imc FAMOS 7.5

What is new

Foreword

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imc FAMOS Update Info

This chapter lists all new features and changes implemented with this version.

A **complete history of the update information** of all versions can be found in the **CHM help** under "*C: \Program Files\imc\imc\imc FAMOS Version\Hlp\de\imc_FAMOS_WhatsNew.chm*". This is also part of the help, which you can open with F1 in imc FAMOS.

1 imc FAMOS Update-Info (Version 7.5)

1.1 Sequence functions

It is good practice to outsource recurring tasks or even complete analysis algorithms to encapsulated functions. This provides clearer structure to large-scale projects, making them easier to understand, expand and maintain. It also facilitates sharing of such know-how within work groups: all contributors and users benefit from centralized maintenance of function collections in order to work productively; no need to re-invent the wheel.

The new "**Sequence functions**" constitute such personally written sequences and offer the following advantages over simple subsequences:

- Clear separation of transferred (input/output) data from the internal, implicitly local variables. This helps avoid common mistakes such as accidently changing an iteration index in the calling sequence…
- Use of arbitrary variable names in the calling sequence is achieved by **declaring** any desired count of input and output variables to be transferred, with definable types.
- **Description** of the function and its parameters, displays in the online help and support by the Functions Assistant are provided just as for standard FAMOS functions.
- Organization of the sequence functions in a **library** which can be subjected to centralized management (e.g. on a **company server**).
- A **password mechanism** can be used to provide protection for sensitive know-how.
- Simply **drag & drop** from the tree diagram into the target sequence.
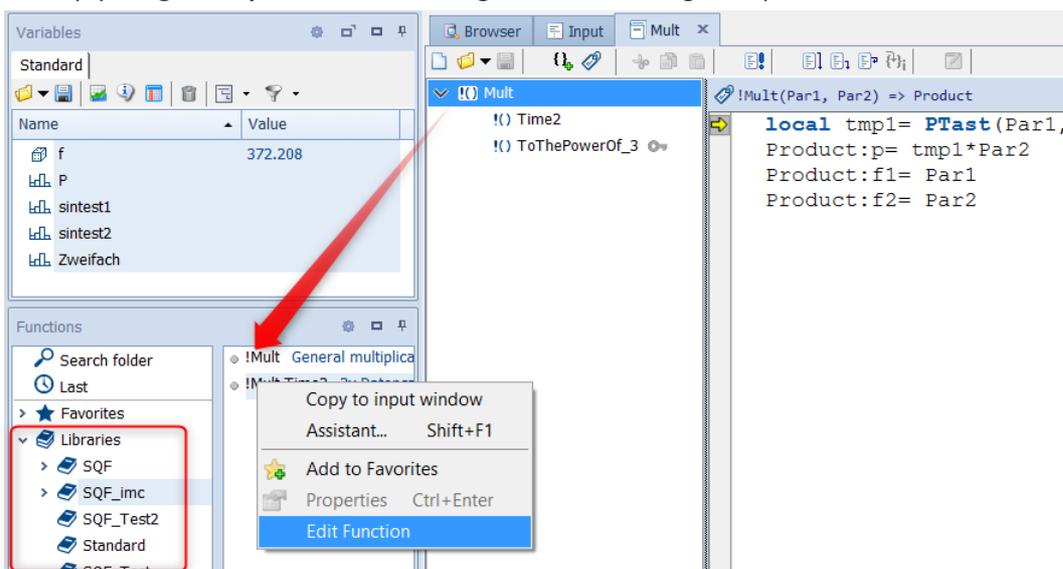
Sequence functions are saved in a new file format and are denoted by the **file extension "**.*sqf***"**. The ".seq"-file format for classic sequences is not compatible with it. Older FAMOS-versions are not able to interpret SQF sequences.

