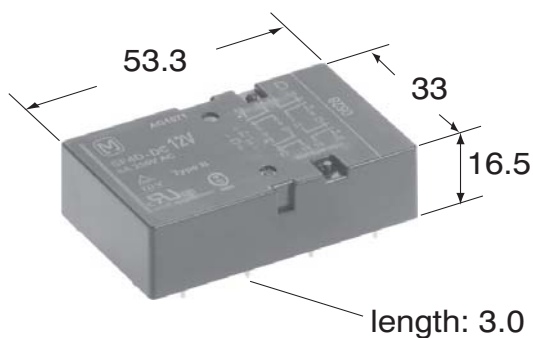


Panasonic
ideas for life

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

**SF4D
RELAY**



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

Features

- Relay complies with EN 50205, Type B
- 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 inside |
| Coil-contact | 400V | 400V | 250V |
| Contact-contact | forcibly linked pair only | 250V | 250V |
| | all other contacts | 400V | 400V |

SPECIFICATIONS

Contact

| | |
|--|------------------------------------|
| Contact configuration (a = normally open / NO, b = normally closed / NC) | 4a4b |
| 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} | 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}) | 18.5 / 7.5 / 3ms |
| Mechanical life | 10 ⁷ ops |

Coil

| | |
|---|-------------|
| Operate / release voltage (% of U _{nominal} at 20°C) | 75% / 15% |
| 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 μs
 *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 Ω |
| Shock resistance (11ms) NO/NC ^{*2} | 30G |
| Vibration resistance 10 – 200 Hz (10 – 55 Hz, amplitude 2 mm) ^{*2} | 10G |
| Degree of protection | IP67 / IP30 ^{*3} |
| Unit weight | 47g |

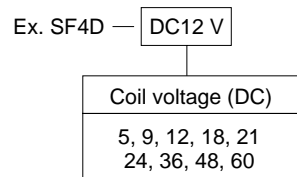
Important: Relay characteristics may be influenced by:

- 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.

SF4D

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) |
|-------------|------------------------------|-------------------------|-------------------------|--|-------------------------|
| SF4D-DC5V | 5 | 3.75 | 0.75 | 50 | 47 |
| SF4D-DC9V | 9 | 6.75 | 1.35 | 162 | 145 |
| SF4D-DC12V | 12 | 9.00 | 1.80 | 288 | 252 |
| SF4D-DC18V | 18 | 13.50 | 2.70 | 648 | 551 |
| SF4D-DC21V | 21 | 15.75 | 3.15 | 882 | 742 |
| SF4D-DC24V | 24 | 18.00 | 3.60 | 1152 | 959 |
| SF4D-DC36V | 36 | 27.00 | 5.40 | 2592 | 2097 |
| SF4D-DC48V | 48 | 36.00 | 7.20 | 4608 | 3654 |
| SF4D-DC60V | 60 | 45.00 | 9.00 | 7200 | 5612 |

ELECTRICAL LIFE

| Voltage | Current | Load type | Frequency | Duty cycle | No. of contacts | No. of ops. |
|---------|---------|---------------------|-----------|------------|-----------------------------------|--------------------------|
| 230V AC | 8A | AC 1 | 0.25Hz | 25% | 4 ^{*2} | 85,000 ^{*5} |
| 250V AC | 6A | AC 1 | 0.33Hz | 50% | 4 ^{*2} / 8 ^{*3} | 100,000 ^{*5} |
| 230V AC | 6A | AC 1 | 0.33Hz | 10% | 2 ^{*3} | 200,000 ^{*4,*5} |
| 230V AC | 30 / 3A | AC 15 ^{*1} | 0.33Hz | 10% | 1 ^{*3} | 200,000 ^{*4,*5} |
| 24V DC | 8A | DC 1 | 0.33Hz | 10% | 2 ^{*3} | 200,000 ^{*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

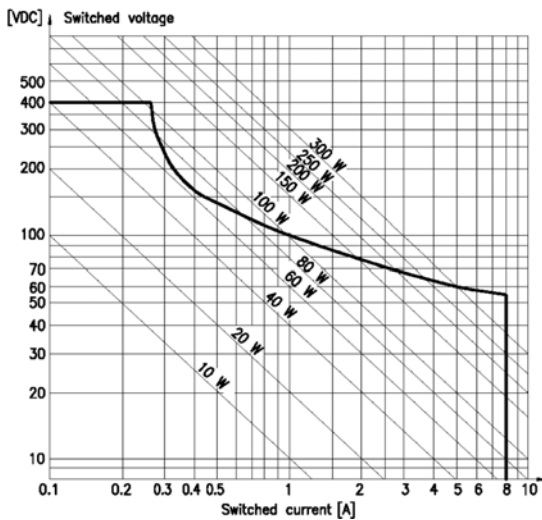
*3 Breathing hole open

*4 Ambient temperature +70°C

*5 Dielectric strength according to EN61810-1:2004.

