



Smart Widgets: Vertical Slider

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Description

This application note shows how to create custom vertical slider for Picaso, Diablo16 and Pixxi touch screen display modules.

Before getting started, the following are required:

Hardware

- Any [4D Systems display module](#) powered by any of the following processors:
 - o Diablo16
 - o Pixxi28/44
 - o Picaso
- [Programming Adaptor for target display module](#)
- [uSD Card](#)
- [USB Card Reader](#)

Software

- [Workshop4](#)
- This requires the **PRO** version of Workshop4

This application note comes with one (1) ViSi-Genie project.

Note: Using a non-4D programming interface could damage the processor and void the warranty.

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Application Overview

The Smart Widgets Editor tool enables PRO version users to easily create custom widgets of their own design. It allows the user to create Sliders, Knobs and Gauges.

The purpose of this application note is to introduce the PRO version exclusive tool and to discuss how to create a Smart Slider. To demonstrate, this application note uses the ViSi Genie environment.

Setup Procedure

For instructions on how to launch Workshop4, how to open a **ViSi-Genie** project, and how to change the target display, kindly refer to the section “**Setup Procedure**” of the application note

- [ViSi-Genie Getting Started - First Project for Diablo16 Display Modules](#)
- [ViSi-Genie Getting Started - First Project for Picaso Displays](#)
- [ViSi-Genie Getting Started - First Project for Pixxi Display Modules](#)

Create a New Project

For instructions on how to create a new **ViSi-Genie** project, please refer to the section “**Create a New Project**” of the application note

- [ViSi-Genie Getting Started - First Project for Diablo16 Display Modules](#)
- [ViSi-Genie Getting Started - First Project for Picaso Displays](#)
- [ViSi-Genie Getting Started - First Project for Pixxi Display Modules](#)


Design the Project

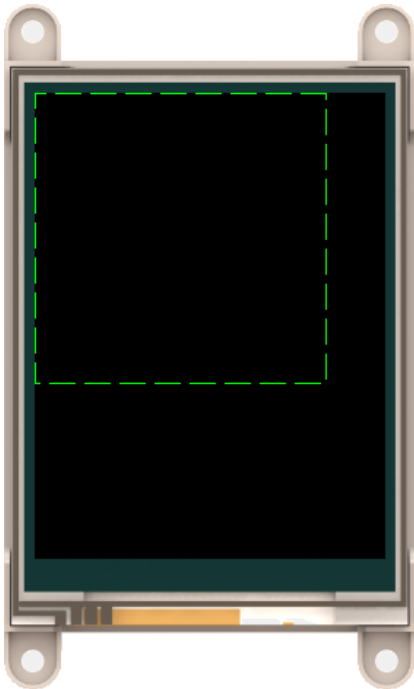
For this application, gen4-uLCD-32DT will be used for the project. Same procedure is applicable for any Picaso, Diablo16 and Pixxi touch screen displays.

Add Smart Slider to Project

Add a Smart Slider widget to your ViSi-Genie project. It can be found on the Inputs tab on the Widgets Pane.





Simply click on this icon  to select it. Then place it on the WYSIWYG area.



