



INSTRUCTION MANUAL

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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MC1301KE230302

Safety information

Before using the product, please read the safety information thoroughly and use it properly. Alerts declared in the manual are classified to **Danger**, **Warning** and **Caution** by their criticality.

DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or property damage

DANGER

- The input/output terminals are subject to electric shock. Never let the input/output terminals come in contact with your body or conductive substances.

WARNING

- Please read the safety information carefully before the use, and use the product correctly.
- If there is a possibility that a malfunction or abnormality of this product may lead to a serious accident, install an appropriate protection circuit on the outside and plan to prevent accidents.
- Please supply the rated power voltage, in order to prevent product breakdowns or malfunctions.
- To prevent electric shocks and malfunctions, do not supply power until the wiring is completed.
- Please disassemble the product after turning OFF the power.
- Any use of the product other than those specified by the manufacturer may result in personal injury or property damage.
- Please use this product after installing it to a panel, because there is a risk of electric shock.
- 4 - 32 V d.c model signal inputs must be supplied with an isolated and limited voltage/current or Class2, SELV power supply.
- Short circuit rated current is 3kA.

CAUTION

- Please make sure that the product specifications are the same as you ordered.
- Please use the product in places where corrosive gases (especially harmful gases, ammonia, etc.) and flammable gases are not generated.
- Please use the product in places without liquids, oils, chemicals, steam, dust, salt, iron, etc. (pollution degree 1 or 2).
- Please avoid places where large inductive interference, static electricity, magnetic noise are generated.
- Please avoid places with heat accumulation caused by direct sunlight, radiant heat, etc.
- When water enters, short circuit or fire may occur, so please inspect the product carefully.
- Do not connect anything to the unused terminals.
- For DC types, please wire correctly, after checking the polarity of the terminals.
- When disposing of the product, treat it as industrial waste.
- Pay attention to the edge of the heat sink, which may be sharp.
- The temperature of the main body and the heat sink may become extremely high when electric power is applied, which may cause burns.
- In case of product malfunction, remove only the main body.
- Because the SSR heats up when power is on, the lower the heat sink and ambient temperatures, the longer the life.
- Note 1) If using a separate heat sink, use one that meets the thermal resistance table.

Suffix code

CE, UL certified products

Model	Code	Content
HSR-SL	□ □ □ □ □ □	Slim-type single-phase Solid State Relay
Control input voltage	D	4 - 32 V d.c.
	A	90 - 240 V a.c.
Rated load current	15	15 A
	25	25 A
	40	40 A
Operating load voltage	L	24 - 240 V a.c. (Low voltage)
	H	24 - 480 V a.c. (High voltage)
Method of operation	Z	Zero-cross switching (standard product)
	R	Random switching
Heat sink & Option	S	Integrated heat sink (standard product)
	T	Heat sink + Bimetal mounted
	N	No heat sink ※CAUTION 1) When using a separate heat sink, you must use a heat sink that meets the thermal resistance table.
point of contact	1C	1 Point of contact (Unmarked)
	2C	2 Point of contact (Unmarked) ※CAUTION 2) Only for 15 A

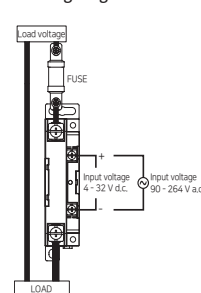
※CAUTION 2) 2 contact : Only available for 15 A items (HSR-SL□15LZS2C, HSR-SL□15HZS2C)

S-MARK certified products

Model	Code	Content
HSR-SL	□ □ □ □ □ -S	Slim-type single-phase Solid State Relay
Control input voltage	D	4 - 32 V d.c.
Rated load current	15	15 A
	25	25 A
	40	40 A
Operating load voltage	L	24 - 240 V a.c. (Low voltage)
	H	24 - 480 V a.c. (High voltage)
Method of operation	Z	Zero-cross switching (standard product)
	S	Integrated heat sink (standard product)
Heat sink & Option	T	Heat sink + Bimetal mounted
	N	No heat sink ※CAUTION 1) When using a separate heat sink, you must use a heat sink that meets the thermal resistance table.

