

## Operating Instructions Hammerlink Software

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# 1. Starting Hammerlink



Locate the file “Hammerlink\_Setup” on your computer or on the CD and click on it. Follow the instructions you see on the screen.

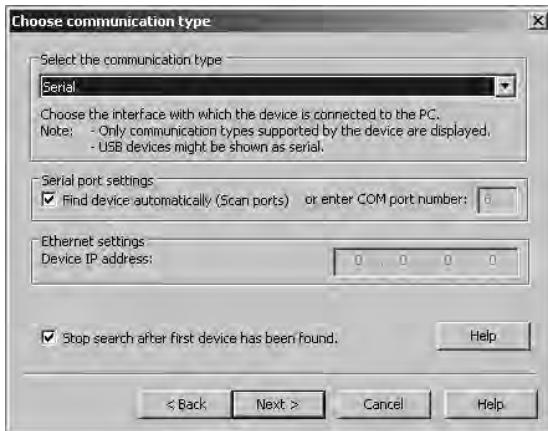
## Application settings

The menu item “File – Application settings” allows the user to select the language and the date and time format to be used.

## Connecting to the SilverSchmidt



Connect your SilverSchmidt to a free USB port, then click on the icon to bring up the following window:



Leave the settings as default or if you know the COM port you can enter it manually.

Click on “Next >”

The USB driver installs a virtual COM port which is used to communicate with the SilverSchmidt. When a SilverSchmidt has been found you will see another window. Click on the “Finish” button to establish the connection.

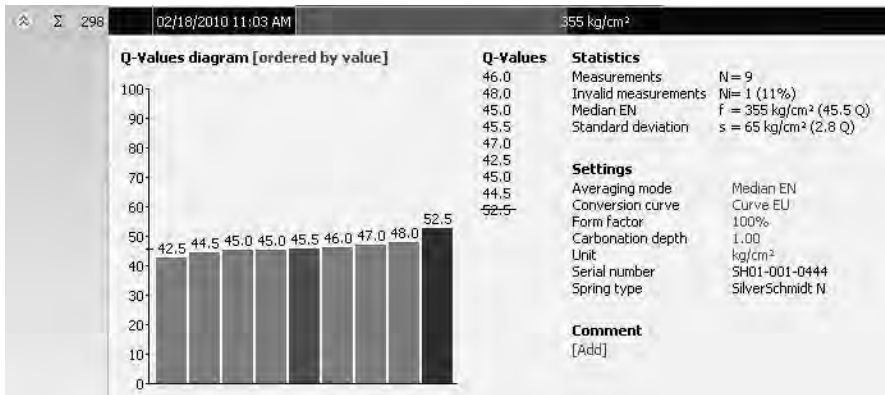
## 2. Viewing the data

The data stored on your SilverSchmidt will be displayed on the screen:

Impact counter	Name	Date & Time	Mean value	Averaging mode	Upper outliers	Lower outliers	Valid/Total	Std dev.	Conv. curve	Form factor	Carbonation factor
9		02/22/2010 2:44 PM	30.0 MPa	Mean	0	0	10/10	21.0 MPa	Curve EU	100%	1.00
25		02/25/2010 12:00 AM	30.5 N/mm <sup>2</sup>	Mean	0	0	10/10	57.3 N/mm <sup>2</sup>	Curve EU	100%	1.00
36		02/25/2010 12:00 AM	31.2 Q	Mean 2G	3	2	10/16	4.6 Q	Curve China	100%	1.00
53		02/22/2010 4:03 PM	28.5 N/mm <sup>2</sup>	Mean 3G	1	1	10/18	20.0 N/mm <sup>2</sup>	Curve China	100%	1.00
71		02/22/2010 4:10 PM	47.7	Mean 3G	1	1	10/16	3.1 Q	Curve China	100%	1.00

- The test series is identified by the “Impact counter” value.
- There is a “Name” column where the user can give his own name to the series.
- The “Date and Time” when the measurement series was made.
- The “Mean value” which is either a Q- value or a compressive strength unit.
- The “Averaging mode” that was selected to perform the measurement series.
- The number of upper and lower outliers.
- The “Valid/Total” number of impacts made in the measurement series.
- The “Std dev.” Standard deviation of the measurement series.
- The “Conv. Curve” conversion curve used for evaluating the measurements.
- The “Form factor” selected.
- The “Carbonation Factor” carbonation correction factor.

