

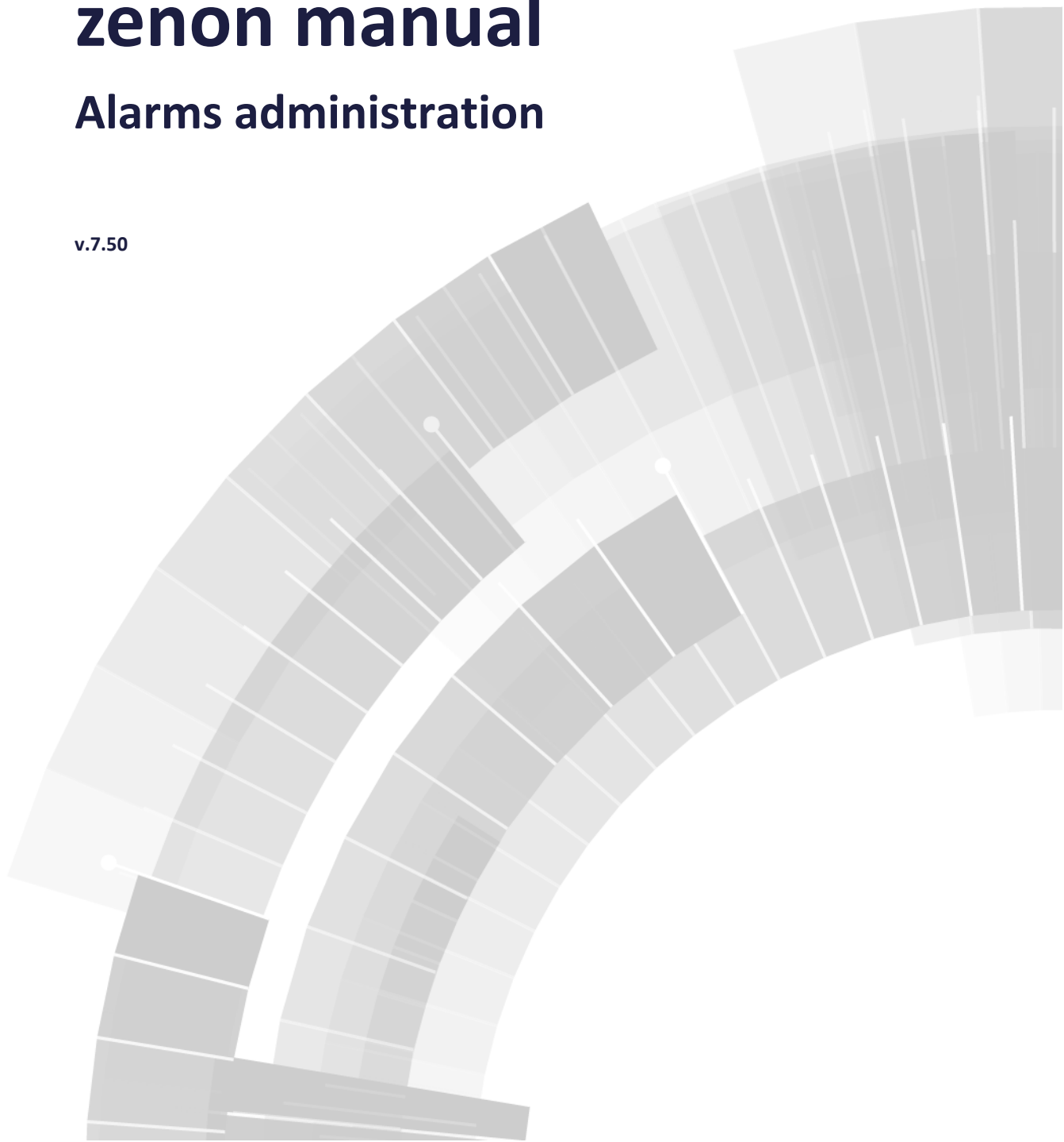


**COPADATA**  
do it your way

# zenon manual

## Alarms administration

v.7.50





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# 1. Welcome to COPA-DATA help

## GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to [documentation@copadata.com](mailto:documentation@copadata.com) (<mailto:documentation@copadata.com>).

## PROJECT SUPPORT

You can receive support for any real project you may have from our Support Team, who you can contact via email at [support@copadata.com](mailto:support@copadata.com) (<mailto:support@copadata.com>).

## LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email [sales@copadata.com](mailto:sales@copadata.com) (<mailto:sales@copadata.com>).

# 2. Alarms administration

Alarm administration informs you of faults that occur such as limit values being exceeded. It comprises:

1. Alarm status line: (on page 149)  
Information line that is always shown in the foreground in Runtime and contains, depending on the configuration, the most recent or oldest unacknowledged alarms.
2. Alarm Message List (AML) (on page 151):  
Administers the alarms in a list in Runtime. The AML:
  - Displays alarms and their causes in an unfiltered or filtered list
  - Enables localization of the cause of the alarm

- Enables acknowledgment of alarms
- Enables deletion of alarms.
- Enables printing and saving of alarms

*Configure (on page 31) alarms by means of:*

- ▶ Setting limit values for variables
- ▶ With reaction matrices
- ▶ Properties of the alarms



#### License information

*Part of the standard license of the Editor and Runtime.*

## 3. Configuring alarms

Alarm administration is operated in Runtime using `alarm message list` screens and `alarm message list filters` as well as the alarm status line. The alarm status line is automatically created as a template.

### EDITOR

To be able to use alarms in Runtime, the following must be carried out in the Editor:

- ▶ A screen of **alarm message list** type (on page 7) can be configured
- ▶ Limit value violations of variables or reaction matrixes are defined

In addition you can:

- ▶ Configure alarms using filters (on page 48)
- ▶ Grouping (on page 34) alarms
- ▶ Adapt the screens of **alarm message list** type (on page 14) that are available in Runtime

### RUNTIME

For the operation in the Runtime (on page 144) the following is used:

- ▶ AML screen switching (on page 111)
- ▶ AML filter screen switching (on page 114)

- ▶ The zenon alarm functions (on page 116)
- ▶ Using Alarm Message List screens (on page 166)
- ▶ Alarm status line (on page 149)

## 3.1 Creating an Alarm Message List screen

### CREATING AN ALARM MESSAGE LIST FILTER SCREEN

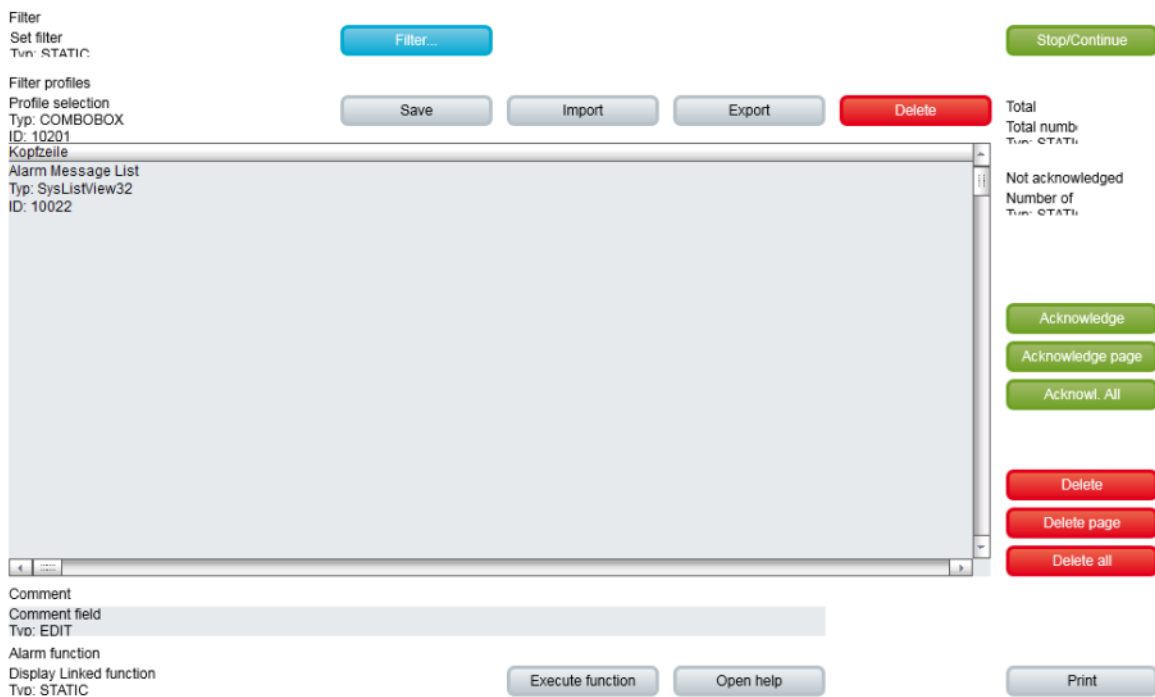
The Alarm Message List screen is for displaying and logging current and past alarms in Runtime. The display can be changed using a filter. Functions make it possible to export and print the displayed alarms.

#### ENGINEERING

Steps to create the screen:

1. Create a new screen:  
In the tool bar or the context menu of the **Screens** node, select the **New screen** command.  
An empty **Standard** screen is created.
2. Change the properties of the screen:
  - a) Name the screen in the **Name** property.
  - b) Select **Alarm Message List** in the **Screen type** property.
  - c) Select the desired frame in the **Frame** property.
3. Configure the content of the screen:
  - a) select menu item **Control elements** from the menu bar
  - b) Select **Insert template** in the drop-down list.  
The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.
  - c) Remove elements that are not required from the screen.
  - d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.

#### 4. Create a screen switch function.



### 3.1.1 Control elements

#### INSERT TEMPLATE

| Parameters             | Description   |
|------------------------|---|
| <b>Insert template</b> | <p>Opens the dialog for selecting a template for the screen type.</p> <p>Templates are shipped together with zenon and can also be created by the user.</p> <p>Templates add pre-defined control elements to pre-defined locations in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the screen. Elements can be moved on the screen and arranged individually.</p> |

**Note:** For `dynamic text` or `switch` control elements, the respective functionality is assigned using the **Screen type specific action** property.



## CONTROL ELEMENTS

### WINDOW

| Control element                 | Description  |
|---------------------------------|--|
| <b>Window</b>                   | Display in Runtime   |
| <b>Alarm Message List</b>       | <p>Display of the alarms. The appearance is configurable (on page 12). Columns are set using the column settings (on page 84) filter in the screen switching.</p> <p>The <b>Column settings AML</b> property in the project properties in the <b>Alarm Message List</b> group are used to define the settings for export in CSV, XML and DBF. These also serve as a pre-setting for the screen switching function.</p> |
| <b>Set filter</b>               | Display of the currently-selected filter conditions.   |
| <b>Status</b>                   | Display if Alarm Message List is active or not (Project property <b>Alarm Message List active</b> ).   |
| <b>Total number</b>             | Shows number of all alarms.  |
| <b>Number of unacknowledged</b> | Displays number of unacknowledged alarms.  |

### LIST FUNCTIONS

| Control element          | Description  |
|--------------------------|--|
| <b>List functions</b>    | Buttons to control the lists.  |
| <b>Filter</b>            | Opens dialogs for filter selection.  |
| <b>Stop/Continue</b>     | <p>Switch for filling the list:</p> <p><b>Stop:</b> New elements are no longer added automatically.</p> <p><b>Next:</b> New elements are added automatically.</p> <p><b>Attention:</b> The font of the button can be changed in the editor but is not carried over to Runtime. You can configure changes to the font using Language switching.</p> |
| <b>Print</b>             | Prints filtered list.  |
| <b>Print with dialog</b> | Opens printer settings before printing.  |

### ALARM FUNCTIONS

| Control element        | Description                                    |
|------------------------|--|
| <b>Alarm functions</b> | Buttons for acknowledging and deleting alarms. |
| <b>Acknowledge</b>     | Acknowledging alarm messages in Runtime.       |

|   |  |
|---|--|
| <b>Acknowledging page</b>                       | All alarms displayed on the current page are acknowledged.   |
| <b>Acknowl. All</b>                             | All alarms for the current filter criteria are acknowledged<br><br>Note for multi-user project: Alarms are only acknowledged for projects for which the user has authorizations. (for details on multi-user projects, see Distributed engineering chapter)   |
| <b>Visual acknowledgment</b>                    | The selected alarms are visually acknowledged (on page 159).   |
| <b>Visual acknowledgment and acknowledgment</b> | The selected alarms are first visually acknowledged and then acknowledged (on page 159).   |
| <b>Delete</b>                                   | Deletes alarm from the Alarm Message List in Runtime. Alarm must already be acknowledged.  |
| <b>Delete page</b>                              | Deletes all acknowledged alarms that are displayed on the current page.  |
| <b>Delete all</b>                               | Deletes all acknowledged alarms that correspond to the current filter criteria.  |
| <b>Linked function (display)</b>                | Displays the message allocated to the alarm message.   |
| <b>Execute function</b>                         | Executes the functions configured for the alarm in Runtime.<br><br>Note: With the <b>Start program</b> function, the variable name of the selected alarm can be transferred as a parameter for the program to be started using the key word <code>@alarm.name</code> .   |
| <b>Open Help</b>                                | Calls up configured Help.  |
| <b>Display</b>                                  | Status and elements of alarm administration.   |
| <b>Comment field</b>                            | Input of free text by the user for the selected alarm.<br><br>Maximum length: 79 characters<br><br>This text can also be displayed in the list. To do this, the <b>comment</b> option in the <b>column settings</b> of the alarm administration is activated.<br><br>The comment field is a <code>dynamic text</code> element. The <b>Setting values active</b> property is automatically activated for this element during configuration. In addition, the <b>Write set value via</b> property is set to the <code>element</code> value.<br><br>Changes to comments can be documented by activating the <b>Alarm comments</b> property. |

## NAVIGATION

| Control element | Description |
|-----------------|-------------|
|-----------------|-------------|

|                     |                                  |
|---------------------|----------------------------------|
| <b>Navigation</b>   | Controls elements of the list.   |
| <b>Line up</b>      | Scrolls one line up.             |
| <b>Line down</b>    | Scrolls one line down.           |
| <b>Column right</b> | Scrolls one column to the right. |
| <b>Column left</b>  | Scrolls one column to the left.  |
| <b>Page up</b>      | Scrolls one page up.             |
| <b>Page down</b>    | Scrolls one page down.           |
| <b>Page right</b>   | Scrolls one page to the right.   |
| <b>Page left</b>    | Scrolls one page to the left.    |

#### COMPATIBLE ELEMENTS

| Control element                  | Description  |
|----------------------------------|--|
| <b>Compatible elements</b>       | Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.   |
| <b>Status</b>                    | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Total number</b>              | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Number unfiltered</b>         | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Linked function (display)</b> | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Set filter</b>                | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Comment field</b>             | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.   |
| <b>Close frame</b>               | <p>Closes the frame on which the screen is based.</p> <p><b>Recommendation:</b> Use the <b>Close frame</b> function to close frames</p> <p>In order that after the closing the screen which was opened before is displayed, you must engineer the screen of type AML with its own frame.</p> |

## FILTER PROFILES

| Control element          | Description                               |
|--------------------------|---|
| <b>Filter profiles</b>   | Buttons for filter settings in Runtime.   |
| <b>Profile selection</b> | Select profile from list.                 |
| <b>Save</b>              | Saves current setting as a profile.       |
| <b>Delete</b>            | Deletes selected profile.                 |
| Import                   | Imports filter profiles from export file. |
| Export                   | Exports filter profiles in the file.      |



### Information

The current filter is displayed with the **Show filter** control element.

With a:

- ▶ Text filter, the expression **[Txt]** is displayed
- ▶ Relative time filter: is displayed as a print-out with the following scheme:  
**[T,Rel:%dd,%dh,%dm;%ds]**  
 Example: [T,Rel:1d,0h,0m,0s] equals one day.

▶

### 3.1.2 Changing the appearance of the AML

The table view of the Alarm Message List can be adapted to individual requirements:

#### SCROLL BARS, HEADERS AND GRIDS

To define the size and appearance of scroll bars, the header or grids for the report:

1. Activate, in the **Representation** group, the **Extended graphical settings** property
2. Define the desired properties in the groups **Scroll bars** and **Header and grid** for the Alarm Message List screen element



### Information

*If the **Graphics file** property is selected for the **Display style** property, then all elements for which no graphics file has been selected are shown with a color gradient. Transparent graphics cannot be used for control elements for lists.*

## SORTING IN RUNTIME

To mark the relevant column for sorting in Runtime and to determine the sorting sequence, configure the graphic element for the title line:

1. Select the **Graphics file** for the **Display style** property
2. Link the **Sort ascending** and **Sort descending** properties with a graphics file
3. The selected graphic for the respective sorting direction is displayed in Runtime for the sorting of relevant columns
4. Clicking on the graphic changes the sorting sequence
5. Clicking in the column title activates the column for sorting

## OPERATING THE HEADER IN RUNTIME

You can make it possible for users to operate the header in Runtime. With this an individual customization of the look is possible in the Runtime:

- ▶ Change width
- ▶ Change sorting

To do this, navigate to **Alarm Message List** group in the settings and select, in the **Header AML** property, **Operable headers**. Alternatively, you can also switch the header to inoperable or invisible here.

These settings apply for all headers in the project.



### Information

*You can prohibit the manipulation or the visibility of the header for each screen Alarm Message List by deactivating the property **Show header** or **Make header editable** for the tabular view.*

## PREVIEW

The header and the scroll bars are shown as a preview in the Editor by activating the **Extended graphical settings** property. Details such as colors, fill effects, lighting effects or grids can thus be configured more easily.

**Attention:** As the size of the scroll bars equals their size in the Runtime, the total size of the list in the Editor can vary from the size in the Runtime. This is also true for the size of the header and the font of the header.

## 3.2 Creating an Alarm Message List filter screen

It is possible to adjust filter settings for the Alarm Message List in Runtime with the help of the Alarm Message List Filter screen. Only the filter elements that are actually required are configured and provided to the user. The appearance can also be freely defined and thus adapted to different end devices. All filter settings that are available in the filter (on page 48) for the function to switch the screen to the Chronological Event List screen (on page 111) can be configured.

Therefore:

- ▶ Only the filter elements that are actually required are configured and provided to the user.
- ▶ The user only has these filters displayed and has an overview
- ▶ The appearance can be freely defined and can, for example, ensure ease of use by means of a touch screen.

For details of use in Runtime, see Using the Alarm Message List Filter (on page 166) chapter.

For the definition of filter criteria, see Filter Alarm Message List Filter (on page 92) chapter.



### Attention

Screens of type **Alarm Message List Filter**, **Chronological Event List Filter** and **Time Filter** must be engineered with an own frame. If they use the same frame as other screens, all screens based on this frame are closed when the screen is closed.

## CREATE ALARM MESSAGE LIST FILTER SCREEN

The Alarm Message List filter screen is for [description].

### ENGINEERING

Steps to create the screen:

1. Create a new screen:  
In the tool bar or the context menu of the **Screensnode**, select the **New screen** command.  
An empty **Standard** screen is created.
2. Change the properties of the screen:
  - a) Name the screen in the **Name** property.

- b) In the **Screen type** property, select `Alarm Message List` filter.
- c) Select the desired frame in the **Frame** property.  
**Note:** The `AML` filter screen must not be based on the same frame as other screens!
3. Configure the content of the screen:
  - a) select menu item **Control elements** from the menu bar
  - b) Select `Insert template` in the drop-down list.  
 The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.
  - c) Remove elements that are not required from the screen.
  - d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.
4. Create a screen switch function.

Variable filter

|                           |                              |                           |
|---------------------------|------------------------------|---------------------------|
| Variable name             | Only non-acknowledged alarms | <small>The BUTTON</small> |
| Variable name             | Only current alarms          | <small>The BUTTON</small> |
| Identification            | Only cleared alarms          | <small>The BUTTON</small> |
| Identification            | Comment required             | <small>The BUTTON</small> |
| Case sensitive            | Origin of the data           | <small>The BUTTON</small> |
|                           | Ringbuffer                   | <small>The BUTTON</small> |
|                           | Historic data                | <small>The BUTTON</small> |
| Show list without refresh | Max. number:                 | Input field               |
| <small>The BUTTON</small> | <small>The STATIC</small>    | <small>The EDIT</small>   |

Text filter

No text filter  
The BUTTON

Search for (separate words by Space)  
The BUTTON

Input field: Search text  
The EDIT

Case sensitive  
The BUTTON

Words do not need to be in the text completely  
The BUTTON

At least one word must be in the text  
The BUTTON

All words must be in the text  
The BUTTON

Filter string must exactly be in the text  
The BUTTON

Time filter

Filter type  
Combobox: Time filter type  
Typ: COMBOBOX  
The EDIT

Current time  
08:47:53 21.07.2015

| Year          | Month         | Day           | Hour          | Minute        | Second        | Sp            |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Combobox: Frc | Combobox: Frc | Combobox: Frc | Combobox: Frc | Combobox: Frc | Combobox: Frc | Combobox: Frc |
| Typ: COMBOB   | Typ: COMBOB   | Typ: COMBOB   | Typ: COMBOB   | Typ: COMBOB   | Typ: COMBOB   | Typ: COMBOB   |
| ID: 10003     | ID: 10002     | ID: 10001     | ID: 10004     | ID: 10005     | ID: 10006     |               |

To

| Year         | Month        | Day          | Hour         | Minute       | Second       | Sp           |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Combobox: Un | Combobox: Un | Combobox: Un | Combobox: Un | Combobox: Un | Combobox: Un | Combobox: Un |
| Typ: COMBOB  | Typ: COMBOB  | Typ: COMBOB  | Typ: COMBOB  | Typ: COMBOB  | Typ: COMBOB  | Typ: COMBOB  |
| ID: 10009    | ID: 10008    | ID: 10007    | ID: 10010    | ID: 10011    | ID: 10012    |              |

Minimum time active

| Day                     | Second                  | Minute                  | Hour                    | Millisecond             |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Minimum time alan       | Minimum time alan       | Minimum time alan       | Minimum time alan       | Minimum time alan       |
| <small>The EDIT</small> | <small>The EDIT</small> | <small>The EDIT</small> | <small>The EDIT</small> | <small>The EDIT</small> |

OK Apply Cancel Refresh search

### 3.2.1 Control elements

The Alarm Message filter screen can contain the following control and display elements.

| Element  | Description   |
|--|---|
| <b>Insert template</b>                             | <p>Opens the dialog for selecting a template for the screen type.</p> <p>Templates are shipped together with zenon and can also be created by the user.</p> <p>Templates add pre-defined control elements to pre-defined locations in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the screen. Elements can be moved on the screen and arranged individually.</p> <p>You can read more about templates for this screen type in the <b>Templates</b> (on page 27) chapter.</p> |
| <b>General filters</b>                             | Drop-down list of different general filters (on page 95).   |
| <b>Insert all elements: General filters</b>        | Inserts all elements from the area of general filters into pre-defined places. Elements can be arranged individually.   |
| <b>Insert all elements: General filter (Touch)</b> | Inserts all elements from the area of general filters into pre-defined places. Elements can be arranged individually. The elements were optimized for touch operation.  |
| <b>Variable filter</b>                             | Alarms of which variables are displayed:  |
| ▶ Variable name                                    | Filter according to names of variables.   |
| ▶ Identification                                   | Filter according to identification of variables.  |
| ▶ Case sensitive                                   | Note capitalization when filtering the variables.   |
| <b>Type of alarms</b>                              | Which alarms are displayed:   |
| ▶ Only not acknowledged alarms                     | Only unacknowledged   |
| ▶ Only cleared alarms                              | Only historical   |
| ▶ Only current alarms                              | Only current  |
| ▶ Comment required                                 | Alarms that require a comment when acknowledged   |
| ▶ Minimum time alarms active - days                | Only alarms that have been current for at least the given number of days.   |
| ▶ Minimum time alarms active - hours               | Only alarms that have been current for at least the given number of hours.  |
| ▶ Minimum time alarms active - minutes             | Only alarms that have been current for at least the given number of minutes.  |



|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>▶ Minimum time alarms active - seconds</li> </ul>      | <p>Only alarms that have been current for at least the given number of seconds.</p>   |
| <ul style="list-style-type: none"> <li>▶ Minimum time alarms active - milliseconds</li> </ul> | <p>Only alarms that have been current for at least the given number of milliseconds.</p>  |
| <p><b>Type of alarms (Touch)</b></p>  | <p>Elements optimized for touch operation for the display of alarm type, along the lines of the <b>Alarm type</b> menu.</p> <ul style="list-style-type: none"> <li>▶ Only not acknowledged alarms</li> <li>▶ Only cleared alarms</li> <li>▶ Only current alarms</li> <li>▶ Comment required</li> <li>▶ Minimum time active alarms - Button: Days (up)</li> <li>▶ Minimum time active alarms - Touch box: Days</li> <li>▶ Minimum time active alarms - Button: Days (down)</li> <li>▶ Minimum time active alarms - Button: Hours (up)</li> <li>▶ Minimum time active alarms - Touch box: Hours</li> <li>▶ Minimum time active alarms - Button: Hours (down)</li> <li>▶ Minimum time active alarms - Button: Minutes (up)</li> <li>▶ Minimum time active alarms - Touch box: Minutes</li> <li>▶ Minimum time active alarms - Button: Minutes (down)</li> <li>▶ Minimum time active alarms - Button: Seconds (up)</li> <li>▶ Minimum time active alarms - Touch box: Seconds</li> <li>▶ Minimum time active alarms - Button: Seconds (down)</li> <li>▶ Minimum time active alarms - Button: Milliseconds (up)</li> <li>▶ Minimum time active alarms - Touch box: Milliseconds</li> <li>▶ Minimum time active alarms - Button: Milliseconds (down)</li> </ul> |

|   |  |
|---|--|
| <b>Origin of the data</b>                                 | Where does the data come from:   |
| ‣ Ring buffer   | From the ring buffer.  |
| ‣ Historical data   | From an archive.   |
| ‣ Text: Max. number:                                      | Text for <b>Maximum number</b> input field   |
| ‣ Input field: Max. number:                               | Input of the maximum alarms to be displayed when historical alarms are displayed.<br>0: displays all                               |
| <b>Alarm/event groups/alarm/event classes/alarm areas</b> | List field for grouped display (on page 34):   |
| ‣ Alarm/event groups                                      | Alarm/event groups   |
| ‣ Alarm/event classes                                     | Alarm/event classes  |
| ‣ Alarm areas   | Alarm areas<br><b>Note:</b> If <b>hierarchical alarming</b> via equipment model is activated, the alarm area column remains empty. |
| <b>Time filter</b>  | Selection of different time filters (on page 58).  |
| <b>Insert all elements</b>                                | Opens drop-down list to select pre-defined elements for certain time periods.  |
| Absolute period of time: classic display                  | Elements for the absolute time period in classic display.  |
| Absolute period of time: compact display                  | Elements for the absolute time period in compact display.  |
| Relative period of time                                   | Elements for the relative time period.   |
| Starting from HH:MM:SS                                    | Elements for a time period from a defined time.  |
| Starting from day - HH:MM:SS                              | Elements for a time period from a defined day at a defined time.   |
| Starting from day, month - HH:MM:SS                       | Elements for a time period from a defined day in a defined month at a defined time.  |
| Time period: 15/30/60 minutes                             | Elements for a time period of 15, 30 or 60 minutes.  |
| Time period: one day                                      | Elements for a time period of one day.   |
| Time period: 1 or 2 weeks                                 | Elements for a time period over one or two weeks.  |

|                                       |  |
|---------------------------------------|--|
|                                       | Each week can be selected, both for the view for a week as well as for the view for two weeks. With the two-week view, a time period of 14 days is selected, depending on the week selected.   |
| Time period: one month                | Elements for a time period of one month.   |
| Time period: one year                 | Elements for a time period of one year.  |
| <b>Insert all elements (Touch)</b>    | <p>Opens the drop-down list to select pre-defined elements for certain time periods, which have been optimized for touch operation. Like <b>Insert all elements</b>, the following are available:</p> <ul style="list-style-type: none"> <li>‣ Absolute period of time: classic display</li> <li>‣ Relative period of time</li> <li>‣ Starting from HH:MM:SS</li> <li>‣ Starting from day - HH:MM:SS</li> <li>‣ Starting from day, month - at HH:MM:SS</li> <li>‣ Time period: 15/30/60 minutes</li> <li>‣ Time period: one day</li> <li>‣ Time period: 1 or 2 weeks</li> <li>‣ Time period: one month</li> <li>‣ Time period: one year</li> </ul> |
| <b>Time filter type (label)</b>       | Labeling for time filter type.   |
| <b>Time filter type (combobox)</b>    | Combobox: Time filter type   |
| <b>Time filter type (display)</b>     | Field for time filter type display.  |
| <b>Time filter type (radio group)</b> | <p>Radio buttons that show or hide certain elements in Runtime:</p> <ul style="list-style-type: none"> <li>‣ No filter</li> <li>‣ Absolute time filter</li> <li>‣ Relative time filter</li> <li>‣ Starting from HH:MM:SS</li> <li>‣ Starting from day - HH:MM:SS</li> <li>‣ Starting from day, month - at HH:MM:SS</li> <li>‣ Time period 15 minutes</li> <li>‣ Time period 30 minutes</li> <li>‣ Time period 60 minutes</li> <li>‣ Time period 1 day</li> <li>‣ Time period 1 week</li> </ul>   |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>▶ Time period 2 weeks</li><li>▶ Time period 1 month</li><li>▶ Time period 1 year</li></ul> |
|--|--|

|                          |   |
|--------------------------|---|
| <b>Time from</b>         | <p>Fields and labeling for stating "from" time.</p> <ul style="list-style-type: none"> <li>‣ From year (label)</li> <li>‣ From year (combobox)</li> <li>‣ From month (label)</li> <li>‣ From month (combobox)</li> <li>‣ From day (label)</li> <li>‣ From day (combobox)</li> <li>‣ From hour (label)</li> <li>‣ From hour (combobox)</li> <li>‣ From minute (label)</li> <li>‣ From minute (combobox)</li> <li>‣ From second (label)</li> <li>‣ From second (combobox)</li> <li>‣ From (spin control)</li> </ul> |
| <b>Time to</b>           | <p>Fields and labeling for stating "to" time.</p> <ul style="list-style-type: none"> <li>‣ To year (label)</li> <li>‣ To year (combobox)</li> <li>‣ To month (label)</li> <li>‣ To month (combobox)</li> <li>‣ To day (label)</li> <li>‣ To day (combobox)</li> <li>‣ To hour (label)</li> <li>‣ To hour (combobox)</li> <li>‣ To minute (label)</li> <li>‣ To minute (combobox)</li> <li>‣ To second (label)</li> <li>‣ To second (combobox)</li> <li>‣ To (spin control)</li> </ul>                             |
| <b>Time from (Touch)</b> | <p>Fields and labeling for stating "from" time, optimized for touch operation.</p> <ul style="list-style-type: none"> <li>‣ From year (label)</li> <li>‣ From year (combobox)</li> <li>‣ From month (label)</li> <li>‣ From month (combobox)</li> </ul>   |

|  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>‣ From day (label)</li><li>‣ From day (combobox)</li><li>‣ From hour (label)</li><li>‣ From hour (combobox)</li><li>‣ From minute (label)</li><li>‣ From minute (combobox)</li><li>‣ From second (label)</li><li>‣ From second (combobox)</li><li>‣ From (spin control)</li></ul> |
|--|---|

|                             |  |
|-----------------------------|--|
| <b>Time to (Touch)</b>      | <p>Fields and labeling for stating "to" time, optimized for touch operation.</p> <ul style="list-style-type: none"> <li>‣ To year (label)</li> <li>‣ To year (combobox)</li> <li>‣ To month (label)</li> <li>‣ To month (combobox)</li> <li>‣ To day (label)</li> <li>‣ To day (combobox)</li> <li>‣ To hour (label)</li> <li>‣ To hour (combobox)</li> <li>‣ To minute (label)</li> <li>‣ To minute (combobox)</li> <li>‣ To second (label)</li> <li>‣ To second (combobox)</li> <li>‣ To (spin control)</li> </ul> |
| <b>Filter absolute time</b> | <p>Fields and labeling for stating absolute time filter.</p> <ul style="list-style-type: none"> <li>‣ From (label)</li> <li>‣ From date (calendar display)</li> <li>‣ From date (date display)</li> <li>‣ From time (time display)</li> <li>‣ To (label)</li> <li>‣ To date (calendar display)</li> <li>‣ To date (date display)</li> <li>‣ To time (time display)</li> </ul>  |
| <b>Time period</b>          | <p>Fields and labeling for stating time periods.</p> <ul style="list-style-type: none"> <li>‣ From year (label)</li> <li>‣ From year (combobox)</li> <li>‣ From month (label)</li> <li>‣ From month (combobox)</li> <li>‣ Week (label)</li> <li>‣ Week (combobox)</li> <li>‣ From day (label)</li> <li>‣ From day (combobox)</li> <li>‣ Start time (label)</li> </ul>  |

|  |                         |
|--|-------------------------|
|  | ▶ Start time (combobox) |
|--|-------------------------|



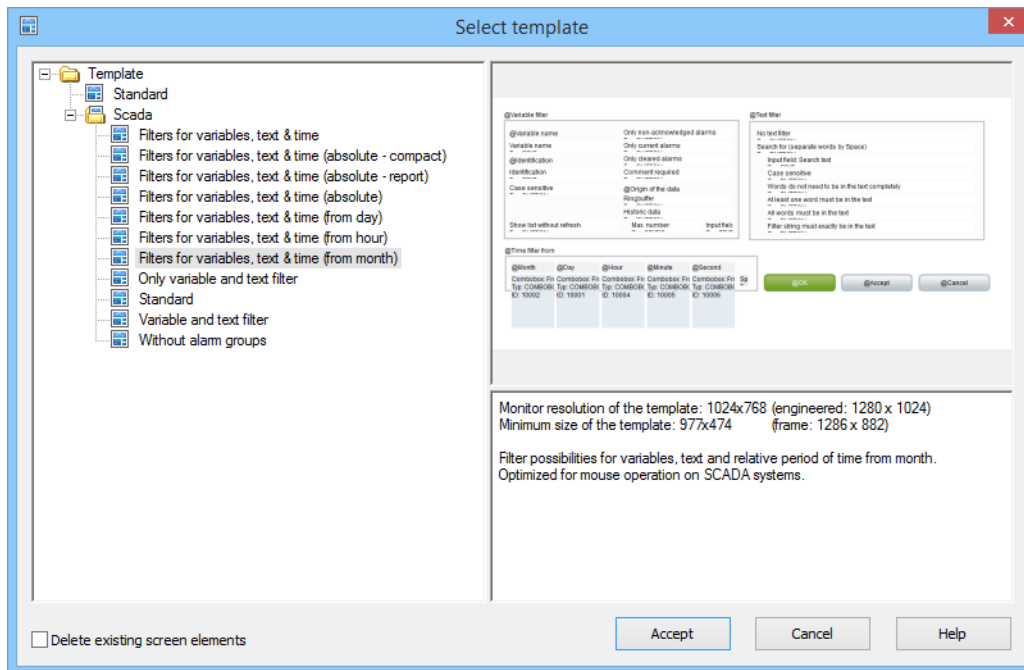
|                                |   |
|--------------------------------|---|
| <b>Time period (Touch)</b>     | <p>Fields and labeling for stating "from" time, optimized for touch operation.</p> <ul style="list-style-type: none"> <li>‣ From year (label)</li> <li>‣ From year (up)</li> <li>‣ From year (touchbox)</li> <li>‣ From year (down)</li> <li>‣ From month (label)</li> <li>‣ From month (up)</li> <li>‣ From month (touchbox)</li> <li>‣ From month (down)</li> <li>‣ Week (label)</li> <li>‣ Week (up)</li> <li>‣ Week (touchbox)</li> <li>‣ Week (down)</li> <li>‣ From day (label)</li> <li>‣ From day (up)</li> <li>‣ From day (touchbox)</li> <li>‣ Button: From day (down)</li> <li>‣ Start time (label)</li> <li>‣ Start time (up)</li> <li>‣ Start time (touchbox)</li> <li>‣ Start time button (down)</li> </ul> |
| <b>Lots</b>                    | Elements for lot selection in Runtime.  |
| Archive list                   | List of archives available in Runtime.  |
| Archive list status            | <p>Status of the archive list with number for:</p> <ul style="list-style-type: none"> <li>‣ available</li> <li>‣ filtered</li> <li>‣ displayed</li> </ul>   |
| Lot list                       | List of available lots.   |
| Lot list status                | <p>Status of the lot list with number for:</p> <ul style="list-style-type: none"> <li>‣ available</li> <li>‣ filtered</li> <li>‣ displayed</li> </ul>   |
| Apply time filter to lot list. | Applies the configured time filter to the selection in the  |

|  |  |
|--|--|
|  | lot list.  |
| Lot name filter (Input field)                    | Entry of a character sequence for filtering the lot names in the lot list. |
| Lot name filter (Button)                         | Button to execute filtering for lot names.                                 |
| <b>Text filter</b>                               | Drop-down list of different text filters.                                  |
| <b>Insert all elements: Text filter</b>          | Inserts all elements for text filters.                                     |
| <b>No text filter</b>                            | Radio button to deselect text filter.                                      |
| <b>Search for (separate words by Space)</b>      | Radio button to activate the search  |
| <b>Text: Search text</b>                         | Labeling for search field.   |
| <b>Input field: Search text</b>                  | Field for input of search term.  |
| <b>Options</b>                                   | Search options   |
| ▶ Case sensitive                                 | Capitalization must be noted.  |
| ▶ Words do not need to be in the text completely | Fragments can also be searched for.  |
| ▶ At least one word must be in the text          | At least one search term from several must be in the result.               |
| ▶ All words must be in the text                  | All search terms must be included in the result.                           |
| ▶ Exact filter text must be in the text          | Exact text from the input field must be contained in the result.           |
| <b>Show list without refresh</b>                 | Switches the AML in stopped state. New alarms are not added.               |

## CLOSE DIALOG

|                       |  |
|-----------------------|--|
| <b>OK</b>             | Button: Applies the filter settings and closes the screen.<br><b>Note on faceplates:</b> In faceplates, AML filter, CEL filter and time/lot filter screens can be used. When configuring these in Runtime, clicking on <b>OK</b> closes the complete faceplate. If the filter settings are to be saved and the faceplate is to stay open, click on <b>Accept</b> . |
| <b>Cancel</b>         | Button: Cancels the configuration of the filter settings.  |
| <b>Apply</b>          | Button: Accepts the filter settings.   |
| <b>Refresh search</b> | Button: Updates the filtered display.  |

### 3.2.2 Template



| Template   | Description  |
|--|--|
| <b>List field templates</b> (left)                                 | Displays all pre-defined and user-defined template.  |
| <b>Preview and description</b> (right)                             | Shows preview and description of the selected template.  |
| <b>Standard</b>  | Inserts standard elements.   |
| <b>Scada</b>   | Special templates, optimized for mouse operation.  |
| <b>Only variable &amp; text filter</b>                             | Adds elements for filtering for variables and text.  |
| <b>Without alarm groups</b>  | Adds elements for filtering for variables, text and pending minimum time without alarm groups. |
| <b>Standard</b>  | Inserts standard elements.   |
| <b>Filters for variables, text &amp; time</b>                      | Adds elements for filtering for variables, text and time.                                      |
| <b>Filters for variables, text &amp; time (from month)</b>         | Adds variables for filtering for variables, text and relative time range <i>from month</i> .   |
| <b>Filters for variables, text &amp; time (from hour)</b>          | Adds variables for filtering for variables, text and relative time range <i>from hour</i> .    |
| <b>Filters for variables, text &amp; time (from day)</b>           | Adds variables for filtering for variables, text and relative time range <i>from day</i> .     |
| <b>Filters for variables, text &amp; time (absolute - table)</b>   | Adds elements for filtering for variables, text and absolute time range.                       |
| <b>Filters for variables, text &amp; time (absolute - compact)</b> | Adds elements for filtering for variables, text and absolute time range in compact form.       |
| <b>Filters for variables, text &amp; time (absolute)</b>           | Adds elements for filtering for variables, text and absolute time range.                       |

## CLOSE DIALOG

| Parameters                             | Description   |
|--|---|
| <b>Delete existing screen elements</b> | <b>Active:</b> Already existing elements in the screen are deleted when taking over the template. |
| <b>Apply</b>                           | Inserts the elements of the selected template in the screen and closes the dialog.                |
| <b>Cancel</b>                          | Closes dialog without inserting elements.   |
| <b>Help</b>                            | Opens online help.  |

### 3.2.3 Pre-defined names

Pre-defined names are available for time filters.