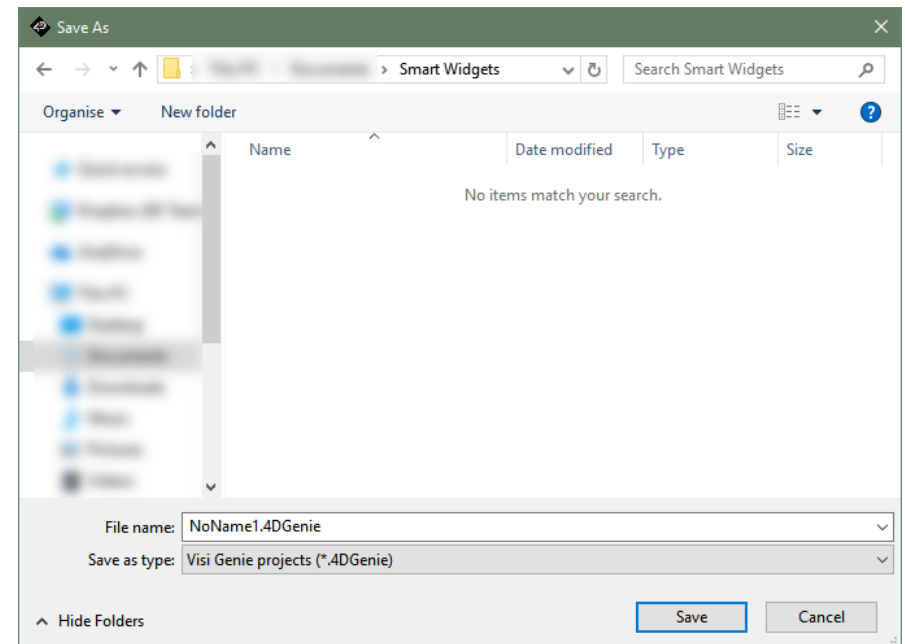
As displayed on the previous image, the widget appears empty when placed in the WYSIWYG.

Open Smart Widgets Editor

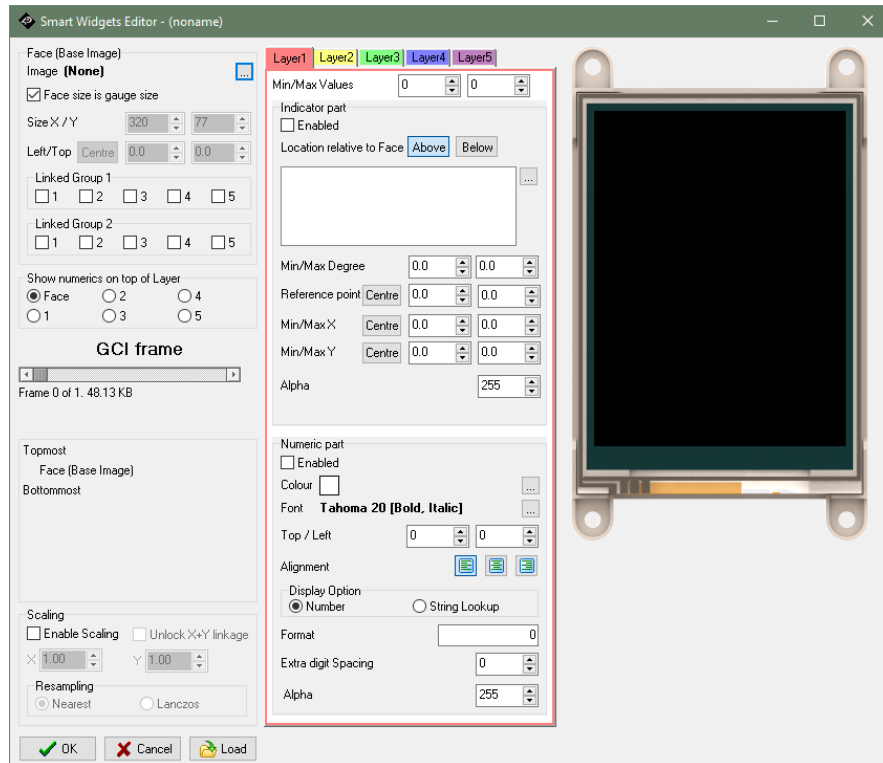
Open the Smart Widgets Editor tool by clicking on  of **Config** in the Object Inspector Properties tab.

Property	Value
Name	SmartSlider0
Alias	SmartSlider0
Config	(None) 

The tool requires that the project is already saved before the tool opens. Therefore, since on this case, it hasn't been saved yet, Workshop4 will automatically prompt to save



Save the project to desired location. The tool will open after the project has been saved.



As shown in the image, this tool has a lot of parts. The next steps will focus only on the minimum tool functionalities required to make a basic slider.

