MPA II FT-NIR Spectrometer

Specifications

Rugged Near-IR spectrometer designed for quality assurance and method development. The system is equipped with an internal sample compartment for transmission measurements. The MPA II can be upgraded by additional sampling accessories, like fiber optic probes, integrating sphere, external transmission unit, automated sample wheel, and sample rotators. For control of the spectrometer optics and signal processing a PC-based data system is required.

Performance

Resolution:	2 cm^{-1}
Wavenumber repeatability (RMS):	0.006 cm^{-1}
Wavenumber accuracy:	0.1 cm^{-1}
Photometric accuracy:	0.1% T
Photometric linearity:	1.00±0.05 (slope) 0.00±0.05 (offset)
Measuring speed:	up to 5 scans/s at 8 cm^{-1} resolution

Design

- Housing: rugged, sealed and desiccated housing
- Interferometer: RockSolid™, permanently aligned, shock insensitive, high stability with gold-coated cube corner mirrors and friction less bearing for long life, Quartz substrate beamsplitter with proprietary coating (10 years warranty on the moving parts of the interferometer)
- Source: Tungsten, air cooled (20W)
- Laser: Solid State Laser (10 years warranty)

Sample Compartment / Fiber Optics Module / Integrating Sphere

- Detector: high sensitivity thermoelectrically cooled InGaAs detector
- Spectral range: 11,500 - 4,000 cm^{-1}

External Transmission Unit

- Detector: high sensitivity InGaAs detector
- Spectral range: 11,500 - 5,800 cm^{-1}

Electronics

- Data acquisition: integrated acquisition processor for PC-independent data acquisition, 24-bit A/D converter
- Automation: microprocessor controlled optical bench, digital speed control, advanced system check, IVU (Internal Validation Unit)
- Performance check: permanent on-line diagnostics of all optical components, automation units and sampling accessories
- Connection to PC or LAN: Ethernet interface 10/100 Mbps

Dimensions

- Spectrometer (w x d x h): 371 x 600 x 262 mm (base configuration)
541 x 600 x 390 mm (complete configuration)
- Weight: 37 - 42 kg (depending on configuration)

Operating Environment

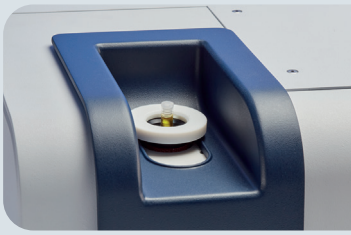
- Operation temperature: 5°C to 35°C (41°F to 95°F)
- Storage temperature: -20°C to 70°C (-4°F to 158°F)
- Power requirements: 100-240V AC, 2.5A, 50-60 Hz
- Humidity: <80% relative, non condensing
- Laser class: class 1

Software

- Spectroscopic Software OPUS: easy to use, database support, fully cGMP compliant, fully 21 CFR part 11 compliant (including data integrity)
- Optional OPUS packages:
  - OPUS/NIRLAB, software package for routine operation including qualitative and quantitative evaluation
  - ONET, Software for administration of spectrometer networks
  - O/QU-N, O/ID-N, O/CONFO-N: for setup evaluation methods

Validation

- Instrument qualification: *OPUS Validation Program* (OVP) supports *Operational Qualification* (OQ) and *Performance Qualification* (PQ), optional qualification according to USP<856>/PhEur 2.2.40
- Internal Validation Unit: filter wheel with reference standards for automatic PQ tests
- Validation manual: complete hardware and software validation documentation is available as an option
- Service contracts: preventive maintenance and service contracts and validation services are available as an option



Sample Compartment

Fiber Optics Module

Integrating Sphere

Transmission Unit

Standards and Approvals

CE labeled and complies with the following directives:

- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- WEE Directive 2012/19/EU
- RoHS II Directive 2011/65/EU
- RoHS III 2015/863/EU
- NRTL approval

Bruker Optics is ISO 9001 and ISO 13485 certified.

Laser class 1 product.

Technologies used are protected by one or more of the following patents:
US 7034944

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