



Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this instruction manual where you can view it any time.

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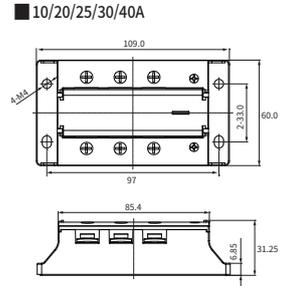
MC0802KE230302

## Suffix code

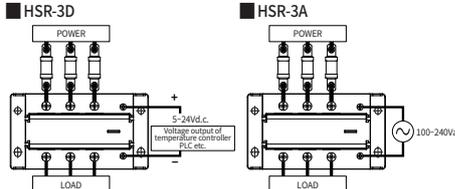
Model	Code	Information
HSR-3	□□□□□□□□	Three-phase contactless relay
Input Voltage	D : □□□□□□□□	4-32 V d.c.
	A : □□□□□□□□	90-240 V a.c.
Rated load current	10:	10A
	20:	20A
	25:	25A
	30:	30A
	40:	40A
	55:	55A
	70:	70A
Rated load Voltage	L :	24-380 V a.c. (Low voltage)
	H :	24-480 V a.c. (High voltage)
Operation method (Switching Mode)	Z :	Zero Cross Switching (standard product)
	R :	Random Switching
Heatsink option	T :	Heat sink + bimetal installation (55A, 70A only)
	N :	No heatsink ※CAUTION 1) When using a separate heat sink, you must use a heat sink that meets the thermal resistance table.

## Dimensions

[Unit : mm]

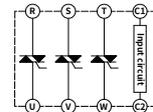


## Connection

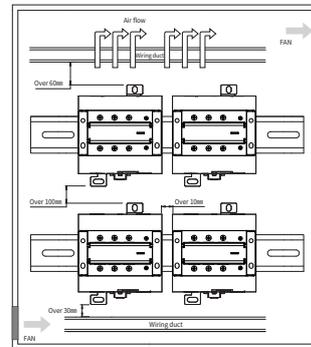


※ This model does not have a fuse internally. So we suggest using fast-acting fuse separately on the outside as following picture. (using gG/gt type fuse according to IEC 60269 standard)

## Equivalent Circuit



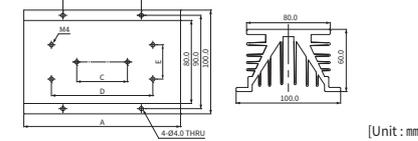
## Installation



- Please make intervals more than the sizes in the following picture.
- Please install wiring duct less than half the height of the heat sink to prevent the flow of air.
- It is good to use Hanyoung Nux's HSR in lower than ambient temperature 40 °C so, please use it lower than standard temperature.
- When installing the HSR, be sure to install the heat sink in the vertical direction.
- Unavoidably, if installed horizontally, the performance of the product will drop below 50%

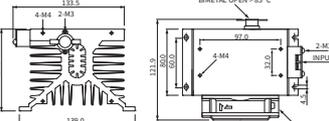
## HEAT SINK

### Model : HSM series

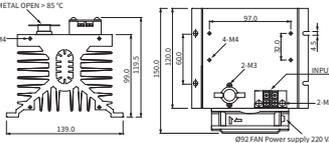


Model	Applicable Model	A	B	C	D	E	Weight
HSM-150	HSR-3 10A	150	75	49	97	32	768g
HSM-200	HSR-3 20A/25A	200	100	-	97	32	1,030g
HSM-250	HSR-3 30A HSR-3 40A	250	250	-	97	32	1,284g

### Model : HSN80-F series



### Model : HSN120-F series

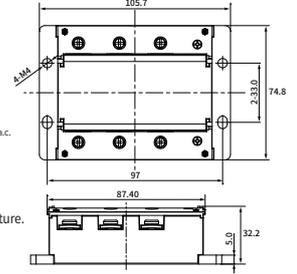


Model	Applicable Model	Weight
HSN-80F	HSR-3 55A	1,474g
HSN-120F	HSR-3 70A	2,052g

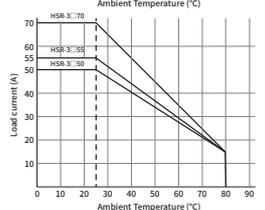
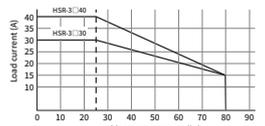
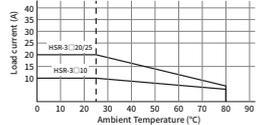
### ※ Precautions

- Input terminal wiring  
1 X 0.5 mm<sup>2</sup> (1 X AWG20) or larger  
1 X 1.5 mm<sup>2</sup> (1 X AWG16) or less than 2 X 1.5 mm<sup>2</sup> (2 X AWG16)
- Output terminal wiring  
1 X 1.5 mm<sup>2</sup> (1 X AWG16) or larger  
1 X 16 mm<sup>2</sup> (1 X AWG10) or less than 2 X 6 mm<sup>2</sup> (2 X AWG10)  
※ Connect the wiring suitable for the load current capacity to the output terminal.

### ■ 55/70A

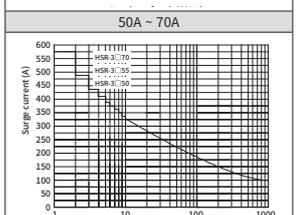
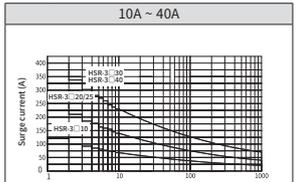


## Load/Surge current Characteristics



25 °C	10A	20A	25A	30A	40A	50A	55A	70A
80 °C	6A	8A	8A	15A	15A	15A	16A	16A

### ■ Surge current Characteristics



## Precautions during the use of Heat Sink

- Using standard heat sink is mandatory for this product.
- Even the standard heat sink is used, HSR damage may occur if the environment temperature rises or if the ventilation does not work well.

