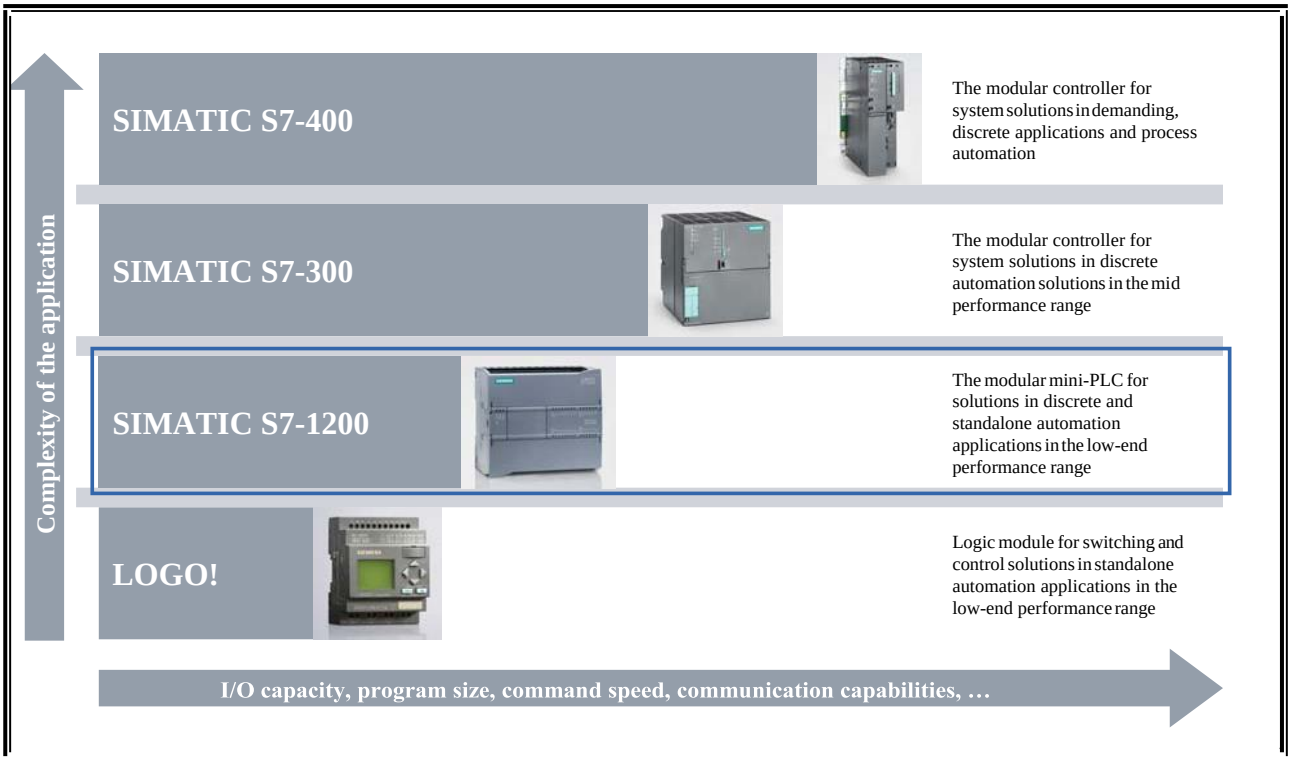
Different Brands of PLC's available in the global market and types of Siemens PLC's

Positioning of the modular controllers



Scalability S7-1200 <> S7-300

S7-1200
1211C 1212C 1214C 1215C 1217C (only DC/DC/DC)

