



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
NUTS
SUGAR
PROTEIN
FAT
Fried
PET FOODS
Spices
Crackers
Sugar
POWDERS
Seeds
COOKIES
Snack Products
Confectionery
Chocolate
PRETZELS
Cereals
CHEESE
CORN MILLING
Animal Foods



MoistTech.com

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

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

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

PRODUCT INFORMATION

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

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 precise process measurement and product control in all food manufacturing. Monitor moisture, oil, fat or protein with one seamless device.

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 explosion 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:

- **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.

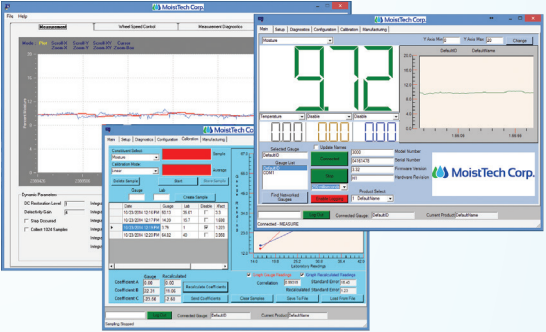
NEAR INFRARED (NIR) TECHNOLOGY

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.

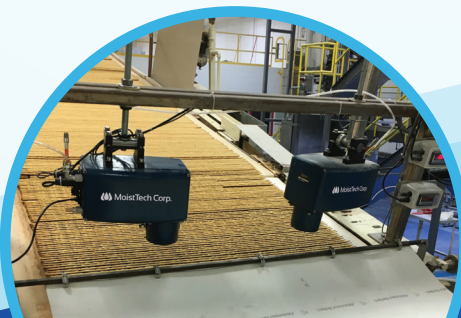


DISPLAY OPTIONS

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 and 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

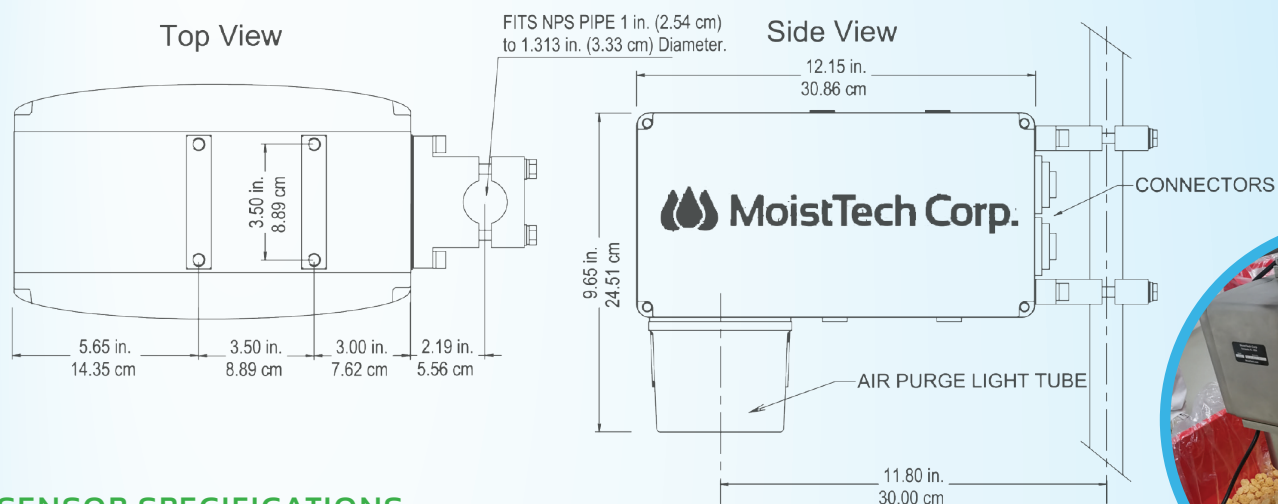
OPTIONS & ACCESSORIES

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 with Kel-F window.
- 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), Optional IP67

Stainless & Food Grade

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)

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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