



FT-NIR SPECTROMETER

# TANGO. ANALYSIS TO GO.

The next generation FT-NIR spectrometer.

Innovation with Integrity

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# TANGO creates values.

Straight forward analysis without delays.



Faster, simpler, more secure - with TANGO your NIR analysis speeds up. TANGO has exactly what users require of an FT-NIR spectrometer suitable for industrial use: robustness, high precision and straightforward operator guidance.

## EVERYTHING, WITH EASE.

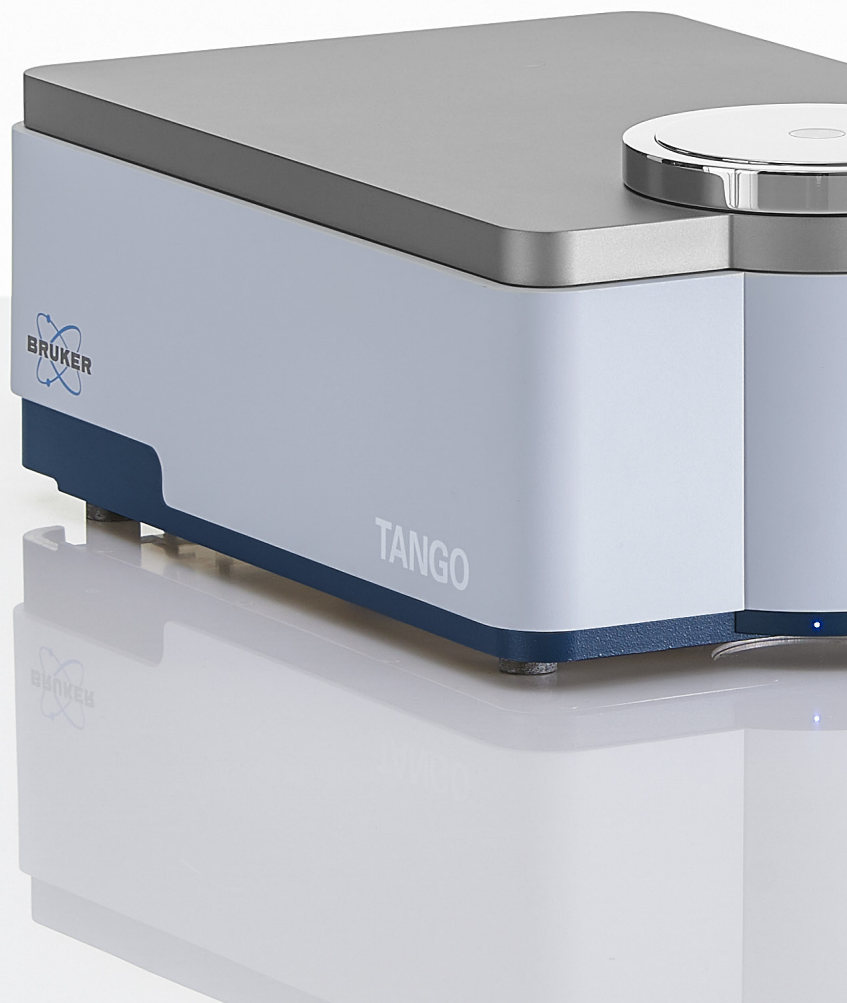
Fast measurements for high sample throughput, simultaneous evaluation of different components and an intuitive handling, without need for expertise training: TANGO simplifies the NIR analysis and therefore offers maximum security of the results. Specifically targeted for the given application and the demands required of an efficient analyzer. For liquids or for solids, with integrated PC and monitor or as separate analysis station, e.g., for connecting a laptop. Integrated into a network or as a stand-alone solution.

## ONCE IS ENOUGH. CALIBRATION TRANSFER FOR MORE EFFICIENCY.

For precise analysis, an accurate calibration is crucial. With TANGO, you only need to do it once! All calibrations can be transferred to another spectrometer, also across different system platforms. Easy via LAN or USB stick.

