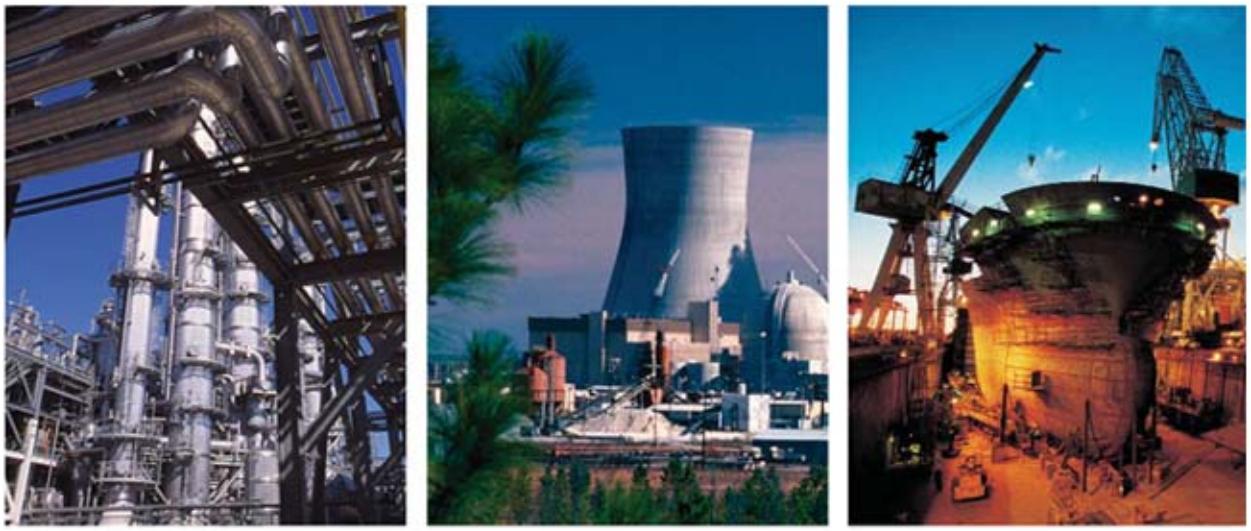
Symbol Editor
User's Guide

Process, Power & Marine



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Version 7.0 **January 2005** **DINS-07.00.0004A**

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Preface

This user's guide describes concepts, procedures, and interface features of the Symbol Editor.

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Working with Custom Symbols in Enhanced Reports: An Overview

Using the Symbol Editor, you can customize symbols to fit your own design conventions specifically for Layout reports and for loops that are set to use the **By Custom Symbol** generation method only.

Note

- The Symbol Editor is not intended for customizing symbols for other types of enhanced reports.

When you create a symbol, you define the symbol type (panel, strip, rack, card, terminal, and so forth), and you can then assign to the symbol itself macros appropriate for that symbol type. You can also add connection points to a terminal's symbol and specify the properties of the connection points such as the left or right side of the terminal and the angle at which the connection appears on the report.

The software provides you with the flexibility to create multi-level symbols, for example, you can create a symbol for a terminal and then use this symbol as a component of a strip symbol according to the number of terminals in the strip. The terminal symbols are added as sub-symbols of each strip symbol. Similarly, you can create various panel symbols that contain one or more strip symbols.

In this way, you can build up a library of symbols which you then associate with appropriate entities in SmartPlant Instrumentation.

Related Topics

- *Working with Custom Symbols in Enhanced Reports Common Tasks*, page 6

Working with Custom Symbols in Enhanced Reports Common Tasks

You can create symbol (.sym) files and customize them to fit your design conventions for for Layout reports and for loops that are set to use the **By Custom Symbol** generation method only.

Create a Custom Symbol in the Symbol Editor

You can create symbols with macros for various types of entities.

For more information, see *Create a Custom Symbol in the Symbol Editor*, page 7.

