



## Miniature Fluxgate Magnetometer

3-axis Fluxgate Magnetometer für Felder < 1 Gauss

Model WFG-120

### Features:

- Complete 3-axis system
- Low noise Level:  $<3 \times 10^{-6}$  G RMS/Hz $^{1/2}$
- Measures fields up to 1 Gauss
- Low temperature coefficient
- Compact size: 0.75"x0.75"x 2.75" rectangle
- Operates from  $\pm 5$  VDC or  $\pm 7$  to  $\pm 12$ VDC at  $\pm 20$  mA
- Rugged construction



### Description:

The WFG-120 System is a complete 3 axis fluxgate magnetometer packaged in a rectangular/parallelepiped package of dimensions 0.75" x 0.75" x 2.75". The package corners are rounded to enable the unit to fit inside a 1.0" diameter cylinder. The system operates from one of two optional input voltages: regulated  $\pm 5$  VDC or unregulated  $\pm 7$  to  $\pm 12$ VDC and consumes a total power of 200 mW

The Fluxgate Magnetometer Model WFG-120 provides 3 analog output voltages proportional to the magnetic field magnitude in three orthogonal directions. Full scale output is  $\pm 4.0$  volts; this voltage represents a magnetic field of  $\pm 1.00$  Gauss. Output scale factor is adjusted to an accuracy of  $\pm 0.1\%$ . The system noise level is  $<3 \times 10^{-6}$  G RMS/Hz $^{1/2}$ .

As a magnetic compass, the Fluxgate Magnetometer Model WFG-120 can provide direction accuracy to better than  $0.1^\circ$ . Some applications combine the Fluxgate Magnetometer Model WFG-120 with a precision 3 axis accelerometer to provide roll, pitch and yaw angles accurate to  $0.1^\circ$ . In magnetic anomaly detection situations, the low noise level of the Fluxgate Magnetometer Model WFG-120 enables very small magnetic signatures to be measured. This enables signal detection at a large distance from the anomaly being measured. Range to the anomaly can be measured by using several Fluxgate Magnetometer Model WFG-120's to record both field and field gradient. Range is proportional to the quotient of these quantities.

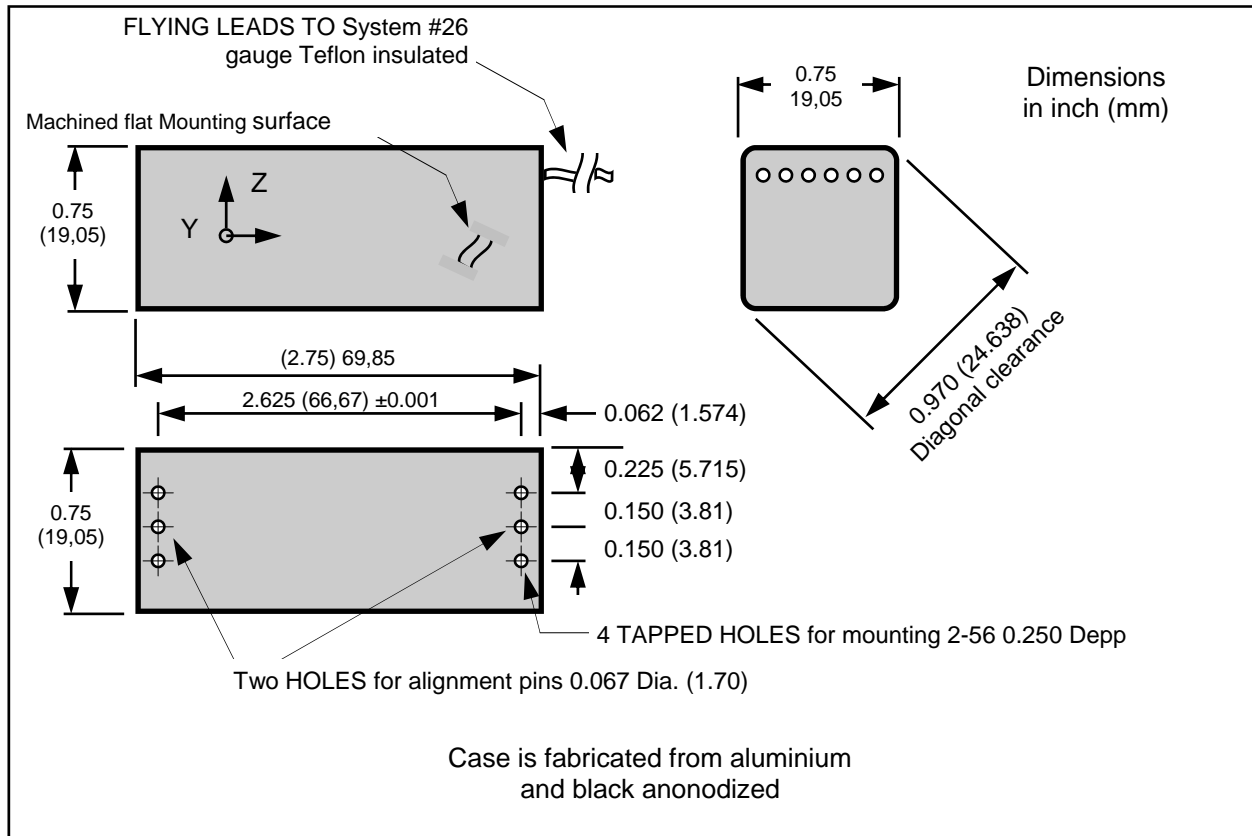
A calibration sheet is provided with each unit giving data on zeros, scale factors and orthogonality constants for each axis. This data enables external correction of the output voltages to increase overall system accuracy.

Connection to the system is accomplished by means of six #26 gauge Teflon insulated wires with a nominal length of 6".

### Application:

- OEM and System integration
- Fluxgate compass systems
- Measurement of magnetic signatures
- Magnetic fuses
- Measurement of magnetic fields generated by power lines

## Dimensions:



## Specifications:

Range: ..... 1 Gauss  
 Noise level: .....  $<1 \times 10^{-6}$  G RMS/root Hz<sup>1/2</sup>  
 Frequency Response: ..... DC to 400 Hz (-3 db)  
 Linearity: ..... ±0.1% of full scale  
 Drift in zero with temperature: .....  $<\pm 0.002$  V  
 Drift in Scale factor with temperature: .....  $<\pm 2 \times 10^{-5}$  G/°C  
 Sensitivity: ..... ±4 V/G  
 Orthogonality between axis: ..... ±0.2°  
 Alignment of sensor package with sensor reference surfaces: ..... ±0.2

Size (cylindrical): ..... Rectangular parallelepiped with rounded corners  
 0.75" (18 mm) x 0.75" (18 mm) x 2.75" (70 mm) (will fit inside 1" I.D. tube)

Weight: ..... 30 grams

Power input: ..... +5 VDC at 20 ma  
 ..... -5 VDC at -20 ma

Input connections: ..... six #26 gauge insulated wires 4" (102 mm) long

Order number	Model	Description
WFG-120-100	WFG-120	3 axis Fluxgate Magnetometer



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