

3 Axis EMF Meter

860041

Instruction Manual

SPER
SCIENTIFIC

Environmental Measurement Instruments

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INTRODUCTION

Safety precautions should be taken against electric appliances in places including medical institutions, schools and residential districts, where people usually stay a long time, to prevent patients, babies and snior citizens from exposure to high electromagnetic waves.

An electromagnetic wave simply means the wave motion of the electromagnetic field (**EMF**).

The change in electric fields produces magnetic fields, and the change in magnetic fields can also generate electric fields. The fluctuation of correlation between each other is known as “electromagnetic waves”, which is a form of energy simular to light and heat that can be transmitted either bt radiation in the air or by an electric conductor.

It is suggested that rearrangements should be made in homes and work locations where the strongest electromagnetic fields are detected in order to avoid prolonged esposure to excessive electromagnetic fields

APPLICATIONS

- This meter is applied to measuring magnetic fields of extremely low frequency (**ELF**) of 30 to 200 Hz.
- It is capable of measuring the magnetic field radiation intensity that is produced from electric transmission equipment, power lines, microwave ovens, air conditioners, refrigerators, computer monitors, video/audio devices and so forth.
- The magnetic field unit is Tesla (T), Gauss (G), milli-Gauss (mG) or micro-Tesla (μT).

$$1 \text{ T} = 10,000 \text{ G}$$

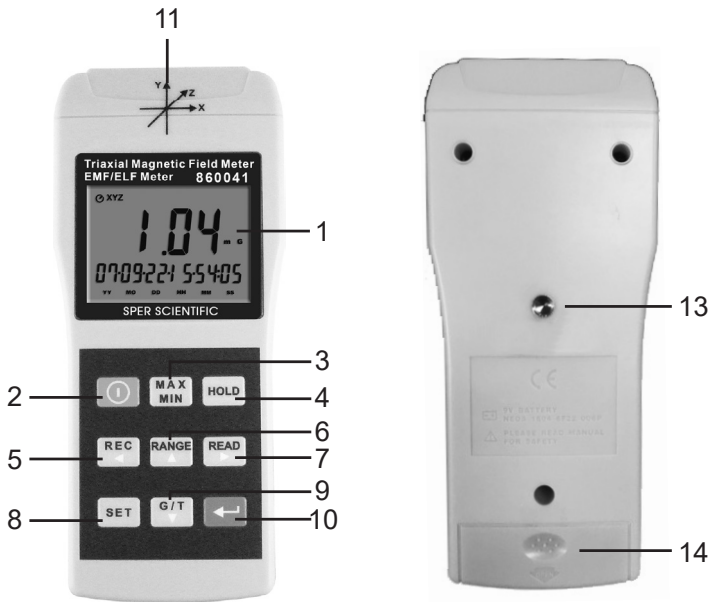
$$1 \text{ G} = 1,000 \text{ mG}$$

$$1 \mu\text{T} = 10 \text{ mG}$$

FEATURES

- Uses three (3) internal orthogonal sensors to test a wide range of ELF magnetic fields, independent of measurement angle.
- The tester is designed to provide a quick, reliable and easy way to measure magnetic field radiation levels around power lines, home appliances and industrial devices.
- The tester is a cost-effective hand-held instrument that was designed and calibrated to measure magnetic field radiation at different bandwidths from 30 Hz to 2000 Hz.
- Display micro-Tesla (μT) or milli-Gauss (mG) units.
- Data hold (HOLD), maximum Hold (MAX), and minimum Hold (MIN) function.
- Autorange and manual range select mode.
- Datalogging capacity memory size: 500 data sets
- Time and Calendar function
- Low battery indication
- Overload display “OL”
- Auto power OFF function








IDENTIFYING PARTS





IDENTIFYING PARTS

1. LCD display
2. Power key
3. Maximum Hold & Minimum Hold key
4. Data Hold key
5. Record Data & Setup function **Left** key
6. Range & Setup function **Up** key
7. Reading & Setup function **Right** key
8. Setup function key
9. Units & Setup function **Down** key
10. Enter key
11. Calibration point for triple axis
12. External power DC 9V
13. Tripod Mounting screw
14. Battery cover


MEASUREMENT PROCEDURES

- Press  key turn on the meter, press  turn key again to **OFF** the meter.
- Press  key to select milli-gauss (mG) or micro-tesla (μT)
- Position the front of the meter to measure the electromagnetic waves.
- Read the measured value. When manual range select mode. LCD will shown the ® mark. The display of “OL” on the highest position indicates there is an overload on the reading. Press  to select a higher range for measurement again.
- This meter displays the default value is triaxial total magnetic field reading, press  key to independent three single-axis magnetic field readings and triaxial total magnetic field reading.
- To permanently lock and keep the reading displayed on the LCD, press  or press  again to unlock.