**Attention:** The pre-defined names are not available under Windows CE.

To select a name:

1. In the detail view, define as a time filter, chronological event list filter or alarm message list filter
2. Click twice in the name field in the 'Name' column
3. Select the desired pre-defined name from the drop-down.
  - AML\_Filter
  - TIMEFILTER\_ABSOLUTE
  - TIMEFILTER\_DAY
  - TIMEFILTER\_HOUR
  - TIMEFILTER\_MONTH
  - TIMEFILTER\_PERIOD
  - TIMEFILTER\_PERIOD\_DAY
  - TIMEFILTER\_PERIOD\_MINUTE
  - TIMEFILTER\_PERIOD\_MONTH
  - TIMEFILTER\_PERIOD\_WEEK
  - TIMEFILTER\_PERIOD\_YEAR
  - TIMEFILTER\_RELATIVE

### 3.2.4 Filter screens

#### **FILTER SCREENS**

Filter screens make it possible to transfer a preset filter from one screen to another. The filter of the source screen is set using the target screen. The screens can also be of a different screen type.



### Attention

*In order for the time to be taken from the screen to be called up in Runtime, the following **time range** must be selected in the Editor for the screen switching function for the Alarm Message List or the Chronological Event List in the **time filter**. Set filter at time filter type*

## CALL DEFINITION

The following requirements must be met for the set filters to be used:

1. Set filter for time filter type is selected as a **time period** for the time filter.
2. The screen (**Alarm Message List Filter**, **Chronological Event List filter** or **Time/Lot Filter** screen) is activated using a button or a combined element. Only in this way can the relationship between filter screen and source screen be maintained.
3. The source screen and filter screen must be configured on different frames or monitors. The filter for the filter screen can only be updated if the source screen is open. This is only possible if both screens do not use the same frame or the same monitor.
4. The screen to be called up must be compatible with the filter screen to be called up (see table).

| Source screen                   | AML filter | CEL filter | Time filter |
|---------------------------------|------------|------------|-------------|
| Archive revision                | T          | T          | T           |
| Extended Trend                  | T          | T          | T           |
| Time filter                     | T          | T          | X           |
| Alarm Message List Filter       | X          | C          | T           |
| Chronological Event List Filter | C          | X          | T           |
| Alarm Message List              | X          | C          | T           |
| Chronological Event List        | C          | X          | T           |

### Key:

- ▶ C: Common settings are updated.
- ▶ T: Time settings are updated.
- ▶ X: All settings are updated.



### Information

#### No filtering

*The filter screen is not filtered, but opened with the configured values, if:*

- ▶ One of the conditions 1 to 3 is not met or
- ▶ The **Screen to call up** setting is not activated for the **Screen switching** function or
- ▶ The screen is not called up via a screen element

*In this case, the **Accept**, **Close** and **Update** buttons are grayed out in Runtime and have no function.*

## 3.3 Defining alarms

Define alarms using:

- ▶ Limit values and statuses with variables
- ▶ Reaction matrixes

### ALARMING USING VARIABLES

Define the limit values for variables (see Variables manual, Limits chapter). If these are violated in Runtime, an alarm is generated and displayed in the alarm status line (on page 149). You configure further properties for alarm configuration with:

- ▶ Variable properties of the group **Limit Values** and the subgroups for each limit value contained therein:
  - **In Alarm Message List:** The alarm is incorporated into the AML. When it is there as displayed, control it in Runtime using the alarm message list (on page 151) or an alarm message list filter (on page 166).
  - **To acknowledge:** The alarm must be acknowledged before it is removed from the ring buffer (on page 32).
  - **Two-stage acknowledgement:** the alarm must be deleted manually before it is removed from the ring buffer (on page 32).
  - **Print:** Prints alarm to defined printer. Either the CEL or the AML is printed. You define which of the two lists is printed in project properties under **Printing for**.
  - **Alarm/Event Group:** allocation of an alarm/event group (on page 35).
  - **Alarm/Event Class:** allocation of an alarm/event class (on page 38).
- ▶ Variable properties of the group **Alarm handling**:
  - **Alarmbereiche:** allocation of an alarm area (on page 42).

- **Acknowledgement variable:** Sets the value 0 or 1 for the variables defined here when an alarm is acknowledged.
  - **Acknowledgement value:** Value that is written to the variable defined in **Acknowledgement variable**.
  - **Save in IPA database:** Alarm is available in the Industrial Performance Analyzer for evaluation.
- Project properties of the group AML and CEL:
- **Selection with border:** selected lines are emphasized by a frame in Runtime.
  - **Same comments:** comments that are entered in Runtime for an alarm are also accepted in the CEL.
  - **Printing active:** activates online printing.
  - **Printing for:** defines if AML or CEL is printed online.
- Project properties of the group Alarm Message List

There are many properties to configure alarms available here. Above all:

- AML activation
- Data storage AML
- Signalization of alarm states
- Activation of alarm status line

You can find details of the individual settings in the embedded help pages.

## ALARMING VIA REACTION MATRIXES

You use a reaction matrix to evaluate limit value states and status bits (see Variables manual, Reaction matrixes). Violations of the established rules lead to an alarm. As with variables, you can also define the action to be carried out when an alarm is raised with reaction matrixes. To do this, activate the corresponding properties in the configuration dialog of the reaction matrixes.

## 3.4 Alarm handling

Alarms are saved in a ring buffer (alarm.bin) and in an alarm file (\*.aml) in the Runtime folder as soon as they occur. The ring buffer is a volatile memory, from which alarms can be removed again according to certain rules. The AML saves alarms and important information in relation to these on a lasting basis.

### RING BUFFER

The ring buffer includes all active alarms. At this the following things are managed:



- ▶ **Time received** in millisecond as unique signature
- ▶ Additional information such as cause, value, etc.
- ▶ Time cleared
- ▶ Time acknowledged

Behavior when removing from the ring buffer:

- ▶ As soon as the alarm is cleared, it is removed from the ring buffer.
- ▶ If the **To acknowledge** property has been activated, the alarm must be acknowledged by a user authorized to do this before it can be removed from the ring buffer. When acknowledging alarms, all alarms of a variable with the same limit value violation are removed from the ring buffer at the same time.
- ▶ If the **Two-stage acknowledgement** property is activated, it must be specifically removed from the ring buffer by a person authorized to do this.  
Example: The alarm has cleared and was acknowledged by the operator. It continues to be retained in the ring buffer until removal has been confirmed.

**Note:** The entries are never deleted in the AML; it is always only their status that is documented.

## SIZE OF THE RINGBUFFER

The size of the ring buffer must be set to an appropriated size in the project properties via property **Size of the ring buffer**.

**Recommended:** At least number of variables for which alarms can occur.

The ring buffer is automatically saved as file **alarm.bin** when the Runtime is closed. If the Runtime is closed due to an unexpected event, e.g. power outage, data will be lost. To prevent this the ring buffer can be saved manually via property **Save ring buffer on change** at every new entry or via function Save AML and CEL ring buffer (on page 137).

**Attention:** In the Runtime the ring buffer is handled dynamically in the memory. Alarms that do not have a cleared time stamp can be displayed by means of the defined number of alarms. Thus alarms are displayed which exceed the size of the ring buffer.



### Example

- ▶ Size of the ring buffer: 100 entries
- ▶ Active alarms in the Runtime without cleared time stamp: 120
- ▶ Display in the AML in the Runtime: 120

## ALARM FILE

All alarms are written in an alarm file (\*.aml) at the same time as in the ring buffer. This file is created for every calendar day automatically and is managed via property **Save AML data**. The name of the

alarm file is put together by the letter **A**, followed by the date in form **JJMMDD** and the suffix **.aml**; e.g. **A100623.aml**. These files are created automatically for every day and must be evacuated or deleted by the user if the storage space is limited. \*.aml files are saved in the ... \Project folder \Computer name \Project name folder.

## SYNCHRONIZING RING BUFFER AND ALARM FILE

Ring buffer and alarm file are synchronized. This synchronization ensues from the ring buffer to the alarm file. All changes such as acknowledging are only carried out in the ring buffer and are then synchronized with the alarm file. Thus for example all unacknowledged alarms can be displayed in the alarm file and the acknowledge can be induced. The action however is taking place in the ring buffer.

## SAVING PERIODS

The alarm file \*.aml is saved each time a new entry is made.

The ring buffer (\*.bin) is saved:

- ▶ when the Runtime is closed
- ▶ after every new entry if property **Save ring buffer on change** is active
- ▶ when function **Save AML and CEL ring buffer** is carried out

**Note:** If option **Save ring buffer on change** is deactivated, it is possible that the entries in the AML and in the ring buffer do not match after a power outage.



### Attention

*If the ring buffer overflows because it is too small, unacknowledged entries remain in the alarm file. They are displayed during filtering but they cannot be acknowledged anymore. The attempt to acknowledge them can trigger the acknowledgment on the ring buffer if the alarms concern the same variable and the same limit value violation.*

## 3.5 Grouping of alarms

Alarms can be grouped and prioritized by means of:

- ▶ Alarm/event groups (on page 35): group alarms (or events) together logically
- ▶ Alarm/event classes (on page 38): serve to prioritize alarms (or events) and are used to color-code alarms in the AML and by events in the CEL
- ▶ Alarm areas (on page 42): allow the combining of the alarms with a focus on the location in equipment.

Each group or class can be assigned a name, a number, a color, a function, a status variable, a graphic and an equipment group.

Alarms can be exported and imported via XML using the context menu.



### Information

*A maximum of 65536 alarm/event classes and 65536 alarm/event groups can be created.*

## PROJECT MANAGER ALARM CONTEXT MENU

| Menu item                | Action                              |
|--------------------------|-------------------------------------|
| <b>Export XML all...</b> | Exports all entries as an XML file. |
| <b>Import XML...</b>     | Imports entries from an XML file.   |
| <b>Help</b>              | Opens online help.                  |



### Information

*Use clear, different IDs in the global project, the integration project and subprojects for alarm/event groups, class and alarm areas. You avoid clashes this way. These can lead to incorrect displays.*

## 3.5.1 Alarm/event groups

Alarm/event groups combine related messages.

## CREATING ALARM/EVENT GROUPS

To create a new alarm/event group:

1. In the Project Manager, right click on the **Alarm/Event Groups** subnode
2. Select the command: **New alarm/event group**  
(alternatively select the corresponding symbol in the toolbar (on page 37) or press on the **Ins** button)

Each group can be allocated additional information via its properties:

| Parameters             | Description   |
|------------------------|---|
| <b>Name</b>            | Name of alarm/event group.<br>Is displayed in the filter condition of AML and CEL.  |
| <b>No.</b>             | Identifies the alarm/event group. The number is automatically given and cannot be changed.<br><br>Minimum: 1<br><br>Maximum: 2147483647<br><br><b>Note:</b> Within a project, each respective number can only be given once for the alarm/event group. Identical numbers can be given in other projects/areas.<br><br><b>Synchronization:</b> A check for conflicts is carried out when the Runtime files are created. If conflicts are found, these are displayed in the output window. However the creation of IDs that conflict one another is not prevented. Mode of checking.<br><ul style="list-style-type: none"> <li>▶ The project is compared with the global project when checking individual projects.</li> <li>▶ In multi-project administration, the project is first compared with the uppermost project, then with all other projects of this multi-project administration. Synchronization with the global project is then carried out</li> <li>▶ Other, independent projects are not included in the synchronization.</li> </ul> |
| <b>Color</b>           | Color of alarm/event group.<br><br>A click on the ... button opens the palette for color selection  |
| <b>Description</b>     | Name of alarm/event group.  |
| <b>Status variable</b> | Bit variable which the zenon Runtime indicates whether the group is active or whether the alarms of this group are ignored at the moment.<br><br>Activation/deactivation is carried out via the Alarm/event group connection active/inactive (on page 116) function. The status of this group is logged in the Chronologic Event List (CEL).<br><br>Clicking on the ... button opens the dialog for variable selection.   |
| <b>Function</b>        | Function that is to be executed if an alarm of this group is activated. Click on the ... button to open the dialog to select the function.  |
| <b>Graphics File</b>   | Selection of a graphic that represents the alarm/event group in the AML.<br><br>To display the graphic in the AML, select in the AML filter, in the <b>Column settings</b> (on page 84) tab for the <b>Alarm/event group symbol</b> the <b>Graphics file</b> display type.  |

|                         |  |
|-------------------------|--|
|                         | <b>Note:</b> the column height in the AML depends on the selected font. The selected graphics are also scaled and adapted to the column height.                                      |
| <b>Equipment Groups</b> | <p>Links equipment model to the alarm/event group.</p> <p>Define the membership of an equipment group. Click on the ... button to open the dialog to select the equipment group.</p> |

## DELETING ALARM/EVENT GROUPS

To delete an alarm/event group:

1. Select the alarm/event group
2. Select **Delete** in the context menu or in the toolbar
3. confirm this when requested to do so

**Note:** All linked variables lose their group assignment when deleted.

## Context menus and alarm/event-groups toolbar

### PROJECT MANAGER CONTEXT MENU

| Menu item                    | Action   |
|------------------------------|--|
| <b>New alarm/event group</b> | Creates a new alarm/event group.                                 |
| <b>Editor profile</b>        | Opens the drop-down list to select a pre-defined Editor profile. |
| <b>Help</b>                  | Opens online help.   |

### DETAIL VIEW OF CONTEXT MENU AND TOOLBAR



| Menu item                              | Action   |
|--|--|
| <b>New alarm/event group</b>           | Inserts a new alarm/event group into the list.   |
| <b>Copy</b>                            | Copies the selected entries to the clipboard.  |
| <b>Paste</b>                           | Pastes the contents of the clipboard. If an entry with the same name already exists, the content is pasted as " <b>Copy of...</b> ".   |
| <b>Delete</b>                          | Deletes selected entries after a confirmation from list.   |
| <b>Edit selected cell</b>              | Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line. Only cells that can be edited can be selected. |
| <b>Replace text in selected column</b> | Opens the dialog for searching and replacing texts.  |
| <b>Properties</b>                      | Opens the <b>Properties</b> window for the selected entry.   |
| <b>Remove all filters</b>              | Removes all filter settings.   |
| <b>Help</b>                            | Opens online help.   |

### 3.5.2 Alarm/event classes

Alarm/event classes serve the following purpose:

- ▶ To prioritize alarms for the screen alarming
- ▶ To determine the alarm color in the alarm message list
- ▶ As a filter criterion in the alarm list and the Chronological Event List
- ▶ To trigger acoustic alarms, for example

#### CREATING ALARM/EVENT CLASSES

To create a new alarm/event class:

1. In Project Manager, right click on the **Alarm/Event classes** subnode
2. Select the command: **New alarm/event class**  
(alternatively select the corresponding symbol in the toolbar (on page 37) or press on the **Ins** button)

Each can be allocated additional information via the properties:

| Parameters             | Description   |
|------------------------|---|
| <b>Name</b>            | <p>Name of alarm/event class.</p> <p>Is displayed in the filter condition of AML and CEL.</p>   |
| <b>No.</b>             | <p>Identifies the alarm/event class. The number is automatically given and cannot be changed.</p> <p>Minimum: 1</p> <p>Maximum: 2147483647</p> <p><b>Note:</b> Within a project, each respective number can only be given once for the alarm/event class. Identical numbers can be given in other projects/areas.</p> <p><b>Synchronization:</b> A check for conflicts is carried out when the Runtime files are created. If conflicts are found, these are displayed in the output window. However the creation of IDs that conflict one another is not prevented. Mode of checking.</p> <ul style="list-style-type: none"> <li>▶ The project is compared with the global project when checking individual projects.</li> <li>▶ In multi-project administration, the project is first compared with the uppermost project, then with all other projects of this multi-project administration. Synchronization with the global project is then carried out</li> <li>▶ Other, independent projects are not included in the synchronization.</li> </ul> |
| <b>Color</b>           | <p>Color of the alarm/event class can be used for labeling in the AML. A click on the ... button opens the color palette.</p> <p><b>Note:</b> Color is used for long description and status text in the AML and screen alarming</p>   |
| <b>Description</b>     | Description of alarm/event class.   |
| <b>Status variable</b> | <p>Bit variable which the zenon Runtime indicates whether the class is active or whether the alarms of this class are ignored at the moment.</p> <p>Activation/deactivation is carried out via the Alarm/event group connection active/inactive (on page 116) function. The status of this group is logged in the Chronologic Event List (CEL).</p> <p>Clicking on the ... button opens the dialog for variable selection.</p>  |
| <b>Function</b>        | <p>Function that is to be executed if an alarm of this class is activated.</p> <p>Click on the ... button to open the dialog to select the function.</p> <p><b>Note:</b> Not available for project configuration content in the global project.</p>   |



|                         |   |
|-------------------------|---|
| <b>Graphics File</b>    | <p>Selection of graphics that represent the alarm/event class in the AML.</p> <p>To display the graphic in the AML, select in the AML filter, in the <b>Column settings</b> (on page 84) tab for the <b>Alarm/event class symbol</b> the <i>Graphics file</i> display type.</p> <p><b>Note:</b> In the AML, the column height is aligned to the selected font; for this reason, the graphics selected are scaled if necessary and adjusted to suit the column height.</p> |
| <b>Equipment Groups</b> | <p>Links equipment model to the alarm/event class.</p> <p>Click on the ... button to open the dialog to select the equipment group.</p>   |

## DELETING ALARM/EVENT CLASSES

To delete an alarm/event class:

1. Select the alarm/event class
2. Select **Delete** in the context menu or in the toolbar
3. confirm this when requested to do so

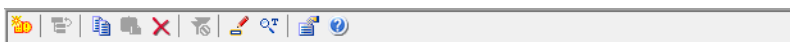
**Note:** All linked variables lose their class assignment when deleted.

## Alarm/event classes context menus and alarm/event-groups toolbar

### PROJECT MANAGER CONTEXT MENU

| Menu item                    | Action  |
|------------------------------|---|
| <b>New alarm/event class</b> | Creates a new alarm/event class.                          |
| <b>Editor profile</b>        | Opens the drop-down list with predefined editor profiles. |
| <b>Help</b>                  | Opens online help.  |

### DETAIL VIEW OF CONTEXT MENU AND TOOLBAR



| Menu item                              | Action   |
|--|--|
| <b>New alarm/event class</b>           | Inserts a new alarm/event class into the list.   |
| <b>Copy</b>                            | Copies the selected entries to the clipboard.  |
| <b>Paste</b>                           | Pastes the contents of the clipboard. If an entry with the same name already exists, the content is pasted as " <b>Copy of...</b> ".   |
| <b>Delete</b>                          | Deletes selected entries after a confirmation from list.   |
| <b>Edit selected cell</b>              | Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line. Only cells that can be edited can be selected. |
| <b>Replace text in selected column</b> | Opens the dialog for searching and replacing texts.  |
| <b>Properties</b>                      | Opens the <b>Properties</b> window for the selected entry.   |
| <b>Remove all filters</b>              | Removes all filter settings.   |
| <b>Help</b>                            | Opens online help.   |

### 3.5.3 Alarm Areas

Alarm areas (on page 42) allow the combining of the alarms with a focus on the location in equipment. Alarm areas can be linked to alarm classes (on page 46). Further flexibility can be gained by linking to status variables. The individual bits of a status variable can be evaluated using a combined element for example.

#### CREATING ALARM AREAS

To create a new alarm area:

1. In Project Manager, right click on the **Alarm areas** subnode
2. Select the command: **New Alarm area**  
(alternatively select the corresponding symbol in the toolbar (on page 37) or press on the **Ins** button)
3. For the evaluation of an alarm area, link the corresponding variables by clicking on the **...** button in the **General** node
4. Optional: Create a new area entry in the **Class linking** node by clicking on **{New class link}**  
(the number of possible area entries is limited to the number of existing alarm/event classes)

## PROPERTIES FOR ALARM AREAS

| Parameters                             | Description  |
|--|--|
| General                                |  |
| <b>Name</b>                            | <p>Name of the alarm area.</p> <p>Is displayed in the filter condition of AML and CEL.</p> <p><b>Note:</b> Empty if the <b>Use hierarchical alarming of the Equipment Model</b> property is active.</p>  |
| <b>Status variable</b>                 | <p>Byte variable:</p> <p>First bit: Displays if the alarm area contains active alarms.</p> <p>Second bit: Displays if this alarm area contains unacknowledged alarms. For details, see "<b>Status variable bits</b>".</p> <p>The ... button opens the dialog for variable selection.</p>   |
| <b>Number of active alarms</b>         | <p>Variables with a value that displays the number of active alarms in this alarm area.</p> <p>The ... button opens the dialog to select variables.</p>  |
| <b>Number of unacknowledged alarms</b> | <p>Variable that contains the number of unacknowledged alarms in this alarm area as a numerical value.</p>   |
| <b>No.</b>                             | <p>Identifies the alarm area. The number is automatically given and cannot be changed.</p> <p>Minimum: 1</p> <p>Maximum: 2147483647</p> <p><b>Note:</b> Within a project, each respective number can only be given once for the alarm area. Identical numbers can be given in other projects/areas.</p> <p><b>Synchronization:</b> A check for conflicts is carried out when the Runtime files are created. If conflicts are found, these are displayed in the output window. However the creation of IDs that conflict one another is not prevented. Mode of checking.</p> <ul style="list-style-type: none"> <li>▶ The project is compared with the global project when checking individual projects.</li> <li>▶ In multi-project administration, the project is first compared with the uppermost project, then with all</li> </ul> |

|  |   |
|--|---|
|  | <p>other projects of this multi-project administration. Synchronization with the global project is then carried out</p> <ul style="list-style-type: none"> <li>▶ Other, independent projects are not included in the synchronization.</li> </ul> <p><b>Note:</b> Empty if the <b>Use hierarchical alarming of the Equipment Model</b> property is active.</p> |
| Equipment Groups   | <p>Links equipment model to the alarm area.</p> <p>Define the membership of an equipment group. Click on the ... button to open the dialog to select the equipment group.</p>   |
| Class linking  | <p>Collects area entries. A <b>Class linking</b> summarizes the status variable and number of active and unacknowledged alarms for an alarm/event class. Area entries are created via the <b>{New class link}</b> property.</p>   |
| <b>{New class link}</b>  | <p>Creates a new area entry (on page 46).</p>   |
| <b>Alarm/Event Class</b>   | <p>Alarm class for the area entry.</p>  |
| <b>{Delete class linking}</b>  | <p>Deletes the area entry.</p>  |
| <b>Alarm/Event Class</b>   | <p>Selection of alarm/event class for area entry from drop-down list. Alarm/event class must already have been created.</p>   |
| <p>Further entries are similar to general settings per area entry with:</p> <ul style="list-style-type: none"> <li>▶ <b>Status variable</b></li> <li>▶ <b>Number of active alarms</b></li> <li>▶ <b>Number of unacknowledged alarms</b></li> </ul> |   |

#### STATUS VARIABLE BITS

| Bit | Meaning  |
|-----|--|
| 0   | <p>1 = Alarms are active</p> <p>0 = No alarms are active</p> |

|   |   |
|---|---|
| 1 | 1 = Unacknowledged alarms present<br>0 = No unacknowledged alarms |
|---|---|

**Note:** All set values for alarm areas linked to status and counter variables are cumulated and sent to the driver in blocked form every 500 ms. In doing so, it is always only the last value that is used for each status variable. Transients that occur in the interim period are suppressed. As a result, the network and communication load is reduced considerably.

## ASSIGN ALARM RANGES VARIABLES, STRUCTURES OR DATA TYPES

The assignment of variables, structures and simple data types to the alarm areas can be configured with two possibilities:

- ▶ Hierarchically with equipment modeling.
- ▶ Statically by linking up to four alarm areas.

The allocation is always configured at the respective element (variable or data type).

## STATIC LINKING

The following properties are available in the **Alarm handling** group of properties for the static linking of alarm areas:

- ▶ **Alarm area 1**
- ▶ **Alarm area 2**
- ▶ **Alarm area 3**
- ▶ **Alarm area 4**

For each alarm area, the desired alarm area can be selected from drop-down list of the respective area of the desired alarm area and assigned to the object.

In Runtime, the column of the **alarm area** and **alarm area no.** alarm message lists contain all linked alarm areas that are displayed as separated by a comma (,).

In the Message Control module, the **alarm area** field contains all linked alarm areas, displayed as separated by a comma (,).

## LINKING TO THE EQUIPMENT MODEL

If the **Use hierarchical alarming of the Equipment Model** property is activated in the zenon Editor configuration, the configurations of the alarm areas are taken from the equipment model. Instead of the configuration of individual alarm areas 1 - 4 per variable, the alarm modeling in the equipment model is used in this case.

*You can also find further information in the hierarchical alarming of equipment groups in the equipment modeling manual.*

## Alarm area context menus and toolbar

### PROJECT MANAGER CONTEXT MENU

| Menu item             | Action  |
|-----------------------|---|
| <b>New Alarm area</b> | Creates a new alarm area.                                 |
| <b>Editor profile</b> | Opens the drop-down list with predefined editor profiles. |
| <b>Help</b>           | Opens online help.  |

### DETAIL VIEW OF CONTEXT MENU AND TOOLBAR



| Menu item                              | Action   |
|--|--|
| <b>New Alarm area</b>                  | Inserts a new alarm area into the list.  |
| <b>Copy</b>                            | Copies the selected entries to the clipboard.  |
| <b>Paste</b>                           | Pastes the contents of the clipboard. If an entry with the same name already exists, the content is pasted as " <b>Copy of...</b> ".   |
| <b>Delete</b>                          | Deletes selected entries after a confirmation from list.   |
| <b>Edit selected cell</b>              | Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line. Only cells that can be edited can be selected. |
| <b>Replace text in selected column</b> | Opens the dialog for searching and replacing texts.  |
| <b>Properties</b>                      | Opens the <b>Properties</b> window for the selected entry.   |
| <b>Remove all filters</b>              | Removes all filter settings.   |
| <b>Help</b>                            | Opens online help.   |

## Configuring alarm areas

To link an alarm area to classes, carry out the following steps:

1. Click on {New class link}
2. Select the desired **Alarm/Event Class**

### 3. Define for the area

- **Status variable**
- Variable for **Number of active alarms** and
- Variable for **Number of unacknowledged alarms**

**Note:** Alarms are allocated to an alarm area in the **Alarmbereiche** properties of the variables in the **Alarm handling** group.

## EXAMPLE ALARM AREA

This example shows alarm areas that are assigned to two alarm classes:

| Alarm Area Name | Class linking to class... | Status variable | Number of active alarms | Number of unacknowledged alarms |
|-----------------|---------------------------|-----------------|-------------------------|---------------------------------|
| 1               | Warning                   | Status_warn_1   | Active_warn_1           | Unackn_warn_1                   |
|                 | Disturbance               | Status_error_1  | Active_error_1          | Unackn_error_1                  |
| 2               | Warning                   | Status_warn_2   | Active_warn_2           | Unackn_warn_2                   |
|                 | Disturbance               | Status_error_2  | Active_error_2          | Unackn_error_2                  |

## EXAMPLE APPLICATION, ENERGY

An alarm area is a group of objects. These are summarized in one screen. For an energy supplier, each transformer station is represented by a screen. Transformer stations A to T are displayed in four sub-pages. All alarm areas are displayed in a joint overview.

- ▶ If a limit value is violated in transformer station A, the button for transformer stations flashes in the overview screen.
- ▶ The button flashes on the group screen, which leads to the page with the transformers stations A, B, C, D and E.
- ▶ The button for transformer station A flashes in the detailed screen.

### 3.5.4 Alarms in global project and integration projects

Each project saves its own IDs for alarm classes, alarm groups and alarm areas. There can therefore be overlaps with global projects, integration projects and subprojects. If the same IDs are used in different projects, this can lead to entries being overwritten in the filter selection dialogs.

To avoid this, ensure that different IDs are used in all projects. To do this, create "dummy" groups/classes/areas, which you then delete again.

## 3.6 Alarm engineering with filters

You configure the display of alarms using the filter. For this you have several possibilities:

1. Define information that is displayed in Runtime in the Alarm Message List:  
With this, you define the information that is shown for an alarm.  
For details, see: Column setting for Alarm Message List (on page 48).
2. Filter alarms for the Alarm Message List when switching and modify them in Runtime:  
With this, you pre-define filters, giving the user at the machine the possibility to define their own filters.  
For details, see: Filter for Alarm Message List screen switching. (on page 51)
3. Fixed filters for the Runtime:  
With this you create filters which are tailor-made for the actual use and hide unnecessary filter criteria.  
For details see: Filter Alarm Message List filters (on page 92).

### 3.6.1 Column setting for Alarm Message List

You define the information that is displayed in the Alarm Message List in Runtime in the column settings. You configure these in the properties of the Alarm Message List in the project:

1. Open the **Alarm Message List** node in the Project Properties.
2. Click on the **Column settings AML** property.
3. The dialog for the **column setting** (on page 84) is opened.
4. Configure the desired columns.  
Note: When configuring the screen switching, this configuration is accepted by default and can be individually adapted in the column settings (on page 84) tab.

**Note:** For calculating the column width the average character width of the selected font is used.





### Information

*In project settings, you can set a default setting for the sequence and size of columns using the **Column settings AML** property or the **Column settings CEL** property. If you create a new screen switching function from an Alarm Message List screen or Chronological Event List screen, this setting is used as a default and can be amended in the corresponding tab. The setting is stored in the **project.ini** file.*

## COLUMN CONFIGURATION

| Parameters             | Description  |
|------------------------|--|
| <b>Columns</b>         | <p>In the list field of this tab all available column types are displayed.</p> <p>You can change the sequence of column types by dragging &amp; dropping in the list field:</p> <ul style="list-style-type: none"> <li>▶ Click in the <b>Column type</b> column</li> <li>▶ Move the individual entries as desired</li> </ul> <p>Alternatively, you can adjust the sequence with the <b>Move selected entry up</b> and <b>Move selected entry down</b>.</p> |
| ▶ <b>Checkbox:</b>     | Select which column types are displayed.   |
| ▶ <b>Description:</b>  | <p>Free text entry for a description of the column.</p> <p><b>Change description:</b> left-click on the corresponding area. Enter the desired value in the editing field.</p> <p><b>Note:</b> for column descriptions, zenon language switching is available.</p>  |
| ▶ <b>Column width:</b> | <p>Defines the width of the column in characters.</p> <p><b>Change column width:</b> left-click on the corresponding area. Enter the desired value in the editing field.</p> <p>–1 Width is calculated in Runtime using average character width</p> <p><b>Note:</b> For compatibility reasons, the columns with widths that could not be changed in earlier zenon versions (date and time), have the value –1 .</p>  |
| ▶ <b>Display:</b>      | <p>For column types</p> <ul style="list-style-type: none"> <li>▶ <b>Alarm/event class symbol</b></li> <li>▶ <b>Alarm/event group symbol</b></li> <li>▶ <b>Alarm status</b></li> </ul> <p>Actual form of display can be selected in Runtime. Select the desired form from the drop-down list.</p>   |

|  |  |
|--|--|
| <b>Move selected entry up</b>            | Moves selected entry up one place.   |
| <b>Move selected entry down</b>          | Moves selected entry down one place.   |
| <b>Preview field</b>                     | <p>Displays the columns defined in the list field in the width displayed there.</p> <p>You can also adjust the column widths here by left clicking on the right end of a column, holding down the mouse button and moving the mouse to the left or right accordingly.</p>  |
| <b>Table settings</b>                    |  |
| <b>Sort descending</b>                   | <p>Sorts the entries in the list according to the <b>Time received</b> column in decreasing order. This setting applies for calling up a screen.</p> <p>You can change the sorting order in Runtime by clicking on the column header. The sorting sequence currently being used is shown by an arrow on the column header.</p> |
| <b>Display grid</b>                      | Shows a grid when the list is displayed in Runtime.  |
| <b>Use alternating background colors</b> | Uses <b>line color 1</b> and <b>line color 2</b> alternately as background colors for the list in Runtime.   |
| <b>Row color 1</b>                       | Color that is used as a background color in in the list Runtime for all uneven numbers (1, 3, 5 etc.), if you have activated <b>Alternating Background Colors</b> .  |
| <b>Row color 2</b>                       | Color that is used as a background color in in the list Runtime for all even numbers (2, 4, 6 etc.), if you have activated <b>Alternating Background Colors</b> .  |

|                       |  |  |
|-----------------------|--|--|
| <b>Display in the</b> | <b>time columns</b>  |  |
| <b>Time</b>           | Displays the time for a list entry in the following form:<br>HH:MM:SS  |  |
| <b>Date</b>           | Displays the date for a list entry in the following form:<br>TT:MM:YYYY  |  |
| <b>Milliseconds</b>   | Expands the time entry by milliseconds.<br><br><b>Note:</b> Must be activated if milliseconds are to be provided in exports or print-outs. |  |

**Hint:** If you activate the automatic keyboard in Runtime, it is turned on when an editing field appears. You can also use this to configure the columns if you are using a computer without a keyboard.



### Attention

*The column width is given in characters and is dependent on the font used.*

*If the column width is not a multiple of the character width of the used font, the actual column width can differ from the set column width. This can result in the text being cut of or an empty space being created.*

*Solution: Use fonts with a fixed character width.*

## 3.6.2 Filter for Alarm Message List screen switching.

You define which alarms are to be displayed in Runtime using filters and which are to be hidden. Filters can be defined in the editor and - depending on the requirements in the Editor - in Runtime.

To tailor the filter selection to the requirements of the operator in Runtime, use an `Alarm Message List filter` (on page 92) screen instead of an `Alarm Message List` screen.

To configure screen switching for an `Alarm Message List` (on page 7) screen:

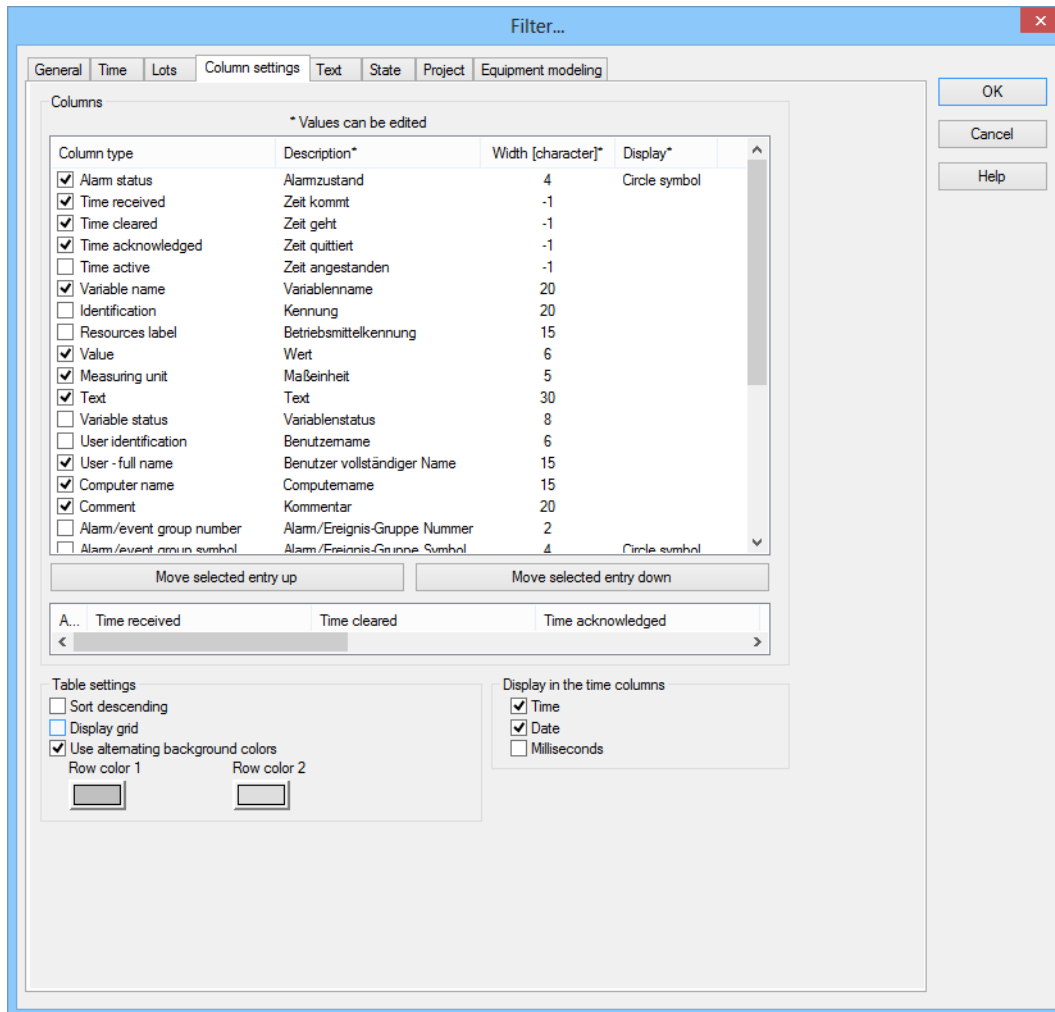
1. engineer a function screen switch to a screen of type `Alarm Message List`
2. the filter dialog is opened and offers several tabs with filter criteria:

- General (on page 53)
- Time (on page 58)
- Lots (on page 72)
- Column settings (on page 84)
- Text (on page 82)
- Status (on page 89)
- Project (on page 90) (only available in the integration project of the multi-project administration.)
- Equipment Modeling (on page 90)

If linked variables or indexes are available, the following tabs can be displayed as an option.

- Replace links
- Replace indices

For details see in chapter **Screens** sections **Replace links of variables and functions** and **Symbols**.

