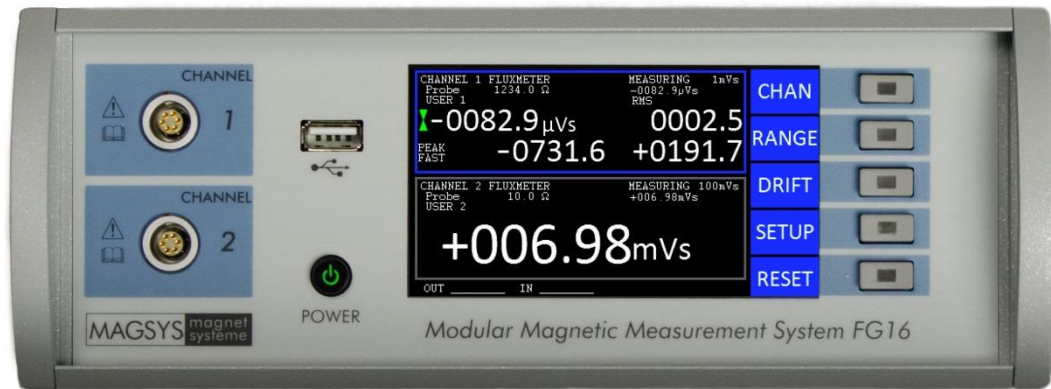


MAGSYS

FG16 Modular Magnetic Measurement System

Data Sheet



The FG16 is a modular device to measure magnetic values. The 4 available slots can be equipped with plug-in units for fluxmeters, gaussmeters and fluxgates in any combination.

The completely redesigned analog-/digital-hybrid design of the fluxmeter plug-in allows measurements of both high-dynamic as well as very fast events and is virtually drift-free.

The FG16 measures, among others, the following magnetic values:

- Flux Φ (in Wb, Vs)
- Flux density B (in T)
- Field strength H (in A/m)
- Polarization J (in T)
- Dipole moment m (in Am²)

Custom-designed probes complete the measuring application.

The FG16 is easy and intuitive to use with a touch display and separate buttons.

Additionally, the FG16 provides a variety of modern interfaces such as Ethernet, USB, CAN bus, RS232, analog and 24 V digital signals for control and output of measurement results.

The device is suited for demanding measuring applications in the field of research and development as well as for automatic process control, quality assurance and incoming goods inspection.

Typical application examples are

- Flux or flux density measurement of a work piece during magnetization
- Stray field measurement
- Test of the dipole moment and the polarization of a magnet

Probes with integrated parameter memory simplify correct measurements.

Comprehensive accessories, such as probes, reference magnets, also in special design are available.

Special Features

- Modular design (up to 4 plug-in units, e.g. fluxmeter)
- Color touch display
- Easy to use
- Standard interfaces implemented
- Very low drift
- Probe connector with low thermoelectric potential
- Automatic probe detection
- Fast and high dynamic measuring
- Measuring unit freely selectable
- Internal window comparator
- Self-test on power-up
- Integrated calibrator
- Digital pos./neg. peak memory
- Analog peak hold function
- Firmware update via PC
- Frequency range 0 ... 20 kHz
- 2nd input jack on rear side
- Sturdy case with option for 19 inch rack mount

Standard Accessories

- FG16 base unit
- Plug-in unit according to configuration
- User manual
- Calibration certificate
- USB cable

Optional Accessories

- Search coils (fluxmeter)
- Helmholtz coils (fluxmeter)
- Hall probes (gaussmeter)
- Reference magnet
- 19 inch rack mount kit
- Open-ended shielded measurement cable (length: 2 m) with plug and integrated parameter memory to connect own coils
- Coaxial cable with BNC connectors (length: 2 m)

Specifications

General

Display	Color touch LCD, 95 mm × 52 mm, 480 × 270 pixels	
Display rate	10 times per second	
Input connection	Jacks with low thermoelectric potential at front and rear side	
Unit systems	SI, CGS, support of metric and imperial units	
Interfaces	Analog	±10 V, 200 Ω
	RS232	DE-9 plug, adjustable parameters
	CAN bus	DE-9 plug, adjustable parameters
	LAN	RJ45, 10/100 Mbit
	24 V IO	DB-25 socket, 8 inputs, 8 outputs, optically decoupled
	USB	USB 2.0, front side type A, rear side type B
Dimensions	125 mm × 260 mm × 260 mm (H × W × D)	
Weight	2.85 kg (6.3 lbs.) incl. 4 plug-ins, without packaging and accessories	
Power supply	100 – 240 V, 47 – 63 Hz, max. 25 VA, interference suppression for 50/60 Hz line frequency	
Temperature Range	Operating: 0 °C to +55 °C, < 80% relative humidity at +40 °C, non-condensing Non-operating: –30 °C to +70 °C	

