

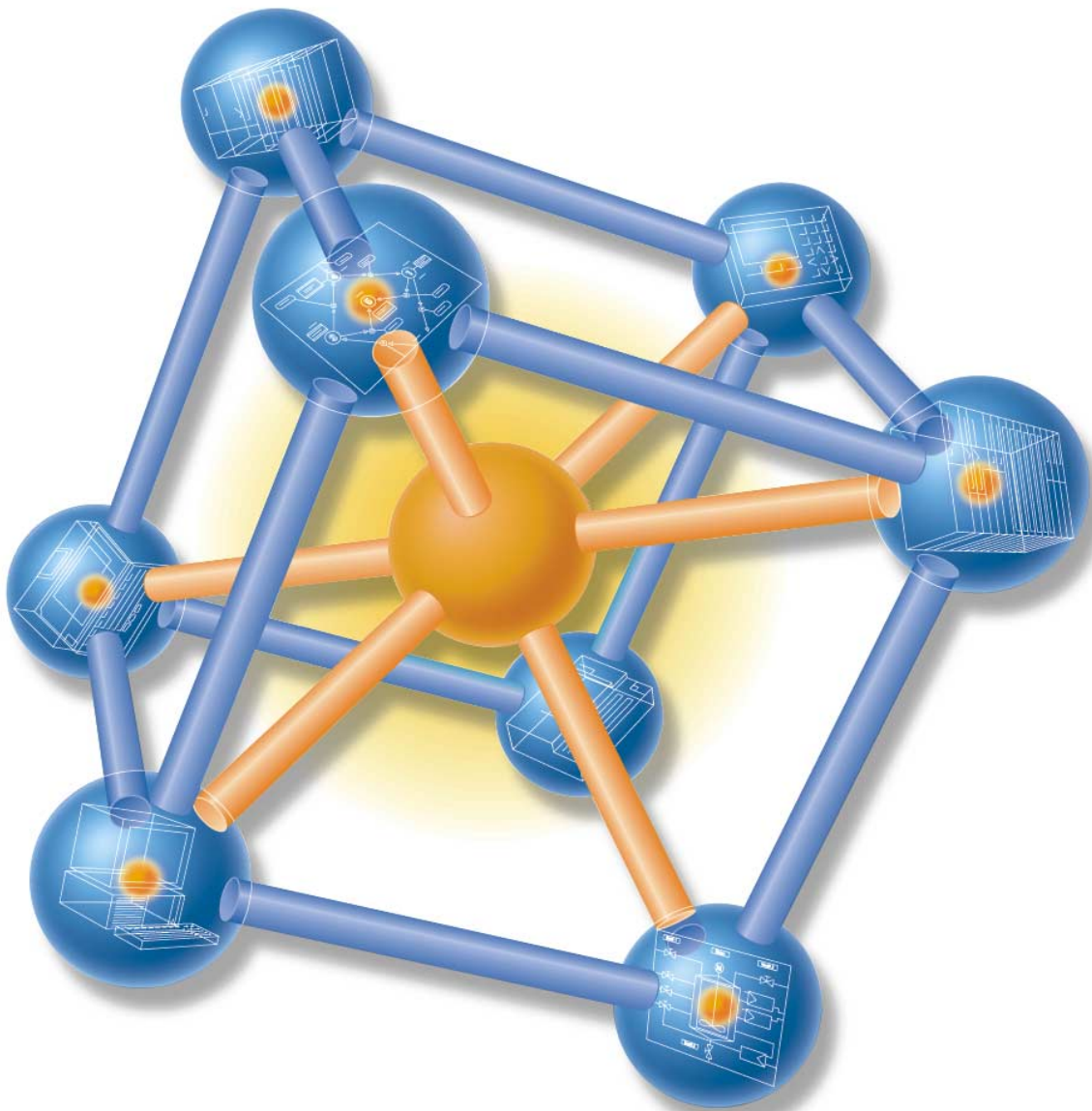
SIEMENS

SIMATIC CP 440

Getting Started

Edition 02/2000

First Steps in Commissioning



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 440 as regards both hardware and software. The cross-references tell you where to find more detailed information on specific topics in the operating manual.

