



Product Catalogue

Relays with forcibly guided contacts



Product Catalogue - Relays with forcibly guided contacts
Edition 12/2014

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What started out in 1997 as the continuation of ELESTAAG's traditional relay production with just 15 employees, became a globally operating innovation leader in the area of functional safety and relay technology.

Now latest relay products and sensors are produced by over 250 employees. These products are often the centre-piece of safety circuits of machinery and equipment. Every day we encounter many of those products without noticing them. Thus ELESTA products guarantee safety when we use elevators, ride the train, at the hospital, but also when we celebrate stars on stage or when movie heroes fly on broomsticks through magical worlds.

The success is homemade. ELESTA invests in R&D above average. This "think tank" develops products that often represent a pilot function.

The close interaction of in-house process development and product development not only increases the production capacity. Under the provisions of lean management and the related design-to-efficiency highly innovative products are produced that are competitive on the world market.

Despite automated production lines, the most important factor of our success are our employees. The enthusiasm of the staff for the products, the opportunity to actively participate in

changes ensures the highest quality in all areas. An enormous number of suggestions for improvement (CIP) is evidence of the strong identification of employees with products and company.

The lean strategy of ELESTA GmbH is deeply rooted and not just an instrument of continuous efficiency improvement, it is also the driving force behind the innovation in products and production processes. The leading role in lean management was highlighted not least by winning the Swiss-Lean-Award in 2012.



Harald Förster
Geschäftsführer / CEO
ELESTA GmbH

Product Overview

Relays with forcibly guided contacts



Relays	SIS 2	SIS 2 SEN	SIS 3	SIS 3 SEN	SIS 4	SIS 4 SEN	SIS 6	SIS 6 SEN	SIF 3	SIF 4	SIF 6	SGR 282 ZK
Features	Small dimensions High shock resistance Large excitation voltage Low coil power loss High switching reliability	Small dimensions High shock resistance Very large excitation voltage Very low coil power loss High switching reliability	Small dimensions High shock resistance Large excitation voltage High switching reliability	Small dimensions High shock resistance Very large excitation voltage Very low coil power loss High switching reliability	High shock resistance Large excitation voltage Low coil power loss High switching reliability	High shock resistance Very large excitation voltage Very low coil power loss High switching reliability	Very small dimensions High shock resistance Large excitation voltage High switching reliability	Very small dimensions High shock resistance Very large excitation voltage High switching reliability	Extremely flat design Large switching current range Possible component installation under the relay	Extremely flat design Large switching current range Possible component installation under the relay	Extremely flat design Large switching current range Possible component installation under the relay	Extrusion-coated coil design suitable for use in ATEX areas High switching reliability
Number of Contacts	2	2	3	3	4	4	6	6	3	4	6	2/2
Contact Material	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi	AgCuNi
Type of Contact	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown	Single contact with notched crown
Coil Voltage	3 VDC - 60 VDC	3 VDC - 60 VDC	3 VDC - 110 VDC	3 VDC - 60 VDC	3 VDC - 110 VDC	3 VDC - 60 VDC	3 VDC - 110 VDC	3 VDC - 60 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC
Coil Capacity ¹	270 mW	200 mW	600 mW	400 mW	500 mW	330 mW	660 mW	440 mW	600 mW	700 mW	660 mW	700 mW
Switching Current Range	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 6 A	3 mA - 10 A	3 mA - 8 A	3 mA - 8 A	4 mA - 8 A
Test Voltage Open Contact	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff
Test Voltage between Contacts	5000 Veff	5000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff	4000 Veff
Test Voltage Coil/Contact	2500 Veff	2500 Veff	2500 Veff	2500 Veff	4000 Veff (SIS222, SIS312 Var 2) 2500 Veff (SIS312)	4000 Veff (SIS222, SIS312 Var 2) 2500 Veff (SIS312)	2500 Veff	2500 Veff	4000 Veff	4000 Veff	4000 Veff	5000 Veff
Protection	RT III	RT III	RT III	RT III	RT III	RT III	RT III	RT III	RT II	RT II	RT II	RT II
Dimensions (external) in mm	L 29.2 W 16.6 H 16.5	L 29.2 W 16.6 H 16.5	L 29.2 W 16.6 H 16.5	L 29.2 W 16.6 H 16.5	L 48 W 16.6 H 16.5	L 48 B 16.6 H 16.5	L 48 B 16.6 H 16.5	L 48 B 16.6 H 16.5	L 33.7 W 29.4 H 10.9	L 41 W 29.4 H 10.9	L 53.6 W 33.5 H 10.9	L 30.2 W 12.7 H 25.6
Approvals	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV
Options (see catalogue)	-	-	-	-	-	-	-	-	-	-	-	Page 29
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¹ Reference temperature 20°C

² Between left and right contact side

³ Between control contacts

⁴ Between control and output contacts

⁵ Between output contacts

Product Overview

Relays with forcibly guided contacts

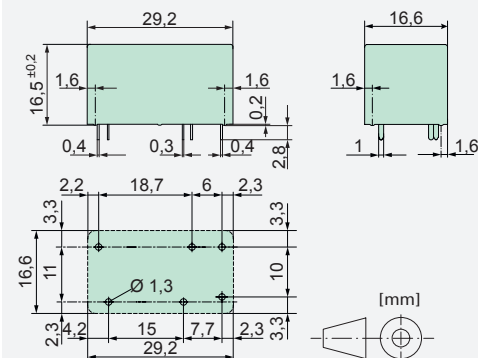
												
SGR 282 ZK Var	SIM 2	SIM 3	SIM 4	SLR 4	SIR 4	SIR 4 SEN	SIR 4 P	SIR 6	SIR 6 SEN	SIR 8	SIR 10	SIP 6
Extrusion-coated coil design suitable for use in ATEX areas	Extrusion-coated coil design suitable for use in ATEX areas	Extrusion-coated coil design suitable for use in ATEX areas	Extrusion-coated coil design suitable for use in ATEX areas	Powerful Small, horizontal design Large switching current range	Powerful Small design High switching reliability	Powerful Small design High switching reliability	Extremely powerful Small design For loads with a high surge current	Powerful Small design High switching reliability	Powerful Small design High switching reliability	Powerful High switching reliability Wide coil working range	Powerful High switching reliability Wide coil working range	Extremely powerful High switching reliability For the highest loads during 3-phase applications and DC loads
High switching reliability	High switching reliability Extremely high leakage and creepage distances	High switching reliability Extremely high leakage and creepage distances	High switching reliability Extremely high leakage and creepage distances	High switching reliability	High switching reliability	Low coil power loss Wide coil working range	High switching reliability	Contact assignment configurable	Low coil power loss Wide coil working range Contact assignment configurable	Contact assignment configurable	Contact assignment configurable	
2	2	3	4	4	4	4	4	6	6	8	10	6
AgCuNi	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂	AgSnO ₂
Single contact with notched crown	Crest contact	Crest contact	Crest contact	Crest contact	Crest contact	Crest contact	Single contact	Crest contact	Crest contact	Crest contact	Crest contact	Single contact
3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 60 VDC	3 VDC - 110 VDC	3 VDC - 110 VDC	3 VDC - 60 VDC	3 VDC - 220 VDC	3 VDC - 220 VDC	3 VDC - 220 VDC
700 mW	500 mW	750 mW	1000 mW	600 mW	600 mW	360 mW	750 mW	750 mW	500 mW	1300 mW	1300 mW	1300 mW
4 mA - 8 A	10 mA - 8 A	10 mA - 8 A	10 mA - 8 A	10 mA - 10 A	10 mA - 10 A	10 mA - 10 A	5 mA - 12 A	10 mA - 10 A	10 mA - 10 A	10 mA - 10 A	10 mA - 10 A	5 mA - 16 A
1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff	1500 Veff
4000 Veff	4000 Veff	2500 Veff 4000 Veff ²	2500 Veff 4000 Veff ²	4000 Veff ³ 4000 Veff ⁴ 5000 Veff ⁵	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵	4000 Veff	4000 Veff	2500 Veff ³ 5000 Veff ⁴ 4000 Veff ⁵
5000 Veff	5000 Veff	5000 Veff	5000 Veff	2500 Veff	2500 Veff	2500 Veff	2500 Veff	2500 Veff	2500 Veff	5000 Veff	2500 Veff	2500 Veff
RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II	RT II
L 30.2 W 12.7 H 25.6	L 27.4 W 12.5 H 26.2	L 36.1 W 12.5 H 26.2	L 36.1 W 12.5 H 26.2	L 53.3 W 33.4 H 16.5	L 46.4 W 16 H 30.7	L 46.4 W 16 H 30.7	L 46.4 W 16 H 30.7	L 58.9 W 16 H 30.7	L 58.9 W 16 H 30.7	L 85.5 W 20 H 32	L 85.5 W 20 H 32	L 84.6 W 20 H 32
UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV	UL, cUL, TÜV
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Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >10 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS112 1 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,27 W
- Holding coil power 0,08 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

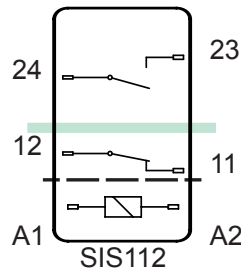
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,5	≥0,5	54,9	91 ± 10%
6	≤4,2	≥0,6	46,1	130 ± 10%
9	≤6,3	≥0,9	30,5	295 ± 10%
12	≤8,4	≥1,2	23,0	520 ± 10%
18	≤12,6	≥1,8	15,2	1180 ± 10%
24	≤16,8	≥2,4	11,4	2100 ± 10%
48	≤33,6	≥4,8	5,7	8350 ± 13%
60	≤42,0	≥6,0	4,5	13100 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC >10 mm
- Test voltage	5000 V/50 Hz/1 min
Test voltage contact open	1500 V/50 Hz/1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (NO closed)	typically 10 ms
Drop-out time** (NC closed)	typically 3 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 17g NC > 7g
Vibration resistance (10-200 Hz)	NO > 7g NC > 2g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG/gL (pre-fuse)
Ambient temperature	-40°C to +85 °C
Thermal Resistance	55 K/W
Temperature limit for coil	120 °C
Weight	ca. 18 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C/5 s
**without spark suppression	

Tests, Regulations

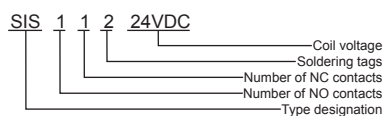
Approvals

UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

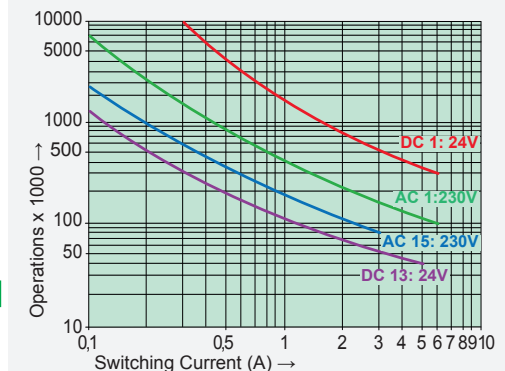
Options, Accessories

none available

Product Key



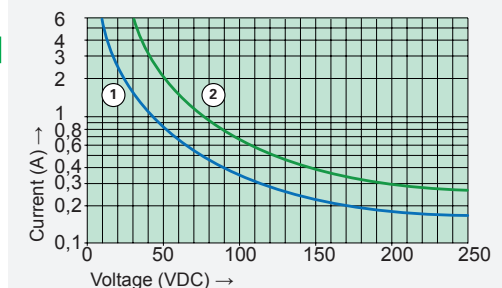
Contact Lifetime for NO Contact



Maximal switching characteristics(EN60947-5-1)

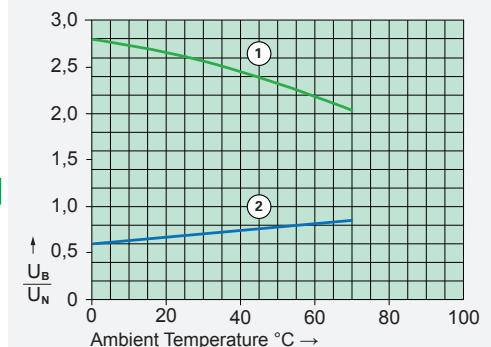
AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

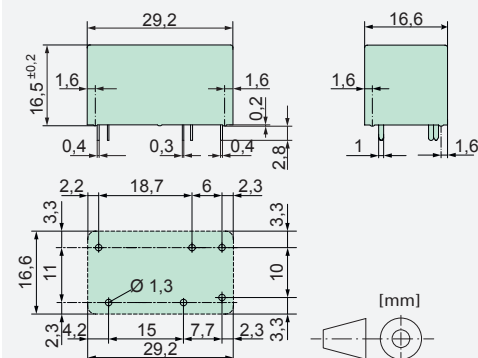
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >10 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS112 1 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,2 W
- Holding coil power 0,04 W

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

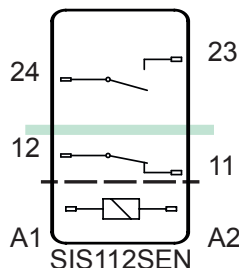
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
3	$\leq 2,25$	$\geq 0,3$	66,6	$45 \pm 10\%$
3,3	$\leq 2,47$	$\geq 0,33$	60,6	$54,4 \pm 10\%$
4,5	$\leq 3,37$	$\geq 0,45$	44,5	$101 \pm 10\%$
5	$\leq 3,75$	$\geq 0,5$	40,0	$125 \pm 10\%$
6	$\leq 4,50$	$\geq 0,6$	33,3	$180 \pm 10\%$
9	$\leq 6,75$	$\geq 0,9$	22,2	$405 \pm 10\%$
12	$\leq 9,00$	$\geq 1,2$	16,6	$720 \pm 10\%$
24	$\leq 18,00$	$\geq 2,4$	8,3	$2880 \pm 10\%$
48	$\leq 36,00$	$\geq 4,8$	4,1	$11520 \pm 13\%$
60	$\leq 45,00$	$\geq 6,0$	3,3	$18000 \pm 13\%$

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	
	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	12 Hz
Response time (NO closed)	typically 15 ms
Drop-out time** (NC closed)	typically 5 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 17 g NC > 7 g
Vibration resistance (10-200 Hz)	NO > 7 g NC > 2 g
Resistance to short circuiting contacts	
	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40 °C to +85 °C
Thermal Resistance	55 K / W
Temperature limit for coil	120 °C
Weight	ca. 18 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270 °C / 5 s
**without spark suppression	

Tests, Regulations

Approvals

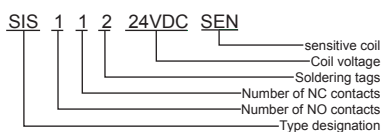


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

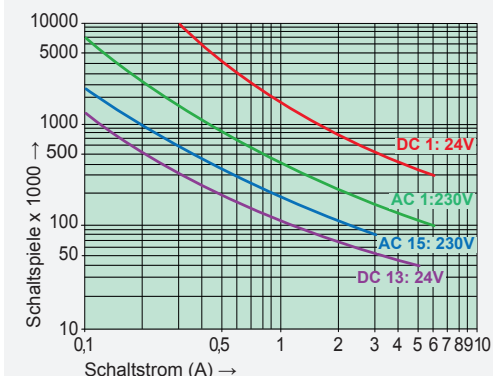
Options, Accessories

none available

Product Key



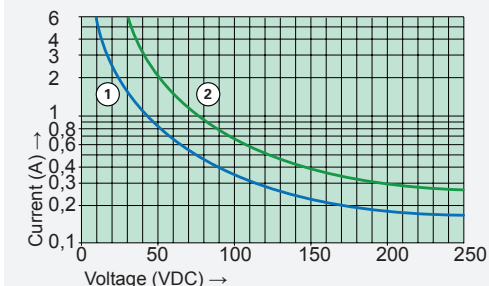
Contact Lifetime for NO Contact



Maximal switching characteristics(EN60947-5-1)

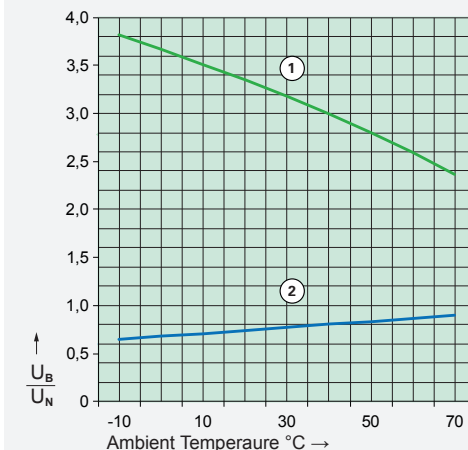
AC 1: 250 V / 6 A
AC 15: 230 V / 3 A
DC 1: 24 V / 6 A
DC 13: 24 V / 5 A / 0,1 Hz
UL 508: B300 / R300

