Eltek Flatpack2 24 V / 48V

Touchscreen Controller User Guide

Revision: 2 April 2025

MCU v2.0 HMI v2.0

This touchscreen controller can be used to supervise & control a single Eltek Flatpack2 24 V or 48 V rectifier being used as a general purpose Power Supply Unit.

Configuration settings are made via the touchscreen.

No connection to a PC/laptop is required.

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 Flatpack 2 rectifiers.

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

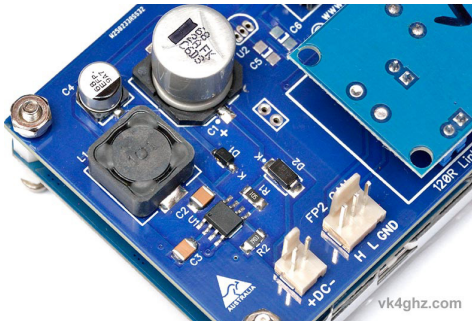
Will it work with Eltek Chargers?

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.

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 * I)

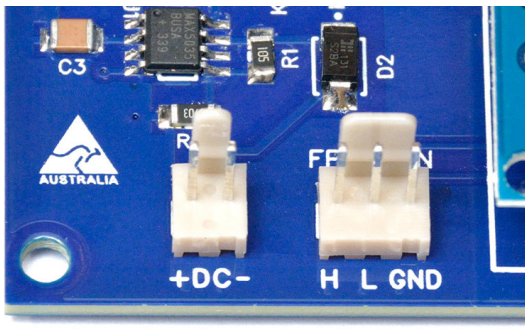
Connection to your own Eltek FP2 Breakout Board:

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

Touch Screen:

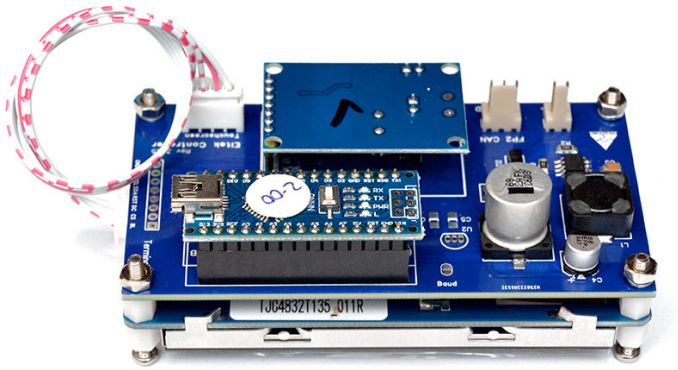
Use supplied 4-way XH2.54 lead.

Note: XH connectors are polarised.

Controller board mounting

The Controller board is designed to piggyback mount on the rear of the touchscreen.

Only one set of M3 mounting hardware is required to mount both touchscreen and controller to front panel.



Supplied M3 hardware:

