

Agrosta®Roxanne has been designed in 2021 in order to provide a simple and efficient colorimeter (spectrophotometer) coming with machine learning



Roxanne comes with :

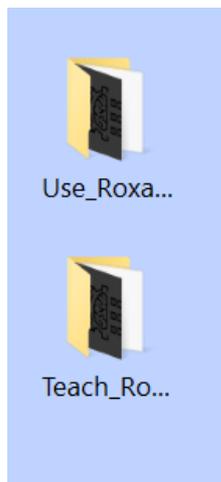
- The measurement unit itself
- 2 softwares for Windows on a Usb stick
- Usb cable
- 2 tables : one flat and one with an hemispheric cup
- A small mirror for calibration



1/ SETUP

- Plug the usb stick to your computer
- Then double click on **Agrosta_Driver** in order to install the driver
- Connect the Roxanne colorimeter to your computer using the Usb cable provided

2 directories are available on the usb stick, corresponding to the 2 softwares :



- The first directory contains the software for using the device, either with or without using machine learning (Roxanne can be used as a simple colorimeter)
- The second directory contains the software for teaching the device (Associating each sample category with a number) and creating a neural file (The neural file can be opened in the “use” software afterwards)

Software TEACH_ROXANNE :

- After having connected the device to your computer,
- Double click on the Teach_Roxanne file inside the folder Teach_Roxanne folder
- The software starts immediately
- For the future, you can create a shortcut to this file on your computer's desktop

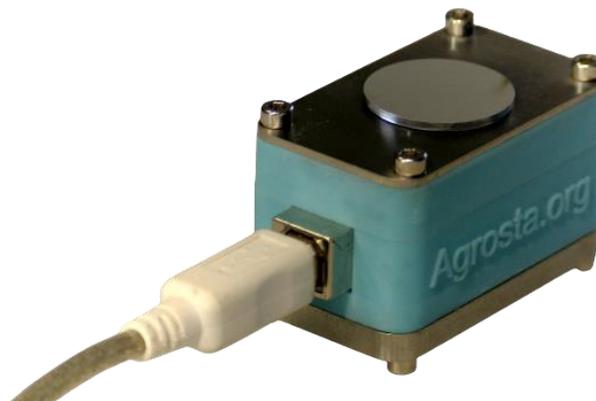
Software USE_ROXANNE :

- After having connected the device to your computer,

- Close the Teach_Roxanne software if open
- Double click on the Use_Roxanne file inside the folder Use_Roxanne folder
- The software starts immediately
- For the future, you can create a shortcut to this file on your computer's desktop
- Please note that the 2 software cannot be opened simultaneously

2/ CALIBRATION

- Connect the device to your computer
- Open one of the 2 softwares
- Place the small mirror on the colorimeter head
- Click on the Calibration button, click on OK

