DIONEX

UV/VIS Detector
UVD 170S/340S

Operating Instructions

Version: 3.01

Date: July 14, 2000

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DIONEX

CE

Declaration of Conformity

Product: UV/VIS Detector
Type: UVD 170S/340S

Dionex Softron GmbH herewith declares conformity of the above products with the respective requirements of the following regulations:

- EN 50081-1 : 1992:
  Electromagnetic Compatibility (EMC) - Generic emissions standard
  Part 1: Residential, commercial and light industry
- EN 50082-1 : 1992:
  Electromagnetic Compatibility (EMC) - Generic immunity standard
  Part 1: Residential, commercial and light industry
- EN 61000-3-2 : 1998
  Electromagnetic Compatibility (EMC)
  Part 3 / Section 2: Limits for harmonic current emissions

This declaration is issued for the manufacturer

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by the President, Dr. Peter Jochum.

January 16, 2001

Contents

1 Introduction

1.1 Unpacking

To unpack the unit, proceed as follows:

- Place the box on the floor and remove the accessories pack.
- Pull out the unit, slowly and carefully, using the two foam inserts.
- Remove the polythene packaging by placing the unit on a firm base and lifting at one side, then the other, while drawing the packaging out from underneath it.

Please note: Retain all original packing materials in a safe place. It is the optimum packaging for shipping the unit (e.g. for repair). Shipping of the unit in any other packaging automatically nullifies the warranty.

- Check-off the contents of the accessory pack against the list in section "Standard Accessories UVD 170S/340S", page 24)

1.2 Warranty

The standard warranty coverage for this unit is in accordance with the conditions of sale. The warranty has a duration of one year from invoice date and covers materials and labour, ex-works. Please note that wear-parts (i.e. needle, needle-seat, syringe and valve-seals) cannot be covered by the warranty.

The warranty period for the deuterium lamp is six months from delivery date (see the label at the lamp cable). Removing this label automatically invalidates the warranty coverage. For lamps with timer (without the above label) the warranty period is 1000 operating hours.

The warranty does not extend to the flow cell.

The warranty coverage shall become invalid in any case identified as resulting from inappropriate use, service or the implementation of non-specified spare parts. Similarly, the warranty coverage shall be invalidated in the event of inappropriate shipment, packaging or failure to remove aggressive or damaging solvent residues.

1.3 How to Use This Manual

The layout of this manual is designed to provide quick reference to the appropriate sections, according to the operation required.

However, it is recommended that, before operating the **UVD 170S/340S**, the manual should be read thoroughly and completely in order to obtain a full understanding of the instrument.

At various points throughout the manual, messages of particular importance are indicated by the following symbols whose relevance is as follows:

Please note: Indicates general information to assist optimum performance to be obtained.

Important: Indicates that failure to take note of the accompanying information may result in damage to the instrument.

Warning: Indicates that failure to take note of the accompanying information may result in personal injury.

1.4 Intended Use of This Instrument

The **UVD 170S/340S** is a high-sensitivity UV-VIS diode array detector and is specifically intended for use only for **HPLC analysis** and only under the control of the CHROMELEON™ Data System.

Dionex shall not be liable for any damages, material or otherwise, which are caused by inappropriate or improper use of this device.

2 Installation

2.1 Positioning and Environment

The location of the instrument should conform to the following:

- stable and free of vibration
- free of large temperature variation and draughts
- away from direct sunlight
- capillary connections between the column and the flow cell should be of minimum length to avoid peak broadening due to excessive dead volume.

⚠ **Important:** Do not place any objects or stack additional instruments on top of the detector. The ventilation slits on top of the unit must remain free at all times.

2.2 Mains Connection

All units are generally factory set for operation at 230V. In the event that the mains supply varies from this, it is necessary to alter the setting of the voltage selector, located on the rear of the instrument, immediately above the mains socket (→ figs. 1 and 3). The alteration procedure is as follows:

- Switch off the unit and disconnect the power cable.
- Draw out the fuse cartridge using a small screwdriver (→ fig. 1),
- Using small pliers/tweezers to pull out the small voltage selection board from the power supply module.
- Place the board (writing facing up) under the required voltage selection, as shown in fig. 2.
- Turn the board so that the voltage selection can be seen, as shown in fig. 2.
- Adjust the plastic clip as shown in fig. 2 (without turning the board). Ensure that the clip locates in the notch on the board.
- Now, replace the voltage selection board all the way back into the power supply module (→ fig. 2).
- Finally, replace the fuse cartridge.

⚠ **Important:** Upon installation of the instrument for the first time, the earth connection and fuses should be checked.

🛈 **Please note:** For minimum interference effects, all components of the analysis system should be connected to the same mains output.

STOP **Warning:** Before attempting to alter the voltage selection or replace fuses, always ensure that the **power cable** is **disconnected**.

2.2.1 Fuse Replacement

- Switch off the unit and disconnect the power cable,
- draw out the fuse cartridge using a small screwdriver (→ fig. 1),
- replace fuses as appropriate.

⚠ **Important:** Only use fuses as indicated in fig. 1 (min. voltage 250 V) or those listed in the original parts list.

- If using US-type fuses, follow the procedure shown in fig. 1.
- Replace the fuse cartridge.

