ActiveX Controls - smar FIRST IN FIELDBUS

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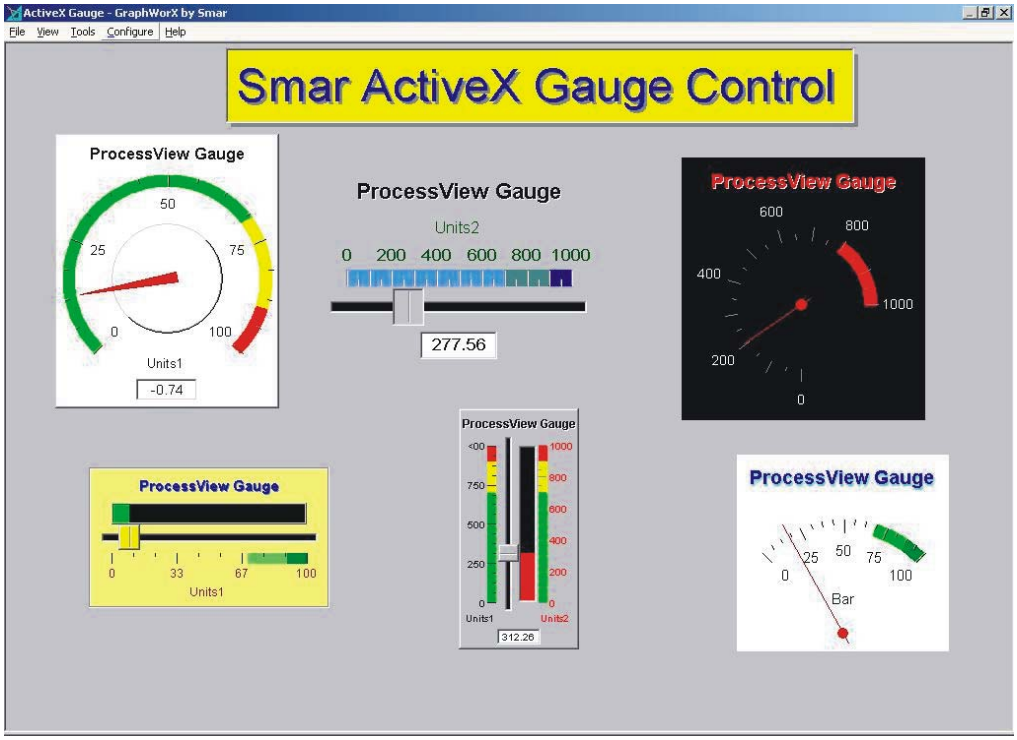
ActiveX Control

VERSION 7.1

FOUNDATION™

USER'S GUIDE

ActiveX Control



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web: www.smar.com/contactus.asp

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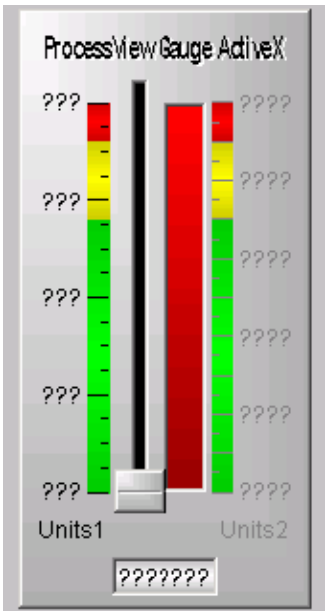
Chapter 1

Gauge ActiveX

Introduction

Smar GWXGauge ActiveX is included in the ProcessView installation, and it can be inserted into any container that has the capability to embed ActiveX objects, including GraphWorX, VB Form, MS Word, and MS Excel.
To insert the Smar GWXGauge ActiveX, choose **Insert Object** from the **Edit** menu in GraphWorX, or click the **GWXGauge ActiveX** button on the **ActiveX** toolbar. The Smar Gauge will appear as shown below.



Smar Gauge

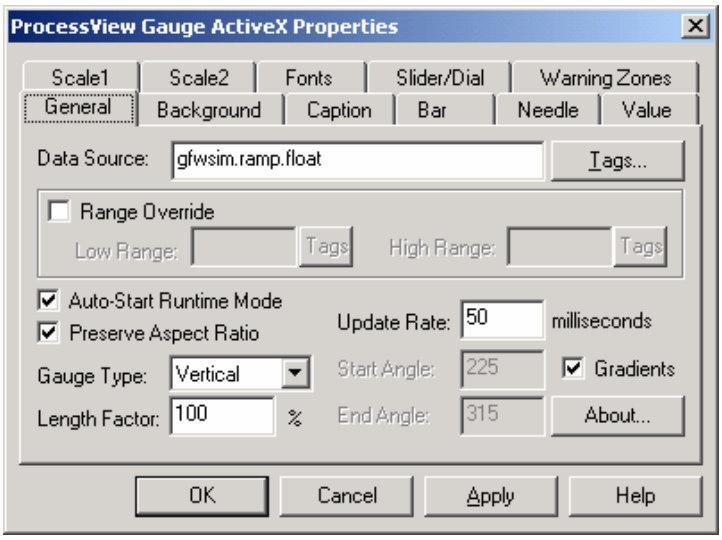
Property Pages

Double-clicking the Smar gauge will open the **Smar GWXGauge ActiveX Properties** dialog box, which contains the following property pages:

- **General**
- **Background**
- **Caption**
- **Bar**
- **Needle**
- **Value**
- **Scale1**
- **Scale2**
- **Fonts**
- **Slider/Dial**
- **Warning Zones**

General

The **General** tab of the **Smar GWXGauge ActiveXProperties** dialog box, shown below, allows you to select the tag that will be the data source for the gauge. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags. The **Range Override** check box allows you to override the ranges associated with their selected tag. If the **Auto-Start Runtime Mode** check box is checked when the display enters runtime mode, it will automatically start to process data. Otherwise, the gauge will still appear as it does in configuration mode. The **Preserve Aspect Ratio**check box determines whether the gauge will maintain its ratio when you change its dimensions by moving the edges of the object's frame. The **Gauge Type** field allows you to choose which type of gauge to use: vertical, horizontal, or circular.

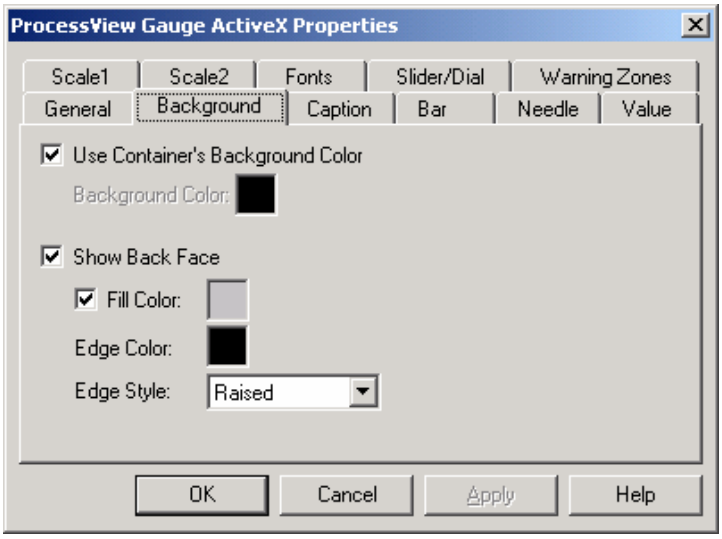


GWXGauge ActiveX Properties: General Tab

The **Length Factor** field determines how long the dial hand will be and determines the diameter (circular) or length (vertical or horizontal) of the gauge. The **Update Rate** field determines how fast the system will update the data being displayed through the gauge. The fastest update rate is 50 milliseconds; the faster the update rate, the more fluid the motion of the gauge. The **Start Angle** and **End Angle** fields are only valid when dealing with a circular gauge, and they determine where in the display the gauge will begin and end. The default is set to begin at 225 degrees and end at 315 degrees.

Background

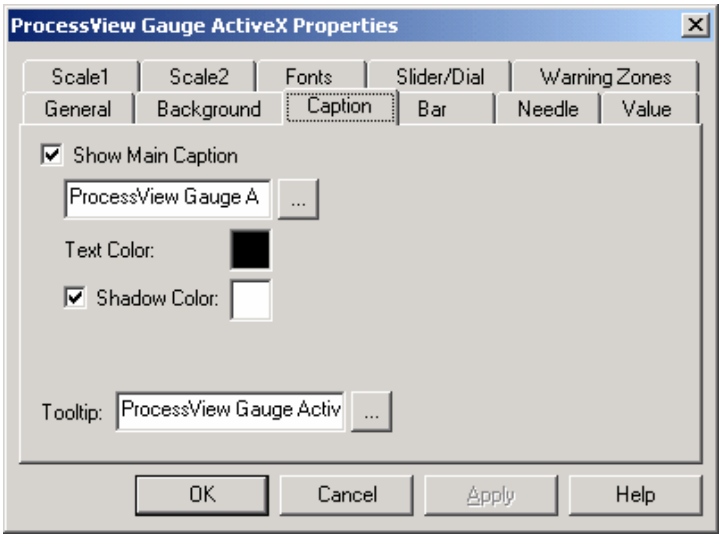
The **Background** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, is used to configure the appearance of the gauge within the container. If the **Use Container's Background Color** box is checked, the background color of the gauge will automatically be set to match the background color of the container. By unchecking this box, you can select a color for the background, and the gauge will now have a border around it. The **Show Back Face** check box determines whether the gauge will have an edge border. If the check box is not checked, the gauge will either look like it is part of the display or will have the user-defined background color. If the check box is checked, you can choose a fill color or opt to have the default gray as the fill color. You can also choose an edge color and an edge style (thin line, medium line, thick line, etched, bump, raised (default), sunken, or no edge).



GWXGauge ActiveX Properties: Background Tab

Caption

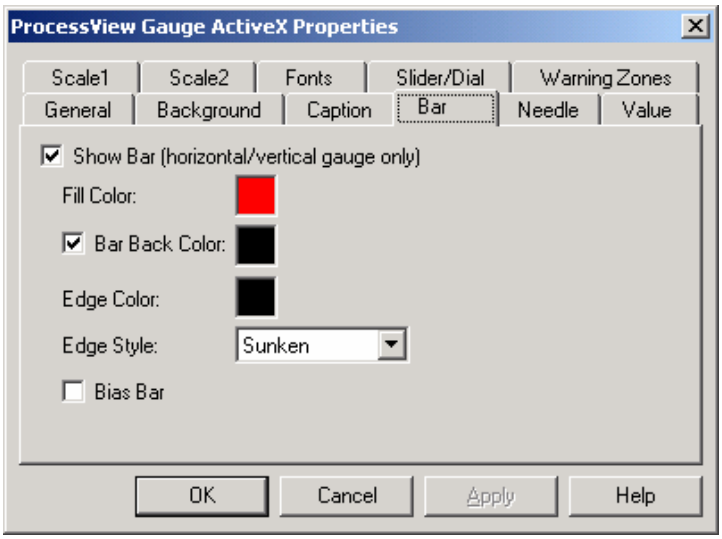
The **Caption** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, allows you to configure the caption that appears on the gauge, as well as enter text for the gauge ToolTip that appears when the mouse pointer is over the object. If the **Show Main Caption** check box is checked, the text entered underneath will appear as the title of the gauge. The following color boxes allow you to choose the text color and the text shadow color. The **ToolTip** field allows you to enter a word, phrase, or message to appear as a ToolTip to the user.



