



Avisaro 4.0 Product Series

Quick Guide

RS232 Data Logger & Gateway '4.0 Sky'

("M41014" / "C41014" / "M41124" / "C41124" / "M41434")

Version / Date: 2024/04/05



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2 THIS DOCUMENT

2.1 HISTORY OF CHANGES

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

Version	Description
2024/04/09	Update of pin layout
2024/03/01	Initial version
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

The 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/M41xx4-C41xx4-QuickGuide.pdf

2.4 LANGUAGE VERSIONS

This document is available in English language only.

2.5 OTHER DOCUMENTS AND RESOURCES

Other documents and resources can be found in the support area of our website:

English: <https://shop.avisaro.com/en/info/support.html>

German: <https://shop.avisaro.com/de/info/support.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. The disadvantage is that on rare occasions, a paragraph might have comments which do not fit 100% in the place it is used.

2.8 IMPRINT AND CONTACT

This document is provided by:

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Grosser Kolonnenweg 18 E
30163 Hannover
Germany

Web: www.avisaro.com

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3 ENCLOSURE AND USER CONTROLS

3.1 START AND STOP OPERATION

The Avisaro 4.0 starts with operation right after power on if an USB stick is inserted. Also, after re-inserting a USB stick, the operation starts automatically.

3.2 LED BLINK-CODES

There is one multicolor LED to signal states of the Avisaro device.

Code	What is means	Action
Green & blue fading	All is fine Idle state, no data arriving	None
Green flashing	Data are coming in (RS232, CAN interface) ¹⁾	None
Yello constant	All is fine, USB stick is checked after mounting	None
Red flashing	No USB stick or button was pushed	Insert USB stick Or press button again
Red (about 2sec) than blue (about 2sec)	Logger restarts. This should not happen during normal operation	Check power supply

¹⁾ On analog loggers (e.g., 4...20mA) and similar interfaces, data are read continuously, thus no green flashing is shown

3.3 REAL-TIME CLOCK

A battery buffered internal real time clock is available for time stamping data, start and stop network upload and other controls. The battery is a rechargeable “memo-buff” cell - specifically designed for RTC operations. During regular operation, the battery is recharged over a 48h period. During non-operating times (= supply power off), the date and time settings are maintained for several month.

If the Avisaro device is networked, a network time server (SNTP) can be used to set time and date automatically.

If an Avisaro GPS receiver is connected, the RTC can be set using satellite time.

It is possible to define time zones settings.

3.4 ENCLOSURE “4.0 Sky” WITH D-SUB CONNECTOR

Front with slot for USB stick. Matches are shown just for size reference:



Reverse side shows D-Sub connector for data and barrel connector for power. The micro USB port is for configuration only:



Optional, a DIN rail fitting is available:



3.5 ENCLOSURE “4.0 Sky” WITH WAGO CONNECTOR

Front with slot for USB stick. Matches are shown just for size reference:



Reverse side shows the two WAGO connectors for data and power:



Optional, a DIN rail fitting is available:



WAGO connector are great with single wires. The Clamps are included in most of our products



3.6 ENCLOSURE “4.0 Sky” WITH ETHERNET AND WAGO CONNECTOR

Front with slot for USB stick. Matches are shown just for size reference:



Reverse side shows Ethernet (RJ45) and WAGO connector for data and power. The micro USB port is for configuration only:



Optional, a DIN rail fitting is available:



There is an optional adapter piece to connect the WAGO connector to a standard D-Sub:



4 USB STORAGE STICK

4.1 FILESYSTEM AND STORAGE SIZE

Commercially available USB 2.0 / 3.0 memory sticks can be used. It is recommended to exclude branded products - no "promotional items" with your own logo imprint.

There are no speed requirements. Memory sticks that are advertised as particularly fast offer no (!) advantage in the Avisaro data logger. Typically these optimizations are designed for cameras etc..

Memory sizes from 4 to 256 GByte are supported. As file system FAT or FAT32 (preferred) is used. NTFS or others are not supported.

Memory sticks are typically not in the scope of delivery - each application typically has different requirements.

4.2 FORMATTING

Usually, sticks come pre-formatted, so you don't have to do anything. Even larger than 32GByte sticks are preformatted with FAT32.

Sticks equal or smaller than 32 GByte can be formatted with Windows Operating system as it is. Use "FAT32" as the desired format.

