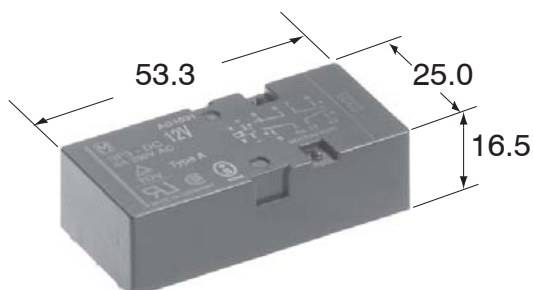


Panasonic
ideas for life

**POLARIZED, MONOSTABLE
SAFETY RELAY WITH
FORCIBLY GUIDED
CONTACTS**

SF3 RELAY



Tolerance $\pm 0.3\text{mm}$
Weight approx. 47g

Features

- Relay complies with EN 50205, Type A
- Overvoltage category as per IEC 60664-1 III / 4kV
- Rated voltage as per IEC 60664-1 basic insulation

	Pollution degree		
	2 inside	2 outside	3 outside
Coil-contact	400V	400V	250V
Contact-contact	400V	400V	400V

SPECIFICATIONS

Contact

Contact configuration (a = normally open / NO, b = normally closed / NC)	3a1b
Contact material	AgSnO ₂ , with Au flash
Contact resistance (initial at 6V DC, 1A)	$\leq 30\text{m}\Omega$
Making and breaking capacities (breathing hole open)*1, *3	6A 250V / 3A 24V
Max. switching voltage	400V
Min. switching voltage / min. switching current	10V / 10mA
Pick-up / drop-out / bounce time (approx. values at U_{nominal})	16.5 / 7 / 3ms
Mechanical life	10^7ops

Coil

Operate / release voltage (% of U_{nominal} at 20°C)	75% / 10%
Pick-up/nominal power consumption at 20°C	280 / 500mW

Remarks

*1 According to EN 60947-5-1: 1997, table 4 AC15 / DC13

*2 Contact interruption $< 10\mu\text{s}$

*3 Breathing hole open

Characteristics

Max. switching frequency (without load)	10Hz
Permissible ambient temperature at nominal power consumption	-40°C to +70°C
Upper temperature limit	105°C
Test voltage: open contact / contact-contact / contact-coil	2500 / 2500 / 2500V _{rms}
Insulation resistance at 500V DC (initial)	$10^9\Omega$
Shock resistance (11ms) NO/NC*2	30G
Vibration resistance 10 – 200 Hz (10 – 55 Hz, amplitude 2 mm)*2	10G
Solder bath temperature, maximum duration	260°C, 5s
Degree of protection	IP67 / IP30*3
Unit weight	37g

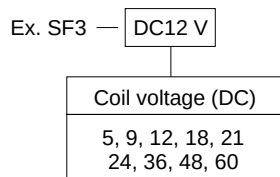
Important: Relay characteristics may be influenced by:

- 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.

ORDERING INFORMATION



Note: Standard packing; Carton: 20 pcs. Case 200 pcs.

COIL DATA

Part number	Coil nominal voltage V DC	Operate voltage V DC	Release voltage V DC	Coil resistance Ω ($\pm 10\%$, 20°C)	Coil inductance (mH)
SF3-5V	5	3.75	0.5	50	47
SF3-9V	9	6.75	0.9	162	145
SF3-12V	12	9.00	1.2	288	252
SF3-18V	18	13.50	1.8	648	551
SF3-21V	21	15.75	2.1	882	742
SF3-24V	24	18.00	2.4	1152	959
SF3-36V	36	27.00	3.6	2592	2097
SF3-48V	48	36.00	4.8	4608	3654
SF3-60V	60	45.00	6.0	7200	5612

