

# Model 2430D

## 40 Mbps PCI Bit Synchronizer

NEW 40 MHz Advanced  
Digital Design, Single  
or dual Channel

Tunable Data Rates of  
8 Hz to 40 MHz ALL codes

Excellent BER performance  
- within 0.25 to 0.50 db of  
theoretical in all modes!

Fast sync acquisition, as few  
as 32 bit transitions

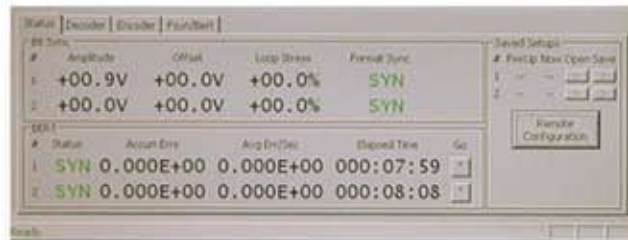
Retains sync through strings  
of 1028+ bits lost/static data

Options include Viterbi with  
"live data" Ambiguity Res,  
Frame Sync with Auto  
Polarity, Data (Best) Source  
Select, and full-feature BERT

Processes all IRIG standard  
and randomized Codes

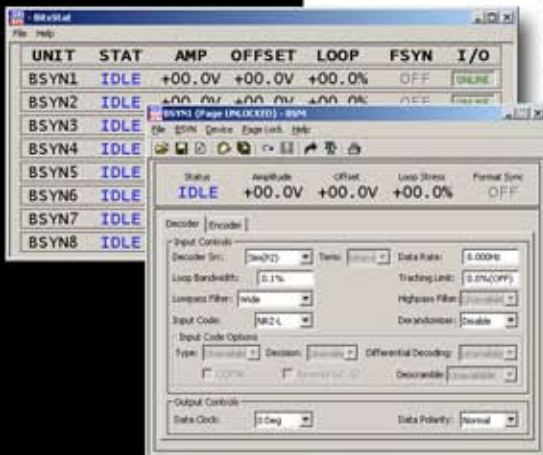
User Program Selectable  
Inputs and Outputs

Network compatible,  
Windows remote software  
included



The new Model 2430D is a "drop-in" replacement for all previous 2430, single and dual stream PCM bit synchronization units. The Model 2430D is based on entirely new "best in class" advanced digital bit sync design technology, yet remains backward compatible with previous 2430 (V & P) unit remote software and retains connector and user control configuration compatibility in the familiar compact 3.5 inch chassis footprint. The Model 2430D is available in configurations containing one or two of Acroamatics new Model 1611P Bit Synchronizer cards, supporting rates to 40MHz, regardless of code. Options include Viterbi decoding, Frame Sync Validate / Bit Error Rate Testing, with "live data Best Source" select and ambiguity resolution. In addition to standard codes, the uniquely flexible architecture of the Model 2430D allows us to provide additional code processing on special order. Equipped with a built-in 4.9" LCD display, the Model 2430D provides convenient front panel set-up and display of both unit set-up parameters and operating status. Remote monitoring and programming capability is available via serial and Ethernet interfaces. Non-volatile set-up memory is provided for rapid recall of mission profiles.

Provided Windows Remote Bit Synchronizer GUI Operating Software programs and monitors the 2430D over a network, and can also program and monitor all previous Models of Acroamatics chassis and card level bit sync products, whether installed in a Telemetry Data Processing system or in one of our multi-stream units.



# ACROAMATICS

# TELEMETRY SYSTEMS

# Model 2430D 40MHz PCI Bit Synchronizer

## SIGNAL INPUTS

Source	Program select, 1 of 5 inputs: 3 single-ended, 1 differential, 1 TTL/RS-422
Isolation	Greater than 60dB at 32MHz
Impedance	Program selectable: Hi-Z/Lo-Z. Single Ended: 4k $\Omega$ /75 $\Omega$ , Differential: 10k $\Omega$ /150 $\Omega$
Signal Level	Single Ended: 0.2 to 20V p-p, Differential: 0.2 to 25V p-p
DC Offset	20V max Single-Ended, Hi-Z
Baseline Variation	Tracks sinusoidal offsets to 100% p-p signal amplitude at 0.1% bit rate
PCM Codes	Program selectable: NRZ-L/M/S, Bi $\phi$ -L/M/S, DBi $\phi$ -M/S, DM-M/S, MDM-M/S, RZ
Derandomizer	Program selectable: RNRZ 9/11/15/17/23, forward/reverse