Windows Operating System does not allow to format sticks larger than 32 GByte with the FAT32 file system. Usually, sticks come pre-formatted, so you don't have to do anything. If there is a need to reformat a stick, the Avisaro Device can be used. Please refer to later chapter "Configuration: PC Companion Software" .. "USB Storage" either in this document, or in the overall "User Manual Serie 4.0" document.

Alternatively, third party tools for Windows can be used to format large USB sticks. Please note: Avisaro can not support those third party tools within our technical support via telephone or email.

4.3 CHOOSING THE RIGHT MEMORY STICK

For **industrial** use, special parameters may have to be observed:

The **temperature** range should be considered. There are "industrial grade" memory sticks available - often designed as "SLC" version - which are also suitable for harsh environments.

The **mechanical dimension** should also be considered. It is disadvantageous if the stick protrudes openly from the housing and could be knocked off. In this case short sticks are recommended. If the logger is installed protected, then a longer stick is easier to use.



The appropriate **memory size** also depends on the intended use. Due to the technology, memory sticks with an extremely high capacity are typically less robust than smaller memory sizes. The loggers have a "ring memory" that can be optionally activated. If the memory stick becomes full (approx. less than 100MB free memory) the oldest files are deleted - this is a useful setting for some applications.





4.4 RECOMMENDED MEMORY STICKS

It is difficult to recommend consumer grade USB sticks as detailed technical information are not published.

Nevertheless, we try (please check for updated documentation often, link found in previous chapters):


Last updated: April 5th, 2022

4.4.1 Recommended

Manufacturer	Model	Picture	Capacity	Technology	Remarks
SanDisk	Ultra Fit		16 GB	Consumer	
SanDisk	Ultra		32 GB	Consumer	
Intenso	Slim Line		8 GB	Consumer	
Kingston	Data Traveler 2		16 GB	Consumer	

Innodisk	USB Drive 3SE		4-32 GB	Industrial	SLC Technology
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4.4.2 Not recommended

Manufacturer	Model	Picture	Capacity	Technology	Remarks
Verbatim	Slider Store N Go		8 GB	Consumer	Stick failures after short period of time

5 INTERFACE DESCRIPTION AND PIN LAYOUT

5.1 MICRO-USB CLIENT

The Micro-USB client interface is used for configuration only.



USB in "4.0 Sky" products USB Client in "4.0 Silver" products USB Client in "4.0 Shell" products

Most Avisaro devices are powered through the Micro-USB client port, however only for configuration. A stable regular operation is not guaranteed. Use the regular power supply for normal operation.

A "Micro USB" cable is used. As those cables are widely available, this cable is not part of the scope of delivery to avoid electronic waste.

Heads-up: There are sometimes Micro USB cable which only do power supply, but not data. Those are used i.e., with mobile phones. If the Avisaro device is powered, but no data connection to the PC – just choose a different USB cable.

5.2 POWER SUPPLY

For regular operation, an external power supply must be connected. Powering the device through micro-USB is not (!) sufficient.

5.2.1 Barrel Connector

Power supply at the "D-Sub" version is realized using a widely used barrel connector:



The matching plug has the following dimensions (which are widely used and very much a 'standard'):

- Diameter outside: 5.5 mm
- Pin inside: 2.1 mm

- Shaft of 9.5 mm
- Polarity: middle pin is + voltage, outside is ground (-) voltage
- Voltage: 6 to 32 V DC (recommendation: 9V or 12V)

5.3 RS232 INTERFACE

This is an industry standard RS232 connection.

5.3.1 Default RS232 settings

Those are the default settings:

Baudrate	9600
No of bits	8
Parity bits	none
Stop bits	1
Flow control	none

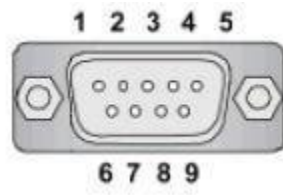
5.3.2 Signal levels

Max Input voltage range on signal pins: -24 to 24 V

Output level provided: -5V to 5V

5.3.3 D-Sub Connector - 1x RS232 ("M41014", "C41014")

Industry standard SubD-9 connector (male)



Connector	Interface	Pin	Signal	Direction
D-Sub, 9 pol, male	1 st RS232	1	n.c. (optional DCD)	
		2	RxD - Data	in
		3	TxD - Data	out
		4	n.c. (optional DTR)	
		5	GND	Power & Signal

		6	n.c. (optional DSR)	
		7	RTS - Signal	out
		8	CTS - Signal	in
		9	n.c. (optional: VCC (6..32V))	Power

Supply voltage does not carry an output voltage – thus if the device is powered via barrel connector, Pin 9 does not show the input voltage (internal diode). This is for security reason. If needed, Avisaro can modify the device such that this pin can be used to power other devices.

