



CODEVINTEC

Tecnologie per le Scienze della Terra e del Mare

MFAM Module Laser Pumped Cesium magnetometer



The Geometrics MFAM SuperMag Module (LCS100S) is a laser pumped cesium magnetometer module that measures the total magnetic field strength, with a digital interface for easy integration with modular sensing platforms

Applications

- > Autonomous Geophysical Surveys
- > Non-destructive Evaluation
- > Magnetocardiography
- > Structural Health Monitoring



MFAM Module

The module features two sensors that can be used in either individual or combined mode. The SuperMag MFAM module features low noise, low heading error and is Deadzone free*

| | MFAM LCS050G | MFAM -LHE LCS100H | MFAM - SM LCS100S | MFAM - SX LCS100X |
|--------------------------------|-----------------|----------------------|----------------------|----------------------|
| Low Noise Dual Reading | ● | | ● | |
| Low HE Dual Reading | | ● | ● | |
| Low Noise Single Reading | | | ● | |
| Low HE Single Reading | | ● | ● | |
| SX Dual Reading | | | | ● |
| SX Single Reading | | | | ● |

Features & Benefits

- > **Combined mode** – combining the inputs of two sensors to produce a single reading
- > **Dead-zone free*** – Operate anywhere without adjusting the sensors
- > **Low Power Operation** – Decrease downtime by operating longer on a smaller battery.
- > **Modular Architecture** – Integrate the MFAM module into your existing instruments and expand your service line.
- > **High Performance** – Fast sampling and low noise allow for use in a variety of applications, including geophysics, non-destructive evaluation, magneto-cardiography, and structural health fields.

* Dead-zone free is only for combined mode with proper sensor orientations.

Technical Specifications

Performance

| | |
|--|--|
| All Optical, NO RF Contamination or Interference | |
| Field Range | Fullscale, Minimum: 20 μ T; Maximum: 100 μ T |
| Digital Resolution | 32-bit magnetometer output, digital resolution is 50fT / LSB |
| Output Data Rate | Continuous measurement; 1,000 Hz |
| Noise Floor | See Table |

Physical

| | |
|-------------------------------------|--|
| Overall Weight | 0.5 lbs (0.23 kg). |
| Dimension of the Sensor Head | 1.3 x 1 x 0.9 inches (33 x 25 x 32 mm) |
| Cable Length | 20 inches (508 mm) |
| Dimension of the Electronics Module | 5 x 2 x 1 inch (120 x 52 x 22 mm) |

Power supply

| | |
|----------------------|---|
| Supply Voltage | Vin referenced to GND; Minimum: 9.5V; Typical: 12V; Maximum: 16 V. |
| Average Current Draw | Vin=12V, 25 Å °C ambient temperature; Typical: 0.4A; Maximum: 0.6A; Vin=12V, -35 Å °C ambient temperature; Typical: 0.65A; Maximum: 0.85A. |

| | |
|--------------------|---|
| Average Power Draw | 25°C ambient temperature; Typical: 5W; Maximum: 7W; -35°C ambient temperature; Typical: 8W; Maximum: 10W |
|--------------------|---|

Environmental

| | |
|-----------------------|---|
| Operating Temperature | Ambient; -35°C to +50°C (-30°F to +122°F) |
| Storage Temperature | Ambient; -40°C to +70°C (-40°F to +158°F) |

Accessories

| | |
|------------------|--|
| AC Power Adapter | USB Drive with Manual and Software JIS Screw Driver Suspension Cable |
|------------------|--|

| | |
|----------|--------------------------------|
| Optional | Development Kit - Not Included |
|----------|--------------------------------|



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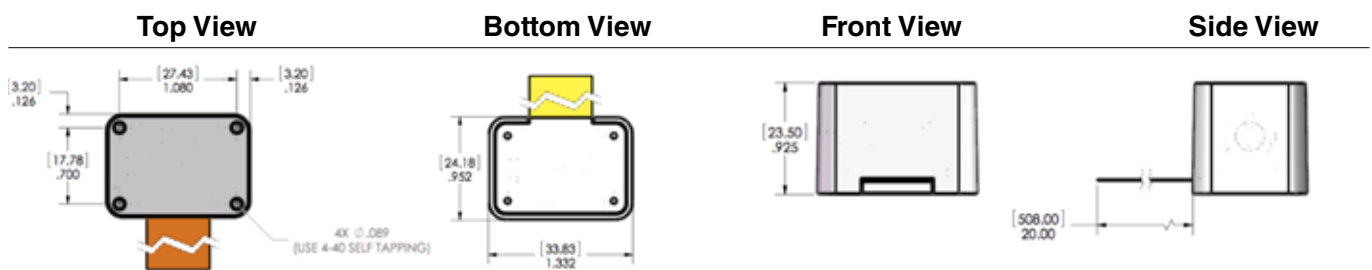
| | Low Noise Dual Reading | Low HE Dual Reading | Low Noise Single Reading | Low HE Single Reading | SX Dual Reading | SX Single Reading |
|------------------------|---------------------------|------------------------|-----------------------------|--------------------------|--------------------|----------------------|
| Number of Outputs | 2 | 2 | 1 | 1 | 2 | 1 |
| Sensitivity (pT/rt-Hz) | 2 (3) | 5 (7) | 2 (3) | 1 | 2 | 1 |
| Heading Error (nT) | 2 | 2 | 1 | 1 | 2 | 1 |
| Dead-zone (deg.) | 2 | 2 | 1 | 1 | 2 | 1 |

