Honeywell

Experion

Parameter Definition Editor

Reference

EP-DCX384
R300
03/06

Notices and Trademarks

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About This Document

This document describes the functional and operational aspects of the Parameter Definition Editor. The document describes the functionality of the Parameter Definition Editor with respect to the creation/editing of the parameters and Configuration Forms for Field bus block types, Custom Data Block types, Custom Algorithm Block types, and Phase Block types.

Release Information

Document Name	Document ID	Release Number	Publication Date
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References

The following list identifies all documents that may be sources of reference for material discussed in this publication.

Document Title	Document ID
Parameter Definition Editor Detailed Functional Specification	

Contacts

World Wide Web

The following Honeywell web sites may be of interest to Industry Solution customers.

Honeywell Organization	WWW Address (URL)
Corporate	*http://www.honeywell.com*
Industry Solutions	*http://www.acs.honeywell.com*
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Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

Symbol	Definition
	**ATTENTION:** Identifies information that requires special consideration.
	**TIP:** Identifies advice or hints for the user, often in terms of performing a task.

Contents

Conventions and Terms

Conventions

The following table summarizes the terms and type representation conventions used in this Guide.

Term/Type Representation	Meaning	Example
Click	Click left mouse button once. (Assumes cursor is positioned on object or selection.)	Click the Browse button.
Double-click	Click left mouse button twice in quick succession. (Assumes cursor is positioned on object or selection.)	Double click the Station icon.
Drag	Press and hold left mouse button while dragging cursor to new screen location and then release the button. (Assumes cursor is positioned on object or selection to be moved.)	Drag the PID function block onto the Control Drawing.
Right-click	Click right mouse button once. (Assumes cursor is positioned on object or selection.)	Right-click the AND function block.
<F1>	Keys to be pressed are shown in angle brackets.	Press <F1> to view the online Help.
<Ctrl>+<C>	Keys to be pressed together are shown with a plus sign.	Press <Ctrl>+<C> to close the window.
File->New	Shows menu selection as menu name followed by menu selection	Click File->New to start new drawing.
>D:\setup.exe<	Data to be keyed in at prompt or in an entry field.	Key in this path location >D:\setup.exe<.

Terms

Following are terms used in this document.

- ACE Advanced Control Environment
- CAB Custom Algorithm Block
- CDB Custom Data Block
- CDP Custom Data Parameter
- EHI Error Handling Infrastructure
- ERDB Engineering Repository Database
- FF Foundation Field bus
- FP Formula Parameter
- MDI Multiple Document Interface
- PBT Phase Block Type
- PDE Parameter Definition Editor
- RCM Recipe Control Module.
- RP Report Parameter
- SCM Sequential Control Module

Introduction

Overview

The Parameter Definition Editor (PDE) is a user interface to create and edit the block types using a grid interface that is similar to the Microsoft Excel grid. The PDE grid is configurable and can be customized specific to the block type being edited. The PDE provides user interfaces to edit the

- Parameters attributes
- Symbol attributes
- Form layout

All of the values above, Parameter attributes, Symbol attributes, and Form layout, are grouped into sections and shown in the PDE as separate grids.

The PDE provides the following functionality:

- Validating data type and range
- Combo boxes to pick enumeration
- Advanced grid to edit the bit string values
- Advanced grid to edit arrayed parameters
- Automatic form layout generation
- Basic business rules to be applied in editing block types.
- Manage views

There are cases in which all of the parameter attributes need not be shown in the parameter grid. To switch the parameter attributes on and off in the grid, the PDE provides a Manage View feature. The view is a set of parameter attributes that are selected for showing in the parameter grid. Views can be defined specific to the user or specific to the block type. In the case of views specific to the block type (CAB/CDB types), the view information will be carried along with the block type definition. In the case of views specific to the user (Fieldbus block types), the views will be available only to the user who has defined the view and only on the system where the views were created.

The PDE is launched within Control Builder as an MDI child window to edit Foundation Field bus block types and Custom Data Block types. The PDE is also launched within the

Visual Studio .NET IDE to edit the Custom Algorithm Block types. Both Control Builder and Visual Studio .NET will configure the PDE environment based on their requirement of editing block types. For example, the PDE will show the following:

- Standard and Vendor parameters for Foundation field bus types.
- Fixed, Custom, and Parameter References parameters for CAB types.
- Custom parameters for CDB types.
- Formula and Report parameters for Phase Block types.

See the *Custom Algorithm Block User's Guide* for more information on CAB/CDB usage.

Reviewing Container Types in PDE

Overview

There are three different container types supported by the Parameter Definition Editor within Control Builder: They are:

- Fieldbus (FF)
- Custom Data Block (CDB)
- Custom Algorithm Block (CAB)
- Phase Block

General considerations

Fieldbus

The Fieldbus container of the PDE provides options to:

- edit the Standard and Vendor parameter attributes,
- define Form Layout, and
- list all the Fieldbus Methods that are available in the block type.

See Overview under Reviewing Fieldbus Block Type for more details.

Custom Algorithm Block (CAB)

The Custom Algorithm Block container of the PDE provides options to:

- edit the Fixed, Custom (Value CDPs), and Parameter References parameter attributes,
- define Form Layout, and
- define symbol attributes of the CAB block type.

See Overview under Reviewing Custom Algorithm Block for more details

Custom Data Block (CDB)

The Custom Data Block container of the PDE provides options to:

- create/edit the Custom Parameter (Value CDPs) attributes,
- define Form Layout and
- define Symbol Attributes of the block type.

See Overview under Reviewing Custom Data Block for more details

Phase Block

The Phase Block container of the PDE provides options to:

- create/edit the Formula Parameters attributes,
- create/edit the Report Parameters attributes

See Overview under Reviewing Phase Block for more details

Reviewing Fieldbus Block Type

Overview

The Fieldbus container of the PDE provides options to:

- edit the Standard and Vendor parameter attributes,
- define Form Layout, and
- list all the Fieldbus Methods that are available in the block type.

When a new block type is edited/created, a new MDI child window is created within Control Builder, containing the PDE user interface.

Considerations

- The parameter tab of the PDE container is configured to edit only the Standard and Vendor parameter attributes.
- When a new FieldBus block type is edited/created, a new MDI child window will be created within Control Builder.
- The PDE shows the following tabs to edit the FieldBus block type definition.
  - Standard Parameters tab
  - Vendor tab
  - Form Layout tab
  - Methods tab

General editing functions

Use the following links under Parameter Definition Editor Basics to access the Parameter Definition Editor's general editing functions:

- Considerations
- Inserting, deleting, or appending rows
- Using Copy and paste functions
- Saving block definitions
- Reviewing general block type functions

Reviewing Standard Parameters tab

See the following to access more information about,

- Overview under Accessing Standard Parameter Tab
- Considerations under Accessing Standard Parameter Tab
- Standard parameter tab attributes under Accessing Standard Parameter Tab

Reviewing Vendor tab

See the following to access more information about,

- Overview under Accessing Vendor Tab
- Vendor tab considerations under Accessing Vendor Tab
- Vendor tab attributes under Accessing Vendor Tab

Reviewing Form Layout tab

See the following to access more information about,

- Overview under Accessing Form Layout Tab
- General considerations under Accessing Form Layout Tab
- Form Layout tab attributes under Accessing Form Layout Tab
- Form Layout tab selections under Accessing Form Layout Tab
- and Automatic form layout under Parameter Definition Editor Basics.

Reviewing Methods tab

See the following to access more information about,

- Overview under Accessing Methods Tab
- Methods tab attributes under Accessing Methods Tab

Reviewing Custom Data Block

Overview

The Custom Data Block container of the PDE provides options to:

- create/edit the Custom Parameter (Value CDPs) attributes,
- define Form Layout and
- define Symbol Attributes of the block type.

ATTENTION

When a new block type is edited/created, a new MDI child window is created within Control Builder, containing the PDE user interface.

Considerations

The PDE container is configured to edit only the Fixed and Custom parameter attributes.

The “Value CDPs” parameter tab will allow you to create/delete/modify custom parameters.

The defined custom parameters are assigned a pin value in the “Symbol Attributes” tab.

The PDE shows the following tabs to edit the CDB block type definition.

- Value CDP (Custom Data Parameter) tab
- Form Layout tab
- Symbol Attribute tab

General editing functions

Use the following links under Parameter Definition Editor Basics to access the Parameter Definition Editor's general editing functions:

- Considerations
- Inserting, deleting, or appending rows
- Using copy and paste functions
- Saving block definitions
- Save As block definition
- Reviewing general block type functions

Reviewing Custom Parameters tab (Value CDPs)

See the following to access more information about,

- Overview under Accessing Custom Data Parameters tab
- Considerations under Accessing Custom Data Parameters tab

and

  - Reviewing min/max values of data types,
  - Reviewing valid parameter values and
  - Reviewing and Editing parameter attributes

under Accessing Custom Data Parameters tab.

Reviewing Form Layout tab

See the following to access more information about,

- Overview under Accessing Form Layout Tab
- General considerations under Accessing Form Layout Tab
- Form Layout tab attributes under Accessing Form Layout Tab
- Form Layout tab selections under Accessing Form Layout Tab.
- and Automatic form layout under Parameter Definition Editor Basics.

Reviewing Symbol Attributes tab

See the following to access more information about,

- Overview under Accessing Symbol Attributes Tab
- Considerations under Accessing Symbol Attributes Tab
- Symbol Attributes tab attributes under Accessing Symbol Attributes Tab
- Configuring Pins under Accessing the Symbol Attributes Tab.

Reviewing Custom Algorithm Block

Overview

The Custom Algorithm Block container of the PDE provides options to:

- edit the Fixed, Custom (Value CDPs), and Parameter References parameter attributes,
- define Form Layout, and
- define symbol attributes of the CAB block type.

ATTENTION

The container for CAB is the Visual Studio .NET IDE editing environment. An instance of PDE will be created within the Visual Studio .NET IDE..

Considerations

CAB uses the Visual Studio .NET Integrated Development Environment. (IDE)

An instance of PDE will be created within the Visual Studio.NET IDE, and the following tabs are available to edit the block type definition:

- Fixed parameters tab
- Value CDP (Custom Data Parameter) tab
- Parameter References tab
- Form Layout tab
- Symbol Attribute tab

Only the default value of the fixed parameters can be edited in the “Fixed” parameters tab.

The “Value CDPs” parameter tab and “Parameter references” tab will allow you to create/delete/modify custom and parameter reference parameters.

User-defined custom parameters can be assigned a pin value in the “Symbol attributes” tab.

The parameter will also be shown on the faceplate of the block.

General editing functions

Use the following links under Parameter Definition Editor Basics to access the Parameter Definition Editor's general editing functions:

- Considerations
- Inserting, deleting, or appending rows
- Using copy and paste functions
- Saving block definitions
- Save As block definition
- Reviewing general block type functions

Reviewing Fixed Parameters tab

See the following to access more information about,

- Overview under Accessing fixed parameter tab
- Considerations under Accessing fixed parameter tab
- Fixed parameters tab attributes under Accessing fixed parameter tab

Reviewing Custom Parameters tab (Value CDPs)

See the following to access more information about,

- Overview under Accessing Custom Data Parameters tab
- Considerations under Accessing Customer Data Parameters tab
- Custom parameter tab attributes under Accessing Customer Data Parameters tab

and

  - Reviewing min/max values of data types,
  - Reviewing valid parameter values, and
  - Reviewing and Editing parameter attributes

under Accessing Custom Data Parameters tab.

Reviewing Parameter References tab

See the following to access more information about,

- Overview under Accessing Parameter References tab.
- Considerations under Accessing Parameter References tab.
- Parameter References tab attributes under Accessing Parameter References tab.
- Reviewing attribute default values
- Reviewing valid parameter values under Accessing Parameter References tab

Reviewing Form Layout tab

See the following to access more information about,

- Overview under Accessing Form Layout Tab.
- Form Layout tab attributes under Accessing Form Layout Tab.
- Form Layout tab selections under Accessing Form Layout Tab.
- and Automatic form layout under Parameter Definition Editor Basics.

Reviewing Symbol Attributes tab

See the following to access more information about,

- Overview under Accessing Symbol Attributes Tab
- Considerations under Accessing Symbol Attributes Tab
- Symbol Attributes tab attributes under Accessing Symbol Attributes Tab
- Configuring Pins under Accessing the Symbol Attributes Tab.

Reviewing Phase Block

Overview

The Phase function block is a type block for use only in a Recipe Control Module (RCM).

The Phase function block is used to initiate and monitor execution of the associated Equipment Module (SCM). The Phase function block can also be used to acquire the Equipment Module, such as SCM, for another Phase block.

The Phase Block container of the PDE provides options to:

- edit the Formula Parameter definitions and
- edit the Report Parameter definitions.

A Recipe Control Module contains Phases, Steps, Transitions and Synchronized blocks. A phase is based on Phase Block Type created with the PDE.

The input values for the Phase Block type are defined as Formula Parameters. The output values for the Phase Block type are defined as Report Parameters.

The Enabled flag defines if a parameter is used in a phase.

ATTENTION

When a new block type is edited/created, a new MDI child window is created within Control Builder, containing the PDE user interface.

Considerations

Phase Block does not support custom algorithms.

TIP

Optionally, a Phase Block can be connected to an Equipment Module, such as an SCM, where the input values (Formula parameters) are used and output values (Report parameters) are generated.

An instance of PDE will be created within Control Builder, and the following tabs are available to edit the block type definition:

- Formula parameters tab, see Accessing the Formula Parameters tab
- Report References tab, see Accessing the Report Parameters tab

General editing functions

Use the following links under Parameter Definition Editor Basics to access the Parameter Definition Editor's general editing functions:

- Considerations
- Inserting, deleting, or appending rows
- Using copy and paste functions
- Saving block definitions
- Save As block definition
- Reviewing general block type functions

Reviewing Tab Types

Overview

The table below lists the block types supported by the Parameter Definition Editor. Each block type configuration form has multiple tabs to properly configure the block. The tabs associated with each block type are also listed in the table.

Tab Name	Fieldbus	Custom Data Block	Custom Algorithm Block	Phase Block
Standard	Yes	-	-	-
Vendor	Yes	-	-	-
Methods	Yes	-	-	-
Form Layout	Yes	Yes	Yes	-
Fixed (Parameter)	-	-	Yes	-
Value CDP (Custom Parameter)	-	Yes	Yes	-
Symbol Attribute	-	Yes	Yes	-
Parameter References	-	-	Yes	-
Formula Parameters	-	-	-	Yes
Report Parameters	-	-	-	Yes

Basic tab information

The following table lists the location of information about the different tab types.

If You Want . . .	Then see . . .
Information about general editing functions	Reviewing general editing functions under Parameter Definition Editor Basics.
Information about the Standard tab	Accessing the Standard Parameters tab under Reviewing Tab Types.
Information about the Vendor tab	Accessing the Vendor Parameters tab

If You Want . . .	Then see . . .
	under Reviewing Tab Types.
Information about the Form Layout tab	Accessing the Form Layout tab under Reviewing Tab Types.
Information about the Methods tab	Accessing the Methods tab under Reviewing Tab Types.
Information about the Value CDPs tab	Accessing Custom Parameters tab (Value CDPs) under Reviewing Tab Types.
Information about the Fixed Parameters tab	Accessing the fixed parameters tab (Fixed) under Reviewing Tab Types.
Information about the Parameters References tab	Accessing the Parameter References tab under Reviewing Tab Types.
Information about the Symbol Attributes tab	Accessing the Symbol Attributes tab under Reviewing Tab Types.
Information about the Formula Parameters tab	Accessing the Formula Parameters tab under Reviewing Tab Types.
Information about the Report Parameters tab	Accessing the Report Parameters tab under Reviewing Tab Types.

Accessing the Standard Parameters tab

Overview

The standard parameters tab is located on the following block type:

- Fieldbus

The Standard Parameters tab lists all the standard parameters for the selected FieldBus device block type. The Standard tab parameters are listed in a spreadsheet format for editing. See the considerations below for limitations on parameter editing.

Considerations

- The following parameter attributes are read only;
  - Parameter Name
  - Parameter Index
  - First Dimension Array Size

  - Data Type
  - Size

- You cannot add a new parameter to or delete an existing parameter from this tab.
- The Minimum value and Minimum value reference parameter attributes are mutually exclusive.
- The Maximum value and Maximum value reference parameter attributes are mutually exclusive.
- The Unit and Unit reference parameter attributes are mutually exclusive.
- You can only edit Minimum and Maximum values and references if their data type is integer or float. Otherwise, these attributes will be read only.
- You can only edit a Default value if it does not have an Access Lock attribute of View Only and a data type of STRUCT.
- The default value is validated for the limits of the minimum and maximum values.
- You cannot edit the permission attribute for members that belong to the STRUCT data type parameters and the MODE parameter.
- You can use the Configure PDE Views function to turn parameter attributes view On or Off in the tab.
- The parameter description, parameter helps string and default value attributes are the only case sensitive attributes.
- Columns can be sorted by double-clicking on the column header. The sorting will toggle between ascending and descending order.
- This tab will not be shown if no standard parameter exists in the block type.

