



ViSi Cool Gauge

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Description

This simple application note shows how to add and configure a cool gauge object, one of the widgets available in Workshop. Before getting started, the following are required:

- Any of the following 4D Goldelox display modules:
 - [uOLED-96-G2](#)
 - [uOLED-128-G2](#)
 - [uOLED-160-G2](#)
 - [uLCD-144-G2](#)
 - [uTOLED-20-G2](#)
 or any superseded module that supports the ViSi environment
- [4D Programming Cable](#) / [uUSB-PA5/uUSB-PA5-II](#)
- [micro-SD \(μSD\)](#) memory card
- [Workshop 4 IDE](#) (installed according to the installation document)
- When downloading an application note, a list of recommended application notes is shown. It is assumed that the user has read or has a working knowledge of the topics presented in these recommended application notes.

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Application Overview

It is often difficult to design a graphical display without being able to see the immediate results of the application code. 4D-ViSi is the perfect software tool that allows users to see the instant results of their desired graphical layout. Additionally, there is a selection of inbuilt dials, gauges and meters (called widgets) that can simply be dragged and dropped onto the simulated module display. From here, each can have properties edited and at the click of a button, all relevant code is produced in the user program.

This simple application note explains how to create a cool gauge object in the WYSIWYG screen, how to paste the generated code, and how to display the different frames.

Setup Procedure

For instructions on how to launch Workshop 4, how to open a **ViSi** project, and how to change the target display, kindly refer to the section “**Setup Procedure**” of the application note

[ViSi Getting Started - First Project for Goldelox](#)

Create a New Project

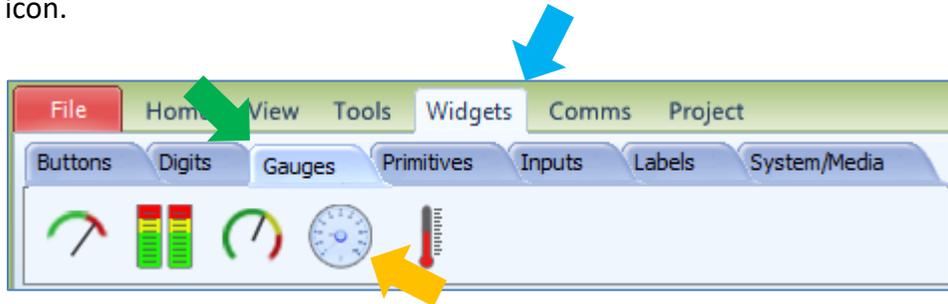
For instructions on how to create a new **ViSi** project, please refer to the section “**Create a New Project**” of the application note

[ViSi Getting Started - First Project for Goldelox](#)

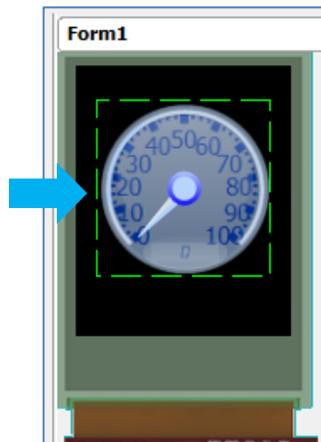
Design the Project

Create a Cool Gauge in the WYSIWYG Screen

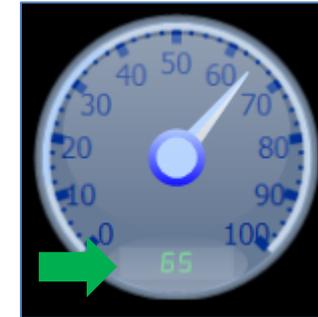
Go to the Widgets menu, select the Gauges pane, and click on the cool gauge icon.



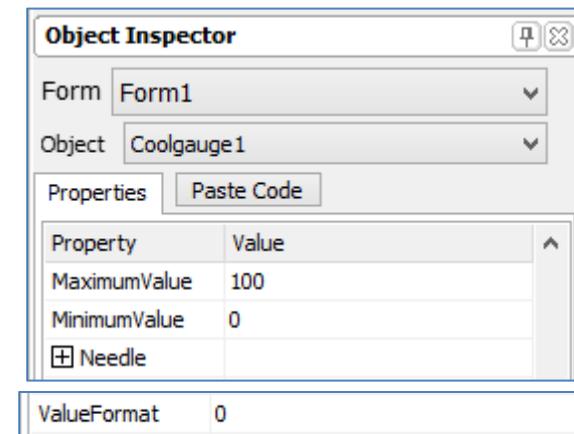
Once the cool gauge icon is selected, click on the WYSIWYG screen to place it. Drag the borders to resize the object to the desired dimensions.



