APPLICATION NOTES

4D SYSTEMS
TURNING TECHNOLOGY INTO ART

ViSi Genie: Internal LedDigits

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DOCUMENT REVISION: **1.0**

Description

This application note provides instructions for designing and using an Internal LedDigits and Internal LedDigit widget for a ViSi Genie application.

Before getting started, the following are required:

Hardware

- Any 4D Systems display module powered by any of the following processors:
  - Diablo16 (with PmmC version 2.2 or higher)
  - Pixxi28/44 (with uSD mode PmmC)
- Programming Adaptor for target display module
- uSD Card
- USB Card Reader

Software

- Workshop4

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

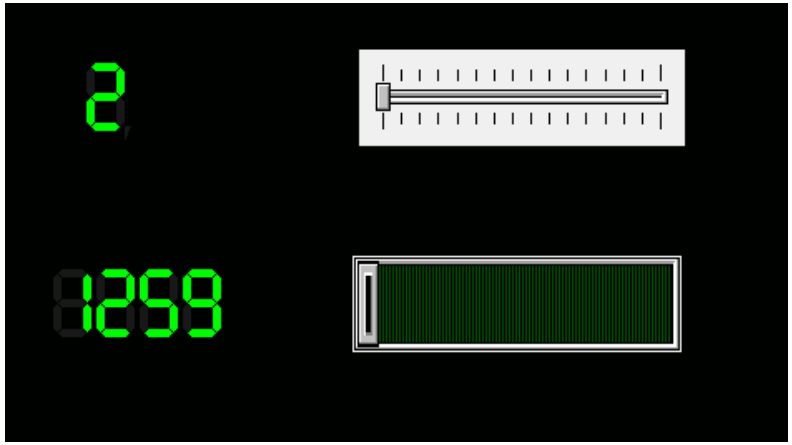
- Internal_LedDigits.4DGenie

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

Content

Application Overview

This document is mainly focused on showing the simple use of the Internal LedDigit and Internal LedDigits widgets on the ViSi Genie environment of the Workshop4 IDE. These widgets are very useful in providing visual for displaying temperature, volume, content percentage and many more. Depending on the user's preferences, these widgets can be manipulated using the properties tab in the Object Inspector of the ViSi Genie environment.



The simple project developed in this application note demonstrates an Internal LedDigits linked to the changes of a Slider widget and an Internal LedDigit linked to the changes of a Trackbar widget.

By default, input widgets such as the Slider and Trackbar respond to touch. The user can configure input widgets to drive an output widget such as the Internal LedDigit and Internal LedDigits.

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 any of the following application notes:

- **ViSi-Genie Getting Started - First Project for Picaso and Diablo16**
- **ViSi-Genie Getting Started - First Project for Pixxi Display Modules**

Create a New Project

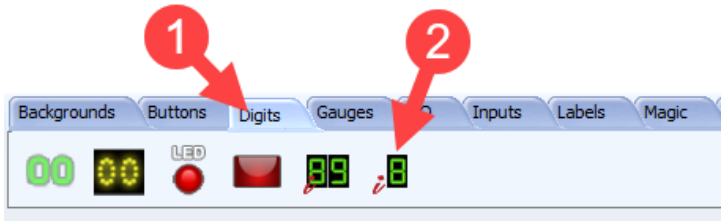
For instructions on how to create a new **ViSi Genie** project, please refer to the section "**Create a New Project**" of any of the following application notes:

- **ViSi-Genie Getting Started - First Project for Picaso and Diablo16**
- **ViSi-Genie Getting Started - First Project for Pixxi Display Modules**

