The Viewer

User Manual - February 2013

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Introduction

TL Viewer provides a graphical way to organize your data and files. You can use the viewer to open, copy and edit data files. You can also use it to move, edit, copy, view records as graphs, you can even print graphs using the Science Graph tool.
The TL Viewer displays one or more windows - either data file windows or graphs windows.
A data file window lists all the records in the file, where each sample is listed using the data type (TL,OSL etc), the run no. and the sample no. See also the records.
A graph window views one or several data record curves.

Files

The System II data files holds a lot of information about the sample that was neglected in the former versions of the TL/OSL software.
To get a complete reference of the new file format please refer to file formats.

Creating a data file.
Opening Data file.
Saving a Data file or converting to other formats.

Creating a data file

You can create a data file from scratch, this could be an idea if you have some data you would like to compare with the measured data or if you wants to collect records from several data files and merge them into a new file.

Opening a datafile

Opening a Data file Files

You can use the File Open dialog to find and open previous created datafiles files.
Choose File|Open to edit a datafile using the Select Data file Name Dialog Box.

Or use the short cut Ctrl-O or click the speed button 

Open Data file Dialog Box

Use the Open Datafile dialog box to load an existing sequence file into the Datafile Editor. You can only have as many files open as you wish, but your computer sets some restrictions.

File Name Edit Box

Enter the name of the file you want to load or wildcards to use as filters in the Files list box. If you use wildcards you can press return or click the OK button to use the mask on all files, the files in the mask are now listed in the File List Box.

Files List Box

Displays the files in the current directory that match the wildcards in the File Name edit box or the file type in the List Files Of Type combo box.

List Files Of Type Combo Box

Choose the type of file you want to open; the default file type is System II datafiles (.BIN). All files in the current directory of the selected type appear in the Files list box.
Choose:

System II	To look for new data files
Version 4.65	To look for old data files
Version 5.0	To look for old data files supporting monochromators

Note You can open version 3 data files, but you cannot save them in version 3 format.
To save them you must convert them to version 4,5 or system II format.

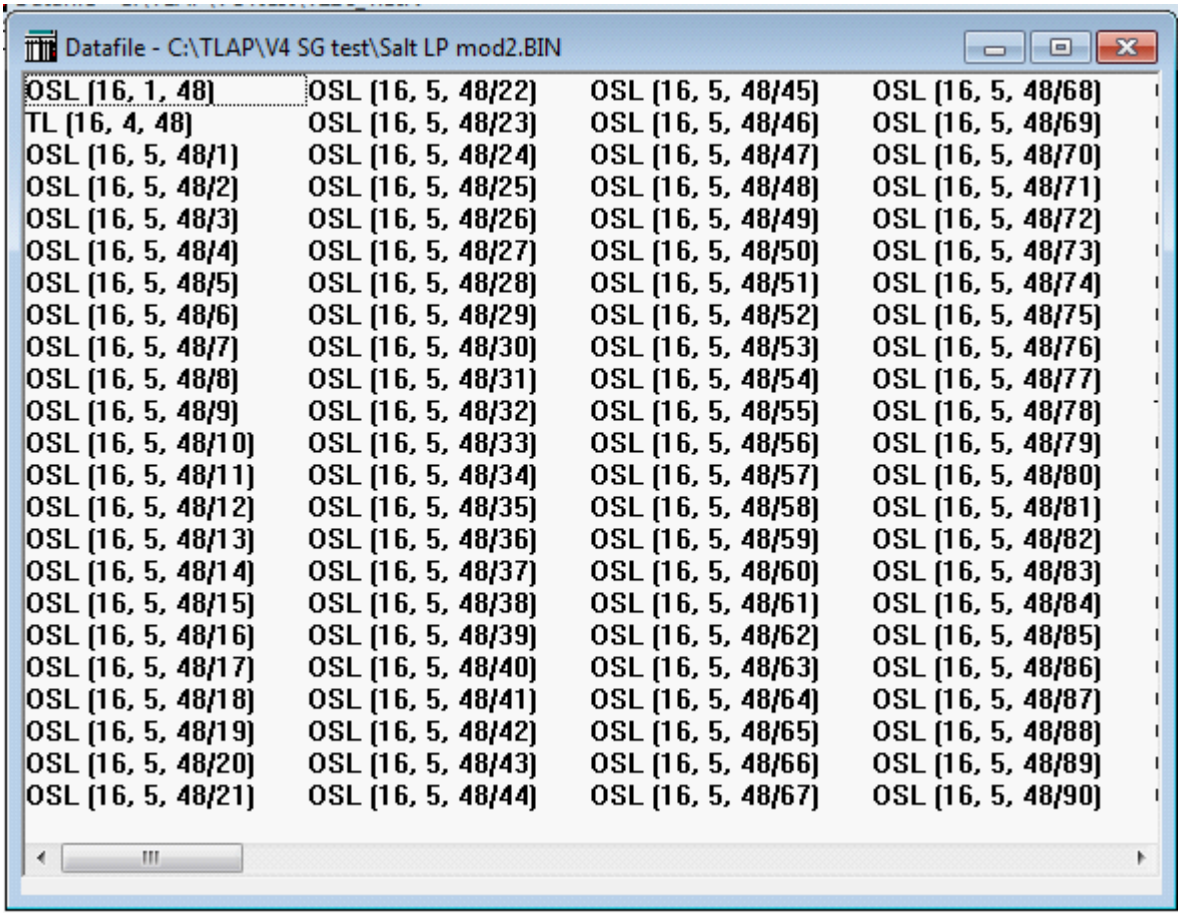
Directories List Box

Select the directory whose contents you want to view. In the current directory, files that match the wildcards in the File Name edit box or the file type in the List Files Of Type combo box appear in the Files list box.

Drives Combo Box

Select the current active drive. The directory structure for the current drive appears in the Directories list box. If you are using Windows 95 or Windows NT you can click on the Network button to connect a network drive.

When a file is opened the individual data records are show in a number of columns:



The format of the identification of the records are

<type>(<run>, <set>, <sample>[/<grain>][, <curve no>])

Where:

<type>: The type of command, e.g. OSL, TL, POSL
<run>: The run number
<set>: The set number
<sample>: The sample number
<grain>: The grain number if a single grain measurement
<curve no>: The curve number if more curves are stored for the same (<run>, <set>, <sample>)

The square brackets indicate that these parameters are not always shown (cf. Above)

Note The dialog text depend on the language your Windows uses
Refer to your local Windows Manual.

