5.4 Components

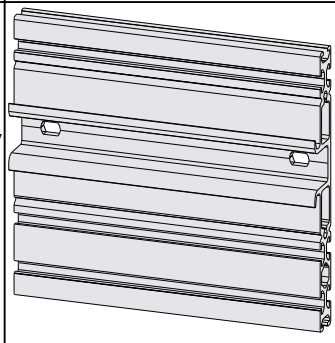
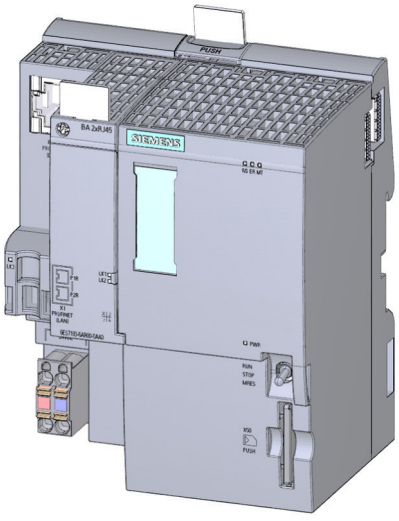
Overview of ET 200SP modules and accessories

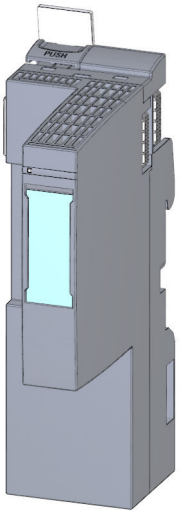
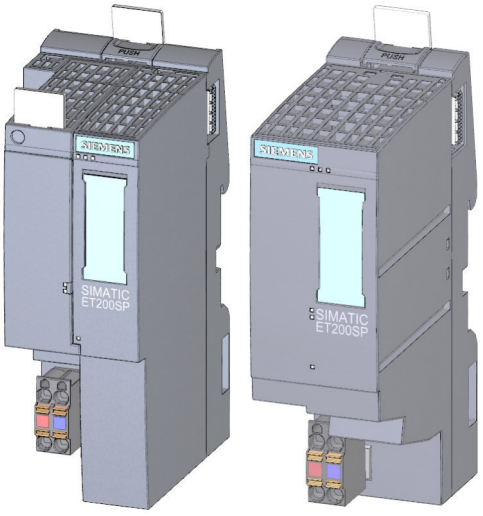
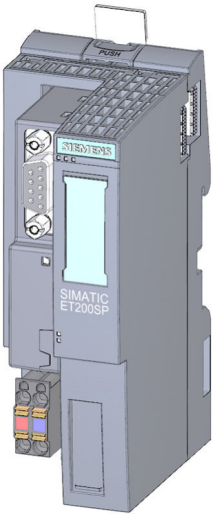
NOTE

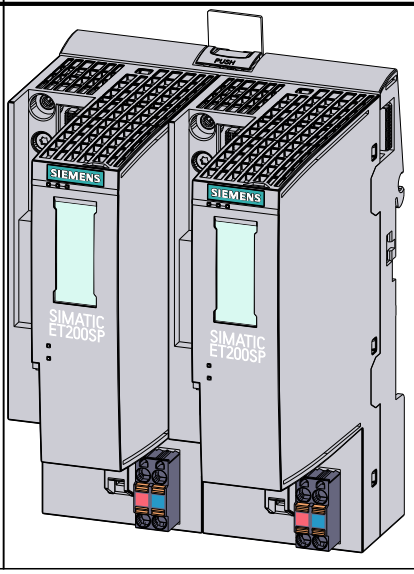
A complete overview of the ET 200SP modules and accessories is available in the Product information on documentation of the ET 200SP distributed I/O system (https://support.industry.siemens.com/cs/de/de/view/73021864/en).

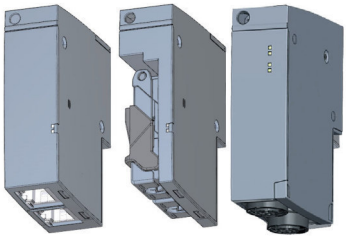
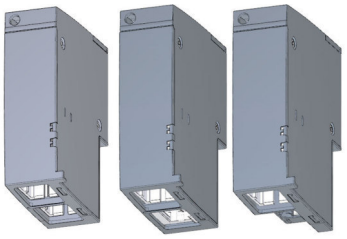
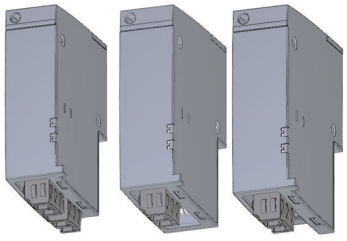
Basic components of the ET 200SP distributed I/O system

