

3G-SDI-Ground Loop Hum Eliminators

Supports Transmission rates of up to 1.50 Gbps

FEATURES & 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: > 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.



3G-SDI PRODUCTS and SPECIFICATIONS			
PRODUCTS	3G-SDI-1	3G-SDI-3	3G-SDI-5
CHANNELS	1	3	4
BANDWIDTH	DC to 3.0 GHz	DC to 3.0 GHz	DC to 3.0 GHz
RETURN LOSS	> 15 dB to 3.0 GHz	> 15 dB to 3.0 GHz	> 15 dB to 3.0 GHz
ISOLATION	> 60 dB	> 60 dB	> 60 dB
*PACKAGE	Die-cast Aluminum	Die-cast Aluminum	Die-cast Aluminum
DIMENSIONS h-w-d	4-11/16" x 3-11/16" x 2-1/16"	7-7/16" x 4-3/4" x 3-1/16"	8-1/2" x 3-1/2" x 4.0"

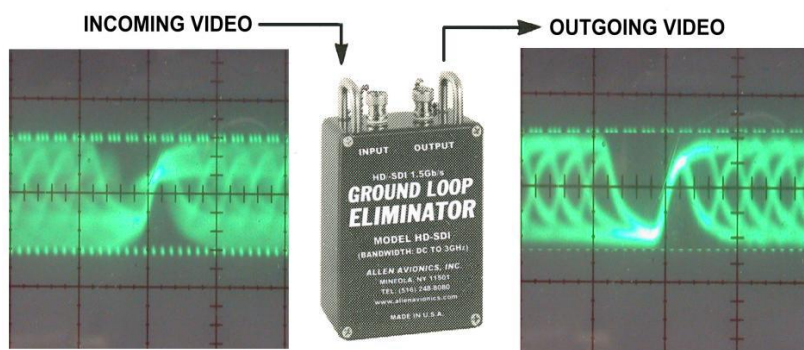
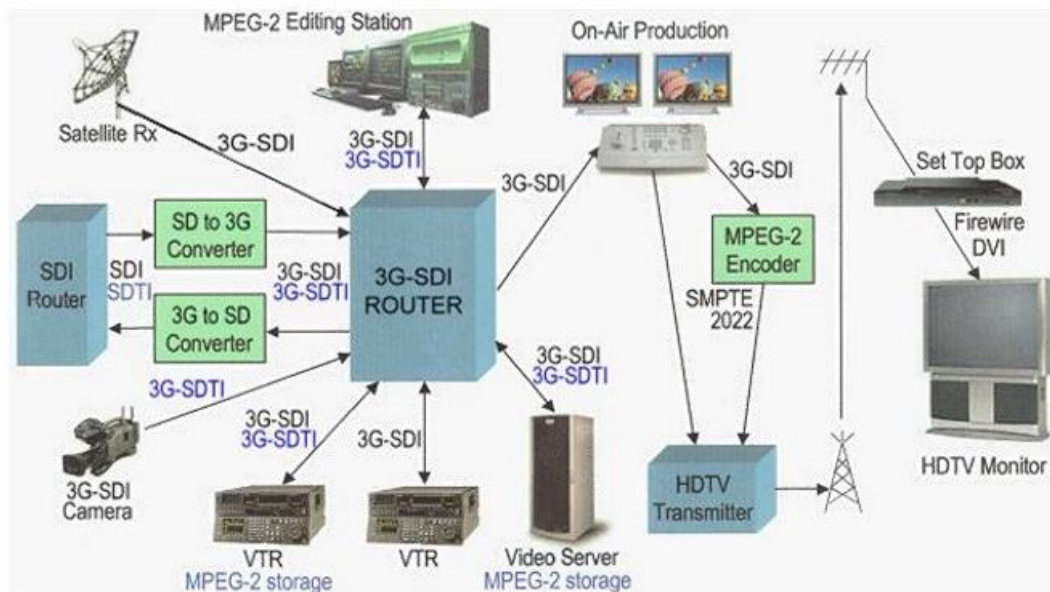
How to find and eliminate ground loops and prevent AC Hum?

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.

How to Stop Ground Loops

With 3G-SDI HUM ELIMINATORS



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 and 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 2.970 Gbps 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 (**Incoming Video**) the data zero crossing point (rise-time/fall-time 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 of up to 2.970 Gbps and supports SMPTE 424m.