Magnetometer Possibilities

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Bartington 3-Axis Fluxgate Sensors, DC/AC, Mag-03

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The **Bartington Mag-03** is a family of compact, high performance fluxgate sensors with integral electronics that provide precision measurements of static and alternating magnetic fields in three axes. They are available with measuring ranges of ±70, ±100, ±250, ±500, or ±1,000µT in a range of different enclosure types. They may be powered from any ±12V supply and the outputs are in the form of three analog voltages of ±10V full scale, proportional to the instantaneous values of the magnetic field components: Bx, By, and Bz.

For the 70µT and 100µT range sensors, a low noise version of the Mag-03 with a noise level of better than 4-6pTrms/ÖHz at 1Hz is available in all enclosures.

The Mag-03 sensors have a wide range of applications for measuring magnetic fields and magnetic properties in physics, engineering, space systems, geophysical exploration, bioelectromagnetics, and defense.

Accessories include the Spectramag-6 is a fast six-channel 24-bit data acquisition system with simultaneous sampling of all channels and a USB interface to the user's PC; Mag-03PSU battery power supply unit; Mag-03DAM high resloution data acquisition module, and the Mag-03SCU signal conditioning unit. The use of differential inputs in these accessories ensures error-free operation with the sensors without regard to the cable length.

A calibration service is available, and the Mag-03MC-CU calibration unit is available for the cylindrical version of these sensors.

For further information visit the NIST Reference on Constants, Units, and Uncertainty

1” diameter.
Range: +/- 10 gauss,
Cost $3000

Requires:
+/- 12V (1 Twinax)
2 probes: 6 outputs (3 Twinax)

Total cables: 4 Twinax

Note: output NOT differential => Noise???

http://www.gmw.com/magnetic_measurements/Bartington/Mag-03.html

Ametes Three Axis Magnetic Field Sensor, MFS-3A

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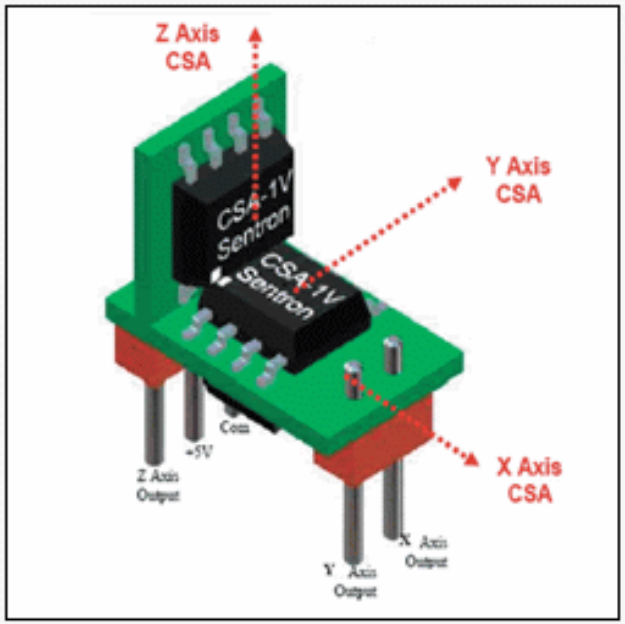
The high magnetic field sensitivity, accurate calibration, high stability and high signal output of the Sentron CSA-1V Hall effect IC enable it to be conveniently used to monitor the extended fields from magnetic items and electric equipment. As a demonstration of the CSA-1V capability, three CSA-1V with sensitive axes mutually perpendicular, are combined in a compact module as the MFS-3A Three Axis Magnetic Field Sensor. Three output voltages VX = S*Bx, Vy = S*By and Vz = S*Bz are generated proportional to the magnetic flux density components Bx, By and Bz with the sensitivity S = 280mV/mT over the field range of ±7.3mT. This enables calculation of the total magnetic flux density,

