SIEMENS

SIMATIC

Communications processor CP 341 - First Steps in Commissioning

Getting Started

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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 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

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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.

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Introduction

This guide uses a real-life example to take you through the four steps required to set up a working application that will enable you to transfer data via the serial interface and to familiarize yourself with and test the basic functions of your CP 341 as regards both hardware and software. The references to the manual should give you an initial overview of the information included within it.

It will take you between 1 and 2 hours to work your way through the example, depending on your prior experience.

Requirements

The following requirements must be met:

- You have an S7-300 station, consisting of a power supply module and a CPU.
- STEP 7 (≥V5.3) 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 CP 341 module complete with the associated configuration package and required connecting cable.
- You have prepared your connection partner for serial data transfer. If you are using a CP 341 with RS232/V.24 interface, your programming device running the "Hyper Terminal" program can function as the connection partner. You will find the "Hyper Terminal" program in Windows under **Start > Programs > Accessories > Communication > Hyper Terminal**. The procedure for starting the program is described below.

Installing the Configuration Package on your Programming Device

The configuration package consists of a parameter assignment tool for the CP 341, a library containing function blocks, and a demo program.

- Start the installation program on the CD by double-clicking the file called SETUP.EXE.
- Follow the instructions issued by the installation program.

Installing the CP 341, Connecting to the Communication Partner

- Plug the bus connection supplied with the CP 341 into the CPU's bus port.
- Hook the CP 341 over the rail, lower the bottom edge into position and install the securing screws.
- Connect the connections L+ and M of your power supply with the respective connections on the CP.
- Use the connecting cable to interconnect the CP 341 and your connection partner. The pin assignment of the interface adapter is detailed in the manual.

Test: Apply line voltage to the power supply module. When the initialization phase completes, the SF LED on the CP 341 is on.

Assigning parameters for the CP 341

- Open your project in SIMATIC Manager.
- In your project, call the "HW Config" configuration table.
- In the hardware catalog, select the CP 341 with the correct order number and drag it to the appropriate slot.
- Double-click the CP 341 to open the "Properties CP 341" form.
- Note the module address under "Address" (in the demo this address is 256 → 100 Hex). You will need this value when you set up the link to your user program.
- Click the **Parameters** button and select the "ASCII" protocol. Double-click the **Envelope**.
- Click the **OK** button to accept the parameter assignment defaults:
  - 9600 bps,
  - 8 data bits,
  - 1 stop bit,
  - Even parity.
- Select **File > Save** to save your parameter assignment settings and exit the form with **File > Exit**. In the "Properties CP 341" form, click the **OK** button.
- Save the configuration in your project by selecting **Station > Save and Compile**.
- Transfer the configuration with the CPU in STOP mode by selecting **PLC > Load to module**. The data is transferred directly to the CPU and the CP 341. The SF LED goes out to indicate that loading was successful.
- Select **Station > Exit** to close "HW Config".

Linking to the user program

The sample project ""zXX21_01_PtP_Com_CP34x" was installed in the "\Siemens\STEP7\Examples" catalog when you installed the configuration package.

- In the SIMATIC Manager open the example project with **File > Open ... > Projects** and double click on the subproject "CP341 Protocol 3964" (also applicable for ASCII protocols).
- Open the S7 program of the CPU in this project. Double click on the "Blocks" container.
- Apart from the system data, copy all the blocks into your project under **SIMATIC 300-Station > CPU3xx > S7 Program > Blocks**.

FC21	FC with SEND
FC22	FC with RECEIVE
DB21, DB22	Instance DBs for the standard FBs
DB40, DB41	Instance DBs for the standard FBs
DB42	DB, from which is being sent
DB43	DB, in which the received data is stored
OB1	cyclic OB
OB100	Restart (warm start) OB
VAT1	Variable table
FB7, FB8	Standard FBs for RECEIVE, SEND
SFC 58, 59	SFCs for the standard FBs

- By double clicking, open the FC22 in your project and in the first line of network 1 change the the "LADDR" module address from "272" to 256". Save the blocks with **File > Save**.
- End the editing process of the FCs with **File > Exit**.
- With SIMATIC Manager, select **SIMATIC 300 Station > CPU3xx > S7 Program > Blocks**. With **PLC > Download** load all the S7 blocks contained here into your CPU (CPU in STOP state).
- Switch the CPU to RUN.
  The CP341 will start to cyclically send data via the serial interface (LED "TxD" flashes). If you are sending data from your communication partner, this will probably be received by CP 341 in the DB 43. The destination specifications are entered in the parameters "DB_NO", "DBB_NO" of the FB7 (P_RCV_RK) in the FC22.

Test

Double-clicking VAT1 in the "Blocks" directory in your project allows you to monitor the data transfer:

- Select **PLC > Connect to > Configured CPU** to go online.
- Select **Variable > Monitor** to switch to monitoring mode.

You can view the number of transmissions at the operand "DB42.DBW0" (Send counter). You can see if you have received data with the "DB41.DBW18" (Receive counter).
If you are using your programming device as a connection partner, you can receive data from and send data to the CP 341 with the "Hyper Terminal" program. Double-clicking the "Getting.ht" file (stored in \Siemens\STEP7\s7ftptp\Terminal\...) starts "HyperTerminal" with the appropriate settings. The data sent by the CP 341 are displayed. The corresponding characters are sent to the CP 341 by pressing a key on your keyboard.

Diagnostics

Errors can occur in the case of incorrect operation, incorrect wiring of the serial interface or inconsistent parameter assignment. The manual describes how to diagnose such errors and messages.