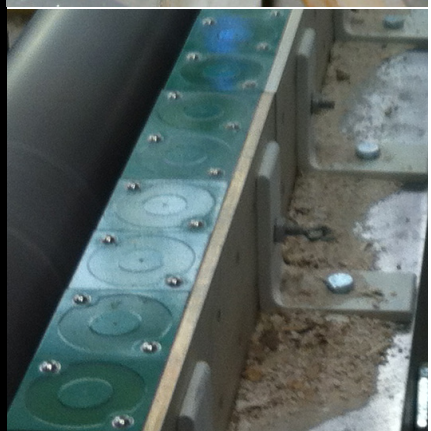
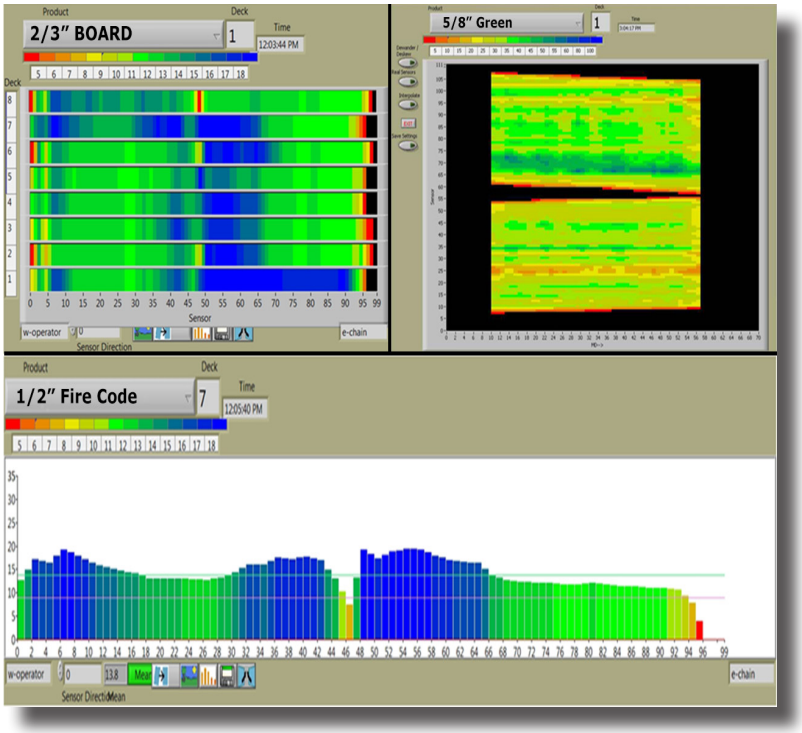
Sensortech Systems, Inc.



IMPS-4400

Industrial Grade RF Moisture Profiler



Precise Dryer Balancing
Improve Quality Control
Reduce Energy & Reject Product
Increase Productivity

Sensortech.com™

SENSORTECH'S IMPS-4400

Advanced Profiling

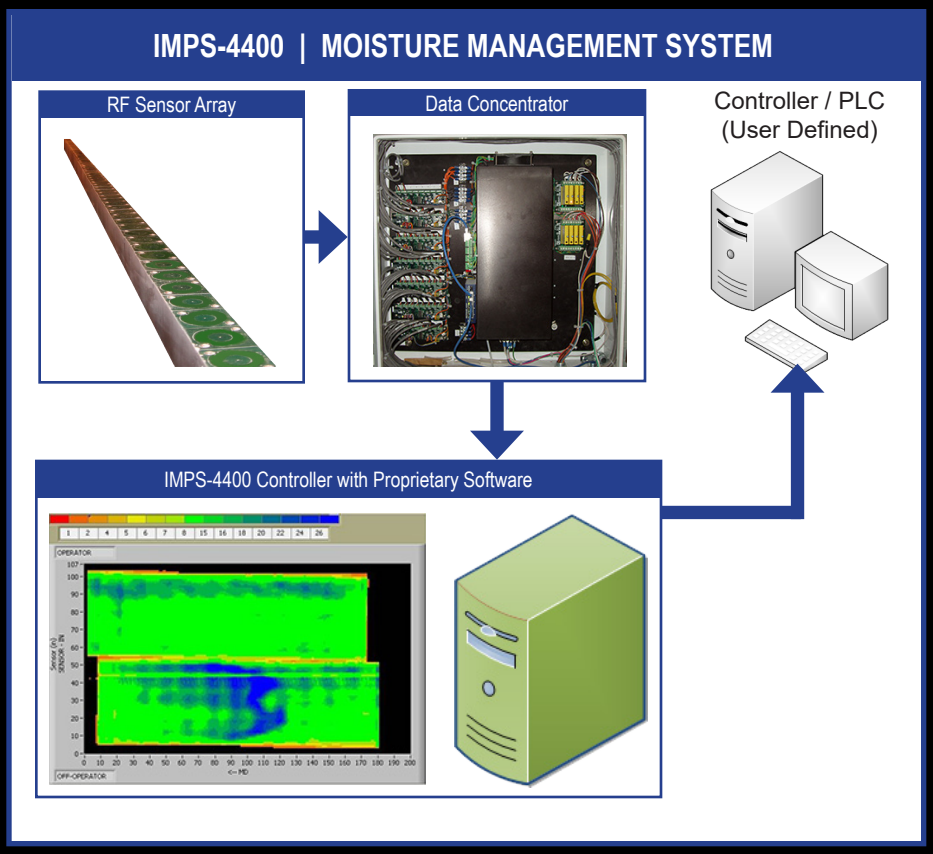
The IMPS-4400 provides the most advanced level of moisture profiling currently available. Using the non-contact Radio Frequency Dielectric Measurement Technology in an arrayed framework allows the IMPS-4400 to deliver the complete picture of your products moisture composition in real-time.

