Interface Relays

RV8H

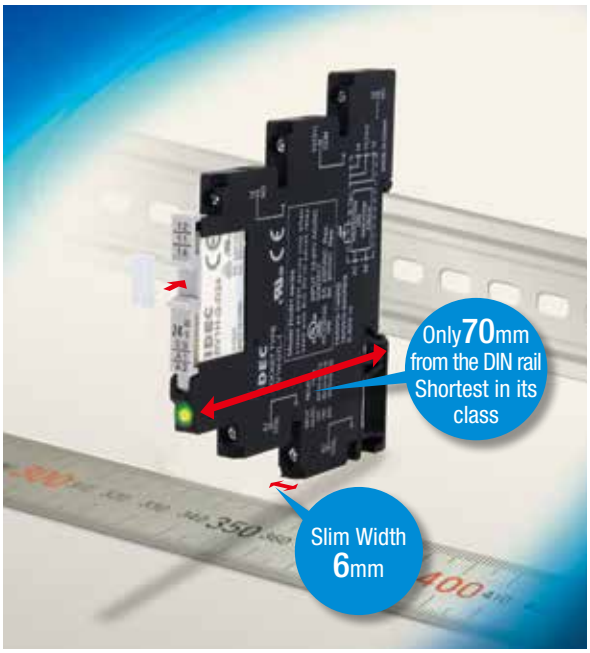
Ultra-slim interface relays suitable for high density mounting

• See website for details on approvals and standards.

Screw and spring clamp terminals

Marking plate can be installed on the release lever

Only 70mm from the DIN rail



Easy wiring, simple maintenance

LED indicator.
Release lever for easy locking and removal of relays.

6A contact capacity in the slim housing

Gold-clad contacts for high contact reliability

RV8H Interface Relays

Space-saving 6mm width suitable for high density mounting.

Interface Relays

Package Quantity: 1

Contact Arrangement	Coil Voltage	Part No.	
		Screw Terminal	Spring Clamp Terminal
			
SPDT	6V DC	RV8H-L-D6	RV8H-S-D6
	9V DC	RV8H-L-D9	RV8H-S-D9
	12V DC	RV8H-L-D12	RV8H-S-D12
	18V DC	RV8H-L-D18	RV8H-S-D18
	24V DC	RV8H-L-D24	RV8H-S-D24
	12V AC/DC	RV8H-L-AD12	RV8H-S-AD12
	18V AC/DC	RV8H-L-AD18	RV8H-S-AD18
	24V AC/DC	RV8H-L-AD24	RV8H-S-AD24
	48V AC/DC	RV8H-L-AD48	RV8H-S-AD48
	60V AC/DC	RV8H-L-AD60	RV8H-S-AD60
	110-125V AC/DC	RV8H-L-AD110	RV8H-S-AD110
	220-240V AC/DC	RV8H-L-AD220	RV8H-S-AD220

Accessories

Relay / Socket

Package Quantity: 1

Screw Terminal		
Interface Relay Complete Part No.	Applicable Socket Part No.	Applicable Relay Part No.
		
RV8H-L-D6	SV1H-07L-5	RV1H-G-D5
RV8H-L-D9		RV1H-G-D9
RV8H-L-D12		RV1H-G-D12
RV8H-L-D18		RV1H-G-D18
RV8H-L-D24		RV1H-G-D24
RV8H-L-AD12	SV1H-07L-1	RV1H-G-D12
RV8H-L-AD18		RV1H-G-D18
RV8H-L-AD24		RV1H-G-D24
RV8H-L-AD48	SV1H-07L-2	RV1H-G-D48
RV8H-L-AD60		RV1H-G-D60
RV8H-L-AD110	SV1H-07L-3	RV1H-G-D60
RV8H-L-AD220	SV1H-07L-4	RV1H-G-D60

Spring Clamp Terminal		
Interface Relay Complete Part No.	Applicable Socket Part No.	Applicable Relay Part No.
		
