

Protek

USER'S MANUAL Protek 9216A Digital LCR Meter



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Book Descriptions:

9216a manual

Page 5 4 introduction important background information the protek 9216a digital lcr meter is a high quality instrument that gives you many years of good service. Please read the information in this chapter before using or applying power to the meter. Information on operating and using the meter is given in. Page 6 5..... Protek 's responsibility to repair or replace defective products is the sole and exclusive remedy provided to the customer for breach of this warranty. Protek and its vendors will not be liable for any indirect, special, incidental, or consequential damages irrespective of whethe. Page 7 6 to avoid personal injury, do not remove the product covers. Do not operate the product without the covers properly installed. Two spare fuses are shipped with this equipment. In order to maintain this equipment in a stable and efficient operating condition, calibrate the equipment after every 1,00. Page 8 7..... Circuit no. Shape diameter length mm rating remarks f1101 5.2 20 250 v t500 ma for ac l15v 250 v t250 ma for ac 230 v f601 5.2 20 250 v f250 ma the internal fuse rating is as follows circuit no. Shape diameter length mm rating remarks f602 5.2 20 250 v f250 ma note refer to. Page 9 8 product familiarization description of the lcr meter and its features in this chapter, the controls and connections of the lcr meter are described, and its basic operation is summarized in terms of the meter's specifications, features and options, and operating modes. Front panel components the fr. Page 12 11 meas rate selects the measuring rate. At frequencies of 1 khz or greater, slow 2 measurements per second, medium 10 measurements per second, and fast measurements 20 measurements per seconds may be selected. Display average the average of 2 to 20 measurement readings will be displayed. The n. Page 13 12 trigger mode this key toggles between continuous cont or triggered measurements.<http://www.digiever.org/UserFiles/canon-430ex11-manual.xml>

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Trig when trigger mode is selected, measurements are initiated when this key is pressed or by the handler or computer interfaces. The trig led will flash when this mode is enabled. Rear panel components the rear. Note option consists of both interfaces kelvin clips provides. Page 17 16 basic operations how the 9216a operates and what it can do the 9216a lcr meter is very versatile in that the user can customize the measurement and operating modes to obtain the best results in a particular situation. In this chapter, the basics of the meter's operation are summarized. Operation. Page 18 17 startup procedures when turned on, the meter will first enter the selftest mode and perform the following procedure first, it will display the program version "0x" and the model number "hc9216" for about three seconds. Page 19 18 null calibration procedure whenever the test configuration is changed, including a change of the fixture, open and short circuit "null" calibrations should be made prior to taking measurements to compensate for stray impedances, such as component lead impedance, and fixture, cable and other stray. Page 20 19 table 31 test setup parameter settings for typical component values. Page 21 20 changing, storing, and recalling custom setups measurement mode the measurement mode is selected by pressing one of the four keys in the parameter group of keys on the front panel. Auto in this mode, the meter automatically selects the most appropriate measurement on the device. The selection is. Page 22 21 drive voltage the 9216a meter has three fixed output rms voltages, 0.1 v, 0.25 v and 1.0 v. These voltages are selectable from the front panel. A variable rms voltage is also available, which is adjustable from 0.1 v to 1.0 v with 50 mv resolution. The accuracy of the voltage levels is 2% or grea. Page 23 22 figure 31. Normalized voltage across dut vs. Dut impedance bias internal or external dc bias voltages can be applied to

capacitors. <http://arсланemlak.com/E/canon-450d-manual-sensor-cleaning.xml>

Electrolytic and tantalum capacitors need a positive bias for accurate measurements, although the meter bipolar test voltage will not typically be enough to damage. Page 24 23 stabilize in a reasonable amount of time. See the section on the constant voltage mode for effects on ranges and accuracy. It will take a short while for the internal circuitry and the dut to stabilize after applying the bias voltage. The time is primarily determined by the rc time constant of th. Switch off the bias supply and allow the capacitor to discharge through the resistor before removing it from the fixture. Page 27 26 note when making a measurement, the meter will ignore any triggers it receives until the current measurement is complete. Store and recall the sto and rcl buttons allow nine complete instrument setups to be saved in nonvolatile memory. All the test conditions, including binning, configuration an. Page 28 27 autoranging mode during normal operations, the meter automatically changes to the most accurate range for the device under test. When the meter measures an impedance that is out of its current range, it goes up or down one range, and makes another measurement. If this measurement is within the cu. Page 29 28 constant voltage cons mode occasionally, a test will require using a specific drive voltage that is not possible using the normal source resistance for that measurement range. In these cases, press the cons key and thereby set the source impedance to a fixed 25. The voltage across the componen. Page 30 29 series and parallel equivalent circuits generally, as illustrated in figure 32, any nonideal component has a different value for a series or parallel equivalent circuit due to the characteristics of the component. The “quality” of an inductor is expressed by q, the ratio of the reactive induct. Page 31 30 led is lit. The deviation display is not available in the auto mode and if no nominal value has been previously entered. To enter a nominal value, 1.

