

# Software Update Notification



PSW0060-7.20 (RTSizer v7.20)

## Abstract

This document details the release of PSW0060-7.20 RTSizer version 7.20 software for the Insitec process particle sizer; it covers software issues fixed and new features introduced. This information is required to perform a risk analysis to determine if the software should be installed. In this risk analysis the benefits of the new features provided and resolved software issues must be weighed against the risk of new issues that may be introduced to vital areas of the software or possible changes to the results of future analysis. Installation instructions are provided.

## Installation

### Minimum System Requirements

The minimum requirements for running this software are highlighted in the table below:

Feature	Specification
Processor Type	Pentium P4 >1GHz
Memory	512Mbyte
Hard Disk Storage	50GByte, >100MByte free
Additional Storage Media	CD-ROM drive
Display Resolution	1024 x 768
Connectivity	1 RS-232 port
Operating System	Windows XP Professional™ with Service Pack 2 installed Windows 2000 Professional™ with Service Pack 4a installed

**Note:** This software is not compatible with Microsoft Windows Vista™

### Installation Instructions

The user must have administrator privileges to install the software. The software will only install on Windows XP or Windows 2000. Windows XP is the recommended platform. The software is distributed on one CD-ROM. Read the file 'CONTENTS.TXT' on the CD for more information.

This version is a full version of the RTSizer software; it may be used with Malvern Link v1.31 or later.

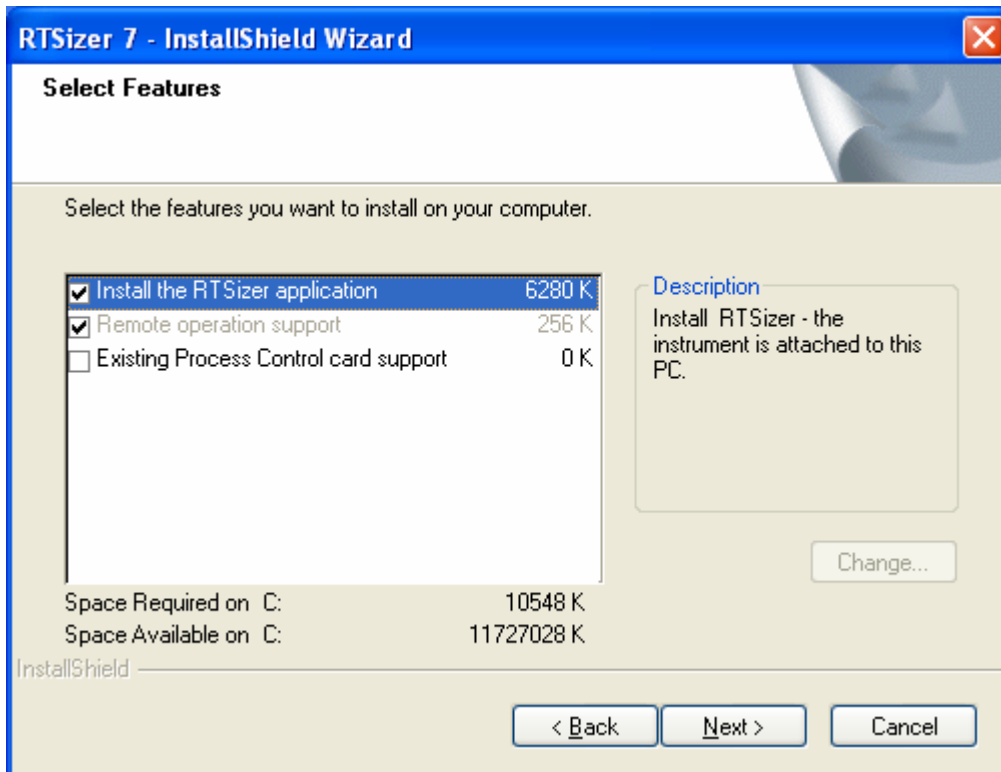
The CD should auto-start. If it does not, use Explorer to start the application SETUP.EXE in the root folder of the CD.



If RTSizer v6.00, v7.00, v7.10 or v7.11 is installed you will be asked to uninstall it first.

