

Radiance Tech Tip 4

Automatic Switching of Output Resolutions

Introduction

The Radiance is set, by default, to "Auto" output mode, which will read the display's EDID and automatically select the optimum video mode for the display. i.e. For most new 1080p projectors or displays, the Radiance will output 1080p60 if it receives 480i/480p/720p/1080i/1080p and will output 1080p24 if it receives 1080p24. For analog displays or for digital displays that do not properly support EDID, the output mode must be selected using the commands shown below.

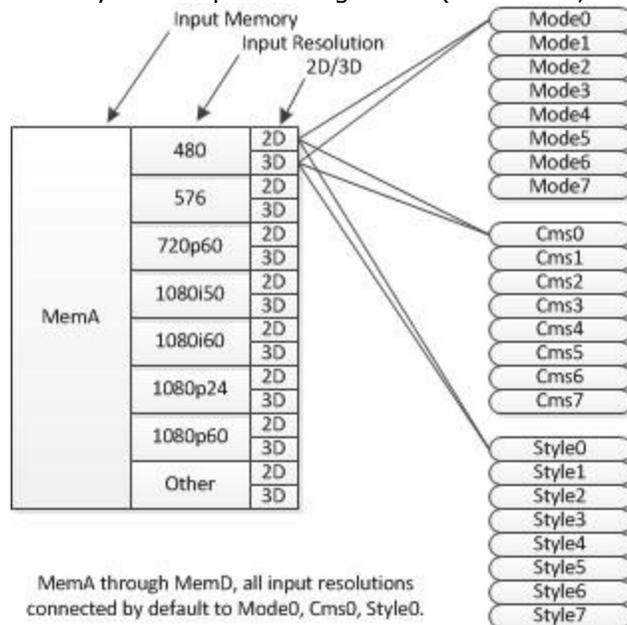
Configuration Memories

To understand how the Radiance functions, it is important to note that setup and calibration parameters are split into "input memories" and output memories for "Mode", "CMS" and "Style". Input memories control the video source setup. Output memories control the display setup and calibration. They are specified by selecting a "Mode", "CMS" and "Style" for each input, input user memory, input resolution, and 2D/3D input.

The Radiance has four input memories (**MEMA**, **MEMB**, **MEMC** and **MEMD**). Each input memory has eight sub-memories that are automatically selected for input resolutions of 480, 576, 720p, 1080i50, 1080i60, 1080p24, 1080p60 and Other. The "Other" memory is reserved as a catch-all for unspecified resolutions.

The following applies to software revision 102910, and later revisions: Each Input sub-resolution memory can be independently linked to any one of the (8) output mode, (8) CMS and (8) Style memories. They store setup data for the video display setup and calibration. In the factory default condition all input sub-resolution memories are linked to "Mode 0," "CMS 0," and "Style 0." To change these enter **MENU** → **Output** → **Output Setup** → **(2D/3D)** → **OK**. These settings can be changed for each input sub-resolution memory. To "Save" the new settings, enter **MENU** → **Save** → **OK** → **OK** → **OK**.

Default "Input Memory" to "Output " configuration (for 102910, or later, software)



Video Configuration

By default, in the "Output Setup" menu, the output mode is set to "Auto 2,1." The selection "Auto 2,1" means the Radiance automatically reads the video EDID for the devices connected to both outputs, giving priority to Output 2, and automatically selects the appropriate output resolution. That is, if an active device is connected to output 2, the EDID from that device is read to determine the optimal video output resolution and the Radiance automatically selects the specified resolution. If no device is connected to output 2, or the device connected to output 2 is turned off, the Radiance uses the EDID from the device connected to Output 1 and sets the output resolution appropriately. Output 1 can have priority by selecting "Auto 1,2" in the "Output Setup" menu.

In the "Auto" mode setting, the output vertical rate is selected based on the input vertical rate. Input format 1080p24 automatically selects a vertical output rate of 24 Hertz, if the display supports 24 Hertz. Input formats 480i60, 720p60, 1080i60 automatically select a vertical output rate of 60 Hertz. Input formats 576i50, 720p50, and 1080i50 automatically select a vertical output rate of 50 Hz. i.e. If a 1080p display that supports 24 Hertz is connected; for a 1080p24 input format 1080p24 is output, for 480i60/720p60/1080p60 input formats 1080p60 is output, or for 576i50/720p50/1080p50 input formats 1080p50 is output.

For analog displays and digital displays, that do not properly support EDID, the output mode must be selected using the commands shown below.

Video Output Setup Menu

The *Video Output Select Menu* is used to select output settings (*Mode*, *CMS*, and *Style*) based on the input number, input memory, and input video mode. The *Video Output Select Menu* does not affect the audio settings. See the *Audio Configuration* section for information on configuring audio modes.

Once selected, the parameters for the *Mode*, *CMS*, and *Style* are changed using the **MENU → Output Setup → (2D/3D) → Ok → (Mode, CMS, Style)** menu. In order to preserve continuity, with older software, the same menu can also be accessed at **MENU → Input → Video Setup → [Resolution] → (2D/3D) → Ok → (Mode, CMS, Style)**.

