



MB3600

Versatile FT-NIR analyzer
designed for your industry.
The most reliable FT-NIR
specifically designed for QA/QC.

MB3600 FT-NIR Spectrometer for your industry



“Our industry needs versatility and reliability at low cost. Our laboratory QA covers a wide range of areas.”

“With analysis optimization using ABB’s MB3600 FT-NIR, we can cover many applications.”

“The results need to be reliable for many different types of samples including liquids and solids with a variety of accessories.”

The optimum NIR analyzer solution.

The MB3600 FT-NIR with HORIZON MB™ FTIR software from ABB Bomem provides an optimum combination of reliability, low cost of ownership, consistency of results over a long time and spectroscopic performance. Easy to use and maintenance free, it will provide consistent analytical results for years to come.

Durability.

Built with heavy-duty modules, a permanently aligned optical system and minimal mechanical components, the MB3600 does not require maintenance or adjustments for years to come. The result: a reliable spectrometer that produces the most consistent results.

Designed by Dr. Henry Buijs.

The MB3600 was developed by Dr. Henry Buijs, one of the founders of Bomem and a world-renowned expert recognized for his applied research in spectroscopy.

Patented.

The double-pivot interferometer’s innovative design ensures increased robustness. The optics are permanently aligned, enabling more repeatable, reproducible spectroscopy and eliminating the need for dynamic alignment. The scanning mechanism has a lifetime guarantee.

Smallest footprint.

With a vertical, space-efficient design, the MB3600 optimizes laboratory workspace and facilitates access to internal components.

MB3600.

The MB3600 is the result of over 35 years of experience in the aerospace, academic, chemical, pharmaceutical and petrochemical industries. It is the successor to the FTLA2000 spectrometer, also developed by Dr. Buijs and marketed since 1985 by Bomem inc. Designed with the concerns of lab users in mind, the MB3600 is the ultimate in ease of use, reliability and consistency.

MB3600 Features

ABB's world-class laboratory FT-NIR analyzers deliver maximum reliability for consistent results and minimal maintenance

Reliable, consistent results

Permanently aligned optical system. With permanently aligned optics using only fixed components along with a patented interferometer scan mechanism, the MB3600 delivers consistent precise and reproducible results year after year and from unit to unit.

Heavy-duty, reliable components.

The modular components of the MB3600 have been designed to provide the longest product life on the market. The MB3600's design is based on the following principles: No maintenance, no adjustments and a scan mechanism that has no wear. The reliability of the MB3600 comes from dependable components and their integration in a system requiring minimal moving parts.

Unprecedented spectral performance.

Permanently aligned optics with a Jacquinot stop in the interferometer output beam ensures an accurate and stable line shape as well as wavelength and resolution stability. The 100% line spectral repeatability permits reliable determination of small spectral features down to below 10 micro absorbance and below 2 micro absorbance for the optional high sensitivity InAs or InGaAs detectors. The MB3600 is provided with a highly accurate internal wavelength calibration standard.

“ABB's FT-NIR analyzer has proven to be available and ready to use at all times. No adjustments and no tweaking has had a big impact on our laboratory operation.”

Laboratory chemist

First maintenance-free FT-NIR analyzer

No consumables.

The MB3600 contains fixed components that do not wear out with use, meaning no components to replace or adjust. With the MB3600, the HeNe LASER is replaced by a solid state laser. All optics are non-hygroscopic. Purging is not required for protection of optics.

Long-life source.

To maximize reliability, the source is operated so as to provide a 10-year expected lifetime.

Versatility at a glance

Standard open sample compartment.

The arid-zone open sample compartment of the MB3600 addresses all the needs of the modern analytical laboratory. It can hold a wide variety of easily swappable ABB or third-party accessories that do not require alignment. The instrument can also be purged if needed.

Multiple sampling options.

