

Cerbo GX Wi-Fi issues when combined with GX Touch

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Summary

Some Cerbo GX-es will not properly work on certain Wi-Fi networks when having a GX Touch display installed.

The symptom is that it is either impossible to connect at all, or that it is difficult to connect. Or that when connected, the data connection has a very low throughput: for example, Remote Console is slow.

Not all systems having a GX touch are affected: it (a) differs from one Wi-Fi network to another because it depends on which Wi-Fi channel is used by the network. And (b) it differs from one unit to another because it also depends on how the antenna cable is routed inside the Cerbo GX. Even the smallest difference in antenna cable position can make a significant difference.

Cause

The cause is a hardware design issue in the Cerbo GX. The Wi-Fi client¹ antenna cable in the Cerbo GX is routed too close to the HDMI connector. The HDMI signal disturbs Wi-Fi communication on Wi-Fi channels 1, 6, 7, 8, 9 and 13. All other channels, 2, 3, 4, 5, 10, 11 and 12, work fine. The antenna cable is loosely routed inside the Cerbo GX-es, worst case it will touch the PCB or the connector. In other cases, it is routed a bit further away and will prove to be no issue on said Wi-Fi channels.

How to know if this affects a system

To determine if a system is affected by this problem, disconnect the HDMI connector of the GX Touch and try connecting it to the Wi-Fi network again. Tip: use VictronConnect via Bluetooth to set-up Wi-Fi while having the GX Touch disconnected.

In case it makes no difference, there is something else disturbing the Wi-Fi communication.

Solutions

There are multiple options:

- 1) Send the unit in for repair. Repair will be free of charge as it is covered by warranty.
- 2) Change the frequency of your access point to one of the good working channels (e.g., 2, 3, 4, 5, 10, 11 or 12).
- 3) Self-repair the Cerbo GX by opening it up and modifying the antenna arrangement, see appendix for details.

Related changes in production and stock

Per serial number HQ2048, the Cerbo GX production was modified to solve this issue. Currently, these are not shipping yet. The format of the serial number is HQyywwzzzz in which yy is the year, ww is the week number, and zzzz is random. The serial number (SN) can be found on the label on the side of the product, on the label on the carton, as well as in the VictronConnect App and on the VRM Portal.

¹ The Cerbo GX has two Wi-Fi functions. A client function, that connects the Cerbo GX to an existing Wi-Fi network, and the Access Point function, which allows connecting to the Cerbo GX and shows as “venus-HQxxx” when searching for a network. Both have their own antenna. The problem described in this Tech note affects the client function only.

Appendix – repair instructions

These instructions are provided to help anyone for whom it is more convenient to self-repair the Cerbo GX rather than sending it in for repair. When in doubt, do not hesitate and send in the unit for repair. We are obviously more than happy to repair Cerbo GX-es affected by this problem.

Step 1: disconnect all wires to the Cerbo GX, remove sd-card and unmount the Cerbo GX from the wall/cabinet.

Step 2: open the case by unscrewing the four screws at the bottom

Step 3: take the electronics (two PCBAs stacked together) out of the enclosure by gently unlodging it. There might be a bit of hot-glue that needs to be pried loose. In case first only one of the PCBAs comes loose, carefully pry the hot-glue loose that secures the second PCBA; then take out the second PCBA and put them together again while making sure the connectors are aligned.

Step 4: once the electronics are removed, you will see the two antennas glued to the top of the case, and the antenna cables connected to their locations on the electronics. Mind to keep it all close together to prevent damage to the antenna arrangement. The left picture below shows what you are now seeing.

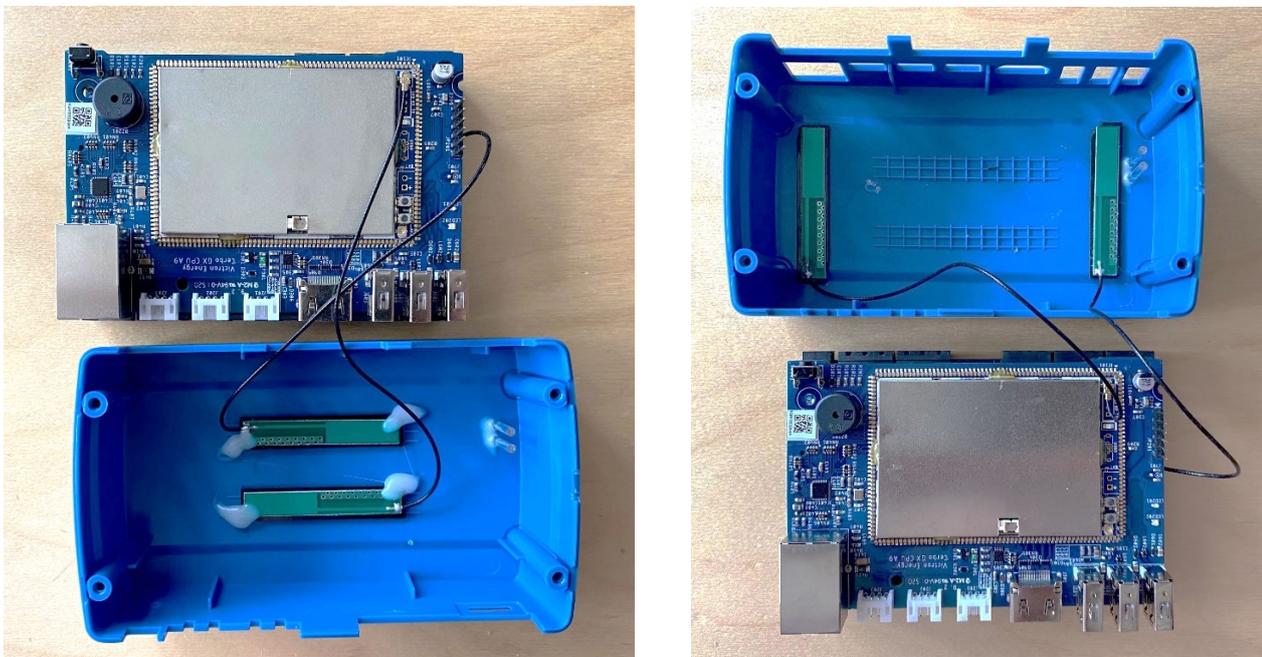
Step 5: pull the antennas loose from the enclosure, they are held in place by black double-sided tape + hot-glue.

Step 6: move the blue part of the case to be above the unit (as per picture on the right) and then mount the antennas as shown in that picture. Some new glue might be needed, though on all units we have seen the double-sided tape was still more then sticky enough to keep the antennas in place. Make sure not to cover the antenna completely in glue; less glue on the antenna is better.

Optionally glue or otherwise secure the antenna wires to be on that side of the case; for example by using a wire saddle. Note that it is optional; the Wi-Fi quality is good as long as the cables are routed away from the PCB and the HDMI connector.

Step 7: insert the electronics back into the case, while making sure the antennas stay away from the HDMI connector and the area around it. Ca 1 cm away is sufficient – further away is better. Check that everything properly aligns – including the SD-Card slot; and finally remount the bottom of the case.

The new position of the antennas has proven to be better in signal quality in general. It also prevents both the antenna cables to be within a few centimetres of the HDMI area.



Left picture 1. Antennas in the original location. Blue part at the bottom is the top of the case upside down.
Right picture 2. Antennas in the new location.