



samos® PRO – Modular safety control

samos® PRO is a powerful and compact safety controller for machine and plant manufacturing applications. Using modules which are only 22.5 mm in width, programmable safety solutions can be assembled with total widths starting at 45 mm.

samos® PRO – overview of advantages

- High degree of flexibility due to extreme compact and modular design
- Operator control is child's play with the graphic **samos® PLAN** programming system
- Almost no downtime due to simple diagnostics, simulation and exchangeable program memory
- Inexpensive due to almost no wiring work and fast commissioning
- Simple integration into fieldbus systems and Industrial Ethernet networks

You can get the free programming tool **samos® PLAN** – via our Download Center at www.wieland-electric.com
Support / Download Center / Safety technology

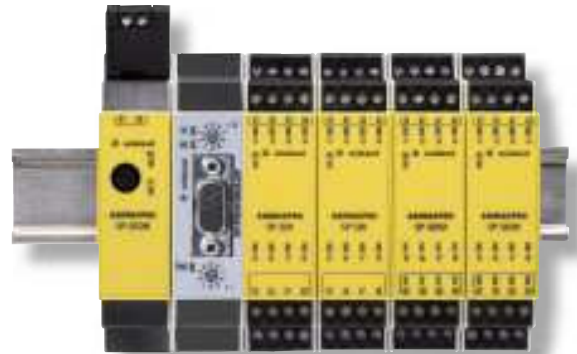
Implementation of complex functions is simple and safe.



samos® PRO – the modules

samos® PRO – professional safety

samos® PRO can simultaneously process up to 96 safe inputs and 48 safe outputs and monitors all types of safety sensors. The system enables extremely short switchoff times of 8 milliseconds. Safety devices can therefore be installed near the danger zones of a machine, for example.

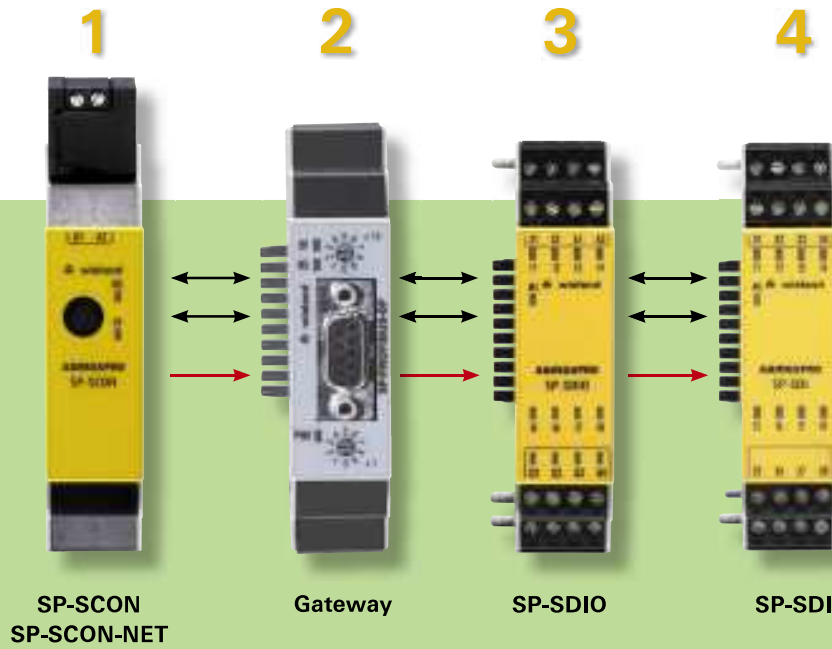


Materials must be moved and stored safely in high-shelf storage systems.

Always available

The application program is stored in the exchangeable program memory which also contains the power supply connection of the system. This means that the application program always remains available in the control cabinet, even when memory is being exchanged.





