

## ELECTRONIC FLUXMETER EF 5



EF 5

### • Description

The Electronic Fluxmeter EF 5 is designed to measure the magnetic flux using measuring coils. It comprises a precision electronic DC integrator of high sensitivity and extremely low drift.

Key features:

- Microprocessor controlled, easy operation
- Automatic drift correction
- Unique continuously working integrator: measuring range limits must not be observed
- Self-adjustment by built-in voltage-time reference
- Complete menu control, the most important functions can directly be accessed by function keys
- Memories to store parameters of self-made coils (measuring coil constants, resistances etc.)
- Convenient input of coil data and limits via the numeric keypad
- Automatic calculation of measuring results taking into account the coil parameters
- Directly reading in Volt-Seconds, Weber, Tesla, Gauss or other units
- Automatic coil recognition and instrument configuration for measuring coils with data memories
- 4 limit comparators with relay outputs for process control
- Modern, compact design
- Directly installable to 19" racks

### • Applications and measuring quantities

The EF 5 is applied in the following areas:

- Quality control of permanent magnets
- Quality control of soft magnetic components
- Quality control of magnet systems (motors, loudspeakers, magnetic clamps, couplings etc.)
- Materials research
- Development of magnet systems
- Magnet testing
- Magnet sorting
- Material analysis
- Automated testing
- Process control
- ...

The following quantities can be measured with the EF 5 and appropriate coils:

- Magnetic flux
- Magnetic flux density / induction
- Magnetic field strength
- Magnetic potential / tension
- Magnetic moment
- Magnetic dipole moment
- Magnetic polarization
- ...

The EF 5 is also perfect for use in hysteresisgraphs to record the hysteresis loops of soft and hard magnetic materials.



Rear view of ELECTRONIC FLUXMETER EF 5

## ● Technical Data

Display	backlight LCD, 122 x 41 mm <sup>2</sup>
Reading	max. 6 digits plus 2 digits for exponent
Resolution	10 <sup>-4</sup> / 10 <sup>-5</sup> / 10 <sup>-6</sup> / 10 <sup>-7</sup> Vs
Upper range limits	none due to continuously working integrator
Drift per minute	< 10 <sup>-6</sup> Vs (R <sub>i</sub> + R <sub>s</sub> ≥ 10 kΩ, R <sub>s</sub> = meas. coil resistance)
Units (depending on coil type)	Vs, Wb, T, G, Vs/cm <sup>2</sup> , A/m, Oe, Vs cm, A, Vs/n (per turn)
Basic accuracy	0.1 % of reading ± 10 <sup>-7</sup> Vs
Input resistances R <sub>i</sub>	0 Ω, 10 kΩ
Input socket	15-pole sub-D socket for connection of prefabricated or self-made coils
Maximum input voltage	60 V
Measurements per second	25
Trigger	intern, extern
Extreme values	Max., Min., Max.-Min.
Analog output	±10 V, adjustable scaling
Interfaces	RS232, adjustable baud rate 4800 to 38400 24 V I/O for PLC (reset, drift control, hold reading, trigger, ready) IEEE 488 (optional)
Limit comparator	4 trip points, relay outputs (alternators)
Coil data storage	6 non-volatile memories for the data of self-made coils
Power supply	100 / 120 / 220 / 240 V ± 10 %, 50-60 Hz, 80 W max.
Weight	approx. 6.2 kg
Width / Depth / Height	484 mm / 310 mm / 114 mm

Due to continuous product improvements specifications are subject to change without notice

## ● Measuring Coils for Connection to Electronic Fluxmeter EF 5

A variety of measuring coils for different applications is available from stock: field coils (search coils, point coils), moment coils (Helmholtz coils), potential coils, saturation coils and more. For details on our standard coil program please consult our coil data sheet.

If you can provide details on your application we will be happy to assist you in choosing the right coil. Of course you can also connect self-made coils to the EF 5 or we can design special coils for you.

Many sample applications and useful hints can be found in our booklet »Magnetic Measuring Techniques« by Dr. E. Steingroever and Dr. G. Ross, which can be obtained from us free of charge.

## ● Accessories / Options (not included with instrument)

- RS232 connection cable (3 m)
- USB adapter cable
- IEEE 488 (GPIB, IEC-Bus) interface
- Coil adapter to connect coils with banana or bunch plugs
- Coil socket on the rear panel instead of the front panel of the instrument
- Data acquisition software (for operation with RS232 interface or USB adapter cable)

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