Model 4000

Compact Telemetry System

Compact Notebook Size 2.25”H x 11.75”W x 9.2”D

Portable ... < 7 lbs

Ideal PCM Quick-look and Storage Solution

All-in-one Bit Sync / Decom / IRIG Time / Sim

0-64 Mbps Decom IRIG Chapter 4 & 8 Compliant

Range Quality Tunable 32 Mbps Digital Bit Sync

0-64 Mbps Rec/Playback

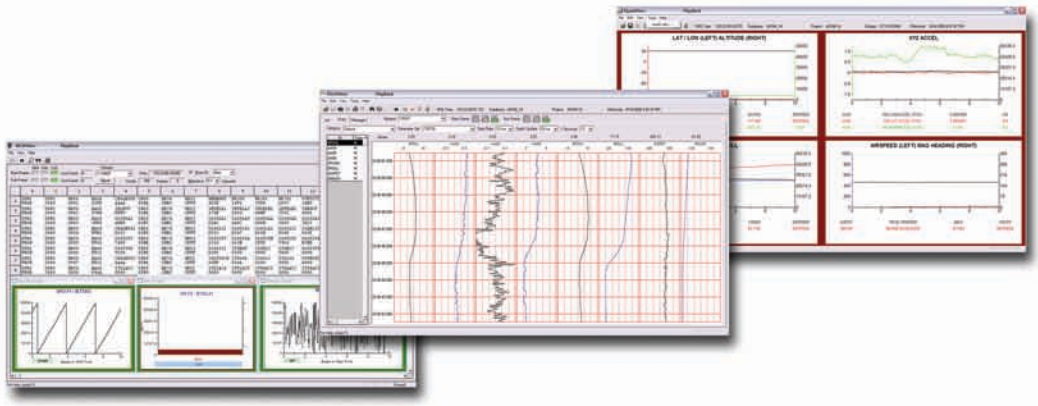
Real-time Processing

Standalone or With Any Standard Laptop / PC

Ethernet Interfaced

Fully Supported API

ILIAD-LITE Windows Processing Option



The Model 4000 Compact Telemetry System is a remarkably size and cost effective single stream PCM storage and processing solution, capable of of ingesting serial PCM with or without synchronous clock in any IRIG approved PCM code format. The Model 4000 enables users to process and record PCM data using powerful native real-time card level embedded Frame Sync / Decom processors. Flexible card level “soft decom” processing techniques are optimized for “quick-look” flight-line, instrumentation lab, and range recording, processing,data display and networked data analysis. The Model 4000 may be ordered configured in it’s base Frame Sync/Decom/IRIG Time/PCM Simulation configuration,or with standard options such as internal 474DM Advanced Digital Bit Sync Ch 5 CVSD voice, or companion ILIAD-LITE Windows Chapter 10 compliant telemetry processing application.

The Model 4000 chassis is very compact and portable,allowing transport with a laptop in a standard briefcase/tote. The Model 4000 is easily interfaced to any standard Win 7 or XP laptop or desktop, or can be operated directly using a standard local keyboard and monitor. Included Acroamatics CTS software suite (CTSS) supports bit sync and decom set-up, time correlated data recording, Ethernet“Gateway” PCM data delivery, output to third party processing applications, post test analysis/playback (inlcuding serial PCM playback and simulations), native data frame display, and more.

When used in conjunction with ILIAD Lite Telemetry Software the Model 4000 provides a seamless full-function instrumentation ground station data display, processing, and data recording solution - with support for TMATS set-up and Chapter 10 data exchange.

ACROAMATICS
TELEMETRY SYSTEMS

805-967-9909 sales@acroamatics.com www.acroamatics.com

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Bit Synchronizer

SIGNAL INPUTS

Source	1 single ended
Isolation	Greater than 60dB at 20MHz
Impedance	Program selectable: Hi-Z/Lo-Z. Single Ended: 4kΩ/75Ω
Signal Level	0.2 to 20V p-p
DC Offset	20V max Hi-Z
PCM Codes	Program selectable: NRZ-L/M/S, Biø-L/M/S, DBiø-M/S, DM-M/S, MDM-M/S, RZ
Derandomizer	Program selectable: RNRZ 9/11/15/17/23, forward/reverse

