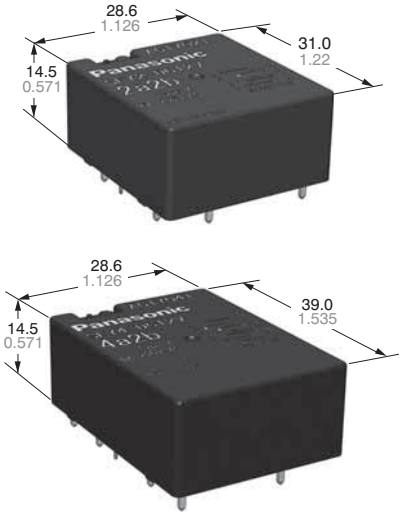
Panasonic
ideas for life

COMPACT RELAY FAMILY WITH FORCIBLY GUIDED CONTACTS

SF-Y RELAY



mm inch

FEATURES

- **Relay complies with EN 50205, Type A**
- **Small PC board area**
- **Different contact configurations:**

Type	l x b x h (mm)
2a2b, 3a1b	31.0 x 28.6 x 14.5
4a2b, 5a1b	39.0 x 28.6 x 14.5

- **Low profile: 14.5mm**
- **Insulation according to EN 60664-1:**
  Overvoltage category III,
  pollution degree 2, 250V AC
  Reinforced insulation:
  Clearance and creepage 5.5mm between all contacts and between contact NO4 and coil
  Basic insulation:
  Clearance 3mm and creepage 4mm between all contacts and between contact NC3 and coil

TYPICAL APPLICATIONS

- Emergency stop switches
- Machine safety engineering
- Safety control units
- Automation technology
- Elevators
- Cable cars
- Escalators
- Process technology
- Railway and signal technology
- Medical technology
- Conveyance
- Overcurrent protection with monitor contact

SPECIFICATIONS

Contact

Item		4 poles	6 poles
Contact arrangement		2 Form A / 2 Form B 3 Form A / 1 Form B	4 Form A / 2 Form B 5 Form A / 1 Form B
Forcibly guided contacts		all contacts: Type A, EN 50205	
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)		100 mΩ	
Contact material		Gold-flashed AgNi alloy type	
Rating (resistive load)	Nominal switching capacity	6 A 250 V AC, 6 A 30 V DC	
	Max. switching power	1,500 VA, 180 W	
	Max. switching voltage	250 V AC, 30 V DC	
	Max. switching current	6 A	
	Min. switching capacity (Reference value) #1	10 mA 10 V DC	
Expected life (min. operations)	Mechanical (at 180 cpm)	10^7	
	Electrical	250 V AC 6 A resistive load: 10^5 (at 20 cpm)	
Degree of protection		RT III#2	

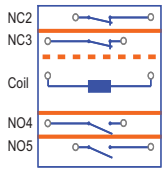
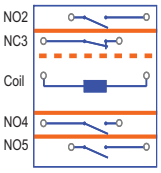
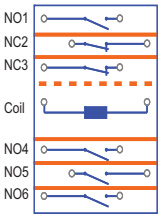
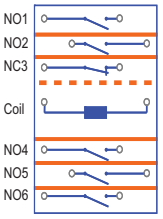
#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.
#2 According to EN 61810-1: 2010, table 2

Coil

Item	4 poles	6 poles
	2 Form A / 2 Form B 3 Form A / 1 Form B	4 Form A / 2 Form B 5 Form A / 1 Form B
Operate / release and holding at 20°C 68°F (% of $U_{nominal}$)	75% / 15% min. 60%	
Nominal operating power	670 mW	

SF-Y

Insulation

2a2b	3a1b	4a2b	5a1b
			

= Reinforced insulation: overvoltage category III, pollution degree 2, 250V AC
Clearance and creepage distance 5.5mm between all contacts and between contact NO4 and coil
= Basic insulation: overvoltage category III, pollution degree 3, 250V AC
Clearance distance 3mm and creepage distance 4mm between all contacts and between contact NC3 and coil