- 1** **SP-SCON/SP-SCON-NET**
 Safe controller module with serial interface and exchangeable program memory
- 2** **Gateway**
 Gateways for bi-directional data communication
- 3** **SP-SDIO**
 I/O-modules with 8 safe digital inputs and 4 safe digital outputs
- 4** **SP-SDI**
 Input-module with 8 safe digital inputs

samos® PRO – system characteristics

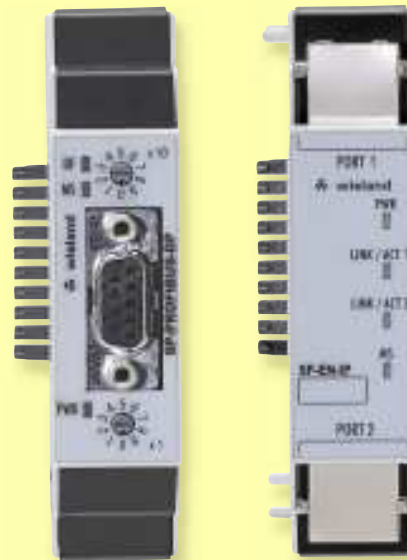
samos® PRO consists of the safe **SP-SCON/SP-SCON-NET** controller with integrated programming/diagnostic interface and a series of safe SP-SDIO or SP-SDI I/O modules. Appropriate gateways permit communication with fieldbuses or Ethernet networks.

Programming is simple and intuitive with the graphic programming user interface **samos® PLAN**, which uses a wide variety of safe function blocks. An exchangeable program memory (**samos® MEMORY**) is also part of the system.

samos® PRO fulfills PL e/category 4 (EN ISO 13849-1) and SIL 3 (EN 62061).

The gateways

samos® PRO

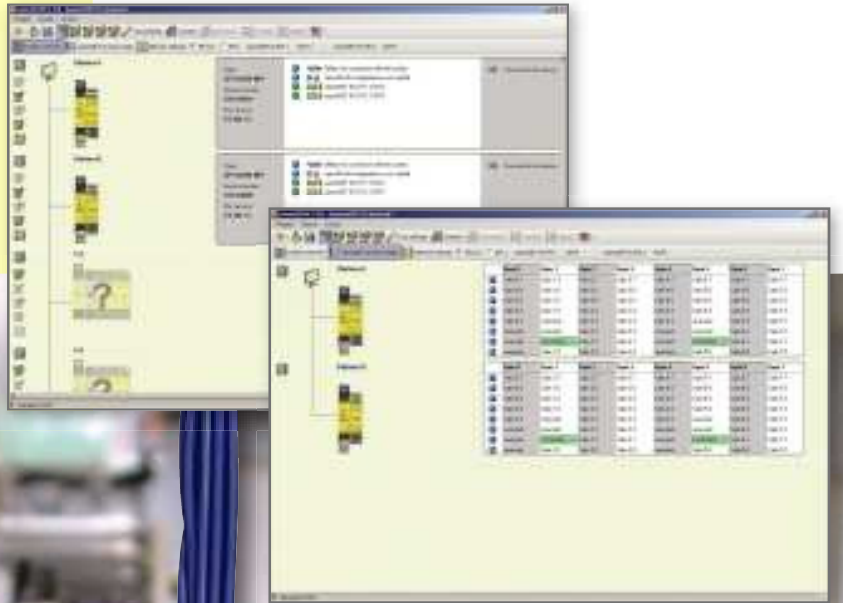


samos® PRO



Flexible and safe from loss –
the safe program memory.







samos® NET – safe interconnection


samos®NET is a network which allows machines and systems to be interconnected easily and safely.

Up to four complete **samos®**PRO systems can be safely interconnected with **samos®**NET, i.e. a total of 384 safe inputs and 192 safe outputs is available to the user.

