TimeTools TA110 is a fast, security-hardened, GPS-referenced Stratum-1 Network Time Protocol (NTP) Server in a compact enclosure. It can provide a precise time reference for large computer networks and can accurately synchronize any NTP or SNTP compatible client.

Featuring network-optimized Gigabit Ethernet (GbE) and a 32 channel GPS timing receiver which provides reliable reception of the GPS satellite system.

TimeTools TA110 also incorporates a high-stability Temperature-Compensated Crystal Oscillator (TCXO), which provides extended Stratum-1 operation in the event of any loss of GPS signal lock.

Designed and Manufactured In The UK.

Security-Hardened, GPS-Referenced Stratum-1 NTP v4 Network Time Server.

Fast, 10,000 NTP Polls Per Second (600K/minute), For Precise Client Synchronization.

High-Stability, Temperature-Compensated Crystal Oscillator (TCXO) For Extended Stratum-1 Operation In The Event Of Any Loss of GPS Signal Lock.

Network-Optimized Gigabit Ethernet (GbE).

NTP synchronization to <10 microseconds UTC (GPS Locked).

Advanced, 32 Channel, GPS Receiver For Reliable Reception Of The GPS Satellite System.

Powerful, Easy To Use, Web Interface With Command Line Interface For Advanced Users.

Full MD5 and SHA1 NTP Authentication For Enhanced Security.

Peer To Multiple External NTP Servers For Improved Redundancy.

IPv4 and IPv6 Internet Protocols.

Universal AC/DC mains power adapter for world-wide operation (UK, EU, US, AU).

12-Month Warranty, Free Firmware Updates and Lifetime Support.

CE and UKCA Compliant With Full EMC and Electrical Safety Test Reports.

TimeTools

Applications

- Synchronize Microsoft Windows, Linux, servers, workstations and network infrastructure.
- Network timing, measurement and synchronization.
- 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.
- Powerful, easy to use, Web interface with Command Line Interface for advanced users.
- High-quality, compact aluminium enclosure.
- USB Client port for convenient firmware updates.

NTP Timing Features

- Fast, 10,000 NTP Polls Per Second (600,000 Per Minute), for precise client synchronization.
- High-Stability, Temperature-Compensated Crystal Oscillator (TCXO) for extended Stratum-1 operation in the event of loss of GPS signal lock.
- NTP synchronization to <10 microseconds UTC (GPS Locked).
- Ability to synchronize in excess of 10 million clients at default NTP polling frequency.
- Peer to multiple external and internet based NTP servers.
- Full MD5 and SHA1 Authentication for enhanced security.

Networking Features

- Network-optimized 10/100/1000 Mbit Auto-Sensing, Auto-MDIX Ethernet port.
- NTPv4, SNTPv4, HTTP, HTTPS, SSH, SCP, SFTP, FTP, SNMP v1/v2c/v3, DHCP, DHCPv6.
- IPv4 and IPv6 Internet Protocol.

GPS Timing Features

- 32 channel GPS timing receiver providing reception of GPS satellite signals.
- Timing receiver synchronizes to 30 nanoseconds RMS. (GPS locked).
- Fully automatic impending leap second warning and insertion, no user intervention required.
- High sensitivity GPS receiver.
- Advanced spoofing and jamming detection.
- Excellent RF interference mitigation.

Reliable and Environmentally Friendly

- Based on ultra-reliable industrial computing module.
- Very low-power consumption, less than 5W.
- Universal AC/DC mains power adapter for world-wide operation (UK, EU, US, AU).
- CE and UKCA compliant with full EMC and Electrical Safety Test reports.
- RoHS compliant - Restriction on use of hazardous substances.

Warranty and Support

- 12-month warranty.
- Free firmware updates and unlimited email and telephone support for the lifetime of the product.

Made in Britain

Citation ISO Certification
Quality management
ISO 9001: 2015
REGISTERED
Certificate No:200982013

TimeTools

System
ARM Cortex-A72 Processor
8GB eMMC Flash Memory.
1GB SDRAM.

