

TIDUS LUMIO HD 12

Laser-integrated ATEX Raman probe



ATEX-compliant process probe for demanding applications and safe use in potentially explosive areas

The »Tidus Lumio HD 12« is a Raman probe designed for use in process environments and compliant with ATEX directives. It has an integrated laser light source, similar to conventional probes, and is connected to a spectrophotometer to convert the received signal into measurement data.

POSSIBLE AREAS OF APPLICATION

- Reaction monitoring and endpoint determination of polymerizations in solution and emulsion polymerizations
- Identification and quantification of organic and inorganic compounds
- Purification, crystallization and output control of biotech products and biopharmaceuticals
- Material identification and qualification in fermentation processes (feeding and emptying)

RAMAN PROCESS SPECTROSCOPY IN EX-ATMOSPHERES POSSIBLE

The laser-integrated process probe is supplied together with an external control unit for safe operation in hazardous areas. It enables standard Raman spectrometers to detect samples in ATEX zones 1 and 2, outside the reactor and zone 0 inside the reactor.

INTEGRATED LASER SOURCE WITH ATEX SUITABLE LASER POWER

The »Tidus Lumio HD 12« can be operated together with almost any spectrometer. Setting up a system with a special Raman spectrometer is no longer necessary.

OPERATION ALSO POSSIBLE WITH SENSITIVE VIS SPECTROMETERS

The probe can also be used with a sensitive Vis compact spectrometer for the qualification of known chemical compounds.

COST-EFFICIENT EXPANSION OF APPLICATION AREAS INTO POTENTIALLY EXPLOSIVE ATMOSPHERES

Conventional Raman systems can be upgraded with the Tidus Lumio for use in ATEX applications, thus opening up new markets and applications.

ADVANTAGES

- Compatible with the almost any Raman spectrometers
- Safe use in potentially explosive atmospheres
- Cost-efficient Raman spectroscopy using Vis compact spectrometers for qualification purposes

PRODUCT CONFIGURATION

Model	Tidus Lumio HD 12
Measurement principle	Raman
Focus	1 mm or 6 mm
Optical Material	Sapphire
Material Probe Body	Stainless Steel 1.4571 (316 Ti)
Sealing Technology	Gold-coated high-nickel alloy C-ring
Laser Wavelength	532 nm
Spectral Range	Raman shift 200 cm ⁻¹ – 4000 cm ⁻¹ (depending on detector)
Optical Connection	Illumination: internal, Detection: F-SMA or FC/PC, PMA NW36
Fiber-Optic Technology	External ATEX fiber optic cable, fiber optic core 600 µm and NA 0.22, standard fiber optic light guides
Process Connection	Without flange
Immersion Depth	240 mm
Temperature	5°C to 250°C
Pressure	-1 bar to 250 bar
Laser Performance	10 mW output power on the product side / in contact with the sample
Laser Class	3B
Certification for Hazardous Areas	Certificate for installation of probe body within hazardous area Zone 1 is provided
Ignition Protection	Gas II (1)G [Ex op is IIC T4 Ga] Dust II (1)D [Ex op is IIIC T135°C Da] The measurement can be performed in Ex (0) and (20), the probe may penetrate the process vessel/tube
Housing	ATEX Ex-P housing, pressurized with compressed air, enclosure pressure 10 mbar
Protection Class	IP65 (probe)
Electrical Performance	230 V, 50/60Hz AC (24V version on request)
Compressed Air	3 to 6 bar, 36 m ³ /h, max. 30°C, Oil-free for instruments according to 1-3-1, ISO 8573-1
Probe Dimensions	H x W x D: 134 mm x 134 mm x 300 mm
Probe Weight	< 12 kg
Scope of Delivery	Tidus Lumio HD 12 laser-integrated probe, supply system with control unit, manual, technical drawing, pressure test certificate, optical output measurement protocol, ATEX certificate incl. CE, IP protection type certificate, transport packaging