

INTRODUCTION TO MOISTURE METERS FOR WOOD

Surveys show that half of the problems customers have with wood products are related to wood moisture content (usually too high). It is therefore essential for pallet, casemakers, furniture makers and sawmills to be able to measure moisture content easily since many customer requirements specify maximum wood moisture content (such as 20%) as part of the sales contract. Using a pocket size battery operated wood moisture meter takes only seconds.

High moisture content can lead to white mould, bluestain or wood decay and within the food industry, packaging or building can cause substantial complaints from customers. Measuring wood moisture content is rapid if using the type of battery operated wood *resistance-type* moisture meter shown in Figure 1



Fig 1: Protimeter *resistance type* pocket size moisture meter

This type of moisture meter works on the resistance principle where two needle probes are pressed lightly into the wood surface and the amount of electrical current passing indicates the moisture content. A good resistance type meter measures the range 10-30% (very dry to very wet) which is the range of greatest interest to most makers/users. In sawn and planed wood such a meter gives instant readings to an accuracy of about +/- 1%.

Note that wood-based processed materials, such as chipboard, mdf and plywood are *not suitable for measurement by electrical wood moisture meter* due to the different chemicals, adhesives and fillers used by wood sheet manufacturers, which conduct electrical current at unknown levels, high or low.

If using a moisture meter frequently in an industrial situation, to avoid operator strain at height and speed up measurements, a remote hand-probe on a flexible lead which plugs into the moisture meter is often used; shown in Fig 2.

Users need to beware of poor quality moisture meters on sale which when tested in professional laboratories are often inaccurate, this makes them worse than useless because an apparent moisture reading of say, 19% (that is really a true 23%), will lead to a false sense of security as regards wood being *below the decay safety line of 20%*. Also if your company is accredited to ISO 9000 or a trussed rafter scheme you are required to keep all measuring equipment accurate and in calibration. Such meter calibration can be done by a specialist company such as Verus, OR, if you wish to avoid sending your meters away at inconvenient times then an in-house calibration instrument such as a *Verus checkbox* (shown Fig 3) is recommended.

This device which electronically mirrors softwood specimens at precise moisture contents was originally developed by TRADA and it determines moisture meter accuracy by checking 3 key points. For more details see <http://www.verus.co.uk/>



Fig 2: Protimeter *Heavy Duty Hand Probe*



Fig 3: Verus Instruments *Calibration Checkbox II*

For companies requiring deep moisture measurements a plug-in Hammer Probe accessory is available

A British Standard covers these instruments, see BS EN 13183-2: 2002: "*Moisture content of sawn timber - Estimation by the electrical resistance method*"

- All moisture meters in use (*and calibration checkboxes*) should be recently and traceably calibrated
- Product in-process records of wood moisture content should be retained to demonstrate compliance

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