



IR-3000



MoistTech's Online NIR Moisture Sensor



MOISTURE MEASUREMENT & CONTROL FROM LAB TO LINE

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ON-LINE MOISTURE MEASUREMENT AND CONTROL, NON-CONTACT,
NON-DESTRUCTIVE, INSTANT, CONTINUOUS MEASUREMENT

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.

Insensitive to material variations such as particle size, material height and color, the IR-3000 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.

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

The IR-3000 uses state-of-the-art components allowing installation in the most extreme locations. As result of MoistTech's advanced digital processing, only the IR-3000 provides true data regardless of gaps and interruptions of product flow on the belt or screw conveyors.

MoistTech's IR-3000
wide arrange of
applications include:

Food
Snack Food
Chemical
Pharmaceutical
Mineral
Plastic
Paper
Coating
Thickness
Adhesive
Web
Converting
Forest Product
Tobacco
Bio-mass
And many more . . .

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.



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.

Installation Locations

The sensor has many areas of application including: belt conveyors, screw and drag conveyors, down chutes, storage bins and fluid-bed dryers. Consult factory for your specific application.

At-line: The addition of the base and stand option provides instant off-line or at-line measurement under on-line operating conditions.





Options

Digital Panel Meter (DPM)

Color Touch Screen Operator Interface

Flush Mount Window used for mounting on the side of cyclones, bins and fluid bed dryers

Cooling Panels

Snorkel Sampler used for inline pipe gravity feed installations

Snorkel used for inserting into product flow

Product Temperature Sensor

Stainless Steel / Electroless Nickel Sensor Enclosures (depending on the application)



Standard Features include:

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

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

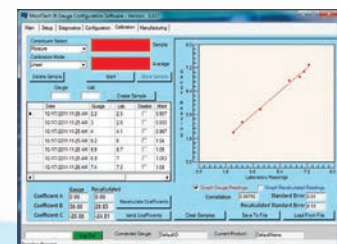
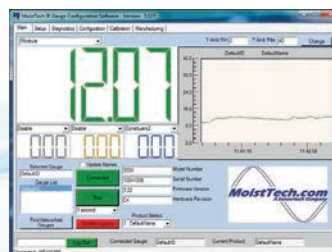
Help reduce the risk of explosions due to dust

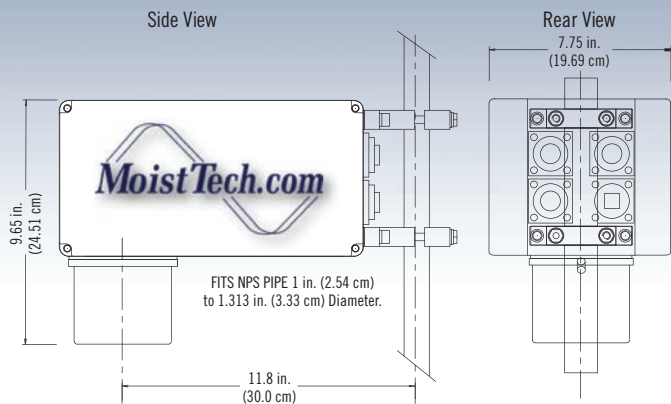
Display Options

In addition to management software, MoistTech offers several read-out options to display measurement output. A variety of Digital Panel Meters (DPM) provide a clear lighted display of the constituent data. A Color Touch Screen Operator Interface (OI) provides operators and engineers the unlimited ability to make changes to gauge parameters, monitor diagnostics, and program calibrations without ever having to leave the production 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; and the standard Modbus protocol allows for easy interfacing to PLC's.





