Conversion instructions for the OpenVario

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Rev. 1.3 (10.2025)

I'm working on a Mac or Linux system. Minor details may vary on a Windows computer!

I. General

This conversion kit can be used to convert all older 5.7" and 7" versions of the OpenVario that have a Cubieboard. This applies to the Stefly OpenVario, the OpenVario DS2, and all custom-built versions. The case included in the conversion kit is optimized for the Stefly OpenVario, making the conversion particularly easy. For all other devices, a mount may be required to connect the case to the front panel. We can help with this if needed. Just contact us!

II. Backing up your settings on the old OpenVario

1. Insert a FAT32-formatted USB stick into your OpenVario

2. Go to the OpenVario shell environment and connect a USB keyboard

3. Enter the following commands if you are using XCSoar:

   ```
   cp -r .xcsoar /usb/usbstick
   cd /usb/usbstick
   mv .xcsoar xcsoar
   ```

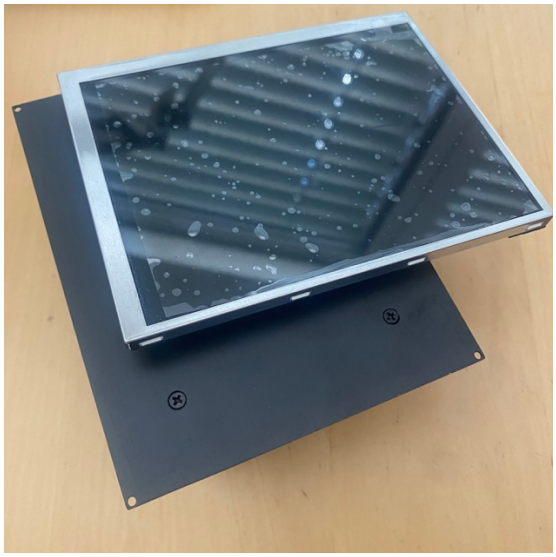
4. Enter the following commands if you are using OpenSoar:

   ```
   cp -r /data/OpenSoarData /usb/usbstick
   ```

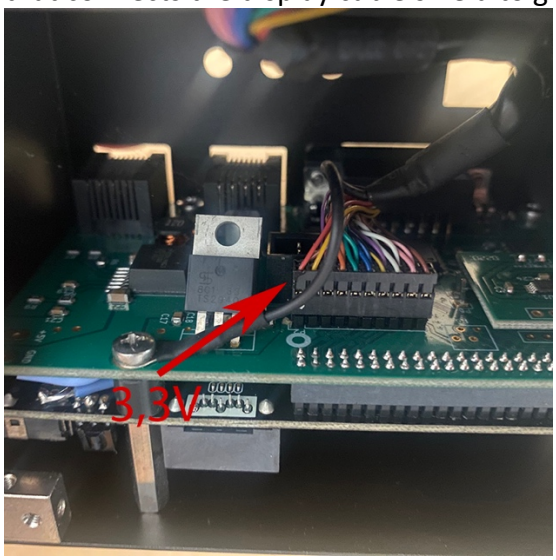
III. Removing the old computer case

1. Remove the 4 screws on the back of the front frame at the corners

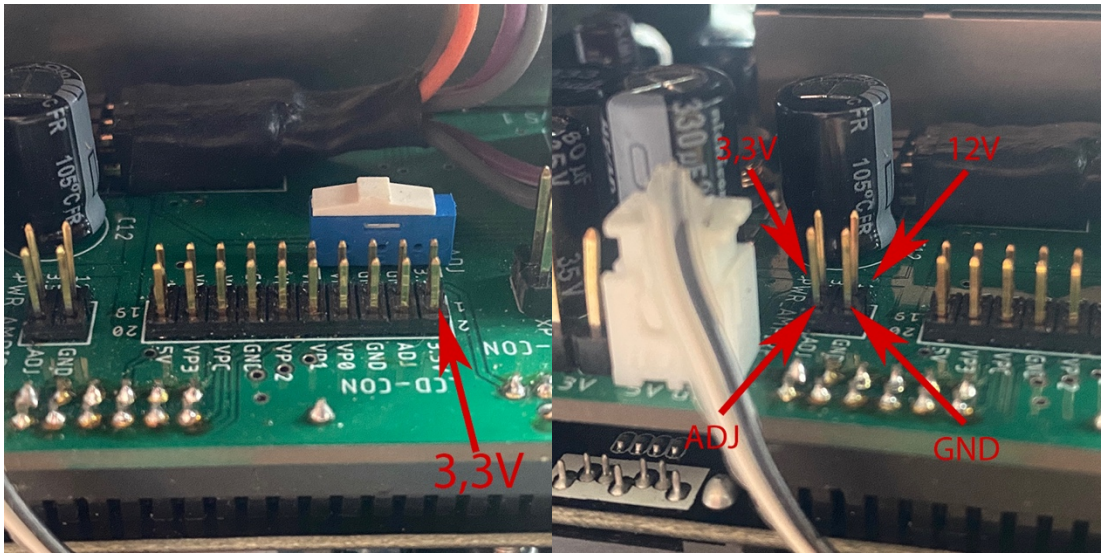
2. Remove the 4 countersunk screws that connect the housing to the back plate



