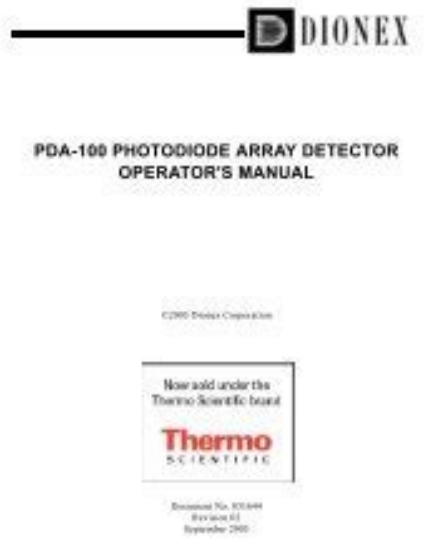
Dionex Pda 100 Manual



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Book Descriptions:

Dionex Pda 100 Manual

However, the other day, some time during equilibration, the detector started behaving downright weird, since that time constantly producing error messages for both the deuterium and tungsten lamps in Chromeleon, as well as for the little automatic test sequence it runs on startup power LED flashing. Ive disassembled and checked the parts accessible via front panel and everything seems fine, no leaks, no loose plugs or anything. The lamps seem fine, too, and are supposed to have a couple hundred hours of lifetime left each according to the Chromeleon log. As per the manual, Ive flushed the cell to make sure its not just air bubbles in the cell making the wavelength match on startup fail. Whenever I try to control something from Chromeleon, the Audit Trail tells me the detectors already running an autozero command; this makes me think the instruments stuck in some sort of loop is there any way to perform a hard reset. Id appreciate any help and apologize if this is a stupidly simple issue to resolve to all you experts. I have no prior experience with HPLC instrumentation and am basically just getting by on manuals. Its been a long time since anyones even been responsible for the setup, so theres no one around anymore who knows how to troubleshoot something like that. Regards DanielDeuterium lamps age even when not in use. It is well possible that it is too weak even it was not active more than 100 hours. The best hard reset still is turn off and on again after a minute or so.It is well possible that it is too weak even it was not active more than 100 hours. The best hard reset still is turn off and on again after a minute or so. Good luck Previous to whatever event caused this, the lamp intensity was fine true, its possible its deteriorated enough to cause a failure message, but I also get failuremessages for the Tugnsten lamp when I switch on the detector.http://www.muhong.cn/fckeditor/editor/filemanager/connectors/php/fckeditor/upload/2020009/calcomp-34480-manual.xml

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Since it seems stuck in this startup routine, I cant control the lamps from Chromeleon to check the intensity counts. If this were just a failure of the Deuterium lamp, I should still be able to at least control the Tungsten one, and the startup routine shouldnt fail since it can do the wavelength matching with that lamp, too right. I did try to switch the detector on and off, naturally, but to no avail.Did you try to power on the instrument without connection to Chromeleon By continuing to browse the site you are agreeing to our use of cookies. You must have JavaScript enabled in your browser to utilize the functionality of this website. Unless specified otherwise, standard shipping is quoted. Equivalent to 056123T. Presentation Materials Issue PN L Rev. A RotatIR Automated Rotating Sample Stage Accessory User Guide For Models DH45S DH65S Introduction Printed in the United States of America. This publication is protected by federal copyright law. No part of this publication may be copied or distributed, transmitted, transcribed, stored in a retrieval system, or transmitted into any human or computer language, in any form or by any means, electronic, mechanical, magnetic, manual, or otherwise, or disclosed to third parties without the express written permission of Dionex Corporation, 1228 Titan Way, Sunnyvale, California 940883603 U.S.A. DISCLAIMER OF WARRANTY AND LIMITED WARRANTY THIS PUBLICATION IS PROVIDED AS IS WITHOUT WARRANTY OF ANY KIND.PRINTING HISTORY Revision 01, May 2000 Revision 02, September 2003 A deuterium lamp optimizes the UV range 190 nm to 380 nm and a tungsten lamp optimizes the visible range 380 nm to 800 nm. When using the PDA100, up to five single wavelengths 2D chromatograms can be collected without being required to collect 3D data. Collecting individual wavelengths instead of the spectra offers two advantages it eliminates the need

to perform extractions for runs that do not require spectral data and it conserves disk space.http://www.xn----qtbenjffc7h.xn--p1ai/userfiles/calcolo-imu-manuale.xml

