

Alarms

An Alarm is an event that is reported to the machine operator via a set of built-in displays.

The event is a change in the Alarm's Trigger condition, which may be linked to either a Boolean or a numeric value.

An Alarm can:

- Show Alarm status
- Report the event to the machine operator
- Provide instructions
- Require operator action
- Play an active role in the conditions enabling the running of the process

Priority	Low	Alarm Details	ESC
Group	00	General Collection	
ID	000	Temperature is Too High	
Date	29/01/07 23:27		
Count	2	Dial 100 to notify Plant Manager	
Active	Y		
Ack		>>	Reset

In VisiLogic, you use the Alarm Configuration utility to create Alarms and set their features. The Ladder application determines when the Alarms are displayed on the controller's screen.

Vision controllers support Alarms according to the following table:

Vision Type	Number of Alarms	Number of Alarms in History
V570	128	254
V350	64	62
V130	16	14

Alarms may be divided into up to 16 groups, per application.

- i While the Alarms displays are on the screen, the PLC application continues to run. This includes both the Ladder, including subroutines, and the HMI application. This means that the current HMI display, the one on the screen when the PLC enters Alarms, may not be the same one displayed when the PLC exits Alarms.

Note ♦ This feature is not available in [Standard Vision controllers](#).

Alarm State

Active	<p>Whenever the Trigger Condition is:</p> <ul style="list-style-type: none"> • True, the Alarm is Active • False, the Alarm is Inactive <p>If an Alarm's Trigger condition is set to show when a photocell detects an object, the Alarm is active only when an object is actually in the photocell's range.</p>
Pending Alarm	<p>An Alarm becomes 'Pending' when:</p> <ol style="list-style-type: none"> 1. The Alarm's Trigger condition has turned false (Active Alarm has become Inactive), and

	2. The Alarm is still waiting for an operator response. The response can be View, Acknowledge, or Reset. These properties are selected in VisiLogic's Alarm Configuration
Pending Types	
View	View requires simply that the Alarm Details display be shown on the screen. If no other Pending properties are assigned, the Alarm is removed once it is Inactive and the Details have been shown.
Acknowledge	Setting the Acknowledge property shows an Ack button in Alarm Details. If the Alarm is Active, pressing Ack: <ul style="list-style-type: none"> • Removes the button • Marks the Alarm 'Y' While the Alarm is Active, it will continue to appear in the displays after it is acknowledged.
Reset	Setting the Reset property shows a Reset button in Alarm Details. If the Alarm is Active, the Reset button is disabled. If the Alarm is Inactive, pressing Reset: <ul style="list-style-type: none"> • Removes the button • Acknowledges any Inactive Alarms • Removes Inactive Alarms from the displays When an Alarm is pending for reset, it appears in the displays until it is reset.

Alarm Displays

There are four types of displays. The Ladder application determines which display is shown. Pressing ESC closes Alarms and shows the current HMI display. If there are more than four items in the current display, use the scroll buttons to view them.

Groups with Pending Alarms

Alarms are arranged in groups. Group 00, General Collection, is the default group.

This display shows all groups that contain one or more pending Alarms. If the Alarms in a group are no longer pending, the group is not displayed.



Column name	Function
ID	The Group ID number, assigned when the group is created in VisiLogic's Alarms Configuration.
Rst	Pressing the Reset button resets and acknowledges all of the Inactive Alarms in that group. Note that if all Alarms in the group are active, the button is disabled.
Count	The number of Alarms in the group.
Group Name	The name assigned to the group in the Alarms Configuration.

Details | Pressing the Details button drills down to the Alarms in Group View.

Alarms in Group

Pressing the ESC button exits to Groups with Pending Alarms.

Pressing the Reset button on the lower right of the screen resets and acknowledges all of the Inactive Alarms in the group.