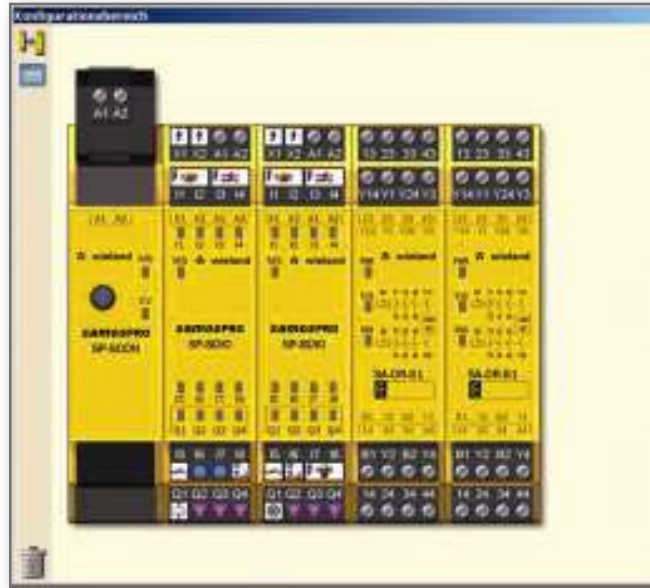
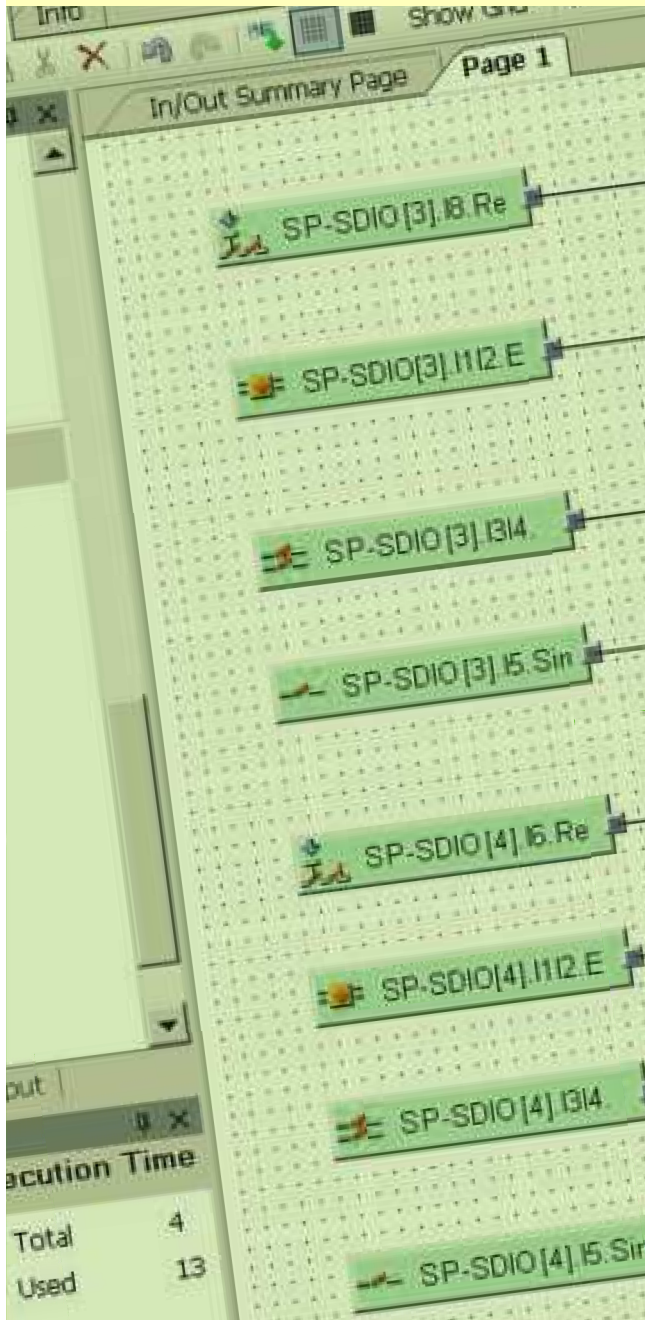
Configuration and diagnosis of **samos®**NET projects is carried out centrally using the programming tool **samos®**PLAN via one of the interconnected **samos®**PRO systems.