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤ 4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

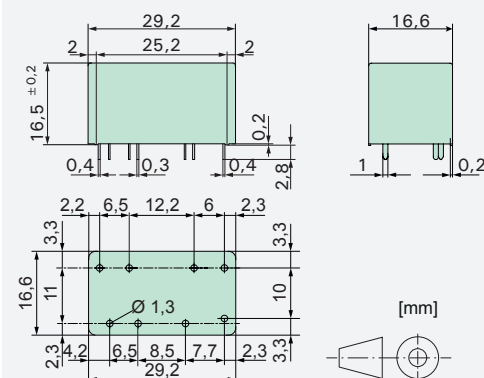
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS212 2 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,6 W
- Holding coil power 0,18 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

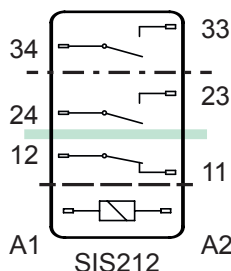
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,5	≥0,5	120,0	41,5 ± 10%
9	≤6,3	≥0,9	66,6	135 ± 10%
12	≤8,4	≥1,2	50,0	240 ± 10%
18	≤12,6	≥1,8	33,3	540 ± 10%
24	≤16,8	≥2,4	25,0	960 ± 10%
48	≤33,6	≥4,8	12,5	3840 ± 10%
60	≤42,0	≥6,0	10,0	6000 ± 13%
110	≤77,0	≥11,0	5,4	20150 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC
- Test voltage	>5,5 mm
- Double or reinforced insulation	4000 V / 50 Hz / 1 min
- Air and creepage distance	at 250 VAC
- Test voltage	>8 mm
- Double or reinforced insulation	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 10 ms
Drop-out time** (NC closed)	typically 3 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 17g NC > 10g
Vibration resistance (10-200 Hz)	NO > 7g NC > 3g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +85°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

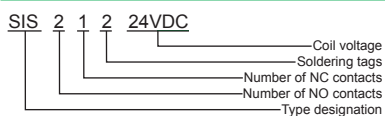


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

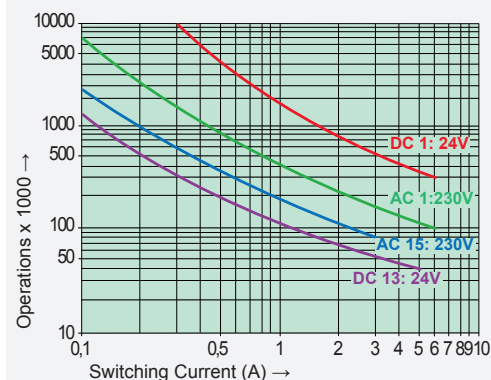
Options, Accessories

none available

Product Key



Contact Lifetime for NO contacts

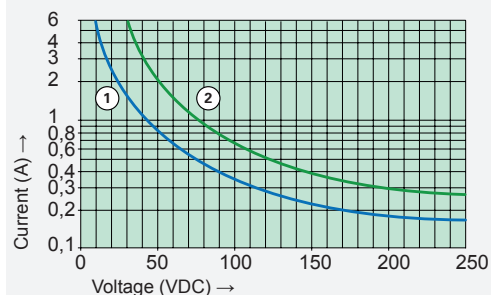


Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

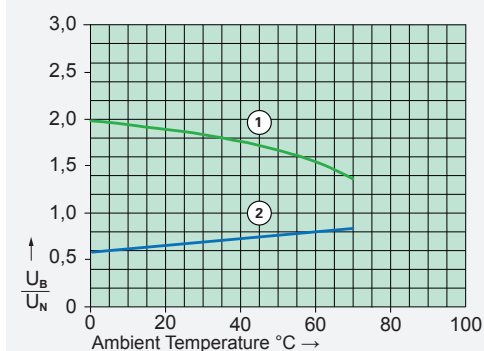
Maximal contact load at AC 1 with 230 V:
2 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

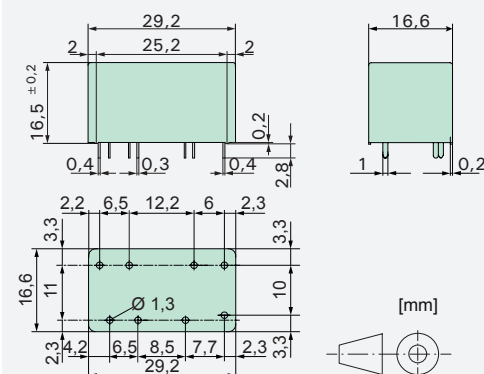
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS212 2 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,4 W
- Holding coil power 0,14 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

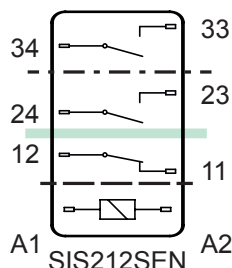
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,75	≥0,5	80,0	62,5 ± 10%
6	≤4,5	≥0,6	66,6	90 ± 10%
9	≤6,75	≥0,9	44,5	202 ± 10%
12	≤9,0	≥1,2	33,3	360 ± 10%
18	≤13,5	≥1,8	22,2	810 ± 10%
24	≤18,0	≥2,4	16,6	1440 ± 10%
48	≤36,0	≥4,8	8,3	5750 ± 13%
60	≤45,0	≥6,0	6,6	9000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC
- Test voltage	4000 V / 50 Hz / 1 min
- Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 10 ms
Drop-out time** (NC closed)	typically 3 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 17g NC > 10g
Vibration resistance (10-200 Hz)	NO > 7g NC > 3g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +85°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

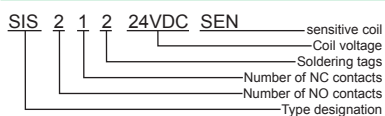


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

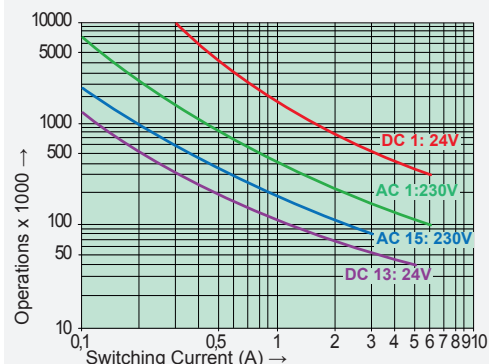
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts

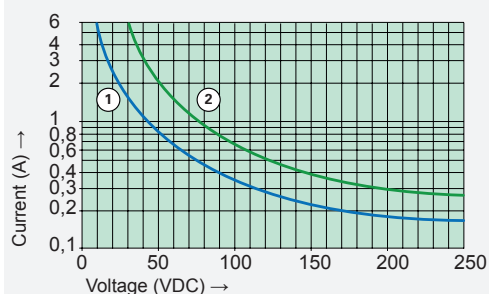


Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

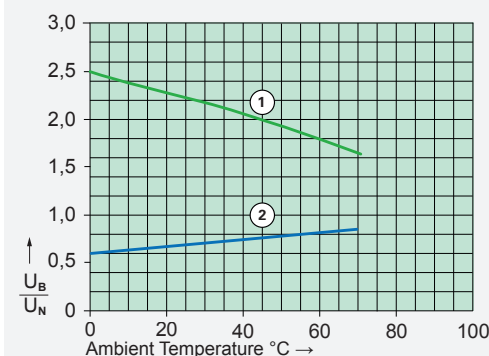
Maximal contact load at AC 1 with 230 V:
2 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

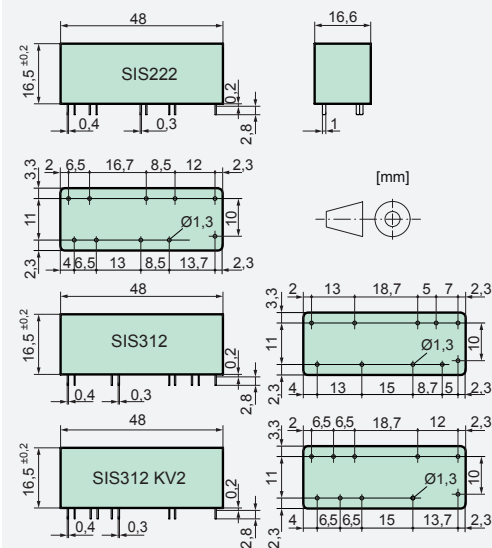
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact Mounting: SIS312 3 NO / 1 NC
SIS222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,5 W
- Holding coil power 0,15 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

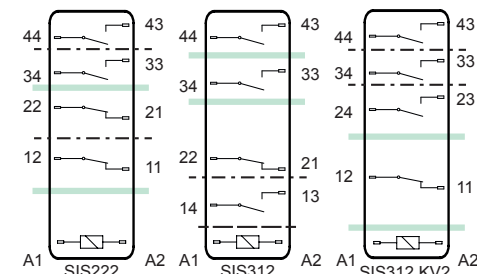
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,5	≥0,5	100	50 ± 10%
9	6,3	≥0,9	56,2	160 ± 10%
12	8,4	≥1,2	42,1	285 ± 10%
18	12,6	≥1,8	28,1	640 ± 10%
24	16,8	≥2,4	20,8	1150 ± 10%
48	33,6	≥4,8	10,4	4600 ± 10%
60	42,0	≥6,0	8,3	7200 ± 13%
110	77,0	≥11,0	4,5	24200 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 10g
Vibration resistance (10-200 Hz)	NO > 10g NC > 4g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +85°C
Thermal Resistance	45 K / W
Temperature limit for coil	120°C
Weight	ca. 30 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

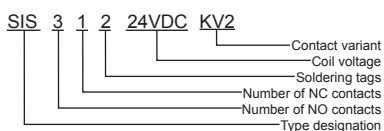
Approvals

UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

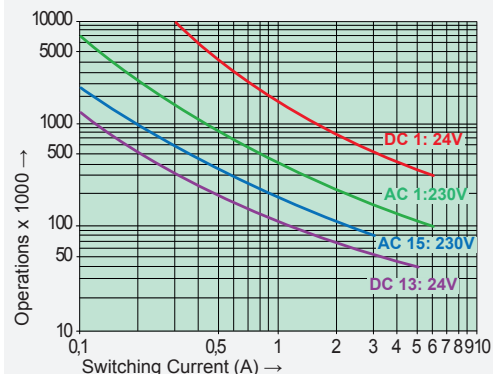
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



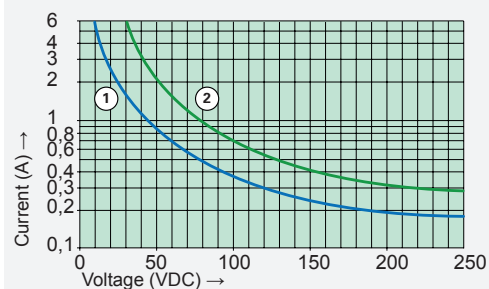
Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

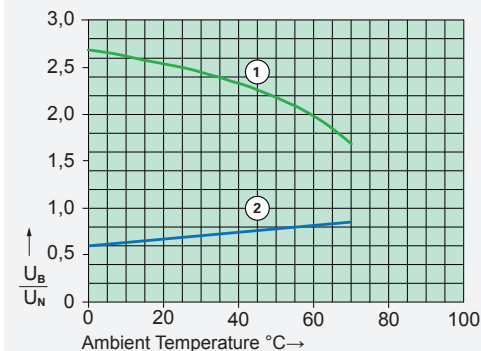
- 2 contacts with 6 A each
- 3 contacts with 4 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

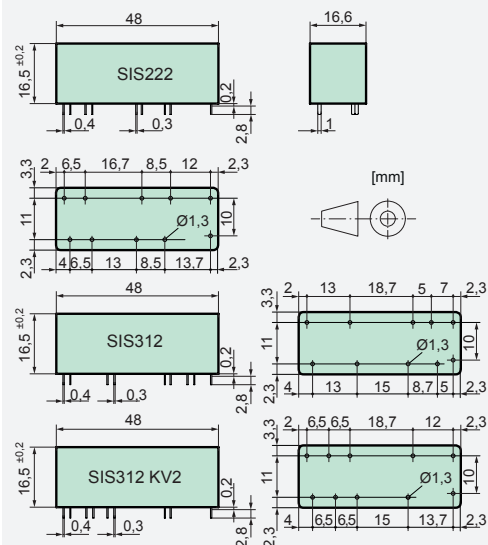
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact Mounting: SIS312 3 NO / 1 NC
SIS222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,33 W
- Holding coil power 0,08 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi+0,2-0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

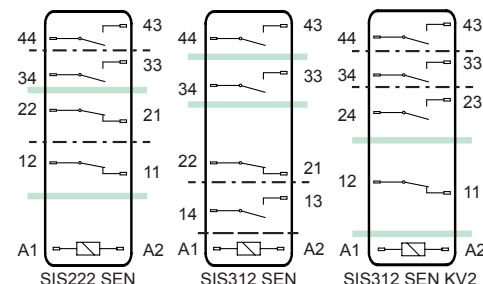
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
3	2,3	0,3	111	27 ± 10%
3,3	2,5	0,3	100	33 ± 10%
4,5	3,4	0,5	73,7	61 ± 10%
5	3,8	0,5	66,6	75 ± 10%
6	4,5	0,6	55,5	108 ± 10%
12	9,0	1,2	27,9	430 ± 10%
24	18,0	2,4	13,8	1730 ± 10%
60	45,0	6,0	5,5	10800 ± 10%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10x10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 20 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 10g
Vibration resistance (10-200 Hz)	NO > 10g NC > 4g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +85°C
Thermal Resistance	45 K / W
Temperature limit for coil	120°C
Weight	ca. 30 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

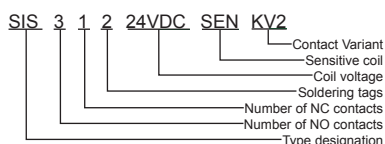


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

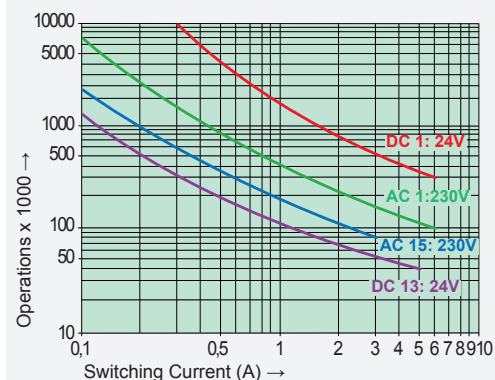
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



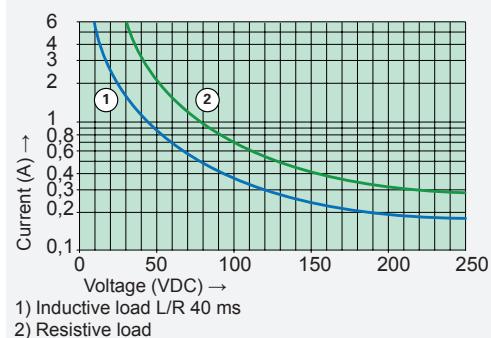
Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

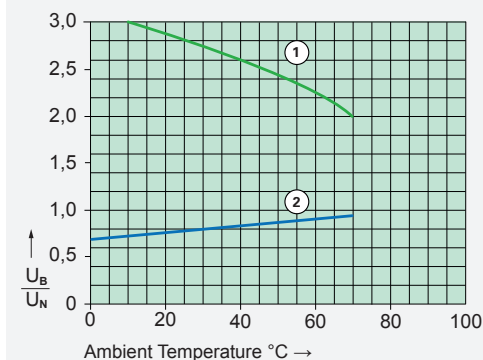
Maximal contact load at AC 1 with 230 V:

