

NAIS

**COMPACT PC BOARD
POWER RELAY**

JW-RELAYS

UL File No.: E43028

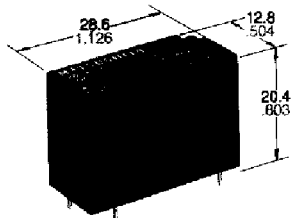
TÜV File No.: 87051645521

CSA File No.: LR26550

VDE File No. VDE-Reg.-Nr. 3586

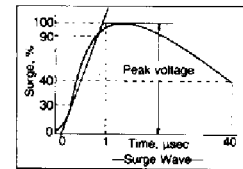
SEMKO File No.: 9041072

SEV



mm inch

- Miniature package with universal terminal footprint
- High dielectric withstanding for transient protection: 10,000 V surge in μ sec. between coil and contact
- Sealed construction
- Class B coil insulation types available
- TV rated types available
- VDE application standards;



	VDE0435	VDE0631	VDE0700
1 Form A			
1 Form C	Approved	Approved	Approved
2 Form A			
2 Form C	Approved	—	—

SPECIFICATIONS

Contact	Standard type	High capacity type
Arrangement	1 Form A, 1 Form C, 2 Form A, 2 Form C	1 Form A, 1 Form C
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)	100 m Ω	
Contact material	Silver alloy	
Rating (resistive load)		
Nominal switching capacity	5 A 250 V AC, 5 A 30 V DC	10 A 250 V AC, 10 A 30 V DC
Max. switching power **	1,250 VA, 150 W	2,500 VA, 300 W
Max. switching voltage	250 VAC, 100 VDC	
Max. switching current	5 A	10 A
UL/CSA rating	5 A 125, 277 V AC 5 A 30 V DC 1/8 HP 125, 250 V AC	10 A 125, 277 V AC 10 A 30 V DC 1/3 HP 125, 250 V AC
TÜV rating	5 A 250 V AC (cos ϕ = 1.0) 3 A 250 V AC (cos ϕ = 0.4) 5 A 30 V DC	10 A 250 V AC (cos ϕ = 1.0) 7 A 250 V AC (cos ϕ = 0.4) 10 A 30 V DC
VDE rating	5 A 250 V ~ (cos ϕ = 1.0) 3 A 250 V ~ (cos ϕ = 0.4) 5 A 30 V =	10 A 250 V ~ (cos ϕ = 1.0) 7 A 250 V ~ (cos ϕ = 0.4) 10 A 30 V =
Expected life (min. ope.)		
Mechanical (at 180 cpm)	5 \times 10 ⁶	
Electrical (at 20 cpm) (Resistive load)	10 ⁵	
Coil		
Nominal operating power	530 mW	

Characteristics	Standard type	High capacity type
Max. operating speed	20 cpm	
Operate time (at nominal voltage)	Approx. 15 msec.	
Release time (at nominal voltage)	Approx. 5 msec.	
Initial insulation resistance	Min. 1,000 M Ω (at 500 V DC)	
Initial breakdown voltage		
Between open contacts	1,000 Vrms for 1 min.	
Between contacts and coil	5,000 Vrms for 1 min.	
Surge voltage between contact and coil	Min. 10,000 V	
Temperature rise, max. (at nominal voltage)	1a: 39 deg. 1c, 2a, 2c: 55 deg.	1a: 45 deg. 1c: 55 deg.
Ambient temperature	-40°C to +60°C -40°F to +140°F	
Shock resistance	Functional	Min. 10 G
	Destruction	Min. 100 G
Vibration resistance	Functional	Approx. 10 G 10 to 55 Hz at double amplitude of 1.6 mm
	Destruction	Approx. 12 G 10 to 55 Hz at double amplitude of 2 mm
Unit weight	Approx. 13 g .46 oz	

TYPICAL APPLICATION

- Home appliances
TV sets, VCR, Microwave ovens
- Office machines
Photocopiers, Vending machines
- Industrial equipment
NC machines, Robots, Temperature controllers

ORDERING INFORMATION

Ex. JW 1 F S N B DC5V

Contact arrangement	Contact capacity	Protective construction	Pick-up voltage	Coil insulation class	Coil voltage
1: 1 Form C 1a: 1 Form A 2: 2 Form C 2a: 2 Form A	Nil: Standard (5 A) F: High capacity (10 A)*	H: Flux-resistant type S: Sealed type	Nil: 80% of nominal voltage N: 70% of nominal	Nil: Class A insulation B: Class B insulation	DC 5, 6, 9, 12, 24, 48 V

* Only for 1 Form A and 1 Form C type

**see load limit curve

- Notes: 1. When ordering TV rated (TV-5) types, add suffix -TV (available only for 1 Form A type).
2. Standard packing: Carton: 100 pcs. Case: 500 pcs.