Interfaces
10/100/1000 Mbit Base-T, RJ45, Auto-Sensing Ethernet.
TNC RF Connector For Active GPS Antenna.
USB Client port for firmware updates.

Operating System
Flash-Based Linux Operating System.
Linux 6.2 LTS 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, Unicast, Broadcast.
NTP MD5, SHA-1 Authentication.
Max. NTP Polling Freq.: 10,000 polls per second (600K/min).
Max. Clients at Default NTP Polling Freq.: 10,000,000

Configuration and Monitoring Protocols
HTTP, HTTPS, SSH, SCP, SFTP, FTP.
SNMP: v1, v2c, v3
Dynamic Host Configuration Protocol - DHCP (RFC 2131).
Dynamic Host Configuration Protocol - DHCPv6 (RFC 3315).

Timing (typical)
GPS Accuracy: RMS 30 nanoseconds (GPS Lock).
                 99% 60 nanoseconds (GPS Lock).
NTP Accuracy (GPS Lock): <10 microseconds.
Holdover (Typ): ±0.5 ppm @ 25C (±43msec / 24 hours).
TCXO Crystal Ageing (First Year, 25°C, Typ.): ±3 ppm.
TCXO Freq Stability vs. Temp (-40°C to +85°C): ±5 ppm

GPS Timing Receiver
32 Channel GPS receiver.
GPS L1 C/A Frequency Bands.
Advanced spoofing and jamming detection.
Excellent RF interference mitigation.
High Sensitivity Operation.

Update Rate: 1 Hz
Typical Tracking Sensitivity: -166dBm
Time to First Fix: <29s cold start
Typical Time to Re-acquisition: <2s

Mechanical \ Environmental
Dimensions (W x D x H): 144 x 103 x 30 mm
Construction: Aluminium
Weight: approx 0.3Kg (0.7 lbs)

Power: 5V DC @ 1A
Universal power adapter (UK, EU, US, AU).
Power Consumption: <5W

Operating Temperature: -20°C ~ +60°C
Storage Temperature: -25°C ~ +70°C
Working Humidity: 80% RH non-condensing.

MTBF (Processor Module): 143,000 hours.
         (PSU): 1,272,800 hours.

TW3040 GPS Antenna Specification
Freq. Band: 1575.42 MHz ± 10 MHz
Size: 66.5mm diameter x 21mm High
Weight: 150g
Enclosure: Radome: LEXAN™ EXL9330, Base: Zamak Metal.
Attachment Method: Through hole (M18 x 1 thread)
Environmental: IP69K
Compliance: IPC-A-610, FCC, CE RED, RoHS, REACH
Operating Temperature: -40°C ~ +85°C

LNA Gain: 40 dB typical.
Supply Current: 15mA typical.
Supply Voltage: 2.5 to 16 VDC nominal

Approvals
CE: 2014/53/EU
         2011/65/EU (EU RoHS 2)
         2015/863 (EU RoHS 3).

UKCA: The Radio Equipment Regulations 2017
        The RoHS Regulations 2013

Radio: EN 303 413 V1.2.1 (2021-4)
         EN 301 489-1 V2.2.3 (2019-11)
         EN 301 489-19 V2.1.1 (2019-4)

EMC: EN 55032: 2015
         EN 55035:2017
         EN 61000-3-2: 2014
         EN 61000-3-3

Safety: EN 62368-1:2014+AC:2015
RoHS: EN IEC 63000:2018

TimeTools

Ordering Information

Product Codes

TA110-P00 TimeTools TA110 GPS NTP Server Appliance
High-Gain GPS Timing Antenna.
GPS Antenna Mount.
20m Low-Loss Antenna Cable.
AC-DC 5V Universal Power Adapter.
Quick Start Guide.
Manufactured in UK.
TA110-P00 Commodity Code: 84719000

Options and Extras

CN-UB-280DC-SB Phoenix Contact GNSS Surge Suppressor, essential
for outdoor located Antennas.
Manufactured in Germany.
CN-UB-280DC-SB Commodity Code: 85363010

**Customised Antenna Cables to accommodate specific installation
requirements are available on request.**

Cable Assembly Commodity Code: 8536691000

Contact Information

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