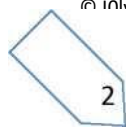




User Manual





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Revision history

Review	Date	Description
Rev 0.01	01/2022	<ul style="list-style-type: none">• Added this table.• Made various corrections.• Added information on latest software versions.• Updated section• Revised and corrected the annexes.•



1 Overview

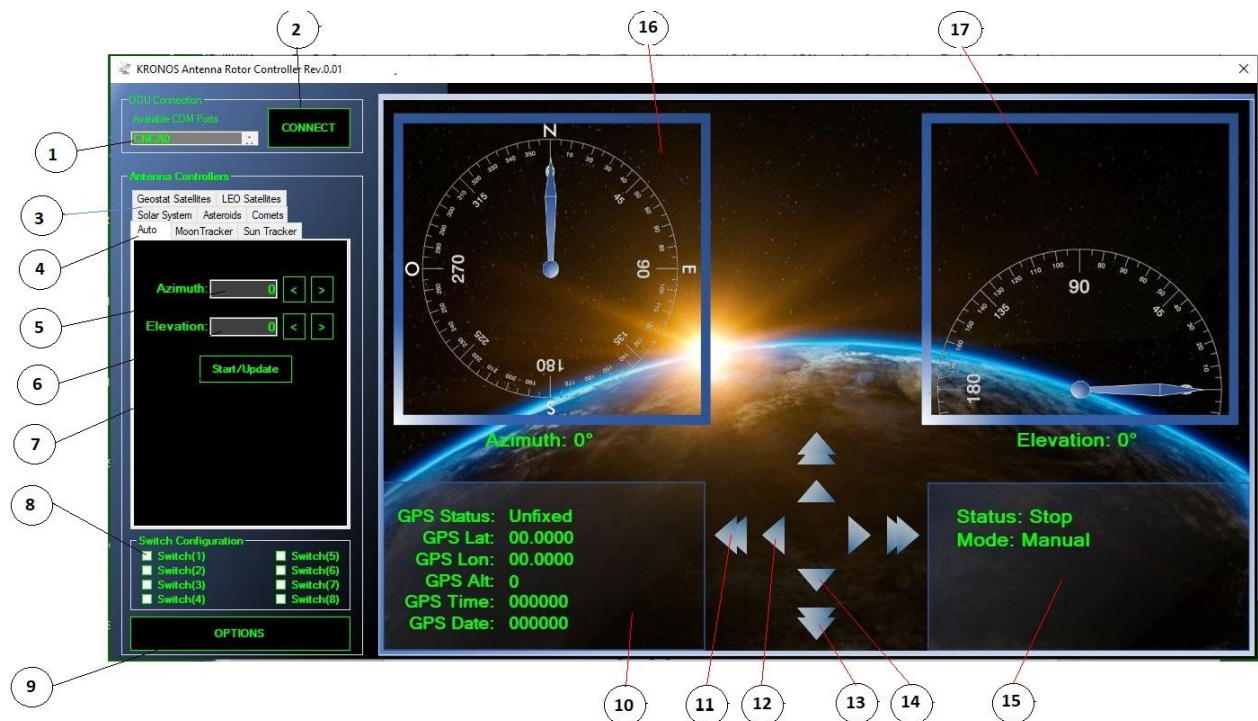
Kronos is a software designed for use with Azimuth and Elevation rotors. It manages the two rotors simultaneously and independently via a USB / RS422 interface. In this way, the user can control the rotors both manually and automatically.





2 User interface

The image below shows the main screen of the user interface.



