



samos[®] PRO COMPACT

COMPACT **SAFETY**

Safety controllers for machines + plants.
Programmable + modular + flexible.



INTUITIVELY **PROGRAMMABLE.** **SAFETY** INTEGRATED.

In the future you can manage pressure of cost and competition only with more efficiency and time saving. Therefore our goal is to support you with ideally matching products and solutions, to optimize the productivity of machines and to shape preventive maintenance beyond Industry 4.0.

Our samos® PRO COMPACT safety controllers boost maximum performance in the smallest spaces, setting new standards in safe machine automation and providing outstanding added value.

THE DEVICE FOR:

- + SPEED MONITORING
- + POSITION MONITORING
- + STANDSTILL MONITORING
- + EMERGENCY STOP
- + SAFETY DOORS
- + LIGHT BARRIERS, LIGHT GRIDS
- + AND MORE...

SPECIAL LIBRARIES FOR

- + Motion
- + Presses
- + Analog
- + Combustion



SAMOS® PRO COMPACT SAFETY CONTROLLER.

Compact + integrated + scalable.



Original size

COMPACT POWER PACK

- + 45 mm overall width
- + Integrated motion and Ethernet protocols
- + High scalability

COMPACT POWER PACK

Save space in cabinet implementing numerous safety tasks.

- 45 mm width with safe inputs/outputs and interfaces
- 16 safe inputs, 4 safe outputs
- 4 configurable safe inputs/outputs
- Screw or push-in terminals in the delivery package

INTEGRATED ETHERNET PROTOCOLS

All common industrial Ethernet protocols are supported for the comfortable communication.

- PROFINET, EtherNet/IP and Modbus TCP integrated on base module
- External gateways for CANopen, PROFIBUS and EtherCAT
- Parallel operation of up to two external and one integrated gateways



EtherNet/IP



CANopen

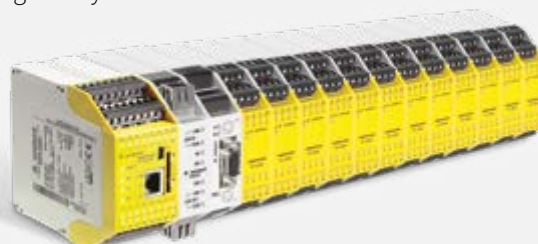


EtherCAT

HIGH SCALABILITY

samos® PRO COMPACT can be flexibly scaled for different machine and plant sizes.

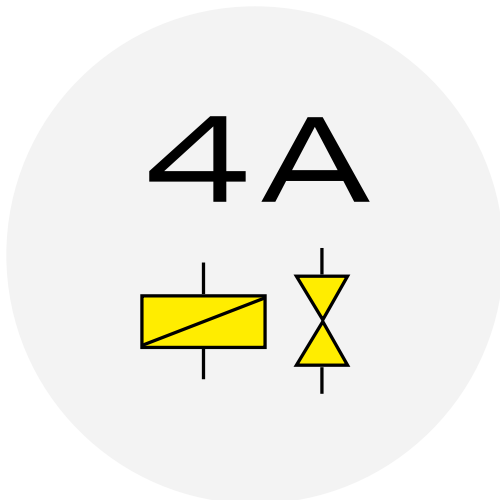
- Ideal for small, medium-sized and large machines and plants
- Up to 116 safe inputs and 56 outputs with 12 I/O modules
- Usage of safe and standard I/O modules in one system
- Configuration up to two external and one integrated gateways



CERTIFIED FOR SAFETY APPLICATIONS

samos® PRO COMPACT is available with certifications for machines, elevators, presses and plants.