## 1.2 Import and export of imc FAMOS configurations

Both small work groups and the administrators of large organizations, not to mention anyone changing their PC, will often face the same challenge: how to restore customized work environments identically as they were before:

Installation of imc FAMOS needs to be performed at multiple worksites in a simple and automated manner, while applying custom compositions of settings and other supplemental files and components. The new tool "*imc FAMOS Configuration Im & Export*" enables this to be achieved reliably and conveniently with a just a few mouse clicks:

- imc FAMOS global options, menu layouts
- Favorites, data sources and Panel-templates
- Data filters, pre-defined sequences and libraries
- All kinds of templates for projects, curve configurations, sequences, reports, logos etc.
- Import to or installation on the target system can even be executed via console command line ("xconfig -i PathToFamosCfgZip")

This makes customized but yet efficient system rollout a simple matter. The time saved and troubles avoided for the user can be enormous. Content once prepared is then immediately available for anyone, to the great increase of productivity. Even uniform style guides can be easily implemented in this way, improving communication and quality.

imc FAMOS configuration im- & export (filename:xconfig2.exe) is exclusively for installation of the 64-bit version of imc FAMOS. The user interface is only available in **English**.
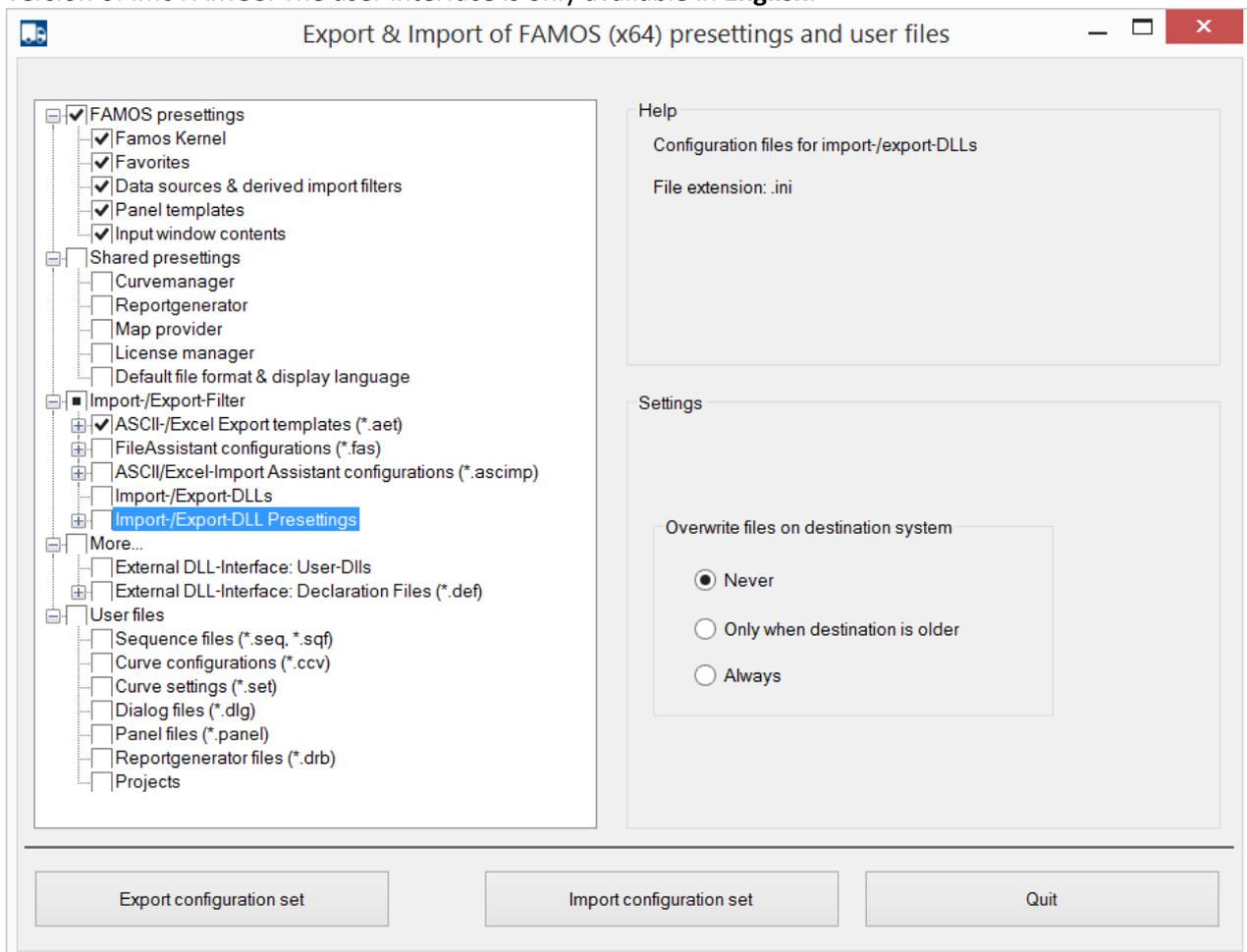
imc FAMOS Configuration Im,- & Export user interface
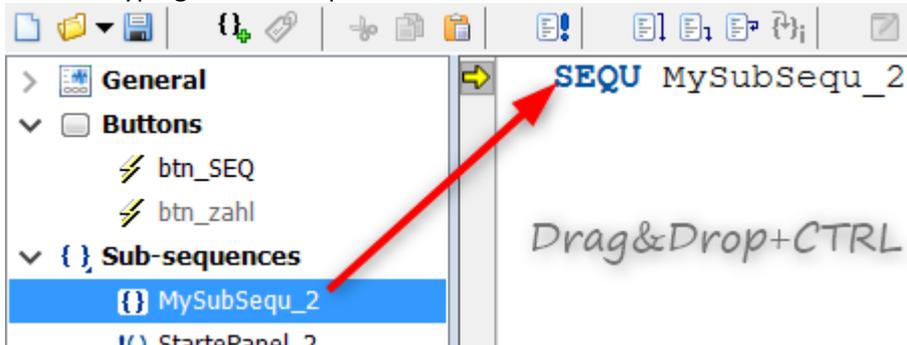
1.3 Functions

