Software Update Notification

Product	PartNo.-Issue
Software suite	PSS0012-17

Product	PartNo./Version
Zetasizer Nano series	PSW0085/5.10
Firmware	PFW0044/1.34.002

Manuals	PartNo./Version
Zetasizer Nano series	MAN0317/3.10
MPT-2	MAN0318/3.00

Software update summary

Main features Version 5.10
Implementation of an aggregation detection mode for users of Nano ZS systems
Extensions and improvements to the chromatography detector mode
Integration of the SOP player to improve ease of use
Windows VISTA compatibility

NOTES

Version 5.10 is not compatible with the HPPS

Install the software with the Zetasizer Nano <u>switched off</u> or <u>not connected</u>.

Contents

1. Overview

This document is the software release note for Zetasizer Nano series software P/N PSW0085 for software suite PSS0012-17 in accordance with ECN10308

This release adds new features, incorporates suggested improvements, and cures reported problems.

1.1   Main feature additions

1.1.1   Aggregation monitor mode (Nano ZS only)

This mode of measurement is a type of size measurement that measures the size at two angles and computes an 'aggregation index'. The aggregation index is a single figure that can be used to compare the state of aggregation of two samples, or monitor the change in aggregation during a temperature trend for example.

The two angles used are the backscatter angle normally used for sizing, and the forward scatter angle used for zeta potential measurement.
A size SOP can be configured to do one or more measurements at each angle automatically. Measurements done in this way are stored as a 'parent' record containing the calculated aggregation index, with 'child' records, one for each angle and each repeat done. This means that each record can be analysed individually, in the same way as for any size record.

A report is available that includes the aggregation index

1.1.2   Flow mode

A monitor mode has been added to the measurement window. The monitor allows the user to view the count rate and the voltages read from external detectors without needing to start a measurement.

An improved filter is used for the light scattering intensity measurement. The scattered intensity measured for each point of the chromatogram is filtered using the same procedure as the scattered intensity measured during a total intensity or SLS molecular weight measurement. This a more stable value that is more representative of the majority of the scattering species, and is more tolerant to large particles that would otherwise cause spikes in the intensity output

Sections of the chromatogram can now be removed or retained by the user when editing a flow record.

With the research features activated there is an option to calculate MW using SLS. The SOP editor has been updated to include fields for the input of the data required for this calculation. This mode of course requires the input of data from a concentration detector such as UV or RI.

1.1.3   SOP player

The customised automation of measurements using the SOP player has been integrated into the software. Selecting the menu item 'Measure', 'SOP player' opens a measurement window like the live measurement window, except the user is first presented with a graphical interface that enables a customised measurement sequence to be created. Items can be added to the play list using a single click, then the property for each item defined. The order of the list can be changed by dragging the items within the list, and a series of items can be copied and passed to create repeat sequences.

The customised experiment can be stored as an SOP for later use.

2. Compatibility

2.1 Optics unit

Version 5.10 software is compatible with all hardware variants of the Zetasizer Nano series. It is <u>not</u> compatible with the HPPS.

2.2 Data

Version 5.10 will read data from all versions from 3.xx, 4.xx, and 5.xx. It will not read data from Version 1.00 or Version 1.10 software. If data taken with a previous version is edited, even if only the sample name is changed, the result can change due to small changes designed to improve the analysis.

2.3 Computer

2.3.1 Operating system

Version 5.10 is compatible with Windows XP Pro (SP2) and Windows VISTA Ultimate, Enterprise and business editions. It has partially tested with Windows 2000 (SP4), but a full alpha test has not been performed. If using with Windows 2000, before starting the installation process, the 'Windows Installer Update' must be selected as suggested during the installation process.

NOTE: Windows XP 'Home' and Windows VISTA home basic, and home premium versions are not supported

2.3.2 Recommended Computer Requirements

2.6GHz Intel Pentium 4 or Intel Core 2 Duo Processor, 2Gb RAM, 250Gb HDD, 1024x768 screen resolution, CD-ROM drive, 1 free USB port, Windows Vista operating system.
The software and system can be used with a laptop computer with a free USB port.

3. Installation

3.1 Software Installation for Windows Vista™ and Windows XP™ Pro

The software suite comes on an auto-loading CD-ROM. Inserting the drive into a system configured to Auto-run a CD will run the installation program automatically. If your system does not support this feature run the ***setup.bat*** program from the root directory of your CD drive.
Note: For DTS Series software, Windows XP™ Pro and Windows Vista™ will not allow an installation if the user does not have administrator access. This is in line with Microsoft's Logo policy and is standard practice.

3.1.1   Windows XP™ Users

All DTS version 3.xx, 4.xx, and 5.xx software must be uninstalled before 5.10 is installed. The installer will ask you if you want to uninstall a previous version if it detects an older version is installed.