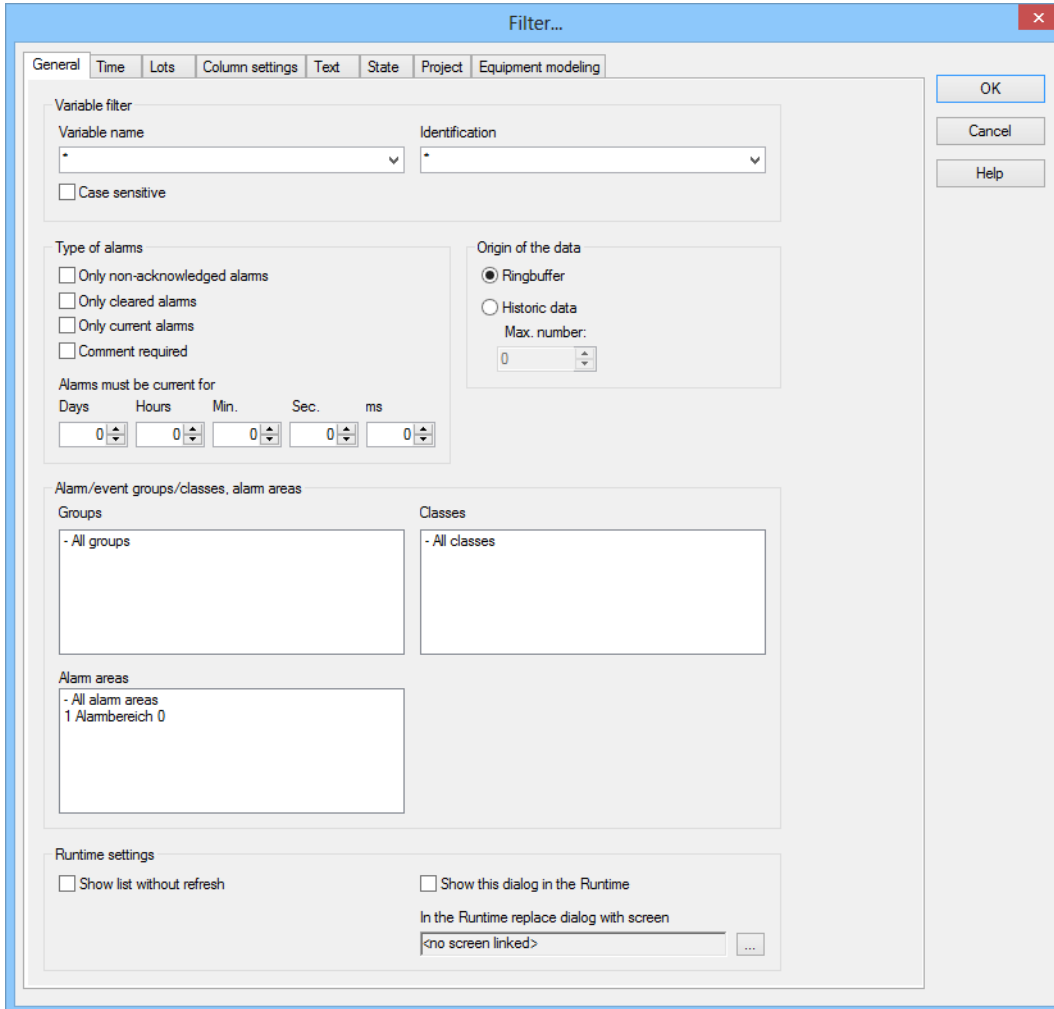


## General

With the general filter, you define which alarms are shown and what access you have to the setting in Runtime. To do this, alarms are classified according to:

- ▶ Type
- ▶ Origin of the data
- ▶ Variables
- ▶ Time active
- ▶ Alarm/event groups, classes and alarm areas

The following properties are available:



**Filter...**

General | Time | Lots | Column settings | Text | State | Project | Equipment modeling

**Variable filter**

Variable name:  Identification:

☐ Case sensitive

**Type of alarms**

☐ Only non-acknowledged alarms  
☐ Only cleared alarms  
☐ Only current alarms  
☐ Comment required

**Origin of the data**

☒ Ringbuffer  
☐ Historic data  
Max. number:

**Alarms must be current for**

Days:  Hours:  Min.:  Sec.:  ms:

**Alarm/event groups/classes, alarm areas**

**Groups**

- All groups

**Classes**

- All classes

**Alarm areas**

- All alarm areas  
1 Alambereich 0

**Runtime settings**

☐ Show list without refresh  
☐ Show this dialog in the Runtime  
In the Runtime replace dialog with screen

OK Cancel Help

## VARIABLE FILTER

| Parameters             | Description   |
|------------------------|---|
| <b>Variable filter</b> | Limitation to alarms of certain variables   |
| <b>Variable name</b>   | <p>Enter the name or part of the name of the variable you want to filter.</p> <p>Use of the wild card * is possible. Wildcards are only permitted as a prefix or suffix; e.g. *xxx or xxx*.</p> <p>Note: Filter terms entered in Runtime or in the Editor are automatically saved on the local computer in <b>zenon6.ini</b> and are available for selection in the drop-down list.</p> <p>Attention: The comma character (,) "only" serves as a separator between several variables to be filtered. However it is not possible to filter for a comma character in variables names!</p> <p>This results in the special filtering of array variables for <b>Dim 2</b> and <b>Dim 3</b> not being possible.</p> |
| <b>Identification</b>  | <p>Enter the identification or part of the identification of the variables you want to filter. Wild card * is possible.</p> <p>Use of the wild card * is possible. Wildcards are only permitted as a prefix or suffix; e.g. *xxx or xxx*.</p> <p>Note: Filter terms entered in Runtime or in the Editor are automatically saved on the local computer in <b>zenon6.ini</b> and are available for selection in the drop-down list.</p>   |
| <b>Case sensitive</b>  | Active: Capitalization is recognized when filtering for variable name or identification.  |

## TYPE OF ALARMS

| Parameters                          | Description   |
|-------------------------------------|---|
| <b>Type of alarms</b>               | Type of alarm that is displayed.  |
| <b>Only not acknowledged alarms</b> | Active: Only alarms that have not yet been acknowledged by the user are displayed.                              |
| <b>Only cleared alarms</b>          | Active: Only alarms that have already passed, i.e. whose values no longer in the critical range, are displayed. |
| <b>Only current alarms</b>          | Active: Only alarms that are still active, i.e. whose values are still in the critical range, are displayed.    |
| <b>Comment required</b>             | Active: Only alarms are shown for which it is necessary to leave a comment (on page 159) are displayed.         |
| <b>Alarms must be current for</b>   | Use the spin control to define the minimum time that an alarm should be active in order for it to be displayed. |

|  |  |
|--|--|
|  | Possible settings: <ul style="list-style-type: none"> <li>▶ <b>Days</b></li> <li>▶ Hours (<b>hr.</b>)</li> <li>▶ Minutes (<b>min.</b>)</li> <li>▶ Seconds (<b>sec.</b>)</li> <li>▶ Milliseconds (<b>ms</b>)</li> </ul> |
|--|--|

## ORIGIN OF THE DATA

| Parameters                                      | Description  |
|---|--|
| <b>Origin of the data</b>                       | Display of current or current and historical alarms.   |
| <b>Ring buffer</b>                              | <i>Active:</i> Only data from the ring buffer (on page 32) are displayed.  |
| <b>Historical data</b><br><b>Maximum number</b> | <i>Active:</i> Data from the ring buffer and historical data from the AML are displayed.<br><br>The maximum number of the data which should be displayed includes the data from the ring buffer. |

## ALARM/EVENT GROUPS/CLASSES AND ALARM AREAS

| Parameters                                     | Description  |
|--|--|
| <b>Alarm/Event Groups/Classes, Alarm Areas</b> | Selection of groups, classes and alarm area.   |
| <b>Alarm/event groups</b>                      | From the existing alarm/event groups (on page 35) select the one from which alarms should be displayed.  |
| <b>Alarm/event classes</b>                     | From the existing alarm/event classes (on page 38) select the one from which alarms should be displayed. |

## ALARM AREAS

| Parameters         | Description  |
|--------------------|--|
| <b>Alarm Areas</b> | From the existing alarm areas (on page 42) select the one from which alarms should be displayed. |

## RUNTIME SETTINGS

| Parameters              | Description                    |
|-------------------------|--------------------------------|
| <b>Runtime settings</b> | Behavior of the AML in Runtime |



|  |   |
|--|---|
| <b>Show list without refresh</b>             | <p>Active: As long as the list is displayed no new entries are added.</p> <p>(Not available for <b>Export AML</b> (on page 127) function.)</p>  |
| <b>Show this dialog in the Runtime</b>       | <p>Active: Before every call of the screen the filter dialog is opened. The filter settings can be modified. This option is not available with Windows CE.</p> <p>Note: If, in the <b>Lots</b> tab, the <b>Show lot selection dialog</b> option is also selected, then the lot selection dialog is called up in Runtime. This is no longer displayed after reloading.</p> <p>Notes for time range filters:</p> <p><b>Show this dialog in the Runtime</b> active:</p> <ul style="list-style-type: none"> <li>▶ The filter is opened in Runtime in screen switching. The filter is no longer offered on reloading. This behavior can differ for individual screen types if the dialog was displayed in screen switching and canceled.</li> <li>▶ The last-concluded time period is always used.</li> </ul> <p><b>Show this dialog in the Runtime</b> not active:</p> <ul style="list-style-type: none"> <li>▶ <b>Use last finished time range</b> active: The last-concluded time period is used</li> <li>▶ <b>Use last finished time range</b> not active: The current time period is used.</li> </ul> |
| <b>Replace dialog in Runtime with screen</b> | <p>Definition of a screen that is to be switched in Runtime instead of the dialog if the <b>Show this dialog in Runtime</b> option is active. Only screens of the type <b>AML Filter</b> or <b>Time filter</b> will be offered.</p> <p>Click the ... button and a dialog opens to select a screen.</p> <p>If the linked screen is not found in Runtime, a search is made for corresponding screens with specific names.</p>   |



### Attention

Concerns zenon under Windows CE: CE systems on which the filter dialog should be displayed must have a screen resolution higher than 800\*600 pixel for the dialog to be displayed completely.

## Time

Time filters make it possible to limit the data to be displayed or exported. The time filters are very flexible to implement and can be pre-set in the editor or adjusted in Runtime.

**Note:** Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.

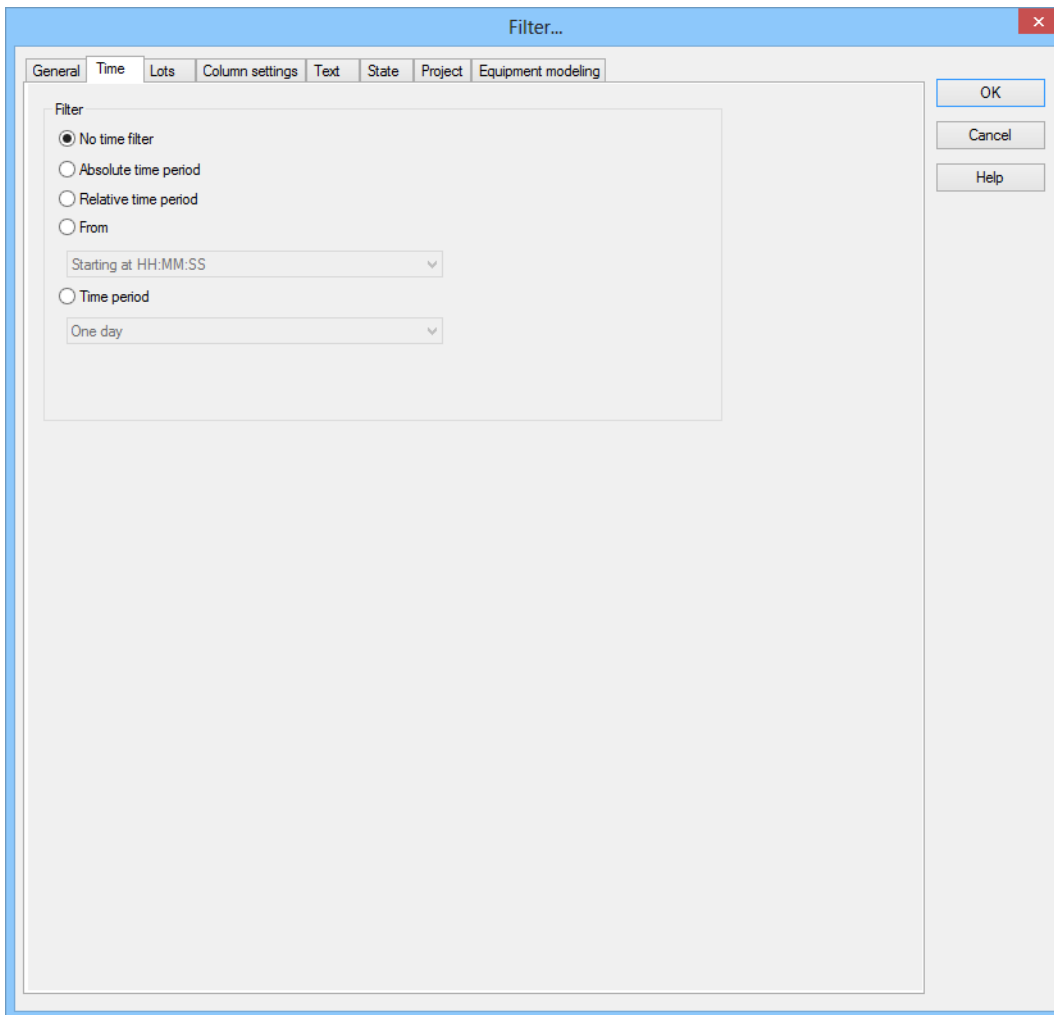
Time filters can be pre-set in both the Editor and in Runtime for:

- ▶ Absolute time period (on page 61)
- ▶ Relative period of time (on page 63)
- ▶ From (on page 65)
- ▶ Time period (on page 68)

Time filtering can be carried out in two ways:

1. Define time period in the Editor (on page 70)  
Fixed time areas are used. A time period is given in the editor. It is only possible to filter according to this time period in Runtime. Other filters - such as filtering according to variable name, alarm/event groups and alarm/event classes etc. can no longer be amended in Runtime.
2. Time filter amendable in Runtime (on page 71)  
Pre-defined times are used. The time filter is defined in the Editor and can be changed in Runtime as desired.

## TIME FILTER



The image shows a 'Filter...' dialog box with a blue title bar and a red close button. It contains several tabs: 'General', 'Time', 'Lots', 'Column settings', 'Text', 'State', 'Project', and 'Equipment modeling'. The 'Time' tab is selected. Inside the dialog, there is a 'Filter' section with four radio buttons: 'No time filter' (selected), 'Absolute time period', 'Relative time period', and 'From'. Below the 'From' radio button is a text field labeled 'Starting at HH:MM:SS' with a dropdown arrow. Below the 'Time period' radio button is a text field labeled 'One day' with a dropdown arrow. On the right side of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

Filter...

General Time Lots Column settings Text State Project Equipment modeling

Filter

☒ No time filter

☐ Absolute time period

☐ Relative time period

☐ From

Starting at HH:MM:SS

☐ Time period

One day

OK

Cancel

Help

## FILTER

Selection of the filter.

| Parameters                     | Description  |
|--------------------------------|--|
| <b>No time filter</b>          | <p><b>Active:</b> No time filter is used.</p> <p><b>Note:</b> all Runtime entries since 1. 1. 1990 are displayed.</p>  |
| <b>Absolute filter</b>         | <p><b>Active:</b> A fixed period of time is entered in the editor. When the function is executed, the defined absolute time period is exactly used.</p> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Note:</b> Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.</p>   |
| <b>Relative period of time</b> | <p><b>Active:</b> A relative time period is entered.</p> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Attention:</b> this filter is constantly updated.</p>  |
| <b>From</b>                    | <p><b>Active:</b> A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.</p> <p>Selection of the area mode from drop-down list:</p> <ul style="list-style-type: none"> <li>▶ From HH:MM:SS o'clock</li> <li>▶ From day - HH:MM:SS o'clock</li> <li>▶ Starting on day, month at HH:MM:SS</li> </ul> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Attention:</b> The start point of this filter is not updated automatically. Only the existing times are used when shown.</p> <p>The end time point is not defined with this filter, it is carried over.</p> |
| <b>Time period</b>             | <p><b>Active:</b> A fixed time period is entered. Selection of the area mode from drop-down list:</p> <ul style="list-style-type: none"> <li>▶ One day</li> <li>▶ One week</li> <li>▶ Two weeks</li> <li>▶ One month</li> <li>▶ One Year</li> <li>▶ 15 minutes</li> <li>▶ 30 minutes</li> <li>▶ 60 minutes</li> </ul>  |

|  |   |
|--|---|
|  | In the settings section, the corresponding options can be shown and configured there. |
|--|---|

#### CLOSE DIALOG

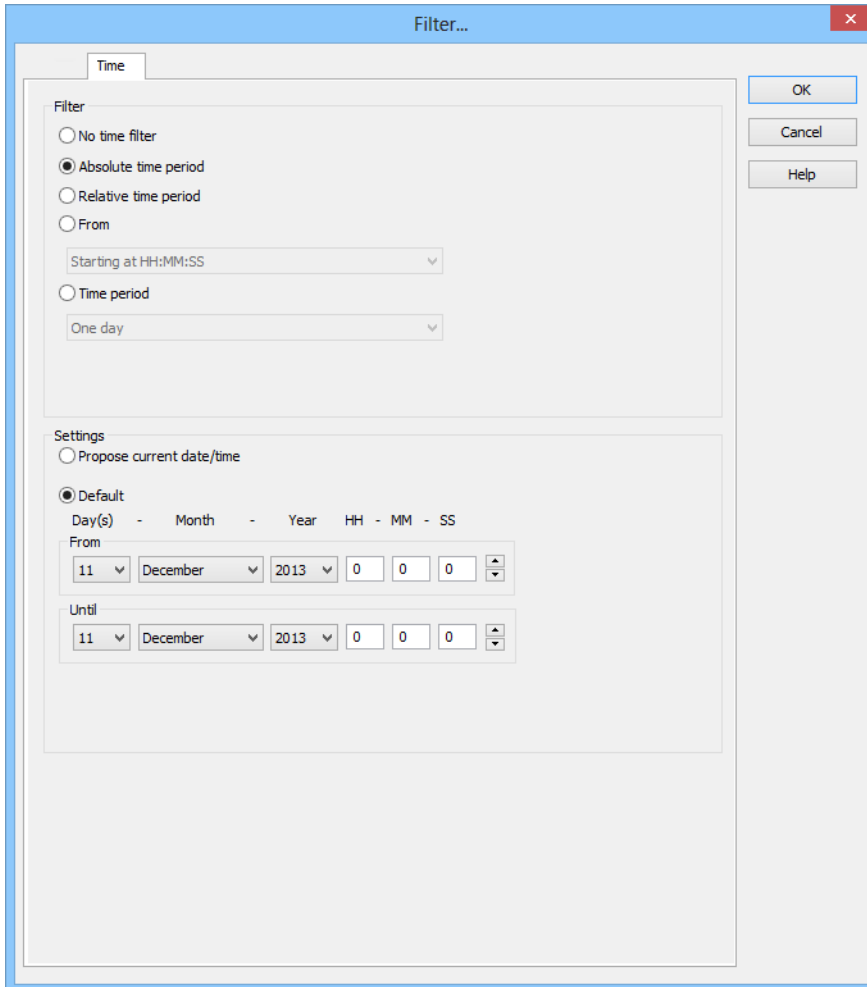
| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

#### Absolute time period

You define a fixed time period with the absolute filter. When the function is executed, the defined absolute time period is exactly used. To set the filter:

1. Select, in the **Filter** section, the **Absolute time period** option

## 2. Configure the desired time in the **Settings** section



Filter...

Time

Filter

☐ No time filter

☒ Absolute time period

☐ Relative time period

☐ From

Starting at HH:MM:SS

☐ Time period

One day

Settings

☐ Propose current date/time

☒ Default

Day(s) - Month - Year HH - MM - SS

From

11 December 2013 0 0 0

Until

11 December 2013 0 0 0

OK

Cancel

Help

| Parameters                       | Description  |
|----------------------------------|--|
| <b>Settings</b>                  | Configuration of the time filter.  |
| <b>Propose current date/time</b> | Active: Time filter is displayed in Runtime.   |
| <b>Preset</b>                    | Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime. |
| <b>From</b>                      | Start time of the filter. Selection of day, month, year, hour, minute and second                             |
| <b>Until</b>                     | End time of the filter. Selection of day, month, year, hour, minute and second                               |

#### CLOSE DIALOG

| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

#### Relative period of time

A relative time period is entered.

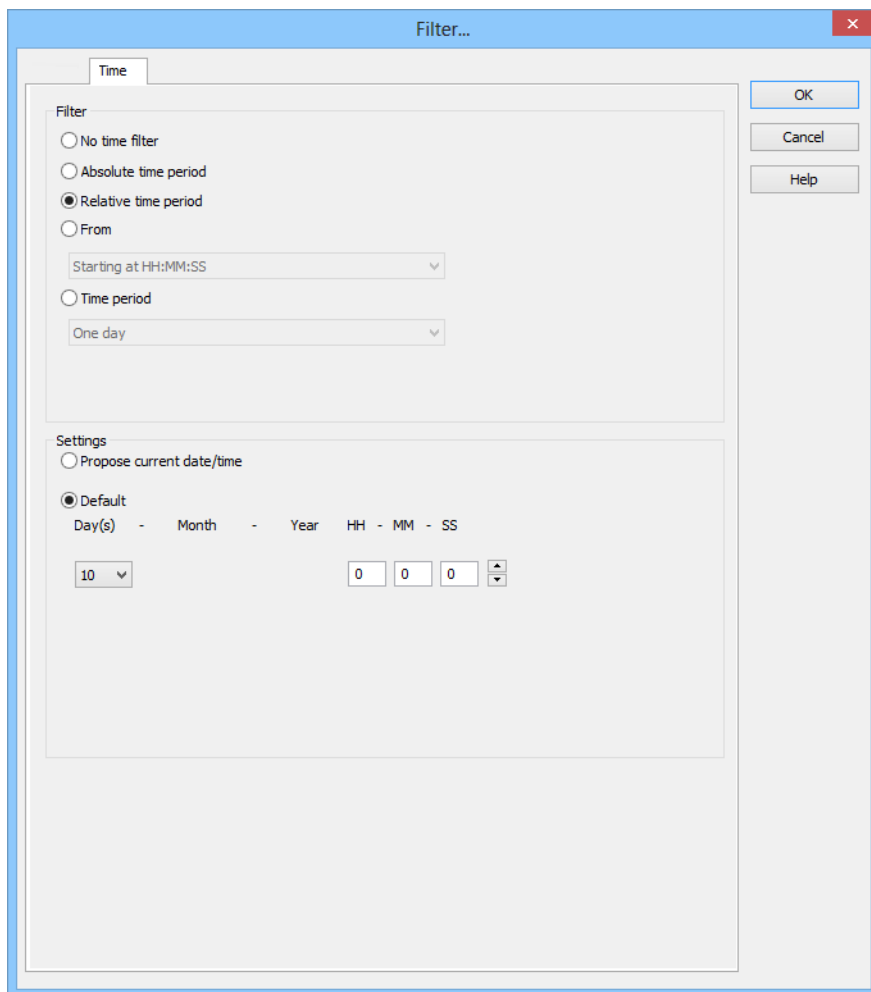
**Attention:** This filter is updated constantly and continues to run.

Example: You set a relative time of 10 minutes and switch to a screen with this time filter at 12:00. You are then shown the data from 11:50 to 12:00 when switching. If the screen stays open, the filter is automatically updated. At 12:01, you see the data from 11:51 – 12:01 etc.

To set the filter:

1. Select, in the **Filter** section, the **Relative period of time** option

2. Configure the desired time in the **Settings** section



The image shows a 'Filter...' dialog box with a 'Time' tab selected. The dialog is divided into two main sections: 'Filter' and 'Settings'. In the 'Filter' section, there are four radio buttons: 'No time filter', 'Absolute time period', 'Relative time period' (which is selected), and 'From'. Below the 'Relative time period' radio button is a text input field labeled 'Starting at HH:MM:SS' with a dropdown arrow. In the 'Settings' section, there are two radio buttons: 'Propose current date/time' and 'Default' (which is selected). Below the 'Default' radio button is a time configuration area with labels 'Day(s)', 'Month', 'Year', 'HH', 'MM', and 'SS'. The 'Day(s)' field has a dropdown menu showing '10'. The 'HH', 'MM', and 'SS' fields are numeric input boxes, each containing '0'. To the right of the dialog box are three buttons: 'OK', 'Cancel', and 'Help'.

Filter...

Time

Filter

☐ No time filter

☐ Absolute time period

☒ Relative time period

☐ From

Starting at HH:MM:SS

☐ Time period

One day

Settings

☐ Propose current date/time

☒ Default

Day(s) - Month - Year HH - MM - SS

10 0 0 0

OK

Cancel

Help



| Parameters                       | Description   |
|----------------------------------|---|
| <b>Settings</b>                  | Configuration of the time filter.   |
| <b>Propose current date/time</b> | Active: Time filter is displayed in Runtime.  |
| <b>Preset</b>                    | <p>Active: The time filter is prescribed in the Editor. Only the start time can still be configured in Runtime.</p> <p>Selection of the relative time period in days, hours, minutes and seconds.</p> |

#### CLOSE DIALOG

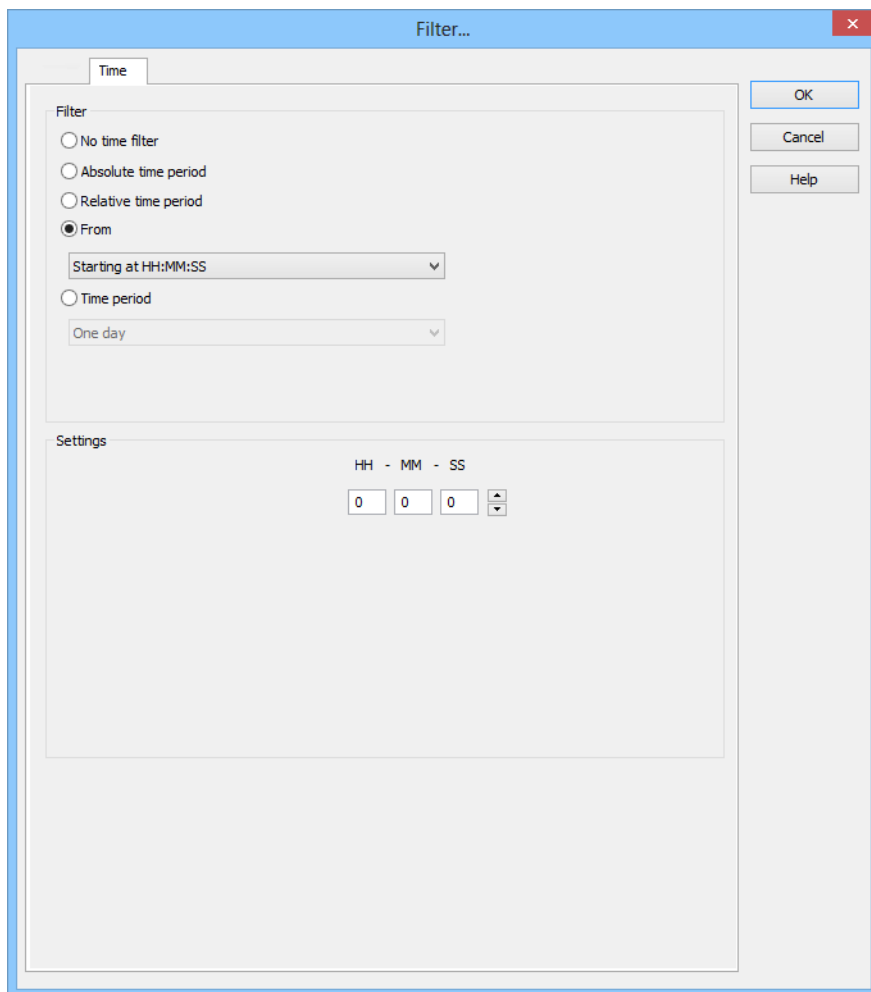
| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

#### From

A time from which the filter is effective is defined. To set the filter:

1. Select, in the **Filter** section, the **Off** option
2. Select the desired filter from the drop-down list.
  - From HH:MM:SS o'clock
  - From day - HH:MM:SS o'clock
  - Starting on day, month at HH:MM:SS

3. Configure the desired time in the **Settings** section



The image shows a 'Filter...' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog is divided into two main sections: 'Filter' and 'Settings'. The 'Filter' section contains four radio buttons: 'No time filter', 'Absolute time period', 'Relative time period', and 'From'. The 'From' radio button is selected. Below the 'From' radio button is a dropdown menu labeled 'Starting at HH:MM:SS'. Below the dropdown menu is a radio button labeled 'Time period', which is not selected. Below the 'Time period' radio button is a dropdown menu labeled 'One day'. The 'Settings' section contains a label 'Settings' and a time input field. The time input field is labeled 'HH - MM - SS' and contains three input boxes with the values '0', '0', and '0' respectively. To the right of the input boxes is a small up/down arrow button. On the right side of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

Filter...

Time

Filter

☐ No time filter

☐ Absolute time period

☐ Relative time period

☒ From

Starting at HH:MM:SS

☐ Time period

One day

Settings

HH - MM - SS

0 0 0

OK

Cancel

Help

| Parameters                               | Description  |
|--|--|
| <b>Settings</b>                          | Configuration of the time filter.  |
| <b>[Date/Time]</b>                       | <p>Depending on the settings of the <b>Off</b> option, the time from which the filter is effective is configured here:</p> <ul style="list-style-type: none"> <li>▶ Starting from HH:MM:SS</li> <li>▶ Starting from day at HH:MM:SS</li> <li>▶ Starting from day, month - at HH:MM:SS</li> </ul> <p><b>Warning!</b> The start point of this filter is not updated automatically. Only the existing times are used when shown, even if the screen remains open and 23:00:00 is reached. The end time point is not defined with this filter, it is carried over.</p> |
| ▶ Starting from HH:MM:SS                 | <p>A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.</p> <p><b>Example:</b> You enter 23:00:00. If it is then 23:30 when executing the function, then it is filtered from 23:00:00 up to the current point in time. If it is 22:30 however, then filtering takes place from 23:00:00 on the previous day to the current point in time.</p>   |
| ▶ Starting from day at HH:MM:SS          | <p>A day and time for the start of the filter are entered. If the time given has not been reached in the current month, the corresponding time from the previous month is used.</p> <p><b>Example:</b> You enter <b>day</b> 5 - 23:00:00. If it is the 10th of the month at 23:30, then filtering takes place from the 5th of the month from 23:00:00 to the current time point. If, however, it is the 4th of the month, then filtering takes place from the 5th of the previous month to the current time point.</p>   |
| ▶ Starting from day, month - at HH:MM:SS | <p>A month, day and time for the start of the filter are entered. If the time stated has not been reached in the current year, the corresponding time from the previous year is used.</p> <p><b>Example:</b> You enter <b>Day</b> 5, <b>Month</b> October - 23:00:00. If it is October 10th at 23:30, then filtering takes place from October 5th from 23:00:00 to the current time point. If, however, it is only October 4th, then filtering takes place from October 5th of the previous year from 23:00 to the current time point.</p>                         |

**CLOSE DIALOG**

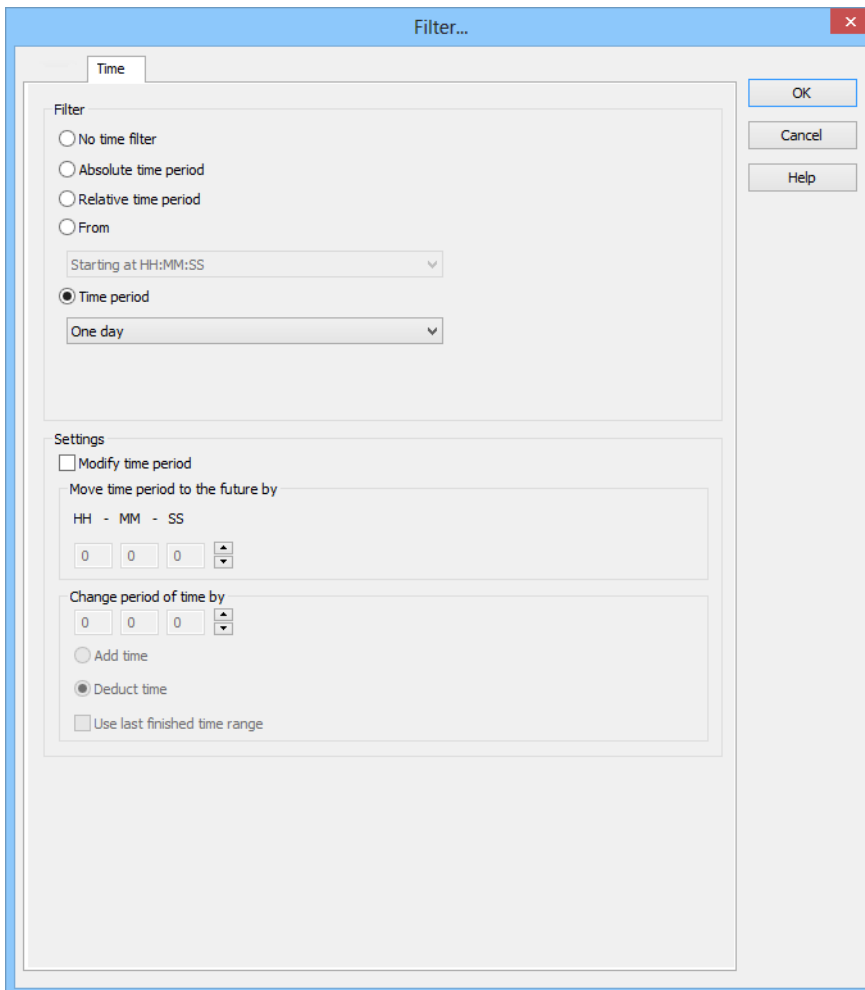
| Parameters | Description  |
|------------|--|
| <b>OK</b>  | Applies all changes in all tabs and closes the dialog. |

|               |   |
|---------------|---|
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

## Time period

A time period in which the filter is effective is defined. To set the filter:

1. Select, in the **Filter** section, the **Time period** option
2. Configure the desired time in the **Settings** section



The screenshot shows the 'Filter...' dialog box with the 'Time' tab selected. The 'Filter' section has four radio buttons: 'No time filter', 'Absolute time period', 'Relative time period', and 'From'. The 'Time period' radio button is selected, and a dropdown menu below it shows 'One day'. The 'Settings' section has a checkbox for 'Modify time period' which is unchecked. Below it is a section 'Move time period to the future by' with input fields for HH, MM, and SS, all set to 0. Another section 'Change period of time by' has input fields for HH, MM, and SS, all set to 0. Below these are two radio buttons: 'Add time' (unchecked) and 'Deduct time' (checked). At the bottom is a checkbox for 'Use last finished time range' which is unchecked. On the right side of the dialog are buttons for 'OK', 'Cancel', and 'Help'.

| Parameters                               | Description   |
|--|---|
| <b>Settings</b>                          | Configuration of the time filter.   |
| <b>Time period</b>                       | <p>Selection of a time range from a drop-down list.</p> <p>Filtering for this time range is carried out in Runtime. The filter relates to the time of screen switching.</p> <p>For example: The value <code>60 minutes</code> shows all archives of the last hour.</p> <p>If this dialog is offered in Runtime, the start time of the time range can be selected.</p>   |
| <b>Modify time period</b>                | <p>Allows amendments to cycles, postponements and extensions of time periods.</p> <p><b>Active:</b> Evaluation is carried out in accordance with the following rules:</p> <ul style="list-style-type: none"> <li>► First, the <b>Use last finished time period</b> option is evaluated.</li> <li>► After this, <b>Change time period by</b> is used.</li> <li>► <b>Move time period to the future by</b> is then applied.</li> </ul> <p><b>Inactive:</b> No changes to the time period are made.</p> <p><b>Attention:</b> With version 7.10, filter actions on the basis of this function led to different results than those in the versions before.</p> |
| <b>Move time period to the future by</b> | <p><b>Active:</b> The time period defined in the filter is postponed to the future. Given in <code>hours - minutes - seconds</code>.</p> <p>If a postponement that is the same or greater than the selected <b>time period</b> is set, a note to check the configuration is displayed.</p>  |
| <b>Change period of time by</b>          | <p><b>Active:</b> The time period defined in the filter is modified. Given in <code>hours - minutes - seconds</code>.</p> <p>If a change and a postponement that are the same or greater than the selected <b>time period</b> is set, a note to check the configuration is displayed.</p>   |
| <b>Add time</b>                          | <b>Active:</b> The time stated in <b>Change time period by</b> is added to the time defined in the <b>Time range</b> option.  |
| <b>Deduct time</b>                       | <b>Active:</b> The time stated in <b>Change time period by</b> is deducted from the time defined in the <b>Time range</b> option.   |
| <b>Use last finished time period</b>     | <b>Active:</b> The last finished time period is used.   |

## CLOSE DIALOG

| Parameters | Description  |
|------------|--|
| <b>OK</b>  | Applies all changes in all tabs and closes the dialog. |

|               |   |
|---------------|---|
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

## Specify time period in the Editor

With this method, you enter a fixed time period into the editor, which is applied when the function is carried out in Runtime. You can then only define the start time in Runtime, but no further filter settings.

For example: You set a 30 minute time filter. In Runtime, you can now only set when this 30 minute time period is to start. However, you cannot change the filter to a day filter.



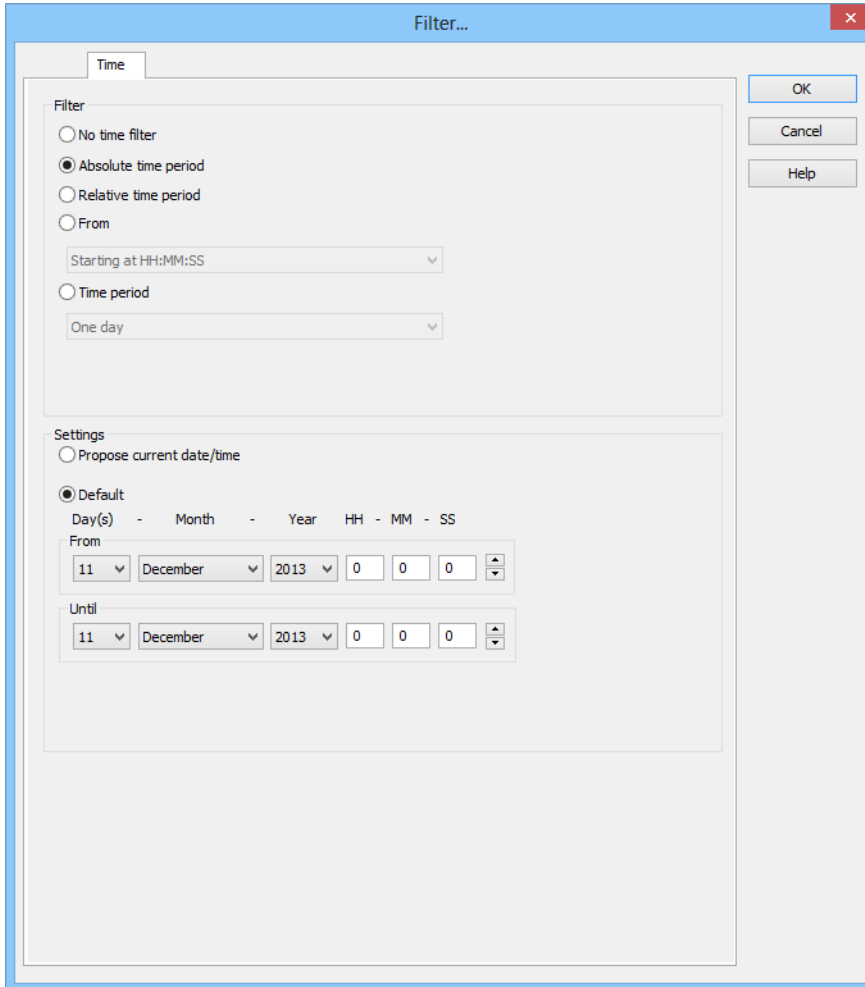
### Attention

*When using this type of filter, you can also no longer amend all other filters in Runtime that are available in the **General** tab. It is still possible to filter for text, status and equipment.*

To create the filter:

1. The screen must have the **Filter** button to start the filter in Runtime
2. select the desired filter

### 3. Configure the selected time period



Tip for time period: Activate the **Show this dialog in Runtime** option in the filter dialog. This way you can amend the start time before the function is carried out. Do not have the filter displayed in Runtime when the function is turned on; this way the current time period is always used. If you have activated the **Use last closed time period** option, the previous time period is shown.