Mechanical Specifications

Dimensions in [mm] inches

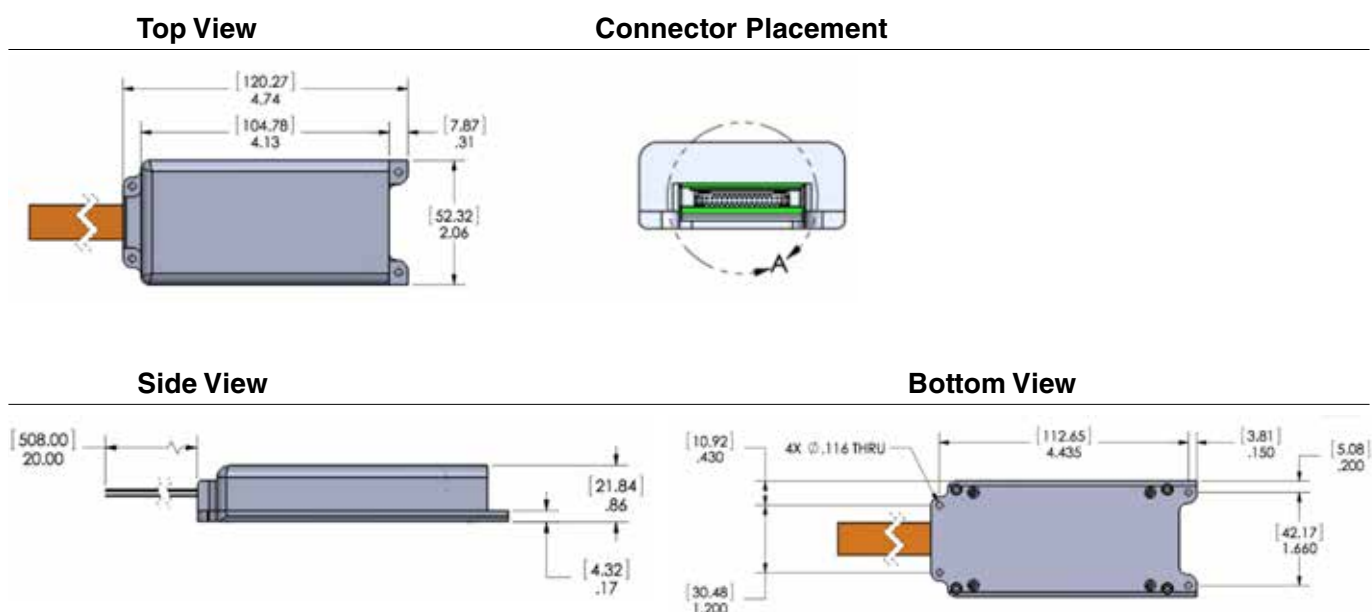
Sensor

Weight: 30g each, 2 sensors per magnetometer module



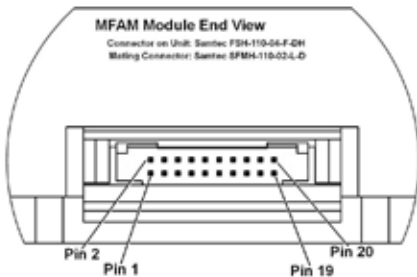
Drive Unit

Weight: 200g each.





Connector Details



Connector on MFAM Module:

Samtec FSH-110-04-F-DH

Mating connector:

Samtec SFMH-110-02-L-D

The MFAM application

Novel UAS Application

- > Wellhead locating
- > pipeline tracking
- > utility surveying
- > archeological mapping and UXO Detection

Security and Detection Applications

- > A small unit size
- > low power requirements
- > high sensitivity allow for perimeter monitoring applications

Marine Magnetometry Investigation:

- > Customizable architecture allows for integration with autonomous or manned underwater vehicles