- 2 contacts with 6 A each
- 3 contacts with 4 A each

Load Limit Curve with Direct Current



Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

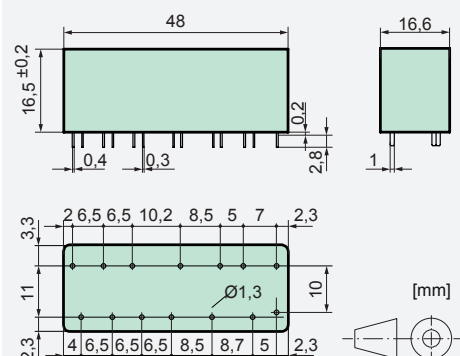
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS422 4 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,66 W
- Holding coil power 0,20 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

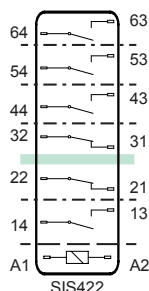
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,5	≥0,5	133	37,5 ± 10%
9	6,3	≥0,9	73,7	122 ± 10%
12	8,4	≥1,2	55,8	215 ± 10%
18	12,6	≥1,8	37,1	485 ± 10%
24	16,8	≥2,4	29,7	860 ± 10%
48	33,6	≥4,8	13,9	3450 ± 10%
60	42,0	≥6,0	11,1	5400 ± 13%
110	77,0	≥11,0	6,0	18300 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

Basic insulation	at 250 VAC
Air and creepage distance	>4 mm
Test voltage	2500 V / 50 Hz / 1 min
Double or reinforced insulation	at 250 VAC
Air and creepage distance	>5,5 mm
Test voltage	4000 V / 50 Hz / 1 min
Double or reinforced insulation	at 250 VAC
Air and creepage distance	>8 mm
Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 9g
Vibration resistance (10-200 Hz)	NO > 10g NC > 3g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +85°C
Thermal Resistance	45 K / W
Temperature limit for coil	120°C
Weight	ca. 35 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

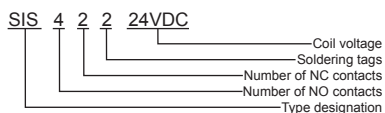


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

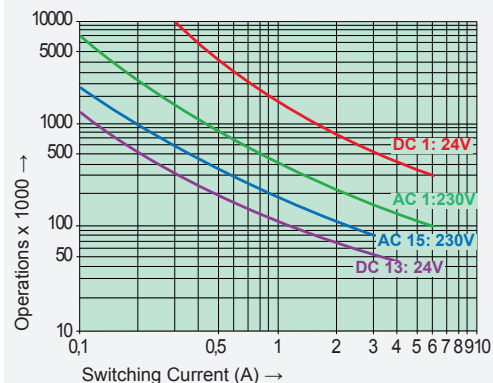
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



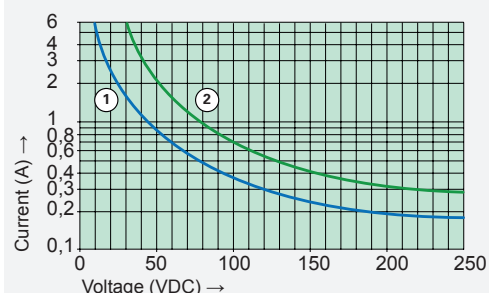
Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

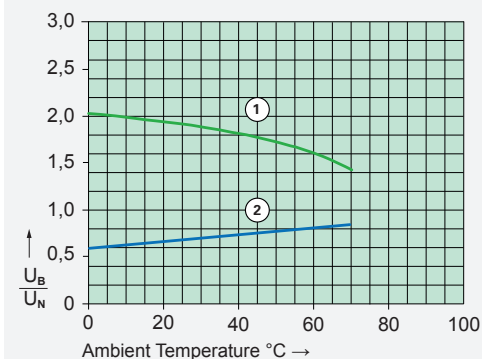
- 2 contacts with 6 A each
- 3 contacts with 4 A each
- 4 contacts with 3 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

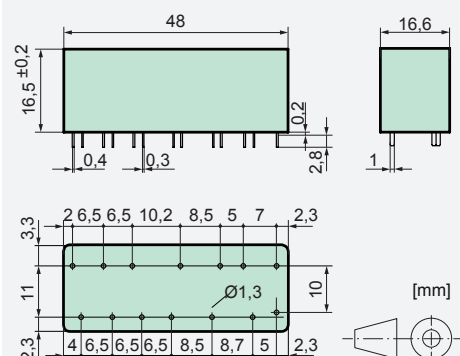
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between control and load circuit (leakage and creepage distances >8 mm)
- EN50205 type A
- Double and reinforced insulation between the contacts
- Contact mounting: SIS422 4 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,44 W
- Holding coil power 0,10 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	>90000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 6 A
Switching capacity range*	40 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

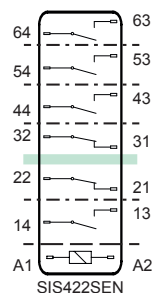
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
3	2,3	0,3	147	20,4 ± 10%
3,3	2,5	0,3	134	24,5 ± 10%
4,5	3,4	0,5	97,8	46 ± 10%
5	3,8	0,5	88,9	56,2 ± 10%
6	4,5	0,6	73,6	81,5 ± 10%
9	6,8	0,9	48,9	184 ± 10%
12	9,0	1,2	36,9	325 ± 10%
24	18,0	2,4	18,4	1300 ± 10%
48	36,0	4,8	9,2	5200 ± 13%
60	45,0	6,0	7,3	8150 ± 13%

Circuit Diagram (view on relay upper side)



Insulation Data

Basic insulation	at 250 VAC
Air and creepage distance	>4 mm
Test voltage	2500 V / 50 Hz / 1 min
Double or reinforced insulation	at 250 VAC
Air and creepage distance	>5,5 mm
Test voltage	4000 V / 50 Hz / 1 min
Double or reinforced insulation	at 250 VAC
Air and creepage distance	>8 mm
Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 20 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 2 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 9g
Vibration resistance (10-200 Hz)	NO > 10g NC > 3g
Resistance to short circuiting contacts	1000 A SCPD 6 A gG / gL (pre-fuse)

Ambient temperature	-40°C to +85°C
Thermal Resistance	45 K / W
Temperature limit for coil	120°C
Weight	ca. 35 g
Mounting position	any
Type of protection	RT III
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

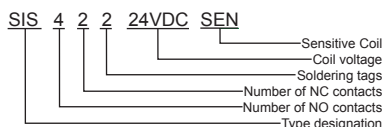


UL File E188953	Sec. 5
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

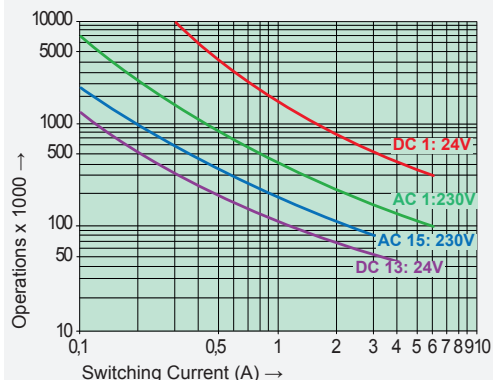
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



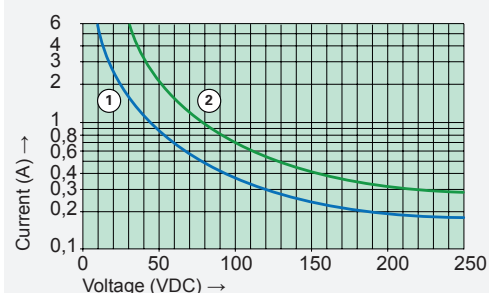
Maximal switching characteristics (DIN EN60947-5-1)

AC 1:	250 V / 6 A
AC 15:	230 V / 3 A
DC 1:	24 V / 6 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

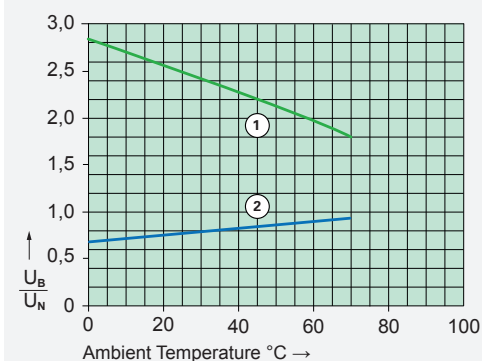
- 2 contacts with 6 A each
- 3 contacts with 4 A each
- 4 contacts with 3 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

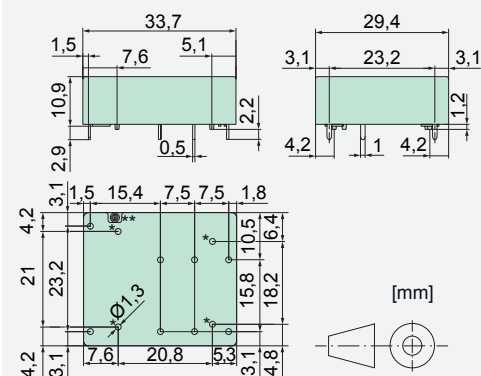
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (>5,5 mm) and contacts side by side (>5,5 mm)
- EN50205 type A
- Double and reinforced insulation
- SMD arrangement below relay possible
- Contact Mounting: SIF212 2 NO / 1 NC
- Compact height: only 10,9 mm
- Nominal coil power 0,60 W
- Holding coil power 0,18 W
- For railway application (EN50155) on request

Dimensions



* Do not drill if SMD arrangement

** Open breathing hole

Contact Data

Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 10 A
Switching capacity range*	40 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

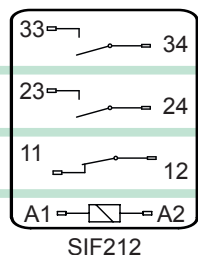
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3.5	≥0.5	120.0	416 ± 10%
12	≤8.4	≥1.2	50.0	240 ± 10%
18	≤12.6	≥1.8	33.3	540 ± 10%
20	≤14.0	≥2.0	30.0	665 ± 10%
24	≤16.8	≥2.4	25.0	960 ± 10%
48	≤33.6	≥4.8	12.5	3840 ± 10%
60	≤42.0	≥6.0	10.0	6000 ± 13%
110	≤77.0	≥11.0	5.4	20165 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- | | |
|-------------------------------------|------------------------|
| - Double or reinforced insulation | at 250 VAC |
| - Air and creepage distance | >5,5 mm |
| - Test voltage | 4000 V / 50 Hz / 1 min |
| Test voltage contact open | 1500 V / 50 Hz / 1 min |
| Creepage resistance | CTI 175 |
| Pollution degree | 2 |
| Overvoltage category | III |
| Insulation resistance at Up 500 VDC | >100 MΩ |

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 12 ms
Drop-out time** (NC closed)	typically 5 ms
Bounce time of NO contact	typically 1,5 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 15g NC > 6g
Vibration resistance (10-200 Hz)	NO > 10g NC > 2g

Resistance to short circuiting NO	
	1000 A SCPD 10 A gG / gL (pre-fuse)
Resistance to short circuiting NC	
	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	60 K / W
Temperature limit for coil	120°C
Weight	ca. 18 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s
**without spark suppression	

Tests, Regulations

Approvals

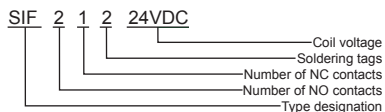


UL File E188953	Sec. 6
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

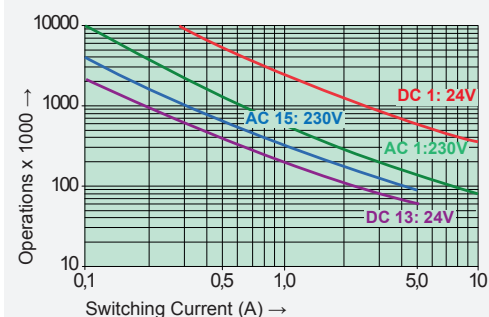
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts

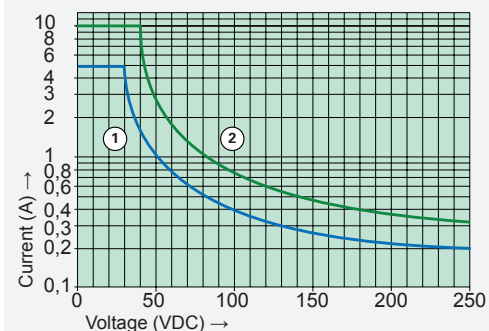


Maximal switching characteristics (DIN EN 60947-5-1)

AC 1: 250 V / 10 A
AC 15: 230 V / 5 A
DC 1: 24 V / 10 A
DC 13: 24 V / 5 A / 0,1 Hz
UL 508: B300 / R300

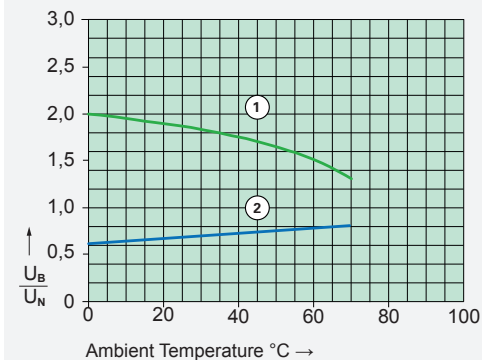
Maximal contact load at AC 1 with 230 V:
2 contacts with 8 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: $\leq 6 \text{ A}$

- 2) Min. excitation voltage (guaranteed values) without previous operation

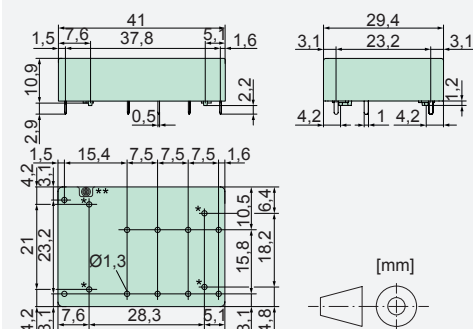
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (>5,5 mm) and contacts side by side (>5,5 mm)
- EN50205 type A
- Double and reinforced insulation
- SMD arrangement below relay possible
- Contact Mounting: SIF222 2 NO / 2 NC
SIF312 3 NO / 1 NC
- Compact height: only 10,9 mm
- Nominal coil power 0,70 W
- Holding coil power 0,21 W
- For railway application (EN50155) on request

Dimensions



* Do not drill when SMD arrangement

** Open breathing hole

Contact Data

Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 8 A
Switching capacity range*	40 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

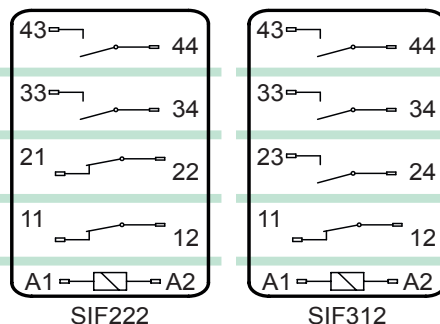
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,5	≥0,5	140,0	35,7 ± 10%
12	≤8,4	≥1,2	58,5	205 ± 10%
18	≤12,6	≥1,8	39,1	460 ± 10%
20	≤14,0	≥2,0	35,0	570 ± 10%
24	≤16,8	≥2,4	29,2	820 ± 10%
48	≤33,6	≥4,8	14,6	3280 ± 10%
60	≤42,0	≥6,0	11,7	5100 ± 13%
110	≤77,0	≥11,0	6,3	17250 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 12 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 1,5 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 15g NC > 5g
Vibration resistance (10-200 Hz)	NO > 10g NC > 2g
Resistance to short circuiting NO	1000 A SCPD 10 A gG / gL (pre-fuse)
Resistance to short circuiting NC	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	60 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s
**without spark suppression	

Tests, Regulations

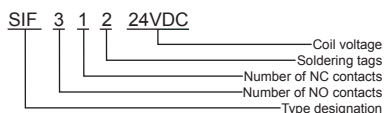
Approvals

UL File E188953	Sec. 6
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

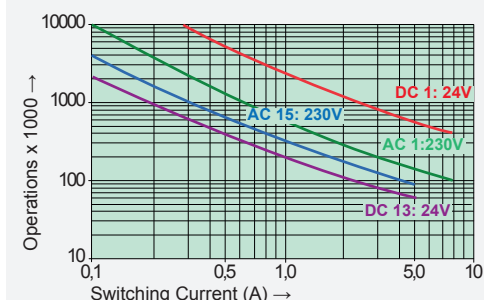
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