Characteristics (at 20°C 68°F)

Item		4 poles	6 poles
		2 Form A / 2 Form B 3 Form A / 1 Form B	4 Form A / 2 Form B 5 Form A / 1 Form B
Max. operating speed		20 cpm (at nominal voltage)	
Initial insulation resistance		Min. 1,000 MΩ at 500 V DC	
Initial breakdown voltage	At open contact	1,500 Vrms for 1 min.	
	Between contacts	4,000 Vrms for 1 min.: NC2, NO2 / NC3 NO4 / NO5	4,000 Vrms for 1 min.: NO1 / NC2, NO2 NC2, NO2 / NC3 NO4 / NO5 NO5 / NO6
	Between contact and coil	2,500 Vrms for 1 min.: NC3	
		4,000 Vrms for 1 min.: NO4	
Operate time (at nominal voltage)		Max. 20 ms	
Release time (at nominal voltage)		Max. 10 ms	
Shock resistance	Functional	200 m/s²	
	Destructive	1,000 m/s²	
Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5 mm (detection time: 10μs)	
	Destructive	10 to 55 Hz at double amplitude of 1.5 mm	
Conditions for operation, transport and storage (Not freezing and condensing at low temperature)	Ambient temp.	–40°C to +70°C –40°F to +158°F	
	Humidity	5 to 85% R.H.	
Unit weight		Approx. 19 g Approx. 0.67 oz	Approx. 23 g Approx. 0.81 oz

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)

ORDERING INFORMATION

SFY □ – □

Contact arrangement	Rated coil voltage
2: 2 Form A / 2 Form B 3: 3 Form A / 1 Form B 4: 4 Form A / 2 Form B 5: 5 Form A / 1 Form B	DC 5, 12, 18, 21, 24V

Note: Standard packing: Tube 20 pcs.
Please inquire about other coil voltages.
Gold-clad contact type available on request.

TYPES

Contact arrangement		Nominal voltage	Part No.
4 poles	2 Form A / 2 Form B	5 V DC	SFY2-DC5V
		12 V DC	SFY2-DC12V
		18 V DC	SFY2-DC18V
		21 V DC	SFY2-DC21V
		24 V DC	SFY2-DC24V
	3 Form A / 1 Form B	5 V DC	SFY3-DC5V
		12 V DC	SFY3-DC12V
		18 V DC	SFY3-DC18V
		21 V DC	SFY3-DC21V
		24 V DC	SFY3-DC24V
6 poles	4 Form A / 2 Form B	5 V DC	SFY4-DC5V
		12 V DC	SFY4-DC12V
		18 V DC	SFY4-DC18V
		21 V DC	SFY4-DC21V
		24 V DC	SFY4-DC24V
	5 Form A / 1 Form B	5 V DC	SFY5-DC5V
		12 V DC	SFY5-DC12V
		18 V DC	SFY5-DC18V
		21 V DC	SFY5-DC21V
		24 V DC	SFY5-DC24V

COIL DATA (at 20°C 68°F)