New functions

- ***Video functions****:* Video-reports represent a new multimedia format supplementing or replacing reports in pdf-format. Using just a set of functions, a sequence can automatically extract pictures of Panels and curve windows and compile these to a video film. By specifying appropriate pause intervals, one can easily create an attractive and intuitively understandable presentation in the style of a "stop-motion" animation.
  This opens new horizons for illustrating complex results and relationships in a well-controlled and logically organized order. As well, external pictures, graphics and photos can be included. The complete "animation" can be rendered as a standard video file (mp4) to be replayed back even beyond the imc FAMOS environment on any desired platform.

  - *VFOpen*(): A video file is opened and prepared for subsequent appending of individual images.
  - *VFAppendPanelSnapshot*(): A page of the active Panels is exported as a bitmap and it is appended to a video file previously opened with VFOpen().
  - *VFAppendCwSnapshot*(): The content of the currently selected curve window is exported to a bitmap which is then appended to a video file previously opened by VFOpen().
  - *VFAppendFrame*(): A bitmap is loaded from an image file and appended to a video file previously opened with VFOpen().
  - *VFAppendRGBData*(): An RGB-data set is converted to a bitmap or a series of bitmaps, and this is appended to a video file previously opened with VFOpen().
  - *VFClose*(): A video file is closed and the content is written to the data carrier.

- **Video player**: New function *VpGetImages*(): Modern data acquisition software such as imc STUDIO allows recording of video data in synchronization with conventional analog measurement data, as well as with vehicle or field busses, in order to comprehensively asses a complex testing process. The analysis procedure must integrate such different perspectives, and subject these to thorough evaluation. This might require to address a specific point in time within a video stream and to extract individual frames. The new video grabber-function "*VpGetImages*()" provides this capability. In conjunction with the new formats for pixel and bitmaps this allows for numerical analysis of image data.

