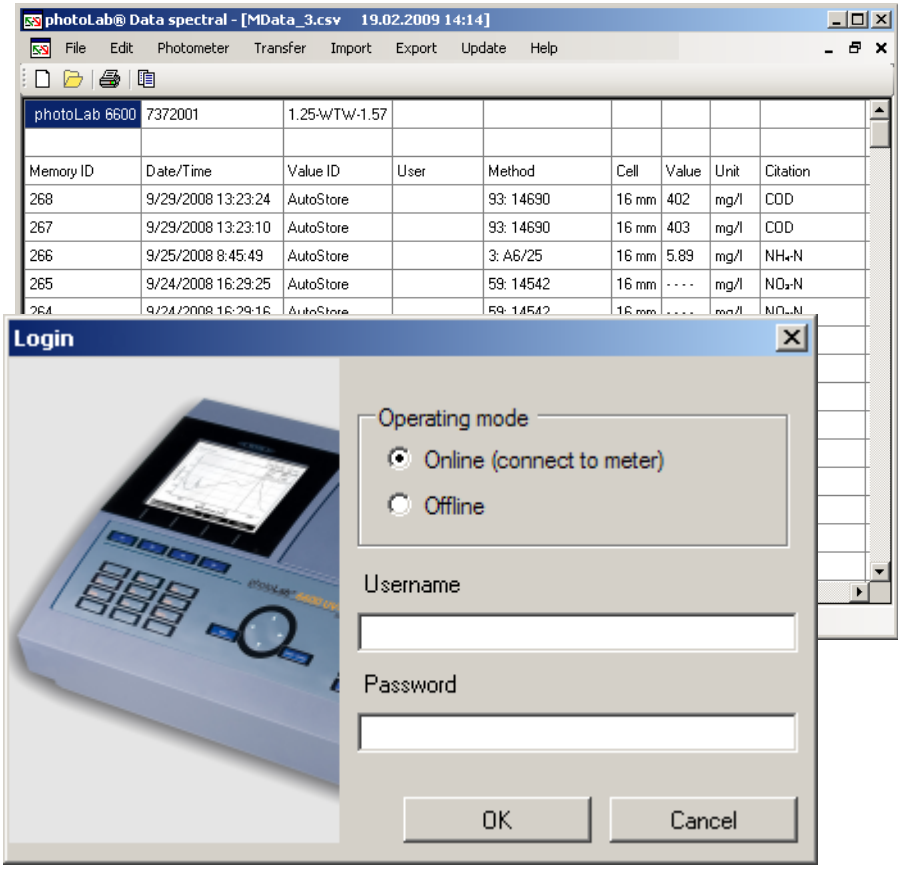


OPERATING MANUAL

ba75840e04 04/2017

photoLab® Data *spectral*

PC SOFTWARE FOR PHOTOLAB® 6000 / 7000 / SPECTROFLEX SERIES

WTW

a xylem brand

photoLab® Data *spectral* - Contents

1 Overview

Functions

The photoLab® Data *spectral* program is used for the simplified management and processing of photometer data and for direct data exchange between the photometer and PC.

You can:

- Display data
  - Open and display files stored on the PC (*File*, see section 5)
  - Import and display data from the photometer (*Import*, see section 5)
- Transmit data
  - from the photometer to a PC (*Transfer*, see section 6)
  - Transmit data from the PC to a photometer (*Transfer*, see section 6)
- Export data Export data to other data formats in order to process, evaluate or graphically display the data with other programs (*Export*, see section 6)

The data cannot be processed in the photoLab® Data *spectral* program.

Photometer

The photoLab® Data *spectral* program recognizes the following photometers:

- Spectrophotometers of the photoLab® 6000 / 7000 series
- Spectrophotometers of the spectroFlex series

Data types

You have access to the following data types with the photoLab® Data *spectral* program:

- Measurement datasets
- Spectra
- Kinetic records
- AQA records (AQA1, AQA2, MatrixCheck)
- Methods (concentration, multi wavelengths)
- Profiles (spectra, kinetics)
- OptRF profiles
- Records of the user calibrations
- Records of IQ-LabLink jobs for data synchronization with the IQ SENSOR NET

User management

If the user management is enabled (on the photometer), you can log on to the photometer with your user name and password via the photoLab® Data *spectral* program. Write permission on the photometer is restricted according to the user group.

User group	Write permission on the photometer
ADMINISTRATOR	Unrestricted
USER	Restricted (only stored measurement data, method data, profiles, spectra, kinetics)
GUEST	none

Alternative data exchange

The backup of photometer data as well as a software and methods update is also possible via a USB memory device connected to the photometer.