Sensor Specifications

Measured NIR Constituents:	1, 2 or 3 Moisture, oil, coating, etc.
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), Stainless, food grade
Dimensions:	12.1 in × 7.1 in × 6.4 in (31 cm × 18 cm × 16 cm)
Power:	80–260 VAC (50/60 HZ), 24 VDC
Operating Temperature:	0–130°F (0–55°C)
Vortec Cooling (High Temp):	Max 170°F (85°C) Stainless Steel IP67: Max 200°F (93°C)
Calibration:	Factory Pre-Calibrated Routine re-calibration is not required
Ambient Light Sensitivity:	None
Sensor Input/Outputs:	Three self-powered isolated 4–20 mA outputs, RS-232, Ethernet TCP/IP, RS-422/485 (factory configured), Digital I/O (factory configured)
Optional interfaces:	Profibus, Profinet, DeviceNet, Ethernet IP
Reliability:	System Warranty 2 years Lamp and Motor (MTBF 20 years)

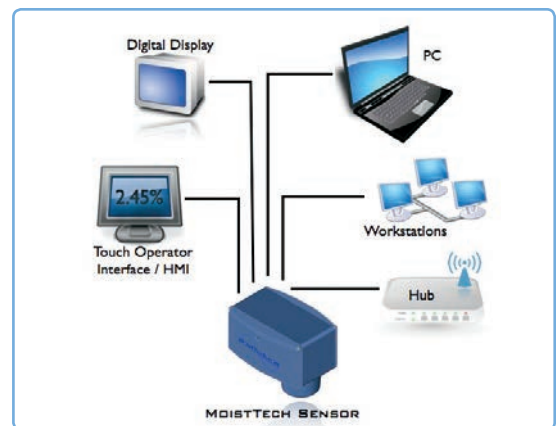
*Above specifications are subject to application

Display Specifications

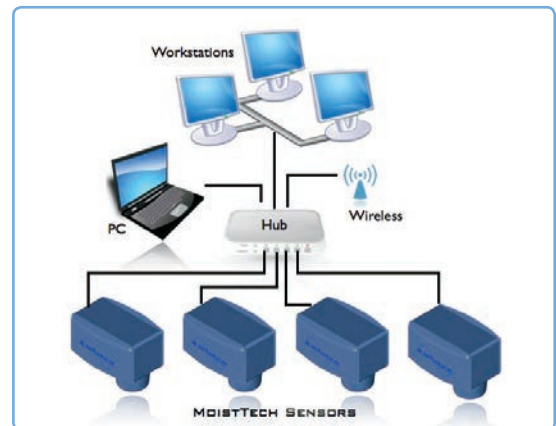
Digital Panel Meter:	Wall, Post or on top of Sensor
Display:	LED 3-1/2 Digit
Interface / Cable Length:	4–20 mA /20 ft (6 meters) standard, longer if requested
Power / Cable Length:	80–260 VAC 50/60 HZ, 10 ft (3 meters) standard (24 VDC Optional)
Enclosure:	Plastic—NEMA 4 rated
Dimensions:	6.5 in (16.51 cm) × 3.25 in (8.25 cm) × 4 in (10.1 cm)
Operator Interface:	Wall or Post Mounting
Display:	Color Touch Screen LCD—Windows CE O/S
Interface / Cable Length:	Ethernet Cat5e / 10 ft (3 meters) standard, Max. 300 ft (100 meters)
Power / Cable Length:	80–260 VAC 50/60 HZ, 10 ft (3 meters) standard (24 VDC Optional)
Enclosure:	Cast Aluminum—NEMA 4 rated
Dimensions:	11 in (27.9 cm) × 9 in (22.9 cm) × 5.5 in (14 cm)

Options & Accessories

Digital Panel Meter (DPM)
Operator Interface with Color Touch Screen
Snorkel Sampler with Air Purge
Flush Mount Window
Air Vortex or Liquid Cooling Panel
Product Temperature Sensor
Product Loss Sensor (Proximity Detector)
Stainless Steel / Electro Nickel Enclosures and Samplers
Profibus, Profinet, Ethernet IP, DeviceNet
KEL-F, Quartz & Sapphire Viewing Windows



Stand-Alone Configuration



Multi-Sensor Configuration

