REED
INSTRUMENTS

Multi-Field EMF Meter

REED R9230

HOLD

x	0.3	Magnetic Field
y	6.7	**7.0**
z	2.3	mG

Electric Field
61 V/m

RF Strength
4940 μW/m²

Multi-Field EMF Meter

HOLD   REC

SET   ▲   ▼

WARRANTY
1 YEAR
WARRANTY

Instruction Manual

Table of Contents

Introduction

Thank you for purchasing your REED R9230, Multi-Field EMF Meter. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured in an ISO9001 facility and has been calibrated during the manufacturing process to meet stated product specifications. If a certificate of calibration is required, please contact the nearest authorized REED distributor or authorized Service Center. Please note an additional fee for this service will apply.

Safety

- This meter measures electromagnetic fields. Do not use near medical devices such as pacemakers, hearing aids, or insulin pumps.
- Do not use in explosive or flammable environments.
- Keep the meter away from water and other liquids to prevent damage to the device and electrical shock.
- Read the instruction manual carefully before use.
- Never attempt to repair or modify your instrument. Dismantling your product, other than for the purpose of replacing batteries, may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center.

Features

- Magnetic field, electric field, and radio frequency (RF) strength measurements
- 2.4"(50.8mm) (240 x 320 pixels) color TFT display
- Triple axis (X, Y, Z) RF, EMF and ELF sensor
- Audible alarm
- Data Hold and Min/Max functions
- Low battery indicator and auto shut-off

Included

- R9230 Multi-Field EMF Meter
- Batteries

Specifications

RF Strength

Measuring Range:	30.0mV/m to 11.00V/m
	0.02 to 32.0uW/cm²
	2.3µW/m² to 320.9mW/m²
	0.07 to 29.1mA/m
Accuracy:	±1dB at 1V/m and 900MHz
Resolution:	0.01, 0.1mV/m / 0.01V/m
	0.01, 0.1µW/cm²
	0.1, 1µW/m² / 0.1mW/m²
	0.01, 0.1mA/m

Magnetic Field

Measuring Range:	200 to 2000mG
	20 to 200µT
Accuracy:	±12% rdg +5 dgt
Resolution:	0.01µt, 0.1µT
	0.1mG, 1mG

Electric Field

Measuring Range:	50V/m to 2000V/m
Accuracy:	±10% rdg + 60 dgt
Resolution:	1V/m

General Specifications

Sensor Type:	Triple axis (X, Y, Z) RF, EMF and ELF sensor
Display:	2.4" TFT LCD display
Data Hold:	Yes
Min/Max Functions:	Yes
Audible Alarm:	Yes
Auto Shut-off:	Yes (after 10 mins)
Low Battery Indicator:	Yes

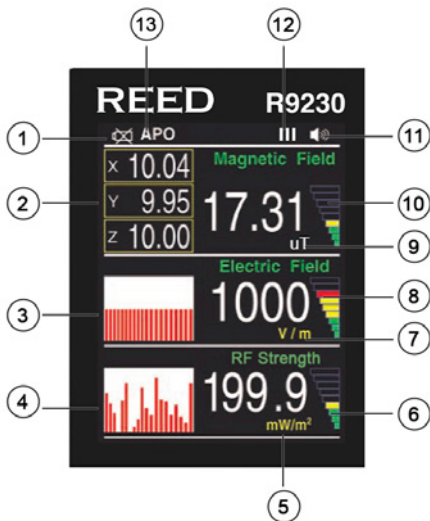*continued…*

Power Supply:	3 x AAA
Product Certifications:	CE
Operating Temperature:	32 to 122°F (0 to 50°C)
Storage Temperature:	14 to 140°F (-10 to 60°C)
Operating Humidity Range:	<80%
Storage Humidity Range:	<70%
Maximum Operating Altitude:	6561' (2000m)
Dimensions:	4.2 x 2.4 x 1.0" (107 x 60 x 25mm)
Weight:	0.2lbs (106g)

Instial Description
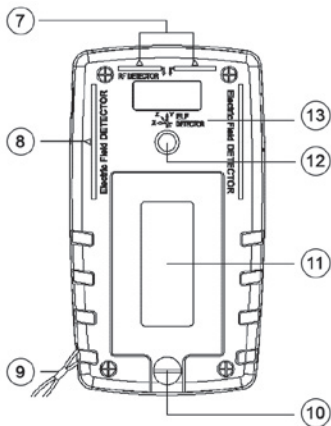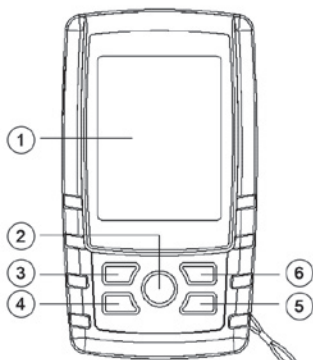
1. LCD Display
2. POWER Button
3. DATA HOLD Button
4. UP/SET Button
5. DOWN Button
6. RECORD/ENTER Button
7. RF Detector

