

# TA110 NTP Network Time Server

## Hardware Installation Guide

Models Covered: TA110

Document Number: T1212-01  
18-Jun-25

The latest version of this user guide can be obtained from [TimeToolsLtd.com](http://TimeToolsLtd.com).

**Revision History**

Date	Doc. Rev.	Changes
18-Jun-25	T1212-01	Initial release.

## Important Safety Information:

### Important Safety Information - Read the safety instructions before using this product.

1. Please read the manuals and retain for future reference. Please follow all instructions and heed all warnings.
2. Do not use this apparatus near water.
3. Clean only with dry cloth.
4. Install in accordance with the manufacturer's instructions.
5. Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
6. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
7. Only use attachments as specified by the manufacturer.
8. The unit has no user serviceable parts inside. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or power adapter is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
9. Use the power adapter to disconnect the apparatus from the AC mains. The power adapter shall remain easily accessible.
10. To completely disconnect unit power from the AC mains, disconnect the unit's power adapter from the mains socket. To reconnect power, plug the unit's power adapter into the mains socket following all safety instructions and guidelines.
11. Never push objects of any kind into this product through cabinet apertures as they may touch dangerous voltage points or short out parts that could result in fire or electric shock.

**For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated external to the equipment.**

**For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.**

**Use only the supplied power adapter with the TA110 NTP time server.**



**CAUTION:**

Before installing and configuring any TA-Series NTP server appliance, please read the manuals and retain for future reference. Please follow all instructions and heed all warnings.

Full product documentation can be found at [TimeToolsLtd.com](https://TimeToolsLtd.com).

*While reasonable efforts have been taken in the preparation of this document to ensure its accuracy, TimeTools Limited assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein.*

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# Table of Contents

<b>1 Introduction.....</b>	<b>6</b>
<b>2 Key Features.....</b>	<b>6</b>
<b>3 Scope of Supply.....</b>	<b>7</b>
3.1 Optional Extras.....	7
<b>4 Front Panel.....</b>	<b>8</b>
4.1 Power Indicator.....	8
4.2 Alarm Indicator.....	8
<b>5 Rear Panel.....</b>	<b>9</b>
5.1 Power Socket .....	9
5.2 USB.....	9
5.3 Ethernet Port.....	9
5.4 Default Configuration Button 'Def'.....	9
5.5 GNSS Antenna Connection.....	9
<b>6 Installation.....</b>	<b>10</b>
6.1 Locating the TA110.....	10
6.2 Antenna Connection.....	10
6.3 Connecting Ethernet.....	10
6.4 Applying Power .....	11
<b>7 Configuration.....</b>	<b>12</b>
<b>8 Certification and Compliance.....</b>	<b>13</b>
8.1 RoHS Compliance Statement.....	13
8.2 REACH Regulation (EC) No 1907/2006.....	13
8.3 Environmental Policy.....	13
<b>9 Warranty.....</b>	<b>14</b>

## 1 Introduction

Network Time Protocol (NTP) can be used to synchronize the time on network clients, across an IP network, to the correct time of an NTP time server. TimeTools NTP Servers provide a stratum 1 NTP Time Server for ensuring the time is correct across an entire network.

The Network Time Server acquires time from the GPS satellite constellation and distributes time across a network using the TCP/IP Network Time Protocol (NTP).



## 2 Key Features

**Designed and Manufactured In The UK.**

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

**Network-Optimized Gigabit Ethernet (GbE).**

**Fast, >10,000 NTP Polls Per Second, For Precise Client Synchronization.**

**High-Stability, Temperature-Compensated Crystal Oscillator (TCXO) For Continued Operation During Any Loss of GPS Signal Lock.**

**Powerful, easy to use, Web interface with SSH 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.**

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

**CE and UKCA Approvals.**

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### 3 Scope of Supply

TimeTools TA110 shipment typically includes the following components:

TA110-P00	TA110 GPS NTP Server Appliance TW3040 Pole Mounting GPS Antenna . GNSS Antenna Mount. 10m LLA195 Low-Loss Antenna Cable. NGE12I05-P1J 5V DC Universal Power Supply. Quick Start Guide.
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#### 3.1 Optional Extras

GNSS Surge Suppressor, essential for outdoor located Antennas (Product code: CN-UB-280DC-SB).

