# photoLab® Data *spectral*

PC SOFTWARE FOR PHOTOLAB® 7000 SERIES

a **xylem** brand

# photoLab® Data *spectral* - Contents

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# 1    Overview

**Functions**        The photoLab® Data *spectral* program is used for the simplified manage-
ment 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)

- Transfer data

    – from the photometer to a PC (*Transfer*, see section 6)

    – 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 photome-
ters:

Spectrophotometers of the photoLab® 7000 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)

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

# 2    Installation

## 2.1    System requirements of the photoLab 7x00

● Software version 2.69 or higher

## 2.2    PC system requirements

● PC with operating system Microsoft Windows® 10

● CD-ROM-Laufwerk (for installation from a CD-ROM)

● At least one free Ethernet interface
  (see operating manual od the photometer)

The current version of the photoLab® Data *spectral* software is
ready to be downloaded (www.xylemanalytics.com).

An existing installation can be replaced by the new installation.

## 2.3    Installation from CD-ROM

1    Insert the installation CD-ROM for the photoLab® Data *spectral* pro-
     gram in the CD-ROM drive.

2    In a file manager (e.g. Windows® Explorer), select the CD-ROM
     drive.

3   In the "software" directory, run the installation file for the required lan-
    guage.

4   Follow the instructions of the setup program.
    The program is installed.

## 2.4    Installation or update after download

1   Download the ZIP file from www.xylemanalytics.com.

2   In a file manager (e.g. Windows® Explorer), select the download
    directory.

3   Unzip the compressed ZIP file.

4   Run the installation file for the desired language.

5   Follow the instructions of the setup program.
    The program is installed.

# 3    Connecting the photometer to a PC

The connection between the photometer and PC is made via an Ethernet net-
work connection. The connection can be made in the following ways:

● Connection of photometer and PC to the same network
   (e.g. photometer via Ethernet cable [LAN],
   PC via Ethernet cable [LAN] or wireless [WLAN])

● Direct connection of photometer and PC

Details on establishing the connection from the photometer
to a PC via the Ethernet interface (see operating manual for
the photometer).

# 4 Running the photoLab® Data *spectral* program

## 4.1 Starting the program

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.
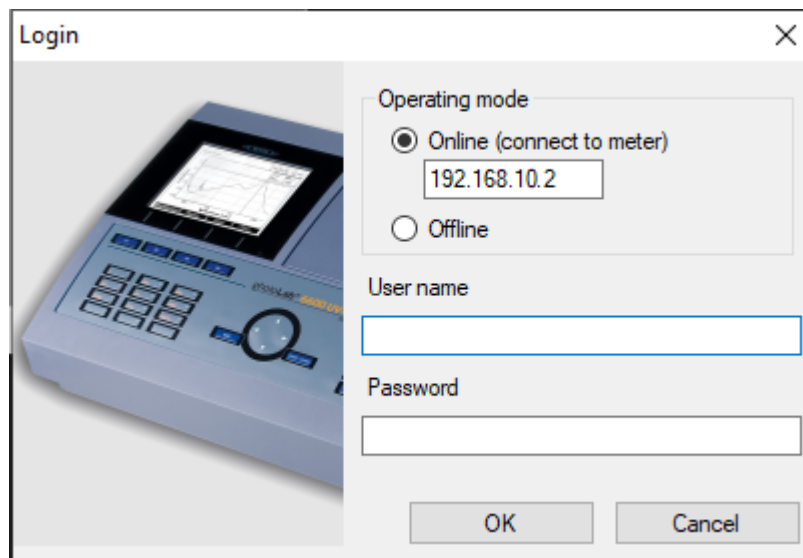


In the *Login* window, first determine in which operating mode you want to work with the program:

| **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    Enter the IP address of the photometer in the entry field *Online (connect to meter)*.
     IP address of the photometer: photometer menu **<HOME>** / *[General setup]* / *Ethernet*.

3    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.

