

# FTIR Spectrometer

Lyza Series



# One Instrument. A World of Applications.

Lyza 7000 brings the versatility of FTIR into everyday laboratory workflows. Automated methods and intuitive touchscreen operation help users move from measurement to result faster – turning spectra into decisions with confidence.



## Bitumen

- Quantify polymer and wax content
- Calculate carbonyl and sulfoxide oxidation indices
- Predict mechanical test results such as ring-and-ball softening point, and dynamic shear rheology
- Use the included bitumen library for material comparison

Fast insight into bitumen modification, aging, and expected material behavior supports efficient bitumen analysis.

## Petrochemicals

- Determine FAME in diesel
- Monitor oil condition and degradation
- Verify lubricant quality and consistency
- Analyze according to a range of ASTM and DIN standards

Predefined methods help laboratories start quickly and perform standards-compliant fuel and lubricant checks with consistent workflows and clear results.

## Beverages

- Analyze taurine in energy drinks
- Measure citric acid and sugar in soft drink concentrates
- Analyze liquid samples with the Flow Cell Modules

The Flow Cell Modules for Lyza 7000 guarantee consistent liquid handling and enable use of predefined beverage methods.

## Academia

- Use FTIR across teaching, training, and applied research
- Operate the instrument directly without a PC
- Support hands-on training with intuitive workflows

Simplified FTIR teaching with a robust standalone instrument fits easily into practical lab courses.

## Pharma

- Identify raw materials, APIs, and excipients
- Verify materials against approved references
- Manage methods, approvals, and audit trails securely

AP Spectroscopy Suite ensures compliant spectroscopy workflows with traceable, audit-ready results.

## Polymers

- Identify raw materials and incoming goods
- Verify finished products against specifications
- Detect contamination and material mix-ups

Streamlined methods standardize recurring polymer checks, helping users run routine QC faster.



# Lyza Series: Transforming FTIR Spectroscopy

The Lyza series FTIR spectrometers set a new industry benchmark. Guided workflows, combining measurement, processing, and spectral analysis in an automated method, empower even inexperienced users to perform QC measurements.

Measure hundreds of sample types, from solid to liquid or gaseous. The versatile modular cell concept with Toolmaster means you can switch effortlessly between measurement cells.