Key PDA100 features include Deuterium and tungsten lamps ensure low baseline noise, high signal intensity, and applications flexibility in the wavelength range from 190 nm to 800 nm. A 1024element photodiode array optimizes spectral resolution. A builtin holmium oxide filter verifies wavelength calibration accuracy. Front panel LEDs indicate detector status at a glance.The 3D option is required in order to perform the following 3D data presentation and spectral analysis realtime or postrun Peak purity analysis with selectable criteria Spectral library search for positive peak identification Optimal integration path determination for method optimization 1.2 Theory of Photodiode Array Detection Monochromatic variable wavelength detectors monitor eluting components of the sample at a single wavelength ideally, the wavelength of maximum absorbance, whereas photodiode array PDA detectors scan a range of wavelengths every few milliseconds and continually generate spectral information. Wavelength, time, and absorbance can all be plotted. PDA detectors provide threedimensional information that allows an accurate assessment of peak identity, purity, and quantitation in a single run. Software support for PDA detectors includes peak purity and spectral library search functions to help determine peak homogeneity and identity. 1.2.1 Advantages of Photodiode Array Detection PDA detectors are useful in both research and quality assurance laboratories. In the research laboratory, the PDA provides the analyst with a variety of approaches to the analysis. In the quality assurance laboratory, the PDA provides several results from a single run, thereby increasing the throughput of the HPLC. PDA detection offers the following advantages Peak measurement at all wavelengths In methods development, detailed information about the detector conditions required for the analysis may not be known.

When a variable wavelength detector is used, a sample must often be injected several times, with varying wavelengths, to ensure that all peaks are detected.A PDA detector can collect spectra of each peak and calculate the absorbance maximum. Detection of multiple wavelengths A PDA detector can monitor a sample at more than one wavelength. This is especially useful when the wavelength maxima of the analytes are different. Wavelengths can be selected to analyze each compound at its highest sensitivity. Peak purity analysis It is difficult to determine component purity from a chromatogram. However, a PDA detector can analyze peak purity by comparing spectra within a peak. A pure peak has matching spectra throughout the peak at all wavelengths. Positive peak identification In liquid chromatography, peak identification is usually based on relative retention times. When a PDA detector is used, spectra are automatically collected as each peak elutes. The PDA software compares the spectra with those stored in a library to determine the best fit matches; this method increases the likelihood of correctly identifying peaks. For example, Figure 11 shows an overlay of pyrene and an impurity obtained from two consecutive chromatographic runs. Based on 2D data, or if the run had been performed with a conventional variable wavelength detector, these peaks would have been misidentified as the same component. A PDA100, under the control of Dionex software with the 3D option, correctly identified and differentiated the components.Summarizes the organization of the user s manual. Explains the meaning of safety messages and icons in the manual and the safety labels on the detector. Describes the PDA100 front panel LED indicators, inside front panel, optical system, and rear panel connections. Presents an overview of PDA100 operation, as well as guidelines for optimizing detector performance. Lists routine preventive maintenance procedures.

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Lists problems that may occur, along with stepbystep instructions for resolving them. Contains stepbystep instructions for routine service and parts replacement procedures. Lists the PDA100 specifications and installation site requirements. Describes how to install the PDA100, including the DX LAN connections to the host computer running Dionex chromatography software. Safety

messages appear in bold type and are accompanied by icons, as shown below. Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury. Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. Indicates that the function or process of the instrument may be impaired. Warnhinweise in Deutsch Bedeutet unmittelbare Gefahr. Informational messages also appear throughout this manual. These are labeled NOTE and are in bold type NOTE NOTES call attention to certain information. These symbols appear on the PDA100 or on PDA100 labels.LED indicators identify the status of four functions the detector power, the deuterium and tungsten lamps, and the run. A solid lighted LED indicates that the corresponding function is in progress. A flashing LED indicates that an error occurred; for an explanation, check the Audit Trail in PeakNet 6 or Chromeleon. PDA100 Photodiode Array Detector Run Deuterium Tungsten Power Figure 21. PDA100 Front Panel LED LED Status Function Run Lighted Data is being acquired by the host computer. Flashing An alarm was activated; for example, the leak sensor in the drip tray may have been triggered. Off Data is not being acquired by the host computer. Deuterium Lighted The deuterium lamp is on.Flashing A command was issued to turn on the tungsten lamp, but the lamp failed to turn on see Section 4.5. Off The tungsten lamp is off. Power Lighted The detector power is on.