Software Diagnostics

Our proprietary software provides multiple graphical representations of moisture distribution for individual boards and throughout the dryer. The operator may view the process from a variety of perspectives by selecting individual or multiple screens.

FEATURES:

- RF Dielectric Measurement Penetrates Product to Provide True Total Moisture
- Non-Contact Multi-Sensor Moisture Profiling Array
- Easy Communication Between Profiler and HMI System
- Proprietary Software Offering Broad Product Diagnostics
- Data-Logging and Trend Time Plot for Statistical Analysis
- Totally Solid State System



RF Sensor Array

The RF Sensor Array provides the source of the Radio Frequency Dielectric Measurement. Each sensor measures a 2" wide (50mm) strip of product and combines to measure up to a 256" (6.5m) width. Every sensor is scanned 33 times per second and the measurements are stored in an X-Y matrix. This matrix is the data source for each graphic display.

Data Concentrator

The Data Concentrator multiplexes the data received from the RF Sensor Array to show the true moisture content of your product in real-time.

IMPS-4400 Controller

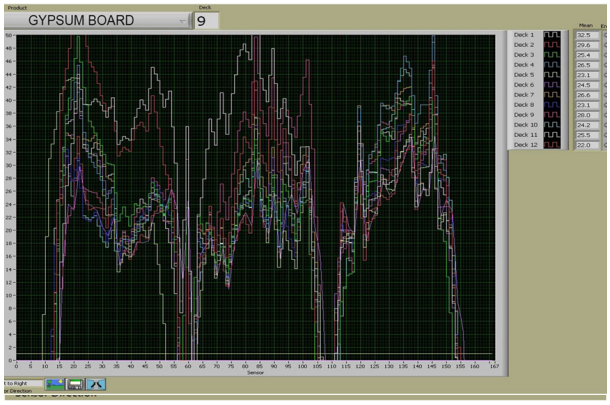
Perhaps the real power of the IMPS-4400 lies within the Controller. Moisture visualization from a variety of perspectives provides a powerful dryer optimization tool.

Why Measure Heat When You Should Measure Moisture?

While surface temperature relates to moisture content, the relationship will vary with rate of drying and particularly with final zone temperature, resulting in the need for continual re-adjustment. Sensortech Systems patented dielectric measurement relates directly to moisture content and, unlike thermal images, is not affected by process temperature, ambient temperature, or color of board.

Increased Productivity

Moisture profiling is a valuable tool for operators and engineers concerned about optimizing their production process. Even beyond the scope of moisture measurement the IMPS-4400 proprietary software can be used to analyze various characteristics of your product or production process.



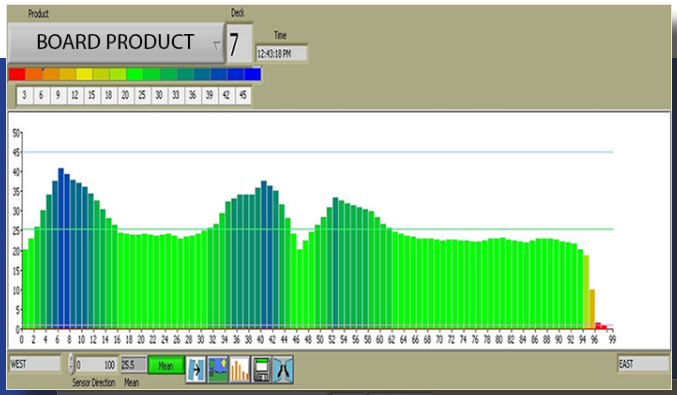
The above graphic illustrates the cross-board moisture profile of every deck in a 12-deck triple wide dryer. The spread between different traces is an indication of dryer imbalance. The widely spaced traces indicate there is much room for improvement.

