



**Surveymaster®**

*Protimeter Dual-Function Moisture Meter*



**Instruction Manual**

**Amphenol**  
**Advanced Sensors**

INS5365 Rev. B  
May 2014



# 1 Safety Considerations



**Caution note for the WME pins** - The Pin Moisture measurement pins are extremely sharp and the instrument should be handled with due care. The pins should be covered with the cap provided with the unit when the function is not in use.




**Calibration of unit** - The accuracy specifications of the product are valid for one year after the date of calibration, and the product requires recalibration after this period.




Only operate the measuring instrument properly, for its intended purpose and within the parameters specified in the technical data. Readings from moisture meters are not definitive but are used to help a professional make informed judgment to the material's moisture condition. Conductive material such as salts, carbon and metal can give false positive readings.

## 2 Pin (WME) Mode Operation

In Measure mode, the Surveymaster uses electrical conductance principles to measure the moisture level of the material between two electrodes. The instrument has integral pin electrodes that may be firmly pressed onto surfaces, or it may be used with various auxiliary moisture probes, including Heavy Duty Pin Probe, Deep Wall Probes, a Hammer Electrode (optional) or an EIFS probe (optional).

Remove the needle cap from the top of the Surveymaster and press  to switch it on.

## 2 Pin (WME) Mode Operation (cont.)

Check which operational mode the instrument is in by looking at the letters in digital display % WME indicates the Surveymaster is in Measure mode, REL))) indicates the meter is in Search mode. If the instrument is in Search mode, press  to switch to Measure mode. % WME will appear in the display. Push the pins firmly onto the surface of the material at the required point of measurement. Read the moisture level value from the display and note the moisture condition of the material from the color coded LED scale.

**Note:** *Measurements taken in wood are actual % moisture content values, whereas readings taken in material other than wood are % Wood Moisture Equivalent (%WME) values - see Pin Mode Interpretation for more details.*

## 3 Using Auxiliary Moisture Probes in Pin (%WME) Mode

The Surveymaster is supplied with a Heavy Duty Moisture Probe and lead for taking measurements at points that cannot be reached easily with the integral electrode pins. To use, connect the Moisture Probe jack plug to the socket on the right side of the instrument and push the Probe pins onto the surface at the chosen point of measurement.

A pair of Deep Wall Probes can also be used for taking readings at depth in walls and floors. To use, drill two clearance holes of diameter 6mm (1/4") roughly 40mm (1 1/2") apart to the required depth. Connect the Deep Wall Probes to the instrument and push the two probe rods into the clearance holes. Hold them firmly against the base of the holes and take the reading.

The Protimeter Hammer Electrode can also be used to make measurements deep into hard and softwoods.

### 3 Using Auxiliary Moisture Probes in Pin (%WME) Mode (cont.)

**Note:** *Deep Wall Probes may be used to investigate high readings that may have been obtained in Search mode. Deep Wall Probes may be used to determine the moisture profile through a structure by increasing the depth of the clearance holes incrementally.*

### 4 Pin (%WME) Mode Interpretation

Measure mode readings are precise and specific to the area of contact between the electrode tips. Actual percent moisture content (%mc) values are measured in wood products. Wood Moisture Equivalent (WME) values are measured in materials other than wood.

The WME measurement is the theoretical %mc value that would be attained by a piece of wood in moisture equilibrium with the material under investigation at the point of measurement. As the critical %mc levels of wood are known, WME values may be used directly to establish if the material is in a dry, borderline or damp condition as indicated by the color coded LED scale.

### 5 Instrument Calibration Check

A calibration check device (Calcheck) is supplied with the instrument for checking the Measure mode calibration. Hold the Calcheck across the electrode pins as shown. A correctly calibrated Surveymaster will read  $18.2 \pm 1.0$ . Contact your supplier if the instrument is reading incorrectly.


## 6 Search Mode (REL)

When used in Search mode (REL), the Surveymaster is a moisture detector. Search mode readings give, in relative terms, the moisture condition up to 19mm / 3/4" beneath the surface of materials. This mode of operation is ideal for making rapid surveys of solid walls and floors and to pinpoint areas of concern that may justify a more extensive investigation. The Search mode may also be used as an alternative to the Measure mode when it is impractical or undesirable to push electrode pins into surfaces. Consider, for example, taking moisture readings behind ceramic tiles in shower cubicles or in walls covered by quality wallpapers where pinholes would not be acceptable. Surface moisture (such as condensation on an otherwise dry wall) has little effect on Search mode readings. Conductors (other than water) within the material may cause high Search mode readings. Make sure the flat surface on the back of the meter is in full contact with the material to be tested.

It is recommended that users place the meter onto different areas to measure and do not slide the meter across surfaces.

**Note:** *Sliding the meter can cause premature wear to the back of the meter.*

## 7 Reference Mode

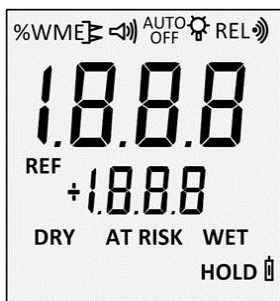
In both Pin and Search mode, Protimeter's patent pending Reference Mode can be used. Measure the material until the meter's reading is stable then press  for 2 seconds. This will store the reading until the mode changes of the meter turns off. Now all reading taken after will be displayed as normal, but below you will see a second reading that shows you if the material is measured above or below the original reading. Reference mode can be useful when trying to establish what materials are above or below a point of reference or dry standard. See page 6 for further information.