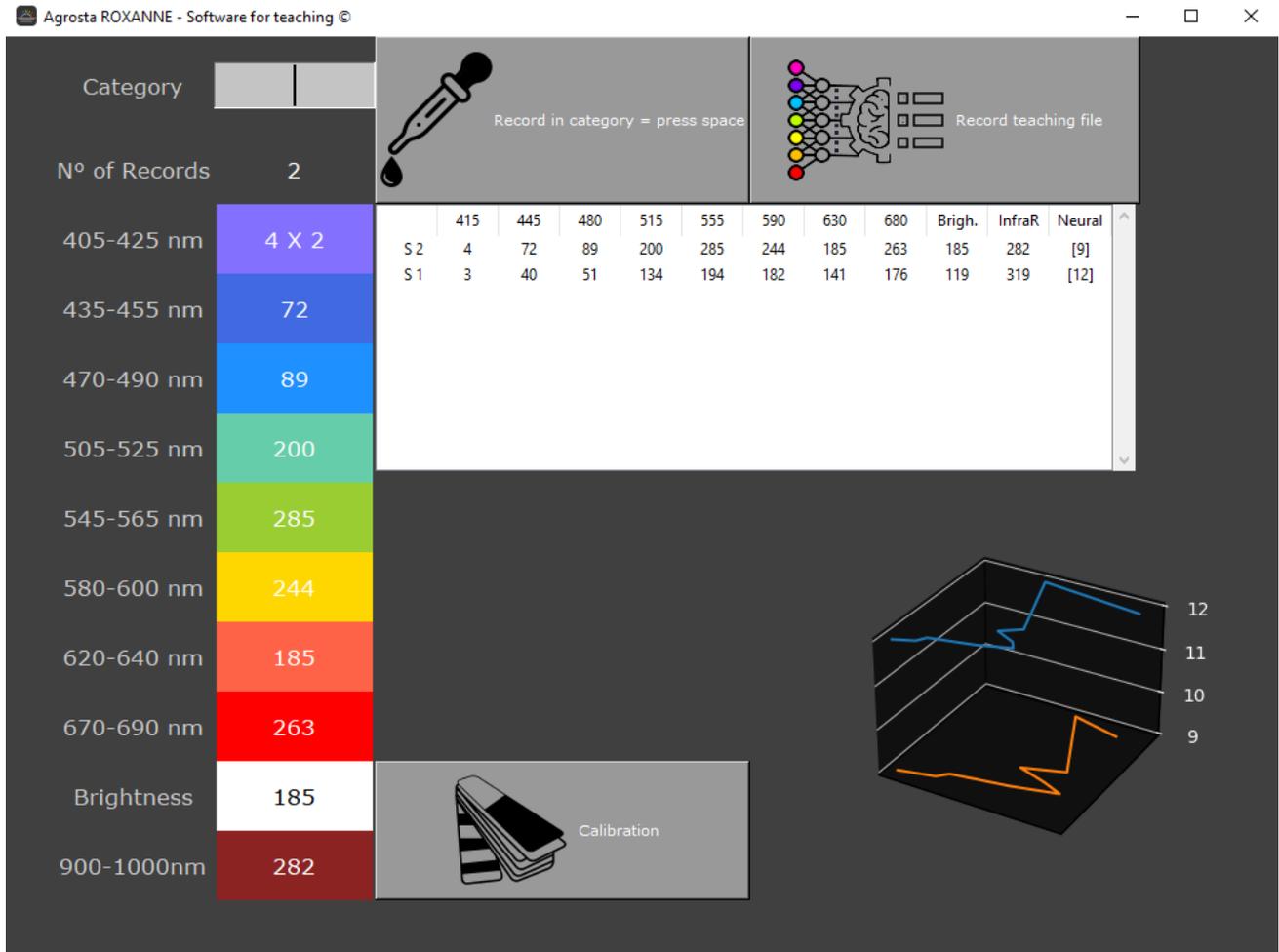


3/ TEACHING SOFTWARE DETAILS

- Prepare your samples by category (Example with lemon hereafter, categories 1, 2 and 3)



- Connect your device to the computer, and start the TEACH_ROXANNE software



- First fill the category corresponding to the sample you are going to measure
- Then place the sample on the sensor head



- Then press the "SPACE" key on your keyboard in order to launch the measurement
- The aim of this software is to generate a neural file that will store the teaching model
- The more samples you test for each category, the more your neural file will be accurate

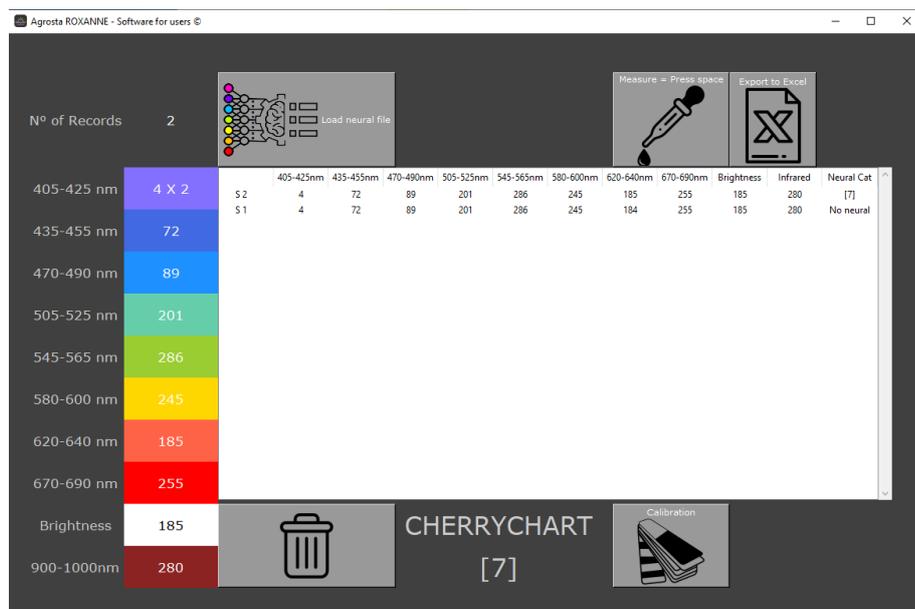
- After having tested all your samples, and covered each category several times, you can click on the button “Record Teaching File” and then give a name to the file to be created (Extension .lak to be used afterwards in the User software)

