Data Sheet T550 Multi-GNSS Dual-LAN NTP Server with TCXO

TimeTools T550 time server is a very accurate, Stratum-1 Multi-GNSS referenced Network Time Protocol Server in a 1U rack-mountable enclosure. The built-in 32 channel timing receiver provides concurrent multi-constellation reception of GPS, GLONASS, BeiDou, Galileo[*1] for improved reliability and redundancy.

The T550 also features Dual Ethernet ports and a high-stability TCXO oscillator, which provides extended Stratum-1 holdover during loss of GNSS signal lock.

The T550 provides an accurate time reference to computer networks of any size and can accurately synchronize any NTP or SNTP compatible system.

Highlights

NTPv4 Stratum-1 GPS\Multi-GNSS Network Time Server.

Multi-GNSS concurrent reception of GPS, GLONASS, BeiDou and Galileo[*1] for improved reliability and redundancy.

High-stability TCXO oscillator provides extended Stratum-1 holdover during loss of GNSS signal lock.

GNSS 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.

Dual 10/100 Mbit auto-sensing, auto-MDIX Ethernet ports.

IPv4 and IPv6 Internet Protocols.

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.
- Automation Systems, SCADA, Network Monitoring and Control Systems.
- CCTV, DVR and Video Management Systems (VMS).
- Access Control Systems (ACS).
- 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\Multi-GNSS Timing Features

- 32 channel multi-GNSS timing receiver providing concurrent multi-constellation reception of GPS, GLONASS, BeiDou, Galileo[*1] for improved reliability and redundancy.
- Operation with outdoor, indoor or window located antenna with limited sky view, saving on cabling costs.
- Timing receiver synchronizes to 15 nanoseconds (15×10^{-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.
- High sensitivity receiver with single-satellite in view operation.
- Jam-resistant signal reception.

NTP Timing Features

- NTP synchronization to <3 microsecond (3×10^{-6} sec) UTC (GPS Locked).
- High-stability TCXO oscillator for extended holdover to maintain stratum-1 operation during GNSS signal loss.
- 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

- Dual 10/100 Mbit Auto-Sensing, Auto-MDIX Ethernet ports.
- 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
Dual 10/100 Mbit Base-T, RJ45, Auto-Sensing Network Interfaces.
TNC RF Connector For Active GPS/GNSS 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 MD5 Authentication.
Max. Clients at Default NTP Polling Freq.[*2]: 100,000

Configuration and Monitoring Protocols
HTTP, HTTPS, SSH, SCP, SFTP, FTP.
SNMPv1, SNMPv2 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 Satellites in View & Signal to Noise Ratio (SNR).

40 character x 2 line LCD display.
Red/Green Alarm LED.

Timing (typical)
GNSS Accuracy: 15 nsec (15×10^{-9} sec, GPS Lock)
NTP Accuracy (GPS Lock): <3 usec (3×10^{-6} sec)
TCXO Holdover 24 Hours (after 24 hrs continuous GPS lock):
  <±4.3 msec (25°C)
  <±164 msec (0°C-40°C)

GPS/GNSS Timing Receiver
32 Channel Multi-GNSS receiver. GPS, GLONASS, Beidou, Galileo[*1].

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-3740 GNSS Multi-Constellation 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: -20°C ~ +85°C

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

Approvals
CE: 1999/5/EC
         2011/65/EU
         93/68/EEC
Safety: EN 60950-1: 2006+A2: 2013
EMC: ETSI EN 301 489-1: V1.9.2 (2011-09)
         ETSI EN 301 489-3: V1.6.1 (2013-08)
         ETSI EN 300 440-2 V1.4.1:2010-08
         EN 61000-3-2: 2014
         EN 61000-3-3: 2013
RoHS: EN 50581:2012

Ordering Information

Product Codes

T550-00   Multi-GNSS Dual-LAN TCXO NTP Server appliance.

Scope of Supply – What is Included

T550   NTP Server Appliance
T-3740   Pole Mounting Multi-GNSS Antenna.
MT4-GPS   Antenna Mount.
TCX-030   30m (100 ft) RG58 Cable.

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

Optional Accessories

TCX-010   10m RG58 Cable.
TCX-030   30m RG58 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.

Contact Information

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