FOERSTER

PRODUCT INFORMATION

MAGNETOSCOP 1.070

Portable Magnetometer

proof.

Features

- Portable, microprocessor controlled magnetometer system
- Probes for the measurement of the magnetic flux density as absolute or gradient value
- Probes for determination of the relative magnetic permeability μr in accordance with IEC 60404-15 und ASTM A342/A342M
- USB interface for data transfer
- SD card for storage of measurement data and parameters
- Peak value detection and storage
- Adjustable limits for treshold values
- Visual and acoustic alarm
- Single or batch measurement
- Editable measuring- and test procedures including graphical operator assistance
- Battery or mains operated
- PC software for data analysis and report generation

Measurement method

- Fluxgates probes (absolute or gradient)
- Hall-probes (absolute)

Applications

- Long term monitoring of magnetic environmental conditions, e.g. prior to installation of magnetic sensitive devices e.g. MRI systems
- Testing of feebly magnetic materials and machined components for magnetic remanence
- Determine the demagnetization status of steel bars and components
- Detection of ferrous inclusions in austenitic steels and nonferrous alloys
- Surface inspection to detect inclusions in wear sensitive components like bearing rings
- Determination of relative magnetic permeability as part of the quality inspection for austenitic steels and feebly magnetic / nonmagnetic alloys
- Verify material changes caused by carburization, corrosion, coating reduction or micro structural alteration by permeability comparative measurement

Components

The measuring instrument as well as the probes are calibrated. They are delivered with a calibration certificate. The device and calibration parameters are electronically stored in the respective component. The measuring instrument automatically recognizes the probes, when it is connected.

Measuring instrument MAGNETOSCOP 1.070

- Compact, lightweight measuring instrument
- 3,5“ color display
- Clear menu stucture for operator guidance
- Data logging function
- Connection of 1-axis-magnetic field sensor, 3-axis-magnetic field sensors as an option
- Connection of permeability probes
- Trigger input
- Temperature measuring channel
- USB, mini USB and SD card interfaces
- Power supply by batteries, battery pack or mains adapter

Probe PD-100-100

- Differential probe with 100 mm sensor distance
- 1 nT to 100 µT measuring range
- For detection of larger local magnetic field anomalies
- Compensation of the earth magnetic field or large disturbances caused by anomalies at bigger distance
- Orientation dependancy when moving in the earth magnetic field: < 50 nT

Probe PD-100-20

- Differential probe with 20 mm sensor distance
- 10 nT to 100 µT measuring range
- For detection of smaller local magnetic field anomalies
- Detection of locally limited remanences
- Compensation of the earth magnetic field or large disturbances caused by anomalies at bigger distance
- Orientation dependancy when moving in the earth magnetic field: < 100 nT

Probe PFD-100

- Probe pair for the optional arrangement as an absolute or differential probe- with variable sensor element distance
- 1 nT to 100 µT / 200µT measuring range by absolute or differential arrangement
- Determination of magnetic remanence of single components, whereby the probe has to be in a fixed position and compensated to zero
- When using differential arrangement with parallel arranged sensor elements: compensation of the earth magnetic field or bigger disturbances from the distant field
- Nonmagnetic probe mount – as an option

Probe PF-1000

- Probe for determination of absolute magnetic field
- 10 nT to 1 mT measuring range
- Sensor elements are installed parallel in axial direction of the probe housing
- Determination of magnetic fields (orientation + value))
- Determination of magnetic remanence of single components, whereby the probe has to be in a fixed position and compensated to zero

Probe PH-50-TR

- Probe for determination of absolute magnetic field
- 1 µT to 50 mT measuring range
- Sensor element is installed perpendicular to the longitudinal axis of the probe
- Determination of magnetic fields (orientation + value)
- Determination of magnetic remanence of single components with high spatial resolution

Probe PH-50-AX

- Probe for determination of absolute magnetic field
- 1 µT to 50 mT measuring range
- Sensor element is installed parallel to the longitudinal axis of the probe
- Determination of magnetic fields (orientation + value)
- Determination of magnetic remanence of single components with high spatial resolution

