

USER MANUAL

ADRASTEIA COMMANDER

VERSION 1.7

MAY 27, 2025

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

Revision history

Manual version	SW version	Notes	Date
1.0	1.0.0	<ul style="list-style-type: none">• Initial release	April 2021
1.1	1.0.0	<ul style="list-style-type: none">• New corporate design	May 2023
1.2	1.1.0	<ul style="list-style-type: none">• Update software history	October 2023
1.3	1.2.0	<ul style="list-style-type: none">• Update software history	July 2024
1.4	1.2.0	<ul style="list-style-type: none">• Links updated in section Support• Updated chapter Important notes• Updated chapter Legal notice	October 2024
1.5	2.0.0	<ul style="list-style-type: none">• Added new section Cloud settings	April 2025
1.6	2.1.0	<ul style="list-style-type: none">• Updated section Software history	April 2025
1.7	2.2.0	<ul style="list-style-type: none">• Updated section Software history	May 2025

Abbreviations

Abbreviation	Name	Description
COM	Communication port	Serial port interface
GNSS	Global navigation satellite system	The general term for systems like GPS
GPIO	General general-purpose input/output	
GPS	Global Positioning System	GNSS developed by United States
GUI	Graphical User Interface	
IDE	Integrated Development Environment	Tools to write and compile software
IoT	Internet of things	
LTE	Long Term Evolution	Communication standard for mobile phones and devices
NMEA	National Marine Electronics Association	NMEA specification is used in GNSS
SIM	Subscriber identification module	
SNR	Signal-to-noise ratio	An indicator used in GNSS
UART	Universal asynchronous receiver-transmitter	Serial communication

Contents

1	Overview	4
1.1	Supported cellular modules	4
1.2	System requirements	4
1.2.1	Supported operating systems	4
1.2.2	.NET Framework	4
1.2.3	Internet connection	4
2	Installation	5
2.1	Connect the EV-Board	5
3	Deinstallation	6
4	Operation	7
4.1	Starting the program	7
4.2	Connect/Disconnect	8
4.3	Console	8
4.4	Module status	9
4.5	Quick selection	10
4.6	Command list	11
4.7	Run command sequence	11
4.8	GNSS	13
4.8.1	Navigation View	14
4.8.1.1	Status	15
4.8.1.2	Position	15
4.8.1.3	Movement	16
4.8.1.4	Date and Time	17
4.8.1.5	Output	17
4.8.2	Satellite view	18
4.8.2.1	Table	19
4.8.2.2	Sky view	19
4.9	Log file	20
4.10	Data usage estimation	21
4.11	Cloud settings	21
4.12	Support	22
5	Software history	23
6	Important notes	24
7	Legal notice	24
8	License terms	25

1 Overview

The Adrastea Commander is a simple PC tool to interact with the EV-Boards of the Würth Elektronik eiSos cellular module using the UART interface. It allows:

- Taking into operation of the EV-Board
- Evaluation of module capabilities and features
- Getting familiar with module AT protocol
- Configuration of the module without knowledge of the protocols

1.1 Supported cellular modules

The following cellular products are supported:

- Adrastea-I (2615011136000)
- Adrastea-I EV-Board (2615129230001)

1.2 System requirements

1.2.1 Supported operating systems

The following operating systems are supported:

- Windows 10, 32/64 bit
- Windows 8, 32/64 bit
- Windows 7, 32/64 bit

1.2.2 .NET Framework

Version 4.8 or later of the Microsoft .NET framework is required to use Adrastea Commander. Install this package if you receive a corresponding error message when starting the program.

1.2.3 Internet connection

Adrastea Commander works mostly offline. An internet connection is only required to follow links present in the software, e.g. links to manuals or related websites. Normal operation can be done without internet connection of any sort.

2 Installation

Adrastea Commander is provided in the form of a compressed zip file. To use Adrastea Commander extract the zip files to a directory of your choice. The new folder will contain the following files:

- AdrasteaCommander.exe
- CommandList.xml
- QuickSelection.xml

No further actions are required for installation. However, the serial-to-USB FTDI converter chip (for example, FT232R) on the evaluation platform or USB dongles requires special drivers to be installed for proper operation. To use USB dongles or EV-Boards of Würth Elektronik eiSos wireless connectivity modules, the Virtual COM Port (VCP) drivers have to be installed by following the "Installation Guides" of FTDI found under:

<https://www.ftdichip.com/Drivers/VCP.htm>



It is recommended to restart the PC after installation of the drivers.



Adrastea Commander creates folders and writes log files during operation. Please make sure that the directory has the necessary permission.

2.1 Connect the EV-Board

After the FTDI VCP drivers installation the EV-Board can be connected to the PC via USB cable. This will make 4 COM ports available 3 of which are used by the module. Adrastea Commander is meant to be used with UART0.

UART	Description	Default baud rate
UART0	Application UART	115200
UART1	FW LOG	921600
UART2	Bootloader	115200

Table 1: Adrastea COM ports

Please refer to the EV-Board user manual for detailed information.

3 Deinstallation

Adrastea Commander can be uninstalled by simply deleting the directories and files that have been created during operation and installation. Adrastea Commander operates only in the folder it was extracted to. No changes are made to the registry.

4 Operation

4.1 Starting the program

The program can be started by double-clicking the "AdrasteaCommander.exe" extracted earlier during the installation. Right after start up the application view will be shown.