Add SmartText to a Symbol File

This option allows you to add SmartText to a symbol file. You can specify the size and properties of SmartText fonts.

For more information, see *Add SmartText to a Symbol File*, page 8.

Assign an Entity Type to a Symbol

For each symbol that you create, you must specify an entity type. The symbol's entity type determines which macros are available for adding in the symbol file.

Add a Macro to a Symbol File

This option allows you to add macros to symbol files. The available macros depend on the symbol type, which is based on the entity for which the symbol is defined.

For more information, see *Add a Macro to a Symbol File*, page 9.

Add Connection Points to a Symbol File

You can add connection points to symbol files that represent terminals, apparatus, or channels. For each connection point, you define the terminal side (left or right) and the connection angle.

For more information, see *Add Connection Points to a Symbol File*, page 10.

Add Starting Points to a Symbol File

You can add starting points to symbol files that represent panels for use in Panel Layout reports or to symbol files that represent racks for use in Rack Layout reports. In Panel Layout reports, for each starting point, you define the way in which racks should be added, the spacing between the racks, and the maximum number of racks allowed in the specified row or column. In Rack Layout reports, for each starting point, you define the way in which cards should be added, the spacing between the cards, and the maximum number of cards allowed in the specified row or column.

For more information, see *Add Starting Points to a Symbol File*, page 12.

Related Topics

- *Working with Custom Symbols in Enhanced Reports: An Overview*, page 5

Specify a Path for the Symbol Editor

1. In SmartPlant Instrumentation, open the **Preferences** dialog box.
2. In the tree, expand the hierarchy **Enhanced Reports** > **Symbol Editor** > **File Locations**.
3. Beside the **Symbol folder** field, click **Browse** and navigate to the desired folder.

Note

- Before you generate a report that uses a custom symbol, you must specify path to your custom symbols: in SmartPlant Instrumentation **Preferences**, select **File Locations** for the appropriate report type and navigate to the path of the **Symbol folder** field for Layout reports, or of the **Custom symbol folder** field for Enhanced SmartLoop reports.

Related Topics

- *Working with Custom Symbols in Enhanced Reports Common Tasks*, page 6
- *Working with Custom Symbols in Enhanced Reports: An Overview*, page 5

Create a Custom Symbol in the Symbol Editor

Important

- Before creating symbols, make sure that you have first specified a path for the Symbol Editor where your symbols will be located by default. For details, see *Specify a Path for the Symbol Editor*, page 7.

1. On the SmartPlant Instrumentation main menu, click **Tools** > **Symbol Editor**.
2. Draw your symbol as you require using the drawing tools.
3. Select all the drawing elements on the sheet.

Tip

- When creating a symbol using different elements, press **Ctrl** while choosing elements with the **Select** tool.

4. Click **Symbols** to display the symbol ribbon bar.
5. On the symbol ribbon bar, click **Create Symbol**. The mouse pointer changes to a cross-hair icon.
6. Click a point on the drawing sheet to define the origin of the symbol.

Tip

- The **Save As** dialog box automatically appears at this point. You do not need to use **Save As** on the **File** menu to open this dialog box.

7. On the **Save As** dialog box, select the folder where you want to save the symbol.
8. Type the name that you want for the symbol.

Tip

- The software saves the symbol at this point and reopens it as a separate sheet in the Symbol Editor.

9. On the **Actions** toolbar, click **Assign Entity Type**.
10. On the **Assign Entity Type** dialog box, select the desired entity type to assign to the symbol.

Tips

- After you have selected an entity type, only macros appropriate for that entity type are available for the symbol.
- For an I/O card, select **Wiring Equipment** as the entity type.

11. Add macros and connection points to the symbol as needed. For details, see:
    - *Add a Macro to a Symbol File*, page 9.
    - *Add Connection Points to a Symbol File*, page 10.
12. Save the file.

