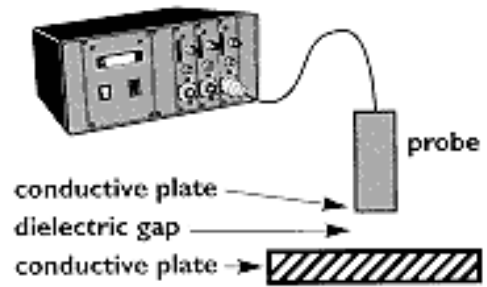


Wall Crack Response to Blasting Vibrations and Changes in Environmental Conditions

In many structure response studies, it is desired to measure the relative response of structure cracks in drywall or plaster to weather, habitation, and blasting vibrations. Response can be measured in terms of crack width changes with time and recorded in the static or dynamic mode with the same sensor and data acquisition system. The sampling rate for crack response to changes in weather (static mode) can be every 10 to 30 minutes. In the dynamic, or burst mode, 500 to 1000 samples per second is desired.

Capacitance-based displacement sensors can be used to measure precise changes in capacitance as the distance between a probe and a conductive surface changes with temperature, humidity, or transient loading.

Measuring changes in crack width is often accompanied by structure vibration measurements as well as ground motions and airblast measured at the structure exterior.

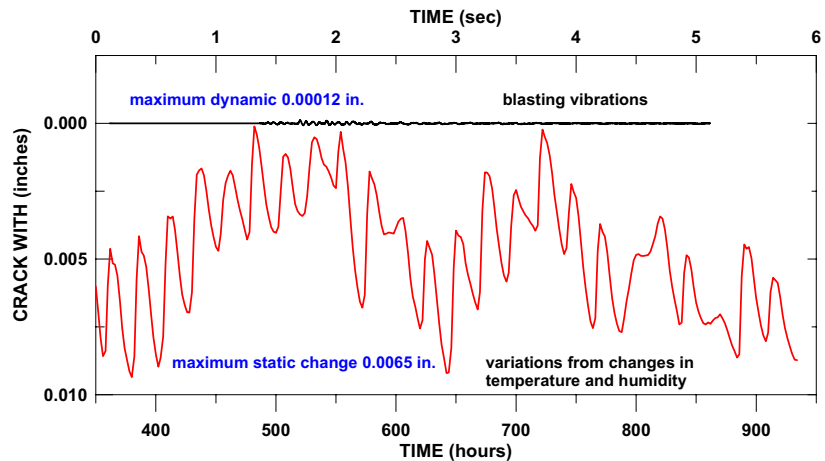
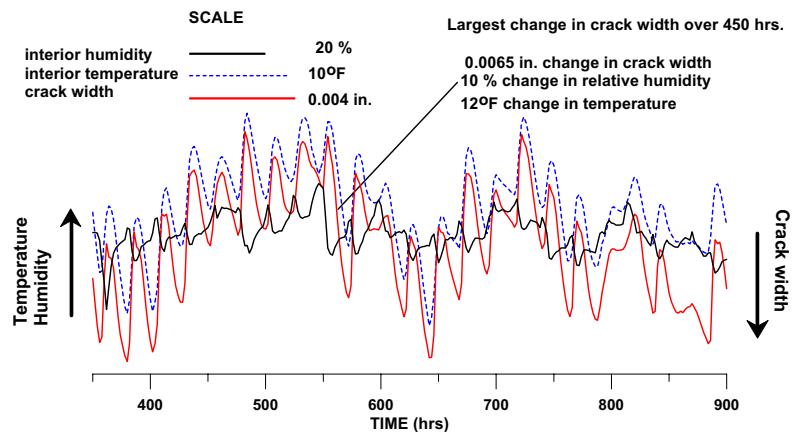


Capacitance-based position gage



Tri-axial velocity geophone mounted below Kaman gage

Typical responses of crack width fluctuations with weather and to quarry blast vibrations are shown below.



Kaman gage mounted over vertical crack (above), temperature/humidity sensor (below)