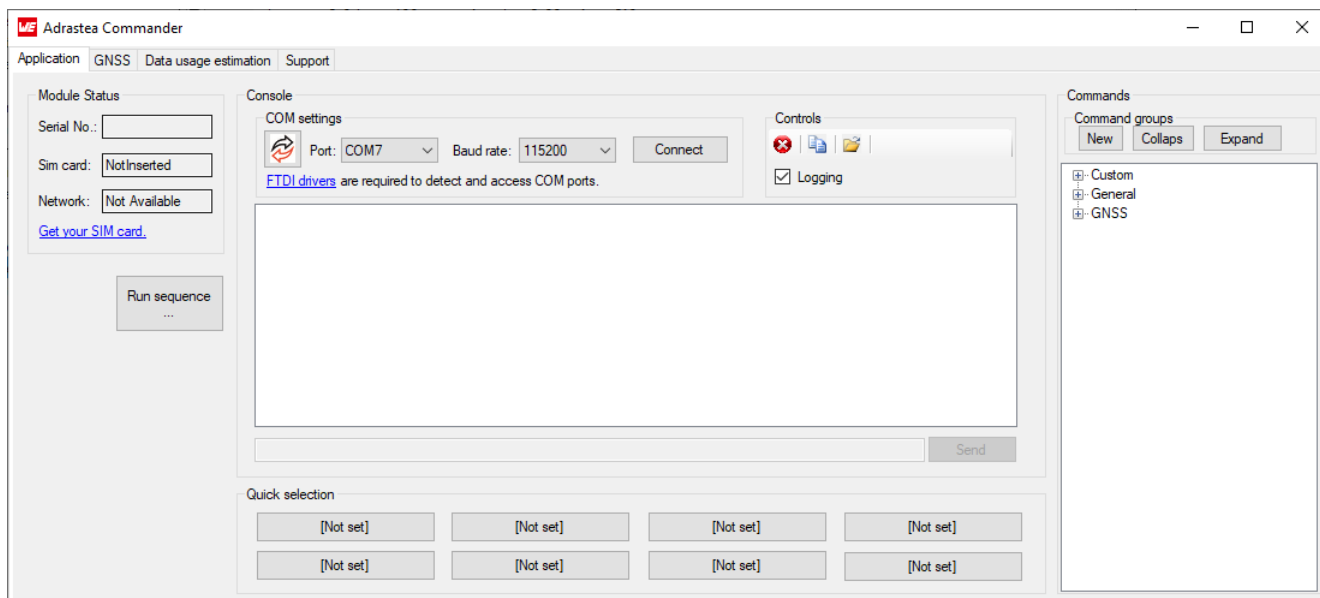


Figure 1: Adrastea Commander after start up

4.2 Connect/Disconnect

To open the communication with the module:

1. Refresh com ports by clicking the refresh button to the left.
2. Select the port from the drop-down list.
3. Select the baud rate from the drop-down list.
4. Click the "Connect" button.

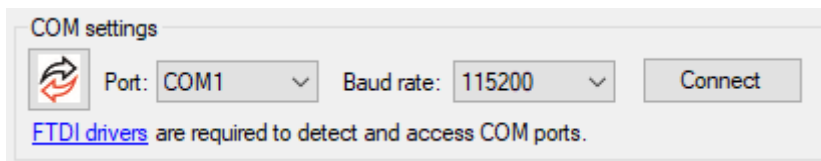


Figure 2: Com settings



The default baud rate of the modules is 115200 Baud.

If the selected baud rate does not match the configured module baud rate, communication is not possible. If the baud rate setting has been changed in previous module operation, the last configured baud rate has to be chosen in the PC-tool.

After connection, the text of the button will change to "Disconnect". Press this button to close the COM port and stop the communication with the module. If connection with the module is stopped successfully message flow stops in the navigation view.

4.3 Console

The console view shows the commands sent to and output received from the Adrastea-I module. Commands can be typed in the text field and sent by clicking on the "Send"-button or by pressing the "Return"-key.

When sending a command via the console, the command is saved in the history during runtime. Use arrow-up and arrow-down keys to scroll through the history. Commands sent via quick selection or command list are not added to the console history.

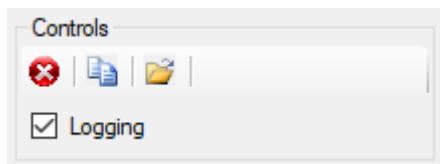


Figure 3: Buttons to clear or copy content of console and to open the log file

The console controls can be used to clear and copy the content of the console and to open the log file. "Copy" will copy only the selected lines into the clipboard. Multiple lines can be selected while holding "Ctrl"-key pressed.

The current log file can be opened in the default editor. Logging can be enabled and disabled using the checkbox "Logging". The log file is saved in the installation folder of the Adrastea Commander.

4.4 Module status

Module status contains basic information about the Adrastea-I module. Once the UART connection is open, the information is polled automatically. Network information is updated constantly with the reception of a +cereg event. For more information about the +cereg command, see Adrastea-I AT commands manual chapter 6.1 "+CEREG: EPS Network Registration Status".

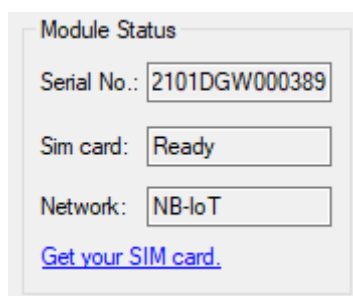


Figure 4: Module status

Field name	Description	Possible values
Serial No.	Serial number of the module	
Sim card	Status of the SIM card	<ul style="list-style-type: none"> • Not inserted • Ready
Network	Status of the cellular network	<ul style="list-style-type: none"> • Not available • Searching... • Available

Table 2: Description of the status group

4.5 Quick selection

The quick selection allows to send commands with a mouse click. The command will be shown as text on the button. When hovering over the button with the mouse, the description is shown as an overlay. The command can be sent by clicking the respective button.

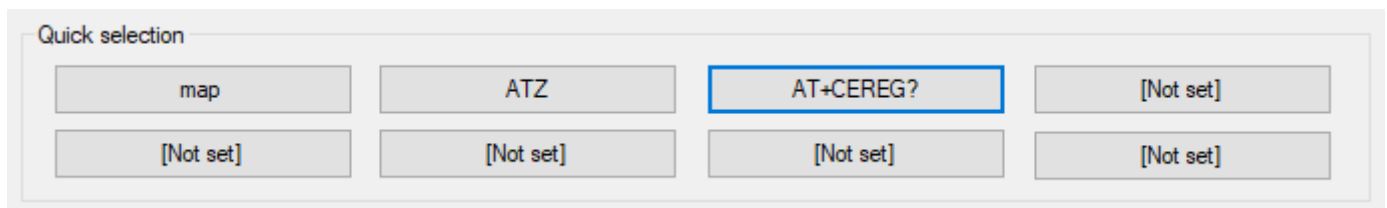


Figure 5: Quick selection for commands

With a right-click the context menu is opened to edit the entries. Commands are saved in the file QuickSelection.xml in the installation directory upon closing the application.

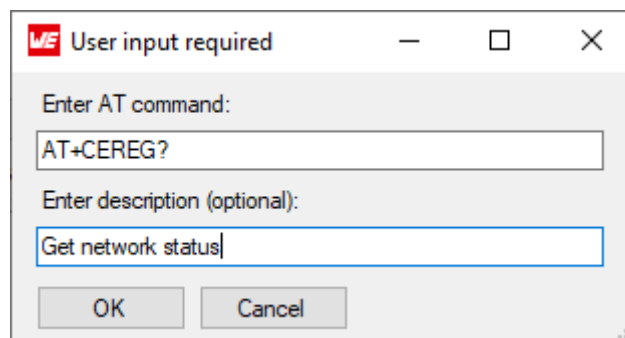


Figure 6: Edit or add a new command including tooltip

4.6 Command list

The command list offers the same function as the quick selection but is not limited in size. Additionally, commands are organized in groups.