2 Installation

2.1 PC system requirements

- Windows® compatible PC with a Pentium® or compatible processor (processor capacity depending on operating system)
- Free USB connection at the PC or a USB hub
- Operating system Microsoft® Windows® 7 or Windows® 8
- Synchronisation software:
  - Microsoft® Mobile Device Center for Windows® 7 or Windows® 8

The programs and notes on installation are given under www.microsoft.com.

2.2 Installation under Windows®

Installing the photoLab® Data *spectral* program

1	Insert the installation CD for the photoLab® Data *spectral* program in the CD-ROM drive.
2	Call up the Windows® Explorer.
3	In the Windows® Explorer, select the CD-ROM drive.
4	In the "software" directory, execute the installation file for the required language.
5	Follow the instructions of the setup program. The program is installed.

3 Connecting the photometer to the PC

A USB cable (type A - type B) is required for the connection.

Proceed as follows:

1	Connect the photometer to the power supply.
2	Switch on the PC and log in if necessary.
3	Connect the photometer to the PC with the aid of the USB cable. The connected instrument is automatically recognized (see section 4.1).
4	Start the photoLab® Data *spectral* program.

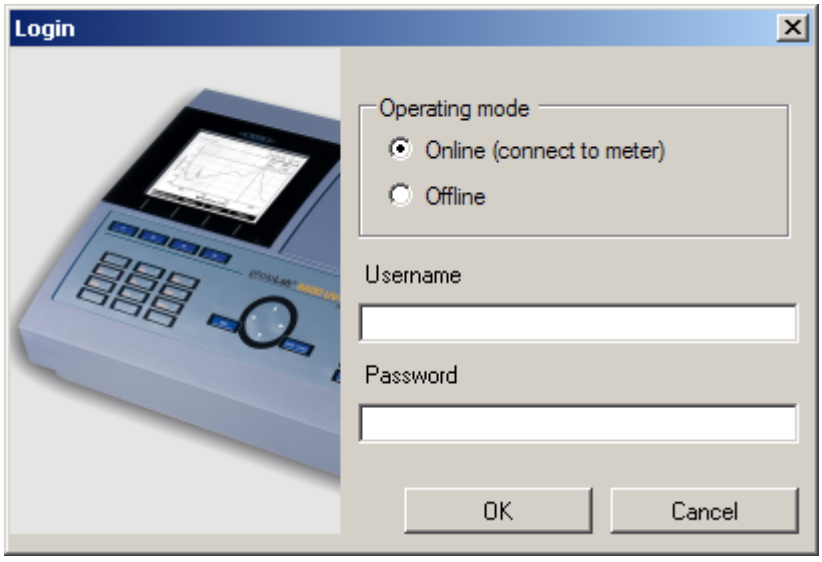
As soon as a mobile instrument is connected to the PC under Windows®, the recognition of the instrument starts automatically.

4 Running photoLab® Data *spectral*

4.1 Starting photoLab® Data *spectral*

If you want to start the program without a connected photometer or restart it, you can start the photoLab® Data *spectral* software via the Windows® start menu or the icon on the desktop.

1	In the Windows® start menu, start the photoLab® Data *spectral* software (Start / Programs / WTW / photoLab® Data *spectral*). The *Login* window opens.



In the *Login* window, first determine in which operating mode you want to work with the program:

Operating mode

Online	The connection to the photometer is established. The data exchange between the photometer and PC is enabled. If the user management function is activated in the photometer, a *User name* stored in the photometer with the relevant *Password* has to be entered. Users of the user group, *GUEST* cannot transmit data to the photometer.
Offline	The connection to the photometer is not established. You can open, print and export to other file formats (on the PC) the files stored on the PC.

4.2 Working online [*Online (connect to meter)*]

1	photoLab® Data *spectral* has been started, the *Login* window is open. Select the Online operating mode in the *Login* window.
2	If the user management function is switched on at the photometer: In the *User name* field, enter a user name that is stored in the photometer. In the *Password* field, enter the respective *Password*. The *User name* appears in the printout.

Write permission with photoLab® Data *spectral* on the photometer is restricted according to the user group.

3	Start the photoLab® Data *spectral* program in the selected operating mode with OK. The photoLab® Data *spectral* main window opens with an empty table.

