

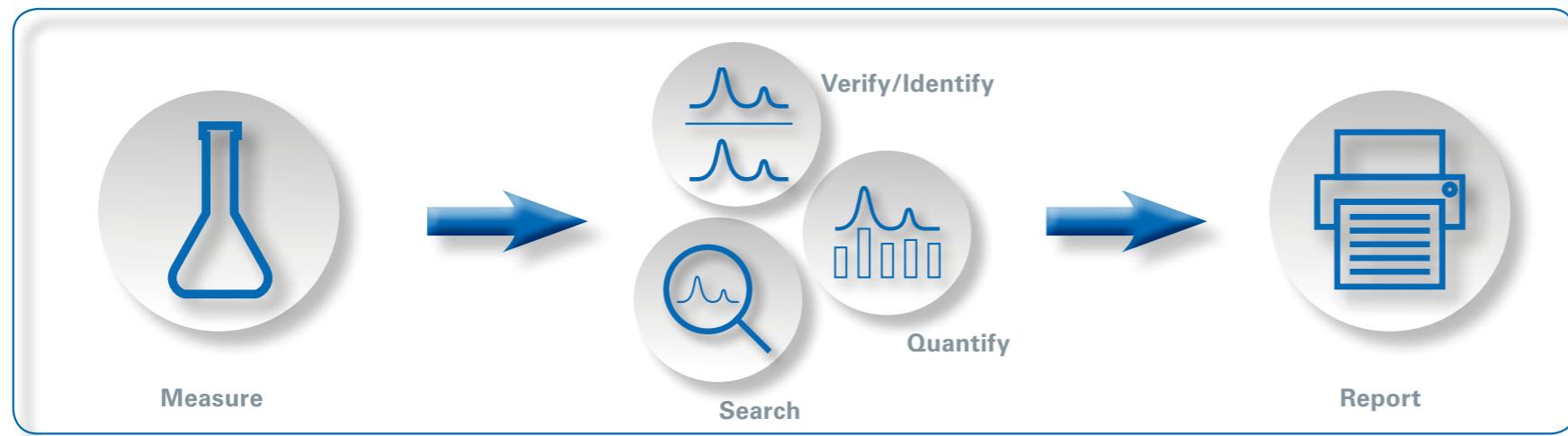
# ALPHA II

- The new benchmark for compact FTIR spectrometers

Innovation with Integrity

FTIR

## • One Touch - Many Applications



### Efficient Quality Control

Incoming goods inspection and quality control are vital tools in almost all modern industry sectors. The intention is to minimize failures in the production-process and to assure a constant high product quality. The ALPHA II allows you to quickly confirm the identity and purity of incoming raw materials, intermediates and final products. Due to its compact size and robust design, the ALPHA II can be used directly on site.

- Polymers and plastics
- Pharmaceutical
- Chemical and petrochemical
- Automotive
- Electronics

### Identification

The identification of unknown substances is a common requirement in failure analysis, competition analysis, and forensics. Typical applications are the identification of a contamination which caused a product defect, the analysis of materials used in competitive products, or the determination of found objects (e.g. illicit drugs). Using the ALPHA II's robust Platinum-ATR measurement interface the identification of virtually any sample material is performed without sample preparation.

### Quantification

IR-spectroscopy is very suitable to quantify individual components in liquid samples and pastes. The availability of liquid cells and various ATR options for the ALPHA II allow performing quantitative analysis with always the optimal measurement conditions for the respective sample type.

### Teaching

With the integrated touchpad and the footprint of a lab book, the FTIR spectrometer ALPHA II is the ideal choice for classrooms and teaching laboratories. Being robust and generating reliable high quality data the ALPHA II is suitable for educational and research applications alike.