RV8H-S-D6	SV1H-07LS-5	RV1H-G-D5
RV8H-S-D9		RV1H-G-D9
RV8H-S-D12		RV1H-G-D12
RV8H-S-D18		RV1H-G-D18
RV8H-S-D24		RV1H-G-D24
RV8H-S-AD12	SV1H-07LS-1	RV1H-G-D12
RV8H-S-AD18		RV1H-G-D18
RV8H-S-AD24		RV1H-G-D24
RV8H-S-AD48	SV1H-07LS-2	RV1H-G-D48
RV8H-S-AD60		RV1H-G-D60
RV8H-S-AD110	SV1H-07LS-3	RV1H-G-D60
RV8H-S-AD220	SV1H-07LS-4	RV1H-G-D60

Specifications

Part No.		RV8H-L (Screw Terminal)	RV8H-S (Spring Clamp Terminal)
Number of Poles		1-pole	
Contact Configuration		SPDT	
Contact Material		Silver alloy (gold-plated)	
Degree of Protection		Relay: IP67, Socket: IP20 (IEC 60529)	
Contact Resistance (initial value)		100mΩ maximum	
Operate Time		15ms maximum	
Release Time		20ms maximum	
Insulation Resistance		1,000MΩ minimum (500V DC megger)	
Dielectric Strength	Between contact and coil	4,000V AC, 1 minute	
	Between contacts of the same pole	1,000V AC, 1 minute	
Vibration Resistance	Operation extremes	10 to 55 Hz, amplitude 0.5mm (NO contact), 0.2mm (NC contact)	
	Damage Limits	10 to 55 Hz, amplitude 0.5mm (NO contact), 0.2mm (NC contact)	
Shock Resistance	Operation extremes	49 m/s^2 (NO contact), 29.4 m/s^2 (NC contact)	
	Damage Limits	980 m/s^2	
Electrical Life (rated load)		30,000 operations minimum (NO contact), 10,000 operations minimum (NC contact) (250V AC/30V DC, 6A resistive load, operation frequency 1,800 operations per hour)	
Mechanical Life (no load)		10 million operations minimum (operation frequency 18,000 operations/hour)	
Operating Temperature		RV8H-*-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60: –40 to +70°C (no freezing) RV8H-*-AD110, AD220: –40 to +55°C (no freezing)	
Operating Humidity		5 to 85% RH (no condensation)	
Storage Temperature		–40 to +85°C (no freezing)	
Storage Humidity		5 to 85% RH (no condensation)	
Weight (approx.)		30g	26g

Approval Ratings

UL and c-UL Ratings

Voltage	Resistive	Inductive
250V AC	6A	B300/R300 (pilot duty)
30V DC	6A	

VDE Ratings (RV1H relay only)

Voltage	Resistive
250V AC	6A
30V DC	6A

Contact Ratings

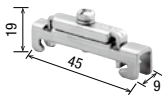
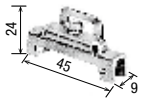
Allowable Contact Power		Rated Load			Allowable Switching Current	Allowable Switching Voltage	Minimum Applicable Load
Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load			
1,500VA AC 180W DC	B300: AC 360 VA R300: DC 28 VA (pilot duty)	250V AC 30V DC	6A 6A	B300: 240V AC 1.5A R300: 250V DC 0.11A (pilot duty)	6A	400V AC 125V DC	6V DC, 10 mA (reference value)

Coil Ratings

Rated Voltage (V)		Coil Voltage Code	Rated Current (mA) ±15% (at 23°C) (*1)	Coil Resistance (Ω) ±15% (at 23°C) (*1)	Impedance (Ω) ±15% (at 23°C) (*1)	Operating Characteristics (against rated values at 23°C)			Power Consumption
						Maximum Allowable Voltage	Minimum Pickup Voltage	Dropout Voltage	
DC	6V DC	D6	35	170		110%	90% maximum	7% minimum	0.21
	9V DC	D9	18.6	485					0.2
	12V DC	D12	14.6	820					
	18V DC	D18	11.6	1,550					
	24V DC	D24	10.6	2,270					0.25
AC/DC	12V AC/DC	AD12	15.5	800	755				0.2
	18V AC/DC	AD18	13.3	1,345	1,365				0.25
	24V AC/DC	AD24	13.7	1,790	1,730				0.33
	48V AC/DC	AD48	4.0	12,230	11,880				0.2
	60V AC/DC	AD60	3.4	17,910	17,600				
	110-125V AC/DC	AD110	3.4-3.9	32,450-32,900	31,790-31,890				0.5
	220-240V AC/DC	AD220	3.3-3.6	65,940-68,570	65,670-66,070				0.85

