avisaro

industrial information technology

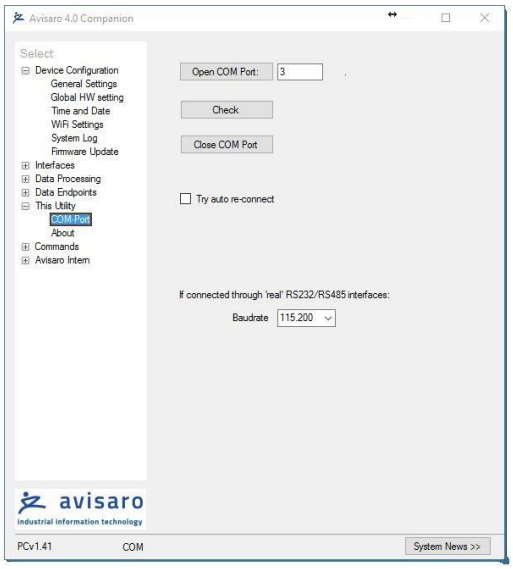
Configuration Software for Avisaro 4.0 Product Series

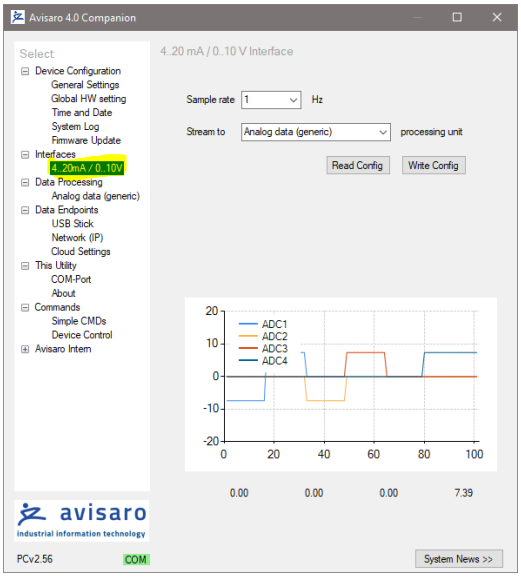
User Manual

PC Companion Software

Complete Reference Manual

Version / Date: 2022/04/11





1 TABLE OF CONTENT

2 THIS DOCUMENT

2.1 HISTORY OF CHANGES

The document version equals the document date in the format yyyy.mm.dd.

Version	Description
2022/03/28	Added “configuration via USB stick” / Firmware 2.66 and higher
2021/06/14	Multiple additions and first public release
2021/05/02	Initial version extracted from existing documents

2.2 AUDIENCE

Intended reader of this document are technical personnel installing, configuring, and using the Avisaro device.

2.3 LOCATION

Check for the latest document version the following link:

Link: https://www.avisaro.de/files/Avisaro/40_Docu/Avisaro-PC-Companion-4.0.pdf

2.4 LANGUAGE VERSIONS

This document is available in English language only.

2.5 OTHER DOCUMENTS

“Technical User Manual 4.0” contains all of this and more information.

Link: https://www.avisaro.com/en/40-ENG-Documentation.html

2.6 ACTIVE LINKS

This PDF contains active links. By 'clicking', e.g. in the table of contents, you can get to the appropriate paragraph or by 'clicking' on the "Go to:" in the header you can get back.

2.7 DOCUMENT CREATION

This document was created using the “Avisaro Document Builder”. Single text blocks are merged into targeted documents. Thus, text blocks can be reused in several places, yet no need to update them manually when changes occur.

We point this out because:
Advantage is that compact and targeted documents are available. Disadvantage is that in rare occasions, a paragraph might have comments which do not fit to 100% in the place it is used.

2.8 IMPRINT AND CONTACT

This document is provided by:

Avisaro AG
Grosser Kolonnenweg 18 E
30163 Hannover
Germany

Web: www.avisaro.com

Email: info@avisaro.com

3 CONFIGURATION: 'PC COMPANION SOFTWARE'

3.1 HOW TO CONFIGURE AVISARO "SERIES 4.0" PRODUCTS

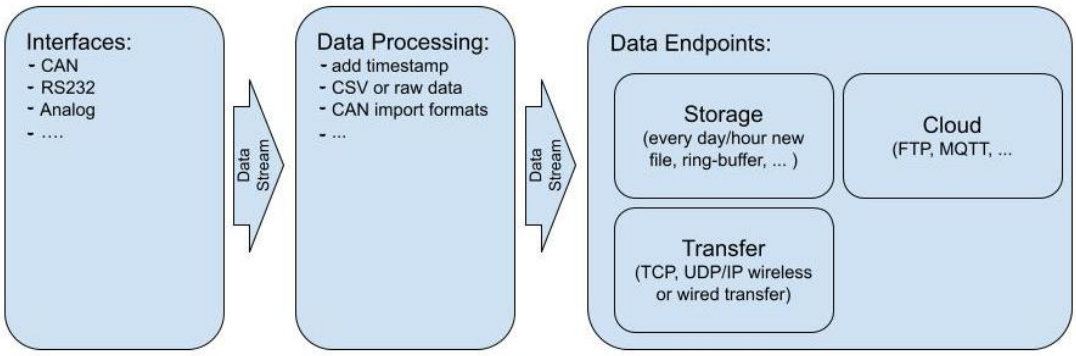
The basic principle of how to configure the Avisaro "Series 4.0" products is:

1) Download and install the "Avisaro PC Companion Software".
2) Connect the Avisaro device via USB cable.
3) Choose the correct COM port and click on "connect".
4) The software presents all the settings you can make and guides you to avoid conflicting configurations.
5) Click on "save configuration" to store changes in the Avisaro device.
6) Reboot the Avisaro Device so that the new configuration takes effect.

Details are described further down in this document.

3.2 CONCEPT OF OPERATION

The Avisaro 4.0 is divided into sections:



Data are received through an "Interface" and then forwarded to the "Data Processing" section. All formatting happens here and then data is forwarded to the "Data Endpoint".

3.3 "PC COMPANION SOFTWARE" INSTALLATION

Download the latest version from:

German site: https://www.avisaro.de/de/40-PC-Software.html

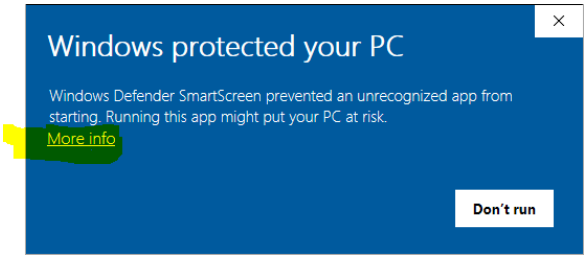
English site: https://www.avisaro.com/en/40-ENG-PC-Software.html

Please check the section "DRAFT version" only if advised by Avisaro Support.

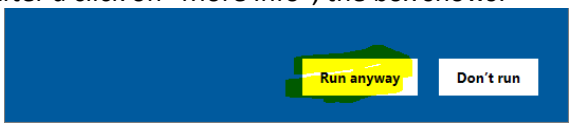
There are two version available:

- Install: this runs a Windows installer. You need admin rights to run.
- Direct: this contains a folder with all files. You can run the *.exe directly from there.

Windows warns the user before installing or using software downloaded from the Internet. So if you click on “Avisaro_40_Companion_v2.56_Setup.exe”, the warning will occur:



After a click on “More Info”, the box shows:



Select “Run anyway” to continue.