Click on the double arrow icon in the impact counter column to see more details:-



**NOTE:** The user may also add a comment to the measurement series. To do so, click on “Add”.



**NOTE:** The user may alter the order in which the measurements are shown. Click on “measurement order” to switch to “ordered by value”.

## Summary window

In addition to the “Series” view described above, Hammerlink also provides the user with a “Summary” window. This is useful for uniformity testing to quickly identify areas of inferior quality.

Series		Summary	
Impact counter	Name	Date & Time	
Σ	277	02/25/2010 6:03 AM	

Click on the respective tab to switch between views.



**NOTE:** To include or exclude a series from the summary, click on the summary symbol in the impact counter column. This symbol is either “black” or “greyed out”, which shows whether or not the series is included in the summary. In order to make a summary, all selected series have to have the same unit. The summary view can be adjusted in a similar way to the detailed view of the series.

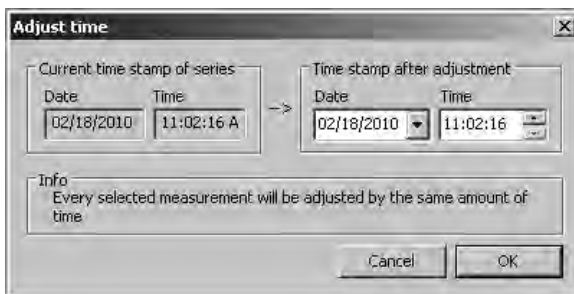
## 3. Adjusting the settings

Each of the settings (averaging mode, conversion curve, form factor and unit) that were used in the SilverSchmidt at the time of the measurement series can be adjusted subsequently in Hammerlink. This can be done either by right clicking directly on the item in the appropriate column, or by clicking on the blue setting item in the detailed view of a measurement series. In each case a drop down selection box will appear with the choice of setting.

### Carbonation depth

Please refer to the document “Estimating Compressive Strength with SilverSchmidt” which can be found in the downloads section of [www.silverschmidt.com](http://www.silverschmidt.com). This explains how to determine a correction factor to compensate for carbonation. Right clicking in the carbonation factor column allows this correction factor to be entered.

## 4. Adjusting the date and time



Right click in the “Date & Time” column.

The time will be adjusted for the selected series only.

## 5. Exporting data

Hammerlink allows you to export selected series or the entire project for use in third party programs. Click in the table on the particular measurement series you wish to export. It will be highlighted as shown.

Series	Summary										
ROUND	counter	Name	Date & Time	Mean value	Average to mode	Upper outliers	Lower outliers	Value/Total	Std dev.	Conn. curve	Form factor
256			02/10/2010 11:00 AM	25 kg/cm <sup>2</sup>	Median EMI	0	0	0/9	65 kg/cm <sup>2</sup>	Curve EU	100%
250			02/10/2010 11:00 AM	14020 PSI	Mean AC-TH	0	0	10/10	1500 PSI	Curve EU	100%
276			02/10/2010 11:00 AM	1.2 O	Mean	0	0	12/12	1.2 O	Curve EU	100%
267			02/10/2010 10:59 AM	9.0 N/mm <sup>2</sup>	Mean	0	0	9/9	0.5 N/mm <sup>2</sup>	Curve EU	100%



Click on the “Copy as text” icon. The data for this measurement series is copied to the clipboard and can be pasted into another program such as Excel. If you wish to export the actual impact values of the series you have to display them by clicking on the double arrow icon as described above before you “Copy as text”.



Click on the “Copy as picture” icon – For exporting the selected items only into another document or report. This performs the same action as above, but the data is exported in the form of a picture rather than as text data.



“Export as text” icon – Allows you to export the entire project data as a text file that can then be imported into another program such as Excel. Click on the “Export as text” icon. This will open the “Save As” window where you can define the location in which you wish to store the .txt file.



