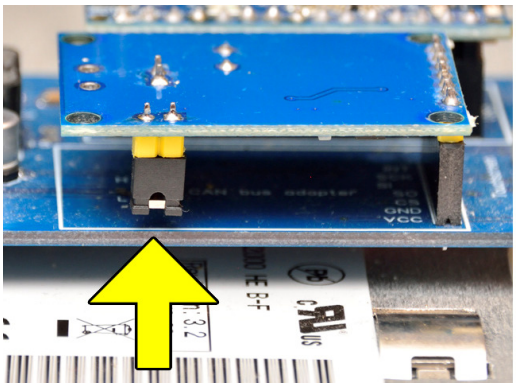


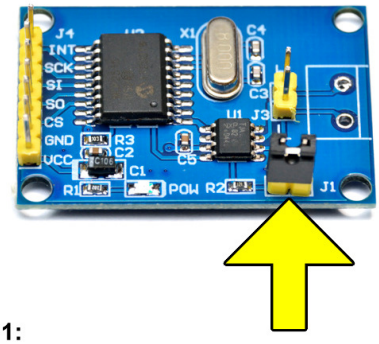
120 ohm CAN bus termination jumper

As supplied, the 120 ohm CAN bus termination resistor is enabled.

To disable the 120 ohm termination on the CAN bus adapter board:

- Disconnect power
- Lift off CAN adapter board – lift straight up - do not bend the pins
- Remove J1 jumper and refit on one pin only (or remove altogether – but don't lose it!)
- Refit CAN board

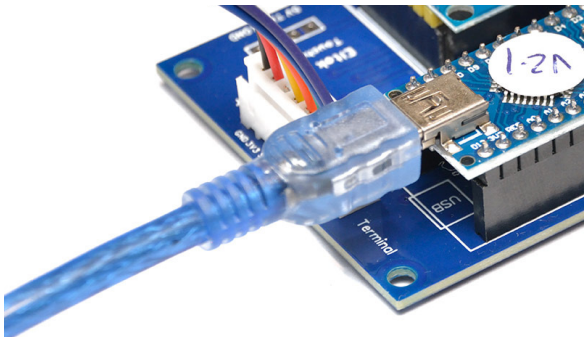




J1:
120 ohm termination jumper

Terminal Setup

With controller board connected to the Flatpack2 for power and CAN bus, to set the Eltek's default start up voltage and change screen settings, connect a Mini-B USB lead between the MCU and your PC/laptop.



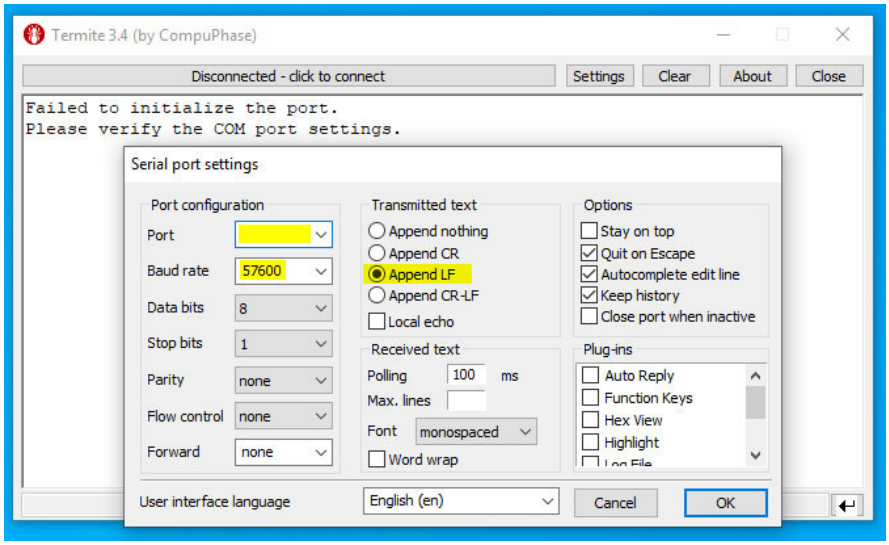
Use any terminal program.
Termite is recommended and free.

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

The following examples use Termite.

- Select correct COM port
- Match the baud rate
  Default 57,600 or 19,200 baud if you bridged the **Baud** solder pads
- Select Append LF
  (CR or CR/LF are not recognised)

Power up Flatpack 2



Logging In

Controllers connected to a Flatpack2 must routinely “log in”, otherwise a timeout occurs and communication is lost between controller and FP2.

