samos®PRO COMPACT – The safety control of the next generation

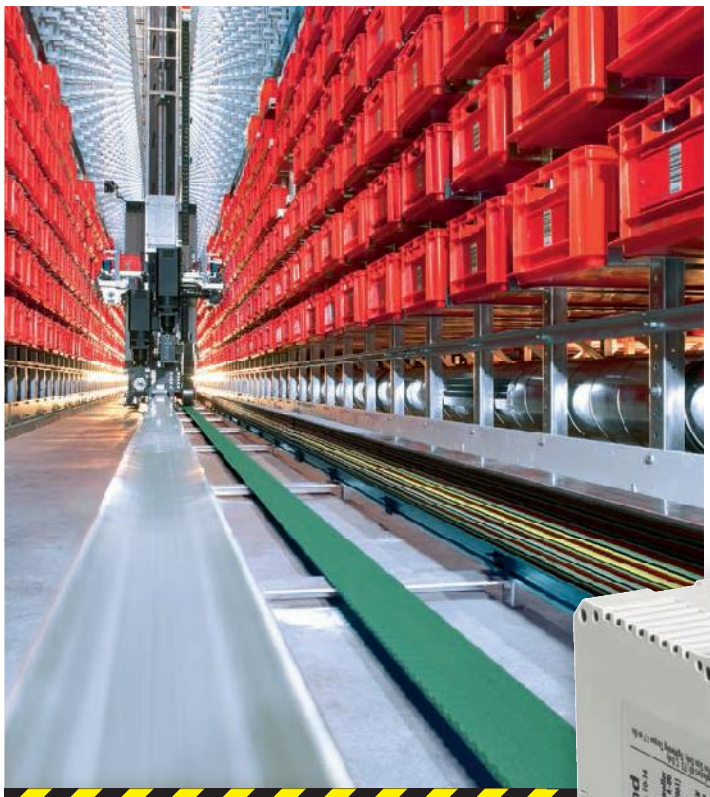
With the highest power in the smallest space, the safety control ***samos***®PRO COMPACT sets new standards in the area of machine automation.

Overview of benefits

- 24 safe in- and outputs on 45 mm construction width for space and cost savings
- USB and Ethernet interfaces for remote maintenance always on board
- Industrial Ethernet protocols integrated
- 512 Mbyte program memory offers space for each project
- 4 A switching power at each output
- Ambient temperature –25 °C to +65 °C
- Modular extendability to up to 172 secure in-/outputs
- Optical display of all in- and outputs in system
- Pluggable connection technology with either screw or push-in terminal blocks

samos®PRO COMPACT – Universal application

samos®PRO COMPACT is suitable for monitoring non-contact safety sensors, Emergency Off buttons, protective door switches and door closures, two-hand controls as well as testable safety light barriers, light curtains and laser scanners.



Applications in many branches

samos®PRO COMPACT is not only suitable for use in machinery and plant engineering but also, for example, for safety-related control tasks in elevator installations, industrial combustion plants and process technology systems.

samos®PLAN 5+ – The programming tool for samos®PRO COMPACT

With the new software **samos**®PLAN 5+ for the system **samos**®PRO COMPACT, programming is now even easier. With its many practical functions, **samos**®PLAN 5+ supports the project developer in generating and validating safety applications, and documenting them in full compliance with the current Machinery Directive.

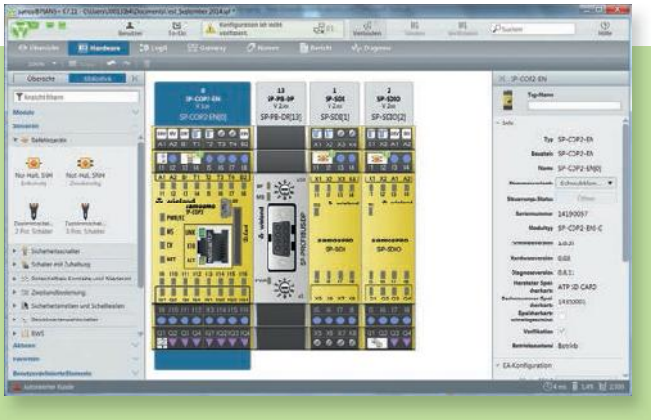
Overview of benefits

- Comprehensive library of reliable, certified functions
- Configurable project documentation at the press of a button
- Integrated simulation and logic analysis of the safety functions
- Convenient support for fieldbus and industrial Ethernet integration
- Online diagnosis and remote maintenance for more transparency

