

# LANTIME M600/GPS/PTPv2

PTP/IEEE 1588 Grandmaster Clock and NTP Time Server with integrated GPS radio clock



The Meinberg LANTIME M600/GPS PTPv2 synchronizes all PTPv2 IEEE 1588-2008 compatible clients and systems either NTP- or SNTP-compatible and uses a built-in Meinberg GPS radio clock as its reference time source. A highly stable and precise oscillator is capable of bridging interferences or a temporary loss of reception. [www.meinberg.de/english/products/ptp-time-server-gps.htm](http://www.meinberg.de/english/products/ptp-time-server-gps.htm)

## Features:

- Synchronization of NTP and SNTP compatible clients
- Web based status and configuration interface and console based graphical configuration utility
- Supported net protocols: IPv4, IPv6, PTP/IEEE 1588, NTP, SNTP, DAYTIME, DHCP, HTTP, HTTPS, FTP, SAMBA, SFTP, SSH, SCP, SYSLOG, SNMP, TIME, TELNET, W32TIME
- Alert-Notification system of status change by Email, WinMail, SNMP or an external connected display
- Full SNMP v1,v2,v3 support with own SNMP-daemon for status and configuration and SNMP Trap messages
- USB port for performing updates, lock front panel and backup/restore configuration and log files.
- Antenna connected with up to 300m of standard coaxial cable RG58
- Five independent RJ-45 ethernet interfaces 10/100 MBit (1 x IEEE 1588)
- Optional expansions and/or configurations available

## Description:

Being a very stable IEEE 1588-2008 Grandmaster clock, the LANTIME M600/GPS PTPv2 not only provides a highly accurate source of synchronization for PTP clients - „slaves“, it additionally introduces the absolute time - „current time of day“ - to your PTP networks.

A large display shows the state of the internal GPS receiver and the NTP subsystem.



The GNU/Linux operating system of the LANTIMEs SBC (Single Board Computer) has been optimized to ensure a high level of security and reliability.

The configuration of the system can be done by using a standard web browser to access the extensive but straightforward html interface. Alternatively a text based and menu driven setup utility can be started from the shell prompt after logging into the unit via Telnet or SSH.

The security-related features of LANTIME M600/GPS PTPv2 time servers satisfy highest demands. The time synchronization data can be reliably signed and secured by symmetric keys (MD5) and the NTP autokey procedures. This protects the clients against manipulated time and man-in-the-middle attacks and allows them to verify that the NTP packets they received were sent by the LANTIME. Additionally the whole LANTIME configuration can be done by using unencrypted channels (e.g. SSH, HTTPS or SNMPv3). Every unused/unneeded protocol can be disabled in order to reduce possible points of attack.

In order to support network management systems the LANTIME time servers offer an extensive SNMP interface, which can be accessed by SNMP V1, V2.c and V3. It allows the monitoring of all relevant system parameters (including operating system parameters, network interface statistics, detailed GPS and NTP status information as well as the complete system configuration) and can be used to alter the LANTIME configuration via SNMP set commands, too.

The PTPv2 IEEE 1588-2008 implementation of the LANTIME is fully compliant to the IEEE 1588 standard and therefore provides PTP management messages as well.

LANTIME time servers are designed to be deployed in IPv6 networks, the NTP time synchronization as well as the configuration interfaces (Web-based, SSH and SNMP) comes with IPv6 support. You can assign several IPv6 addresses and the system supports automatic configuration by IPv6 autoconf.

Because of its modular system architecture it is possible to equip a LANTIME time server with a number of different reference time sources. Optionally several additional frequency-, serial string- and pulse outputs are available and by combining two (even different) time sources and redundant power supplies, high-availability systems are no problem. The LANTIME M600/GPS PTP is equipped with high precision oscillator „OCXO HQ“ (look at oscillator options for details) as standard. The oscillator determines the holdover characteristics (e.g. when the GPS signal is disturbed or jammed). „OCXO DHQ“ is available to fulfill higher requirements.

- Three-Year Warranty
- Lifetime technical support via telephone or E-Mail including Firmware Updates

## LANTIME M600/GPS/PTPv2 Specifications



### Front Panel:

- 1 x RS232 front panel interface , 9pin D-Sub male connector for initial setup and configuration
- 1 x USB (Rev. 1.1) front panel interface to:
  - install firmware upgrades
  - backup and restore configuration files
  - copy security keys
  - lock/unlock front panel keys
- 3 x Bicolor LEDs: Ref. time (e.g. GPS), Time Synchronization Service (NTP) and Network-Link status
- 1 x Red alarm LED (configurable)
- 1 x Grafic VF display, 256 x 64 dots
- 1 x Meinberg GPS antenna input, BNC female connector, isolated

### Network Interfaces:

- 1 x IEEE1588-2008 PTP LAN interface, RJ45 connector, status LEDs for Link, Activity, Speed (10/100 MBit)
- 5 x LAN interface, RJ45 connector, status LEDs for link, activity, speed (10/100 MBit)

### Synchronization Source Input:

- 1 x Meinberg GPS antenna input, BNC female connector, isolated



GPS Antenna/Converter Unit with mounting kitSignal

### Outputs:

- 2 x RS232 interface, independent, 9pin D-Sub female connector, with following data formats:
  - Meinberg Standard-Telegram, SAT, NMEA0183 (RMC),
  - Uni Erlangen (NTP), COMPUTIME, SYSPLEX-1,
  - SPA, RACAL
- 1 x Pulse Per Second (PPS), TTL into 50 ohm, pulse duration 200 msec, active high, female BNC connector
- 1 x Pulse Per Minute (PPM), TTL into 50 ohm, pulse duration 200 msec, active high, female BNC connector
- 1 x Standard Frequency 10 MHz, TTL into 50 ohm, female BNC connector
- 1 x Rime code, DCLS, TTL into 50 Ohm via female BNC connector, active high
- 1 x IRIG AM sine wave signal via female BNC connector: 3Vpp (MARK), 1Vpp (SPACE) into 50 Ohm
- 1 x Alarm Relay Output, change-over contact, 3pin DFK connector

### System Components:

- GPS C/A code receiver
- OCXO-HQ Timebase
- Single board computer with Linux operating system, supporting the following protocols:
  - NTP/SNTP v4, Time protocol (RFC 868),
  - Daytime protocol (RFC 867), SNMP v1,2,3,
  - SNMP Traps, SSH v2, IP v4, IP v6, DHCP client,
  - HTTP(S), Email, FTP, Telnet, Syslog
- Power supply: 100-240 VAC (also available in different DC variants)
- Metal 19" modular chassis, 1U/84HP, slimline 483 mm wide x 43 mm high x 285 mm deep

### Scope of supply:

Each LANTIME M600/GPS PTP ships with a MEINBERG GPS Antenna/Converter unit and 20 m (65.6 feet) of RG58 coax cable.

### Package dimensions:

60 cm x 40,5 cm x 27 cm / approx. gross weight per box: 9kg

(23.6 inch x 15.9 inch x 10.6 inch / approx. gross weight per box: 19.8 pound)