Related Topics

- *Working with Custom Symbols in Enhanced Reports Common Tasks*, page 6
- *Working with Custom Symbols in Enhanced Reports: An Overview*, page 5

Add SmartText to a Symbol File

1. In the Symbol Editor, open the desired .sym file.
2. On the **Actions** toolbar, click **New SmartText**.
3. Click the **General** tab.

4. In the **Caption** box, type the text that you require.

   Tip

   - You can type an unlimited number of lines with up to 28 characters in each line.
5. Click the **Text** tab to define the text properties such as font, font size, rotation, and orientation.
6. Click on the symbol to position the text box.
7. Click **File** > **Save**.

Add a Macro to a Symbol File

1. In the Symbol Editor, open the desired .sym file.

   Important

   - If you want to use a filter during this operation, you must first add a filter in SmartPlant Instrumentation using the **Macro Filter** command.
2. On the **Actions** toolbar, click **New Macro**  .
3. Click the **General** tab.
4. From the **Macro type** list, select an option if more than one is available.
5. From the **Macro name** list, select a macro for the chosen macro type.
6. If you are adding a macro for an entity that is part of a hierarchy, such as a channel or terminal strip that can be associated with more than one parent entity type, select the relation for the entity from the **Relation** list.

   Important

   - You must specify the correct relation for the software to retrieve the data for the specified macro.
7. Define a filter, if needed.

   Tip

   - If you do not use a filter, the software adds the macro to all entities of the same type.
8. In the **Caption** box, type a label name if you want to associate a label with the new macro.

   Tip

   - The label appears to the left of the macro on the symbol.
9. Click the **Macro Text** tab to define the macro text properties.
10. Click the **Caption Text** tab to define the label text properties.
11. On the symbol, click where you want the macro to appear.

12. Click **File** > **Save**.

Add Connection Points to a Symbol File

1. In the Symbol Editor, open the desired .sym file.

   Tip

   - You can only add connection points to symbols for which the assigned entity type is **Terminal** or **Pin**.

2. On the **Actions** toolbar, click **Place Connection Points**  .
3. On the **Connection Points** ribbon bar, from the **Type** list, select the type of connection point that you want to add: **Connector** or **Jumper**.

   Tip

   - By default, the first connection point is specified as being on the left side. On the **Connection Points** ribbon bar, you can specify the right side for the first connection point if desired.

4. Click the mouse pointer at the position where you want to place the first connection point, then move the pointer to specify the desired angle.

   Tips

   - You can add more than one connection point on each terminal side if needed. If you do so, it is recommended that you place the points alongside one another or specify a different connection angle for each point.
   - Graphical symbol elements are defined on the **Default** layer and these elements determine the symbol boundaries. Connection points are defined on the **Connection** layer, which means that placing connection points beyond the symbol boundaries does not affect the calculation of spacing between symbols in drawings.

5. Click the mouse pointer to place the second connection point in a similar way.
6. If you require, add wire macros to each connection point. For details, see *Add Wire Macros to Connection Points*, page 11.
7. On the toolbar, click **Finish**.
8. Click **File** > **Save**.

Delete Connection Points

1. In the Symbol Editor, open the desired .sym file.
2. Select a connection point.

Tip

- If the connection point is on a graphical object, you may need to move the object or use the **Send to Back** command to make the connection point available for selecting.

3. Do one of the following:
   - On the keyboard, press **Delete**.
   - Click **Edit** > **Delete**.

Note

- If you delete a connection point that has associated macros, the software also deletes the macros.

Add Wire Macros to Connection Points

1. In the Symbol Editor, open the desired .sym file and select a connection point.
2. On the **Actions** toolbar, click **New Macro** .
3. Click the **General** tab.
4. From the **Macro type** list, select one of the available options: CABLE, CABLE SET, or WIRE.
5. From the **Macro name** list, select a macro for the chosen wire macro type.
6. In the **Caption** box, type a label name if you want to associate a label with the new macro.

   Tip

   - The label appears to the left of the macro.

