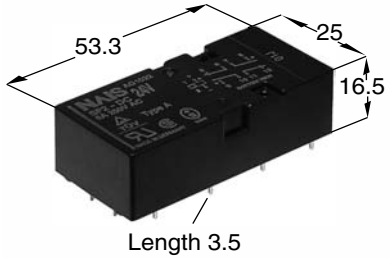
Panasonic
ideas for life

POLARIZED, MONOSTABLE RELAY WITH FORCIBLY GUIDED CONTACTS

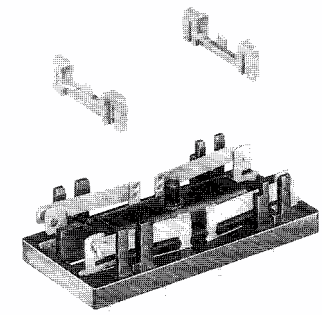
SF2 RELAY



Tolerance ± 0.3
Weight approx 37 g

- **Relay complying with EN 50 205, Type A**
- **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	**400**	**400**	**400**



Characteristics

Contact configuration (a = normally open, b = normally closed)		2a 2b
Contact material		$AgSnO_2$ with Au flash
Volume resistance (initial at 6 V DC, 1A)	mΩ	≤ 30
Making and breaking capacities according EN 60947-5-1: 1997, table 4 AC15 / DC13 [1)]		6A 250 V / 3A 24V
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	%	75/10
Pick-up/drop-out-/bounce time (approx. values at U_{rated})	ms	16/7/2
Max. switching frequency (without load)	Hz	10
Mechanical operation life (electrical life see below)	ops	10^7
Permissible ambient temperature at rated power consumption	°C	-40 / +70
Upper temperature limit	°C	105
Test voltage open contact / contact-contact / contact-coil	V_{rms}	2500 / 2500 / 2500
Insulation resistance at 500 V DC (initial)	Ω	10^9
Shock resistance (11 ms) [2)]	g	30
Vibration resistance 10 – 200 Hz (10 – 55 Hz, amplitude 2 mm) [2)]	g	10
Solder bath temperature (max. duration)	°C/s	260/5
Degree of protection		IP67 / IP30 [1)]

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 (Ω) ± 10%, 20°C	Coil inductance (mH)
SF2-5V	5	3.75	0.5	50	47
SF2-9V	9	6.75	0.9	162	145
SF2-12V	12	9	1.2	288	252
SF2-18V	18	13.5	1.8	648	551
SF2-21V	21	15.75	2.1	882	742
SF2-24V	24	18	2.4	1152	959
SF2-36V	36	27	3.6	2592	2097
SF2-48V	48	36	4.8	4608	3654
SF2-60V	60	45	6	7200	5612

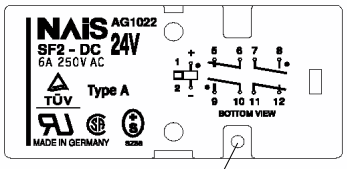
Electrical life

Voltage	Current	Load type	Frequency	Duty cycle	No. of contacts	No. of ops.
250 V AC	8 A	cos φ = 1	0.33 Hz	50%	4 [4)]	30 000 [3)]
250 V AC	6 A	cos φ = 1	0.33 Hz	50%	4 [4)]	100 000 [3)]
250 V AC	2 A	cos φ = 1	0.33 Hz	50%	4 [4)]	500 000 [3)]
220 V AC	30/3 A	AC15 [6)]	0.10 Hz	10%	1 [5)]	200 000 [3)]
220 V AC	5.10 A	cos φ = 0.60	0.20 Hz	10%	1 [5)]	100 000 [3)]
220 V AC	4.43 A	cos φ = 0.35	0.20 Hz	50%	1 [5)]	100 000 [3)]
220 V AC	1.45 A	cos φ = 0.35	0.20 Hz	50%	1 [5)]	300 000 [3)]
24 V DC	6 A	resistive	0.33 Hz	50%	4 [4)]	400 000 [3)]
24 V DC	2 A	resistive	0.50 Hz	50%	4 [4)]	2 Mio. [3)]
24 V DC	3 A	DC13 [6)]	0.33 Hz	10%	1 [5)]	50 000 [3)]
24 V DC	3 A	L / R = 40 ms	0.33 Hz	10%	1 [5)]	100 000 [3)]

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

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

Application notes

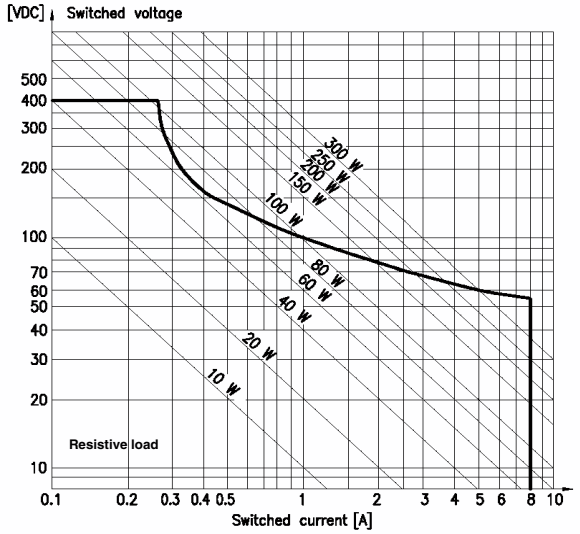


If required a breathing hole can be made in the cover by removing the nipple. However be aware that the degree of protection will reduce from IP67 to IP30!

Relay characteristics are influenced by

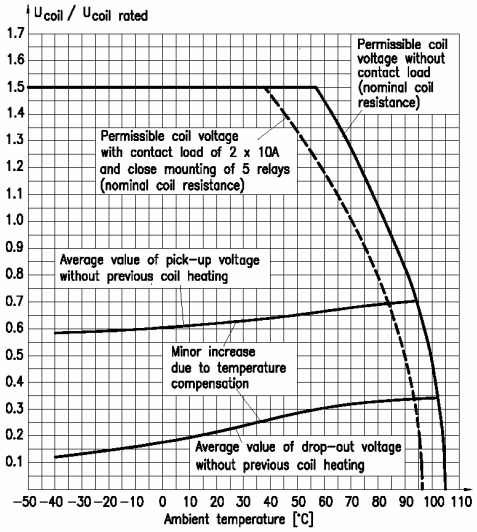
- **strong external magnetic fields**
- **magnetic conductive materials near the relay**
- **narrow top-to-top mounting (printed surface to printed surface)**

Load limit curve



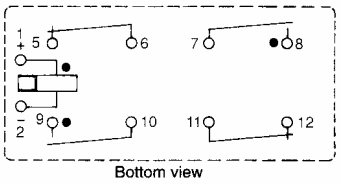
Loads in the range under the curve can be switched safely.
The arc will extinguish before the opposite contact makes.

Coil voltage characteristics



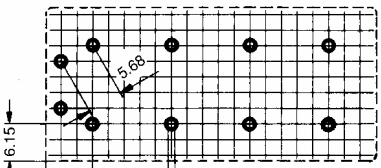
Permissible coil voltages and pick-up and drop-out characteristics at various ambient temperatures.

Connection diagram and pcb bore hole data



The contacts are shown in the deenergized condition.

Bottom view



Grid 2.54

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

Contact current characteristics