



Industry-Leading Performance

The 894 and 895 are high accuracy LCR meters capable of measuring inductance, capacitance, and resistance of components and materials at DC or from 20 Hz to 500 kHz or 1 MHz respectively. These LCR meters provide flexible AC and DC test signal configuration. AC test signal voltage is variable from 5 mVrms to 2 Vrms, the AC current is adjustable up to 66.7 mArms, depending on the AC impedance selected, and a DC bias signal can be added. The vivid 4.3-inch TFT LCD offers a clear view of all measured and setting values along with BIN sorting comparator results and a handy Zoom feature that enlarges the measured values to full screen. With a basic accuracy of 0.05%, auto level control (ALC), open / short / load correction and cable length compensation, these meter are perfect tools for R&D, manufacturing and quality control applications.

DC Biasing

Both the 894 and 895 feature a DC bias source which allows the meter to apply a DC signal to the device under test to simulate in-circuit conditions.

DC biasing is commonly used to measure capacitance of ceramic, MLCC, polyester and other capacitors with high dielectric constants. These type of capacitors exhibit a significant change in capacitance with a DC voltage applied. By controlling the DC voltage, users can obtain a more deterministic measurement result. Other applications include evaluation of cored-inductors and junction capacitance of semiconductor devices.

The DC bias source is adjustable from -5V to +5V / -50 mA to +50 mA. Additionally the voltage or current levels can be swept while logging the resulting capacitance.

Model	894	895
Measurement parameters	L, C, R, G, X, Z, Y,	B, θ, Q, D, DCR
Basic accuracy	0.05%	
DCR measurement range	0.0Ι Ω - Ι00 ΜΩ	
Test frequency range	20 Hz - 500 kHz	20 Hz - I MHz

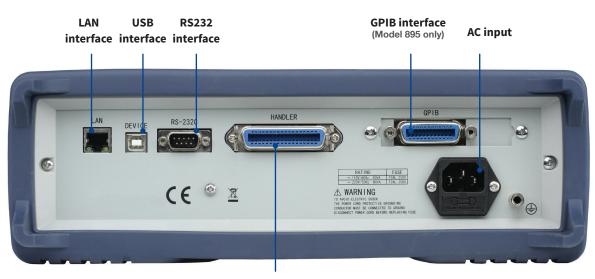
Features & Benefits

- AC test signal voltage adjustable up to 2 Vrms
- 3 AC current ranges, selectable via 30 Ω, 50 Ω or 100 Ω internal AC impedance. The 30 Ω setting provides up to 66.7 mArms of drive current, sufficient for larger inductors and transformers.
- Built-in DC bias source adjustable from -5V to +5V / -50 mA to +50 mA
- Fast measurement speed up to 13 ms/reading to increase manufacturing throughput
- Adjustable measurement speed for fast readout or better accuracy
- 201-point programmable list sweep function providing ability to sweep frequency, AC and DC bias voltage/current levels
- Auto-level control to maintain the measurement signal applied to the DUT at a constant level
- Test signal voltage and current monitoring
- BIN comparator function to sort components in up to 10 bin locations
- Handler interface for easy integration with a component handler
- I meter cable compensation
- 4-terminal fixture and Kelvin clip test leads included
- Transformer test function with optional transformer test fixture TL89T1
- Versatile trigger functionality (internal, external, bus and manual)
- Standard USB, LAN, and GPIB (895 only interface for remote control using SCPI commands

Front panel



Rear panel



Handler interface

36-pin connector to interface with component handler via input/output control signals. Includes bin and list sweep comparator results and end of measurement (EOM) indicator output signals, external trigger, and key lock input signal.