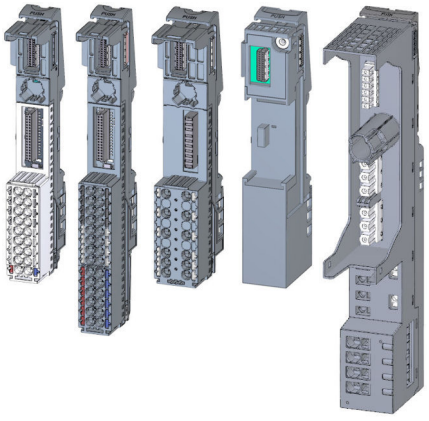
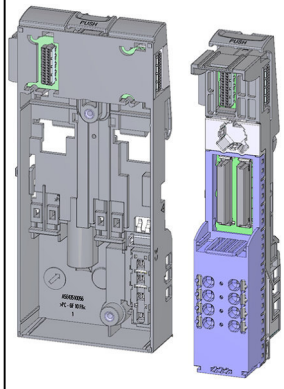
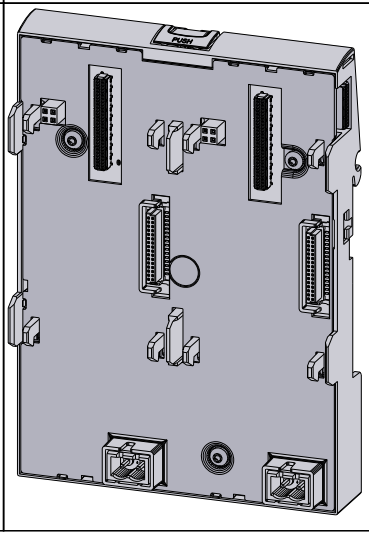
Table 5-2 Basic components of the ET 200SP

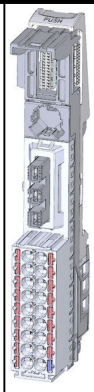
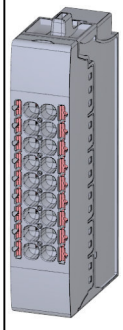
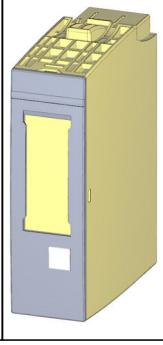
Basic component	Function	Figure
Mounting rail in accordance with EN 60715	The mounting rail is the rack of the ET 200SP distributed I/O system. You install the ET 200SP system on the mounting rail. The mounting rail is 35 mm high.	
SIMATIC system rail	The system rail is the mounting rack of the ET 200SP R1 distributed I/O system. The ET 200SP R1 system must be installed on the system rail. You can also mount all other interface modules on the system rail to improve the stability of the system.	
CPU/Fail-safe CPU	The (F) CPU: • Runs the user program. The F-CPU also runs the safety program. • Can be used as an IO controller or I-Device on PROFINET IO or as a standalone CPU • Links the ET 200SP to the IO devices or the IO controller • Exchanges data with the I/O modules via the backplane bus. Additional CPU functions: • Communication via PROFIBUS DP (the CPU can be used as a DP master or DP slave in combination with the CM DP communication module) • Integrated Web server • Integrated technology • Integrated trace functionality • Integrated system diagnostics • Integrated safety • Safety mode (when using fail-safe CPUs)	