*1) D12 and below: ±10%

Accessories

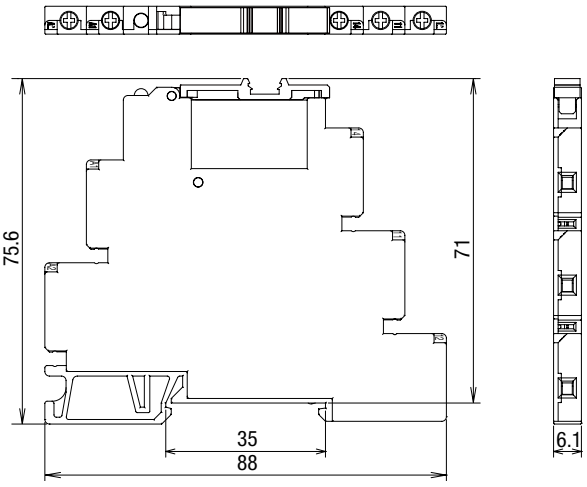
Shape	Material	Part No.	Package Quantity	Note (dimensions in mm.)
Blank Marking Plate 	PBT plastic (white)	SV9Z-PW10	1	No marking
Jumper Rated current: 6A (*2) 	Brass (nickel-plated) with polyamide sheath Approx. 6g	SV9Z-J20*	10	Specify a color code in place of * in the Part No. B: black W: gray S: blue Can be cut to required length. No. of points: 20
DIN Rail Spacer	Polyamide (gray)	SV9Z-SA2W	1	Used for adjusting spacing between sockets and to prevent the ends of jumpers from exposing.
DIN Rail (*3)	Aluminum, approx. 200g	BAA1000PN10	10	1m long 35mm wide
	Steel, approx. 320g	BAP1000PN10		
End Clip (*3)	Zinc-plated steel Approx. 15g	BNL5PN10	10	
		BNL6PN10		
Applicable Screwdriver	Weight: 20g	BC1S-SD0	1	

*2) Ensure that the total current to the jumper does not exceed the rated current.
*3) See H-071 for DIN rail products.

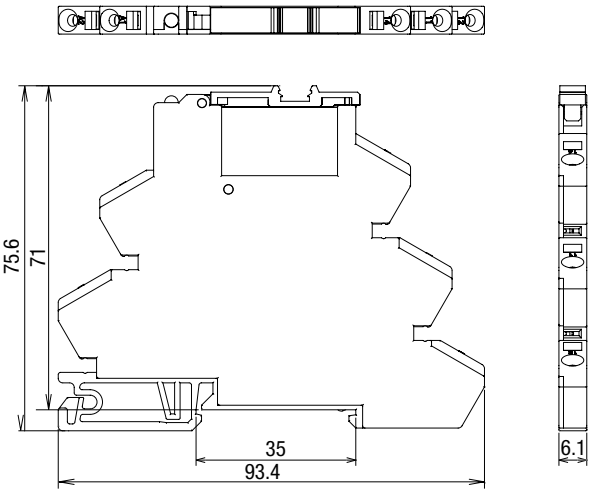
Dimensions

All dimensions in mm.

