

RN Series Miniature Power Relays

High performance relays with up to 5A (DPDT) contacts.

RN Series

Style	LED	Part No.		Coil Rated Voltage
		DPDT	4PDT	
Standard	Available	RN2S-NL-□	RN4S-NL-□	A24, A115, A220, A230, A240 D12, D24, D48, D110
	Not Available	RN2S-NF-□	RN4S-NF-□	A24, A115, A220, A230, A240 D24, D110
Long life	Available	RN2S-HNL-□	RN4S-HNL-□	A24, A115, A220 D24, D48, D110
	Available	RN2S-SNL-□	RN4S-SNL-□	A24, A115, A220 D24, D48, D110

• Specify a coil rated voltage in place of □ in the Part No.

Part No. Structure

RN4S-HNL-D24			
Contact Configuration	LED	Coil Voltage Code	
2: DPDT		A24: 24V AC	D12: 12V DC
4: 4PDT		A115: 115V AC	D24: 24V DC
Contact Material	F: Without LED	A220: 220V AC	D48: 48V DC
Blank: Ag alloy	L: With LED	A230: 230V AC	D110: 110V DC
H: Ag alloy		A240: 240V AC	
S: Ag alloy+Au			

Contact Ratings

Contact	Continuous Current	Allowable Contact Power			Rated Load			
		Resistive Load	Inductive Load		Voltage (V)	Resistive Load (Note)	Inductive Load cos ϕ = 0.4 L/R=7ms	
			RN□S-NL RN□S-NF	RN□S-SNL RN□S-HNL			RN□S-NL RN□S-NF	RN□S-SNL RN□S-HNL
DPDT	5A	1,250VA AC	375VA AC	875VA AC	250 AC	5A	1.5A	3.5A
		150W DC		105W DC	30 DC	5A	—	3.5A
4PDT	3A	750VA AC	250VA AC	500VA AC	250 AC	3A	1A	2A
		90W DC		60W DC	30 DC	3A	—	2A

Approval Ratings

UL and c-UL Ratings

Voltage	Resistive		General Use	
	RN4S	RN2S	RN4S	RN2S
250V AC	3A	5A	3A	5A
30V DC	3A	5A	—	—

TÜV Ratings

Voltage	Resistive	
	RN4S	RN2S
250V AC	3A	5A
30V DC	3A	5A

Coil Ratings

Rated Voltage (V)		Coil Voltage Code	Rated Current (mA) ±10% (110V or more, ±15%) (Reference Value)				Coil Resistance (Ω) ±10% (110V or more, ±15%) at 20°C	Operating Characteristics (against rated values at 20°C)			Power Consumption
			RN□S-NL RN□S-SNL RN□S-HNL		RN□S-NF			Maximum Continuous Applied Voltage	Minimum Pickup Voltage	Dropout Voltage	
			50 Hz	60 Hz	50 Hz	60 Hz					
AC (50/60 Hz)	24	A24	54.8	47.0	53.8	46.0	180	110% of rated voltage	80% maximum	30% minimum	Approx. 1.2VA
	115	A115	11.7	10.0	10.8	9.2	4,430				
	220	A220	7.6	6.6	6.8	5.8	13,000				
	230	A230	6.4	5.9	5.5	5.0	16,500				
	240	A240	6.3	5.6	5.3	4.6	18,790				
DC	12	D12	71.2		66.7		180	110% of rated voltage	80% maximum	10% minimum	Approx. 0.9W
	24	D24	42.6		37.5		640				
	48	D48	23.5		18.5		2,600				
	110	D110	13.4		8.5		13,000				

Specifications

Model (Contact)		RN□S-NL, RN□S-NF		RN□S-HNL	RN□S-SNL
Contact Material		Ag alloy			Ag alloy + Au
Min. applicable load (*1)		24V DC 10mA			5V DC 1mA
Contact Resistance (*2)		100 mΩ maximum			
Operate Time (*3)		20 ms maximum			
Release Time (*3)		20 ms maximum			
Power Consumption (approx.)		AC: 1.2 VA DC: 0.9 W			
Insulation Resistance		100 MΩ minimum (500V DC megger)			
Dielectric Strength	Between contact and coil	2,000V AC, 1 minute			
	Between contacts of the same pole	1,000V AC, 1 minute			
	Between contacts of different poles	2,000V AC, 1 minute			
Vibration Resistance	Operating extremes	10 to 55 Hz, double amplitude 1.0 mm			
	Damage limits	10 to 55 Hz, double amplitude 1.0 mm			
Shock Resistance	Operating extremes	10G			
Electrical Life		100,000 operations minimum (operation frequency 1,800 operations per hour)		DPDT: 400,000 operations minimum 4PDT: 200,000 operations minimum (operation frequency 1,800 operations per hour)	
Mechanical Life		10,000,000 operations minimum (operation frequency 18,000 operations per hour)		20,000,000 operations minimum (operation frequency 18,000 operations per hour)	
Operating Temperature (*4)		−40 to +70°C (no freezing)			
Operating Humidity		35 to 85% RH (no condensation)			
Weight (approx.)		35g			

Note: Above values are initial values.

