

The Thermo Scientific Antaris™ II is a reliable FT-NIR analyzer that solves a broad range of industrial manufacturing quality control problems by providing timely measurements in the laboratory, at production point-of-use, or in real-time processes.

## Antaris II FT-NIR Analyzers

Bridging the gap between method development and analyzer deployment



The Antaris II system, is the next evolution of the first, dedicated FT-NIR analyzer designed specifically for use in the industrial environments of the pharmaceutical, food and beverage, chemical and polymer industries.

### The New Standard for Design




The Antaris FT-NIR analyzer defines the new standard for the design and manufacture of full-range, near infrared analyzers including:

- High performance combined with rugged design
- Reproducible, regardless of configuration, user, or environment
- Regulatory traceability incorporated into every element of design from the ground up
- Suitable platform for each point in the NIR lifecycle, facilitating method development, deployment, transfer, and routine operation

### System Advantages

- Internal, automatic background handling (no background collection necessary)
- Sample technique switching without changing analyzer configuration
- Dynamically aligned interferometer provides excellent reproducibility
- Factory-aligned, pinned-in-place components for long-term stability
- User-replaceable parts that maintain calibration performance
- Indicator panel to communicate pass/fail/prompt information in a routine setting
- Compliant, workflow-based operation that is easy to administer and control
- Heavy-duty casting for non-lab duty
- Alignment-free, user-replaceable components for hassle-free maintenance
- High sample throughput
- High reliability
- OMNIC™ software for spectroscopic and method development work
- RESULT™ workflow-based software for push button routine analysis

## Antaris II System Specifications

Detection	High-sensitivity, high-stability matched InGaAs
Interferometer	Proven frictionless, stable, long-life Michelson
Instrument Dimensions	40.6 cm (width) x 68.5 cm (depth) x 33 cm (height)
Weight	47.7 kg
Source	Long-life, high intensity halogen NIR source; spare source included with system, guaranteed filament image alignment
System Status Indicators	Indicator lights report scan, laser, power, and source status continuously
Operator Communication Indicators	Red, yellow and green LED indicators communicate pass/fail/prompt
Sealed and Desiccated	Yes
Purge	Optional
Operating Temperature Range	15 – 35 °C
Power Requirements	90-264 VAC
Integrated Computing	Optional
Communications	Plug and Play USB communications to PC, no addressing or administration required
Network and Control System Communications	Direct PC to Ethernet allows file system and OPC communications
Regulatory Approvals	  

### System Performance

Spectral Range	12000 – 3800 cm <sup>-1</sup> (833 – 2630 nm)
Resolution	4 cm <sup>-1</sup> across spectral range (.6 nm at 1250 nm); 2 cm <sup>-1</sup> option across spectral range (.3 nm at 1250 nm)
Wavenumber Reproducibility (system to system)	Better than .05 cm <sup>-1</sup> (.008 nm at 1250 nm)
Wavenumber Repeatability (single system)	10 measurement standard deviation < .006 cm <sup>-1</sup>
Wavenumber Accuracy	± 0.03 cm <sup>-1</sup> (.005 nm at 1250 nm)
Photometric Linearity (USP)	Slope 1.0 ± 0.05 and an intercept of 0.0 ± 0.05

### Antaris II Method Development Sampling (MDS) System

When you have to solve an analytical problem related to your products, selecting the correct sampling tool is crucial. The Antaris II MDS system provides a simple solution. It contains all the tools you need to analyze solids, liquids, powders, pastes and tablets. The MDS is ideal for method development as it allows you to choose the best sampling technique for the target end-use environment. It offers everything you need to run any sample, without reconfiguring the analyzer or changing accessories:

- Integrating sphere module for diffuse reflectance sampling
- Automated transmission sampling
- Fiber optic sampling with the SabIR™ probe
- Optional Tablet Analyzer module



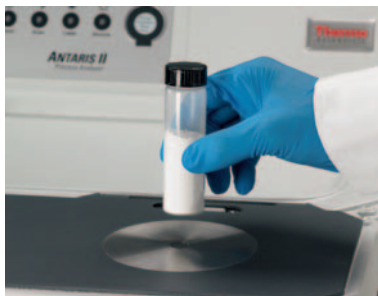
### Antaris II Dedicated Analyzers

In addition to the MDS, the Antaris II can also be configured with any single or combination of sampling modules you choose, creating a dedicated workhorse analyzer for method development with limited sample types or for routine use in an operations context. Beampaths are matched to those from the MDS system, regardless of configuration. Choose from any combination of integrating sphere, transmission, and fiber optic sampling. The tablet transmission module is available for systems configured with the integrating sphere.



## Solid Sampling

The Antaris II Integrating Sphere is ideal for measuring solids and powders quickly and reproducibly by diffuse reflectance. It works well for a variety of materials including food ingredients, polymer pellets, or powdered chemicals in vials or bottles. The high efficiency of the Antaris II sphere design results in increased sensitivity, more robust calibrations and greater sample-to-sample repeatability.

