MoistTech Corp.™

Moisture Measurement & Control From Lab To Line

IR-3000WP

Online NIR Moisture Sensor for the Wood & Forest Products Industry
Near Infrared Measurement

INSTANT Adhesives
Moisture
Online
ACCURATE
Fibers
BIOFUELS
CONTROL
Optimize
Drying
PAPER
Improve Productivity
WOOD
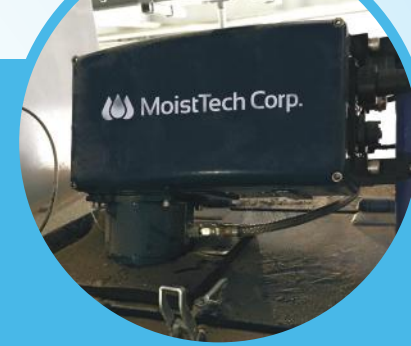Biofuels
BULK CONVEYING
Glues
ENGINEERED WOOD

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MoistTech's Online NIR Moisture Sensor for the Wood & Forest Products Industry

IR-3000WP WIDE ARRANGE OF APPLICATIONS INCLUDE:

- ✔ Bark
- ✔ Biomass
- ✔ Fiberboard
- ✔ Flakeboard
- ✔ Green Wood Chips
- ✔ Hardboard
- ✔ Hog Huel
- ✔ MDF
- ✔ Online Resin Control
- ✔ OSB
- ✔ Particleboard
- ✔ Saw Dust
- ✔ Veneer
- ✔ Wood Pellets
- ✔ Wood Fibers

NEAR INFRARED (NIR) TECHNOLOGY

All molecular bonds absorb specific wavelengths of light. Hydrogen bonds including O-H (water); C-H (hydrocarbon) and N-H (ammonia) all absorb strongly in the NIR spectral region. The amount of NIR energy reflected at a given wavelength is inversely proportional to the quantity of absorbing molecules in a product.

The NIR technique is a non-destructive, non-contacting measurement. MoistTech's sensor utilizes multiple wavelengths of NIR light, projected onto the product at a very high repetition rate. The reflected light is then measured using a digitally enhanced detection system and thousands of data points are sampled every second.

PRODUCT INFORMATION

The IR-3000WP is MoistTech's NIR (Near Infrared) online moisture sensor for instant, non-contact measurement of wood products and their raw materials in the harshest manufacturing environments. Precision filters and algorithms have been incorporated into this sensor to optimize performance under the demanding conditions of wood processing. Unsurpassed in performance, stability, reliability, maintainability and cost of ownership the IR-3000WP is the answer to controlling moisture in forest product applications.

The IR-3000WP is renowned for its rugged design and ability to withstand the harsh environments of wood processing plants. Insensitive to material variations such as particle size, material height & color, IR-3000WP analyzer provides continuous, reliable readings. It's one-time calibration, maintenance free, drift free optical design allows operating personnel to confidently make immediate process adjustments based on real-time measurements.

MoistTech has worldwide reputation for exceptionally accurate NIR sensors and software for moisture testing, measurement and control. With thousands of measurements per second, MoistTech's IR3000WP NIR online moisture transmitter allows users to optimize their on-line process and dramatically improve product quality, providing both energy savings and potential increased productivity with lower material losses.

The IR-3000WP uses state-of-the-art components allowing installation in the most extreme locations. Additionally, with MoistTech's product loss software capability where small gaps, inert material, foreign objects, belt or screw conveyors are removed from the measurement calculation, providing the most accurate true system and thousands of data points are sampled every second

INSTALLATION LOCATIONS

The sensors can be installed using the bracket on the back/top of the sensor 4" – 16" (inches) from the product. The MoistTech sensor has many options for installation including:

- Monitor delivery & verify product.
- Dryer Inputs and Outputs: To adjust feed rates and regulate dryer temperatures.
- Blender Inputs and Outputs: To control & monitor resin additions and distributions.
- Boiler Inputs and Outputs: To monitor feed to the boiler to optimize combustion efficiency.
- Forming Lines: For a final quality control check.
- Belt, Screw, Drag & Enclosed Conveyors
- Chutes, Cyclones & Bins
- Pipeline or Pneumatic Conveying using our Flange window or Sampler options.

KEY BENEFITS FOR USERS:

Product Quality Monitoring
Allows immediate production line adjustments to improve product quality and consistency

Process Optimization
Allows 100% monitoring of your production process to reduce product that is "out of specification"

Fuel Consumption Savings
Reduce your energy usage as the drying/cooking process can be controlled resulting in a reduction in energy consumption

Water Savings
Reduce your water usage by continuously monitoring moisture content

Dust Prevention
Help reduce the risk of explosions due to dust

DISPLAY OPTIONS

In addition to the MoistTech management software, MoistTech offers several read-out options to display and/or adjust the measurement outputs.

- Digital Panel Meter (DPM) connected by 4-20mA output
- Full Color Touch Operator Panel (OP-14) PLC based connected by RS-232C serial. (provides trending graph)
- Color Touch Operator Interface (OI) connected by Ethernet.

