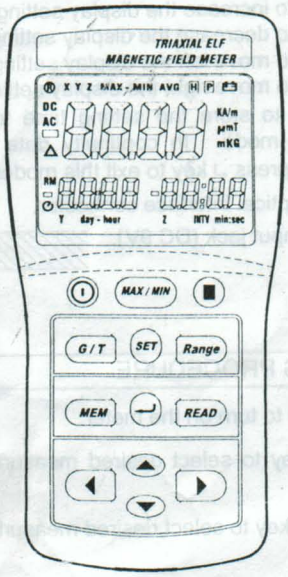
TES **TRIAXIAL ELF MAGNETIC FIELD METER**
Datalogger & RS-232 PC Interface

TES-1394

INSTRUCTION MANUAL



TES ELECTRICAL ELECTRONIC CORP.

1. FEATURES

- Uses three internal orthogonal sensors to test a wide range of ELF magnetic fields, independent of measurement angle.
- The tester is designed to provide user 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 30Hz to 2000Hz.
- Display micro Tesla & milli Gauss in the same tester.
- Data hold / Maximum and Minimum hold/Data memory and Read functions.
- Comply with CE.
- RS-232 PC interface.
- **U.S. Pat. No. Des. 446,135**

2. APPLICATIONS

- This tester is specifically designed to determine the magnitude of magnetic filed radiation generated by power lines, computer's monitor, TV sets, video machinery and many other similar devices.

3. CAUTION OF ELECTROMAGNETIC FIELD EXPOSURE

Claims by some scientists that long term exposure to electromagnetic field may be the cause of childhood leukemia & other forms of cancer.

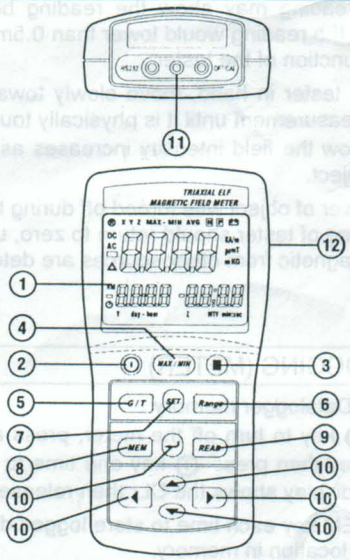
Complete answers to any of these and related questions are not currently available. At the present time, the most common practice is to avoid excess exposure over long period of time.

"Prudent Avoidance" as stated by the Environmental Protection Agency (EPA) USA is recommended.

4. SPECIFICATIONS

Display :	Triple LCD display.
Range :	20/200/2000 milli Gauss 2/20/200 micro Tesla
Resolution :	0.01/0.1/1 milli Gauss 0.001/0.01/0.1 micro Tesla
Number of Axis :	Triple axis (X, Y, Z)
Band Width :	30Hz to 2000Hz
Accuracy :	20mG/2μT ±(3%+30d), ± (3%+3d) at 50Hz or 60HZ ± (5%+3d) at 40Hz to 200HZ -3dB at 30Hz to 2000HZ
Over-Input :	Display shows "OL"
Sampling Time :	Approx. 0.5 second
Memory Capacity :	2000 data sets (manual and continue recorder).
Battery :	6 pcs 1.5V size AAA.(Only Use Alkaline Battery)
Battery Life :	Approx. 100 hours.
Auto Power off :	Approx. 15 minutes.
Operating Temp and Humidity :	0℃ to 50℃ (32℉ to 122℉) below 80%RH
Storage Temp and Humidity :	-10℃ to 60℃ below 70%RH
Weight :	Approx. 165g
Dimension :	154(L) × 72 (W) × 35(H) mm
Accessories Included :	Operation manual , batteries, RS-232 cable, CD software.

5. NAME OF PARTS AND POSITIONS



① Triple LCD display.

② a. Power control key ⏻, press ⏻ key turn on the meter, press ⏻ key again to turn off the meter.

b. Exit auto power off function : Press ⏻ key turn off the meter, press and hold down [H] key, then press ⏻ key turn on the meter, until display two times, then release [H] key, exit auto power function.

c. In time setting mode, press ⏻ key can not turn off the meter, In this condition, press ↵ key to exit time setting mode then press ⏻ key to turn off the meter.

③ Data hold control key [H] .