ID	Time On Ack	Ack	Alarm Name	Details
000	23:22:41	N	Low OIL Level	
001	23:26:09	N	Door is Open	
002	23:26:10	N	Temperature is too High	
003	23:22:44	N	Low Water Level	

Row name	Function
----------	----------

ID	The specific Alarm ID number, assigned when the Alarm is created.
Time On	Time stamp of the most recent time the Alarm became Active.
Ack	If the Alarm is set for Acknowledge, this shows if the Ack button has been pressed.
Alarm Name	The Alarm name assigned in the Alarms Configuration.
Details	Pressing the Details button drills down to the details of the specific Alarm.

Alarm Details

Priority is set in the Alarm Configuration. Pressing ESC exits to Alarms in Group. At the bottom of the screen, use the appropriate button to acknowledge or reset the Alarm. Note that:

1. You can Acknowledge an Active Alarm.
2. The Reset button is disabled if the Alarm is Active.

Group	ID	Date	Count	Active	Additional info
00	002	29/01/06 23:26	2	Y	Temp too High Open Valve Call Manager: EXT 100

Row name	Function
----------	----------

Group	The Alarm's Group ID and Name.
ID	The Alarm's ID and name.
Date	Date and time stamp of the most recent time the Alarm became Active.
Count	The number of times the Alarm became Active before Pending action is taken.
Active	Shows if the Alarm's Trigger condition is true.
Additional info	This window contains instructions for the machine operator.

Alarm History

An Alarm is added to the History buffer after it has become Inactive. The History display records the time the Alarm became active, the time it became inactive, and when Acknowledge and Reset were performed.

The buffer holds up to 256 History displays; when it is full it functions according to FIFO.

Pressing ESC exits to the current HMI display.

Note that if the PLC contains an [SD card](#), you can turn SB 352 ON to enable the PLC to write the history directly to the Alarms folder on the SD card.

Row name	Function
Group	The Alarm's Group ID and Name.
ID	The Alarm's ID and name.
Trigger Rise/Fall Time	Date and time stamp of when the Alarm became Active/Inactive.
Ack/Reset Time	Date and time stamp of when the Alarm was Acknowledged/Reset.
Duration	This is marked from the time the Alarm became Active, until the Alarm became inactive, or was Acknowledged or Reset.

Pause

When the Pause icon appears at the bottom of the display, it means that the Alarms action is suspended.

Although you can scroll through the alarms, the Ack and Reset buttons are disabled. In addition, if an Active Alarm becomes Inactive, the change in state is not updated in Alarm Details.

Configuring Alarms in VisiLogic

Alarms may be divided into groups. The Alarms Configuration Utility contains a default group, Group 00