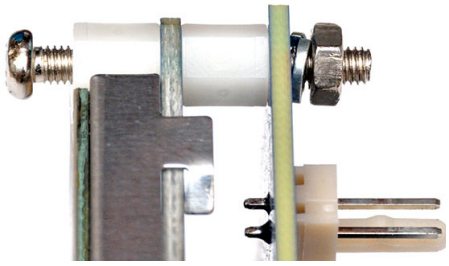
4x M3 x 25mmm screw

8x M3 6.3mm tapped spacer

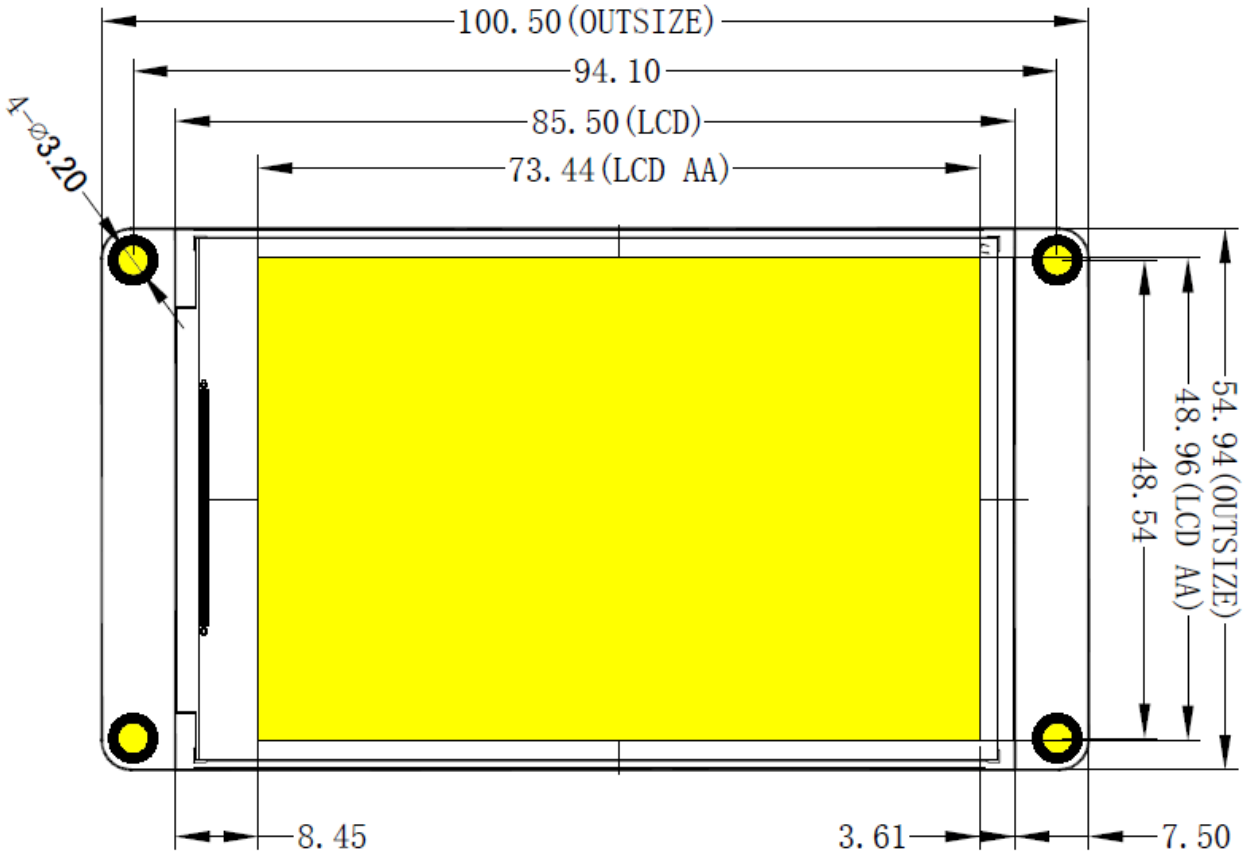
4 x M3 spring washer

4 x M3 nut

Use the hardware as per image >

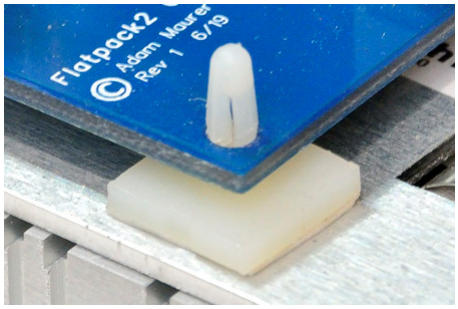


Dimensions (mm) for front panel cut out and holes as per diagram below:



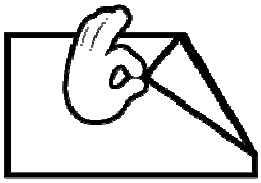
Alternate Controller Board Mounting

The controller board can be mounted to a flat surface using M3 standoffs (not supplied).



