

Miniature Fluxgate Magnetometer

3 axis Fluxgate Magnetomer for Fields < ± 1 Gauss or ± 10 Gauss

Model WFG-140

Features:

- Complete 3-axis system
- Compact size, rugged construction
- Low noise level:
- Measures fields up to ± 1 Gauss
- Operates from ± 15 VDC



Description:

The WFG-140 magnetometer is a complete 3 Axis Fluxgate Magnetometer system packaged in a rectangular package of dimensions 1.5"x1.5"x4.65". With low noise and small size, the instrument can be used wherever small magnetic fields (3×10^{-7} to 1 Gauss) need to be measured.

Output from the sensor is 3 analog voltages proportional to the magnetic field in three orthogonal directions. Full scale output is ± 10 volts, which represents a magnetic field of ± 1 Gauss. The system is simple to set up and operate.

An optional temperature sensor can be added to the WFG-140. This sensor is implemented by using an Analog Devices AD592. The temperature output is represented by an analog voltage present on pin A of the system Bendix connector. The temperature output signal is proportional to the absolute temperature; scale factor is 5 mv/°K. At room temperature (20°C or 293°K) the temperature output voltage is 1.465V.

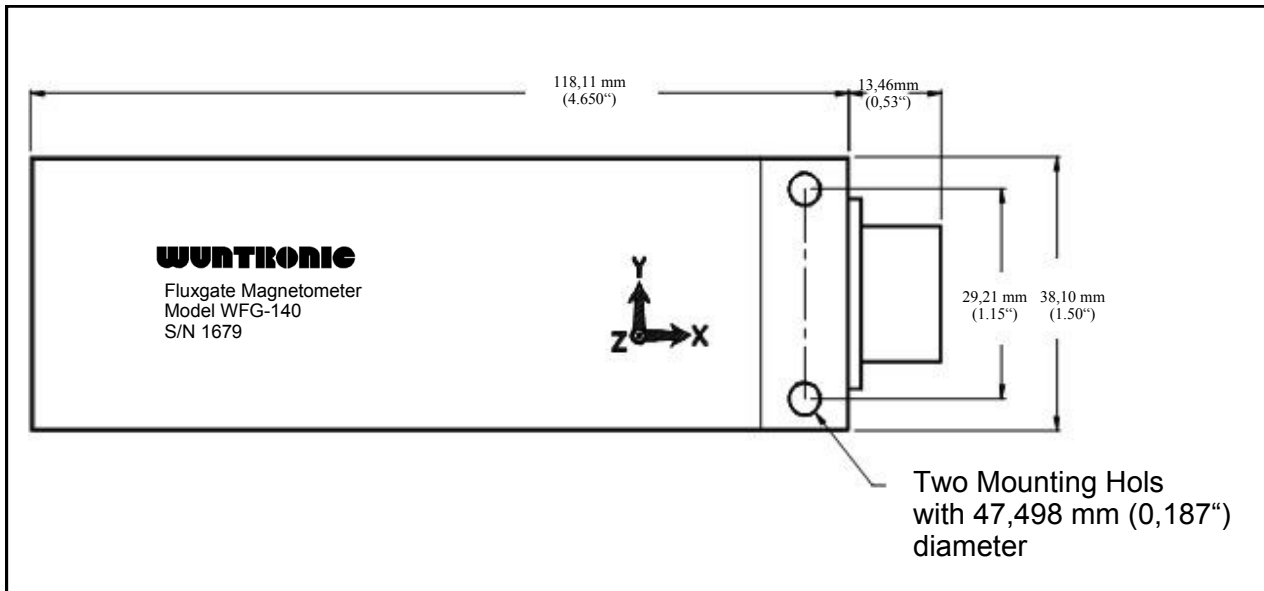
The Model WFG-140 is powered from bipolar ± 15 VDC supplies. Two internal regulators are present in the WFG-140, which produce ± 12 VDC for internal use. Connection to the 536 is accomplished by means of a 10 pin Bendix connector.

For sensor alignment, the X axis is aligned parallel to the package long dimension. The Z axis is aligned with the two through holes in the aluminum connector mounts. The system's Y axis is orthogonal to the X and Z directions. The output polarity sense of the axes is such that a field increase in the direction of the arrows produces an increase in the voltage output for that axis. In general, the magnetic axis of the Model WFG-140 is orthogonal and aligned to within $\pm 0.2^\circ$ of the coordinate system specified by the outer package alignment surface and alignment holes.

Application:

- OEM and System integration
- Measurement of the earth's magnetic field
- Fluxgate compass systems
- Magnetic anomaly detection

Dimensions:



Specifications:

Physical:

Width/Height..... 38,1mm (1.5")
 Length (excluding connector)..... 118,11mm (4.650")
 Weight:..... 100g
 Connectors..... Bendix P/N PT02A-12-10S P/N PT06A-12-10P (SR),

Electrical:

Power requirement..... $\pm 15V$
 Power consumption..... $\pm 15V @ \pm 60 \text{ ma}$
 Initial offset..... $< \pm 0.010V$

Environmental:

Noise level..... $< 0.03 \text{ nT RMS/Hz}^{1/2}$
 $0.3 \mu\text{G RMS/Hz}^{1/2}$
 Frequency response DC to 400 Hz (-3 db)
 Sensitivity 10V/Gauss
 Dynamic range $\pm 1 \text{ Gauss or } \pm 10 \text{ Gauss}$
 Temp. Coefficient Zero Output $< \pm 3 \text{ nT/}^\circ\text{C} (< \pm 30 \mu\text{G/}^\circ\text{C})$
 Temperature Scale Factor $< \pm 0.1\% \text{ Full Scale/}^\circ\text{C}$
 Orthogonality Between Axis $\pm 0.2^\circ$
 Alignment of sensor package $\pm 0.2^\circ$
 with sensor reference surfaces
 Linearity $\pm 0.2\%$

Order Information:

Bestell Nr.	Modell	Beschreibung
WFG-140-100	WFG-140	3 achsiges Fluxgate Magnetometer $\pm 1 \text{ G}$ Bereich
WFG-140-110	WFG-140-10	3 achsiges Fluxgate Magnetometer $\pm 10 \text{ G}$ Bereich