Preliminary Specifications

99100A

Capacitance Reference System

GUILDLINE INSTRUMENTS

Industry Leading Reference for Ratio Calibration of Capacitance Measurement Instruments!

GUILDLINE INSTRUMENTS MODEL 99100A CAPACITANCE REFERENCE SYSTEM provides for ratio calibration of Capacitance Measurement Systems.

The model 99100A Capacitor Reference System comprises a number of highly stable hermetically sealed capacitors with a switch array and a variable high voltage supply. The unique design allows the instrument to be used as a reference for ratio calibration of capacitance measurement instruments. Provision is made for an additional external reference capacitor and also for additional extension of the switched array range with another bank of reference capacitors.

The switched array and power supply are housed in a bench top rack cabinet assembly with room for expansion. The switch array allows various combinations of capacitance to be connected in parallel to one of two output connectors. It is only the low side of the capacitors that are switched.

99100A SYSTEM FEATURES

- Supports 9910A Capacitance Bridge
- Ratio Transfer Uncertainty Low as 3 ppm
- Better than ±20 ppm Stability
- Calibration Uncertainty ±10 ppm
- Working Voltage to 800 Vrms
- Temperature Coefficients < 4 ppm/°C
- Very Low Voltage Coefficients
- Provides Ratio Calibration from 1:1 to 100:1
- Requires Very Little Maintenance

Providing Reference Ratio Calibration of Capacitance Measurement Systems with Uncertainty as Low As 20 ppm!

The high side of all the capacitors are connected to the high voltage source. Each capacitor low side is either switched from ground or to one of the output terminals. In this way, the loading on the voltage source remains the same regardless of the capacitor combination.

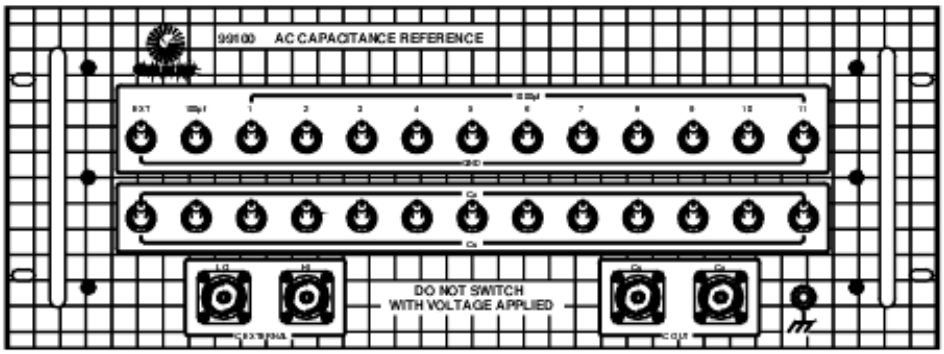
The system provides eleven, highly stable, capacitor values of 1000 pf and one value of 100 pf to provide for dial line up and ratio calibration from a ratio of 1:1 to 100:1.

The capacitors of the switched array may be calibrated individually against a known standard capacitance by direct comparison with a capacitance bridge of known accuracy. Since the switched array is normally used as a ratio metric device, actual capacitance values are normally not required to be known to a high level of accuracy

Test Voltages to 800 Vrms continuously variable with a minimum resolution of 1 Volts are available

99100A Capacitance Reference System

The 99100A System is easy to operate. Simply make connections to the bridge (using GR784 Type Connectors), set up the appropriate ratio using the 2 banks of switches on the Reference (shown right) and then set up the AC Voltage using the 99102 AC Voltage Source.



Since the switched array is normally used as a ratiometric device, actual capacitance values are normally not required to be known to a high level of accuracy

The instrument requires very little maintenance other than periodic dusting of the outside of the enclosure and ensuring the cabling is in good condition.

99100A General Specifications			
High Voltage Source Range	0 to 800 VAC (Set Via 99102 AC Voltage Source Unit)		
Operating Humidity (non-condensing)	< 70% RH	Storage Humidity (non-condensing)	< 90% RH
Operating Temperature	23 °C ± 5 °C	73 °F ± 9°F	
Storage Temperature	-20 °C to +60 °C	-4 °F to +140 °F	
Voltage/Frequency Requirements	120 VAC ± 10%	50 or 60 Hz ± 5%	
Dimensions (Nominal)	31.5" (D) x 21.0" (W) x 21.8" (H)	800mm (D) x 533mm (W) x 553mm (H)	
Weight	160 lbs	73 kG	

99100A Capacitance Specifications

Nominal Capacitance (pf)	Nominal Initial Tolerance[1] (± ppm)	Calibration Uncertainty[2] (± ppm)	Quantity (Units)	Stability 12 months (± ppm)	Temperature Coefficient (± ppm/°C)	Maximum Voltage (VAC_{rms})
1000	25	10	11 (1000 pf)	20	4	750
10	25	10	1 (100 pf)	20	4	750

Note 1: Nominal initial tolerance is defined as the maximum variation of capacitance mean values as initially adjusted at the point of sale.

Note 2: Calibrated in ambient conditions of 23°C, referred to the unit of capacitance as maintained by the National Measurement Institute, and expressed as a total uncertainty with a coverage factor of k = 2.

ORDERING INFORMATION	
99100A	Capacitance Reference System
/TM	Technical Manual (Included)
	Specify Operating Voltage and Frequency (eg 120V @ 60 Hz)

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