④ Maximum and Minimum reading record control key (MAX/MIN) :
Press SET key select display to shown the triaxial total magnetic field and day-hour, min:sec reading mode. Press Range key to select desired measurement range then press MAX/MIN key to step through the maximum and minimum readings. Press and hold down MAX/MIN key 2 seconds to exit MAX/MIN mode.

⑤ Magnetic field units select key (G/T) :
Press G/T key to select milli-gauss (mG) or micro-tesla (μT) units.

⑥ Measurement range select key (Range) :
Press Range key to enter manual range select mode, LCD will shown the Ⓡ mark, press Range key again will cycle through select desired ranges. Press and hold down Range key. 2 seconds, exit and back to autorange mode.

⑦ Setting key (SET) :
a. Press SET key to step through the triaxial total magnetic field reading and independent three single-axis magnetic field readings.
b. Press and hold down SET key, unit beeper voice two times then release SET key to enter data logging interval time setting mode, then press ▲ and ▼ key to setting the desired time (1 to 255 seconds). Press ◀ or ▶ key to enter the date and time setting mode, then press ▲ ▼ ◀ or ▶ four keys until the display shown the correct time, press ↵ key to store the time in memory.

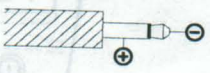
⑧ Data memory control key (MEM) :
a. Single data memory : Press MEM key each time to store the display reading and memory location in memory.
b. Continuity data memory : Setting the logging interval. (see ⑦ b). Press and hold down MEM key until beeper voice two times then release MEM key to enter this mode, the display "M" mark flashing one time, store one sets reading to memory. Press ↵ key to stop logging.

⑨ Viewing logged reading control key (READ) :
a. Press READ key to viewing logged readings mode. Press ▲ or ▼ keys to scroll through the readings. Press ↵ key to exit this mode.
b. Press and hold down READ key until beeper voice two times then release READ key to enter viewing logged reading continuously, the display "R" mark flashing one time, recall one sets memory reading and memory location number to display. Press ↵ key to exit this mode.

⑩ Scroll keys (▲ ▼ ◀ ▶) and enter (↵) control key :
▲ : Press to increase the display setting.
▼ : Press to decrease the display setting.
◀ : Press to move left the display setting.
▶ : Press to move right the display setting.
↵ : Press to store the setting time to memory and exit setting mode. In continuity data memory and read mode, press ↵ key to exit this modes.

⑪ RS-232 PC optical interface connector.

⑫ AC adaptor input jack (DC 9V).



6. MEASURING PROCEDURE

1). Press ⏻ key to turn on the meter.

2). Press G/T key to select desired measuring magnetic field units.

3). Press Range key to select desired measuring ranges.

4). Due to the magnetic interference of the environment, the display reading may show the reading before testing, for example the reading would lower than 0.5m Gauss. This is not malfunction of the tester.

5). 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.

6). 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.

7. DATALOGGING (METER)

1). To clear Datalogger memory :
Press ⏻ key to turn off the meter, press and hold down the (MEM) key then press ⏻ key one time to turn on the meter, until the display shows the CLr then release the MEM key.

2). Press MEM key each time to store logged display reading and memory location in memory.

3). Continuity data logging :
a. Set the logging interval. Press and hold down SET key 2 seconds, then press ▲ and ▼ keys until the display shows the logging interval desired time (1-255 seconds) then press ↵ key to select.
b. Press and hold down MEM key 2 seconds, to start logging.
c. Press ↵ key to stop logging.
d. Download the continuity logged data to PC or direct reading from the display.

8. RECOMMENDATION

It is recommended to measure the presence of the electromagnetic field inside and outside of your home and business locations regularly.

As "hot spots" are detected by the tester, re-arrangement of the living and working areas is lightly recommended. Always try the best to avoid long term exposure in the strong electromagnetic field.

9. BATTERY REPLACEMENT

1). When the left corner of the LCD display shows " [+ −] ", replacement of the battery is then needed.

2). Open the battery cover at the back of tester and remove the battery.

3). Replace with four AAA-size alkaline batteries and reinstate the cover.

10. RS-232 INTERFACE, SOFTWARE INSTALLATION and OPERATION

❑ For the detailed instruction, please refer to the content of attached CD-ROM, which has the complete instruction of RS-232 interface, software operation and relevant information.

❑ RS-232 protocol : are enclosed within the content of CD-ROM, please open the CD-ROM for details.

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