Družina Simatic

## Programska oprema krmilnikov družine Simatic

- **LOGO! Soft Comfort** za krmilnike LOGO!

- **STEP 7-Micro/WIN** za krmilnike S7-200

- **STEP 7** za krmilnike S7-300 in S7-400

S7-200 Osnovni moduli

The S7-200 family comprises five different CPU types. The versions differ from one another primarily in terms of:

- the **number of integrated inputs and outputs**

- the **size of the program and data storage** and

- **upgradability**
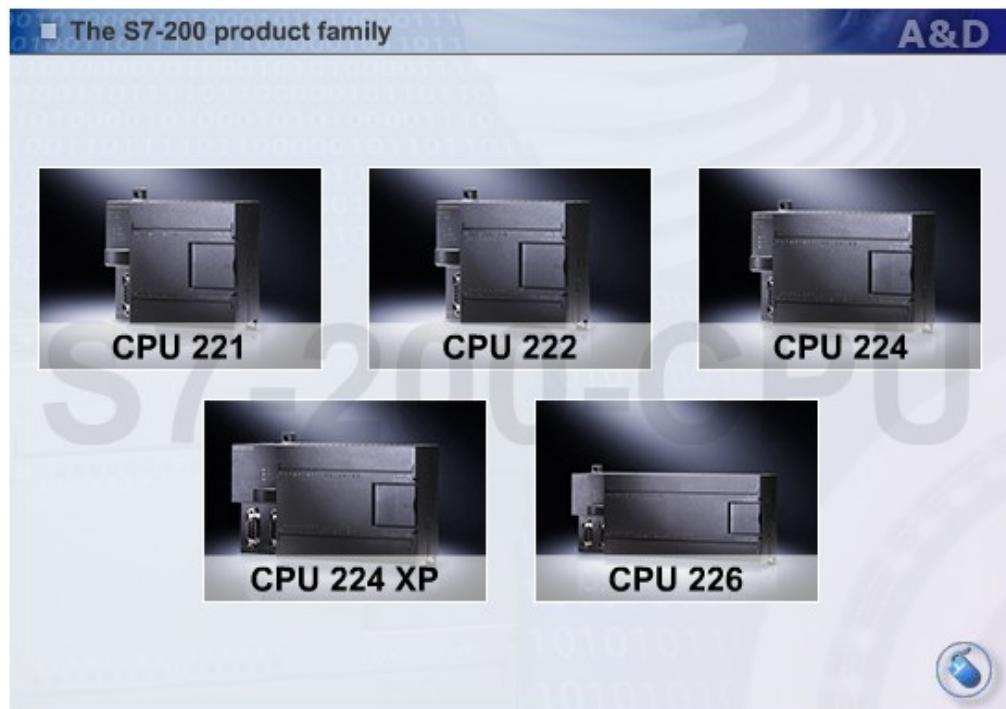
S7-200 Osnovni moduli

CPU 221
- 6 digitalnih vhodov
- 4 digitalni izhodi
- ni razširljiv
- the program storage capacity is 4 KB, data storage is 2 KB

S7-200 Osnovni moduli

CPU 222

- 8 digitalnih vhodov
- 6 digitalni izhodi
- razširljiv do maksimalno digitalnih 78 I/O
- two analog expansion modules enable the connection of 8 analog inputs and 4 analog outputs. The maximum number of analog values is 10
- program storage has a capacity of 4 KB, the data storage, 2 KB.

S7-200 Osnovni moduli

CPU 224

• 14 digitalnih vhodov

• 10 digitalni izhodi

• razširljiv do maksimalno digitalnih 168 I/O

• 28 analog inputs and 14 analog outputs can be connected by means of seven analog expansion modules. The maximum number of analog values is 35

• The data storage and program storage each have a capacity of 8 KB

S7-200 Osnovni moduli

CPU 224 XP
- **14 digitalnih vhodov**
- **10 digitalni izhodi**
- razširljiv do maksimalno digitalnih **168 I/O**
- **drugi komunikacijski interface** (razlika napram CPU 224)
- **Two analog inputs and one analog output are already integrated**
- By means of seven analog expansion modules, it is thus possible to implement **30 analog inputs** and **15 analog outputs**. The maximum number of analog connections is 38
- The **data storage** amounts to **10 KB**, the **program storage, 12 KB**.

S7-200 Osnovni moduli

CPU 226

- **24 digitalnih vhodov**
- **16 digitalni izhodi**
- razširljiv do maksimalno digitalnih **248 I/O**
- **drugi komunikacijski interface**
- **28 analog inputs** and **14 analog outputs** can be connected by means of seven analog expansion modules. The maximum number of analog ports is 35
- The **data storage** has a capacity of **10 KB**, the **program storage 16 KB**

S7-200 Osnovni moduli

Pregled vseh vrst CPU

Features	CPU 221	CPU 222	CPU 224	CPU 224XP	CPU 226
The S7-200 product family					A&D
Digital inputs	6	8	14	14	24
Digital outputs	4	6	10	10	16
Max. number of digital inputs and outputs	10	78	168	168	248
Analog inputs	0	8	28	30	28
Analog outputs	0	4	14	15	14
Max. number of digital inputs and outputs	0	10	35	38	35
Program storage	4	4	8/12	12/16	16/24
Data storage	2	2	8	10	10

CPU 226

CPU 221

S7-200 Osnovni moduli

Vrste CPU glede na napajanje

• DC/DC/DC 24V

The CPU itself and the digital inputs are supplied with 24V DC. The transistor outputs are also switched electronically with 24V DC.

• AC/DC/Relay

The CPU is supplied with 110/230V AC and the digital inputs with 24V DC. Relay outputs with a switching power of 2A.

S7-200 Osnovni moduli

Fizični izgled

• razširitveno mesto (razen pri 221)
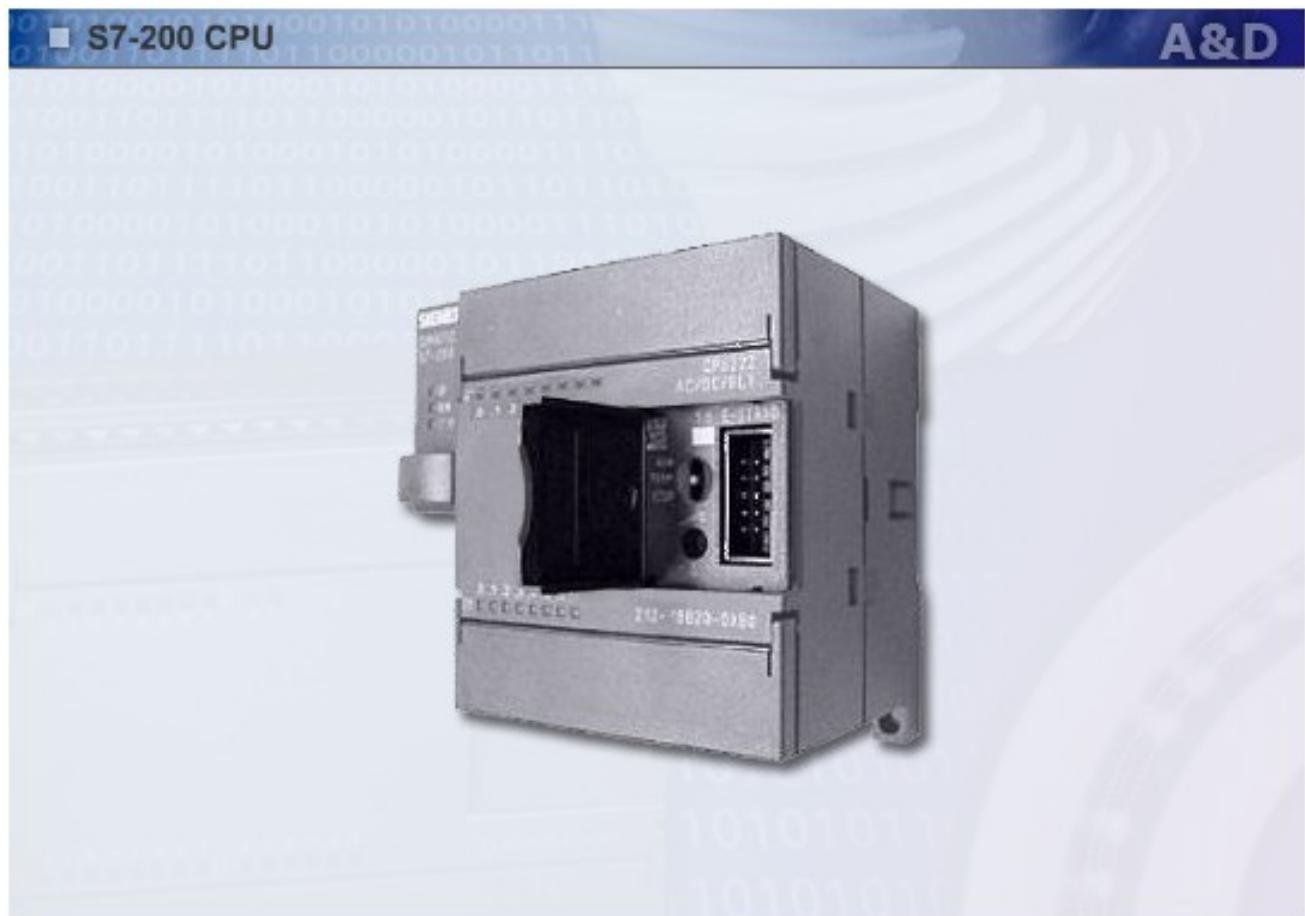
S7-200 Osnovni moduli