GWXGauge ActiveX Properties: Caption Tab

Bar

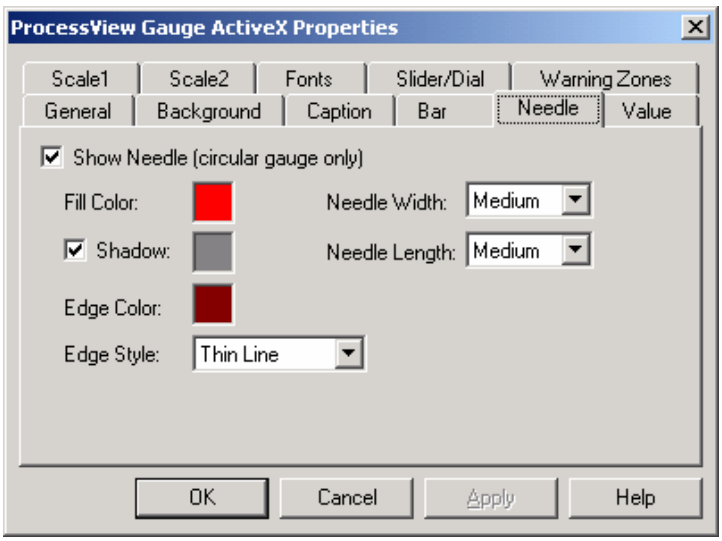
The **Bar** tab of the **SMAR GWXGauge ActiveX Properties** dialog box, shown below is only applicable if you are using a horizontal or vertical gauge. If you check the **Show Bar** check box, a bar will appear next to the slider in the color designated in the **Fill Color** box. You can change this color either by clicking this box and selecting a color from the Color Palette, or by designing your own color. If the **Bar Back Color** box is checked, you can choose what the color behind the resizing bar will be. The **Edge Color** determines the color of the edge, and the **Edge Style** drop-down menu allows you to select an edge style (thin line, medium line, thick line, etched, bump, raised, sunken, or no edge). The **Bias Bar** check box changes the configuration of the bar so that the bar resizes from its center.



GWXGauge ActiveX Properties: Bar Tab

Needle

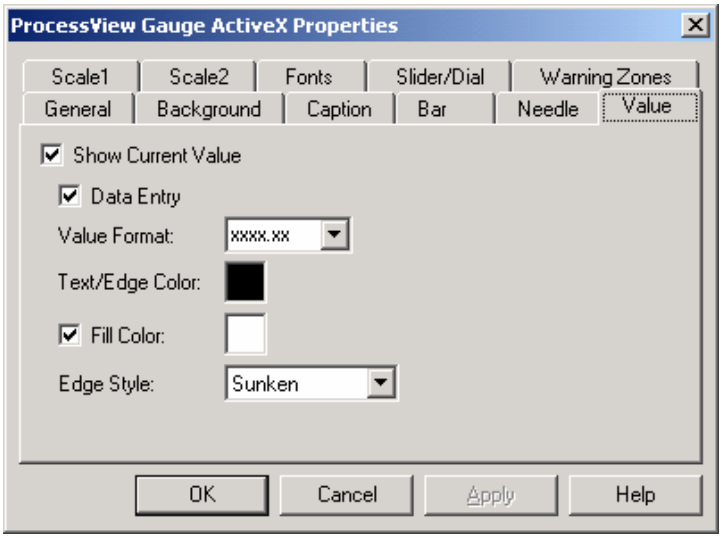
The Needle tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, only applies to the circular gauge. The **Show Needle** check box allows you to choose whether or to have a needle on the gauge. If this box is not checked, no needle will appear. The following three color boxes determine the color of the needle, the color of the needle's shadow, and the color of the needle's edge. The **Edge Style** field is similar to the **Bar Edge Style** field in the **Bar** tab. The **Needle Width** and **Needle Length** fields allow the user to configure the appearance of the needle.



GWXGauge ActiveX Properties: Needle Tab

Value

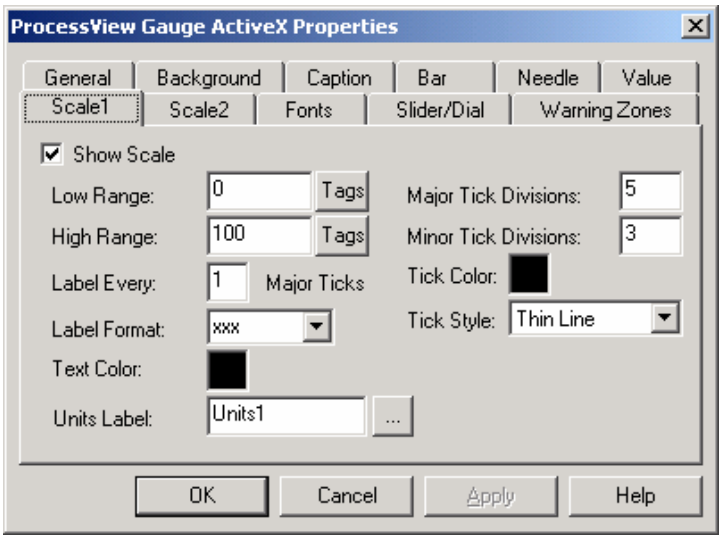
The **Value** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, refers to the text box at the bottom of the gauge, where the value of the tag value is displayed. If the **Show Current Value** box is not checked, the box completely disappears from the display. The **Value Format** field allows you to choose from various numeric forms in which the data can be displayed, and the **Text/Edge Color** field determines the color of the text in this box. As in the **Bar** and **Needle** tabs, the **Fill Color** and **Edge Style** fields determine the appearance of the box within the display. Selecting the **Data Entry** check box allows you to type new data values into this field during runtime mode.



GWXGauge ActiveX Properties: Value Tab

Scale1

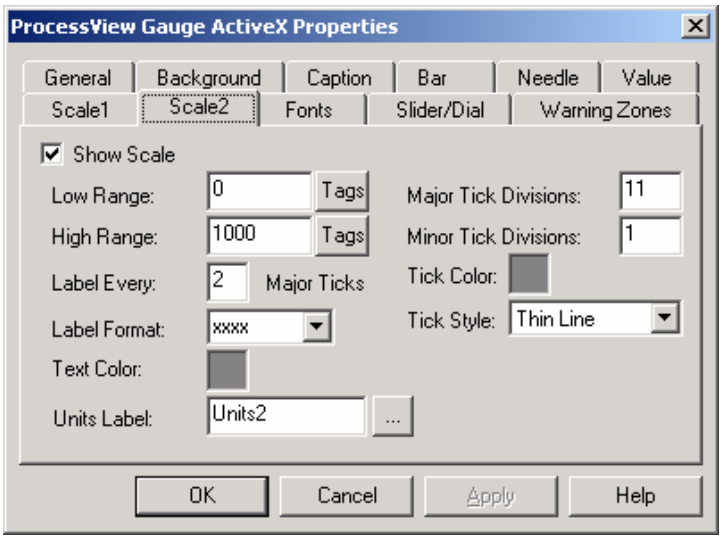
The **Scale1** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, configures the appearance of the interior, left, or bottom scale on the gauge. You can define a **Low** and **High** range for the gauge by either typing in numbers or selecting a tag. This tab also allows you to determine the number of ticks on each scale, as well as the color and format of the ticks. The **Units Label** field defines how the units will be distinguishable on the gauge.



GWXGauge ActiveX Properties: Scale1 Tab

Scale2

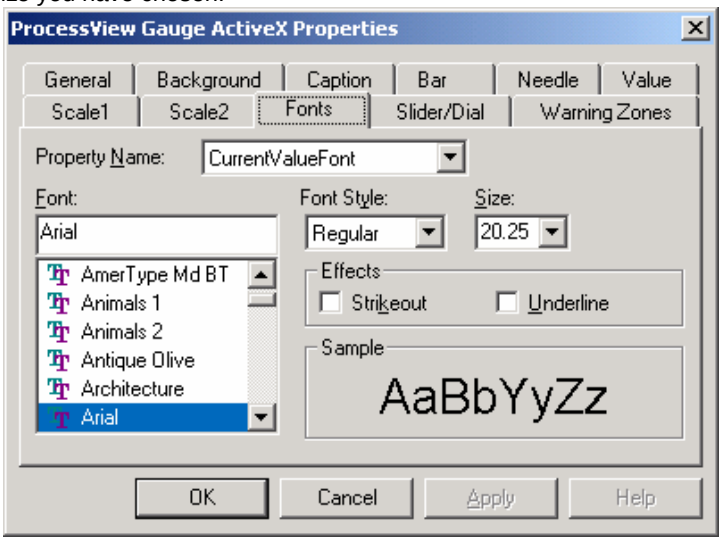
The **Scale2** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, configures the appearance of the interior, left, or bottom scale on the gauge. The user can define a **Low** and **High** range for the gauge by either typing in numbers or selecting a tag. This tab also allows you to determine the number of ticks on each scale, as well as the color and format of the ticks. The **Units Label** field defines how the units will be distinguishable on the gauge.



GWXGauge ActiveX Properties: Scale2 Tab

Fonts

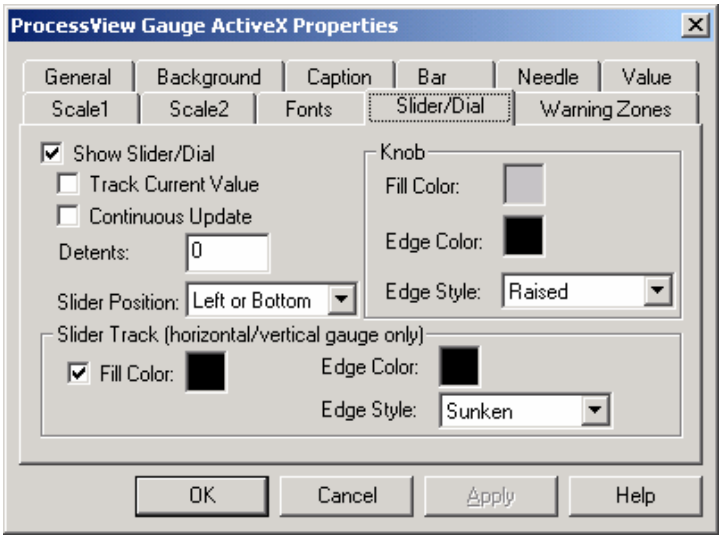
The **Fonts** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below is similar to many fonts property screens, with one exception: the **Property Name** field. The drop-down menu allows you to specify which text font to change: **CurrentValueFont, MainCaptionFont, ScaleOneLabelFont,** or **ScaleTwoLabelFont.** The **Font** field determines the font, and the **Font Style** field determines whether the text will be **Regular, Bold, Italic,** or **Bold Italic.** The **Effects** section allows for strikeout or underlining, and the **Sample** section shows a real-size example of the font, style, and size you have chosen.



GWXGauge ActiveX Properties: Fonts Tab

Slider/Dial

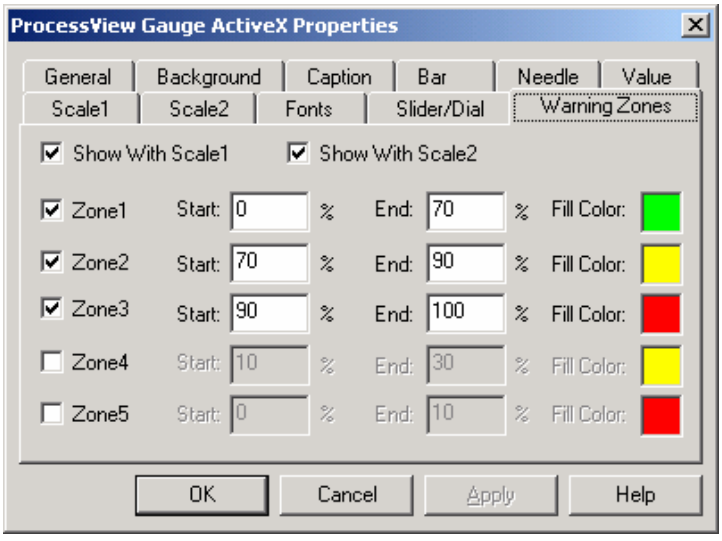
The **Slider/Dial** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, allows you to configure the appearance of the slider (in horizontal and vertical gauges) or the dial (in circular gauges). The slider/dial is used to change the gauge's data value during runtime mode. If the **Show Slider/Dial** box is not marked, then the rest of the tab is grayed out, and any changes that were made will not be applied. The **Track Current Value** and **Continuous Update** check boxes determine the data-collection methods. The **Detents** field allows you to set the increments at which the dial or slider will move within the gauge ("0" for no detents). The **Slider Position** field determines where the slider will be placed **(Left or Bottom,** or **Right or Top).**
The **Knob** section applies to all three types of gauges and determines the color of the dial or the slider.
The **Slider Track** section determines the color and style of the actual bar on which the slider moves (applies to horizontal/vertical gauge only).