## 8 Operating Surveymaster


### Switch On:

Press the  ON/OFF button.

The unit turns on, with the LCD displaying all the segments and sweeping the LED bar graph.



### Mode Change:

Press  mode button to change to the REL (Search) mode from WME (Pin), and vice versa.

WME (pin)

REL (Search)



## Measurements:

In both modes, the numeric measurement and color LED will be shown as well as the “DRY” (green) or “AT RISK” (yellow) or “WET” (red), based on the measurement shown.

7-16.9 DRY (Green), 17-19.9 AT RISK (Yellow), 20-99.9 WET (Red)




70-169 DRY (Green), 170-199 AT RISK (Yellow), 200-999 WET (Red)






## Reference Mode of Measurement:



**Note:** *For application information, see the section “Using the Pin (WME) Mode.”*

In either mode, take the first measurement which needs to be taken as reference. While the first reading is displayed on the screen, press and hold the  button for 2 seconds to enter the Reference Mode. The display will be similar to the one shown on the next page.



To return to the normal measurement mode, press  again.

## Settings:

Press and hold the  button and switch on the unit by pressing . Hold both the buttons until the Surveymaster displays the version.




Release both buttons while it shows the version number. The unit enters Settings Mode.

## DRY, AT RISK and WET Settings:

The first screen to appear in Settings is the DRY, AT RISK and WET setting screen.


This screen sets whether the indication on the display needs to be switched ON or OFF. When it is ON, the moisture condition will be displayed on the screen. When it is OFF, no indication is displayed on screen.



Use the  button to turn ON/OFF the settings




If the unit detects no key press for 2 seconds in the Setting screen, it moves to the next setting.

Pressing the  button, after you have entered the desired setting, will save the setting and move the screen to the next setting.

## Buzzer ON/OFF Settings:


Once the DRY, AT RISK and WET settings are entered, the next setting turns the Buzzer ON or OFF.



To change the settings, press the  button.




If the unit detects no key press for 2 seconds in the Setting screen, it moves to the next setting.

Pressing the  button, after you have entered the desired setting, will save the setting and move the screen to the next setting.

## Backlight Settings:


Once the Buzzer settings are entered, the next setting turns the Backlight ON or OFF.



To change the settings, press the  button.



If the unit detects no key press for 2 seconds in the Setting screen, it moves to the next setting.

Pressing the  button, after you have entered the desired setting, will save the setting and move the screen to the next setting.

## Auto Off Time Settings:


When Auto Off is set, the unit will shut down automatically at a specified time between 1 and 6 minutes, if there is no key press detected within the set time.



For example, if the Auto Off time is set as 1, then the unit will automatically shut down after a minute when no key is pressed.



The duration will change based on the set time of 1- 6 minutes.

If the auto off time is set to be "0", then the unit will not automatically turn off. A user must manually turn it off by

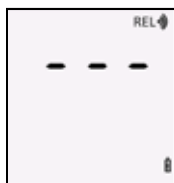
pressing and holding the  button for 5 sec.

Turn off time can be set by pressing the  button, and can be saved by pressing  .


After you save this setting, the unit will exit to the measurement screen.

## Battery Low Indication:

Whenever the battery is low, there will appear a battery low indication symbol on the screen (bottom right). This indicates that the battery is low and should be replaced soon. The unit will continue to perform in battery condition within the specified accuracy, and turns off when the battery reaches the limit.



## Holding / Freezing the Reading:

While measuring, if the reading needs to be frozen for any observation, press  during measurement. A text "HOLD" will be displayed on the screen.



## 9 Battery Replacement

A 550mAh battery will last continuously for more than 20 hours for a Surveymaster in operation. A Battery Low indication on the screen indicates that the battery needs to be changed in a short time.

Remove the screw assembled to fix the battery lid on the back side of the unit

Slide the battery lid downwards applying a little pressure with the thumb to open the battery compartment.

Remove the battery, and replace. Care must be taken to ensure that the polarity is correct as below. Place the battery inside the compartment.

## 10 Technical Specifications

### Operating Conditions:

Operating temperature range: 0°C to 50°C

Humidity: 0 to 90% RH, non-condensing

### Measurement Specifications:

#### Moisture measurement:

For integrated and remote pin probes:

Strong and reliable integrated pins, with a cap to protect

Pin measurement range (% MC in wood/% WME) -

7.9 to 99% (readings over 30% are relative)

#### Non-Invasive moisture measurement:

Measurement depth - up to 3/4" (19mm) deep,

70 to 999, no effect on reading by surface moisture

## 11 Physical Specifications

### Power:

9V- Alkaline 550mAh,

Battery low indication on LCD

### Size:

19cm x 6.5cm x 5cm (7.5" x 2.5" x 2")

### Gross Weight (without battery)

~240g

### Maximum Needle Depth

For WME pins: 0.4" (10mm)

### Buzzer

Audible buzzer for key tone and measurement indication,  
user configurable

### Regulatory Compliance

CE, RoHS, ETL









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