*1) Measured at operating frequency of 120 operations/min (failure rate level P, reference value)

*2) Measured using 24V DC, 1A voltage drop method.

*3) Measured at the rated voltage (at 20°C), excluding contact bounce time.

*4) Measured at 100% rated voltage. When using RN2S-NL, RN2S-NF, RN2S-HNL, or RN2S-SNL refer to the derating curve on page 7.

Applicable Sockets

DIN Rail Mount

Terminal Style	No. of Poles	Part No.	Applicable Spring/Release Lever
Screw	2-pole	SN2S-05D	SFA-502
	4-pole	SN4S-05D	
Finger-safe	2-pole	SM2S-05DF	
	4-pole	SY4S-05DF	
Push-in	2-pole	SU2S-21L	SU9Z-S21R SU9Z-C21R
	4-pole	SU4S-21L	

• See page 8 for details on sockets.

Through-Panel Mount / PCB Mount

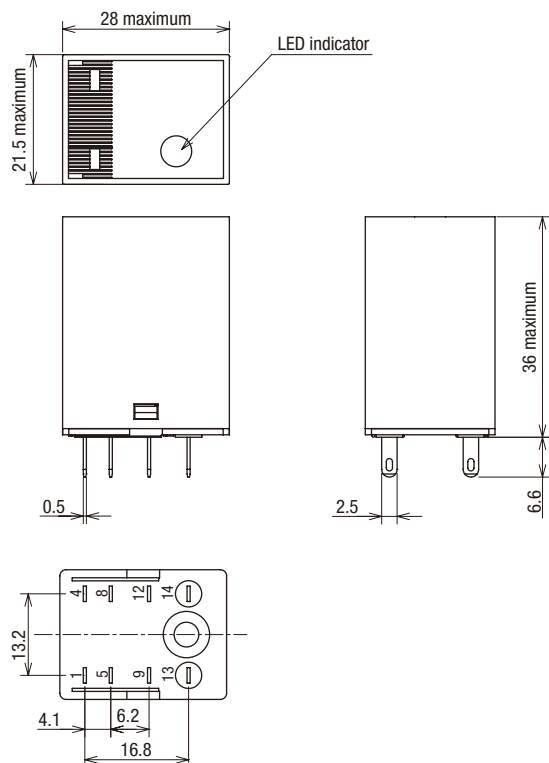
Mounting Style	No. of Poles	Part No.	Applicable Spring/ Release Lever
Through-panel mount	2-pole	SM2S-51	SFA-301
			SFA-302
			SY4S-51F1
PCB mount		SM2S-61	SFA-301
			SFA-302
			SY4S-51F1
			SM2S-62
		SFA-504	
Through-panel mount	4-pole	SY4S-51	SFA-301
			SFA-302
			SY4S-51F1
PCB mount		SY4S-61	SFA-301
			SFA-302
			SY4S-51F1
		SY4S-62	SFA-504
			SY4S-51F1

• For details on SM, and SY sockets, see each catalog.

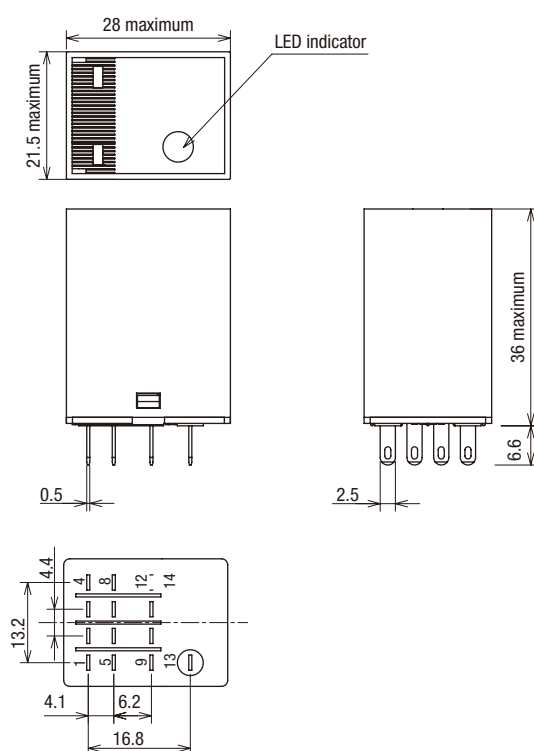
Dimensions

All dimensions in mm

RN2S-NL, RN2S-NF, RN2S-HNL, RN2S-SNL (DPDT)



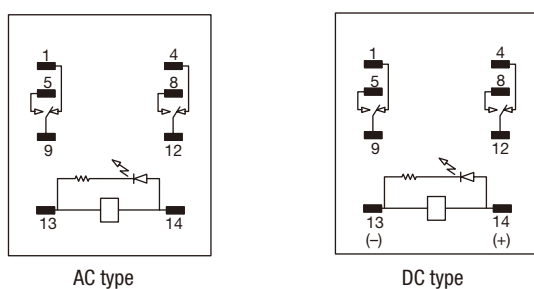
RN4S-NL, RN4S-NF, RN4S-HNL, RN4S-SNL (4PDT)



