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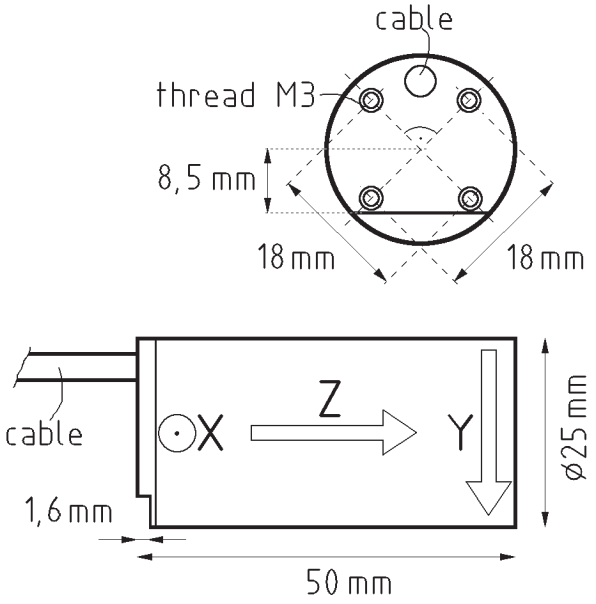
# Magnetic Field Sensor FLC3-70

**Triaxial fluxgate sensor with high sensitivity**

**Measurement range up to ±200 $\mu$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 $\mu$P 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

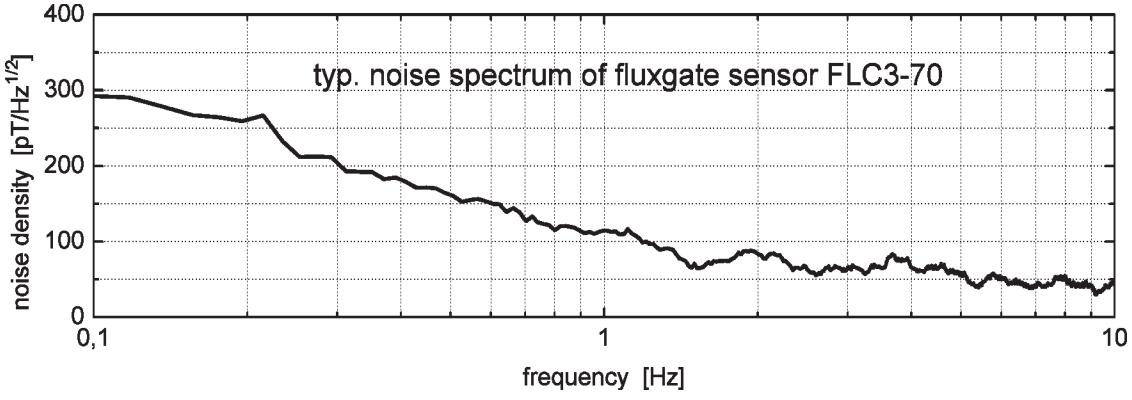
The magnetic field sensor FLC3-70 is a triaxial miniature fluxgate magnetometer for the measurement of weak magnetic fields up to 200 $\mu$T. This sensor can be used in any application where the sensitivity and stability of conventional magnetic field sensors (Hall or MR sensors) is too low, e. g. for 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 $\mu$P controlled applications.

The FLC3-70 sensor can be operated at temperatures up to 125 °C. It is suitable for deep drilling, space and airborne applications.

## Specifications

| | |
|---|---|
| Measuring range | $\pm 200$ $\mu$T @ 12 V supply voltage,<br>other ranges on request |
| Accuracy at 20 °C | $\pm 1\% \pm 0.5$ $\mu$T |
| Orthogonality of meas. directions | $\pm 1$ ° |
| Operating temperature | $-5$ °C to $+125$ °C |
| Zero drift | $<2$ nT/K (15 °C to 60 °C) |
| Supply voltage $V_+ - V_-$ | 4.8 V to 12 V DC |
| Supply current | $\sim$6 mA |
| Reference output $OUT-$ | $(V_+ - V_-)/2$ $\pm 1\%$ |
| Output voltages $X$, $Y$, $Z$ ref. to $OUT-$ | $\pm 1$ V/35 $\mu$T, max. $\pm(V_+ - V_-)/2$ |
| Bandwidth | 0 to 1 kHz ($-3$ dB) |
| Ripple @ excitation freq. = 17 kHz | typ. 1.6 $mV_{PP}$ |
| DC output impedance | 220 $\Omega$ |
| Noise | $<0.5$ $nT_{RMS}$ or 3 $nT_{PP}$ (0.1 Hz to 10 Hz),<br>typ. 120 pT/$\sqrt{\text{Hz}}$ @ 1 Hz |
| Dimensions | diam. 25 mm $\times$ 50 mm |
| Enclosure | PEEK, bone |
| Connection cable | 6 conductors |




Subject to alterations.