Warning If you select an improper formatted data file the application may crash, this could be the case when you try to open a file that has the correct file extension.

Saving or converting a datafile

Choose File|Save As, File|Save or the FileSave Speedbutton to save the current datafile to a different name or location.

Save Sequence Dialog Box

Use the Save dialog box to change the data file name or to save the datafile in a new location. If the file name already exists, The application asks if you want to replace the existing file.

File Name Edit Box

Enter a name for the data file you are saving.

Files List Box

Displays the files in the current directory that match the file type in the Save File as Type combo box.

Save File As Type Combo Box

Choose a file extension; the default is .BIN (System II). If you select another extension you can convert the file.

Directories List Box

Select the directory where you want to store the file. In the current directory, files that match the file type in the Save Files As Type combo box appear in the Files list box.

Drives Combo Box

Select the current active drive. The directory structure for the current drive appears in the Directories list box. If you use Windows 95 or Windows NT you can click the Network button to connect a network drive.

Converting files

To convert to one of the supported formats select the format you wants to save your data as in the file type listbox.

You can open files from version 3, version 4.65, version 5.0 or System II.
You can convert to Version 4.65, version 5.0 or System II.

When you convert to an older file format, you loose some information, because the old formats supports less information.

More about file formats.

Records

You can select one or several records using the mouse or the keyboard (refer to your Windows documentation).
You can select a record then hold down the Shift key and select another and all the items in between the two selected records also become selected. If the you doesn't hold down the Shift or Ctrl key while selecting a second record, the first selected record becomes unselected--in other words, you must use the Ctrl key to select multiple non-contiguous records, or the Shift key to select a range of records.

Warning If you select more than one record, you perform the functions on all records. Be aware that this is a strong feature when used correctly, but when used incorrectly it is a fatal tool.

Using the mouse with the Record list

To navigate the list:

If the client window are to small to hold all data records within it, a scrollbar are added to the bottom of the client window.

To scroll one page forward just click in the scrollbar on the right side of the indicator.

To scroll one page backward click in the scrollbar on the left side of the indicator.

You also drag the indicator to select a desired view.

To select one record:

Click on the desired record and it get highlighted.

To select two or more records in sequence:

1. Click on the first record you want to select.
2. Press and hold down the shift key while you click the last record in the sequence.

To select two or more records out of all records.

Press and hold down the Ctrl key, while you select the desired records.

To select all records in a list:

Press Ctrl-/ (slash).

To cancel a selection

Press and hold down the Ctrl key, while you click on the record(s) you want to deselect.

You can combine the Shift and Ctrl technique. In addition you can combine with the keyboard.

Using the keyboard with the Record list

You can use the keyboard to navigate or select a record or a group of records.

To navigate in the list of records use

UP or DOWN ARROW selects the record above or below the selection
LEFT or RIGHT ARROW selects the record in the previous or next column.
END to select the last record in the list
HOME to select the first record in the list
PAGE UP to select the record at the top of the previous screen. (if the window are to small to hold all records a scrollbar in the bottom of the Window indicate this)
PAGE DOWN to select the records at the top of the next screen.
A character to select the next record who identifier starts with the character.

To select two or more records in sequence:

1. Select the first record.
2. Press and hold down the shift key while you traverse to the last record in the sequence.

To select two or more records out of all records.

1. Use the arrow keys to move to the first record you want to select.
2. Press SHIFT+F8, the selection cursor begins to blink.
3. Move to the desired records, select them with spacebar.
4. Press SHIFT+F8 when you are finished selecting records.

To select all records in a list:

Press Ctrl-/ (slash).

To cancel a selection

Press SHIFT+F8 and traverse to the record you wants to deselect and press SPACBAR to deselect it.

You can combine all three techniques. In addition you can combine with the mouse.

More on using the keyboard

If you like to read more on how to use the keyboard please refer to your Windows manuals Appendix A (keyboard shortcuts).

Edit Data Values

Using the data value grid you can modify each channels value.

Add Data Values

Add some channels to the record at the end

N/A in this version

Delete Data Values

Delete some channels

N/A in this version

Add Record

Add an empty record to the file

Copy

Copy the selected records and put them into the Windows Clipboard, where they can be pasted into other Windows application directly.

Most of the time you use the Windows clipboard with the TL/OSL application only, you will seldom use it with third-part Windows applications so we have divided the functions for internal and external use.

Using the Clipboard inside the application:

Using the clipboard internal are memory and time consuming because it is not the standard Windows way of doing things. The receiver of information knows what to do with the information.

Copy: Copy selected records to a data file

1. Select the records you want to copy.
2. From the Record menu choose Drag. Or from the Context menu choose Drag. The mouse pointer changes shape.
3. Activate the destination data file.
4. Click once with the mouse within the list.

Paste: Inserts records from the clipboard to the end of the active datafile

1. Activate the desired data file.
2. From the Record menu choose Paste.

Cut: Delete the selected records and insert them into a data file

1. Select the records you want to cut.
2. From the Record menu choose Cut. Or from the Context menu.
3. Activate the destination data file.
4. From the Record menu choose Paste.

Using the Clipboard with Windows third party applications

Using the clipboard between Windows applications
You can copy one or several records data values to the clipboard.

1. Select the record(s).
2. From the Record menu choose Copy Or from the context menu choose Copy Or use the short cut Ctrl-C.
3. Swap to the destination application.
4. From the Edit menu choose paste.

Each record are copied into one row of data value, separated with tabs, this scheme are supported by Microsoft Excel and others.
If you want to import data values into an application not supporting this scheme you should first export the data values as an ASCII file.

Warning Cannot be used to paste to the TL Viewer application. Use the drag feature.

Paste - Full

N/A in this version

Paste - Data only

N/A in this version

Delete

Delete the selected records!

Cut

Cut the selected records and put them into the Windows Clipboard, where they can be pasted into other Windows application directly.

Warning Cannot be used to paste to the TL Viewer application. Use the drag feature.

