DIAdem™

DIAdem-CLIP Manual

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1 Overview

The purpose of DIAdem-CLIP is the simultaneous display of data and video sequences. Move the cursor along the trace and DIAdem-CLIP shows the associated video images simultaneously. Depending on the task, a video sequence or a data window can be used as reference for the scrolling.

If you want to see another video in DIAdem-CLIP, take the video sequence from the Navigator and drop it into a video window. Adding data channels to the trace window is equally simple. A Quickview function for data and video information makes sure that you select the right data and video files.

The measured data is supplied by various sensors, and is acquired by LabVIEW, for example and stored in the DIAdem data format. The film sequences originate from cameras that provide the appropriate pictures for an evaluation. The film material must be available in digital form (AVI format).

You determine the extent of your evaluation by defining the layout of your screen. Display one or multiple videos or trace windows and save the layouts as templates for future evaluations

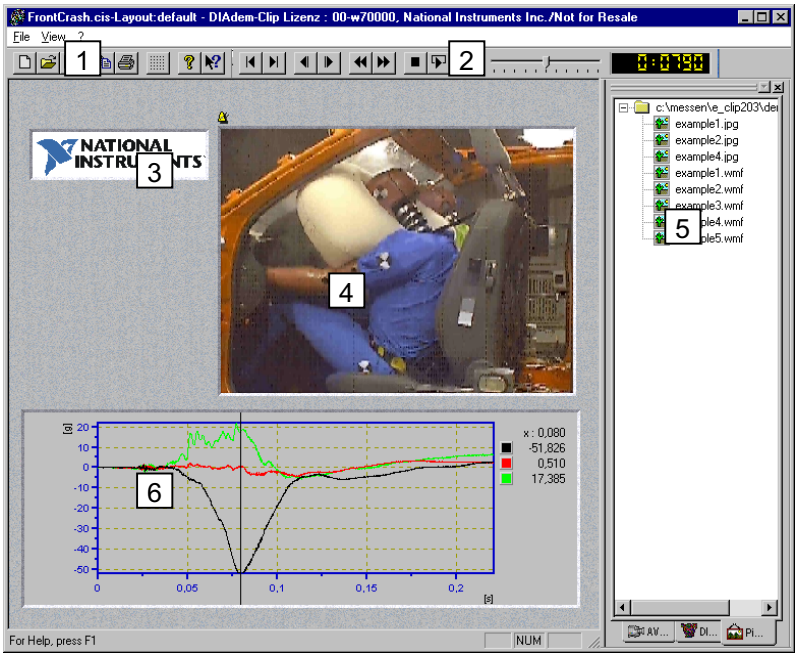
1.1 Screen Structure

Films are displayed in video windows. The measured data appears as curves in axis systems. Both objects are arranged in the Report generation area and can be stored with additional graphics as a Layout. Bitmaps can be added to enrich the presentation with the company logo or a photo of the object of research.

The data is displayed in DIAdem-CLIP similarly to Explorer, in what we call the data sources. From here, the data can be dragged and dropped into the report generation area. The view is displayed on the right edge of the DIAdem-CLIP window.

If time-dependent data (measured data and videos) is displayed, it can be controlled on the time axis using the Player bar. This bar is located to the right of the tool bar.

The DIAdem-CLIP window consist of the report generation area at the left and the data source at the right. Above are the tool bar and the player bar for loading and controlling the presentation. Some elements can be hidden using the View menu.



(1) **TOOL BAR:** With standard functions such as loading and saving a layout, grid, help function. (2) **PLAYER BAR:** The Player is used to animate the data projection as color shading or displacement onto the 3D model. (3) **BITMAP:** Enrich the presentation, e.g. with your logo. (4) **VIDEO WINDOW:** You define one or more to compare. (5) **DATA SOURCE:** You can switch the data, graphics, video, model files and online data, info by clicking the buttons at the bottom edge of the window. (6) **AXIS SYSTEM:** Showing one or more data curves simultaneously with the shading / displacement onto the model.

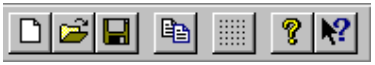
The objects in the report generation area are activated with a mouse click at the frame. Axis systems and video window are activated, moved, adjusted in size and deleted with the mouse. The mouse cursor is the user's right hand in the system.

A new window can be inserted from the Data Sources, by dragging the particular data channel or video and dropping it in the report generation area. Data channels can also be added to axis systems in this way.

The scene can then be saved. Alternatively, the layout of the report generation area can be saved in order to be used as the basis for further evaluations.

