



AUCOTEC
Create Synergy – Connect Processes

Engineering Base

Merge Device Wizard

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1 About the Merge Device Wizard

The assistant enables to merge and separate functional and real, physical devices. Thus, e.g., channel symbols (functional inputs/outputs) not yet used may comfortably be assigned to the inputs/outputs of automations systems or input/output boards (physical inputs/outputs). In principle, the devices of all device types contained in the **Engineering Base** database may be processed complying with the requirements described in the following sub-chapter **Classification**.

The assistant offers the following functions:

- **Merging**: Thereby, specifications (structures, attributes) of functional and real, physical devices are merged.
- **Separate**: Controlled by options, the structures and attributes of allocated physical devices are distributed among the functional and physical devices.
- **Auto-Merge**: Enables the assignment of functional devices not assigned to free physical devices controlled by options.



The settings with respect to the position and the size of the **Merge Device Wizard** dialog and at filters, columns, attributes, ... are stored as configuration under the name **Merge Device Wizard** in the Templates of projects or in the Templates of the Engineering Base database. Thus, they are available when the wizard is started anew and can be copied to other projects.



If the assistant is started within a project containing no configuration, then the settings from the templates of the Engineering Base database will be used and the current settings will be stored there, too. To be able to work with project specific settings, copy or import a configuration into the templates of the project you want to work on. Upon start of the assistant, the project specific configuration will be used in this project and the current settings will be stored only into the templates of the project.

Preconditions

The **Merge Device Wizard** is contained in the following business solutions:

- Electrical / Instrumentation Detail Engineering International Standards
- Electrical USA Standards
- Power

The wizard may be used with one of the following licenses:

- EB Evaluation Version
- EB Electrical
- EB Electrical Pro
- EB Plant Design
- EB Instrumentation Basic
- EB Instrumentation Detail
- EB Instrumentation Pro
- EB Cable
- EB Cable Pro
- EB Cable Logic
- EB Cable Harness Design

- EB Cable Logic VOBES
- EB Power
- EB Explorer
- EB Cable Manufacturing

1.1 Classification

Three classes of devices are relevant for the wizard:

1. **Functional devices**, not (yet) assigned to a physical device.

- These devices have an associated function.
- These devices are not aggregated below a device.

Upon loading in a selection list they are shown in the left area of the dialog **Merge Device Wizard**.

2. **Free physical devices**, devices to which no functional device has been assigned.

- These devices do not have an associated function.
- These devices are aggregated below a device.

Upon loading in a selection list they are shown in the right area of the dialog **Merge Device Wizard**. The related attributes are represented in black.

3. **Occupied, physical devices**, devices to which a functional device has already been assigned.

- These devices have an associated function.
- These devices are aggregated below a device.

Upon loading in a selection list they are shown in the right area of the dialog **Merge Device Wizard**. The related attributes are represented in blue.

The wizard merges functional and free physical devices which have the same device type and separates occupied physical devices.

In addition, further requirements have to be fulfilled when functional and free physical inputs and outputs are merged:

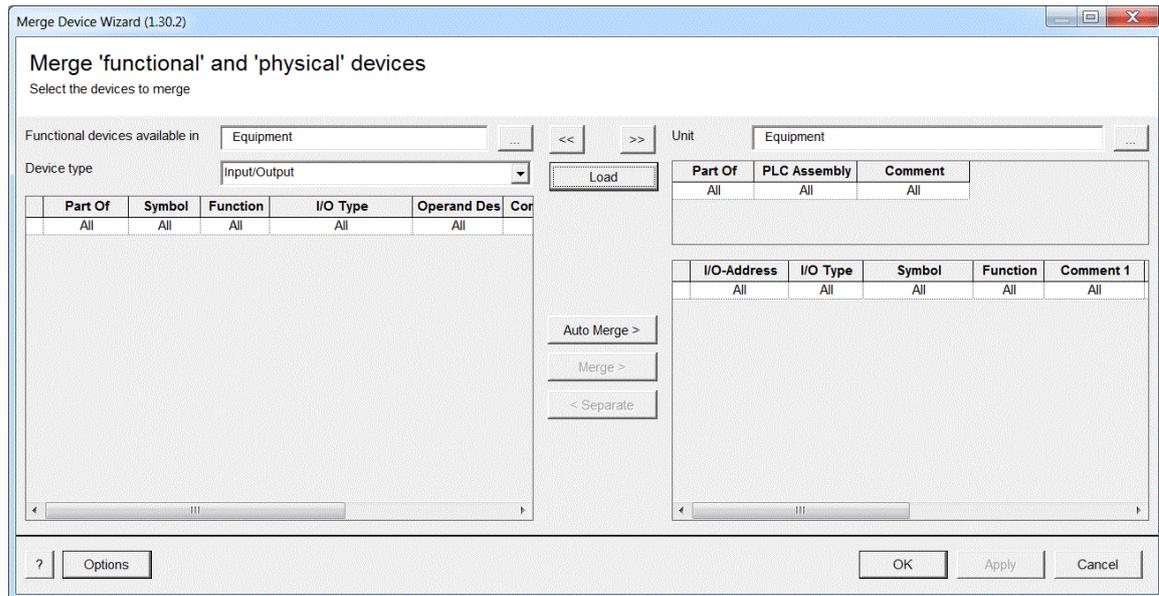
1. The I/O type of the functional channel has to correspond to the I/O type of the automation device or the I/O board.
2. For outputs and inputs, the value of the attribute **Symbolic Address** will be taken into account:
 - Outputs and inputs with filled attribute **Symbolic Address** are always listed among the functional devices.
 - If you activate in the dialog Options on the tab **Attributes** the checkboxes **Device Option – In Use** for the rows "Output" and "Input", then, when reloading the device data, the list of functional devices comprises outputs and inputs with empty attribute **Symbolic Address**, too. After selecting automation devices and I/O boards, you may assign these devices to their channels in the dialog area on the right.