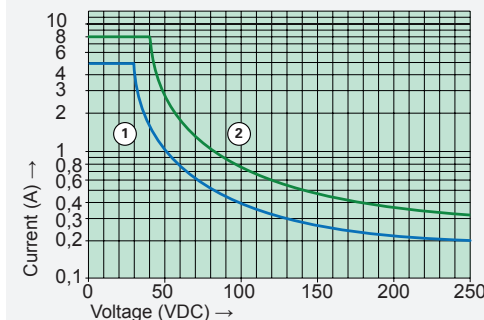
Maximal switching characteristics (DIN EN 60947-5-1)

AC 1:	250 V / 8 A
AC 15:	230 V / 5 A
DC 1:	24 V / 8 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

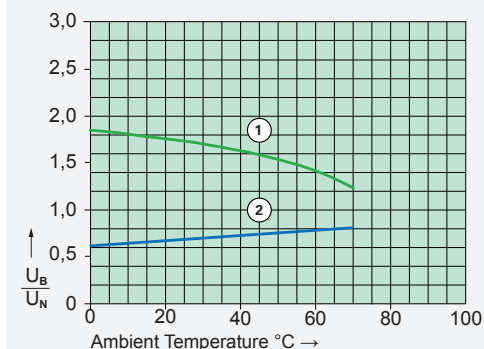
- 2 contacts with 8 A each
- 3 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤5 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

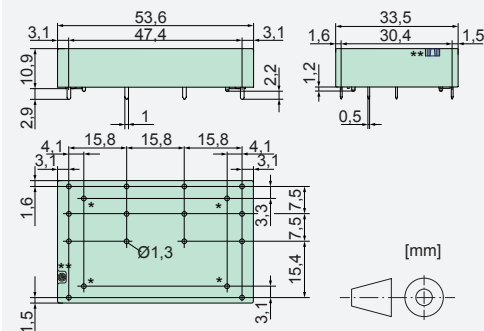
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (>5,5 mm) and contacts side by side (>5,5 mm)
- EN50205 type A
- Double and reinforced insulation
- SMD arrangement below relay possible
- Contact mounting: SIF422 4 NO / 2 NC
- Compact height: only 10,9 mm
- Nominal coil power 0,66 W
- Holding coil power 0,20 W
- For railway application (EN50155) on request

Dimensions



- * Do not drill when SMD arrangement
** Open breathing hole

Contact Data

Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 8 A
Switching capacity range*	40 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

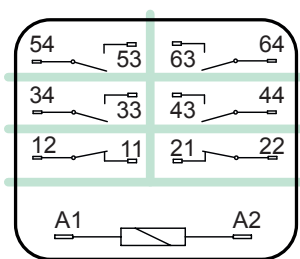
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,5	≥0,5	133,3	37,5 ± 10%
12	≤8,4	≥1,2	55,8	215 ± 10%
18	≤12,6	≥1,8	38,9	490 ± 10%
20	≤14,0	≥2,0	33,3	600 ± 10%
24	≤16,8	≥2,4	27,5	870 ± 10%
48	≤33,6	≥4,8	13,8	3460 ± 10%
60	≤42,0	≥6,0	11,1	5400 ± 13%
110	≤77,0	≥11,0	6,0	18300 ± 15%

Circuit Diagram (view on relay upper side)



SIF422

Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 20 ms
Drop-out time** (all NC closed)	typically 8 ms
Bounce time of NO contact	typically 1,5 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 10g NC > 2g
Resistance to short circuiting NO	1000 A SCPD 10 A gG / gL (pre-fuse)
Resistance to short circuiting NC	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	47 K / W
Temperature limit for coil	120°C
Weight	ca. 35 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s
**without spark suppression	

Tests, Regulations

Approvals

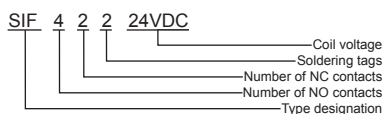


UL File E188953	Sec. 6
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

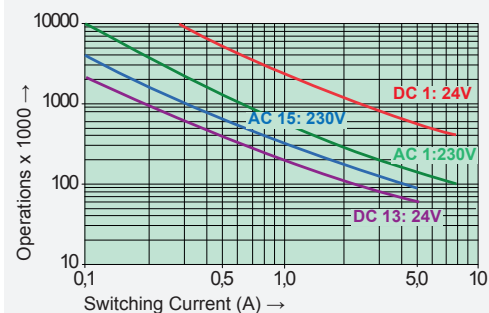
Options, Accessories

none available

Product Key



Contact Lifetime for NO Contacts



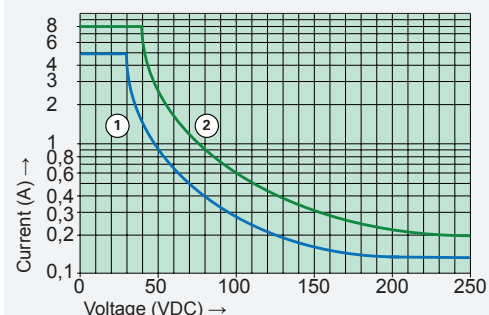
Maximal switching characteristics (DIN EN 60947-5-1)

AC 1:	250 V / 8 A
AC 15:	230 V / 5 A
DC 1:	24 V / 8 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

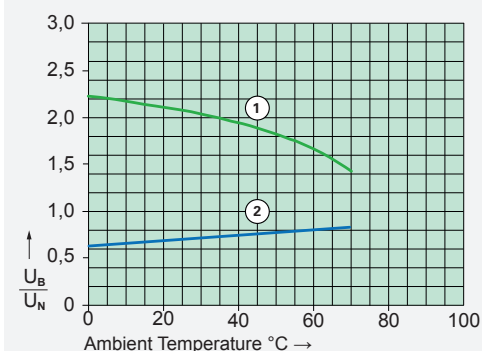
- 2 contacts with 8 A each
- 3 contacts with 6 A each
- 4 contacts with 4,5 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤5 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

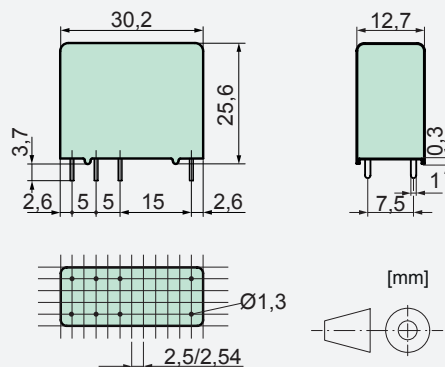
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (leakage and creepage distances >14 mm); protective separation diagonally between left and right contact side (leakage and creepage distances >5,5 mm)
- EN50205 type B
- 2 CO contacts with notched crown
- Nominal coil power 0,7 W
- Holding Power 0,21 W

Dimensions



Contact Data

Contact material	AgCuNi + 0,2 µm AU
Type of contact	notched crown
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	15 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	4 mA to 8 A
Switching capacity range*	50 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 28 V / 100 mA

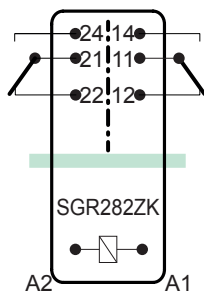
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	140,0	35,7 ± 10%
6	4,5	≥0,6	116,0	51,4 ± 10%
12	9,0	≥1,2	58,5	205 ± 10%
18	13,5	≥1,8	38,9	462 ± 10%
24	18,0	≥2,4	29,1	822 ± 10%
48	36,0	≥4,8	14,5	3290 ± 10%
60	45,0	≥6,0	11,6	5140 ± 13%
110	82,5	≥11,0	6,3	17280 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>14 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 550
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 12 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 4 ms
Bounce time of NC contact	typically 8 ms
Shock resistance 16 ms	NO > 10g NC > 2,5g
Vibration resistance (10-55 Hz)	NO > 10g NC > 1,5g
Resistance to short circuiting	
NO	1000 A SCPD 10 A gG / gL (pre-fuse)
NC	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	50 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals



UL File E188953	Sec. 1
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V1

Options, Accessories

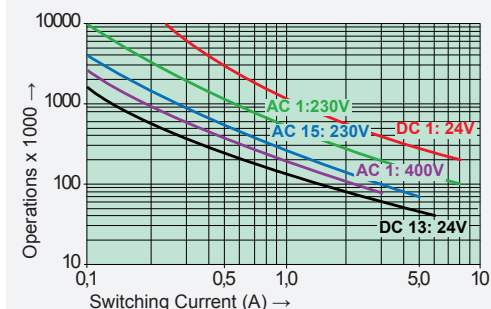
PCB socket, DIN rail socket	Page 29
Various modules	Page 29

Product Key

SGR282ZK 24VDC

Coil voltage
Type designation

Contact Lifetime for NO Contacts

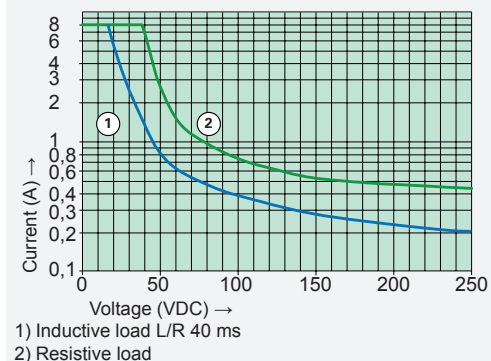


Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

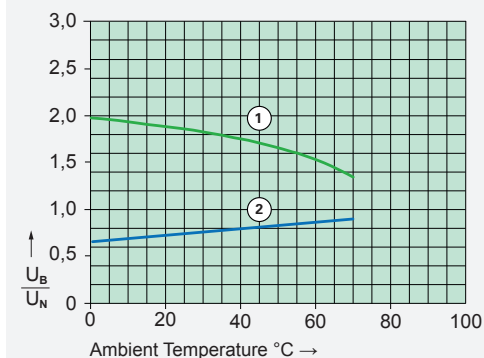
AC 15:	230 V / 5 A
DC 13:	24 V / 6 A
UL 508:	C300

Maximal contact load at AC 1 with 230 V:
2 contacts with 8 A each

Load Limit Curve with Direct Current



Excitation Voltage Range



- 1) Max. excitation voltage with contact load: <4 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.

SGR 282 ZK Series

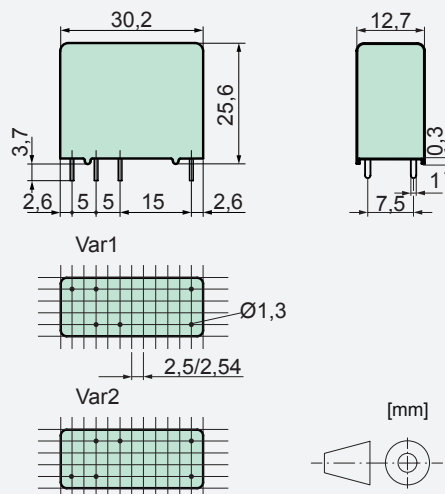
Variants 1 NO / 1 NC



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (leakage and creepage distances >14 mm); protective separation diagonally between left and right contact side (leakage and creepage distances >5,5 mm)
- EN50205 type A
- 1 NO / 1 NC contact with notched crown
- Nominal coil power 0,7 W
- Holding Power 0,21 W

Dimensions



Contact Data

Contact material	AgCuNi + 0,2 µm AU
Type of contact	notched crown
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	15 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	4 mA to 8 A
Switching capacity range*	50 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 28 V / 100 mA

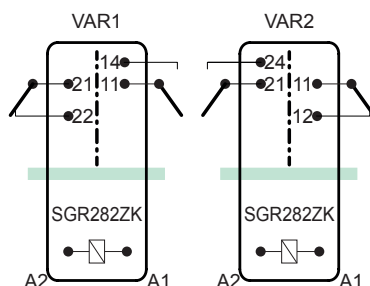
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	140,0	35,7 ± 10%
6	4,5	≥0,6	116,0	51,4 ± 10%
12	9,0	≥1,2	58,5	205 ± 10%
18	13,5	≥1,8	38,9	462 ± 10%
24	18,0	≥2,4	29,1	822 ± 10%
48	36,0	≥4,8	14,5	3290 ± 10%
60	45,0	≥6,0	11,6	5140 ± 13%
110	82,5	≥11,0	6,3	17280 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>14 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 550
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (NO closed)	typically 12 ms
Drop-out time** (NC closed)	typically 5 ms
Bounce time of NO contact	typically 4 ms
Bounce time of NC contact	typically 8 ms
Shock resistance 16 ms	NO > 10g NC > 2,5g
Vibration resistance (10-55 Hz)	NO > 10g NC > 1,5g
Resistance to short circuiting	
NO	1000 A SCPD 10 A gG / gL (pre-fuse)
NC	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	50 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

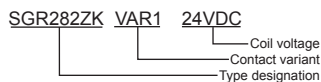


UL File E188953	Sec. 1
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V1

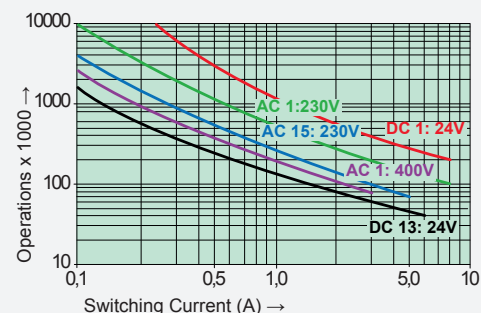
Options, Accessories

PCB socket, DIN rail socket	Page 29
Various modules	Page 29

Product Key



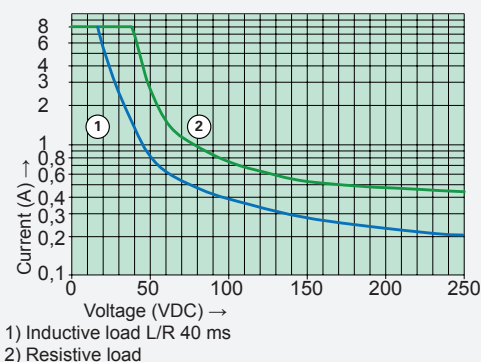
Contact Lifetime for NO Contact



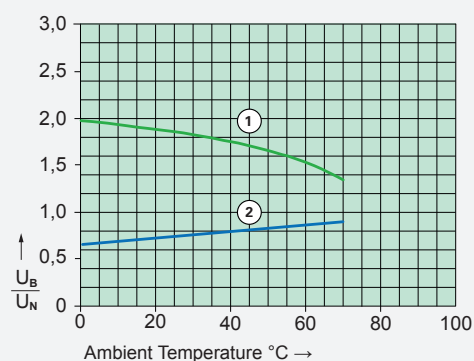
Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

AC 15:	230 V / 5 A
DC 13:	24 V / 6 A
UL 508:	C300

Load Limit Curve with Direct Current



Excitation Voltage Range



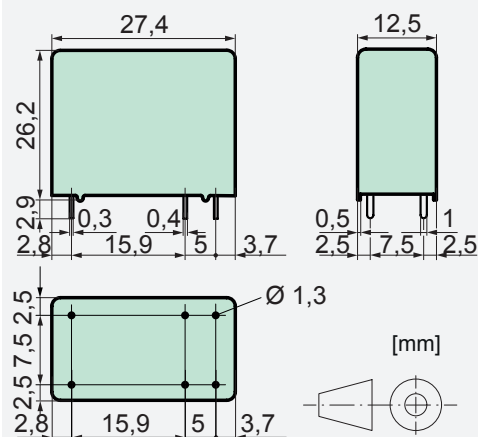
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided Contacts
- Protective separation between coil and contacts (leakage and creepage distances >14 mm); protective separation diagonally between left and right contact side (leakage and creepage distances >5,5 mm)
- EN50205 type A
- Contact mounting: SIM112 1 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,5 W
- Holding coil power 0,15 W

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm
Type of contact	Crest contact
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	20 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 8 A
Switching capacity range*	60 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 28 V / 100 mA

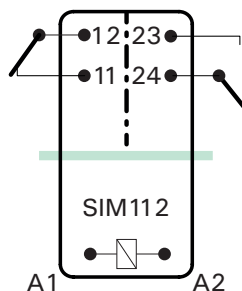
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,5	≥0,5	111,0	45 ± 10%
6	4,2	≥0,6	85,7	70 ± 10%
12	8,4	≥1,2	44,4	270 ± 10%
21	14,7	≥2,1	23,8	880 ± 10%
24	16,8	≥2,4	21,8	1100 ± 10%
48	33,6	≥4,8	10,9	4400 ± 13%
60	42,0	≥6,0	8,7	6850 ± 15%
110	77,0	≥11,0	5,5	20000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>14 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (NO closed)	typically 10 ms
Drop-out time** (NC closed)	typically 3 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 2,5g
Vibration resistance (10-200 Hz)	NO > 10g NC > 1g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 20 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

