

FOCUS ON SAFETY TEST

Microsys Technologies Inc.

Issue 1

SureFire™ Integrated Occupant Safety Test System Helps Save Lives

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In the event of an accident, automotive safety components such as air bags and seat belt pretensioners play a critical role in saving lives and preventing injury. As an ongoing concern to improve the safety of vehicles, automobile manufacturers are developing and introducing new products in shorter time periods. To develop and verify the correct operation of these safety components, the industry relies heavily on the crucial data provided by various pieces of test equipment. In an effort to improve testing operations, there is great interest in integrating the various pieces of equipment into one test system. Microsys Technologies Inc., a world leader in automated test system design offers a turnkey solution to test system design which includes equipment recommendation and valuable input on test facility design.

Having provided integrated test solutions for more than 10 years, Microsys has invaluable experience in test system requirements and understanding industry needs.

Microsys, based in Toronto Canada, has installed air bag deployment, air bag burst and seat belt pretensioner test systems in numerous facilities worldwide. Each system is tailored to meet customer requirements, which include the type and quantity of equipment to be integrated and whether the system is used for engineering purposes or lot acceptance testing (LAT).

These integrated systems include Kodak motion analyzers, such as the Kodak Ektapro HS4540 and HG2000 high-speed imagers.

Microsys recently released its



The SureFire™ occupant safety test system provides control over all test operations while allowing high-speed image and sensor data to be viewed on one screen at the same time for analysis capabilities.

third generation occupant safety test system, called SureFire™, which is based on a modular software design to improve delivery times, simplify customer system support, increase system flexibility in meeting customer expansion requirements and stay in line with customer budgets. This system currently can be adapted for air bag deployment, air bag burst or seat belt pretensioner testing. Capabilities of the system are being further expanded to meet head impact and sled testing requirements.

Why An Integrated Test System?

The events of a sled test or the deployment of an air bag involves numerous pieces of equipment. Test system components such as high-speed imaging and data acquisition equipment need to be controlled,

monitored and triggered to safely and accurately acquire data for important post-test analysis. The results of these tests provide engineers with valuable information in developing new products and to manufacturers verifying that high product quality levels are maintained.

Preparing for and conducting a test with individually controlled pieces of equipment and analyzing test results from various data sources has many inherent problems. With manufacturing operations forced to improve efficiencies and demands on engineering to reduce the time to market for new products, little time can be wasted in preparing for and performing a test. An operator error can cost a company valuable time and money.

For example, if an operator incorrectly selects a transducer to provide a critical air bag deployment pressure reading, the test would have to be repeated.

Many facilities performing a variety of tests, such as air bag deployment and sled tests, are becoming increasingly concerned with test system data incompatibility. Comparing results from various incompatible test systems is difficult and can lead to erroneous observations.

Image and sensor data archiving is a common problem with any test system. Storing both types of data in deferent formats and using different media makes recalling past test results difficult.

The Solution

The Microsys SureFire occupant safety test system provides customers with a powerful solution to these problems. The integrated test system is capable of monitoring and controlling all the various pieces of equipment involved in a test. The modular hardware and software design of the system allows customers to easily expand their test system capabilities.

A key component of the test system involves analysis capabilities that allow customers to simultaneously view video and transducer test results. Several deployments may be analyzed and compared at the same time. Playback of the video data can be synchronized to the transducer data, or vice versa to allow easy correlation between visual and physical results. For further analysis capabilities, test engineers can apply math functions to transducer trace data.

In addition to providing an integrated test system, Microsys offers years of automotive safety test system experience that benefit customers in not only designing an optimum test system but also in recommending equipment. A critical stage in providing an optimum automotive safety test system is the initial system proposal. Microsys spends considerable effort in

consulting and discussing the customer's system operation and expectations. After a careful review of the information, a statement of work is submitted to the customer. This document includes details such as description of system operation, equipment configuration listing, system block diagram, function of software screens, system installation responsibilities, training, warranty and support information. The statement of work is reviewed with the customer to ensure that the proposed test system performs all the required functions. Once accepted, the SureFire configuration process begins.

Microsys's capabilities in integrating and recommending key test system components such as high-speed imaging equipment, provides customers with a complete turnkey solution to their test requirements.

To ensure a smooth system installation, Microsys maintains solid communication with the customer. This communication includes thorough operator training so the customer can start using the system immediately upon installation. After installation, Microsys continues to play a key role in supporting the customer. Each system is installed with a high-speed modem that allows on-line support by remotely operating the computer. This allows Microsys to immediately provide operator training as well as perform troubleshooting functions to ensure smooth system operation.

Conclusion

Customers benefit by dealing with only one company to provide a complete, integrated system. The SureFire occupant safety test system provides significant advantages to customers such as reduced development time, decreased

delivery time, ease of expandability and the capability to incorporate new technologies as they are developed.

In the ongoing effort to save and protect lives, testing plays a critical role in developing and verifying correct operation of automotive safety components. By providing an integrated test system, customers in the automotive industry are able to vastly improve their engineering and lot acceptance test operations. The many years of experience and technical ability that Microsys offers in integrating and recommending key test system components such as high-speed imaging equipment, provides customers with a complete turnkey solution to their test requirements. □



For more information on SureFire or other occupant safety test systems, contact Microsys at:

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