



*smolsys ltd.*



The new Tritium Micro **Raman Spectrometer**  
**Engineered**, based on our experiences

## Tritium «Micro Raman Spectrometer $\mu$ RA»

Developed and perfected for three decades at the Tritium Laboratory Karlsruhe (TLK) of the Karlsruhe Institute for Technology (KIT) and successfully in operation 24/7 for the KATRIN experiment, the Raman technology is now made accessible for the Tritium community exclusively through smolsys.

The smolsys Raman Spectrometer is a compact and reliable «off the shelf, plug and produce» device. It is the optimal tool for cost-efficient inline isotopologue differentiation.

Its compact, modular design and real-time measurement capabilities makes it the ideal solution for continuous monitoring in sealed gas-handling systems.

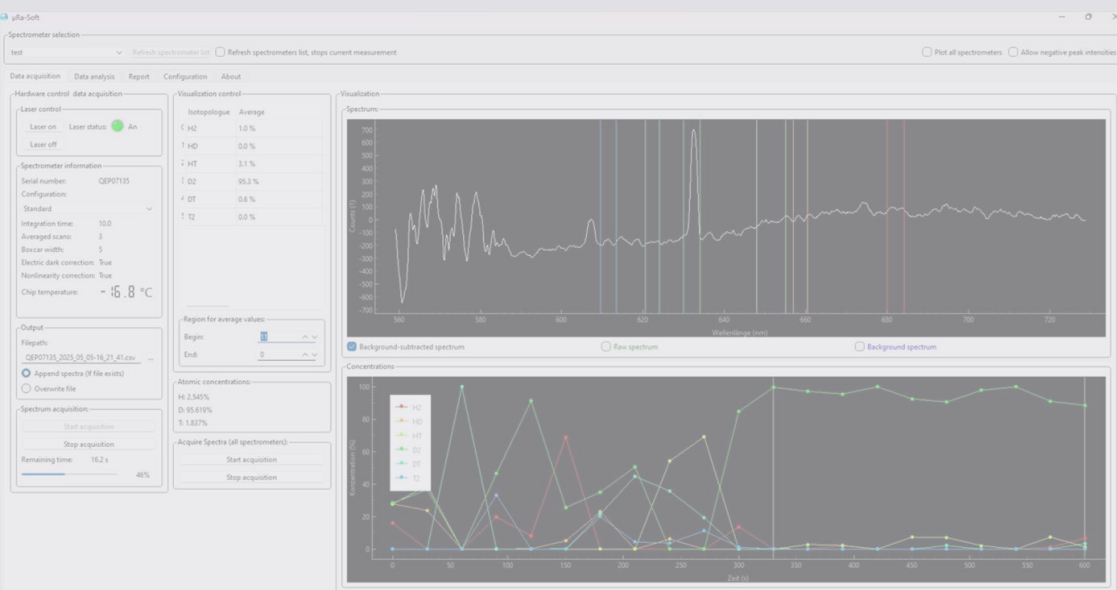
System pressure range  $10^{-10}$  mbar to 1.4 bar/ typical level of detection (per isotopologue) >10 mbar after 5 minutes.



Weight:	5 kg
Size (LxWxH):	26x13x7 cm
Housing:	19" Rack Version
Warranty:	3 years

## Key Advantages

- 🌀 In line (in Situ) application, no bypass needed
- 🌀 High pressure option available on request
- 🌀 Tested thoroughly in high level tritium processes
- 🌀 Fast and easy to use - three clicks to first measurement
- 🌀 Ultra compact and reliable
- 🌀 Cost efficient
- 🌀 Fully tritium compatible



## Technical Overview

Trueness: +/- 2.5 %  
 Measurement range: 0-100 % (10 - 1400 mbar)  
 Pre-Set isotopes: Tritium/ Deuterium/ Protium  
 Custom molecules: On request

Pressure range of cell: 10<sup>-10</sup> mbar to 1.4 bar abs. (0.01µPa to 140 kPa)  
 Fibre length: Custom  
 Fibre feed-throughs: e.g. into glovebox: Custom (optional)  
 Voltage range: 120/240 V  
 Laser power: 200 mW  
 Laser class: 1 (3B if disconnected)  
 Wavelength: Green, 532 nm (DPSS laser)

Chamber connectors: DN16CF/ or compatible 1/2 VCR® (optional)  
 Data connectors: HDMI/ RJ45/ USB-A 2.0  
 Integrated computer: Intel Blackview  
 Software: µRa-Soft, tritium optimized  
 Measurement interval: 20 s (can be individually set between 0.1-3600 s)  
 Data: Comma-separated values (CSV), dated, raw data archive.  
 Software supported: Windows

Available: September 2025  
 Price: CHF 87'850.- / ExWorks Root D4

## Custom Options

- Fibre/ Glovebox transit
- Data Protocols
- Integration of additional molecule species
- Software integration
- Piping/ system adapters
- Hardware Installation Service

## Application Areas/ Industries

- Fusion research
- Tritium Battery & Gaseous Light Sources manufacturing
- Hydrogen Isotope separation
- Deuterium processing
- Hydrogen processing and storage (renewable energies)
- Chemical Industry (Hydrolysis)



All our products are engineered based on experience  
Fully compatible out of the box

**smolsys Ltd.**

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