



### Features

- ◆ Bit synchronizer and Frame synchronizer/ decommutator
- ◆ Bit Synchronizer and Direct Frame Synchronizer Inputs
- ◆ Multi-Protocol Configurable Data Interfaces
  - DEC-DRV11
  - TACTS
- ◆ Bit Rate Range of 10 bps through 10 Mbps
- ◆ Adaptive Frame Synchronization with Slip Window and up to 262,144 bits/frame
- ◆ Subframe Synchronization (ID COUNT, RECYCLE PATTERN, FSC)
- ◆ Word-by-Word Data Decommulation (bits per word, MSB/LSB, parity strip, pass/drop)
- ◆ Data Quality Monitoring
- ◆ Time/Status Appended to Output Buffer Data
- ◆ Accepts NASA 36 Time Code
- ◆ IEEE-488 Remote control interface
- ◆ Two lines by forty character vacuum fluorescent display and twenty key keypad

### General Description

The Model 226 TELEMETRY SYNCHRONIZER SYSTEM (TSS) provides PCM bit synchronization, telemetry frame synchronization and decommutation, telemetry data quality monitoring, NASA 36 time code appending, and interfacing to a Westinghouse TACTS/TELEM telemetry card, or a DEC DRV11-WA parallel interface adapter. It has multiple program selectable inputs to accept serial PCM data streams to an internal bit synchronizer or the frame synchronizer from an external source. NASA 36 time code is decoded internally and appended to the telemetry data and status output. Statistical data quality monitoring is provided and reported in four display words. Up to four data words may be captured from the telemetry stream and displayed on the front panel.

All functional operations of the TSS are controlled from a front panel display and keyboard or by way of the remote control interface. All front panel functions, including data displays, are also accessible in the remote control interface. Non-volatile ram on the internal system controller records the last setup for restoration upon power-up.

### APPLICATIONS:

The TSS is suitable for use in telemetry data quick look as well as data acquisition and processing systems. This unit has been used to support the GOES weather satellite data format, it also contains all of the features needed to support general purpose telemetry data acquisition. The decommutation function allows presentation of true measurements from the synchronized data stream in the exact form required for processing. Its configurable computer data transfer interface is designed to permit it to be adapted to almost any computer. The remote control interface provides all of the functionality to permit the unit to be operated completely unattended.



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**SPECIFICATIONS**

**BIT SYNCHRONIZATION:**

BER Performance - 1 dB of BER Curve to  $E_b / N_o = -3$  dB

**FRAME SYNCHRONIZATION:**

Normal, AFS, FSC; 16 to 262,144 bits per frame; up to 64 bits, maskable, First or Last word in frame

**SUBFRAME SYNCHRONIZATION:**

2 to 512 frames/subframe; RCY or ID

**DECOMMUTATION PARAMETERS:**

Polarity, Word Length, Frame length, Orientation, Data output, Parity, PASS/DROP, Acquisition Control

**DATA QUALITY MONITOR:**

Number of frames: received while in CHECK or LOCK; inverted; Bit Slip; LOCK to SEARCH

**DATA CAPTURE:**

Four 16 bit word capture registers, any words in the format

**INPUTS:**

Bit Sync.(10bps to 10 Mbps NRZ, 5 Mbps Other codes);

Frame Sync. (Up to 15 Mbps);

Time Code (NASA 36)

**OUTPUTS:**

Computer Interface: DRV11; TACTS/TELEM (Westinghouse)

Frame Synchronizer: NRZ-L Data, 0 and 180<sup>0</sup> Clocks

**FRONT PANEL TEST POINTS:**

DATA, CLOCK, EOF, EOW

**DISPLAYS:**

Front Panel Data Display: Two lines by forty characters, vacuum fluorescent

LED Status for: Bit Synchronizer, Frame Synchronizer

**REMOTE CONTROL INTERFACE:**

IEEE-488-

**ENVIRONMENT:**

Temperature:  
0 °C to +40 °C (operating ),  
-55 to +85 C (storage)

Relative Humidity: 5% to 95%, non-condensing

Altitude: 0 to 10,000 ft.