



**AUCOTEC**  
Create Synergy – Connect Processes

# Engineering Base

## Mounting Rail Assignment Wizard

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## 1 About the Mounting Rail Assignment Wizard

The wizard supports the assignment of mounting rails in the cabinet layout. Thereby equipment and terminal blocks are automatically positioned on the mounting rails.

You need a layout diagram for creating a cabinet layout. An automatic generation of the mounting rail assignment is made only for the top view. When creating layout diagrams, pay attention to the scale so that the devices can be represented in the chosen sheet format. You can arrange the mounting rails at an angle of 0 or 90 degrees. When mounted on a mounting rail, the devices are then represented rotated in accordance with this setting.



You do not need a license for using the wizard.

## 2 Prerequisites

### 2.1 Mounting rails

The mounting rails to be equipped with devices must already be visible in the layout diagrams and must be associated with objects of the type mounting rail in the database. The mounting rails and their respective dynamic shapes must be graphically displayed, and their dimensions must be specified at the object.

### 2.2 Devices and Device Dimensions

The devices later on to be placed on the mounting rail must already be present in the project as objects.

Moreover the devices must have dimensions. These dimensions are required for specifying the size of the placeholder during placement.

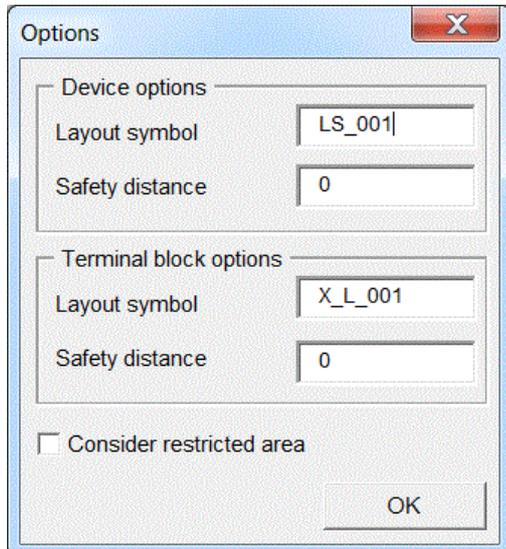
System Attributes	Purchase Order Data	Specifications	Operating Data	Classification	Pins
Control Voltage		24V			
Switching Voltage					
Breaking Capacity					
Switching Current					
Frequency					
Time (max.)					
Time (min.)					
Protection Classification (IP)					
Mounting Form					
Width		45,00 mm			
Height		60,00 mm			
Depth		60,00 mm			
Weight					
Remarks					
Occupied mounting positions					
Accessory available		<input type="checkbox"/>			