**NOTE:** Hammerlink has two „tabs“ with two display formats. “Series” and “Summary”. When performing this operation the project data will be exported in the format defined by the active “Tab”, i.e. either in “Series” or “Summary” format.

To open the file in Excel, locate the file and right click on it and “Open with” – “Microsoft Excel”. The data will be opened in an Excel document for further processing. Or drag and drop the file into an open Excel window.

## 6. Deleting and restoring data

The menu item “Edit – Delete” allows you to delete one or more selected series from the downloaded data.



**NOTE:** This does not delete data from the SilverSchmidt, only data in the current project.

The menu item “Edit – Select all”, allows the user to select all series in the project for exporting etc.

### Restoring original downloaded data

Select the menu item “File – Restore all original data” to restore the data to the original format as it was downloaded. This is a useful feature if you have been manipulating the data, but wish to go back to the raw data once again. A warning will be given to say that the original data is about to be restored. Confirm to restore.



**NOTE:** Any names or comments that have been added to series will be lost.

### Deleting data stored on the SilverSchmidt

Select the menu item “Device – Delete all Data on Device” to delete all data stored on the SilverSchmidt. A warning will be given to say that the data is about to be deleted on the device. Confirm to delete.



**NOTE:** Please note, this will delete every measurement series. It is not possible to delete individual series.

## 7. Further Functions

The following menu items are available via the icons at the top of the screen:



“Upgrade SilverSchmidt firmware” icon - Allows you to upgrade your firmware via the internet or from local files.



“Open project” icon – Allows you to open a previously saved project. It is also possible to drop a .pqh file onto Hammerlink to open it.



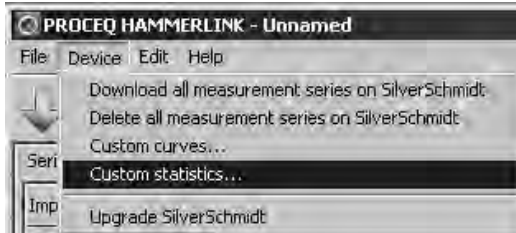
“Save project” icon – Allows you to save the current project. (Note this icon is greyed out if you have opened a previously saved project.



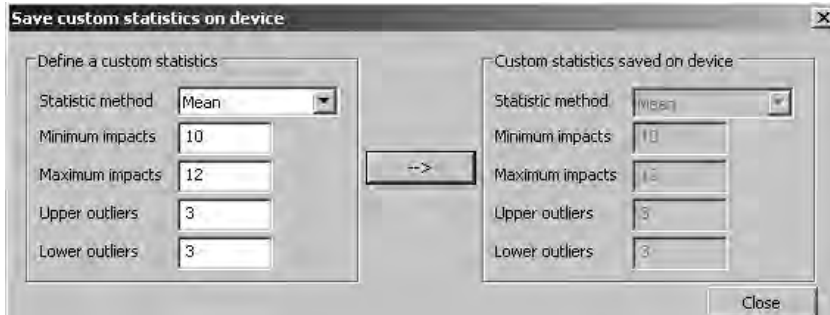
“Print” icon – Allows you to print out the project. You may select in the printer dialog, if you want to print out all of the data or selected readings only.

## 8. Custom statistics

Hammerlink allows you to create a user defined statistics method and to upload this onto the SilverSchmidt.

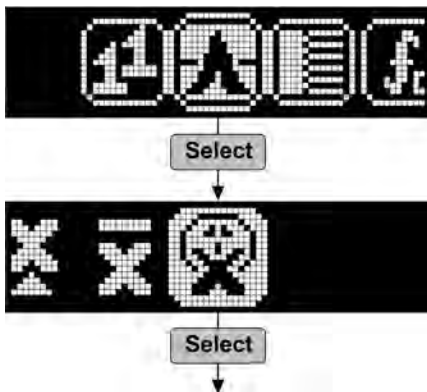


Select the menu item “Custom statistics...” to bring up the following window.



Define the statistics method as desired and load this setting onto the SilverSchmidt by clicking on the arrow in the centre of the window.

