SØ vario



v2 firmware installation guide

introduction

This document describes the installation of v2 firmware onto generation v1. We improved the SØ vario in many ways from v1 to v2. One of the major changes is the update method. We made an internal installation tool called a bootloader, which rewrites the device's software itself with just a single drag & drop of the SZERO.FW. This easy update method replaces the former geeky DFU method. However, DFU is still possible as it is built-in from the chip factory. Therefore it is not possible to brick the SØ vario. If anything happens, DFU can always help. To enjoy the comfort of using the bootloader, we first need to install it, so for the last time we need to use the DFU method.

Users who already installed any v1.99 beta firmware can apply the update by the new drag & drop method and just copy SZERO.FW to the vario.

While developing IGC file transfer via Bluetooth, we observed that the performance of SD cards formatted to the exFAT file system is much better. Therefore we also recommend formatting the SD card to exFAT. We added a built-in format function to the vario, so you can use it. This is also a one-time action – you won't need to do it again. Although this change from FAT to exFAT is recommended, it is not mandatory and you can do it if you later decide.

This manual will guide you step by step through installation. You can choose if you want to make an IGC backup or not and an SD format or not.

firmware installation

All you need is to take any v2 ELF firmware file and apply it using the DFU method. It doesn't need to be the current v2.0.0, as we will continue to release both formats, the new SZERO.FW and also the old *.ELF. Here is a video tutorial on how to perform a DFU update (steps 2 – 11). Don't forget to perform a **full chip erase** and then **reset** after writing the firmware. After installation, the factory test will appear.

1. **Run STM32CubeProgrammer** software or **StmDfuUsb** app.
2. **Connect the vario** to PC or Android device.
3. Put the vario into **DFU mode** – all three buttons pressed for 5 seconds, then the power button released.
4. Choose the **Erasing & Programming** green tab on the left.
5. Choose the blue **USB** option on the right.
6. Click the blue circular arrow **refresh button**.
7. Click the green **Connect** button.
8. Load the update ELF file (**v2**.nn.nn.**elf**).
9. Click the blue **Full chip erase** button, click **OK** to confirm, click **OK** again.
10. Click the blue **Start Programming** button.
11. **Reset** if the vario won't start itself – press & hold the power and up buttons for 5 seconds.
12. After installation, the **factory test** will appear – click every button once, numbers 1, 2 and 3 will appear in the buttons line. All main blocks above the buttons line should be marked as passed.
13. Press & hold the **power button for 3 seconds**.
14. **Don't disconnect** the USB cable if you wish to continue with **IGC backup** and/or SD format. Otherwise disconnect the vario and **enjoy** ☺

IGC backup

You can skip this chapter if you have already posted all your valuable flights to any of the XC servers and you therefore don't need to back them up.

15. Go to the **settings menu**, click the **USB connection** menu entry.
16. Copy the **igc** folder from the vario to your device.
17. Click **Eject** on the computer, or press & hold the power button for 3 seconds and disconnect the USB cable.

terrain data backup

You can skip this chapter if you don't have a problem downloading a couple hundred megabytes of data. On the other hand, if you have a slow or expensive internet connection, or none at all, you can also back up terrain (for AGL) data from your vario, so you don't need to download it from the internet. For terrain data read/write from/to SD card we recommend removing it from the vario and making transfers via card reader, as mass storage connection (MSC) is relatively slow. Preloaded terrain data is up to 7 GB, so it can take up to 3 hours per transfer via MSC.
If you don't have any card reader available and you therefore decide to use MSC, use the same technique from the chapter above. Just **disable the auto power-off timer** in the system menu.

SD card format and AGL restore

Although the SD format is not mandatory, it is recommended to perform it after v2 firmware installation.

18. Go to the **settings** menu, then **system**.
19. Click **format SD card** and then **confirm**. After the SD format, config and layouts are restored automatically, but you will need to upload the AGL data again.
20. If you haven't copied data from the vario before formatting, download regional, world or country data. In the country repository, download only ***_agl.zip** files, as **map** files are not applicable.
21. Upload the data back to the vario; we recommend direct transfer to the SD card.
22. After AGL upload, **set the auto power-off timer** again. The default value is 60 minutes.
23. Test the **AGL** altimeter on the glide layout.

Here is a useful link:
vps.skybean.eu/SO_vario

other information

A more detailed user manual is available here:
vps.skybean.eu/manuals/

email: **info@skybean.eu**

skybean.eu

instagram.com/skybean_vario

youtube.com/c/SkyBeanVarios

rev. 2611