The needle points to tick marks with values. It also has a digit display at the bottom part. This will display the corresponding tick mark value to which the needle is pointed. Below is a cool gauge with a digit display in green.



The Object Inspector shows the different properties of the object. The user can edit the properties and modify the appearance of the cool gauge using the Object Inspector.



Generated Frames

Detailed information about the cool gauge object can be found in the application note [ViSi-Genie Gauges](#). For now, take note of the default maximum and minimum values – 100 and 0, and the default ValueFormat setting – 0. ValueFormat defines the format by which digits are displayed in the cool gauge digit display. When set to 0, only integers are displayed. With the following property values for example,

Property	Value
Maximum	100
Minimum	0
ValueFormat	0

the range of possible integer values that can be displayed is from 0 to 100 – a total of 101 discrete values. Workshop then automatically generates one image for each discrete value of the object. Each image can be thought of as a frame of a video. Three frames are shown below.



The user can then display any of these frames using a simple command, which will be shown later.

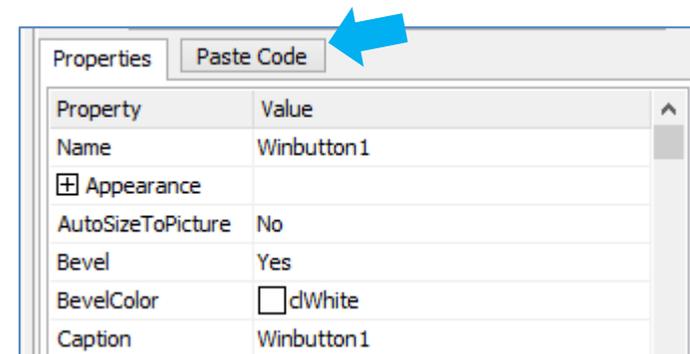
Insert the Cool Gauge Code

Go to the code area and place the cursor just after the `wend` statement (line 22 in this example). Note that the uSD-card initialization routine is now uncommented.

```

11 func main()
12 // Uncomment the following if uSD images, fonts or strings used.
13
14 print("Starting\n") ;
15 while(!media_Init())
16     putstr("Drive not mounted...");
17     pause(200);
18     gfx_Cls();
19     pause(200);
20 wend
21
22 |
23     repeat
24     forever
25 endfunc
  
```

Having selected the cool gauge object, go to the Object Inspector and click on the Paste Code button.



The code will be updated accordingly.

```
18     gfx_Cls();
19     pause(200);
20     wend
21
22
23     // Coolgauge1 1.0 generated 6/4/2013 10:38:03 AM
24     media_SetAdd(iCoolgauge1H, iCoolgauge1L) ; // point to t
25     media_VideoFrame(4, 16, numx) ; // where numx is 0 t
26
27     repeat
28     forever
```

A new block for the object is generated, along with comments for each line. Additional explanations are given below.

The statement in line 24

```
media_SetAdd(iCoolgauge1H, iCoolgauge1L) ;
```

sets the μ SD internal address pointer for bitwise access. `iCoolgaugeH` specifies the high word (upper 2 bytes) and `iCoolgauge1L` specifies the low word (lower 2 bytes) of the 4 byte μ SD address location of the cool gauge object created. The command

```
media_VideoFrame(4, 16, numx) ;
```

in line 25 displays a video frame from the μ SD card, the address of which was previously specified with the function `media_SetAdd("HiWord", "LoWord")`. The arguments **4** and **16** are the **x** and **y** coordinates or the **left** and **top** properties of the object. The argument **numx** is the frame to be

shown. Before running the program, the user needs to declare **numx** as a variable first then assign it a value between 0 and 100.

