FOERSTER

FEREX PRODUCT FAMILY

Fluxgate magnetometers for the detection of ferromagnetic objects

FEREX PRODUCT FAMILY

Fluxgate magnetometers for the detection of ferromagnetic objects

Reliable detection of geomagnetic anomalies. The FEREX product family comprises passive fluxgate magnetometers for detecting ferromagnetic objects and geomagnetic anomalies. The highly sensitive sensors measure changes in the Earth's natural magnetic field caused by ferromagnetic materials such as iron, steel or nickel. As the measurement is passive, the magnetometers do not generate an electromagnetic field themselves.

Depending on the application, FEREX solutions range from the manual localization of individual objects and systematic, geo-referenced large-area surveys to borehole and underwater applications. Measurement data can be used directly for object localization or recorded for subsequent visualization and analysis.

Typical applications include UXO detection and the location of unexploded ordnance such as bombs and shells. As soil structures can also cause geomagnetic anomalies, highly sensitive magnetometers are also suitable for archaeological and geophysical surveys.

The underlying technology has a long tradition at FOERSTER: As early as 1937, Friedrich Förster discovered the influence of the Earth's magnetic field on his measurement setup while investigating the magnetic properties of materials. This led him to develop highly sensitive instruments for measuring magnetic fields and laid the foundation for the technology later known as the Förster probe – a measurement principle on which FEREX fluxgate magnetometers are still based today.

YOUR ADVANTAGES AT A GLANCE

High detection sensitivity: Highly sensitive fluxgate magnetometers for reliable detection of geomagnetic anomalies

Passive detection: Measurement of changes in the Earth's natural magnetic field without generating an electromagnetic field

Flexible system solutions: From manual object detection to systematic large-area, borehole and underwater surveys

Scalable area coverage: Single- and multi-probe solutions for different survey requirements and area sizes

Precise data acquisition: Options for recording and geo-referencing measurement data for systematic surveys

Versatile applications: Suitable for UXO detection as well as archaeological and geophysical surveys

FEREX 4.035

Digital fluxgate magnetometer with LED display for the detection of ferromagnetic materials

Reliable detection of ferromagnetic objects. FEREX 4.035 is a compact fluxgate magnetometer designed for the reliable detection of ferromagnetic objects. It measures local disturbances in the Earth's magnetic field caused by materials such as iron, steel or nickel, making it particularly suitable for locating buried or concealed objects.

Compared to active EMI detectors, magnetometers can achieve greater detection depths under normal conditions. The actual detection depth depends primarily on the mass and magnetic properties of the object. This makes the FEREX 4.035 a versatile solution for applications ranging from general ferromagnetic object detection to the location of UXO such as bombs, shells and cluster munitions.

At the heart of the system is the highly sensitive FEREX MG-10-550 probe. Its low-noise design provides high detection sensitivity, while the compact, one-piece configuration supports convenient and precise operation in the field.

Integrated filters and dedicated search modes further extend the range of applications. They enable reliable measurements even in environments affected by potential interference, such as beneath high-voltage power lines or along fences, railway tracks and pipelines. A dedicated mode for suppressing small ferromagnetic objects helps users focus the search on relevant targets. With optional equipment, the FEREX 4.035 can also be configured for borehole and underwater surveys.

YOUR ADVANTAGES AT A GLANCE

High detection sensitivity: Calibration-free tension-band technology and low noise for reliable detection of ferromagnetic objects

Precise detection: Suitable for locating ferromagnetic materials and UXO such as bombs, shells and cluster munitions

Greater detection depth: Under normal conditions, greater detection depth compared to active EMI detectors

Designed for challenging environments: Integrated filters and dedicated search modes for measurements beneath high-voltage power lines and along fences, railway tracks and pipelines

Targeted object detection: Dedicated mode for suppressing small ferromagnetic objects

Compact and mobile: Lightweight, one-piece design for precise and convenient operation in the field

Versatile accessories: Optional equipment for borehole and underwater surveys, as well as extension cables up to 100 m, towing rope, ballast weight and headphones

