ORCA TECHNOLOGIES
TIME AND FREQUENCY PRODUCTS

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
- Radar Mile Sinewave Output
- OCXO and Rubidium Oscillator Upgrades

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 options for IRIG H DCLS, 1PPM, a 10 MHz sinewave and Radar Mile Sinewave Outputs. 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.

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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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 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 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 (x1)
  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
- USB Port Output Data: CLI/Time once per second
  FTDI Virtual COM Port
  Windows standard. Linux drivers available
  Connector: USB Type B
- 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

Optional Outputs

- AM (x3) and DC Level Shift (DCLS, x1) Serial Time Code Out
  Format: IRIG A, B, G; NASA36
  Amplitude: 3Vpp AM and 5V logic DC
  Connector: BNC labeled AM or DCLS CODE OUT
- 10MHz Sinewave Output (x1 or x2), coherent with 1PPS
  Amplitude: 1 Vrms
  Connector: BNC labeled 10MHZ SINE OUT A or B
- N1 Rate Synthesizer Output (x1 or x2)
  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, IRIG H DCLS, 1PPM
  Connector: BNC labeled SELECT OUT
- Radar Mile Sinewave Output
  Amplitude: 3 Vpp into 50 ohms
  Connector: BNC

Power

- AC Power 90-264 VAC Wide Range, 47-63 Hz
- 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
- Certifications: RoHS

Available Options

Domain Time II Software
OCXO and Rubidium Oscillator Upgrades



Rear Panel

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