3.4 Driver Installation

If you connect the Avisaro Device to the PC using a Micro USB cable, a virtual COM port driver is installed. If this driver does not install automatically, you can download and install this manually:

http://www.avisaro.de/de/40-PC-Treiber.html (German site)

http://www.avisaro.com/en/40-ENG-PC-Driver.html (English site)

3.5 Initial Set-Up

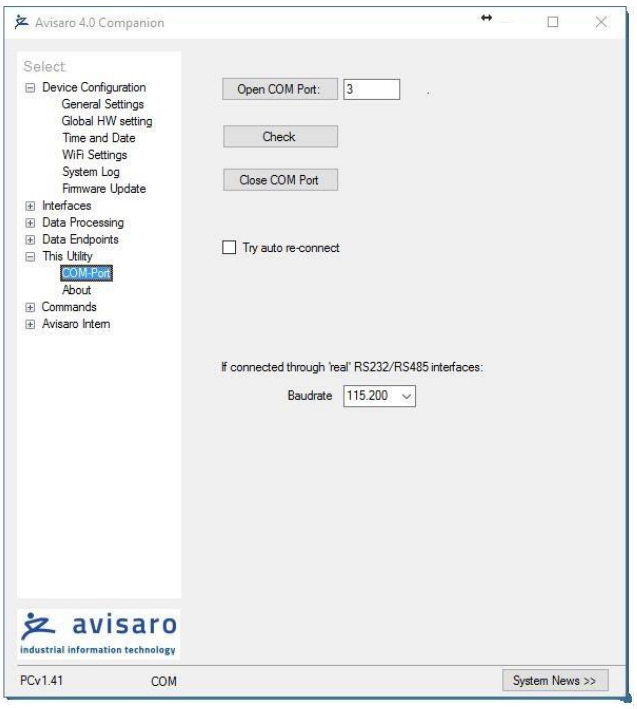
After starting the companion software, the virtual COM port number needs to be entered. You can find this number in the Windows “Device Manager”.

This setting is stored for future use.

Click on ‘open COM port’ – which will turn green if successful. You can use the “check” button to verify that the connection is alive.

You can use the “Check” button to verify the connection to the Avisaro Device. It should light up green when clicked.

The baudrate setting for “if connected through real RS22.. “ can be ignored. This setting is used only in special projects and not scope of this document.



All settings are deactivated if there is no Avisaro Device attached.

3.6 Using the PC Companion Tool

Click on “Write Config” to transmit changes in the PC tool to the Avisaro device. Click on “Read Config” to display the currently stored values (if you navigate between options, the latest settings are read of course automatically).

Most settings become active only after reboot. This can be done in Commands ⇨ Device Control: Reboot Device.

4 MENUE: 'DEVICE CONFIGURATION'

4.1 DEVICE CONFIGURATION ⇨ GENERAL SETTINGS

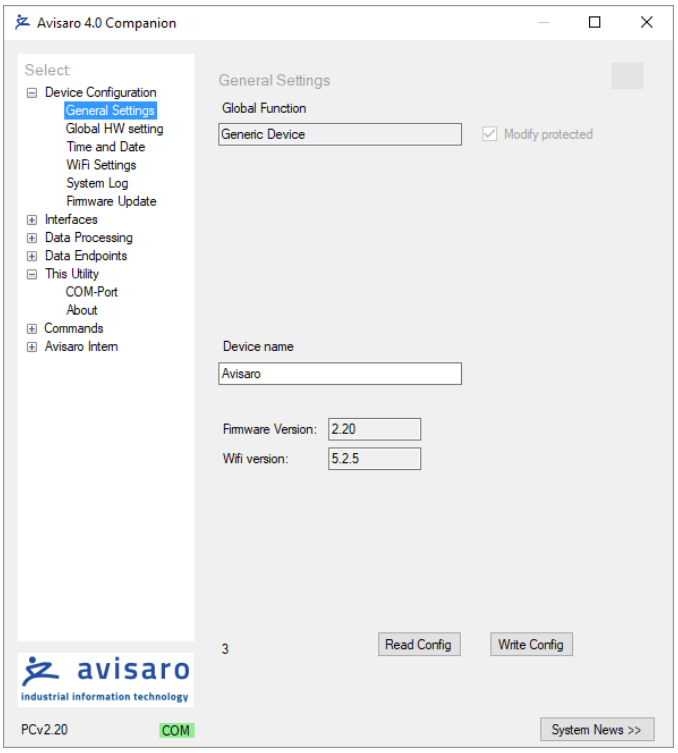
The "Global Function" defines the main function of the Avisaro device. This setting should not be changed - and for some part, it is even hard wired and can not be changed.

Some functions or interfaces are enabled or disabled based on this "Global Function" setting. This is used in conjunction with customer specific features. See separate documentation if applicable.

The **"General Settings"** is described in the table below.

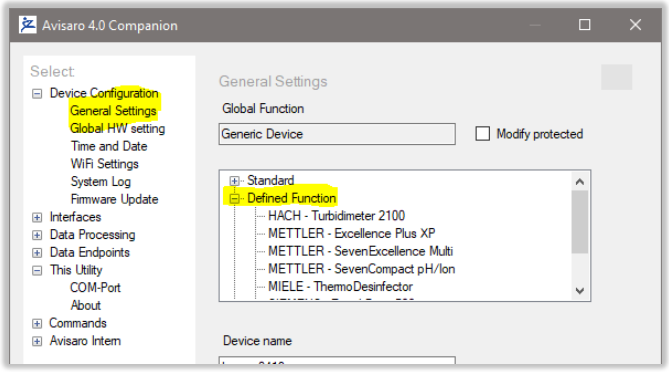
The **"Device name"** is user defined and is used for documentation only.

"Firmware version" and **"WiFi version"** are displayed here for documentation. If no WiFi version is shown, no WiFi is build-in or it is disabled.



4.1.1 Device Configuration ⇨ General Settings ⇨ Global Function

Description of "General Settings":



Standard ⇨		
	Generic Device	**This is the default setting.** **Most of the hardware setting are unlocked to be customized.**
	Predefined ⇨	Predefines device to be a specific data logger. Interface parameters are still unlocked ..
	4.0 - RS232 (1x)	with 1x RS232 interface

	4.0 – 0..10V	with 2x 0..10V analog interfaces

Defined Function ⇨		Predefines Avisaro device very detailed to fulfill a certain function. No interface parameter can be modified if this setting is selected. Communication with the named client is tested, no further settings are necessare unless stated:
	HACH - Turbidimeter	HACH – Turbidimeter No further setting necessary
	METTLER – Excellence Plus XP	METTLER – Excellence Plus XP No further setting necessary
	METTLER – SevenExcellence Multi	METTLER – SevenExcellence Multi No further setting necessary
	METTLER – SevenCompact pH/Ion	METTLER – SevenCompact pH/Ion No further setting necessary
	MIELE - ThermoDesinfector	MIELE – ThermoDesinfector Target IP address needs to be added.
	SIEMENS – Rapid Point 500	SIEMENS – Rapid Point 500 No further setting necessary