Powerful Features

Programmable List sweep

MEAS DISPLAY			(SP >	T SWEEP DI SEQ	< LIS MODE
DISPLAT	CMP	р[]	00[[]	FREQ[Hz]	
BIN		D[]	Cs[F]		No.
NO.	L P	0.00162	102.797n	20.0000	001
NO.		0.00773	101.775n	5.01990k	002
BIN	P	0.00973	101.408n	10.0198k	003
		0.01098	101.149n	15.0197k	004
COUNT		0.01183	100.946n	20.0196k	005
		0.01255	100. 780n	25.0195k	006
LIST		0.01315	100.637n	30.0194k	007
SWEEP		0.01371	100.511n	35.0193k	*008
·		0.01423	100. 400n	40.0192k	009
222		0.01466	100.301n	45.0191k	010

Use the built-in linear and logarithmic sweep function, supporting up to 20I sweep points, to conveniently display, analyze and store primary and secondary parameters of a component. Sweep test frequency, AC source voltage and current levels, DC bias source voltage and current levels. A delay can be programmed after each sweep point. The list sweep can be triggered internally, manually or externally and executed in sequence or step mode.

Transformer measurements (optional)

Using optional test fixture TL89TI, the 894 and 895 can test the primary and secondary inductance LI, L2, turn ratio (N, I/N), mutual inductance (M), and primary and secondary direct-current resistance (R2) of a transformer directly. Additionally, the two common transformer parameters winding equivalent capacitance C_0 and leakage inductance L_k can be characterized indirectly.

Bin sorting function

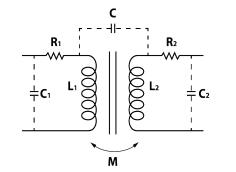


Quickly sort components using the instrument's 9 primary BINs, a secondary BIN and out-of-specification BIN. The results can be displayed in a table on-screen or output via the handler interface. High and low limits for each bin can be set up in absolute, tolerance or sequential mode with Pass/Fail indicator.

Remote PC control

< LAN_SETUP >		
LAN Status	: Working Properly	SYSTEM SETUP
HOST NAME DHCP	: 89x : 0FF	LAN
AUTO IP IP ADDB	: OFF : 10. 0. 1. 55	
SUBNET MASK	: 255.255.254. 0	DEFAULT
GATEWAY DNS SERVER1	: 10. 0. 1.254 : 10. 0. 1.254	SETTINGS
DNS SERVER2	: 10. 0. 1.254	SYSTEM RESET

Integrate your LCR meter into an automated test system and control it from a PC using SCPI commands via the RS232, USB, LAN, or GPIB (895 only) interface.



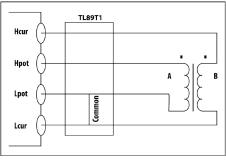
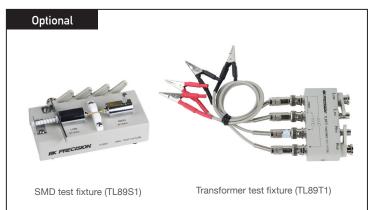


Diagram showing the TL89TI connected to a transformer under test.

Flexible test accessories

Standard accessories shipped with each unit are Kelvin clip test leads for 4-wire measurements, a test fixture, and shorting bar. The optional transformer test fixture allows users to measure transformer parameters.





Specifications

Valid after 30 minutes of warm up time, operating at 23 °C \pm 5 °C

Test Signal Frequency					
Model	Range	Minimum resolution	Accuracy		
894	20 Hz - 500 kHz	0.01 Hz	0.01 %		
895	20 Hz - I MHz	0.01 HZ	0.01 %		
Test Signal Levels					
AC source (ALC* O	FF)				
/oltage Accuracy		10% x set volt	age ± 2mV		
Volt	age Level	Resolut	ion		
5 mVrms	- 100 mVrms	100 μVr	ms		
100 mV	írms - I Vrms	I mVrn	15		
I Vrm	is - 2 Vrms	I0 mVr	IO mVrms		
Current Accuracy		10 % x set curre	10 % x set current \pm 10 μ A		
Current Range		Impedance			
166.7 µArms - 66.7 mArms		30 Ω			
100.0 µArms - 40.0 mArms		50 Ω			
50.0 µArms - 20.0 mArms		100 Ω			
AC source (ALC* O	N) ¹				
Voltage	Range	10 mVrms – 1 Vrms			
voltage	Accuracy	$6\% x$ set voltage $\pm 2 \text{ mV}$			
Current	Range	100 µArms - 10 mArms			
Current	Accuracy	6 % x set current \pm 10 μ A			
DC bias source					
	Range	-5 V to +5 V			
Voltage	Accuracy	I % x set voltage ± 5 mV			
	Resolution	0.01 mV			
	Range	-50 mA to +50 mA			
Current	Accuracy	2 % x set current \pm 500 μ A (typica			
	Resolution	0. Ι μΑ			

