

■ Wire Crimp Monitoring: Using Press Monitoring and Signature Analysis

**Highlights:**

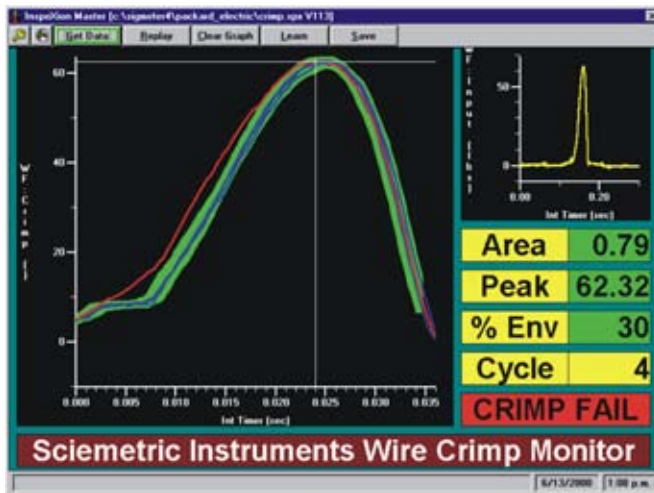
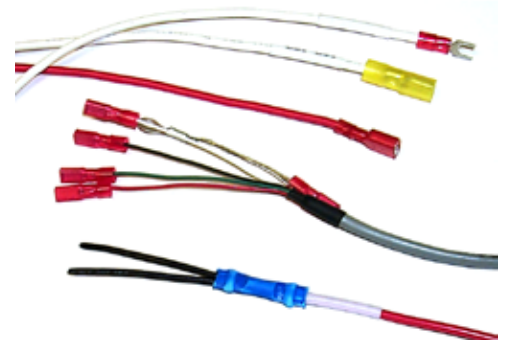
- Built-in signature learning capability (i.e. slope, area under the curve, maximum force, multi-point conformance, etc.)
- Dramatic improvements in manufacturing quality
- Specific and detailed operator messages for rapid diagnostics
- 100% part testing
- SPC charts of press force
- Full data saving to disk

A manufacturer of automotive wire harnesses chose Sciometric to monitor the crimping of copper terminals onto wires. This manufacturer now has dramatic improvements in manufacturing quality and repeatability. This high speed process takes 30 mS to complete, with 0.5 seconds between crimps.

Sciometric's Signature Analysis System monitors the force waveforms during the entire crimping process. They are analyzed and used to PASS/FAIL each part based on parameters entered by engineering personnel.

Signature Analysis provides the ability to perform a detailed analysis of the entire force curve for 100% of the crimps in real time. Indices such as slope, area under the curve, average force, maximum force, and multi-point conformance are all calculated by the Signature Analysis system. By comparing these values against a database of acceptable limits, the signature module can recognize deviations from product quality standards and issue PASS/FAIL signals accordingly.

Typical crimp defects that can be detected include: missing wire or terminal, missing strands (2,3,4, etc.), scrap caught in terminal, missing ears on terminal, wire improperly placed in grip, wrong wire gage or wire not stripped, or double crimp (2 terminals).



InspeXion® Screen showing Signature Waveform Produced during Crimping Process. (green envelope indicates acceptable PASS limits)

