Single-Phase Non-Contact Relay

HSR-2D, HSR-2A

Single-Phase Non-Contact Relay (For Low Voltage)

We appreciate you for purchasing HanYoung Electronic Co., Ltd product. Before using the product you have purchased, check to make sure that it is exactly what you ordered. Then, please use it following the instructions below.

HanYoung Electronic Co., Ltd. Certification Status

Headquarter/Factory

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Main Products

- **Digital** : Temperature controller, Tachometer, Panel Meter, Counter, Timer, Speedmeter
- **Sensor** : Proximity Switch, Optical Fiber Sensor, Rotary Encoder, Photoelectric Sensor
- **Analog** : Timer, Temperature Controller

Warning Since this product is not designed as a safety devise, the user must install double safety equipment when this product is used for equipments with possible fatal accident or large property damages.

1 Safety Precautions

⚠ Danger

Do not touch or contact the input/output terminals because they may cause electric shock.

⚠ Warning

1. **Before you use, read safety precautions carefully, and use this product properly.**
2. **Do not touch or contact the input/output terminals because they may cause electric shock.**
3. **The user must install the external safety equipment when there are possible defect of this product or serious accidents.**
4. **To prevent defection or malfunction of this product, supply proper power voltage in accordance with the rating.**
5. **To prevent electric shock or devise malfunction of this product, do not supply the power until the wiring is completed.**
6. **Reassemble this product while the power is off. Otherwise, it may cause malfunction or electric shock.**
7. **If the user use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.**
8. **Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.**

⚠ Caution

1. Before using the product you have purchased, check to make sure that it is exactly what you ordered.
2. Do not use this product at any place with corrosive(especially noxious gas or ammonia) or flammable gas.
3. Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents. (Pollution level 1 or 2)
4. Do not use this product at any place with excessive induction trouble, static electricity or magnetic noise.
5. Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
6. When the product gets wet, the inspection is essential because there is danger of an electric leakage or fire.
7. Do not connect anything to the unused terminals.
8. For DC Types, connect wires at the correct position after checking polarity of terminal.
9. The rated heat sink must be used; otherwise, the product may be destroyed.
10. When product is disposed, treat as a industrial waste.

2 Ordering Information

HSR-2 A 30 2 Z

- Operation method (Switching Mode)
  - Z : Zero Cross Switching
  - R : Random Switching
- Rated load voltage
  - 2 : 90 - 264 V AC
  - 4 : 90 - 480 V AC
- Rated load current
  - 10 : 10 A
  - 20 : 20 A
  - 30 : 30 A
  - 40 : 40 A
- Input control voltage
  - D : DC 4 - 32 V
  - A : AC 90 - 264 V
- Control phase
  - 2 : Single Phase
  - 3 : Three Phase

3 Rated Specifications

■ Direct Current(DC) Input Type

Model Name		HSR-2D102Z / HSR-2D102R		HSR-2D202Z / HSR-2D202R		HSR-2D302Z / HSR-2D302R		HSR-2D402Z / HSR-2D402R	
Input	Rated Voltage	5 - 24 V DC							
	Applicable Voltage Range	4 - 32 V DC							
	Impedance	Below 4 kΩ							
	Operation Voltage	Over 3 V DC							
	Return Voltage	Below 1.5 V DC							
	Input Current	Constant Current method : 10 mA (±3)							
Output	Rated Load Voltage	100 - 240 V AC							
	Load Voltage Range	90 - 264 V AC							
	Peak Voltage (non-repetition)	600 V							
	Rated Load Current	10 A		20 A		30 A		40 A	
	Frequency	25 - 65 Hz							
	In-flow Current	125 A		260 A		315 A		315 A	
	Out-flow Current	15 mA							
	Output ON Current	1.3 V		1.6 V		1.8 V		1.8 V	
	Minimum Operation Current	1 A							
	Zero Cross Function	O	X	O	X	O	X	O	X
Response Time		1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms
Insulating Resistance		500 V DC, 100 MΩ (Input/Output and between Cases)							
Dielectric strength		2500 V AC (50 Hz for one minute)							
Vibration		10 - 55 Hz, Double amplitude: 1.5 mm, Each X·Y·Z axis for 2 hours							
Impact		1000 m/s² (about 100 G), Each X·Y·Z axis for 3 times							
Storage Temperature		-30 - 90 °C							
Ambient Temperature		-20 - 80 °C							
Ambient Humidity		45 - 85 % R.H.							
Weight		About 130 g							

Notes : The weight does not include package box.

