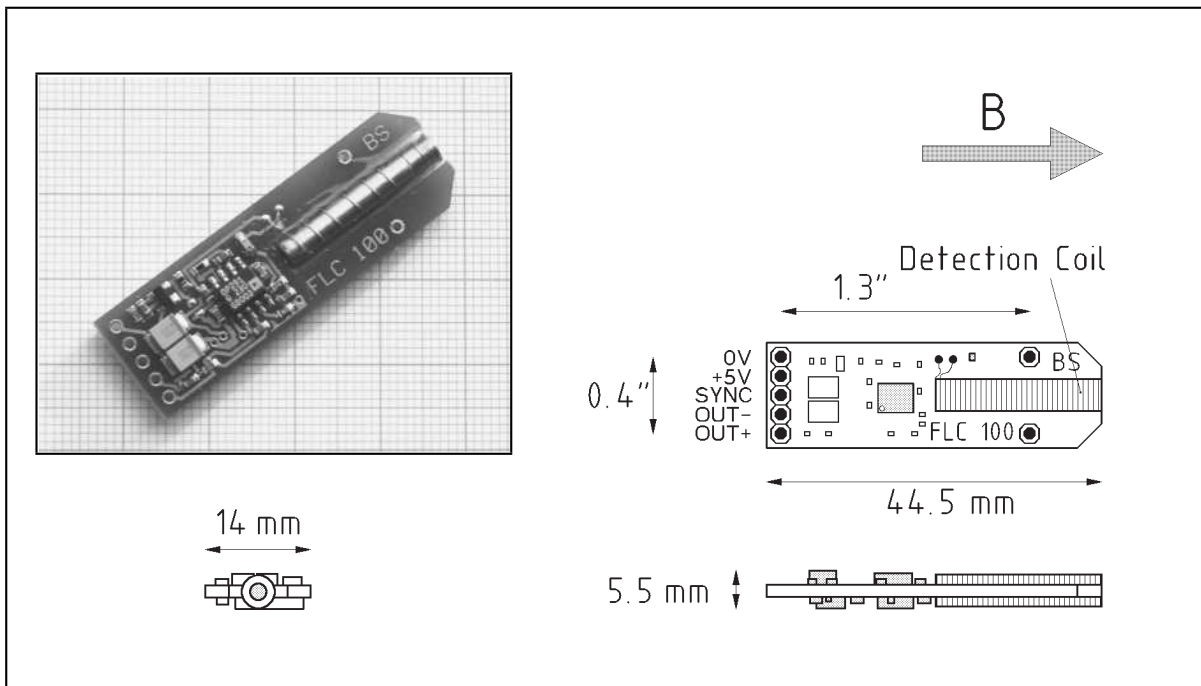


## Magnetic Field Sensor FLC 100

Miniature fluxgate sensor with high sensitivity

Measurement range  $\pm 100 \mu\text{T}$ , DC to 1 kHz



### Features

- Output voltage proportional to magnetic field
- Low noise and high stability of output signal
- Low cost
- Complete miniature magnetometer
- Single 5 V power supply
- Only 2 mA current consumption
- Simple integration into  $\mu\text{P}$  systems
- Temperature range  $-40 - +85 \text{ }^\circ\text{C}$ , extended temp. range on request

### Applications

- Measurement of the earth's magnetic field, navigation
- Detection of fields from power lines
- Current measurement
- Distance sensors
- Magnetic signatures
- Vehicle detection, traffic control
- Material and package inspection
- Residual field measurement (shielding effectiveness)

