

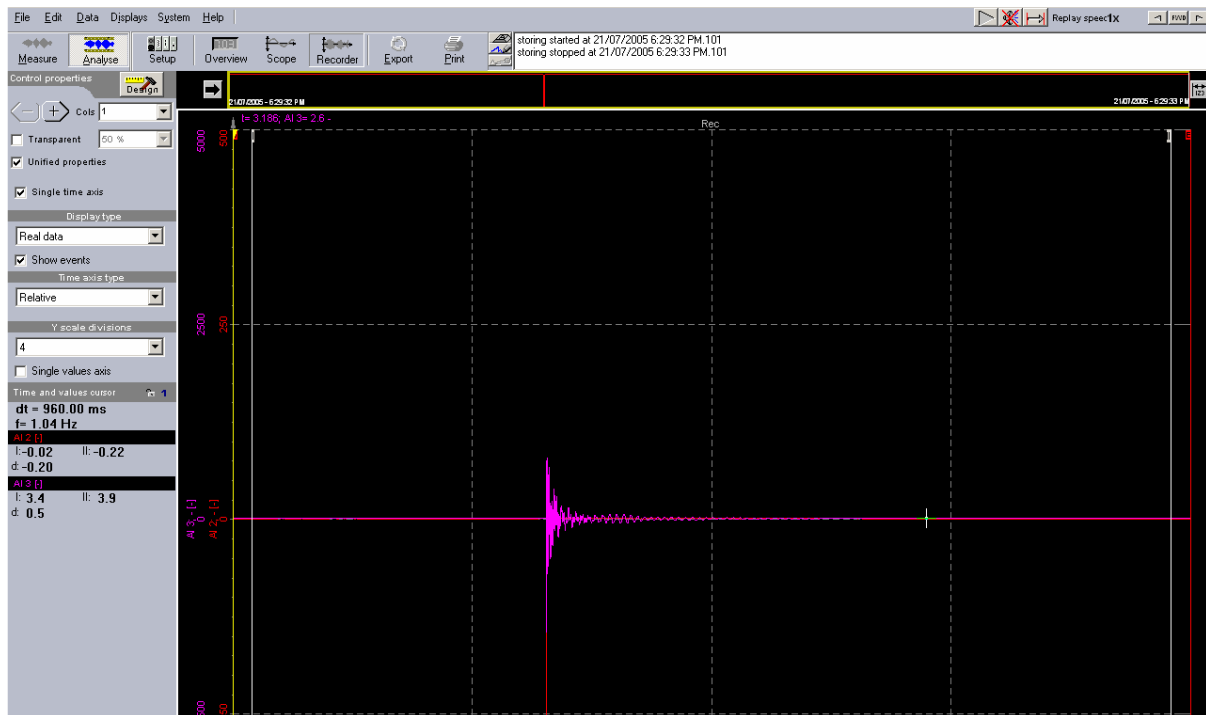


1. General information

The purpose of this manual is to give the user a quick guide on how to make a multi-channel SRS with DEWESoft and FlexPro! It covers only the usage of the SRS-Script. It will not cover the basic use of FlexPro.

Dewesoft is used for the data acquisition whereas FlexPro is used for the SRS calculation!

2. Acquiring data in DEWESoft



After acquiring data in DEWESoft, zoom in the portion which should be used for the SRS calculation and press the Export button!

NOTE: The exported time span should not exceed 2 seconds, otherwise the calculation time becomes very high! In general 1 second is a typical value which will give us 2Hz as min. Start frequency in the SRS (see calculation of the min. Start frequency)!





3. Export to FlexPro

The screenshot shows the 'Data export' menu with the following options:

- Empty template
- Time graph
- Extended time graph
- FFT analysis
- Log FFT
- Third octave FFT
- 3D FFT
- 3D plane FFT
- Runup
- Coastdown
- speed tunup
- Time graph
- Swinging RMS
- SRS - Script Ver: 2.0**

The 'Export data' button is circled in red. The 'SRS - Script Ver: 2.0' option is also circled in red.

Exported	Index	Type	Acq. rate	Name
Yes	0	AI 2	50000	AI 2
Yes	1	AI 3	50000	AI 3

Select the SRS-Script and press the Export data button.
Now all channels are exported to FlexPro for SRS calculation!