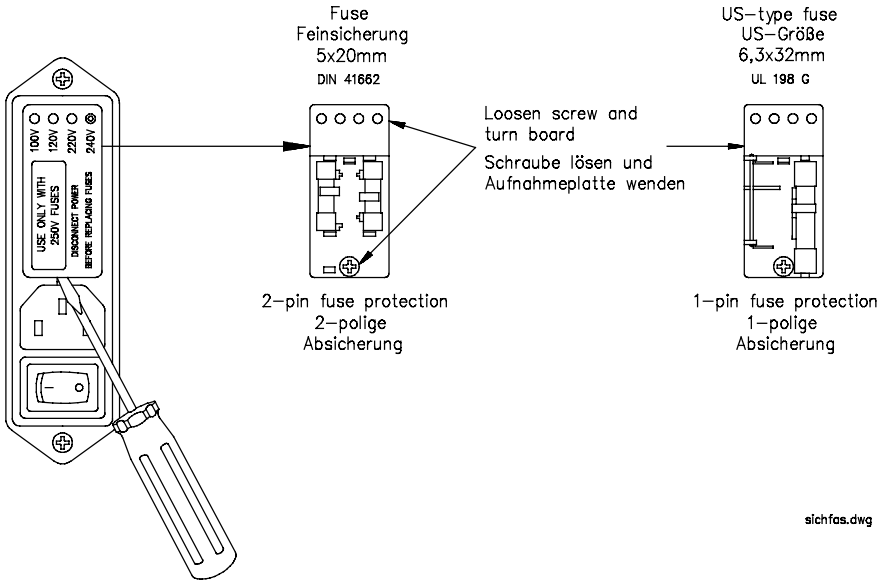

Fig. 1.: Removing the fuse cartridge from the power supply module

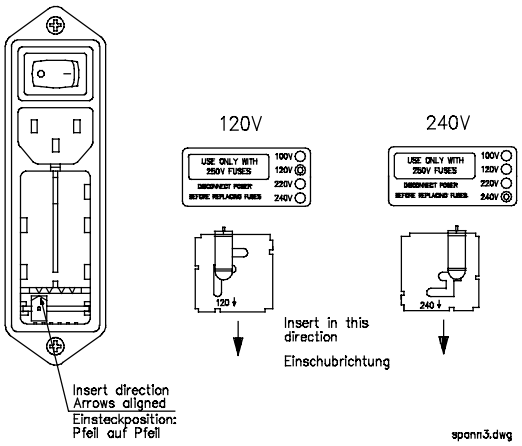

Fig. 2: Voltage selection

2.3 Fluidic Connections

The capillary connections of the **UVD 170S/340S** are located on the left side of the detector (→ fig. 6). The input capillary is marked by the black color. Connect this capillary to the column output.

Please note: In order to minimize peak-broadening effects due to dead-volume, it should be ensured that all fluidic connections between sample entry and detector are of minimum possible length.

Important: The max. pressure rating of the flow depends on the model (→ Technical Specifications, page 23). For the standard flow cell, the pressure rating is 100 bar (10,000kPa).

Important: The flow cell is primed with 2-propanol.

2.4 Rear Panel Connections

The **UVD 170S/340S** is controlled under the CHROMELEON™ data system via a specific PC-interface board. Data transfer is via a special cable (order no. 1310.1501) which is connected at the rear of the unit.

Important: Use only the original **UVD 170S/340S** connector cable and extension (order no. 1310.1502) from Dionex.

The Remote Input provides a digital interface that can be used in CHROMELEON™, e.g. to synchronize the Inject signal of an Autosampler (or manual injection valve) with the analysis start of the data system.

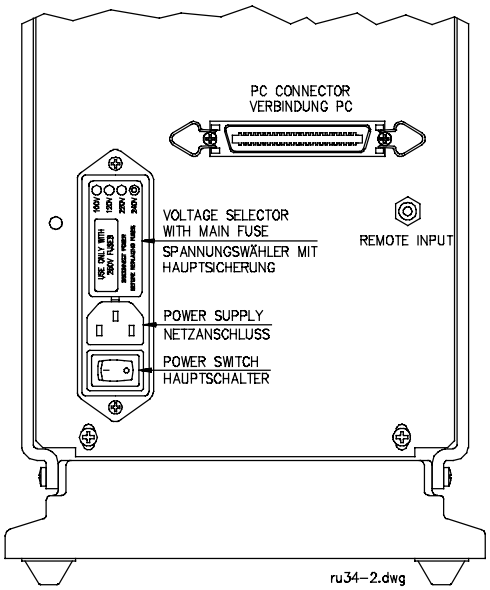

Fig. 3: Rear panel, UVD 170S/340S

2.5 Installation on the PC-Interface Board

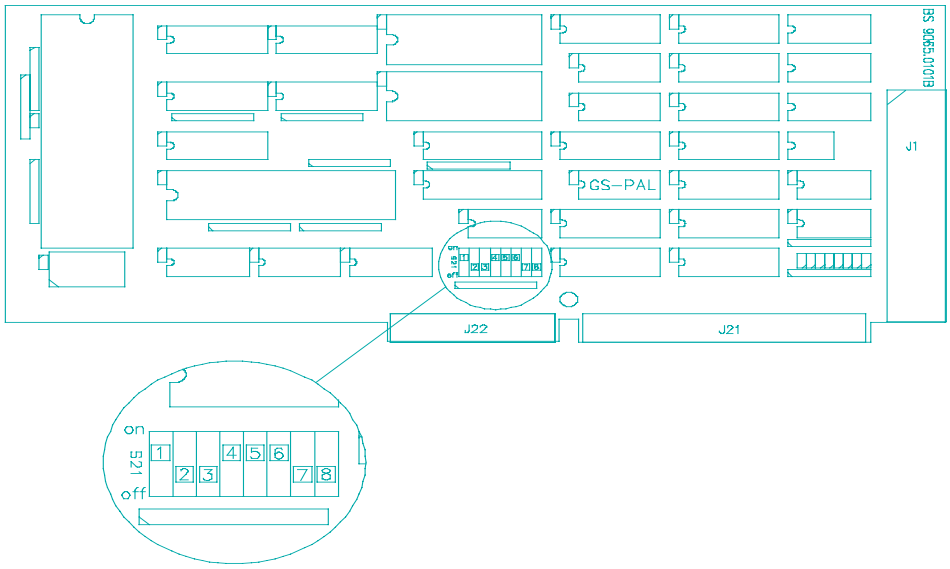

Fig. 4: Address selection on the M68-Interface board

For selection of the I/O-address, the board is fitted with a DIP-switch block (**D**ual **I**nline **P**ackage) as shown in fig. 4. The board occupies 4 addresses, starting at the selected base value which is factory set at 318H. Under normal circumstances, this value need not be changed unless operating in combination with network and/or other interface boards, the addresses of which should be confirmed before installation.