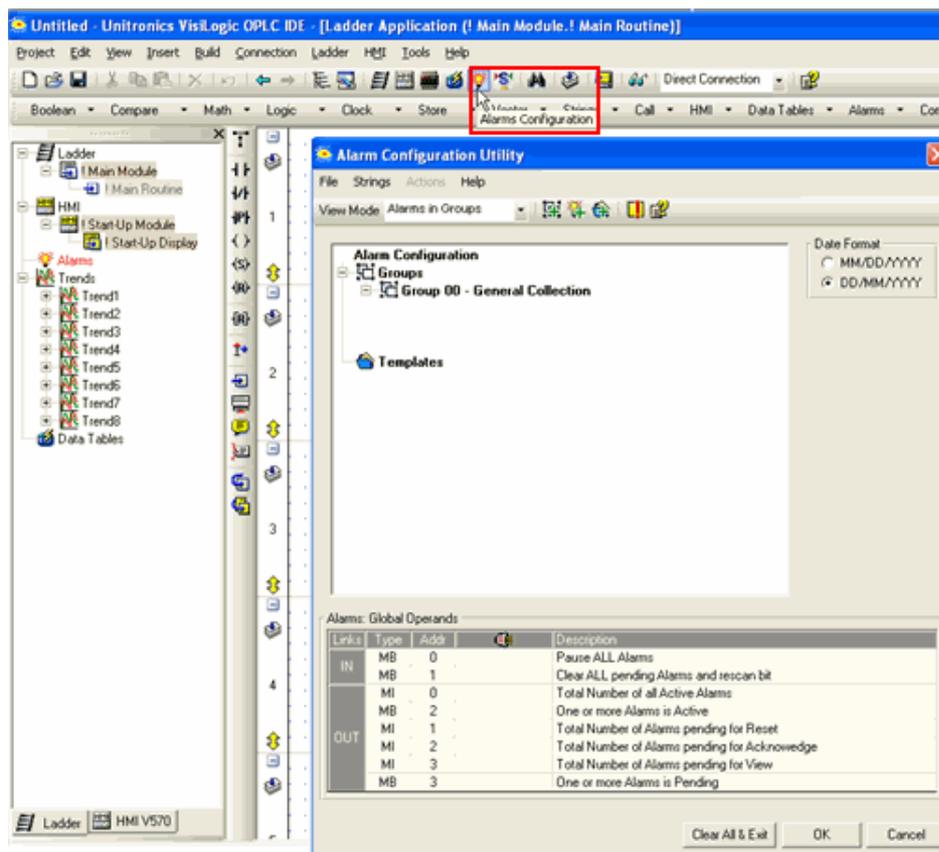
- General Collection. You can also create application groups, for example, you may create a group of alarms for a specific machine or process. All 128 Alarms may remain in the General Collection, or may be put into any group.

All Alarms are linked to Global Operands. These enable you to perform certain actions, such as Pause ALL Alarms, or to monitor status. Each application group also has group operands. This enables you, for example, to Pause a specific group of alarms and to monitor group status.

Alarms may also be linked to Templates that confer specific properties, such as Priority or a password.

Each Alarm also has specific individual properties.

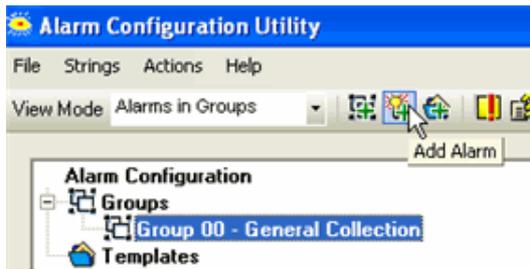
1. Open the Alarm Configuration Utility by clicking the Alarm icon, or by selecting it from the Alarms Ladder menu.
2. The utility leads you through linking Global Operands.



Global Operands

Parameter	Type	Function
Pause ALL Alarms	Bit	Turn ON to suspend all Alarms in all groups in the application.
Clear ALL Pending Alarms and rescan bit	Bit	Turn ON to clear all Inactive Alarms in the system, and refresh the 'One or more Alarms is Active' bit.
Total Number of ALL Active Alarms	Register	Contains the total number of Active Alarms, in all groups.
One or more Alarms is Active	Bit	Turns ON when there is a active Alarm in the application.
Total Number of Alarms Pending for Reset/Acknowledge/View	Register	Each register contains the total number of Alarms pending for each action type.
One or more Alarms is Pending	Bit	Turns ON when there is an Alarm pending for View, Ack, or Reset in any group in the application.

3. Create an Alarm by clicking Add Alarm on the toolbar, or selecting it from a Group's right-click menu.



4. Assign Alarm Properties. Note that only relevant parameters are enabled.

Alarm ID Information

This determines how the Alarm is named in the application.

- Alarm ID
This is assigned by the system when the Alarm is created.
- Alarm Group
Use the drop-down arrow to associate the Alarm with a group.
- Description
Click the field to link a string from the [String Library](#).

Activation Settings

These determine the Trigger condition.

