

## ELECTRONIC FLUXMETER EF 7



### • Description

The Electronic Fluxmeter EF 7 is designed to measure the magnetic flux using measuring coils. It comprises a precision digitally compensated DC integrator of high sensitivity and extremely low drift. The integrator allows always to stay internally in the finest measuring range and to measure arbitrarily large values. Unlike with classical measuring instruments, no resolution is lost (no coarsening of the measured value) with high measuring signals. This special operating principle is unique worldwide and the unique selling proposition of the instrument. The operation principle allows fast resets and short cycle times. The EF 7 is available in 1-, 2- or 3-channel versions.

#### Key features:

- Microprocessor controlled, easy operation
- Automatic drift correction
- Unique digitally compensated integrator: measuring range limits must not be observed
- Self-calibration by built-in voltage-time reference
- Complete menu control, the two most important functions are directly accessible via push buttons
- Memories to store parameters of self-made coils (measuring coil constants, resistances, etc.)
- Memories to store measured data
- Convenient input and selection of parameters via the touch display
- Automatic calculation of measuring results taking into account the coil parameters
- Directly reading in Volt-Seconds, Weber, Tesla, Gauss or many other units
- Automatic coil recognition and instrument configuration for measuring coils with data memories
- 4 limit comparators with photo-relay outputs for process control
- Modern, compact design



Rear view of Electronic Fluxmeter EF 7

## • Applications and Measuring Quantities

The EF 7 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)
- 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 7 and appropriate coils:

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

The EF 7 is perfect for use in hysteresis measuring instruments for soft and hard magnetic materials.

## • Technical Data

Measuring inputs	1, 2 or 3 integrator channels (please choose the desired configuration)
Display	TFT 4.3", 95 mm x 54 mm, 480 x 272 points, capacitive touch
Reading	Max. 6 digits plus 2 digits for exponent
Resolution	$10^{-4} / 10^{-5} / 10^{-6} / 10^{-7}$ Vs
Upper range limits	Not applicable, due to the digitally compensated integrator
Input resistances $R_i$	0 $\Omega$ , 10 k $\Omega$
Drift per minute	$< 10^{-6}$ Vs ( $R_i + R_s \geq 10$ k $\Omega$ , $R_s$ is the measuring coil resistance)
Units (depending on coil type)	Vs, Wb, Mx, T, G, Vs/cm <sup>2</sup> , A/m, Oe, Vs cm, Am <sup>2</sup> , A, Gb, Vs/n (per turn)
Basic accuracy	0.25 % of reading
Precision (reproducibility)	0.1 % of reading
Input socket	15-pole sub-D socket for connection of prefabricated or self-made coils
Maximum input voltage	60 V
Measurements per second	25, 30 or 50
Trigger	Internal, external
Extreme values	[Max.], Max., Min., Max.-Min.
Analog output	0 - 5 V, 0 - 10 V, $\pm 5$ V, $\pm 10$ V via 16-bit DAC
Interfaces	The assignment of the output voltage to the measured values can be set by the user. RS232, USB (HID, CDC), Ethernet (Webserver, TCP (Telnet), UDP) 24 Volt digital I/O, e. g. for programmable logic control (PLC)
Limit comparator	4 trip points, photo-relay outputs (alternators)
Measured data memory	Memory for up to 100 measured values per channel. The values are kept in memory when the instrument is switched off.
Coil data memory	Memory for up to 10 coil data sets per channel. The values are kept in memory when the instrument is switched off.
Power supply	AC 100 - 240 V, 50 - 60 Hz, 25 W max
Weight	Approx. 3.2 kg
Housing	Benchtop case, installable to 19" racks (2 HU)
Width / Depth / Height	484 mm / 266 mm / 114 mm (88 mm without pedestals)

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

