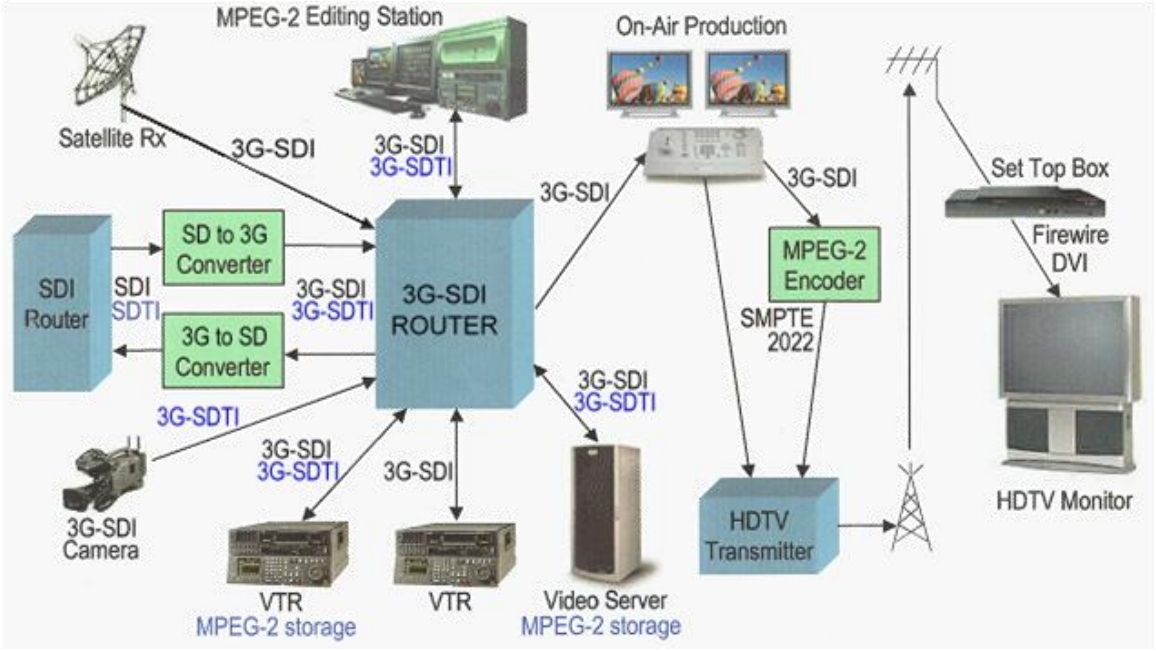
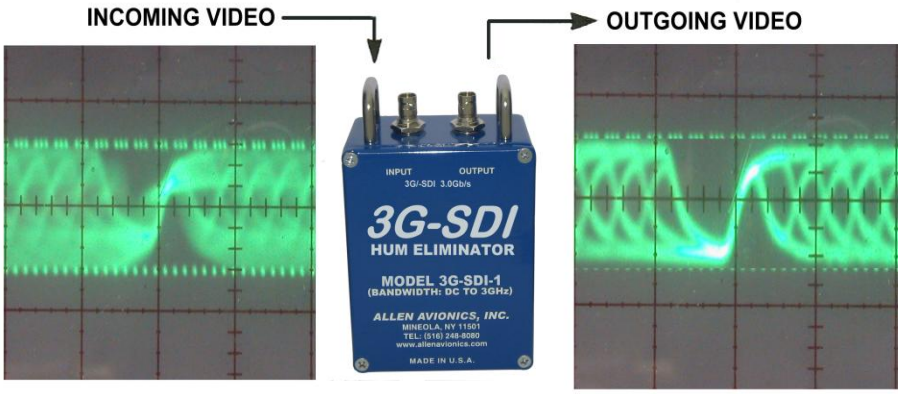
# 3G-SDI

## HUM ELIMINATOR




Shown above is a typical High Definition Broadcast chain showing the potential interconnects that could result in ground loops and the introduction of induced noise. Even though SDI is more immune to extraneous noise, low frequency components (hum) problems can still exist. As with analog signals, once you have noise in the signal, it is extremely difficult and costly to remove. Jitter caused by induced noise effects can compound problems created by unstable signal sources, poor re-clocking systems, cable attenuation and can be the demise of digital signals. 3G-SDI Serial Digital signal transmissions at 2.970Gbps over a cable contain a range of low to high frequencies like analog signals and are subject to analog-type distortions like induced noise as well as unique digital distortions related to sampling and quantizing. These distortions may result in a variety of visible impairments. Unlike analog signals, the digital signals do not degrade gracefully and are subject to a cliff effect. The eye pattern is typically used to evaluate signal quality. When an external factor such as random induced noise affects the absolute bit timing it can result in lost data.