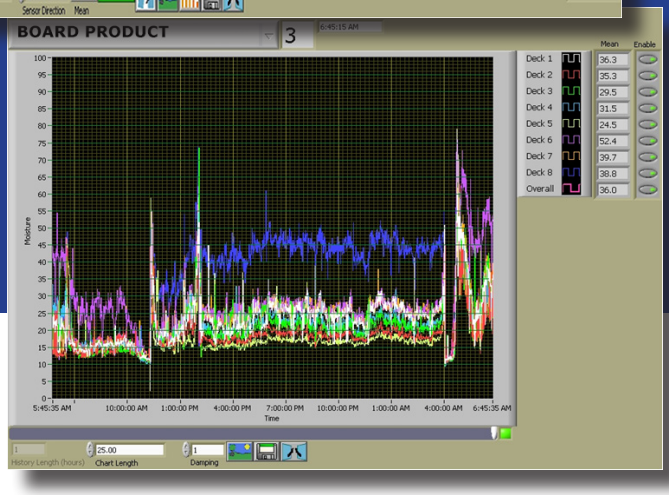
Graphics include a virtual visualization of the dryer exit showing the moisture profile of every board on each deck. The wetter region on the right lower to mid-decks will result in inconsistent board quality. The visual indication combined with incremental damper adjustment during maintenance periods provides immediate feedback to the dryer optimization engineer.

Individual sensors are mounted in an array spanning the width of the board line. These isolated measurements are sent to the IMPS-4400 Controller where the data is processed and presented in real-time full color graphs.

Individual Sensor from Sensor Array

These graphs, tables, and trend charts illustrate your products moisture profile viewed from different perspectives. True moisture measurement for a gypsum board is the only real-time quality indicator relating to edge hardness, nail pull force, and paper peel strength.





Proprietary Software

Visualizing your production process with the IMPS-4400 Proprietary Software provides benefits no other moisture management system can offer. The graphical perspectives change the approach of handling production issues from isolated incidents to comprehensive solutions.

Graphic Profiles Include:

- Multi-Deck Displays
- Cross-Direction Moisture Profiles
- Bar Graphs
- Trend Plots
- 2D & 3D Moisture Contours

On-Line Moisture Measurement and Control System

System Specifications

Resolution:	0.01%
Accuracy *	
Gypsum Board:	±0.02%
Wood Panel Board:	±0.10%
* Accuracies are subject to application	
Moisture Range:	0 - 25%
Sampling Rate:	33 Samples per Second
Maximum Number of Sensors:	128
Maximum Sensor Array Width:	256 in. (6.5m)
Operating Temperature:	0 - 50°C
Power:	115/240VAC 50/60Hz

Sensor Specifications

Size:	2.0 in. (50mm) Sq.
	4.5 in. (115mm) L
Mounting:	Rigid Mounting Bracket

Data Concentrator Specifications

Enclosure:	NEMA 4 Wall-Mount
Dimensions:	
Up to 64 Sensors	24 in. x 24 in. x 9 in. (w x h x d)
Up to 128 Sensors	48 in. x 24 in. x 9 in. (w x h x d)
Embedded Processor:	
Input:	Up to 16 Deck ID Signals
Output:	Ethernet

IMPS-4400 Controller Specifications

Operating System:	Windows 7
Processor Speed:	3.3GHz
System RAM:	2GB
Hard Disk Drive:	250GB
CD/DVD Drive:	Included
Monitor:	19 inch Color Monitor
Keyboard and Mouse:	Included
USB Interface:	2 Ports (1.0/2.0)
Ethernet Interface:	2 Ports (10/100)
Controller Options:	
I/O Option:	
Moisture Outputs:	4-20mA, 0-10VDC
Alarm Outputs:	0-5VDC
Enclosure Option:	Several NEMA Types Available

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.

I/O Option:

The IMPS-4400 operates as a stand-alone instrument or can be integrated into your process control system. Integrating the advanced profiling features of the IMPS-4400 into your process control system is accomplished through the I/O Option.

The I/O Option offers real time (not latched) analog signals providing 0-10VDC and 4-20mA outputs to your Processor/PLC. Additionally, logic outputs to your Processor/PLC provide alarm signals indicating user defined levels of moisture and board lengths. These signals provide moisture management across multiple decks.

The outputs are updated at the same time the IMPS-4400 Controller screen data is updated.

The I/O Option Includes:

1. Terminal Board
2. Installed I/O NI-DAQ Card
3. Shielded Cable
4. Software

Sensortech Systems Inc.

The Measurement and Control Company

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