Applications for safety engineering are possible through:

- Connection to fail-safe automation systems
- Use of fail-safe I/O modules

You perform configuration and programming of your safety program just like the configuration and programming for your standard CPUs.

See also

SIMATIC ET 200PA SMART+ Distributed I/O System (Page 20)

3.2 SIMATIC ET 200PA SMART+ Distributed I/O System

Definition

The SIMATIC ET 200PA SMART+ distributed I/O system is a scalable I/O system based on SIMATIC ET 200SP HA.

Overview of I/O modules

I/O modules of the ET 200PA SMART+ can be mixed in an I/O station with components of the SIMATIC ET 200SP HA.

As soon as a module of the ET 200PA SMART+ is configured in an I/O station, the maximum size of this I/O system is limited to 24 slots.

The following ET 200PA SMART+ components are available:

Component	Order number
DI 16x24VDC PA	6DL1161-6BH00-0PH1
DI 32x24VDC PA	6DL1161-6BL00-0PH1
DQ 16x24VDC/0.5A PA	6DL1162-6BH00-0PH1
DQ 32x24VDC/0.5A PA	6DL1162-6BL00-0PH1
AI 16xTC/8xRTD 2/3/4-wire PA	6DL1164-6JH00-0PH1
AI 16xI 2-wire HART PA	6DL1164-6TH00-0PH1
AI 16xI 2-wire PA	6DL1164-6GH00-0PH1
AI 8xU/I/TC/4xRTD PA	6DL1164-6AF00-0PH1
AQ 8xI HART PA	6DL1165-6TF00-0PH1
Carrier module 8x (without power bus)	6DL1163-6GC00-8NN0
Carrier module 2x (incl. power bus)	6DL1163-6GA00-0NN0
D-SUB terminal block type H0	6DL1163-6TC00-0DH0

10.4 Mechanical and climatic environmental conditions

Operating conditions

The ET 200PA SMART+ distributed I/O system is designed for stationary use in weather-proof locations. The operating conditions exceed requirements according to EN / IEC 60721-3-3:

- Class 3M3 (mechanical requirements)
- Class 3K3 (climatic requirements)

An enclosure is required:

Notes on the safe use of the ET 200PA SMART+ (Page 43)

Use with additional measures

The described components may not be used without additional measures:

- At locations with a high degree of ionizing radiation
- In harsh operating environments caused, for example, by:
  - Accumulation of dust
  - Corrosive vapors or gases
  - Strong electrical or magnetic fields
- In installations requiring special monitoring, for example:
  - Elevator systems
  - Electrical systems in potentially hazardous areas

An additional measure, for example, can be installation in a cabinet or enclosure.

Mechanical ambient conditions

The following table shows the mechanical ambient conditions in the form of sinusoidal vibrations.

Frequency range in Hz	
$5 \leq f \leq 8.4$	Amplitude 3.5 mm
$8.4 \leq f \leq 150$	constant acceleration 9.8 m/s^2

Reduction of vibration

If the described components are subject to big shock or vibration, appropriate measures must be taken to reduce the acceleration or the amplitude.

We recommend mounting the described components on damping materials (rubber-metal anti-vibration mountings, for example).