

5.3 Creating New User-Defined Programs Using Concentration and Absorbance Data Pairs

When creating a user-defined program, the software can calculate the linear calibration equation (slope and intercept values) from concentration and absorbance data pairs that are entered by the user.

1. Connect the V-3000 Photometer to a computer and open the program.
2. Select "Programs" from software menu and click on "User defined programs".
3. Select "New" and then click on "Calibration". A window will open a section for entering program information (see section 5.2.3). Instead of entering A0 and slope, enter concentration and absorbance data in the "Value pairs" section. There must be at least 3 pairs of data, with a maximum of 10.

Note: For best results, the concentration of the standards should cover the entire measuring range of the instrument and should be evenly distributed.

4. Click "Calculate" to see calibration line. The A0, slope, and other statistics are shown beneath the plot.
5. Click "Take over" to transfer the A0 and slope value to the user-defined program.
6. Once all user-defined program details have been added, the program can be sent directly to the photometer by clicking "Send to meter". The user-defined program can also be saved by clicking "Save as file". A saved program can be uploaded to other V-3000 photometers. See section 5.5.

5.4 Editing User-Defined Programs User-defined programs can be edited.

1. Select "Programs" from software menu and click on "User defined programs".
2. Click on the program number to be changed.
3. Select "Modify". Program details will be displayed. All fields listed in section 5.2.3 can be changed except Program number and User.
4. Once changes are made select "Send to Meter" to save updated version of user-defined program.

5.5 Copying a User-Defined Program to another V-3000

User-defined programs created on a V-3000 can be saved on the computer and up-loaded to other instruments.

1. Connect the V-3000 Photometer to a computer and open the program.
2. Select "Programs" from software menu and click on "User defined programs".
3. Click on the program to be transferred from the computer and then click on "Copy" to copy the program to this instrument. "Copy all" can be used to copy all the programs to the instrument.
4. Programs can also be copied from the instrument to the computer using "Copy" or "Copy all".

5.6 Removing User-Defined Programs

Only user-defined programs can be removed from the V-3000 Photometer.

1. Select "Programs" from software menu and click on "User defined programs".
2. Click on the program number to be removed.
3. Click on "Erase" or "Erase all". A confirmation screen will appear before removing the program(s).

6 Glossary

A0: Numerical offset value or y-intercept (compensates for the influence of the reagent on photometric measurement).

Linear Calibration Equation: Determined by analyzing known concentrations of analyte across the test range. The concentration vs absorbance pairs are plotted to determine the slope and A0 (y-intercept) of the line. All samples of unknown concentration are then compared to this line to determine the concentration.

.csv: File format for the exchange of data between spreadsheets such as Microsoft Excel and other programs. A CSV file (Character Separated Values) contains table elements that are separated by certain characters, e.g. a semicolon.

Method: A method comprises a chemical detection procedure and special method data (calibration equation) that is required to evaluate the measurement results. The V-3000 contains a database with -preprogrammed methods and user-defined methods can be created. The methods (programs) are stored by program number.

Program: In the V-3000, methods with the relevant method data are stored as programs. Programs are selected by using the assigned program number.

Slope: On a plot of concentration vs absorbance, the slope is a number that defines both the direction and steepness of a line. It is the change in "y" for a unit change in "x" along the line.

Standard solution: The standard solution is a solution where the concentration of an analyte is known. Dilutions of a standard solution are used to generate concentration and absorbance data pairs. These data pairs are used to generate the linear calibration equation. A standard solution can also be used to verify instrument function.

.xls: File format of the Microsoft Excel spreadsheet.

V-3000 Data Management Software

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1 Overview

1.1 V-3000 Data Management Software Features

This software allows easy data exchange between the V-3000 Series Photometers and a computer. Stored data can be transferred to the software for viewing and saving and can also be exported to Excel for further manipulation. User-defined programs can be created, edited, and uploaded to multiple photometers. This software is compatible with the V-3000, V-3000P, and V-3000T.

1.2 System Requirements and Software Installation

This software is compatible with Windows XP, Windows Vista, and Windows 7. A CD-ROM drive is required. Insert software CD into the computer and follow the installation instructions. A user-defined user name must be entered (i.e. V-3000). See CD case for serial/registration number.