Standard parameter tab attributes

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter (read-only).
Parameter Description	The short description of the parameter restricted to 255 characters. This description will be used in the Configure Parameters dialog in Control Builder.

Parameter Index	The index of the parameter (read-only).
First Dimension Array Size	The first dimension of the array, if the parameter is to be arrayed (read-only).
First Dimension Lower bound	The lower bound of the first array dimension (read-only).
Configuration Load	Indicates whether the parameter value is to be loaded or not when the block is loaded to the device.
Access Lock	Defines what kind of users can write to the parameter.
Data Type	The data type of the parameter (read-only).
Default Value	The default value of the parameter.
Minimum Value	The minimum value of the parameter. This attribute is applicable only to the integer and float data types.
Minimum Value Reference	The parameter within the same block type that holds the minimum value for the parameter.
Maximum Value	The maximum value of the parameter. This attribute is applicable only to the integer and float data types.
Maximum Value Reference	The parameter within the same block type that holds the maximum value for the parameter.
Size	The size of the default value of the string data type. This attribute is applicable for the string, struct, and bit string data types (read-only).
Permission	Permission for the field bus parameter
Unit	The unit for the parameter
Unit Reference	The parameter within the same block type that holds the value of unit for the parameter

Accessing the Vendor Parameters tab

Overview

The Vendor Parameters tab is located on the following block type:

Fieldbus

The vendor tab lists all the manufacturer specific parameters for the selected FieldBus device block type. The functionality of this tab is identical to the Standard Parameters tab.

Vendor tab attributes

The Vendor tab attributes are the same as the Standard tab attributes. See Standard parameter tab attributes under Accessing the Standard Parameters tab for a list of the parameter attributes.

Vendor tab considerations

The considerations that you should be aware of while editing the Vendor tab are the same as those for the Standard tab. Refer to Considerations under Accessing the Standard Parameters tab.

Accessing the Form Layout tab

Overview

The Form Layout tab is located on the following block types:

Fieldbus

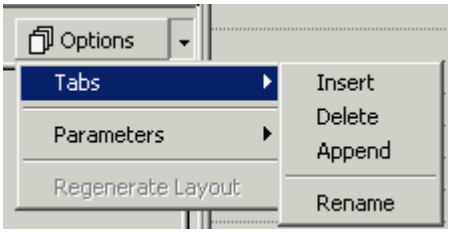
Custom Data Block

Custom Algorithm Block

The Form Layout tab lets you define the layout of the parameters that appear on the Configuration Form for an instance of the associated block in the Project tab of Control Builder.

General considerations

- The initial form layout is defined by the organization of the parameters in the block type residing in the Library tab of Control Builder.
- You can insert, delete and rename tabs in the Form Layout tab.
- Tabs can be re-arranged using drag and drop.
- You can add and delete parameters from the tabs in the Form Layout tab.
- The Main, Alarms, and Source tabs (CAB) and the Alarm tab (Fieldbus) are read only and cannot be edited. This means you cannot rename the tabs nor insert a tab before or in between them.
- You can only use a parameter once across all the tabs defined in the Form Layout tab.
- A shaded cell is not available for edit.
- Parameters can be defined under grid using the grid functionality CAB and CDB).
- A drop-down menu can also be invoked using the right click on the tab. In this case the selected option will be applied to the tab on which the right click was done.



Fieldbus Form layout considerations

- Only parameters from the Standard and Vendor tabs can be added to the Form Layout tab. Custom tabs can also be added to the Form Layout tab.
- The MODE AXVALUEONLY parameter group cannot be deleted from the form layout and hence it will be shown in gray background.

CDB form layout considerations

- The “Value CDPs” tab on the Form Layout is the tab where all the Custom parameters defined in the “Value CDPs” main tab are shown.
- The order of the parameters in the “Value CDPs” tab on the form layout will be the same order as defined in the “Value CDPs” main tab. This layout is automatically generated when the new CDP is defined/deleted in the “Value CDPs” main tab. This is known as Automatic Form layout generation.
- Any change in the order of the definition of the CDPs in the “Value CDPs” main tab will be reflected in the Value CDPs tab on the Form Layout.

CAB form layout considerations

- The “Value CDPs” is the tab where all the Custom parameters defined in the “Value CDPs” main tab will be shown.
- The order of the parameters in the “Value CDPs” tab on the form layout will be the same order as defined in the “Value CDPs” main tab. This layout is automatically generated when the new CDP is defined/deleted in the “Value CDPs” main tab. This is known as Automatic Form layout generation.
- Any change in the order of the definition of the CDPs in the “Value CDPs” main tab will be reflected in the Value CDPs tab on the Form Layout.
- The “Parameter References” tab is the tab where all the parameter references defined in the “Parameter References” main tab will be shown.
- The order of the parameters in the “Parameter References” tab on the Form Layout will be the same order as defined in the “Parameter References” main tab. This layout is automatically generated when the new parameter reference is defined/deleted in the “Parameter References” main tab. This is Automatic Form layout generation.
- Any change in the order of the definition of the Parameter References in the “Parameter References” main tab will be reflected in the “Parameter References” tab on the Form Layout.
- Rows can be inserted using INS key and can be deleted using DEL key. Alternatively Right click menu is also available for inserting and deleting the row.

CAB/CDB blocks

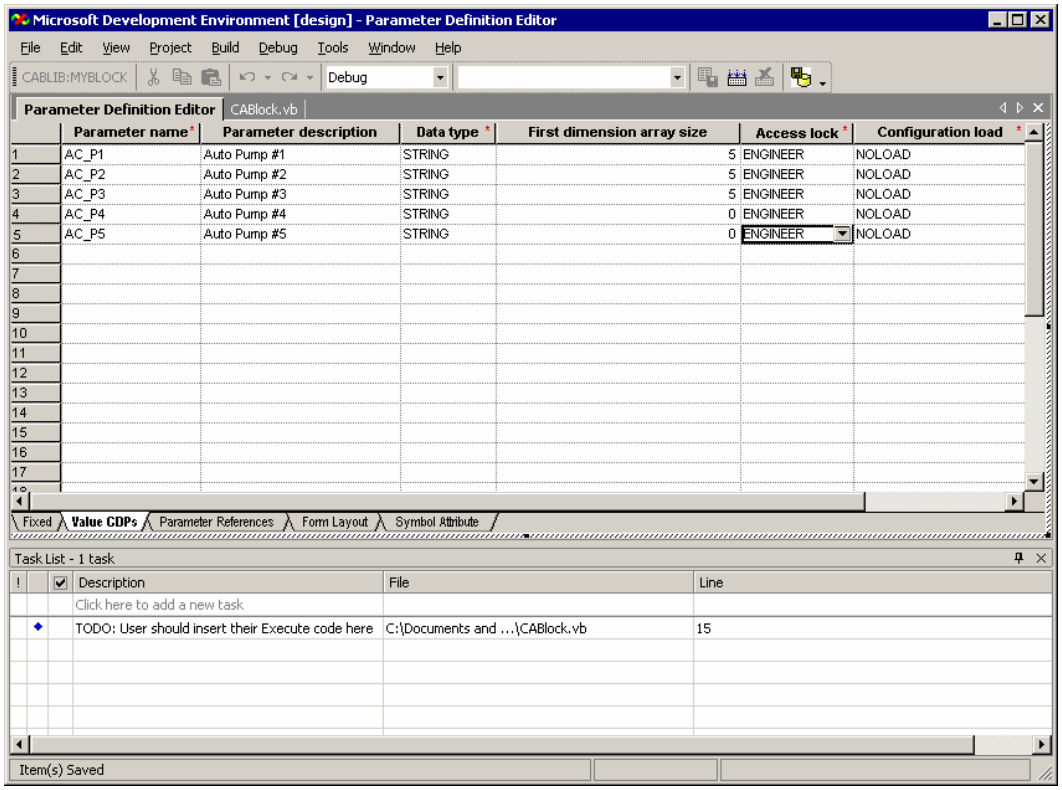
The layout and content of the Value CDP and Parameter References tab can be modified. Custom tabs can also be added with their own content and layout.

In the next figure, custom parameters were added to the Value CDPs tab.

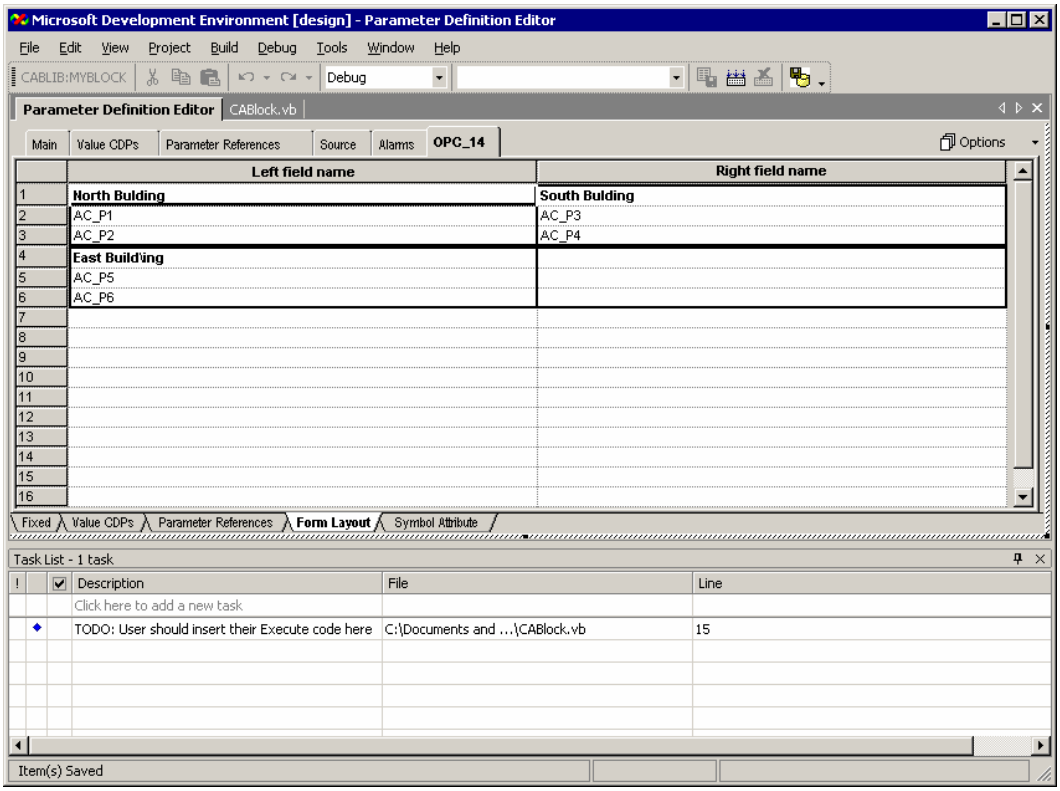
ATTENTION

Although these parameters are automatically placed on the Value CDPs Form tab and they could be left on that form, they have all been moved to a custom tab. All of these values will be used later on that custom tab of the Form Layout.

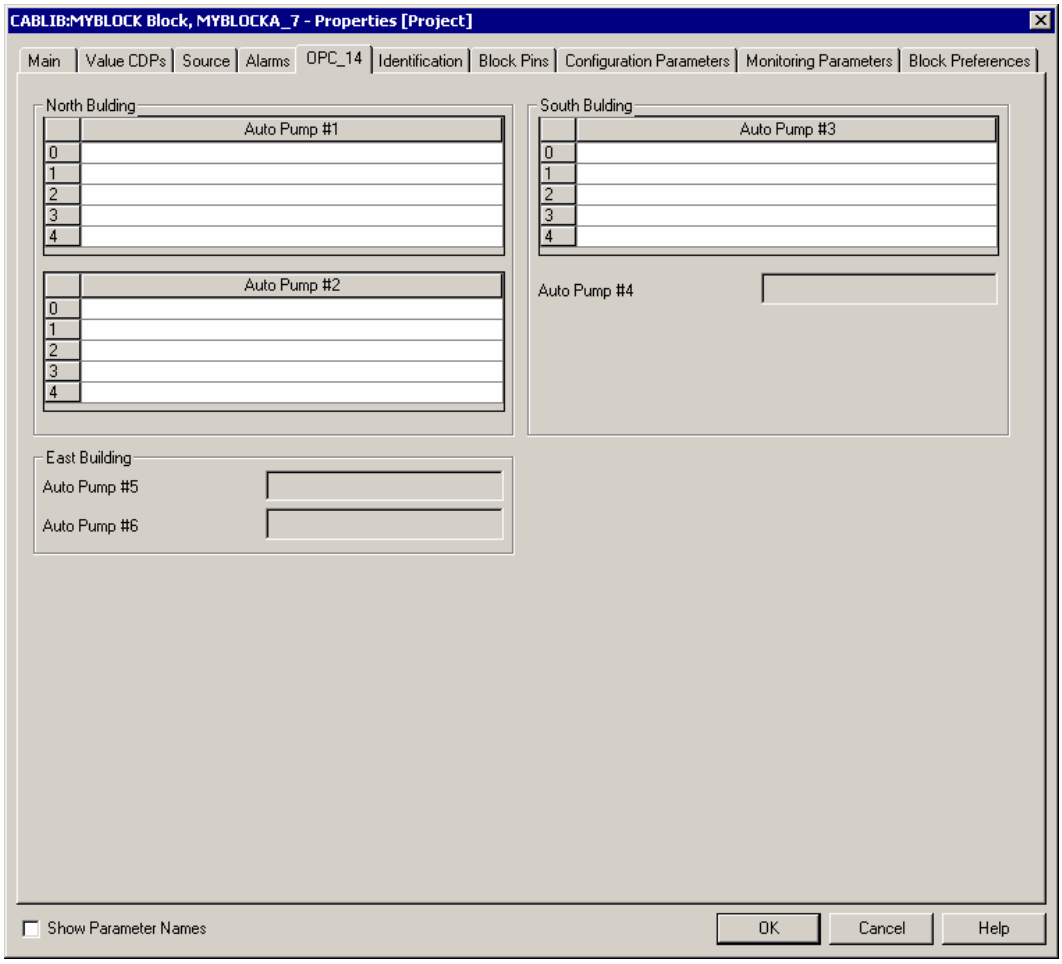
Value CDPs Tab with Custom Parameters Added



New Tab (OPC_14) Created with Value CDPs Parameters Added to This Tab



Properties Form Showing Custom Tab



TIP

AC_P1, AC_P2, and AC_P3 have been configured as 5 position arrays.

Form Layout tab attributes

The following table lists the parameter attributes that can be shown on this tab.

Layout Attribute	Description
Left field name	Define parameters you want to be included on the left-hand side of the Configuration Form associated with the block in the Project tab of Control Builder.
Right Field name	Define parameters you want to be included on the right-hand side of the Configuration Form associated with the block in the Project tab of Control Builder.

Form Layout tab selections

The Form layout tab has several standard second level tabs that can be accessed from the top of the Form Layout. These second level tabs are described in the next table.

Tab Name	Used with Block Type	Purpose
Process	Fieldbus	These are the parameters of most interest to the user observing the operation of the block. They include the mode (actual, and target, if different), and may include various setpoint values and statuses, input values and statuses, output values and statuses, readback values and statuses, etc. For control-related blocks this tab includes back-calculation input and outputs and statuses, feed-forward input and status, tracking inputs and statuses, and remote output inputs and outputs and statuses. Statuses are shown by exception (blank if normal).