TYPES

Standard (5 A) types

Contact arrangement	Coil voltage, V DC	70% pick-up voltage type		80% pick-up voltage type	
		Sealed type	Flux-resistant type	Sealed type	Flux-resistant type
1 Form A	5	JW1aSN-DC5V	JW1aHN-DC5V	JW1aS-DC5V	JW1aH-DC5V
	6	JW1aSN-DC6V	JW1aHN-DC6V	JW1aS-DC6V	JW1aH-DC6V
	9	JW1aSN-DC9V	JW1aHN-DC9V	JW1aS-DC9V	JW1aH-DC9V
	12	JW1aSN-DC12V	JW1aHN-DC12V	JW1aS-DC12V	JW1aH-DC12V
	24	JW1aSN-DC24V	JW1aHN-DC24V	JW1aS-DC24V	JW1aH-DC24V
	48	JW1aSN-DC48V	JW1aHN-DC48V	JW1aS-DC48V	JW1aH-DC48V
1 Form C	5	JW1SN-DC5V	JW1HN-DC5V	JW1S-DC5V	JW1H-DC5V
	6	JW1SN-DC6V	JW1HN-DC6V	JW1S-DC6V	JW1H-DC6V
	9	JW1SN-DC9V	JW1HN-DC9V	JW1S-DC9V	JW1H-DC9V
	12	JW1SN-DC12V	JW1HN-DC12V	JW1S-DC12V	JW1H-DC12V
	24	JW1SN-DC24V	JW1HN-DC24V	JW1S-DC24V	JW1H-DC24V
	48	JW1SN-DC48V	JW1HN-DC48V	JW1S-DC48V	JW1H-DC48V
2 Form A	5	JW2aSN-DC5V	JW2aHN-DC5V	JW2aS-DC5V	JW2aH-DC5V
	6	JW2aSN-DC6V	JW2aHN-DC6V	JW2aS-DC6V	JW2aH-DC6V
	9	JW2aSN-DC9V	JW2aHN-DC9V	JW2aS-DC9V	JW2aH-DC9V
	12	JW2aSN-DC12V	JW2aHN-DC12V	JW2aS-DC12V	JW2aH-DC12V
	24	JW2aSN-DC24V	JW2aHN-DC24V	JW2aS-DC24V	JW2aH-DC24V
	48	JW2aSN-DC48V	JW2aHN-DC48V	JW2aS-DC48V	JW2aH-DC48V
2 Form C	5	JW2SN-DC5V	JW2HN-DC5V	JW2S-DC5V	JW2H-DC5V
	6	JW2SN-DC6V	JW2HN-DC6V	JW2S-DC6V	JW2H-DC6V
	9	JW2SN-DC9V	JW2HN-DC9V	JW2S-DC9V	JW2H-DC9V
	12	JW2SN-DC12V	JW2HN-DC12V	JW2S-DC12V	JW2H-DC12V
	24	JW2SN-DC24V	JW2HN-DC24V	JW2S-DC24V	JW2H-DC24V
	48	JW2SN-DC48V	JW2HN-DC48V	JW2S-DC48V	JW2H-DC48V