2 User Interface

How to run the wizard

1. In the **Engineering Base Explorer**, select one of the system folders **Equipment**, **Functions**, **Tag Elements** or an object of one of these folders.
2. In the context menu, click **Merge Device Wizard** or click **Select Assistant**, select the **Merge Device Wizard** and click **Run**.

The wizard is started and the **Merge Device Wizard** dialog is opened.



2.1 Dialog Elements

The dialog is subdivided into two logical areas:

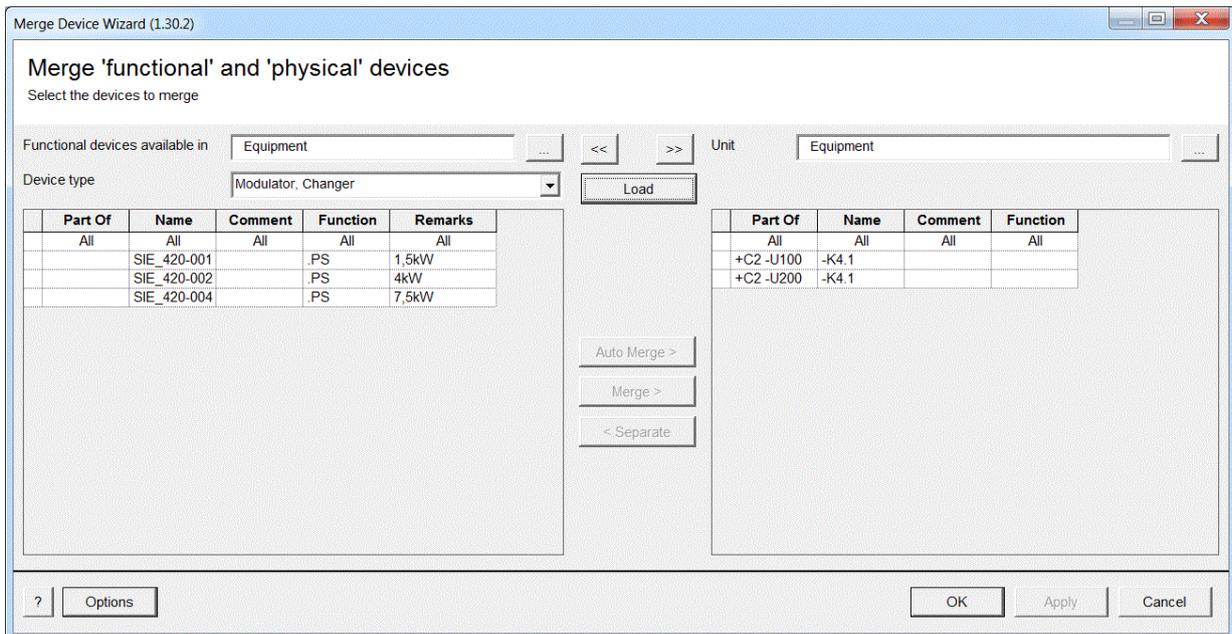
- The left part of the dialog is for the selection and display of functional devices.
- The right part of the dialog represents the physical, real devices.

Upon selecting the functional and physical devices in the list areas, the buttons **Auto Merge**, **Merge** and **Separate** are activated or deactivated.