MEASUREMENT PROCEDURES

- To retain the maximum and minimum value, press  key and the reading value displayed on the LCD will keep updating to the maximum value. Press again to select minimum value, press and hold down  key 2 seconds to exit the maximum and minimum mode.
- Due to the magnetic interference of the environment field factors, this magnetic field meter could display a reading value that is lower than 0.5 mG prior to measuring. This is not a malfunction of the tester.
- With the tester in hand, move slowly towards to the object under measurement until it is physically touched.
- Notice how the field intensity increases as you move closer to the object.
- If the power of object was turned off during the measurement, the reading of tester should return to zero, unless there is the electromagnetic from other sources are detected.


CLOCK SETUP

- This meter clock to introduce 24 hour time.
- Press  key to clock setting mode (1.SET).






- Press  or  key to select option to adjust.
- Press  or  key to change the digit.
- Press  key to store the setup, exit the mode.


AUTO POWER OFF SETUP

- Press  key again to auto power off time setting mode (2.SET).








- Press  or  key to change the auto power off time.
- Press  key to store the setup, exit the mode.
- This meter the auto power off time default value is 5 minutes, for cancellation auto power off, please set time as 00MM.


CONTINUITY DATALOGGING SETUP

- Press  key again to continue datalogging interval setting mode (3.SET).





- Press  or  key to select option to adjust.
- Press  or  key to change the value.
- Press  key to store the setup, exit the mode.


CLEAR DATALOGGER MEMORY

- Press  key again to clear data logger memory for last record setting mode (4.SET).





- Press  key to clear data logger memory for last record.
- Press  key to clear data logger memory for last record and exit the mode.


CLEAR ALL DATALOGGER MEMORY

- Press  key again to clear data logger memory for all record setting mode. (5.SET)







- Press  key to clear data logger memory for all record.
- Press  key to store the setup, exit the mode.

SINGLE DATA MEMORY

- Press  key each time to store the display reading and memory location in memory.


VIEWING LOGGED READING CONTROL KEY

- Press  key to view logged readings mode.
Press  or  key to scroll through the readings,
Press  key to exit this mode.

BATTERY REPLACEMENT



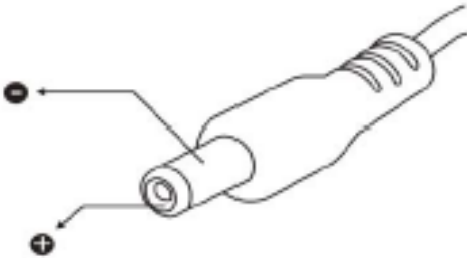
WARNING

If the symbol  appears on the LCD, please replace the battery immediately

- Turn off the instrument.
- Open the battery cover and remove the battery.
- Replace with four-9V NEDA 1604, IEC 6F22 or JIS 006P size battery.
- Install the battery cover.

EXTERNAL DC POWER

- External AC to DC adapter:
Voltage $9 V_{DC}$ (8 to $14 V_{DC}$ Max)
- Supply current : $>300 mA_{DC}$
- Socket : pin Positive, Ground Casing External
Diameter 6.3mm internal Diameter 2.0 mm



SAFETY PRECAUTION

- For cleaning the instrument use a soft dry cloth. Never use a wet cloth, solvents or water, etc.
- Operation Altitude: Up to 2000M.
- Operating Environment: Indoors use. This instrument has been designed for being used in an environment of pollution degree 2.



Caution: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal

SPECIFICATIONS

Display	4 digits Triple LCD display
Range	20/200/2000 mG 2/20/200 μ T
Resolution	0.01/0.1/1 mG or 0.001/0.01/0.1 μ T
Frequency Response	30 Hz to 2000 Hz
Sensor	Triple Axis (X, Y, Z)
Accuracy	20 mG /2 μ T \pm (3.0% + 30 dgt) at 50 Hz /60 Hz \pm (2.5% + 5 dgt) at 50 Hz /60 Hz. \pm (5% + 5 dgt) at 30 Hz /2000 Hz
Overload	LCD display "OL"
Sample Rate	2.5 times per second
Battery	9V NEDA 1604, IEC 6F22 or JIS 006P
Battery Life	Approximate 100 hours
Operating Temperature & Humidity	5°C to 40°C, below 80% RH.
Storage Temperature & Humidity	-10°C to 60°C, below 70%.
Weight	About 230 g
Dimensions	173 (L) x 80 (W) x 32 (H) mm
Accessories	User's manual, 9V battery, Carrying case

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) year** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will break the waterproof seal and void the warranty. To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.

8281 E. Evans Rd., Suite #103

Scottsdale, AZ 85260

(480) 948-4448

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.