

Newsline

NEW PRODUCTS

OPTIQUAD: The new inline measurement for protein, fat and dry matter

The innovative OPTIQUAD is used to measure the protein, fat and dry matter in milk products and opens up new possibilities in process optimization.

Unlike conventional bypass devices, measurement takes place directly in the pipeline – without coming into contact with the medium. Analysis is done through a lens in a standard VARINLINE® process connection. This enables the OPTIQUAD to provide extremely precise

readings every second, enabling much quicker intervention into production.

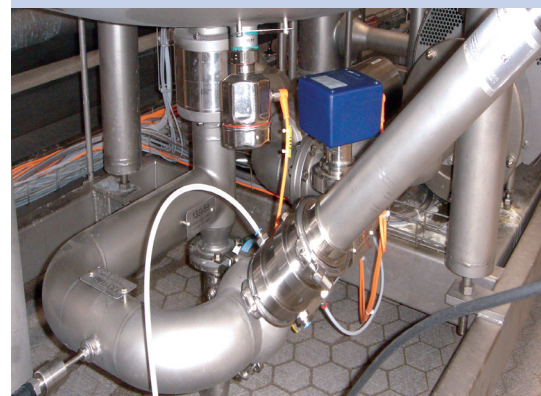
The advantages are obvious: Measurement is hygienic and there is no need for sampling or sample transport and its associated sources of error. High long-term stability and no need for consumables mean a significant reduction in operating and maintenance costs. Best of all, costs of typical bypass devices are much higher in comparison to the OPTIQUAD's impressive price.

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Highlights for the dairy industry:

- Inline measurement of protein, fat and dry matter in milk products
- Non-contact analysis
- High precision and long-term stability
- For use in dynamic control loops
- Eliminates the need for sampling, sample transport and preparation
- Eliminates the need for daily cleaning
- No operating costs for chemicals, reagents and cleaning agents
- Impressive price/performance ratio

NEW



OPTIQUAD brings light into the dark

The OPTIQUAD uses several light sources to measure the substances. Depending on the measuring task, up to four optical processes and 12 wavelengths are used. The readings can be sent directly to the control system via several 4-20 mA current outputs.

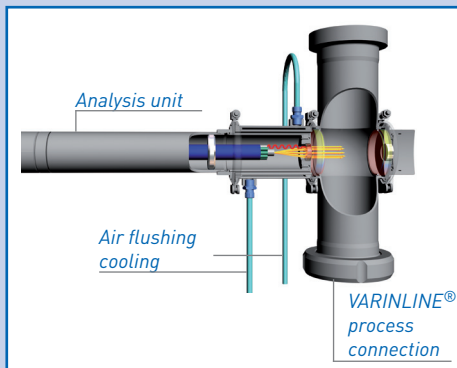
In the interest of remote maintenance, an Ethernet interface and a GSM connection are pending.

Spectroscopic measurement		1. Transmission	2. Scatter	3. Fluorescence	4. Refraction
Wave range					
200 nm					
UV	1		x	x	
	2		x	x	
	3		x	x	
	4		x	x	
VIS	5	x	x		x
	6	x	x		x
	7	x	x		x
NIR	8	x	x		x
	9	x	x		x
	10	x	x		x
	11	x	x		x
IR	12	x	x		x
4000 nm					

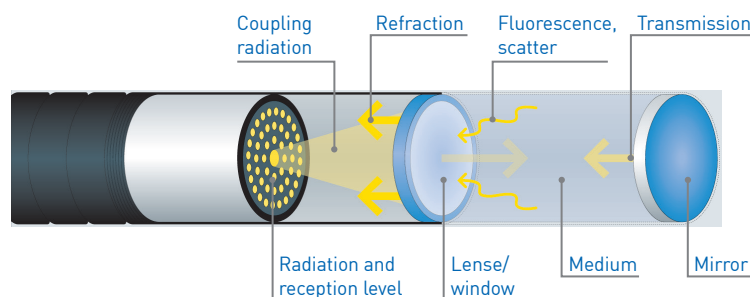
OPTIQUAD wave matrix

- Unique combination of four optical measuring processes in one system
- Synchronous measurement of transmission, scatter, fluorescence and refraction
- 12 different wavelengths of UV/VIS/NIR/IR, 200 to 4000 nm

OPTIQUAD design



The OPTIQUAD optical methods of analysis

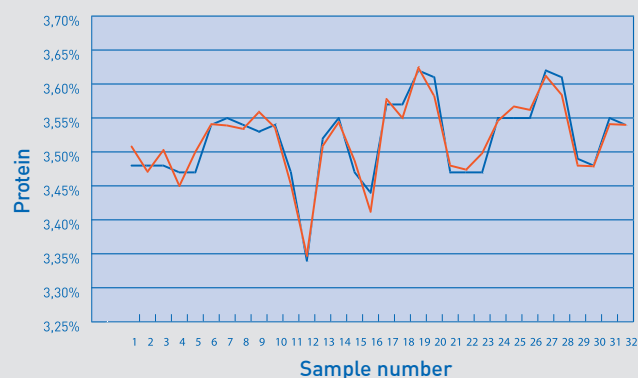


Precision that impresses

Thanks to the elimination of moving parts, the measuring velocity, long-term accuracy and repeatability were significantly improved upon compared to typical bypass devices.

