

# Digital I/O Bit Synchronizer

## MODEL 270



### KEY FEATURES

8 & 16 Channel Configurations;  
All Independent Channels

Bit Rates: 5 bps to 20 Mbps

Tracking Range: Up to 15%

Loop Bandwidth: 0.01% to 1.6%  
(Extended Range Optional)

Codes Supported: NRZ-L/M/S,  
RNRZ-(F/R), BiØ-L/M/S, DM-M/S  
codes

2 Input & Output Sources per  
Channel: One TTL & One RS-422

Selectable Data/Clock Test Point  
on Front Panel (BNCs)

Status Indicators for Sync

IRIG-106 Derandomizer

Remote Control: Ethernet  
& RS-232

Frame Sync & APC: Pattern  
detector for each channel

Optional: 8 Additional Channels  
(to make 16 Channels),  
Auto Scan

### GENERAL DESCRIPTION

The Model 270 Multi-Channel Digital IO Bit Synchronizer is a compact, high-performance device designed to extract usable digital data and provide an output clock from serial digital input streams. Available in 8 or 16 channel configurations, the Model 270 features both TTL and RS-422 inputs/outputs. The unit supports programmable loop bandwidths from 0.05% to 1.6% and can achieve signal acquisition in as few as 40 bits. It maintains synchronization for at least 128 bits in the absence of transitions and tracks signals up to 15% of the input rate at the widest loop bandwidth.

Encoded data streams, including IRIG-106 Randomized data, are decoded to their native form, accommodating both forward and reverse sequences. An optional Frame Pattern Detector enhances synchronization by detecting patterns up to 64 bits long, while the Automatic Polarity Correction (APC) mode ensures correct data output polarity. For changing input bit rates, the optional Auto Bit Rate Scan can automatically lock onto one of up to 8 programmed bit rates, input codes, and synchronization patterns. Front panel status displays provide real-time information on selected bit rates and deviations.



### RELATED PRODUCTS

Antenna	Receiver	Gateway	Recorder

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### TECHNICAL SPECIFICATIONS

#### Signal Inputs (Per Bit Sync):

Inputs:	Two selectable digital inputs; (1) RS-422, (1) TTL
Input Impedance:	TTL: 50 ohm (std) or 75 ohm (opt) RS-422: 120 ohm/None
Codes:	NRZ-L/M/S, BIØ-L/M/S, DM-M/S, *MDM-M/S
De-randomizer:	IRIG-106 (Forward/Reverse)

#### Synchronization:

Bit Rate Range:	5 bps to 20 Mbps
Bit Rate Tuning Resolution:	X.XXXEN (1≤N≤7).
Loop Bandwidths:	Programmable from 0.05% to 1.6%
Tracking:	Up to 15%
Sync Retention:	128 bits minimum without transitions, LBW1
Frame Pattern Detector (Optional):	Detection of up to 64 bits Programmable Synchronization Strategy (S/C/L) with APC

#### Outputs:

Outputs:	Two outputs; (1) RS-422, (1) TTL
Output Impedance:	TTL: 50 ohm (std) or 75 ohm (opt) RS-422: 120 ohm/None
Codes:	NRZ-L/M/S, BIØ-L/M/S, DM-M/S, MDM-M/S
Randomizer:	IRIG-106 (Forward/Reverse)
Polarity:	Output polarity normal/inverted (Data & Clock)

#### User Interface:

Front Panel LEDs:	Lock indicator for each channel
Front Panel Display:	Lock status, deviation, bit rate lock for each channel

#### Auto Scan (Optional):

Scan:	Up to 8 Bit Rates/Codes/Sync Patterns for each channel
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#### Environment:

Temperature Range:	10°C to 40°C Operational -40°C to 70°C Storage
Power:	150 watts max

#### Size & Weights

Dimensions:	3.5 (H) x 20 (D) x 19 (W), inches
Weight:	15 Lbs

*Recognizing that no standard product fits every mission, Delta Telemetry Systems is ready to deliver tailored solutions for your unique application requirements.*

*Specifications subject to change without notice.*