1.3 Connecting V-3000 to Computer

Connecting a V-3000 Photometer to a computer requires the use of the supplied PC interface cable with RS-232 connector. If your computer has a USB port instead of a 9 pin RS232 port, you will need to purchase the following USB adapter that will allow you to connect the V-3000 PC Interface cable to the USB port on your computer: Catalog Number: A-0305, Description: RS232 (9 pin) to USB Cable Adapter. (sold separately).

2 Starting the Data Management Software

Open the program, enter the user name, and select either "Search for meter" or "Work offline".

1. "Search for meter" automatically begins a scanning process of all ports and baud rates until a connection is established. A confirmation screen will appear indicating "V-3000 Recognized!" Click "OK". If connection is not established, an error screen will appear stating that a meter was not found.
2. "Work offline" is used for viewing previously stored data or using the software without transferring data.

3 Data

3.1 Displaying Data

Once the V-3000 Photometer is successfully connected to the computer and the software has found the photometer, data can be imported to the computer. If necessary, create a new table by clicking "File", then selecting "New".

1. Click "Data exchange" from menu tool bar.
2. Click "Import". All stored data will be imported into labeled columns in the software table (regardless of sort functions). Photometer details will also be uploaded (such as serial number, meter type, date, and user).

3.2 Exporting Data to Excel

Uploaded data can be exported directly to an Excel (.xls) document.

1. Click "Data Exchange"
2. Click "Export .xls".
3. Select a receiving file. Receiving file must be in .xls format.

Note: Data will save into the Excel file and overwrite any existing data that is in this file. User will be prompted to confirm that data is being replaced in spreadsheet.

3.3 Saving Data

Uploaded data can be saved in CSV format by clicking "File", then selecting "Save As".

4 Calibration Data Transfer

Once the V-3000 Photometer has been connected to the computer and the software has found the photometer, Turbidity and pH calibration records can be downloaded to the computer.

1. Click "Data exchange" then "Calibration records" from the menu tool bar.
2. Select either pH or Turbidity. The selected calibration data will be downloaded and displayed.

Note: For turbidity records only, data can be edited to add turbidity standard lot information. Confirm the turbidity lot numbers by clicking on "Take over".

3. This calibration record can be saved (in .csv format) and/or printed.

5 User-Defined Programs

The V-3000 Data Management Software allows for user-defined programs to be created, edited, and uploaded to multiple photometers.

5.1 Displaying User-Defined Programs

To display current photometer programs, select "Programs" from the software menu and click on "User defined programs". A list of all user-defined programs installed on the connected instrument will be on the left and those stored on the computer will be on the right.

5.2 Creating New User-Defined Programs Using Predetermined Slope and Intercept Values

To create a new user-defined program when the linear calibration equation (slope and intercept values) has been determined by the user:

1. Connect the V-3000 Photometer to a computer and open the program.
2. Select "Programs" from software menu and click on "User defined programs".
3. Select "New" and enter the information.

A0: numerical offset value (y-intercept)

Program Number: Must be between 900-999

Model: Any name with max of 5 characters

Cell size: 13, 16, or 28mm

Wavelength: 436, 517, 557, 594, 610, or 690

Citation form: parameter (i.e. NH3)

Unit: i.e. ppm or mg/L

MRB (Measuring range begin): lower measurement limit

MRE (Measuring range end): upper measurement limit

Resolution: decimal place (i.e. 0.1, 0.01, 0.001)

Slope: numerical slope value

Blank required: Yes/No

Std. adjustment possible: Yes/No. Standard adjustment allows users to optimize a calibration line in user-defined programs only (i.e. adding a new standard to a curve)

Std adjustment required: Yes/No

Note: the calibration equation added to the program must be in the form of $Abs = slope (ppm) + A0$

4. Once all user-defined program details are added, the program can be sent directly to the photometer by clicking "Send to meter". The user-defined program can also be saved by clicking "Save as file". A saved program can be uploaded to other V-3000 Photometers. See section 5.5.