3. **It's best to take a photo before unplugging the connectors. This way, you can always see how the connector was plugged in and where the 3.3V is applied.** If the connector is turned 180° upside down on the new board and the device is turned on this way, a short circuit will occur!
   Disconnect the display connector from the old adapter board and unscrew the cable that connects the display cable shield to ground.



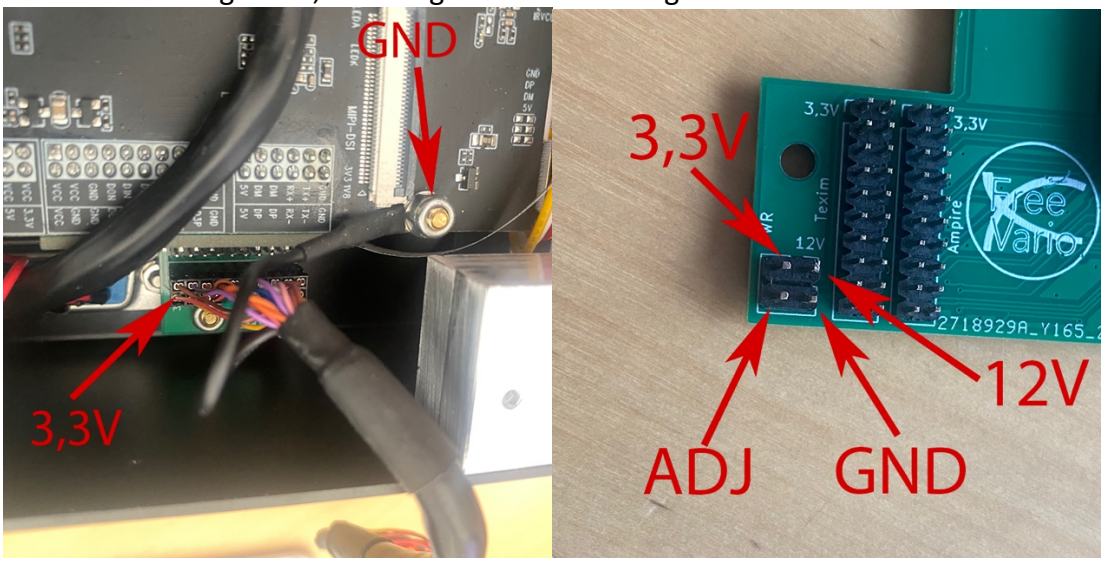
classic OpenVario



OpenVario DS2

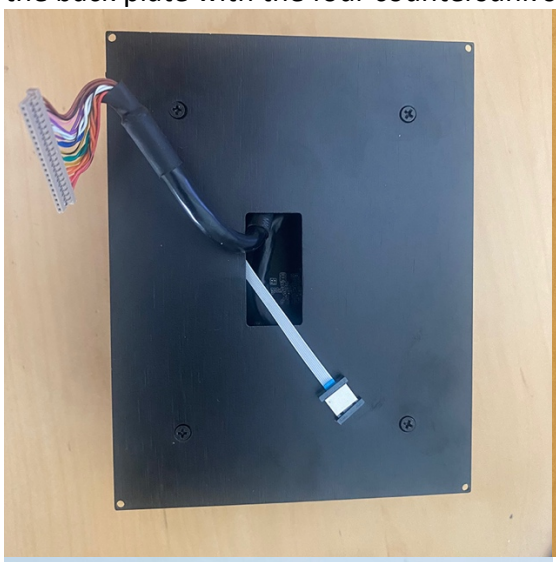
IV. Installing the new computer case

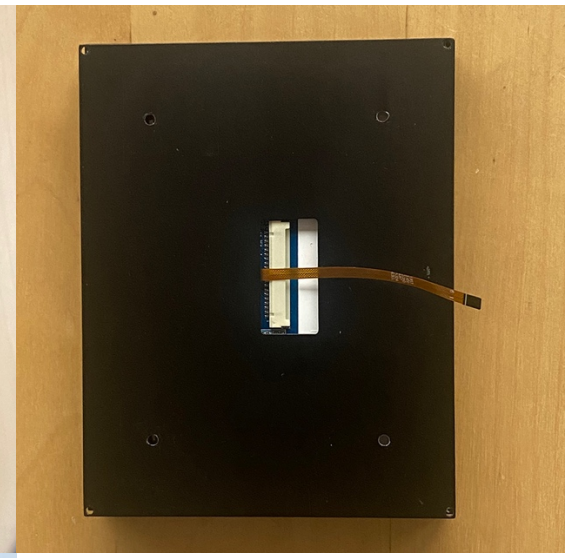
1. Plug the display connector into the new adapter board in the correct position! **If the connector is turned 180° upside down and plugged into the new board and the device is turned on this way, a short circuit will occur!**
   Be sure to check that the connector is correctly inserted and not misaligned!
   The slot closer to the board is for connecting an Ampire display. The connector closer to the case is for the 5.7" or 7" Texim display. Both connectors have the 3.3V on the same side.
   The small 4-pin connector is for the Ampire display's power connection. Again, make sure the connector is plugged in correctly. **Otherwise, a short circuit may occur!**
   Remove the motherboard's retaining screw, attach the cable that connects the display cable's shield to ground, and retighten the retaining screw.



2. Since the display frame is not symmetrical and has a narrow and a wide section on both the short and long sides, you need to consider how the frame will later be

oriented in the cockpit. The back plate must be mounted so that the cutout is exactly where the display connector is located. However, since all of the FreeVario Nav's connectors should be optimally accessible later, you need to consider the orientation in which the back plate needs to be screwed to the computer housing. Then, attach the back plate with the four countersunk screws.





V. Assembly and installation of the front frame

1. Insert the included touch panel into the front frame and then carefully place the display on top. Ensure both parts are correctly aligned!

2. With the 5.7" Stefly OpenVario, there isn't enough space in the front frame for the touch panel and display. Therefore, you'll need to use the included 3mm spacer frame. There's plenty of room for the 7" Stefly OpenVario. For self-built OpenVarios, you may need to build or 3D print a frame

3. Next, connect the touch panel and display, and carefully guide the cables into the case while attaching the front frame. Do not force the cables or bend them!