If the Zetasizer Nano is left connected to the PC during installation, you will be prompted with the following message.

You must either switch-off the Zetasizer Nano or unplug the USB cable from the PC or Zetasizer Nano and then press OK. If you press the Cancel button the installation will continue but the legacy USB driver will not be uninstalled.
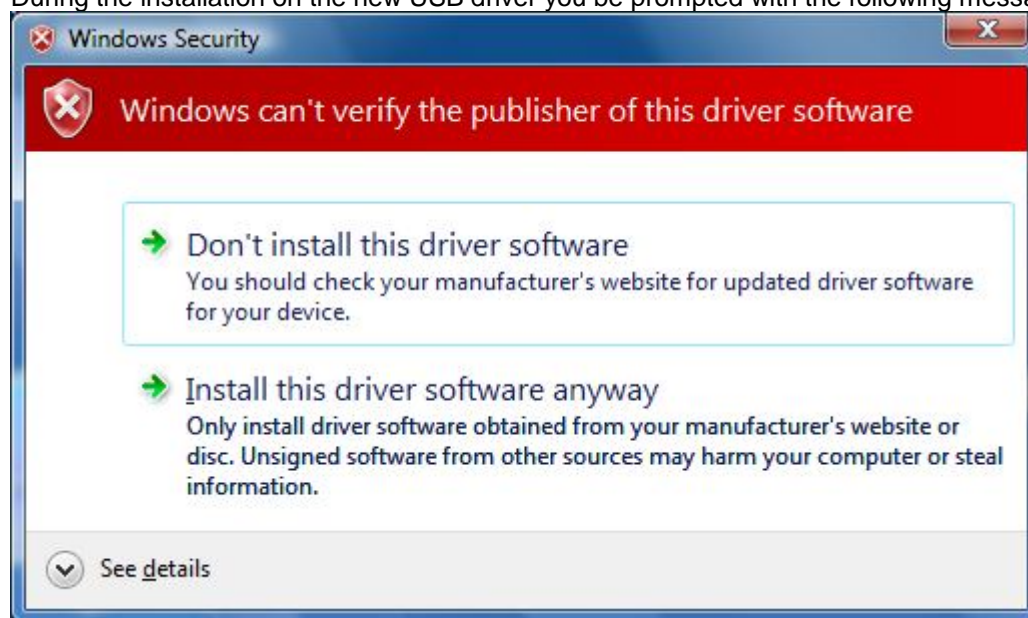
When the new USB driver is installed the following message will appear,

This warning can safely be ignored as the software installation has been fully tested on Windows XP™. If this warning is encountered the button, 'Continue Anyway' should be selected.

3.1.2   Windows Vista™ Users

During the installation on the new USB driver you be prompted with the following message,

This warning can safely be ignored as the software installation has been fully tested on Windows Vista™. If this warning is encountered the button, 'Install this driver software anyway' should be selected.

3.2   Connecting the Zetasizer Nano to the PC

With the software installed the instrument should be connected via the USB port.

Windows Vista™ users: Windows will indicate that the Malvern Instruments Nano has been connected to the PC and Windows will proceed to install the driver for you. Windows will indicate that the new hardware is installed and ready to use.

Windows XP™ Pro users: Windows may display the New Hardware Wizard window,

This should be left with the default selection of 'Install the software automatically' and the 'Next' button should be selected so that file transfer begins. Once file transfer has completed the 'Finish' button should be selected to complete the installation.

You may see the same warning as described in section 4.1. The warning can safely be ignored as the software installation has been tested on Windows XP™. If the warning is encountered the button, 'Continue Anyway' should be pressed.

Windows will indicate that the new hardware is installed and ready to use.

3.3   Uninstall procedure

The software can be uninstalled using the standard Add/Remove feature in the Windows 'Control panel'

3.4   Software change requests implemented in Version 5.10 from 5.00

3.4.1   Additions

SCR	Description
6442	The SOP Player has been integrated into the live display.
6508	The relative standard deviation (RSD) has been added to the statistics bar.
7076	The macros now contain version information and a description that can be viewed before using the macro
7138	The automatic duration calculation has been improved to take into account the Z-average relaxation time. This means longer measurements for large particles where more data is required to give a stable result.
7194	An aggregation monitor mode is implemented that uses a dual angle size

SCR	Description
	measurement. This is only applicable to Nano ZS systems
7236	There is now an option for user to disable the three beeps at the end of a measurement.
7300	Mean count rate is shown in the Melting Point chart rather than Derived Mean Count Rate.
7359	The option to remove trace data from a flow result is now available in standard mode
7393	Protein Wizard report no longer incorrectly identifies a problem when analyzing results when the ZEN0040 cell type is used.
7448	Example results file includes dual angle results
7452	The CD front-end has been changed to avoid the "allow blocked content" messages appearing.
7462	The sample details are now not lost when changing measurement type in SOP editor or manual measurement settings.
7466	Example results now contain the measurements made using the Installation test.
7468	The example results now contain flow measurements.
7486	It is now possible to edit results that contain parent and child records