Here you can

- Import and display files from the photometer (see chapter 5 IMPORTING / OPENING PHOTOMETER DATA)
- Export spectrum data or kinetic recordings (see chapter 8 EXPORTING SPECTRA OR KINETIC RECORDS).
- Transfer data between the photometer and PC (see chapter 6 DATA TRANSFER).

4.3 Working offline (*Offline*)

1	photoLab® Data *spectral* has been started, the *Login* window is open. Select the *Operating mode Offline* and confirm with the OK button. It is not required to enter the *User name* and *Password*. If a *User name* is entered it will appear in the printout. The photoLab® Data *spectral* main window is open.

Here,

- Files stored on the PC can be opened and displayed (see section 5 IMPORTING / OPENING PHOTOMETER DATA)

- Export spectrum data or kinetic recordings
  (see chapter 8 EXPORTING SPECTRA OR KINETIC RECORDS).

5 Importing / opening photometer data

With the photoLab® Data *spectral* software, you can display photometer data on the meter or PC:

- User-defined methods (concentration, multi wavelengths)
- Profiles (spectra, kinetics)
- Datasets from the measurement data memory (internal folder Data B) (measurements of the concentration, absorbance, transmission, multi wavelengths and OptRF)
- Datasets from the current internal memory
- Spectra
- Kinetic records
- AQA records (AQA1, AQA2, MatrixCheck)
- Records of user calibrations
- Records of IQ-LabLink jobs for data synchronization with the IQ SENSOR NET

Open file

You can work online or offline in order to display photometer data from the PC (see section 4.2).
The respective functions are available in the *File* menu.

1	In the photoLab® Data *spectral* main window, open the *File* menu. The Windows® dialog box *Open* pops up.
2	Select the required directory and file. The file is loaded and displayed as a table.

Importing data

In order to directly display in the photoLab® Data *spectral* program data from the photometer, the PC must be online and connected to the photometer (see section 4.2).
The respective functions are available in the *Import* menu.

1	In the photoLab® Data *spectral* main window, open the *Import* menu.
2	Select the required data type in the *Import* menu. The file is loaded and displayed as a table.

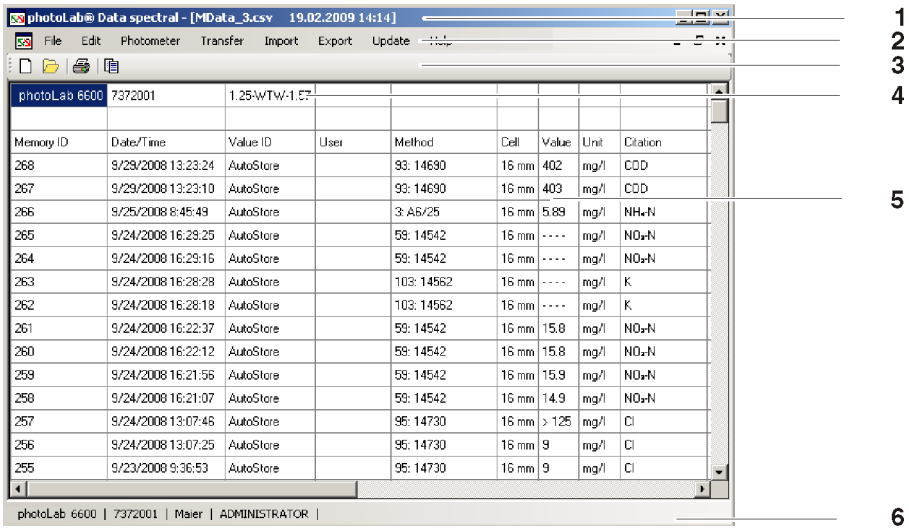
You can carry out the following actions with the displayed file:

- Print (see section 9)

- Export (see section 8)
- Highlight individual table cells and copy them to the clipboard

The functions, *Print* and *Export* can be carried out for the datasets displayed in the main window.

Example Measurement data of concentration measurements:



1	**Title bar with file name and date created**
2	**Menu line**
3	**Tool bar** *New*: Open new table sheet *Open*: Open file (on PC) *Print*: Print file on standard printer *Copy*: Copy highlighted table cell(s) to clipboard.
4	**Information on measurement data** Photometer type, photometer series number, more information depending on data type
5	**Datasets** Table cells for the displayed datasets with header
6	**Status line with current information** Photometer type Photometer series number User name User group (*ADMINISTRATOR*, *USER*, *GUEST*)

6 Data transfer

Measurement data are stored in the photometer as a file in *.csv format. This data can be transferred as a file in *.csv format from the photometer to the PC by just a mouseclick (see section 6.1). All files in *.csv format can be processed with suitable programs such as LIMS or Microsoft® Excel®.

