DATA SHEET

# SM560-S, SM560-S-FD-1, SM560-S-FD-4

## Safety CPU




## 1 Ordering data

| Type | Description | Part no. |
|---|---|---|
| SM560-S | Safety module - CPU, safety related module up to SIL 3 | 1SAP 280 000 R0001 |
| SM560-S-XC | Safety module - CPU, safety related module up to SIL 3, extreme conditions | 1SAP 380 000 R0001 |
| SM560-S-FD-1 | Safety module - CPU, safety related module up to SIL 3 with F-Device functionality for 1 PROFIsafe network | 1SAP 286 000 R0001 |
| SM560-S-FD-1-XC | Safety module - CPU, safety related module up to SIL 3 with F-Device functionality for 1 PROFIsafe network, extreme conditions | 1SAP 386 000 R0001 |
| SM560-S-FD-4 | Safety module - CPU, safety related module up to SIL 3 with F-Device functionality for up to 4 PROFIsafe networks | 1SAP 286 100 R0001 |
| SM560-S-FD-4-XC | Safety module - CPU, safety related module up to SIL 3 with F-Device functionality for up to 4 PROFIsafe networks, extreme conditions | 1SAP 386 100 R0001 |

# 2 Dimensions

### Dimensions of the safety CPU

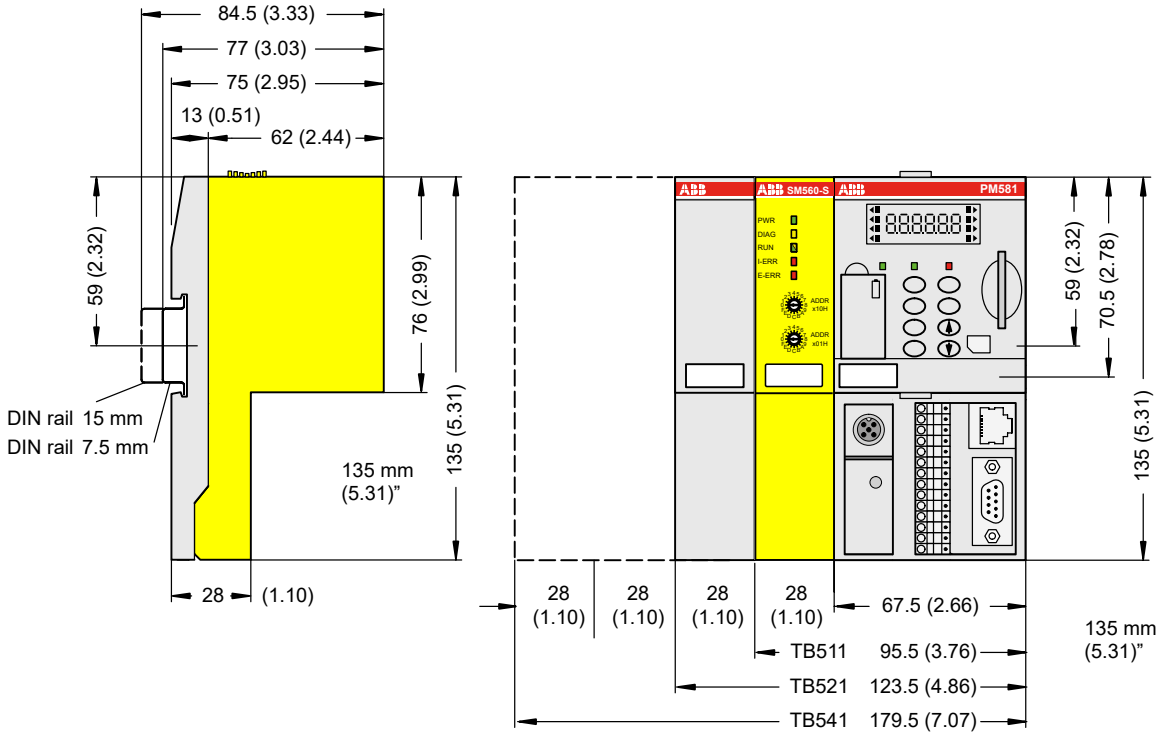



*Fig. 1: Dimensions of the safety CPU*

# 3 Technical data

Additional technical data is available in ABB PLC catalog at *www.abb.com/plc*.