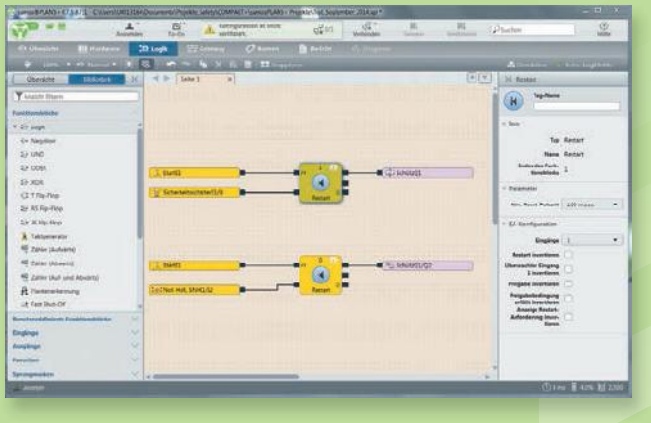
Function blocks

Sensors

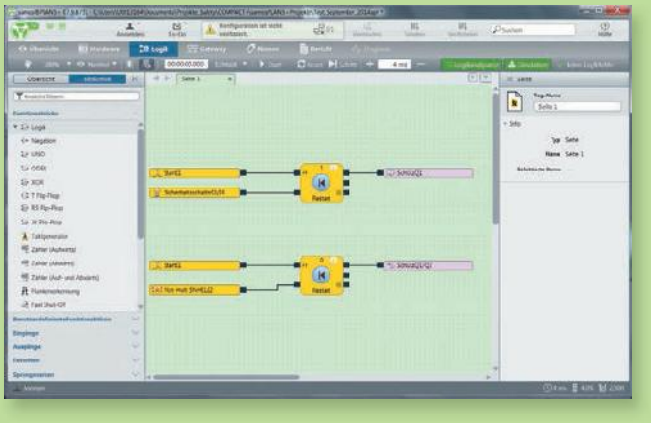
Hardware



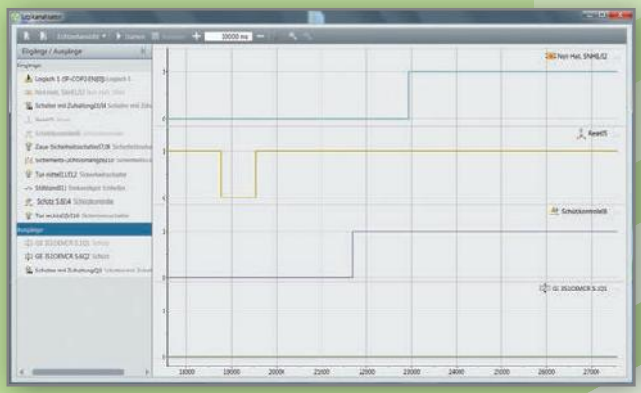
Logic



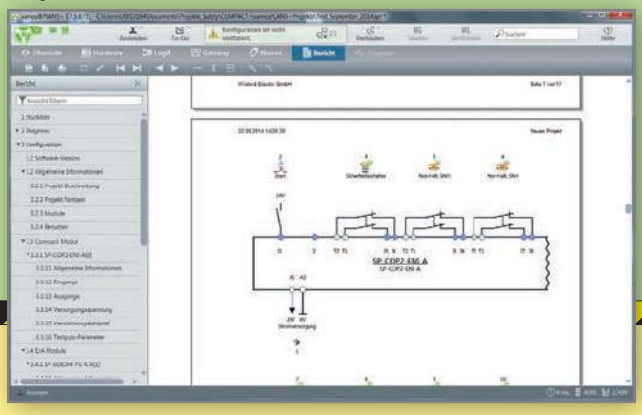
Simulation



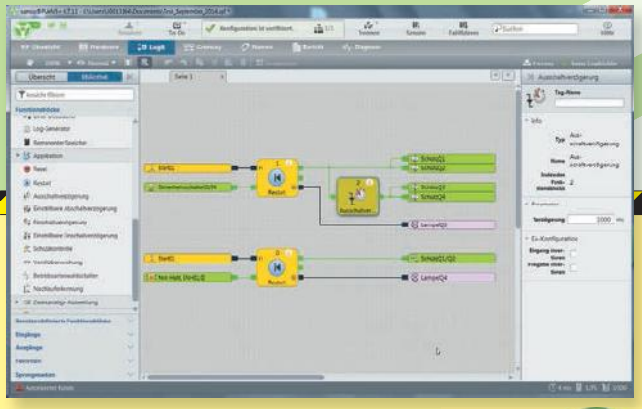
Logic analysis



Report



Diagnosis



SP-COP1 – COMPACT module

Applications

- Machine building industry
- Combustion plants
- Elevator systems
- SIL_{CL} 3 (EN 62061-1)
- PL e/Category 4 (EN ISO 13849-1)

Features

- 20 safe inputs, 4 safe outputs
- USB interface
- SD slot for program memory (memory card SP-COP-CARD can be ordered separately)

Overview of devices | part numbers

Type	Rated voltage	Terminals	Remarks	Part no.	Std. Pack
SP-COP1-A	24 V DC	Screw terminals, pluggable	USB-interface	R1.190.1110.0	1
SP-COP1-C	24 V DC	Push-in terminals, pluggable	USB-interface	R1.190.1120.0	1

Technical data

Function	Safety control
Function display	24 LED green (in-/outputs)
	3 LED green/red/yellow (module status)
Supply circuit	
Operating voltage range	16.8 V DC to 30 V DC
Rated power	3.5 W
Electrical isolation supply circuit - control circuit	No
Secure input circuit I_n	
Quantity/type	20 / digital
Primary voltage range	15 V DC to 30 V DC
Nominal current	2 mA
Secure input circuit Q_n	
Quantity/type	4 / digital
