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## Measuring d31 of Piezoelectric Material using APC d33 Meter

### Materials:

- APC d33 Meter
- Cube Shaped Piezoelectric Element:  
Ln 10mm x Wd 10mm x Thk 10mm
- Soldering Iron
- Buss Bar Wire: 32 – 36 AWG
- Solder: SN96
- Flux: Rosin
- Solvent: Alcohol

### Procedure:

1. Setup the d33 meter in accordance with the instruction manual and prepare it for normal use.
2. Solder a small wire to each electrode of the cube shaped piezo element. Keep the solder joint as small as possible and remove flux with solvent.
3. Clamp the piezoelectric element in the d33 meter on two of the un-electroded sides.
4. Wrap the wire connected to the negative electrode of the piezoelectric element around the top probe of the force head. Leave plenty of slack in the wire between the piezoelectric element and the top probe.
5. Wrap the wire connected to the positive electrode of the piezoelectric element around the bottom probe of the force head. Leave plenty of slack in the wire between the piezoelectric element and the bottom probe.
6. The d33 reading on the meter will be equal to the piezoelectric element's d31 value.
7. We suggest repositioning the piezoelectric element and measuring the d31 value two or three additional times to determine an average value.