Fizični izgled

The **CPU status LEDs** show the CPU's current operating status at a glance

- **System error**, or Diagnostics
- **RUN**,
- **STOP**

S7-200 Osnovni moduli

Fizični izgled
Vhodi in izhodi
An automation system is connected with the machine via the digital inputs and outputs.
Signals from the field devices such as sensors and switches are monitored via the inputs; the outputs control pumps, motors or other devices.
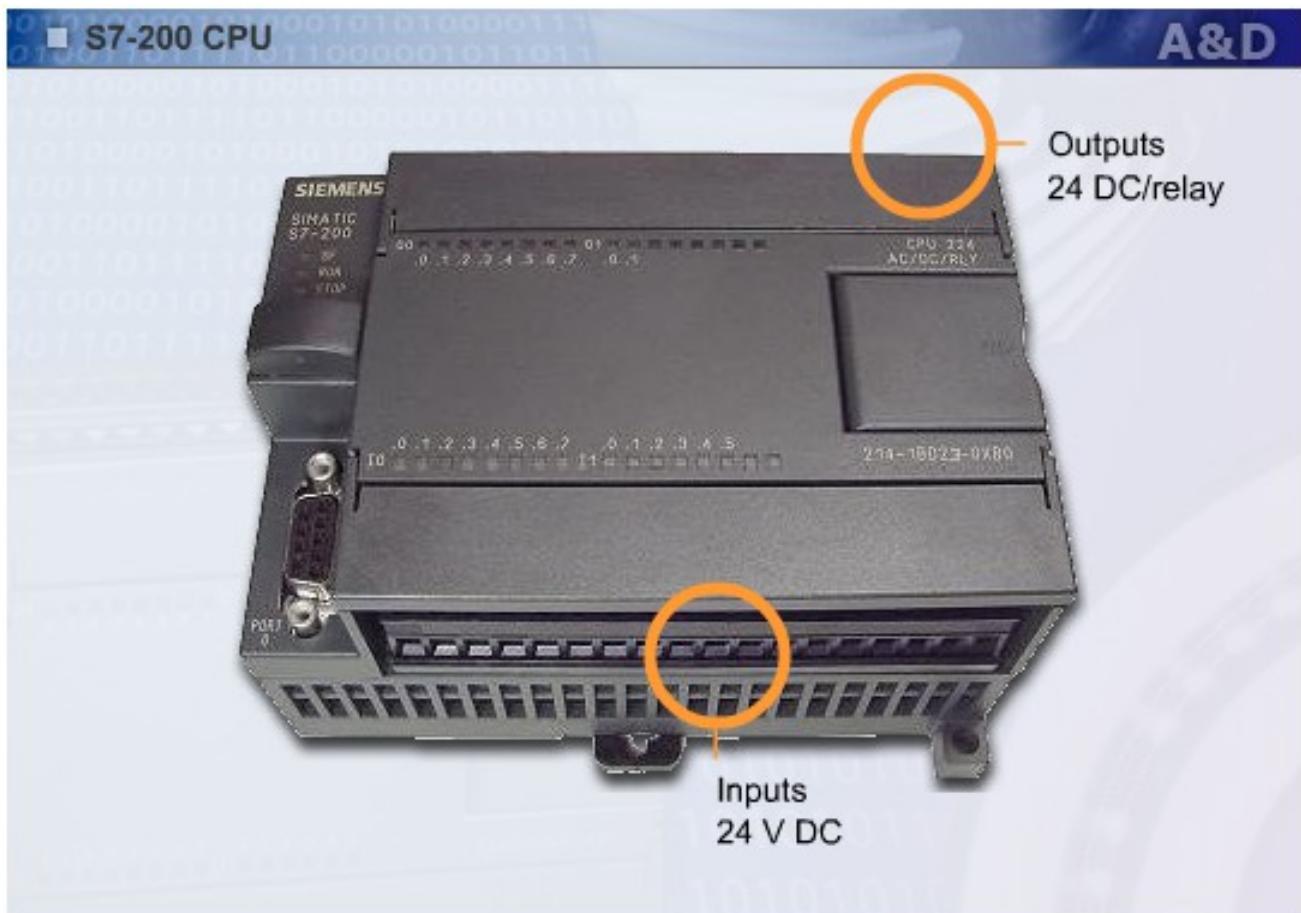
S7-200 Osnovni moduli

Fizični izgled

Statusni indikatorji

The input and output status LEDs provide you with a visual indication of the current status of the integrated inputs an outputs.
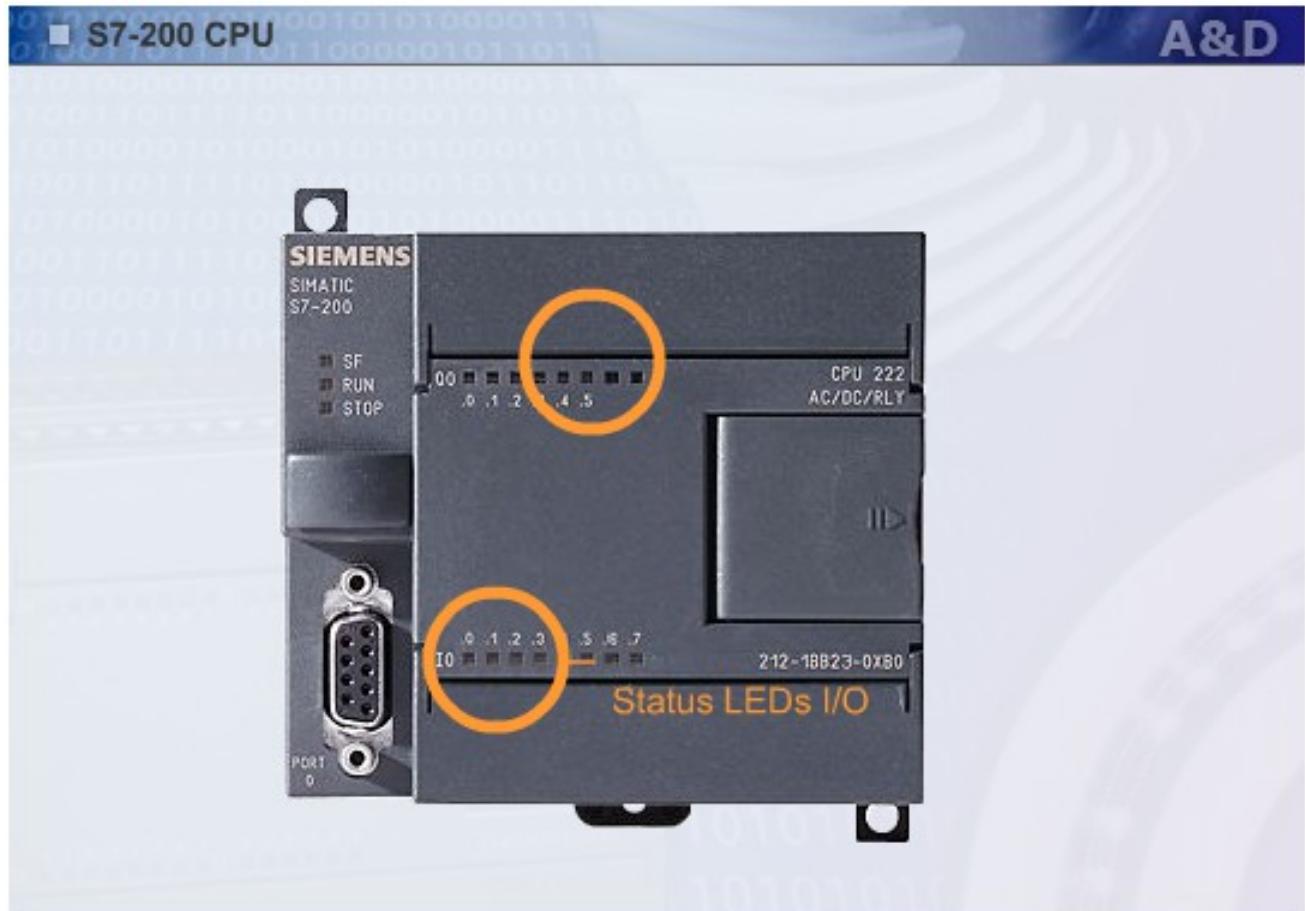
S7-200 Osnovni moduli

Fizični izgled

Komunikacija

A maximum of 126 subscribers or nodes such as HMI systems, other CPUs or programming devices can be connected via the integrated RS-485 communication interface. The PPI protocol is used in homogenous S7-200 networks. In a network with TIA components such as S7-300 or S7-400, the S7-200 CPUs are integrated as MPI slaves.
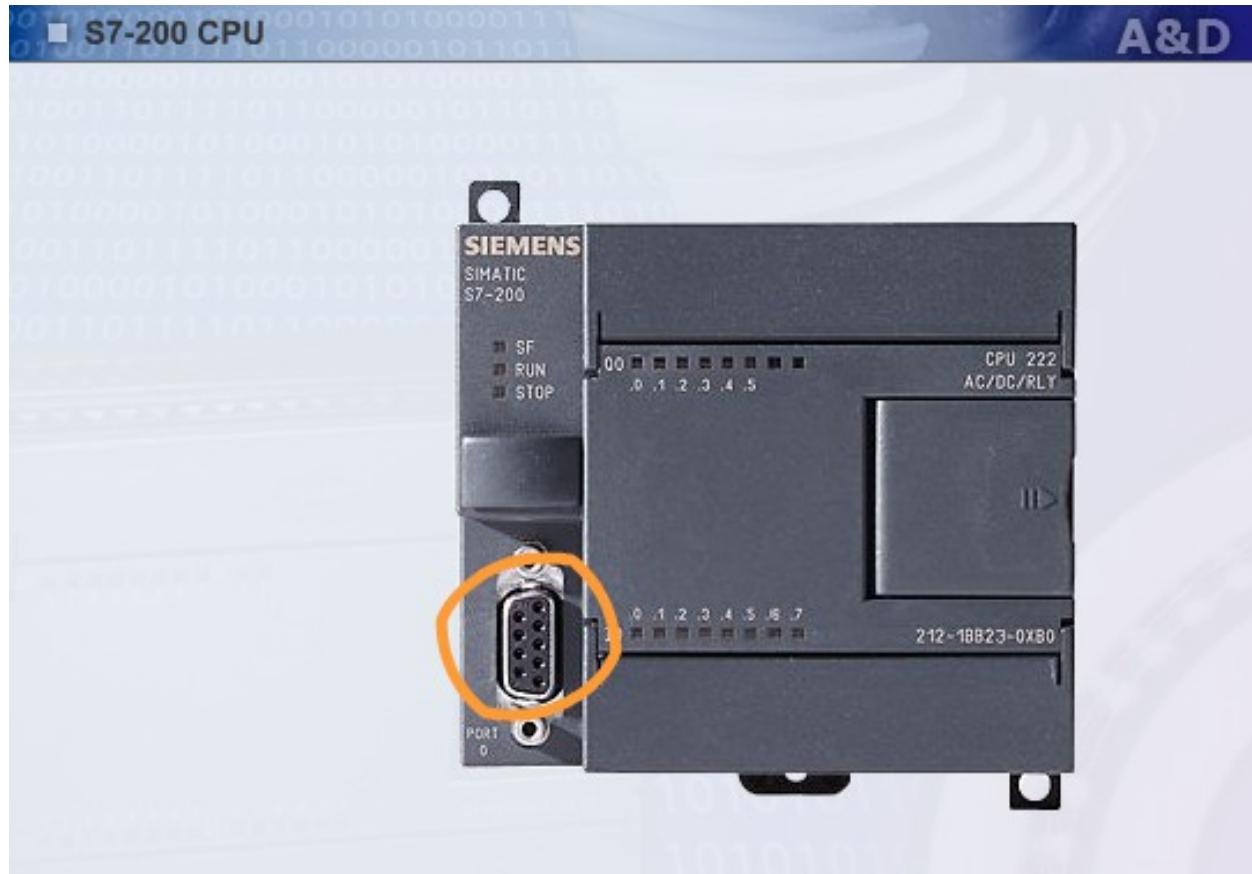
S7-200 Osnovni moduli

