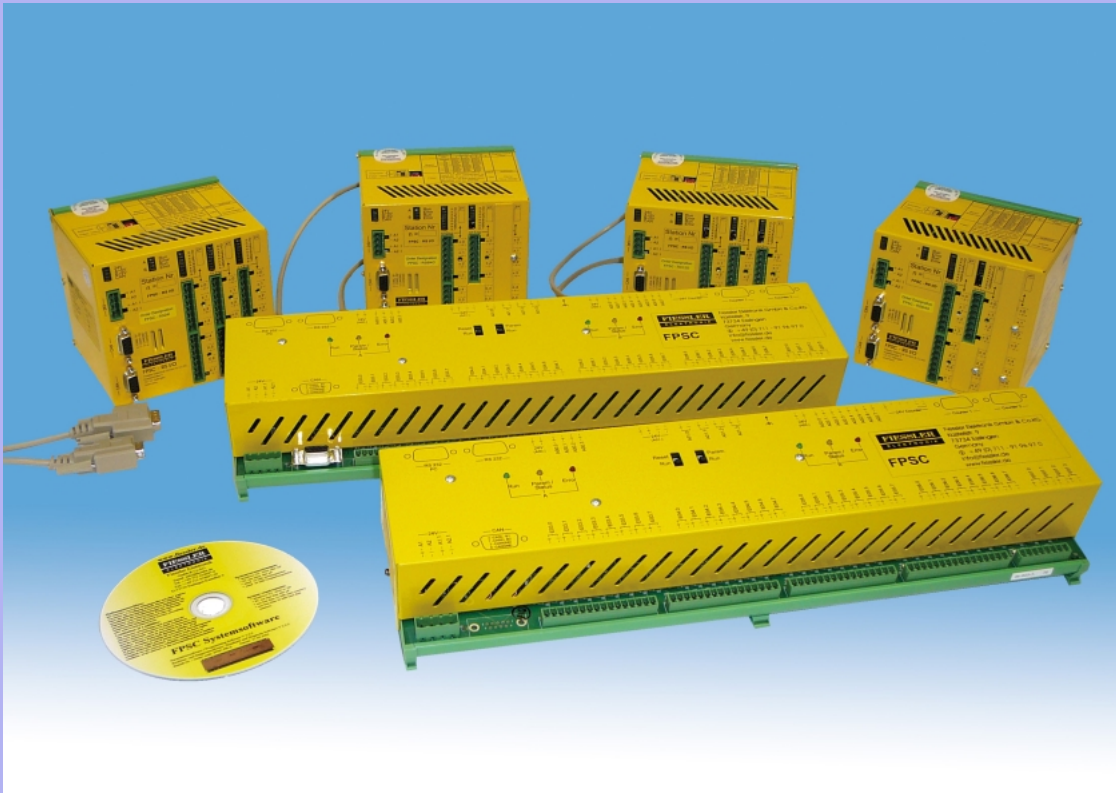


**Programmable safety center**  
**FPSC**



**Fiessler Programmable Safety Center**

**Flexible Hard- and Software concept**

**Available with a safe bus system or/and two counter inputs**

**Reduction of expenditures in Mounting and Installation**

**Easy programmable**

**Software modules tested and certificated**

**Safety category 4 according to EN 954-1, SIL 3 according to IEC 61508**

#### System description

The FPSC Fiessler Programmable Safety Center is a programmable electronic safety controller for personal protection, i.e. for safety functions. The FPSC complies with the highest safety requirements:

- SK1 up to SK 4 according to EN 954-1
- SIL 1 up to SIL 3 according to EN IEC 61508
- PL a up to PL e according to prEN 13849-1

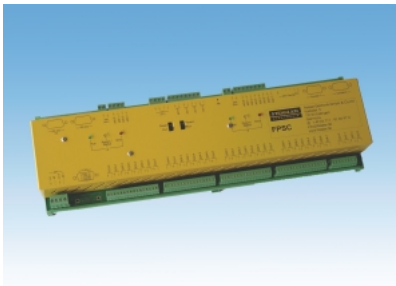
The product family FPSC provides maximum flexibility within its hardware and software structure. The FPSC - AD version offers the possibility to connect decentralized I/O modules via the implemented safe bus system. This guarantees a modular system design that offers flexibility therefore reducing the costly and often elaborate configuration of the safe system bus.

The safety-related functions are programmable by using pre-assembled and tested software modules. The chaining is made by simple assignment of input, i.e. output addresses. Intermediate data are stored in the temporary storage. There are various ready-to-use software modules at your disposal.

