Digital LCR Meter Protek 9216A

Protek 9216A is a useful tool measuring a device characteristics with various functions.

It has more than 13 orders of magnitude, basic accuracy of 0.05% and 5 test frequencies.

❶ PARAMETER

- AUTO This switch causes the most appropriate parameter to be selected and measured automatically.

  R+Q : IQI <+0.125
  L+Q : Q>+0.125
  C+Q : Q<−0.125 at Series mode
  C+D : Q<−0.125 at Parallel mode

- R+Q = Resistance + Quality Factor
- L+Q = Inductance + Quality Factor
- C+D = Capacitance + 1/Q
- C+R = Capacitance + Resistance

❷ FREQUENCY

($\wedge$ $\vee$) The output frequency is one of five fixed frequencies (100Hz, 120Hz, 1kHz, 10kHz, 100kHz) and is accurate to 100ppm (0.01%).

❸ DRIVE VOLT

- VOLT The VOLT key cycles through the three preset output drive voltage options.
- CONS This button can set the meter in the constant voltage mode.

❹ BIAS

This bias mode is used only for capacitance measurements. If you press these buttons incorrectly, the error message 'bias for c' is displayed.

- INT Internal button selects a 2.0VDC Internal bias.
- EXT It can select an external bias mode (0V∼40V)

❺ MEAS RATE

- RATE Selects slow, medium, or fast measurement rates (2, 10, or 20 Measurements per second at measurement frequency 1kHz or higher).
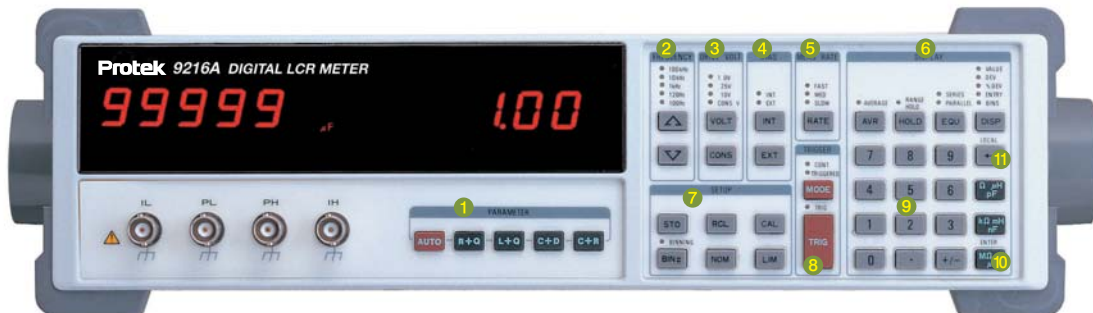
❻ DISPLAY

- AVR User can choose to average from 2 to 10 measurements with this button.
- HOLD This button holds the meter in its current measurement range.
- EQU This button toggles equivalent circuit between a series or parallel.
- DISP 'DISP' Button selects the parameter on the display. You can select following display types.
- VALUE Display the value of the measurement.
- DEV The deviation of the value from an entered value.
- %DEV The percent deviation from the nominal.
- ENTRY for entering parameter values.
- BINS selects the bin number when binning is enabled.

❼ SETUP

- STO, RCL This button can store up to 9 setups in the memory.
- CAL This button acts as a calibrate mode and special Configurable parameter.
- BIN#, NOM, LIM
  These buttons are used to enter binning parameters.

❽ TRIGGER

- MODE This button selects between continuous (CONT) or triggered (TRIGGERED) measurement.
- TRIG Under the Trigger mode, when it presses, it measures one at a time.

❾ [0], ... [9]

These numeric buttons enter parameters and are only active when the meter is in the 'ENTRY' mode.

❿ ENTER

These three buttons are used when entering numeric parameters in the entry mode, & acts as a general purpose ENTER button.

⓫ ←

Correcting mistakes when entering numeric data, and also serves as the 'LOCAL' function.

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■ Features

- Basic accuracy of 0.05%
- 5 Test frequencies
- Store up to 9 setups in the memory
- Remote over RS-232C and GPIB/Handler(Option) Interface

■ Specifications

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 Measurement
Measurement Range	R+Q R 0.0001Ω ~ 2000MΩ Q 0.00001 ~ 50 L+Q L 0.0001μH ~ 99999H Q 0.00001 ~ 50 C+D C 0.0001pF ~ 99999μF D 0.00001 ~ 10 C+R C 0.0001pF ~ 99999μF R 0.00001 ~ 99999kΩ
Test Frequency	100Hz, 120Hz, 1kHz, 10kHz, 100kHz
Frequency accuracy	100ppm
Drive Voltage	0.1V, 0.25V, 1Vrms
Drive levels accuracy	2%
Measurement Rate	Slow, Medium, Fast : 2, 10 or 20 measurements per second at test frequencies of 1KHz and above and about 0.6, 2.4, or 6 measurements per second at 100z and 120Hz.
Ranging	Auto or Manual
Triggering	Through External Trigger, Continuous, Manual or Remote over Rs232, GPIB or Handler Interface
Bias Voltage	Internal → 2.0 VDC 2% External → 0 to +40 VDC (fused @ 0.25A)
Conditions	At least 30 minute warm up, 23℃ 5℃
Basic Accuracy	0.05%

■ Standard Accessory

Radial Fixture	For measuring simply Radial or Axial type's parts, use it after connected in front of LCR Meter.
GPIB / Handler Interface	It provides both an IEEE-488 interface and a Handler interface. All instrument functions can be controlled or read over the interface. DB25 male connector provides output lines to indicate binning information and instrument status and an input trigger line. The trigger input is negative edge triggered TTL and is protected to +/- 15 Volts.

■ Optional Accessories

Kelvin Clips	Provides connection of devices that are not easily accommodated in the fixture. Polarity is indicated for biased measurements.
SMD Tweezers	Provides connection to Surface Mount Device Parts. Polarity is indicated for biased measurements.
GUI Software	

Standard Accessory   **Optional Accessories**

Ridial Fixture

Kelvin Clips

SMD Tweezers

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