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## INNOVATION COMMUNICATIONS SYSTEMS LTD

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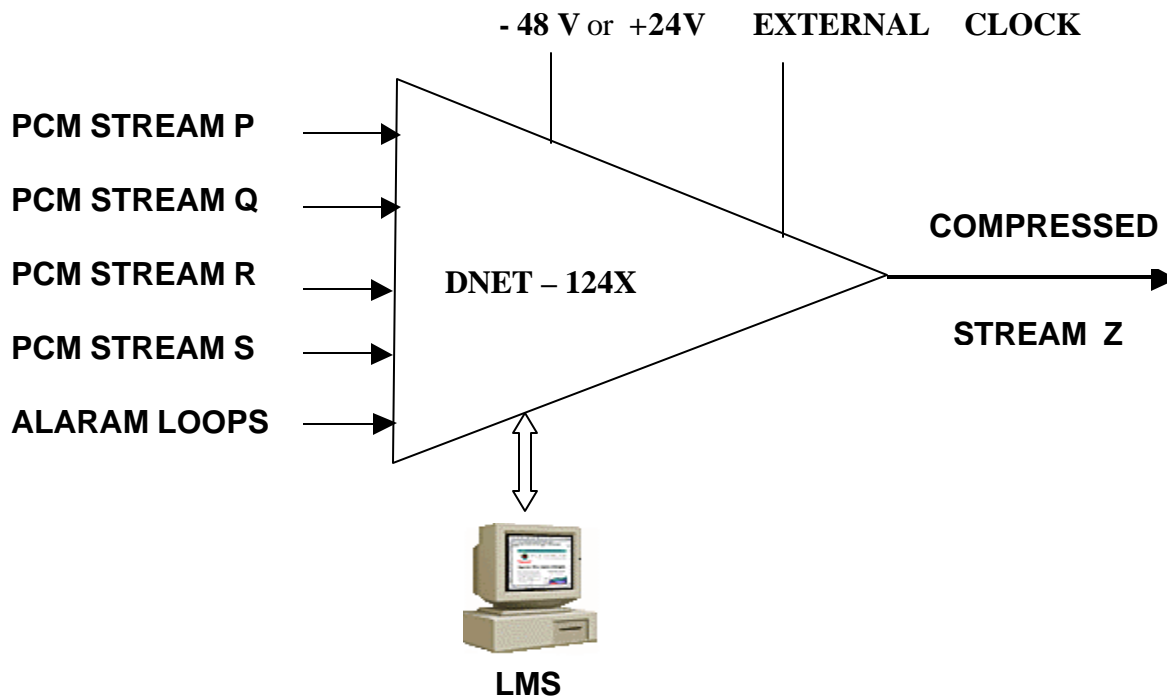
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## **SYSTEM OVERVIEW:**

ICS-DNET-120X Voice Compression System (VCS) is a state of the art solution for enhancing Network Connectivity in a cost effective way. A single 4:1 VCS combines four conventional 2.048 Mbps PCM E1 Trunks into a single E1 Trunk catering for 124 Channels by adopting CELP coding.

The 4:1 VCS is designed to accept four 2Mbps streams where voice channels are coded following A – law using 64 Kbps per channel and to convert these voice channels into one 124 channel 4:1 VCS stream using 6.4 Kbps per channel. The four PCM streams are designated as P, Q, R and S. The 4:1 VCS o/p port is called as Z. The reverse process is also done, i.e., a 2 Mbps, 124 Channel 4:1 VCS stream with 6.4 Kbps per channel is received at the Z port and gets decoded into four 2 Mbps, 31 channel PCM streams with 64 Kbps per channel which is given out at the outport ports of P,Q,R, & S.

The hardware design of the 4:1 VCS card envisages the primary objectives of high reliability, low power consumption and compactness. Integrated circuit components used in the system hardware have high reliability which ensures overall system reliability CMOS components have been used to reduce power consumption.



**ICS-DNET-120X VOICE COMPRESSION SYSTEM**

## **EXTERNAL INTERFACES:**

- P : Primary rate (2.048 Mbps) PCM port,
- Q : Primary rate (2.048 Mbps) PCM port,
- R : Primary rate (2.048 Mbps) PCM port,
- S : Primary rate (2.048 Mbps) PCM port,
- Z : Primary rate (2.048 Mbps) ADPCM port,
- Input -48V / +24V required for the power supply,
- RS 232 interface for communicating with a local terminal (PC),
- External Clock (2.048 KHz),
- Two alarm extensions for audible and visual alarms.

## **SYSTEM HIGHLIGHTS:**

- Compact and composite construction,
- Fully solid state,
- No forced cooling required,
- Safeguarding facility for a nominated PCM stream S in case of 4:1 VCS / power failure,
- Extensive set of alarms,
- Facility of synchronize to different clock sources,
- System clock selectable by the user,
- Automatic clock switch – over to internal clock on failure of selected clock,
- PC interface to monitor and control local terminal,
- Non volatile memory for configuration storage,
- Performance monitoring of digital signal complying with G.821.

