



Model GS-301 GPS Time and Frequency Receiver

- Network Time Server / Time Code Generator / Frequency Generator -



Standard Features:

- Synchronizes to GPS and Time Codes
- Serves SNTP and PTP v2 via RJ-45
- Precise 1PPS Output
- Time Code Output
- Alarm Output
- LED Status Indicators
- OLED Display
- Windows GUI for Setup and Control

Optional Features:

- Synchronizes to 1PPS
- Second Network Port
- Additional Time Code Outputs
- 10 MHz Sinewave Outputs
- Time Interval Measurement
- N1 Rate Synthesizers
- Additional Selectable Outputs

General Product Description

Accurate yet affordable, the Model GS-301 is a rackmount GPS Time and Frequency Receiver with functionality for Network Time Server and Time Code applications. The GS-301 is an excellent choice for applications requiring a single box performing specific tasks without asking you to buy an overbuilt unit with features you simply don't need.

Time and rate outputs are precisely referenced to GPS or time code input. The GS-301 can optionally synchronize to a 1PPS input. In addition to SNTP and PTPv2 operation, IRIG A, B, G and NASA36 time code outputs are available. Additionally we offer as an option a 10 MHz sinewave. Time and status are available on the USB port.

The GS-301 will synchronize to GPS to less than 1 microsecond and can provide local or daylight savings time with settable timing offsets. This unit can be paired with our TT-101 for PTP packet timing conversion to a time code or 1PPS. Computer synchronization can be accomplished with optional Domain Time II software.

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



Model GS-301 GPS Time and Frequency Receiver

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 Crystal Oscillator
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 50-foot BNC cable
 - Connector: BNC labeled GPS ANT
- AM Serial Time Code Input
 - Format: IRIG A, B, G; NASA36
 - Amplitude: 1-6 Vpp
 - Connector: BNC labeled AM CODE IN

Optional Inputs

- DC Level Shift (DCLS) Serial Time Code Input
 - Specification: IRIG A, B, G; NASA36
 - Amplitude: TTL levels
 - Connector: BNC labeled DCLS CODE IN
- 1PPS Reference Input
 - Amplitude: TTL levels
 - Connector: BNC labeled DCLS CODE IN
- Time Interval Input
 - Amplitude: TTL levels
 - Connector: BNC labeled TI 1PPS IN

Standard Outputs

- PTPv2 Default Profile
 - Ethernet II, IPv4, UDP Multicast,
 - Two-step PTPv2 packets
 - Limited PTPv2 compliance
 - Connector: RJ-45
- SNTP
 - Unicast, ver3
 - Hardware based
 - Connector: RJ-45
- AM Serial Time Code Output
 - Format: IRIG A, B, G; NASA36
 - Amplitude: 3 Vpp into 50 ohms
 - Ratio: factory set to 3:1
 - Connector: BNC labeled AM CODE OUT A

- 1PPS Output
 - Logic Level: 5V logic, TTL into 50 ohms
 - Timing: Positive edge on time
 - Duty Cycle: 50%
 - Connector: BNC labeled 1PPS OUT

- Alarm Output, Open Collector
 - 20VDC, 20mA max
 - Lock (>10uS) = Low Z
 - Connector: BNC labeled ALARM OUT

- USB Port
 - Output Data: CLI/Time once per second
 - FTDI Virtual COM Port
 - Connector: USB Type B

Optional Outputs

- AM and DC Level Shift (DCLS) Serial Time Code Output
 - Format: IRIG A, B, G; NASA36
 - Amplitude: 3Vpp AM and 5V logic DC
 - Connector: BNC labeled AM or DCLS CODE OUT
- 10MHz Sinewave Output
 - Amplitude: 1 Vrms
 - Connector: BNC labeled 10MHZ SINE OUT A or B
- 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: BNC labeled N1A OUT, N1B OUT
- Selectable Output, 3.3V Logic, 1 of these signals: Reference Input, 1PPS 50%, 1PPS 20us, N1A, N1B, DCLS Time Code, Decade Pulse Rates to 10MPPS, 5 MPPS
Connector: BNC labeled SELECT OUT

Power

- AC Power 110-220 VAC Wide Range
- Optional DC Power 125 VDC

Environmental/Mechanical

- Physical Dimensions
 - Size: 1U, 19 inch rack mount
 - Weight: <5 pounds
 - OLED Display: 2 line X 16 character
 - Operating Temperature: 0 to 50 degrees C
 - Storage Temperature: -40 to +80 degrees C
 - Humidity: To 95% non-condensing

Available Option

Domain Time II Software



Rear Panel