Press and release the disp key until the entry led is lit. 2. Select the measurement mode by pressing one of the keys in the parameter group of key. Page 32 1 protek 9216a digital lcr meter user’s manual volume 2 reference table of contents background on components and measurements. 4 definitions of resistive and reactive parameters. Page 35 4 background on components and measurements properties of resistors, inductors, and capacitors the measurements made by the 9216a digital lcr meter are based on the definitions of impedance and the properties of discrete components designed to provide impedances in electronic circuits. Definitions o. Page 36 5 in this situation of positive, imaginary impedance, the impedance is purely inductive, as an ideal inductor would be. Page 37 6 figure 11 equivalent circuits for inductors and capacitors. Page 39 8 accuracy and calibration how to assess and control the accuracy the accuracy achieved by the 9216a digital lcr meter depends on several factors. In this chapter, equations are given for estimating the accuracy of a specific measurement, and procedures are given for calibrating the meter. Accuracy. Page 40 9 figure 21 basic impedance accuracy table 21 integration time accuracy factor, k i meas. Page 45 14 table 27 parameters for calculating k l and k h for resistive measurements r l k l z m r h k h z m frequency r3 r2 r1 r0 r3 r2 r1 r0 100, 120, 1 khz 1 m 0.02 0.2 4 400 k 6.5 m 100 m 2 g 10 khz 1 m 0.02 0.2 4 400 k 6.5 m 100 m 1.5 g 100 khz 4 m 0.03 0.4 200 k 3 m 50 m table 28 parameters. Page 46 15 necessary equipment item critical specifications recommended model analog oscilloscope with 10, 10mhz probes 100mhz bandwidth tektronix 2445 24.9 resistor 0.1% dale cmf55 or equivalent 402 resistor 0.1% dale cmf55 or equivalent 6.34 k resistor 0.1% dale cmf55 or equivalent 100.0 resistor 0.1% da. Page 47 16 1. Set the 9216a to 1 khz, 1 v and constant voltage.

<https://skazkina.com/ru/3m-s10-lcd-projector-manual>

Verify that the capacitance reading is close to the value measured above and within the tolerance stated above. Repeat for 120 hz. D values should be below 0.0001. 5. Repeat for 10 khz. At 10khz, the tolerance is 1.15%. For 100 khz the tolerance is 1.25%. D values shoul. Page 49 18 2. Set the 9216a to its default conditions by pressing the key sequence rcl 0 en ter. Set the unit to constant voltage mode. The output voltage should be 1.0 vrms at 1 khz. Verify that the voltage reading is

between 0.98 and 1.02 vrms. Record the result. 3. Repeat step 2 for 100 hz, 120 hz, and. These calbytes are stored in the 9216a ram. Page 54 23 3. Verify that the amplitude is within 2% of the nominal value. See table 212 below for the acceptable limits for each amplitude. 4. Repeat steps 2 and 3 for 120 hz, 1 khz, 10 khz, and 100 khz calbytes 1, 2, 3 and 4 at this amplitude 0.10 v. Note that, for each amplitude, the calbyte num be. Enter the new value, in ppm using the entry keys. Standard resistor calibration this pr. Page 56 25 6. Check the standards at different frequencies. Use the series equivalent for the two smaller resistors and the parallel equivalent for the two larger ones. R should remain relatively constant and q should scale with frequency i.E. Q at 10khz is 10 q at 1 khz. If any of the values are too far. Page 57 26 remote control of the lcr meter remote programming reference the 9216a lcr meter may be controlled and programmed remotely using either an rs232 any computer supporting either of these interfaces may be used with the 9216a. Both interfaces are simultaneously active and are accessed via the connec. Page 58 27 table 31 rs232 signals and pin assignments pin signal direction description 1 dcd data carrier detect 2 rx receive data 3 tx transmit data 4 dtr data terminal ready 5 gnd — signal ground 6 dsr data set ready 7 rts request to send 8 cts clear to send 9 ri ring indicator in the application of the.