Export - Tab

N/A in this version

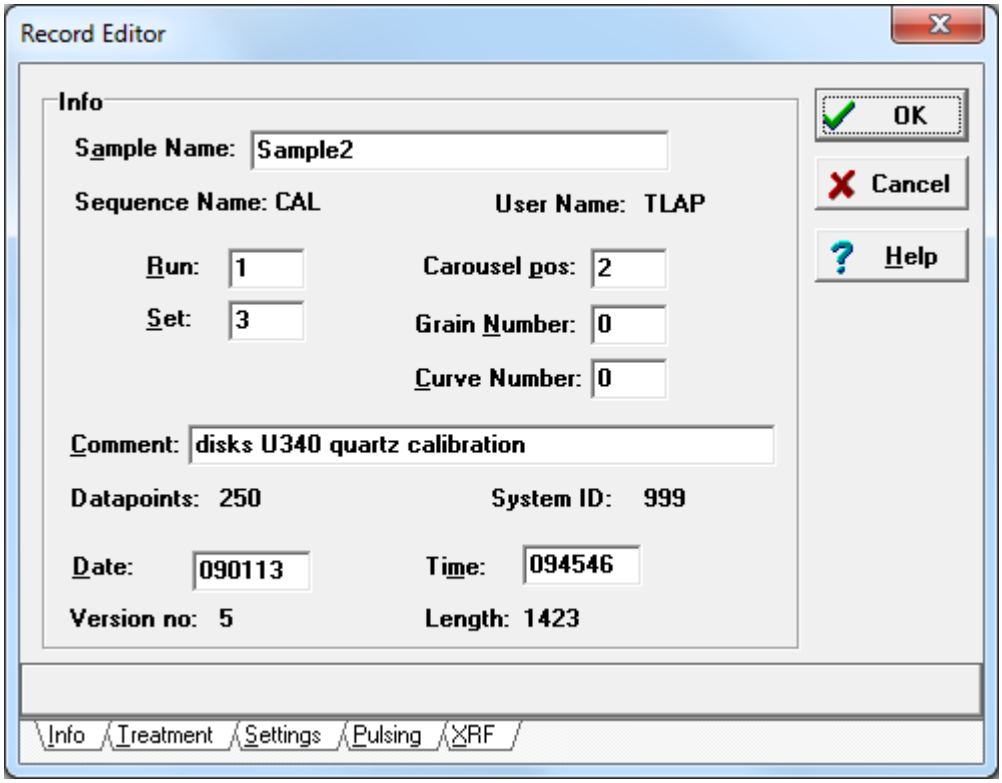
Export - Comma

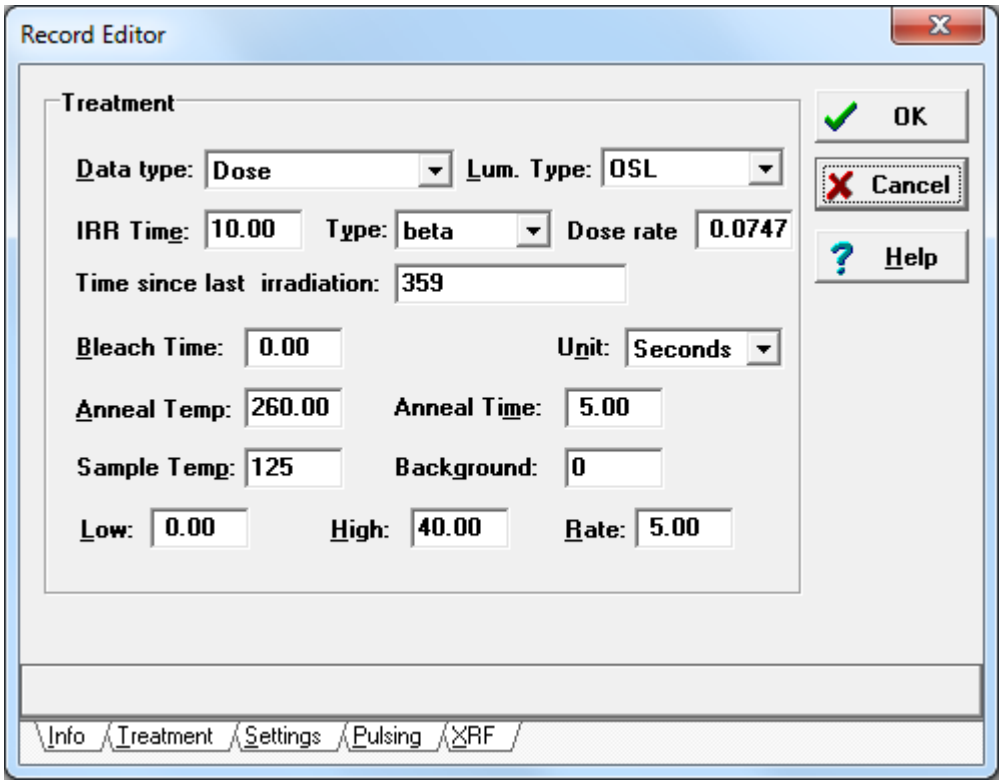
N/A in this version

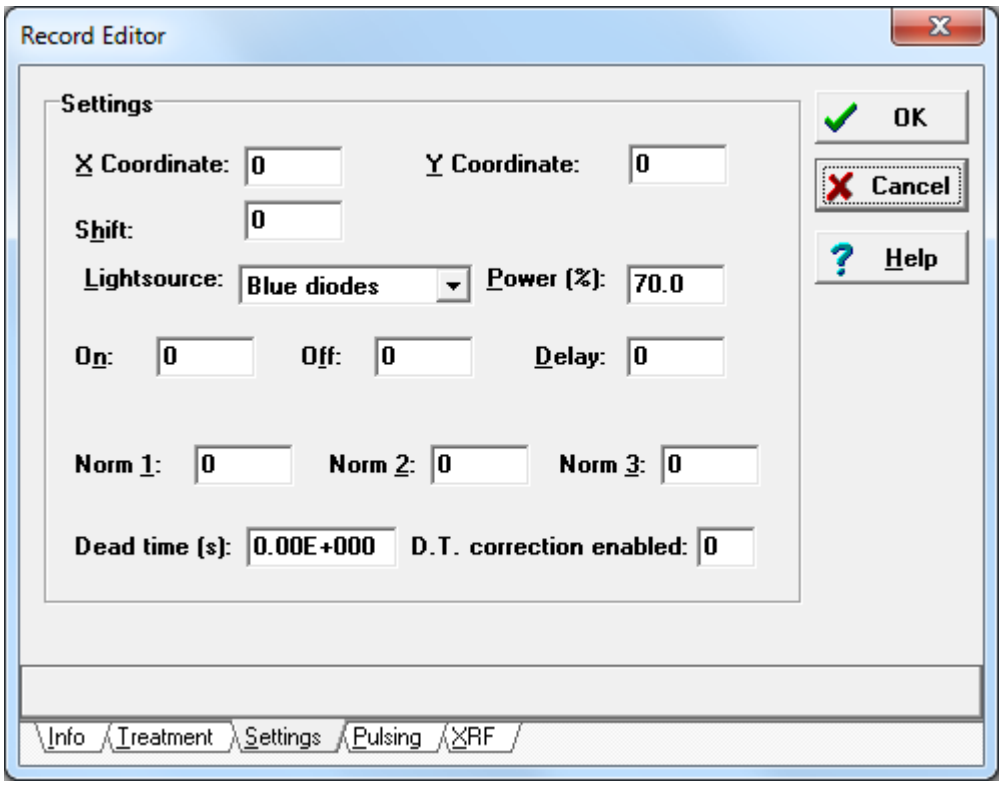
Edit

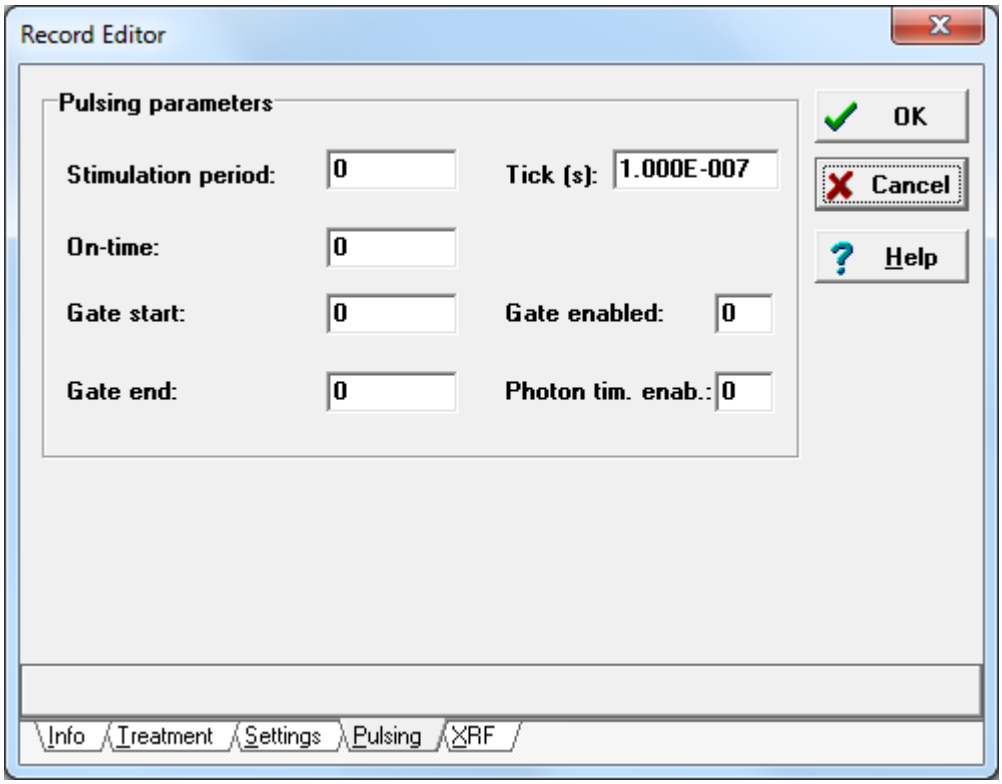
Choose File-Edit, use F2 or click the  button to edit the record header.