Warning: Ensure that the PC is off and the power cable disconnected before attempting installation.

Important: The interface board must be protected against static charge at all times. If difficulty is encountered fitting the board into the PC, please contact the Dionex Service.

Please note: The board can be inserted in an 8-bit or 16-bit slot.

On	1			4	5	6		
Off		2	3				7	8

On	4			20	40	80		
Off		8	10				100	200

An open switch (OFF) indicates a binary "1", while a closed switch (ON) indicates a binary "0". On the right, the values are converted into **hexadecimal** values. Determine the address by adding the values. The default setting of the **UVD 170S/340S** interface board therefore has the following base address:
8 + 10 + 100 + 200 = **318H (hexadecimal)**.

3 Overview

The **UVD 170S/340S** is a high-performance diode-array detector for HPLC detection in the UV/VIS wavelength range. The unit has been developed exclusively for operation under the CHROMELEON™ chromatography data system.

The **UVD 170S/340S** features:

- Powerful optics, combined with extremely low-noise electronics enable highest sensitivity.
- Simultaneous detection on 4 wavelengths, recording of 3D-data fields and the comprehensive data analysis capabilities within the CHROMELEON™ data system provide maximum analysis efficiency.

Please note: The model **UVD 170S** supports simultaneous detection on 4 wavelengths if operation is via CHROMELEON™ (from version 4.10). Recording 3D-fields is not possible with this model.

3.1 Principle of Operation

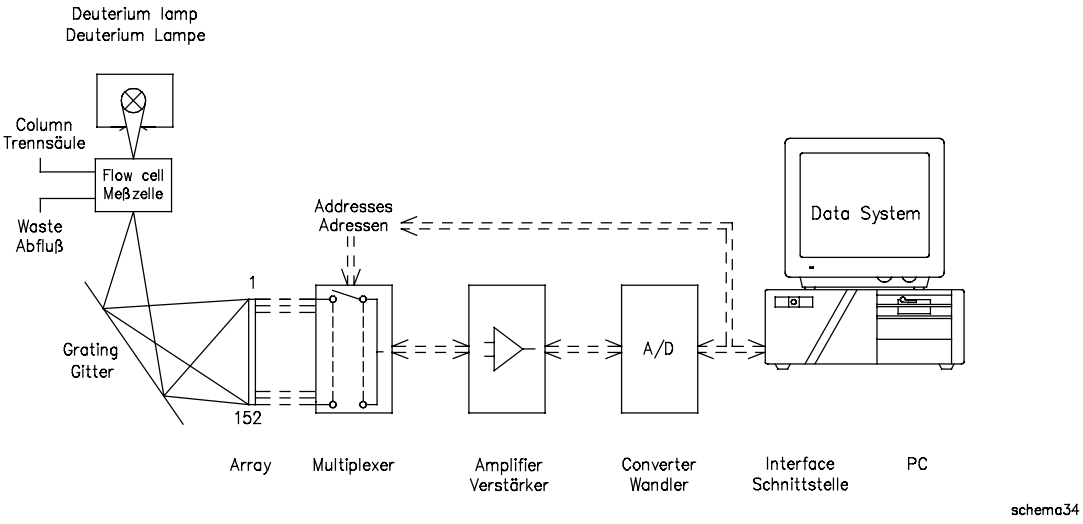

Fig. 5: Principle of operation UVD 170S/340S

4 Operation

The UVD 170S/340S detector is intended only for operation with the CHROMELEON™ data system. Stand-alone operation is not possible. Data transfer is performed digitally, via a special interface cable (→ section 2.4).

4.1 Switching the Unit On/Off

Having ensured all cable connections to the **UVD 170S/340S**, the unit can be switched on via the power switch on the rear of the unit.

Please note: The deuterium lamp is **not** automatically switched on. Lamp on/off is performed by CHROMELEON™. For optimum results, the lamp should be switched on at least 30 minutes prior to analysis.

Please note: After the Lamp off command, allow 5 minutes before switching the deuterium lamp on again. Otherwise, the lamp becomes too hot and could be damaged (message "Lamp too hot..."). In the event that the PC is switched off, or the connection cable to the **UVD 170S/340S** is disconnected, the deuterium lamp is automatically switched off.

Important: Prior to connecting or disconnecting the **UVD 170S/340S** cable to the PC, the unit must be switched off! Ensure that the connectors on the **UVD 170S/340S** and on the PC are inserted evenly and that they are correctly locked into place via the latching devices on both sides.

4.2 Status LED on the Front Panel

When the detector is switched on, the status LED on the front panel indicates the current status of the deuterium lamp.

LED	**Status D2-Lamp**
LED red	Instrument is switched on.
LED green	Deuterium lamp is switched on.
LED off	Instrument is switched off.

4.3 Installation and Operation within CHROMELEON™

4.3.1 Communication Port

The **UVD 170S/340S** is controlled via a special PC-interface board (→ section 2.4).

4.3.2 Required CHROMELEON™ Modules

To be able to control the detector **UVD 170S/340S** via CHROMELEON™, the corresponding CHROMELEON™ Control Option is required. For questions, please contact your Dionex sales representative.