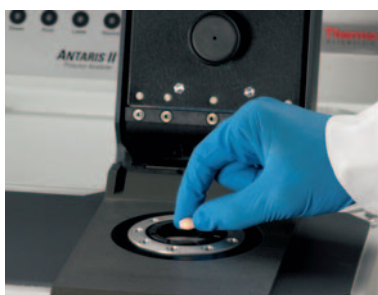


### Integrating Sphere Module

Optical	Lens and baffle-free Optically matched sphere/window ratio
Image Size	Optimized for sensitivity for all sample types and true simultaneous tablet reflection and transmission sampling (when used with tablet detector)
Detection	High sensitivity InGaAs, offset for baffle-free design
Background	Automatic and internal with samples in place; no operator intervention required
Integrating Sphere	High throughput Integrating Sphere with greater than 95% collection efficiency at collecting scattered energy
Sampling Window	Chemically resistant sapphire
Remote Start Capabilities	Analyzer panel button
Sampling	Multiple size sampling cups available VLS (Viscous Liquid Sampler) cleaning-free quantitative analysis of pastes, gels, and syrups Universal tablet holder and customizable tablet holders
Automation	Autosampler RS provides fully automated tablet and vial sampling Multiple sample cup spinners available for repeatable averaging of heterogeneous samples

## Tablet Analysis

The Antaris II Tablet Analyzer module combines the Antaris Integrating Sphere module with a highly sensitive transmission system. This patented combination allows tablets and many other solid materials of all shapes and sizes to be analyzed by both reflectance and transmission simultaneously in true dual channel mode without moving the sample or reconfiguring the optics of the system.



### Tablet Analyzer Module\*

Optical	Patented detection system allows reflection and transmission sampling at one sample position Lens-free optical arrangement minimizes stray light/non-sample signal, spot size optimized for solid dosage forms; patented detection system Sample-detector distance optimized for tablet contact sensitivity True <i>simultaneous</i> transmission and reflection sampling**: reflection and transmission analysis completed in less than half the time of other systems
Standard Transmission Module	Narrow band, ultra high-sensitivity InGaAs detector for opaque tablets; Spectral range: 12000 – 5880 cm <sup>-1</sup> (833 – 1700 nm)
SoftGel Tablet Transmission Module	Broad band, high-sensitivity InGaAs detector for gelcaps and tablets; Spectral range: 12000 – 3800 cm <sup>-1</sup> (833 – 2630 nm)
Remote Start Capabilities	Analyzer panel button
Operator Communication Indicators	Red, yellow and green LED indicators on probe communicate pass/fail/prompt
Mechanical	Repeatable optical axis positioning of detection system
Automation	MultiPro Autosampler allows tablet autosampling with simultaneous transmission and reflection analysis

\* Must be used in conjunction with the Integrating Sphere Module

\*\* Patent Pending

## Liquid Sampling

Designed for quality control testing of raw materials, chemicals, polymers, surfactants and formulations, the transmission module provides quick analysis of liquid samples in standard-sized cuvettes, culture tubes and card holders.



### Transmission Module

Automated Sample Positioning	Computer controlled Two sample positions plus background Automatic reference material background position
Background Handling	Automatic and internal with samples in place; no operator intervention required
Operating Temperature Range (Ambient Sample Holders)	15 – 35 °C
Transmission Card Holder	Three-position slide holder for 5 cm x 7.6 cm transmission cards or accessories
Transmission Cuvette Holder	Three-position cuvette holder for 0.5 – 10.0 mm cuvettes
Heated Transmission Cuvette Holder	Temperature-controlled, three-position cuvette holder for 0.5 – 10.0 mm cuvettes, ambient – 100 °C

## Fiber Optic Sampling

Near infrared sampling by fiber optics allows rapid point-of-use QC for raw material identification, quality measurements and sample component analysis. The Antaris II Fiber Optic module can be used with the SabIR hand-held diffuse reflectance probe which can analyze samples directly or indirectly through packaging materials. Methods can be transferred to the Antaris MX or EX process analyzer line for optimized at-line material testing or online analysis via fiber optic probes.



### Fiber Optic Module Specifications

Spectral Range of SabIR Probe	12000 – 4000 cm <sup>-1</sup> (833 – 2500 nm)
Probe Shaft	Stainless steel shaft 15.8 cm (length) x 1.6 cm (diameter)
Fiber Optic Cable	High throughput low OH silica fiber bundle – two or three meter length
Window Material	High quality, chemical-resistant sapphire
Probe Weight	0.7 kg
Operating Temperature Range	15 – 35 °C
Remote Start Capabilities	Handheld trigger
Background Handling	Automatic background in holster also available
Operator communication indicators	Red, yellow and green LED indicators on probe communicate pass/fail/prompt
Probe Holder	Holder with built-in Spectralon® reference
Fiber Optic Connection	Standard SMA connection allows our complete line of industrial probes to be connected
Rapid Liquid/Solid switching	Optional transreflectance sleeves allow fixed or multiple pathlength settings, avoids primary probe window contamination

The Antaris MX process analyzers provide a smaller footprint and are ideal for at-line, fiber-optic sampling using methods developed on Antaris II analyzers.