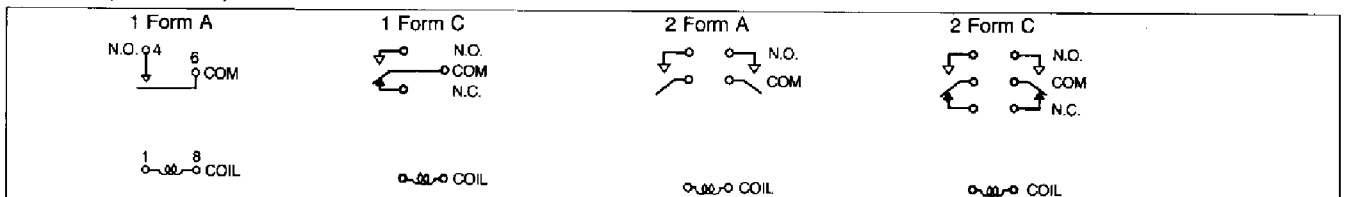
High capacity (10 A) types

Contact arrangement	Coil voltage, V DC	70% pick-up voltage type		80% pick-up voltage type	
		Sealed type	Flux-resistant type	Sealed type	Flux-resistant type
1 Form A	5	JW1aFSN-DC5V	JW1aFHN-DC5V	JW1aFS-DC5V	JW1aFH-DC5V
	6	JW1aFSN-DC6V	JW1aFHN-DC6V	JW1aFS-DC6V	JW1aFH-DC6V
	9	JW1aFSN-DC9V	JW1aFHN-DC9V	JW1aFS-DC9V	JW1aFH-DC9V
	12	JW1aFSN-DC12V	JW1aFHN-DC12V	JW1aFS-DC12V	JW1aFH-DC12V
	24	JW1aFSN-DC24V	JW1aFHN-DC24V	JW1aFS-DC24V	JW1aFH-DC24V
	48	JW1aFSN-DC48V	JW1aFHN-DC48V	JW1aFS-DC48V	JW1aFH-DC48V
1 Form C	5	JW1FSN-DC5V	JW1FHN-DC5V	JW1FS-DC5V	JW1FH-DC5V
	6	JW1FSN-DC6V	JW1FHN-DC6V	JW1FS-DC6V	JW1FH-DC6V
	9	JW1FSN-DC9V	JW1FHN-DC9V	JW1FS-DC9V	JW1FH-DC9V
	12	JW1FSN-DC12V	JW1FHN-DC12V	JW1FS-DC12V	JW1FH-DC12V
	24	JW1FSN-DC24V	JW1FHN-DC24V	JW1FS-DC24V	JW1FH-DC24V
	48	JW1FSN-DC48V	JW1FHN-DC48V	JW1FS-DC48V	JW1FH-DC48V

COIL DATA (at 20°C 68°F)

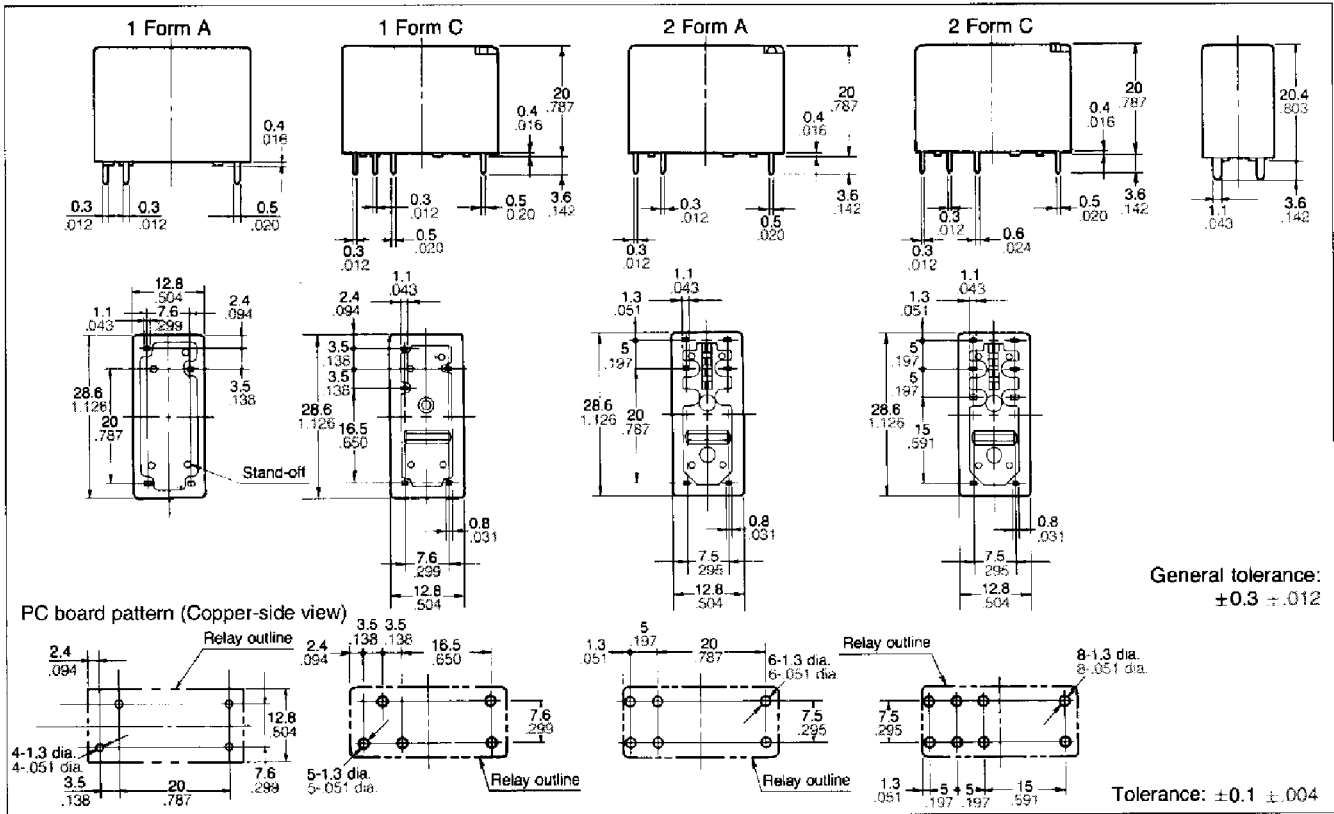
Nominal voltage, V DC	Pick-up voltage, V DC (min.)	Drop-out voltage, V DC (max.)	Nominal operating current, mA (± 10%)	Coil resistance, Ω (± 10%)	Nominal operating power, mW	Max. allowable voltage, (at 60°C 140°F)
5	3.5	0.5	106	47	530	6.5
6	4.2	0.6	88	68		7.8
9	6.3	0.9	58	155		11.7
12	8.4	1.2	44	270		15.6
24	16.8	2.4	22	1,100		31.2
48	33.6	4.8	11	4,400		62.4

