



# PCM Format Synchronizer

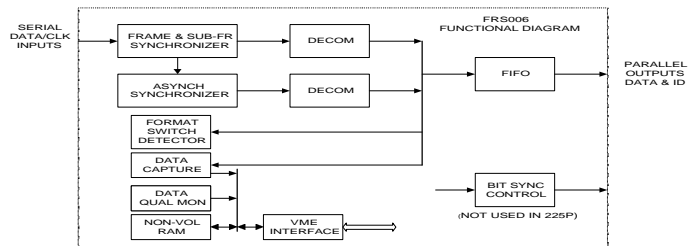
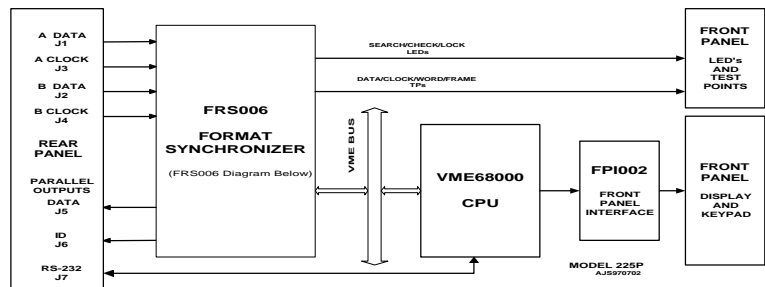
## Model 225P

### Features

- Minor Frame Synchronization on 4 to 64 bit patterns
- Subframe (Major Frame) Synchronization
- Asynchronous Frame Synchronization
- Bit Rate - 1 bps to 20 Mbps
- Minor Frame Length - 16 to 262,144 bits
- ID or Recycle Subframe Synchronization
- Word-by-Word Programming of Orientation, Word Length Parity Strip, Shift, Pass / Drop
- 16 bit ID Tag Programmable per Word
- Format Switching in Real Time
- Data Quality Monitor
- Data Display on Front Panel
- Output Rate Smoothing
- Front Panel Test Points for Data, Clock, Word, Minor Frame, Major Frame,
- Remote Control RS232 or IEEE-488
- Rack Mountable 3.5 inch Chassis

### General Description

The GDP Space Systems Model 225P provides the features to receive and process a telemetry data stream containing Minor Frame, Major Frame and an Asynchronously Embedded Frame. It accepts serial NRZ-L data and zero degree clock at up to 20 Mbps. The output consists of up to 16 bits of decommutated data and its associated 16 bit ID Tag presented on two parallel ports.



The decommutator is programmable and full featured. User entries define each word being decommutated. Data orientation (MSB/LSB), Parity Strip, Data Shift and Pass / Drop are programmed on a word-by-word basis.

Automatic Format Switching triggered by the detection of a data stream pattern is supported. Two independent format structures are defined and stored in the unit by the user. A primary and secondary set of decommutation instructions determine the decommutation process which will apply to the telemetry stream before and after the detection of the trigger pattern.

Real time indication of the quality of the received data is displayed on the front panel and available on the remote control port. The number of Check or Lock Frames, Inverted Frames, Flywheel Frames and Lock Dropouts are stored and reported.



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*Model 225P*

## SPECIFICATIONS

### PCM Input

- Two Inputs, Software Selectable
- Data Polarity: Norm / Invert, APC
- IRIG 106 Class II
- NRZ-L and 0<sup>0</sup> Clock
- 1 bps to 20 Mbps
- TTL on BNC connectors

### Frame Synchronizer (Minor & Asynch.)

- Pattern Length: 4 to 64 bits
- Frame Length: 16 to 262,144 bits
- Sync. Location: First of Last
- Sync. States: Search / Check / Lock / Flywheel
- Error Tolerance: 0 to 30 bits
- Check Frames: 0 to 15
- Flywheel Frames: 0 to 15
- Bit Slip Window: 0 to  $\pm 3$  bits

### Subframe Synchronizer

- ID Counter or Recycle Pattern
- Frames / Subframe: 2 to 512
- ID Counter Length: 2 to 9 bits
- Recycle Pattern Length: 4 to 64 bits
- Sync. States: Search / Check / Lock / Flywheel
- Error Tolerance: 0 to 7 ID bits or 14 RCY
- Check Frames: 0 to 15
- Flywheel Frames: 0 to 15

### Decommutation

- Frame Length: 4 to 16,384 words
- Data Word Control
  - ◊ Word Length: 2 to 16 bits
  - ◊ Orientation: MSB / LSB
  - ◊ Parity: MSB / LSB Strip or Pass
  - ◊ Shift: 0 to 12 bits to LSB
- Format Switch: Two Independent Format Definitions
  - ◊ Detection of Specified Data in a given word
- Data Pass to Output Control
  - ◊ Minor Frame Lock, Check Minor and Major Frame Lock (option)

### Parallel Data Output

- Data: 16 bit path
- ID Tag: 16 bits
- Strobe / Ack. Handshake
- Signal Levels: RS422
- Connectors: Two 50 pin Mini-D

### Front Panel Display

- Data: Defined by ID Tag
  - ◊ Hex
  - ◊ Decimal
  - ◊ Binary
- Data Quality Monitor:
  - ◊ Number of Frames in Lock/Check
  - ◊ Number of Inverted Frames
  - ◊ Number of Frames while in Major Frame Lock
  - ◊ Number of Frame Dropouts
- LED Indicators for Synchronizer Status: Minor, Major, Asynchronous Frame
- Storage for up to 12 Setup Definitions

### Remote Control

- RS232 (standard)
- IEEE-488 (optional)

### Physical

- Mounting: EIA 19" rack mount with slides
- Dimensions: 3.5" H, 20" D

### Power

- 115-230 Vac Auto Detect, Single Phase, 57-63 Hz

### Environment

- Temperature
  - ◊ 10 to 40 °C Operating
  - ◊ -55 to 85 °C Storage
- Humidity: to 95% RH without condensation
- Altitude: 0 to 10,000 feet