Alarm	Fieldbus	These are the FF standard alarm parameters presented in a matrix form. The rows are the applicable alarm conditions. The columns show alarm state, priority, limit, disable, time of last change of state, etc. This tab is Read Only.
Alarm2	Fieldbus	This tab presents manufacturer-specific parameters, if any that apply to alarming. The tab will not appear if there are no applicable parameters.
Maintenance	Fieldbus	These are the parameters associated with maintenance of the physical device. BLOCK_ERR and XD_ERROR indications as well as bypass, calibration records, and simulation controls appear here.
Ranges	Fieldbus	Range limits and engineering units appear on this tab. Limits, including setpoint limits and output limits appear here.
Tune	Fieldbus	Control, status, input/output options, tuning constants, fault-state and shed options appear on this tab.
Other, Other2	Fieldbus	Miscellaneous and manufacturer-specific parameters that are not otherwise designated to appear on any other tab default to this tab. PDE allows re-assignment of the tab to which manufacturer-specific parameters are assigned. If this tab would have a large number of parameters, additional tabs named OTHER2, OTHER3, etc. are created to limit the amount of scrolling needed. No OTHER tabs appear if there are no applicable parameters.
Main	CAB/CDB	Displays Fixed Definition Parameters that apply for CAB and CDB. This tab is Read Only

Value CDPs	CAB/CDB	This tab contains the Custom Data Parameters defined for CAB and CDB as a default. It can be modified with the PDE Form Layout to include Parameter References or Fixed Definition Parameters that don't appear on the Main tab.
Parameter References	CAB	This tab contains the Parameter References that are defined for CAB as a default. It can be modified with PDE Form Layout to include Parameter References or Fixed Definition Parameters that don't appear on the Main tab.
Source	CAB	Contains the SRCDATA parameter. The SRCDATA parameter allows the user to view the main source file for the selected CAB type. In the case of instances, it allows a user to view the source to see what the CAB program algorithm is without opening the CAB type in Edit or View only mode. In the case of Operators on a station, this gives them access to view the program because they cannot open the CAB type in edit or View only from a Station. This tab is Read Only

Alarms	CAB	The alarms tab provides the engineer with the ability to change the priority and severity of each of the four CAB alarm types for a CAB instance. The possible priorities are, • NONE • JOURNAL • LOW • HIGH • URGENT The severities range from 0 to 15. An alarm will be triggered (when the priority is LOW, MEDIUM, or HIGH) for parameter reference read errors, parameter reference write errors, CAB termination (caused by block overrun or user abort), and CAB exceptions. A NONE priority will not trigger an alarm and a JOURNAL priority will trigger a journal event. This tab is Read Only

Form Layout tab functions

The following are additional functions that can be performed using the Form layout tab. These functions can be found under Parameter Definition Editor Basics.

- Reviewing the group box
- Reviewing the grid
- Inserting, deleting, renaming, and appending tabs

Accessing the Methods tab

Overview

The Methods tab is located on the following block type:

Fieldbus

From the Methods tab, you can view the entire vendor embedded methods associated with the selected FieldBus device block in a read-only Name and Description format.

TIP

This tab will not be shown if the block type does not have any methods.

Methods tab attributes

The following table lists the parameter attributes that can be shown on this tab.

Layout Attribute	Description
Method name	Lists the entire vendor embedded methods for a given device.
Method description	Description of listed method.

Accessing the fixed parameters tab (Fixed)

Overview

The fixed parameters tab is located on the following block types:

Custom Algorithm Block

The fixed parameters tab lists all the fixed parameters of the block type. This tab is used to edit the default value of the parameters. All other parameter attributes are read-only.

Considerations

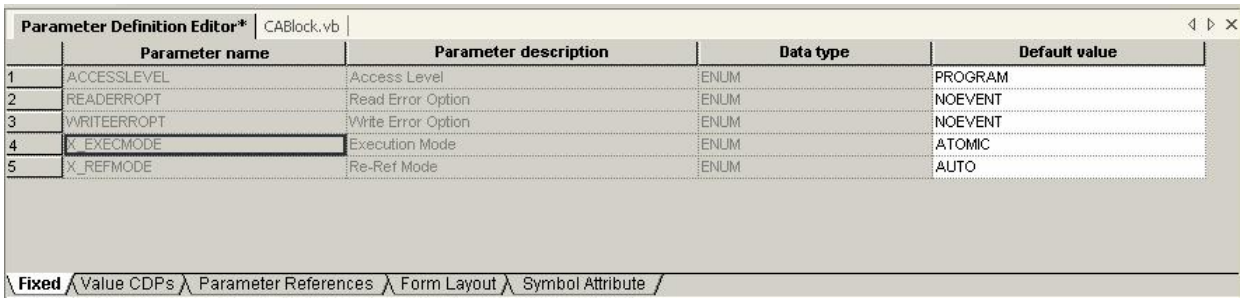
- All the fixed parameters will be shown in the tab.
- Only the default value attribute is editable
- Editing of default value is based on the data type of the parameter attribute
- New parameters cannot be added in this tab
- Existing parameters cannot be deleted from this tab
- All predefined fixed parameters will start with the characters X_

ATTENTION

If a new fixed parameter is created, do not start the name of this new parameter with the characters X_. X_ fixed parameters are predefined parameters.

This will prevent parameter name duplication of block parameters that have already been predefined by Honeywell.

Predefined fixed parameters



Fixed parameters tab attributes

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter
Parameter Description	The short description of the parameter
Data Type	The data type of the parameter
Default Value	The default value of the parameter. Only this attribute is editable.

Accessing Custom Parameters tab (Value CDPs)

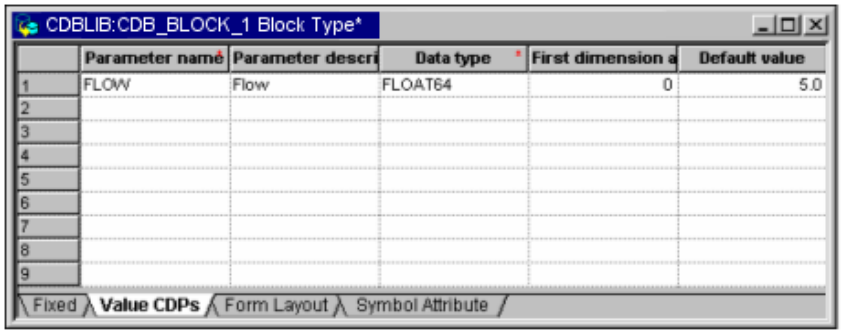
Overview

The custom parameter tab (identified with the tab label, Value CDPs) is located on the following block types:

Custom Data Block, and

Custom Algorithm Block

The “Value CDPs” tab is used to define the custom parameters. New custom parameters can be added and deleted from this tab. Designated parameter attributes can be edited.



Considerations

- All the Custom parameters are shown in the tab
- New parameters can be added
- Existing parameters can be deleted subject to the rules defined in the section Reviewing and Editing parameter attributes under Accessing custom parameters tab (Value CDPs).
- Editing of the default value is based on the data type of the parameters subject to the rules defined in the section Reviewing and Editing parameter attributes under Accessing custom parameters tab (Value CDPs).
- Access lock, Configuration load, and Data type can be selected using the combo box.
- Manage View is supported in this tab to switch ON/OFF the parameter attributes that are to be shown in the tab.
- The parameters defined in this tab are used to generate an automatic form layout in the 2nd tab (Value CDPs) of the form layout.
- The parameter description, parameter help string, and default value attributes are the only case sensitive attributes.
- Cut/Copy/Paste Parameters feature is available in this tab.

ATTENTION

If a new custom parameter is created, do not start the name of this new parameter with the characters X_. X_ custom parameters are predefined parameters.

Custom parameter tab attributes

- The Value CDPs tab lists the parameter attributes shown below. Some parameter attributes are exposed by default. The other parameter attributes can be made visible/invisible on the tab using Launching Configure PDE views dialog under Reviewing PDE views.

Parameter Attribute	Description	Exposed by Default
Parameter Name	The name of the parameter	Yes
Parameter Description	The short description of the parameter restricted to 255 characters. This description will be used in the Configure Parameters dialog in CB.	Yes
First Dimension Array Size	The first dimension of the array if the parameter is to be arrayed	Yes
Second Dimension Array Size	The second dimension of the arrayed parameter	No
First Dimension Lower bound	The lower bound of the first array dimension	No
Second Dimension Lower bound	The lower bound of the second array dimension	No
Configuration Load	The attribute indicating whether the parameter value is to be loaded to ACE	Yes
Access Lock	Attribute describing what kind of users can write to the parameter	Yes
Data Type	The data type of the parameter	Yes
Default Value	The default value of the parameter	Yes
Minimum Value	The minimum value of the parameter. This attribute is applicable only to the integer and float data types	No

Maximum Value	The maximum value of the parameter. This attribute is applicable only to the integer and float data types	No
Size	The size of the default value of the string data type. This attribute is applicable only to the string data type.	No
Parameter Help String	The long description of the parameter that will be used in the Knowledge Builder to show the help on the parameter.	No

Reviewing min/max values of data types

The minimum and maximum values of the different data types are listed below.

Data type	Minimum Value	Maximum Value
INT32	–2147483648	2147483647
FLOAT64	2.2250738585072014e-308	1.7976931348623158e+308
STRING	---	255 Characters

Reviewing valid parameter values

The list of valid values for the parameter attribute is listed below.

Parameter Attribute	Valid values
Parameter Name	The first character of the parameter name should be an alpha character. Only "_" character is allowed in the parameter name other than alphanumeric characters The maximum length of the parameter name is 12 characters The parameter name will always be converted to upper case letters.
Parameter Description	Any character with maximum length of 255
First Dimension Array Size	>= 0 and <= 10,000 0 – means parameter is not arrayed NOTE: The product of the First Dimension and the Second Dimension can not exceed 10,000. Therefore, if the First Dimension Array Size = 5000, then the maximum value for the Second Dimension Array Size would be 2 , ie (2 X 5000 = 10,000).
Second Dimension Array Size	>= 0 and <= 10,000 0 – means second dimension is not specified The First Dimension Array Size should be specified to enter the second dimension array size. NOTE: The product of the First Dimension and the Second Dimension can not exceed 10,000. Therefore, if the First Dimension Array Size = 5000, then the maximum value for the Second Dimension Array Size would be 2 , ie (2 X 5000 = 10,000).
First Dimension Lower bound	Positive/Negative INT16 value First dimension array size should be specified to enter this attribute
Second Dimension Lower bound	Positive/Negative INT16 value

	Second dimension array size should be specified to enter this attribute
Configuration Load	LOAD – Load the parameter NOLOAD – Do not load the parameter
Access Lock	APPDEVONLY ENGINEER OPERATOR PROGRAM SUPERVISOR
Data Type	BOOLEAN DELTATIME FLOAT64 INT32 STRING TIME TIMEOFDAY
Default Value	Specific to data type attribute
Minimum Value	Specific to data type attribute
Maximum Value	Specific to data type attribute
Size	>= 0
Parameter Help String	No limit

Reviewing and Editing parameter attributes

Default

ATTENTION

The Default Value attribute cannot be edited if the Configuration Load attribute is “NOLOAD” and the default value will be reset to nothing.

Setting the “Access Lock” attribute to “ViewOnly” sets the “Configuration Load” to “NOLOAD”. This makes the “Default Value” attribute read-only. The default value resets to nothing.

The attribute default values of the parameters are listed in the table below.

Parameter Attribute	Attribute Default Value
Configuration load	NO LOAD
First dimension array size	0
Second dimension array size	0
First dimension array lower bound	0
Second dimension array lower bound	0
Default Size for the string data type	32

Custom parameter restrictions

Changing some of the attributes of a custom parameter will not allow saving the block with the same name if instances of the block with custom parameters exists. Below is the list of such scenarios.

- Changing the Data Type of the custom parameter
- Deleting the custom parameter from the block
- Renaming any custom parameter of the block
- Changing a CDP from a scalar to an array or vice versa.

When such scenarios occur then the Save As block definition function will be invoked.

Using cut/copy/paste for custom parameters

The custom parameters tab will not show all the attributes of the parameters. There are some attributes, which are internally managed. When using the Manage views feature, the attributes can also be hidden. In such scenarios the need arises to copy the whole parameter definition irrespective of whether attribute is internally managed or hidden through views. The cut/copy/paste parameters features will allow copying the whole parameter definition and pasting the definition as a new parameter. This feature will also work across the PDE, meaning in one instance of the PDE the parameters can be copied and pasted in another instance of the PDE.

If you want to …..	Then see…..
copy parameters	Copy Parameters under Reviewing general parameter functions.
paste parameters	Paste Parameters under Reviewing general parameter functions.
cut parameters	Cut Parameters under Reviewing general parameter functions.

Accessing the Symbol Attributes tab

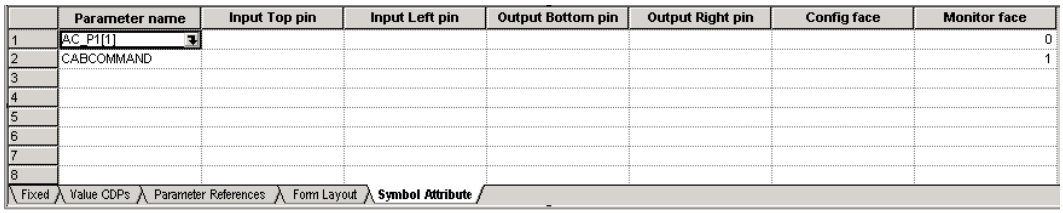
Overview

The symbol attributes tab is located on the following block types:

Custom Data Block, and

Custom Algorithm Block

The symbol attributes tab is used to associate a pin number with the parameter for a block type. The parameter will also be shown on the faceplate of the block. The parameter, which has a valid pin exposure permission, can be used to assign the block pin. The individual elements of an arrayed parameter can be used to assign a block pin.



The tab lists the pins shown below for which the parameter is assigned.

- Input Top Pin
- Input Left Pin
- Output Bottom Pin
- Output Right Pin
- Config face
- Monitor face

Considerations

- The parameter to be exposed will be defined in the column “Parameter name”.
- Any parameter that has the pin exposure permission set can be configured on the symbol attributes.
- NOLOAD parameter cannot be configured on Configuration faceplate.
- Parameter name can be picked by clicking on the button provided in the right of the Parameter name cell. This will show the dialog listed under Accessing the Symbol Attributes tab.
- For arrayed parameters, individual array indices can be used to define the symbol attribute. The arrayed parameter should be defined with the syntax <parameter name>[[first dimension index], [second dimension]]
- For arrayed parameters, the whole array transfer can be specified on the symbol attribute with the syntax <parameter name>[.<space>]
- A pin number for a parameter can be assigned by keying in the pin number in the provided pin columns
- If a pin is not to be exposed for parameters, the relevant cell in the grid should be left blank.
- The pin values in the column are unique and a positive number starting from 0.
- The top pin and the left pin are mutually exclusive.
- The bottom pin and the right pin are mutually exclusive.
- Copy/Paste of symbol attribute information can be done using the right click menu and accelerator keys Ctrl+C and Ctrl+V respectively.
- Columns can be sorted by double-clicking on the column header, toggling between ascending and descending sort order.

Symbol Attributes tab attributes

The following table lists the parameter attributes that can be shown on this tab.

Parameter Attribute	Description
Parameter Name	The name of the parameter
Input Top Pin	The location to define the top pin for a block.
Input Left Pin	The location to define the left pin for a block.
Output Bottom Pin	The location to define the bottom pin for a block.
Output Right Pin	The location to define the right pin for a block.
Config Face	The location to define the configuration face for a block.
Monitor Face	The location to define the monitor face for a block.

Configuring Pins

ATTENTION

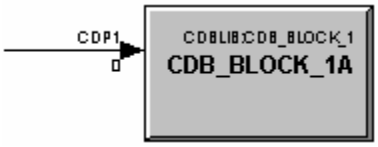
You will have to delete and re-add instances in a Control Module if you make changes in the PDE Symbol Attributes tab if any instances exist on the configuration/monitor side.

To configure a parameter for an input, the pin order should be entered in Input Top pin or the Input Left pin column. The input pins are shown as below in Control Builder.

Parameter configured in PDE as Input Left pin

	Parameter name	Input Top pin	Input Left pin
1	CDP1		0

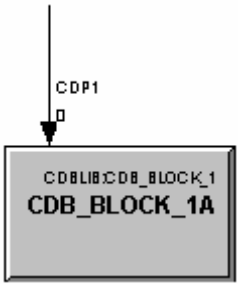
Parameter configured as Input Left pin shown in Control Builder



Parameter configured in PDE as Input Top pin

	Parameter name	Input Top pin
1	CDP1	0

Parameter configured as Input Top pin shown in Control Builder

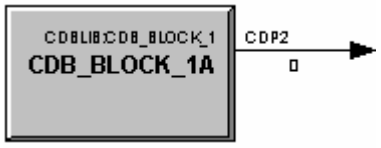


To configure the parameter for an output, the pin order should be entered in the Output Bottom pin or the Output Right pin column. The output pins are shown as below in Control Builder.