RTSizer v7.20 will use any shortcuts and configurations from earlier versions of RTSizer

The setup program will ask you the options you want to install, as shown below:



If the Insitec instrument is connected to the PC you are installing the software on then check the 'Install the RTSizer application' option. If the instrument is attached to another PC on the network (and RTSizer is installed on that PC) and you are going to install Malvern Link on this PC then clear the 'Install the RTSizer application' option and check the 'Remote operation support' option.

If you are upgrading an existing installation of EPCS 97 and RTSizer 5.x where the Process Control card option is already installed then also check the 'Existing Process Control card support' option. Note that new installations should use the facilities of Malvern Link to output 4-20mA values.

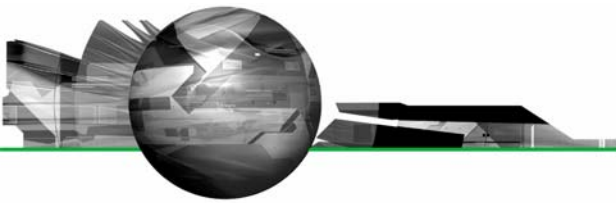
With Windows NT the install program will need to re-boot your PC up to two times. If the setup program does not automatically re-start use Explorer to run the SETUP.EXE program.

The last page of the setup program gives you the option of starting RTSizer to make an instrument configuration. If you do not choose this option you can make a configuration by choosing Start->Programs->Malvern Instruments->RTSizer->Configuration Manager. In the Configuration Manager main window type in a configuration name, a description, your company name and then choose the serial communications port for the instrument. You can also choose if you want the login dialog box to appear every time RTSizer is started. Click OK, the main RTSizer window will open and attempt to connect to the instrument.

The configuration manager will create a shortcut on your desktop, which you can then use to start RTSizer.