GWXGauge ActiveX Properties: Slider/Dial Tab

Warning Zones

The **Warning Zones** tab of the **Smar GWXGauge ActiveX Properties** dialog box, shown below, allows you to configure the color and the percentage for each warning zone. You can configure up to five zones. The **Show With Scale** boxes determine whether the warning zones are shown with each scale.



GWXGauge ActiveX Properties: Warning Zones Tab

Security

Security for the Gauge ActiveX is enabled/disabled by the following registry setting:

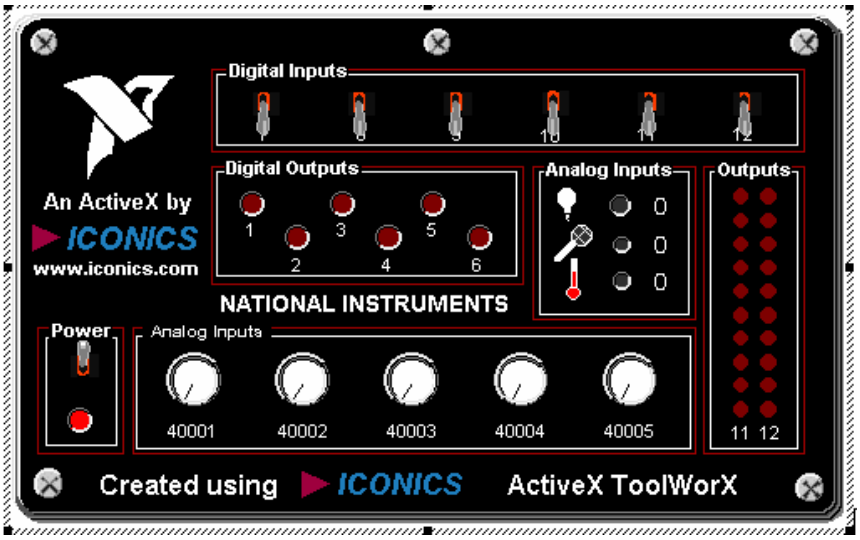
HKEY_LOCAL_MACHINE\Software\Smar\GWXGauge\Security\UseSecurity = 0 or 1 (false or true)

Chapter 2

National Instruments ActiveX

Introduction

The Smar National Instruments ActiveX is included in the ProcessView installation, and it can be inserted into any container that has the capability to embed ActiveX objects, including GraphWorX, VB Form, MS Word, and MS Excel.
To insert the Smar National Instruments ActiveX, choose **Insert Object** from the **Edit** menu in GraphWorX. You can also click the **National Instruments ActiveX** button on the **ActiveX** toolbar. The Smar National Instruments ActiveX will appear as shown below.



National Instruments ActiveX

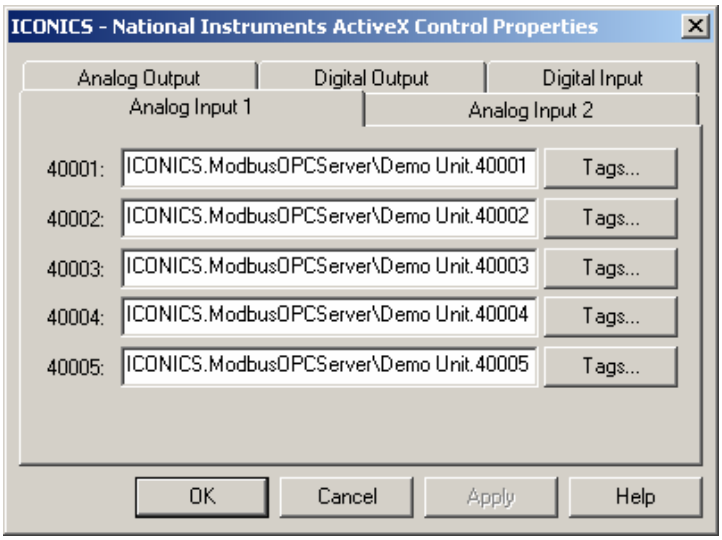
Property Pages

Double-clicking on this National Instruments ActiveX opens the Smar **National Instruments ActiveX Properties** dialog box, which contains the following property pages:

- **Analog Input 1**
- **Analog Input 2**
- **Analog Output**
- **Digital Input**
- **Digital Output**

Analog Input 1

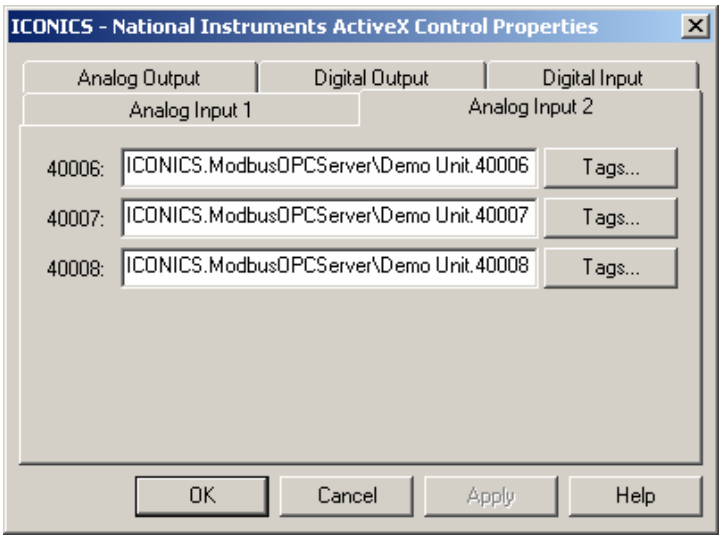
Clicking the Analog Input 1 tab in the Smar **National Instruments ActiveXProperties** dialog box, shown below, displays the corresponding tag. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags.



National Instruments ActiveX Properties: Analog Input 1 Tab

Analog Input 2

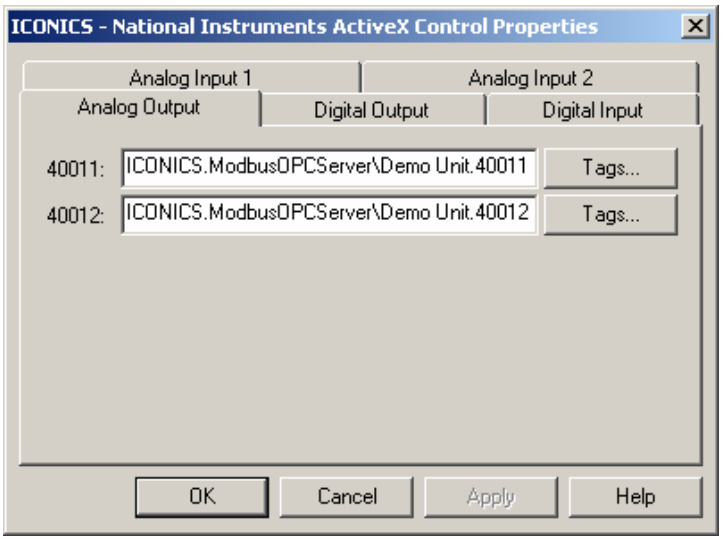
Clicking the **Analog Input 2** tab in the Smar **National Instruments ActiveX Properties** dialog box, shown below, displays the corresponding tag. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags.



National Instruments ActiveX Properties: Analog Input 2 Tab

Analog Output

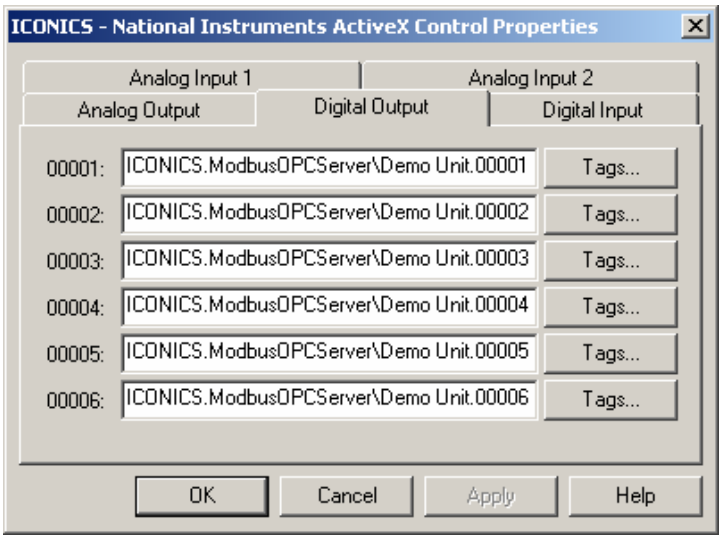
Clicking the **Analog Output** tab in the Smar **National Instruments ActiveX Properties** dialog box, shown below displays the corresponding tag. Clicking the **Tags** button allows you to browse through currently installed OPC serversand their associated tags.



National Instruments ActiveX Properties: Analog Output Tab

Digital Output

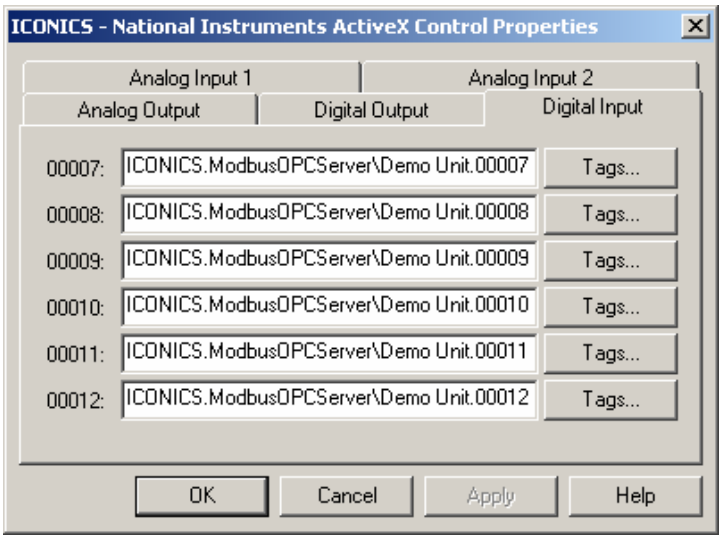
Clicking the **Digital Ouput** tabin the Smar **National Instruments ActiveX Properties** dialog box, shown below, displays the corresponding tag. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags.



National Instruments ActiveX Properties: Digital Output Tab

Digital Input

Clicking the **Digital Input** tab displays the corresponding tag. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags.



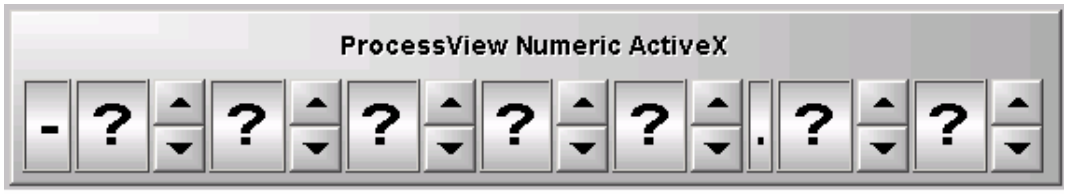
National Instruments ActiveX Properties: Digital Input Tab

Chapter 3

Numeric ActiveX

Introduction to Numeric ActiveX

Smar GWXNumeric ActiveX, shown below, is included in the ProcessView installation. It can be inserted into any container, such as Smar GraphWorX, Visual Basic forms, Microsoft Word, or Microsoft Excel, that has the capability to embed ActiveX objects.