Parameter configured in PDE as Output Right pin

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin
1	CDP2				0

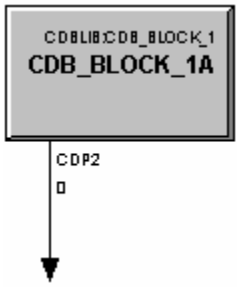
Parameter configured as Output Right pin shown in Control Builder



Parameter configured in PDE as Output Bottom pin

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin
1	CDP2			0

Parameter configured as Output Bottom pin shown in Control Builder



To configure the pin on the configuration faceplate, the pin order should be entered in the Config face column. The parameter value will be shown on the block in configuration side only

Parameter configured in PDE to be shown on Config face

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin	Config face
1	DESC					0

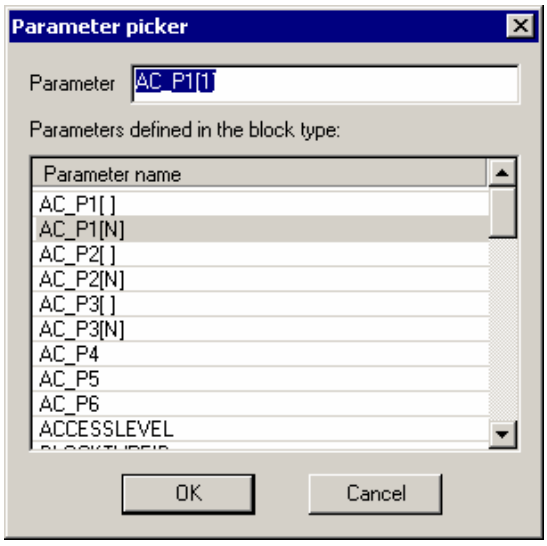
Parameter shown on faceplate in Control Builder

To configure the pin on the monitor faceplate the pin order should be entered in the Monitor face column. The parameter value will be shown on the block in monitor side only.

	Parameter name	Input Top pin	Input Left pin	Output Bottom pin	Output Right pin	Config face	Monitor face
1	CDP1						0

Reviewing parameter picker

The Parameter Picker dialog provides an option to search for a parameter to configure the symbol attribute. The dialog lists all the parameters that have valid pin exposure permissions with an edit box for searching the parameter.



Considerations

- The list of parameters defined in the block that has a valid pin exposure permission set will be listed in the parameters list.
- If the parameter is arrayed then the parameter name will be shown in the following formats
  - <parameter name>[<space>] to pin for whole array transfer.
  - <parameter name>[N] for a single dimension array where N is the dimension of single dimension array to be entered.
  - <parameter name>[N, M] for a 2-dimension array where N is the first dimension of array and M is the second dimension of array.
- Typing the parameter in the parameter edit box will select the nearest matching parameter in the parameter list
- If an individual array element of a parameter is to be pinned, then the arrayed parameter should be selected and the valid index should be specified in the Parameter Name column of the “Symbol Attributes” tab.
- Parameters can be selected by double clicking on the parameter name. The index must be specified for arrayed parameters.

Accessing the Parameter References tab

Overview

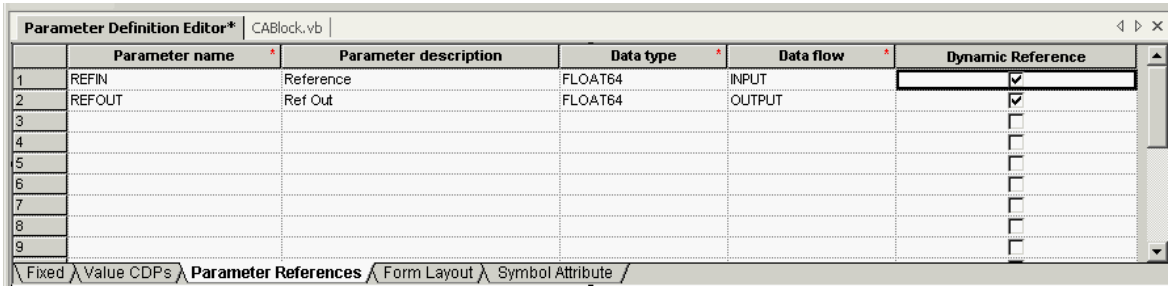
The parameter references tab is located on the following block type:

Custom Algorithm Block

Considerations

The parameter references allow defining the parameter alias. New parameter references can be added defining the data type and the data flow of the parameter.

- All the Parameter references are shown in the tab
- New parameters can be added.
- Existing parameters can be deleted.
- The parameters defined in this tab are used to generate an automatic form layout in the 3rd tab (Parameter References) of the form layout.
- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.



Parameter References tab attributes

The tab will list the parameter attributes shown below.

Parameter Attribute	Description
Parameter Name	The name of the reference parameter.
Parameter Description	The short description of the parameter attribute is restricted to 255 characters. This description will be used in the Configure Parameters dialog in Control Builder.
Reference data type	The data type of the reference parameter.
Data flow	The attribute specifying the reference is being used for input, output or both.
Dynamic Reference	Configurable for either static referencing, or for Dynamic Referencing. Dynamic Referencing allows the user to change the target for the reference “on the fly”, even though the instance is loaded and executing. For more information on Dynamic Referencing, see the *Custom Algorithm Block and Custom Data Block User’s Guide*, Dynamic re-referencing of parameter references.

Reviewing attribute default values

The attribute default values of the parameter attributes for the Parameter Reference Tab are listed in the table below.

Parameter Attribute	Attribute Default Value
Data Flow	INPUT
Dynamic Reference	Cleared

Reviewing valid parameter values

The lists of valid values for the parameter attributes are listed below.

Parameter Attribute	Valid values
Parameter Name	The first character of the parameter name should be alphabetic. Only "_" character is allowed in the parameter name other than alphanumeric characters. The maximum length for the parameter name is 32 characters. The parameter name will be always converted to upper case letters.
Parameter Description	Any character with maximum length of 255.
Data Type	BOOLEAN DELTATIME FLOAT64 INT32 STRING TIME TIMEOFDAY
Data flow	INPUT – Only reading of Data is allowed OUTPUT – Only writing of data is allowed IN/OUT – Data can be either read or write.
Dynamic Reference	Checked or Cleared

Accessing the Formula Parameters tab

Overview

The formula parameters tab is located on the following block type:

Phase Block

Considerations

The Formula Parameter tab contains all the user defined formula parameters for the Phase block.

- All the Formula Parameters are shown in the tab
- New parameters can be added.
- Existing parameters can be deleted.

TIP

If a parameter is deleted, the phase block type can not be saved, rather, a new phase block type must be created.

- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.

TIP

The maximum number of Formula plus Report parameters can not exceed 50.

Formula Parameters tab attributes

The tab will list the parameter attributes shown below.

Parameter Attribute	Description
Parameter Name	Unique among all parameter names of the phase block Can be only modified in the Parameter Definition Editor (PDE).
Parameter description	This text is shown in the phase block form when the parameter values are edited and in the RCM detail displays when the parameter is used for operators. The text can contain localized characters, such as Kanji. Can be only modified in the Parameter Definition Editor (PDE).
Data type	Choices are: BOOLEAN FLOAT64 INT32 STRING Can be only modified in the Parameter Definition Editor (PDE).
Default value	
Minimum value	Specifies the Minimum value Range depends on the selected data type. For floating point numbers, the limit values can be NaN. For integers, the smallest possible number is not available as a limit (it is used as invalid number for integers.) NOTE: The usage of NaN implies that the limit is not used.
Maximum value	Specifies the Maximum value Range depends on the selected data type. For floating point numbers, the limit values can be NaN. NOTE: The usage of NaN implies that the limit is not used.

Use value reference	Checked – use the run-time value retrieved from the source defined in the phase block form. Unchecked – use the default value or the value edited in phase block form or RCM detail display
Enabled	Checked – parameter is used in the phase block instance Unchecked - parameter is not used in the phase block instance and not shown in the RCM detail display
Size	Defines the maximum length of string value. Default = 32
Engineering Units	Text defining the engineering units associated with the parameter
Scalable	Used only for formula parameters Checked – the value is scaled with the ratio between current batch size and the default batch size when the value is downloaded into the target parameter. Unchecked – no scaling is done in the value download operation
Access lock	Used only for formula parameters Based on the AccessLocks enumeration type values: Program, Engineer, Supervisor, Operator, AppDevOnly

Accessing the Report Parameters tab

Overview

The report parameters tab is located on the following block type:

Phase Block

Considerations

Report Parameter tab contains all the user defined report parameters for the Phase block.

- All the Report Parameters are shown in the tab
- New parameters can be added.
- Existing parameters can be deleted.

TIP

If a parameter is deleted, the phase block type can not be saved, rather, a new phase block type must be created.

- The parameter description attribute is the only attribute that is case sensitive.
- Cut/Copy/Paste Parameters feature is available in this tab.
- There is no hard limit on the maximum number of report parameters that can be configured in a Phase Block, although 50 parameters is the recommended maximum.

TIP

The maximum number of Formula plus Report parameters can not exceed 50.

Report Parameters tab attributes

The tab will list the parameter attributes shown below.

Parameter Attribute	Description

Parameter Attribute	Description
Parameter Name	Unique among all parameter names of the phase block Can be only modified in the Parameter Definition Editor (PDE).
Parameter description	This text is shown in the phase block form when the parameter values are edited and in the RCM detail displays when the parameter is used for operators. The text can contain localized characters, such as Kanji. Can be only modified in the Parameter Definition Editor (PDE).
Data type	Choices are: BOOLEAN FLOAT64 INT32 STRING Can be only modified in the Parameter Definition Editor (PDE).
Default value	
Minimum value	Specifies the Minimum value Range depends on the selected data type. For floating point numbers, the limit values can be NaN. For integers, the smallest possible number is not available as a limit (it is used as invalid number for integers.) NOTE: The usage of NaN implies that the limit is not used.
Maximum value	Specifies the Maximum value Range depends on the selected data type. For floating point numbers, the limit values can be NaN. NOTE: The usage of NaN implies that the limit is not used.
Enabled	Checked – parameter is used in the phase block instance Unchecked - parameter is not used in the phase block instance and not shown in the RCM detail display

Parameter Attribute	Description
Size	Defines the maximum length of string value. Default = 32
Engineering Units	Text defining the engineering units associated with the parameter
Trend	Used only for report parameters. Checked – value will be trended Unchecked – value will not be trended

Parameter Definition Editor Basics

Reviewing general editing functions

Considerations

- You are familiar with interacting with Windows programs, such as Microsoft Excel.
- Read only cells are shaded and are unavailable for editing.
- You must have Engineering access level or higher to make edits.

If You Want To . . .	Then . . .
Resize a column	Move cursor over column vertical dividing line so cursor changes shape and click and drag cursor left or right to decrease or increase the column width.
Navigate between cells	You can use many of the keyboard shortcuts that apply for the Microsoft Excel program. For example, press the Tab key to complete a cell entry and select the next cell to the right. Press Shift+Tab to complete a cell entry and select the previous cell to the left. Use Arrow keys to move one cell left, right, up, or down. Press Home key to move to the beginning of the line.
Edit cell contents	You can use many of the keyboard shortcuts that apply for the Microsoft Excel program. For example, press the F2 key to edit the active cell and put the insertion point at the end of the cell. Use BACKSPACE to Edit the active cell and then clear it, or delete the preceding character in the active cell as you edit cell contents. Press ESC to cancel a cell entry. Contents may be in the form of typical Windows style text box, check box, or combo box.

Inserting, deleting, or appending rows

The following procedure assumes that the PDE has been launched. You can only invoke these functions on tabs that allow edits. The following tabs allow edits.

- Form Layout
- Value CDPs
- Symbol Attribute
- Parameter References

Step	Action
1	Click the tab you want to edit.
2	• If you want to delete a row, go to Step 3. • If you want to insert a row, go to Step 5. • If you want to append a row, go to Step 6.
3	Click in row header to select (highlight) the entire row you want to delete. You can use Shift+Click or Ctrl+Click to select multiple rows for deletion.
4	Right-click the selected row(s) and select Delete from the shortcut menu or, just press the Delete key. You will be prompted to confirm multiple row deletions.
5	Click anywhere in the row you want to insert a row above and press the Insert key. Or, right-click anywhere in the row you want to insert a row above and select Insert from the shortcut menu. You can use Shift+Click or Ctrl+Click to select multiple rows for insertion above the selected rows.
6	To append a row to the end of the list, right-click anywhere in an existing row and select Append row from the shortcut menu.

TIP

Appending can also be accomplished by scrolling via the down arrow at the end of the rows. Rows will be added as you scroll down.

Using copy and paste functions

You can use the typical keyboard shortcuts of Ctrl+C, and Ctrl+V to copy and paste cell data on tabs that permit edits. You can also select these functions through the right-click shortcut menu.

Saving block definitions

The following consideration should be observed when saving block definitions:

- Modifications to the block type definition in PDE enables the Save button in the tool bar and the File menu

To save PDE edits, click on Save from the File menu selections or on the Save button in the tool bar if you are saving a Fieldbus or CDB block. If you are saving a CAB block, saves are performed from the File menu Save All selection of the Visual Studio .NET IDE.

TIP

Clicking on the Save button or selecting the menu item File->Save PDE Data will save the PDE data to a block type definition file. See Launching PDE under Launching and Closing PDE for more details on saving the PDE data.

You will be prompted to Save any unsaved edits upon closing the PDE. See Launching PDE under Launching and Closing PDE.

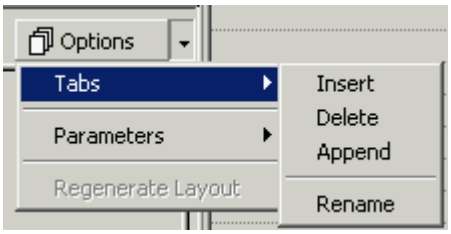
Save As block definition

The following procedure assumes the PDE has been launched and a parameter is being edited and there is a need to create a new block definition. The following procedure applies to CAB and CDB blocks only.

Step	Action
1	On the File menu, click Save As...
	If you are saving a CAB block, saves are performed from the File menu Save All selection of the Visual Studio NET IDE
2	In the open Block Type text box, key in the desired name for you're new block type that is unique. Press the Enter key. The new block name is displayed in the Control Builder library tree, and the current editing session switched to the newly created block definition.

Reviewing general block type functions

Inserting, deleting, renaming, and appending tabs



The following procedure assumes that the PDE has been launched. You can only invoke these functions on the Form Layout tab.

Step	Action
1	Click the Form Layout tab.
2	If you want to insert a tab, go to Step 3. If you want to delete a tab, go to Step 7. If you want to rename a tab, go to Step 10. If you want to append a tab, go to Step 14
3	Click the tab that you want the new tab inserted before.
	Remember that the Alarm tab on the Fieldbus block, the Main tab on the CDB block type, and the Main, Alarms, and Source tabs on the CAB block, are read only and you cannot insert a tab before them.
4	On the Options button, click the arrow and select Tabs->Insert. Or, just right-click the tab and select Tabs->Insert.
5	In Tab Name dialog, key in desired name for the new tab in the Enter new tab name box. Click the OK button.
6	New tab is inserted before the selected tab.
7	Click the tab that you want to delete.
8	On the Options button, click the arrow and select Tabs->Delete. Or, just right-click the tab and select Tabs->Delete.
9	Click the Yes button in the PDE dialog to acknowledge the action and initiate the tab deletion.

Step	Action
10	Click the tab that you want to rename.
11	On the Options button, click the arrow and select Tabs->Rename. Or, just right-click the tab and select Tabs->Rename.
12	In Group Name dialog, key in desired new name for the tab in the Enter new group name box. Click the OK button.
13	The new name now appears on the tab.
14	On the Options button, click the arrow and select Tabs->Append. Or, just right-click the tab and select Tabs->Append.
15	Enter the name of the new tab.
16	Click OK

Reviewing the group box

TIP

You can use the Group function to group similar parameter attributes to show logical parameter relationships on the block configuration form in Control Builder.

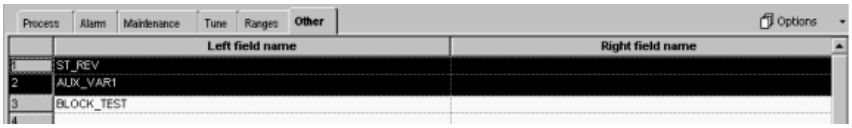
Considerations

- You can place Parameters on the left or right side of the tab. If the parameter is to be placed on the left side of the tab, enter the parameter name in the Left field name column. If it is to be placed on the right side, enter the parameter name in the Right field name column.
- You can group and ungroup selected parameters.
- The right group box is dependent on the definition of the left group box. The right group box cannot exist without a left group box.
- The blank rows in the group do not have any effect on the layout.
- The left group name is mandatory, if any parameters are defined in the left group
- The right group name is mandatory, if any parameters are defined in the right group
- You cannot have a parameter in the right group box without having parameters in the left group box.