## Uninstall Procedure

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

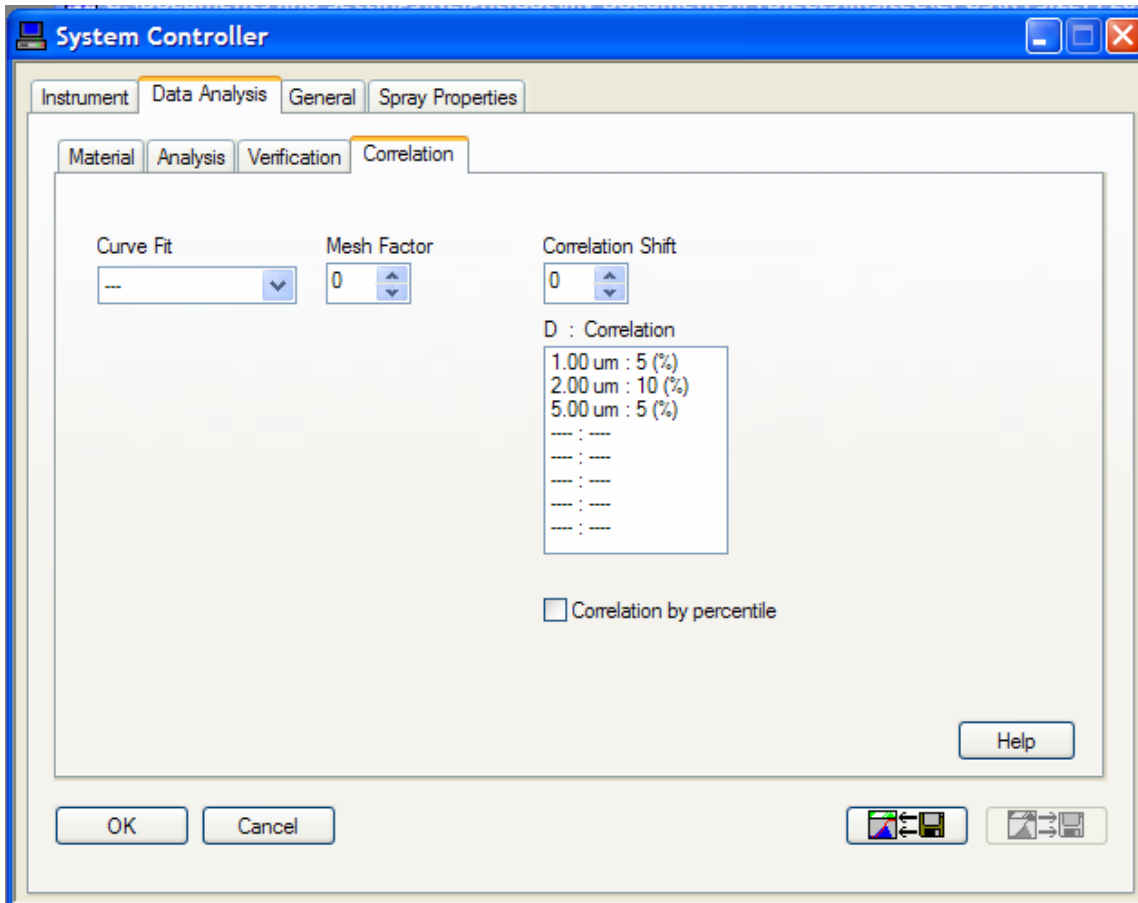


## Using the New Features in RTSizer v7.20

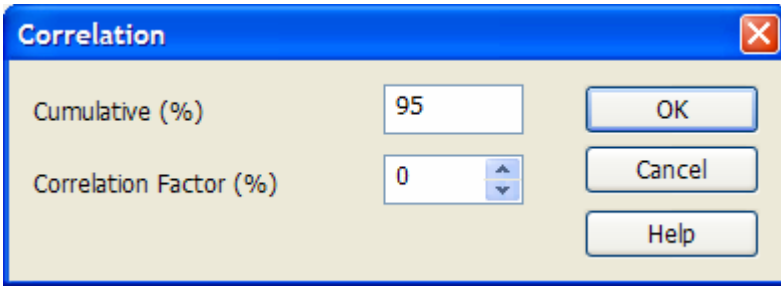
### Correlation by percentile

The result correlation page of the analysis has a new option 'Correlation by percentile'. With this option un-selected the result may be modified in the same way as in previous releases of RTSizer.

The dialog shown below is a typical configuration of correlation. The table of values are of particle size ( $\mu\text{m}$ ) and percent change in volume frequency to be applied to the result.