Touch 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.

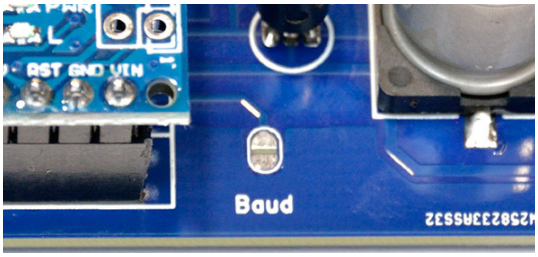


Configuration Settings

All settings are done on the touchscreen.

PCB Baud Rate configuration pads are not used.

These pads are for the non-touchscreen version.

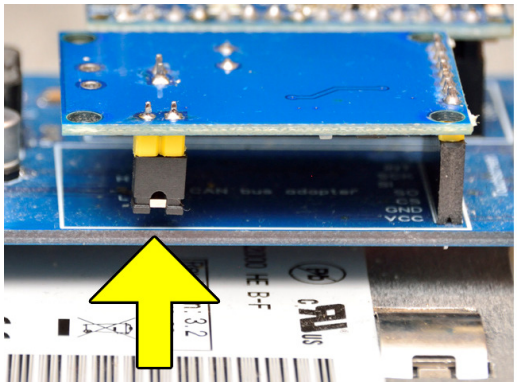


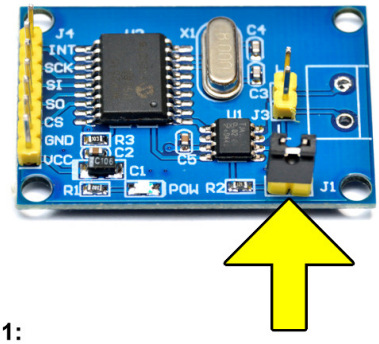
120 ohm CAN Bus Termination Jumper

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 across one pin only
- Refit CAN board

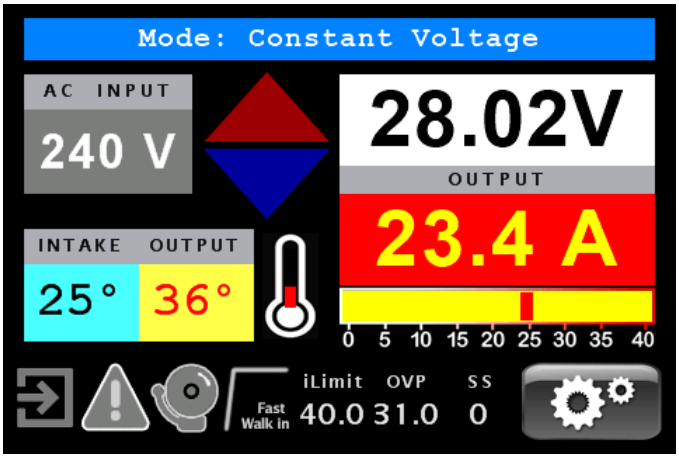


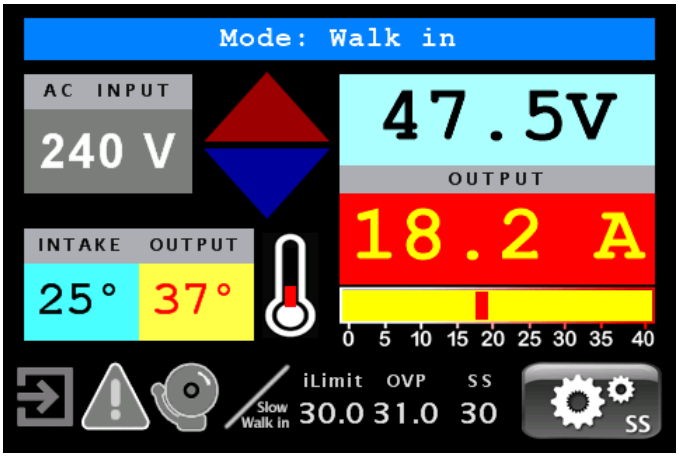


J1:
120 ohm termination jumper

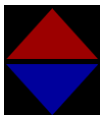
Controller Screens

Main Screen





Output voltage can be shifted up or down in 200mV steps by touching the UP/DOWN arrows. This does not affect the default start up voltage.



