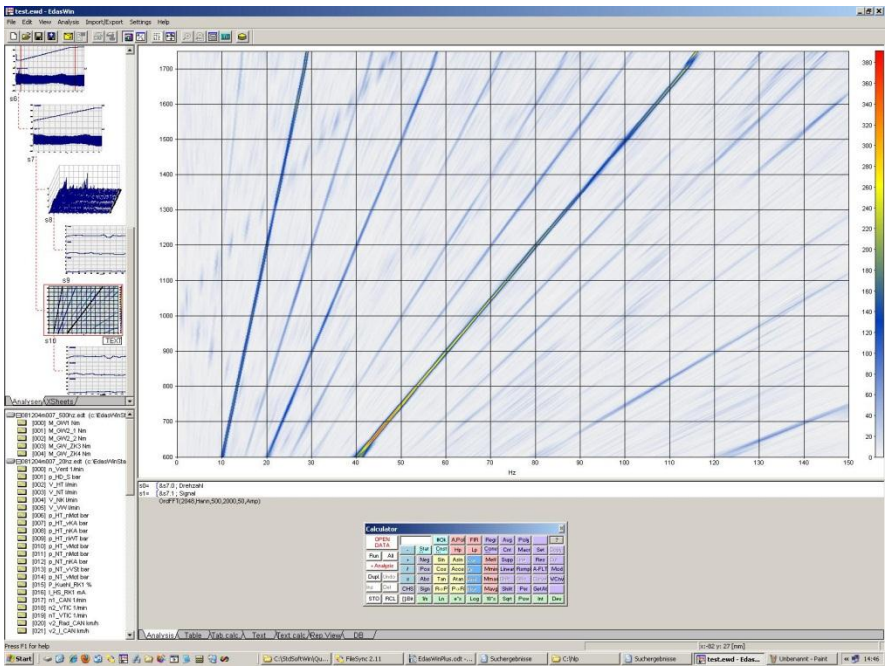


Data Analysis,
Computation &
Documentation

E.d.a.s.Win

Software Operator`s Manual

MH-GmbH ◆ www.mh-gmbh.de

Inhalt

Technical features

Main Features of Software Package E.d.a.s.Win

General:
- On-line help
- Menu controlled, no programming is necessary
- Automatic generation of repeatable analysis and documentation
- Softwareinterface (COM)

Analysis:
- Unlimited number of tags can be displayed in each plot
- Unlimited number of plots can be created
- 10 000 000 values will be displayed in a sec (Standard PC)
- Signal can be computed with each other and/or with constants
- Cursor Function with Peak Detection.
- X-Y zoom with selectable boundaries.
- Cascade display, Campbell display, Spectrogram

Optional:
- Play-back sound files
- Time-synchronously presentation off up to four video streams
- Course representation on the basis of measured GPS data

Algebraic functions:
- + - / *
- Logarithmes – (base 10 log & natural)
- Exponent, Power, Square root, Inverse
- 1/x, Change of sign (+ / -).

Trigonometric functions:
- Sine, Cosine, Tangent
- Arcsine, Arccosine, and Arctangent.

Calculation functions:
- Differential & Integral Calculus.
- Absolute value.
- Positive and negative signal isolation.
- High and Low pass digital filters with selectable order and corner frequency.
- FIR Filter with programmable filter function, no phase angle
- Cycle duration.
- Counter.
- Conversion between Cartesian and Polar Coordinates.
- Boolean Algebra.
- Floating average: mean, max, min
- A, B, C weighting filter
- Polynom calculation
- Linerarization

Signal processing:

- Graphical drift correction, Line and Offset correction
- Automatic spike detection and suppression.
- Signal recalculation with selectable clockrate
- Signal shift along time axis

Signal analysis:
- FFT analysis with selectable resolutions (8 to 1,048,567 points) and selectable range, different window functions
- Order analysis
- Terz- / Octave analysis
- Transfer function
- Y Sampling across any selectable signal
- X -Y Plot
- Regression
- Cross correlation
- Dynamic signal movement from cross correlation

Statistical analysis:
- Time at Level.
- Levelcrossing.
- Rain Flow, Range Pair
- Rotational analysis
- Damage

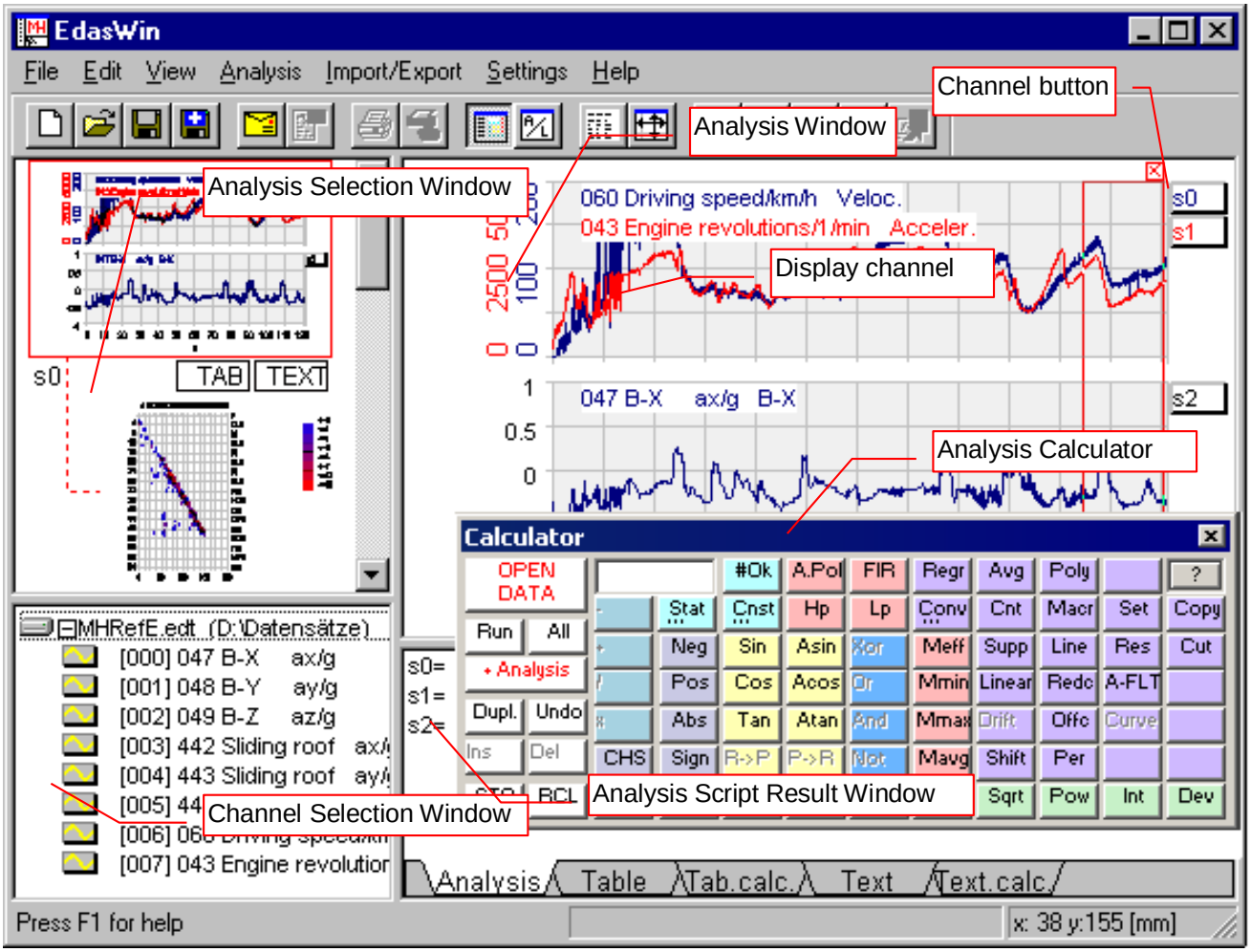
Other functions:
- Plausibility check from measured data records
- Batch Analysis
- GPS interpolation
- Macro function for recurrent calculation specification

Layout Editor for Report Generation:
- Create standard templates for printing plots
- Commentary editor for enter and display from text information
- Voluminously layout creation with any pages

Data Import and Export:
- Import from different data formats, with direct reader functionality
- Export to multiple data formats

First Start Analysis view

E.d.a.s.Win starts with the following display.
Analysis and measurement are performed on this display.



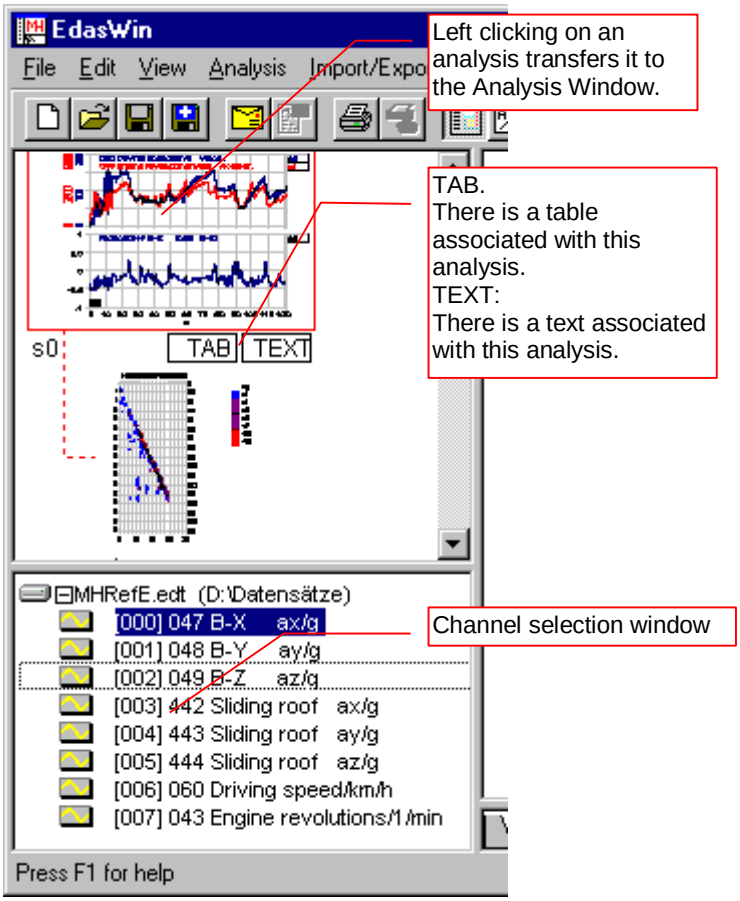
The Analysis View consists of 4 windows: the actual Analysis Window (top right) containing the current analysis; the Analysis Script Window/Result Window (bottom right) containing registers of all analysis steps for the current analysis, and analysis results; the Analysis Selection Window (top left); and the Channel Selection Window (bottom left).

Analysis view without Dongle

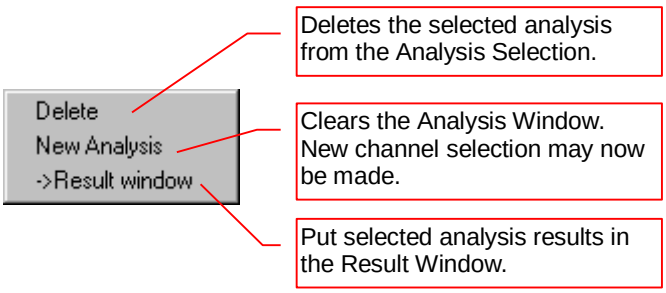
If there is no Dongle is installed, (external, internal or network dongle), E.d.a.s.Win start up with reduced functionality.
It is possible to load data over <OpenData> Button and look at them, without being able to accomplish an analysis.

Analysis Selection Window

In this window you can select an analysis for processing.



By activating a plot in the Analysis Selection Window by clicking on it with the left mouse button, then clicking the right button while the cursor is within the plot illustration, the Analysis Selection Window Pop-up Menu appears. Pop-up menu items can now be selected by clicking the left mouse button.

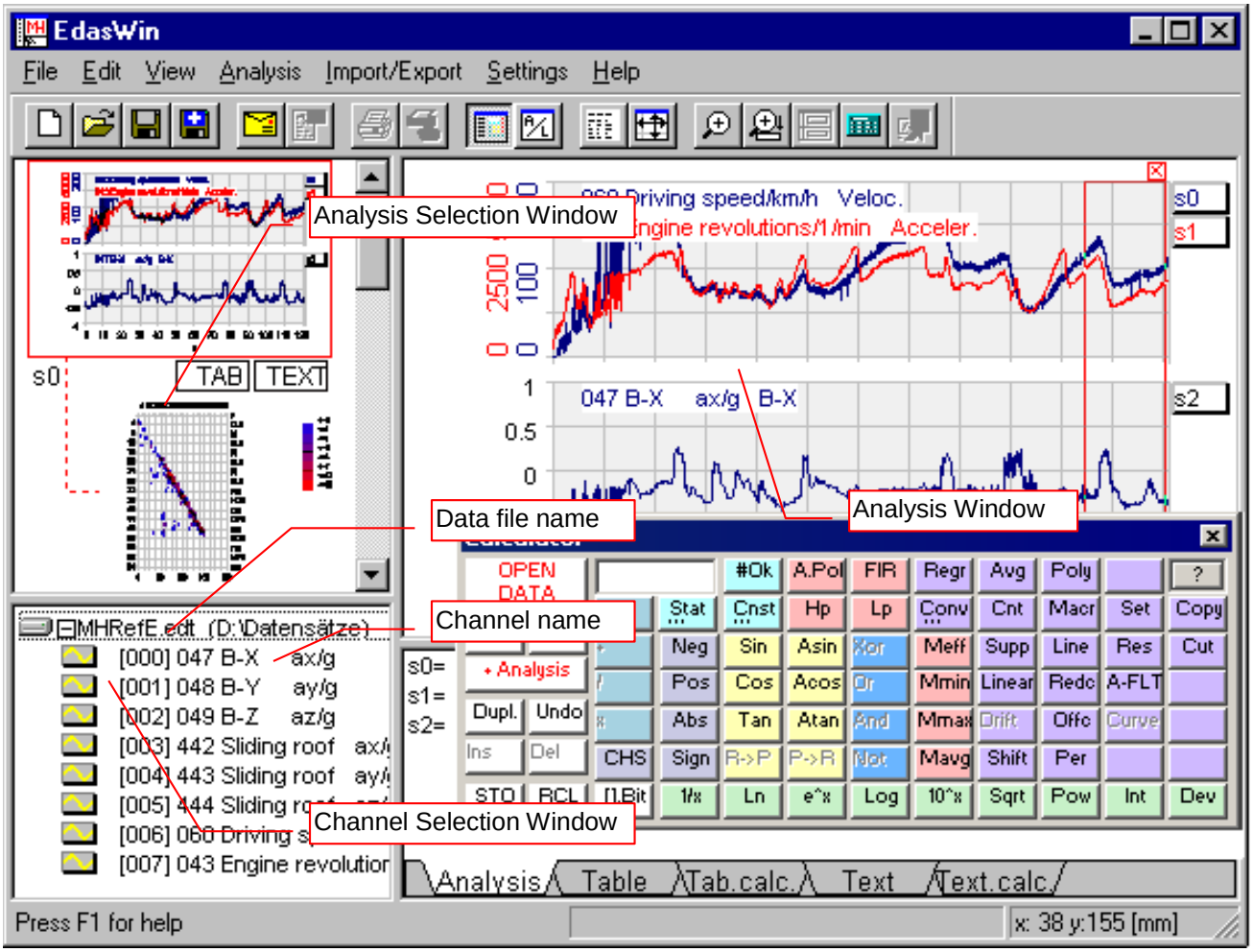


Channel selection window

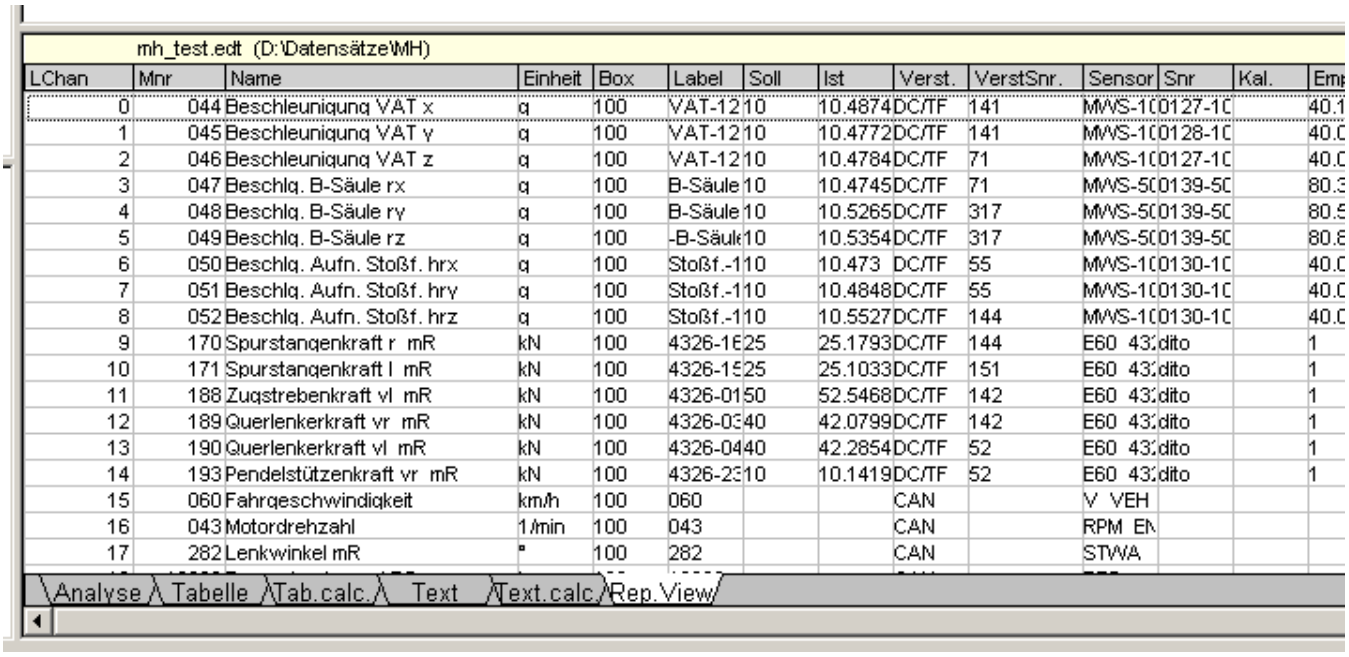
In this window you may select the channels of the current data set.

Representation of the data sets in normal or report opinion:
The signal selection window can be switched into a report view.
Right click in the signal selection window. Choose report view. The data sets witch measured with E.d.a.s.V16 are represented in the result window.

Normal view: (.edt, .dat)



Report view (especially for E.d.a.s.V16 Data set)



Assort table column:
Click on the column head to be sorted.

To abolish Assorting:
Right click in the signal selection window, choose unsorted.

Channel/channels in the Analysis Window represent:
Double click on a signal name in the signal selection window the appropriate signal in the analysis window one indicates. A further click on another signal name represents the next signal under first. With under Windows multiple choice can successively several signals admitted be marked, and after operation of <Enter> be represented. The number of displayed channels can be entered with the keys 1-9 and <A> for all channels. (1 = one channel, 9 = nine channels)

Sight many channels in the Analysis Window during the loading procedure:
During the representation of many channels the maximum number of represented channels can be specified with right click in the analysis window. All channels are marked, and loaded with input (Enter) to be confirmed all channels in the analysis window. Left click during the loading procedure in the analysis window, stops the loading procedure and gets a dialogue.

Choice:
- <**Further** > continue loading procedure.
- <**Single**> Channel / channels displayed step by step with the mouse.
  (Depending upon attitude max. representation of the channels)
- <**Cancel**> Stop loading procedure

If signals are displayed in the analysis window and processed, an empty analysis window can be gotten with <+ Analysis> on the analysis Calculator, while the worked on analysis window in the analysis selection window is stored. So as many as desired analysis windows can be created. From the analysis selection window with left click within the desired analysis these for subsequent treatment into the analysis window gotten.

Select a channel with double click. The selected channel will appear in the Analysis Window. Multiple channels may also be selected by using the multiple selection function of Windows; press the Shift key while clicking on the desired channels. After the channels marked, press Enter. The selected channels will appear in the Analysis Window.

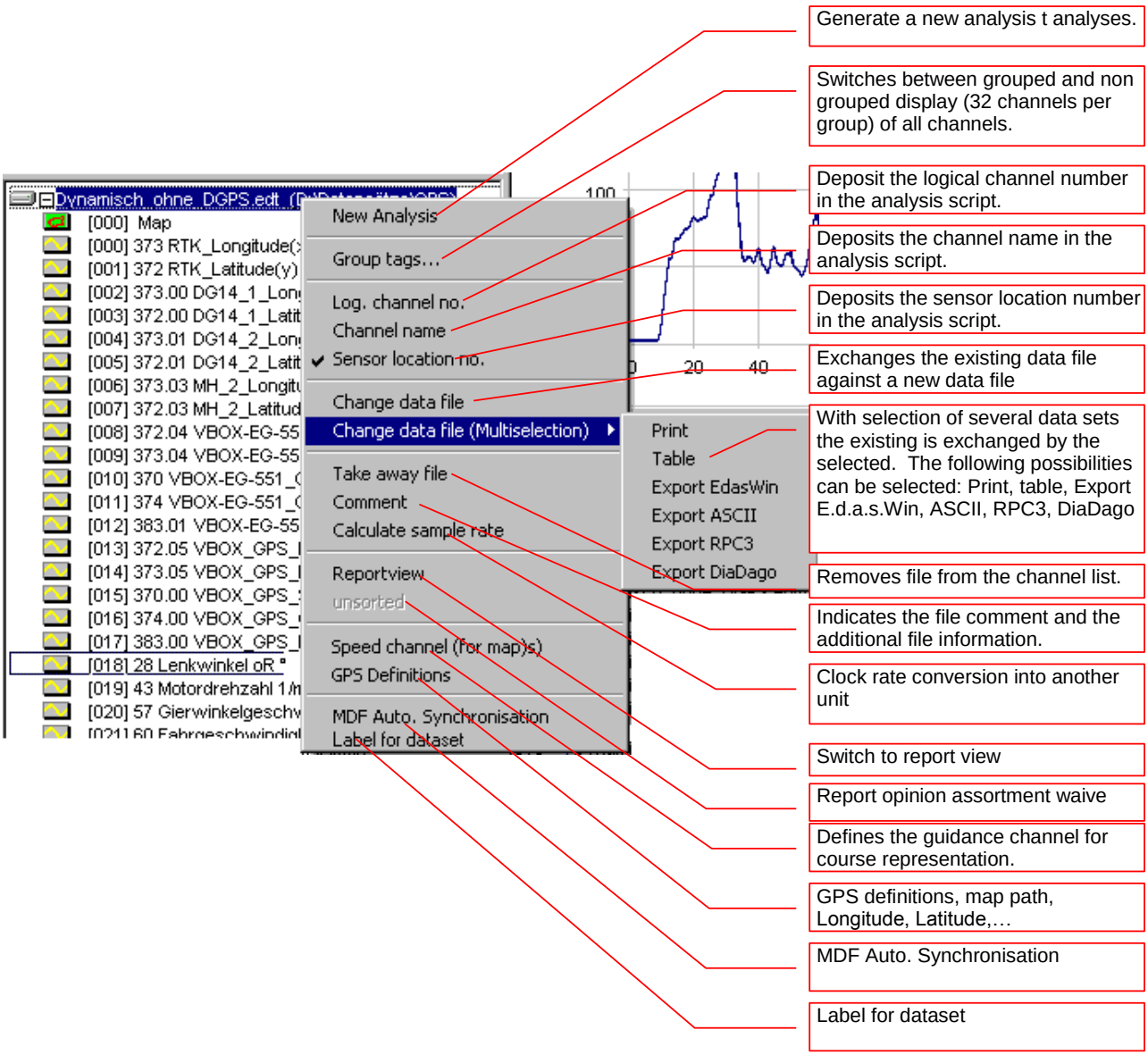
Last Signal Displayed

The analysis Calculator functions affect the signal that was last displayed. If the last two signals are to be added together, simply click on the <+> key of the calculator with the left mouse button. All other calculator functions may be used in the same way.

Open a new Analysis Window
If the Analysis Window is being used to display and process signals pertaining to the current task, a new Analysis Window can be created by clicking <New Analysis> on the analysis Calculator. The currently active Analysis Window will be saved in the Analysis Selection Window.

Marking Channels in the Analysis Window
Before a signal can be analyzed, the applicable channel must be marked. To mark a channel, move the cursor to the left of the Display Channel. The cursor will change to a selection mark 'M'. Left click the channel will be marked, as indicated with 'Y0' in the lower left corner of the channel display. Subsequent marks are labeled in numerical sequence 'Y1', 'Y2', etc.
To remove a mark from a channel move the cursor to the left of the Display Channel and click again.

Right click in the channel selection window opens the following menu:



Log.channelnr:
With the production of the analysis script can be generated a reference to a logical channel number or the channel names from a data set. With a measuring data set with e.g. 10 channels these are logically numbered from 0 to 9. With logical channel numbers provision width unit document will thus always load the signals with use with other measuring data sets with their logical purchase.
e.G.: In data set 1 the signal "engine speed" is the third channel, in data set 2 the third channel is the signal "engine temperature". A document with a reference to logical channel number could here these two signals unwanted treat.

Channel name:
In the case of use of the purchase channel name the name of the signal is always considered.
Ex.: Data set 1 the signal "engine speed" is the channel three; in data set 2 is it channel seven. A document provided with reference to channel name looks for the defined signal and implements there by the analysis.

Sensor location number:
In the case of use of the purchase sensor location number. the number of the signal is always considered.

Change file:
With selection of several data sets the existing data set is exchanged by the selected data sets and spent on kind of condition the printer. Right click in the signal selection window opens a popup menu. Choose Change data file (multiselection), the open dialogue appears. Mark the desired data sets. Click Open. The data set are replaced, calculated and spent on the standard printer.

Change file (Multiselection):

With selection of several data sets the existing is exchanged by the selected. The following possibilities can be selected:

Print

Table:	tab.rtf
Export to E.d.a.s.Win.	ex_data setname.edt
Export to Ascii.	ex_data setname.asc
Export to RPC3.	ex_data setname.rpc
Export to DiaDago.	ex_data setname.

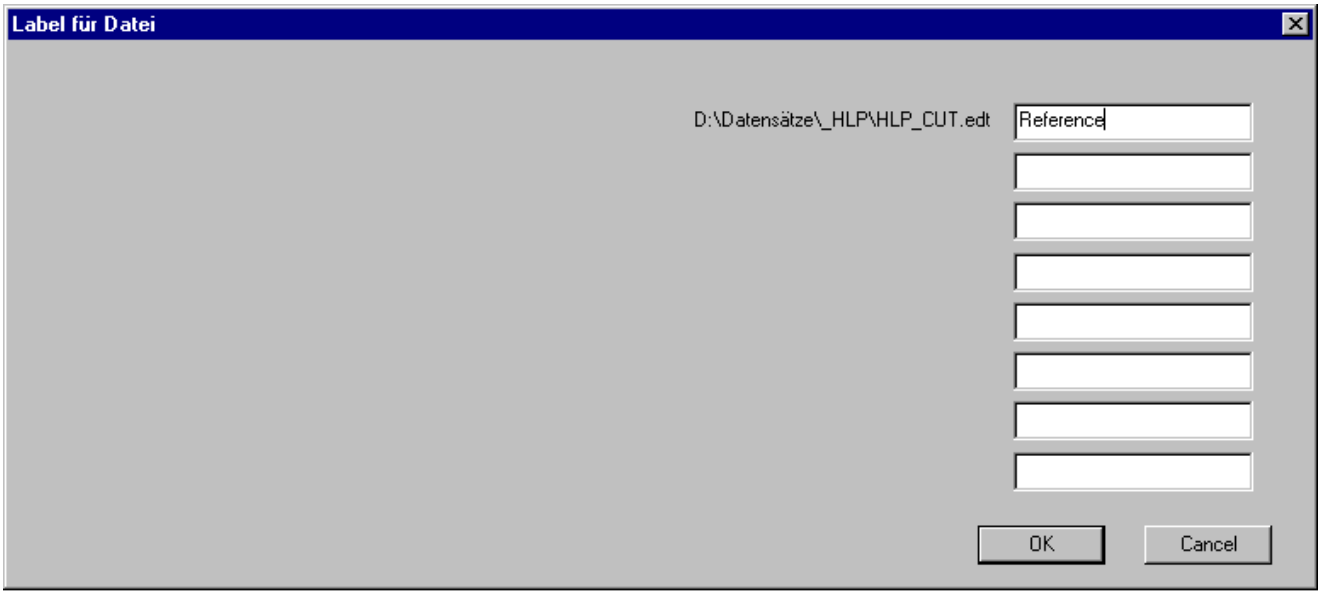
Importantly:
Check the export parameter in the menu Export, before choose export to E.d.a.s.Win, to ASCII to RPC3 and to DiaDago

Importantly:
The calculation of the data set takes place only with the analysis S0 and no daughter analysis!

Clock rate conversion

GPS definition:
Defined path for GPS maps.

Label for dataset :
Enter a label for an dataset. This new label can be displayed in a table with the „$FileLabel" keyword.



Conduct Analysis with other data sets

In order to conduct an analysis with other test data sets, right click on the data set name in the Channel Selection Window. A pop-up menu opens. Left click on Change data file. The Open File dialogue box will be shown. Select a new file name and close the dialogue box by clicking on Open. The new file name now replaces the old one, and analysis will be performed under the new name.

Mark channels to display them in the analysis window

Mark channels to display them in the analysis window:

<**Shift** > + <**Enter**>: Mark channels in a group.
<**Ctrl** > + <**Enter**>: Mark single channels.

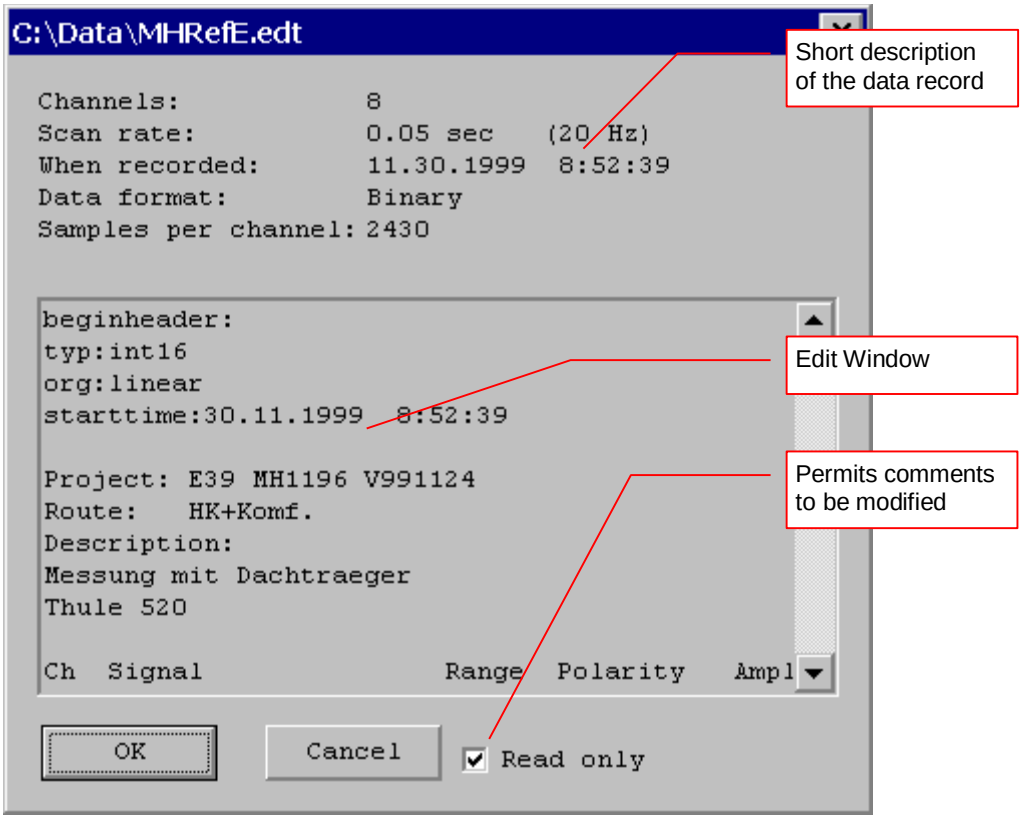
<**Ctrl** > +<**A**>+ <**Enter**>: Mark all channels

Mark channels to display them behind one another:

Mark the channels with pressed <**Ctrl**> key and press <**Enter**>.

The marked channels displayed behind one another.

Comments Editor



Right click on the data set name opens a menu. Click **Comment**.

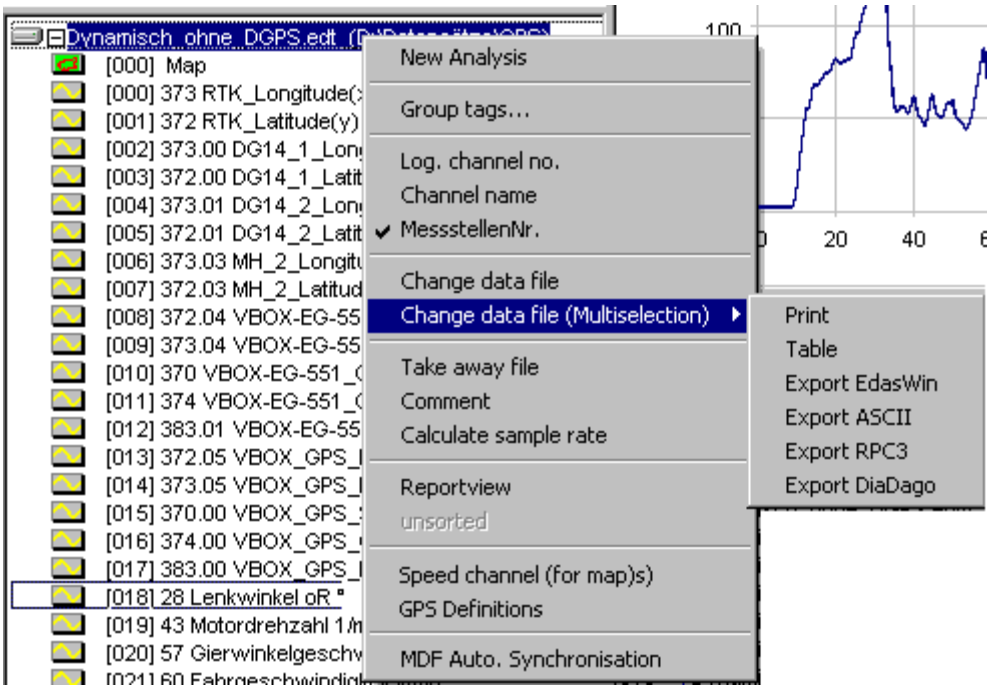
Scroll down to read the comment. To edit the file comment deactivate the checkmark **Read only** The comment can be worked on and filled with new keywords.

Clock rate conversion

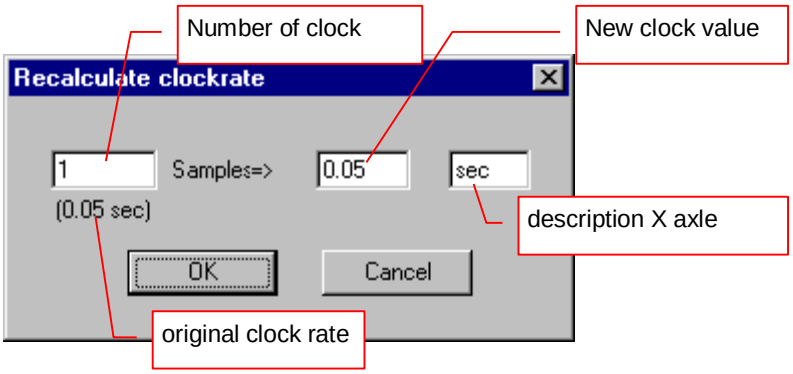
Changing or converting the clock rate in the data set:

Example:
360 clocks are to correspond 1 degree with inscription to the X axle in degrees.

Right click in the channel selection window on the data set. A menu appears.



Choose calculate sample rate, the following dialogue opens:

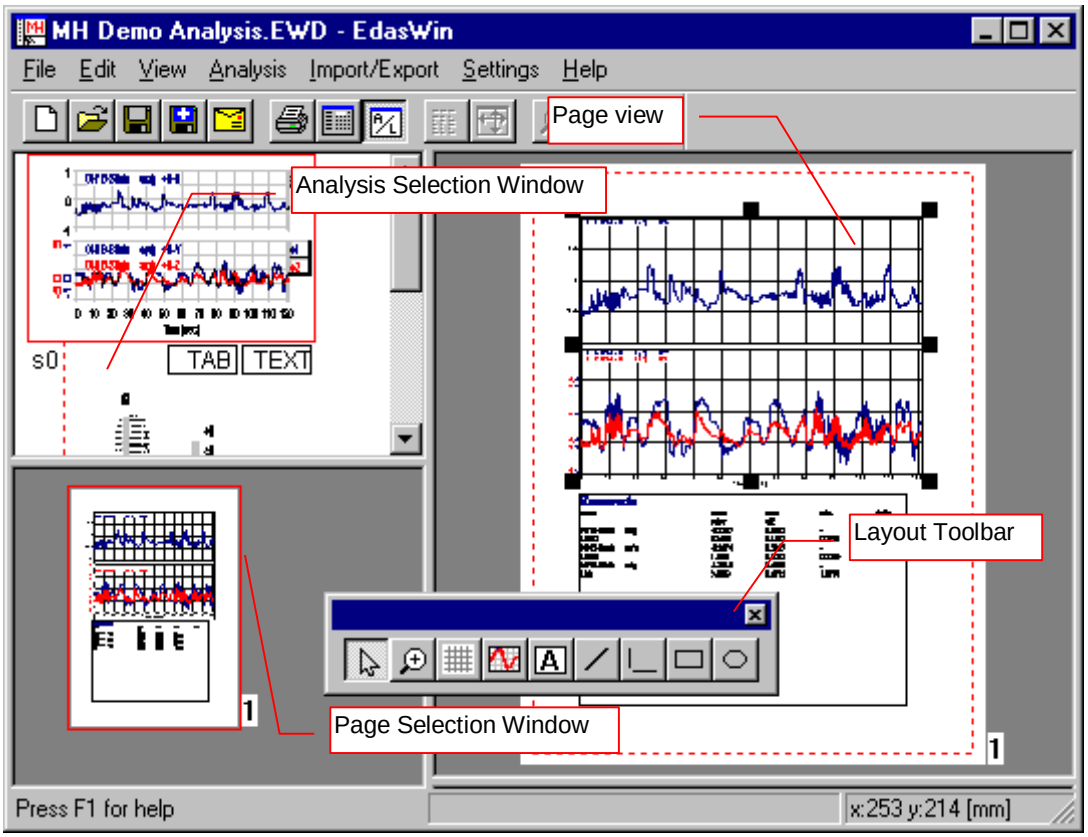


Input of the values from the example into the appropriate dialogue fields.

Note:
After this procedure the keyword new clock rate (NewClkrate) will added in the file commentary.
The old clock rate (clk) is not overwritten in the file commentary.

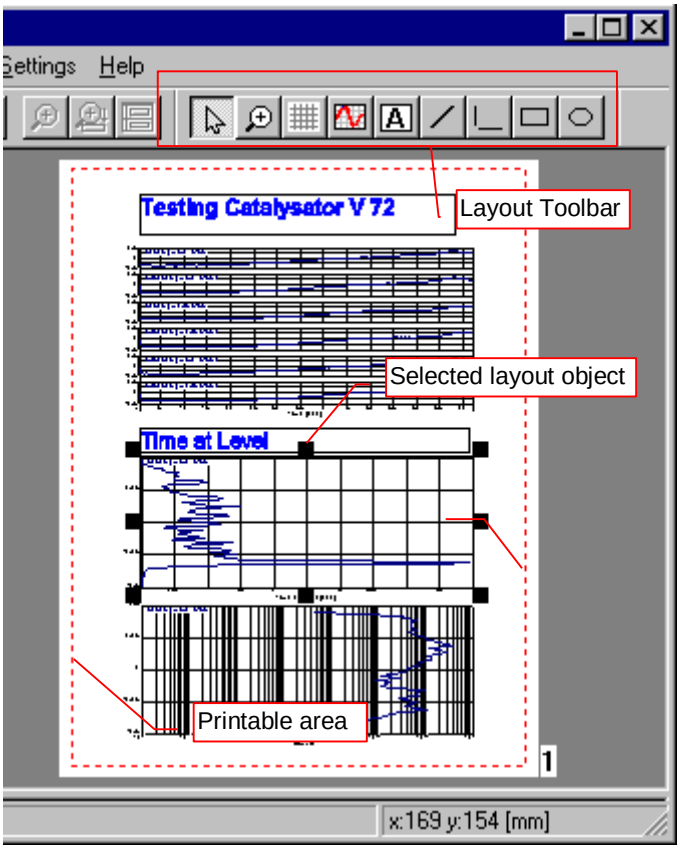
Layout view

Documentation is generated in this view.

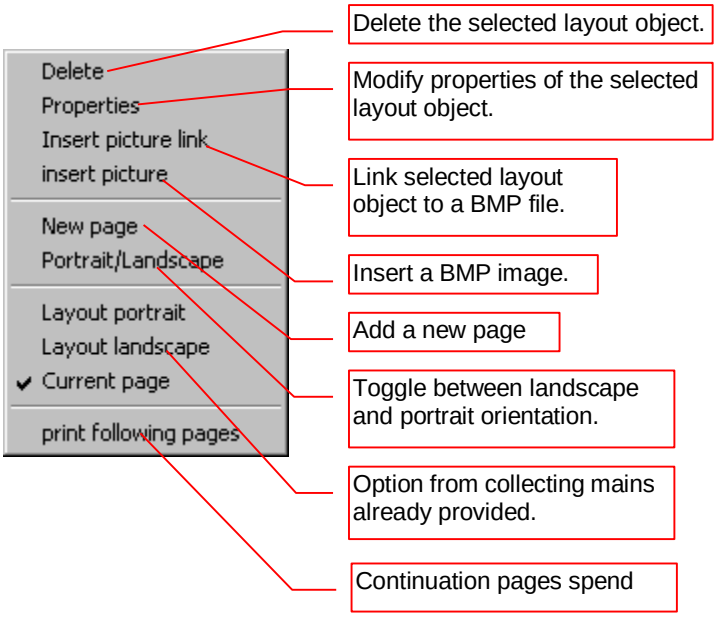


Analysis selection window
Page selection window
Page view

Layout Window



Click with the right mouse button in the Layout Window to display the following menu:

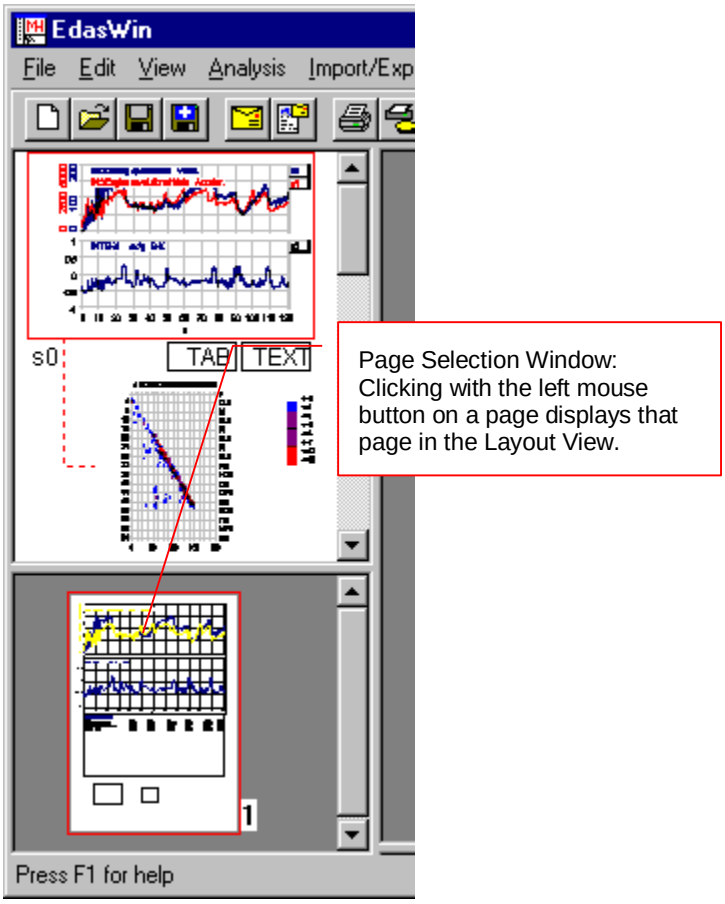


Key Assignment Layout Window

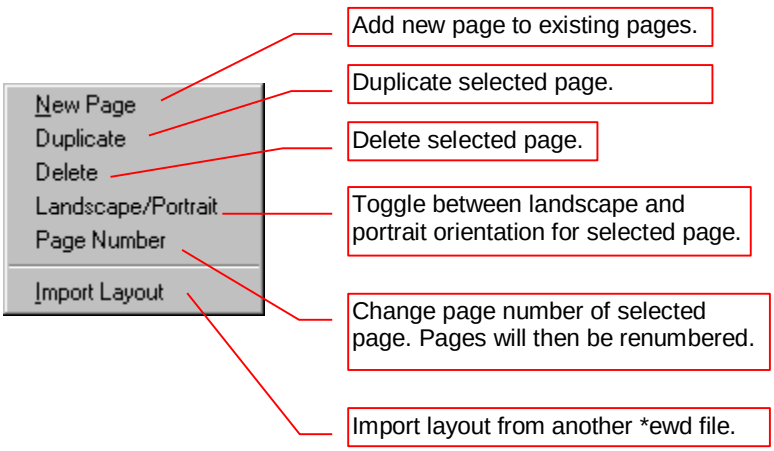
<PageUp>	Next Page
<PageDn>	Previous Page

Page Selection Window

The Page Selection Window only appears in the Layout mode. In this window you may select the page you want to edit.



Use the Page Selection Window to select the page you want to edit in the Layout Window. Click with the right mouse button in the Page Selection Window to display the following menu:

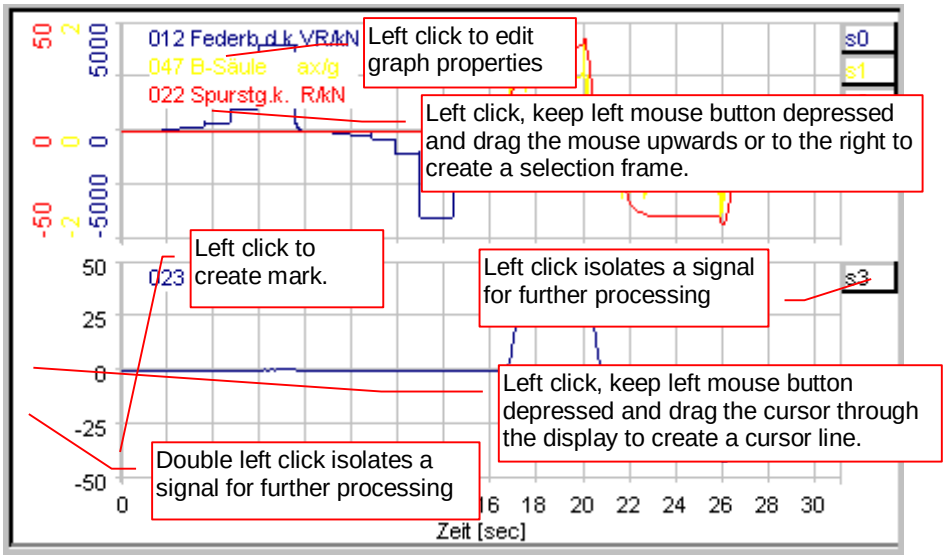


Key Assignment Page Selection Window

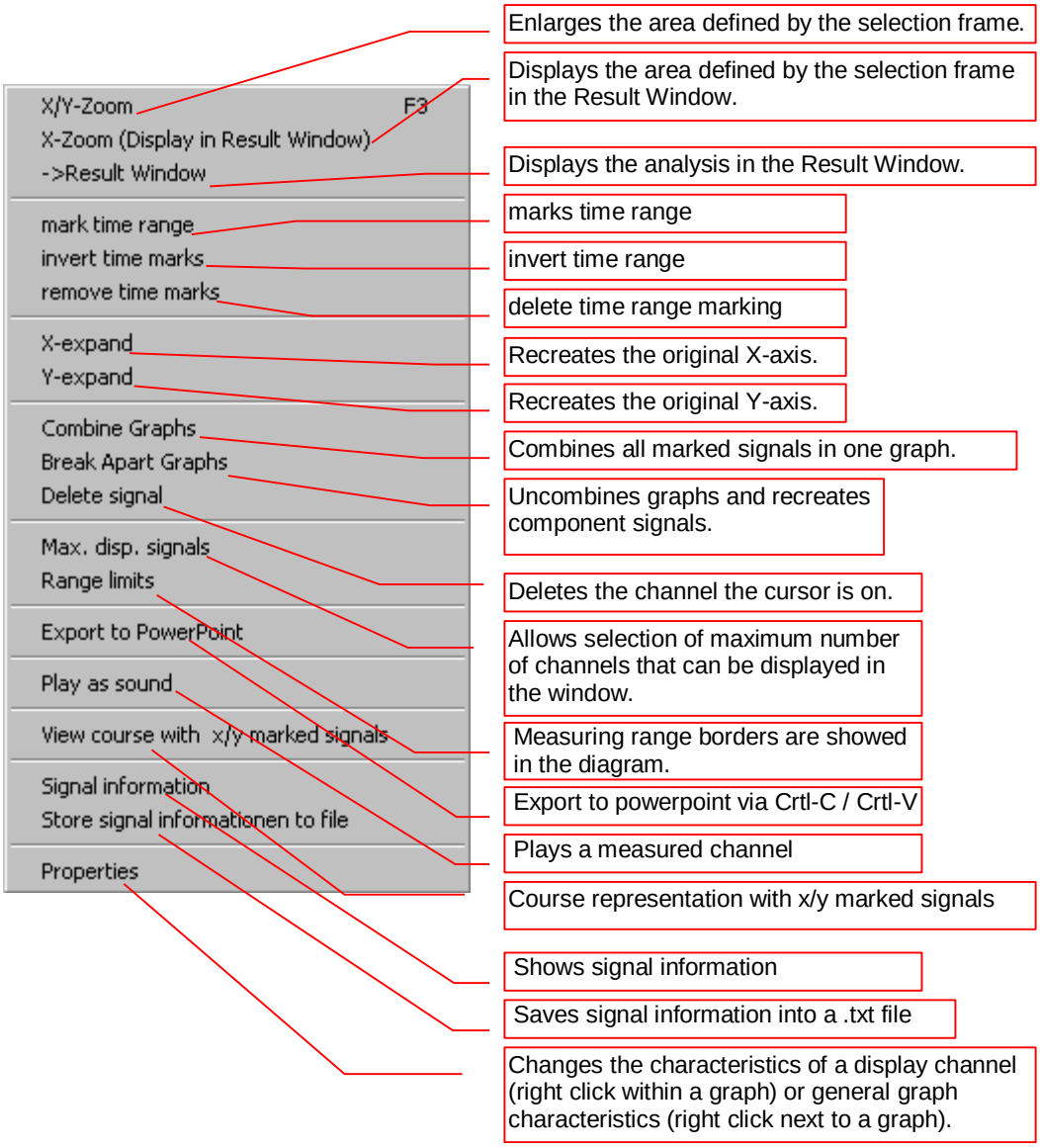
<PageUp>	Next Page
<PageDn>	Previous Page

Analysis window

The Analysis Window is the window with which you will work the most. In it the selected channels as well as the ones processed with the Analysis Calculator will be displayed.



Right click in the Analysis Window opens the following menu:



Key Assignment Analysis Window

Cursor ->	Move selection frame 1/10 to the right or, if zoom is in effect, move visible screen to the right by 1/10
Cursor <-	Move selection frame 1/10 to the left or, if zoom is in effect, move visible screen to the left by 1/10
Shift+Cursor ->	Move selection frame to the right or, if zoom is in effect, move visible screen one page to the right
Shift+Cursor <-	Move selection frame to the left or, if zoom is in effect, move visible screen one page to the left
F3	Enlarge selection frame in the Analysis Window
F6	Toggle between analysis screen and layout screen
F7	Create table for Analysis Window
F8	Toggle Analysis Window size
PageDn	Scroll down by the page if fewer channels are displayed than actually exist as selected in the Analysis Window Pop-up Menu.
PageUp	Scroll up by the page if fewer channels are displayed than actually exist as selected in the Analysis Window Pop-up Menu.

CursorDn selected in the	Scroll down by the channel if fewer channels are displayed than actually exist as Analysis Window Pop-up Menu.
CursorDn selected in the	Scroll up by the channel if fewer channels are displayed than actually exist as Analysis Window Pop-up Menu.

Selecting and marking signals in the analysis window

For some operations individual signals have to be selected and marked in the Analysis Window. An individual signal is marked by moving the cursor to the left of the display channel until it turns into an „M". Select and mark the signal by left clicking now. The mark takes the shape of a Y with a number. The Y designates the type of mark it is (here: Y mark). The numbers are assigned sequentially. The sequence is taken into account for analysis functions. If you keep the „n" or „x" key depressed on the keyboard while executing the steps described above, an N-mark or an X-mark respectively will be placed. The N-mark marks the RPM channel for magnitude analysis. The X-mark marks the X-reference of the characteristic curve display.

You can also place an X or N mark as follows:
First click on the characteristic curve or magnitude analysis option in the analysis menu to access the corresponding Analysis Dialogue box. If you now wish to place a mark as described above, click with the left mouse button and a small pop-up menu appears, from which you can choose to place an N, X, or Y mark.

The **N**-mark marks the number of revolutions channel for the order analysis and rolling over.

The **X**-mark marks the X-reference for XY Plot.

Delete marks:
Move mouse courser to the left of the view channel move and left-click.
Select in the popup menu:
Delete (one mark)
Delete all.

Measuring range borders

Around an optimal adjustment of the sensor to the measuring range to find out the measuring range borders can be indicated in E.d.a.s.Win. Right click in the analysis window implement and measuring range borders select. The measuring range borders are faded in as broken lines, into the diagram. If an arithmetic operation with the channel is accomplished fades out E.d.a.s.Win the borders automatically.

Copy and cut from signal ranges

Copy:
Select the signal range, which can be copied in the analysis window, with a selection frame. Set a cursor to the place in the signal, which the copied signal range to be replaced.

Importantly: The copied signal range replaced the existing signal range always on the right side from the cursor.

Click <Copy> on the Analysis Calculator. The signal range is replaced on the right side from the cursor.

Cut:
Select the signal range which can be cut out in the analysis window with a selection frame, or set two cursors to define the signal range.
Click <Cut> on the Analysis Calculator. The signal range is cut out of the signal.

