

INSTALLATION DOCUMENT PACKAGE

Installation Instructions

SIEMENS SIMATIC S7

6DL1135-6TF00-0EH1

AQ 8XI HART OUTPUT MODULE

Applicable product family: SIMATIC ET 200SP HA distributed I/O

OFFICIAL SOURCE

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The following pages are selected from the supplied manufacturer document and retain their original page content.

SIMATIC

ET 200SP HA ET 200SP HA Distributed I/O system

System Manual

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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

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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WARNING

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Preface

Purpose of the documentation

This documentation provides comprehensive information on using the ET 200SP HA distributed I/O system in the automation system:

- General information on the ET 200SP HA distributed I/O system
- Configuring
- Installation
- Wiring
- Commissioning

Basic knowledge required

A basic knowledge of automation technology is required to understand the documentation.

Validity of the documentation

This documentation applies to the ET 200SP HA distributed I/O system.

The PROFINET IO system based on the ET 200SP HA distributed I/O system can be used in the following combination:

Process control system	As of version	CPU in the automation system
SIMATIC PCS 7	V9.0	SIMATIC CPU 410-5H

Configuration of the ET 200SP HA

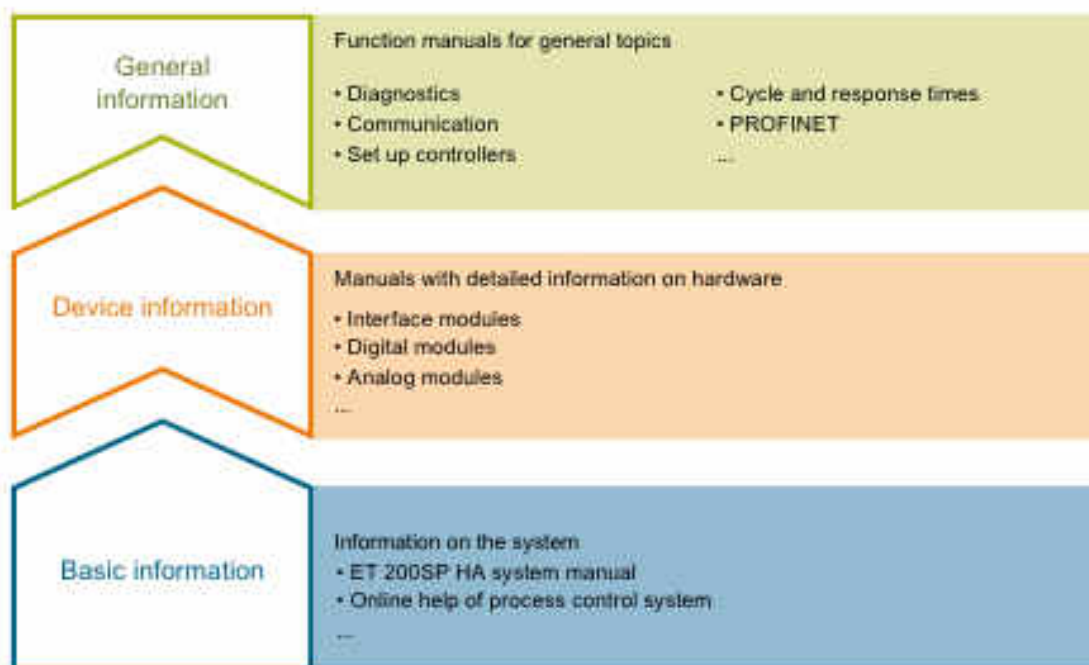
You can configure the following components of the ET 200SP HA when the following updates are installed:

Component of the ET 200SP HA	Required updates
Shared device for IM155-6 PN	HSP0272 V1.01.00
AI (potential distributor terminal block)	HSP0273
AQ (potential distributor terminal block)	HSP0274
DI 32x24VDC HA	HSP0275 V2.00.00
DQ 32x24VDC/0.5A HA	HSP0276 V2.00.00
BusAdapter (types: LC/FC; LC/RJ45)	HSP0278

2.1 Documentation guide for ET 200SP HA

The documentation for the distributed I/O system SIMATIC ET 200SP HA is divided into three areas.

This division allows you easier access to the specific information you require.



Basic information

- The system manual includes a detailed description of installation and wiring of the ET 200SP HA.
- Information on configuring ET 200SP HA is available in the following sections of the documentation:
Configuration with PCS 7:
 - Configuration Manual *PCS 7 process control system; Engineering System*
 - Function Manual *PCS 7 process control system; High-availability process control systems*
 - Function Manual *PCS 7 process control system; Time synchronization*
 - Function manual *SIMATIC; ET 200SP HA; High-precision time stamping with ET 200SP HA*

Device information

Product manuals contain a compact description of the module-specific information, such as properties, terminal diagrams, characteristics and technical specifications.

