E+E

your partner
in sensor
technology.

Improve the Efficiency Inside Your Lumber Kiln

Upgrade to a Digital Humidity Measurement System

An Outdated Technology

Wet-Bulbs Are No Longer Sufficient

A wet-bulb system consists of two thermometers. One, the dry-bulb, is exposed to the open air. The other, the wet-bulb, is wrapped in a cotton wick, which soaks in a basin of water. The wick mimics fully saturated air and the lowest possible temperature in the environment.

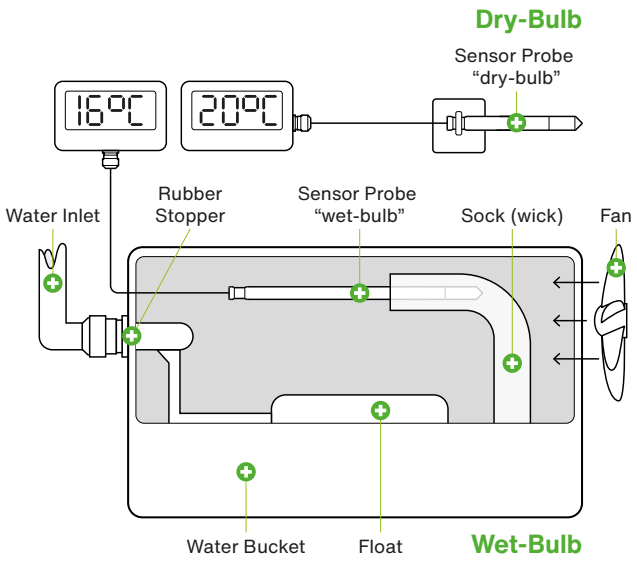
Equal temperature readings indicate that the environment is fully saturated with moisture, or 100% relative humidity. As the air dries, the temperature reading on the dry-bulb will begin to increase, while the wet-bulb will not.

The difference in readings helps determine the relative humidity using a psychrometric chart.

Why Wet-Bulb Systems Fall Short

Traditional wet-bulb systems rely on water, which can evaporate, foul, or freeze. This not only adds complexity but can wreak havoc on the entire system. Even when functioning correctly, referencing a psychrometric chart increases the chance of reading errors.

Combined with high labor and maintenance demands, traditional wet-bulb systems simply don't make sense for operations that demand precision and reliability. They consistently fall short in providing the accuracy needed to monitor kilns and reduce scrap.



Psychrometric Chart: A graphical representation of the physical and thermodynamic properties of moist air.

Dry-Bulb (°C)	Difference between wet- and dry- bulb readings (°C)				
	1	2	3	4	5
10	88	77	66	56	45
11	89	78	67	57	47
12	89	79	68	59	49
13	89	79	69	60	51
14	90	80	70	61	52
15	90	80	71	62	54
16	90	81	72	63	55
17	91	82	73	64	56
18	91	82	73	65	57
19	91	82	74	66	58
20	91	83	75	67	59
21	91	83	75	68	60

If the dry-bulb temperature is 20°C and the difference between the dry-bulb and wet-bulb is 4°C, then the relative humidity in the area is 67%.

A Smarter Approach to Humidity Measurement

HTS801 Digital Wet-Bulb

A digital sensor eliminates the need for water and replaces the wet- and dry-bulbs with a single smart probe.

This detects the amount of moisture present in the air and automatically calculates wet-bulb and dry-bulb temperatures. It also measures the actual relative humidity thereby eliminating manual calculations and chart references.

The Best Solution on the Market:

HTS801 by E+E Elektronik

The HTS801 digital wet-bulb from E+E Elektronik requires no water supply or basin. This prevents issues like clogged valves, failed floats, and freezing.

This sensor is designed to operate reliably in 100 % relative humidity, withstand temperatures up to 180°C (356°F), and requires little to no maintenance.