The selection you make in 'When Trigger is:' changes the Alarm Trigger operands as well as other options. For example, if:

- "When Trigger is:" set to 'In Range'; only registers are available, and Min/Max values are enabled
- 'When trigger is:' 'ON' or "OFF", only bits are available, and Min/Max values are disabled

<p>Links</p>	<p>The Alarm Active Bit turns ON when the Trigger condition is True and the Alarm is Active.</p> <p>If, in Properties, the Require Reset and Ack. Required options are selected, you can select the Reset and Acknowledge bits, and then use these in your application</p>
<p>Properties</p>	<p>You can set specific Properties for the Alarm, or associate the Alarm with a Template that provides these properties.</p> <p>Setting Pending Properties:</p> <ul style="list-style-type: none"> • Selecting Require Reset and Require Ack. places buttons in the Alarm Details screen. • Assigning a password requires the operator to enter a password at Acknowledge or Reset. • Pending View is a default parameter.
<p>Additional Info</p>	<p>Clicking on the field opens the String Library, enabling you to select text.</p> <p>This text is shown in the Alarm Details display.</p>
<p>Show Jump to Display button</p>	<p>Selecting this places a button in the Additional Information field in Alarm Details .</p> <p>When the operator touches the button, the application exits Alarms and enters the HMI application.</p>



The Save and Add Next button appears when you create new alarms. Click it to open a new Alarm that maintains all of the optional properties, and automatically links to the **next free** operands and the **next** strings from the String Library. For example, if you link

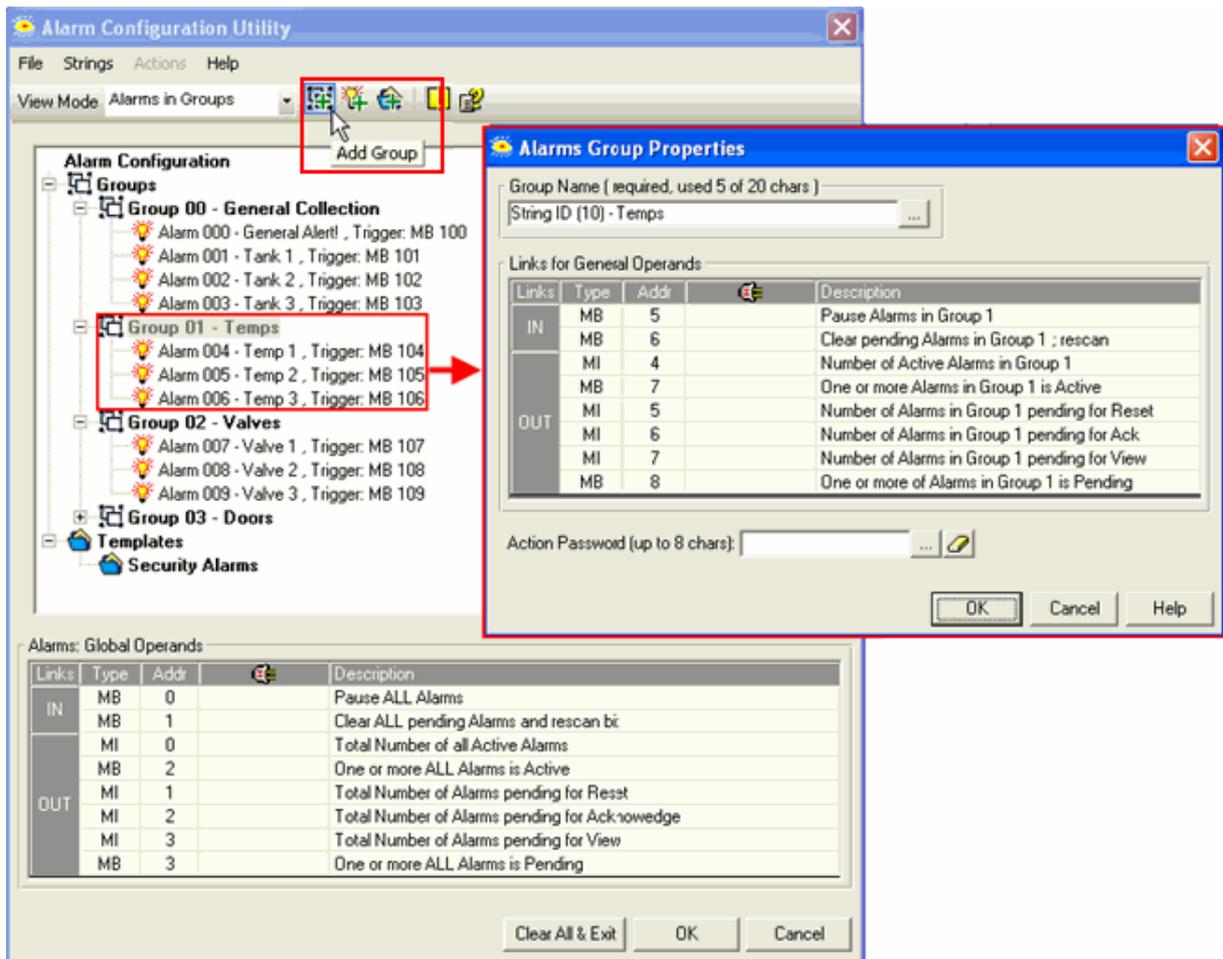
a Trigger to MB 100 and the description to String ID 1, clicking on Save and Add next will open a new Alarm with the Trigger set to MB 101, and the description set to String ID 2.