Smar GWXNumeric ActiveX

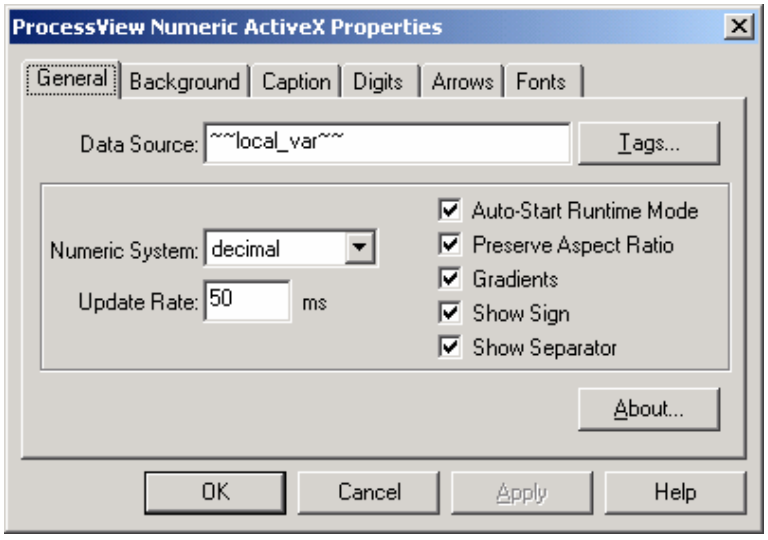
GWXNumeric ActiveX Properties

To insert the Smar GWXNumeric ActiveX, choose **Insert New Object** from the **Edit** menu. This opens the **Insert Object** dialog box, shown below. Select **Smar GWXNumeric ActiveX** from the list of object types in the **Insert Object** dialog box. Double-clicking on the Numeric ActiveX (or right-clicking and then selecting **Properties**) opens the **Smar GWXNumeric ActiveX Properties** dialog box, which contains the following tabs:

- **General tab**
- **Background tab**
- **Caption tab**
- **Digits tab**
- **Arrows tab**
- **Fonts tab**

General Tab

The **General** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, allows you to select the tag that will be the data source for the slider. Clicking **Tags** opens the OPC Universal Tag Browser, which allows you to browse for currently installed OPC servers and their associated tags.



GWXNumeric ActiveX Properties: General Tab

The **Numeric System** combo box allows you to select the numerical system used for displaying the current value. The choices are binary, octal, decimal, and hexadecimal.

The **Update Rate** field determines how fast the system will update the data being displayed through the numeric. The fastest update rate is 50 milliseconds. The faster the update rate, the more fluid the motion of the slider will be.

If **Auto-Start Runtime Mode** is checked when the display enters runtime mode, it will automatically begin to process data. Otherwise, the numeric will still appear as it does in configuration mode.

The **Preserve Aspect Ratio** check box determines whether the numeric will maintain its ratio when you change its dimensions by moving the edges of the object's frame.

The **Gradients** option determines whether the numeric control will appear to be light-sourced. Using the **Gradients** option makes the slider appear more three-dimensional and realistic. You may want to disable this option if you are using a computer that can only display a maximum of 256 colors.

The **Show Sign** option determines whether the numeric control will have a sign displayed. You may disable this option to get absolute value.

The **Show Separator** option determines whether the numeric control will have a decimal point displayed.

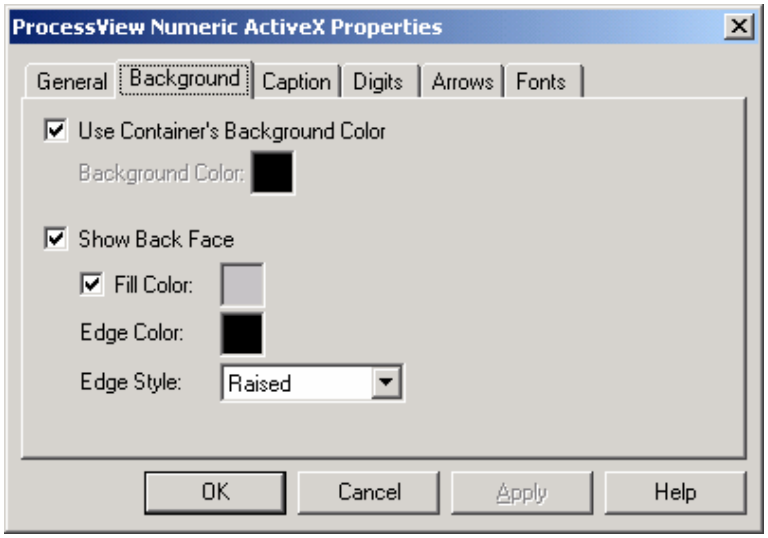
Clicking **About** opens the Smar About Box.

Background Tab

The **Background** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, is used to configure the appearance of the numeric within the container.

If the **Use Container's Background Color** is checked, the background color of the numeric will automatically be set to match the background color of the container. By unchecking this box, you can select a color for the background and the numeric.

The **Show Back Face** option determines whether the slider will have a background faceplate. Attributes of the background faceplate that can be modified include **Fill Color, Edge Color,** and **Edge Style.**



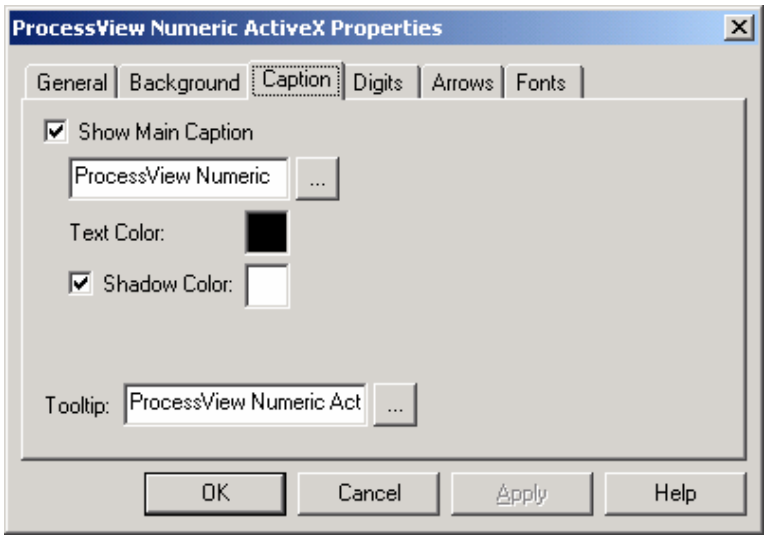
GWXNumeric ActiveX Properties: Background Tab

Caption Tab

The **Caption** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, allows you to configure the caption that appears on the numeric. It also allows you to enter text for the numeric ToolTip that appears when the mouse pointer is over the object.

If the **Show Main Caption** box is checked, the text entered in the box below will appear as the title of the numeric. Controls are also included for modifying the caption's text color and optional text shadow color.

The **ToolTip** field allows you to enter a word, phrase, or message to appear as a ToolTip to the user.



GWXNumeric ActiveX Properties: Caption Tab

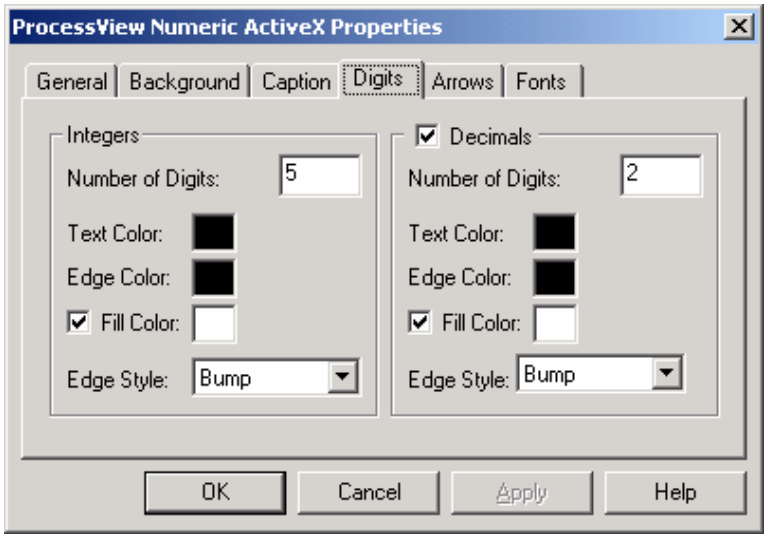
Digits Tab

The **Digits** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, allows you configure the number and appearance of integer figures and decimal figures in the numeric control independently.

The number of displayed digits in the numeric is determined by the settings in the **Number of Digits** fields in the **Digits** tab.

The **Text Color, Fill Color, Edge Color,** and **Edge Style** fields determine the appearance of the rectangle in which every figure will be displayed.

When the **Decimals** option is disabled, the decimals in the numeric will not be displayed.



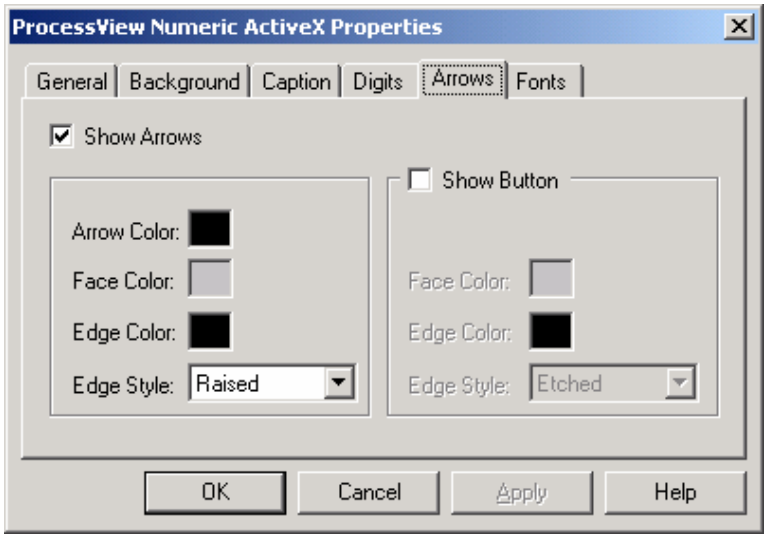
GWXNumeric ActiveX Properties: Digits Tab

Arrows Tab

The **Arrows** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, enables you to change the displayed data value in runtime mode. If **Show Arrows** is checked, each digit field in the numeric will be accompanied by arrow buttons that allow you to increase or decrease the digit value.

If **Show Button** is checked, the arrow buttons will appear as if they reside on the background button frame.

The **Face Color, Edge Color,** and **Edge Style** fields determine the appearance of the arrow buttons.