Screw Terminal
RV8H-L

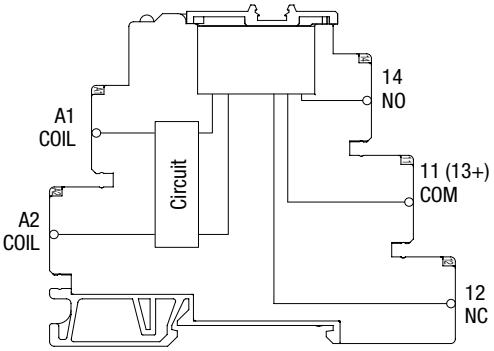


Spring Clamp Terminal
RV8H-S

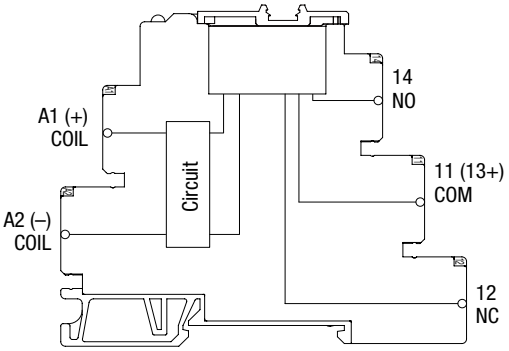


Terminal Arrangement

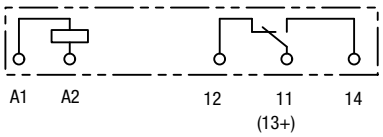
AC/DC



DC

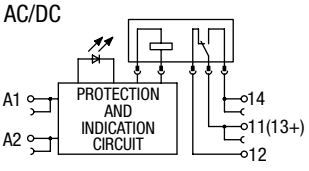


RV1H Internal Connection (bottom view)

