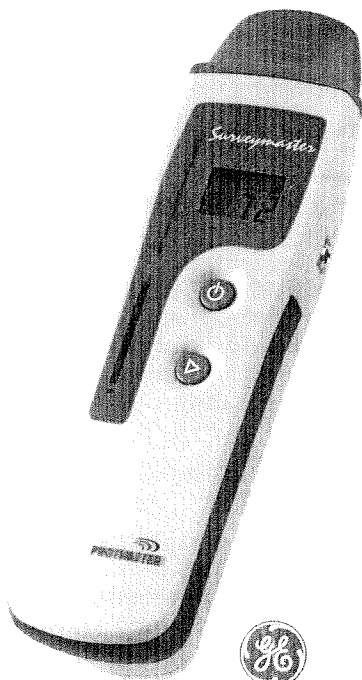


# GE Protimeter *Surveymaster*

User Instruction

Mode d'emploi

Bedienungsanleitung



**GE Protimeter**

Air Marketing Group LLC

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## Product Familiarisation

The Surveymaster moisture meter is used for measuring the moisture level of non-conductive and porous construction materials. It has two modes of operation – Search and Measure – that, when used together, greatly enhance the users ability to identify the extent and profile of excess moisture and to diagnose the cause of moisture related problems.

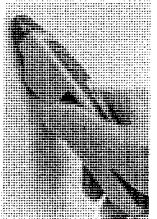
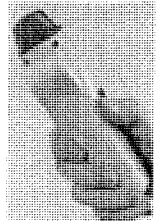
The Surveymaster incorporates a digital display that is synchronised with a colour coded LED scale. Whereas the digital display shows the actual (when measuring wood in the Measure mode) or relative moisture level of the material under investigation, the LED scale indicates the material's moisture condition. Green zone readings represent a safe, air-dry state, yellow zone readings represent a borderline state and red zone readings represent a damp condition.

## Search Mode Operation

The Search mode utilises a radio frequency transceiver located in the bulge on the underside of the Surveymaster to give relative readings within the material against which it is held to a nominal depth of 5 - 15mm ( $\frac{1}{4}$ " -  $\frac{1}{2}$ "). The depth of measurement is subject to the characteristics of the material under test.

1. Press  to switch on the Surveymaster. Leave the needle cap in position.
2. Check which operational mode the instrument is in by looking at the letters in the digital display. REL))) indicates the Surveymaster is already in Search mode, %WME indicates it is in Measure mode.
3. If the instrument is in Measure mode, press  to switch to Search mode. REL))) will appear in the display.

4. Hold the Surveymaster as shown. Ensure that your forefinger and thumb do not extend beyond the top of the black plastic grip band and wrap all fingers around the side of the instrument.
5. Place the instrument against the surface of the wall, floor or element at the point of measurement as shown. Note that the Surveymaster should be held at a nominal 25° to the surface so that both the instrument needle cap and the sensor bulge are in contact with the surface.
6. Read the relative moisture level value from the display and note the moisture condition of the material from the colour coded LED scale.



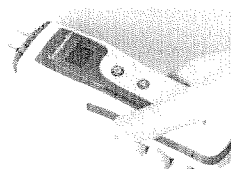
### **Search Mode Interpretation**



When used in Search mode the Surveymaster is a moisture detector. Search mode readings give, in relative terms, the moisture condition 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.

Note that 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.

## Measure Mode Operation

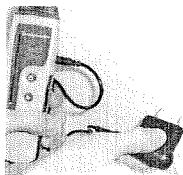
In Measure mode the Surveymaster uses electrical conductance principles to measure the moisture level of the material between two electrodes. The instrument has integral pin electrodes that may be pushed into surfaces, or it may be used with various auxiliary moisture probes including Deep Wall Probes (supplied) or a Hammer Electrode (optional).



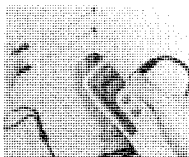
1. Remove the needle cap from the top of the Surveymaster and press  to switch it on.
2. Check which operational mode the instrument is in by looking at the letters in digital display. %WME indicates the Surveymaster is already in Measure mode, REL))) indicates it is in Search mode.
3. If the instrument is in Search mode, press  to switch to Measure mode. %WME will appear in the display.
4. Push the pins firmly into the surface of the material at the required point of measurement.
5. Read the moisture level value from the display and note the moisture condition of the material from the colour 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 Measure Mode Interpretation for more details.

## Using Auxiliary Moisture probes in Measure Mode

The Surveymaster is supplied with a 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 into the surface at the chosen point of measurement.



