



# MoistTech Corp.®

*Moisture Measurement & Control From Lab To Line*

## IR - 3000

Online NIR Moisture Sensor  
Near Infrared Measurement

ALCOHOL Moisture  
Engineered Wood  
Polymers  
BRICK  
CONTROL  
Adhesives  
OILS  
Plastics  
FATS  
PROTEINS  
Food  
Wood  
Tobacco  
BIOFUELS  
Improve Productivity  
CONVERTING  
Optimize Drying  
COATWEIGHT  
Thickness  
Pellets  
GRAINS  
Paper  
Bulk Conveying  
POWDER  
Fibers  
Sinter





# MoistTech's Online NIR Moisture Sensor

## IR-3000 WIDE RANGE OF APPLICATIONS INCLUDE:

- ✓ Adhesive
- ✓ Food
- ✓ Paper
- ✓ Snack Food
- ✓ Web
- ✓ Chemical
- ✓ Forest Products
- ✓ Pharmaceuticals
- ✓ Textiles
- ✓ And More
- ✓ Coating
- ✓ Hemp/Cannabis
- ✓ Plastic
- ✓ Thickness
- ✓ Converting
- ✓ Minerals
- ✓ Renewable Energy
- ✓ Tobacco

In addition to measuring moisture the IR-3000 may be used to measure, display and control coating weight, sheet and film thickness, oil, protein and other elements that absorb NIR.

### PRODUCT INFORMATION

MoistTech developed the IR-3000 online NIR sensor for instant, non-contact measurement of many products and raw materials in the harshest manufacturing environments. Continually monitoring and controlling moisture levels allows operating personnel to confidently make immediate process adjustments based on real-time measurements.

With experience in over 5,000 applications globally and thousands of equipment installs, MoistTech represents the Diamond standard in robust, reliable and dependable technology for harsh environment process measurement and precise product control.

Production efficiency improvements due to accurate real-time measurements provide both energy savings and potential increased productivity with lower material losses.

### KEY BENEFITS

- **Insensitive to material variations** - particle size, material height and color do not affect the sensor
- **One-time calibration & Zero Drift over time**
- **Maintenance free**
- **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

### 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:

- Belt, Screw, Drag & Enclosed Conveyors
- Chutes, Cyclones & Bins
- Dryer In/Out
- Webs
- Pipeline or Pneumatic Conveying using our Flange window or Sampler options.

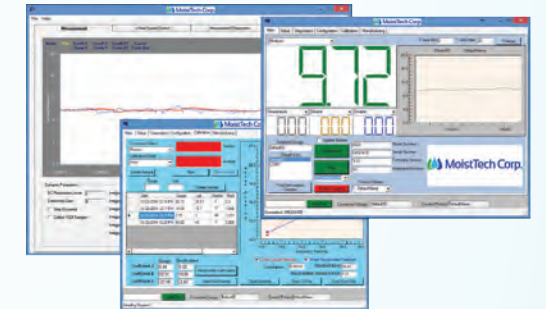
### NEAR INFRARED (NIR) TECHNOLOGY

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.

### 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.



### 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)
- HMI Human Machine Interface is a 7" color touch display for common sensor configuration and monitoring. Ethernet to Ethernet communication.

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





## 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

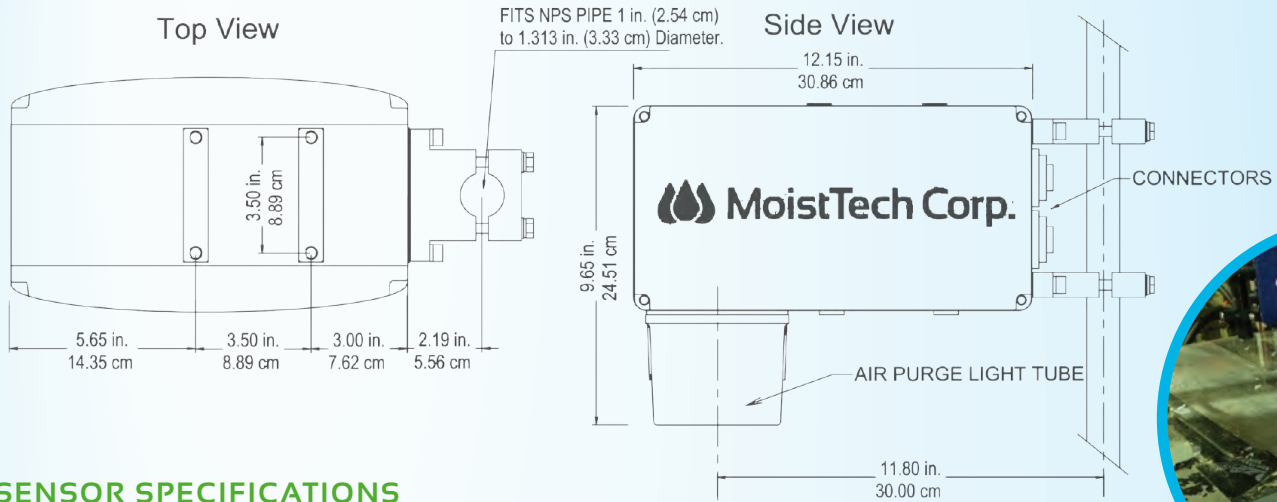
## OPTIONS & ACCESSORIES

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



## SENSOR SPECIFICATIONS

Measured NIR Constituents:

Moisture Ranges:

Accuracy (subject to application):

Repeatability:

Optical Measurement Distance:

Sampling Size:

Calibration Codes:

Weight:

Enclosure:

Dimensions:

Power:

Operating Temperature:

Calibration:

Ambient Light Sensitivity:

Sensor Input/Outputs:

Optional interfaces:

1, 2 or 3 Moisture Ranges: Min 0.01%, Max 97%

0-0.1%, 0-100% PPM Ranges Subject to Application

±0.01%

±0.01%

4-16 in (10-40 cm)

Approximately 1.5-in (3.7 cm) diameter on sample

50 Standard

16 lbs (7Kg)

Cast Aluminum, IP65 (NEMA 4)

12.1 in x 7.1 in x 6.4 in (31 cm x 18 cm x 16 cm)

80-260 VAC (50/60 HZ), Optional 24VDC

0-130°F (0-55°C)

Vortec Cooling (High Temp): Max 170°F (85°C)

Internal block heater (low operating temps)

Stainless Steel IP67: Max 200°F (93°C)

Factory Pre-Calibrated, PC Calibration software

included, Routine re-calibration is not required

None

Three self-powered isolated 4-20mA outputs,

RS-232/485, Ethernet TCP/IP

Profibus, Profinet, DeviceNet, Ethernet IP

\*Above specifications are subject to application

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