4. Use the four screws to secure the front panel to the back panel. For the 5.7" Stefly OpenVario, the longer screws supplied must be used due to the additional spacer frame.

VI. Transferring the old settings

1. Currently (2025), you have to restore the OpenSoar and XCSoar settings in slightly different ways

2. Insert the USB stick with your backup into the FreeVaro Nav

3. Click on Explorer, Internal Memory, Android, media

4. Long-click on de.opensoar or de.xcsoar

5. Select Delete

6. Click on Home, USB

7. Long-click on the OpenSoarData or xcsoar folder

8. Select Copy

9. Click on Home, Internal Memory, Android, media

10. Select Editor in the header at the top. You may need to move the header to the left

11. Select Paste

12. Long-click on the OpenSoarData or xcsoar folder

13. Select Rename

14. Name the folder de.opensoar or de.xcsoar

15. When you restart OpenSoar or XCSoar, these settings will now be loaded

16. Since OpenSoar the way the settings for the NMEA devices are saved has changed, you may have to reset the NMEA settings if you were previously using an older OpenSoar version

VII. ttyS ports for your devices

1. The FreeVario Nav's ttyS ports are named "Serial Port (FreeVario)#1", "Serial Port (FreeVario)#2", "Serial Port (FreeVario)#3", and "Serial Port (FreeVario)#4".

2. There appears to be a bug in XCSoar and OpenSoar that causes the ports to be displayed a second time as "ttyUSB0", "ttyUSB1", "ttyUSB2", and "ttyUSB3".

3. Until the bug is fixed, you will need to use these ports to connect your devices.

VIII. Use your mobile phone as a hotspot

1. Some mobile providers, e.g., Telekom, only use IP6 instead of IP4.

2. The FreeVario Nav, however, can only handle IP4.

3. On an iPhone with a Telekom SIM, I tested the following:

   - Settings -> Mobile Network -> Mobile Data Network
   - Enter "internet.telekom" for APN instead of "internet.v6.telekom."

4. For other phones and other mobile providers, you may need to search online to find out how to force the APN to IP4.

IX. Exclusion declaration

The FreeVario Nav is not EASA or FAA certified. This also applies to many commercial e-varios and flight computers that you're probably familiar with.

If you want to know whether you can legally use the FreeVario Nav in your glider, consult your inspector. Can you legally install any other (even uncertified) flight computer from other manufacturers? If so, you should also be able to legally install the FreeVario Nav. If your aircraft falls under EASA regulations, read CS-STAN, standard amendment CS-SC402a.

This instrument is a DIY project and not an aviation-certified instrument. I expressly point out that use is at your own risk, and any warranty is excluded!