4. Selecting the SRS parameters

4.1 Primary- and Residual definition

Name	Comments	Type	Changed on	Contents
Vars		Folder	5/3/2006 6:19:41 PM	
File name		Formula	5/19/2006 10:28:1 ...	
Start time		Formula	5/19/2006 10:28:1 ...	
Number of channels		Formula	5/19/2006 10:28:1 ...	

After the export is finished we have to set the signal where we define the Primary and Residual area of the SRS calculation (1)! After the selection you will see the signal in a 2D-Diagram (2) where you can zoom in with the mouse!

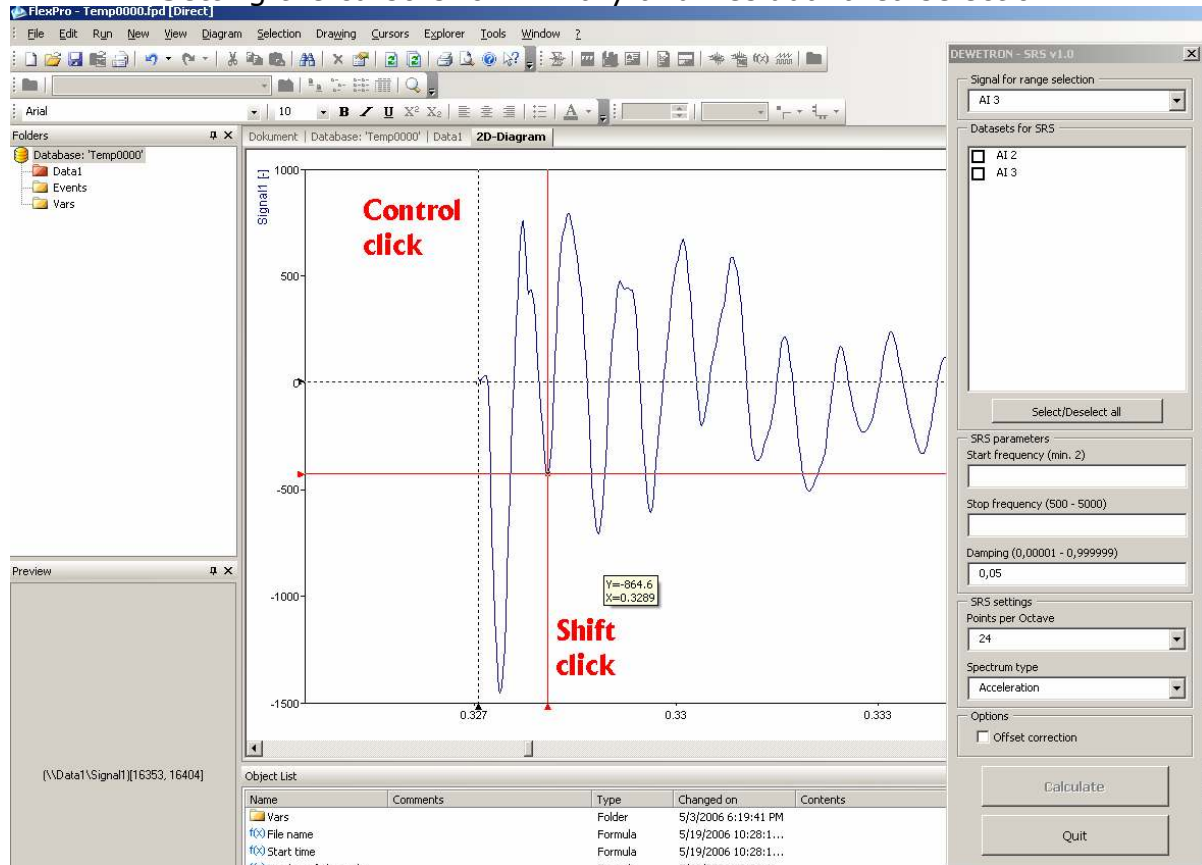
How to zoom: Click and drag the mouse around the area to be zoomed!

Primary: Result during the shock or impact

Residual: Results after the shock or impact



4.2 Setting the cursors for Primary and Residual area selection



Now we can set the two cursors which indicate the start and stop of the areas!
It could be that the two cursor are some where at the left or right of the 2D-Diagramm, to move it quickly to the position of need, press **CONTROL** and click to the point where you would like to place the cursor!
Do the same with **SHIFT** for the second cursor!
(Alternatively you can also left click to set the first cursor, press TAB to activate the second cursor, and left click again to set the second cursor.)

The area between the two cursors are used for calculation of the **PRIMARY** results.
The area after the last cursor (here: red) is used for **RESIDUAL** calculation.