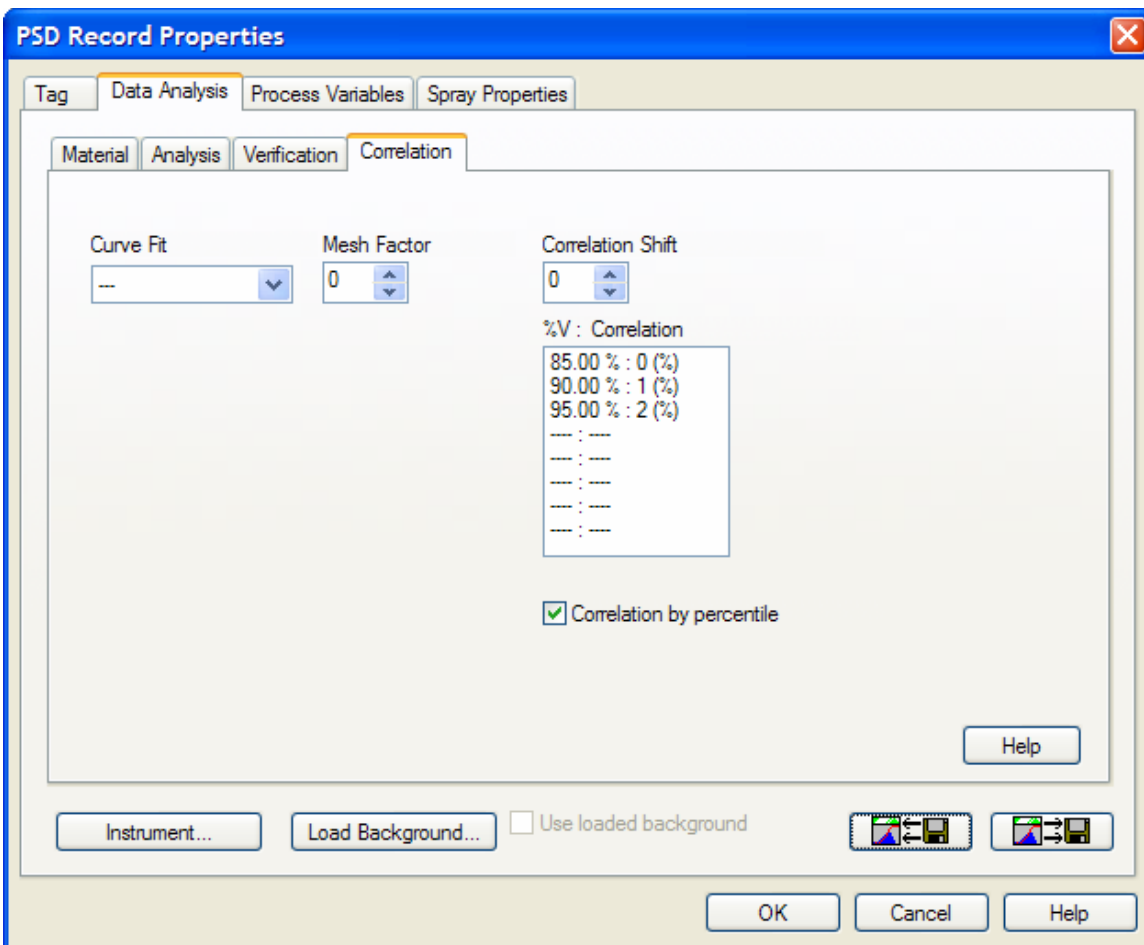


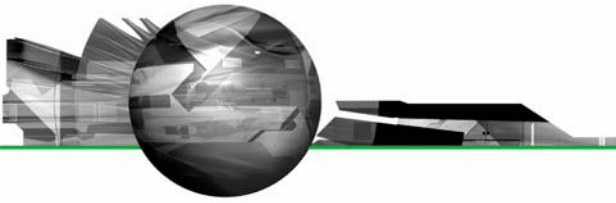
When the 'Correlation by percentile' checkbox is set the table of particle diameter and correlation is replaced by percentile value (%) and correlation. The table is edited by double-clicking or pressing the 'Insert' key. In this new mode the edit dialog is as shown below:



The cumulative (%) is a value between 1.0 and 99.0 and the percentile point on the result to be modified. The correlation factor is the shift to be applied. So if the cumulative point was 95% and the factor was 5%, the shifted percentile point would be  $95 \times (1 + 0.05) = 99.75$ . The correlation factor may also be negative to shift the percentile point to smaller sizes.

The dialog box shown below shows a typical table of correlation values. At least three entries should be used – adding more values will give a smoother cumulative curve.





When a correlation is active the © symbol is added to the caption of each PSD view. New with this version is the inclusion of the table of percentile/size and correlation value on the measurement parameters page. An example is shown below:

PSD1\*

$\sigma_{ppm} = 11.08$  (PPM)       $Dv(50) = 6.05$  (um)       $D[5][2] = 2.95$  (um)  
 $\sigma_{SA} = 2.051$  (m<sup>2</sup>/cc)       $Dv(90) = 14.61$  (um)       $D[4][3] = 7.12$  (um)

**Notes:**  
12.5 purge 7.5 motive

**Measurement Values and Settings**

Instrument = EB	Path Length = 12.6 (mm)
Lens = 200mm	Mesh Factor = 0 (%)
Feeder = EB	Scatter start = 16
Purge = EB	Scattering threshold = 10
Gain = x1	Minimum size = 0.10 (um)
Particulate Refractive Index = 1.50 + 0.50i	Maximum size = 2000.00 (um)
Media Refractive Index = 1.00 + 0.00i	Multiple Scatter = On
Particle Density = 1.00 (gm/cc)	

**Identification**

Operator = Unknown  
Instrument Serial Number = MAL0741 D1207  
Detector Serial Number = D1136