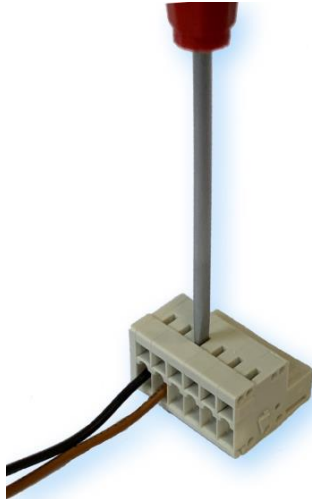
5.3.4 WAGO - 2x RS232 Interface (“M41124” / “C41124”)



Connector	Interface	Pin	Signal	Direction
WAGO A	2 nd RS232	1	CTS	in
		2	RTS	out
		3	RxD	in
		4	TxD	out
		5	VCC (6..32V)	Power
		6	GND	Power & Signal
WAGO B	1 st RS232	1	CTS	in
		2	RTS	out
		3	RxD	in
		4	TxD	out
		5	VCC (6..32V)	Power
		6	GND	Power & Signal

Cables are connected with the WAGO 734 series connectors. In most product configurations, those adapters are shipped with the box. Check the 'scope of delivery' list.

5.3.5 Using the WAGO connector



To open the WAGO clamp, insert a screwdriver as shown in the picture to the left. Push down gently – this will open the clamp and you can insert the cable.

Typically, WAGO clamp is included in the scope of delivery.

Type of connector: WAGO 734

5.3.6 WAGO to D-Sub Adapter



There is a WAGO to D-Sub adapter available (product # "Z3011"). This adapter allows for easy cable connection from standard RS232 cable to WAGO, including a power supply with a barrel connector.

Barrel connector for power supply: The matching plug has the following dimensions (which are widely used and very much a 'standard'): Diameter outside: 5.5 mm, inside: 2.1 mm and a shaft of 9.5 mm. Polarity: middle pin is + voltage, outside is ground (-) voltage. Same voltage as described above.

Please note: For the Avisaro 4.0 family with 2x RS232 WAGO: only one of those connectors fit – two connectors are too wide !

5.4 ETHERNET (RJ45 LAN) INTERFACE



This is an industry standard Ethernet (LAN) interface.

Supported rates are:

- 10 BaseT
- 100 BaseT

The port does not (!) cross automatically. Thus, if connected directly to a PC, either the PC has to be auto-crossing or you need to use a Ethernet Cross-Over cable.

6 CONFIGURATION: 'PC COMPANION SOFTWARE'

6.1 HOW TO CONFIGURE AVISARO "SERIES 4.0" PRODUCTS

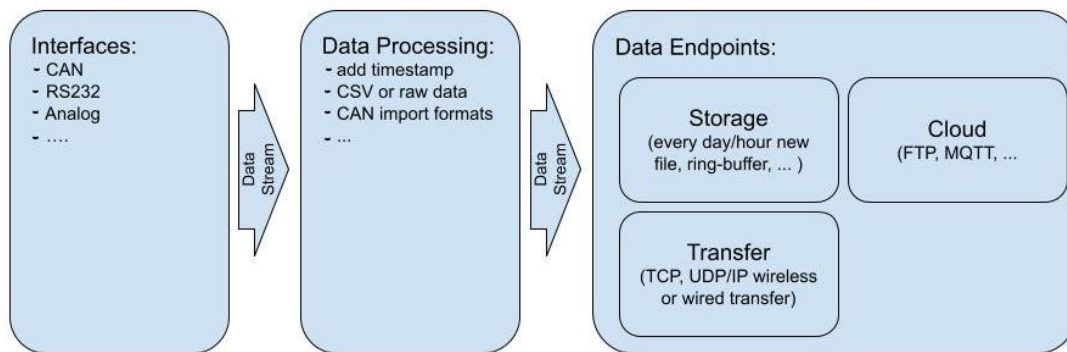
The basic principle of how to configure the Avisaro "Series 4.0" products is:

- 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.