- IEC 60204-1/IEC 62061/EN 13849-1: Safety of machinery
- EN 81/20, EN 81/50: Elevators and escalators
- EN 692: Mechanical presses
- EN 693: Hydraulic presses
- EN/IEC 61511: Process industry
- EN 50156: Furnaces and ancillary equipment



HIGH SWITCHING POWER

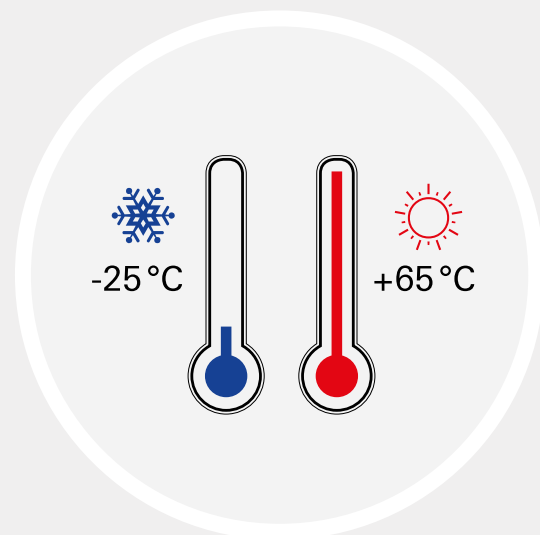
Users can save extra contactors and relays thanks high power outputs.

- Up to 4A non-wearing switching at each output pair
- Possible to use 4A only at one output, leaving other unused
- Users can save contactors and relays

DESIGNED FOR HARSH ENVIRONMENTS

Our safety controller is especially robust in extreme temperatures.

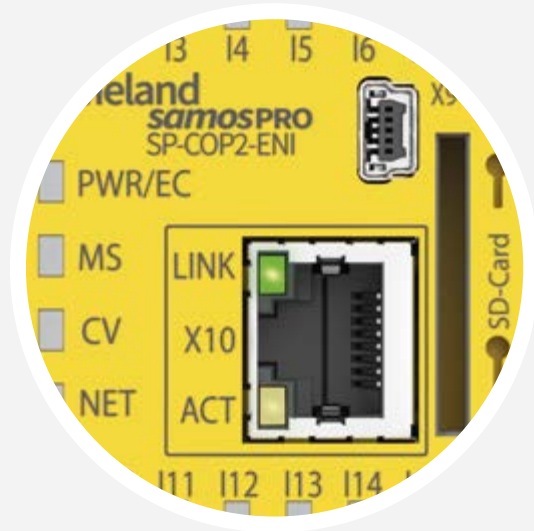
- Operating temperature from -25 °C to +65 °C
- Storage temperature up to +70 °C



INTEGRATED COMMUNICATION INTERFACES

Flexible programming and commissioning over integrated interfaces.

- Mini-USB for easy and local programming
- Ethernet for access in an IP network or machine
- SD-Card for transferring projects to multiple devices



PLUGGABLE MEMORY CARD

User save significant time for commissioning, setup and service.

- Professional SD-Cards offer 512 MB of memory
- SD-Cards can be read or written on a PC or laptop
- Projects can be duplicated very fast for serial machines
- Easy handling for technicians during the machine setup
- Trivial troubleshooting by sending SD-Cards