### Selecting custom statistics on SilverSchmidt

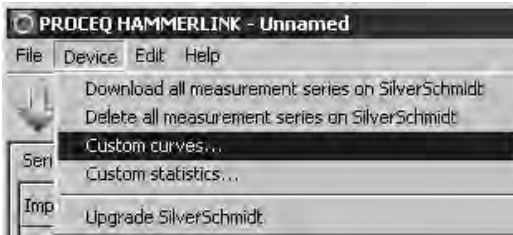


Select “Statistics”

Select “User Preset”

## 9. Custom curves

Hammerlink allows you to create custom curves that are specific to your concrete mix and to upload them onto the SilverSchmidt

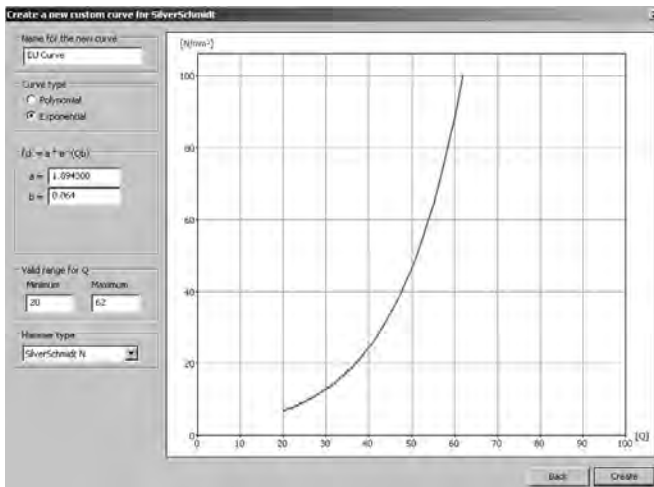


Select the menu item “Custom curves...” to bring up the following window.



Here you can review custom curves you have previously created, create new curves, delete curves and upload curves on the SilverSchmidt

Click on “Create new curve...” to bring up the following window.



Type in the name for the new curve and enter the parameters and the hammer type (N or L) for which it is applicable.



**NOTE:** The curve may be exponential or 1st, 2nd or 3rd order polynomial. It is also possible to limit the valid range for the Q-value. Values outside this range will not be evaluated by the SilverSchmidt and this will be indicated on the instrument.

Once you have entered the data, the curve will be displayed.

Please refer to the document “Using Excel to define the Hammerlink custom curve parameters” which can be found on [www.silverschmidt.com](http://www.silverschmidt.com) under the downloads section.

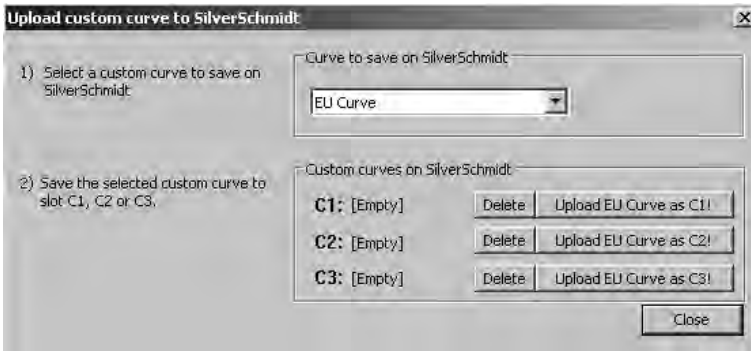
Click on “Create” to complete the action.

## Uploading the curve onto the SilverSchmidt

From the “Upload customer curves...” window,



select the curve you have just created and click on “Save on SilverSchmidt...”.



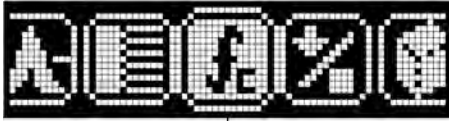
You can store up to 3 custom curves at a time on the SilverSchmidt. Choose the location of the curve (C1, C2 or C3) and upload. A warning window is displayed. Click on “Yes” to complete the action.



**NOTE:** You may create up to 200 curves which will be available on Hammerlink.

## Using the curve on SilverSchmidt

To use the custom curve on your SilverSchmidt:  
Click on the icon for conversion curves.



Select "Conversion curves"

Select



Select "Custom curves"

Select



Scroll to select the curve you wish to use and click on the select button.

Select

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