Timeout period is ~ 12 seconds.

Eltek Monitor will log in every 5 seconds to maintain communications.

Logging in is indicated by ***** top right in the display.

Terminal Use

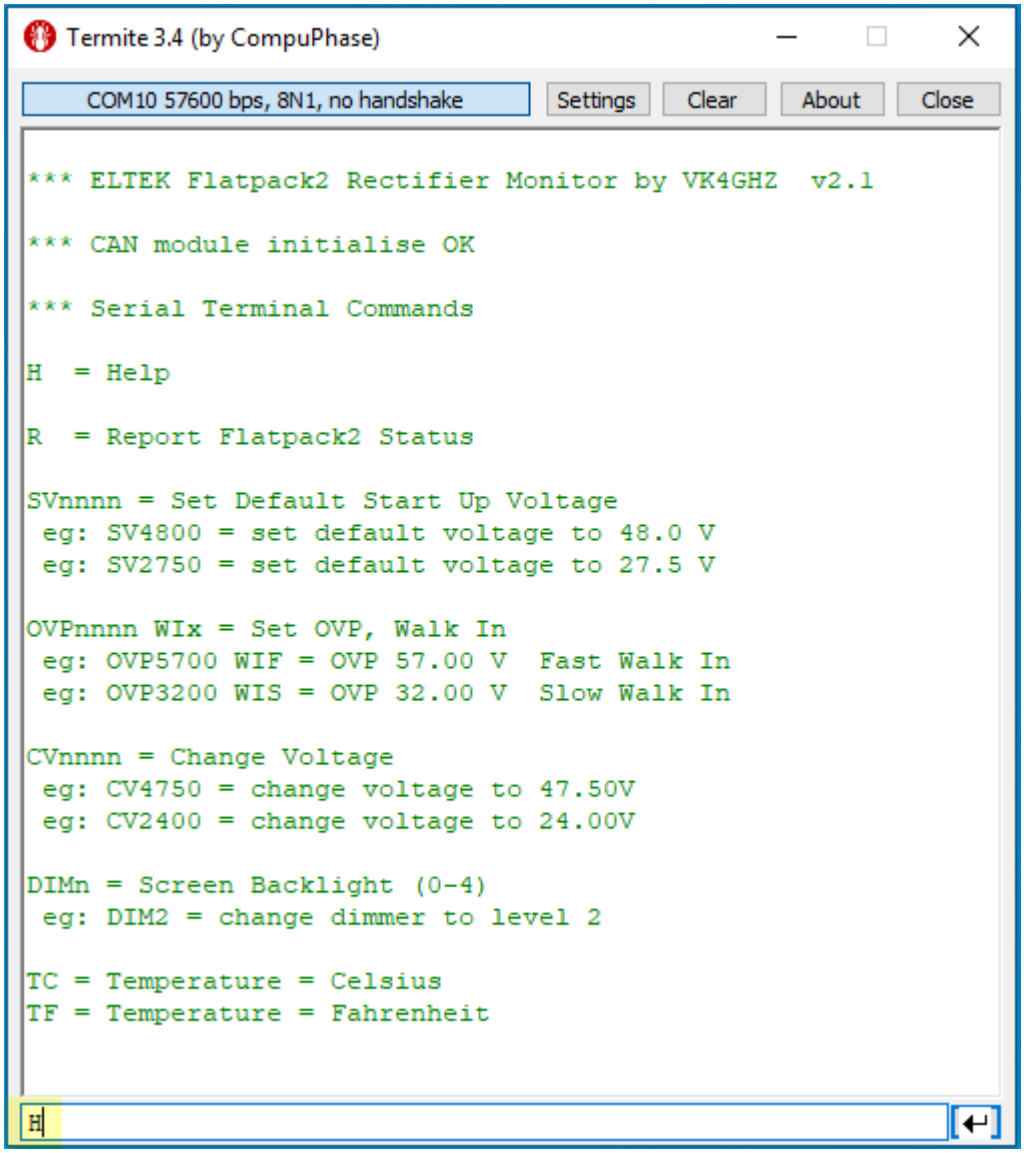
Once connected, position cursor into transmit window

Available commands and examples are displayed on the Terminal.

