

Contactless online moisture measurement for solids

PROCESS MONITORING SOLUTIONS

Product Information



FEATURES:

- Contactless online measurement
- Non-destructive for all materials
- Rugged design, IP69, ambient temperature up to 80 °C
- Optional: Material temperature measurement
- Short and long-term logs
- Moisture measurement as a percentage
- IoT continuous monitoring of sensor health increases uptime

TECHNOLOGY

PRODUCT OVERVIEW

ENVEA M-Sens NIR is near-infrared (NIR) spectroscopy technology. Utilising an intelligent software solution the M-Sens NIR delivers instant, accurate and non-destructive, non-contact moisture measurement.

The reliability of the data helps you minimize product loss, eliminate the need for unnecessary downtime, and

increase your operation's efficiency, leading to better margins and increased profits.

In addition, the sensor continuously performs internal sensor health checks to increase uptime.

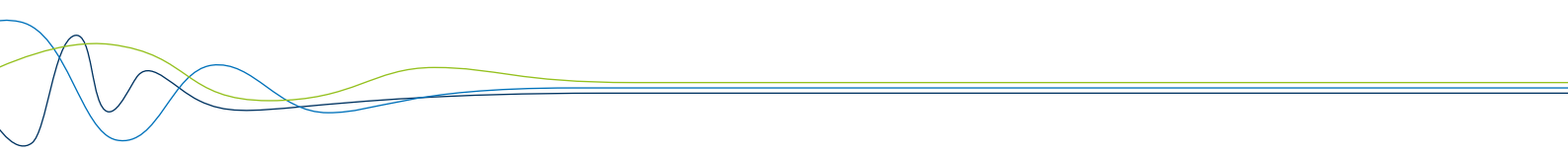
SYSTEM

Near Infrared (NIR) spectroscopy uses light transmission and absorption to measure various constituents in a sample material such as moisture, starch, protein, fat and oils.

NIR can be used to detect these specific elements, determine the concentration of the elements and detect changes in the overall composition. Because NIR penetrates deeper into bulk material than mid-infrared, it provides better, more reliable measurement on a production line.

NIR works by shining broad-spectrum light on a material, typically from 780 nm to 2500 nm. The wavelengths that are illuminated on the material are measured by examining the ratio between 2 frequencies, one reference and one at the resonant frequency.

From these two measurements, calculations are made that provide data based on the absorption and scattering of the wavelengths caused by the sample.



TECHNOLOGY

INSTALLATION

In a typical installation, the NIR sensor is mounted over a conveying system (belt, vibratory, pneumatic, etc.) about 25 cm above the product to be measured.

The sensor shines light onto the surface of the product, and after the light hits the product, the calculations to measure the necessary constituents are done. Filters and cell detectors tailored and optimized for your specific

application needs are used to zero in on the exact constituent being measured to provide the best results possible.

The readiness and reliability of this data helps you minimize product loss, eliminate the need for unnecessary downtime, and increases your operation's efficiency, leading to better margins and increased profits.

FEATURES	BENEFITS
Rugged body, IP69	It fits any industrial environment and can handle washing
Contactless online sensor	Continuous, accurate and non-destructive measurement for: <ul style="list-style-type: none"> • Regulation and industry-standard compliance • Higher profitability • Improved product quality & waste reduction
Easy to install	Versatile Placement: Built to withstand harsh conditions and can be used on belts, chutes or even lab environments
System continuously reports on 19 internal points	IoT continuous monitoring of sensor health increases uptime

TECHNICAL DATA

Sensor	
Moisture range	Min: 0.1 %, Max: 95 % (± 0.1%)
Ambient operating temperature	0 - 80°C
Measurement area	25 mm
Product distance	20.3 - 40.6 cm
Sample rate	60 calculations/second
Power	90 - 260 V AC
Outputs	2 x 4-20 mA, optional discrete I/O
Enclosure/Weight	Aluminum / 5.4 kg
Certifications	CE, IP69
Dimensions	279.4 x 260.35 x 152.4 mm (H x L x W)



SPECIFICATIONS

TECHNICAL DATA

DATABASE & SOFTWARE INTERFACES

Optional Bus Interfaces Ethernet, Ethernet/IP, Profinet, Profibus-DP, Modbus-TCP/IP, Modbus RTU, RS485, DeviceNet

Software Windows-based application, requires Win7 or newer

OPERATOR DISPLAY (OPTIONAL)

Display 7-inch color capacitive touchscreen

Power 24 VDC

Cable Ethernet

Enclosure/Weight Aluminum / 1.8 kg

Ambient operating temperature 0 to 50 °C

Dimensions 241.3 x 158.75 x 69.85 mm (W x L x H)

ACCESSORIES (OPTIONAL)

Temperature Sensor Measures material in 0 - 400 °C range

Opto-Port attachment This stainless steel attachment allows the sensor to adapt to a variety of situations such as screw conveyors and free fall conveyors. Can be ordered with an air blast system for free falling samples.

Dust shield Ensures the sensor will provide consistent and accurate results by preventing the build-up of dust and grime on the lens

OPTO 22 Discrete I/O Output for alarms (LOP, HH, H, L, LL)

