Slim Type

HSR-2SL

2-Phase Solid State Relay

INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG product.
Please check whether the product is the exactly same as you ordered.
Before using the product, please read this instruction manual carefully.
Please keep this manual where you can view at any time

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

⚠ DANGER

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

⚠ WARNING

- Before you use, please read safety precautions carefully, and use this product properly.
- If you are concerned about serious accident due to the malfunction of products, please install the external safety equipment
- To prevent defection or malfunction of this product, supply proper power voltage in accordance with the rating.
- To prevent electric shock or devise malfunction of this product, do not supply the power until the wiring is completed.
- Reassemble this product while the power is off. Otherwise, it may cause malfunction or electric shock.
- If the user uses the product with methods other than specified by the manufacturer, it will brings the bodily injuries or property damages.
- Due to the danger of electric shock, please use this product installed onto a panel while an electric current is applied.

⚠ CAUTION

- Before using the product you have purchased, please check out if it is exactly what you ordered.
- Do not use this product at any place with corrosive gas (especially noxious gas or ammonia) or flammable gas.
- Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents.
- Do not use this product at any place with excessive induction trouble, static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
- When the product gets wet, the inspection is essential because there is a danger of an electric leakage or fire.
- Do not connect anything to the unused terminals.
- For DC types, please connect wires at the correct position after checking polarity of terminal.
- When product is disposed, treat as a industrial waste.
- Since a heat sink corner is sharp, it would lead to a serious injury.
- When electricity flows, desktop or heat sink's corner temperature would be high so that it could lead people to suffer burns.
- When it is out of order, please separate SSR from head sink and change only SSR.
- This model has epoxy molding for the purpose of safety, reliability and extends of the life.
- When applying an electric current, SSR is heated more and more. So, it has more durable at low heat sink temperature and ambient temperature.

Suffix code

Model	Code	Information
HSR-2SL	□□□□	2-Phase Solid State Relay
Input Control Voltage	D	4 – 32 V d.c.
Rated load current	25	25 A
	40	40 A
Rated load voltage	2	90 – 264 V a.c. (Low voltage)
	4	90 – 480 V a.c. (High voltage)
Operation method	Z	Zero Cross Switching (Standard product)

Specification

Model				
		Low	HSR-2SLD252Z	HSR-2SLD402Z
		High	HSR-2SLD254Z	HSR-2SLD404Z
LOAD	Rated Load Voltage	Low	90 – 264 V a.c.	
		High	90 – 480 V a.c.	
	Peak Voltage (Non-repetition)	Low	600 V	
		High	1,200 V	
	Rated load current		25 A	40 A
	Frequency		50/60 Hz (Dual usage)	
	Surge current (8.3 ms No repetition)	Low	260 A	420 A
		High	250 A	370 A
	Leakage current		10 ㎃ max	
	Output ON voltage dropping		1.8 V (R.M.S) max	
Rated impulse withstand voltage		Low	4 ㎸	
		High	6 ㎸	

