

WHAT DO WE MEAN BY INDUCED SURGES

Induced surge is an electrical phenomenon which **overlaps** the standard Video signal along the connecting coaxial cables of a CCTV system. Coaxial cables capture these electromagnetic fields **transferring** surges onto Video appliances (on-field cameras, control video equipment).

There are three main electromagnetic interferences which can be identified through the following criteria:

LEMP (Lighting ElectroMagnetic Pulse) related to the direct or indirect lightning strike, therefore generated from the atmosphere;

SEMP (Switching EletroMagnetic Pulse) related to electrical transients due to circuit disconnection or switch;

ESD (Electro Static Discharge) related to electrical charging.

Note: in order to protect against LEMP and SEMP, surge protection devices (SPDs) and equipotential devices are usually applied. Against ESD ground connected equipotential devices are usually applied.

Voltage surges are still rarely considered as a cause for system failures compared to other phenomena, although they are recognized as a potentially **threatening** factor.

The physical characteristics of such phenomena are generally related to voltage transients with steep leading and trailing edges (high voltage and low energy capacity), also referred to as **Spikes**.

The origin of this jamming is induction which can occur for example:

Between Low-Tension feeder which is exposed to major charge variations and the coaxial cable which runs in a parallel cable trough;

Turn-on/turn-off transients of power distribution nets;

Proximity to High-Tension electrodotes or radars (airports/military sites);

Atmospheric discharges due to the proximity to lightning protection devices in the exact moment of the discharge.

Such electrical **phenomena** can seriously damage Video systems that are made of highly integrated circuits, called chips which contain thousands of functions in just a few square millimeters. Also **small surges** (a few dozen Volts) can destroy the components which are nowadays more and more fragile and sensitive.

The use of surge protection devices is therefore **essential** in order to guarantee a good protection/operation of any Video system.

HOW DOES THE SURGE PROTECTION DEVICE WORK

The main function of the surge protection device is basically to create a low-resistance **escape** path for all voltage values which flow along the coaxial cables and are not integral part of the Video signal.

The escape path must of course have a discharge **point**. This point is the **grounding**. It is necessary to be very careful, though, since the earth must dissipate these unwanted voltage but at the same time it **must not** generate disturbances (for further indications, please refer to standards for the approval of grounding systems).

SURGE PROTECTION DEVICE, SERIES SPD2W

Following the information given above, SERINN has developed a surge protection device series **SPD2W** which besides being very small and easy to install, fully satisfies the protection requirements both against **indirect lightning strike** and **electrical transients**. The SPD2W also guarantees the ground discharge of induced surges both on **video signal wire** and on coaxial cable **shield**. This double protection assures an escape path to the ground also for the coaxial cable shield. It is not therefore necessary to establish a further ground connection. SPD2W comes with a VIDEO IN/BNC and VIDEO OUT/BNC.

In order to operate the surge protection device series SPD2W properly, please make sure that the grounding is established at the same point of the Video appliance grounding.