For the communication with a superior control, i.e. for the operating sequence control or technology control, a serial interface is provided. The transfer of data for visualizing as well as the transfer of machine-relevant data can be realised via this interface

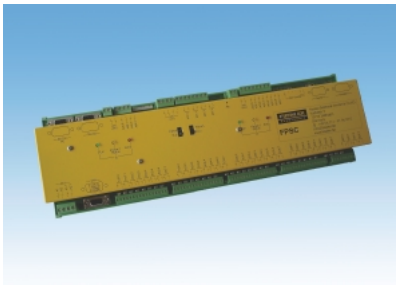
The simple snap-on mechanism for fastening the items on a top hat rail in the control cabinet considerably reduces the installation expenditure of the items of the product family.

#### Overview of the product family FPSC, hardware : safe base units



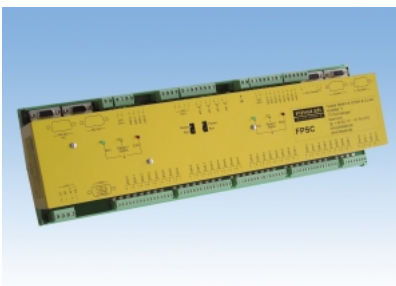
##### FPSC - B, basic configuration

- 32 safe inputs
- 4 fast safe inputs
- 4 fast safe outputs
- 4 fast outputs, bi-polar switching
- 8 safe outputs, monopolar switching
- 2 serial interfaces



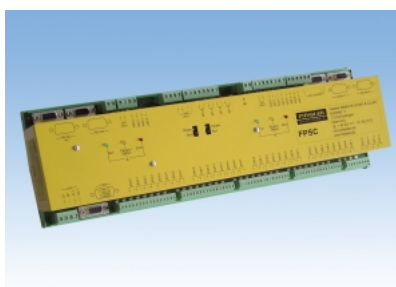
##### FPSC - AD, enhanced configuration

- 32 safe inputs
- 4 fast safe inputs
- 4 fast safe outputs
- 4 fast outputs, bi-polar switching
- 8 safe outputs, monopolar switching
- 2 serial interfaces
- 1 safe bus interface for enhancing by decentralized I/O modules



##### FPSC - B-C, basic configuration with counter inputs

- I/O configuration like FPSC-B, additional
- 2 fast counter inputs (0,5 MHz)



##### FPSC - AD-C, enhanced configuration with counter inputs

- I/O configuration like FPSC-AD, additional
- 2 fast counter inputs (0,5 MHz)

**Overview of the product family FPSC, hardware: safe decentralized modules****FPSC - RS8I, decentralized input module**

8 safe inputs

1 safe bus interface

**FPSC - RS16I, decentralized input module**

16 safe inputs

1 safe bus interface

**FPSC - RS24I, decentralized input module**

24 safe inputs

1 safe bus interface

**FPSC - RS4O, decentralized output module**

4 safe outputs

1 safe bus interface

**FPSC - RS8O, decentralized output module**

8 safe outputs

1 safe bus interface

**FPSC - RS12O, decentralized output module**

12 safe outputs

1 safe bus interface

**FPSC - RS8I4O, decentralized input/ output module**

8 safe inputs

4 safe outputs

1 safe bus interface

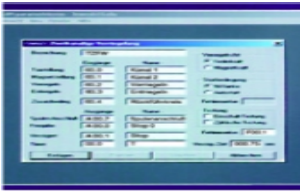
**FPSC - RS8I8O, decentralized input/ output module**

8 safe inputs

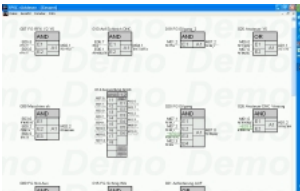
8 safe outputs

1 safe bus interface

**Overview of the product family FPSC, hardware: safe decentralized modules****FPSC - RS16I4O, decentralized input/ output module****16 safe inputs****4 safe outputs****1 safe bus interface****Overview of the product family FPSC, hardware: non-safe decentralized signalling modules****FPSC - RM8IN, decentralized input module****8 non-safe inputs, common negative potential****1 CAN bus interface****FPSC - RM8ON, decentralized output module****8 non-safe outputs, common negative potential****1 CAN bus interface**

**Overview of the product family FPSC, software****FPSC - PR-S, Programming software**

Software to program the base units

**S:** single user license**M:** multi-user license**FPSC - Diag, Diagnosis and Analyzing Software**

Software for the back-analyzing of the application program and for visualizing of both inputs and outputs, for the visualization of the status of the flags and of the system status.