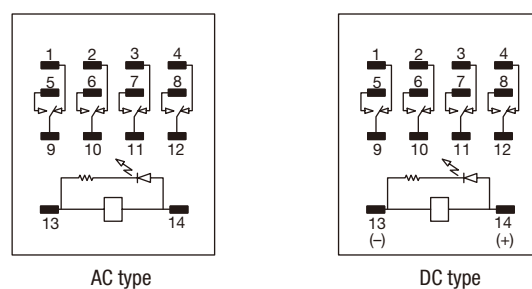
Internal Connection (Bottom View)

All dimensions in mm

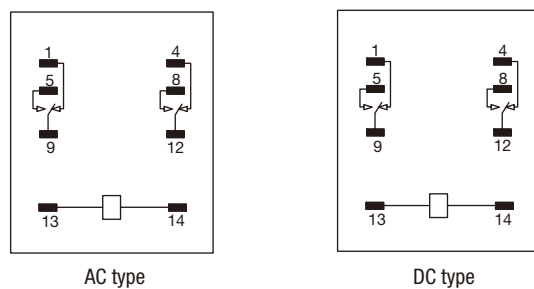
RN2S-NL, RN2S-HNL, RN2S-SNL (With LED) (DPDT)



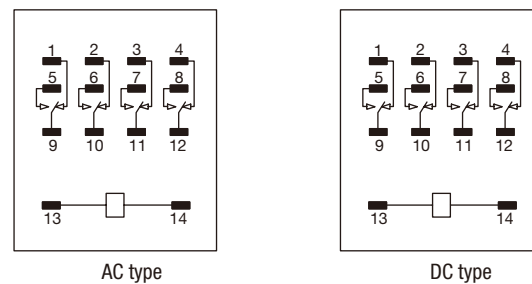
RN4S-NL, RN4S-HNL, RN4S-SNL (With LED) (4PDT)



RN2S-NF (Without LED) (DPDT)



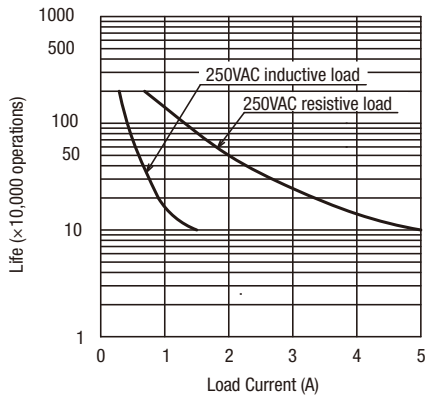
RN4S-NF (Without LED) (4PDT)



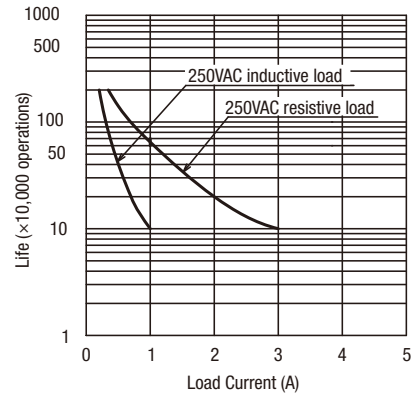
Characteristics (Reference Data)

Electrical Life Curve

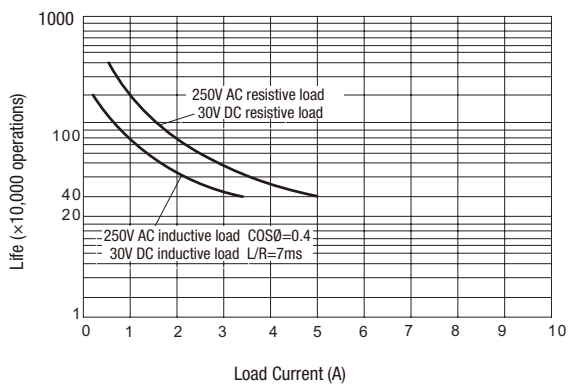
RN2S-NL, RN2S-NF
(DPDT)



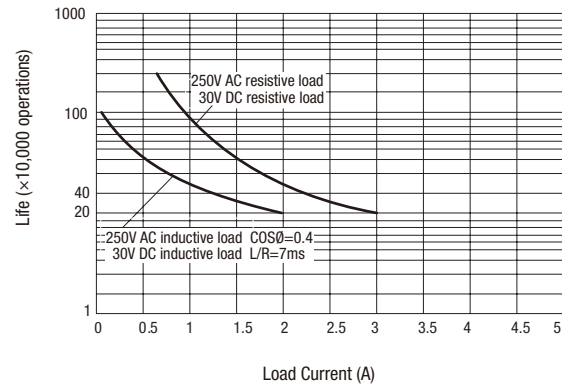
RN4S-NL, RN4S-NF
(4PDT)



RN2S-HNL, RN2S-SNL
(DPDT)



RN4S-HNL, RN4S-SNL
(4PDT)



Derating Curve

RN2S-NL, RN2S-NF, RN2S-HNL, RN2S-SNL