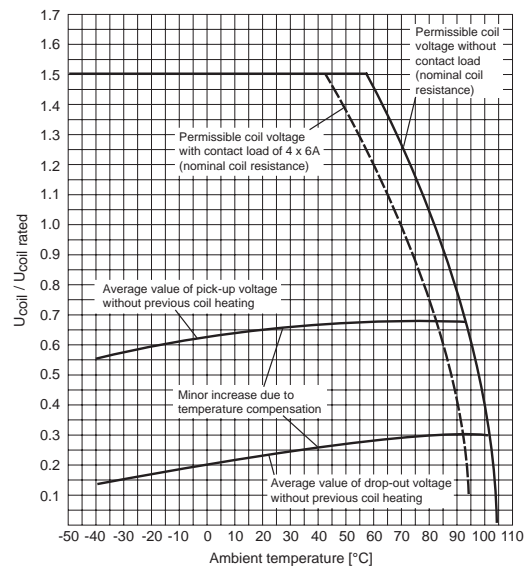
REFERENCE DATA

Load limit curve



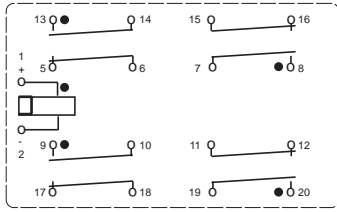
Loads in the range under the curve can be switched safely. The arc will extinguish before the opposite contact makes.

Coil voltage characteristics

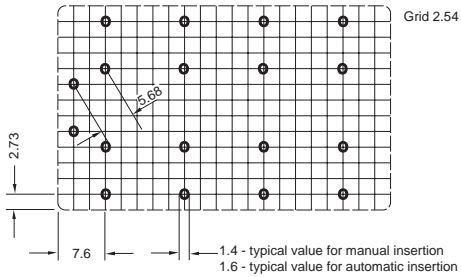


Permissible coil voltages and pick-up and drop-out characteristics at various ambient temperatures.

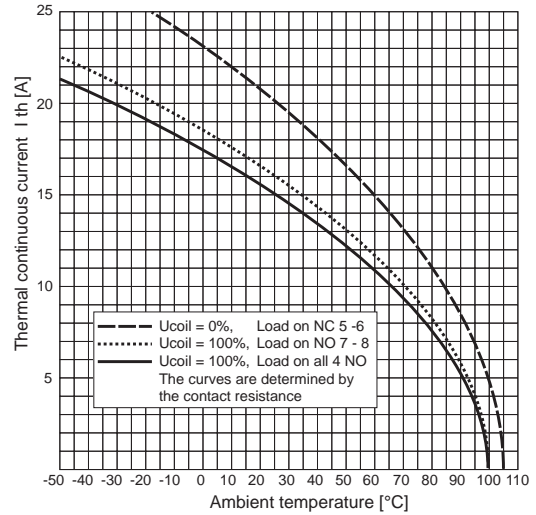
Connection diagram and pcb bore hole data



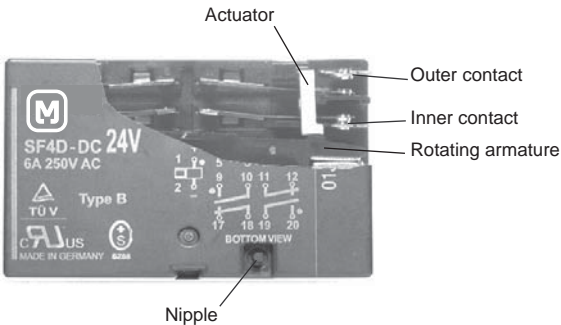
Bottom view
The contacts are shown in the deenergized condition.



Contact current characteristics



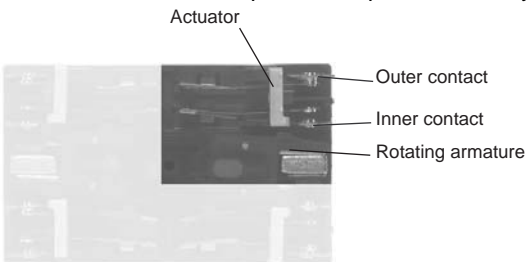
APPLICATION NOTES



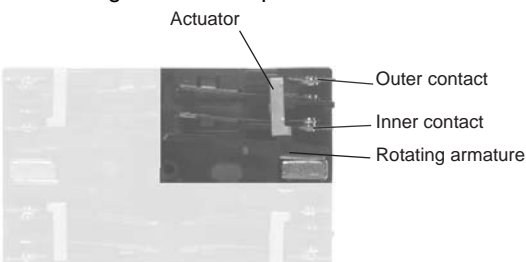
If required a breathing hole can be made in the cover by removing the nipple. However be aware that the degree of protection will reduce from IP67 to IP30!

Operation of forcibly guided contacts, Type B

If an outer contact should weld, then the forced operated inner contacts driven by the actuator remain open. The rotating armature remains free to move. The unaffected contact pairs can operate normally, i.e. their function to make or break remains unaffected.



If an inner contact should weld, then the movement of the rotating armature is blocked via the actuator. Open contacts of all four contact pairs remain open. This arrangement corresponds to a conventional forcibly guided contact operation.



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