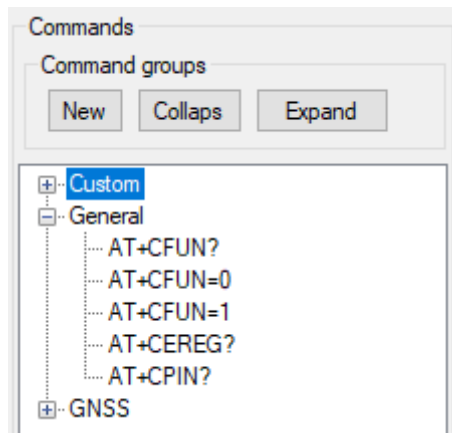


Figure 7: Quick selection for commands

The command will be shown as text and can be sent by double-clicking on it. When hovering over the button with the mouse, the description is shown as an overlay.

A new group can be created by clicking on the "New"-Button. To add a new command to a group, open the context menu via right-click and add a new command. All groups can be expanded or collapsed with the respective buttons.

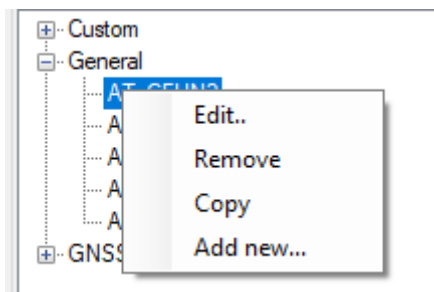


Figure 8: Context menu to edit a group

Commands are saved in the file CommandList.xml in the installation directory upon closing the application.

4.7 Run command sequence

It is possible to define a sequence of commands which is then sent with a button click. A new window will be opened when clicking on the "Run sequence..."-button. Each line is sent one after another with a fixed delay of 100 ms between, so each line shall contain one command. The current sequence can be saved in a text file and be loaded for later use.

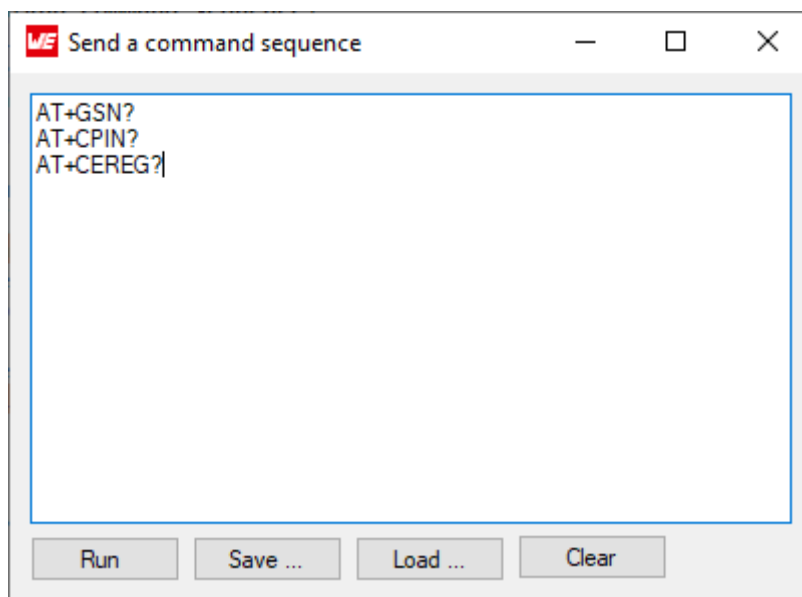


Figure 9: Run, Save or Load a command sequence

4.8 GNSS



The GNSS and cellular functionality can not be used simultaneously.

In addition to the cellular technology the Adrastea-I module supports the GNSS technologies GPS and GLONASS. To use the GNSS feature the following AT commands have to be performed after each restart:

1. AT+CFUN=0 (disable cellular)
2. AT%IGNSSCFG="SET","NMEA","GGA","GSA","GSV","GNS","RMC" (enable required NMEA messages)
3. AT%IGNSSEV="NMEA",1 (enable NMEA message output)
4. AT%IGNSSACT=1,1 (enable GNSS - cold start)

4.8.1 Navigation View

The navigation view prints the received messages relevant for the navigation and shows the collected information like

- fix status
- position
- velocity
- date and time

The parsed messages allow faster understanding of the information delivered by the module. The raw messages can be used to become familiar with the communication protocols used by the Adrastea-I module.

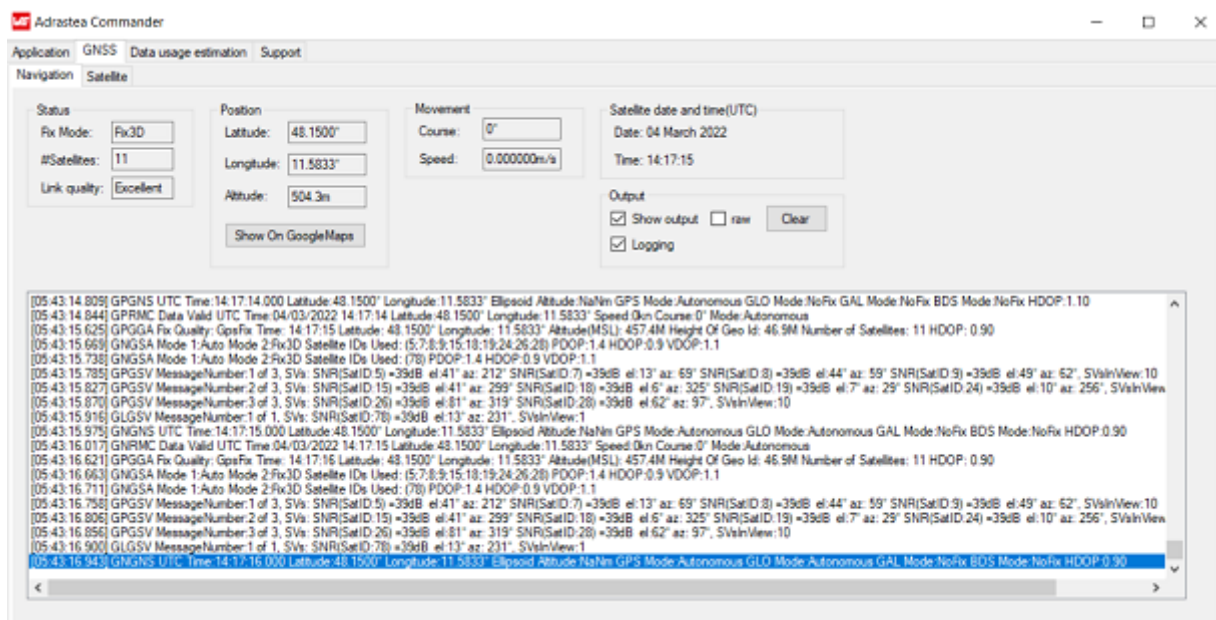


Figure 10: Navigation view when a fix is acquired

4.8.1.1 Status

Status contains general information about the position fix and the quality of the link with the GNSS satellites. Data is extracted from NMEA message GSA. If these messages are deactivated, this part of the GUI will not be updated any-more.

