

NIRONE® SENSOR X

NIRONE Sensor X is designed to be easily integrated into consumer and smart 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 an RGB sensor to provide additional information on the measurement target.



A 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 product family includes two evaluation kits and a developer guide which enable quick and cost-effective testing of the sensor applicability

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 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 board and a PC software for easy and fast application testing.

The **NIRONE Sensor X Developer Kit** includes three sensors, three USB boards and a developer guide that provides all the necessary information about how to integrate the sensor as a part of your product.

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.

Example Applications

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

- Pharmaceuticals composition analysis (anti-counterfeiting)
- Textile and plastics identification
- Forensics applications like narcotics and explosives detection
- Moisture analysis
- Agriculture applications like grain, feed and dairy

Technical Specifications

SPECIFICATIONS	VALUE
Wavelength range	1.55 - 1.95 μm (X2.0)
Light source	Tungsten Filament
Package size	16 mm x 32 mm x 35 mm
Communication bus	I2C
Detector active area (NIR)	250 μm (diam.)
Measurement spot (NIR)	ca 1.3 mm
SNR (NIR)	Typically 5000, with averaging of 100, wavelength step of 5 nm and acquisition time of 290 ms
Measurement time (NIR)	Typical 1 s
Color sensor (RGB)	TCS34725 color sensor
Power consumption	100 mW @ idle (5 V / 20 mA) 600 mW @ measurement (5V / 120 mA light source on)
Operation temperature range	+10—+50 °C (non-condensing)
Storage temperature range	-20—+60 °C (non-condensing)



NIRONE Sensor X Evaluation Kit

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