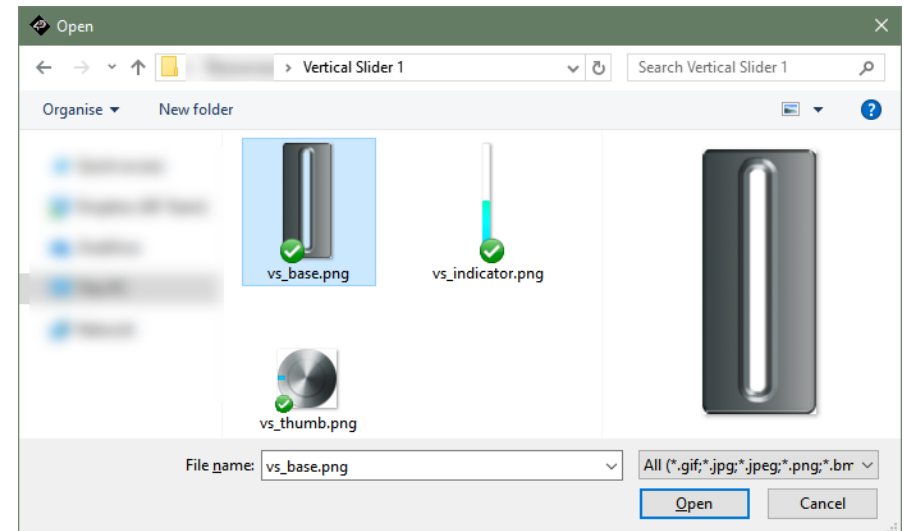
For detailed discussion on how each part works, please refer to the **Smart Widgets Editor User Guide**.

Select the Face Image

The first step when creating a smart widget is to select the Face (base image).



Click  to select an image.



After selecting a base image, it will be displayed in the preview area.



The size of the output widget depends on the size of this image by default.



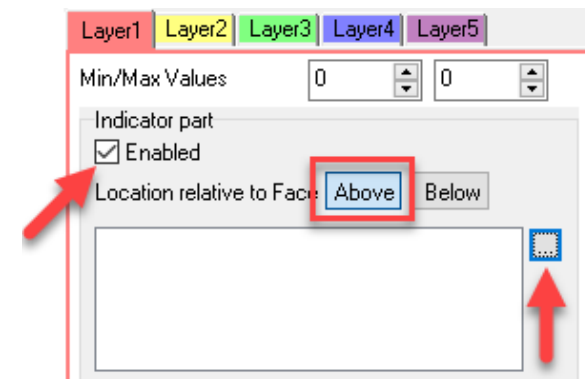
Any part of any image used in a smart widget will not be displayed if outside this area.

Adding Main Indicator

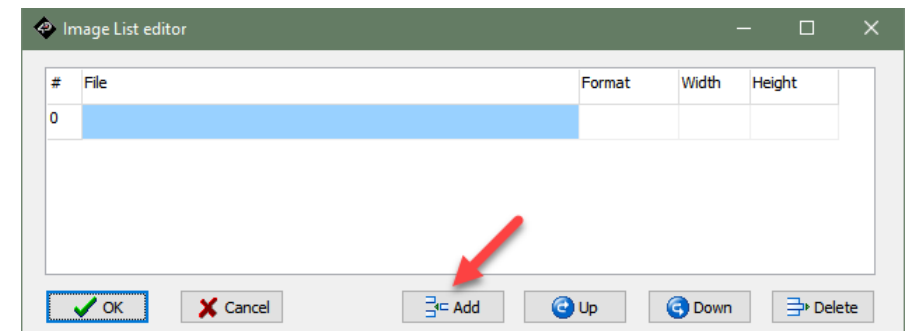
After selecting the image, a slider needs a thumb and an optional indicator.

In this project, Layer 1 will manipulate the thumb while Layer 2 will manipulate the other indicator.