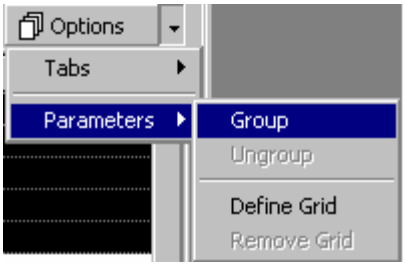
- The height of the group box depends on the number of parameters in the left group box.
- Rows can be inserted using INS key and can be deleted using DEL key. Alternatively Right click menu is also available for inserting and deleting the row.
- Parameters can be grouped/ungrouped using the group/ungroup functionality.
- Tabs can be added, deleted and renamed by using the Menu item from the Options tool bar.
- Parameters can be used only once across all the tabs defined in the form layout.

Creating the left group box

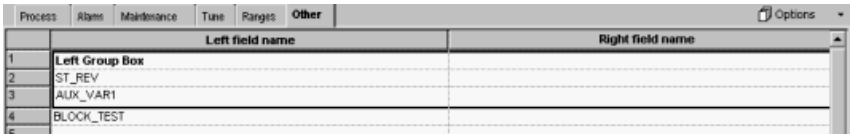
Step	Action
1	Select the parameters that are to be grouped in the form layout grid. The selected parameters that are to be grouped should be in sequence



2	From the options tab select the menu item Parameters->Group. Alternatively right click menu will also provide an option to group parameters under the menu item Parameters->Group.

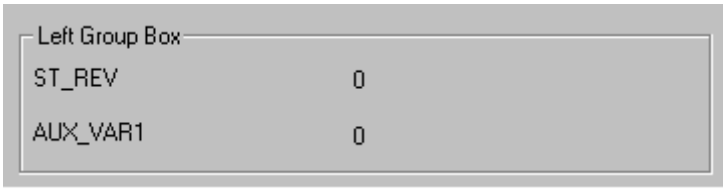


3	Once the menu item is selected all the selected parameters will be grouped and shown inside a thick black rectangle around the selected parameters



- The left field name cell in the first row of the group is for entering the name of the left group.
- Parameters can be added within the group box by inserting a new row using INS key and entering the parameter name in the left field name. Alternatively from the right click menu rows can be added.
- Parameter can be deleted using DEL key by selecting the complete row. Alternatively from the right click menu rows can be deleted.

The above defined parameter group will be shown as below in the Configure Parameters dialog in Control Builder



Creating the right group box

The following the left group box exists.

On the Form Layout grid, enter the parameters for the right field name in the right group box. The active area of the form is enclosed in a thick black rectangle.

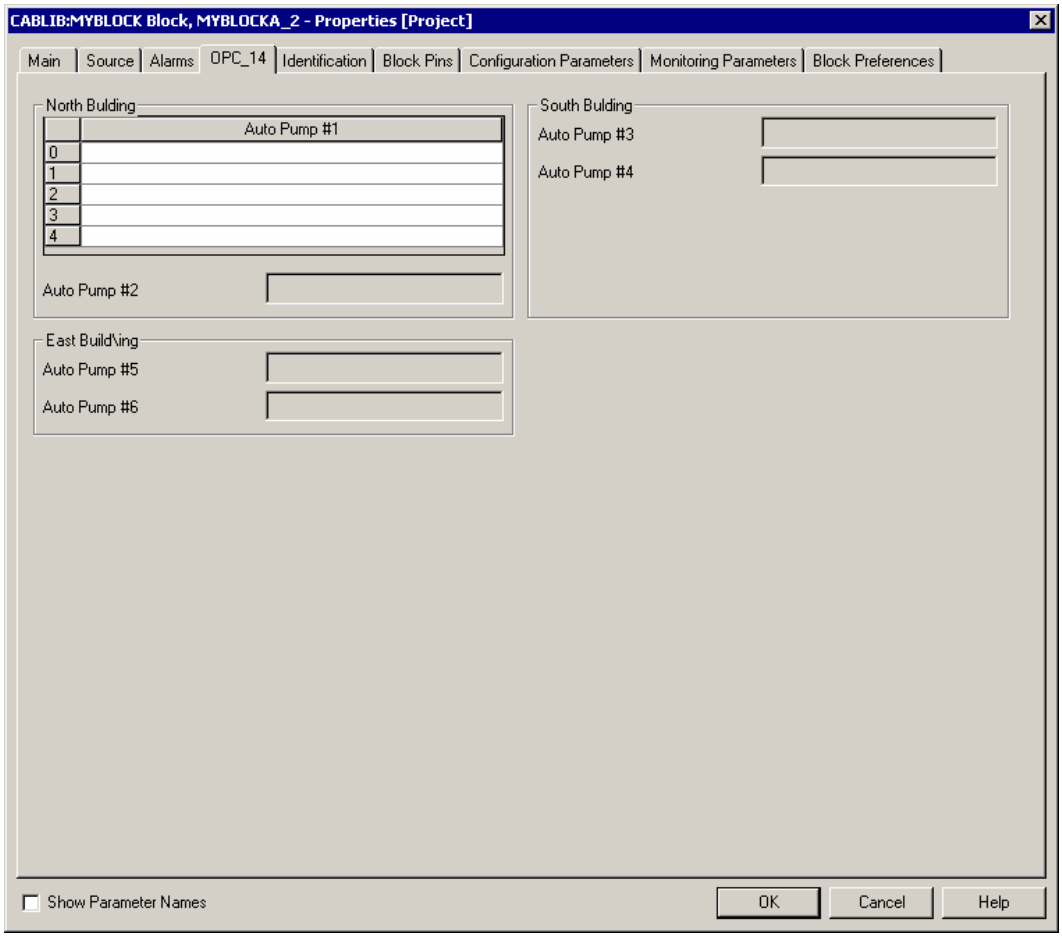
Enter the right group box name at the top of the black rectangle.

Configuration Form with grouped parameters

TIP

The parameter Auto Pump #1 was created as an arrayed parameter with an index of 5.

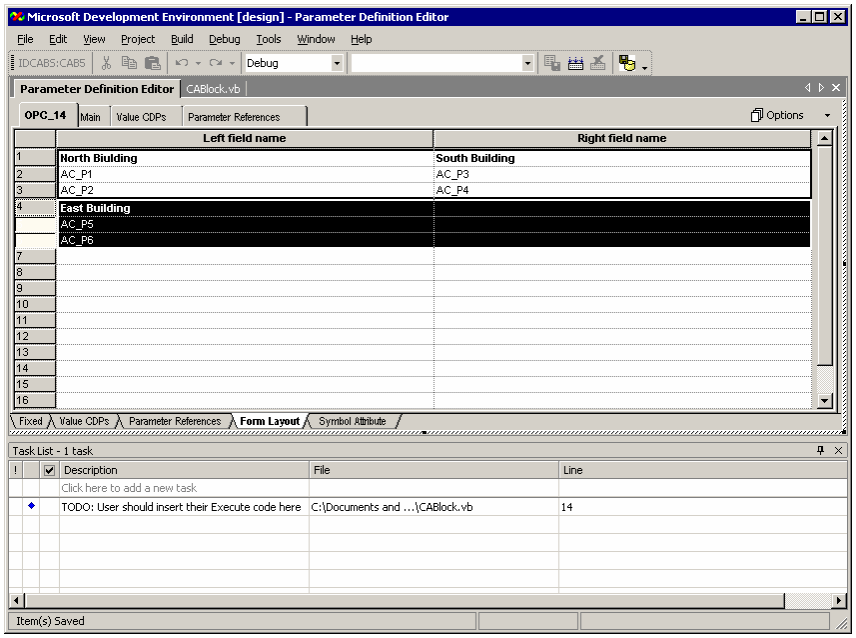
Example Tab with Parameters Grouped



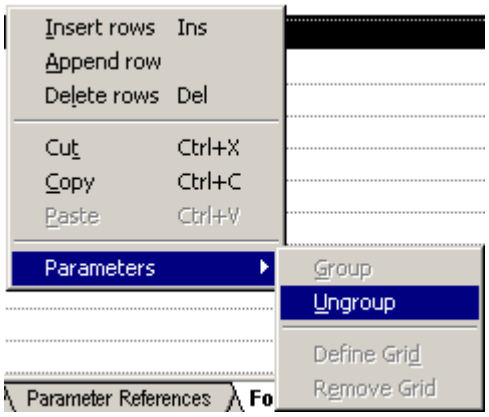
Ungrouping parameters in a group box

You can use the Ungroup function to remove a group box. You can only invoke these functions on the Form Layout tab. The following procedure is for example purposes only to show how the Ungroup function may be used.

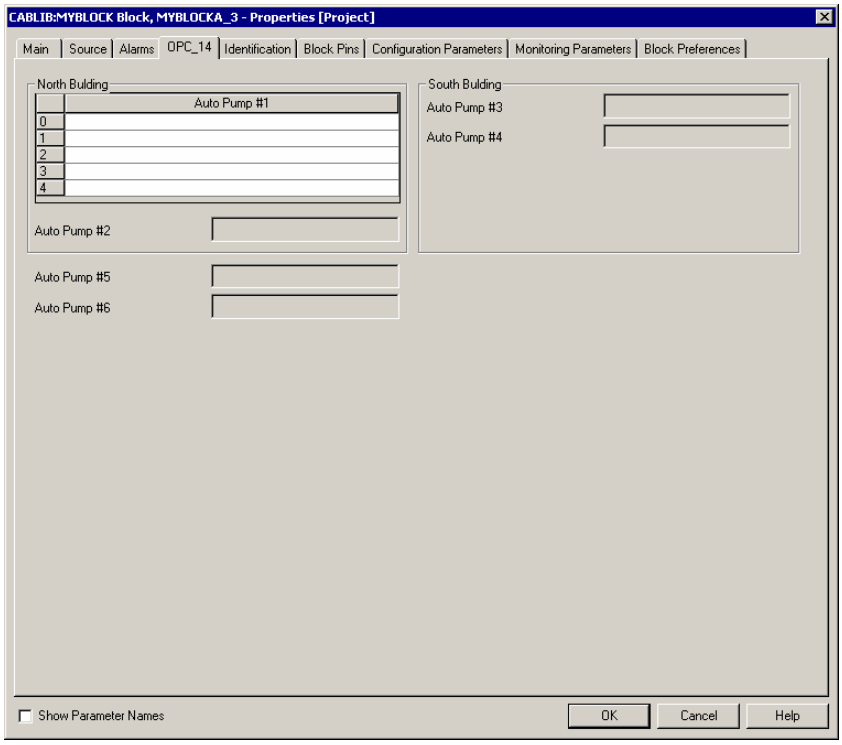
Step	Action
1	Highlight the group that you want to delete by left clicking on the first row and dragging down until the entire group is highlighted, including the group name. In this example, the **East Building** group is highlighted.



Step	Action
2	Right-click any where on the group and select Parameters->Ungroup. The group box and group title, East Building, will be removed.



Step	Action
3	When an instance of this block is added to a project, the resulting edits of the group box tab will appear as follows:



Notice that the East Building group has been removed.

Reviewing the grid

Using the grid

The grid is an option available for CAB and CDB block types. Grids are used to show a group of parameters where each parameter is shown as one of the columns of the grid and each parameter value is shown in the grid rows.

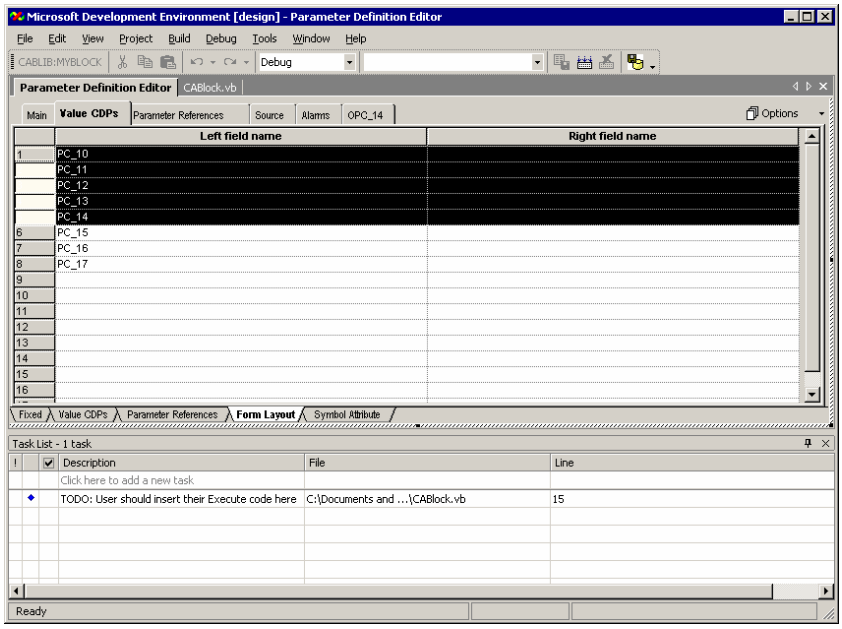
Considerations

- The grid name is mandatory and must be entered in the left field name.
- The number of rows visible should be between 1 and 99.
- There is no right field name for the grid.
- Grid only supports array Custom Data Parameters. Grid does not support scalar CDPs or Parameter References.
- Only arrayed parameters are allowed in the grid.
- Parameter references are not allowed in the grid.

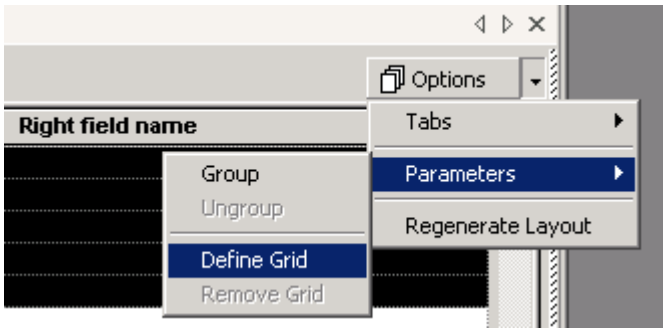
Creating a grid

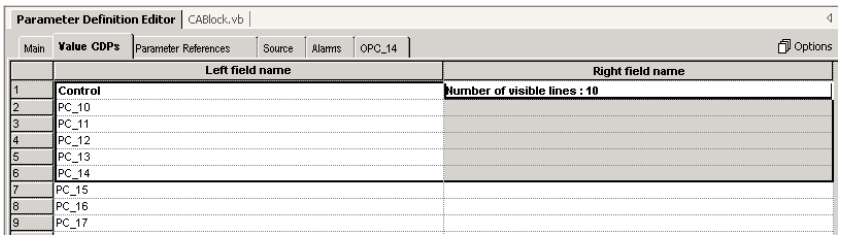
Follow the steps in the following table to create a grid.

Step	Action
1	Select the parameters that are to be defined within the grid in the Form Layout grid as shown below. The selected parameters must be in sequence.

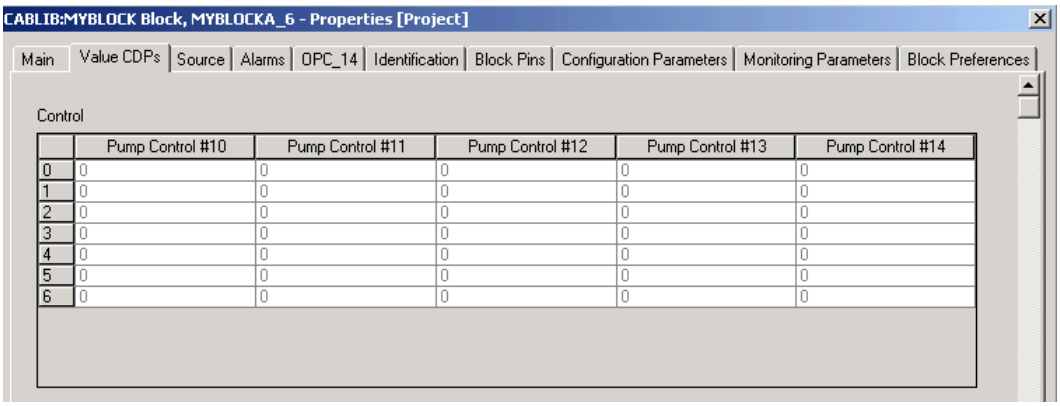


2	From the drop-down Options tab, select parameters->Define Grid. Right clicking on the highlighted parameters will also provide a drop-down menu where Parameters->Define Grid can be selected.