samos®PLAN – the programming tool for **samos®**PRO

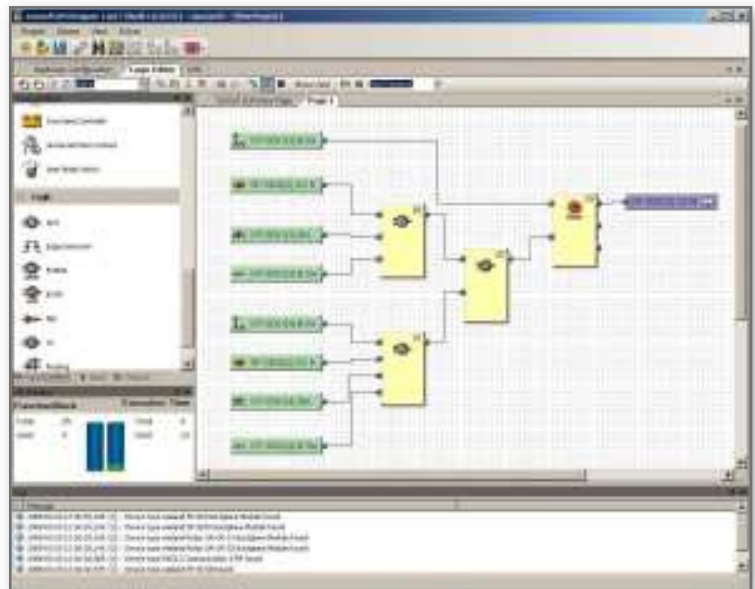
- Intuitive, graphic user interface
- Safe interconnection with **samos®**NET
- Convenient network integration
- Diagnosis and programming even via standard Ethernet
- Safe, certified function blocks
- Simple I/O configuration and parameterization
- Simulation and online diagnostics
- Runs under Windows XP, ...



samos® PRO



samos®PLAN – Programming, simulation and visualization of complex safety tasks



samos® PLAN –
the programming tool for
samos® PRO

You don't need to master a programming language to be able to solve technical safety tasks with **samos®** PLAN. The graphic programming user interface is intuitive and supports the user with its many automated functions.

samos® PLAN offers the user many safe, practice-oriented function blocks. For example:

- Emergency stop functions
- Protective door and locking functions
- Light barrier and light curtain functions
- Muting functions
- Two-hand and press functions
- Logic functions
- Timer and counter functions
- Operating mode switch
- Application-specific function blocks



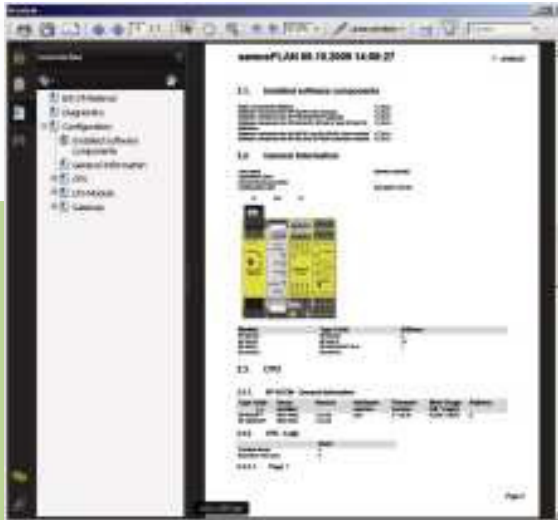
Clearly organized and functional – the practice-oriented function blocks.