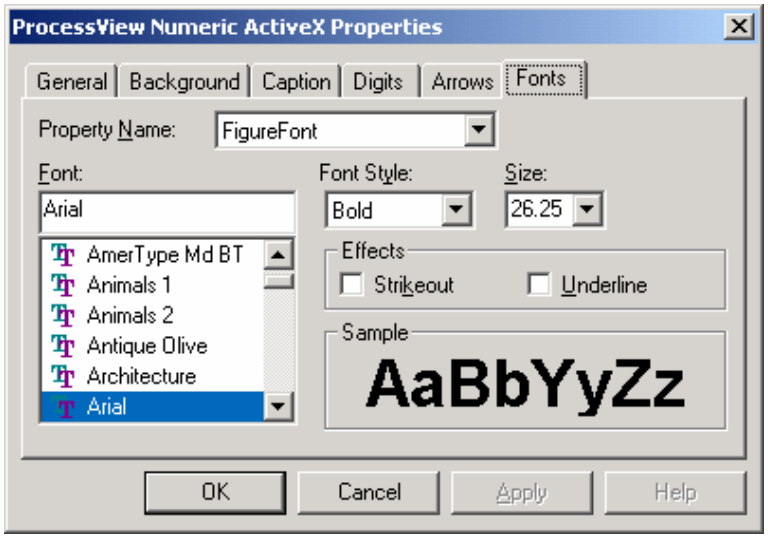


GWXNumeric ActiveX Properties: Arrows Tab

Fonts Tab

The **Fonts** tab of the **Smar GWXNumeric ActiveX Properties** dialog box, shown below, is similar to many other fonts settings pages, with the exception of the **Property Name** field. This field enables you to choose which text to change: the **Main Caption Font** or the **Figure Font.**

The **Font** field enables you to select a font. The **Font Style** field contains **Regular, Bold, Italic** and **Bold Italic** settings. The **Size** field allows you to specify a point size for the text. The **Effects** field allows for **Strikeout** or **Underlining** of text**.** The sample section shows an example of the font, style, and size that you have chosen.



GWXNumeric ActiveX Properties: Fonts Tab

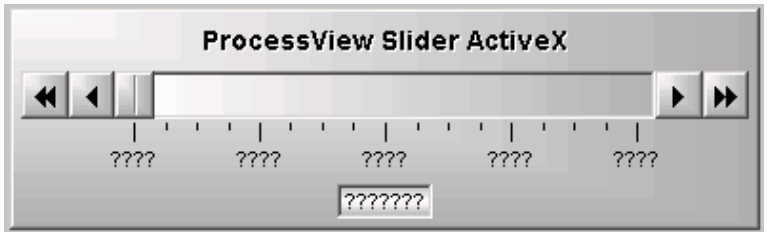
Chapter 4

Slider ActiveX

Introduction

Smar GWXSlider ActiveX is included in the ProcessView installation, and it can be inserted into any container that has the capability to embed ActiveX objects, including GraphWorX, VB Form, MS Word, and MS Excel.

To insert the Smar GWXSlider ActiveX, choose **Insert Object** from the **Edit** menu in GraphWorX, or click the **GWXSlider ActiveX** button on the ActiveX toolbar. The Smar Slider will appear as shown below.



Smar Slider

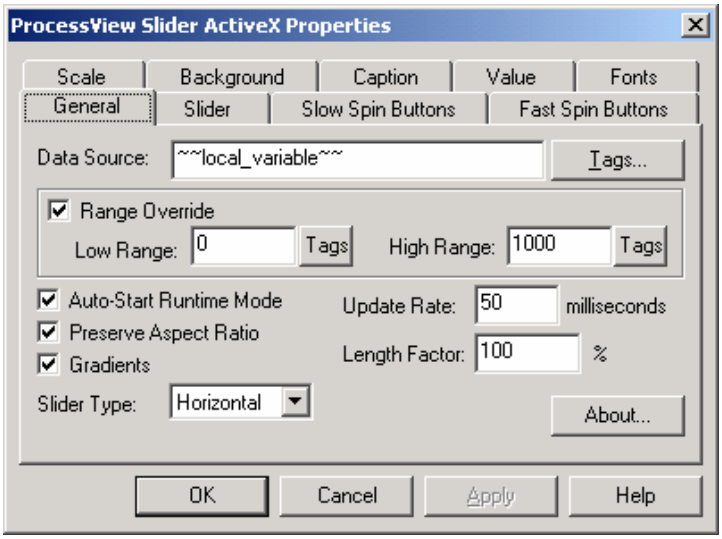
Property Pages

Double clicking on the Smar Slider will open the **Smar GWXSlider ActiveX Properties** dialog box, which contains the following property pages:

- **General**
- **Slider**
- **Slow Spin Buttons**
- **Fast Spin Buttons**
- **Scale**
- **Background**
- **Caption**
- **Value**
- **Fonts**

General

The General tab in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, allows you to select the tag that will be the data source for the slider. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags. The **Range Override** check box allows you to override the ranges associated with their selected tag.



GWXSlider ActiveX Properties: General Tab

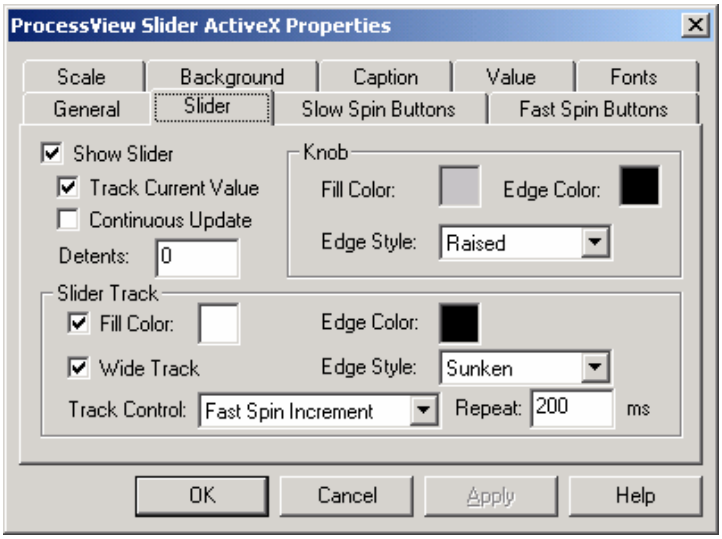
If the **Auto-Start Runtime Mode** check box is checked when the display enters runtime mode it will automatically start to process data. Otherwise the slider will still appear as it does in configuration mode. The **Preserve Aspect Ratio** check box determines whether the slider will maintain its ratio when you change its dimensions by moving the edges of the object's frame. The **Slider Type** determines which type of slider the to use: vertical or horizontal.

The **Length Factor** field determines the relative length (vertical or horizontal) of the slider. The **Update Rate** field determines how fast the system will update the data being displayed through the slider. The fastest update rate is 50 milliseconds. The faster the update rate, the more fluid the motion of the slider will be.

The **Gradients** option determines whether the slider control will appear to be light-sourced. Using the **Gradients** option makes the slider appear to be more three-dimensional and realistic. You may want to turn this option off if you are using a computer that can only display 256 colors or less.

Slider

The **Slider** tab in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, allows you to configure the appearance and behavior of the slider knob and track. The slider is used to change the data value during runtime mode. If the **Show Slider** box is not checked, then the rest of the tab is grayed out, and any changes that were made will not be applied. The **Track Current Value** option determines whether the slider knob moves automatically to reflect the current value of the process variable. The **Continuous Update** option determines the technique used to write new values (When on, values are continuously written as the slider knob is dragged; when off, values are written only when the slider knob is released at the end of a drag.) The **Detents** field allows you to set the increments at which the slider knob will move ("0" for no detents).



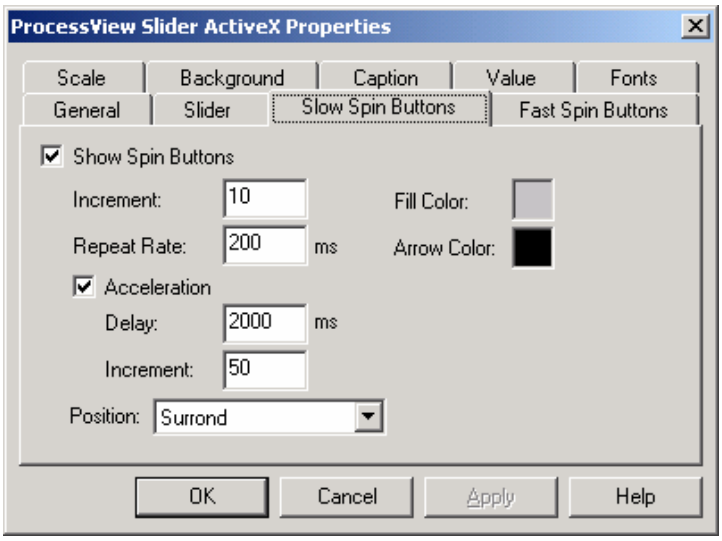
GWXSlider ActiveX Properties: Slider Tab

The **Knob** section determines the color and style of the slider knob.

The **Slider Track** section determines the color and style of the track on which the slider moves. The **Track Control** option designates the behavior when you click on the slider track. Choices for track control are: move to next detent, move to detent nearest the mouse pointer, move to mouse pointer position, move by fast spin increment, move by slow spin increment, and no action. The **Repeat** option determines how frequently the track control action will be repeated when you hold down the mouse button.

Slow Spin Buttons / Fast Spin Buttons

The **Spin Buttons** tabs in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, allow you to configure the appearance and behavior of the slider control's spin buttons. Spin buttons are used to increase and decrease the value of the process variable. Property pages for slow and fast spin buttons are identical. In the slider control, slow spin buttons are designated by single arrow symbols (< and >), while fast spin buttons are designated by double arrow symbols (<< and >>).



GWXSlider ActiveX Properties: Slow Spin Buttons Tab

If the **Show Spin Buttons** box is not marked, then the rest of the tab is grayed out; any changes that were made will not be applied.

The **Increment** field defines the amount by which the value of the process variable is increased or decreased when clicking on a spin button. The **Repeat Rate** option determines how frequently the increment action will be repeated when you hold down the mouse on a spin button.

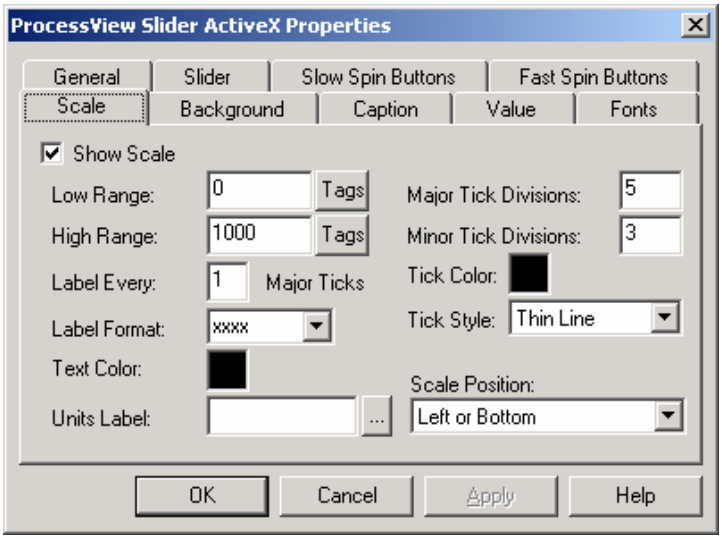
Check the **Acceleration** option to include acceleration capabilities for the spin buttons. Acceleration means that when you keep a spin button pressed, after the specified **Delay,** the process value will be increased or decreased by the acceleration **Increment.**

Fill Color and **Arrow Color** define the colors of the spin buttons.

Position determines the location of the spin buttons relative to the slider. Choices are: **Surround** (places one spin button at each end of the slider), **Group Left or Bottom** (places the pair of spin buttons at the left or bottom end of the slider depending upon the slider's orientation), and **Group Right or Top** (places the pair of spin buttons at the top or right end of the slider depending upon the slider's orientation).