The record header data is shown on 5 tabs.

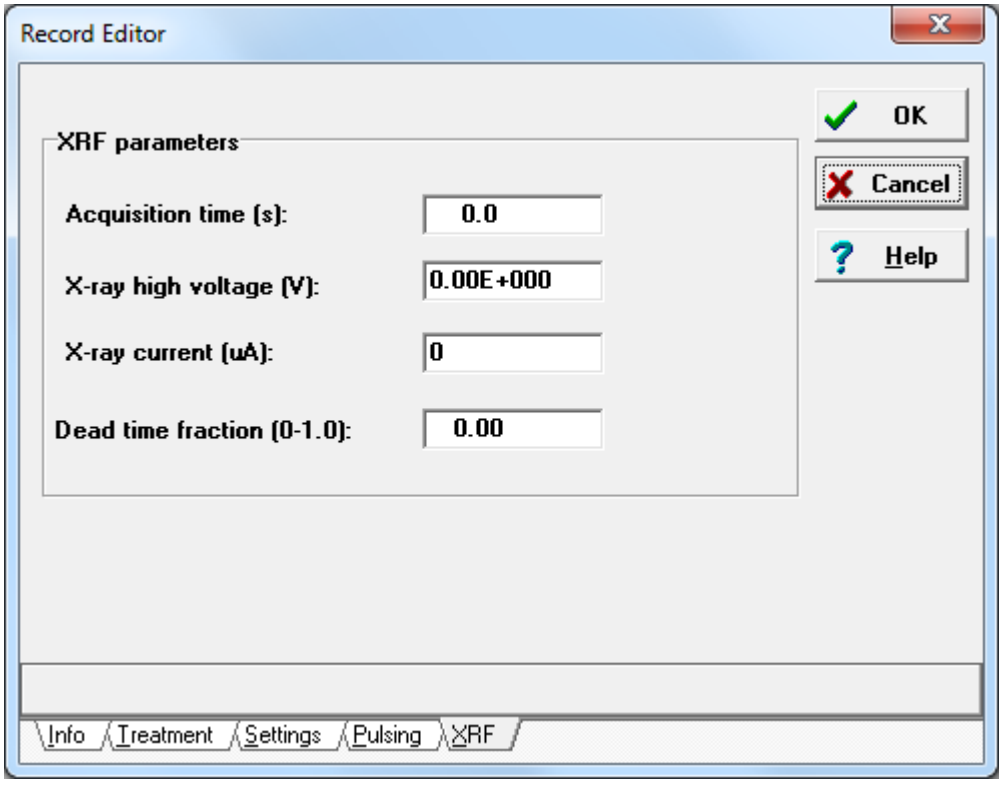
Note When you modify one of the settings in the dialog, the background turns into red, this helps you to see what you changed before clicking ok or cancel.