Schematic (Bottom view)



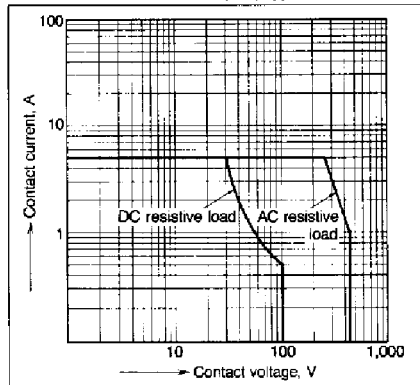
DIMENSIONS

mm inch

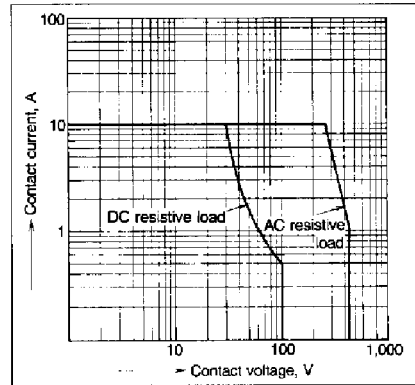


DATA

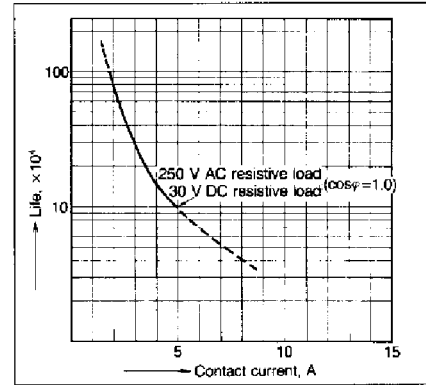
1-(1). Maximum operating power
1 Form A Standard (5 A) type



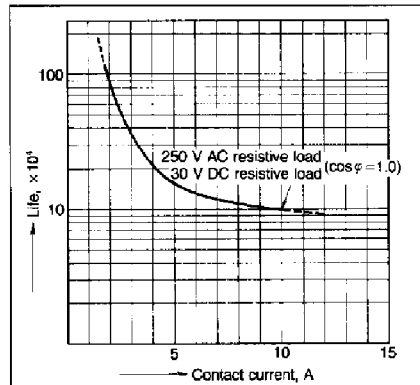
1-(2). Maximum operating power
1 Form A High Capacity (10 A) type



