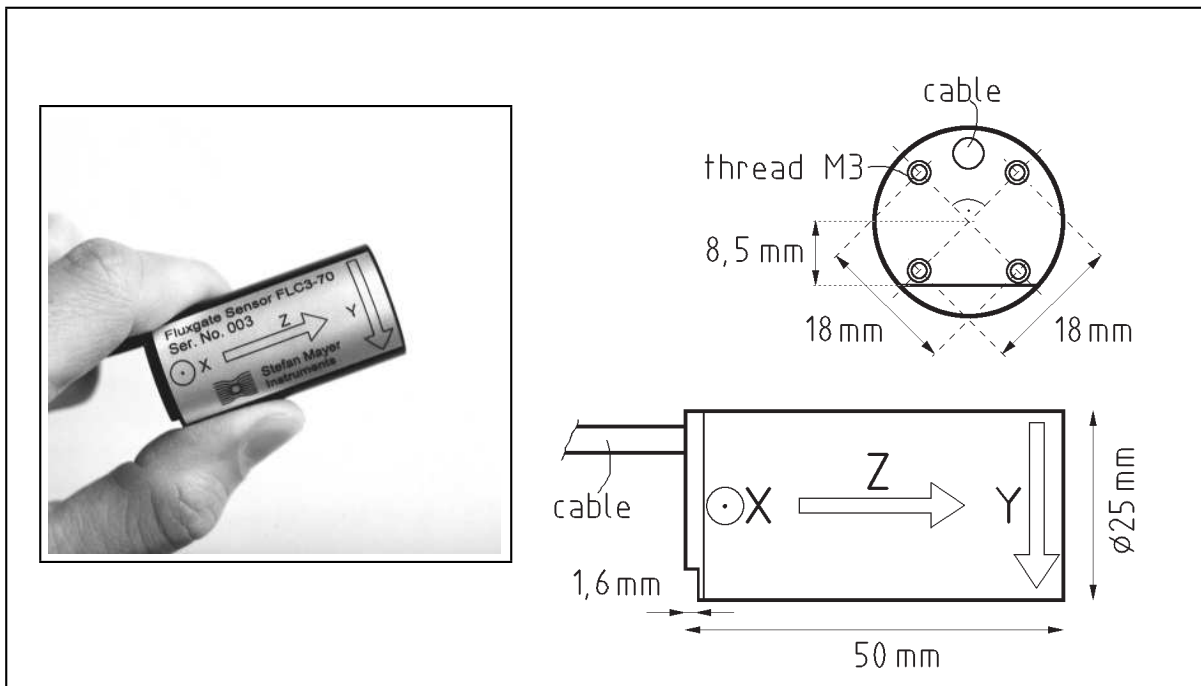


Magnetic Field Sensor FLC3-70

Triaxial fluxgate sensor with high sensitivity

Measurement range up to $\pm 200 \mu\text{T}$, DC to 1 kHz



Features

- 3 analog output signals proportional to magnetic field components X, Y, and Z
- Low noise and high stability of output signal
- Low cost
- Complete three axis miniature magnetometer
- Single power supply 4,8 V to 12 V
- Only 6 mA current consumption
- Simple integration into μP systems
- Operating temperature up to 125 °C

Applications

- Measurement of the earth's magnetic field, geomagnetic applications
- Detection of fields from power lines, ELF measurement
- Borehole orientation
- Navigation
- Magnetic signatures, vehicle detection
- Magnetic field control and compensation
- Material and package inspection
- Residual field measurement (shielding effectiveness)

Description

The magnetic field sensor FLC3-70 is a triaxial miniature fluxgate magnetometer for the measurement of weak magnetic fields up to $200\ \mu\text{T}$. This sensor can be used in any application where the sensitivity and stability of conventional magnetic field sensors (Hall or MR sensors) is too low, e. g. for the measurement of the earth's magnetic field (for navigation or magnetospheric research).

The FLC3-70 is a complete three axis fluxgate magnetometer. The analog output voltages are proportional to the three components X , Y and Z of the magnetic field. Due to its single supply voltage of 4.8 V to 12 V and low current consumption it is the ideal choice for battery powered or μP controlled applications.

The FLC3-70 sensor can be operated at temperatures up to $125\ ^\circ\text{C}$. It is suitable for deep drilling, space and airborne applications.

Specifications

Measuring range	$\pm 200\ \mu\text{T}$ @ 12 V supply voltage, other ranges on request
Accuracy at $20\ ^\circ\text{C}$	$\pm 1\% \pm 0.5\ \mu\text{T}$
Orthogonality of meas. directions	$\pm 1\ ^\circ$
Operating temperature	$-25\ ^\circ\text{C}$ to $+125\ ^\circ\text{C}$
Zero drift	$< 2\ \text{nT/K}$ ($15\ ^\circ\text{C}$ to $60\ ^\circ\text{C}$)
Supply voltage $V_+ - V_-$	4.8 V to 12 V DC
Supply current	$\sim 6\ \text{mA}$
Reference output $OUT-$	$(V_+ - V_-)/2 \pm 1\%$
Output voltages X , Y , Z ref. to $OUT-$	$\pm 1\ \text{V}/35\ \mu\text{T}$, max. $\pm (V_+ - V_-)/2$
Bandwidth	0 to 1 kHz ($-3\ \text{dB}$)
Ripple @ excitation freq. = 17 kHz	typ. $3\ \text{mV}_{\text{rms}}$
DC output impedance	$220\ \Omega$
Noise	$< 0.5\ \text{nT}_{\text{RMS}}$ or $3\ \text{nT}_{\text{PP}}$ (0.1 Hz to 10 Hz), typ. $120\ \text{pT}/\sqrt{\text{Hz}}$ @ 1 Hz
Dimensions	diam. $25\ \text{mm} \times 50\ \text{mm}$
Enclosure	PEEK, bone
Connection cable	6 conductors

