Siemens 6ES7417-4HL04-0AB0

01 Redundant Programmable Controller Central Processing Unit / system role

Product function

Siemens 6ES7417-4HL04-0AB0 participates in an H-system whose availability depends on the partner CPU, synchronization paths and configured I/O.

Selected configuration

Redundancy is created by the complete H-system configuration, including partner CPU, synchronization links and the engineered I/O arrangement. Installing one CPU does not by itself establish fault-tolerant operation or an uninterrupted changeover.

Integration checkpoints

- Redundant process control
- Distributed I/O control
- High-availability maintenance
- Legacy system expansion

Control architecture	Partner-CPU operation in an engineered H system
State continuity	Synchronized control and retained application data
Network separation	Process communication and H synchronization

Program and data work-memory areas have separate capacity limits. A project must fit both allocations; unused capacity in one area does not automatically compensate for an excess in the other. Load-memory cards and retained RAM serve different purposes during restart.

6ES7417-4HL04-0AB0

02 Technical operating envelope

Work memory	20 MB; 10 MB program and 10 MB data
Maximum 5 V backplane current	1.7 A
Typical power loss	6 W
Bit-operation time	0.03 microsecond typical
Floating-point time	0.09 microsecond typical

MPI/DP interfaces	1
Additional DP interfaces	1
Synchronization interfaces	2
Maximum load-memory expansion	64 MB RAM or FEPROM
RAM backup	Battery-supported

Use the exact hardware execution with the supported system configuration and installation conditions.

Why does battery condition matter during a 6ES7417-4HL04-0AB0 power interruption?

RAM retention depends on the backup arrangement. Confirm battery diagnostics and a recoverable program image before removing power. A successful warm restart does not prove that unbacked data will survive a longer outage.

How should a DP fault on 6ES7417-4HL04-0AB0 be separated from an H synchronization fault?

Use interface-specific diagnostics and the retained topology. Check the affected DP segment and station addresses separately from synchronization modules and links. Reconnecting a cable to the wrong interface can introduce a second failure while obscuring the first.

6ES7417-4HL04-0AB0

03 System integration and applications

Redundant process control

Operate as part of a configured S7-400H pair.

Distributed I/O control

Execute the engineered DP communication and process logic.

High-availability maintenance

Assess partner state and synchronization before an authorized CPU replacement.

Legacy system expansion

Check project capacity and supported hardware against the installed H configuration.

System and supply context

6ES7417-4HL04-0AB0 belongs to the SIMATIC S7-400 installation described by the technical reference. Connected equipment and accessories must be included explicitly in the configured assembly.

Application boundary

The following uses describe supported engineering roles; they do not establish interchangeability with another model or remove application-specific validation.

What should be checked before pairing a replacement 6ES7417-4HL04-0AB0 with an existing CPU?

Compare full order code, firmware, synchronization hardware and the approved H-system configuration. Preserve the application baseline and follow the supported coupling procedure. Similar memory capacity does not establish partner compatibility.

6ES7417-4HL04-0AB0

04 Engineering selection decisions

Why is a running 6ES7417-4HL04-0AB0 not sufficient proof of redundancy?

One CPU can execute the application while the partner or synchronization path is unavailable. Check both CPU operating states and H-system diagnostics, then perform the approved changeover test. Normal process values alone do not establish redundant readiness.

Can unused data memory compensate for oversized code in 6ES7417-4HL04-0AB0?

No. The program and data portions have distinct limits. Review the compiled project allocation and block sizes before download. Load-memory expansion must not be treated as an enlargement of the integrated work-memory partitions.

What validates process continuity after 6ES7417-4HL04-0AB0 replacement?

Confirm the intended redundant state, healthy I/O communication and consistent application data. Under the approved test plan, observe output behavior and alarms during a controlled changeover. CPU RUN indication is only one part of acceptance.

Can 6ES7417-4HL04-0AB0 synchronization interfaces be used as spare fieldbus ports?

No. They serve the H-system synchronization modules and are not interchangeable with MPI/DP interfaces. Preserve the engineered port roles and use supported communication hardware for additional network functions.

6ES7417-4HL04-0AB0

05 Configuration boundary and references

Lifecycle and support

Spare-part / replacement-part execution. The current repair and support terms require confirmation for the installed hardware revision.

Replacement assessment

Compare the complete 6ES7417-4HL04-0AB0 identity, installed connections and configuration before selecting a replacement. The MPI/DP and dedicated DP interfaces connect to their configured networks, while the synchronization interfaces serve the H-system relationship. Preserve those roles and the hardware configuration so that a communication repair does not disturb redundancy.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; use it together with the applicable manufacturer instructions.

Technical basis

Siemens product data sheet, 6ES7417-4HL04-0AB0.

Related product navigation

- Siemens 6ES7392-1AJ00-0AA0
- Siemens 6ES7331-1KF02-0AB0
- Siemens 6ES7214-1AG40-0XB0

Related products for separate application assessment; verify the platform and interface. No interchangeability is implied.

Product enquiries