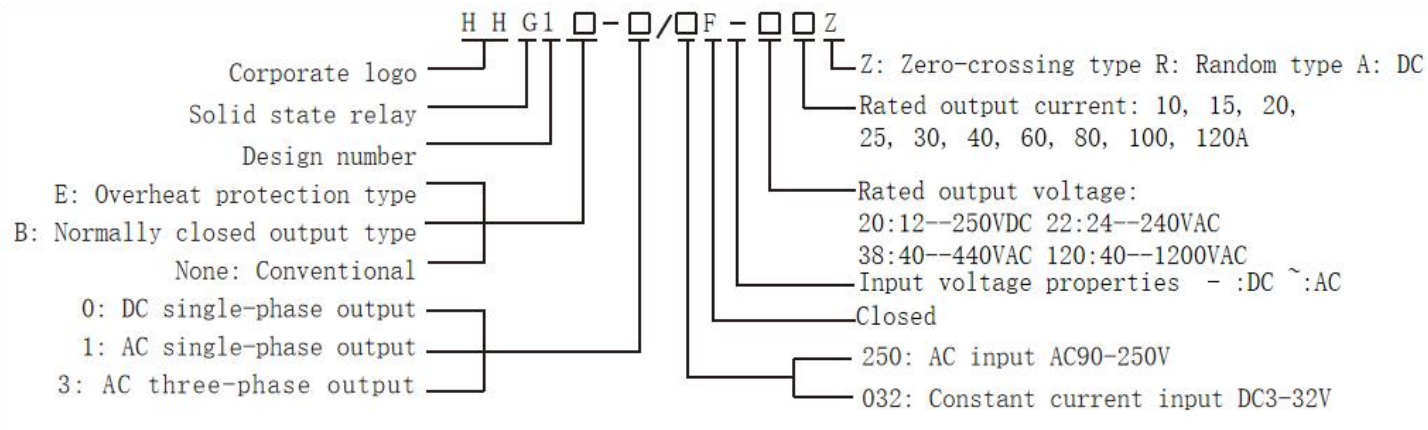
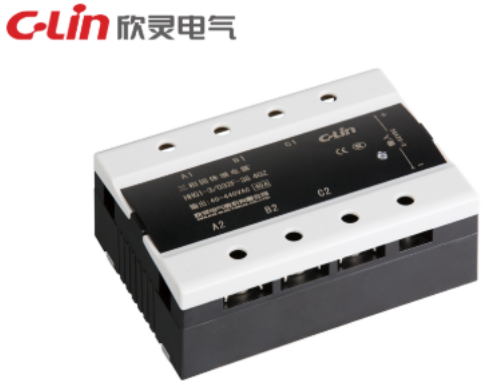
■ Overview:

The English name of solid-state relay is Solid State Relay, or SSR for short. It is a switching device that uses semiconductor devices to replace contact contacts. The input and output terminals are optically isolated. When a control signal is added to the input terminal, the output terminal can change from the off state to the on state, or from the on state to the off state (normally closed type). However, on and off cannot be equated with the on and off of the contacts of a relay or an energy converter. Generally, it is difficult to judge the quality of a solid-state relay by measuring the output terminal with a multimeter. It must be tested with a load (bulb) according to the application wiring diagram. There is an RC loop inside the output end of the solid-state relay, and there will be a leakage current of ≤10 mA. It is normal for a general small load to be turned on or output voltage. Because the output thyristor has a voltage drop of <1.5 V when it is turned on, the solid-state relay will heat up. A heat sink must be added, and space must be left in the cabinet when it is installed. The selection of the heat sink can refer to Appendix 1. The output voltage and current marked on the solid-state relay are the rated voltage and rated current, and they must be used at a reduced rating when selecting. The derating factors for different loads are different, please refer to Appendix 2. Especially for inductive loads, a varistor should be connected in parallel at the output end for protection.

■ Solid state relay models and meanings



■ HHG1-3/032F-38(SSR-DA) Picture



■ Main technical parameters

Model		Input parameters						Output parameters								Working current safety series	
		Control Voltage VDC	Control Current mA	Starting voltage VDC	Starting current mA	Shutdown Voltage VDC	Work instructions	Output voltage VAC	Output current A	Dielectric withstand voltage VAC	On-state voltage drop VAC	Frequency range HZ	Voltage rise rate V/μS	Operating temperature ℃	Cooling method	Resistive load	Inductive load
Simplex	G1-0	5 - 32	<25	5	≤7	3. 0	LED	12-250 VDC	10-40	≥1500	<1. 5 VDC	/	100	- 30 + 80	10 - 80 A with heat sink; add fan for forced cooling when temperature exceeds 60℃ Thermal grease must be added between the product and the heat sink	60 %	40 %
	G5-1	3 - 32	<25	3	≤7	≤1. 5	LED	40-1200	60-120	≥2500	<1. 5	47 - 63	500	- 30 + 80			
	G1-1 G2-1	3 - 32	<25	3	≤7	≤1. 5	LED	24-240 40-440	10-80	≥2500	<1. 5	47 - 63	500	- 30 + 80			
		90-250 VAC	<30	90VAC	≤7	10VAC	LED			≥2500	<1. 5	47 - 63	500	- 30 + 80			
Three-phase		3 - 32	<25	3	≤7	≤1. 5	LED		10-120	≥2500	<1. 5	47 - 63	500	- 30 + 80			
		90-250 VAC	<30	90VAC	≤7	10VAC	LED			≥2500	<1. 5	47 - 63	500	- 30 + 80			

