



Video Installation Tips

Issue #1

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Resolving Video Loss with Distribution Amplifiers

- Video loss (known as signal attenuation) is the number one cause of poor image quality and data loss.
- Video loss increases in relation to the distance from cameras to monitors and recording devices. Signal loss also occurs at all connection points.
- Video distribution amplifiers boost signal strength and allow video to be fed to multiple peripheral devices.

Understanding Video Loss

Coaxial cables are designed to transmit video signals from a 75 ohm source (the standard for CCTV cameras) with minimum signal loss. However signal loss (also known as attenuation) is inevitable and increases in proportion to the length and size of the cable used. In other words, the smaller the diameter of the cable, the greater the loss will be. Video loss is also increased at each connection point along the system. A video signal transmitted from a camera to a monitor 1,000 feet away will lose roughly 35 to 40 percent of the information sent. As a result the degraded image quality on the monitor will not reflect the true capability of the camera or the monitor.



Diagram 1: Example of Video Amplifier Installed to Boost Signal to Remote Monitor

For most applications RG59 coaxial cable will provide an adequate video signal up to 750 feet. As shown above, the solution is to install a video amplifier to increase the signal strength on the 1,000 foot cable run. Video loss occurs over every foot of coaxial cable so using a larger diameter cable such as RG6 will further reduce that loss. If there are one or more connection points between the camera and monitor, the maximum cable run (without amplification) will be reduced since additional video loss occurs at each connector. **(See Issue #2 of Video Installation Tips: Video Cables and Connectors for more details.)**

It follows that installing a larger diameter cable such as RG6 will improve the video quality at monitors and the recording end of the system. The cost of upgrading to RG6 or better grade cable is minimal when compared to the entire system investment. Most industrial grade video equipment available today is capable of capturing, recording and displaying images at high resolution. Poor image quality is most often the result of signal loss due to cabling and connection issues within the system.

Video Distribution Amplifiers

A simple video amplifier as shown in previous example has one input and one output and its only function is to boost the signal strength. A video distribution amplifier (VDA) allows for one or more video inputs and multiple outputs. A typical application is shown below where the camera signal is passed through the VDA and distributed to a digital video recorder and three monitors.

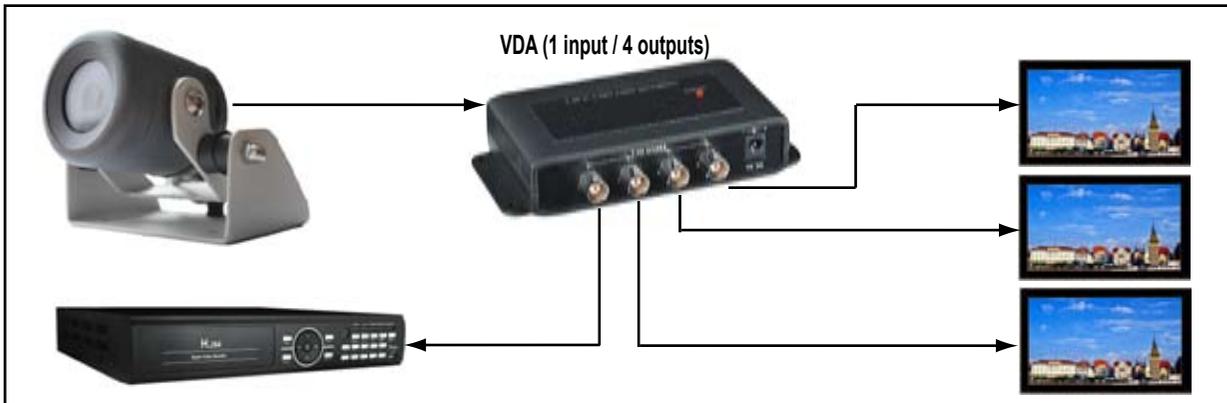


Diagram 2: Example of 4 Output Video Distribution Amplifier

VDA's with multiple inputs and outputs provide great flexibility in resolving video loss in virtually any closed circuit TV (CCTV) system, regardless of size or complexity. The example below illustrates a more complex application with 4 cameras attached to an 8 output VDA. Each camera signal is distributed to the recording unit as well as one or more video monitors.

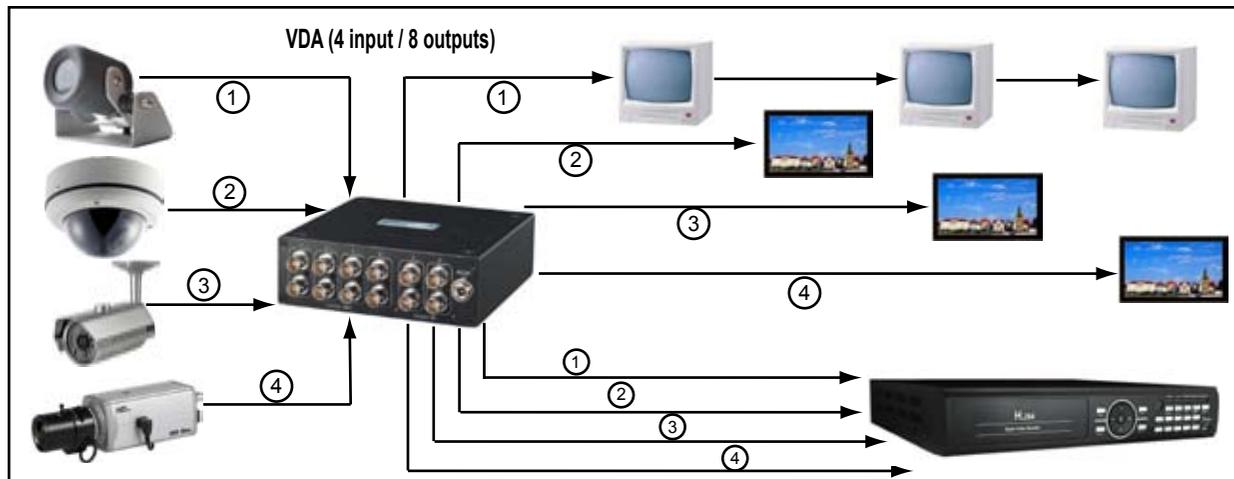


Diagram 3: Example of 4 Input / 8 Output Video Distribution Amplifier Set-Up

Look for the next issue of **Video Installation Tips: Understanding Video Cables & Connectors**

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