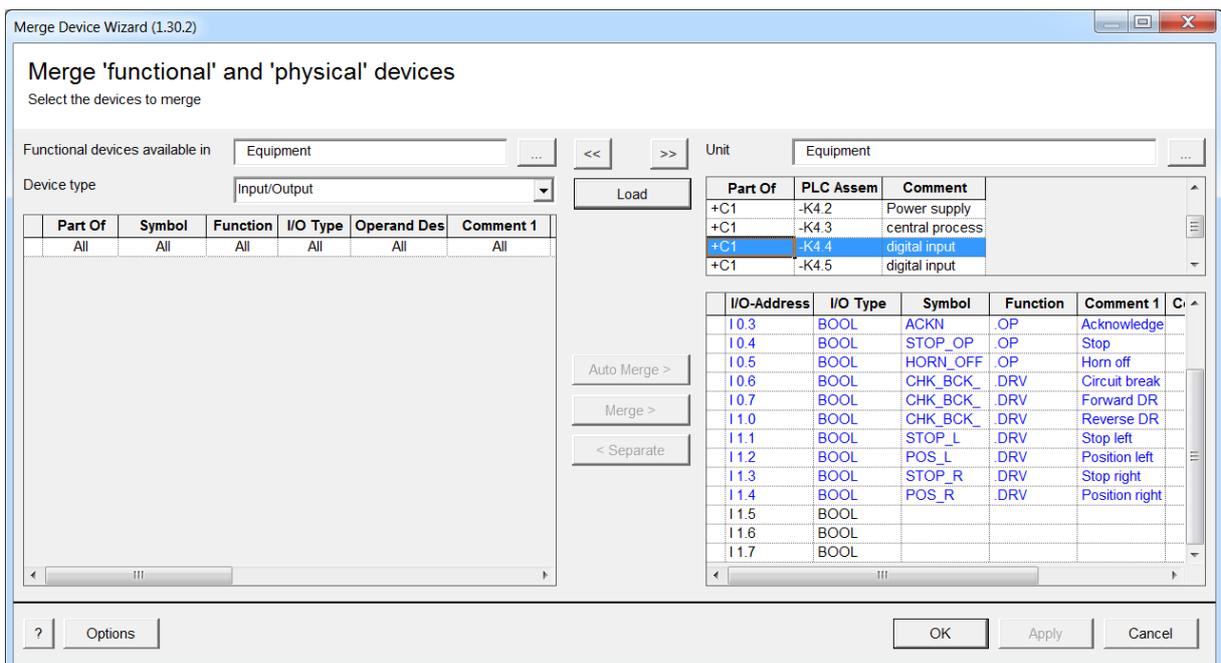
Both parts contain filtering elements enabling to limit the device and to organize it more clearly. The column attributes displayed in the selection lists may be configured using selection dialogs. Once the filter elements are selected, the selection lists may be filled clicking the button **Load**.



After activation of the location folders in the **Project Context**, the attributes **Complete Associated Location** and **Associated Location** will be available in the attribute selection for the column display in both dialog areas.



After selecting a device, the right part of the dialog contains an additional table for automation devices and I/O boards with data of related channels:



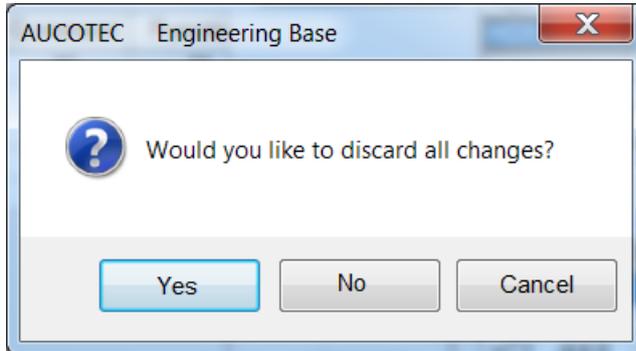
The attribute content of channels already assigned are displayed in blue color. After selecting functional and physical devices, the buttons **Auto Merge**, **Merge**, and **Separate** will be activated or deactivated.

Click on the **Options** button to make settings for the wizard.

Click **OK** to terminate the assistant storing the created data.

Click on the **Apply** button to store the created data and to continue to work with the wizard.

Cancel results in the following discarding dialog.



- **Yes** terminates the assistant and the project data remain in the status before the assistant was started.
- **No** terminates the assistant keeping the data created.
- **Cancel** leads you back to the dialog **Merge Device Wizard**.