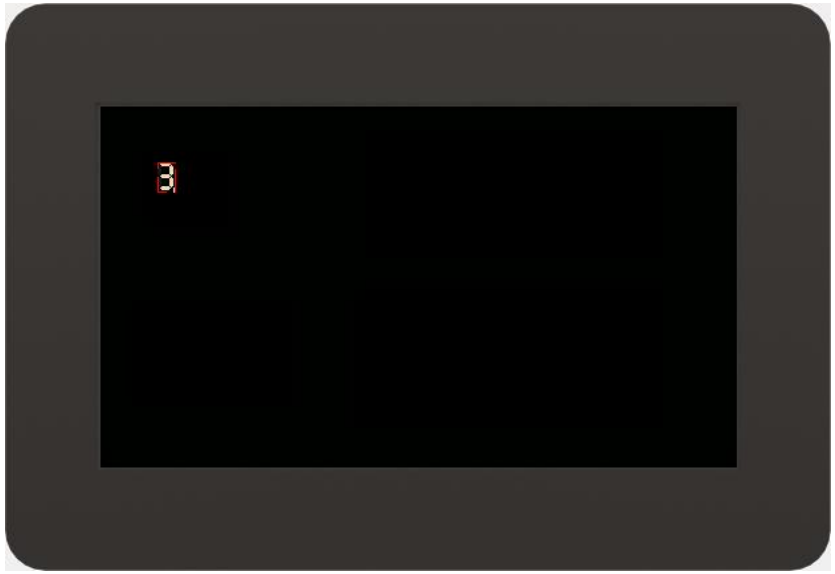
Design the Project

Adding an Internal LedDigit

Add an Internal LedDigit to the Form by clicking on the Digits tab, then selecting the Internal LedDigits as shown below.



Click the WYSIWYG screen to place it, then drag it to the desired position.

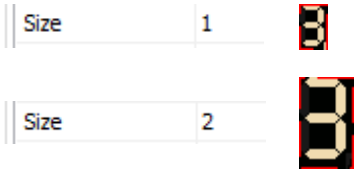


Internal LedDigit Properties

The following sections will discuss the properties of the Internal LedDigit in the **Object Inspector**.

Digit Size

By default, the digit size multiplier is 1, this can be changed through the **Size** option.

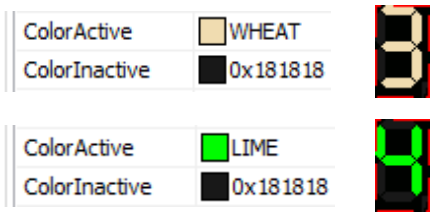


Colour

The colour for the Internal LedDigit segments are defined by these options:

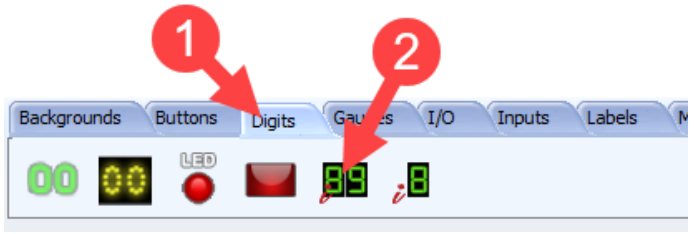
ColorActive – Colour of the Active segments

ColorInactive – Colour of the Inactive segments



Adding an Internal LedDigits

Add an Internal LedDigit to the Form by clicking on the Digits tab, then selecting the Internal LedDigits as shown below.



Click the WYSIWYG screen to place it, then drag it to the desired position.

Internal LedDigit Properties

The following sections will discuss the properties of the Internal LedDigits in the **Object Inspector**.

Number of Digits

By default, the number of digits is 13, this can be changed in the **Digits** option.

Digits	13

Digits	4

Decimal Place

By default, the maximum number of decimals is 5, this can be adjusted through the **DecimalPlace** option.

DecimalPlace	5

DecimalPlace	3

Digit Size

By default, the digit size multiplier is 1, this can be changed through the **Size** option.

Size	1

Size	2

Separator Style

The separator used for decimal separator by default is a dot, this can be changed into a comma through the **DPisComma** option.

DPisComma	No

DPisComma	Yes

Enable or Disable Separator

By default the separators are enabled, this can be disabled through the **ShowDP** option.

