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Maestro M3 and Concert AVR-1 Optimization guide

Firmware version 2.3

The goal of this document is to help you optimize the settings of your Concert AVR-1 or Maestro M3. As we have all experienced by now, HDMI is a delicate way to transmit and receive video and audio signals. The theater processor is only part of a complete system, such that, if device settings in any of the sources, displays, or processors are not set properly, system errors can happen. Needless to say, the more we add to the system, the more delicate the system becomes. Additionally as HDMI protocols continue to evolve, it is critical that older products be updated to deal with today's software.

Regarding HDMI systems in general:

Reduce the number of variables that each HDMI device must negotiate and "decide" upon.

Specificity in your source, repeater (processors) and displays greatly improves performance of an HDMI system. By specifying the BlueRay Player to output 1080p, your cable box at 1080i, your PS3 to 1080p with your processor set to output 1080p will greatly enhance your experience with the system - the switch times are shorter, less negotiating between HDMI sources. Specifying the output of the AVR to the display's native resolution will improve the system performance with regards to HDMI miscommunications.

Being that HDMI devices must trade information with each-other, we are likely to encounter an error in communication on occasion, sometimes more than a few errors in a short amount of time. Much like an overbearing supervisor, HDCP is part of the protection/verification scheme employed here. It verifies the system components to make sure that all devices are who they say they are and are authorized to receive the content that will be or is being sent to them. This authentication happens every 2 seconds.

Content that is copy protected is protected by 40-bit encryption. Each device playing a part in rendering that content to your screen or your speakers must have keys to unlock, verify and then encrypt again and then transmit that content to the next device in your signal path. Authentication verifies that the device is authorized to receive and the encryption protects copy-protected content from being lifted and copied "mid-stream".

Reducing the amount of negotiations between each piece reduces the potential for dropouts and other miscommunications. This is achieved by specifying your output and input resolutions, frame rates and connections.

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- **Cable or Satellite box sources:**
  Use the HDMI connection for video only and digital coax or optical for audio. In the AVR-1/M3 *Input Configuration* menu, specify HDMI for video and digital for audio. Setting sources input parameters in this manner will reduce the number of potential drop outs and other performance issues. Highly recommended.

- **Setting video input source:**
  Specify your video source in the *Input Configuration* menu for both Video and Audio. The default is "**HDMI**". For each source connected to the Concert AVR-1, specifying the input source manually (HDMI, component, S-Video, composite) will speed up your switching time and give less room for HDMI communication errors to accumulate in your signal path (that's a good thing, recommended too). ****remember, HDMI errors accumulate and it's tolerance for errors is extremely low*

  Ensure that the output resolution of your source units is set to match your display device (i.e. 720, 1080I, or 1080p). If the source unit gives you a Frame Rate option (i.e. 50 Hz or 60Hz), set it to match the display device

- **Video output - HDMI:**
  The default video output is set to "**Preferred**". We have found however that though the source, the AVR and the display are fine with 1080p the display may still request, via EDID, that it be sent a 1080i signal. From the *Video Output* menu, change the output resolution from preferred to 1080p to correct this miscommunication.

  If the display requests the 1080i format at 60Hz and the AVR-1 is set to "**Auto**" but your source is a Blue Ray at 24fps, there will be no video.

- **Frame Rate:**
  The default frame rate is set to "**Auto**". If left set to "**Auto**", the AVR-1 will output only those frame rates that the display indicates it is capable of in it's EDID information via the HDMI connection. And as we see, noted above, the EDID from the display may just want to play it safe and not claim that it can display some frame rates even though it can. By setting the Frame Rate to "**Follow Input**" you can force the display to receive the 24fps.

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- **Update older sources or displays:**
  Make sure all equipment in the signal path has the latest firmware, especially cable/satellite boxes, and display devices. Many of these devices were designed several years ago for "HDMI 1.1" but do not necessarily work correctly with version 1.3. Very critical as we get more questions about older legacy products. Not that 2 or 3 years should be that old but the HDMI protocol continues to evolve requiring more bandwidth.

- **Dropping video**
  Sometimes a 1080p source may lose it's sync due to the data (video, audio and HDCP) being on the edge of usability. This is caused by a long run HDMI cable or that the HDMI cable being used is not capable of carrying high speed signals. Try a shorter cable and/or change out the HDMI cable with one that is capable of carrying high speed data.

- **Be aware of keys (KSV)**
  Certain source units have a limited number of "keys" meaning they can only connect with a limited number of devices (i.e. some cable boxes can only connect to a display and that's it). Generally these "low key devices" are limited to cable/satellite boxes, with Motorola being the one we hear about the most. Avoid these or try disconnecting them from the system temporarily and see if the problems go away and if necessary replace them with more current models form the service provider.

- **Dual outputs/displays, connected with HDMI:**
  Depending on the displays used, sometimes a dual display system may not display a signal unless both panels and/or projector are powered on when the AVR-1 is set to "**Auto Priority 1&2**". By physically disconnecting one of the displays, the video will display.
  Firmware version 2.0 and above have IR codes which allow you to force the handling of the outputs – 16-73 for outputting to HDMI 1, 16-74 for outputting to HDMI 2 and 16-75 for outputting to both.

- **Power On Sequence:**
  Our contacts at HDMI as well as other industry manufacturers have recommended that the power up sequencing should be display, receiver, ***and then*** the source. Makes sense although the challenge comes when the source has some type of DVR incorporated into it. Not sure the HDMI protocol folks thought this through. Try removing cable/satellite source and see if problem persists and then try other power up sequencing.

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- **No Subwoofer output:**
  2 channel sources do not contain a discrete LFE channel. If speakers are set to Large in your speaker set up menu, and your source is 2 channel in Dolby or DTS mode, there will not be a sub output. Bass management is applied only when the speakers are set to Small; the crossover is applied to the audio signal and sub is output.

- **Green line on side of screen:**
  In most cases, the display is requesting, via it's EDID, an incorrect sync polarity. This incorrect sync is provided to the display from the AVR, which is rendered to the screen shifted and shows a green line. Please inform both the display manufacture as well as AudioControl. When you speak with the display manufacturer, ask them for a firmware update as it may correct the problem.