A pair of Deep Wall Probes is also supplied for taking readings at depth in walls and floors. To use, drill two clearance holes of diameter 6mm ( $\frac{1}{4}$ " ) roughly 40mm ( $1\frac{1}{2}$ " ) 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.



Note that 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.

## Measure 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 colour coded LED scale.

### **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.



Check the Search mode operation by holding the instrument against a reference wall that is assumed to be in a stable condition and that does not have any pipes or wires running through it. Note and record the relative value that is displayed. Check the instrument at the same position on the reference wall at regular intervals. Contact your supplier if the reading varies by more than  $\pm 50$  from the original reference value.

## User Set-up Options

The Surveymaster is initially set-up to switch off automatically after 1 minute and to emit an audible beep beyond yellow zone readings. The user may change these default settings by entering the Set-up mode.

With the instrument switched off, press and hold the lower button  $\blacktriangleright$  and switch on using the upper button  $\text{⏻}$ . Display will show the firmware version number (e.g. "4.02") until both buttons are released. Information then scrolls across the display, starting with the part number ("bLd5360") and firmware date in the form yy-mm-dd (e.g. "03-03-24") followed by the calibration code (e.g. E1-1).

Once the scrolling is complete, display shows "0 = 0" meaning that option 0 is set to 0. The  $\text{⏻}$  and  $\blacktriangleright$  buttons may now be used to change the instrument options and settings respectively as detailed in the Set-up Table.

## Zero Feature

The zeroing feature enables the user to compensate for the effects of changes in temperature on the calibration. It is necessary to zero the Aquant if the following appear on the display when the instrument is held away from surfaces:

(i) numbers or (ii) three lines "---" and the symbols "°C °F REL)))" are flashing.

## If Required

Zero the instrument ( with respect to the environment in which it is about to be used) by pressing and holding  $\blacktriangleright$  for 3 seconds, until the word "nuL" appears in the display. Release  $\blacktriangleright$ ; "nuL" will flash for a few seconds and then disappear from the screen. The Aquant is now zeroed.

Recommended **best practice** is to always zero the Aquant with respect to the environment in which it is about to be used, even if the display shows "0". Read the **operation** section above for details.

| ⏻ When Option No. is | ▶ and Setting Number is | Surveymaster Set-up is   |
|----------------------|-------------------------|--|
| 0                    | 0                       | Instrument settings are not changed from previous settings   |
| 0                    | 1                       | Instrument default settings loaded – switches off automatically after 1 minute, beeper is activated        |
| 1                    | 0                       | Beeper is switched off   |
| 1                    | 1                       | Beeper beeps when switching from one operational mode to the other   |
| 1                    | 2                       | Beeper beeps with increasing frequency from nominal 170 value in Search mode and 17%WME in Measure mode    |
| 2                    | 0                       | Auto switch off is not active. Instrument can only be switched off by pressing ⏻ and holding for 3 seconds |
| 2                    | 1                       | Auto switch off is active. Instrument switches off after 1 minute  |
| 2                    | 2                       | Auto switch off is active. Instrument switches off after 2 minutes   |
| 2                    | 3                       | Auto switch off is active. Instrument switches off after 3 minutes   |

Note that the instrument options can only be changed in numerical order (0 then 1 then 2). Save setting changes and exit the Set-up mode by pressing ⏻ again as shown in the following example:

Example: switch instrument beeper off and set auto switch off to 3 minutes.

- Press and hold ▶ followed by ⏻ to enter Set-up mode
- When display shows 0 = 0 press ⏻ once to select beeper options (1), then press ▶ until the display shows 1 = 0
- Press ⏻ once again to select auto switch off options (2), then press ▶ until the display shows 2 = 3
- Press ⏻ to save settings, exit Set-up mode and return to operational modes

## **Error Messages**

Contact your supplier if the following error messages appear on the instrument display:

Exx, flashing %H2O or flashing REL))).

## **Care and Maintenance**

When not in use the Surveymaster should be stored in its pouch in a stable and dry environment. Remove the battery if the Surveymaster is not going to be used for extended periods of time. Replace the battery when the battery symbol appears on the display.

The integral electrode pins may be replaced when worn by unscrewing the domed retaining ferrules. Check the condition of Moisture Probe and Deep Wall Probe leads and connectors on a regular basis. Replace these items if they are worn or damaged.

The information contained in this leaflet is given in good faith. As the method of use of the instrument (and its accessories) and the interpretation of the readings are beyond the control of the manufacturers, they cannot accept responsibility for any loss, consequential or otherwise, resulting from its use. ® Protimeter Surveymaster

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