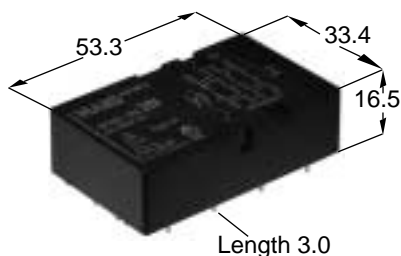


# NAiS

## POLARISED, MONOSTABLE RELAY WITH FORCIBLY GUIDED DOUBLE CONTACTS

# SF4D-RELAY



Tolerance  $\pm 0.3$   
Weight approx 47 g

- Relay complying with EN 50 205, Type B
- TÜV / UL / CSA / SEV
- 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

### Characteristics

Contact configuration (a = normally open, b = normally closed)	4a 4b
Contact material	AgSnO <sub>2</sub> with Au flash
Volume resistance (initial at 6 V DC, 1A)	m 30
Making and breaking capacities according EN 60947-5-1: 1997, table 4 AC15/DC13 <sup>1)</sup>	6 A 250 V / 3 A 24 V
Max. switching voltage	V 400
Min. switching voltage / min. switching current	V / mA 10 / 10
Pick-up / nominal power consumption at 20°C	mW 280 / 500
Pick-up/drop-out voltage in % of nominal voltage at 20°C	% 75 / 15
Pick-up/drop-out/bounce time (approx. values at U <sub>rated</sub> )	ms 18.5 / 7.5 / 3
Max. switching frequency (without load)	Hz 10
Mechanical operation life (electrical life see below)	ops 10 <sup>7</sup>
Permissible ambient temperature at rated power consumption	°C -40 / +70
Upper temperature limit	°C 105
Test voltage open contact / contact-contact / contact-coil	V <sub>rms</sub> 1300 / 2500 / 2500
Insulation resistance at 500 V DC (initial)	10 <sup>9</sup>
Shock resistance (11 ms) <sup>2)</sup>	g 30
Vibration resistance 10 – 200 Hz (10 – 55 Hz, amplitude 2 mm) <sup>2)</sup>	g 10
Solder bath temperature (max. duration)	°C/s 260 / 5
Degree of protection	IP67 / IP30 <sup>1)</sup>

1) Breathing hole open 2) Contact interruption <10µs

### Ordering information/Coil data

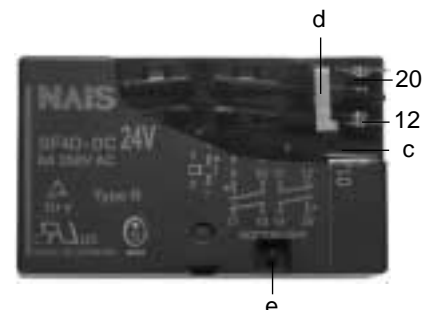
Partnumber	Coil nominal voltage (V)	Pick-up voltage (V)	Drop-out voltage (V)	Coil resistance ( ) $\pm 10\%$ , 20°C	Coil inductance (mH)
SF4D-5V	5	3.75	0.75	50	47
SF4D-9V	9	6.75	1.35	162	145
SF4D-12V	12	9	1.8	288	252
SF4D-18V	18	13.5	2.7	648	551
SF4D-21V	21	15.75	3.15	882	742
SF4D-24V	24	18	3.6	1152	959
SF4D-36V	36	27	5.4	2592	2097
SF4D-48V	48	36	7.2	4608	3654
SF4D-60V	60	45	9.0	7200	5612

### Electrical life

Voltage	Current	Load type	Frequency	Duty cycle	No. of contacts	No. of ops.
250 V AC	6 A	$\cos \varphi = 1$	0.33 Hz	50%	4 <sup>4)</sup> / 8 <sup>5)</sup>	100 000
230 V AC	6 A	$\cos \varphi = 1$	0.33 Hz	10%	2 <sup>5)</sup>	200 000 <sup>3)</sup>
230 V AC	30/3 A	AC15 <sup>6)</sup>	0.33 Hz	10%	1 <sup>5)</sup>	200 000 <sup>3)</sup>
24 V DC	8 A	resistive	0.33 Hz	10%	2 <sup>5)</sup>	200 000 <sup>3)</sup>
24 V DC	3 A	DC13 <sup>6)</sup>	0.33 Hz	10%	1 <sup>5)</sup>	50 000 <sup>3)</sup>
24 V DC	3 A	L / R = 40 ms	0.33 Hz	10%	1 <sup>5)</sup>	100 000 <sup>3)</sup>