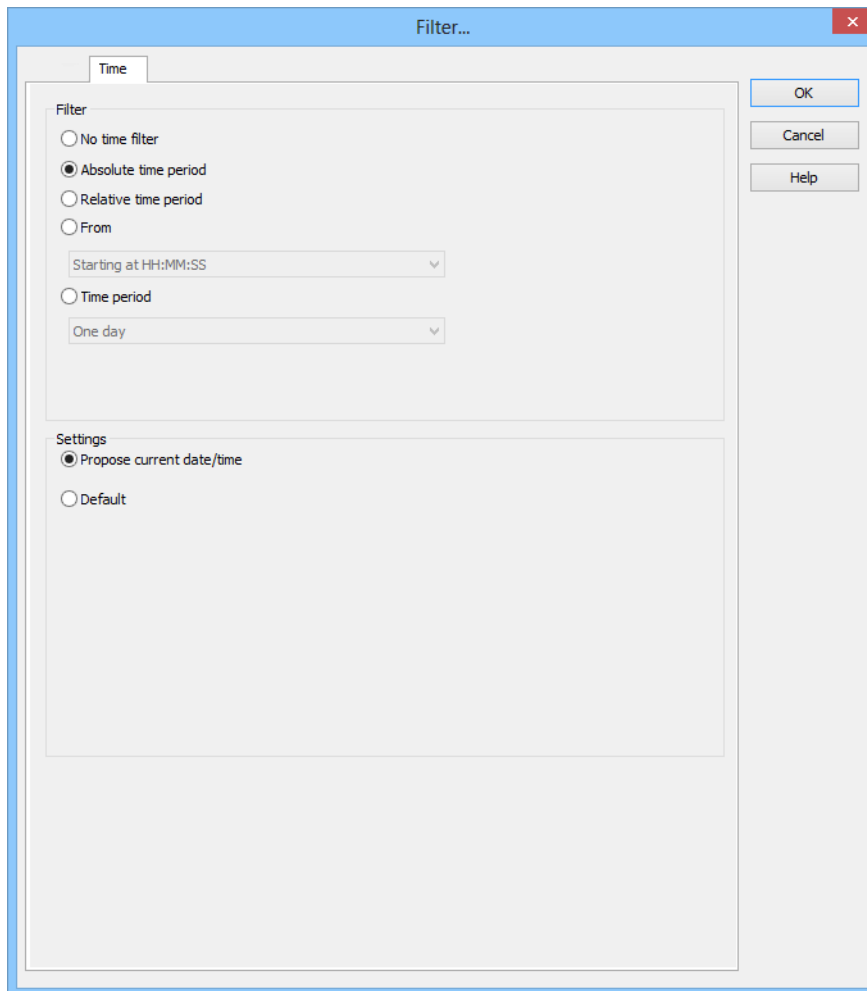
For example: You have set a 30 minute filter. It is 10.45 when the function is activated. If the **Use last closed time period** option is deactivated, the filter is set to the current time period 10:30:00 to 10:59:59. If the option is activated, the filter is set to the previous time period of 10:00:00 to 10:29:59.

### Time filter can be configured in Runtime

With this method, you stipulate a time filter in the Editor. This can be amended in Runtime before execution. To create the filter:

1. The screen must have **Filter** and **Display filter** buttons
2. select the desired filter:

- Absolute time period
  - Relative period of time
3. Select, in the Settings section, the option **Propose current date/time**
  4. The filter dialog is opened in Runtime with the current date and time



## Lots

You configure the limitation of the display to certain lots in this tab. The lot information is also applied to the existing filter.

If the lot filter is activated, a list of all configured lots that correspond to the configured time period is obtained from the archive server in Runtime in advance when the AML is loaded.

**Attention:** All variables and archives that belong to an item of equipment and the lot archive must be linked to the same equipment in the equipment model.





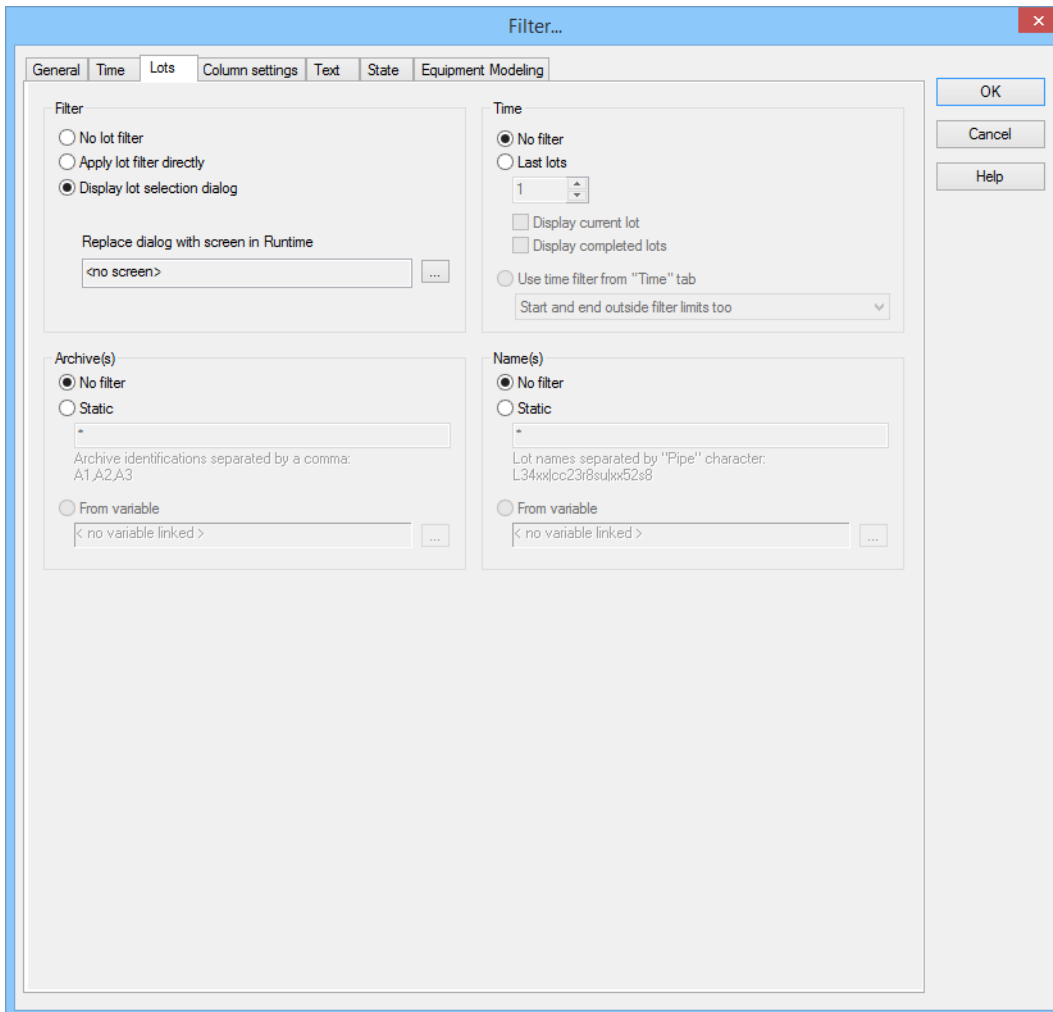
### Information

Some filters in zenon can be configured independently of one another and then combined in Runtime. This is only possible to a limited extent with the lot filter.

The lot filter can offer a list of existing lots in Runtime. It is Runtime data that is not available in the Editor.

When configuring the screen switching in the Editor, the **time filter** tab can only be used in conjunction with the lot filter as a prefilter for the lot selection dialog. If you then select a lot from this list in Runtime, the time filter is overwritten with the data from the selected lot, in order to achieve precise filtering for the selected lot.

That means: If the lot selection dialog is used in Runtime and a lot is selected, the time filter displayed does not correspond to the one configured in the Editor.



Filter...

General Time **Lots** Column settings Text State Equipment Modeling

**Filter**

☐ No lot filter

☐ Apply lot filter directly

☒ Display lot selection dialog

Replace dialog with screen in Runtime

<no screen> ...

**Archive(s)**

☒ No filter

☐ Static

Archive identifications separated by a comma:  
A1,A2,A3

☐ From variable

< no variable linked > ...

**Time**

☒ No filter

☐ Last lots

1

☐ Display current lot

☐ Display completed lots

☐ Use time filter from "Time" tab

Start and end outside filter limits too

**Name(s)**

☒ No filter

☐ Static

Lot names separated by "Pipe" character:  
L34xx|cc23r8sujxx52s8

☐ From variable

< no variable linked > ...

OK

Cancel

Help

## **FILTER**

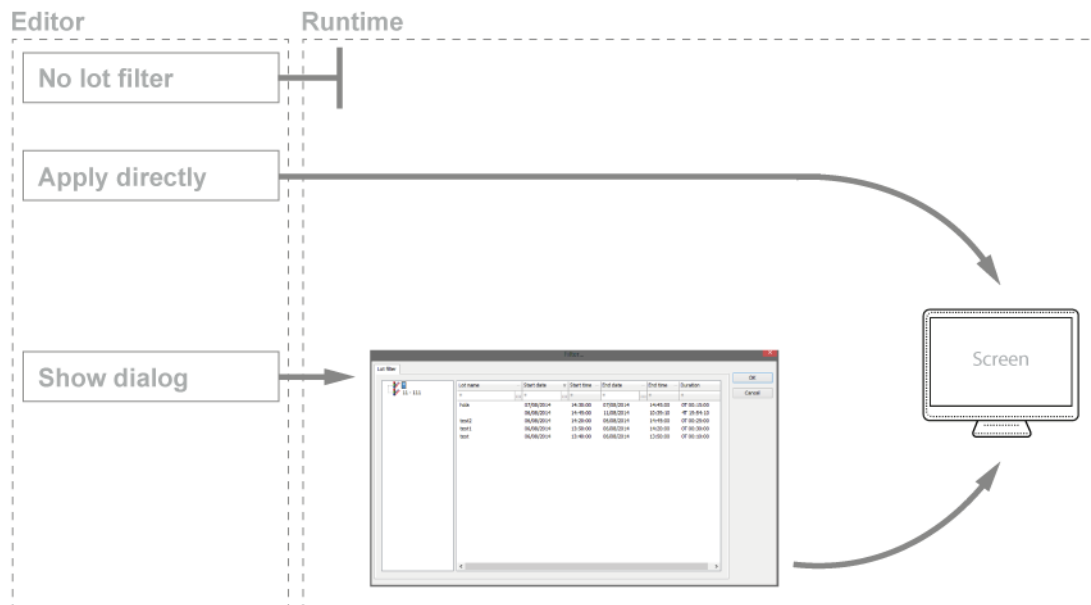
Settings for the application of the lot filter. Selection of one of the options:

- ▶ **No lot filter**
- ▶ **Apply lot filter directly**
- ▶ **Display lot selection dialog**

**Note:** If the lot filter is shown as a dialog, it can be prefiltered for archive identifications. It is expressly recommended that you use this prefiltering for performance improvements.

| Parameters                                   | Description  |
|--|--|
| <b>No lot filter</b>                         | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The lot filter is deactivated and cannot be configured. Filtering for lots is not carried out in Runtime.</li> </ul>   |
| <b>Apply lot filter directly</b>             | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The filter configured here is applied in Runtime directly.</li> </ul> <p><b>Note:</b> There is no possibility to have all lots in a list displayed and to select one manually. If a certain lot is to be shown, the filter for the archives, name and time must be configured accordingly. This requires the existing data to be known very well. Alternatively, it is recommended that the <b>Show lot selection dialog</b> option is selected.</p>   |
| <b>Display lot selection dialog</b>          | <p><b>Active:</b> The dialog for lot selection is shown in Runtime when:</p> <ul style="list-style-type: none"> <li>▶ Clicking on <b>Filter</b> or</li> <li>▶ screen switching, if the <b>Show this dialog in Runtime</b> option has been activated (Not available for each function/screen type)</li> </ul> <p><b>Note:</b> The dialog is not shown on reloading.</p> <p>Options can be pre-selected in the Editor.</p>   |
| <b>Replace dialog with screen in Runtime</b> | <p>Not available if the <b>Show lot selection dialog</b> option has been selected.</p> <p>Definition of a screen that is to be called up in Runtime instead of the <b>lot selection dialog</b>. Only <code>time/lot filter</code> screens are offered.</p> <p>Click the <b>...</b> button and the dialog opens to select a screen.</p> <p>If the linked screen is not found in Runtime, a search is made for corresponding screens with specific names.</p> <p><b>Note:</b> A lot filter screen can also be selected using the <b>Show this dialog in Runtime</b> option. However this is not used as a lot filter here, but as a time filter screen. The lot filter options are not correctly applied at this position.</p> |
| <b>Relative lot selection</b>                | <p><b>Attention:</b> This option is only available for <b>Extended Trend</b>. With faceplates, it is displayed for all screen types, but here it is also only available for ETM.</p> <p><u>Configuration for ETM:</u></p> <p>In order for the option to be available, the <b>Show lot selection dialog</b> option must be activated and the <b>Windows CE project</b> property must be deactivated in the project properties.</p> <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Enables several lots to be compared directly. Display always starts from the zero point.</li> </ul>  |

Overview of the implementation of configuration in Runtime:



## TIME

Configuration of the time filter for lot selection. Selection of one of the options:

- ▶ **No filter**
- ▶ **Last lots**
- ▶ **Use time filter from "Time" tab**

| Parameters                             | Description   |
|--|---|
| <b>No filter</b>                       | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The time range set in the <b>Time</b> tab is not taken into account. All completed and current lots are displayed.</li> </ul>   |
| <b>Last lots</b>                       | <p><b>Attention:</b> Only works in conjunction with the <b>Apply lot filter directly</b> option.</p> <p>The option allows the combination of both options <b>Display current lots</b> and <b>Display completed lots</b>. At least one of the two options must be activated. If both options have been deactivated, this corresponds to the <b>No filter</b> setting.</p> <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Input of the number of lots last concluded, according to what they should be filtered for. Input of the number in the number field or configuration via cursor keys.</li> </ul> <p>Example: 3 was entered as a value for the option. 2 lots run and 10 have been ended. The following is shown: the two that are current and one that has been completed.</p> <p><b>Note:</b> The setting of the time filter is not used as a time period for the current lots, but the last year. This filter was not executed as a prefilter and can therefore not be used to improve performance.</p> <p><b>Note on compatibility:</b><br/>If the project is compiled for a version before 7.11, the following is applicable: If the current lots are selected or the combination of current and completed lots, then only the completed lots are shown in Runtime.</p> |
| <b>Display current lots</b>            | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The current lots are displayed.</li> </ul> <p><b>Note:</b> If the number of lots to be displayed is greater than the number of current lots, lots that have been completed are also shown until the set limit has been reached.</p> <p>Example: 3 lots are to be displayed. 1 lot is running, 5 have been completed. The one current lot and two completed lots are displayed.</p>  |
| <b>Display completed lots</b>          | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The completed lots are displayed.</li> </ul> <p><b>Note:</b> If the number of lots to be displayed is greater than the number of completed lots, lots that have been completed are also shown until the set limit has been reached.</p>   |
| <b>Use time filter from "Time" tab</b> | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Pre-filtering is carried out with the settings of the <b>Time</b> tab.</li> </ul> <p>The effective range of the filter can be amended within this time range. Select from drop-down list:</p> <ul style="list-style-type: none"> <li>▶ <b>Start and end also outside filter limits: (Default)</b><br/>Lots can start before the start time configured in the <b>Time</b> filter and end after the configured end time.</li> <li>▶ <b>Start and end only outside filter limits:</b><br/>Lots must start and end within the time points configured in the <b>Time</b> filter for the start and end.</li> </ul>  |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>▶ Start also before filter limit:<br/>Lots can start before the start time configured in the <b>Time</b> filter and end after the configured end time.</li><li>▶ End also after the filter limit:<br/>Lots can also end after the end time set in the <b>time</b> filter, but must start at or after the configured start time.</li><li>▶ Adjust start and end to filter limits:<br/>Lots are cut to the time points configured in the <b>Time</b> filter for the start and end.</li></ul> |
|--|--|

## ARCHIVES

Configuration of filtering for archives. This filter is applied as a prefilter for the lot selection dialog.

Selection of one of the following options:

- ▶ **No filter**
- ▶ **Static**
- ▶ **From variable**

| Parameters           | Description   |
|----------------------|---|
| <b>No filter</b>     | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Filtering for archive names is not carried out.</li> </ul>  |
| <b>Static</b>        | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Archives whose identification corresponds to the character string entered in the input field are filtered for.</li> </ul> <p>Input of the archive identifications in the input field:</p> <ul style="list-style-type: none"> <li>▶ Several identifications are separated by a comma (,).</li> <li>▶ * or empty: All archives, no filter.</li> </ul>   |
| <b>From variable</b> | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The value of the variables linked here is applied as a filter for archive names in Runtime.</li> </ul> <p>Click on button ... in order to open the dialog for selecting a variable.</p> <p>Only available for all modules if the <b>Apply lot filter directly</b> option has been selected:</p> <p>Notes for variables in Runtime:</p> <ul style="list-style-type: none"> <li>▶ The variable selection is only activated in Runtime if a valid variable has already been linked in Runtime. The ... button is always deactivated in Runtime. The option can be selected, but no new variable can be linked.</li> <li>▶ If the variable is not signed into the driver at the time at which the lot filter is applied, the variable is signed in and read. This can lead to delays with slow driver connections/protocols.</li> </ul> <p><b>Attention:</b> If the selected variable is not found in Runtime, there is no filtering for archive names. This also applies if the value of the variable cannot be determined. The filter then corresponds to the <b>No filter</b> setting.</p> |

**Note for ETM:** In the ETM, the archives are established by the curves configured in screen switching. This is only possible in Runtime with the **relative lots** option. With this, the variables must be selected in Runtime, which is in turn stipulated by the possible selection of archives. The archive, once filtered, must be one of the archives that relate to the configured curves. No data is displayed if this is not the case. This setting can also be used to limit the displayed curves. However these remain shown in the curve list.

ETM example:

| Configured curves | Data source | Archive prefiltering in the lot filter | Result in the screen                               |
|-------------------|-------------|--|--|
| A                 | AR          | AR                                     | Is shown in the curve list and drawn in the trend. |
| B                 | EA          |  | Is only shown in the curve list.                   |
| C                 | EP          |  | Is only shown in the curve list.                   |

**Note archive revision:** The archive for which the screen is opened is already selected in the screen switching function. Because only 1 archive can be selected, further limitation makes no sense.

Example of archive revision:

| Configured archive | Archive prefiltering in the lot filter | Result in the screen  |
|--------------------|--|-----------------------|
| AR                 | EA                                     | No data is displayed. |

## NAMES

Configuration of the filtering to names. Selection of one of the options:

- ▶ **No filter**
- ▶ **Static**
- ▶ **From variable**



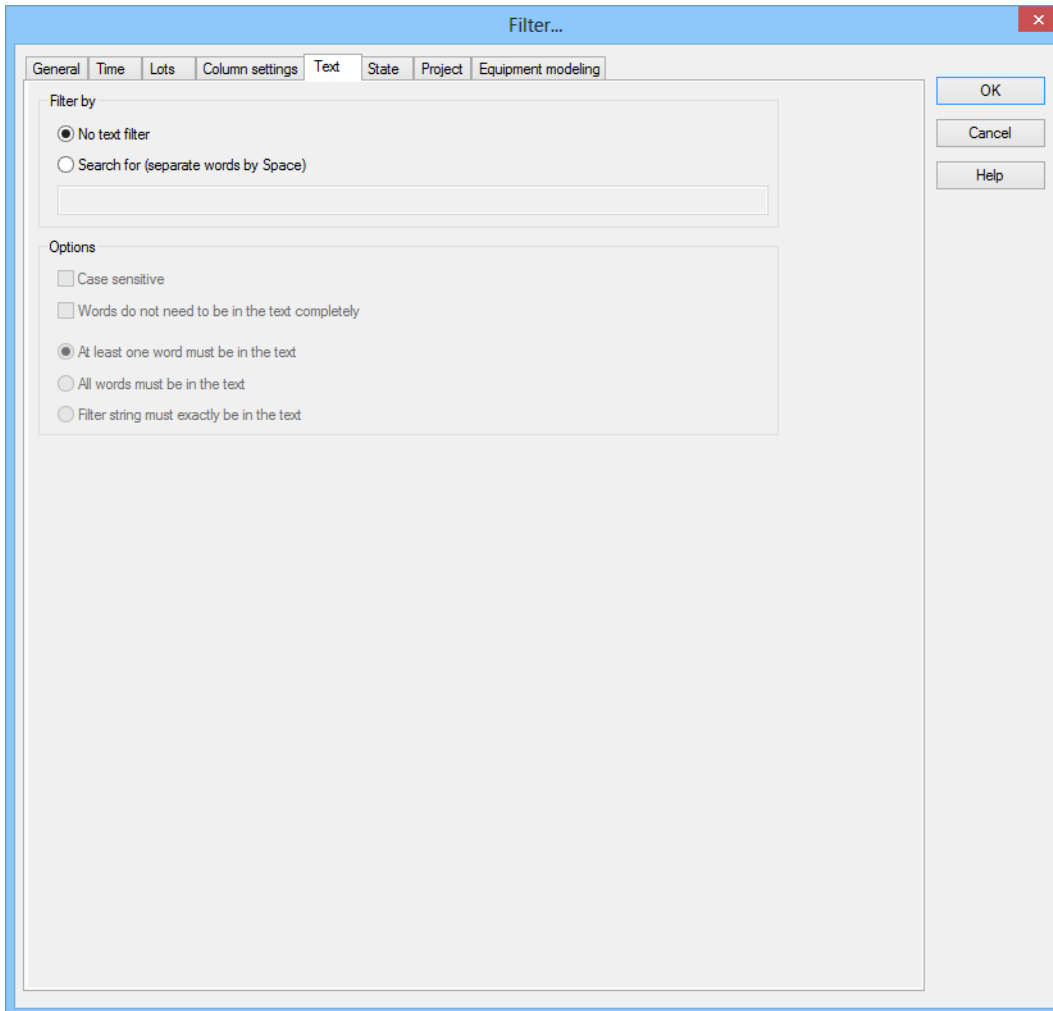
| Parameters           | Description  |
|----------------------|--|
| <b>No filter</b>     | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Filtering for lot names is not carried out.</li> </ul>   |
| <b>Static</b>        | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> Lot names that correspond to the character string entered in the input field are filtered for.</li> </ul> <p>Input of the lot name in the input field:</p> <ul style="list-style-type: none"> <li>▶ Several entries are separated by a pipe character ( ).</li> <li>▶ * or empty: All lots of all displayed archives, no filter.</li> </ul>  |
| <b>From variable</b> | <ul style="list-style-type: none"> <li>▶ <b>Active:</b> The value of the variable linked here is applied as a filter for lot names in Runtime.</li> </ul> <p>Click on the ... button to open the dialog for selecting a variable.</p> <p>Not available if the option <b>Apply lot filter directly</b> has been selected.</p> <p>Notes for variables in Runtime:</p> <ul style="list-style-type: none"> <li>▶ The variable selection is only activated in Runtime if a valid variable has already been linked in Runtime. The ... button is always deactivated in Runtime. The option can be selected, but no new variable can be linked.</li> <li>▶ If the variable is not signed into the driver at the time at which the lot filter is applied, the variable is signed in and read. This can lead to delays with slow driver connections/protocols.</li> </ul> <p><b>Attention:</b> If the selected variable is not found in Runtime, there is no filtering for lot names. This also applies if the value of the variable cannot be determined. The filter then corresponds to the <b>No filter</b> setting.</p> |

#### CLOSE DIALOG

| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

## Text

The text filter allows limitation of the display to messages that contain certain search terms.



The screenshot shows the 'Filter...' dialog box with the 'Text' tab selected. The dialog has a title bar with a close button (X) and a tabbed interface with the following tabs: General, Time, Lots, Column settings, Text (selected), State, Project, and Equipment modeling. The 'Filter by' section contains two radio buttons: 'No text filter' (selected) and 'Search for (separate words by Space)' (unselected). Below the radio buttons is a text input field. The 'Options' section contains four checkboxes: 'Case sensitive' (unchecked), 'Words do not need to be in the text completely' (unchecked), 'At least one word must be in the text' (selected), 'All words must be in the text' (unselected), and 'Filter string must exactly be in the text' (unselected). On the right side of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

**FILTER BY****FILTER BY**

| Parameters                                    | Description  |
|---|--|
| <b>Filter by</b>                              |  |
| <b>No text filter</b>                         | The text filter is not used.                               |
| <b>Search for (words separated by spaces)</b> | The text filter is used.<br>Further options are activated. |
| <b>Input field</b>                            | Enter the corresponding words or character strings.        |

**OPTIONS**

| Parameters   | Description  |
|--|--|
| <b>Options</b>   |  |
| <b>Note capitalization</b>                             | Active: The filtering is case-sensitive.   |
| <b>Words do not have to appear in the text in full</b> | Active: Parts of words can also be taken into account during filtering.                          |
| <b>At least one word must be in the text</b>           | Active: At least one word of the search string has to be in the text.                            |
| <b>All words must be present in the text</b>           | Active: All words must be present in the search string. In doing so, the sequence plays no role. |
| <b>Filter text must appear in the text exactly</b>     | Active: The text must be exactly as defined in the search string.                                |

## Column settings

In this dialog, you define which columns you want to have displayed, including the form, sequence and sorting.

**Note:** All settings which you make in this tab are default settings for:

- ▶ Alarm Message List screen
- ▶ Alarm Message List filter screen
- ▶ Alarm status line
- ▶ Export (on page 127) to CSV, dBase or XML

These default settings can be changed when defining the individual alarm functions.



## Information

In project settings, you can set a default setting for the sequence and size of columns using the **Column settings AML** property or the **Column settings CEL** property. If you create a new screen switching function from an Alarm Message List screen or Chronological Event List screen, this setting is used as a default and can be amended in the corresponding tab. The setting is stored in the **project.ini** file.

Filter...

General Time Lots Column settings Text State Project Equipment modeling

Columns

\* Values can be edited

| Column type   | Description*                 | Width [character]* | Display*      |
|---|------------------------------|--------------------|---------------|
| <input checked="" type="checkbox"/> Alarm status      | Alamzustand                  | 4                  | Circle symbol |
| <input checked="" type="checkbox"/> Time received     | Zeit kommt                   | -1                 |               |
| <input checked="" type="checkbox"/> Time cleared      | Zeit geht                    | -1                 |               |
| <input checked="" type="checkbox"/> Time acknowledged | Zeit quittiert               | -1                 |               |
| <input type="checkbox"/> Time active                  | Zeit angestanden             | -1                 |               |
| <input checked="" type="checkbox"/> Variable name     | Variablenname                | 20                 |               |
| <input type="checkbox"/> Identification               | Kennung                      | 20                 |               |
| <input type="checkbox"/> Resources label              | Betriebsmittelkennung        | 15                 |               |
| <input checked="" type="checkbox"/> Value             | Wert                         | 6                  |               |
| <input checked="" type="checkbox"/> Measuring unit    | Maßeinheit                   | 5                  |               |
| <input checked="" type="checkbox"/> Text              | Text                         | 30                 |               |
| <input type="checkbox"/> Variable status              | Variablenstatus              | 8                  |               |
| <input type="checkbox"/> User identification          | Benutzername                 | 6                  |               |
| <input checked="" type="checkbox"/> User - full name  | Benutzer vollständiger Name  | 15                 |               |
| <input checked="" type="checkbox"/> Computer name     | Computername                 | 15                 |               |
| <input checked="" type="checkbox"/> Comment           | Kommentar                    | 20                 |               |
| <input type="checkbox"/> Alarm/event group number     | Alarm/Ereignis-Gruppe Nummer | 2                  |               |
| <input type="checkbox"/> Alarm/event group symbol     | Alarm/Ereignis-Gruppe Symbol | 4                  | Circle symbol |

Move selected entry up Move selected entry down

A... Time received Time cleared Time acknowledged

Table settings

☐ Sort descending

☐ Display grid

☒ Use alternating background colors

Row color 1 Row color 2

Display in the time columns

☒ Time

☒ Date

☐ Milliseconds

OK Cancel Help

| Columns Parameters              | Description  |
|---------------------------------|--|
| <b>Columns</b>                  | <p>In the list field of this tab all available column types are displayed.</p> <p>You can change the sequence of column types by dragging &amp; dropping in the list field:</p> <ul style="list-style-type: none"> <li>▶ Click in the <b>Column type</b> column</li> <li>▶ Move the individual entries as desired</li> </ul> <p>Alternatively, you can adjust the sequence with the <b>Move selected entry up</b> and <b>Move selected entry down</b>.</p> |
| ▶ <b>Checkbox:</b>              | Select which column types are displayed.   |
| ▶ <b>Description:</b>           | <p>Free text entry for a description of the column.</p> <p><b>Change description:</b> left-click on the corresponding area. Enter the desired value in the editing field.</p> <p><b>Note:</b> for column descriptions, zenon language switching is available.</p>  |
| ▶ <b>Column width:</b>          | <p>Defines the width of the column in characters.</p> <p><b>Change column width:</b> left-click on the corresponding area. Enter the desired value in the editing field.</p> <p>–1 Width is calculated in Runtime using average character width</p> <p><b>Note:</b> For compatibility reasons, the columns with widths that could not be changed in earlier zenon versions (date and time), have the value –1 .</p>  |
| ▶ <b>Display:</b>               | <p>For column types</p> <ul style="list-style-type: none"> <li>▶ <b>Alarm/event class symbol</b></li> <li>▶ <b>Alarm/event group symbol</b></li> <li>▶ <b>Alarm status</b></li> </ul> <p>Actual form of display can be selected in Runtime. Select the desired form from the drop-down list.</p>   |
| <b>Move selected entry up</b>   | Moves selected entry up one place.   |
| <b>Move selected entry down</b> | Moves selected entry down one place.   |

|  |  |
|--|--|
| <b>Preview field</b>                     | <p>Displays the columns defined in the list field in the width displayed there.</p> <p>You can also adjust the column widths here by left clicking on the right end of a column, holding down the mouse button and moving the mouse to the left or right accordingly.</p>  |
| <b>Table settings</b>                    |  |
| <b>Sort descending</b>                   | <p>Sorts the entries in the list according to the <b>Time received</b> column in decreasing order. This setting applies for calling up a screen.</p> <p>You can change the sorting order in Runtime by clicking on the column header. The sorting sequence currently being used is shown by an arrow on the column header.</p> |
| <b>Display grid</b>                      | Shows a grid when the list is displayed in Runtime.  |
| <b>Use alternating background colors</b> | Uses <b>line color 1</b> and <b>line color 2</b> alternately as background colors for the list in Runtime.   |
| <b>Row color 1</b>                       | Color that is used as a background color in in the list Runtime for all uneven numbers (1, 3, 5 etc.), if you have activated <b>Alternating Background Colors</b> .  |
| <b>Row color 2</b>                       | Color that is used as a background color in in the list Runtime for all even numbers (2, 4, 6 etc.), if you have activated <b>Alternating Background Colors</b> .  |
| <b>Display in the      time columns</b>  |  |
| <b>Time</b>                              | <p>Displays the time for a list entry in the following form:</p> <p>HH : MM : SS</p>   |

|                     |  |
|---------------------|--|
| <b>Date</b>         | Displays the date for a list entry in the following form:<br>TT:MM:YYYY  |
| <b>Milliseconds</b> | Expands the time entry by milliseconds.<br><br><b>Note:</b> Must be activated if milliseconds are to be provided in exports or print-outs. |

**Hint:** If you activate the automatic keyboard in Runtime, it is turned on when an editing field appears. You can also use this to configure the columns if you are using a computer without a keyboard.



### Attention

*The column width is given in characters and is dependent on the font used.*

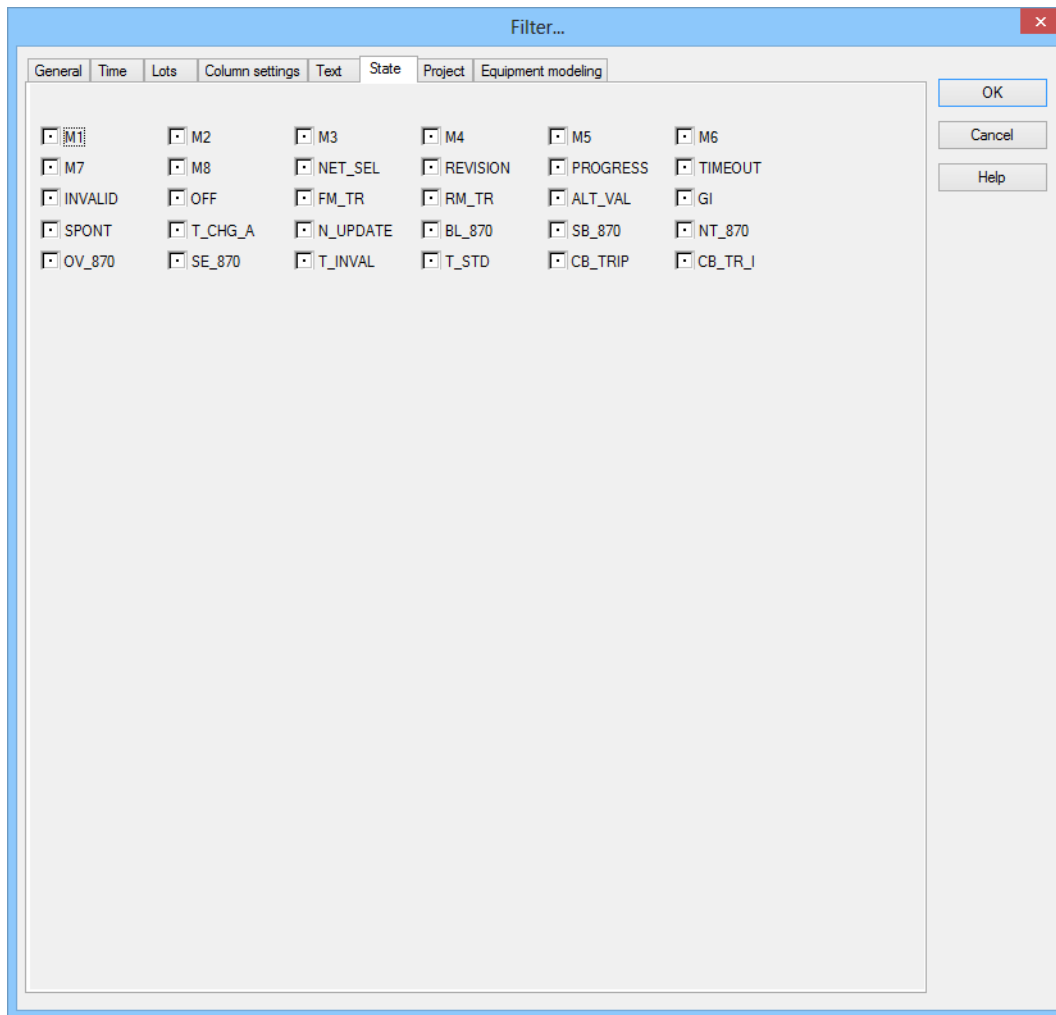
*If the column width is not a multiple of the character width of the used font, the actual column width can differ from the set column width. This can result in the text being cut off or an empty space being created.*

*Solution: Use fonts with a fixed character width.*



## Status

The status of the checkbox indicates if the status bit is to be evaluated.



| Status of checkbox | Description   |
|--------------------|---|
| Black dot          | The status bit is not evaluated.  |
| 0                  | Only the entries where the status bit is set to <code>false</code> are displayed. |
| 1                  | Only the entries where the status bit is set to <code>true</code> are displayed.  |



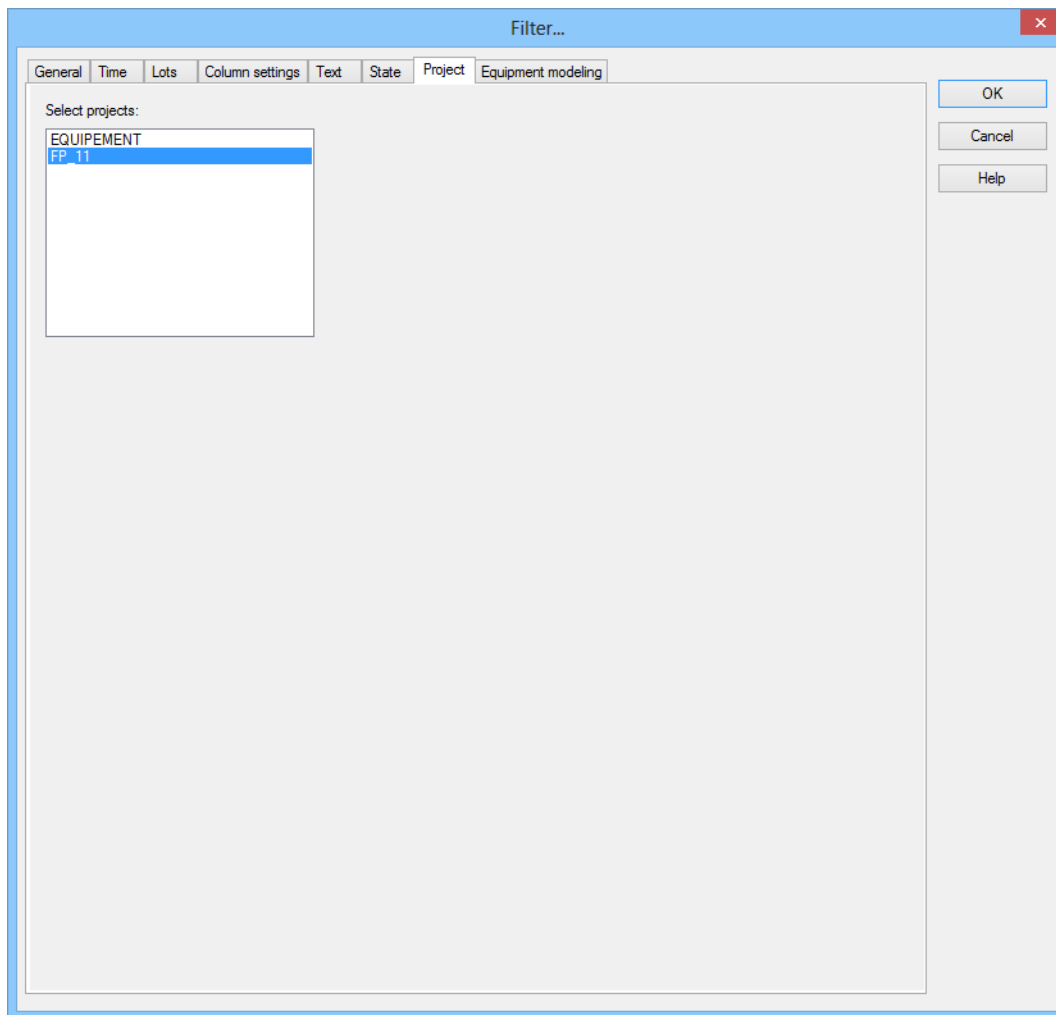
### Example

If the checkbox *SPONT* is set to 1, only the alarms are shown that are triggered by spontaneous values are displayed.

*Note: You can read details on status bits in the Status processing chapter.*

## Project

Selection of projects that are to be taken into account for the AML. The filter for selecting sub projects is only available in the integration project of the multi-project administration.



The selection from the integration project and all sub projects is carried out via multi-select by pressing and holding key `Ctrl` and mouse click on the desired projects.

## Equipment Modeling

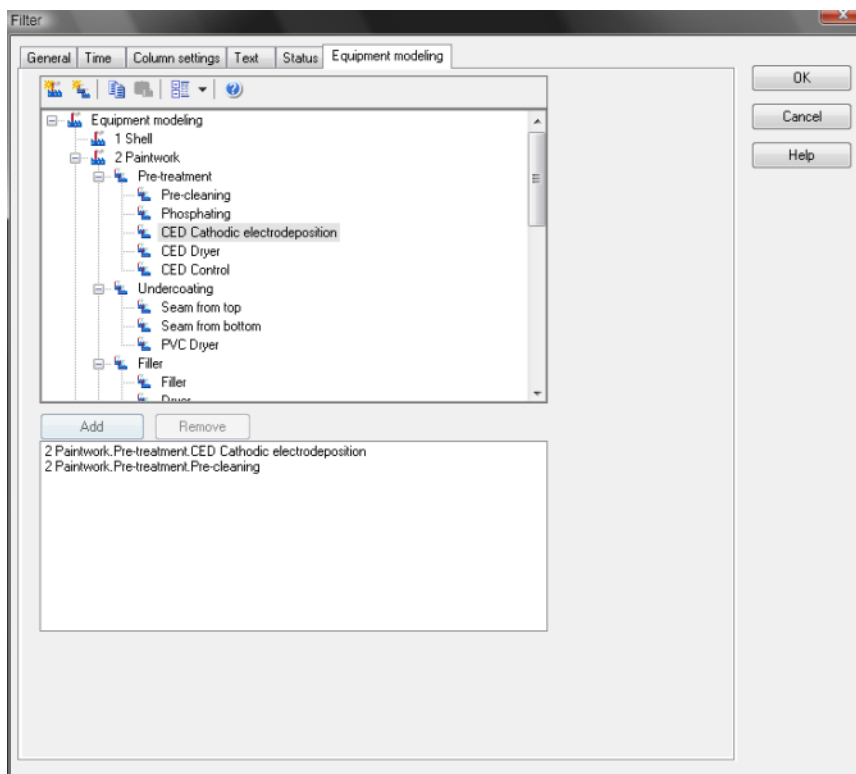
In the filter all already existing equipment models are displayed. Via the context menu or via toolbar, you can create new models and groups.