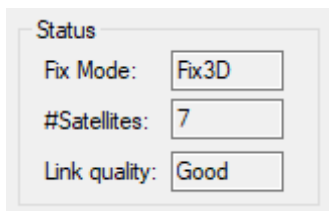


Figure 11: Status group of navigation view

Field name	Description	Possible values
Fix mode	Shows current fix mode	<ul style="list-style-type: none"> • No fix • Fix2D • Fix3D
#Satellites	Number of satellites used for fix	<ul style="list-style-type: none"> • No fix • number ≥ 0
Link quality	Quality of the link with GNSS satellites. Shows dilution of precision (DOP) when hovering over with mouse. Based on the PDOP as stated in brackets to the right.	<ul style="list-style-type: none"> • No fix • Ideal (1) • Excellent (1-2) • Good (2-5) • Moderate (5-10) • Bad (> 10)

Table 3: Description of the status group

4.8.1.2 Position

Position contains the values describing the position of the receiver. By clicking the button "Show on GoogleMaps" the link is created using the received longitude and latitude and opened in the internet browser. This requires internet connection.

Data is extracted from NMEA messages GGA, GNS, GLL and RMC. If these messages are deactivated, this part of the GUI will not be updated any-more.

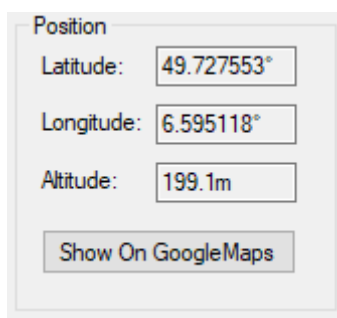


Figure 12: Position group of navigation view

Field name	Description	Possible values
Latitude	Shows current latitude in degrees. Negative value southwards, positive value northwards.	$(-90)^{\circ}$ to 90°
Longitude	Shows current longitude in degrees. Negative value westwards, positive value eastwards.	$(-180)^{\circ}$ to 180°
Altitude	Shows current altitude in meters based on WGS-84 ellipsoid.	

Table 4: Description of position group

4.8.1.3 Movement

In the movement group course and speed are shown. This allows to determine the direction and velocity of the receiver. Data is extracted from NMEA messages VTG and RMC. If these messages are deactivated, this part of the GUI will not be updated any-more.

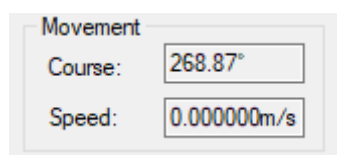


Figure 13: Movement group of navigation view

Field name	Description	Possible values
Course	0° and 360° represent true north	0° to 360°
Speed	Current speed in m/s	

Table 5: Description of the movement group

4.8.1.4 Date and Time

In this area the date and UTC-time are shown. The format of the date is "weekday, month day, year" where weekday and month are written-out. Time is based on a 12 hour system and AM or PM is given. Data is extracted from NMEA messages ZDA and RMC. If these messages are deactivated, this part of the GUI will not be updated any-more.

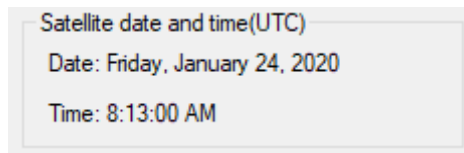


Figure 14: Time and date group of navigation view

4.8.1.5 Output

The output controls allow to change the display of the received messages. By toggling the "Show output" checkbox, the output of the messages can be enabled or disabled. Disabling the output of the messages can be helpful when analyzing message history. Messages can be shown or logged just as received by the module

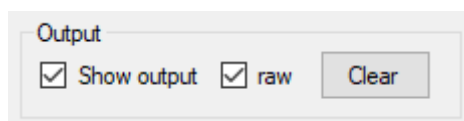


Figure 15: Show/Log messages as received by module

or parsed and interpreted.

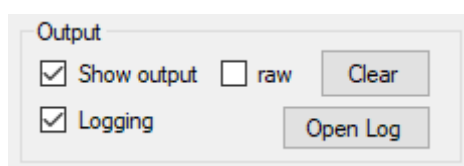


Figure 16: Show/Log messages parsed and interpreted

By default the GNSS messages will be logged to a file. The messages will be logged as shown in the navigation message view, so either interpreted or as raw NMEA messages. Logging can be controlled with the "Logging"-checkbox. These control options only change the behaviour of the GUI. The module is not affected by the changes. With the "Clear" button the received messages are cleared in the log field. The log file is not affected.

4.8.2 Satellite view

The satellite view shows information about the satellites in view and in use. The information is shown both in a table view and in a sky view. Satellites disappear from the table and view once they are not in sight any-more. Data is extracted from NMEA message GSV. If these messages are deactivated, this part of the GUI will not be updated any-more.