Record Editor
Treatment
Data type: Dose
Lum. Type: OSL
IRR Time: 10.00
Type: beta
Dose rate 0.0747
Time since last irradiation: 359
Bleach Time: 0.00
Unit: Seconds
Anneal Temp: 260.00
Anneal Time: 5.00
Sample Temp: 125
Background: 0
Low: 0.00
High: 40.00
Rate: 5.00
OK
Cancel
Help
Info
Treatment
Settings
Pulsing
XRF


Record Editor
Settings
X Coordinate: 0
Y Coordinate: 0
Shift: 0
Lightsource: Blue diodes
Power (%): 70.0
On: 0
Off: 0
Delay: 0
Norm 1: 0
Norm 2: 0
Norm 3: 0
Dead time (s): 0.00E+000
D.T. correction enabled: 0
OK
Cancel
Help
Info
Treatment
Settings
Pulsing
XRF


Record Editor
Pulsing parameters
Stimulation period:
0
Tick (s):
1.000E-007
On-time:
0
Gate start:
0
Gate enabled:
0
Gate end:
0
Photon tim. enab.:
0
OK
Cancel
Help
Info
Treatment
Settings
Pulsing
XRF


Record Editor
XRF parameters
Acquisition time (s):
0.0
X-ray high voltage (V):
0.00E+000
X-ray current (uA):
0
Dead time fraction (0-1.0):
0.00
OK
Cancel
Help
Info
Treatment
Settings
Pulsing
XRF

View Graph

When you have selected one or several records you can view them as a graph
Choose Records - View Graph
Or
From the context menu choose View Graph
Or
use the short-cut Ctrl-G.

See also graph window.

Graph Window

The graph window can hold up to 16 curves, each curve can be individual defined to meet your specific needs, so you can make dias, overheads fancy prints etc. of the graph.

In the graph window you can use the context menu (right mouse button) to reach the most common formatting functions.

Edit the Top Title Caption:

Using The Graph Menu:

- Choose Caption from the Graph, Title, Top Menu.
- Edit the Caption.

Using The Context Menu:

- Click the Right mouse button to pop up the context menu.
- Choose Caption from the Titles, Top menu.

Edit the Legend appearance:

Using The Graph Menu:

- Choose Left or Right from the Titles, Legend menu.
- Select Left to place the legend text in the left side of the Curve Document.

To edit the font style used:

Edit Top Title Font:

- Choose Font from the Graph, Titles, Top, Font menu. Or use the Context Menu (Hold down the right mouse button).
- Edit the Font settings using the Windows Font Dialog Box

Edit Top Title Font:

- Choose Font from the Graph, Titles, Top menu. Or use the Context Menu (Hold down the right mouse button).
- Edit the Font settings using the Windows Font Dialog Box

Edit Legend Font:

- Choose Font from the Titles, Legend, Font menu. Or use the Context Menu (Hold down the right mouse button) and
- Edit the Font settings using the Windows Font Dialog Box

Edit X-Axis Title Font:

- Choose X-Axis from the Graph, Axis menu. Or use the Context Menu (Hold down the right mouse button).
- Click Font in the Axis group.
- Edit the Font settings using the Windows Font Dialog Box

Edit Y-Axis Title Font:

- Choose Y-Axis from the Graph, Axis menu. Or use the Context Menu (Hold down the right mouse button).
- Click Font in the Axis group.
- Edit the Font settings using the Windows Font Dialog Box

Edit Tick Title Font:

- Choose X-Axis from the Graph, Axis menu. Or use the Context Menu (Hold down the right mouse button). Or Y-Axis.
- Click Font in the Ticks group.
- Edit the Font settings using the Windows Font Dialog Box

Close

Closes the current graph window

Print

Print the current graph using the current printer and printer settings, if you want to change printer or printer settings then use the Windows Control Panel, refer to your Windows documentation.
Using the Windows Control Panel you can:

- Change page orientation.
- Change printer even log to a network printer.
- Change colour quality etc.
- Change paper

Titles - Top Font

Changes the top title font, using the Windows standard Font dialog.

Titles - Top Caption

Changes the top caption text

Titles - legend font

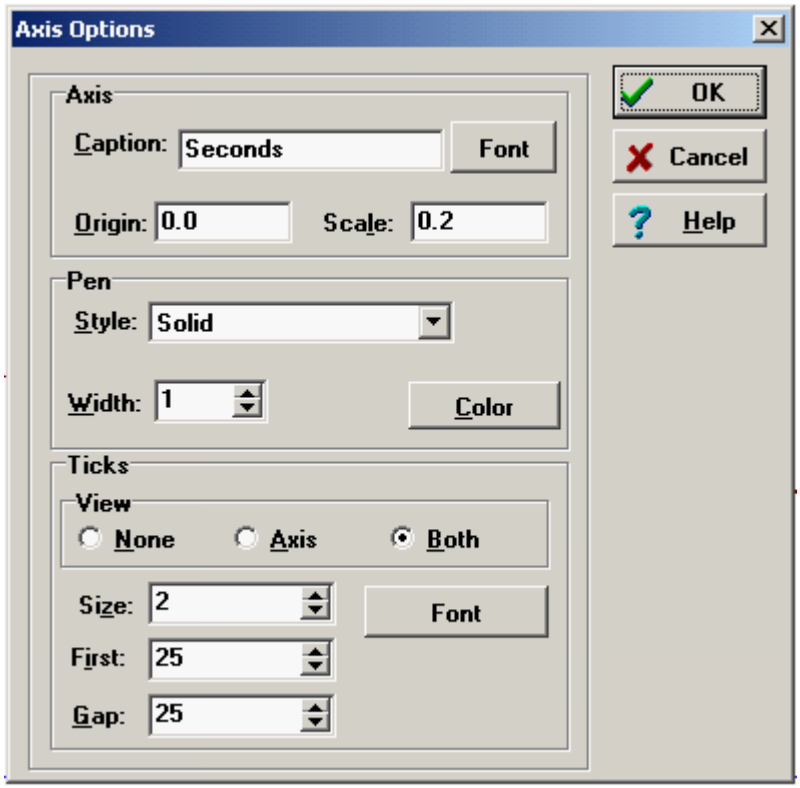
Changes the legend font, to draw the legend you must define the series Legends description text, using the Windows standard Font dialog.