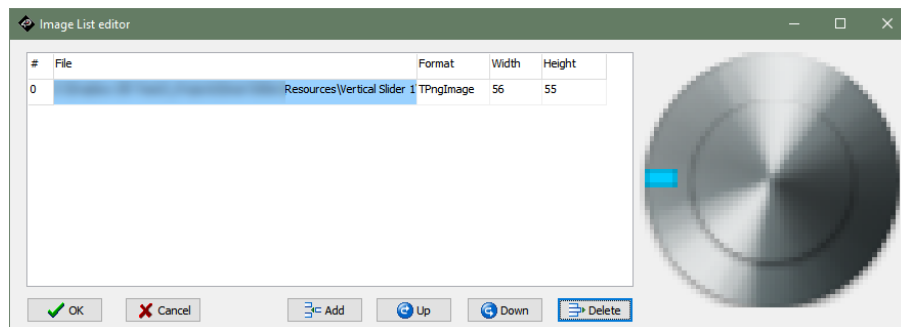
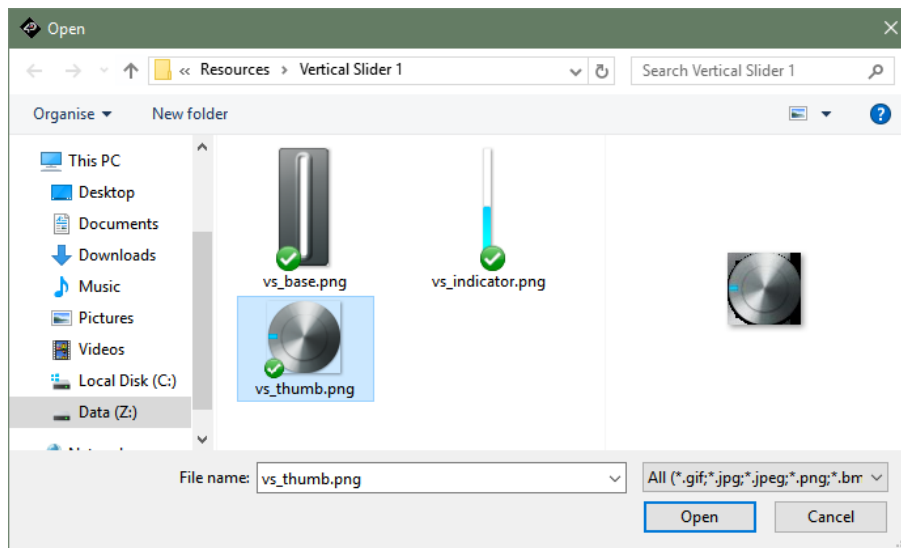
Enable Layer 1 and select the image similar to how the face image was selected.



Obviously, the thumb should be above the base image.



Select the image and click **Open**



When done adding the images for the layer, simply click **OK**

You'll see the knob at the top left of the base image.



The next thing to do is to select its starting and end positions.

Setting Up Main Indicator Parameters

First, we want the knob to be centered horizontally all the time.

Min/Max X	Centre	41.0	41.0
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For this slider, the **Min/Max X** needs to be both at 41. This will make the X position of the knob be constant from minimum value to maximum value.

Now, to create frames that moves the thumb vertically, an initial Y position (**Min Y**) and final Y position (**Max Y**) must both be specified.

Min/Max Y	Centre	255.0	10.0
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In this case, the thumb moves from 255 to 10 (moving upward).

Lastly, it is required to assign the minimum and maximum values (**Min/Max Values**).

Min/Max Values	0	100
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For this application note project, 0 to 100 was used. That is a total 101 frames moving from 255 to 10 Y positions.

Here's the 26th frame (index 25):



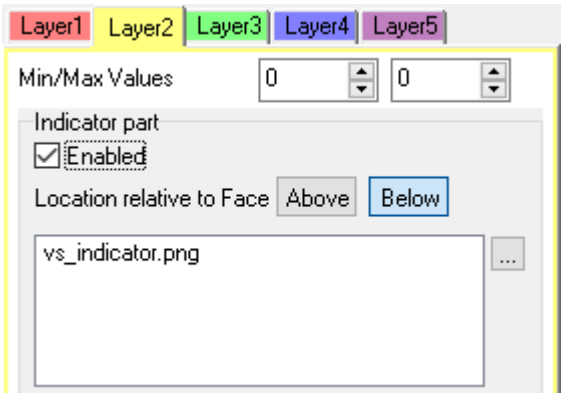
While this is the last frame (101st / index 100)



At this state, this slider is already sufficient for setup for it to be used in the project. However, in this application note project, additional layers will be used to for better design.

