



wieland

safety



Safety for
all applications
Overview 2012

Guiding you to safety



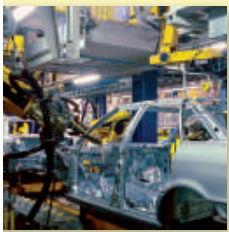


Fit for *safety* with Wieland



Safety Technology from A to Z

Wieland supports and advises you – from the planning stage right through to start-up – throughout the entire life cycle of a machine or production system. The broad portfolio of safety switching devices covers all important safety functions and fulfills even complex customer requirements.



SISTEMA – safety of machine controls

The **SISTEMA** software provides developers and testers of safety-related machine controls with comprehensive support when assessing safety within the scope of **EN ISO 13849-1**. The name **SISTEMA** comes from the German “**S**icherheit von **ST**uerungen an **MA**schinen” (safety of machine controls). The tool allows you to reproduce the structure of the safety-related control elements on the basis of the intended architectures and then enables an automated calculation of the reliability values at various levels of detail, including the performance level (PL) attained.

Training & Support

Wieland Electric offers a range of workshops about the topic of machine safety.

The training covers hazard and risk analysis, definition of the necessary safety functions using the **SISTEMA** tool and support for selecting and implementing the necessary technical safety measures.

We provide our safety workshops and product training sessions both as in-house training and as a workshop at our modern Sales and Marketing Center in Bamberg.

- Risk assessment in accordance with EN ISO 14121
- Risk reduction in accordance with EN 12100-1,-2
- Definition of technical safety measures
- Assessment of safety functions (SISTEMA)
- Product training
- Training for samos PLAN

Simply contact us at **+49 951 9324 999** or via e-mail at **safety@wieland-electric.com**



Certified Technology

It goes without saying that Wieland Electric only supplies tested and certified safety devices, i.e. all safety-related products are approved by recognized testing institutes and fulfill the current norms and standards.

Overview of safety technology

From the safety sensors **sensor**^{PRO} to the safety relay family **safe**^{RELAY} and the modular safety modules **samos**[®] to the safety con-

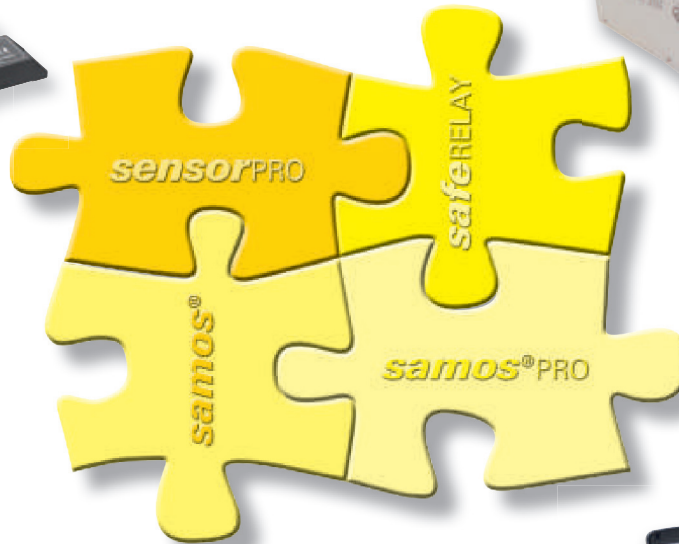
trollers **samos**[®]**PRO**, Wieland Electric offers the right product for your needs.



