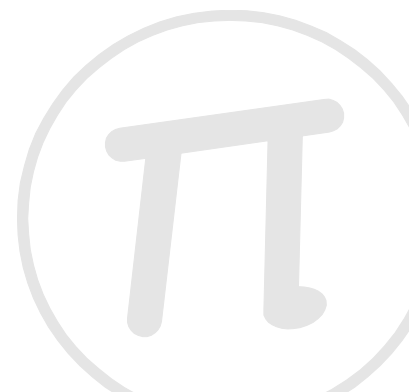
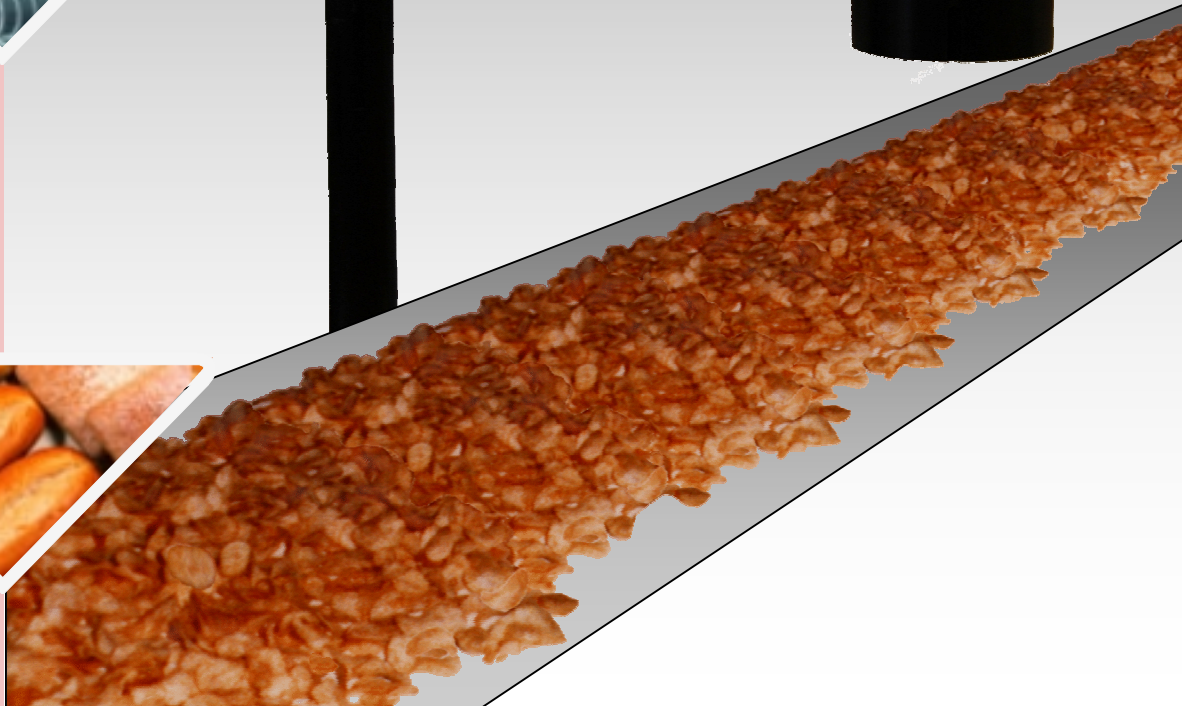
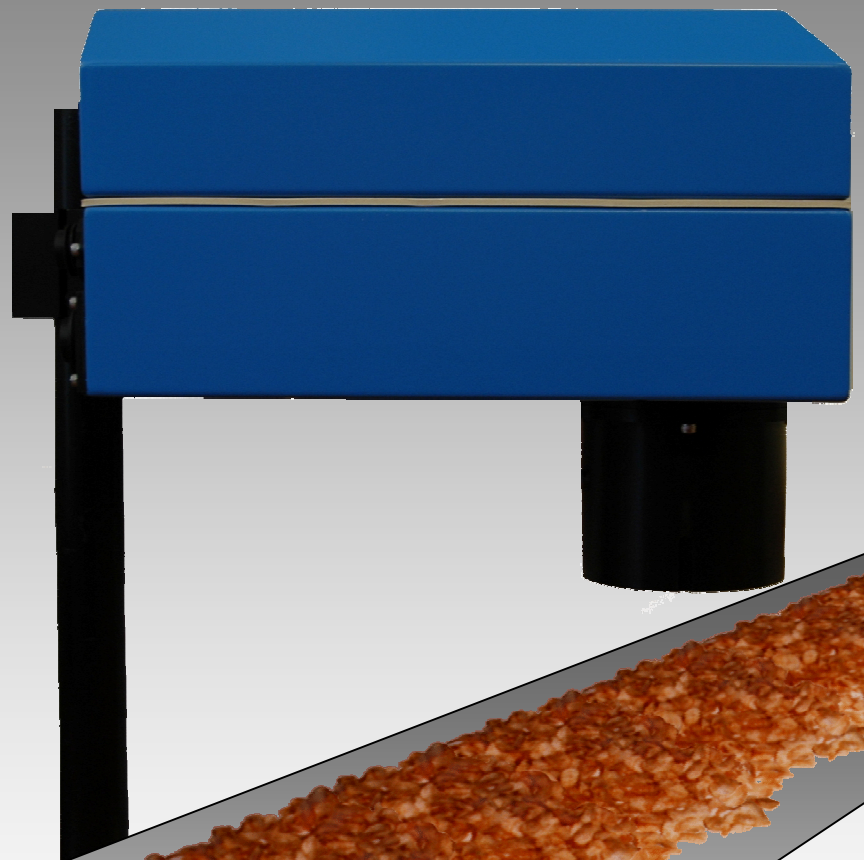
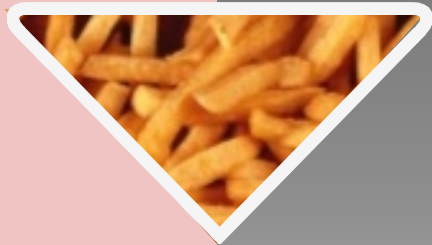