## SMALL FOOTPRINT. FOR THE LAB AND FOR THE ENVIRONMENT.

With as little as 40W, the TANGO is not only small in size but also in energy consumption, compared to other systems. But there is more to it: TANGO can replace many analysis techniques that require hazardous reagents, solvents, or gases, making it the ideal solution towards a greener lab.







# TANGO is intuitive handling.

NIR analysis becomes simpler. And faster. And more secure.

1

The sample is simply filled into the measurement cup and placed onto the spectrometer.



2

The product is selected by either pressing on the respective product icon or by using a barcode reader.



3

A simple touch on the screen starts the measurement.



Forget tedious training courses or specialized knowledge. TANGO makes it simple for you: with its intuitive user interface it guides the operators quickly and securely through the workflow. Even untrained staff can operate the spectrometer securely and error free. Good to know: the user interface is available in 17 languages.

# 4

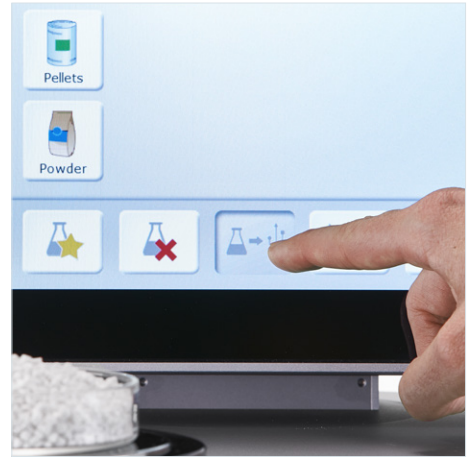
The progress is displayed by the green status bar. After approximately 15 to 30 seconds the measurement is finished.

# 5

The result view, e.g. as target/actual value shows the quality of the analyzed product immediately.

# 6

One last push of a button: If required, the stored result can be exported via USB at any time.



### **ERGONOMIC: USER COMFORT IN ALL WAYS.**

Nowadays, with laboratory space being at a premium, it is difficult to locate a new analyzer in the lab. This isn't an issue with TANGO due to its small footprint and ability to be positioned in any orientation - it can be operated from all three sides. The monitor swivels in all directions and can even be tilted in various positions to enable an optimum view. Alternatively, it can be placed flat on top of the spectrometer for a perfect viewing from above.

### **LOGICAL: SAMPLE HANDLING THE EASY WAY.**

When it comes to sample handling, TANGO saves time and prevents operating errors. No sample preparation is necessary, no chemicals, no additional reagents.

The sample is simply filled into the measuring cup or vial with the measurement being done through glass.

### **AUTOMATIC: BACKGROUND MEASUREMENTS**

Contributing to the high precision of FT-NIR spectrometers is the exact alignment with the background. But TANGO goes one step further: if required, the background measurements are performed automatically without user intervention. This alignment can even take place if a sample is located in the sampling position. The perfect prerequisite for optimal and secure measurements at any time – without (human) errors.

# TANGO is the specialist at your side.

Innovative technology makes precision a productive factor.



Select the TANGO you need:

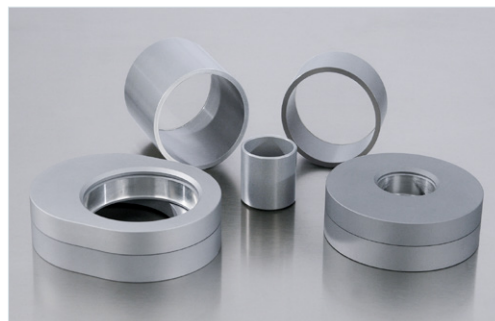
- The reflection analyzer TANGO-R for solids
- The transmission analyzer TANGO-T for liquids
- With or without integrated PC and monitor

## TRANSMISSION MEASUREMENTS: HIGHEST PRECISION FOR LIQUIDS.

TANGO for measuring liquids comes equipped with an active sample heater/cooler as standard. The temperature of the sample can be selected between +20°C and +80°C. A sensor is permanently checking the temperature of the sample vial. This allows for a fast temperature control of the sample and therefore quick and reliable results.

