

# NanoNIR



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

**Analytical Technologies Limited**

An ISO 9001 Certified Company

[www.analyticalgroup.net](http://www.analyticalgroup.net)

## ►► General information

The NanoNIR is the world's first affordable and portable smart near infrared spectrometer with an integrated tungsten halogen light source built in. It covers many field applications and its configuration is optimized for diffuse reflectance, transmission and fiber input detection.

Diffuse reflectance is the reflection of light from a surface that an incident ray is reflected at many angles rather than just one angle as in the case of specular reflection. Each chemical substance or material substance has their own reflectance spectrum. It is a non-evasive and non-destructive technique.

For more extensive information and specification, be sure to visit our company website.

## ►► Advantages of the NanoNIR

- Reliable, portable, sensitive with signal to noise ratio of 5000:1
- Optical resolution peak to peak 10 nm
- Slit size 25 microns
- High performance Richardson grating
- Illumination module integrated and stable
- Very-low-noise 24-bit analog-to-digital converter. Converts the analog output of the InGaAs detector into a 24-bit digital value
- Infrared thermopile sensor that measures ambient and detector temperature
- APP driven on Android and OS (Iphone, Ipod, Ipad)
- Bluetooth low energy (BLE) communication protocol with APP or USB
- Small and compact 82.2x63x40mm, 136g
- High performance integrated battery pack Li-ion 1000 scans at full power
- FCC and CE approved



## ►► Applications

- Pharmaceutical drugs identification
- Pill hardness
- Narcotic identification
- Plastic identification for recycling
- Mineral Identification for field exploration
- Food quality inspection
- Agricultural plant health monitoring
- Moisture in material
- Textile fabrics identification
- Coating reflectance
- Paint pigment testing
- Soil monitoring
- Conservation of artistic and history works
- Bacteria detection
- Fungus detection

## ►► Specifications

Wavelength Range :	900-1,700 nm
Model Specification :	With Protective Window Made of Robust Sapphire
Optical Resolution :	10 nm Pixel resolution 1.17nm/pixel (accuracy + or - 0.7nm)
Signal-to noise ratio 5000:	1 in 1 second scan
Slit Size :	1.80 X 0.025 mm
Detector :	1 mm InGaAs (Hamamatsu model G12180-010A) Dark Current 0.8nA @VR=1V Noise Equivalent Power $1.4 \times 10^{-14}$ @ $\lambda_p$
Communication Interface :	USB and Bluetooth Low Energy (BLE)
Sensors :	Thermopile for detector ambient humidity and temperature
Power :	USB or Build-in Li-ion battery
Dimensions :	82.2 X 63 X 40 mm
Weight :	136 g (with battery)
Measurement Mode :	Diffuse reflectance
Illumination Module :	Diffuse reflectance with two integrated tungsten halogen lamps 1 Watt, 45 degree from the surface

## ►► About Near Infrared Spectroscopy

The NIR region of the light spectrum mainly contains overtones and combination bands that are primarily attributed to hydrogen vibrations (CH, OH, NH). Absorption of light in the IR region causes molecules to vibrate and rotate because of the light excitation on the molecule bonds. Absorption of light in the matter is usually not uniform and depends on the molecular structure and the number of bonds in the molecule.



## ►► Compact & Portable

At only 82.2 x 66 x 45 mm, the device can be easily transported on the field.



## ►► Smart

The Nano NIR spectrometer connects to most Android and iOS devices via Bluetooth technology.



## ►► Save

Easily and rapidly save and export your records for further analysis.

## ►► PC Analysis

Record and analyze your near-infrared data using the free and intuitive PC software.



## ►► Versatile

The device covers transmittance, diffuse reflectance, and optical fiber sensing for spectral ranges between 900 nm and 1,700 nm.

## ►► Great Sensitivity

The NanoNIR smart spectrometer has a 6000:1 signal to noise ratio for a one-second scan.

## ►► Knowledge at the tip of your fingers

The NanoNIR is the first world portable smart and affordable near infrared spectrometer with integrated tungsten halogen light source build in. It covers many field applications and its configuration is optimized for diffuse reflectance, transmission and fiber input detection.

Diffuse reflectance is the reflection of light from a surface such that an incident ray is reflected at many angles rather than at just one angle as in the case of specular reflection. Each chemical, substance or material have their own reflectance spectrum. It is a non-evasive and non-destructive technique.



## ►► Experience Speed. Efficiency. Mobility.

The NanoNIR smart spectrometer is already set up to be used with most Android or iOS devices with Bluetooth, as well as with any computer running on Windows. With the touch of a finger, you can now have extensive information on the NIR spectrum of any substance. The data can easily be updated to a computer for more complex tasks.





## ►► Field applications

Applications for Near IR Spectroscopy (NIRS) are numerous and constantly evolving. The NanoNIR smart spectrometer was successfully tested and used in the following fields.



Fongus Detection



Pharmaceutical Drugs Identification



Pill Hardness



Narcotics Identification



Plastic Identification for Recycling



Mineral Identification for Field Exploration



Food Quality Integrity



Moisture in Materials



Bacteria Detection



Coating Reflectance



Paint Pigment Testing



Soil Monitoring



Textile Fabrics Identification



Agricultural Plant Health Monitoring

## HPLC Servicing, Validation, Trainings and Preventive Maintenance :

**HPLC Servicing** :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

**Trainings** :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

**AMC's/CMC** :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

**Validations** :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

**Instruments** :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



## About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

## Our Products & Technologies



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Double Beam



Infra FTIR



Optima Gas  
Chromatograph  
3007



Optima Gas  
Chromatograph  
2979 Plus



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Chromatograph



Atomic Absorption  
Spectrophotometer



Liquid Particle  
Counter



Optical Emission  
Spectrophotometer



DSC/TGA



Semi Auto Bio  
Chemistry Analyzer



HEMA 2062  
Hematology  
Analyzer



Micro Plate  
Reader/Washer



URINOVA 2800  
Urine Analyzer



Total Organic  
Carbon 3800



Fully Automated  
CLIA



NOVA-2100  
Chemistry Analyzer



PCR/Gradient PCR/  
RTPCR



TOC  
Analyzer



Laser Particle  
Size Analyzer



Ion Chromatograph



Water purification  
system



## Regulatory compliances



## Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



**Analytical**  
**Foundation**

1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at [Info@analyticalfoundation.org](mailto:Info@analyticalfoundation.org)

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.



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