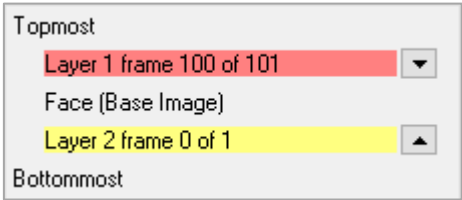
Adding Secondary Indicator

Next, add another indicator for the slider. Enable layer 2 and select the image the same way as Layer 1.

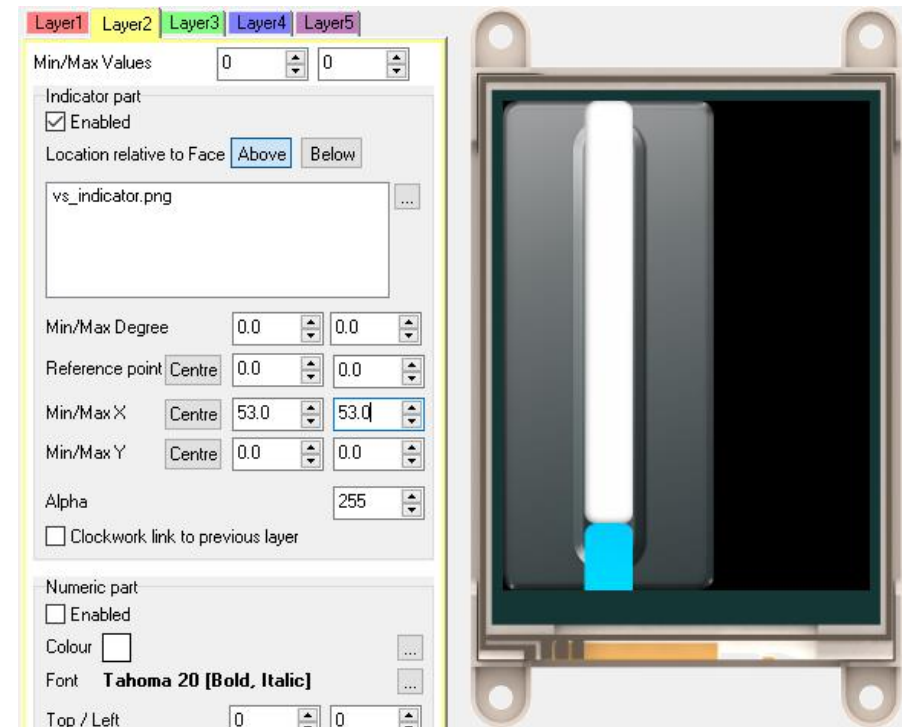


Layer 2 will be below the Face (base image)

Layer 1	vs_thumb.png
Face	vs_base.png
Layer 2	vs_indicator.png



For Layer 2, similar to Layer 1, it also needs to be positioned horizontally centered on the image. When positioning images, it is ideal to place the image above the face image temporarily. If necessary, other layers can be temporarily disabled.

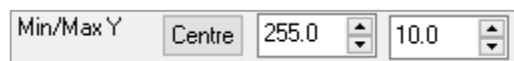


As shown in the image, **Min/Max X** should be constant at 53.

Enable Layer 1 and bring Layer 2 below the face image.

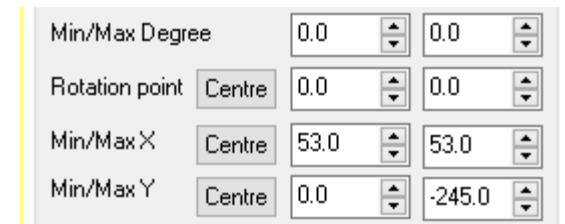


Remember that the thumb moves from this position.