S7-300C
312C 313C 313C-2 PtP 313C-2 DP 314C-2 PtP 314C-2 DP 314C PN

S7-300
312 314 315-2 DP 315-2 PN/DP 317-2 DP 317-2 PN/DP 319-3 PN/DP

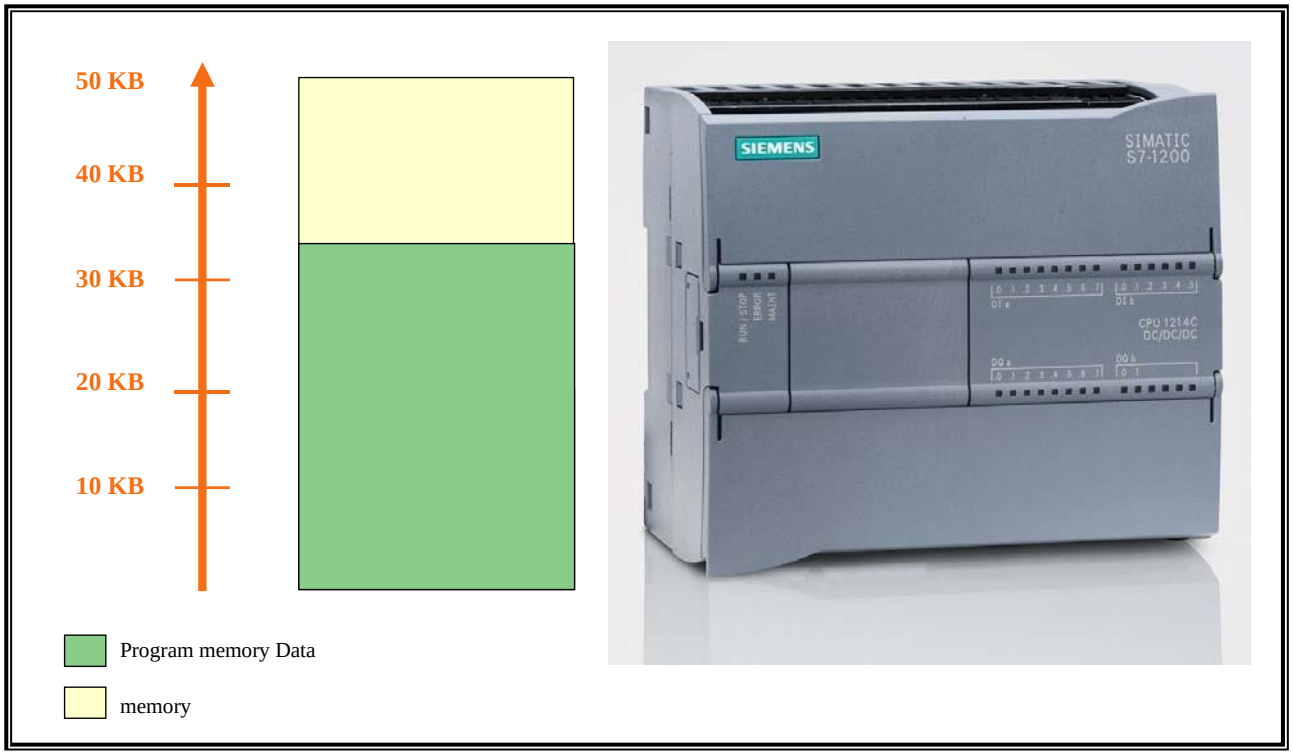
ET200S
IM151-7 CPU IM151-8 PN/DP CPU

ET200PRO
IM154-8 PN/DP CPU

SIMATIC S7-1200: The modular mini-PLC

CPU features	**CPU 1211C**	**CPU 1212C**	**CPU 1214C**
3 CPUs	*DC/DC/DC, AC/DC/RLY, DC/DC/RLY*		
Work memory – integrated	*25 KB*	*25 KB*	*50 KB*
Load memory – integrated	*1 MB*	*1 MB*	*2 MB*
Memory cassette	*SIMATIC Memory Card (optional)*		
Built-in digital I/O	*6 inputs, 4 outputs*	*8 inputs, 6 outputs*	*14 inputs, 10 outputs*
Built-in analog I/O	*2 inputs*		
Process image size	*1024 bytes for inputs/1024 bytes for outputs*		
Signal board expansion	*1 max.*		
Signal module expansion	*None*	*2 max.*	*8 max.*
Max. local I/O – digital	*14*	*82*	*284*
Max. local I/O – analog	*3*	*15*	*51*