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

## 4 Front Panel

The TA110 has the following front panel indicators: Green Power LED, Red Alarm LED.



### 4.1 Power Indicator

A green LED power indicator illuminates when power is applied to the device.

### 4.2 Alarm Indicator

A red LED on the front panel indicates error conditions.

## 5 Rear Panel

The rear of the TA110 has the following connectors: Power, USB, Eth0, Default Configuration push-button, Antenna.



### 5.1 Power Socket

A 5V DC-IN power jack accepts 2.5 or 2.1 mm diameter plugs. Only the power adapter supplied by TimeTools with the TA110 should be used to power the device.

### 5.2 USB

TA-Series models have Micro USB 2.0 Type B receptacle that can be used to completely reprogram the devices flash memory

### 5.3 Ethernet Port

TA-Series models have a single RJ45 10/100/1000 MBit auto-sensing, auto-MDIX Ethernet port labelled 'LAN'.

Link: 10/100/1000 Mbit, auto-sensing, auto-MDIX  
Connector: RJ45  
Cable Type: Shielded CAT 5e or better.  
Modes: Half/Full Auto-negotiation.

### 5.4 Default Configuration Button

TA-Series models have a small push-button on the rear panel, labelled 'Def'. If the button is held pressed for more than 10 seconds, the device will load its factory default settings and reboot. If required, the functionality can be disabled using the command line interface (CLI).

If the 'Def' button is pressed at power-up, the device enters a USB boot mode, which allows special firmware to be loaded so that it emulates USB Mass Storage Device (MSD) for reprogramming.

### 5.5 GNSS Antenna Connection

The GNSS antenna connector is a 50 ohm TNC jack connector. It accepts a coax cable to a 3.3V GNSS antenna.

Connector: TNC jack, 50 ohm  
Cable: Coax, 50 ohm  
Antenna Output Voltage: 3.3VDC

## 6 Installation

### 6.1 Locating the TA110

Locate the appliance safely in a rack, on a shelf, or in a cupboard. The device should not be supported by the attached cables.



**CAUTION:**

Do not install the TA110 appliance where the operating ambient temperature may drop below -20°C or exceed 60°C.

### 6.2 Antenna Connection

The TA110 antenna connection is a TNC jack RF connector. It is provided for connection of an active 3.3 volt GPS antenna via a coax cable.



**WARNING:**

Any local installation regulations for outdoor or rooftop mounted antennas in the country where the antenna is installed must be observed.

Please refer to the GPS/GNSS Antenna Installation Guide (Document Number: T1202-01) for further information on antenna installation.

### 6.3 Connecting Ethernet

The TA-Series has a single 10/100/1000 Mbit BaseT RJ45 auto-sensing, auto-MDIX Ethernet port.

The auto MDI-X feature, automatically detects the required cable connection type and configures the connection appropriately, removing the need for crossover cables for peer to peer connection.

Connect one end of a CAT-5e (or better) patch cable to the RJ-45 network interface on the rear of the TA-Series. Connect the other end to a port on your network switch.

**The TA-Series can be connected directly to a host PC Ethernet network port using a patch cable for configuration purposes.**

## 6.4 Applying Power

The TA110 has a 2.5 mm power jack on the rear panel of the appliance.

Apply power by connecting the supplied power adapter into the power jack at the rear of the NTP server and into an appropriate AC power source.



**CAUTION:**

For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated external to the equipment.

For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.

Power Adapter Specification:

Manufacturer:	MEAN WELL Enterprises Co., Ltd.
Model:	NGE12I05-P1J
Input Voltage Range:	80 ~ 264VAC
Input Frequency Range:	47 ~ 63Hz
Output Voltage:	5VDC
Rated Current:	2.4A

## 7 Configuration

Before configuring the NTP server, you will need to acquire the following basic configuration information:

IP address,  
Network mask,  
Default Gateway,  
Domain name servers

or confirm availability of a network DHCP server for dynamic networking configuration.