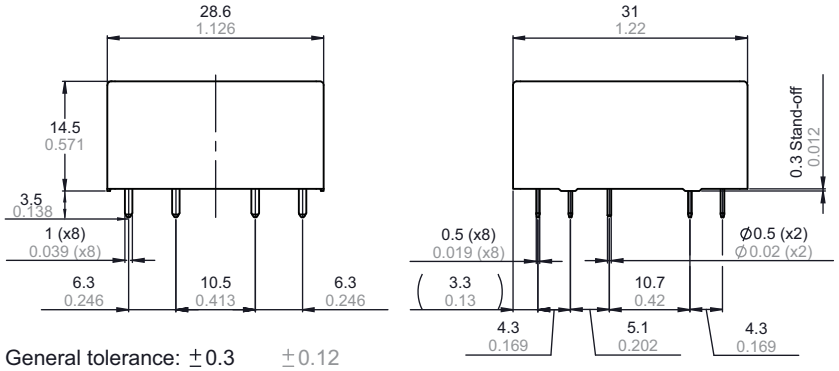
Contact arrangement		Nominal voltage, V DC	Pick-up voltage, V DC (max.) (initial)	Drop-out voltage, V DC (min.) (initial)	Nominal operating current, mA (±10%)	Coil resistance Ω (±10%)	Nominal operating power, mW	Max. allowable voltage, V DC
4 poles	2 Form A / 2 Form B	5	3.75	0.75	134	38	Approx. 670	6
		12	9.00	1.8	56	215		14.4
		18	13.50	2.7	37	483		21.6
		21	15.75	3.15	32	666		25.2
		24	18.00	3.6	28	864		28.8
	3 Form A / 1 Form B	5	3.75	0.75	134	38		6
		12	9.00	1.8	56	215		14.4
		18	13.50	2.7	37	483		21.6
		21	15.75	3.15	32	666		25.2
		24	18.00	3.6	28	864		28.8
6 poles	4 Form A / 2 Form B	5	3.75	0.75	134	38		6
		12	9.00	1.8	56	215		14.4
		18	13.50	2.7	37	483		21.6
		21	15.75	3.15	32	666		25.2
		24	18.00	3.6	28	864		28.8
	5 Form A / 1 Form B	5	3.75	0.75	134	38		6
		12	9.00	1.8	56	215		14.4
		18	13.50	2.7	37	483		21.6
		21	15.75	3.15	32	666		25.2
		24	18.00	3.6	28	864		28.8

DIMENSIONS mm inch

Download CAD Data from our Web site.

1. 4 poles (2 Form A / 2 Form B, 3 Form A / 1 Form B)

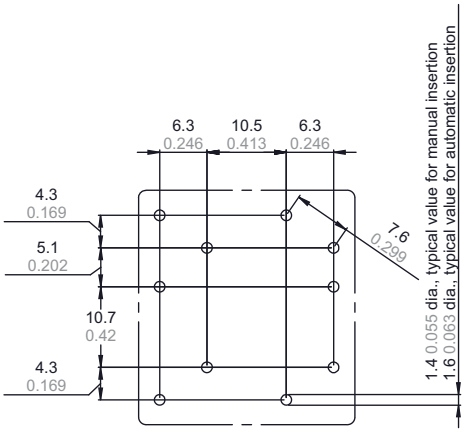
CAD Data



General tolerance: ±0.3 ±0.12

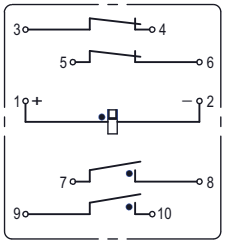
Projection mode:

PC board pattern (Bottom view)

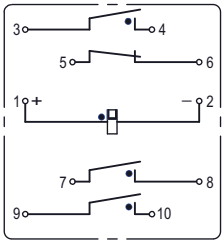


Tolerance: ±0.1 ±0.04

Schematic (Bottom view)



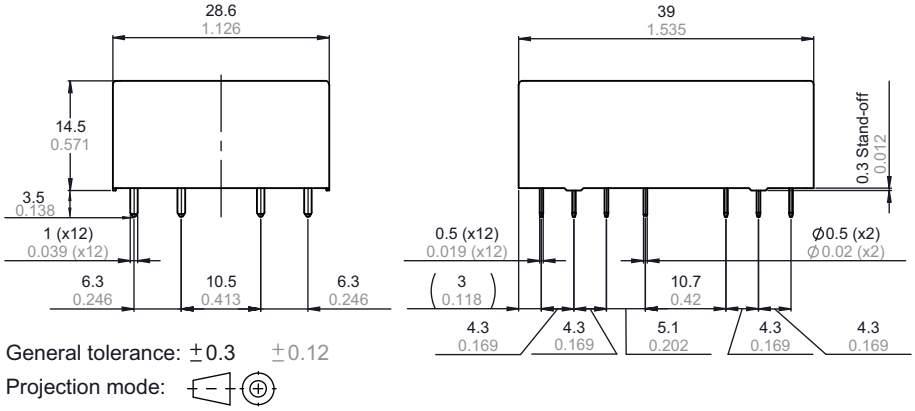
(2 Form A / 2 Form B)