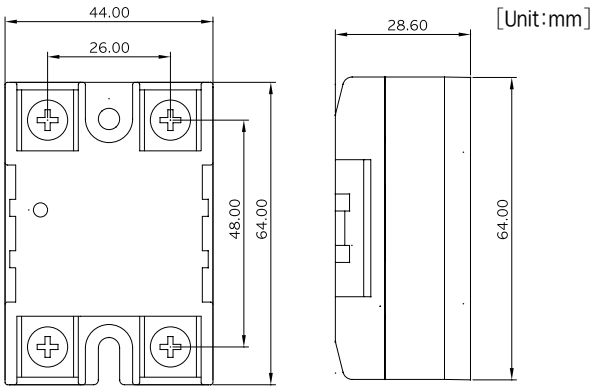
■ Alternating Current(AC) Input Type

Model Name		HSR-2A102Z / HSR-2A102R		HSR-2A202Z / HSR-2A202R		HSR-2A302Z / HSR-2A302R		HSR-2A402Z / HSR-2A402R	
Input	Rated Voltage	100 - 240 V DC							
	Applicable Voltage Range	90 - 264 V DC							
	Impedance	Below 40 kΩ							
	Operation Voltage	Over 70 V DC							
	Return Voltage	Below 40 V DC							
	Input Current	240 V AC / 9 mA (±4)							
Output	Rated Load Voltage	100 - 240 V AC							
	Load Voltage Range	90 - 264 V AC							
	Peak Voltage (non-repetition)	600 V							
	Rated Load Current	10 A		20 A		30 A		40 A	
	Frequency	25 - 65 Hz							
	In-flow Current	125 A		360 A		315 A		315 A	
	Out-flow Current	15 mA							
	Output ON Current	1.3 V		1.6 V		1.8 V		1.8 V	
	Minimum Operation Current	1 A							
	Zero Cross Function	O	X	O	X	O	X	O	X
Response Time		1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms	1/2Cycle+ 1 ms Max.	Below 1 ms
Insulating Resistance		500 V DC, 100 MΩ (Input/Output and between Cases)							
Dielectric strength		2500 V AC (50 Hz for one minute)							
Vibration		10 - 55 Hz, Double amplitude: 1.5 mm, Each X·Y·Z axis for 2 hours							
Impact		1000 m/s² (about 100 G), Each X·Y·Z axis for 3 times							
Storage Temperature		-30 - 90 °C							
Ambient Temperature		-20 - 80 °C							
Ambient Humidity		45 - 85 % R.H.							
Weight		About 130 g							

Notes : The weight does not include package box.

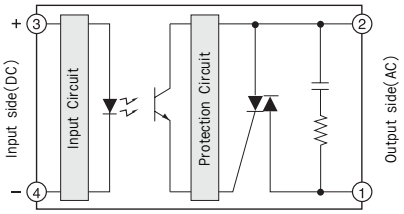
4 External Dimension

[Unit:mm]