Nominal output voltage	24 V DC
Output current per output	4 A
Short-circuit protective device	Yes
Interfaces	
USB Mini interface	Yes
Ethernet interface	No
Industrial Ethernet protocol	No
Program memory	External
General data	
Protection class as per DIN EN 60529 (housing/terminals)	IP20
Air and creepage distances	EN 60664-1
Ambient temperature / storage temperature	-25 °C – +65 °C / -25 °C – +75 °C
Norms	EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1
Approvals	TÜV, cULus

SP-COP2 – COMPACT module with ethernet

Applications

- Machine building industry
- Combustion plants
- Elevator systems
- SIL_{CL} 3 (EN 62061-1)
- PL e/Category 4 (EN ISO 13849-1)

Features

- 16 inputs, 4 outputs, 4 configurable I/O
- USB interface
- Ethernet interface
- Industrial Ethernet protocol
- SD slot for program memory (memory card SP-COP-CARD can be ordered separately)

Overview of devices | part numbers

Type	Rated voltage	Terminals	Remarks	Part no.	Std. Pack
SP-COP2-EN-A	24 V DC	Screw terminals, pluggable	USB- / ETH-interface	R1.190.1210.0	1
SP-COP2-EN-C	24 V DC	Push-in terminals, pluggable	USB- / ETH-interface	R1.190.1220.0	1
SP-COP2-ENI-A	24 V DC	Screw terminals, pluggable	USB- / ETH-interface	R1.190.1310.0	1
SP-COP2-ENI-C	24 V DC	Push-in terminals, pluggable	USB- / ETH-interface	R1.190.1320.0	1

