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LANTIME M450: Robust Rail Mount NTP Time Server with internal Meinberg reference clock

NTP Time Server with Reference Clock for Industrial Applications
The LANTIME M450 Time Server offers an unparalleled flexibility and versatility and provides accurate time to your network in a compact and full-featured DIN railmount package for industrial applications such as power generation, transmission and distribution (substation automation), process control and industrial automation systems. The M450 includes an LC-Display and keypad and an extremely broad range of available options.

Key Features

- Selectable Reference Sources: GPS: Satellite receiver for the Global Positioning System GNS: Combined GPS/GLONASS/Galileo/BeiDou satellite receiver, can also be used for mobile applications GNS-UC: GPS and Galileo Satellite Receiver with Up-Converter for Meinberg GPS Antenna/Converter PZF: DCF77 correlation receiver for middle europe MSF: Long wave receiver for Great Britain TCR: Time code receiver for IRIG A/B, AFNOR or IEEE1344 codes MRS: (GPS, PPS, 10MHz, NTP): Multi Reference Source - several reference sources, adjustable following priority of signal
- Synchronizes NTP-compatible clients with support for NTP, SNTP, and NTS - Network Time Security
- Web interface that is both powerful and easy to use
- Backlit LCD panel and function keys for local configuration
- Frequency signals and industry-specific sync signals via additional optional outputs
- USB port for installation of firmware updates, backup/restore of configuration and log files, and disabling/enabling access to front panel controls
- Command line interface for advanced power users with absolute control over every facet of the server's functionality
- Comprehensive networking support, including full HTTPS encryption for Web Interface and REST API with TLS certificate management
- Support for syslog, SNMP, and SMTP for comprehensive event logging, network integration, and notification functionality
- GNS models include Multi-GNSS antenna for reception of GPS, Galileo, BeiDou, and GLONASS signals
- GPS and GNS-UC models include Meinberg IF antenna of reception of GPS signals and, with GNS-UC models, also Galileo signals

Description

The LANTIME M450 time server is available with an integral receiver as well as an IRIG timecode reader and can be customized with a lot of different options to deliver exactly the feature set that is required for a certain application/environment.

Ultra compact Form Factor
The ultra compact form factor enables this NTP system to become the ideal time and frequency source in installations where every millimeter counts. With up to 6 network ports, this NTP appliance offers highest port densitiy.

Simple System Configuration
As with most LANTIME M-Series models, a large LCD panel showing the state of the internal time signal receiver and the NTP subsystem is combined with three bicolor LEDs (green/red) that indicate the status of the three main components: Reference Time (e.g. GPS or GLONASS), Time Synchronization Service (NTP) and Network (Link status). A fourth red LED is labelled ALARM and can be configured to signal any event that is covered by the notification handling routines.

Oscillator Options

The LANTIME M450 GPS is equipped with a high precision oscillator "TCXO" (look at oscillator options for details). The oscillator determines the holdover characteristics (e.g. when a reference source signal like GPS is disturbed or jammed). For applications with higher stability/holdover requirements there are several oscillator options available (up to "OCXO HQ").

Modular System Architecture
Because of its modular system architecture it is possible to equip a LANTIME M450 time server with a number of different reference time sources. Optionally several additional frequency-, serial string- and pulse outputs are available as well as power supplies for additional input voltage ranges.

In addition to the standard electrical interfaces a lot of output signals can be delivered on optical ports, too.

Characteristics

Status Indicators	Four bicolor LEDs indicating: - Reference time status - Time service status - Network link status - Alarm states
Display	LC Display, 4 x 16 characters
Control Elements	Eight push buttons to set up basic network parameters and to change receiver settings
Frequency Outputs	10 MHz via female BNC connector, TTL into 50 Ohm Accuracy depends on oscillator (standard: TCXO), look at [1]oscillator list
Pulse Outputs	Pulse Per Second (PPS), TTL level, pulse width: 200 ms
Accuracy of Pulse Outputs	Depends on oscillator option: < ±50 ns (OCXO SQ, OCXO HQ, OCXO DHQ)
Interface	Single serial RS-232 interface (no serial interface in case of an internal time code receiver).
Serial Time String Output	**COM 0:** Baudrate: 300, 600, 1200, 2400, 4800, 9600, 19200 Baud Data Format: 8E1, 8E2, 8N1, 8N2, 8O1, 7E1, 7E2, 7N2, 7O1, 7O2 Time Telegram: [2]Meinberg Standard Time String , SAT, NMEA RMC, Uni Erlangen (NTP), COMPUTIME, Sysplex, [3]Capture String, SPA, RACAL, Meinberg GPS, NMEA GGA, NMEA RMC GGA, NMEA ZDA, ION, 6021 or IRIG-J
Relay Outputs	**Error Relay** * Max. Switching Voltage: 125 V DC / 140 V AC * Max. Switching Current: 1 A * Max. Switching Power: 30 W DC / 60 VA AC * Response Time: Approx. 2 ms
Alarm output	Synchronous state of the module, relay output (changeover contact)
Network Interface	2 Network ports: 1 x 10/100/1000Base-T RJ45 1 x 1000Base-T SFP Slot Up to 25,000 NTP requests/second Optional 4x 10/100/1000BASE-T RJ45 additional network interfaces with LNE

