

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Selected official pages for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7317-2AK14-0AB0

Dual Interface Central Processor. Relevant section pages: 4, 34, 107, 109, 110, 147, 148, 149. Adjacent model text on shared pages is outside this product reference.

OFFICIAL SOURCE

CPU 31xC and CPU 31x: Installation; 03/2011; A5E00105492-12

Siemens original documentation and product reference

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Amikon Limited prepared this independent reference package. Selected manufacturer pages follow with their original content and pagination visible.

SIMATIC

S7-300 CPU 31xC and CPU 31x: Installation

Operating Instructions

Preface

Guide to the S7-300 documentation

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This manual is part of the documentation package
with order number:
6ES7398-8FA10-8BA0

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be adhered to. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of the Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

이 기기는 업무용(A급) 전자파 적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

CPU	Convention: CPU designations:	Order number	As of firmware version
CPU 312	CPU 31x	6ES7312-1AE14-0AB0	V3.3
CPU 314		6ES7314-1AG14-0AB0	V3.3
CPU 315-2 DP		6ES7315-2AH14-0AB0	V3.3
CPU 315-2 PN/DP		6ES7315-2EH14-0AB0	V3.2
CPU 317-2 DP		6ES7317-2AK14-0AB0	V3.3
CPU 317-2 PN/DP		6ES7317-2EK14-0AB0	V3.2
CPU 319-3 PN/DP		6ES7318-3EL01-0AB0	V3.2

All CPUs with PROFINET properties are grouped under the designation CPU 31x PN/DP, as the following table shows:

CPU	Convention: CPU designations:	Order number	As of firmware version
CPU 314C-2 PN/DP	CPU 31x PN/DP	6ES7314-6EH04-0AB0	V3.3
CPU 315-2 PN/DP		6ES7315-2EH14-0AB0	V3.2
CPU 317-2 PN/DP		6ES7317-2EK14-0AB0	V3.2
CPU 319-3 PN/DP		6ES7318-3EL01-0AB0	V3.2

Note

A description of the special features of the failsafe CPUs of the S7 product range is available in the product information at the following Internet address
<http://support.automation.siemens.com/WW/view/en/11669702/133300>).

Note

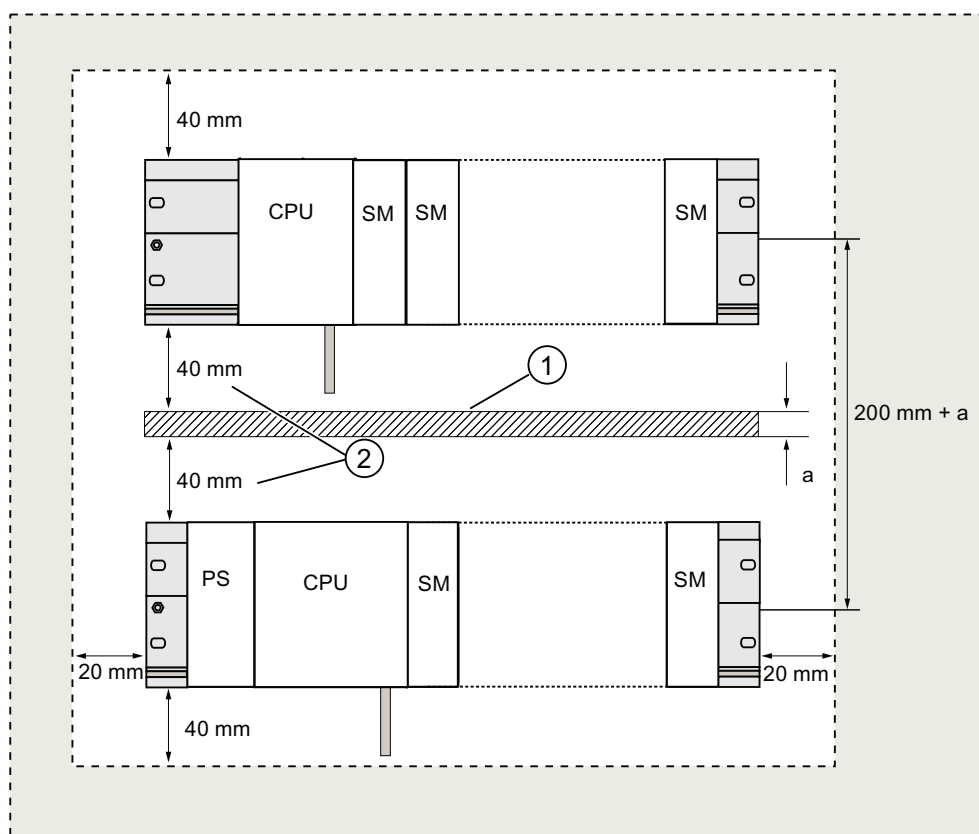
We reserve the right to include a product Information containing the latest information on new modules or modules of a more recent version.