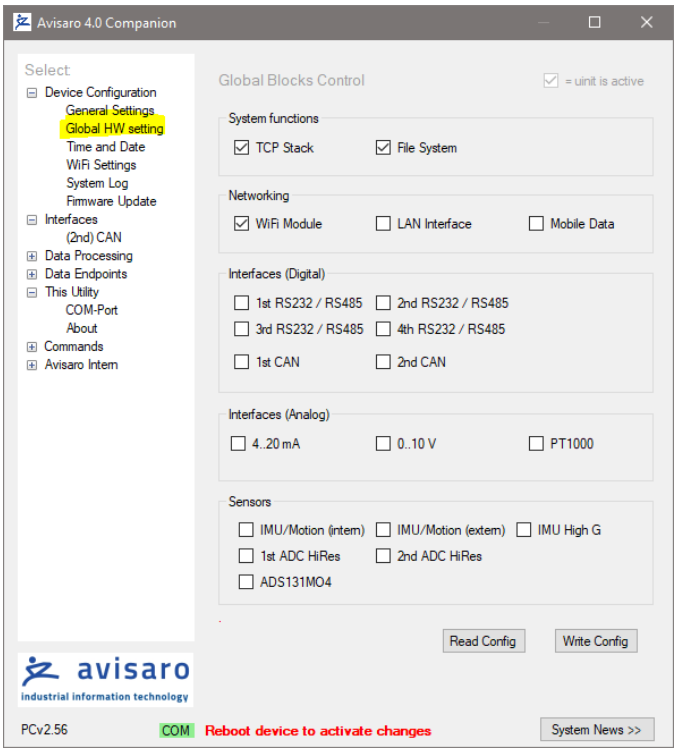
Custom ⇨		If customer specific functions are implemented, they are listed here. Usually, they can only be activated by Avisaro.
	Xxxx	See custom documentation for details.

Avisaro Intern ⇨		For internal use and testing only.
	xxxx	See custom documentation for details.

4.2 Global Hardware Setup

Hardware modules are enabled/disabled in this setting. Of course – only those interfaces who are physically there can be activated. Please check device serial number for details.

In most cases, devices are shipped with proper settings on this page.



4.2.1 Global HW settings ⇨ System functions

Don't touch those settings unless advised by technical support team from Avisaro.

4.2.2 Global HW settings ⇨ Networking

Activate the network interface which is physically present.

4.2.3 Global HW settings ⇨ Interfaces (Digital)

Activate the digital interface which is physically present.

4.2.4 Global HW settings ⇨ Interfaces (Analog)

Activate the analog interface which is physically present.

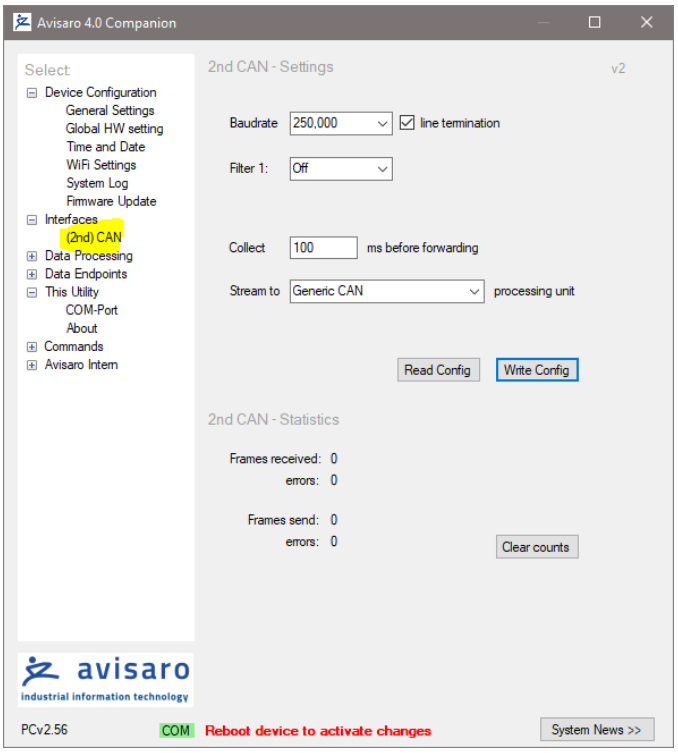
4.2.5 Global HW settings ⇨ Sensors

Activate the sensor which is physically present.

5 MENUE: 'INTERFACES'

5.1 INTERFACES ⇨ (1ST) CAN // (2ND) CAN

The up to two CAN busses are configured in this section.

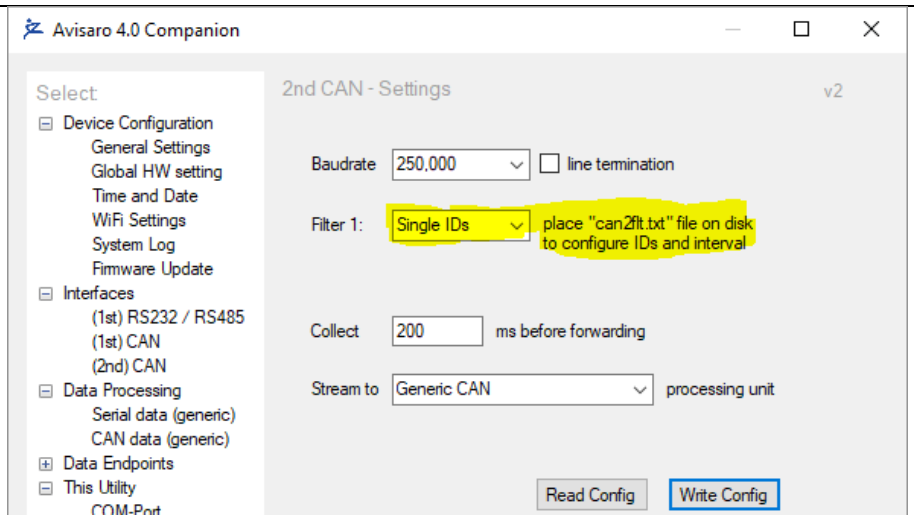


5.1.1 Baudrate & Line termination

Baudrate	Selected the matching baudrate
Line Termination	The 120 Ohm line termination resistor can be switch on/off with this setting. The feature is available for Avisaro "4.0 Silver" and "4.0 Sky D-Sub" only. Only for 2nd CAN interface

5.1.2 Filter

Off	No filter is applied, all CAN messages are passed on
Range	A range "from … " to "to …" is set. Enter values as decimal numbers
Single IDs	Single CAN IDs can be filtered on both channels. To activate single CAN IDs:



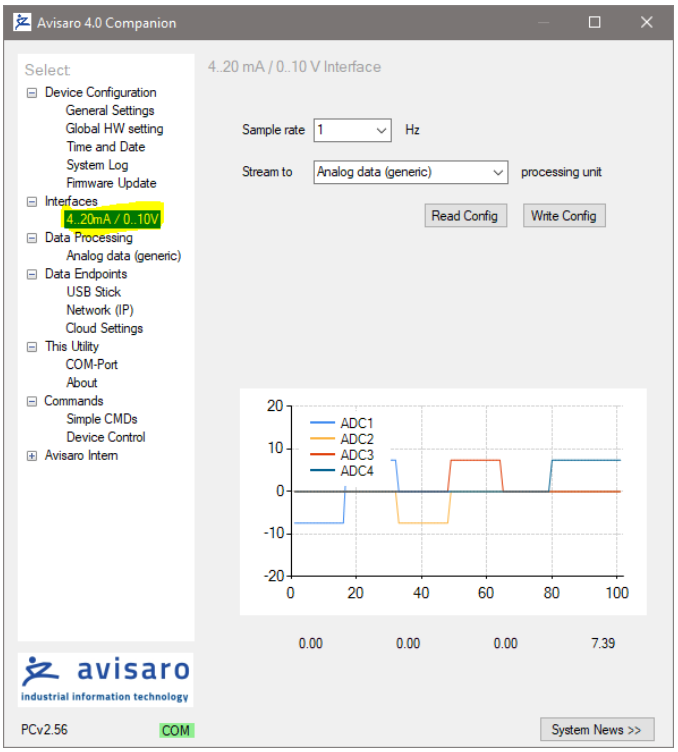
To define the CAN IDs and the intervals, a configuration file is placed on USB stick. The file names are “can1flt.txt” for CAN 1 and “can2flt.txt” for CAN 2. The content of the file is (example):

```
218000622, 500
1616, 1000
1626, 1000
1813, 500
1620, 5000
419363367, 5000
```

Use a regular text editor to create the files. The first number is the CAN ID in decimal format, the second number is the time interval in millisecond. I.e. 500 - the CAN ID is stored once every 500 ms.
Maximal 50 entries are allowed.

