ORCA TECHNOLOGIES
TIME AND FREQUENCY PRODUCTS

Model TTGM-101B TimeTap Grandmaster

GPS/Time Code Synchronized IEEE-1588 PTPv2 Grandmaster, SNTP Server and Time Code Generator



Features:

- Synchronizes to GPS
- Synchronizes to IRIG Time Codes
- Default Profile for PTPv2
- SNTP Time Server
- SNMP operation
- AM and DCLS Time Code Outputs
- Precise 1PPS Output
- N1 Rate Synthesizer
- 1PPS Time Interval Measurement
- LED Status Indicator
- OLED Time Display
- RJ-45 100base-T port for PTPv2
- Rugged / Portable case
- Windows-based USB and Network GUI for Setup, Control and Time Interval Measurement Display

General Product Description

The Model TTGM-101B GPS/Time Code Synchronized PTP Grandmaster, SNTP Server and Time Code Generator is ideal for applications utilizing GPS or time code input to generate IEEE-1588 PTPv2, SNTP or various time codes. Time and rate outputs are precisely referenced to GPS or time code input. The TTGM will also synchronize to a 1PPS input. In addition to PTPv2 and SNTP operation, IRIG A, B, G and NASA36 time code outputs, time is available on the USB port. Limited SNMP trap operation is also standard on this versatile unit.

The TimeTap will synchronize to the selected reference to less than 1 microsecond and can provide local or daylight savings time with settable timing offsets. The TimeTap can also provide the IRIG time codes to drive external time displays. This unit can be paired with the TT-101B for PTP synchronization over a network as well as time code synchronization. Computer synchronization can be accomplished with Domain Time II software available through ORCA Technologies.

This versatile product also has a 1PPS Time Interval Measurement feature that will graph the difference between the TTGM ' s 1PPS and an external 1PPS rising edge.

The TTGM-101B PTP implementation is compatible with and has partial compliance to the IEEE-1588 PTPv2 standard.

For additional information contact your ORCA Representative at 949-682-3289 or via email at sales@orcatechnologies.com www.orcatechnologies.com

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TTGM-101B GPS/Time Code Synchronized Generator, PTPv2 Grandmaster, SNTP Server

Product Specifications

General Specifications

- Timing Accuracy:
  - < 100 nanoseconds to UTC (GPS)
  - < 1 microsecond to DCLS Time Code or 1PPS
  - < 5 microseconds to AM Time Code reference
- Internal Oscillator: 50MHz Temperature Compensated (TCXO)
  - 1PPM, DDS steering

Standard Inputs

- GPS Input: 1.575 GHz L1 C/A Code
  - GPS Receiver: 12 parallel channels
  - Internal Oscillator disciplined to GPS
  - Antenna: L1 GPS with 5-meter SMA cable
  - Connector: SMA labeled GPS ANT
- AM Serial Time Code Input
  - Format: IRIG A, B, G; NASA36
  - Amplitude: 1-6 Vpp
  - Connector: SMA labeled CODE INPUT
- DC Level Shift (DCLS) Serial Time Code Input
  - Specification: IRIG A, B, G; NASA36
  - Amplitude: TTL levels
  - Connector: DB-15 multi-pin, pin 9
- 1PPS Reference Input
  - Amplitude: TTL levels
  - Connector: DB-15 multi-pin, pin 9
- 1PPS Time Interval Input
  - Amplitude: TTL levels
  - Connector: DB-15 multi-pin, pin 7

Standard Outputs

- PTPv2 Default Profile
  - Ethernet II, IPv4, UDP Multicast,
  - Two-step PTPv2 packets
  - Connector: RJ-45
  - Limited PTPv2 compliance
- SNTP
  - Unicast protocol only
  - Hardware Timestamps
    - With accurate, low latency responses
- AM Serial Time Code Output
  - Format: IRIG A, B, G; NASA36
  - Amplitude: 3 Vpp into 50 ohms
  - Ratio: factory set to 3:1
  - Connector: SMA labeled CODE OUTPUT
- DC Level Shift (DCLS) Serial Time Code Output
  - Format: IRIG A, B, G; NASA36
  - Amplitude: 3.3V logic
  - Connector: DB-15 multi-pin, pin 10
- 1PPS Output
  - Logic Level: 3.3V logic into 50 ohms
  - Timing: Positive edge on time
  - Duty Cycle: 50%
  - Connector: DB-15 multi-pin, pin 5
- N1 Rate Synthesizer x2 Outputs
  - Logic Level: 3.3V logic
  - 0 to 16,777,215 PPS with 1PPS steps
  - Timing: Locked to the internal clock
  - Duty Cycle: 50%
  - Connector: DB-15 multi-pin, pins 3 and 6
- Selectable Output
  - 3.3V Logic, 1 of these signals: Buffered DC Input,
  - 1PPS 50%, 1PPS 20us, N1(A), N1(B), DCLS Time Code,
  - Decade pulse rates to 10MPPS, 5MPPS, IRIG H, 1PPM
  - Connector: DB-15 multi-pin, pin 8
- USB Port
  - Output Data: Time and Status
  - FTDI Virtual COM Port (Windows. Linux drivers available)
  - Connector: Micro USB
  - Supplies 5V unit power, Command Line Interface I/O,
  - Time once per second
- DC Power Level: 5 Vdc < 500 mA
  - powered through the USB Bus or DB-15 multi-pin
- AC Power via AC to DC converter module

Environmental/Mechanical

- Physical Dimensions
  - Size: 4.72” length X 4.07” width X 1.20” height
  - Weight: 1 pound
  - OLED Display: 2 lines, variable intensity
  - Operating Temperature: 0 to 50 degrees C
  - Storage Temperature: -40 to +80 degrees C
  - Humidity: To 95% non-condensing
- Antenna
  - Size: 1.81” length X 1.81” width X .50” high
  - Weight: < 1 pound
  - Operating Temperature: -40 to +70 degrees C
  - Storage Temperature: -40 to +85 degrees C
  - Connector: SMA
  - Cable Length: 5 meters (Longer lengths available)
- Certification: RoHS Compliant

Ships with x2 SMA to BNC converter cables

Options

Breakout cable for DB-15 multi-pin connector
Domain Time II software

Rear Panel



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(Specifications Subject to Change—200130)