Titles - legend left or right

Specify where to draw the legend text left most or right most

X-Axis or Y-Axis

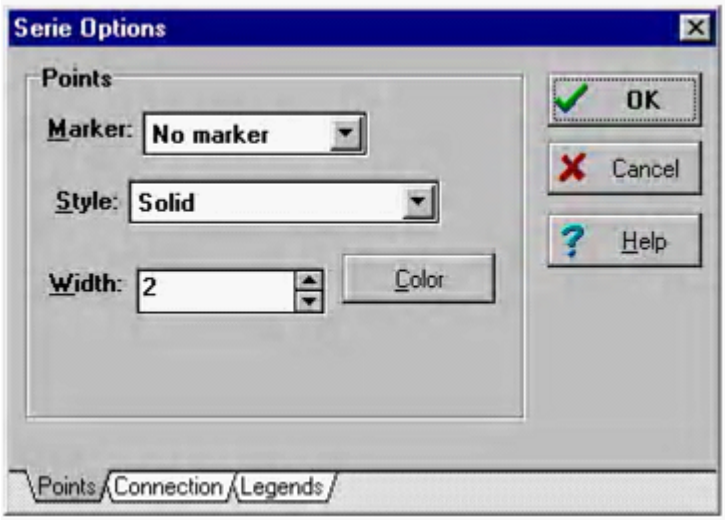
You use the Axis Options dialog box to edit the Axis properties.
The Y-axis autoscale to the current data series and the size of the graph window.



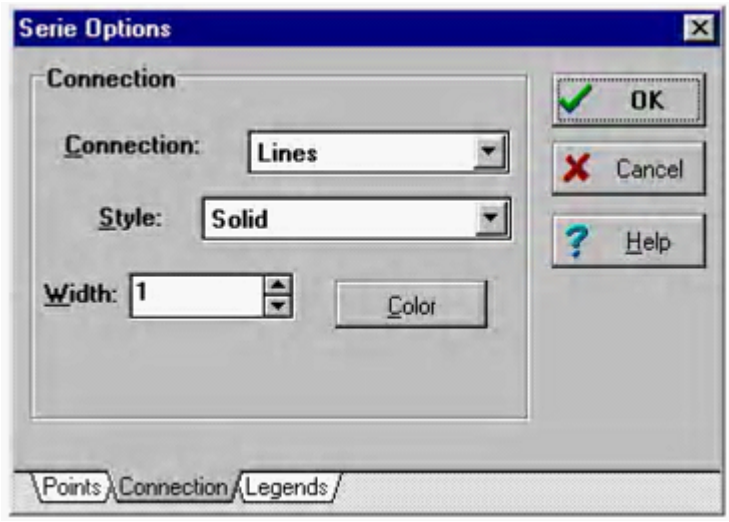
Axis.
Caption: The axis text.
Font: The font used to draw the text, selecting it using the Windows Font dialog.
Origin: Where to start the ticks in real figures (channel 1).
Scale: What to multiply each channel with.
Pen
Style: pen style used to draw axis line and tick lines.
Width: the width of the pen.
Color: the color to use, select it using the Windows Colour dialog
Ticks
View: Check none when you do not wants to draw the axis line, the tick marks and the tick text, check axis to draw the line only.
Size: The length or size of the tick marks.
Font: The font used to draw the tick mark text. Select it using the Windows Font dialog.
First: Where to place the first tick mark.
Gap: Gap between the rest of the tick marks.
Def. Tick: When checked the application auto select the ticks to fit the window (Y-axis only), if you change the First or the Gap the Def. Tick is unchecked.

Series

Each data series can be edited individually, you can use the Series dialog box, the box is a multi page dialog box:

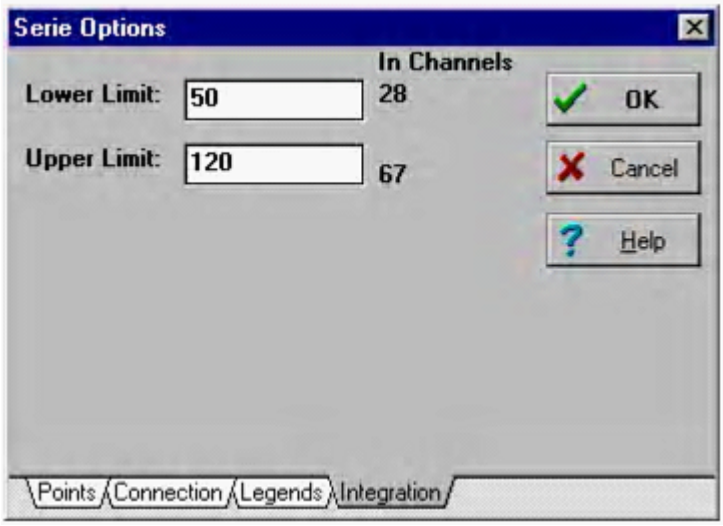


Points
Marker: draw a marker on each datapoint.
Style: line style used for the marker
Width: The width of the line
Color: The color used to draw the marker, select it using the Windows Color dialog box.



Connection
Connect: How to connect each data point, only Line and not connected are supported in this version.
Style: The line style used to draw each line, note that windows ignore the line style when the line widht is greater than one.
Width: The width of the line.
Color: The color used for the line, select it using the Windows Colour dialog box.

Legend
Desc.: The description for the data series, only when this is defined the legend is drawn.



Integration
Lower: The lower integration limit, the limit is used for all series, enter values in real-values, real values is calculated into channels automatically. You cannot type in a value not within the Low-High limits for the curve.
Upper: The upper integration limit.

Columns

Select the number of columns the data records are listed in. Default is 2.
You can use the short cuts or the Records-Columns function.

Ctrl-4 4 columns view.
Ctrl-6 6 columns view.
Ctrl-8 8 columns view.
Ctrl-0 10 columns view.
Ctrl-2 12 columns view.

File Formats

The results from a run of a Risø TL/OSL sequence are stored in a so-called BIN file.
For all versions of the BIN files, the version number is stored in the first 2 byte of the header.