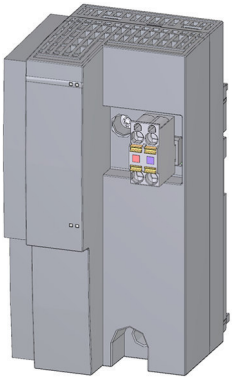
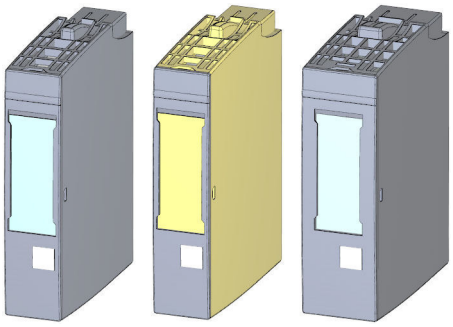
Basic component	Function	Figure
Communication module CM DP	The communication module CM DP • Connects the CPU with PROFIBUS DP • The bus connection is an RS485 interface.	
Interface module for PROFINET IO	The interface module: • Can be used as IO device on PROFINET IO • Links the ET 200SP with the IO controller • Exchanges data with the I/O modules via the backplane bus.	
Interface module for MultiFieldbus	The interface module: • Use as IO device on PROFINET IO • Links the ET 200SP with the IO controller • Links the ET 200SP via EtherNet/IP • Links the ET 200SP via Modbus TCP • Exchanges data with the I/O modules via the backplane bus You can find more information about MultiFieldbus in the MultiFieldbus Function Manual (https://support.industry.siemens.com/cs/ww/en/view/109773209) and in the Interface Module IM 155-6 MF HF Equipment Manual (https://support.industry.siemens.com/cs/ww/en/view/109773210).	
Interface module for PROFIBUS DP	The interface module: • Can be used as DP slave on PROFIBUS DP • Links the ET 200SP with the DP master • Exchanges data with the I/O modules via the backplane bus.	

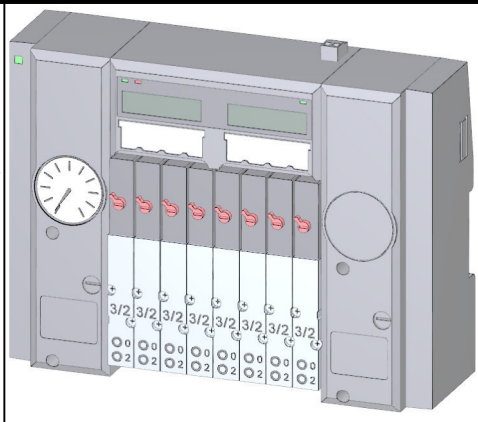
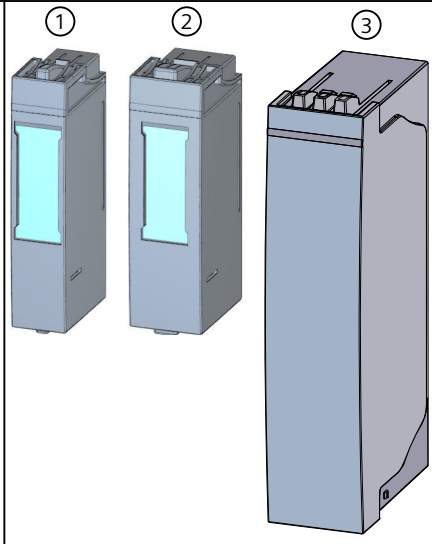
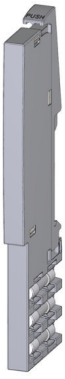
Basic component	Function	Figure
Interface modules and BaseUnit BU type M0 for redundant connection	The ET 200SP R1 system: • Use as redundant IO device on PROFINET IO • Connects the ET 200SP to the IO controller • Exchanges data with the I/O modules via the backplane bus.	

Basic component	Function	Figure
BusAdapter	The BusAdapters allow free selection of the connection technology for PROFINET IO. The following versions are available for PROFINET CPU/interface modules: • For standard RJ45 connector (BA 2×RJ45) ① • For direct connection of the bus cable (BA 2×FC) ② • For standard M12 connector (D-coded) with screw-type terminal or plug-in push-pull version (BA 2xM12) ③ • For POF/PCF fiber-optic cable (BA 2xSCRJ) ④ • As media converter for POF/PCF fiber-optic cable ⇔ standard RJ45 plug (BA SCRJ/RJ45) ⑤ • As media converter for POF/PCF fiber-optic cable ⇔ direct connection of the bus cable (BA SCRJ/FC) ⑥ • For glass fiber-optic cable (BA 2xLC) ⑦ • As media converter for glass fiber-optic cable ⇔ standard RJ45 plug (BA LC/RJ45) ⑧ • As media converter for glass fiber-optic cable ⇔ direct connection of the bus cable (BA LC/FC) ⑨ • For single-mode fiber-optic cable with maximum length of 20 km (BA 2xLC-LD, long distance) ⑩ • As media converter for glass fiber-optic cable with an LC plug connector ⇔ standard RJ45 connector (BA LC-LD/RJ45) ⑪ • As media converter for glass fiber-optic cable with an LC plug connector ⇔ standard M12 plug or M12 push-pull connector (BA LC-LD/M12) ⑫	① ② ③  ④ ⑤ ⑥  ⑦ ⑧ ⑨  ⑩ ⑪ ⑫
	For mixed ET 200SP/ET 200AL configuration, you require the BusAdapter BA-Send 1xFC ① (plugged into the BaseUnit BU-Send). Connect the bus cable for ET-Connection to the BusAdapter BA-Send 1xFC.	① 