## **SAILENT FEATURES:**

- Combines four 31 channel 2.048 Mbps streams into a single 124 channel 2.048 Mbps stream,
- Supports Common Channel Signaling for 124 voice channels [CCS from port P or CCS from Port Q or CCS from port R or CCS from port S],
- Low power consumption,
- Equipment can function over a wide range of DC supply ( -48V  $\pm$ 20%), or (+ 24 V  $\pm$  10%),
- Provision of extensive alarms for operation and maintenance,

## **SYSTEM SPECIFICATONS :**

General: Conforms to CCITT Recommendations G.726,G.703, G.704 and G.706.

### **Digital Interface at PCM ports P, Q, R and S:**

- |                     |                           |
|---------------------|---------------------------|
| • Number            | Four (P,Q, R and S),      |
| • Conformity        | G.703,                    |
| • PCM Sampling rate | 8000 samples/sec,         |
| • Encoding law      | A-law as per CCITT G.823, |
| • Bit rate          | 2048 Kbps $\pm$ 50 ppm,   |
| • Channel rate      | 64 Kb/s per Channel,      |
| • Line code         | HDB3,                     |

- Nominal impedance 120  $\Omega$  balanced / 75  $\Omega$  unbalanced,
- Peak voltage of a mark 3.0  $\pm$  0.3 V (For 120  $\Omega$ ), 2.37  $\pm$  0.237 (For 75  $\Omega$ ),
- Peak voltage of a space 0  $\pm$  0.3 V (For 120  $\Omega$ ), 0  $\pm$  0.237 V (For 75  $\Omega$ ),
- Pulse width 244  $\pm$  24 nsec,
- Nominal pulse width 244 nsec,
- Pulse mask as per CCITT Recc. G.703,
- Output Jitter < 0.05 UI (when system is working with internal and external clock and measured within the frequency range from 20Hz to 100 KHz)  
< 0.1 UI (when system is working with recovered clocks and measured in the frequency range of 20 Hz to 100 KHz),
- Permissible attenuation 6 dB at 1024 KHz,
- Return loss at :
- 51.2 KHz to 102.4 KHz > 12 dB,
- 102.4 KHz to 2048 KHz > 18 dB,
- 2048 KHz to 3072 KHz > 14 dB,
- Jitter tolerance as per CCITT Recc. G.823,
- Frame Structure as per CCITT Recc. G.704,
- Loss and recovery of frame as per clause 3 of CCITT,
- Alignment Recc. G.732,
- Loss and recovery of multi- as per clause 5.2 of CCITT,
- Frame alignment Recc. G.732.

#### Digital Interface At ADPCM Port Z :

- Number One
- Bit rate 2048 Kbps  $\pm$  50 ppm,
- Channel rate 6.4Kb/s per Channel,
- Line code HDB3,
- Nominal impedance 120  $\Omega$  balanced / 75  $\Omega$  unbalanced,
- Peak voltage of a mark 3.0  $\pm$  0.3 V (For 120  $\Omega$ ), 2.37  $\pm$  0.237 (For 75  $\Omega$ ),
- Peak voltage of a space 0  $\pm$  0.3 V (For 120  $\Omega$ ), 0  $\pm$  0.237 V (For 75  $\Omega$ ),
- Pulse width 244  $\pm$  24 nsec,
- Nominal pulse width 244 nsec,
- Pulse mask as per CCITT Recc. G.703,
- Output Jitter < 0.05 UI (when system is working with internal and external clock and measured within the frequency range from 20Hz to 100 KHz).  
< 0.1 UI (when system is working with recovered clocks and measured in the frequency range of 20 Hz to 100 KHz),
- Permissible attenuation 6 dB at 1024 KHz,

#### Return loss at :

- 51.2 KHz to 102.4 KHz > 12 dB,
- 102.4 KHz to 2048 KHz > 18 dB,

- 2048 KHz to 3072 KHz > 14 dB,
- Jitter tolerance as per CCITT Recc. G.823,
- Loss and recovery of frame as per clause 3 of CCITT
- Alignment Recc. G.732,
- Loss and recovery of multi- as per clause 5.2 of CCITT
- Frame alignment Recc. G.732,

**SIGNALING:**

- Supports 124 Channels, if signaling not used,
- Supports Common Channel Signaling through port P or port Q or port R or port S.

**VOICE CHANNELS:**

- Performance complies with CCITT Recc. G.726 for 16 Kbps compression.

**DATA CHANNELS:**

- Up to eight nos of 64 Kbps transparent data channels per PCM trunk.
- Overall capacity reduced by four voice channels for each transparent data channel.

**ELECTRICAL:**

Nominal DC voltage - 48V or +24V

**MECHANICAL:**

**Enclosed in a 19" Pizza Box type Sub rack.**

**SYNCHRONIZATION:**

Synchronization Sources Internal clock, External clock, Timing derived from Incoming digital signals.

External clock input as per CCITT Recc. G.703,

Impedance of External Clock port 75 ohms unbalanced

**POWER SUPPLY:**

Input DC voltage - 48V DC (Nominal). Or +24V

**Input voltage range:** - 48 V  $\pm$  20% DC, Or +24V  $\pm$  10%

Output voltage  $\pm$  5 V,  $\pm$  5%,  $\pm$ 3V,  $\pm$  5%, 1.8 V,  $\pm$  5%

Input voltage reversal protection provided on the card.

For Further information, please Contact :

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