Find out more



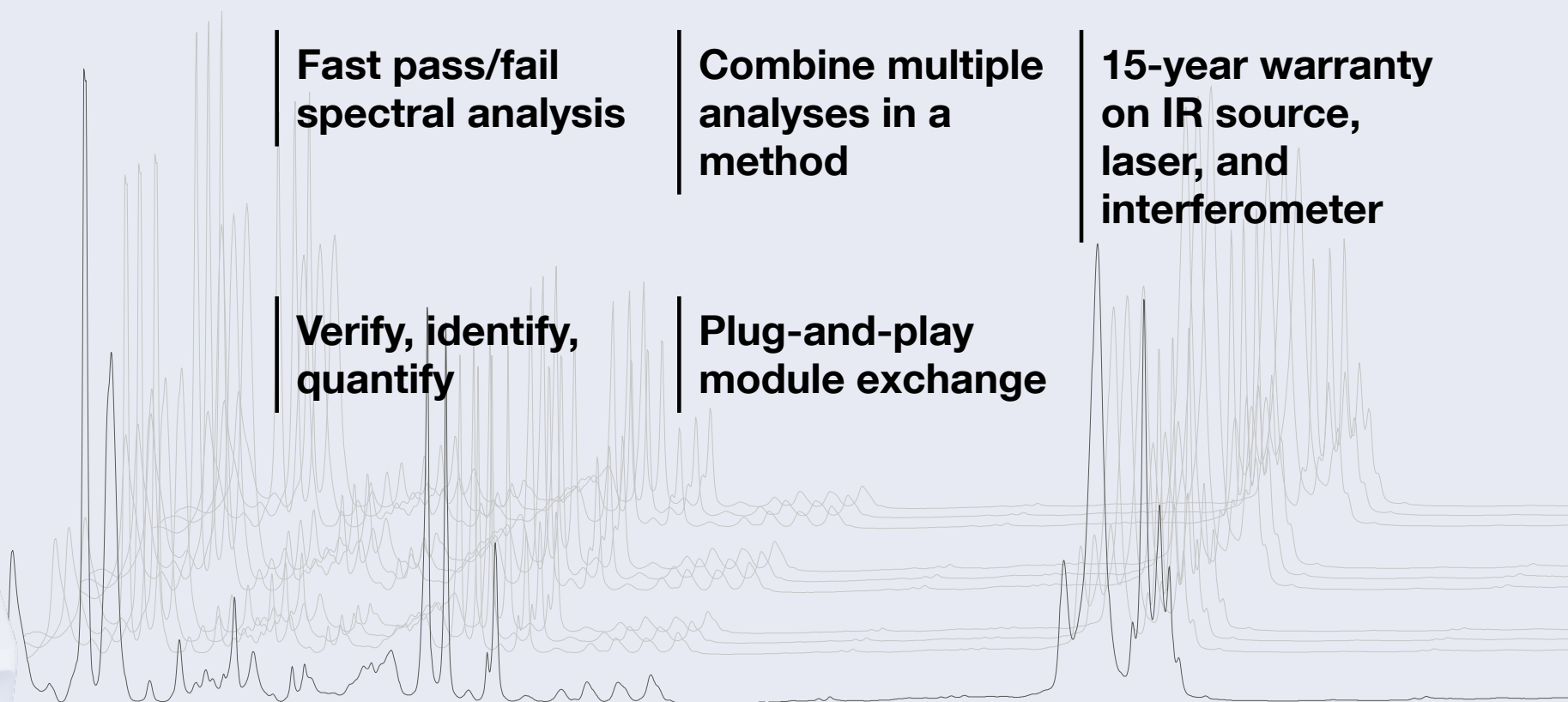
**Fast pass/fail  
spectral analysis**

**Combine multiple  
analyses in a  
method**

**15-year warranty  
on IR source,  
laser, and  
interferometer**

**Verify, identify,  
quantify**

**Plug-and-play  
module exchange**



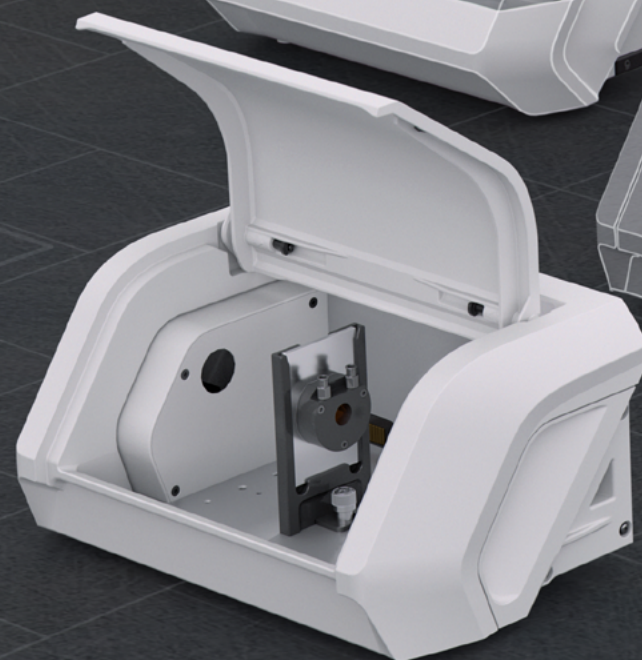
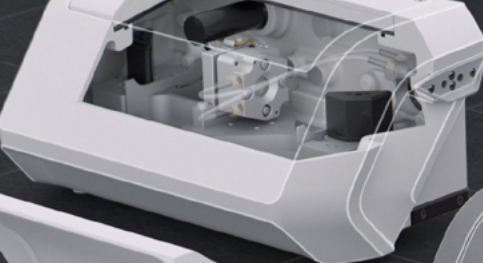


# The Heart of Lyza

Lyza's hermetically sealed, desiccated spectrometer core and exchangeable cell module provide the flexibility to adapt to a wide range of FTIR applications. Automatic cell recognition with Toolmaster simplifies setup and reduces configuration errors.

