TimeTools T300 time server is a cost-effective, accurate, Stratum-1 GPS referenced Network Time Protocol Server in a 1U rack-mountable enclosure.

It provides an accurate time reference to computer networks and can accurately synchronize any NTP or SNTP compatible system.

**Highlights**

- NTPv4 Stratum-1 GPS Network Time Server.
- GPS accurate to 15 nanoseconds (GPS Locked).
- NTP accurate to 3 microseconds (GPS Locked).
- Synchronize in excess of 100,000 clients at default NTP polling frequency.
- 10/100 Mbit auto-sensing, auto-MDIX Ethernet port.
- IPv4 and IPv6 Internet Protocols.
- Extremely cost-effective.
- Integrated universal AC mains input PSU.
- Made in UK, with 6-year warranty and free lifetime support.
Applications

- Network timing, measurement and synchronization.
- Synchronize Microsoft Windows, Linux, servers, workstations and network infrastructure.
- CCTV, DVR and Video Management Systems (VMS).
- Master clock for NTP synchronized clock systems.
- Accurately synchronize time critical processes to a traceable source of time inside your firewall.

Key Features and Benefits

- Linux based true stratum-1 NTP time server.
- Extremely easy to install and configure.
- Simple web based configuration and status information.
- High-quality, 1U high, 19" rack-mountable aluminium enclosure.
- Large back-lit LCD display shows detailed status information.
- USB port for convenient firmware updates.

GPS Timing Features

- 16 channel, high-sensitivity, GPS timing receiver with single-satellite in view operation.
- Operation with outdoor, indoor or window located antenna with limited sky view, saving on cabling costs.
- Timing receiver synchronizes to 15 nanoseconds (15x10^-9 sec, 1 sigma, GPS locked).
- Time-Receiver Autonomous Integrity Monitoring (T-RAIM) assures very high timing integrity.
- Fully automatic impending leap second warning and insertion, no user intervention required.
- Jam-resistant signal reception.

NTP Timing Features

- NTP synchronization to <3 microsecond (3x10^-6 sec) UTC (GPS Locked).
- Ability to synchronize in excess of 100,000 clients at default NTP polling frequency.
- Peer to multiple external and internet based NTP servers.
- MD5 authentication for enhanced security.

Reliable and Environmentally Friendly

- Based on extremely reliable industrial computing module.
- Very low-power consumption, less than 7W.
- RoHS compliant - Restriction on use of hazardous substances.

Networking Features

- 10/100 Mbit Auto-Sensing, Auto-MDIX Ethernet port.
- NTPv4, SNTPv4, HTTP, HTTPS, SSH, SCP, SFTP, FTP, SNMPv1 and SNMPv2c alarms, DHCP, DHCPv6.
- IPv4 and IPv6 Internet Protocol.

Warranty and Support

- Made in UK, with industry leading 6-year warranty.
- Free unlimited support and firmware updates for the lifetime of the product.
**Interfaces**
- 10/100 Mbit Base-T, RJ45, Auto-Sensing Network Interface.
- TNC RF Connector For Active GPS Antenna.
- USB port for firmware updates.
- RS232 Console Port for Configuration and Status.
- Second RS232 (shared) Port for serial time code output.

**Operating System**
- Flash-Based Linux Operating System with PPS Extensions.

**Internet Protocol (IP)**
- IPv4, IPv6.

**Timing Protocols**
- NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905).
- SNTP v3 (RFC 1769), SNTP v4 (RFC 2030).
- NTP Peering, NTP Broadcast.
- NTP MDS Authentication.
- Max. clients at Default NTP Polling Freq.: 100,000

**Configuration and Monitoring Protocols**
- HTTP, HTTPS, SSH, SCP, SFTP, FTP.
- SNMPv1, SNMPv2c Trap Alarms.

**Monitoring and Reporting**
- SNMP v1/v2c Trap Alarms (Can be disabled).
- GPS Satellites in View & Signal to Noise Ratio (SNR).
- 40 character x 2 line LCD display.
- Red/Green Alarm LED.