**Correlation**

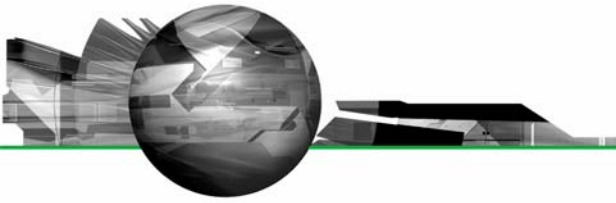
Correlation shift = 0 (%)	%V	Correlation (%)
	85.00	0
	90.00	1
	95.00	2
	0.00	0
	0.00	0
	0.00	0
	0.00	0
	0.00	0

### Setting particle density remotely

The 'SetPSDAux' RTSizer7X command is extended so that it may be used to set the particle material density to be used for the currently running measurement. This overrides the value set by the particle material properties. To set the particle density the *nChannel* parameter should be set to 100; the density is set by the *dValue* parameter.

### SetPSDAux

Sets one of four auxiliary values for the size measurement (RTSizer7X only) or sets the particle density



## Syntax

Function SetPSDAux (*nChannel* As Integer, *dValue* as Double)

Parameter	Description
<i>nChannel</i>	Channel number –1 to 4 – for auxiliary values 100 to set the particle density
<i>dValue</i>	Value to be saved with the measurement (must be greater than or equal to zero)

## Returns

1 = Value set

0 = Value not set (values out of range)

-1 = Not connected

-2 = Connection timed-out

-4 = Security failure – No measurement permission or TakeControl not issued

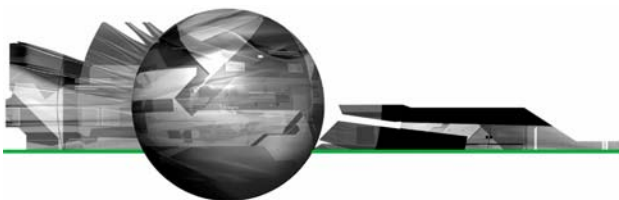
## Remarks

The last set values are sampled synchronously with a size measurement. An error exception is generated if there is no connection

## Fixed Issues

The following Software Change Requests (SCRs) have been implemented in this version of the RTSizer software

SCR Number	Improvement or Fix	Description
2291	Improvement	Support measuring to a file on a network location
4811	Improvement	Set particle density from RTSizerX
5620	Fix	Recover from Configuration file corruption
5621	Fix	Recover from message file corruption
5667	Improvement	Allow higher size limits – to support future lenses
6572	Fix	Restricted analysis – cut top end – reinstate v5.x algorithm
6573	Improvement	Percentile based correlation
6615	Improvement	Files moved to locations accessible by any Windows user



## Known Issues

### Restart after configuration change

If the configuration is changed from the system parameter window then it may be necessary to close and re-start RTSizer before the changes take effect.

### Saving particle size history files

It is not advisable to save data directly to a network drive as network traffic may delay file writes causing measurements to be suspended. If the measurement period is longer than one measurement per second then it should be safe to save on a network drive.

Note that the RTSizerX commands that have a PSH filename as a parameter assume the file is in the default data directory (e.g. C:\Documents and Settings\All Users\Documents\Malvern Instruments\RTSizer\Data)

### Fast measurement

Measurements made with a 0.25 millisecond update rate may very occasionally have records with a 'Zero scan count' error. Using a fast PC with no other running programs seems to reduce the problem. If you need to transfer data using RTSizer7X use the 'async' commands to read PSH data after the measurement has been completed.

### Running RTSizer on laptop computers

Experience at Malvern Instruments has shown that running RTSizer on laptop computers may cause reliability problems in communications between the computer and the optical head. If you get problems of random disconnection and connection messages in the RTSizer message window try disabling the power saving features on the laptop computer. If this does not work we have found that using a USB to serial converter in place of a direct serial connection often solves the problem.

