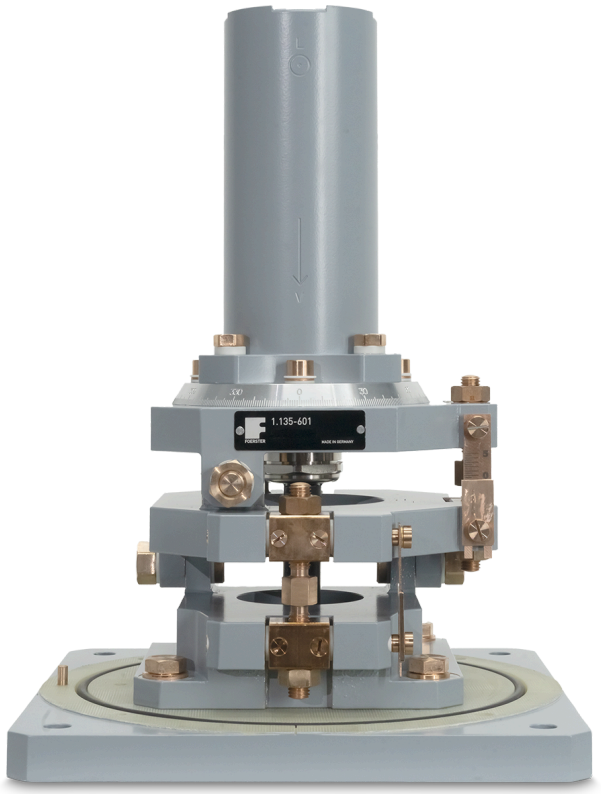
FOERSTER

3-AXIS FLUXGATE MAGNETOMETER

Precise measurement and monitoring of vessel magnetic signatures



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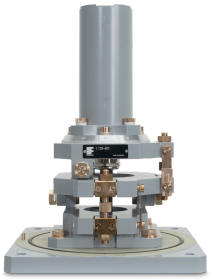

Reliable monitoring and control of vessel magnetic signatures in naval degaussing systems. Ferromagnetic components in ship structures and onboard equipment give every vessel an inherent magnetic signature. In addition, the movement of the ship's hull through the Earth's magnetic field induces electrical currents that generate further magnetic fields. These signatures pose a significant risk, as underwater mines primarily respond to magnetic signals.

The 3-AXIS-FLUXGATE-MAGNETOMETER continuously measures the vessel's total magnetic signature and provides this information to the onboard degaussing system. Based on these measurement data, the magnetic signature can be actively compensated and reduced to a safe minimum.

The sensor unit consists of three orthogonally arranged fluxgate probes that measure the vertical (V), athwartship (A), and longitudinal (L) components of the magnetic field at the measurement location. The probes are mounted in a high-precision mechanical fixture that ensures exact orthogonality and enables precise alignment of the sensor relative to the vessel.

FOERSTER fluxgate technology has proven its reliability in decades of operation on naval and research vessels worldwide, delivering stable and accurate measurements even under harsh maritime environments. This expertise is rooted in the company's long history of magnetic measurement technology, dating back to Friedrich Förster, the founder of Institut Dr. Foerster and one of the pioneers of fluxgate magnetometer technology.

The system can be operated either as a single sensor or as part of multi-sensor networks to capture complex three-dimensional magnetic field distributions.

YOUR ADVANTAGES AT A GLANCE

3-axis magnetic field measurement: Precise 3-axis measurement of magnetic field components (V, A, L)

Proven fluxgate technology: Reliable fluxgate technology proven in decades of maritime operation

High-precision sensor alignment: High-precision orthogonal sensor assembly for accurate measurements

Maritime-grade design: Designed for harsh maritime environments

Continuous signature monitoring: Suitable for continuous monitoring of vessel magnetic signatures

Degaussing system integration: Seamless integration into ship degaussing systems

Scalable sensor networks: Expandable to multi-sensor networks for complex magnetic field analysis

TECHNICAL INFORMATION

SYSTEM	
MEASUREMENT RANGE:	± 60 µT *
MAX. MEASUREMENT ERROR (FS):	± 3 %
TEMPERATURE COEFFICIENT OF THE MEASURING RANGE:	< 10-4/K
DRIFT OVER TEMPERATURE RANGE AND LONG-TIME DRIFT:	< ± 60 nT
CUT-OFF FREQUENCY (3 DB POINT) IN 60 MT RANGE:	> 400 Hz
PROBE	
PROBE TYPE:	Fluxgate magnetometer
TEMPERATURE RANGE:	–40°C to 60°C
EXTERNAL DIMENSIONS:	250 × 250 × 359 mm (L × W × H)
HOUSING:	Flood water proof, sea water proof, GfK-Material
VIBRATION AND SHOCK RESISTANCE:	— Vibration proof in accordance with BV044, edition 10/75, load stress in accordance with vibration curve 10 for surface ship — Shock-proof for shock loading in accordance with class A, diagrams 3 and 4, installation zone III, BV043 (edition 1985)

***** Further technical data and configurations available on request.

FOERSTER

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The FOERSTER Group is represented by subsidiaries and representatives in over 60 countries worldwide. You can find a complete overview on our website.

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