



## Portable, Stand-Alone

Measures duff water content in the field

### Overview

The DMM600\* is a portable, battery-powered duff meter that accurately measures moisture content in duff material, which is critical to those conducting scheduled burns as well as those

attempting to battle out-of-control fires. The DMM600 is a stand-alone device (a datalogger is not required). A sieve, carrying case, and software are included.

### Benefits and Features

- › Measures duff water content in the field
- › Compact and easy to carry
- › Easy to use—simply place duff in chamber, turn crank, and receive a real-time reading

### Technical Description

The DMM600 consists of a cylinder that houses the electronics, a sample chamber with a compression knob, and an LCD readout. To measure duff water content, place the sample in the sample chamber and turn the compression knob until an audible indicator signals that the sample is properly compressed and the measurement is complete. Total time for measurement is about 30 seconds. Readings are displayed in real-time only; measurements are not stored.

The DMM600 uses measurement methods sensitive to the dielectric properties of the material being measured. A standard calibration converts the output of the measurement circuit to volumetric water content. User-derived calibrations can be downloaded using PC-DMM software. Measurements derived from the standard and user-defined calibrations are alternately displayed on the LCD if a user-defined calibration has been downloaded.

*\*The DMM600 was developed in cooperation with the USDA Forest Service, Rocky Mountain Research Station, and Missoula Technology and Development Center.*



## Software

PC-DMM Software is supplied with the DMM600. It interfaces with the DMM600 using serial communications, and is used to

download and upload calibration coefficients, monitor the battery voltage, and reset the DMM600.

## Sieve and Carrying Case

The DMM600 comes with a sieve and case. The sieve fits in the opening of the sample chamber. Duff is moved through the wire mesh of the sieve to break up large fragments and improve mea-

surement accuracy in duff materials with a large range of fragment sizes. The case eases transport and provides storage for the sieve and small items such as a spare battery, screwdriver, and pencil.

## Specifications

- › Battery: 9 V alkaline
- › Measurements per Battery: more than 2000
- › Accuracy:  $\pm 5\%$  full scale range
- › Resolution: 1% volumetric water content
- › Sieve Description: #4 mesh = 0.187 in
- › Diameter: 8.9 cm (3.5 in)
- › Length: 25.4 cm (10 in)
- › Weight: 1.7 kg (3.7 lb)

## Typical Current Drain

- › Between Measurements:  $\sim 3$  mA (goes into a low-power sleep mode after five minutes of inactivity)
- › Sleep Mode: 140  $\mu$ A
- › During Measurement: 85 mA for  $\sim 1$  ms



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