Comprehensive information

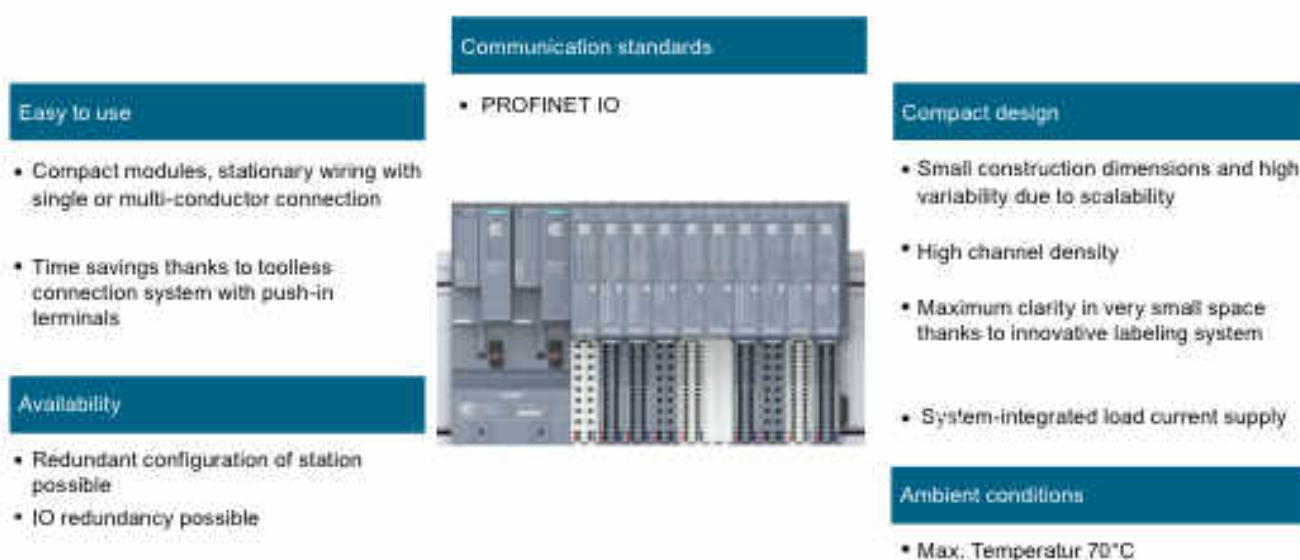
The function manuals contain detailed descriptions of general topics relating to the ET 200SP HA, for example, diagnostics, communication, designing interference-free controllers.

System overview

3.1 What is the SIMATIC ET 200SP HA distributed I/O system?

The SIMATIC ET 200SP HA distributed I/O system is a scalable and highly flexible I/O system that enables you to connect process signals to a higher-level controller via PROFINET IO.

Customer benefits of the system



Area of application

The SIMATIC ET 200SP HA distributed I/O system is suitable for a variety of applications. The scalable design allows you to adjust your configuration to the specific local requirements.

The range of I/O modules is constantly expanding.

- You can obtain information on new modules through the newsletter.
- You can find information about the existing product range in the current catalog.

ET 200SP HA is designed with IP 20 degree of protection and for installation in a control cabinet.

Applications for safety engineering

Through use of fail-safe CPUs, you implement applications for safety engineering. You perform configuration and programming of your safety program, just like the configuration and programming for your standard CPUs.

3.1 What is the SIMATIC ET 200SP HA distributed I/O system?

Configuration example

For use in an automation system, you combine the following components of the SIMATIC ET 200SP HA distributed I/O system into an IO device. An example configuration of an IO device is shown in the following figure:

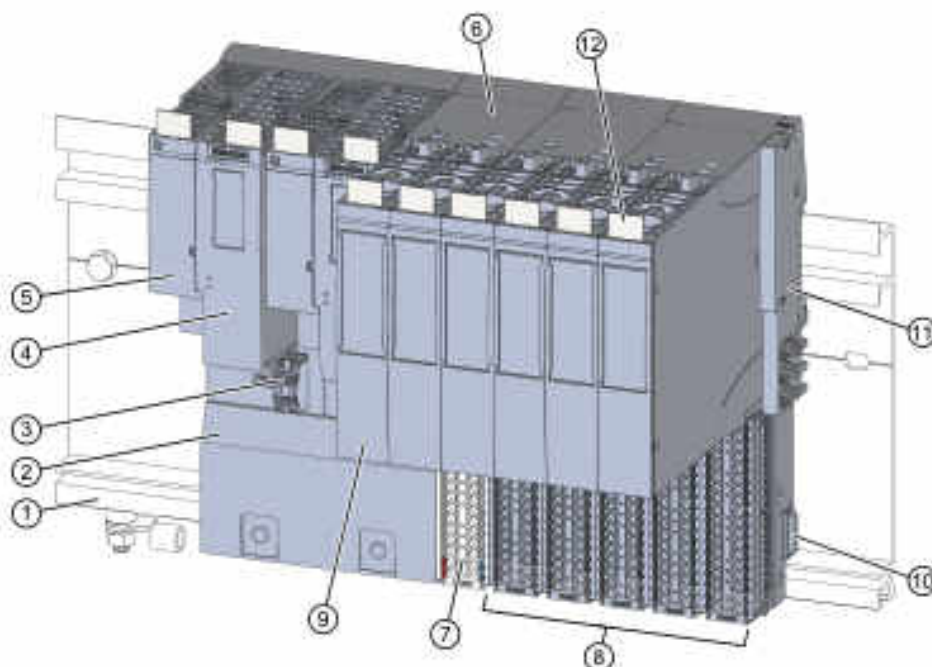


Figure 3-1 Example configuration for an IO device

Table 3-1 Legend for sample configuration (numbering in the installation sequence)