Horizontal ATR cell

Flow Cell Module Transmission



Transmission cell for liquids

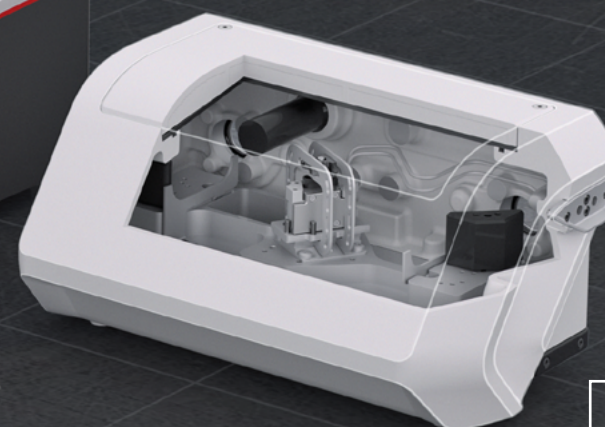


✓ Permanently aligned cube-corner interferometer to compensate vibrations

✓ DLaTGS detector for stable IR signal response and reproducible FTIR results

✓ Automatic calibration for optimal performance with every cell

✓ Base unit available with KBr windows for broad spectral coverage, or ZnSe windows for improved humidity resistance



Flow Cell Module V-ATR



Lyza Diamond ATR cell



# Flow Cell Modules

**Ensure clean, consistent sample handling** for liquid FTIR analysis with reduced manual effort.

**Reduce setup time** with application presets and ready-to-use methods for selected liquid analyses.

**Maintain repeatable measurement conditions** with cell temperature control from 15 °C to 40 °C.

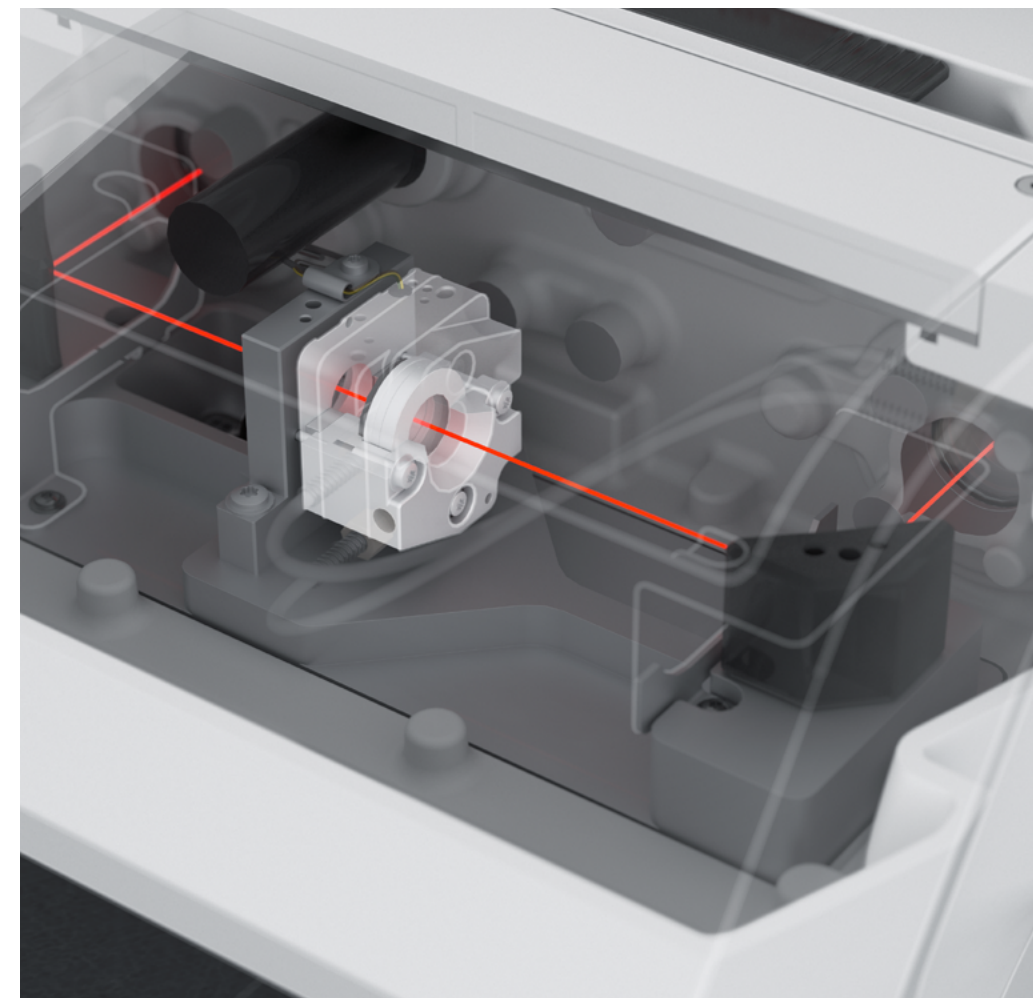
**Streamline single-sample workflows** with Xsample 3200 through automated cleaning and drying.

