

- 0.2% basic accuracy
- Wide measurement range over 13 orders of magnitude
- Store and recall 9 instrument setups
- Measurement rates to 20 times per second
- Test frequencies are 100Hz, 120Hz, 1KHz, 10KHz and 100KHz
- Displays component value and Q or Dissipation factor
- Averaging for 2 to 10 measurements
- RS-232 and optional GPIB and Handler interface
- Open and short circuit compensation for accurate zeroing
- Easy to use and calibrate
- Built-in calibration procedures
- Binning capabilities



Z9216

## SPECIFICATIONS ■

**Measured Components**

L (inductance)  
C (capacitance)  
R (resistance)

**Measured Circuit Configurations:** series and parallel

**Measurements****Resistance**

**Measured Parameter:** R + Q

**Measurement Ranges:** R: 0.0001 $\Omega$  to 2000M $\Omega$

Q: 0.0001 to 50

**Inductance**

**Measured Parameter:** L + Q

**Measurement Range:** L: 0.0001 $\mu$ H to 99999H

Q: 0.0001 to 50

**Capacitance**

**Measured Parameters:** C + D and C + R

**Measurement Range:** C: 0.0001pF to 99999 $\mu$ F

D: 0.00001 to 10; R: 0.00001K $\Omega$  to 9999K $\Omega$

**Display:** Values, % deviation, or bin number

**Test Environment**

**Test Frequencies:** 100Hz, 120Hz, 1KHz, 10KHz and 100KHz

**Frequency Accuracy:**  $\leq \pm 100$  PPM

**Drive Voltages:** Fixed: 0.10, 0.25, 1.0V RMS;

Vernier: 0.1 to 1.0V RMS (50mV resolution)

**Drive Voltage Accuracy:**  $\pm 2\%$

**Measurement Rates:**

[For test frequencies of 1KHz or greater]

Slow: 2 measurements/Sec

Medium: 10 measurements/Sec

Fast: 20 measurements/Sec

[For test frequencies of 100Hz and 120Hz]

Slow: 0.6 measurements/Sec

Medium: 2.4 measurements/Sec

Fast: 6 measurements/Sec

**Bias Voltage:** Internal: +2.0V DC  $\pm 2\%$ ;

External: 0 to +40V DC

**Input Protection:** 0.25A/250V Fuse

**Ranging:** Auto or manual

**Triggering:** Continuous, manual or remote (from the RS-232, GPIB or handler interface)

**Measurement Accuracy**

**Basic Accuracy:**  $\pm 0.2\%$  with the following conditions:

1. An ambient temperature of 23°C  $\pm 5^\circ$ C after a 30 minute warm up period.
2. The short and open Cal has been performed.
3. D < 0.1 for capacitance, Q < 0.1 for resistance and Q > 10 for inductance.

The component value, measurement rate and frequency determine the actual measurement accuracy. (See the user manual).

**Zeroing Correction:** Open and short circuit compensation

**Remote Operation:** Interfaces: RS-232 (25 pin D female conductor), Standard GPIB and Handler (25 pin D male connector optional)

**General Specifications**

**AC Voltage Input:** 120/220V

**Frequency:** 50/60Hz

**Power Consumption:** 20W

**Operating Temperature:** 0 to 50°C at < 80% Relative Humidity

**Size:** 4.3" H  $\times$  14.3" W  $\times$  14.5" D

**Weight:** 18 lbs

**Supplied Accessories:** Manual, Line cord, Axial lead adapter

**Optional Accessories:** GPIB and Handler interface, Kelvin clips, SMD tweezers

### Display

- 5 digit primary LED Display for reading component values
- 5 digit secondary display for reading Q, D or R

### Frequency

Five measurement frequencies (100Hz, 120Hz, 1KHz, 10KHz and 100KHz)

### Drive Voltages

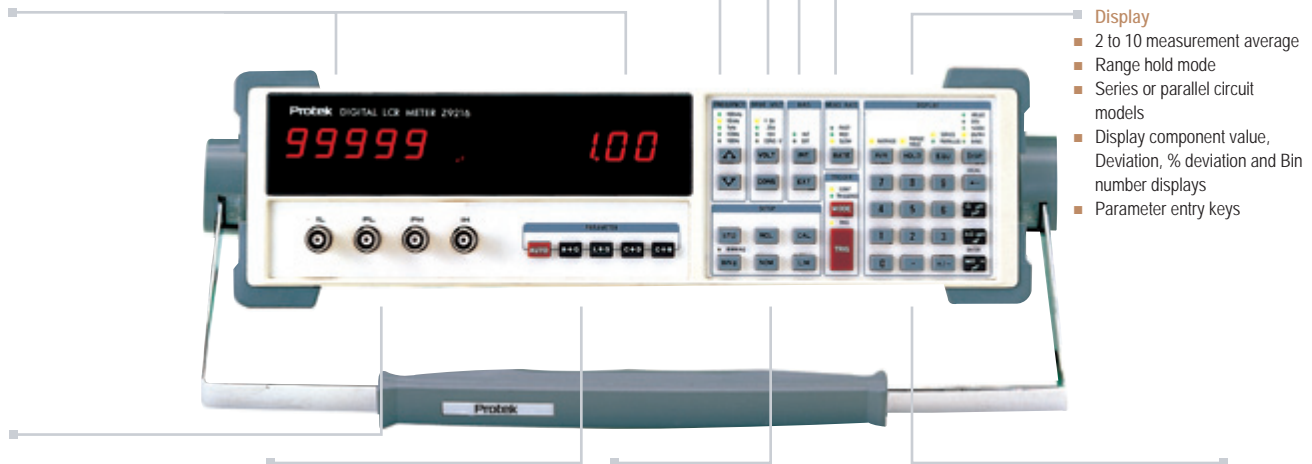
4 preset drive voltages from 0.1 to 1V and constant voltage output

### Bias

Internal or external bias for measuring capacitors

### Meas. Rate

Measurement rates of 2, 10 or 20 measurements per second in continuous or triggered mode



### Display

- 2 to 10 measurement average
- Range hold mode
- Series or parallel circuit models
- Display component value, Deviation, % deviation and Bin number displays
- Parameter entry keys

### Output terminals

4-wire output: 2 terminals supply the drive signal and 2 terminals for sensing, thereby removing lead error

### Parameter Keys

Auto key, automatic selection of the appropriate component

- Resistance + Q
- Inductance + Q
- Capacitance + D
- Capacitance + R

### Setup

- Store and recall 9 setups
- Binning parameter setup
- Calibration performs open and short calibration
- Standard calibration
- Internal self-tests
- Vernier amplitude drive voltages from 0.1 to 1V in 50mV increments
- Setting settling time

### Numeric keyboard

For entering measurement conditions and values.

## ACCESSORIES



The standard accessory supplied with the Z9216. This unit adapts to the Z9216 input BNC terminals and facilitates easy measurement of Axial or Radial lead components.



The Kelvin clips provide a 4-wire connection to components that have large or odd shaped leads. This removes any error caused by voltage drops in the leads.



The SMD tweezers are used to measure small surface mount or odd shaped components.