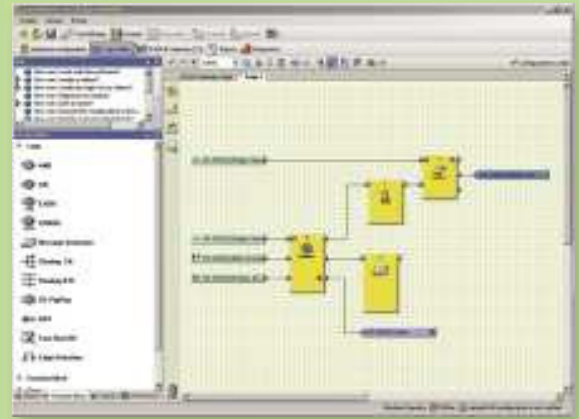
samos® PRO



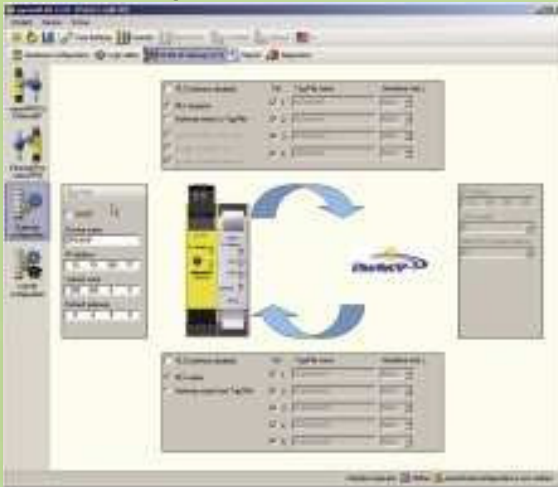
Documentation



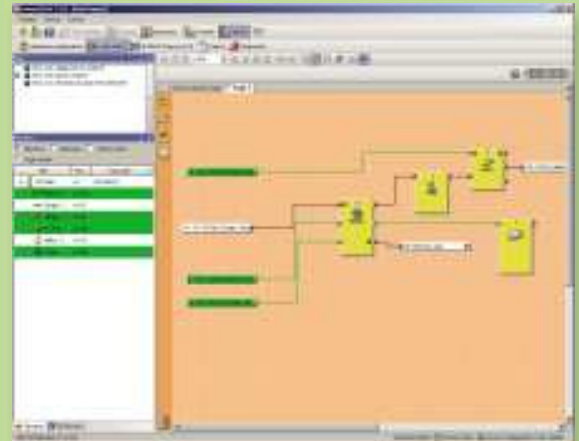
Logic editor



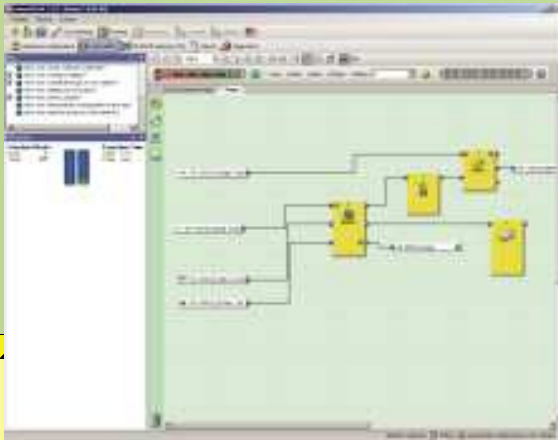
Network integration



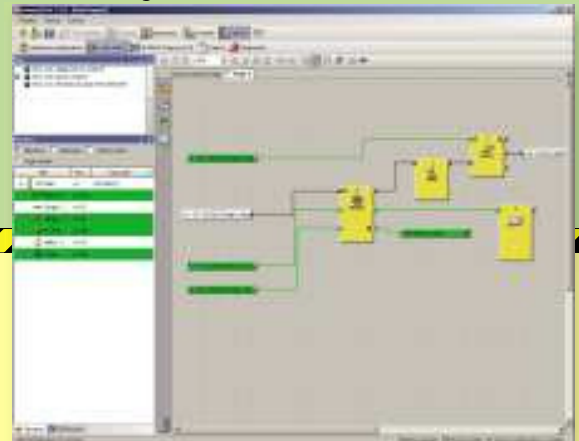
Force mode



Simulation



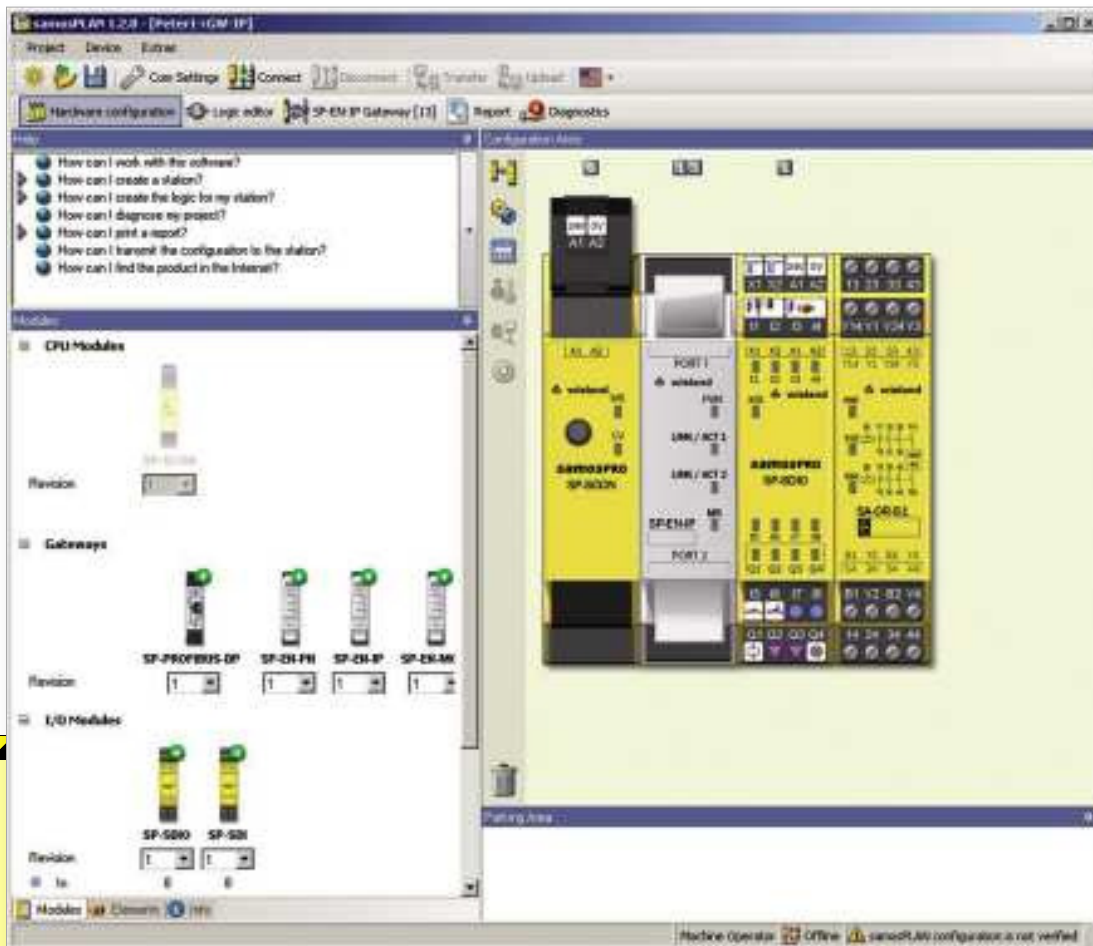
Online diagnosis



samos® PLAN – the programming tool

A programming tool for all aspects
of safe automation

- Logic editor
- Network integration
- Simulation
- Documentation
- Force mode
- Online diagnosis



samos® PRO



Controller module – SP-SCON/SP-SCON -NET Program memory – SP-MEMORY



Applications

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

Features

- Plug for removable program memory (to be ordered separately)
- Serial interface RS-232

Overview of devices | part numbers

Type	Rated voltage	Remarks	Part no.	Std. pack
SP-SCON-P1-K	24 V DC	Controller modules (without prog. memory)	R1.190.0010.0	1
SP-SCON-NET-P1-K	24 V DC	Controller modules, interconnectable (without prog. memory)	R1.190.0020.0	1
SP-MEMORY		Program memory	R1.190.0080.0	1

Technical data

Function display	2 LEDs, green/red
Power supply circuit	
Operating voltage range	16,8 V DC to 30 V DC
Rated consumption	3 W
Electrical isolation power supply circuit - control circuit	no
Input circuits	
Quantity / type	-
Output circuits	
SP-SCON	-
SP-SCON-NET	EFI interface
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 – +55°C / -25°C – +75°C
Standards	EN 61508, EN 62061, EN ISO 13849-1, EN 50156-1
Approvals	TÜV