**Automate multi-sample sequences** of up to 32 vials with Xsample 5200.

## Transmission

- Available pathlengths: 25 µm, 36 µm, 50 µm, 100 µm, and 200 µm
- Zinc selenide windows for organic liquids
- Calcium fluoride windows for aqueous samples

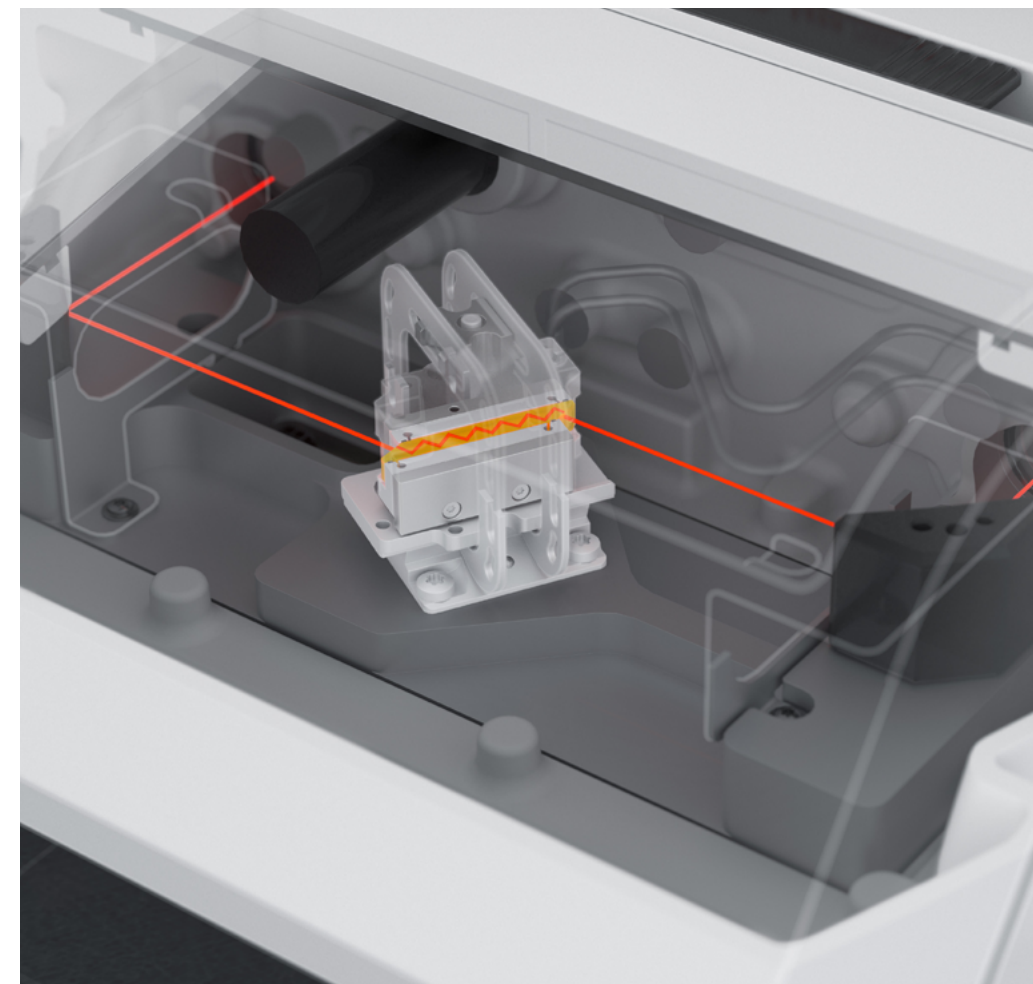
**Clean, consistent workflow for transmission measurements of liquids**



## V-ATR

- 12-bounce vertical ATR design
- Zinc selenide crystal for organic liquids
- Germanium crystal for aqueous samples

**Liquid ATR analysis with enhanced sample interaction and repeatable handling**





# Remarkably Powerful

## Lyza 3000

**Lyza 3000 is a cost-efficient FTIR spectrometer for PC-based workflows. The AP Spectroscopy Suite desktop software guides even inexperienced users through all measurement tasks.**

## Lyza 7000

**Lyza 7000 is a standalone instrument with adjustable touchscreen and powerful integrated software that works right out of the box.**

### System health

Innovative internal system monitoring technology provides everything you need to know at a glance. The smart status LED light updates you on measuring progress wherever you are in the lab.