<https://difumarket.com/images/breville-bread-maker-bb280a-manual.pdf>

Page 59 28 using commands communications with the 9216a use ascii characters. Commands may be in either upper or lower case and may contain any number of embedded space characters. A command to the 9216a consists of a fourcharacter command mnemonic, arguments if necessary, and a command termination. The te. Page 60 29 table 35 examples of command formats freq 2 sets the drive frequency to 100 hz oneparameter command freq. Queries the drive frequency query of oneparameter command blim 0, 3, 100 sets the upper limit of bin 3 to 1000 threeparameter command blim 0, 3 queries the upper limit of bin 3 qu. All bins are closed. Set query binning to enabled i 1 or disabled i 0. Set query upper i 0 or lower i 1 limit of bin j 07 to x %. Set nominal value of bin i to x setup con. Page 62 31 such as taking a measurement, or auto calibration, take a long time to execute and there is no other way of determining when they are done. The no command bit may be read while commands are being executed by doing a serial poll. There is no way to read this bit over rs232. Page 64 33 binning using the lcr meter to sort components the 9216a has built in features to aid in component sorting, which is useful for production testing, incoming inspection, device matching, or tests in which multiple components of similar value must be measured. The binning feature simplifies parts s. Page 65 34 4% 3% 2% 1% 0 1% 2% 3% 4% bin 0 bin 1 bin 2 bin 3 nominal value figure 41 example of nested bins sequential bins with different nominal values suppose that the batch of nominally 100 resistors is to be sorted according to actual value instead of according to tolerance, as in the previous example. Page 66 35 98 100 102 104 106 1% 1% 1% 1% 1% bin 0 bin 1 bin 2 bin 3 bin 4.. Figure 42 example of sequential bins with different nominal values bin 0 bin 1 bin 2 bin 3 bin 4.. 5% 3% 1% 1% 3% 5% nominal value figure 43 example of sequential bins with a single nominal value general procedures bi.

<https://diatecgroup.com/images/breville-bread-maker-bb290-manual.pdf>

Page 67 36 setting up the bins procedures initial setup to enter binning information the unit cannot be in the auto parameter mode. When binning is enabled, the binning led is on, the bins display is active, and the handler interface. Parts that pass fall into bin 0; and all other parts fall into bin 8 or bin 9. Nested or overlapping bins enter. Page 70 39 troubleshooting hints for solving problems in this chapter, suggestions are given for solving common troubleshooting problems general problems nothing happens at turnon make sure that the power entry module on the rear panel is set for the ac line voltage for your region, that the correct fuse i. Page 71 40 screwdriver to remove the fuse holder and the fuse from the rear panel. It isnt always possible to see the damage to a fuse, so it can be helpful to measure it with an ohmmeter. If it is damaged, replace it with a 250v, f250ma fuse. Replace the fuse holder and fuse and verify that the unit opera. Page 72 41 bias error 7 the 9216a

internal dc bias source failed its test. Cal error 4 the ram calibration data has become corrupt. The factory values will be reloaded from rom. This message is not a problem unless it occurs frequently, which could indicate a problem with the battery backup circuits. Code e. Page 73 42 0 the 100 k range failed 1 the 6.4 k range failed 2 the 400 range failed 3 the 25 range failed calibration errors these error messages can be generated by the open, short, and standard calibration procedures. If the 9216a fails calibration, try running the procedure again. Repeated failure can in. Please check your inbox, and if you can't find it, check your spam folder to make sure it didnt end up there. Please also check your spam folder. Intelligent features include multiprotocol support Fibre Channel, iSCSI, FCIP, Virtual SANs VSANs, embedded diagnostics and rolebased security.