4.3.3 Installation with the CHROMELEON™ Installation Tool

Proceed as follows to install the detector **UVD170S/340S** in the CHROMELEON™ Installation Tool:

- Start the CHROMELEON™ -Server and then the CHROMELEON™ Installation Tool (= Server Configuration).
- Select the timebase to which you want to assign the detector **UVD170S/340S**.
- Via the Edit menu or the menu of the right mouse button, choose "**Add Device...** ".
- Choose "**Dionex UVD170S**" or "**Dionex UVD340S**" from the displayed list. Confirm by pressing "**OK**".

The now displayed tab dialog boxes show the current configuration of your detector. Generally, these settings must not be changed. However, please check whether the settings correspond to your current installation environment. If necessary, change settings.

Tab Dialog Box "General"

Option	Description
Device Name	Instrument name under which the detector is listed in the installation environment (default: UV)
Port Address	I/O-Base address of the PC interface board (default: 318H)
Demo Mode	Deactivate the demo mode!

Tab Dialog Box "Signals"

Option	Description
UV_VIS_1	UVD 170S / UVD 340S
UV_VIS_2	UVD 170S / UVD 340S
UV_VIS_3	UVD 170S: from CHROMELEON™ v.4.10 / UVD 340S
UV_VIS_4	UVD 170S: from CHROMELEON™ v.4.10 / UVD 340S
3DFIELD	only UVD 340S

⚠ **Important:** Ensure that the check boxes of the required channels are activated. If not, these channels will not be available in CHROMELEON™.

Select the required signal, and press "Change" to view the following signal parameters:

Signal parameter	Description
Signal Name	Signal name
Unit	Signal unit of the recorded raw data
Factor	current amplification factor

Tab Dialog Box "Error Levels"

In this box you can view the classification of errors in certain error levels. The default settings must not be altered.

Tab Dialog Box "Inputs"

Option	Description
INPUT170	only UVD 170S
INPUT340	only UVD 340S

⚠ **Important:** Ensure that the check boxes corresponding to the remote inputs are activated. If not, these inputs will not be available in CHROMELEON™.

Finally, save the modified Server Configuration. Close the CHROMELEON™ Installation Tool.

4.3.4 Operation within CHROMELEON™

In CHROMELEON™, there are two principal modes of instrument operation:

- direct control via the toolbar and menu bar or via controls in the Control Panel
- control via time programs (PGM-file or command buttons)

The following signal-specific and global commands are available.

Signal-specific commands:

Signal type	Parameters
UV-channel	Step Average Wavelength Bandwidth Ref.Wavelength Ref.Bandwidth

Signal type	Parameters
3D-Field (only UVD 340S)	Min/Max Wavelength Bunch Width Step Ref.Wavelength Ref.Bandwidth

Global commands:

Lamp on/off Autozero Connect/Disconnect

For detailed information on controlling the detector via CHROMELEON™, refer to the CHROMELEON™ User Manual and context-sensitive online Help in CHROMELEON™.

4.3.5 Spectra Calibration under CHROMELEON™

Under CHROMELEON™, spectra calibration is performed automatically after each "Lamp on" or "Connect" command ("detector calibration"). The command "CheckWavelength" allows you to include the largest wavelength deviation of this calibration in the Audit Trail. A calibration is possible only when certain conditions are met:

- During calibration, the baseline must be sufficiently stable. This may not be the case e.g. when the solvent composition was modified or when there were air bubbles in the solvent.
- The solvent in the cell must not be fully absorbing in the wavelength range which shall be calibrated. This will be the case e.g. if the cell is filled with 96% hexane / 4 % ethyl acetate.
- Ensure for the calibration that the deuterium lamp is already warm because its spectrum changes much during the first minutes after switching on the lamp.

If these conditions are not met, the process will be interrupted with the corresponding error message. When the problem is solved, repeat the calibration using the command "Disconnect" first followed by "Connect.

To calibrate the detector, the transmission spectrum of the deuterium lamp is compared with that of the holmium oxide filter. With the resulting spectrum, the maxima are determined and compared with the holmium oxide values stated in the literature. If, for a maximum, a difference is detected between the measured and the known value, an interpolation is performed between this maximum and the two adjacent maxima to correct the wavelength allocation of the affected photodiodes. The spectra calibration can take up to 2 minutes. During this time, data acquisition is not possible.

5 Troubleshooting

Problem	Probable cause	Remedial action
Lamp is not switched on	Lamp is still too hot (CHROMELEON™ message: "Lamp too hot...")	Allow a delay of 5 minutes, then switch the lamp on again.
	Lamp cannot be switched on (CHROMELEON™ message: "Lamp On failed...")	Allow a delay of 5 minutes, then switch the lamp on again. If several attempts are unsuccessful, check the lamp and the connecting cable (see below).
	Connecting cable between UVD 170S/340S and PC not correctly installed	Connectors on the detector and the PC must be inserted evenly and locked into place with latching devices on both sides.
No function	Detector not connected to mains	Connect mains cable
	Detector not switched on	Switch on detector
	Fuse blown	Replace fuse
	Replaced fuse blows immediately	Call Dionex service
	Connecting cable between UVD 170S/340S and PC not correctly installed	Connectors on the detector and the PC must be inserted evenly and locked into place with latching devices on both sides.
No signal / irregular signal	Flow cell contaminated	Clean flow cell (→ section 6.3.4)
	Low transmission through mobile phase	Select alternative wavelength
		Check solvent for contaminants.
	Incorrect spectral range	Alter spectral range
	Faulty injection valve	Check fluidics
	Fault in diode array	Call Dionex Service
No signal / irregular signal	Lamp intensity too low	Change lamp
	M68 board defective	Check M68 board, replace
	Connecting cable between UVD 170S/340S and PC not correctly installed	Connectors on the detector and the PC must be inserted evenly and locked into place with latching devices on both sides.