A Simple Example - Displaying Frames

We will now write a simple code to display five frames of the cool gauge object.

```

#platform "GOLDELOX"

// Program Skeleton 1.0 generated 6/4/2013 10:28:12 AM

#inherit "4DGL_16bitColours.fnc"

#inherit "VisualConst.inc"

#inherit "CoolGaugeTutorialConst.inc"

func main()
// Uncomment the following if µSD images, fonts or strings
used.

    print("Starting\n") ;
    while(!media_Init())
        putstr("Drive not mounted...");
        pause(200);
        gfx_Cls();
        pause(200);
    wend

    gfx_Cls(); //clear the screen
    // Coolgauge1 1.0 generated 6/4/2013 10:38:03 AM
        media_SetAdd(iCoolgauge1H, iCoolgauge1L) ; //
        point to the Coolgauge1 image

    media_VideoFrame(4, 16, 0) ; // display frame 0
    pause(2000); //2 second delay
    media_VideoFrame(4, 16, 25) ; //display frame 25
    pause(2000); //2 second delay
    media_VideoFrame(4, 16, 50); // display frame 50
    pause(2000); //2 second delay
    media_VideoFrame(4, 16, 75); // display frame 75
    pause(2000); //2 second delay
    media_VideoFrame(4, 16, 100); // display frame 100
    pause(2000); //2 second delay

    repeat
    forever
endfunc

```

Run the Program

For instructions on how to save a **ViSi** project, how to connect the target display to the PC, how to select the program destination (this option is not available for Goldelox displays), and how to compile and download a program, please refer to the section “**Run the Program**” of the application note

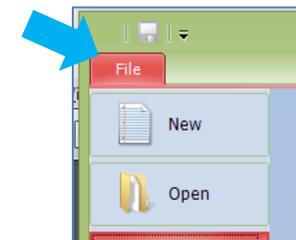
[ViSi Getting Started - First Project for Goldelox](#)

Attached ViSi File

Attached is a ViSi file, CoolGaugeTutorial.4dViSi, which contains the code for displaying five frames of the cool gauge discussed earlier. A simple for loop routine for displaying increasing and decreasing values of the cool gauge is also included.

Workshop Sample Programs

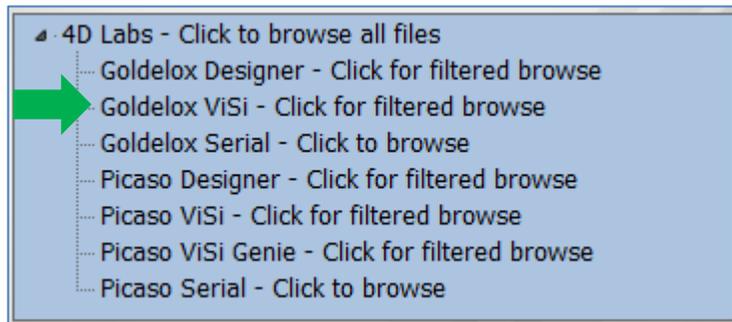
Workshop comes with many sample programs, one of which is for displaying random values of a cool gauge object. To open it, click on the File menu.



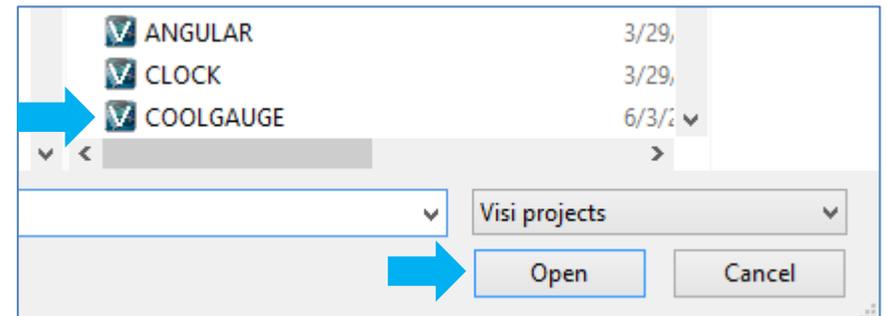
Near the bottom of the drop down menu, you can find the Samples button, click on it.



The samples window now appears. Select Goldelox ViSi.



Select the file COOLGAUGE then click on Open.



The program now opens.

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