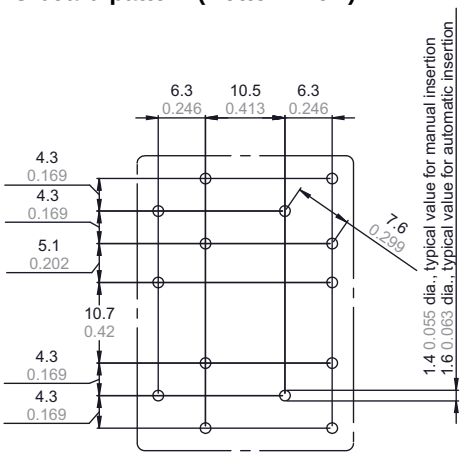
(3 Form A / 1 Form B)

2. 6 poles (4 Form A / 2 Form B, 5 Form A / 1 Form B)

CAD Data

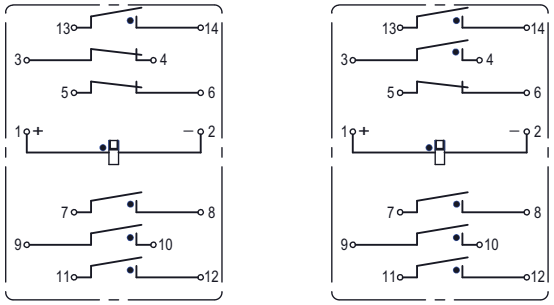


PC board pattern (Bottom view)



Tolerance: ±0.1 ±0.04

Schematic (Bottom view)



(4 Form A / 2 Form B) (5 Form A / 1 Form B)

SAFETY STANDARDS

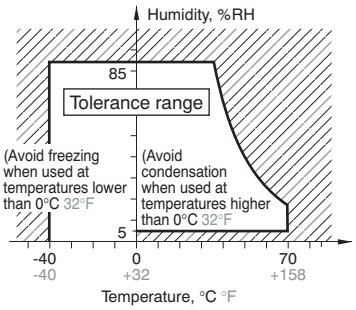
Certification authority	File No.	Applicable standard	Rating	Remarks
TÜV	tbd.	EN 61810-1 EN 50205	230V AC 6A (cos φ = 1.0) 70°C 158°F 24V DC 6A resistive	approved
UL, C-UL	E120782	UL508, CSA C22.2 No.14	250V AC 6A, general use, 100K$_{ops}$ 30V DC 6A, general use, 100K$_{ops}$ B300, R300 (pilot duty)	pending

NOTES

Conditions for operation, transport and storage

1) Ambient temperature, humidity, and atmospheric pressure during usage, transport, and storage of the relay:
(1) Temperature:
–40 to +70°C –40 to +158°F
(2) Humidity: 5 to 85% RH
(Avoid freezing and condensation.)
The humidity range varies with the temperature. Use within the range indicated in the graph below.

(3) Atmospheric pressure: 86 to 106 kPa
Temperature and humidity range for usage, transport, and storage:



2) Condensation
Condensation forms when there is a sudden change in temperature under high temperature and high humidity conditions. Condensation will cause deterioration of the relay insulation.
3) Freezing
Condensation or other moisture may freeze on the relay when the temperature is lower than 0°C 32°F. This causes problems such as sticking of movable parts or operational time lags.
4) Low temperature, low humidity environments
The plastic becomes brittle if the relay is exposed to a low temperature, low humidity environment for long periods of time.

For Cautions for Use, see Relay Technical Information.