Ok Cancel

-- System Dialog --

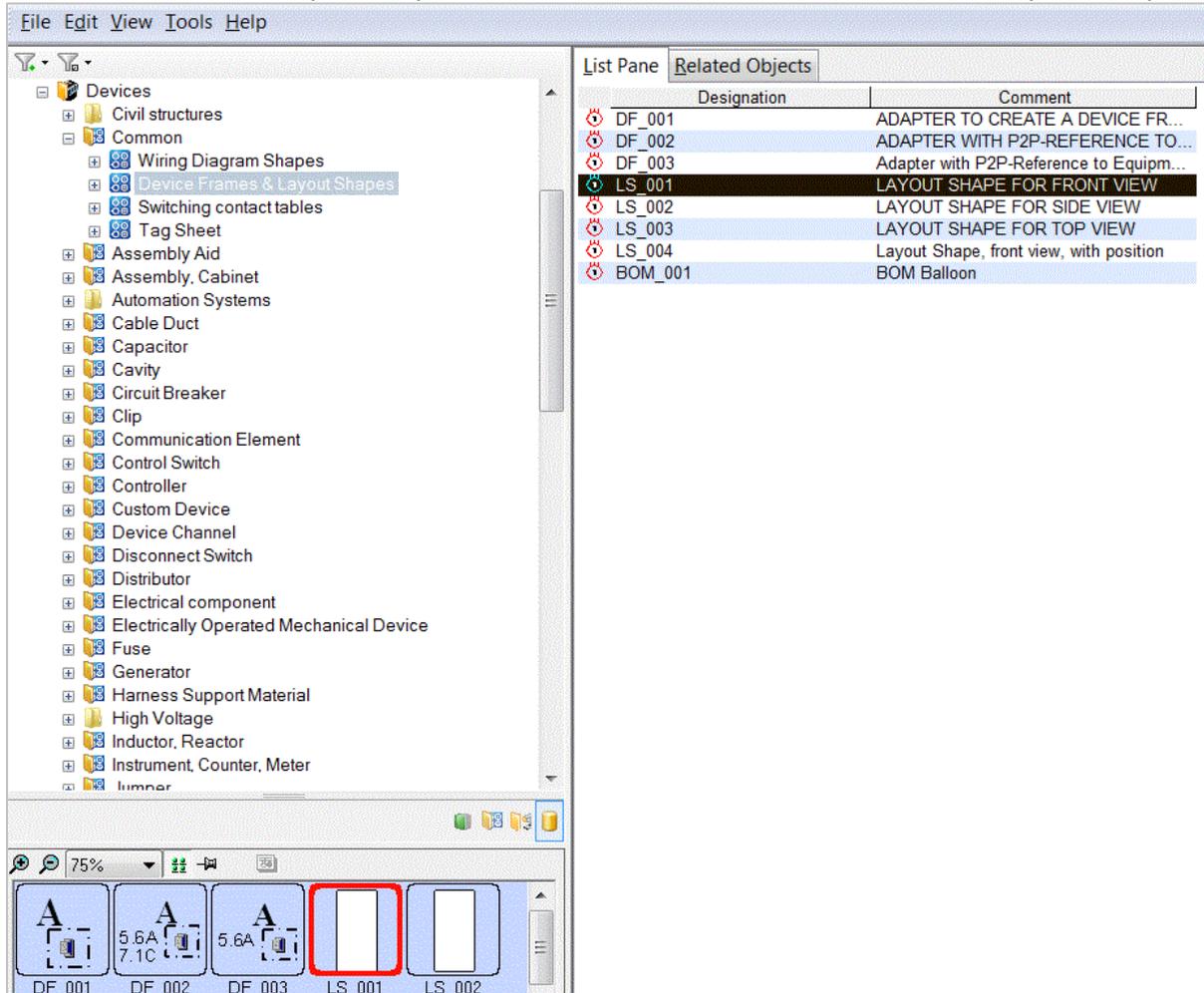
## 2.3 Master shapes

For the automatic placement of the devices and terminals in the layout diagram, the "Preferred Master Shape" specified for the equipment is used preferentially. If there is no specification, you can as an alternative also specify master shapes present in the stencils of the Engineering Base database by executing the assistant in the "Options".



### 2.3.1 Master shapes for devices

The standard shape for devices has the name LS\_001 and is located in the folders Devices and Common respectively and there in the stencil Device Frames & Layout Shapes.





### 3 User interface

Use the Engineering Base Explorer to select the layout diagram where the devices are to be arranged. Click on "Select assistant" in the context menu, select "Mounting Rail Assignment" in the assistant selection, and click on **Start**.

Mounting rail assignment

#### Wizard to equip mounting rails

Select from the mounting rails and the devices to be placed automatically.

Pre-assignment unit  
Unit:

Display  
 Other devices  
 Terminal blocks

Layout options  
 Equip mounting rail with devices  
 Optimize device and fill mounting rail with new device  
 Fill mounting rail with devices with same voltage level  
 Optimize devices on mounting rail  
 Clear devices on mounting rail

Found devices

Unit	Designation	Device type	Manufactur	Material
All	All	All	All	All
+B1 T02	-K21	Relay, Conta	PILZ	PIL_PNOZ-001
+B1 T02	-K22	Relay, Conta	MOELLER	MOE_DIL00-001
+B1 T02	-K777	Relay, Conta	MOELLER	MOE_DIL00-001
+B1 T02	-K778	Relay, Conta	MOELLER	MOE_DIL00-001
+B1 T02	-K779	Relay, Conta	MOELLER	MOE_DIL00-001

