



Meinberg Radio Clocks

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LANTIME M400: Rail Mount NTP Time Server with MEINBERG reference receiver

NTP Time Server with Reference Clock for Industrial Applications

The LANTIME M400 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 M400 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 (L1 frequency band), can also be used for mobile applications PZF: DCF77 correlation receiver for middle europe MSF: Long wave receiver for Great Britain WWVB: Long wave receiver for the US time signal 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
- Synchronization of NTP and SNTP compatible clients
- Web-based status and configuration interface (Demo) and console-based graphical configuration utility
- Supported net protocols: IPv4, IPv6, NTP, (S)NTP, DAYTIME, DHCP, HTTP, HTTPS, FTP, SFTP, SSH, SCP, SYSLOG, SNMP, TIME, TELNET
- 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 installing firmware updates, locking frontpanel menu access and backup/restore of configuration and log files
- Meinberg GPS Antenna/Converter Unit connected with up to 300m of standard coaxial cable RG58
- Meinberg's LANTIME time server is available with a variety of additional output options: IRIG Time Code, frequency synthesizer and programmable pulse outputs illustrate some of the many expansion options for your NTP server
- Up to 5 Network Interfaces

Description

The LANTIME M400 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 product to become the ideal time and frequency source in installations where every millimeter counts. With up to 5 network ports, this NTP appliance offers highest port density.

Simple System Configuration

As with most LANTIME M-Series models, a large LC-Display showing the state of the internal GPS receiver and the NTP/PTP 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/PTP) 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 M400 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 M400 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

Display	LC-Display, 4 x 16 characters
Control elements	Eight push buttons to set up basic network parameters and to change receiver settings
Status info	Four bicolor LEDs showing status of: - reference time - time service - network - alarm
Frequency outputs	10 MHz via female BNC connector, TTL into 50 Ohm Accuracy depends on oscillator (standard: TCXO), look at Delete [1] oscillator list
Pulse outputs	Pulse Per Second (PPS), TTL level, pulse width: 200ms
Accuracy of pulse outputs	Depends on oscillator option:
Interface	Single serial RS232 interface (no serial interface in case of an internal time code receiver).
Data format of interfaces	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-Telegram , SAT, NMEA RMC, Uni Erlangen (NTP), COMPUTIME, Sysplex, [3] Capture-Telegramm , SPA, RACAL, Meinberg GPS, NMEA GGA, NMEA RMC GGA, NMEA ZDA, ION, 6021 or IRIG-J
Physical dimensions	105 x 189 x 146 mm (W x H x D)
Alarm output	Synchronous state of the module, relay output (changeover contact)
Network Interface	1 x 10/100 MBit with RJ45 (up to 4 additional LAN interfaces possible)
Power supply	Standard: 100-240 V DC / 100-240 V AC,(50/60 Hz) Option: 20-60 V DC
Power consumption	30W
Universal Serial Bus (USB) Ports	1x USB Port: - install firmware upgrades - backup and restore configuration files - copy security keys - lock/unlock front keys
Supported Time String Formats	Meinberg Standard Timestring, Uni Erlangen Timestring, SYSPLEX Timer, NMEA, Computime, ABB-SPA, SAT, Arbiter

CPU

* AMD Geode

Operating System of the SBC	Linux with nano kernel (incl. PPSkit)
Network protocols OSI Layer 4 (transport layer)	TCP, UDP
Network protocols OSI Layer 7 (application layer)	TELNET, FTP, SSH (incl. SFTP, SCP), HTTP, HTTPS, SYSLOG, SNMP
Internet Protocol (IP)	IP v4, IP v6
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 2030) MD5 / SHA-1 Authentication and Autokey Key Management
Parallel Redundancy Protocol (PRP)	PRP (IEC 62439-3)
Time Protocol (TIME)	Time Protocol (RFC 868)
Daytime Protocol (DAYTIME)	Daytime Protocol (RFC 867)
IEC 61850	Synchronization of IEC 61850 compliant devices by using SNTP
Hypertext Transfer Protocol (HTTP)	HTTP/HTTPS (RC 2616)
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)
Form Factor	Fischer aluminium housing for DIN mounting rail
Ambient temperature	0 ... 50°C / 32 ... 122°F
Humidity	Max. 85%

Scope of supply	Included in delivery is a MEINBERG outdoor antenna incl. mounting kit, pre-assembled antenna cable (except MRS, TCR and RDT models) and product documentation on USB storage.
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 at 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 the product	This product is fully RoHS compliant
WEEE status of the product	This product is handled as a B2B category product. In order to secure a WEEE compliant waste disposal it has to be returned to the manufacturer. Any transportation expenses for returning this product (at its end of life) have to be incurred by the end user, whereas 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 NTP Time Server Family 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>