Main Screen SET Button

Short touch: resets screen saver (if Screen Saver is enabled)

Long touch: takes you to the Set Menu page

When screen saver is enabled

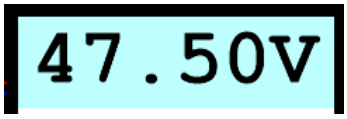
''SS' appears as a reminder to touch this button to reset screen saver timer

Parameter Font and Colours

Foreground and background colours of each parameter (Status, ACV in, Intake Temp, Output Temp, DCV out, I out, Warning messages, Alarm messages) can be adjusted to your preference.

Example: Set DC Volts Output Font:

Simply touch the parameter to set the colour and font.



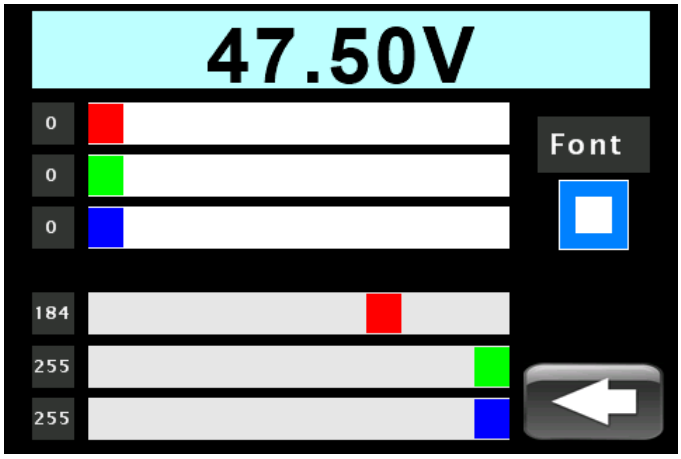
Font/Colour Settings page

There is a choice of two fonts.

Touch the checkbox to toggle between fonts.

Adjust R, G & B sliders to set the desired foreground and background colour combination.

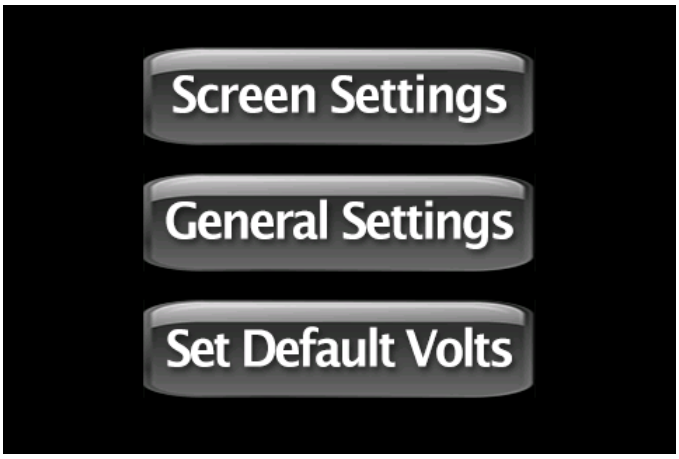
Touch Exit to save and exit.



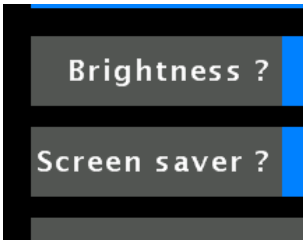
Parameter Name Colours

Touch any one of the names to set the colours of all names Example: touch "AC Input".

