spectracom

DISCONTINUED PRODUCT
Contact Spectracom for Replacement Options

Timecode Reader/Generator

Model TPRO-PC104

- **IRIG-A, IRIG-B, NASA36 timecode reader**
- **IRIG-B timecode generator**
- **IRIG-B output**
- **Time-Tag input**
- **Freewheel capability**
- **Programmable start/stop time output and interrupt capability**

The TPRO-PC104 performs timing and synchronization functions referenced to an input timecode signal, synchronizing its on-board clock to this timecode and providing its clock time as an IRIG-B output. Other features include a time-tag TTL input, programmable "heartbeat" pulse or squarewave output (with interrupt capability), and programmable "match" start/stop time output (with interrupt capability).

The board continues to increment time ("freewheel") in the absence of an input timecode. It can serve as an IRIG-B timecode generator after inital time is set via the bus.

The input timecode format (IRIG-B, IRIG-A or NASA36) is automatically detected. Synchronization to the input timecode is also automatic and can be enabled/disabled via the ISA bus. A propagation delay offset may be specified to compensate for cable delays.

An automatic gain control (AGC) circuit permits a wide range of input timecode amplitudes. The timecode input is differential; the board does not reference this signal to ground. A single-ended input (referenced to ground) is also acceptable. One-pulse-per-second (1 PPS) input synchronization is also available (Option "–M"). In this case, the initial time is programmed via the ISA bus and the board begins counting on the next 1 PPS pulse.

PC104 Interface

The board occupies 16 consecutive addresses in I/O (not memory) space. Base address and interrupt level are selected using jumpers. All board functions can be used without interrupts and can be accessed using 8-bit transfers. The time can also be read using four 16-bit transfers. Binary-coded decimal (BCD) format is used for setting and reading the time.

DISCONTINUED

USA | 1565 Jefferson Road, Suite 460 | Rochester, NY 14623 | +1.585.321.5800 | sales@spectracomcorp.com
FRANCE | 3 Avenue du Canada | 91974 Les Ulis, Cedex | +33 (0)1 64 53 39 80 | sales@spectracom.fr
UK | 6A Beechwood | Chineham Park | Basingstoke, Hants, RG24 8WA | +44 (0)1256 303630 | info@spectracom.co.uk

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 100 ppm (not suitable for tape playback)
Common Mode Voltage: Differential input, ±100 V max

Timecode Output

Code Format: IRIG-B (B122)
Amplitude (Adjustable): 2.6 Vp-p typical
Modulation Ratio (Adjustable): 3:1
Output Impedance: 600 Ohms

On-Board Clock

Resolution: 1 µS
Range: 366:23:59:59:999999
Date Format: Integer (001–366)
Propagation Delay Correction: –1000 µS through +8999 µS
Propagation Delay Setting: Programmed over PC104 bus
Stability:
Disciplined to timecode: 2×10^{-7}
Undisciplined: 1×10^{-6}

Time-Tag Input

Input Voltage:
–0.5 V min, +0.8 V max for logic 0
+2.0 V min, +5.5 V max for logic 1
Tags rising edge
Input Current: <5 mA for logic 0 and 1
Rise/Fall Time: 500 nS max
Repetition Rate: 1000 events per second maximum
Timing Resolution: 1 µS

1 PPS Sync Input (Option –M only)

Input Voltage: 2.4 V min, 16.0 V max (high)
Rise/Fall Time: 500 nS max
Trigger Edge: Rising
1 PPS Accuracy: Must be 100 ppm or better

Heartbeat Output

Output Voltage:
High: 3.8 V min at 32 mA (source)
Low: 0.4 V max at –645 mA (sink)
Wave Shape: Pulse or squarewave (programmable)
Pulse Width: 150 nS min, 450 nS max
Pulse Polarity: Negative
Squarewave: 45% to 55%
Timing: Falling edge on-time (pulse or squarewave)
Range:
1.000 µS to 21.845 µS in µS increments
(1 MHz to 45.7771 Hz)
Power-on Default Rate: 100 PPS (pulse)

Match Output

Output Voltage:
High: 3.8 V min at 32 mA (source)
Low: 0.4 V max at –64 mA (sink)
Settability: 1 µS

Bus Interface

I/O Address: 16 consecutive addresses
I/O Base Address: 0000–0FF00 (jumper selected)
Interrupt Level: IRQ 2–7, 10–12, 14, 15 (jumper selected)
Time Between Accesses: 100 µS minimum
Necessary Accesses:
4 (read time, 16-bit mode)
14 (read time, 8-bit FIFO mode)
12 (read time-tag, 8-bit FIFO mode)
11 (set time, heartbeat, or match)
DMA Transfers: None

General

Size: H 95.89 mm, L 90.17 mm
Power (from ISA bus):
+5 Vdc @ 0.7 mA max
+12 Vdc @ 175 mA max
–12 Vdc @ 20 mA max
Operating Temperature: –30° to +70° C (–22° to +158° F)
Storage Temperature: –40° to +80° C (–40° to +176° F)
Connectors: BNC and DB15 depending on input/output

Drivers

Major operating systems are supported.

Ordering Information

Model TPRO-PC104 (+option #)

Options

–M: Sync to 1 PPS input instead of timecode
–HB1PPS: 1 PPS heart beat output
–FXB: RS-422 driver for heart beat output (includes -HB1PPS)
–LOR1: Three outputs (1MHz, 1 PPS, GND)

DISCONTINUED

June 30, 2014 - TPRO-PC104(E)
Specifications subject to change or improvement without notice.
Spectracom is a business of the Orolia Group. ©2010-2014 Orolia USA, Inc.