## SYNCHRONIZATION

Bit Rate Range	8 bps-40 Mbps ALL codes
Tuning Resolution	0.1% of bit rate
Capture Range	3 times the programmed loopwidth, typical
Tracking Range	$\pm$ 12% typical, with programmable limiter
Loop Bandwidth	0.1% to 3.2%, program selectable in 0.1% increments
Sync Threshold	0dB for NRZ-L and Bi $\phi$ -L codes
Sync Maintenance	(LW=0.1%) -2dB NRZ-L and Bi $\phi$ -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
Bit Error Rate	(LW=0.1%) to within 0.25 to 0.50 dB of ideal bit error rate performance curves in all modes of operation and data rate

## DATA/CLOCK OUTPUTS (Per Bit Synchronizer)

NRZ-L Data	Jumper Select: three TTL, one RS422/TTL
Data Clock	One each: 0 $^\circ$ , 90 $^\circ$ , 180 $^\circ$ , 270 $^\circ$ ; RS422/TTL at 0 $^\circ$ & 90 $^\circ$
Data Polarity	Program selectable: normal/inverted

## PCM ENCODER (Per Bit Synchronizer)

Data Source	Program selectable: Recovered Data or External data/clock
Outputs	One bipolar, 4V p-p; Two TTL; One RS-422/TTL
Randomizer	Program selectable: RNRZ 9/11/15/17/23, forward, reverse
PCM Codes	Program selectable: NRZ-L/M/S, Bi $\phi$ -L/M/S, DBi $\phi$ -M/S, DM-M/S, MDM-M/S, RZ

## EXTERNAL DATA/CLOCK INPUT (Per Bit Synchronizer)

Signal Type	Jumper selectable: RS422 or TTL
Impedance	120 $\Omega$ RS422, 75 $\Omega$ TTL
Data Code	Program selectable: NRZ-L/M/S, Bi $\phi$ -L/M/S, DBi $\phi$ -M/S, DM-M/S, MDM-M/S, RZ
Data Clock	Program selectable: Normal/Inverted, 1x or 2x

## CONVOLUTION ENCODER/DECODER (Optional, Per Bit Synchronizer)

Viterbi Decoder	Rate 1/2, k=7: includes differential decoding, V.35 descrambling, and G2 invert
Symbol Formats	serial, parallel, and staggered parallel
Convolutional Encoder	Rate 1/2, k=7: includes differential encoder, V.35 scrambler, and G2 inverter
Symbol Formats	serial, parallel, and staggered parallel

## FORMAT GENERATORS/SYNCHRONIZER (Optional, Per Bit Synchronizer)

Format Generator	Programmable frame length, sync pattern and mask
Synchronizer Source	Recovered data, external data, or test generator
Synchronizer Strategy	Pattern match in "search", programmable error limits for "check" and "lock" states
Other Features	Bit slip enable, auto polarity enable, data source/ambiguity resolution

## BIT ERROR RATE TESTER (Optional, Per Bit Synchronizer)

Transmitter Pattern	PRN sequence: 211-1, 27-1, 29-1, 215-1 (forward/reverse)
Pattern Clock Source	Program selectable: Bit Rate Clock or External Clock
Blanking	Program selectable: 32, 64, 128 bits
BER Sample Period	Program selectable: 103 to 109 bit periods, or continuous accumulate
Other Features	Automatic pattern synchronization, forced error ON/OFF

## PHYSICAL

Power	115/230 VAC 60-50 Hz, 3A max
Dimensions	3.48" (8.84cm) H x 19.0" (48.26cm) W x 20.19" (51.28cm) D
Temperature	Operating: 0 to +40 $^\circ$ C, Non-Operating: -40 to +86 $^\circ$ C
Relative Humidity	Up to 90% non-condensing
Shock	Operating 6G, Non-operating 50G
Vibration	Operating 0.5G, 5 to 2000 Hz, Non-operating 1.2G, 5 to 500 Hz

Specifications subject to change without notice