

Three-Phase Non-Contact Relay

**HSR-3D, HSR-3A**

Three-Phase Non-Contact Relay (For High 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

**Warning**

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

**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

**1 Safety Precautions****⚠ Danger**

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

**⚠ Warning**

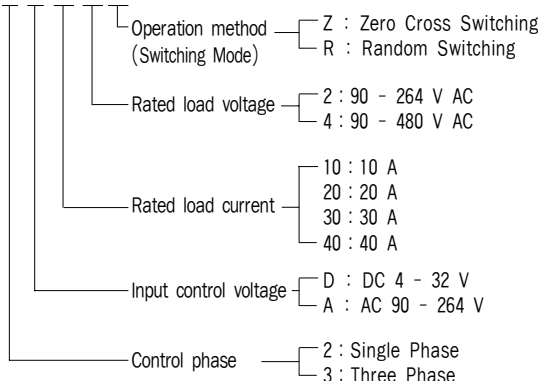
1. Before you use, read safety precautions carefully, and use this product properly.
2. Do not touch or contact the input/output terminals because they may cause electric shock.
3. The user must install the external safety equipment when there are possible defect of this product or serious accidents.
4. To prevent defecion 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-3 A 30 4 Z

**3 Rated Specifications****■ Direct Current(DC) Input Type**

Model Name	HSR-3D104Z	HSR-3D204Z	HSR-3D304Z	HSR-3D404Z
	HSR-3D104R	HSR-3D204R	HSR-3D304R	HSR-3D404R
Input	Rated Voltage			
	5 - 24 V DC			
	Applicable Voltage Range			
	4 - 32 V DC			
	Impedance			
Below 4 kΩ				
Output	Operation Voltage			
	Over 3 V DC			
	Return Voltage			
	Below 1.4 V DC			
	Input Current			
Constant Current method : 14 mA (±3)				
Output	Rated Load Voltage			
	100 - 440 V AC			
	Load Voltage Range			
	90 - 480 V AC			
	Peak Voltage (non-repetition)		1200 V	
	800 V			
	Rated Load Current			
	10 A		20 A	
	30 A		40 A	
	Frequency			
25 - 65 Hz				
Input	In-flow Current			
	170 A		250 A	
	315 A		315 A	
	Out-flow Current			
	15 mA			
Output	Output ON Current			
	1.95 V		1.8 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 D.C., 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 %g (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 380 g				

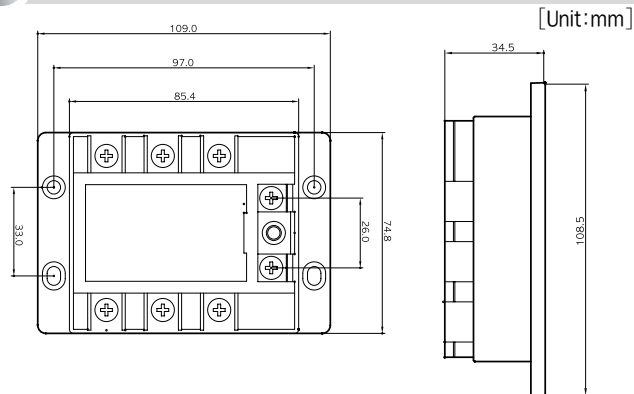
Notes : The weight does not include package box.

**■ Alternating Current(AC) Input Type**

Model Name	HSR-3A104Z	HSR-3A204Z	HSR-3A304Z	HSR-3A404Z
	HSR-3A104R	HSR-3A204R	HSR-3A304R	HSR-3A404R
Input	Rated Voltage			
	100 - 240 V DC			
	Applicable Voltage Range			
	90 - 264 V DC			
	Impedance			
Below 72 kΩ				
Output	Operation Voltage			
	Over 75 V DC			
	Return Voltage			
	Below 40 V DC			
	Input Current			
240 V AC / 9 mA (±4)				
Output	Rated Load Voltage			
	100 - 440 V AC			
	Load Voltage Range			
	90 - 480 V AC			
	Peak Voltage (non-repetition)		1200 V	
	800 V			
	Rated Load Current			
	10 A		20 A	
	30 A		40 A	
	Frequency			
25 - 65 Hz				
Input	In-flow Current			
	170 A		250 A	
	315 A		315 A	
	Out-flow Current			
	20 mA			
Output	Output ON Current			
	1.95 V		1.8 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 D.C., 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 %g (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 380 g				

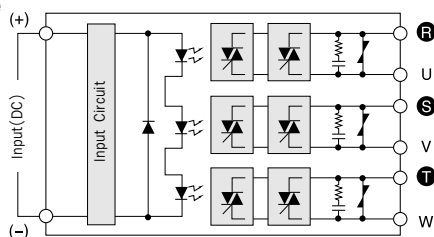
Notes : The weight does not include package box.

