

## Vertical difference magnetometer FGM650 Series



### Features

- Vertical difference magnetometer with two single-axis magnetometers
- 650 mm sensor element spacing
- suitable for magnetic area surveys and borehole measurements
- measurement range  
FGM650/10:  $\pm 10 \mu\text{T}$   
FGM650/3:  $\pm 8 \mu\text{T}$
- sensitivity  
FGM650/10:  $0.5\text{V}/1 \mu\text{T}$   
FGM650/3:  $0.6\text{V}/1 \mu\text{T}$
- waterproof enclosure (IP68K down to 100m available)

The FGM650/10 is a vertical difference magnetometer with a standard measurement range of  $\pm 10 \mu\text{T}$ . It is used in various surface-, underwater- and borehole measurement systems for the detection of magnetic objects, interference fields and signatures in the ground.

The FGM650/10 consists of two single-axis Fluxgates that are aligned vertically to each other in a distance of 650 mm. This alignment allows for differential measurements thus suppressing the Earth's magnetic field and global disturbances. The result is an improved detection of object signatures in the ground.

The FGM650/10's rugged aluminum housing makes the sensor also a suitable device for borehole measurements e.g. with the SENSYS MAGNETO® BM DISTLOG system with distance measurement.

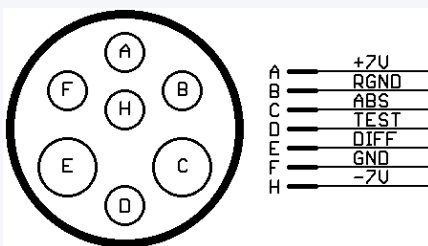
Also available: FGM650/3 which features a measurement range of  $\pm 8 \mu\text{T}$  for applications in archaeology and geophysics. Thus even finest ground structures can be scanned.

### Applications

- Science & Geophysics
- Marine & Armed Forces
- Archaeology

# Technical Data FGM650

<b>Maximum ambient field</b>	<b>±75 µT</b>
Specified measurement range	FGM650/10: ±10 µT FGM650/3: ±8 µT
Sensor element spacing	650 mm
Point of reference	393mm*/4mm**
Declination	±5 nT
Resolution	<0.2nT
Noise	<40 pT <sub>rms</sub> /√Hz@1 Hz
Cut off frequency (bandwidth)	20Hz (DC...20Hz)
Temperature drift	<0.3 nT/K
Drift over time	t.b.d.
Stability	<1nT
Linearity	<0.1%
Compensation range	n.a.
Sensitivity gradiometer	FGM650/10: 0.5 V/µT FGM650/3: 0.6 V/µT
Sensitivity absolute	5.0V / 75 µT
Output	FGM650/10: ±5V full scale FGM650/3: ±4,8V full scale
Power supply	± 7,0 V to ± 15,0 V
Current consumption	±26 mA
Operating temperature	-20...+70°C
Storage temperature	-40...+80°C
Dimensions	35 mm diameter x ca. 850 mm length (without connector)
Weight	0,72 kg
IP code	IP68K down to 100m available
* measured from edge between head and tube	** from symmetry axis



Connector pinout

Pin	Signal	Description
A	+7V	positive supply voltage
B	RGND	return ground / analogue output reference (0V)
C	ABS	absolute field output of top sensor
D	TEST	Test-Input
E	DIFF	gradiometer output
F	GND	power ground (0V)
G	-7V	negative supply voltage

Test signal	Description
Deactivated (standard mode)	Option 1: no connection to sensor Option 2: connection of connector cable to +7V
Activated (test mode)	Connect test signal to -7V; Result: gradiometer output is approx. at +7,000 nT