## REFLECTION MEASUREMENTS: ANALYZE SOLIDS EFFICIENTLY.

TANGO for measuring solids contains a gold coated integrating sphere for analysis by diffuse reflection. This sphere ensures highly reproducible measurements of inhomogeneous samples. The diameter of the measurement spot is around 10 mm; the measured sample surface can be enlarged by using sample rotators.



Optional accessories like different rotating devices and cups as well as different vials for transmission and reflection measurements ensure optimal sample preparation.





### FOR THOSE WHO WANT ADDITIONAL RELIABILITY.

TANGO delivers reliable results wherever highest demands are made on raw materials as well as intermediate and finished products and a rapid measurement at low cost must be ensured.

The most important applications are:

- Testing of incoming raw materials
- Process-accompanying analytics
- Final product inspection
- Release analytics

### FOR THOSE WHO PREFER CUSTOM-MADE APPLICATIONS.

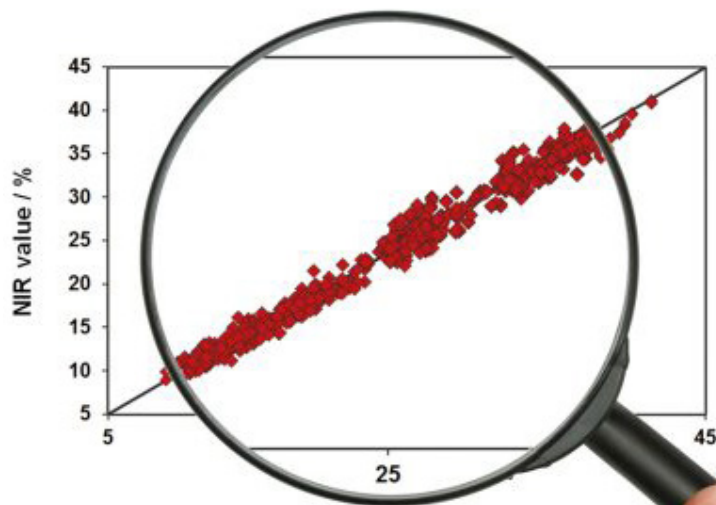
TANGO offers an efficient and cost-effective analysis for material identification and quantification in a wide variety of application fields. The comprehensive application support of the Bruker specialists helps to select the optimal measuring method as well as appropriate accessories and software solutions.

Typical application fields include:

- Food and beverage industry
- Feed manufacturing
- Pharma and biotechnology
- Chemical and petrochemical industry
- Polymer industry

### FOR THOSE WHO REQUIRE COMPLETE SOLUTIONS.

For markets with standardized products TANGO offers complete solutions with pre-calibrated systems. For the food and feed industry, ready-to-use application packages are available. Please contact your local NIR expert for further information.



# TANGO is different.

High-precision measurements independent of operator and environment.



**1** The easy-to-use software interface is operated via a touch screen panel.

**2** Sample area for solid and liquid samples. The background is recorded automatically if necessary.

**3** Light source and desiccant cartridge can be easily exchanged by the operator.

**4** The Internal Validation Unit guarantees that the TANGO is performing at its optimum.

**5** The Rocksolid™ interferometer with Cube Corner technology is the heart of the TANGO.

**6** Highly reflective gold coated optics ensure optimized light throughput.





Sturdy housing, precise core. TANGO connects industrial design with modern technology and intuitive handling. The result is measurements with extraordinary precision and reliable stability.

### **PRECISION SQUARED: CUBE CORNER TECHNOLOGY**

Unlike the classical flat mirror technology, Cube Corner mirrors offer a crucial advantage: unbelievable precision of the optical path. Further, the most frequent sources of error such as vibrations do not affect this technology.

### **LEADING EDGE TECHNOLOGY**

When it comes to precision, there is no alternative to Fourier Transform technology. Another advantage is that FT-NIR is independent of ambient light. The sample can be put directly onto the TANGO for measurement without opening any doors or drawers.

