

SIEMENS

SIMATIC

Communications processor CP 340 first commissioning steps

Getting Started

04/2005

A5E00442606-01

Safety Guidelines

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 to property damage only 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 device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:



Warning

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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.

Copyright Siemens AG 2005. All rights reserved.

The distribution and duplication of this document or the utilization and transmission of its contents are not permitted without express written permission. Offenders will be liable for damages. All rights, including rights created by patent grant or registration of a utility model or design, are reserved.

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.

First commissioning steps

Preface

These instructions use a concrete example to guide you through the four commissioning steps and up to a functioning application with which you can transfer data via the serial interface and get to know and check the basic functions of your CP 340 in hardware and software. The references to the manual should give you an initial overview of the information included within it.

The time required for the example amounts to between 1 and 2 hours, depending on your experience.

Preconditions

The following preconditions have to be fulfilled:

- You have an S7 - 300 station consisting of a power supply module, a CPU and two SM323 DI16/DO16 x 24V/0.5A (one for each input and output).
- STEP 7 ($\geq$ V5.0) is correctly installed on your programming device.
- You have set up a project for the S7-300 station.
- The programming device is connected to the CPU.
- You have a module CP 340, the associated configuration package and the necessary connecting cable.
- You have prepared your connection partner for the serial data transfer. For the commissioning of this example with the protocol 3964(R), your partner must be working with higher priority.

Installing the configuration package on the programming device

The configuration package includes a configuration tool for the CP 340, a library with function blocks as well as a program example.

1. Start the installation program on the CD by double clicking on the **SETUP.EXE** file.
2. Follow the instructions issued by the installation program.

Install CP 340 and connect with the communication partner

1. Plug the connector supplied with the CP 340 into the bus connector of the CPU.
2. Mount the CP 340 on the rail, tilt it downwards and then screw it tight.
3. Use the connecting cable to create a connection between the CP 340 and your connection partner. Refer to the manual for the assignment of the interface connector.

Test: Switch on the voltage on the power supply module.

After the initialization phase, the SF LED of the CP 340 illuminates.

Configure the CP 340

1. Open your project in the SIMATIC Manager.
2. In your project, call the HWCONFIG configuration table.
3. From the hardware catalog select the CP 340 with the correct MLFB and mount it in the intended slot.
4. By double clicking on the CP 340 you open the "Properties CP 340" screen.
5. Under "Address" note the module address (in the example this is 288 --> 120 Hex). You may need this value when integrating in your user program, where applicable.
6. Click on the **Parameter** button and select the protocol "3964(R)". Double click on the **Envelope**.
7. Accept the configuration dialog box by clicking on the **OK** button with the default setting 9600 Bit/s, 8 data bits, 1 stop bit, parity even, priority low.
8. Save the configuration with **File → Save** and exit the configuration dialog box with **File → Exit**. In the "Properties CP 340" dialog box, click on the **OK** button.
9. Save the configuration you have created with **Station → Save and Compile** in your project.
10. Transfer the configuration in the STOP mode of the CPU with **PLC → Download** to module.
11. The data are transferred directly to the CPU and the CP 340. The SF LED goes out to indicate the successful completion of downloading.
12. Use **Station → Exit** to close HW Config.

Integrating in the user program

1. When installing the configuration package you installed the example project "zXX21_01_PtP_Com_CP34x" in the catalog Siemens\STEP7\Examples".
2. In the SIMATIC Manager open the example project with **File → Open ... → Projects** and double click on the subproject "CP340 PtP Connection".
3. Open the S7 program of the CPU of this subproject. Double click on the "blocks" container.
4. Apart from the system data, copy all the blocks into your project under **SIMATIC 300-Station → PU3xx → S7 Program → Blocks**.
 - **FC10**: is cyclically called up from the OB1
 - **FC11**: FC with SEND
 - **FC12**: FC with RECEIVE
 - **DB2, DB 3**: Instance DBs for the standard FBs
 - **DB10**: DB, from which is being sent
 - **DB20**: DB, in which the received data is stored
 - **OB1**: Cyclic OB
 - **OB100**: Restart (warm start) OB
 - **FB2, FB3**: Standard FBs for RECEIVE, SEND
5. By double clicking, open the OB100 in your project and verify in the first line of network 1 the module address "288".
6. Save the blocks with **File → Save**.
7. End the editing process of the FCs with **File → Exit**.
8. With the SIMATIC Manager select **SIMATIC 300 Station → CPU3xx → S7 Program → Blocks**.
9. With **PLC → Download**, load all the S7 blocks contained here into your CPU (CPU in STOP state).
10. Switch the CPU to RUN.

Send

PEW 0: On your "Input SM323" switch the bits 0.1 (Enable FC11 and FC12), 0.6 (REQ for P_SEND) and 1.1 (select the send request of 10 byte length) to "ON".

The CP340 then sends a message frame of 10 bytes in length via the serial interface (LED "TxD" flashes). To repeat the send, you must initially switch the Bit 0.6 (REQ for P_SEND) to "OFF" and then back to "ON" again.

Receiving

If you are sending data from your communication partner, these are received by CP340 in DB20 as the case may be. The destination specifications are created in the FC12 with the label "AO:" or "A1:".

PEW0: to do this, on your "Input SM323" switch the bits 0.1 (Enable FC11 and FC12), 0.7 (EN_R for P_RCV) and 1.2 (select the destination offset "2" in the DB20) to "ON". Then the CP340 will receive data via the serial interface (LED "RxD" flashes).

Assignment of the output location (PAW4)

Bit 0.0: "Done" of a successful SEND

Bit 0.1: "Error" of a damaged SEND

Bit 0.2: "BIE" of a SEND

Bit 0.4: "NDR" of a successful RECV

Bit 0.5: "Error" of a damaged RECV

Bit 0.6: "BIE" of a RECV

Diagnostics functions

Errors can occur in the case of incorrect operation, incorrect wiring of the serial interface or inconsistent configuration.

The manual describes how to diagnose such errors and messages.