Step	Action
3	The number of the lines for the grid should be entered in the Right field name column. This is the maximum number of rows that will be shown at a time in the grid on the Configuration Form. If there are more rows than visible lines, then a scroll bar will be shown on the grid. The grid name can be entered in the first row of the grid under the left field name. 

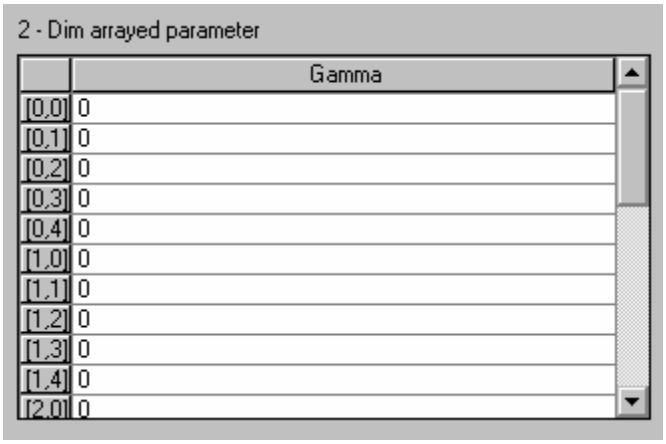
The resulting Configuration Form for this grid would look like the example below.



TIP

- Parameters can be added within the grid box by inserting a new row using the INS key and entering the parameter name or by right clicking and inserting a row.
- Parameters can be deleted by using the DEL key or by right clicking and deleting the row.

When 2 dimension arrayed parameter of size 5x5 is added to the grid, it is shown as below in the configuration form. Note that the first column shows the 2-dimension array index



When the grid is formed with the combination of 2 dimension arrayed parameter (5x5 size) and the 1 dimension arrayed parameter (10 elements), the grid is shown as below in the configuration form. Note that the first column displays just the row numbers.

TIP

If the grid has more than one arrayed parameter, then the first column will show just the row number.

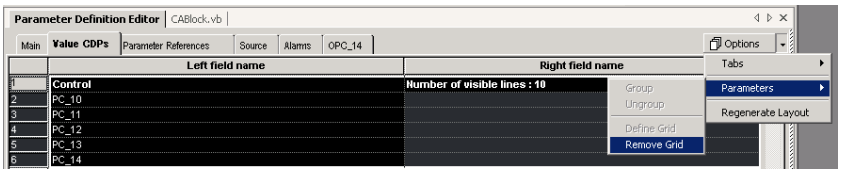
2 and 1 Dim arrayed parameter

	Gamma	Lamda
0	0	0
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	

Deleting a grid

Follow the steps in the following table to delete a grid.

Step	Action
1	Select the complete grid that you want to delete.
2	From the drop-down Options tab, select parameters->Remove Grid. Right clicking on the highlighted parameters will also provide a drop-down menu where Parameters->Remove Grid can be selected.



Advanced editing options

Using advanced editing grid bitstrings

You can use the Advanced editing grid to edit the default values for parameters with a data type of BITSTRING on the Standard Parameters or Vendor Parameters tab.

Follow the procedure in the next table to edit BITSTRING values

Step	Action
1	Click either the Standard Parameter or Vendor Parameter tabs.
2	Locate the parameter with the BITSTRING value you want to change. For example, the MODE PERMITTED parameter for an AI block in a Honeywell ST3000 device.
3	Scroll to the Default value column and click the row for the MODE PERMITTED parameter. Click the arrow button in the row to open the Bitstring values for parameter dialog box. Or, just key in the hexadecimal value in the cell directly and skip using the dialog box.
4	In the Bit values column, click the check box to select or clear a value as applicable. Select the check box, if the bit is to be set to that value.
5	Click the OK button to save your edits and close the dialog.
6	This completes the procedure. Any BITSTRING value edits are not active until the PDE is closed and all edits are saved. There is no validation whether the proper bit is set by directly entering the value. PDE validates only for the size of the BITSTRING

ATTENTION

The Advanced editing grid bitstrings is for use with Fieldbus block types only.

Considerations

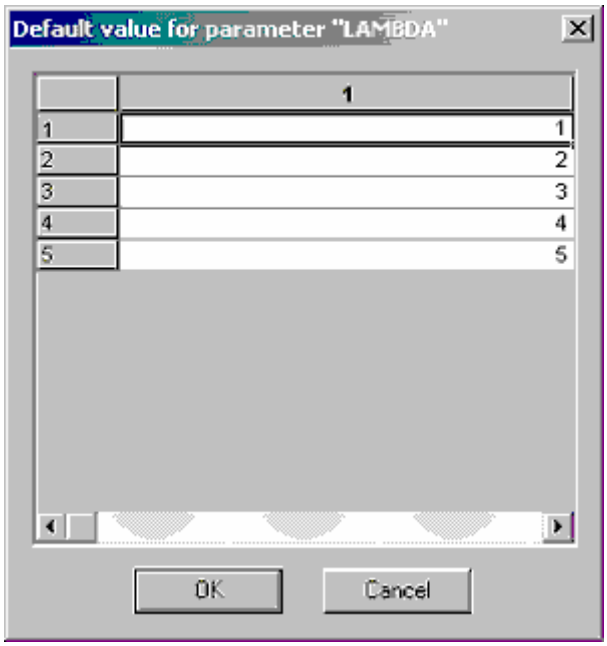
- The first column in the Advanced editing grid dialog shows the bit that will be set, if the check box for the value is selected in the second (Bit values) column
- You set the bit value by selecting or clearing the check box in the Bit values column.
- The parameter must have a data type of bitstring for the Advanced editing grid dialog to be shown.
- Any BITSTRING value edits are not active until the PDE is closed and all edits are saved.
- There is no validation whether the proper bit is set by directly entering the value. PDE validates only for the size of the BITSTRING.

Using advanced editing grid for arrays

The arrayed parameter default value can be edited using the advanced array-editing grid. Based on the size of the array, number of rows, and number of columns will be shown in the grid. The values can be set to the individual elements of the array.

The single dimension array will be shown with one column. The number of rows corresponds to the first dimension of the array.

Advanced editing grid – Single dimension array

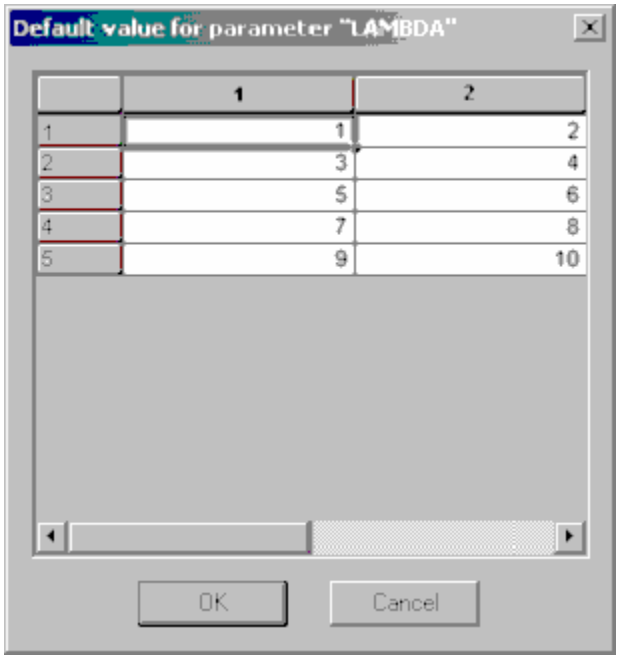


Considerations

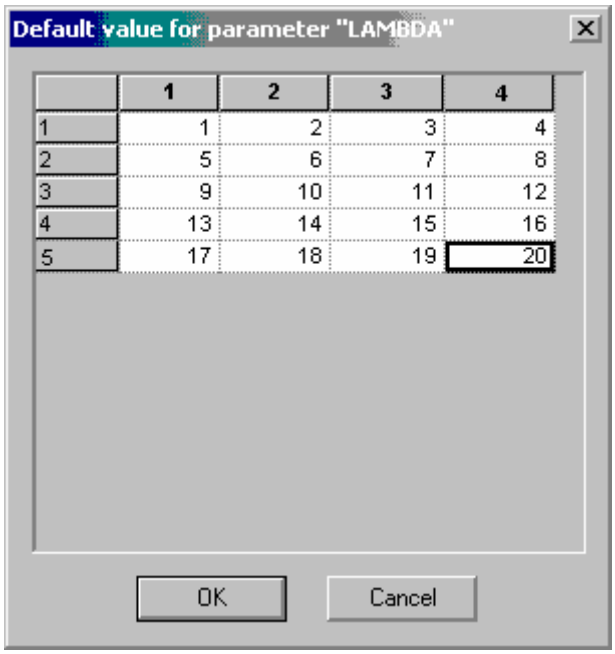
- The editing of the cell depends on the data type of the parameter
- The value entered will be validated for its range with the min and max value of the parameter.
-
- Copy/Paste operation can be performed in the grid using the right click menu and accelerator keys Ctrl+C and Ctrl+V respectively.

The 2-dimension array will be shown as below. The number of columns corresponds to the second dimension of the array. The number of rows corresponds to the first dimension of the array.

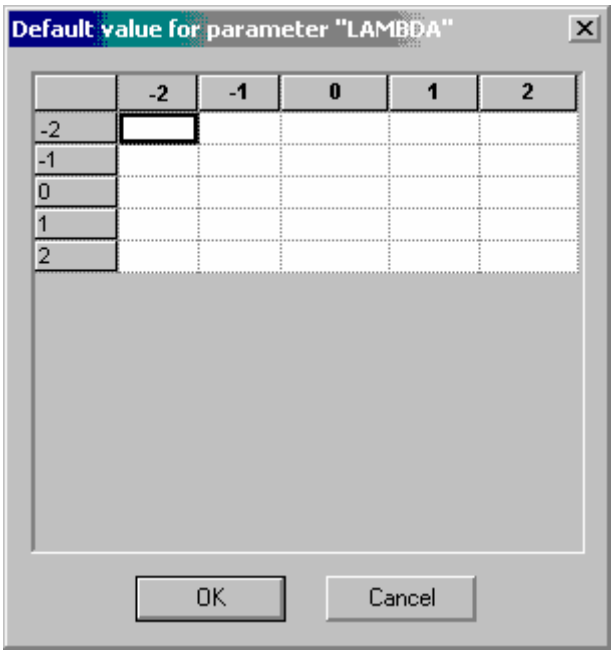
Advanced editing grid – Two dimension array of size 5x2



Advanced editing grid – Two dimension array of size 5x4



Advanced editing grid – Two dimension array of size 5x5 with negative indices



Procedure for using advanced editing grid for arrays

Step	Action
1	Click the Vendor Parameters tab.
2	Locate the parameter with dimension array value you want to change. For example, the USER_CHAR parameter for an ADV_POS_BASIC block in a Fisher_Controls DVC 5000 device.
3	Scroll to the Default value column and click the row for the USER_CHAR parameter. Click the arrow button in the row to open the Default value for parameter “USER_CHAR” dialog box.
4	In the 1 column, key in the desired value for each element as applicable.
5	Click the OK button to save your edits and close the dialog.

ATTENTION

Any array value edits are not active until the PDE is closed and all edits are saved.

Reviewing general parameter functions

Using cut/copy/paste for custom parameters

The custom parameters tab will not show all the attributes of the parameters. There are some attributes, which are internally managed. Using the Manage view feature can hide attributes. In such scenarios the need arises to copy the whole parameter definition irrespective of whether attribute is internally managed or hidden through views. The cut/copy/paste parameters will allow copying the whole parameter definition and pasting the definition as a new parameter. This feature will also work across PDE, meaning in one instance of PDE the parameters can be copied and pasted in another instance of PDE.

Cut Parameters

The following consideration should be observed when cutting parameters:

- A complete row should be selected to cut parameters.

The following is used to cut parameters:

Step	Action
1	Click a parameter on active tab and right-click causing the right-click menu to appear.
2	On the right-click menu, click Cut parameters. This removes the parameter definition and copies it to the clipboard.

Copy Parameters

The following considerations should be observed when copying parameters:

- Copy parameter menu is enabled only if any of the selected rows has a parameter definition.
- Multiple rows can be selected to copy multiple parameters.

The following procedure is used to copy parameters:

Step	Action
1	Click a parameter on active tab and right-click causing the right-click menu to appear.
2	On the right-click menu, click Copy parameters. This copies the selected parameter.

Paste Parameters

The following considerations should be observed when pasting parameters:

- The paste parameter menu is enabled only if there are any parameters available in the clipboard for pasting.
- The pasting starts from the row where the menu was right-clicked.
- Pasting on the row, which has defined parameter, overwrites the parameter attributes.
- A new parameter name is generated if the parameter name already exists.

The following procedure is used to paste parameters:

Step	Action
1	Click a parameter on active tab and right-click causing the right-click menu to appear.
2	On the right-click menu, click Paste parameters. This pastes the previously copied parameter in the selected row.

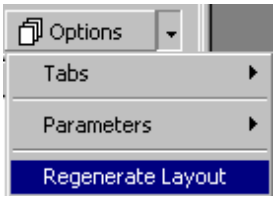
Automatic form layout

Generating automatic form layouts

The automatic form layout generation is the feature that generates the form layout from the order of the parameters defined.

Considerations for CDB and CAB

- Any update to the parameters in the “Value CDPs” main tab will be reflected in the “Value CDPs” tab of the Form Layout.
- The order of the parameter in the “Value CDPs” main tab and the “Value CDPs” tab of the Form Layout will be same.
- The GUI control used for the parameter will be decided while populating the data to ERDB based on the data type of the parameter.
- In the case where the form layout is disturbed, the form layout can be regenerated from the options menu, Regenerate Layout. This will create a layout by placing all the custom parameters in the Left field name of the form layout.



Considerations CDB Specific

This feature is only available to:

- the “Value CDPs” tab on the form layout - CDB

The “Value CDPs” tab in Form Layout “Value CDPs” is designated as the tab in which the Custom parameters will be shown. Any custom parameter added in the “Value CDPs” main tab, would also be added to the “Value CDPs” tab of the Form Layout tab. If the order of the parameters in the form layout tab is altered then the automatic form layout generation will work minimally.

Any difference in the order of the parameters in the “Value CDPs” main tab and the 2nd tab of the form layout will cause the automatic form layout generation to work minimally.

The following should be considered.

- The parameter will be added to the end of the “Value CDPs” tab if the appropriate place for the new parameter could not be identified.
- Even if the above case fails then the parameter will be added to the 1st tab of the Form Layout
- Failure in both the above cases will generate an error and the parameter should be added manually

Considerations CAB specific

This feature is only available to:

- the Custom parameters and Parameter references tab.
- The “Value CDPs” and “Parameter References” tabs in the Form Layout are designated as the tabs in which the Custom and Parameter Reference parameters will be shown respectively. Any custom parameter added in the “Value CDPs” main tab, would also be added to the “Value CDPs” tab of the Form Layout tab. Any parameter reference added in the “Parameter References” main tab, would also be added to the “Parameter References” tab of the Form Layout tab. If the order of the parameters in the Form Layout tab is altered, then the automatic form layout generation will work minimally.
- Any update to the parameters in the “Parameter References” main tab will be reflected in the “Parameter References” tab of the Form Layout.
- The order of the parameters in the “Parameter References” main tab and the “Parameter References” tab of the Form Layout will be same.
- Any difference in the order of the parameters in the “Value CDPs” / “Parameter References” main tab and the “Value CDPs” / “Parameter References” tab of the Form Layout respectively, will cause the automatic form layout generation to work minimally.
- The following should be considered.
  - The parameter will be added to the end of the “Value CDPs” / “Parameter References” tab based on the parameter category, if the appropriate place for the new parameter could not be identified.
  - Even if the above case fails then the parameter will be added to the 1st tab of the form layout.
  - Failure in both the above cases will generate an error and the parameter should be added manually.

Reviewing PDE Views

You can customize the views of the Standard Parameters, Vendor Parameters, and Value CDPs tabs in PDE to show only the parameter attributes that you select through view configuration.

Reviewing PDE views for CAB and CDB

The view is an option in PDE to switch ON/OFF the columns of the grid. The view information will be stored with respect to the block type and will be applied only to the Custom parameter grid (Value CDPs). The view information is carried along with the block type. If the block type opened by PDE has a view defined, then the block type view will be applied to the Custom parameter grid otherwise; the system default view will be applied.