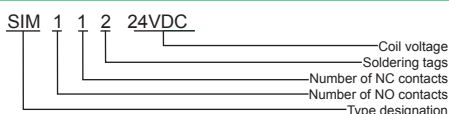
Approvals

UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V1

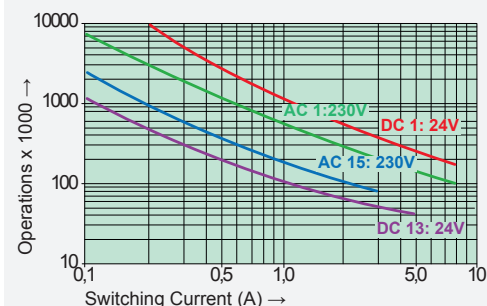
Options, Accessories

none available

Product Key



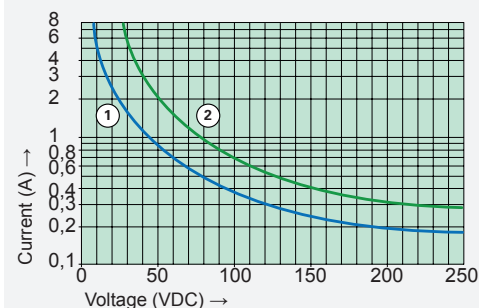
Contact Lifetime NO-Contact



Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

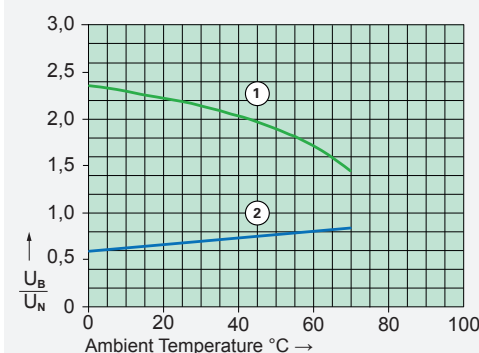
AC 1:	250 V / 8 A
AC 15:	230 V / 3 A
DC 1:	24 V / 8 A
DC 13:	24 V / 6 A / 0,1 Hz
UL 508:	C150 / R300

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

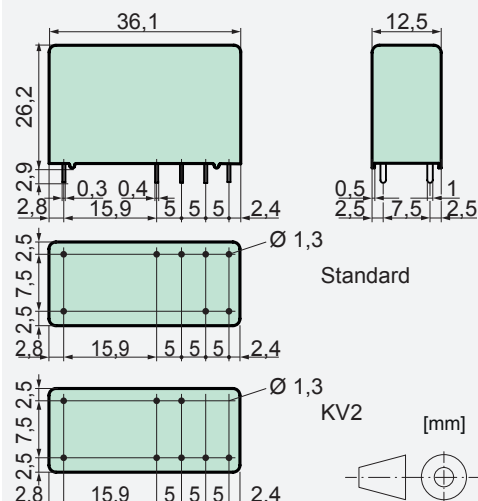
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (leakage and creepage distances >14 mm); protective separation diagonally between left and right contact side (leakage and creepage distances >5,5 mm)
- EN50205 type A
- Contact mounting: SIM212 2 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,75 W
- Holding coil power 0,21 W
- For railway application (EN 50155) on request

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1 (360 cycles / h)	approx. 100000
Inrush current max.	20 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 8 A
Switching capacity range*	60 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

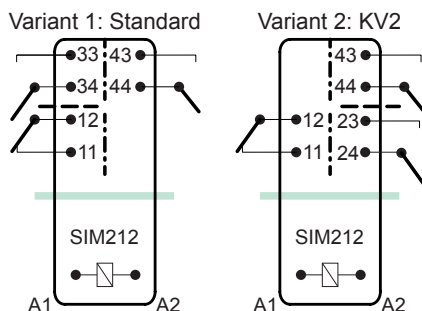
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	151,0	33 ± 10%
6	4,5	≥0,6	125,0	48 ± 10%
12	9,0	≥1,2	63,1	190 ± 10%
21	15,75	≥2,1	35,5	590 ± 10%
24	18,0	≥2,4	30,0	800 ± 10%
48	36,0	≥4,8	15,4	3100 ± 10%
60	45,0	≥6,0	12,5	4800 ± 13%
110	82,5	≥11,0	6,8	16000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>14 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 10 ms
Drop-out time** (NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 2,5g
Vibration resistance (10-200 Hz)	NO > 10g NC > 1g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	50 K / W
Temperature limit for coil	120°C
Weight	ca. 25 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

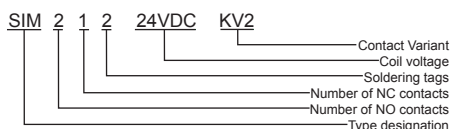


UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

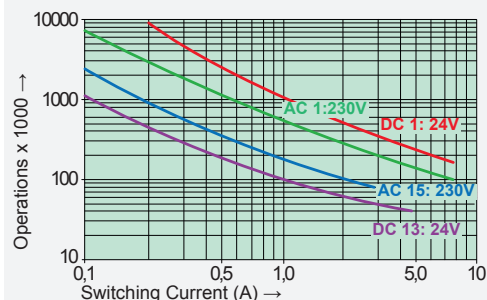
Options, Accessories

PCB socket, DIN rail socket Page 30

Product Key



Contact Lifetime NO-Contacts

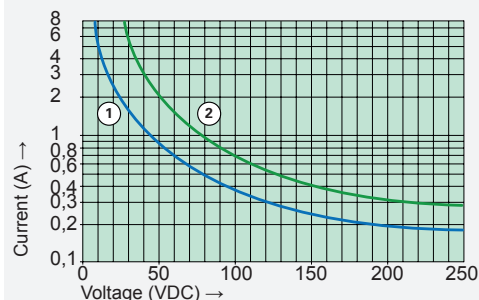


Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

AC 1:	250 V / 8 A
AC 15:	230 V / 3 A
DC 1:	24 V / 8 A
DC 13:	24 V / 6 A / 0,1 Hz
UL 508:	C150 / R300

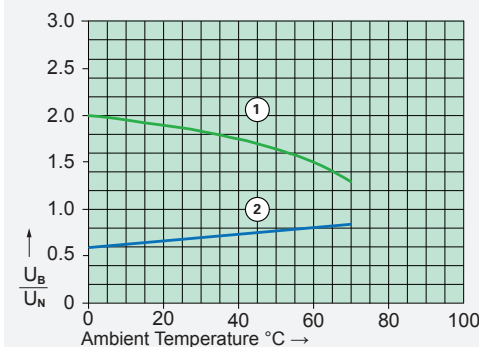
Maximal contact load at AC 1 with 230 V:
2 contacts with 8 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

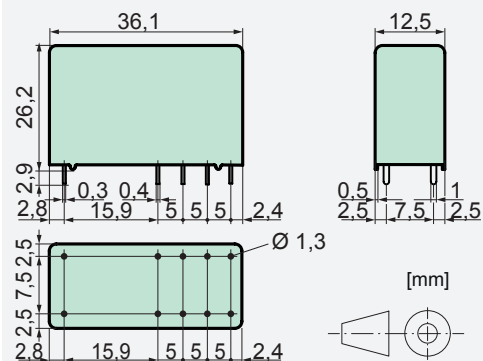
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and contacts (leakage and creepage distances >14 mm); protective separation diagonally between left and right contact side (leakage and creepage distances >5,5 mm)
- EN50205 type A
- Contact mounting: SIM312 3 NO / 1 NC
SIM222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 1 W
- Holding coil power 0,29 W

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	20 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 8 A
Switching capacity range*	60 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

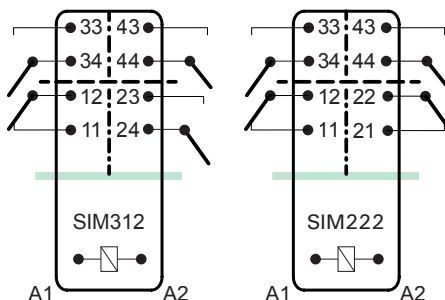
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	181,8	27,5 ± 10%
6	4,5	≥0,6	166,0	36 ± 10%
12	9,0	≥1,2	85,7	140 ± 10%
21	15,75	≥2,1	46,6	450 ± 10%
24	18,0	≥2,4	40,0	600 ± 10%
48	36,0	≥4,8	20,8	2300 ± 10%
60	45,0	≥6,0	16,6	3600 ± 13%
110	82,5	≥11,0	9,6	12000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>14 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 8 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 2,5g
Vibration resistance (10-200 Hz)	NO > 10g NC > 1g

Resistance to short circuiting contacts

1000 A SCPD 10 A gG / gL (pre-fuse)	
Ambient temperature	-40°C to +70°C
Thermal Resistance	50 K / W
Temperature limit for coil	120°C
Weight	ca. 25 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals



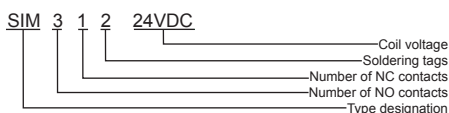
UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

Options, Accessories

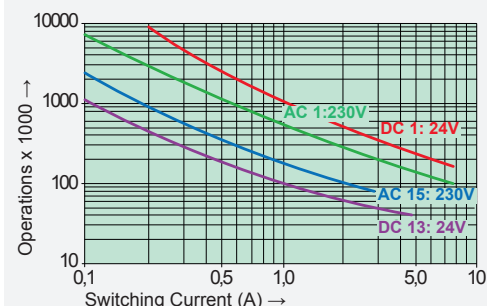
PCB socket, DIN rail socket

Page 30

Product Key



Contact Lifetime NO-Contacts



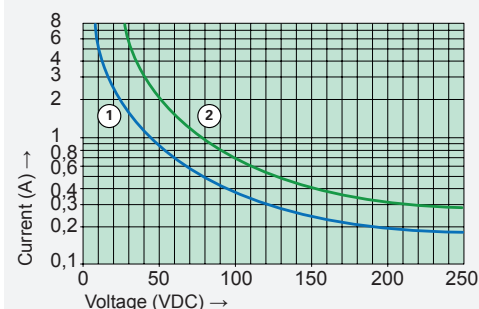
Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

AC 1:	250 V / 8 A
AC 15:	230 V / 3 A
DC 1:	24 V / 8 A
DC 13:	24 V / 6 A / 0,1 Hz
UL 508:	C150 / R300

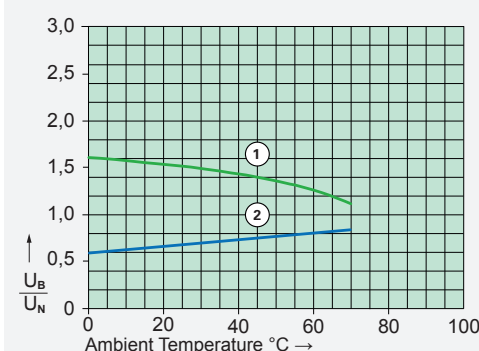
Maximal contact load at AC 1 with 230 V:

- 2 contacts with 8 A each
- 3 contacts with 6 A each

Load Limit Curve with Direct Current



Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

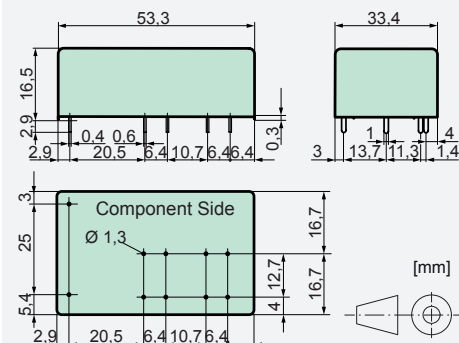
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts (>8 mm) as well as protective separation between the output contacts themselves (>10 mm)
- EN50205 type A
- Contact mounting: SLR312 3 NO / 1 NC
SLR222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,6 W
- Holding coil power 0,18 W
- Coils for railway applications (EN 50155) on request

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered) ≤	100 mΩ / 6 V / 100 mA

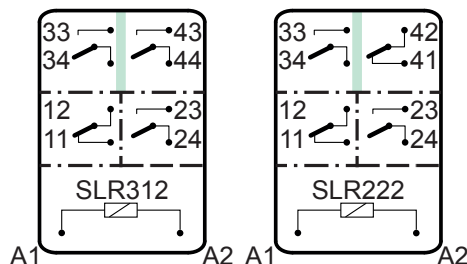
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,5	≥0,5	121,0	41 ± 10%
6	4,2	≥0,6	100,0	60 ± 10%
12	8,4	≥1,2	50,0	240 ± 10%
18	12,6	≥1,8	33,3	540 ± 10%
24	16,8	≥2,4	25,2	950 ± 10%
48	33,6	≥4,8	12,6	3800 ± 10%
60	42,0	≥6,0	10,0	6000 ± 13%
110	77,0	≥11,0	5,5	20000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 5g NC > 1,5g

Resistance to short circuiting contacts

1000 A SCPD 10 A gG / gL (pre-fuse)	
Ambient temperature	-40°C to +70°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 30 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

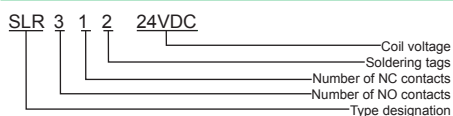


UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

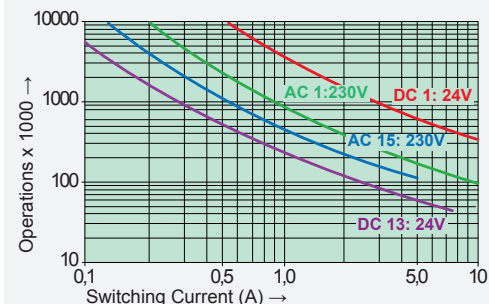
Options, Accessories

none available

Product Key



Contact Lifetime NO-Contacts



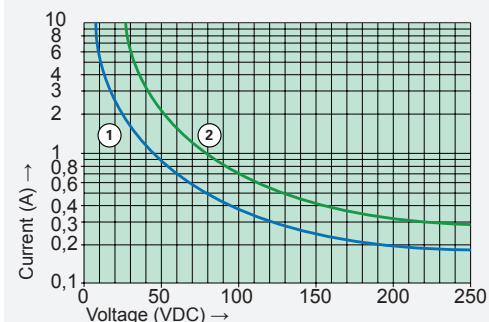
Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

Maximal contact load at AC 1 with 230 V:

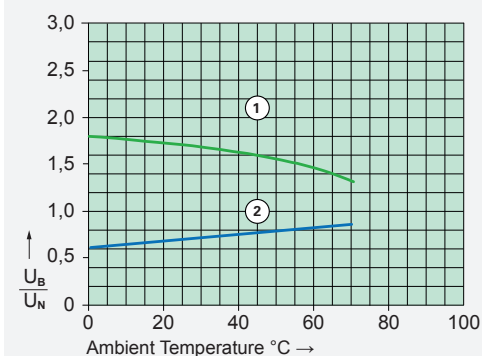
- 2 contacts with 10 A each
- 3 contacts with 8,4 A each

Load Limit Curve with Direct Current



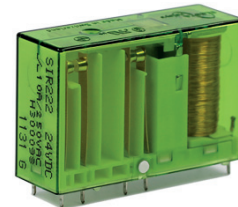
- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

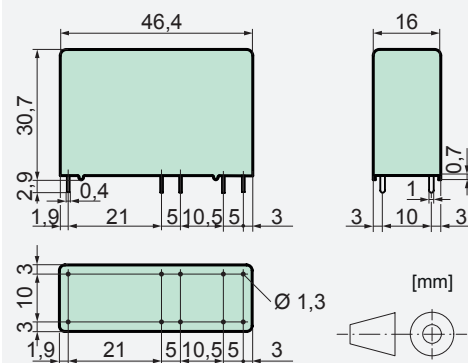
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts (>10 mm) as well as protective separation between the output contacts themselves (>8 mm)
- EN50205 type A
- Contact mounting: SIR312 3 NO / 1 NC
SIR222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,6 W
- Holding coil power 0,18 W
- Coils for railway applications (EN 50155) on request