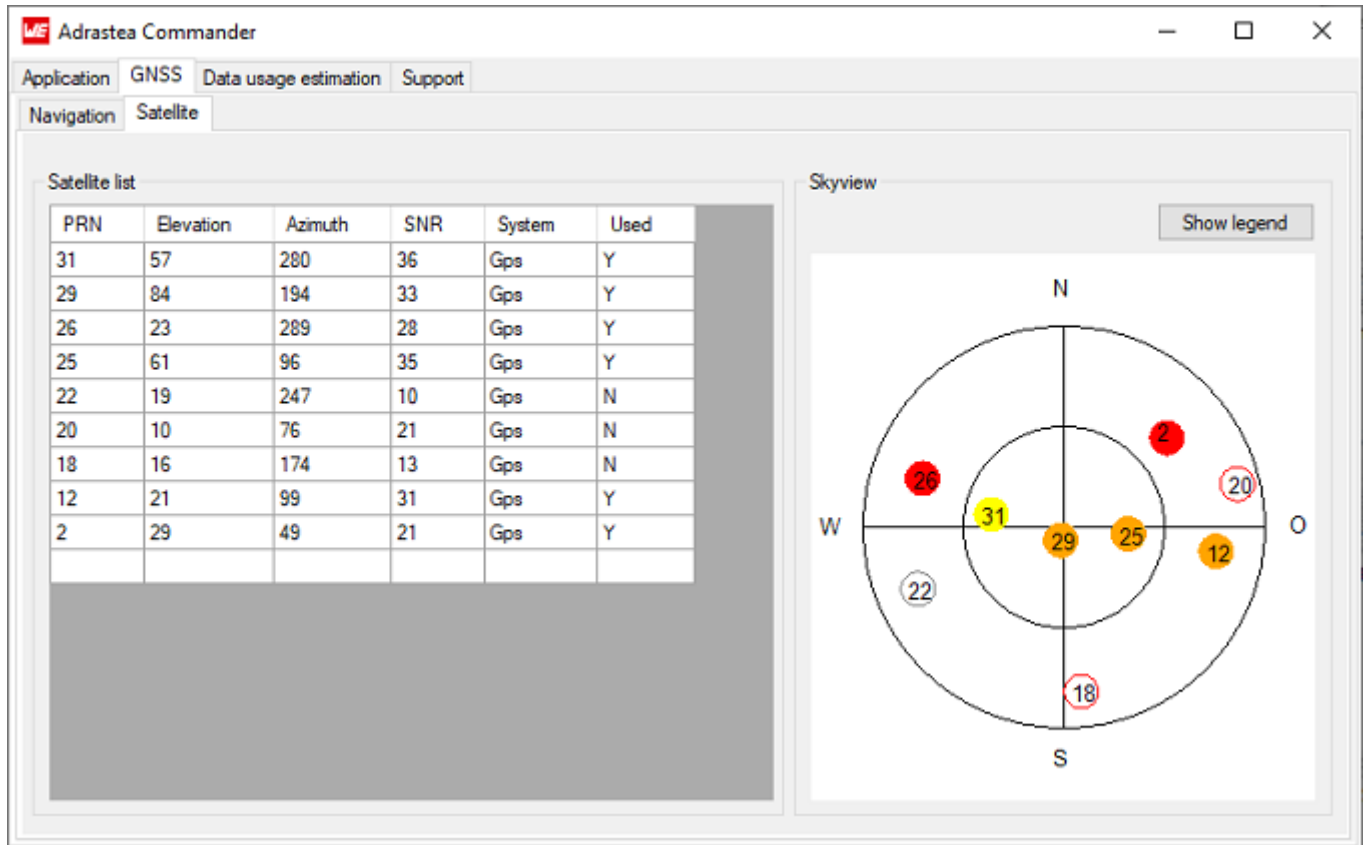


Figure 17: Satellite view when a fix is acquired

4.8.2.1 Table

The table contains the information about the satellites in readable form. The columns can be sorted by clicking on the header row.

PRN	Elevation	Azimuth	SNR	System	Used
9	59	67	25	Gps	N
5	22	301	33	Gps	N
30	28	190	35	Gps	Y
2	44	272	37	Gps	Y
7	56	160	37	Gps	Y
49	32	182	34	Waas	N
240	35	288	27	Galileo	N
213	40	274	31	Galileo	Y
215	29	225	33	Galileo	Y
72	20	289	33	Glonass	Y
86	27	250	34	Glonass	Y
73	26	153	38	Glonass	Y
6	41	215	41	Gps	Y

Figure 18: Information about satellites in view shown as table

Field name	Description
PRN	Pseudo Random Noise. Unique for every satellite. Is used as ID.
Elevation	The angle above the horizon. An angle of 90° represents the zenith.
Azimuth	The angle between the north vector and the satellites' vector on the horizontal plane.
SNR	Signal-to-noise ratio. Indicator for signal strength. The higher the SNR, the better the signal.
System	GNSS the satellite belongs to.
Used	Indicates if the satellite is used for the fix. "Y" indicates used for fix.

Table 6: Description of satellite table

4.8.2.2 Sky view

All modules in view are shown on the sky view. The outer line represents the horizon while the centre represents the zenith.

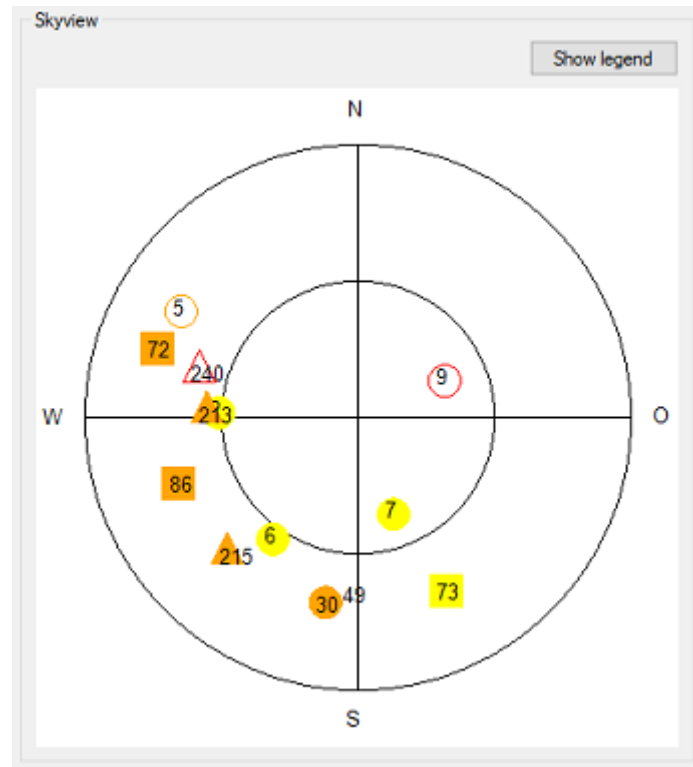


Figure 19: Satellites in view shown as skyview

If a satellite is used for the fix the figure is filled out. Otherwise only the contour is drawn. The PRN of the satellite is written within the symbol for identification. The colour indicates the signal strength. The representation for the satellites is as follows:

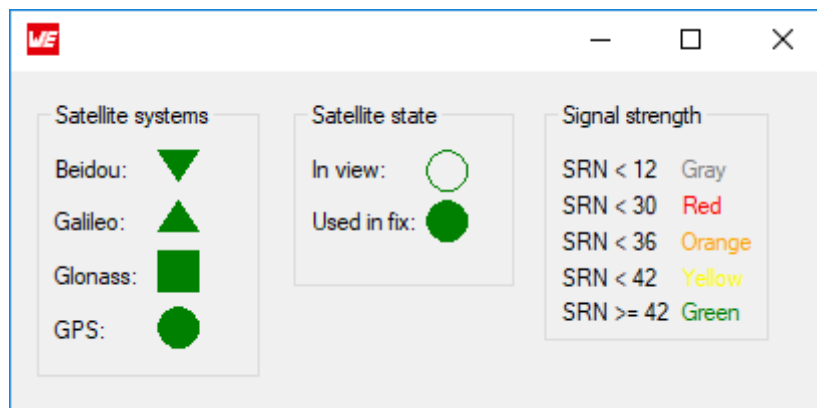


Figure 20: Legend of satellite representation

4.9 Log file

NMEA messages are logged according to the current protocol, update rate and message rates. Start and end of the log file correspond to the start and end of the communication with the module (Connect button, see section 4.2). Log files can be used to analyze message history and

