

Land Weapons Control Solutions





Ultra Electronics Measurement Systems Inc. (MSI) is the world leader in control systems and human machine interfaces for military land weapons applications.

With high precision technology and compact form factors designed in accordance with best practice human factors engineering, MSI provides high reliability solutions for some of the harshest and most demanding applications.

- **CROWS II**
- **STRYKER RWS**
- **LAV FAMILY**
- **LRAS3**
- **ABRAMS M1A2**
- **EFV**

MSI's patented non-contact sensing technologies provide the precision, reliability and ruggedized performance required by the military today. Using theater-proven Hall Effect and Magneto-resistive technologies, MSI's control solutions perform mission critical tasks including turret control, laser sighting, remote weapons system control and vehicle drive controls. Whether the need is for a Gunners or Commanders control system on a land vehicle or a fine cursor control on any weapons platform, MSI possesses the technology and integration solutions to support program timeline and budget goals while ensuring optimal, customized design solutions.

Patented non-contact sensing technologies

MSI's patented Hall Effect and Magneto-resistive sensor technologies enable the design and production of light weight, sealed hand controls that provide unparalleled performance in theater.

- **Long-term, reliable performance** – Minimized wear due to true "contact-less" design
- **High accuracy & precision** – Reliable return to zero, high resolution and breakout force, and exceptional linearity
- **Compact & lightweight** – Gimbal-less designs reduce size and weight requirements
- **Programmable electronics** – Available error checking for prognostic/diagnostic capability and temperature compensation for enhanced reliability and maintainability



Land weapons control solutions

MSI provides a variety of Human Machine Interface solutions for the control of both lethal and non-lethal land weapon systems. Regardless of the size, shape, switch/actuator configuration or environmental requirements of the HMI device needed, MSI will provide the ideal control solution optimized for the application and associated human factors.



1505 Series Grips

In use on systems including CROWS I and the Phalanx gun, the 1505 aluminum alloy grip provides fixed mounting with multiple positions for switches, pushbuttons or joysticks with a trigger. This fixed grip control solution provides azimuth and elevation through MSI's patented mini force joystick which is the industry benchmark for precise, fingertip control.



502 Series Hand Controls

This Commanders style displacement hand control supports motion control with 2 or 3 axis movement and customized force feedback as well as switch configurations per customer specifications. Patented Hall Effect technology is gimbal-less and supports a compact form factor to meet customer required footprints. Multiple grip designs are readily available and may be customized for style, shape and switch, joystick and/or trigger configurations.

504 Series Hand Controls

The Gunners, or yoke-style, hand control is typically specified for turret control systems and may also be integrated as a drive control system. The highly compact design enabled by Magneto-resistive transducer technology supports reliable operation in confined spaces and is optimized for human factors design per Mil-STD 1472F. With ideal toe-in, camber and caster, operator fatigue is minimized and controls are more readily accessible for accuracy even during prolonged missions.



FMCU™ Series Hand Controls

The compact and versatile Freedom of Movement Control Unit, FMCU™, capitalizes on the familiar "game-style" shape that offers an ergonomically comfortable design and high functionality through its versatile switch configuration. This fully ruggedized, lightweight controller is designed for both hand held and mounted operation which makes it ideally suited for use in vehicles and ground stations as well as for dismounted operations. The patented FMCU™ design provides trigger control with available trigger guards and multiple ways to secure actuation for weapon fire.



Versatility and Control

MSI knows that reliability, maintainability and availability as well as reductions in size, weight and power are requirements for solutions supporting today's warfighters. Modularity, portability and multiple use solutions are valuable assets as simple adjustments can increase application relevance providing ready alternatives for mission specific controllers.

Reconfigurable Control Technology, RCC™

Recognizing the need for not only reliability, but also maintainability and upgradability, MSI patented and introduced RCC™ technology for hand control systems. The integrated RCC™ connector system provides not only interchangeability of grips for low cost maintenance, but also supports upgradability of both function and switch configurations through the upgrade of the grip itself without requiring any change in the transducer box. The RCC™ feature provides quick-change functionality to MSI's controls that can significantly reduce maintenance costs as well as repair/upgrade time which keeps platforms operational and mission ready.



Dismounted Operations

Portable systems support the goals of the military today to meet the challenging demands of unconventional and urban warfare while also enhancing force protection. Increasing needs to support the soldier on foot require lightweight, handheld control systems for improved ISR and control of both unmanned systems as well as land vehicle systems for optimized mission success. The FMCU™ controller leverages MSI's RCC™ technology to add ISR and non line-of-sight operation through the modular addition of a high resolution, backlit, sunlight readable LCD. Available in both game-style and tablet form factors, the FMCU™ with LCD display can easily transition from vehicle to dismounted soldier while minimizing both the physical and cognitive load borne by the warfighter.



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Printed in the U.S.
MSI-01-0610