6.2 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".

6.3 DETAILED DOCUMENTATION

This current document shows only selected parts of the full "Avisaro PC Companion Software" user manual. The motivation is to keep this document as compact as possible.

Please find the extensive "Avisaro PC Companion Software" document in the support section of the Avisaro website:

German: https://www.avisaro.de/de/40_Dokumentation.html

English: <https://www.avisaro.com/en/40-ENG-Dokumentation.html>

6.4 “PC COMPANION SOFTWARE” INSTALLATION

Download the latest version from:

German site: <https://shop.avisaro.com/de/Z46330.html>

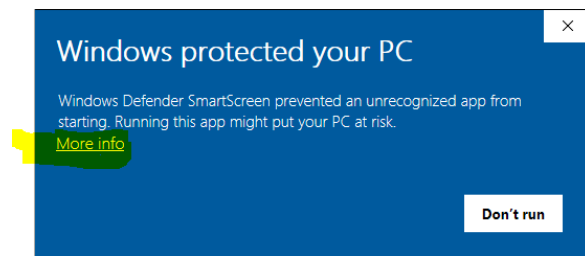
English site: <https://shop.avisaro.com/en/Z46330.html>

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

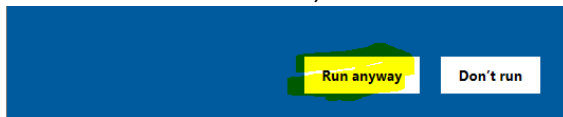
There are two version available:

- 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.

6.5 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.

Scroll down in the same download sites as above to the headline “Serial Driver Software” (en) or “Serielle Treiber Software”. Or, follow directly this link:

https://download.avisaro.com/files/Avisaro/40_PC_App/en.stsw-stm32102.zip

6.6 INITIAL SET-UP

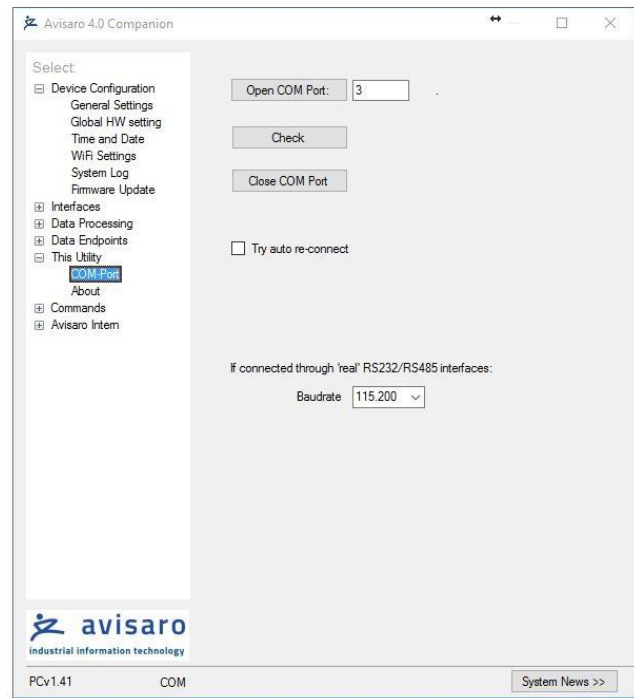
After starting the companion software, the virtual COM port number needs to be entered. You can find this number in the Windows “Device Manager”.

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.

