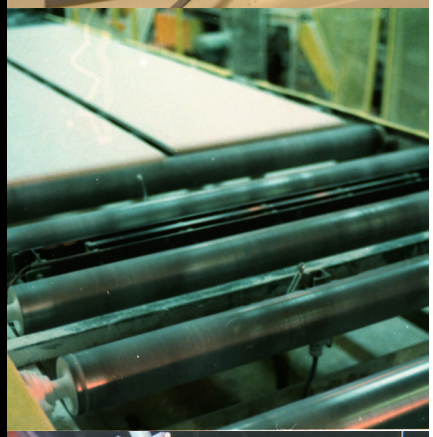
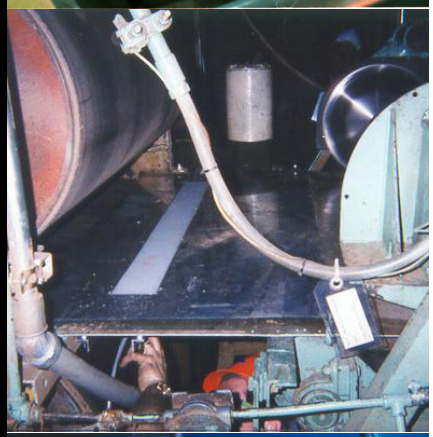
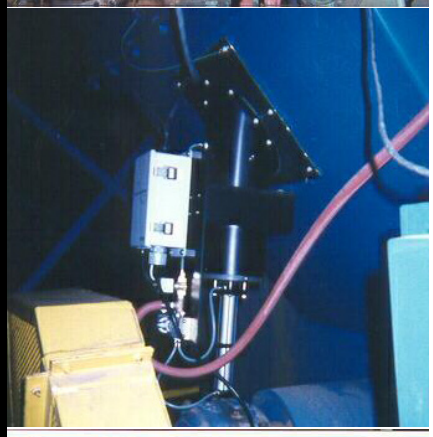
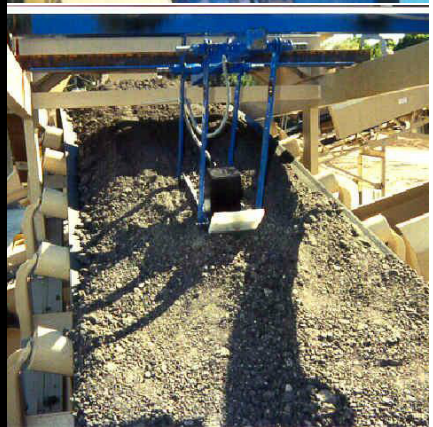
Sensortech Systems, Inc.









ST-2200A

Industrial Grade RF Moisture Analyzer

Improve Process Control
Reduce Energy Costs
Reduce Product Waste
Improve Quality Control

Sensortech.com™

SENSORTECH'S ST-2200A

Durability Precision Stability

Industrial Strength

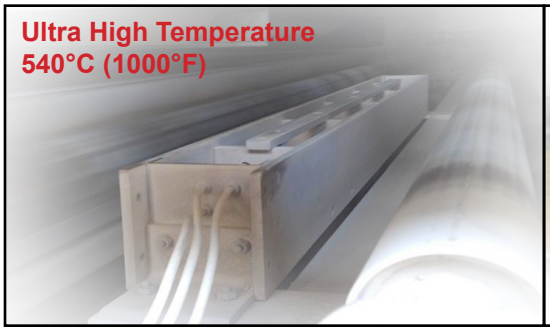
Sensortech's ST-2200A Moisture Measurement and Control System is designed for continuous monitoring of moisture composition in harsh environments where extreme temperatures, severe vibration, and excessive dust or debris typically exclude the use of other moisture analyzers.

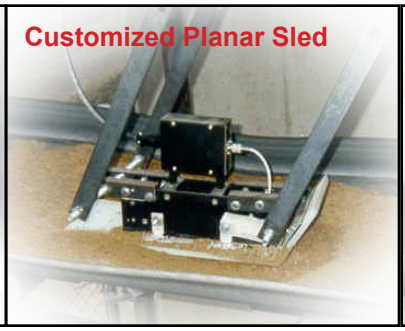
Accuracy

The ST-2200A uses a proprietary Radio Frequency Dielectric Measurement to analyze the moisture composition of your product. In contrast to the surface measurement techniques of Near Infrared Reflectance (NIR) and Thermal Imaging technologies, the RF energy deeply penetrates the product minimizing the influence of moisture distribution.