SYNCHRONIZATION

Bit Rate Range	8bps-32Mbps, All PCM Codes
Capture Range	3 times the programmed loopwidth, typical
Loop Bandwidth	0.1% to 3.2%, program selectable in 0.1% increments
Sync Threshold	0dB for NRZ-L and Biø-L codes
Sync Maintenance	(LW=0.1%) –2dB NRZ-L and Biø-L codes
Sync Acquisition	(LW=1.6%, SNR > 12dB) Typically less than 32 bit periods
Sync Retention	(LW=0.1%, SNR > 3dB) Retains sync through > 1028 + consecutive dropouts, all modes
Bit Error Rate	(LW=0.1%) to within 1dB of ideal bit error rate performance curves, absolute (not average) in all modes

Frame Synchronizer

GENERAL

Bit Rate	Up to 64Megabits per second
Polarity	Programmable, with automatic polarity correction
Format Types	IRIG 106 Chapter 4, IRIG 106 Chapter 8, Embedded Format
Minor Frame Length	Programmable, 4 to 65536 words
Major Frame Length	Up to 256 Minor Frames, Starting Frame Number: 0 or 1

SYNCHRONIZATION

Mainframe Sync	Provides for programmable sync pattern. Pattern length up to 64 bits.
Automatic Polarity Inversion	Input polarity is inverted when two consecutive complemented sync patterns are found
Sync Modes	Fixed, Adaptive, and Burst
Sync Strategy	SEARCH, VERIFY, and LOCK
Sync Error Tolerance	0 to 15 errors, programmable
Sync Slip Window	0, ±1, ±2 bits, programmable
Clock Rate Monitor	A delay counter returns the synchronizer to SEARCH if the clock input is lost

PCM WORD DECOMMUTATION

Word Attributes	Bits in this word (from 4 to 32); the orientation of the input data, MSB or LSB first; Embedded Asynchronous word location.

OUTPUT

Output Buffer Size	Double buffered 65,536 32-bit words, for each channel. Data may be read directly from the PCI bus or via the DMA channels.

IRIG Time Code Translator/Generator

FUNCTIONAL

Amplitude	0.5 to 20 Vpp, Single-ended
Impedance	12K Ohms minimum
Input Codes	Translates IRIG G, A and B
Input Frequency	125 Hz to 400,000 Hz
Modulation Index	2:1 through 5:1.
Polarity	Program selectable, Invert or Normal Polarity
Internal Time Base	40MHz crystal oscillator

OPERATIONAL

Generate Mode	Time is generated from the on board crystal oscillator and is pre settable from the Host.
Translate Mode	Time is read from an external source.
Translate Carrier Mode	The internal timing is based on the input carrier. This mode enables the system to translate time as the input carrier rate varies during playback of an analog recording
Translate Failsafe Mode	The internal timing is phase-locked to the input carrier. In the event of time dropout, the translator continues generating time without interrupt.
Frame Bypass	Automatic frame bypass compares previous time frame with current one, and Time Accumulator updated when they agree.

Specifications subject to change without notice

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PCM Simulator

FUNCTION DESCRIPTION

Bit Rate	to 64 Mbps
Programming	Automatically copies word and frame attributes from programmed Decom setup or for more sophisticated simulator setups Text file programming is provided.
Data Sources	1024 Static Registers, Two User-Defined 16 bit Dynamic Data Memories, Two 16-bit Modulo Up/Down Counters, 16-bit Pseudo-Random Generator, 16-bit Program Counter
Word Lengths	Programmable for each data source Static data words range from 1 to 32 bits All other data sources range from 1 to 16 bits
Word Orientation	Programmable MSB/LSB for each data word
Dynamic Data Memory	2K x 16 bit RAM, Pre-settable to ramp, sine, triangle or square wave functions
Frame Length	Maximum of 4096 words

OUTPUT

Internal	Internally connects to Bit Synchronizer or Frame synchronizer via program control
Clock and Data	Zero degree Clock, NRZ-L data, TTL
PCM Code Type	Sixteen selectable output codes: NRZ-L/M/S, Bi □-L/M/S, DBi □-M/S, DM-M/S, MDM-M/S, RNRZ 11, 15, 17 and 23

Data Displays

GENERAL

Data Display Types	CTSS - Native Quick-Look PCM Frame View, 3rd Party API. ILIAD - Bus View, DCM View, Quad View, Quick View, Tech View, Video, SL View
Limit Check	ILIAD - Dynamic Limit check, Alarms, Record, Report (Display Dependent)

Data Recording

GENERAL

Recording Format	CTSS - Native Binary and Select Data Formats. ILIAD - inlcudes IRIG 106 Chpt 10
Playback Format	CTSS - file processing and/or Reconsturction of Input PCM Stream. ILIAD - includes IRIG 106 Chapter 10 format file processing