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

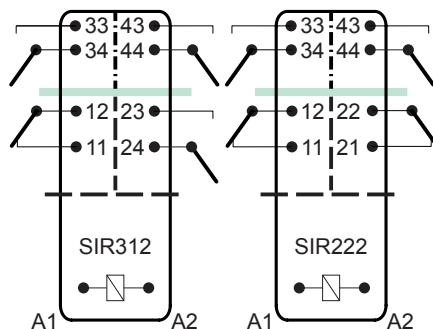
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3.5	≥0.5	121.0	41 ± 10%
6	4.2	≥0.6	100.0	60 ± 10%
12	8.4	≥1.2	50.0	240 ± 10%
18	12.6	≥1.8	33.3	540 ± 10%
24	16.8	≥2.4	25.2	950 ± 10%
48	33.6	≥4.8	12.6	3800 ± 10%
60	42.0	≥6.0	10.0	6000 ± 13%
110	77.0	≥11.0	5.5	20000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 5g NC > 1,5g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 30 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s
**without spark suppression	

Tests, Regulations

Approvals

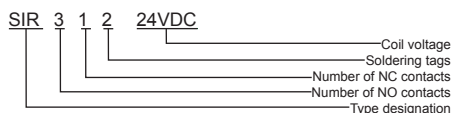


UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

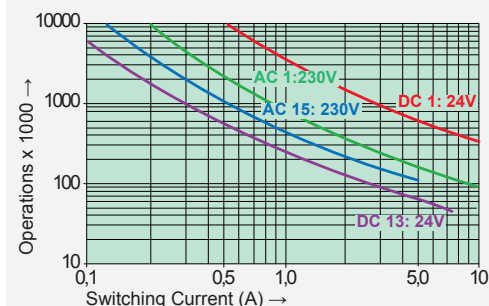
Options, Accessories

PCB socket Page 31

Product Key



Contact Lifetime NO-Contacts

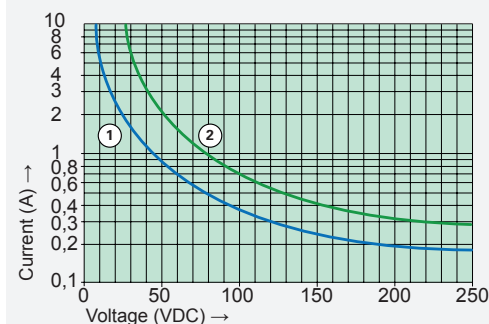


Maximal switching characteristics (DIN EN60947-5-1, Tab. C2)

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

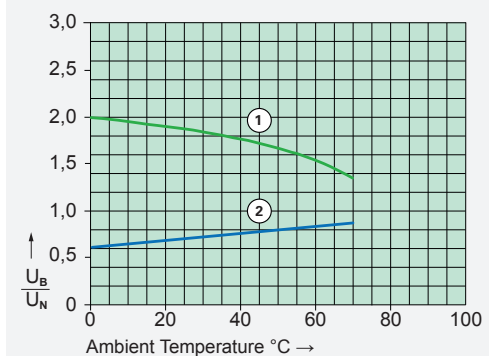
Maximal contact load at AC 1 with 230 V:
2 contacts with 10 A each
3 contacts with 8,4 A each

Load Limit Curve with Direct Current



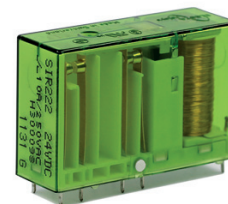
- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

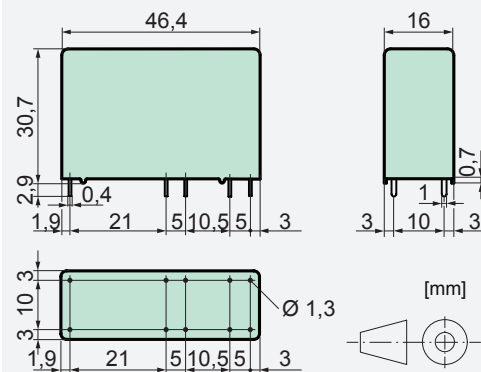
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts (>10 mm) as well as protective separation between the output contacts themselves (>8 mm)
- EN50205 type A
- Contact mounting: SIR312 3 NO / 1 NC
SIR222 2 NO / 2 NC
- Small external dimensions
- Nominal coil power 0,36 W
- Holding coil power 0,12 W
- For railway application (EN50155) on request

Dimensions



Contact Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest Contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered) ≤	100 mΩ / 6 V / 100 mA

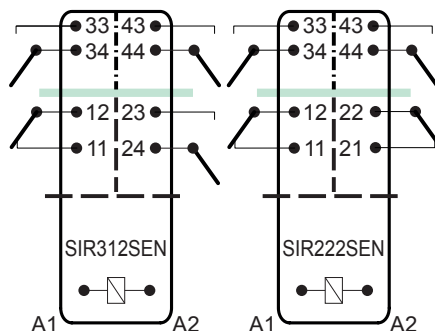
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	72,0	69,4 ± 10%
6	4,5	≥0,6	60,0	100 ± 10%
9	6,75	≥0,9	40,0	225 ± 10%
12	9,0	≥1,2	30,0	400 ± 10%
18	13,5	≥1,8	20,0	900 ± 10%
24	18,0	≥2,4	15,0	1600 ± 10%
48	36,0	≥3,6	7,5	6400 ± 13%
60	45,0	≥4,5	6,0	10000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC
- Test voltage	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	
- Air and creepage distance	at 250 VAC
- Test voltage	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 18 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance	NO > 5g NC > 1,5g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 30 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

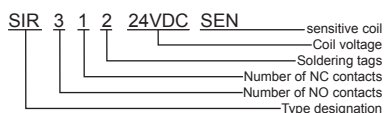
UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

Options, Accessories

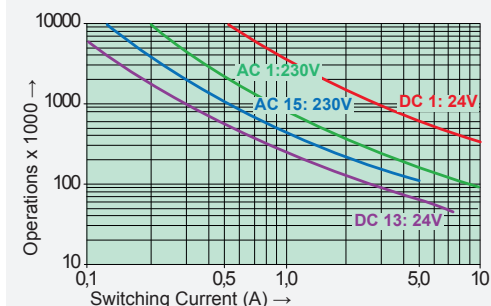
PCB socket

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Product Key



Contact Lifetime NO-Contacts



Maximal switching characteristics

(DIN EN60947-5-1, Tab.C2)

AC 15: 230 V / 5 A

DC 13: 24 V / 7,5 A / 0,1 Hz

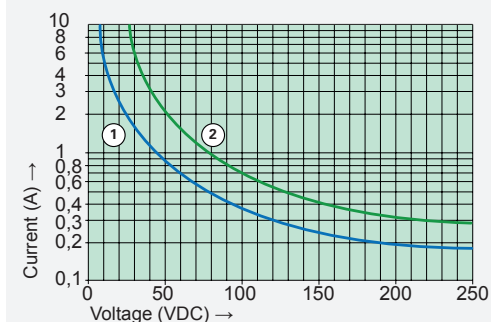
UL 508: C600 / R300

Maximal contact load AC 1 with 230 V:

2 contacts with 10 A each

3 contacts with 8,4 A each

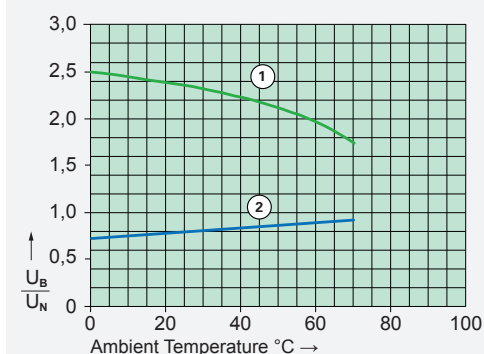
Load Limit Curve with Direct Current



1) Inductive load L/R 40 ms

2) Resistive load

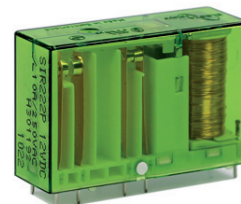
Excitation Voltage Range



1) Max. excitation voltage with contact load: ≤6 A (2 contacts)

2) Min. excitation voltage (guaranteed values) without previous operation

No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.

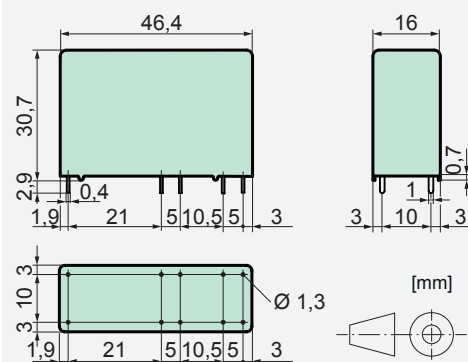


Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts and output contacts (>10 mm) and output contacts side by side (>8 mm)
- EN50205 type A
- Contact mounting:

SIR312P Control contacts	1 NO / 1 NC
Output contacts	2 NO
SIR222P Control contacts	2 NC
Output contacts	2 NO
- Inrush current 60 A / continuous current 12 A
- Nominal coil power 0,75 W
- Holding coil power 0,23 W
- For railway application (EN50155) on request

Dimensions



Control Contacts

Contact material	AgSnO ₂ + 0,2 µm Au
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	15 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	5 mA to 6 A
Switching capacity range*	60 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

Output Contacts

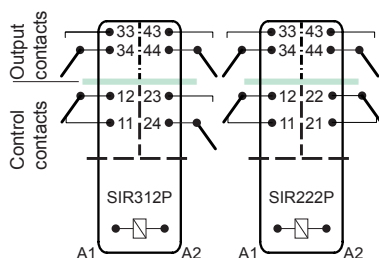
Contact material	AgSnO ₂
Rated switching capacity	250 VAC (440 VAC) 12 A AC1 3000 VA
Electr. life AC 1(360 cycles / h)	approx. 250000
Inrush current max.	60 A for 20 ms
Switching voltage range	5 to 250 VDC (480 VAC)
Switching current range*	10 mA to 12 A
Switching capacity range*	120 mW to 3000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

*Guided values

Standard coils for direct current (other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	≤3,5	≥0,5	151,0	33 ± 10%
12	≤8,4	≥1,2	63,1	190 ± 10%
18	≤12,6	≥1,8	41,6	432 ± 10%
20	≤14,0	≥2,0	37,7	530 ± 10%
24	≤16,8	≥2,4	31,5	760 ± 10%
48	≤33,6	≥4,8	15,7	3050 ± 10%
60	≤42,0	≥6,0	12,5	4800 ± 13%
110	≤77,0	≥11,0	6,8	16000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 17g NC > 7g
Vibration resistance (10-200 Hz)	NO > 10g NC > 4,5g
Resistance to short circuiting control contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Resistance to short circuiting output contacts	1000 A SCPD 16 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 32 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

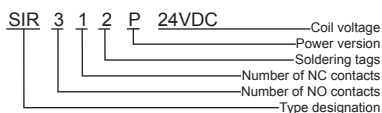
Approvals

UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

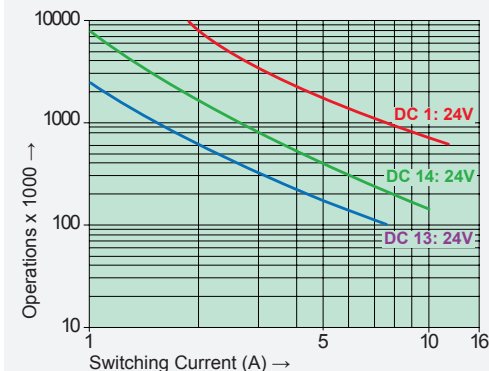
Options, Accessories

PCB socket	Page 31
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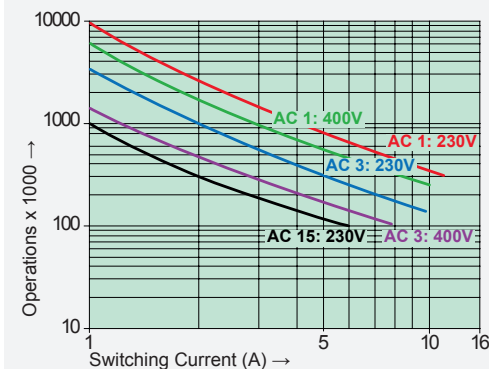
Product Key



Contact Lifetime output contacts DC

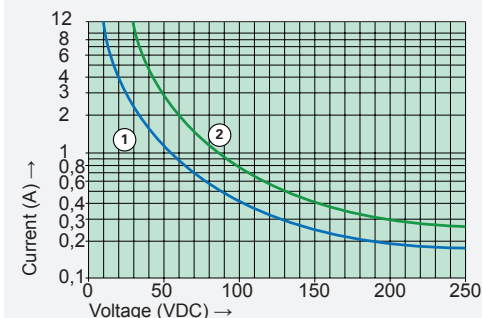


Contact Lifetime output contacts AC



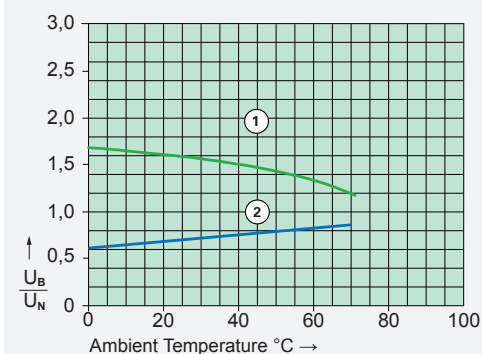
Maximal contact load AC 1 with 230 V:
2 contacts with 12 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load:
≤2 A control contacts, ≤10 A output contacts
- 2) Min. excitation voltage (guaranteed values) without previous operation

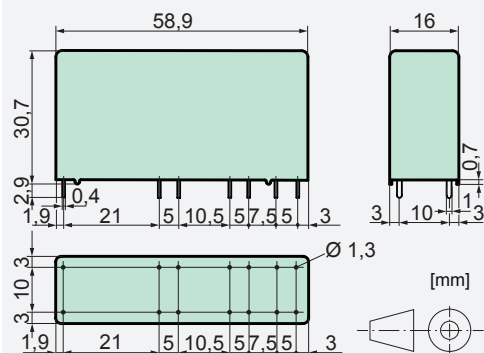


Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts and output contacts (>10 mm) as well as protective separation between the output contacts themselves (>8 mm)
- EN50205 type A
- Contact mounting:

SIR332	3 NO / 3 NC
SIR422	4 NO / 2 NC
SIR512	5 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,75 W
- Holding coil power 0,22 W
- For railway application (EN50155) on request

Dimensions



Contacts Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

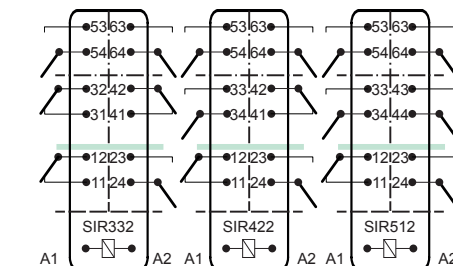
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,5	≥0,5	151,0	33 ± 10%
6	4,2	≥0,6	125,0	48 ± 10%
12	8,4	≥1,2	63,1	190 ± 10%
18	12,6	≥1,8	41,6	432 ± 10%
24	16,8	≥2,4	31,5	760 ± 10%
48	33,6	≥4,8	15,7	3050 ± 10%
60	42,0	≥6,0	12,5	4800 ± 13%
110	77,0	≥11,0	6,8	16000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 5g NC > 2g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 35 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s
**without spark suppression	

Tests, Regulations

Approvals



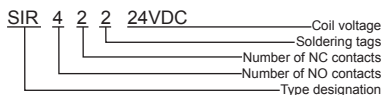
UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

Options, Accessories

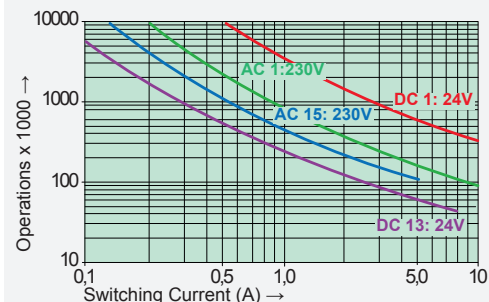
PCB socket

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Product Key



Contact Lifetime NO-Contacts



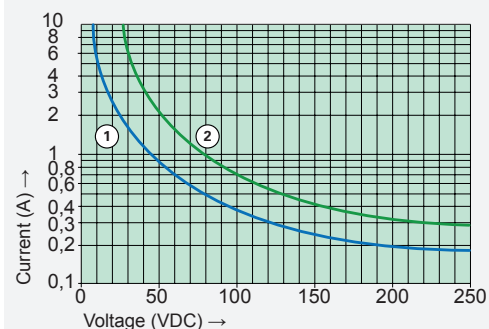
Max. switching characteristics (DIN EN 60947-5-1, Tab. C2):

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

Maximal contact load at AC 1 with 230 V:

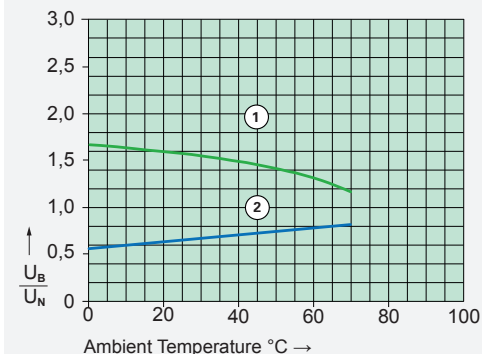
- 2 contacts with 10 A each
- 3 contacts with 8,4 A each
- 4 contacts with 7,3 A each
- 5 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.

