



Spring-Loaded Ring Terminal Test Interface Block OTT1907

Applications

Electrical wire harness manufacturing, End-of-line quality control testing, Industrial wiring and assembly operations, Electrical testing equipment and fixture integration, and Automated and semi-automated production environments

Target Problems

Testing ring terminals in wire harness assemblies are often slow, labor-intensive, and dependent on multiple size-specific fixtures. Operators must manually position and fasten terminals before performing continuity tests, increasing handling time, reducing productivity, and contributing to operator fatigue. Frequent fixture changes are also required when testing different ring terminal sizes, adding complexity and cost to manufacturing workflows.

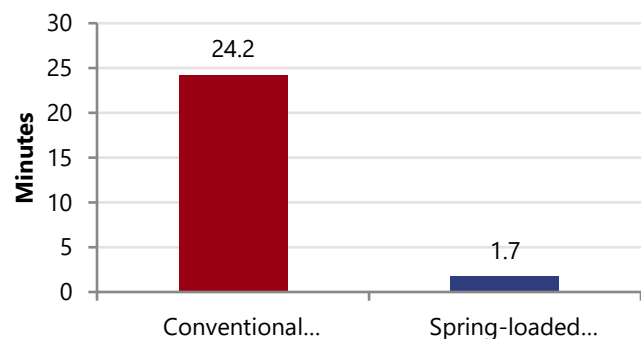
Solution

UWM researchers and industry collaborators have developed a technology which streamlines electrical testing of wire harness ring terminals by providing a spring-loaded interface that securely holds terminals of various sizes without manual fastening. The design reduces setup and testing time, minimizes fixture changes, and improves quality control efficiency.

Key Benefits

- Tool-free operation with spring-loaded retention
- Tests multiple ring terminal sizes on one platform
- 93% reduction in setup time compared to conventional fixtures
- 93% reduction in continuity testing time
- Reduces fixture changeovers and operator handling
- Improves manufacturing efficiency and throughput
- Modular architecture enables customizable test configurations
- Compatible with production testing environment

Setup + Continuity Test Time — 50-Terminal Harness (minutes)



About this Technology

The technology consists of modular test blocks containing spring-loaded retaining contacts and integrated electrical connections. When a ring terminal is inserted, the spring mechanism secures it in place while the internal contacts perform continuity or resistance testing. Multiple blocks can be connected together to accommodate different terminal sizes and testing configurations.

Stage of Development

Functional prototypes have been developed and validated through benchtop testing.

Partnering Opportunity

We are seeking partners for applications with wire harness manufacturers, electrical testing equipment suppliers, and industrial component distributors.

Intellectual Property (IP)

Patent pending. Protected and managed by the UWM Research Foundation.

Lead Inventor

- **Mohamed Youssef**, UWM Graduate Student, Mechanical Engineering