'Broadcast CCTV camera' upgrades quality

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The use of LSI techniques, first applied to quality broadcast cameras, have now been proven, and chip costs have reduced sufficiently to enable the same engineering standards to be applied to other types of camera.

The age of the 'Broadcast Quality CCTV Camera' has now arrived and there is no longer any justification for low-quality cameras in CCTV applications. The days when random interlace was accepted in CCTV because exorbitant costs ruled out a broadcast quality sync. pulse generator, are over.

Latest developments have enabled sophisticated cameras to be produced within the constraints of a small, easily serviced CCTV camera. The Type 109A camera is for use with all types of one-inch camera tube. It contains its own LSI based internal interlaced sync. pulse generator and provides a broadcast quality output waveform. Mixed sync. and mixed blanking pulses are also available as outputs from the back of the camera. The Type 109B is also available, this does not have an internal SPG but accepts external inputs of mixed sync. and blanking pulses.

Modern IC technology has enabled us to build a phase equalised aperture corrector and variable gamma corrector into the video processing circuitry.

Many CCTV applications these days demand higher quality pictures, particularly in areas such as security and monitoring industrial processes. This is particularly important where recording of the picture is required for subsequent identification or analysis or where physical measurements have to be made from the television screen such as TV microscopy or TV radar.

In order to provide quality pictures, at a reasonable cost, it was decided to produce a basic camera with a number of broadcast features, and be totally stable for reliable 'hands off' operation. Our Type 109 camera therefore has the following features:

Fully stabilised and regulated circuitry to give completely stable pictures over a wide range of ambient temperature and ac power supply variation.

One of the most important items in modern CCTV systems is the camera itself. In recent years new technology has led to a significant change in the types of camera available. Although Link Electronics is not a CCTV systems house, developments of professional broadcast cameras have enabled a technology spin-off for closed circuit cameras. More sophisticated, stable and higher quality cameras for CCTV application are becoming increasingly important.

Full broadcast sync. and blanking waveform internally set to 525 or 625 line operation.

Gamma correction variable between 0.3 and unity.

Variable amplitude, phase equalised, aperture correction using level dependent and noise coring techniques.

Use of FET head amplifier for good noise performance.

Two independent outputs, one of which may be non-composite internally selected.

Auto sensitivity circuits to provide either auto target supply for use with Vidicon tubes, or drive from internal servo amplifier to feed motorised iris lenses for use with other tubes.

Aperture correction and gamma correction are of particular importance in providing a quality performance. Other CCTV cameras do not usually include these. All the preset controls are housed within the camera and only require adjustment if a tube is changed.

With the basic requirements for broadcast quality output achieved, a wide range of tubes from low to high cost, depending on application, can be used. Currently available tubes can match the increasing requirement, particularly in security use, for low light surveillance.

Vidicon Tubes provide the cheapest arrangement and provide excellent picture quality providing a reasonable amount of light is available. By using an automatic target supply the camera tube sensitivity can be adjusted automatically. This enables cheap pre-set iris CCTV lenses to be used.

Chalnicon Tubes are probablythe most sensitive one-inch tubes available without recourse to intensifier techniques; they have extremely wide spectural response and negligible dark current. These tubes are very robust and have excellent resolution. The internal gamma amplifier provides correction for their linear gamma characteristic. These tubes provide the very best pictures for security/surveillance applications and must be used with motorised iris lenses especially designed for use with high sensitivity camera tubes. The motorised iris is driven from the internal camera servo amplifier.

Silicon Diode Vidicons. For general surveillance work these tubes are more expensive and have lower resolution than Chalnicon Tubes but they can be useful where a near infra-red response is required.

In total darkness applications infra-red tubes can be fitted, although they lack the resolution and have a shorter tube life. However, use of CCTV systems in pitch black conditions is rare – inevitably there is always some light, if only starlight, present.

Chalnicon cameras are capable of being used outside down to a light level produced by indirect street lighting, but further developments will allow reasonably priced high-quality intensifier cameras to be produced capable of working under almost any lighting conditions.

CCTV cameras have come a long way since the early unstable cameras bristling with external pre-set controls in continual need of re-adjustment. With 'Broadcast CCTV Cameras' now available at reasonable cost, there can no longer be any justification for cheap cameras giving poor quality results. ●