

Model TPRO-PMC

Version 1.4

Timecode Reader/Generator Board



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 on-board clock, including a programmable periodic pulse rate output ("heartbeat"), a programmable start/stop output ("match"), a selectable frequency output ("oscillator out," 1kHz, 1, 5, or 10MHz), 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, and timing accuracy is the same regardless of the format.

The timecode conveys the day, hour, minute and second. The on-board 10MHz oscillator is disciplined to maintain a 1 microsecond accuracy. 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 ("freewheeling").

Features

IRIG-A, IRIG-B, and 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

Ordering Information

Model TPRO-PMC + Option #

Options

Drivers

450-41-9x/00/ME/XP Windows

450-41-NT Win NT

450-42 Linux

450-43 VxWorks

450-44 LabView



Model TPRO-PMC

Accurate, Versatile, User-programmable

Specifications

Time Code Input

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

Amplitude
1.2Vp-p min, 8.0Vp-p max

Polarity
Detected automatically

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

Input Impedance
>10K ohms

Timing Accuracy
Better than 100 ppm
(not suitable for tape playback)

Common Mode Voltage
Differential input, $\pm 100V$ max

IRIG-B Output

Code Format
IRIG-B (B122)

Amplitude (adjustable)
4.0Vp-p typical; 0V–20Vp-p (adjustable)

Modulation Ratio (adjustable)
2:1 min; 3:1 typ; 4:1 max

Output Impedance
600 ohms

Match Output

Output Voltage
3.8V min at 6 mA (high)
0.3V max at –6 mA (low)

Setability
1 μS

On-Board Clock

Resolution
1 μS

Range
366:23:59:59:999999

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

Stability
Disciplined to time code: 2×10^{-7}
Undisciplined: 1×10^{-6}

Time-tag Input

Input Voltage
–0.1V min, +0.4V max for logic 0
+2.2V min, +5.1V max for logic 1
Tags rising edge

Input Current
–600mA for logic 0
100mA for logic 1

Rise/Fall Time
150 nS max

Repetition Rate
2000 events per second max

Timing Resolution
1 μS

Heartbeat Output

Output Voltage
2.4V min at 2.5 mA (high)
0.4V max at –2.5 mA (low)

Wave Shape
Pulse

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

Pulse Polarity
Software selectable

Range
200 nS to 65.5 seconds

Power-on default rate
Off

Oscillator Output

Type
RS-422

Frequency
1kHz, 1MHz, 5MHz, 10MHz or OFF
(software selectable)

Differential Output Voltage
2.5Vp-p (1MHz)
1.8Vp-p (10MHz), into 120 Ohms

Timebase Accuracy
Same as on-board clock

Phase Noise

–100dBc/Hz at 10Hz offset
–130dBc/Hz at 100Hz offset
–145dBc/Hz at 1kHz offset
–150dBc/Hz at 10kHz offset

General

Size
H 106.7 mm, L 174.6 mm

Power (from bus)
+5Vdc @ 425mA max)
+12Vdc @ 225mA max)
–12Vdc @ 50mA max)

Operating Temperature
0 to +70 C (–22 to +167 F)

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

Connectors
BNCs and DB-15