Fizični izgled

Komunikacija

If the integrated interface is used with user specific protocols (free ASCII protocol) in FREEPORT mode, the CPU can accept any peripheral such as
• printers
• PC
• Barcode readers
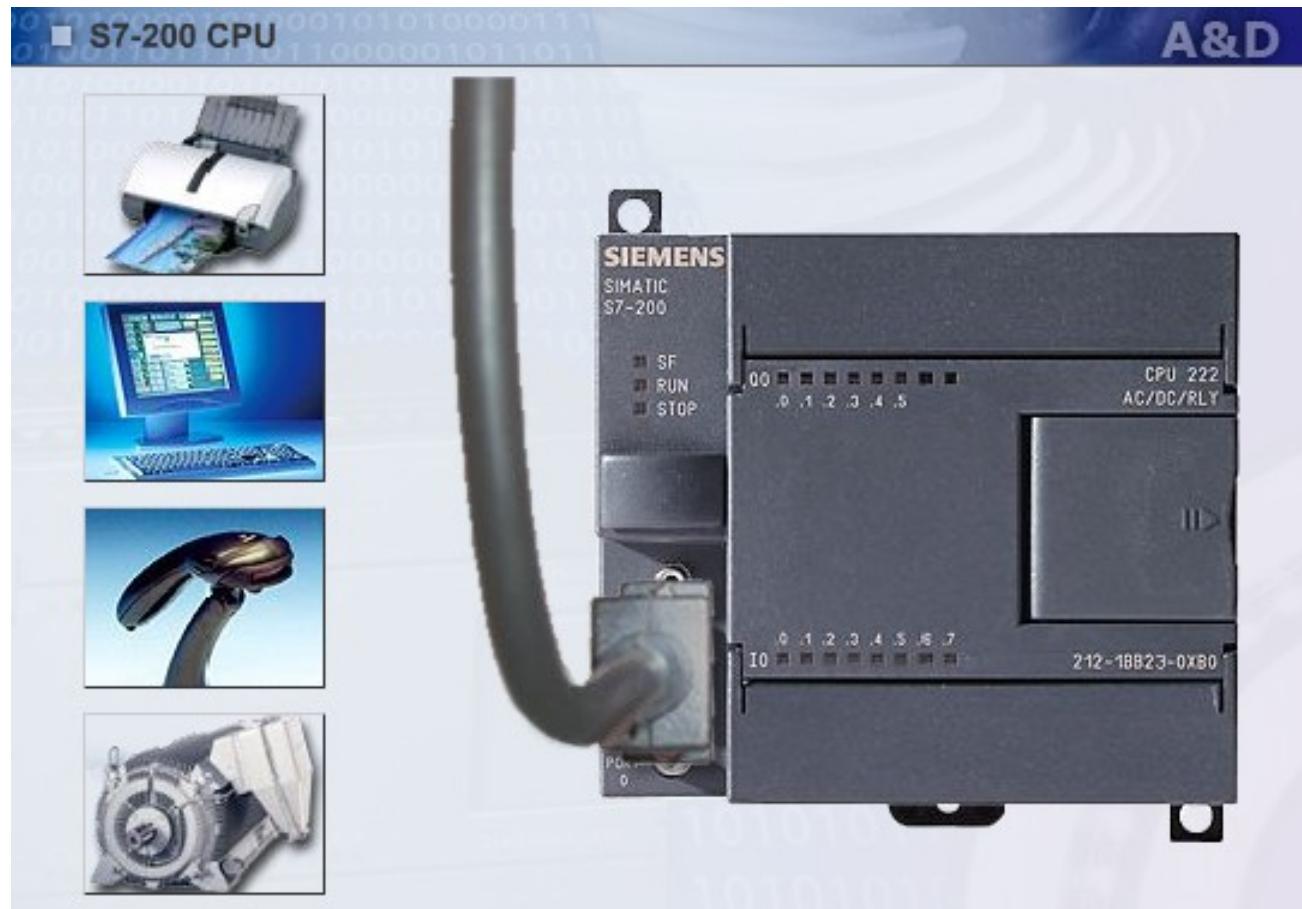
S7-200 Osnovni moduli

Fizični izgled
EPROM
An optional plug-in EEPROM memory module allows you to store CPU programs or to transfer programs from one CPU to another.

S7-200 Osnovni moduli

Fizični izgled
Dodatno baterijsko napajanje
An optional plug-in **battery module** allows you to back up internal data.
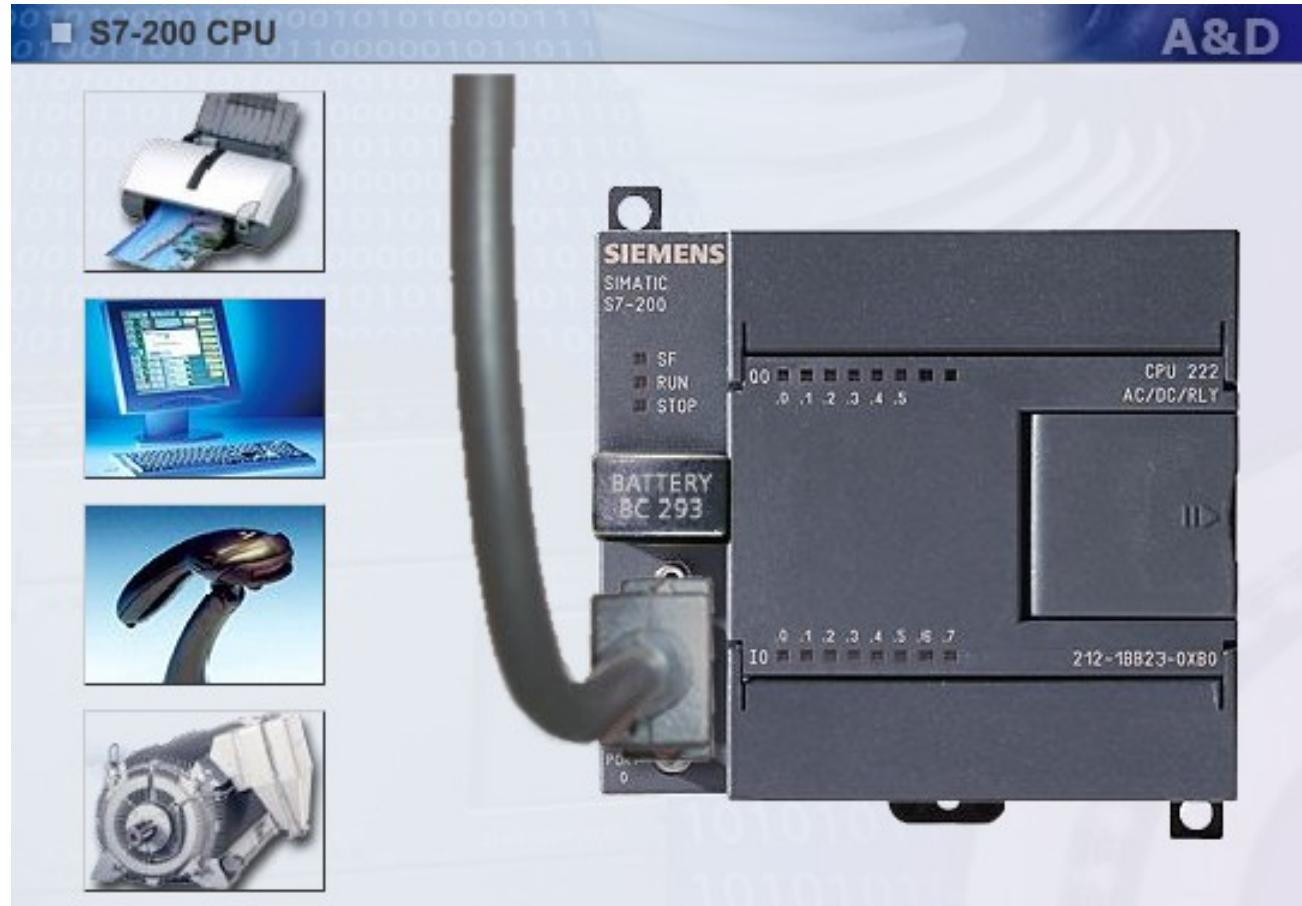
S7-200 Osnovni moduli

Fizični izgled

Urni modul

With the CPU 221 and CPU 222, there is an optional real-time clock module. This allows processing with time stamps on even the smallest members of the S7-200 family.

Starting with the CPU 224, the system already possesses an integrated real-time clock.
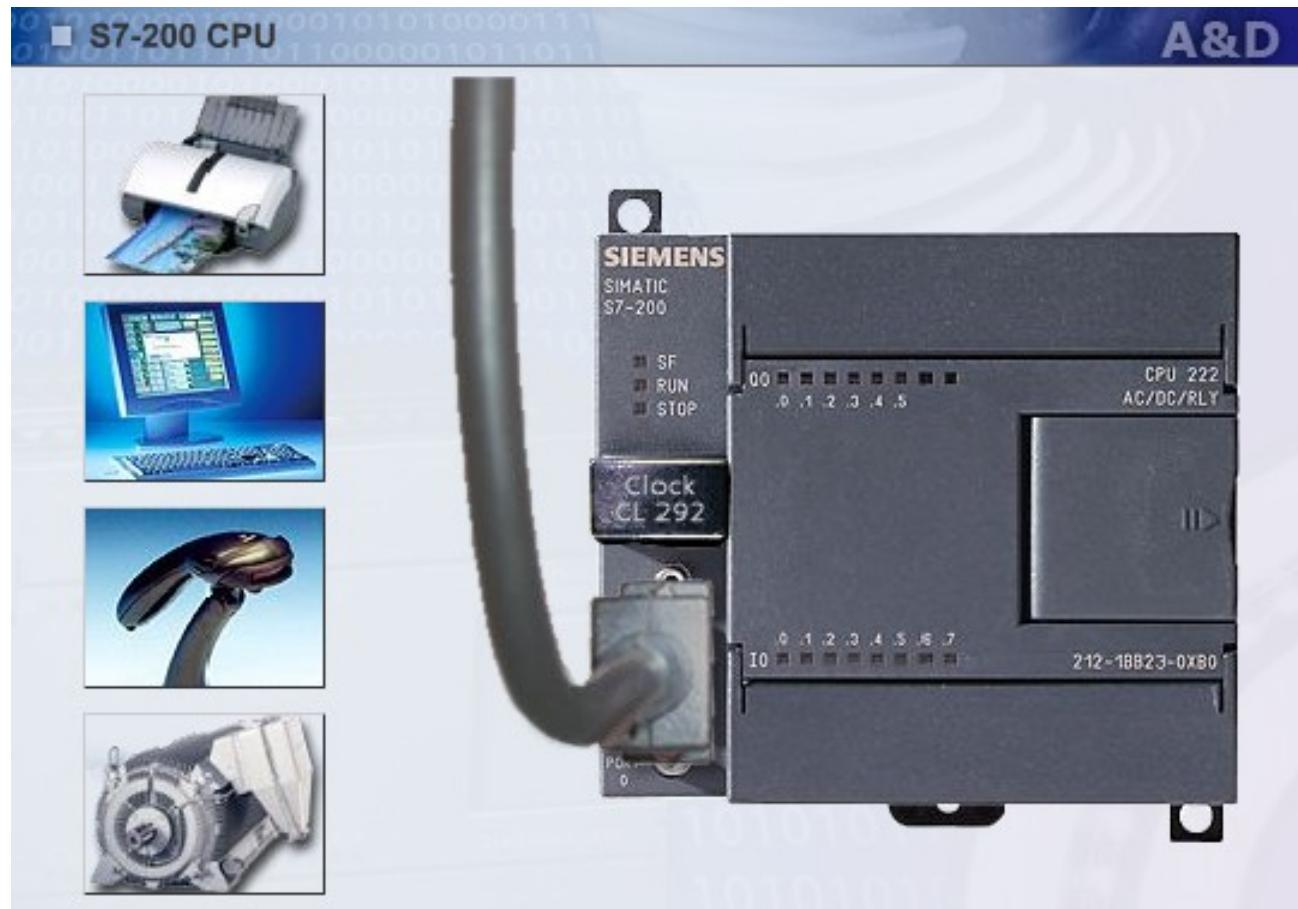
S7-200 Osnovni moduli

Fizični izgled
Posebnosti CPU 224 XP

The CPU 224XP also has *integrated analog I/Os*.