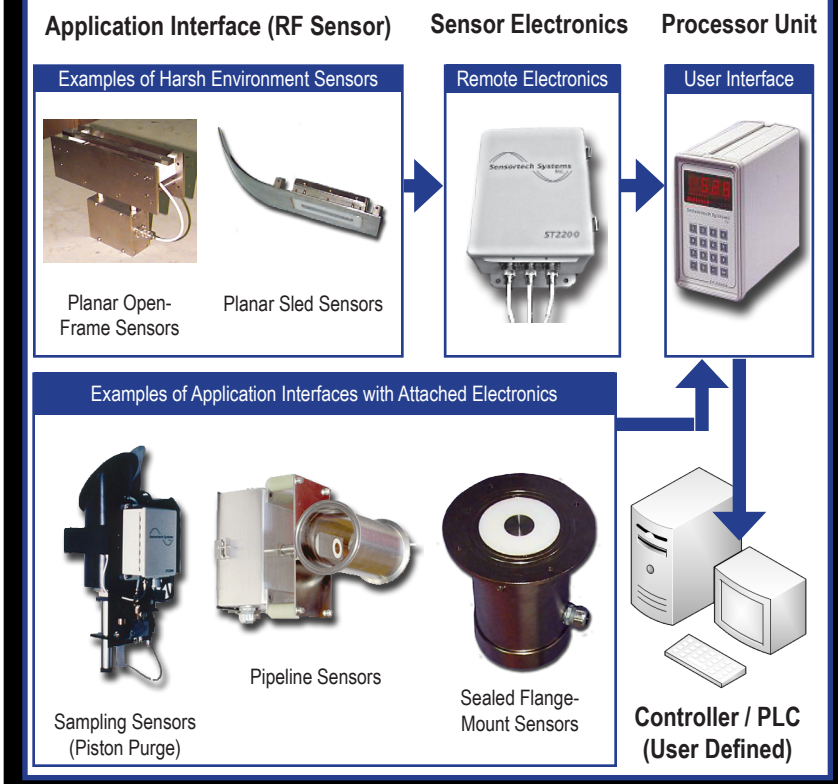
Diverse Applications

Sensortech produces more than 40 sensor styles to satisfy most manufacturing locations and requirements. The ST-2200A provides an advanced level of stability, repeatability and precision measurement regardless of environment and product complexity.





ST-2200A | MOISTURE MANAGEMENT SYSTEM



Application Interface

The RF Sensor (Antenna) provides the source of the Radio Frequency Dielectric Measurement using one of over forty adapted housings suited to your specific application.

Sensor Electronics

A NEMA12 rated metal enclosure contains the moisture measurement and RF switching electronics that is used to collect the signal received from the Application Interface. It is housed separately from the Application Interface allowing the ST-2200A to operate in harsh environments.

Attached Electronics

Particular applications requiring high sensitivity will use an Application Interface housing having an Attached Sensor Electronics enclosure. These Application Interfaces combine the RF Sensor with the Sensor Electronics to form a single component of the ST-2200A.

Processor Unit

An intelligent measurement and control unit that connects to the Sensor Electronics and provides moisture measurements via serial communication protocols (RS-232 & RS-485), 4-20mA outputs and the front panel LED display.

MORE THAN 40 STYLES OF APPLICATION INTERFACES

5 Classifications of Application Interfaces:

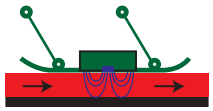
1 Planar Open Frame Sensor

The product passes over the sensor where the moisture measurement is taken. The open-frame minimizes buildup of debris by allowing product to fall through it and is commonly used for applications having extreme temperatures, excessive vibration, or other harsh environments. Typically used between conveying belts or rollers and In-Kiln locations.

2 Sealed Flange-Mount Sensor

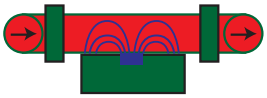
The product glides on the sealed Teflon or ceramic surface of the sensor where the moisture measurement is taken. The sensor is fixed in place using the flange-mount and is placed in critical points throughout your production process. Performs well in high vibration environments and is ideally suited for granular or powdered products. Typically used in bins, hoppers, planar (sloping/horizontal) surfaces and conveyor drop-off points.

3 Planar Sled Sensor



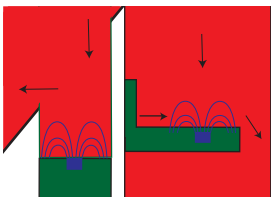
The product passes underneath the sensor where the moisture measurement is taken. The sled hangs from hinged arms allowing it to maintain a parallel position to the conveyor and to level the product for consistent measurement. Other varieties of Sled Sensors include the Skid-Plate Sensor that has a smooth abrasion-proof surface designed to have a gentle impact on sensitive products. Typically used on conveyors (sloping/horizontal).

4 Pipeline Sensor



The product flows through the pipeline where the moisture measurement is taken. The Application Interface is made up of a pipe with an attached sensor that is integrated into the pipeline framework of the production process. A variation of the pipeline sensor is the coaxial pipeline sensor which features a center electrode providing a uniform radial field through the product to the pipe wall. An optional heater jacket ensures that the product does not solidify. Typically used with production processes manufacturing fluids, pastes, and confectionery applications.