Note that although operand links are provided automatically, you must click on the operand description fields to assign descriptions. In addition, if there is no text for a particular string, the line will read "EMPTY STRING".

Adding Groups

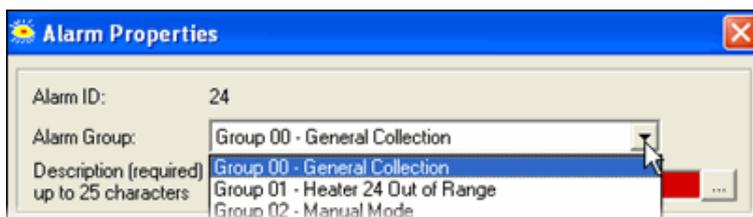
Each Group is associated with Group operands. This enables a Group to be separately controlled and monitored.

1. Click on the Add Group icon; the utility leads you through linking Group Operands.

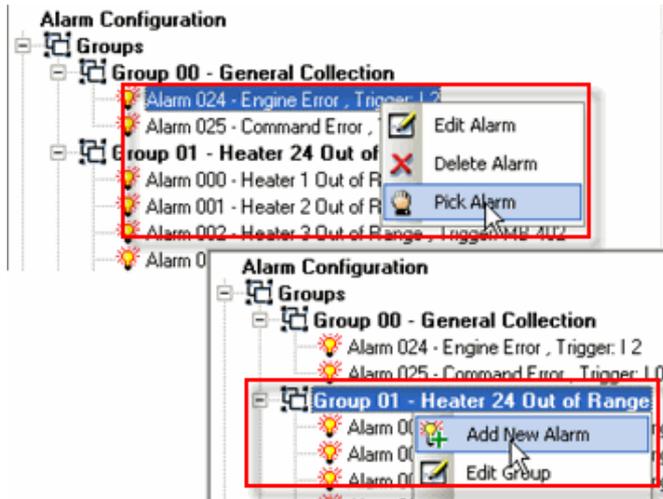


Assigning Alarms to Groups

You can assign an Alarm to a group by using the drop-down arrows as shown in the following image.