2.2 Selection of Functional Devices

The selection of the functional devices displayed is controlled by two filters.

- Using **Functional devices available in** or rather the selection button , the folder in the **Engineering Base Explorer** to be used to start the search for functional devices is determined. While searching, both the folder structures as the object hierarchies are taken into account. The filter is initialized with the designation of the explorer object where the assistant was started.

By clicking the button , the current filter setting for **Unit** may be transferred from the selection of physical devices.

- **Unit** enables you to restrict yourself to a specific device type. Thereby, the device type selection only contains types defined before in the merge options on the tab **Attributes** in the window **Device Option**. The merge options are accessed using the button **Options** and will be described in the following chapter.

After clicking **Load**, the functional devices fulfilling the filter conditions will be displayed in the list on the left side of the dialog. Thereby, the attributes displayed and the sortation used may be configured the way described in the sub-chapter [Column Configuration](#).

2.3 Selection of Physical Devices

Using the filter **Unit** or rather the selection button , defines the **Engineering Base Explorer** folder where the search for physical devices has to start. While searching, both the folder structures as the object hierarchies are taken into account. The filter is initialized with the designation of the explorer object where the assistant was started.

By clicking the button , the current filter setting for **Functional devices available in** may be transferred from the selection of functional devices.

After clicking **Load**, the physical devices fulfilling the filter conditions will be displayed in the list on the right side of the dialog. The attributes content of free physical devices are displayed in black, the content of associated physical devices are displayed in blue color.

The attributes displayed and the sortation used may be configured the way described in the sub-chapter [Column Configuration](#).

2.4 Column Configuration

You may both define for the displayed devices and channels what attributes have to be displayed in the tables and how they have to be displayed in the columns.

In the table headers you may display a selection of device attributes. For this purpose, click the table header with the right mouse button. Thereupon, the attributes already visible at the table will be displayed and may be selected or deselected by checking them. If needed, you may invoke a list of further attributes using the menu item **Select attributes**, to get the display of the devices still better adapted to your needs.

To configure the column information, click with the left mouse button the first line of the column you want to modify the information of. You may select from: **Sort Ascending**, **Sort Descending**, **All**, or **Custom**. If you select **Custom**, the dialog **Custom autofilter** opens for configuring the filter.

Custom autofilter

Show rows where:

Part Of _____

ends with 01

And

Or

ends with 04

Use ? to represent any single of character
Use * to represent any series of characters

OK Cancel

3 Merging Options

After clicking the button **Options** the dialog **Options** with the tabs **Attributes**, **Others**, and **Auto Merge** opens.

- **Attributes:** Options for selecting device types and attributes to be taken into account when merging and separating.
- **Others:** Settings for separation.
- **Auto Merge:** Enact settings for auto merge.