Scale

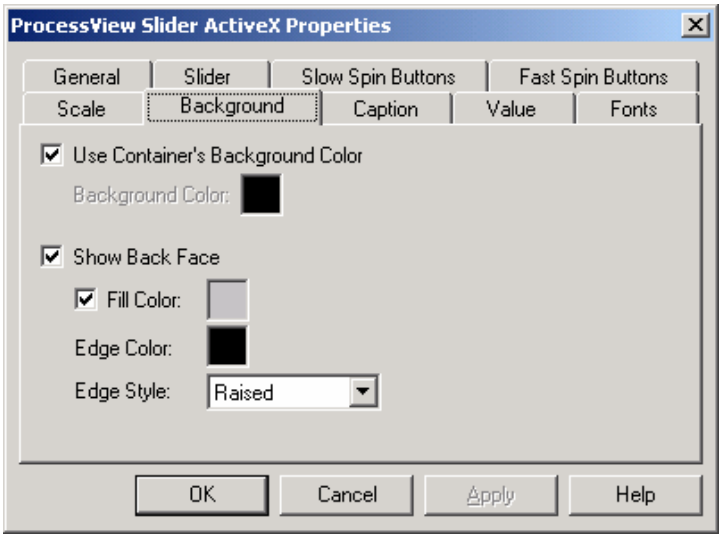
The **Scale** tab in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, configures the appearance of the slider's scale. You can define a **Low** and **High** range for the slider scale by either typing in numbers or selecting a tag. This tab also allows you to determine the number of ticks on the scale, as well as the color and format of the ticks. The **Units Label** field defines how the units will be distinguishable on the slider. **Scale Position** defines the location of the scale relative to the slider track.



GWXSlider ActiveX Properties: Scale Tab

Background

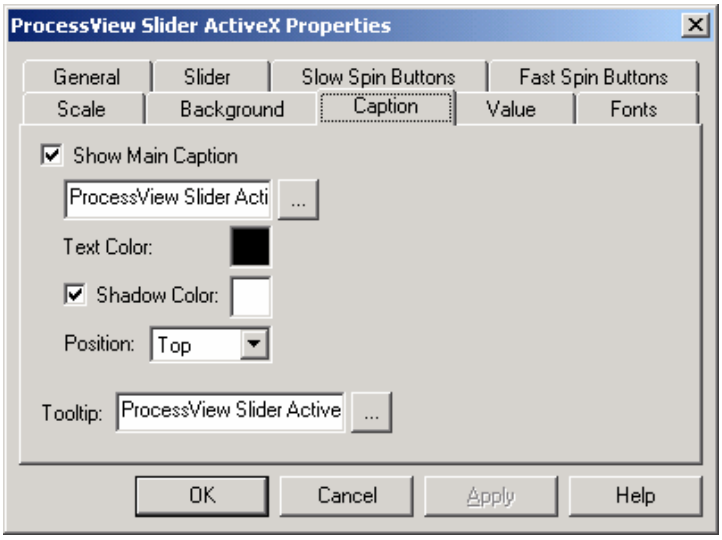
The **Background** tab in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, is used to configure the appearance of the slider within the container. If the **Use Container's Background Color** box is checked, the background color of the slider will automatically be set to match the background color of the container. By unchecking this check box, you can select a color for the background and the slider. The **Show Back Face** check box determines whether the slider will have a background faceplate. Attributes of the background faceplate that can be modified include **Fill Color, Edge Color,** and **Edge Style.**



GWXSlider ActiveX Properties: Background Tab

Caption

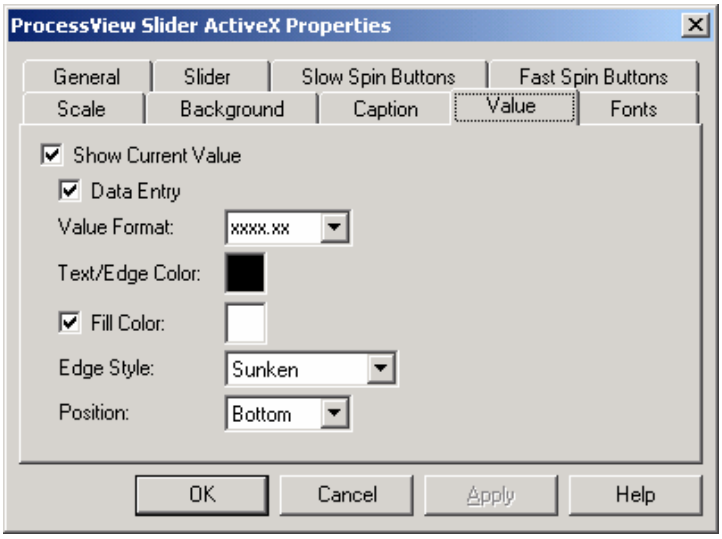
The **Caption** in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, tab allows you to configure the caption that appears on the slider, as well as enter text for the slider's ToolTip that appears when the mouse pointer is over the object. If the **Show Main Caption** box is checked, the text entered underneath will appear as the title of the slider. Controls are also included for modifying the caption's text color and optional text shadow color. The ToolTip field allows the user to enter a word, phrase, or message to appear as a ToolTip to the user.



GWXSlider ActiveX Properties: Caption Tab

Value

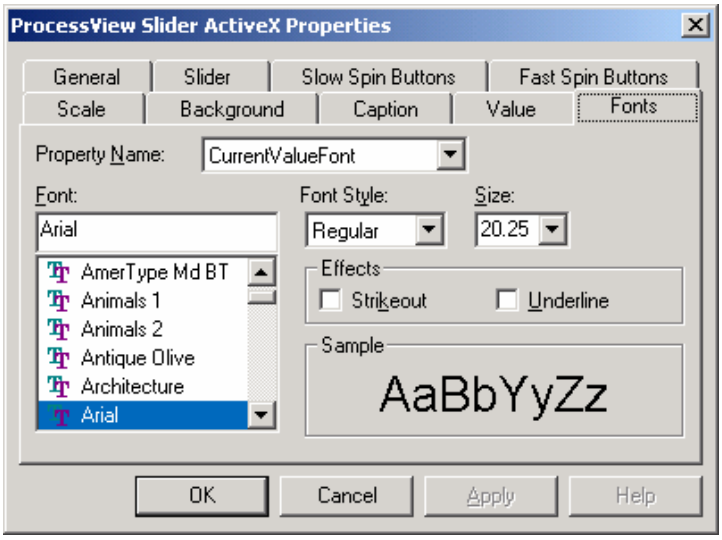
The **Value** tab in the **Smar GWXSlider ActiveX Properties** dialog box, shown below, refers to the text box in the slider control, where the value of the process variable is displayed. If the **Show Current Value** box is not checked, then the value is not displayed in the slider. The **Value Format** field allows the user to choose from a variety of numeric forms in which the data can be displayed, and the **Text/Edge Color** field determines the color of the text in this box. The **Fill Color** and **Edge Style** fields determine the appearance of the value in the slider. Selecting the **Data Entry** check box will allow you to type new data values into this field during runtime mode. The **Position** option determines the location of the value field in the ActiveX relative to the slider track.



GWXSlider ActiveX Properties: Value Tab

Fonts

The **Fonts** tab of the **Smar GWXSlider ActiveX Properties** dialog box, shown below, is similar to many fonts property screens, with one exception: the **Property Name** field. The drop-down menu allows you to choose which text font to change: CurrentValueFont, MainCaptionFont, or ScaleLabelFont. The **Font** field determines the font style, and the **Font Style** determines **Regular, Bold, Italic,** or **Bold Italic.** The **Effects** section allows for strikeout or underlining, and the **Sample** section shows a real-size example of the font, style, and size that you have chosen.



GWXSlider ActiveX Properties: Fonts Tab

Security

Security for the Slider ActiveX is enabled/disabled by the following registry setting:

HKEY_LOCAL_MACHINE\Software\Smar\GWXSlider\Security\UseSecurity = 0 or 1 (false or true)

Chapter 5

Switch ActiveX

Introduction

The Smar GWXSwitch ActiveX is included in the ProcessView installation, and it can be inserted into any container that has the capability to embed ActiveX objects, including GraphWorX, VB Form, MS Word, and MS Excel.

To insert the Smar GWXSwitch ActiveX, choose **Insert Object** from the **Edit** menu in GraphWorX. You can also click the **GWXSwitch ActiveX** button on the **ActiveX** toolbar. The Smar Switch will appear as shown below.

Smar Switch

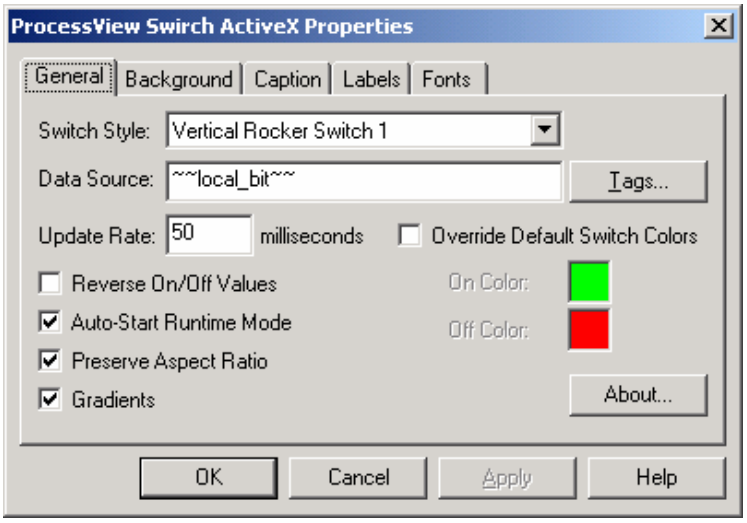
Property Pages

Double-clicking on the SMAR Switch opens the **Smar GWXSwitch ActiveX Properties** dialog box, which contains the following property pages:

- **General**
- **Background**
- **Caption**
- **Labels**
- **Fonts**

General

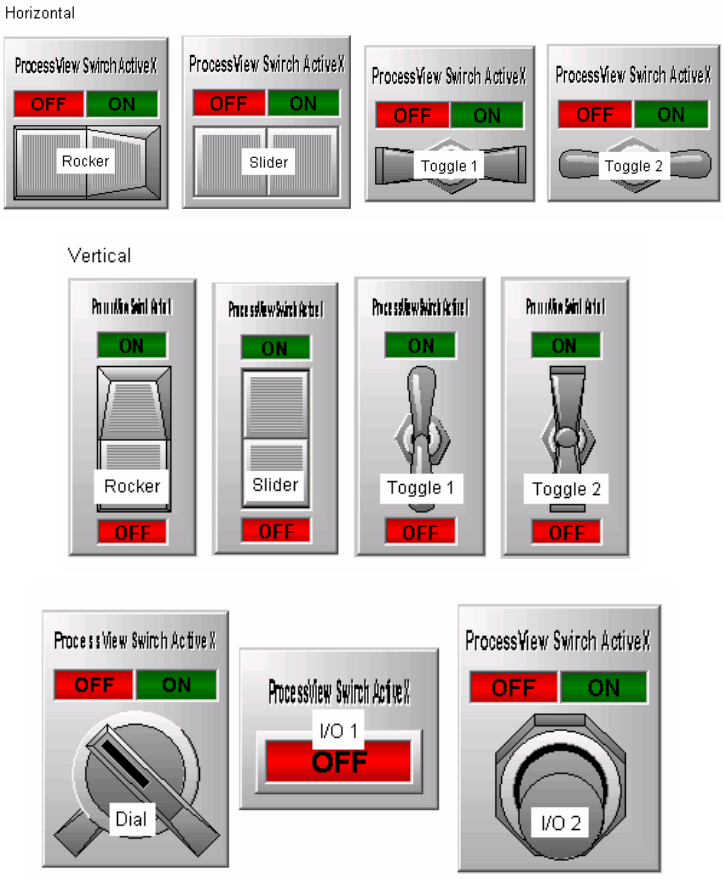
The **General** tab of the **Smar GWXSwitch ActiveX Properties** dialog box, shown below, is where the most important configuration for the switch will take place. The **Switch Style** refers to which of the available 10 switches (Vertical Rocker, Vertical Slider, Vertical Toggle 1, Vertical Toggle 2, Horizontal Rocker, Horizontal Slider, Horizontal Toggle 1, Horizontal Toggle 2, Dial, and In/Out) will actually appear in your display.