## Description

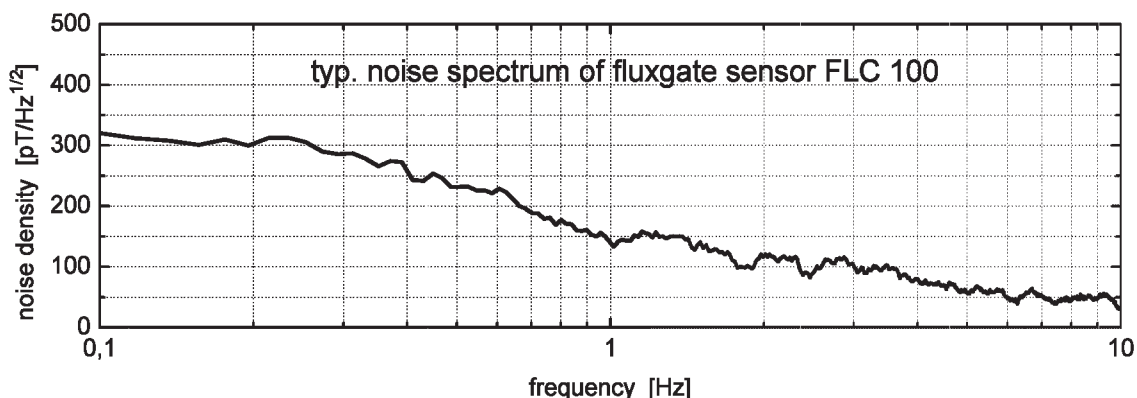
The magnetic field sensor FLC 100 is a miniature fluxgate magnetometer with high resolution for the measurement of weak magnetic fields up to  $100 \mu\text{T}$ . This sensor can be used in any application where the sensitivity and stability of conventional magnetic field sensors (Hall or MR sensors) is too low, e. g. for the measurement of the earth's magnetic field (for navigation) or if ferrous objects should be detected at larger distances.

The FLC 100 is a complete single axis fluxgate magnetometer which works without external drive circuits. The analog output voltage is proportional to the component of the magnetic field parallel to the detection coil. Due to its single 5 V supply voltage and low current consumption it is ideally suited for battery powered or  $\mu\text{P}$  controlled applications

The supply and signal lines are connected to solder pads which are positioned at nodes of a 0.1 inch grid. The excitation frequencies (typ. 17 kHz) of several sensors can be synchronized by connecting the SYNC pads to each other.

## Specifications

Meas. range	$\pm 100 \mu\text{T}$ , other ranges on request
Accuracy at 20 °C	$\pm 2\% \pm 0.3 \mu\text{T}$
Operating temperature	-40 to +85 °C
Zero drift	$< 2 \text{ nT/K}$
Output voltage OUT+ ref. to OUT-	$\pm 1 \text{ V}/50 \mu\text{T}$ , max. $\pm 2,5 \text{ V}$
Bandwidth	0 to 1 kHz (-3 dB)
DC output impedance	$< 1 \Omega$
Reference output OUT-	2.5 V ref. to supply ground (0 V)
Max. load between OUT+ and OUT-	$> 1 \text{ k}\Omega$ , $< 100 \text{ pF}$
Noise	$< 0.5 \text{ nT}_{\text{RMS}}$ or $3 \text{ nT}_{\text{PP}}$ (0.1 to 10 Hz), $\sim 150 \text{ pT}/\sqrt{\text{Hz}}$ @ 1 Hz
Supply voltage	5 V $\pm 5\%$
Supply current	$\sim 2 \text{ mA}$
Dimensions	44.5 mm $\times$ 14 mm $\times$ 5.5 mm
Length of detection coil	22 mm



