

Subject

SR100-D1 Firmware Update Manual

Keywords

SR100-D1, firmware

From

Hukx R&D

Short report

Date

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This tool updates the SR100-D1 firmware from versions 1.5.0 and 1.6.0 to version 1.7.0.

NOTE:

Since this tool is an executable application that is not signed in a way that Microsoft supports, some computers or virus scanners may notify the user that the application originates from an “untrusted publisher” and ask to verify the application’s source. While this is an understandable precaution, this application is safe to run.

Requirements

- A personal computer or laptop running Windows 10 or 11, 64-bits
- A good quality USB to RS-485 converter with termination resistor and failsafe biasing enabled or installed externally (external termination and failsafe biasing is described in appendix A)
- A power supply to provide power to the SR100-D1 (12 to 24 VDC is advised)
- A cable to connect the SR100-D1 to the USB to RS-485 converter

NOTE:

The **communication stability** of the connection between the SR100-D1 and the computer during the firmware updating process is **absolutely essential**. If communication fails during the firmware update, or if the power to the instrument is interrupted, this may result in a faulty instrument that needs to be returned to the factory to be recovered. For this reason, following the best-practice RS-485 network design in Appendix A is strongly recommended, as is using a good quality USB to RS-485 transceiver. The [SR100-D1 user manual](#) mentions several recommended options on page 65; the same manual also

discourages the use of the (popular) RS-485 converter solutions based on the FTDI FT232R chipset without proper external fail-safe biasing.

Content

This tool is distributed in a .zip archive. The archive contains:

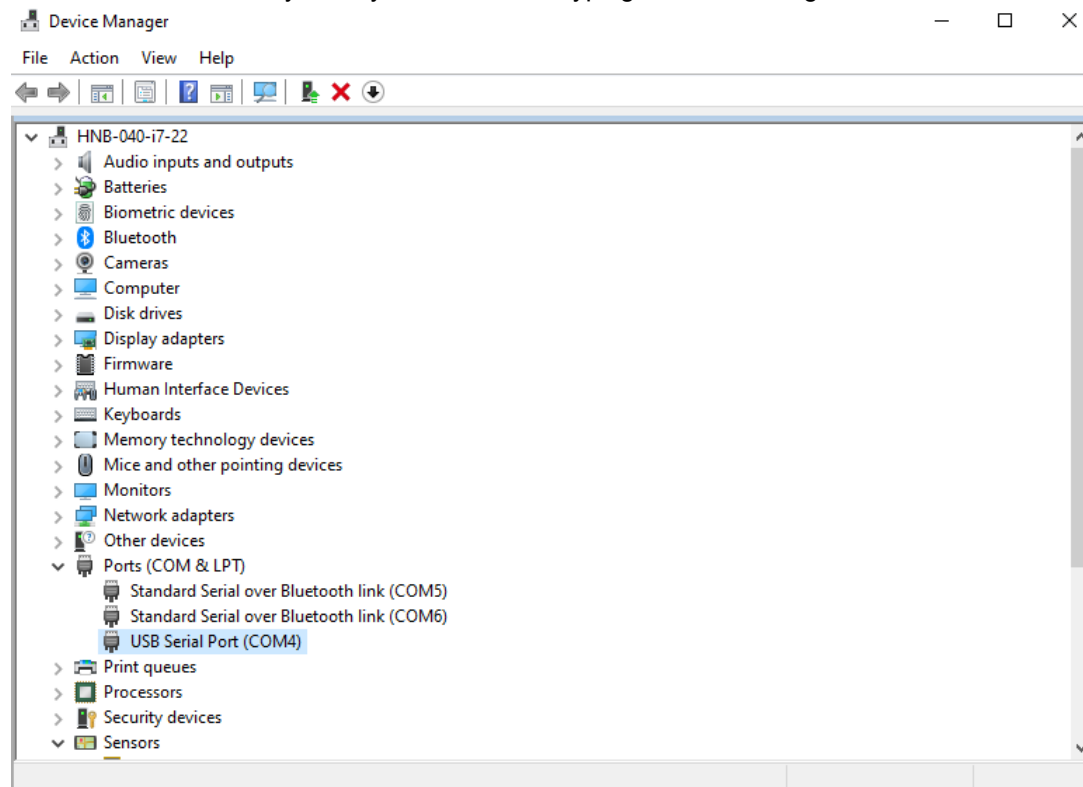
- Hukx_firmware_updater_1.7.4a_SR100-D1_1.7.0.exe; the tool that performs the firmware update
- SR100-D1 Firmware Updater Manual.pdf; This file contains instructions on configuring, running and verifying the firmware update process

Configuration

Upon running the application, the user will be prompted to enter the COM port to which the USB to RS-485 converter is connected. To determine the correct COM port to connect to, perform the following steps:

1. Open Windows Device Manager and open the “Ports (COM & LPT)” section
2. Possibly first click “View > Show hidden devices” to enable the “Ports (COM & LPT)” section
3. On Windows 11, use “View drivers by type”
4. Remember which COM ports are already present
5. Plug in the USB cable connected to the USB to RS-485 converter
6. Device Manager automatically refreshes the list of ports, see which new COM port was added
7. Use the full name (e.g. “COM4”) as an input to the tool

An example of Windows Device Manager is shown below. To open Device Manager, press the Windows button on your keyboard and start typing “Device Manager”.