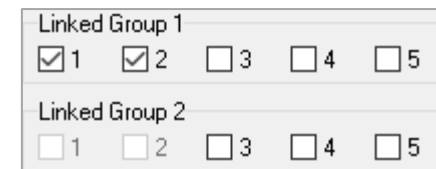


That is a 245-pixel displacement.

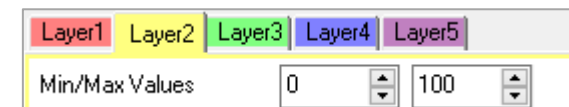
For Layer 2, it should have the same displacement as Layer 1 and **Min/Max Values**.



Additionally, it also needs to be linked to Layer 1 so both of them will go through their minimum and maximum values at the same time.



This layer's Min/Max Values ideally should be same as Layer 1.



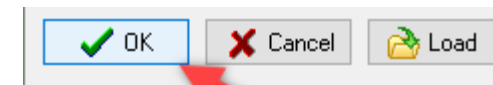
At 26th frame (index 25)



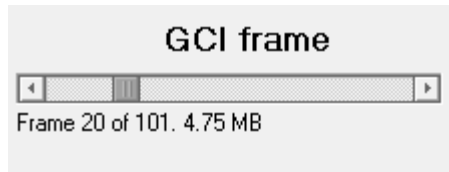
At 101st frame (last frame / index 100)



After successfully, configuring the slider, press **OK**.



The slider can then be tested at any desired position by using the GCI frame slider below.



Setting up the Smart Slider

Some properties need to be set before properly using the slider.

Properties		Events
Property	Value	
Name	SmartSlider0	
Alias	SmartSlider0	
Config	SmartSlider0	
Left	102	
Orientation	Vertical	
MaxOffset	0	
MinOffset	0	
Top	0	

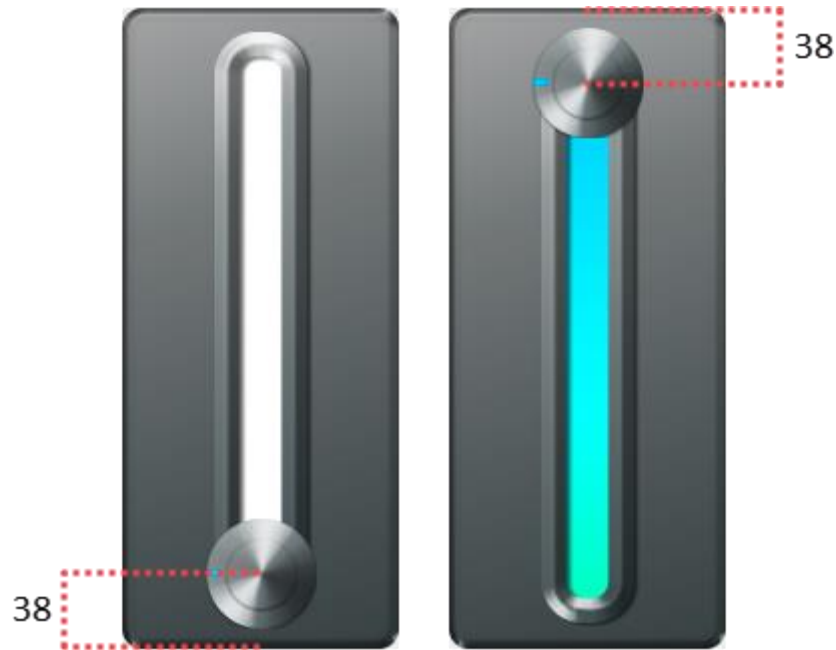
On the Object Inspector's Properties tab, **Orientation**, **MaxOffset** and **MinOffset** need to be provided by the user.

Obviously, **Orientation** needs to be set to Vertical.

As for the other two, this project uses:

Properties		Events
Property	Value	
Name	SmartSlider0	
Alias	SmartSlider0	
Config	SmartSlider0	
Left	102	
Orientation	Vertical	
MaxOffset	38	
MinOffset	38	
Top	0	

The values are from the desired touch area for the slider. Refer to the images below



After setting everything up, the slider can be used similar to a normal slider.