CPU memory

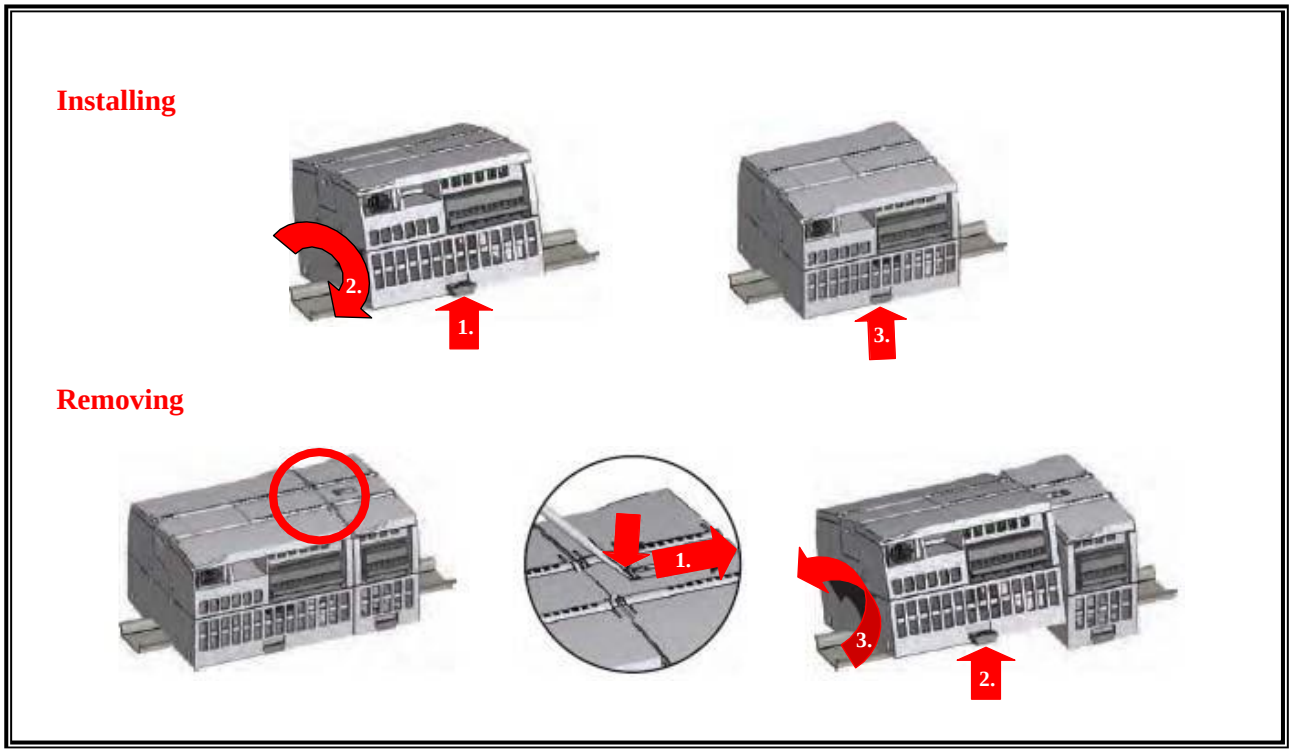


Memory

The CPU memory is used for storing the user program and user data. Supports blurred boundary between user program and user data (memory is not fixed for each)

- Up to 2048 bytes can be retentive
- The user can define user data or memory bits as retentive on power failure.
- Data identified in this manner must not be in a contiguous memory block.
- Maintenance info for each hardware unit
  - Order No.
  - Serial number
  - E status
  - Firmware status
  - MAC address