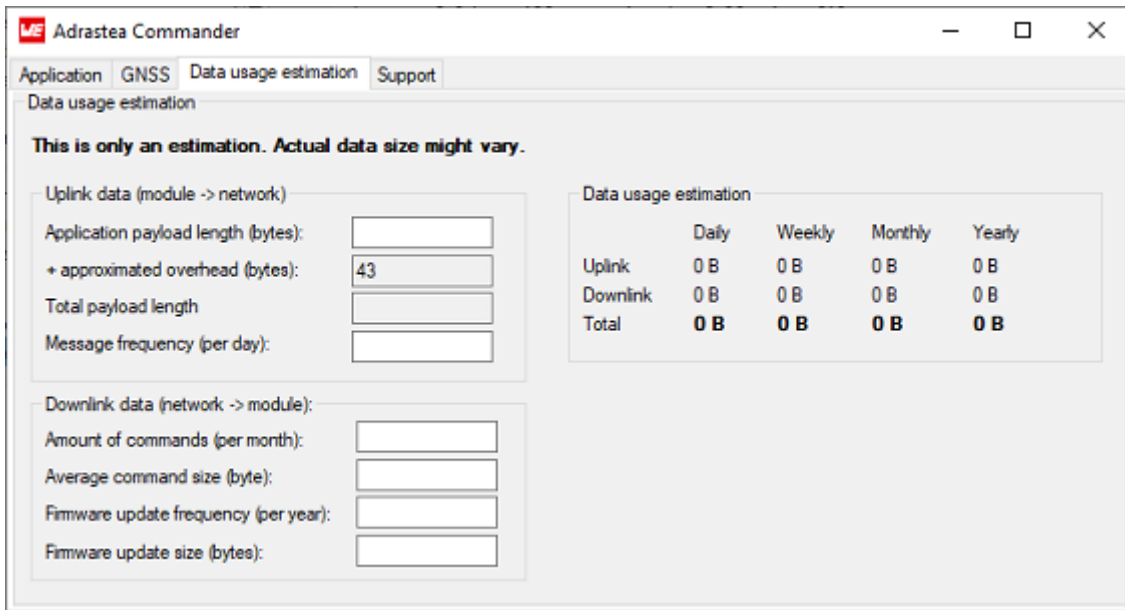
evaluate module behaviour. The navigation messages will be logged as defined in the GUI as mentioned in chapter 4.8.1.5.

The log files can be found in the "logFiles" folder next to the executable of Adrastea Commander.

4.10 Data usage estimation

LTE-NB-IoT and LTE-Cat.M both require a SIM-card and connectivity provider (e.g. Deutsche Telekom) to be usable in an application. As providers have different plans with various data limits the data usage estimation can be used to get an idea of how much data is required for the application.

The estimation to the right is automatically updated when new data is entered to the left.



Adrastea Commander

Application | GNSS | **Data usage estimation** | Support

Data usage estimation

This is only an estimation. Actual data size might vary.

Uplink data (module -> network)

Application payload length (bytes):

+ approximated overhead (bytes):

Total payload length:

Message frequency (per day):

Downlink data (network -> module):

Amount of commands (per month):

Average command size (byte):

Firmware update frequency (per year):

Firmware update size (bytes):

Data usage estimation

	Daily	Weekly	Monthly	Yearly
Uplink	0 B	0 B	0 B	0 B
Downlink	0 B	0 B	0 B	0 B
Total	0 B	0 B	0 B	0 B

Figure 21: Estimate data usage of an application

4.11 Cloud settings

The cloud settings tab can be used to flash the Adrastea-I module with a new firmware and additional cloud parameters. This tab is intended to be used with the Adrastea-I FeatherWing Kit.

More details on the same can be found on the *Adrastea-I FeatherWing Kit* page.

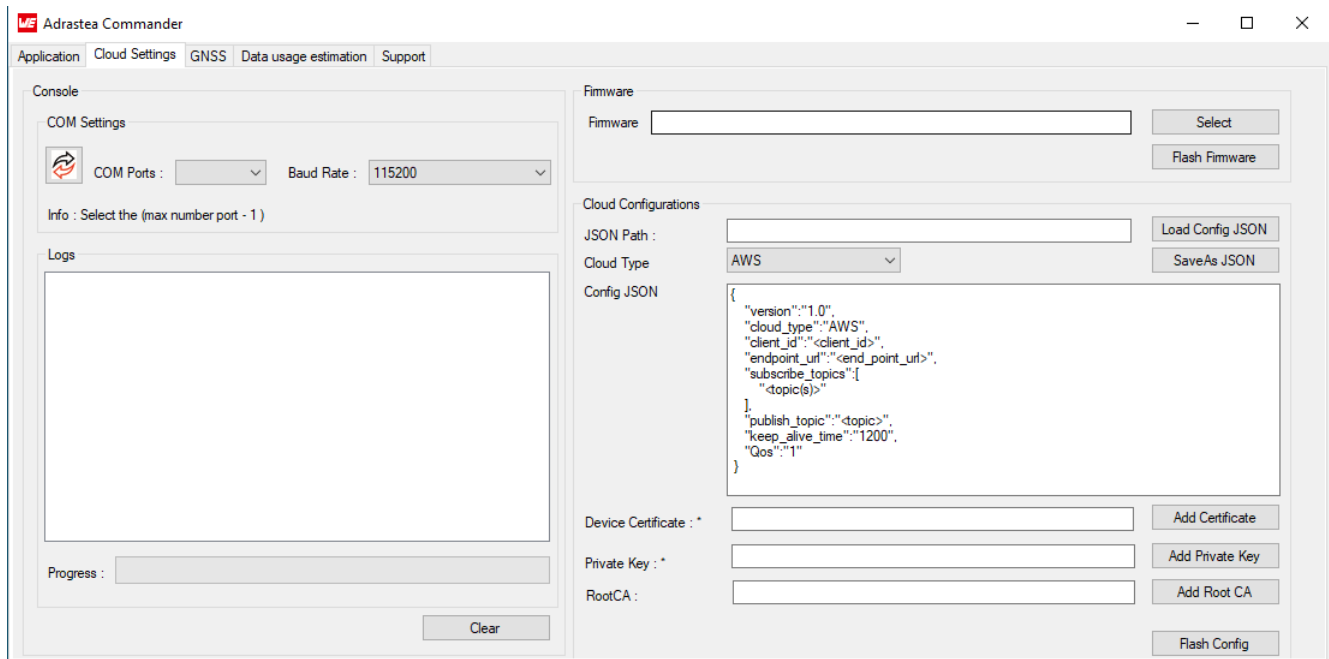


Figure 22: Cloud Settings tab

4.12 Support

The last tab contains information about the software and links to further information about the modules such as:

- *Product site*
- *Manual of the supported modules*
- *Support*

We appreciate any feedback about our software tool Adrastea Commander. Please use the link below to send an email with your improvement, ideas or general feedback:

WCS@we-online.com

5 Software history

Version 1.0.0 "Release"

- First released version of the tool

Version 1.1.0 "Release"

- Fix links to website
- Change output of navigation data

Version 1.2.0 "Release"

- Fix links to website
- Update logo

Version 2.0.0 "Release"

- Added features to configure cloud connectivity parameters and program the Adrastea-I module

Version 2.1.0 "Release"

- Upgrade to .NET 8.0

Version 2.2.0 "Release"

- Fixed issue with image flashing

6 Important notes

The following conditions apply to all goods within the wireless connectivity and sensors product range of Würth Elektronik eiSos GmbH & Co. KG:

General customer responsibility

Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact, it is up to the customer to evaluate, where appropriate to investigate and to decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not. Accordingly, the customer is cautioned to verify that the documentation is current before placing orders.

