



Features

- GPR Optical Isolation
- BNC input and outputs
- Low noise 20Mhz video bandwidth
- Highly linear response
- Adjustable gain, attenuation, and termination impedance
- Isolated PZT RS-422 channel
- Slim Din rail mount polymide enclosure
- Triple isolation
- Power and status indicators
- 24V AC/DC operation



Overview

Surge protectors offer only limited protection against lightning strikes because they are unable to compensate for what is termed Ground Potential Rise or [GPR](#) whereby a dangerous potential difference is created between the strike affected circuits and the remote ground connection.

The only solution to this problem is to isolate the signal path including ground of the exposed camera equipment from the sensitive processing hardware which would otherwise suffer catastrophic failure.

The CE0970D will optically isolate both the camera signal and the RS-422 channel for the PTZ controls. This ensures that no dangerous ground currents can flow on to the sensitive processing hardware. The low-noise active circuitry faithfully preserves the signal integrity from the camera over the full bandwidth.

Applications

- Camera lightning protection
- Ground-loop isolation



OPERATION

Input Stage

The composite video signal passes through the termination and attenuation network and a gain adjustable driver before optical isolation. Various options are switch selectable to adjust for termination and overdrive compensation. This stage is powered by an isolated supply and then regulated and filtered.

Output Stage

The optically isolated signal is amplified and conditioned before being buffered by a final 75Ω output stage which is capacitively coupled to the BNC output. This output stage is powered from a regulated and filtered supply derived directly from the input supply.

Optical Isolation

The video signal is isolated by means of a high-speed linear optocoupler. In conjunction with the isolated DC-DC converter this means that the input stage is completely galvanically isolated from the output stage. Any ground surges from lightning are prevented from flowing through the output video common which itself is grounded but usually at a different point from the lightning protection ground.

RS-422 PTZ

A single channel of RS-422 serial data is buffered and isolated permitting the connection to the pan/tilt/zoom to be isolated along with the video signal. Both ends are gas-tube and transzorb protected using self-resetting poly-fuses.

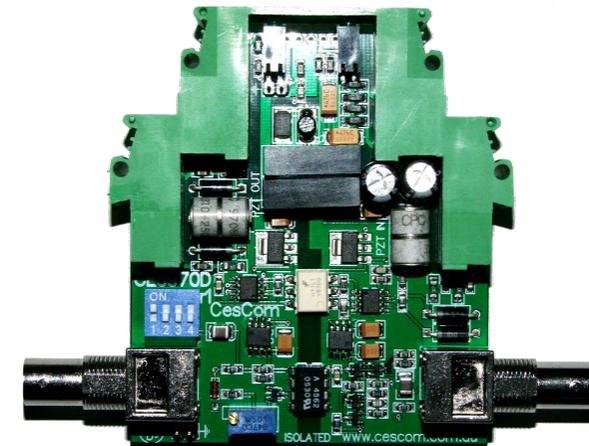
Power Stage

A nominal 24V AC/DC supply should be used to power the video isolator. This power-supply is reverse polarity protected and further independently regulated to power the independent isolated DC-DC converters for the input and output stages.

CONFIGURATION

Factory defaults for the video isolator assume 75Ω termination and standard 1Vp-p input drive. For non-standard situations various switch settings are possible especially for when the unit is over-driven. The variable gain adjustment is necessary where there is insufficient signal level or simply to fine-tune the signal.

| DIP SWITCH SETTINGS | | | |
|---------------------|-----------------|--------------|----------------|
| SW | NAME | ON | OFF |
| 1 | 75Ω TERMINATION | TERMINATE | NO TERMINATION |
| 2 | DRIVE | NORMAL DRIVE | OVERDRIVE |
| 3 | ATTENUATE HIGH | 3V OVERDRIVE | |
| 4 | ATTENUATE LOW | 2V OVERDRIVE | |





Specifications

| | |
|-----------------------|---|
| Supply Voltage | 24V AC/DC |
| Current | 70ma typical |
| Physical | 80mm high x 96mm deep x 25mm wide (107mm deep to mounting base) |
| Weight | 150g |
| Case | Polymide |
| Environment | -40°C to +85°C operating |
| Standards | IEC 1010; AS/NZS 3548 EMI/EMC; C Tick compliant |

Video

| | |
|------------------|--------------------------------|
| Input | 1Vp-p composite video PAL/NTSC |
| Output | 1Vp-p composite video PAL/NTSC |
| Isolation | 3KV |
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INSTALLATION

To access the internal DIP switch and gain control it is necessary to remove the top lid. The gain is factory preset for standard 1Vp-p signals with 75Ω termination. Refer to the CONFIGURATION section for setting the various modes via the DIP switch. These modes are for non-standard signal levels and termination and a signal check should be performed to ensure correct operation.