Select All

Found Mounting Rails

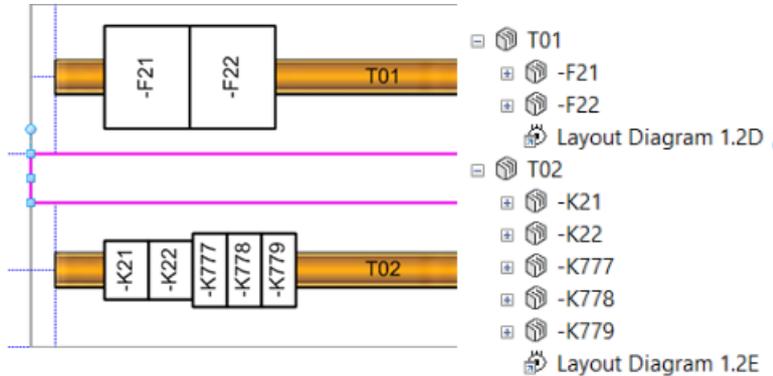
Designation	Comment	Direction	Voltage level	Distance begin	Distance end
All	All	All	All	All	All
T01		left -> right		15,00 mm	15,00 mm
T02		left -> right		15,00 mm	15,00 mm
T03		left -> right		15,00 mm	15,00 mm

Select All

Options      Run layout options      OK      Cancel

You can use the "Unit" option to restrict the device and terminal selection. For this purpose, devices and terminals respectively must already have been assigned to the corresponding assemblies in the Engineering Base Explorer. By default, the dialog shows the unit to which the layout diagram has been assigned.

The selection list only shows the devices and terminal blocks not assigned to a mounting rail. When placing the devices and terminal blocks respectively on the mounting rail, the devices and terminal blocks are automatically integrated (aggregated) underneath the mounting rail in the Engineering Base Explorer.



From the selection list "Found Devices" you can select the devices and terminal blocks thereupon to be placed on the mounting rail. The options specified in the "Display" section are taken into account. If the "Other devices" checkbox is activated, then the selection list displays devices. If the "Terminal blocks" checkbox is activated, then the selection list displays terminal blocks. You can combine the two. You can activate several devices and terminal blocks in the selection list by clicking on them. If you want to select several objects at once, then also press and hold the [CTRL] key. The first column then shows by means of consecutive numbers the order in which the devices and terminal blocks respectively were selected. You can select several devices at once by selecting the first element in the list, pressing and holding the [SHIFT] key and then selecting the last element. The objects are then numbered in the order in which they are arranged in the table.

Found devices					
	Unit	Designation	Device type	Manufactur	Material
	All	All	All	All	All
	+B2	-K460	Automation	SIEMENS	SIE_322-002
1	+B2	-K777	Relay, Conta	MOELLER	MOE_DIL00-001
2	+B2	-K778	Relay, Conta	MOELLER	MOE_DIL00-001
3	+B2	-K779	Relay, Conta	MOELLER	MOE_DIL00-001
	+B2	-S110	Control Swit	RITTAL	RIT_PS41-002

The selected order is later taken into account for the placement of the devices on the mounting rail.

You can use the selection list "Found Mounting Rails" to select the mounting rails where the devices are to be placed. If you want to select several mounting rails at once, then also press and hold the [CTRL] key. The first column then shows via consecutive numbers the order in which mounting rails were selected.

Found Mounting Rails						
	Designation	Comment	Direction	Voltage level	Distance begin	Distance end
	T03		left -> right		15,00 mm	15,00 mm
1	T06		left -> right		15,00 mm	15,00 mm
2	T07		left -> right		15,00 mm	15,00 mm

If you have selected several mounting rails, then the devices are placed on the mounting rails in sequence. Once a mounting rail is completely occupied, the next mounting rail from the list is used.

Once the devices or terminals and mounting rails in the selection lists are marked, then the assignment options become active and can be selected. The marked mounting rails are equipped accordingly upon clicking on "Run layout options".

