



## LCES

LANTIME Expansion Shelf



„The optimal solution for synchronizing  
a large number of physically separated networks -  
making a highly accurate time  
source available in multiple networks  
in a cost-effective and secure way.“

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## Features

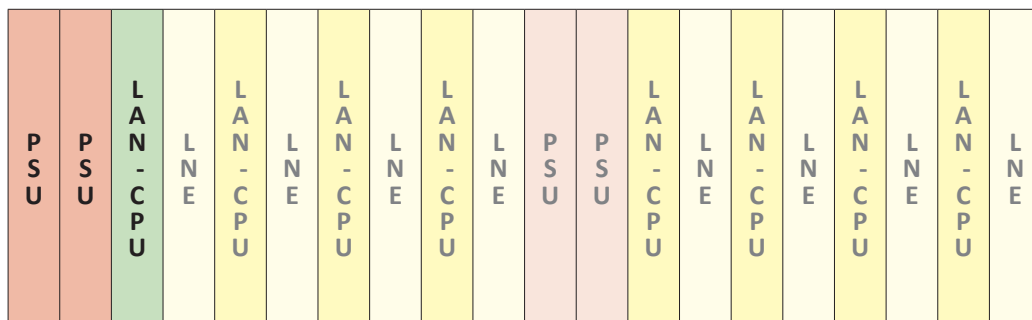
- Synchronization of NTP and SNTP compatible clients
- Web based status and configuration interface and console based configuration
- Supported net protocols: IPv4, IPv6, NTP, (S)NTP, DAYTIME, DHCP, HTTP, HTTPS, FTP, SFTP, SSH, SCP, SYSLOG, SNMP, TIME, TELNET
- Alert-Notification system of status change by Email, WinMail, SNMP or an externally connected display
- Advanced security protocols for authentication (MD5, Autokey, Groupkey, HTTP certificate, SSH key), user management with multilevel access policies
- Full SNMP v1,v2,v3 support with own SNMP-daemon for status and configuration and SNMP Trap messages
- Upgradable flash memory
- USB Port for installing firmware updates and backup/restore of configuration and log files

## Product Description

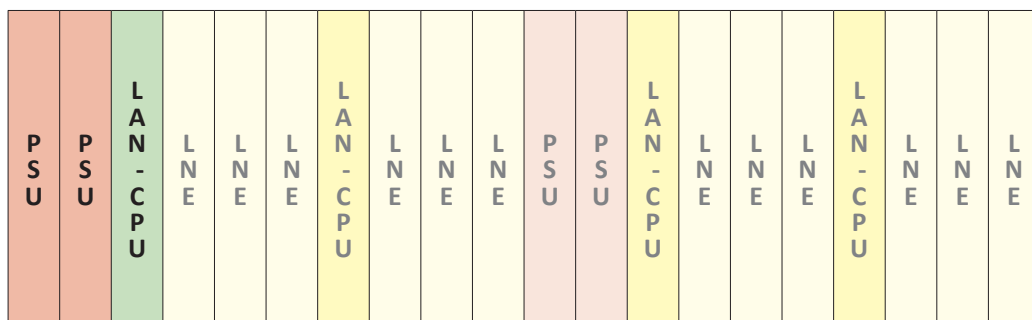
The Meinberg LANTIME CPU Expansion Shelf (LCES) allows to set up physically separated NTP time server appliances in a very compact way without giving up the concept of physically separated networks. The LCES concept is the perfect solution for synchronizing multiple tactical networks in defense applications. It also offers NTP services in datacenters for multiple customer networks or in industrial applications where the full physical separation of data networks is crucial for the integrity and robustness of mission critical environments.

The LCES 3U chassis can be ordered with three different backplane configurations. All of them have in common that the CPU modules are not interconnected in any way. Each CPU operates in a stand-alone fashion, only sharing the redundant power feed with the other modules in the same shelf. The three available backplane variants offer different slot layouts, allowing to install a certain number of CPU modules and, for each CPU module, from one to three neighbor slots that can be used to add 10/100/1000TX network interfaces.

