

ELECTRONIC FLUXMETER EF 14



EF 14

• Description

The Electronic Fluxmeter EF 14 is designed to measure the magnetic flux using measuring coils. It comprises a precise analog integrator of high sensitivity and low drift.

Key features:

- Microprocessor controlled, easy operation
- Automatic drift correction
- Analog integrator featuring high dynamic range and real analog output
- DC and AC integration
- Fast peak-hold to capture magnetic field pulses
- Complete menu control, the most important functions can directly be accessed by function keys
- Automatic calculation of measuring results taking into account the coil parameters
- Directly reading in Volt-Seconds, Weber, Tesla, Gauss or other units
- Memories to store parameters of self-made coils (measuring coil constants, resistances etc.)
- Convenient input of coil data and limits via the numeric keypad
- Measuring data memory, can store up to 100 measurements
- Automatic coil recognition and instrument configuration for measuring coils with data memories
- 2 limit comparators with relay outputs for process control
- Compact design

• Applications and Measuring Quantities

The EF 14 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 14 and appropriate coils:

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



Rear view of Electronic Fluxmeter EF 14

• Technical Data

Display	lit-up LCD, 60 mm x 32 mm
Reading	max. 4 digits
Resolution	$10^{-4} / 10^{-5} / 10^{-6} / 10^{-7}$ Vs
Upper range limits	± 225.0 mVs, ± 99.99 mVs, ± 9.999 mVs, ± 999.9 μ Vs
Drift per minute	$< 10^{-6}$ Vs
Units (depending on coil type)	Vs, Wb, Mx, T, G, A/m, Oe, Vsm, Vs cm, A, Gb, Vs/n, Wb/n, Mx/n (per turn)
Basic accuracy	DC: 0.5 % of reading; AC, Peak: 5 %
Precision (reproducibility)	DC: 0.2 % of reading
Input resistance R_i	100 k Ω
Measuring inputs (alternately usable)	15-pole sub-D socket for prefabricated or self-made coils, pole clamps for coil wires or coils with bunch or banana plugs on the rear side
Maximum input voltage	40 V
Measurements per second	2.6 on display, up to 120 via RS 232 interface
Extreme values	[Max.], Max., Min., Max.-Min., Peak and Valley for impulses
Analog output	± 1 V (auxiliary output ± 5 V)
Interfaces	RS232, adjustable baud rate 1200 to 38400; 5 V digital interface (ext. reset, drift control, hold reading, ready), can be operated by switches or TTL signals
Limit comparator	2 trip points, Low/OK/High display, relay outputs (alternators)
Coil data storage	10 non-volatile memories for the data of self-made coils
Measuring data storage	100 non-volatile memories for measuring data
Power supply	90-250 V, 50-60 Hz, 5 W max.
Weight	approx. 1.5 kg
Width / Depth / Height	248 mm / 180 mm / 100 mm

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

• Measuring Coils for Connection to Electronic Fluxmeter EF 14

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

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 14 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, also as a pdf file, free of charge.

• Accessories / Options (not included with instrument)

- Rack adapter for installation of a EF 14 to 19" racks (fitted height 2 U)
- RS232 connection cable (length 3 m, 10 ft)
- USB adapter (the RS232 cable is additionally required)
- Data acquisition software (for operation with RS232 interface or USB via adapter)