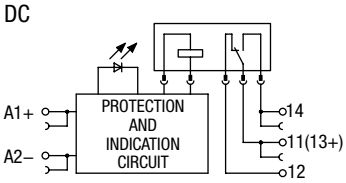


RV8H Internal Connection

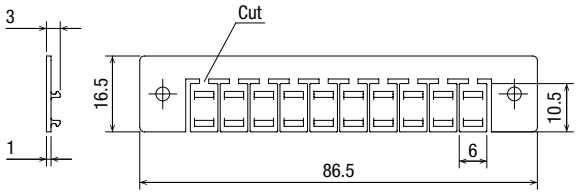
AC/DC



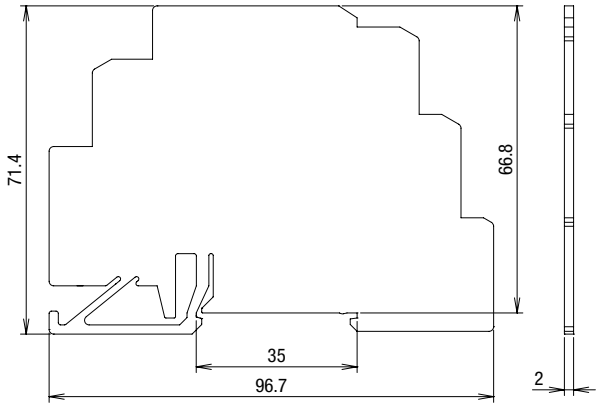
DC



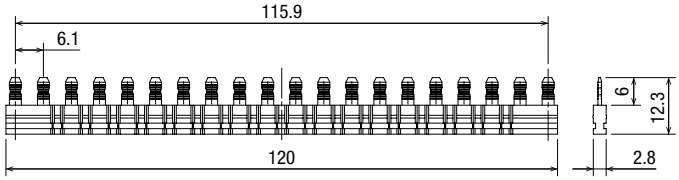
Marking Plate
SV9Z-PW10



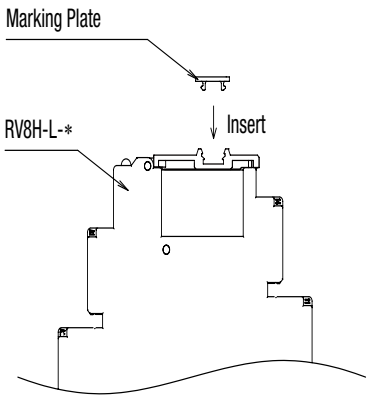
DIN Rail Spacer
SV9Z-SA2W



Jumper
SV9Z-J20∗PN10

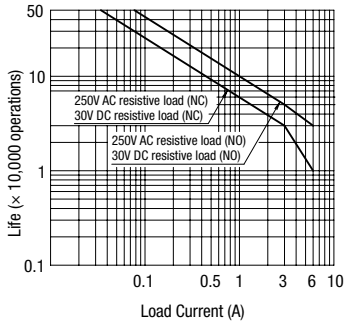


Installing a marking plate

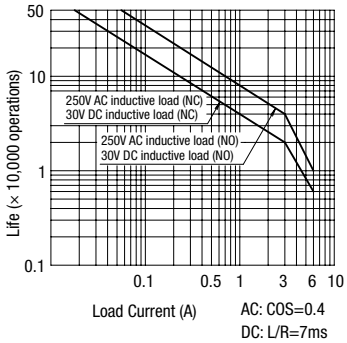


Electrical Life Curve

Resistive Load



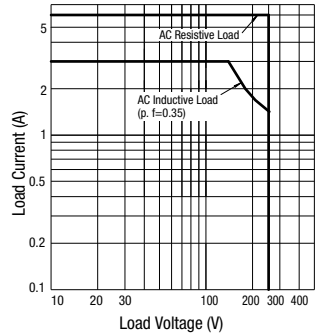
Inductive Load



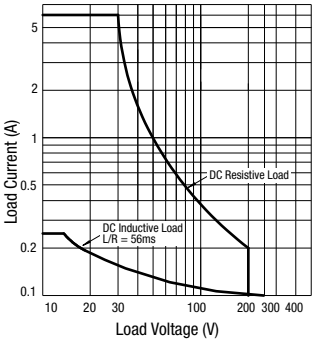
AC: COS=0.4
DC: L/R=7ms

Maximum Switching Current

AC



DC



Safety Precautions

- Turn off power before starting installation, removal, wiring, maintenance, and inspection. Failure to turn power off may cause electrical shocks or fire hazard.
- Use proper wires to meet the voltage and current requirements.
- Make sure that relay and output equipment are connected completely. Incomplete connection may cause overheat, resulting in fire hazard.
- To ensure safety, make sure that all descriptions in the operation instructions are followed strictly.
- Prevent metal fragments and pieces of wire from dropping inside the sockets. Ingress of such fragments and chips may cause fire, failure, or malfunction.
- Apply voltage that is applicable to the relay and socket. Otherwise fire, failure, or malfunction will be caused.

Instructions

- Use a 15A non-time delay fuse for protection against short-circuit.
- When lightening surge may enter the input circuit of types AD12, AD18, and AD24, and when lightening surge and noise may enter the input circuit of types AD48 and AD60 of the following products, use a proper varistor. Otherwise, failure maybe caused.

Relay	Recommended Varistor
RV8H-L-AD12	Panasonic ERZV07D390
RV8H-L-AD18	
RV8H-L-AD24	
RV8H-L-AD48	Panasonic ERZV14D121
RV8H-L-AD60	
RV8H-S-AD12	Panasonic ERZV07D390
RV8H-S-AD18	
RV8H-S-AD24	
RV8H-S-AD48	Panasonic ERZV14D121
RV8H-S-AD60	

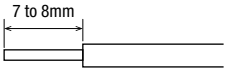
- Observe the maximum ambient temperature shown below. Otherwise, fire, failure, or malfunction will be caused.

55ºC maximum: RV8H-L-AD110/AD220
RV8H-S-AD110/AD220
70ºC maximum: All other part nos.

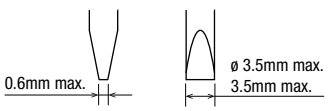
Wiring Instructions

RV8H-L

- Use the following applicable wires for wiring.
  2.5m^2 max. or AWG14 max., CU (copper), Stranded or Solid wire : 1
  1.5m^2 max. or AWG16 max., CU (copper), Stranded wire : 2 max.
  ø1.3mm max. or AWG16 max., CU(copper) solid wire : 2 max.



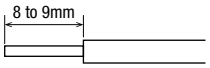
- Strip the wire insulation 7 to 8 mm from the end. Stripping the wire insulation too short may cause the wire to come off. Stripping the wire insulation too long may cause short-circuit with the adjacent socket. Make sure to twist the stranded wire to prevent loosening.
- For wiring, use the following applicable screwdriver.
  Phillips screwdriver ø3.5mm max.
  Flat screwdriver



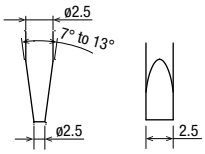
Recommended tightening torque:
0.3 N·m to 0.4 N·m
(UL certificated: 0.35 N·m)

RV8H-S

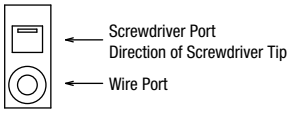
- Use the following applicable wires for wiring.
  0.5mm^2 to 2.5mm^2 or AWG20 to AWG14, CU (copper),
  Stranded or Solid wire: 1



- Strip the wire insulation 8 to 9 mm from the end. Stripping the wire insulation too short may cause the wire to come off. Stripping the wire insulation too long may cause short-circuit with the adjacent socket. Make sure to twist the stranded wire to prevent loosening.
- For wiring, use the optional screwdriver (BC1S-SD0) or the following applicable screwdriver. (The shape of the applicable screwdriver is based on DIN5264.)