Benefits

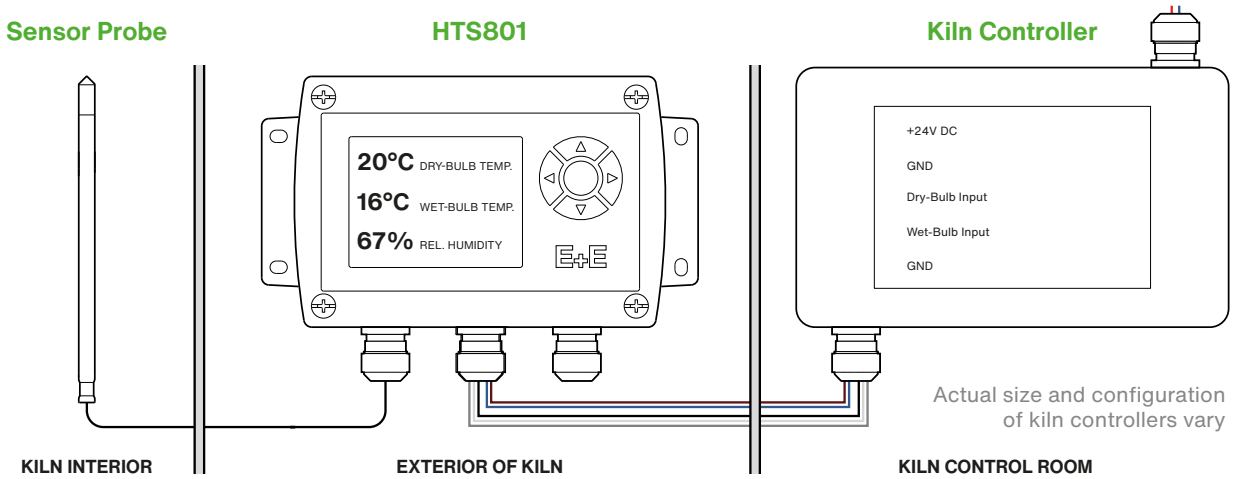
Reliable Measurement:
Accuracy: ±0.95% RH, ±0.1°C and withstands extreme conditions up to 180°C

Automatic Humidity Measurement:
Sent to the control module in real time

Little Downtime:
Easy probe replacement with rapidX technology

Advanced Dust Protection:
Replaceable filter camps and proprietary coating

Stainless Steel Housing:
Designed to last 10 years



Actual size and configuration of kiln controllers vary

Why Switch to Digital?

Switching from a traditional wet-bulb to a digital sensor improves accuracy, reliability, and efficiency in kiln drying. The HTS801 provides better control to sawmills when drying lumber.

- **Prevents Over-Drying** – Maintains optimal relative humidity (RH) at every stage of the drying process to prevent excessive moisture loss and surface checking.
- **Improves Drying Control** – Enables precise adjustments to regulate drying and internal stresses that cause case hardening.
- **Enhances Moisture Content Accuracy** – Accurately calculates equilibrium moisture content (EMC) for desired specifications.
- **Optimizes Energy Efficiency** – Reduces energy consumption by preventing unnecessary heating or humidification.
- **Increases Reliability** – Eliminates maintenance issues associated with traditional systems.
- **Provides Real-Time Monitoring** – Offers continuous digital readings and data logging, for better control.
- **Reduces Human Error** – Minimizes inconsistencies from manual maintenance and monitoring.
- **Removes Unnecessary Hardware** – No more water pipes and heaters to maintain the flow of water into the basin.

Modernizing Your Measurements Is Easier Than You Think

Replacing Your Wet-Bulb Sensor with a Digital HTS801 sensor from E+E Elektronik is straightforward:

1. **Match the output signals** to ensure the controller operates with minimal reprogramming, configure the HTS801's analog signals to match the wet- and dry-bulb readings.
    A. **Example:** If wet- and dry-bulb thermocouples use 0-1V for 0-120°C, configure HTS801 accordingly.
2. **Mount the sensing probe inside** the kiln, well away from objects that can cause damage.
3. **Mount the control module** in and easy to access location outside of the kiln.
4. **Replace the wiring** from the wet-bulb system and connect the wires from your controller to the HTS801 control module.
5. **Power up** and ensure the kiln controller recognizes the new sensor's signals, and you're ready to go!

Make the Switch Today

Humidity shouldn't control your kiln, you should!

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