

Limited Measuring Range

Common causes of unexpected limits to extensometer measuring range

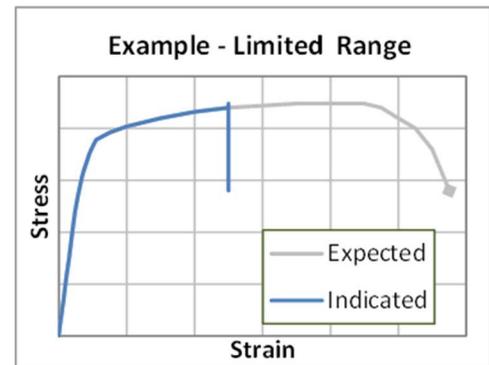
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In some applications, users may report that an extensometer “stops measuring” before a test is complete. This *Tech Note* addresses common causes of this problem.

Physical causes

Physical limits can cause an extensometer to stop measuring displacement.

- Ensure that the test range does not exceed the extensometer’s nominal measuring range. Most extensometers have built-in physical hard stops intended to prevent damage to the device.
- If gauge length adapters or spacers are used, note that the extensometer’s measurement range (in elongation units) is the same, so the range (in strain units) will change proportionally.
- Ensure that no inadvertent stops are limiting mechanical motion of the device. *Examples: Heat shields touching each other, heat shields touching mounting cords (Model 3448), ceramic rods touching a split furnace.*



Data acquisition and interpretation problems

Data acquisition problems can also limit the measuring range of a system.

- Tensile test methods often include provision for the removal of the extensometer after yield to prevent damage to the extensometer. It is typical that the indicated strain may remain constant thereafter. If this is not desirable, it is advisable to change the strain measurement source from extensometer to crosshead after removal of the extensometer.
- Data acquisition (DAQ) systems have a limited analog input range. The input range is often user configurable but must exceed the extensometer’s full scale output to avoid saturation. Ensure that the DAQ is suitably configured.
- LE-01, LE-15, and Epsilon ONE systems have selectable output full scale range. Ensure that the selected output range exceeds the test full scale range.
- Extensometers’ connectors often contain voltage offset resistors which will be lost if the connector is removed. It can cause DAQ saturation.



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