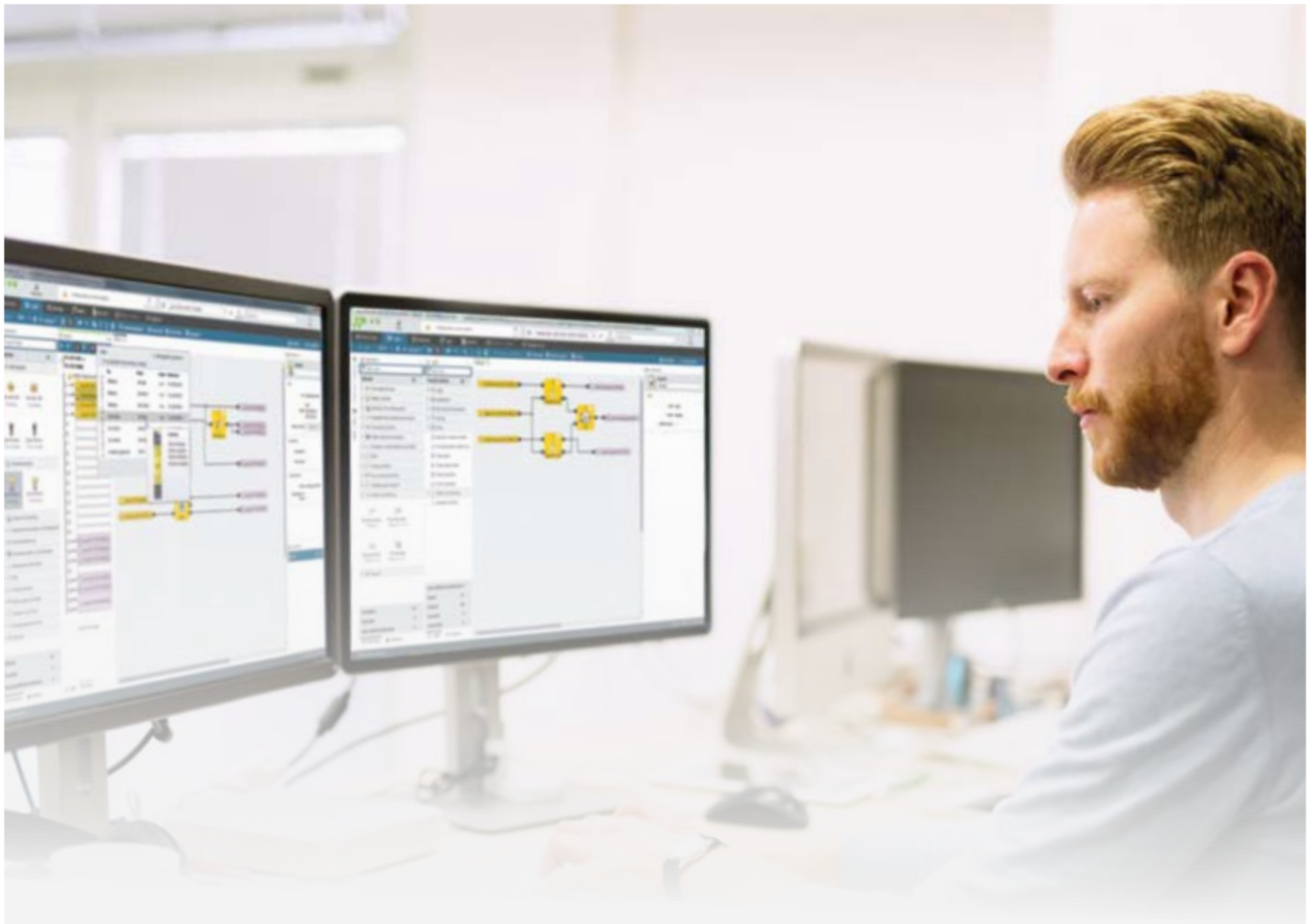


STATUS LEDS ON BOARD

Local diagnosis without any tool or laptop.

- Status of the system and connection
- Error identification like cable break detection
- Sequence/Synchronous time error at two-channel inputs
- Current status of all inputs and outputs





SAMOS® PLAN 6 PROGRAMMING SOFTWARE.

Intuitive + flexible + license-free.