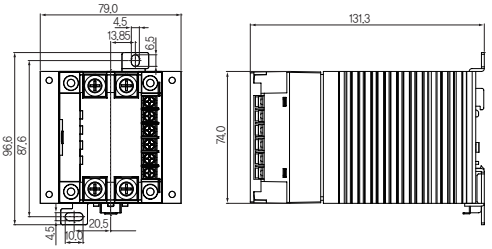
Specification

INPUT	Rated Voltage	5 – 24 V d.c.	
	Operating Voltage Range	4 – 32 V d.c.	
	Impedance	Less than 4 ㏀	
	Operation Voltage	More than 3 V d.c.	
	Reset Voltage	Less than 1.5 V d.c.	
	Input Current	Constant-current system : 10 ㎃ (±3)	
Detection parts	Rated Voltage	24 V d.c.	
	Operating Voltage Range	20 – 26 V d.c.	
	Power consumption	Max 25 ㎃, Max 40 ㎃ in case of Alarm output (Base on 24 V d.c.)	
	Collector pressure	30 V d.c. max	
	Maximum rated through current	50 ㎃ max	
	Max. collector power consumption	500 mW	
	Output type	Transistor open collector (Hi at detection of problem)	
Response Time		1/2 Cycle + 1 ms max. ("R"type below 1 ms)	
Insulating Resistance		500 V d.c., 100 ㏁ (Between the input / output and case)	
Dielectric strength		2,500 V a.c. (For 1 min at 60 ㎐)	
Vibration resistance		10 – 55 ㎐, Double amplitude : 1.5 ㎜, X,Y, and Z direction for 2 hours	
Shock resistance		1,000 ㎨, X,Y,Z each axis 3 times	
Storage Temperature		-30 ~ 90 ℃	
Ambient Temperature		0 ~ 25 ℃ (But without frostiness)	
Ambient Humidity		45 ~ 85 % R.H.	
Pollution level grade		2 level pollution	
Degree of protection		IP20	
Usage		Resistive load / Inductive load	
Accepted standard		IEC 62314	
Certification		CE S	
Weight (with box)		Approx. 1,000 g	Approx. 1,300 g

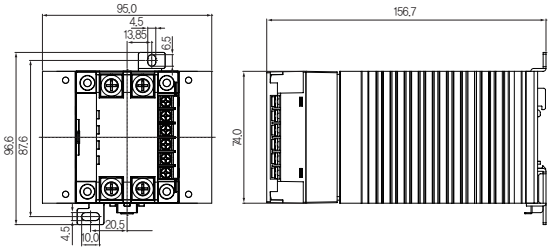
Dimension

[Unit : mm]

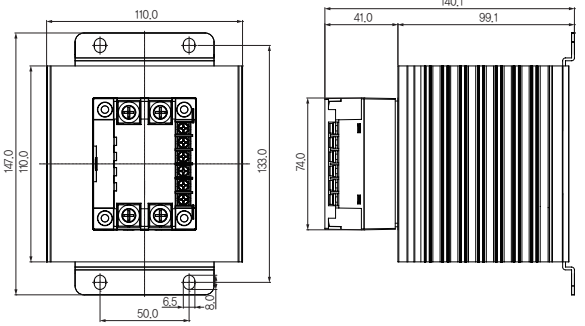
■ HSR-2SLD252Z, 254Z



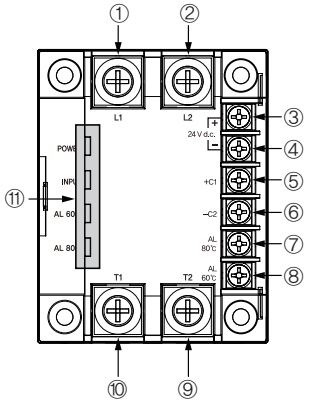
■ HSR-2SLD402Z



■ HSR-2SLD404Z



Part names and function



No	Information
①	Input terminal for load power supply
②	
③	Terminal for power of detection (24 V d.c.) ※ Alarm – COM
④	
⑤	Terminal for control input (4 – 32 V d.c.) ※ Voltage output for temperature controller and etc.
⑥	
⑦	Terminal for alarm output (alarm from 80 ℃)
⑧	Terminal for alarm output (alarm from 60 ℃)
⑨	Terminal for load
⑩	
⑪	Status display LED

■ Explanation for status display LED

Name	LED Color	Information
POWER	Green	Light is on when applying 24 V d.c. to the detecting power terminal
INPUT	Green	When 4 – 32 V d.c. power is applied to control input terminal, the brightness is getting higher in proportion to lighting voltage
AL 60℃	Red	Light is on when internal heat sink temperature is higher than 60 ℃
AL 80℃	Red	Light is on when internal heat sink temperature is higher than 80 ℃