To facilitate the processing on the PC of the measurement data stored on the photometer, we recommend checking the current setting for the decimal separator used (comma or dot) and, if necessary, adjust it to the requirements of your PC program.

The data transfer is used to synchronize the data stored on the PC and photometer and can be done in either direction:

- From photometer to PC
  (see section 6.1 DATA TRANSFER FROM THE PHOTOMETER TO THE PC).
- From PC to photometer
  (see section 6.2 DATA TRANSFER TO THE PHOTOMETER).

The data exchange always takes place from the same menu window to make working easy. Only the type of the file and data changes depending on the selection and is displayed in the title bar of the window.

If the data transfer is restricted due to access rights, the blocked functions cannot be carried out.
The respective buttons are grayed.

With the appropriate authorization, you can also delete data on the photometer and PC.

6.1 Data transfer from the photometer to the PC

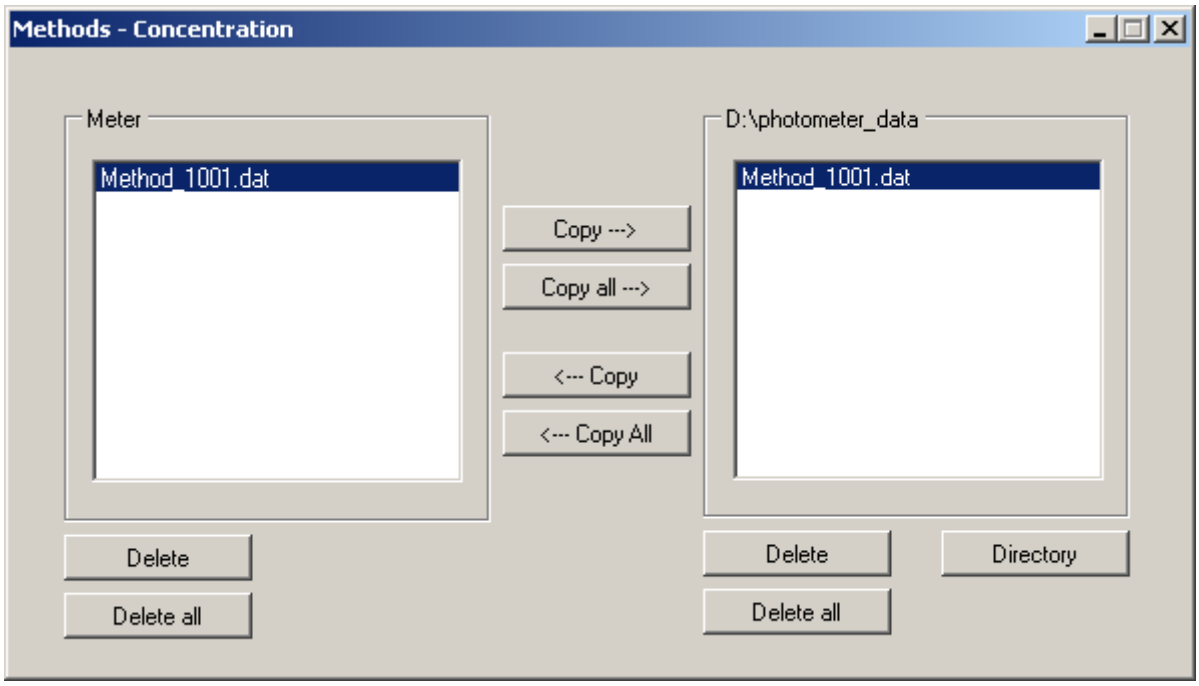
With the photoLab® Data *spectral* software you can transmit to the PC the following datasets stored in the photometer:

- User-defined methods (concentration, multi wavelengths)
- Profiles (spectra, kinetics)
- Datasets from the measurement data memory (internal folder Data B) (measurements of the concentration, absorbance, transmission, multi wavelengths and OptRF)
- Measurement datasets from the current internal memory
- Spectra
- Kinetic records
- OptRF profiles
- AQA records (AQA1, AQA2, MatrixCheck)
- Records of user calibrations
- Records of IQ-LabLink jobs for data synchronization with the IQ SENSOR NET

The transmission of photometer data to the PC is started in the *Transfer* menu:

1	In the photoLab® Data *spectral* program, open the *Transfer* menu.
2	Select the required data type in the *Transfer* menu. The data transfer window for the selected data type pops up.
3	If necessary, select a different storage directory with the *Directory* button.
4	Carry out the copy functions for the data transfer. If necessary, erase data stored on the photometer or PC.

