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IMS - LANTIME M1000: Time and Frequency Synchronization Platform in 1U Rackmount-Enclosure

Versatile and Modular Solution for Time and Frequency Synchronization Application in 1U housing

[1]

The 1U chassis has two power supply slots, optional two clock module slots, a CPU slot and four (three in case of a second reference clock) slots for additional input and output modules. Adding a second clock module and a second power supply transforms the IMS - M1000 into a fully redundant solution. Both, wide range AC and a 20-60 V DC power supply model can be mixed and matched as required.

Key Features

- Optimized space usage
- Synchronization of NTP and SNTP compatible clients
- Web-based status and configuration interface and console-based graphical configuration utility
- IMS - Intelligent Modular System platform
- Up to 4 PTP (IEEE 1588-2008) modules
- Redundant power and receiver option (eg GPS / GLONASS combination)
- Hot Plug
- Arbitrary combinations of modules
- 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 16 additional LAN ports

Description

The M1000 standard 1U chassis offers the following slot types:

* IMS-CLK: Up to two reference clock modules (redundant mode)

* IMS-PWR: Up to two high efficiency redundant power supplies (AC and DC versions available)

* IMS-CPU: Central processor module providing NTP / SNTP time synchronization and management and configuration interfaces

* IMS-ESI: Input references for 2.048MHz, 2.048MBit/s and variable frequencies:

* IMS-MRI: IRIG, 1PPS, 10MHz input module:

* IMS-IO: A variety of output signals for all types of synchronization tasks:
Pulses, frequencies, time codes, serial time messages) and of course more network interfaces (IEEE-1588, NTP/Management ports)

NTP Time Server for large Networks
With up to 25,000 NTP requests per second, the system is able to provide time for hundreds and thousands of NTP clients. The LANTIME module supports the following protocols: IPv4, IPv6, NTP / SNTP (v2, v3, v4), PRP (IEC 62439-3), HTTP (S), SSH, Telnet, SNMP (v1, v2, v3), FTP, SFTP, DHCP/DHCPv6. For each system, up to 99 logical network interfaces are available (99 IPv4 and 99 IPv6 addresses).

Scalable NTP Time Server System
All modules are hot-plug capable and the modules can be configured via the central web interface (from the CPU module). Almost infinite number of combinations of input and output modules are available to meet almost any synchronization task. Because of simple extension by upgrading the system with new modules the scalability of the M1000 system is ensured.

Slots for Input Signals:
IMS-MRI:Standard reference inputs
IMS-ESI: Extended reference inputs
Both of these reference input interfaces may also be used as I/O slot.

Front Panel
The front panel of LANTIME M1000 integrates the familiar LC-Display with 4x16 characters and the well known LANTIME menu panel with 4 directional and 4 function buttons. This allows for a simple and fast on-site configuration of

the main parameters. Hundreds of configuration options for the LANTIME CPU and the IMS input and output modules can be changed using the powerful web interface.

The Active Cooling Module allows the installation of the M1000 safely within the temperature specification. The ACM is easily field-replaceable and allows for a hot-plug replacement without the need to power down the unit.

available IMS modules

Characteristics

Reference Options	The following reference sources can be used to synchronize the system: * **GPS** - Global Positioning System * **GLONASS** - Russian GNSS * **GALILEO** - European GNSS * **BeiDou** - Chinese GNSS * **PZF** - German DCF77 longwave radio signal * **PTP/IEEE1588** - Precision Time Protocol * **NTP** - Network Time Protocol * **SyncE** - Synchronous Ethernet * **Timecodes** - IRIG/AFNOR timecodes (AM/DCLS) * **PPS** -Pulse Per Second * **10MHz** - 10MHz reference frequency * **2.048kHz** - 2.048kHz reference frequency * **E1/T1** - Telecom Synchronization Input with full SSM/BOC support The priority of all input signals can be freely configured in addition to a bias value and a precision level specification for each source.
Display	LC-Display, 4 x 16 characters
Control elements	Eight push buttons to set up basic network parameters and to change system settings.
Status info	Four bicolor LEDs showing status of: - reference time - time service - network - alarm Two status LEDs for the optional use of an ACM (Active Cooling Module) with two fans - Fan 1 and Fan-2.

Frequency outputs	Accuracy depends on oscillator (standard: OCXO-SQ), see [2]oscillator list
Accuracy of pulse outputs	< ±50ns (OCXO SQ, OCXO MQ, OCXO HQ, OCXO DHQ)
Network Interface	**Base Chassis:** CPU-C05F1 1 x 10/100 MBit, RJ45 CPU-C15G2 1 x 100/1000BASE-T RJ45 1 x 1000BASE-T SFP **Network Expansion - LNE Options:** Up to 16 additional network interfaces (GbE Gigabit Support) with 10/100/1000 MBit RJ45 connector or 1000BASE-T SFP (Multimode / Singlemode).
Universal Serial Bus (USB) Ports	1x USB Port in front panel: - install firmware upgrades - backup and restore configuration files - copy security keys - lock/unlock front keys
Power supply	Maximum power range: AD10: 90-265 V AC, 47-63 Hz / 90-250 V DC DC20: 20
Power consumption	Pmax = 50 W when using a single PWR module Pmax = 100 W when using two PWR modules
CPU	**CPU-C15G2** * Intel® Atom
Operating System of the SBC	GNU/Linux 4.x
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 4330) 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	19 inch rackmount case, black 1U/84HE
Ambient temperature	0 ... 50°C / 32 ... 122°F
Humidity	Max. 85%
Scope of supply	Product documentation and software on USB storage device.
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 [3]LANTIME NTP Time Server Family Page .

Manual

There is no online manual available for this product: [4]Contact us

Links:

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