7. Click the **Macro Text** tab to define the macro text properties.
8. Click the **Caption Text** tab to define the label text properties.
9. On the symbol, click where you want the macro to appear.

   Tips

   - Graphical symbol elements are defined on the **Default** layer and these elements determine the symbol boundaries. Macros are defined on the **Macro** layer, which means that placing macros beyond the symbol boundaries does not affect the calculation of spacing between symbols in drawings.
   - For terminals that have connections on both sides, if you want the cable macro names to appear between the connection points, it is recommended that you place cable macro names on one side of the symbol only to avoid duplication for each terminal to which the cable is connected.

10. Click **File** > **Save**.

Notes

- The software only displays wire macros for connection points that actually have connections.
- If you delete a connection point, the software automatically deletes from the symbol all macros belonging to that connection point.

Related Topics

- *Add Connection Points to a Symbol File*, page 10

Add Starting Points to a Symbol File

1. In the Symbol Editor, open the desired .sym file.

   Tip

   - You can only add connection points to symbols for which the assigned entity type is **Panel** or **Rack**.
2. On the **Actions** toolbar, click **Place Starting Points** .
3. On the **Starting Points** ribbon bar, from the **Placement order** list, select one of the following options:
   - **Left to Right**
   - **Right to Left**
   - **Top to Bottom**
   - **Bottom to Top**
4. Enter values for the **Symbol displacement** and **Symbols per row / column** properties.

   Tip

   - As an example, suppose that you want to add the racks in stacks of up to 8 racks in vertical columns, starting from the top of the panel. In this case, you select from **Placement order** the option **Top to Bottom**, then for **Symbols per row / column**, type **8**. For the **Symbol displacement** property, type a value of **1.00** to specify a height allowance of 1 inch for each rack.
5. Click the mouse pointer at each point where you want to add a starting point. Note that the **Row / Column number** value increments by one each time you add a new start point.
6. On the toolbar, click **Finish**.
7. Click **File** > **Save**.

Customize a Symbol

1. Do one of the following:
   - On the SmartPlant Instrumentation main menu, click **Tools** > **Symbol Editor**.
   - On the Windows Taskbar, click **Start** > **Programs** > **Intergraph SmartPlant Instrumentation** > **Symbol Editor**.
   - In any file browser, double-click the .sym file you want to open. (For this option to work, the file type must be registered to open with the Symbol Editor.)

   Important
   - If you use the last two methods of opening a file, you will not be able to perform certain actions that require connectivity to the SmartPlant Instrumentation database, for example changing the entity type. For this reason, it is generally recommended that when customizing a symbol, you open the Symbol Editor from within SmartPlant Instrumentation.
2. Customize the symbol as you require. You can make any of the following changes:
   - Edit graphical elements.
   - Change the entity type.
   - Add, modify, or delete SmartText.
   - Add, modify, or delete macros.
   - Add, modify, or delete connection points (for terminals).
   - Add, modify, or delete starting points (for panels with racks).
3. Click **File** > **Save**.

Note
- If you change a symbol's entity type, the software automatically deletes from the symbol all macros belonging to the original entity type.

Related Topics
- *Add a Macro to a Symbol File*, page 9
- *Add Connection Points to a Symbol File*, page 10
- *Working with Custom Symbols in Enhanced Reports Common Tasks*, page 6
- *Working with Custom Symbols in Enhanced Reports: An Overview*, page 5

Creating Custom Symbols for Specific Reports

Create Symbols for a Location Layout Report

Important

- Before creating these symbols, make sure that you have first specified a path for the Symbol Editor where your symbols will be located by default. For details, see *Specify a Path for the Symbol Editor*, page 7.

1. Start the Symbol Editor from the SmartPlant Instrumentation program.

   Tip

   - You must start the Symbol Editor from SmartPlant Instrumentation in order to establish a connection to the database.