Note: MaxOffset refers to the offset below the minimum slider position (MaxY position value) while MinOffset refers to the offset above the maximum slider position (MinY position value).

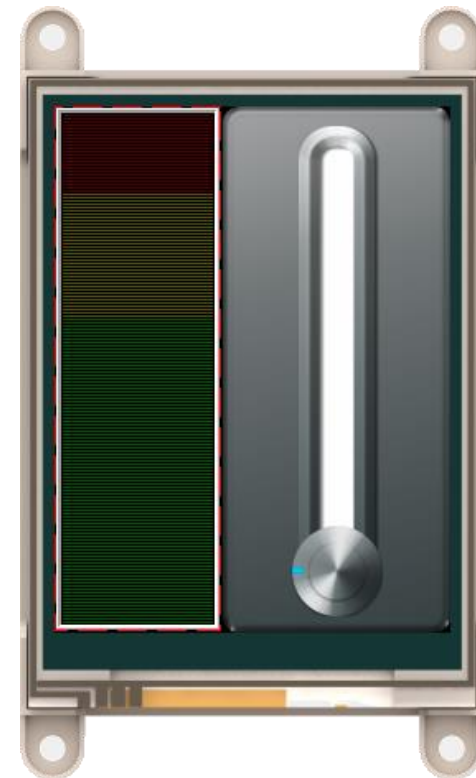
Adding Gauge for Output



Gauges are great options to present information.

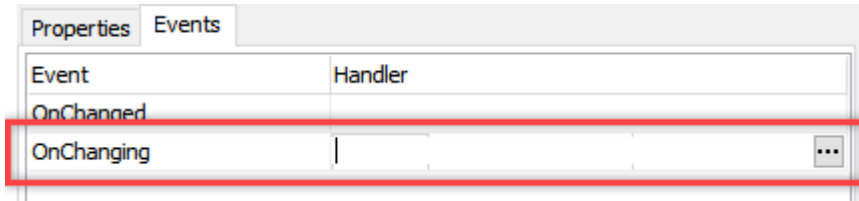


Add a Gauge to the project.

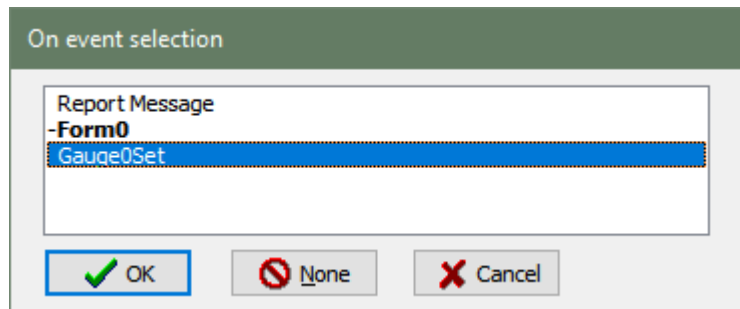


It is important that the Gauge has the same number of frames as the slider. With values 0 to 100 for the Gauge, they have same number of frames.

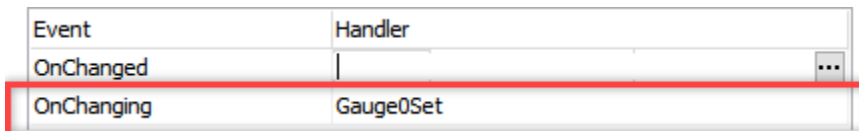
Then for the Slider, under Events tab of the Object Inspector:



Set the event for **OnChanging**:



Select **Gauge0Set** and click on **OK**.



The project is now ready for upload.

Run the Program

For instructions on how to save a **ViSi-Genie** project, how to connect the target display to the PC, how to select the program destination, and how to compile and download a program, please refer to the section “**Run the Program**” of the application note

- [ViSi-Genie Getting Started - First Project for Diablo16 Display Modules](#)
- [ViSi-Genie Getting Started - First Project for Picaso Displays](#)
- [ViSi-Genie Getting Started - First Project for Pixxi Display Modules](#)

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