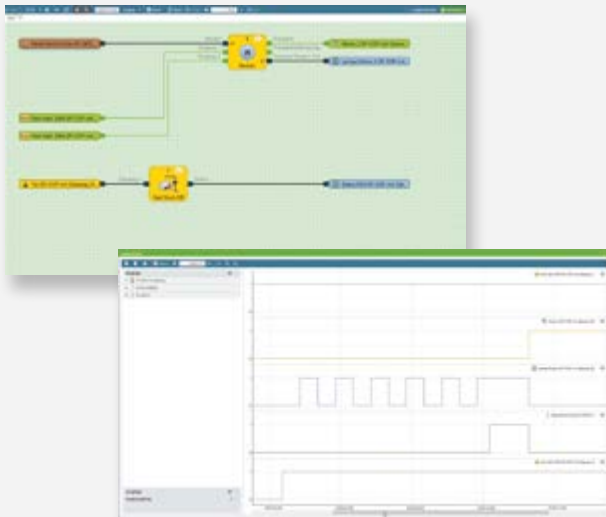
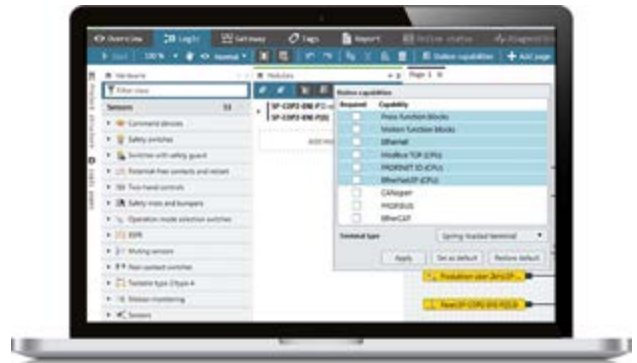
Our samos® PLAN 6 programming software for the samos® PRO COMPACT range now makes programming even easier. samos® PLAN 6 assists PLC programmers, electrical design engineers and developers with the planning, validation, verification and documentation of the safety application.

- + Intuitive operation through automatic hardware configuration
- + Error-free commissioning through integrated simulation and logic analysis
- + Comprehensive library with TÜV-certified function blocks
- + Comfortable operation with multiple screens, dockable and undockable windows
- + Fast setup of the machine through forcing
- + Configurable project documentation with one mouse click (one-click report)

INTUITIVE CONFIGURATION

samos® PLAN 6 offers automatic hardware configuration.

- Easy entry to programming
- No detailed product knowledge required
- Select features instead of modules
- On-the-fly configuring & programming
- Less engineering effort



SIMULATION INSTEAD OF TESTING

Simulate your programmed logic in real-time on the PC instead of looking for faults on the machine.

- Offline function simulation
- Signal selection via drag & drop
- Fast signal change and debouncing
- Deceleration up to a factor of 20
- Simulation exported to Excel
- Documentation as a PDF with one click

FASTER VALIDATION

In online mode with oscilloscope function, you can quickly validate, verify and document your safety functions on-site.

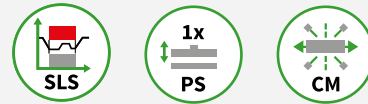
- Online recording on a laptop
- Long-term recording for troubleshooting
- Validation and verification on-site
- Fast documentation via PDF export



PARAMETERIZATION INSTEAD OF PROGRAMMING

Error-free parameterization through TÜV-certified application modules.

- Fast acceptance through approval authorities (TÜV, UL, DGUV, etc.)
- Functions for presses to EN 692 or EN 693
- Muting functions, specially for light grids and light curtains
- Motion functions acc. to EN 61800-5-2
- Adjustable switch on and off delay
- Analog signal processing



FLEXIBLE SCREENS

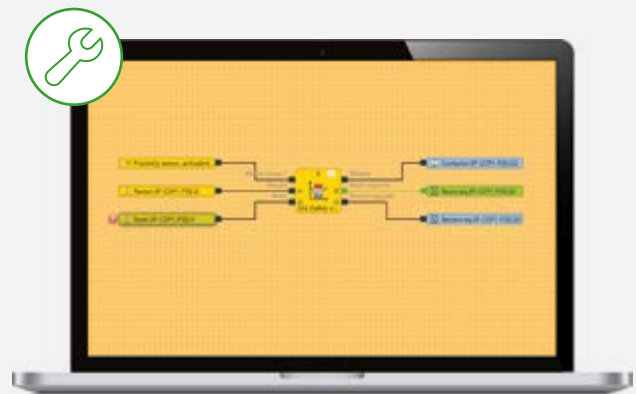
Configure the software to fulfill your requirements by individually adapting your workspace.

- Docking and undocking window arrangement
- Flexible with multiple screens
- Clear diagnosis, verification and troubleshooting
- Selectable Start view (HW, logic)
- Customized and savable layouts (laptop, PC, tablet)

FAST MACHINE SETUP

Simply emulate missing sensor hardware with the forcing function.