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

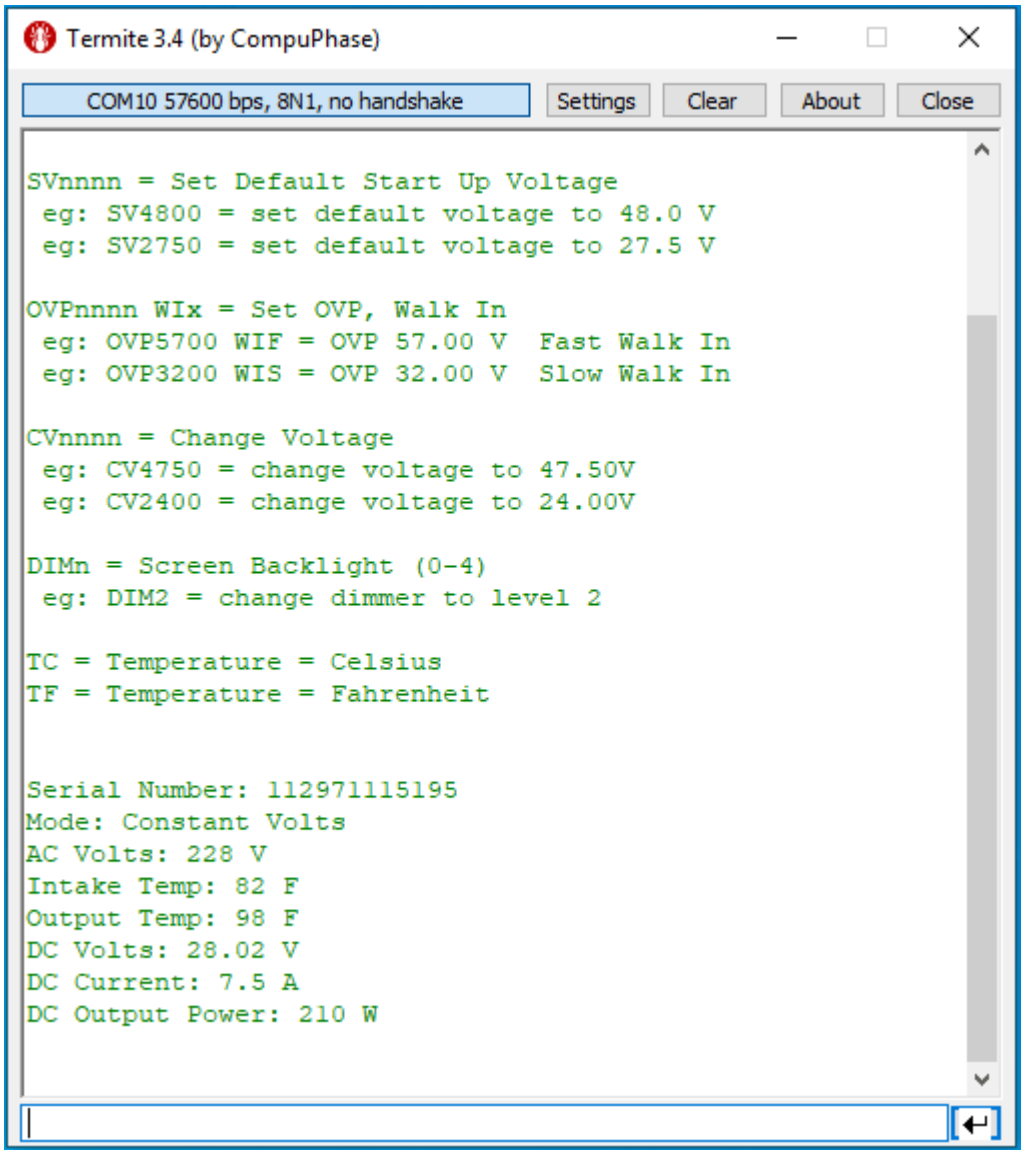
For Help, press **H** followed by **<ENTER>**