ABB offers a number of well thought-out accessories that are easily swappable. They do not require alignment. The temperature-controlled vial holder is a universal vial sampling accessory for the analysis of liquids in disposable glass vials with diameters of 5 mm, 8 mm and 12 mm OD. The rotating diffuse reflectance accessory measures a large sample area while the sample is moving, providing better averaging than a stationary integrating sphere. A fiber-optic coupled disposable temperature controlled vial accessory and temperature controlled liquid cell are also available.



MB3600: HORIZON MB™ FTIR Software Suite



HORIZON MB FTIR

Intuitive software for daily operation.

The HORIZON MB FTIR module facilitates the acquisition, processing and analysis of samples. With HORIZON MB FTIR, managing analytical results has never been easier.

HORIZON MB Library (option)

A powerful search engine with multiple search options.

The HORIZON MB Library module is designed for efficient multiple library searches. It offers spectrum and full-text search capabilities.

HORIZON MB Security (option)

Enabling 21 CFR Part 11 compliance.

The HORIZON MB Security module offers 2 selectable security levels. It provides distinctive access control to software functions based on permission schemes, hierarchical access control based on data access roles, electronic signatures, activity logging and traceability of all data manipulations.

HORIZON MB Professional (option)

Advanced features for demanding users.

The HORIZON MB Professional module includes enhanced mathematical functions, 3-D capabilities and extended import/export functions. It also includes a regulatory module for automated execution and reporting of the instrument verification tests described in pharmacopoeia guidelines.

HORIZON MB Quantify (option)

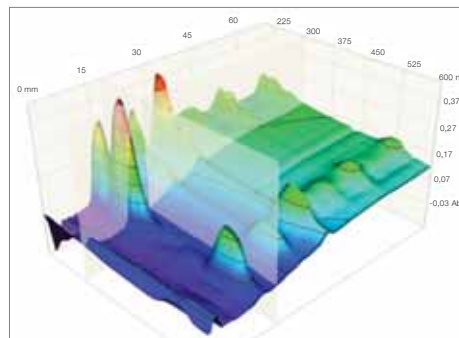
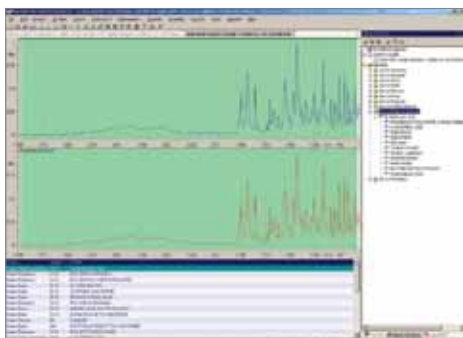
The modern chemometrics toolbox.

The HORIZON MB Quantify module incorporates univariate and multivariate algorithms for data analysis and quantification. It also includes the HORIZON MB Professional module.

HORIZON MB Scripting (option)

Customization.

The HORIZON MB Scripting module allows users to develop their own routines and functions using the powerful SAX basic scripting engine.



MB3600 Technical Specifications

SPECTROSCOPIC PERFORMANCE

(typical, at 25 °Celsius with DTGS detector)

- Spectral range 3,700 to 15,000 cm^{-1}
- Resolution better than 0.7 cm^{-1}
- Apodized resolution adjustable 1 cm^{-1} to 64 cm^{-1} , in increments of 2
- Signal-to-noise ratio (root-mean-square, 60s, 16 cm^{-1} , at peak response): > 100 000: 1
- Signal sampling: 24-bit ADC
- Short-term stability (@ 8000 cm^{-1}): < 0.09 %
- Temperature stability (@ 8000 cm^{-1}): < 1 % per °C
- Frequency repeatability (@ 7300 cm^{-1}): < 0.006 cm^{-1}
- Frequency accuracy (@ 7300 cm^{-1}): < 0.06 cm^{-1}
- Absorbance reproducibility (toluene): < 0.002 AU

Application software (computer not included)

- Operating system compatibility Win XP Pro
- Standard software: HORIZON MB™ FTIR
- Optional modules: HORIZON MB Professional, HORIZON MB Quantify, HORIZON MB Library, HORIZON MB Security (21 CFR part 11 compliance), HORIZON MB Scripting

