

NIRONE SENSOR

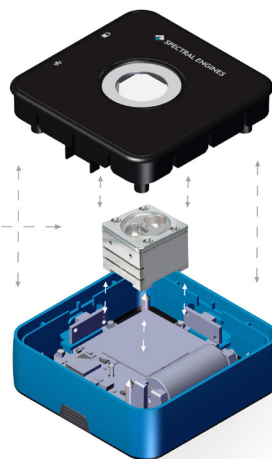
We designed the world's most intelligent and smallest spectral sensor to make material sensing easier. The **NIRONE Sensor** offers excellent performance fully comparable with the best laboratory instruments in a small package and at only a fraction of the cost. The **NIRONE Sensor** is easy to integrate and it provides new opportunities for increasing meaningful intelligence in your business.

SPECTRAL ENGINES PRODUCTS




NIRONE
SENSOR

NIRONE Sensor
High-performance,
compact and reliable
NIR Spectral Sensors.




NIRONE
DEVICE

NIRONE Device
Complete Spectral Sensing
Device for fast testing and
application development.




NIRONE
SCANNER

NIRONE Scanner
Complete Spectral Scanner
solutions with meaningful
intelligence and efficient
connectivity.

High performance in a small package

Spectral Engines' **NIRONE** Sensor enables size and cost reductions in the next generation of high-performance spectral measurement instrumentation. It is the world's first truly miniaturized and robust near-infrared MEMS spectral sensor.

Advanced Technology

The **NIRONE** Sensor uses the patented Micro Electro Mechanical System (MEMS) Fabry-Perot Interferometer, which is a fully programmable optical filter. The sensor can be driven across the whole wavelength range or it can operate only at selected wavelengths. The **NIRONE** Sensor's intelligent algorithms remove the need for additional temperature stabilization.

The **NIRONE** Sensor has a single point detector instead of a linear array, which makes it an affordable solution for all applications. The use of a single detector and Fabry-Perot Interferometer technology allow the use of a larger detector area than in linear arrays where the light is restricted by a slit. This makes the **NIRONE** Sensor's S/N ratio significantly better. The InGaAs area can be reached cost-efficiently by using a single detector. This provides better sensitivity and specificity in material sensing applications.

Fits easily with any design

The **NIRONE** Sensor integrates all these high-tech features into a compact module. A single electrical connector and changeable front optics make it easily adaptable to any commercial design.

The **NIRONE** 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 software.

Key Benefits

- High-tech spectrometer features integrated into a small package
- Modular design makes it easy to integrate in all designs
- True near-infrared means better sensitivity and specificity

Technical Specifications

SPECIFICATIONS	VALUE
Wavelength range	1.35 - 1.65 μm (NIRONE1.7) 1.55 - 1.95 μm (NIRONE2.0) 1.75 - 2.15 μm (NIRONE2.2)
Wavelength resolution (FWHM)	14 - 18 NIRONE (NIRONE1.7) 16 - 22 nm (NIRONE2.0) 20 - 26 nm (NIRONE2.2)
Detector type	Single element extended InGaAs
Illumination source	2 tungsten vacuum lamps
Bulb life	> 40,000 hrs
Wavelength points	Minimum step 0.1 nm, up to 512 in total
Wavelength switching time	1 ms
SNR (typical, w/o averaging)	> 10,000
Wavelength temperature response (max.)	0.1 nm/ $^{\circ}\text{C}$
Operation temperature range	+10..+50 $^{\circ}\text{C}$ (non-condensing)
Power consumption	< 1.1 W (peak), < 300 mW (nominal)
Optical interface	Micro reflection optics SMA-connector
Electrical interface	Supply voltage 5V UART (3.3V) I 2 C (3.3V) Digital trig in/out (3.3V)
Mechanical interface	Mountable on PCB. Two M2 screws and PCB connector. PCB area of 25 x 25 mm 2 needed
Size (W x L x H)	25 x 25 x 17.5 mm 3
Weight	15 g



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