5.2 INTERFACES ⇨ 4..20MA / 0..10V

The analog interfaces for 4..20mA and 0..10V are managed in the same settings page.



5.2.1 Sample Rate

Select the desired sample rate in samples per seconds (hz).

5.2.2 Stream to

In this point of time, only “Analog data (generic)” can be selected.

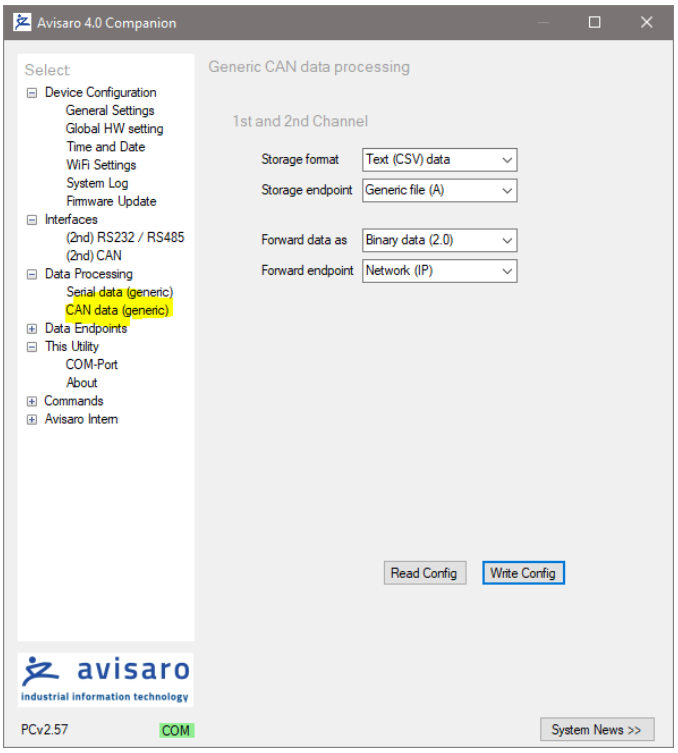
5.2.3 Graphic display

The graphic display shows the readings from the ports. This is designed to check the proper function during setup.

6 MENUE: 'DATA PROCESSING'

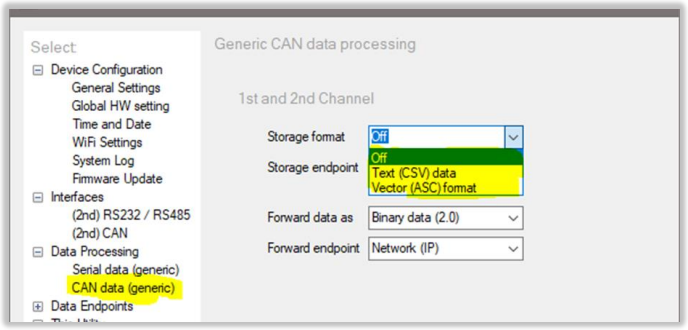
6.1 DATA PROCESSING ⇨ CAN DATA (GENERIC)

…



6.1.1 CAN data (generic) ⇨ Storage Format

.

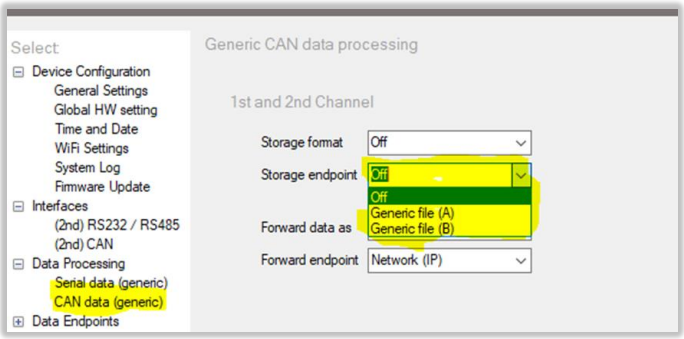


Storage format ⇨	
OFF	No data is stored
Text (CSV) data	CAN data are stored in a text format. See paragraph "CAN Formats" for details. **This is the default setting.**

Vector (ASC) format	CAN data are stored in a “Vector” (Trademark by Vector GmbH) compatible format.

6.1.2 CAN data (generic) ⇨ Storage endpoint

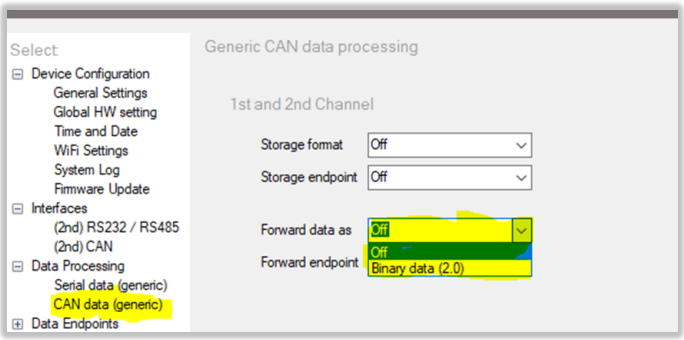
.



Storage format ⇨		
	Off	No data are stored
	Generic file (A)	Data are send to file (A). See “Data Endpoints->USB Stick” This is the default setting.
	Generic file (B)	Not supported yet

6.1.3 CAN data (generic) ⇨ Forward data as

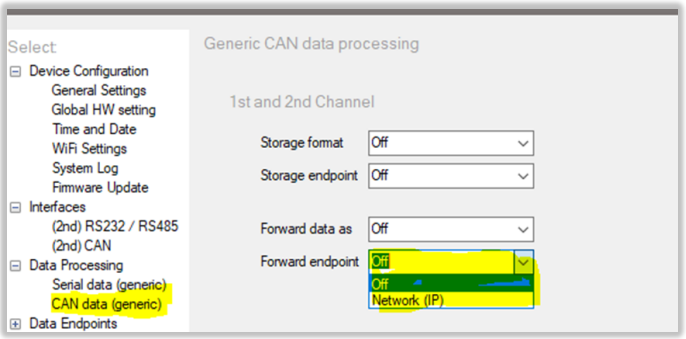
Description …:



