

MX-GEU

MULTI-APPLICATION GUIDANCE ELECTRONIC UNIT



General Atomics Electromagnetic Systems (GA-EMS) offers a family of Multi-Application Guidance Electronic Unit (MX-GEU) solutions to support the development of precision munitions including projectiles and missiles, and space systems.

MULTI-APPLICATION GUIDANCE ELECTRONIC UNIT

The MX-GEU's flexible hardware and software architecture offers robust processing and memory resources and provides industry standard serial data interfaces, discrete input/output (I/O) and programmable logic for sophisticated high speed or specialized hardware interfaces.

MX-GEUs provide an operational software framework hosted on a Real Time Operating System (RTOS). The software framework is provided as Application Programming Interfaces (APIs) with libraries to allow customers to separately develop, integrate, test and maintain their flight software.

MX-GEU products are designed to survive harsh shock environments such as gun-launched projectiles and extreme high-altitude environments.

- Proven rugged, high shock survivable electronics
- Small footprint and low power consumption
- High computing performance and resources
- Flexible architecture to support standard sensor and device interfaces
- Sophisticated high data rate interface options
- Software framework with RTOS support
- Secure boot and re-programming options for smart weapons cyber-security
- Proven reference designs can be tailored to meet project shape and volume constraints

MX-GEU – FLEXIBILITY WITH SUPERIOR PERFORMANCE

The MX-GEU advances miniature, low power, high performance guidance electronics to the state-of-the-art with Arm Ltd. Cortex processors that provide integrated vector floating point math and clock speeds of 800 MHz and higher. When combined with the high speed Double Date Rate (DDR) memory, programmable logic and software RTOS environment, the MX-GEU readily supports complex guidance algorithms, sensor and control interfaces, and overall system flight control and management functions.

MX-GEUs are available with shock survival to greater than 30,000 Gs and radiation tolerance for operation in high altitude environs to ensure electronics survivability. MX-GEUs have very low power consumption and can be configured in miniature packaging as small as 40mm diameter, making them an ideal platform for a variety of guided projectile, missile and space system applications.

DATA LINK RECEIVER CONFIGURATION

The MX-GEU with Data Link Transceiver is a powerful, compact guidance computer solution that integrates a robust, two-way, Software Defined Radio (SDR) transceiver. The SDR can support streaming downlink telemetry, or packet-based bi-directional data links for telemetry, status updates, and projectile command guidance via a fire control sensor or base station.

The MX-GEU SDR is programmable to support S-Band through C-Band frequencies, and data links up to 10 Mbits per second, making the MX-GEU with SDR a very capable guidance computer platform for a variety of guidance and control applications.

INTEGRATED INERTIAL MEASUREMENT UNIT (IMU) SENSORS CONFIGURATION

MX-GEUs can perform Inertial Measurement Unit (IMU) functionality for applications where a stand-alone IMU is not required or available. The MX-GEU has integrated IMU sensors available to support applications that require onboard, real time inertial rate and acceleration sensing for autopilot and dead-reckoning functions.

INTEGRATED DIGITAL SEMI-ACTIVE LASER SEEKER (DSALS) CONFIGURATION

The MX-GEU Digital Semi-Active Laser Seeker (DSALS) adds laser seeker capabilities and establishes a new baseline for both miniature size and low power consumption in a complete terminal guidance electronics solution. MX-GEU DSALS operates from a single power supply and consumes less than 4 watts total power for the GEU and all seeker function, including the additional processing support available for hosted guidance software applications.

The DSALS hardware provides robust support for the implementation of sophisticated laser spot tracking and de-clutter algorithms. In addition, DSALS is designed to support current and future enhancements in laser designator technology. The MX-GEU in DSALS provides the guidance, navigation, and control processing, resulting in an extremely compact solution without compromising any seeker capabilities for multi-mode operations such as GPS-SAL.

The MX-GEU DSALS has computational and interface resources to simplify integration with inertial sensors and IMUs for strap-down configurations and other devices, such as GPS for dual mode functionality.



**Digital Semi-Active
Laser Seeker (DSALS)**

MX-GEU SPECIFICATIONS

OPTIONS

Specifications	Gen4 MXc (Compact)	Gen4 Mxu (Ultra)
Multi-Application	Yes	Yes
Compact (40mm diameter)	Yes	Yes
Radiation Tolerant	No	Yes
Data Link Transceiver	Yes	Yes
GPS Receiver	Yes	Yes
3-Axis Magnetometer	Yes	Yes
3-Axis Accelerometer	Yes	Yes
Flash Memory	Yes	Yes
Pitch/Yaw Sensors	Yes	Yes
Customized Packaging	Yes	Yes