



● **TANGO** FT-NIR Spectrometer for Reflection Measurements

## Specifications

Rugged NIR analyzer with sealed and desiccated optics for routine quality control. The analyzer is equipped with a gold coated integrating sphere for the reflection measurement of samples. Sample spinners for inhomogeneous samples are optionally available.

The analyzer is either equipped with a built-in data system with a touch screen or optionally available with an external PC-based data system. The easy-to-use and GMP compliant TANGO software package allows qualitative and quantitative analysis.

### Design

- Housing: rugged, sealed and desiccated housing
- NIR source: air cooled Tungsten source (5 V/ 7W), average lifetime 9,000 h, pre-aligned, easily exchangeable by operator
- Interferometer: RockSolid™, frictionless bearing, permanently aligned, Quartz substrate beamsplitter with proprietary coating average lifetime 10+ years
- Laser diode: InGaAs diode, TE-cooled and temperature-stabilized
- Detector: reflection measurements in cups, Petri dishes or disposable vials
- Sample presentation: background measurement w/o removing the sample

## Performance

- Spectral range: 11,500 - 4,000  $\text{cm}^{-1}$
- Resolution: better than 4  $\text{cm}^{-1}$
- Wavenumber reproducibility: better than 0.04  $\text{cm}^{-1}$ , at 7,181  $\text{cm}^{-1}$
- Wavenumber accuracy: better than 0.1  $\text{cm}^{-1}$ , at 7,181  $\text{cm}^{-1}$
- Photometric accuracy: better than 0.1% T

## Electronics

- Data acquisition: 24-bit A/D converter
- Automation: microprocessor controlled optical bench, digital speed control, automatic gain selection, internal background, advanced system check
- Performance check: permanent on-line diagnostics of all optical components, automation units and sampling accessories
- Connectivity: Ethernet interface, 10/100 Mbps

## Dimensions

- Spectrometer (w x d x h): 309 mm x 438 mm x 175 mm (plus max. 250 mm height for monitor)
- Weight: 22.0 kg (17.5 kg w/o data system)

## Operating Environment

- Protection: NEMA 13 / IP54
- Operating temperature: 5° C to 35° C
- Storage temperature: -20° C to 70° C
- Operating relative humidity: < 80% non-condensing
- Power requirements: 100 to 240 VAC, 50/60 Hz, 75 W (typical 40 W)
- Regulatory certification and compliance: CE, WEEE and RoHS

## Data System

- Embedded PC (1,86GHz, 4GB RAM, 64GB SSD) with 12.2" touch display (capacitive); optional external PC data system

## Validation

- TANGO software: the software package includes functions that facilitate the use of the analyzer in a 21 CFR Part 11 compliant environment
- Instrument qualification: TANGO software supports Operational Qualification (OQ) and Performance Qualification (PQ)  
optional: qualification according to USP1119/PhEur 2.2.40 filter wheel with reference standards, for automatic PQ tests
- Internal validation unit: complete hardware and software validation documentation is available as an option
- Validation manual: Preventive maintenance contracts and validation services are available as an option

## Software

- GMP compliant TANGO software with user-friendly interface
- Product based operation (Barcode reader friendly)
- Qualitative and/or quantitative evaluations (no method development)
- Customizable analysis reports
- Data exchange via USB stick and/or LAN



Product selection by pressing the respective icon



After the measurement the results are displayed graphically

Covered by one or more of the following patents: DE102004025448; DE19940981.  
Additional patents pending.

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