The evaluation is executed either with the mouse using the Player functions or synchronously by moving the cross-hair cursor in the axis system.

1.2 Tool bar



In the tool bar, the frequently used functions are arranged in symbolic form. Brief help for the command that is linked to the selected icon is also displayed, as well the tool tips in the status line. The toolbar can be displayed or suppressed from the view menu (cf. Presentation mode).


Deletes a scene, creates a default layout


Loads a scene


Saves a scene


Transfers the display to the **Clipboard**


Print layout


Switches **grid** on/off


Activates the **info** for the current version


Activates the context **help**

1.3 Player bar

The Player bar can be used to access the required picture in the reference film, which is marked by a yellow metronome. All the other displayed films are automatically positioned as well. The appropriate position on the curve is marked by a vertical line, in all axis systems.


Go to the **Start** of the video sequence(s)


Go to the **End** of the video sequence(s)


Rewind a picture


Forward a picture


Fast **rewind**

Fast **forward**

Stop evaluation

Autoreverse

Start single evaluation

Sets the play **speed**

Time display in thousandths of a second

1.4 Data source

In the data sources you can list and drag&drop different file types:

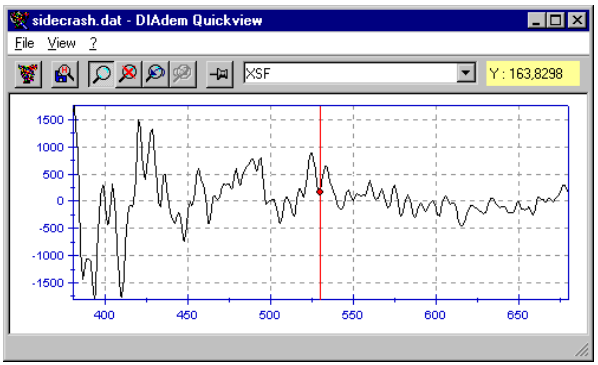
- AVI-files
- Data files (DIAdem format)
- Graphics files

You can toggle between these pages by clicking the tabs at the lower edge of the data sources. The directory structure is then displayed as a tree. If the window is too narrow to display a tree, it can be widened towards the presentation area.

If more directories are to be added, click a free position in the window with the right mouse button to get a **new directory**. If a directory has to be **deleted**, use the "Delete" entry in the context menu.

The files can be previewed with a double click or a right click, combined with the selection of the **Quickview,** e.g. data preview.

QuickView



The AVI files tab

 The page with the films shows all the directories defined by the customer for that page, with the AVI files.

The DIAdem files tab

 The page with the available data files stored in the DIAdem data format shows all the directories defined by the customer for the page with the DIAdem files present in them. Every entry in a DIAdem data file can be opened out and then shows all the channels in the file.

The Picture files tab

 Click the third tab to display graphics files, which can be incorporated in a layout.

1.5 Video window

One or more video windows can be defined in the report generation area. Video sequences are played in them. They are operated using the **Player bar** or **synchronously** using an active axis system.

Just as various video sequences can be played simultaneously for comparison purposes, measured data can also be displayed synchronously with the related videos. The measured data is displayed in the axis system as curves. In the synchronized video windows, the pictures are run at the same speed as the cursor is moved in the axis system.

To perform this kind of evaluation, the film has to be in digital form. Films that have been made conventionally, have to be digitalized and saved in the AVI format.

The following functions are available in the context menu of the video window.

Switch **zoom** mode on/off.

No zoom: Returns the graphic to the original size.

Last zoom: Returns the graphic to the sizeof the last zoom.

Next zoom: Changes the graphic to the size of the next zoom.

Output to **clipboard**

Calls the dialog for setting the **parameters of the synchronization** (see below)

1.6 Axis system

In the axis system in the report generation area, measured data is displayed as curves over time. Several data channels can be displayed in one axis system. Axis systems are created from the data sources with Drag&Drop and data channels can also be added. Data channels can be deleted with the appropriate icon in the legend.

If the axis system is synchronized with a video window, a **cross-hair cursor** can be moved along the measured points, while the related video pictures are shown.

The following functions are available in the *context menu of the axis system*.

Switch **zoom** mode on/off. When the zoom is switched off, the last enlargement is retained.

No zoom; i.e. the original scaling is restored.

Last zoom: Returns the graphic to the size of the last zoom.

Next zoom: Changes the graphic to the size ofthe next zoom.

Switches **legend** on and off

Scaling to extract/graph.

Output to **clipboard**

2 Presentation

If a **scene** has been loaded it can be played from the player bar. The function icons are similar to those on a video recorder. Different views of the same data projection can thus be compared to each other.