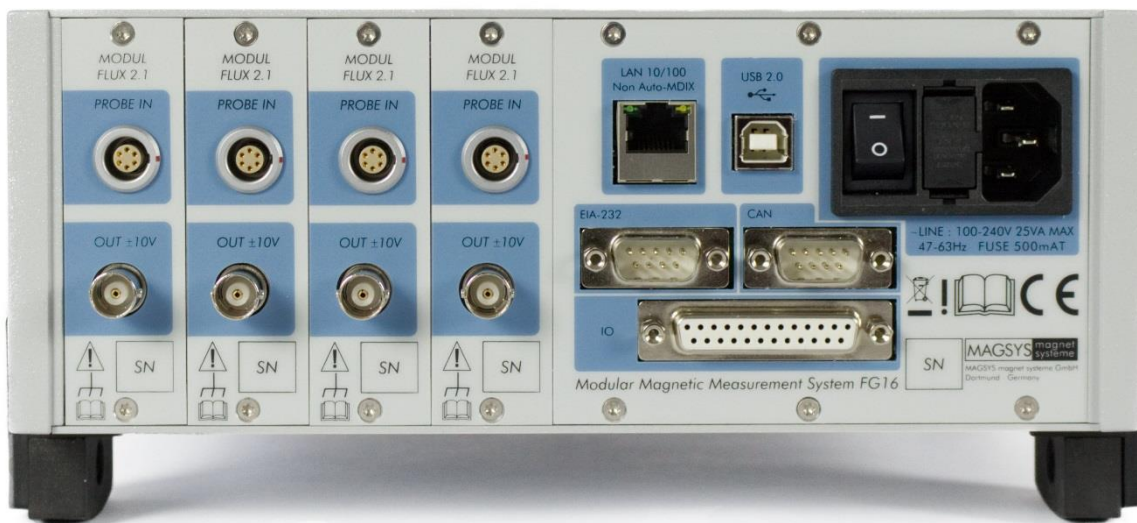
Fluxmeter Plug-in

Measuring method	Low drift integrator with dynamic drift adjustment		
Function/Unit	Magnetic flux Φ	Wb, V·s, Mx	
	Magnetic flux density B	T, G	
	Magnetic field strength H	A/m, Oe	
	Magnetic polarization J	T, G	
	Magnetic dipole moment m	A·m ² , V·s·m, erg/G	
	Magnetic potential difference V_m	A, Gb	
Range (Resolution)	Flux	The range and the resolution of the derived values depend on the used probe.	
	± 1 mVs (0,1 μ Vs)		
	± 10 mVs (1 μ Vs)		
	± 100 mVs (10 μ Vs)		
	± 1 Vs (0,1 mVs)		
Range selection	Automatic, manual		
Frequency range	0 ... 20 kHz		
Accuracy	0.5 % after self-calibration		
Calibration	Internal voltage and time reference		
Drift	< ± 2 μ Vs/minute		
Input resistance	100 k Ω \pm 0.1 %		

Gaussmeter Plug-in

Measuring method	Flux density measurement with calibrated Hall element			
Function/Unit	Magnetic flux density B	T, G		
	Magnetic field strength H	kA/m, Oe		
Range (Resolution)	Flux density		Field strength	
	± 10 mT (0.001 mT)	± 100 G (10 mG)	± 100 Oe (10 mOe)	± 10 kA/m (1 A/m)
	± 100 mT (0.01 mT)	± 1 kG (100 mG)	± 1 kOe (100 mOe)	± 100 kA/m (10 A/m)
	± 1 T (0.1 mT)	± 10 kG (1 G)	± 10 kOe (1 Oe)	± 1000 kA/m (100 A/m)
	± 10 T (1 mT)	± 100 kG (10 G)	± 100 kOe (10 Oe)	± 8000 kA/m (1 kA/m)
Frequency range	DC/AC 0 Hz ... 5 kHz (effective value)			
Peak hold memory	Event duration > 250 μ s			
Accuracy	DC ± 0.5 % up to 1.5 T resp. ± 1 % above 1.5 T; peak ± 2 %; AC ± 2 %			





This information is subject to change without notice.
Published January 2018

MAGSYS magnet systeme GmbH
Rohwedderstr. 7
44369 Dortmund
Germany

Phone: +49 (0) 231 177 88-0
Fax: +49 (0) 231 177 88-22
e-mail: sales@magsys.de
web: www.magsys.de

FUJI-SHANHONG POWER SOLUTIONS PTE LTD.
169 Kaki Bukit Avenue 1
Shun Li Ind. Park, #03-00
Singapore 416019
Singapore

Phone: +65 6744 9558
Fax: +65 6744 0709
e-mail: asia@magsys.de
web: www.magsys.de

MAGSYS magnet systems, LLC
8125 Parkridge Drive,
St Louis, MO 63123-4824
U.S.A.

Phone: +1 219-309-1115
Fax: +1 219-548-7071
e-mail: jmurphy@magsys.org
web: www.magsys.org

SUZHOU QOOVIA ELECTRONICS TECHNOLOGY CO., LTD.
No. 901 Zhujiang Road
Building #3
Suzhou 215101
China

Phone: +86 512-6591-0692
Fax: +86 512-6591-0693
e-mail: china@magsys.de
web: www.magsys.de