**GPS Timing Receiver**
- 16 Channel GPS Receiver.
- Time-Receiver Autonomous Integrity Monitoring.
- High Sensitivity Outdoor/Indoor Antenna Operation.
- Over-Determined Clock, Single Satellite Operation.

**Positioning System**
- SPS, Timing
- Update Rate: 1 Hz
- Typical Min Acquisition Sensitivity: -148dBm cold start
- Typical Min Tracking Sensitivity: -160dBm
- Time to First Fix: <46s (50%), <50s (90%) cold start
- Typical Time to Re-acquisition: <2s (90%)

**Mechanical \ Environmental**
- Dimensions: 483 x 145 x 44 mm (19.0” x 5.71” x 1.73”)
- Construction: 1U High 19” Rack-mount, Aluminium
- Weight: approx 1.2Kg (2.6lbs)
- Power: 100-240VAC 50-60Hz 0.1A
- Fuses: Two, T0.315A LBC 250V
- Power Consumption: <7W
- Double Fused IEC Inlet
- Operating Temperature: 0°C ~ +50°C
- Storage Temperature: -20°C ~ +85°C
- Working Humidity: 90% RH non-condensing

**Antenna General Specifications**
- T-3040 GPS Antenna
- Size: 66.5mm diameter x 21mm High
- Weight: 150g
- Enclosure: Radome: EXL9330, Base: Zamak White Metal
- Attachment Method: Through hole (M18 x 1 thread)
- Environmental: IP67
- Operating Temperature: -40°C ~ +85°C

**Approvals**
- CE: 2014/53/EU
- 2011/65/EU
- Radio: EN 300 440 V2.1.1
- EN 55024: 2010
- EN 61000-3-2: 2014
- EN 61000-3-3: 2013
- Safety: EN 60950-1: 2006+A2: 2013
- RoHS: EN 50581:2012
Ordering Information

Product Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>T300-00</td>
<td>GPS NTP Server appliance.</td>
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Scope of Supply – What is Included

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<tr>
<td>T300</td>
<td>GPS NTP Server Appliance.</td>
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<tr>
<td>T-3040</td>
<td>Pole Mounting GPS Antenna .</td>
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<tr>
<td>MT4-GPS</td>
<td>Antenna Mount.</td>
</tr>
<tr>
<td>TCX-030</td>
<td>30m (100 ft) LMR195 Equivalent Cable.</td>
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<td></td>
<td>IEC Power Lead.</td>
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<tr>
<td></td>
<td>RS232 Serial Console Cable.</td>
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<tr>
<td></td>
<td>Quick Start Guide.</td>
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<td></td>
<td>CD containing user-guide, installation guide and white-papers.</td>
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Optional Accessories

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<th>Description</th>
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<tr>
<td>TCX-010</td>
<td>10m LMR195 Equivalent Cable.</td>
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<tr>
<td>TCX-030</td>
<td>30m LMR195 Equivalent Cable.</td>
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<td>TCX-050</td>
<td>50m LMR195 Equivalent Cable.</td>
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<tr>
<td>TCX-100</td>
<td>100m LMR400 Equivalent Cable.</td>
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<td></td>
<td>Custom cable lengths available on request.</td>
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<tr>
<td>SPP-GPS</td>
<td>Multi-strike maintenance-free surge suppressor</td>
</tr>
<tr>
<td>T-AD200-8</td>
<td>GPS Amplifier – 20db</td>
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GPS over optical fibre systems.
GPS Splitters – 2 to 32 way, compact or rack-mount.
Digital NTP Wall clocks.
Analog NTP Wall clocks.

*1. Assuming default 64 sec client NTP polling frequency. Even more clients can be synchronized by decreasing the polling frequency.

TimeTools Limited has relied on representations made by its suppliers in certifying this product as RoHS compliant.

TimeTools Limited is not responsible for the availability, operation or failure of operation of GPS/GNSS satellites.

In no event will TimeTools Limited be liable for any indirect, special, incidental, or consequential damages from the sale or use of this product.
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