### Modular design

The exchangeable cell module lets users adapt Lyza 7000 to different sample types and workflows. Toolmaster makes switching between applications fast and simple. Flow Cell Modules add optimized handling for clean, consistent liquid FTIR analysis.

### Premium components

Based on a century of manufacturing expertise, Lyza series instruments come with a three-year warranty and 15-year coverage for the IR source, laser, and interferometer.

### Tailored solution

Lyza 7000 offers integrated workflows for quantification, verification, single measurements, and complex analyses. Predefined methods for selected applications reduce setup effort and help users move quickly from measurement to result.





# Press “Start,” and “Methods” Takes Care of the Rest

Perform complex measurements at the push of a button. Control the innovative operating system directly on the instrument – no PC needed. Combine multiple analyses in a single method with a customizable report.

Anton Paar has designed high-quality analytical measuring solutions for decades. Our experience combined with our in-depth knowledge of FTIR spectroscopy gives you access to powerful analysis. Just choose your method, press “Start,” and let Lyza take care of the rest.

Powerful automated analysis  
in just three simple steps



## 1. Choose method

Predefine your measurement settings and spectral analyses.  
Save them as “Method.” Use them again and again.



## 2. Press start

Start your analyses with a single tap.



## 3. Result

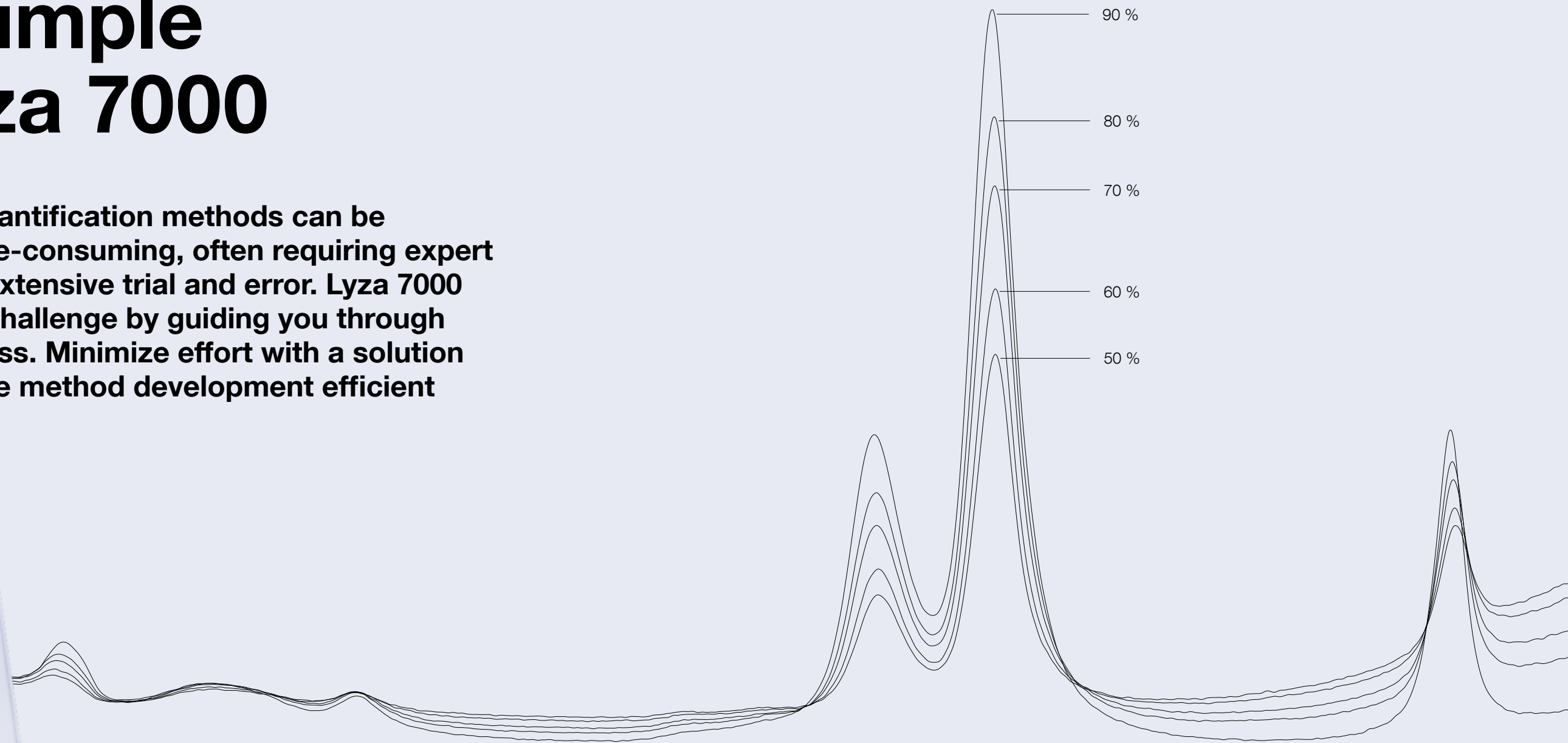
Enjoy the convenience of automatic spectral analysis.  
Receive a summary of your results in a single report.