Set Menu



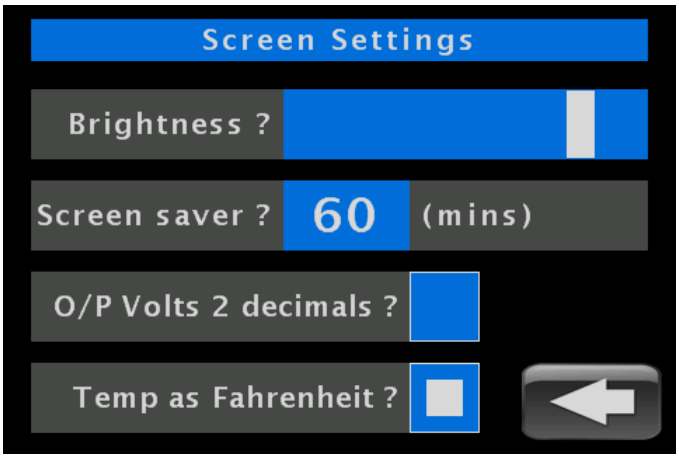
Help Screens



Where you see **?** (question mark), touch that text to see context sensitive help.

To exit help screens wait 10 seconds for automatic return or touch Exit to exit help screen immediately.

Screen Settings page

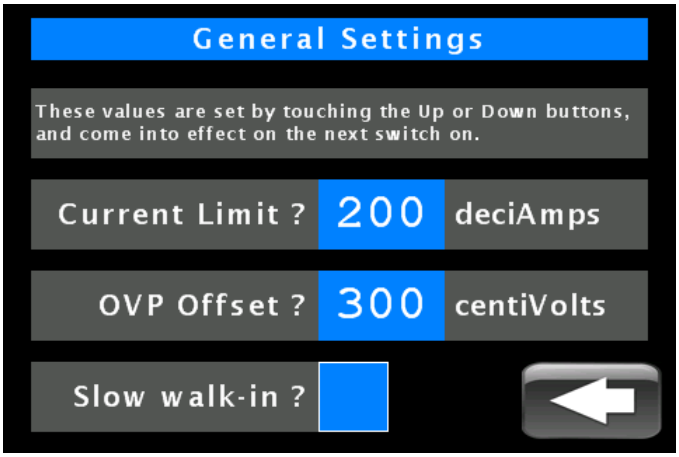


- Screen brightness 5 - 100%
- Screen saver in minutes
  enter 0 to disable screen saver
  This value is displayed on the main page
- Output voltage 2 decimal place checkbox
  unchecked = 1 decimal place
- Temp as Fahrenheit checkbox
  unchecked = Celsius

General Settings

Settings on this page are from factory testing with 24V and 48V Elteks.

You will need to set ALL of these for yourself once you have connected to your own Flatpack2



- Current Limit entered as deciAmps by keypad

  eg: 2 0 0 deciAmps = 20.0 A

- Overvoltage Offset entered as centiVolts by keypad

  eg: 3 0 0 centiVolts = 3.00 V

- Slow 'walk-in' checkbox

  unchecked = fast walk-in
  checked = slow walk-in

Setting walk-in & current limit – not what you expect!

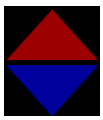
Touch Current Limit number entry box to enter desired current limit value in deciAmps.

Touch OVP Offset number entry box to enter desired overvoltage offset value in centiVolts.

Toggle walk-in checkbox for desired preference.

Exit General Settings.

Current Limit, OVP Offset & Walk-in are only set when the output voltage is adjusted up or down with the arrow buttons



If you have already set your default start-up volts, it's ok to adjust volts down by 200mV, and then back up again.

This will set current limit, OVP offset and walk-in to your preferences.

A change of walk-in takes effect next time the Flatpack2 is powered up.