4.3 Set the SRS parameters

The screenshot shows the FlexPro software interface with the following elements:

- File Explorer (Left):** Shows a tree view with folders like 'Data1', 'Events', 'SRS', 'Signal0_AI 2', 'Signal1_AI 3', and 'Vars'. A red circle highlights the 'SRS' folder, labeled with a red '9'.
- 2D-Diagram (Center):** A plot of 'Signal [I]' vs time. A red vertical line is at 0.327, and a red horizontal line is at -500. A red '10' is near the object list below.
- Object List (Bottom):** A table listing objects like 'Results_AI 2', 'SRS_calcul', 'SRS_Signa', etc. A red circle highlights 'Results_AI 2', labeled with a red '10'.
- SRS Parameters Panel (Right):** A panel titled 'DEWETRON - SRS v2.0' with the following settings:
 - Signal for range selection: AI 3
 - Datasets for SRS: AI 2, AI 3 (checked)
 - SRS parameters:
 - Start frequency (min. 2): 10 (labeled 2)
 - Stop frequency (500 - 5000): 4500 (labeled 3)
 - Damping (0,00001 - 0,999999): 0.05 (labeled 4)
 - SRS settings:
 - Points per Octave: 24 (labeled 5)
 - Spectrum type: Acceleration (labeled 6)
 - Options:
 - Offset correction: (labeled 7)
 - Buttons: Calculate (labeled 8), Quit

Section1: Select the channels for SRS calculation

Section2: Enter the Start Frequency of the SRS!
signal length will define the lower frequency!

$$F_{\min} [Hz] = 2 \frac{1}{T_{\text{signal}} [s]}$$

Section3: Enter the Stop Frequency of the SRS

$$F_{\max} [Hz] = \frac{\text{Samplerate} [Hz]}{10}$$

Section4: Enter the Damping of the SDOF System!

INFO: You have to enter a DOT [.] for decimal separation!



Section5: Here you can select the resolution of the SRS

Section6: Select the type of the spectrum (acceleration, velocity or displacement).

Section7: With this option an automatic offset correction is performed before the SRS calculation is done!

Offset will be calculated out of the average of the first 1% of the Signal!

Section8: With Calculate the SRS Calculation of all selected channels will start!

Info: This could last several minutes depending on the resolution and the amount of channels! You can see the progress on the top of SRS-Parameter form!

Section9: The results are shown in the Folder View of FlexPro!

Section10: Here the Results and the Result document is shown!
Double click on the Results and the Result document of the specific channel will open!





5. Result document of a specific channel!

Name	Comments	Type	Changed on	Contents
Results_AI 2		Document	5/19/2006 10:31:4...	
SRS_calculation	AI 2	Formula	5/19/2006 10:31:4...	List with 9 elements
SRS_Signal	AI 2	Formula	5/19/2006 10:31:4...	Signal with 50000 32-bit floating...
Maximax_Absolute	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...
Maximax_Positive	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...
Maximax_Negative	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...

For print go to menu →File → Print



6. Make an additional analysis.

Name	Comments	Type	Changed on	Contents
Results_AI 2		Document	5/19/2006 10:31:4...	
SRS_calculation	AI 2	Formula	5/19/2006 10:31:4...	List with 9 elements
SRS_Signal	AI 2	Formula	5/19/2006 10:31:4...	Signal with 50000 32-bit floating...
Maximax_Absolute	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...
Maximax_Positive	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...
Maximax_Negative	AI 2	Data Set	5/19/2006 10:31:5...	Signal with 212 64-bit floating p...

If you would like to make another analysis, change the parameters to your needs like mentioned in point 4.3!
If you have to set a new Primary and Residual area repeat the steps mentioned in 4.1!



7. New results

Name	Comments	Type	Changed on	Contents
Results_AI 2		Document	5/19/2006 10:34:5...	
SRS_calculation	AI 2	Formula	5/19/2006 10:34:5...	List with 9 elements
SRS_Signal	AI 2	Formula	5/19/2006 10:34:5...	Signal with 50000 32-bit floating...
Maximax_Absolute	AI 2	Data Set	5/19/2006 10:34:5...	Signal with 212 64-bit floating p...
Maximax_Positive	AI 2	Data Set	5/19/2006 10:34:5...	Signal with 212 64-bit floating p...

After the calculation you will find the results in a new folder of the folder view!
So all the results are available for cross-checks, or further analysis!