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 kbyte 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
**Overview of devices | part numbers**

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Terminals</th>
<th>Remarks</th>
<th>Part no.</th>
<th>Std. Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-COP1-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>USB-interface</td>
<td>R1.190.1110.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-COP1-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>USB-interface</td>
<td>R1.190.1120.0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Technical data**

<table>
<thead>
<tr>
<th>Function</th>
<th>Safety control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function display</td>
<td>24 LED green (in-/outputs)</td>
</tr>
<tr>
<td></td>
<td>3 LED green/red/yellow (module status)</td>
</tr>
</tbody>
</table>

**Supply circuit**

<table>
<thead>
<tr>
<th>Operating voltage range</th>
<th>16.8 V DC to 30 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power</td>
<td>3.5 W</td>
</tr>
<tr>
<td>Electrical isolation supply circuit - control circuit</td>
<td>No</td>
</tr>
</tbody>
</table>

**Secure input circuit In**

<table>
<thead>
<tr>
<th>Quantity/type</th>
<th>20 / digital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary voltage range</td>
<td>15 V DC to 30 V DC</td>
</tr>
<tr>
<td>Nominal current</td>
<td>2 mA</td>
</tr>
</tbody>
</table>

**Secure input circuit Qn**

<table>
<thead>
<tr>
<th>Quantity/type</th>
<th>4 / digital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal output voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Output current per output</td>
<td>4 A</td>
</tr>
<tr>
<td>Short-circuit protective device</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Interfaces**

<table>
<thead>
<tr>
<th>USB Mini interface</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet interface</td>
<td>No</td>
</tr>
<tr>
<td>Industrial Ethernet protocol</td>
<td>No</td>
</tr>
<tr>
<td>Program memory</td>
<td>External</td>
</tr>
</tbody>
</table>

**General data**

<table>
<thead>
<tr>
<th>Protection class as per DIN EN 60529 (housing/terminals)</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air and creepage distances</td>
<td>EN 60664-1</td>
</tr>
<tr>
<td>Ambient temperature / storage temperature</td>
<td>-25 °C – +65 °C / -25 °C – +75 °C</td>
</tr>
<tr>
<td>Norms</td>
<td>EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1</td>
</tr>
<tr>
<td>Approvals</td>
<td>TÜV, UL (applied for)</td>
</tr>
</tbody>
</table>
SP-COP2 – COMPACT module with ethernet

Applications

• Machine building industry
• Combustion plants
• Elevator systems
• SIL C (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 ordered separately)

Overview of devices | part numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Terminals</th>
<th>Remarks</th>
<th>Part no.</th>
<th>Std. Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-COP2-EN-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>USB- / ETH-interface</td>
<td>R1.190.1210.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-COP2-EN-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>USB- / ETH-interface</td>
<td>R1.190.1220.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-COP2-ENI-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>USB- / ETH-interface</td>
<td>R1.190.1310.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-COP2-ENI-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>USB- / ETH-interface</td>
<td>R1.190.1320.0</td>
<td>1</td>
</tr>
</tbody>
</table>

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 In

Quantity/type
20 (16) / digital
Primary voltage range
15 V DC to 30 V DC
Nominal current
2 mA

Secure input circuit Qn

Quantity/type
4 (8) / 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
Yes
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, UL (applied for)
SP-SDIO84-P1-K-A 24 V DC R1.190.0030.0 1
SP-SDIO84-P1-K-C 24 V DC R1.190.0040.0 1

Applications
- Machine building industry
- Combustion plants
- Elevator systems
- SILCl 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Terminals</th>
<th>Remarks</th>
<th>Part no.</th>
<th>Std. Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-SDIO84-P1-K-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>with/without output test-pulses</td>
<td>R1.190.0030.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-SDIO84-P1-K-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>with/without output test-pulses</td>
<td>R1.190.0040.0</td>
<td>1</td>
</tr>
</tbody>
</table>

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 In per exit: 4 A

Output circuits X1, X2
- Quantity / type: 2 / digital
- Output voltage: 24 V DC
- Output current In 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 to +65°C / -25°C to +75°C
- Standards: EN 61508, EN 61511, EN 62061, EN ISO 13849-1, EN 50156-1, EN 81-1
- Approvals: TÜV, cULus

Overview of devices | part numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
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<th>Remarks</th>
<th>Part no.</th>
<th>Std. Pack</th>
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</thead>
<tbody>
<tr>
<td>SP-SDIO84-P1-K-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>with/without output test-pulses</td>
<td>R1.190.0030.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-SDIO84-P1-K-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>with/without output test-pulses</td>
<td>R1.190.0040.0</td>
<td>1</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Terminals</th>
<th>Part no.</th>
<th>Std. pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-SDI8-P1-K-A</td>
<td>24 V DC</td>
<td>Screw terminals, pluggable</td>
<td>R1.190.0050.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-SDI8-P1-K-C</td>
<td>24 V DC</td>
<td>Cage clamp, pluggable</td>
<td>R1.190.0060.0</td>
<td>1</td>
</tr>
</tbody>
</table>

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_{o} 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 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

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**Overview of devices | part numbers**

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>Remark</th>
<th>Part no.</th>
<th>Std. pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-CANopen</td>
<td>24 V DC</td>
<td>CANopen</td>
<td>R1.190.0210.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-PROFIBUS-DP</td>
<td>24 V DC</td>
<td>PROFIBUS-DP</td>
<td>R1.190.0190.0</td>
<td>1</td>
</tr>
</tbody>
</table>
Starter set & accessories

samos®PRO COMPACT starter set
• A safe way to get started
• Contains all required components
• With programming tool samos®PLANT 5+
• With USB-RS232 converter

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

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
• SP-PLAN5+: CD with programming software samos®PLANT 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

Overview of devices | part numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Part no.</th>
<th>Std. pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-COP-CARD1</td>
<td>Memory-card for SP-COP</td>
<td>R1.190.1000.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-CABLE-USB1</td>
<td>USB cable for SP-COP, 1.8 m</td>
<td>R1.190.1010.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-CABLE-ETH1</td>
<td>Ethernet cable for SP-COP, 2 m</td>
<td>R1.190.1020.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-COP-STARTER-SET</td>
<td>Content: SP-COP2-EN-A, SP-COP-CARD1, SP-PLAN5+, SP-CABLE-USB1, SP-CABLE-ETH1</td>
<td>R1.190.1100.0</td>
<td>1</td>
</tr>
<tr>
<td>SP-PLAN5+</td>
<td>CD with programming software samos®PLANT 5+</td>
<td>R1.190.1030.0</td>
<td>1</td>
</tr>
<tr>
<td>WKFN 2,5 E/35 GO-URL</td>
<td>fasis - Multi-tier block with diodes</td>
<td>56.703.8755.9</td>
<td>100</td>
</tr>
<tr>
<td>APFN 2,5 E/35</td>
<td>End plate</td>
<td>07.312.7355.0</td>
<td>10</td>
</tr>
</tbody>
</table>