3) Ambient temperature +70°C 4) Breathing hole closed 5) Breathing hole open 6) EN 60947-5-1: 1997; table C.1

### Application notes

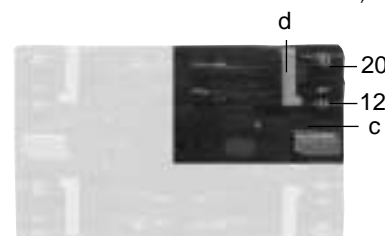


- (12) Inner contact  
(20) Outer contact  
(c) Rotating armature  
(d) Actuator  
(e) Nipple

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.



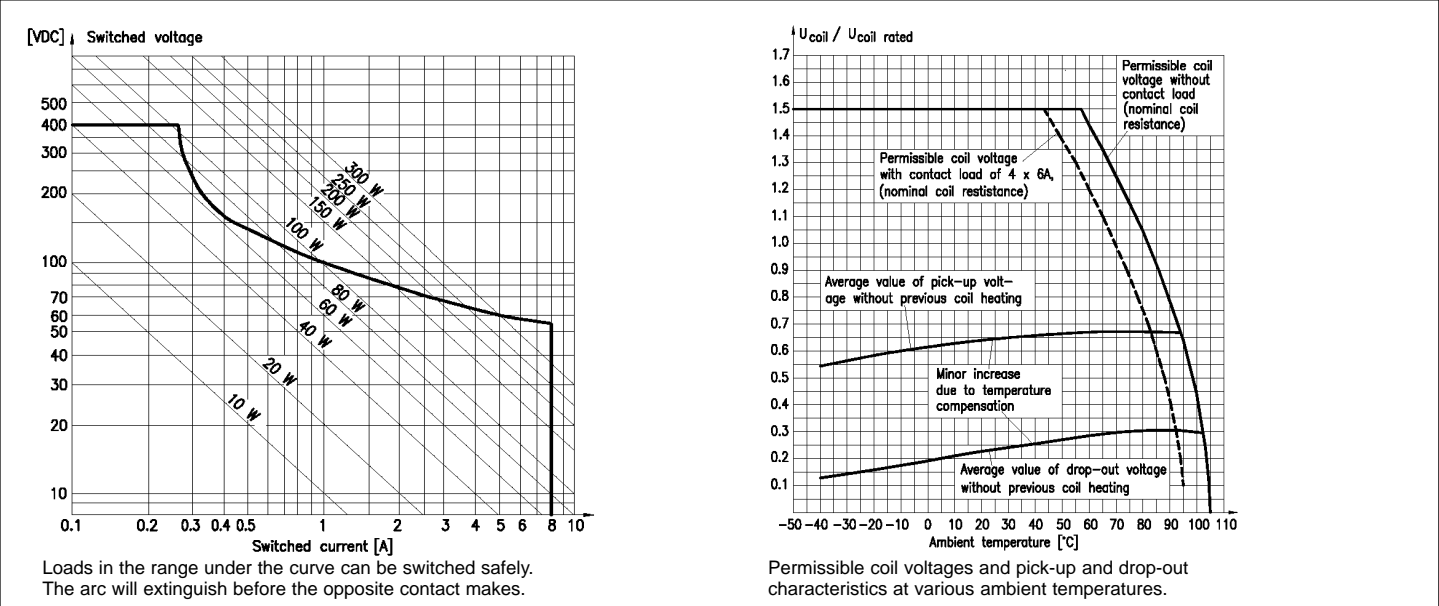
### Relay characteristics are influenced by

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

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

Load limit curve

Coil voltage characteristics



Connection diagram and pcb bore hole data

Contact current characteristics

