SPECTRACOM

Synchronizing Critical Operations®

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 on-board clock, including a programmable periodic pulse rate output ("heart-beat"), 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 time-base reference. This is called "freewheeling."

PICMG®

USA www.spectracomcorp.com | sales@spectracomcorp.com | 95 Methodist Hill Drive | Rochester, NY 14623 | +1.585.321.5800
FRANCE www.spectracom.fr | sales@spectracom.fr | 3 Avenue du Canada | 91974 Les Ulis, Cedex | +33 (0)1 64 53 39 80
UK www.spectracom.co.uk | sales@spectracom.co.uk | 6A Beechwood | Chineham Park | Basingstoke, Hampshire, RG24 8WA | +44 (0)1256 303630

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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)
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 Vp-p (1 MHz)
1.8 Vp-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 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
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

Model TPRO-PMC

0709-TPRO-PMC(E)
Specifications subject to change or improvement without notice.
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