If measurement data and the model have to be evaluated, synchronous projection via the crosshair cursor of the axis system is recommended. The axis system has to be the active window i.e. it has to have the yellow metronome icon.

Open Layout...

If a **template** has been loaded via the File menu the windows have to be filled with data by Drag&Drop from the different data sources.

To **create a new layout or evaluation** the presentation area can be emptied first. Any new object is then dragged from the data sources and dropped onto the presentation area. There, each active element can be positioned and sized with the mouse.

3 Working with DIAdem-CLIP

The major function of DIAdem-CLIP is the synchronized display of films and measured curves. The evaluation is executed either with the mouse using the Player functions or synchronously by moving the cross-hair cursor in the axis system.

The measured data is supplied by various sensors, the film sequences originate from cameras that provide the appropriate pictures for an evaluation.

Synchronizing Videos and Graphs

The precondition is to synchronize the display of films and measured curves. For screen evaluation, the pictures in the film are synchronized with the related measured values. If two films are compared to each other, they have to be synchronized as well.

Videos
For films, this time information can be obtained from the frame rate (no. of pictures/seconds) and the starting time of the recording. From these two values, DIAdem-CLIP can determine a related time value for every video picture.

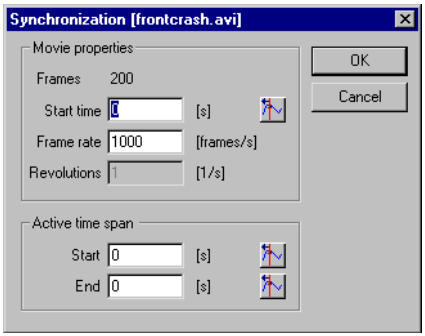
The synchronization parameters are opened via the context menu of a video window (see below).

Video and curves
For the curves, there is a time value for every point on the curve and this corresponds to the X value on the curve.

The synchronization parameters are opened via the context menu of a video window (see below).

Synchronization parameters

The synchronization parameters are called via the context menu of the video window.



Start time	Playing time for the picture in the reference picture.  When this button is pressed, the time value of the current picture is accepted.
Frame rate	This specifies the recording speed [pictures/seconds].
Revolutions	Determining the rotation angle

Apart from the film parameters, an **active area** can also be defined. The active area means the measurement range in the axis system that the particular video sequence corresponds to. It may include the entire X axis. If it only includes a section, the beginning and the end have to be defined.

Begin	The first picture belongs to this value.  Press the button to take over the current time value the cursor in the active window is located at.
End	The last picture belongs to this value.  Press this button to take over the current time value the cursor of the activated window is currently located at.

Active window

DIAdem-CLIP manages a central time value to which all films and curves are synchronized. This time value is displayed in the player bar. The central time value is defined by the window (video or curve) to which the yellow metronome symbol is assigned. This

"Master window", which is also called the "Active window", provides the time value to which all the other windows are oriented.

The other windows are orientated as synchronously as possible to this time value.

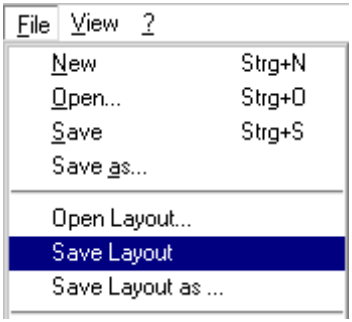
Example**:** The windows are controlled by moving the cursor in the axis system. The graphs in this window were acquired with 10 kHz. The video window contains a video that was recorded at 1000 pictures per second (1 kHz). If the metronome is now assigned to the axis system, DIAdem-CLIP automatically searches for the video picture that comes closest to the time axis of the axis system. The varying acquisition rates mean that one picture is assigned to 10 measured points.

4 Saving Presentation and Creating Templates

The complete file can be saved as a presentation. A presentation includes the layout and the links to the different data sources (data, video, bitmap).

Layouts can be created for repeated evaluations made for similar tests, and used as templates. A layout includes everything that has been defined in the report generation area: video windows and axis systems. The current values can be dragged from the data sources and dropped into the axis system or the video window, thus reducing the preparations to a minimum.

A document template can be stored as a new template / layout at any time.



4.1 Presentation mode

Elements such as the data sources, menu bar and tool bar are required when working with DIAdem-CLIP. If the results are to be presented, these tools can be cut. There are 2 different switches for activating the presentation mode:

Alt U The report generation area takes up the entire screen ...

Ctrl U … and the screen is maximized.

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