Content

1 New HIMatrix Operating System Versions V11.12 and V16.10

The new versions only support devices with enhanced performance:

- F10 PCI 03 (discontinued)
- F30 03
- F31 03 (discontinued)
- F35 03
- F60 CPU 03

1.1 Operating System Versions for the Various Controllers

The new versions V11.x and V16.x include the following operating system versions of the various devices:

OS version	Product designation in the revision list (Device-Type)/File name	Description
V11.12	L3CPU-HA1-L3-OS-V11.12/ l3cpu_ha1_l3_os_v11.12.ldb	Safety-related CPU operating system for F10 PCI 03, F30 03, F31 03, F35 03, F60 CPU 03
V11.2	L3CPU-HA1-L3-OSL-V11.2/ l3cpu_ha1_l3_osl_v11.2.ldb	OS loader for CPU
V16.10	L3COM-HA1-L3-OS-V16.10/ l3com_ha1_l3_os_v16.10.ldb	COM operating system for F10 PCI 03, F30 03, F31 03, F35 03, F60 CPU 03
V16.8	L3COM-HA1-L3-OSL-V16.8/ l3com_ha1_l3_osl_v16.8.ldb	OS loader for COM

Table 1: Operating System Versions for the Various Devices

1.2 Overview

- Chapter 2 describes the new functions.
- Chapter 3 specifies the improvements compared to previous versions.
- Chapter 4 specifies the current restrictions.

- Chapter 5 describes the procedures to migrate from the previous versions.
- Chapter 6 specifies references to other documents

1.3 Compatibility

The functions of V11.x and V16.x are compatible with the functions of the previous V10.x and V15.x.

The following functions require the use of SILworX V7 and higher:

- Fast start-up, Chapter 2.
- Diagnostic entries with CRC, Chapter 3.1, Point **4**
- More flexible use of pulsed outputs, Chapter 3.1. Point **5**

2 New Feature of Versions V11.x and V16.x

HIMatrix v11.x or higher and V16.x or higher feature the following new capability:

- Fast start-up

  If the system parameter *Fast Start-Up* is set, the controller starts up faster after connecting the supply voltage, i.e., in less than 10 s. Fast start-up is achieved through the following measures:

  - The PES performs a simplified memory test.
  - The PES does not perform any LED tests.
  - No check for duplicate IP addresses is performed.

  Starting through fast start-up has not impact on safety.

  SILworX V7 or higher as well as a device with bootloader and operating system CPU V11 or higher and COM V16 or higher are necessary to use the *Fast Start-Up* function.

3 Improvements of V11.x and V16.x Compared to V10.x and V15.x

V11.x and V 16.x feature the following improvements:

3.1 System Functions

1 Different behavior of the **Set System ID** command

Changing the system ID causes safety times and safety switches that were previously set online to be reset to their default values.

A download must be performed whenever the system ID has changed.

Like a download, the **Load Configuration from Flash** function causes the parameters that are changeable online to be set to the values defined in the loaded configuration. In the previous version, the values that had probably been changed online were maintained.

If the system ID has changed, the **Load Configuration from Flash** command can no longer be performed after a PES restart.

2 Optimized start behavior

After a PES reboot, CPU and COM operating systems reboot much faster than in the previous version. As a result, the ComUserTask behavior may need to be adjusted.

HIMA recommends implementing handshaking in the user program. As a result, the user program is able to react to delays or failures that occur while the ComUserTask is starting up. Refer to the communication manual (HI 801 101 E) for details.

If operating system V11.x or V16.x is used in connection with a bootloader version prior to V11.2 or V16.8, respectively, the operating system starts up slower.

Additionally, fast start-up cannot be used!

Notice: The bootloader is not the same as the OS loader (emergency loader).

The bootloader is loaded in the device during the device manufacturing and cannot be replaced by the user.

3 Valid resource configuration after upgrading the operating system

In the previous version, the resource configuration was no longer valid due to the following sequence:

a A user program containing retain data was erased through reload.

b Two user programs containing retain data were added through the same reload or one or several subsequent reloads.

c The operating system was upgraded.

After starting the operating system, the PES entered the state STOP/INVALID CONFIGURATION. The diagnostic history contained the following entry 'LS: Program retain variable signature mismatch'.

In V11.x and V16.x, the PES enters the RUN state and the retain data is available to the user programs. [HE25419]

4 CRC in diagnostic entries during the resource configuration load

When the configuration is being loaded, the operating system creates a diagnostic entry that includes the checksum (CRC). The diagnostic entry is created, e.g., in the following cases:

- After connection of the supply voltage.
- After a resource configuration download or reload.

5 The pulsed outputs used for line control do not need to begin with channel 1.

The pulsed outputs can be flexibly assigned to the inputs:

- The pulsed outputs no longer need to begin with channel 1.
- The pulsed outputs no longer need to have subsequent numbers.

For configuration details, refer to the manuals of the corresponding PES/modules.

6 The *Counter[0x].Value Overflow* system variable in connection with automatic setting of rotation direction

The *Counter[0x].Value Overflow* system variable provides values even in connection with automatic setting of the rotation direction. In the previous version, it always provided 0.

7 Proper switching of the fault relay in F60 CPU 03

The fault relay switches properly when one of the system variables *Relay Contact 1...4* is used:

The system overview properly displays the state of the fault relay (open/closed). [HE25140]

8 Start with pressed reset key

After the resource had been started with pressed reset key, the previous version reset the IP address to the default setting during the second configuration download. This caused the loading process to abort if the PADT was connected to the processor module's interface. [HE26144]

4 Restrictions of V11.x and V16.x

1 The Systemtick system variable

- The *Systemtick HIGH* variable always provides 0. Only the *Systemtick LOW* variable can be used as described in the documentation. [HE26223]

2 Failure of communication protocols due to unmatching messages

A safe**ethernet** message that does not match the loaded project may block the process data communication of a communication module.

Workaround: Stop and restart the communication module. [HE26525]

3 Reload aborted if a resource includes all optional configuration parts

If a resource includes all or almost all optional configuration parts, the reload process may be aborted.

A reloade can be performed if **two or more of all** optional configuration parts are **not used**!

Optional configuration parts are:

- Alarms and events.
- Communication protocols.
- License management.
- Remote I/Os.

4 Read and write permission necessary for resetting the cycle time statistics

The commands **Reset Cycle Time Statistics** and **Reset Total Number of Errors, Faults or Warnings** may only be performed with access mode *Read and Write*, instead of *Read and Operator*. [HE27005]

5 Migration from V10.x and V15.x to V11.x and V16.x

Only processor and communication operating system versions that were released together, can be used together.

The operating system of processor and communication modules can only be upgraded in STOP.

When upgrading the operating systems, HIMA recommends upgrading the associated OS loaders as well.

5.1 Procedure

The specified order must be absolutely observed!

Upgrading HIMatrix System to V11.x and V16.x

1. Stop the resource if still in RUN.
2. In the Hardware Editor online view, connect to the communication module and upgrade the OS loader to V16.
3. Upgrade the communication operating system to V16.
4. Connect to the processor module by logging in to the system and upgrade the OS loader to V11.
5. Connect to the processor module and upgrade the processor operating system to V11. The resource reboots.

The HIMatrix system has been upgraded to V11.x and V16.x

6 References

- HIMatrix system manual compact systems, document number HI 800 141 E
- HIMatrix system manual modular systems, document number HI 800 191 E
- Communication manual, document number HI 801 101 E