Subsequently the dialog offers the following alternatives:

- You can select additional mounting rails and devices or terminals, or you can execute assignment options.
- You can terminate the wizard by clicking on "OK".
- Upon clicking on "Cancel", you can in a subsequent dialog decide whether or not to undo the changes carried out to this point.



In the selection lists for devices, terminals or mounting rails, you can specify column widths, show or hide columns and select column sorting options. These settings as well as the size and position of the dialog window remain active when restarting the wizard.

## 4 Assignment options

Now that you have marked the devices, terminals and mounting rails in the selection lists, the assignment options are activated for the selection and executed upon a click on "Run layout options".

### 4.1 Adding a mounting rail with devices in routing sequence

The devices and terminals respectively are placed on the mounting rail in the order specified in the selection list. If the mounting rail is already equipped, then the selected devices or terminals are appended to the already placed ones. The graphic specifications for the placement are taken into account.

### 4.2 Optimizing a mounting rail and appending devices in routing sequence

When this option is selected, the graphic representation of the devices and terminals in the layout diagrams is deleted during execution of the option "Run layout options" and rebuilt without gaps. The selected devices or terminals are appended to the already placed ones. The graphic specifications for the placement are taken into account.

### 4.3 Adding a mounting rail with devices according to voltage levels in routing sequence

Each device, each terminal block and each mounting rail can be assigned a value for the voltage level. For the mounting rail, the value can be entered retroactively in the selection list "Found Mounting Rails".

Found Mounting Rails						
	Designation	Comment	Direction	Voltage level	Distance begin	Distance end
	T04		left -> right		15,00 mm	15,00 mm
1	T05		left -> right	400V	15,00 mm	15,00 mm
	T08		left -> right		15,00 mm	15,00 mm
	T09		left -> right		10,00 mm	10,00 mm

For devices or terminal blocks, you can enter this value in the input mask for the properties:

The screenshot shows a software dialog box titled "Modify [+B2 -K779]". It has several tabs: "System Attributes", "Purchase Order Data", "Specifications", "Operating Data", and "Classification". The "Specifications" tab is active. It contains a table with the following fields:

Time (set)	
Position	
Position Z (Dimension)	
Interface Relevant	<input type="checkbox"/>
Voltage Level	400V
Routing Sequence Number	

If all devices, terminals and mounting rails in the selection have been assigned a value for the voltage level, then the devices and terminals are placed on the mounting rails having the same voltage level value.

#### **4.4 Optimizing mounting rails**

If one or more mounting rails were selected in the selection list "Found Mounting Rails", then the graphic representation of the devices and terminals in the layout diagrams is deleted during execution of the option "Optimize Mounting Rail" and rebuilt without gaps. Gaps may have formed because devices were deleted or moved to another mounting rail.

#### **4.5 Emptying a mounting rail**

If one or several mounting rails were selected in the selection list "Found Mounting Rails" and if this option is activated, then while exciting of the option "Run layout options", the graphic representation of the devices or terminals placed on the selected mounting rails is deleted in the layout diagram, and in the Engineering Base Explorer their aggregation underneath the mounting rails is removed. In this case devices and terminals are moved in the object hierarchy above the mounting rail and are then available in the selection list "Found Devices".

## 5 Graphic Defaults for Placement in the Layout

### 5.1 Dimensions and scales

Each device and each terminal are mapped in the layout diagram with the dimensions specified for the object. The scale specified for the layout diagram is also taken into account.

### 5.2 Mounting direction

You can specify a mounting direction for each mounting rail by an entry in the selection list. You can enter the mounting directions "left -> right" or "right -> left" for horizontally oriented mounting rails, and "top -> bottom" or "bottom -> top" for vertically oriented mounting rails.

Found Mounting Rails						
	Designation	Comment	Direction	Voltage level	Distance begin	Distance end
	All	All	All	All	All	All
	T01		left -> right		15,00 mm	15,00 mm
	T04		left -> right		15,00 mm	15,00 mm
	T05		left -> right	400V	15,00 mm	15,00 mm
	T08		left -> right		15,00 mm	15,00 mm

The assistant recognizes how the mounting rail was placed. Subsequently the selection options are predefined. You can display the orientation of the mounting rail by selecting the graphic in the drawing and activating the graphic parameters. For this purpose activate the tab "View" and there under "Tasks" the option "Size & Position".