Problem	Probable cause	Remedial action
Strong baseline drift	Insufficient warm-up time	Allow min. 30 min. warm-up
	Column contaminated	Rinse or replace column
	System not equilibrated	Continue to rinse system until equilibrated
	Unstable environment	Ensure constant temperature and humidity
	Solvent contaminated	Change solvent
	Flow cell contaminated	Clean flow cell (→ sec. 6.3.4)
	Lamp defective	Replace lamp
	Solvent reservoir is placed too low	Place reservoir on the same level as flow cell
High noise level	Solvent contaminated	Replace solvent
	Lamp aged	Replace lamp
	Gas bubbles in system	Prime system
	Pressure pulsation from pump	Check and prime pump
	Solvent reservoir is placed on the floor	Place reservoir on the same level as flow cell
	Wrong wavelength	Select suitable wavelength
	Connecting cable between UVD 170S/340S and PC not correctly installed	Connectors on the detector and the PC must be inserted evenly and locked into place with latching devices on both sides.
Peak broadening	Capillaries too long or has excessive internal diameter	Shorten or replace for narrower capillaries
	Column overloaded, contaminated or aged	Rinse or replace column
	Solvent aging	Replace with fresh solvent
Analysis is not reproducible	Sample is unstable	Use fresh sample or alter conditions
	Irreproducible gradient	Change gradient program / check pump
	Unstable environment	Ensure constant temperature and humidity
	Column overloaded, contaminated or aged	Rinse or replace column

CHROMELEON™ Error Messages

A list of CHROMELEON™ error messages is included in the CHROMELEON™ Installation program on the tab dialog box "Error Levels". See also section 4.3.3.

6 Maintenance

6.1 General Information

The **UVD 170S/340S** is constructed only from the highest quality components, thus keeping maintenance requirements to a minimum. In general, the unit should be kept clean. The painted surfaces are resistant to solvents as well as weak acid or alkaline solutions. If solvents or other liquids should be spilled on the surface, these should be cleaned off immediately, using a lint-free cloth or tissue (avoid rubbing).

The following sections describe all maintenance work which can be carried out by the user. Any other service or maintenance work should be carried out only by a qualified Dionex personnel.

In the event that the **UVD 170S/340S** should require shipment for the purpose of service, this should be only in the original packing. If no original packing is available, this can be acquired from Dionex or your local Dionex representative.

Please note: The warranty coverage shall become invalid in any case identified as resulting from inappropriate use, service or the implementation of non-specified spare parts. Similarly, the warranty coverage shall be invalidated in the event of inappropriate shipment, packaging or failure to remove aggressive or damaging solvent residues.

All user serviceable parts (i.e. lamp and flow cell) are accessible via a removable panel, located on the left side of the unit (→ fig. 6). To open, press in and turn the knurled screw 90° anti-clockwise. The panel may now be opened and removed. The lamp and flow cell are now clearly visible.

Warning: During operation, the lamp becomes extremely hot and remains so for some time after the unit is switched off. Therefore, to avoid possible injury, always allow sufficient time for lamp cooling before attempting any maintenance.