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

Preconditions

These are the preconditions for this example:

- You have an S7-400 station, consisting of a power supply module and a CPU.
- STEP 7 (as of V4.02) is correctly installed on your programming device (the example used in this Getting Started guide was carried out with STEP 7 V5.0).
- You have configured a project for the S7-400 station.
- The programming device is connected to the CPU.
- You have a CP 440 module complete with the associated configuration package and required connecting cable.
- You have prepared your connection partner for serial data transfer.

Installing the Configuration Package on your Programming Device

The configuration package consists of a parameterization tool for the CP 440, a library containing function blocks, and a sample 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 440, Connecting to the Communication Partner

Hook the CP 440 onto the rack, lower the bottom edge into position, and screw it on securely.

Use the connecting cable to interconnect the CP 440 and your connection partner. The pin assignment of the interface connector is given in Appendix B of the operating manual.

Test: *Apply line voltage to the power supply module.*

When the initialization phase is completed, the "FAULT" LED lights up.

Parameterizing the CP 440

Open your project in SIMATIC Manager.

In your project, call the HWCONFIG configuration table.

In the hardware catalog, select the CP 440 with the correct order number, and drag it to the appropriate slot.

Double-click the CP 440 to open the "Properties CP 440" dialog box.

Note the module address under "Address". You will need this 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 parameterization defaults: 9600 bit/s, 8 data bits, 1 stop bit, even parity.

Choose [File → Save](#) to save your parameterization settings, and exit the dialog box with [File → Exit](#). In the "Properties CP 440" dialog box, click the [OK](#) button.

Save the configuration in your project by choosing [Station → Save and Compile](#).

Transfer the configuration with the CPU in STOP mode by choosing [PLC → Download to Module](#).

The data is transferred directly to the CPU and the CP 440. The "FAULT" LED goes out to indicate that the successful completion of downloading.

Choose [Station → Exit](#) to close HWCONFIG.

Linking to the User Program

The sample project "CP440_PtP_Com" was installed in the \Siemens\STEP7\Examples catalog when you installed the configuration package.

In SIMATIC Manager, open this project by choosing [File → Open... → Projects](#) and then double-clicking the subproject called "CP440 SEND RECV".

Open the S7 program of the CPU in this project. Double-click the "Blocks" container.

Copy all the blocks except the system data from this container to your project under [SIMATIC 400 Station → CPU4xx → S7 Program → Blocks](#).

- FC21 FC with SEND
- FC22 FC with RECEIVE
- DB21, DB22 Instance DBs for the standard FBs
- DB40, DB41 Work DBs for the standard FBs
- DB42 Source DB from which the data is sent
- DB43 Destination DB from which the data is received
- OB1 Cyclic OB
- OB100 Restart (warm start) OB
- VAT1 Variables table
- FB9, FB10 Standard FBs for RECEIVE, SEND
- SFC 58, 59 SFCs for the standard FBs

In your project, double-click FC21 and FC22 to open them, and in the first line of network 1, change the module address "LADDR" that you noted from HWCONFIG.

Save the blocks by choosing [File → Save](#).

No other changes have to be made to the FCs, so choose [File → Exit](#).

In SIMATIC Manager, choose [SIMATIC 400 Station → CPU4xx → S7 Program → Blocks](#).

Download all the S7 blocks to your CPU (CPU in STOP mode) with [PLC → Download](#).

Switch the CPU to RUN. The CP 440 starts to send data cyclically via the serial interface (the "TxD" LED flashes).

Data you send from your communication partner is received by the CP 440 in DB 43. The destination is entered in the "DB_NO" and "DBB_NO" parameters of FB9 (RECV_440) in FC22.

Test: Double-click VAT1 in the “Blocks” directory in your project to observe data transfer:

Go online by choosing [PLC → Set Up Connection to → Configured CPU](#).

Switch to monitor mode by choosing [Variable → Monitor](#).

The “DB42.DBW0” operand (send counter) indicates the number of transfers. The counterpart counter for incoming data is “DB41.DBW18” (receive counter).

Diagnosis

Operator mistakes, incorrect wiring of the serial interface or parameterization conflicts can cause errors.

Possible errors and the diagnosis messages are described in Section 8 of the operating manual.