Siemens 6ES7 313-6CF03-0AB0

01 Preserve the controller baseline

1 Identify the DP hardware

Read the complete 6ES7 313-6CF03-0AB0 marking and record the firmware installed in the CPU. This is the DP version, with a separate MPI interface; a neighboring PtP CPU uses a different second interface. Keep the exact CPU selection in the hardware configuration rather than relying on the front-panel family name.

2 Secure the program and operating data

Retain the approved STEP 7 project, hardware configuration and a verified recovery copy before disturbing the MMC. Record which data areas must remain retentive and capture the current diagnostics buffer. Do not assume that a program archive alone contains the latest process data or the actual online network settings.

3 Define the output-safe state

Identify actuators driven through local outputs and through DP slaves. Apply the plant maintenance procedure so that a CPU stop, missing slave or program reload cannot cause an unintended machine action. Establish the permitted restart sequence and the conditions for returning each output group to automatic control.

CPU identity	313C-2 DP; exact 6CF03 marking and firmware
Recovery basis	Project, hardware configuration, MMC and required data
Machine state	Local and distributed output effects reviewed

6ES7 313-6CF03-0AB0 / Inspect power, rack and signal assignments

02 Inspect power, rack and signal assignments

1 Check the DC supply at the load

Measure the 24 V DC supply at the CPU, including the startup condition, against the permitted 20.4-28.8 V range. Inspect the protective arrangement and reference connections using the approved cabinet design. A correct unloaded power-supply reading does not exclude a voltage drop in the installed wiring.

2 Map local digital signals

Record every integrated input and output terminal before disconnecting the front connector. The CPU provides 16 DI and 16 DO, with no integrated analog channels. Trace any analog circuit to its actual expansion module; do not reconnect it to the CPU on the basis of a neighboring model description.

3 Separate technology functions from ordinary I/O

Identify terminals assigned to counting, frequency measurement or PWM. These functions share the integrated hardware and need the correct configuration and signal characteristics. Verify the intended pulse task and the associated terminal map before restoring general digital I/O assignments or enabling a connected pulse-controlled device.

Supply limit	20.4-28.8 V DC at CPU
Local signals	16 DI / 16 DO; analog via separate modules
Pulse tasks	Three counters; PWM up to 2.5 kHz

6ES7 313-6CF03-0AB0 / Restore communication and memory configuration

03 Restore communication and memory configuration

1 Keep load and work memory distinct

Check that the retained Micro Memory Card carries the correct approved program and configuration. Load memory can use an MMC up to 8 MB, but the CPU working memory remains 64 KB and is not expandable. Review the program and data allocation rather than using card capacity as a memory acceptance test.

2 Recreate the actual network roles

Restore MPI addressing and the PROFIBUS DP master or slave role from the approved project. MPI supports up to 187.5 kbit/s; DP supports up to 12 Mbaud. Use the actual network design, cabling and station settings rather than automatically selecting the maximum available communication rate.

3 Review the configured DP capability

For master operation, check the slave count and data assignments against the CPU limits. This CPU does not provide isochronous DP master operation or constant bus cycle time. If the application depends on either feature, stop and resolve the controller-selection issue before treating the replacement as equivalent.

MPI	Address and rate agree with installed network
DP master	Up to 32 slaves; configured data limits checked
Timing	No assumed isochronous master capability

6ES7 313-6CF03-0AB0 / Commission with controlled functional tests

04 Commission with controlled functional tests

1 Observe recognition before running the machine

Apply power under the approved procedure and check CPU state, module recognition and diagnostic events before enabling automatic operation. Compare the connected rack and DP stations with the project. Resolve missing devices or configuration mismatches before using a successful power-on indication as proof of a complete installation.

2 Test the specific signal tasks

Exercise representative local inputs and outputs under controlled conditions, then test the configured counter or PWM functions with suitable reference signals. Confirm signal polarity, addressing and application scaling. A changing bit in a variable table does not by itself prove that the correct actuator or measuring point is connected.

3 Verify loss and recovery behavior

Follow the approved test plan for DP communication faults and controlled recovery. Confirm that the application reaches the required machine state and returns only through the intended restart sequence. Retain the diagnostic buffer and test results; do not simulate a network loss on operating equipment without the planned maintenance boundary.

Initial hold point	Correct CPU, rack and DP recognition
Function proof	Addressed I/O and pulse tasks verified
Recovery	Approved fault and restart behavior demonstrated

6ES7 313-6CF03-0AB0 / Diagnose and preserve the final state

05 Diagnose and preserve the final state

1 Use the diagnostic timeline

Capture the CPU buffer, which holds up to 100 entries, before clearing conditions or cycling power repeatedly. Review the sequence of CPU, module and network events alongside supply measurements. This helps distinguish a communications problem from an application or power problem without changing multiple variables at the same time.

2 Remove temporary test conditions

Check for forced variables, temporary program changes and disconnected field circuits before handover. Restore the approved retentivity and network configuration and record the tested state. The controller is ready for release only when the intended application sequence and machine safeguards have been checked by the responsible team.

3 Retain an exact replacement record

Keep the complete order number, firmware, MMC identity, project revision, I/O map and DP configuration with the maintenance record. Any future successor requires a compatibility review of these items; a larger memory size or similar front panel alone does not establish a direct replacement path.

Technical basis: SIMATIC S7-300 CPU 31xC and CPU 31x: Specifications, A5E00105475-08, 06/2008.

Related product navigation

- Siemens 6ES7307-1KA00-0AA0
- Siemens 6ES7331-1KF02-0AB0
- Siemens 6ES7953-8LF11-0AA0

These are related references, not confirmed substitutes or an automatically approved assembly.