2. Open a new drawing sheet and draw an outline for the location, which can be a site, building, floor plan, or room as you require.
3. Select the outline that you have drawn.
4. Click **Symbols**  to display the symbol ribbon bar.
5. On the symbol ribbon bar, click **Create Symbol**  . The mouse pointer changes to a cross-hair icon.
6. Click a suitable point on the drawing sheet to define the origin of the symbol.

   Important

   - You must specify accurately the position of the symbol's origin so that the symbol is placed correctly relative to the page origin; usually, this is the lower left corner of the drawing sheet.

   Tip

   - The **Save As** dialog box automatically appears at this point. You do not need to use **Save As** on the **File** menu to open this dialog box.

7. On the **Save As** dialog box, select the folder where you want to save the symbol.
8. Type the name that you want for the symbol.
9. Draw the panels as desired using the location outline as a guide and save each panel drawing as a separate symbol.

   Tip

   - Use rectangles to represent common sizes of panels such as 80 x 80 cm enclosures, and so forth.

10. Return to the location symbol and click **Actions** > **Assign Entity Type**.
11. In the **Assign Entity Type** dialog box, from the **Entity Type** list, select **Location**.

12. Add macros as needed and save the symbol.
13. For each panel symbol, assign entity type **Panel**.
14. Add macros as needed on each panel symbol and save the symbols.
15. In SmartPlant Instrumentation, associate the room symbol with the desired location entity and associate each cabinet symbol with the desired panel, selecting **Location Layout report** as the name of the report type. For details, see *Associate a Symbol with an Entity* in the *Enhanced Report Utility User's Guide*.

Create Symbols for a Panel Layout Report

Important

- Before creating these symbols, make sure that you have first specified a path for the Symbol Editor where your symbols will be located by default. For details, see *Specify a Path for the Symbol Editor*, page 7.

1. Start the Symbol Editor from the SmartPlant Instrumentation program.

   Tip

   - You must start the Symbol Editor from SmartPlant Instrumentation in order to establish a connection to the database.

2. Open a new drawing sheet and draw an outline for a panel with appropriate rack columns.
3. Select all the components of the panel that you have drawn.
4. Click **Symbols**  to display the symbol ribbon bar.
5. On the symbol ribbon bar, click **Create Symbol**  . The mouse pointer changes to a cross-hair icon.
6. Click a suitable point on the drawing sheet to define the origin of the symbol.

   Important

   - You must specify accurately the position of the symbol's origin so that the symbol is placed correctly relative to the page origin; usually, this is the lower left corner of the drawing sheet.

   Tip

   - The **Save As** dialog box automatically appears at this point. You do not need to use **Save As** on the **File** menu to open this dialog box.

7. On the **Save As** dialog box, select the folder where you want to save the symbol.
8. Type the name that you want for the symbol.
9. Draw a rack using the panel outline as a guide and save the rack drawing as a separate symbol.

Important

- You must specify the position of the symbol's origin at the starting point where each rack is to be added to the panel, for example, the top left corner.
- Make a note of the dimensions of the rack so that you can use it to specify the correct **Symbol displacement** value when specifying the start points on the panel.

10. Return to the panel symbol and click **Actions** > **Assign Entity Type**.
11. In the **Assign Entity Type** dialog box, from the **Entity Type** list, select **Panel**.
12. Add macros as needed.
13. On the **Actions** toolbar, click **Place Starting Points**  .
14. On the **Starting Points** ribbon bar, from the **Placement order** list, select one of the following options:
    - **Left to Right**
    - **Right to Left**
    - **Top to Bottom**
    - **Bottom to Top**
15. Enter values for the **Symbol displacement** and **Symbols per row / column** properties.

