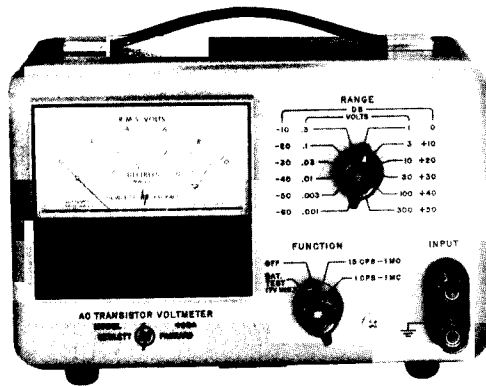


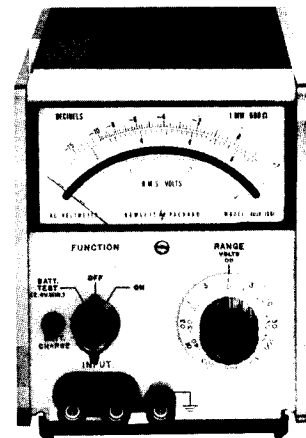
# VOLTAGE, CURRENT, RESISTANCE



## AC VOLTMETERS Solid-state, battery-operated, portable Model 403A, 403B



403A



403B

### Description

Models 403A and 403B ac voltmeters are versatile, general purpose instruments for laboratory and production work and are ideal for use in the field since they are solid-state, battery-operated, and portable.

Both measure from 100 microvolts to 300 volts, the 403A covering 1 Hz to 1 MHz and the 403B covering 5 Hz to 2 MHz. Both operate from internal batteries and thus may be completely isolated from the power line and external grounds, permitting accurate measurements at power-line frequency and its harmonics without concern for beat effects. Isolation from external ground also permits use where ground loops are troublesome. Turnover effect and waveform errors

are minimized because the meters respond to the average value of the input signal.

The 403B operates from an ac line as well as from the internal battery pack, and batteries recharge during ac operation. Battery charge may be easily checked with a front-panel switch to assure reliable measurements. Normally, about 60 hours of ac operation recharge the batteries; but an internal adjustment is provided which nearly doubles the charging rate. The Model 403B can be used while its batteries charge. A sturdy taut-band meter eliminates friction and provides greater precision and repeatability.

For improved resolution in dB measurements, the 403B option 001 is available. This version spreads out the dB scale by making it the top scale of the meter.

### Specifications

HP Model	403A	403B	403B Option 001
Range	0.001 to 300 V rms full scale, 12 ranges, in a 1, 3, 10 sequence.		
Meter	responds to average value of input waveform, calibrated in the rms value of a sine wave.		
Frequency range	1 Hz to 1 MHz	5 Hz to 2 MHz	5 Hz to 2 MHz
Accuracy	within $\pm 3\%$ of full scale, 5 Hz to 500 kHz; within $\pm 5\%$ of full scale, 1 to 5 Hz and 500 kHz to 1 MHz	within $\pm 2\%$ of full scale from 10 Hz to 1 MHz; within $\pm 5\%$ of full scale from 5 to 10 Hz and 1 to 2 MHz, except $\pm 10\%$ 1 to 2 MHz on the 300 V range (0 to 50°C)*	within $\pm 0.2$ dB of full scale from 10 Hz to 1 MHz; within $\pm 0.4$ dB of full scale from 5 to 10 Hz and 1 to 2 MHz, except $\pm 0.8$ dB 1 to 2 MHz on the 300 V range (0 to 50°C)*
Input impedance	2M $\Omega$ shunted by $< 60$ pF, 0.001 to 0.1V ranges; 2M $\Omega$ shunted by $< 25$ pF on 0.3 to 300 V ranges	2M $\Omega$ ; shunted by $< 60$ pF; 0.001 to 0.03 V ranges; $< 30$ pF, 0.1 to 300 V ranges	same as 403B
Maximum input	600 VP, 0.3 V and higher ranges; 25 V rms on 0.1 V and lower ranges (fused).	600 VP, 0.3 to 300 V range; 25 V rms, 60 VP, 0.001 to 0.1 V ranges (fused).	same as 403B
Power	5 standard radio-type mercury cells. Battery life approx. 400 hours	4 rechargeable batteries, 40 hr' operation per recharge, up to 500 recharging cycles; self-contained recharging circuit functions during operation from ac line	same as 403B
Dimensions	8 $\frac{1}{4}$ " wide, 5 $\frac{1}{2}$ " high, 6 $\frac{3}{8}$ " deep (210 x 140 x 162 mm)	5 $\frac{1}{8}$ " wide, 6 $\frac{1}{4}$ " high (without removable feet), 8" deep (130 x 159 x 203 mm)	same as 403B
Weight	net 4 $\frac{1}{4}$ lbs (2,1 kg); shipping 7 lbs (3,2 kg)	net 6 $\frac{1}{2}$ lbs (2,9 kg); shipping 8 lbs (3,6 kg)	same as 403B
Price	\$350	\$340	\$365

\*Use 10001A 10:1 Divider and 10111A Adapter to retain  $\pm 5\%$  ( $\pm 0.4$  dB) accuracy while measuring up to 425 V rms at 1 to 2 MHz.