Press the Power switch to turn the detector on and off. Flashing The detector failed one of the electrical checks or optical checks performed during the powerup sequence see Section 4.15.1. Off The detector power is off.The lamp cover enhances the thermal stabilization of the optical bench. The optical bench is housed in a compartment behind the inside front panel. Because the flow cell is located behind a cover, leaks from the cell tubing connections are not immediately apparent. To prevent damage to detector components, the bottom of the optical bench contains a builtin leak tray. A sensor in the sump of the leak tray responds to changes in the index of refraction when wet. If the leak sensor is activated, it triggers an alarm in the detector and the front panel Run LED begins flashing see Figure 21.Light from the tungsten lamp is focused through an opening in the internal structure of the deuterium lamp. Light from the tungsten and deuterium lamps is then focused through the flow cell by the source lens. After exiting the cell, the light passes through the spectrograph lens to the filter paddle and is focused into the slit. The light then passes through the slit to the grating, where it is separated into its component wavelengths and diffracted to the photodiode array. Each diode measures a narrow portion of the spectrum.The tungsten lamp is focused through an opening in the internal structure of the deuterium lamp; this allows the lamps to share the optical axis to the source lens. Focuses the visible light from the tungsten lamp to the throughhole of the deuterium lamp. The light source for UV wavelengths 190 nm to 380 nm; also used to check the wavelength calibration. Receives the light from the tungsten and deuterium lamps and focuses it so that the beam passes through the flow cell. The measurement site for sample absorbance. The cell has a flat window on each side. Receives the light from the flow cell and focuses it onto the slit.

The width of the slit equivalent to 1 nm optimizes the optical resolution. Diffracts the light beam into its component wavelengths and directs the light onto the photodiode array. A series of 1024 photosensitive elements. Each element measures a narrow band of the spectrum.Two builtin heat exchangers, one on the cell inlet tubing and one on the cell handle, help stabilize the temperature of the mobile phase before it enters the cell. If you touch a window, clean it with denatured alcohol and a clean lens tissue. Do not use the PEEK flow cell with normal phase or chlorinated solvents; these solvents will damage the cell.The components on the cards cannot be serviced by the user. If servicing is required, it must be performed by qualified personnel and appropriate electrostatic

discharge ESD handling procedures must be followed. Halten Sie sich von der Elektronik des PDA100 fern. Die Elektronik kann nicht vom Anwender gewartet werden. Power Supply The power supply module contains connections to the AC mains and provides regulated, lowvoltage power for the PDA100. The power supply is rated at 130 W. Power entry components are shielded and filtered to prevent electromagnetic interference EMI. SHOCK AND FIRE HAZARD The power supply module operates at line potentials. Refer all servicing to qualified personnel. STROMSCHLAG UND BRANDGEFAHR Das Modul zur Stromversorgung wird mit Netzspannung betrieben.NOTE The fan speed is controlled automatically. Changes in fan speed may be audible, especially when the lamp selection is changed or the ambient temperature fluctuates. SHOCK HAZARD Components used to ignite and operate the deuterium lamp are at high potentials. Preamp Card The photodiode array is connected directly to the preamplifier. The preamp gain is automatically adjusted to compensate for system variables, such as lamp intensity. Analogtodigital conversion of the signal occurs on the Preamp card.Four BNC connectors on the card provide the analog recorder outputs.

Select the output scale, polarity, baseline offset, and filter rise time from PeakNet 6 or Chromeleon. Purchaser is granted a paidup, nonexclusive license to practice with, and for the useful life of, this particular apparatus or product, the methods of use in any of the foregoing patents and in U.S. Patents 5,126,272; 4,265,634; 4,414,842 and all equivalents in other countries where issued. An alternative license is available, on reasonable terms, to practice any of the foregoing methods of use which can be praticed without infringing patented apparatus or products.The input power is 162 W, maximum and the output power is 130 W, maximum. The appropriate line voltage and frequency are selected automatically. SHOCK HAZARD To avoid electrical shock, use a grounded receptacle. Do not operate the PDA100 or connect it to AC power mains without an earthed ground connection. The power supply cord is used as the main disconnect device. Make sure the socketoutlet is located near the PDA100 and is easily accessible.Das Netzkabel ist das wichtigste Mittel zur Stromunterbrechung. See Section 5.4 for fuse replacement instructions. For continued protection against risk of fire or shock, replacement fuses must be the type and rating specified here.The output range is 0 to 1 volt. The fullscale absorbance range selected from the software includes 0.0005, 0.001, 0.01, 0.1, 0.5, 1.0, 2.0, and 3.0 AU fullscale. For details about programming the analog outputs, see Section 3.3.2. The analog outputs continue to output data even after the host computer is turned off or is disconnected from the PDA100. When the detector power is turned on again, the analog output settings are either the factory defaults see Section 3.5 or the settings selected the last time the detector was controlled by the host computer. The TTL2 input is reserved. The two TTL outputs and two Relay outputs can be programmed as part of a PGM file see Section 3.3.

