

Overview

Magson offers compact tri-axial low noise fluxgate magnetometers to complement the attitude determination sensor suite of LEO platforms. These robust devices combine the high performance of scientific instruments with the low mass and cost requirements of attitude determination and control subsystems. Nominal power consumption (in earth field @28V) is 0.86 W and the dynamic range is adjustable to the user's requirements. The box material is AlMgSi1 F28 with Alodine 1500 surface coating. The unit is mounted with four M3 screws. Each magnetometer includes fully space-qualified components and is adapted to the specified protocols, interfaces and miscellaneous customer requirements.



Applications

- LEO spacecraft attitude determination

Technical Data

Characteristics		Value			Unit
		min.	typ.	max.	
Electrical	Supply voltage	16	28	40	V
	Current		30		mA
Performance	Range*	-120000		+120000	nT
	Resolution		228.8818		pT/ LSB
	Noise @ 1Hz		< 200		pT/ $\sqrt{\text{Hz}}$
	Linearity	-0.025		+0.025	%
	Axis alignment		< 1		°
	Axis stability		< 2		arcmin
	Temperature stability (in zero field)		< 2.5		nT/K
	Operating temperature range	-20		+60	°C
	Non-Operating	-30		+75	°C

	temperature range				
Mechanical	Length		138		mm
	Width		55		mm
	Height		39		mm
	Weight		249		g

Internal Frequencies						
Component	Frequency	Unit	Tolerance	Unit	Amplitude	Unit
Oscillator	9.8304	MHz	± 50	ppm	5	V
RS485 Interface	38400	kHz	± 50	ppm	5	V
Excitation	9.6	kHz	± 50	ppm	14	V
DC/DC converter	280	kHz	220 – 320	kHz	-	-

Thermal Interface		
Parameter	Value	Unit
Contact area	4 x 6 x 6 = 144	mm ²
Power dissipation	~1	W
Specific thermal capacity of box material	896	J/(kg*K)
Thermal capacity of aluminum parts incl. screws	235	J/K