GDP SPACE SYSTEMS

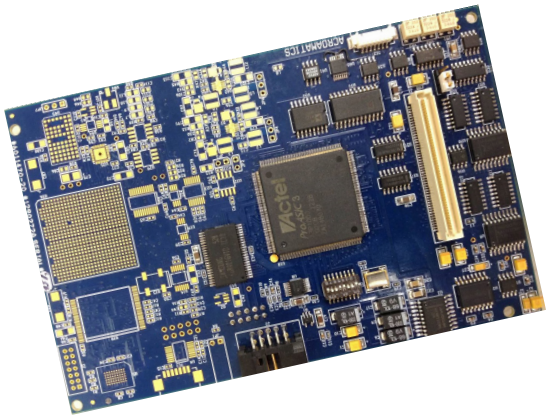
ACROAMATICS
TELEMETRY SYSTEMS

Time Code Generator Translator plus PAM/PCM Format Simulator Module
Model 470M

Features:

- Plug-on option for Models 1602AP, 1602P, and 1650P Telemetry Processing cardsets
- Provides both Time Code and programmable PCM Format Simulator/Encoder functions
- Generates and Translates IRIG A, B, and G time codes
- “Auto-Generate” function assures failsafe telemetry processing systems time code correlation
- Simultaneous time code generation and translation
- Provides programmable PCM Simulator for legacy Acroamatics Decom cards and products (without integrated PCM Simulator)
- Generates all IRIG standard and randomized PCM codes at rates to 64 Mbps
- Generates complex formats with dynamic data and subframes
- Asynchronous frame insertion and format switching

General Description



The Model 470M is a mezzanine card that reads, translates, and generates IRIG A / B/ G and NASA-36 amplitude modulated time code signals. The 470M is capable of translating and generating all time codes over a range of 1/4th to 4x input rate speed multiples. The Model 470M operates in both reader and generator modes, provides “slow-code” output signals, and outputs a micro-second precision digital representation of time to companion Acroamatics telemetry processing cards via direct I Data Bus card-to-card interface.

The Model 470M provides “failsafe” IRIG time support in all modes by virtue of its automated “auto-generate” feature in the event of source IRIG time input drops or complete failure.

The Model 470M is configured as a companion to the Model 1612AP multi-function decom processing module, and within various other Acroamatics embedded system real-time telemetry data processing units.

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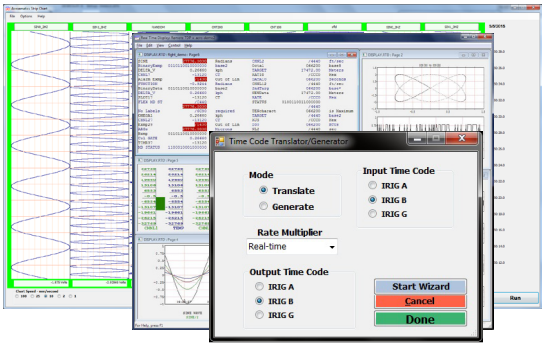
Time Code Generator/Translator Functions



Amplitude	9.5 to 20V p-p, single-sided
Impedance	12KW (minimum)
Input Codes	IRIG A, B, or G
Input Frequency	125Hz to 400kHz
Modulation Index	2:1 through 5:1
Polarity	Program selectable: normal/inverted
Leap Year	Program selectable: enable resets days to 1 after 366
Internal Time Base	20MHz crystal oscillator

Operation

Generate Mode	Program selectable: generates multiples of 4, 2, 1, 1/2 and 1/4 realtime
Translate Mode	Time read from external source
Translate Carrier Mode	Internal timing clock derived from input carrier. Allows translation to continue as input carrier rate varies during playback of an analog recording
Translate Failsafe Mode	Internal timing clock phase-locked to input carrier. Allows translator to generate time if a time input dropout occurs. Time resolved to microsecs for all input code formats. Program selectable: translates at multiples of 4, 2, 1, 1/2, 1/4 realtime.
Frame Bypass	Automatic frame bypass compares previous time frame to current time frame. Time accumulator is updated on agreement.

Output

Time	BCD time-of-year (days through microseconds) delivered as four 16-bit words at one millisecond and one second intervals
Generator Output	Program selectable: IRIG time codes A, B, and G
Slow Code Output	Datum bi-level or IRIG level shift. Four programmable rates

PAM/PCM Format Simulator Functions

Format Storage	Stores two complete, selectable PCM formats, Performs asynchronous frame insertion and format switching
Subframe Capability	Generates up to three subframes within mainframe. Generates subframe within subframe.
Frame Length	Up to 65,536 words for the mainframe and 16,384 per subframe
Data Sources	1024 static registers Two user-defined dynamic data memories. Two 16-bit modulo up/down counters. One 16-bit program counter.
Word Length	Programmable for each data source: static data words 1 to 32 bits; all others 1 to 16 bits
Word Orientation	Program selectable: MSB/LSB for each data word
Parity Generation	Program selectable: leading, trailing, or no parity for each data word
Dynamic Data Memories	2 unique, user-defined 16kB RAM's. Presettable to ramp, sine, triangle, and squarewave functions or user-defined input. Selectable data type: 1's complement, 2's complement, signed magnitude, offset binary. Programmable time base.

Ouputs

Bit Rate	Program selectable: 1Hz to 64MHz, tunable to 0.1% of programmed rate
Clock	0° clock
Data	NRZ-L
Output Codes	Program selectable: NRZ-L/M/S, BiØ-L/M/S, DBiØ-M/S, DM-M/S, MDM-M/S, RNRZ 11/15/17/23
PAM Output	2.5 Volts, balanced output, 10mA drive current
PCM Output	TTL compatible NRZ-L data and 0° clock

Physical

Hosts Supported	Plugs onto Model 1502V (VME bus) or 1602P (PCI bus) Single-board PCM Data System
Cooling Requirements	30 Linear FPM
Power Requirements	+5VDC at 1.1A, +12VDC at 100mA, -12VDC at 100mA. Power supplied by host board
Dimensions	5.9" (15.0cm) H x 3.9" (9.9cm) W x .35" (0.9cm) D. Host and module fits in standard slot.
Temperature	Operating: 0° to +40°C Non-Operating: -40° to +86°C
Relative Humidity	Up to 90% non-condensing
Shock	Operating 5G, Non-operating 25G
Vibration	Operating 0.3G, 5 to 2000 Hz, Non-operating 0.8G, 5 to 500 Hz

Specifications subject to change without notice.

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