- Comfortable machine setup with forcing for missing sensors
- Time-limited forcing up to 8 hours
- Minimal errors at shift change
- Fast troubleshooting thanks to diagnostics messages



GLOBAL REMOTE DIAGNOSTICS

With samos® PLAN 6 and the integrated Ethernet interface, you and your system are connected worldwide, therefore you save expensive service call outs.

- Initial diagnosis via LEDs, Touch Panels or PLCs
- Remote diagnosis via integrated Ethernet
- Remote access to samos® PRO via VPN router
- Remote via LAN, WLAN or mobile radio
- Fast troubleshooting during machine breakdown
- Advanced security against manipulation



3.8 Sicherheitskennwerte

Name	Typ	SIL	Kategorie	PL	PLD
SF-COP1 A(1) Q1		SIL 3	Kategorie 4	PL 0	3.4C-03
SF-COP1 A(1) Q2		SIL 3	Kategorie 4	PL 0	3.4C-03
SF-COP1 A(1) Q3		SIL 3	Kategorie 3	PL 0	3.4C-03

Die Sicherheitskennwerte gelten ausschließlich für die korrekten originalen Ausgänge der SF-COP und SF-SIO Module (wie im Handbuch Hardware beschrieben) und nicht für angeschlossene Sensoren oder Aktoren.

3.1.1 Verdrahtungsplan

3.1.2 Allgemeine Informationen

3.1.3 Projektbeschreibung

3.1.4 Bauteile

ONE-CLICK REPORT GENERATION

Document your projects with one click.

- Cover sheet with project info and CRC
- Optional manipulation protection with falsification code
- Easy to order thanks to parts list
- Time saving with wiring examples
- Safety values (SIL, Kat, PL, PFHd)
- Comfortable calculation of the overall performance level

PROTECTION AGAINST MANIPULATION

Protect your machines against manipulation and hacker attacks with the new "Advanced Security" capability.

- No project modification on the controller without falsification code
- Extra precautions against unauthorized access via Ethernet
- Project runs only on a specified controller
 - ▶ More control over spare parts business
- The controller runs only with the original project
 - ▶ Protection against SD card change



SAMOS® PRO COMPACT · ORDERING OVERVIEW

BASIC MODULES



SP-COP1-x



SP-COP2-x

Name/type	Description	Art. No.	PU
samos® PRO COMPACT (STANDARD, PLUS + MOTION)			
SP-COP1-A	STANDARD with USB connection, 20 inputs / 4 outputs, screw terminals	R1.190.1110.0	1
SP-COP1-P-A	PLUS = STANDARD + press, combustion and analog	R1.190.1130.0	1
SP-COP1-M-A	MOTION = PLUS + motion libraries	R1.190.1150.0	1
SP-COP2-EN-A	STANDARD with USB and Ethernet connection, 16 inputs / 4 outputs, 4 configurable I/O, screw terminals	R1.190.1210.0	1
SP-COP2-EN-P-A	PLUS = STANDARD + press, combustion and analog	R1.190.1230.0	1
SP-COP2-EN-M-A	MOTION = PLUS + motion libraries	R1.190.1250.0	1
SP-COP2-ENI-A	STANDARD with USB and industrial Ethernet connection, 16 inputs / 4 outputs, 4 configurable I/O, screw terminals	R1.190.1310.0	1
SP-COP2-ENI-P-A	PLUS = STANDARD + press, combustion and analog	R1.190.1330.0	1
SP-COP2-ENI-M-A	MOTION = PLUS + motion libraries	R1.190.1350.0	1
SP-COP1-C	STANDARD with USB connection, 20 inputs / 4 outputs, push-in terminals	R1.190.1120.0	1
SP-COP1-P-C	PLUS = STANDARD + press, combustion and analog	R1.190.1140.0	1
SP-COP1-M-C	MOTION = PLUS + motion libraries	R1.190.1160.0	1
SP-COP2-EN-C	STANDARD with USB and Ethernet connection, 16 inputs / 4 outputs, 4 configurable I/O, push-in terminals	R1.190.1220.0	1
SP-COP2-EN-P-C	PLUS = STANDARD + press, combustion and analog	R1.190.1240.0	1
SP-COP2-EN-M-C	MOTION = PLUS + motion libraries	R1.190.1260.0	1
SP-COP2-ENI-C	STANDARD with USB and industrial Ethernet connection, 16 inputs / 4 outputs, 4 configurable I/O, push-in terminals	R1.190.1320.0	1
SP-COP2-ENI-P-C	PLUS = STANDARD + press, combustion and analog	R1.190.1340.0	1
SP-COP2-ENI-M-C	MOTION = PLUS + motion libraries	R1.190.1360.0	1