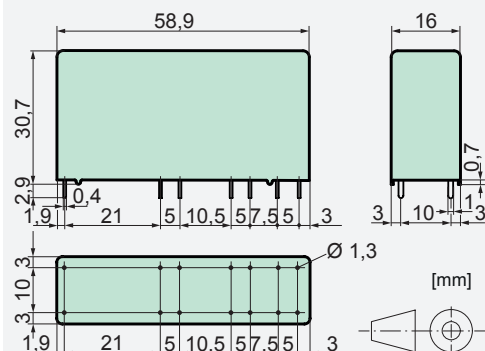


Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts and output contacts (>10 mm) as well as protective separation between the output contacts themselves (>8 mm)
- EN50205 type A
- Contact mounting:

SIR332	3 NO / 3 NC
SIR422	4 NO / 2 NC
SIR512	5 NO / 1 NC
- Small external dimensions
- Nominal coil power 0,5 W
- Holding coil power 0,18 W
- For railway application (EN50155) on request

Dimensions



Contacts Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

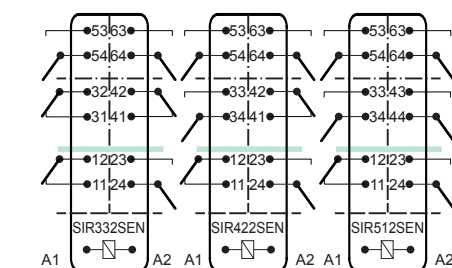
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
5	3,75	≥0,5	100,0	50 ± 10%
6	4,5	≥0,6	83,3	72 ± 10%
9	6,75	≥0,9	56,2	160 ± 10%
12	9,0	≥1,2	41,6	288 ± 10%
18	13,5	≥1,8	27,7	648 ± 10%
24	18,0	≥2,4	20,8	1150 ± 10%
48	36,0	≥3,6	10,4	4600 ± 13%
60	45,0	≥4,5	8,3	7200 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 18 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 5g NC > 2g
Resistance to short circuiting contacts	1000 A SCPD 10 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	55 K / W
Temperature limit for coil	120°C
Weight	ca. 35 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

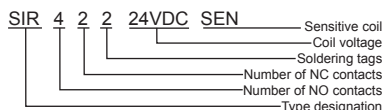
UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

Options, Accessories

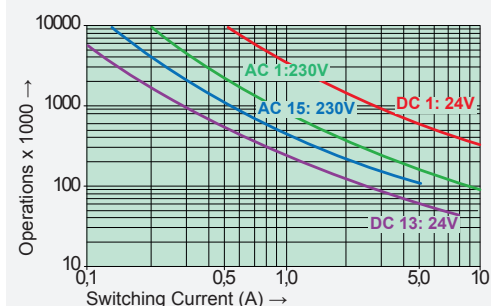
PCB socket

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Product Key



Contact Lifetime NO-Contacts



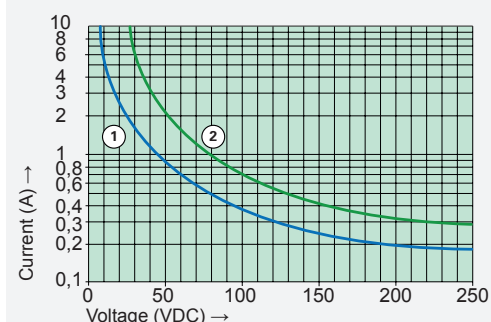
Max. switching characteristics (DIN EN 60947-5-1, Tab. C2):

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

Maximal contact load at AC 1 with 230 V:

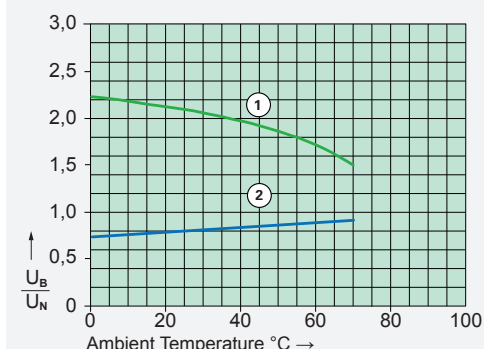
- 2 contacts with 10 A each
- 3 contacts with 8,4 A each
- 4 contacts with 7,3 A each
- 5 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A (2 contacts)
- 2) Min. excitation voltage (guaranteed values) without previous operation

No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.

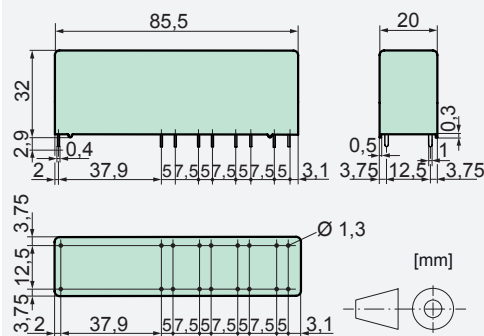


Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil and output contacts (>10 mm) and contacts in one row (>8 mm) as well as protective separation between left and right contact side (>10 mm)
- EN50205 type A
- Contact mounting:

SIR262	2 NO / 6 NC	SIR352	3 NO / 5 NC
SIR442	4 NO / 4 NC	SIR532	5 NO / 3 NC
SIR622	6 NO / 2 NC	SIR712	7 NO / 1 NC
- Small external dimensions
- Nominal coil power 1,3 W
- Holding coil power 0,39 W
- For railway application (EN50155) on request

Dimensions



Contacts Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

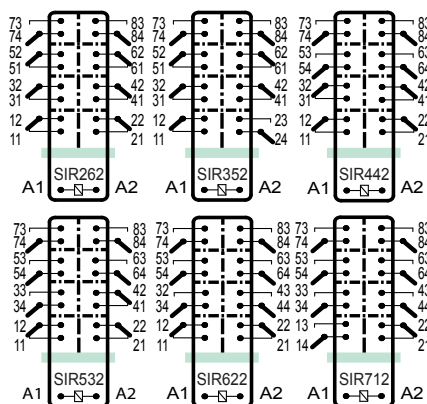
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
6	4,2	≥0,6	218,0	27,5 ± 10%
12	8,4	≥1,2	109,0	110 ± 10%
18	12,6	≥1,8	72,0	250 ± 10%
24	16,8	≥2,4	54,5	440 ± 10%
48	33,6	≥4,8	27,2	1760 ± 10%
60	42,0	≥6,0	11,8	2750 ± 10%
110	77,0	≥11,0	6,8	9250 ± 13%
220	154,0	≥22,0	5,9	37000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 15 ms
Drop-out time** (all NC closed)	typically 4 ms
Bounce time of NO contact	typically 6 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 8g NC > 2,5g

Resistance to short circuiting contacts

1000 A SCPD 10 A gG / gL (pre-fuse)	
Ambient temperature	-40°C to +70°C
Thermal Resistance	40 K / W
Temperature limit for coil	125°C
Weight	ca. 60 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

Tests, Regulations

Approvals

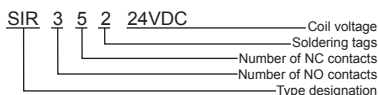


UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

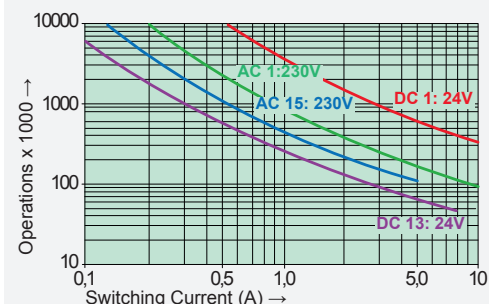
Options, Accessories

none available

Product Key



Contact Lifetime NO-Contacts



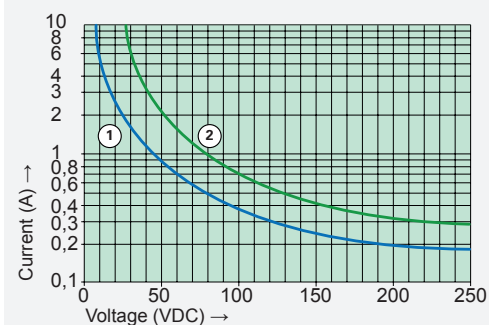
Max. switching characteristics (DIN EN 60947-5-1, Tab. C2):

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

Maximal contact load at AC 1 with 230 V:

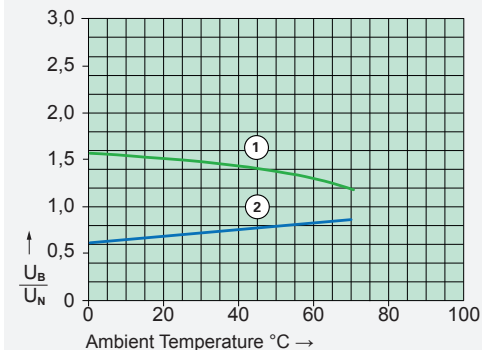
- 2 contacts with 10 A each
- 3 contacts with 8,4 A each
- 4 contacts with 7,3 A each
- 5 contacts with 6,5 A each
- 6 contacts with 6 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.

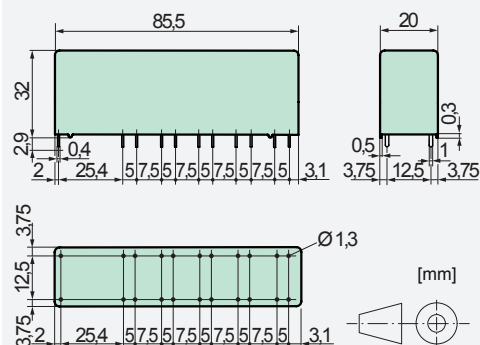


Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts and output contacts (>8 mm) and output contacts in one row (>8 mm) as well as protective separation between left and right contact side (>10 mm)
- EN50205 type A
- Contact mounting:

SIR282	2 NO / 8 NC	SIR372	3 NO / 7 NC
SIR462	4 NO / 6 NC	SIR552	5 NO / 5 NC
SIR642	6 NO / 4 NC	SIR732	7 NO / 3 NC
SIR822	8 NO / 2 NC	SIR912	9 NO / 1 NC
- Nominal coil power 1,3 W
- Holding coil power 0,39 W
- For railway application (EN50155) on request

Dimensions



Contacts Data

Contact material	AgSnO ₂ + 0,2 µm Au
Type of contact	Crest contact
Rated switching capacity	250 VAC 10 A AC1 2500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	25 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	10 mA to 10 A
Switching capacity range*	60 mW to 2500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

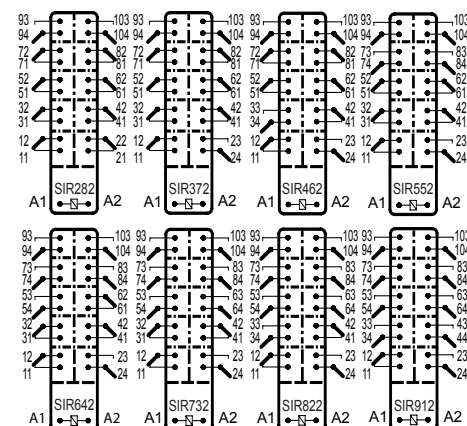
*Guided values

Standard coils for direct current

(other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
6	4,2	≥0,6	218,0	27,5 ± 10%
12	8,4	≥1,2	109,0	110 ± 10%
18	12,6	≥1,8	72,0	250 ± 10%
24	16,8	≥2,4	54,5	440 ± 10%
48	33,6	≥4,8	27,2	1760 ± 10%
60	42,0	≥6,0	11,8	2750 ± 10%
110	77,0	≥11,0	6,8	9250 ± 13%
220	154,0	≥22,0	5,9	37000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 18 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 8 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 8g NC > 2,5g

Resistance to short circuiting contacts

1000 A SCPD 10 A gG / gL (pre-fuse)	
Ambient temperature	-40°C to +70°C
Thermal Resistance	40 K / W
Temperature limit for coil	125°C
Weight	ca. 60 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

**without spark suppression

Tests, Regulations

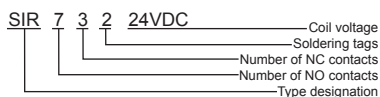
Approvals

UL File E188953	Sec. 3
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

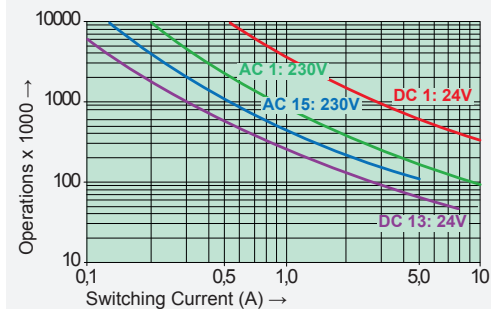
Options, Accessories

none available

Product Key



Contact Lifetime NO-Contacts



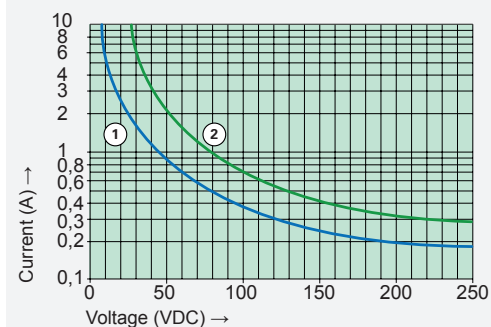
Max. switching characteristics (DIN EN 60947-5-1, Tab. C2):

AC 15:	230 V / 5 A
DC 13:	24 V / 7,5 A / 0,1 Hz
UL 508:	C600 / R300

Maximal contact load at AC 1 with 230 V:

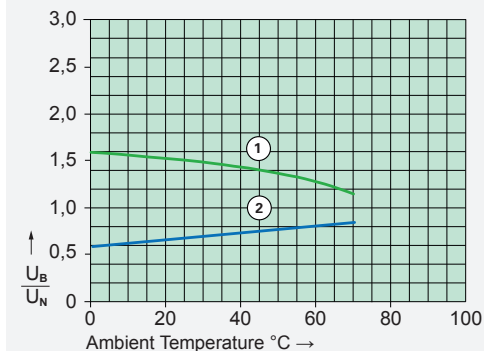
- 2 contacts with 10 A each
- 3 contacts with 8,4 A each
- 4 contacts with 7,3 A each
- 5 contacts with 6,5 A each
- 6 contacts with 6 A each
- 8 contacts with 5 A each
- 9 contacts with 4,2 A each

Load Limit Curve with Direct Current



- 1) Inductive load L/R 40 ms
- 2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: ≤6 A
- 2) Min. excitation voltage (guaranteed values) without previous operation

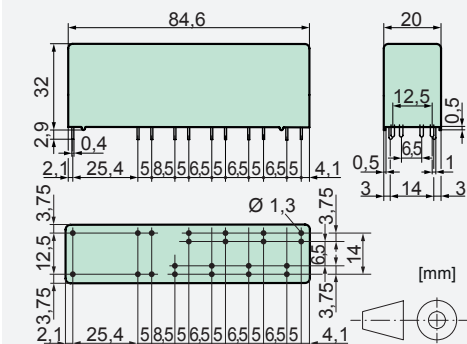
No heat accumulation due to intrinsic heating of other components. Continuous duty 100%.



