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Programmable Safety Control PSS-Range
Automates de sécurité Gamme PSS
Veiligheidsbesturingen Systeemfamilie PSS

Serie/Series/Série/Serie

PSS CPU, PSS1 CPU

Bedienungsanleitung/Operating Manual/Manuel d'utilisation/Handleiding
Sach-Nr./Item No./Référence/Artikelnr. 18 560



The spirit of safety.

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Series PSS CPU/PSS1 CPU

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Series PSS CPU/PSS1 CPU

Overview

The CPU module is the safety system's central processing unit.

CPU	Safety System
PSS CPU	PSS 3000
PSS1 CPU	PSS 3100
PSS CPU 2	PSS 3000
PSS1 CPU 2	PSS 3100
PSS SB CPU	PSS SB 3000 (PSS 3000 with SafetyBUS p interface)
PSS1 SB CPU	PSS SB 3100 (PSS 3100 with SafetyBUS p interface)
PSS SF CPU	PSS SF 3000 (PSS 3000 with selective shutdown)
PSS1 SF CPU	PSS SF 3100 (PSS 3100 with selective shutdown)

The CPU controls the integral on-board and, where necessary, decentralised periphery modules. It processes and stores the user program and variable data. The CPU is divided into a failsafe section and a standard section.
Safety-related tasks are processed in the CPU's failsafe section. The failsafe section is designed with three channels, i.e. three diverse processors process the user program independently.
The standard section is designed with a single channel and processes all the non-safety-related tasks.

A four-digit display and several LEDs provide information on the status of the safety system and also indicate errors.

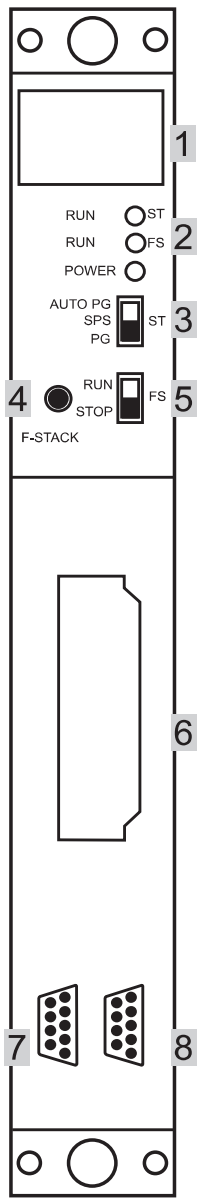
The CPU provides the following interfaces:

- *PSS CPU, PSS1 CPU, PSS SB CPU, PSS1 SB CPU, PSS SF CPU, PSS1 SF CPU*:
  - RS 485 programming interface
  - RS 232 user interface
- *PSS CPU 2, PSS1 CPU 2*:
  - RS232 / RS 485 programming interface
  - RS 232 / RS 485 user interface
- Interface for the integral on-board periphery modules (failsafe and standard modules)
- *PSS SB CPU*: SafetyBUS p interface for the decentralised periphery modules (failsafe modules) and for the decentralised networking of several safety systems

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- *PSS CPU, PSS1 CPU, PSS SF CPU, PSS1 SF CPU*: Slot for the standard section's program memory cartridge.

The CPU is installed on a designated slot on the module rack. Various power supplies are available.

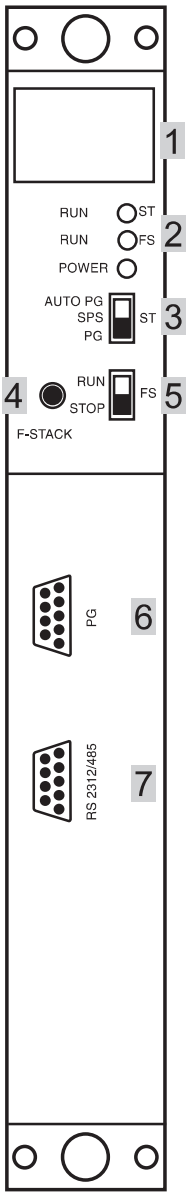


1: Four-digit display
2: LEDs for operating mode and mains voltage
3: Three-position switch for selecting the standard section's operating mode
4: Button for scrolling the error stack
5: Two-position switch for selecting the failsafe section's operating mode
6: Slot for the standard section's program memory cartridge
7: RS 485 programming interface
8: RS 232 user interface

Fig. 1: Front view of the PSS CPU, PSS1 CPU, PSS SF CPU and PSS1 SF CPU

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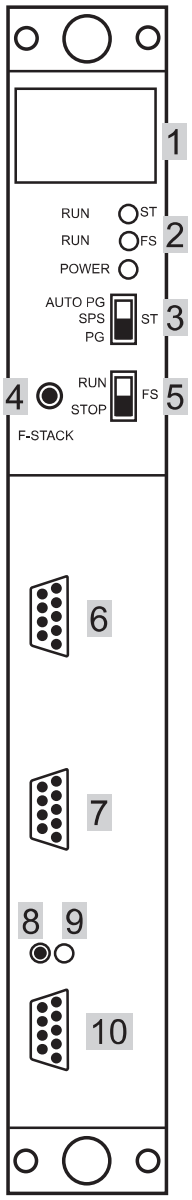


1: Four-digit display
2: LEDs for operating mode and mains voltage
3: Three-position switch for selecting the standard section's operating mode
4: Button for scrolling the error stack
5: Two-position switch for selecting the failsafe section's operating mode
6: RS 232 / RS 485 programming interface
7: RS 232 / RS 485 user interface

Fig. 2: Front view of the PSS CPU 2 and PSS1 CPU 2

INFO
A detailed description of the interface can be found in the “PSS 3000/PSS 3100 Series Installation Manual”.
For further information please refer to the PSS "System Manual”.