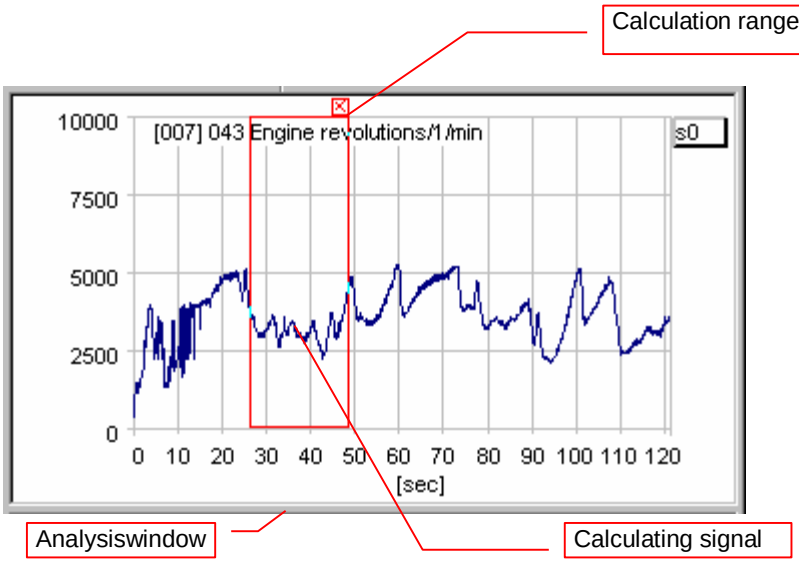
Ins:
Select the signal range, which can be inserted in the analysis window, with a selection frame. Set a cursor to the place in the signal, which the copied signal range to be inserted.

Click <Ins> on the Analysis Calculator. The signal range is inserted on the right side from the cursor.

Calculate inside selection frame

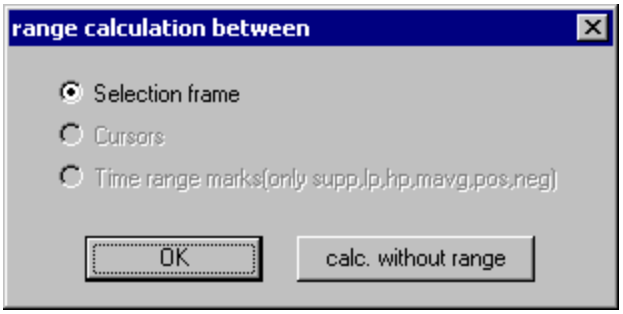
Through set a selection frame in the analysis window, ranges from single or multiple signals can be calculated with functions of the analysis calculator .

Calculate single signal:
In the analysis window from E.d.a.s.Win a selection frame is drawn up on the position which can be calculated.



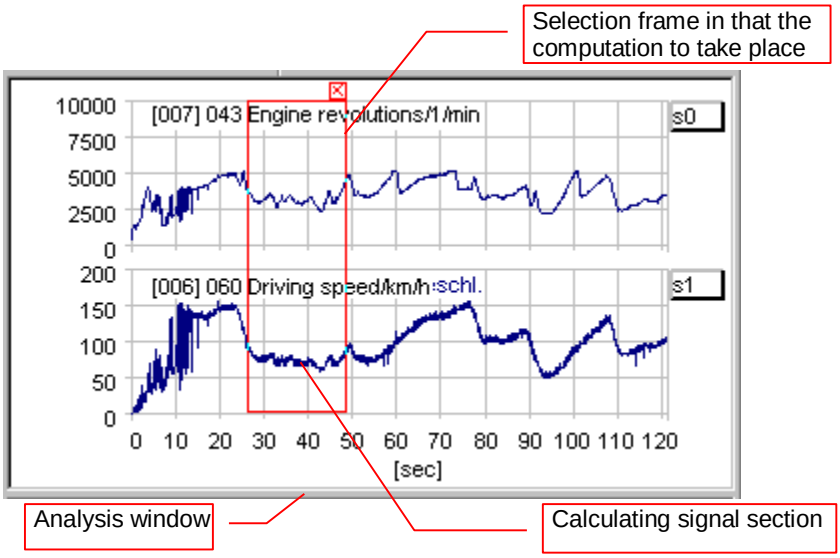
The range which can be calculated is marked now with the selection frame. Enter the desired arithmetic function on the analysis calculator.

Note: If the following dialogue does not appear, the function: **calculate in the selection frame** is not available.
The whole signal will be calculated. The available functions are specified at the end of this chapter.



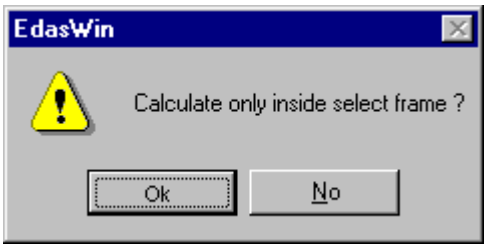
Click <OK>
"**Calc. without range**" calculates the whole signal.

Calculate from two signals:
In the analysis window the signals s0 and s1 are represented. A signal range from s0 is to be calculated with a signal range from s1. Set a selection frame across the range which with each other calculated.



The calculate range from s0 and s1 is now marked with a selection frame. Enter the desired arithmetic function on the analysis calculator.

Note: If the following dialogue does not appear, the function "calculate in the selection frame" is not available.
The whole signal will be calculated. The available functions are specified at the end of this chapter.



<OK> calculates the range inside the selection frame.
<NO> calculates the whole signal.

After proceed s0 displays calculated in the analysis window.

Functions:
This functions on the analysis calculator are available to calculate in a selection frame:
Filters and Smoothing Functions

Lp	Opens the Low-pass Filter dialogue window with programmable order and cutoff frequency (Butterworth functions)
Hp	Opens the High-pass Filter dialogue window with programmable order and cutoff frequency (Butterworth functions)
Pos	Cuts off all negative signal elements – sets all negative values to zero (0).
Neg	Cuts off all positive signal elements – sets all positive values to zero (0)
Supp	Opens the Spike Suppression dialogue window.
Mavg	Opens Moving Average dialogue window with programmable time constant

Trigonometric Functions

Sin	Calculates Sin(x) for all marked signals – degrees in radians.
Cos	Calculates Cos(x) for all marked signals – degrees in radians.

Tan	Calculates Tan(x) for all marked signals – degrees in radians
ASin	Calculates Asin(x) for all marked signals – degrees in radians.
ACos	Calculates Acos(x) for all marked signals – degrees in radians.
ATan	Calculates Atan(x) for all marked signals – degrees in radians.

Mathematical Functions

Chs	Inverts all marked signals.
sqrt	Calculates the square root of all marked signals.
1/x	Calculates the inverse value of selected signals.
Abs	Calculates & displays the absolute value for all marked signals.
Log	Calculates the logarithm to the base 10 of a signal.
Ln	Calculates the natural logarithm of a signal
10^x	Reciprocal of the logarithm to the base 10.
e^x	Reciprocal of the natural logarithm
Int	Integrates marked signals.
Dev	Differentiates marked signals.
Sign	Performs „sign" function on selected data.

Boolean Functions

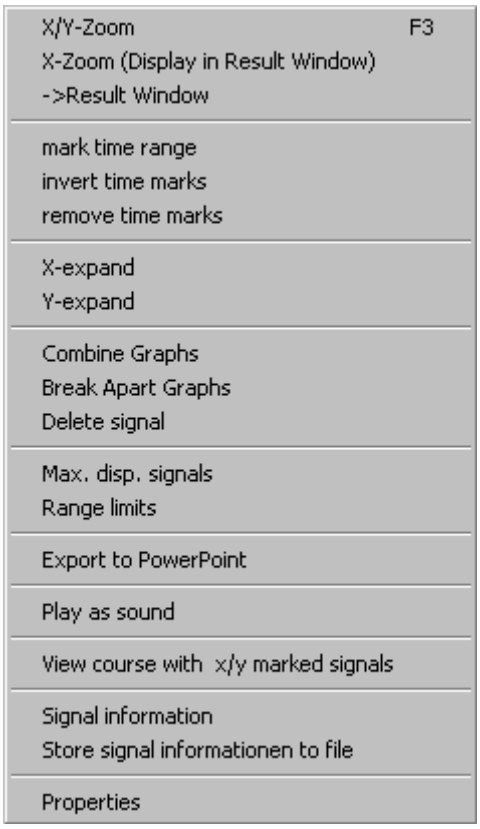
Not	Logical „Not" function for digital data.

Basic arithmetic operations

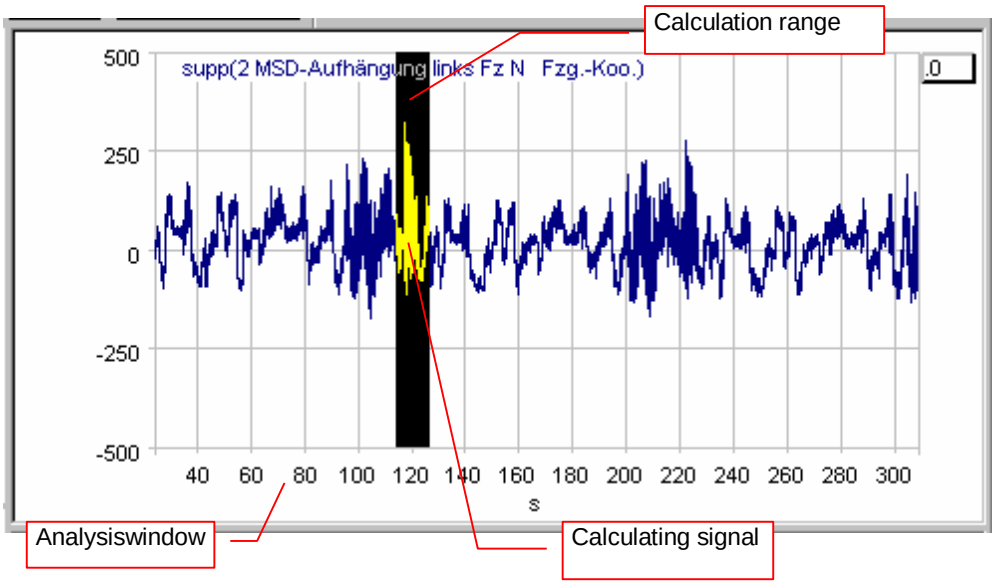
+	add
-	subtract
/	divide
*	multiply

Calculate with time range marker

Set a selection frame in the analysis window. Right click opens a popup menu:

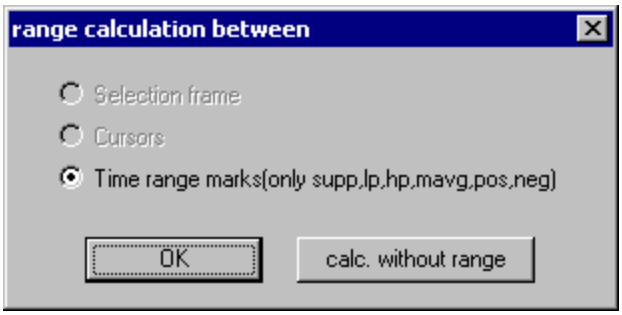


Choose mark time range



The range which can be calculated is dyed black. Enter the desired arithmetic function on the analysis computer.
At present only <SUPP>, <LP>, <HP>, <MAVG>, <POS> and <NEG> functions.

Note: If the following dialogue does not appear, the function "calculate in the selection frame" is not available.
The whole signal will be calculated. The available functions are specified at the end of this chapter.



Invert time marks:
Right click into the analysis window, and choose invert time marks. The remaining signal is dyed black and can be calculated.

X / Y- Zoom

X Zoom:
In order to enlarge the signals in the Analysis Window along the X axis, create a selection frame by left clicking within a display channel and defining the left border of the selection frame. Keeping the left mouse button pressed, drag the mouse to move the right border of the selection frame to the desired position. The selection frame you have just defined can be enlarged on both sides by left clicking on the left or right border and dragging the mouse to the desired position. You can move the entire frame by left clicking within its borders, keeping the left mouse button pressed and dragging the entire frame to the desired position. Once you have defined the selection frame you can enlarge its contents in two ways.

Method 1
Shortcut**:** <F3>Key

Method 2
Right click within the Analysis Window and select X/Y Zoom in the pop-up menu that appears. An enlarged view of the channels is displayed in the Analysis Window.

Method 3
Right click within the Analysis Window and select X-Zoom (Display in Result Window) from the pop-up menu that appears. An enlarged view of the channels is displayed in the Result Window below the Analysis Window. If you manipulate the selection frame in the Analysis Window in one of the ways described above, the Result Window will be updated with the new range as soon as you release the left mouse button.
This connection between the selection frame and the Result Window is canceled if you define a selection frame and conduct an X-Zoom in the Result Window as well. This enables you to compare different time ranges for the same signals, or to measure them with the cursor function. The connection can be re-established by clicking on the X-Zoom (Display in Result Window) pop-up menu in the Analysis Window again.

Y Zoom:
In order to enlarge the signals in the Analysis Window along the Y-axis, create a selection frame by left clicking within a display channel and defining the lower border of the selection frame. Keeping the left mouse button pressed, drag the mouse to move the upper border of the selection frame to the desired position. The selection frame you have just defined can be enlarged by left clicking on the lower or upper border and dragging the mouse to the desired position.
You can move the entire frame by left clicking within its borders, keeping the left mouse button pressed and dragging the entire frame to the desired position.
To enlarge the signal, right click inside the Analysis Window and select X/Y Zoom from the pop-up menu that then appears. An enlarged view of the channels is displayed in the Analysis Window.

Zoom and scroll with mouse wheel
Press the key <**Ctrl**> and at the same time the mouse wheel forward untwist zoomed the signal in the analysis window, at the X position of the mouse. Turning the mouse wheel the signal scrolls in X-direction in the analysis window.

Shifting Selection frame:
X- Shift selection frame with mouse:
Point-exactly:
Click on a point of the signal which can be worked; the selection frame is positioned centrically on the point.
Free hand:

Left click within the selection frame and with pressed left mouse button the complete selection frame shift to the right or left, to a new position.

X- Shift selection frame with mouse wheel:
Press the <**Shift**> key to keep and at the mouse wheel turn shifts the selection frame to the left/right.

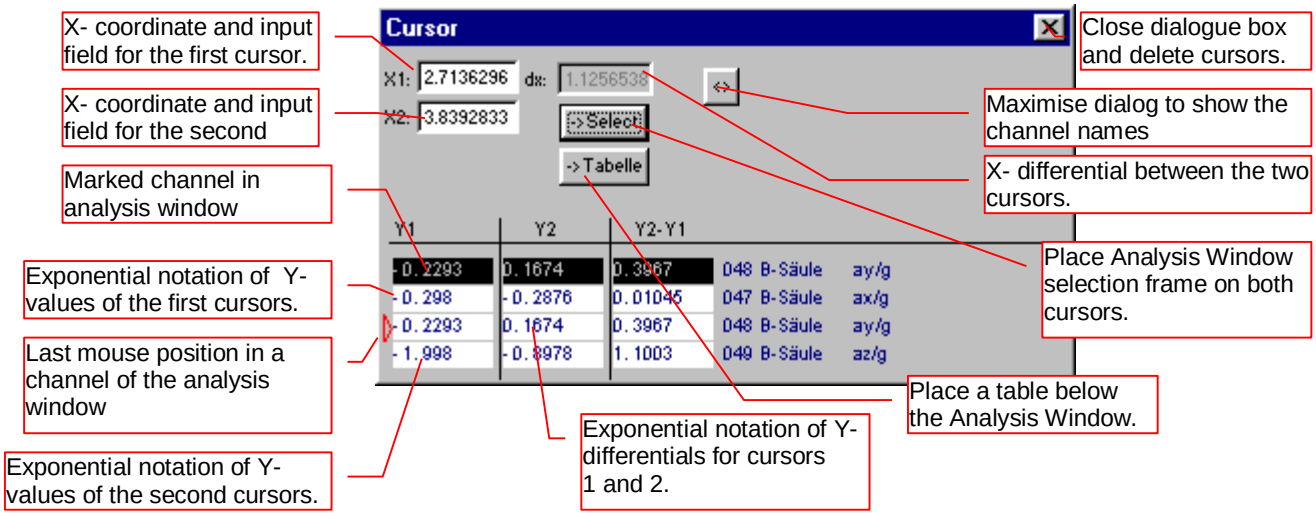
X-Axis adjust

See diagramm properties

Y-Axis adjust

See channel properties

Cursor



Setting cursor lines

To create a cursor line, left click to the left of a display channel and move the cursor to the right across the left border of the channel while keeping the mouse button depressed. The cursor line and a Cursor dialogue box appear. You may create a second cursor line using the same method. The Cursor dialogue box contains the corresponding numerical values for these cursor line positions.

Deleting the Cursor Lines

Close the Cursor Dialogue Box to delete the cursor lines.

A click on the right mouse button calls up additional functions.

You can switch to the Layout Display at any time. The Layout Display has three windows: The Layout Window (on the right), which takes up a full page, the analysis selection window, and the page selection window. Using a drag and drop method, you can transfer analyses from the analysis selection window into the layout window and position them either independently or using a default frame. Any number of pages are possible, and pages are selected from the page selection window.

If two Cursors are set, the measured values between the two cursors were displayed in the result window after clicking the generate table Buttons in the analysis tool bar. The expenditure of the time information depends on the time format indicated in the analysis window. (relativ, relativ HMS and abs. HMS)

Extended opinion in the cursor dialogue:

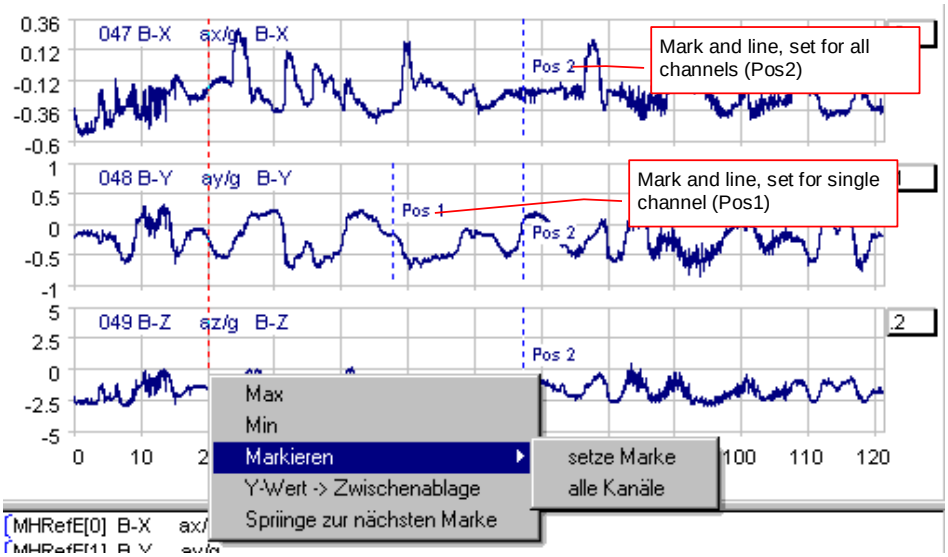
Each marked channel in the analysis window is indicated and black deposited in the dialogue. After enlargement of the dialogue the channel names are completely displayed.

Rightclick at the cursor line opens a popup menue.

See: Set mark and position with cursor

Set marks and position with cursor

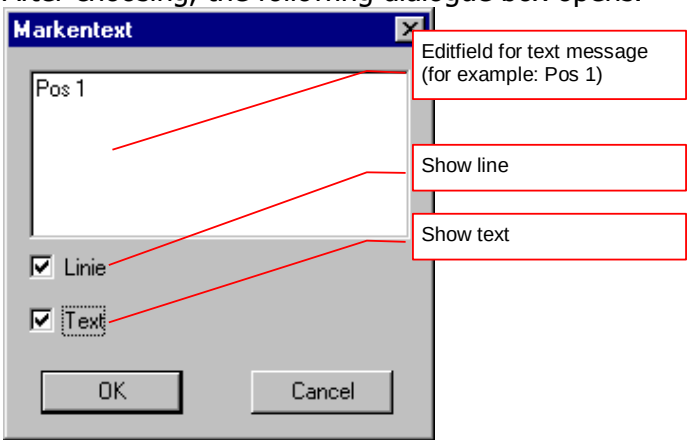
To set a mark or position, pull a cursor into the analysis window. Rightclick on the red cursor line opens a popup menue.



Max / Min Position from cursor line
Rightclick on the red cursor line:
Choose Max or Min position, the cursor goes automatically to the choosed cursor position. (Max / Min)

Marking
Choose between "set mark" for single channel or for "all channels". Set mark for a single channel, the mouse position at the channel in the Analysis Window is important.

After choosing, the following dialogue box opens.



Enter all values. Close the dialogue box with <OK>.

Notice:
All marks saved in the E.d.a.s.Win document. In the case of Export to E.d.a.s.Win, all marks saved into the exported dataset.

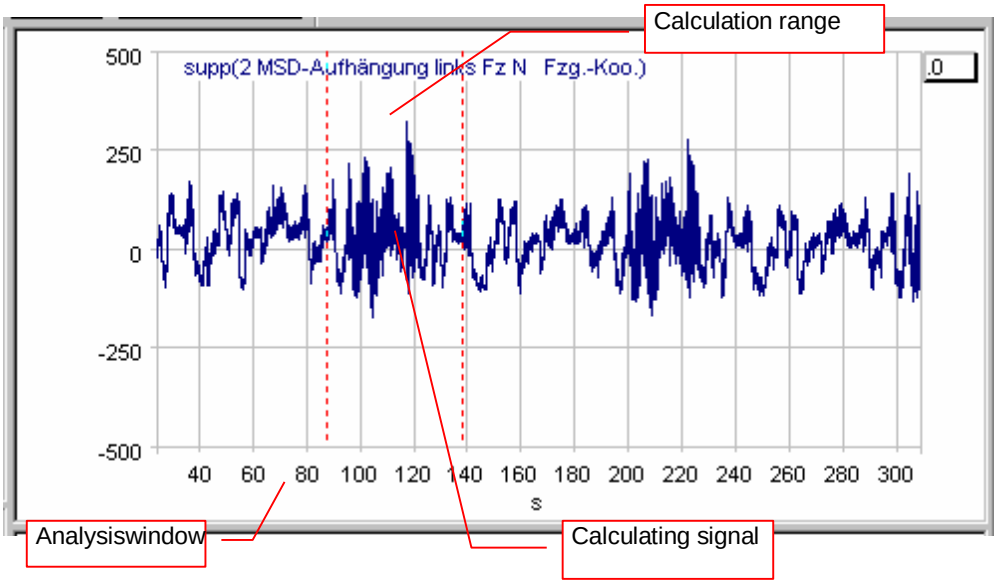
Y-Value -> clipboard
Takes the actually **Y- Value** into clipboard.

Move to next mark
The cursor moved to the next mark.

Calculate between two cursors

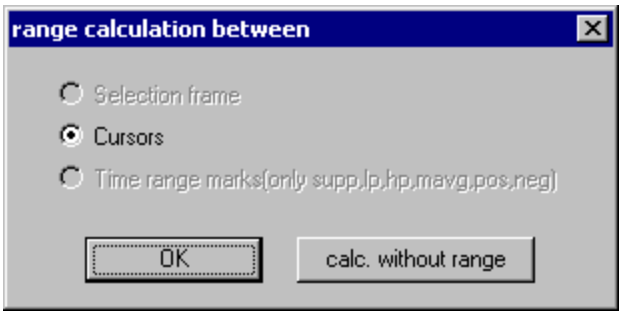
Signals between the range from two cursors in the analysis window,can be calculated with the functions of the analysis calculator.

Calculation with a signal: (Applies to one or more signals)
In the analysis window of E.d.a.s.Win two Cursors are dragged on the position to create a range which can be calculated.



The range which can be calculated is marked now with the two cursors. Enter the desired arithmetic function on the analysis calculator.

Note: If the following dialogue does not appear, the function "calculate in the selection frame" is not available.
The whole signal will be calculated. The available functions are specified at the end of this chapter.



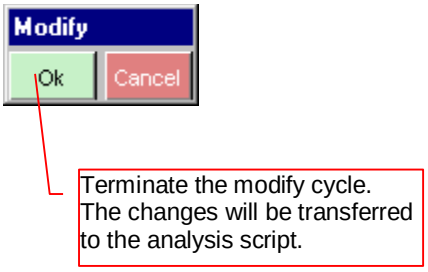
Click <OK>
"**Calc. without range**" calculates the whole signal.

Modify mode

Two possibilities to enter the modify mode are available:
1.
Left click on the signal identification in the analysis window right above. (The cursor transforms into a computer)

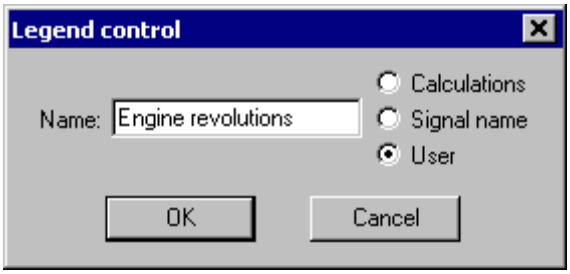
2.
To the left of the „Mark" zone, the cursor turns into an „A." Double click here.

The corresponding signal will be imported into a new analysis window for processing. The background of the analysis window displays yellow. After it has been processed, the signal can be placed in the original Analysis Window by click on the Ready button of the Modify-Ready dialogue box.



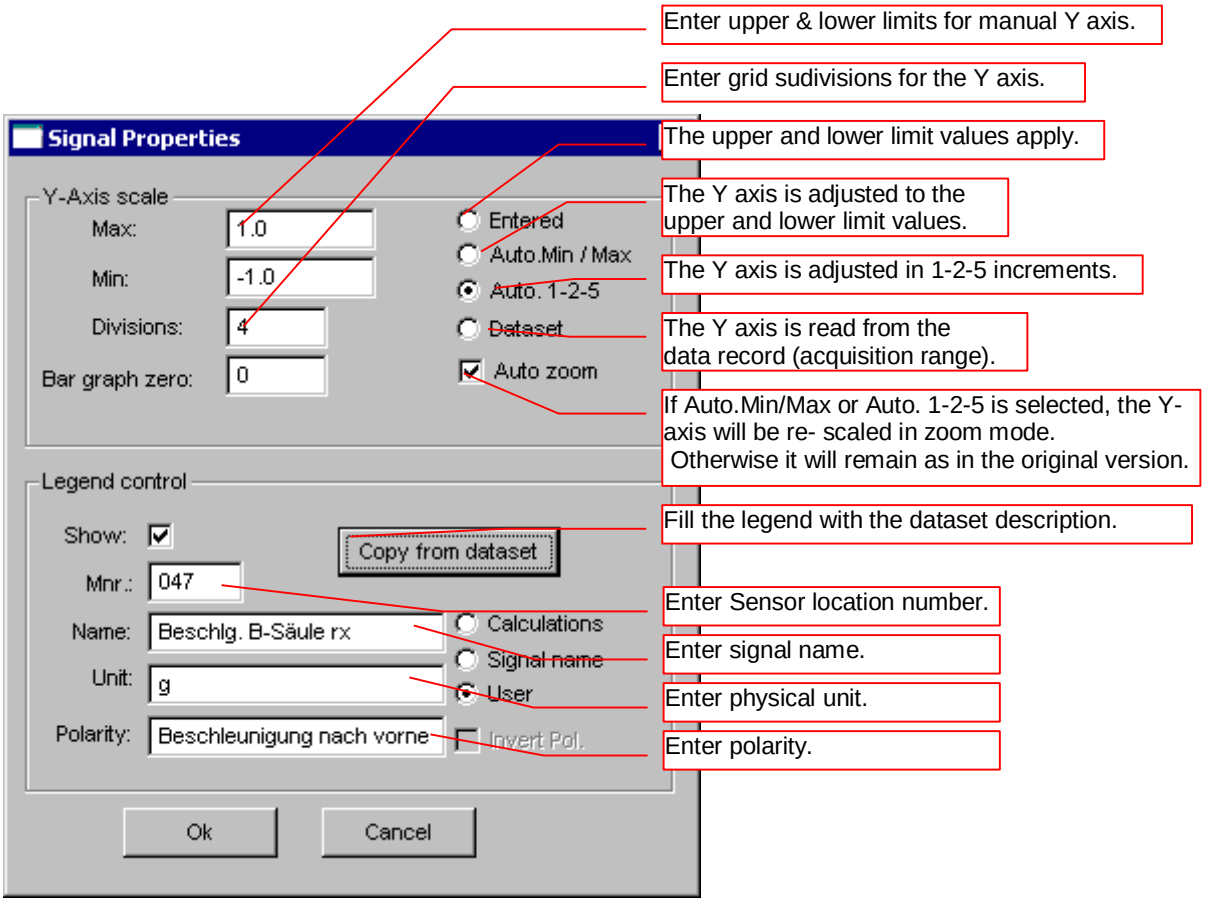
Edit channel name from signals

To edit the signal name, left click on the signal name when the mouse pointer changed into the ABC symbol.



Enter new name and confirm with **<OK>** .

Changing signal properties



To access the Signal Properties Dialogue box in order to change signal properties, click the cursor on the signal name of the desired channel in the Analysis Window (the cursor changes to 'ABC__' within a rectangle). The Properties Dialogue box for this channel pops up. Change the settings and end the dialogue by clicking OK. The Analysis Window is immediately updated with the new settings.

Manual data input from the number of fraction digits in the field Y-Scale:
The number of fraction digits can be entered manual.
Example:
Enter Value: 10 Max, -10 Min = **No** fraction digits
Enter Value: 10.00 Max, -10.00 Min = **Two** fraction digits

If marks are placed in the Analysis Window , the settings apply to all marked channels.

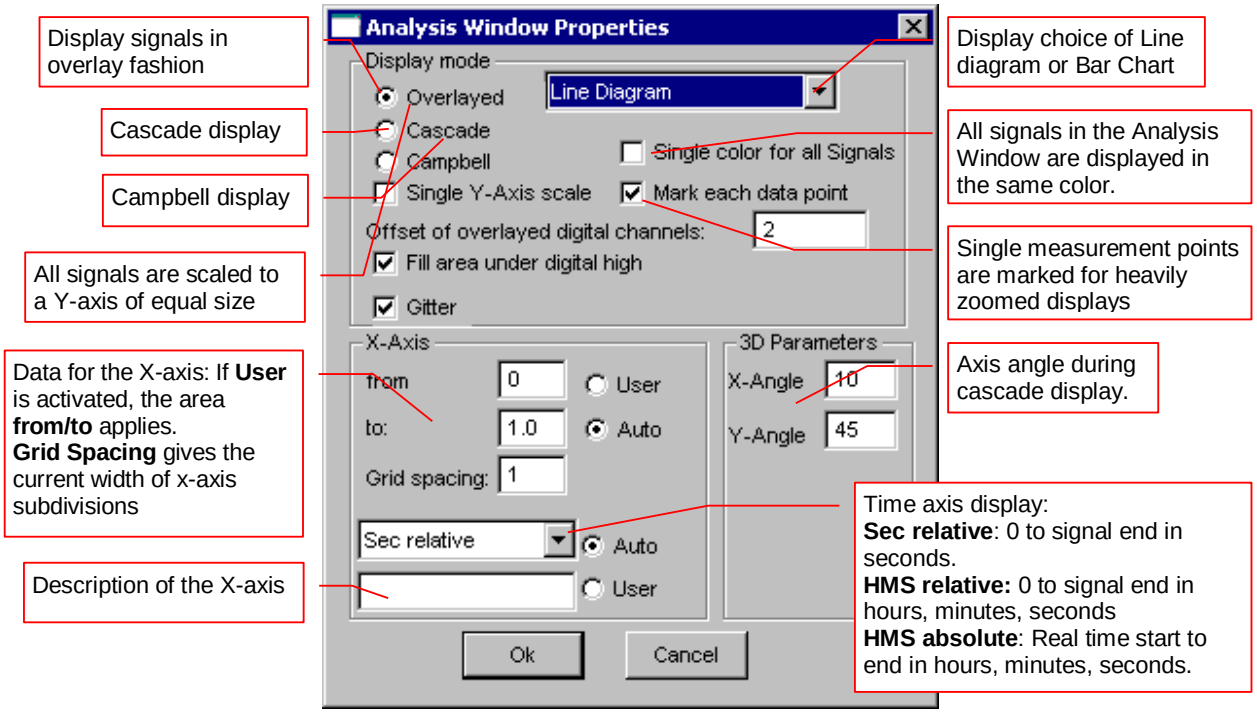
Change channel characteristics with several signals

If several signals are present in a diagram, the signal selection dialogue fades in for the faster treatment of channel characteristics.

Right click in the diagram (analysis or result window) gets a Popup menu. Choose properties, and select in the following dialogue the signal.

After the selection of the signal the channel-referred properties dialogue opens. This properties dialogue is dependent on the analysis with the channel is calculated.

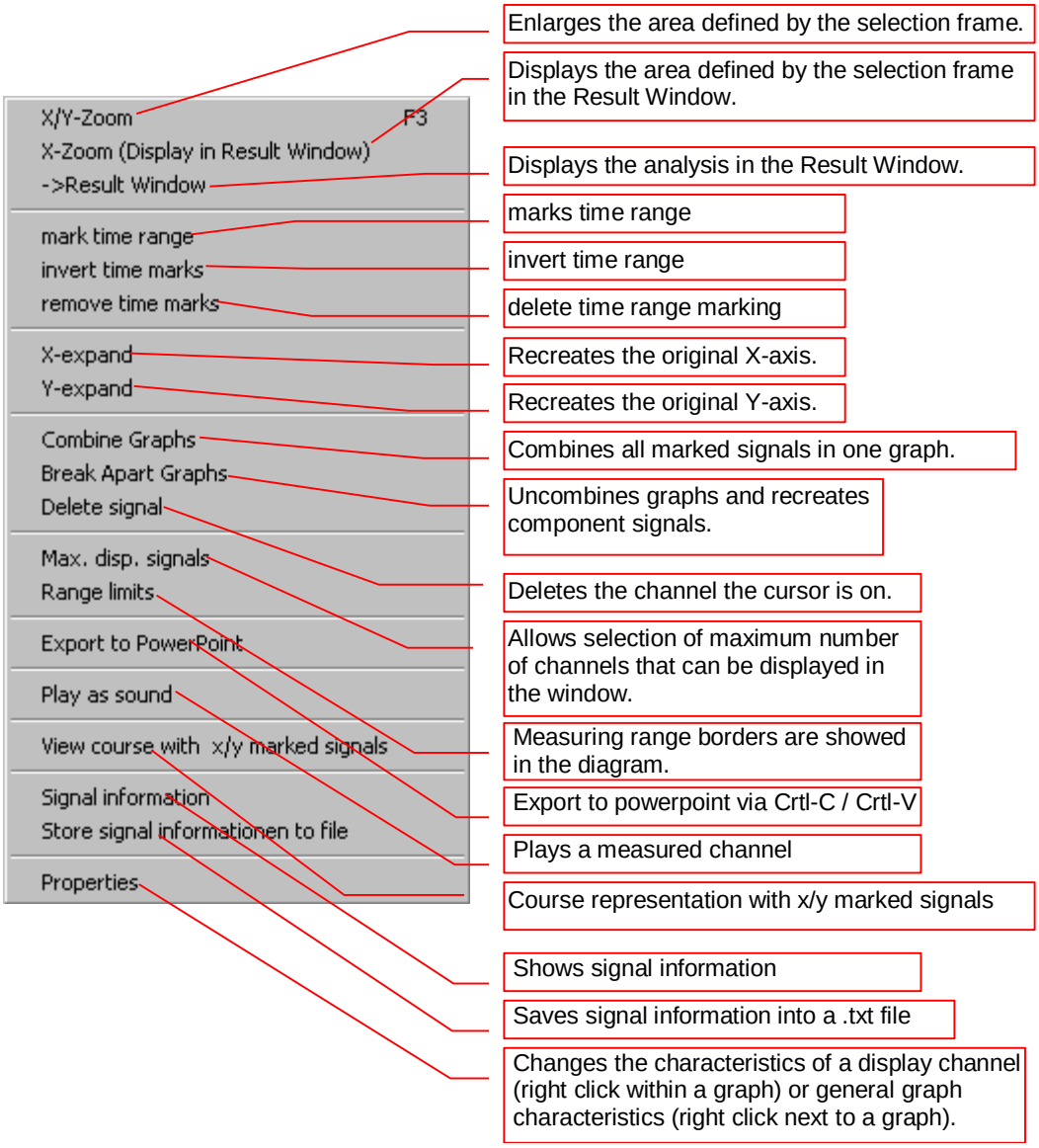
Changing analysis window properties



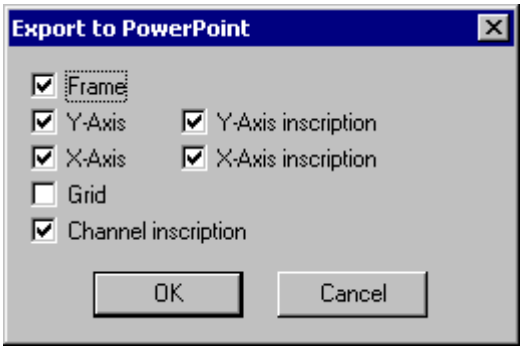
To access the Analysis Window Properties Dialogue box in order to change the general graph properties, click the right mouse button within the Analysis Window but outside of a display channel. Left click on Properties in the pop-up menu that appears. The Analysis Window Properties Dialogue box appears. Type in your changes and click OK to refresh the Analysis Window.

Export to PowerPoint

The analysis view can be exported for the further use in PowerPoint etc. into the clipboard.
Right click into Analysis Window:



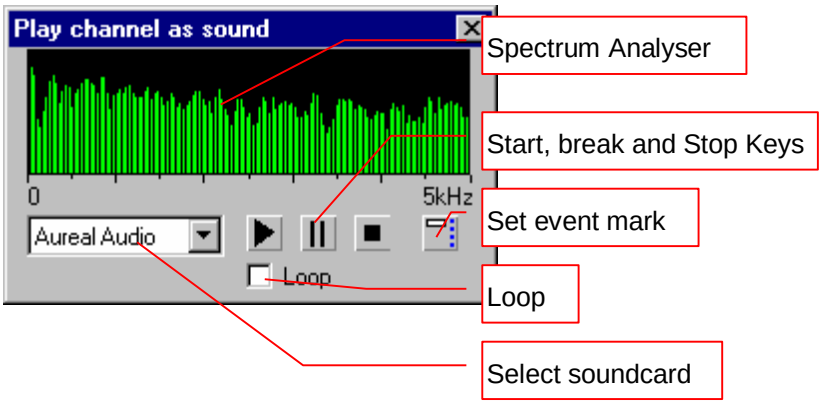
Choose <**Export to PowerPoint**> and enter the export parameters in the dialogue.



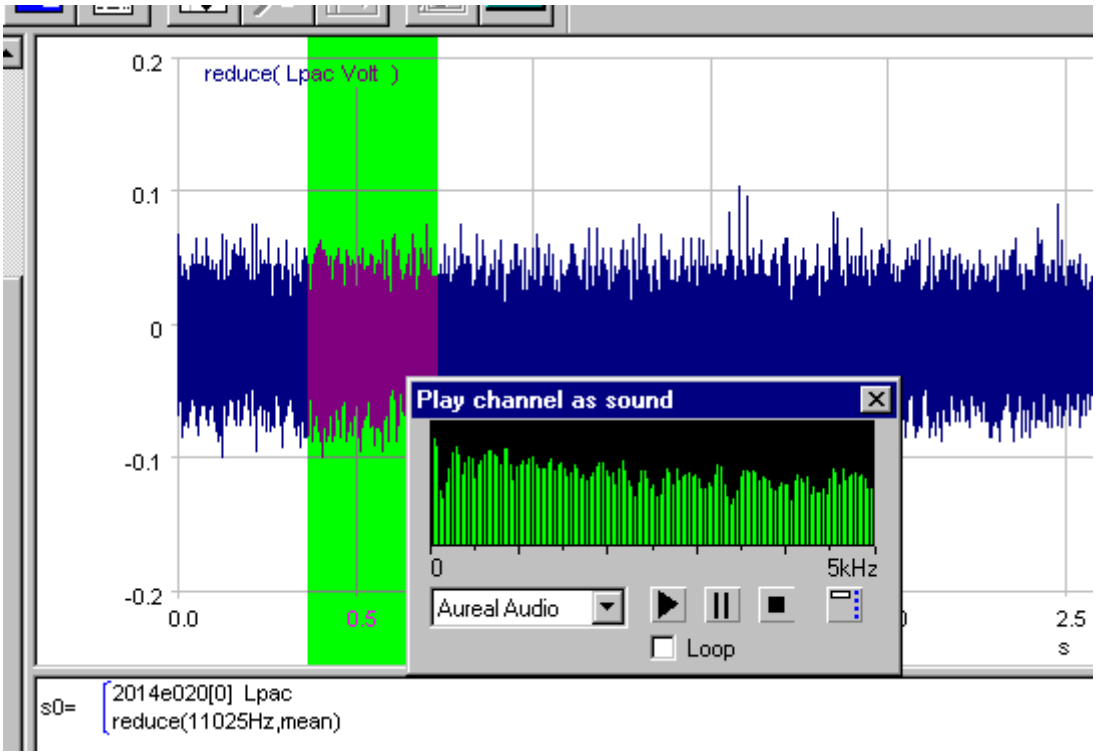
Open PowerPoint and insert the exported diagram with the clipboard.

Play as sound

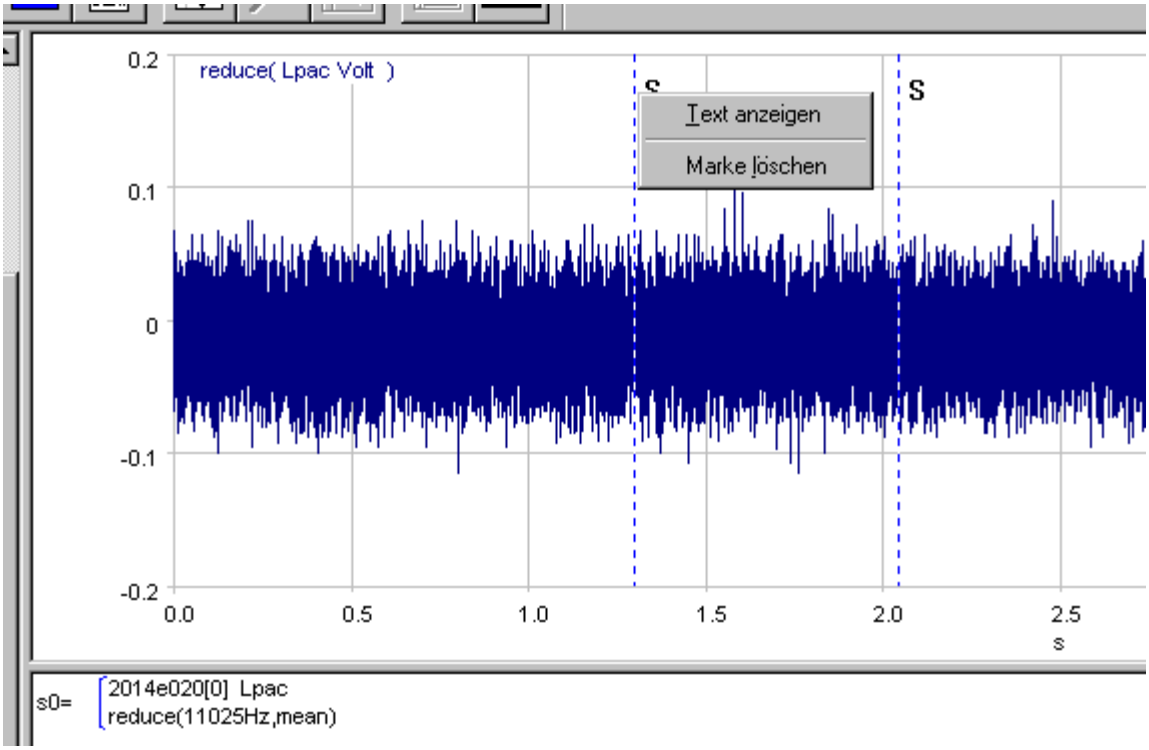
Display the channel which can be played in the analysis window. Right click into analysis window and choose Play as sound.



Start the playback. The frequency band is represented online in the measuring channel dialogue. At the same time a range bar moves over the channel in the analysis window, to show the sound position.



Marks they set during the playback, were showed as blue broken lines and with S characterized in the analysis window. Right click on the mark in the analysis window opens a popup menu.

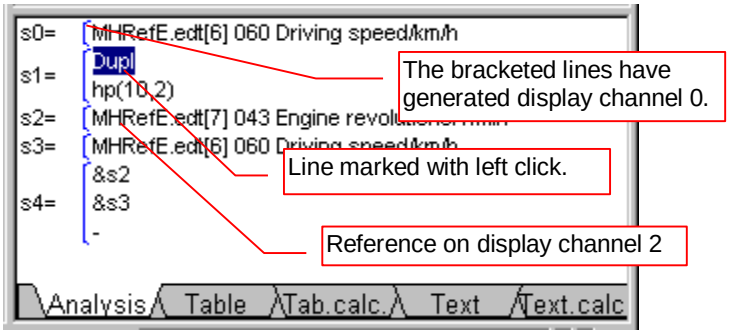


Text can be displayed, or mark delete.

Analysis Script / Result window

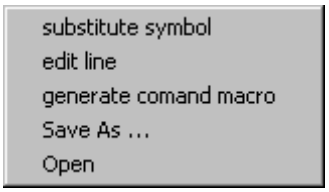
Result window
The Result Window is similar to the Analysis Window. It is generated automatically by zooming into the Result Window or by an analysis such as FFT.

Analysis script window
The Analysis Script Window sets all computations of the Analysis Calculator and the analyses of the Analysis Menu. It therefore describes the origins of all signals in the current Analysis Window. If you choose a different analysis the analysis script corresponding to the new analysis will be displayed.



Mark a line by clicking with the left mouse button. The marked line may be deleted using the <**Del**> button on the Analysis Calculator. You can insert a blank line with the <**INS**> button on the Analysis Calculator. In addition, a marked line may be replaced by a channel from the Channel Selection Window or by a function of the Analysis Calculator. This feature makes modifying an existing analysis script very easy. Multiple lines may be marked by left clicking on one line followed by holding the <**Shift**> key down and left clicking on another line. Marked lines may be moved to the clipboard by pressing <**Ctrl**> + <**C**>. If nothing is marked, the content of the clipboard will be added to the current analysis script by pressing <**Ctrl**> + <**V**>. If lines have been marked, they will be replaced with the contents of the clipboard.

Right click into result window:
The following Popup menu appears:



Substitute symbols set
Edit line
Command macro put on
Save as
Open

Analysis script mark and copy:
With left click and following <**Shift**>+left click on another line can several lines be marked. The marked can be copied with <**Ctrl**>+<**C**> into the clipboard. If no markings are present, the contents of the clipboard are attached to the current analysis script with <**Ctrl**> + <**V**>. If markings are present, then all marked lines are replaced by the contents of the clipboard.

Key Assignment Analysis Script Window

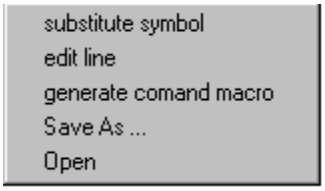
<Ctrl>+<C>	Copy marked lines to the clipboard
<Ctrl>+<V>	Add lines from the clipboard to analysis script or replace marked lines.
<Ins>	Insert blank line before marked line
<Del>	Delete marked lines
<PageDn>	Scroll down by the page if fewer channels are displayed in the Analysis window (as selected in the Analysis Window op-up Menu) than are actually shown on the Analysis Script Window
<PageUp>	Scroll up by the page if fewer channels are displayed in the Analysis window (as selected in the Analysis Window op-up Menu) than are actually shown on the Analysis Script Window
<CursorDn>	Scroll down by the page if fewer channels are displayed in the Analysis window (as selected in the Analysis Window op-up Menu) than are actually shown on the Analysis Script Window.
<CursorUp>	Scroll up by the page if fewer channels are displayed in the Analysis window (as selected in the Analysis Window op-up Menu) than are actually shown on the Analysis Script Window

Create analysis text: See Create analysis text
Create analysis table: See Create analysis table

Store and load analysis script

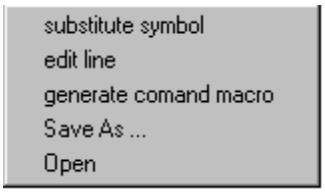
This function serves for documentation purposes and is stored as .txt file. This can be also loaded and edited with more expenditure. (Data set and channel name)

Store Analysis Script:
Right click into the analysis script window.



Choose save as in the popup menu. Enter file name and path and confirm with <OK>.

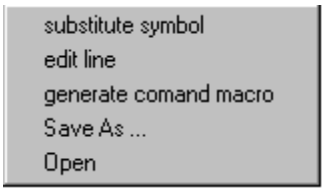
Load Analysis Script:
Right click into the analysis script window.



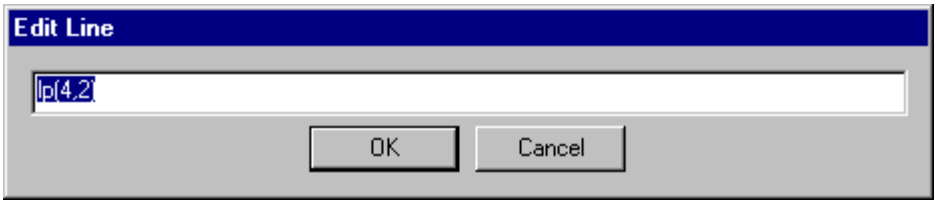
Choose Open in the popup menu. Select file and path and confirm with <OK>.

Edit line

Right click into the analysis script window.

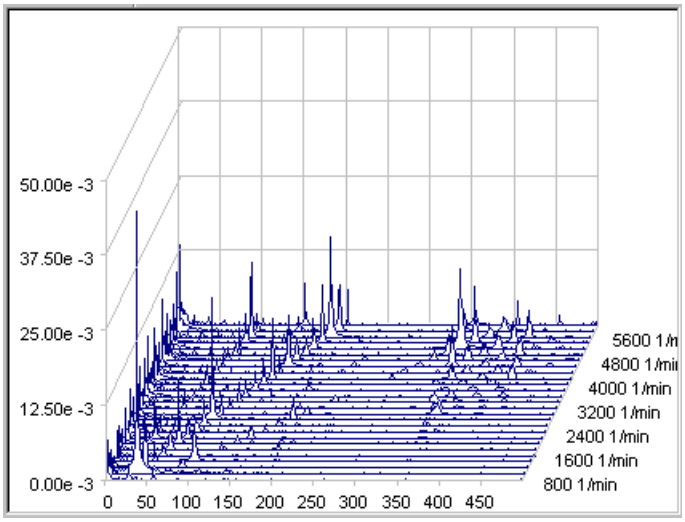


Choose edit line
In the following dialogue the analysis script can be edited



Confirm with **<OK>** .

Cascade display

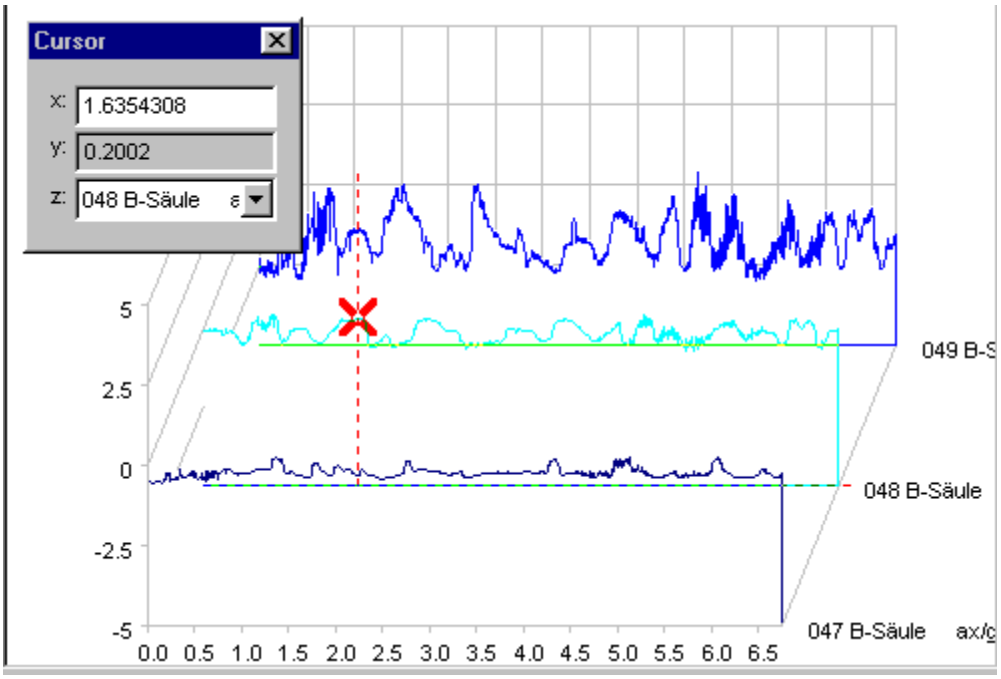


Generating a cascade graph:

The cascade graph serves to represent multiple signals (i.e. from order analysis, FFT, or other) in a clear three-dimensional fashion. To access a pop-up menu, click with the right mouse button on the border of the corresponding display window (Analysis or Result Window). The way in which the signals are displayed in the in the Analysis Window Properties dialogue box can be changed by clicking on the „Properties" option. Set the desired parameters and press OK to confirm. The selected mode of representation will appear. By using the Analysis Window Properties dialogue box you can modify the three-dimensional display.

Cursor in the cascade graph:

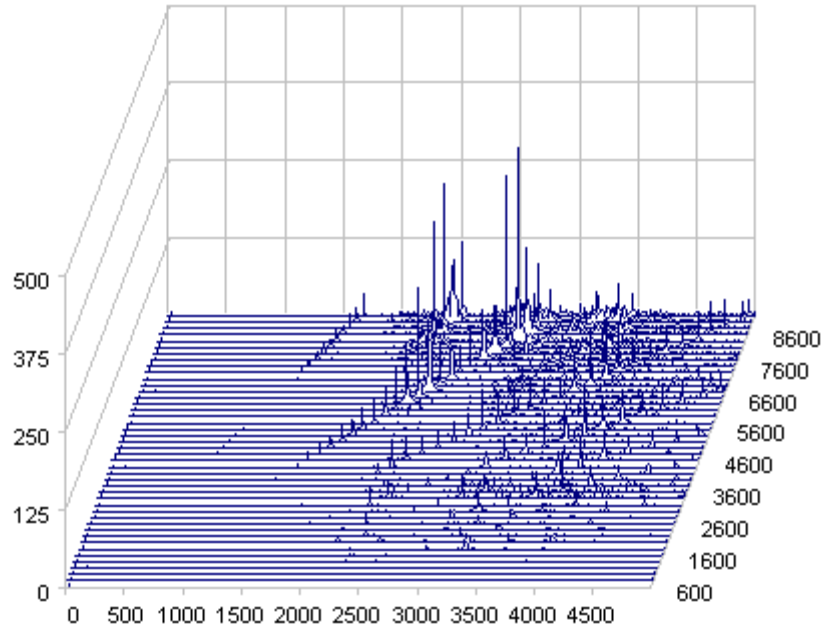
Pull in a cursor into the diagram opens the following cursor dialogue and marks the active channel with a red cross.