GWXSwitch ActiveX Properties: General Tab

The **Data Source** field allows you to enter a data source that will be attached to the switch control. The default entry for this field is the local variable "~~local_bit~~". If you wish to browse for a certain tag, you should click the **Tags** button to open the OPC Universal Tag Browser. After you either type in the data source or select it from the Tag Browser, set the **Update Rate.** The default for this field is 50 milliseconds; this is also the minimum value for this field.

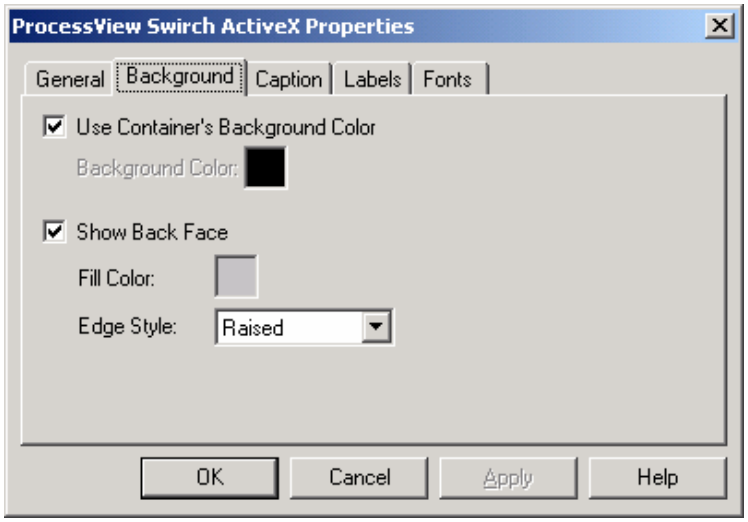
It is also possible to reverse the on/off value, to auto-start the switch in runtime mode, and to preserve the aspect ratios using the three check boxes on this tab. The first of these three options is somewhat self-explanatory. Checking this box will switch the defined values for On and Off. If the **Auto-Start Runtime Mode** box is selected, the switch will automatically start in runtime mode. The last of the check boxes defines whether the switch's dimensions will be maintained when it is resized. You can also choose to enable or disable the color gradients. In addition, you can override the default switch color and select the On and Off colors from the Color Palette.



Switch Styles

Background

This **Background Tab** of the **Smar GWXSwitch ActiveX Properties** dialog box, shown below, allows you to set how the background of the switch control will appear in the display. The default options for the Switch control are set to using the container's background color for the background of the switch, and to show the Back Face as raised gray. It is possible to switch both of these defaults by adjusting the check boxes and/or by clicking the color boxes and choosing a different color. You can change the edge style by clicking the drop- down list and selecting a different type of style.



GWXSwitch ActiveX Properties: Background Tab

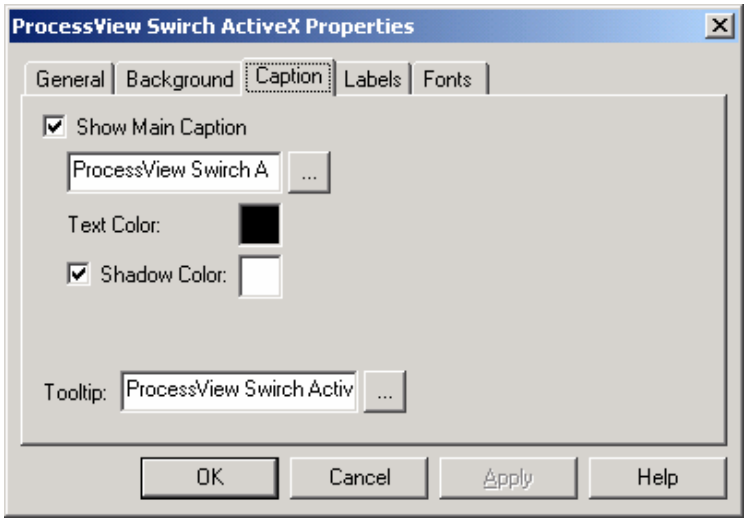
Caption

The **Caption** tab of the **Smar GWXSwitch ActiveX Properties** dialog box, shown below, allows you to enter the text that will be displayed on the switch control.

To alter the main caption, simply type the desired text in the appropriate text box and make sure that the **Show Main Caption** check box is checked. To change the text color, click the corresponding color box; the Color Palette will appear. Select the desired color and click **OK.** Use the same technique to change the shadow color. If you do not want a shadow effect on the text, you can uncheck the **Shadow Color** check box.

The text entered in the **ToolTip** text box will be displayed when the mouse is moved over the switch control. This feature is useful because it can be used to describe the control in a more detailed fashion than the main caption.

Note: It is possible to not have any text appear. Simply uncheck the **Show Main Caption** check box, or leave the text box for the main caption blank.



GWXSwitch ActiveX Properties: Caption Tab

Labels

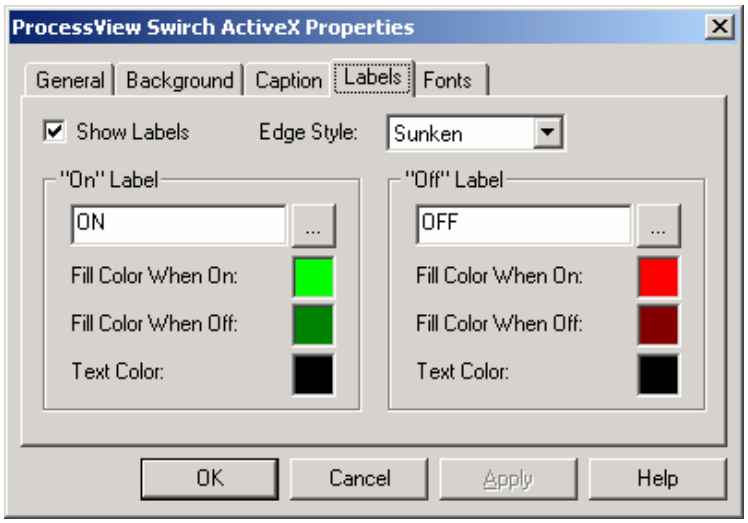
Use the **Labels** tab of the **Smar GWXSwitch ActiveX Properties** dialog box, shown below, to describe the two states of the switch. Each switch will have an **On** and an **Off** state, but you can choose to label these states in any manner that you deem appropriate for the function of the switch.

If the **Show Labels** check box is not checked, then all fields on this tab will be grayed out. Otherwise you can configure the labels according to your preferences.

For each state of the switch, there are four elements that can be configured according to your preferences:

- **Text for the label.** This is the text that will appear on the label indicating the state of the switch.
- **Fill color when on.** This allows you to select the color of the label when the switch is in this state. To change the color, click the color box and choose the desired color from the Color Palette.
- **Fill color when off.** This allows you to select the color of the label when the switch is not in this state. To change the color, click the color box and choose the desired color from the Color Palette.
- **Text color.** This allows you to select the color that will be used for the text of the label. To change the color, click the color box and choose the desired color from the Color Palette.

Note: As is shown through the defaults, it is a good idea to choose an **On** color that is a brighter shade of the **Off** color, and a text color that will be visible on both. It is currently possible to select the same color for all three fields, but this practice is not recommended.

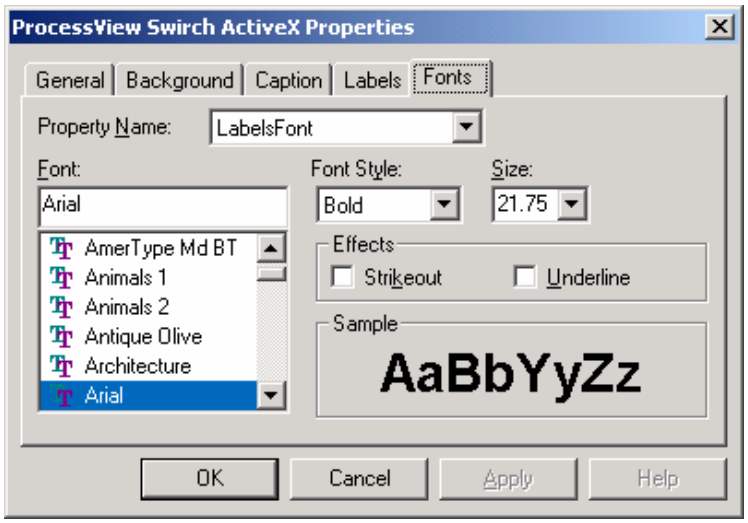


GWXSwitch ActiveX Properties: Labels Tab

Fonts

The **Fonts** tab of the **Smar GWXSwitch ActiveX Properties** dialog box, shown below, allows you to select which font will be used for the labels and for the main caption. Using the **Property Name** drop-down menu, you can toggle between the two text types.

The rest of the **Fonts** tab is very similar to most font format dialogs. You can select the proper font type, style, and size, and you can choose to have the strikeout (where a line is placed through the text) or underline (where a line is placed under the text) features activated.



GWXSwitch ActiveX Properties: Fonts Tab

Security

Security for the Switch ActiveX is enabled/disabled by the following registry setting:

HKEY_LOCAL_MACHINE\Software\Smar\GWXSwitch\Security\UseSecurity = 0 or 1 (false or true)

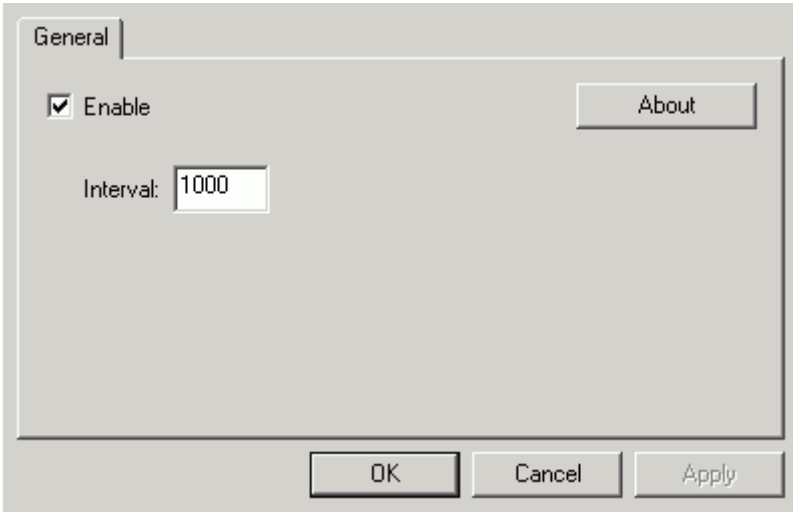
Timer ActiveX

Introduction

The **Timer ActiveX** control can execute code at regular intervals by causing a timer event to occur. In runtime mode, it is invisible and is useful for background processing.

Properties

Double-clicking on the Timer ActiveX opens the **Timer ActiveX Properties** dialog box, as shown in the figure below.



Timer ActiveX Properties

Enabled

Checking the **Enabled** check box on the **Timer ActiveX Properties** dialog box returns or sets a value that determines whether a Timer control can respond to user-generated events.

SETTING	DESCRIPTION
True	(Default) Allows *object* to respond to events.
False	Prevents *object* from responding to events.

Interval

The **Interval** field on the **Timer ActiveX Properties** dialog box returns or sets the number of milliseconds between calls to a Timer control's Timer event.

0	The **Timer** generates events as fast as possible.
1 to 32767	Sets an interval (in milliseconds) that takes effect when a Timer control's **Enabled** property is set to **True.** For example, a value of 10,000 milliseconds equals 10 seconds.

Timer Event

The Timer event occurs when a preset interval for a Timer control has elapsed. The interval's frequency is stored in the control's **Interval** property, which specifies the length of time in milliseconds.

