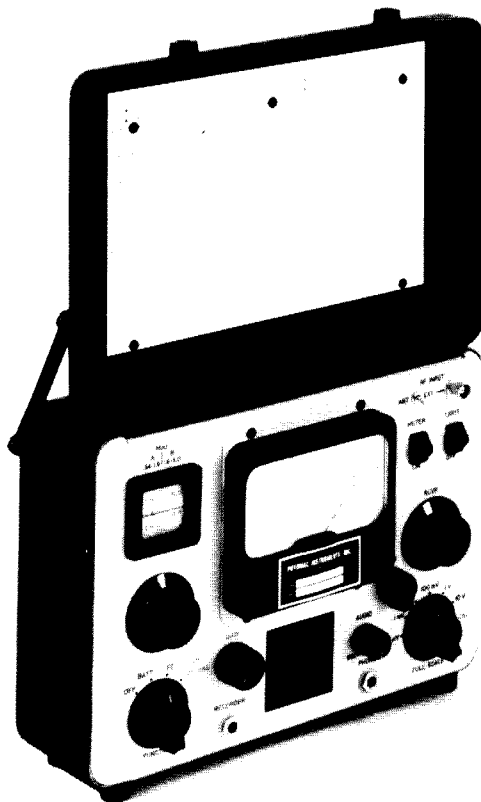


# FIM-22/41

## LF/MF/HF Field Strength Meters



### Key Features

- 6-Position Attenuator, 20 dB/step
- High Q Double-Tuned RF Input for Maximum Image Rejection
- Multi-Pole Hybrid IF Filter (Shape Factor, 2.2:1)
- Temperature Compensated and Voltage Regulated
- 4-Inch, Lighted, Mirrored Scale, Taut-Band Meter
- Front Panel Speaker, Headphone Jack, and Recorder Output Jack
- RF Coaxial Input
- Mechanical "Vernier" Tuning
- Differential Circuit for Precise Calibration
- Capable of Signal Ratio Measurements to -80 dB

### Description

The Models FIM-22 and FIM-41 are portable field strength meters designed to provide precise, direct measurements of electromagnetic fields in the 200 kHz to 5.0 MHz spectrum. These units include a receiver, integral shielded loop antenna, precision attenuator, internal calibration source, and battery power supply. With calibration accuracy traceable to the National Institute of Standards and Technology, the FIM-22 and FIM-41 meet the most exacting requirements of government and industry. Their hinged covers, on the rugged drawn aluminum cases, contain a loop antenna. Opening the cover to a vertical position connects the antenna terminals to the receiver via maintenance-free gold-plated contacts. An interlock switch prevents inadvertent battery discharge when the cover is closed.

### Operation

A simplified calibration procedure assures measurement accuracy. Frequency is easily selected and observed on an illuminated dial. Tuning the receiver simultaneously tunes the calibrating oscillator to within a few kHz of the selected frequency. A separate control is used for vernier tuning. Proper gain calibration is precisely indicated by a sharp null on the meter when the gain control is adjusted for an exact balance between the detected outputs of the receiver and the calibrating oscillator. Field strength is displayed on the meter's logarithmic scale which is calibrated in increments from 1 to 10. Full scale meter sensitivity is determined by the attenuator range switch. Signal ratio (i.e., harmonic) measurements are easily resolved using the dB scale of the meter in conjunction with the 20 dB per step range switch.

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# FIM-22/41 Specifications

## FREQUENCY RANGE

FIM-22

200 kHz to 550 kHz

FIM-41

540 kHz to 5.0 MHz in two bands:

Band "A" 0.54 MHz to 1.61 MHz

Band "B" 1.58 MHz to 5.0 MHz

## FIELD INTENSITY RANGE

10  $\mu$ V per meter to 10 V per meter

## ACCURACY OF CALIBRATION

1%, referenced to NIST Standard Field

(Calibrated at 220 mV per meter)

## ACCURACY OF RANGE ATTENUATOR

2% over entire FI range and tuning band

## SELECTIVITY

FIM-22

Bandwidth (6 dB)

4 kHz nominal with multi-pole hybrid filter

Bandwidth (60 dB)

10 kHz maximum

IF Rejection

70 dB minimum; 40 dB minimum at 455 kHz

Image Rejection

60 dB minimum

FIM-41

Bandwidth (6 dB)

7 kHz nominal with multi-pole hybrid filter

Bandwidth (160 dB)

15 kHz maximum

IF Rejection

35 dB minimum

Image Rejection

65 dB at 540 kHz decreasing to

45 dB (minimum) at 5.0 MHz

455 kHz

## IF FREQUENCY

## PANEL METER

4 in. mirrored scale, logarithmic graduations 1 to 10,

taut band meter movement, 3% linearity

## ANTENNA

Shielded loop, integral part of hinged cover

## AUDIO OUTPUTS

Front Panel loudspeaker, weather treated cone

Headphone jack, high and low Z (disconnects speaker)

## RECORDER OUTPUT

0.4 to 4 Vdc proportional to field intensity for each attenuator range,  
source resistance 2200 ohms

## LIGHTS

Frequency dial and meter; panel switch for night use

## BATTERIES (6 REQUIRED)

Standard 1.5 V C-Zn "D" cells or 1.5 V Alkaline cells for extended life at  
very low temperatures

## BATTERY LIFE

Greater than 1000 FI readings (reduced life with frequent use of lights  
and/or high speaker volume)

## AMBIENT TEMPERATURE, F (C)

Continuous exposure -10° (23°) to 130° (54°); "reading time" exposures  
practical at lower temperatures.

## DIMENSIONS. IN. (CM)

Cover closed: 8.75 (22.2) H, 11.5 (29.2) W, 5.125 (13) D

Cover open: 3.875(9.8) D — (gripping width)

## WEIGHT. LB. (KG)

12.0 (5.5) with batteries

## EXTERNAL RF INPUT

FIM-22

200 kHz to 550 kHz, 10  $\mu$ V to 10 V

FIM-41

540 kHz to 5.0 MHz, 10  $\mu$ V to 10 V

## RF INPUT SWITCH

Selects loop antenna (ANT) or panel connector (EXT)

## METER SWITCH

Selects normal linear (LIN) or logarithmic (LOG) operation

## LOGARITHMIC DYNAMIC RANGE

60 db compressed input range for FI meter and recorder input

*Specifications subject to change without notice.*

**PI**

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