Or just press **<ENTER>**



Report Status

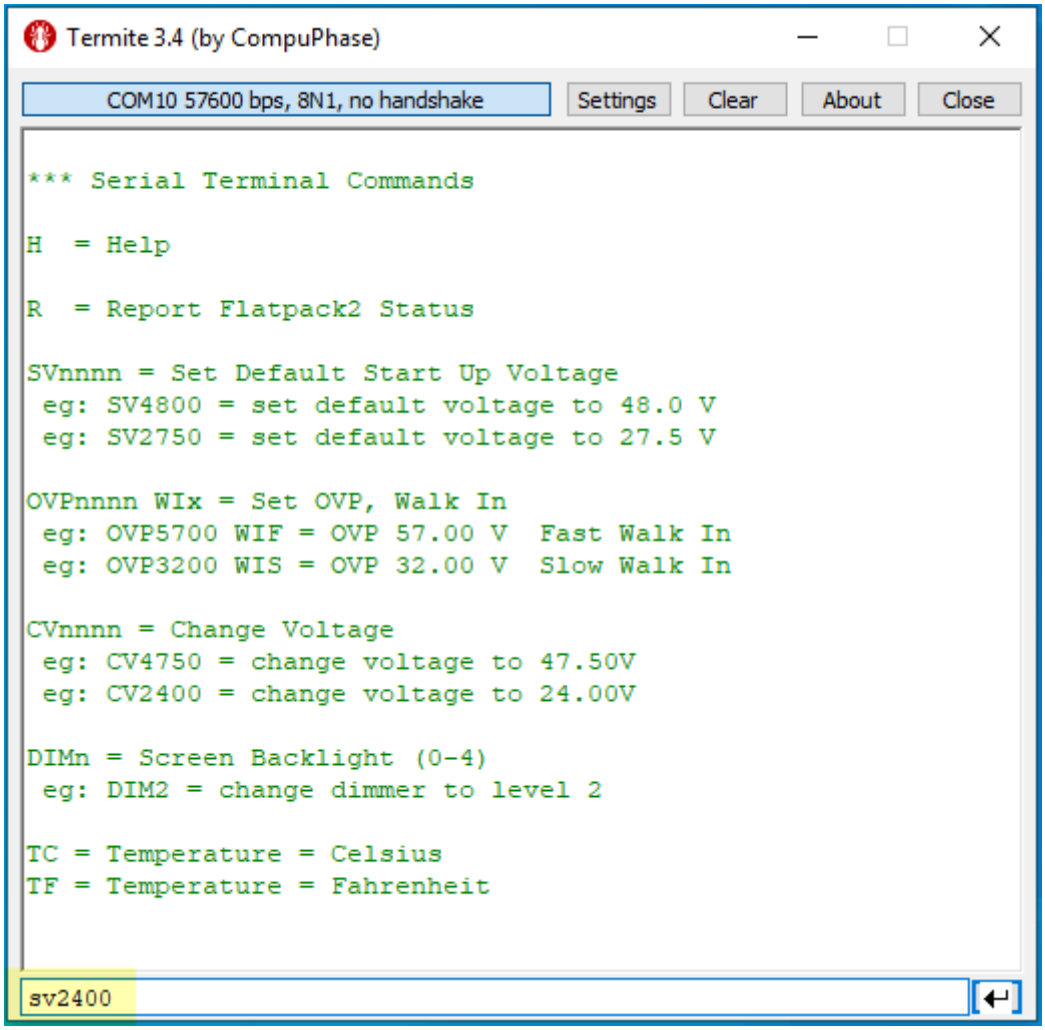
To report real-time status on the serial terminal, press **R** followed by **<ENTER>**



Setting Default Start Up Voltage

Example: 28 V model FP2

To set default start-up voltage to 24.0 V, enter **SV2400** followed by **<ENTER>**



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

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

15 second countdown is seen on both terminal and TFT screen.

```
* Setting Default Volts: 2400 = 24.00V
* Wait - Eltek session must time out before new voltage setting takes effect
  15 14 13 12 11 10 9 8 7 6 5 4 3
```

Example: 48 V model FP2

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

Eltek Voltage Ranges

These voltage range limits were determined by the manufacturer, Eltek, not the VK4GHZ controller.

