

Point Moisture Measurement Sensor Datasheet

General Description

The Point Moisture Measurement (PMM) Sensor is used to perform a direct contact measurement of moisture content in material susceptible to moisture absorption. The PMM can be used to sense the moisture content of wood or relative moisture level of gypsum, concrete or masonry.

The design of the PMM ensures moisture probes are spaced apart consistently and contains an integrated temperature sensor for temperature correction of moisture content readings.

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

Classical brass nail probes are available and function the same as the PMM except they do not have an integrated thermistor.

Features

- 3.5mm audio jack interfaces to the Mobile WiDAQ and A2 units.
- Leaded version interfaces to Industrial WiDAQ and A3 units.
- Sealed and rugged design allows for deployment in harsh construction environments
- Built in temperature sensor allows for temperature compensation.
- Temperature data is transmitted and recorded along with Moisture Content Data
- Low profile design allows for easy deployment.
- Different probe lengths are available.

Typical Application

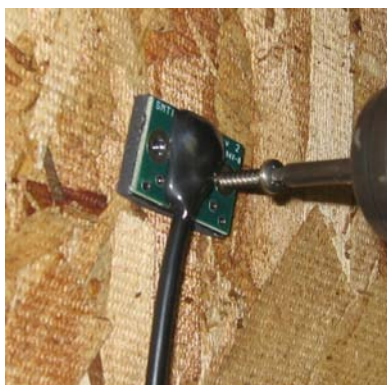


Figure 1. Drive #6 3/4" SS Screw through guides into wood/gypsum.

Note: Ensure screw depth is less than sheathing width.



Figure 2. Plug audio jack into Mobile WiDAQ or A2. Screw into terminal blocks for Industrial WiDAQ and A3 models.



Figure 3. Dataloggers transmit data to the Building Intelligence Gateway (BiG) and sync with Building Analytics for archiving and further analysis.

Functional Specifications PMM

Electrical Characteristics

Operating Voltage	2V to 12VDC
Resistance Measurement Range	Short to Infinite
Thermistor Measurement Range	-40°C to 125°C
Thermistor part number	Cantherm MF58104F3950
NTC Thermistor Beta Value	3950
BiG/Analytics Sensor Type	104JT

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

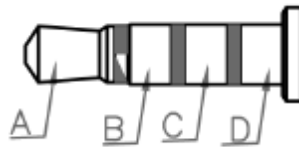
Physical

PCB Dimensions	30mm x 20mm x 10mm
3.5mm Audio Wiring	22 AWG 4 conductor stranded

Approvals/Regulatory

PCB Flammability Rating	94V-0
Protective Backing Flammability Rating	UL94B

PMM-02 3.5mm Audio Jack Wire Diagram



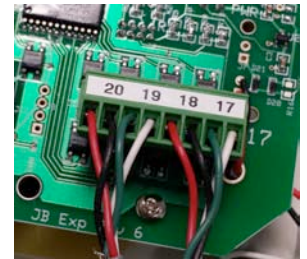
Scale: 2:1

PMM	Cable	Function
A	Red	Moisture
D	Black	Moisture
B	White*	Thermistor (Com)
C	Green	Thermistor

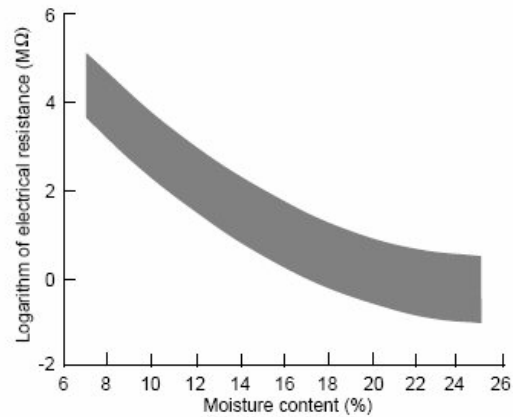
PMM-03 Connection to WiDAQ/A3

Wire colors depend on cable type used

- Input 17: PMM1
Temp: Green/White*
- Input 18: PMM1
Moisture: Red/Black
- Input 19: PMM2
Temp: Green/White*
- Input 20: PMM2
Moisture: Red/Black



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..](#)

Ordering Information

3.5mm Audio Jack 6' cable	PMM-02-006
Control Wire 30' cable	PMM-03-030
Moisture Probe #6 SS Screw	PMM-MP-3/4
	3/4 = Screw Length

Specifications are subject to change without notice

*Cable color may be white or yellow