Storage format ⇨		
	OFF	**This is the default setting.** …

6.1.4 CAN data (generic) ⇨ Forward endpoint

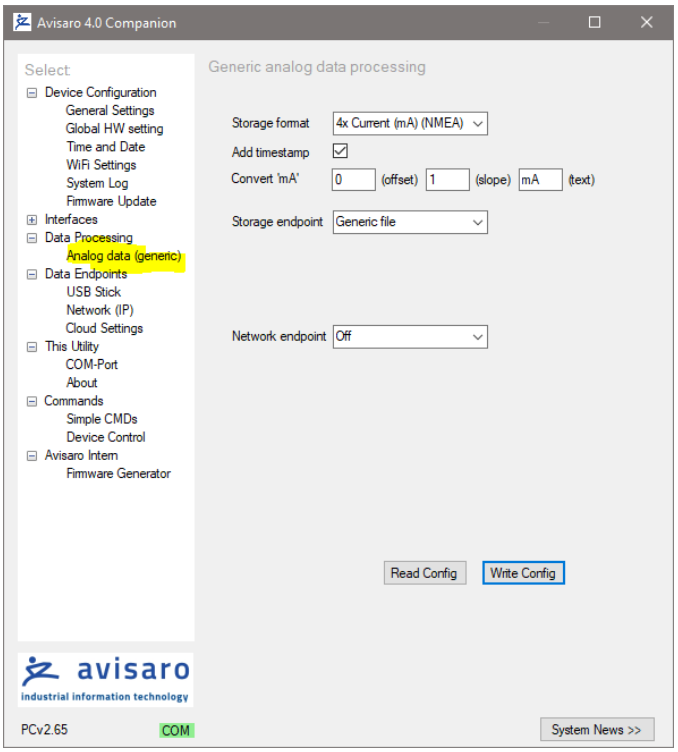
Description …:



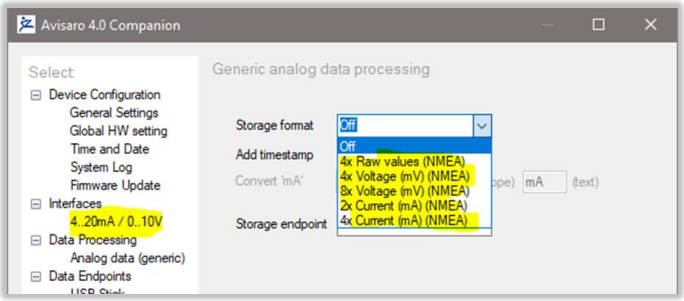
Storage format ⇨		
	OFF	**This is the default setting.** …

6.2 DATA PROCESSING ⇨ 4..20MA / 0..10V

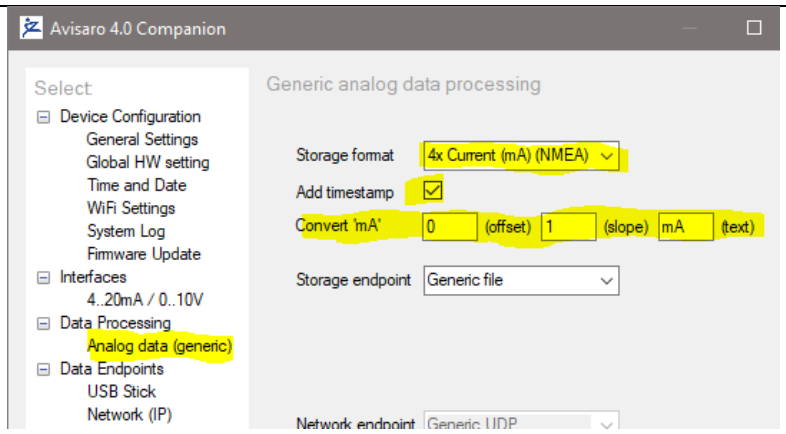
Settings for collection 0..10V or 4..20mA analog data.



6.2.1 Storage Format



Storage format ⇨		
	OFF	This is the default setting. …

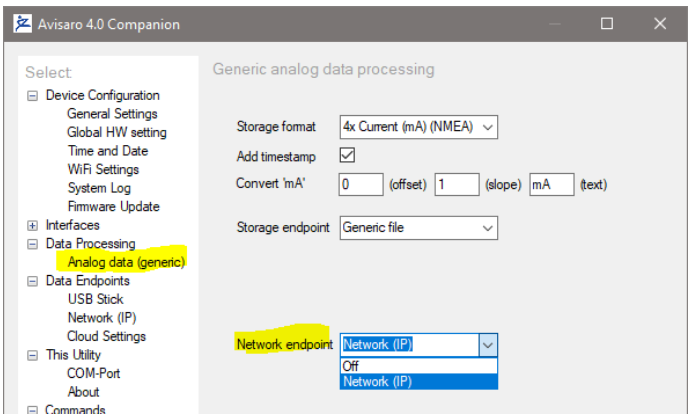
	4x Current (mA)(NMEA)	
		Storage format example with the setting above:
		`2022/03/02,15:45:33,332, $20MA,  9.979 mA, 0.761 mA, 0.001 mA,-0.001 mA`
		`2022/03/02,15:45:34,331, $20MA,  9.980 mA, 0.730 mA,-0.001 mA, 0.001 mA`
		`2022/03/02,15:45:35,330, $20MA,  9.980 mA, 0.742 mA,-0.001 mA, 0.000 mA`

	2x Current (mA)(NMEA)	Storage format example with the setting:
		`2022/03/02,16:41:24,795, $20MA,  6.924 mA,-0.501 mA`
		`2022/03/02,16:41:25,795, $20MA,  6.874 mA,-0.461 mA`
		`2022/03/02,16:41:26,795, $20MA,  6.882 mA,-0.452 mA`

6.2.2 Storage endpoint

Fixed for now to „Generic file”

6.2.3 Network endpoint



Network endpoint ⇨

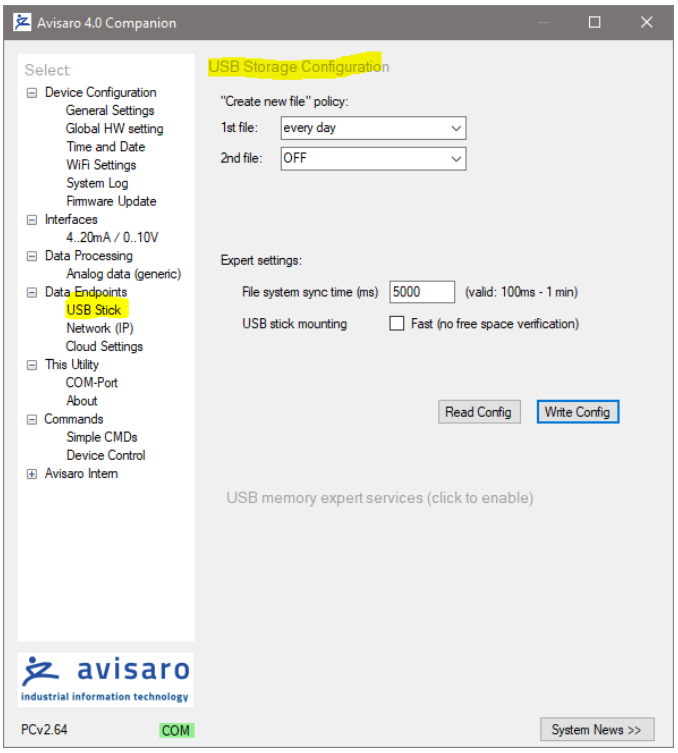
	OFF	No network forwarding
	Network (IP)	Data are forwarded to the “Network (IP)” endpoint The same format is used as set in “Storage format”

(PC companion version 2.65 and firmware version 2.65 or higher required)

7 MENUE: 'DATA ENDPOINTS'

7.1 DATA ENDPOINTS ⇨ USB STICK

The file handling is configured in this section. Depending on the application, choose when and how to create files.

