

PiezoMeter System PM300 Technical Specification

High Precision, Piezoelectric d_{33} Testing System
Measuring d_{33} in four ranges, capacitance and $\tan \delta$

Piezoelectric Tests	Dielectric Tests	Stand-Alone Operation
d_{33} – Very High Range d_{33} range: 100 to 10,000 pC/N Accuracy: $\pm 2\% \pm 1$ pC/N Loading: 1.0 μ F	Capacitance Capacitance range: 10 pF to 0.1 μ F Accuracy (< 100pF): $\pm 2\% \pm 0.1$ pF Accuracy (> 100pF): $\pm 2\% \pm 1$ pF Test frequency: 1 kHz	40 character by 4 line alphanumeric liquid crystal display showing sample number, d_{33} , test frequency and operation mode. Simple keypad to control all PiezoMeter functions for stand-alone operation.
d_{33} - High Range d_{33} range: 10 to 1000 pC/N Accuracy: $\pm 2\% \pm 1$ pC/N Loading: 1.0 μ F	$\tan \delta$ $\tan \delta$ range: 0.0000 to 0.2000 Accuracy: $\pm 2\% \pm 0.0001$	Printing facility when used directly with standard PC printer, providing tabulated output and statistical analysis.
d_{33} - Low Range d_{33} range: 1 to 100 pC/N Accuracy: $\pm 2\% \pm 0.1$ pC/N Loading: 1.0 μ F	General Operation	Remote Operation The PiezoMeter may be controlled by a computer equipped with Windows. A free serial port, or suitable USB-Serial adapter, is required. All PiezoMeter functions may be controlled.
d_{33} – Very Low Range d_{33} range: 0 to 10 pC/N Accuracy: $\pm 2\% \pm 0.01$ pC/N Loading: 0.1 μ F	Response Time d_{33} Only: 5s to 1% of final reading C and $\tan \delta$: 2s to 1% of final reading d_{33} , C and $\tan \delta$: 10s to 1% of final reading	Remote control software for Windows supplied separately. Also allows real-time calculation of ϵ_{33}^T , g_{33} and g_{31} using sample dimensions supplied by the user.
d_{31} & d_{15} Adapters are available for various sample geometries, and supplied separately.	Sample Size Maximum dimensions: 50 mm in polarisation direction. 68 mm perpendicular (i.e. maximum diameter of a symmetrically supported disc is 136 mm) Maximum sample mass: 1 Kg with standard suspension. Different suspension mechanisms can be provided to special order for more massive samples or very thin or soft samples.	Remote Interface Industry standard RS-232C interface, configured as data terminal equipment (DTE) using 9 pin D-connector. RS-232 parameters: 9600 baud, 1 stop bit, no parity. Connection is by a standard PC serial file transfer cable (supplied).
Polarity Sample polarity is indicated for all ranges.	Calibration The system is supplied fully calibrated and tested. d_{33} calibration may be checked using the reference sample provided. In normal use, recalibration is recommended annually. Calibration may be carried out to customer reference using the remote interface.	Printer Interface Industry standard parallel printer interface, using 25 pin D-connector, configured as for a standard PC. Connection is by a standard PC printer cable (supplied).
Test Frequency Frequency Range: 30 Hz to 300 Hz Setting: steps of: 1 Hz Accuracy: ± 0.1 Hz Calibration is at 110 Hz. Other frequencies may be used to tune away from system resonances with large samples.	Data Storage The standard PM300 will store up to 100 measurements. All results are numbered and stored along with the test frequency and the measurement range in use. Data is retained when the PiezoMeter is switched off.	Power supply 220-240V a.c. 50-60Hz 0.5A or 100-120V a.c. 50-60Hz 1A (Specify with order).
Force amplitude Testing is by an oscillatory force, variable by user setting between 0.05 to 0.50 N. Static force of approximately 10 N used to grip the sample. This may be different for force head units with non-standard suspension (see section on 'Sample Size' below).		Temperature Limits Storage: 0°C to 50°C Operating: 10°C to 40°C System calibrated: 25°C
		Physical dimensions Electronics unit: 350 x 230 x 90 mm Force unit: 145 x 150 x 175 mm Total Unpacked Weight: Approx. 12 Kg Total Packed Weight: Approx. 20 Kg

For more details, or to arrange a demonstration, contact:-

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