Technical data

Function	Safety control	
Function display	24 LED green (in-/outputs)	
	4 LED green/red/yellow (module status)	
Supply circuit		
Operating voltage range	16.8 V DC to 30 V DC	
Rated power	3.5 W	
Electrical isolation supply circuit - control circuit	No	
Secure input circuit I_n	**SP-COP2-EN**	**SP-COP2-ENI**
Quantity/type	20 (16) / digital	20 (16) / digital
Primary voltage range	15 V DC to 30 V DC	15 V DC to 30 V DC
Nominal current	2 mA	2 mA
Secure input circuit Q_n		
Quantity/type	4 (8) / digital	4 (8) / digital
Nominal output voltage	24 V DC	24 V DC
Output current per output	4 A	4 A
Short-circuit protective device	Yes	Yes
Interfaces		
USB Mini interface	Yes	Yes
Ethernet interface	Yes	Yes
Industrial Ethernet protocol	No	Modbus TCP, Profinet, Ethernet IP
Program memory	External	External
General data		
Protection class as per DIN EN 60529 (housing/terminals)	IP20	
Air and creepage distances	EN 60664-1	
Ambient temperature / storage temperature	-25 °C – +65 °C / -25 °C – +75 °C	
Norms	EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1	
Approvals	TÜV, cULus	

SP-SDIO – Input-/ output module

Applications

- Machine building industry
- Combustion plants
- Elevator systems
- SIL_{CL} 3 (EN 62061-1)
- PL e/Category 4 (EN ISO 13849-1)

Features

- 8 safe inputs
- 4 safe outputs (with/without output test-pulses)
- 2 outputs (e.g., test signals)

Overview of devices | part numbers

Type	Rated voltage	Terminals	Remarks	Part no.	Std. Pack
SP-SDIO84-P1-K-A	24 V DC	Screw terminals, pluggable	with/without output test-pulses	R1.190.0030.0	1
SP-SDIO84-P1-K-C	24 V DC	Push-in terminals, pluggable	with/without output test-pulses	R1.190.0040.0	1

Technical data

Function display	13 LEDs, green/red
Power supply circuit	
Operating voltage range	16.8 V DC to 30 V DC
Rated consumption	1.8 W
Electrical isolation power supply circuit - control circuit	no
Safe input circuit I1 – I8	
Quantity / type	8 / digital
Input voltage range	15 V DC to 30 V DC
Rated current	3 mA
Safe output circuits Q1 – Q4	
Quantity / type	4 / digital
Output voltage	24 V DC
Output current I_n per exit	4 A
Output circuits X1, X2	
Quantity / type	2 / digital
Output voltage	24 V DC
Output current I_n per exit	0.5 A
General data	
Protection degree according to DIN 60529 (housing / terminals)	IP40 / IP20
Creepage distances and clearances	EN 60664-1
Ambient temperature / storage temperature	-25°C – +65°C / -25°C – +75°C
Standards	EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1
Approvals	TÜV, cULus

SP-SDI – Input module

Applications

- Machine building industry
- Combustion plants
- Elevator systems
- SIL_{CL} 3 (EN 62061-1)
- PL e/Category 4 (EN ISO 13849-1)

Features

- 8 safe inputs
- 8 outputs (e.g., test signals)

Overview of devices | part numbers

Type	Rated voltage	Terminals	Part no.	Std. pack
SP-SDI8-P1-K-A	24 V DC	Screw terminals, pluggable	R1.190.0050.0	1
SP-SDI8-P1-K-C	24 V DC	Push-in terminals, pluggable	R1.190.0060.0	1

Technical data

Function display	13 LEDs, green/red
Power supply circuit	
Operating voltage range	16.8 V DC to 30 V DC
Rated consumption	1.8 W
Electrical isolation power supply circuit - control circuit	no
Safe input circuit I1 – I8	
Quantity / type	8 / digital
Input voltage range	15 V DC to 30 V DC
Rated current	3 mA
Output circuits X1, X2	
Quantity / type	2 / digital
Output voltage	24 V DC
Output current I_n per exit	0.5 A
General data	
Protection degree according to DIN 60529 (housing / terminals)	IP40 / IP20
Creepage distances and clearances	EN 60664-1
Ambient temperature / storage temperature	-25°C – +65°C / -25°C – +75°C
Standards	EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1
Approvals	TÜV, cULus

Note:

Safe relay contacts are expanded using the series SNE contact expansion relay (from Page 64).
Types **SNE 4024K** and **SNE 4012K** in particular are ideal for contact expansion.

Gateway

With the **samos®** PRO gateways, system information can be transferred between the **samos®** PRO safe control and an industrial control, a visualization system or a PC.