To add groups to the filter:

1. select the desired element
2. Click on the **Add** button
3. repeat the process until all necessary groups are available in the list  
(Multi-select is not possible)

To remove groups from the filter:

1. Select the desired element  
(multiselect: Hold down the Ctrl key or shift key and click on the desired element)
2. click the **Delete** button

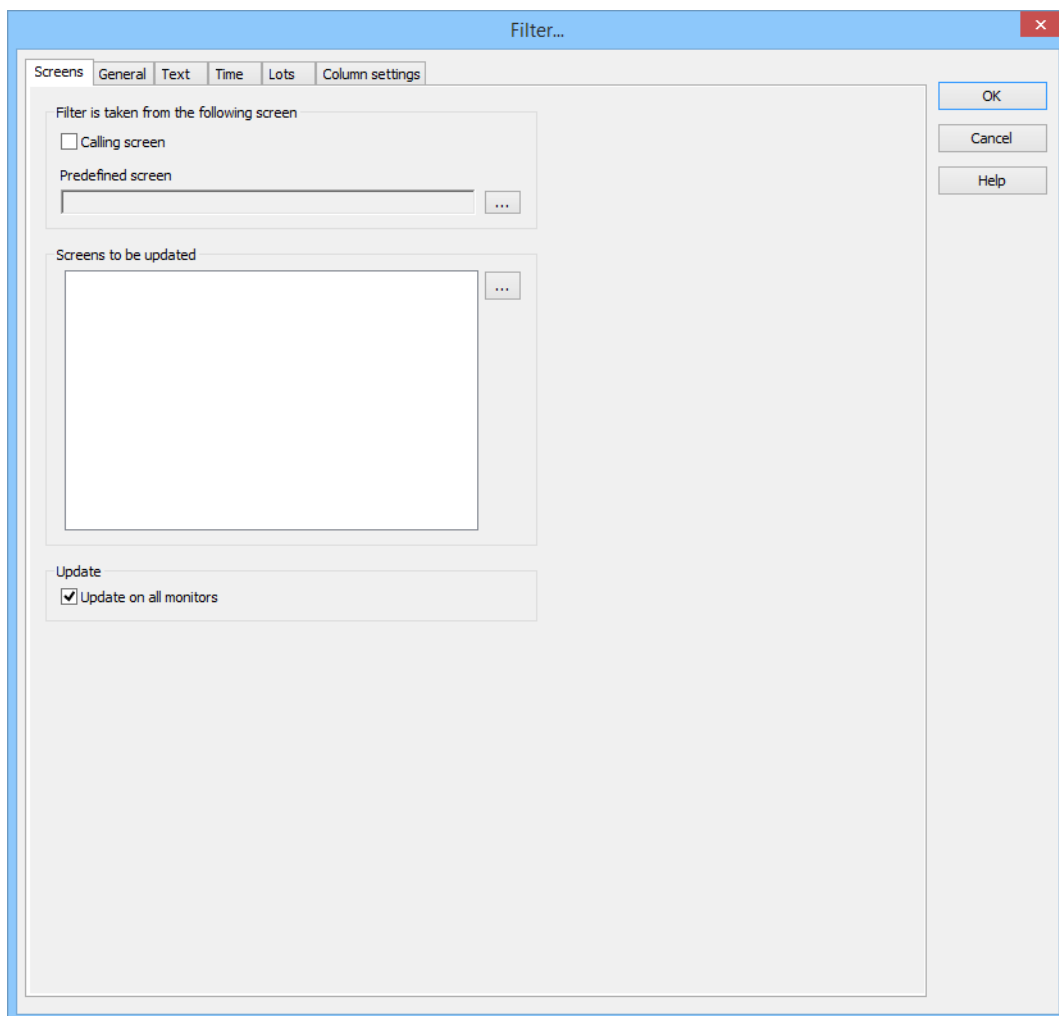


| Element                         | Description   |
|---------------------------------|---|
| <b>List of equipment models</b> | provides models and groups for selection                |
| <b>Add</b>                      | Adds selected groups to the filter list                 |
| <b>Delete</b>                   | removes selected groups from the filter list            |
| <b>Filter list</b>              | Shows all equipment groups that are to be filtered.     |
| <b>OK</b>                       | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b>                   | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>                     | Opens online help.                                      |

### 3.6.3 Filter for Alarm Message List screen switching filter.

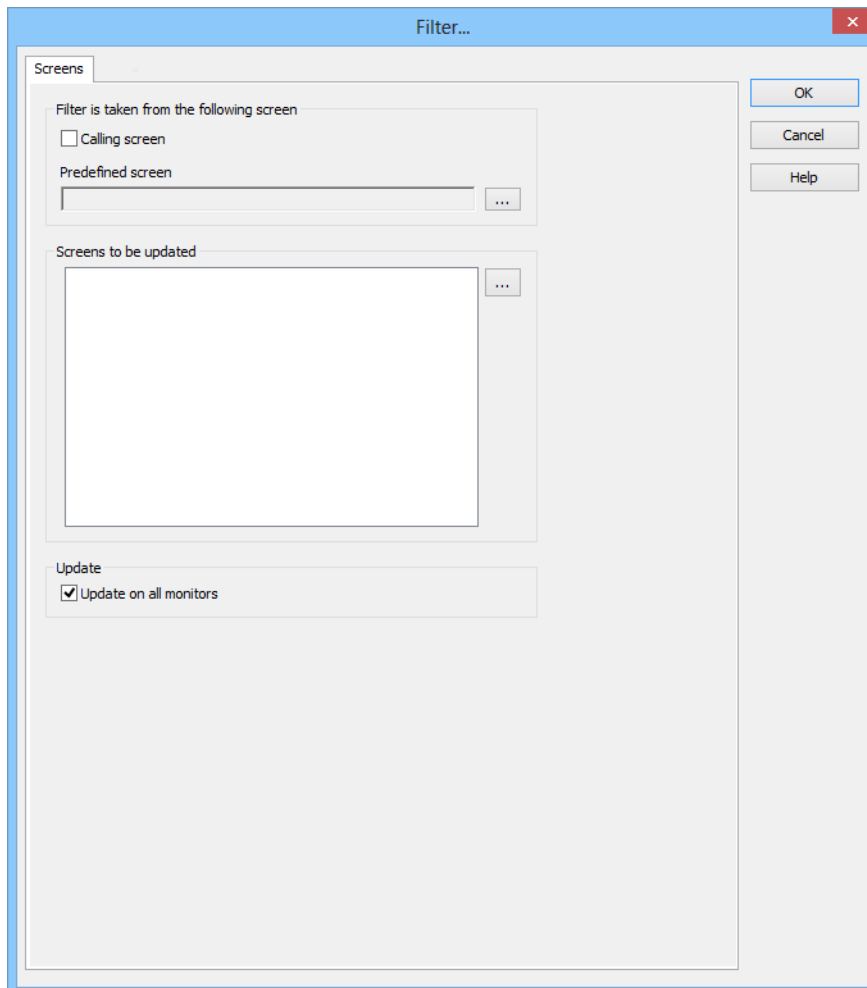
To create an Alarm Message List filter (on page 14) screen:

1. Create a **Screen switching** function on an **Alarm Message List filter** screen
2. the filter is displayed with all tabs:
  - Screens (on page 93)
  - General (on page 95)
  - Text (on page 98)
  - Time (on page 100)



## Screens

On this tab, you can define the screens that are to be updated by the screen filter.



The following settings are available:

## FILTER IS TAKEN FROM THE FOLLOWING SCREEN

| Parameters                                       | Description   |
|--|---|
| <b>Filter is taken from the following screen</b> | Definition of the screen form which the filter is to be taken.  |
| <b>Calling screen</b>                            | <p><i>Active:</i> The filter settings are take over from the screen from which the filter screen is called up. The screen button is grayed out. You cannot explicitly select a screen, because the filter is always updated from the calling screen with this setting.</p> <p><i>Note:</i> Settings in the <b>General</b>, <b>Text</b> and <b>Time</b> tabs are locked.</p>   |
| <b>Predefined screen</b>                         | <p>Click on button opens the Screen selection dialog.</p> <p>Select the screen from which the filter - when clicking button <b>Update</b> during Runtime - should be read.</p> <p>Subscreens of faceplates can be selected for screen switching to AML filter, CEL filter, time filter and equipment model. For these screens, the name of the faceplate screen is placed in front of the subscreen in order to clearly distinguish them from other screens.</p> <p><i>Attention:</i> When the filter screen is first called up using the function, the filter configured in the function is used, not the filter of the screen stated here!</p> <p><i>Note:</i> It therefore only makes sense to select a screen which can adopt or fill the screen filter.</p> <p>The screen selected is entered into the list of screens to be updated. If you delete it from the list, the next screen on the list is automatically entered here.</p> <p><i>Note:</i> Not available if you have activated the <b>Calling screen</b> checkbox.</p> |

## SCREENS TO BE UPDATED

| Parameters                    | Description   |
|-------------------------------|---|
| <b>Screens to be updated</b>  | <p>Selection of the screens that are to be updated.</p> <p>Subscreens of faceplates can be selected for screen switching to AML filter, CEL filter, time filter and equipment model. For these screens, the name of the faceplate screen is placed in front of the subscreen in order to clearly distinguish them from other screens.</p> |
| <b>Screen selection</b>       | Click the button to open dialog Screen selection of the filter screens. Select the desired screen.  |
| <b>Update</b>                 | Stipulation of where the filter should take effect.   |
| <b>Update on all monitors</b> | <i>Active:</i> The screens from the list of the screens which must be updated are updated on all accessible monitors.   |

## General

Filter...

Screens General Text Time Lots Column settings

Variable filter

Variable name Identification

\*

☐ Case sensitive

Type of alarms

☐ Only non-acknowledged alarms  
☐ Only cleared alarms  
☐ Only current alarms  
☐ Comment required

Origin of the data

☒ Ringbuffer  
☐ Historic data  
Max. number:  
0

Alarms must be current for

Days Hours Min. Sec. ms

0 0 0 0 0

Alarm/event groups/classes, alarm areas

Groups

- All groups

Classes

- All classes

Alarm areas

- All alarm areas

☐ Show list without refresh

OK  
Cancel  
Help

## VARIABLE FILTER

| Parameters             | Description   |
|------------------------|---|
| <b>Variable filter</b> | Limitation to alarms of certain variables   |
| <b>Variable name</b>   | <p>Enter the name or part of the name of the variable you want to filter.</p> <p>Use of the wild card * is possible. Wildcards are only permitted as a prefix or suffix; e.g. *xxx or xxx*.</p> <p>Note: Filter terms entered in Runtime or in the Editor are automatically saved on the local computer in <b>zenon6.ini</b> and are available for selection in the drop-down list.</p> <p>Attention: The comma character (,) "only" serves as a separator between several variables to be filtered. However it is not possible to filter for a comma character in variables names!</p> <p>This results in the special filtering of array variables for <b>Dim 2</b> and <b>Dim 3</b> not being possible.</p> |
| <b>Identification</b>  | <p>Enter the identification or part of the identification of the variables you want to filter. Wild card * is possible.</p> <p>Use of the wild card * is possible. Wildcards are only permitted as a prefix or suffix; e.g. *xxx or xxx*.</p> <p>Note: Filter terms entered in Runtime or in the Editor are automatically saved on the local computer in <b>zenon6.ini</b> and are available for selection in the drop-down list.</p>   |
| <b>Case sensitive</b>  | Active: Capitalization is recognized when filtering for variable name or identification.  |

## TYPE OF ALARMS

| Parameters                          | Description   |
|-------------------------------------|---|
| <b>Type of alarms</b>               | Type of alarm that is displayed.  |
| <b>Only not acknowledged alarms</b> | Active: Only alarms that have not yet been acknowledged by the user are displayed.                              |
| <b>Only cleared alarms</b>          | Active: Only alarms that have already passed, i.e. whose values no longer in the critical range, are displayed. |
| <b>Only current alarms</b>          | Active: Only alarms that are still active, i.e. whose values are still in the critical range, are displayed.    |
| <b>Comment required</b>             | Active: Only alarms are shown for which it is necessary to leave a comment (on page 159) are displayed.         |
| <b>Alarms must be current for</b>   | Use the spin control to define the minimum time that an alarm should be active in order for it to be displayed. |



|  |  |
|--|--|
|  | Possible settings: <ul style="list-style-type: none"> <li>▶ <b>Days</b></li> <li>▶ Hours (<b>hr.</b>)</li> <li>▶ Minutes (<b>min.</b>)</li> <li>▶ Seconds (<b>sec.</b>)</li> <li>▶ Milliseconds (<b>ms</b>)</li> </ul> |
|--|--|

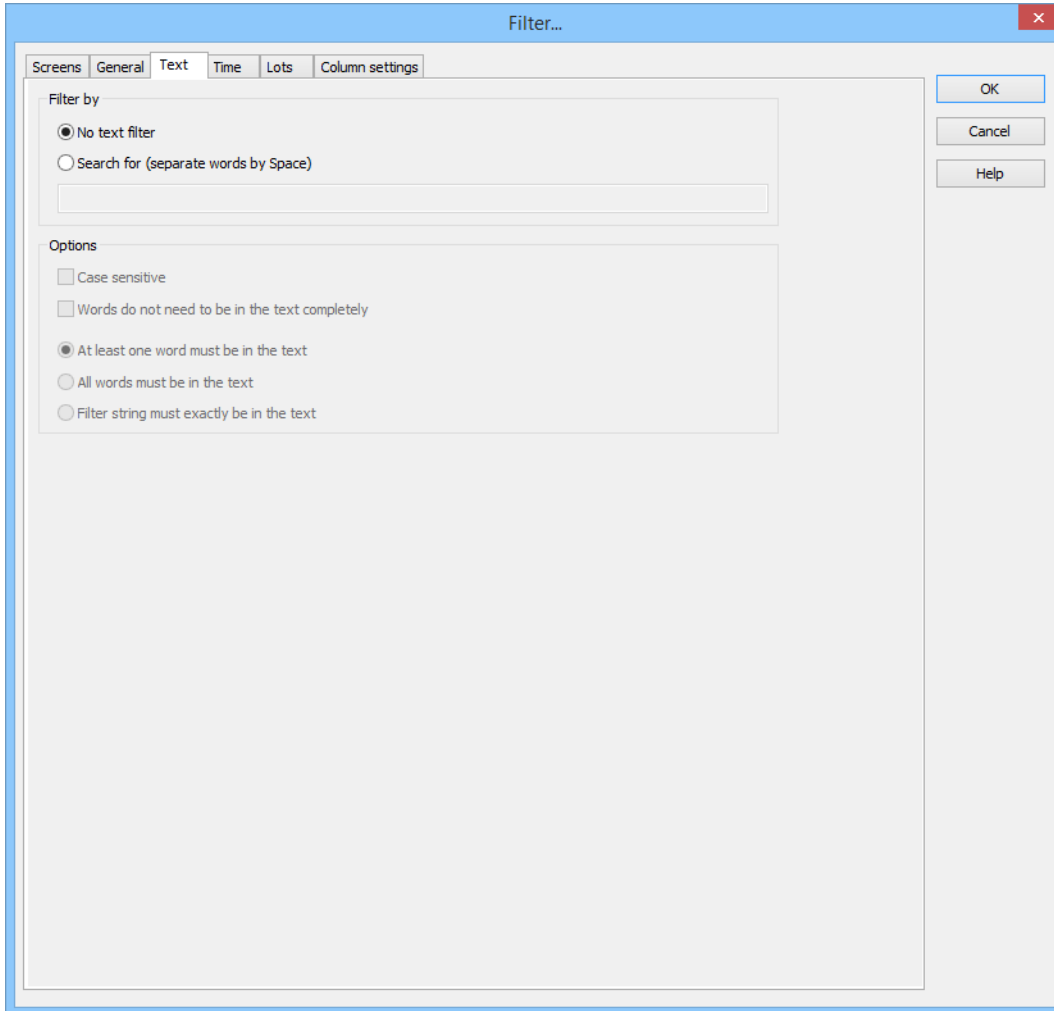
## ORIGIN OF THE DATA

| Parameters                                      | Description  |
|---|--|
| <b>Origin of the data</b>                       | Display of current or current and historical alarms.   |
| <b>Ring buffer</b>                              | <b>Active:</b> Only data from the ring buffer (on page 32) are displayed.  |
| <b>Historical data</b><br><b>Maximum number</b> | <b>Active:</b> Data from the ring buffer and historical data from the AML are displayed.<br><br>The maximum number of the data which should be displayed includes the data from the ring buffer. |

## ALARM/EVENT GROUPS/CLASSES AND ALARM AREAS

| Parameters                                     | Description   |
|--|---|
| <b>Alarm/Event Groups/Classes, Alarm Areas</b> | Selection of groups, classes and alarm area.  |
| <b>Alarm/event groups</b>                      | From the existing alarm/event groups (on page 35) select the one from which alarms should be displayed.   |
| <b>Alarm/event classes</b>                     | From the existing alarm/event classes (on page 38) select the one from which alarms should be displayed.  |
| <b>Alarm areas</b>                             | From the existing alarm areas (on page 42) select the one from which alarms should be displayed.<br><br><b>Note:</b> If <b>hierarchical alarming</b> via equipment model is activated, the alarm area column remains empty. |
| <b>Runtime settings</b>                        | Behavior of the AML in Runtime  |
| <b>Show list without refresh</b>               | <b>Active:</b> As long as the list is displayed no new entries are added.   |

## Text

A screenshot of the 'Filter...' dialog box in the Zenon software. The dialog has a blue title bar with the text 'Filter...' and a red close button. It contains several tabs: 'Screens', 'General', 'Text' (selected), 'Time', 'Lots', and 'Column settings'. The 'Text' tab is active, showing options for filtering text. Under 'Filter by', there are two radio buttons: 'No text filter' (selected) and 'Search for (separate words by Space)'. Below this is a text input field. Under 'Options', there are four checkboxes: 'Case sensitive', 'Words do not need to be in the text completely', 'At least one word must be in the text' (selected), 'All words must be in the text', and 'Filter string must exactly be in the text'. On the right side of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

**FILTER BY**

| Parameters                                    | Description  |
|---|--|
| <b>Filter by</b>                              |  |
| <b>No text filter</b>                         | The text filter is not used.                               |
| <b>Search for (words separated by spaces)</b> | The text filter is used.<br>Further options are activated. |
| <b>Input field</b>                            | Enter the corresponding words or character strings.        |

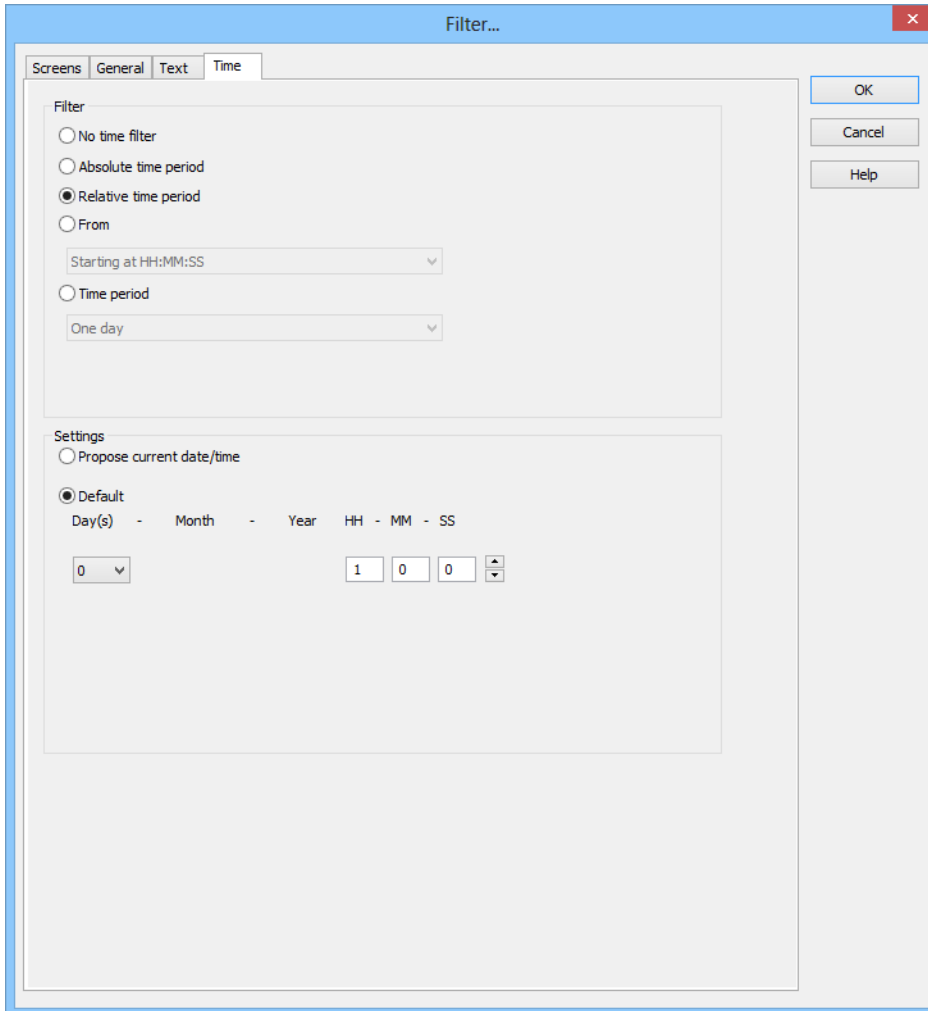
**OPTIONS**

| Parameters   | Description  |
|--|--|
| <b>Options</b>   |  |
| <b>Note capitalization</b>                             | Active: The filtering is case-sensitive.   |
| <b>Words do not have to appear in the text in full</b> | Active: Parts of words can also be taken into account during filtering.                          |
| <b>At least one word must be in the text</b>           | Active: At least one word of the search string has to be in the text.                            |
| <b>All words must be present in the text</b>           | Active: All words must be present in the search string. In doing so, the sequence plays no role. |
| <b>Filter text must appear in the text exactly</b>     | Active: The text must be exactly as defined in the search string.                                |

## Time

On this tab, you define the time period that is to be used when the filter screen is opened.

You can read details of the time filter options in the Filter for screen switching, Alarm Message List (on page 51)/time (on page 58) chapter.



The screenshot shows the 'Filter...' dialog box with the 'Time' tab selected. The dialog has four tabs: 'Screens', 'General', 'Text', and 'Time'. The 'Time' tab contains two main sections: 'Filter' and 'Settings'.

**Filter Section:**

- ☐ No time filter
- ☐ Absolute time period
- ☒ Relative time period
- ☐ From
- Starting at HH:MM:SS (dropdown menu)
- ☐ Time period
- One day (dropdown menu)

**Settings Section:**

- ☐ Propose current date/time
- ☒ Default
- Day(s) - Month - Year HH - MM - SS
- 0 (dropdown menu) 1 0 0 (spinners)

On the right side of the dialog, there are three buttons: 'OK', 'Cancel', and 'Help'.

## FILTER

Selection of the filter.

| Parameters                     | Description  |
|--------------------------------|--|
| <b>No time filter</b>          | <p><b>Active:</b> No time filter is used.</p> <p><b>Note:</b> all Runtime entries since 1. 1. 1990 are displayed.</p>  |
| <b>Absolute filter</b>         | <p><b>Active:</b> A fixed period of time is entered in the editor. When the function is executed, the defined absolute time period is exactly used.</p> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Note:</b> Time is saved in UTC. For details see chapter Handling of date and time in chapter Runtime.</p>   |
| <b>Relative period of time</b> | <p><b>Active:</b> A relative time period is entered.</p> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Attention:</b> this filter is constantly updated.</p>  |
| <b>From</b>                    | <p><b>Active:</b> A time from which the filter is effective is stated. If the time is not reached on the current day, filtering takes place from the corresponding time the previous day.</p> <p>Selection of the area mode from drop-down list:</p> <ul style="list-style-type: none"> <li>▶ From HH:MM:SS o'clock</li> <li>▶ From day - HH:MM:SS o'clock</li> <li>▶ Starting on day, month at HH:MM:SS</li> </ul> <p>In the settings section, the corresponding options can be shown and configured there.</p> <p><b>Attention:</b> The start point of this filter is not updated automatically. Only the existing times are used when shown.</p> <p>The end time point is not defined with this filter, it is carried over.</p> |
| <b>Time period</b>             | <p><b>Active:</b> A fixed time period is entered. Selection of the area mode from drop-down list:</p> <ul style="list-style-type: none"> <li>▶ One day</li> <li>▶ One week</li> <li>▶ Two weeks</li> <li>▶ One month</li> <li>▶ One Year</li> <li>▶ 15 minutes</li> <li>▶ 30 minutes</li> <li>▶ 60 minutes</li> </ul>  |

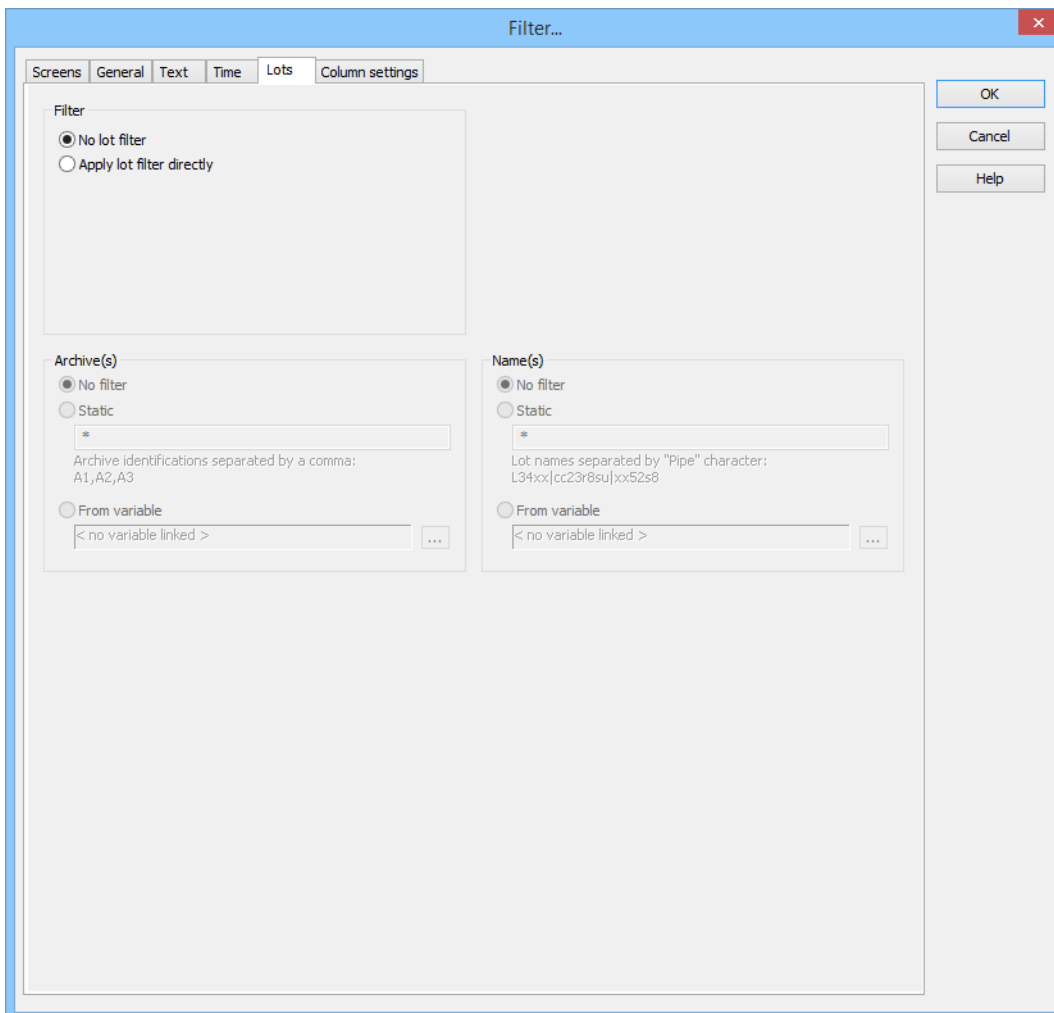
|  |   |
|--|---|
|  | In the settings section, the corresponding options can be shown and configured there. |
|--|---|

## CLOSE DIALOG

| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

## Lots

On this tab, you can define the lots that are to be displayed.



## **FILTER**

Settings for the application of the lot filter. Selection of one of the options:

- ▶ **No lot filter**
- ▶ **Apply lot filter directly**

| Parameters                | Description   |
|---------------------------|---|
| No lot filter             | Active: The lot filter is deactivated and cannot be configured. Filtering for lots is not carried out in Runtime. |
| Apply lot filter directly | Active: The filter configured here is applied in Runtime directly.  |

## **ARCHIVE(S)**

Configuration of filtering for archives. Selection of one of the options:

- ▶ **No filter**
- ▶ **Static**
- ▶ **From variable**

| Parameters           | Description  |
|----------------------|--|
| <b>No filter</b>     | <b>Active:</b> Filtering for archive names is not carried out.   |
| <b>Static</b>        | <p><b>Active:</b> Archives whose identification corresponds to the character string entered in the input field are filtered for.</p> <p>Input of the archive identifications in the input field:</p> <ul style="list-style-type: none"> <li>▶ Several identifications are separated by a comma (,).</li> <li>▶ * or empty: All archives, no filter.</li> </ul>   |
| <b>From variable</b> | <p><b>Active:</b> The value of the variables linked here is applied as a filter for archive names in Runtime.</p> <p>Click on button ... in order to open the dialog for selecting a variable.</p> <p>Only available for all modules if the <b>Apply lot filter directly</b> option has been selected:</p> <p>Notes for variables in Runtime:</p> <ul style="list-style-type: none"> <li>▶ The variable selection is only activated in Runtime if a valid variable has already been linked in Runtime. The ... button is always deactivated in Runtime. The option can be selected, but no new variable can be linked.</li> <li>▶ If the variable is not signed into the driver at the time at which the lot filter is applied, the variable is signed in and read. This can lead to delays with slow driver connections/protocols.</li> </ul> <p><b>Attention:</b> If the selected variable is not found in Runtime, there is no filtering for archive names. This also applies if the value of the variable cannot be determined. The filter then corresponds to the <b>No filter</b> setting.</p> |

## NAME(S)

Configuration of the filtering to names. Selection of one of the options:

- ▶ **No filter**
- ▶ **Static**
- ▶ **From variable**



| Parameters           | Description   |
|----------------------|---|
| <b>No filter</b>     | Active: Filtering for lot names is not carried out.   |
| <b>Static</b>        | <p>Active: Lot names that correspond to the character string entered in the input field are filtered for.</p> <p>Input of the lot name in the input field:</p> <ul style="list-style-type: none"> <li>▶ Several entries are separated by a pipe character ( ).</li> <li>▶ * or empty: All lots of all displayed archives, no filter.</li> </ul>   |
| <b>From variable</b> | <p>Active: The value of the variable linked here is applied as a filter for lot names in Runtime.</p> <p>Click on the ... button to open the dialog for selecting a variable.</p> <p>Not available if the option <b>Apply lot filter directly</b> has been selected.</p> <p>Notes for variables in Runtime:</p> <ul style="list-style-type: none"> <li>▶ The variable selection is only activated in Runtime if a valid variable has already been linked in Runtime. The ... button is always deactivated in Runtime. The option can be selected, but no new variable can be linked.</li> </ul> <p>If the variable is not signed into the driver at the time at which the lot filter is applied, the variable is signed in and read. This can lead to delays with slow driver connections/protocols.</p> <p>Attention: If the selected variable is not found in Runtime, there is no filtering for lot names. This also applies if the value of the variable cannot be determined. The filter then corresponds to the <b>No filter</b> setting.</p> |

#### CLOSE DIALOG

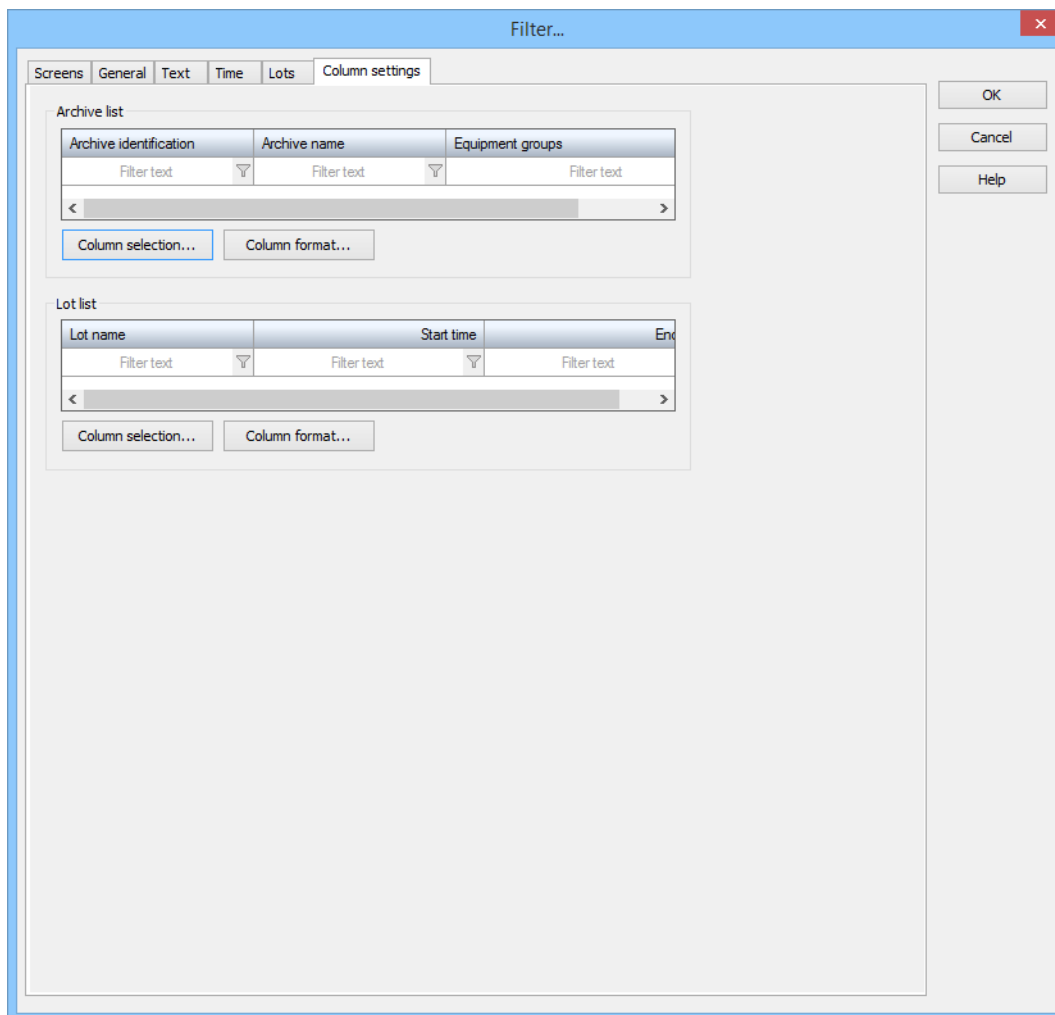
| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

#### Column settings

In this tab, you define how the **archive list** and the **lot list** from the `time/lot filter` screen are displayed in Runtime:

- ▶ Selection of the columns to be displayed
- ▶ Sorting of the columns
- ▶ Formatting of columns:

- Labeling
- Width
- Alignment



## ARCHIVE LIST

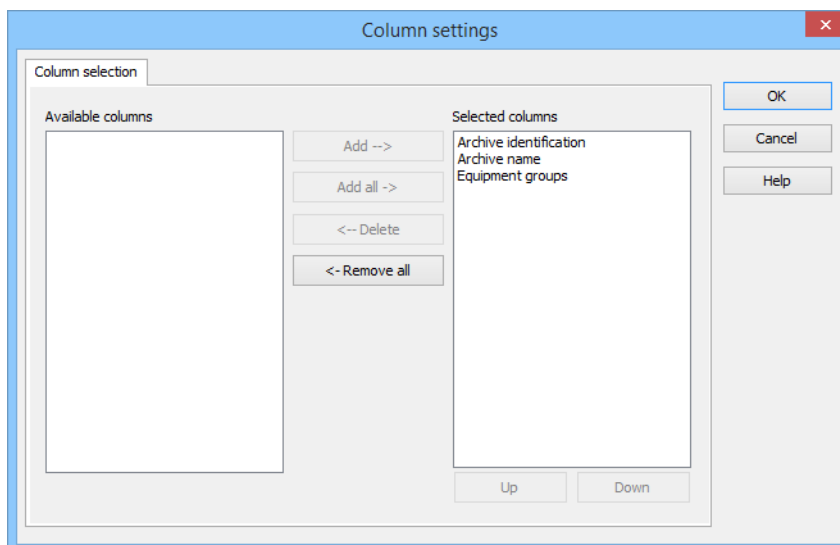
| Parameters              | Description   |
|-------------------------|---|
| <b>Archive list</b>     | Configuration of the archive list. Display of the configured columns. |
| <b>Column selection</b> | Clicking on the button opens a dialog to select and sort the columns. |
| <b>Column Format</b>    | Clicking on the button opens a dialog to format the list.             |

## LOT LIST

| Parameters              | Description   |
|-------------------------|---|
| <b>Lot list</b>         | Configuration of the lot list. Display of the configured columns.     |
| <b>Column selection</b> | Clicking on the button opens a dialog to select and sort the columns. |
| <b>Column Format</b>    | Clicking on the button opens a dialog to format the list.             |
| <b>OK</b>               | Applies all changes in all tabs and closes the dialog.                |
| <b>Cancel</b>           | Discards all changes in all tabs and closes the dialog.               |
| <b>Help</b>             | Opens online help.  |

## Column selection

Selection and sequence of the columns.



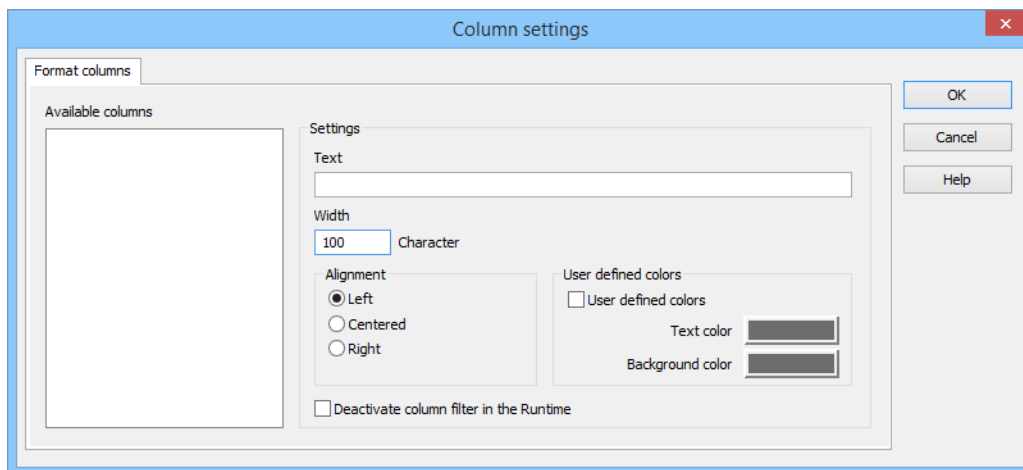
| Button                   | Function   |
|--------------------------|--|
| <b>Available columns</b> | List of columns that can be displayed in the table.  |
| <b>Selected columns</b>  | Columns that are displayed in the table.   |
| <b>Add -&gt;</b>         | Moves the selected column from the available ones to the selected items. After you confirm the dialog with OK, they are shown in the detail view.                                |
| <b>Add all -&gt;</b>     | Moves all available columns to the selected columns.   |
| <b>&lt;- Remove</b>      | Removes the marked columns from the selected items and shows them in the list of available columns. After you confirm the dialog with OK, they are removed from the detail view. |
| <b>&lt;- Remove all</b>  | All columns are removed from the list of the selected columns.   |
| <b>Up</b>                | Moves the selected entry upward. This function is only available for unique entries, multiple selection is not possible.   |
| <b>Down</b>              | Moves the selected entry downward. This function is only available for unique entries, multiple selection is not possible.   |

#### CLOSE DIALOG

| Parameters    | Description                                 |
|---------------|---|
| <b>OK</b>     | Applies settings and closes the dialog.     |
| <b>Cancel</b> | Discards all changes and closes the dialog. |
| <b>Help</b>   | Opens online help.                          |

## Column Format

Configuration of the properties of the columns for configurable lists. The settings have an effect on the respective list in the Editor or - when configuring screen switching - in Runtime.



