Data Sheet

T100 Compact GPS NTP Server

TimeTools T100 time server is a very cost-effective, accurate, Stratum-1 GPS referenced Network Time Protocol Server in a compact 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.
- Universal AC mains power adapter.
- Made in UK, with 12-month 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, compact aluminium enclosure.
- 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 12-month warranty.
- Free unlimited support and firmware updates for the lifetime of the product.
Product Specification

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. 
Dynamic Host Configuration Protocol - DHCP (RFC 2131). 
Dynamic Host Configuration Protocol - DHCPv6 (RFC 3315).

Monitoring and Reporting
SNMP v1/v2c Trap Alarms (Can be disabled). 
GPS Timing Receiver View & Signal to Noise Ratio (SNR). 
Red/Green Alarm LED.

Timing (typical)
GPS Accuracy: 15 nanoseconds (15x10^-9 sec, GPS Lock) 
NTP Accuracy (GPS Lock): <3 microsecond (3x10^-6 sec)

GPS Tracking 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: 144 x 103 x 30 mm (5.6" x 4.1" x 1.2") 
Construction: Aluminium 
Weight: approx 0.3Kg (0.7 lbs)

Power: 7.5V DC @ 1A 
Universal power adapter. 
Power Consumption: <7W

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 
LNA Gain: 40 dB typical. 
Supply Current: 19mA typical. 
Supply Voltage: 2.5 to 12 VDC nominal

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

T100-00  GPS NTP Server appliance.

Scope of Supply – What is Included

T100  GPS NTP Server Appliance
T-3040  Pole Mounting GPS Antenna.
MT4-GPS  Antenna Mount.
TCX-010  10m (30 ft) LMR195 Equivalent Cable.
GE12107-P1J  7.5V DC Universal Power Supply.

RS232 Serial Console Lead.
Quick Start Guide.
CD containing user-guide, installation guide and white-papers.

Optional Accessories

TCX-010  10m LMR195 Equivalent Cable.
TCX-030  30m LMR195 Equivalent Cable.
TCX-050  50m LMR195 Equivalent Cable.
TCX-100  100m LMR400 Equivalent Cable.
Custom cable lengths available on request.
SPP-GPS  Multi-strike maintenance-free surge suppressor
T-AD200-8  GPS Amplifier – 20db

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. This disclaimer applies both during and after the term of the warranty. TimeTools Limited disclaims liability for any implied warranties, including implied warranties of merchantability and fitness for a specific purpose.

All specifications subject to change without notice.

Terms and conditions of sale available on request.

Registered trademarks acknowledged. All rights reserved.

© 2019 TimeTools Limited. All Rights Reserved.

Contact Information

TimeTools Limited.
2 Silverend Business Park,
Brettell Lane, Brierley Hill. DY5 3LG.
UK.

Phone: +44 (0) 1902 897400
Fax: +44 (0) 870 123 1844
Email : Sales@TimeToolsLtd.com
Web: https://TimeToolsLtd.com/