The different parts of the user interface are :

1. Com port selection window , **COM**,
2. Connection window, **CONNECT**,
3. Window for choosing tracking systems, **Solar System etc.** ,
4. Window for choosing moon, sun or auto, **AUTO, MOON TRACKER, SUN TRACKER**
5. Window for entering degrees for azimuth, **Azimuth**,
6. Window for entering degrees for elevation , **Elevation**,
7. Start and stop button, **Start/Update**,
8. Boxes for activation of switches with open collector, **Switch Configuration**,
9. Secondary user interface for options, **OPTIONS**,
10. Window for displaying GPS data, **GPS**,
11. Button for fast rotation to the left or right
12. Button for slow rotation to the left , or right
13. Button for fast rotation down, or up
14. Button for slow rotation down, or up
15. Status and Mode window, **Status: start / stop Mode: manual / auto**
16. Azimuth rotor indication window, **Azimuth**,
17. Elevation rotor indication window, **Elevation**,
18. Choice of continuous rotation eliminates virtual end stops, **Enable Full Azimuth Rotation**,
19. Choice Manual GPS Data Input, **Use Manual GPS Data**



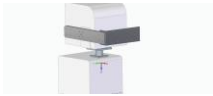
3 Secondary window (OPTIONS)

The secondary window allows you to choose:

18 - Choice of continuous rotation virtual end stops are eliminated, **Enable Full Azimuth Rotation**,

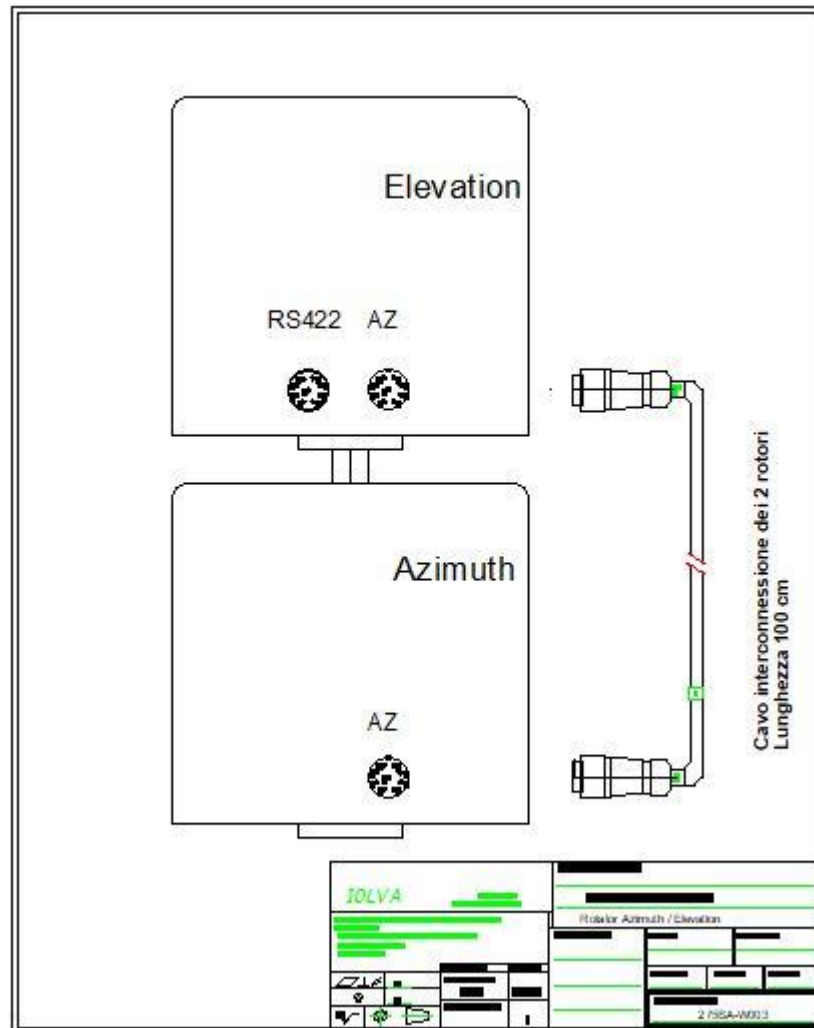
19 - Data on latitude, longitude, altitude, time and date.



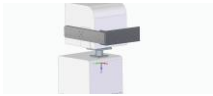


4 Hardware setup

Connect the cable coming from the interface inside the elevation rotor to the PC via an RS422 to USB converter
Connect the two rotors with the 100 cm long cable between the two connectors marked AZ





Check that the interface has been properly installed and check which COM port has been assigned



5 Software setup

Create a **KRONOS Legacy** folder on which to install the software,
Launch the **Kronos Rotor Controller application**, the programme start-up window will open.



