



Trestles GPS Synchronized Time and Frequency System

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



Standard Features:

- Synchronizes to GPS and Time Codes
- 3 Gb Network Ports serving NTP
- 1PPS Input
- 1PPS Output
- External Frequency Input
- Alarm Output
- LED Status Indicators
- OLED Display
- Web page for setup and control

Optional Features:

- PTPv2 on the Network Ports
- Time Code Outputs—IRIG A, B, E, G and H
- T1 Output
- 1MHz, 5MHz and 10MHz Output
- OCXO and Rubidium Oscillator Upgrades
- Low Phase Noise Outputs
- Fiber Optic Input and Output
- Sync to additional GNSS constellations
- Time Interval / Event Timing
- SAASM and M-Code versions are available

General Product Description

The *Trestles* Time and Frequency System is a rackmount GPS Receiver designed for time and frequency applications including NTP and PTP network time server requirements. With 4 option module slots, and up to 4 user-configured outputs per module, *Trestles* is adaptable to many different applications. Option modules include our Universal Card, Code Output card, T1 module, Have Quick module, Low Phase Noise frequency card and fiber option input and output cards.

Time and rate outputs are precisely referenced to GPS or time code input. Two time codes are available simultaneously in both AM and DCLS formats on the *Universal Card*. Additional signals include pulse rates along with 1MHz, 5MHz and 10 MHz sinewave outputs.

SMART PORT

Through the use of our Smart Port Technology, *Trestles* introduces a revolutionary way to distribute the above time codes, frequencies and pulse rates. A wide variety of signals are available in every ORCA Tech *Trestles* time and frequency system. Every user has front panel or web browser access to each of these ready-to-use signals that can be selected for distribution via optional rear panel modules providing up to 16 independent outputs. No longer do you have to dedicate a specific signal to a specific output—you can change them at any time. Smart Port Technology puts control into the hands of the customer and gives the ultimate amount of flexibility in supporting today's ever-changing time and frequency requirements.

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

934 Calle Negocio, Suite B—San Clemente, CA 92673



Trestles Time and Frequency System



**Rear Panel
with DC option**

General Product Description continued

NETWORK SECURITY

Trestles utilizes the latest and greatest network and security practices available today. With security being of utmost importance to many of our customers, including government organizations and the military, *Trestles* was specifically designed to be the most secure Network Time Server available. Utilizing the latest OS and software available to us through our LINUX platform, ORCA is able to incorporate protocols specific to network security Information Assurance (IA) standards. ORCA understands the importance of making the latest protocols available to the end user while also taking into consideration JTIC and STIGS standards. Security will always be a standard feature on our product. Any new security features will always be incorporated into our latest software update, which will always be free of charge to our customers.

SUGGESTED PAIRING

This unit can be paired with our System Matrix Switch Distribution Amplifier SMS-101 or our SD-218 switch and distribution amplifier to provide ultimate flexibility in the number and variety of each output. Switching technology is included for redundant operation.

Trestles comes with a 2-year warranty. Technical support and software updates and upgrades are always free.



Trestles Time and Frequency System

Product Specifications

General Specifications

- Timing Accuracy:
 - +/-15 nanoseconds to UTC (GPS)
 - < 1 microsecond to DCLS Time Code or 1PPS
 - < 5 microseconds to AM Time Code reference
- Internal Oscillator: 10MHz Temperature Compensated (TCXO) 3PPB, DAC 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 cable
 - Connector: BNC
- AM and DCLS Serial Time Code Input
 - Format: IRIG A, B, G; NASA36
 - AM Amplitude: 1-6 Vpp
 - DCLS: TTL
 - Connector: BNC
- 1PPS Reference Input
 - Amplitude: TTL levels
 - Connector: BNC
- USB Port
 - Command Line Interface
 - Connector: USB-B
- Frequency Reference Input
 - Amplitude: 1-6 Vpp
 - Connector: BNC

Standard Output

- 1PPS Output
 - Amplitude: TTL levels
 - Connector: BNC

Network Ports (3 independent)

- NTP Unicast, with Standard Security Protocols
 - Hardware based
 - Connector: RJ-45
- Optional PTPv2 Default Profile
 - Ethernet II, IPv4, UDP Multicast,
 - Two-step PTPv2 packets
 - Connector: RJ-45

Alarm Output

- Alarm Output, Open Collector
 - Connector: BNC

Power

- AC Power 100-240 VAC Wide Range, 50-60 Hz
- Optional Second Power input. AC or DC

Option Bays (4)

Universal Card Output Module (4 selectable outputs on BNC)

- AM and DCLS Serial Time Code Out
 - Format: IRIG A, B, E, G, H
 - AM Amplitude: 1Vrms into 50 ohms
 - DCLS: 5V logic
- Dual Synthesizer Outputs
- Programmable Pulse Outputs
- 1/5/10 MHz Sine Output
 - Amplitude: 1 Vrms
- 1PPS Output
 - Logic Level: 5V logic, TTL into 50 ohms
 - Timing: Positive edge on time
 - Duty Cycle: 50%
 - Connector: BNC

Code Output Module

- Four independently settable outputs
 - Format: IRIG A, B, E, G, H
 - AM Amplitude: 1Vrms AM into 50 ohms
 - DCLS: 5V logic, ratio set to 3:1
 - Connector: BNC

T1 Module

- T1 Output
 - Format: Framed All 1s AMI ESF

Have Quick Module

Low Phase Noise Module

Offset (Hz)	Specification (dBc/Hz)	Typical (dBc/Hz)
1	-95	-100
10	-125	-130
100	-145	-150
1k	-150	-155
10k	-155	-158

OCXO and Rubidium Oscillator Upgrades

Environmental/Mechanical

- Physical Dimensions
 - Size: 1U, 19 inch rack mount
 - Weight: <10 pounds
 - OLED Display: 2 Graphic 256 X 64
 - Operating Temperature: -30 to 50 degrees C
 - Storage Temperature: -40 to +80 degrees C
 - Humidity: To 95% non-condensing

Alternate Versions

SAASM and M-Code. Please contact ORCA for information.