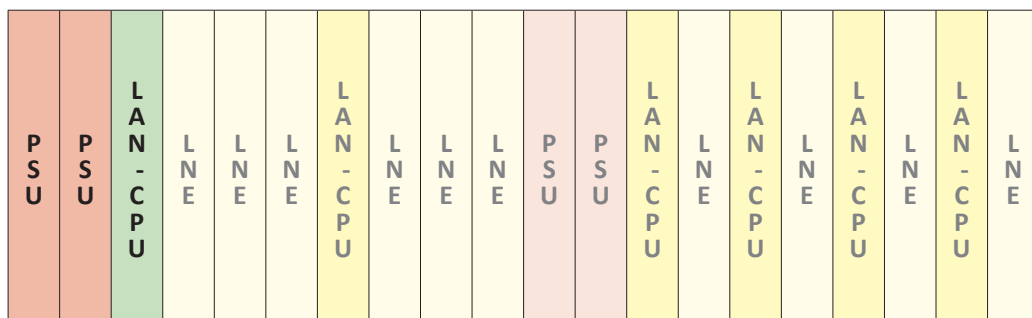
## Three different backplane configurations



**Sample 1:** max. 8 x LAN-CPU with 8 x LNE, max. 40 network interfaces



**Sample 2:** max. 4 x LAN-CPU with 12 x LNE, max. 52 network interfaces



**Sample 3:** max. 6 x LAN-CPU with 10 x LNE, max. 46 network interfaces

An external time reference is required that feeds a Time-of-Day string (RS232) and (optional) a Pulse-per-Second (1PPS, TTL) signal into the rear panel connector of an LCES shelf. The backplane distributes these two signals to each of the CPU slots in an unidirectional way, avoiding any possibility that a potentially compromised CPU could have an influence on the other installed CPU modules in the same chassis. Adding a LANTIME network expansion card into one of the LNE slots of a CPU module allows the CPU to set up redundant network connections or to separate configuration and management traffic from NTP clients.

An LCES shelf can be ordered with one NTP CPU and allows to be field-upgraded later with additional modules, providing a very scalable way of adding NTP servers to networks today and in the future. An optional Meinberg SDU device can take the ToD/PPS input signals from the external reference and distribute it to up to 8 LCES shelves, bringing the total number of CPU modules to 64. Even larger installations are possible by cascading SDU shelves.

The required reference signals (ToD and PPS) can be supplied by most Meinberg LANTIME models (M300 and up) or standalone radio clocks, including military GPS receivers (SAASM), Meinberg MP and BGT GPS, GLONASS or DCF77 receivers and a large number of 3rd party reference clocks. The LANTIME V6 firmware running on each CPU module offers outstanding features like VLAN support, up to 99 virtual IP addresses, full SNMPv1,v2,v3 support and a powerful and feature-rich web user interface.

More information is available upon request. If you have questions or want us to assist you in designing a powerful, scalable and secure NTP time synchronization solution for your applications, please do not hesitate to contact us:

Email: [sales@meinberg.de](mailto:sales@meinberg.de)  
Web: <http://www.mbg.link/lces>



## Technical Specifications

<b>Input Signal</b>	RS232 Interface for external Reference Clock
<b>Pulse Synchronization</b>	Input Signals: 1 Pulse Per Second, TTL (BNC)
<b>Physical dimensions</b>	483mm x 132mm x 275mm / Width x Height x Depth
<b>Network Interface</b>	RJ-45 Network Connection 10/100 MBit
<b>Power Supply</b>	redundant: 100-240 V AC (50-60 Hz) / 100-240 V DC
<b>Power Consumption</b>	max. 70 W
<b>Basic Hardware Configuration</b>	1 x LAN-CPU (NTP module) Initial configuration only possible via terminal interface.
<b>Form Factor</b>	Rackmount 3U chassis for standard 19" racks
<b>Ambient Temperature</b>	0 ... 50°C / 32 ... 122°F
<b>Humidity</b>	Max. 85%
<b>Warranty</b>	Three-Year Warranty
<b>Available Options</b>	Three different hardware configurations: <ol style="list-style-type: none"> <li>1 - 8 x LAN-CPU with 1 x connected LNE-4 each (max. 32 + 8 network ports)</li> <li>4 x LAN-CPU with 3 x connected LNE-4 each (max. 48 + 4 network ports)</li> <li>you can combine the two configuration options 1. and 2.)</li> </ol>