Example Data transfer of user-defined methods for concentration measurements:



Function of the buttons

Directory	Opens the directory selection dialog box. Here you determine the target directory on your PC.
Copy ---> *Copy all --->*	Copies a selected individual file or all files of the selected data type from the photometer into the selected directory on the PC.
<--- Copy *<--- Copy All*	Copies a selected individual file or all files of the selected data type from the PC to the photometer (see section 6.2 DATA TRANSFER TO THE PHOTOMETER).
Delete *Delete all*	Deletes a file or all files of the selected data type on the selected device (photometer or PC).

6.2 Data transfer to the photometer

With the photoLab® Data *spectral* software, you can copy to the photometer the following data stored on a PC.

- User-defined methods (concentration, multi wavelengths)
- Profiles (spectra, kinetics)
- Spectra
- Kinetic records
- OptRF profiles

Thus you can transfer to other photometers user-defined methods that were determined on one photometer.

Spectrum measurement data and kinetic recordings can be copied back to the photometer to use the photometer functions for spectra or the evaluation of measurement data.

In order to transfer data to the photometer you need to have user rights of the user group, *ADMINISTRATOR* or *USER* (see photometer operating manual).

The data transfer from the PC to the photometer is started in the *Transfer* menu:

1	In the photoLab® Data *spectral* program, open the *Transfer* menu.
2	Select the required data type in the *Transfer* menu. The data transfer window for the selected data type pops up.
3	If necessary, select a different storage directory with the *Directory* button.
4	Carry out the copy functions for the data transfer. If necessary, erase data stored on the photometer or PC.

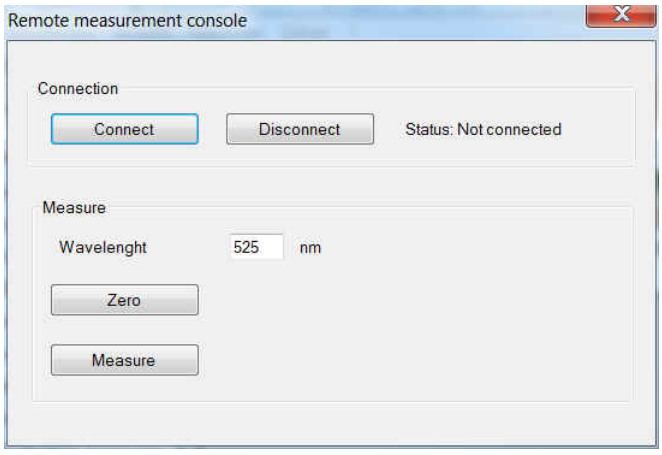
7 Remote functions

7.1 Remote control

The spectrophotometers of the photoLab® 6000 / 7000 series have a programming interface enabling the instruments to be operated by remote control with the photoLab® Data *spectral* program.

In the *Remote* / *Measuring* menu, there are some functions for remote measuring:

1	In the photoLab® Data *spectral* program, open the *Remote* menu.
2	In the *Remote* menu, select the item, *Measure*. The window *Remote measurement console* pops up.



3	Select *Connect*. The status changes to *Remote*.
4	Now you can set the wavelength for measurements on the photometer and carry out zero measurements and absorbance measurements.

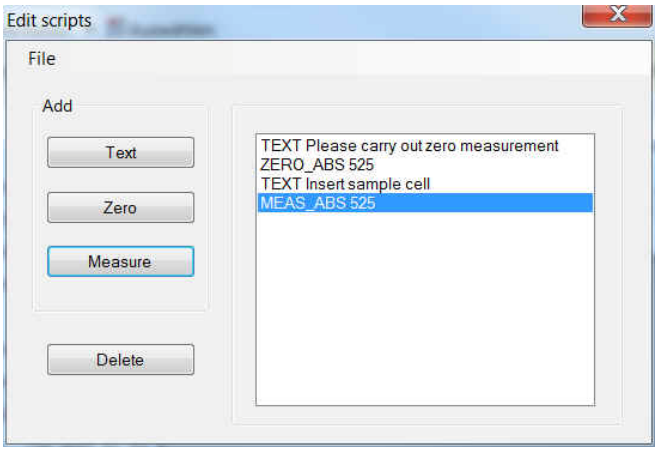
More information on the use of the programming interface is available on request from the manufacturer.

7.2 Editing scripts

The spectrophotometers of the photoLab® 6000 / 7000 series can process a script file stored on a USB flash drive.

