ETM-1 Teslameter

Magnetic Field Measurement System

- **Isotropic Measurement of Constant Magnetic Fields**
- **Automatic or Manual Ranging**
- **Hall Sensors**
- **RS232 Interface**

Description

Applications

The ETM-1 Teslameter is designed for measuring constant magnetic fields, as occur with medical equipment (magnetic resonance imaging, MRI), metal production, and railway systems.

Features

The ETM-1 extends the EFA-1 to EFA-3 family of low-frequency field analyzers to cover measurement of constant fields. The device has automatic ranging, or one of three ranges can be selected manually (19.99 mT, 199.9 mT and 1999 mT). Results have units of mT in the 3½ digit LC display. All three axes can be evaluated, or just one of the three (x, y, z). The probe is connected via a 1.5 m shielded cable to the test instrument. The small size of the probe (12 x 12 x 100 mm) enables measurements in tight places.

Calibration

The ETM-1 is factory-calibrated.

Recalibration is recommended every two years. Calibration data are traceable to national/international standards. The specified confirmation interval is only a recommendation. Users can choose a confirmation interval to suit their needs, based on the type of application and ambient conditions.

Rugged Design

The rugged mechanical and electrical design of the device makes it ideal for field use. The ETM-1 runs for about 15 hours on a standard 9 V lithium battery. The ETM-1 Teslameter can also be powered from an ac line unit (included).

Functional Principle

The probe uses three separate sensors. Hall probes are used as sensor elements for the magnetic field. The three channels are realized separately and evaluated in the mainframe. This assures display of the RMS value across a wide measuring range. Usage of these detector elements guarantees excellent overload protection, making it practically impossible to destroy the sensors through everyday usage. For remote control, the ETM-1 has an RS232 interface. The device can be remotely controlled via the supplied cable and the serial interface of a PC. This allows users to control the device from a remote site while it measures very powerful fields.

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Specifications

Directional Characteristic	Isotropic, 3-dimensional
Measurement Range	Automatic Ranging, Three Manual Ranges
Temperature Range	0 to +40°C
Sensor Type	Magnetic Field (H)
Specified Measuring Range	19.99, 199.9 and 1999 mT
Accuracy	±2% of Measured Value
Drift	±0.05%/°C starting at +25°C
Update Range	400 ms or "Hold"
Ambient Field for Device **with battery** **with ac line power**	 0.1 T 1.5 T
Dimensions (mm) **Device** **Probe**	 160 x 80 x 30 12 x 12 x 100
Weight	250 g

Unless otherwise stated, all specifications hold under the following conditions:
Ambient Temperature +23°C ±3 K
Relative Humidity: 40% to 60%
Storage Temperature: -20 to +40°C

Ordering Information

ETM-1 Teslameter, Isotropic	**2259/01**
Includes:	
Constant Magnetic Field Meter	
Separate Probe and Zero-Field Chamber	
Transport Case	
RS232 Connecting Cable	
Battery and AC Line Unit	