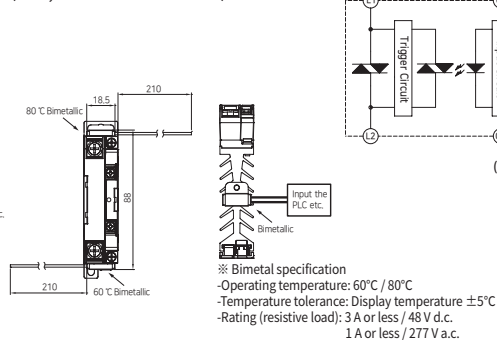
Connection diagram

Load and input voltage wiring diagram

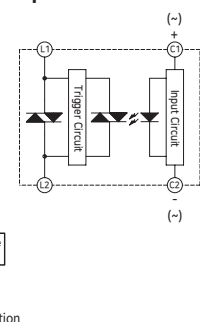


※ This model does not have a fuse internally.
So we suggest using fast-acting fuse separately on the outside as following pictures.

BI Option spec diagram (60°C, 80°C bimetal mounted)



Equivalent Circuit



Specifications

Model			Low	HSR-SLD15LR	HSR-SLD25LR	HSR-SLD40LR	HSR-SLA15LR	HSR-SLA25LR	HSR-SLA40LR
			High	HSR-SLD15LZ	HSR-SLD25LZ	HSR-SLD40LZ	HSR-SLA15LZ	HSR-SLA25LZ	HSR-SLA40LZ
			Low	HSR-SLD15HR	HSR-SLD25HR	HSR-SLD40HR	HSR-SLA15HR	HSR-SLA25HR	HSR-SLA40HR
			SHigh	HSR-SLD15HZ	HSR-SLD25HZ	HSR-SLD40HZ	HSR-SLA15HZ	HSR-SLA25HZ	HSR-SLA40HZ
LOAD	Rated Load Voltage	Low	24 - 240 V a.c. 50/60 Hz						
		High	24 - 480 V a.c. 50/60 Hz						
	Peak Voltage (Non-repetition)	Low	1,200 V						
		High							
	Rated load current			15 A	25 A	40 A	15 A	25 A	40 A
	Surge current 60 Hz (8.3 ms No repetition)	Low	170 A	260 A	420 A	170 A	260 A	420 A	
		High	170 A	250 A	370 A	170 A	250 A	370 A	
	Surge current 50 Hz (10 ms No repetition)	Low	160 A	250 A	400 A	160 A	250 A	400 A	
		High	160 A	230 A	350 A	160 A	230 A	350 A	
	Leakage current			Less than 20 mA					
Output ON voltage dropping			Less than 1.6 V (R.M.S)						
INPUT	Rated Voltage			5 - 24 V d.c.			100 - 240 V a.c. 50/60 Hz		
	Operating Voltage Range (ON Voltage)			4 - 32 V d.c.			90 - 264 V a.c. 50/60 Hz		
	return voltage (OFF Voltage)			Less than 3 V			Less than 50 V		
	Impedance			Less than 4 kΩ			Less than 40 kΩ		
	Current consumption			Constant current method : Less than 14 mA			Less than 14 mA		
	Response Time			1/2 Cycle + 1 ms max. ("R" type below 1 ms)					
Insulating Resistance			500 V d.c., 100 MΩ (Between the input / output and case)						
Dielectric strength			2,500 V a.c. (For 1min at 60 Hz)						
Rated impulse withstand voltage (Uimp)			2,500 V						
Vibration resistance			10 - 55 Hz, Constant current method : 1.5 mm,X-Y-Z each axis direction for 2 hour						
Shock resistance			1,000 m/s ² , X-Y-Z each axis 3 times						
Storage Temperature			-30 ~ 90 °C						
Ambient Temperature			-30 ~ 80 °C (no condensation)						
Ambient Humidity			45 ~ 85 % RH						
Pollution level grade			2 Level						
bolt tightening torque			Input terminal: 0.05 Nm / Output terminal: 0.25 Nm						
Usage			Resistive load						
certification			CE (EN 60947-4-3) cULus RoHS2						
Weight Integrated heat sink (with box)			Approx. 226 g		Approx. 266 g		Approx. 226 g		Approx. 266 g
Weight Heating plate removal (with box)			Approx. 94 g						