Installing and removing a CPU



Installing

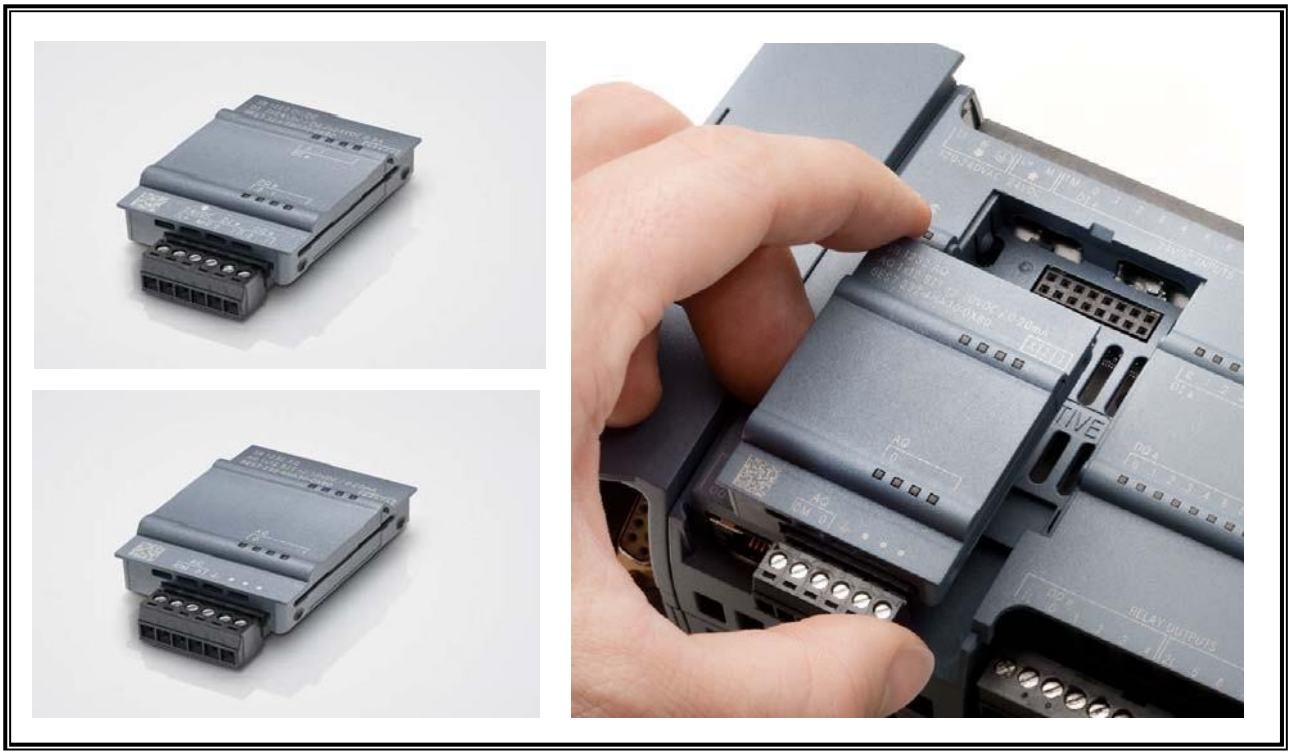
To install the CPU on a DIN rail, follow these steps:

- Install the DIN rail. Secure the rail to the mounting panel every 75 mm.
- Hook the CPU over the top of the DIN rail.
- Pull out the DIN rail clip on the bottom of the CPU to allow the CPU to fit over the rail.
- Rotate the CPU down into position on the rail.
- Push in the clips to latch the CPU to the rail.

Removing

- To prepare the CPU for removal, remove power from the CPU and disconnect the I/O connectors, wiring, and cables from the CPU. Remove the CPU and any attached communication modules as a unit. All signal modules should remain installed.
- If a signal module is connected to the CPU, retract the bus connector:
- Place a screwdriver beside the tab on the top of the signal module.
- Press down to disengage the connector from the CPU.
- Slide the tab fully to the right.
- Remove the CPU:
- Pull out the DIN rail clip to release the CPU from the rail.
- Rotate the CPU up and off the rail, and remove the CPU from the system.