- (Environment temperature : over 40°C)  
• The normal HSR element is damaged at the maximum temperature of 125 °C. When the temperature of heat sink is 85 °C, the temperature of the element reaches over 125 °C. Therefore, during operation, measure the temperature of heat sink.
- When you connect HSR 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 HSR. The case side of heat sink needs to be installed on up and down directions.

### ※ CAUTION 1 (thermal resistance table)

load capacity	Heatsink thermal resistance
10A	0.60 °C/W
20A/25A	0.30 °C/W
30A	0.15 °C/W
40A	0.05 °C/W
55A	0.10 °C/W
70A	0.05 °C/W

## Specifications

### ■ DC input

Model	Low	HSR-3D10LZ	HSR-3D20LZ	HSR-3D25LZ	HSR-3D30LZ	HSR-3D40LZ	HSR-3D55LZ	HSR-3D70LZ
	High	HSR-3D10LR	HSR-3D20LR	HSR-3D25LR	HSR-3D30LR	HSR-3D40LR	HSR-3D55LR	HSR-3D70LR
Rated Load Voltage	Low	24-380 V a.c. 50/60 Hz						
	High	24-480 V a.c. 50/60 Hz						
Peak Voltage (Non-repetition)	Low	1,200V						
Rated load current	Low	10A	20A	25A	30A	40A	55A	70A
	High	170A	260A	260A	420A	370A	525A	525A
Surge current 60Hz (8.3ms No repetition)	Low	170A	250A	250A	400A	370A	525A	525A
	High	160A	250A	250A	400A	370A	500A	500A
Surge current 50Hz (10ms No repetition)	Low	160A	240A	240A	350A	350A	500A	500A
	High	160A	240A	240A	350A	350A	500A	500A
Leakage current		Less than 20 mA						
Output ON voltage drooping		Less than 1.6 V (R.M.S)						
Rated Voltage		5-24 V d.c.						
Operating Voltage Range (ON Voltage)		4-32 V d.c.						
return voltage (OFF Voltage)		Less than 3V						
Impedance		Less than 4kΩ						
current consumption		Constant current method : Less than 25mA						
Response Time		1/2 Cycle + 1 ms max. ("R" type below 1ms)						
Insulating Resistance		500 V d.c., 100 MΩ (Between the input / output and case)						
Dielectric strength		2,500 V a.c. (For 1min at 60Hz)						
Rated impulse withstand voltage (Uimp)		2,500 V						
Vibration resistance		10-55 Hz, Double amplitude : 1.5 mm, X-Y-Z each axis direction for 2 hour						
Shock resistance		1,000 m/s <sup>2</sup> , X-Y-Z each axis 3 times						
Storage Temperature		-30 ~ 90 °C						
Ambient Temperature & Humidity		-30 ~ 80 °C (No Condensation), 45 ~ 85 % RH						
Pollution level grade		2 level						
bolt tightening torque		Input terminal: 0.05 Nm / Output terminal: 0.25 Nm						
Usage		Resistive load						
Accepted standard		CE (EN 60947-4-3) <b>RoHS2</b>						
Weight		Approx 250g						

### ■ AC input

Model	Low	HSR-3A10LZ	HSR-3A20LZ	HSR-3A25LZ	HSR-3A30LZ	HSR-3A40LZ	HSR-3A55LZ	HSR-3A70LZ
	High	HSR-3A10HZ	HSR-3A20HZ	HSR-3A25HZ	HSR-3A30HZ	HSR-3A40HZ	HSR-3A55HZ	HSR-3A70HZ
Rated Load Voltage	Low	24-380 V a.c. 50/60 Hz						
	High	24-480 V a.c. 50/60 Hz						
Peak Voltage (Non-repetition)	Low	1,200V						
Rated load current	Low	10A	20A	25A	30A	40A	55A	70A
	High	170A	260A	260A	420A	370A	525A	525A
Surge current 60Hz (8.3ms No repetition)	Low	170A	250A	250A	400A	370A	525A	525A
	High	160A	250A	250A	400A	370A	500A	500A
Surge current 50Hz (10ms No repetition)	Low	160A	240A	240A	350A	350A	500A	500A
	High	160A	240A	240A	350A	350A	500A	500A
Leakage current		Less than 20 mA						
Output ON voltage drooping		Less than 1.6 V (R.M.S)						
Rated Voltage		100-240 V a.c. 50/60Hz						
Operating Voltage Range (ON Voltage)		90-264 V a.c. 50/60Hz						
return voltage (OFF Voltage)		Less than 50V						
Impedance		Less than 40 kΩ						
Current consumption		Less than 14mA						
Response Time		1/2 Cycle + 1 ms max. ("R" type below 1ms)						
Insulating Resistance		500 V d.c., 100 MΩ (Between the input / output and case)						
Dielectric strength		2,500 V a.c. For 1min at 60Hz						
Rated impulse withstand voltage (Uimp)		2,500 V						
Vibration resistance		10-55 Hz, Double amplitude : 1.5 mm, X-Y-Z each axis direction for 2 hour						
Shock resistance		1,000 m/s <sup>2</sup> , X-Y-Z each axis 3 times						
Storage Temperature		-30 ~ 90 °C						
Ambient Temperature & Humidity		-30 ~ 80 °C (No Condensation), 45 ~ 85 % RH						
Pollution level grade		2 level						
bolt tightening torque		Input terminal: 0.05 Nm / Output terminal: 0.25 Nm						
Usage		Resistive load						
Accepted standard		CE (EN 60947-4-3) <b>RoHS2</b>						
Weight		Approx 250g						