6.7 USING THE PC COMPANION TOOL

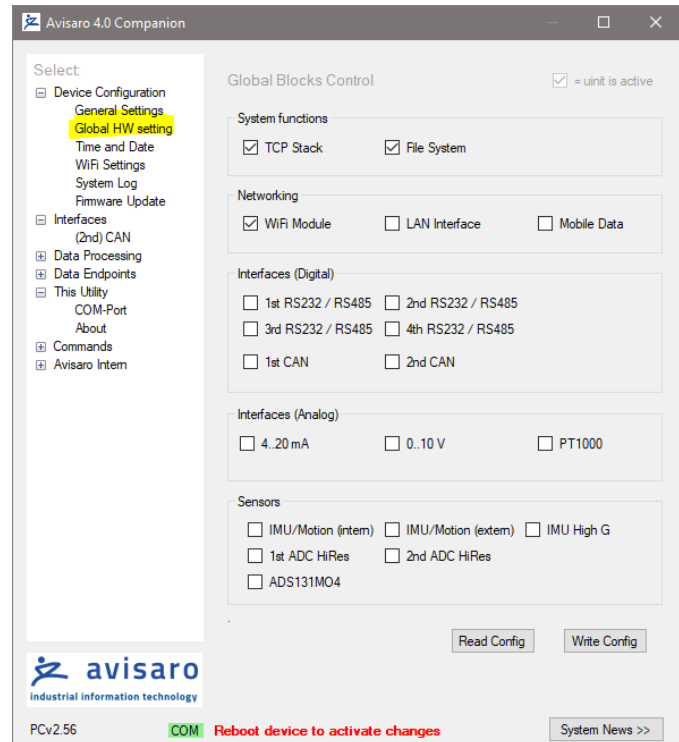
Click on “Write Config” to transmit changes in the PC tool to the Avisaro device. Click on “Read Config” to display the currently stored values (if you navigate between options, the latest settings are read of course automatically).

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

6.8 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.



6.8.1 Global HW settings ⇔ System functions

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

6.8.2 Global HW settings ⇔ Networking

Activate the network interface which is physically present.

6.8.3 Global HW settings ⇔ Interfaces (Digital)

Activate the digital interface which is physically present.

6.8.4 Global HW settings ⇔ Interfaces (Analog)

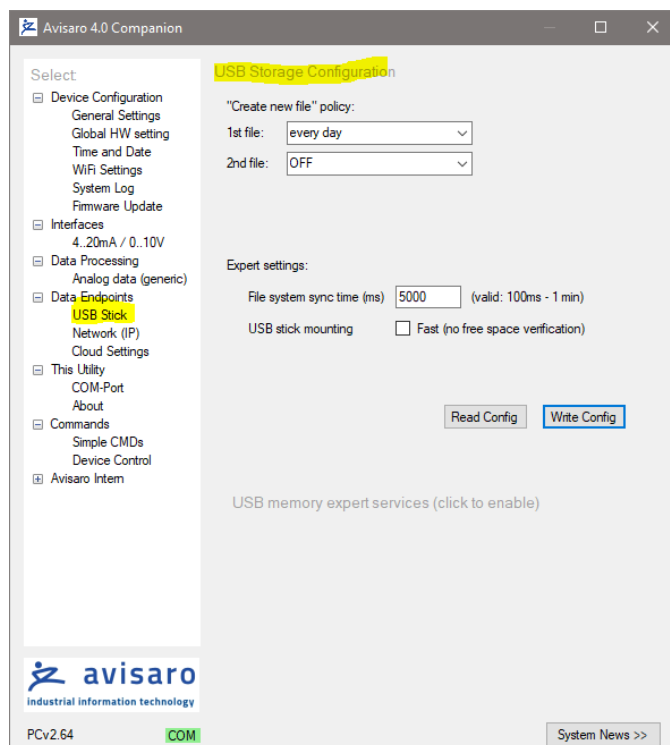
Activate the analog interface which is physically present.

6.8.5 Global HW settings ⇔ Sensors

Activate the sensor which is physically present.

6.9 DATA ENDPOINTS ⇒ USB STICK

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

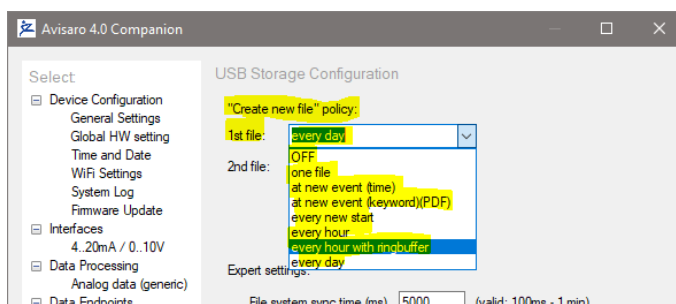


6.9.1 “Create new file” policy

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.



