

# EMF TESTER

## ELECTROMAGNETIC FIELD RADIATION TESTER

Model : PCE-EMF 823



Your purchase of this EMF TESTER marks a step forward for you into the field of precision measurement. Although this EMF TESTER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.



**OPERATION MANUAL**

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## **1. FEATURES**

- \* The EMF tester is designed to provide user a quick, reliable and easy way to measure electromagnetic field radiation levels around power lines, home appliances and industrial devices.
- \* Three EMF measuring ranges, 20 micro Tesla/200 micro Tesla /2000 micro Tesla and 200 mG/2000 mG/20000 mG.
- \* The EMF tester is a cost effective, hand-held instrument designed and calibrated to measure electromagnetic field radiation at different bandwidths down to 50 Hz/60 Hz.
- \* Microprocessor circuit assures high accuracy and provides special functions and features.
- \* Records Maximum, Minimum readings with Recall.
- \* LCD display is with the backlight installation.
- \* Auto power Off or manual power Off.
- \* Data hold.
- \* Operates from 006P DC 9V battery.
- \* Heavy duty & compact housing case.

## **2. APPLICATIONS**

This EMF tester is specifically designed to determine the magnitude of electromagnetic field 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

### 4-1 General Specifications

Display	LCD size : 48.8 mm x 25.3 mm. LCD is with the backlight installation.
Circuit	Custom one-chip of microprocessor LSI circuit.
Measurement	EMF ( Electromagnetic field radiation )
EMF Range /Resolution	<b>micro Tesla :</b> 20 micro Tesla x 0.01 micro Tesla 200 micro Tesla x 0.1 micro Tesla 2,000 micro Tesla x 1 micro Tesla <b>milli-Gauss :</b> 200 mG x 0.1 mG 2,000 mG x 1 mG 20,000 mG x 10 mG * mG : milli-Gauss * 1 micro Tesla = 10 milli-Gauss
EMF Band width	30 Hz to 300 Hz.
Axes no. of EMF	Single axis.
Over-input	Display shows ' - - - - ' .
Sampling Time	Approx. 1 second.
Battery	DC 9 V battery (006P, 6F22).
Power Current	Approx. DC 5 mA. * <i>Back light Off.</i>
Operating Temperature	0 to 50 °C.
Operating Humidity	Less than 80% R.H.

Dimension	152 x 69 x 36.3 mm ( 6.0 x 2.7 x 1.4 inch).
Weight	216 g/0.48 LB.
Accessories Included	Operation Manual..... 1 PC.
Optional Accessories	* Soft carrying case, CA-52A * AC to DC 9V power adapter.

#### **4-2 Electrical Specifications**

<b>Range</b>	<b>Resolution</b>
20 micro Tesla	0.01 micro Tesla
200 micro Tesla	0.1 micro Tesla
2,000 micro Tesla	1 micro Tesla
200 mG	0.1 mG
2,000 mG	1 mG
20,000 mG	10 mG
* <i>mG : milli-Gauss</i>	
* <i>1 micro Tesla = 10 milli-Gauss</i>	

<b>Range</b>	<b>Accuracy</b>
20 micro Tesla	± (4 % + 3 d)
200 micro Tesla	± (5 % + 3 d)
2,000 micro Tesla	± (10 % + 5 d)
200 mG	± (4 % + 3 d)
2,000 mG	± (5 % + 3 d)
20,000 mG	± (10 % + 80 mG)

\* *Spec. accuracy tested under 50 Hz or 60 Hz.*

@ *Above specification tests under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.*

## 5. FRONT PANEL DESCRIPTION

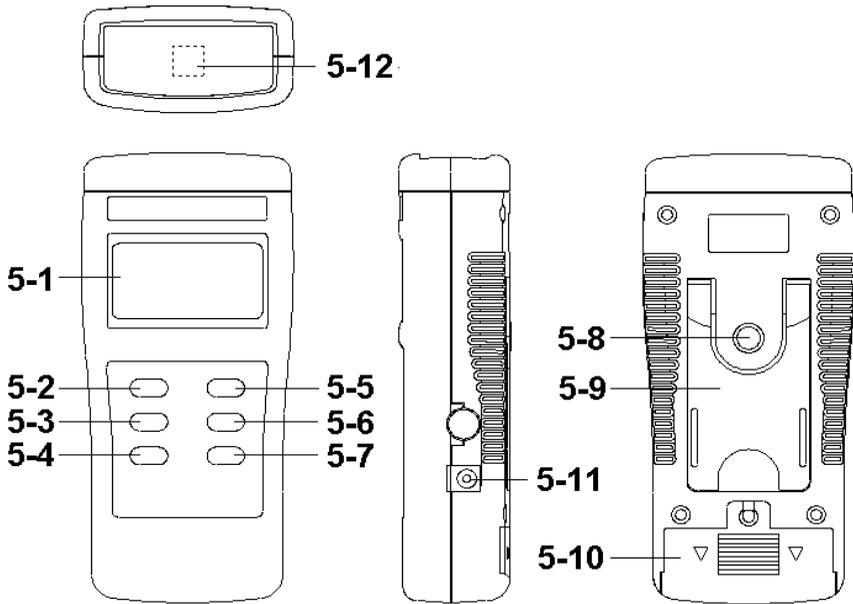


Fig. 1

- 5-1 Display
- 5-2 Power Button
- 5-3 REC Button
- 5-4 HOLD Button
- 5-5 Range Button
- 5-6 Unit Button
- 5-7 Backlight Button
- 5-8 Tripod Fix Nut
- 5-9 Stand
- 5-10 Battery Cover/Compartment
- 5-11 DC 9V Power Adapter Input Socket
- 5-12 EMF Sensor Position