Note: For older Radiance units 3D is available as an option.

First highlight the '2D' or '3D' row and press "Ok" to edit.

In Condition			->	Video Output Selection					
In	Mode			3D Mode Type	CMS	Style	VidOut 1 2		
*2D:	1A	480	->	Custom0 (Auto 2,1)	0	0	Y	Y	
3D:	1A	480	->	Auto 2,1	Auto	0	0	Y Y	

Next highlight the input condition entry that you want to edit.

Press the "^" and "v" buttons to set the input number, input memory, and input mode. For any of the 3 input conditions you can press "4" to enter 'All' as the condition. This allows you to apply the output setup to multiple input conditions.

When making settings that apply to multiple input conditions you can leave any of the output settings unchanged by selecting the '---' option for that output setting.

2D In Condition			2D Video Output Selection					
In#	Mem	Mode	3D Mode	Type	CMS	Style	VidOut	
							1	2
1	A	1080p60	Custom0		0	0	Y	Y

(Auto 2,1)
(Input to edit output settings of)
Press '4' for 'All', '5' to see current
<> Select, ^v Change, OK to set, Exit quits

The Lumagen RadianceXD video processor has four input memories MemA, MemB, MemC and MemD. Each input memory has eight resolution sub-memories, which have default values of 480, 576, 720p, 1080i50, 1080i60, 1080p24, 1080p60 and Other. The user can change the resolutions and vertical rates of the sub-memories. In the factory default condition all of the resolution sub-memories are linked to "Output Configuration 0" (See Figure 1).

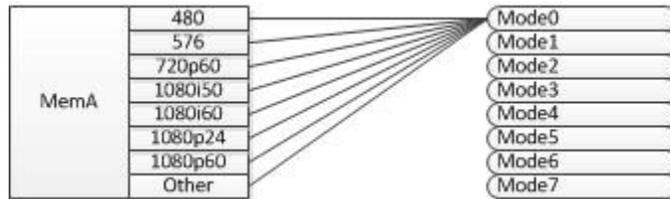


Figure 1, Input and output memories with default settings.

The resolution sub-memories can be independently linked to any one of the eight output configuration memories (See Figure 2). The output configuration memories are used to store setup data for video displays. You can change the link between the input resolution sub-memories and the output configuration memories so that the output resolution automatically changes when you apply video signals with different resolutions.

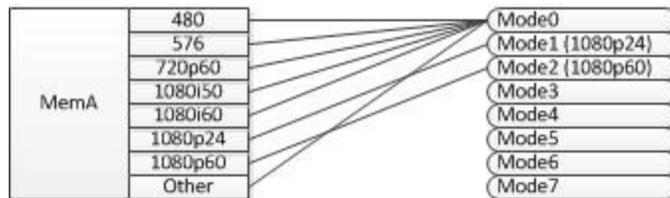


Figure 2, Input memories linked to different output memories

The solution

Use the following procedure to set up your Radiance so that a 1080p24 input is output at 1080p24 and a 1080p60 input is output at 1080p60, and any other input resolution is output at 480p. This is just an example and the actual output resolutions could be set to any desired resolution.

The procedure

1. Select the input on the Radiance that is connected to the video source and set the video source to output 1080p24.
2. Link the 1080p24 resolution sub-memory to Output Mode "Custom1" by pressing "Menu, Input, Video Setup, 1080p24, Output, Ok". Highlight the 2D line and press "Ok". Highlight the fourth column for Output Mode and use the up and down arrow buttons to set the Output Mode to "Custom1", then press "Ok" to accept the new settings.
3. Set the resolution of Output Mode "Custom1" to 1080p24 by pressing "Menu, Output, Custom Modes, Custom1, Select Mode, Ok, 1080p24, Ok".
4. Set the video source to output 1080p60.
5. Link the 1080p60 resolution sub-memory to Output Mode "Custom2" by pressing "Menu, Input, Video Setup, 1080p60, Output, Ok". Highlight the 2D line and press "Ok". Highlight the fourth column for Output Mode and use the up and down arrow buttons to set the Output Mode to "Custom2", then press "Ok" to accept the new settings.
6. Set the resolution of Output Mode "Custom2" to 1080p60 by pressing "Menu, Output, Custom Modes, Custom2, Select Mode, Ok, 1080p60, Ok".
7. Save the new configuration by pressing "Menu, Save, Ok, Ok, Ok".

Conclusion

Now when you apply a 1080p24 signal to the input, the Radiance will output 1080p24. When you apply a 1080p60 signal to the input, the Radiance will output 1080p60. When you apply any other input resolution, the Radiance will output 480p.

You can use this same basic procedure to configure the Radiance so that a NTSC input signal (480i/p) automatically is output at a 60Hz rate and a PAL input signal (576i/p) is output at a 50Hz rate.