MoistTech Corp.™

Moisture Measurement & Control From Lab To Line

IR-3000F FOOD GRADE

Online NIR Moisture Sensor for the Food Products Industry
Near Infrared Measurement

INGREDIENTS Moisture
Potato Chips & Crisps
Baked
SUGAR
PROTEIN
OIL
Fried
FAT
CORN MILLING
PET FOODS
Spices
Sugar
Crackers
POWDERS
Animal Foods
COOKIES
Cereals
Snack Products
Confectionery
CHEESE
Chocolate

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MoistTech's Online NIR Moisture Sensor for the Food Products Industry

IR-3000F FOOD GRADE WIDE ARRANGE OF APPLICATIONS INCLUDE:

- ✔ Baby Formula
- ✔ Bakery Dough
- ✔ Biscuits
- ✔ Bread Crumbs
- ✔ Cereals
- ✔ Cheese
- ✔ Chocolate
- ✔ Cocoa
- ✔ Coffee
- ✔ Cookies
- ✔ Corn Chips
- ✔ Crackers
- ✔ Dairy Powders
- ✔ Distiller's Grain
- ✔ Dried Fruits
- ✔ Drink Powders
- ✔ Extruded Snacks
- ✔ Flours
- ✔ Grains
- ✔ Nuts
- ✔ Olive Pulp
- ✔ Potato Chips
- ✔ Potato Flakes
- ✔ Popcorn
- ✔ Pretzels
- ✔ Salt
- ✔ Soup Powders
- ✔ Spent Grains
- ✔ Spices
- ✔ Sugar
- ✔ Tea
- ✔ Yeast

PRODUCT INFORMATION

MoistTech developed the IR-3000F Nickel Plated Food Grade Moisture Sensor for instant, non-contact measurement in the harshest manufacturing environments.

Insensitive to material variations such as particle size, material height and color, the IR-3000F 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-3000F uses state-of-the-art components allowing installation in the most extreme locations. As result of MoistTech's advanced digital processing, only the IR-3000F provides true data regardless of gaps and interruptions of product flow on the belt or screw conveyors.

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 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 product additions and distributions.
- Production 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.
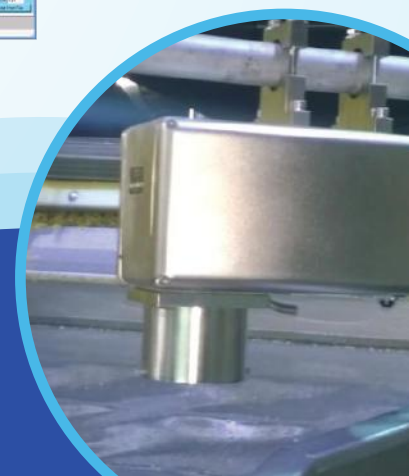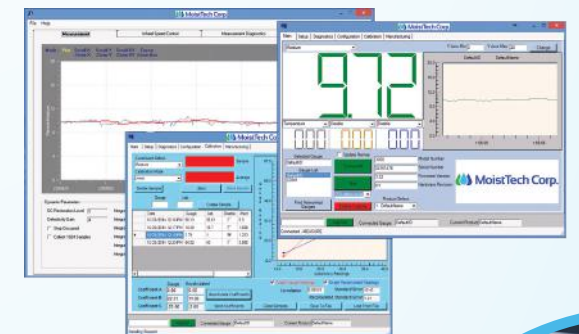
STANDARD FEATURES INCLUDE

- 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
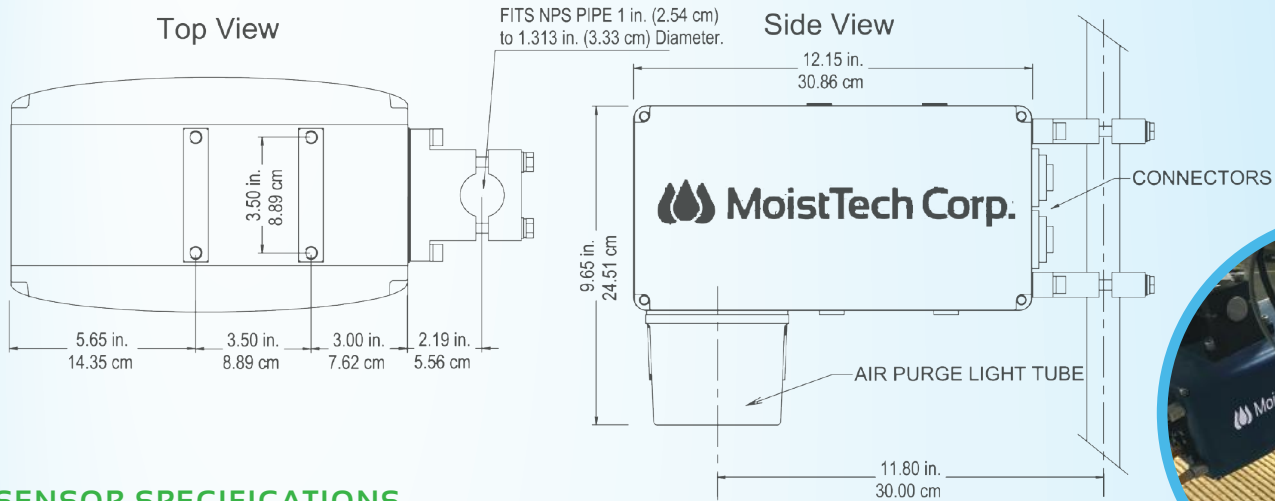- Pre-calibrated to your application

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 with Kel-F window.
- IP-67 Enclosure Stainless Steel with cooling
- ATEX Rated
- Explosion Proof Classification Enclosure

Top View

Side 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

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