Customer responsibility related to specific, in particular safety-relevant applications

It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications. The same statement is valid for all software source code and firmware parts contained in or used with or for products in the wireless connectivity and sensor product range of Würth Elektronik eiSos GmbH & Co. KG. In certain customer applications requiring a high level of safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health, it must be ensured by most advanced technological aid of suitable design of the customer application that no injury or damage is caused to third parties in the event of malfunction or failure of an electronic component.

Best care and attention

Any product-specific data sheets, manuals, application notes, PCNs, warnings and cautions must be strictly observed in the most recent versions and matching to the products revisions. These documents can be downloaded from the product specific sections on the wireless connectivity and sensors homepage.

Customer support for product specifications

Some products within the product range may contain substances, which are subject to restrictions in certain jurisdictions in order to serve specific technical requirements. Necessary information is available on request. In this case, the Business Development Engineer (BDM) or the internal sales person in charge should be contacted who will be happy to support in this matter.

Product improvements

Due to constant product improvement, product specifications may change from time to time. As a standard reporting procedure of the Product Change Notification (PCN) according to the JEDEC-Standard, we inform about major changes. In case of further queries regarding the PCN, the Business Development Engineer (BDM), the internal sales person or the technical support team in charge should be contacted. The basic responsibility of the customer as per section 6 and 6 remains unaffected.

All software like "wireless connectivity SDK", "Sensor SDK" or other source codes as well as all PC software tools are not subject to the Product Change Notification information process.

Product life cycle

Due to technical progress and economical evaluation, we also reserve the right to discontinue production and delivery of products. As a standard reporting procedure of the Product Termination Notification (PTN) according to the JEDEC-Standard we will inform at an early stage about inevitable product discontinuance. According to this, we cannot ensure that all products within our product range will always be available. Therefore, it needs to be verified with the Business Development Engineer (BDM) or the internal sales person in charge about the current product availability expectancy before or when the product for application design-in disposal is considered. The approach named above does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

Property rights

All the rights for contractual products produced by Würth Elektronik eiSos GmbH & Co. KG on the basis of ideas, development contracts as well as models or templates that are subject to copyright, patent or commercial protection supplied to the customer will remain with Würth Elektronik eiSos GmbH & Co. KG. Würth Elektronik eiSos GmbH & Co. KG does not warrant or represent that any license, either expressed or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, application, or process in which Würth Elektronik eiSos GmbH & Co. KG components or services are used.

General terms and conditions

Unless otherwise agreed in individual contracts, all orders are subject to the current version of the "General Terms and Conditions of Würth Elektronik eiSos Group", last version available at www.we-online.com.

7 Legal notice

Exclusion of liability

Würth Elektronik eiSos GmbH & Co. KG considers the information in this document to be correct at the time of publication. However, Würth Elektronik eiSos GmbH & Co. KG reserves the right to modify the information such as technical specifications or functions of its products or discontinue the production of these products or the support of one of these products without any written announcement or notification to customers. The customer must make sure that the information used corresponds to the latest published information. Würth Elektronik eiSos GmbH & Co. KG does not assume any liability for the use of its products. Würth Elektronik eiSos GmbH & Co. KG does not grant licenses for its patent rights or for any other of its intellectual property rights or third-party rights.

Notwithstanding anything above, Würth Elektronik eiSos GmbH & Co. KG makes no representations and/or warranties of any kind for the

provided information related to their accuracy, correctness, completeness, usage of the products and/or usability for customer applications. Information published by Würth Elektronik eiSos GmbH & Co. KG regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof.

Suitability in customer applications

The customer bears the responsibility for compliance of systems or units, in which Würth Elektronik eiSos GmbH & Co. KG products are integrated, with applicable legal regulations. Customer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of Würth Elektronik eiSos GmbH & Co. KG components in its applications, notwithstanding any applications-related information or support that may be provided by Würth Elektronik eiSos GmbH & Co. KG. Customer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences lessen the likelihood of failures that might cause harm and take appropriate remedial actions. The customer will fully indemnify Würth Elektronik eiSos GmbH & Co. KG and its representatives against any damages arising out of the use of any Würth Elektronik eiSos GmbH & Co. KG components in safety-critical applications.

Trademarks

AMBER wireless is a registered trademark of Würth Elektronik eiSos GmbH & Co. KG. All other trademarks, registered trademarks, and product names are the exclusive property of the respective owners.

Usage restriction

Würth Elektronik eiSos GmbH & Co. KG products have been designed and developed for usage in general electronic equipment only. This product is not authorized for use in equipment where a higher safety standard and reliability standard is especially required or where a failure of the product is reasonably expected to cause severe personal injury or death, unless the parties have executed an agreement specifically governing such use. Moreover, Würth Elektronik eiSos GmbH & Co. KG products are neither designed nor intended for use in areas such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network etc. Würth Elektronik eiSos GmbH & Co. KG must be informed about the intent of such usage before the design-in stage. In addition, sufficient reliability evaluation checks for safety must be performed on every electronic component, which is used in electrical circuits that require high safety and reliability function or performance. By using Würth Elektronik eiSos GmbH & Co. KG products, the customer agrees to these terms and conditions.

8 License terms

These License terms will take effect upon the purchase and usage of the Würth Elektronik eiSos GmbH & Co. KG wireless connectivity products. You hereby agree that these license terms are applicable to the product and the incorporated software, firmware and source codes (collectively, "Software") made available by Würth Elektronik eiSos in any form, including but not limited to binary, executable or source code form. The software included in any Würth Elektronik eiSos wireless connectivity product is purchased to you on the condition that you accept the terms and conditions of these license terms. You agree to comply with all provisions under these license terms.

Limited license

Würth Elektronik eiSos hereby grants you a limited, non-exclusive, non-transferable and royalty-free license to use the software and under the conditions that will be set forth in these license terms. You are free to use the provided software only in connection with one of the products from Würth Elektronik eiSos to the extent described in these license terms. You are entitled to change or alter the source code for the sole purpose of creating an application embedding the Würth Elektronik eiSos wireless connectivity product. The transfer of the source code to third parties is allowed to the sole extent that the source code is used by such third parties in connection with our product or another hardware provided by Würth Elektronik eiSos under strict adherence of these license terms. Würth Elektronik eiSos will not assume any liability for the usage of the incorporated software and the source code. You are not entitled to transfer the source code in any form to third parties without prior written consent of Würth Elektronik eiSos.