ShowDP	Yes

ShowDP	No

Enable or Disable Leading Zeroes

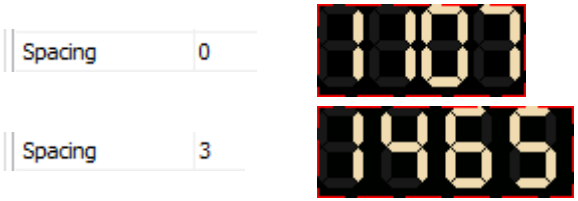
By default the leading zeroes are enabled, this can be disabled through the **LeadingZero** option.

LeadingZero	Yes

LeadingZero	No

Spacing

The spacing between each digits can be adjusted by the **Spacing** option.

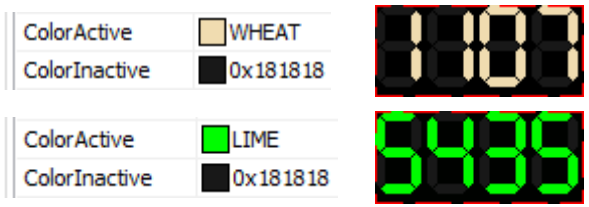


Colours

The colour for the Internal LedDigits segments are defined by these options:

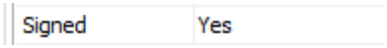
ColorActive – Colour of the Active segments

ColorInactive – Colour of the Inactive segments



Sign

The Internal LedDigits can have its negative values enabled or disabled through the **Sign** option.



Format

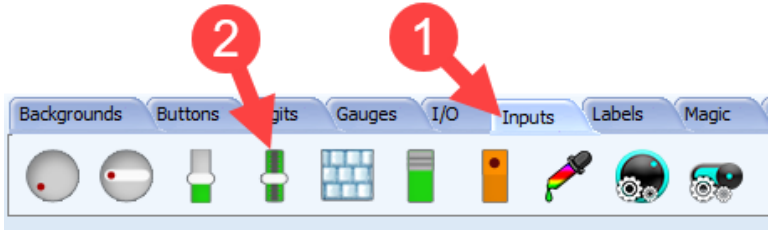
The value input format can be changed through the **Format** option. There are five different formats available.

Format	Description
Int16	Set 16-bit integer as input
Int32	Set 32-bit integer as input
Float/Dec	Display float value with fixed number of decimals
Float/Gen	Display input with fixed number of significant values
Float/Sci	Display input in scientific notation

For this example, the Int16 format will suffice for the Slider widget values range.

Adding a Trackbar

The Trackbar widget will be linked to the Internal LedDigit widget using ViSi Genie's event system. To add a Trackbar widget, go to the Inputs pane and select the icon as shown below.

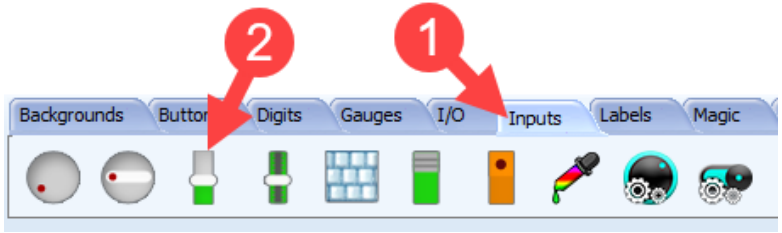


Click the screen and drag the widget to place it to desired location.