Optical bench

- Beamsplitter material ZnSe (non-hygroscopic)
- Patented double pivot interferometer mechanism. High throughput Michelson interferometer with protective cover.
- Optical path fully purgeable
- Source, Quartz Halogen with electronic stabilization, expected half life, 10 years
- Metrology: Solid-state laser (no scheduled maintenance required)
- Detector module: DTGS
- Optional detector modules, InAs and extended InGaAs both with integrated cooling
- Open sample compartment configuration: Arid-Zone, center focus
- Sample compartment dimensions: 20 cm x 14 cm plate, 8.7 cm beam height
- Sample compartment mounting: 3-point positioning guide or 3 point kinematic adjustable

Data communication

- Hardware Port Ethernet, 10/100 Mbps

Instrument enclosure

- Casting: Rugged all-metal with integral handles
- Size: 43.5 cm (W) x 28 cm (D) x 37 cm (H)
- Weight: 24 kg

Environmental

- Universal power supply: 100-240 VAC, 50/60 Hz
- Power consumption: 65 W
- Operating temperature: 10 °C to 35 °C
- Operating relative humidity: 5 % to 80 %, non-condensing
- Regulatory certification and compliance: TUV and CE

SPECTROSCOPIC PERFORMANCE

(typical, at 25 °Celsius with InAs detector)

- Spectral range 3,700 to 12,000 cm^{-1}
- Resolution better than 0.7 cm^{-1}
- Apodized resolution adjustable 1 cm^{-1} to 64 cm^{-1} , in increments of 2
- Signal-to-noise ratio (60s, 16 cm^{-1} , at peak response): > 500 000: 1
- Signal sampling: 24-bit ADC
- Short-term stability (@ 8000 cm^{-1}): < 0.09 %
- Temperature stability (@ 8000 cm^{-1}): < 1 % per °C
- Frequency repeatability (@ 7300 cm^{-1}): < 0.006 cm^{-1}
- Frequency accuracy (@ 7300 cm^{-1}): < 0.06 cm^{-1}
- Absorbance reproducibility (toluene): < 0.002 AU

SPECTROSCOPIC PERFORMANCE

(typical, at 25 °Celsius with InGaAs detector)

- Spectral range 3,900 to 11,000 cm^{-1}
- Resolution better than 0.7 cm^{-1}
- Apodized resolution adjustable 1 cm^{-1} to 64 cm^{-1} , in increments of 2
- Signal-to-noise ratio (60s, 16 cm^{-1} , at peak response): > 600 000: 1
- Signal sampling: 24-bit ADC
- Short-term stability (@ 8000 cm^{-1}): < 0.09 %
- Temperature stability (@ 8000 cm^{-1}): < 1 % per degree Celsius
- Frequency repeatability (@ 7300 cm^{-1}): < 0.006 cm^{-1}
- Frequency accuracy (@ 7300 cm^{-1}): < 0.06 cm^{-1}
- Absorbance reproducibility (toluene): < 0.002 AU

Documentation

- cGMP IQ-OQ protocol templates (optional)
- User manual
- Quick-start guide

ABB Analytical is one of the major ABB manufacturing centers for laboratory and process analytical systems, with more than 35 years of experience in developing FT-IR and FT-NIR spectrometers for industrial, military and space applications.

As part of our portfolio of products and services for process optimization, we are able to offer a full range of custom calibration modeling services and application support for industrial applications.

ABB also provides extensive, globally distributed after-sales support and engineering services, as well as a full customer training program.

IR & NIR Spectroscopy Knowledge Management

- Application support and spectroscopy training
- Calibration and chemometrics development training
- On-site services including hardware and calibration maintenance

Up-Time Insurance Program

- Preventive maintenance
- Extended warranty services
- Tailor-made service contracts
- Chemometrics services

Installation / Start-up & Analyzer Life Cycle Program

- Process spectrometer start-up
- Laboratory spectrometer installation
- Spectrometer and laboratory/process software exchanges / upgrades
- Extended process and lab spectrometer warranties

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