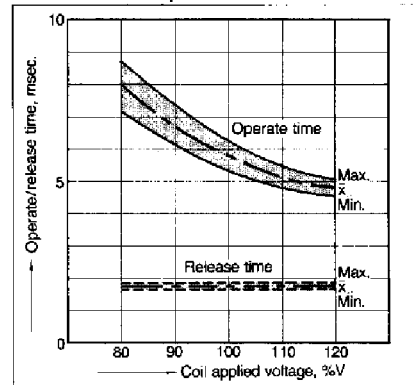
2-(1). Life curve
1 Form A Standard (5 A) type



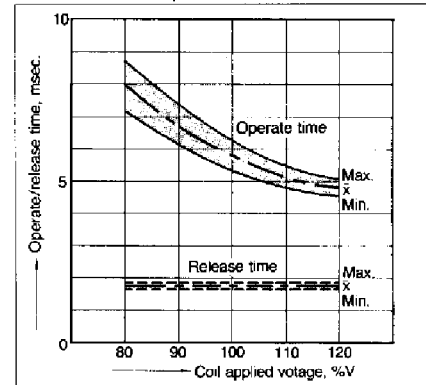
2-(2). Life curve
1 Form A High Capacity (10 A) type



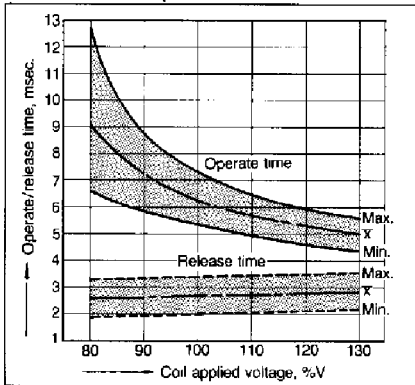
3-(1). Operate/release time
Sample: JW1aHN-DC12V, 10 pcs.
Ambient temperature: 20°C 68°F



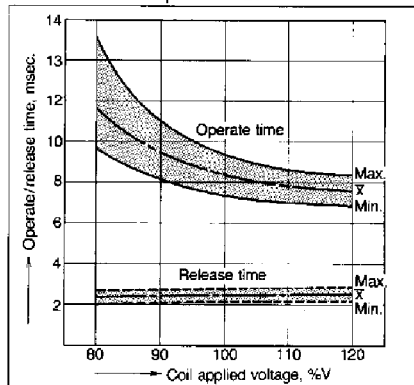
3-(2). Operate/release time
Sample: JW1aFHN-DC12V, 10 pcs.
Ambient temperature: 20°C 68°F



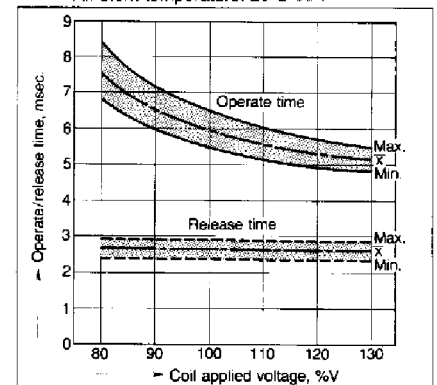
3-(3). Operate/release time
 Sample: JW1S-DC12V, 6 pcs.
 Ambient temperature: 20°C 68°F



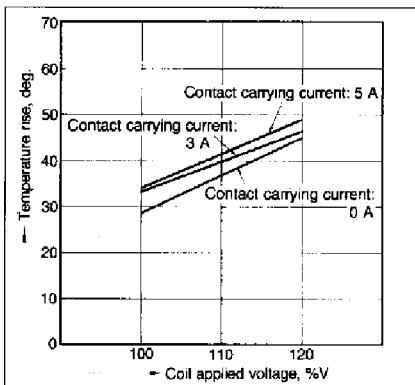
3-(4). Operate/release time
 Sample: JW2aH-DC24V, 6 pcs.
 Ambient temperature: 20°C 68°F



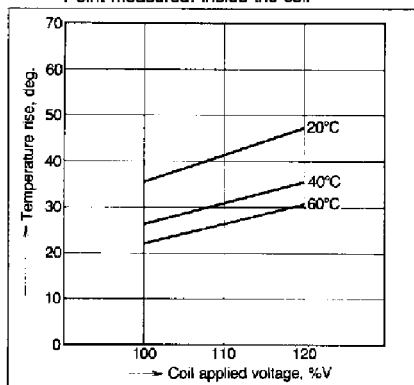
3-(5). Operate/release time
 Sample: JW2S-DC12V, 6 pcs.
 Ambient temperature: 20°C 68°F



