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. In line with our policy of continuous development, we reserve the right to amend our product specification without prior notice.

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

Manufactured by
Electronic Temperature Instruments Ltd
Worthing · West Sussex · BN14 8HQ
01903 202151 · sales@etiltd.com · etiltd.com

545-071/22.01.21

7000 & 7250 MOISTURE METERS

Operating Instructions

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.:

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

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	Wood 2
Afara	Ayan
Ash; European	Beech; European
Ash; Japanese	Blackbutt
Balsa	Camphorwood; E European
Banga Wanga	Cedar; Western Red
Bosquiea	Chestnut
Boxwood; Maracaibo	Danta
Cyprus; E African	Greenheart
Dahoma	Hemlock; Western
Fir; Grand	Jarra
Gum; American Red	Jelutong
Gum; Spotted	Larch; European
Gurjun	Larch; Japanese
Kapur	Loliondo
Karri	Missanda
Kuroka	Niangon
Maple; Pacific	Oak; Tasmanian
Maple; Rock	Pine; American Long Leaf
Maple; Sugar	Pine; American Pitch
Myrtle; Tasmanian	Pine; Caribbean Pitch
Oak; American Red	Pine; Corsican
Oak; American White	Pine; Hoop
Oak; European	Pine; Nicaraguan Pitch
Oak; Japanese	Pine; Ponderosa
Padang	Pine; Radiata
Panga Panga	Pine; Sugar
Pine; Lodgepole	Sapele
Pine; Scots	Seraya; Red
Pine; Yellow	Silky Oak; African
Popular; Black	Silky Oak; Australian
Pterygota; African	Spruce; Norway European
Redwood; Baltic European	Spruce; Sitka
Rosewood; Indian	Stringybark; Messmate
Sterculia; Brown	Stringybark; Yellow
Tallowwood	Turpentine
Walnut; American	Walnut; European
	Walnut; Queensland
	Whitewood
	Yew

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