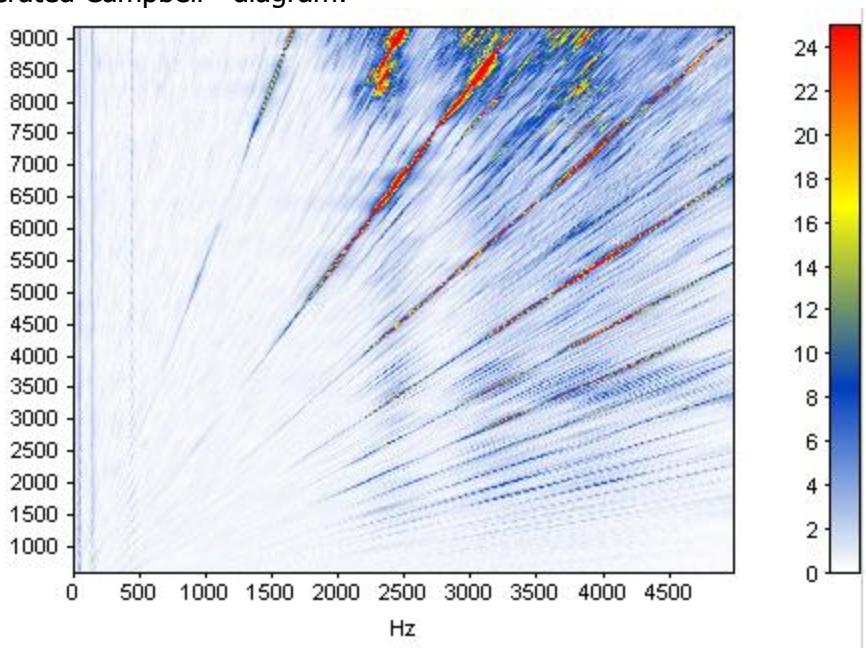
Campbell diagram

The Campbell - diagram is a colored representation, from a before generated Cascade - diagram (For example: from Orderanalysis, FFT .).

Generated waterfall - diagram:

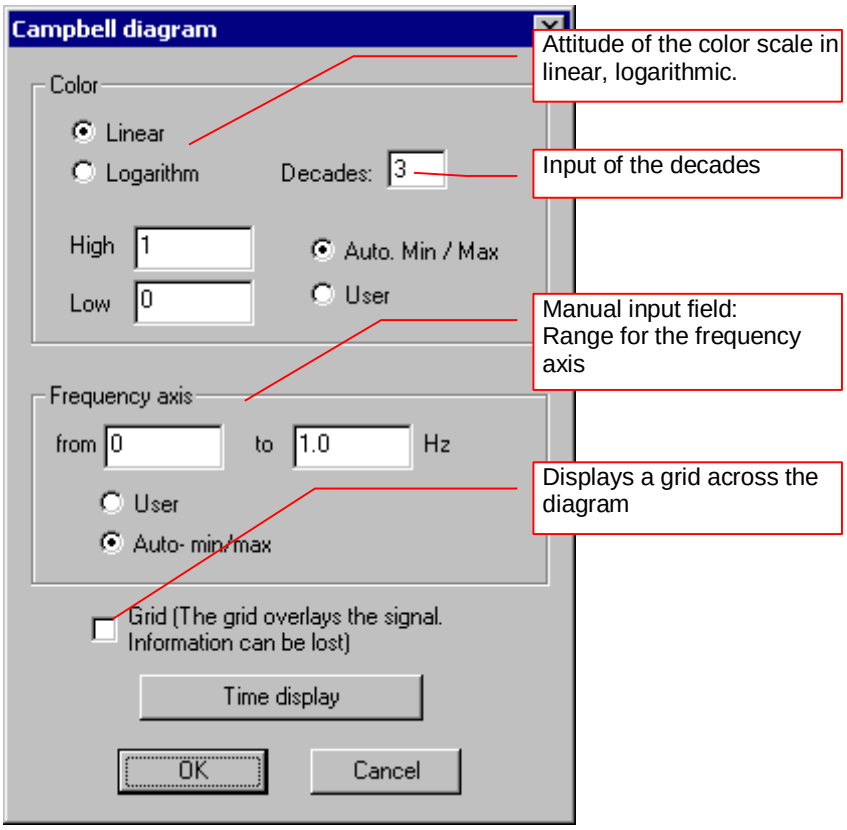


Generated Campbell - diagram:



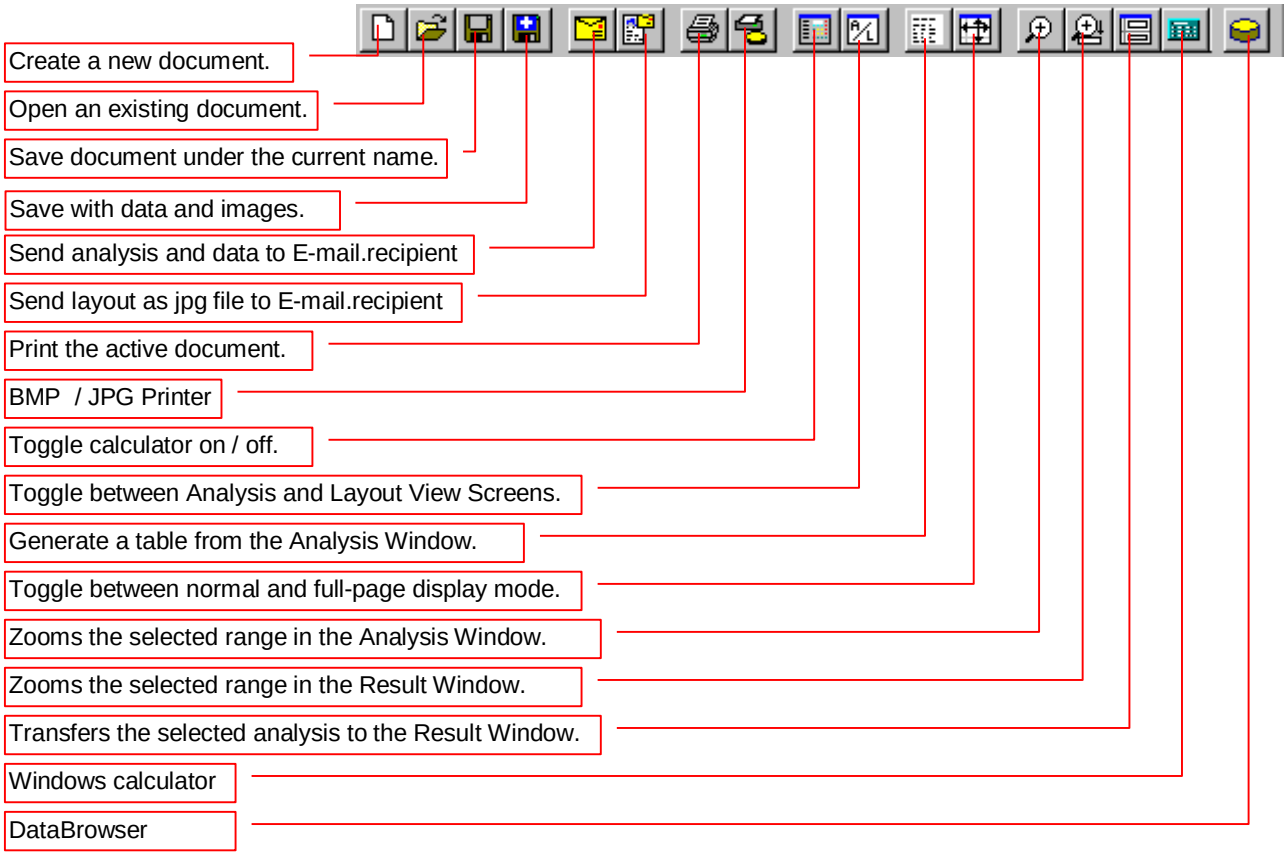
A condition for the drawing up of a Campbell - diagram is a cascade representation with preceding order analysis or rows FFT…
Right click to the left beside the cascade diagram in the analysis window. Choose in the popup menu properties. Click in the dialogue the Campbell diagram.

To change the properties from the Campbell diagram, do right click left side the diagram, a popup menu appears. Choose properties.



Enter required parameters and confirm with <OK>.

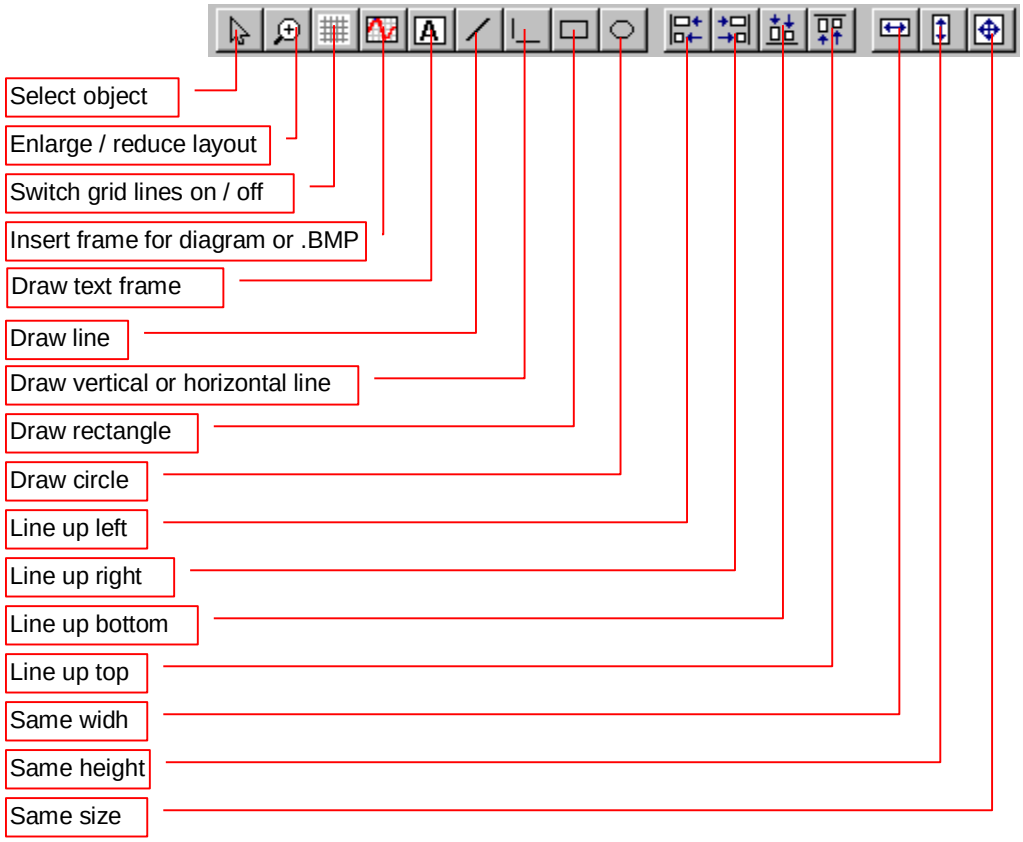
Analysis Toolbar



The Analysis Toolbar provides some of the most frequently used functions available on the menu bar drop-down menus. The toolbar can be positioned and adjusted in size and orientation on the screen as desired.

Over the menu settings / large symbols through to set a checkmark, the size of the analysis and the layout Toolbar of symbols are specified. The change takes place after a restart from E.d.a.s.Win.

Layout Toolbar

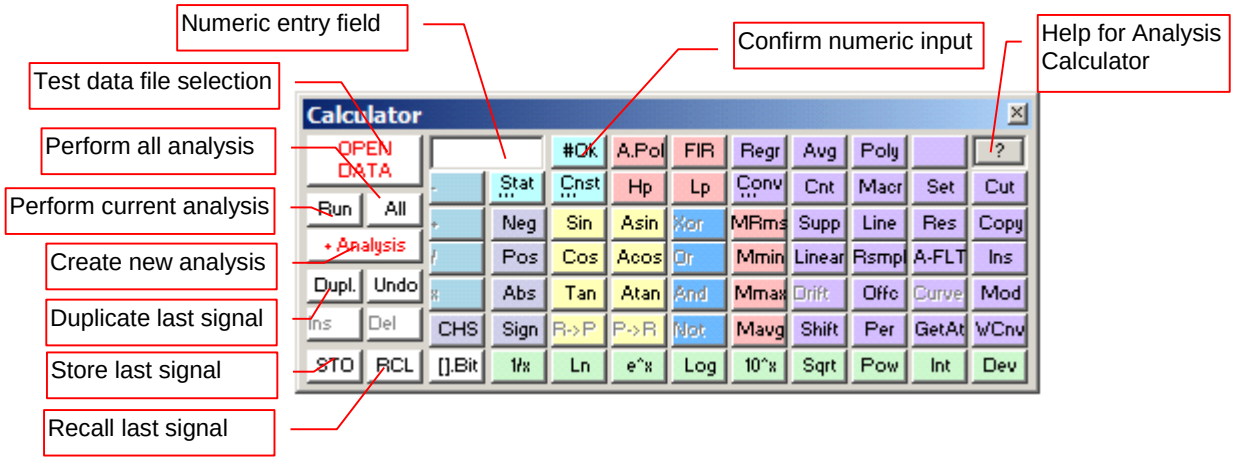


The Layout Toolbar can only be viewed in the Layout View. Its functions are not displayed in any menu. The toolbar may be positioned anywhere on the screen and its size and orientation may be adjusted.

Over the menu settings / large symbols through to set a checkmark, the size of the analysis and the layout Toolbar of symbols are specified. The change takes place after a restart from E.d.a.s.Win.

Aligns the produced text image fields, tables and diagrams:
Which can be aligned the objects with <Ctrl> and mouse select.
!! The object selected last is determining for the orientation of the other objects!!

Analysis Calculator



Control functions

OPEN DATA	Opens dialogue window to open a data set.
Run	Process (or re-process) currently selected analysis. Graphical or Tabular.
All	Process (or re-process) all analyses. Graphical or Tabular.
NewAnalysis	Creates a new analysis plot.
Dupl.	Creates a duplicate of the bottom signal in the analysis window.
Ins	Inserts a blank line before the line marked by clicking with the left mouse button in the analysis script window.
Del	Deletes the line marked by clicking with the left mouse button in the analysis script window.
Undo	Reverses up to 10 previous input operations.
STO	Stored a result.
RCL	Recall a stored result.

Stat…Functions yielding a numerical value

Mean	Calculates the mean of all marked signals and replaces the signal with this value.
Max	Determines the highest value within each marked signal and replaces the signal with this value.
Min	Determines the lowest value within each marked signal and replaces the signal with this value.
Eff	Calculates the rms value of all marked signals and replaces the signal with this value.
#Ok	Accepts the number entered in the Numeric Entry Field and transfers it to the Analysis Window.

Korr Correlation.

Variance: Describes how far values lie from the mean

Skewness: Measure of the asymmetry of the probability distribution of a real-valued random variable.

Kurtosis: Measure of the peakedness of the probability distribution of a real-valued random variable

Filters and Smoothing Functions

Lp	Opens the Low-pass Filter dialogue window with programmable order and cutoff frequency (Butterworth functions)
Hp	Opens the High-pass Filter dialogue window with programmable order and cutoff frequency (Butterworth functions)
Mavg	Opens Moving Average dialogue window with programmable time constant
Pos	Cuts off all negative signal elements – sets all negative values to zero (0).
Neg	Cuts off all positive signal elements – sets all positive values to zero (0)
Offc	Performs offset correction on the selected data set.
Line	Replaces data within a selection frame with a straight line.
Rsmpl	Opens dialogue window for re sampling signals.
mean:	Returns average amplitude over a defined time period
max:	Returns maximum amplitude over a defined time period
min:	Returns minimum amplitude over a defined time period
sec / Hz:	Enter new clockrate in sec or Hz
mmin	Opens signal lower envelope function dialogue window with programmable time constant.
mmax	Opens signal upper envelope function dialogue window with programmable time constant.
FIR	Opens the FIR Filter dialogue window. See FIR Filter
A.Pol	Auto polarity function. If sign at first position of field polarity is negative, the signal will be multiplicated with -1

Trigonometric Functions

Sin	Calculates Sin(x) for all marked signals – degrees in radians.
Cos	Calculates Cos(x) for all marked signals – degrees in radians.
Tan	Calculates Tan(x) for all marked signals – degrees in radians
ASin	Calculates Asin(x) for all marked signals – degrees in radians.
ACos	Calculates Acos(x) for all marked signals – degrees in radians.
ATan	Calculates Atan(x) for all marked signals – degrees in radians.

Mathematical Functions

Chs	Inverts all marked signals.
sqrt	Calculates the square root of all marked signals.
1/x	Calculates the inverse value of selected signals.
Abs	Calculates & displays the absolute value for all marked signals.
Log	Calculates the logarithm to the base 10 of a signal.
Ln	Calculates the natural logarithm of a signal
10^x	Reciprocal of the logarithm to the base 10.
e^x	Reciprocal of the natural logarithm
Int	Integrates marked signals.
Dev	Differentiates marked signals.
Sign	Performs "sign" function on selected data.
R->P	Converts Cartesian to Polar coordinates.
P->R	Converts Polar to Cartesian coordinates.
pow	Exponential function.

Counter and Timing Functions

per	Opens Period Function dialogue window with programmable level and hysteresis.
cnt	Opens Counter Function dialogue window with programmable level and hysteresis.

Boolean Functions

And	Logical "And" function for digital data.
Or	Logical "Or" function for digital data.
Xor	Logical "exclusive Or" function for digital data.

Not	Logical "Not" function for digital data.
Other Functions	
Shift	Opens the "Shift Signal Left" dialogue window to shift marked channels by a defined time. See Shift Function
Drift	Opens the Drift correction dialogue window. See Drift Function
Supp	Opens the Spike Suppression dialogue window-. See Supp Function
Linear	Opens a linearsation file (.lin) See Linear - Funktion
Macro	Opens a macro file (.ewm) See macros
Set	Sets an amplitude range of the signal to a fixed value
Res	Changes the signal resolution
[]Bit	Displays the represent bit of the signal
Avg	the mean is the sum of the observations divided by the number of observations
Conv…	Converts the signal into: km/h to m/s m/s to km/h Rad to Deg (+- 180°) Deg (+- 180°) to Rad Stairkill eliminates stairs of a signal, See GPS Interpolation Decimal place behind comma Decimal place before comma Conversion Min*100000 to Grad Conversion Grad to Min*100000 Conversion g to m/(s*s) Conversion m/(s*s) to g -> Float (Datasheet with short precision)

-> Double (Datasheet with double precision)

GPS -> m

Inverts sequence of measurement points

Poly	Polynominal function, See Polynomial function
Regr	Regression over time axis, See Regression
A-FLT	A-B-C weighting filter, See A,B,C weighting filter
Curve	Curve displacement, See curve displacement
Const...	Constant for signal calculation:

Pi
e

g

t

Max T

dt

random

Copy	Copies a signal range (selection frame) and replace the signal range right beside a pre-defined cursor. See Copy, Cut and Insert
Cut	Cuts a signal range in selection frame or between two cursors
Ins	Insert a selected signal range (selection frame) right beside a pre-defined cursor. See Copy, Cut and Insert
GetAt	Get Y at X See Get Y at X
Mod	Modulo is a mathematical function, to separate the rest from two integers after division.
WCnv	See Wave form converter

Basic arithmetic operations

+	add
-	subtract

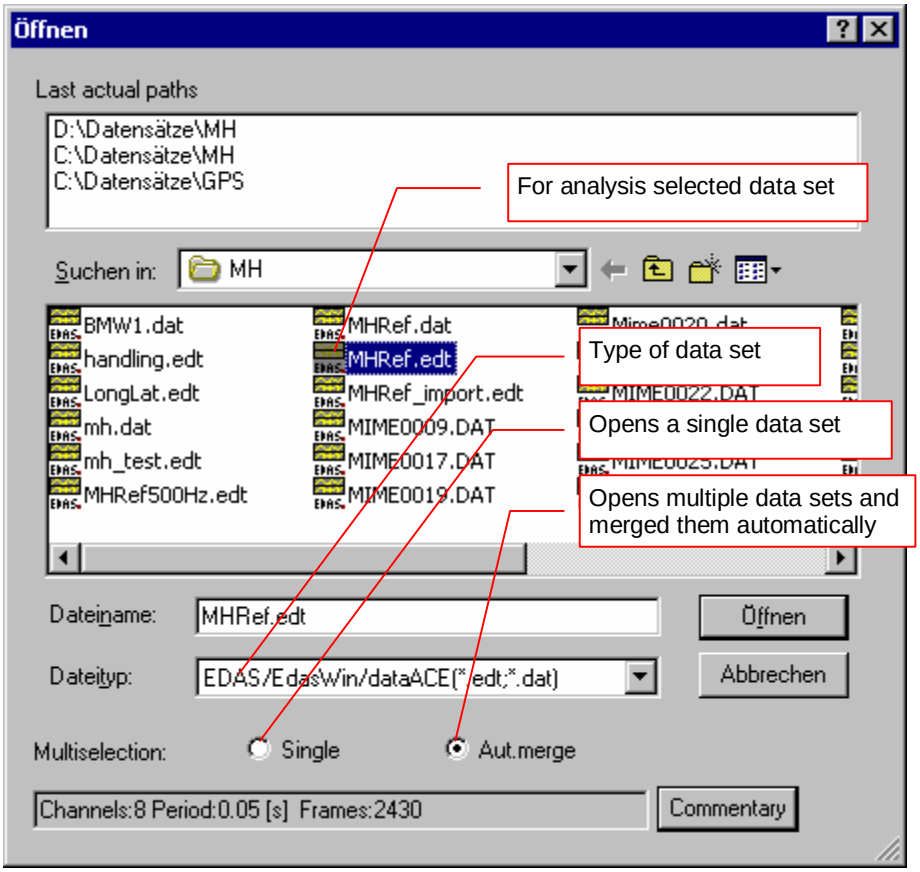
/ divide

* multiply

In the main menu/attitudes the appearance of the analysis computer in small and largely, can be changed by a checkmark. If one drives with the mouse over the keys of the analysis computer, in the status border the key allocation is indicated. The yellow Tooltips appears additional on the analysis calculator.

Additional dialogue boxes are displayed for many of the Analysis Calculator functions.

OPEN DATA Selection of a data set



Open a file dialogue box by pressing the OPEN DATA button on the Analysis Calculator. Select a file by double-clicking the left mouse button. The name and the signals of the selected test data set will appear in the Channel selection window.
Row measuring files can be summarized over the analysis computer (open with multiple selections). The step concatenate is void in this case. The files are sorted during the reading according to names, not according to time
The dialogue field **last actual paths** enables the fast access to the last used path names.

Data type:

E.d.a.s.Win can read different data formats directly.

EDAS / E.d.a.s.Win	(*.edt, *.dat)
RPC3	(*.rpc)
DIADAGO	(*.r32)
B&S	(*.bus)
Megsens / Megeng	(*.rsp, *.rsp1
uMusycs	(*.raw)
DCF	(*.dcf)
ASCII	(*.txt)
mdf	(*.mdf)
IST RigSys	(*.dmd, *.tgt, *.acq)
uff58	(*.unv)

Choose type of data file format and click <open>.

Commentary:
The Button <**Commentary**> opens the data comment editor.
The data - comment editor enabled an additional work on an existing **.edt** data set.

Direct reader for ASCII files:
The ASCII format can be adjusted with the open dialogue. Choose file type .txt and mark the data set. The name of the button changed from <**Commentary**> to <**ASCII Format**>. Click <**ASCII Format**>, the ASCII dialogue appears.

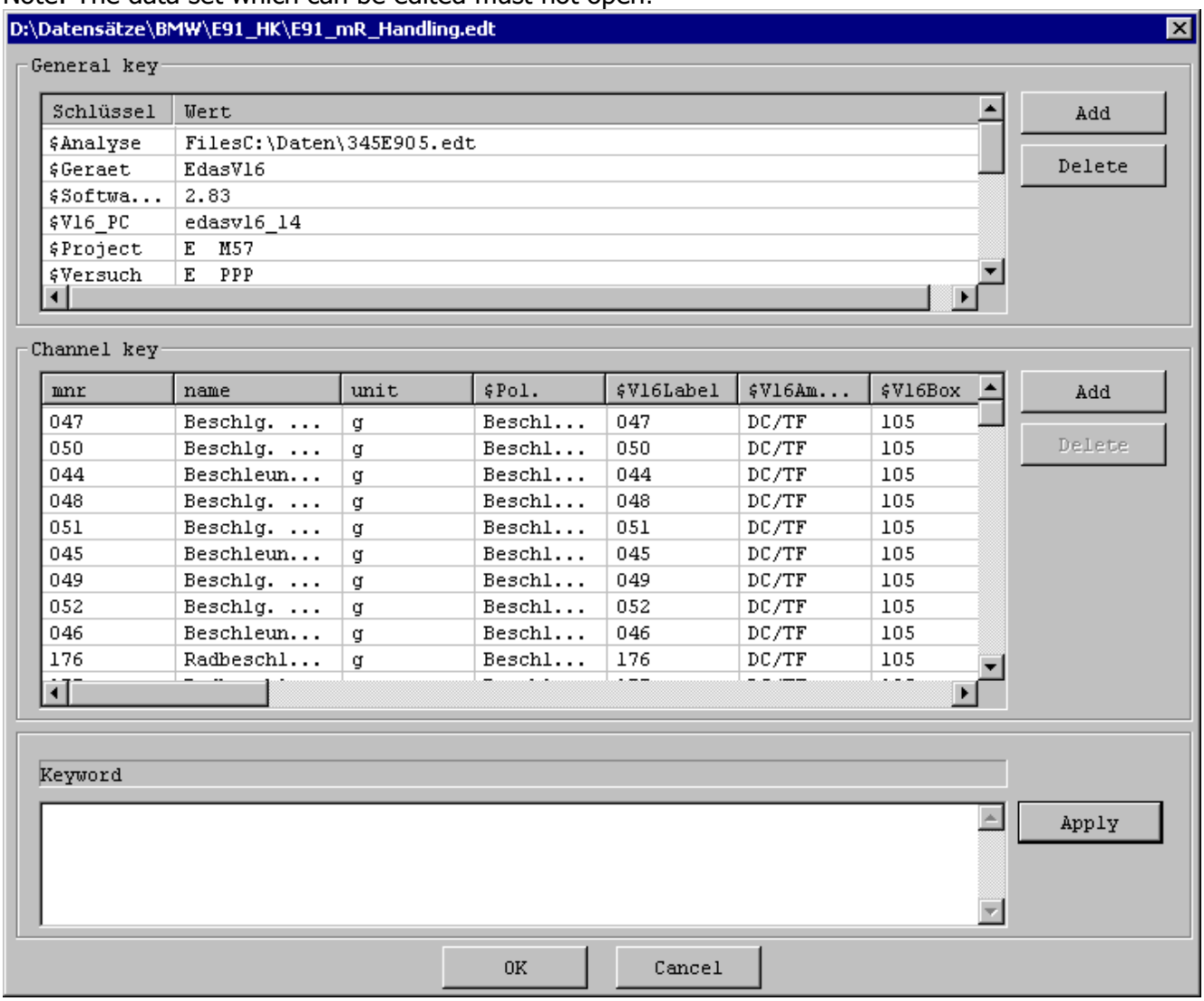
Direct reader ASCII files

Direct reader ASCII files:
Click the OPEN DATA on the analysis calculator. Choose file type **.txt** and mark the to open data set. The Button <Comment> changes to <ASCII format>. Click <ASCII format>the ASCII Dialogue opens.
Enter all required parameters in the dialogue.

Data – Header Editor

The data header editor makes an additional works on an existing data set in .edt for format possible. Open the Data Header Editor: with the <**OPEN DATA**> Button from the analysis calculator. The file dialogue appears. Mark the file which be edited and click <**Commentary**>

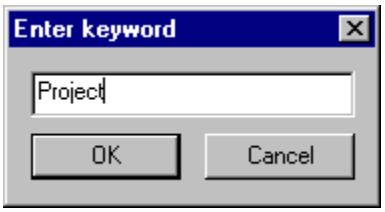
Note: The data set which can be edited must not open!



The dialogue headline indicates automatically the data path of the opened data set. The first table shows the general keys, which refer to the data set. They are specified in the column "key". The column "value" contains the information resulting from the keys of the selected data set. The second table displays the channel keys. Double click on the edited keyword gets these into the edit field. Changes can be entered here. The change confirmed with the Button <Apply>.

Importantly: Without <Apply> the change is not written back into the data set!

Add keywords:
Click <Add> in Data - Commenr Editor, the following dialogue appears:



Enter the new keyword without dollar sign. <OK> completed the dialogue.
Confirm the keyword with <Apply>.

Importantly: Without <Apply> the change is not written back into the data set!

This procedure is identically for general and channel keys with.

Signal Processing

Signals are only processed in the **Analysis Window**, with the aid of the **Analysis Calculator**. The **Analysis Calculator** works in a stack orientation. In this way, it is compatible with mouse-based entries under Windows.

Example: You wish to separate signal 1 from signal 0 of a data set.

Double click the left mouse button on Signal 0 in the **Channel Selection Window**
Signal 0 appears in the **Analysis Window**
Double click the left mouse button on Signal 1 in the **Channel Selection Window**
Signal 1 appears under Signal 0 in the **Analysis Window**
Click on <-> in the **Analysis Calculator**
Signal 1 is subtracted from Signal 0 and the result is displayed in place of Signal 0 in the **Analysis Window** Signal 1 disappears. The **Analysis Window** thus shows only the result.

Example:
You wish to see Signal 0 of a data set and to display its filtered version below:

Click the left mouse button on Signal 0 in the **Channel Selection Window**.
Signal 0 appears in the **Analysis Window**.
Click the left mouse button on <Dupl.> in the **Analysis Calculator**.
Signal 0 appears again as Signal 1 in the **Analysis Window**.
Click the left mouse button on the <Lp> in the **Analysis Calculator**.
The Low pass Dialogue Box appears.
Select a frequency and order and click <OK> in the dialogue box with the left mouse button.
The last Signal in the **Analysis Window** will now be filtered.
The filter result replaces the second „Signal 0" in the **Analysis Window**.

Processing Marked Signals with Binary Functions

If exactly two display channels are marked in the **Analysis Window** and a binary function (+-*/) is clicked on the **Analysis Calculator**, the marked display channels are processed accordingly and the result is attached as another signal in the **Analysis Window**.

Simultaneous Processing of Multiple Signals with Unary Functions
If marks are placed in the **Analysis Window**, the calculation is performed for all marked channels. This works for unary functions, such as Lp, Hp, Sin, Abs, etc. but not for +-*/.

Example: The **Analysis Window** displays 3 signals, to all of which a low-pass filter is to be applied.

Mark all channels in the **Analysis Window**. Now press <Lp> on the **Analysis Calculator**, complete the Filter Dialogue and confirm. A low-pass filter will now be applied to all three marked display channels.

Subsequent Signal Processing

Any signal displayed in the **Analysis Window** can be modified. To do this, move the cursor to the left of the corresponding display channel until it turns into an A Double click here with the left mouse button. The **Analysis Window** background will turn yellow and only the selected signal will be displayed in the **Analysis Window**. This signal can now be processed further with the **Analysis Calculator**. When processing is complete, confirm by clicking on the <Ready> button of the **Modify-Ready Dialogue** box. The previous **Analysis Window** will reappear, but with the modified signal.

Help:
Analysis Calculator
Analysis Window
Modify-Ready Dialogue
Channel Selection Window

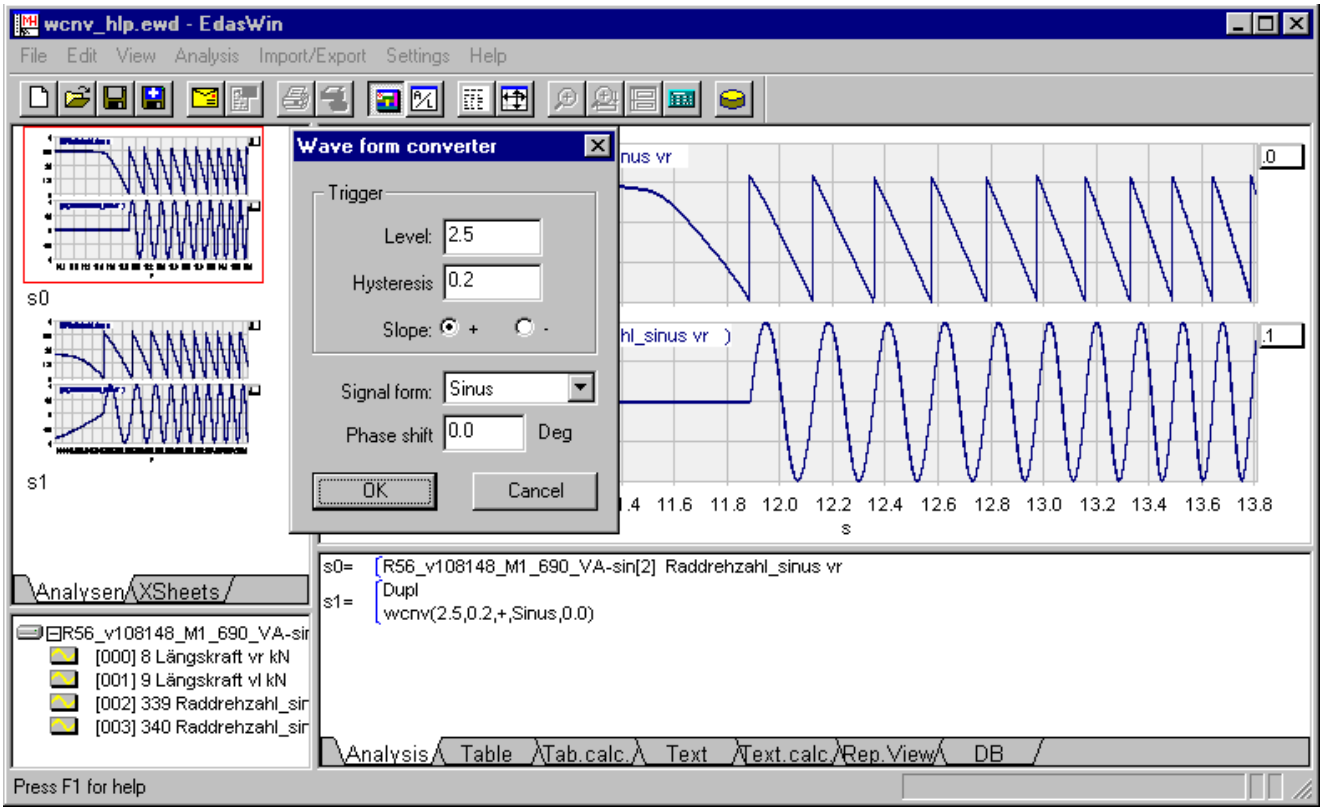
Wave form converter

With a trigger, the base frequency was derivated and build a synthetic signal.
It will use to create a correction signal or for signal conditioning.

The signal can be convert into: Sinus, cosines, rectangle, triangle and a sawtooth-shaped signal.

Prozedur:
To convert the wave form, the signal must be displayed in the analysis window. Click on <**WCnv**> at the Analysis Calculator, and adjust in the dialog trigger, signal form and phase shift. Confirm with <**OK**>.

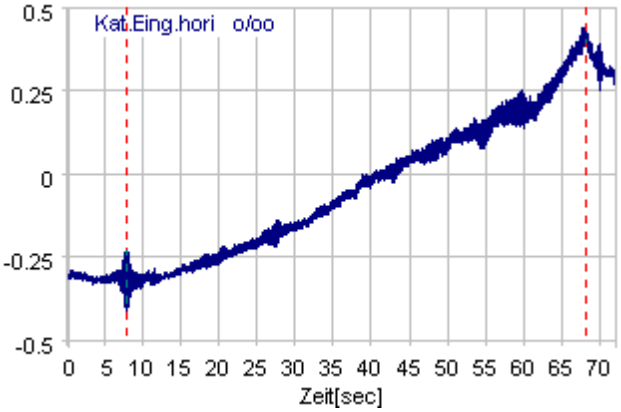
Note: The steepest edge is qualified for trigger settings.



Drift Function

It frequently happens that sensors, measurement amplifiers, or the sensor location itself may drift during live measurement. Unfortunately, it is not always possible to foresee or prevent the causes of drift. With the help of the E.d.a.s.Win Drift Function, whole signals or parts thereof can be shifted to correct drifting as far as possible during measurement.

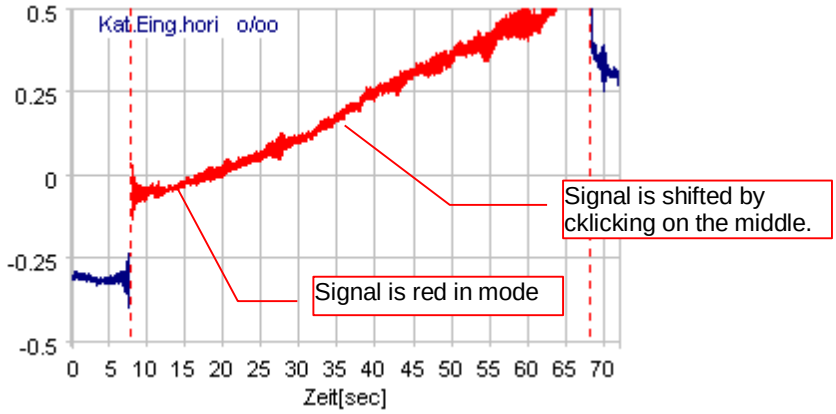
A drift occurrence in the signal progress shown below needs to be corrected.

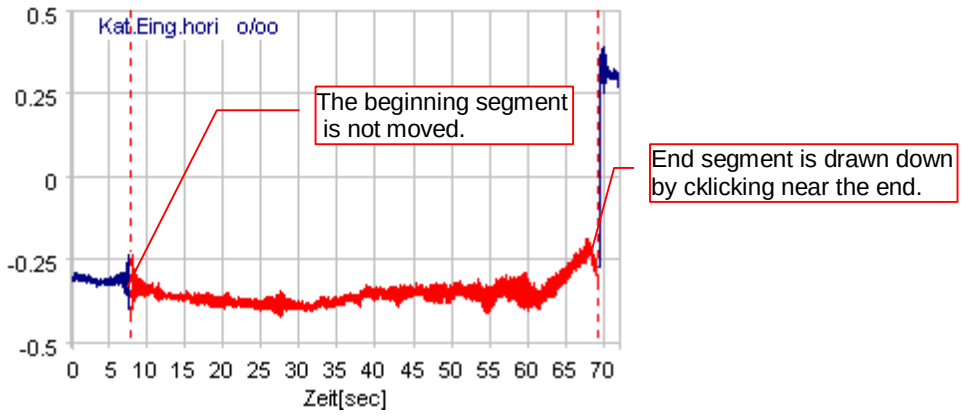


Place two cursor lines in the Analysis Window, defining the part of the signal that you want to modify. Move the cursor to the left of the corresponding channel display until the cursor turns to an (A). Double-click with the left mouse button to turn the Analysis Window background yellow and display the selected signal. Press the Drift key on the Analysis Calculator. The portion of the signal between the markers will turn red and is ready to be modified. Keeping the left mouse button depressed, drag the cursor up or down to shift the signal as follows:

Click on the middle of the signal to shift the entire signal portion.

Click on the beginning or end of the selected signal portion to move only a segment adjacent to the beginning or the end.

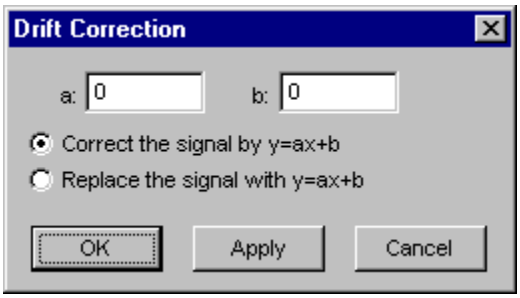




<Ok> in drift correction the dialogue locks the drift correction.

Click on Ready of the Modify-Ready dialogue box to terminate the Drift function.

Drift correction in the dialogue enter:
There is also the possibility over the drift correction - dialogue the value a: or b: to change to enter around the marked signal portion around an appropriate straight line equation out y=ax + b.



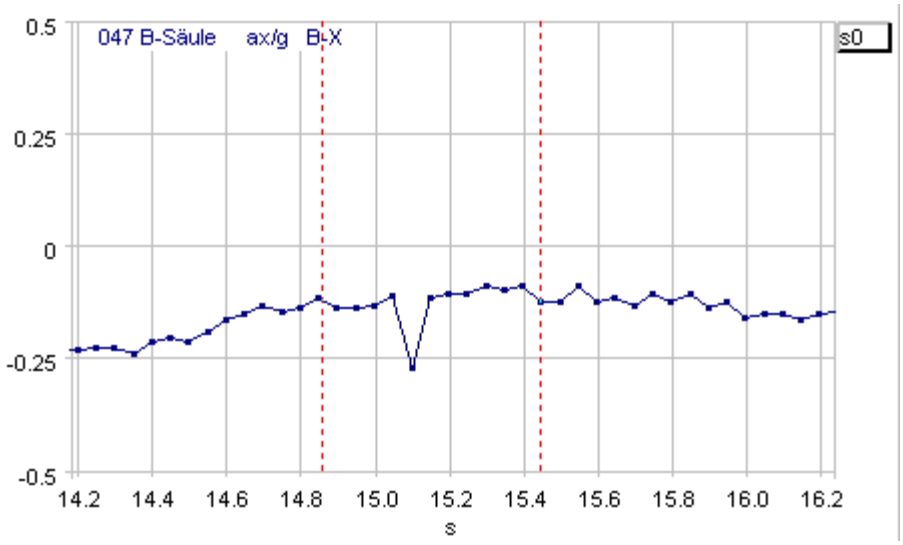
With the Drift Correction Dialogue Box you can also enter values **a:** or **b:** to modify the marked signal segment by the corresponding straight-line equation Y = ax + b.
<Ok> in drift correction the dialogue locks the drift correction.

Click on Ready of the Modify-Ready dialogue box to terminate the Drift function.

Curve – function

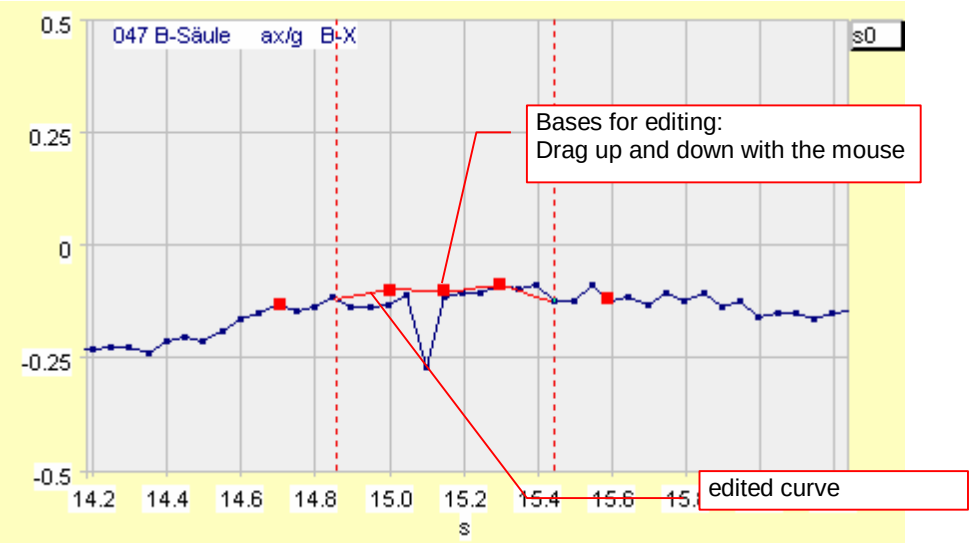
In the practical measuring technique it is possible, which sensors, amplifiers or the sensor location during a measurement suspends. With the Curve - function in E.d.a.s.Win one can shift signals completely or in a range - during a measurement misfire arisen is thus as far as possible correctable.

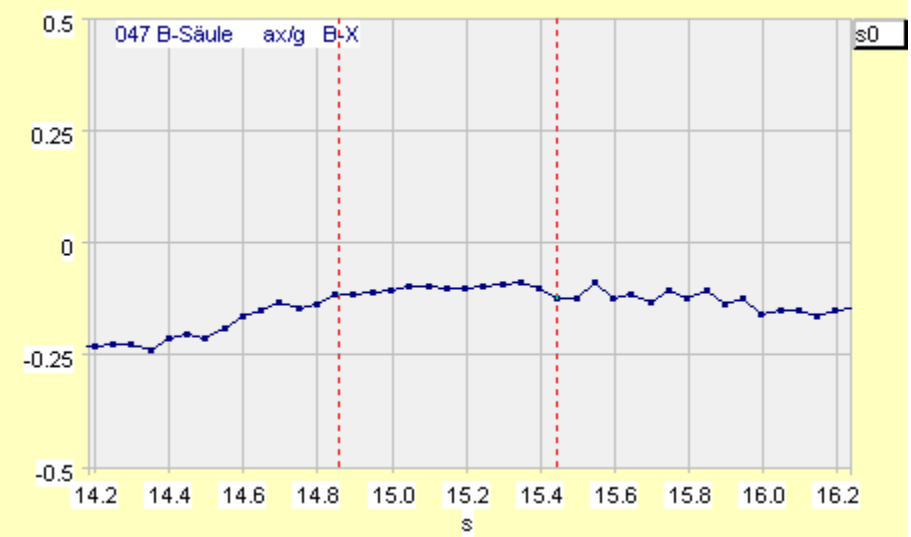
In the signal below, a curve is to be corrected:



Set two cursors in the analysis window across the range of the signal which can be worked on. Left click on the signal identification in the analysis window right above, (the pointer of mouse changes into a calculator) or double click beside the diagram on the Modify - rectangle (A) implement. The analysis window background colored yellow. The signal is in the modify mode. Click <Curve> on the analysis calculator.
A red curve with bases displays between the two cursors and can now be worked on. The number of bases can be entered in the dialogue.

Shift bases with the mouse:
Move the curve base with drag up and/or down.



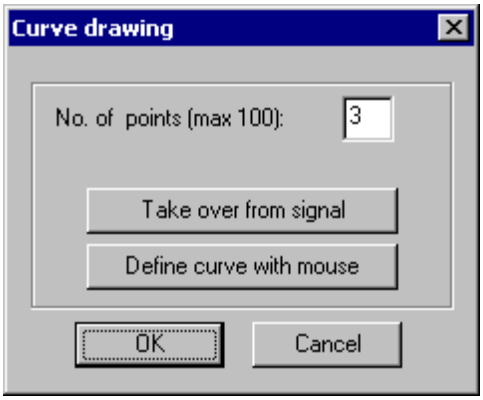


<OK**>** in the Curve dialogue completed the function.

The Modify mode is finished by the Modify - finished dialogue.

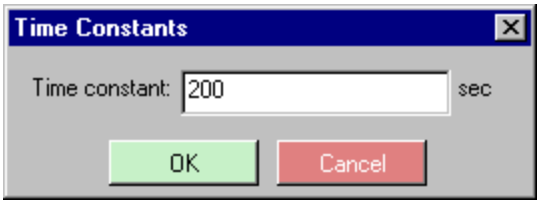
Curve replacement dialogue:
Enter the curve bases in the dialogue. The supporting bases are dyed red. The Button **apply measured values** applies the actual measured values from the signal, as curve bases.

Click **define curve with mouse**, and drag the curve with the mouse. Click with pressed mouse left beside the first cursor. The mouse changes into a reticle. With pressed mouse button, the curve can defined with drag up and / or down inside the cursor range.



With click of <OK> the signal displays with the entered values in the Modify windows. <OK> in the curve replacement dialogue ends the Curve function.

Shift function



Shifts a selected signal left by a desired time interval. Mark the signal you want to shift before opening the Shift Dialogue Box. If a signal is not marked, the last signal displayed in the Analysis Window will be selected by the system.

Entering a Time Constant using a Dialogue Field:

Press the <**Shift**> button on the Analysis Calculator. Enter the desired time constant and press <**OK**> to confirm. The signal in question will be shifted to the left by the amount of the time constant.

Entering a Time Constant using the Cursor Line:

Drag one of the cursor lines to the desired start point of the selected signal. Press the Shift button on the Analysis Calculator. The cursor line position is applied in the dialogue window. Press <**OK**> to confirm. The signal will be shifted to the left by this time constant.

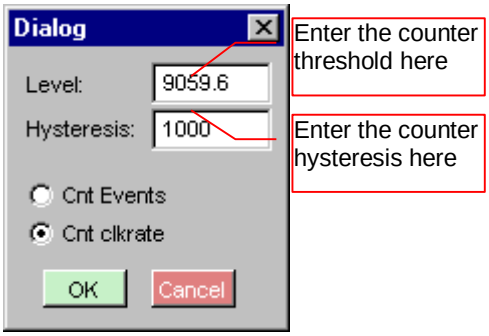
Superimposing Time Offset from Two Signals:

Drag the first cursor line onto the feature of one of your signals. Drag the second cursor line onto the feature of your second signal. Click <**Shift**> on the Analysis Calculator. The cursor line position of the time difference is applied in the dialogue window. Press <**OK**> to confirm. The marked signal will be shifted to the left by this time constant.

Counter function

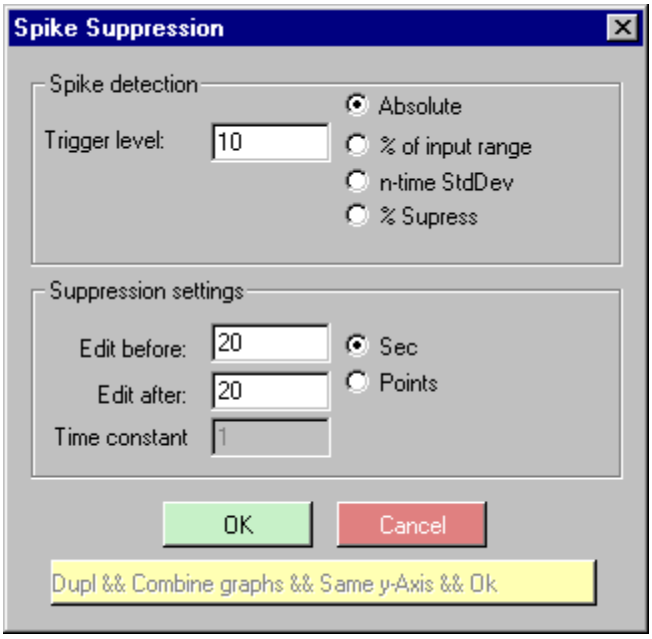
Mark the desired signal before opening the Counter dialogue Box. If the signal is not marked, the last signal displayed in the Analysis Window will be selected by the system.

Click <**Cnt**> key of the Analysis Calculator with the left mouse button to open the Counter Function dialogue box.



After the dialogue box is opened, enter the desired counter threshold and the counter hysteresis. Click on <**OK**> to confirm.

Spike suppression function



Click on the **Supp** key of the Analysis Calculator with the left mouse button to open the Spike Suppression dialogue box.

Interference Recognition:
The suppression algorithm detects pulse-shaped interference in the signal channel. If the difference between two consecutive measurement points is greater than the trigger level, interference is registered.
There are 3 different methods for defining the trigger level.

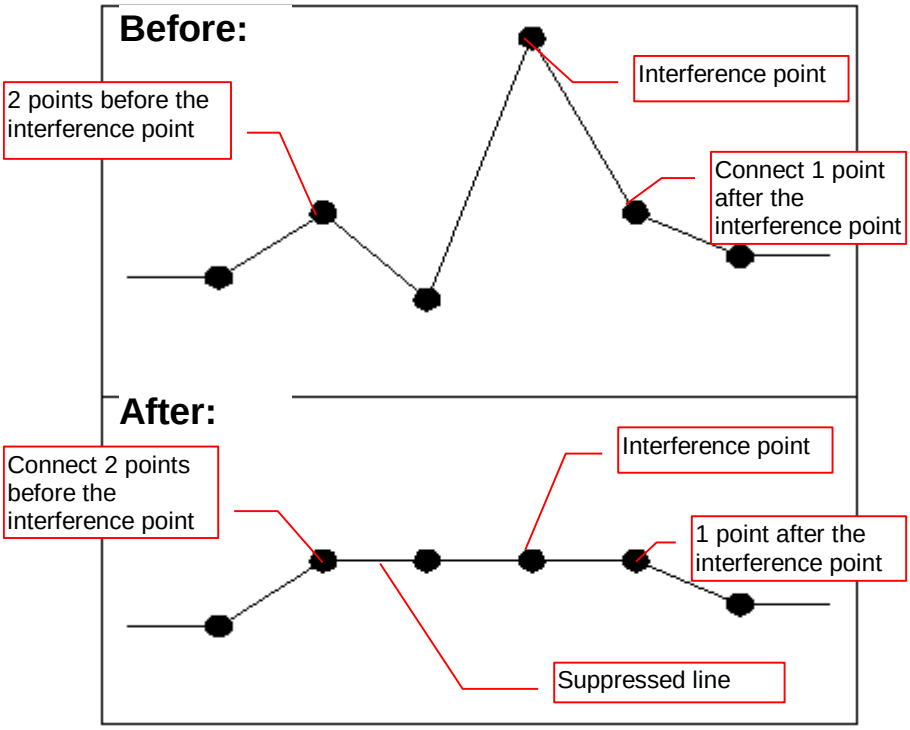
1. Enter an absolute level
2. Enter a proportional level (%) of input range
3. Calculate on the basis of rms with factor (n-time StdDev)
4. % Supress This value must be determined empirically

Example:
Interference is to be suppressed in a velocity signal. The trigger level is then calculated in km/h. If interference is to be registered above 10 kilometers per hour, enter 10 for the trigger level value.

Suppression Settings:

Example:
Click on **Points** in the Spike Suppression dialogue box.
Editing of points is in reference to the interference point.
In the Spike Suppression dialogue box, under Suppression settings, enter:
Edit before: 2 points, before the interference point
Edit after: 1 point, after the interference point.

To display the same signal with the worked on signal at the same y-axis, do the following thing:
Change into the modify mode (yellow background) and click the button <Dupl & Combine graphs & Same y-Axis & Ok>.



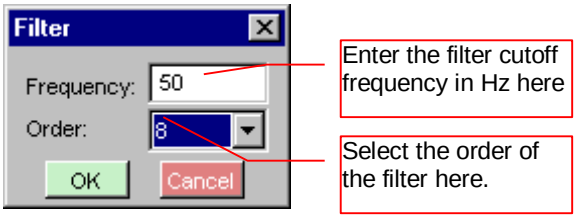
This function can also be used for time entries. Click on **Second** in the Spike Suppression dialogue box. In the dialogue box, under Suppression settings, enter:
Edit before: 2 sec., before the interference point
Edit after: 1 sec., after the interference point.

Filter High Pass / Low Passfunction

Mark the signal you want to filter before opening the Filter dialogue box. If the signal is not marked, the last signal displayed in the Analysis Window will be selected by the system.

Click on the **Hp** key of the Analysis Calculator with the left mouse button to open the **High Pass filter** dialogue box.