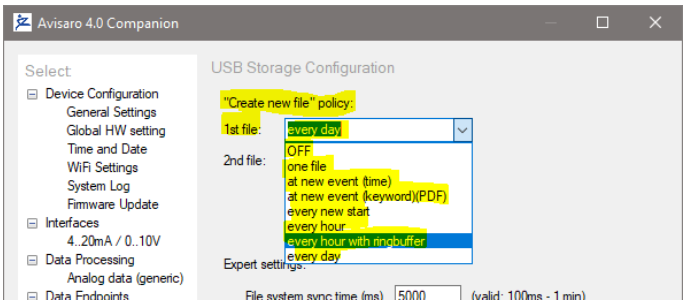


7.1.1 "Create new file" policy

Description of "Create new file" policy selection.

"1st file" settings are relevant. A directory called "log_1" is created on the USB memory. All data are contained in this directory.

"2nd file" settings apply to customer specific applications only.



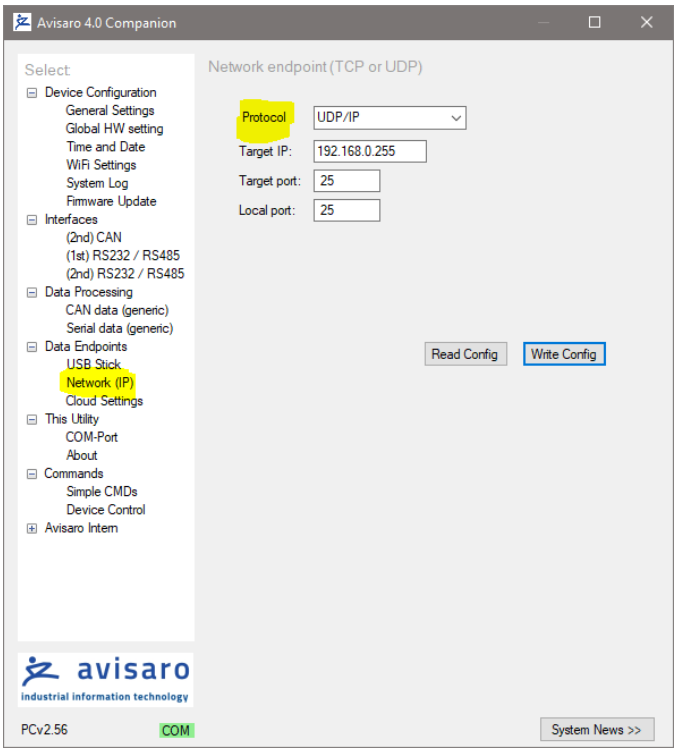
"Create new file" ⇨		
	OFF	No log file is created, no data are logged
	one file	
	every hour	Every hour a new file Log file name: yymmddhh.txt

	every hour with ringbuffer	Every hour a new file. If memory space is exceeded, the oldest file is deleted. Log file name: yymmddhh.txt
	every day	Log file name: yyyymmdd.txt
	at new event (time)	
	at new event (keyword)(PDF)	
	every new start	

7.2 DATA ENDPOINTS ⇨ NETWORK ENDPOINT

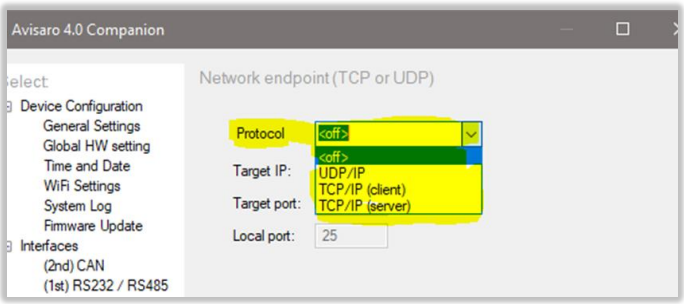
Data from a digital (RS232, CAN, ..) interface and some of the analog interfaces (0..10V, 4..20mA) can be streamed over the network.

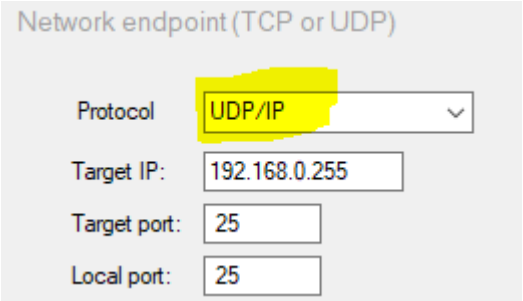
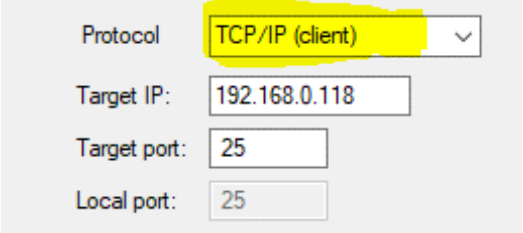
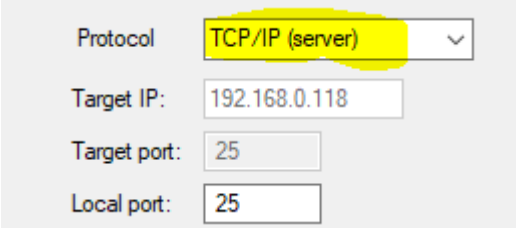
Remember to active the “Forward data” option in the ‘data processing’ section.



7.2.1 Data Endpoints ⇨ Network endpoint ⇨ Protocol

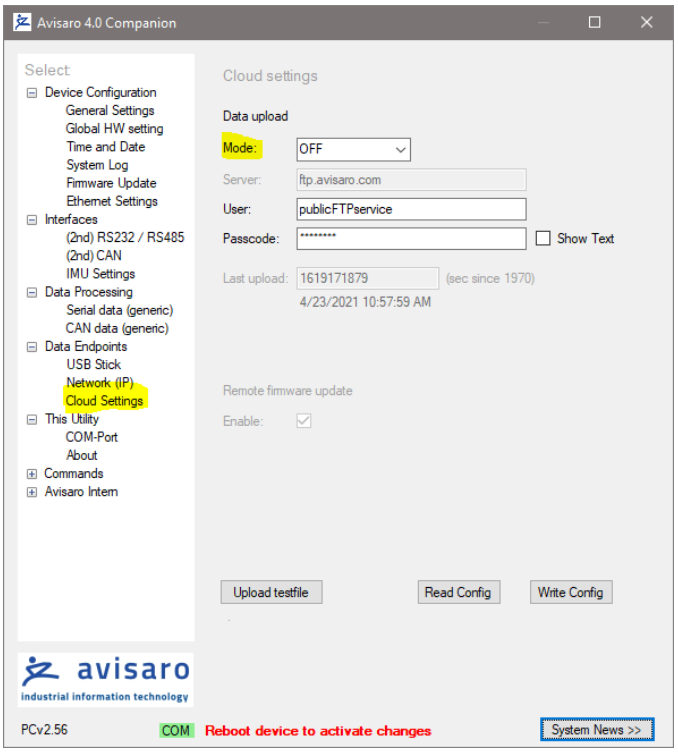
Description of “General Settings”:



Protocol ⇨	
OFF	**This is the default setting.** **No data is forwarded.**
UDP/IP	Data is send and received using the UDP/IP protocol  **Target IP:** data are sent to this IP. Use *.*.*.255 for subnet broadcasts **Target port:** port data are sent to **Local port:** port data are received (see "WiFi Setting" for this device IP address)
TCP/IP client	Data is send and received using the TCP/IP protocol. The Avisaro device is client – thus it is connecting to a server.  **Target IP:** data are sent to this IP address. **Target port:** port data are sent to **Local port:** not used
TCP/IP client	Data is send and received using the TCP/IP protocol. The Avisaro device is server – thus it is waiting for a client to connect to the Avisaro device.  **Target IP:** ignore, not used **Target port:** ignore, not used **Local port:** port data are received (see "WiFi Setting" for this device IP address)