Safe signal acquisition
sensor^{PRO}



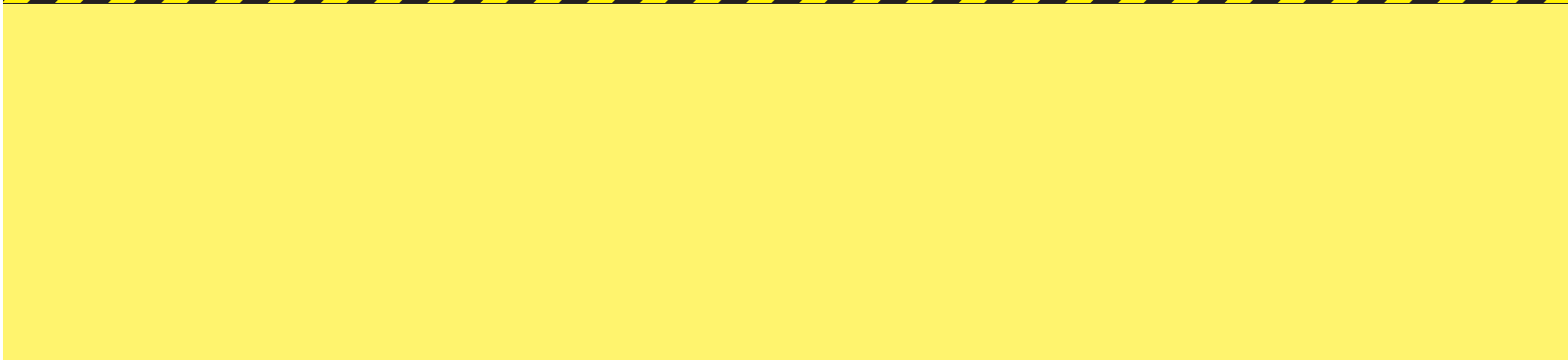
Universal safety relays
safe^{RELAY}



samos[®]
Safety modular system



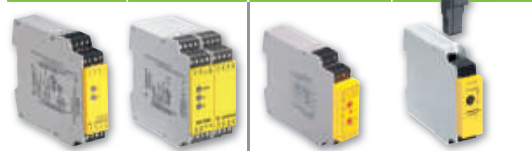
samos[®]**PRO**
Compact safety controller



				Basic devices with time function						Contact expansion	
SNS 4074K/ 4084K	SNT 4M63K	SNZ 4052K	SNZ 1022K	SNV 4063KL	SNV 4063KP	SNV 4074SL	SNV 4076SL	SNV 4274SL	SNV 4074ST	SNE 4003K	SNE 4004K
SK4	SK4	SK4	SK1	SK4/3	SK4/3	SK4	SK4	SK4	SK4	SK3	SK3
SIL3	SIL3	SIL3	SIL1	SIL3/2	SIL3/2	SIL3	SIL3	SIL3	SIL3	SIL2	SIL2
PL _e	PL _e	PL _e	PL _C	PL _{e/d}	PL _{e/d}	PL _e	PL _e	PL _e	PL _e	PL _d	PL _d
24 V DC	24 V AC/DC 115-120 V AC 230 V AC	24 V AC/DC 115-120 V AC 230 V AC	24 V AC/DC 115-230 V AC	24 V DC	24 V DC	24 V DC 115-230 V AC	24 V DC 115-230 V AC	24 V DC 115-230 V AC	24 V DC 115-230 V AC	24 V DC	24 V AC/DC
AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET	AUTO-RESET		
	RESET			RESET	RESET	RESET	RESET	RESET	RESET		
RESET	RESET			RESET	RESET	RESET	RESET	RESET	RESET		
CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON	CROSSMON		
		CH1 t _{sync} CH2	CH1 t _{sync} CH2			CH1 t _{sync} CH2	CH1 t _{sync} CH2	CH1 t _{sync} CH2	CH1 t _{sync} CH2		
		EN 574	EN 574					retriggerable	retriggerable		
22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	45 mm	45 mm	45 mm	45 mm	22,5 mm	22,5 mm

32-bit relay

SNE 4004KV	SNE 4028K	samos®	samos®PRO
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SK3	SK4	SK4	SK4
SIL ₂	SIL ₃	SIL ₃	SIL ₃
PL _d	PL _e	PL _e	PL _e
		MULTIFUNCTION	SOFTWARE
		MULTI	96
SAFE 4	SAFE 8	SAFE 2 OFF-DELAY	SAFE 48
3	3		
24 V DC	24 V AC/DC 115-230 V AC	24 V DC	24 V DC
		AUTO-RESET	AUTO-RESET
		RESET	RESET
		RESET	RESET
		CROSSMON	CROSSMON
		CH1 tsync CH2	CH1 tsync CH2
OFF-DELAY		EXPANSION	EXPANSION
22,5 mm	45 mm	22,5 mm	22,5 mm

Glossary of icons



Emergency Stop monitoring



Two-hand control according to EN 574-1



Output expansion
with safe enables



Protective gate monitoring



Safety mat monitoring



Controlled Stop
Corresponding to stop category 1



Standstill monitoring



Door guard lock
time-monitored



Valve position monitoring
static



AOPD-compatible
Connection of sensors with semiconductor outputs possible. Functions also with self test or overcurrent limit for the sensors' semiconductor outputs



Elevator systems / escalators
in accord. with EN 81-1



Combustion plants
according to EN 50156-1



samos®
Hardware configurable function blocks



samos®PRO
Software programmable safety controller with programming tool **samos®PLAN**



Base module of the samos®-system with 8 function modules for emergency stop, protective doors, safety mats, two-hand control, light curtain monitoring with muting function for stop categories 0 and 1, AND / OR function. See the manuals of **samos®** and **samos®PRO** systems.



