

CHINT 正泰

NJG2

Solid-state Relays

Operation Manual

Thank you for purchasing our products! Please read the Operation Manual carefully before installing, using or maintaining the products.

The manufacturer has obtained the following management system certifications: ISO9001, ISO14001 and ISO45001.

Products certified according to GB/T 14048.5

Safety Instructions

1. Do not install the product in an environment containing flammable and explosive gases as well as moisture and condensation. Do not operate the product with wet hands.
2. Do not touch the conductive parts of the product when the product is operating.
3. Make sure the circuit is de-energized before installing, maintaining and servicing the product.
4. Always prevent children from playing with the product or its packaging.
5. Install the product by maintaining sufficient spacing and safety distances around the product.
6. Do not install the product in an environment where the presence of gas media could lead to corrosion of metal parts or damage to insulation.
7. Install and operate the product by using the delivered cables and connecting the power supply and loads according to the specifications.
8. To avoid dangerous accidents, make sure to install and secure the product strictly according to the instructions.
9. After unpacking the product, check it for damage and the integrity of all the items contained.

1 Main Purposes and Scope of Application

NJG2 solid-state relays (SSRs) are suitable for resistive, inductive and capacitive loads, and can be widely used in various automation control fields such as CNC machinery, plastic machinery, food machinery, packaging machinery, textile machinery, electric furnace heating/thermostatic systems, petrochemical instruments and equipment, entertainment facilities. NJG2 SSRs are available with an input control voltage of DC3~32V/AC90~250V, an output current of 10A~120A, and an output voltage of AC24~240V/AC40~480V/DC12~250V.

2 Model Specifications and Definitions

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(1) Manufacturer identification code

(2) Solid-state relay

(3) Design series number

(4) S: Single-phase; T: Three-phase

(5) Input voltage type, D: DC; A: AC

(6) Output voltage type, D: DC; A: AC

(7) Input voltage, 032: DD:DC 5~32V DA: DC 3~32V

250: AC90~250V

(8) Maximum load current, 10A/15A/20A/25A/30A/40A/60A/80

A/100A/120A

(9) Load voltage, 220: AC24~240V 380: AC40~480V

024: DC12~250V

(10) F: Closed type, omitted by default

3 Normal Operating, Installation, Transportation and Storage Conditions

3.1 Normal Operating Conditions

- Temperature range: -5°C~+40°C
- Humidity range: up to 85% @ +25°C
- Pollution level: 3
- Rated AC frequency: 50Hz/60Hz

3.2 Installation Conditions

Under the conditions specified in the section "Safety Instructions", rain- and snow-proof, dry and ventilated.

3.3 Transport and Storage Conditions

The product should be stored and transported in a dry and ventilated environment, with protection from significant shock and vibration, direct sunlight, rain, dust, chemical gas corrosion, etc.

4 Main Technical Data and Performance

For the main technical data, please refer to Table 1.

Table 1: Main Technical Data

Model	Input Parameters						Output Parameters						Operating Current Safety Factor	
	Control Voltage VDC	Control Current mA	Start Voltage VDC	Start Current mA	Off Voltage VDC	Operation Indicator	Output Voltage VAC	Output Current A	Medium Withstand Voltage VAC	On-state Voltage Drop VAC	Frequency Range HZ	Voltage Rise Rate V/μS	Cooling	Resistive Load
G2-SDD032	5-32	< 46	< 3.7	≤ 7	> 0.8	LED	12-250 VDC	10-20	≥ 1500	< 1.5 VDC	1000	(5-120A models: heatsink + additional fan-forced cooling (to be activated when the temperature exceeds 60°C) Thermal silicone grease must be applied between the product and the heatsink	60%	40%
G2-SDA032	3-32	< 23	< 2.8	≤ 7	> 1	LED	24-240	10-120	≥ 2500	< 1.5 VDC	500		60%	40%
G2-SAA250	90-250 VAC	< 16	< 85 VAC	≤ 7	> 20 VAC	LED	40-480	10-120	≥ 2500	< 1.5 VDC	500		60%	40%
G2-TDA032	3-32	< 25	< 2.8	≤ 15	> 1	LED	40-480	10-120	≥ 2500	< 1.5 VDC	500		60%	40%
G2-TAA250	90-250 VAC	< 30	< 85 VAC	≤ 15	> 10 VAC	LED	40-480	10-120	≥ 2500	< 1.5 VDC	500		60%	40%

For selection of heatsinks, please refer to Table 2.

Table 2: Selection of Heatsinks

SSR Type & Current	Single-phase, ≤20A	Single-phase, ≤40A	Single-phase, ≤60A	Single-phase, ≤80A	Three-phase, ≤20A	Three-phase, ≤30A	Three-phase, ≤40A	Three-phase, ≤60A	Three-phase, ≤120A
Heatsink Model	RAD-060	RAD-061	RAD-062	RAD-063	RAD-035	RAD-034	RAD-036	RAD-037	RAD-038

For load derating, please refer to Table 3.