Removal terminal strips for independent wiring are to be found with the 224, 224XP und 226 CPUs.

In addition, the CPU 224XP and CPU 226 come with a second communication interface.
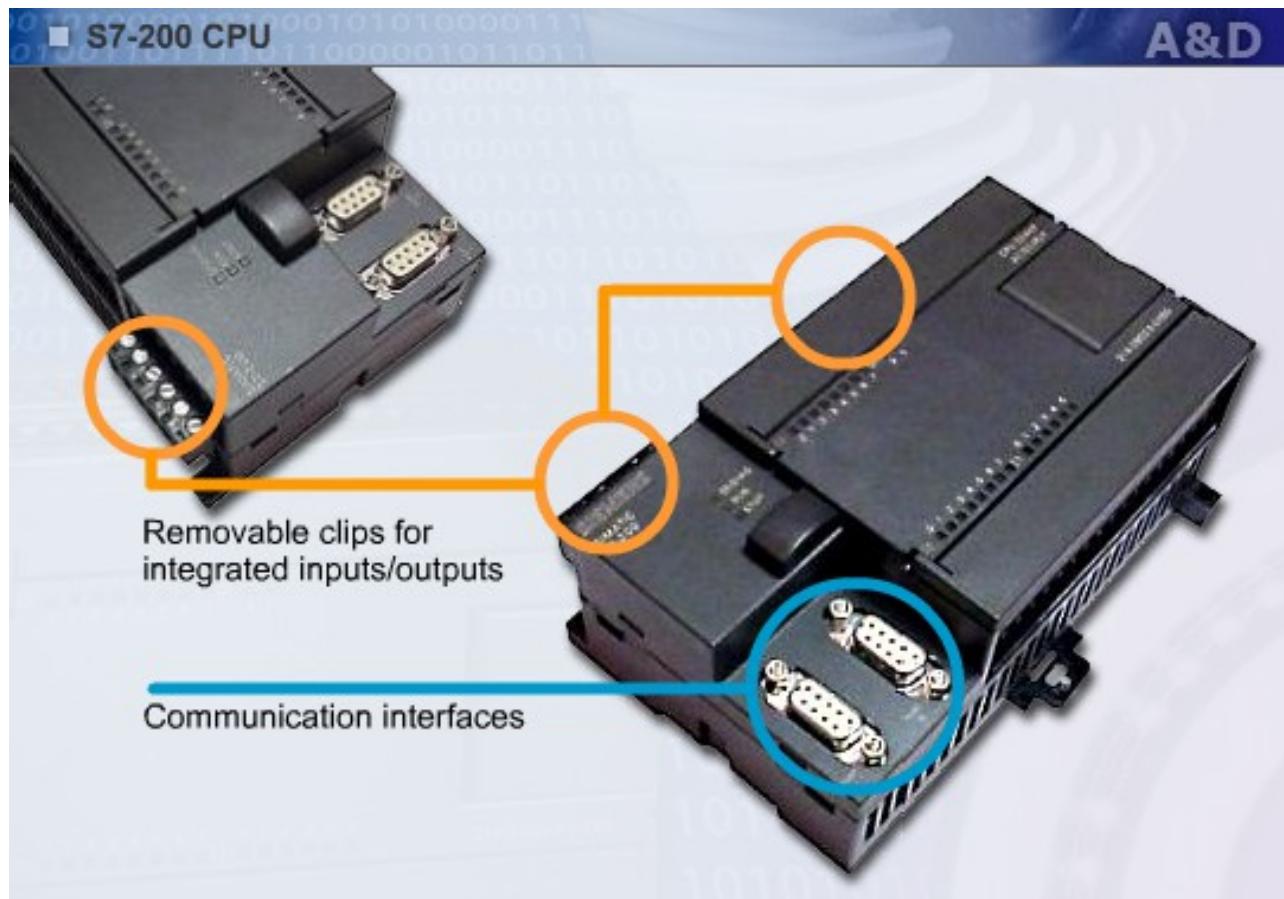
S7-200 Razširitveni moduli

Način povezave

The expansion modules can give the S7-200:

- **additional functionality**

- increase the number of **inputs and outputs**.
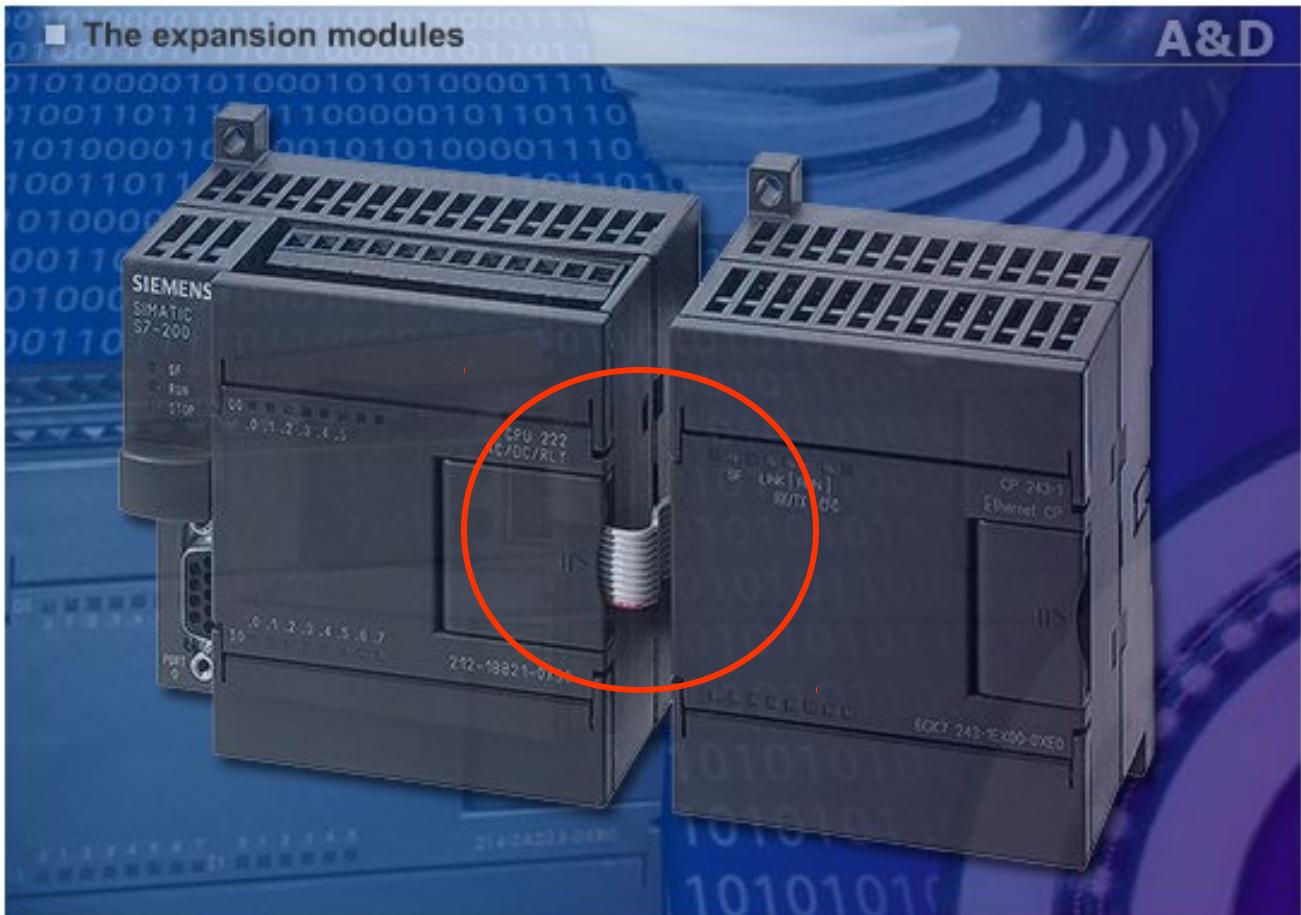
S7-200 Razširitveni moduli

Način povezave

Up to two modules can be connected to the CPU 222 and up to seven modules to the CPU 224, 224XP and 226.

The CPU 221 is not expandable.

To accommodate space requirements, the S7-200 can also be layed out in two tiers.
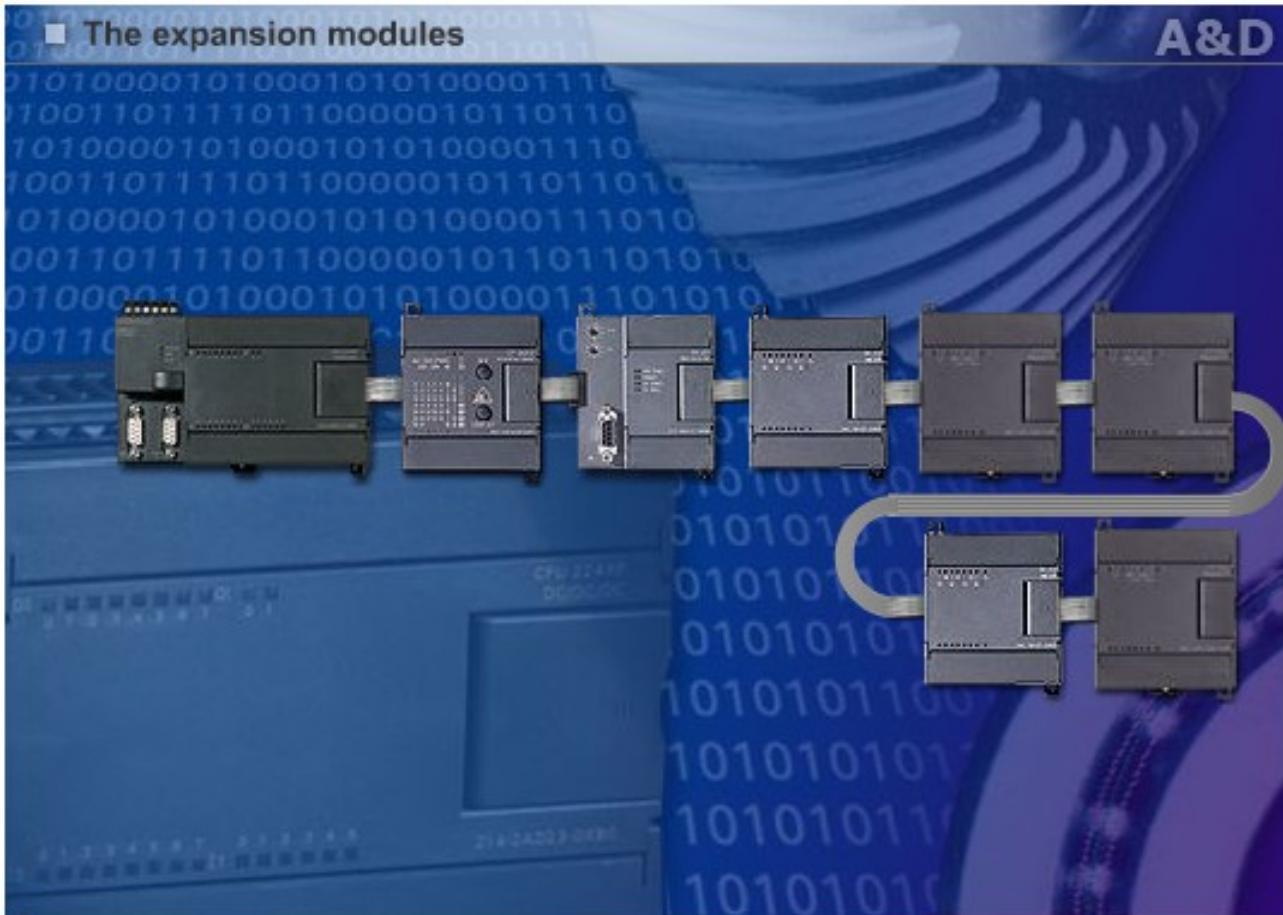
S7-200 Razširitveni moduli

Moduli skupine EM 221 (digitalni-vhodi)
The **EM 221** series expansion modules are equipped with **digital inputs**.
These exist in three versions:
•8 digital inputs 24V DC
•16 digital inputs 24V DC
•8 digital inputs 120V/230V AC.