Automatic Reset
after application of the voltage and/or after safety request



Manual Reset
in the case of a rising edge at the reset input after application of the voltage and/or safety request



Reset button monitoring
in the case of a falling edge at the reset input or dynamic monitoring after application of the voltage and/or safety request



Cross monitoring
between the input circuits



Synchro-check



Modular expansion
of inputs/outputs and function modules



Input debouncing
through monoflop function. Sensors for rapid tactile applications (safety mats in automatic mode; light curtain on feeds)



Safe OFF-delay



Safe ON-delay

Excerpt from the **product range**

"Safe System Solutions for Automation Technology"

Basic devices

Type	Synchronous time	Rated voltage	Terminals	Part number
SNO 4083KM-A	1.5 s	24 V DC	Screw terminals, pluggable	R1.188.3580.0
SNO 4083KM-A	1.5 s	115-230 V AC	Screw terminals, pluggable	R1.188.3590.0
SNO 4083KM-C	1.5 s	24 V DC	Cage clamp, pluggable	R1.188.3600.0
SNO 4083KM-C	1.5 s	115-230 V AC	Cage clamp, pluggable	R1.188.3610.0
SNO 4083KM-A	0.5 s	24 V DC	Screw terminals, pluggable	R1.188.3830.0
SNO 4083KM-A	0.5 s	115-230 V AC	Screw terminals, pluggable	R1.188.3840.0
SNO 4083KM-C	0.5 s	24 V DC	Cage clamp, pluggable	R1.188.3850.0
SNO 4083KM-C	0.5 s	115-230 V AC	Cage clamp, pluggable	R1.188.3860.0
SNO 4062K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.0700.2
SNO 4062KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.0720.2
SNO 4062K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.2000.0
SNO 4063K-A		12 V DC	Screw terminals, pluggable	R1.188.1120.0
SNO 4063K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.0990.0
SNO 4063K-A		230 V AC	Screw terminals, pluggable	R1.188.1010.0
SNO 4063K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.2450.0
SNO 4063KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1280.0
SNA 4043K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1810.0
SNA 4043K-A		230 V AC	Screw terminals, pluggable	R1.188.1840.0
SNA 4043K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1940.0
SNA 4043KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.3250.0
SNA 4043KM-C		24 V AC/DC	Cage clamp, pluggable	R1.188.3400.0
SNA 4044K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1860.0
SNA 4044-A		230 V AC	Screw terminals, pluggable	R1.188.1860.0
SNA 4044K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1960.0
SNA 4044KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1480.0
SNA 4044KM-C		24 V AC/DC	Cage clamp, pluggable	R1.188.3410.0
SNA 4063K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1440.0
SNA 4063K-A		230 V AC	Screw terminals, pluggable	R1.188.1460.0
SNA 4063K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1950.0
SNA 4063KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.3290.0
SNA 4063KM-C		24 V AC/DC	Cage clamp, pluggable	R1.188.3420.0
SNA 4064K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1900.0
SNA 4064K-A		230 V AC	Screw terminals, pluggable	R1.188.1930.0
SNA 4064K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1970.0
SNA 4064KM-A		24 V AC/DC	Screw terminals, pluggable	R1.188.3360.0
SNA 4064KM-C		24 V AC/DC	Cage clamp, pluggable	R1.188.3430.0
SNO 4003K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.0500.1
SNO 4003K-A		115-120 V AC	Screw terminals, pluggable	R1.188.0900.1
SNO 4003K-A		230 V AC	Screw terminals, pluggable	R1.188.0910.1
SNO 4003K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1990.0
SNO 1012K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.3740.0
SNO 1012K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.3750.0
SNS 4074K-A		24 V DC	Screw terminals, pluggable	R1.188.3640.0
SNS 4074K-C		24 V DC	Cage clamp, pluggable	R1.188.3650.0
SNS 4074K-A		24 V DC	Screw terminals, pluggable	R1.188.3620.0
SNS 4074K-C		24 V DC	Cage clamp, pluggable	R1.188.3630.0
SNS 4084K-A		24 V DC	Screw terminals, pluggable	R1.188.3480.0
SNS 4084K-C		24 V DC	Cage clamp, pluggable	R1.188.3490.0
SNS 4084K-A		24 V DC	Screw terminals, pluggable	R1.188.3660.0
SNS 4084K-C		24 V DC	Cage clamp, pluggable	R1.188.3670.0
SNT 4M63K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1050.0
SNT 4M63K-A		230 V AC	Screw terminals, pluggable	R1.188.1070.0
SNT 4M63K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.2390.0
SNZ 4052K-A	0.5 s	24 V AC/DC	Screw terminals, pluggable	R1.188.0530.1
SNZ 4052K-A	0.5 s	115-120 V AC	Screw terminals, pluggable	R1.188.0940.1
SNZ 4052K-A	0.5 s	230 V AC	Screw terminals, pluggable	R1.188.0950.1
SNZ 4052K-C	0.5 s	24 V AC/DC	Cage clamp, pluggable	R1.188.2020.0
SNZ 1022K-A	0.5 s	24 V AC/DC	Screw terminals, pluggable	R1.188.3700.0
SNZ 1022K-A	0.5 s	115-230 V AC	Screw terminals, pluggable	R1.188.3710.0
SNZ 1022K-C	0.5 s	24 V AC/DC	Cage clamp, pluggable	R1.188.3720.0
SNZ 1022K-C	0.5 s	115-230 V AC	Cage clamp, pluggable	R1.188.3730.0