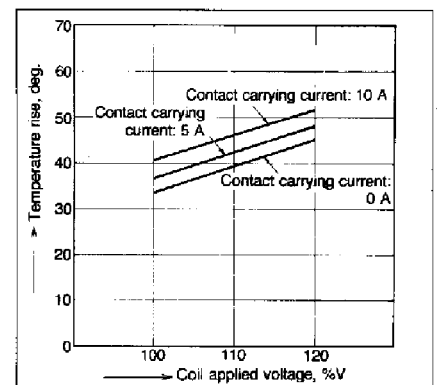
4-(1). Coil temperature rise (at 20°C 68°F)
 Sample: JW1aHN-DC12V, 6 pcs.
 Point measured: Inside the coil



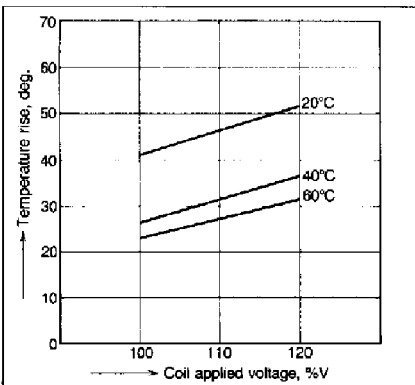
4-(2). Coil temperature rise (at 20°C 68°F)
 (Contact carrying current: 5 A)
 Sample: JW1aHN-DC12V, 6 pcs.
 Point measured: Inside the coil



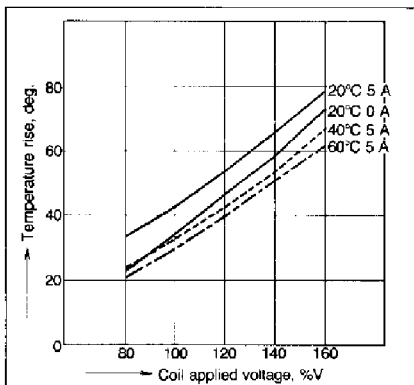
4-(3). Coil temperature rise (at 20°C 68°F)
 Sample: JW1aFHN-DC12V, 6 pcs.
 Point measured: Inside the coil



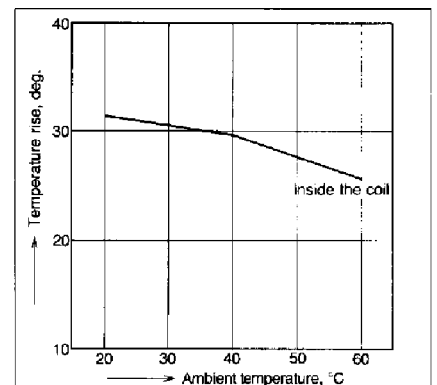
4-(4). Coil temperature rise (at 20°C 68°F)
 (Contact carrying current: 10 A)
 Sample: JW1aFHN-DC12V, 6 pcs.
 Point measured: Inside the coil



4-(5). Coil temperature rise (at 20°C 68°F)
 Sample: JW2aSN-DC12V, 6 pcs.
 Point measured: Inside the coil



5. Ambient temperature vs. temperature rise characteristics
 Sample: JW1FHN-DC12V



NOTES

- To maintain initial performance, care should be taken to avoid dropping or hitting the relay.
- Avoid using in the location where there is excessive dust or organic gas such as SO₂ gas and H₂S gas. Note that switching contact in a silicon atmosphere can result in contact failure.
- The voltage applied to coil should not exceed the maximum allowable voltage.
- The voltage applied to coil should be nominal voltage with rectangular wave.
- The switching voltage and current to the contact should not exceed the rated value.
- The rated contact capacity and life are typical values. Since contact phenomena and life vary depending on kinds of load and other conditions, please examine them through actual conditions.
- Relays should be used within the rated ambient temperature.
- For automatic cleaning, use sealed types. It is recommended that fluorinated hydrocarbon or other alcoholic solvent be used, and that the ultrasonic cleaning be avoided.
- Avoid bending terminals, because it may cause malfunction.