

**GUARANTEE** - This instrument carries a two-year guarantee against defects in either components or workmanship. During this period, products that prove to be defective will, at the discretion of ETI, be either repaired or replaced without charge. The product guarantee does not cover damage caused by fair wear and tear, abnormal storage conditions, incorrect use, accidental misuse, abuse, neglect, misapplication or modification. Full details of liability are available within ETI's Terms & Conditions of Sale at [etiltd.com/terms](http://etiltd.com/terms). In line with our policy of continuous development, we reserve the right to amend our product specification without prior notice.



## 7000 & 7250 MOISTURE METERS

Model	Product code
7000 Moisture Meter	224-070
7250 Moisture Meter	224-075



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### INSTRUMENT OPERATION

**7000 MOISTURE METER** - Connect a probe via the BNC socket located at the top of the instrument and switch the instrument on.

**7250 MOISTURE METER** - Remove the black protective cap on the top of the instrument, taking care of the moisture meter pins. Press the pins on the moisture meter or probe firmly to the surface to be measured. A moisture reading will then be displayed on the screen and the LED's 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.

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 to 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 turned 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 the polarity is correct.

**WARNING:** IPA and other solvents may cause damage to the case and screen of this instrument.

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

**GUIDANCE NOTES** - ETI 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 the 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 1.2 mm diameter holes to be drilled.
- Moisture gradient - the moisture content of a material may vary across it's 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.:

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

Testing and calibration of ETI 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 water content of the material under test. Knowing the actual moisture content does not indicate whether or not that a particular material will be damaged; as different materials can survive different levels of water content. A comparison test with a known sample is always recommended.



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

## WOOD REFERENCE TABLE

### Wood 1

Afara  
Ash; European  
Ash; Japanese  
Balsa  
Banga Wanga  
Bosquiea  
Boxwood; Maracaibo  
Cyprus; E African  
Dahoma  
Fir; Grand  
Gum; American Red  
Gum; Spotted  
Gurjun  
Kapur  
Karri  
Kuroka  
Maple; Pacific  
Maple; Rock  
Maple; Sugar  
Myrtle; Tasmanian  
Oak; American Red  
Oak; American White  
Oak; European  
Oak; Japanese  
Padang  
Panga Panga  
Pine; Lodgepole  
Pine; Scots  
Pine; Yellow  
Popular; Black  
Pterygota; African  
Redwood; Baltic European  
Rosewood; Indian  
Sterculia; Brown  
Tallowwood  
Walnut; American

### Wood 2

Ayan  
Beech; European  
Blackbutt  
Camphorwood; E European  
Cedar; Western Red  
Chestnut  
Danta  
Greenheart  
Hemlock; Western  
Jarra  
Jelutong  
Larch; European  
Larch; Japanese  
Loliondo  
Missanda  
Niangon  
Oak; Tasmanian  
Pine; American Long Leaf  
Pine; American Pitch  
Pine; Caribbean Pitch  
Pine; Corsican  
Pine; Hoop  
Pine; Nicaraguan Pitch  
Pine; Ponderosa  
Pine; Radiata  
Pine; Sugar  
Sapele  
Seraya; Red  
Silky Oak; African  
Silky Oak; Australian  
Spruce; Norway European  
Spruce; Sitka  
Stringybark; Messmate  
Stringybark; Yellow  
Turpentine  
Walnut; European  
Walnut; Queensland  
Whitewood  
Yew

For a more extensive list of timbers and average moisture %age correction, please contact the ETI Sales Office.