①	Rail: The rail is the type-specific installation platform of the IO device.
②	Carrier module for interface module: The carrier modules are used for the electrical and mechanical connection of the individual modules.
③	Plug-in connector 4-pin: Connection for supply voltage (X80)
④	Interface module: An interface module is the interface of the distributed I/O system to the central unit of the automation system.
⑤	BusAdapter: The BusAdapter connects the IO device to the IO controller (CPU) via PROFINET IO.
⑥	Carrier modules for I/O: The slots for the I/O modules are created by the connection of these carrier modules to the terminal blocks.
⑦	Terminal blocks: The terminal blocks provide the process terminals for connecting sensors, actuators and other devices.
⑧	⑦ Light-colored terminal block TB..D: Separation of potential groups and terminals for connection to the supply voltage ⑧ Dark-colored terminal blocks TB..B: Extending the potential group
⑨	I/O modules: The I/O modules are converters between the process signals and the digital data of the interface modules.
⑩	Power bus cover: Server module and power bus cover complete the configuration of the IO device.
⑪	Server module: Server module and power bus cover complete the configuration of the IO device.
⑫	Reference identification label: The reference identification labels are used to identify the slots.

3.2 Basic components of the IO device

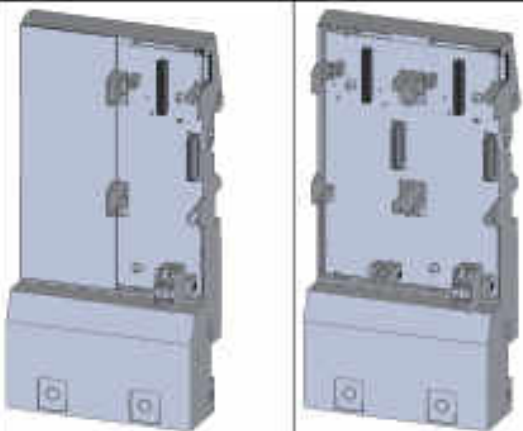
Basic components for configuration of IO devices

The following tables show the components for configuring IO devices based on the ET 200SP HA distributed I/O.

Table 3-2 Rail

Function	Figure
The rail is the component on which the modules of the IO device are attached. The upper part corresponds to a standard rail (width 35 mm).	

Table 3-3 Carrier module for interface module

Function	Figure
Carrier modules for interface modules are available in the following versions: - Carrier module for 1 interface module (required for singular connection of the IO device to PROFINET IO) - Carrier module for 2 interface modules (required for redundant connection of the IO device to PROFINET IO) The carrier modules connect the interface module to the backplane bus. They enable data exchange with the I/O modules. Note: Interface modules cannot be plugged in if the corresponding connector for the supply voltage is plugged in beforehand.	

3.2 Basic components of the IO device

Table 3-4 Interface module (module for PROFINET IO)

Function	Figure
The interface module: - Connects the IO device to the IO controller - Exchanges data with I/O modules via the backplane bus.	

Table 3-5 BusAdapter

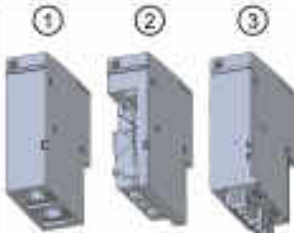
Function	Figure
The BusAdapters for PROFINET IO allow you to freely choose the connection system for the IO device. Several versions of the BusAdapter are available for the interface modules (see documentation SIMATIC Distributed I/O; BusAdapter for distributed I/O (https://support.industry.siemens.com/cs/ww/en/view/109747250)). Examples: - BusAdapter with standard RJ45-connector (BusAdapter 2xRJ45) ① - BusAdapter with FastConnect connector for direct connection of the bus cable (BA 2xFC) ② - BusAdapter with connector for fiber-optic cable (BA 2xLC) ③	

Table 3-6 Carrier module

Function	Figure
The carrier module routes the backplane bus to all I/O modules. The power bus is extended depending on each placed terminal block. Carrier modules for I/O modules are available in the following versions: - Carrier module 2x - Carrier module 8x Note: The fixing screws are secured for transport in the factory state. Remove these transport locks before tightening the fixing screws.	

Module	Article number	Design of the field wiring
AQ 8xI HART HA	6DL1135-6TF00-0EH1	Shielded
DI 8x230VAC HA	6DL1131-6GF00-0EK0	Unshielded
DI 8x24...125VDC HA	6DL1131-6DF00-0EK0	Unshielded
RQ 4x120VDC-230VAC/5A CO HA	6DL1132-6HD50-0PK0	Unshielded

Emission of radio frequency interference

- Emission of electromagnetic interference according to EN 61000-6-4.
- Interference emission via the mains AC power supply according to EN 61000-6-4.