(OP-14 & OI provide operators & engineers the unlimited ability to make changes to gauge parameters, monitor diagnostics and program calibrations all at-line)

MANAGEMENT SOFTWARE

MoistTech has designed a suite of high-tech Windows™ programs to provide user-friendly interfaces for configuration, data logging, and monitoring of diagnostics. With this you can perform calibrations, define gauge and measurement parameters, and set-up and configure up to 50 different product codes. The MoistTech Software package is easy to use and compatible with any PC platform.

STANDARD FEATURES INCLUDE

- 16-bit conversion and 32-bit processing Wavelength selection with each application
- Advanced digital filtering for noise free signal
- Windows™ Operating Software
- Standard Ethernet Output
- 3 x 4 - 20 mA Outputs Embedded PC with Flash Memory
- Optical Window Contamination Monitor
- 2 Year Parts & Labor Warranty
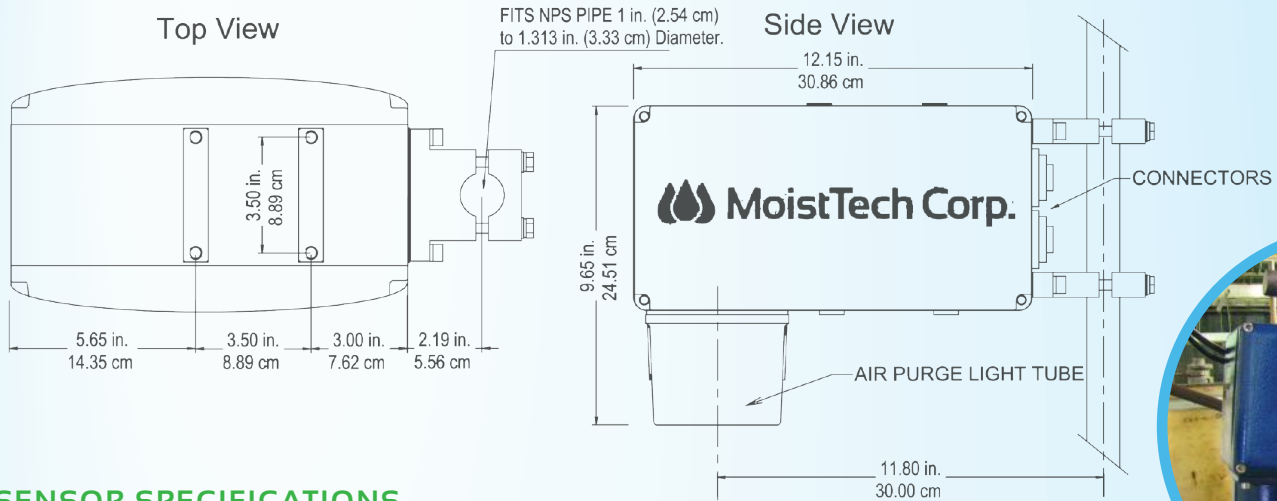- Pre-calibrated to your application

OPTIONS & ACCESSORIES

In addition to the Display Options listed, MoistTech offers many installation options & accessories:

- Flange window with mounting (measure looking into a window)
- Bulk & Powder Sampler Cup (measure of falling material)
- Snorkel Sampler (measure into the conveyor wall)
- Air or Water Cooling Cover for high temperature with optional auto on/off solenoid
- Product Loss Sample Hold Sensor
- Product Temperature Pyrometer

Instrument Enclosure Options:

- Food Grade Nickel Coated
- IP-67 Enclosure Stainless Steel with cooling
- ATEX Rated
- Explosion Proof Classification Enclosure

Top View

FITS NPS PIPE 1 in. (2.54 cm) to 1.313 in. (3.33 cm) Diameter.

3.50 in. 8.89 cm

5.65 in. 14.35 cm

3.50 in. 8.89 cm

3.00 in. 7.62 cm

2.19 in. 5.56 cm

Side View

12.15 in. 30.86 cm

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9.65 in. 24.51 cm

CONNECTORS

AIR PURGE LIGHT TUBE

11.80 in. 30.00 cm

SENSOR SPECIFICATIONS

Measured NIR Constituents:	1, 2 or 3 Moisture Ranges: Min 0.01%, Max 97%
Moisture Ranges:	0–0.1%, 0–100% PPM Ranges Subject to Application
Accuracy (subject to application):	±0.01%
Repeatability:	±0.01%
Optical Measurement Distance:	4–16 in (10–40 cm)
Sampling Size:	Approximately 1.5-in (3.7 cm) diameter on sample
Calibration Codes:	50 Standard
Weight:	16 lbs (7Kg)
Enclosure:	Cast Aluminum, IP65 (NEMA 4), Optional IP67 Stainless & Food Grade
Dimensions:	12.1 in x 7.1 in x 6.4 in (31 cm x 18 cm x 16 cm)
Power:	80–260 VAC (50/60 HZ), Optional 24VDC
Operating Temperature:	0–130°F (0–55°C) Vortec Cooling (High Temp): Max 170°F (85°C) Stainless Steel IP67: Max 200F (93C)
Calibration:	Factory Pre-Calibrated, PC Calibration software included, Routine re-calibration is not required
Ambient Light Sensitivity:	None
Sensor Input/Outputs:	Three self-powered isolated 4-20mA outputs, RS-232/485, Ethernet TCP/IP
Optional interfaces:	Profibus, Profinet, DeviceNet, Ethernet IP

Above specifications are subject to application