

FLAT VIDEO IMAGES

It is often the case that despite the use of top quality and high definition cameras, equipped with extremely bright zooms, the result is poor, or at least not as good as expected, and the monitor image is **flat** and with no contrast.

In this case it is quite common to blame the product supplier but in fact this problem is most likely due to:

- Signal **losses** (attenuation) along connecting lines between Video signal source (camera) and Video equipment (monitor, etc..).

Signal attenuation is caused by three main aspects:

- Unprecise crimping of BNC connectors;
- Junctions along transmission line, although carried out through BNC/BNC adaptors;
- Excessive length of coaxial cable or a low quality coaxial cable with high specific attenuation.

The solution for the first cause is very easy and it depends only on the technician's ability.

The solution for the second cause is obviously to carry out the lowest number of junctions possible on the line.

The solution for the third cause requires the use of a low attenuation coaxial cable and the lowest number of junctions possible. Nevertheless, the attenuation value is **not always** indicated in the manufactures' literature. This lack of information makes it therefore difficult to choose the right cable. In order to create a good quality Video system, it is advisable to choose a coaxial cable with an average attenuation value of approximately **2,5dB** for 100mt at 5Mhz (for RG59/BU cable). It is also necessary to **add** lost dBs for every settlement, junction, welding, etc., considering that it is difficult to establish its exact value and problems often arise **only once the system has been installed**.

As further indication, there are two types of Video system:

- Top quality system: attenuation on Video connection equal to **3dB** acceptable (120mt for every path; $2,5:100=3:X$; $X=120$);
- Standard system: attenuation on Video connection equal to **6dB** acceptable (240mt for every path; $2,5:100=6:X$; $X=240$).

Considering what was previously discussed, it is clear why coaxial cables can **measure** up to the standard length of 250 meters, as suggested by the so called "CCTV Experts".

It is essential to point out that in case of colour television cameras, the maximum connecting distance must be reduced by half. For instance, it is quite obvious that in case of high resolution and top quality colour cameras, connected through a 200mt path (standard RG59), most of their performance **gets lost** along the way.

DIGITAL VCR IS NOT WORKING PROPERLY

It appears more often than expected that digital VCR performance **doesn't** correspond to what stated in the manufacturer's literature. This is mostly the case for the **number** of recordable images for every second or for example when the same image is repeated randomly during recording.

These failures do not **depend** on the VCR itself but on degraded Video input digital signals, especially on the **synchronization** pulse. The causes are the same as those previously described

SOLUTION

In order to compensate the Video signal loss mainly due to the poor quality of the connecting coaxial cable and to junctions* if there are any, the level of Video input signal at the Video equipment must be increased. The CCIR standard indicates that the video output signal at the source must be equal to 1Vpp (1Volt peak to peak). Of course, this value will not be the same for the video equipment input, as previously explained

*There are many other causes that contribute to Video signal loss. Due to the extreme technical subject, the case is not thoroughly dealt with in this article.

At this point it is clear that in order to increase the Video signal level, an **amplifier** must be added along the coaxial cable, which compensates the loss/attenuation along the line.

There are always been two different school of thoughts regarding the correct way how to position a video amplifier:

- **Installation near the Video equipment.** The main problem for this installation is that the amplifier increases not only video signal but also any other noise which adds to the original signal along the line. This could result in a lowered signal/noise ratio (S/N). Amplifiers used for this purpose must necessarily be also equipped with an equalizer. If this added function doesn't work properly, the whole system doesn't of course benefit from it and the only result is a price increase.

- **Installation near the source.** The main advantage of this solution is that Video signal is free from noises along the line because only the "clean" Video signal is amplified, resulting in an increased signal/noise ratio.

VIDEO AMPLIFIER, SERIES ELA700

According to what previously described, SERINN has developed the Video amplifier ELA700 (for colour and b/w signal) which is extremely compact and can be mounted **directly** on the camera BNC/OUT. ELA700 comes with a power ON Led and a linear output signal amplification **trimming** (5x), up to 500 mt. for colour and up to 700 mt for b/w signal (RG59B/U).

The ELA700 amplifier is for indoor (wall mount cameras) and outdoor use (weather proof housings). It is **excellent** also for the amplification of Video OUT signal from matrixes, monitors, digital appliances, etc.

Thanks to its easy installation and extremely high quality (complete lack of noise), the use of ELA700 amplifier on short distances for example guarantees a superb highly-defined image view (especially with colour cameras).