Multi-Application Guidance Electronic Unit

COMPACT GUIDANCE FOR COMPLEX MISSIONS

General Atomics Electromagnetic Systems (GA-EMS) offers a suite of **Multi-Application Guidance Electronic Unit (MX-GEU)** solutions engineered to support the development of precision munitions including projectiles, missiles, and space systems. Built for flexibility and reliability, MX-GEU units deliver trusted performance across every domain.

- Proven rugged design with high shock survivability
- Compact footprint and low power consumption for mission efficiency
- High-performance computing with scalable processing resources
- Flexible architecture supports standard sensor and device interfaces

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.

- Sophisticated high data rate interface options
- Software framework with RTOS support
- Secure boot and reprogramming options for smart weapons cybersecurity
- 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 Data 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 environments to ensure electronics survivability. They feature 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 TRANSCEIVER CONFIGURATION

The MX-GEU with Data Link Transceiver is a powerful, compact guidance computer that integrates a robust, two-way Software Defined Radio (SDR) transceiver. The SDR supports streaming downlink telemetry, or packet-based bidirectional 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 operate across S-Band through C-Band frequencies, supporting data links up to 10 Mbits per second. This makes it a highly capable guidance computer platform for a variety of guidance and control applications.

INTEGRATED INERTIAL MEASUREMENT UNIT (IMU) SENSORS CONFIGURATION

The MX-GEU can perform Inertial Measurement Unit (IMU) functionality for applications where a stand-alone IMU is not required or available. Integrated IMU sensors provide 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 with Digital Semi-Active Laser Seeker (DSALS) enhances the system with laser seeker capabilities, setting a new standard for miniature size and low power consumption in a complete terminal guidance electronics solution. It operates from a single power supply and consumes less than 4 watts total, including the GEU, all seeker functions, and processing support for hosted guidance software.

The DSALS hardware supports advanced laser spot tracking and de-clutter algorithms, and is designed to accommodate current and future developments in laser designator technology.

The MX-GEU with DSALS performs guidance, navigation, and control processing, providing an extremely compact solution without compromising seeker performance for multi-mode operations, such as Global Positioning System Semi-Active Laser (GPS-SAL). It includes the computational and interface resources required for seamless integration with inertial sensors, IMUs, GPS, and other devices used in dual-mode or strap-down configurations.

Digital Semi-Active Laser Seeker (DSALS)

MX-GEU SPECIFICATIONS

SPECIFICATIONS	Gen4 MXc (COMPACT)	DESCRIPTION
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

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