Click anywhere in the open window to start the Kronos software.
Click in the window to  choose the COM port
Click in the window for  USB / RS422 connection with the rotor interface




The rotors can be controlled manually using the direction buttons.
With the four internal buttons we have the slow rotation of the rotors
With the four external buttons we have fast rotation of the rotors
Keeping the **ENTER** key pressed will result in continuous rotation in the last selected direction.
Slow speed Azimuth 0.025° fast speed 0.4° .
Slow speed Elevation 0.0025° fast speed 0.01°

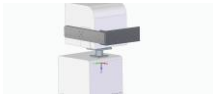
Before continuing, make sure that the **GPS has** acquired the Latitude, **Longitude and Date/Time** data.

To go into Auto mode enter the Azimuth and Elevation values and click on the button 

When the rotors have reached the selected position click on **Stop**

To track the Moon or the Sun, click on the corresponding **Moon Tracker** or **Sun Tracker** button.

In either of these two modes, we can proceed with system calibration with the 

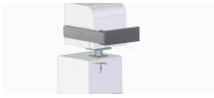


6 Calibration

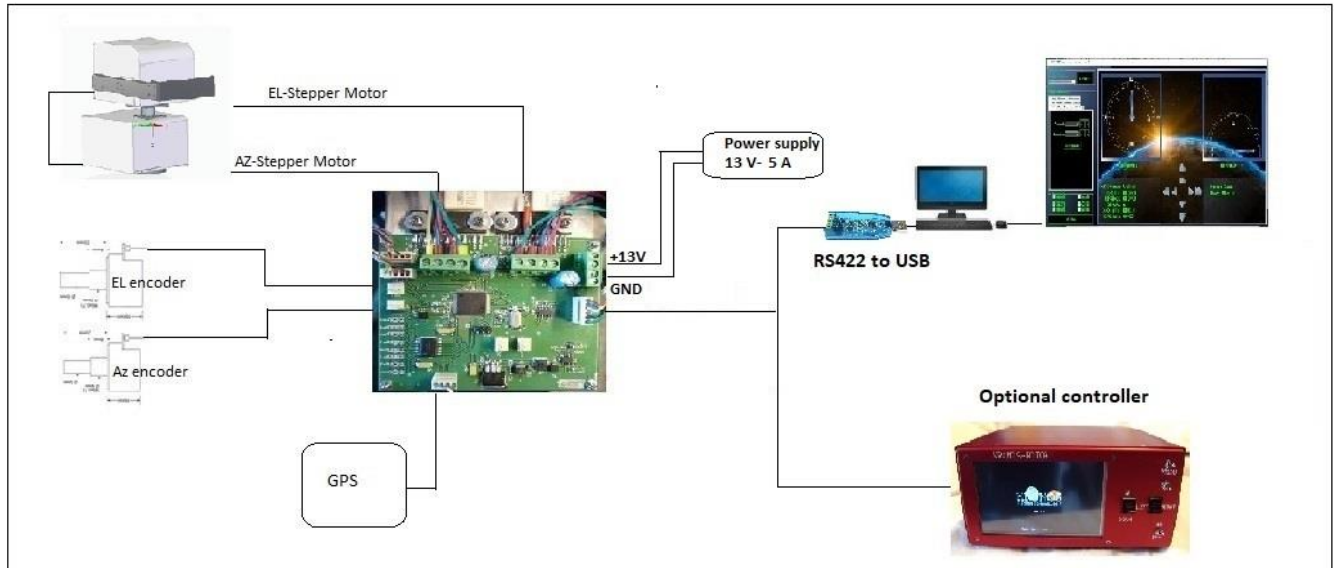
The calibration button works as follows:

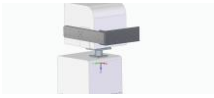
Align the antenna system to the noise of the sun or moon as best as possible and then make mechanical adjustments so that the antenna sensors read the offset values as close as possible to the calculated reading of the sun or moon on the tracking window.

Click the "Calibrate" button to update the tracking data with the detected offsets.



