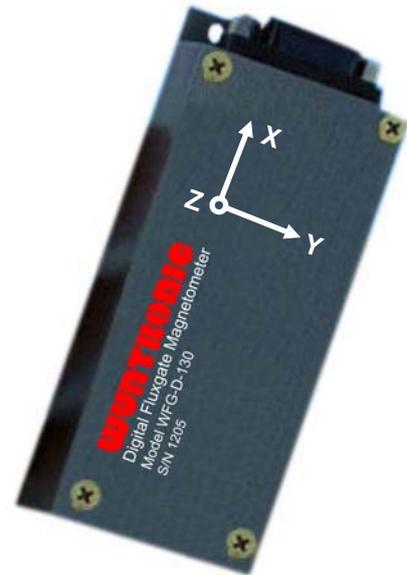# Digital Fluxgate Magnetometer System
3 dimensional Digital Fluxgate Magnetometer for fields up to ±1G

Modell WFG-D-130

Features:

- RS232 and TTL Digital Outputs

- Complete 3 axis system

- Range ±100µT (±1 G)

- Operates from +4.9 VDC to +9 VDC

- Easy to use

- Configuration and Data Acquisition via Windows based Software

- Small Size

Description:

The Model WFG-D-130 is the first high speed digital output 3 axis fluxgate magnetometer to be commercially available. The Digital Fluxgate Magnetometer system can convert and transmit over its serial port (at 38400 baud) all three axes outputs at a rate of 250 samples per second. Slower data rates can also be selected; transmission rate and baud rates are user programmable.

The Digital Fluxgate Magnetometer Model WFG-D-130 uses 3 separate 16 bit sigma delta converters to achieve the high throughput. The scale factor is set so that a full scale input of 10^{-4}T (1G) represents 32768 counts on the system A to D's. The least count represents about 3nT. Noise of the system is 1 - 2 counts.

The Digital Fluxgate Magnetometer system Model WFG-D-130 is ideally suited to situations where high speed magnetic data must be acquired and analyzed. In the past, such systems have normally used a combination of an analog output fluxgate and an A to D board in a PC. The Model WFG-D-130 simplifies and reduces the cost of the magnetic data acquisition system by eliminating the cumbersome A to D board.

The Digital Fluxgate Magnetometer Model WFG-D-130 can be used in either a command mode or autosend mode. In the command mode, the Digital Fluxgate Magnetometer Model WFG-D-130 responds to commands to transmit data issued by an external computer. In the autosend mode, the Model WFG-D-130 commences sending data as soon as power is applied to the unit.

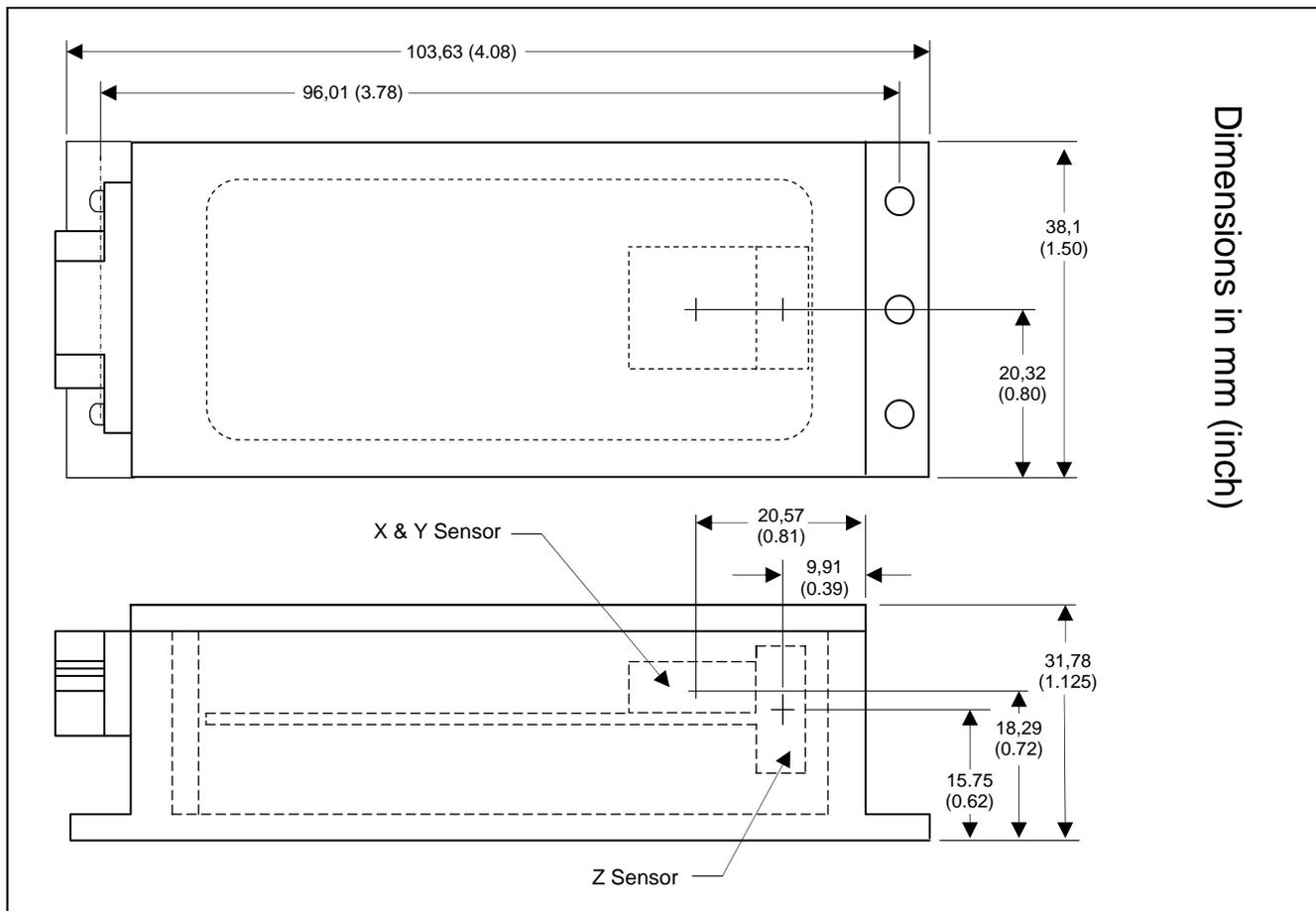The Digital Fluxgate Magnetometer Model WFG-D-130 can be supplied with an optional connection cable and breakout box which allows easy powering and connection to an external computer. A Windows compatible configuration and data acquisition and display program is supplied with the Digital Fluxgate Magnetometer Model WFG-D-130. This program enables the user to acquire and graphically display data as well as configure the Model WFG-D-130 send rate, baud rate, output format and other features.

