



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 800 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:** 800 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 165 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).

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Catalog Number	Description
	<b>1617 Capacitance Bridge</b>
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 exceed 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-61 B Polarized Aluminum Capacitors	120 ± 5 Hz	Limited to 30% of DCVV or 4 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 difference 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