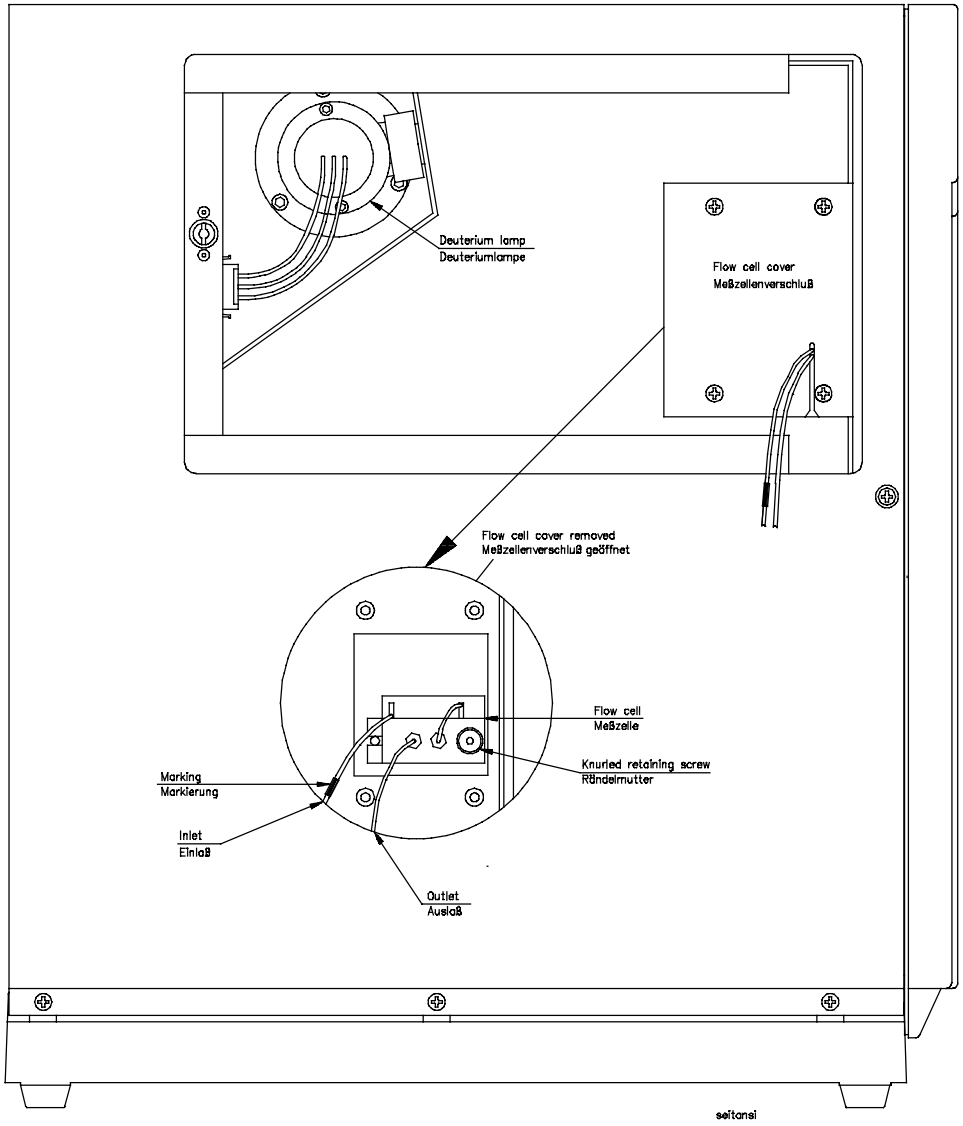

Fig. 6: Side view, UVD 170S/340S (side panel open)

6.2 Lamp

⚠ **Important:** Use only the original Dionex deuterium lamp. Using third party parts may damage the instrument; and the warranty coverage shall become invalid.

6.2.1 Lamp Removal

- If the **UVD 170S/340S** is still connected to CHROMELEON™, first terminate communication using the Disconnect command in CHROMELEON™ (→ CHROMELEON™ manual).
- Switch off power to detector and remove mains connection.
- Open and remove the side panel (see above). Do not bend the teflon capillary.
- Wait until lamp has cooled down!
- Disconnect the lamp by gently pressing either side of the locking plug and pulling out.
- Undo and remove the two lamp retaining screws (using a 2.5mm Allen-key) and carefully remove the lamp. The Allen key is contained in the Accessories.

STOP **Warning:** During operation, the lamp becomes extremely hot and remains so for some time after the unit is switched off. Therefore, to avoid possible injury, always allow sufficient time for lamp cooling before attempting any maintenance.

6.2.2 Lamp Replacement

- Insert the new lamp, aligning the notch on its base with the alignment pin of the mounting and replace the retaining screws. **No** additional alignment is required.

⚠ **Important:** Avoid touching the glass tube of the lamp.

- Reconnect cable.
- Replace the side panel.
- The detector may now be switched on and communication with CHROMELEON™ restored using the Connect command.

Please note: A new lamp must be "run in" for at least 24 hours prior to the first analysis. During this period, there may be strong baseline fluctuations and increased noise.

6.3 Flow Cell

⚠ **Important:** The flow cells of the detectors **UVD 170S/340S** and **UVD 160S/320S** are **not** interchangeable.

⚠ **Important:** The resistance of the flow cell depends on the solvents. This applies particularly to solvents which can form active radicals or peroxides.

6.3.1 Flow Cell Versions

The following flow cells are available for the **UVD 170S/340S** detector:

- standard flow cell (order no. 5065.1810)
- standard flow cell with PEEK capillaries (order no. 5065.1820)
- preparative flow cell (order no. 5065.1800P)
- micro glass capillary flow cell (order no. 5065.1800M)

Standard Flow Cell (Order no. 5065.1810)

The standard flow cell of the **UVD 170S/340S** has a volume of 10µl and a path length of 9mm. The flow cell body is composed of PEEK with quartz windows and is thus 100% biocompatible. The inlet capillary is factory-fitted with a single-part, handtight fitting. The outlet is a PEEK capillary. Optionally, a PEEK capillary can be used for the inlet. The maximum pressure rating of the standard flow cell is 100bar (10,000kPa).

⚠ **Important:** When cleaning the flow cell (→ section 6.3.4), please note that only the lens retaining plates and the lenses may be removed. **Do not** attempt to remove the flow cell body from its housing! Clean the flow cell body together with the housing.