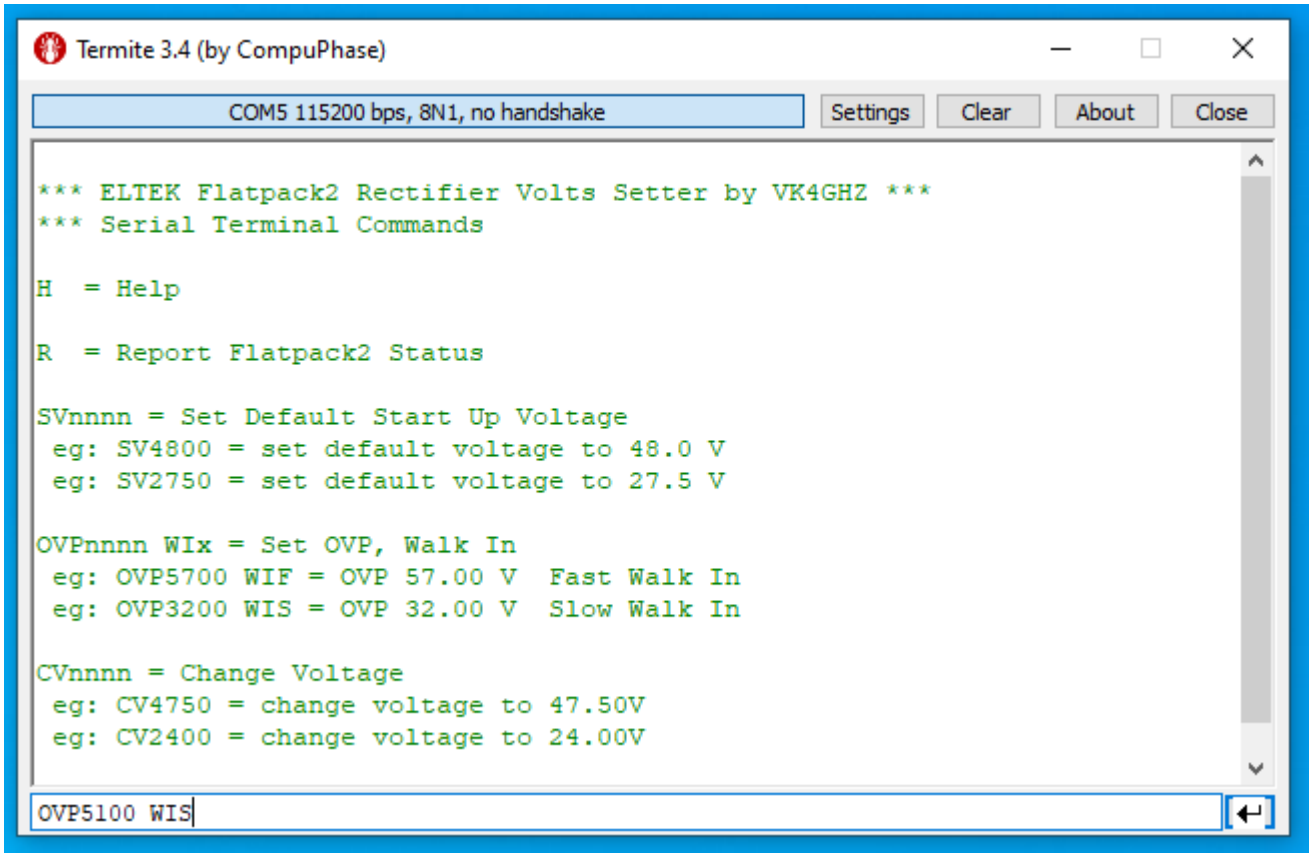
		Voltage Adjustment Range	
FP2 Model	**Default**	**Min**	**Max**
24 V	26.75 V	21.75 V	28.8 V
48 V	53.5 V	43.5 V	57.6 V

Once the default start-up voltage has been set to your requirement, you can disconnect the terminal forever.

The terminal is only required to change the default start-up voltage, set the Over Voltage Protection, and set the walk In.

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**)

Changing Voltage

Example: 48 V model FP2

Real-time changes can be made to the output voltage using the CV command.

To change real-time voltage to 47.5V, enter **CV4750** followed by **<ENTER>**

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

OVP and Walk In must be set before Change Voltage tweaks can be made.

Temperature Units

To change temperature units to Fahrenheit, **enter TF** followed by **<ENTER>**

To change temperature units to Celsius, **enter TC** followed by **<ENTER>**

This setting is stored in the controller's EEPROM.

TFT Screen Backlight Dimmer

The backlight can be dimmed down for low-light situations.

Valid range 0 – 4

Eg:	DIM0 (dark)	Enter **DIM0** followed by **<ENTER>**
	DIM1	Enter **DIM1** followed by **<ENTER>**
	DIM2	Enter **DIM2** followed by **<ENTER>**
	DIM3	Enter **DIM3** followed by **<ENTER>**
	DIM4 (bright, default)	Enter **DIM4** followed by **<ENTER>**

This setting is stored in the controller's EEPROM.

Warnings & Alarms

If an alarm or warning (or both) is available, the appropriate messages will be seen at the bottom of the display.

Obviously, a serious FP2 failure could mean there is no DC voltage output, no CAN bus communication, and connected equipment (including the Monitor) will cease to work.