*Auto Level Control

I: Resolution and impedance see AC source (ALC OFF) specification

Measurements			
Measurement parameters		L, C, R, G, X, Z, Y, B, θ, Q, D, DCR	
Transformer measurement parameters ²		L2A, L2B, N, I/N, M	
Basic accuracy		0.05 %	
AC source Output impedance (± 2%)		30 Ω, 50 Ω, 100 Ω	
Typical measurement time (≥10 kHz) (excluding display refresh time)	Fast	13 ms / measurement	
	Medium	67 ms / measurement	
	Slow	187 ms / measurement	
Equivalent circuit		Series, Parallel	
Range mode		Auto, Hold	
Averaging		I-255 measurements	
Correction function		Open, Short and Load correction	

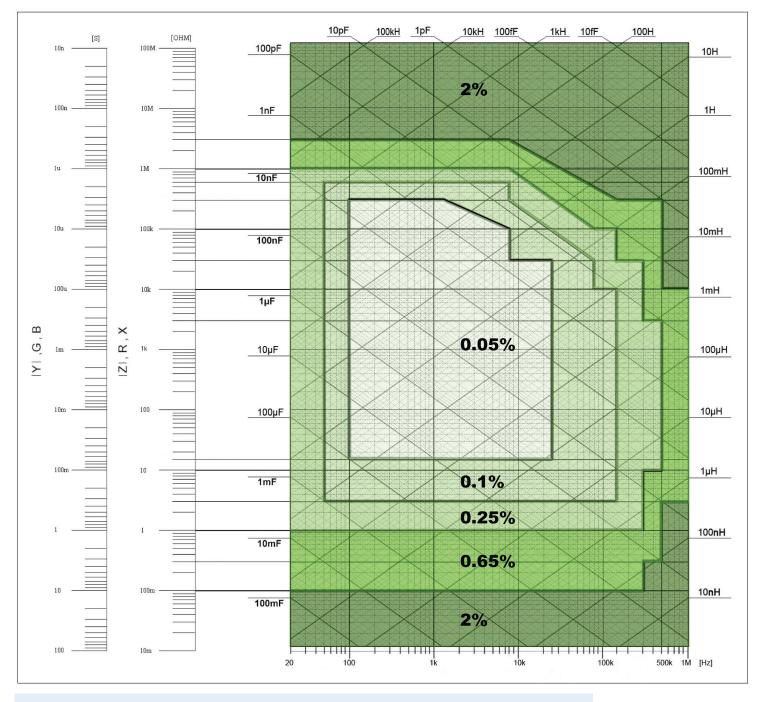
2: Requires optional fixture TL89TI

<table-container>Ade interm0.4 merceMaterOne constraint of the con</table-container>	Measurements					
Trigger rode Internal, Manual, External, Bus Delay time setup Time from trigger to start: 0 to 60 seconds Resolution: I ms I0-bin sorting, primary bins BINI-BIN9 and OUT, secondary bin AUX Comparator (Bin sorting) Bin counter: 0 to 999,999 PASS/FAIL indication via front panel LED or handler interface signal AC voltage, test signal AC voltage, test signal AC current, test signal DC bias current Measurement parameters Primary and secondary Measurement parameters One pair of lower and upper limits for primary or secondary parameter (user selectable) Sweep modes Linear or logarithmic Trigger mode Save / recall 40 setups Comparator Save / recall setups, screenshots, measurements and sweep data logs Remotertrat Voltage Kenoutertrat Voltage Young Voltage Young Using (USBTMC or virtual COM), RS232, LAN, GPIB (895 only) Remotertrat Voltage Young Voltage Young Young Young Young Young Young Young Young Young Young Remotertrat Young Young Young Young Young Young Young Young Young	Cable length compensation		0, & 1 meter			
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Display4.3" TFT color displayDimensions (WxHxD)without bezel: 280 mm × 88 mm × 370 mm (II.02" x 3.46" x 14.56") with bezel: 369 mm × 108 mm × 408 mm (I4.52" x 4.25" x 16.06")Weight5 kg (II lbs)SafetyEN61010-1:2001, EU Low Voltage Directive 2006/95/ECElectromagnetic CompatibilityMeets EMC Directive 2004/108/EC, EN61326-1:2006Standard accessoriesAC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Storage to	emperature	-10 °C to 70 °C			
Dimensions (WxHxD)without bezel: 280 mm × 88 mm × 370 mm (II.02" x 3.46" x I4.56") with bezel: 369 mm × 108 mm × 408 mm (I4.52" x 4.25" x I6.06")Weight5 kg (II lbs)SafetyEN61010-1:2001, EU Low Voltage Directive 2006/95/ECElectromagnetic CompatibilityMeets EMC Directive 2004/108/EC, EN61326-1:2006Standard accessoriesAC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Relative	humidity	Up to 80%			