Radiator Selection Appendix 1										
Solid state model current	Single phase 20A or less	Single phase 40A or less	Single phase 60A or less	Single phase 80A or less	Three phase 20A or less	Three phase 30A or less	Three phase 40A or less	Three phase 80A or less	Three phase 100A or less	Three phase 200A or less
Radiator model	HH-060	HH-061	HH-062	HH-063	HH-035	HH-034	HH-036	HH-037	HH-038	HH-039

For load derating, refer to Appendix 2								
Load type	Pure resistance	Heating wire	Incandescent lamp	Transformer	Electromagnet	Single-phase motor	Three-phase motor	Capacitor switching
Power factor	1. 0	0. 7	0. 5	0. 4	0. 5	0. 2	0. 3	Surge
Amplify times	1.5 times	2 times	2.5 times	4 times	4 times	7 times	6 times	10 times

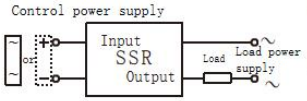
■ Application Circuit Wiring Diagram

1. AC SSR wiring diagram

DC controls AC (D/A)

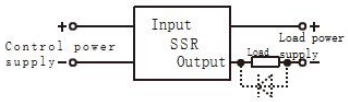
AC controls AC (A/A)

Control power supply



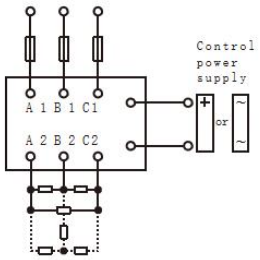
2. DC SSR wiring diagram

DC controlled DC (D/D)



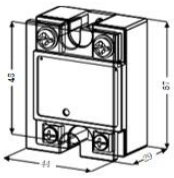
1. Three-phase SSR wiring diagram

Control power supply

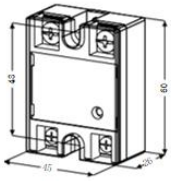


■ Appearance and installation dimensions

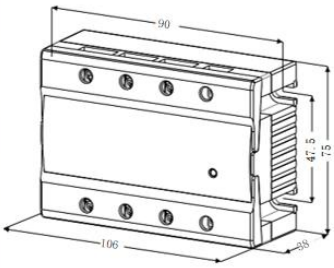
HHG1-0/032F-20(Improved)
HHG1-1/032F-22、38(Improved)
HHG1-1/250F-22、38(Improved)



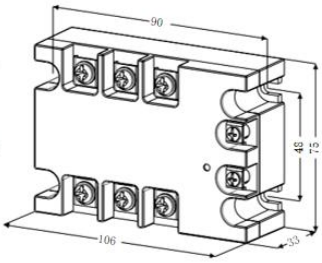
HHG1-0/032F-20
HHG1-1/032F-22、38
HHG1-1/250F-22、38
HHG5-1/032F-38、120



HHG2-1/032F-22、38
HHG2-1/250F-22、38



HHG1-3/032F-38(Improved)
HHG1-3/250F-38(Improved)



HHG1-3/032F-38
HHG1-3/250F-38

■ Precautions for use

▶ Input the working conditions:

- Pay attention to the range and positive and negative polarity of the working voltage.
- To ensure the normal operation of the solid relay, the input current should be increased when the ambient temperature is low, and the input current should be reduced when the temperature is high.
- When using an integrated circuit to directly drive the SSR, it should have sufficient load capacity and the lowest possible "0" level output.

▶ Output working conditions: To ensure the reliable operation of SSR, the limit parameters of SSR must be used correctly and necessary protective measures must be taken.

- Peak voltage selection: Inductive load: 2-3 times the line voltage (effective value), pure resistance load: 1-2 times the line voltage (effective value).

  Selection of varistor: The nominal working voltage value of the varistor is selected according to 1.8-2 times the effective value of the SSR working voltage.
- Products with a working current below 5A should be installed next to a heat dissipation window with good ventilation, or where the cooling wind blows.
- Products with a working current of more than 10A must be installed with a radiator. Thermal conductive silicone grease must be added between the relay and the radiator to dissipate heat well. When the surface temperature of the radiator is close to 60℃, forced air cooling should be used.
- In order to avoid the temperature rise of the solid relay exceeding the allowable value, the heat dissipation effect and installation position should be fully considered during the design and application. When two or more solid relays are installed side by side, a suitable large spacing should be left.

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