    Tip

    - As an example, suppose that you want to add the racks in stacks of up to 8 racks in vertical columns, starting from the top of the panel. In this case, you select from **Placement order** the option **Top to Bottom**, then for **Symbols per row / column**, type **8**. For the **Symbol displacement** property, type a value of **1.00** to specify a height allowance of 1 inch for each rack.
16. Click the mouse pointer at each point where you want to add a starting point. Note that the **Row / Column number** value increments by one each time you add a new start point.
17. Save the panel symbol.
18. Open the rack symbol and assign to it entity type **Rack**.
19. Add macros as needed.
20. Save the rack symbol.
21. In SmartPlant Instrumentation, associate the panel symbol with a panel that has one or more racks, selecting **Panel Layout report** as the name of the report type. For details, see *Associate a Symbol with an Entity* in the *Enhanced Report Utility User's Guide*.

22. Associate each rack in the selected panel with the rack symbol that you created, selecting **Panel Layout report** as the name of the report type.

Note

- The order in which the software places the racks is determined by the rack **Sequence** property.

Create Symbols for an Enhanced SmartLoop Report

Note

- Although this procedure refers to strips and terminals, you can apply it to any situation where you create a symbol with sub-symbols. For general details of how to create individual custom symbols, see *Create a Custom Symbol in the Symbol Editor*, page 7.

1. On the SmartPlant Instrumentation main menu, click **Tools** > **Symbol Editor**.
2. Create a new terminal symbol.

   Tips

   - For a terminal symbol, assign entity type **Terminal**.
   - Add macros and connection points as needed on the terminal symbol.
3. Open a new drawing sheet and draw an outline for your terminal strip with width based on the terminal width and with height determined by the number of terminals in the strip stacked on top of one another.
4. Select the outline you have drawn.
5. Click **Symbols** to display the symbol ribbon bar.
6. On the symbol ribbon bar, click **Create Symbol**. The mouse pointer changes to a cross-hair icon.
7. Click a point on the drawing sheet to define the origin of the symbol.

   Tips

   - The symbol's origin point is important in this case because the software places the sub-symbols relative to one another within the main symbol.
   - The **Save As** dialog box automatically appears at this point. You do not need to use **Save As** on the **File** menu to open this dialog box.
8. On the **Save As** dialog box, select the folder where you want to save the symbol.
9. Type the name that you want for the symbol.
10. Assign entity type **Terminal Strip** for the symbol.
11. Add macros as needed on the strip symbol.

12. Open the Symbol Browser and drag two or more terminal symbols into the strip outline.

    Important

    - When dragging the terminal symbols, the software assigns the symbol order of each terminal in sequence. For this reason, it is essential that you place the terminals in the order that you want their numbering to be assigned.

13. Save the strip symbol.
14. Open a new drawing sheet and draw an outline for your panel.
15. Create a panel symbol from the drawing.
16. Assign entity type **Panel** for the symbol.
17. Add macros as needed on the panel symbol.
18. Drag two or more strip symbols into the panel outline in the desired order.
19. Save the panel symbol.
20. In SmartPlant Instrumentation, associate the panel symbol with the desired panel. For details, see *Associate a Symbol with an Entity* in the *Enhanced Report Utility User's Guide*.

Note

- If you generate an Enhanced SmartLoop report using the **By Custom Symbol** generation method, and no suitable custom symbol is associated with a particular wiring entity that includes standard terminals, the software uses the symbol FirstTerm.sym as the default symbol for the first terminal in a group of terminals, and the symbol Term.sym for all subsequent terminals. You must therefore ensure that copies of these files exist in the custom symbol folder specified in the SmartPlant Instrumentation **Preferences** dialog box for the Enhanced SmartLoop report.

Related Topics

- *Create Symbols for a Location Layout Report*, page 13
- *Create Symbols for a Panel Layout Report*, page 16
- *Working with Custom Symbols in Enhanced Reports Common Tasks*, page 6
- *Working with Custom Symbols in Enhanced Reports: An Overview*, page 5

Menu Commands

Assign Entity Type Command (Actions Menu)

Specifies the entity type with which a symbol is associated. Each entity type has its own set of macros available for addition to the symbol.

