

LabVIEW



Automation Symbols Toolkit User Guide

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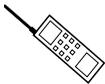
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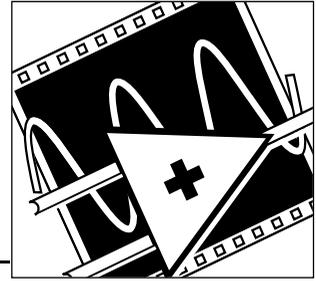
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Automation Symbols Toolkit User Guide



The Automation Symbols Toolkit is a set of controls and images in the shape of International Society for Measurement and Control (ISA) standard symbols¹ that you can use in any LabVIEW VI.

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Introduction

This manual includes instructions for installing the Automation Symbols Toolkit and describes the features associated with each control. This manual also explains how to access the automation symbols from either of the following two sources:

- The Automation Symbol Catalog Utility—A tool that contains a set of images you can use in any LabVIEW VI.
- The User Controls Palette in LabVIEW—A set of front panel decorations and controls.

1. International Society for Measurement and Control (ISA) 1985. *Graphic Symbols for Process Display*. ANSI/ISA-S5.5 – 1985. North Carolina: International Society for Measurement and Control.

The images from these sources have different characteristics, so you must use and manipulate them in different ways.

Installation

The following section describes how to install the Automation Symbols Toolkit for Windows, Macintosh, Sun, HP-UX, and Concurrent PowerMAX. To install this toolkit, follow the directions below for your particular platform.

Complete the instructions in the installer to choose any options available. You must have full write access to the LabVIEW directory where you plan to install these libraries.

Windows 95/NT/3.1

Launch `SETUP.EXE` from Disk 1.

68K/Power Mac

Launch `AST Install` from Disk 1.

SUN and HP-UX

1. Insert the first floppy disk into the floppy disk drive.
2. Type one of the following commands, depending on your platform.

- For HP-UX, type the following UNIX command:

```
tar xvf /dev/rfloppy/c20Ad1s0 INSTALL
```



Note: *The device name `c20Ad1s0` might be different on your machine.*

- For Solaris 1, type the following UNIX command:

```
tar xvf /dev/rfd0c INSTALL
```
 - For Solaris 2, type the following UNIX command:

```
volcheck  
tar xvf /vol/dev/aliases/floppy0 INSTALL
```
3. Run the installation program by typing the following command:

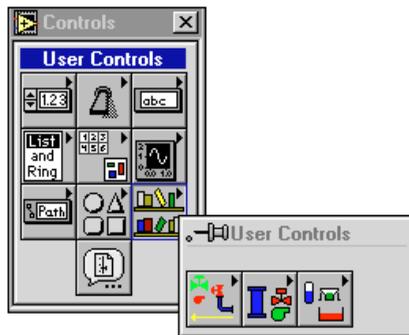
```
./INSTALL
```
 4. Follow the instructions on your screen. A message prompts you to insert the subsequent floppy disks.

Concurrent PowerMAX

Please refer to the *Release Notes for the PID Control and Automation Symbols Toolkit for LabVIEW*, part number 321516-01.

User Controls Palette

This toolkit installs three new menus to the User Controls palette in LabVIEW. The User Controls palette is shown below.



From the User Controls palette, you can access the following subpalettes:

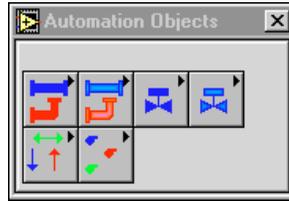
- Automation Objects palette
- Pipes, Pumps, Valves palette
- Vessels palette

These palettes include LabVIEW decorations and custom controls. You can resize and color decorations and custom controls proportionally, as with any other LabVIEW object, but the custom controls also can replace standard LabVIEW controls directly. To customize a decoration, use the control editor to import the decoration to a LabVIEW control.

Automation Objects Palette

The Automation Objects palette contains several decorations in the shapes of two-dimensional pipes, three-dimensional pipes, two-dimensional valves, three-dimensional valves, lines and arrows,

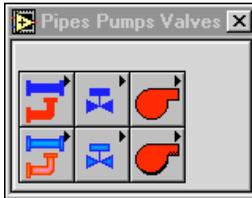
and pumps and motors. The Automation Objects palette is shown below.



All the items on this palette are LabVIEW decorations, and you can use them as static images in a VI, or you can import them into a LabVIEW control.

Pipes, Pumps, Valves Palette

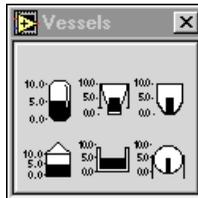
The Pipes, Pumps, Valves palette is a collection of custom Boolean controls in the shape of two-dimensional and three-dimensional pipes, pumps, and valves. The Pipes, Pumps, Valves palette is shown below.



