ELECTRONIC FLUXMETER 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
- 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 x 32 mm²
- **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 µVs
- **Drift per minute**: < $10^{-6}$ Vs
- **Units (depending on coil type)**: Vs, Wb, Mx, T, A/m, Oe, Vsm, Vs cm, A, Gb, Vs/n, Wb/n, Mx/n (per turn)
- **Basic accuracy**: DC: 0.3 % of reading
  AC, Peak: 5 % of reading
- **Input resistance $R_i$**: 100 kΩ
- **Measuring inputs (alternatively 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, 50-60Hz, 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 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 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 free of charge.

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

- RS232 connection cable (3 m)
- USB adapter (the RS232 cable is additionally required)
- Data acquisition software (for operation with RS232 interface or USB via adapter)