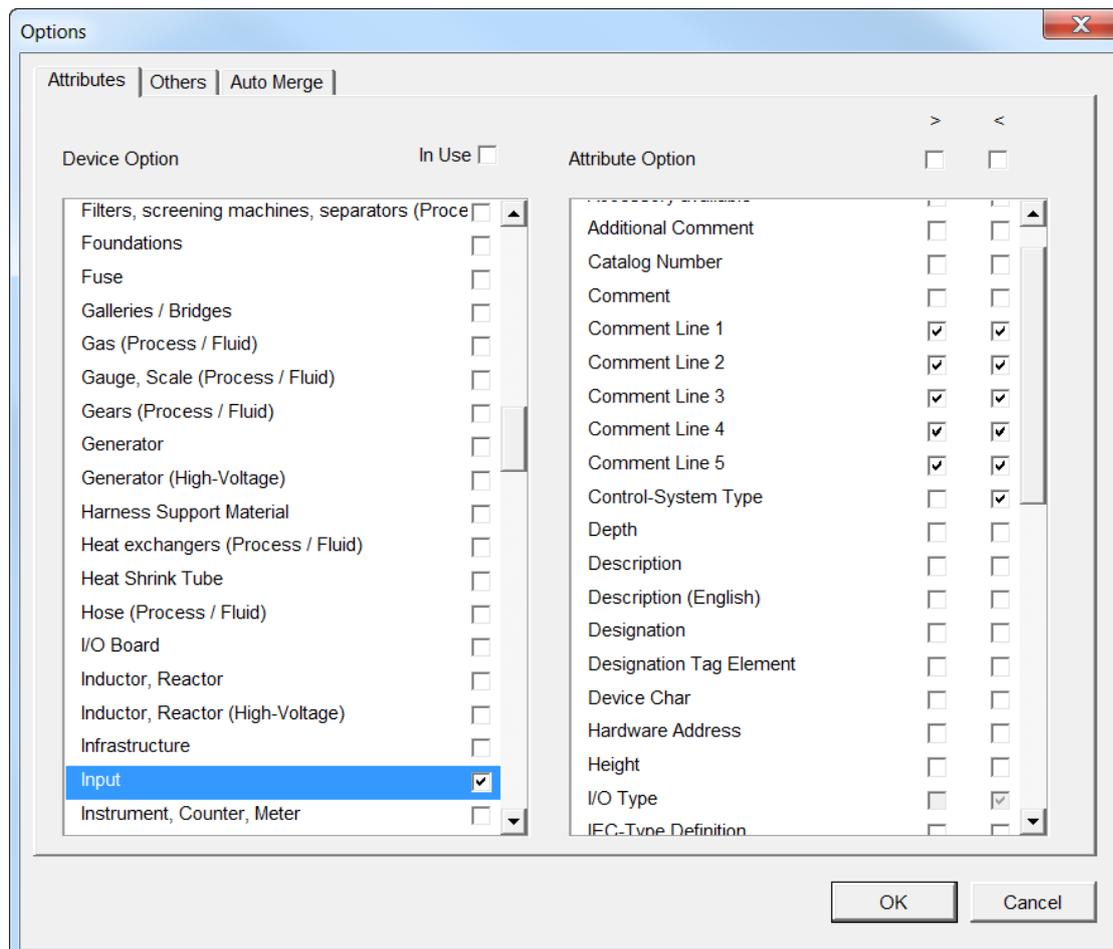
The current settings are stored in the templates of the active project, if the configuration **Merge Device Wizard** is present within the project. If this configuration should not be present within the project, then the settings are stored in the templates of the Engineering Base database as configuration **Merge Device Wizard**. These global settings will then become active in all projects not containing a configuration of their own.

3.1 Attributes

On this tab, the device types to be taken into account by the assistant and the merging behavior of its attributes when merging and separating are defined.

The list below **Device Option** comprises the device types available in the database. Via check box the respective type is activated or deactivated for the assistant.

With the check box **In Use** you may activate or deactivate all type check boxes in one go.



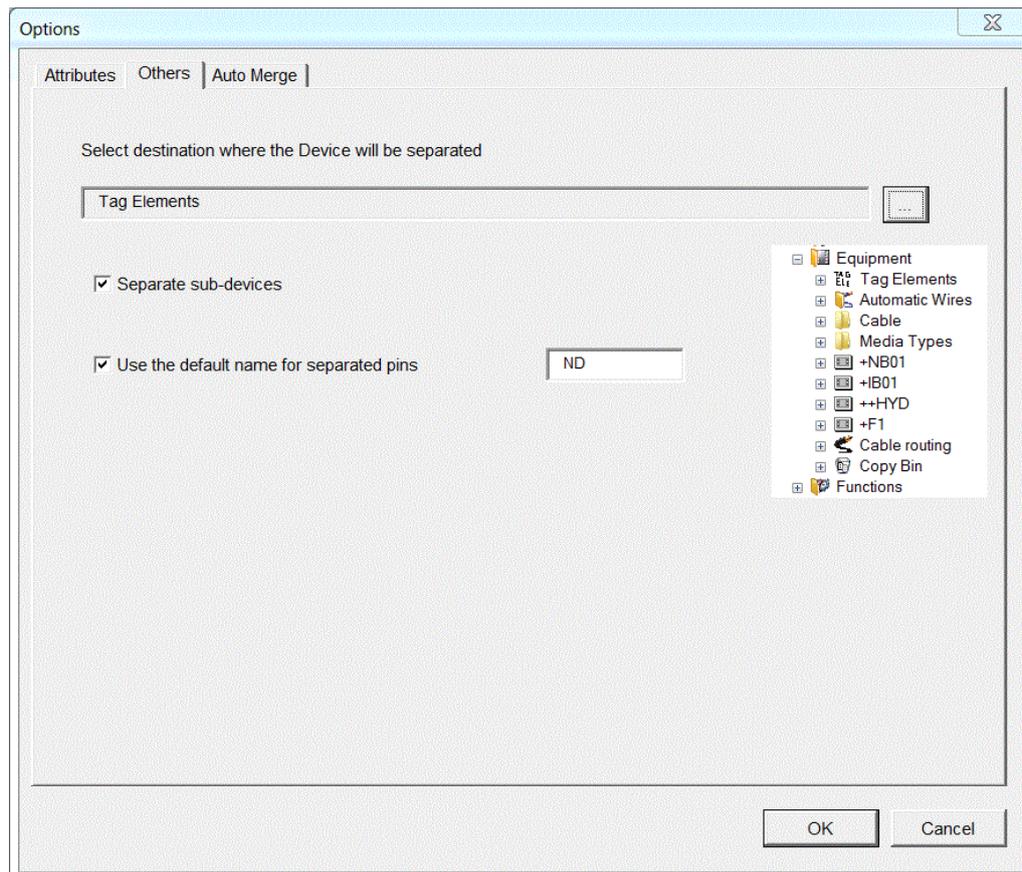
After selecting a device type, the list **Attribute Option** displays the attributes available for this device type.

