

QUICK GUIDE
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NIRONE Sensor X plus USB Board QUICK GUIDE



SPECTRAL ENGINES
MEMBER OF THE NYNOMIC GROUP

Table of Contents

Quick Guide.....	2
Safety Information.....	3
Getting Started.....	4
Measuring the Reference Signal.....	4
Measuring a Sample.....	4
Maintenance.....	5
Cleaning the Sensor.....	5
Technical Specifications.....	6
Support.....	6
Warranty.....	6
Disclaimer.....	7

Quick Guide

Thank you for purchasing a NIRONE Sensor X plus USB Board.

The NIRONE Sensor X is a spectral sensor measuring the NIR spectrum at 1550 nm to 1950 nm wavelength band. On top of analyzing material compositions, NIRONE Sensor X includes an RGB color sensor.

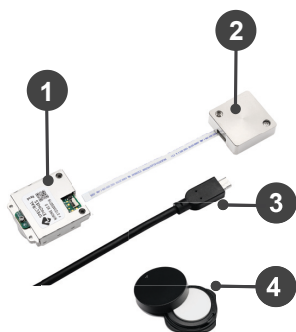
The NIRONE Sensor X Evaluation Kit provides a good starting point for technology evaluation and application studies. You can control the Sensor Evaluation Kit through a PC with our user-friendly SensorControl for X software.

The package includes:

- NIRONE Sensor X
- USB Board with flex cable
- White reference target

Downloadable software:

- SensorControl for X software



1. Near infrared (NIR) & RGB color sensors
2. USB Board with flex cable
3. Micro-B USB cable
4. White reference target

Safety Information

Please read these guidelines carefully. Not following them may be dangerous or against local laws and regulations. For further info, please read the complete user manual from www.spectralengines.com/support/nironesensorx

Warning!

When you make measurements, ensure that the sample completely covers the glass of the NIRONE Sensor X. The lamp can emit light near the infrared range. Risk of dazzling.

Warning!

The sensor may warm up during long uninterrupted use. Do not touch the sensor during long periods of use.

Warning!

The Sensor X contains a window made of glass. This window can break, if the sensor is dropped on a hard surface or receives a substantial impact. If the window breaks, do not touch the glass parts or attempt to remove the broken window from the sensor. Stop using the sensor and contact a distributor or Spectral Engines sales.

Warning!

Your sensor and its accessories are not toys. They may contain small parts. Keep them out of reach of children.

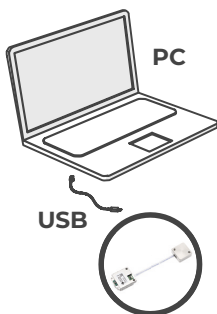
Important!

The intended use of NIRONE Sensor X is to measure spectra from various materials. Do not use the sensor for anything other than its intended use.

Getting Started

To get started with NIRONE Sensor X plus USB Board, proceed as follows:

1. Download and run the SensorControl software for X from www.spectralengines.com/support/nirone-sensor-x



Sensor + USB Board

2. Wait until the software, drivers and documents have been installed.
3. Turn the sensor upside down and connect it with the USB Board (blue writing up on the flex cable).
4. Connect the sensor to the computer with the USB cable.
5. The system automatically prompts you to search for the required drivers.
6. You can find the drivers in the SensorControl installation folder.

[Optional: If the system does not prompt you to search for the required drivers, install them manually:

<https://support.spectralengines.com/nirone/sensor-control-user-manual/topics/sensor-control-installing-sensor-control-2.html> Connect NIRONE Sensor X to your computer.

7. Open the SensorControl for X software.
8. Set the measurement settings.

Measuring the Reference Signal

Always measure the reference signal at the start of a new set of measurements.

1. Place the white reference target white side down in the center of the sensor glass.



2. Wait for measurement to start and spectrum to stabilize.
3. Choose signal type "Dark subtracted".
4. Click "Snap white".

Measuring a Sample

1. Place the sample on NIRONE Sensor X.
2. Make sure the sample completely covers the glass.
3. Save the results.
4. Examine the results.

Maintenance

- Handle your sensor and accessories with care. The following instructions help you keep your sensor operational.
- Keep the sensor dry. Humidity and all types of liquids or moisture can contain minerals that corrode electronic circuits.
- Do not use or store the sensor in dusty or dirty areas.
- Do not store the sensor in high temperatures. High temperatures may damage the sensor.
- Do not store the sensor in cold temperatures. When the sensor warms to its normal temperature, moisture can form inside the sensor and damage it.
- Do not attempt to disassemble the sensor. The warranty is not valid, if the sensor has been disassembled.
- Unauthorized modifications may damage the sensor.
- Do not drop, knock, or shake the sensor. Rough handling can break it.
- Only use a soft, clean, dry cloth to wipe the surface of the sensor.
- Keep the sensor away from magnets or magnetic fields.

! Important!

If the White reference target becomes dirty or damaged, reference measurements are corrupted and the sensor measurement results in reflectance/absorption are unreliable.

Cleaning the Sensor

Occasionally the sensor optics need cleaning. Use compressed air to blow out any dirt from the window. The compressed air must be clean and bottled, otherwise oil or water may end up on the window.

! Important!

Only use oil- and moisture-free compressed air in a spray can for the window.

! Warning!

Do not use excessive air pressure to clean up the window.

If you want to wipe the window to remove greasy stains, use isopropanol alcohol lens cleaner fluid.

Proceed as follows:

1. Tip a small amount of isopropanol alcohol on a non-linting cloth.
2. Wipe the window to remove the dirt.



Keep the sensor optics clean.

Technical Specifications

SPECIFICATION	VALUE
Wavelength range	1.55 – 1.95 μm (X2.0)
Light source	Tungsten Filament
Communication bus	USB
Detector active area (NIR)	250 μm (diam.)
SNR (NIR)	Typically 5000 with averaging of 100, wavelength step of 5 nm and acquisition time of 290 ms.
Measurement spot (NIR)	ca 1.3 mm
RGB Sensor	TCS34725 color sensor
Measurement time	Typical 1 s
Operation temperature range	+10–+50 °C (non-condensing)
Storage temperature range	-20–+60°C (non-condensing)
Power consumption	100 mW @ idle (5V / 20 mA) 600 mW @ measurement (5V / 120 mA light source on)
System requirements	PC, Windows® 7, 8, 10 or latest version, USB port

Support

For more information on NIRONE Sensor X see:
<https://www.spectralengines.com/products/nirone-sensor-x>

Warranty

This product is covered by the limited warranty. To obtain warranty service, please contact your authorized distributor or Spectral Engines sales. Please confirm the warranty terms and the applicable return policies prior to returning the product. Do not attempt to disassemble the sensor. The warranty is not valid, if the sensor has been disassembled. Warranty information: <https://support.spectralengines.com/common/topics/warranty.html>

Disclaimer

Important!

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