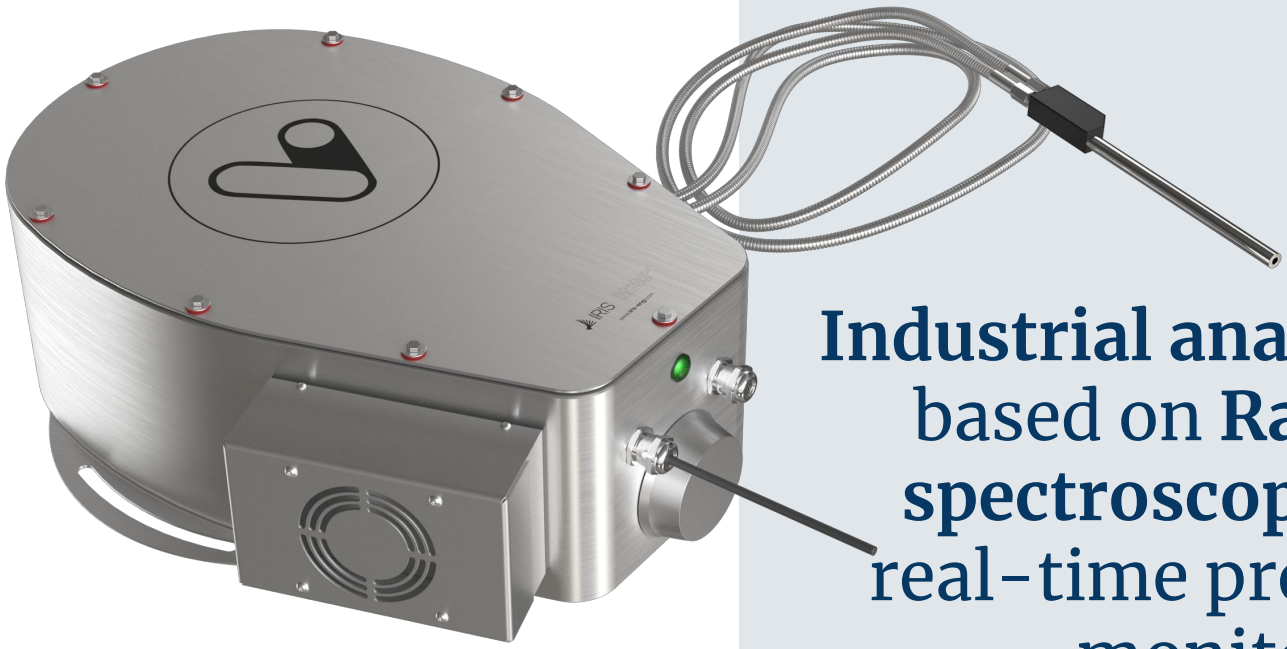
Visum Raman In-Line™

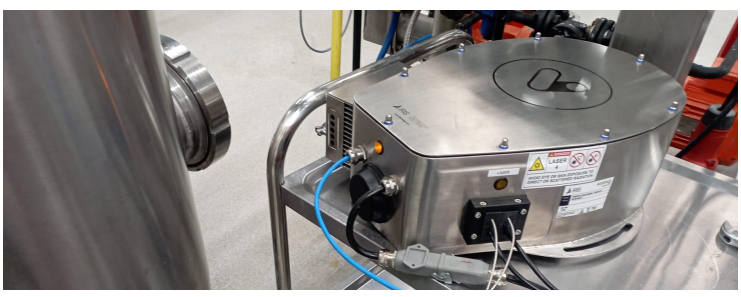


Industrial analyzer based on Raman spectroscopy for real-time process monitoring

Description

Visum Raman In-Line™ is a high-performance analytical device designed for rapid and precise quantitative analysis of various substances and mixtures, especially in aqueous environments. It integrates seamlessly into industrial setups with an immersion probe for pipelines, tanks, and bioreactors.

The system comprises a central analysis module with a 500 mW class 4 laser and a control module with electrical components and a touchscreen interface. Operating at 785 nm, it mitigates fluorescence interference, delivering accurate, consistent measurements across complex samples with reduced acquisition times.



Main Characteristics

- Built-in computer and software.
- Laser class 4 (500 mW)
- Configurable immersion probe.
- Compatible with Model Builder Visum Master™ software for automated development and editing of methods or calibrations autonomously by the user.
- CFR 21 Part 11, USP and PE compliant.
- PLC and SCADA connectivity drivers available.
- Available for at-line analysis mounted on a mobile rack and a dedicated vial holder.
- Turnkey supply.

Raman spectroscopy - unlike NIR spectroscopy - is particularly suitable for aqueous and relatively homogeneous media as well as for the characterization of mixtures involving inorganic compounds. It is therefore a complementary tool to NIR spectroscopy.

Sectors

PHARMA & BIOTECH

- Quantification of APIs in aqueous media.
- Quantification of ethanol in complex aqueous matrices.
- Quantification of CPC (Cetylpyridinium Chloride) in aqueous media.
- Quantification of Rapamycin in EtOAc (ethyl acetate).
- Characterisation of reactions.
- Monitoring of crystallisation processes.
- Monitoring of fermentation and extraction processes.

OTHER INDUSTRIES

- Monitoring of the gelatinisation process (residual starch).
- Monitoring of chemical parameters in aqueous matrices for the food, beverage and other industries.

Technical Specifications

SENSOR	CCD linear array
SENSOR COOLING	-40 degC at ambient temperature of 25 degC
RAMAN SHIFT RANGE	150 to 3000 cm-1
SPECTRUM ACQUISITION TIME	8ms to 300s (depending on the application)
SPECTRAL RESOLUTION	0.86 nm (14 cm-1)
LASER EXCITATION SOURCE	785 nm
LASER POWER	500 mW
LASER CLASS	4
LASER SOURCE LIFETIME	28k hour MTTF >3years working 24/7
WEIGHT	<10 kg (weight analyzer)
DIMENSIONS	400 x 490 x 160 mm3 (w/o probe)
INGRESS PROTECTION	IP68 (probe) / IP66 (system)
MATERIAL (ENCLOSURE)	AISI 304
INPUT POWER SUPPLY	24 VDC
AMBIENT TEMPERATURE	0 to 40 degC
PROCESS OPERATING TEMPERATURE	0 to 250 degC
STANDARD CONNECTION TO THE PROCESS	Immersion probe through a 1/2" BSP Threaded adapter / Triclamp DN64 / Varinline® (DN68)
CLEAN–IN PLACE	Depending on application
PROBE PROCESS OPERATING PRESSURE	<20 bar.
PROBE IMMERSION DEPTH	up to 100 mm.
MATERIALS (INTERFACE WITH THE PROCESS)	Sapphire window and AISI 316L steel
EMBEDDED COMPUTER	Quad-core ARMv8®
USER INTERFACE	Built-in 10" touch-Screen (control cabinet) or remote connection.
CONNECTIVITY	Modbus TCP / Profibus / OPC-UA / Ethernet / Wi-Fi
SOFTWARE EMBEDDED	Visum®

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