Size & Position...		
X	940 mm	
Y	1860 mm	
Width	118 mm	
Height	131 mm	
Angle	90 deg	
Pin Pos	Center-Left	



Alternatively you can also enter the mounting direction in the attribute specification mask of the mounting rail. However, in this case only the internal designation is specified. In this context the position of the mounting rail in the layout diagram is not used for a check.

Modify [+B2 T02]				
System Attributes	Purchase Order Data	Specifications	Operating Data	Others
Position Z (Dimension)				
Distance begin			15,00 mm	
Distance end			15,00 mm	
Voltage Level				
Direction			W2E	
Interface Relevant			<input type="checkbox"/>	
Routing Sequence Number				
Position				

### 5.3 Distance from the ends of the mounting rail

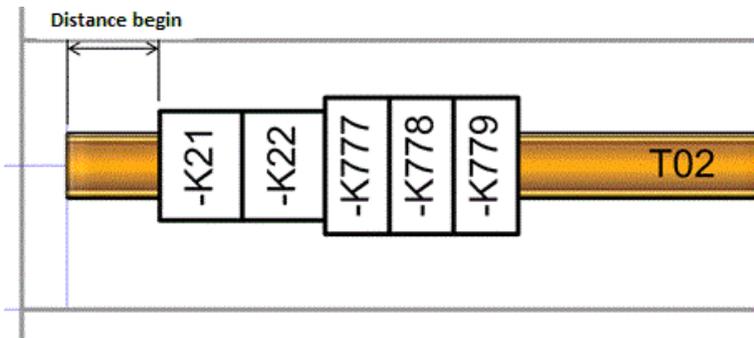
When placing devices and terminals respectively, you can also specify a distance from the ends. The first object is then placed on the mounting rail with this offset value. Likewise no other device is placed in this area any more at the end.

Found Mounting Rails						
Designation	Comment	Direction	Voltage level	Distance begin	Distance end	
T04		left -> right		15,00 mm	15,00 mm	
T05		left -> right	400V	15,00 mm	15,00 mm	
T08		left -> right		15,00 mm	15,00 mm	
T09		left -> right		10,00 mm	10,00 mm	
T10		left -> right		10,00 mm	10,00 mm	

Alternatively you can also enter distance from the ends in the attribute specification mask of the mounting rail.

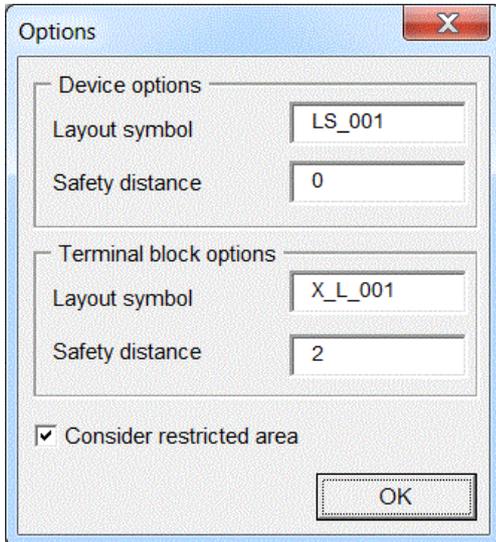
Modify [+B2 T02]

System Attributes	Purchase Order Data	Specifications	Operating Data	Others
Position Z (Dimension)				
Distance begin			15,00 mm	
Distance end			15,00 mm	
Voltage Level				
Direction			W2E	
Interface Relevant <input type="checkbox"/>				
Routing Sequence Number				
Position				