Basic component	Function	Figure
BaseUnit	The BaseUnits provide the electrical and mechanical connection of the ET 200SP modules. Place the I/O modules or the motor starter onto the BaseUnits. Suitable BaseUnits are available in each case for the different requirements. You can find additional information in section Selecting the BaseUnit for I/O modules (Page 84).	
Ex BaseUnit	You need the following BaseUnits for an Ex module group: • Ex BaseUnit for Ex power module • Ex BaseUnit for Ex I/O module	
BaseUnit ET 200SP R1	Connects the IM 155-6 PN R1 redundant interface modules to the backplane bus. It enables data exchange with the I/O modules. Note: Interface modules cannot be plugged in if the supply voltage connector is plugged in. Only use BusAdapters of the same type.	

Basic component	Function	Figure
PotDis-BaseUnit potential distributor module	You use the potential distributor module to distribute a variety of potentials (P1, P2). This allows you to implement a multi-cable connection without external terminals with 16-channel digital modules. The assembly has two parts: • If you need additional potential terminals, plug a PotDis-TerminalBlock in the PotDis-BaseUnit. • Alternatively, plug a BU cover (15 mm) on the PotDis-BaseUnit. With potential distributor modules, you may only connect to the PotDis-TB versions BR-W and n.c.-G potential, which exceed the voltage level of SELV/PELV. Other SELV/PELV potential groups should be separated with light-colored PotDis BUs. Suitable PotDis-BaseUnits are available in each case for the different requirements. You can find additional information in section Selecting a PotDis-BaseUnit (Page 90).	
PotDis-TerminalBlock	If you need additional potential terminals for a PotDis-BaseUnit, plug a PotDis-TerminalBlock in the PotDis-BaseUnit. Voltages greater than SELV/PELV are only permitted for the PO PotDis-TBs BR (bridged) and NC (not connected). The same applies to PE. Voltages at the terminals of the PotDis modules connected to the P1/P2 rails must not be greater than SELV/PELV. Suitable PotDis-TerminalBlocks are available in each case for the different requirements. You can find additional information in section Selecting a PotDis-TerminalBlock (Page 91).	
Fail-safe power module	The fail-safe power module allows the safety-related shutdown of digital output modules / fail-safe digital output modules.	

Basic component	Function	Figure
Ex power module	The Ex power module supplies the downstream Ex I/O modules via the power bus on the Ex BaseUnit of the Ex power module. An Ex BaseUnit is required for installing the Ex power module.	
I/O module / Fail-safe I/O module/ Ex I/O module	The I/O module determines the function at the terminals. The controller detects the current process state via the connected sensors and actuators, and triggers the corresponding reactions. I/O modules are divided into the following module types: • Digital input (DI, F-DI, Ex-DI) • Digital output (DQ, F-DQ PM, F-DQ PP, F-RQ, Ex-DQ) • Analog input (AI, F-AI, Ex-AI) • Analog output (AQ, Ex-AQ) • Technology module (TM, F-TM-C) • Communication module (CM) • Power module (F-PM-E)	
Motor starter/fail-safe motor starter	The motor starter is a switching and protection device for 1-phase and 3-phase loads. The motor starter is available as a direct-on-line and reversing starter.	

Basic component	Function	Figure
Vale terminal AirLINE SP type 8647 (Bürkert GmbH & Co. KG) [1] [2]	Basic component: Valve terminal AirLINE SP type 8647 (Bürkert). For more information on the AirLINE SP, type 8647 (e.g. data sheet and operating instructions), please contact Bürkert (https://www.burkert.co.uk/en/type/8647) directly. Function: Valve terminals are common in industrial automation and are used as pilot valves for controlling pneumatic actuators, for example in areas of the food, pharmaceutical and water treatment industries. The ET 200SP in combination with the AirLINE SP, type 8647 from Bürkert provides a universal interface between process and plant control that enables the flexible, modular configuration of pilot valves and I/O modules. The valve terminal can also be fitted to the base of the control cabinet with the help of the AirLINE Quick Adapter. This further reduces the space required in the control cabinet and considerably simplifies installation of the pneumatic system. [1] [2]	
BU cover	Insert the BU cover on the BaseUnits: • Whose slots are not equipped with I/O modules/ motor starters//PotDis-TerminalBlocks • Whose slots have been reserved for future expansion (as empty slots). You can keep a reference identification label for the planned I/O module inside the BU cover. There are three versions: • For BaseUnits with a width of 15 mm ① • For BaseUnits/Ex BaseUnits with a width of 20 mm ② • For BaseUnits of motor starters with a width of 30 mm ③	
Server module	The server module completes the configuration of the ET 200SP. The server module includes holders for 3 spare fuses (5 × 20 mm). The server module ships with the CPU/interface module and is available as spare part.	