Input-/ output module – SP-SDIO



Applications

- Machine building industry
- Combustion plants
- 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 output test-pulses	R1.190.0030.0	1
SP-SDIO84-P1-K-C	24 V DC	Cage clamp, pluggable	with output test-pulses	R1.190.0040.0	1
SP-SDIO84-P2-K-C	24 V DC	Cage clamp, pluggable	without output test-pulses	R1.190.0240.0	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	2 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 – +55°C / -25°C – +75°C
Standards	EN 61508, EN 62061, EN ISO 13849-1, EN 50156-1
Approvals	TÜV

Input module – SP-SDI



Applications

- Machine building industry
- Combustion plants
- 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	Cage clamp, 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 – +55°C / -25°C – +75°C
Standards	EN 61508, EN 62061, EN ISO 13849-1, EN 50156-1
Approvals	TÜV

samos® PRO – Starter set & accessories



samos® PRO starter set

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

You can get the free programming tool **samos® PLAN** via our Download Center at www.wieland-electric.com Support / Download Center / Safety technology

SP-CABLE1

SP-CABLE3

SP-CONVERTER

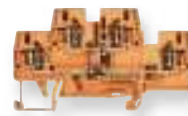
SP-VISUAL-SET



SP-FILTER

samos® PRO accessories

- SP-CABLE1 PC connection cable
- SP-CABLE3 CAN cable
- SP-CONVERTER USB-RS232 converter
- WKFN 2,5 E/35 GO-URL **fasis**-multi-tier block with diodes
- **samos** PRO output filter, 24 V DC, 680 nF
- **samos** PRO output filter, 24 V DC, 2,2 µF
- **samos** PRO visualization set (touch panel 3.5" color, SP-CABLE4, software driver)



WKFN 2,5 E/35 GO-URL

samos® PRO

Overview of devices | part numbers

Type	Description	Part no.	Std. pack
SP-CABLE1	Connecting cable, M8	R1.190.0090.0	1
SP-CABLE3	CAN cable 2 x 2 x 0.34 mm ² , shielded	00.102.5202.0	1
SP-PRO-STARTER-SET	Content: SP-SCON, SP-SDIO, SP-PLAN, SP-MEMORY, SP-CABLE1, SP-CONVERTER	R1.190.0100.0	1
SP-CONVERTER	USB-RS232-converter	R1.190.0250.0	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
SP-FILTER1	samos PRO output filter, 24 V DC, 680 nF	R1.190.0260.0	1
SP-FILTER2	samos PRO output filter, 24 V DC, 2,2 µF	R1.190.0270.0	1
SP-VISUAL-SET	samos PRO visualization set (touch panel 3.5" color, SP-CABLE4, software driver)	R1.190.0280.0	1

samos® PRO - Fieldbus gateways

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 25 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 at least 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 at least 50 bytes of data
- Simple configuration with **samos** PLAN

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-PN	24 V DC	PROFINET IO	R1.190.0140.0	1
SP-EN-MOD	24 V DC	MODBUS/TCP	R1.190.0130.0	1
SP-EN-IP	24 V DC	ETHERNET/IP	R1.190.0150.0	1

samos® PRO - Ethernet gateways



SP-EN-PN

Features

- Industrial Ethernet protocol PROFINET IO
- Bidirectional communication with PLC
- Transfer rate 100 Mbit/s (100Base-T)
- Transfer of at least 50 bytes of data
- Simple configuration with **samos**PLAN



SP-EN-MOD

Features

- Industrial Ethernet protocol MODBUS/TCP
- Bidirectional communication with PLC
- Transfer rate 100 Mbit/s (100Base-T)
- Transfer of at least 50 bytes of data
- Simple configuration with **samos**PLAN



SP-EN-IP

Features

- Industrial Ethernet protocol Ethernet/IP
- Bidirectional communication with PLC
- Transfer rate 100 Mbit/s (100Base-T)
- Transfer of at least 50 bytes of data
- Simple configuration with **samos**PLAN