You are not allowed to reproduce, translate, reverse engineer, decompile, disassemble or create derivative works of the incorporated software and the source code in whole or in part. No more extensive rights to use and exploit the products are granted to you.

Usage and obligations

The responsibility for the applicability and use of the Würth Elektronik eiSos wireless connectivity product with the incorporated firmware in a particular customer design is always solely within the authority of the customer. Due to this fact, it is up to you to evaluate and investigate, where appropriate, and to decide whether the device with the specific product characteristics described in the product specification is valid and suitable for your respective application or not.

You are responsible for using the Würth Elektronik eiSos wireless connectivity product with the incorporated firmware in compliance with all applicable product liability and product safety laws. You acknowledge to minimize the risk of loss and harm to individuals and bear the risk for failure leading to personal injury or death due to your usage of the product.

Würth Elektronik eiSos' products with the incorporated firmware are not authorized for use in safety-critical applications, or where a failure of the product is reasonably expected to cause severe personal injury or death. Moreover, Würth Elektronik eiSos' products with the incorporated firmware are neither designed nor intended for use in areas such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network etc. You shall inform Würth Elektronik eiSos about the intent of such usage before design-in stage. In certain customer applications requiring a very high level of safety and in which the malfunction or failure of an electronic component could endanger human life or health, you must ensure to have all necessary expertise in the safety and regulatory ramifications of your applications. You acknowledge and agree that you are solely responsible for all legal, regulatory and safety-related requirements concerning your products and any use of Würth Elektronik eiSos' products with the incorporated firmware in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by Würth Elektronik eiSos. **YOU SHALL INDEMNIFY WÜRTH ELEKTRONIK EISOS AGAINST ANY DAMAGES ARISING OUT OF THE USE OF WÜRTH ELEKTRONIK EISOS' PRODUCTS WITH THE INCORPORATED FIRMWARE IN SUCH SAFETY-CRITICAL APPLICATIONS.**

Ownership

The incorporated firmware created by Würth Elektronik eiSos is and will remain the exclusive property of Würth Elektronik eiSos.

Firmware update(s)

You have the opportunity to request the current and actual firmware for a bought wireless connectivity product within the time of warranty. However, Würth Elektronik eiSos has no obligation to update a modules firmware in their production facilities, but can offer this as a service on request. The upload of firmware updates falls within your responsibility, e.g. via ACC or another software for firmware updates. Firmware updates will not be communicated automatically. It is within your responsibility to check the current version of a firmware in the latest version of the product manual on our website. The revision table in the product manual provides all necessary information about firmware updates. There is no right to be provided with binary files, so called "firmware images", those could be flashed through JTAG, SWD, Spi-Bi-Wire, SPI or similar interfaces.

Disclaimer of warranty

THE FIRMWARE IS PROVIDED "AS IS". YOU ACKNOWLEDGE THAT WÜRTH ELEKTRONIK EISOS MAKES NO REPRESENTATIONS AND WARRANTIES OF ANY KIND RELATED TO, BUT NOT LIMITED TO THE NON-INFRINGEMENT OF THIRD PARTIES' INTELLECTUAL PROPERTY RIGHTS OR THE MERCHANTABILITY OR FITNESS FOR YOUR INTENDED PURPOSE OR USAGE. WÜRTH ELEKTRONIK EISOS DOES NOT WARRANT OR REPRESENT THAT ANY LICENSE, EITHER EXPRESS OR IMPLIED, IS GRANTED UNDER ANY PATENT RIGHT, COPYRIGHT, MASK WORK RIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT RELATING TO ANY COMBINATION, MACHINE, OR PROCESS IN WHICH THE WÜRTH ELEKTRONIK EISOS' PRODUCT WITH THE INCORPORATED FIRMWARE IS USED. INFORMATION PUBLISHED BY WÜRTH ELEKTRONIK EISOS REGARDING THIRD-PARTY PRODUCTS OR SERVICES DOES NOT CONSTITUTE A LICENSE FROM WÜRTH ELEKTRONIK EISOS TO USE SUCH PRODUCTS OR SERVICES OR A WARRANTY OR ENDORSEMENT THEREOF.

Limitation of liability

Any liability not expressly provided by Würth Elektronik eiSos shall be disclaimed.

You agree to hold us harmless from any third-party claims related to your usage of the Würth Elektronik eiSos' products with the incorporated firmware, software and source code. Würth Elektronik eiSos disclaims any liability for any alteration, development created by you or your customers as well as for any combination with other products.

Applicable law and jurisdiction

Applicable law to these license terms shall be the laws of the Federal Republic of Germany. Any dispute, claim or controversy arising out of or relating to these license terms shall be resolved and finally settled by the court competent for the location of Würth Elektronik eiSos registered office.

Severability clause

If a provision of these license terms is or becomes invalid, unenforceable or null and void, this shall not affect the remaining provisions of the terms. The parties shall replace any such provisions with new valid provisions that most closely approximate the purpose of the terms.

Miscellaneous

Würth Elektronik eiSos reserves the right at any time to change these terms at its own discretion. It is your responsibility to check at Würth Elektronik eiSos homepage for any updates. Your continued usage of the products will be deemed as the acceptance of the change.

We recommend you to be updated about the status of new firmware and software, which is available on our website or in our data sheet and manual, and to implement new software in your device where appropriate.

By ordering a product, you accept these license terms in all terms.

List of Figures

1	Adrastea Commander after start up	7
2	Com settings	8
3	Buttons to clear or copy content of console and to open the log file	9
4	Module status	9
5	Quick selection for commands	10
6	Edit or add a new command including tooltip	10
7	Quick selection for commands	11
8	Context menu to edit a group	11
9	Run, Save or Load a command sequence	12
10	Navigation view when a fix is acquired	14
11	Status group of navigation view	15
12	Position group of navigation view	16
13	Movement group of navigation view	16
14	Time and date group of navigation view	17
15	Show/Log messages as received by module	17
16	Show/Log messages parsed and interpreted	17
17	Satellite view when a fix is acquired	18
18	Information about satellites in view shown as table	19
19	Satellites in view shown as skyview	20
20	Legend of satellite representation	20
21	Estimate data usage of an application	21
22	Cloud Settings tab	22

List of Tables

1	Adrastea COM ports	5
2	Description of the status group	10
3	Description of the status group	15
4	Description of position group	16
5	Description of the movement group	16
6	Description of satellite table	19

**Contact**

Würth Elektronik eiSos GmbH & Co. KG
Division Wireless Connectivity & Sensors

Max-Eyth-Straße 1
74638 Waldenburg
Germany

Tel.: +49 651 99355-0
Fax.: +49 651 99355-69
www.we-online.com/wireless-connectivity

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT