WHITE PAPER

THE FUTURE OF ARMAMENT TEST SYSTEMS

UEI hardware and I/O ensures DoD Automated Test Systems (ATS) are dependable and accurate for today's smart armaments

United Electronic Industries

AMETEK

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Upgrading Armament Test System to Modern Standards

United Electronic Industries (UEI) rugged and flexible hardware and I/O solutions are used in DoD Automated Test Systems (ATS) that are the new standard to test today's smart armaments. The requirements for MIL grade aircraft munitions and armaments test systems are most demanding. ATS was developed to meet the needs for test equipment on legacy 4th & 5th generation and future aircraft weapon systems. UEI had the ideal product offerings to make DTS a reality.

Designing aTS for Success—How UEI Supports The System Build

ATS are designed to ensure successful test/deployment and troubleshoot various military armament equipment in a Go/No-Go fashion. Armament tests include missile launchers, bomb racks, pylons (smart and legacy) and future devices that will span various weapons systems.

ATS systems are designed with flexibility in mind, allowing them to scale alongside the growing demands of electronic content and increasingly signal-intensive I/O requirements. Built using UEI hardware and I/O components, ATS systems were developed to offer a more robust solution for testing today's smart armaments. The UEIPAC 1200R RACKtangle was selected as the system's central CPU, which also serves as the primary provider of I/O interfaces.

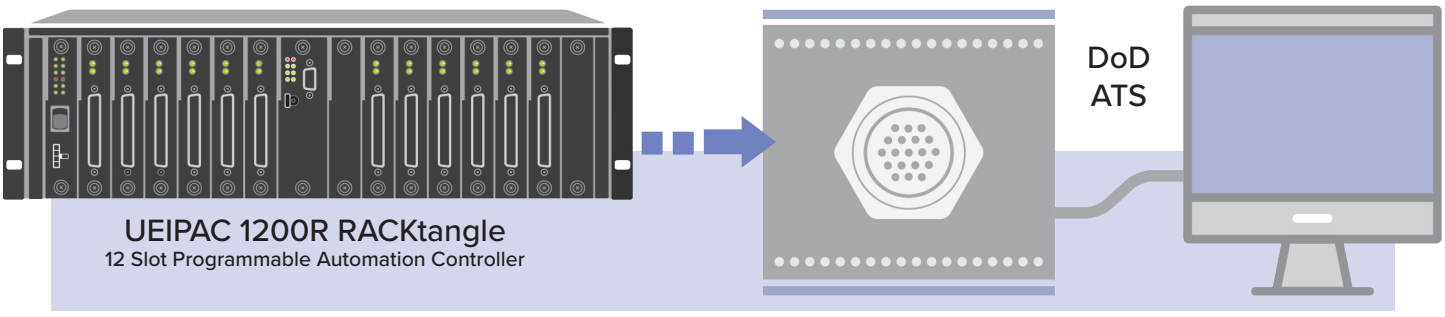
Build Requirements

Handles all of the various upgrades in avionics and armament technology required for today's capabilities

- Cannot rely on obsolete parts or legacy solutions
- Needs to be agile and rugged
- Have systems capable of use on new and old munitions
- Have advanced testing functionality and troubleshooting capabilities

Typical Tests

ATS is designed for bomb & missile pylon testing, but will also test defective equipment with the ability to identify faults with minimal intervention. It will allow technicians to diagnose and trouble shoot as well as perform operational and functional check-out and fault isolation. Technicians can easily create new tests without modifying hardware or software.

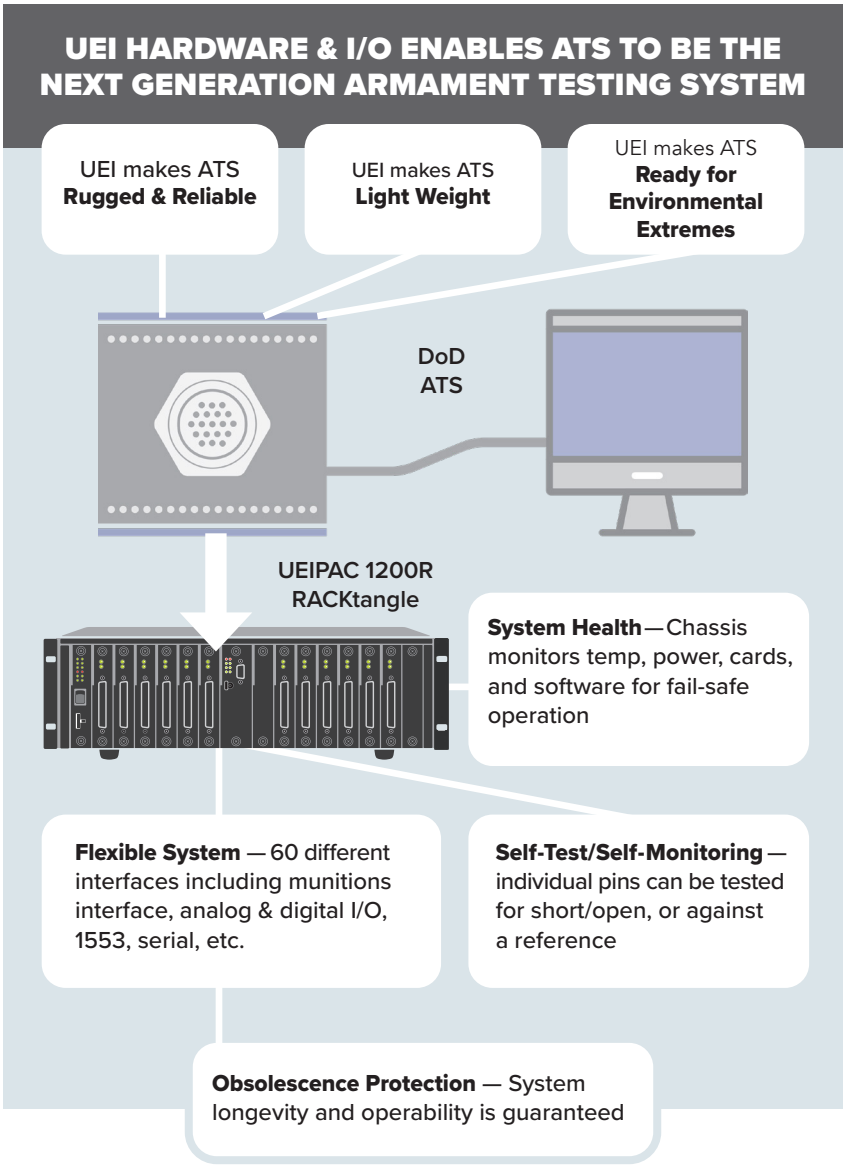


- Tested to -40 to +85°C, 5g Vibration, 100 g Shock
- 5.25" x 6.2" x 17.5" (3U)
- Supports VxWorks and Linux operating systems
- 12 slots for a breadth of I/O to meet requirements
- Up to 300 analog or 576 digital I/O per PAC
- Extremely cost effective

Common Considerations

An Automated Test System (ATS) must easily move to the aircraft or component being tested and is required to operate in a Backshop environment.
Cables need to be self tested and field repairable. Test sets must be highly durable and operational in extreme cold and hot environments.

The UEI Solution—UEIPAC 1200R for Durability and Flexibility



Durability: The system is dependent upon UEI hardware and I/O to reduce system weight and costs, while increasing durability. The ruggedness of the UEI rack chassis and flexible I/O options provided an ideal solution for success. UEI is ¼ the weight and reduced the "packaging" requirements of ATS with portability going from 4 marines to 2 marines. With operating temperature of -40° to +85° C, 5 g vibration, 100 g shock, up to 70,000 ft altitude, UEI hardware is designed to meet MIL-STD specifications to easily handle the environmental requirements from the desert to the mountains.

Flexibility: The UEIPAC 1200R RACKtangle allowed for a wide range of I/O options and easy interchange with all types of I/O including: analog I/O, digital I/O, relay and relay control, MIL-STD-1553, and serial I/O. UEI designed and delivered a smart munitions interface which is now available as a COTS product.

Capability: UEI has built in self-test capability on the chassis, card, and channel level. Hardware can be checked without disconnecting the field wiring. Channels can be checked for opens, shorts or even compared to a reference to assist in the diagnoses. The on board monitoring gives the user the confidence the data acquisition and control unit is operating error free.

Dependability: UEI has a 10-year availability guarantee, which is 10 years from your last buy with up to a 10-year hardware warranty. UEI hardware has a high MTBF and low MTTR. Immediate out of box use is ensured as a 100% test all of our hardware is done before shipping, resulting in a return rate of <0.1% which guarantees years of dependable operation.

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