



The Synchronization Experts.



MANUAL

IMS-CPU Setup Guide

IMS CPU-C15G2

24th September 2019

Meinberg Funkuhren GmbH & Co. KG

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1 Imprint

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2 Safety Instructions for hot pluggable Modules



Check before every maintenance work on the system:

- If a data backup is required?
- Is a backup required, verify the data recovery which is done by this backup.
- Make sure to avoid any static discharge while working – use a grounding cable and/or antistatic gloves during installation and removal of hot pluggable components.
- If you are replacing a hot pluggable power supply, unplug the power cable prior to removing the module from the case.
- Never open a power supply. In power supplies dangerous voltages can still remain even after disconnection from the power supply. Always send power supplies back to the manufacturer for maintenance.

Exchange of hot-swap components

- Ensure that components which will be replaced during operation, always be treated with the utmost care. Avoid contact with live components.
- Electrostatic discharge can damage electronic components. For this reason, ensure protection against electrostatic discharges by wearing anti-static shoes while working with the system.
- Take care when removing and installing the hot-plug modules. Always work with the utmost caution. Touch the modules only at the edges.
- Place the module out of the box or after removal from the system with the component side to the top on a grounded and static-free surface.
- Storage of an IMS module must be done in a dry place.
- Installation or removal from hot-swap components only by authorized personnel!

2.1 Additional Safety Hints



This manual contains important information for the installation and operation of this device as well as for your safety. Make sure to read carefully before installing and commissioning the device.

Certain operating conditions may require the observance of additional safety regulations not covered by this manual. Nonobservance of this manual will lead to a significant abatement of the security provided by this device. Security of the facility where this product is integrated lies in the responsibility of the installer.

The device must be used only for purpose named in this manual, any other use especially operation above the limits specified in this document is considered as improper use.

Keep all documents provided with the device for later reference.

This manual is exclusively for qualified electricians or by a qualified electrician trained personnel who are familiar with the applicable national standards and specifications, in particular for the construction of high voltage devices.

2.2 Supply Voltage



WARNING!

This device is powered by a dangerous voltage. Nonobservance of the safety instructions of this manual may lead to serious damage to persons and property and to danger to life! Installation, commissioning, maintenance and operation of this device are to be carried out by qualified personnel only.

The general safety instructions and standards (e.g. IEC, DIN, VDE, EN) for installation and work with high voltage equipment as well as the respective national standards and laws must be observed.

NONOBSERVANCE MAY LEAD TO SERIOUS DAMAGE TO PERSONS AND PROPERTY AND TO DANGER TO LIFE!

The device may not be opened. Repair services may only be carried out by the manufacturer.

Supply lines for this device must be equipped via an appropriate switch that must be mounted close to the device and must be marked as a mains switch for the device.

To ensure safe operation supply mains connected to this device must be equipped with a fuse and a fault-current circuit breaker according to the applicable national standards for safe operation.

The device must be connected to a protective earth with low grounding resistance according to the applicable national rules.

2.3 Cabling



WARNING!

DANGER TO LIFE BY ELECTRICAL SHOCK! NO LIVE WORKING!

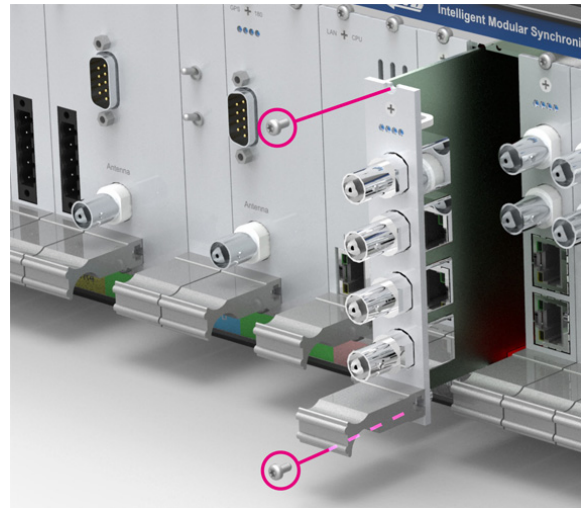
Wiring or any other work done the connectors particularly when connectors are opened may never be carried out when the installation is energized. All connectors must be covered to prevent from accidental contact to life parts.

ALWAYS ENSURE A PROPER INSTALLATION!

3 Replacement or Installation of a Hot-pluggable IMS Module

Please use a Torx screwdriver (T8 x 60) for removal and installation.

1. Follow the safety instructions at the beginning of this manual!
1. Remove the two marked Torx screws from the module holder plate or the cover plate of the empty slot.
2. (Only for an already built-in module)
Pull the module carefully out of the holding rail. Note that the module is firmly anchored in the connector block of the housing. You need a certain amount of force to release the module from this link. Once the connection to the connector block of the system's backplane is loosened, the module can be easily pulled out.



3. When installing the new IMS module, please ensure that the board is correctly inserted into the two guide rails of the system housing. Non-observance can cause damage to the module and the chassis. Make sure that the module is securely locked into the connector block before you fasten the two screws.
4. Now you can put the installed module into operation.



Attachment points of an 1U IMS system

3.1 Important Hints for hot-pluggable IMS Modules

The following points should be strictly observed when replacing IMS modules during operation. Not all IMS modules are fully hot-pluggable. Of course, it is not possible to replace a power supply unit of a non-redundant system without first having installed a second power source in operational mode.

