

ACMM SYSTEMS

Model 2200 CONCRETE CURING MATURITY METER

FEATURES

- Precision Concrete Curing Determinations
- Hand Held Instantaneous Readings
- Data Storage for Further Analysis
- Downloading by USB Cable or WiFi 802.11b/g
- NIST Traceable Calibration
- Generator Operation

DESCRIPTION

The Model 2200 Concrete Curing Maturity Meter (CMM) provides accurate and reliable measurements of temperature and relative humidity below, at, and above the surface curing membrane of hardening concrete. Dual precision chilled-mirror dew point sensors sense the curing conditions with measurements that are used to determine a moisture-based maturity of the curing environment. A high performance data acquisition system provides instantaneous display of measurements and computations of concrete curing as well as data collection for archiving and further analysis. The data is also transmitted wirelessly by 802.11b/g WiFi protocol to a hand held device or PC computer for instant readout viewing and archiving.

OPERATION

The Model 2200 system employs dual chilled mirror dew point sensors to simultaneously measure temperature and relative humidity as the integral measurements for the maturity equation.

Chilled-mirror dew point sensors provide an absolute value for moisture, contrary to relative humidity sensors which depend upon temperature in their operation. Their use eliminates a large margin of error generated by the wide temperature variations naturally occurring in the concrete curing process. Also, ACMM dew point sensors are unaffected by the alkaline environment created during curing. Should contaminants accumulate on the sensor components; they may be easily and quickly removed with the sensors returned to monitoring status without the need for recalibration.

One of the dual dew point sensors is installed into a sealed chamber within the monitoring plate that is placed on the surface of the curing concrete. As moisture migrates from the concrete into the chamber, the moisture equilibrates to a consistent level within the chamber to the vapor pressure within the pores of the concrete. This provides a measurement of the relative humidity representative of the vapor pressure within the internal concrete at that point. The second dew point sensor is also installed in a second chamber contained in the monitoring plate that is filtered via a membrane formed by the curing medium. This measurement represents the vapor pressure at the surface of the concrete immediately below the curing medium.



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The Model 2200 system effectively eliminates the monitoring errors generated by typical relative humidity and other sensing resistance and capacitance type systems.

DATA DISPLAY AND COLLECTION

A high performance ACMM Model 4300 control and data acquisition system, installed within the electronics module, powers the sensors and collects data that is processed and instantaneously displayed as concrete Curing readings. The Model 4300 has the capacity to store several months' logged data. Data is displayed on a LCD display and/or may be received by a handheld or other type PC by WiFi wireless 802.11b/g transmissions. Data downloading may be made by USB direct cable or wireless into Windows terminal and Excel programs.

POWER MODULE

A generator provides power for the Model 2200

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