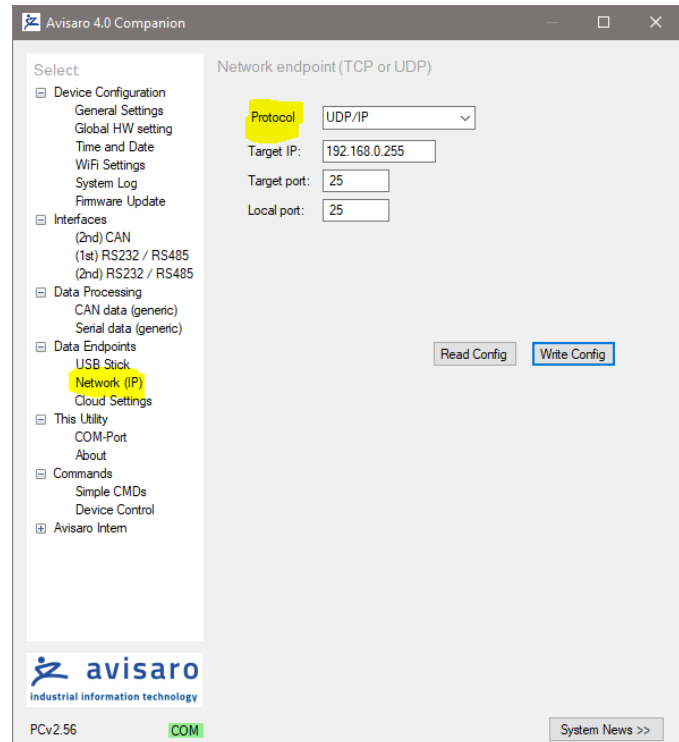
“Create new file” ⇒		
	OFF	No log file is created, no data are logged
	one file	
	every hour	Every hour a new file Log file name: yymmddhh.txt
	every hour with ringbuffer	Every hour a new file. If memory space is exceeded, the oldest file is deleted. Log file name: yymmddhh.txt
	every day	Log file name: yyyyymmdd.txt

	at new event (time)	
	at new event (keyword)(PDF)	
	every new start	

6.10 DATA ENDPOINTS ⇒ NETWORK ENDPOINT

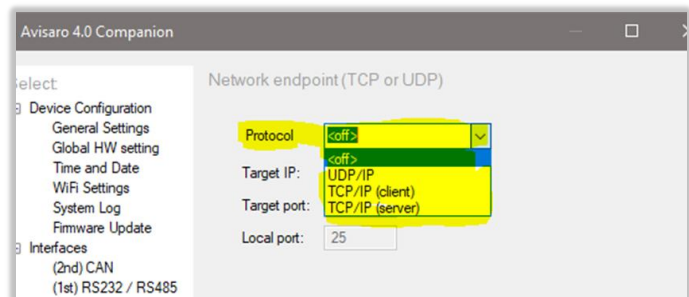
Data from a digital (RS232, CAN, ..) interface and some of the analog interfaces (0..10V, 4..20mA) can be streamed over the network.

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



6.10.1 Data Endpoints ⇒ Network endpoint ⇒ Protocol

Description of “General Settings”:

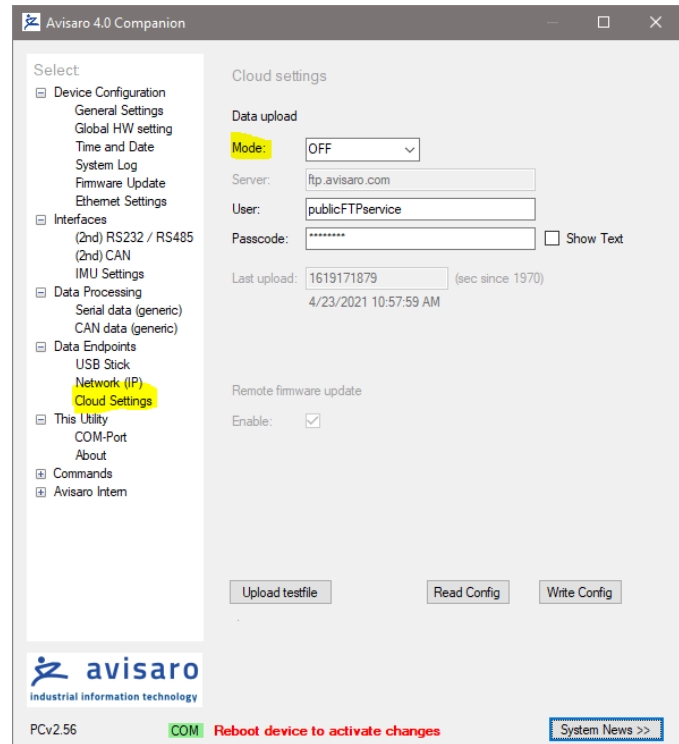


Protocol ⇒		
	OFF	This is the default setting. No data is forwarded.
	UDP/IP	Data is send and received using the UDP/IP protocol