4    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 7 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 7 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 and multi
  wavelengths)

● 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 8)

● Export (see section 7)

● 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 of creation** |
|---|---|
| 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** <br> Photometer type, photometer series number, more information depending on data type |
| 5 | **Datasets** <br> Table cells for the displayed datasets with header |
| 6 | **Status line with current information** <br> Photometer type <br> Photometer series number <br> User name <br> 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)

● Measurement datasets from the measurement data memory (internal folder Data B)
(measurements of the concentration, absorbance, transmission and multi wavelengths)

● Measurement 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

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:
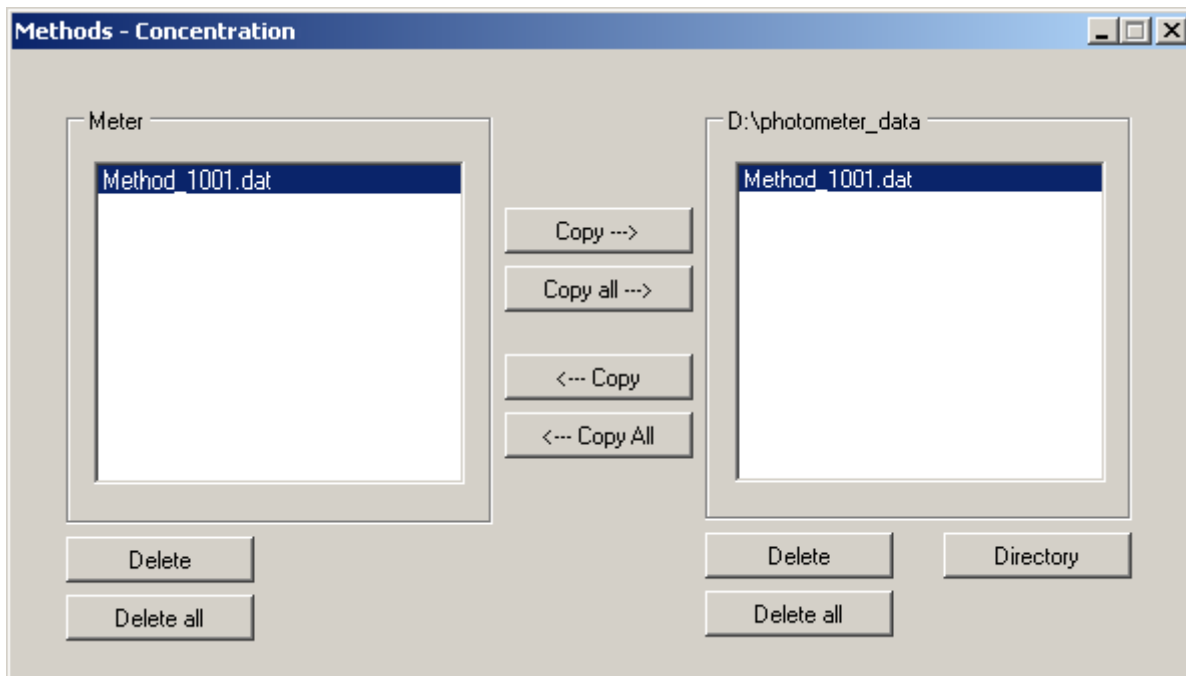


**Function of the buttons**

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

Thus you can transfer to other photometers user-defined methods that were created 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 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.

## 7.1 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* |
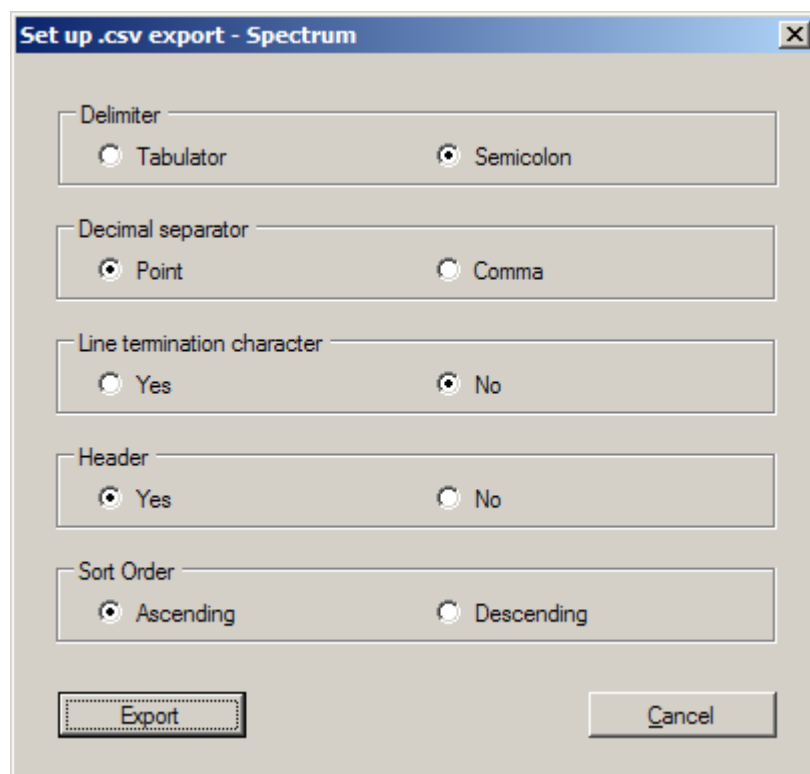
## 7.2    Export formats for kinetic records

