



specifications

Quantity	Frequency	Range	Accuracy *
Capacitance	120 Hz internal	0 to 0.11 F	±1% ±1 pF, smallest division 2 pF; residual ("zero") capacitance approx 4 pF
		0.11 F to 1.1 F	±2%
	40 Hz to 120 Hz external (useful down to 20 Hz with reduced accuracy)	0 to 1.1 F	Same as above with suitable generator
	120 Hz to 1 kHz external	0 to 1 F $\left(\frac{100}{f_{Hz}}\right)^2$	±1% ±1 pF with suitable generator and precautions
Dissipation Factor	120 Hz internal or 40 Hz to 120 Hz	0 to 10 $\frac{f_{Hz}}{120}$	±0.001 ±0.01 C ±2%
	120 Hz to 1 kHz	0 to 10	(±0.001 ±0.01 C) $\frac{f_{Hz}}{120}$ ±2%

* C is expressed in farads.

Lead-Resistance Error (4-terminal connection): Additional capacitance error of less than 1% and D error of 0.01 for a resistance of 1Ω in each lead on all but the highest range, or 0.1Ω on the highest range.

FREQUENCY RANGE

Internal Test Signal: 120 Hz (synchronized to line) for 60-Hz model; 100 Hz for 50-Hz model. Selectable amplitude less than 0.2 V, 0.5 V, or 2 V. Phase reversible.

External Test Signal: 20 Hz to 1 kHz with limited range (see above).

DC VOLTAGE AND CURRENT

Internal DC Bias Voltage and Voltmeter: 0 to 600 V in 6 ranges.

Voltmeter Accuracy: ±3% of full scale.

Internal DC Bias Current: Approx 15 mA max.

Ammeter Range: 0 to 20 mA in 6 ranges. Can detect 0.5-μA leakage.

Ammeter Accuracy: ±3% of full scale.

External Bias: 600 V max.

GENERAL

Power Required: 105 V to 125 V or 210 V to 250 V, 60 Hz, 18 W max. Models available for 50-Hz operation.

Accessories Supplied: Four-lead and shielded two-lead cable assemblies, spare fuses.

Accessories Required: None for 120-Hz measurements. The 1311-A Oscillator is recommended for measurement at spot frequencies, the 1310-A Oscillator for continuous frequency coverage.

Mounting: Flip-Tilt Case. Rack model also available.

Dimensions (width x height x depth): Portable, 16½ x 15 x 9 in. (415 x 385 x 230 mm); rack, 19 x 14 x 6½ in. (485 x 355 x 160 mm).

Net Weight: Portable model, 26 lb (12 kg); rack model, 28 lb (13 kg).

Shipping Weight: Portable model, 34 lb (15.5 kg); rack model, 43 lb (20 kg).

Oscillators
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Catalog Number	Description
1617 Capacitance Bridge	
1617-9701	Portable Model (115 V, 60 Hz)
1617-9296	Portable Model (230 V, 60 Hz)
1617-9206	Portable Model (115 V, 50 Hz)
1617-9266	Portable Model (230 V, 50 Hz)
1617-9920	Rack Model (115 V, 60 Hz)
1617-9296	Rack Model (230 V, 60 Hz)
1617-9216	Rack Model (115 V, 50 Hz)
1617-9276	Rack Model (230 V, 50 Hz)

The 1617 Capacitance Bridge is designed especially for measuring these large-valued capacitors, as well as other electrolytic types, most of which require the special measurement conditions prescribed by MIL or EIA specifications:

Specification and Capacitor Type	Frequency	AC Level	Accuracy		DC Polarizing voltage
			C	Loss	
MIL C-3965-C Tantalum Foil and Sintered Slug Capacitor	120 ± 5 Hz	Less than 30% of DCVV or 1 V, whichever is smaller	2%	R or P.F., 2%	C—Sufficient for no reversal of polarity. D—"Polarized Capacitance Bridge" Sum of ac and dc shall not ex- ceed DCVV
MIL C-26655-B Solid Tantalum Capacitors	120 ± 5 Hz	Limited to 1V, rms	2%	D, 10%	C—Max bias 2.2 V. D—"Polarized Bridge", 2.2-V dc max.
RS 228 Tantalum Electrolytic Capacitors	120 Hz	Small enough not to change value	±2½%	D, 5%	Optional
MIL C-62 B Polarized Aluminum Capacitors	120 ± 5 Hz	Limited to 30% of DCVV or 2 V, whichever is smaller	2%	D, 2%	No bias required if ac voltage less than 1 V. However, if bias causes differences, measurements with bias shall govern.
RS 164 B Dry Aluminum Electrolytic Capacitors	120 Hz	Small enough not to change value	±2½%	R or RC	Optional, but if substantial differ- ence occurs, rated dc should be used.
RS 205 Electrolytic Capacitors for use in Electronic Instruments	120 Hz	Small enough not to change value	±2½%	D	Optional

