FIM-72A

VHF Field Strength Meter

Key Features

Direct Reading - Volts or dB

450 MHz to 960 MHz Continuous Tuning

Peak or Averaging Detector

Wide or Narrow IF Bandwidth

20 dB or 60 dB Meter Range

AM or FM Demodulator

Calibrated Dipole Antenna, Case Mount or Removable

140 dB Measurement Range (1 uV to 10 V)

4-1/2 inch Mirrored Scale, Taut-Band Meter

Front Panel Speaker

Rugged, Portable

Calibrated Signal Generator

Description

The Model FIM-72A is a portable, laboratory quality Field Strength Meter designed for rigorous field applications. Combining a calibrated half-wave dipole antenna and a highly accurate tuned voltmeter with a range of 140 dB, the FIM-72A is suitable for practically all types of RF emission measurements in the 450 MHz to 960 MHz spectrum. The operator can switch select wide or narrow bandwidth, peak or average value of TV or pulse modulated signals, AM or FM demodulation, and meter dynamic range of either 20 dB or 60 dB. A dc analog voltage, proportional to meter indication, is provided for driving a chart recorder or similar device. A leveled output from the calibrating generator is available for measuring cable insertion loss, filter response, amplifier gain, VSWR, and other signal ratio measurements. The 4-1/2 inch, taut band, mirrored scale meter is calibrated in volts and dB for precise measurements in field or laboratory environments.

The tuned voltmeter is a double conversion, super-heterodyne receiver with carefully tailored sensitivity, selectivity, gain, and linearity characteristics. The RF input includes preselection designed for minimum VSWR and maximum out-of-band signal rejection. Uniform gain, independent of IF bandwidth is provided by temperature compensated RF & IF amplifiers utilizing a combination of MOSFET, bipolar, and monolithic integrated circuit devices. The linear detector is followed by a logarithmic shaping circuit which drives the meter in the LIN (20 dB) mode. In the LOG mode DC feedback is applied to the receiver in such a manner that the meter indication (in dB) varies linearly over a one-thousand-to-one range of input levels.

Options

AC power adapter

Rechargeable battery kit

Unipod

Carrying case

Antenna elements and balun

Headset

continued next page

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FIM-72A Specifications

FREQUENCY RANGE	450 MHz - 960 MHz, continuous
RF INPUT IMPEDANCE/VSWR	50 ohms VSWR /1.2:1 max, 100 uV full scale and greater; VSWR 2.0:1 max, 10 uV full scale; BNC connector
VOLTAGE MEASUREMENT	1 uV to 10 V rms in seven switch-selected ranges
METERING	4-½ inch meter, mirror-backed scale
Indication Mode:	LIN (linear) and LOG (with receiver dc feedback), switch-selected
Scales:	LIN Scales: 1-10 logarithmic and 0-20 dB linear; LOG Scale: -20 to +40 dB linear (60 dB range) Battery voltage/external supply voltage scale
METERING DETECTORS	Average-responding and Peak-responding (for television sync pulse), switch-selected
RECEIVER BANDWIDTHS	AM/FM, 190 kHz at -3 dB, and TV, 450 kHz at -3 dB, switch selected
ABSOLUTE ACCURACY	**Voltage:** ±1.5 dB (LIN), ± 2.0 dB (LOG), for voltage >1.5 >uV (AM/FM) or >3 uV (TV)
	Field Strength: ± 3.0 dB (LIN), ± 3.5 (LOG); for field strengths >19 uV/M (AM/FM) or >38 uV/M (TV) at 450 MHz;
	>39 uV/M (AM/FM) or >77 uV/M (TV) at 960 MHz; using the ANT-72 Antenna
	NOTE: These figures apply when using the Average Detector; for the Peak Detector,
	noise correction factors (supplied) are required below 10 mV.
RELATIVE ACCURACY	±dB at one frequency, for voltage or field strength, LIN mode, for voltage >10 uV, with noise correction factors
CALIBRATING OSCILLATOR	Output switched to receiver for internal calibration (CAL Mode), or to external BNC connector (GEN OUT Mode).
	Generator frequency tracks receiver frequency.
Output Level and Accuracy	100 mV ± 0.3 dB across 50.0 ohms
FREQUENCY DIAL	Six-turn spiral, continuous tuning, movable cursor (45 MHz to 225 MHz)
Accuracy	± 0.5% of indicated frequency without cursor correction
AUTOMATIC FREQ. CONTROL	Switch selected; frequency-locks receiver to received signal; Lock Range ± 5 MHz min. (internally adjustable)
RCVR SPURIOUS RESPONSE	Image Rejection, 55 dB typical; IF Rejection, 100 dB typical
DEMODULATORS	AM and FM, switch selected, phone jack (0.25 in.) output connector
Video Frequency Response	50 Hz - 100 kHz, 3 dB max. variation
Output Level	4.5V p-p max. across 75-ohm load, variable by AUDIO control
AUDIO MONITORING	Internal loudspeaker; headphones plug into demodulator output jack, (disconnecting speaker)
	AM or FM selected by DEMOD switch; level control with disabling switch
RECORD OUTPUT	Two-circuit phone jack (0.25 in.) output**,**
Tip Contact	DC analog of meter indication 0.8 V - 8 V open circuit, 2000 ohm source resistance
Ring Contact	DC output from FM discriminator, @ -5 ±3 V, 10,000 ohm source resistance,
	(Single-circuit phone plug provides tip contact output only)
POWER SUPPLY	
Internal Batteries	1.5 volt size "D" batteries, ten required
Battery Life	800 readings or 18 hours continuous operation using Eveready No. E95 (alkaline) batteries at 70 deg. F
External Supply	11.5 volts to 16 volts DC, positive ground, 360 mA, Switchcraft No. 760 Connector (or equivalent)
TEMPERATURE RANGE	+15 deg. F to +105 deg. F (-10 deg. C to +40 deg. C)
DIMENSIONS, INCHES (CM)	Without Antenna: 9.5 (24) high, 12.25 (31) wide, 7.25 (18.4) deep
	With Antenna attached and retracted, 9.9 (25) high, 13.5 (34.3) wide, 7.25 (18.4) deep
WEIGHT, POUNDS (KG)	20 (9.1) with batteries, antenna, cover, cables, and softcase.

NOTES: Values without limits are typical only. Field strength data with ANT-72 Antenna.

Antenna Ant-72:	
TYPE	Tunable half-wave dipole with continuously adjustable telescoping elements, with balun
FREQUENCY RANGE	450 - 960 MHz
CALIBRATION	Antenna Factor data supplied based on NIST calibration; overall error including NIST calibration uncertainty, ±1.5 dB max.
LOAD IMPEDANCE	50 ohms
MOUNTING	Mounts on FIM-72A case for hand-held measurements at an antenna height of approx.7ft.; has 1/4 - 20 threaded hole
	for mounting to other masts.

Specifications subject to change without notice.

PI

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