



Brass Moisture Pin Datasheet

General Description

The Brass Moisture Pin (BMP) Sensor is used to perform direct and targeted contact measurements of moisture content in materials susceptible to moisture absorption. The BMP sensor is targeted for precise moisture content near the surface of wood. For general moisture content or moisture content at different depths the Point Moisture Measurement (PMM) sensor should be used.

The BMP interfaces to SMT's wireless dataloggers. The dataloggers transmit readings to the Building Intelligence Gateway (BiG) or Linux based gateway (TiG) where temperature compensation and wood species correction factors are applied.

Brass Moisture Pins do not have an integrated temperature sensor like the PMM, therefore a temperature sensor is required if temperature compensation is to be applied.

Features

- Interfaces to WiDAQ or A3 wireless and wired high resolution data loggers.
- Sealed and rugged design allows for deployment in harsh construction environments
- Right angle heatshrink head allows it to be easily installed with a standard hammer.

Typical Application



Figure 1. Space nails 1cm to 2cm apart and lightly hammer into material to be tested.



Figure 2. Connect to Data Logger



Figure 3. Dataloggers transmit data to BiG and/or TiG and sync with Analytics

Functional Specifications

Electrical Characteristics	
Operating Voltage	2V to 12VDC
Resistance Measurement Range	Short to Infinite

Environmental	
Operating Temperature	-40° to 50°C / -40° to 122°F
Application Temperature	5° to 50°C / 41° to 122°F
Storage Temperature	-40° to 50°C / -40° to 122°F
Storage Humidity	30% to 70% RH

Approvals/Regulatory	
PCB Flammability Rating	94V-0
Protective Backing Flammability Rating	UL94B

BMP Installation



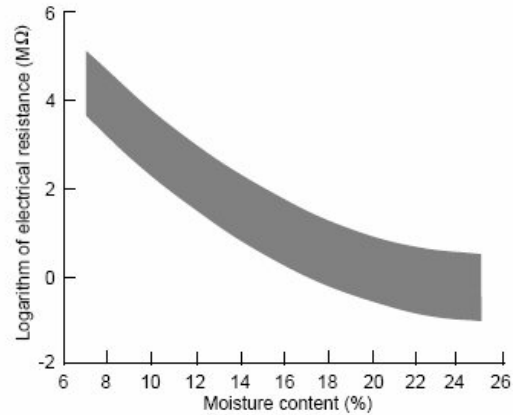
Install 1cm to 2cm apart using a hammer. They can be removed by simply pulling with a pliers. Grain orientation is dependent on the application, nails are typically installed with the grain (not against as shown in the picture above).

BMP Connection to WiDAQ/A3

Connect wires to resistance ports of WiDAQ or A3 units. Polarity is not important.

Configure port to Moisture Content % and define the wood species and associate a temperature sensor with the unit. If not sensor is used, the default 25°C will be used.

Moisture Content Calculation



Change in electrical resistance of wood with varying moisture content levels for most wood species; 90% of test values are represented by the shaded area.

$$MC = \left[\frac{R_s + (0.567 - 0.0260x + 0.000051x^2)}{0.881(1.0056^x)} - b \right] + a$$

Where

- MC moisture content at 23°C
- R resistance to moisture based on above graph
- x temperature of the wood (°C), and
- a,b species correction regression coefficients

[See moisture content notes and papers.](#)

Specifications are subject to change without notice