You can use these objects as Boolean controls and indicators in a VI.

Vessels Palette

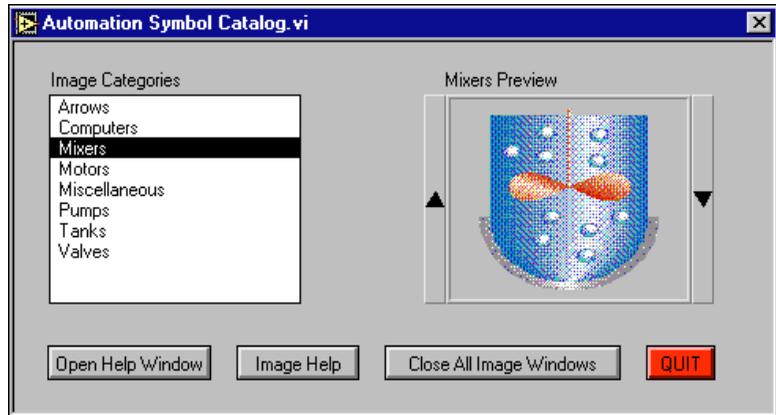
The Vessels palette contains six custom numeric controls in the shape of various vessels. The Vessels palette is shown below.



These objects function similarly to other standard LabVIEW controls. You can use these objects as numeric controls and indicators in a VI.

Automation Symbol Catalog Utility

The Automation Symbol Catalog displays and accesses additional process control symbol images that you can use in any LabVIEW VI. You find this utility in the **Project** menu. When you select **Project»Automation Symbol Catalog**, the following dialog box appears.



Selecting an Image Category from the listbox displays images in the Preview window (as in the example above). To preview the images available in a category, complete one of the following steps:

- Click on the arrows on either side of the Preview window.
- Click and hold the mouse button to display a summary palette of all images in that category. To display a larger version of the image in the Preview window, select an image in the summary palette.

You cannot copy images from the Preview window.

To access any of the images, double-click on a category to open a VI with images in that category. You can copy any image to any other LabVIEW VI. These images are similar to LabVIEW decorations in that you can use them as static pictures in a LabVIEW VI or import them into a control for customization.



Note: *Unlike LabVIEW decorations, some of these images cannot be resized to scale, and you cannot change image color with the LabVIEW color tool.*

You can toggle the LabVIEW help window open and closed with the **Open/Close Help Window** button. To display help on that item, place the mouse cursor over any of the items in the Automation Symbol Catalog while the help window is open.

The **Image Help** button launches the online help.



Note: *The Image Help feature is not available on Concurrent PowerMAX.*

The **Close All Image Windows** button automatically closes all open image topic VI windows. You can use this button to discard any open windows you no longer need.

Copying Images from the Images Catalog

You can copy any of the images in the Automation Symbol Catalog to any LabVIEW VI. To use an image, double-click on the category in the Automation Symbol Catalog that contains the desired image. A VI opens with all the images in that category.

To use any image in another VI, complete one of the following steps:

- Drag the image from the image category VI to the target VI.
- Use the clipboard functions **Copy** and **Paste** under the **Edit** menu to copy the image from the category VI and paste it to the target VI.

Once the image is in the target VI, you can resize and position it as necessary.

Importing Images and Decorations to a Custom Control

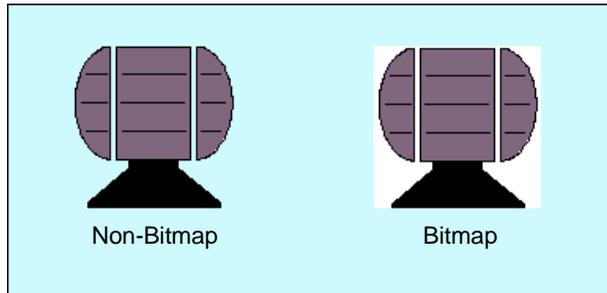
You can import any of the process control symbol decorations or images into a LabVIEW control to customize its look. For detailed information about how to customize controls, refer to Chapter 23, *Custom Controls and Type Definitions*, in the *LabVIEW User Manual*.

Differences in LabVIEW Image Types

The images in the Automation Symbol Catalog are a collection of two types of images with properties that make them very different. It is important to understand these differences so you can know how to use an image in a VI.

You can resize most images to scale without losing any detail. The edges of these images are the same as the edges of the image itself, therefore the image does not exist in a standard rectangular region of the

screen. You can see the difference in image boundaries in the figure below. A few of the images in the catalog contain the same types of properties as a standard bitmap image. When you resize these images, they typically look grainy and lose detail. You can distinguish these images because their image bounds are always rectangular.



You only can resize these images. You cannot change their form or color in LabVIEW. If any image is resized, you can set it back to its original size by popping-up on the image and selecting **Original Size**.



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