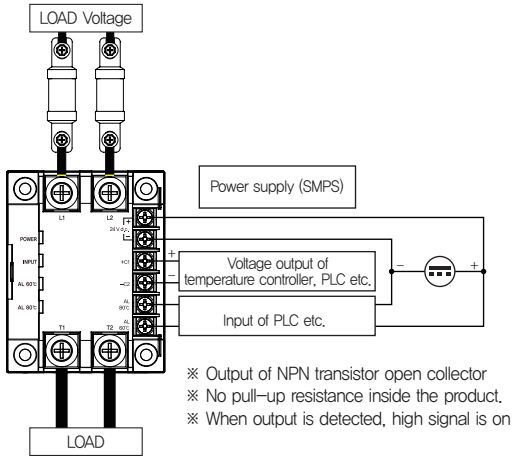
■ Alarm output

Status		Alarm output
Lower than 60 ℃	Normal operation	Alarm output terminal low
Higher than 60 ℃	AL 60 ℃ LED ON	AL 60 ℃ alarm terminal Hi
Higher than 80 ℃	AL 80 ℃ LED LED ON, Operation stop	AL 80 ℃ alarm terminal Hi

- If heat sink temperature is lower than the set temperature, the alarm is automatically turned off.
- When internal heat sink temperature is more than 80 ℃, operation will be forced to stop.

Connection

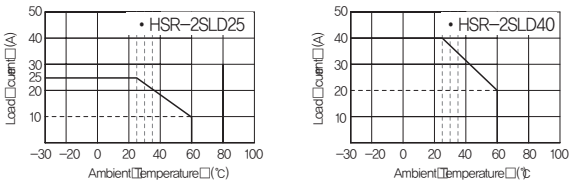
※ There is no fuse inside this product.
We would like to suggest you to use fast fuse outside as below picture



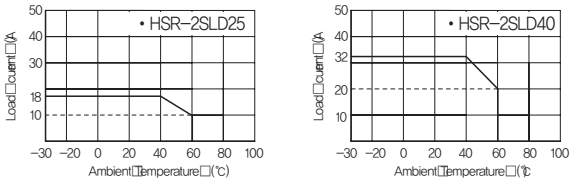
※ Output of NPN transistor open collector
※ No pull-up resistance inside the product.
※ When output is detected, high signal is on

Load/Surge current Characteristics

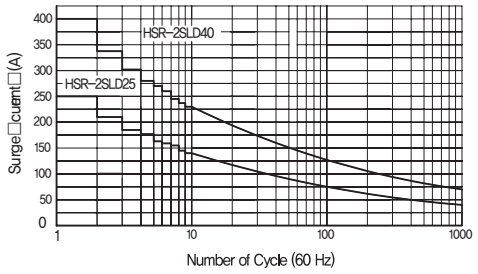
■ Load current Characteristics (25 ℃)



■ Load current Characteristics (40 ℃)

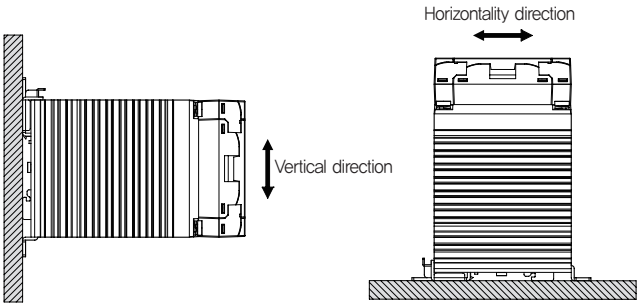


■ Surge current Characteristics

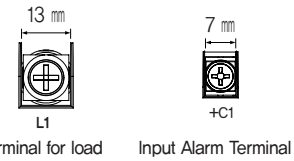


How to install

- Please install HSR in the vertical direction.
- Otherwise, product's performance may be reduced to less than 50 %.
- When installing DIN rail, please install it stably since the product is heavy.



- The width of the load output terminal is 13 ㎜ and the width of input terminal is 7 ㎜ so please use terminal that has less size than them and wire it strongly. (Load Bolt M5, Control Terminal M3)



Installation intervals

- 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 25 ℃ so, please use it lower than standard temperature.
- When using 40 A maximum load, please use 10 SQ wiring. Also please use clamping unit or lugs when tightening wires.