## AVAILABLE COLUMNS

| Parameters               | Description   |
|--------------------------|---|
| <b>Available columns</b> | List of the available columns via <b>Column selection</b> . The highlighted column is configured via the options in the <b>Settings</b> area. |

## SETTINGS

| Parameters                                     | Description   |
|--|---|
| <b>Settings</b>                                | Settings for selected column.   |
| <b>Text</b>                                    | Name for column title.<br>The column title is online language switchable. To do this, the @ character must be entered in front of the name.   |
| <b>Width</b>                                   | Width of the column in characters.<br>Calculation: Number time average character width of the selected font.  |
| <b>Alignment</b>                               | Alignment. Selection by means of radio buttons.<br>Possible settings: <ul style="list-style-type: none"> <li>▶ <b>Left-justified</b>: Text is justified on the left edge of the column.</li> <li>▶ <b>Centered</b>: Text is displayed centered in the column.</li> <li>▶ <b>Right-justified</b>: Text is justified on the right edge of the column.</li> </ul>  |
| <b>Deactivate column filter in the Runtime</b> | Active: The filter for this column cannot be changed in Runtime.<br>Note: Only available for: <ul style="list-style-type: none"> <li>▶ Batch Control</li> <li>▶ Extended Trend</li> <li>▶ Filter screens</li> <li>▶ Message Control</li> <li>▶ Recipegroup Manager</li> </ul>   |
| <b>User defined colors</b>                     | Properties in order to define user-defined colors for text and background. The settings have an effect on the Editor and Runtime.<br>Note: <ul style="list-style-type: none"> <li>▶ These settings are only available for configurable lists.</li> <li>▶ In addition, the respective focus in the list can be signaled in Runtime by means of different text and background colors. These are configured using the project properties.</li> </ul> |
| <b>User defined colors</b>                     | Active: User-defined colors are used.   |
| <b>Text color</b>                              | Color for text display. Clicking on the color opens the color palette to select a color.  |

|                         |  |
|-------------------------|--|
| <b>Background color</b> | Color for the display of the cell background. Clicking on the color opens the color palette to select a color. |
|-------------------------|--|

#### CLOSE DIALOG

| Parameters    | Description   |
|---------------|---|
| <b>OK</b>     | Applies all changes in all tabs and closes the dialog.  |
| <b>Cancel</b> | Discards all changes in all tabs and closes the dialog. |
| <b>Help</b>   | Opens online help.                                      |

## 3.7 Functions

The display and handling of the Alarm Message List is controlled in Runtime using functions.



### Attention

*If functions are used in the network, regard their execution location.*

### 3.7.1 AML screen switching

To open an Alarm Message List filter in Runtime:

1. Create an Alarm Message List (on page 7) screen
2. create a screen switch function for this screen
3. define the desired filter properties (on page 48)

In the Runtime you can modify the filter properties. Exception: In the Editor fixed time filter (on page 70) was defined.

#### CONFIGURE SCREEN SWITCHING

To create a screen switch to a screen of type AML:

1. in the context menu of node **function** select command **New function**
2. click on **screen switch**
3. the dialog for the screen selection will be opened

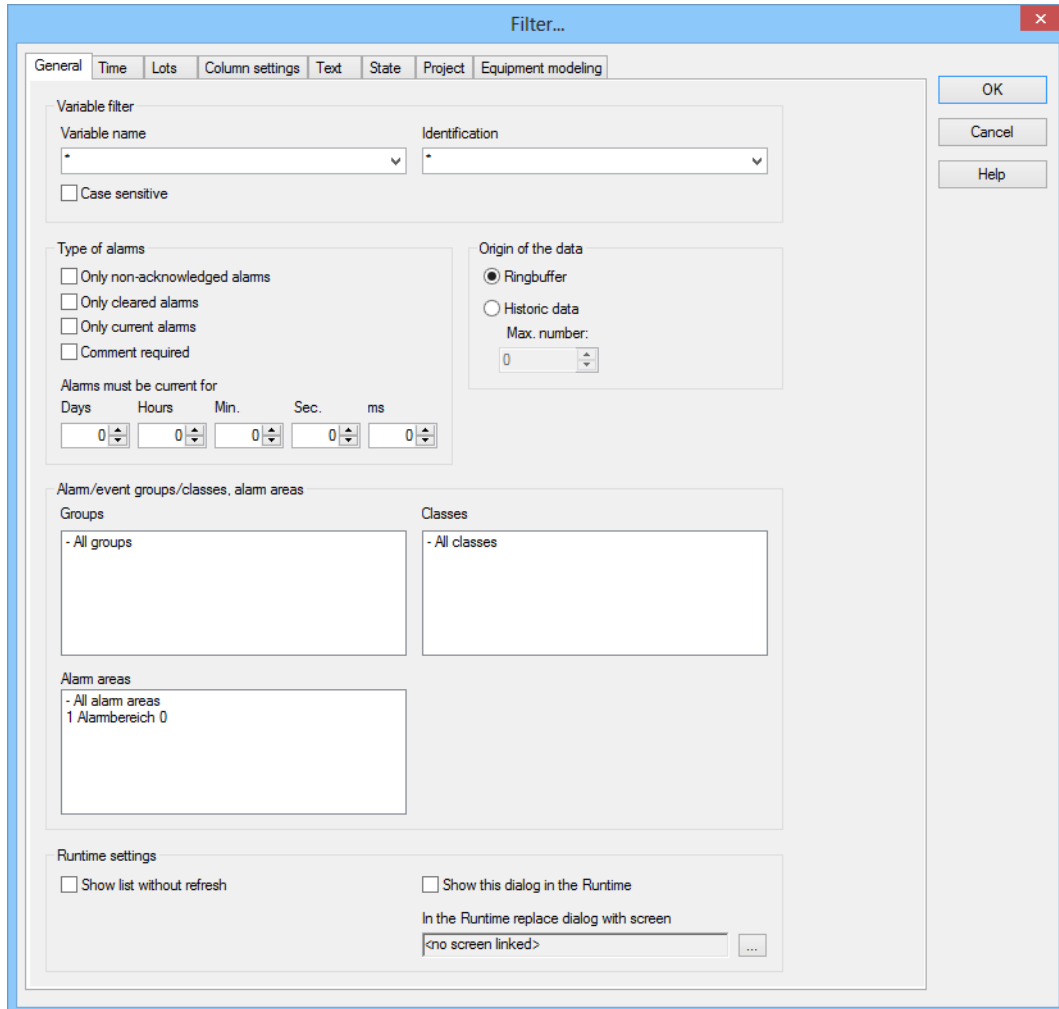
4. select the screen of type **alarm**  
or create it in this dialog by clicking symbol **New screen**
5. the filter is displayed with all tabs:
  - General (on page 53)
  - Time (on page 58)
  - Lots (on page 102)
  - Column settings (on page 84)
  - Text (on page 82)
  - Status (on page 89)
  - Project (on page 90) (only available in the integration project of the multi-project administration.)
  - Equipment Modeling (on page 90)

If linked variables or indexes are available, the following tabs can be displayed as an option.

- Replace links



- Replace indices



- define the filters which should be pre-defined in the Runtime
- confirm the settings and close the dialog by clicking **OK**
- link the function with a button in order to call up the screen and to display the filter properties in the Runtime



### Information

*If a screen that does not have a time filter is referenced, the time filters (on page 58) are deactivated.*

## AML screen switching filter

Several filters are offered when screen switching is created for an AML screen. For details, see the Alarm configuration using filters (on page 48) section, in the Filters for Alarm Message List screen switching (on page 51) chapter.

### 3.7.2 AML filter screen switching

To open an Alarm Message List filter screen in Runtime:

1. Create an Alarm Message List filter (on page 14) screen
2. create a screen switch function for this screen
3. define the desired filter properties (on page 115)

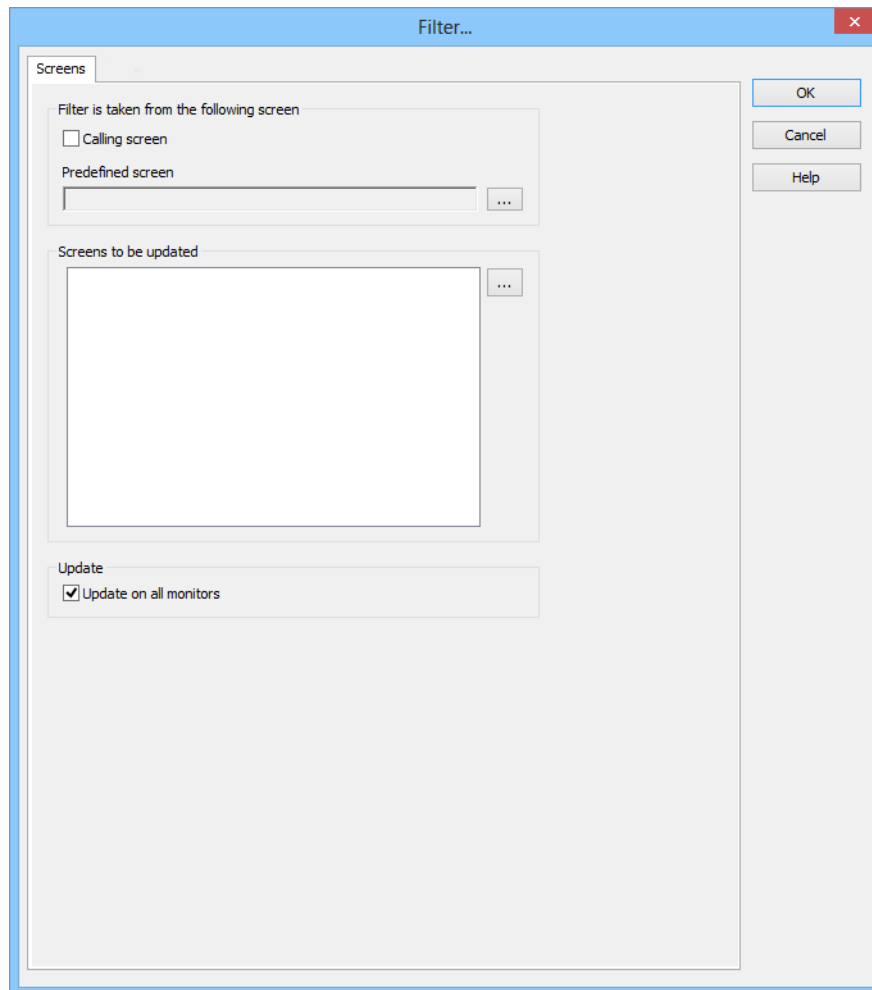
In the Runtime the filter properties can only be controlled via the buttons defined in the screen.

## CONFIGURE SCREEN SWITCHING

To create a screen switch to a screen of type **Alarm Message List Filter**:

1. in the context menu of node **function** select command **New function**
2. click on **screen switch**
3. the dialog for the screen selection will be opened
4. select the screen of type **Alarm Message List Filter**  
or create it in this dialog by clicking symbol **New screen**
5. the filter is displayed with all tabs:
  - Screens (on page 93)
  - General (on page 95)
  - Text (on page 98)

- Time (on page 100)



6. define the filters which should be pre-defined in the Runtime
7. confirm the settings and close the dialog by clicking **OK**
8. link the function with a button in order to call up the screen and to display the filter properties in the Runtime

### AML filter screen switching filter

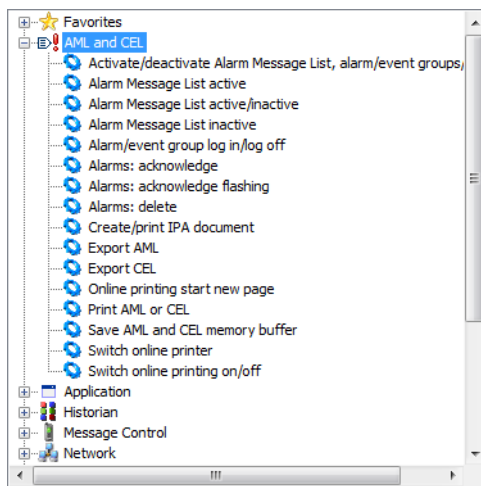
Several filters are offered when screen switching is created for an AML screen. For details, see Alarm configuration using filters (on page 48) section, Filters for Alarm Message List filter (on page 92) section.

### 3.7.3 Functions for alarm administration

Different functions make it possible to handle alarms in Runtime.

To create a function for alarm administration:

1. navigate to the **Functions** node
2. select **New function** in the context menu or from the toolbar
3. the dialog for selecting functions is opened
4. navigate to the **AML/CEL** node



5. select the desired function
6. configure the function if necessary
7. link the function to a button

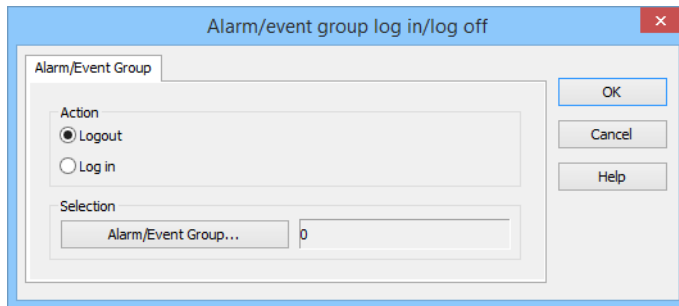
#### Alarm/event group log in/log off

To optimize the performance of the connection, alarm/event groups (on page 35) that are not required can be deactivated. Their variables are then no longer required by the driver.

For this function, you must:

1. Define the action: logout or login

2. Define the alarm/event group  
(Only one group per function can be defined)



## ALARM/EVENT GROUP

| Parameters               | Description  |
|--------------------------|--|
| <b>Action</b>            | Defines action. Available actions: <ul style="list-style-type: none"> <li>▸ Logout: Deactivates the alarm/event group</li> <li>▸ Login: Activates the alarm/event group</li> </ul> |
| <b>Alarm/event group</b> | Selection of alarm/event group. Click the button and a dialog opens to select the group.   |
| <b>OK</b>                | Confirms inputs and closes dialog.   |
| <b>Cancel</b>            | Discards changes and closes dialog.  |
| <b>Help</b>              | Opens online help.   |

## EXAMPLE

An alarm group bit is created in the PLC. If this bit is set, the **Alarm group active** function is called via the limit value administration. The variables are requested and the corresponding limit values in zenon are checked. The bit can be reset in the PLC. The alarm/event group can be deactivated again above a certain limit value. On program start all limit value variables are polled.

## Alarms: acknowledge flashing

When flash-acknowledging (on page 160) in Runtime, only the flash attribute of the process variables and the flashing of all graphic elements in all screens that use this variable are reset. The entry in the alarm list is not acknowledged - except if the **Flashing acknowledgement** property is active.

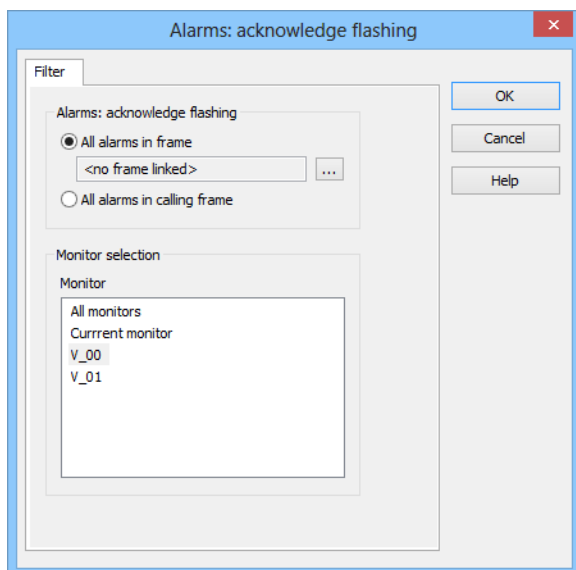
**Note:** This function is not identical to the **Adopt flashing from limit value** property that is defined for each element in the **Adopt flashing from limit value** group of the element properties. The function relates

to the flashing of the element content, for example text. The **Adopt flashing from limit value** property relates to the whole element.

## CONFIGURING FUNCTIONS

To acknowledge the flashing of alarms in Runtime:

1. Create a new function (on page 116)
2. in group **AML and CEL** select the function **Alarms: acknowledge flashing**
3. select the frame you wish to assign
4. Select the desired monitor for multi-monitor systems



## ALARMS: ACKNOWLEDGE FLASHING

| Parameters                             | Description   |
|--|---|
| <b>Alarms: acknowledge flashing</b>    | Configuration of which alarms are to be flash-acknowledged.   |
| <b>All alarms in the frame</b>         | <p>All alarms on screens of a frame with the selected name are flash acknowledged, even if it is open several times.</p> <p>Click on the ... button to open the dialog to select a frame. For details, see the <b>Frame selection dialog</b> (on page 119) section.</p> |
| <b>All alarms in the calling frame</b> | The alarms on the screen of the calling frame are flash-acknowledged. With this option selected, the monitor selection cannot be configured manually.   |

## MONITOR SELECTION

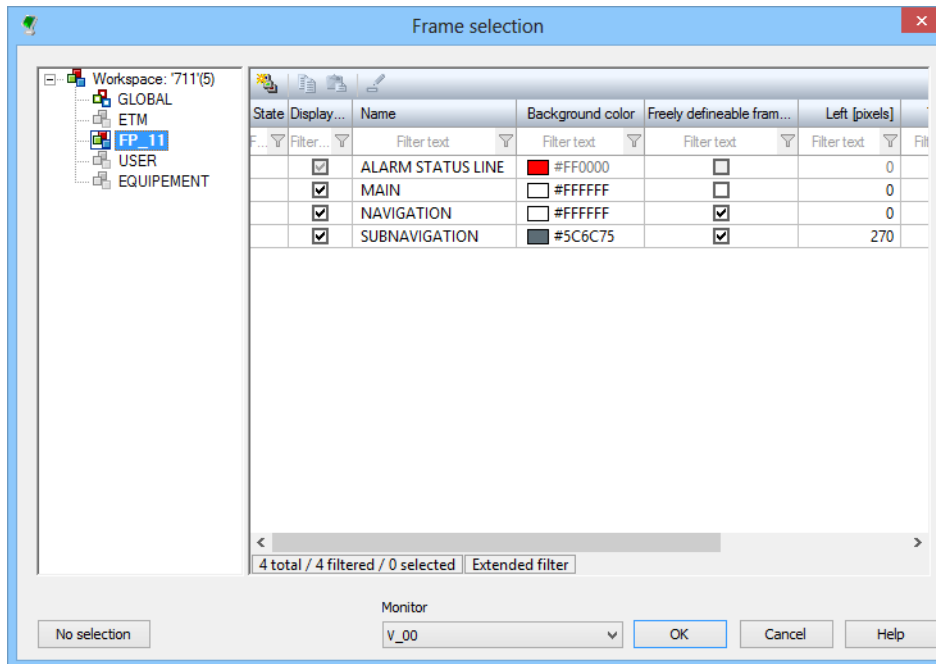
| Parameters               | Description  |
|--------------------------|--|
| <b>Monitor selection</b> | Configuration of the monitor for which flash acknowledgment of the alarms is to be configured.   |
| <b>Monitor</b>           | <p>Selection of the monitor from the list.</p> <ul style="list-style-type: none"> <li>▶ <b>All monitors</b></li> <li>▶ <b>Current monitor</b></li> <li>▶ Selection of a virtual monitor</li> </ul> <p>Only available for Multi-monitor systems and only for the <b>All alarms in the frame</b> option.</p> |
| <b>OK</b>                | Applies settings and closes the dialog.  |
| <b>Cancel</b>            | Discards all changes and closes the dialog.  |
| <b>Help</b>              | Opens online help.   |

## Frame selection dialog

In the **frame selection** dialog, frames can be selected for the execution of functions, from:

- ▶ Current project
- ▶ Subprojects

- All projects in the workspace with the **Keep project in memory** option active



| Parameters                 | Description  |
|----------------------------|--|
| <b>Project tree window</b> | Displays all projects in the workspace. Frames can be selected from the current project and from all projects with the <b>Keep project in memory</b> option active |
| <b>Frames window</b>       | Selection of a frame.<br><br>If several frames are selected, the frame at the top of the list is used to execute the function.                                     |
| <b>No selection</b>        | Removes selection and closes dialog.   |
| <b>OK</b>                  | Applies settings and closes the dialog.  |
| <b>Cancel</b>              | Discards all changes and closes the dialog.  |
| <b>Help</b>                | Opens online help.   |

## Examples of alarm acknowledgment in Runtime

### EXAMPLE 1

The following were configured:

- **Frame\_1** (red) with the variables **Var\_1**, **Var\_2** and **Var\_3**



- **Frame\_2** (green) with the variables **Var\_1** and **Var\_2**



Initial situation:

- **Frame\_1** is switched to **Monitor\_1**.
- **Frame\_2** is switched to **Monitor\_2**.
- All three variables flash due to a limit value violation.

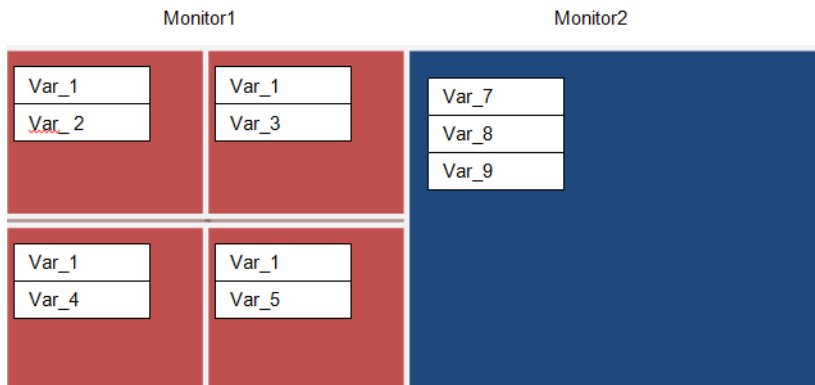
Reactions to the execution of the **Flash-acknowledge alarms** function:

- Execution on **Frame\_2** on **Monitor\_1**: Nothing happens, because this frame is not present on **Monitor\_1**.
- Execution on all monitors or on **Monitor\_2**: All variables of the frame are flash-acknowledged. This means: **Var\_1** and **Var\_2** are flash-acknowledged. **Var\_3** continues to flash

## EXAMPLE 2

There is **Button\_1** on **Frame\_1**. This flash-acknowledges the calling frame. If this button is pressed, **Var\_1**, **Var\_2** and **Var\_3** are flash-acknowledged.

### EXAMPLE 3



Initial situation:

- ▶ **Frame\_1** (red) is switched to **Monitor\_1** 4 times. This frame contains certain variables. However it contains other variables in each frame due to substitution. The only common one is **Var\_1**.
- ▶ **Frame\_2** (blue) is switched to **Monitor\_2**. This frame contains different variables to **Frame\_1**.

Reactions to the execution of the **Flash-acknowledge alarms** function:

If **Frame\_1** is now flash-acknowledged on this monitor - or on all monitors - then:

- ▶ The command is flash-acknowledged on all frames on this monitor
- ▶ And thus on all variables of **Frame\_1**

This means:

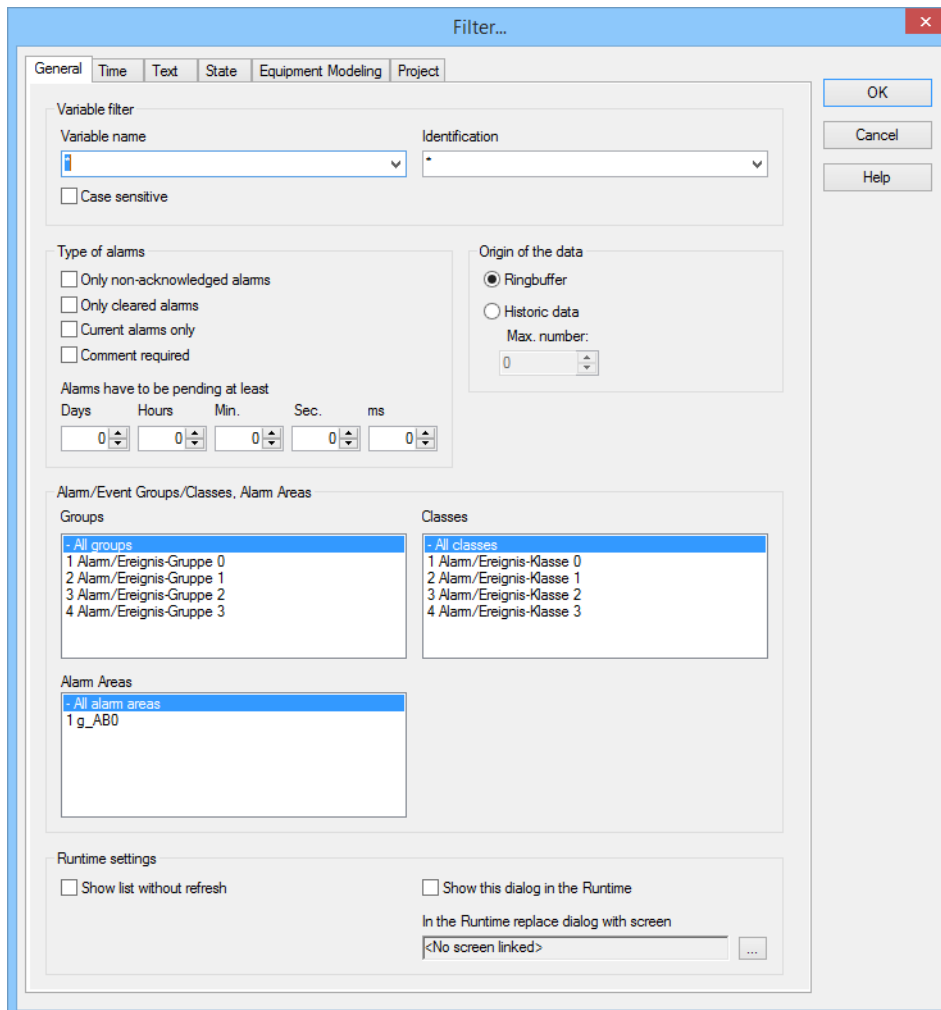
- **Var\_1** to **Var\_5** are flash acknowledged
- **Var\_7** to **Var\_9** continue to flash

### Alarms: delete

To delete (on page 161) alarms collectively using filter criteria, use the **Delete alarms** function:

1. Create a new function (on page 116)
2. Select **Delete alarms**.

3. The dialog to select the filter criteria opens (similar to filter criteria in screen switching)



**Filter...**

General | Time | Text | State | Equipment Modeling | Project

**Variable filter**

Variable name:  Identification:

☐ Case sensitive

**Type of alarms**

☐ Only non-acknowledged alarms  
☐ Only cleared alarms  
☐ Current alarms only  
☐ Comment required

Alarms have to be pending at least

Days:  Hours:  Min.:  Sec.:  ms:

**Origin of the data**

☒ Ringbuffer  
☐ Historic data  
Max. number:

**Alarm/Event Groups/Classes, Alarm Areas**

**Groups**

- All groups
- 1 Alarm/Ereignis-Gruppe 0
- 2 Alarm/Ereignis-Gruppe 1
- 3 Alarm/Ereignis-Gruppe 2
- 4 Alarm/Ereignis-Gruppe 3

**Classes**

- All classes
- 1 Alarm/Ereignis-Klasse 0
- 2 Alarm/Ereignis-Klasse 1
- 3 Alarm/Ereignis-Klasse 2
- 4 Alarm/Ereignis-Klasse 3

**Alarm Areas**

- All alarm areas
- 1 g\_AB0

**Runtime settings**

☐ Show list without refresh ☐ Show this dialog in the Runtime

In the Runtime replace dialog with screen:

OK Cancel Help

4. define the criteria for:
  - General (on page 53)
  - Time (on page 58)
  - Text (on page 82)
  - Status (on page 89)
5. link the function to a button

## USER AUTHORIZATION

The functions **Acknowledge alarms** (on page 124) and **Delete alarms** (on page 122) can be assigned to a user group via Function authorization. Only authorized user can acknowledge and delete alarms.

*In addition, an additional operating right can be set via the **Two-stage acknowledgement** property in the respective subgroup of the **Limit Values** group. Selected alarms can only be removed from the Alarm Message List by users with the necessary rights.*

If the **Two-stage acknowledgement** property is set, alarms are then only removed from the list of active alarms if they are deleted. Acknowledgment alone is not sufficient.



### Information

*Alarms can only be deleted, if they have been acknowledged before.*

## Acknowledge alarms

With this function, you acknowledge Runtime alarms from the Alarm Message List. Most importantly, global acknowledgment (on page 157) is possible with this.

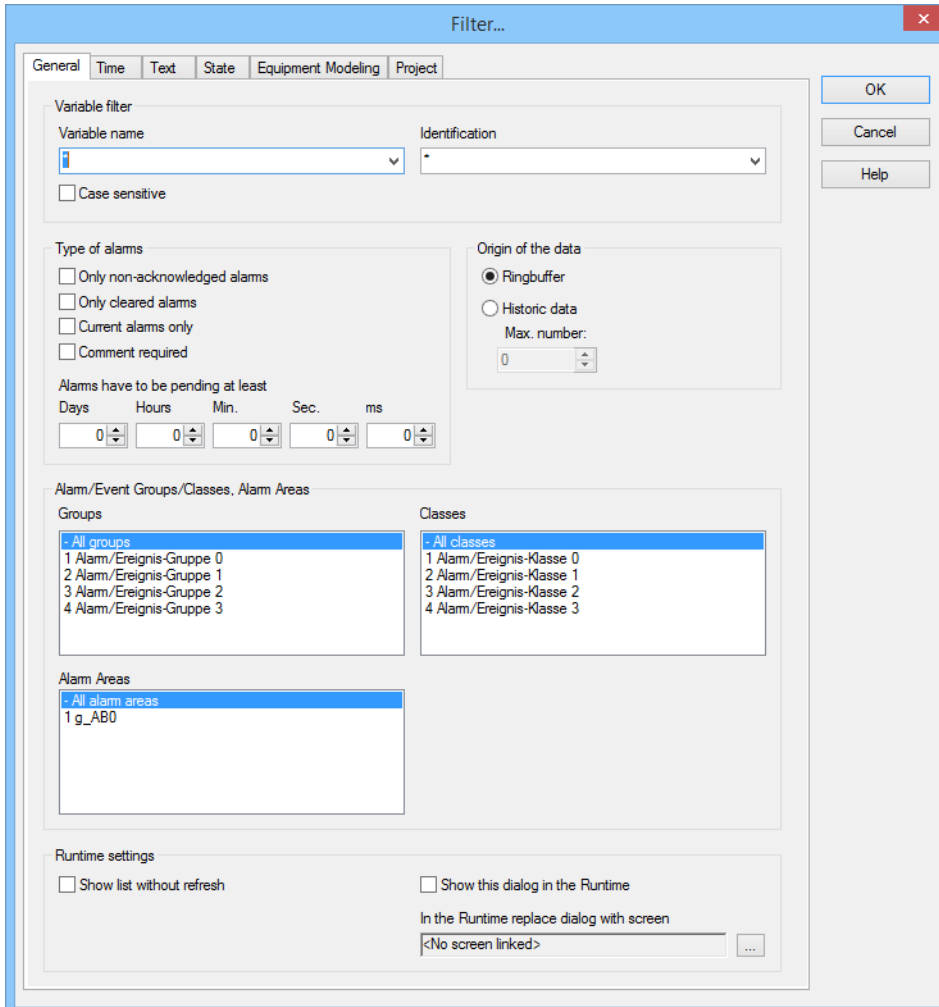
When executing this function in Runtime, the flashing attribute of the variables and therefore screen alarming (only SICAM 230) will also be reset. The selected alarms are acknowledged.

For transfer parameters see chapter Alarm engineering with filters (on page 48).

To acknowledge alarms with this function:

1. Create a new function (on page 116)
2. Select **acknowledge alarms**.

3. The dialog to select the filter criteria opens (similar to filter criteria in screen switching)



**Filter...**

General | Time | Text | State | Equipment Modeling | Project

**Variable filter**

Variable name:  Identification:

☐ Case sensitive

**Type of alarms**

☐ Only non-acknowledged alarms  
☐ Only cleared alarms  
☐ Current alarms only  
☐ Comment required

Alarms have to be pending at least

Days:  Hours:  Min.:  Sec.:  ms:

**Origin of the data**

☒ Ringbuffer  
☐ Historic data  
 Max. number:

**Alarm/Event Groups/Classes, Alarm Areas**

**Groups**

- All groups
- 1 Alarm/Ereignis-Gruppe 0
- 2 Alarm/Ereignis-Gruppe 1
- 3 Alarm/Ereignis-Gruppe 2
- 4 Alarm/Ereignis-Gruppe 3

**Classes**

- All classes
- 1 Alarm/Ereignis-Klasse 0
- 2 Alarm/Ereignis-Klasse 1
- 3 Alarm/Ereignis-Klasse 2
- 4 Alarm/Ereignis-Klasse 3

**Alarm Areas**

- All alarm areas
- 1 g\_AB0

**Runtime settings**

☐ Show list without refresh ☐ Show this dialog in the Runtime

In the Runtime replace dialog with screen:

<No screen linked>

OK Cancel Help

4. define the criteria for:
  - General (on page 53)
  - Time (on page 58)
  - Text (on page 82)
  - Status (on page 89)
5. link the function to a button

## USER AUTHORIZATION

The functions **Acknowledge alarms** (on page 124) and **Delete alarms** (on page 122) can be assigned to a user group via Function authorization. Only authorized user can acknowledge and delete alarms.

*In addition, an additional operating right can be set via the **Two-stage acknowledgement** property in the respective subgroup of the **Limit Values** group. Selected alarms can only be removed from the Alarm Message List by users with the necessary rights.*

If the **Two-stage acknowledgement** property is set, alarms are then only removed from the list of active alarms if they are deleted. Acknowledgment alone is not sufficient.



#### Information

*Alarms can only be deleted, if they have been acknowledged before.*

### Alarm Message List active

This function switches the status of the Alarm Message List in Runtime to `active` when selected.

### Alarm Message List active/inactive

This function switches the status of the Alarm Message List in Runtime between `active` and `inactive` when selected.

### Alarm Message List inactive

This function switches the status of the Alarm Message List in Runtime to `inactive` when selected.

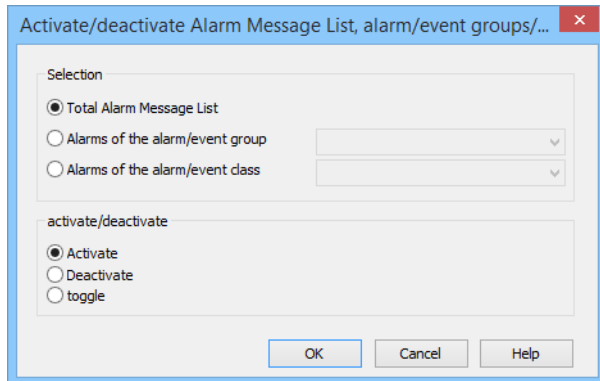
### Activate/deactivate Alarm Message List, alarm/event groups/classes

The function makes it possible to activate or deactivate alarms of a certain group or class (on page 34) or all alarms of the AML or to switch between these two states.

To activate or deactivate alarms:

1. Create a new function (on page 116)
2. Select **Alarm message list, Activate/deactivate alarm/event groups/classes**
3. The dialog to select alarms opens
4. Define the criteria for the function

## 5. link the function to a button



### SELECT

| Parameters                             | Description  |
|--|--|
| <b>Select</b>                          | Selection of the alarms.   |
| <b>Whole alarm message list</b>        | Function applies for the whole alarm message list.   |
| <b>Alarms of the alarm/event group</b> | Function applies for a certain group.<br>Selection: Clicking on the button opens a drop-down list. |
| <b>Alarms of the alarm/event class</b> | Function applies for a certain class.<br>Selection: Clicking on the button opens a drop-down list. |

### ACTIVATE/DEACTIVATE

| Parameters                 | Description                        |
|----------------------------|------------------------------------|
| <b>activate/deactivate</b> | Action of the function.            |
| <b>Activate</b>            | Activates selected element.        |
| <b>deactivate</b>          | Deactivates selected element.      |
| <b>toggle</b>              | Switches status (active/inactive). |

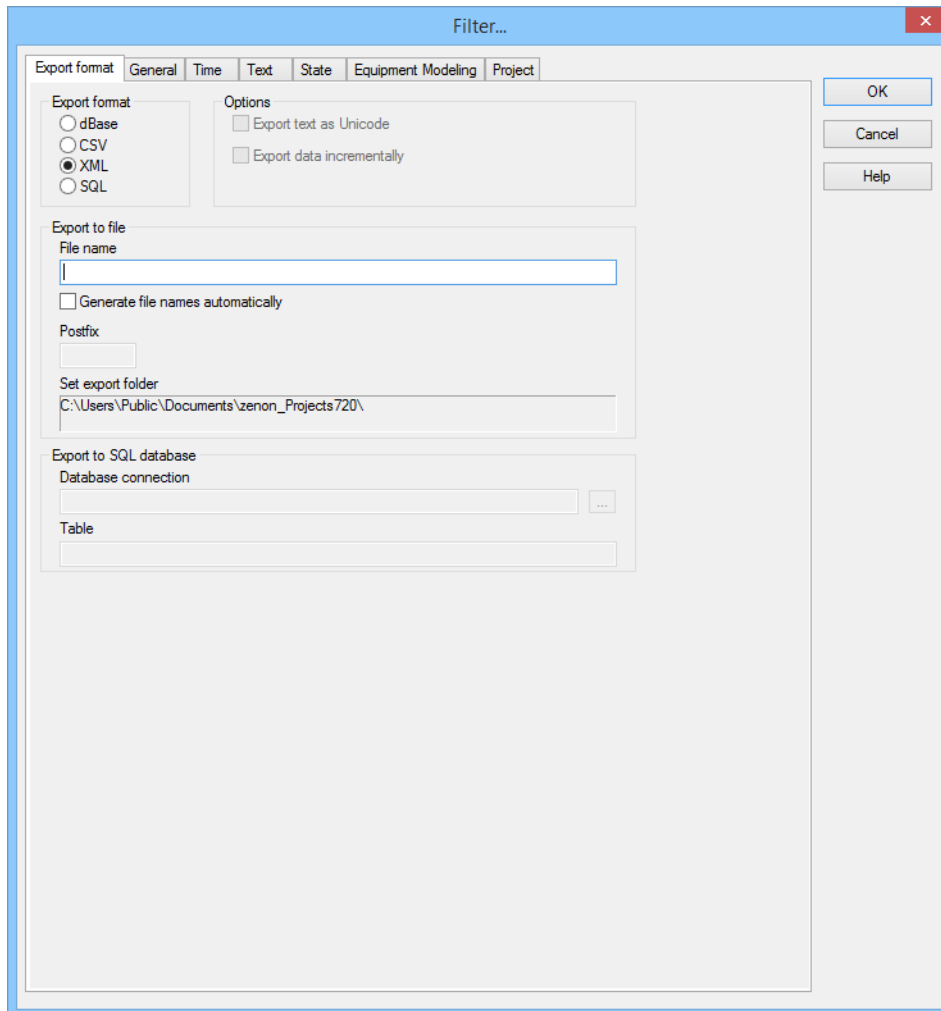
### Export AML

With this function, you can export the alarms saved with filter conditions to a file or database in Runtime.

