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.”
## Technical Specifications: TPRO-PMC

### Specifications

#### Timecode Input
**Code Format (Autodetect):** IRIG-A (A132), IRIG-B (B122), NASA36  
**Amplitude:** 1.2 Vp-p min, 8.0 Vp-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 Vp-p typical (0 V–20 Vp-p)  
**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 x 10⁻⁷  
Undisciplined: 1 x 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 Vp-p (1 MHz)  
1.8 Vp-p (10 MHz) 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  
**Repetiton 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 106.7 mm, L 175.26 mm  
**Power (from PCI bus):**  
+5 Vdc @ 425 mA max  
+12 Vdc @ 225 mA max  
–12 Vdc @ 50 mA max  
**Operating Temperature:** 5º to +50º C (41º to +122º F)  
**Storage Temperature:** –40º to +85º C (–40º to +185º F)  
**Connectors:** Micro-D25

#### Drivers
Major operating systems are supported.

#### Ordering Information
**Model:** TPRO-PMC

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