V.6 (file extension: binx)

The file format us used by Sequence editor V.4.20 and later

Description	Name	Type	Length (bytes)
Header size and structure			
Data format version number	Version	Small Integer	2
Length of this record (†)	Length	Long Integer	4
Length of previous record (†)	Previous	Long Integer	4
Number of data points	NPoints	Long Integer	4
Sample characteristics			
Run number	Run	Small Integer	2
Set Number	Set	Small Integer	2
Carousel position	Position	Small Integer	2
Grain Number	GrainNumber	Small Integer	2
Curve number (for multiple curve operations)	CurveNo	Small Integer	2
X position of a single grain	XCoord	Small Integer	2
Y position of a single grain	YCoord	Small Integer	2
Sample name	Sample	String	21
Comment	Comment	String	81
Instrument and sequence characteristics			
System ID	SystemID	Small Integer	2
File name (.SEC, .BINX etc)	FName	String	101
User name	User	String	31
Data collection time (hh-mm-ss)	Time	String	7
Data collection date (dd-mm-yy)	Date	String	7
Analysis			
Data type (#)	DType	Byte	1
Bleaching time	BL_Time	Single	4
Bleaching unit (mJ, J, secs, mins, hrs)	BL_Unit	Byte	1
Normalisation factor (1)	Norm1	Single	4
Normalisation factor (2)	Norm2	Single	4
Normalisation factor (3)	Norm3	Single	4
Background level	BG	Single	4

Number of channels to shift data	Shift	Small Integer	2
Tag	Tag	Byte	1
Reserved for internal use			20
Measurement characteristics			
Luminescence type (‡)	LType	Byte	1
Light Source (*)	LightSource	Byte	1
Optical Stimulation Power	LightPower	Single	4
Low (temperature, time, wavelength)	Low	Single	4
High (temperature, time, wavelength)	High	Single	4
Rate (heating rate, scan rate).	Rate	Single	4
Sample temperature	Temperature	Small Integer	2
Measured temperature	MeasTemp	Small Integer	2
Preheating temperature	An_Temp	Single	4
Preheating time	An_Time	Single	4
TOL 'delay' channels	Delay	Small Integer	2
TOL 'on' channels	On	Small Integer	2
TOL 'off' channels	Off	Small Integer	2
Irradiation time	IRR_Time	Single	4
Irradiation type (alpha, beta or gamma)	IRR_Type	Byte	1
Irradiation dose rate (Gy/s)	IRR_DoseRate	Single	4
Irradiation dose rate error (Gy/s)	DoseRateErr	Single	4
Time since last irradiation (s)	TimeSinceIrr	Long Integer	4
Time unit (time tick) for pulse parameters (s)	TimeTick	Single	4
On-time for pulsed stimulation (in time ticks)	OnTime	Long Integer	4
Stimulation period (on+off time in time ticks)	StimPeriod	Long Integer	4
PMT signal gating enabled	GateEnabled	Byte	1
Start of gating (in time ticks from start of on pulse)	GateStart	Long Integer	4
End of gating (in time ticks from start of on pulse)	GateEnd	Long Integer	4
Photon Timer enabled	PTenabled	Byte	1
PMT dead time correction enabled	DTenabled	Byte	1
PMT dead time (s)	DeadTime	Single	4
Stimulation power corresponding to 100% (mW/cm^2)	MaxLPower	Single	4
XRF acquisition time (s)	XrfAcqTime	Single	4
XRF X-ray high voltage (V)	XrfHV	Single	4
XRF X-ray current (uA)	XrfCurr	Long Integer	4
XRF dead time fraction	XrfDeadTimeF	Single	4
Reserved for internal use		Byte	24
Length of header			*447*
Data			
Data array of NPOINTS Long Integers	DPoints	Long Integer	4x NPoints

Notes:

† The records are of a variable length since the number of data points recorded (NPOINTS) may vary from one to 9,999 (this may be expanded in the future). A record with a single data point in it will be 423+(1x4) = 427 bytes long, while one with 2000 data points will be 423+(2000x4) = 8423 bytes long. Thus there is a considerable saving of disc space by having semi-variable length records. However, once created the length of the record is fixed (it does not make sense to be able to delete or add single data points) and is recorded in the variable LENGTH. This allows the program to be able to step through from one record to another without having to search for specific end of record markers. In order to be able to move UP through a file the length of each previous record is also stored in a record (this will be zero in the first record).

Strings are stored in Pascal format. That is with an additional byte used to define the length of the string. Thus the number of bytes used to store the string is one byte longer than the string itself. Thus the Date is stored as a 6 character string (ddmmyy), but this requires 7 bytes.

‡ The different types of luminescence that can be specified are as follows:-

Value	LTYPE	Description	Associated device
0	TL	Thermoluminescence	-
1	OSL	Optically stimulated luminescence	OSL lamp / Blue diodes
2	IRSL	Infrared stimulated luminescence	IR diode array or IR laser
3	M-IR	Infrared monochromator scan	IR monochromator
4	M-VIS	Visible monochromator scan	Visible monochromator
5	TOL	Thermo-optical luminescence	Any optical stimulation
6	TRPOSL	Time Resolved Pulsed OSL	Any optical stimulation
7	RIR	Ramped IRSL	IR diode array or IR laser
8	RBR	Ramped Blue LEDs	Blue diodes
9	USER	User defined	-
10	POSL	Pulsed OSL	Blue or IR diode arrays
11	SGOSL	Single Grain OSL	Green or IR laser
12	RL	Radio Luminescence	Beta irradiation source
13	XRF	X-ray Fluorescence	X-ray unit

The various data types specified by DTYPE are primarily designed for use when calculating equivalent doses. The different data types are as follows.