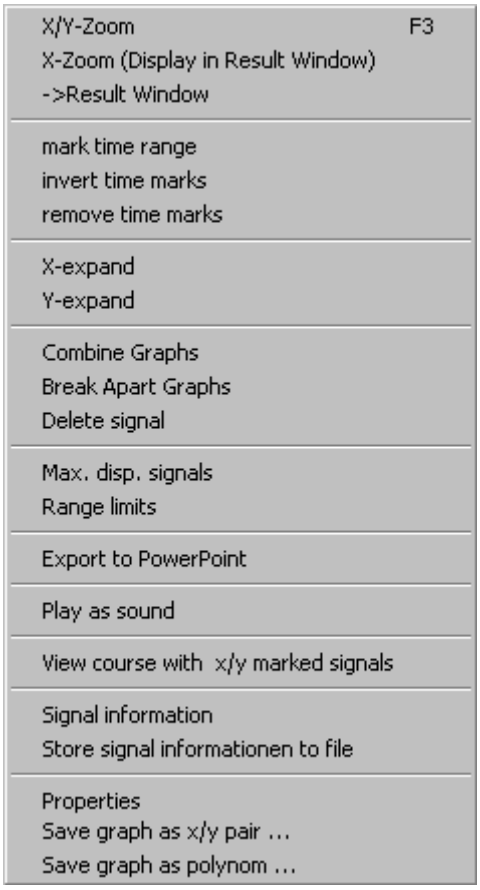
Click on the **Lp** key of the Analysis Calculator with the left mouse button to open the **Low Pass filter** dialogue box.



After the dialogue box is opened, enter the desired filter cutoff frequency in Hz and the order of the filter. Left click on <**OK**>. A confirmation dialogue box opens asking „Calculate all marked channels?". Click on <**Yes**> to confirm.

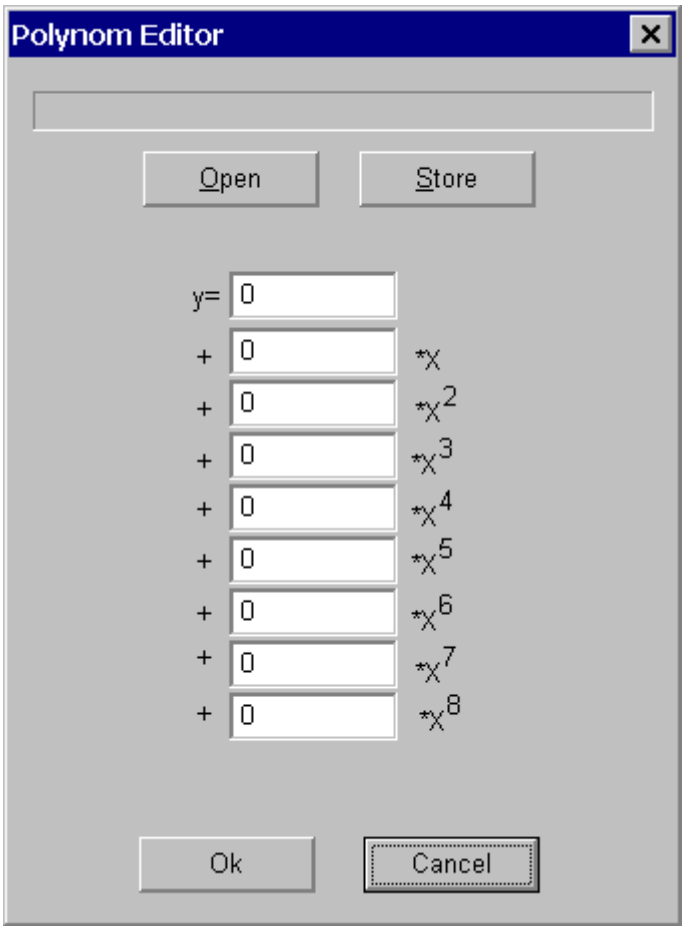
Polynomial calculation

Save graph as polynomial (.ply):
If a regression (see Regression) became accomplished, it is possibility to store the regression as polynomial file. Right click in the result window on the diagram opens a Popup Menue:

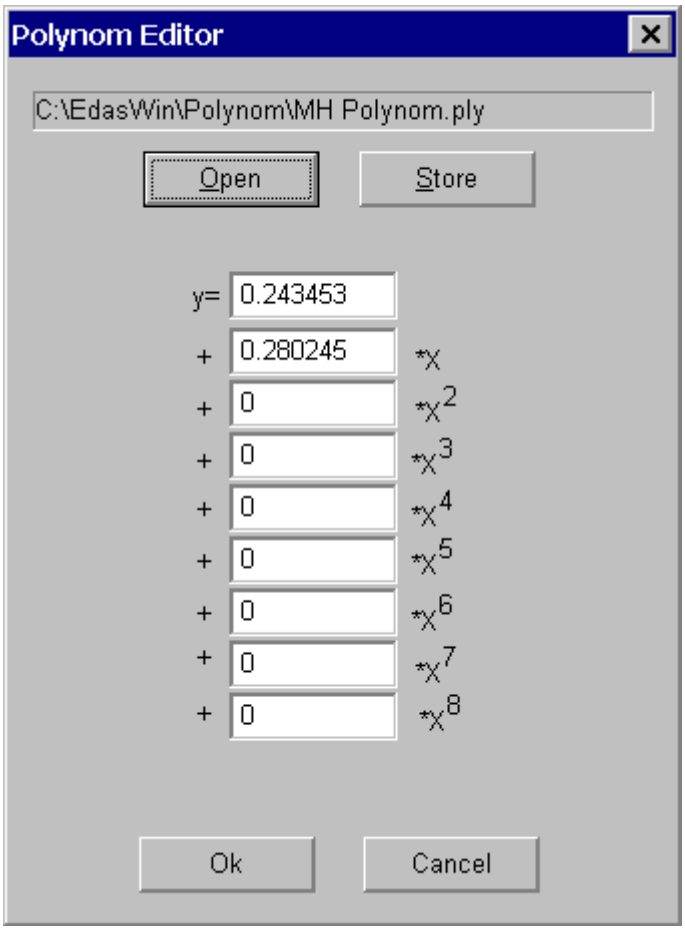


Choose save graph as polynomial,
Enter file name and memory path <**Save**> completed the procedure. The file end is .ply.

Use and loading of a polynomial file:
Mark the signal which calculated with the polynomial file. Click <Poly> on the analysis calculator .The following dialogue appears:



Click into the input fields to enter values themselves, or click <**Load**> to choose a polynomial file in opening dialogue. Mark the polynomial file and click <**Open**>. In the polynomial dialogue is indicated the file path and the order values.



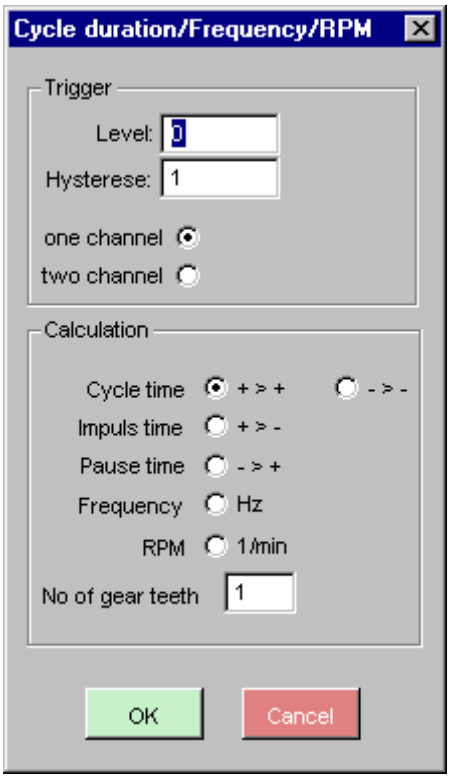
Click <**OK**> the marked signal will be calculated with the polynomial file.

Regression representation about time function process

Display the channel which can be calculated in the analysis window and duplicate them. Click <**Regr**> on the analysis calculator a straight line appears across the duplicated signal. Combine the both channels

Cycle duration:

Click <**Per**> on the analysiscalculator, the following dialogue appear:



Trigger mode:
Level
Hysteresis
Single channel
Two channels

Edge selection:

Period:	+ Edge	to	+ Edge	- Edge	to	- Edge
Impulse:	+ Edge	to	- Edge			
Pause:	+ Edge	to	- Edge			
Frequency		Hz				
RPM		1/min				

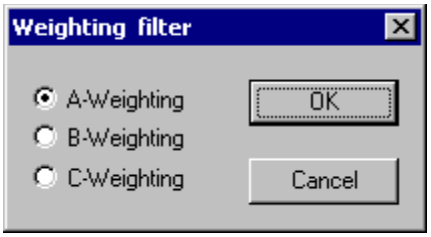
Number of gear theeth: Enter value

Select mode and confirm with <OK>.

A, B, C weighting filter

A **weighting filter** is used to emphasise or suppress some aspects of a phenomenon compared to others, for measurement or other purposes.

Mark the signal for the calculation with the weighting filter
Click <A FLT> on the analysis calculator, the weighting filter dialogue appears.



Choose the weighting filter parameters and confirm with <OK>.

Get Y at X-function

1. Calculates from the **X0** marked signal, the time position.
   The position can be calculated with: **Min**, **Max**, **Cursor 1** and **Cursor 2**

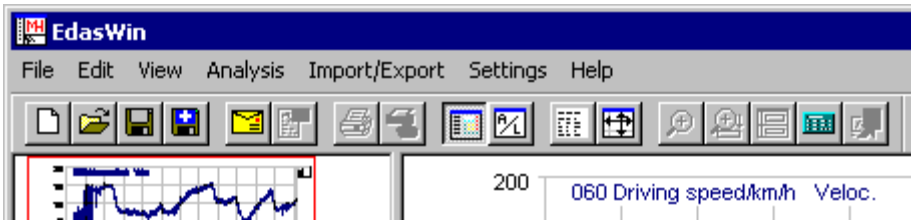
2. Gets the **Y**-value from the with **Y0** marked signal at the calculated **X** position.
   See 1.

Proceed:
Mark the two signals (Set X and Y mark). Click at the analysis calculator on GetAt.
Enter all parameters. See 1.

To start calculate click <**OK**>.

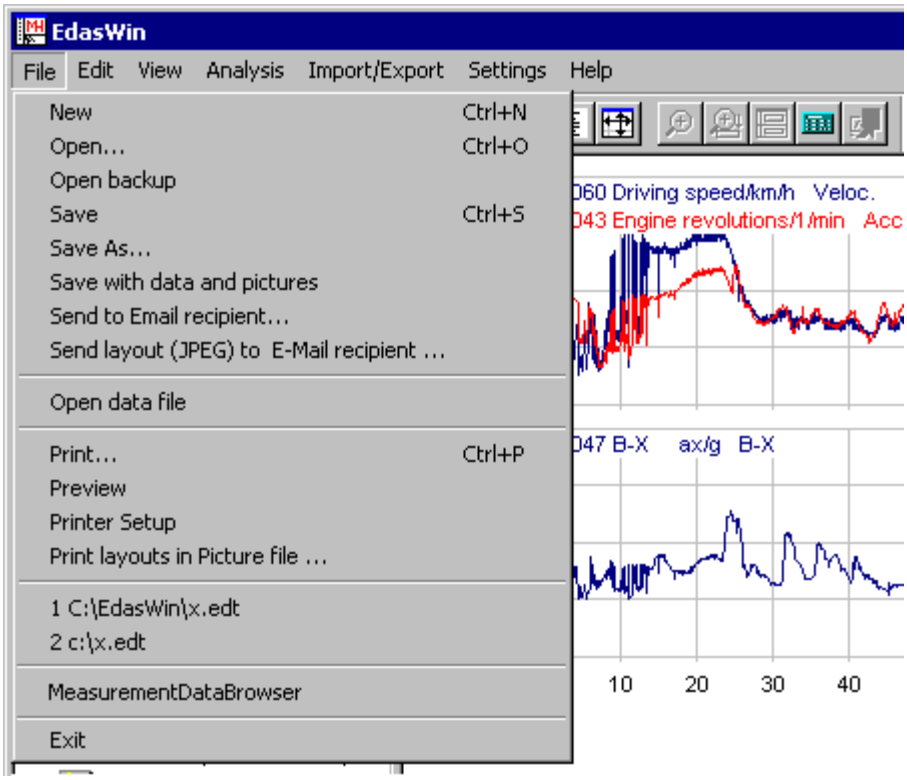
The result displays as a new channel (single value) with the calculated Y-value.
With this value can be process data.

E.d.a.s.Win Menu



File Menu
View Menu
Analysis Menu
Inport/Export Menu
Settings Menu
? / Help Menu

File menu



New
Deletes all previous entries

Open
Opens an existing analysis / documentation (document)

Open Backup
Opens the previously interrupted analysis / documentation (document)

Save
Saves the current status under the current name

Save As
Saves the current status under a new name

Save with Data and Images
Saves the current status including data and images

Send to Email recipient
The current document with analysis script, data and layout sends E-mail to a receiver. If no E-mail is given to functionality, the function is faded out.

Send layout (JPEG) to Email recipient
The current document sends E-mail as JPG file to a receiver.

Open Data set
Opens a data set for editing

File time = Starting time

The file time sets the time when the data set measured is.

Print
Opens the Printer dialogue window

Preview
Displays pages in print preview

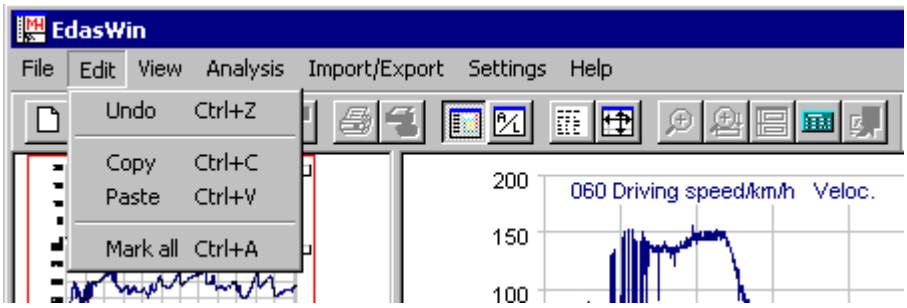
Printer Setup
Opens the Printer Settings dialogue window

Print layouts in picture file
Print layout in a *.jpg / *.bmp file

Exit
Exits E.d.a.s.Win

MeasurementDataBrowser
See MeasurementDataBrowser

Edit menu



Undo
Reverses up to the last ten entries in the Analysis Calculator

Copy
If no marks are set in the Analysis Window, its contents are written to the clipboard as graphics and are available for use in other programs (e.g. Word).

Copy from analysis scripts or text:
Marking analysis script or text and choose copy.

Copy grafik:
If there are no marks in the analysis window, the contents of the analysis window are written into the clipboard and can be inserted into other programs (for example: Word…).

Copy from signals into another or new analysis:
That contents mark and in working on menu copying, which can be copied, select. The marks disappear.

Alternative shortcut for copy: <Ctrl> + <C>

If marks are set in the Analysis Window the references of the marked channels (e.g. &s2.3) will be saved. These may be added to the current, to an existing or to a new analysis using „Paste."

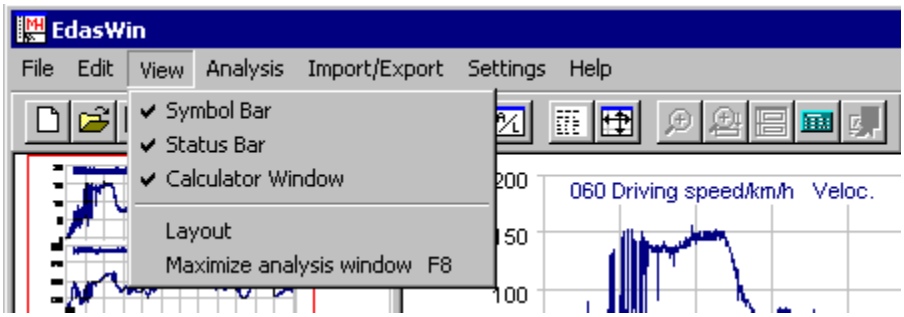
Paste
Adds the references saved with the „Copy" function described above to the current Analysis Window.

Insert from signals into another or new analysis:
Into those analysis which can be copied click. Contents can be inserted now in working on menu with inserting to the current, into an existing or also to a new analysis.

Alternative shortcut: for insert: <Ctrl> +< V>

Mark All
Marks all channels in the Analysis Window. The Analysis Window must be activated.

View menu



Symbol Bar
Switches the Toolbar on / off

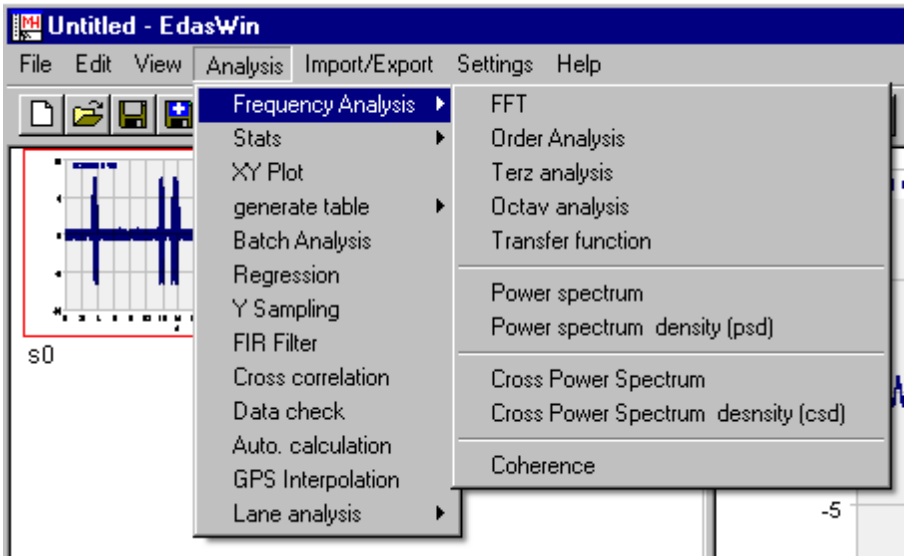
Status Bar
Switches the Status Bar on / off

Calculator window
Switches the Analysis Calculator on / off

Layout
Switches between Analysis View
and Layout View

Maximize Analysis Window
Displays the Analysis Window as large as possible. If this function is repeated, the display will revert to its former size.

Analysis Menu



XY Plot

Generate table

Batch Analysis

Regression

Y Sampling

FIR Filter

Cross correlation

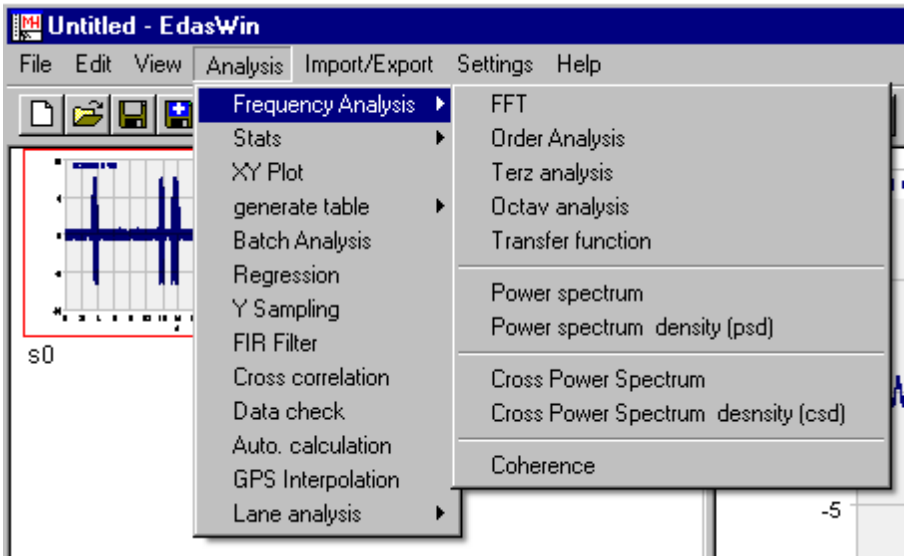
Optional software module, please contact MH
DataCheck

Auto. calculation

GPS Interpolation

Lane analysis

Frequency analysis submenu



FFT

Order analysis

Terz analysis

Oktav analysis

Transfer function

Power spectrum

Power spectrum density (psd)

Cross Power Spectrum

Cross Power Spectrum density (csd)

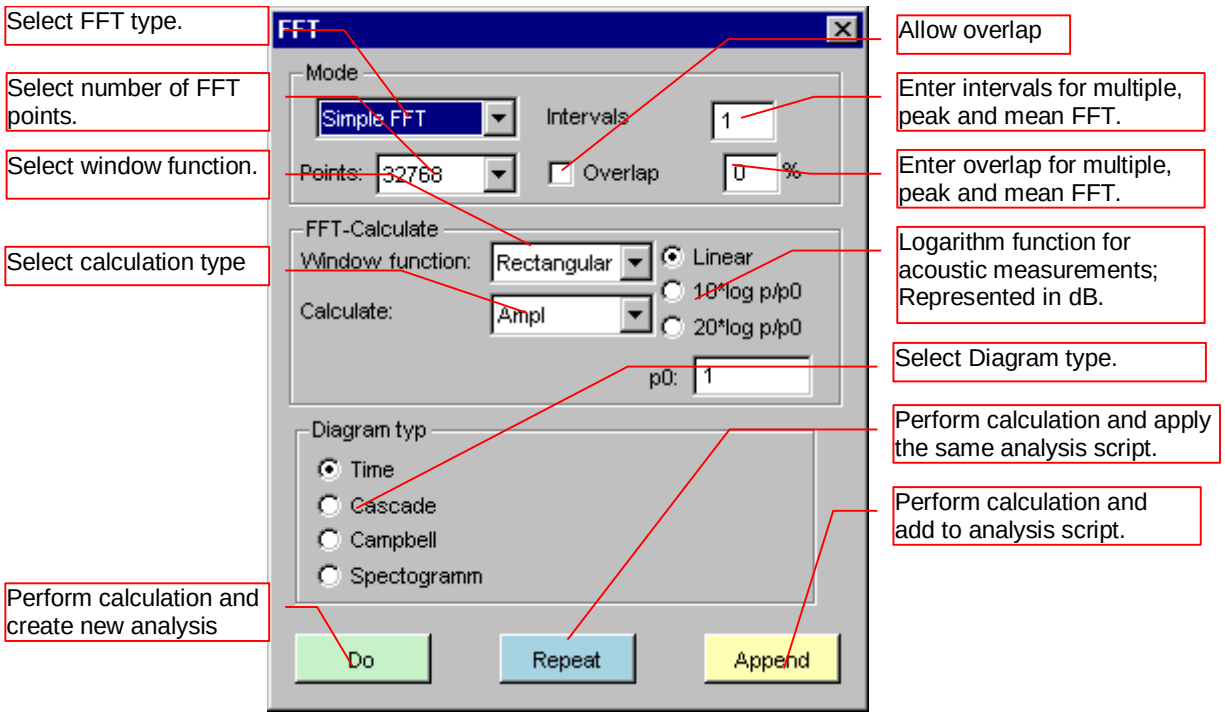
Coherence

FFT

The **Fast Fourier Transform** (**FFT**) is an efficient algorithm to compute the discrete Fourier transform (DFT) and its inverse. FFTs are of great importance to a wide variety of applications, from digital signal processing to solving partial differential equations to algorithms for quickly multiplying large integers. This article describes the algorithms, of which there are many for properties and applications of the transform. If multiple, mean, or peak FFT has been selected, the number of intervals may be typed in the input field of the dialogue box. The selection frame in the Analysis Window will then display the range. Otherwise, you can drag the right side of the selection frame to the right. The frame will enlarge by the increments specified for the FFT points in the dialogue box and the number of intervals will be displayed in the interval dialogue input field.

Procedure

For time at level classification you must mark the signals in the Analysis Window if there is more than one signal. Click in the main menu analysis / Frequency Analysis / FFT:



Enter parameter and click <**Do**>. The result window will show the results of the FFT calculations. The Result Window will show the frequency spectrum as a bar chart according to the parameters that you set in the dialogue box and the marks you placed in the Analysis Window. The sequence of the marks is taken into account during the calculation.

Example:

There are 4 signals in the Analysis Window. An FFT is to be run for all of them. Place marks on all 4 channels in the Analysis Window. Left click the option FFT in the analysis menu. The FFT dialogue box will appear. Leave all settings as they are and click „Do". The Result Window will show all 4 spectrums arranged one below the other. As you see, the FFT dialogue box stays open. In the FFT dialogue box, now change the window function to Flattop and click on „Repeat". The Result Window will display the new result. You can change all parameters this way, and repeat the FFT analysis as often as needed to achieve the desired result.

Example:

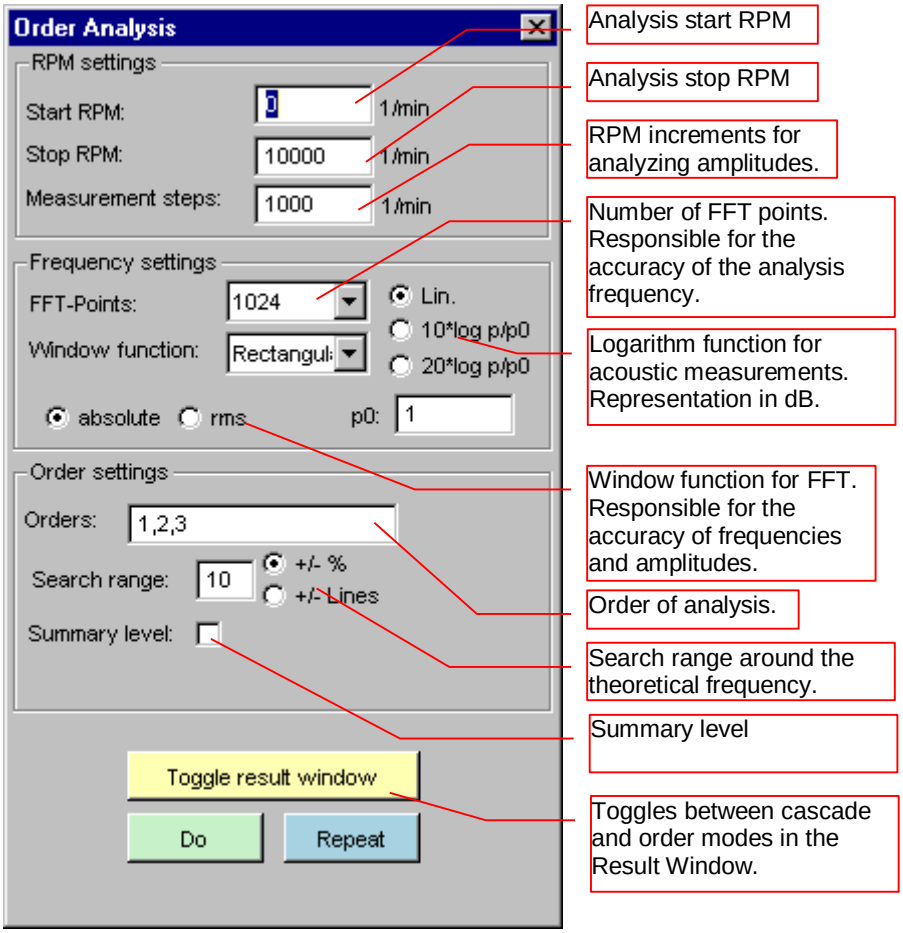
There are 4 signals in the Analysis Window. In order to show the effect of the different window functions the spectrums are to be displayed one below the other using a Rectangular, a Hanning, and

a Flattop Window. Place a mark on the first channel in the Analysis Window. Left click the option FFT in the analysis menu. The FFT dialogue box will appear. Leave all settings as they are and click „Do". The Result Window will show the spectrum using a Rectangular window function. Select the Hanning window function from the FFT Dialogue and click on „Append." A second spectrum will appear below the first spectrum in the Result Window. This spectrum has been analyzed using the Hanning window function. Now, select the Flattop window function from the FFT dialogue box and click on „Append". A third spectrum, analyzed using the Flattop window function, will appear below the two spectrums in the Result Window.

Example:
A peak FFT is to be performed on the second channel in the Analysis Window. Place a mark on the second channel in the Analysis Window. Left click the option FFT in the analysis menu. The FFT dialogue box will appear. Change the setting to „Peak FFT". Place the cursor on the righthand border of the selection frame in the Analysis Window and drag it to the right, keeping the left mouse button depressed, until the number in the intervals field in the FFT dialogue box reads 10 (The data set must contain at least 10240 frames). Press „Do" in the FFT dialogue box. The Result Window will now display the peak value spectrum measured over 10240 points at intervals of 1024 points.

Order Analysis

Order analysis calculates the amplitudes of harmonic waves based on RPM. Two signals are needed for the analysis: the signal whose harmonic waves are to be analyzed and an RPM-signal, which contains the RPM in 1/min. Usually, this method is used to analyze start-up phases of rotating parts.



Procedure

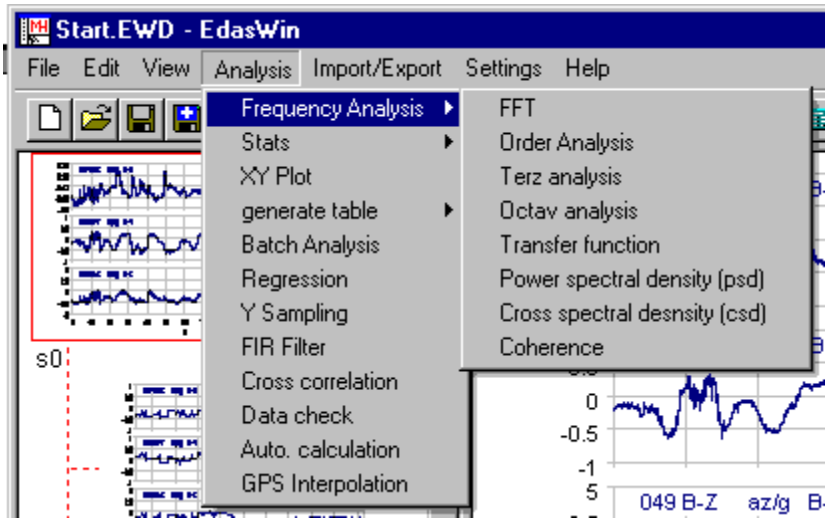
To perform an order analysis, the signal must be marked with a Y-mark and the RPM signal must be marked with an N-mark in the Analysis Window. See Selecting and Marking Signals in the Analysis Window

Order analysis is initiated from the analysis menu. Left click the Frequency Analysis option and then Order Analysis to bring up the Order Analysis dialogue box. Enter the information requested and click on <Do>. The analysis will generate one cascade graph with the frequency lines and one showing the amplitudes of the orders over the RPM (order graph).
The Result Window will display the amplitude graph first. Using the <Toggle Result Window> button, switch from the amplitude graph to the cascade graph in the Result Window. You can now change parameters in the Order Analysis dialogue box and repeat the analysis by clicking <Repeat>. Otherwise you can generate two new analyses (waterfall and order graph) by clicking on <Do>.

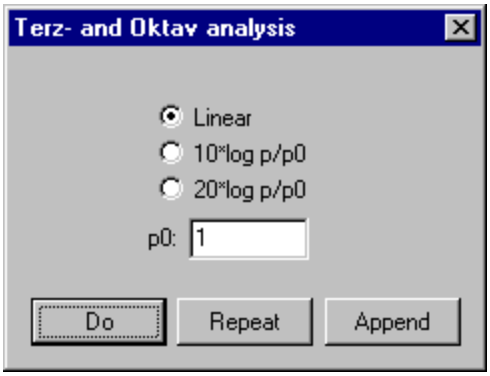
Alternativ enter of the order:
For example: 1-20/0.1 Means the description of the order from 1 to 20 in a distance 0.1

Terz analysis

Select signal from data set.
Click in menu Analysis / Frequency Analysis / Terz analysis.



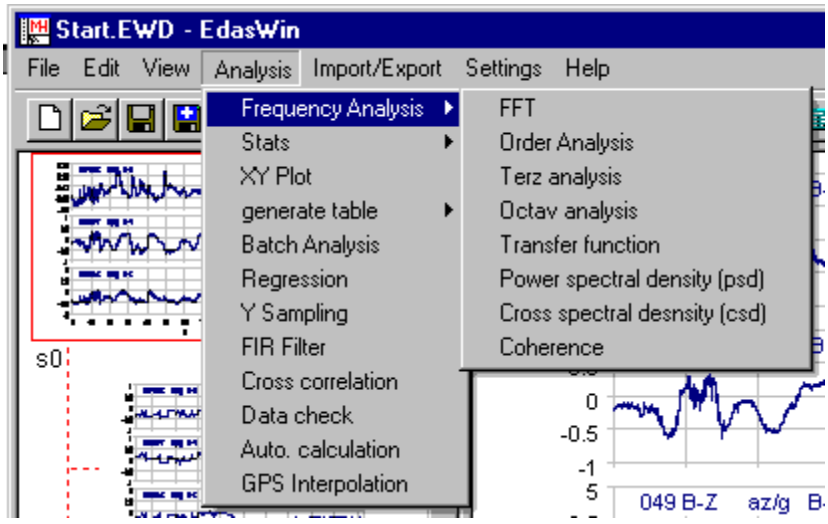
The selection frame fades in. Set the selection frame across that range which can be analyzed.



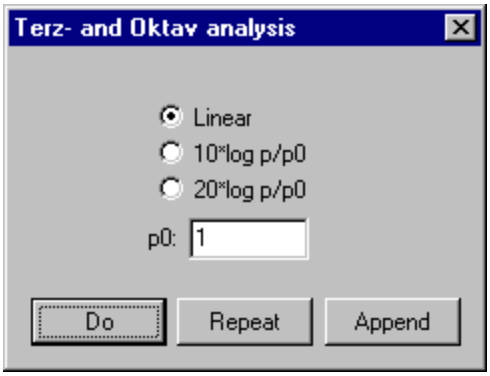
Enter the required parameters and click <**Do**>. Changes can new calculated with <**Repeat**> in the same analysis.
Further click on <**Do**> creates a further daughter analysis.

Oktav analysis

Select signal from data set.
Click in menu Analysis / Frequency Analysis / Octav analysis.



The selection frame fades in. Set the selection frame across that range which can be analyzed.



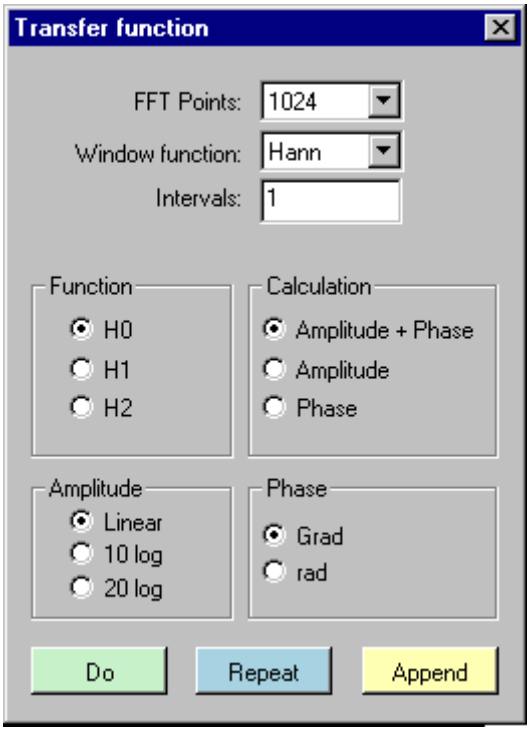
Enter the required parameters and click <**Do**>. Changes can new calculated with <**Repeat**> in the same analysis.
Further click on <**Do**> creates a further daughter analysis.

Transfer function

The transfer function is commonly used in the analysis of single-input single-output analogue electronic circuits, for instance. It is mainly used in signal processing, communication theory, and control theory. The term is often used exclusively to refer to linear, time-invariant systems (LTI), as covered in this article. Most real systems have non-linear input/output characteristics, but many systems, when operated within nominal parameters (not "over-driven") have behaviour that is close enough to linear that LTI system theory is an acceptable representation of the input/output behaviour.

Procedure:
Mark the input with **X** mark and the signal output with **Y** mark.

Create a selection frame across the signals in the analysis window.
Click in the main menu analysis / frequency analysis / transfer function.



Click <Do> in the dialogue, the transfer function starts. The result displays as a daughter analysis in the Analysis Selection Window.

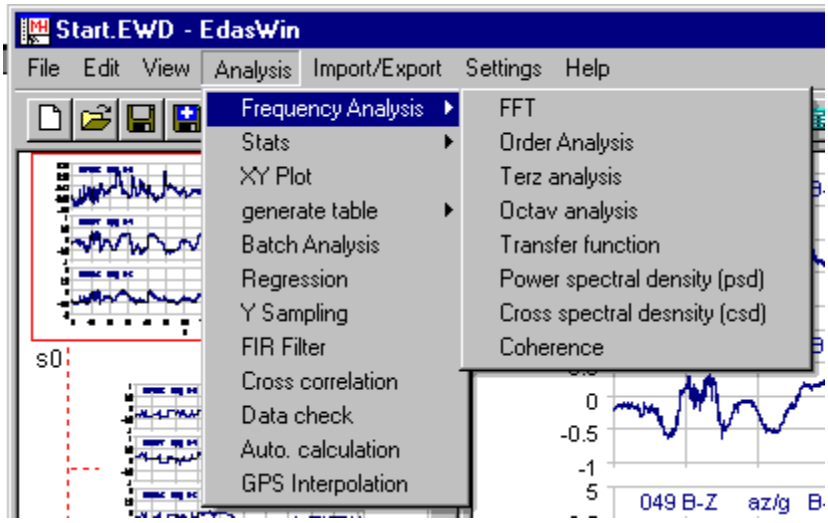
Power spectral density psd

In statistical signal processing and physics, the spectral density, power spectral density (PSD), or energy spectral density (ESD), is a positive real function of a frequency variable associated with a stationary stochastic process, or a deterministic function of time, which has dimensions of power per Hz, or energy per Hz. It is often called simply the spectrum of the signal. Intuitively, the spectral density captures the frequency content of a stochastic process and helps identify periodicities.

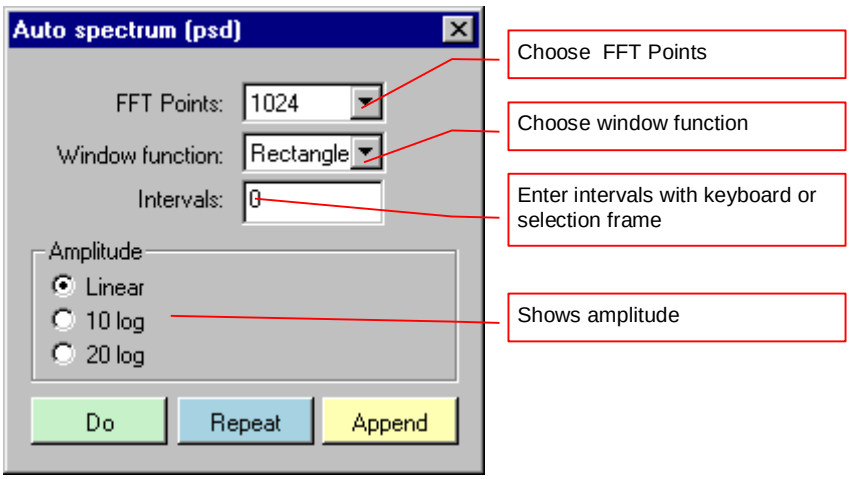
The goal of spectral density estimation is to estimate the spectral density of a random signal from a sequence of time samples. Depending on what is known about the signal, estimation techniques can involve parametric or non-parametric approaches, and may be based on time-domain or frequency-domain analysis. For example, a common parametric technique involves fitting the observations to an autoregressive model. A common non-parametric technique is the periodogram.

The spectral density is usually estimated using Fourier transform methods, but other techniques such as Welch's method and the maximum entropy method can also be used.

Proceed:
Mark the signals which be calculated. Click in the main menu Analysis / Frequency Analysis / **Power spectral density**.



The auto spectrum dialog opens. Enter all values for proceed auto spectrum.



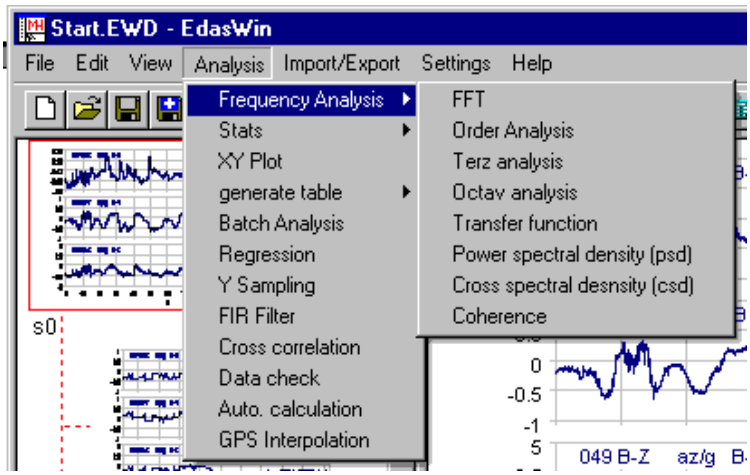
Cross spectral density csd

The cross power spectrum (Cross power spectrum) is based on the signal in the analysis as the basis of calculated Fourier spectrum. It is calculated analogous to the auto power spectrum using the equation.

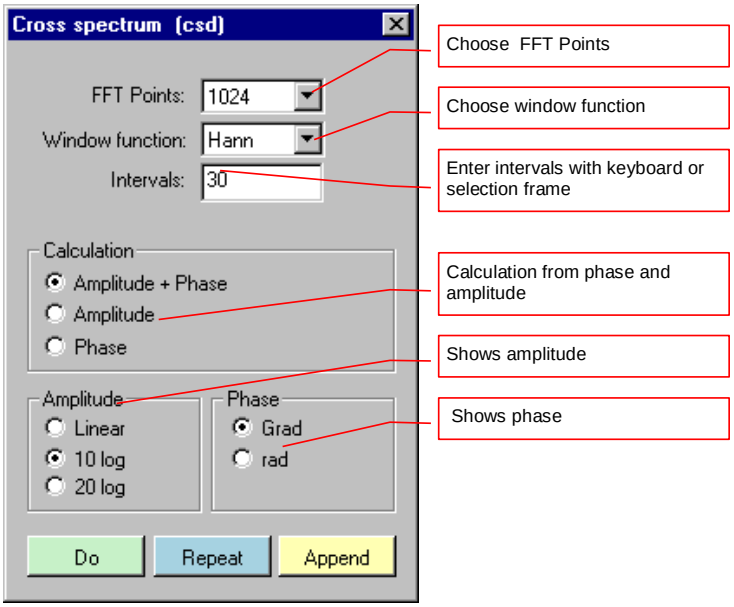
For all interpretations is the appropriate phase of the cross power spectrum interesting. He is identical with the phase of the frequency response is the cross power spectrum are generally only as an important basis for the calculation other signal analysis functions used. Again, in analogy to Auto power spectrum can also be the cross power spectrum as a fourier a correlation function, here the cross-correlation function are calculated.

Proceed:

Mark the **signal input** with the **X** and the **signal output** with the **Y** mark. Click in the main menu Analysis / Frequency Analysis / **Cross spectral density**.



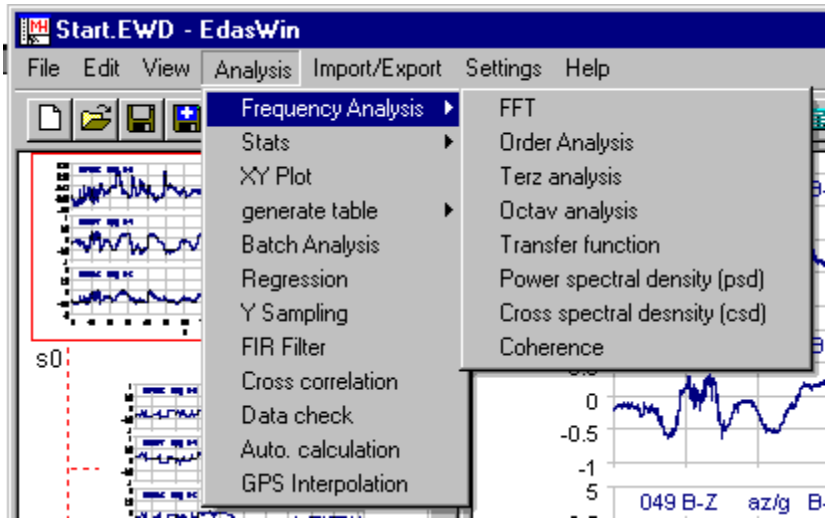
The cross spectrum dialog opens. Enter all values for proceed cross spectrum.



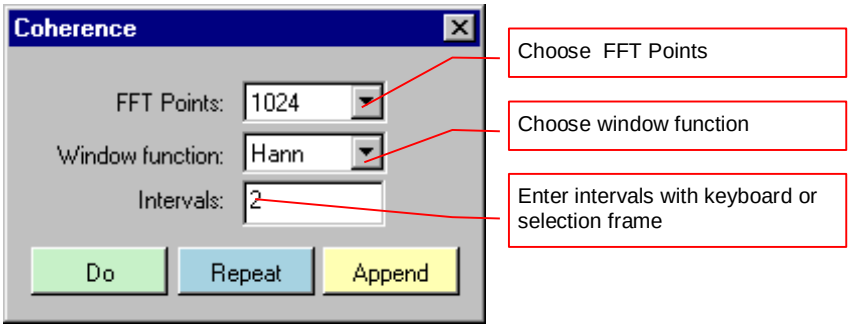
Coherence

The spectral coherence is a statistic that can be used to examine the relation between two signals or data sets. It is commonly used to estimate the power transfer between input and output of a linear system. If the signals are ergodic, and the system function linear, it can be used to estimate the causality between the input and output.

Proceed:
Mark the **signal input** with the **X** and the **signal output** with the **Y** mark. Click in the main menu Analysis / Frequency Analysis / on **Coherence**.

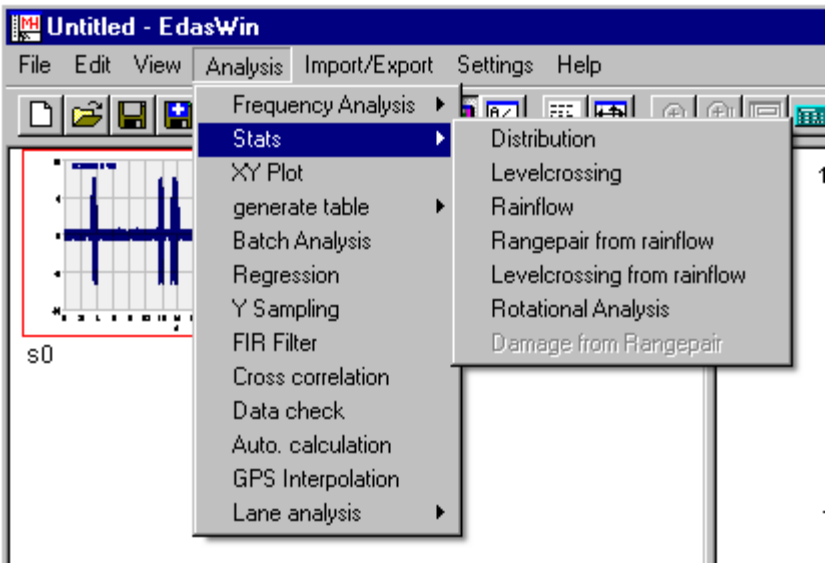


The Coherence dialog opens. Enter all values for proceed Coherence.



Statistical functions submenu

Statistical functions submenu



Distribution

Levelcrossing

Rainflow

Rangepair from Rainflowmatrix

Levelcrossing from Rainflowmatrix

Rotational Analysis

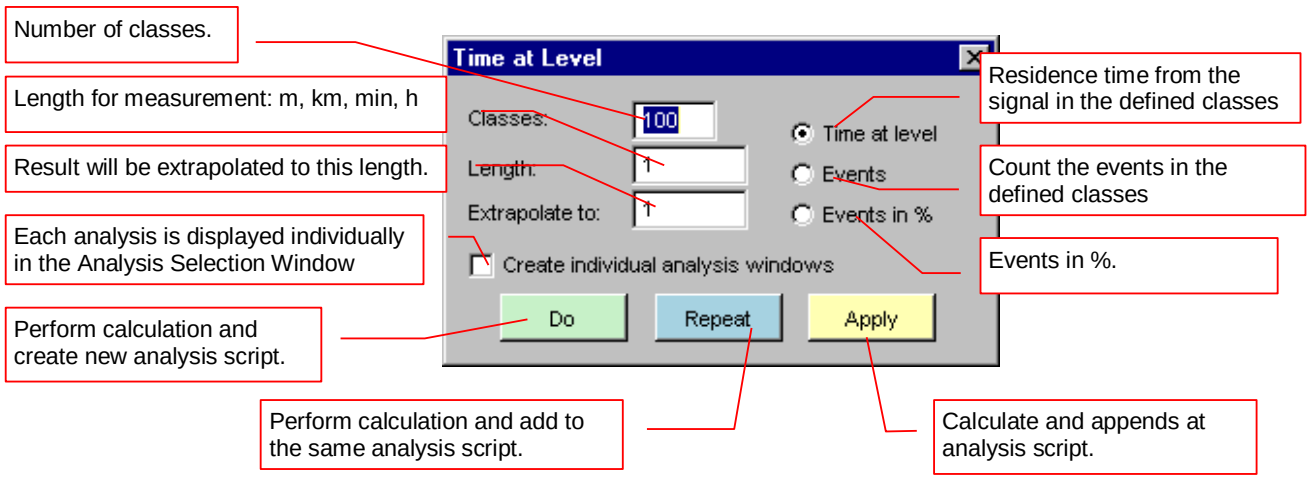
Damage from Rangepair

Time at Level procedure

The Time at Level procedure calculates the period during which the signal dwells in each of the defined classes. The result of the classification is displayed in the result window.

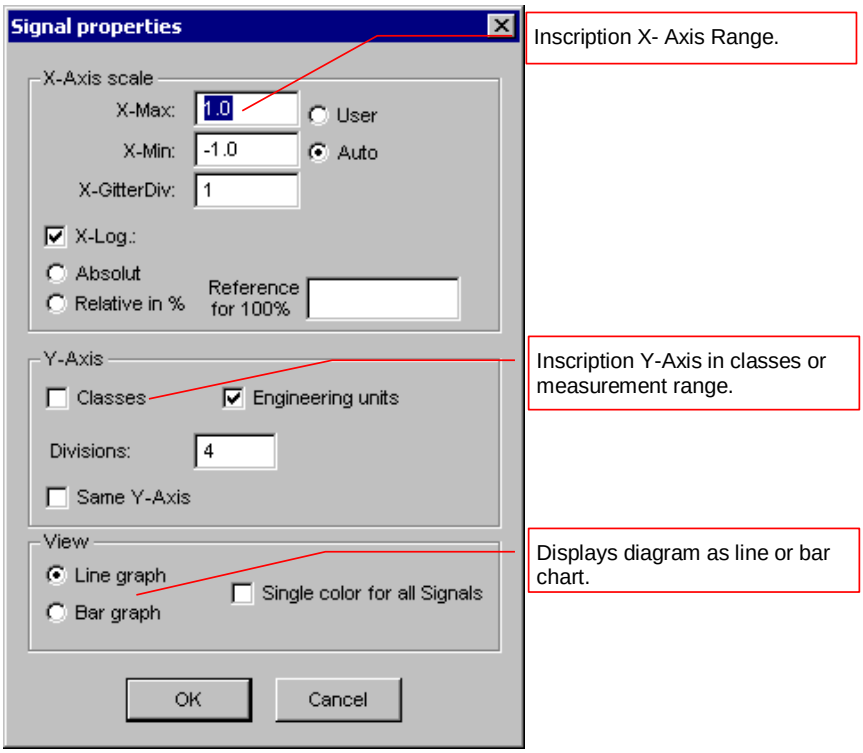
Procedure

For time at level classification you must mark the signals in the Analysis Window if there is more than one signal. Click in the main menu analysis / stats / Time at Level:



Enter parameter and click <**Do**>. The result window will show the results of the Time at Level calculations.

The Time at Level signal properties dialogue box is accessed by clicking in the result window with the right mouse button to open a pop-up menu. Click on properties with the left mouse button and the signal properties dialogue box will open



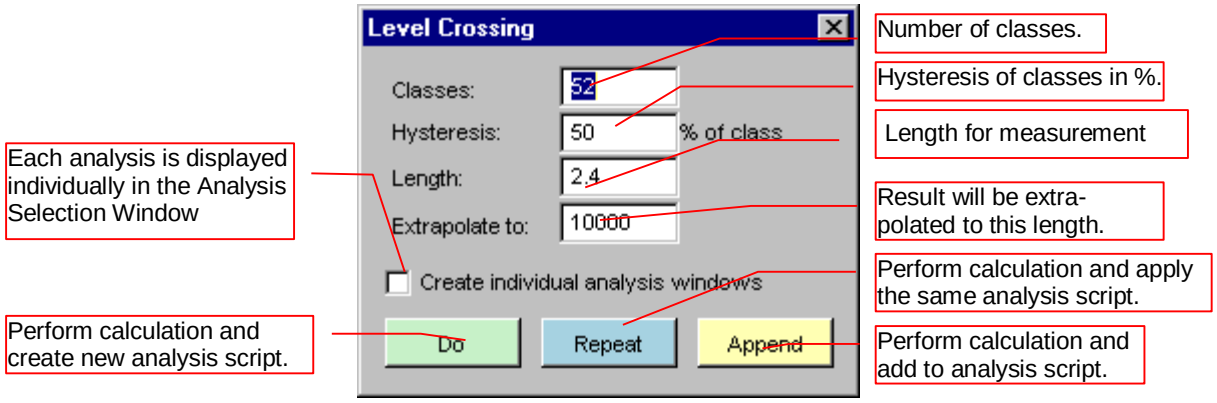
Enter parameter for the channel characteristics and confirm with <**OK**>.

Level Crossing Topic71

The Level Crossing calculates the class transit frequency of the signal. The classification result will be shown in the Result Window.

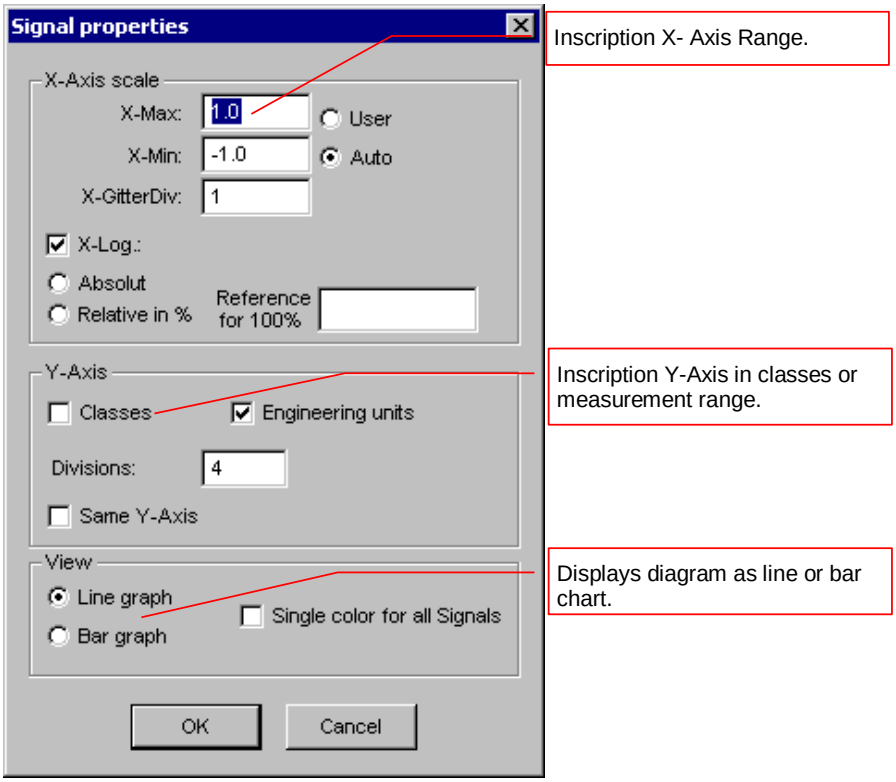
Procedure

For time at level classification you must mark the signals in the Analysis Window if there is more than one signal. Click in the main menu analysis / stats / Level crossing:



Enter parameter and click <**Do**>. The result window will show the results of the level crossing calculations.