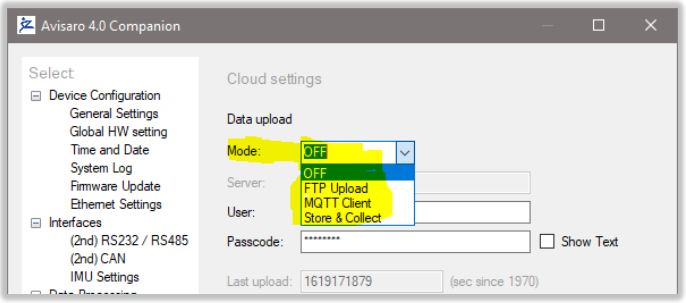
7.3 Data Endpoints ⇨ Cloud Settings

The Cloud features of the Avisaro devices are best described in separate application specific documents. Thus, here the settings are described briefly without the 'large picture' behind it.



7.3.1 Data Endpoints ⇨ Cloud Settings ⇨ Mode

Description of "General Settings":

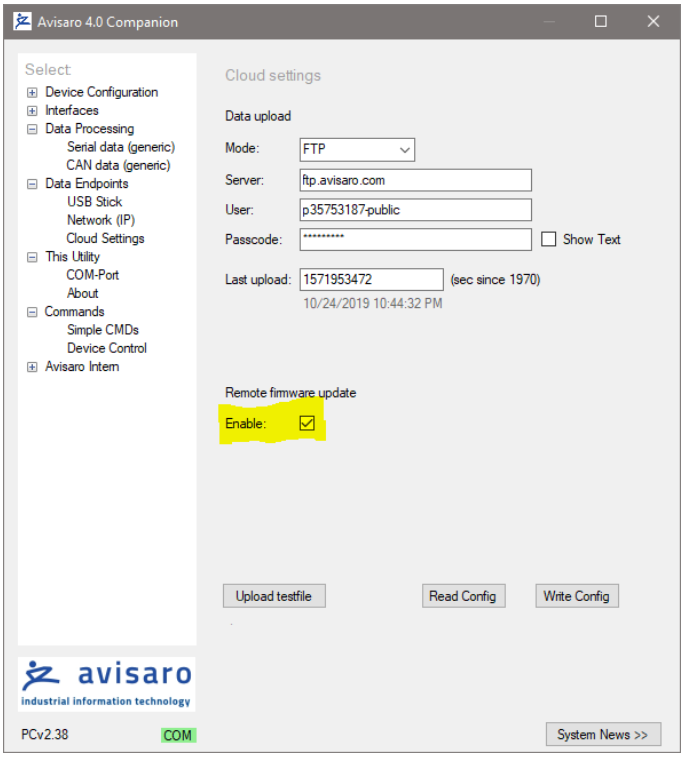


Mode ⇨		
	OFF	**This is the default setting.** **No data are uploaded into the Cloud or FTP Server.**
	FTP Upload	Data stored are uploaded on an hourly base to the FTP server specified in the settings.
	MQTT Client	This feature is defined in customer specific projects only.
	Store & Collect	Stored data are made available to be picked up by a Server Software. Parameter are:

		• User and Password • Device Name Typically, “Store&Collect” goes along with the “Avisaro Dashboard Software” (see separate documentation)

7.3.2 Data Endpoints ⇨ Remote firmware update

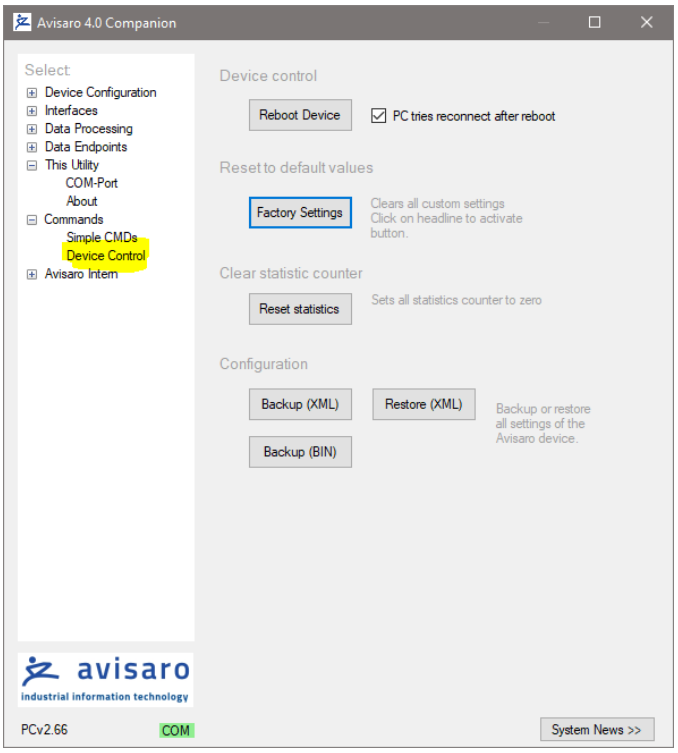
Check chapter “Firmware and Configuration Update” later in this document for details.



8 MENUE: 'COMMANDS'

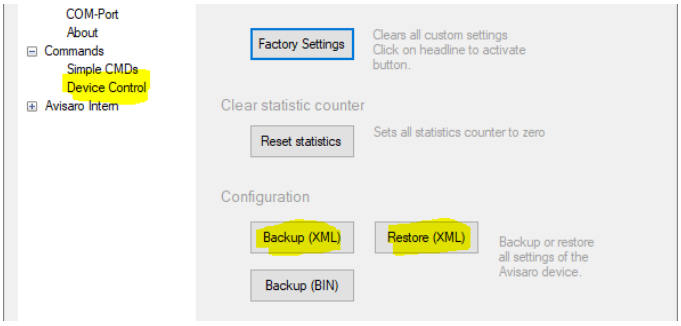
8.1 COMMANDS ⇨ DEVICE CONTROL

This section allows to clear all configuration and read&write configuration files.



8.1.1 "Configuration" – Backup and Restore

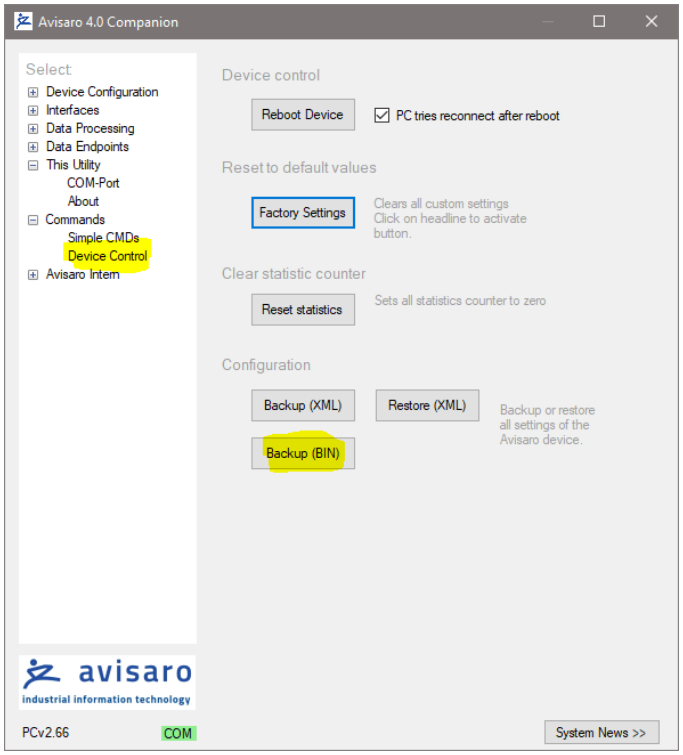
This is used to backup and restore a configuration in XML format.