Universal Serial Bus (USB) Ports	1x USB Port: - install firmware upgrades - backup and restore configuration files - copy security keys - lock/unlock front keys
Power Consumption	30 W (typical)
Operating Voltage	**AC/DC power supply (standard)** Rated voltage range: UN = 100-240 V AC (50-60 Hz) / 100-240 V DC Max. voltage range: Umax = 90-264 V AC (47-63 Hz) / 100-250 V DC **Low DC (option):** Rated voltage: UN = 48 V DC Max. voltage range: Umax = 20-60 V DC
Supported Time String Formats	Meinberg Standard Timestring, Uni Erlangen Timestring, SYSPLEX Timer, NMEA, Computime, ABB-SPA, SAT, Arbiter
Form Factor	Fischer aluminium housing for DIN mounting rail
CPU	* Intel® Atom
Operating System of the SBC	Custom LANTIME OS based on Linux 4.x LTS Kernel.
Network Protocols OSI Layer 4 (Transport Layer)	TCP, UDP
Network Protocols OSI Layer 7 (Application Layer)	Telnet, FTP, SSH (including SFTP, SCP), HTTP, HTTPS, syslog, SNMP
Internet Protocol (IP)	IPv4, IPv6
Network Autoconfiguration Support	IPv4: Dynamic Host Configuration Protocol - DHCP (RFC 2131) IPv6: Dynamic Host Configuration Protocol - DHCPv6 (RFC 3315) and Autoconfiguration Networking - AUTOCONF (RFC 2462)
Network Time Protocol (NTP)	NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905) SNTP v3 (RFC 1769), SNTP v4 (RFC 4330) Symmetric key-based authentication using MD5, SHA-1, or AES-128-CMAC hashes NTP v4 Autokey (private/public key pairs)
Network Time Security (NTS)	As of LTOS version 7.08, all Meinberg NTP time servers offer full support for NTS (Network Time Security) in unicast client/server mode. **Note:** An MRS-capable reference clock must be used in client mode.

Parallel Redundancy Protocol (PRP)	PRP (IEC 62439-3)
Time Protocol (TIME)	Time Protocol (RFC 868)
IEC 61850	Synchronization of IEC 61850-compliant devices using SNTP
Hypertext Transfer Protocol Secure (HTTPS)	HTTP(S) for web interface and REST API access
Secure Shell (SSH)	SSH v1.3, SSH v1.5, SSH v2 (OpenSSH)
Telnet	Telnet (RFC 854-RFC 861)
Simple Network Management Protocol (SNMP)	SNMPv1 (RFC 1157), SNMPv2c (RFC 1901-1908), SNMP v3 (RFC 3411-3418)
Physical Dimensions	105 x 189 x 146 mm (W x H x D)
Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
Supported Humidity	Max. 95 % (non condensing) at 40 °C (104 °F)
Contents of Shipment	Included in delivery is a Meinberg outdoor antenna incl. mounting kit, pre-assembled antenna cable (except TCR and RDT models).
Technical Support	Meinberg offers free lifetime technical support via telephone or e-mail.
Warranty	Three-year warranty
Firmware Updates	Firmware is field-upgradeable, updates can be installed directly from the unit or via a remote network connection. Software updates are provided free of charge for the lifetime of your Meinberg product.
RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.
Additional Information	Additional information about the Meinberg LANTIME family of NTP time servers and other LANTIME models can be found on the [4]LANTIME overview page .

Manual

There is no online manual available for this product.: [5]Contact us

Links:

[1] https://www.meinbergglobal.com/english/specs/gpsopt.htm
[2] https://www.meinbergglobal.com/english/specs/timestr.htm
[3] https://www.meinbergglobal.com/english/specs/capstr.htm
[4] https://www.meinbergglobal.com/english/products/ntp-time-server.htm
[5] mailto:info@meinberg.de