With these innovations, companies can build highly scalable, available storage networks with comprehensive security and unified management. MDS 9000 Storage Networking Modules are interchangeable between the MDS 9216A Fabric Switch, MDS 9216i Fabric Switch and MDS 9500 series directors, providing smooth migration, common sparing and investment protection. Intelligent network services The bundle can consist of any Additionally, Cisco Fabric Manager enables administrators to perform vital tasks such as topology discovery, fabric configuration and verification, LUN security, monitoring, and fault resolution. All functions are available through a secure interface, which enables remote management from any location. Cisco Fabric Manager may be used independently or in conjunction with thirdparty management applications. Cisco provides an extensive API for integration with thirdparty and user developed management tools. The Cisco Fabric Manager Server FMS Package extends Cisco Fabric Manager by providing historical performance data collection for network traffic hotspot analysis, centralized management services and advanced application integration. This feature is licensed separately on a per module basis except the MDS 9216i which includes These features are bundled together in a management application called the Cisco MDS 9000 Enterprise Package. Strong, SME Package standard IEEE AES256 encryption for heterogeneous tape devices and VTLs as well as tape data. Very often issues with Cisco Systems MDS 9216A begin only after the warranty period ends and you may want to find how to repair it or just do some service work. Even oftener it is hard to remember what does each function in Switch Cisco Systems MDS 9216A is responsible for and what options to choose for expected result. Fortunately you can find all manuals for Switch on our side using links below.

Starting with 16 2Gbps Fibre Channel ports, the expansion slot on the Cisco MDS 9216A allows for the addition of any current or future Cisco MDS 9000 Family module for up to 64 total ports. The switch is designed for building missioncritical enterprise storage area networks SANs where scalability, multilayer capability, resiliency, robust security, and ease of management are imperative. The specific details of this switchs capabilities are easily found online, too many to list in great detail here. Nonreturnable used product. I Agree All sales are final All sales are final These are madetoorder items. This product is not eligible for return or exchange unless defective. The average leadtime is 1 or 2 weeks. Ask a question Product Details Reviews Product Details We aim to show you accurate product information. Here you will find what the manufacturers have provided us with. The valve is designed from the ground up using modern design technologies and materials. The PEI body is media compatible, light in weight, and by use of external metal port rings, is virtually indestructible. Typical applications include control of inert gases, water and compatible fluids. How did we do Leave your feedback to MegaDepot.com. Deviation and % deviation are calculated from a stored relative value. Deviation and % deviation are calculated from a stored relative value. Deviation and % deviation are calculated from a stored relative value. GTSQX50, GTSQX70, EXFO MAX710B OTDR COMPARISON Radio Frequency Testing Komshine Products Review. D1A multilayer fabric switch are two fabric switches which enhance. Storage Area Network SAN director and fabric switch offerings availableThey replace the Cisco MDS 9216i 2062D1H and Cisco MDS 9216AStorage Services capability designed to provideAlternatively, Starting with 16 2 Gbps. Fibre Channel ports, the expansion slot on the Cisco MDS 9216A allows forWindows 2003Initiative

Specification SMISSystems.

Documentation for Cisco products is available only in English. Power Cord, Australia 9111 2 2 N Y. Power Cord, Europe 9112 2 2 N Y. Power Cord, CD12 Italy 9113 2 2 N Y. Power Cord, U.K. 9114 2 2 N Y. Power Cord, Argentina 9115 2 2 N Y. Power Cord, South Africa 9116 2 2 N Y. Power Cord, Switzerland 9117 2 2 N Y. Cab Jumper Power Cord, 250 V ac 20A, C14C15 9120 2 2 N Y. Power Cord, Australia 9111 2 2 N Y. Power Cord, Europe 9112 2 2 N Y. Power Cord, CD12 Italy 9113 2 2 N Y. Power Cord, U.K. 9114 2 2 N Y. Power Cord, Argentina 9115 2 2 N Y. Power Cord, South Africa 9116 2 2 N Y. Power Cord, Switzerland 9117 2 2 N Y. Cab Jumper Power Cord, 250 V ac 20A, C14C15 9120 2 2 N Y. Description Machine Model Feature Min Max ly ly FCIP Activation requires Ethernet ports and support for iSCSI and FCIP capabilities. FCIP. Activation requires ordering the FCIP Activation for Multiprotocol Module is designed to deliver attractive performance with 10 gigabit per Delivering up to five times the effective link Fibre Channel Switching Module includes hardware enabled innovations X2 form factor pluggable, S type interfaces. Individual ports can be Channel Switching Module well suited for ISL attachment, both within the. Data Center and between Data Centers across metro optical networks. When Switching Module integrates FICON protocol, FICON Control Unit Port CUP Switching Modules for Cisco MDS 9500 Multilayer Switch and Director. Products IBM 2054. Initial Orders of Switching Cisco 12port Fibre Channel Switching Module ideal for attachment of the With its multiprotocol capability, the. Cisco 12port Fibre Channel Switching Module seamlessly integrates FICON VSANs allow hardware based separation Twenty four ports Bandwidth Reservation, a Cisco unique feature available on the Cisco By combining Cisco 12port, 24port, and This application oriented Channel Switching Module. The Cisco 48port 4 Gbps Fibre Channel.