Table 3: Load Derating

Model	Pure Resistance	Heating Wire	Incandescent Lamp	Transformer	Electromagnet	Single-phase Motor	Three-phase Motor
Power Factor	1.0	0.7	0.5	0.4	0.5	0.2	0.3
Amplification Factor	1.5 times	2 times	2.5 times	4 times	4 times	7 times	6 times

5 Main Features and Functions

NJG2 SSRs are switching devices that use semiconductor components to replace contact contacts. Photoelectric isolation is provided between the input and output ends. When a control signal is applied to the input end, the output end can change from the off state to the on state. The RC loop inside the SSR output terminal may generate leakage current. It is normal for small loads to have conduction or output voltage. The voltage drop across the output thyristor during conduction can result in heat generation within the SSR, therefore needs to be used with a heatsink. The output voltage and current marked on the SSR represent rated values, which need to be derated when selecting a SSR for a particular application. The derating coefficients can vary depending on the type of load. Especially for inductive loads, protection should be provided by connecting a varistor in parallel at the output end of the SSR.

6 Overall & Installation Dimensions and Weight

For the overall and installation dimensions, please refer to Figure 1 and 2. The weight is indicated on the label of the product package.

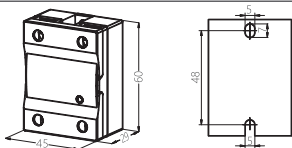


Figure 1: Single-phase SSR

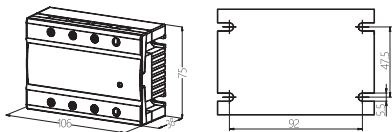


Figure 2: Three-phase SSR

For the wiring diagrams for different applications, please refer to Figure 3, 4 and 5.

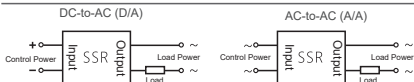


Figure 3: Wiring Diagram for AC SSR

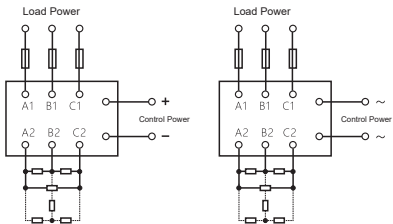


Figure 4: Wiring Diagram for Three-phase SSR

DC-to-DC (D/D)

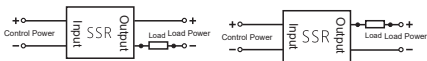


Figure 5: Wiring Diagram for DC SSR

7 Installation, Commissioning and Operation

Before installing and operating the product, please read the Operation Manual carefully to ensure correct use. If you have any questions, please contact our After-sales Service Department in time.

When installing the product, please check if the specifications, model, voltage and other parameters of the product are in compliance with the technical requirements specified in the wiring diagrams.

Wiring and maintenance activities should be carried out only by qualified personnel.

Never use the product beyond the specifications indicated on the nameplate, otherwise it may result in damage to the switch or circuit hazards.

Input operating conditions:

- Attention should be paid to the operating voltage range and the correct polarity (positive and negative terminals).
- To ensure the normal operation of SSRs, the input current should be increased at a low ambient temperature, or reduced at a high ambient temperature.
- When using integrated circuits (ICs) to directly drive SSRs, it is important to ensure the IC has sufficient load capacity and "0" level output as low as possible.

Output operating conditions:

- To ensure the reliable operation of SSRs, it is important to use their limit parameters correctly and implement necessary protective measures.
- Selection of peak voltage: inductive load: take 2-3 times the circuit voltage (effective value); pure resistive load: take 1-2 times the circuit voltage (effective value).

- Selection of varistor: The nominal operating voltage of the varistor should be selected according to 1.8-2 times the effective value of the SSR's operating voltage.
- Products with an operating current below 5A should be installed near a heat dissipation window with good ventilation, or where is exposed to the cooling wind.
- Products with an operating current above 5A should be installed with a heatsink. Thermal conductive silicone grease should be applied between the relay and the heatsink to enhance heat dissipation. When the surface temperature of the heatsink approaches 60°C, forced air cooling should be implemented.
- In order to prevent the temperature rise of SSRs from exceeding the allowable value, the heat dissipation effect and installation location should be fully considered during design and application. When installing multiple SSRs side by side, it is required to leave a suitable distance between them.

8 Precautions during Maintenance, Service, Transportation and Storage

Check the terminal screws for looseness and inspect the wires for damage or aging on a regular basis. Check the product that has been stored or have been out of service for half a year before use.

9 Warranty Period, Environmental Protection and Other Regulations

9.1 Warranty Period

Provided that the product is stored and transported under normal conditions and the packaging or product remains intact, the product will be covered by a warranty period of 36 months from the date of production.

However, the warranty coverage will not apply in the following situations:

Damage caused by improper use, storage and maintenance by the user;

Damage caused by unauthorized disassembly and repair carried out by an organization or person not designated by the manufacturer, or by the user;

Expiration of the warranty period;

Damage caused by force majeure.

9.2 Environmental Protection

In order to protect the environment, the product or its parts which are scrapped should be properly disposed of as industrial waste, or sent to a recycling station for classification, disassembly, recycling and reuse in accordance with relevant national regulations.

Quality Certificate

Model: NJG2

Description: Solid-state Relay (SSR)

The product has been tested according to the standard GB/T14048.5 and qualified for release.

Inspector: _____

INSP 04

Inspection Date: on the product or packaging

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According to technical improvements of the product, the Operation Manual is subject to revision without notice.