4.4 Specified clearances

You must maintain the clearance shown in the figure in order to provide sufficient space for installing the modules, and to allow the dissipation of heat generated by the modules.

The S7-300 assembly on multiple racks shown in the figure below shows the clearance between racks and adjacent components, cable ducts, cabinet walls etc.

For example, when routing your module wiring through cable duct, the minimum clearance between the bottom edge of the shield connection element and the cable duct is 40 mm.



Number	Description
①	Wiring with cable duct
②	Minimum clearance between the cable duct and the bottom edge of the shield connection element is 40 mm.

6.2 Bonding the Protective Conductor to the Mounting Rail

Requirement

The mounting rail is fixed onto the mounting surface.

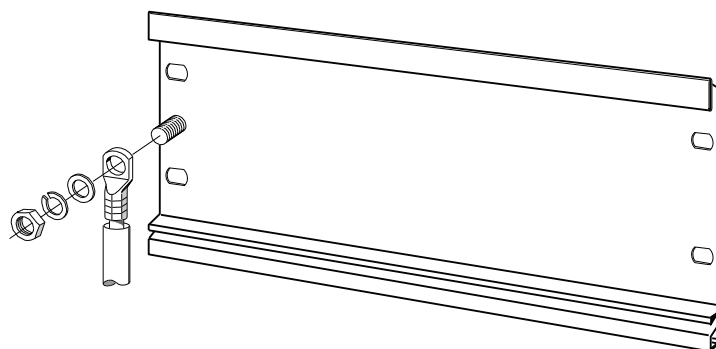
Connecting the protective conductor

Connect the mounting rail to the protective conductor.

The mounting rail is provided with a M6 protective conductor screw for this purpose.

Minimum cross-section of the protective conductor: 10 mm²

The figure below shows how the protective conductor has to be bonded to the rail.



Note

Always make sure of a low-impedance contact between the protective conductor and the rail. You can achieve this by using a low-impedance cable, keeping it as short as possible and contacting it to a large surface.

For example, an S7-300 mounted on a hinged frame must be connected to ground using a flexible grounding strap.

6.4 Wiring the power supply module and the CPU

Requirement

All modules are mounted onto the rail.

Wiring the PS and CPU

Note

The PS 307 power supply module is equipped with two additional 24 VDC terminals L+ and M for the supply of I/O modules.

Note

The power supply connector of your CPU is a plug-in device and can be removed.

WARNING

There is a risk of contact to live wires if the power supply module, or any additional load power supply units, are connected to the mains.

You should therefore isolate the S7-300 from power before you start wiring it. Always use crimp ferrules with insulating collars for the conductors. Close all front panels of the modules when you have completed the wiring. This is conditional before you reconnect the S7-300 to power.

1. Open the PS 307 power supply module and CPU front panels.
2. Open the strain relief on the PS 307.
3. Strip the power cable to a length of 11 mm and connect it to L1, N and to the protective earth (PE) terminal of the PS 307.
4. Screw-tighten the strain relief again.
5. Next, wire the PS and CPU

The power supply connector of the CPUs is a removable plug-in device.

Strip the connecting cables for the CPU power supply to a length of 11 mm. Wire the lower terminal M on the PS 307 to the terminal M of the CPU and the lower terminal L+ on the PS 307 to terminal L+ of the CPU.

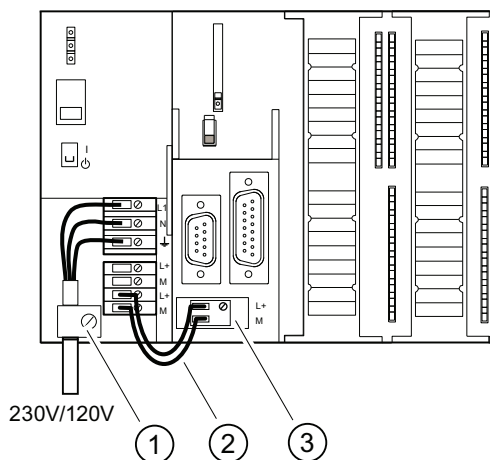
WARNING

Reversing the polarity of the M and L+ terminals trips the internal fuse on your CPU. Always interconnect the M and L+ terminals of the power supply module and of the CPU.