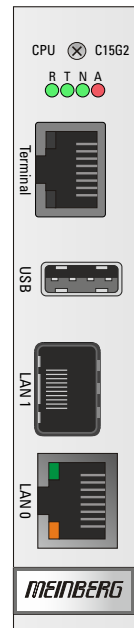
The following applies to the individual IMS slots:

PWR:	"hot swappable"	If you operate your system with only one power supply, a second power supply must be installed before removing/replacing it to keep your system functioning.
I/O, ESI and MRI Slots:	"hot swappable".	
CLK1, CLK2:	"hot swappable"	Afer the exchange or the installation of a clock module a rescan of the reference clocks (Rescan Refclocks) must be executed in the web interface menu "System".
CPU	<u>not</u> "hot swappable"	The central management unit must be disconnected from mains before replacement.
RSC/SPT	<u>not</u> "hot swappable"	The RSC switching card must be disconnected from the mains before the replacement.

4 Technical Specifications - IMS CPU-C15G2

As the central management and control element, the CPU module in an LANTIME system is responsible for management, configuration and alarm notifications. It additionally provides NTP and SNTP services on its network interface. The CPU-C15G2 is equipped with two integrated network interfaces, additional network ports can be added by installing LNE modules.

Processor:	Intel® Atom™ Processor E Series (2 Cores, 1.33GHz, TDP 3W)
Main Memory:	onboard 2 GB
Cache Memory:	1MB 2nd Level Cache
Flash Disk:	4 GB
Network Connector:	1 x 10/100/1000 Base-T with RJ45-Jack 1 x 1000Base-T with SFP-Jack
Serial Interface:	RJ45 connector console: 38400 / 8N1, connection via CAB-CONSOLE cable
USB Port:	install firmware upgrades backup and restore configuration files copy security keys lock / unlock front keys
Operating System:	GNU/Linux 4.x
State LEDs:	<p>LAN 0 Interface LED - Connect, Activity and Speed of the network connection</p> <p>LAN-CPU R - Reference Time T - Time Service N - Network A - Alarm</p>



Supported Protocols:

Network Time Protocol (NTP):	NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905) SNTP v3 (RFC 1769), SNTP v4 (RFC 4330)
OSI Layer 2 (Data Link Layer):	PRP (IEC 62439-3)
OSI Layer 3 (Network Layer):	IPv4, IPv6
OSI Layer 4 (Transport Layer):	TCP, UDP, TIME (RFC 868), DAYTIME (RFC 867), SYSLOG
OSI Layer 7 (Application Layer):	HTTP / HTTPS (RC 2616), DHCP, FTP, NTPv3 / NTPv4, SNTP, RADIUS, TACACS, FTP, SSH (incl. SFTP, SCP) - SSH v1.3 / SSH v1.5 / SSH v2 (OpenSSH), SNMPv1 (RFC 1157) / SNMPv2c (RFC 1901-1908) / SNMP v3 (RFC 3411-3418), Telnet (RFC 854-RFC 861)

Environmental:

Ambient Temperature:	0 ... 50°C / 32 ... 122°F
Humidity:	Max. 85%

4.1 Main Menu

The screenshot displays the LANTIME Web Interface Main Menu. At the top, there is a navigation bar with the Meinberg logo and 'LANTIME Web Interface'. The status bar shows: Reference Time (checked), Time Service (checked), Network (checked), Alarm (unchecked), Active Alarms (0 Critical, 7 Error), Logged in as: root, Access-Level: Super-User, and Firmware-Build. The main menu is divided into two sections: General Information and Network Information.

General Information

LANTIME	M4000 IMS [GPS+GPS]	Serial Number	N/A
Contact	Gregoire	Serial Number LANCPU	034811000480
Uptime	36 days 18:46	Location	Software

Network Information

Hostname	LT-GREG-29-105	Domain	
LAN IPv4 (VIF 1 - bond0:0)	172.27.29.105/16	IPv6 (VIF 1)	Not assigned
LAN IPv4 (VIF 2 - bond0:1)	Not assigned	IPv6 (VIF 2)	Not assigned
PTP IPv4 (HPS, Slot: IO2)	172.27.100.229/16 [PTPv2]	PTP IPv6 (HPS, Slot: IO2)	2001:db8:a0b:12f0::1/64 [PTPv2]
PTP IPv4 (TSU, Slot: IO4)	0.0.0.0/0 [PTPv2]	PTP IPv6 (TSU, Slot: IO4)	Not assigned

At the bottom, contact information is provided:

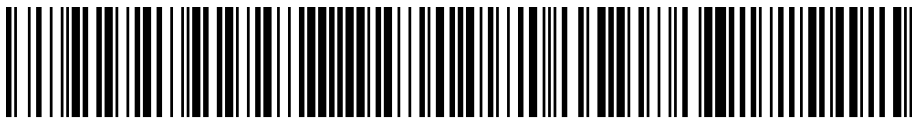
Meinberg Funkuhren GmbH & Co. KG Lange Wand 9 D - 31812 Bad Pyrmont, Germany	Contact Phone: +49 (0) 52 81 / 93 09 - 0 Fax: +49 (0) 52 81 / 93 09 - 230	Internet Website: https://www.meinbergglobal.com Email: info@meinberg.de
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The LANTIME webinterface provides you with configuration options and status information of your LANTIME system accessed via Web GUI. The main page contains an overview of the most important configuration and status parameters for the system.

- Information about LANTIME model and software
- Network information
- Receiver status
- NTP status
- PTP status (option)
- Last messages
- Statistics (NTP/MRS Performance, NTP Access ...)
- Extended Statistics (MRS - external reference input signals)
- Documentation (Manuals), support information

The field in the lower section shows the last messages of the system with a timestamp added. The newest messages are on top of the list. This is the content of the file `/var/log/lantime_messages`, which is created after every start of the system (and is lost after a power off or reboot).

By using the navigation on top of the page you can reach a number of configuration menus. All further information about management and monitoring with the LANTIME CPU can be found in our LANTIME firmware manual.



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