Some functions that can be used to create such a script for the photometers are in the menu *Remote* / *Edit scripts*:

1	In the photoLab® Data *spectral* program, open the *Remote* menu.
2	In the *Remote* menu, select the item *Edit scripts*. The *Edit scripts* window opens.
3	Here you can enter the steps for a script with operating instructions. Example:



4	On exiting the *Remote* menu the photoLab® Data *spectral* program prompts you to save the script file in *.txt format. Proceed as follows to save the file:
5	Create a directory with the name *RemoteScript* and save the file under a meaningful name in this directory. Save the *RemoteScript* directory to the USB flash drive.
6	Plug the USB flash drive containing the script to the photometer.
7	Select the function *Run script* in the general settings of the photometer. Here you can select and execute the script file.

More information on the use of the script functions is available on request from the manufacturer.

8 Exporting spectra or kinetic records

In the photoLab® Data *spectral* program, the data of spectra and kinetic recordings can also be exported to special formats for further processing.

You can specify the following criteria for the export:

- Decimal separator,
- Delimiter,
- Line termination character,
- Header,
- Sort order

The export to a different data format is started in the *Export* menu:

1	In the photoLab® Data *spectral* program, open the *Export* menu.
2	Select the required data type in the *Export* menu. The available export formats are displayed.
3	Select the export format. The Windows dialog box *Save as* pops up.
4	Select the store directory and file name and save the file.

8.1 Export formats for spectra

With the export format you determine the form in which the data is exported (decimal separator, delimiter, line termination character, header, sort order).

For the export of spectrum data, you can select one of 2 preconfigured export formats or an export configurator.

Preconfigured export formats

Criteria	*Predefined format type 1 (.csv)*	*Spekwin32 (.fak)*
Delimiter	; (*Semicolon*)	*Tabulator*
Decimal separator	, (*Comma*)	, (*Comma*)
Line termination character	; (*Semicolon*)	- (none)
Header	2	- (none)
Sort Order	*Descending*	*Ascending*
File extension	csv	fak

The export format *.fak can be opened with the Spekwin32 program (currently available as freeware, information see "http://www.effemm2.de/spekwin").

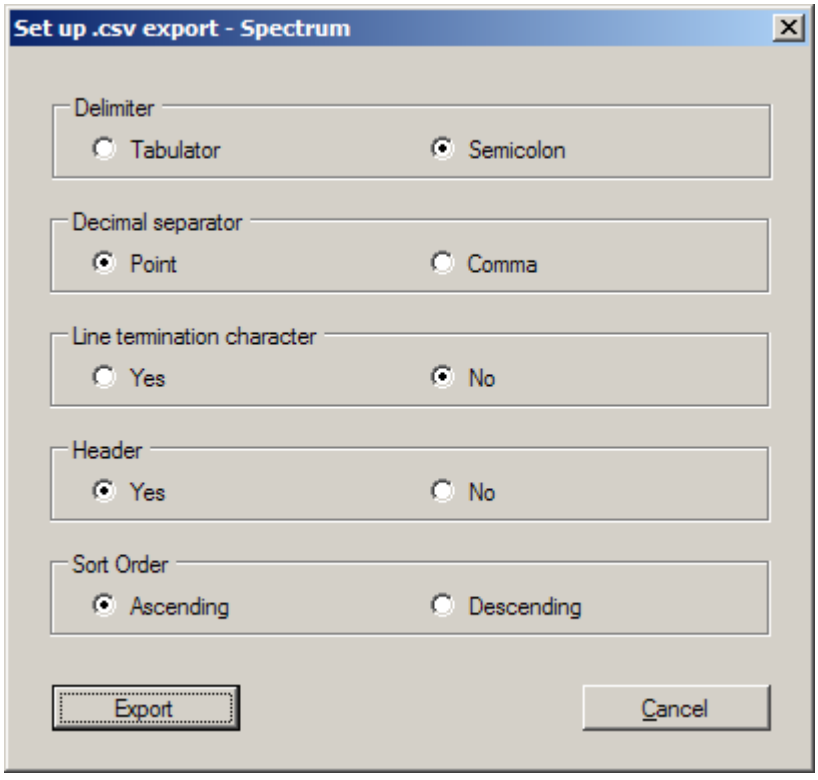
Examples: Export formats for spectra

Spekwin32 (.fak)	*Predefined format type 1 (.csv)*
	NH4+;; Wavelength (nm);Abs;
320 Tab 1,515	330;1,183;
321 Tab 1,483	329;1,223;
322 Tab 1,457	328;1,256;
323 Tab 1,424	327;1,295;
324 Tab 1,401	326;1,328;
325 Tab 1,365	325;1,365;
326 Tab 1,328	324;1,401;
327 Tab 1,295	323;1,424;
328 Tab 1,256	322;1,457;
329 Tab 1,223	321;1,483;
330 Tab 1,183	320;1,515;