Value	Data Type	Irr.	Bl.
0	Natural		
1	N+dose		
2	Bleach		
3	Bleach + dose		
4	Natural (Bleach)		
5	N+dose (Bleach)		
6	Dose		
7	Background		

* The values for the light source are as follows:

Value	Light Source

0	None
1	Lamp
2	IR diodes / IR Laser
3	Calibration LED
4	Blue Diodes
5	White light
6	Green laser (single grain)
7	IR laser (single grain)

V.4 (file extension: bin)

The file format us used by Sequence editor V.4.00 to V.4.12

Description	Name	Type	Length (bytes)
Data format version number	Version	Small Integer	2
Length of this record (†)	Length	Small Integer	2
Length of previous record (†)	Previous	Small Integer	2
Number of data points	NPoints	Small Integer	2
Luminescence type (‡)	LType	Byte	1
Low (temperature, time, wavelength)	Low	Single	4
High (temperature, time, wavelength)	High	Single	4
Rate (heating rate, scan rate).	Rate	Single	4
Sample temperature	Temperature	Small Integer	2
X position of a single grain	XCoord	Small Integer	2
Y position of a single grain	YCoord	Small Integer	2
TOL 'delay' channels	Delay	Small Integer	2
TOL 'on' channels	On	Small Integer	2
TOL 'off' channels	Off	Small Integer	2
Carousel position	Position	Byte	1
Run number	Run	Byte	1
Data collection time (hh-mm-ss)	Time	String	7
Data collection date (dd-mm-yy)	Date	String	7
Sequence name	Sequence	String	9
User name	User	String	9
Data type (#)	Dtype	Byte	1
Irradiation time	IRR_Time	Single	4
Irradiation type (alpha, beta or gamma)	IRR_Type	Byte	1
Irradiation unit (Gy, Rads, secs, mins, hrs)	IRR_UNIT	Byte	1
Bleaching time	Bl_Time	Single	4
Bleaching unit (mJ, J, secs, mins, hrs)	Bl_Unit	Byte	1
Annealing temperature	An_Temp	Single	4
Annealing time	An_Time	Single	4

Normalisation factor (1)	Norm1	Single	4
Normalisation factor (2)	Norm2	Single	4
Normalisation factor (3)	Norm3	Single	4
Background level	BG	Single	4
Number of channels to shift data	Shift	Small Integer	2
Sample name	Sample	String	21
Comment	Comment	String	81
Light Source (*)	LightSource	Byte	1
Set Number	Set	Byte	1
Tag	Tag	Byte	1
Grain Number	Grain	Small Integer	2
Optical Stimulation Power	LightPower	Single	4
System ID	SystemID	Small Integer	2
Reserved for internal use			20
Curve number (for multible curve operations)	CurveNo	Small Integer	2
Time unit for pulse parameters	TimeTick	Single	4
On-time for pulsed stimulation (in time ticks)	OnTime	Long Integer	4
Stimulation period (on+off time in time ticks)	StimPeriod	Long Integer	4
PMT signal gating enabled	GateEnabled	Byte	1
Start of gating (in time ticks from start of on pulse)	GateStart	Long Integer	4
End of gating (in time ticks from start of on pulse)	Gateend	Long Integer	4
Photon Timer enabled	PTenabled	Byte	1
Reserved			10
Length of header			*272*
Data array of NPOINTS Long Integers	DPoints	Long Integer	4 x NPOINTS

V.3 (file extension: bin)

The file format us used by Sequence editor V.3.xx

Description	Name	Type	Length (bytes)
Data format version number	Version	Small Integer	2
Length of this record (†)	Length	Small Integer	2
Length of previous record (†)	Previous	Small Integer	2
Number of data points	NPoints	Small Integer	2
Luminescence type (‡)	LType	Byte	1
Low (temperature, time, wavelength)	Low	Single	4
High (temperature, time, wavelength)	High	Single	4
Rate (heating rate, scan rate).	Rate	Single	4

Sample temperature	Temperature	Small Integer	2
X position of a single grain	XCoord	Small Integer	2
Y position of a single grain	YCoord	Small Integer	2
TOL ‘delay’ channels	Delay	Small Integer	2
TOL ‘on’ channels	On	Small Integer	2
TOL ‘off’ channels	Off	Small Integer	2
Carousel position	Position	Byte	1
Run number	Run	Byte	1
Data collection time (hh-mm-ss)	Time	String	7
Data collection date (dd-mm-yy)	Date	String	7
Sequence name	Sequence	String	9
User name	User	String	9
Data type (#)	Dtype	Byte	1
Irradiation time	IRR_Time	Single	4
Irradiation type (alpha, beta or gamma)	IRR_Type	Byte	1
Irradiation unit (Gy, Rads, secs, mins, hrs)	IRR_UNIT	Byte	1
Bleaching time	Bl_Time	Single	4
Bleaching unit (mJ, J, secs, mins, hrs)	Bl_Unit	Byte	1
Annealing temperature	An_Temp	Single	4
Annealing time	An_Time	Single	4
Normalisation factor (1)	Norm1	Single	4
Normalisation factor (2)	Norm2	Single	4
Normalisation factor (3)	Norm3	Single	4
Background level	BG	Single	4
Number of channels to shift data	Shift	Small Integer	2
Sample name	Sample	String	21
Comment	Comment	String	81
Light Source (*)	LightSource	Byte	1
Set Number	Set	Byte	1
Tag	Tag	Byte	1
Grain Number	Grain	Small Integer	2
Optical Stimulation Power	LightPower	Single	4
System ID	SystemID	Small Integer	2
Reserved for internal use			36
On-time for pulsed stimulation (s) (#)	OnTime	Single	4
Off-time for pulsed stimulation (s) (#)	OffTime	Single	4
Enable flags (PMT Gating and Photon Timer enable) (#)	EnableFlags	Byte	1
On-gate delay (s) (#)	OnGateDelay	Single	4
Off-gate delay (s) (#)	OffGateDelay	Single	4
Reserved			1
Length of header			*272*

Data array of NPOINTS Long Integers	DPoints	Long Integer	4 x NPOINTS

Notes:

The pulsing parameters are only stored from Sequence Editor V.3.30 and onwards

Arranging Windows and Icons

If several windows are open or reduced to icons, you may need to arrange the windows and icons so that you can see them all.

To arrange windows

From the Window menu choose Tile Vertically from the Window menu to arrange windows side by side so that they do not overlap.
Or choose Tile Horizontally from the Window menu to arrange windows top to bottom so that they do not overlap.
Or choose Cascade to arrange windows so that they overlap (starting in the upper-left corner of the application window). The title bar of each window remains visible

To arrange icons

From the Window menu, choose Arrange Icons.

To maximize a window

double click the title bar or click the maximize button.

Support

To report any problems encountered while using your Risø TL/OSL Reader or to make inquiries regarding software upgrades and additional hardware options, please feel free to contact us in any of the following ways:

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+ By mail:

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