## 4 External Dimension

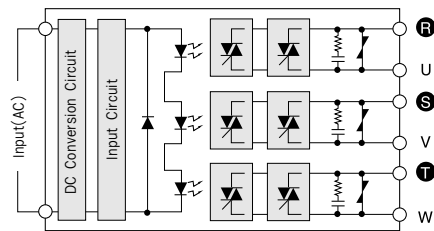


## 5 Circuit

### DC Input Type



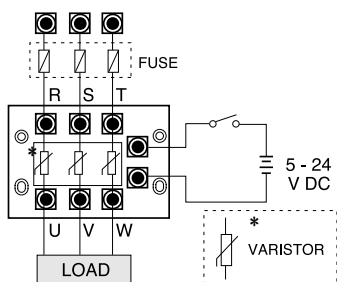
### AC Input Type



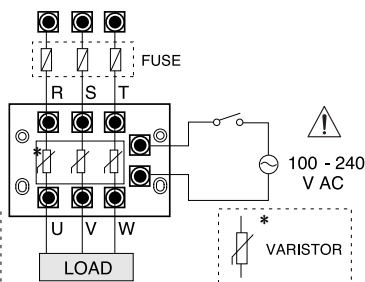
Input Terminals : R, S, T  
Output Terminals : U, V, W

## 6 Application Circuit

### DC Input Type

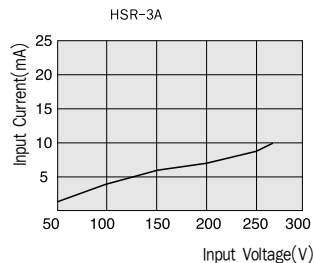
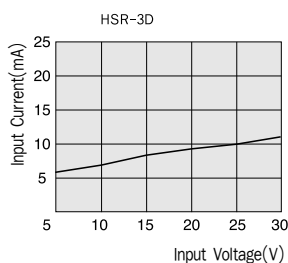


### AC Input Type

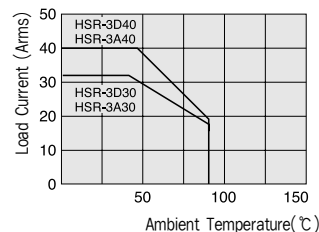
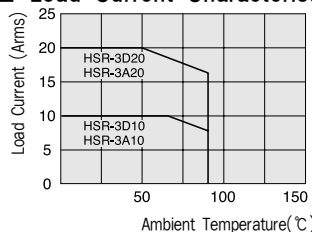


## 7 Load Current Characteristics

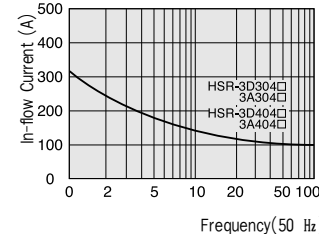
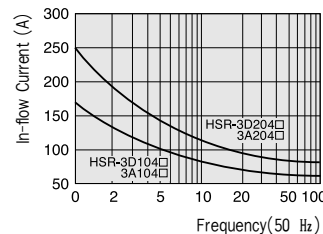
### Input Voltage / Current Characteristics



### Load Current Characteristics

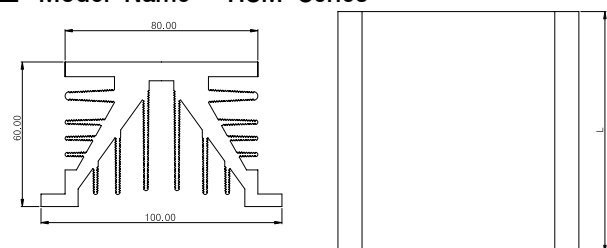


### In-flow Current Characteristics



## 8 Heat Sink

### Model Name : HSM Series



Model	Applicable Model	Capacity(A)	Length(L)
HSM-70	HSR-2□10□□	10(A)	70 mm
HSM-110	HSR-2□20□□	20(A)	110 mm
	HSR-2□30□□	30(A)	
HSM-150	HSR-2□40□□	40(A)	150 mm
	HSR-3□10□□	10(A)	
HSM-200	HSR-3□20□□	20(A)	200 mm
	HSR-3□30□□	30(A)	
HSM-250	HSR-3□40□□	40(A)	250 mm

\* 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.