Dimensions (WxHxD)(II.02" x 3.46" x 14.56") with bezel: 369 mm × 108 mm × 408 mm (14.52" x 4.25" x 16.06")Weight5 kg (II lbs)SafetyEN61010-1:2001, EU Low Voltage Directive 2006/95/ECElectromagnetic CompatibilityMeets EMC Directive 2004/108/EC, EN61326-1:2006Standard accessoriesAC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Dis	play	4.3" TFT color display			
Safety EN61010-1:2001, EU Low Voltage Directive 2006/95/EC Electromagnetic Compatibility Meets EMC Directive 2004/108/EC, EN61326-1:2006 Three-Year Warranty Standard accessories AC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Dimensions (WxHxD)		(II.02" x 3.46" x 14.56") with bezel: 369 mm × 108 mm × 408 mm			
Electromagnetic Compatibility Meets EMC Directive 2004/108/EC, EN61326-1:2006 Three-Year Warranty Standard accessories AC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Weight		5 kg (11 lbs)			
Compatibility Meets EMC Directive 2004/108/EC, EN61326-1:2006 Three-Year Warranty Standard accessories AC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report	Safety		EN61010-1:2001, EU Low Voltage Directive 2006/95/EC			
Standard accessories AC power cord, 4-wire Kelvin clip test lead, 4-terminal test fixture, shorting bar, certificate of calibration, test report			Meets EMC Directive 2004/108/EC, EN61326-I:2006			
Standard accessories test fixture, shorting bar, certificate of calibration, test report			Three-Year Warranty			
Optional accessories Transformer test fixture TL89TI	Standard accessories		test fixture, shorting bar, certificate of calibration,			
	Optional	accessories	Transformer test fixture TL89TI			

Measurement Accuracy

The chart below depicts the basic measurement accuracy under the following conditions: AC test signal level 0.5 Vrms or 1 Vrms, measurement speed Slow or Medium, cable length 0 m, DC bias OFF, $Dx \le 0.1$ or $Qx \le 0.1$ respectively. When selecting measurement speed Fast, double the accuracy value obtained from the chart.

For more detailed measurement accuracy specifications and other test conditions, refer to the user manual.



DCR Accuracy: A(1 + Rx / 5 M Ω + 16 m Ω / Rx)[%] ±0.2 m Ω A=0.25 for slow & medium speed, A=0.5 for fast speed

About B&K Precision

For more than 70 years, B&K Precision has provided reliable and value-priced test and measurement instruments worldwide.

Our headquarters in Yorba Linda, California houses our administrative and executive functions as well as sales and marketing, design, service, and repair. Our European customers are most familiar with B&K through our French subsidiary, Sefram. Engineers in Asia know us through our B+K Precision Taiwan operation. The independent service centers in Singapore and Brasil service customers in Singapore, Malaysia, Vietnam, Indonesia and South America, respectively.



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