	<p>Network endpoint (TCP or UDP)</p> <p>Protocol: UDP/IP</p> <p>Target IP: 192.168.0.255</p> <p>Target port: 25</p> <p>Local port: 25</p> <p>Target IP: data are sent to this IP. Use *.*.*.255 for subnet broadcasts</p> <p>Target port: port data are sent to</p> <p>Local port: port data are received (see “WiFi Setting” for this device IP address)</p>
TCP/IP client	<p>Data is send and received using the TCP/IP protocol. The Avisaro device is client – thus it is connecting to a server.</p> <p>Protocol: TCP/IP (client)</p> <p>Target IP: 192.168.0.118</p> <p>Target port: 25</p> <p>Local port: 25</p> <p>Target IP: data are sent to this IP address.</p> <p>Target port: port data are sent to</p> <p>Local port: not used</p>
TCP/IP client	<p>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.</p> <p>Protocol: TCP/IP (server)</p> <p>Target IP: 192.168.0.118</p> <p>Target port: 25</p> <p>Local port: 25</p> <p>Target IP: ignore, not used</p> <p>Target port: ignore, not used</p> <p>Local port: port data are received (see “WiFi Setting” for this device IP address)</p>

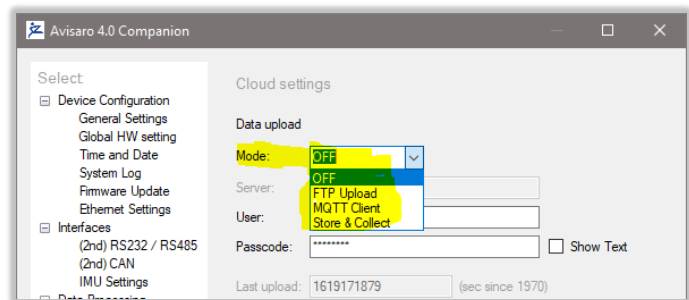
6.11 DATA ENDPOINTS ⇒ CLOUD SETTINGS

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.



6.11.1 Data Endpoints ⇒ Cloud Settings ⇒ Mode

Description of "General Settings":

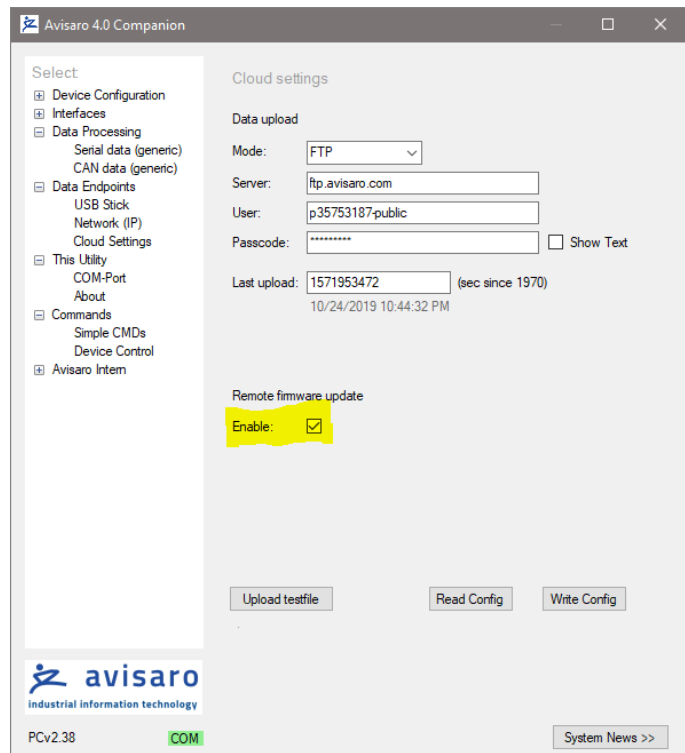


Mode ⇒		
	OFF	This is the default setting. No data are uploaded into the Cloud or FTP Server.
	FTP Upload	Data stored are uploaded on an hourly base to the FTP server specified in the settings.
	MQTT Client	This feature is defined in customer specific projects only.
	Store & Collect	Stored data are made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