By setting the check boxes in the column ">", you may define on a per attribute basis if the attribute should be taken into account in the merging process. Correspondingly, the column "<" defines the attributes to be included in the separation process.

The check boxes above the list enable you to switch on or off all ">" and "<" check boxes in one go.

3.2 Others

This tab deals with settings controlling the separation of physical devices.



The button  below **Select destination where the Device will be separated** serves to define in the **Engineering Base Explorer** the folder of the project where the devices created in the separation process have to be stored.

The specification of the folder is project-specific and has therefore to be executed in each project. If there is no folder specified in a project, the functional devices created during the separation are stored in the system folder **Equipment**. For the folder specification, the configuration **Merge Device Wizard** has to be included in the project templates, otherwise the related dialog elements are deactivated. The configuration can be copied from the templates of the **Engineering Base** database of another project.

If you activate the checkbox **Use the default name for separated pins**, you may enter into the adjacent description field a terminal designation to be transferred to all pins when separating devices.

In the process of merging (functional) devices with sub-structures, these sub-structures are transferred to the resulting (physical) device. If you activate the check box **Separate sub-devices**, then a device created in the separation process possesses sub-structures, too.

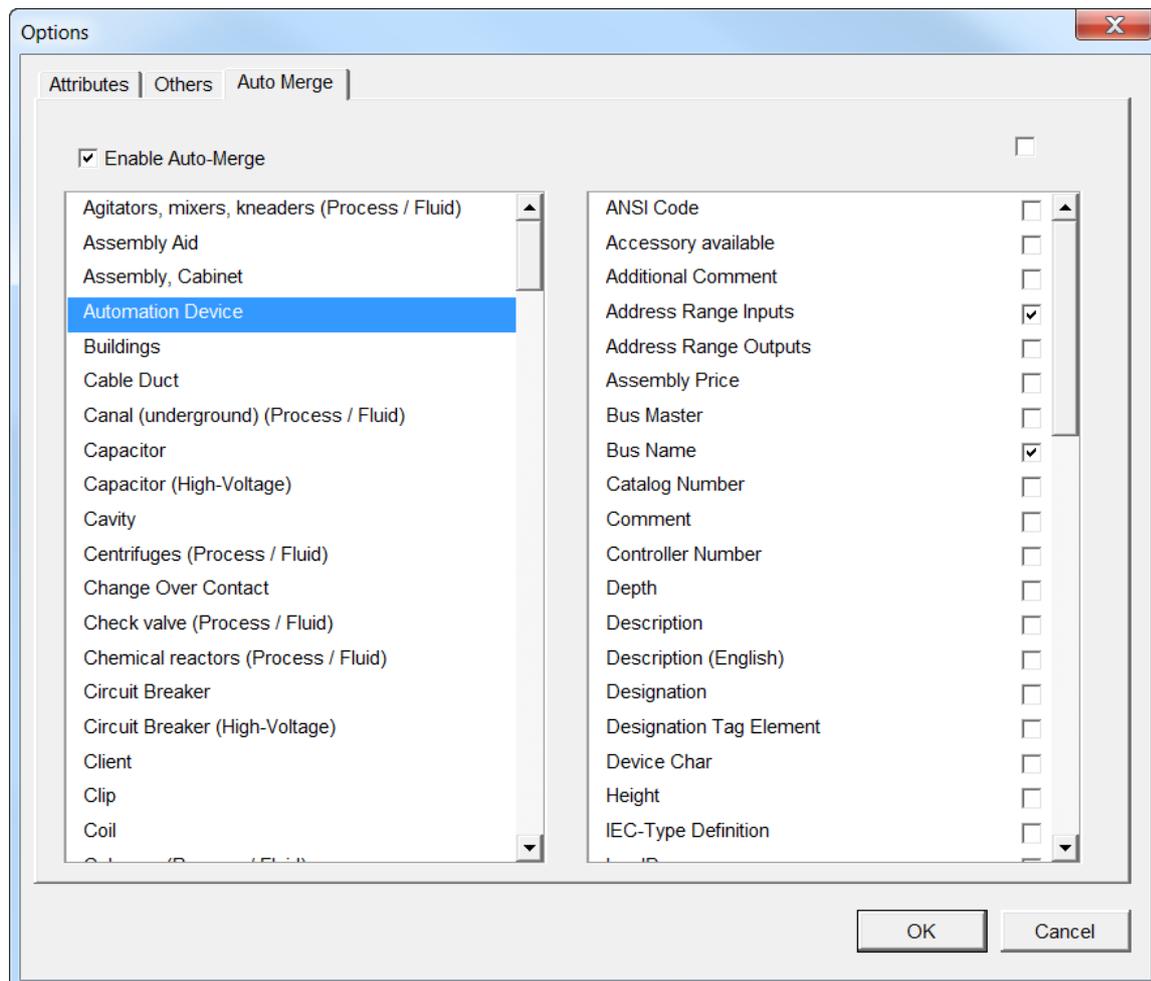
Otherwise, after the separation process, the sub-structures stay with the physical device now again set free.