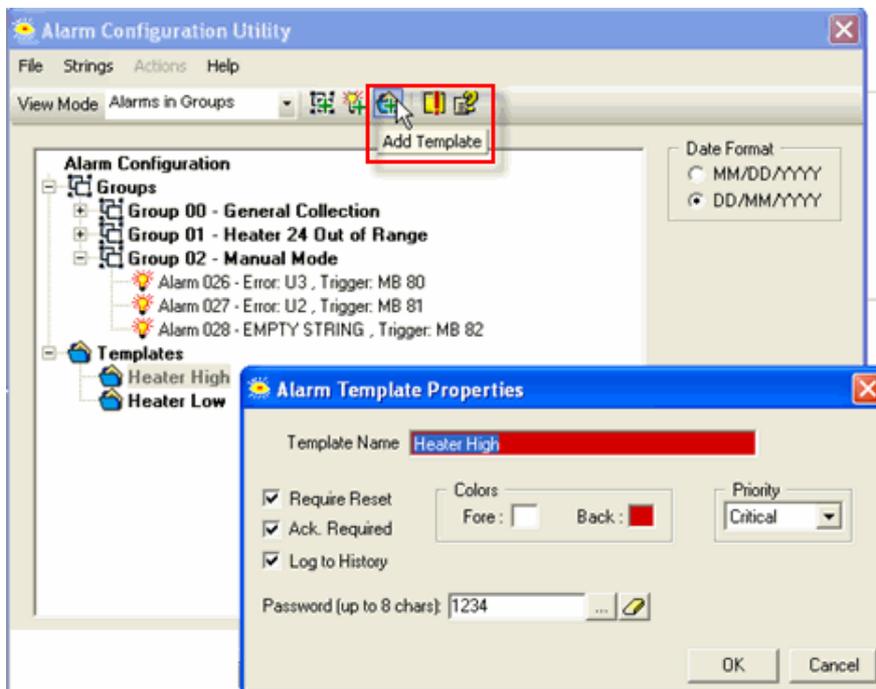
You can also right-click an Alarm, pick it, and then right-click a group to add it.



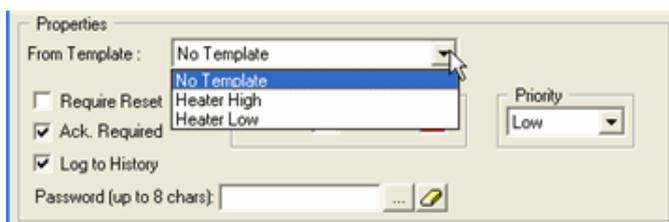
Templates

You can create a template and then link Alarm Properties to it.

1. Click the Add Template icon; make the desired selections.



1. Open an Alarm, and select the Template in Properties.



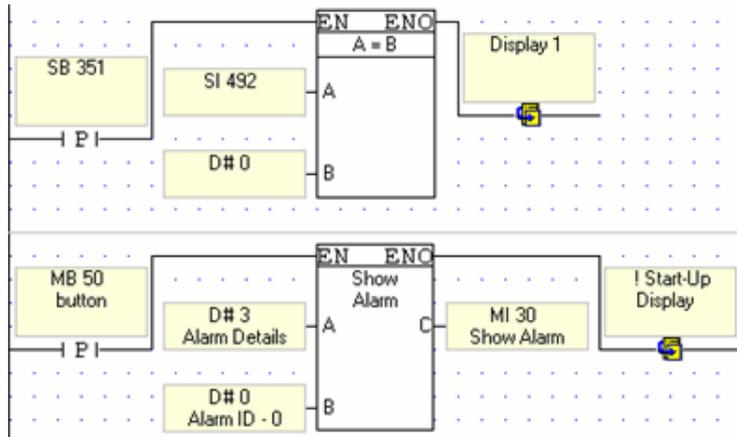
Jump to Display

Selecting
Jump to
Display in an
Alarm's

properties displays a Jump button, if the Ladder program supports this via SB 351 Exit Alarm - Jump to Display and SI 492 Jump from Alarm x to HMI Display.