### Guided Workflow

It takes only three touches for measurement, evaluation and report generation. OPUS-TOUCH provides an intuitive workflow that is guiding the user step by step through the measurement and evaluation process. The built-in spectra viewer offers the data evaluation and data processing functions which are needed for in-depth analysis of your IR-data. Furthermore, OPUS-TOUCH can manage multiple users and offers a built-in file archive.

- Easy to use touch interface
- Intuitive measurement assistant
- Integrated user- and file-management
- Multiple language support

**THE ALPHA II IS A UNIVERSALLY APPLICABLE FTIR SPECTROMETER WHICH PROVIDES ANSWERS TO A MULTITUDE OF ANALYTICAL QUESTIONS.**



# ● Reliable Performance

## Reliability & Stability

Bruker's well-proven, permanently aligned RockSolid™ interferometer incorporates dual retroreflecting gold coated cube corner mirrors in an inverted double pendulum arrangement for maximum efficiency and sensitivity. A wear-free flexible pivot bearing is located at the center of mass which renders the instrument robust against vibrations. The permanent alignment provides consistent high quality results, less downtime and outstanding stability.

By using a durable diode laser and patented technology, high wavenumber accuracy is ensured.

The ALPHA II is equipped with an IR-source that utilizes Bruker's CenterGlow™ technology constantly guaranteeing high performance and a life-time of at least 5 years. CenterGlow™ optimizes the location of the glowing area within the source to maximize the light flux.

The ALPHA II is equipped with a temperature-stabilized detector which makes the system very robust against variations of the ambient temperature.

## Validation

Today, a growing number of products have to be manufactured in a strictly regulated environment. Bruker Optics offers a comprehensive system validation that provides the documentation and procedures needed for an effective compliance.

The ALPHA II is prepared to fully support your validation needs; from the design qualification (DQ) to daily performance qualification (PQ). ALPHA II incorporates an Internal Validation Unit (IVU) with an integrated certified reference standard. The IVU and appropriate software protocols ensure fully automated instrument test routines for Operational and Performance Qualification (OQ/PQ) of every ALPHA II setup and every measurement mode.

Bruker's system validation manual provides all related documentation and guides you through all the necessary steps of the validation procedures. Validation, instrument installation and annual certification are offered by Bruker's factory trained, certified service engineers thereby further reducing the cost of compliance.

## PermaSure™ Technology

PermaSure™ automatically and constantly ensures reliable analysis results you can trust in. The QuickSnap™ sampling modules are automatically recognized and tested. An individual calibration of each sampling module ensures highest wavenumber accuracy. All vital spectrometer components like source, detector and interferometer as well as the internal humidity status are checked by the PerformanceGuard™ system diagnostics. Periodically performed test measurements verify the functionality of the ALPHA II according to its specification.



## Low Cost of Ownership

The ALPHA II is designed to be used for many years with low running costs. Its housing is made from robust metal. The ALPHA II employs a modern diode laser with a lifetime of over 10 years. The CenterGlow™ infrared source has been engineered for a lifetime of greater than 5 years and offers an advanced stabilization that ensures ideal intensity over the complete lifetime. The Platinum Diamond ATR module has a minimum lifetime of 10 years. These quality features are completed by the RockSolid™ interferometer with more than 10 years time of operation. Adding the low energy consumption these outstanding characteristics result in significant cost savings.

- 10 years warranty on interferometer, laser and diamond ATR module
- 5 years warranty on IR source

## Portability

With the footprint of a laboratory notebook, the ALPHA II is a very compact and integrated solution. It is highly insensitive to vibrations and can be placed nearly anywhere. It can be moved easily and is almost immediately operational. The ALPHA II can be transported from lab to lab, and fits into the fume hood or a glove box without difficulty.