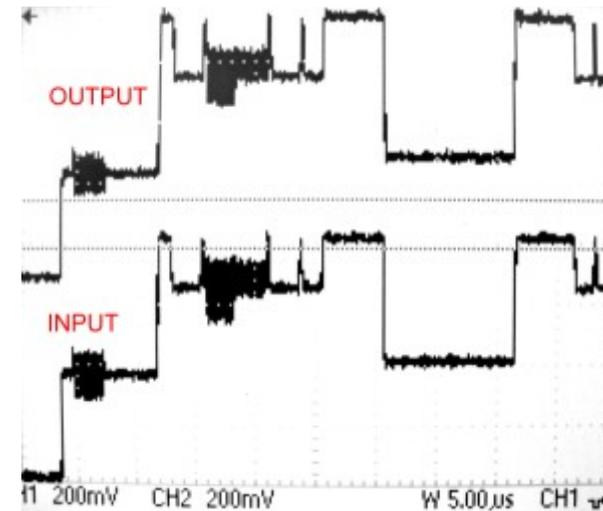


Fig 1: SIGNAL WAVEFORM

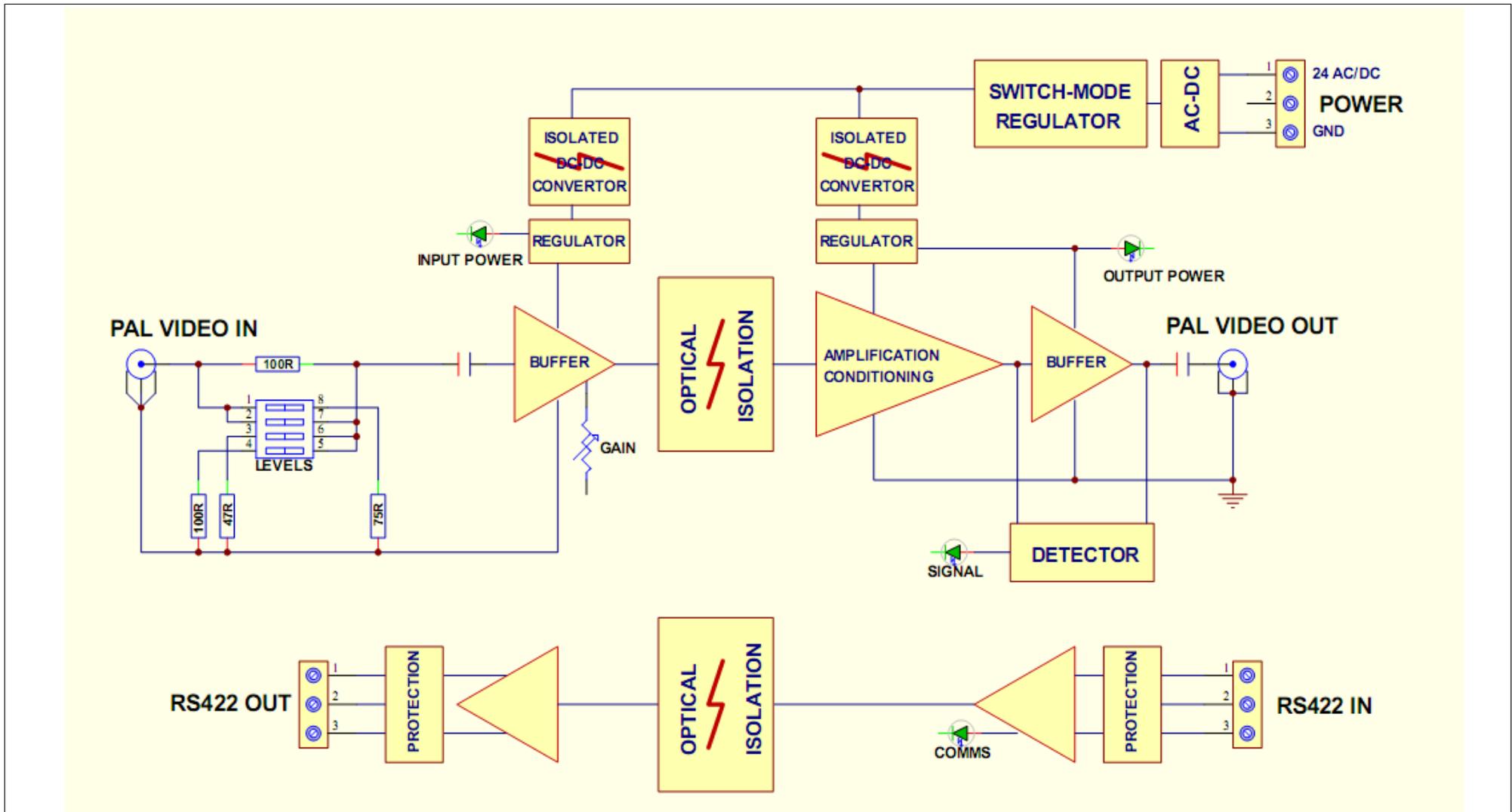


Fig 2: BLOCK DIAGRAM