# Quantification Made Simple with Lyza 7000

Creating FTIR quantification methods can be complex and time-consuming, often requiring expert knowledge and extensive trial and error. Lyza 7000 overcomes this challenge by guiding you through a five-step process. Minimize effort with a solution designed to make method development efficient and seamless.



**Step 1**  
Choose a name  
and unit for your  
quantification

**Step 2**  
Select your  
reference spectra

**Step 3**  
Fine-tune your  
spectra to achieve  
optimal results

**Step 4**  
Define your  
desired peak

**Step 5**  
Save the automatically  
generated  
quantification model





## Spectral Analysis Software AP Spectroscopy Suite

The Lyza series, in combination with the AP Spectroscopy Suite software, is tailored to incoming goods inspection and R&D in both regulated and non-regulated environments.

You need results, not spectra: Our system simplifies complex spectroscopy tasks by providing predefined workflows and settings that accelerate measurements and ensure consistent, high-quality results in both quality control and research.

All workflows, like running samples, setting up methods, and generating reference libraries, adhere to stringent compliance regulations.



Find out more



Complies with key regulations such as 21 CFR Part 11 and EU GMP Vol. 4 Annex 11



Permission and user group management via active directory



Full traceability including audit trail, library and method versioning, and signing procedures



Lifetime data integrity with a secure SQL database



## Lab Execution System AP Connect



AP Connect streamlines instrument data workflows in laboratories by providing seamless, efficient data management and integration for instruments. This ensures accuracy, data safety, compliance, and paperless efficiency in a centralized digital hub, which in turn helps improve data quality and reduces overhead costs.



Your trusted partner across the full lifecycle of your instrument

- Consistent performance
- Audit-ready compliance
- Maximum uptime
- Fast local support