- In group "***Variable/Properties***":

  - *VerifyVar*(): Checks whether a variable meets specified conditions.

- **Exceptions** and **error handling**

  The handling of errors and exceptions while executing the sequence can now be governed in detail by means of commands in new group "***Sequences/Error handling***":

  - *OnError*(): This function determines how FAMOS is to respond to an error occurring during execution of a sequence.
  - *ThrowError*(): Generates an error
  - *LogSetup*(): Configure log output
  - *LogTrace*(): Outputs a text to the output window or a file.
  - *GetLastError*(): Gets last error.

The following functions have been expanded

- With functions for controlling Panel-widgets, a list of all available widget titles is now offered as the first parameter.

1.4 Operating the editor

- While holding down the CTRL-key, you can use Drag&Drop on a sub-sequence to move it from the Sequences tree diagram to "SEQU name" in the input window; with classic sequences, this saves the effort of typing the sub-sequence's name.


D&D of a classic sequence

- While holding down the CTRL-key, you can use Drag&Drop on a sub-sequence to move it from the Sequences tree diagram to the input window opens the call mask of the sub-sequence functions.
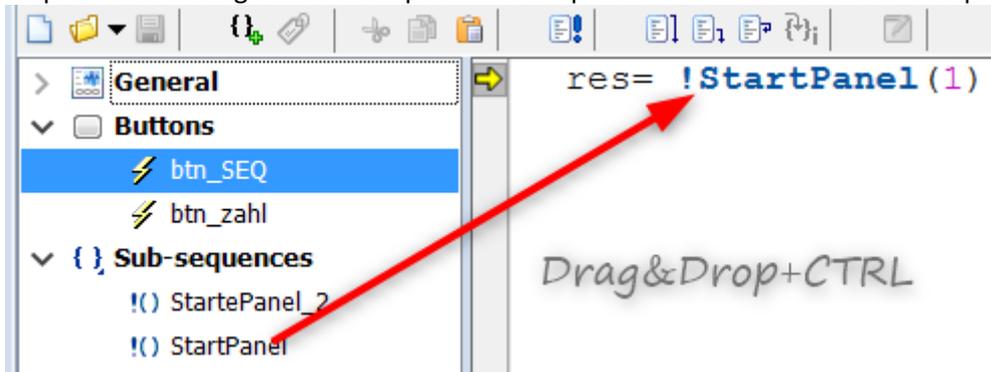
D&D of a sequence function

