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Prospect House
George Cayley Drive
Clifton Moor
York
England
YO30 4XE

Tel: +44 (0) 1904 692723
Fax: +44 (0) 1904 690385

E-Mail: sales@yorksurvey.co.uk



Moisture Meter Kit



Code: 356160

Operating Instructions

INSTRUMENT OPERATION

Connect a probe via the BNC socket located at the top of the instrument and switch the instrument on.

Press the pins on the probe firmly to the surface to be measured. A moisture reading will then be displayed on the screen and the LEDs within the keypad will illuminate to indicate the moisture measurement. The LED displays three colours: Green - OK, Amber - WARNING and Red - DAMP.

MODE - The instrument incorporates five different measurement scales. Press the MODE button to cycle through the different scales of measurement which are listed in the table below.

Scale	Mode	Display Icon	Range	Resolution	LED Display		
					Green	Amber	Red
1	Wood 1	W1	6.0 - 40.0%	0.1	<14%	14 - 20%	>20%
2	Wood 2	W2	8.0 - 40.0%	0.1	<14%	14 - 20%	>20%
3	Plaster	P1	0.1 - 15.0%	0.1	<1%	1 - 3%	>3%
4	Concrete	C1	0.5 - 12.0%	0.1	<2.5%	2.5 - 4%	>4%
5	Linear/Reference	Lin	0 - 1000	1	<375	375 - 575	>575

Linear/Reference is a general scale of moisture measurement used for all materials and is listed to cover materials which are not covered by the scales 1-4. This scale can also be used to compare the material under test to a known dry sample.

Readings above the fibre saturation point of the material are only approximations. The saturation point for different species of wood is typically in the range of 25 and 30%.

HOLD - Press the HOLD button to freeze the display, 'HOLD' is displayed on the screen. Press again to continue measuring.

AUTO-OFF - The instrument will switch off automatically after 10 minutes. To disable the auto-off function, press and hold the HOLD button whilst switching on the unit - 'auto-off disabled' will then scroll across the screen to confirm this.

Please note: when the unit is switched off the auto-off function will be re-enabled.

BATTERY REPLACEMENT - Replace the battery when the battery icon is displayed. The meter will continue to measure accurately but after further usage the meter will display 'flat bat' and 'shutdown'.

Unscrew the screw on the back of the meter and replace with three AAA batteries, ensuring polarity is correct.

GUIDANCE NOTES - These moisture meters measure the electrical resistance of a material and provide an indication of the moisture content of materials. A change from low to high in the display and green to red on the scale shows that further tests are appropriate. Problems arise from the structure of the material being tested, the presence of other conductive material that may affect the reading and also the correct method of testing. Factors that may affect readings include:

- Density of material - this is important when interpreting the moisture content that is acceptable in a particular material.
- Even the same material will be variable in composition from one example to another.
- Ability to absorb moisture - materials will have different capabilities to hold moisture in a satisfactory state.
- Conductivity of substance - most materials have an inherent conductivity even if this may be negligible. Conductivity may be affected by carbonaceous or ferrous material content.
- Purity of free water - the conductivity of water varies with its purity.
- Surface treatment - certain surface treatments may be conductive. Residues may contain carbonaceous material or have a misleading high moisture content. Wood treatments of a salts based liquid will also affect conductivity.
- Temperature - the electrical resistance at any given moisture content increases as the temperature decreases.
- Timber grain - due to the cellular structure of timber, readings taken in the end grain will be less accurate.
- Timber adhesive - composite materials such as plywood will give artificially high readings due to adhesive content.
- Homogeneity - different densities in a material, such as knots in wood will produce erroneous results.
- Electrical contact - it is important to maintain good contact between the pins and the measured substance. Hard surfaces may require 1.2mm diameter holes to be drilled.
- Moisture gradient - the moisture content of a material may vary across its section due to various factors.

As a general rule of good practice, results should be obtained from different areas of the material. If in any doubt then the (Oven Dry) test method should be used. A linear scale is provided for relative measurement, therefore, facilitating the comparison of unknown moisture measurements against known standards obtained by the (Oven Dry) test method, i.e.:

$$\frac{\text{Wet Weight} - \text{Dry Weight}}{\text{Wet Weight}} \times 100 = \text{MC}\%$$

Testing and calibration of these moisture meters is carried out using electrical resistance as the basis for measurement. Standard resistance values are verified by empirical testing in accordance with OIML R 92. moisture meters - verification methods and equipment: general provisions, issued by Organisation Internationale de Métrologie Légale, - 1989.

In conclusion, it must be reiterated that the meter reading is only a guide as to the 'dampness' of the material under test. Knowing the actual moisture content does not indicate whether that material is 'dry' or 'wet'.

WARNING: Please ensure that there are no electrical cables, water or gas pipes below the surface of material being tested.