6. Close the front panels.

6.4 Wiring the power supply module and the CPU

The figure below illustrates the procedures described earlier.



Numeral	Designation
①	Strain relief of the power supply cable
②	Connection cables between the PS and CPU
③	Removable power supply connector

Note

The PS 307 power supply module is equipped with two additional 24 VDC terminals L+ and M for the supply of I/O modules.

8.4 Commissioning the Modules

8.4.1 Inserting/replacing a Micro Memory Card

SIMATIC Micro Memory Card (MMC) as memory module

The memory module used on your CPU is a SIMATIC Micro Memory Card. You can set up the SIMATIC Micro Memory Card as a load memory or a portable data medium.

Note

A SIMATIC Micro Memory Card must be inserted for CPU operation.

Note

The CPU goes into STOP and requests a memory reset when you remove the SIMATIC MMC while the CPU is in RUN state.

** CAUTION**

Data on a SIMATIC Micro Memory Card can be corrupted if you remove the card while it is being accessed by a write operation. You may then have to delete the SIMATIC Micro Memory Card on the PG or format it in the CPU.

DO NOT remove the SIMATIC Micro Memory Card when the system is in RUN mode; always shut down power or set the CPU to STOP mode when no PG write access is taking place. When the CPU is in STOP mode and you cannot not determine whether or not a PG is writing to the card (e.g. load/delete block), disconnect the communication lines.

** WARNING**

Make sure that the SIMATIC Micro Memory Card to be inserted contains a user program which is suitable for the CPU (system). The wrong user program may have fatal processing effects.

Inserting/replacing the SIMATIC Micro Memory Card

1. Switch the CPU to STOP mode.
2. Is a SIMATIC Micro Memory Card inserted?

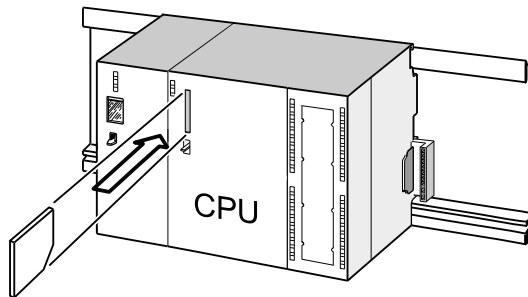
If yes, ensure that no write operations are running on the PG (such as loading a block). If you cannot ensure this state, disconnect all communication lines of the CPU.

Press the ejector and remove the SIMATIC MMC.

The frame of the module slot is equipped with an ejector for removing the SIMATIC MMC (see CPU 31xC and CPU 31x Manual, Technical Data, *Chapter CPU31x Operator Control and Display Elements*).

You need a small screwdriver or ball-point pen to eject the SIMATIC Micro Memory Card.

3. Insert the ("new") SIMATIC MMC into the card slot with its beveled edge facing the ejector.
4. Carefully push the SIMATIC MMC into the CPU slot to engage the interlock.
5. Reset CPU memory (*see Resetting CPU memory by means of mode selector switch*)



Inserting and removing a SIMATIC MMC when CPU power is switched off

After you replaced a SIMATIC MMC in POWER OFF state, the CPUs

- automatically detect a physically identical SIMATIC MMC with changed content
- automatically detect a new MMC with contents to the previous SIMATIC MMC

It automatically performs a CPU memory reset after POWER ON.

Reference

- Chapter *Properties of the SIMATIC Micro Memory Card*, CPU 31xC and CPU 31x Manual, Technical data
- Chapter *Technical data of the SIMATIC Micro Memory Card (MMC)*, CPU 31xC and CPU 31x Manual, Technical data

8.4.2 Initial power on

Requirements

- You must have installed and wired up the S7-300.
- Insert the Micro Memory Card into the CPU.
- Your CPU's mode selector switch must be set to STOP.

Initial power on of a CPU with Micro Memory Card

Switch on the PS 307 power supply module.

Result:

- The 24 VDC LED is lit on the power supply module.
- On the CPU
 - the 5 VDC LED is lit.
 - The STOP LED flashes at 2 Hz while the CPU executes an automatic memory reset.
 - The STOP LED is lit after memory reset.