

# Audio Metering

## An Explanation of the Audio Display on the Output of the BrightEye 72 SDI to HDMI Converter

### What is Displayed?

If one were to turn on the audio meter display in the BrightEye 72 SDI to HDMI converter, a series of vertical colored bars appear on the sides of the HDMI video output. These bars depict the level of each of the audio channels embedded in the SDI stream. If only two audio bars are depicted, only two channels are embedded in the SDI stream. This will increase in pairs to display up to 16 audio channels. If no audio is embedded, no audio display will be presented.

### What Do They Mean?

The scale of the meters in the BrightEye 72 is dBFS (decibels below full scale). The top of the red bar is 0 dBFS. This is the maximum level possible in digital audio. Any audio coming in above this level is clipped.

The user can set a digital reference of either -18 dBFS or -20 dBFS in the "Dig Ref Level" pull down bar in the Audio Config tab seen in the BrightEye Mac or PC software. This level is represented by the top of the green bar – or if you'd rather, the bottom of the yellow bar. In the same Audio Config tab, there is a pull down bar for "Peak Indicator". This allows the user to select the amount of headroom the meters display and may be set from -2 dBFS to -10 dBFS in 2 dB increments. The bottom of the red bar represents this setting.

Audio levels are simultaneously presented as peak and average. The peak value is displayed as a small square. The average level is displayed as a column. By definition, the peak will always be greater than the average. It will be pushed up along the scale by the average level. When the peak (instantaneous) level drops, the square indicator will "hold" for a moment before dropping. Thus, the peak square will move upward instantly, but will drop slowly. This is done in order to make it easier to see peak values. The peak square corresponds to PPM (Peak Program Metering). The average level is calculated across a 300 millisecond interval, which corresponds to the traditional VU scale. So the BrightEye 72 combines both peak and average audio metering. The particular characteristics can be configured to suit the user.

### A Note about the BrightEye 72 HDMI Audio Format

The HDMI spec supports 8 channels of audio. The BrightEye 72 monitors 16 channels of SDI embedded audio, but outputs 8 channels per the HDMI specification. The first 8 channels of the SDI audio stream are the channels output to HDMI. For those concerned about connecting the HDMI output to a surround sound speaker system, a specific channel order should be maintained to ensure that the correct audio signals are sent to the proper speakers. The output mapping of the BrightEye 72 HDMI audio is as follows:

- CH 1 Front Left
- CH 2 Front Right
- CH 3 Low Frequency Effects
- CH 4 Front Center
- CH 5 Left Rear
- CH 6 Right Rear

For those using 7.1 surround:

- CH 7 Left Rear Center (or Left Front Center)
- CH 8 Right Rear Center (or Right Front Center)