S7-200 Razširitveni moduli

Moduli skupine EM 222 (digitalni-izhodi)
The **EM 222** expansion modules only come with **digital outlets**.
The EM 222 is available in four models:
- 4 transistor outputs 24V DC
- 8 transistor outputs 24V DC
- 4 x relays
- 8 x relays.

S7-200 Razširitveni moduli

Moduli skupine EM 223 (digitalni - vhodi in izhodi)
The **EM 223** expansion modules come both with **digital inputs and outputs**.

S7-200 Razširitveni moduli

Moduli skupine EM 231 (analogni)
The **EM 231** is equipped with four analog inputs.
The **EM 232** with two analog outputs.
The **EM 235** is equipped with four analog inputs and an analog output.
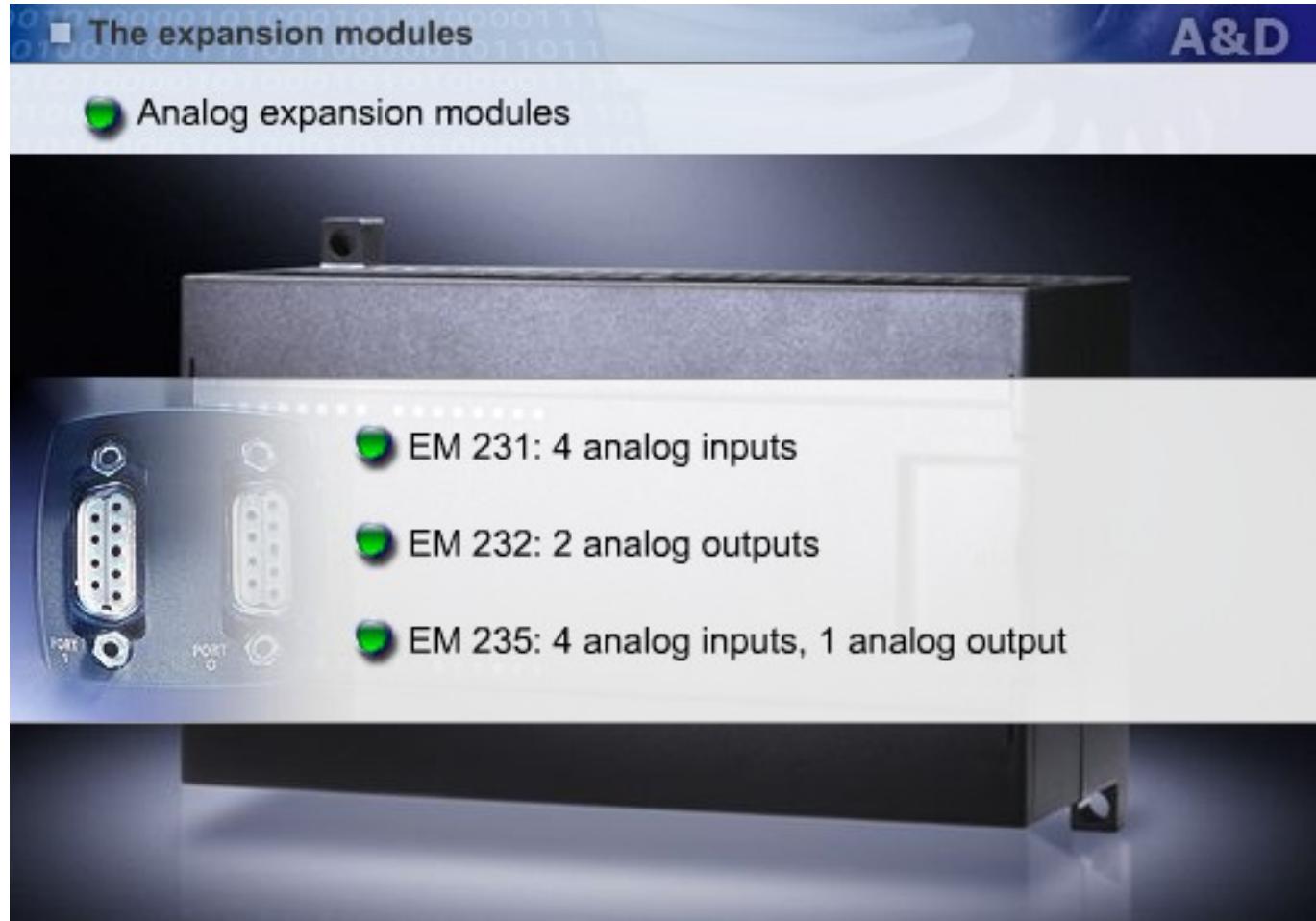
S7-200 Razširitveni moduli

Komunikacijski moduli
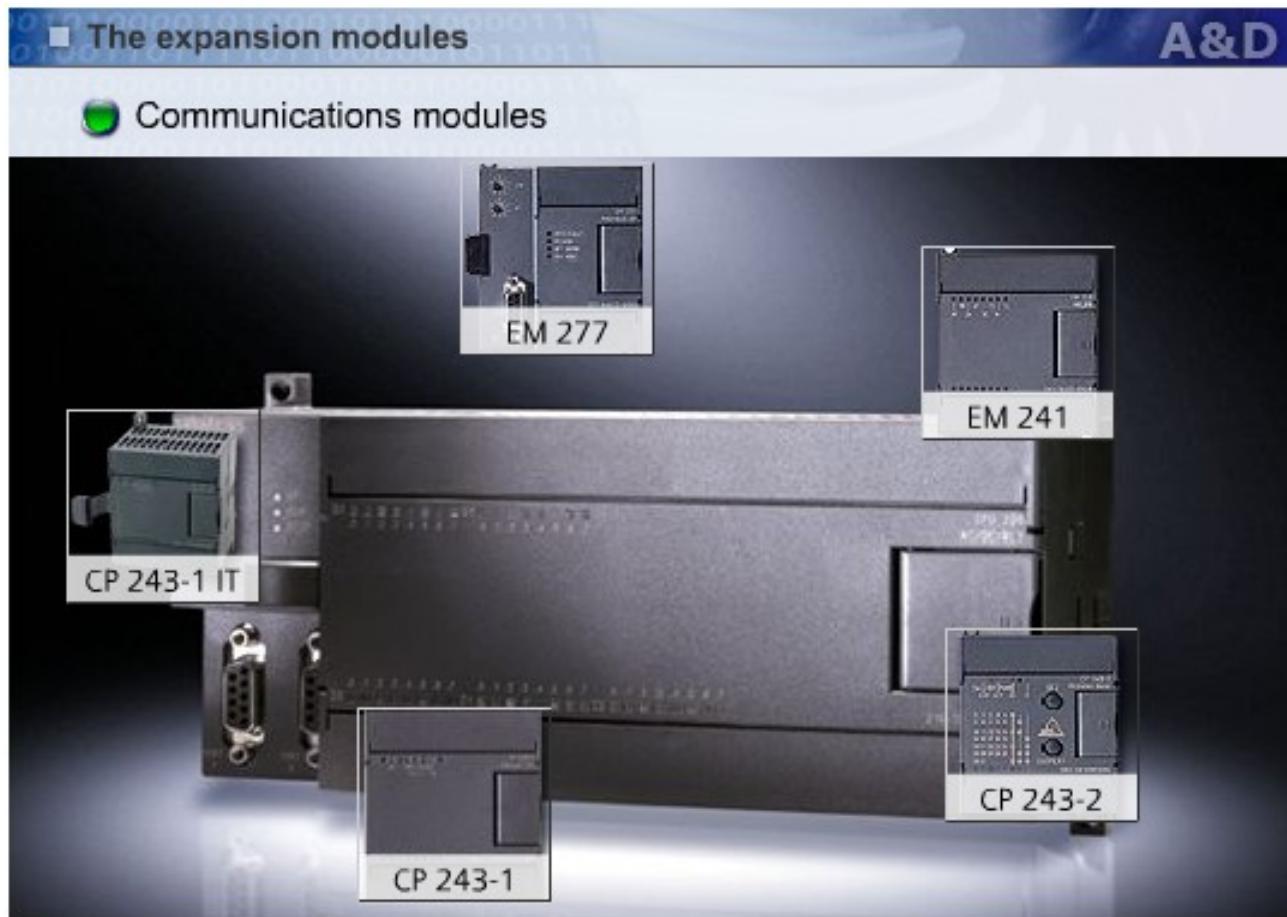
S7-200 Razširitveni moduli

Komunikacijski moduli
The **EM 241 modem module** connects the S7-200 with the **telephone network**. The S7-200 can thus be reached **anywhere in the world** or can actively send data and information of its own accord.

This enables you to carry out remote service. Remote inquiry and data transmission is of course also possible. The data transmission protocols are freely selectable e.g. SMS, Fax or Modbus RTU.