3.4.2   Deletions

None

3.4.3   Changes

SCR	Description
4646	Elapsed time in seconds, stating at zero is now available for trend measurements
5927	During a measurement the indicator bezel green light now fades up and down rather than flashing.
6571	The flow measurement duration can now be set as volume as well as time
6623	A numeric display of threshold slider value has been added to the flow edit mode.
6625	Flow records can now be overplotted
6653	The statistics bar results are now selected along with data records using Ctrl-C, and can be pasted using Ctrl-V.
6655	The UV trace and intensity trace can be displayed on the same plot.
6711	It is now possible to view the phase plot and the summary during monomodal zeta analyses in the live display.
6756	The display speed of data points has been improved
6781	Expert Advice now provides analysis for two records
7092	Complex solvents now have icons next to their names when selected in the SOP Editor.
7162	The pinch valve is closed before all standard measurements of size and zeta are performed, then opened at the end. This will assist in the automation of measurements
7163	The new company logo is used throughout the software
7165	The picture of the ZEN2112 cell is now correct.

3.4.4   Bug Fixes

SCR	Description
6611	Crash on Tools --> Options selection.

SCR	Description
6789	This version of software removes all older version of USB drivers before installing the new driver. This fixes the Windows problem of selecting different drivers depending on the circumstances, which has been the cause of crashes and upgrade issues.
7085	The R^2 fit error in Debye plot has been corrected
7087	Pressing the Settings button during a molecular weight measurement no longer causes an endless loop of the concentration prompt window.
7146	The software can now handle the use of more than 20 macros
7278	The scaling is now correct for KC/RoP value in the Debye plot.
7339	Back-titration is now disabled if the pH overshoots the target pH in a titration measurement.
7346	External inputs use delay volume for first input in the live display window.
7377	The correct position is now used as default when ZEN0040 cell type is selected.
7422	Even with unsuitable data, the system will now continue to take data.
7426	Deleting data from either end of a flow trace no longer causes an error.
7442	Flow measurement duration now reads correctly in the "Chromatogram summary" report.
7454	The statistics bar now updates correctly after new records added to the measurement file.

3.5   Known issues and comments

3.5.1   USB Detection

USB detection occurs automatically on new computers. On older computers the instrument is not always detected automatically and the instrument icon in the bottom right-hand corner of the status bar will remain greyed-out. This is fixed by closing the application, restarting the computer and restarting the software.

3.5.2   Samples database update

The samples database was updated after version 3.32 for the dispersants 'Water' and 'Ethylene glycol'. The update will occur when the new software is installed and will lead to changes in the measurement results.

3.5.3   Missing parameters in user reports

The parameter dictionary has been updated for this version of the software and some of the parameters have changed. For reports that the user may have created containing the affected parameters, the parameters will become undefined. This can be seen when a report is opened and the parameter displays the text 'No parameter has been selected' or if the nothing is shown next to the text label (i.e. the value appears blank). To fix this problem for each parameter carry out the following steps:-
1) Double-click on the affected parameter to bring up it's property dialogue.
2) Click the 'Select' button to display the 'Select a parameter' dialogue.
3) Select the relevant parameter.

N.B. Remember to correct the affected parameters on both the screen and page layout views of the report.

3.5.4   Results

The analysis algorithms for the calculation of size, zeta potential and molecular weight, including data filtering, are being continually improved. The effect of this is that if data taken from a previous version of software is edited, the result may change, even if only the sample name is edited.

This is because the algorithms themselves are not stored with the record.
This does not apply to parameters stored with the record such as the viscosity, and refractive index etc. as the same parameters are always used in the recalculation of the edited result.

This does not of course change the result of the stored record, as after editing a new record is created. To tell if a record is the original or has been edited, the parameter 'Is edited' can be added to a report or the record view. This can be found in the measurement audit information section of the parameters list. It will display 'False' if the record has not been edited.

4. Customer deliverables

4.1 Application Software Suite

The software is contained on one CD-ROM. The disk is labelled PSS0012/17

The installed software requires about 150Mbytes of hard disk space.

4.1.1 Disk contents

- Operating software including updated help files for all new features

- Zetasizer Nano series manual, Issue 3.10

- Multimedia presentation of new features

- MPT-2 manual, version 3.00

- Firmware version 1.34.002

- USB drivers for the Zetasizer Nano

- Software Update Notifications for changes from previous software version

- Adobe Acrobat reader

- Selection of application notes

- Selection of technical notes

- Frequently asked questions database

- Product brochures