SIMATIC S7-1200 signal boards



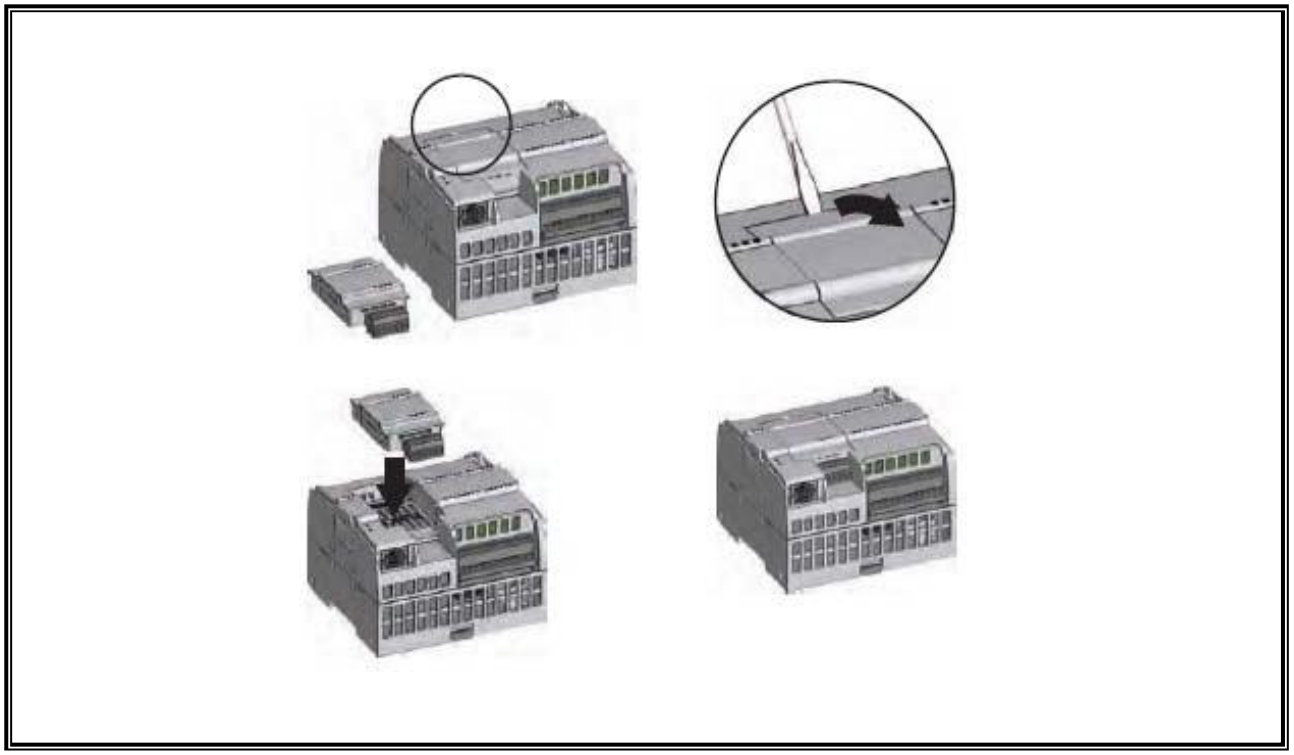
Application

- Signal boards for adapting the CPU to the application
  Adds analog or digital I/O connections to the CPU, as required by the application
- CPU size is unchanged

Signal boards

SB1223 DC / DC	SB 1232 AQ
Digital inputs/outputs	Analog
output DI 2 x 24 V DC 0.5 A	AO 1
x 12 bit	
DO 2 x 24 V DC 0.5 A	+-10 V DC / 0 – 20 mA

Installing and removing a signal board



Installing and removing

Prepare the CPU for installation of the SB by removing the power from the CPU and removing the top and bottom terminal block covers from the CPU. To install the SB, follow these steps:

- Place a screwdriver into the slot on top of the CPU at the rear of the cover.
- Gently pry the cover up and remove it from the CPU.
- Place the SB straight down into the mounting position in the top of the CPU.
- Firmly press the SB into position until it snaps into place.
- Replace the terminal block covers