Remarks

Use the remarks event procedure to tell Microsoft Visual Basic what to do after each Timer control interval has elapsed. When you are working with the Timer event:

- The Interval property specifies the interval between Timer events in milliseconds.
- Whenever the Timer control's **Enabled** property is set to True, the Timer event waits for the period specified in the Interval property.

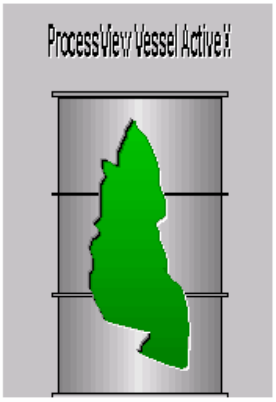
Chapter 7

Vessel ActiveX

Introduction

Smar GWXVessel ActiveX is included in the ProcessView installation, and it can be inserted into any container that has the capability to embed ActiveX objects, including GraphWorX, VB Form, MS Word, and MS Excel.

To insert the Smar GWXVessel ActiveX, choose **Insert Object** from the **Edit** menu in GraphWorX, or click the **GWXVessel ActiveX** button on the **ActiveX** toolbar. The Smar Vessel will appear as shown below.



Smar Vessel

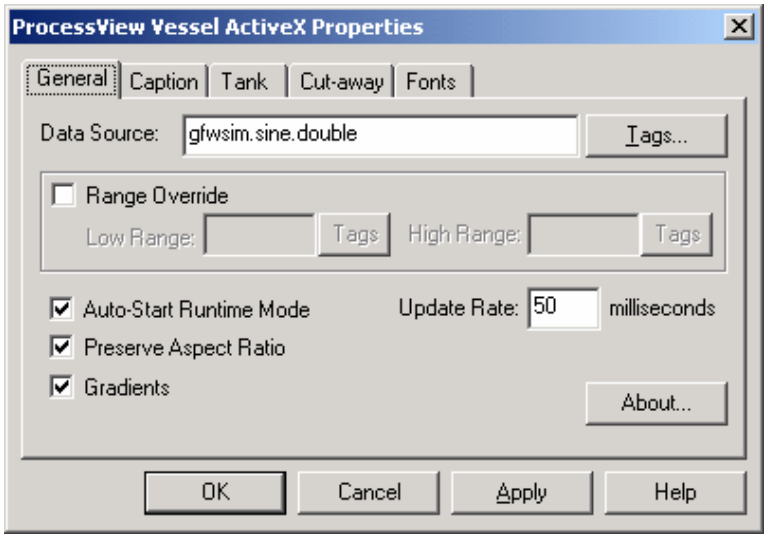
Property Pages

Double clicking on the Smar GWXVessel ActiveX opens the **Smar GWXVessel ActiveX Properties** dialog box, which contains the following property pages:

- **General**
- **Caption**
- **Tank**
- **Cut-Away**
- **Fonts**

General

The **General** tab of the **Smar GWXVessel ActiveX Properties** dialog box, shown below, allows you to select the tag that will be the data source. Clicking the **Tags** button allows you to browse through currently installed OPC servers and their associated tags. The **Range Override** check box allows you to override the ranges associated with the selected tag. If the **Auto-Start Runtime Mode** check box is checked when the display enters runtime mode it will automatically start to process data. Otherwise the vessel will still appear as it does in configuration mode. The **Preserve Aspect Ratio** check box determines whether the vessel will maintain its ratio when you change its dimensions by moving the edges of the object's frame. The **Gradients** check box determines whether the vessel will be drawn using the gradient style. The **Update Rate** field determines how fast the system will update the data being displayed through the vessel. The fastest update rate is 50 milliseconds. The faster the update rate, the more fluid the motion of the vessel will be.

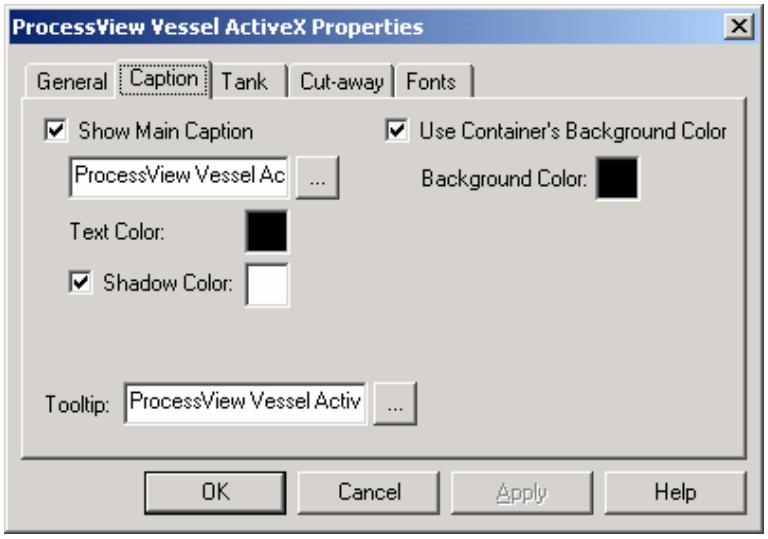


GWXVessel ActiveX Properties: General Tab

Caption

The **Caption** tab of the **Smar GWXVessel ActiveX Properties** dialog box, shown below, is used to configure the appearance of the vessel within the container. If the **Use Container's Background Color** box is checked, the background color of the vessel will automatically be set to match the background color of the container. By unchecking this box, you can select a color for the background, and the vessel will now have a border around it.

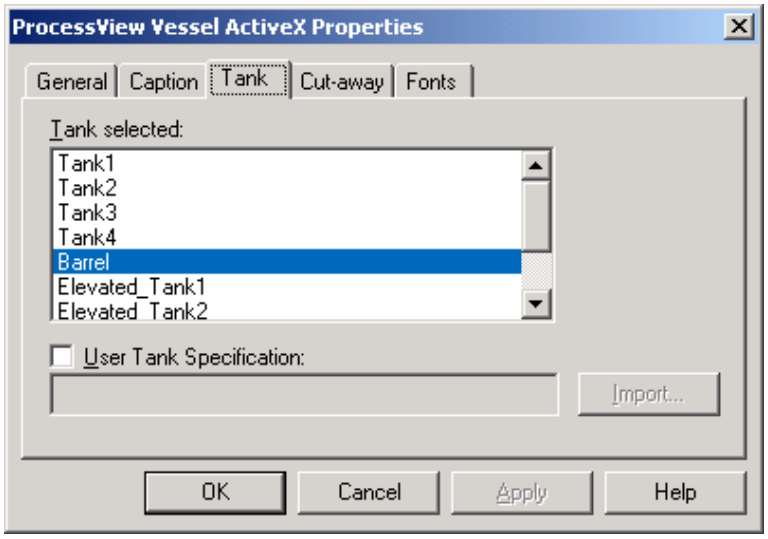
The **Caption** tab also allows you to configure the caption that appears on the vessel, as well as to enter text for the vessel ToolTip that appears when the mouse pointer is over the object. If the **Show Main Caption** box is checked, the text entered underneath will appear as the title of the vessel. The following color boxes allow you to determine the text color and the text shadow color. The ToolTip field allows you to enter a word, phrase, or message to appear as a ToolTip.



GWXVessel ActiveX Properties: Caption Tab

Tank

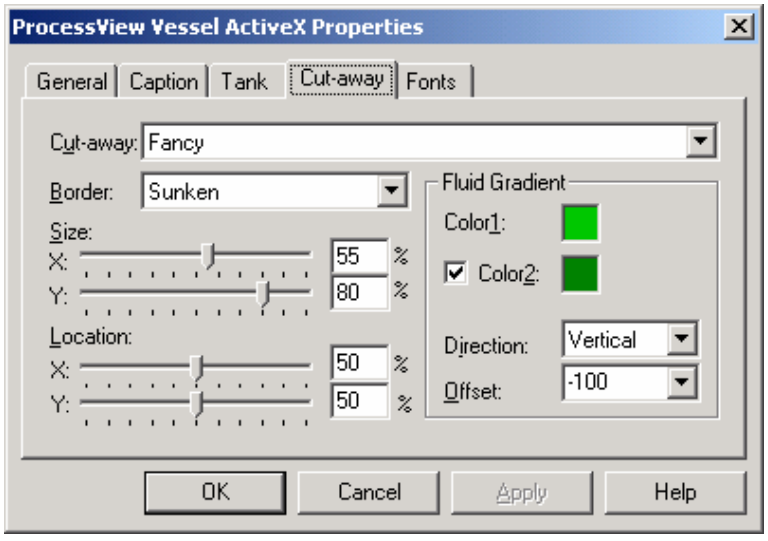
The **Tank** tab of the **Smar GWXVessel ActiveX Properties** dialog box, shown below, is used to define the type of tank displayed. The **Tank Selected** list box contains a set of predefined tanks. If the **User Tank Specification** check box is enabled and the edit box below contains correct path to the user- defined tank file, the user-defined tank will be used instead of predefined tank. The **Import** button allows you to specify the path and file name easily. The custom tank can be imported both as a windows metafile (*.wmf) and an enhanced metafile (*.emf).



GWXVessel ActiveX Properties: Tank Tab

Cut-Away

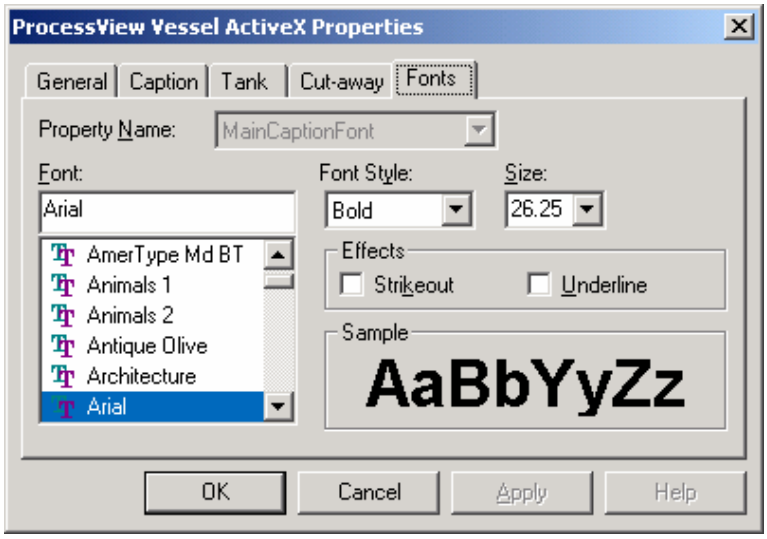
The **Cut-Away** tab of the **Smar GWXVessel ActiveX Properties** dialog box, shown below, allows you to configure the appearance of the vessel cut-away. The **Cut-Away** combo box contains the set of predefined cut-away styles that are available. The **Border** drop-down menu allows you to select an edge style (thin line, medium line, thick line, etched, bump, raised, sunken, or none). The **Size** and **Location** slider controls define the percentage of the vessel that the cut-away will reach. The **Size** slider controls define the size of the cut-away as a percentage of the vessel size. The **Location** is the cut-away position relative to the vessel dimensions. The **Fluid Gradient** section determines the appearance of the cut-away, such as its colors, gradient direction, and offset. The gradient **Offset** property should be clamped to the range -100 to 100.



GWXVessel ActiveX Properties: Cut-Away Tab

Fonts

The **Fonts** tab of the **Smar GWXVessel ActiveX Properties** dialog box, shown below, is similar to many other fonts property screens, with one exception: the **Property Name** field. The **Font** field determines the font, and the **Font Style** determines whether the text will be **Regular, Bold, Italic,** or **Bold Italic.** The **Effects** section allows for strikeout or underlining, and the **Sample** section shows a real-size example of the font, style, and size you have chosen.



GWXVessel ActiveX Properties: Fonts Tab