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## TAM-2 Satellite Magnetometer

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### Description

The **TAM-2** series of three-axis satellite magnetometers satisfies a broad range of spacecraft attitude determination and control applications. The **TAM-2** design is based on our TAM-1 satellite magnetometer which has a long history of success in space.

The standard **TAM-2** magnetometer uses three ringcore fluxgate sensors that are aligned at right angles to one another to measure the three components of the magnetic field vector. The sensors and the signal conditioning electronics are housed in a single package which provides radiation protection for greater than 100 kRads. This arrangement as well as some innovative changes in the electronic design resulted in a smaller, lighter, lower power and more reliable magnetometer.

The **TAM-2** has one analog output signal per axis. Each output is buffered and can be biased or unbiased. The following full scale output voltage ranges are possible:  $\pm 10.000$ ,  $\pm 5.000$ ,  $\pm 2.500$  Volts and 0 to 5 Volts (2.500 Volts bias).

Each sensor includes an independent coil that can be used to apply bias fields, null the ambient field or perform in-flight calibration and health checks.

The table on the following page provides a representative specification for the **TAM-2** series magnetometers.



### Features

- Three-Axis Fluxgate Sensor
- Sensor Integrated with the Electronics
- Fully Space Qualified
- Meets 'Class S' Level Reliability Requirements
- Flexible Choices of Scale Factor, Field Range and Output Voltage Range
- Low Power: 560 mW Nominal at 28 VDC
- Radiation protection >100 kRads
- Remote Power On/Off Control
- Power Status Output
- Independent Calibration Coils

## SPECIFICATIONS

### ELECTRICAL PERFORMANCE

**Field Range\*** ±1000 mG

**Voltage Range**

*Unbiased* ±10.000 VDC

*Biased* 0 to 5.000 VDC

**Sensitivity**

*Unbiased* 10.0 mV/mG

*Biased* 2.5 mV/mG

*Accuracy* ±1% (Tmin to Tmax)

**Zero Field Output (Tmin to Tmax)**

*Unbiased* 0.000±0.015 VDC

*Biased* 2.500±0.015 VDC

**Linearity**

0.05% of full scale

**Frequency Response**

DC to > 60 Hz

**Noise (0 to 100 Hz)**

< 1 mVrms

**Angular Alignment**

0.25° max.

### ENVIRONMENT

**Temperature Range**

-39°C to +76° C

### PHYSICAL

**Dimensions**

1.75"x5.63"x3.00" (4.45 cm x 14.3 cm x 7.62 cm)

**Weight**

1.1 lbs (0.5 Kg)

### POWER

**Input voltage**

21 to 38.6 VDC

**Current**

20 mA nom., 25 mA max.

\* Full Scale field ranges from 100 mG to 1000 mG can be specified by the customer based on the application.

The parts and processes used to produce the **TAM-2** series satisfy the highest quality requirements of both NASA and military programs (MIL-STD-975, Class S; Class B also available).

The **TAM-2** series also satisfies electromagnetic specifications for airborne or spaceborne electronic equipment (MIL-STD-461C, MIL-STD-462 and MIL-STD-1541).

**For more information**

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