		<ul style="list-style-type: none">• User and Password• Device Name Typically, “Store&Collect” goes along with the “Avisaro Dashboard Software” (see separate documentation)
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6.11.2 Data Endpoints ⇒ Remote firmware update

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



7 FIRMWARE AND CONFIGURATION UPDATE

7.1 CONFIGURATION UPDATE

7.1.1 Introduction

The configuration of the Avisaro 4.0 defines how the devices behave. Settings like baud rate, time and 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, configuration software can be used to make all the settings via user-friendly drop-down menus. 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.

7.1.2 Via "PC Companion" Software

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

7.1.3 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.

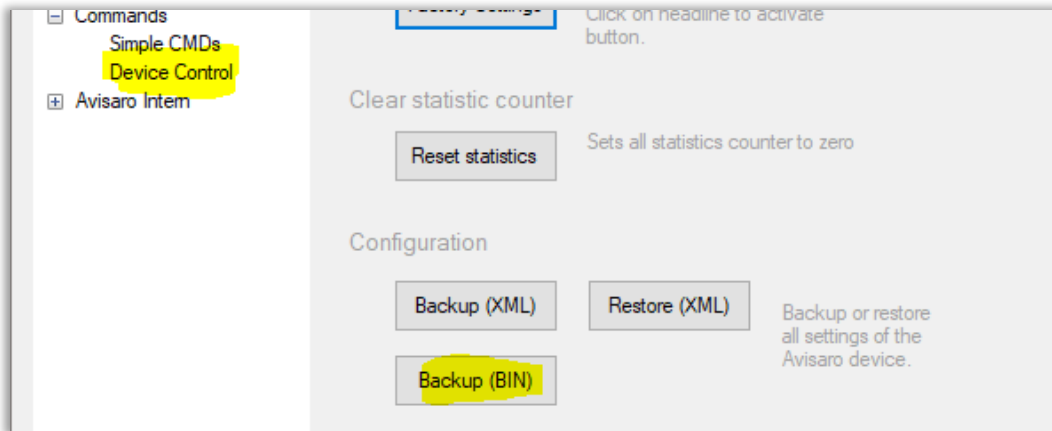
Please note: The PC Companion Tool needs a connected device to operate. Thus, one device 'on your desk' is needed to generate this update file.

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 it 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.

7.2 FIRMWARE UPDATE

7.2.1 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>

7.2.2 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

7.2.3 Via “PC Companion” Software

See paragraph “PC Companion Software” for details.

7.2.4 Via FTP server / internet

Avisaro Devices can be updated 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 non-operational 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.

8 DECLARATIONS

8.1 EC/EU DECLARATION OF CONFORMITY

 **avisaro**
 industrial information technology

EG/EU Konformitätserklärung
EC/EU Declaration of Conformity

Name des Herstellers **Avisaro AG**
Manufacturer Name **Grosser Kolonnenweg 18 E**
30163 Hannover
Germany

erklärt in alleiniger Verantwortung, dass das Produkt
declares in its sole responsibility, that the product

Bezeichnung des Produkts **Datenlogger 4.0 „Sky“**
Description of Product

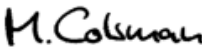
Type(n) **Serie M4xxx**
Type(s)

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.

<u>Richtlinie(n)</u> <i>Directive(s)</i>	<u>Norm(en)</u> <i>Standard(s)</i>
Bis / <u>until</u> 2016-04-19: 2004/108/EG Ab / <u>from</u> 2016-04-20: 2014/30/EU	EN 55022 : 2010 EN 55024 : 2010
Sonstige Normen: <i>Other <u>normes</u>:</i>	EN 60950-1 : 2006 EN 60529 + A1 2000 (Cube IP 66)

Hannover, 08.03.2016

Ort, Datum
Place, date


 Matthias Colman
Leitung Entwicklung
Head of development

9 CONTACT AND SUPPORT

Please contact Avisaro if there are any questions:

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End of this documentation