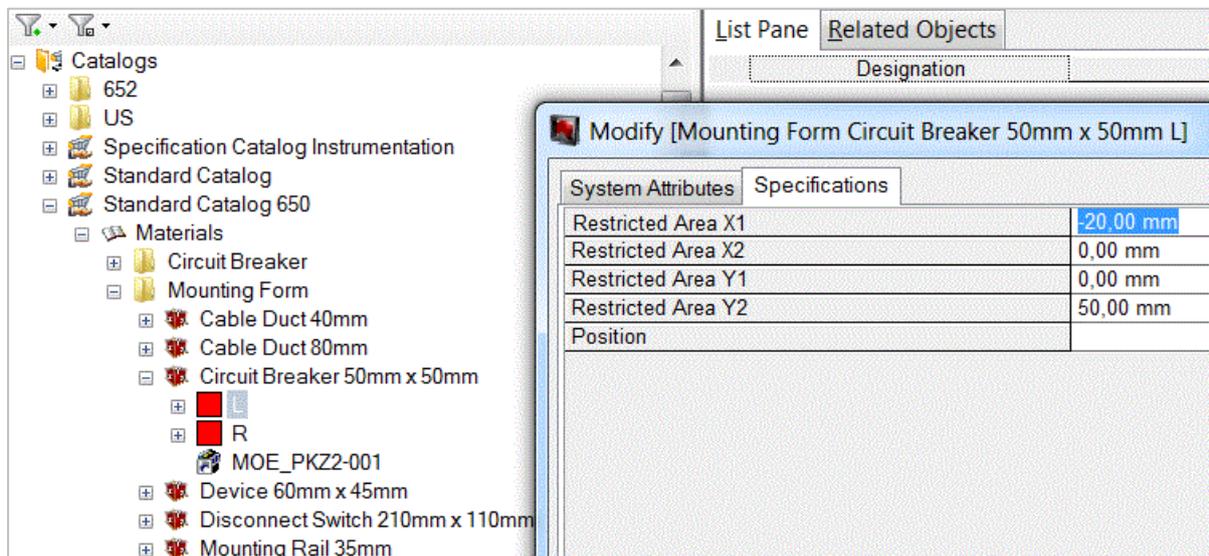


## 5.4 Safety distance

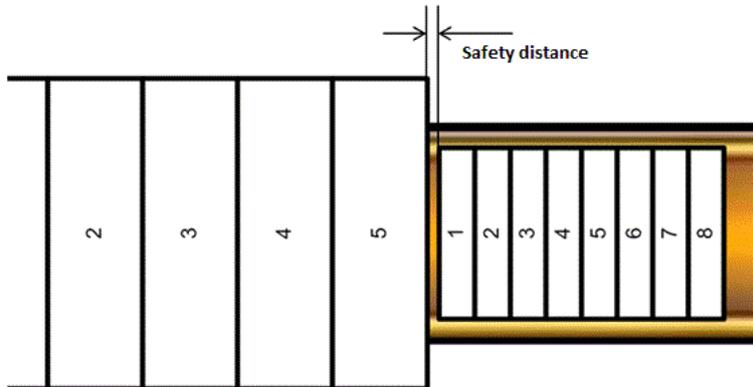
The individual devices and terminal blocks respectively can be placed at a distance from each other. You can set options for this via the "Options" button when executing the assistant.



If the respective material is equipped with a design containing restricted areas, then you can activate their consideration via the checkbox "Consider restricted area".



Alternatively you can globally specify separate distances for devices and terminal blocks.



If both options are activated, then the larger distance is used.

## 5.5 Consideration of accessories

The accessories for a component defined via an accessories wizard are taken into account by the mounting rail assignment wizard when placing items in the layout.

Accessories are objects having a material number that are aggregated in the Engineering Base Explorer under equipment.

Using the accessories wizard, you can assign accessories a direction per mounting position using the attribute **Accessory Direction** (possible values: North, South, West, East, Top).

When placing components and accessories, the assignment wizard takes into account both the mounting and the accessory directions. If applicable, depending on the combination of directions it may be first the accessory and then the component that is placed. For accessories in projects you can moreover assign the attributes **Offset X Position** and **Offset Y Position**, which are evaluated for determining the positions during placement.



Accessories without **Accessory Direction** are not placed.