



Together ahead. **RUAG**



## Global technology group RUAG selects the J-Testr+ Midi, with EZ-Wired, for functional test of its advanced CAST-zero chaff and flare emulator

**RUAG, a high-profile supplier to the aerospace, security and defence sectors, develops and manufactures innovative products which are at the forefront of their respective markets. With its commitment to high quality and investment in R&D, RUAG is a respected technology partner to many leading international companies**

CAST-zero+ is a fast and reliable advanced emulation/measurement system offering safe 'Zero Volt' testing of self-protection equipment. The system supports the whole range of possible countermeasure dispenser operating modes and can be activated at the press of a button or via a hand-held IR remote control device that is designed to ease simultaneous operation of multiple units.

Every device RUAG manufactures requires rigorous testing prior to deployment. A robust and thorough test process was critical for CAST-zero+ because the unit has high levels of functionality coupled with ultra-low power consumption. Many of the critical circuits were designed using discrete components, partially due to limitations in capabilities of available application specific ICs, and the highly compact design also entailed :-

- Advanced power management circuitry
- Precision voltage/current measurement
- High speed current switching (up to 5A)
- A unique 'floating' power switch
- Integrated battery charging
- High ambient tolerance Infra-Red comms

Full functional test of such a system provided several challenges, especially given the relatively high volume of units to be produced.

To reduce the cost and inconvenience associated with equipment configuration, an integrated functional tester with minimal external connections was considered advantageous.

### Tester Facts

- Full 'Bed of Nails' solution
- Ultra-compact 46 x 49 x 34cm size
- Fully integrated 2 quadrant precision power
- Adjustable (up to 30V) 3A dual PSUs
- Adjustable (0 to 5A) current source
- Precision power V/I measurements (1uA) res
- 8 precision ADC channels (with 1uV res)
- 8 precision high resolution DAC channels
- Multiple isolation relays located close to UUT
- Isolated UART communications
- Reliable and high speed 'EZ-Wired' cabling
- Integrated FEASA LED analyser
- Integrated production SWD programmer
- Controllable from remote site



Picture: Caste Zero+ Midi Fixture

RUAG also required the full test system to be easily transportable between multiple sites. This high level of portability would provide RUAG with the advantage of using just one system for

- Software regression test
- Production testing
- Servicing of units for repair and refurbishment.

Eiger Design proposed the J-Testr+ Midi solution, which comprises of the innovative J-Testr system within a mid-sized 'bed of Nails' fixture. These units can incorporate up to 8 internally housed peripheral test stimulation and/or measurement cards, and also allow for placement of additional circuitry on the customizable interposer board.

Eiger Design was able to use this highly flexible approach to position sensitive test circuits in close proximity to both the test stimulation and the UUT. This significantly reduced the cabling and minimised potential noise effects on precision 'uA' and 'mV' measurements. The fully integrated power supplies made the routing of power easy and highly efficient.

Because of the J-Testr's unique interposer concept, a 3rd party FEASA LED analyser, low cost 'Segger' production grade programmer and other solution specific circuits were all easily integrated, without adding to the overall bench-space footprint.

The 'stand-alone' J-Testr+ Midi test solution, with only 2 external connections (for a bulk DC power supply and Ethernet), avoids all the space-consuming inter-module connection cabling associated with most other solutions.

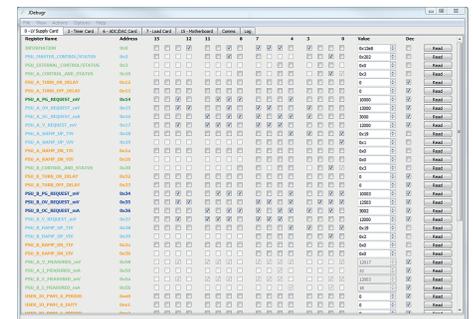
This 'highly integrated' concept yields improvements in both reliability and speed due to reduced measurement/stimulation noise pickup. The simple & efficient register-based internal communication bus and advanced debug tools, coupled with fast & easy setup & strip-down time, enabled easy test-case development.

RUAG selected ATEASY as their preferred test-case development platform.



This is one of a wide range of software environments compatible with J-Testr and Eiger Design's 'free' debugging tool J-Debug.

The ATEASY rapid development, 'Easy' coding language, and built-in touch screen compatible test executive, further helped to reduce test implementation time & cost whilst providing all the features demanded by the customer.



Picture: J-Debug screen shot

### Conclusion

Eiger Design's development team worked closely with RUAG to provide a full turnkey solution, including the test executive using the AT Easy development environment. The J-Testr+ Midi, with its compact & lightweight bed of nails format, proved to be the ideal test solution, both physically and functionally. Furthermore, the full system easily met the customer's cost & size budgets, being both significantly lower cost and significantly smaller than competing solutions.

Quote

"Our requirement to transport the CAST-zero+ test solution between development and production sites meant that Eiger Design's J-Testr+ Midi was the ideal choice for RUAG. We were extremely impressed with the functionality to cost ratio that this solution brought us and, because J-Testr is compatible with ATEasy, one of our preferred software environments, we were able to use the turnkey solution provided to transition to production quickly and easily." **Sandro Jungen, Cast Zero+ Project Manager - RUAG Aviation - Switzerland**