- 1 Touch panel pc with OPUS-TOUCH software
- 2 CenterGlow™ IR-source, guaranteeing a constantly high emission
- 3 Internal Validation Unit with certified reference standard
- 4 Permanently aligned RockSolid™ interferometer
- 5 Temperature stabilized DTGS detector
- 6 Exchangeable QuickSnap™ sampling module
- 7 Platinum-ATR with durable monolithic diamond measurement interface
- 8 Durable robust metal housing

# • Design Follows Application

## QuickSnap™ Modules

The QuickSnap™ sampling modules for the ALPHA II offer full sampling flexibility. They allow the analysis of almost any kind of sample (e.g. solids, liquids or gases) each with perfectly matched instrument configuration. With the push of a button the exchange of the sampling modules is performed quickly and easily. All sampling modules are electronically coded. Therefore appropriate measurement parameters can be provided automatically for the current configuration. To match the requirements of different analytical questions Bruker offers various FTIR sampling accessories for transmission, attenuated total reflection (ATR), external and diffuse reflection.

The Multi reflection ATR module with horizontal ZnSe ATR crystal is very suitable for the analysis of pastes, gels and liquids. Six internal reflections and an exceptionally high light throughput provide highest ATR measurement sensitivity for the analysis even of low concentrated sample components.

The diffuse reflection (DRIFT) module is a very suitable option for the analysis of a broad variety of solid samples: powders, inorganic material, gem stones and many others. The DRIFT module is designed for easy sampling and high light throughput. This results in an unmatched time-per-analysis for FTIR diffuse reflection measurements.



QuickSnap™ module exchange

High pressure version of the diamond ATR, for very hard samples like plastic pellets.

With the Eco-ATR is a very cost effective single reflection ATR module available. It is equipped with either a ZnSe or Ge ATR-crystal.



The universal sampling module enables you to analyze all kinds of samples: solids, liquids and gases. This transmission sample compartment with its 2x3" standard sample holder can house a variety of gas cells and liquid cells.

Attenuated Total Reflection (ATR) is an easy-to-use FTIR measurement method that is ideal for both solids and liquids. The Platinum-ATR is a single reflection ATR module with outstanding chemical and mechanical robustness. Its diamond crystal is brazed into a very hard and inert ceramics made from tungsten carbide. This assembly allows the application of very high pressure so that even very hard samples can be measured.

Dedicated reflection modules allow contactless and non-destructive FTIR analysis of large samples like coated metal, paper or textile fabrics. For the measurement the samples are placed in front or on top of the instrument, depending on the chosen module. Large or immobile samples such as surfaces of cars, airplanes, mural paintings or artwork can easily be analyzed as the ALPHA is placed in front of the material/object. Optionally, an integrated video camera provides view of the sampling area.

The FTIR spectrometer ALPHA II combines outstanding quality and sets a benchmark in terms of user comfort. With its integrated touch panel the system is extremely compact and can be moved easily within any laboratory.

The ALPHA II represents the enhanced follow-up model of the very successful ALPHA spectrometer. Due to technical innovations like advanced stabilization of source and detector it provides several improvements like higher sensitivity, higher spectral resolution, extended spectral range and higher robustness against changes in temperature.

With its wide range of plug and play QuickSnap™ modules the ALPHA II has unmatched flexibility and can be adapted to almost any measurement scenario.

OPUS-TOUCH, the dedicated user interface for touch operation makes the control of the ALPHA II very convenient and guides the user during the operation.

Technologies used are protected by one or more of the following patents:  
DE 102004025448; DE 19940981; US 5923422

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- Very robust and compact FTIR spectrometer with integrated design
- Convenient touch panel operation with intuitive software, suitable even for beginners
- Low costs of ownership due to high quality components with long life time, and low power consumption
- Dedicated design for any application by exchangeable sampling modules
- High reliability due to much system intelligence
  - Electronic coding of sampling modules and spectrometer
  - Individual calibration of sampling modules and automated setting of parameters
  - Permanent diagnosis of all relevant system components
  - Automated tests to verify readiness of system
  - Validation with internal certified standards

**Bruker Optics is ISO 9001 and ISO 13485 certified.**

Laser class 1 product.

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