- Copy/Paste for sub-sequences/sequence functions (in the context menu of the sequence tree diagram): This provides a quick way to generate variants of sub-sequences.
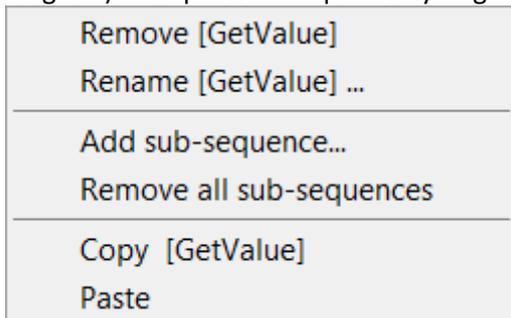
- Supplemental Debugger option: "*Always break on error*". This allows the preset for OnError 6 () to be overwritten.
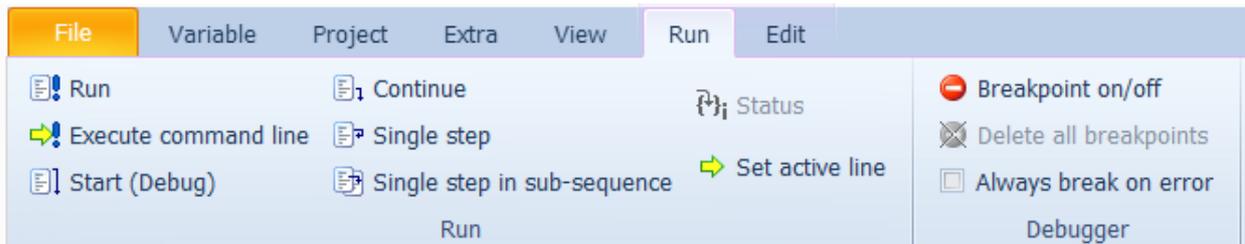
Direct declaration of text boxes now possible, for example:
```
MyTextbox = ["cold", "normal", "warm", "hot"]
```
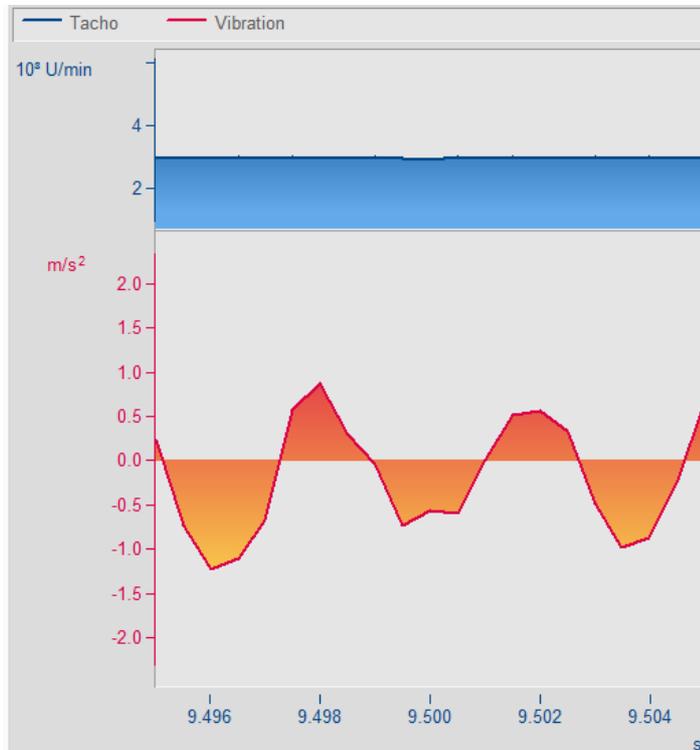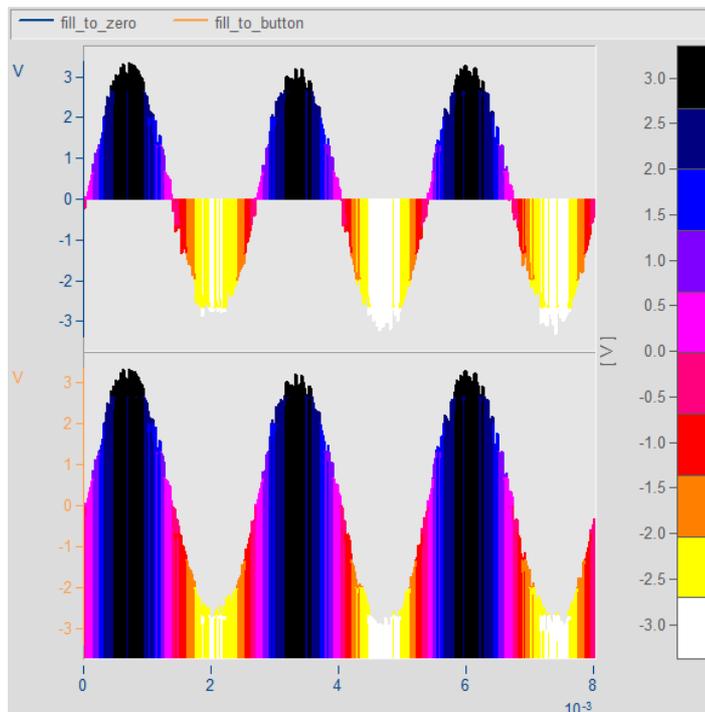
1.5 Curve window

1.5.1 Fill area

Fills the area below a line in a graph.