Configurator for the export of spectra

If the preconfigured data formats do not meet your requirements, you can customize with a configurator the export format for your application via the menu item, *Adaptable (.csv)*.
The following criteria can be configured:

Criteria	Possible settings
Delimiter	*Point* / *Comma*
Decimal separator	*Tabulator* / *Semicolon*
Line termination character	*Yes* / *No*
Header	*Yes* / *No*
Sort Order	*Ascending* / *Descending*

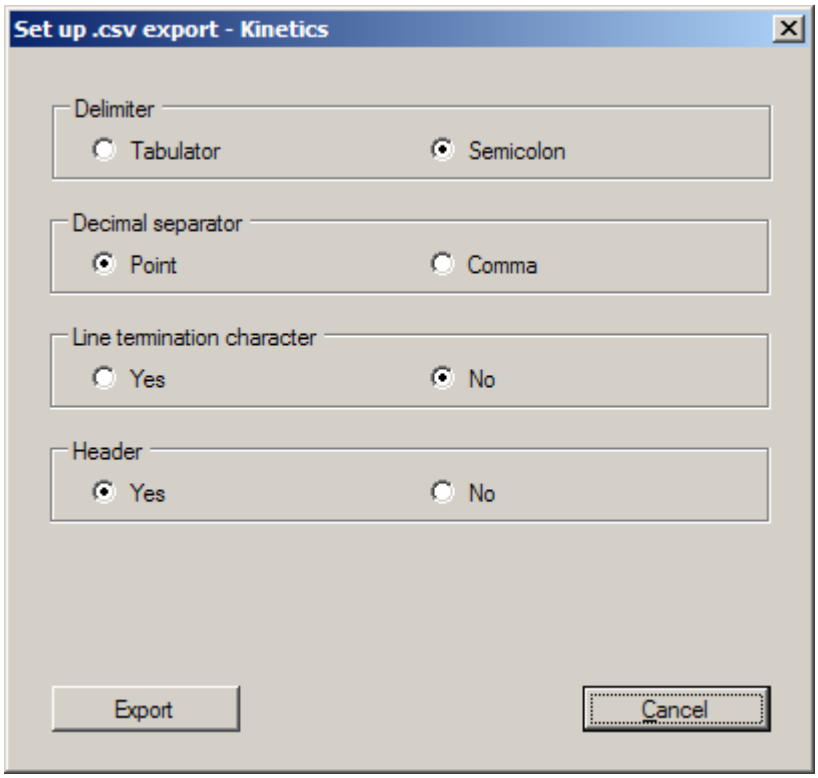


8.2 Export formats for kinetic records

A configurator is available for the export of kinetic records. Via the *Adaptable (.csv)* menu item, you can adjust the export format with a configurator to meet your requirements.
The following criteria can be configured:

Configurator for the export of kinetic records

Criteria	Possible settings
Decimal separator	*Tabulator* / *Semicolon*
Delimiter	*Point* / *Comma*
Line termination character	*Yes* / *No*
Header	*Yes* / *No*



9 Printing data

A file opened in the photoLab® Data *spectral* program can be printed with a connected printer.

The printing is started in the *File* / *Print* menu or with the *Print* button of the tool bar.

Prior to printing you can check the data to be printed via the *Print preview* function.

The print function in the photoLab® Data *spectral* corresponds to the print function of the photometer. Measurement data of the concentration mode is printed in an abbreviated version. The selection of data corresponds to the setting, "Short data format" in the photometer (see operating manual of your photometer).
If you want to print the complete data unabbreviated, open the *.csv file in a spreadsheet (e.g. Microsoft Excel®) and start the printout there.

