

# NIRONE SENSOR X

NIRONE™ Sensor X is designed to be easily integrated into consumer and handheld material analyzing devices. The sensor design is based on the Spectral Engines NIRONE Sensor but the cost level and manufacturability have been optimized for high-volume production. The sensor was made even smaller and more cost-effective without compromising the performance. The NIRONE Sensor X is equipped with RGB sensor to provide additional information on the measurement target.



NEXT GENERATION SPECTRAL SENSOR

## Key Benefits

- Compact and robust design makes it ideal for consumer and handheld material analyzing devices.
- Color detection with integrated RGB color sensor opens new application possibilities
- Easy integration to any design and high volume production capability guarantees fast market entry with your application

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. This combination is the first of its kind in the world of spectral sensors and enables far more intelligent applications than ever before.

The design of the NIRONE Sensor X is based on the world's smartest and smallest spectral sensor NIRONE Sensor. The cost level and manufacturability of the NIRONE Sensor X have been optimized for high-volume production of consumer applications and handheld material analyzing devices.

Integrated microcontroller and single connector makes it easy to integrate the sensor into any design. Sensors are pre-calibrated and you can start to use them right away in your application.

## Easy and fast way to start your application studies

The **NIRONE Sensor X Evaluation Kit** provides a good starting point for technology evaluation and application studies. The Evaluation Kit includes a USB communication board and the sensor can be controlled via a PC by using our user friendly SensorControl for X software.

The **NIRONE Sensor X Developer Kit** makes it easy to start creating your own design and software. It includes ten sensors, one USB board and a full documentation for controlling the sensor through I2C communication protocol.

## Advanced Technology

The NIRONE Sensors uses the patented Micro Electro Mechanical System (MEMS) Fabry-Perot Interferometer and are the world's smallest NIR spectral sensors. This size has been enabled by MEMS technology. The small size helps especially when designing personalized portable material sensing products. The performance of the sensor is very stable, thanks to the intelligent algorithms of the NIRONE Sensor.

## Example applications

**NIRONE Sensor X can create new applications for material analysis enabled by NIR spectroscopy.**

- Agriculture applications like grain, feed and dairy analysis
- Pharmaceuticals composition analysis
- Textile identification
- Plastics sorting
- Moisture analysis
- Forensics applications like narcotics and explosives detection

## Technical Specifications

SPECIFICATIONS	VALUE
Wavelength range	1.55 - 1.95 $\mu\text{m}$ (X2.0)
Light source	Tungsten Filament
Package size	16 mm x 32 mm x 35 mm
Communication bus	I2C
Detector active area (NIR)	250 $\mu\text{m}$ (diam.)
Measurement spot (NIR)	ca 1.3 mm
SNR (NIR)	Typically 10'000, with averaging of 100, wavelength step of 5 nm and acquisition time of 290 ms
Measurement time (NIR)	Typical 1 s
Color sensor (RGB) channels	Red, green, blue, clear
Power consumption	<100 mW @ idle (5 V / 20 mA) <600 mW @ measurement (5V / 120 mA light source on)
Operation temperature range	+5..+50°C (non-condensing)
Storage temperature range	-20..+70°C (non-condensing)

Don't hesitate to contact us, if you'd like to know more. Our experts are ready to help.