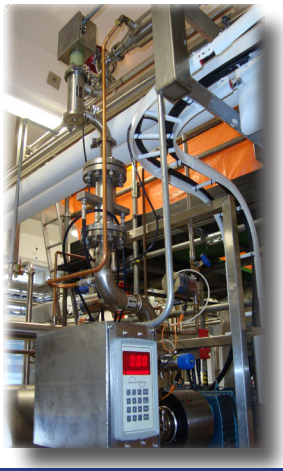
5 Sampling Sensor



The product enters a sampling tray or chamber where the moisture measurement it taken. A digital output of the Processor Unit is used to control the fill and purge method of sampling. Common types of Sampling Sensors include a Piston-Purge and Air-Purge Application Interface that uses different techniques of sampling the product. Sampling Sensors can be found in production processes where a small sample is taken from a large flow of product or where it is not possible to maintain a reasonably constant flow of product over the sensor.

Every Manufacturing Process is Unique

The ST-2200A series instruments are available with a variety of geometries and sizes to best suit your application. Sensortech is eager to answer any questions regarding your specific application and in determining the type of sensor that will best suit your needs.



Intelligent Sampling

The ST-2200A is the most advanced radio frequency moisture analyzer currently available. Full integration into your production process is reinforced through your choice of the ST-2200A's numerous sampling methods. These sampling methods support your Process Control System's ability to optimize production flow by targeting critical points throughout your process and effectively deliver the type of moisture measurements required for your specific application.

SAMPLING METHODS INCLUDE:

1. Continuous non-interrupted sampling.
2. Sampling on Command (SOC) uses an external gating input to start and stop sampling and holds the last measurement.
3. Timed sampling may be used with Application Interfaces using fill and purge techniques of sampling.
4. Automatic product detection sampling where the measured moisture level is used to start and stop the measurement using user defined moisture thresholds.
5. Sampling on Command (SOC) uses an external gating input to start and stop sampling and returns to a user defined moisture level when no product is detected.

Applications Include:

Board Manufacture
- Gypsum Board
- Hardboard
- Particle Board
- Gypsum/Fiber Board
- Cement/Fiber Board

Wood Manufacture
- Hardwood Veneers
- Plywood Veneers
- Dimensional Lumber

Food Manufacture
- Whole Grains
- Nuts
- Puffed and Flaked Cereals
- Confectionery Fillings
- Fudge
- Caramel
- Molasses

Textile Manufacture
- Synthetic and Natural Wovens
- Felts
- Tows
- Yarns

Paper Manufacture
- Cardboard
- Laminates
- Pulp Bales
- Sheets

General Manufacture
- Granulars and Powders
- Minerals
- Fertilizers
- Plastics
- Resins

On-Line Moisture Measurement and Control System

ST-2200A Specifications

Accuracy: (All accuracies subject to application)

+/-0.1%	0% - 10% Range
+/-0.25%	10% - 30% Range
+/-0.5%	30% - 80% Range

Sampling Rate: 10mS, 100mS, 1S (Selectable)

Sample Averaging: 1 - 120 samples

Processor Unit

Inputs:

- Dielectric Sensor Input
- Temperature (Voltage, Current Input)
- Weight (Voltage, Current, or Keyboard Input)
- Distance (Voltage, Current Input)
- Keyboard, full function 16 Keypad Sealed Rubber
- RS232 / RS485 Digital Communications
- Compensation inputs for product temperature, density and sensor distance
- Modular functions for operator ease and future upgradeability
- Full diagnostics built-in
- Sampling on Command (SOC) Gating Input.

Outputs:

- Large (1 in.) digital LED readout
- RS232 / RS485 Digital Communications
- 4 - 20mA Isolated Current Output
- Solid State Relays, Hi - Lo Alarms
- Auxiliary Digital Output for Auto Sampler Mechanisms
- Digital output for product detection

Physical: Flush Panel Mount Enclosure
4.75 in. x 8 in. x 11.25 in. (width x height x depth)
Weight: 8lbs.

Operating Temp: 32°F - 120°F (0°C - 50°C)

Application Interface (RF Sensor)

Mechanical: Various styles including: Planar, Probes, Pipelines, Sealed, and Auto-Sampling (Consult factory for details).

Operating Temp: 32°F - 120°F (0°C - 50°C)

High Temp: Up to 500°F (260°C)

Ultra High Temp: Up to 1000°F (540°C)

Sensortech Guarantee

All products manufactured by Sensortech Systems, Inc. are warranted against defects in material and workmanship for a period of one year from date of shipment. In the event any product manufactured by Sensortech Systems, Inc. proves to be defective during the warranty period, it will be repaired free of charge.

Options

- NEMA rated enclosures available at your request.
- Explosion proof enclosures available to your specifications.
- Temperature transducer including: thermocouples, RTD's, non-contact IR pyrometers
- Distance transducers including optical and mechanical.
- Spare parts kit economically ensures minimum down time.
- Software - Sensortech Systems is continually developing software to enhance interface and operator functions.

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Sensortech Systems Inc.

The Measurement and Control Company