## 6. MEASURING PROCEDURE

### 6-1 EMF measurement

- 1) Power On the meter by pressing the " Power Button "  
( 5-2, Fig. 1 ) once.  
Select the suitable range by pressing the " Range Button "  
( 5-5, Fig. 1 )  
Select the unit (  $\mu\text{T}$ ,  $\text{mG}$  ) by pressing the " Unit Button "  
( 5-6, Fig. 1 )
  - \*  $\mu\text{T}$  : *micro Tesla, mG " milli-Gauss.*
  - \* For the unknown EMF measurement, start with the highest range and keep decreasing until the higher resolution's reading is obtained.
  
- 2) With the tester in hand, move slowly towards to the object under measurement until it is physically touched. The upper Display ( 5-1, Fig. 1 ) will present the EMF measurement value.
  - \* *EMF Sensor Position is in the area of " 5-13 , Fig. 1 " .*
  - \* *Due to the electromagnetic interference of the environment, the display reading may show small values before testing, for example less than 0.05 micro Tesla. This is not malfunction of the tester.*
  - \* *Notice how the field intensity increases as you move closer to the object.*
  
- 3) Position the EMF tester at different angles to the object under measurement and observe how this may affect your reading.
- 4) By trying different angles approaching the object under measurement, recorder the highest value shown on the display.
  - \* *If the object under measurement is turned off during the measurement, the EMF tester reading should then return to zero, unless a field from other sources are detected.*

## **Recommendation for EMF measurement**

***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 EMF tester, re-arrangement of the living and working areas is lightly recommended. Always try the best to avoid long term exposure to strong electromagnetic field.***

### **6-2 Data Hold**

During the measurement, press the " Hold Button " ( 5-4, Fig. 1 ) once will hold the measured value & the LCD will display a " HOLD " symbol.

*\* Press the " Hold Button " once again will release the data hold function.*

### **6-3 Data Record ( Max., Min. reading )**

\* The data record function records the maximum and minimum readings. Press the " REC Button " ( 5-3, Fig. 1 ) once to start the Data Record function and there will be a " REC " symbol on the display.

\* When the " REC " symbol on the display :

a) Press the " REC Button " ( 5-3, Fig. 1 ) once, the " REC MAX " symbol along with the maximum value will appear on the display.

If intend to delete the maximum value, just press the " Hold button " ( 5-4, Fig. 1 ) once, the display will show the " REC " symbol only & execute the memory function continuously.

b) Press the " REC button " ( 5-3, Fig. 1 ) again, the " REC. MIN. " symbol along with the minimum value will appear on the display.

If intend to delete the minimum value, just press the " Hold button " ( 5-4, Fig. 1 ) once, then the display will show the " REC " symbol only & execute the memory function continuously.

c) To exit the memory record function, just press the " REC " button for 2 seconds at least. The display will revert to the current reading.

#### **6-4 Display backlight On/Off**

During the measurement, the LCD backlight will On. If press the " Backlight Button " ( 5-7, Fig. 1 ) once, the LCD backlight will be switched to Off.

*\* Press the " Back light Button " once again will switch the Display backlight installation On again.*

#### **6-5 Auto power OFF disable**

The instrument has built-in " Auto Power OFF " in order to prolong battery life. The meter will switch off automatically if none of the buttons are pressed within 10 min.

To de-activate this feature, Select the memory record function during measurement by pressing the " REC Button " ( 5-3, Fig. 1 ).

## 7. BATTERY REPLACEMENT

- 1) When the left corner of LCD display show " , it is necessary to replace the battery. However, in-spec. measurement may still be made for several hours after low battery indicator appears before the instrument become inaccurate.
- 2) Slide the " Battery Cover " ( 5-10, Fig. 1 ) away from the instrument and remove the battery.
- 3) Replace with 9V battery ( Alkaline or Heavy duty type ) and reinstate the cover.
- 4) Make sure the battery cover is secured after changing the battery.

## 8. OPTIONAL ACCESSORIES

Soft carrying case Model : CA-52A	* Soft carrying case with sash. * Size : 200 x 80 x 50 mm.
DC 9V POWER ADAPTER Model : AP-9VA	* Input voltage : 100 to 240 ACV, 50/60 Hz. * Output voltage : Regulation DC 9V/ 1 Amp. rating max. * Output plug : round 2.5 mm dia. plug.
PLUG CONVERTER Model : AP-GTU	* Convert the input plug of AP-9VA, from the Germany type to USA type.
PLUG CONVERTER Model : AP-GTE	* Convert the input plug of AP-9VA, from the Germany type to UK ( England ) type.