I/O MODULES



SP-SDIO84-x | SP-SDI8-x | SP-DIO84-x

Name/type	Description	Art. No.	PU
I/O modules			
SP-SDIO84-P1-K-A	Input/output extension with output test pulses, 8 inputs / 4 outputs, screw terminals, plug-in	R1.190.0030.0	1
SP-SDIO84-P1-K-C	Input/output extension with output test pulses, 8 inputs / 4 outputs, push-in terminals, plug-in	R1.190.0040.0	1
SP-SDI8-P1-K-A	Input extension, 8 inputs, screw terminals, plug-in	R1.190.0050.0	1
SP-SDI8-P1-K-C	Input extension, 8 inputs, push-in terminals, plug-in	R1.190.0060.0	1
SP-DIO84-K-A	Standard I/O module, 4 inputs / 4 outputs, screw terminals, plug-in	R1.190.1050.0	1
SP-DIO84-K-C	Standard I/O module, 4 inputs / 4 outputs, push-in terminals, plug-in	R1.190.1060.0	1

ANALOG MODULES



SP-SAR4-x | SP-SAC4-x | SP-SACR22-x

Name/type	Description	Art. No.	PU
Analog modules			
SP-SAR4-A	Screw terminals, pluggable, 4 safe inputs RTD	R1.190.1610.0	1
SP-SAR4-C	Push-in terminals, pluggable, 4 safe inputs RTD	R1.190.1620.0	1
SP-SAC4-A	Screw terminals, pluggable, 4 safe inputs 0-20 mA	R1.190.1630.0	1
SP-SAC4-C	Push-in terminals, pluggable, 4 safe inputs 0-20 mA	R1.190.1640.0	1
SP-SACR22-A	Screw terminals, pluggable, 2 safe inputs RTD, 2 safe inputs 0-20 mA	R1.190.1650.0	1
SP-SACR22-C	Push-in terminals, pluggable, 2 safe inputs RTD, 2 safe inputs 0-20 mA	R1.190.1660.0	1

GATEWAYS



SP-CANopen | SP-PROFIBUS-DP | SP-EN-ETC

Name/type	Description	Art. No.	PU
Gateways			
SP-CANopen	CANopen gateway	R1.190.0210.0	1
SP-CANopen	CANopen gateway with diagnosis function	R1.190.0210.1	1
SP-PROFIBUS-DP	PROFIBUS-DP gateway	R1.190.0190.0	1
SP-PROFIBUS-DP	PROFIBUS-DP gateway with diagnosis function	R1.190.0190.1	1
SP-EN-ETC	EtherCAT gateway	R1.190.0160.0	1

ACCESSORIES



SP-COP-STARTER-SET

Name/type	Description	Art. No.	PU
SP-COP-CARD1	Memory card 512 MB for SP-COP modules	R1.190.1000.0	1
SP-CABLE-USB1	USB connection cable for SP-COP, 1.8 m	R1.190.1010.0	1
SP-CABLE-ETH1	Ethernet connection cable for SP-COP, 2 m	R1.190.1020.0	1
SP-COP-STARTER-SET	Contents: SP-COP2-EN-A, SP-COP-CARD1, SP-PLAN6, SP-CABLE-USB1, SP-CABLE-ETH1	R1.190.1100.0	1