In the curve window menu *Configuration\Lines* the area under a line can now be filled with different color options.

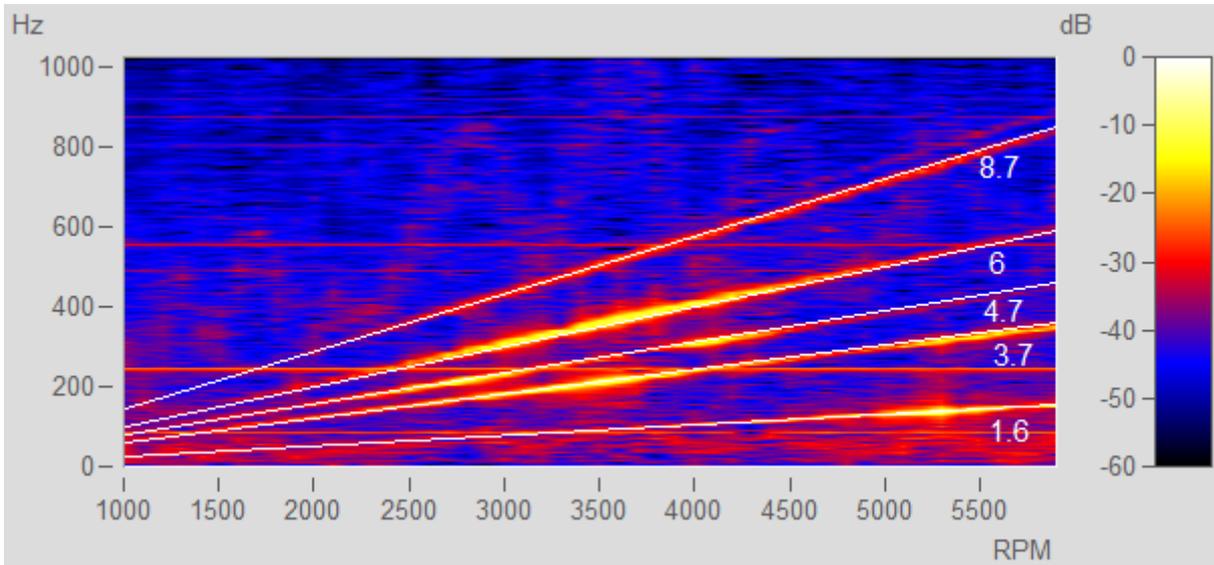With color palette *and Fill area to zero* and *Fill area to bottom*.