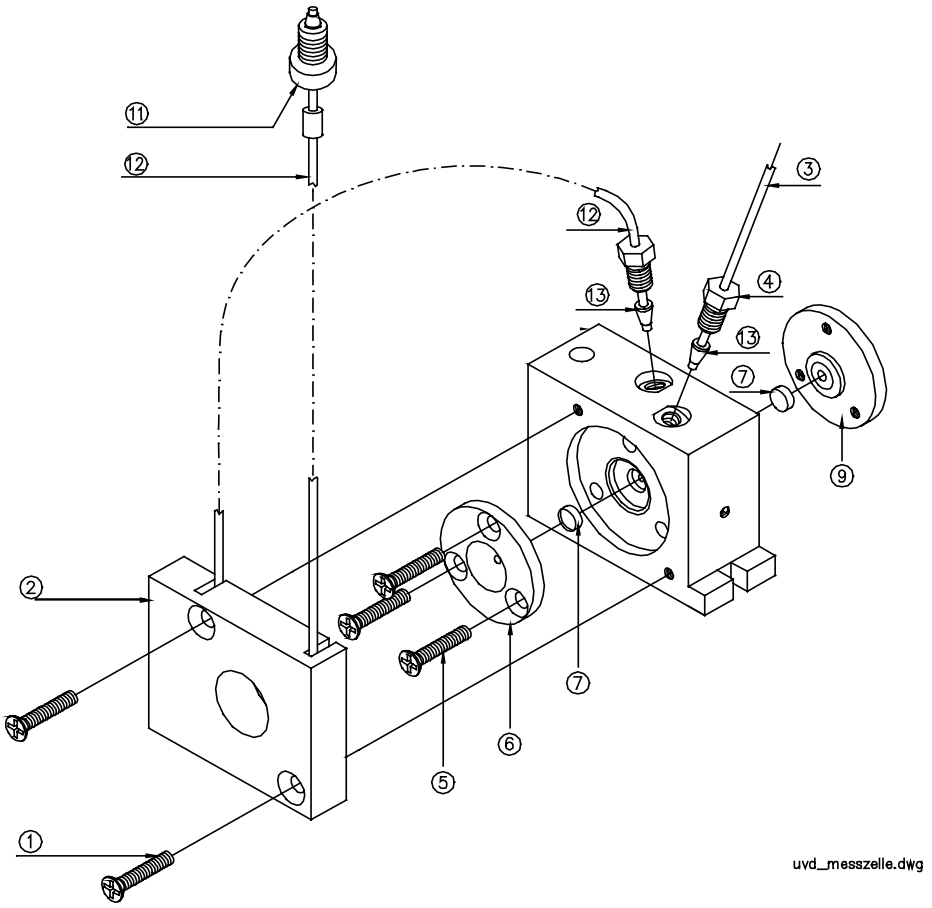

Fig. 7: Standard Flow Cell

No.	Description	Order No.
1	Screw M3x12 DIN965	included in 5065.1815
2	Heat exchanger	included in 5065.1815
3	PEEK tubing ID=0.5mm	2251.6002
4	PEEK fitting screw 1/16", 15 mm	included in 5065.1815
5	Screw M3x23 DIN 965	included in 6065.1800
6	Lens retaining plate1	5065.1811
7	Quartz lens	1343.0511
9	Lens retaining plate2	5065.1812
11	Single-part hand-tight fitting	included in 5065.1815
12	Capillary tube 1,58x0,25 ID	included in 5065.1815
13	PEEK double ferrule	2261.0122

Order No.	Description
5065.1815	Heat exchanger, flow cell, analyt., confg. including: Heat exchanger PEEK fitting screw 1/16", 15 mm Capillary tube 1,58x0,25 ID Single-part hand-tight fitting Screw M3x12 DIN965 (2 pcs).
6065.1800	Repair kit, flow cell, analyt. including: Screw M3x23 DIN 965 (3 pcs.), Quartz lens (2 pcs.) Lens retaining plate1 (1 pc.) Lens retaining plate 2 (1 pc.)

Standard Flow Cell with PEEK Capillaries (Order no. 5065.1820)

The standard flow cell with PEEK capillaries has a volume of 10µl and a path length of 9mm. Inlet and outlet are PEEK capillaries. The flow cell is 100% biocompatible. The maximum pressure rating of the PEEK flow cell is 100bar (10,000kPa).

⚠ **Important:** When cleaning the flow cell (→ section 6.3.4), please note that only the lens retaining plates and the lenses may be removed. **Do not** attempt to remove the flow cell body from its housing! Clean the flow cell body together with the housing.

Preparative Flow Cell (Order no. 5065.1800P)

The preparative flow cell for the **UVD 170S/340S** has a volume of 6µl and a path length of 2mm. The cell body is composed of PEEK and is thus 100% biocompatible. The maximum pressure rating of the flow cell is 100bar (10,000kPa).

⚠ **Important:** When cleaning the flow cell (→ section 6.3.4), please note that only the lens retaining plates and the lenses may be removed. **Do not** attempt to remove the flow cell body from its housing! Clean the flow cell body together with the housing.

Micro/Glass Capillary Flow Cell (Order no. 5065.1800M)

The micro flow cell has a volume of 0.14 µl at a path length of 8 mm. The flow cell body is 100 % biocompatible. The maximum pressure rating of the micro flow cell is 400bar (40,000kPa).

⚠ **Important:** Please note that it is **not possible to disassemble the micro flow** cell for cleaning. Clean the micro flow cell by flushing with 0.2M nitric acid, followed by water and methanol.

6.3.2 Flow Cell Removal

- If the **UVD 170S/340S** is still connected to the data system, first terminate communication using the Disconnect command in CHROMELEON™ (→ CHROMELEON™ manual).
- Switch off the detector. Disconnect the power cord.
- Open and remove the side panel. Do not bend the Teflon capillary.
- Undo the 4 retaining screws and remove the flow cell cover.
- Undo the knurled flow cell retaining screw and carefully draw out the flow cell assembly.

Warning: During operation, the lamp becomes extremely hot and remains so for some time after the unit is switched off. Therefore, to avoid possible injury, always allow sufficient time for lamp cooling before attempting any maintenance.

6.3.3 Flow Cell Replacement

⚠ **Important:** The flow cells of the detectors **UVD 170S/340S** and **UVD 160S/320S** are **not** interchangeable.

- Insert the new/cleaned flow cell, aligning the notch with the alignment pin of the mounting. **No** further alignment is necessary.
- Replace the flow cell cover.
- Replace the side panel.
- The detector may now be switched on and communication with CHROMELEON™ restored using the Connect command.

6.3.4 Flow Cell Cleaning

⚠ **Important:** In contrast to the other flow cell versions, it is **not possible** to disassemble the micro flow cell for cleaning. Clean the micro flow cell by flushing with 0.2M nitric acid, followed by water and methanol.

To clean the flow cell (except the micro flow cell), proceed as described below. The numbers in parentheses refer to the corresponding parts as illustrated in fig. 7:

- Undo and remove screws (1) and remove the heat exchanger (2).
- Undo and remove screws (5) and carefully remove the lens-retaining plates (6 and 9) and lenses (7).
- To avoid scratching the lenses, these should be placed on a clean, lint-free cloth or tissue.
- Clean the lenses using a soft, lint-free cloth or tissue and an optical cleaning solution.
- Scratched or damaged lenses must be replaced.

⚠ **Important:** **Do not** attempt to remove the flow cell body (8) from its housing (10)!