4/ USE SOFTWARE DETAILS

- Connect your device to the computer, and start the USE_ROXANNE software
- You can load a neural file if you want your samples to be classified – If you don’t, Roxanne will just be used as a simple colorimeter
- Then place the sample on the sensor head



- Then press the “SPACE” key on your keyboard in order to launch the measurement



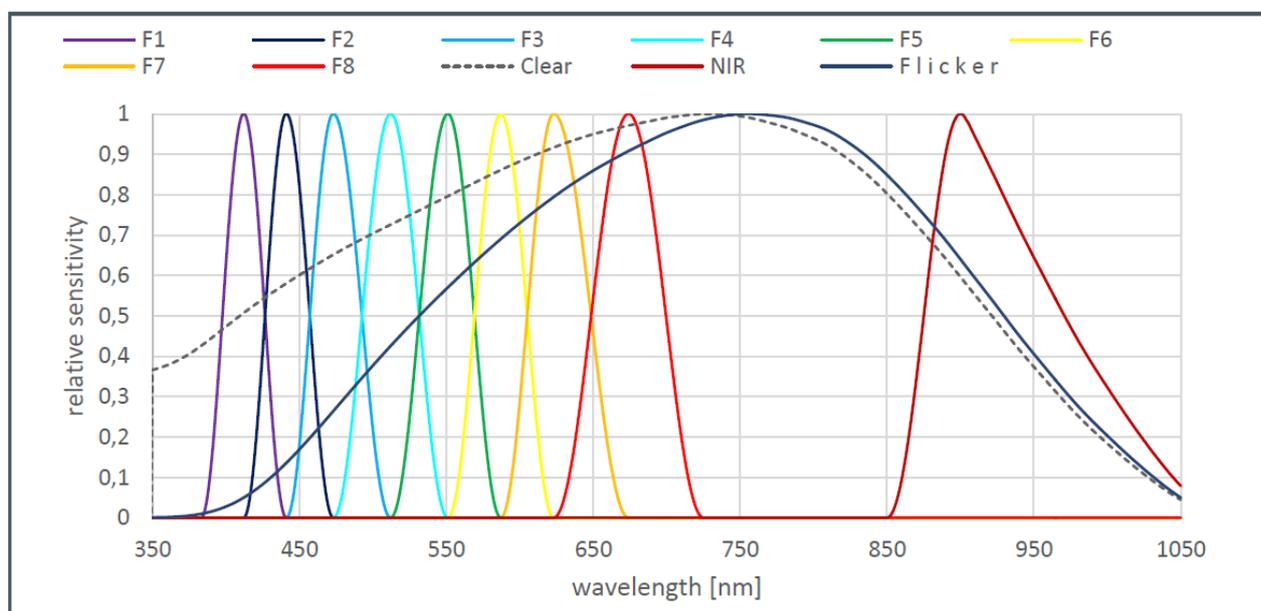
- Once you have finished to measure your samples, you can click on the button “Export to Excel” in order to save the data

5/ SPECIFICATIONS

Agrosta®Roxanne is a spectrophotometer that measures the reflectance on a sample (between 0 and 1000 after calibration) for 9 different wavelengths

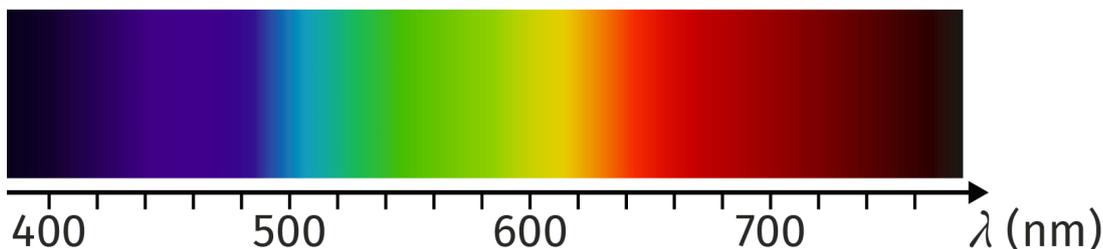
Those 9 wavelengths cover the full visible range as well as near Infrared

Normalized Spectral Responsivity



The accuracy on each wavelength for the visible range is $1/1000 = 0.1\%$, which is extremely good

The accuracy on Infrared is $10/1000 = 1\%$



The room temperature has an incidence on measurements – If the room temperature varies of more than 5°C , re-make the calibration procedure using the small mirror provided