S7-200 Razširitveni moduli

Komunikacijski moduli
The **PROFIBUS DP-Slave module EM 277** connects the S7-200 as a slave with a DP network. The transmission rate is up to 12 Mbit/s. The bus can support up to **99 devices** whose station addresses are freely selectable via a rotary switch.
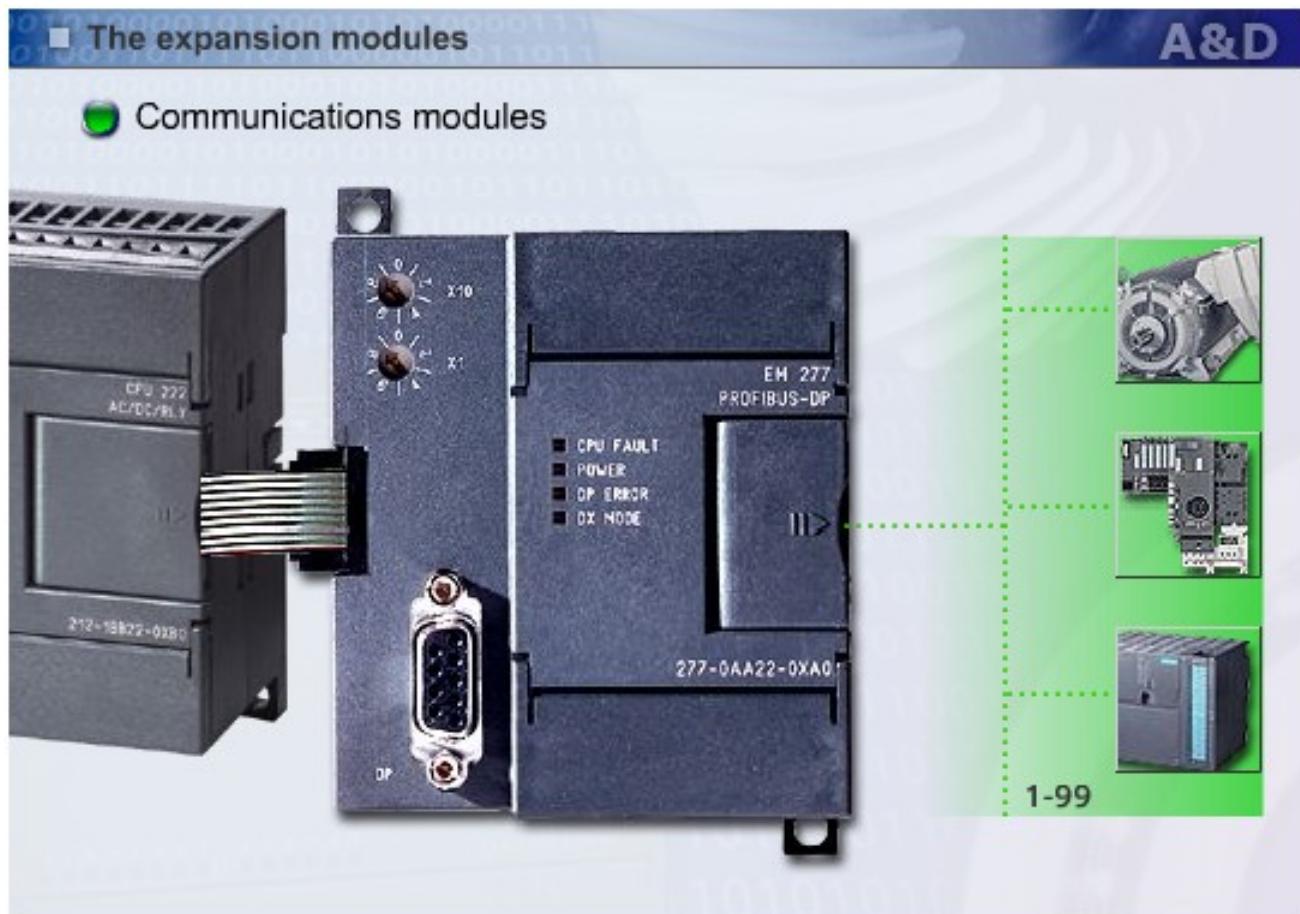
S7-200 Razširitveni moduli

Komunikacijski moduli

The **CP 243-2 AS interface module** converts the S7-200 into a powerful master on the [AS-Interface](). Up to **62 AS interface slaves** can be connected to it.

S7-200 Razširitveni moduli

Komunikacijski moduli

The **CP 243-1 Ethernet module** makes it easy to attach an S7-200 to an industrial Ethernet. The Ethernet access is via the RJ45-connector. It supports remote programming, configuration and diagnosis as well as data transmission.

Simultaneous communication with up to 8 S7 PLCs, but also with an OPCserver for PC access, is possible.
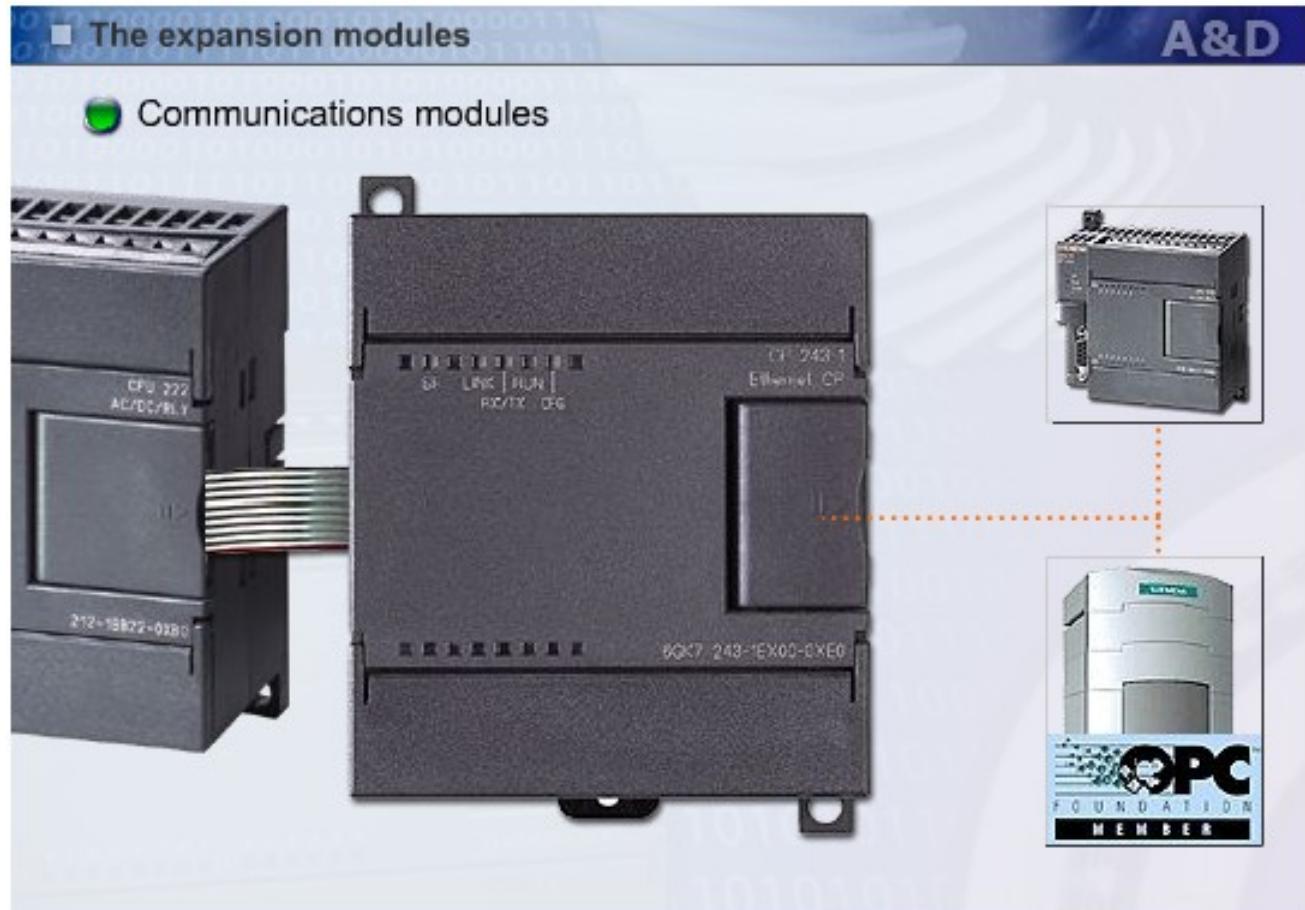
S7-200 Razširitveni moduli

Komunikacijski moduli

The **IT-Module CP 243-1 IT** offers the same network functionality as the Ethernet module. Additionally, it is also enhanced with the Internet's functionality.

The module's IT functions allow you to implement your own homepage on the PLC or else use IT services such as E-Mail, File Transfer Protocol, etc.

S7-200 Razširitveni moduli

Specialni moduli

The **EM 253** positioning model is used to control stepper motors. It issues its instructions to a power system which then executes the movement via a stepper motor.
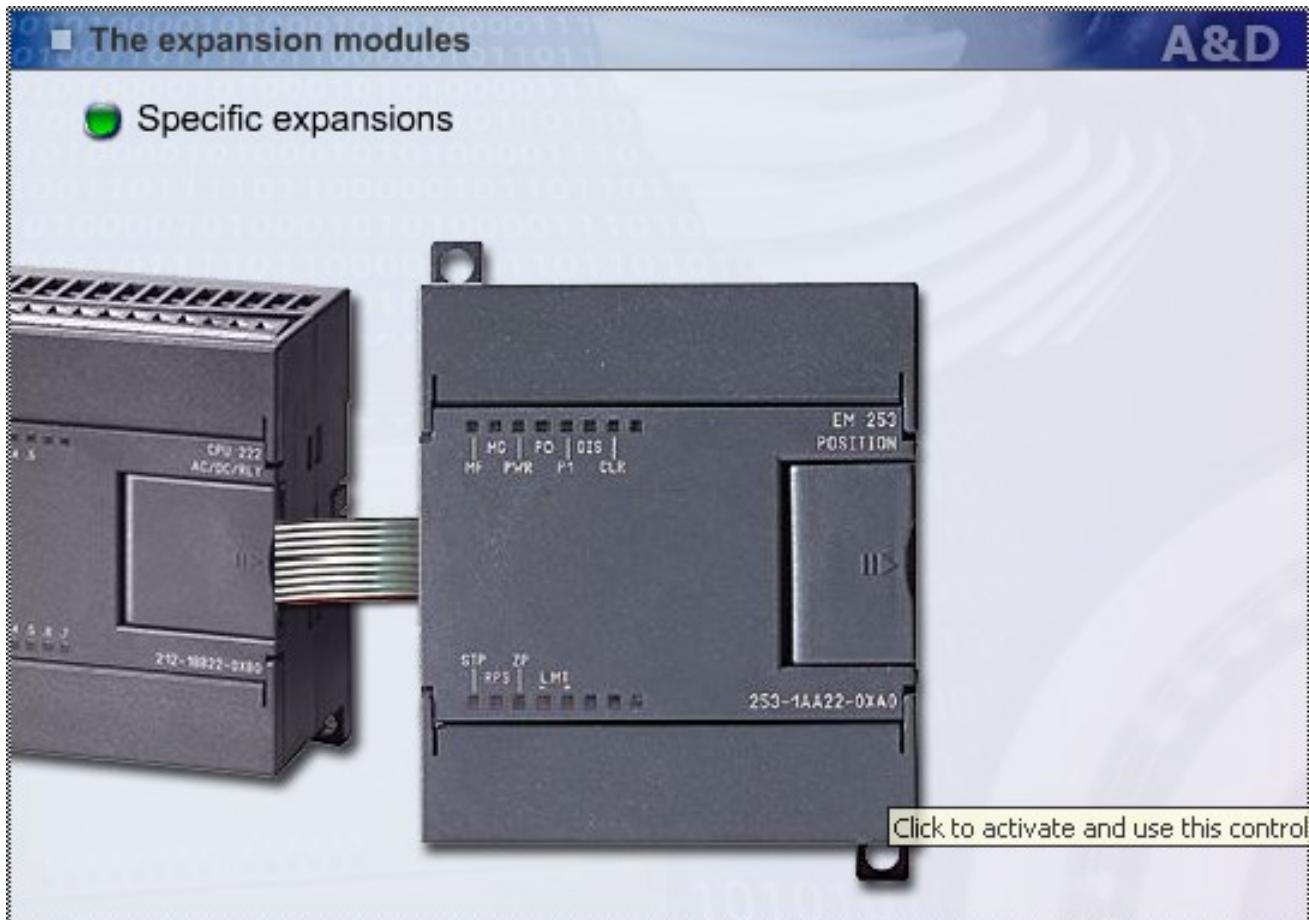
S7-200 Razširitveni moduli

Specialni moduli

The **EM 253** positioning model is used to control stepper motors. It issues its instructions to a power system which then executes the movement via a stepper motor.