TECHNICAL INFORMATION

SCOPE OF DELIVERY:	— FEREX 4.035 compact unit including FEREX MG-10-550 probe — Carrying strap — Carrying case — Batteries — Operating instructions
WEIGHT:	— 3.3 kg complete detector incl. batteries — 11.1 kg complete detector set in case
DIMENSIONS:	— FEREX – 1,250 mm (H) — Case – 989 × 415 × 157 mm (H × W × D)
TEMPERATURE RANGE:	— Operation: -37 °C to +71 °C; -99 °F to +160 °F (ambient temperature) — Stock: -57 °C to +71 °C; -135 °F to +160 ° F
POWER SUPPLY:	4 × 1.5 V alkaline batteries (LR20) or 4 × 1.2 V NiMH (HR20)
BATTERY SIZE:	IEC LR20/HR20 – ANSI „D"
BATTERY LIFETIME:	> 70 hrs
MEASURING RANGES IN FEREX MODE:	7 linear ranges: 0 - 10 nT to 0 - 10,000 nT
COMPENSATION RANGE:	±950 nT
PROTECTION GRADE:	IP 65
PROBE TYPE:	Fluxgate Gradiometer (MG-10-550)
BASE DISTANCE:	550 mm
APPLICATION RANGE:	±62.500 nT
MEASURING RANGE:	— ±10.000 nT gradient — ±62.500 nT absolute
REFERENCE POINT:	97,5 mm from end of probe rod, 4 mm outside symmetry axis
DECLINATION:	±3 nT
NOISE:	<40 pT √ Hz @ 1 Hz
CUT-OFF FREQUENCY:	230 Hz
TEMPERATURE DRIFT:	<1 nT/K
UNCERTAINTY OF MEASUREMENT:	<2 % ref. ±10.000 nT
LINEARITY:	<1 nT referred to maximum measuring range
PROTECTION GRADE:	IP68, 100 m with optional sealing plug
EXTERNAL DIMENSIONS:	— Diameter 39.4 mm (with protective cap) — probe length 750 mm — base distance 550 mm
NATO STOCK NUMBER (NSN):	6665-12-420-7755

CERTIFICATIONS

MIL-Standard certifications

- MIL-STD 810G Method 514.6, Procedure I, Random Vibration
- MIL-STD 810G Method 516.6, Procedure I, Mechanical Shock
- MIL-STD 810G Method 516.6, Procedure IV, Transit Drop Test
- MIL-STD 810G Method 501.5, Procedure I, High Temperature
- MIL-STD 810G Method 502.5, Procedure I, Low Temperature
- MIL-STD 810G Method 503.5, Procedure I-C, Temperature Shock
- MIL-STD 810G Method 506.5, Procedure I, Blowing Rain
- MMIL-STD 461G RS103 Radiated Susceptibility
- MIL-STD 461G RE102 Radiated Emission
- AEODP-7 Edition B, Annex A-1
- European Directive 2014/30/EC, EN 61326-1

ACCESSORIES

FEREX BOREHOLE DETECTION
Borehole detection system for deeply buried ferromagnetic objects

FEREX 4.034

Digital fluxgate magnetometer for detection of ferromagnetic metals with data logging and comprehensive application software

Precise detection and documentation of geomagnetic anomalies. The FEREX 4.034 is a digital fluxgate magnetometer designed for the systematic detection of geomagnetic anomalies across large areas. It measures disturbances in the Earth's magnetic field caused by ferromagnetic materials such as iron, steel or nickel. Typical applications range from locating UXO such as bombs, shells and cluster munitions to detecting underground structures and infrastructure.

Depending on the application, the FEREX 4.034 can be operated in either direct meter mode or data recording mode. Four data recording channels allow the simultaneous use of up to four fluxgate magnetometer probes and expansion into a multi-probe system for efficient large area surveys.

Alternative sensors, GNSS systems and distance encoders can be connected via the serial interface. During data acquisition, the integrated navigation system provides information on the current position, survey track and data quality. This enables precise navigation and geo-referencing of the recorded data, while initial results can be viewed directly on the 3.5" color display.

With the DATA2LINE software, projects can be created and recorded measurement data can be post-processed and analyzed. Integrated filters and dedicated operating modes also support surveys near high-voltage power lines and along fences, railway tracks or pipelines.