The Level Crossing Signal Properties dialogue box is accessed by clicking in the Result Window with the right mouse button to open a pop-up menu. Click on 'Properties' with the left mouse button and the Signal Properties dialogue box will open.



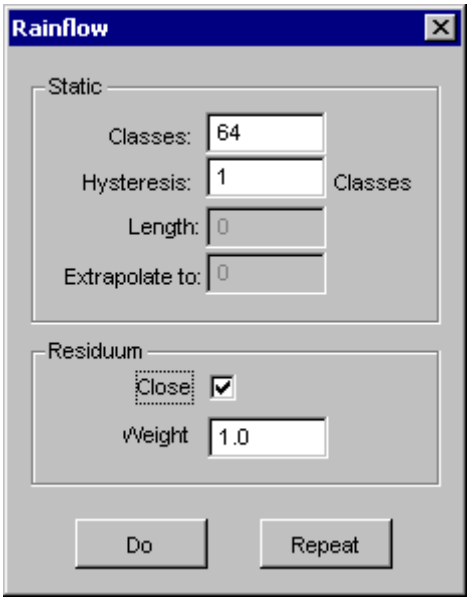
Enter parameter for the channel characteristics and confirm with <**OK**>.

Rainflow

The **rainflow-counting algorithm** is used in the analysis of fatigue data in order to reduce a spectrum of varying stress into a set of simple stress reversals. Its importance is that it allows the application of Miner's rule in order to assess the fatigue life of a structure subject to complex loading.

Procedure

Mark one signal and click in the main menu analysis / stats / Rainflow:
The Rainflow dialogue box indicates the required number of classes, the length of the selected signal, and the desired extrapolation factor. Set the parameters and click <**Do**>.



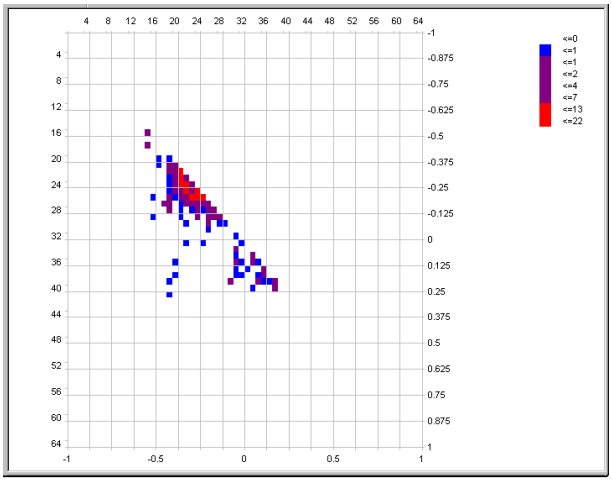
Field Residuum:

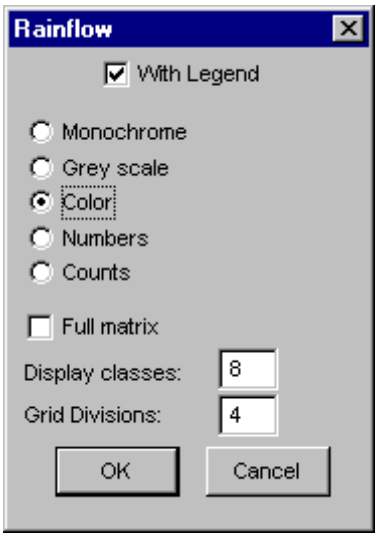
Close: Close the residuum.

Weight:

A **weight function** is a mathematical device used when performing a sum, integral, or average in order to give some elements more of a "weight" than others. They occur frequently in statistics and analysis, and are closely related to the concept of a measure. Weight functions can be constructed in both discrete and continuous settings.
Enter value from 0,1 to 1,0.

The graph will be displayed in the Result Window. To change graph properties (such as color, gray scale, numbers, etc.) use the Rainflow Properties dialogue box.





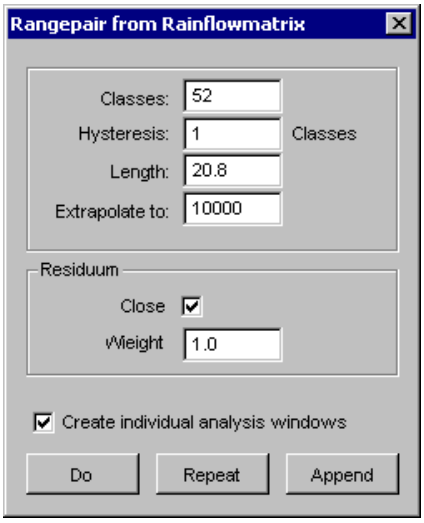
The residue append as additional window to the Rainflow analysis. The Rainflow properties dialogue box is accessed by clicking on the Rainflow graph in the Result Window with the right mouse button to open a pop-up menu. Click on 'Properties' with the left mouse button and the Rainflow properties dialogue box will open. The legend can be switched on or off with a checkmark.

Rangepair from Rainflowmatrix

Rangepair from Rainflowmatrix calculates the class passage frequency of an individual signal by the defined classes. The Rangepair from Rainflowmatrix result is calculated by the Rainflowmatrix and appears in the result window, without representing the Rainflowmatrix as analysis.

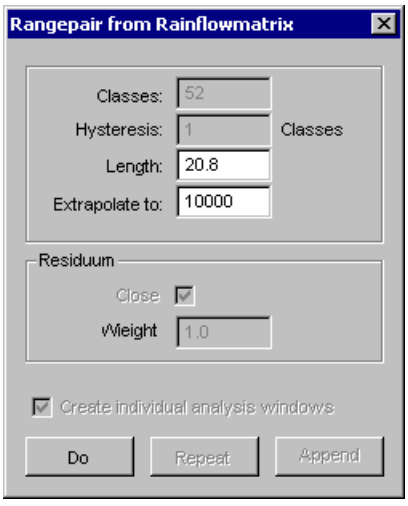
Procedure

Mark one signal and click in the main menu analysis / stats / Rangepair from Rainflowmatrix:
The Rangepair dialogue box indicates the required number of classes, the length of the selected signal, and the desired extrapolation factor.



Enter the required parameters for Classes, Hysteresis, Length and Extrapolate.
Entering field Residuum:
Choose **Close**, the Residuum will be closed.
Weight: A **weight function** is a mathematical device used when performing a sum, integral, or average in order to give some elements more of a "weight" than others. They occur frequently in statistics and analysis, and are closely related to the concept of a measure. Weight functions can be constructed in both discrete and continuous settings.
Enter value from 0,1 to 1,0. Click <**Do**>. The diagram displays in the result window.

If the Rainflowmatrix exist and displayed in the current analysis window, the following dialogue appears:



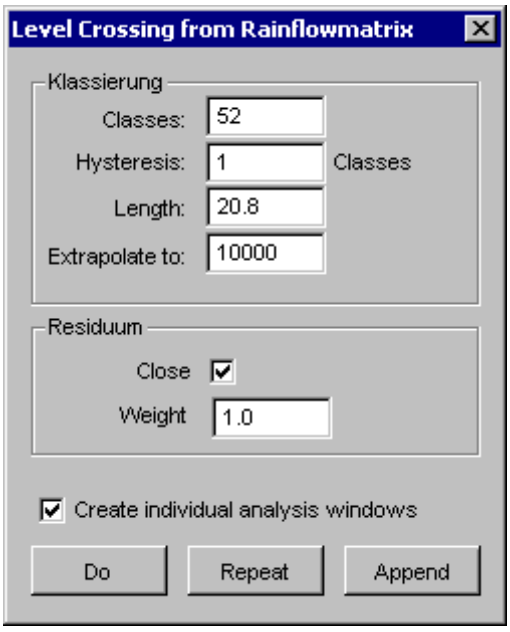
Length and extrapolation factor can be only entered. Class number and resetting width had been indicated in the Rainflow dialogue.

Levelcrossing from Rainflowmatrix

Levelcrossing from Rainflowmatrix calculated the class passage frequency of an individual signal by the defined classes. The Levelcrossing from Rainflowmatrix result is calculated by the Rainflowmatrix and appears in the result window, without representing the Rainflowmatrix as analysis.

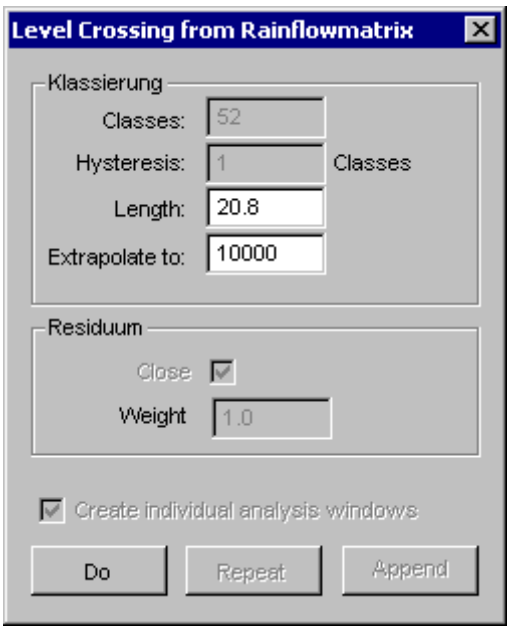
Procedure

Mark one signal and click in the main menu analysis / stats / Levelcrossing from Rainflowmatrix:
The Levelcrossing dialogue box indicates the required number of classes, the length of the selected signal, and the desired extrapolation factor.



Enter the required parameters for Classes, Hysteresis, Length and Extrapolate.
Entering field Residuum:
Choose **Close**, the Residuum will be closed.
Weight: A **weight function** is a mathematical device used when performing a sum, integral, or average in order to give some elements more of a "weight" than others. They occur frequently in statistics and analysis, and are closely related to the concept of a measure. Weight functions can be constructed in both discrete and continuous settings.
Enter value from 0,1 to 1,0. Click <**Do**>. The diagram displays in the result window.

If the Rainflowmatrix exist and displayed in the current analysis window, the following dialogue appears:

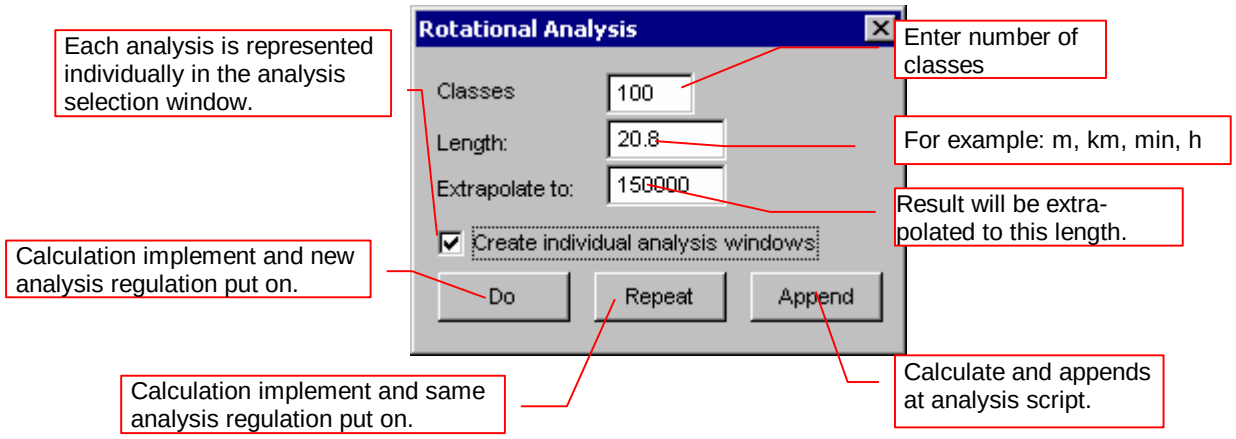


Length and extrapolation factor can be only entered. Class number and resetting width had been indicated in the Rainflow dialogue.

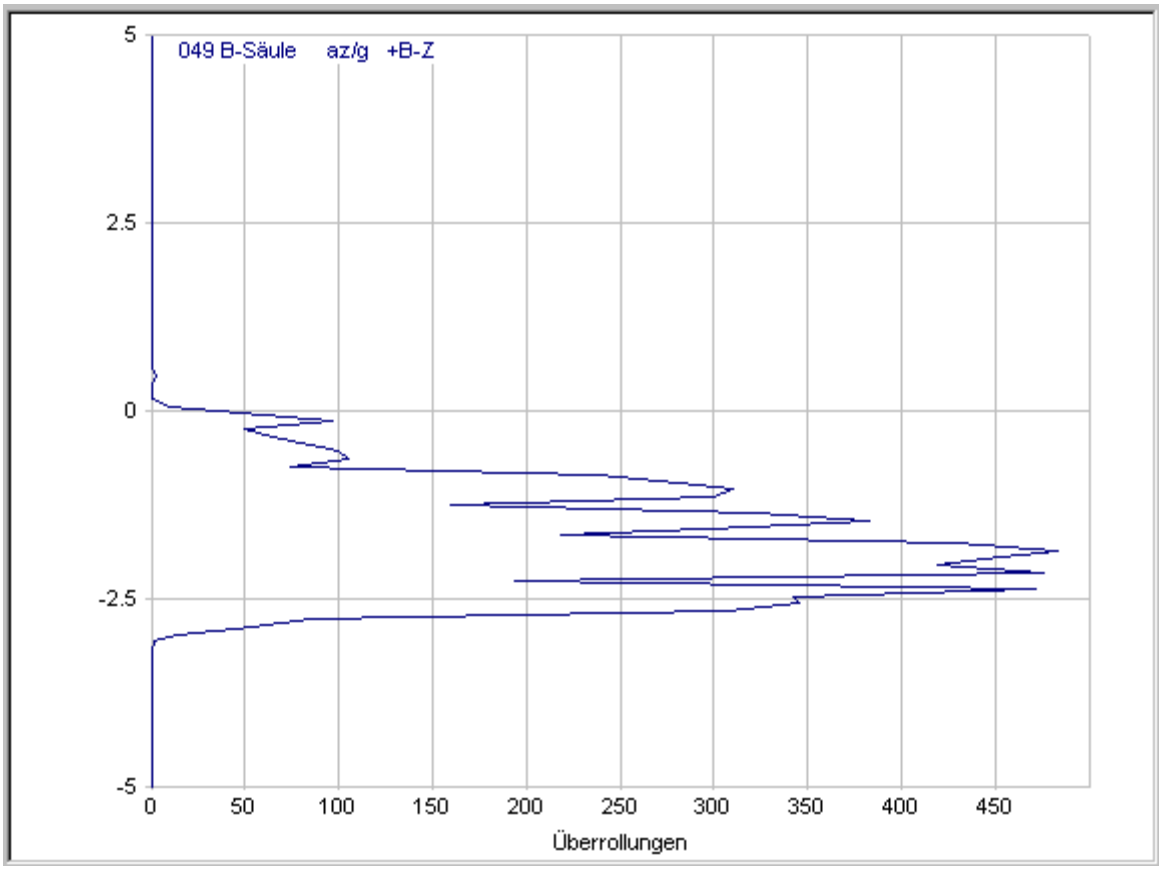
Rotational analysis

The Rotational analysis calculates the cycles of a rotary axle in defined classes. The result of classifying appears in the result window. For rotational analysis classifying a signal (for example Force in **Nm**) and number of revolutions a signal (in **min^{-1}**) must be present. Mark the signal which can be computed with **Y-mark**, and the revolutions signal with **N-mark** mark.

Click in the Main Menu/Analysis / Stats / Rotational Analysis:



Click <**Do**> the classifying appears in the result window.



Damage from Rangepair

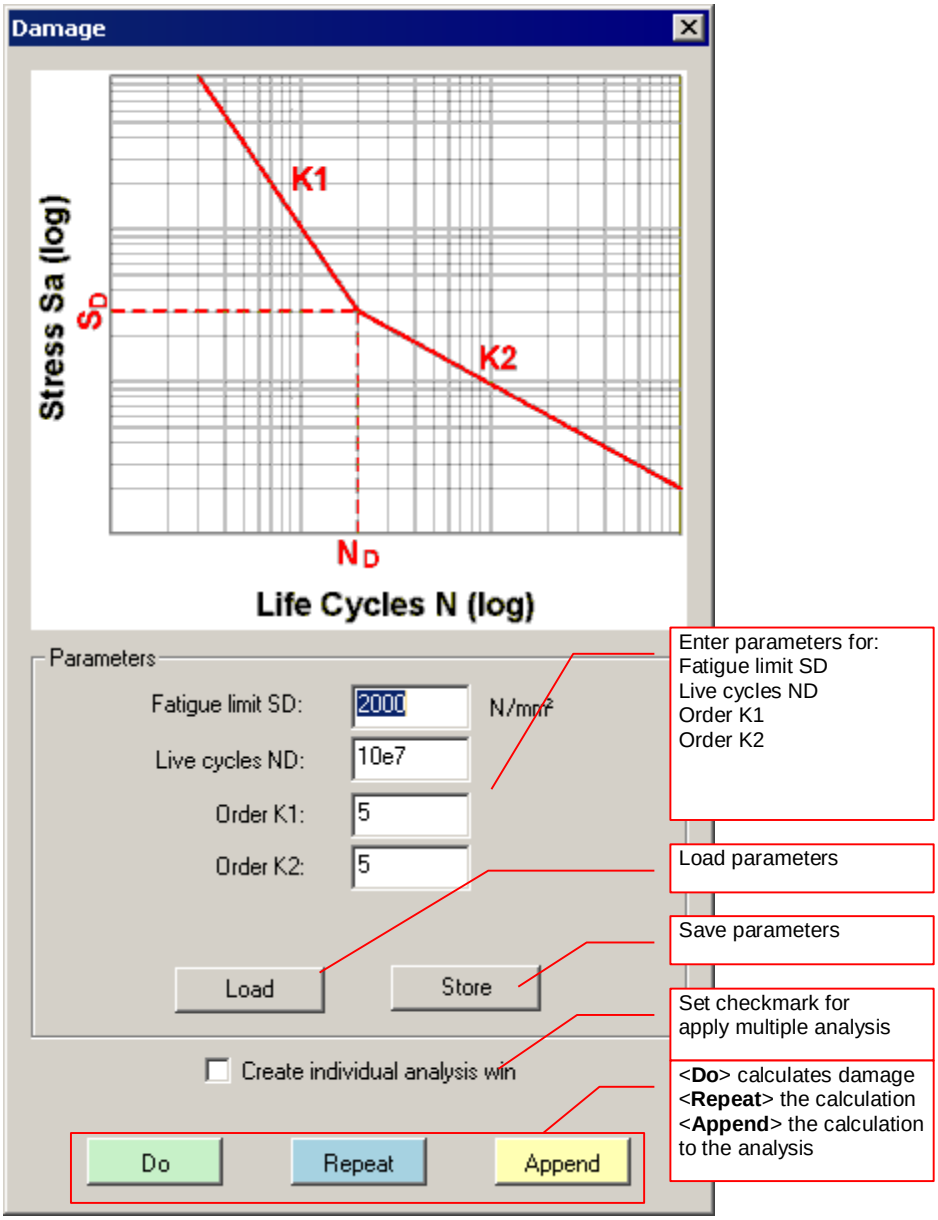
To calculate the Rangepair result with Damage from Rangepair, the Rangepair from Rainflow diagram must be created. If there is no knowledge about the values for the handling from a residuum, the following values can be entered.

- Close Residuum
- Weight 1

Run damage:

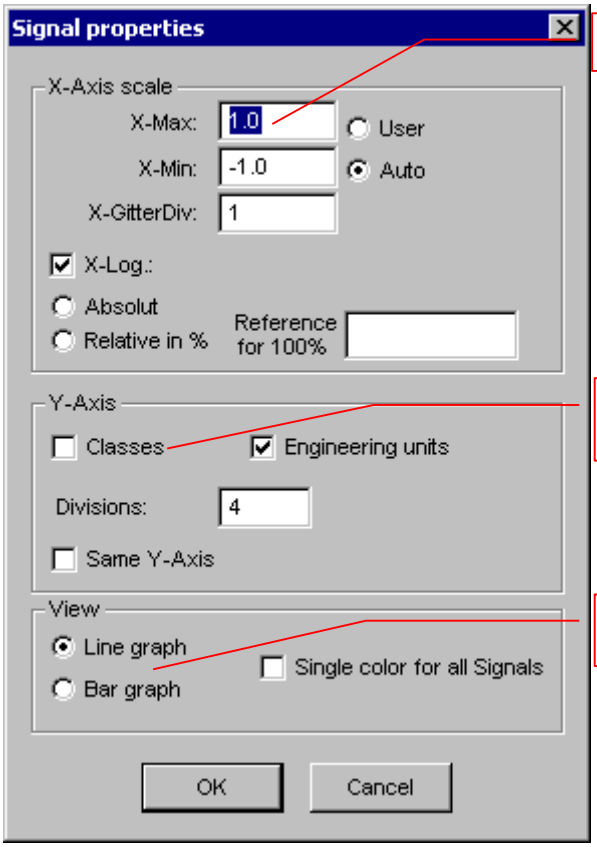
Choose in the main menu analysis / stats / Damage from Rangepair
If there is no knowledge about the values for the handling from a residuum, the following values can be entered.

- K1 = K2 = 5
- Live cycles ND = 10e7
- Fatigue limit SD = 2000



Enter the required parameters and click <**Do**>. The diagram displays in the result window.

Changes for the representation the X axle of absolute in relative %:
Right click beside the diagram in the analysis window opens a popup menu. Choose properties.



Inscription X- Axis Range.

Inscription Y-Axis in classes or measurement range.

Displays diagram as line or bar chart.

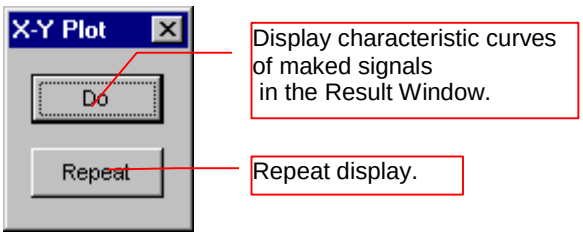
Activate relatively in % and enter reverence in the edit field.
No entry in the field reverence sets the maximum to 100%.

Ex.:
1.8e-24 should be 100%; Enter in reference for 100% = **1.8e-24**. The axle description displays sum damage % [100%=1.8e-024]

X-Y Plot Display

The display of signals plotted against one or more signals is initiated from the Analysis Menu.
Click in the menu analysis / XY plot. In order to define which signal is to be superimposed on another signal you must define X and Y marks.

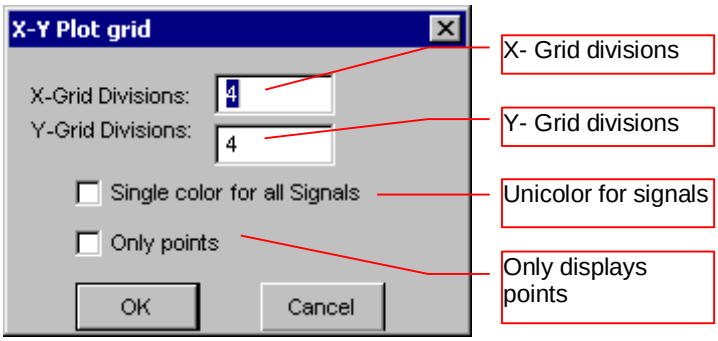
Example: Three signals are displayed in the Analysis Window. The first two signals are to be plotted against on the third.
Choose option **XY Plot** from the analysis menu. The **XY Plot** dialogue box will appear. Move the cursor next to the first display channel until the cursor turns into an **M** and left click. The mark pop-up menu appears. Left click on **Y**. The display channel will be marked **Y0**. Repeat for the second channel to mark it with a **Y1**. Proceed in the same way for the third channel, but left click on **X** instead of Y in the pop-up menu. This will mark the third channel with **X0**.
Click <**Do**> in the **X-Y Plot** dialogue box.



The Result Window will display characteristic curves.
You can display n signals on top of n signals in the same way. The order in which they are assigned corresponds with the mark number, i.e. , Y0 will be plotted against X0, Y1 against X1, etc.

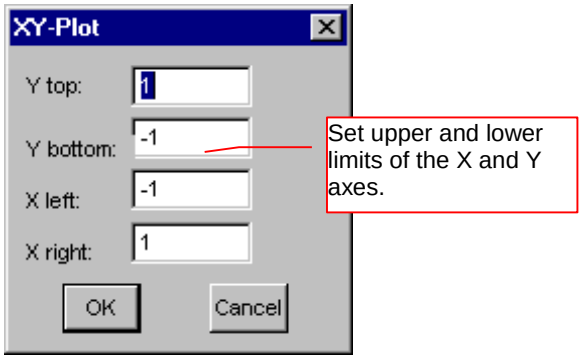
X-Y Plot Grid Dialogue Box

The X-Y Plot Grid dialogue box is accessed by clicking in the Result Window outside of the graph area with the right mouse button to open a pop-up menu. Click on 'Properties' with the left mouse button and the X-Y Plot Grid dialogue box will open.



X-Y Plot Properties Dialogue Box

Settings in the X-Y-Plot properties dialogue box refer to a single channel.

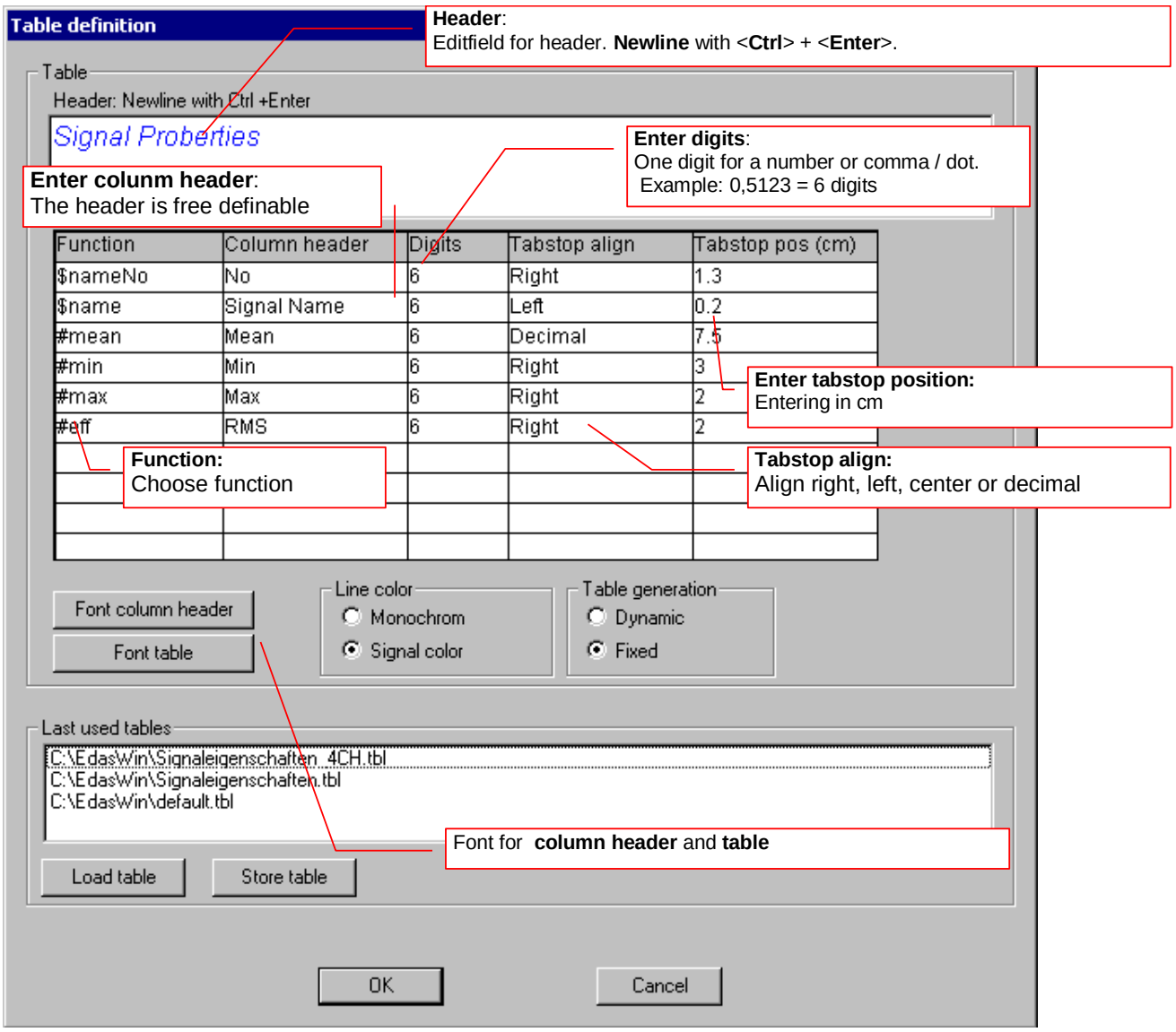


The X-Y-Plot properties dialogue box is accessed by clicking with the right mouse button inside of the graph area in the Result Window to open a pop-up menu. Click on 'Properties' with the left mouse button. If three or more signals were marked, a Signal Selection dialogue box appears. Select the desired signal by double-clicking with the left mouse button. The X-Y-Plot properties dialogue box opens for the desired channel. If only two signals were marked, the X-Y-Plot properties dialogue box is accessed directly without opening the Signal Selection dialogue box.

Create a table

Create table:

To generate table, use the F7 key, the button in the analysis Toolbar, or click on generate table in the analysis menu.
The table definitions dialog opens.



Inputfield Header

Enter header from table. To insert a **newline**, use the <**Ctrl**> + <**Enter**>keys.
Change font: Mark the text, do rightklick and choose in the following menu font. Edit the font and / format.
Functions can also insert here.

Inputfield Function

Click into the cell opens a listbox. All in E.d.a.s.Win included keywords listed here. Click on the keyword which will be displayed in the table.

Inputfield Column header

The header is free definable, and can be entered by the user.

Inputfield Digits

One digit for a number or comma / dot. For example: 0,5123 = 6 digits
New: Manual data input from the fraction digits.
Example 8.2 = 8 digits and 2 fraction digits. All fraction digits aligned at the right side in the table.

Inputfield Tabstop align
Click into the cell opens a listbox. Choose between align Right, Left, Center and Decimal (Comma digit)

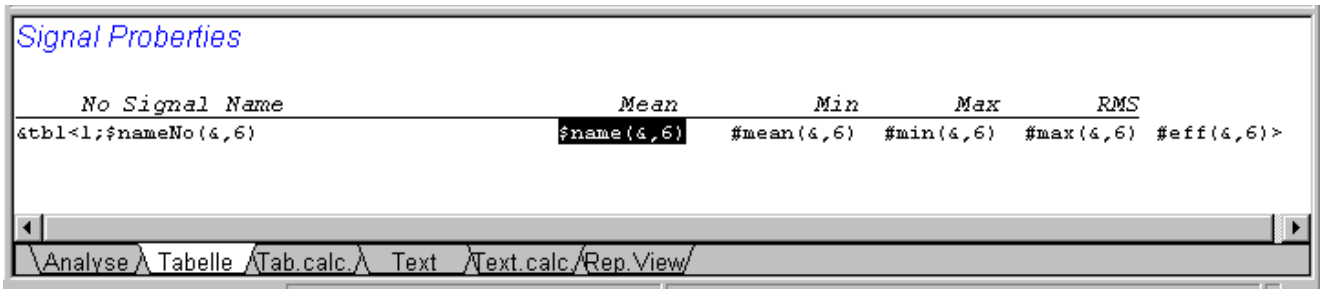
Inputfield Tabstop position (cm)
The input takes place in cm.

Button Font Column header and Font table
Opens the dialog to edit the text font.

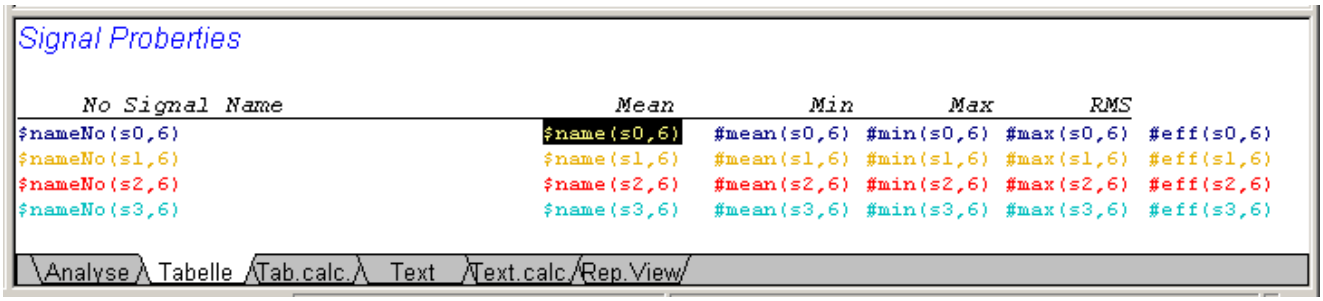
Selection monochrom or signalcolor:
Monochrom = The table line is uncolored.

With selection signal color the lines are displayed in the signal color of the respective signals.
Example:
Combine all channels they displayed in the analysis window. The signals are displayed in different signal colors. See also colors. Open with F7 the table format dialogue, load a table and confirm with <OK>. The table with the channels in the signal colors appears in the result window. If no channels are combined, the lines are displayed with the signal color from the analysis window.

Selection table generation dynamic or fixed:
With selection dynamic can be made a change of font for the line or a column. Change into the folder table and mark the range which font can be changed. See the example. (Black range) Do rightclick and choose font in the menu. After the change in the dialogue, the folder Tab.calc shows the worked on table with the pertinent signals



With selection fixed a change of font for an individual value, line, a column or a range can be made. Change into the folder table and mark the range which font can be changed. See the example. (Black range) Do rightclick and choose font in the menu. After the change in the dialogue, the folder Tab.calc shows the worked on table with the pertinent signals



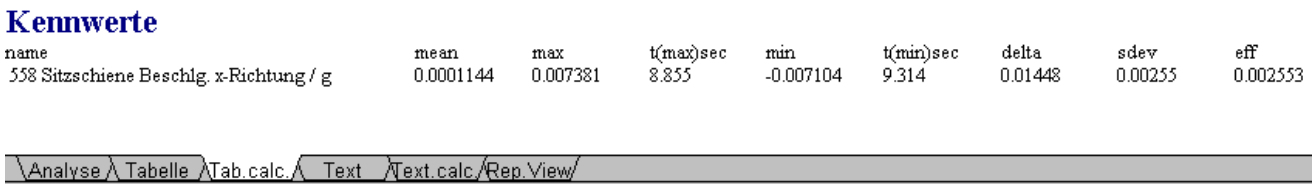
List field Last used tables

For a fast selection, the last four used tables listed here.

Button Load table and Store table

Load table:
Load an existing table file (*.tbl).
Store table:
Stored the table under a new name.
If no new file name is assigned all changes is stored in default.tbl. This is the standard table used by E.d.a.s.Win.

Create Plausibiläts table:
In the menu/analysis/tables Plausibiläts table will produce a table with the following characteristic values in the result window indicated


Kennwerte

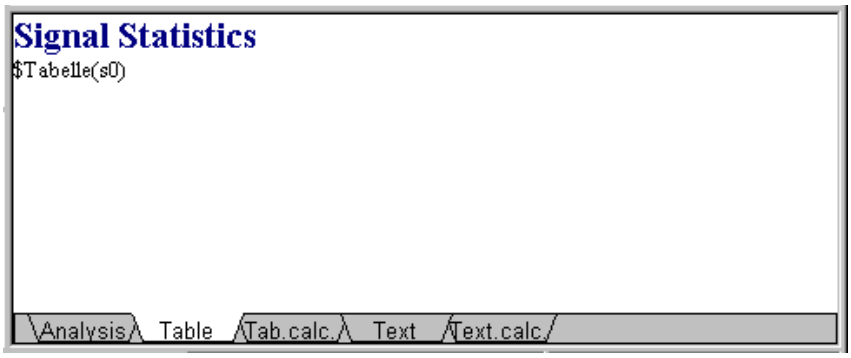
name	mean	max	t(max)sec	min	t(min)sec	delta	sdev	eff
558 Sitzschiene Beschlg. x-Richtung / g	0.0001144	0.007381	8.855	-0.007104	9.314	0.01448	0.00255	0.002553

Analyse | Tabelle | Tab.calc. | Text | Text.calc. | Rep.View

Tables provided in the E.d.a.s.Win directory:

Type of Analysis:	**File Name:**
Time-function process	Zltab.rtf
Time at level	Vwtab.rtf
Range Pair	Rptab.rtf
Rainflow	Rftab.rtf
Level crossing	Lctab.rtf

These tables can be modified to suit your needs in the Result Window. Click on the „**Table**" tab and enter your text. By using the pop-up menu (right mouse button in the Result Window) you can load an existing RTF table, save a table that has been created, or you can determine font attributes and paragraph formats. Using „**Insert Function**", you can embed calculation functions via a dialogue window. You can insert key words (e.g. names, mean value, maximum value or other) here. Functions can be transferred in sequence, or they may be added one under the other by using the **<CRLF>** switch. Tables and functions may only be edited in „**Table**" mode. After you have created the table, click on „**Tab.calc**." and the calculated table will appear in the Result Window of the Analysis Screen. A „**Tab**" mark appears as a bookmark underneath the associated analysis display in the Analysis Selection Window. This bookmark may be dragged onto the page in the Layout View in order to display the table you have created on the desired page. You can switch at any time between the data entry and the calculation modes of the table.



Creating Tables with/without functions

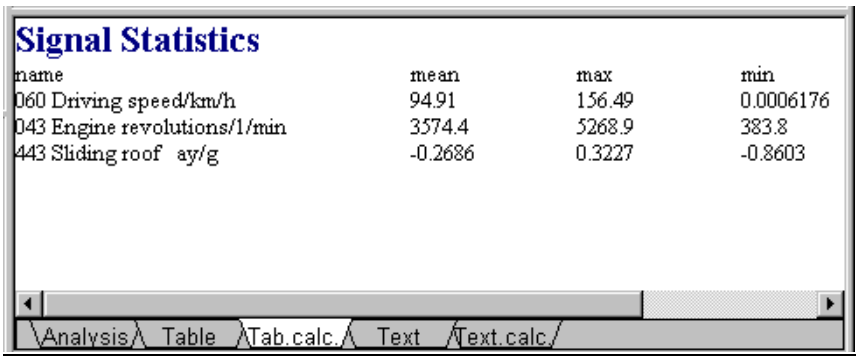


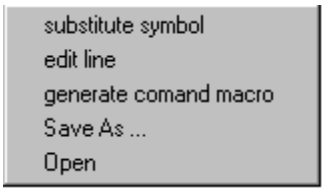
Table above calculated with Tab calc.

Depending upon kind of the analysis in the analysis window an associated table (e.g. time function process, period spent o.ä.) is generated automatically.

Batch Analysis

With the function batch analysis, analyses over several measured value files and their signals with a once created E.d.a.s.Win - document can be automated.

In E.d.a.s.Win document which used for the batch analysis, the signal name within the desired analysis which can be replaced with the batch analysis must be marked. Right – click a popup menu appears:



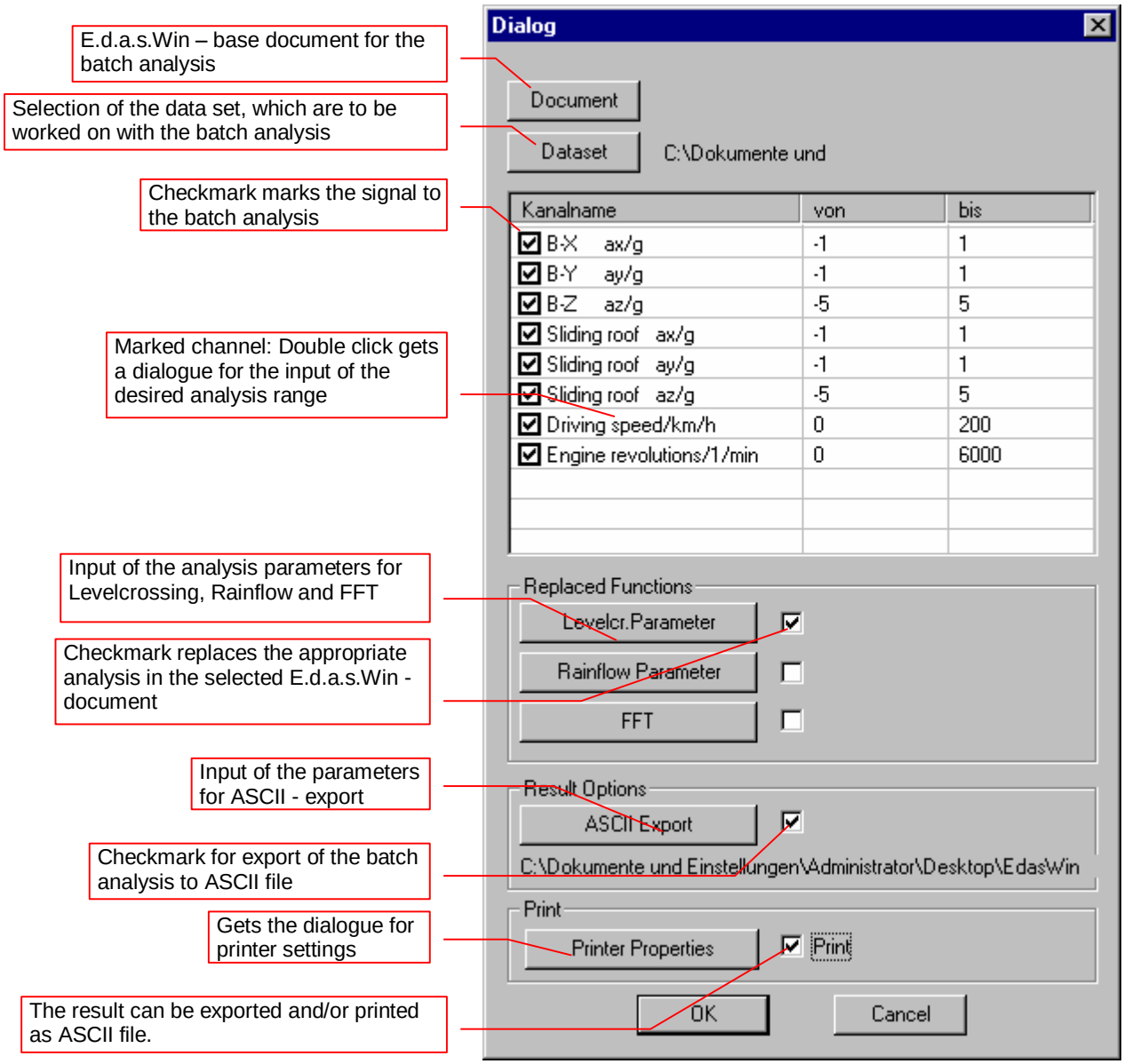
Choose „substitute symbol ". Behind the data set name in the analysis script window appears [*] as marking for the substitute symbol. The document must be stored afterwards

„Save with data and pictures "may not be used!"

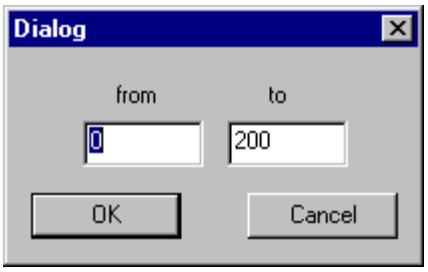
Importantly!
A batch analysis can only calculate exactly what the E.d.a.s.Win - document contains.

Click in the main menu analysis/batch analysis. A dialogue appears.

Importantly!
With selection of several measuring data sets the channels must be the same in number and kind.



Input of the desired analysis range
Mark the channel (for example 060 Driving speed. /km/h) from the analysis range which be edited. Double click gets the following dialogue.



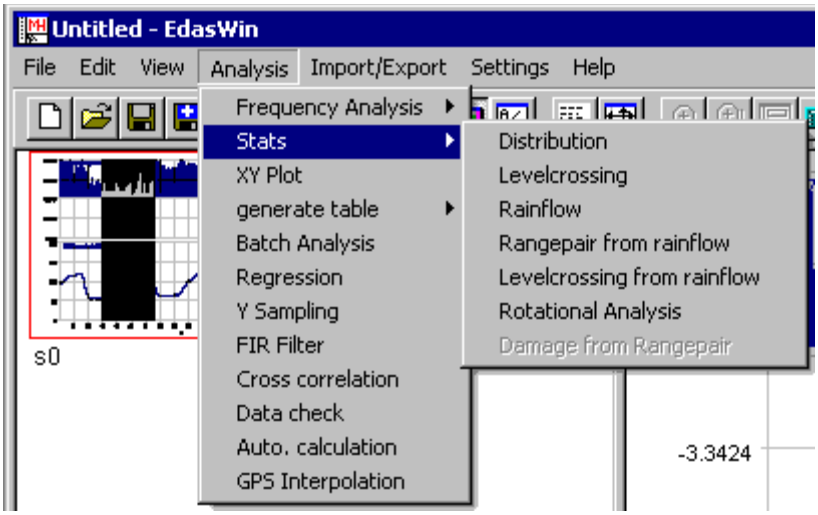
Enter analysis range values and confirm with <**OK**>.

With the checkmark at ASCII – export; an ASCII file for each worked on channel will be stored. The file name forms from the input of the user (prefix) and an appendix (_nn; with nn = current number), for which automatically one produces. Prefix of the file name and data path are entered in a file dialogue. The file dialogue appears with the selection of the checkmark to activate the ASCII - export. **The batch analysis starts with <OK> .**

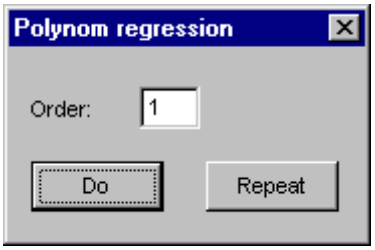
Regression representation over value pair

In statistics, **regression analysis** examines the relation of a dependent variable (response variable) to specified independent variables (predictors).

Two signals with the regression to be calculated are to represent in the analysis window.
In main menu click analysis / regression.



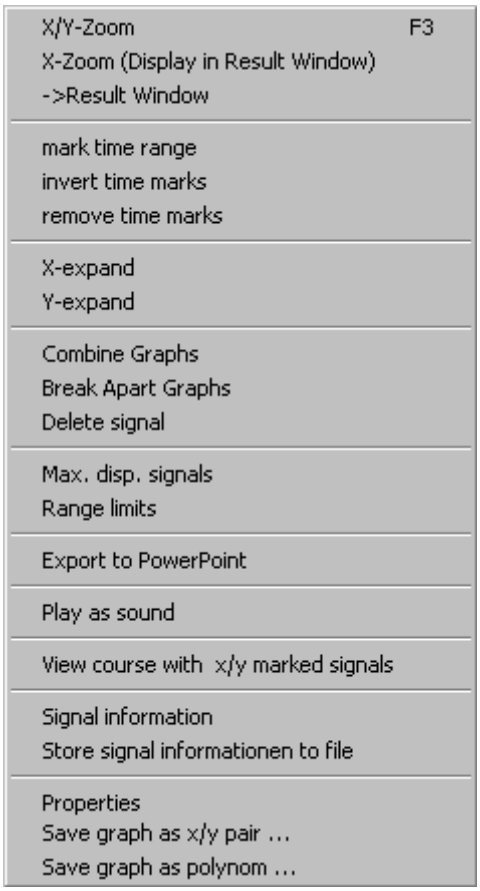
Enter the order in the following dialogue.



Set X and Y mark.

Click <Do> to start procedure
The result can stored as pair (.lin) or as polynomial (.ply) file.

Right click into result window opens the following menu:



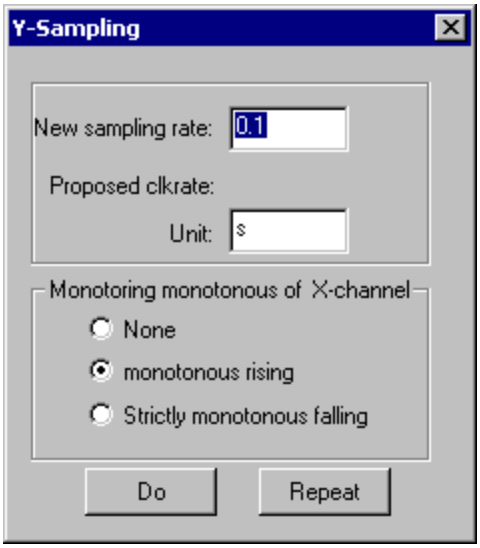
Choose Save graph as pair (.lin) or as polynom (.ply) file.

See Lineariesation - function and Polynom calculation.

The regression formula can be inserted over the table or text tab with the function text editor.
Keyword in the function text editor: $ regression curve

Y sampling:

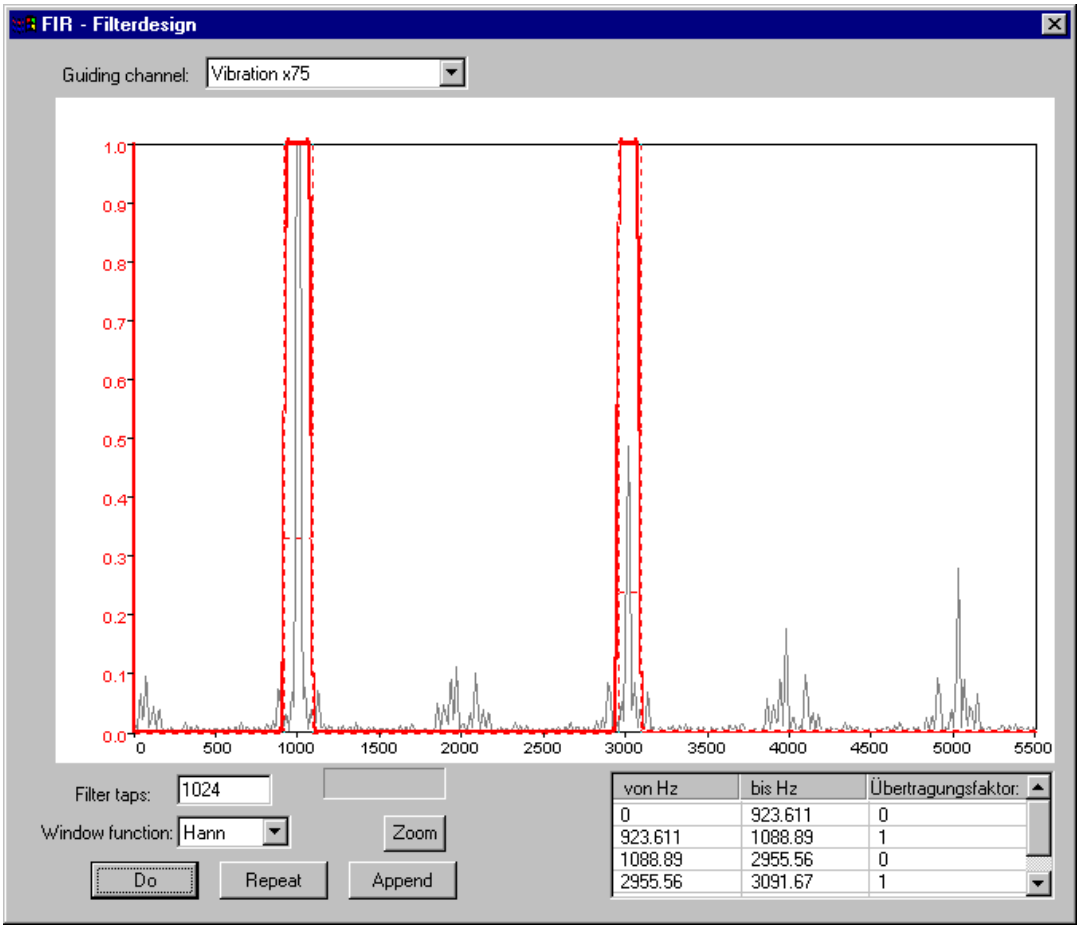
Signal rescanning across a selectable channel.
Mark the rescanning signal with **Y**, and the base channel with **X**.
Click in the main menu analysis/Y sampling



Enter the required parameters and click <**Do**>

FIR Filter:

Choose signal and mark with y. Click in the main menu analysis/FIR filter. The FIR filter dialogue appears:



Selection guiding channel:
In the background of the filter diagram, the spectrum of the guidance channel is grey represented. The guidance channel can be selected over the Combo box "guidance channel". Through draw up a selection frame in the analysis window can additionally a range be determined, which is to be represented in the filter diagram as spectrum.

Define the filter characteristic:
With drag & drop, pull at the left of the y axis one or more frequency lines into the diagram. Specify the corner frequency on the x axis (Hertz) by positioning the vertical line. The horizontal line defines the transfer function.

Enter range and transfer function:
Left click in the table into the line which edited. Enter the exact values in the dialogue

- The broken lines define the ideal filter characteristic.
- The red line shows the real filter characteristic.

Delete from filter characteristics and zoom shot frame:
Right click on the frequency line or zoom shot frame. Choose Delete freq. line, or Delete Zoom frame

With number of filter stages the slope of the filter is specified. The window function affects the waviness of the filter characteristic.

Zoom:
Left click and drag in the filter diagram across the range they will be zoomed, creates a zoom frame. To enlarge and downsized the frame drag on the frame corners. Click <**Zoom**>

Do:
Complete calculation and create new analysis script.

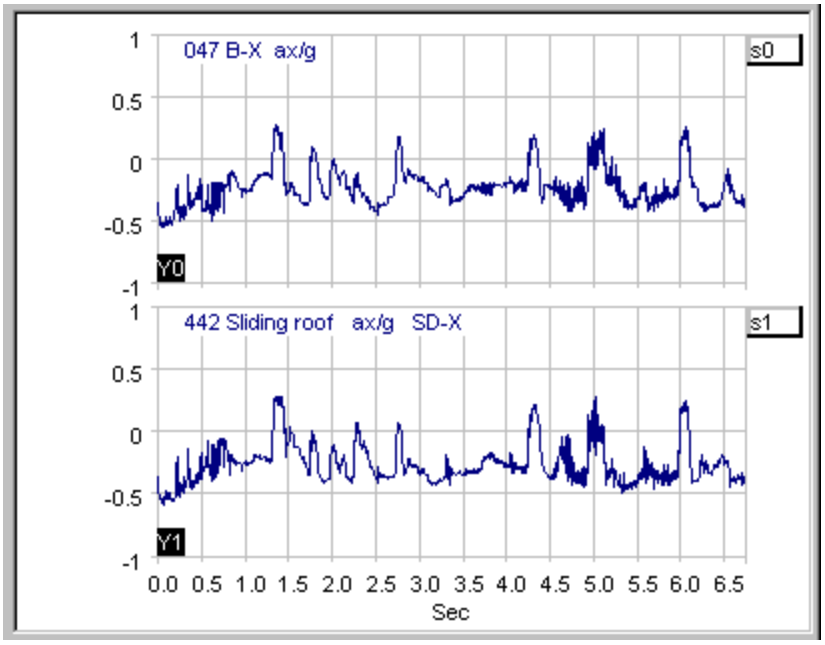
Repeat:
Complete calculation and create the same analysis script.