Application examples:

- Direct HMI connection
- Remote diagnosis and programming
- Read and write 50 byte
- Input and output states
- Configuration data
- Process data from the PLC
- Fault data (e.g. fault data of the connected sensor technology)

SP-CANopen

Features

- Fieldbus protocol CANopen
- Bidirectional communication with PLC
- Transfer rate up to 1 MBit/s
- Transfer of 50 bytes of data
- Simple configuration with **samos®** PLAN

SP-PROFIBUS-DP

Features

- Fieldbus protocol PROFIBUS-DP
- Bidirectional communication with PLC
- Transfer rate 12 MBaud
- Transfer of 50 bytes of data
- Simple configuration with **samos®** PLAN

SP-EN-ETC

Features

- EtherCAT industrial Ethernet protocol
- Bidirectional communication
- Transfer of 50 bytes of data
- Simple configuration with **samos®** PLAN

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Overview of devices | part numbers

Type	Rated voltage	Remark	Part no.	Std. pack
SP-CANopen	24 V DC	CANopen	R1.190.0210.0	1
SP-PROFIBUS-DP	24 V DC	PROFIBUS-DP	R1.190.0190.0	1
SP-EN-ETC	24 V DC	ETHERCAT	R1.190.0160.0	1

Starter set & accessories

samos®PRO COMPACT starter set

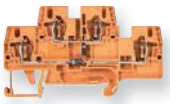
- A safe way to get started
- Contains all required components
- With programming tool samos®PLAN 5+
- With USB-RS232 converter

You can get the free programming tool samos®PLAN 5+ at **www.wieland-electric.com** Service / Software

SP-COP-CARD1

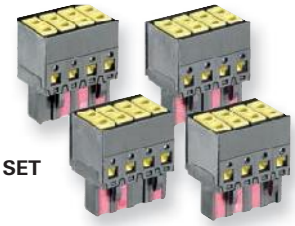
SP-CABLE-ETH1

SP-CABLE-USB1



WKFN 2,5 E/35 GO-URL

SP-VISUAL-SET



SAFETY PUSH IN SET

SAFETY SCHRAUBKL. SET

samos®PRO accessories

- SP-COP-CARD1: Memory-card for SP-COP
- SP-CABLE-USB1: USB cable for SP-COP, 1.8 m
- SP-CABLE-ETH1: Ethernet cable for SP-COP, 2 m
- SP-COP-STARTER-SET:
  Set including SP-COP2-EN-A, SP-COP-CARD1, SP-PLAN5+, SP-CABLE-USB1, SP-CABLE-ETH1
- Programming software samos®PLAN 5+
- WKFN 2,5 E/35 GO-URL *fasis*-multi-tier block with diodes
- SP-FILTER1 output filter, 24 V DC, 680 nF
- SP-FILTER2 output filter, 24 V DC, 2,2 µF
- Screw terminal set with 4 different codings for 5 devices
- Push-in terminal set with 4 different codings for 5 devices

Overview of devices | part numbers

Type	Description	Part no.	Std. pack
SP-COP-CARD1	Memory-card for SP-COP	R1.190.1000.0	1
SP-CABLE-USB1	USB cable for SP-COP, 1.8 m	R1.190.1010.0	1
SP-CABLE-ETH1	Ethernet cable for SP-COP, 2 m	R1.190.1020.0	1
SP-COP-STARTER-SET	Content: SP-COP2-EN-A, SP-COP-CARD1, SP-PLAN5+, SP-CABLE-USB1, SP-CABLE-ETH1	R1.190.1100.0	1
SP-VISUAL-SET	Visualization set (touch panel 3.5" color, SP-CABLE4, software driver)	R1.190.0280.0	1
SP-COVER	SD card slot cover for SP-COP modules	R1.190.1040.0	1
SAFETY SCHRAUBKL.SET	Screw terminal set with 4 different codings for 5 devices	99.208.9999.9	1
SAFETY PUSH IN SET	Push-in terminal set with 4 different codings for 5 devices	99.209.9999.9	1
WKFN 2,5 E/35 GO-URL	*fasis* - multi-tier block with diodes	56.703.8755.9	100
APFN 2,5 E/35	End plate	07.312.7355.0	10