### New File Locations

Version 7.20 uses new locations for many files. Upgrading from an earlier version of RTSizer will move any existing files to the new locations:

In the table below:

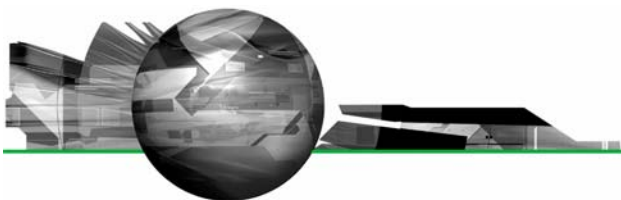
<common data> refers to the common settings folder. For Windows XP this is typically 'C:\Documents and Settings\All Users\Application Data\Malvern Instruments\RTSizer'

Note that the 'C:\Documents and Settings\All Users\Application Data' folder is normally hidden from Windows Explorer.

<shared docs> refers to the shared documents folder. For Windows XP this is typically 'C:\Documents and Settings\All Users\Documents\Malvern Instruments\RTSizer'

<program files> refers to the root folder where the program is installed. For Windows XP this is typically 'C:\Program Files\Malvern Instruments\RTSizer'

File	Old location	New location
<i>RTSizer_2000.ini</i> Main settings file	Windows	<common data>
<i>DefaultPrinter.rtp</i>	<program files>\Program	<common data>



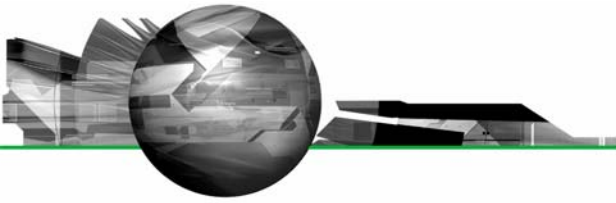
File	Old location	New location
Default printer settings		
<b>Security.cfg</b> Security settings	<program files>\Data	<common data>
<b>Current.exp</b> Current File export settings	<program files>	<common data>
<b>RefractiveIndex.ini</b> New particle and dispersants settings	<program files>\Configuration	<common data>
<b>Configurations</b> Folders containing configuration data	<program files>\Setup	<common data>\Setup
<b>Scattering Matrices</b> Files of scattering models	<program files>\Configuration\Scattering Matrices	<common data>\Configuration\Scattering Matrices
<b>Imaging Models</b> Files of imaging properties	<program files>\Configuration\Imaging Properties	<common data>\Configuration\Imaging Properties

All of the above files and folders are automatically copied to their new locations during the installation.

Other files created by RTSizer – by default – will have new locations. These are only suggestions and the files may be saved in different locations by changing the settings within RTSizer. The files are not automatically moved to the new locations.

Folder	Old location	Suggested New location
<b>Data</b> Measurement data	<program files>\Data	<shared docs>\Data
<b>Acrobat Results</b> PDF files	<program files>\Acrobat Results	<shared docs>\Acrobat Results
<b>Backup</b> Backup of measurement files before editing	<program files>\Backup	<shared docs>\Backup
<b>Audit Trails</b> Audit trail data	<program files>\Audit Trails	<shared docs>\ Audit Trails





### Windows Security Issues

The RTSizer software must be installed by a user who is a member of the Windows Administrators group but any user should be able to run the RTSizer software

Settings and data files have now been moved to locations where any user should be able to read and write to them.

### Language Switcher and Windows Locale

The Language Switcher program will only change the language settings of RTSizer if the Windows locale settings are not set to the selected language.

For example if the PC is running English-language Windows 2000 and you want to run RTSizer with a French-language user interface then the Windows locale setting (Start->Control Panel->Regional Options->General) must NOT be "French (France)"

### Process Controller support

Please contact Malvern Instruments if you need to use an existing Insitec process controller card.

### Optimum Screen Display

RTSizer has been optimised to look best with a screen resolution of 1024 x 768 with 16, or higher, bits of colour and with Windows normal small fonts.

### Internet Explorer and Windows NT

If RTSizer v7.20 is to be installed on Windows NT v4.0 please install version 5.5, or later, of Microsoft Internet Explorer first. Note that Intellution iFix also requires Internet Explorer and is included on the Insitec software suite CD.

### Memory Leak on Windows XP SP2

Opening and closing measurement file windows many times leads to a small GDI (graphics memory) leak. This is an issue with Windows XP SP2 but generally will only become a problem if running continuous automated sequences of measurements over several days. The current solution is to run Windows with the 'Classic' theme.

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