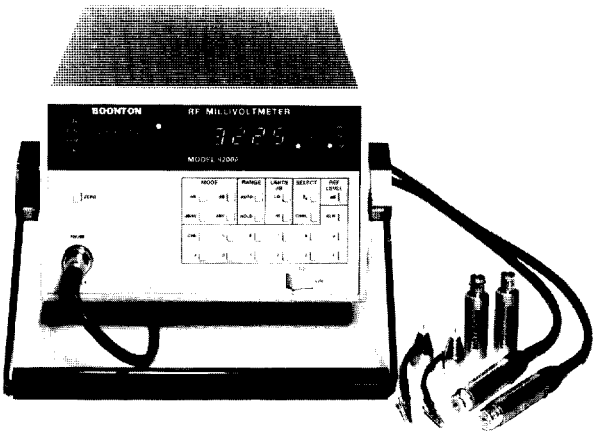
RF Millivoltmeter
Model 9200A



Model 9200A is a microprocessor-controlled rf millivoltmeter, that measures rf voltage from 200 μV to 300 V in the 10 kHz to 1.2 GHz frequency range. Performance features and operating conveniences, not previously available, make this a unique instrument, whether under manual or bus control.

TWO CHANNEL AND DIFFERENTIAL VOLTAGE MEASUREMENTS

A second channel input option (option-03) provides a duplicate set of input amplifiers and circuits with a rear-panel connector for a second voltage probe. The 9200A can then display channel 1 or channel 2, or their instantaneous difference expressed in dB (channel 3). This option is particularly useful when measuring gain or loss.

VOLTAGE PROBES

Data for voltage probes is stored in a nonvolatile memory. This includes both sensitivity and range linearization requirements. Data for replacement probes can be entered into the nonvolatile memory by operating an internal switch that allows an alternate use of the front panel keys. No further calibration is required. Probe accessories are available for measurements on unterminated, terminated, and thru-line transmission systems of either 50 Ω or 75 Ω characteristic impedance.

DISPLAY

The 4-digit display reads either in millivolts or in dB relative to the voltage appearing across a selected power reference, such as dBm (50 Ω). The reference impedance Z_o may be entered as any value between 50 and 600 Ω. In addition, measurements can be made in terms of dBmV and dBV. An uncalibrated analog meter indicates voltage levels for peaking or nulling operations.

AUTOMATIC ZERO

A zero correction function stores the zero offsets of each range and then automatically corrects all subsequent readings. It may be activated locally or via the bus.

HIGH AND LOW DB LIMITS

High and low dB limits can be entered separately into channel 1 and channel 2. A panel annunciator and rear-panel TTL outputs indicate an out-of-limits condition.

DC DECORDER OUTPUT

A rear-panel dc output supplies 10 Volts full scale that is linear with voltage over each decade range in the mV mode, or linear in dB over the entire 80 dB range in any of the dB modes.

BUS INTERFACE

A field installable bus interface allows all instrument functions to be bus programmable, except the on-off power switch, and provides full data outputs according to bus standards.

SPECIFICATIONS

Voltage Range: 200 μV to 3 V (300 V to 700 MHz with 91-7C 100:1 Divider) in 8 ranges

Voltage Display: 1.000, 3.000, 10.00, 30.00, 100.0, 300.0, 1000, and 3000 mV fs

DB Range: 80 dB in 8 ranges with 0.01 dB resolution

DB Display: dBmV (0 dB equivalent to 1 mV), dBV (0 dB equivalent to 1 V), or dBm (0 dB equivalent to the voltage across selectable Z_o reference when 1 mW is dissipated)
Z_o Reference: from 50 Ω to 600 Ω
dB Offset: selected to 0.01 dB resolution; display range ±99.99 dB

Ranging: Autoranging, plus hold-on-range. Individual ranges may be selected via bus interface option

Frequency Range: 10 kHz to 1.2 GHz (uncalibrated indications to 8 GHz)

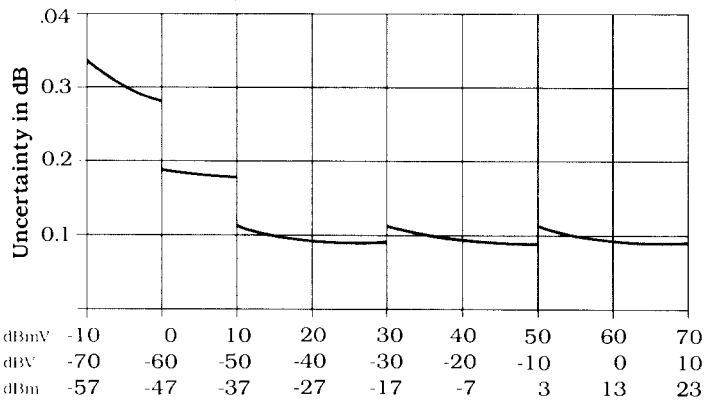
Waveform Response: R.M.S. to 30 mV, calibrated in r.m.s. of a sinewave above 30 mV (R.M.S. to 3 V and 700 MHz with 91-7C 100:1 Divider)

Recorder output: 10 V full scale proportional to indicated voltage (mV mode) over each range, or 8 V equivalent to 0 dBm regardless of Z_o (dB mode) with a sensitivity of 1 V per 10 dB change over the entire range.

Basic Uncertainty:

Voltage Level	mV	dBV, dBmV, dBm
3mV–3000 mV	1% rdg ± 1 count	see curve
1 mV–3 mV	2% drg ± 2 counts	
0.2 mV–1 mV	3% rdg ± 3 counts	

Uncertainty vs. Input Level for dBV, dBmV, dBm



Zero: Automatic, operated by front panel key switch

dB limits: Front panel selectable dB limits, range ±99.99 dB. Front panel LIM annunciator indicates out-of-limits condition. Rear panel TTL outputs indicate high or low condition.

FURNISHED ACCESSORIES

RF Probe with low noise cable and connector	952001
50 Ω BNC Adapter; 1 kHz to 1.2 GHz	952002
Removable Probe Tip with grounding clip lead	952004

OPTIONAL ACCESSORIES

Low Frequency Probe, 1 kHz to 250 MHz	91-4C
50 Ω Sensor 200 kHz to 2.5 GHz	952009
Unterminated BNC Adapter	952008+
100:1 Voltage Divider, 50 kHz to 700 MHz	952005
Type N Tee Adapter, 1 kHz to 1.2 GHz	952003*+
Type N 50 Ω termination	952014*
Storage container for accessories	952013
Accessory Kit;	952011*

Comprises 952008, 952005, 952003, 952014, 952013

*Available in 75 Ω versions (Reduced freq. range.)
+Available with male input

Rack Mounting Kit (Single)	950000
Rack Mounting Kit (Dual)	950001

OPTIONS:

01 IEEE 488 Bus Interface. Duplicates all front panel functions except on/off power switch. Output string gives mode, channel, data, status, and range.

03 Input Channel 2. Allows display of either Channel 1 or Channel 2, or Channel 3 which is CH1 minus CH2 expressed in dB. Includes second rf probe, 50 Ω BNC Adapter and probe tip.

04 Rear input. Duplicates front panel Channel 1 input connector.