



Timecode Reader/Generator

Model TPRO-PMC



- **IRIG-A, IRIG-B, NASA36 timecode reader**
- **IRIG-B timecode generator**
- **Time-Tag input**
- **Freewheel capability**
- **Programmable periodic output (pulse/squarewave) and interrupt capability**
- **Programmable start/stop time output and interrupt capability**
- **High-performance, 2.5 ppm oscillator**

The TPRO-PMC provides high-accuracy timing functions on a plug-in board with a PMC interface. The board's on-board clock is kept in sync to an external timecode input. Several timing functions are derived from the onboard clock, including a programmable periodic pulse rate output ("heartbeat"), a programmable start/stop output ("match"), a selectable frequency output ("oscillator out" at 1 kHz, 1, 5, or 10 MHz), and a time-stamping input ("time-tag").

The TPRO-PMC obtains time from an input timecode, which can be IRIG-B or IRIG-A format. The board detects the format that is being used automatically. An AGC circuit on the time code input accommodates a wide range of input amplitudes.

The timecode conveys the day, hour, minute, and second. The on-board 10 MHz oscillator is disciplined to the time code input carrier frequency. The board provides an IRIG-B timecode that is in-sync with the incoming timecode output.

The TPRO-PMC can be used as a stand-alone timecode generator. The computer programs the day, hour, minute, and second. The board then continues to count from that time, using the on-board oscillator as the timebase reference. This is called "freewheeling."



Specifications

Timecode Input

Code Format (Autodetect): IRIG-A (A132), IRIG-B (B122), NASA36

Amplitude: 1.2 V_{p-p} min, 8.0 V_{p-p} max

Polarity: Detected automatically

Modulation Ratio: 2:1 min, 3:1 typ, 4:1 max

Input Impedance: >10K Ohms

Input Time Accuracy: Better than 25 ppm (not suitable for tape playback)

Common Mode Voltage: Differential input, ±100 V max

Timecode Output

Code Format: IRIG-B (B122)

Amplitude (Adjustable):

4.9 V_{p-p} typical (0 V–20 V_{p-p})
into ≥ 600 Ohm load

Modulation Ratio (Adjustable): 3:1

Output Impedance: 50 Ohms

On-Board Clock

Resolution: 1 μS

Range: 366:23:59:59:999999

Propagation Delay Correction:

–999 μS through +999 μS (1 μS resolution)

Stability:

Disciplined to timecode: 2×10^{-7}

Undisciplined: 1×10^{-6}

Accuracy:

IRIG-A time code input: 10 μS max

IRIG-B, NASA36 time code input: 15 μS max

Oscillator Output

Frequency:

1 kHz, 1 MHz, 5 MHz, 10 MHz or Off (software selectable)

Type: RS-422

Differential Output Voltage:

2.5 V_{p-p} (1 MHz)

1.8 V_{p-p} (10MHz) into 120 Ohms

Timebase Accuracy: Same as on-board clock

Time-Tag Input

Input Voltage:

–0.1 V min, +0.4 V max for logic 0

+2.2 V min, +5.1 V max for logic 1

Tags rising edge

Input Current:

–600 μA for logic 0

100 μA for logic 1

Rise/Fall Time: 150 nS max

Repetition Rate: 2000 events per second maximum

Timing Resolution: 1 μS

Heartbeat Output

Output Voltage

High: 2.4 V min at 2.5 mA

Low: 0.4 V max at –2.5 mA

Wave Shape: Pulse

Pulse Width: 100 nS min, 330 nS, 1 μS, 1 mS

Pulse Polarity: Software selectability

Range: 200 nS to 65.5 seconds

Power-on Default Rate: Off

Match Output

Output Voltage:

High: 3.8 V min at 6 mA

Low: 0.3 V max at –6 mA

Settability: 1 μS

In-Sync Flag Output

Type:

Open Collector

External Pullup

Voltage: +27 VDC max

Current: –20 mA max

Polarity:

Conducts to ground when board is synced to GPS or timecode.

Bus Interface

PCI Local Bus:

2.3 compliant

PCI-X compatible

General

Size: (H) 74 mm x (L) 149 mm (2.91" x 5.87")

Power (from PCI bus):

+5 Vdc @ 425 mA max

+12 Vdc @ 225 mA max

–12 Vdc @ 50 mA max

Operating Temperature: 5° to +50° C (41° to +122° F)

Storage Temperature: –40° to +85° C (–40° to +185° F)

Connectors: Micro-D25

Drivers

Major operating systems are supported.

Ordering Information

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