The TA110 can be configured in any one of three ways:

- Over a network using a web browser on a PC connected to the same network segment.
- Using a web browser on a PC using a peer-to-peer (direct cable) network connection.
- Using a dumb terminal emulator on a PC using a RS232 serial connection.

Please refer to the TA-Series User Guide (Document Number T1300-01) for configuration information.

## 8 Certification and Compliance

### 8.1 RoHS Compliance Statement

This document certifies that the products manufactured by TimeTools do not contain the substances listed in the table below in the concentrations exceeding the Maximum Concentration Value (MCV).

Substance Maximum Concentration Value

Lead 0.1% by weight (1000 ppm)  
Mercury 0.1% by weight (1000 ppm)  
Cadmium 0.01% by weight (100 ppm)  
Hexavalent Chromium 0.1% by weight (1000 ppm)  
Polybrominated Biphenyls (PBB) 0.1% by weight (1000 ppm)  
Polybrominated Diphenyl Ethers (PBDE) 0.1% by weight (1000 ppm)

Products containing the substances listed in the table above, in concentrations below the MCV, are understood to be in compliance with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronics equipment (RoHS Directives). The stated components are deemed as compliant as accord to definitions given in the directives (refer to directives). This document also certifies that the materials declaration as provided by TimeTools is accurate to the best of our knowledge.

### 8.2 REACH Regulation (EC) No 1907/2006

TimeTools hereby certifies that to the best of its knowledge, and based on our suppliers' information, parts and products produced by TimeTools do not contain any of the substances referenced in the current list of Substances of High Concern (SVHCs are defined in Article 57 of Regulation (EC) No 1907/2006.) in concentrations greater than 0.1% weight by weight.

### 8.3 Environmental Policy

TimeTools is committed to minimising the risk of any environmental damage or pollution caused by the company . We ensure compliance with EU Directive 2002/96/EC Waste Electrical and Electronic Equipment, more commonly known as the "WEEE directive".

The WEEE Directive aims to:

Reduce waste associated with electrical and electronic equipment.

Improve the environmental performance of companies involved in the life cycle of electrical and electronic equipment.

For further information on the WEEE Directive or if you would like to arrange the collection and disposal of an old, unserviceable or redundant piece of equipment that was originally supplied by TimeTools, please contact TimeTools via email at [info@TimeToolsLtd.com](mailto:info@TimeToolsLtd.com)

## 9 Warranty

TimeTools Limited warrants the TA110 NTP Time Servers to be free from defects in material and workmanship during a 12-month period.

TimeTools Limited warrants GPS/GNSS antennas , GPS amplifiers, antenna cables and any integral batteries to be free from defects in material and workmanship during a 12-month period.

The Warranty begins on the date the unit is shipped from TimeTools.

TimeTools' liability under this Warranty is limited to repairing or replacing, at TimeTools' option, the defective equipment and providing upgrade version changes for firmware. In case of repair, the product must be returned to an authorized TimeTools Solutions Service Centre.

This Warranty does not apply if repairs are required due to acts of nature beyond TimeTools' control such as, but not limited to, lightning strikes, power surges, misuse, damage, neglect, or if repairs/modifications have been made or attempted by anyone other than personnel authorized by TimeTools.

### Disclaimer

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.

### Repair and Returns

To obtain service under this Warranty, contact TimeTools at the address below during the Warranty period to receive a Return Material Authorization (RMA) number and shipping instructions. Then ship the product, transportation prepaid, for inspection.

#### Ship to:

TimeTools Limited  
Attn: RMA XXXXXXXX  
3 Silverend Business Park,  
Brettell Lane,  
Brierley Hill. DY5 3LG.  
UK.

One-way shipping is the Customer's responsibility. TimeTools will pay the charges to return ship the equipment. However, if the returned product is not found to be defective, then the buyer will be liable for all shipping charges. If the buyer is located outside of the UK, then they will be liable for any duties and taxes payable, if applicable.

TimeTools will not be responsible for dismounting and remounting of the NTP server, for unauthorized returns or for returns that do not list the RMA number and quantity returned on a packing list attached in plain view on the outside of the shipping container.

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