Fill area with color palette and fill area to zero and fill area to bottom.
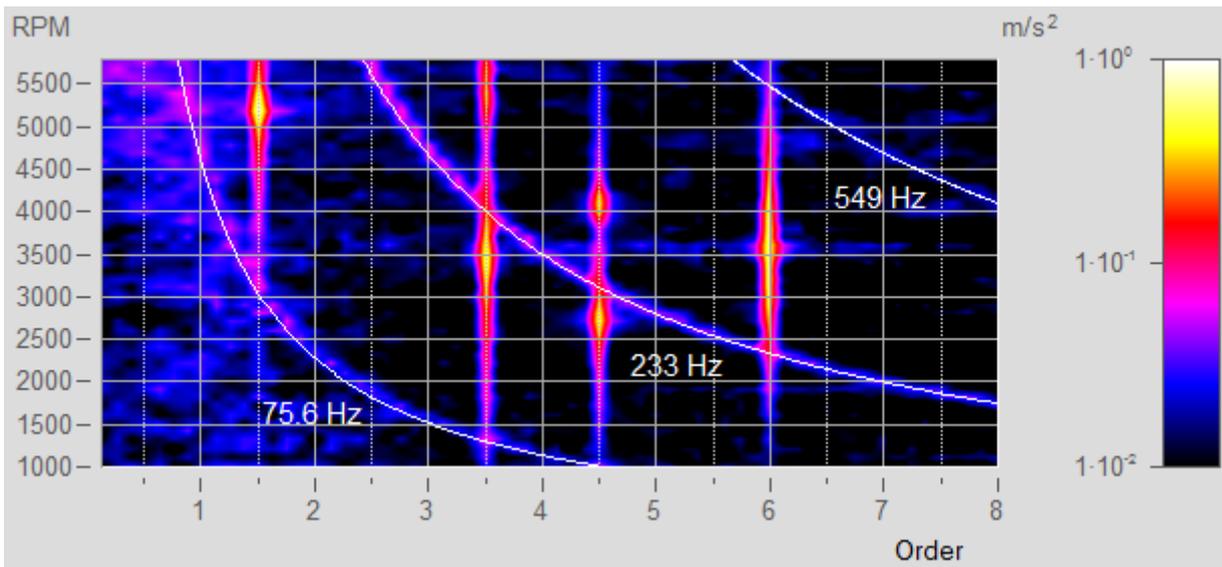
1.5.2 Marker-Order line

The curve window is now able to display order lines and hyperbola functions.

For this purpose, the Marker-menu has been supplemented with the item 🖊 Order line.

Amplitude spectrum with frequency over RPMs

RPM and order

1.5.3 Picture as a variable

The data format has been supplemented with a "Colors-flag 12". This enables the mathematics functions in FAMOS to interpret values as RGB values (for 4-Byte unsigned Integers) or grayscale (for 1-Byte unsigned Integer values).
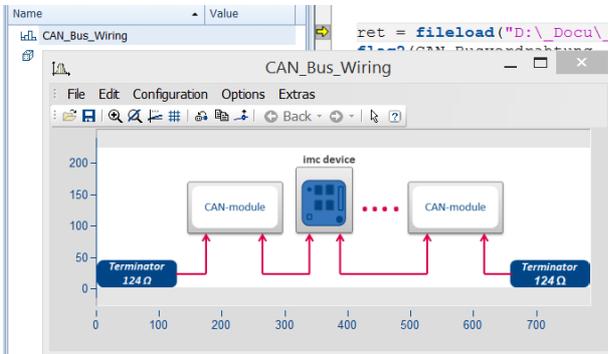

If the data are additionally segmented, the curve window displays the data set as an image.

The Colors-flag is set automatically, for example, when an image is loaded using the **FileLoad**() command and the format specification "*Picture Format*". Otherwise, the property in the curve window can be set using the menu item *Configuration\Lines\Extras: Effect*.