Updating firmware

To update the SR100-D1 firmware, execute the following steps:

1. Ensure the SR100-D1 is **powered OFF**
2. Connect the SR100-D1 to the USB to RS-485 converter
3. Ensure you know the COM port the USB to RS-485 converter is connected to, see previous paragraph for instructions
4. Open the Hukx_firmware_updater_1.7.4a_SR100-D1_1.7.0.exe application
5. Enter the COM port and press ENTER
6. Switch ON the power to the SR100-D1
7. The tool will now indicate that it is updating the firmware. This can take up to 10 minutes, depending on the capabilities of the computer the application is run on
8. If the firmware update is complete, the tool indicates so

Verification

To verify that the firmware update was successful:

- Open the latest version of the [Hukseflux Sensor Manager, currently v2424](#)
- Connect to the SR100-D1
- In the Sensor Details tab, the firmware version should now display as 1.7.0

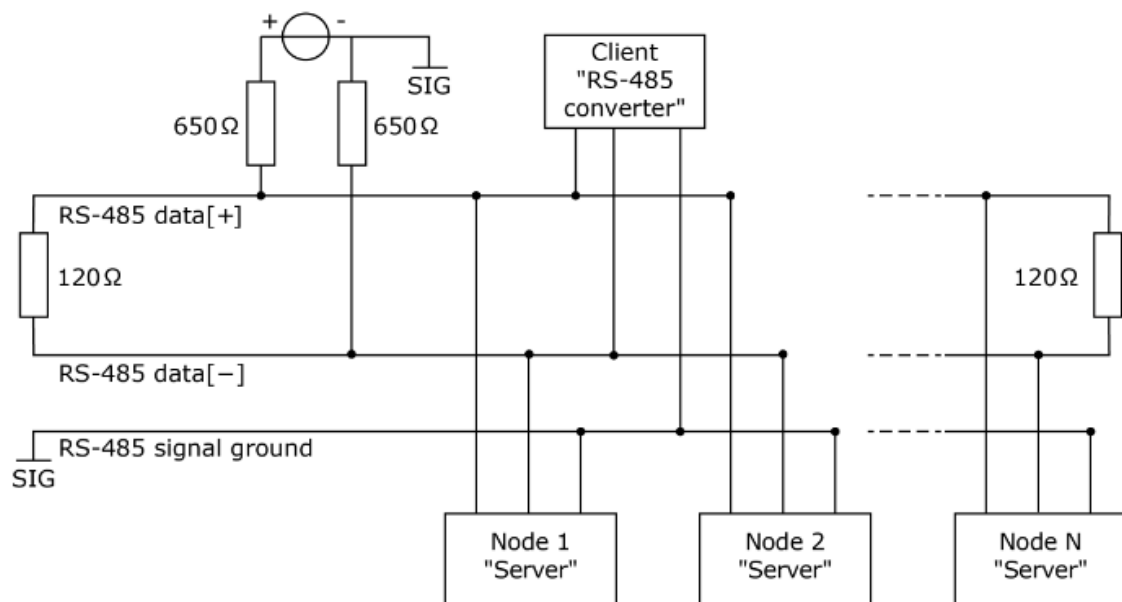
Appendix A – Termination and fail-safe biasing

For optimal communication reliability during the firmware update process, it is **strongly recommended** that best-practice RS-485 network design is followed.

This means installing (or activating, if the USB to RS-485 converter supports it):

- Termination resistors
- Fail-safe biasing

These practices are described both in the [SR100-D1 user manual](#) as in the [Modbus over Serial Line](#) specification extensively, but will be summarised below.



Termination resistors

Line termination resistors must be installed between data[+] and data[-] lines. These resistors mitigate the effects of line reflection. The value of these resistors is 120 Ω and they need to be installed at both the beginning and the end of the line.

Fail-safe biasing

To minimise noise on the network, when no transmission is occurring, a fail-safe biasing network needs to be installed. The fail-safe biasing network exists of:

- A “pull-down” resistor from **data[-]** to **signal ground** (data[C])
- A “pull-up” resistor from **data[+]** to an isolated **+5V** source that has its negative terminal connected to signal ground (NOT VDC[-]!)