- Wire insertion positions, screwdriver insertion positions, and the directions of screwdriver tip are shown below.



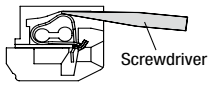
- In applications using ferrules for stranded wires, choose the ferrule listed in the table.

Applicable Wire		Part No.	Manufacturer
mm^2	AWG		
0.5	20	AI0.5-8WH	Phoenix Contact
0.75	18	AI0.75-8GY	
1	18	AI1-8RD	
0.5	22	TE0.5-8	Nichifu
0.75	20	TE0.75-8	
1	18	TE1.0-8	

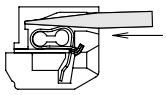
Instructions

Wiring Instructions

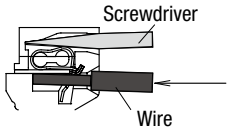
1. Insert the optional screwdriver (BC1S-SD0) or an applicable screw driver into the square-shaped port as shown, until the screwdriver tip touches the bottom of the spring.



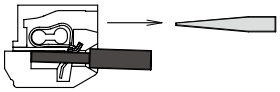
2. Push in the screwdriver until it touches the bottom of the port. The wire port is now open, and the screwdriver is held in place. The screwdriver will not come off even if you release your hand.



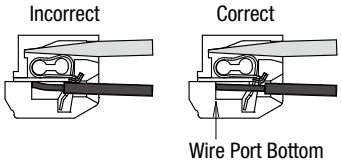
3. While the screwdriver is retained in the port, insert the wire of ferrule into the round-shaped wire port. Each wire port can accommodate one wire or ferrule. When connecting two wires to one terminal, use the adjoining port of the same terminal.



4. Pull out the screwdriver. The connection is now complete.

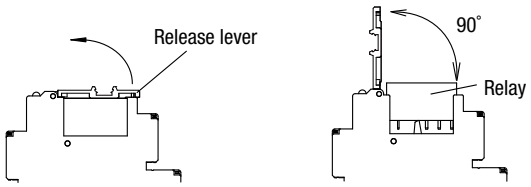


Note: When using wire with insulation diameter or ø2.0mm or less, do not insert the wire too deep where the insulation inserts into the spring clamp opening. Otherwise conductive failure will be caused. Make sure that the wire insulation is stripped 8 to 9 mm and the wire is inserted to the bottom.



Removing the Relay

- Open the release lever in the direction of the arrow, and remove the relay.

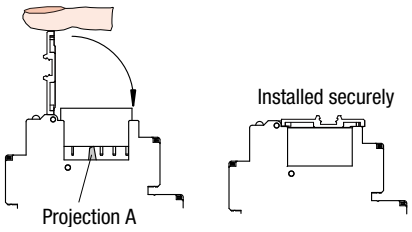


Note 1: The relay may pop out when opening the release lever, resulting in possible damage or loss of the relay. To prevent this, rightly press down the relay using a finger when opening the release lever.

Note 2: Do not open the release lever more than 90º, otherwise the socket will be damaged.

Installing the Relay

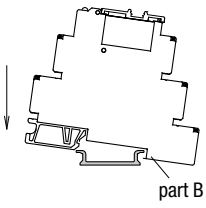
- Open the release lever, and insert the relay into the socket until the bottom of relay touches the projection A on the socket. Close the release lever until it is latched.



Note: When installing the relay, do not press in using a relay. Make sure to use the release lever, otherwise the projection A will be damaged.

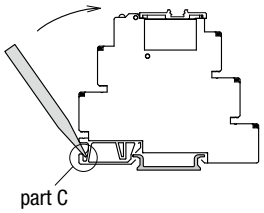
Installing the Socket

- Put the groove on the socket(part B) on the DIN rail, and press the socket towards the DIN rail as shown in the figure.



Removing the Socket

- Insert a small flat screwdriver into the slot (part C) of the socket, and pull out the socket as shown in the figure.



Note: When using the RV8H in cold temperature (0ºC or below), install or remove the socket on the mounting rail carefully so that the socket will not be damaged.