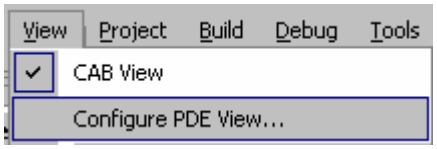
Considerations

- You configure the parameter attributes through a check box selection in the Parameter Attributes list box.
- All the system default parameter attributes will be listed in the parameter attributes list.
- All the mandatory parameter attributes are shaded, since they are not available for configuration and they will always be selected.
- The grayed parameter attributes will always be selected and cannot be switched OFF.
- The parameter attributes list will have a check box to indicate the attributes to be shown in the grid. The checked items will be shown and un-checked items will not be shown in the grid.
- Clicking on the OK button will save the view information in memory with the block type definition.
- Only after the block type definition is written to disk, will the view information be physically written along with the block type definition.
- Clicking on the Cancel button will discard all the changes.

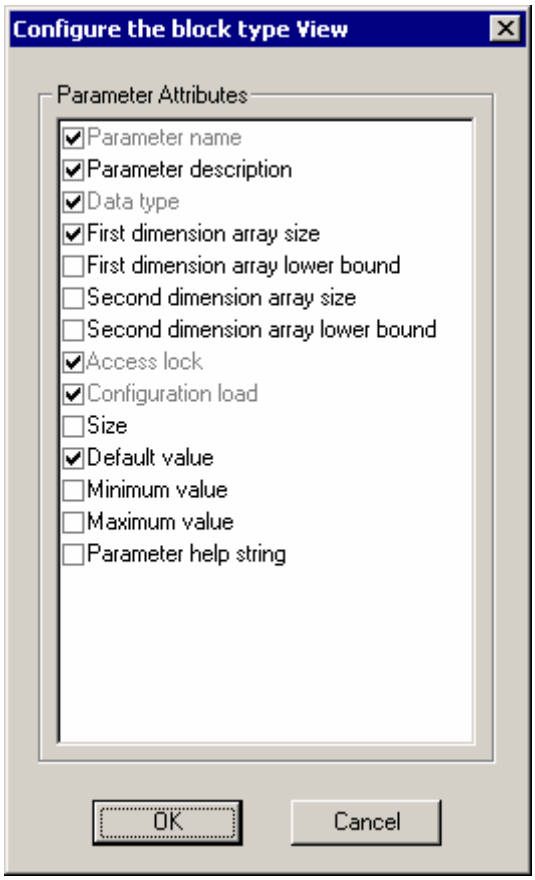
Launching Configure PDE views dialog for CAB

The PDE window should be opened to invoke the Configure PDE views dialog.

Selecting the menu item View->Configure PDE View… will invoke the Configure PDE views dialog.



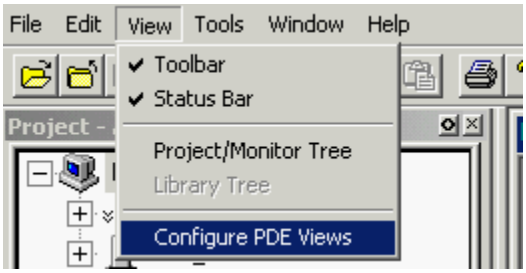
PDE Views Dialog



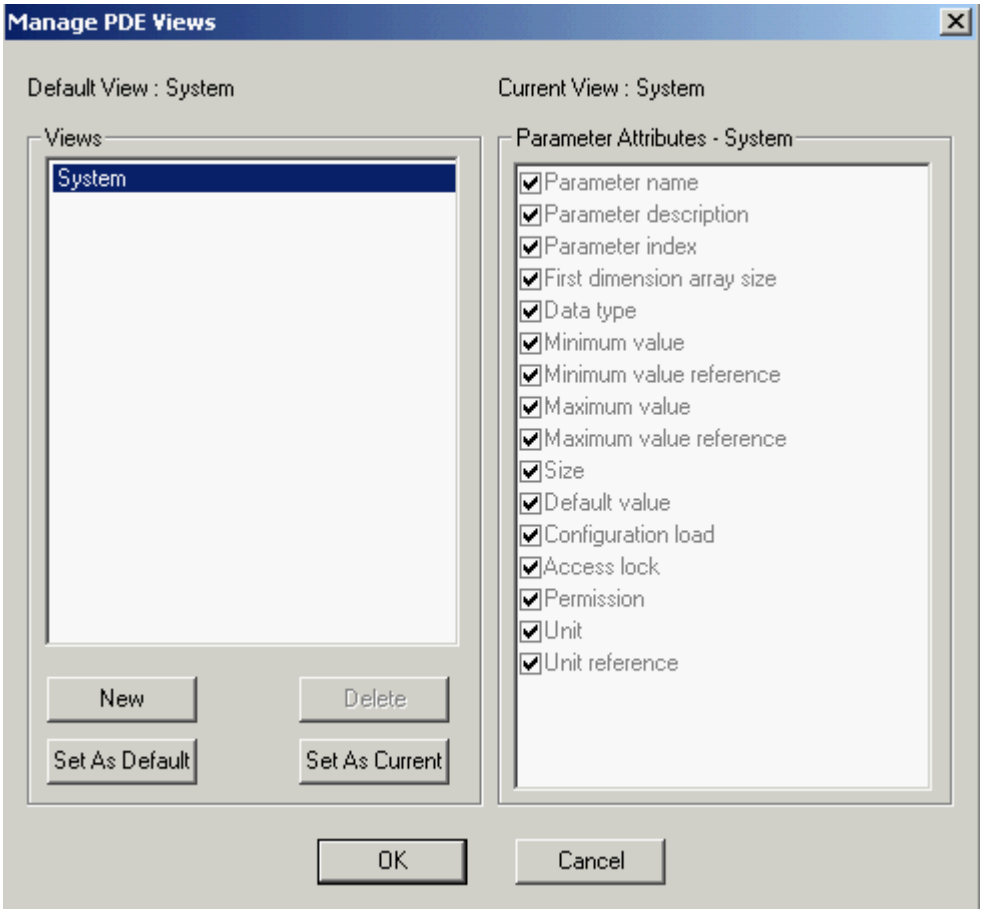
Launching Configure PDE views dialog for CDB

The PDE window should be opened to invoke the Configure PDE views dialog.

Selecting the menu item View->Configure PDE Views will invoke the Configure PDE views dialog.



PDE Views Dialog


Manage PDE Views
Default View : System
Current View : System
Views
System
New
Delete
Set As Default
Set As Current
Parameter Attributes - System
Parameter name
Parameter description
Parameter index
First dimension array size
Data type
Minimum value
Minimum value reference
Maximum value
Maximum value reference
Size
Default value
Configuration load
Access lock
Permission
Unit
Unit reference
OK
Cancel

Reviewing Manage PDE views for Fieldbus

Views are an option in PDE to switch ON/OFF the columns of the grid. The view information is stored with respect to the user and is applied only to the Standard Parameters grid, and Vendor Parameters grid. Views can be created and modified and applied from this Manage PDE views dialog for FieldBus devices only.

Considerations

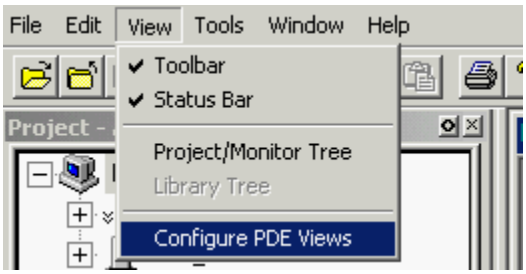
- All the defined views of the current logged in user will be included in the Views list on Manage PDE Views dialog.
- The Default View field, shown just above the Views list, identifies the name of the current default view.
- The Current View field identifies the name of the current view being used.
- The Views list box is a single selection list.
- The Parameter Attributes list box is a multiple-selection list and it identifies the parameter attributes configured for the view selected in the Views list.
- You can select a view in the View list to check its configuration in the Parameter Attributes list.
- The System view is factory configured and you cannot modify or delete it. It will show all the parameter attributes.
- You must assign a unique name to each view you create.
- The Current view is shown just above the Parameter attributes list.
- In the Views list:
  - the views are displayed/defined by the current logged user.
  - the Current view is selected.
  - only one view can be selected at a time.

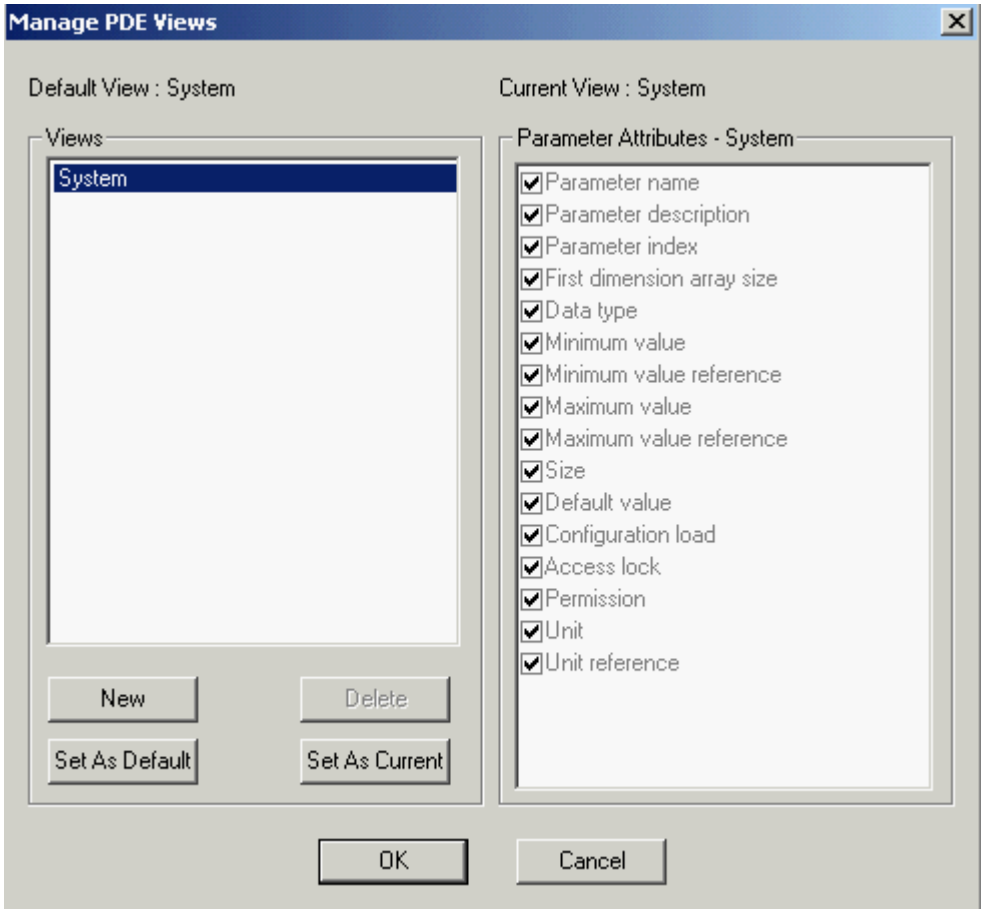
- The Parameter attributes list box:
  - is multi-selection list.
  - checked items are shown and un-checked items are not shown in the grid.
  - mandatory parameter attributes are grayed (always selected and cannot be switched OFF).
- Selecting a view in the Views list will show the parameters that are switched ON/OFF for the view in the parameters attributes list.
- Clicking on:
  - the OK button prompts for a save if any modifications were done.
  - the Cancel button discards all the changes.

Launching Manage PDE Views dialog

The PDE window should be opened to invoke the manage views dialog.

Selecting the menu item View->Configure PDE Views will invoke the Manage PDE Views dialog.

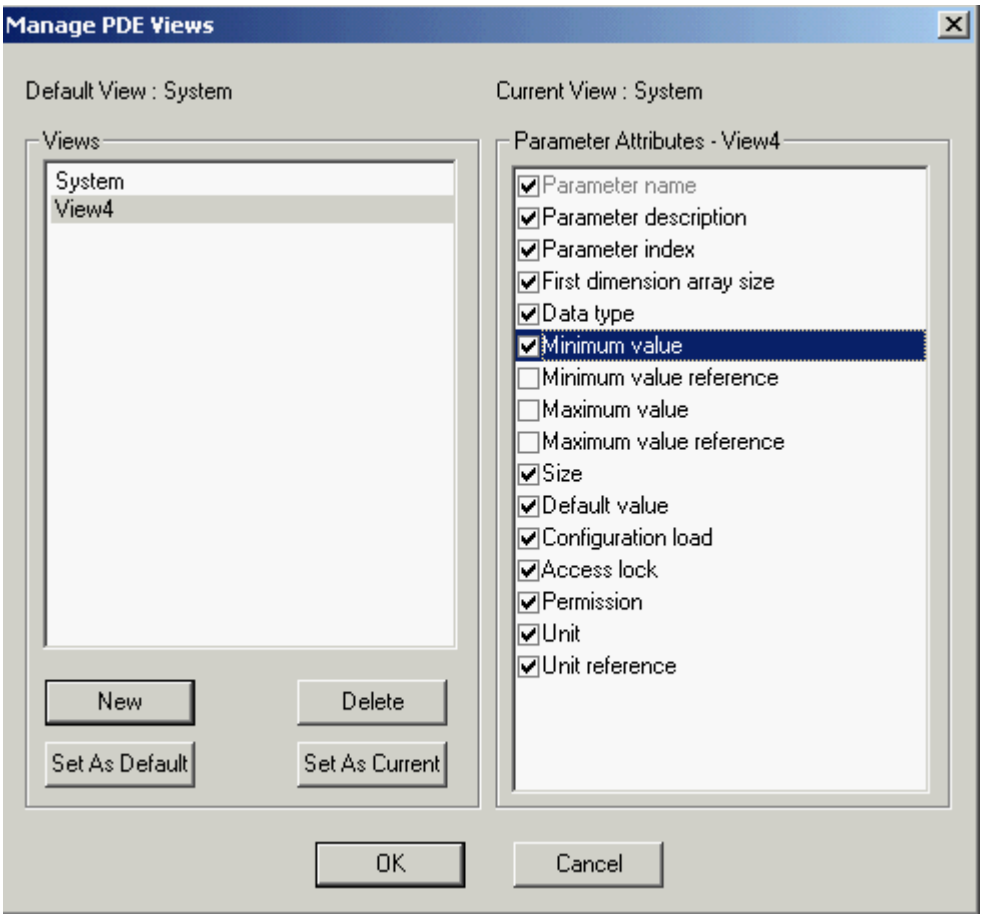



Manage PDE Views
Default View : System
Current View : System
Views
System
New
Delete
Set As Default
Set As Current
Parameter Attributes - System
Parameter name
Parameter description
Parameter index
First dimension array size
Data type
Minimum value
Minimum value reference
Maximum value
Maximum value reference
Size
Default value
Configuration load
Access lock
Permission
Unit
Unit reference
OK
Cancel

Creating new Manage view

Use the following procedure to add a new view.