8. Electric Field Detector
9. Wrist Strap
10. Battery Cover Screw
11. Battery Compartment Cover
12. Tripod Mounting Screw
13. ELF Detector

Display Description

1. Low Battery Indicator
2. XYZ Axes Values
3. Electric Field Graph
4. RF Strength Graph
5. RF Strength Measurement Value
6. RF Strength Alert Level Indicator
7. Electric Field Measurement Value

8. Electric Field Alert Level Indicator
9. Magnetic Field Measurement Value
10. Magnetic Field Alert Level Indicator
11. Audible Alarm Indicator
12. LCD Brightness Level Indicator
13. Auto Power Off Indicator

Color Coded Alert Level Table (for reference purpose only)

Alert Level	Magnetic Fields	Electrical Fields	RF Strength	Bar Color
LOW	<10.0mG	<499V/m	<10.0mW/m^2	Green
MEDIUM	≧10.0mG	≧499V/m	≧10.0mW/m^2	Yellow
HIGH	≧100.0mG	≧999V/m	≧99.9mW/m^2	Red

Note: Audible Alarm is triggered when readings enter the red region.

Operating Instructions

Power ON/OFF

To turn the meter ON or OFF press and hold the POWER button for approx. 2 seconds.

Electric Field Measurements

The R9230 measures the electric field (Electrical Power) in the atmosphere of the sensor's surroundings.

1. Hold the meter at the bottom and at arm's length.

2. Perform all tests according to the indicated direction of the electric field sensor. (Fig. 1).

3. Hold the meter steady during measurement.

Fig.1

4. The LCD will simultaneously display the electric field measurement, the Electric Field historical graph and alert level indicator based on the detected value.
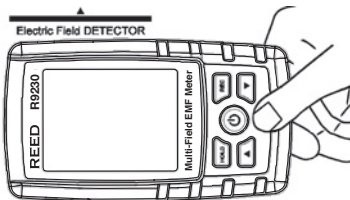
Magnetic Field Measurements

Point the front section of the meter toward the desired electromagnetic field to take a measurement.

Due to environment related magnetic field factors, this electromagnetic field (EMF) meter may display a reading of under 0.50mG prior to testing. This is caused by the magnetic noise in the environment, rather than meter failure.

> If the sensor is moved quickly, excessive field strength values will be displayed which do not reflect the actual field conditions. This effect is caused by electrostatic charges.

1. Hold the meter at arm's length.
2. Point the front face of the meter toward the source of power.
3. Hold the meter steady during measurement.
4. Make several measurements at various locations. This is particularly important if the field conditions are unknown.
5. The LCD will simultaneously display the electromagnetic field readings of individual (XYZ), the combined Magnetic field readings in the units of measurement selected by the user (See *Setting Magnetic Unit of Measurement* for additional details) and alert level indicator based on the measured value.

RF Strength Measurements

Point the front face of the meter toward the desired RF field to take a measurement.

1. Hold the meter at arm's length.
2. Point the front face of the meter toward the source of power. Fig. 2.
3. Hold the meter steady during the measurement.
4. The LCD will simultaneously display the RF strength measurement in the units of measurement selected by the user (See *Setting the RF Strength Unit of Measurement* for additional details), the RF strength historical graph and alert level indicator based on the measured value.

Fig.2

continued…
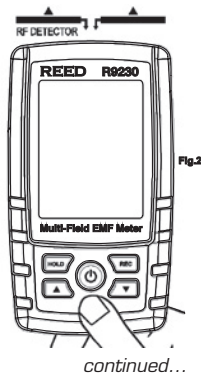
Data Hold

1. While taking a measurement, press the **HOLD** button to freeze the current measurements on the display.
2. While in this mode a "HOLD" symbol will appear on the display.
3. Press the button again to resume normal operation.

Note: When the DATA HOLD feature is active all buttons except the POWER button are disabled.

Recording Maximum and Minimum Readings

1. Press the **REC** button to enter recording mode as indicated by "REC" on the LCD. The meter will now begin recording maximum and minimum readings.
2. While in recording mode:
   a) Press the REC button once and the maximum values will appear on the display as indicated by "REC MAX".
   b) Press the REC button again and the minimum values will appear on the display as indicated by "REC MIN".
   c) To exit recording mode and resume normal operation, press and hold the REC button for two seconds.