Basic devices with time function

Type	Synchronous time	Rated voltage	Terminals	Part number
SNV 4063KL-A	3 s	24 V DC	Screw terminals, pluggable	R1.188.0620.0
SNV 4063KL-A	30 s	24 V DC	Screw terminals, pluggable	R1.188.0640.0
SNV 4063KL-C	3 s	24 V DC	Cage clamp, pluggable	R1.188.2010.0
SNV 4063KL-C	30 s	24 V DC	Cage clamp, pluggable	R1.188.3900.0
SNV 4063KP-A	3 s	24 V DC	Screw terminals, pluggable	R1.188.0660.0
SNV 4063KP-A	30 s	24 V DC	Screw terminals, pluggable	R1.188.0680.0

Basic devices with time function

Type	Time	Rated voltage		Terminals	Part number	
		24 V DC	115-230 V AC		24 V DC	115-230 V DC
SNV 4074SL-A	3 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2130.0	R1.188.2310.0
SNV 4074SL-A	30 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2160.0	R1.188.2340.0
SNV 4074SL-A	300 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2190.0	R1.188.2370.0
SNV 4074SL-C	3 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2140.0	R1.188.2320.0
SNV 4074SL-C	30 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2170.0	R1.188.2350.0
SNV 4074SL-C	300 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2200.0	R1.188.2380.0
SNV 4076SL-A	3 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2040.0	R1.188.2220.0
SNV 4076SL-A	30 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2070.0	R1.188.2250.0
SNV 4076SL-A	300 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2100.0	R1.188.2280.0
SNV 4076SL-C	3 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2050.0	R1.188.2230.0
SNV 4076SL-C	30 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2080.0	R1.188.2260.0
SNV 4076SL-C	300 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2110.0	R1.188.2290.0
SNV 4274SL-A	3 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2470.0	R1.188.2650.0
SNV 4274SL-A	30 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2500.0	R1.188.2680.0
SNV 4274SL-A	300 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2530.0	R1.188.2710.0
SNV 4274SL-C	3 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2480.0	R1.188.2660.0
SNV 4274SL-C	30 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2510.0	R1.188.2690.0
SNV 4274SL-C	300 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2540.0	R1.188.2720.0
SNV 4074ST-A	3 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2560.0	R1.188.2740.0
SNV 4074ST-A	30 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2590.0	R1.188.2770.0
SNV 4074ST-A	300 s	24 V DC	115-230 V AC	Screw terminals, pluggable	R1.188.2620.0	R1.188.2800.0
SNV 4074ST-C	3 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2570.0	R1.188.2750.0
SNV 4074ST-C	30 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2600.0	R1.188.2780.0
SNV 4074ST-C	300 s	24 V DC	115-230 V AC	Cage clamp, pluggable	R1.188.2630.0	R1.188.2810.0