To export alarms:

1. Create a new function (on page 116).

2. Select **Export AML**.
3. The dialog for selecting filter criteria opens.



4. Define the criteria for:
  - Export format (on page 129)
  - General (on page 53)
  - Time (on page 58)
  - Text (on page 82)
  - Status (on page 89)
  - Equipment Modeling (on page 90)
  - Project (on page 90)
5. Link the function to a button.



## Export format

Exports can be carried out in different formats. Which columns are exported, and how, depends on the source (AML/CEL) and the export format:

Data is exported in different ways for:

- ▶ CSV (on page 134)
- ▶ dBase (on page 134)
- ▶ SQL (on page 135)
- ▶ XML (on page 134)



### Information

*The export to SQL is incremental. If there is already exported data, only new and amended data is exported.*

## COLUMN SELECTION

The selection of the columns to be exported depends on the export format:

- ▶ CSV, DBF and XML: Selection using the dialog (on page 48) of the **Column settings AML** project property for the AML and **Column settings CEL** for the CEL.
- ▶ SQL: Fixed settings for the incremental export, which cannot be configured further.  
**Note:** The **RESLABEL** column for the **Resources label** was added in version 7.20. Export tables that already exist can thus no longer be used. The table must be renamed for correct export.



CONFIGURE EXPORT

Filter...

Export format

GeneralTimeTextStateEquipment ModelingProject

Export format

☐ dBase

☐ CSV

☒ XML

☐ SQL

Options

☐ Export text as Unicode

☐ Export data incrementally

Export to file

File name

☐ Generate file names automatically

Postfix

Set export folder

C:\Users\Public\Documents\zenon\_Projects720\

Export to SQL database

Database connection

...

Table

OK

Cancel

Help

## EXPORT FORMAT

| Parameters           | Description  |
|----------------------|--|
| <b>Export format</b> | <p>Selection of the file type. Possible formats:</p> <ul style="list-style-type: none"> <li>▶ dBase: DBaseIV format (*.dbf):</li> <li>▶ CSV</li> <li>▶ XML</li> <li>▶ SQL</li> </ul> <p>Notes on dBase:</p> <ul style="list-style-type: none"> <li>▶ Filenames cannot be longer than eight characters.</li> <li>▶ Configured column width is used for export. If, for example, a value of 40 is set under <b>Column settings</b>, a maximum of 40 characters is then exported.</li> <li>▶ A maximum of 255 characters are exported.</li> </ul> |

## OPTIONS

| Parameters                | Description  |
|---------------------------|--|
| <b>Options</b>            |  |
| <b>Export as unicode</b>  | An export to ASCII format is performed in Unicode    |
| <b>Incremental export</b> | Only differences since the last backup are exported. |

## EXPORT TO FILE

| Parameters                              | Description   |
|---|---|
| <b>Export to file</b>                   | Determining the file in which the export is saved.  |
| <b>File name</b>                        | <p>Define file name individually.</p> <p>A maximum of 32 alphanumeric characters including file suffix.</p> <p>Note: Existing files with the same names are overwritten.</p>  |
| <b>Generate file name automatically</b> | <p>Active: The file name will be generated automatically from a short identifier, a date key and an individual postfix.</p> <p>Inactive: The file name is entered by the user under <b>Filename</b>. (existing files are not overwritten)</p> <p>For details, see the next table: <b>Coding name for automatic naming</b></p> |
| <b>Postfix</b>                          | <p>Free, individual identification. Only available for <b>Generate filename automatically</b>.</p> <p>Possible entries:</p>   |

|                               |   |
|-------------------------------|---|
|                               | <ul style="list-style-type: none"> <li>▶ dBase: 1 alphanumeric character</li> <li>▶ ASCII and XML: 32 alphanumeric characters</li> </ul>          |
| <b>Example</b>                | Display of the complete file name with automatic generation.  |
| <b>Set export folder</b>      | Display of the current export path configured in Project Properties.<br>( <b>Runtime folder</b> property in the <b>General/Name/Folder</b> node.) |
| <b>Export to SQL database</b> | Parameters for export into a SQL database   |
| <b>Database connection</b>    | Configuration of the database connection. A click on the ... button opens the configuration dialog.   |
| <b>Table</b>                  | Selection of the table that is to be written in.  |

## CODING NAME FOR AUTOMATIC NAMING

| Name          | AJJMMTTP.XXX  |
|---------------|---|
| <b>A</b>      | Short identification of the Alarm Message List  |
| <b>YYMMDD</b> | Date input: <ul style="list-style-type: none"> <li>▶ YY: Year, two-digits</li> <li>▶ MM: Month, two-digits</li> <li>▶ DD: Day, two-digits</li> </ul>                      |
| <b>P</b>      | Free, individual identification: <ul style="list-style-type: none"> <li>▶ dBase: 1 alphanumeric character</li> <li>▶ ASCII and XML: 32 alphanumeric characters</li> </ul> |
| <b>XXX</b>    | File ending: <ul style="list-style-type: none"> <li>▶ DBF: dBase</li> <li>▶ TXT: CSV</li> <li>▶ XML: XML</li> </ul>   |

## FORMAL MATTERS

- ▶ Format of the line entries: Is taken from the settings of the **Column settings AML** or **Column settings CEL** property.
- ▶ Column separator: Semi-colon (;)



### Attention

#### Milliseconds for printing or export

*If, when printing or exporting the AML or CEL to CSV, XML or dBase format, the time in milliseconds is to be given, this property must be activated in the dialog for the column settings (on page 84). To do this:*

- ▶ Navigate to the **Alarm Message List** or **Chronological Event List** nodes in properties.
- ▶ Click on the ... button of the **Column settings AML** or **Column settings CEL** property.
- ▶ The dialog for the column settings is opened.
- ▶ Activate the checkbox in front of the **Milliseconds** property.

The additional setting must be made for both AML and CEL.

## NOTES SQL



### Attention

Ensure that the provider configured in the connection is also available on the Runtime computer in Runtime.

**Note:** An SQL client is also installed with the zenon Editor. Because the zenon Runtime does not need an SQL Server, no SQL client is automatically installed. This can be downloaded from the Microsoft website and must be installed individually.

Ensure you install the correct version when installing the provider. This must suit the zenon version being used. This means: If a 32-bit zenon Runtime is used, the provider must be a 32-bit version. This also applies if it is installed on a 64-bit operating system and also if the database itself is a 64-bit application.



### Attention

When using **Native Client 10** and **11**, the password is not automatically carried over to the provider string. It must be entered manually

e.g.: ...;**User ID=sqlExampleUser1;Password=secretPassword;...**

### CSV: Exported columns

Export to CSV is mostly for further processing in other applications. The data is exported according to the selection in **Column settings AML** or **Column settings CEL**:

- ▶ Only data from the selected columns is exported.
- ▶ The sequence in the export file corresponds to the one defined in the dialog.
- ▶ Separator: Semi-colon (;)
- ▶ Column titles are not exported.

### dBase: Exported columns

For export in to a dBase file, the data is exported in accordance with the selection in **Column settings AML** or **Column settings CEL**:

- ▶ Only data from the selected columns is exported.
- ▶ The sequence in the export file is defined and cannot be changed.

Columns in exported sequence:

| Column            | Type      | Size | Description                         |
|-------------------|-----------|------|-------------------------------------|
| <b>DATUM_KOMM</b> | Date      | 8    | Alarm occurred: Date.               |
| <b>ZEIT_KOMMT</b> | Character | 10   | Alarm occurred: Time.               |
| <b>MILLI_KOMM</b> | Numeric   | 3    | Alarm occurred: Milliseconds.       |
| <b>DATUM_GEHT</b> | Date      | 8    | Alarm ended: Date.                  |
| <b>ZEIT_GEHT</b>  | Character | 10   | Alarm ended: Time.                  |
| <b>MILLI_GEHT</b> | Numeric   | 3    | Alarm ended: Milliseconds.          |
| <b>DATUM_OK</b>   | Date      | 8    | Alarm acknowledged: Date.           |
| <b>ZEIT_OK</b>    | Character | 10   | Alarm acknowledged: Time.           |
| <b>ALARMTEXT</b>  | Character | 40   | Limit value text.                   |
| <b>TAG_NR</b>     | Character | 40   | Variable identification.            |
| <b>KOMMENTAR</b>  | Character | 45   | Comment.                            |
| <b>STATUS</b>     | Character | 4    | Status of variable.                 |
| <b>DATUM_REA</b>  | Date      | 8    | Alarm reactivated: Date.            |
| <b>ZEIT_REA</b>   | Character | 10   | Alarm reactivated: Time.            |
| <b>MILLI_REA</b>  | Character | 3    | Alarm reactivated: Milliseconds     |
| <b>ANZ_REA</b>    | Character | 3    | Alarm reactivated: Meter.           |
| <b>STAT_REA</b>   | Character | 1    | Alarm reactivated: Variable status. |
| <b>WERT</b>       | Character | 10   | Variable value.                     |
| <b>USER</b>       | Character | 6    | User identification.                |
| <b>COMPUTER</b>   | Character | 48   | Computer name.                      |
| <b>VAR_NAME</b>   | Character | 32   | Variable name.                      |
| <b>RESLABEL</b>   | Character | 15   | Resources label.                    |
| <b>PROJ_NAME</b>  | Character | 31   | Project name                        |
| <b>CLASS</b>      | Character | 31   | Name of the alarm class.            |
| <b>GROUP</b>      | Character | 31   | Name of the alarm group.            |

### SQL: Exported columns

For SQL export, the files are exported incrementally in a fixed, pre-defined sequence.

Columns in exported sequence:

| Column               | Type          | Description   |
|----------------------|---------------|---|
| <b>[VAR]</b>         | varchar(128)  | Variable name.  |
| <b>[TAG]</b>         | varchar(128)  | Variable identification.                                      |
| <b>[RESLABEL]</b>    | varchar(128)  | Resources label.  |
| <b>[TEXT]</b>        | varchar(1024) | Limit value text.   |
| <b>[COMES_S]</b>     | int           | Alarm occurred in Unix time (seconds since 01. 01. 1970).     |
| <b>[COMES_MS]</b>    | int           | Alarm occurred: Fraction of a millisecond.                    |
| <b>[GOES_S]</b>      | int           | Alarm ended in Unix time (seconds since 01. 01. 1970).        |
| <b>[GOES_MS]</b>     | int           | Alarm ended: Fraction of a millisecond.                       |
| <b>[QUIT]</b>        | int           | Alarm acknowledged in Unix time (seconds since 01. 01. 1970). |
| <b>[STATUS]</b>      | int           | Status of variable.   |
| <b>[VALUE]</b>       | varchar(128)  | Variable value.   |
| <b>[USERID]</b>      | varchar(128)  | User identification.  |
| <b>[COMP]</b>        | varchar(128)  | Computer name.  |
| <b>[REACT_S]</b>     | int           | Alarm reactivated in Unix time (seconds since 01. 01. 1970).  |
| <b>[REACT_MS]</b>    | int           | Alarm reactivated: Fraction of a millisecond.                 |
| <b>[REACT_COUNT]</b> | int           | Alarm reactivated: Meter.                                     |
| <b>[REACT_STAT]</b>  | int           | Alarm reactivated: Variable status.                           |
| <b>[ACT_TEXT]</b>    | varchar(128)  | Alarm: Comment.   |
| <b>[PRJ]</b>         | varchar(128)  | Project name.   |
| <b>[CLASS]</b>       | varchar(128)  | Name of the alarm class.                                      |
| <b>[GROUP]</b>       | varchar(128)  | Name of the alarm group.                                      |
| <b>[LASTING_S]</b>   | int           | Alarm active in seconds.                                      |
| <b>[LASTING_MS]</b>  | int           | Alarm active: Fraction of a millisecond.                      |
| <b>[CLASS_NR]</b>    | int           | Alarm Classes ID.   |
| <b>[GROUP_NR]</b>    | int           | Alarm groups ID.  |
| <b>[USERNAME]</b>    | varchar(128)  | User name.  |



## XML: Exported columns

When exporting to an XML file, the data is exported in accordance with the selection in **Column settings AML** or **Column settings CEL**:

- ▶ Only data from the selected columns is exported.
- ▶ The sequence in the export file corresponds to the one defined in the dialog.
- ▶ Column titles are used as tags. All characters that are not permitted are removed and replaced in the process.  
Rules for replacement:
  - Space: Underscore (\_).
  - Other non-permitted characters: Hyphen (-).

## Save AML and CEL memory buffer

With this function, the content of the ring buffer for alarms and events as well as the values of mathematical variables (counters) can be saved. The entries are saved in the following files:

| File        | Contents   | The size can be set in Properties |
|-------------|--|-----------------------------------|
| ALARM.BIN   | Alarms   | Size of the ring buffer           |
| CEL.BIN     | Chronological Event List entries                 | Size of the ring buffer           |
| SY_MA32.BIN | Values of mathematical variables (e.g. counters) |                                   |

To save the AML ring buffer:

1. Create a new function (on page 116)
2. Select **Save AML and CEL ring buffer**
3. link the function to a button

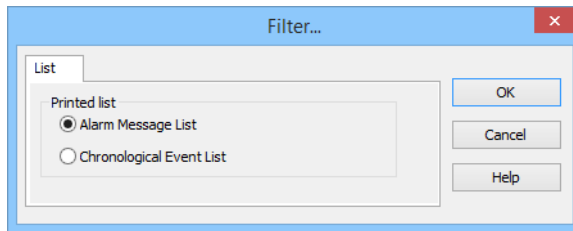
## Print AML or CEL

The saved alarms and their filter conditions can be output to a printer in Runtime with this function

To configure the function:

1. Create a new function (on page 116)
2. select **Print AML or CEL**

3. the dialog for selecting the list opens



4. Select **Alarm Message List**
5. the dialog for selecting filter criteria opens
6. define the criteria for:
  - General (on page 53)
  - Time (on page 58)
  - Text (on page 82)
  - Status (on page 89)
  - Font: Selection from the fonts defined in zenon
7. link the function to a button



#### Information

*In the Runtime you cannot switch between CEL and AML. To print both lists, you must engineer two functions.*

## LINE STRUCTURE

| Date/Time received | Date/Time cleared | Date/Time acknowledged | Long text | Status text |
|--------------------|-------------------|------------------------|-----------|-------------|
|                    |                   |                        |           |             |

The keywords available for the formatting file (ALAR.FRM for online printing and ALAR\_G.FRM for offline printing) and examples of these being used can be found in the FRM configuration file (on page 175) chapter in the Operation in Runtime (on page 144) section.

The FRM file has three parts:

- ▶ Header: at the beginning of the page
- ▶ List part: cyclic per line
- ▶ Footer: at the end of the page

## PRINCIPLES

When editing FRM files regard the following:

- ▶ Separating the list parts:
  - Header and list part and list part and footer are separated by %%.  
The separation marking must be used only once for the list and the footer.
  - **Attention:** The last line must be followed by at least two empty paragraphs. Otherwise the footer is not printed!
- ▶ Positioning the individual entries:  
You may only use space, no tabulators.
- ▶ Editing the FRM file in a text editor:  
Automatic line break must be deactivated otherwise undesired effects in the formatting may occur.

## KEYWORDS

The setting for the page length is made in Project Properties under **AML and CEL** or via the `ALARM.frm` or `ALAR_G.frm` file for the AML or `BTB.frm` and `BTB_G.frm` for the CEL.

Please keep in mind:

- ▶ The number of the alarm entries per page results from the predetermined number of lines (e.g. **Lines per page 72**), less the lines used for header and footer text.
- ▶ The **Use reactivated time** option must be activated in order to be able to use the keywords that evaluate the reactivation (time, number).
- ▶ Free texts and keywords can be used in the formatting file. Key words can be used either in German or in English. The use of English key words is recommended.
- ▶ Not every key word is suitable for every kind of printing (AML, CEL, online, offline).

The following table contains key words in English and German and their field of application:

| German                             | English            | AML<br>offlin<br>e | CEL<br>offlin<br>e | AML<br>online | CEL<br>onlin<br>e | Description   |
|------------------------------------|--------------------|--------------------|--------------------|---------------|-------------------|---|
| <b>Key words for the list part</b> |                    |                    |                    |               |                   |   |
| @BMKENNUNG                         | @RESOURCELAB<br>EL | X                  | X                  | X             | X                 | <b>Resources label</b>  |
| @DATZEITKOMMT                      | @DTRECEIVED        | X                  | X                  | X             | X                 | Time and Date when the alarm occurred   |
| @DATZEITGEHT                       | @DTCLEARED         | X                  | -                  | X             | -                 | Time and Date when the alarm ended  |
| @DATZEITOK                         | @DTACK             | X                  | -                  | X             | -                 | Time and Date when the alarm was acknowledged   |
| @DATZEITREAKT                      | @DTREACTIVATE      | X                  | -                  | X             | -                 | Time and Date of reactivating:<br><br>Property <b>Use reactivated time</b> in the project properties must be activated. |
| @DATZEIT                           | @DTLASTEVENT       | -                  | -                  | X             | -                 | Time and date of alarm received or cleared or acknowledged or reactivated   |
| @ZEIT                              | @TLASTEVENT        | -                  | -                  | X             | X                 | Time of alarm received or cleared or acknowledged or reactivated  |
| @ZEITOK                            | @TACK              | X                  | -                  | X             | -                 | only displays time of acknowledging   |
| @ZTKOMMT                           | @TRECEIVED         | X                  | X                  | X             | X                 | only displays time of alarm received  |
| @ZTGEHT                            | @TCLEARED          | X                  | -                  | X             | -                 | only displays time of end of alarm  |
| @ZTREAKT                           | @TREACTIVATE       | X                  | -                  | X             | -                 | only displays time of reactivating  |
| @TIMELASTING                       | @TACTIVE           | X                  | -                  | X             | -                 | Time active (difference time received - time cleared)   |
| @ANWENDUNG                         | @PROJECTNAME       | X                  | X                  | X             | X                 | Project name  |
| @KANALNAME                         | @VARNAME           | X                  | X                  | X             | X                 | Variable name<br>CEL: Only entries with variables   |
| @AK                                | @ACLASNR           | X                  | X                  | X             | X                 | Alarm/event class name  |
| @AG                                | @AGROUPNR          | X                  | X                  | X             | X                 | Alarm/event group number  |
| @AGNAME                            | @AGROUPNAM         | X                  | X                  | X             | X                 | Name of alarm/event group   |

|  |                 |   |   |   |   |   |
|--|-----------------|---|---|---|---|---|
|  | E               |   |   |   |   |   |
| @AKNAME                                | AClassName      | X | X | X | X | Name of alarm/event class   |
| @TAGNR                                 | @IDENTIFICATION | X | X | X | X | Identification (company-specific label)   |
| @AMELDUNG                              | @TEXT           | X | X | X | X | Alarm message text  |
| @REAKTANZ                              | @NRREACTIVATION | X | - | X | - | Number of reactivations   |
| @STATUS                                | @STATUS         | X | X | X | X | Status information as in Alarm Message List   |
| @WERT                                  | @VALUE          | X | X | X | X | Variable value of alarm   |
| @REAKTIONSTEXT                         | @COMMENT        | X | X | X | X | <p>Commentary from the Alarm Message List.</p> <p>If dynamic limit value texts are used, this is only available if the <b>Long dynamic limit value texts AML</b> or <b>Long dynamic limit value texts CEL</b> properties have been activated.</p> |
| @USER                                  | @USERID         | X | X | X | X | AML: User who acknowledged alarm.   |
| @RECHNER                               | @COMPUTER       | X | X | X | X | AML: Computer on which alarm was acknowledged.  |
| <b>Key words for header and footer</b> |                 |   |   |   |   |   |
| @ANWENDUNG                             | @PROJECTNAME    | X | X | X | X | Project name  |
| @SEITE                                 | @PAGE           | X | X | X | X | Page number   |
| @HEADDATZEIT                           | @DTSYSTEM       | X | X | X | X | System date and system time   |
| @HEADDATUM                             | @DSYSTEM        | X | X | X | X | System date   |
| @HEADZEIT                              | @TSYSTEM        | X | X | X | X | System time   |
| @USER                                  | @USERID         | X | X | X | X | User who prints   |
| @USERNAME                              | @USERNAME       | X | X | X | X | Full user name who triggered action   |
| @RECHNER                               | @COMPUTER       | X | X | X | X | Computer from which printing is carried out   |
| [Text]                                 | [Text]          |   |   |   |   | Random text   |



### Attention

*Between the key words there must be enough space so that entries are not overwritten. In doing so, you make sure that long limit value texts are also displayed correctly.*

*Example:*

*@TEXT  
(spaces up to here)*

## SETTING MILLISECONDS



### Attention

#### Milliseconds for printing or export

*If, when printing or exporting the AML or CEL to CSV, XML or dBase format, the time in milliseconds is to be given, this property must be activated in the dialog for the column settings (on page 84). To do this:*

- ▶ Navigate to the **Alarm Message List** or **Chronological Event List** nodes in properties.
- ▶ Click on the ... button of the **Column settings AML** or **Column settings CEL** property.
- ▶ The dialog for the column settings is opened.
- ▶ Activate the checkbox in front of the **Milliseconds** property.

The additional setting must be made for both AML and CEL.

## Switch online printing on/off

Online printing is set to a status when this function is used:

- ▶ on: Switches online printing on
- ▶ off: Switches online printing off
- ▶ active/inactive: Switches online printing

To configure the function:

1. Create a new function (on page 116)
2. Select **Switch online printing on/off**
3. the dialog for selecting the action opens
4. select the desired action

5. link the function to a button

## Online printing start new page

With this function, you control the form feed in Runtime when printing online:

The configured footer will be printed onto the current page of the printout, and then the printout will advance to the beginning of a new page. The page counter will be reset to 1 and the header will be printed out.

To configure the function:

1. Create a new function (on page 116)
2. Select **Start online printing on a new page**
3. link the function to a button

## Switch online printer

With this function, the printer for online printing can be changed in Runtime.

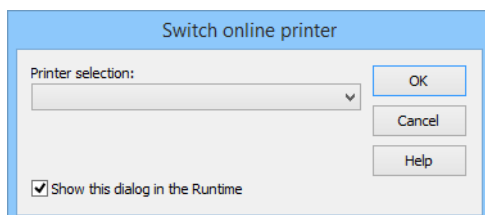


### Information

*This function is not available under Windows CE.*

To configure the function:

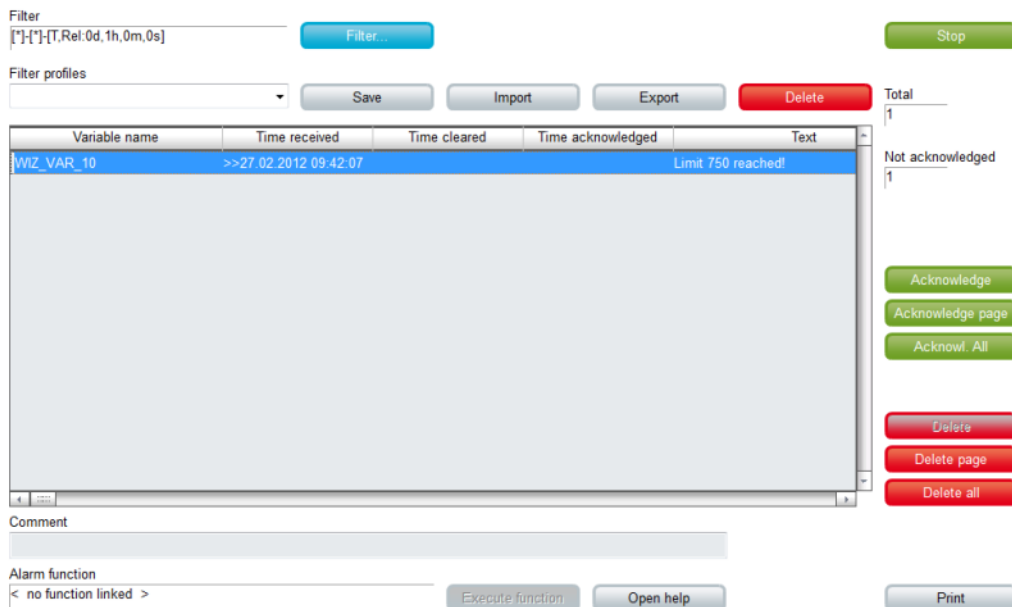
1. Create a new function (on page 116).
2. Select **Switch online printer**.  
The dialog for selection of the printer opens.
3. Select the desired printer from the drop-down list.
4. Link the function to a button.



| Parameters                             | Description   |
|--|---|
| <b>select printer</b>                  | Selection of the desired printer from the drop-down list.   |
| <b>Show this dialog in the Runtime</b> | Active: When this function is executed, the dialog is opened and the printer can be defined in Runtime. |

## 4. Operating during Runtime

The Alarm Message List is called up in Runtime via a screen switching function (on page 111).



The available control elements and the look are engineered in the Editor (on page 7).



## WINDOW

| Control element                 | Description  |
|---------------------------------|--|
| <b>Window</b>                   | Display in Runtime   |
| <b>Alarm Message List</b>       | <p>Display of the alarms. The appearance is configurable (on page 12). Columns are set using the column settings (on page 84) filter in the screen switching.</p> <p>The <b>Column settings AML</b> property in the project properties in the <b>Alarm Message List</b> group are used to define the settings for export in CSV, XML and DBF. These also serve as a pre-setting for the screen switching function.</p> |
| <b>Set filter</b>               | Display of the currently-selected filter conditions.   |
| <b>Status</b>                   | Display if Alarm Message List is active or not (Project property <b>Alarm Message List active</b> ).   |
| <b>Total number</b>             | Shows number of all alarms.  |
| <b>Number of unacknowledged</b> | Displays number of unacknowledged alarms.  |

## LIST FUNCTIONS

| Control element          | Description  |
|--------------------------|--|
| <b>List functions</b>    | Buttons to control the lists.  |
| <b>Filter</b>            | Opens dialogs for filter selection.  |
| <b>Stop/Continue</b>     | <p>Switch for filling the list:</p> <p><b>Stop:</b> New elements are no longer added automatically.</p> <p><b>Next:</b> New elements are added automatically.</p> <p><b>Attention:</b> The font of the button can be changed in the editor but is not carried over to Runtime. You can configure changes to the font using Language switching.</p> |
| <b>Print</b>             | Prints filtered list.  |
| <b>Print with dialog</b> | Opens printer settings before printing.  |

## ALARM FUNCTIONS

| Control element           | Description   |
|---------------------------|---|
| <b>Alarm functions</b>    | Buttons for acknowledging and deleting alarms.              |
| <b>Acknowledge</b>        | Acknowledging alarm messages in Runtime.                    |
| <b>Acknowledging page</b> | All alarms displayed on the current page are acknowledged.  |
| <b>Acknowl. All</b>       | All alarms for the current filter criteria are acknowledged |

|   |   |
|---|---|
|   | Note for multi-user project: Alarms are only acknowledged for projects for which the user has authorizations. (for details on multi-user projects, see Distributed engineering chapter)   |
| <b>Visual acknowledgment</b>                    | The selected alarms are visually acknowledged (on page 159).  |
| <b>Visual acknowledgment and acknowledgment</b> | The selected alarms are first visually acknowledged and then acknowledged (on page 159).  |
| <b>Delete</b>                                   | Deletes alarm from the Alarm Message List in Runtime. Alarm must already be acknowledged.   |
| <b>Delete page</b>                              | Deletes all acknowledged alarms that are displayed on the current page.   |
| <b>Delete all</b>                               | Deletes all acknowledged alarms that correspond to the current filter criteria.   |
| <b>Linked function (display)</b>                | Displays the message allocated to the alarm message.  |
| <b>Execute function</b>                         | <p>Executes the functions configured for the alarm in Runtime.</p> <p>Note: With the <b>Start program</b> function, the variable name of the selected alarm can be transferred as a parameter for the program to be started using the key word <code>@alarm.name</code>.</p>  |
| <b>Open Help</b>                                | Calls up configured Help.   |
| <b>Display</b>                                  | Status and elements of alarm administration.  |
| <b>Comment field</b>                            | <p>Input of free text by the user for the selected alarm.</p> <p>Maximum length: 79 characters</p> <p>This text can also be displayed in the list. To do this, the <b>comment</b> option in the <b>column settings</b> of the alarm administration is activated.</p> <p>The comment field is a <code>dynamic text</code> element. The <b>Setting values active</b> property is automatically activated for this element during configuration. In addition, the <b>Write set value via</b> property is set to the <code>element</code> value.</p> <p>Changes to comments can be documented by activating the <b>Alarm comments</b> property.</p> |

## NAVIGATION

| Control element   | Description                    |
|-------------------|--------------------------------|
| <b>Navigation</b> | Controls elements of the list. |

|                     |                                  |
|---------------------|----------------------------------|
| <b>Line up</b>      | Scrolls one line up.             |
| <b>Line down</b>    | Scrolls one line down.           |
| <b>Column right</b> | Scrolls one column to the right. |
| <b>Column left</b>  | Scrolls one column to the left.  |
| <b>Page up</b>      | Scrolls one page up.             |
| <b>Page down</b>    | Scrolls one page down.           |
| <b>Page right</b>   | Scrolls one page to the right.   |
| <b>Page left</b>    | Scrolls one page to the left.    |

#### COMPATIBLE ELEMENTS

| Control element                  | Description   |
|----------------------------------|---|
| <b>Compatible elements</b>       | Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.  |
| <b>Status</b>                    | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Total number</b>              | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Number unfiltered</b>         | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Linked function (display)</b> | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Set filter</b>                | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Comment field</b>             | Static Win32 control element. Was replaced by a <code>dynamic text field</code> in version 7.50. For the description, see new element.  |
| <b>Close frame</b>               | <p>Closes the frame on which the screen is based.</p> <p>Recommendation: Use the <b>Close frame</b> function to close frames</p> <p>In order that after the closing the screen which was opened before is displayed, you must engineer the screen of type AML with its own frame.</p> |

#### FILTER PROFILES

| Control element          | Description                               |
|--------------------------|---|
| <b>Filter profiles</b>   | Buttons for filter settings in Runtime.   |
| <b>Profile selection</b> | Select profile from list.                 |
| <b>Save</b>              | Saves current setting as a profile.       |
| <b>Delete</b>            | Deletes selected profile.                 |
| Import                   | Imports filter profiles from export file. |
| Export                   | Exports filter profiles in the file.      |

## CONFIGURATION OF THE DISPLAY

You configure which information is displayed in the alarm status line and Alarm Message List using the alarm configuration column setting. You can reach the column setting via:

- ▶ Project settings -> **Alarm Message List** -> **Column settings AML** (only tab **Column settings** (on page 84) )
- or
- ▶ Function screen switch to a screen of type **AML** (all tabs (on page 48))

## DISPLAY IN THE VALUE COLUMN

Only values of numeric data types can be displayed in the **Value** column. The column remains empty for entries with a **String** data type.

## FUNCTIONS FOR LIMIT VALUES AS ALARM

When Runtime starts, a check is made to see if the alarm for the limit value has already occurred before Runtime was ended. If this is the case, the linked function is not carried out again.

**Note:** If the limit is not an alarm, execution of the limit value function when Runtime starts may be influenced by the **Execute limit value function at RT start** project setting in the **Functions** group. This setting is only influences limit values that are not alarms.

## COMMENT FIELD

Entries or changes in the comment field cause the following actions:

- ▶ The user authorizations for the creation or amending of a comment are checked.
- ▶ An Event is created for the API ([AlarmUserTextChanged](#)).
- ▶ An entry is made in the CEL:
- ▶ With clients or Server 2, the comment is sent to Server 1.

- ▶ If the **Alarm comments** property has been activated, an entry in the CEL that refers to a change is made when a change is made.

## 4.1 Alarm status line

### ALARMS: STATUS MESSAGES IN RED STATUS LINE

The alarm status line displays alarms that cannot be acknowledged in Runtime as a red line with black text. It contains information on the variables to be triggered and the time. The alarm status line is defined as the uppermost Windows window and thus covers all zenon screens, as well as all other applications.

WIZ\_VAR\_12 >>25.11.2015 14:11:24 <<25.11.2015 14:11:50 Limit 750 reached!

Alarms are acknowledged (on page 157) by double-clicking the right mouse button.

The appearance of the alarm status line can be amended in the project properties. The alarm status line can be covered by a further status line (blue as standard), by informing users of the number of alarms or the overrunning of the buffer.

### WARNINGS: WARNING NOTICES IN THE BLUE STATUS LINE

You can define three status messages to inform the user that the number of alarms has exceeded a certain number, or that the ring buffer of the alarm information list is going to overflow soon. These are displayed in white text with a blue background by default. The appearance can be amended in the project properties.

The status messages cover the red alarm status line as long as they are not acknowledged. You can acknowledge them by double-clicking them with the right mouse button. For that, the user must be in the according authorization group. These can be set in the user administration using the function authorizations.

The following applies for opening up the alarm status line:

- ▶ The blue line has higher priority for the display than the red alarm status line.
- ▶ The blue line only reacts to the total number of entries in the list
- ▶ The maximums for the overall number of entries in the list can be defined using the properties of the **Alarm status line** group.
  - **Message 1 number of alarms**
  - **Message 2 number of alarms**
  - **Message 3 number of alarms**

Each maximum can be allocated a message that is displayed from the bottom when it is exceeded.

- ▶ The highest possible maximum is active at any time.
- ▶ The blue line can only be deactivated with a right mouse click. In doing so, the adjacent maximum is only then triggered if it has been explicitly reached.
- ▶ A deactivated maximum is only then reactivated again when it is exceeded again.

## CONFIGURING THE ALARM STATUS LINE

To display the alarm status line in Runtime, activate the **Status line active** property in the **Alarm Message List** group in product properties.

The actions of the alarm status line in Runtime and the font to be used are defined in project properties of the **Alarm status line** in the **Alarm Message List** group:

- ▶ **display next:** defines the alarm status line as a ring. The **Size of the ring buffer** property is used as a ring size. If this property is deactivated, the alarm status line always contains only one alarm.
- ▶ **Display:** defines if the oldest filter or the most recent alarm is displayed. The selection is made from the drop-down list.
  - oldest alarm: FIFO buffer
  - Most recent alarm: LIFO buffer



### Attention

*Behavior in multi-project administration:*

*The setting in the integration project defines the behavior for sub projects, regardless of the setting of the sub projects.*

- ▶ If the alarm status line is deactivated in a subproject, but not in the integration as a start project, the alarm status line nevertheless continues to be displayed.
- ▶ If the alarm status line is activated in the superordinate project then it is also displayed in the sub project, even if it has been deactivated here.
- ▶ The alarm status line of the uppermost project is always used in Runtime.

## POSITIONING

By default, the alarm status line is displayed on the top border of the screen (height=18 pixels with standard font). You can also change the size and position in the `frames`. In order to do this, select the alarm status bar and deactivated option **Use standard position**. After that you can position the alarm status bar - in the same way as a frame - anywhere on the screen.

For multi-project administration, the alarm status line of the integration project determines the position. The settings of the subprojects are ignored.

## COLORS FOR ALARM STATUS LINE

The colors of the alarm status line can be amended using the properties of the **Alarm status line** group.

For Alarms:

- ▶ **Text color**
- ▶ **Background color**

For warnings of exceeding the defined number of alarms or the ring buffer exceeding capacity:

- ▶ **Message 1 text color**
- ▶ **Message 1 background color**
- ▶ **Message 2 text color**
- ▶ **Message 2 background color**
- ▶ **Message 3 text color**
- ▶ **Message 3 background color**

## 4.2 Alarm Message List

The alarm information list shows alarm messages line by line during runtime. Lines with unacknowledged alarms can be displayed as flashing (on page 157).

To create and display the AML, activate the **Alarm Message List active** property in the **Alarm Message List** group. You can configure the display format in the filter of the screen switch function in the Column settings (on page 84) tab.

Alarms are saved in a ring buffer (alarm.bin) and in an alarm file (\*.aml) in the Runtime folder as soon as they occur. The ring buffer is a volatile memory, from which alarms can be removed again according to certain rules. The AML saves alarms and important information in relation to these on a lasting basis.

### RING BUFFER

The ring buffer includes all active alarms. At this the following things are managed:

- ▶ **Time received** in millisecond as unique signature
- ▶ Additional information such as cause, value, etc.
- ▶ Time cleared
- ▶ Time acknowledged

Behavior when removing from the ring buffer:

- ▶ As soon as the alarm is cleared, it is removed from the ring buffer.

- ▶ If the **To acknowledge** property has been activated, the alarm must be acknowledged by a user authorized to do this before it can be removed from the ring buffer. When acknowledging alarms, all alarms of a variable with the same limit value violation are removed from the ring buffer at the same time.
- ▶ If the **Two-stage acknowledgement** property is activated, it must be specifically removed from the ring buffer by a person authorized to do this.  
Example: The alarm has cleared and was acknowledged by the operator. It continues to be retained in the ring buffer until removal has been confirmed.

**Note:** The entries are never deleted in the AML; it is always only their status that is documented.

## SIZE OF THE RINGBUFFER

The size of the ring buffer must be set to an appropriated size in the project properties via property **Size of the ring buffer**.

**Recommended:** At least number of variables for which alarms can occur.

The ring buffer is automatically saved as file **alarm.bin** when the Runtime is closed. If the Runtime is closed due to an unexpected event, e.g. power outage, data will be lost. To prevent this the ring buffer can be saved manually via property **Save ring buffer on change** at every new entry or via function Save AML and CEL ring buffer (on page 137).

**Attention:** In the Runtime the ring buffer is handled dynamically in the memory. Alarms that do not have a cleared time stamp can be displayed by means of the defined number of alarms. Thus alarms are displayed which exceed the size of the ring buffer.



### Example

- ▶ Size of the ring buffer: 100 entries
- ▶ Active alarms in the Runtime without cleared time stamp: 120
- ▶ Display in the AML in the Runtime: 120

## ALARM FILE

All alarms are written in an alarm file (\*.aml) at the same time as in the ring buffer. This file is created for every calendar day automatically and is managed via property **Save AML data**. The name of the alarm file is put together by the letter **A**, followed by the date in form **JJMMDD** and the suffix **.aml**; e.g. **A100623.aml**. These files are created automatically for every day and must be evacuated or deleted by the user if the storage space is limited. \*.aml files are saved in the ... \Project folder \Computer name \Project name folder.



## SYNCHRONIZING RING BUFFER AND ALARM FILE

Ring buffer and alarm file are synchronized. This synchronization ensues from the ring buffer to the alarm file. All changes such as acknowledging are only carried out in the ring buffer and are then synchronized with the alarm file. Thus for example all unacknowledged alarms can be displayed in the alarm file and the acknowledge can be induced. The action however is taking place in the ring buffer.

## SAVING PERIODS

The alarm file \*.aml is saved each time a new entry is made.

The ring buffer (\*.bin) is saved:

- ▶ when the Runtime is closed
- ▶ after every new entry if property **Save ring buffer on change** is active
- ▶ when function **Save AML and CEL ring buffer** is carried out

**Note:** If option **Save ring buffer on change** is deactivated, it is possible that the entries in the AML and in the ring buffer do not match after a power outage.



### Attention

*If the ring buffer overflows because it is too small, unacknowledged entries remain in the alarm file. They are displayed during filtering but they cannot be acknowledged anymore. The attempt to acknowledge them can trigger the acknowledgment on the ring buffer if the alarms concern the same variable and the same limit value violation.*

## AML IN RUNTIME

Alarms in the Alarm Message List can have three states:

- ▶ Not cleared
- ▶ Not acknowledged
- ▶ Not deleted

Alarms can require acknowledgment or require deletion.