**S:** single user license**M:** multi-user license**Overview of the product family FPSC, accessories****FPSC - RS232 cable**

Cable between the programming unit (PC, Notebook etc.) and the base units for programming the parameters

**FPSC - USB / RS232 adaptor**

Interface converter from USB standard to RS232 for entering the parameters into the base units

**FPSC - CAN cable**

cable for the safety-related networking of the decentralized modules and the base unit

**Overview of the product family FPSC, fieldbus module****FPSC - Profibus-DP**

Fieldbus Module to connect the FPSC via RS232 to Profibus-DP

**FPSC - Ethernet TCP/IP**

Fieldbus Module to connect the FPSC via RS232 to Ethernet TCP/IP

#### Technical Data Product Family FPSC

Technical Data	FPSC - B, FPSC - AD	Inputs	FPSC - B, FPSC - AD
Field of application	parameterizable safety control with optional safety-related bus interface	Number of safe standard inputs	32
Safety relevant classification	up to category 4 according to EN 954-1 up to SIL 3 according to EN IEC 61508 up to PL e according to prEN 13489-1	Number of safe high speed inputs	4
<b>Electrical data</b>	<b>FPSC - B, FPSC - AD</b>	Galvanic isolation	yes
Power supply	24 V DC	Signal level at log "0"	0 ... 2 V DC
Tolerance range	19,2 ... 30,0 V DC max. 10% residual ripple	Signal level at log "1"	15 ... 28 V DC
Load current	typ. 350 mA	Input current	5 mA (bei 24 V)
Protection of the power supply	T 6,3 A	Minimum impulse duration at the standard inputs	20 ms
Connections:	Plug base with screw terminals	Status displayed via	LED
power supply	max. 2,5 mm <sup>2</sup>	<b>Single Pole Outputs</b>	<b>FPSC - B, FPSC - AD</b>
input level	max. 1,5 mm <sup>2</sup>	Number of safe standard outputs	8
output level	max. 2,5 mm <sup>2</sup>	Number of high speed outputs	4
CAN-connector (optional)	Sub-D plug 9-pin	Galvanic isolation	yes
Interfaces	RS 232 Programming interface RS 232 User interface	Output current at log "1"	max. 2 A
Minimum response times High Speed inputs => High Speed outputs	1 ms	Short-circuit protection	electronic
<b>Mechanical data</b>	<b>FPSC - B, FPSC - AD</b>	Status displayed via	LED
Dimensions (HxBxT)	127 x 390 x 80 mm	<b>Dual Pole Outputs</b>	<b>FPSC - B, FPSC - AD</b>
Mounting on top hat rails	according to DIN 50 022	Number of safe dual pole outputs	4
Protection class of the housing	IP 20	Galvanic isolation	yes
Protection class of the terminals	IP 20	Output current at log "1"	max. 2 A
Weight	1,65 kg	Short-circuit protection	electronic
<b>Environmental conditions</b>	<b>FPSC - B, FPSC - AD</b>	Status displayed via	LED
Operating temperature	0 ... +60° C	<b>Counter inputs</b>	<b>FPSC - B-C, FPSC - AD-C</b>
Storage temperature	-25° C ... +70° C	Number of counter inputs	2
Relative humidity	30% ... 85% RH	max. input frequency	0,5 MHz
Striking and creep distances	DIN EN 50 178	power supply for sensors	selectable 5 Vdc or 24 Vdc
Vibrations	DIN EN 60 068-2-6	input level	5V TTL line driver
EMC	DIN EN 61 000-6-2		
Bedewing / Condensation	not permitted		



#### Technical Data decetralized modules FPSC - RSxxx

Technical data	FPSC - RSxxx
Field of application	Enhancing of the base units FPSC-B, FPSC-AD by safety-related inputs and outputs
Safety relevant classification	Up to category 4 according to EN 954-1 Up to SIL 3 according to EN IEC 61508 Up to PL e according to prEN 13489-1
Electrical Data	FPSC - RSxxx
Power supply	24 V DC
Tolerance range	21,6 ... 26,4 V DC max. 10% residual ripple
Load current	typ. 350 mA
Protection of the power supply	T 6,3 A
Connections:	plug base with screw terminals
power supply	max. 2,5 mm <sup>2</sup>
input level	max. 2,5 mm <sup>2</sup>
output level	max. 2,5 mm <sup>2</sup>
CAN-connector (optional)	Sub-D Stecker 9 polig
Mechanical data	FPSC - RSxxx
Dimensions (HxBxT)	127 x 127 x 120 mm
Mounting on top hat rails	according to DIN 50 022
Protection class of the housing	IP 20
Protection class of the terminals	IP 20
Weight	1,0 kg
Environmental Conditions	FPSC - RSxxx
Operating temperature	0 ... +45° C
Storage temperature	-25° C ... +70° C
Relative humidity	30% ... 85% RH
Striking and creep distances	DIN EN 50 178
Vibrations	DIN EN 60 068-2-6
EMC	DIN EN 61 000-6-2
Bedewing / Condensation	not permittel