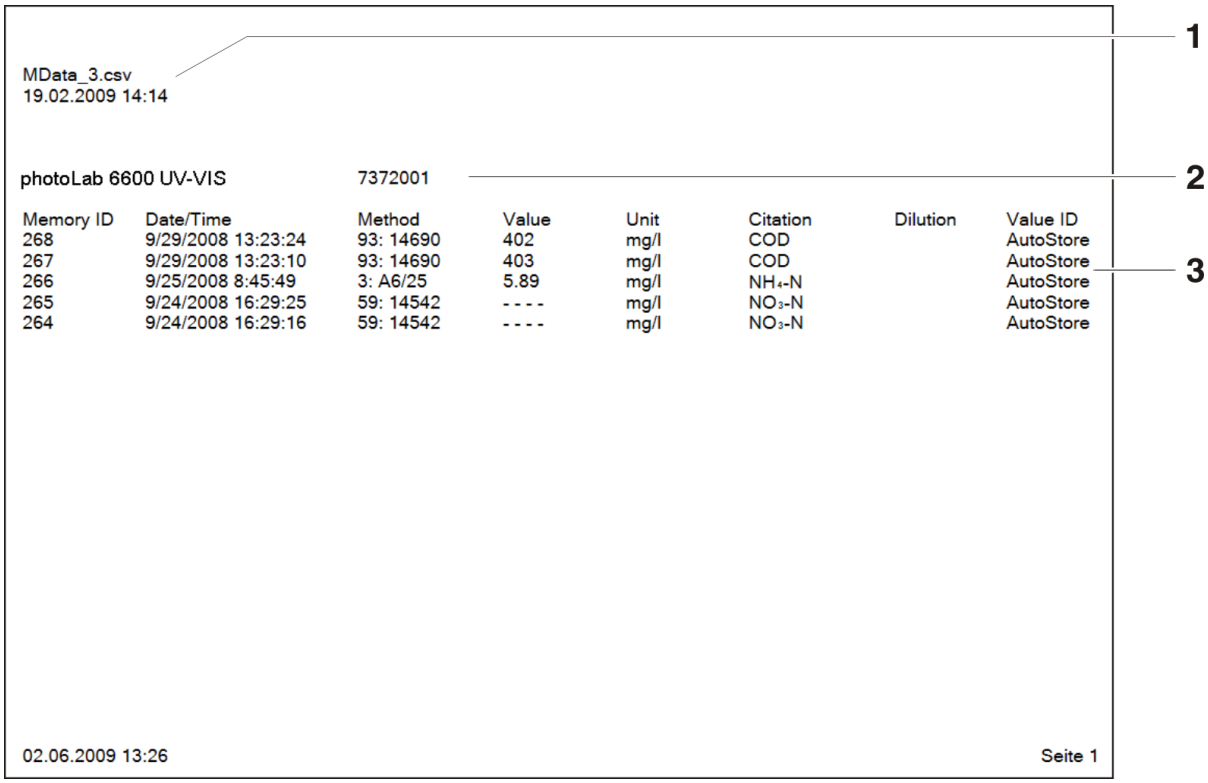
Measurement data in concentration mode are optimized for printing in the format ISO 216 A4 - landscape mode. Therefore, set the format ISO 216 A4 - landscape mode in the concentration mode printer settings.

Measurement data of spectra and kinetic records are optimized for printing in the format ISO 216 A4 - portrait mode.

The print settings can be found in the *File* / *Page setup* menu. There you can select the following settings:

- Orientation (portrait / landscape)
- Margins
- Printer

Example Printout of concentration measurement data:



1	**Information on the displayed file** File name, date of creation, logged-in user
2	**Information on the meter** Meter type, series number
3	**Datasets** Datasets with header

10 What to do if ...

Error	Cause	Remedy
ERROR MESSAGE: *Connection failed!* *Carry out the following steps:* ** Disconnect the USB connection of photometer and PC* ** Disconnect the meter from the power supply* ** Connect the meter to the power supply* ** Establish the USB connection between photometer and PC*	– The photoLab® Data *spectral* program has been started and – The photometer connected was not recognized by Microsoft® Mobile Device Center	– Disconnect the USB connection between the photometer and PC – Disconnect the photometer from the power supply – Connect the photometer to the power supply. – Establish the USB connection between the photometer and PC
ERROR MESSAGE *Invalid device!*	– The photoLab® Data *spectral* program has been started and – The meter connected is not a photometer of the photoLab® 6000 / 7000 / spectroFlex series	– Connect a suitable photometer (photoLab® 6000 / 7000 / spectroFlex series) to the PC
Subscript characters are not displayed	– A font which includes subscript characters is missing on the PC	– Install on the PC the Microsoft® font MS Mincho or MS Gothic or – Install on the PC the Microsoft® far east support

11 Appendix

11.1 Trademark notes

Pentium is a trademark of Intel Corporation in the U.S. and/or other countries.
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WinZip is a registered trademark of WinZip International LLC.

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