

## 1693 RLC DigiBridge™

### Features:

- The world's de facto standard for ac resistance, low-frequency inductance, and capacitance measurement
- Used as test standard at National Labs
- 0.02% accuracy for R,L,C, G, Z, and Y
- 0.0001 accuracy for Dissipation and Q
- 11 Impedance Parameters
- Programmable test frequencies from 12 Hz to 200 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

### Applications:

- High-end metrology applications
- Measuring impedance (inductance, capacitance, and resistance)
- Testing and sorting electrical components based on 11 possible parameters
- Optional IEEE-488 interface allows test protocols and results to be stored in PC's



1693 RLC DigiBridge

The GenRad 1693 RLC DigiBridge provides the best combination of features designed to optimize productivity in all testing environments. This bridge features highly accurate measurements of 11 impedance parameters and testing versatility through selection of a wide-range of test frequencies, speeds, and voltages. Its easy-to-read, dual display shows both primary and secondary measurement parameters.

The 1693 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, which allows for remote operation, programming, and data acquisition.

The combination of its high-accuracy, wide range of impedance parameters and test conditions, and automated functions make the 1693 DigiBridge ideal for production testing, component design and evaluation, process monitoring, and dielectric measurements.



Rear view of 1693 RLC DigiBridge with optional IEEE-488 interface



### SPECIFICATIONS

#### Measurement parameters:

R/Q, L/Q, C/D (series or parallel), R/X (series), G/B (parallel), Z/Angle or Y/Angle

#### Parameter selection:

Auto parameter (RLC) with manual selection

#### Accuracy:

**Basic RLCGZY:** ±0.02%

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

**Basic RXB:** ±0.02%

**θ:** ±0.01°

#### Test frequencies:

**Range:** Over 500 selectable test frequencies ranging from 12 Hz to 200 kHz

**Accuracy:** 0.01%

#### Binning:

**Pass bins:** 13 pass bins for RLCGZY

**Fail bins:** 2 fail bins, RLCGZYθ

#### Ranges:

| Parameter            | Direct Reading Range   | Ratio and DQ in PPM     |
|----------------------|------------------------|-------------------------|
| <b>R and [Z]</b>     | 0.00001 Ω to 99999 kΩ  | 0.00010 Ω to 9999.9 GΩ  |
| <b>L</b>             | 0.00001 mH to 99999 H  | 0.00010 nH to 9999.9 MH |
| <b>C</b>             | 0.00001 pF to 99999 μF | 0.00010 aF to 9999.9 F  |
| <b>G and [Y]</b>     | 0.00001 μS to 99999 S  | 0.00010 pS to 9999.9 MS |
| <b>R with C</b>      | 0.0001 Ω to 9999 kΩ    | not extended            |
| <b>X with R</b>      | 0.0001 Ω to 9999 kΩ    | not extended            |
| <b>B with G</b>      | 0.0001 μS to 9999 S    | not extended            |
| <b>D with C</b>      | 0.0001 to 9999         | 1 to 9999 ppm           |
| <b>Q with R or L</b> | 0.0001 to 9999         | 1 to 9999 ppm           |
| <b>Angle</b>         | ±0.0001° to 180°       | ±1 to 999 microdegrees  |



1693 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 RLCGZY and full digit LED for DQRXBθ

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 Ω 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



1693 Display



### ORDERING INFORMATION

#### 1693 RLC Digibridge standard set:

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

### OPTIONAL ACCESSORIES:



Remote Test Fixture

1689-9600



Kelvin Test Leads

1700-03



Alligator Clip Leads, 1 Meter

7000-04

(May also be used as bnc-to-banana-plug connector)



Digibridge Calibration Kit

1689-9604

(Requires Remote Test Fixture: 1689-9600)



bnc-bnc Extender Cable, 2-Meter

1689-9602-2



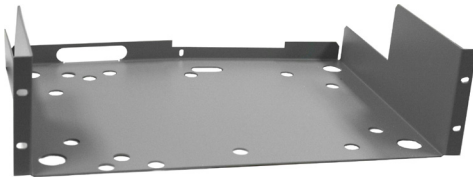
Chip Component Tweezers

7000-05



IEEE Digibridge Interface

1689-9640



Rackmount Kit

1689-9611



1657-9600

Banana-Plug Extender Cable

(Requires Remote Test Fixture: 1689-9600)

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