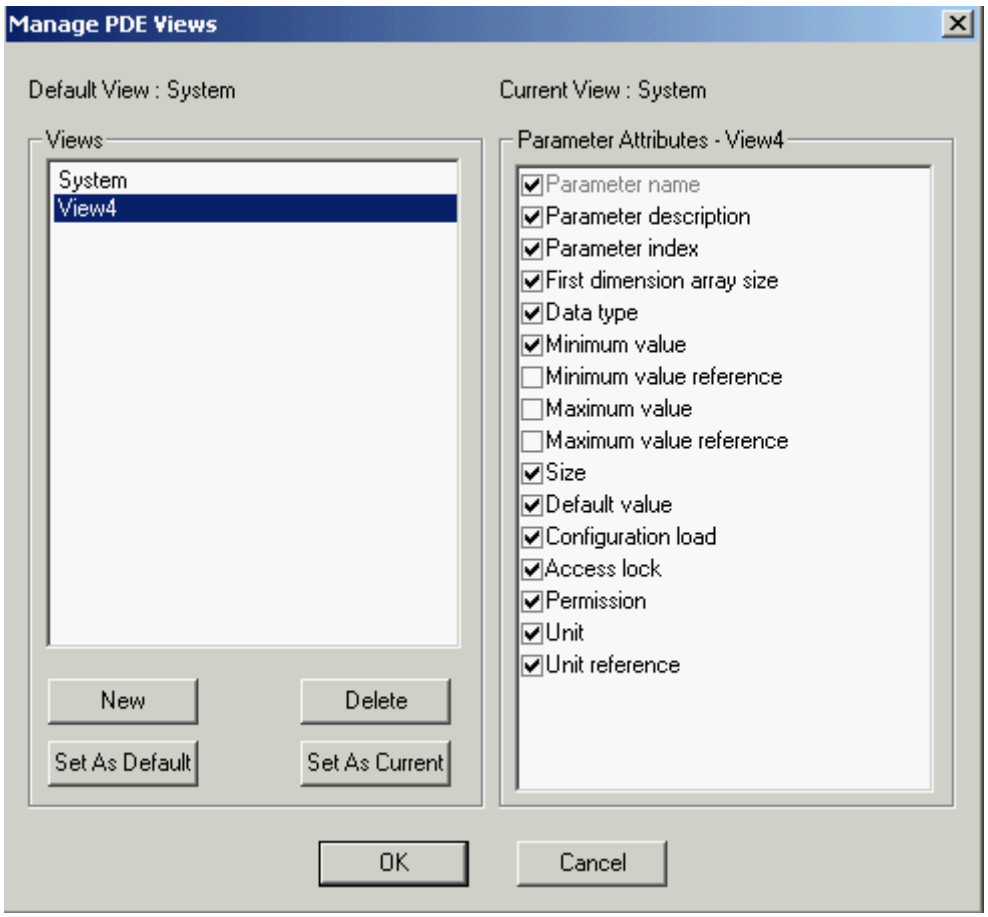
Step	Action
1	Click on New
2	Enter a unique name for the new view
3	Select the parameters from the Parameter Attributes-System list to be shown for this view.
4	Select OK



Deleting Manage view

Use the following procedure to delete a view.

Step	Action
1	Click on the view that you want to delete
2	Select Delete



Setting view as default view

Use the following procedure to set a view as the default view.

Step	Action
1	Click on the view that you want to set as the Default view.
2	Select Set As Default.
3	Select OK

Setting view as current view

Use the following procedure to set a view to the current view.

Step	Action
1	Click on the view that you want to set as the Current view.
2	Select Set As Current.
3	Select OK

Launching and Closing PDE

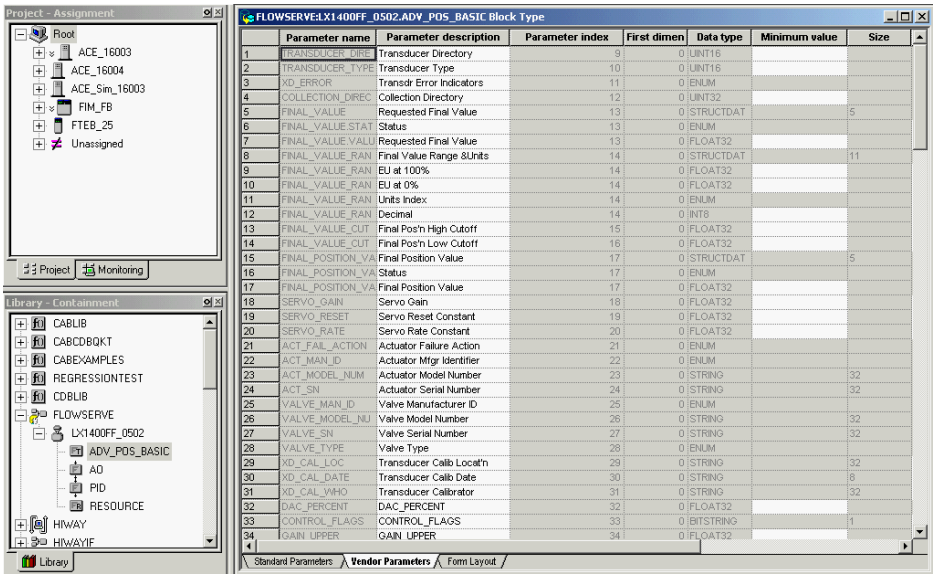
Overview

Launching PDE

Control Builder is running and you have logged on with engineering access level or higher, if you want to edit parameters. If you log on with Operator access level, you will be granted read-only access.

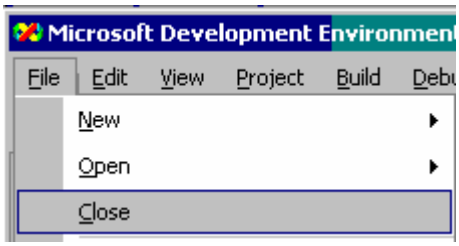
Step	Action
1	On the Library tab, click the plus sign for the device named folder.
2	Click the plus sign for the device icon to expose its blocks.
3	Double-click the desired device block.
4	The Parameter Definition Editor for the selected block type opens in the Control Drawing area of Control Builder.

In the example below, a Fieldbus device has been selected from the library. The previous steps are the same if a CAB or CDB device had been selected.

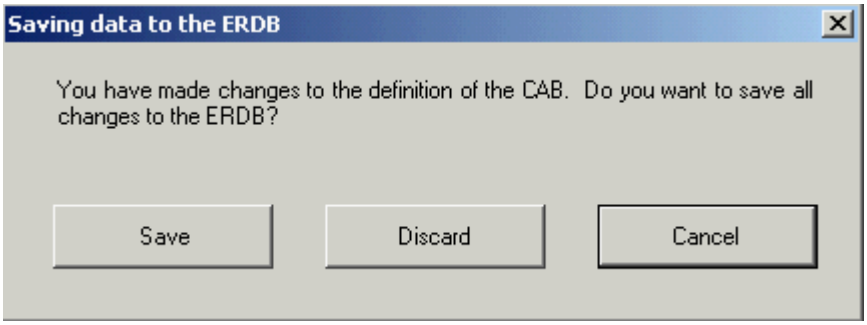


Closing/re-opening PDE in VS.NET IDE when using CAB

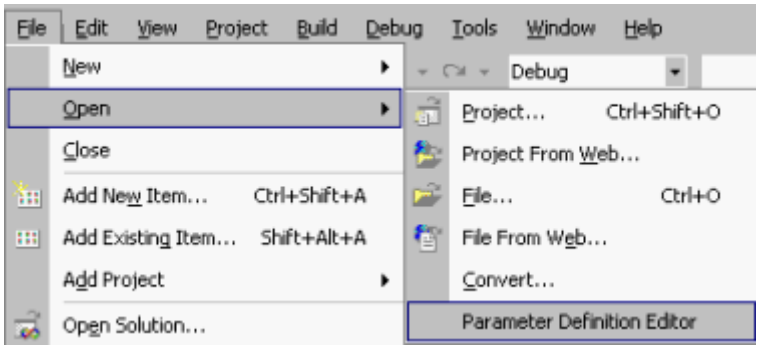
The PDE window can be closed at any time within the Visual Studio .NET IDE. This can be done using the menu option File->Close. The PDE window should be the active window when using this menu item.



If any data is to be saved before closing the PDE window, a message will be displayed to save the PDE data changes.



The closed PDE window can be opened any time using the menu option File->Open->Parameter Definition Editor.



This will re-open the PDE with the saved data.

Error Messages

Overview

The error messages that are specific to the PDE will be stored internal to PDE and displayed by PDE. The error messages that are generated by the PDE are listed below. The messages are grouped based on the context in which the errors are generated.

Editing parameter names

The following table lists possible error messages and their description when editing parameter names.

Error Message	Description
"Parameter name already exist. Please enter new parameter name."	The message shown when the new parameter entered is not unique
"Parameter name cannot be empty. Please enter the parameter name"	Message shown when editing parameter name results in an empty string
"Invalid character in the parameter name."	Message shown when any invalid characters are entered for the parameter name
"Length of the Parameter name exceeds the maximum length"	Message shown when the length of the parameter name exceeds the specified length
"First character in the Parameter name should be alphabetic"	Message shown when the first character of the parameter is invalid

Editing cells

The following table lists possible error messages and their description when editing cells.

Error Message	Description
"Invalid value entered in the cell. Please enter valid value."	The value entered is the cell is invalid. The invalid value could be non numeric characters in the numeric cell etc.
"The data type for the parameter is not defined. Cannot edit the cell"	When a data type of the parameter is not defined and a cell is being edited that depends on the data type, the message is shown. This message is specific to the Default value, Min/Max value

Editing array values

The following table lists possible error messages and their description when editing array values.

Error Message	Description
"Array value cannot be blank in the cell %1. Please enter the array value."	The message shown in the array value editing grid when any intermediate array value is left blank
"Invalid array size. Array size cannot be less than zero or empty"	Message shown when array size entered is invalid
"First dimension of array should be defined to specify second dimension."	Message shown when the second dimension is being edited without specifying the first dimension
“Invalid array value syntax. Cannot set the array value”	Message shown when the syntax of the array definition is invalid. This message is applicable during paste operation

Validating ranges

The following table lists possible error messages and their description when validating ranges.

Error Message	Description
"The value entered is less than the minimum value."	Message shown when the default value of the parameter is less than the minimum value of the parameter.
"The value entered is greater than the maximum value."	Message shown when the default value of the parameter is greater than the maximum value of the parameter.
"The minimum value cannot be greater than maximum value."	Message shown when the minimum value of the parameter is greater than maximum value
"The maximum value cannot be less than the minimum value."	Message shown when the maximum value of the parameter is less than minimum value
"Invalid string length. The length of the string cannot be zero"	Message shown when the length of the string is entered as 0
"The Default Value(s) is not in range due to change in the cell value. Cannot change the cell value"	Message shown when the default value of the parameter does not fall in the range of min/max due to change in the value of min/max value.
"The value entered is greater than the maximum length allowed."	The default value entered for the string data type is greater than the size of the string specified.
"The value does not fit into the size of the data type"	Message shown when the value entered in the cell does not fit the size of the data type.
"Invalid parameter for parameter reference. The parameter does not exist!"	Message shown when the Min/Max/Unit parameter reference does not validate to any parameter. This message is specific to FF

"The data size of the field is exceeding the maximum length of the field. The maximum length of the field is 255 characters.	Message shown when the parameter description field exceeds the maximum length of 255 characters.
“One of the array value is invalid or does not fit into the size of the data type”	Message shown when multiple array values are being pasted/entered in the cell that resulted in an invalid value.
“The length of the string is greater than the maximum length allowed.”	Message shown when the length of the string is greater than the length specified in the size attribute

Editing symbol attributes tab

The following table lists possible error messages and their description when editing symbol attributes tab.

Error Message	Description
"The symbol attribute name is not defined. Cannot edit the cell"	Message shown when the symbol attribute in the parameter name column is not defined and the pins are being assigned
"The order is not unique in the column. Please enter the unique value."	Message shown when the pin values entered in the symbol attributes tab is not unique.
The pin exposure permission of parameter "%1" does not allow to configure "%2" pin.	Message shown when the parameter entered for specifying symbol attribute does not have a valid pin exposure permission
"Parameter is already defined in the row %1"	Message shown when the same parameter is been used more than once in the symbol attribute.
"Invalid syntax in parameter name"	Message shown when the lexical syntax of the parameter name is invalid. E.g. using different character to specify the array index, etc.
"Invalid array index specified in the parameter name"	Message shown when the arrayed parameter is being referred, the array index is invalid

"The array subscript is out of range."	Message shown when the arrayed parameter subscript is out of range
"Index for the parameter is invalid. The parameter is not an array."	Message shown when the array index is specified for the non-arrayed parameter
"Parameter is defined as array. But array subscript is not specified"	Message shown when the array index is not specified for the arrayed parameter
“Invalid parameter "%1". Please select the valid parameter.”	Message shown when an invalid parameter name is picked in the Parameter Picker dialog

Editing form layouts

The following table lists possible error messages and their description when editing form layouts.

Error Message	Description
"Row [%1**]:** Invalid Parameter name entered in the row "	Message shown when the parameter name for the form layout is invalid
"Row [%1**]:** Group should have at least 1 parameter. Blank groups are not allowed !"	Message shown when the group box does not have any parameter defined
"Row [%1**]:** Grid should have at least 1 column. Blank grids are not allowed !"	Message shown when the grid does not have any parameter associated with it
"Row [%1**]:** The parameter in the row is already used once. Cannot use the same parameter in multiple tabs."	This message is shown when there are multiple instances of the same parameter in the form layout
"Row [%1**]:** Parameter category ""%2"" is not allowed in the form layout !"	Message shown when parameter other than custom/standard/vendor parameter category is used in the form layout
"Row [%1**]:** Invalid number of lines visible specified in the row. The value should be > 0"	Message shown when the number of visible lines for the grid is invalid
“Delete/Copy/Cut/Paste of MODE group is not allowed. This is a mandatory parameter group on the form layout”	Message shown when the parameter/group of the MODE parameter is being deleted This message is specific to field bus

“Form layout tab name cannot be empty.”	Message shown when the tab name entered is empty
“The paste operation from the current row will likely overwrite the MODE group. This is a mandatory parameter group on the form layout and cannot be overwritten.”	Message shown when the paste operation is likely to overwrite the MODE group. This message is specific to field bus.
“New row cannot be added to the MODE group. The MODE group is fixed.”	Message shown when a new row is being inserted into the MODE group. This message is specific to FieldBus
“Row[%1] : The left group name is mandatory”	Message shown when the left group name is not specified
“Row[%1] : The right group name is mandatory”	Message shown when the right group name is not specified
“Row[%1] : The grid name is mandatory”	Message shown when the grid name is not specified
“Row[%1] : Right field name is not allowed without left field name”	Message shown when a row has only right field defined with a left field.
“Row[%1] : Right field name cannot be empty in the row”	Message shown when a bottom row is left blank in the right field.
“The tab name "%1" is already used. Please enter the new tab name”	Message shown when a new tab name entered already exist. The tab names should be unique.
“Cannot create/move tab before "%s" tab. "%s" tab position is fixed on form layout.”	This message is shown when a user tries to create a new tab before the read only tab. With FF, it is the “Alarm” tab and with CAB/CDB, it is the “Main” tab. Since the read only tab position is fixed, no tabs can be created before the tab.
“Cannot DELETE any tab before "%s" tab. "%s" tab position is fixed on form layout.”.	This message is shown when auser tries to delete a tab before any read only tab With FF, it is the “Alarm” tab and with CAB/CDB, it is the “Main” tab. Since read only tab position is fixed no tabs can be deleted before the tab.

“Cannot RENAME "%s" tab. "%s" tab is mandatory tab on form layout.”.	This message is shown when a user tries to rename the read only tab. With FF, it is the “Alarm” tab and with CAB/CDB, it is the “Main” tab. Since the read only tab position and name is fixed the tab cannot be renamed.
“Cannot DELETE "%s" tab. "%s" tab is mandatory tab on form layout.”.	This message is shown when a user tries to delete the read only tab With FF, it is the “Alarm” tab and with CAB/CDB, it is the “Main” tab. Since the read only tab position and name is fixed, the tab cannot be deleted
“Cannot MOVE "%1" tab. "%1" tab position is fixed on form layout.”.	This message is shown when the user tries to drag and drop the read only tab With FF, it is the “Alarm” tab and with CAB/CDB, it is the “Main” tab. Since the read only tab position and name is fixed, the tab cannot be deleted.
“Automatic form layout generation failed. The parameter "%1" was not added to the form layout. The parameter has to be added manually to the form layout.”.	Message shown when the newly created parameter on the “Value CDPs”/Parameter References tab was not added on the form layout. The user changing the parameter order could cause this.
"Row [%s] : Parameter ""%s"" with category ""%s"" is not allowed inside grid".	Message shown when the parameter, which belongs to category that is not allowed on the grid, is added to the grid.
"Row [%1] : Non arrayed parameter ""%2"" is not allowed inside grid".	Message shown when the non arrayed parameter is added as a column of the grid.

Validating manage views

The following table lists possible error messages and their description when validating manage views.

Error Message	Description
"%s - The view name already exists, please enter different view name!"	Message shown when the duplicate view name is entered.

"No tabs are configured to be associated with views. Cannot configure views"	Message shown when none of the tab is configured to show Manage views and the configure views dialog is invoked by the container
"The active tab does not support views. Only the following tabs support views."	Message shown when the tab configured for Manage views is not active and the configure views dialog is invoked

Saving PDE data

The following table lists possible error messages and their description when saving PDE data.

Error Message	Description
"The parameter attribute ""%1"" is mandatory in the row ""%2"""	Message shown when one of the mandatory parameter attributes is not specified. This message comes up while saving
“Cannot save file. No file is opened to save”	Message shown when no file is opened and the Save method of PDE is called
“Error writing the XML file to the disk”	Message shown when any Error occurred while saving the .DEF.XML file. More information about the error will be logged in the EHI error log file