VelaSync™ High Speed Time Server
High Performance NTP Server, PTP Grandmaster and Network Sync Monitor

VelaSync™ high speed time server with TimeKeeper™ inside is a network appliance designed for high frequency trading and other low-latency network applications. The combination of FSMLab’s TimeKeeper’s highly optimized timing protocols and management functions, Spectracom’s precision GPS timing technology, and the flexibility of commodity hardware offers exceptional performance and keeps pace with the needs of evolving network infrastructure. The server offers multiple 1GbE (RJ-45) and 10 GbE (SFP+) network ports for set-up, management, and simultaneous NTP and PTP server/grandmaster capability.

Flexible Configuration Provides Reliable, Secure Time
TimeKeeper’s web-based user interface simplifies configuration of multiple time sources for resiliency against GPS attacks, spoofing or jamming, and equipment failures. For example, the server can be easily setup to use a PTP source as a backup to the on-board GPS and use an NTP source as a cross check. The servers can be setup to back up each other so that if one fails, the time service continues. It includes dual redundant hot-swap power supplies and hard drives.

Network Sync Monitoring in a Single At-a-glance Instance
A unique aspect of TimeKeeper is the ability to auto-discover and monitor your network’s synchronization topology. From a single-pane-of-glass, see where the server time is going, monitor downstream clients, and discover other available time sources. The benefit is to verify redundancies and failover options, and identify single points of failure and “choke points”. See everything related to time sync across the enterprise.
**Specifications**

**Timing Protocols**
- NTP
- PTPv1, v2 (telecom profile, hybrid mode)
- Time (RFC 868)

**Management**
Intelligent Platform Management Interface (IPMI) for remote access to monitor chassis health, power on/off and remote console access without a keyboard/monitor or RS232.

**Monitoring**
Time Intelligence Platform for configuration, monitoring of clients, and real-time performance data and network visualization via Time-Map.

**GPS Receiver**
- Connector: SMA, +5V to power active antenna, SMA to Type N adapter cable provided
- Frequency: GPS L1 (1575.42 MHz)
- Satellite tracking: 1 to 50, T-RAIM satellite error management
- Synchronization time: cold start < 15 minutes (includes almanac download), warm start < 5 minutes (assumes almanac download)
- Antenna system: sold separately

**Oscillator**

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<thead>
<tr>
<th></th>
<th>OCXO</th>
<th>Rb</th>
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<tbody>
<tr>
<td>Accuracy1 to UTC</td>
<td>50 ns</td>
<td>25 ns</td>
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<table>
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<tr>
<th>Holdover Accuracy</th>
<th>Loss of GPS after 2 weeks locked, constant temp</th>
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<tr>
<td></td>
<td>After 4 hours 1 μs 0.2 μs</td>
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<tr>
<td></td>
<td>After 24 hours 25 μs 1 μs</td>
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1Accuracy is measured by comparing the internal 1PPS with the GPS time point.

**Time and Frequency Output**
- 1PPS: TTL (5v p-p), SMA
- SMA to BNC patch cable included

**Communications**

**Network Ports**
- 3x 1 GbE Ethernet RJ-45
- 2x 10 GbE Ethernet SFP+ (additional 2x optional)

**Front Panel**
- Power On/Off button
- System Reset button
- Power LED
- Hard drive activity LED
- 2x Network activity LEDs
- System Overheat LED

**Power**
- Dual redundant hot-swappable power supplies
- 100-240 VAC, 50-60 Hz
- Typical Power Draw: 100W operating, 120W start-up

**Environmental**
- Operating Temperature: 10°C to 35°C (50°F to 95°F)
- Storage Temperature: -40°C to 70°C (-40°F to 158°F)
- Operating Relative Humidity: 8% to 90% (non-condensing)
- Storage Relative Humidity: 5% to 95% (non-condensing)

**Agency**
- FCC, CE, UL or CSA listed, RoHS

**Typical Deployment**

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Supplied and supported in the UK and Ireland by Phoenix Datacom
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