

### Features:

- The world's de facto standard for ac resistance, low-frequency inductance, and capacitance measurement
- 0.02% accuracy for R, L, and C
- 0.0001 accuracy for Dissipation and Q
- 5 Impedance Parameters
- Programmable test frequencies from 12 Hz to 100 kHz for testing versatility
- Programmable test voltages from 5 mV to 1.275 V
- Dual display featuring 5-digit readout for RLC and 4-digit readout for D and Q
- Extremely reliable: over 30 years of history
- Optional IEEE-488 interface available
- Built-in 4-terminal, shielded kelvin fixture for testing axial and radial components while protecting measurement integrity

### Applications:

- Metrology Laboratories
- Laboratory Component Analysis
- Material Measurement
- Quality Assurance
- Research and Development
- Direct measurements and transfers



1689 RLC Digibridge



1689M RLC Digibridge

The GenRad 1689 Precision Impedance Meter gives you the best performance for your most demanding applications, whether they be production testing, incoming inspections, component design and evaluation, process monitoring or dielectric measurements. It is a versatile, full-function, microprocessor-based passive component tester.

An alternative unit configuration, the 1689M shown above, offers 4 bnc connection terminals in place of the shielded kelvin fixture and comes with bnc-to-bnc extender cable. The 1689M is easy to rack mount with an optional Rack Mount Kit (1689-9611) also available from IET Labs.

The 1689 and the 1689M RLC Digibridge is controlled by a microprocessor, allowing for many automated functions including:

- testing
- parameter selection
- test frequency and voltage selection
- limit comparison
- binning
- zeroing

The automated capabilities of this meter can be further extended with the addition of an optional IEEE-488 interface (shown on the left), which allows for remote operation, programming, and data acquisition.



Rear view of 1689 RLC Digibridge with optional IEEE-488 interface



### SPECIFICATIONS

**Measurement parameters:**

R/Q, L/Q, C/D, or C/R (series or parallel)

**Parameter selection:**

Auto parameter (RLC) with manual selection

**Accuracy:**

**Basic RLC:** ±0.02%

**Basic QD:** ±0.0002 (±0.0001 in PPM mode)

For more information on calculating accuracy, visit IET website for the 1689 accuracy calculations: [http://www.ietlabs.com/notes/digibridge\\_accuracy\\_calculator](http://www.ietlabs.com/notes/digibridge_accuracy_calculator)

**Test frequencies:**

**Range:** Over 500 selectable test frequencies ranging from 12 Hz to 100 kHz

**Accuracy:** 0.01%

**Binning:**

**Pass bins:** 13 pass bins for RLC

**Fail bins:** 2 fail bins, RLC & DQR

**Ranges:**

Parameter	Direct Reading Range	Ratio and DQ in PPM
R	0.00001 Ω to 99999 kΩ	0.00010 Ω to 9999.9 GΩ
L	0.00001 mH to 99999 H	0.00010 nH to 9999.9 MH
C	0.00001 pF to 99999 μF	0.00010 aF to 9999.9 F
R with C	0.0001 Ω to 9999 kΩ	not extended
D with C	0.0001 to 9999	1 to 9999 ppm
Q with R or L	0.0001 to 9999	1 to 9999 ppm



1689 Keyboard

**Sorting capabilities:**

Bin number, Delta RLC, Delta %, Value

**Applied voltage:**

5 mV to 1.275 V (programmable in 5 mV steps)

**Bias:**

**Internal:** 2.0 Vdc

**External:** 60 Vdc max

**Range selection:**

Autoranging with manual hold

**Measurement mode:**

Continuous or triggered, with averaging of up to 256 measurements

**Measurement speed:**

Up to 19 measurements per second

**Display format:**

Dual display featuring 5 full digit LED for RLC and 4 full digit LED's for DQ

Automatically positioned decimal points and minus signs where appropriate

Individual LED indicators for parameters, and measurement units

**Interfaces:**

Optional IEEE-488.2 with updated SCPI commands

**General features:**

- Charged capacitor protection (1 joule)
- Keyboard lock (protects test conditions)
- Constant voltage mode (25 source)
- Programmed delay (1 to 99,999 ms)
- DQ in ppm
- Bin count summary
- Programmed integration time
- Median value

**Power:**

- 90-250 Vac
- 50-60 Hz
- 60 W max

**Environmental conditions:**

**Operating conditions:** 0° to +50°C, <85% RH

**Storage conditions:** -45°C to +75°C



1689 Display



### ORDERING INFORMATION

#### 1689 RLC Digibridge standard set:

- 1689 RLC Digibridge
- Power cable
- Calibration certificate traceable to SI
- Instruction manual

#### 1689M RLC Digibridge standard set:

- 1693 RLC Digibridge
- Extender cable, bnc-to-bnc (1-meter long)
- Power cable
- Calibration certificate traceable to SI
- Instruction manual

### OPTIONAL ACCESSORIES:



Digibridge BNC Adaptor  
(A bnc interface for 1689) 1689-9601



Kelvin Test Leads 1700-03



Alligator Clip Leads, 1 Meter  
(May also be used as bnc-to-banana-plug connector) 7000-04



Remote Test Fixture  
(A radio-axial connection for 1689M) 1689-9600



bnc-bnc Extender Cable, 2-Meter 1689-9602-2



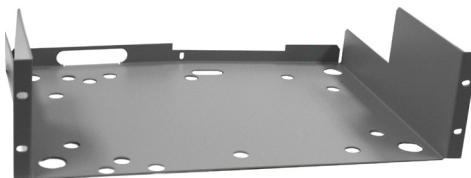
Chip Component Tweezers 7000-05



Digibridge Calibration Kit 1689-9604



IEEE Digibridge Interface 1689-9640



Rackmount Kit 1689-9611



1657-9600 Banana-Plug Extender Cable



# Mouser Electronics

Authorized Distributor

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