2 or controlled manually through a control panel in the software. The Relay outputs can be programmed to switch any lowvoltage control. The switched current must be less than 200 ma and 42 V peak. For installation instructions for the Relay and TTL connectors, refer to Section B.3.5. DXLAN Connector The 10BASET DXLAN RJ45 connector on the rear panel allows communication between the PDA100 and the host computer running PeakNet 6 or Chromeleon software. For installation instructions, refer to Section B.3.6. Waste Line Waste exits the detector via the drain tube connected to the rear panel. The drain tube must be routed downward, below the leak tray. Check periodically to verify that the drain tube is not clogged or bowed upward, and that the tubing remains routed below the leak tray. For installation instructions, see Section B.3.3. The drain tube must remain routed below the drain port.If there is a question regarding appropriate usage, contact Dionex. In the U.S., call 18003466390 and select the Technical Support option. Outside the U.S., call the nearest Dionex office. 3.1.1 Mobile Phases Solvent quality significantly affects detection limits and instrument performance. To ensure optimal performance of the PDA100, follow the precautions below. Strong bases can etch the silica windows of the flow cell. Prepare all mobile phases with spectroscopygrade solvents, reagentgrade chemicals, and ASTM Type I or better filtered, deionized

water. Degas all mobile phases before use and maintain them in a degassed state. Mobile phase ph affects not only the retention time of the separation, but the sample absorbance and the background absorbance of the mobile phase. If an analysis employs chemical suppression and compound detection techniques, compare the UV cutoff of the mobile phase before and after the suppressor to see whether it is advantageous to locate the PDA100 ahead of the suppressor.

Flush the cell with deionized water immediately after the analysis; do not let buffers remain in the cell for extended periods. 3.1.2 Solvent Delivery System The pumping system should deliver continuous flow while maintaining a consistent mobile phase composition if gradient elution is used. Fluctuations in system backpressure may cause baseline disruptions. High sensitivity applications require a smooth, lowpulsation pump. To ensure optimal results, follow the maintenance schedule recommended in the pump user s manual. All materials in the solvent delivery system must be fully compatible with the mobile phases required for the analysis. For example, IC and BioLC analyses frequently use mobile phases with extremes of ph or with high salt concentration. A PEEK pumping system and PEEK flow cell are required when running these mobile phases because the presence of stainless steel in the flow path would contaminate the system. Reversedphase solvents methanol, moderate concentrations of acetonitrile, etc. are acceptable for a PEEK system. Other solvents and high concentrations of acetonitrile require a stainless steel system. All tubing connections should be Teflon, Tefzel, PEEK, stainless steel, or titanium as required for the operating pressures and application. All mobile phase reservoirs should be compatible with the solvents used with your application.After operating in detection modes that do not require optically clean reagents such as conductivity, the solvent delivery system may need to be thoroughly cleaned. A basic cleaning procedure is described below; for additional information, refer to the pump user s manual. To avoid contamination, always wear gloves when handling pump components in the flow path. Contamination may cause baseline disruptions, spurious peaks, and inconsistent results, especially in sensitive applications. If there is a heavy salt buildup on the pistons, remove the pistons and clean them with deionized water.

Refer to the pump user s manual for instructions. Cleaning the pistons removes salt crystals that can abrade the piston, thereby causing the main seal to wear out prematurely and allow leaks. Replace the piston seals if there is a heavy salt buildup on the pistons, if the seals leak, or if the pistons are replaced.Make sure the Power LED is lighted, but is not flashing. If the Power LED is flashing, the detector failed one of the electrical checks or optical checks performed during the powerup sequence. Turn on the appropriate lamps in PeakNet 6 or Chromeleon, if necessary. The first time the detector power is turned on, both lamps are on the factory default settings. The first time the deuterium lamp is turned on, the detector checks the wavelengthtopixel assignment; if a problem is detected, the Power LED will flash. If this occurs, flush the flow cell with deionized water or methanol and then turn off the detector power briefly. Turn on the power again and verify that the Power LED is lighted, but is not flashing. NOTE If solvent remains in the flow cell for an extended period, it may form a bubble or decrease the intensity of the light passing through the cell. The lamps usually require 20 to 30 minutes to stabilize. For sensitive applications work or for detector validation, allow at least 2 hours for the lamps to stabilize.The following sections describe the two modes of software control panel control in which commands are executed directly from a control panel and automated control control from a PGM file. NOTE The 3D software option is required in order to perform the following 3D data presentation and spectral analysis, spectral library search for positive peak identification, and peak purity analysis with selectable criteria. 3.3.1 Panel Control In this mode, the user selects PDA100 operating parameters and commands from a control panel in the software.