### **OPERATION ON-SITE: PRECISE TECHNOLOGY AND ROBUST DESIGN**

Industrial conditions demand a great deal from highly precise measuring instruments. No problem for the TANGO. Due to its special construction, it can handle tough conditions and is perfectly suited for rough environments. Besides its encapsulated housing to protect the optics, TANGO is insensitive to vibrations and temperature changes. Behind the design there is a logical philosophy: It is better to exclude errors from the beginning rather than correcting them afterwards.

The exchange of the light source, if required, can be done in a few seconds. Also the desiccant cartridge, which keeps the inside low on humidity can be changed easily.



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# TANGO is innovation.

Made by Bruker.



Bruker Optics is the leading manufacturer and worldwide supplier of Fourier Transform Near Infrared spectrometers for various industries and applications. For years, we set new standards on the market when it comes to precision and efficiency, ergonomics and ease of operation, consulting and services.

## **HIGHEST QUALITY FROM A RENOWNED COMPANY: ALWAYS MORE THAN YOU EXPECT**

We are never satisfied with the common market standards. This is where our own research and development departments play a major role: here new ideas are turned into innovative products - in more precision, advanced user comfort and unrivalled reliability.

To us, it is obvious that these highest demands are also valid for our production process. High-quality materials, careful workmanship and, if necessary, especially developed production processes and test routines ensure the quality that is common to all Bruker Optics spectrometers. No matter which new products we design, we place the very highest demands on them all. This is why not only the TANGO, but all NIR spectrometers have a 10 year warranty on the moving parts of the interferometer.



Highest standards  
in production assure  
maximum precision and  
reliability.



Plenty of time for personal consultation and customer service guarantee a sustainable and efficient solution.

**WORLDWIDE ON-SITE:  
WE ARE THERE WHERE YOU NEED US**

Bruker's competence is there where our customers need it - from the very first contact. Our application specialists are scientists and engineers which know NIR spectroscopy and spectrometers as well as the customers applications.

With service centers all over Europe, North and South America, Asia and Oceania an efficient global technical support is guaranteed. This includes a professional installation as well as qualified and fast after sales service and if desired remote diagnostics.

**MORE THAN STATE-OF-THE-ART  
TECHNOLOGY:  
OUR KNOW-HOW FOR YOU**

Regular training courses and customized local training are vital elements of our know-how transfer. Please contact your local office or look at our web site:

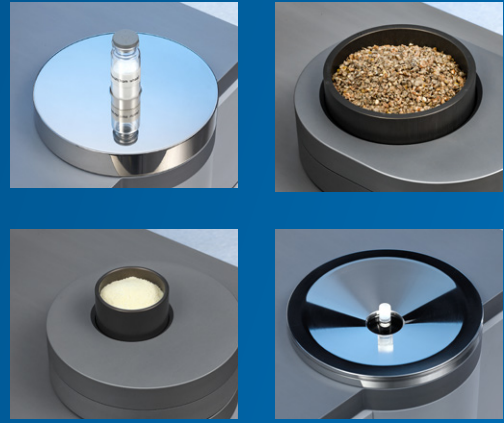
[www.bruker.com/trainingcourses-optics](http://www.bruker.com/trainingcourses-optics)

Know-how meets service:  
Plenty of time for personal consultation and customer service guarantee a sustainable and efficient solution.



## THE TANGO AT A GLANCE:

- Proven FT-NIR technology by Bruker
- Easy-to-use touch screen operation
- GUI available in 17 languages
- Automated background management
- Small footprint
- Low energy use (typically 40W)
- Robust and precise optics
- User-friendly maintenance
- Direct calibration transfer to/from all Bruker FT-NIR spectrometers
- Data exchange via network
- Complies with 21 CFR Part 11 requirements



## Want to go online?

The MATRIX-F II process analyzer enables you to directly measure key parameters at multiple measurement points and automatically send them to the process control system, providing a great deal of relevant information. Rather than relying on single lab samples, plant operators with access to frequent results are able to dramatically reduce in-process variation and adjust the process in time to avoid the production of out of spec product.

[www.bruker.com/MATRIX-F](http://www.bruker.com/MATRIX-F)



Bruker Optics is continually improving its products and reserves the right to change specifications without notice.  
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