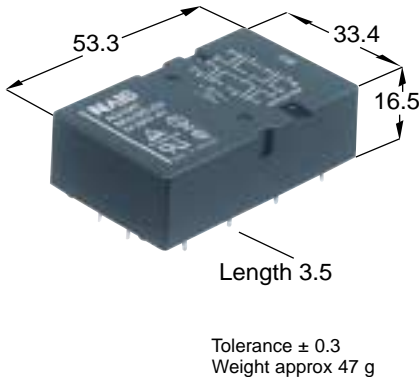


NAIS

POLARISED, MONOSTABLE RELAY WITH FORCIBLY GUIDED CONTACTS

SF4-RELAYS

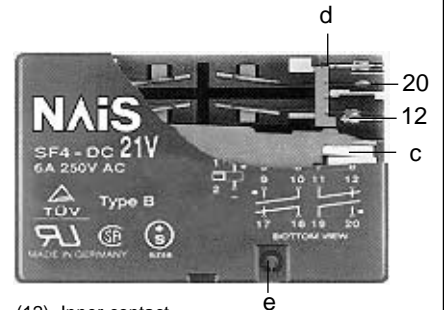


- Relay complying with EN 50 205, Type B
- TÜV/SEV/UL/CSA
- Overvoltage category as per IEC 60664-1 III/4kV

- Rated voltage in [V] as per IEC 60664-1 basic insulation

	Pollution degree		
	2 inside	2 outside	3 outside
Coil-Contact	400	400	250
Contact-Contact	forcibly linked pair only	250	250
	all other contacts	400	400

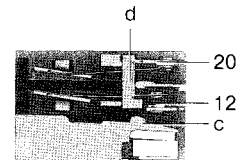
Application notes



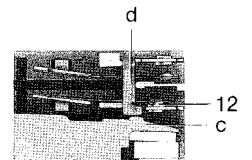
(12) Inner contact
 (20) Outer contact
 (c) Rotating armature
 (d) Actuator
 (e) Nipple
 If required a breathing hole can be made in the cover by removing the nipple. However be aware that the degree of protection will reduce from IP67 to IP30!

Operation of forcibly guided contacts, Type B

If an outer contact should weld (20) then the forced operated inner contacts (12) driven by the operator (d) remain open. The rotating armature (c) remains free to move. The unaffected contact pairs can operate normally, (e.g. their function to make or break remains unaffected).



If an inner contact should weld (12) then the movement of the rotating armature (c) is blocked via the operator (d). Open contacts of all four contact pairs remain open. This arrangement corresponds to conventional forcibly guided contact operation.



Relay characteristics are influenced by

- strong external magnetic fields
- magnetic conductive materials near the relay
- narrow top-to-top mounting (printed surface to printed surface)

Characteristics

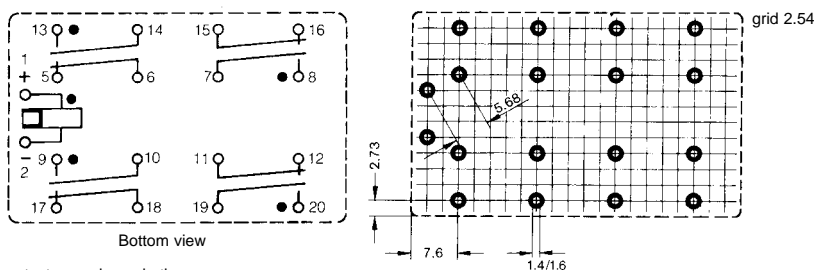
Contact configuration (a = normally open, b = normally closed)	4a 4b
Contact material	AgSnO ₂ with Au flash
Volumetric resistance (initial at 6VDC, 1A)	m
Making and breaking capacities according EN 60947-5-1: 1991, table 4 AC15/DC13 ²⁾	6A 250 V / 3A 24V
Max. switching voltage	V
Max. switching capacity, resistive load, AC/DC ¹⁾²⁾	V
Min. switching voltage/ switching current	V/mA
Pick-up/nominal power consumption at 20°C	mW
Pick-up/drop-out voltage in % of nominal voltage at 20°C	%
Pick-up/drop-out/bounce time (approx. values at U _{rated})	ms
Max. switching frequency without load	Hz
Mechanical life (electrical see page 2)	Sw.ops
Permissible ambient temperature at rated power consumption	°C
Test voltage open contact / contact-contact / contact-coil	V _{rms}
Insulation resistance at 500 V DC (initial)	10 ⁹
Vibration resistance 10 – 200 Hz (10 – 55 Hz, amplitude 2 mm) ³⁾	g
Shock resistance (11 ms) ³⁾	g
Solder bath temperature (max. duration)	°C/s
Degree of protection	IP67 / IP30 ²⁾