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1: Four-digit display
2: LEDs for operating mode and mains voltage
3: Three-position switch for selecting the standard section's operating mode
4: Button for scrolling the error stack
5: Two-position switch for selecting the failsafe section's operating mode
6: RS 485 programming interface
7: RS 232 user interface
8: Button for selecting the operating mode
9: LED indicator for status of SafetyBUS p
10: SafetyBUS p interface

Fig. 3: Front view of the PSS SB CPU and PSS1 SB CPU

INFO
A detailed description of the interface can be found in the “PSS 3000/PSS 3100 Series Installation Manual”.
For further information please refer to the SafetyBUS p “System Manual”.

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Installation

CAUTION!
The CPU module must only be inserted when the supply voltage is switched off.

CAUTION!
Electrostatic discharge can damage the components on the module. Ensure against discharge before touching the module, e.g. by touching an earthed, conductive surface or by wearing an earthed armband.

- The CPU should be installed on the second slot of the module rack, as described in the "Series PSS 3000/PSS 3100 Installation Manual".
- Install the power supply on the first slot of the module rack.
- Install the integral periphery modules.
- Connect up the power supply (see operating instructions for the power supply).
- *PSS SB CPU, PSS1 SB CPU*: Connect the safety system to SafetyBUS p and make sure that the system is configured with the correct unit address. Both of these are described in the "SafetyBUS p Installation Manual".

Technical Details

Electrical Data	
Processors	Motorola 68000 (failsafe and standard section) Intel 80C186 (failsafe section) Siemens SAB C165 (failsafe section)
Processing time for 1000 instructions	Typ. 3 ms
Real-time clock	Quartz-driven clock in standard section
Alarm processing	Max. 32 alarms in failsafe section
Flags Failsafe section Standard section	 1152 2048
Timers	64 in both failsafe and standard section
Time base	50, 100 ms; 1, 10, 60 s
Counters	64 in both failsafe and standard section
Data memory Failsafe section Standard section	 16 KByte, **non-retentive** 32 KByte, non-volatile (battery)

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Program memory failsafe section	*PSS CPU, PSS1 CPU, PSS SF CPU, PSS1 SF CPU*: 64 KByte integral Flash memory *PSS CPU 2, PSS1 CPU 2, PSS SB CPU, PSS1 SB CPU*: 256 KByte integral Flash memory
Program memory standard section	*PSS CPU, PSS1 CPU, PSS SF CPU, PSS1 SF CPU*: Cartridge with 256/512 KByte Flash memory or RAM *PSS CPU 2, PSS1 CPU 2, PSS SB CPU, PSS1 SB CPU*: 512 KByte integral Flash memory
Display	Four-digit
Interfaces	*PSS CPU, PSS1 CPU, PSS SF CPU, PSS1 SF CPU, PSS SB CPU, PSS1 SB CPU:* RS 485 for programming device and RS 232 for user, galvanically isolated *PSS CPU 2, PSS1 CPU 2:* RS 232/RS485 for programming device and for user, galvanically isolated *PSS SB CPU, PSS1 SB CPU*: SafetyBUS p interface
SafetyBUS p (*PSS SB CPU* and *PSS1 SB CPU*)	
Communication speed	Max. 500 kBaud
Cable runs	Max. 3000 m
Communication type	Differential two-wire circuit
Connection	9-pin D-Sub connector
Environmental Data	
Protection type (EN 60529, 10/91)	IP 20 (installed on module rack)
Mounting position	Vertical on module rack
Ambient temperature (DIN IEC 68-2-14, 06/87)	0 ... 60 °C
Storage temperature (EN 60068-2-1/-2, 03/93)	-25 ... +70 °C
Relative humidity (DIN IEC 68-2-30, 09/86)	Max. 95 % r.h.
Condensation	Not permitted
Vibration (EN 60068-2-6, 04/95)	Frequency range: 10 ... 100 Hz Amplitude: 0.1 mm, max. 3g
Shock (DIN IEC 68-2-29)	30g, 11 ms/10g, 16 ms

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EMC	EN 61000-6-2, 04/99 EN 55011 A, 05/98
Mechanical Data	
Weight	*PSS CPU, PSS SF CPU*: 1400 g *PSS1 CPU, PSS1 SF CPU*: 700 g *PSS SB CPU*: 1300 g *PSS1 SB CPU*: 700 g *PSS CPU 2*: 1200 g *PSS1 CPU 2*: 600 g

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Amendments to documentation

Changes from version I to version II

The manual has been fully updated and is now valid for the PSS SB CPU and PSS1 SB CPU.

Old Page	New page	Change
13	4	A note has been added to say that the module can be damaged due to electrostatic discharge
14	6	EMC information has been amended

Changes from version II to version III

Old Page	New page	Change
6	6	Program memory failsafe section of the PSS SB CPU and PSS1 SB CPU: now 256 KByte

Changes from version III to version IV

Old Page	New page	Change
-	-	PSS CPU 2, PSS1 CPU 2

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Changes from version iV to version V

Old Page	New page	Change
7	7	Environmental data: Protection class was deleted

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Notes

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