Current Limit Keypad page

- Current Limit in deciAmps

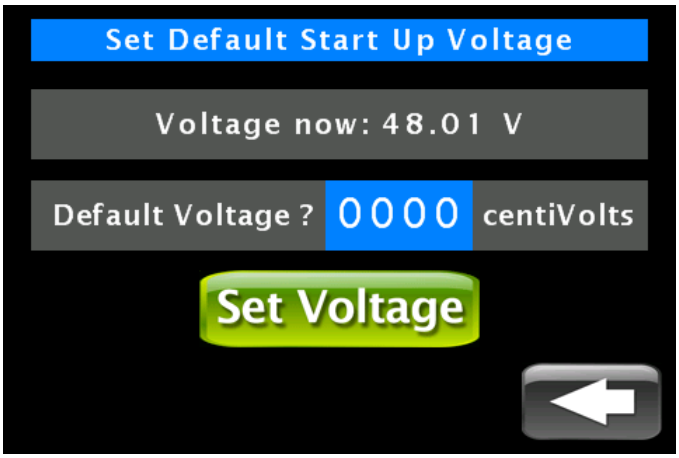
  eg: 2 0 0 = 20.0 Amps

  eg: 0 5 0 = 5.0 Amps

Short touch – clears value to 0

Long touch – Cancel entry and return

Set Default Volts page



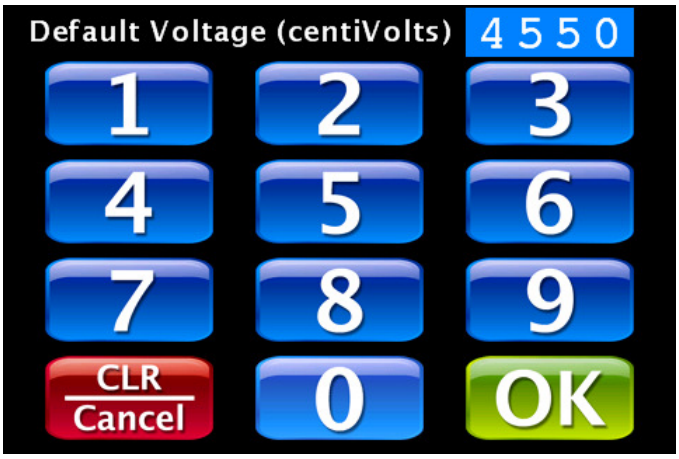
Flatpack2 48V variant

48VFlatpack 2's default start-up voltage can be set between **43.50 - 57.60 V**.

Flatpack2 24V variant

24VFlatpack 2's default start-up voltage can be set between **21.75 – 28.80 V**.

To set the desired start-up voltage touch number entry box for keypad page



Default Voltage Keypad page

- Voltage entered as centiVolts on keypad

  eg: 4 5 5 0 = 45.50 V

  eg: 4 8 0 0 = 48.00 V

  eg: 2 4 0 0 = 24.00 V

  eg: 2 8 0 0 = 28.00 V

Short touch – clears value to 0

Long touch – Cancel entry and return

Note: This entry is not error trapped

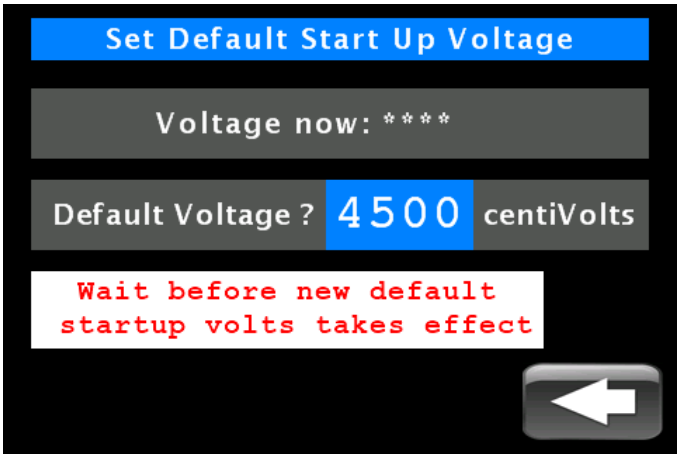
Touch OK to exit keypad

Touch 

to set voltage or  to exit.