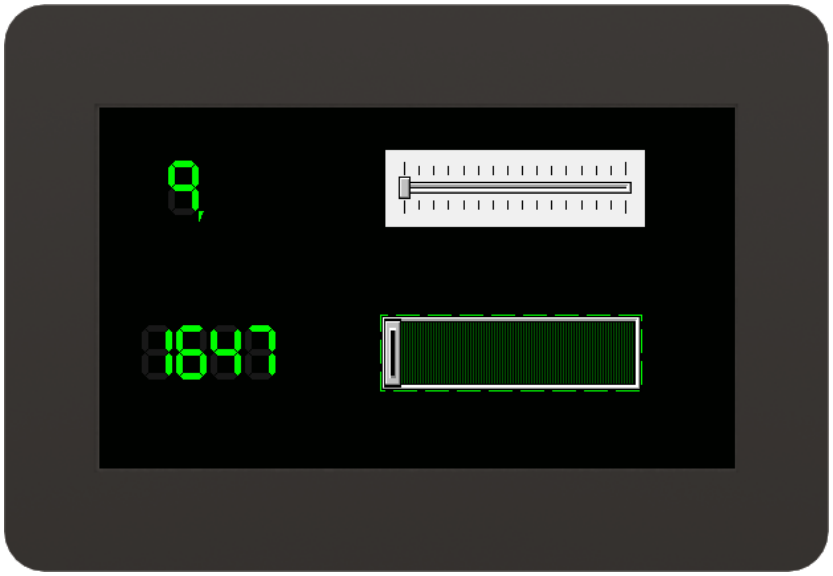
By default, the trackbar ranges from 0 to 100. The maximum value is then adjusted to have a range of 0 to 15 to accommodate the Internal LedDigit widget.

Adding a Slider

The Slider widget will be linked to the Internal LedDigits widget using ViSi Genie's event system. To add a Slider widget, go to the Inputs pane and select the icon as shown below.



Click the screen and drag the widget to place it to desired location.

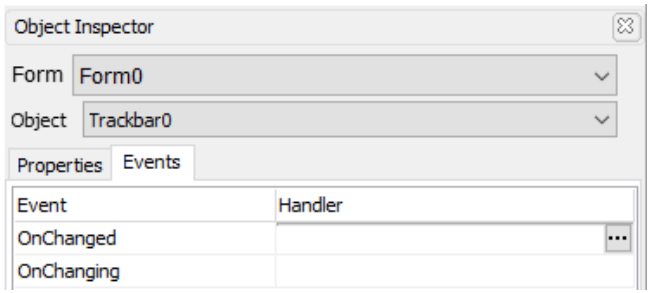


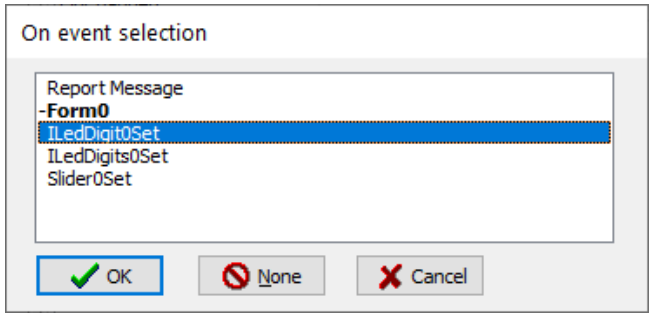
By default, the slider ranges from 0 to 100.

Configuring the Trackbar Events

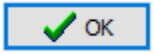
An input widget such as the trackbar can be configured to update the value of another widget based on its updated value.

To do this, click on the Events tab in the object inspector and click on the ... symbol in the **OnChanged** line.

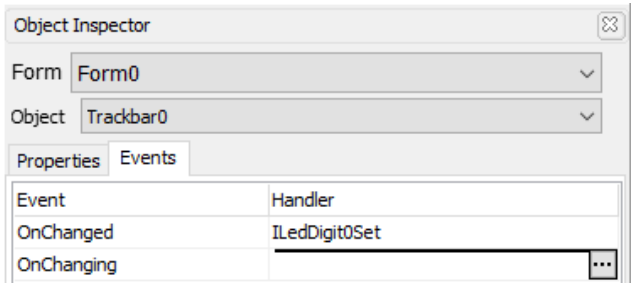




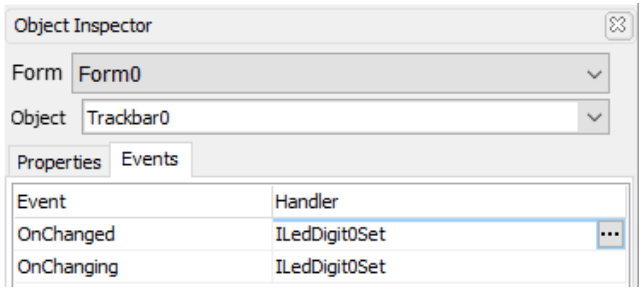
The On event selection window appears. Select ILedDigit0Set and click



The Events Tab is now updated.