Inputs	FPSC - RSxxx
Number of safe standard inputs	8, 16, 24, according to the required configuration
Galvanic isolation	yes
Signal level at log "0"	0 ... 2 V DC
Signal level at log "1"	15 ... 28 V DC
Input current	5 mA (bei 24 V)
Minimum impulse duration at the standard inputs	20 ms
Status displayed via	LED
Dual Pole Outputs	FPSC - RSxxx
Number of safe dual pole outputs	4, 8, 12, according to the required configuration
Galvanic isolation	yes
output current at log "1"	max. 0,5 A
short-circuit protection	electronic
Status displayed via	LED

#### Technical Data decetralized modules FPSC - RSxxx, nonsafe remote I/O modules

Outputs	FPSC - RMxxO
Number of safe standard inputs	8, 16, 24, 32, 40, 48, 56 according to the required configuration
Power supply	24 V DC
Tolerance range	21,6 ... 26,4 V DC max. 10% residual ripple
output current at log "1"	max. 0,1 A, non-inductive
Input current	5 mA (bei 24 V)
Weight	300 g
Operating temperature	0 ... +45° C

#### Overview of the available software modules

Software module	
Emergency OFF	single-channel (NA) double-channel (NA) possible selections: Reset                      Start button feedback circuit         Yes / No switch-on testing        Yes / No cyclic (repeated) test   Yes / No
Safety switch	single-channel (SiS) double-channel (SiS) possible selections: Reset                      Start button / Autostart feedback circuit         Yes / No switch-on testing        Yes / No cyclic (repeated) test   Yes / No
Interlocking device, locked by snap-switch	single-channel (TZF) double-channel (TZFW) possible selections: Reset                      Start button / Autostart feedback circuit         Yes / No switch-on testing        Yes / No cyclic (repeated) test   Yes / No
Interlocking device, locked by magnet	single-channel (TZM) double-channel (TZMW) possible selections: Reset                      Start button / Autostart feedback circuit         Yes / No switch-on testing        Yes / No cyclic (repeated) test   Yes / No
Time delay	possible selections: OFF-delay ON-delay timer
Gate control	AND NOT AND OR NOT OR each of them with 8 inputs
Contact multiplication	1 input up to 8 outputs
Pulse latch	possible selections: level triggering edge triggering
Flip Flops	possible selections: D-Flip Flop and RS-Flip Flop
Enabling mode	possible selections: Energy (with permissive switch) Drive (mit Tipp) Energy (no permissive switch)



### Overview of the available software modules

Software modules	
BLVT	Module for programming the different operating modes of the Fiessler Elektronik BLVT safety light curtains product series
AKAS 1 and 2	Module for the evaluation of data of the AKAS I or AKAS II systems
AKAS 3	Module for the evaluation of data of the AKAS III-M, AKAS II-M, AKAS LC-M, AKAS LC II-M
Overrun traverse measurement	For monitoring the overrun traverse of a press, e.g. of a press brake
Muting	Module for the control and evaluation of the Muting functions
Valve monitoring	Module for triggering and monitoring of hydraulic valves/contactors
Operating mode selector switch	Safe selector switch for selecting the operation modes (1 out of 8)
Filter time	Module for the input filter adjustment of the High speed inputs in 16 stages
Two-hand control	Module for evaluation of data of a two-hand control panel
Diagnostics interface	Modul for transmission of diagnostics information to a standard PLC or NC
Cycle operation	Modul to control a machine in cycle operation e. g. presses. Up to 4 cycles programmable
Comment	Modul to comment the program
Counter Setup	Setup for counter parameters like sensor resolution, speed tolerance etc.
Position measurement	To set up to 16 positions (cams) selectable in mm or steps
Overrun traverse measurement via counter	To measure the overrun distance of a machine like press brakes
Speed monitoring	To monitor up to 8 speed profiles for under- or overstepping. Alternative monitoring of up to 3 speed profiles for under- and overstepping.
AKAS Muting System AMS	Software block for the AMS functionality
Detection of rotation direction (safe)	Detection of the rotation direction of a machine. Evaluation of both counter inputs
Detection of rotation direction (nonsafe)	Detection of the rotation direction of a machine. Separate evaluation of each counter input
Reset measurement system	Reset the counter values to the standard values

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