

SR715/720 LCR METER

GENERAL INFORMATION

The SR715/720 LCR Meters are multifrequency impedance measuring instruments, capable of measuring resistance, capacitance or inductance over a range of more than 13 orders of magnitude. The SR720 has a basic accuracy of 0.05% and has 5 test frequencies. The SR715 has a basic accuracy of 0.2% and 4 test frequencies.

The LCR meters are controlled by a high speed microcontroller that operates the display, keypad, RS232 and GPIB computer interfaces, and handler interface, as well as setting measurement conditions and performing calculations. In addition, non-volatile storage is provided for 9 complete instrument settings.

SPECIFICATIONS

DISPLAY

Measurement Modes	Auto, R+Q, L+Q, C+D, C+R
Equivalent Circuit	Series or Parallel
Parameters Displayed	Value, Deviation, % Deviation or Bin Number. Deviation and % deviation are calculated from a stored relative value.
Averaging	2 - 10 Measurements
Measurement Range	R+Q: R 0.0001 Ω - 2000 M Ω Q 0.00001 - 50 L+Q: L 0.0001 μ H - 99999 H Q 0.00001 - 50 C+D: C 0.0001 pF - 99999 μ F D .00001 -10 C+R: C 0.0001 pF - 99999 μ F R .00001 - 99999 k Ω

TEST CONDITIONS

Test Frequency	100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz (100 kHz - SR720 only). Frequency accurate to ± 100 ppm.
Drive Voltage	Preset Levels: 0.10, 0.25, and 1.0 Vrms. Vernier: 0.1 to 1.0 Vrms with 50 mV resolution.
Drive levels accuracy	$\pm 2\%$.
Measurement Rate	Slow, Medium, Fast: 2, 10, or 20 measurements per second at test frequencies of 1 kHz and above and about 0.6, 2.4, or 6 measurements per second at 100 Hz and 120 Hz.
Ranging	Auto or Manual
Triggering	Continuous, Manual, or Remote over RS232, GPIB or Handler Interface
Bias Voltage	Internal: 2.0 VDC $\pm 2\%$ External : 0 to +40 VDC (fused @ 0.25 A)

ACCURACY

Conditions At least 30 minute warm up, 23 °C ± 5 °C.
 Basic Accuracy SR715: 0.20%
 SR720: 0.05%
 See the Accuracy section for detailed accuracy specifications.

The table below summarizes the typical use accuracy.

Accuracy	SR720	SR715
better than 1%	0.125 Ω < R < 16 MΩ	0.143 Ω < R < 14 MΩ
	2.5 μH < L < 25 kH	2.9 μH < L < 22 kH
	1.25 pF < C < 12.8 mF	1.43 pF < C < 11.2 mF
better than 5%	21 mΩ < R < 96 MΩ	21 mΩ < R < 94 MΩ
	420 nH < L < 150 kH	426 nH < L < 150 kH
	0.21 pF < C < 77 mF	0.21 pF < C < 75 mF

The following conditions apply:

- 1) 1.0, 0.5 or 0.25 V output voltage
- 2) Slow or medium measurement speed
- 3) Q and D < 0.1 for R and C
- 4) Q > 10 for L
- 5) 100 Hz, 120 Hz or 1 kHz test frequency for R
- 6) 100 Hz test frequency for Lmax and Cmax
- 7) 10 kHz test frequency for Lmin and Cmin

FEATURES

Fixture 4-Wire Kelvin fixture for radial leaded parts with adapters for axial leaded parts.

Protection Protected up to 1 Joule of stored energy, 200 VDC max (for charged capacitors).
 Fused at 0.25 A output current for biased measurement.

Zeroing Open and Short Circuit Compensation.

Compensation Limits Short: R < 20 Ω, Z < 50 Ω
 Open: Z > 10 kΩ

Binning Up to 8 Pass Bins, QDR and General Fail Bins, all defined from the front panel or over the computer interfaces. Binning setups may be stored in non-volatile memory.

Self Test Tests the ROM, CPU, Non-Volatile RAM, Clock Generator, A/D Converter, Internal Bias, Multiplier, Output Drive Circuitry, Gain Circuitry, and Source Resistances.

Store and Recall Stores 9 Complete Instrument Setups. Recall 0 recalls Default Setup.
 RS232 Interface All instrument functions can be controlled or read over the interface.

GENERAL

Operating Conditions 0 - 35 °C, <85% relative humidity.
 Power 20 Watts, 100/120/220/240 VAC, 50 or 60 Hz.
 Dimensions (W x H x L) 13.5" x 4" x 14" (343 x 102 x 356 mm)
 Weight 10 lbs (4.55 kg)
 Warranty One year parts and labor on materials and workmanship.