Append:
Complete calculation and append on analysis script.

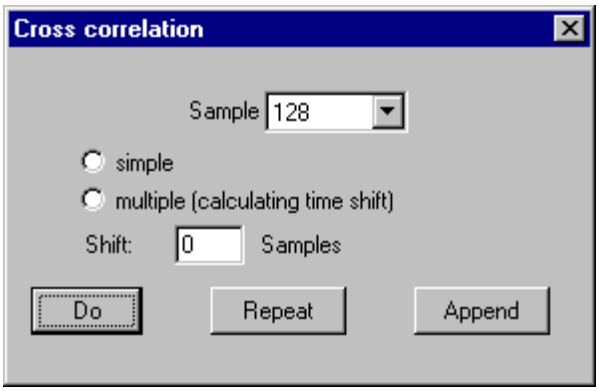
Cross correlation:

The cross correlation function can determine whether a certain signal is contained in another signal.

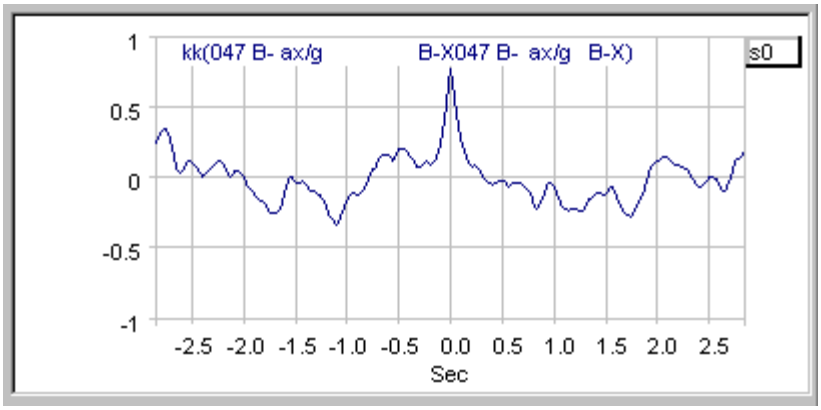
Mark the signals, which can be calculated.



Click in the main menu analysis / cross correlation.

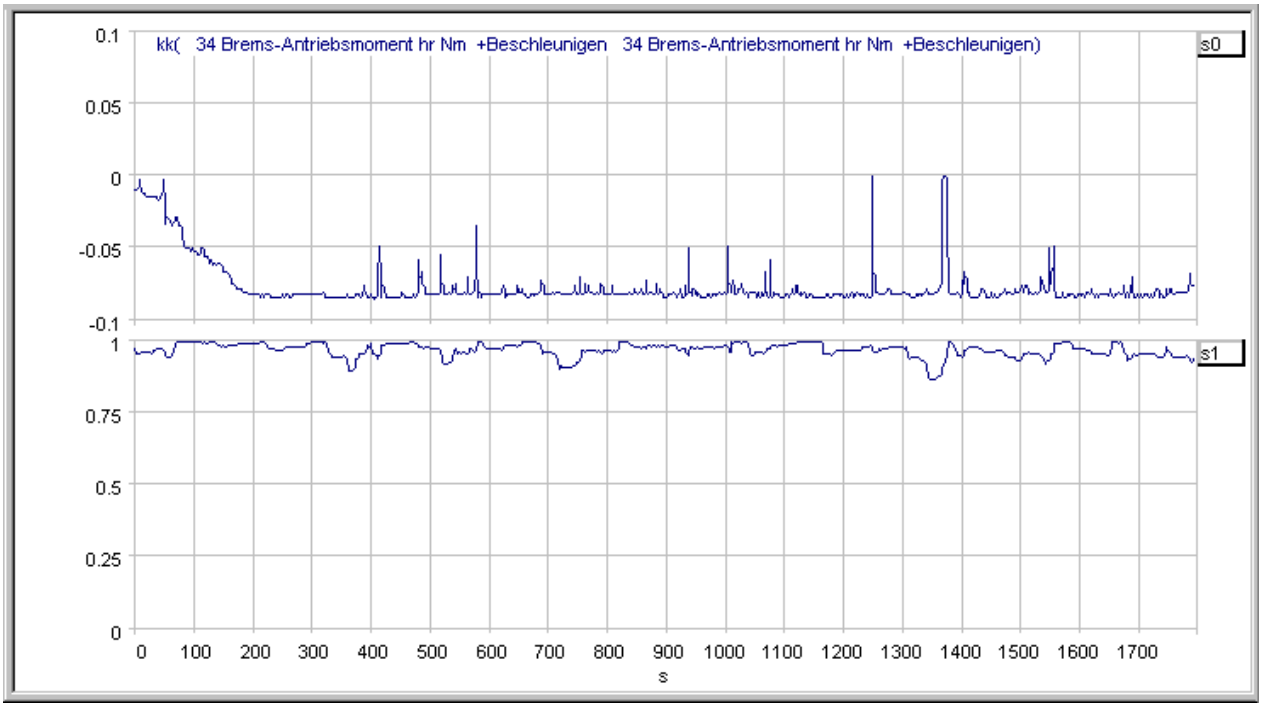


Simply:
Enter samples, choose simply and click <**Do**>. In the result window the cross correlation appears.



The peak at 0,0 seconds indicates the correlation factor (agreement of the signals).

Several times:
Enter samples, choose multiple (calculation time shift).
Enter dot matrix, which the selection framework is shifted with the calculation across the signals. A small dot matrix results exactly calculation of the signals. Click <Do>. In the result window two diagrams appear:



The upper shows the time shift of the signals.

The lower diagram shows the analogy of both signals, to read from the factor 0 - 1 of the y axle.

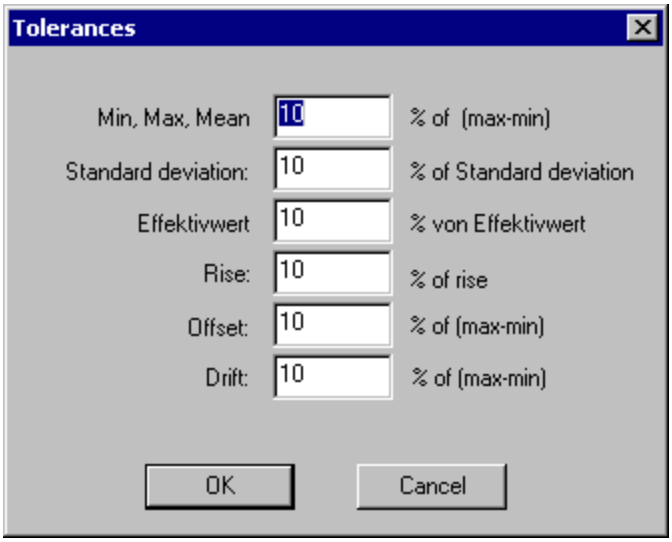
DataCheck

MH´s DataCheck is an optional software module for E.d.a.s.Win, please contact MH GmbH

The DATA check function examines measured data sets in plausibility. The measuring data are compared with statistic values within definable borders. The values which can be used as comparison are indicated over a DATA check table.

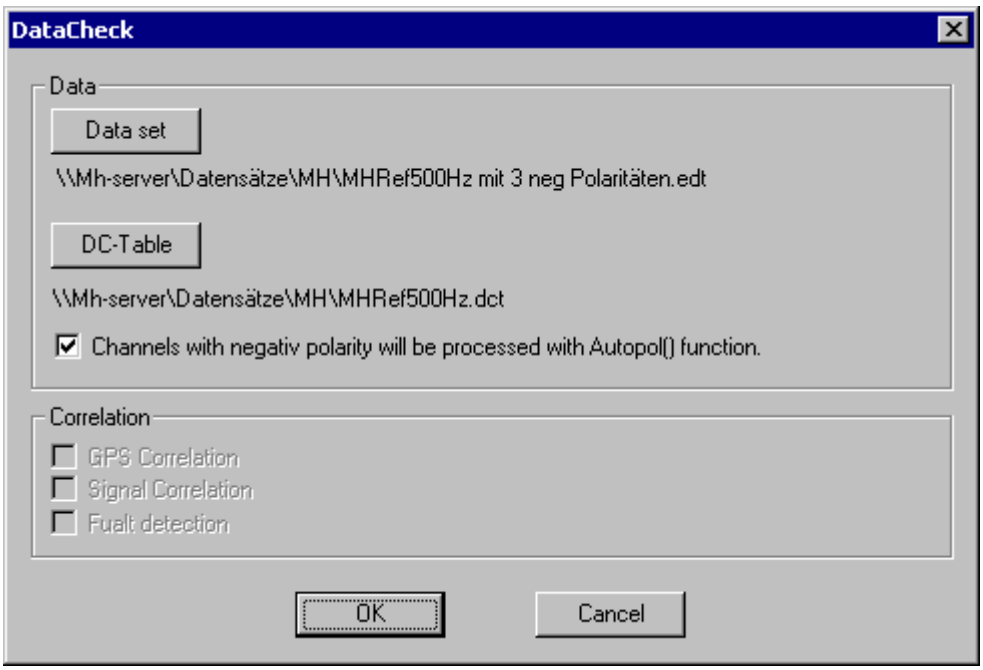
Generate DataCheck Table:
From the existing signals in the current analysis view, the values with the associated comparison borders from the dialogue are written into the DC table.

Click in the main menu conversion / export / DC table. The following appears.



Enter all required parameters and confirm with <**OK**>. Enter filename and storing path. <**Save as**> ends the DC - table export. The type of file is *.dct.

Use DataCheck:
Click in the main menu analysis / DataCheck.



Select the data set which can be examined and a DC table. If a checkmark is set, channels with negative polarity are worked on with the autopole [] function (**multiplication with - 1**). If sensor locations are present in the data set, which does not contain the DataCheck- table, only a statistic computation of the sensor location is accomplished however no DataCheck. <**OK**> starts the DataCheck function. During execution of DataCheck and representation in the analysis script window the background of the analysis view is dyed green.

Colored marking of the first column Lchan:
Green: DataCheck accomplished, measured values are in the tolerances.
Red: DataCheck accomplished, measured values are not in the tolerances.
No colored marking: The sensor location in the DC table was not available; the statistic computation is accomplished, but no DataCheck.

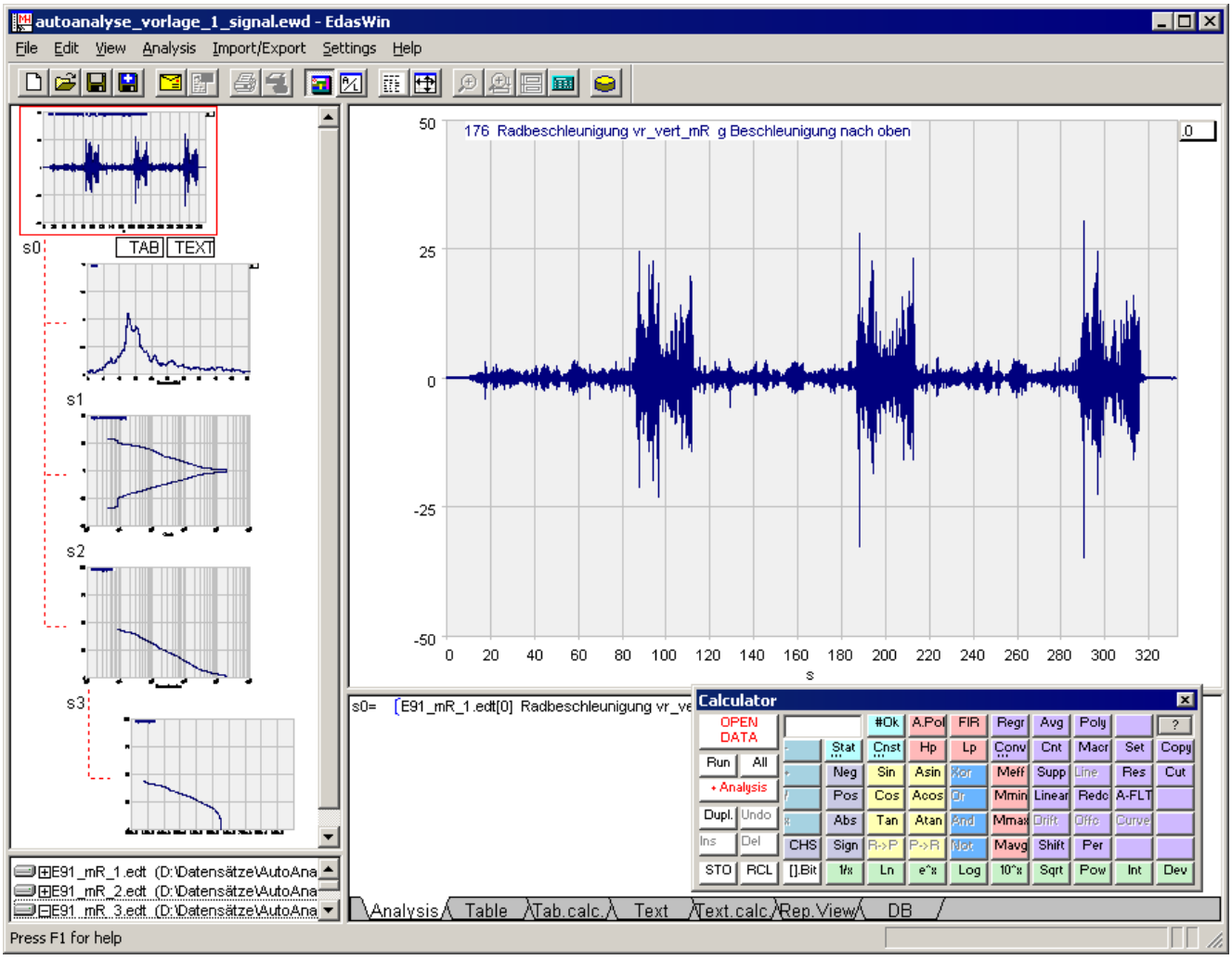
Recommendation:
Accomplish a E.d.a.s.Win Export with linear parameter, for the increase of the evaluation speed with large data sets.

Auto. Calculation

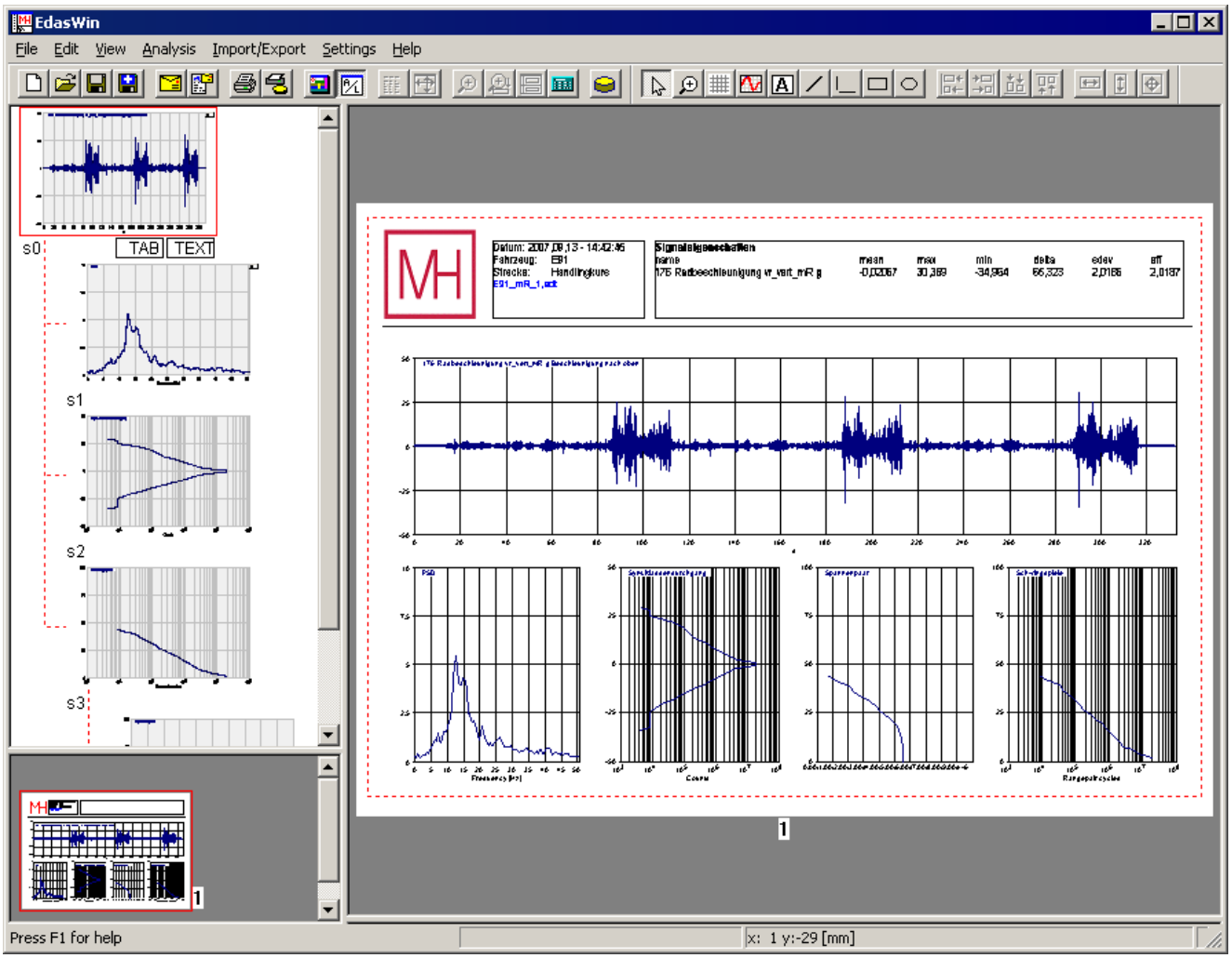
MH´s Auto Calculation is an optional software module for E.d.a.s.Win, please contact MH GmbH

Auto. Calculation supports the automated computation and output of signal analyses. The auto analysis dialogue steered a created E.d.a.s.Win document (.ewd). The .ewd document is build for a single channel and contains the analyses and the print layout (see example below).
Auto Calculation calculates the same signals from up to ten data sets on a page.
The diagram output format can be an E.d.a.s.Win file, a JPG file, and paper print.
The signals with the number of sides and scaling, which can be computed, must be entered in the auto analysis dialogue.

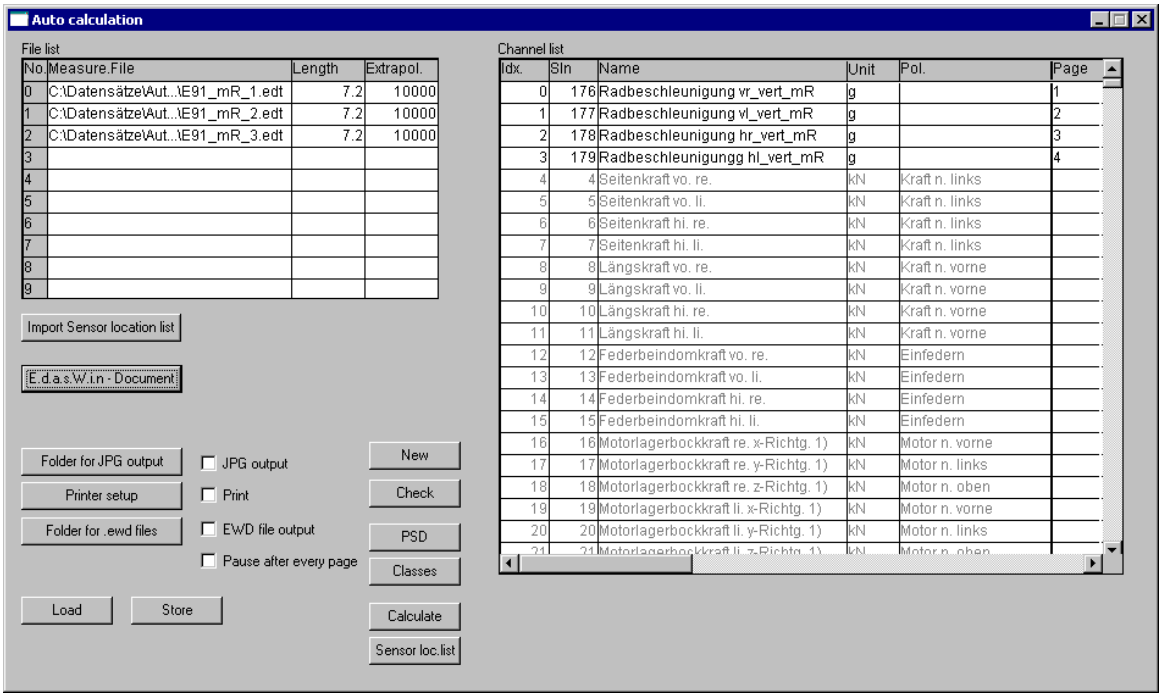
Example analysis script with a single channel:



Example layout with a single channel



Auto analysis - dialogue



Click in the main menu analysis / Auto. Calculation. The dialogue shows on the left side the data set table with the measuring files, which are consulted for the analysis. Left click into a line of the table gets „the file open "dialogue. Select the file which can be analyzed and confirm with <**OK**>.

With the Button < **sensor location import**> the channel - table on the right side is filled with the existing sensor locations from the indicated measuring files.

With the Button <**E.d.a.s.Win - Document**> selected the analysis/layout - document. The path is displayed under the Button.

Columns in the file table:

Nr.: Number of the measuring file, needed in the channel table in the column File-NR.

Data set: Data set name

Distance / Length: Length from the distance (For Example 7.2km)

Extrapolation: Extrapolate length (for Example 10000km). With Rainflow and LevelCrossing – computations become usually comparability measuring data more differently distance covered lengths on one extrapolate length projected. The instruction length could also stands for temporal duration, angle sizes, shifting processes, etc. stands (depends on origin of the measuring signals)

Fix columns in the channel table:

Idx.: Line number in the channel table

Mnr.: Sensor location number

Unit: Unit of the channel

Pol.: Polarity of the channel

Columns capable for editing in the channel table:

Page. The number of the excerpt-even page indicates, on which the channels from that measuring files under column file number. to be represented. Multiple indication that Is possible for page number. Thus different signals and the associated analyses on a page can be represented.

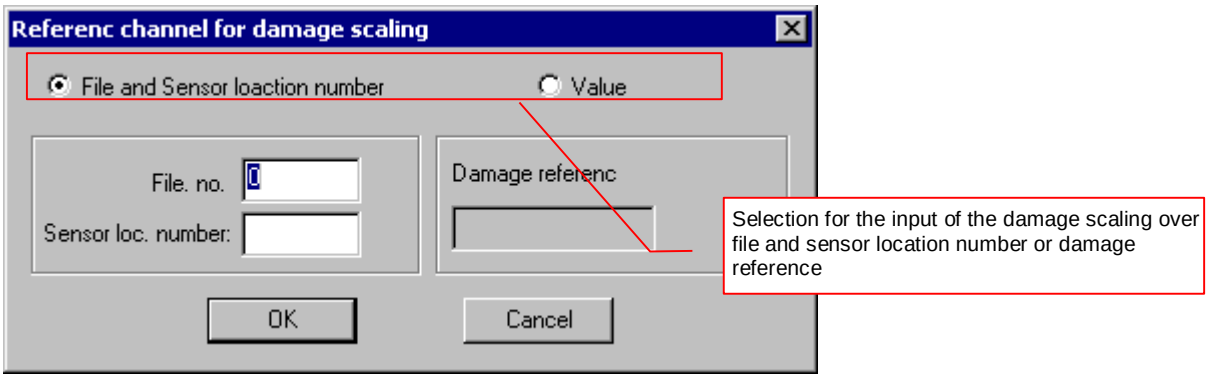
File No.: Number of the measuring file, which contains the channel which can be computed. In our example on page 1 from the files 0, 1, 2 the sensor location 176 with the analyses from the document would thus be spent… \ vorlage_mh.ewd

Skale.: Input Auto 1-2-5, min max or measuring range. During the computation by all signals the scaling sizes are determined. The Extreme is then used for all diagrams as representation borders. Thus all signals have the same scaling sizes.
Auto1-2-5: Representation in the raster
Min-Max: Representation with borders of the largest signal
Range: Representation with the measuring range (from signal measuring)

Skal. **Group**.: Allocation which sides with same scaling to be represented.

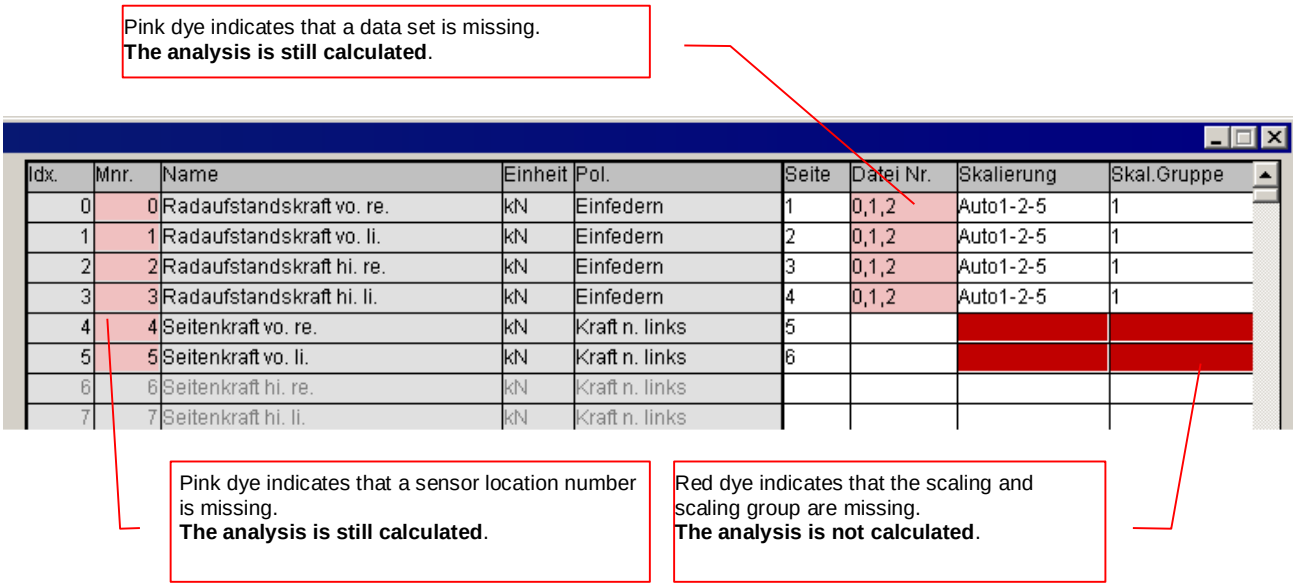
Skal. **Damage**: Left click in cell, opens dialogue for input of the allocation reference channel for damage scaling. With the selection file and sensor location number takes place the input of the file and of the sensor location number. During input numerical value is registered the damage reference.

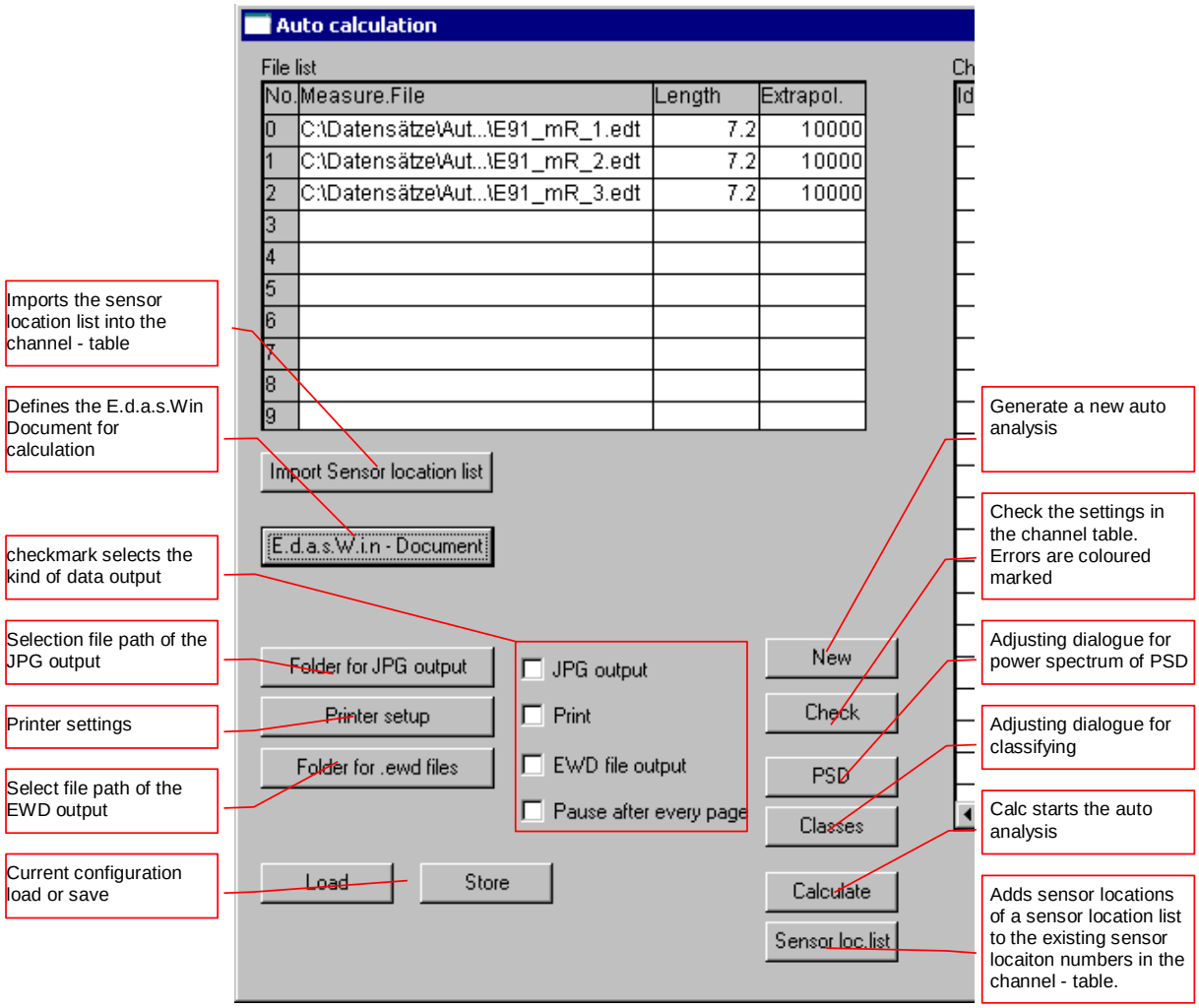
All channels summarized in a group of scaling are represented with the scaling of the reference channel or with the damage reference number.



All columns can be sorted with column heads.

Possible error messages with the configuration of the Auto analysis:
See also Button <Check>



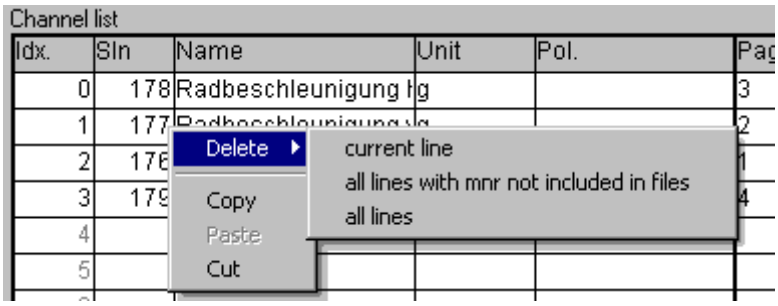


With the selection of the file path for the JPG and EWD output a file name must be entered. To obtained a page numbering enters # as substitute symbol. The auto analysis increases the file number automatically.

Example: **Filename_Page###.jpg** Thus the pages 000 to 999 can be put on as jpg file.

Edit or delete lines in the channel table:
Edit: The lines of the file and channel table were colored marked.

For delete: Right click in the line which can be deleted, the following Popup appears:



Choose the delete option.

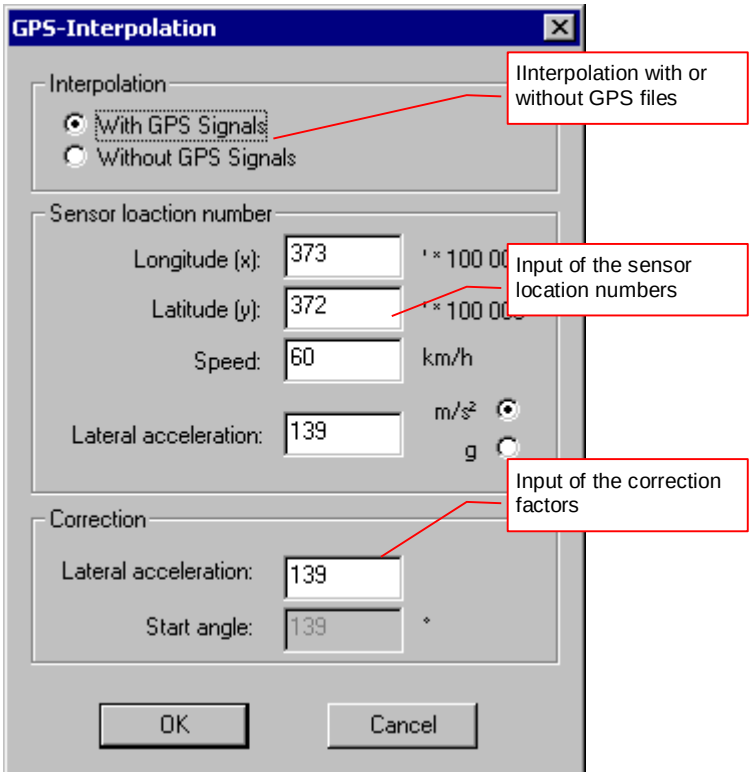
GPS Interpolation

MH´s GPS Interpolation is an optional software module for E.d.a.s.Win, please contact MH GmbH

GPS data are usually measured with a lower clock rate than the clock rate of the other signals.
To compensate this temporal difference, the GPS Interpolation produces between two GPS points' additional GPS points over the speed and transverse acceleration in the signal clock rate.

The same functionality can also replace failed GPS signals. A failed GPS signal will identified, if the current GPS point deviates from the previous more than 1000m.

Click in the main menu analysis / GPS interpolation.



With the interpolation with GPS signals the input field for the correction factor angle is not available for editing.
With selection interpolation without GPS signals, a correction factor must be entered in the lateral acceleration field. Approximation to the correction factor is made by a before accomplished x/y representation of the course.
The start angle is dependent on the angle of the driving direction from the vehicle. Mark the longitude and latitude in the analysis window with x/y mark. Right click in the analysis window and choose course representation with x/y marked signals.

Preparation for speed and lateral acceleration of the interpolation

The speed and lateral acceleration must be worked on possibly before. Set a selection frame across the range „vehicle stands ".

canintpol()

Smoothes the stairs of speed and lateral acceleration if this as low clocked CAN signals are present. Click <**Conv...**> on the analysis calculator. Choose the function **StairKill**. This inserts **canintpol()** automatically in the analysis script. **Canintpol()** can be entered also manually with <**Ins**> at the analysis calculator.

offc(x1,x2)
Offset correction. Set selection frame. Use the <**Offc**> key on the analysis calculator.

set(t1, t2, y)
The values for speed and lateral acceleration during the vehicle stand must be put back to zero. <**Set**> on the analysis calculator opens a dialogue. Enter values for upper / lower limit and replacement value. All values between upper and lower limit are set on the replacement value.

Example for an GPS-Interpolation:
Longitude(x)<373>
Latitude(y)<372>
Driving speed<60>
canintpol()
offc(1.88036,5.64107)
set(-1,1,0)
FahrzeugquerBeschlg.<139>
canintpol()
offc(1.88036,5.64107)
set(-0.3,0.3,0)
gpsintpol(0,373,372,60,139,1.6,20)

After execution of the GPS interpolation the indicated channels for Latitude and Longitude are replaced with the interpolation result.

Driving speed, lateral acceleration, Longi- and Latitude may not be changed no more after this treatment.

Lane analysis

In relation to a reference lane, the lane deviation analysis of different lanes on the basis of measured GPS positions. The described sequence is observed

1. Calculate the lane difference:

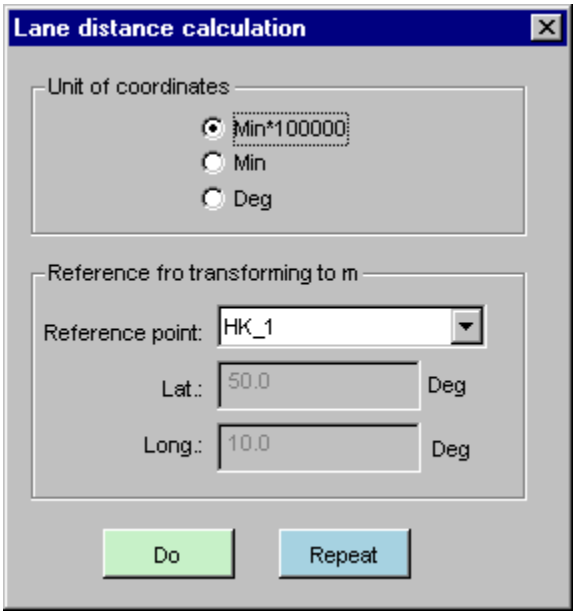
- Open the reference dataset. Choose Latitude and Longitude from the dataset.

Important:
  - The reference dataset is only one round / route.
  - Latitude and Longitude from the reference must be marked with Y0 and X0.

- Open the datasets:
  Choose Latitude and Longitude from the datasets.

- Mark all Latitude signals with an Y-, all Longitude signals with an X-mark.

- Click in the main menue on Analysis / Lana analysis / **Lane distance calculation**.



Enter the unit of coordinates. (Default is Min*100000)

Enter the Reference for transforming to m.: (Manuell, HK_1 oder HK_Einfahrt)

Important:
HK_1 and HK_Einfahrt are fixed in E.d.a.s.Win programmed Reference points.

This solid programming is required, to compare all in the future measured data sets together. If new reference points are added, they must be informed and be programmed by MH

<Do> starts the calculation.

Eine Tochteranalyse wird erzeugt:
- In der Tochteranalyse sind nun die Abweichungen in m zur Referenz dargestellt.
  Die Referenz ist immer **Null (0)** und wird auch nicht angezeigt.
  Sie liefert nur die GPS Position für die Berechnung.

2. Normiere Signale auf Referenzfahrspur:

- In der Report View die zu vergleichenden Signale selektieren.

Wichtig:
Die ausgewählten Signale müssen in allen zu vergleichenden Datensätzen enthalten sein.

- Im Menue Analyse / Fahrspuranalyse / **Normiere Signale auf Referenzfahrspur** auswählen.
- Im folgenden Dialog <Ausführen> anklicken

In einer weiteren Tochteranalyse werden nun die Messsignale bezogen auf die Zeitachse der Referenz angezeigt. Somit entfällt die Abhängigkeit von der Fahrgeschwindigkeit und die Signale sind vergleichbar.

3. Fahrspurdiagramm fixieren:

Wichtig für die Darstellung von linken und rechten Fahrbahnrand:
Wenn im Kursfenster der Kurs mit linken und rechten Fahrbahnrand dargestellt werden soll, muss man vorher den Kurs vom Referenzsignal auswählen.

Erstellen eines Referenzkurses mit linken und rechten Fahrbahnrand:
Siehe Kurs Edit

- Kurs Symbol neben dem Datensatznamen klicken und Kurs aus der Liste wählen. (z.B. Referenz.krs)

- Den zu untersuchenden Bereich mit Auswahlrahmen eingrenzen. Ist kein Auswahlrahmen gesetzt, wird der dargestellte Zeitbereich aus dem Analysefenster für die Berechnung übernommen.

- Im Menue Analyse / Fahrspuranalyse / **Fahrspurdiagramm fixieren** auswählen.

Zwei weitere Tochteranalysen werden erzeugt:

- Die Tochteranalyse zeigt den zu untersuchenden Signalausschnitt

- Tochteranalyse mit Ausschnitt des Kurs als X / Y Diagramm.

- Ist ein Kursfenster aktiv, und im ausgewähltem Kurs der linke und rechte Fahrbahnrand definiert, wird dieser im X/Y Diagramm dargestellt.

- Dieser Punkt kann mehrmals ausgeführt werden.

Fahrspuren im Kursfenster anzeigen:
Siehe: Kurs aus Analyse übernehmen

Legende für Tabelle erstellen:
Siehe: Label für Datensatz eingeben

Berechnung der Fahrspurabweichung

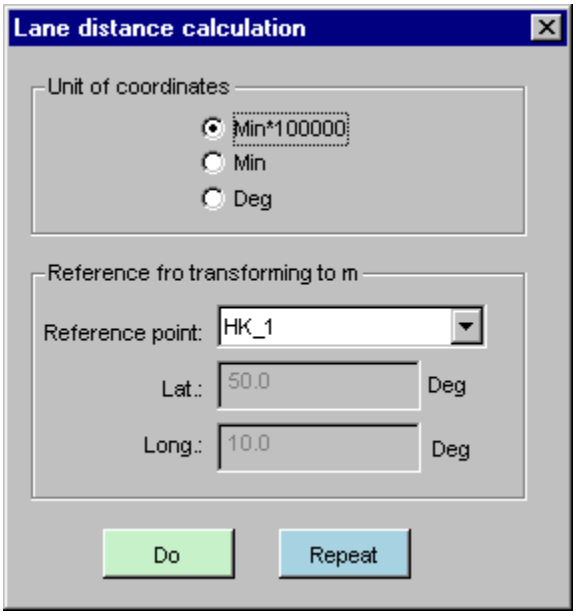
- Referenzdatensatz öffnen. Aus dem Datensatz die Signale Latitude und Longitude auswählen.

Wichtig:
  - Der Referenzdatensatz darf nur aus einer Runde / Strecke bestehen.
  - Latitude und Longitude der Referenz müssen immer mit Y0 und X0 markiert sein.

- Die zu vergleichenden Datensätze öffnen:
  Aus dem Datensatz die Signale Latitude und Longitude auswählen.

- Alle Latitude Signale mit Y-Marke, alle Longitude Signale mit X-Marke markieren.

- Im Menue Analyse / Fahrspuranalyse / **Fahrspurabweichung berechnen** auswählen.



Im Dialog die Einheit der Koordinaten einstellen. (Standard ist Min*100000)

Die Referenz für die Umrechnung in m auswählen: (Manuell, HK_1 oder HK_Einfahrt)

Wichtig:
HK_1 und HK_Einfahrt sind fester Bestandteil von E.d.a.s.Win und sind von MH einprogrammiert worden. Diese feste Programmierung ist nötig, um alle in Zukunft gemessenen Datensätze miteinander zu vergleichen Sollen neue Referenzpunkte hinzukommen, müssen diese mitgeteilt und von MH einprogrammiert werden.

<Ausführen> startet die Berechnung der Fahrspurabweichung.

Eine Tochteranalyse wird erzeugt:
- In der Tochteranalyse sind nun die Abweichungen in Abhängigkeit von der Referenz dargestellt.
  Die Referenz ist immer **Null (0)** und wird auch nicht dargestellt.
  Sie liefert nur die GPS Position für die Berechnung.

Normiere Signale auf Referenzfahrspur

- In der Report View die zu vergleichenden Signale selektieren.

Wichtig:
Die ausgewählten Signale müssen in den zu vergleichenden Datensätzen enthalten sein.

- Im Menue Analyse / Fahrspuranalyse / **Normiere Signale auf Referenzfahrspur** auswählen.
- Im folgenden Dialog <Ausführen> anklicken

In einer weiteren Tochteranalyse werden nun die Messsignale angezeigt. Die zeitliche Zuordnung ist über die Position von Referenzfahrspur und eigene Position normiert.

Fahrspurdiagramm fixieren

Wichtig für die Darstellung von linken und rechten Fahrbahnrand:
Wenn im Kursfenster der Kurs mit linken und rechten Fahrbahnrand dargestellt werden soll, muss man vorher den Kurs vom Referenzsignal auswählen.

Erstellen eines Referenzkurses mit linken und rechten Fahrbahnrand:
Siehe Kurs Edit

- Kurs Symbol neben dem Datensatznamen klicken und Kurs aus der Liste wählen. (z.B. Referenz.krs)

- Den zu untersuchenden Bereich mit Auswahlrahmen eingrenzen. Ist kein Auswahlrahmen gesetzt, wird der dargestellte Zeitbereich aus dem Analysefenster für die Berechnung übernommen.

- Im Menue Analyse / Fahrspuranalyse / **Fahrspurdiagramm fixieren** auswählen.

Zwei weitere Tochteranalysen werden erzeugt:

- Die Tochteranalyse zeigt den zu untersuchenden Signalausschnitt

- Tochteranalyse mit Ausschnitt des Kurs als X / Y Diagramm.

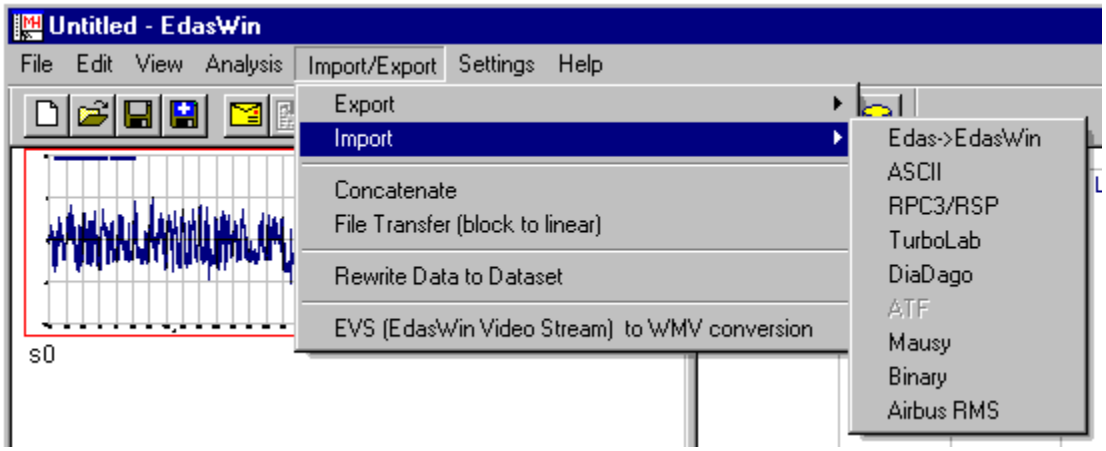
- Ist ein Kursfenster aktiv, und im ausgewähltem Kurs der linke und rechte Fahrbahnrand definiert, wird dieser im X/Y Diagramm dargestellt.

- Dieser Punkt kann mehrmals ausgeführt werden.

Fahrspuren im Kursfenster anzeigen:
Siehe: Kurs aus Analyse übernehmen

Legende für Tabelle erstellen:
Siehe: Label für Datensatz eingeben

Import/Export Menu



Airbus RMS
For more information about Airbus RMS, please contact MH-GmbH

Concatenate
Concatenate

File Transfer
Convert the file from block to linear format, for a fast analysis with DataCheck

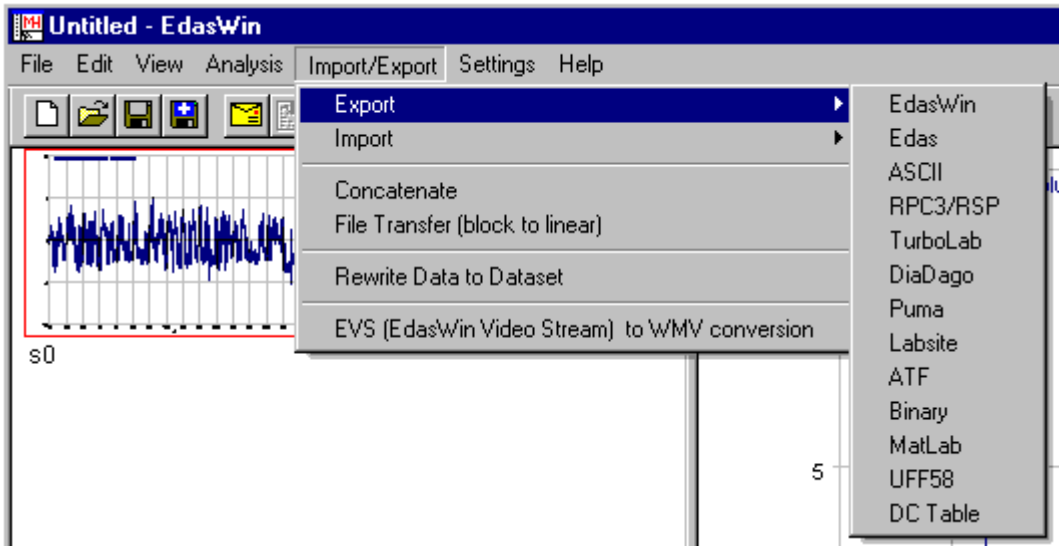
Rewrite Data to Dataset
Rewrite the original dataset after calculation. After using the rewrite function, open the dataset with the <**New**> button again

Note:
Bevor using the rewrite function, always create a copy from the original dataset.

EVS (E.d.a.s.Win Video Stream) to WMV conversion
Converts an EVS Stream to an Windows Media Video file.

Export Menu

Conversion export
Exports the signals displayed in the Analysis Window into one of the file formats which may be selected from the following pop-up menu. For some export formats you must set parameters using a special dialogue.
The File Selection Window pops up to enable you to create an export file.



E.d.a.s.Win Export Dialogue

Edas Export Dialogue

ASCII Export Dialogue

RPC3 Dialogue

TurboLab Export Dialogue

DiaDago Export Dialogue

Puma

Labsite

ATF

Binary

MatLab

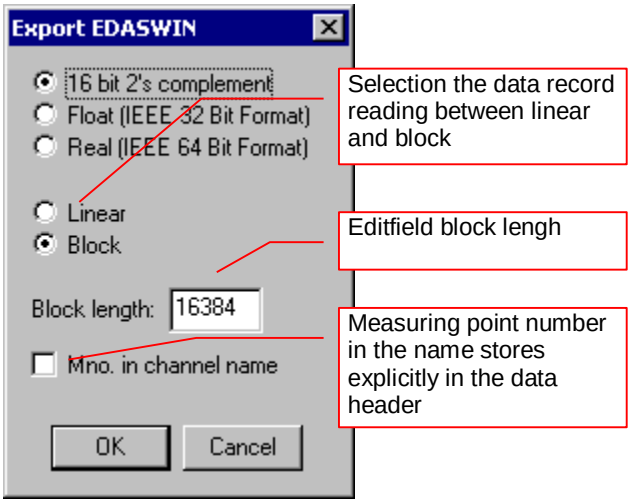
UFF58

DC Tabelle

E.d.a.s.Win Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **E.d.a.s.Win**:



Enter all required parameters and confirm with <OK>

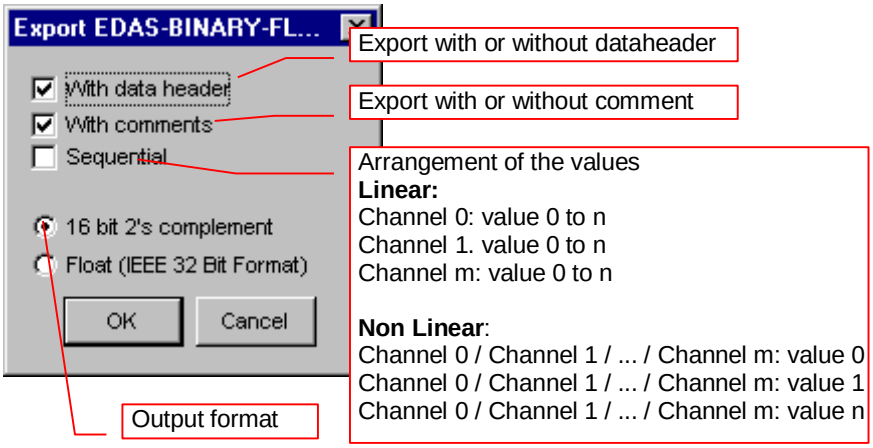
Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the E.d.a.s.Win. Export.

The exported data set type is *.edt.

E.d.a.s. Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **E.d.a.s.**



Enter all required parameters and confirm with <OK>

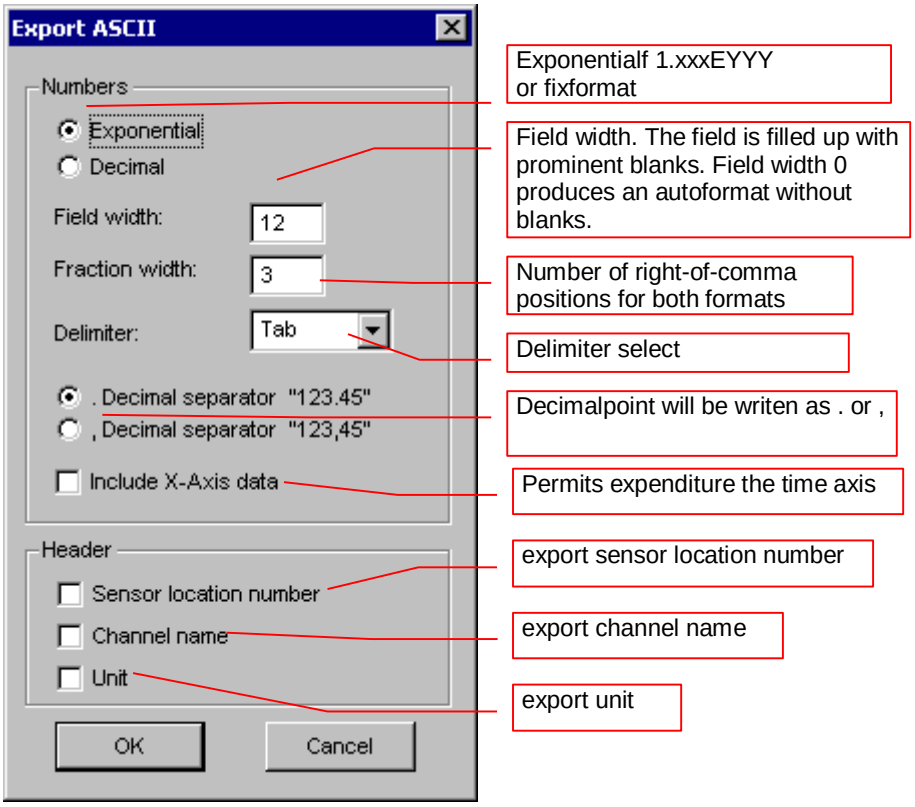
Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the E.d.a.s. Export.

The exported data set type is *.dat.

ASCII Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **ASCII**



Enter all required parameters and confirm with <OK>

Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the ASCII. Export.

The exported data set type is *.asc.

RPC3 / RSP Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **RPC3/RSP:**

Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the RPC3 / RSP. Export.