The EM 253 can emit 12 to **200,000 impulses per second**. It supports both jerk-free as well as linear accelerations and delays. The module supports other helpful and necessary additional functions such as for example various options for **the reference point movement.**
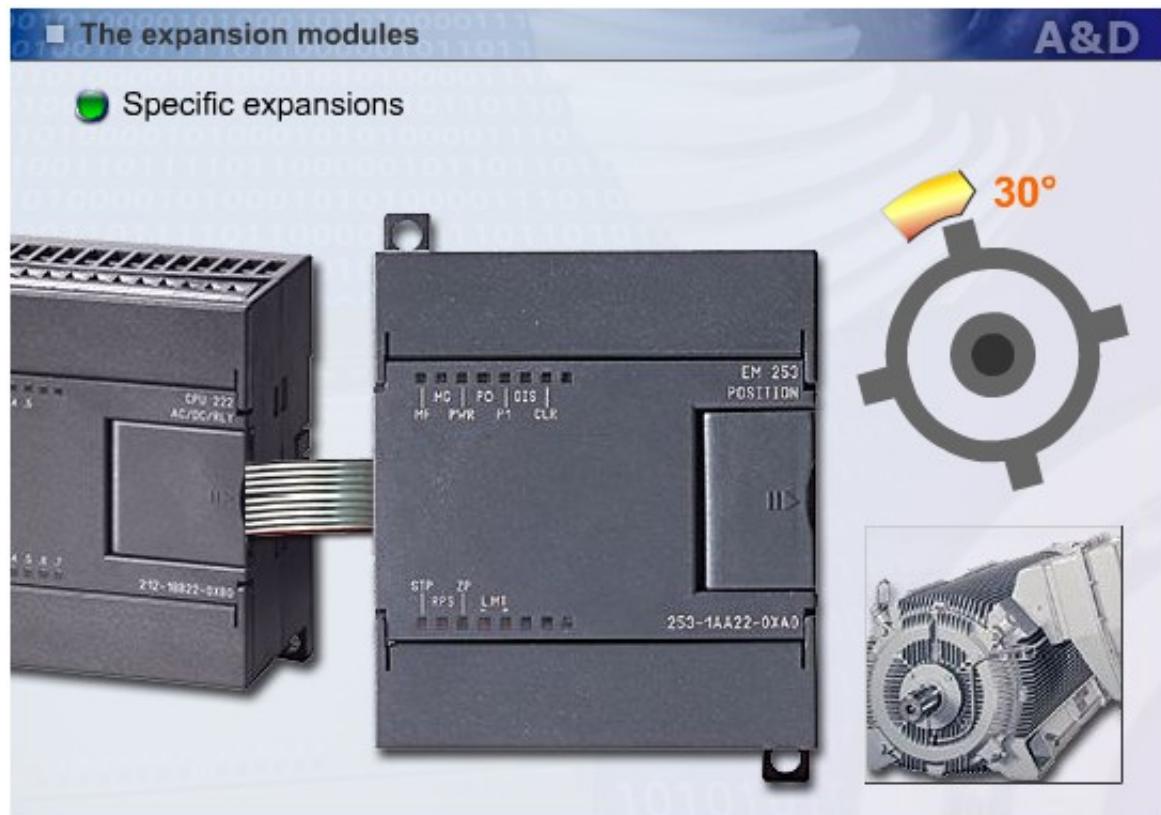
S7-200 Razširitveni moduli

Specialni moduli

The **positioning wizard** supports you in parameterizing and commissioning positioning tasks. This allows even complex procedural profiles to be implemented very easily.
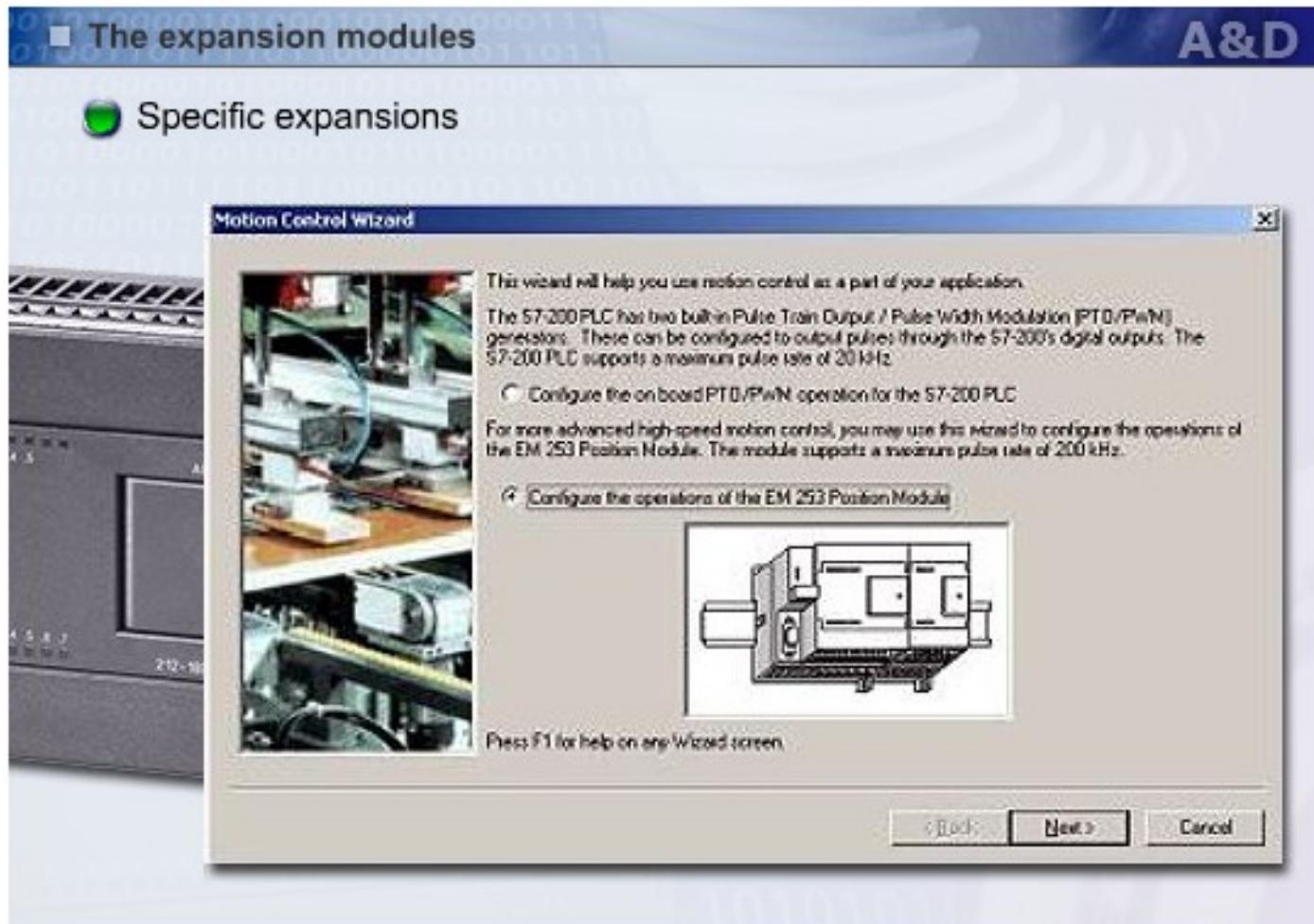
S7-200 HMI moduli

• **Text Displays**
• **Touch Panels**
• **Operator Panels**
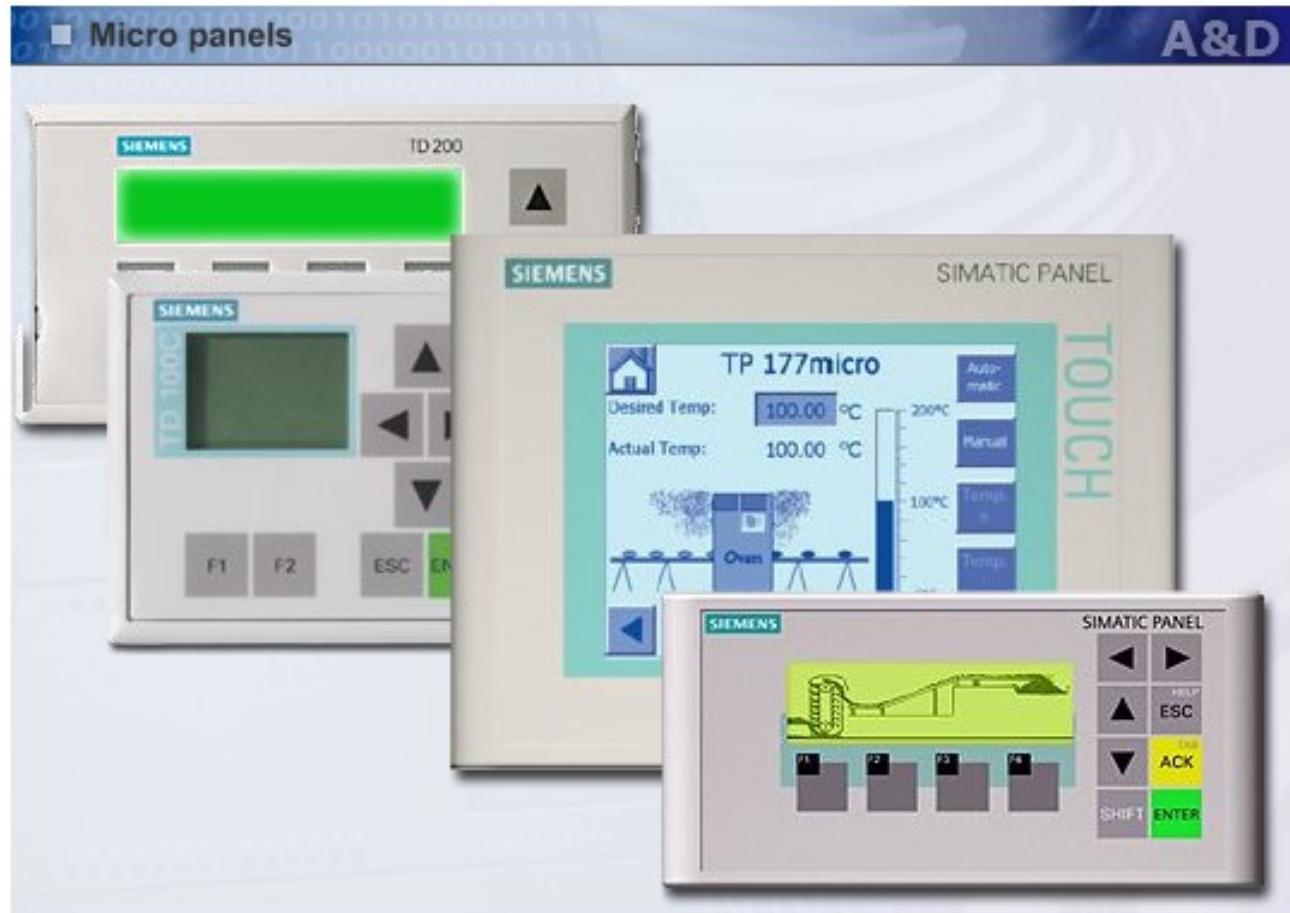
S7-200 HMI moduli

Text display TD 200

- The **TD 200** features a two line, backlit text display for displaying message menus, text messages and other application data. 20 characters per line can be displayed.