Commands are executed as soon as they are entered and parameters can be modified at any time during manual data acquisition. NOTE This section provides a brief overview of detector control. For

complete operating instructions, refer to the PeakNet 6 or Chromeleon online Help or user s manual. To retrieve the data, select the assigned sample name within the sequence.These commands are selected from the default control panel or the Commands dialog box selected from the Control menu or by pressing F8. The table below lists several of the most frequently used detector commands. For more information, refer to the online Help. Turns the deuterium lamp on and off. Turns the tungsten lamp on and off. Selects the powerup setting for the deuterium lamp. Selects the powerup setting for the tungsten lamp. Adjusts the output to zero. Sets the fullscale recorder output range. Sets the offset applied to the recorder output. Reports the reference mode. Sets the reference wavelength. If RefWavelength is Off, the reference value is the first data point of the sample wavelength and bandwidth after autozero is performed. Sets the bandwidth of the reference wavelength, if one is selected. If RefWavelength is Off, the RefBandwidth setting has no effect. Sets the sample wavelength up to five sample wavelengths can be programmed. Sets the bandwidth of the sample wavelength. Bunching or averaging the signals of adjacent wavelengths reduces the size of the 3D data stored. Adjusts the negative absorbance; this permits peaks to be seen even when the eluent decreases absorbance.The user can create PGM files automatically with the help of the PGM Wizard or manually by editing an existing PGM file. For complete operating instructions, refer to the PeakNet 6 or Chromeleon online Help or user s manual.To activate the Wizard, go to the File menu and select the New command. A dialog box appears. 2. Select Program File and click OK.

NOTE The PDA100 performance can be optimized by careful selection of the data collection rate, rise time, and other operating parameters.NOTE The Reference Wavelength plus onehalf the Reference Bandwidth cannot be outside the 3D Wavelength range. If the values are outside this range, the Reference Wavelength setting will default to the longest wavelength possible given the bandwidth.Flow Cell Material The flow cell material must be chemically compatible with the mobile phases and analytes of interest.The rise time can be set to 0.1, 0.2, 0.5, 1.0, 2.0 default, or 5.0 seconds. The selected rise time is applied to all data collected, and to both analog and digital output. Select a rise time that is approximately 25% of the peak width at halfheight of the narrowest peak of interest. A longer rise time allows more averaging of the signal and results in less shortterm noise see Figure 33. However, a rise time that is too long may result in reduced peak heights and asymmetric peak shapes.For chromatograms with coeluting peaks or low signaltonoise ratios, 40 data points per peak is recommended. If all peaks are relatively wide, select a slower data collection rate 1.0 Hz, for example. If any peaks of interest are less than a few seconds, select a faster data collection rate 5.0 Hz, for example. If the data collection rate is too slow, the start and end points of peaks are not accurately determined. However, if the collection rate is too fast, data files may occupy excessive disk space and postrun analyses may require more processing time. A slow data collection rate with a fast rise time may result in a longer system response than indicated by the rise time. For example, a data collection rate of 0.5 Hz and a rise time of 0.5 second results in a system response longer than 2.0 seconds. The table below lists the recommended pairings for the rise time and data collection rate.The deuterium lamp optimizes the UV range 190 nm to 380 nm.

The tungsten lamp optimizes the visible range 380 nm to 800 nm. Set the sample wavelength at the wavelength with the absorbance maxima. When the analyte wavelength maximas are known, the detector can run five separate wavelengths without being required to collect spectra. Collecting individual wavelengths instead of the spectra offers two advantages it saves disk space when 3D data is not required and it eliminates the need to perform extractions for runs that do not require spectral data. If little is known about the analytes in the sample, collect spectra over the full wavelength range using both lamps. Need Repairs, maintenance or installation for your lab equipment. Connect with a community of owners and qualified service providers at LabWrench.com Visit LabWrench.com Find a Service Provider Join Product Communities Shop Brands Featured Brands See All Brands Shop by Brand Agilent Thermo Fisher Eppendorf VWR Metrohm Ohaus Waters Bruker Shimadzu Corning Huber Perkin Elmer Beckman Sciex Olympus Nikon Labconco

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