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4911

E.1 DIGITAL VIDEO CODEC



Introduction To the 4911 Video Codec

Typical Applications

The 4911 digital video codec system provides a high quality video link that can be used for a wide range of security and monitoring applications. The PAL/NTSC format analogue video input is encoded using the H.261 algorithm with several proprietary enhancements to the filter sub-system to improve image resolution and resilience. The output image is in the PAL/NTSC CIF format and has been used for many non-broadcast CCTV applications including:

- Monitoring Railway Level Crossings,
- Motorway Surveillance,
- Airport Security and Operations,
- Monitoring Utility Sites,
- Car Park Monitoring,
- Military Surveillance,
- Extending CCTV Imagery From Several Town Centres To A Central Site.

The 4911 Video Codec uses the industry standard ITU-T G.703 E1 circuit as the bearer and this has enabled the Codecs to be successfully operated over a wide range of line systems including:

- Microwave Terrestrial Radio (PDH and SDH)
- PDH Optical Fibre Systems,
- SDH Networks,
- ATM Networks,
- Satellite Links,
- HDSL Copper Line Systems.

In addition to extending the video imagery, the Kleinbit Codecs also extend the following duplex services across the E1 circuit:

- RS232/RS422/RS485 Data at speeds up to 19.2Kbits/s asynchronous
- Digital low bandwidth high quality audio.
- Alarm Relay extension and control contact activation.

Performance Compared to Analogue Transmission Systems

Image Quality

Following extensive field trials with several major clients, the Model 4911 video quality has been deemed suitable, and installed for town centre, rail and road traffic CCTV surveillance applications.

The image quality has been tested against relevant sections PSDB Publication 14/95, Performance Testing Of CCTV Perimeter Surveillance Systems, using the Rotakin™ test target and found to provide a resolution of better than 350 TV lines at the digital link rate of 2Mbits/s.

Licence Plate Recognition Tests showed that the Model 4911 system has sufficient dynamic performance to enable an operator to accurately read vehicle licence plates when the target vehicle is approaching, departing or crossing the screen at a shallow angle with vehicle speeds of greater than 30mph. This recognition ability is partly dependant on the quality of the camera and the lens system.

System Latency

The very low latency of the 4911 digital video system enables the CCTV operator to rapidly activate the console pan, tilt and zoom (PTZ) controls to allow a target to be tracked in a crowd with minimal lag. The PTZ controls are extended across the same E1 2Mbits/s path as the video image. This eliminates the need for a separate control circuit for the camera motors etc.

Application 1 - The Basic Codec System

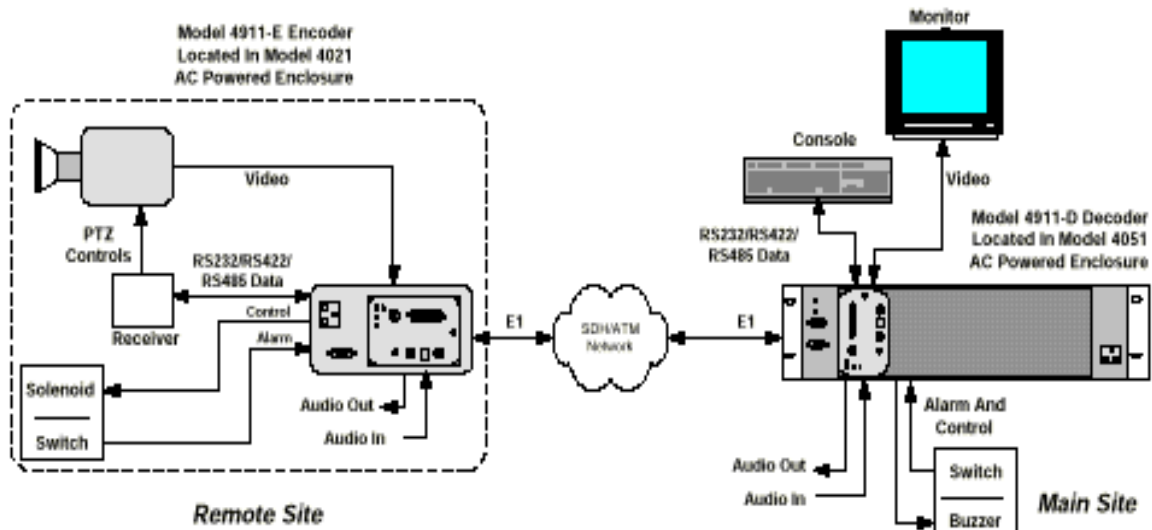


Figure 1
Extending A Video Circuit Across The E1 Network

The above diagram illustrates a typical application where the video signal from a camera at the Remote Site is extended to the Main Site using an E1 2Mbits/s digital circuit. In the above basic example, just 1 Codec is fitted in the 5 slot enclosure at the Main Site with the other slots available for use by other Video Codecs.

The diagram shows the video signal from the Remote Site camera connected to the coaxial Video In port of the 4911 Encoder unit. The 4911 Decoder unit at the distant Main Site outputs the video signal which is connected to the video monitor.

The Remote Site camera Pan/Tilt/Zoom (PTZ) system is remotely controlled by an RS232/422/485 data link from the operator console at the Main Site.

An audio path is provided between the Codecs to enable transport of telephone quality audio for intercoms and similar applications.

An alarm contact sense and control contact extension system is provided to enable extension of access requests and door release signals etc. between the Codecs.