



## High-Tech firm Instron, worldwide market leader in the materials testing selects J-Testr Maxi for functional test of their high value electronics

**Instron was founded in 1946 and are global pioneers and leaders of universal testing machines featuring strain-gauge load cells. Instron's systems are used to evaluate the mechanical properties of materials and structures using tensile, compression, flexural, fatigue, impact, dynamic, torsional and multi-axial loading.**

Instron's products include complex measurement and control electronics with an extremely high quantity of interconnection between all their system elements, including critical user safety features. Instron's commitment to strict quality control meant that they demand a very high-test coverage for their electronics cards. Eiger Design was asked to provide a tester with provision for up to 384 digital Inputs/Outputs, 128 precision differential analogue measurements, 16 high precision differential DAC channels, 36 electronic load channels (for both positive and negative supplies), 90 Watts of supplied power, several UARTS and high-speed digital timing functions.



### Tester Facts

- All-in-one solution
- Portable footprint of 650mm x 650mm x 400mm
- High reliability EZ-Wired UUT connectivity
- Multi-level probing
- Wireless probe technology
- Test of high-density 0.8mm pitch connectors
- Significantly reduced cabling (Remote IO Card)
- High density mixed-signal capability
- Seamless 3rd Party customer integrations
- Modern touchscreen RAD Test Executive
- High testing speeds (~400% faster)
- Easy and fast maintenance access



EZ-Wired implementation shown above

The size & shape of the PCB combined with the array of different connectors present, made the tester design challenging.

With so many measurement points, and mixed signals, most other test solutions require lots of wiring, making them extremely messy and hard to maintain. This would in turn affect the tester performance, reliability, and often more importantly the end solution cost.

However, using Eiger Design's highly efficient 'EZ-Wired' interconnect system coupled with the new Remote IO concept and locally placed 'automatically scanned' analogue multiplexing techniques, the delivered J-Testr+ GTI test solution reduced the interconnections to only eight standard 40way ribbon cables. This 'EZ-Wired' solution provides an easy to maintain, tidy and highly reliable interconnection between the J-Testr main system unit, the connection card that is located immediately underneath the UUT, and onwards connections to the UUT via double-ended 'wireless' probes.

### Customer Data

Nature of Business:	Designer and manufacturer of innovative high-performance material testers
Main Location:	High Wycombe UK and Norwood USA
Revenue/Employees:	> 1 Billion Dollars / 2000+
Website:	www.instron.com

### Quote

*"Working with the Eiger Design test development team helped us improve our product's test coverage, test performance and increased our company's general test abilities. The combination of the J-Testr+ GTI platform and the ATEASY software proved to be highly efficient dramatically reducing our test time. The end delivered product was professionally constructed, robust and above our original expectations."* Steve Squires, Director of Engineering - Instron - UK

As well as providing standard J-Testr+ GTI stimulation and measurement functions, Eiger Design integrated a customer specified 3rd party CAN communication device. Additionally, the GTI high-speed 'Pass Through' connection path was utilised to provide routing to an optional external microcontroller programmer. The complete test solution, including fixturing, had a size envelope of just 650mm x 650mm x 400mm. Having a complex test system with such compact dimensions makes it highly portable and allows Instron to leverage its functionality across multiple sites without excess cost and logistics.

Eiger design worked very closely with the Instron test development team to efficiently tune the test specification. This resulted in approximately 20% increased test coverage, up to 40% reduction in tester cost and a massive 400% improvement in test execution speed. The reduction in test time alone, not to mention the improvements in reliability, maintainability and uptime, will save Instron significant time and hence money.

The software used for this project was the increasingly popular ATEASY test development and test sequencer platform. This platform enabled Eiger Design to seamlessly integrate the J-Testr and customer specified test equipment, including customer written drivers and 3rd party DLLs, into one highly maintainable and fast code solution.

### Conclusion

With the combination of the off-the-shelf J-Testr GTI test platform, customer test hardware and the ATEASY software platform, Eiger Design were able to supply a very high density all-in-one 'mixed-signal' compact test solution. This enabled Instron to achieve their test goals and satisfy their high-quality standards, whilst providing them an easy to maintain, high performance and cost effective test platform.