3.3 Auto Merge

On this tab, the automated merging process may be switched on and off using the check box **Enable Auto-Merge**, and criteria for the merging process may be defined.

By clicking a device type, the attributes defined for this type will be listed. In this list, the attributes to be allocated identically both for functional and physical devices, may be marked using the related check boxes.

The check box above the list enables you to switch on or off all attribute check boxes in one go.



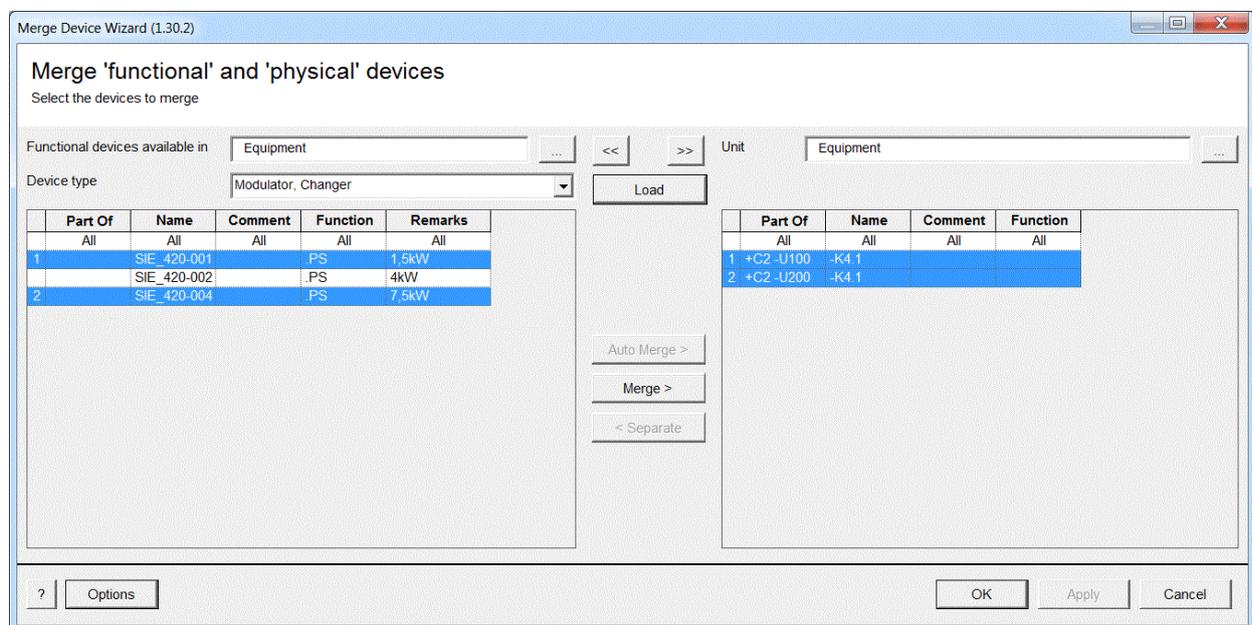
4 Merging and Separating Devices

4.1 Merging

After clicking rows in the lists of functional and physical devices, the rows are highlighted in blue color and sequential numbers are entered into the lead columns. By pressing the CTRL key you may carry out multiple selections. With each click, the sequential number in the lead column of both of the lists is incremented. Only free physical devices, meaning lines with black attribute texts, may be selected for merging.