Acknowledgment resets the flashing attribute of the variables. The deletion of an entry can only be made with a prior acknowledgment of a gone alarm event. Configuration of the acknowledgment or requirements for deletion is carried out via the **To acknowledge** and **Two-stage acknowledgement** properties in the **Limit Values/AML/CEL** nodes of variable configuration

Example for the structure of the alarm information list in the runtime:

| Variable       | Date/Time received    | Date/Time goes        | Date/Time acknowledged | Information text                   |
|----------------|-----------------------|-----------------------|------------------------|------------------------------------|
| Motor1_failure | 20.06.2011 1:00:04 PM | 20.06.2011 1:05:35 PM | 20.06.2011 1:05:40 PM  | Motor's protective relay activated |

Each row can be acknowledged (on page 157) by double-clicking it with the right mouse button. For that, the user must be in the according authorization group.

When the Alarm Message List is opened, the status of the alarm management is shown in the upper left corner (*active* or *inactive*).



### Information

*The variables for **not acknowledged alarms**, **acknowledged alarms** and **number of alarms** is stored in a local list in the memory.*

*See variable 'Not acknowledged alarms' in the chapter *Definition of the alarm* (on page 53) and CEL filters.*

## 4.2.1 Alarm cause

Alarm causes can be displayed in a separate column in Runtime. The **Textlist Manager** can be used to assign individual entries in the AML to an alarm cause each.

**Note:** There is currently no GUI available. Control elements and selection dialogs must be configured especially.

### TEXTLIST MANAGER

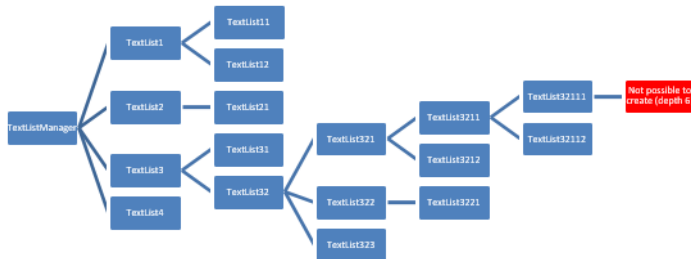
The **Textlist Manager** contains all text lists. These can be created using the API. The **Textlist Manager** transfers the names of the text list using a unique GUID. An empty string is output if a GUID is invalid. If the GUID is not found, the notice "**alarm cause does not exist**" is output. The GUID cannot currently be set.

Text lists can be created in several levels that depend on one another. The individual levels are combined for output in the Alarm Cause column.

For example: **Alarm causes.Filler.Bottle broken**

Maximum number of levels: 5

Example:



The elements colored blue are correct, the ones colored red are no longer used, because the permitted number of levels is exceeded.

The following script creates this text list.

## SCRIPT

Option Explicit

```
Public Sub CreateTree()
```

```
    Dim TM As TextListManager
```

```
    Set TM = thisProject.TextListManager
```

```
    ' ##### T1 #####
```

```
    Dim T1 As TextList
```

```
    Set T1 = TM.Create("T1 Name", "T1 Description")
```

```
    Dim T11 As TextList
```

```
    Set T11 = T1.Create("T11 Name", "T11 Description")
```

```
    Dim T12 As TextList
```

```
    Set T12 = T1.Create("T12 Name", "T12 Description")
```

```
    ' ##### T2 #####
```

```
    Dim T2 As TextList
```

```
    Set T2 = TM.Create("T2 Name", "T2 Description")
```

```
    Dim T21 As TextList
```

```
    Set T21 = T2.Create("T21 Name", "T21 Description")
```

```
    ' ##### T3 #####
```

```
    Dim T3 As TextList
```

```
    Set T3 = TM.Create("T3 Name", "T3 Description")
```

```

Dim T31 As TextList
Set T31 = T3.Create("T31 Name", "T31 Description")

Dim T32 As TextList
Set T32 = T3.Create("T32 Name", "T32 Description")

Dim T321 As TextList
Set T321 = T32.Create("T321 Name", "T321 Description")

Dim T3211 As TextList
Set T3211 = T321.Create("T3211 Name", "T3211 Description")

Dim T32111 As TextList
Set T32111 = T3211.Create("T32111 Name", "T32111 Description")

'##### This will not work - because of Level depth #####
'Dim T321111 As TextList
'Set T321111 = T32111.Create("T321111 Name", "T321111 Description")

Dim T32112 As TextList
Set T32112 = T3211.Create("T32112 Name", "T32112 Description")

Dim T3212 As TextList
Set T3212 = T321.Create("T3212 Name", "T3212 Description")
Dim T322 As TextList
Set T322 = T32.Create("T322 Name", "T322 Description")

Dim T3221 As TextList
Set T3221 = T322.Create("T3221 Name", "T3221 Description")

Dim T323 As TextList
Set T323 = T32.Create("T323 Name", "T323 Description")

' ##### T4 #####
Dim T4 As TextList
Set T4 = TM.Create("T4 Name", "T4 Description")

```

```

##### Test Item Function of TextListManager
#####
Dim textlistttest As TextList
Set textlistttest = TM.Item(0)
thisProject.Cel.WriteCelString (textlistttest.Name() + textlistttest.Description() +
textlistttest.Guid())
##### Saving TextLists
#####
Dim answ As Boolean
answ = thisProject.TextListManager.Save()
End Sub

```

## 4.2.2 Display unacknowledged alarms as flashing

Unacknowledged alarms can be displayed as flashing in the AML.

With the **Unacknowledged alarms flash** property active, the foreground color and background color alternate in all unacknowledged and unselected lines in the Alarm Message List every second. Selected lines do not flash.

To do this:

1. In the Editor, navigate to the **Alarm Message List** section in Project Properties.
  2. Activate the checkbox in front of the **Unacknowledged alarms flash** property.
  3. Configure the desired colors (foreground) for **Alarm received**, **Alarm cleared**, **Alarm acknowledged**
- Hint:** Set the **Alarm/Event Class Color** property to `as line background`. The color of the alarm class is then used as a background color.

## 4.3 Acknowledge alarms

For the information "acknowledged" to be displayed in the AML, the following must apply:

1. The **To acknowledge** property must be activated for the variables
2. the alarm must be acknowledged

Alarms can be acknowledged via:

- ▶ double right-click on the alarm status bar
- ▶ double right-click on an entry in the Alarm Message List

- ▶ Function **Acknowledge alarms**
- ▶ **Acknowledge** button or **Visual acknowledge and acknowledge** in the Alarm Message List

When acknowledging an alarm:

- ▶ All alarms of a variable with the same limit value are acknowledged together.
- ▶ Name and ID of the user who deletes the alarm are written in the Alarm Message List
- ▶ the name of the computer from which the alarm was acknowledged is written in the Alarm Message List
- ▶ acknowledging the alarm can be written in the Chronological Event List additionally

Alarms are saved in the ring buffer up to when they are acknowledged. At the same time they are written to a filterable alarm file (\*.aml) and kept synchronized.

**Attention:** The **Size of the ring buffer** property must be chosen appropriately. If alarms are no longer saved in the ring buffer (on page 32) due to a buffer overflow, unacknowledged alarms remain in the alarm file. For details see chapter Alarm Message List (AML) (on page 5).



### Information

*If alarms require a comment (on page 159), these can only be acknowledged if a comment was entered. The user must be authorized to carry out the necessary function.*

## FUNCTION ACKNOWLEDGE ALARMS

The **acknowledge alarm** (on page 124) function makes it possible to

- ▶ acknowledge alarms from the AML using a function call
- ▶ global acknowledgment

When using this function in Runtime, the flashing attribute of the variables and therefore screen alarming (only SICAM 230) will also be reset. The selected alarms are acknowledged. For details, see Acknowledging alarms (on page 124) chapter.

## USER AUTHORIZATION

*The functions **Acknowledge alarms** (on page 124) and **Delete alarms** (on page 122) can be assigned to a user group via Function authorization. Only authorized user can acknowledge and delete alarms.*

*In addition, an additional operating right can be set via the **Two-stage acknowledgement** property in the respective subgroup of the **Limit Values** group. Selected alarms can only be removed from the Alarm Message List by users with the necessary rights.*

If the **Two-stage acknowledgement** property is set, alarms are then only removed from the list of active alarms if they are deleted. Acknowledgment alone is not sufficient.



### Information

*Alarms can only be deleted, if they have been acknowledged before.*

## 4.3.1 Required comments for acknowledgement

It is possible to make it necessary to enter a comment for alarms that require acknowledgement before the alarm can be acknowledged. To be able to enter a comment, the user needs to enter the corresponding function authorization **alarm comment**.

To make an alarm require a comment, the corresponding option can be set at:

- ▶ The configuration of the reaction matrixes
- ▶ The **Comment required** property in the **Limit Values** group of the variables

Comments that require alarms can subsequently only be amended by users with the **Change alarm comment** function authorization. If comments are changed, an entry into the CEL is made, stating the variable name and the original and amended comment.

Alarms that require a comment are checked for comments with all acknowledgment possibilities (including VBA). The necessary authorization is also checked when changes are made. The Alarm Message List can be filtered for alarms that require a comment by means of:

- ▶ Alarm Message List (on page 53) filter
- ▶ Alarm Message List filter (on page 14) screen

## 4.3.2 Visual acknowledgment

Visual acknowledgment makes it possible for the user to confirm that they have become aware of an alarm without resetting this immediately. For example, it is possible to visually acknowledge several alarms that are unrelated to one another first, and then acknowledge them and thus reset them later.

### ELEMENTS FOR VISUAL ACKNOWLEDGMENT

There are two buttons available for visual acknowledgment in AML screens:

- ▶ **Visual acknowledgment**
- ▶ **Visual acknowledgment and acknowledgment**

The following properties are available for variables in the **Alarm handling** group:

- ▶ **Acknowledgement variable**
- ▶ **Visual acknowledgment variable**
- ▶ **Acknowledgement value**

## USE VISUAL ACKNOWLEDGMENT

To confirm an alarm with visual acknowledgment:

1. Configure the buttons **Visual acknowledgment** and **Visual acknowledgment and acknowledgment** in the screen.
2. Configure the **Acknowledgement variable**, **Visual acknowledgment variable** and **Acknowledgement value** properties for the corresponding variables.
3. Click on the button in Runtime
  - a) **Visual acknowledgment**: The highlighted alarms are confirmed with visual acknowledgment. The **Acknowledgement value** is written to the **Visual acknowledgment variable**.
  - b) **Visual acknowledgment and acknowledgment**: The highlighted alarms are only confirmed with visual acknowledgment and then acknowledged (on page 157). The **Acknowledgement value** is written to the **Visual acknowledgment variable** and to the **Acknowledgement variable**.



### Information

*Visual acknowledgment and acknowledgment need different rights. For visual acknowledgment, operating authorization and keyboard authorization in the context of the user and the interlocking are necessary. For acknowledgment (on page 157), the corresponding rules including validation of the entries and rights are applicable. It is therefore possible that a user can visually acknowledge an alarm but not acknowledge it.*

*Visual acknowledgment is always set but only if the variable already has this value.*

## 4.4 Alarms: acknowledge flashing

In addition to acknowledging alarms (on page 124) from the alarm message list, screens with alarms can also be acknowledged by template. Flash acknowledgment is called up using the flash-acknowledge alarms (on page 117) function or by double clicking on the corresponding element with the right mouse button. In doing so, only the flash attribute of the variables and the flashing of all graphic elements on the screen is reset. The entries are not however acknowledged in the AML.



## FLASHING ACKNOWLEDGMENT IN AML

A flash-acknowledgment acknowledges the alarms in the AML if the **Flashing acknowledgement** option is also set in alarm administration.

Only for SICAM 230. The acknowledgment in the alarm message list or on the alarm line level at the upper screen edge also acknowledges the alarm in the screen and screen alarm guidance.

## FLASH-ACKNOWLEDGING IN INTEGRATION PROJECTS

If alarms are to be acknowledged in integration projects using the **flash-acknowledge** function, all affected screens must be opened.

If screens in superordinate and subordinate project templates have the same name, the screens in the subordinate project are not opened. If the template names are different, the screens of the sub project in the background are opened and can be flash-acknowledged.



### Information

*If flash-acknowledgment is used in the network, it is only executed locally at the respective client.*

## 4.5 Alarms: delete

The following is required to delete an alarm:

- ▶ A delete alarm (on page 122) function is executed  
or
- ▶ the **Delete** button on the screen of the alarm message list type is pressed

Alarms can only be deleted if they have been acknowledged (on page 157) beforehand.

*If the **Two-stage acknowledgement** property is set for **Limit values**, alarms are only removed from the list of active alarms if they are deleted. Acknowledgment alone is not sufficient.*

## USER AUTHORIZATION

The functions **Acknowledge alarms** (on page 124) and **Delete alarms** (on page 122) can be assigned to a user group via Function authorization. Only authorized user can acknowledge and delete alarms.

In addition, an additional operating right can be set via the **Two-stage acknowledgement** property in the respective subgroup of the **Limit Values** group. Selected alarms can only be removed from the Alarm Message List by users with the necessary rights.

If the **Two-stage acknowledgement** property is set, alarms are then only removed from the list of active alarms if they are deleted. Acknowledgment alone is not sufficient.



#### Information

*Alarms can only be deleted, if they have been acknowledged before.*

## 4.6 Filtering alarms

Alarms can be displayed with a filter in Runtime using:

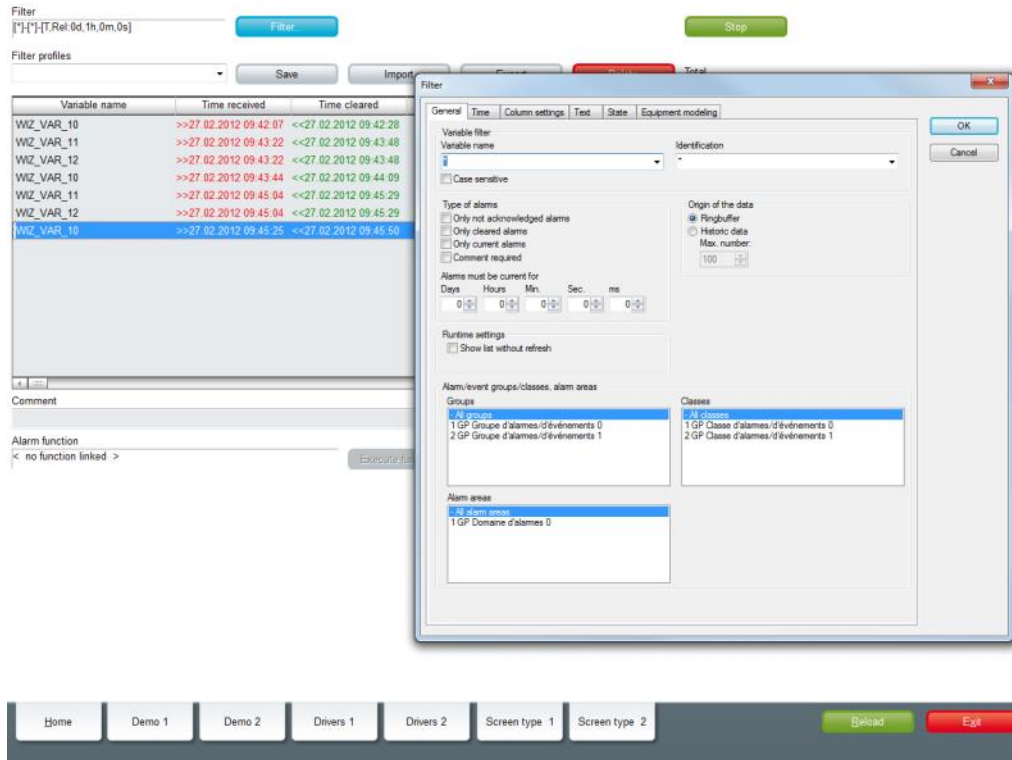
- ▶ filter use in the Runtime
- ▶ Screen switching with pre-defined filter to a screen of alarm message list (on page 7) type
- ▶ Screen switching with filter when calling up a screen of alarm message list (on page 7) type
- ▶ Screen switching to a screen of alarm message list filter (on page 166) type

### FILTERING IN THE RUNTIME

Filters can be used in Runtime in screens of the alarm message list type. To filter the alarms displayed in the AML:

1. you must have engineered button **Filter**
2. click on the button

### 3. The alarm message list filter dialog (on page 48) is opened



Set filter can be saved in profiles (on page 164).

## SCREEN SWITCHING TO A SCREEN OF ALARM MESSAGE LIST TYPE

Alarms can be displayed after pre-filtering. To do this:

1. Configure a filter (on page 48) for the screen switching to an alarm message list screen (on page 111) function
2. The alarm message list is displayed in a filtered state when called up
3. if the option **Display dialog in the Runtime** is activated for the function, you can newly define the filter before the display
4. in the Runtime further filter settings are possible via button filter

## SCREEN SWITCHING TO AN ALARM MESSAGE LIST FILTER SCREEN

In order to only offer users the filters they need in Runtime, use an alarm message list filter (on page 166) screen. To do this:

1. Configure screen switching to an alarm message list filter screen (on page 114)
2. Call up the AML in Runtime using this function

3. The user has an Alarm Message List that is tailor-made (on page 92) to their requirements.

#### 4.6.1 Filter profiles

Filter profiles are filter settings that the user can save and call up in Runtime in relation to a certain screen.

To be able to use filter profiles, the following control elements must be configured:

| Control element          | Description   |
|--------------------------|---|
| <b>Filter profiles</b>   | Profile administration in Runtime.  |
| <b>Profile selection</b> | Selection of a saved profile in Runtime from a drop-down list.            |
| <b>Save</b>              | Clicking on the button in Runtime saves the filter settings as a profile. |
| <b>Delete</b>            | Clicking on the (X) button in Runtime deletes the selected profile.       |

With this you can in the Runtime:

- ▶ save filters
- ▶ use saved filters
- ▶ delete filter profiles

Filter profiles can also be exported and imported with further control elements.

#### SAVE FILTER PROFILE

To create a filter profile:

1. define filter conditions in the Runtime
2. assign a name using property **filter profiles**

### 3. Click on **Save**

Filter  
[\*]{\*}{T,Rel:0d,1h,0m,0s]

Filter profiles  
group

Save Import Export Delete

| Variable name | Time received         | Time cleared          | Time acknowledged | Text               |
|---------------|-----------------------|-----------------------|-------------------|--------------------|
| WIZ_VAR_10    | >>27.02.2012 09:42:07 | <<27.02.2012 09:42:28 |                   | Limit 750 reached! |
| WIZ_VAR_11    | >>27.02.2012 09:43:22 | <<27.02.2012 09:43:48 |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:43:22 | <<27.02.2012 09:43:48 |                   | Limit 750 reached! |
| WIZ_VAR_10    | >>27.02.2012 09:43:44 | <<27.02.2012 09:44:09 |                   | Limit 750 reached! |
| WIZ_VAR_11    | >>27.02.2012 09:45:04 | <<27.02.2012 09:45:29 |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:45:04 | <<27.02.2012 09:45:29 |                   | Limit 750 reached! |
| WIZ_VAR_10    | >>27.02.2012 09:45:25 | <<27.02.2012 09:45:50 |                   | Limit 750 reached! |
| WIZ_VAR_11    | >>27.02.2012 09:46:45 | <<27.02.2012 09:47:10 |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:46:45 | <<27.02.2012 09:47:10 |                   | Limit 750 reached! |
| WIZ_VAR_10    | >>27.02.2012 09:47:06 | <<27.02.2012 09:47:32 |                   | Limit 750 reached! |

Comment

Alarm function  
< no function linked >

Execute function Open help

Print

Stop

Total  
10

Not acknowledged  
10

Acknowledge  
Acknowledge page  
Acknowl. All

Delete  
Delete page  
Delete all

## USE FILTER PROFILE

To use a filter profile:

1. select a filter from the drop-down list property **filter profiles**
2. the filter is immediately applied

Filter  
[\*]{\*}{T,Rel:0d,1h,0m,0s]

Filter profiles  
group

Save Import Export Delete

| Variable name | Time received         | Time cleared          | Time acknowledged | Text               |
|---------------|-----------------------|-----------------------|-------------------|--------------------|
| WIZ_VAR_12    | >>27.02.2012 09:43:22 | <<27.02.2012 09:43:48 |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:45:04 | <<27.02.2012 09:45:29 |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:46:45 | <<27.02.2012 09:47:10 |                   | Limit 750 reached! |
| WIZ_VAR_11    | >>27.02.2012 09:48:26 | -27.02.2012 09:48:30  |                   | Limit 750 reached! |
| WIZ_VAR_12    | >>27.02.2012 09:48:26 |                       |                   | Limit 750 reached! |

Comment

Alarm function  
< no function linked >

Execute function Open help

Print

Stop

Total  
5

Not acknowledged  
4

Acknowledge  
Acknowledge page  
Acknowl. All

Delete  
Delete page  
Delete all

## DELETE FILTER PROFILE

To delete a filter profile:

1. select a filter from the drop-down list property **filter profiles**
2. click on button **X**
3. the profile is deleted
4. the deleted filter is still applied as long as a new filter is defined or selected

### 4.6.2 Use alarm message list filter

It is possible to adjust filter settings for the Alarm Message List in Runtime with the help of the Alarm Message List Filter (on page 14) screen. All filter settings that are available in the filter (on page 48) for the function to switch the screen to the Chronological Event List screen (on page 111) can be configured.

Therefore:

- ▶ Only the filter elements that are actually required are configured and provided to the user.
- ▶ The user only has these filters displayed and has an overview
- ▶ The appearance can be freely defined and can, for example, ensure ease of use by means of a touch screen.

## FILTER SCREENS

Filter screens make it possible to transfer a preset filter from one screen to another. The filter of the source screen is set using the target screen. The screens can also be of a different screen type.



### Attention

*In order for the time to be taken from the screen to be called up in Runtime, the following **time range** must be selected in the Editor for the screen switching function for the Alarm Message List or the Chronological Event List in the **time filter**. Set filter at time filter type*

## CALL DEFINITION

The following requirements must be met for the set filters to be used:

1. Set filter for time filter type is selected as a **time period** for the time filter.

2. The screen (**Alarm Message List Filter**, **Chronological Event List filter** or **Time/Lot Filter** screen) is activated using a button or a combined element. Only in this way can the relationship between filter screen and source screen be maintained.
3. The source screen and filter screen must be configured on different frames or monitors. The filter for the filter screen can only be updated if the source screen is open. This is only possible if both screens do not use the same frame or the same monitor.
4. The screen to be called up must be compatible with the filter screen to be called up (see table).

| Source screen                   | AML filter | CEL filter | Time filter |
|---------------------------------|------------|------------|-------------|
| Archive revision                | T          | T          | T           |
| Extended Trend                  | T          | T          | T           |
| Time filter                     | T          | T          | X           |
| Alarm Message List Filter       | X          | C          | T           |
| Chronological Event List Filter | C          | X          | T           |
| Alarm Message List              | X          | C          | T           |
| Chronological Event List        | C          | X          | T           |

Key:

- ▶ C: Common settings are updated.
- ▶ T: Time settings are updated.
- ▶ X: All settings are updated.



### Information

#### No filtering

*The filter screen is not filtered, but opened with the configured values, if:*

- ▶ One of the conditions 1 to 3 is not met or
- ▶ The **Screen to call up** setting is not activated for the **Screen switching** function or
- ▶ The screen is not called up via a screen element

*In this case, the **Accept**, **Close** and **Update** buttons are grayed out in Runtime and have no function.*

## UPDATE

When a filter screen is called up (**Alarm Message List filter**, **Chronological Event List filter**, **time filter**), the screens configured in the **screen switching function** are updated in two ways:

- ▶ If the filter screen is called up via a screen element, the target screens on the same monitor as the source screen are updated.

- ▶ If the filter is called up in a different way or if the **Update on all monitors** setting is activated, all target screens configured are updated.

They are updated as soon as you click the **Accept** button or as soon as you closes the filter screen with the close **Close** button. The **Cancel** button discards the changes and closes the filter screen.

## UPDATE FILTER SETTINGS

You update the current filter settings for the source screen using the **Update** button. If the filter screen is not called up by a screen element or if the **Calling screen** has not been activated, all monitors are searched for screens that can be used for updating. The first screen that is found is then this is used for updating.

## 4.7 Printing and exporting alarms

AML alarms can be documented and archived by:

- ▶ AML Print online (on page 169): each event is printed on a line printer when it is displayed in the list
- ▶ AML (on page 169)offline printing: (on page 172)The AML is printed out as a list in its current state
- ▶ Export (on page 179) contents of AML (filtered)

The print used for printouts is defined via menu File -> General configuration -> Standard.



### Attention

A configuration file \*.frm is used for the print-out:

- ▶ online: ALARM.frm
- ▶ offline: ALAR\_G.frm.

This FRM file must be in the project tree in the **File** section in the **Texts and formats** folder.

Templates for FRM files can be found in the zenon installation folder in the `FRM_QRF` subfolder. These can be inserted via the file in the **Texts and formats** section and edited there.

You can find the key words for FRM files in the FRM configuration file (on page 175) chapter.



### 4.7.1 Online printing

With online printing, any alarm that occurs is immediately sent to the printer.

**Attention:** The online printing takes place line by line, in accordance with the ESC/P (Epson Standard for Printers) and requires an Epson-compatible printer.

To print out alarms online:

1. Define a printer.
2. Navigate to the **AML and CEL** node in the project properties.
3. Activate the **Printing active** property.
4. Select the **Printing for** property in the `Alarm Message List` drop-down list.
5. Define the number of lines with the **Lines per page** property (default: 72).
6. Configure `ALARM.frm` (on page 175).
7. Add **ALARM.frm** to the **Files/texts and formats** node.



#### Information

*This function is not available under Windows CE.*

## CONTROL PRINT AND PRINTER IN RUNTIME

### PAGE CHANGE

Form feed is carried out if:

- ▶ a page is fully written
- ▶ the Runtime is closed and online printing is active
- ▶ function Online printing start new page (on page 143) is executed

### HALT PRINTING

To halt or to continue online printing:

- ▶ Carry out function Switch online printer on/off (on page 142).

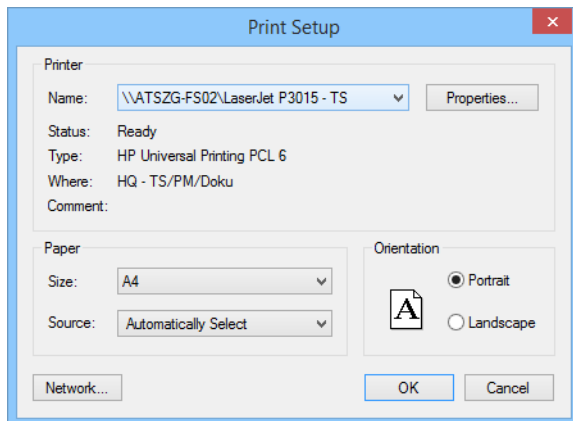
### CHANGING AND SETTING UP A PRINTER

To change the printer in Runtime:

- ▶ Carry out the Switch online printer (on page 143) function

To set up the selected printer in Runtime:

1. Configure a **Print with dialog** control element for the screen
2. Click on the **Print with dialog** button in Runtime
3. The configuration dialog is opened



**PRINTER**

| Parameters           | Description  |
|----------------------|--|
| <b>Printer</b>       | Settings for the printer.  |
| <b>Name:</b>         | Selection of the printer from the drop-down list. The list contains all printers configured in the operating system. |
| <b>Properties...</b> | Opens printer configuration dialog.  |
| <b>Status:</b>       | Display printer state. For information only.   |
| <b>Type:</b>         | Display printer type. For information only   |
| <b>Location:</b>     | Display the location of the printer if configured. For information only.   |
| <b>Comment:</b>      | Display comment about printer if configured. For information only.   |

**PAPER**

| Parameters    | Description                              |
|---------------|--|
| <b>Paper</b>  | Configuration of the printout.           |
| <b>Size</b>   | Select paper format from drop-down list. |
| <b>Source</b> | Select paper feed from drop-down list.   |

**ALIGNMENT**

| Parameters       | Description  |
|------------------|--|
| <b>Alignment</b> | Select paper alignment. Possible parameters: <ul style="list-style-type: none"> <li>• Portrait</li> <li>• Landscape</li> </ul> |
| <b>Network</b>   | Opens dialog for selecting a printer in the network.   |
| <b>OK</b>        | Applies configuration and closes the dialog. With this printing is started in the Runtime.                                     |
| <b>Cancel</b>    | Discards configuration and closes the dialog. In the Runtime this also cancels the printout.                                   |

**FORMATTING EXAMPLE**

Configuration (on page 175) in ALARM.FRM:

| Date: @DSYSTEM     | Alarm inf. list/demo proj. | Time @TSYSTEM o'clock | Text        |
|--------------------|----------------------------|-----------------------|-------------|
| Date/Time received | Time cleared               | Information text      | Status text |
| %%                 |                            |                       |             |
| @DTRECEIVED        | @TCLEARED                  | @IDENTIFICATION       | @TEXT       |
| %%                 |                            |                       |             |
|                    | Page                       | @PAGE                 |             |

Printout on the printer

| Date: 20.03.2011      | Alarm inf. list/demo proj. | Time: 12:00 PM:  | Text              |
|-----------------------|----------------------------|------------------|-------------------|
| Date/Time received    | Time cleared               | Information text | Status text       |
| 20.03.2011 13:00:00   | 20.03.2011 1:03:59 PM      | Message 1        | Limit exceeded    |
| 20.03.2011 13:00:00   | 1:05:35 PM                 | Demo information | Limit 750 reached |
| 20.03.2011 1:03:59 PM |                            | Message 2        | Limit value       |
| 20.03.2011 1:11:23 PM |                            | Message 3        | off               |
| 20.03.2011 1:03:59 PM | 1:12:45 PM                 | Demo information | off               |
|                       | Page                       | 1                |                   |

## 4.7.2 Offline printing

Offline printing means that the Alarm Message List is printed out as it is displayed at the time in Runtime. This print-out is a snapshot including all filters that have been set and their restrictions. The print out is carried out regardless of whether the variables concerned having option **print**.

### PRINT

To print the Alarm Message List offline:

1. define a printer
2. Configure ALAR\_G.frm (on page 175)
3. Add **ALAR\_G.frm** to the **Files/texts and formats** node
4. In the Runtime click button print or print with dialog.

## SET UP AND CHANGE PRINTER

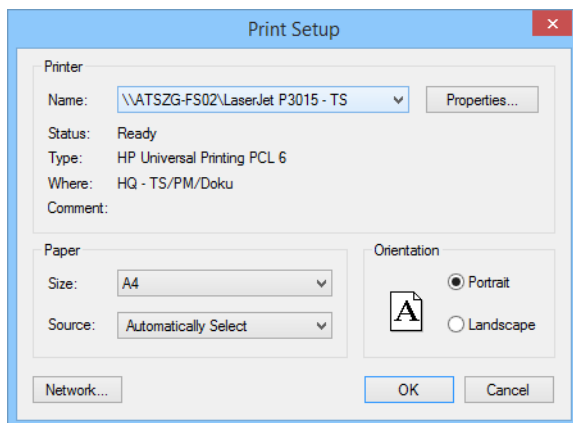
### CHANGING AND SETTING UP A PRINTER

To change the printer in Runtime:

- Carry out the Switch online printer (on page 143) function

To set up the selected printer in Runtime:

1. Configure a **Print with dialog** control element for the screen
2. Click on the **Print with dialog** button in Runtime
3. The configuration dialog is opened



**PRINTER**

| Parameters           | Description  |
|----------------------|--|
| <b>Printer</b>       | Settings for the printer.  |
| <b>Name</b>          | Selection of the printer from the drop-down list. The list contains all printers configured in the operating system. |
| <b>Properties...</b> | Opens printer configuration dialog.  |
| <b>Status:</b>       | Display printer state. For information only.   |
| <b>Type:</b>         | Display printer type. For information only   |
| <b>Location:</b>     | Display the location of the printer if configured. For information only.   |
| <b>Comment:</b>      | Display comment about printer if configured. For information only.   |

**PAPER**

| Parameters    | Description                              |
|---------------|--|
| <b>Paper</b>  | Configuration of the printout.           |
| <b>Size</b>   | Select paper format from drop-down list. |
| <b>Source</b> | Select paper feed from drop-down list.   |

**ALIGNMENT**

| Parameters       | Description  |
|------------------|--|
| <b>Alignment</b> | Select paper alignment. Possible parameters: <ul style="list-style-type: none"> <li>• Portrait</li> <li>• Landscape</li> </ul> |
| <b>Network</b>   | Opens dialog for selecting a printer in the network.   |
| <b>OK</b>        | Applies configuration and closes the dialog. With this printing is started in the Runtime.                                     |
| <b>Cancel</b>    | Discards configuration and closes the dialog. In the Runtime this also cancels the printout.                                   |

**FORMATTING EXAMPLE**

Configuration in `ALAR_G.frm`:

| Date: @DSYSTEM     | Closed Alarm Message List<br>Demo Project | Time @TSYSTEM<br>o'clock | Text        |
|--------------------|---|--------------------------|-------------|
| Date/Time received | Time cleared                              | Information text         | Status text |
| %%                 |   |                          |             |
| @DTRECEIVED        | @TCLEARED                                 | @IDENTIFICATION          | @TEXT       |
| %%                 |   |                          |             |
|                    | Page                                      | @PAGE                    |             |

Printout on the printer

| Date: 20.03.2011      | Closed Alarm Message List<br>Demo Project | Time: 12:00 PM:  | Text              |
|-----------------------|---|------------------|-------------------|
| Date/Time received    | Time cleared                              | Information text | Status text       |
| 20.03.2011 13:00:00   | 20.03.2011 1:03:59 PM                     | Message 1        | Limit exceeded    |
| 20.03.2011 13:00:00   | 1:05:35 PM                                | Demo information | Limit 750 reached |
| 20.03.2011 1:03:59 PM |   | Message 2        | Limit value       |
| 20.03.2011 1:11:23 PM |   | Message 3        | off               |
| 20.03.2011 1:03:59 PM | 1:12:45 PM                                | Demo information | off               |
|                       | Page                                      | 1                |                   |

### 4.7.3 FRM configuration file

FRM files (format files) are configuration files for printing out lists.

The FRM file has three parts:

- ▶ Header: at the beginning of the page
- ▶ List part: cyclic per line
- ▶ Footer: at the end of the page

#### PRINCIPLES

When editing FRM files regard the following:

- ▶ Separating the list parts:

- Header and list part and list part and footer are separated by %%.  
The separation marking must be used only once for the list and the footer.
- **Attention:** The last line must be followed by at least two empty paragraphs. Otherwise the footer is not printed!
- ▶ Positioning the individual entries:  
You may only use space, no tabulators.
- ▶ Editing the FRM file in a text editor:  
Automatic line break must be deactivated otherwise undesired effects in the formatting may occur.

## KEYWORDS

The setting for the page length is made in Project Properties under **AML and CEL** or via the `ALARM.frm` or `ALAR_G.frm` file for the AML or `BTB.frm` and `BTB_G.frm` for the CEL.

Please keep in mind:

- ▶ The number of the alarm entries per page results from the predetermined number of lines (e.g. **Lines per page 72**), less the lines used for header and footer text.
- ▶ The **Use reactivated time** option must be activated in order to be able to use the keywords that evaluate the reactivation (time, number).
- ▶ Free texts and keywords can be used in the formatting file. Key words can be used either in German or in English. The use of English key words is recommended.
- ▶ Not every key word is suitable for every kind of printing (AML, CEL, online, offline).

The following table contains key words in English and German and their field of application:



| German                             | English            | AML<br>offline | CEL<br>offline | AML<br>online | CEL<br>online | Description   |
|------------------------------------|--------------------|----------------|----------------|---------------|---------------|---|
| <b>Key words for the list part</b> |                    |                |                |               |               |   |
| @BMKENNUNG                         | @RESOURCELAB<br>EL | X              | X              | X             | X             | <b>Resources label</b>  |
| @DATZEITKOMMT                      | @DTRECEIVED        | X              | X              | X             | X             | Time and Date when the alarm occurred   |
| @DATZEITGEHT                       | @DTCLEARED         | X              | -              | X             | -             | Time and Date when the alarm ended  |
| @DATZEITOK                         | @DTACK             | X              | -              | X             | -             | Time and Date when the alarm was acknowledged   |
| @DATZEITREAKT                      | @DTREACTIVATE      | X              | -              | X             | -             | Time and Date of reactivating:<br><br>Property <b>Use reactivated time</b> in the project properties must be activated. |
| @DATZEIT                           | @DTLASTEVENT       | -              | -              | X             | -             | Time and date of alarm received or cleared or acknowledged or reactivated   |
| @ZEIT                              | @TLASTEVENT        | -              | -              | X             | X             | Time of alarm received or cleared or acknowledged or reactivated  |
| @ZEITOK                            | @TACK              | X              | -              | X             | -             | only displays time of acknowledging   |
| @ZTKOMMT                           | @TRECEIVED         | X              | X              | X             | X             | only displays time of alarm received  |
| @ZTGEHT                            | @TCLEARED          | X              | -              | X             | -             | only displays time of end of alarm  |
| @ZTREAKT                           | @TREACTIVATE       | X              | -              | X             | -             | only displays time of reactivating  |
| @TIMELASTING                       | @TACTIVE           | X              | -              | X             | -             | Time active (difference time received - time cleared)   |
| @ANWENDUNG                         | @PROJECTNAME       | X              | X              | X             | X             | Project name  |
| @KANALNAME                         | @VARNAME           | X              | X              | X             | X             | Variable name<br>CEL: Only entries with variables   |
| @AK                                | @ACLASNR           | X              | X              | X             | X             | Alarm/event class name  |
| @AG                                | @AGROUPNR          | X              | X              | X             | X             | Alarm/event group number  |
| @AGNAME                            | @AGROUPNAM         | X              | X              | X             | X             | Name of alarm/event group   |

|  |                 |   |   |   |   |   |
|--|-----------------|---|---|---|---|---|
|  | E               |   |   |   |   |   |
| @AKNAME                                | AClassNAME      | X | X | X | X | Name of alarm/event class   |
| @TAGNR                                 | @IDENTIFICATION | X | X | X | X | Identification (company-specific label)   |
| @AMELDUNG                              | @TEXT           | X | X | X | X | Alarm message text  |
| @REAKTANZ                              | @NRREACTIVATION | X | - | X | - | Number of reactivations   |
| @STATUS                                | @STATUS         | X | X | X | X | Status information as in Alarm Message List   |
| @WERT                                  | @VALUE          | X | X | X | X | Variable value of alarm   |
| @REAKTIONSTEXT                         | @COMMENT        | X | X | X | X | <p>Commentary from the Alarm Message List.</p> <p>If dynamic limit value texts are used, this is only available if the <b>Long dynamic limit value texts AML</b> or <b>Long dynamic limit value texts CEL</b> properties have been activated.</p> |
| @USER                                  | @USERID         | X | X | X | X | AML: User who acknowledged alarm.   |
| @RECHNER                               | @COMPUTER       | X | X | X | X | AML: Computer on which alarm was acknowledged.  |
| <b>Key words for header and footer</b> |                 |   |   |   |   |   |
| @ANWENDUNG                             | @PROJECTNAME    | X | X | X | X | Project name  |
| @SEITE                                 | @PAGE           | X | X | X | X | Page number   |
| @HEADDATZEIT                           | @DTSYSTEM       | X | X | X | X | System date and system time   |
| @HEADDATUM                             | @DSYSTEM        | X | X | X | X | System date   |
| @HEADZEIT                              | @TSYSTEM        | X | X | X | X | System time   |
| @USER                                  | @USERID         | X | X | X | X | User who prints   |
| @USERNAME                              | @USERNAME       | X | X | X | X | Full user name who triggered action   |
| @RECHNER                               | @COMPUTER       | X | X | X | X | Computer from which printing is carried out   |
| [Text]                                 | [Text]          |   |   |   |   | Random text   |



### Attention

*Between the key words there must be enough space so that entries are not overwritten. In doing so, you make sure that long limit value texts are also displayed correctly.*

*Example:*

*@TEXT  
(spaces up to here)*

## 4.7.4 Exporting alarms

Alarms can be exported in different formats:

- ▶ dBase
- ▶ CSV
- ▶ XML
- ▶ SQL

### EXPORT

To export alarms

1. Create an Export AML (on page 127) function
2. link the function to a button
3. execute the function in the Runtime



### Information

*The export to SQL is incremental. If there is already exported data, only new and amended data is exported.*