## Comprehensive Software

The Antaris II systems offer the broadest software flexibility available. From the method developer or chemometrician to routine operator or automated process operation, the Antaris II software line matches the unique needs of each point in the analyzer life cycle.

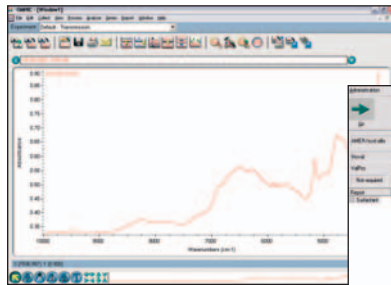
The Antaris II systems are available with the following packages:

- OMNIC spectroscopy software for spectral data manipulation and analysis
- RESULT software suite for workflow development, deployment and operation
- TQ Analyst™ software\* for predictive method development
- Camo's The Unscrambler® software for investigative and exploratory chemometrics

\* RESULT workflows can be used with methods from TQ Analyst, Camo's The Unscrambler software, InfoMetrix's Pirouette® software, and GRAMS™ PLS/IQ models.

## Integrated Computing and Data Connectivity

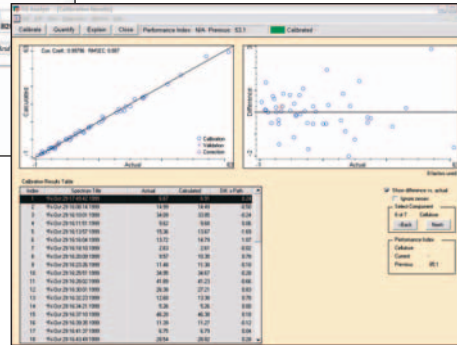
The system is available with integrated computing and wireless communications. Whether your testing is performed in an open goods-in area or in a safe laminar flow area, this system provides maximum utility and mobility and minimizes material movement in your process. The system is also compatible with barcode and RFID systems for integration with LIMS and manufacturing systems.



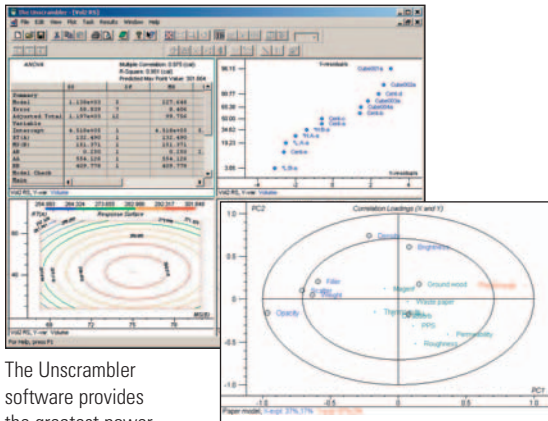
OMNIC software provides the best tools available for spectral analysis



RESULT Integration and Operation make workflow development and deployment worry-free and fit for purpose



TQ Analyst software provides an easy approach to creating powerful predictive calibrations



The Unscrambler software provides the greatest power for challenging chemometric tasks

## Qualification and Regulatory Compliance

The Antaris II FT-NIR analyzer uses the ValPro™ system qualification package.

This package includes:

- DQ, IQ, OQ, PQ documentation
- Real-time USP-based qualification and performance testing while all channels are online
- Internal validation wheel with NIST-traceable, calibrated and serialized standards
- Qualification services by certified engineers
- Tools to achieve 21 CFR Part 11 compliance



## About the Antaris Line of Analyzers

Solving industrial analytical challenges requires bringing the right tools to the job. The cumulative years of reliable spectroscopic technology from Thermo Fisher Scientific have been combined with the know-how of experts and everyday users in industry to produce a range of analyzers that set a new standard in task suitability. We are pleased to offer a full line of analyzers with common platform elements in software, validation tools, methodology, support and implementation. The Antaris product line represents an industry-driven migration of spectroscopy from science to industry, in a solution that connects the lab and the plant for the first time.



Antaris II  
FT-NIR analyzer



Antaris Target  
blend analyzer



Antaris IGS  
FT-IR gas analyzer



Antaris EX FT-NIR  
process analyzer



Antaris MX FT-NIR  
process analyzer

## Our Technology

Fourier transform (FT) spectroscopy is only one of the near-infrared (NIR) technologies used in the Antaris analyzer line. While FT-NIR is proving to be one of the most reliable, repeatable and broadly capable technologies for routine or process analyzers today, every application is different. We carefully match technology to task, while ensuring a connectivity between platforms that facilitates implementation, validation, and overall cost of ownership. From interferometry to miniature MEMS technology, the Antaris series can match the right mix of size, performance, and reliability to each critical point along your operational processes.

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