YOUR ADVANTAGES AT A GLANCE

4-channel data recording: Simultaneous use of up to four fluxgate magnetometer probes for efficient large area surveys

Precise navigation & geo-referencing: Integration of GNSS systems and distance encoders for accurate survey tracks and position-referenced measurement data

High detection sensitivity: Calibration-free tension-band technology with an improved signal-to-noise ratio

Convenient data monitoring: Bright 3.5" color display for direct viewing of measurement data, position and data quality

Flexible field operation: Dedicated filters and operating modes for surveys near high-voltage power lines and along fences, railway tracks or pipelines

Comprehensive data analysis: DATA2LINE software for project setup, post-processing and analysis, including a stake-out function

TECHNICAL INFORMATION

WEIGHT:	— 4.1 kg complete detector incl. batteries — 12.1 kg complete detector set in case
DIMENSIONS:	— FEREX – 1270 × 145 × 850 mm (L × W × H) — Case – 989 × 415 × 157 mm (L × W × H)
DISPLAY:	3.5“ LCD with adjustable back-light, sunlight readable
MEMORY:	32 GB SD card
INTERFACES:	— 4 × analog Fluxgate Gradiometer — 1 × serial
TEMPERATURE RANGE:	— Operation: -37 °C to +71 °C; -99 °F to +160 °F (ambient temperature) — Stock: -57 °C to +71 °C; -135 °F to +160 °F
POWER SUPPLY:	4 × 1.5 V alkaline batteries (LR20) or 4 × 1.2 V NiMH (HR20)
BATTERY SIZE:	IEC LR20/HR20 – ANSI „D“
BATTERY LIFETIME:	1 probe, continuous operation > 8 hrs
MEASURING RANGES IN FEREX MODE:	8 linear ranges: ±3 nT to 10,000 nT and 1 logarithmic range
SAMPLING RATE	900 Hz each channel
RESOLUTION:	24 bit ADC
PROTECTION GRADE:	IP65
NATO STOCK NUMBER:	Probe MG-10-550, 2042037, 6665-12-410-0248
PROBE TYPE:	Fluxgate Gradiometer (MG-10-550)
BASE DISTANCE:	550 mm
APPLICATION AREA:	±62.500 nT
MEASURING RANGE:	— ±10.000 nT gradient — ±62.500 nT absolute
REFERENCE POINT:	— 97,5 mm from end of probe rod — 4 mm outside symmetry axis
DECLINATION:	±3 nT
NOISE:	<40 pT √ Hz @ 1 Hz
CUT-OFF FREQUENCY:	230 Hz
TEMPERATURE DRIFT:	<1 nT/K
UNCERTAINTY OF MEASUREMENT:	<2 % ref. ±10.000 nT
LINEARITY:	<1 nT referred to maximum measuring range
PROTECTION GRADE:	IP68, 100 m with optional sealing plug
EXTERNAL DIMENSIONS:	— Diameter 39.4 mm (with protective cap), — probe length 750 mm — base distance 550 mm

CERTIFICATIONS

MIL-Standard certifications

- MIL-STD 810G Method 514.6, Procedure I, Random Vibration
- MIL-STD 810G Method 516.6, Procedure I, Mechanical Shock
- MIL-STD 810G Method 516.6, Procedure IV, Transit Drop Test
- MIL-STD 810G Method 501.5, Procedure I, High Temperature
- MIL-STD 810G Method 502.5, Procedure I, Low Temperature
- MIL-STD 810G Method 503.5, Procedure I-C, Temperature Shock
- MIL-STD 810G Method 506.5, Procedure I, Blowing Rain
- AEODP-7 Edition B, Annex A-1

ACCESSORIES

DATALOAD 2
Free software for loading, viewing and converting magnetic field data

DATA2LINE PRODUCT FAMILY
Evaluation and project management software for geophysical measurement data

FEREX BOREHOLE DETECTION
Borehole detection system for deeply buried ferromagnetic objects

FEREX PROBE HOLDER
Modular probe holder system for large-area magnetometer surveys

FEREX PROBE HOLDER

Modular probe holder system for large-area magnetometer surveys

Efficient surveying of large areas. The modular FEREX probe holder enables the simultaneous use of multiple magnetometer probes for efficient and systematic large-area surveys. Depending on the application, the system can either be carried or equipped with a wheel set for convenient surveying.

Thanks to its modular design, the system can be flexibly adapted to different survey requirements.

Configurations with three or four probes are available for the FEREX 4.034, while up to eight probes can be used with the FEREX PNC. Probe spacing and track width can be configured according to the respective application.

For precise navigation and position referencing, the system can also be equipped with an odometer and a GNSS system. In addition to FEREX MG-10-550 probes, the system alternatively supports the GEOMETRICS® 824A cesium magnetometer.