In addition, compared to laboratory measurements, using the OPTIQUAD eliminates potential error sources that may be caused by the taking, transporting and preparation of samples.

■ OPTIQUAD
■ Laboratory measurement



OPTIQUAD design

Hygienic process connection and easy cleaning

The OPTIQUAD analysis unit is connected to the process without any contact via an optical window in the standard VARINLINE® housing. The VARINLINE® process connection is certified to EHEDG and 3A and conforms to the FDA. In addition, cleaning is easy using the SIP/CIP method.

Water cooling and air flushing

The use of water as a coolant is recommended at higher ambient temperatures and when measuring hot media. The OPTIQUAD analysis unit can be optimally cooled that way. Air flushing effectively prevents condensation on the optical window at low process temperatures.

Less maintenance and more stability

Compared to typical laboratory and bypass devices, no daily recalibrations are necessary when operating the OPTIQUAD. As there are no moving parts, high long-term stability and thus minimal maintenance is achieved. In addition, the optical window remains „automatically“ free of any coatings thanks to the cleaning cycles performed by the dairy.

Optimized sampling and easy recalibration

If it becomes necessary to check a reading, this can be done easily using the integrated sampling valve. The reference values determined in the laboratory are then input into the operating unit and recalibration is performed at the touch of a button.

Simple, time-saving function check

A special calibration standard makes it possible to check the device at any time - without interrupting the process. The characteristics recorded then determine the need for further maintenance, which in turn further minimizes downtime.

Compact and flexible operating unit

The compact operating unit is extremely flexible and can be installed anywhere via a serial interface – either in its own stainless steel housing or integrated into a control cabinet on site. The measured values and status information can then be read off this unit and transferred to the automation system.



OPTIQUAD operating unit



Temperature sensor and sampling valve

The OPTIQUAD in full use

The OPTIQUAD is the perfect choice whenever you require continuous measurement and control during production.

Typical applications:

- Strategic increase in protein content in cheese-making milk by adding protein concentrate as retentate from a UF plant.
- Standardization of the fat content in drinking milk production.
- Increased concentration of whey or skim milk to produce protein concentrate.
- Setting a constant ratio of fat to protein. This results in a constant quantity of cheese per cheese producer, and the avoidance of empty forms in the press system. The increase in the protein content from 0.1 - 0.3 %, depending on the type of cheese, results in an increase in yield of 2 - 5 %!
- Production of protein concentrate through evaporation and spray drying.
- Measurement and setting of the fat and protein content in the production of UHT and evaporated milk.

Technical data OPTIQUAD	
Accuracy (under reference conditions)	
Accuracy	Standard deviation: +/- 0.02 % protein; +/- 0.03 % fat
Repeatability	Standard deviation: +/- 0.01 % protein; +/- 0.015 % fat
Analysis unit	
Measuring principle	Optical spectroscopy with up to four measuring processes (transmission, scatter, fluorescence and refraction) with up to twelve wavelengths from ultraviolet to infrared.
Application area	Measurement of protein, fat and dry matter (DM) in milk products
Cycle time	1 - 3 s
Max. media temperature	130 °C; cleaning temperature max. 150 °C
Ambient temperature	0... +50 °C
Wetted parts	1.4404, 1.4301, window, PTFE, FKM
Protection category	IP 65
Operating unit	
Version	Touch Panel display, configuration and calibration, built into a stainless steel housing or integrated into a control cabinet on site
Signal outputs	Four current outputs: 4 - 20 mA / 16 bit resolution for protein, fat, DM and product temperature Four binary outputs for warning, system failure, sampling, service mode
Connection to analysis unit	Standard cable length 10 m; other cable lengths optional
Power supply	24 VDC, 15 W
Protection category	IP 65
Process connection	
VARINLINE® process connection	DN40 - DN125 / PN 10, as per DIN 11850, DIN 11866
Connections	Tri-clamp, aseptic flange, welded ends, milk pipe, flange as per DIN / ASME
Hygienic approvals	EHEDG, 3A, FDA approved

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