Relay Key Data

- PCB Relay with forcibly guided contacts
- Protective separation between coil/control contacts and output contacts (>8 mm) and output contacts in one row (>10 mm)
- EN50205 type A
- Contact mounting: SIP512 Control contacts 1 NO / 1 NC
Output contacts 4 NO
SIP422 Control contacts 2 NC
Output contacts 4 NO
- High switching power
- Nominal coil power 1,3 W
- Holding coil power 0,39 W
- For railway application (EN50155) on request

Dimensions



Control Contact

Contact material	AgSnO ₂ + 0.2 µm Au
Rated switching capacity	250 VAC 6 A AC1 1500 VA
Electr. life AC 1(360 cycles / h)	approx. 100000
Inrush current max.	15 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	5 mA to 6 A
Switching capacity range*	60 mW to 1500 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

Output Contact

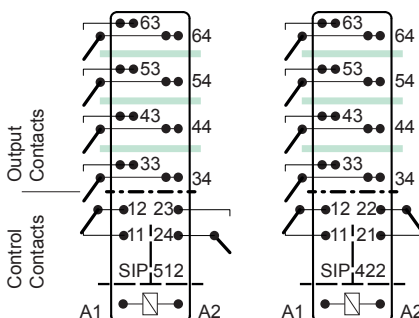
Contact material	AgSnO ₂
Rated switching capacity	250 VAC (440 VAC) 16 A AC1 4000 VA
Electr. life AC 1(360 cycles / h)	approx. 250000
Inrush current max.	60 A for 20 ms
Switching voltage range	5 to 250 VDC (480 VAC)
Switching current range*	10 mA to 16 A
Switching capacity range*	120 mW to 4000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

*Guided values

Standard coils for direct current (other voltages on request)

Nominal voltage VDC	Min. pick-up voltage at 20 °C	Drop-out voltage at 20 °C	Nominal current in mA	Resistance in Ohm at 20 °C
6	4,2	≥0,6	218,0	27,5 ± 10%
12	8,4	≥1,2	109,0	110 ± 10%
18	12,6	≥1,8	72,0	248 ± 10%
24	16,8	≥2,4	54,5	440 ± 10%
48	33,6	≥4,8	27,2	1760 ± 10%
60	42,0	≥6,0	21,8	2750 ± 10%
110	77,0	≥11,0	11,8	9250 ± 13%
220	154,0	≥22,0	5,9	37000 ± 15%

Circuit Diagram (view on relay upper side)



Insulation Data

- Basic insulation	at 250 VAC
- Air and creepage distance	>4 mm
- Test voltage	2500 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>8 mm
- Test voltage	4000 V / 50 Hz / 1 min
- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>10 mm
- Test voltage	5000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 250
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 18 ms
Drop-out time** (all NC closed)	typically 5 ms
Bounce time of NO contact	typically 8 ms
Bounce time of NC contact	typically 12 ms
Shock resistance 16 ms	NO > 10g NC > 8g
Vibration resistance	10-200 Hz NO > 10g 10-50 Hz NC > 5g 50-200 Hz NC > 3,5g
Resistance to short circuiting control contacts	1000 A SCPD 6 A gG / gL (pre-fuse)
Resistance to short circuiting output contacts	1000 A SCPD 16 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal resistance	40 K / W
Temperature limit for coil	125°C
Weight	ca. 60 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

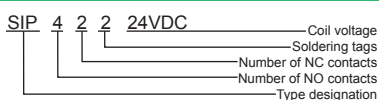
Tests, Regulations

Approvals	
UL File E188953	Sec. 4
Insulation class IEC 60664-1	250 VAC
Protection class II	VDE 0106
Fire protection requirements	UL 94 / V0

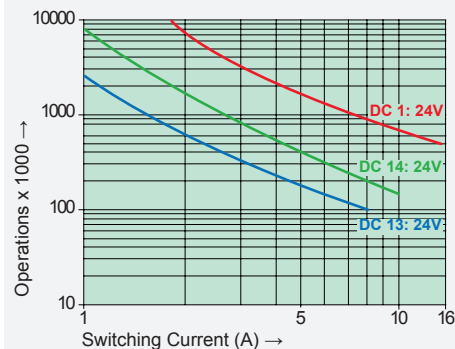
Options, Accessories

none available

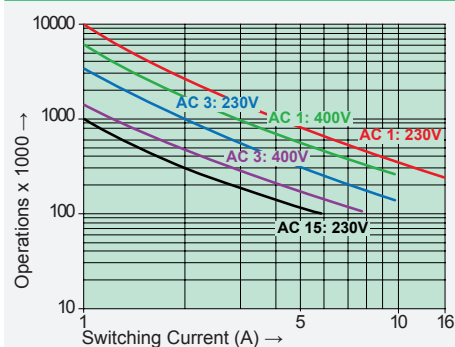
Product Key



Contact Lifetime output contacts DC



Contact Lifetime output contacts AC



UL 508: A600 / R150

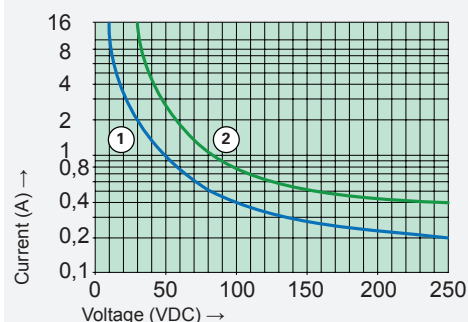
Maximal contact load at AC 1 with 230 V:

2 contacts with 16 A each

3 contacts with 12 A each

4 contacts with 10 A each

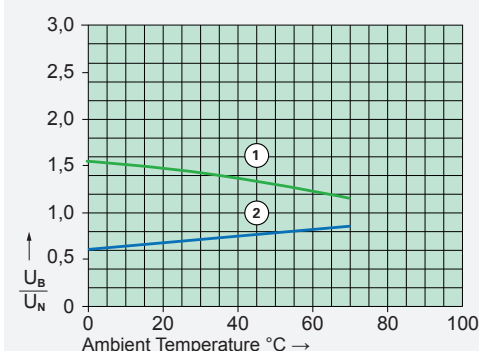
Load Limit Curve with Direct Current



1) Inductive load L/R 40 ms

2) Resistive load

Excitation Voltage Range



- 1) Max. excitation voltage with contact load: control contacts ≤4 A, output contacts ≤12 A
- 2) Min. excitation voltage (guaranteed values) without previous operation



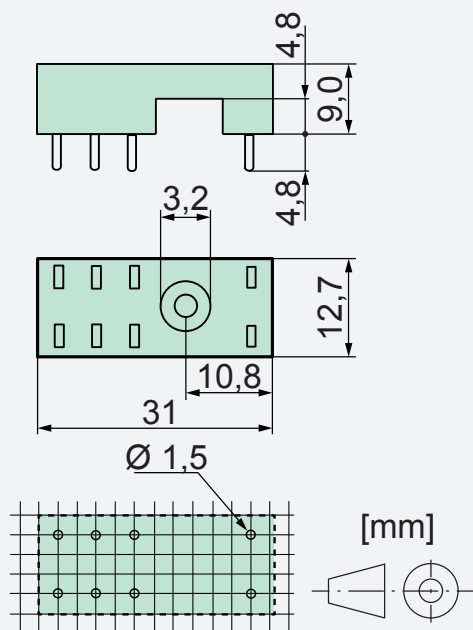
PCB socket SRP-SGR2

Socket data

- With plastic hold down clip
- Soldering tags for PCB
- 2,5mm pinning



Dimensions



Technical data

Rated current	2x8A
Rated voltage	300VAC
Test voltage coil/contacts	4000Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 4g
Ambient temperature	-40°C to +70°C
Packing unit	100 pcs
Approvals	UL, cUL
UL File	E113714

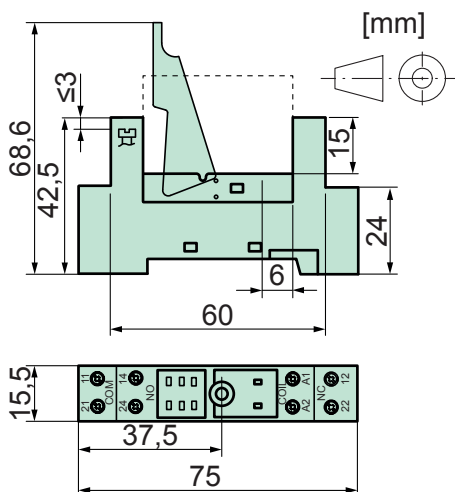
DIN rail socket SRD-SGR2

Socket data

- With plastic grip and marking tag (1 pc)
- Screw terminals
- 2,5mm pinning
- Assembly on DIN rail 35mm or single-hole mounting with M3 screw



Dimensions



Technical data

Rated current	2x8A
Rated voltage	300VAC
Test voltage coil/contacts	2500Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 40g
Ambient temperature	-25°C to +70°C
Cross sections for connection with wires	2x2,5mm ²
end sleeves for strands	2x1,5mm ²
Maximales Drehmoment	0,8Nm
Packing unit	20 pcs
Approvals	UL, cUL
UL File	E113714

Modules for SRD-SGR2

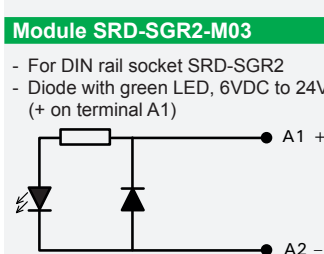
Module SRD-SGR2-M01

- For DIN rail socket SRD-SGR2
- Diode 6VDC to 230VDC (+ on terminal A1)



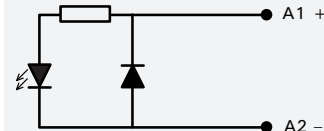
Module SRD-SGR2-M02

- For DIN rail socket SRD-SGR2
- Diode with red LED, 6VDC to 24VDC (+ on terminal A1)



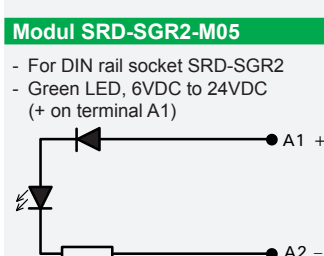
Module SRD-SGR2-M03

- For DIN rail socket SRD-SGR2
- Diode with green LED, 6VDC to 24VDC (+ on terminal A1)



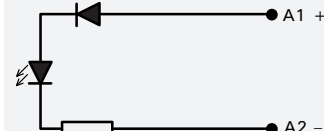
Modul SRD-SGR2-M04

- For DIN rail socket SRD-SGR2
- Red LED, 6VDC to 24VDC (+ on terminal A1)



Modul SRD-SGR2-M05

- For DIN rail socket SRD-SGR2
- Green LED, 6VDC to 24VDC (+ on terminal A1)





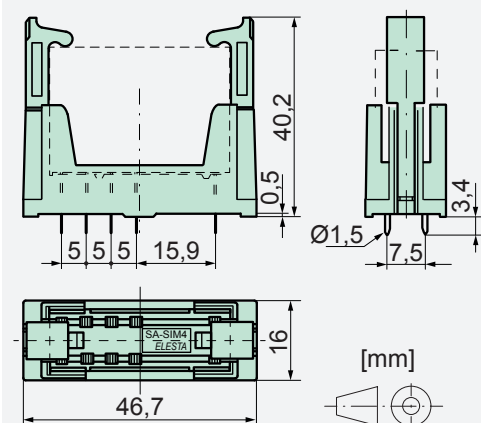
Print socket SRP-SIM4

Socket data

- With integrated retaining/ejector handles
- Soldering tags for PCB



Dimensions



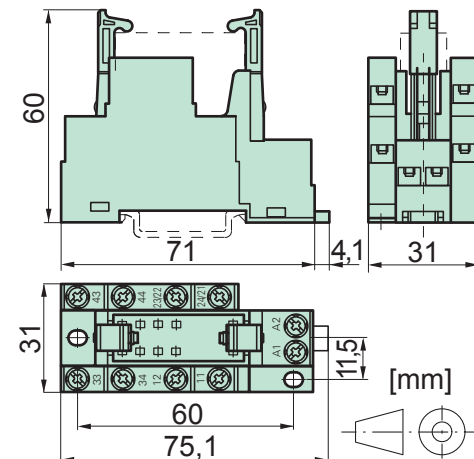
DIN rail socket SRD-SIM4

Socket data

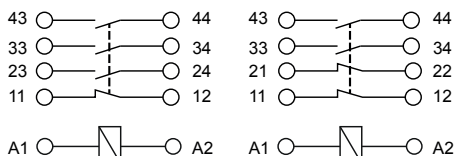
- With integrated retaining/ejector handles
- Screw terminals
- Assembly on DIN rail 35mm or with 2xM3 screws



Dimensions



SRD-SIM4 (SIM312...) SRD-SIM4 (SIM222...)



Technical data

Rated current	8A
Rated voltage	250VAC
Test voltage coil/contacts	4000Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 11g
Ambient temperature	-25°C to +70°C
Packing unit	10 pcs
Approvals	UL, cUL
UL File	E301947

Technical data

Rated current	8A
Rated voltage	250VAC
Test voltage coil/contacts	2500Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 65g
Ambient temperature	-25°C to +70°C
Cross sections for connection with wires	2x2,5mm ²
end sleeves for strands	2x1,5mm ²
Maximales Drehmoment	0,8Nm
Packing unit	10 pcs
Approvals	UL, cUL
UL File	E238167



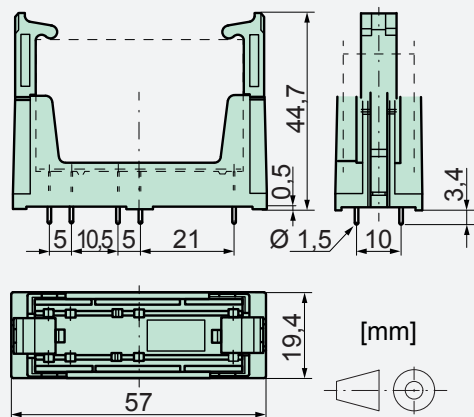
Print socket SRP-SIR4

Socket data

- PCB socket for SIR4 contacts
- With integrated retaining/ejector handles
- Soldering tags for PCB



Dimensions



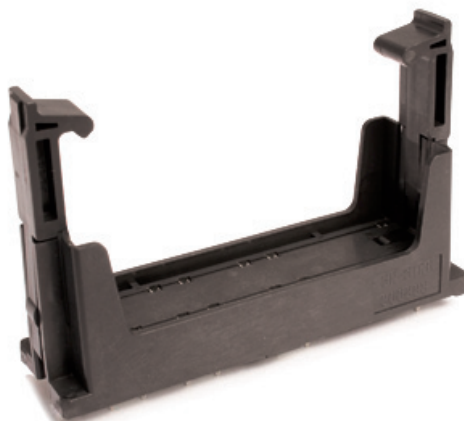
Technical data

Rated current	8A
Rated voltage	250VAC
Test voltage coil/contacts	4'000Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 15g
Ambient temperature	-25°C to +70°C
Packing unit	10 pcs
Approvals	UL, cUL
UL File	E301947

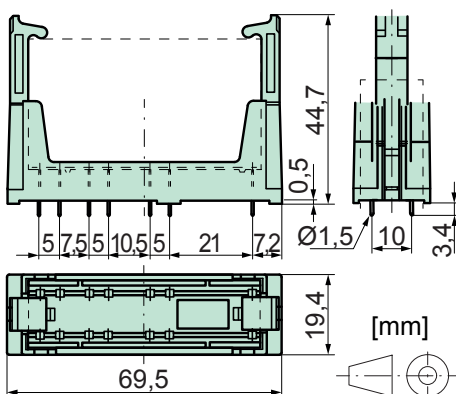
Print socket SRP-SIR6

Socket data

- PCB socket for SIR6 contacts
- With integrated retaining/ejector handles
- Soldering tags for PCB



Dimensions



Technical data

Rated current	8A
Rated voltage	250VAC
Test voltage coil/contacts	4'000Veff
Insulation class (IEC 60664-1)	250VAC
Creepage resistance	CTI 250
Weight	approx. 17g
Ambient temperature	-25°C to +70°C
Packing unit	10 pcs
Approvals	UL, cUL
UL File	E301947



Notes



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