

Smart probe for applications based on diffuse reflectance

SentroProbe DR LS NIR

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The SentroProbe DR LS NIR is a smart probe for the measurement of diffuse reflectance in the near infrared range. Equipped with two redundant light sources, the sample is directly illuminated and a superior signal-to-noise ratio is achieved at a 5 mm spot size. The integrated illumination is connected to the SentroPAT FO with single core optical fibers, resulting in reasonable costs of installation even for lengths up to 50 m.

Internal reference

The SentroProbe DR LS has an internal standard directly behind the measurement window. Connected to a SentroPAT FO running with SentroSuite, the internal standard allows an automated referencing that is used to correct for any intensity changes caused by light source aging or by variations in the ambient conditions. These comprehensive corrections enable high long-term stability without the need for any external standardization.

Compliant materials

The probe was developed with a strong focus for use cases in the processing of solid dose pharmaceuticals. Thus, materials such as sapphire or high grade stainless steel with a highly polished surface are used for all parts that will have contact with the measured product. Certificates are provided with each probe to provide clear and traceable information on the materials used.

Hazardous areas

The SentroProbe DR LS is designed and certified for use in ATEX zone 20/21. This capability, the IP 65 compliance and the easy to clean housing are essential aspects for the installation of this probe in the majority of used types of production processes for solid dosage pharmaceutical products.

Probe tip heating

The surface area in contact with product can be configured with a heating element. This optional feature aids in self-cleaning capabilities, especially for installations of the probe in a wet granulation process. Due to the slightly increased temperature,

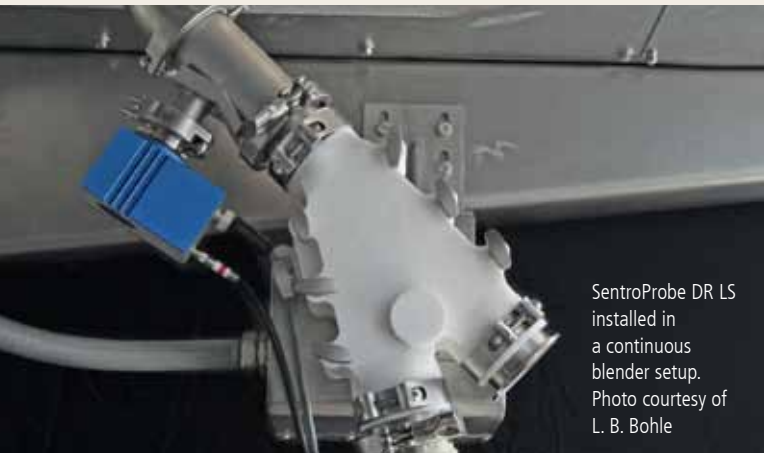
the viscosity of the polymer-based binder remains on a relatively low level and, as a result, material doesn't tend to stick to the probe. The additional forces applied to the sapphire by the fast moving material result in a clean window throughout the process.

Smart bulbs

The latest generation of the SentroProbe DR LS introduces bulbs which are recognized and identified automatically after a replacement. Electronics in the bulb housing provides a unique identifier for the probe and the user is prompted for any missing data or required action after the replacement of a bulb.



1. Thanks to internal referencing directly at the probe window, the system has exceptional stability.
2. The process window is heated, maximizing visibility even when the pharmaceutical product adheres to the sapphire.
3. The two pre-adjusted light sources can be easily replaced by non-expert users.
4. The compact size and different shaft lengths enable easy mechanical integration.



SentroProbe DR LS installed in a continuous blender setup. Photo courtesy of L. B. Bohle



SentroProbe DR LS installed in a tablet press feed frame. Photo courtesy of Fette Compacting

Technical Parameters

Light source / Optics

Technology	Diffuse reflectance probe
Measurement distance	Direct contact with sample material
Measurement diameter	Approx.. 5 mm
Light source	Two redundant tungsten light bulbs
Power	Max. 5W, configurable
Life time	Nominal 14,000 hrs
Internal reference	Amorph PTFE based intensity standard
Detection fiber	SMA connector for 400 µm fibers

Electronics

Power supply	24 VDC, < 8W (standard configuration)
Control	EIA-485 (RS-485) Functionality supported by SentroSuite software
Probe window heating	The sapphire window can be heated at up to 70°C to prevent probe fouling (functionality is process dependent)

Installation conditions

Temperature (probe tip)	0°C – 80°C
Temperature (ambient)	0°C – 55°C
Pressure rating (probe tip)	0 – 40 bar

Materials of construction, dimensions, classifications

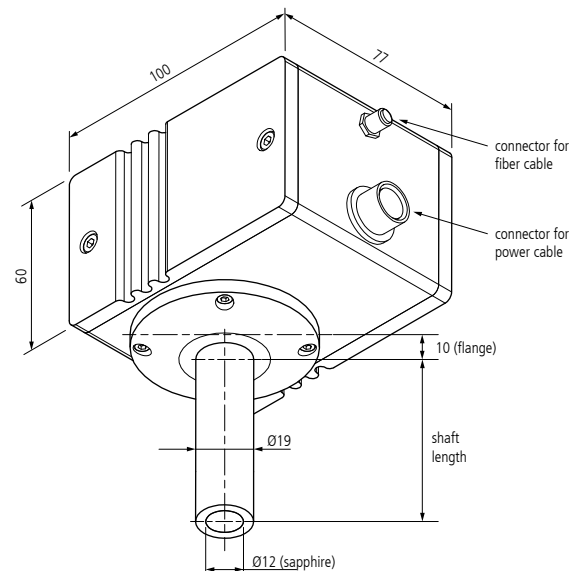
Probe tip	Stainless steel 1.4404
Measurement window	Sapphire
Process integration	Different flange designs available
Sealing	Probe tip welded with integrated PTFE O-Ring
Probe housing	Aluminium, anodized
Dimensions	Probe tip: diameter 3/4", length 65,100,200 or 300 mm Probe housing: 60 x 100 x 77 mm
Classification	GMP, FDA compliant materials incl. certificate, ATEX 20/21

Versions of SentroProbe DR LS NIR

Product number	Product Name	Tip Length (mm)	ATEX
2530800401090	SentroProbe DR LS NIR 65	65	No
2530000100106	SentroProbe DR LS NIR 100	100	No
2530800200105	SentroProbe DR LS NIR 200	200	No
2530000101097	SentroProbe DR LS NIR 300	300	No
2530000801119	SentroProbe DR LS NIR 65 ATEX	65	Zone 20/21
2530000401104	SentroProbe DR LS NIR 100 ATEX	100	Zone 20/21
2530000901116	SentroProbe DR LS NIR 200 ATEX	200	Zone 20/21
2530001001112	SentroProbe DR LS NIR 300 ATEX	300	Zone 20/21

Customized lengths are available on request

Dimensions



dimensions in mm

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