Repeat the procedure for **OnChanging** Event.

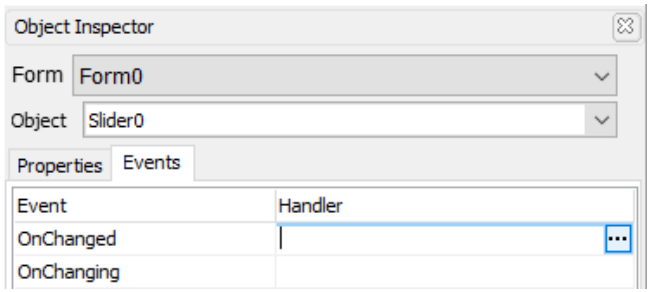


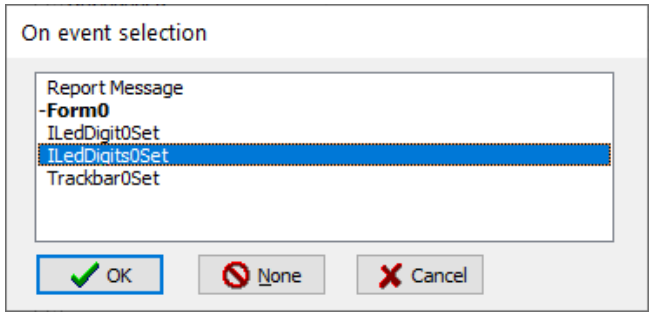
Now every time the slider is moving or has moved, the Internal LedDigit is also update.

Configuring the Slider Events

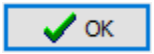
An input widget such as the slider can be configured to update the value of another widget based on its updated value.

To do this, click on the Events tab in the object inspector and click on the ... symbol in the **OnChanged** line.

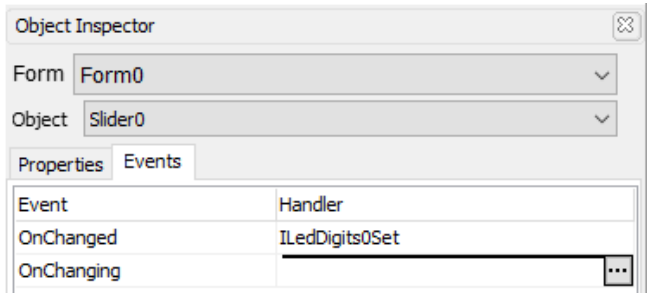




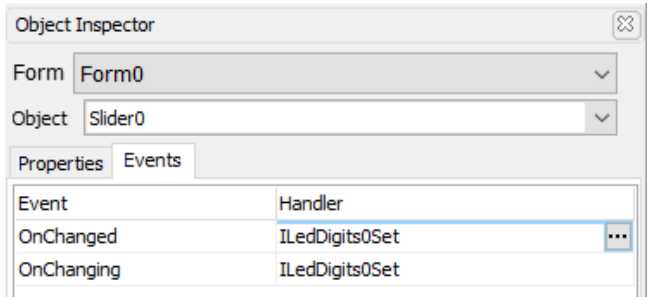
The On event selection window appears. Select ILedDigits0Set and click



The Events Tab is now updated.



Repeat the procedure for **OnChanging** Event.



Now every time the slider is moving or has moved, the Internal LedDigits is also update.

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 any of the following application notes:

- **ViSi-Genie Getting Started - First Project for Picaso and Diablo16**
- **ViSi-Genie Getting Started - First Project for Pixxi Display Modules**

Proprietary Information

Disclaimer of Warranties & Limitation of Liability