8.1.2 “Configuration” – Backup in binary format

This is used to create a binary backup file. This file can be used to restore the configuration using a USB stick rather than a connection via PC Companion software.

See chapter “Firmware and Configuration update”.



9 Firmware and Configuration Update

9.1 Configuration Update

9.1.1 Introduction

The configuration of the Avisaro 4.0 defines how the devices behave. Settings like baudrate, time&date, Internet access parameter, etc. are variable and can be defined by the user.

There are two ways to configure the Avisaro 4.0 devices:

1) Connect the device to a PC using a Micro-USB cable. On the PC, a configuration software can be used to make all the settings via user friendly drop down menues. The software ("PC Companion") is provided by Avisaro free of charge.
2) The configuration can also be applied by USB stick. Once a valid configuration is made using the PC Companion software, a configuration file can be created. This configuration file is placed on a USB stick and automatically loaded by the device.

9.1.2 Via "PC Companion" Software

The configuration via the "PC Companion" software is the most user friendly way to configure the Avisaro devices. Use this as your preferred method.

See paragraph "PC Companion Software" for details on where to get and how to operate the software.

Find the complete reference manual for the PC Companion Software here:

https://www.avisaro.de/files/Avisaro/40_Docu/Avisaro-PC-Companion-Manual.pdf

9.1.3 Via USB Stick

Firmware requirements: 2.66 or larger (2022/03/28 or newer)

To configure devices within the application or without the usage of a PC/Notebook, a USB stick with a configuration file can be used. This configuration file is generated using the PC Companion tool.

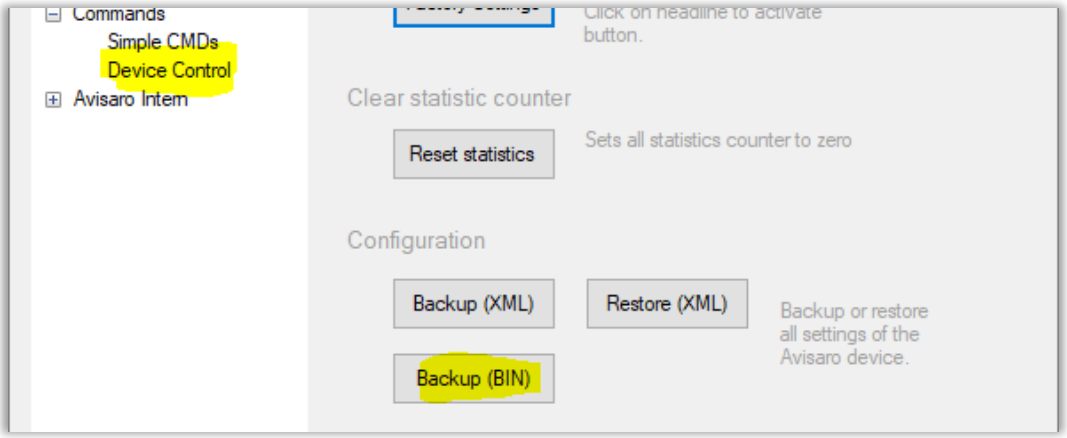
Please note: The PC Companion Tool needs a connected device in order to operate. Thus, one device 'on your desk' is needed to generate this update file.

Please note: It is important the firmware versions match. The device from which the configuration is extracted must have the same firmware as the device the configuration is applied to.

How is works:

1) Connect to the local Avisaro 4.0 device which contains the configuration to be extracted.
2) Use the "PC Companion" software and navigate to "Commands->Device Control"

3) Click on “Backup (BIN) to generate a binary copy of the configuration:



The generated file is usually named like “20220328 configuration” for better documentation.

4) Copy the configuration file on a USB Stick and **rename it to “avi40cnf.bin”** and insert the USB stick in the Avisaro 4.0 device.
5) … the update is performed and the Avisaro device reboots … this takes roughly 30sec to 1 minute
6) The **“avi40cnf.bin” file is deleted** from the USB stick once the configuration update was successful.

Please note: A firmware update and a configuration update can be done in one sequence. Thus, place both files on the same USB stick. The SET PC_Headline_DataEndp TO $'''%RootDir%\\Kapitel - Companion\\Kapitel PC Headline DataEnd.docx''' order is: first, the firmware update is performed, second, the configuration update is performed.

9.2 Firmware Update

9.2.1 Introduction

There are three ways to update the firmware of the Avisaro 4.0 family:

1. Via USB Stick
   If the Avisaro 4.0 product has a USB Host port, a new firmware can be uploaded using a USB stick. See details below.
2. Via PC Companion software
   If the Avisaro 4.0 product is connected to a PC via USB cable, the firmware can be updated using the PC companion software. See details below.
3. Via Remote Update
   For selected products, a remote firmware update via FTP server / Internet is provided.
   See paragraph “Remote Firmware Update” for details.

The latest firmware version can be found online: http://www.avisaro.de/de/40-Firmware.html

9.2.2 Via USB stick

Instructions:

- Download the latest version of the firmware from the link posted above
- Unpack the *.zip file to retrieve the “avi40up.bin” file
- Copy the file onto a USB stick in the root directory
- Power up the Avisaro data logger
- Insert the USB stick
    - After a few seconds, the LED flashes red (the firmware is loaded)
    - After about 30 seconds, the LED flashes white (critical update phase, to not interrupt)
    - The logger reboots and starts again to show a green LED
- The firmware update file is deleted from the USB stick when finished - this is to avoid accidentally a restart of the process.
- Done !

Warning:

- Ensure stable and sufficient power supply during this process. There is a risk that the device becomes unusable if there is a power failure during the process. Those broken devices needs to be send in to Avisaro for repair.

Background:

- The configuration remains - if not stated otherwise - the same. Thus, all settings stay the same after a firmware update

9.2.3 Via “PC Companion” Software

See paragraph “PC Companion Software” for details.

9.2.4 Via FTP server / internet

Avisaro Devices can be update remotely. This is a powerful service feature. To enable, navigate to “Data Endpoints”->“CLoud setting” and activate “Remote firmware update”. Please refer to the document “PC Companion” for details, chapter “Data Endpoints-> Cloud Settings”.

The update procedure is as follows:

- Place the new firmware file - usually called “avi40up.bin” on the FTP server
- Rename the file into “avi40up.xin
- The data logger, if enabled, searches every hour the directory. If an update file is found, it is downloaded and executed automatically.

Important note:

- Make sure that the data logger has sufficient and stable power supply during the update procedure. If power fails, the device can be left unoperational and needs service attention.

(To be precise: the download is not critical, but when the update is executed there is a window of 30 seconds which is sensitive to power failure)

Recommendations:

- It is highly recommended to create a different user pointing to a different subdirectory for each Avisaro Data logger. This way, a firmware update can be directed to each

10 Contact and Support

Please contact Avisaro if there are any questions:

Avisaro AG
Grosser Kolonnenweg 18 E
30163 Hannover
Germany

Email: support@avisaro.com

End of this documentation