Contact expansion relay

Type	Time	Rated voltage	Terminals	Part number
SNE 4003K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.1340.0
SNE 4004K-A		24 V AC/DC	Screw terminals, pluggable	R1.188.0590.0
SNE 4004K-C		24 V AC/DC	Cage clamp, pluggable	R1.188.1980.0
SNE 4004KV-A	0.5 s	24 V DC	Screw terminals, pluggable	R1.188.0460.0
SNE 4004KV-A	1 s	24 V DC	Screw terminals, pluggable	R1.188.0470.0
SNE 4004KV-A	2 s	24 V DC	Screw terminals, pluggable	R1.188.0480.0
SNE 4004KV-A	3 s	24 V DC	Screw terminals, pluggable	R1.188.0490.0
SNE 4004KV-C	0,5 s	24 V DC	Cage clamp, pluggable	R1.188.2410.0
SNE 4004KV-C	1 s	24 V DC	Cage clamp, pluggable	R1.188.2420.0
SNE 4004KV-C	2 s	24 V DC	Cage clamp, pluggable	R1.188.2430.0
SNE 4004KV-C	3 s	24 V DC	Cage clamp, pluggable	R1.188.2440.0
SNE 4028S-A		24 V DC	Screw terminals, pluggable	R1.188.3120.0
SNE 4028S-A		115-230 V	Screw terminals, pluggable	R1.188.3510.0
SNE 4028S-C		24 V DC	Cage clamp, pluggable	R1.188.3540.0
SNE 4028S-C		115-230 V	Cage clamp, pluggable	R1.188.3550.0

Modular safety modules *samos*[®]

Type	Time	Rated voltage	Terminals	Coding ^{*)}	Part number
samos[®]					
SA-BM-S1-4EKL-A	5 s	24 V DC	Screw terminals, pluggable	1	R1.180.0010.0
SA-BM-S1-4EKL-A	50 s	24 V DC	Screw terminals, pluggable	1	R1.180.0020.0
SA-BM-S1-4EKL-A	5 min	24 V DC	Screw terminals, pluggable	1	R1.180.0030.0
SA-BM-S1-4EKL-C	5 s	24 V DC	Cage clamp, pluggable	1	R1.180.0360.0
SA-BM-S1-4EKL-C	50 s	24 V DC	Cage clamp, pluggable	1	R1.180.0370.0
SA-BM-S1-4EKL-C	5 min	24 V DC	Cage clamp, pluggable	1	R1.180.0380.0

^{*)} When ordering, please observe the required coding of the modules and the information in "More Safety through Coding" (0860.1 safety catalog on p. 77)

Compact safety controls *samos*[®]PRO

Type	Rated voltage	Terminals	Brief description	Part number
samos[®]PRO				
SP-SCON-P1-K	24 V DC		Controller module (without prog. memory)	R1.190.0010.0
SP-SCON-NET-P1-K	24 V DC		Controller module, interconnectable (without prog. memory)	R1.190.0020.0
SP-SDIO84-P1-K-A	24 V DC	Screw terminals, pluggable	Input-output module, with output test-pulses	R1.190.0030.0
SP-SDIO84-P1-K-C	24 V DC	Cage clamp, pluggable	Input-output module, with output test-pulses	R1.190.0040.0
SP-SDIO84-P2-K-C	24 V DC	Cage clamp, pluggable	Input-output module, without output test-pulses	R1.190.0240.0
SP-SDI8-P1-K-A	24 V DC	Screw terminals, pluggable	Input module	R1.190.0050.0
SP-SDI8-P1-K-C	24 V DC	Cage clamp, pluggable	Input module	R1.190.0060.0
SP-PLAN	24 V DC		Programming software + manual	R1.190.0070.0
SP-MEMORY			Program memory	R1.190.0080.0
SP-CABLE1	24 V DC		Connection cable, M8	R1.190.0090.0

Replacement device types

This list includes devices that should no longer be used in new systems.

