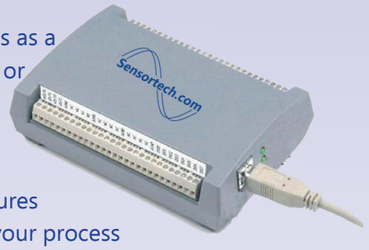
I/O Option:



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.

Moisture vs. Heat

While surface temperature relates to moisture content, the relationship will vary with drying rate 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, nor board color

APPLICATIONS

Board Manufacture	**Paper Manufacture**
Gypsum Board	Cardboard
Hardboard	Laminates
Particle Board	Pulp Bales
Gypsum/Fiber Board	Sheets
Cement/Fiber Board	
Wood Manufacture	**General Manufacture**
Hardwood Veneers	Plastics
Plywood Veneers	Resins
Dimensional Lumber	

Sensortech Systems® Inc.

SPECIFICATIONS

System

Resolution:	0.01%
Accuracy *	±0.02%
Gypsum Board:	±0.10%
Wood Panel Board:	
* 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

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

Data Concentrator

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

Operating System:	Windows 10 Enterprise
Processor Speed:	2.40 GHz
System RAM:	8 GB
Hard Disk Drive:	250GB
Monitor:	24" inch Color Monitor (touch)
Keyboard and Mouse:	Included
USB Interface:	4 Ports (2.0), 4 Ports (3.0)
Ethernet Interface:	2 Gb LAN Ports
Controller Options:	
OPC-UA	Access Historian, Real-Time and Alarm Data
I/O Option:	
Moisture Outputs:	4-20mA, 0-10VDC
Alarm Outputs:	0-5VDC

SENSORTECH SYSTEMS, INC., a KPM Analytics company, is a full design, development and manufacturing company specializing in moisture measurement technology. Our instruments support diverse industries throughout the world and we develop solutions for a comprehensive range of applications.

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02/20

IMPS-4400

Instant Moisture PROFILING SYSTEM

Improve Board Process
Conserve Energy
Reduce Waste
Assure Quality
Increase Capacity

Engineered Specifically for:
- Gypsum Board
- Particle Board
- Cement/Fiber Board
- Hardwood Veneers
- Plywood Veneers
- Cardboard

Sensortech Systems® Inc.

MOISTURE MEASUREMENT AND CONTROL *for* MANUFACTURING QUALITY

IMPS-4400

Instant Moisture Profiling System

Moisture profiling is a valuable tool for board manufacturers to improve and optimize their production process to meet quality standards. Visualizing your process and analyzing board moisture characteristics below the surface are critical to ensuring consistent quality in finished boards.

Sensortech Systems' IMPS-4400 provides a comprehensive picture of your boards' moisture composition in real-time. When integrated into your process control system, the IMPS-4400 enables you to:

- **Precisely balance dryer**
- **Improve quality control**
- **Reduce energy and product rejects**
- **Increase productivity**

The IMPS-4400 delivers the most advanced level of direct moisture profiling. Using an array of non-contact radio frequency sensors, the IMPS-4400 provides moisture data for analysis and correction of variations in temperature, air flow and board travel.

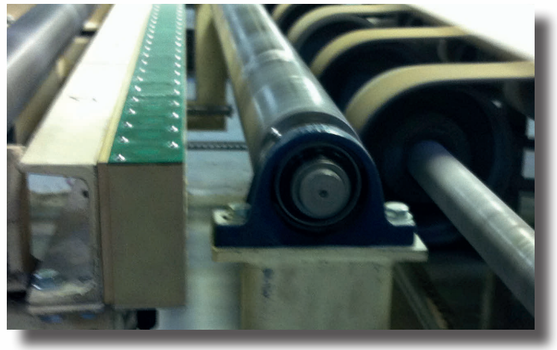
FEATURES

- **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 board process diagnostics**
- **Data-logging and trend time plot for statistical analysis**
- **Totally solid-state system**

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

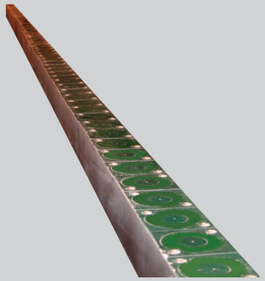
With up to 30 readings per second, the IMPS-4400 can output results at your process speeds.

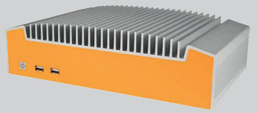
The IMPS-4400 system is a turnkey solution that provides 24x7 measurement of 100% of board length and width.

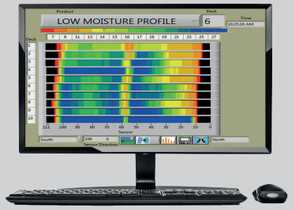


The IMPS-4400 mounts directly between rollers into your conveying board process line.

IMPS-4400 SYSTEM COMPONENTS







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

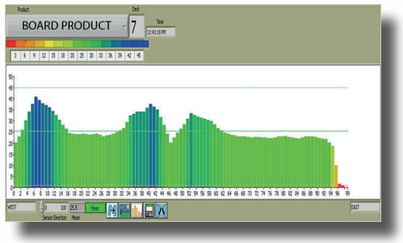
IMPS-4400 Controller & Monitor Perhaps the real power of the IMPS-4400 lies within the Controller. Moisture visualization from a variety of perspectives provides a powerful dryer optimization tool.

IMPSoft Proprietary Software

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.

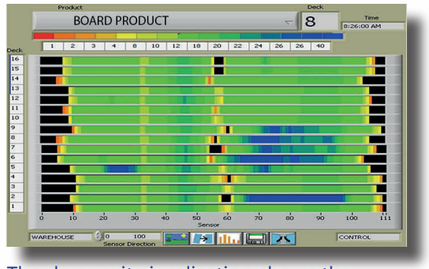
Visualizing your production process with IMPSoft provides benefits no other moisture management system can offer. The graphical perspectives change the approach of handling production issues from isolated incidents to comprehensive solutions.

These graphs, tables and trend charts illustrate your products' moisture profile view from different perspectives. True moisture measurement for a board is the only real-time quality indicator relating to hardness.

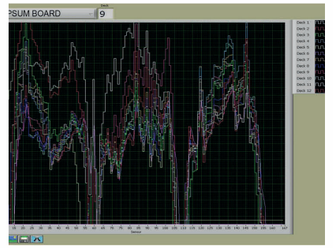


Graphic Profiles Include:

- Multi-deck displays
- Cross-direction moisture profiles
- Bar graphs
- Trend plots
- 2D & 3D moisture contours



The dryer exit visualization shows 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.



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.