The nets shown at the right demonstrate how to jump from Alarm display 0 to HMI Display 1, and how to return from Display 1 to Alarm 0 when a button on Display 1 is pressed.



The Ladder Application

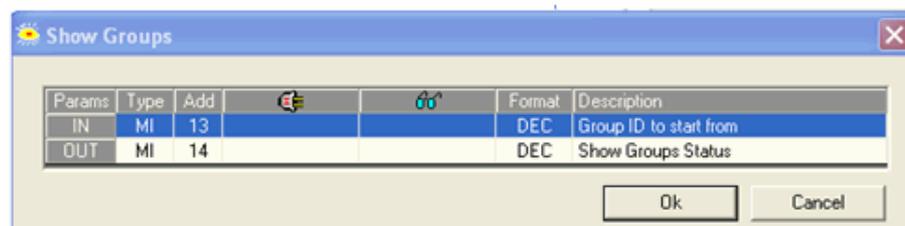
The Alarms displays are shown according to the Ladder application. When the Ladder application calls the Alarms, the displays will only appear if the Alarms are Active.

The functions are located on the Alarms menu in the Ladder toolbar.

Show Groups

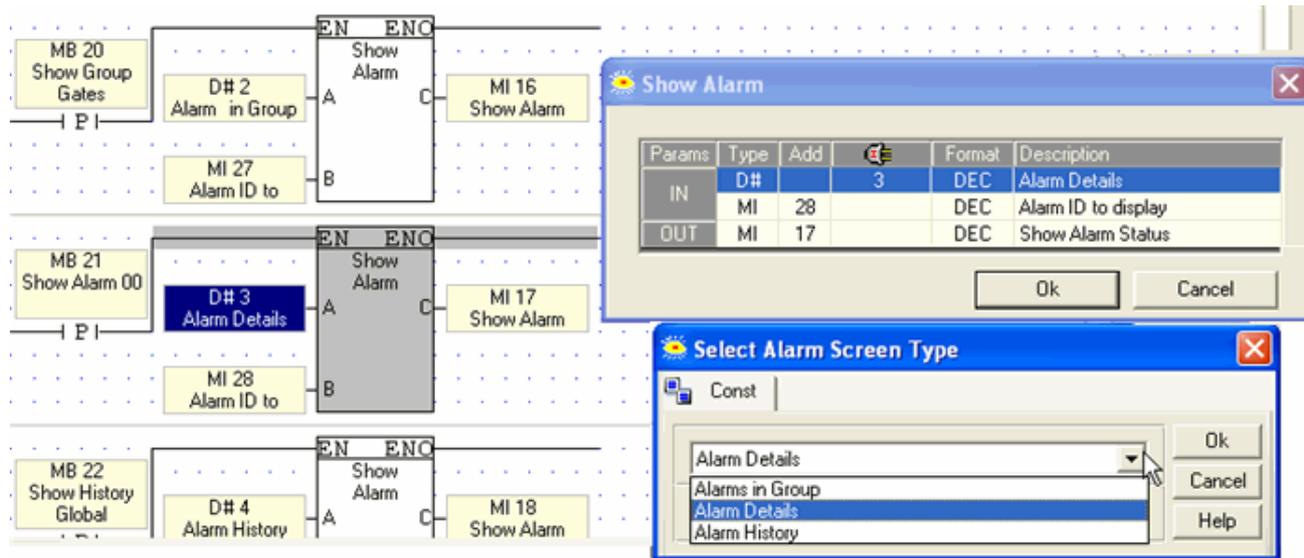
This function shows the Alarms in Group display, according to the number in the MI Group ID to Start From.

Note that the status MI will read 0 if no such group exists.



Show Alarm

This function can show a specific display for a specific Alarm. You can show the Alarm in the Alarms in Group display, or go directly to the Alarm Details or History.



Clear History Buffer

Use this function to erase the Alarm History.

Related Topics

[String Library](#)