$B = (Bx^2 + By^2 + Bz^2)^{1/2} = (Vx^2 + Vy^2 + Vz^2)^{1/2}/S.$



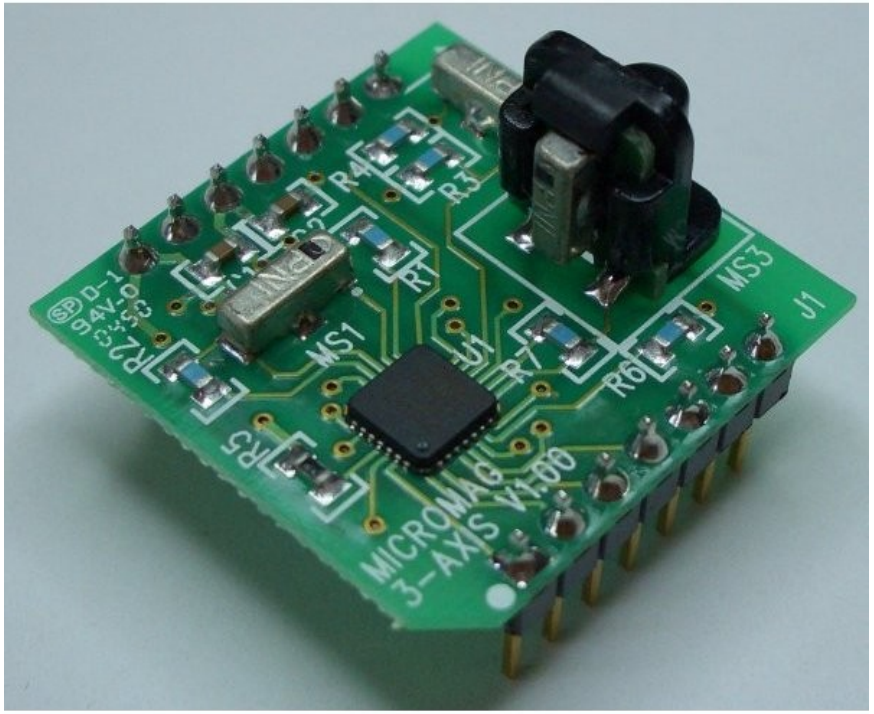
The MFS-3A is not RoHS compliant.

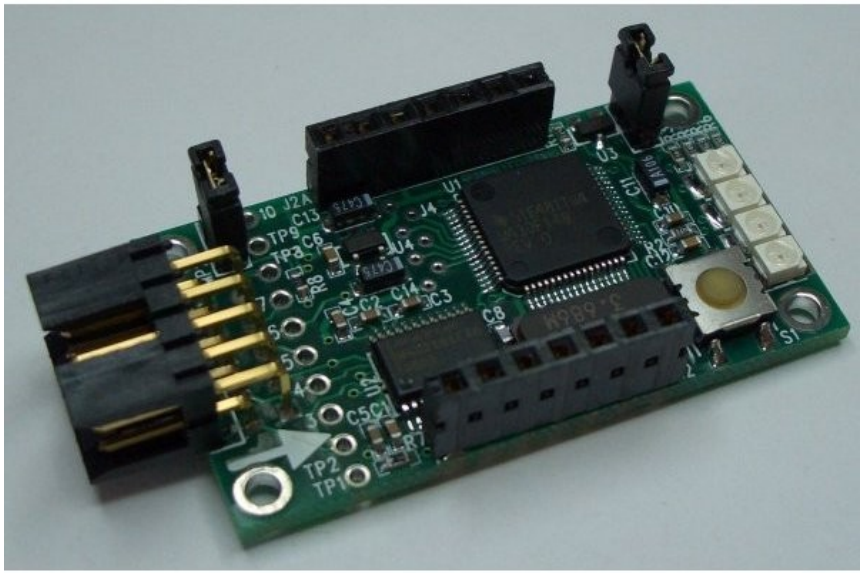
Size: 0.39 x 0.53 x 0.47inch
Range: 73gauss
Cost: $24 per sensor

Must build double ended amplifier for each channel (3 Twinax => 6 Twin ax), 1 power (1 Twinax), total cables=7.

Box upstairs to convert double ended to single ended amp to MADC

http://www.gmw.com/magnetic_sensors/sentron/csa/MFS3A.html





Size: At least 1” tall (more like 1.5”)
Range:+/- 11 gauss
Cost $240 (each).

Uses RS485, so 1 twinax for each 3axis system (=> 2 twinax for two probes). 1 twinax for supply.

Total: 3 twinax.
Requires microcontroller upstairs to decode and control boards.

2 ASICs – how long will they last in the tunnel. Quite tall.

http://www.sparkfun.com/commerce/product_info.php?products_id=418

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Keywords:

- In stock
- Lead free
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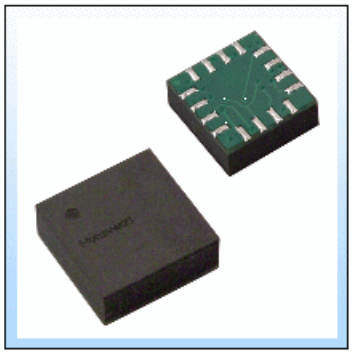
Digi-Key Part Number	342-1035-5-ND
Quantity Available	545
Manufacturer	Honeywell Microelectronics & Precision Sensors
Manufacturer Part Number	HMC 1053
Description	SENSOR MAGNETIC 3-AXIS 16-PLCC
RoHS Status	RoHS non-compliant

Price Break	Unit Price	Extended Price
1	55.00000	55.00
25	50.00000	1,250.00
100	42.00000	4,200.00
500	35.00000	17,500.00

All prices are in US dollars.



Quantity	Item Number	Customer Reference	
	342-1035-5-ND		Add to Order

When requested quantity exceeds displayed pricing table quantities, a lesser unit price may appear on your order.

Size: build from scratch, < 0.5”
Range: +/- 6 gauss
Cost: $55 per chip.

Must build double ended driver for each axis: 3 Twinax per probe, => 6 Twinax for 2 probes.
1 power Twinax: 7 Twinax in total

Must have box upstairs to convert double ended to single ended signal for MADC.