> **NOTICE!**
> Safety CPU -XC version is available for usage in extreme environmental conditions
> ↬ *Appendix A "System data for AC500-S-XC" on page 6*.

### Memory

| Data | Value | Unit |
|---|---|---|
| User program memory of SM560-S | 1 | MB |
| User program memory of SM560-S-FD-1 and SM560-S-FD-4 | 1.3 | MB |
| User data memory (thereof 120 kB saved) | 1 | MB |

### Performance

| Data | Value | Unit |
|---|---|---|
| Cycle time - binary | 0.05 | µs/instruction |
| Cycle time - word | 0.06 | µs/instruction |
| Cycle time - floating-point | 0.50 | µs/instruction |

**Voltages, according to EN 61131-2**

| Data | Value | Unit |
|---|---|---|
| Process and supply voltage (without ripple) | 24 (-15 %, +20 %) | V DC |
| Absolute limits (including ripple) | 19.2 ... 30 | V DC |
| Ripple | < 5 | % |
| Protection against reverse polarity | 10 | s |



**DANGER!**
Exceeding the permitted process or supply voltage range (< -35 V DC or > +35 V DC) could lead to unrecoverable damage of the system.

**Allowed interruptions of power supply, according to EN 61131-2**

| Data | Value | Unit |
|---|---|---|
| DC supply interruptions | < 10 | ms |
| Time between 2 DC supply interruptions, PS2 | > 1 | s |

**Environmental conditions**

| Data | Value | Unit |
|---|---|---|
| Operating temperature* | 0 ... +60 | °C |
| Storage temperature | -40 ... +85 | °C |
| Transport temperature | -40 ... +85 | °C |
| Humidity without condensation | max. 95 | % |
| Operating air pressure | > 800 | hPa |
| Storage air pressure | > 660 | hPa |
| Operating altitude | < 2000 | m above sea level |
| Storage altitude | < 3500 | m above sea level |

* Extended temperature ranges (below 0 °C and above +60 °C) can be supported in special versions of the safety CPU ↳ *Appendix A "System data for AC500-S-XC" on page 6*.

**Creepage distances and clearances**

The creepage distances and clearances meet the overvoltage category II, pollution degree 2.

**Power supply units**

For the supply of modules, power supply units according to PELV/SELV specifications must be used.

**Electromagnetic compatibility**

For information on electromagnetic compatibility refer to the latest TÜV SÜD Report.

**Mechanical properties**

| Data | Value | Unit |
|---|---|---|
| Mounting | horizontal (or vertical with derating (maximal operating temperature reduced to +40 °C)) | |
| Degree of protection | IP 20 | |

| Data | Value | Unit |
|---|---|---|
| Housing | according to UL 94 | |
| Vibration resistance acc. to EN 61131-2 (all three axes), continuous 3.5 mm | 2 ... 15 | Hz |
| Vibration resistance acc. to EN 61131-2 (all three axes), continuous 1 g * | 15 ... 150 | Hz |
| Shock test (all three axes), 11 ms half-sinusoidal | 15 | g |
| MTBF | 168 | years |

* Higher values on request

**Self-test and diagnostic functions**

Start-up and runtime tests: Program flow control, RAM, CPU, etc.

**Dimensions, weight**

| Data | Value | Unit |
|---|---|---|
| W x H x D | 28 x 135 x 75 | mm |
| Weight | ~ 100 | g |

**Certifications**

CE, cUL (further certifications at *www.abb.com/plc*)