ON-LINE MEASUREMENT

NIR SMART Sensor



NIR SMART SENSOR



General

OPERATING PRINCIPAL

Several molecular bonds absorb near infrared light at well defined wavelengths. The common bonds are O-H in water, C-H in organics & oils and N-H in proteins. The absorbance level at these specific wavelengths is proportional to the quantity of that constituent in the material.

Narrow band pass filters within the Transmitter create a sequence of light pulses. At least one of these pulses is at the absorbance wavelength specific to the constituent to be measured. The other pulses are created at wavelengths not absorbed by the measured constituent.

The pulses illuminate the product and the diffuse reflected light is collected and focused onto a single, temperature controlled detector. The electrical signals generated by the detector are then processed to provide a value that is proportional to the concentration of the measured constituent. The value is then displayed in % or other engineering units.

TYPICAL APPLICATIONS

O-H for Moisture & Alcohol
C-H for Oils, Fats, Adhesives & Plastics
N-H or Proteins, Ammonia & Amines

Wood Products

- Particle board • Medium Density Fiberboard
- Fiberboard • Hardboard
- Oriented Strand Board • Hog Fuels

Food Products

- Snack Foods • Soy Bean & Corn Meals
- Pet Foods • Coffee • Cereals • Starches
- Milk Powders • Cookies & Crackers

Tobacco Products

- Whole Leaf • Reconstituted
- Lamina Strips • Expanded
- Stems • Chewing Tobacco • Cut

Paper Converting

- Moisture & Coatweights • Hot Melts
- Pressure Sensitive Adhesives
- Re-moisturizing • Extruded Plastics
- Carbonless Coatings

Chemicals & Minerals

- Crumb Rubber • Plastic Chips
- PVC Powders • Detergents • Ceramics
- Soaps • Fertilizers • Ores • PVB Films



NIR SMART SENSOR

Advanced Technology

INDUSTRIAL DESIGN

The NIR Transmitter was designed in response to industry's need for a high quality sensor at an economical price. Its versatile design permits the Transmitter to operate on its own or in a multi-point network.

The Transmitter's stand alone design eliminates the need for a central processor, along with associated interconnecting cables and conduit.

Installation and maintenance costs are virtually eliminated. The Transmitter contains all the optics and electronic components to perform the measurements, plus provide analog and digital signals for communication to computers, controllers and PLCs.

Used in a wide variety of industrial processes, the Multi-Constituent NIR Transmitter, a True Stand-Alone Transmitter, provides off-line accuracy under on-line operating conditions. Simultaneous information on important product constituents is instantly available to plant operators and control systems, all from a single NIR sensor.