Set Default Volts: wait 15 seconds before voltage changes

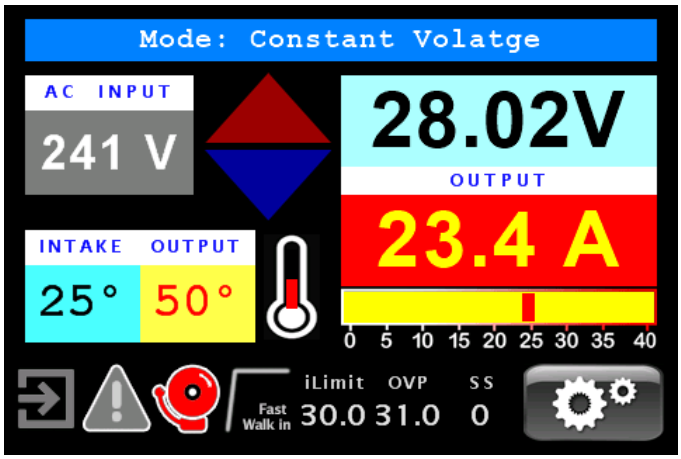
Exit: will cancel setting voltage



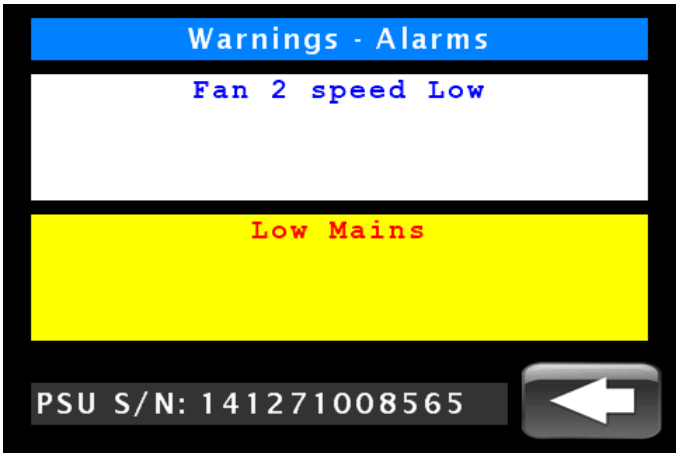
Warnings & Alarms

If an alarm state or warning state (or both) is detected, the appropriate icons become red.

Touching either of these icons will take you to the Warning/Alarms page.



Warnings/Alarms page



Flatpack2's serial number is displayed on this page

Touch Exit to return.

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

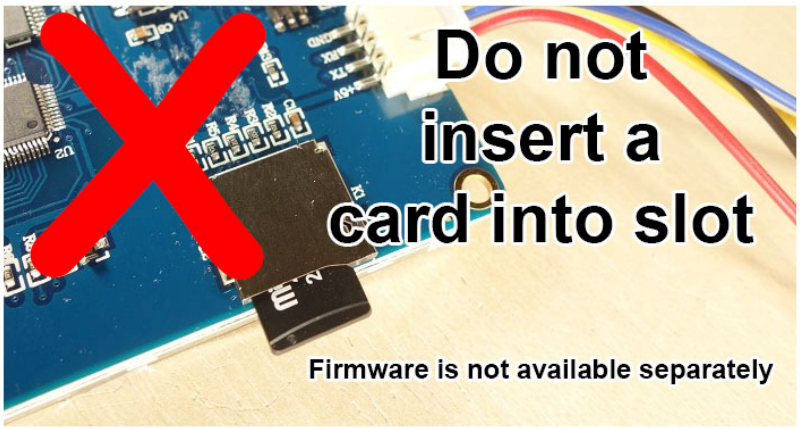
SD Card Slot

Never insert a card into the slot

that has a screen tft file on it.

You will "brick" your display.

Firmware is not available separately.



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