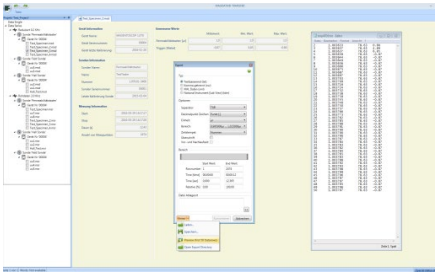
Probe PP-2-5

- Probe for the determination of the relative magnetic permeablity μ_r on semi-finished products and components
- Measuring range μ_r 1,00000 to 2,00000
- „Permeability Meter“ method according to IEC 60404-15 or „Flux Distortion Method“ according to ASTM A342/A342M, method 4
- Calibrated traceable to national standards (PTB-Braunschweig), measured in accordance with IEC 60404-15“Solenoid / magnetic moment“ Method,
  ASTM A342/A342M Method 1, H=30 kA/m

Software

MAGDATA Transfer-Software

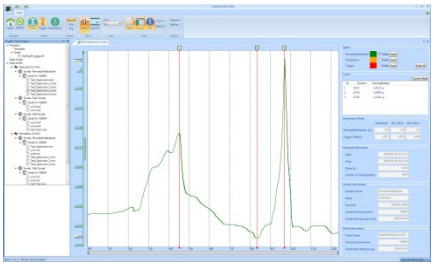
Software for the communication between PC and MAGNETOSCOP.



- Loading of measuring data from the MAGNETOSCOP
- Converting of measurement data set in different formats (.txt, .csv, .xml, .tdm (LabVIEW™)….)
- Loading of software-updates on the MAGNETOSCOP

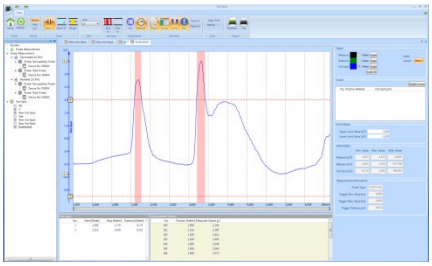
MAGDATA VIEW-Software

Comprehensive software for visualization of measuring data – up to 16 channels per chart.



- Data selection and reduction
- Visualization of measuring data (oscilloscope, list of values…)
- Processing of dynamic measurement methods including trigger information (time, distance)
- Statistical evaluation of measurement series
- Report generation and printing
- Creation of templates for measuring and testing procedures and transfer to the MAGNETOSCOP

MAGDATA HOTSPOT-Software



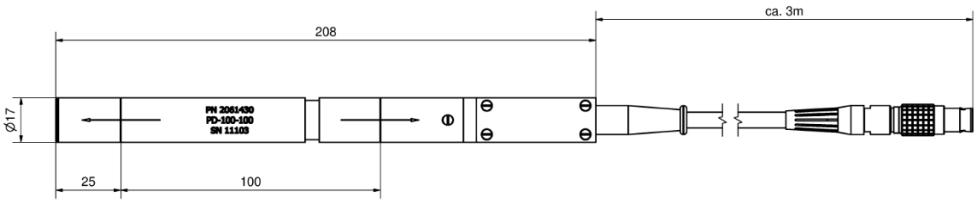
- Data selection and reduction
- Visualization of measuring data (oscilloscope, list of values…)
- Processing of dynamic measurement methods including trigger information (time, distance)
- Processing of reference measurements for Offset-compensation
- Definition and display of treshold values, highlighting of magnetic anomalies
- Report generation according to API Spec 7

Technical Specification

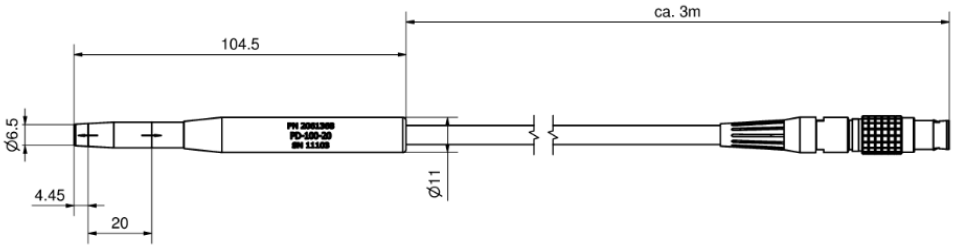
Measuring range	0,1 nT to 1 mT (Fluxgate Probe) 1 µT to 50 mT (Hall Probe) μ_r 1,00000 to 2,00000
Resolution	24 Bit ADC
Measurement uncertainty, field measurement	1,5% of the measured value Hall Probes: 1 µT to 40 mT – 2 % of the measured value 40 mT to 50 mT – 4% of the measured value
Measurement uncertainty, permeability measurement	5% of the measured value
Ambient temperature	0 to +40 °C
Protection grade	IP 54
Dimensions measuring instrument	212 x 102 x 41 mm (L x W x H)
Display size	3,5“
Weight - measuring instrument incl. batteries	0,62 kg
Battery type	4 pcs. Mignon, AA, LR6 Alkaline or NiMH

