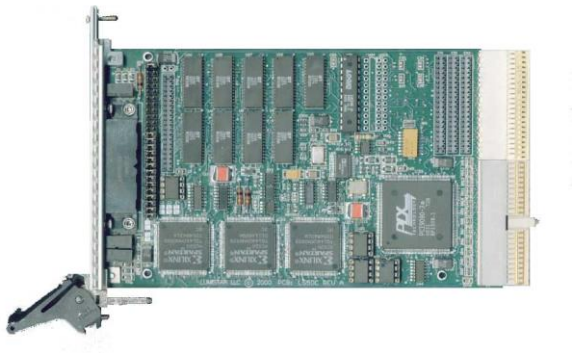
LUMISTAR

LS-50-cP 3U Compact-PCI Multi-function PCM Decommutator

Data Sheet

Description:

The Lumistar LS-50-cP 3U Compact PCI Multi-function PCM Decommutator offers the greatest flexibility in the industry by incorporating up to 10 functions typically encountered in flight test applications in a single 3U Compact-PCI card slot. Five functions are achieved on the main board (PCM Simulator which can also operate as a BERT, PCM Decommutator, IRIG Time Code Reader, IRIG Time Code Generator, and the same 5 functions can be achieved on the LS-55-DB Multi-Function Decom Daughterboard. CVSD Voice Decoding and h.261 Video Decoding are achieved through software.



The IRIG Time Code Reader and Generator operate with IRIG A, B, or G time codes. The Time Code Generator creates and outputs time information in accordance with the IRIG time code standard. The Time Code Reader is typically used to insert time information into the PCM minor frame block of data. The Lumistar LS-50 Decom can be used for extremely large formats (16,383 words per minor frame up to 1,024 frames deep) and contains dual ping-pong data buffers with up to 128K bytes of memory. The LS-55-DB daughterboard decom can be used for an independent PCM data stream or an embedded PCM data stream in accordance with the IRIG-106 Telemetry Standards. The PCM simulator generates common, unique, and waveform pattern data words. When used with the LS-55-DB daughterboard, the user can generate complex data streams with embedded PCM data, or two totally independent data streams.

Key Features:

- **Multifunction cPCI PCM Decommutator – with up to 10 functions in single cPCI slot**
    1. **PCM Simulator**
    2. **BERT mode allows complete system test**
    3. **PCM Decommutator**
    4. **IRIG Time Code Reader**
    5. **IRIG Time Code Generator**
- **Accepts LS-40-cP Daughterboard bit synchronizer for data rates up to 25 Mbps**
- **LS-55-cP is dual channel version with two separate decommutators**
- **CVSD Voice Decoding through LDPS-Pro Software**
- **H.261 Video Decoding through LDPS-Pro Software**
- **IRIG Chapter 8 Decoding through LDPS-Pro Software**

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SPECIFICATIONS FOR LS-50cP:

PCM DECOMMUTATOR:

Input Data Rate	10.0 bps to 20.0 Mbps
Input Signals	NRZ-L data & 0 degree clock
Input Levels	Single-ended TTL & RS-422
Word Length (VWL)	Variable from 3 to 16 bits per word on a word-by-word basis
CRC checker	CRC16/CCITT
Minor Frame Length	2 to 16,383 words per minor frame
Major Frame Length	Up to 1024 minor frames per major frame
Bit Order	MSB or LSB-first (word-by-word basis)
Frame Sync Pattern	Up to 64 bits (any pattern with don't care bits (X) may be used)
Frame Sync Location	Beginning or end of the frame
Frame Sync Strategy	Adaptive mode (search-lock-verify) & burst mode (search-lock)
Sync Error Tolerance	0 to 15 bits (selectable)
Sync Slip Window	1 or 3 bits wide (selectable)
Data Polarity	Normal, inverted or automatic
Subframe Sync	FCC (FAC), SFID or URC (Optional)
URC Location	Any 64 bit window within the first minor frame not including the last bit in the minor frame
SFID Location	Any series of contiguous bits not including the last bit in the minor frame

IRIG A/B/G READER/GENERATOR:

Time Reader Input Format	IRIG A, B, or G
Input signal level	1 v p-p nominal
Latency	2µsec (maximum)
Data Outputs	Automatic time tags for PCM data blocks (time accessible in register space)
Time Generator Output	IRIG A, B, or G

MECHANICAL:

Compact PCI	Consult Lumistar for other form factors
Daughterboard Form Factor	LS-55 Universal Daughterboard

PCM SIMULATOR:

Outputs	Data, 0 degree clock & minor frame strobes
Output Levels	Single-ended TTL & RS-422
Output Data Rate	64 bps to 20.0 Mbps (NRZ codes) 64 bps to 10.0 Mbps (all other codes)
PCM Codes	NRZ-L/M/S BIϕ-L/M/S DM-M/S RNRZ-L (2^{11}-1, 2^{15}-1)
Word Length (VWL)	Variable from 3 to 16 bits per word on a word-by-word basis
CRC Generator	CRC16/CCITT
Minor Frame Length	2 to 16,383 words per minor frame
Major Frame Length	Up to 1024 minor frames per major frame
Bit Order	MSB or LSB-first on a word-by-word basis
Frame Sync Pattern	Up to 64 bits (any series of 0s or is 1s may be used)
Sub-Frame Sync	FCC (FAC), SFID & URC; URC location may be any 64 bit window within the first minor frame not including the last bit in the minor frame
Common Words	May be a single value or selected from a group of one minor frame or 2048 words whichever is less.
Unique Words	Seven may be programmed in any mainframe, super-commutated, or subcommutated channel.
Waveform Words	Five may be programmed to appear in every frame at the same location.

ENVIRONMENTAL:

Temperature (Operating)	0 to 50 ºC
Temperature (Non-Op)	-25 to +70 ºC
Humidity (Operating)	10% to 90% Non-Condensing
Humidity (Non-Op)	Packaging must prevent contact with moisture and contaminants
Special Handling	Standard ESD methods required

POWER REQUIREMENTS:

5V	850 ma
-12 V	120 ma
+12V	30 ma