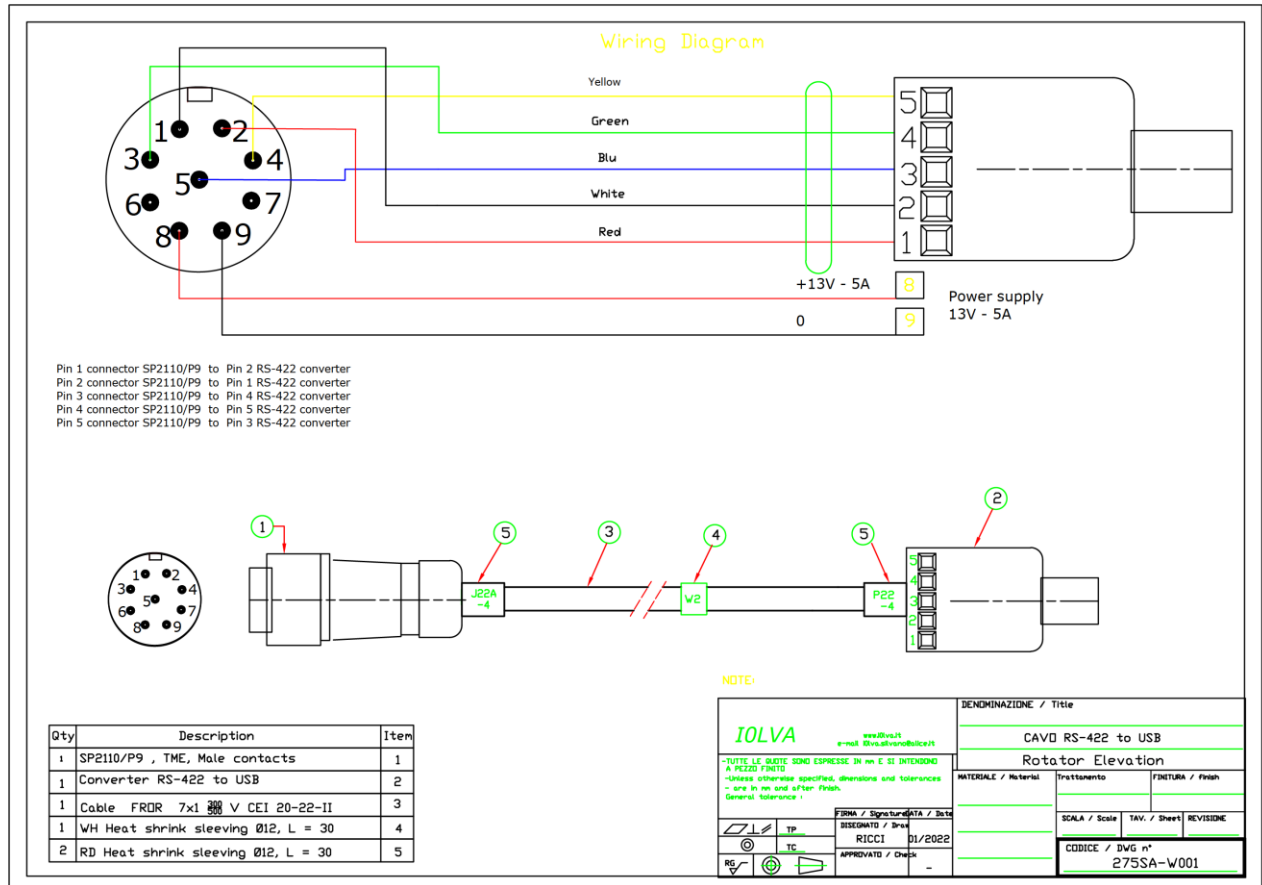
7 Appendix A

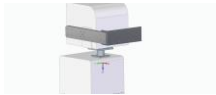




8 Appendix B

Connection cable diagram between elevation rotor and RS422 to USB converter and power supply 13 Volt- 5 A





9 Appendix C

Connection cable diagram between elevation rotor and RS422 to USB converter and power supply 13 Volt-5 A