1.5.4 Freely defined texts

The page "*Text*" of the Display dialog provides the ability to position any desired texts, e.g. for captions, headers and footers, or general comments.
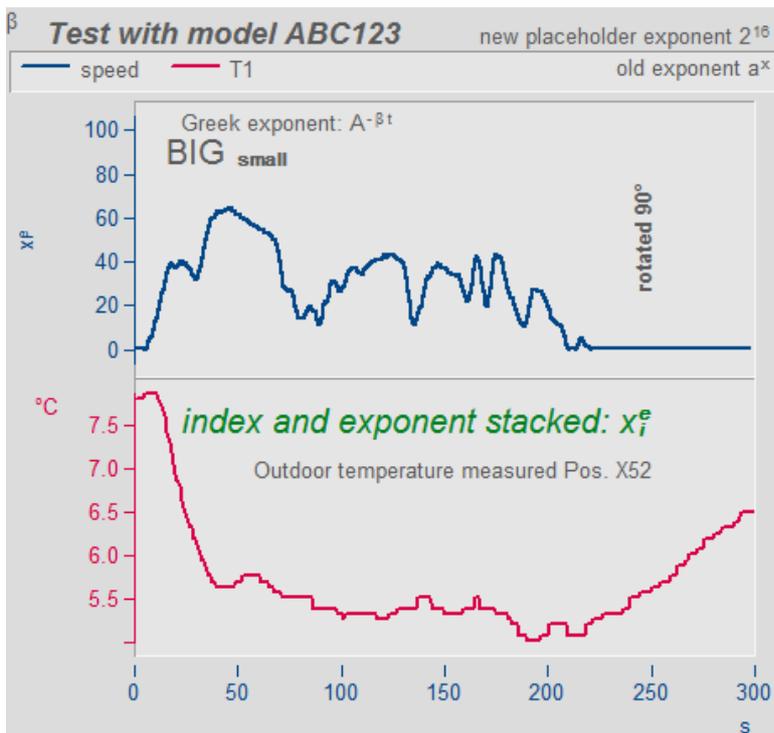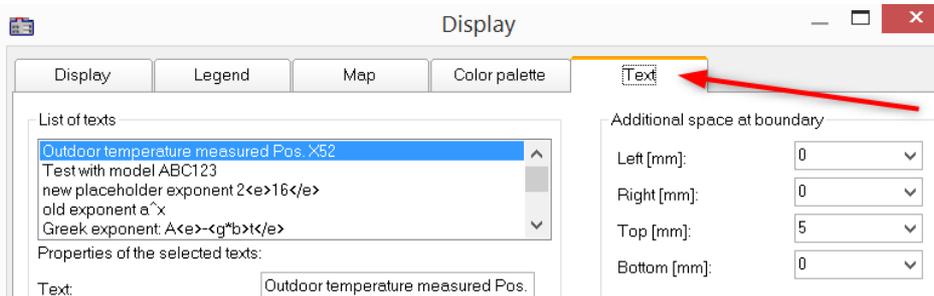
For this purpose, the functions in the curve window kit have been supplemented.

Example

CwDisplaySet("header.count", 5)
CwSelectByIndex("header", 1)
CwDisplaySet("header.text", "TEXTMITTE")
CwDisplaySet("header.position", 8)
CwDisplaySet("header.text.color", 255)

The additional space at the edge is adjusted using the "*legend.x*" functions.
CwDisplaySet("legend.space.left", 10.4)
CwDisplaySet("legend.space.right", 4.7)
CwDisplaySet("legend.space.top", 10)
CwDisplaySet("legend.space.bottom", 10)

1.6 ASCII/EXCEL Import Assistant

Using a period as the separator for the thousands' digit is now supported. Previously, a period was only interpreted as the marker of the decimal position.

1.7 Data format

Colors-flag

Pictures, colors, pixel values etc. are supported in the new imc3 data format by the Colors-flag. This interprets amplitude values as either RGB-color values (4 Byte) or grayscale (1 Byte).

A complete picture (bitmap) is then represented by a segmented data set, where the format (height/width) corresponds to the number of segments and samples/samples.

The curve window goes to "Image mode 10" when the flag is set and the data set is segmented. In order to achieve a useful result, mathematics functions or functions for video analysis may need to evaluate this flag (e.g. interpolation functions). This also applies when, for example, one line of the whole data set is extracted and passed to a function.

HDF5 and Matlab 7.3

The data format HDF5 ("Hierarchical Data Format") is prevalent in scientific fields, where it serves to handle very large volumes of numerical data. It is supported by many platforms such as Java, Python, R or Mathematica. Matlab uses it as its default format (e.g. in Matlab R2018b). imc FAMOS 7.5 provides an importer for this rather complex format. It thus builds a firm bridge to numerous data pools, allowing the user to choose the best and most appropriate tool for the respective task to accomplish.