Probe dimensions and position of the sensors

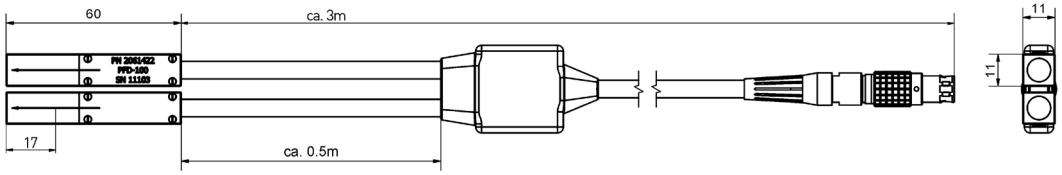
PD-100-100



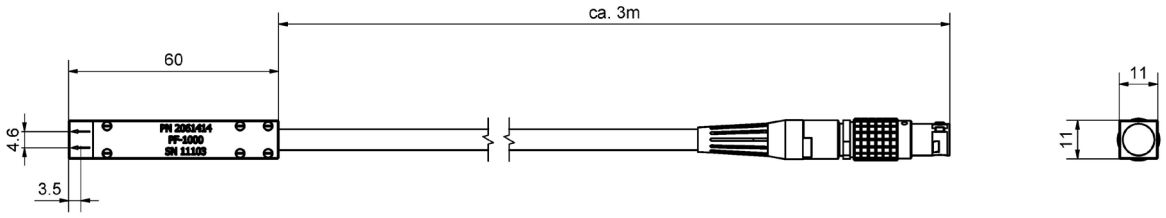
PD-100-20



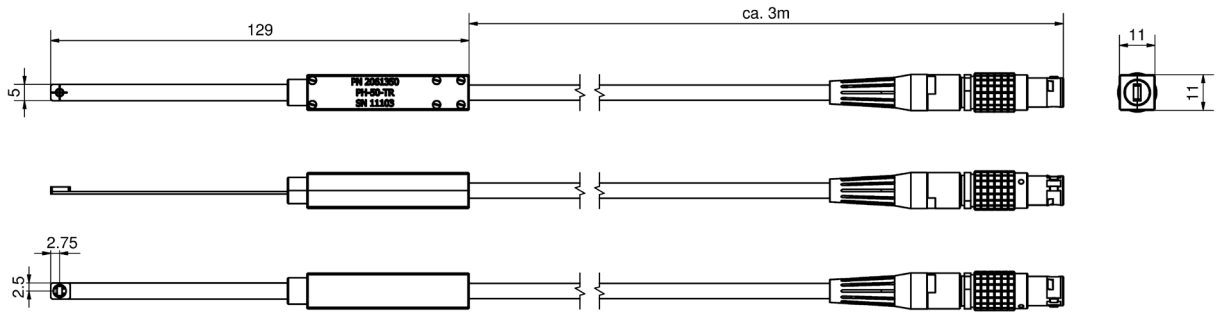
PFD-100



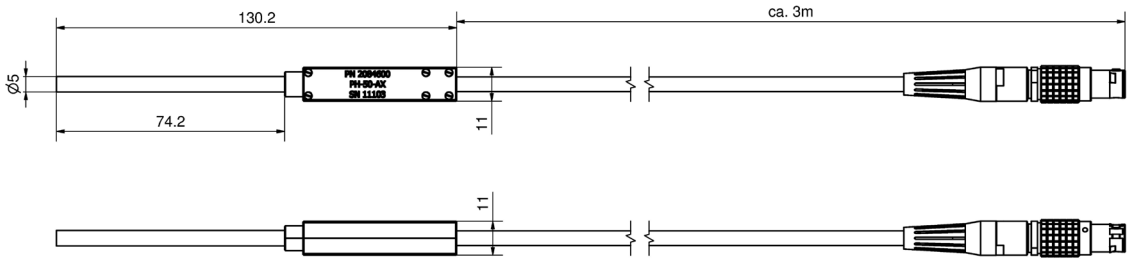
PF-1000



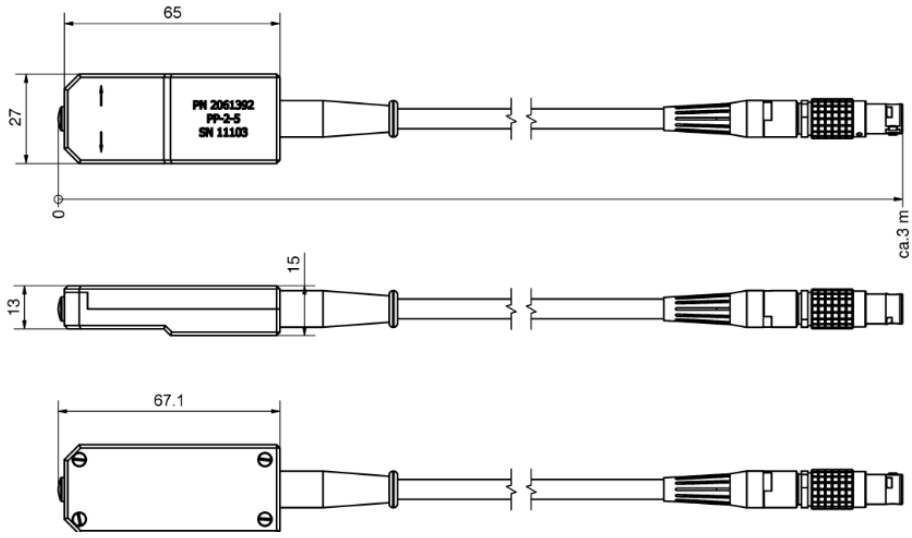
PH-50-TR



PH-50-AX



PP-2-5



Standard kits

MAGNETOSCOP 1.070 – Field and differential measurement

Basic equipment
- Measuring instrument MAGNETOSCOP 1.070
- Transport case
- Mains adapter
- MAGDATA TRANSFER software
- USB cable
- 4 batteries

Probe PFD-100
Probe mount

MAGNETOSCOP 1.070 – Field measurement

Basic equipment
Probe PF-1000

MAGNETOSCOP 1.070 – Field measurement Hall-transversal

Basic equipment
Probe PH-50-TR
Zero-Gauss Chamber

MAGNETOSCOP 1.070 – Field measurement Hall-axial

Basic equipment
Probe PH-50-AX
Zero-Gauss Chamber

MAGNETOSCOP 1.070 – Differential measurement – 20 mm

Basic equipment
Probe PD-100-20

MAGNETOSCOP 1.070 – Differential measurement – 100 mm

Basic equipment
Probe PD-100-100

MAGNETOSCOP 1.070 – Permeability measurement

Basic equipment
Probe PP-2-5