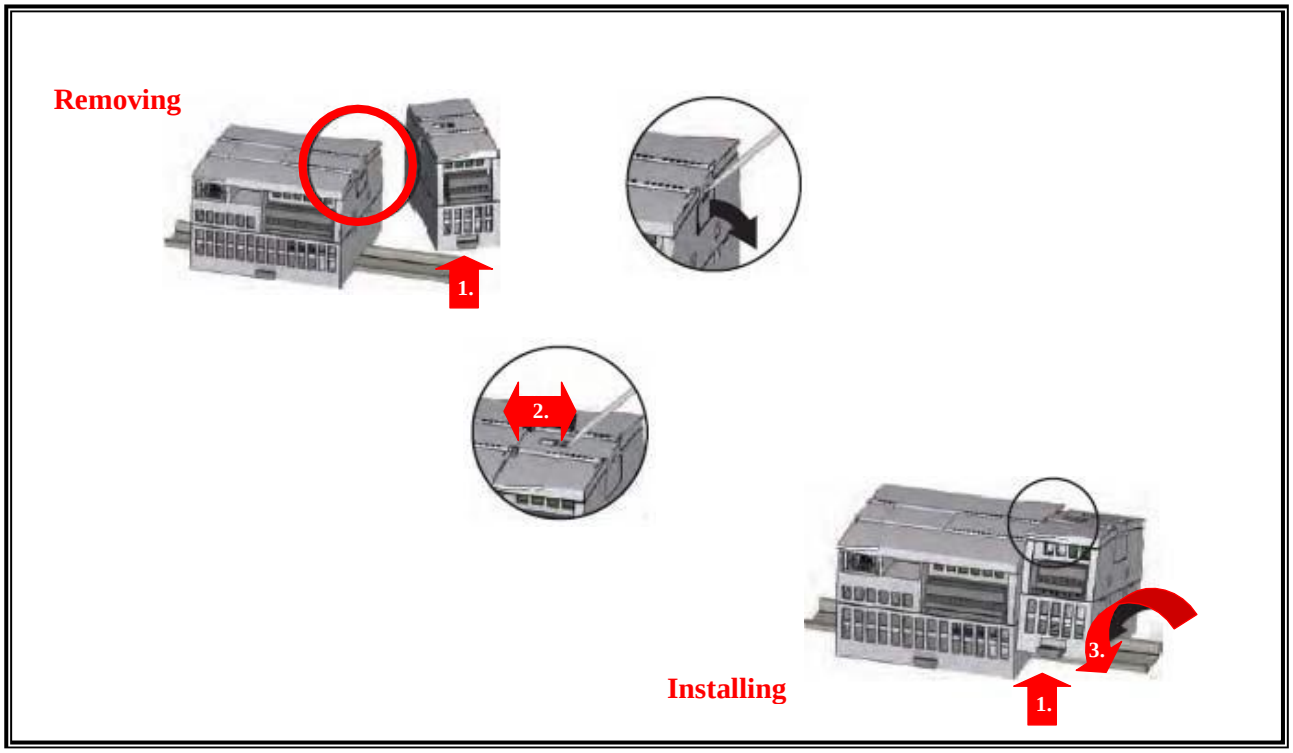
Signal modules

Signal modules	SM 1221 DC	SM 1221 DC
Digital input	DI 8 x 24 V DC	DI 16 x 24 V DC

Signal modules	SM 1222 DC	SM 1222 DC	SM 1222 RLY	SM 1222 RLY
Digital output	DO 8 x 24 V DC 0.5 A	DO 16 x 24 V DC 0.5 A	DO 8 x RLY 30 V DC / 250 V AC 2 A	DO 16 x RLY 30 V DC / 250 V AC 2 A

Signal modules	SM 1223 DC/DC	SM 1223 DC/DC	SM 1223 DC/RLY	SM 1223 DC/RLY
Digital inputs/outputs	DI 8 x 24 V DC DO 8 x 24 V DC 0.5 A	DI 16 x 24 V DC DO 16 x 24 V DC 0.5 A	DI 8 x 24 V DC DO 8 x RLY 30 V DC / 250 V AC 2 A	DI 16 x 24 V DC DO 16 x RLY 30 V DC / 250 V AC 2 A

Installing and removing a signal module



Installing

- Install your SM after installing the CPU.
- Remove the cover for the connector from the right side of the CPU.
- Insert a screwdriver into the slot above the cover.
- Gently pry the cover out at its top and remove the cover. Retain the cover for reuse.
- Hook the SM over the top of the DIN rail.
- Pull out the bottom DIN rail clip to allow the SM to fit over the rail.
- Rotate the SM down into position beside the CPU and push the bottom clip in to latch the SM onto the rail.
- Extend the bus connector.
- Place a screwdriver beside the tab on the top of the SM.
- Slide the tab fully to the left to extend the bus connector into the CPU.
- Extending the bus connector makes both mechanical and electrical connections for the SM.
- Follow the same procedure to install a signal module to a signal module.

Removing

Removal is done in a correspondingly modified sequence.

SIMATIC S7-1200 accessories

Power supply module

SIMATIC memory cards

Compact switch module

Power supply module

Inputs: 120 / 230 V AC, 50 / 60 Hz, 1.2 / 0.7 A

Outputs: 24 V DC / 2.5 A

Compact switch module

Compact switch modules are used to assemble communication

networks 4 x RJ 45 socket 10 / 100 Mbit/s

Memory card

A SIMATIC Memory Card is an SD memory card pre-formatted by Siemens that under no circumstances is to be formatted in Windows.

If data is to be saved or deleted on the SD card, the write-protect or the little slide switch on the side of the card must be switched off.

Application

- The memory card can be used...
  - ...for transferring a program to several CPUs
  - ...for updating the firmware of CPUs, signal modules and communication modules
  - ...as the substitute for the internal load memory
- On the memory card, you can store...
  - ...S7 programs
  - ...any data (e.g. documentation)
  - ...projects