- Cleaning of the flow cell body together with its housing may be carried out by rinsing with water, iso-propanol or methanol or by placing the entire assembly into an ultrasonic bath.

⚠ **Important:** Never attempt to remove dirt from the flow cell body using a spatula, tweezers or any other objects as this may lead to irreparable damage.

- Replace the lenses onto either side of the flow cell body so that the **flat faces** are on the **inside**.
- Replace the retaining plates (6 and 9) taking care to tighten the screws (5) evenly and without excessive force.
- Check the flow cell for leakage **before** replacement into the unit, tightening screws (5) if necessary.

7 Technical Specifications

Optics:	Single beam principle with simultaneous measurement across the photodiode array.
Light source:	Deuterium lamp
Wavelength range:	200nm - 344nm (UV-range) 345nm - 595nm (VIS-range)
Pixel bandwidth:	1.9nm (UV-range) 3.3nm (VIS-range)
Wavelength accuracy:	± 0.75nm (UV-range) ± 1.5nm (VIS-range)
Noise:	< ± 0.8 x 10^{-5}AU, after 3h warm-up at 254nm, time step 1sec., empty flow cell
Drift:	< 5 x 10^{-4}AU/h, after 3h warm-up at 254nm, empty flow cell
Flow cell volume:	Standard flow cell: 10µl, 9mm path Standard flow cell/PEEK capillaries: 10µl, 9mm path Preparative flow cell: 6µl, 2mm path Micro capillary flow cell: 0.14µl, 8mm path
Flow cell pressure rating:	Standard flow cell: 100bar (10,000kPa) Standard flow cell/PEEK cap. 100bar (10,000kPa) Preparative flow cell: 100bar (10,000kPa) Micro capillary flow cell: 400bar (40,000kPa)
Measuring range:	0AU to 2AU
Time constant:	0.1sec
PC-connection:	Proprietary cable
Data channels (UVD 340S):	4 (+3D-field with or CHROMELEON™ control option)
Data channels (UVD 170S):	4 with CHROMELEON™ as of version 4.10
Wetted parts:	PEEK, quartz
Power requirements:	115/230V ± 10%, 50/60Hz
Power consumption:	50VA
Dimensions:	210 x 480 x 430mm (w x h x d)
Weight:	20kg
Operating conditions:	Temperature: 10°C to 35°C Air humidity: 40% to 85%

Technical information: October 1998, subject to alteration without notice!

8 Accessories and Spare Parts

Spare parts and accessories are always maintained at the latest technical standard. Therefore, order numbers are subject to alteration. However, updated parts will always be compatible with the parts they replace.

8.1 Standard Accessories UVD 170S/340S

The following standard accessories (order no. 5065.9000) are included in the shipment:

Order No.*	Description	Quantity
	Fuse, 1A, 5 x 20mm (available as spare part under order no. 6065.9002 Kit Fuses UVD, see section 8.2).	2
1272.0003	Fuse, 2A, 6.3 x 32mm (for 115V only)	1
1310.1501	Interface cable, UVD 170S/340S	1
1310.7031 or 1310.7032	Power cable (220V), 3 x 0.75mm², 2m Power cable (115V), 3 x AWG18, 2m (depending on country)	1
2146.1051	Spanner ¼“ x 5/16“	1
2146.2625	Allen-key, 2.5mm	1
2261.0121	PEEK fitting screw 1/16“, 15 mm	2
2261.0122	PEEK double ferrule	2
2309.1100	Accessories container	1
6007.9100	Silicon tubing (2.8 x 1.3), 3m	1
8005.9001A	Connector cable, remote input/pressure output	1

* The order number always refers to the packing unit. For further information please contact your Dionex sales representative.

8.2 Spare Parts

Order No.*	Description
1343.0511	Quartz lens UVD170S/340S, standard flow cell
2101.0303	M3 knurled flow cell retaining screw
2200.5502	Single-part, hand-tight fitting
2251.6002	PEEK capillary tube, 1/16“x0.50mm, 1m
2261.0121	PEEK fitting screw 1/16“, 15 mm
2261.0122	PEEK double ferrule
5053.1204	D_2 lamp
5065.1800P	Flow cell UVD170/340, 6 µl, preparative, complete
5065.1800M	Micro/glass capillary flow cell, complete
5065.1810	Flow cell UVD170/340, standard, biocomp., 10µl, complete
5065.1811	Lens retaining plate1
5065.1812	Lens retaining plate2

Order No.*	**Description**
5065.1815	Heat exchanger, flow cell, analyt., confg. including: Heat exchanger PEEK fitting screw 1/16", 15 mm Capillary tube 1,58x0,25 ID Single-part hand-tight fitting Screw M3x12 DIN965 (2 pcs).
5065.1820	Standard flow cell UVD170/340, 10 µl, PEEK capillaries, complete,
6065.1800	Repair kit, flow cell, analyt. including: Screw M3x23 DIN 965 (3 pcs.), Quartz lens (2 pcs.) Lens retaining plate1 (1 pc.) Lens retaining plate2 (1 pc.)
6065.9001	UVD 340S / 170S Repair Kit Quartz lenses (2 pcs) PEEK capillary tubing 1/16", 0.50 mm (2 m) PEEK fitting screws 1/16", 15 mm (2 pcs) PEEK double ferrule (2 pcs) deuterium lamp D_2 (2 pcs)
6065.9002	Kit Fuses UVD including: Fuse 0.80A, medium-slow, 5x20 mm (1pc) Overload fuse 1A, slow, 5x20 mm, (2 pcs) Overload fuse 2A, slow, 5x20 mm (2 pcs)
9365.0001B	M68-PC-Interface board

* The order number always refers to the packing unit. For further information please contact your Dionex sales representative.