Reference standard μ_r 1.05
Adapter

Accessories

Power supply

Mains adapter	5 VDC, 2.4 A, 100 – 240 VAC
Battery	NiMH 1.2 V, Mignon, AA, HR6, 2.850 mAh
Battery charger for NiMH batteries	100 – 240 VAC, 50/60 Hz
Battery pack (external)	5 VDC, 2.4 A, 10.000 mAh
Battery charger for external battery pack	5 VDC, 2.2 A, 100 – 240 VAC, 50/60 Hz

Cables

Trigger cable	5 m long
Extension cables – probes	5 / 15 m

Reference standards

Reference standard	μ_r 1.005/ 1.025/ 1.05/ 1.2 for probe PP-2-5, calibrated traceable to national standards (PTB-Braunschweig), measured in accordance with IEC 60404-15 “Solenoid / magnetic moment“ Method, ASTM A342/A342M Method 1, H=30 kA/m
Adapter for precise probe centering on the reference standard	for probe PP-2-5

Software

MAGDATA Transfer	System requirements: 32 / 64 bit OS Windows 7 or higher
MAGDATA View	
MAGDATA Hotspot	

Miscellaneous

Zero-Gauss Chamber	For zero-compensation of PH-50 probes
Carrying bag	For measuring instrument and external battery pack
Belt pouch	For external battery pack

Imprint

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