If in both lists corresponding rows are selected, then the button **Merge** is activated. After clicking the button, functional and physical devices with corresponding sequential numbers are merged.

By associating functional and physical I/O devices channels are merged. Accordingly, by clicking automation devices or input/output cards in the list of free devices displayed below, the selection of physical devices is affected.



In the merging process, the attributes declared for the respective device type in the [Options dialog](#) are transferred from the functional to the physical device. In addition, the sub-structures of the functional and physical device are merged.

Once successfully merged, the allocated functional devices will be removed from the selection list.

4.2 Separate

The button **Separate** only becomes active if allocated physical devices have been marked.

In the process of separating, the allocated physical device is separated into a (now again) free physical device and a functional device. Besides the attributes defined for the device type in the [Options dialog](#), also the functional associations of the allocated physical device are transferred to the functional device and removed from the physical device.

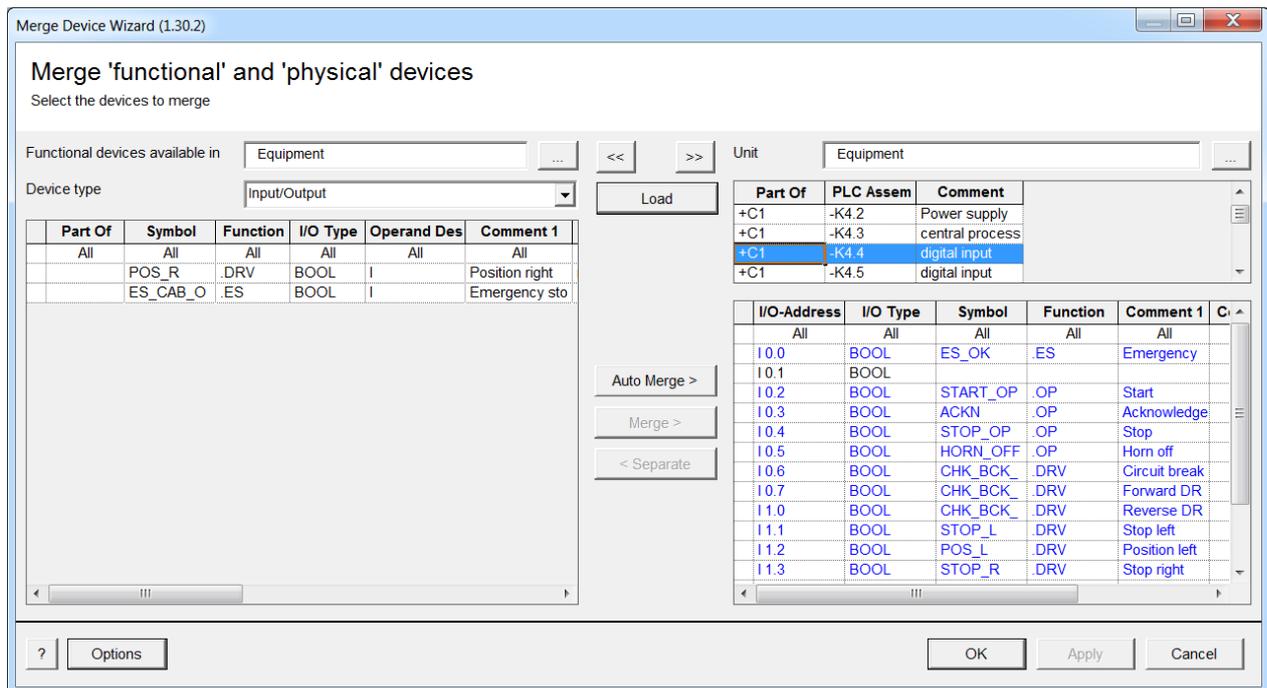
Depending on the setting of **Separate sub-devices** in the **Options** dialog, the sub-structures remain with physical device or are separated to be owned by the functional device, after. The functional device will be stored at the place agreed upon below **Select destination where the Device will be separated**.

Then, the selection lists of the **Merge Device Wizard** comprise the new functional device and the physical device with black attribute texts, free after separation.

4.3 Auto Merge

The automated merging process may be activated using the check box **Enable Auto-Merge** on the tab **Auto Merge** in the dialog **Options**.

After clicking the button **Auto Merge**, all functional and free physical devices in the current selection lists fulfilling the conditions laid down in the **Auto Merge** options are merged. The **Auto Merge** options define the attributes to be in agreement when merging the functional and physical devices belonging to the same device type.



If auto merging functional and physical input and output devices, then an automation device or an input/output card has to be selected to fill in the merging process of the channels the list of the free physical channels.