Model ZJ-3BN

Quasi-Static Piezo d_{33} /d_{15} Meter

The Model ZJ-3BN quasi-static piezo d_{33} /d_{15} Meter is the special instrument for measuring piezoelectric constant d_{33} of various kind of piezoelectric materials, such as piezoelectric ceramics, crystals, and polymers. It also can be used for measuring equivalent piezoelectric constant d_{33}' of arbitrarily cut piezoelectric crystals, such as lithium niobate, quartz and tourmaline. The measurable d_{33} value is wide with fine resolution, high reliability, simple and convenient operation. The measurable specimen's size and shape are unrestricted, for example, disks, blocks, rings, tubes and semispherical shell, etc.; all of them can be measured. The measured value of d_{33} or d_{15} is displayed on a 3 1/2 digit meter directly.

In addition, the adapter(Fixture) is provided for measuring d_{15} of ceramic materials with thickness shear mode sample, such as slice etc..

So this instrument is indispensable to any laboratory concerned with assessment of materials, quality control in manufacture, research and development of piezoelectric materials.

The Model ZJ-3BN is a new type of piezo Meter, and superior to Model ZJ-2 in following respects especially.

1. Make the Anti-EMI(electric magnetic interference) capability, stability and reliability more excellent.
2. ***The Force Head is made of stainless steel, so as to protect from rust.***
3. ***Provide the d_{15} adapter(Fixture), d_{15} coefficient can be measured directly***

Features

1. Directly measures the piezo d_{33}/d_{15} constant of piezo materials in the range of 2 to 2000 pC/N. The polarity of the tested specimen is also indicated.
2. Capable of evaluating a variety of ceramic size and shapes, discs, tubes, hemispheres etc., and single crystals and polymers for d_{33} measuring.
3. No technical expertise is required for measuring and only two operating controls: on/off switch and "zero"adjusting.
4. Capable of stable measurement in severe EMI environment.
5. Piezo voltage constant g_{33} and g_{15} are quickly obtained using the formula: $g_{33}=d_{33}/\varepsilon_{33}^{T}$ and $g_{15}=d_{15}/\varepsilon_{11}^{T}$, Here ε_{33}^{T} and ε_{11}^{T} is the dielectric constant from the capacitance of the specimen measured with impedance meter or bridge.
6. The ZJ-3BN Meter acceptable maximum height of specimen up to 80 mm between probes for d_{33} measuring.
7. Test monitor output allows an empirical evaluation of potential flaws and defects by viewing the output signal waveform.
8. *The Force Head is made of stainless steel, so as to protect from rust.*
9. ***Improved the electronic circuit for protecting IC from discharge damage.***
10. ***By use of d_{15} adapter (as an accessory), the d_{15} coefficient of piezoelectric ceramic can be measured directly.***

SPECIFICATIONS

Range:

×1 range: 20 to 2000 pC/N

×0.1 range: 2 to 200 pC/N

Accuracy:

×1 range: ±2% for d_{33}, d_{15} in 200 to 2000 pC/N
(With optimum sizes and shapes)
±5% for d_{33} ,d_{15} in 20 to 200 pC/N
(Generally feasible with care)

×0.1 range: ±2% for d_{33}, d_{15} in 20 to 200 pC/N
(With optimum sizes and shapes)
±5% for d_{33}, d_{15} in 2 to 20 pC/N
(Generally feasible with care)

Resolution:

×1 range: ±1 count up to ±3 (1 pC/N)

×0.1 range: ±1 count up to ±3 (0.1 pC/N)

Dimension:

Force Head: `110×150mm

electric unit: 260×240×120mm

Weight:

Force Head: ~4kg

Electronic unit: ~2kg

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