Looking at an eye pattern for 3G-SDI signal affected by extraneous induced noise, the data zero crossing point (risetime/falltime area) of the *Incoming Video* appears to be smeared, indicating the potential for a bit error and the loss of data. Using the Allen Avionics 3G-SDI Hum Eliminator you can eliminate the potential for this kind of data loss, see *Outgoing Video*. The model 3G-SDI Hum Eliminator supports the four transmission rates up to 2.970Gbps and supports SMPTE 424m.


ALLEN AVIONICS, INC.

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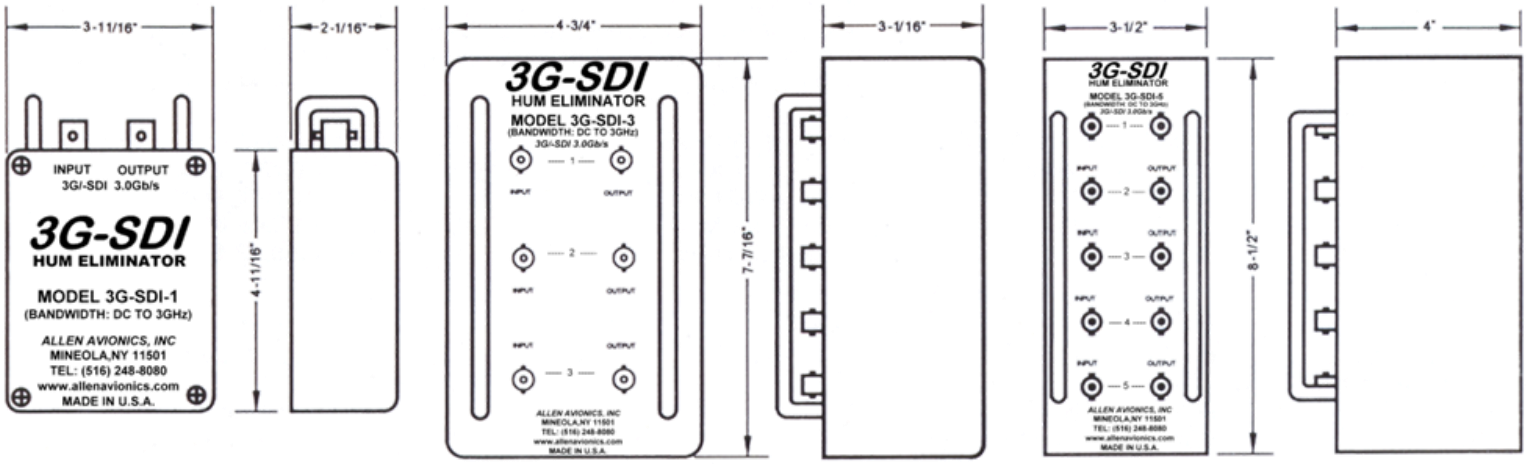
# Model 3G-SDI Hum Eliminator

## SPECIFICATIONS:

| | |
|---|---|
| Video Input: | 3G-SDI Transmission (compatible w/ Analog, SD/HD-SDI Video) |
| Connectors: | BNC per IEC60169-8 |
| Impedance: | 75 Ohms Unbalanced |
| Ground loop Isolation: | Greater than 60dB |
| Bandwidth: | 3.0 GHz |
| Return Loss: | Greater than 15dB to 3.0GHz |
| Package: | Aluminum case |
| Number of channels: | |
| 3G-SDI-1 | Single Channel unit |
| 3G-SDI-3 | 3 Isolated Channels |
| 3G-SDI-5 | 5 Isolated Channels |
| 3G-SDI-3R | 3 Isolated Channels – 1URack |
| 3G-SDI-5R | 5 Isolated Channels – 1URack |

Equivalent to less than 20 feet of cable.
Passive device no power required.


**How to find and eliminate ground loops and prevent AC Hum?**

For complex systems you may need to repeat the following steps starting with a different piece of equipment in various combinations to locate the problem and correct it. Study the typical High Definition Broadcast chain showing the potential interconnects that could result in ground loops and the introduction of induced noise. Compare it to your system and pick a place to start.

1. Strip the system down to one display and one Video or Audio source. Disconnect anything you can to simplify the system.
2. Add one piece of equipment back at a time. Reconnect Cables, power and check for Humbars in the Video or Hum in the audio.
3. Proceed until you find the offending component(s) that is causing the problem.
4. Once you know what combination of components is responsible, Allen Avionics will probably have an Audio or a Video Hum Eliminator / Isolation Transformer you can insert between the offending equipment and the rest of the system to permanently stop the Hum/Noise in your system.

Allen Avionics has hum eliminators for SDI, HD-SDI, S Video, NTSC, Composite, HDTV Analog (Y,Pb,Pr or RGB), Component, Y R-Y B-Y. They can be used with any brand of Audio or Video equipment.

**For additional technical information or ordering information call our technical sales department at 516-248-8080.You can also see us on the Web at [www.allenavionics.com](http://www.allenavionics.com) Email any questions you may have to sales@allenavionics.com.**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