Switching Module can help deliver 96 Gbps of total bandwidth enabling up Bandwidth is allocated across By combining Cisco 12port, 24port, and SFPs FCIP and iSCSI storage services. Individual ports can be configured with Short Wave SFP Transceivers. Fibre Channel ports require Ethernet short wave SFP transceiver for the IBM 2054. Ethernet long wave SFP transceiver for the IBM 2054. Maximum distance SFP transceiver, designed to provide Fibre Channel connections at Feature Code Fibre Type microns Gbps Distance Fibre Channel storage area components. The fiber optic cable can be Where a limited distance connection exists, fiber optic cables can be Cisco Fabric Manager by helping provide historical performance data MDS 9000 Family allows inband management of the switch from FICON hosts. Inter Switch Links ISLs are only enabled between switches that have Independent Software Vendors ISVs to develop intelligent fabric Backup Engine Interface to enable disk systems to write directly to tape Service Interface to directly replicate data to remote sites without Proven Networking Solutions. For the most current IBM Total Storage. Proven application information, visit Specify the required country Sales Manual at any time without notice. This Sales Manual Additional terms of. Please try again. Customers are responsible for compatibility. Please try your search again later. You can edit your question or post anyway. To calculate the overall star rating and percentage breakdown by star, we don't use a simple average. Instead, our system considers things like how recent a review is and if the reviewer bought the item on Amazon. It also analyses reviews to verify trustworthiness. Custom configurations also were available. Also see All Macs introduced in 2004. These numbers reflect an average of user provided 32bit and 64bit results as submitted to the Geekbench website. Higher numbers are better.

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Identifier, which may include multiple models. To dynamically compare 32bit Geekbench 3 results from different Macs sidebyside, see EveryMac.coms Ultimate Mac Comparison. Both numbers reflect an average of user provided results as submitted to the Geekbench website. Higher numbers are better. You also might be interested in reviewing all 64bit single core and multicore Geekbench 3 user submissions for Macs with the RackMac3,1 Model Identifier, which may include multiple models. To dynamically compare 64bit Geekbench 3 results from different Macs sidebyside, see EveryMac.coms Ultimate Mac Comparison. Higher numbers are better. To dynamically compare Geekbench 4 results from different Macs sidebyside, see EveryMac.coms Ultimate Mac Comparison. Both numbers reflect an average of user provided results as submitted to the Geekbench website. Higher numbers are better. To dynamically compare Geekbench 5 results from different Macs sidebyside, see EveryMac.coms Ultimate Mac Comparison. The 512k onchip level 2 cache runs at processor speed. For more information, please refer to the Apple Support Site. In the US and many other countries, site sponsor Other World Computing sells memory as well as other upgrades for this Xserve. In Canada, site sponsor CanadaRAM sells RAM and other upgrades for this Xserve. In Germany, site sponsor CompuRAM sells RAM and other upgrades for this Xserve.

In the US and many other countries, site sponsor Other World Computing sells storage upgrades for this Xserve. In Canada, site sponsor CanadaRAM sells hard drives and other upgrades for this Xserve. In Australia, site sponsor Macfixit sells hard drives and other upgrades for this Xserve. Also see All Macs with the A1068 Model Number, the 1994 EMC Number, and the RackMac3,1 Model Identifier. This system cannot run versions of Mac OS X Server more recent than 10.5.8. Apple reports that it weighs 37.0 pounds 16.6 kg with three Apple Drive Modules installed. Photo Credit Apple Computer. The icons correspond with the icons for each port on the computer. For complete disclaimer and copyright. Something went wrong. Get the item you ordered or your money back. User Agreement, Privacy, Cookies and AdChoice Norton Secured powered by Verisign. Wenn Sie sich nicht als solche betrachten, gehen Sie kein Risiko ein und arbeiten Sie nicht selbst an Ihrem Kawasaki Kx85 B1 Workshop Repair Service Manual Wenn Sie Fragen haben, besuchen Sie unser Forum. We also share information about your use of our site with our social media, advertising and analytics partners who may combine it with other information that you've provided to them or that they've collected from your use of their services. Deviation and % deviation are calculated from a stored relative value. Deviation and % deviation are calculated from a stored relative value.

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