1) at 10⁵ switching operations, ambient temperature +70°C
 2) with breather hole open 3) Contact interruption <10µs

Ordering information / Coil data

Part-number	Coil nominal voltage (V)	Pick-up voltage (V)	Drop-out voltage (V)	Coil resistance () ± 10%, 20°C	Coil inductance (mH)
SF4- 5V	5	3.75	0.75	50	47
SF4- 9V	9	6.75	1.35	162	145
SF4-12V	12	9	1.8	288	252
SF4-18V	18	13.5	2.7	648	551
SF4-21V	21	15.75	3.15	882	742
SF4-24V	24	18	3.6	1152	959
SF4-36V	36	27	5.4	2592	2097
SF4-48V	48	36	7.2	4608	3654
SF4-60V	60	45	9.0	7200	5612

Connection diagram and pcb bore hole data

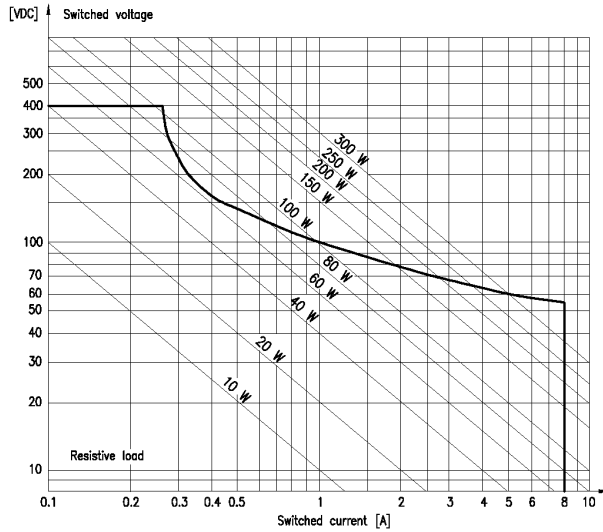


The contacts are shown in the deenergized condition.

1.4-typical value for manual insertion
 1.6-typical value for automatic insertion

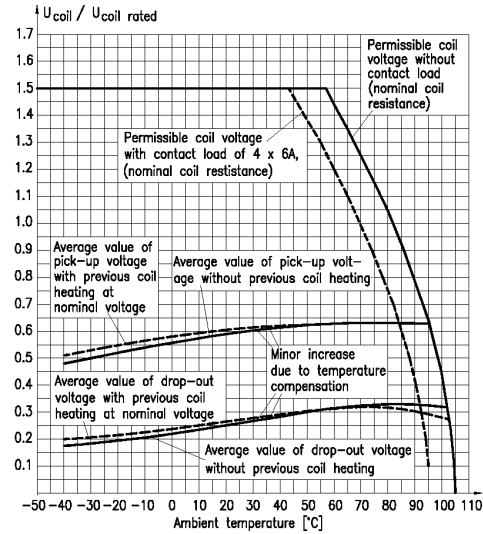
Note: Suitable for most common washing methods except ultrasonic cleaning.

Load limit curve



Loads in the range under the curve can be switched safely. The arc will extinguish before the opposite contact makes (important if NO (a) and NC (b) contacts are connected to dissimilar voltages).

Coil voltage characteristics



Permissible coil voltages and pick-up and drop-out characteristics at various ambient temperatures.

Electrical life

Voltage	Current	Load type	Frequency	Duty cycle	No. of contacts	No. of ops.
250 VAC	6 A	$\cos \varphi = 1$	0.20 Hz	50%	2 ⁴⁾	100 000
220 VAC	2.27 A	$\cos \varphi = 1$	0.20 Hz	50%	2 ⁵⁾	500 000 ³⁾
230 VAC	30/3 A	AC15 ⁶⁾	0.50 Hz	50%	1 ⁵⁾	200 000
220 VAC	5.10 A	$\cos \varphi = 0.60$	0.20 Hz	50%	1 ⁵⁾	100 000 ³⁾
220 VAC	4.43 A	$\cos \varphi = 0.35$	0.20 Hz	10%	1 ⁵⁾	100 000 ³⁾
220 VAC	1.45 A	$\cos \varphi = 0.35$	0.20 Hz	50%	1 ⁵⁾	300 000 ³⁾
28 VDC	8 A	resistive	0.20 Hz	50%	2 ⁴⁾	400 000
30 VDC	2 A	resistive	0.20 Hz	10%	2 ⁵⁾	1 Mio. ³⁾
24 VDC	6 A	DC 13 ⁶⁾	0.33 Hz	50%	3 ⁵⁾	50 000 ³⁾

3) Ambient temperature +70 °C 4) Breathing hole closed 5) Breathing hole open 6) EN 60 947-5-1: 1991, table C.2