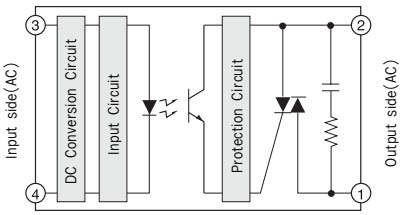


5 Circuit

■ DC Input Type

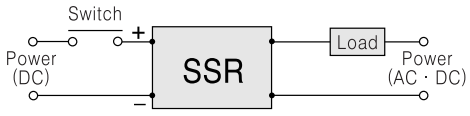


■ AC Input Type

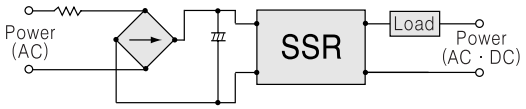


6 Application Circuit

■ DC Input Type

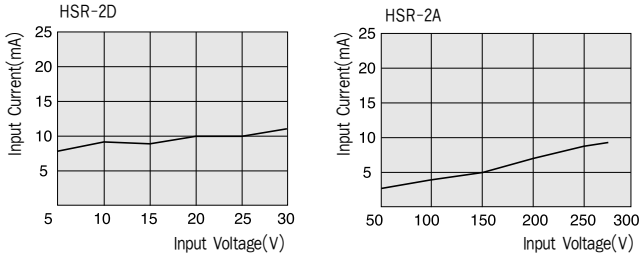


■ AC Input Type

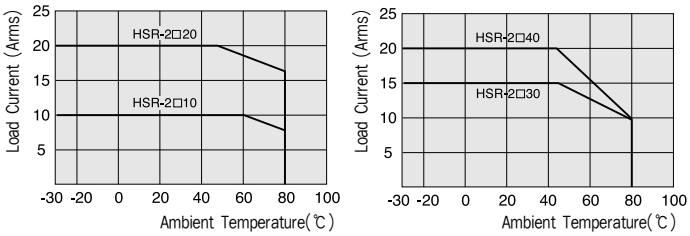


7 Load Current Characteristics

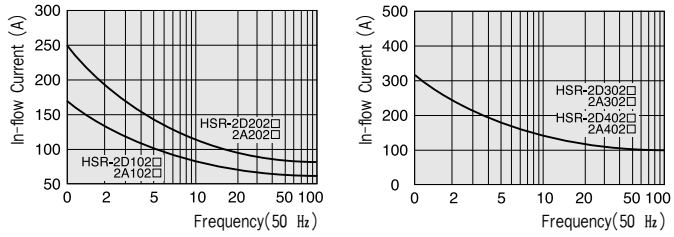
■ Input Voltage / Current Characteristics



■ Load Current Characteristics



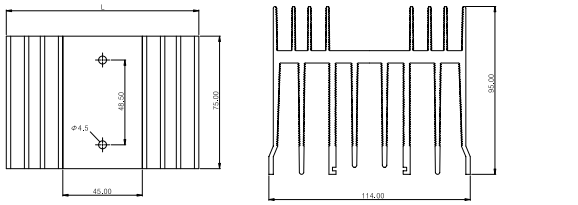
■ In-flow Current Characteristics



8 Heat Sink

■ Model Name : HSP Series

[Unit:mm]



Model	Applicable Model	Capacity(A)	Length(L)
HSP-10	HSR-2□10□□	10(A)	48 ㎜
HSP-20	HSR-2□20□□	20(A)	80 ㎜
HSP-40	HSR-2□30□□	30(A)	109 ㎜
	HSR-2□40□□	40(A)	

※ The contents above may change for performance improve without any prior notice

■ Precautions during the use of Heat Sink

- Using standard heat sink is mandatory for this product.
- Even the standard heat sink is used, SSR damage may occur if the environment temperature rises or if the ventilation does not work well. (Environment temperature: over 40° C)
- The normal SSR element is damaged at the maximum temperature of 125° C. When the temperature of heat sink is 80° C, the temperature of the element reaches around 125° C. Therefore, during operation, measure the temperature of heat sink.
- When you connect SSR onto the heat sink, heat-transmitting grease is needed for smooth heat transmission.
- To prevent separation by vibration, tighten up with bolts.
- Do not use any insulating materials such as wood, plastic or rubber. The standard heat sink must be greased on the bottom side as shown below and connected.

※ The heatproof silicon grease must be applied thoroughly on the heat sink as well as the bottom of SSR. The case side of heat sink needs to be installed on up and down directions