



smolsys ltd.



The new Tritium Micro [Raman Spectrometer](#)

[Engineered](#), based on our experiences

Tritium «Micro Raman Spectrometer μ 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.

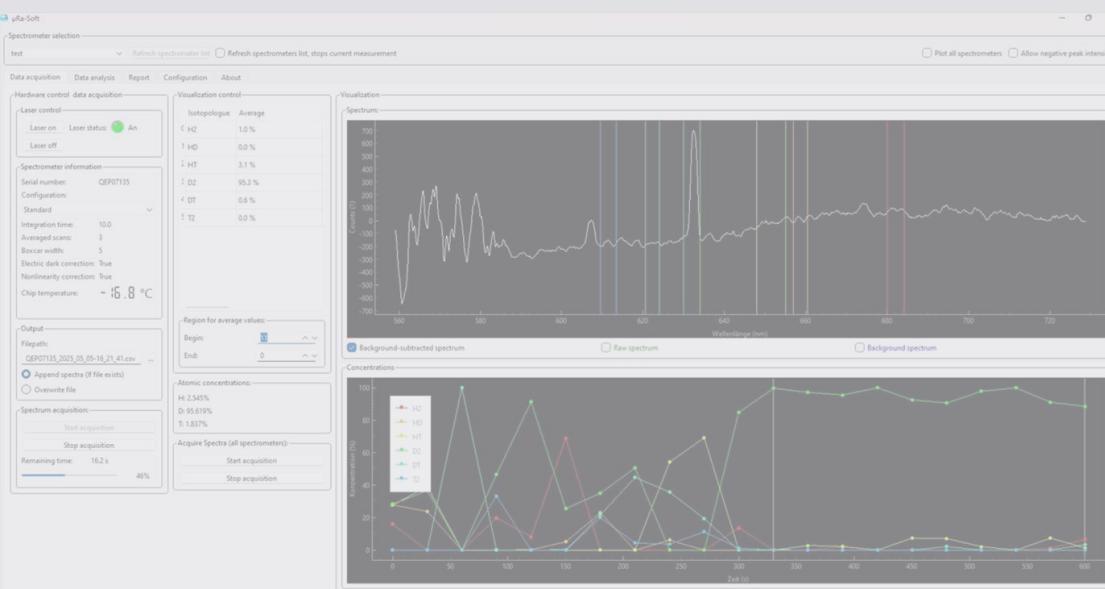


Weight:
Size (LxWxH):
Housing:
Warranty:

5 kg
26x13x7 cm
19" Rack Version
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 ⁻¹⁰ mbar to 1.4 bar abs. (0.01 µPa 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:	uRa-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**



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