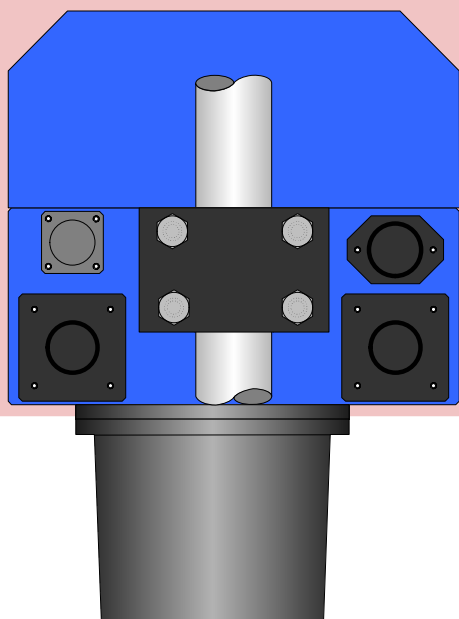
IMPROVED TECHNOLOGY

Fully committed to technical innovation and product versatility, the NIR SMART Sensor offers the industry's most useful and advanced features:

- True Stand-Alone Robust Transmitter Design
- Single High Quality PbS Detector
- Automatic Temperature Control Circuit
- Highest Quality NIR Interference Filters
- Dual Beam Wavelength Compensation
- 5-Year Lamp Warranty
- 2-Year Component Warranty
- Proven, Long-Life Motor
- Multi-Language Operator Interface (English, Spanish, Chinese, Russian, German, French, Portuguese, Italian, Polish, etc.)
- Single board solution
- All surface mount electronics
- Software driven adjustable motor speed
- Supports Profibus, Ethernet, Devicenet, Profinet, Modbus TCP/IP, Modbus RTU, Bluetooth
- Dual Micro Technology
- Dual Gain Filter Processing
- 4 Measurements, including Product Temperature
- Improved A/D converters... increased signal to noise ratio
- Touch Screen Operator Interface

VIEWER SOFTWARE

The NIR SMART Sensor Viewer Software is a proprietary Windows-based package. It monitors all NIR Sensor functions and allows an operator to insert set-up parameters, perform or adjust calibrations, select product codes, examine internal diagnostic values and view trends of moisture and temperature.



APPLI CATION



NIR SMART SENSOR



SPECIFICATIONS

SPECIFICATIONS NIR SMART SENSOR:

NIR Constituents	1, 2 or 3 simultaneously
Moisture Range	Min 0.1%, Max 95%
Coatings Range	Min 0.1gr/m, Max 200 gr/m
Fats/Oils	Min 0.1%, Max 50%
Accuracy	(subject to application and product type)
Moisture Range	+/- 0.1%
Coatings Range	+/- 0.1 gr/m
Fats/Oils	+/- 0.2%
Repeatability	+/- 0.2%
Product Distance	6-16 inches (150-400mm)
Calibration line	10 standard, up to 50 on request
Response Time	1-99 seconds.
Modi	Damping, Integration and Gated.
Power	90-260VAC 50/60 Hz, 40 watts 24VDC optional
Outputs	Four 4-20 mA & 0-10 V (isolated), RS232 & RS485
Weight	20 lbs. (9 Kg)
Ambient Temp	0-50° C (32-120°F, to 80°C (160°F) with water or air cooling panel.
Enclosure	Cast Aluminum, IP65
Window Purge	Airpurge Diffuser requires 5 psi and 2 l/m

SPECIFICATIONS OPERATOR INTERFACE:

Type	Wall or Post Mounting
Display	Color Touch Screen LCD
Languages	English, plus one local, user selectable (Spanish, French, German, Portuguese, Italian, Polish, Russian, Swedish & Chinese)
Power	From NIR Transmitter
Cable	10 ft (3 meters) standard, maximum 100 ft (30 meters)
Enclosure	Cast Aluminum
Keypad	Access to MCT 360 settings, including calibrations, product codes and diagnostics.

OPTIONS and ACCESSORIES:

Construction	Kynar Coated Food Grade Sensors with Sapphire or Polymeric Windows.
Cooling Panels	Air or Water Cooling Panels for installations above 50°C (120°F)
Product Sensors	Detection of product presence/absence
Samplers	Stainless Auto Sampler for gravity or pneumatically conveyed products.

Maintenance:

Warranty	24 months for all parts.
Routine	None required.
Calibration	Pre-calibrated, no recalibration needed.
Verification	Calibration Check Standards
CE Compliance	EMC directives EN50081-1 & EN50082-2, EN61010-1
Bus Interfaces	Low Voltage directive. Ethernet TCP/IP, DeviceNet, Profibus, Modbus.
Software	Windows-based stand-alone program or OPC-DDE server