The exported data set type is *.rpc.

Turbolab Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **TurboLab:**

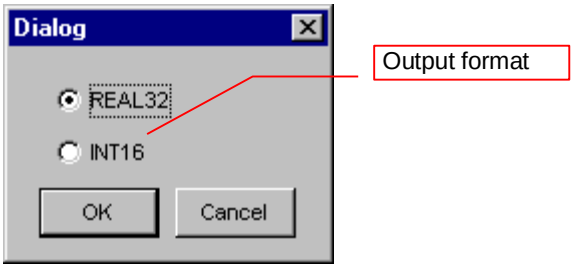
Enter the file name and storing path in the dialogue box for that data set which can be exported.
<Save> completed the TurboLab Export.

The exported data set type is *.tlb.

DIA/DAGO Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **DiaDago:**



Enter all required parameters and confirm with <OK>

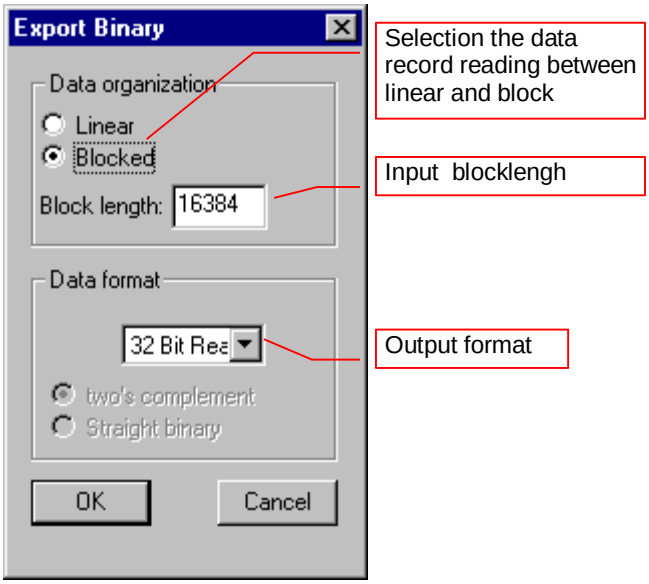
Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the DiaDago Export.

The exported data set type is *.r32.

Binary Export

The channels to be exported, must be displayed in the analysis window. See also

To open the export dialogue, click in the main menu / import/export / export / **Binary**



Enter all required parameters and confirm with <OK>

Enter the file name and storing path in the dialogue box for that data set which can be exported. <Save> completed the Binary Export.

The exported data set type is *.bin.

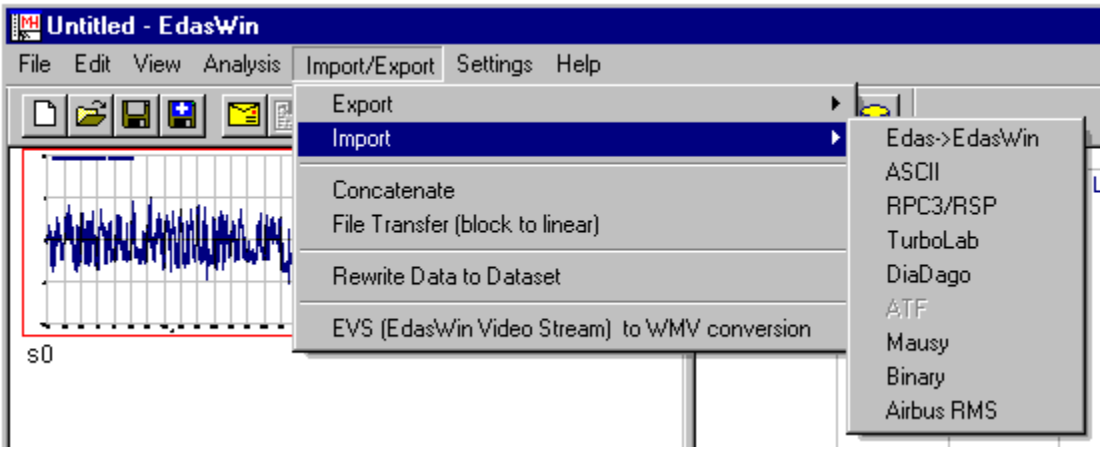
MatLab Export

Click in the main menu / import/export / export / MatLab

Enter the file name and storing path in the dialogue. <Save> click ends the MatLab export.
The exported data file end is *.mat.

Import Menu

Conversion import
Imports a data set available in the format selected in the import menu into a E.d.a.s. - data set. For the indication of the file which can be imported the file dialogue appears. In the connection if necessary by means of a dialogue additional parameters will enter. Afterwards over the file dialogue the name of the file which can be put on is entered.



ASCII Import Dialogue

RPC3 Import Dialogue

TurboLab Import Dialogue

DiaDago Import Dialogue

Mausy Import Dialogue

Binary

Airbus RMS
For more information about Airbus RMS, please contact MH-GmbH

Concatenate
Concatenate

File Transfer
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Rewrite the original dataset after calculation. After using the rewrite function, open the dataset with the <**New**> button again

Note:
Bevor using the rewrite function, always create a copy from the original dataset.

EVS (E.d.a.s.Win Video Stream) to WMV conversion
Converts an EVS Stream to an Windows Media Video file.

E.d.a.s. Import

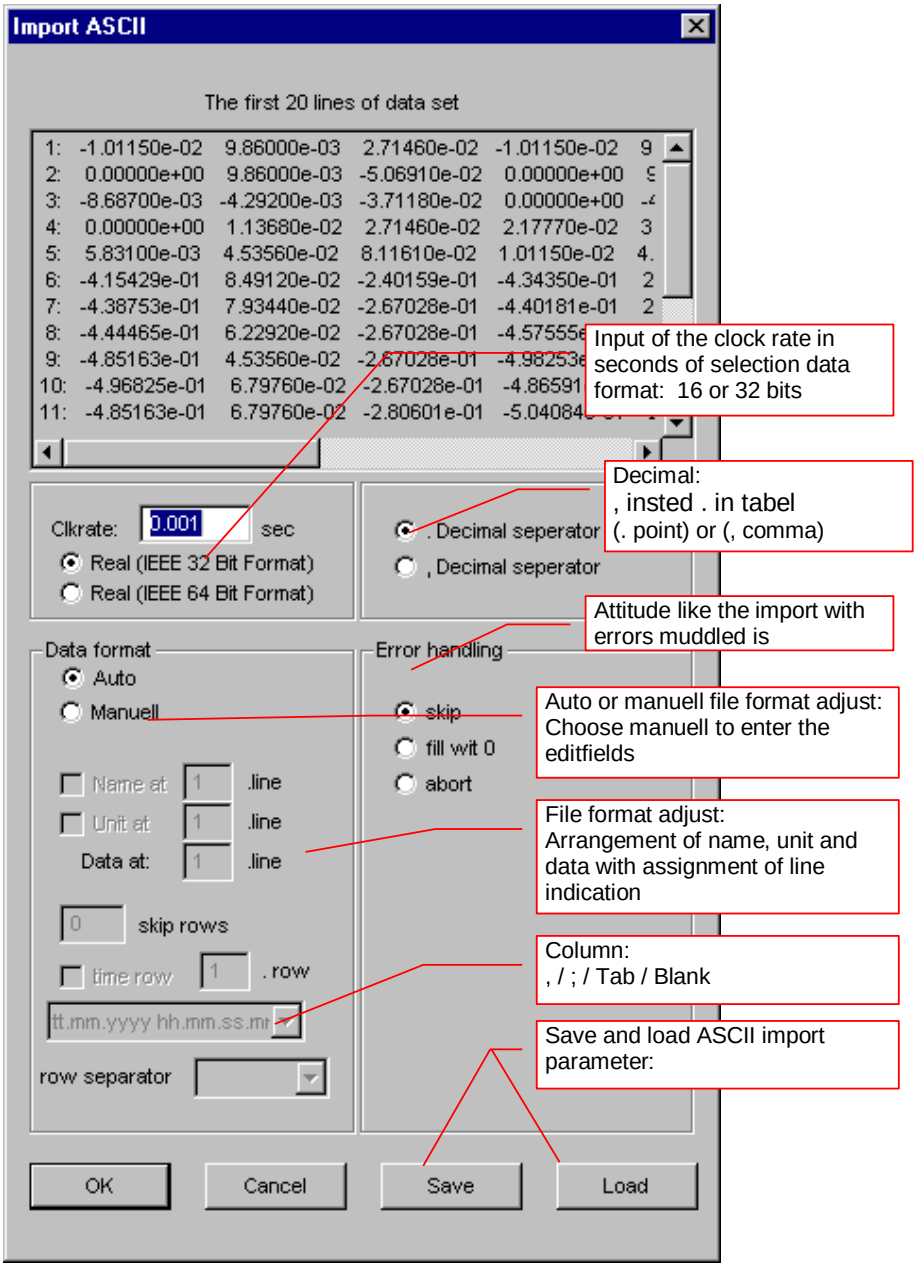
To open the import dialogue, click in the main menu / import/export / import / **E.da.s. → E.d.a.s.Win**

Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> completed the E.d.a.s. Import.

The imported data set type is *.edt.

ASCII Import

To open the import dialogue, click in the main menu / import/export / import / **ASCII**
Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> opens the ASCII Import dialog.



Enter all required parameters and confirm with <OK>

The imported data set type is ***.dat**.

<Save> and <Load>:
All in the dialog entered parameters can be saved under an new name in a ASCII import parameter file.
The file extension is ***.aip**.
Click <Load> to open an existing ASCII import parameter file

RPC3 / RSP Import

To open the import dialogue, click in the main menu / import/export / import / **RPC3 / RSP**

Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> completed the RPC3 / RSP Import.

The imported data set type is *.edt.

TurboLab Import

To open the import dialogue, click in the main menu / import/export / import / **TurboLab**

Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> completed the TurboLab Import.

The imported data set type is *.dat.

DiaDago Import

To open the import dialogue, click in the main menu / import/export / import / **DiaDago**

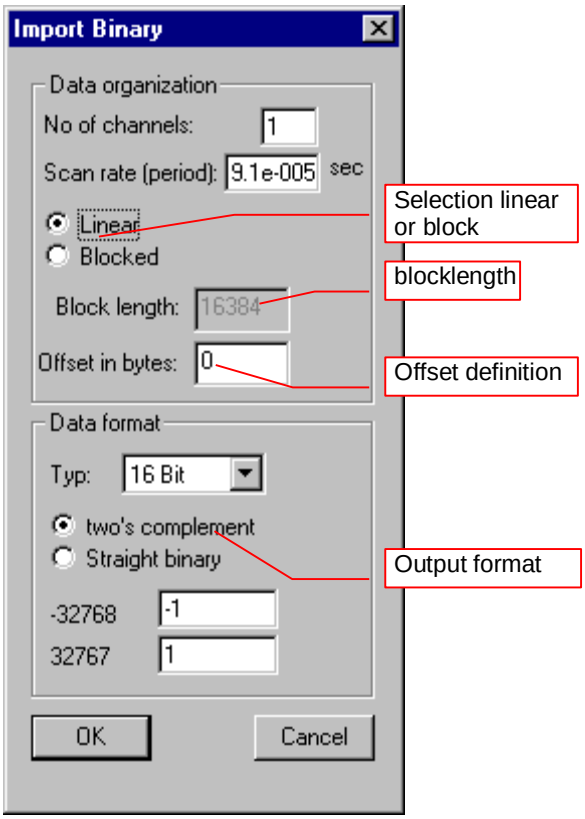
Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> completed the DiaDago Import.

The imported data set type is *.dat.

Binary Import

To open the import dialogue, click in the main menu / import/export / import / **Binary**

Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> opens the Binary Import dialog.



Enter all required parameters and confirm with <OK>

The imported data set type is *.edt.

Mausy Import

To open the import dialogue, click in the main menu / import/export / import / **Mausy**

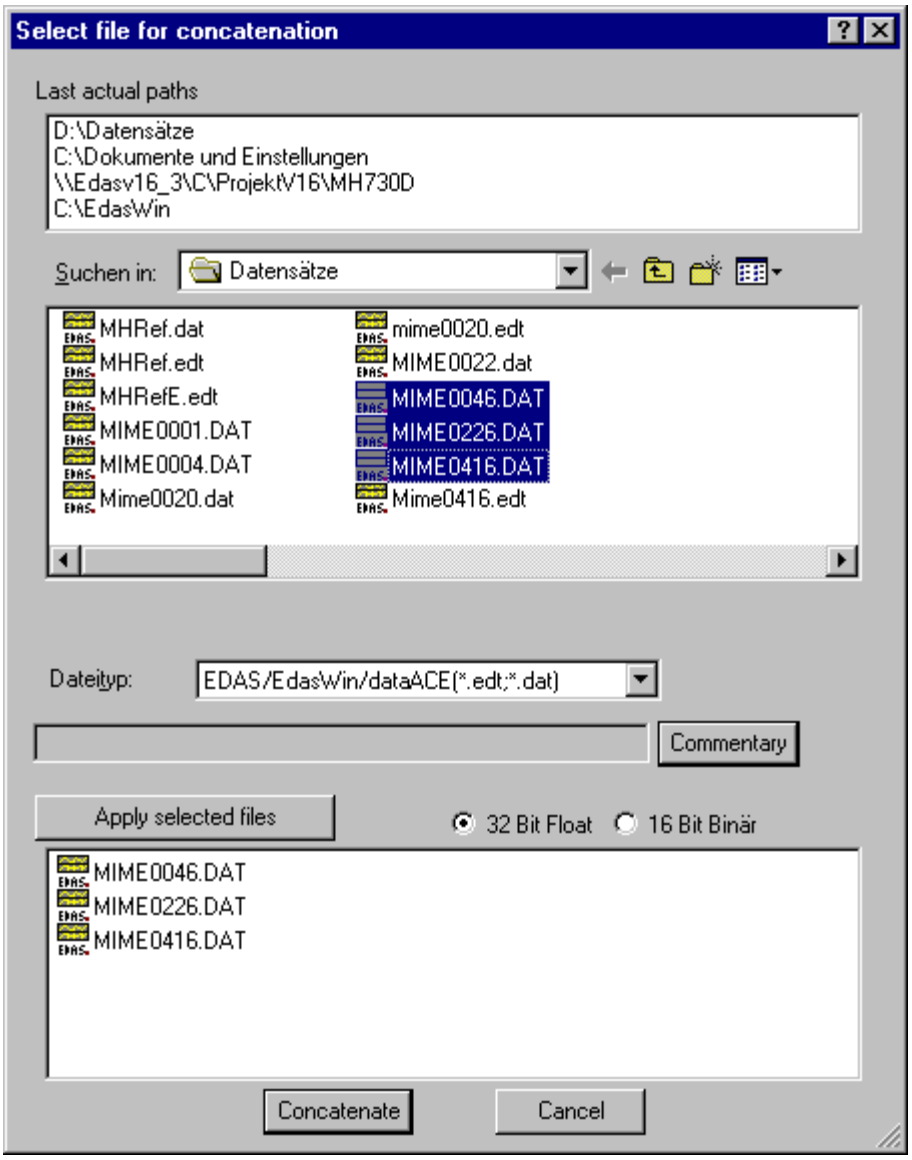
Choose the data set which can be imported in the file dialogue. Another dialogue appears.
Enter the file name and storing path in the dialogue box for that data set which can be imported.
<Save> completed the Mausy Import.

The imported data set type is *.dat.

Concatenate

Row measuring files can be summarized over the analysis computer (open with multiple selections). The step concatenate is void in this case. The files are sorted during the reading according to names, not according to time
See also selection and open of a data set

Click in the main menu / import/export / **concatenate**



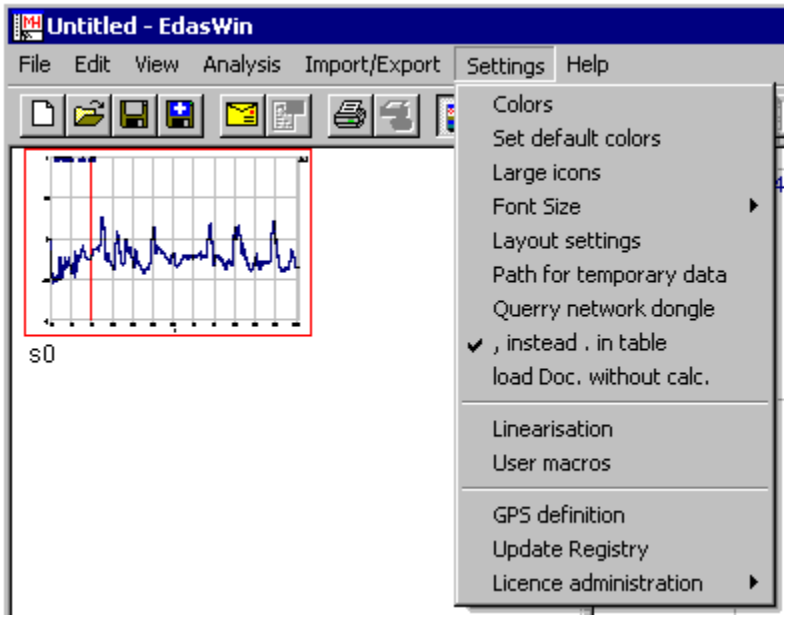
A condition for concatenating files in 32 bits float/16 bits binary format:

- All files must be the same clock rate; number of channels; channel names and stored in the same directory.
- Files with 16 bits binary format, all measuring ranges must be identical. (Row measurement without changes of measuring range and programming)
- The keywords of the last selected data set are copied. (In the lower ex. MIME0416.DAT)
- If the data sets must be in a sequence, it recommends to arranging the files in the dialogue. (for example: sorting to type, name etc.)
- Mark the data sets which can be concatenated. With <apply selected files > will all marked files are represented in the in the lower field.

- The Button <concatenate> opens the file dialogue. Enter file name. The concatenated files stored as .edt file.

In Windows attitudes "File endings with well-known files fade out" the checkmark must be taken away.

Settings Menu

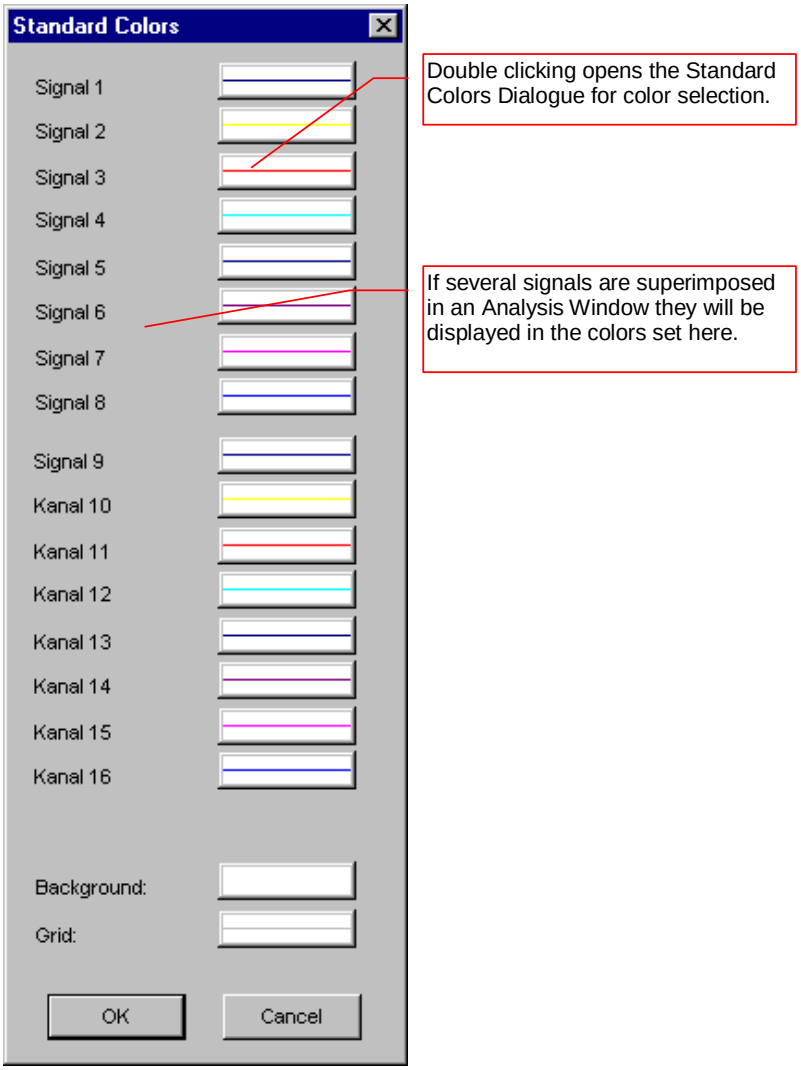


Colors
Set default colors
Large calculator
Large icons
Font Size
Layout settings
Path for temporary data
Querry network dongle
, insted . in table
load Doc, without calc.
Linearisation
User macros
GPS definition
Update Registry
License administration

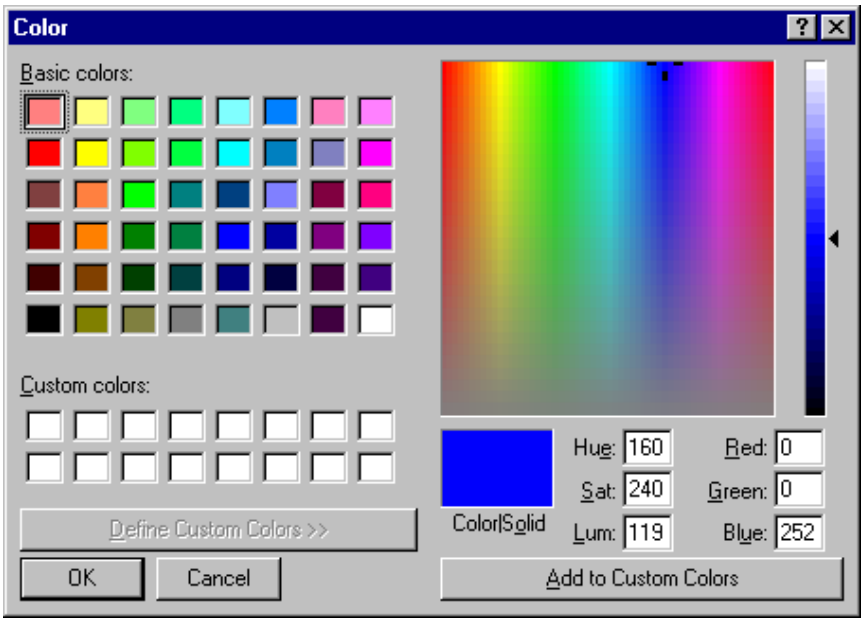
Colors

Set default colors:

In the menu settings click on set default colors, the last selected color adjust are stored.

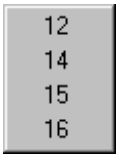


Assign color for different signals. Double click on the signal color gets the colors dialogue.

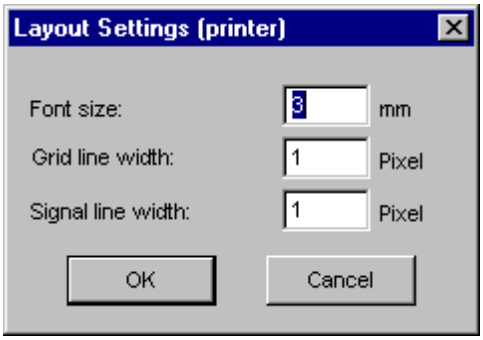


Font Size

Click on main menu / settings / font size
Choose the font size.

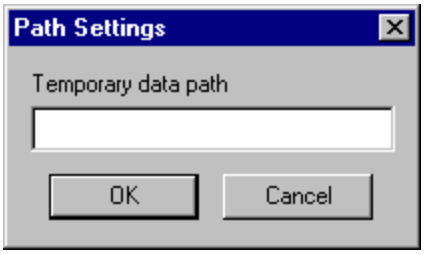


Layout settings



Enter printing specifications: Font size, grid and signal line thickness

Path for temporary data



Path for temporary files will be stored, while performing analysis. All temporary files are deleted when the analysis session is closed.

Query network dongle

With startup, at first E.d.a.s.Win search automatically the external or internal dongle (parallel or USB Device)
If there is no dongle present, E.d.a.s.Win searched for a network dongle.

Multi place license.
In search of the network dongle multi place license, can lead in some networks to temporal delays. (E.d.a.s.Win scans the entire network)

Click **Query network dongle** in the menu settings. The checkmark indicates the active setting.

Startup E.d.a.s.Win without Dongle:
See reduced functionality without dongle
See network dongle multi place license

Network dongle multi place license

E.d.a.s.Win can be operated also over a network dongle, which is installed on a server. The server counts the logins and permits the use of a number of acquired licenses (f.e.10 places).

More information about our network dongle multi place license on:

www.mh-gmbh.de

info@mh-gmbh.de

Decimal separator , instead . in table

The decimal separator is a symbol used to mark the boundary between the integral and the fractional parts of a decimal numeral. Terms implying the symbols used are decimal point and decimal comma.

Click **instead .in table** in the menu settings. The checkmark indicates the active setting.

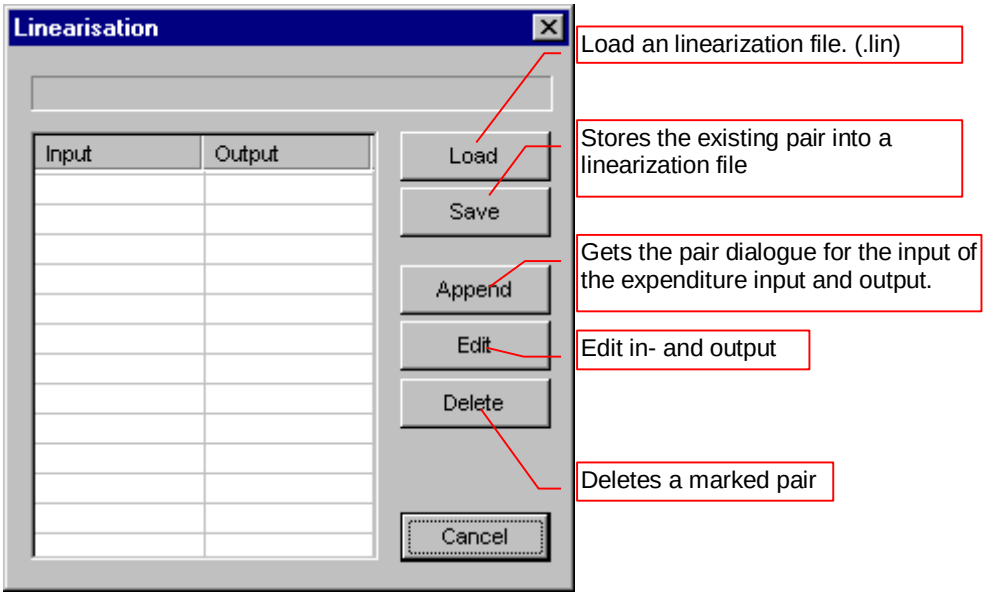
Document load without calculation

The E.d.a.s.Win document will be load without calculation.

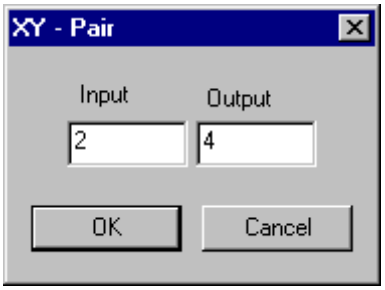
Click **load Doc. without calc** in the menu settings. The checkmark indicates the active setting.

Linearization

Liberalized signals with the assistance of a XY plot.
To generate a new XY plot click in the menu / settings / linearization, he linearization editor - dialogue appears:

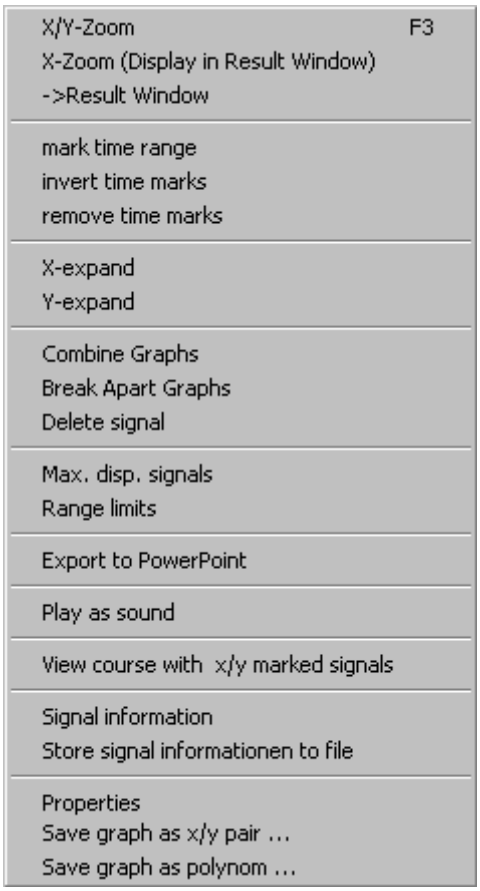


Click <**Append**> to enter the In- and Output value in the XY pair dialogue:



A linearization XY plot can contain up to 8192 pairs.
<OK> adds the values into the linearization dialogue. <Save> stored the pairs in a linearization file (.lin).

Store a curve as pair/linearization file (.lin):
After an realized regression (see Regression), it is possible to store the cure as pair. Right click in the result window in the diagram opens a popup menu:



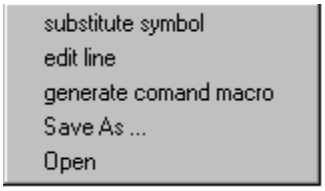
Choose Save graph as x/y pair… Enter filename and click <Save>. The file type is .lin.

Load an XY plot / linearization file:
To linearism values (for example temperature signals) click <Linear> on the Analyserechners to load the linearization file.

Command macro

E.d.a.s.Win contains for always recurring analyses a command macro function in which calculated or analysis macros can be created and edited.

Create command macro:
Mark in the analysis script window the analysis script. Right click, the following popup menu appears.



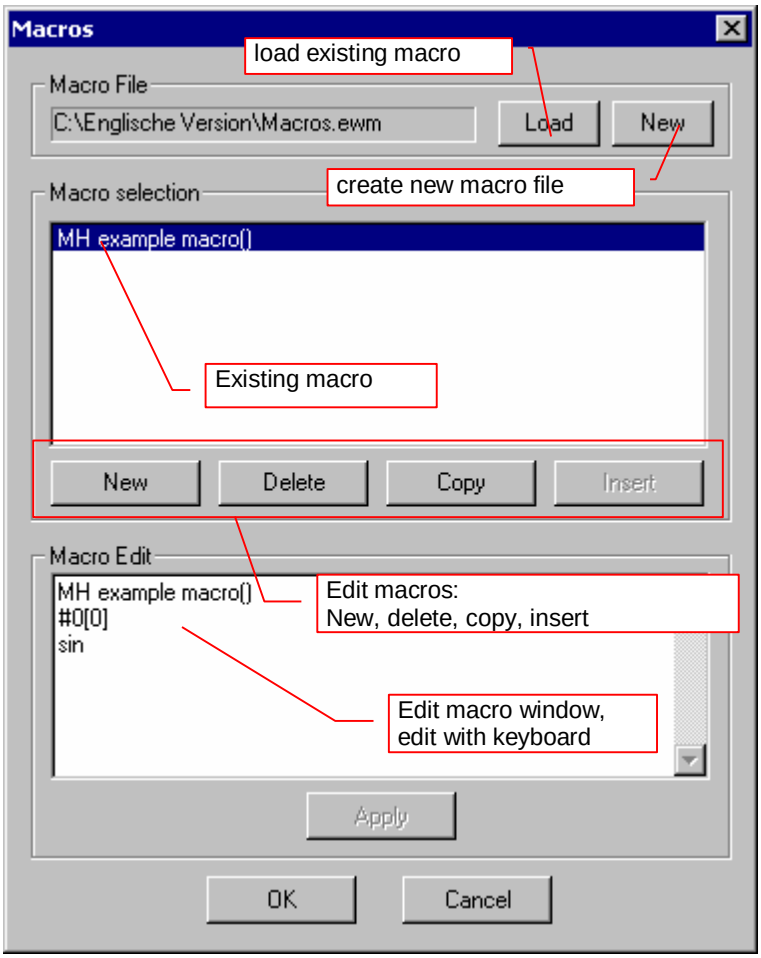
Choose **generate command macro**, the following dialogue opens
Enter macro name in the macro edit field. <**Apply**> fixed the modification.

For example:
Create a new command macro for channel calculation:
Click <**New**> in the macro dialogue, in the macro edit field appears unknown []. Enter macro name in the macro edit field. In our example a macro for a calculation is provided by channel 0.

Macro name: **MH example macro [Channelnr]**
Channel number: **#0:[Channelnr]**
Type of Calculation: **sin**

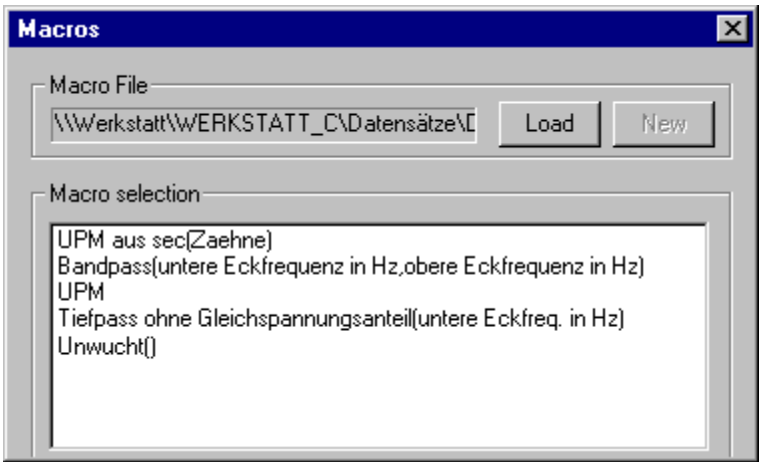
The input procedure is the same at the analysis calculator. After the procedure click <**Apply**>.

The macro file type is .ewm file.



Edit command macro and store under another name:
Click in the menu settings / command macro.
Mark the macro which is to be copied. Click <**Copy**>, afterwards click <**Insert**> Enter the new name for the copied macro and click <**Apply**>.

Open existing macros:
Click on macro at the analysis calculator. The following dialogue opens:

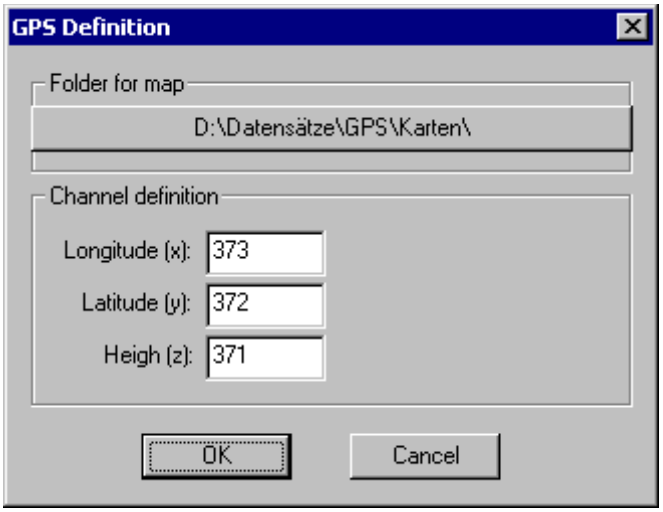


Double click to open the desired macro. The macro instruction appears in the analysis script window under the last signal. The last signal is calculated with the macro instruction.

GPS definition

If EdasV16 data sets are measured in connection with V16 GPS module, they can display in maps in E.d.a.s.Win. If the cursor moves across the channel, the position displays in the map.

Click in the main menu Settings / GPS definition, or right click in the Signal Selection Window and choose GPS definition



Click the map path button to specify where the maps are listing.
Enter the current sensor location number from the data set of Longitude and Latitude.

To display the map see Course

Update Registry

Updates the registry with the file extensions and Interface information for E.d.a.s.Win.

License administration

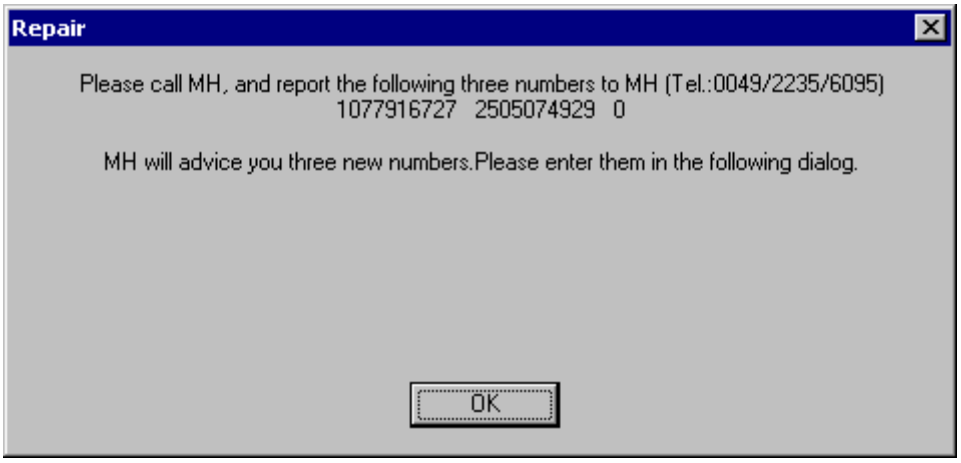
Starting from version 9.0 the license administration is to the user at the disposal.

If notebooks used for mobile data acquisition or plotting devices, the dongle must always plugged on a parallel or USB interface. To avoid the damage of the interfaces, the license can be transferred to the computer.

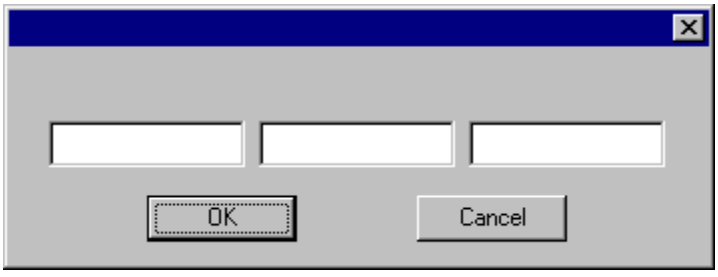
Transfer the license to computer:
Click in the menu settings/ license administration / transferred to computers. Close after successful transmission, **E.d.a.s.Win**, remove dongle and start **E.d.a.s.Win** again. This license is firmly fixed on the computer and can be used on no other computer.

License return to Dongle:
Click in the menu settings / license administration / Retransfer to Dongle. After successful transmission, close **E.d.a.s.Win**, plug dongle into interface (USB, Parallel) and start **E.d.a.s.Win** again. This license is now transfers to the Dongle and can used on another computer.

Repair:
If the license on the computer should be damaged, click in the menu Settings / license administration / repair.
The following dialogue appears:



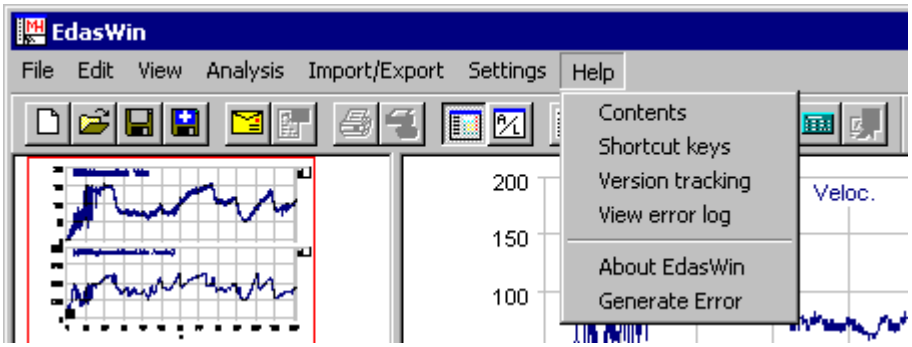
Confirm with < OK > and enter the three new numbers in the following dialogue.



Confirm with <OK>.

The repair key exists 7 days. The original license must be transferred within 7 days again to the computer.
See Transfer the license to computer.

? / Help Menu



Contents
E.d.a.s.Win Help Index / E.d.a.s.Win step by step.

Shortcut keys
E.d.a.s.Win shortcuts und control elements

Version tracking
New functionalities and repaired bugs are listed with the version number.
With the first start, E.d.a.s.Win shows you the version tracking in a splash screen. Click <OK> and choose in help menu version tracking. The complete table displayed in the dialogue.

View error log
If E.d.a.s.Win caused an error, it would be saved into an error log. Send the error log to MH Company. MH analyst the log file and debugged them.

About E.d.a.s.Win
Company info, number of version, serial number, copyright, distribution

Generate Error
Generate an error, to show the E.d.a.s.Win backup function.

Keys

For key assignments, please refer to the description of the relevant window.

Keyboard:

ESC	Cancels the last zoom shot procedure.
Cursor ➔	Selection frame /10 to the right or if range of vision zoomed 1/10 to the right
Cursor ➔	Selection frame /10 to the left or if range of vision zoomed 1/10 to the left
Shift+Cursor ➔	Selection frame shift to the right or if range of vision a side zoomed to the right
Shift+Cursor ➔	Selection frame shift to the left or if range of vision a side zoomed to the left
F3	Zoom from contents selection frame into analysis window
F6	Toggle between analysis view and layout view
F7	Create table for analysis window
F8	Analysis window maximize
PageDn / Up	By page roll if fewer channels are represented than available
CursorDn / Up	By channel roll if fewer channels are represented than available

Alt+Left Mousekey Operation only in report view! Displays the channel, which selected with the mouse, at the first position in the analysis window.

The number of displayed channels can be entered with the keys 1-9 and <A> for all channels.
(1 = one channel, 9 = nine channels)

Mark channels to display them in the analysis window:

<**Shift** > + <**Enter**>: Mark channels in a group.
<**Ctrl** > + <**Enter**>: Mark single channels.

<**Ctrl** > +<**A**>+ <**Enter**>: Mark all channels

Mark channels to display them behind one another:

Mark the channels with pressed <**Ctrl**> key and press <**Enter**>.

The marked channels displayed behind one another.

X Zoom:
In order to enlarge the signals in the Analysis Window along the X axis, create a selection frame by left clicking within a display channel and defining the left border of the selection frame. Keeping the left mouse button pressed, drag the mouse to move the right border of the selection frame to the desired position. The selection frame you have just defined can be enlarged on both sides by left clicking on the left or right border and dragging the mouse to the desired position. You can move the entire frame by left clicking within its borders, keeping the left mouse button pressed and dragging the entire frame to the desired position. Once you have defined the selection frame you can enlarge its contents in two ways.

Method 1
Shortcut**:** <F3>Key

Method 2
Right click within the Analysis Window and select X/Y Zoom in the pop-up menu that appears. An enlarged view of the channels is displayed in the Analysis Window.

Method 3
Right click within the Analysis Window and select X-Zoom (Display in Result Window) from the pop-up menu that appears. An enlarged view of the channels is displayed in the Result Window below the Analysis Window. If you manipulate the selection frame in the Analysis Window in one of the ways described above, the Result Window will be updated with the new range as soon as you release the left mouse button.
This connection between the selection frame and the Result Window is canceled if you define a selection frame and conduct an X-Zoom in the Result Window as well. This enables you to compare different time ranges for the same signals, or to measure them with the cursor function. The connection can be re-established by clicking on the X-Zoom (Display in Result Window) pop-up menu in the Analysis Window again.

Y Zoom:
In order to enlarge the signals in the Analysis Window along the Y-axis, create a selection frame by left clicking within a display channel and defining the lower border of the selection frame. Keeping the left mouse button pressed, drag the mouse to move the upper border of the selection frame to the desired position. The selection frame you have just defined can be enlarged by left clicking on the lower or upper border and dragging the mouse to the desired position.
You can move the entire frame by left clicking within its borders, keeping the left mouse button pressed and dragging the entire frame to the desired position.
To enlarge the signal, right click inside the Analysis Window and select X/Y Zoom from the pop-up menu that then appears. An enlarged view of the channels is displayed in the Analysis Window.

Zoom and scroll with mouse wheel
Press the key <**Ctrl**> and at the same time the mouse wheel forward untwist zoomed the signal in the analysis window, at the X position of the mouse. Turning the mouse wheel the signal scrolls in X-direction in the analysis window.

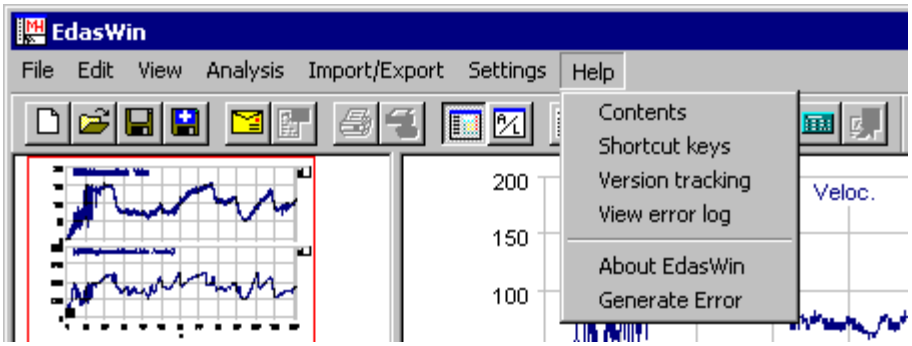
Shifting Selection frame:
X- Shift selection frame with mouse:
Point-exactly:
Click on a point of the signal which can be worked; the selection frame is positioned centrically on the point.

Free hand:
Left click within the selection frame and with pressed left mouse button the complete selection frame shift to the right or left, to a new position.

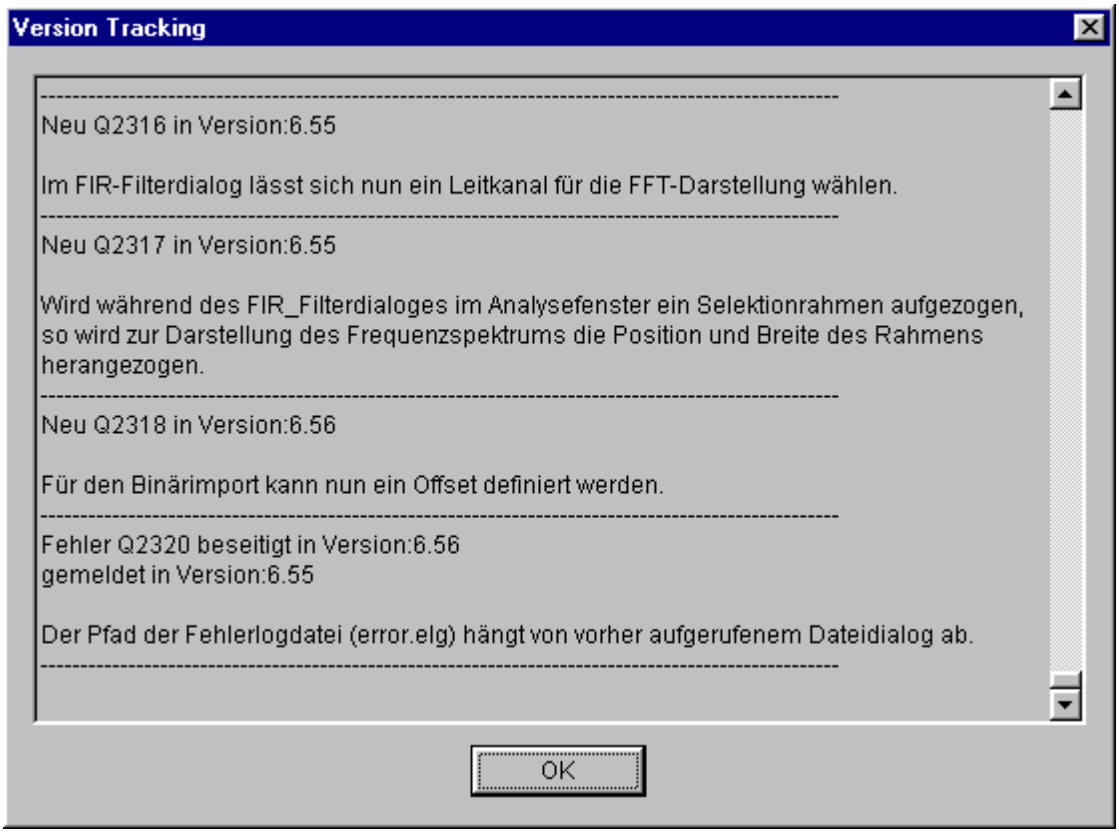
X- Shift selection frame with mouse wheel:
Press the <**Shift**> key to keep and at the mouse wheel turn shifts the selection frame to the left/right.

Version tracking:

Click in the main menu / Help / Version tracking.



All changes listed here.



About E.d.a.s.Win

Click in main menu / settings/ about E.d.a.s.Win.

Leave dialogue with **<OK>** .

Contact

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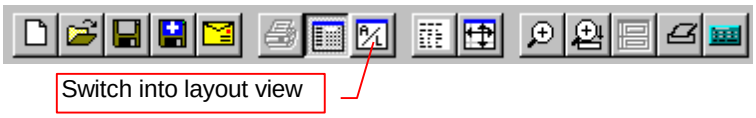
e-mail: info@mh-gmbh.de

Reduced functionality without dongle

If there is no Dongle is installed, (external, internal or network dongle), E.d.a.s.Win start up with reduced functionality.
It is possible to load data over <OpenData> Button and look at them, without being able to accomplish an analysis.

Setup a Layout View

You can switch between the Analysis View and the Layout View by using either the Analysis Toolbar



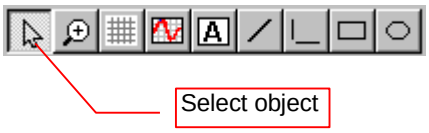
or the View Menu.

Placing an analysis graph in layout

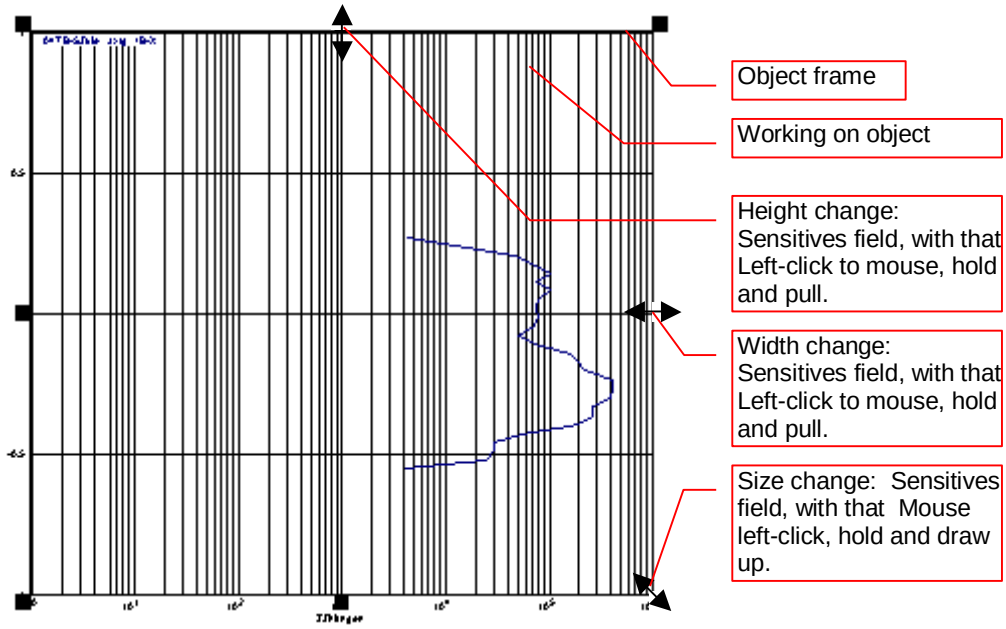
Analysis graphs can be dragged and dropped onto the page by placing the cursor on the analysis graph in the Analysis Selection Window and, with the left mouse button depressed, dragging the cursor across the page. This creates a frame. This frame can be moved to the desired location on the page. Release the mouse button to place the graph onto the page. The analysis may also be dragged onto an existing graph or onto an empty graph frame.

Change the size of a layout object

Click <Selection> Tool in the Layout Toolbar.

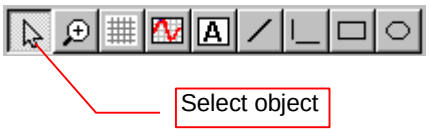


Click inside the layout object you want to change. The object receives an additional frame with eight sensitive fields. The size can change by left clicking on any of these fields and dragging with the mouse button depressed.

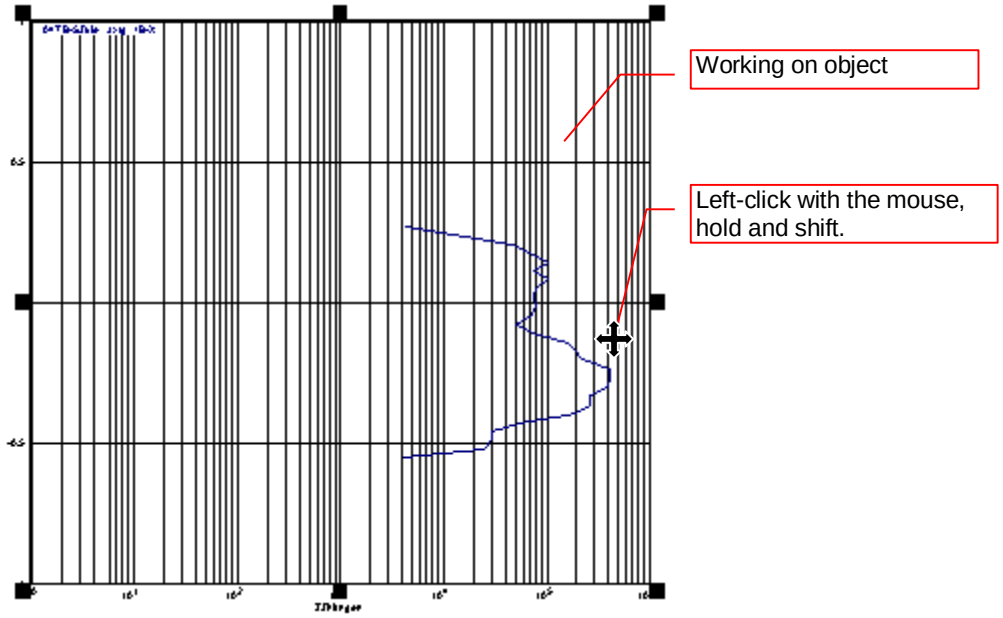


Move a layout object

Click <Selection> Tool in the Layout Toolbar.

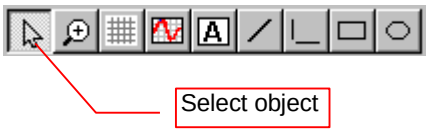


Click inside the layout object you want to move. The object receives an additional frame with eight sensitive fields. You can move the object by left clicking inside the object frame and dragging the mouse to the desired position.