Align Objects Command (Actions Menu)

Displays the **Alignment** ribbon for setting the alignment of two or more graphical elements. You can align items by their left, right, top, or bottom edges.

Note

- It is not possible to align macros and redlining items that are attached relative to entities on the drawing sheet.

SmartText > New Command (Actions Menu)

Adds SmartText to a symbol.

SmartText > Properties Command (Actions Menu)

Allows you to view and edit the text and font properties of a SmartText item.

Tip

- Before you can choose this command, you must select an existing SmartText item.

Macro > New Command (Actions Menu)

Adds a macro to a symbol.

Important

- To add a macro to a symbol, you must first assign an entity type for the symbol.

Macro > Properties Command (Actions Menu)

Allows you to edit the properties of a macro or a macro label.

Tip

- Before you can choose this command, you must select an existing macro or macro label.

Place Connection Points Command (Actions Menu)

Allows you to add connection points to a terminal symbol.

Related Topics

- *Add Connection Points to a Symbol File*, page 10
- *Connection Points Ribbon Bar*, page 25

Place Starting Points Command (Actions Menu)

Allows you to add starting points to a panel or rack symbol.

Related Topics

- *Add Starting Points to a Symbol File*, page 12
- *Starting Points Ribbon Bar*, page 26

Show Origin Command (Tools Menu)

Displays or hides the origin point in a symbol (.sym) file. For this command to be active, a copy of the file Origin.sym must be located in each custom symbol folder defined in SmartPlant Instrumentation **Preferences** for the specified enhanced report type.

Create Symbol Command (Symbol Ribbon)

Allows you to create a symbol.

Tip

- This button is available only when you select elements.

Dialog Boxes

Assign Entity Type Dialog Box

Allows you to specify an entity type for a symbol. The entity type determines which macros are available for adding to the symbol, and also affects other options. For example, you can add connection points only to symbols with entity type TERMINAL.

Entity type - Select the desired entity type for the symbol from the list, for example: PANEL, LOCATION, RACK.

Related Topics

- *Add a Macro to a Symbol File*, page 9
- *Create Symbols for a Location Layout Report*, page 13
- *Create Symbols for a Panel Layout Report*, page 16
- *Create Symbols for an Enhanced SmartLoop Report*, page 18

Connection Points Ribbon Bar

Specifies properties of symbol connection points.

Type - Select the type of connection point that you want to place on the terminal: **Connector** or **Jumper**.

Terminal side - Specifies whether the current connection point is defined for the left or right side of the terminal.

Angle - Displays the connection angle, in degrees, for the current connection point. This property is read-only and applies only for connectors.

Sequence - Displays the order of each connection point within the terminal for each terminal side. This property is read-only.

Finish - Commits the addition of all created connection points to the symbol.

Related Topics

- *Add Connection Points to a Symbol File*, page 10
- *Place Connection Points Command (Actions Menu)*, page 22

Starting Points Ribbon Bar

Specifies properties of symbol starting points.

Placement order - Allows you to determine the order in which sub-symbols, such as racks, are added to the main symbol, for example, a cabinet. Options available are:

- **Left to Right** - for placement in rows starting from the left.
- **Right to Left** - for placement in rows starting from the right.
- **Top to Bottom** - for placement in columns starting from the top.
- **Bottom to Top** - for placement in columns starting from the bottom.

Symbol displacement - Allows you to specify the displacement between consecutive sub-symbols as they are added to the main symbol. The displacement value corresponds to width or height, according to the selected placement order.

Symbols per row / column - Allows you to specify the maximum number of symbols that the software can add to each row or column.

Row / Column number - Displays the sequence number of the current row or column. This property is read-only and the value is incremented by one every time you add a new starting point.

Finish - Commits the addition of all created starting points to the symbol.

Related Topics

- *Add Starting Points to a Symbol File*, page 12
- *Place Starting Points Command (Actions Menu)*, page 22

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