YOUR ADVANTAGES AT A GLANCE

Efficient large-area surveys: Simultaneous use of multiple magnetometer probes for systematic surveying of large areas

Modular design: Configurable with three or four probes for the FEREX 4.034 and up to eight probes for the FEREX PNC

Flexible configuration: Selectable track widths and probe spacing for different survey requirements

Ergonomic operation: Lightweight design for carried operation, optionally expandable with a wheel set

Expandable navigation: Integration of an odometer and GNSS system possible

TECHNICAL INFORMATION

TRACK WIDTH:	1.5 m or 2 m
PROBE DISTANCE:	prepared for 0.25 m or 0.5 m
WEIGHT CARRIED VERSION:	— 16,4 kg (3 probes) — 18,7 kg (4 probes)

FEREX BOREHOLE DETECTION

Borehole detection system for deeply buried ferromagnetic objects

Reliable detection even at greater depths. FEREX borehole detection enables the detection of deeply buried ferromagnetic objects when surface surveys are insufficient or affected by buildings, landfill or ferromagnetic clutter close to the surface. The FEREX MG-10-550 probe is lowered into the borehole using a special probe cable. Waterproof probe cables enable surveys at depths of up to 100 m.

If water is present in the borehole, a ballast weight can be attached to the lower end of the probe to compensate for buoyancy and ensure controlled operation. Borehole detection can be performed by one person.

In combination with the FEREX 4.034, measurement values can be displayed directly and borehole data can be recorded and stored. DATA2LINE BM software is available for subsequent data evaluation. An optional mechanical depth measuring device with integrated odometer enables precise assignment of measurement data to the corresponding survey depth.

YOUR ADVANTAGES AT A GLANCE

Detection at greater depths: Waterproof probes and probe cables for borehole detection at depths of up to 100 m

Reliable under challenging conditions: Suitable when buildings, landfill or ferromagnetic clutter close to the surface interfere with surface surveys

Easy operation: Borehole detection can be performed by one person

Direct data recording: Display, recording and storage of measurement data with the FEREX 4.034

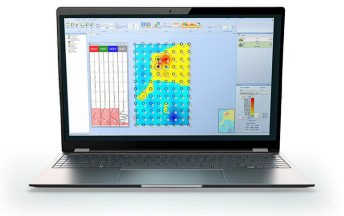
Precise depth assignment: Optional mechanical depth measuring device with integrated odometer

Comprehensive data evaluation: DATA2LINE BM software for evaluating recorded borehole data

TECHNICAL INFORMATION

PROBE:	FEREX MG-10-550 probe
PROTECTION GRADE:	IP68, up to 100 m
PROBE CABLE LENGTHS:	15 m / 30 m, further lengths upon request
DATA ACQUISITION:	FEREX 4.034
DATA EVALUATION:	DATA2LINE BM software
PROBE CABLE KIT:	— Transport case — probe cable — pulling rope — ballast weight — battery cable — tool set — carrying vest
DEPTH MEASUREMENT:	Mechanical depth measuring device with integrated odometer, optional

ACCESSORIES



DATA2LINE BM
Software module for evaluating geomagnetic borehole survey data

FEREX PNC

Modular magnetometer network for large-area surveys on land and underwater

Scalable surveying for large areas. The FEREX PNC is a modular magnetometer network designed for systematic large-area surveys. Depending on the configuration, up to 16 FEREX MG-10-550 probes can be networked, enabling fast and reliable surveying of large areas on land, on water and underwater.

The modular design allows the system to be flexibly adapted to different project requirements. Probe spacing and track width can be selected according to the application. With a recording rate of 300 Hz per probe, the system is designed for high survey speeds and efficient area coverage.

DATAMONITOR 4 software is used for navigation and data recording. Survey areas and tracks can be defined in advance in the office or directly in the field. During the survey, probe data is displayed in real time and recorded together with position data. The open GPS interface enables the integration of systems from various manufacturers.

By combining FEREX 4.034 control units, MG-10-550 probes and DATAMONITOR 4, the system can be configured to meet the requirements of each survey. Recorded data can subsequently be transferred to DATA2LINE software for further evaluation.

YOUR ADVANTAGES AT A GLANCE

Scalable magnetometer network: Networking of up to 16 FEREX MG-10-550 probes for efficient large-area surveys

Flexible area coverage: Variable probe spacing and track width for adaptation to different project requirements

High area coverage: Recording rate of 300 Hz per probe for fast and precise surveys

Versatile operation: Designed for surveys on land, on water and underwater

Geo-referenced data acquisition: Open GPS interface for integration of different systems and precise position referencing

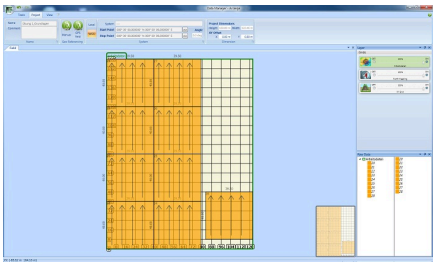
Efficient data acquisition: DATAMONITOR 4 for survey planning, navigation, real-time data display and recording

