PiezoMeter System PM200 Technical Specification

High-precision, piezoelectric d_{33} testing system,
measuring d_{33} in four ranges, with 0.01pC/N resolution

Piezoelectric Tests

d_{33} – Very High Range

d_{33} range: 100 to 10,000 pC/N
Accuracy: ± 2% ± 1 pC/N
Loading: 1.0uF

d_{33} - High Range

d_{33} range: 10 to 1000 pC/N
Accuracy: ± 2% ± 1 pC/N
Loading: 1.0uF

d_{33} - Low Range

d_{33} range: 1 to 100 pC/N
Accuracy: ± 2% ± 0.1 pC/N
Loading: 1.0uF

d_{33} – Very Low Range

d_{33} range: 0 to 10 pC/N
Accuracy: ± 2% ± 0.01 pC/N
Loading: 0.1uF

d_{31} & d_{15}

Adapters are available for various sample geometries, and supplied separately.

Polarity

Sample polarity is indicated for both measurement ranges.

Test Frequency

Frequency Range: 30 Hz to 300 Hz

Setting: In 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.

Force amplitude

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). Testing is by an oscillatory force of between 0.05 to 0.5 N.

Response Time

Typically 5 seconds to achieve 1% of final reading

General Operation

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.

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 supplied reference samples using the remote interface.

Data Storage

The standard PM200 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.

Stand-Alone Operation

40 character by 4 line alphanumeric liquid crystal display showing sample number, d_{33}, test frequency and operation mode.

Simple key pad to control all PiezoMeter functions for stand-alone operation.

Printing facility when used directly with standard PC printer, providing tabulated output and statistical analysis.

Remote Operation

The PiezoMeter may be controlled by a computer, equipped with Windows 98, Windows 2000, or Windows XP. A free serial port is required. All PiezoMeter functions may be controlled.

Remote control software for Windows, supplied separately, also allows real-time calculation of ε^{T}_{33}, g_{33} and g_{31} using sample dimensions supplied by the user.

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).

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).

Power supply

220-240V a.c. 50Hz 0.5A or

110-120V a.c. 60Hz 1A

(Specify with order).

Temperature Limits

Storage: 0°C to 50°C

Operating: 10°C to 40°C

System calibrated at 20°C

Physical dimensions

Electronics unit: 300 x 350 x 90 mm.

Force unit: 145 x 150 x 175 mm.

Total weight: Approx. 15 Kg.

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

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