- The S7-200 can be networked easily with the TD 200 via **PPI**; the power supply is via the CPU. Alternatively, the device can be supplied from an external power source.

Micro panels

SIEMENS

STEP 7-Micro/WIN 32

Version 4.0   IEC 1131-3

A&D

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TD 200 Configuration Wizard

Assign Symbols for TD Panel Buttons

Use this page to assign Symbolic names for the TD panel buttons that set PLC bits.

Configure

The TD panel you have selected has 2 buttons configured to set a PLC bit. Additionally, you have configured a button for the SHIFT function. Each button may now control two PLC bits. One bit is controlled when the button is pressed alone. Another bit is controlled when the button is pressed in combination with the Shift button.

The V-memory bits controlled by each buttons are listed below. You may define a symbol for each bit. A suggested symbolic name has been provided for each.

You may also define an operator message to be displayed briefly when the button is pressed on the TD 200c. If you do not define a confirmation message, a default message will be displayed.

	Button	Address	Symbol	Operator Message
1	button1	V30.0	button1	
2	Shift + button1	V32.4	S_button1	
3	button2	V30.1	button2	
4	Shift + button2	V32.5	S_button2	

Click for Help and Support   <Prev | Next> | Cancel

The TD 200's configuration data is stored in the S7-200's CPU.
Message texts and configurations parameters are produced by the **STEP 7-Micro/WIN** programming software and the **TD 200 wizard** which is integrated in it.
No additional parameterizing software is required.

1 / 8

Micro panels

A&D
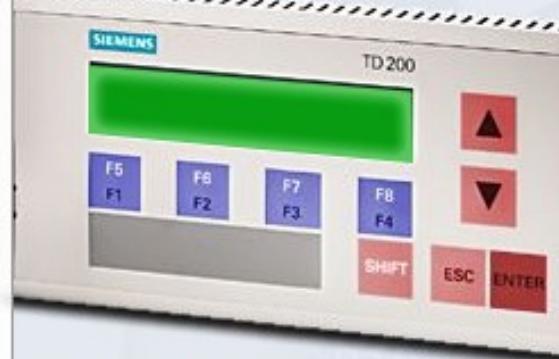
🟢 blue = freely programmable

🟢 red = predefined

The TD 200 possesses a total of **nine keys** of which five are predefined.

The four function keys can be freely programmed by the user. Eight functions can be defined in conjunction with the Shift key.

Micro panels   A&D
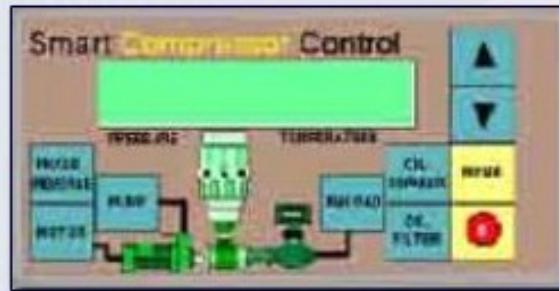
The **TD 200**C has the same basic functionality as the TD 200. As regards the **layout of the keypad and design of the front plate, however, the surface of the panel is fully flexible.** The user designed and printable faceplates permit optimal tailoring of the panel to its operating environment.

S7-200 HMI moduli

Touch panel TP 177micro

Micro panels

A&D

SIEMENS   SIMATIC PANEL

TP 177micro   Auto-matic

Desired Temp: 100.00 °C   200°C
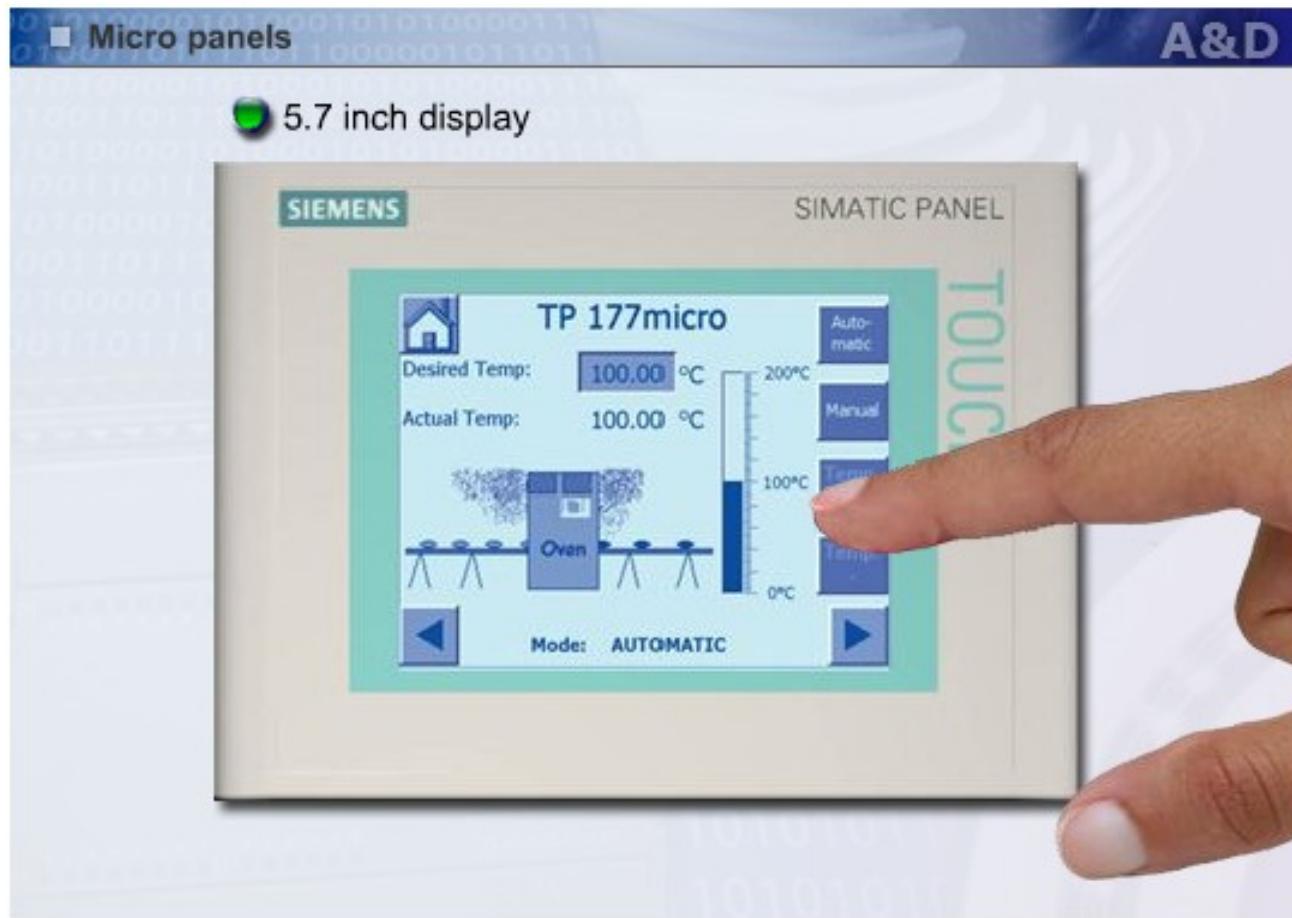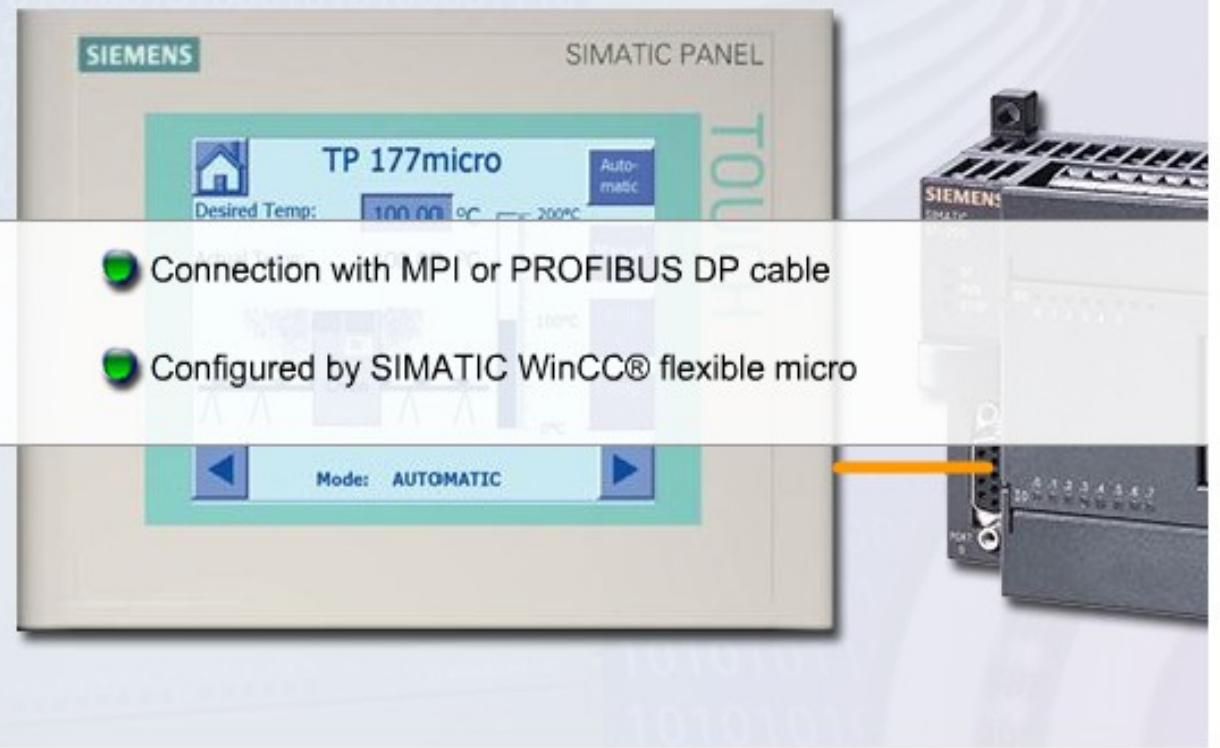
🟢 Connection with MPI or PROFIBUS DP cable

🟢 Configured by SIMATIC WinCC® flexible micro

◀   Mode: AUTOMATIC   ▶

The panel is easily connected to the S7-200 by means of a standard **MPI or PROFIBUS-DP cable**.

Configuration is by means of the innovative **SIMATIC WinCC® flexible micro** engineering software.

S7-200 HMI moduli

Panel OP 73 micro