2. Choose "Exit to the shell" from the OpenVario menu and enter the command "systemctl disable variod" to switch off the vario sound from OpenVario.

3. Reboot OpenVario.

4. Changes the port of NMEA port A from 4352 to 4353.

5. If vario sound can still be heard in XCSoar, it will be generated by XCSoar.

6. At System -> Display -> Audio Vario set Audio Vario to ON and set volume at 0%. Confirm with Close.

V. Disclaimer

The vario gauge is not EASA or FAA certified. Note that this is exactly the same for all the fancy commercial electronic varios and flight computers you are probably used to.

If would you like to know, if you are allowed to use it legally at your glider, ask this question to your airworthiness inspector. Can you legally install any other big brand (as well, non certified) vario gauges? If yes, you should also be able to legally install this vario gauge. If you are under EASA rules see CS-STAN, standard change CS-SC402a.

This instrument is a craft project and not an aviation-approved instrument. I explicitly point out that the use is made under exclusion of any warranty at your own risk!

Operating instructions for the FreeVario

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I. Operating the FreeVario

1. Using the toggle switch, the Vario is switched to SpeedToFly (STF) or Vario mode (Vario). Automatic mode is active in the middle position. Depending on the position of the slide switch in the device on the upper board, XCSoar or an externally attached switch in automatic mode determines whether Vario or STF should be active. The external switch can, for example, be connected to the flaps, so that the Vario and STF are automatically switched depending on the flap position. If the vario is to be set to STF, this switch should be closed. Alternatively, a toggle switch on the stick could be used if the toggle switch should not be used in the FreeVario. In that case it is best not to install the toggle switch in the FreeVario.

2. If STF mode is active, the digits on the colored arc multiplied by 10 indicate the difference between true airspeed and speed to fly.
   e.g .: in STF mode the colored bar is at +3. The true airspeed is 30km/h higher than speed to fly.

3. With the rotary encoder above, the McCready value is set in normal mode and sent to XCSoar.

4. If the push button of the rotary encoder is pressed for more than 0.5s, the menu is activated and the line in which the height is displayed turns red. The line with the speed display or with the McCready value can be selected by turning the encoder. The selected menu item is activated by briefly pressing the push button. In the high menu you can now choose between altitude above sea level (MSL) and altitude above ground (AGL), in the speed menu you can choose between ground speed (GS) and true air speed (TAS). Another short press on the push button selects the current setting and the desired values are shown in the display.

5. A special feature is the lower display for the McCready. Here you can choose between QNH, Bug and Mute by turning the menu. A short press on the push button activates the desired option and turning the encoder sets the value and sends it to XCSoar. Another short press on the push button closes the menu item and the McCready value is shown in the display again.

6. If the menu is not used for at least 10s, the menu is automatically exited and the setting selected at this point is adopted.

7. The 2.5mm jack socket on the back is used to connect an external speaker to get a better sound. If the external speaker is connected, the internal one is automatically deactivated.

8. If the PIN "a" of the three-pole plug is connected to the PTT switch, the Variosound is automatically muted when you are talking. **If the radio and the FreeVario are connected to different batteries, the negative pole of both batteries must be connected!** If the radio is switched off to save electricity, it is the same for the FreeVario as pressing the PTT switch. So that the FreeVario continues to output the vario tone, there is the Mute option in the bottom menu item. It can be set to ON or OFF. If you switch it OFF, the function is deactivated. It is automatically reactivated when the FeeVario is restarted.

II. Settings in XCSoar

1. Click Config. -> Devices, select a free device from A, B, C or D and select Edit.

2. You should assign the connections so that the Flarm is above the FreeVario.

3. Select the port, where the electronical vario is connected with (e.g. ttyS1).

4. Baud rate is 115200, Driver is FreeVario, confirm with OK and Close.

III. Using the stick remote control

In order to be able to switch the FreeVario between STF and Vario mode with the stick remote control, a few changes are necessary, which are described in the installation manual. If everything is installed correctly, the switchover works as follows:

1. priority has the toggle switch of the FreeVario. If STF or Vario is selected with it, the FreeVario is set to the respective mode. At the moment, the FreeVario does not send any information to the OpenVario to change the tone. To do this, we have to make a few more attempts. If the toggle switch of the FreeVario is on automatic, the 2nd priority comes into play.
2. The stick remote control has priority. A short click activates Vario, a long click STF and a double click the automatic mode. The mode set with the stick remote control is sent to the FreeVario and to the OpenVario to change the tone. If the stick remote control is also in automatic mode, the third priority is active.
3. Depending on how the switch in the FreeVario is set on the circuit board, XCSoar or a switch connected to the flaps has priority. Here, too, only the FreeVario is being switched at the moment. A command to the OpenVario to switch the sound does not work at the moment.

Important!! Sets in XCSoar OpenVario on device A and FreeVario on device B. Otherwise it won't work !!

IV. Switch off the vario sound from OpenVario

1. **Skip this section completely if you want to continue using the vario sound from OpenVario. If you wanted the FreeVario to make the sound, you have to work through this section.**