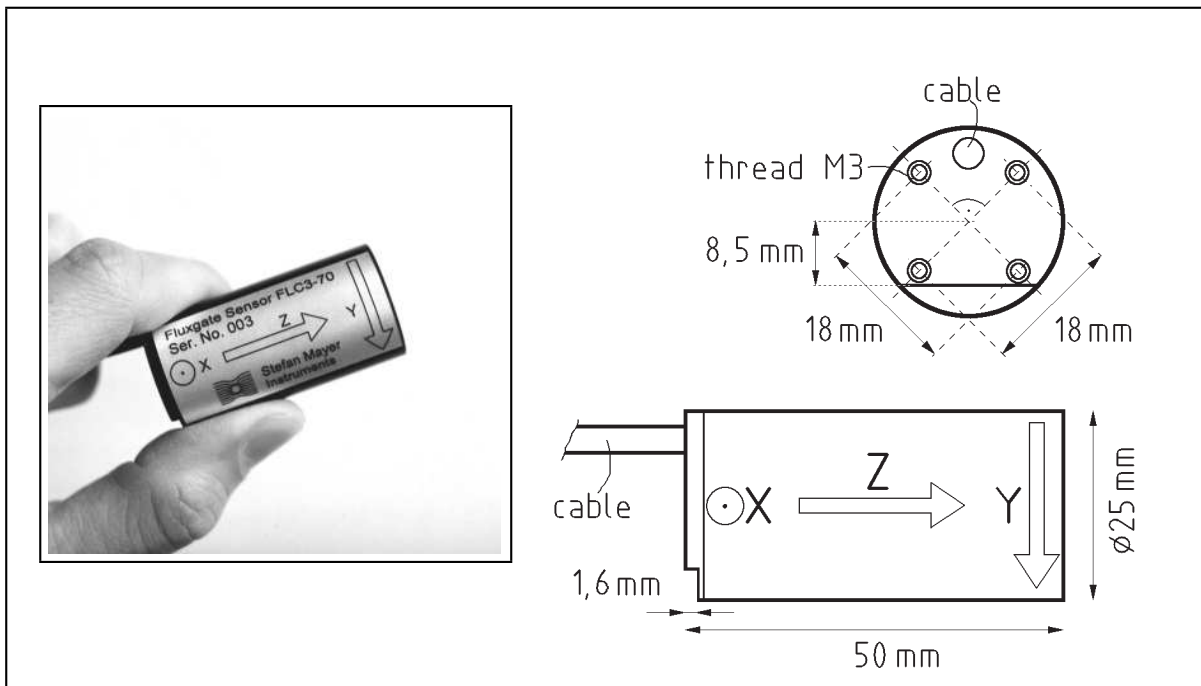
Subject to alterations.



## 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  $\mu\text{P}$  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

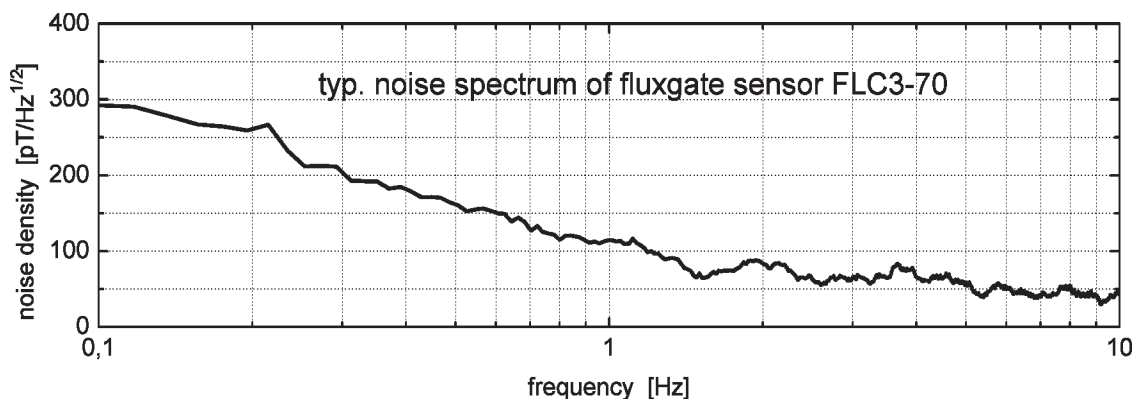
The magnetic field sensor FLC3-70 is a triaxial miniature fluxgate magnetometer for the measurement of weak magnetic fields up to 200  $\mu\text{T}$ . This sensor can be used in any application where the sensitivity and stability of conventional magnetic field sensors (Hall or MR sensors) is too low, 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  $\mu\text{P}$  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 mm $\times$ 50 mm
Enclosure	PEEK, bone
Connection cable	6 conductors



November 2021. Subject to alterations.