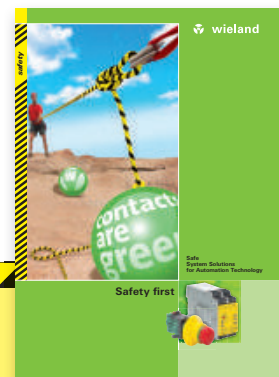
Device type	Part number	Replacement type	Part number
SNO 1002, 24 V DC	R1.188.0200.3	SNO 4083KM-A, 24 V DC, 1,5 s	R1.188.3580.0
SNO 1002, 230 V AC	R1.188.0320.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 1005, 24 V DC	R1.188.0220.3	SNO 4083KM-A, 24 V DC, 1,5 s	R1.188.3580.0
SNO 1005, 115 V AC	R1.188.0290.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 1005, 230 V AC	R1.188.0300.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNT 1003-17, 24 V DC	R1.188.0340.0	SNO 4083KM-A, 24 V DC, 1,5 s	R1.188.3580.0
SNO 2002-17, 24 V DC	R1.188.0230.3	SNO 4083KM-A, 24 V DC, 1,5 s	R1.188.3580.0
SNO 2002-115, 115 V AC	R1.188.0260.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2002-120, 120 V AC	R1.188.0240.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2002-230, 230 V AC	R1.188.0270.3	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2005-17, 24 V DC	R1.188.0350.1	SNO 4083KM-A, 24 V DC, 1,5 s	R1.188.3580.0
SNO 2005-115, 115 V AC	R1.188.0370.1	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2005-120, 120 V AC	R1.188.0360.1	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2005-230, 230 V AC	R1.188.0380.1	SNO 4083KM-A, 115-230 V AC, 1,5 s	R1.188.3590.0
SNO 2004K, 24 V AC/DC	R1.188.0410.3	SNO 1012K-A, 24 V AC/DC	R1.188.3740.0
SNO 5002K, 12 V DC	R1.188.1650.0	SNO 4063K-A, 12 V DC	R1.188.1120.0
SNO 5002K, 24 V DC	R1.188.1360.0	SNO 4003K-A, 24 V AC/DC	R1.188.0500.1
SNO 5002K, 115-120 V AC	R1.188.1370.0	SNO 4003K-A, 115-120 V AC	R1.188.0900.1
SNO 5002K, 230 V AC	R1.188.1350.0	SNO 4003K, 230 V AC	R1.188.0890.1

NOTICE:

Technical data, terminal name, terminal location and housings of the replacement types may be different. Please consult the data sheets!

For further products and technical information go to www.wieland-electric.com at our **e-catalog**.

Our safety hotline **+49 951 93 24-9 99** and our e-mail-service safety@wieland-electric.com is available to answer all your questions.



More information is available in the catalog "Safety first"

Order no: 0860.1



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Industrial technology

Solutions for the control cabinet

- DIN rail terminal blocks
 - Screw, tension spring or push-in connection technology
 - Wire cross sections up to 240 mm²
 - Numerous special functions
 - Software solutions interfacing to CAE systems
- Safety
 - Safe signal acquisition
 - Safety switching devices
 - Modular safety modules
 - Compact safety controllers
 - Applicative consultancy and training
- Network engineering and fieldbus systems
 - Remote maintenance via VPN industrial router and VPN service portal
 - Industrial Ethernet switches
 - PLC and I/O systems, standard and increased environmental conditions
- Interface
 - Power supply units
 - Overvoltage protection
 - Coupling relays, semiconductor switches
 - Timer relays, measuring and monitoring relays
 - Analog coupling and converter modules
 - Passive interfaces

Solutions for field applications

- Decentralized installation and automation technology
 - Electrical installation for wind tower
 - Fieldbus interfaces and motor starters
- Connectors for industrial applications
 - Rectangular and round connectors
 - Aluminum or plastic housings
 - Degree of protection up to IP68
 - Current-carrying capacity up to 100 A
 - Connectors for hazardous areas
 - Modular, application-specific technology

PC board terminals and connectors

- Screw or spring clamp connection technology
- Spacings: 3.5 mm to 10.16 mm
- Reflow or wave soldering process

Building and installation technology

- Building installation systems
 - Main power supply connectors IP20/IP65 ... IP68
 - Bus connectors
 - Low-voltage connectors
 - Power distribution system with flat cables
 - Distribution systems
 - Bus systems in KNX, LON and radio technology
 - DIN rail terminal blocks for electrical installations
 - Overvoltage protection

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