When in recording mode the **POWER** button is disabled and the meter cannot be turned off.

Setting LCD Brightness

After powering the meter ON, press the **POWER** button to set the LCD brightness level as indicated by **III** (Low, Medium, and High) on the meter display.

Setup Mode

1.   Press and hold the **SET** button for 2 seconds to enter Setup Mode.
2.   Use the ▲ and ▼arrows to scroll through the following parameters:

Parameter	Description
POWER OFF	Enable or disable the auto-power off function
BUZZER	Turn the beeper on or off
LF UNIT	Setting the Magnetic unit of Measurement
EMF UNIT	Setting the RF Strength Unit of Measurement

3.   Once the appropriate parameter has been selected, follow the instructions below.

Enabling/Disabling Auto Power OFF (POWER OFF)

1.   Press the **REC** button when "POWER OFF" appears on the LCD.
2.   Press the ▲ and ▼ buttons to select between YES (enabled) or NO (disabled). With the Auto Power OFF feature enabled, the meter will automatically switch OFF after 10 minutes of inactivity to preserve battery life.
3.   Press the **REC** button to confirm selection and return to the Setup Mode screen.

Note: At any time, you can press the **POWER** button to exit the Setup Mode and resume normal operation.

Enabling/Disabling the Beeper (BUZZER)

1.   Press the **REC** button when "BUZZER" appears on the LCD.
2.   Press the ▲ and ▼ buttons to select between YES (enabled) or NO (disabled).
3.   Press the **REC** button to confirm selection and return to the Setup Mode screen.

Note: At any time, you can press the **POWER** button to exit the Setup Mode and resume normal operation.

Setting the Magnetic unit of Measurement (LF UNIT)

1. Press the REC button when "LF UNIT" appears on the LCD.
2. Press the ▲ and ▼ buttons to select between uT (micro Tesla) and mG (Milli Gauss).
3. Press the **REC** button to confirm selection and return to the Setup Mode screen.

Note: At any time, you can press the **POWER** button to exit the Setup Mode and resume normal operation.

Setting the RF Strength Unit of Measurement (EMF UNIT)

1. Press the **REC** button when "EMF UNIT" appears on the LCD.
2. Press the ▲ and ▼ buttons to select between "mW/m^2 - µW/m^2", "µW/cm^2", "V/m - mV/m", "mA/m".
3. Press the **REC** button to confirm selection and return to the Setup Mode screen.

Note: At any time, you can press the **POWER** button to exit the Setup Mode and resume normal operation.

Battery Replacement

When the low battery icon ⊠ appears on the LCD, the battery needs to be replaced.

1. Use a Flat head screwdriver to remove the battery cover.
2. Install (or replace) the 3 x AAA batteries.
3. Secure the battery cover back into place using the Flat head screwdriver.

Applications

- Home Appliances
- Power Lines
- Electrical Appliances
- Industrial Devices
- Mobile/Cell Phones
- Base Stations

Accessories

CA-52A Small Soft Carrying Case

R1500 Tripod

Don't see your part listed here? For a complete list of all accessories and replacement parts visit your product page on www.REEDInstruments.com.

Product Care

To keep your instrument in good working order we recommend the following:

- Store your product in a clean, dry place.
- Change the battery as needed.
- If your instrument isn't being used for a period of one month or longer please remove the battery.
- Clean your product and accessories with biodegradable cleaner. Do not spray the cleaner directly on the instrument. Use on external parts only.

Product Warranty

REED Instruments guarantees this instrument to be free of defects in material or workmanship for a period of one (1) year from date of shipment. During the warranty period, REED Instruments will repair or replace, at no charge, products or parts of a product that proves to be defective because of improper material or workmanship, under normal use and maintenance. REED Instruments total liability is limited to repair or replacement of the product. REED Instruments shall not be liable for damages to goods, property, or persons due to improper use or through attempts to utilize the instrument under conditions which exceed the designed capabilities. In order to begin the warranty service process, please contact us by phone at 1-877-849-2127 or by email at info@reedinstruments.com to discuss the claim and determine the appropriate steps to process the warranty.

Product Disposal and Recycling

Please follow local laws and regulations when disposing or recycling your instrument. Your product contains electronic components and must be disposed of separately from standard waste products.

Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@reedinstruments.com.

Please visit **www.REEDInstruments.com** for the most up-to-date manuals, datasheets, product guides and software.