In addition to the standard RS232 interface which is normally employed when communicating with a PC, the Model WFG-D-130 is also equipped with a TTL interface for communication with a microprocessor.

Applications:

- OEM and System integration

- 3 dimensional Magnetic Measurement

- High speed magnetic sensing

- Magnetic anomaly detection

- Guidance/Compassing

- Laboratory measurements

- Magnetic field mapping

- Materials testing

103,63 (4.08)

96,01 (3.78)

38,1 (1.50)

20,32 (0.80)

Dimensions in mm (inch)

X & Y Sensor

20,57 (0.81)

9,91 (0.39)

31,78 (1.125)

18,29 (0.72)

15.75 (0.62)

Z Sensor

Windows Software for Digital Fluxgate Magnetometers Series WFG-D-xxx

The picture shows the main display of the Sensor Interface Program. The upper left corner of the display contains the command buttons. The Monitor button brings up the monitor window and the Configure button brings up the configuration window. The Stop button issues the command to the sensor to stop sending data. The Auto Data button issues the command to the sensor to send data repeatedly. The Data Once button issues the command to send the data one time.

In the Graph Menu, a check mark before Magnetic X, Y, Z, T, Mag Roll and Azimuth labels enables or disables the item to be scrolled on the graph. The color of the item on the graph matches the color of the text in the numeric display windows.

In the View Menu, a check mark before Magnetic Min/Max enables the Minimum and Maximum Window. The minimum and maximum values are tracked and displayed in the upper right corner window. The values can be reset back to zero by pressing the Reset button

Spezifications

Accuracy .... ±1% FS
Noise level.. ±3 nT (±0.03 mG)
Range... ±100 µT (±1 G)
Scale stability ....±.05% FS/°C
Initial offset .... < ±200 nT (±2 mG)
Offset vs. temp .... < 5nT/°C (<0.05 mG)
Orthogonality of axes ....better than ±0.5°
Alignment of axes with package ....better than ±0.5°
Linearity.. ±0.1% full scale
Maximum data transfer..250 3-axis samples/sec speed (38,400 baud)

Power ....50ma @ +4.9 to +9 VDC
A to D .... 16 bit Sigma Delta
Baud rate (user selectable) 300, 1200, 2400, 4800, 9600, 19200, 38400, 72800
Operating temperature range .... -25 to 70º C

Size .... 1.60" W x 4.08" L x 1.125" H
Connector.. 9 pin nonmagnetic "D"

Order number	Model	Description
WFG-330-100	WFG-D-130	HighSpeed Digital Fluxgate Magnetometer WFG-D-130