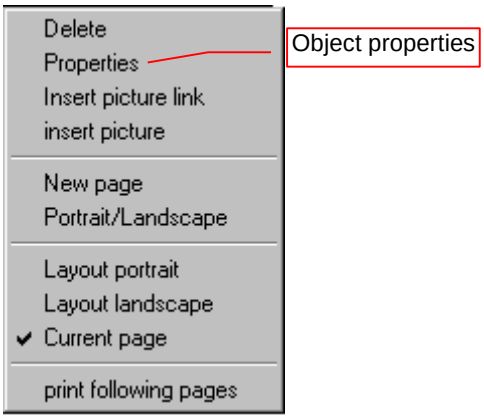


Setup a layout object

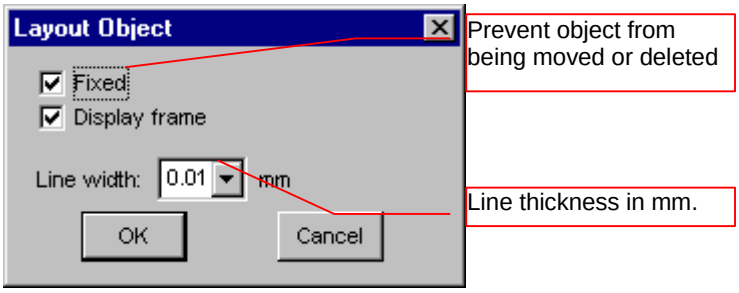
Click <Selection> Tool in the Layout Toolbar.



Click inside the layout object you want to move. The object receives an additional frame with eight sensitive fields. Press the right mouse button:

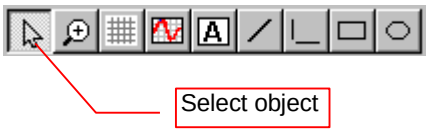


Click <Properties> to get to the Layout Object Dialogue.

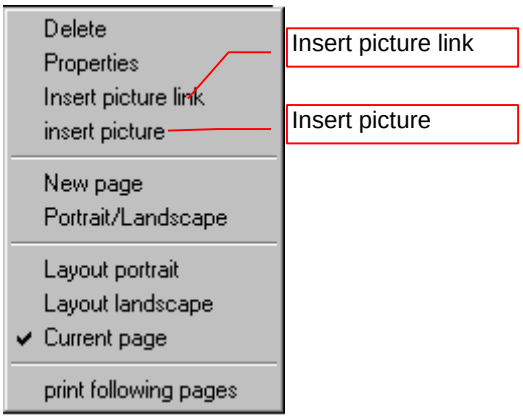


Insert BMP picture

Click <Selection> Tool in the Layout Toolbar.



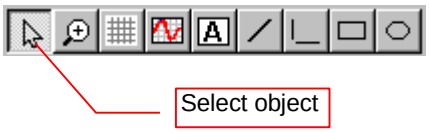
Click into the changing layout object. The object receives an additional frame with eight at the frame sensitive fields present. Right mouse button gets a Popup menu.



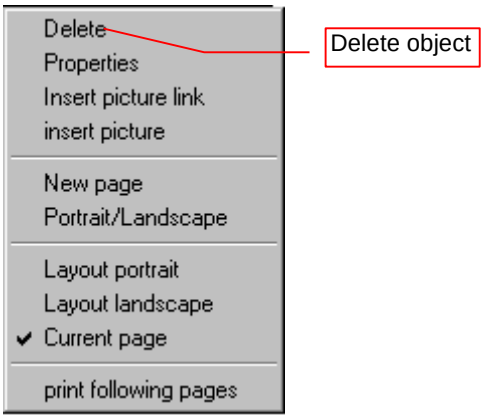
Choose insert BMP picture the open dialogue opens. Double click to the desired .bmp file, inserts the picture into the diagram. Click on insert picture link the file are linked and necessarily thus less storage location.

Delete a layout object

Click <Selection> Tool in the Layout Toolbar.



Click inside the layout object you want to delete. The object receives an additional frame with eight sensitive fields. Press the right mouse button:



Click on <Delete> to delete the layout object.

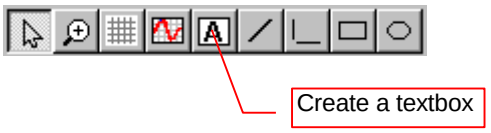
Placing analysis text / table in layout

Analysis texts and tables can be dragged and dropped onto the page by placing the cursor on the table or text mark underneath corresponding analysis graph in the Analysis Selection Window and, with the left mouse button depressed, dragging the cursor across the page to create a frame. This frame can be moved to the desired location on the page. Release the mouse button to place the graph on the page.

Changing the size of a text or table, see: Change the size of a Layout Object
Moving a text or table, see: Move a Layout Object
Fix a text or table, see: Fix a Layout Object
Deleting a text or table, see: Delete a Layout Object

Create text frame

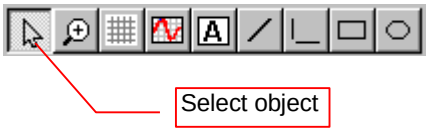
Click <Selection> Tool in the Layout Toolbar.



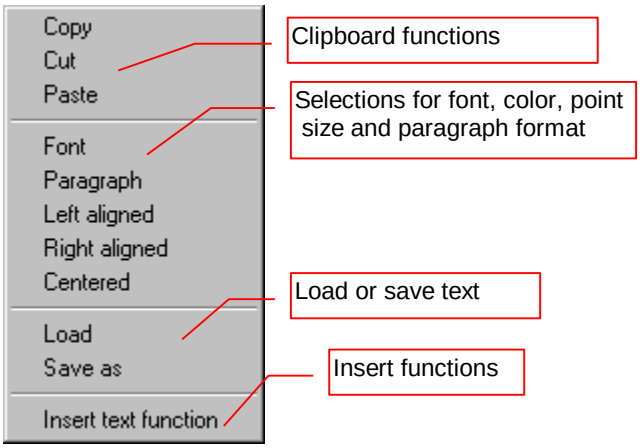
Move the cursor to the position that will become the lower left corner. Keeping the left mouse button depressed, create a text frame by dragging the mouse upwards and to the right until the text frame reaches the required size. When the left mouse button is released, the frame's position will be fixed. Frame size and position can be changed by again clicking on the <Insert Text Frame>, and then click and dragging at the corners, sides or within the text frame.

Enter Text

Click <Selection> Tool in the Layout Toolbar.



Double-click with the left mouse button into the text frame. The layout view will be enlarged and the text cursor will appear.

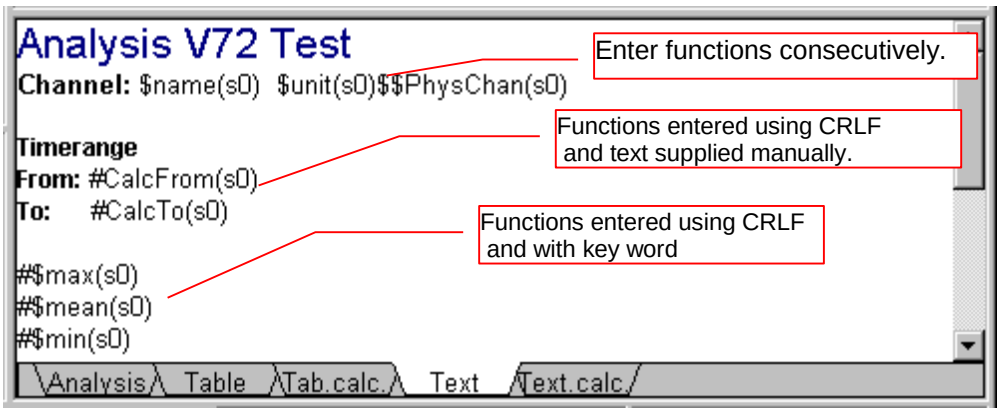


Create analysis text

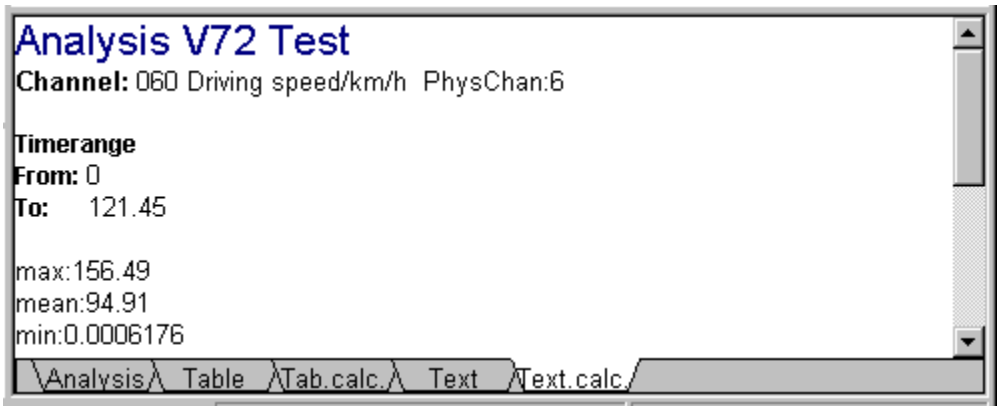
Text that is part of an analysis can be edited in the Result Window. Click on the Text tab and type in the text. Click with the right mouse button to call up a popup - menu in which previously created RTF text can be loaded, text can be saved, font attributes set and paragraph formats selected.

Calculation functions can be embedded using Insert Text Function and the dialogue, in which you can insert keywords (e.g. names, mean value, maximum value or similar). The functions can be transferred in sequence or one underneath the other by using the **<CRLF>** switch. Both text and functions can only be edited in Text mode. After you have created the text, click on Text calc. and the calculated text will appear in the Results Window of the Analysis Screen.

A „**Text**" mark appears as a bookmark underneath the associated analysis display in the Analysis Selection Window This bookmark may be dragged onto the page on the Layout View in order to associate the text with the desired page. You can switch at any time between text entry and analysis.



Creating lines of text with/without functions

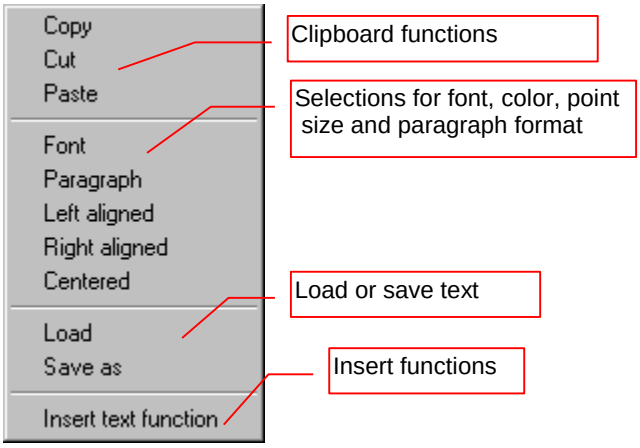


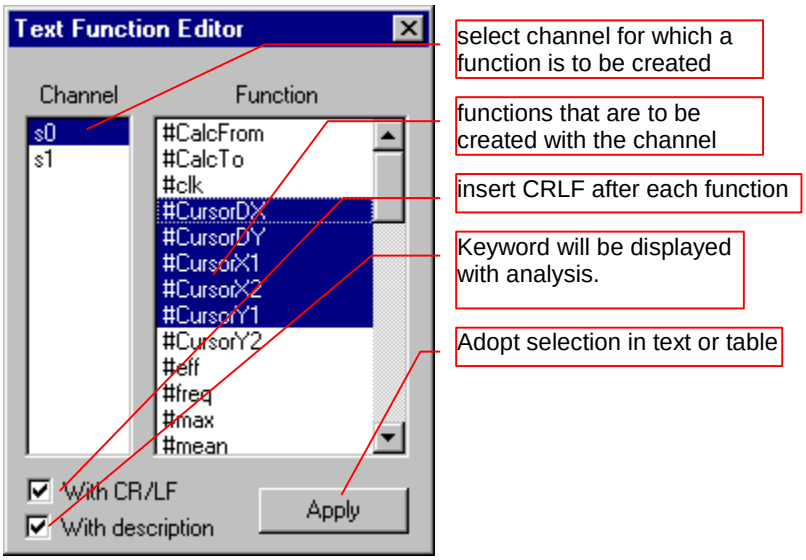
Above text has been analyzed using „Text calc."

Text and layout function editor

Analysis text:
Click in the analysis opinion the rider text or table. In the field and through operates to the right mouse button appears the text window Popup menu clicks.

Layout text:
Change into the layout view. Create a text field, or double click into an existing text field. Right click and choose in the popup menu Insert text function. The inserted functions refer on the analysis in the page selection window, selected in the layout view.





Insert Function opens the Text Function Editor dialogue which can be used to insert calculator functions and/or text functions. Apply inserts the function in analysis text or table.

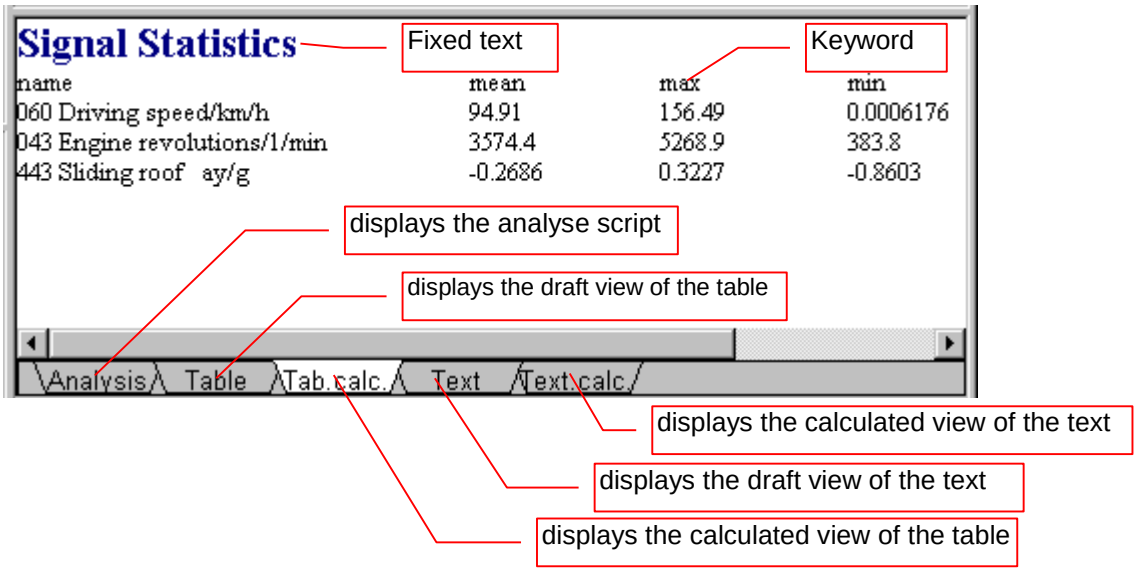
Keywords

Keywords

Schlüsselwort:	Description:
#CalcFrom	Calculate from (Range)
#CalcTo	Calculate To (Range)
#clk	clock rate in sec.
#CursorDX	Cursor DX Value
#CursorDY	Cursor DY Value
#CursorX1	Cursor X1 Value
#CursorX2	Cursor X2 Value
#CursorY1	Cursor Y1 Value
#CursorY2	Cursor Y2 Value
#eff	Effective Value
#freq	clock rate in Hertz
#max	Maximum Value
#mean	Mean value
#min	Minimum value
#sdev	Standard deviation
#SourceClk	clock rate from original data set in sec.
#SourceFreq	Frequency des original data set in Hertz
$Beschreibung0	Description to the project (must create them selves)
$Beschreibung1	Description to the project (must create them selves)
$calc	Short calculation script
$Cursor	creates a table referred to the Analysis
$DateCurrent	Actually date
$DateFile	creation date from file
$Document	Documentation from measurement
$FileName	data set name
$FileNameEWD	E.d.a.s.Win document name
$Frames	number values pro channel
$Grenzvaluee	Limit value Min and Max value from each channel
$Hysteresis	Hysteresis for Levelcrossing
$Length	Length from distance or course
$Messstrecke	Name from distance or course
$name	Channel name
$Offset Adjust	Zero adjustment value
$PDate	Project Date
$PhysChan	Physical channel number
$PName	Project name
$Pol.	Polarity
$Project	Project description
$Tabelle	creates a table referred to the Analysis
$TimeCurrent	Actually Time
$TimeFile	Start time from measurement
$Timerange	Length time from measurement
$unit	Unit from channel
$Xtra	Extrapolation factor
$AnalyseFile	Append analysis script at the E.d.a.s.Win export
$nameNo	Sensor location number

Apply analysis description

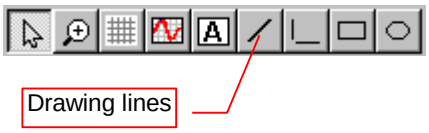
At the bottom of the Text Window you will see 5 tabs..



Data can be entered in the table automatically with the <Table> function, or you can enter information manually with the <Marker> function. There are two files for this purpose in the E.d.a.s.Win directory: Table.rtf and Marker.rtf. These text files contain the format for tables and marker information and can be edited to fit user requirements.

Drawing lines

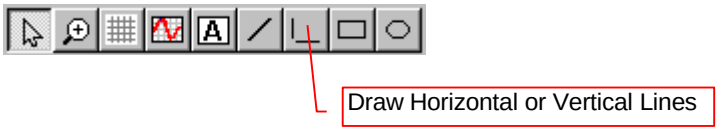
Click <Line> Tool in the Layout Toolbar.



Move the cursor to your starting point. Draw a line by moving the mouse with the left button depressed. Release the left mouse button to end the line.

Drawing horizontal or vertical lines

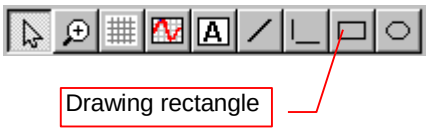
Use this tool to draw vertical or horizontal lines without having to position the mouse exactly. Select the <Draw Horizontal or Vertical Lines> tool in the Layout Toolbar.



Move the cursor to your starting point. Draw a line by moving the mouse with the left button depressed. When you have drawn a line of the desired length, release the left mouse button.

Drawing rectangles

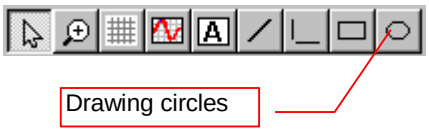
Click <Rectangle> Tool in the Layout Toolbar.



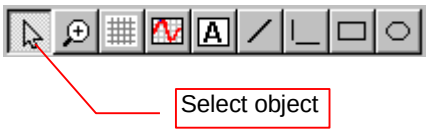
Move the cursor to where the bottom left corner is to be. Keep the left mouse button depressed and create a rectangle by dragging the mouse upwards and to the right until the rectangle is the desired size. Release the left mouse button to position the rectangle.

Drawing circles

Click <Circle> Tool in the Layout Toolbar.



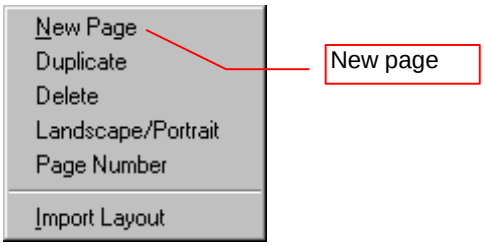
Move the cursor to where the bottom left of the circle is to be. Keep the left mouse button depressed and create a circle by dragging the mouse vertically / horizontally toward the upper right until the circle diameter has reached the desired size. Release the left mouse button to place a rectangle around the circle. Click on the <Selection> Tool in the Layout Toolbar.



Click in the rectangular frame with the left mouse button to display the circle.

Create a new page

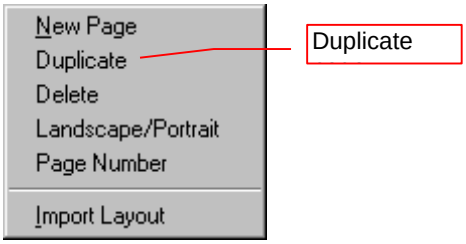
Press the right mouse button:



Click on <New Page> to create a new, blank page. The page will be listed on the Page Selection Window and can be edited in the Layout Window.

Duplicate a page

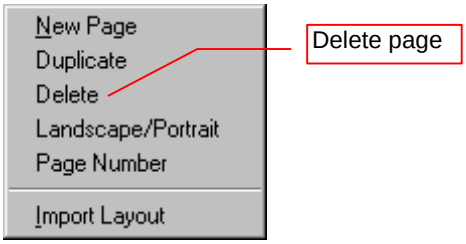
On the Page Selection Window, select the page you would like to duplicate with the left mouse button. Press the right mouse button:



Click on <Duplicate> to place a copy immediately after the selected page.

Delete a page

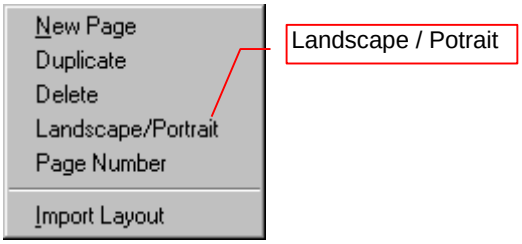
On the Page Selection Window, select the page you would like to delete with the left mouse button. Press the right mouse button:



Click on <Delete> to delete the selected page.

Setting landscape or portrait orientation

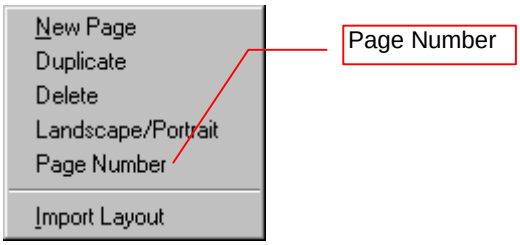
On the Page Selection Window, select the page with the left mouse button. Press the right mouse button:



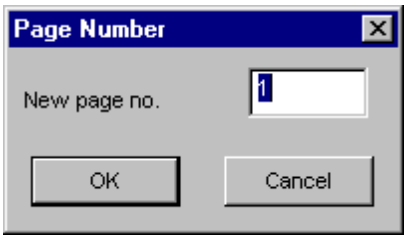
Click on <Landscape / Portrait> to toggle between the two orientations.

Change page number

On the Page Selection Window, select the page with the left mouse button.



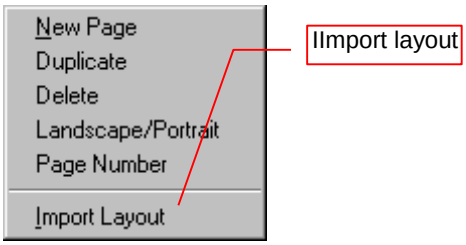
Press the right mouse button and click on <Page Number> to open a dialogue box in which you can enter the page number.



Click <OK> to integrate the page in the correct order.

Import layout

On the Page Selection Window, select the page with the left mouse button.



Press the right mouse button and click on file dialogue <Import Layout> to select the layout you would like to import. All pages with this layout will be added to the existing pages in the table of contents.

Create a layout print copy

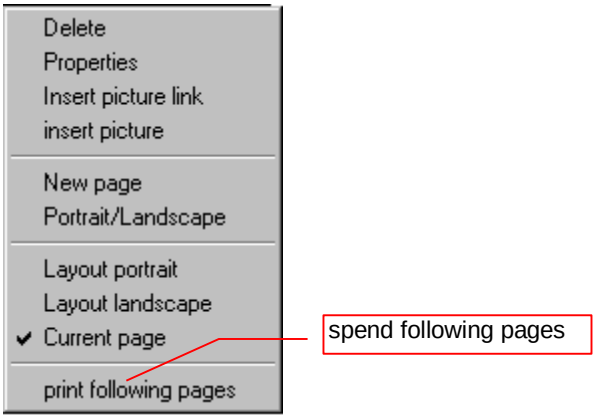
Analyses of multiple signals are often performed one after the other, but they using the same page layout. During the analysis, the analysis steps generated. Afterwards the tables and layouts are created. Then you can change to layout mode, build a layout and save the document (analyses and layout).

See Import Layout

Print following pages

Set a checkmarks at <print following pages>, a continuation page in the same layout are automatically spent. This function is then necessarily if side contents of the first side no more into the printable range fits.
Example: The table is too long for a side.

The selection < print following pages > is stored at the same time in the document and in the last E.d.a.s.Win starting settings.



Send layout as .jpg picture to an e-mail receiver

E.d.a.s.Win sent a created layout directly as .jpg picture to an E-mail receiver.

Change into the layout view, and click the button  , all created layouts are converted into **.jpg** format and insert into the existing E-mail program. This starts automatically after this procedure.

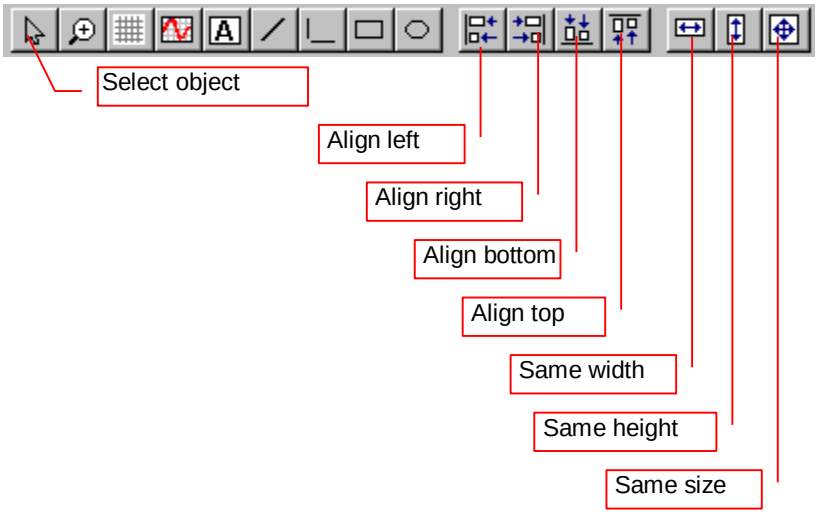
Print layout as BMP or JPG file

E.d.a.s.Win print a create layout directly into a BMP or a JPG file.

Change into the layout view, and click the button , the created layouts are stored into **.bmp** or**.jpg** file.

These files can be sighted and printed out with a working on program (for example Paint, Word etc.).

Align layout objects



Aligns the produced text image fields, tables and diagrams:
The objects which can be aligned with <Ctrl> and mouse select. The selected objects are bordered red.!! The object selected last is determining for the orientation of the other objects!!

Possible Sources of Error FFT and Orderanalysis!!!

The start-up phase must be slow enough to keep the RPM signal constant over the FFT points. This means that a small number of FFT points will yield low frequency resolution, but the RPM signal may change more rapidly. A large number of FFT point's yields high frequency accuracy, but the RPM signal may only change very slowly.
The Rectangular Window Function provides the highest frequency accuracy but may yield false amplitudes. The Flattop Window Function achieves slightly poorer frequency accuracy but very accurate amplitudes.
RPM signal accuracy is very important because the frequency whose amplitude is used in the amplitude graph is derived from it. For this, a search range may be entered into the search range input field of the dialogue. If you choose 10% for example and wish to analyze a frequency of 500 Hz, the range from 450–550 Hz will be searched for the peak amplitude. The search range may also be designated using +- measured values.

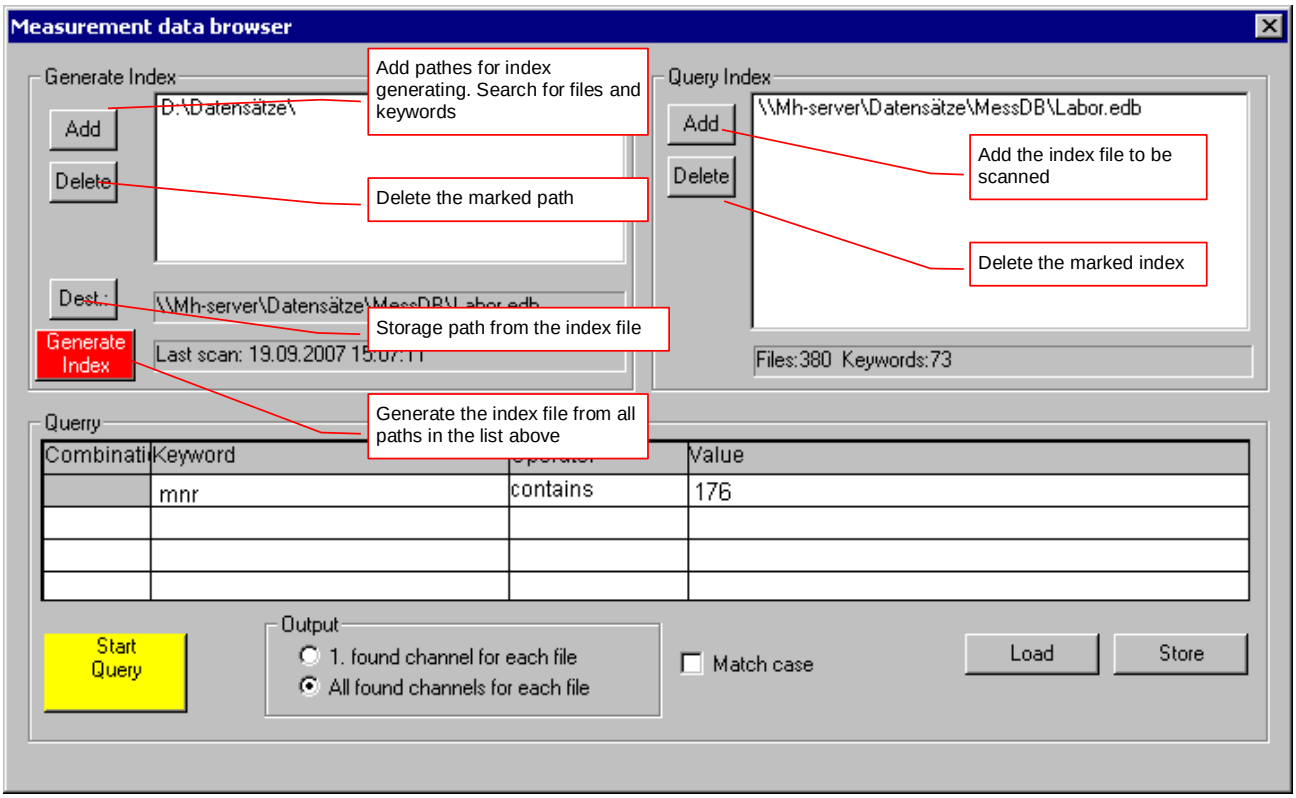
Course representation with marked X/Y signals

Measured GPS signals can be represented as an X/Y diagram. Get the signals Longitude and Latitude in the analysis window. Mark the signal Longitude with an X- and the signal Latitude with an Y mark. See also marking.
Do right-click in the analysis window and choose Course representation with marked X/Y signals.
The measured course appears in a new window.

MeasurementDataBrowser

The MeasurementDataBrowser searched on computers and / or network drives for data sets. He creates one or more index files from the search result with the found file-header-, keywords- and comment information. It can create any number of index files from the same or different computers.

MH´s MeasurementDataBrowser is an optional software module for E.d.a.s.Win, please contact MH GmbH



How to use:
Generate index:
Compilate paths for generating the index file.
For example:
There is an network with „n" pc´s. Every network user have administrator rights on paths with data files.
Insert with <**Add**> all paths from the pc´s with datafiles in the list box. Click on <**Dest.:**> to enter the storage path
and filename. With <**Generate Index**>, all paths will be searched and the result is stored under a new index file.

If the network users have no administrator rights, every local user can create a local index file. Deposed the index file on
an enabled network drive. Now every user can use the index file

Query Index:
Insert with <**Add**> all index files (Local or Network) in the list box.

Query:
Enter all combinations, keywords, operators and values for the query in the table

Output:

Selection for output in E.d.a.s.Win; 1. found channel for each file, or all found channels for each file.

<**Start Query**>:
The result will be directly displayed as a table in the result window from E.d.a.s.Win.

Field Generate Index:

Button <Add>:
Compilate paths for generating the index file. All paths will be searched. (Local or Network)

Button <Delete>:
Delete the marked path.

Button <Dest...>:
Storage path for index file. (Local or Network). The path will be displayed in the field, beside the button <**Dest**..>.

Button <Generate Index>:
Creates a index from added paths. See <Add> The following data sets will be supported: .**edt**, .**mdf**, .**rpc**, .**rsp**, .**rsp1**
Date and time from the last index generation, will be displayed in the field beside the button <**Generate Index**>.

Field Query Index:
Add:
Added all index files they will be searched with <**Start Query**>. (Local or Network)

Delete:
Deletes the selected index file from the list.
The number of all found data sets and keywords displayed in the field above the index file list.

Field Query:
In this table the conditions and combinations for the query will be set. Left click into the cell opens a list box with the query conditions. Click on, to set the condition.

Column Combination:
The following combinations can be set: „**or, and**"
Left click into the cell opens a list box with the combinations. Click on, to set the combination.

Column Keyword:
All found keywords listed here.
Left click into the cell opens a list box with the keywords. Click on, to set the keyword.

Column Operator:
The following operator types can be set: „**contains**, **equals**, **greater**, **less**"
Left click into the cell opens a list box with the operators. Click on, to set the operator.

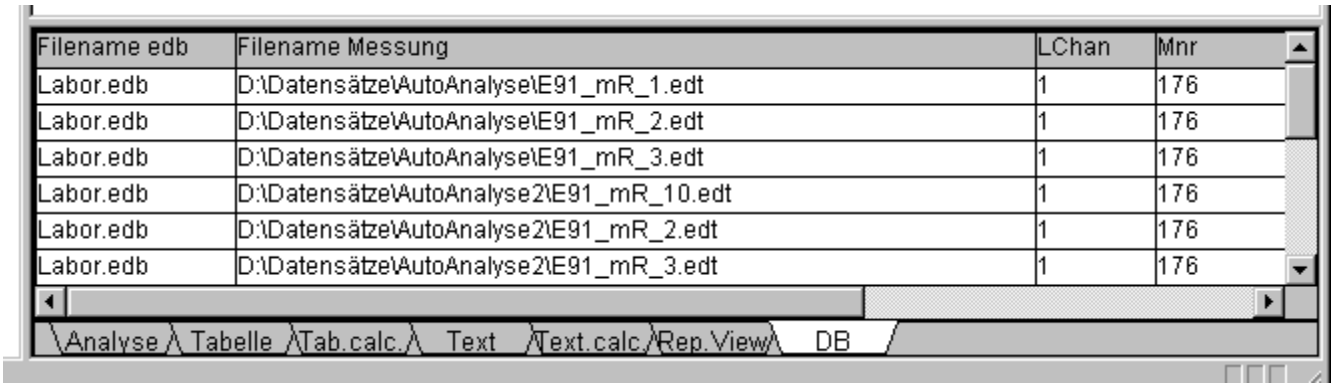
Column Value:
Shows all values from the keywords that contains in the data sets.

Field Output:
Selection if 1. found channel for each file, or all found channels for each file, listed in the table in E.d.a.s.Win

Match case:
It is compared exactly between lower and upper case.

Load and Store:
Load or Stores a query as a file. The extension from the query file is (*.qer).

Click <**Start Query>** to start the procedure . The result will be displayed as a table in E.d.a.s.Win



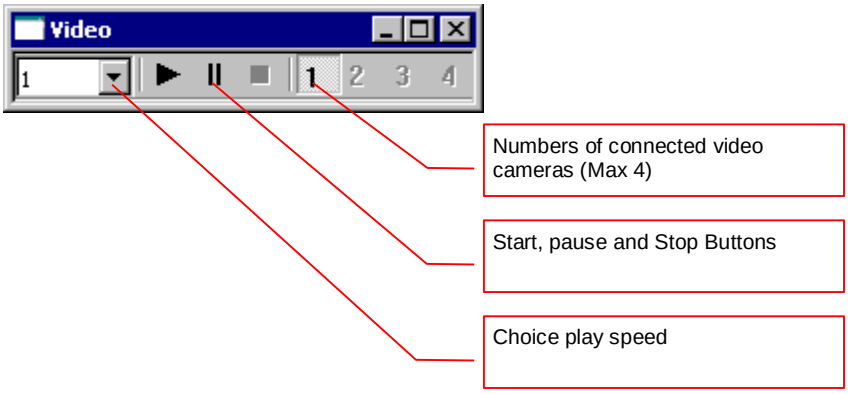
Filename edb	Filename Messung	LChan	Mnr
Labor.edb	D:\Datensätze\AutoAnalyse\E91_mR_1.edt	1	176
Labor.edb	D:\Datensätze\AutoAnalyse\E91_mR_2.edt	1	176
Labor.edb	D:\Datensätze\AutoAnalyse\E91_mR_3.edt	1	176
Labor.edb	D:\Datensätze\AutoAnalyse2\E91_mR_10.edt	1	176
Labor.edb	D:\Datensätze\AutoAnalyse2\E91_mR_2.edt	1	176
Labor.edb	D:\Datensätze\AutoAnalyse2\E91_mR_3.edt	1	176

To get the data set into the channel selection window, do a double click onto the data set in the column **filename**. (the background of the cell turns into blue) Now the analysis can be started. A double click into the cell from the column **Lchan**, load the first channel additional in the analysis window.

Play Video Data

Open the video data set, which recorded with MH **EdVid4** Soft- and Hardware. Do double click on a channel to display them in the analysis window. Now do double click on [000] Video. The cursor dialog, video player and the video window displays in E.d.a.s.Win. The number of video windows is device depended from the number of connected video cameras.

Play video data:
Click the play button on the video player, the cursor runs synchronous with the video data over the channel.



Change play speed:
Choose between the different modes.
2, 1, 1/2, 1/4, 1/8, 1/16.

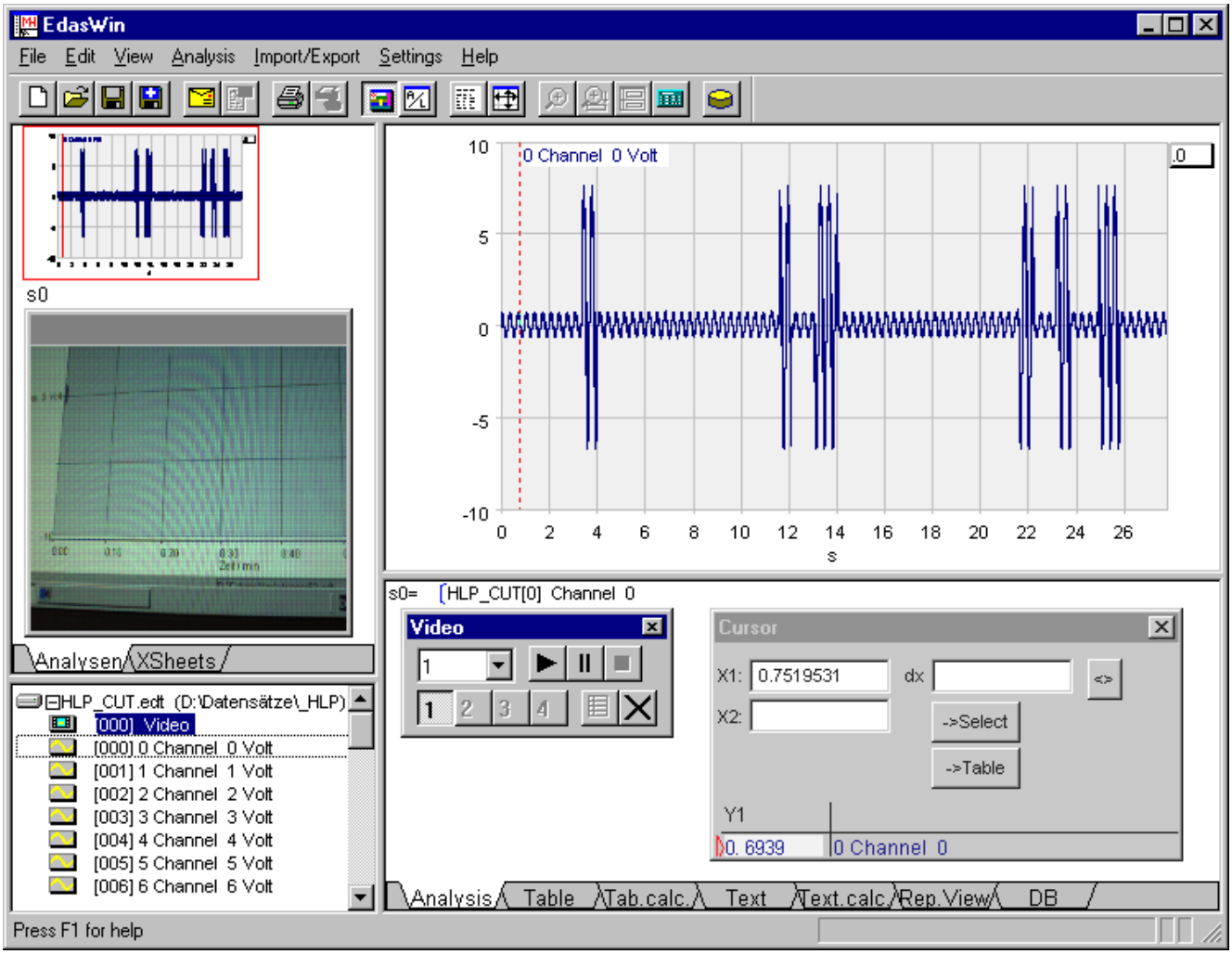
Window size and save picture:
Right click into the video window opens the following menu:

Choose the new window size **1:1**, **1:2**, **1:4** from the video window, or save picture… to store a single picture in *.jpg or *.bmp format from the actually video data

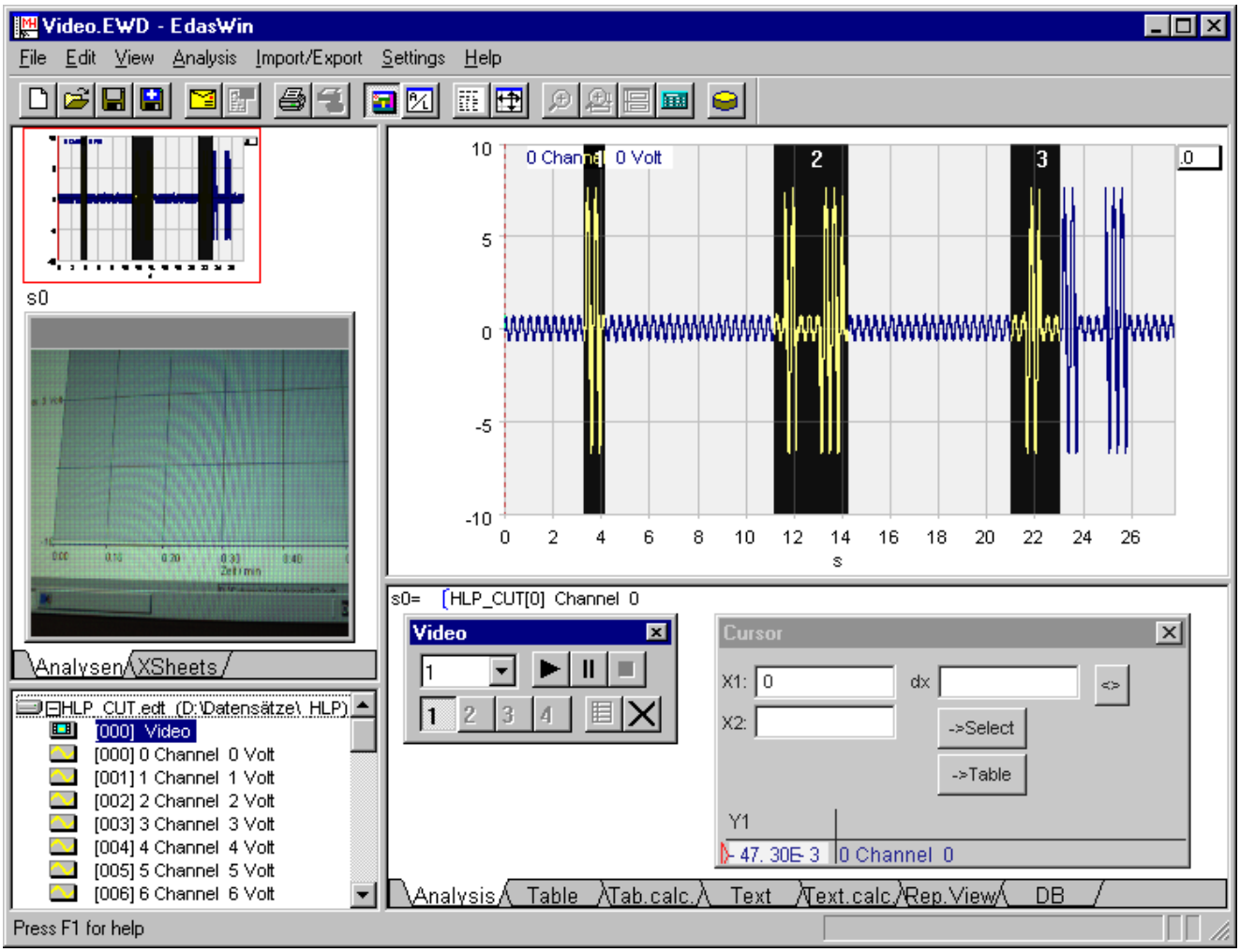
Cut video signals

Datasets with analog (.edt) and video (.evs) signals can simply work on with E.d.a.s.Win. Open the to be work on dataset with the <OpenData> button on the analysis calculator. Double click on the analog signal ([000] 0 Channel 0 Volt) and double click on [000] video. The analog and the video signal displayed in E.d.a.s.Win

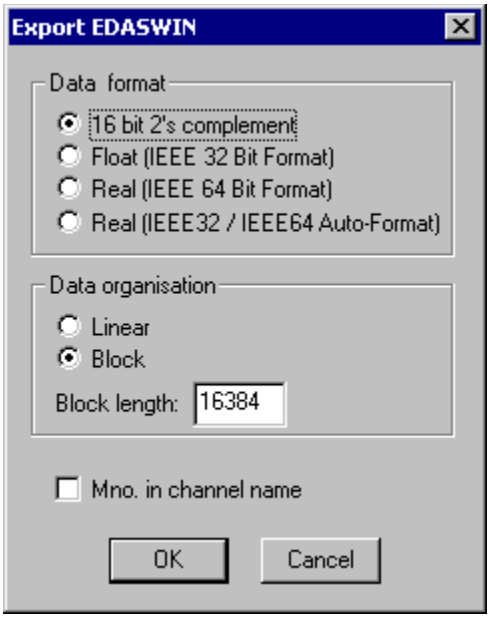
Important! If the video signal does not clicked in E.d.a.s.Win, only the analog signals will be work on. The video signal will not edited.



Create an selection frame in the analysis window on the to cut signal part. Type <**Alt**> + <**M**> on the keyboard, the selection frame turned into black. The selected range will be apply.



Choose in the menue Import/Export / Export / EdasWin.



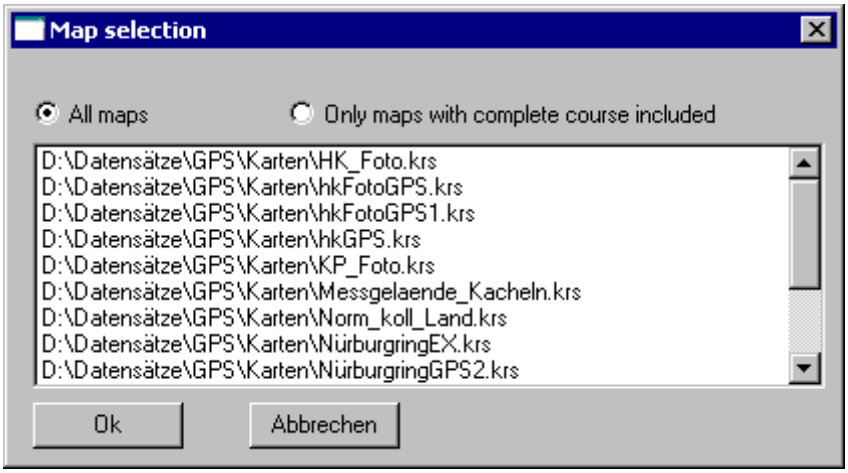
Click on <**OK**> and save the new dataset under a new name in the „Save as" dialogbox..

Course

Course displayes the vehicle position on the basis of measured GPS data on a map. Pull and shift the cursor into the signal in the analysis window. The position of the vehicle displayes in the map. Signal peaks can be assigned on the basis of the vehicle position on the route more exactly.

How to use:
1. The maps must create with MH´s course editor.
2. Define the GPS channels under the **menu/settings/ GPS definitions**.

Proceeding:
Adjust the map path and define the GPS channels in the menu/attitudes/ **GPS definitions** .
Double-click on [000] Map in the channel selection window. A list of existing maps were showed in a dialogue

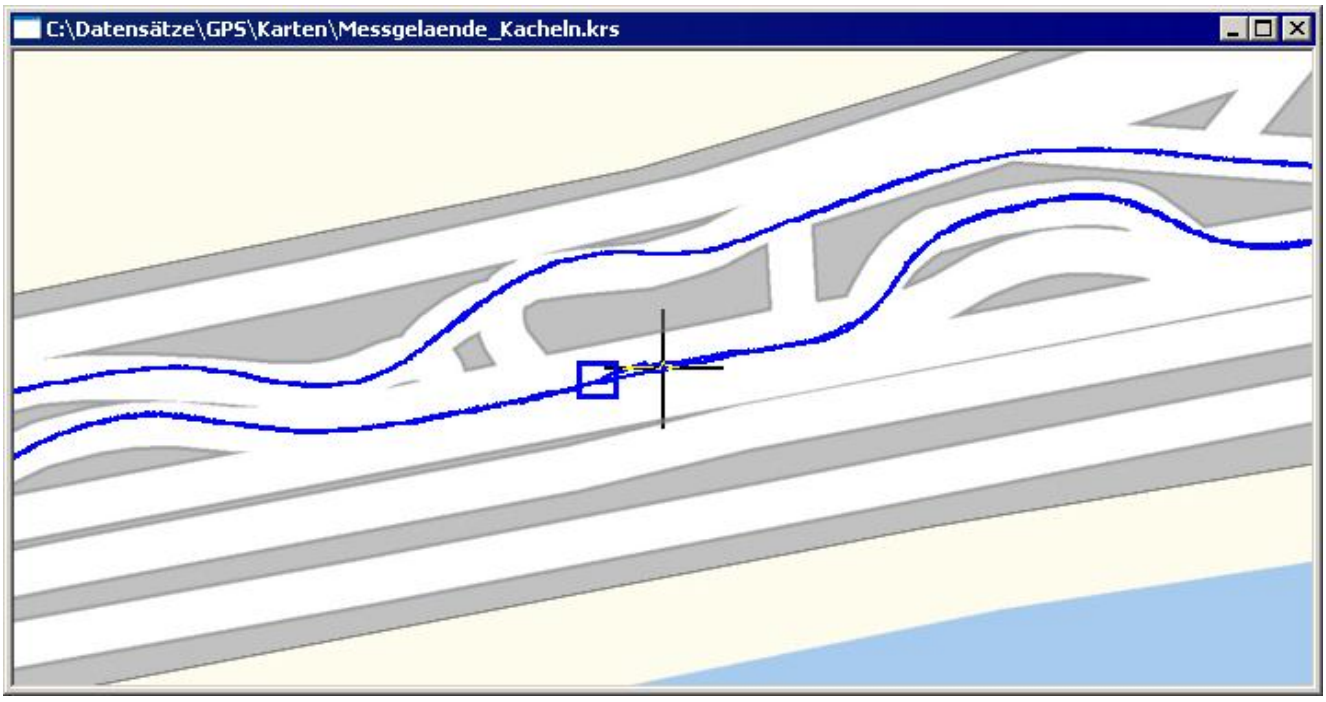


Two maps selection modes are available here:

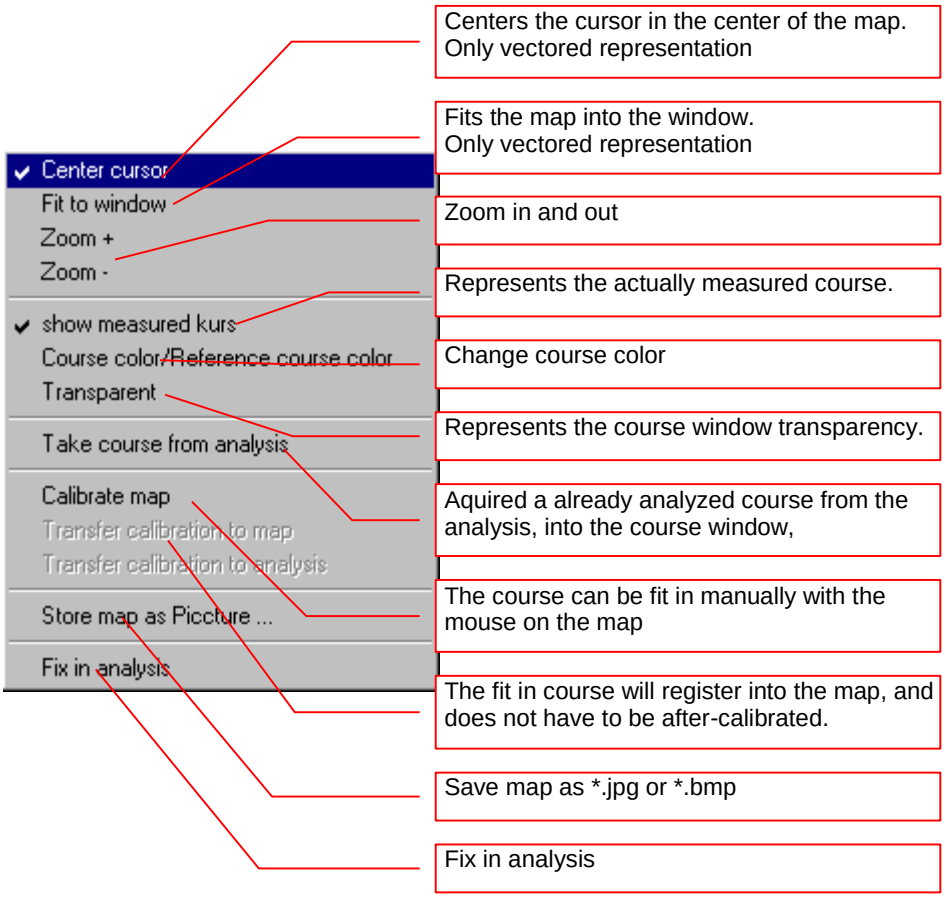
All maps:
Lists all maps were found.
All maps have the file end (.krs).

Complete course in map available:
Only the maps their coordinates agree with the GPS data from the data set where indicated.

Choose map:
Mark the map and double click, or mark and confirm with <OK>. The map and the course are indicated in the course window. If there is no map available or marked, the course displays without map background.



Right click in course window opens the following menu



Zoom + / -:
Right click into course window, and choose in the menu **Zoom+** for a large, and **Zoom-** for a small view of the map.

Take course from analysis :
Click on the course symbol in the report view, and choose the course from the list.
Mark the GPS signals with an X and Y mark. Rightclick into the course window opens a popup menu. Choose "Take course from analysis". The different lanes are displayed in the course window. Move the coursor in the channel, the position are displayed in the course window too.

Recalibrate map:
If the measured course does not fit into the map, the course can be shifted manually across the map. Right click on the course line in the course window opens a menu. Select **map recalibrate**. A line with reticle appears. The course can be positioned on the map by drag the line. Subsequently, the repositioning can be transferred with the function **transfer the calibration into map**,

Display vehicle position in course window:
Load s signal into the analysis window. Generate a new cursor and move them across the signal. The position of the vehicle is represented as black reticle. The blue square marks the starting point of the measurement.