Dimensions

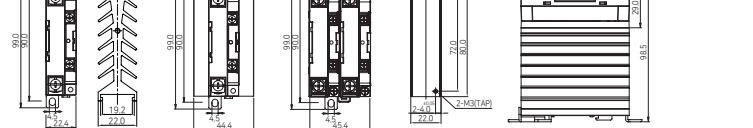
CE, UL certified products

15A, 25A

40A

2C (2 Point of contact)

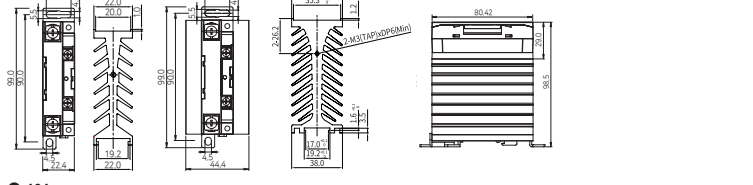
N (Heating plate removal)



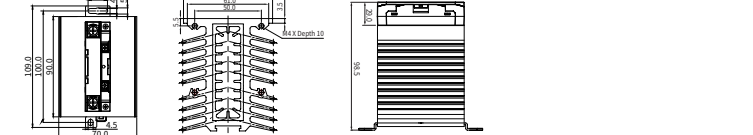
S-MARK certified products

15A

25A



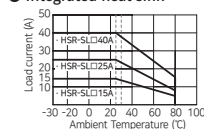
40A



Load/Surge current Characteristics

Load current Characteristics

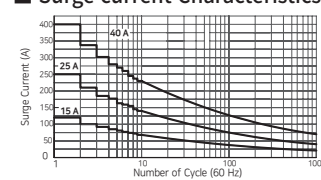
Integrated heat sink



CAUTION 1

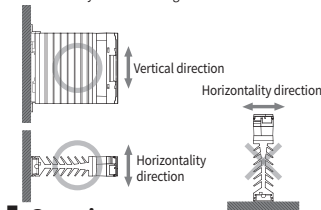
load capacity	Heatsink thermal resistance
15A	0.92 °C/W
25A	0.71 °C/W
40A	0.25 °C/W

Surge current Characteristics



How to install

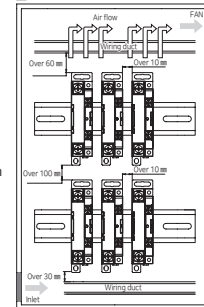
- Please install HSR in the vertical direction.
- Otherwise, production performance may be reduced to less than 50 %.
- Since the weight of the product is heavy, install it stably when installing DIN rail



Caution

- Since the width of the load output terminal is 10.6mm and the input terminal is 6.8mm, use a smaller terminal than the standard and tighten it with the rated torque.
- When the product is defective, separate main body and exchange it.
- Use it under temperature 25 °C when a real load current is 35 ~ 40 A.
- When 40 A maximum load is used, use 10 SQ wiring. Use clamping unit or lug when tightening it.
- Input terminal wiring
1 X 0.5 mm² (1 X AWG20) or larger
1 X 1.5 mm² (1 X AWG16) or less than 2 X 1.5 mm² (2 X AWG16)
- Output terminal wiring
1 X 1.5mm² (1 X AWG16) or larger
1 X 16 mm² (1 X AWG6) or less than 2 X 6 mm² (2 X AWG10)
※ Connect the wiring suitable for the load current capacity to the output terminal.

Installation intervals



- Please make intervals more than following picture.
- Please install wiring duct less than half the height of the heat sink to prevent obstruction the flow of air.
- The optimal performance of our HSR is in the ambient temperature by 25 °C so please use it lower than 25 °C

- 그림과 같이 설치간격을 해당부분 치수 이상으로 거리를 떨어뜨려 주십시오.
- 배선덕트는 공기의 흐름을 막지 않도록 방열판 높이의 절반 이하가 되도록 설치하여 주십시오.
- 당사 HSR은 주위온도 25℃이하의 조건에서 만족하므로 주위온도를 항상 규격온도보다 낮은 조건에서 사용하여 주십시오.