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* |

Set up .csv export - Kinetics

Delimiter
○ Tabulator          ● Semicolon

Decimal separator
● Point              ○ Comma

Line termination character
○ Yes                ● No

Header
● Yes                ○ No

Export          Cancel
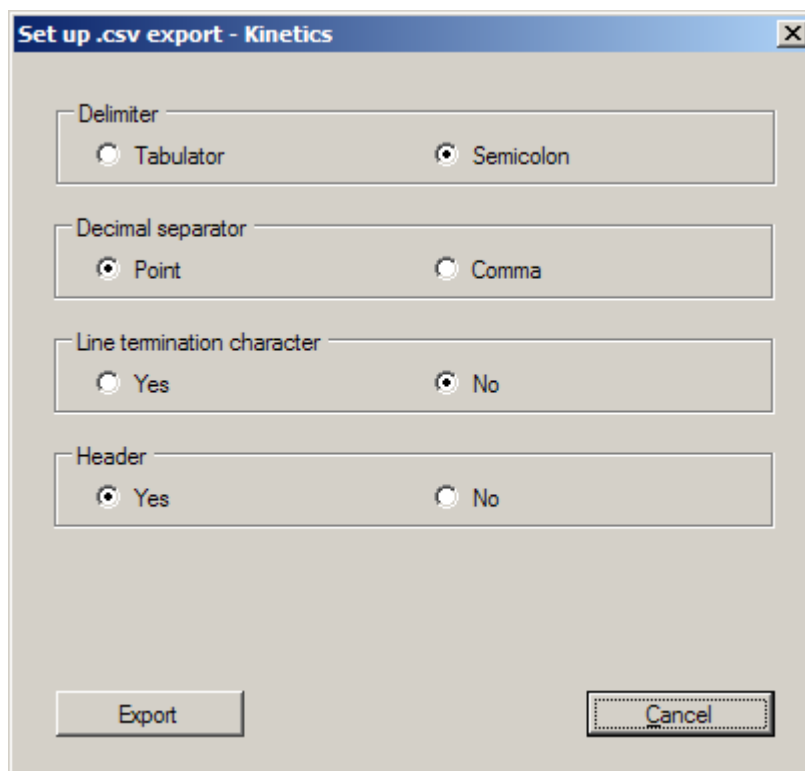
# 8    Printing data

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.

> ℹ️  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 menu *File* / *Page setup*.
There you can select the following settings:

- Orientation (portrait / landscape)
- Margins
- Printer

**Example**          Printout of concentration measurement data:

MData_3.csv
19.02.2009 14:14

photoLab 6600 UV-VIS          7372001

| Memory ID | Date/Time | Method | Value | Unit | Citation | Dilution | Value ID |
|-----------|-----------|--------|-------|------|----------|----------|----------|
| 268 | 9/29/2008 13:23:24 | 93: 14690 | 402 | mg/l | COD | | AutoStore |
| 267 | 9/29/2008 13:23:10 | 93: 14690 | 403 | mg/l | COD | | AutoStore |
| 266 | 9/25/2008 8:45:49 | 3: A6/25 | 5.89 | mg/l | $NH_4$-N | | AutoStore |
| 265 | 9/24/2008 16:29:25 | 59: 14542 | - - - - | mg/l | $NO_3$-N | | AutoStore |
| 264 | 9/24/2008 16:29:16 | 59: 14542 | - - - - | mg/l | $NO_3$-N | | AutoStore |

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| 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 |

# 9 What to do if ...

| Error | Cause | Remedy |
|---|---|---|
| **No data connection with the photometer** | – The photoLab® Data *spectral* program has been started<br>and<br>– The connection to the photometer has not been established. | – Check the following prerequisites:<br> – The Ethernet cable is correctly connected<br> – The IP address entered in the PC program matches the IP entered in the photometer.<br> – The network settings of the PC are correct (see the operating manual of the photometer). |
| **ERROR MESSAGE** *Invalid device!* | – The photoLab® Data *spectral* program has been started<br>and<br>– The meter connected is not a photometer of the photoLab® 7000s | – Connect a suitable photometer (photoLab® 7000 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<br>or<br>– Install on the PC the Microsoft® far east support |

# Xylem |ˈzīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

**For more information on how Xylem can help you, go to www.xylem.com.**

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