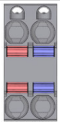
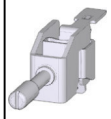
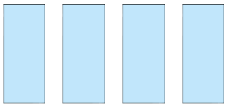
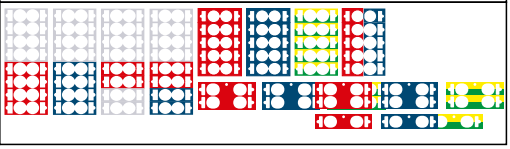
Basic component	Function	Figure
Coding element	The coding element codes the I/O module with the BaseUnit. There are two versions: • Mechanical coding element ①: Ensures the coding • Electronic coding element ②: This version also has an electronic, rewritable memory for module-specific configuration data (such as the F-destination address for fail-safe modules, parameter data for the IO link master).	① ② 

1) Note: The description contains non-binding information on supplementary products that are manufactured and marketed not by Siemens but by third-parties outside the Siemens group ("third-party firms"). These third parties organize the manufacture, sale and delivery of their products independently and their terms and conditions apply.

2) Disclaimer/Use of hyperlinks: Siemens has put together this description with great care. However, Siemens is unable to check whether the data provided by third-party firms is complete, accurate and up to date. Certain items of information may therefore potentially be incorrect, incomplete or no longer up to date. Siemens shall not accept any liability should this be the case, nor shall it accept liability for the usability of the data or of the product for the user unless it has a statutory obligation to do so.

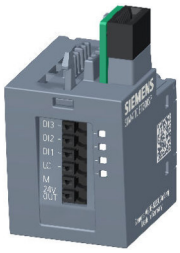
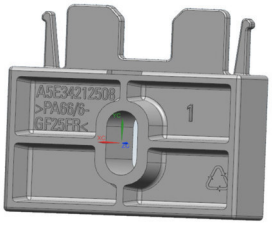
Accessories of the ET 200SP distributed I/O system

Table 5-3 Accessories of the ET 200SP

Accessories	Function	Figure
24 V DC connector	Application of the 24 V DC supply to the connector, and connection, e.g. to the CPU/interface module/Ex power module. The 24 V DC connector is available as a spare part.	
Shield connection	The shield connection allows the low-impedance contacting of cable shields with minimum installation times.	
Labeling strips	Attach the labeling strips to the modules for system-specific labeling of the ET 200SP distributed I/O system. The labeling strips can be printed. The labeling strips can be ordered as accessories (Page 339) on a roll for thermal transfer printers or as DIN A4 format sheets for laser printers.	
Reference identification labels	The labels enable the reference identification labeling of the ET 200SP components. The labels can be ordered on a mat for thermal transfer and inkjet printers as accessories (Page 339).	
Color identification labels	The color identification labels are module-specific and can be ordered for the process terminals, AUX terminals and additional terminals as accessories (Page 339).	

Accessories of the SIMATIC ET 200SP motor starters

Table 5-4 SIMATIC ET 200SP motor starter accessories

Accessories	Function	Figure
3DI/LC module	The optional 3DI/LC module has three digital inputs and one LC input. For reasons of operational safety, input LC is permanently set to manual local mode. By parameterizing the inputs DI1 - DI3 with motor CLOCKWISE or motor COUNTER-CLOCKWISE, you can control the motor in manual local mode. The functions of the 3DI/LC module are not relevant to functional safety. Detailed information on the functions when using a 3DI/LC module can be found in the Manual (https://support.industry.siemens.com/cs/ww/en/view/109479973).	
Mechanical bracket for BaseUnit	Use the mechanical bracket for additional fixing of the motor starter. You can use the mechanical bracket on 7.5 mm and 15 mm mounting rails.	
Infeed bus cover	For finger-safe termination of the infeed bus, use the cover.	
Fan	You can use the motor starter at higher ambient temperatures if a fan is installed.