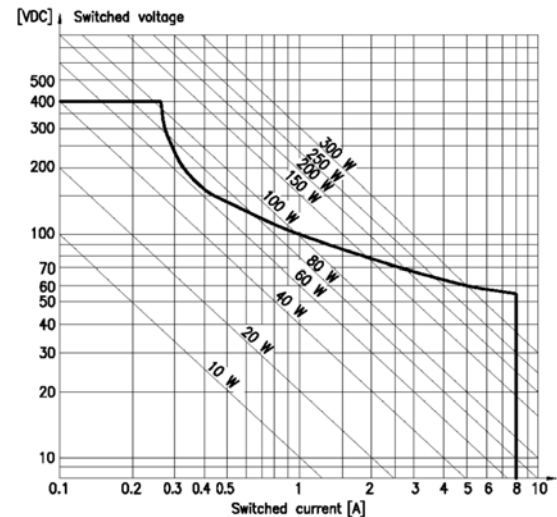
ELECTRICAL LIFE

Voltage	Current	Load type	Frequency	Duty cycle	No. of contacts	No. of ops.
250V AC	8A	$\cos \varphi = 1$	0.33Hz	50%	2 ^{*2,*6}	30,000 ^{*4,*5}
250V AC	6A	$\cos \varphi = 1$	0.33Hz	50%	4 ^{*2}	100,000 ^{*4,*5}
250V AC	2A	$\cos \varphi = 1$	0.33Hz	50%	4 ^{*2}	500,000 ^{*4,*5}
220V AC	30 / 3A	AC 15 ^{*1}	0.10Hz	10%	1 ^{*3}	200,000 ^{*4,*5}
220V AC	5.10A	$\cos \varphi = 0.60$	0.20Hz	10%	1 ^{*3}	100,000 ^{*4,*5}
220V AC	4.43A	$\cos \varphi = 0.35$	0.20Hz	50%	1 ^{*3}	100,000 ^{*4,*5}
220V AC	1.45A	$\cos \varphi = 0.35$	0.20Hz	50%	1 ^{*3}	300,000 ^{*4,*5}
24V DC	6A	resistive	0.33Hz	50%	4 ^{*2}	400,000 ^{*4,*5}
24V DC	2A	resistive	0.50Hz	50%	4 ^{*2}	2,000,000 ^{*4,*5}
24V DC	3A	DC 13 ^{*1}	0.33Hz	10%	1 ^{*3}	50,000 ^{*4,*5}
24V DC	3A	L/R = 40ms	0.33Hz	10%	1 ^{*3}	100,000 ^{*4,*5}

*1 EN 60947-5-1: 1997; table C.1
*2 Breathing hole closed
*3 Breathing hole open
*4 Ambient temperature +70°C
*5 Dielectric strength according to EN61810-1:2004.
*6 Normally open contacts

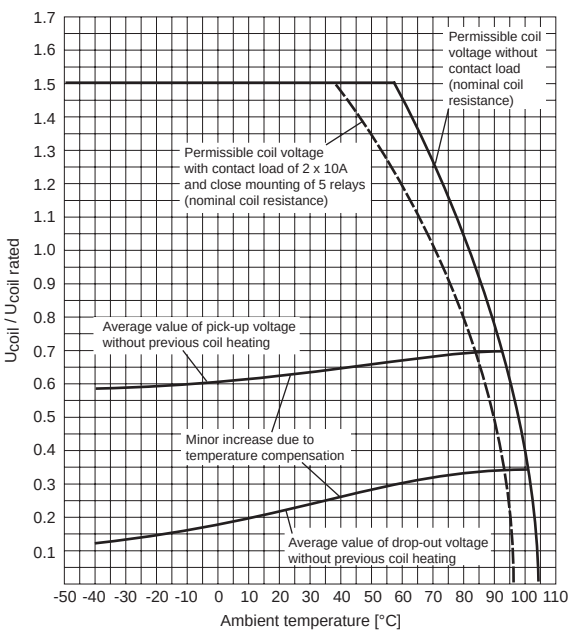
REFERENCE DATA

Load limit curve



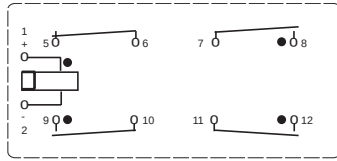
Loads in the range under the curve can be switched safely. The arc will extinguish before the opposite contact makes.

Coil voltage characteristics



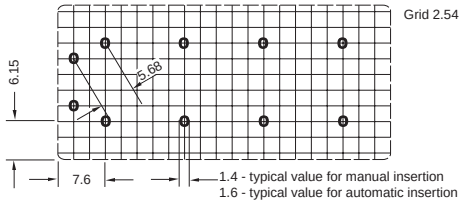
Permissible coil voltages and pick-up and drop-out characteristics at various ambient temperatures.

Connection diagram and pcb bore hole data

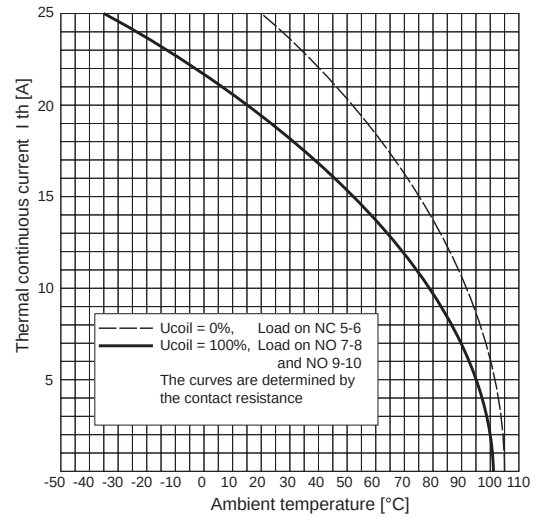


Bottom view

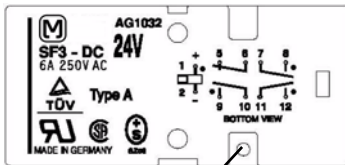
The contacts are shown in the deenergized condition.



Contact current characteristics



APPLICATION NOTES



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!

For Cautions for Use, see [Relay Technical Information](#).