TECHNICAL INFORMATION

CONTROLLER TECHNOLOGY:	FEREX 4.034 with 24-bit ADC
NUMBER OF PROBES:	— 1–8 probes with one FEREX PNC — 9–16 probes with two FEREX PNC units
RECORDING RATE:	300 Hz per probe
PROBE SPACING:	Variable
TRACK WIDTH:	Variable; e.g. 1 m with 4 probes at 0.25 m probe spacing / 16 m with 16 probes at 1 m probe spacing
DIMENSIONS (L × W × H):	235 × 145 × 105 mm
WEIGHT:	— 1.2 kg without control unit — 2.8 kg with 2 control units
POWER SUPPLY:	12–24 V DC
PROTECTION GRADE:	IP65
PROBE:	FEREX MG-10-550
PROBE TECHNOLOGY:	FOERSTER gradiometer probe
PROBE BANDWIDTH:	230 Hz
PROBE NOISE:	< 1 nT pp
PROBE PROTECTION GRADE:	IP68, up to 100 m with optional sealing bell
DIFFERENTIAL GPS:	Systems from various manufacturers
GPS DATA PROTOCOL:	NMEA 0183
GPS ACCURACY:	RTK FIX

DATA2LINE PRODUCT FAMILY

Evaluation and project management software for geophysical measurement data



From measurement data to reliable results. DATA2LINE is FOERSTER's evaluation and project management software for managing, processing, visualizing and analyzing geophysical survey data. From processing recorded measurement data and geo-referencing to visualization and documentation, the software supports a consistent workflow for a wide range of survey applications.

DATA2LINE BASIC provides the common foundation. Measurement data from different sources and formats can be imported, processed, geo-referenced and visualized in 2D or 3D. A flexible, layer-based user interface supports the clear organization of even complex projects, while export and reporting functions enable transparent documentation of the results.

For specific applications, DATA2LINE can be extended with the UXO, BM and GEO modules. DATA2LINE UXO supports the manual and automatic analysis of magnetic anomalies in surface surveys. DATA2LINE BM is designed for the evaluation of geomagnetic borehole data and the localization of suspected ferromagnetic objects. DATA2LINE GEO provides additional filters for targeted processing and visualization of complex measurement datasets.

This makes DATA2LINE a modular software environment for applications ranging from UXO and borehole surveys to archaeological and geophysical investigations.

YOUR ADVANTAGES AT A GLANCE

Modular software concept: BASIC as the common platform, flexibly expandable with UXO, BM and GEO

Versatile data import: Processing of different geophysical measurement data and common data formats

Traceable data processing: Data is processed using copies while the original sensor data remains unchanged

Flexible visualization: Geo-referenced display and analysis of measurement data in 2D and 3D

Structured project management: Layer-based organization of measurement data, maps, images and additional project information

Efficient documentation: Export of data and views as well as automatic generation of customized reports

TECHNICAL INFORMATION

OPERATING SYSTEM:	Windows® XP SP3, Windows® Vista, Windows® 7 / 8 / 10 (32/64 bit)
PROCESSOR:	Intel Core i5, 2nd generation or comparable
RAM:	> 2 GB (4 GB recommended)
INTERFACES:	— 1 × USB port for hardware key — 1 × USB or RS232 port for data transfer
ACCESSORIES:	CD/DVD/BD drive, DirectX 10-compatible graphics card
MODULES:	DATA2LINE BASIC, UXO, BM, GEO
REQUIREMENT FOR ADD-ON MODULES:	DATA2LINE BASIC
NATO STOCK NUMBER:	— 7030-12-395-6062 (DATA2LINE BASIC) — 7030-12-395-6065 (DATA2LINE UXO) — 7030-12-429-1181 (DATA2LINE BM)

FOERSTER

foerstergroup.com

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

Headquarters
Institut Dr. Foerster GmbH & Co. KG

In Laisen 70
72766 Reutlingen
Germany

+49 7121 140 0
info@foerstergroup.com

© Copyright 2026 – Copyright notice: All contents of this work, in particular texts, photographs and graphics, are protected by copyright. Unless explicitly stated otherwise, the copyright lies with Institut Dr. Foerster GmbH & Co. KG. Please contact us if you wish to use any part of this work.

Generated: 2026-10-16 07:24:48