|                                    | Lyza 3000                                                                                             | Lyza 7000                                                                                                |
|------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Detector                           | Pyroelectric DLaTGS detector                                                                          |                                                                                                          |
| Optics                             | Hermetically sealed, dessicated aluminum casing with gold-coated mirrors and KBr beamsplitter         |                                                                                                          |
| Window options                     | KBr or ZnSe                                                                                           |                                                                                                          |
| Accessory recognition              | Toolmaster                                                                                            |                                                                                                          |
| Signal-to-noise ratio              | 55,000:1 (1 min   8 cm <sup>-1</sup>   2,100 cm <sup>-1</sup> to 2,200 cm <sup>-1</sup> )             |                                                                                                          |
| Spectral range                     | 350 cm <sup>-1</sup> to 7,500 cm <sup>-1</sup> <sup>a)</sup>                                          |                                                                                                          |
| Spectral resolution                | Max. 1.4 cm <sup>-1</sup>                                                                             | Max. 1.0 cm <sup>-1</sup>                                                                                |
| Wavenumber accuracy                | <0.05 cm <sup>-1</sup> (at 900 cm <sup>-1</sup> to 3,000 cm <sup>-1</sup> )                           |                                                                                                          |
| Wavenumber precision               | <0.0005 cm <sup>-1</sup> at 2,000 cm <sup>-1</sup> <sup>b)</sup>                                      |                                                                                                          |
| Photometric accuracy               | Better than 0.06 % transmittance                                                                      |                                                                                                          |
| Typical measurement time           | <30 seconds                                                                                           |                                                                                                          |
| Laser type                         | Single-mode vertical-cavity surface-emitting laser (VCSEL)                                            |                                                                                                          |
| IR source                          | SiC composite                                                                                         |                                                                                                          |
| Interferometer                     | Permanently aligned cube-corner interferometer                                                        |                                                                                                          |
| Operating temperature range        | 10 °C to 30 °C (50 °F to 86 °F) (non-condensing)                                                      |                                                                                                          |
| Instrument dimensions (L x W x H)  | 379 mm x 315 mm x 204 mm<br>(14.9 in x 12.4 in x 8.0 in)                                              | 379 mm x 315 mm x 382 mm<br>(14.9 in x 12.4 in x 15 in)                                                  |
| Cell compartment width             | 163 mm (6.4 in)                                                                                       |                                                                                                          |
| Weight (base unit and cell module) | 11.7 kg (25.8 lbs)                                                                                    | 12.8 kg (28.2 lbs)                                                                                       |
| Power supply                       | AC 100 V to 240 V, 47 Hz to 63 Hz; DC 24 V, max. 3.75 A                                               |                                                                                                          |
| Typical power consumption          | 24 W                                                                                                  | 30 W, 15 W in Eco Mode                                                                                   |
| Communication interfaces           | 4 x USB 2.0   CAN   Ethernet                                                                          | 4 x USB 2.0   CAN   Ethernet   Wi-Fi <sup>c)</sup>                                                       |
| Data export formats                | .csv   .pdf   .spc                                                                                    | .csv   .pdf   .spc   .png                                                                                |
| Data management                    | AP Connect                                                                                            |                                                                                                          |
| Display and controls               | AP Spectroscopy Suite required                                                                        | 10.1", PCAP touchscreen, multi-touch<br>Optional: keyboard, mouse, barcode reader, AP Spectroscopy Suite |
| Internal storage                   | -                                                                                                     | 32 GB                                                                                                    |
| Spectral libraries                 | Factory library, user-built, third-party options                                                      |                                                                                                          |
| Regulatory compliance              | 21 CFR Part 11 including design, installation, operation, and performance qualification <sup>d)</sup> |                                                                                                          |

|                               | Flow Cell Modules                    |
|-------------------------------|--------------------------------------|
| Minimum sample volume         | 6 mL                                 |
| Maximum filling pressure      | 6 bar (ATR)   2.2 bar (Transmission) |
| Sample temperature range      | 3 °C to 40 °C (37 °F to 104 °F)      |
| Temperature control range     | 15 °C to 40 °C (59 °F to 104 °F)     |
| Temperature control accuracy  | ±0.05 °C                             |
| Temperature control stability | ±0.01 °C                             |
| Accessory recognition         | Toolmaster                           |
| Weight                        | 5.4 kg (11.9 lbs)                    |

a) 500 cm<sup>-1</sup> to 6,000 cm<sup>-1</sup> with ZnSe windows  
b) standard deviation of 10 repeated measurements  
c) Via external Wi-Fi stick (material number 390637)  
d) Available with AP Spectroscopy Suite Premium (material number 256138)

# One Portfolio for All Your Needs

## Laboratory Measurement & Characterization Solutions

- Density & Concentration Measurement
- Mechanical Surface Characterization
- Microwave Digestion & Synthesis
- Multiparameter Measurement
- Particle & Surface Charge Analysis
- Raman & FTIR Spectroscopy
- Refractometry & Polarimetry
- Surface Area & Pore Analysis
- Texture Analysis & Extrusion
- Thermal Analysis
- Viscometry & Rheometry
- Volatility & Consistency Analysis

## Process Measurement Solutions

- Flow Measurement (Coriolis)
- Inline Beverage Analysis
- Process Measurement

## Workflow & Automation Solutions

- Fully Automated Lab Solutions
- Software Solutions





