

**Autonics**

Solid State Relay

**SRS1-A SERIES**



**INSTRUCTION MANUAL**

Thank you for choosing our Autonics product.  
Please read the following safety considerations before use.

**■ Safety Considerations**

- ※Please observe all safety considerations for safe and proper product operation to avoid hazards.
- ※⚠ symbol represents caution due to special circumstances in which hazards may occur.
- Warning** Failure to follow these instructions may result in serious injury or death.
- Caution** Failure to follow these instructions may result in personal injury or product damage.

**⚠ Warning**

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)  
Failure to follow this instruction may result in fire, personal injury, or economic loss.
- Do not connect, repair, or inspect the unit while connected to a power source.**  
Failure to follow this instruction may result in electric shock or fire.
- Check 'Connections' before wiring.**  
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**  
Failure to follow this instruction may result in electric shock or fire.

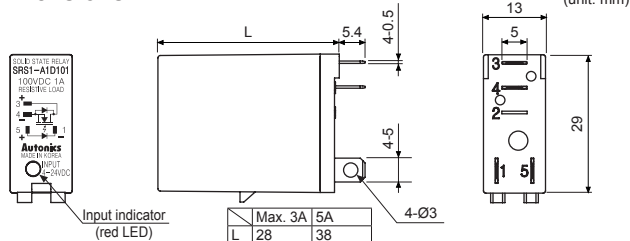
**⚠ Caution**

- Use the unit within the rated specifications.**  
Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.**  
Failure to follow this instruction may result in electric shock or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**  
Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.**  
Failure to follow this instruction may result in fire or product damage.
- Since leakage current still flows right after turning off the power or in the output OFF status, do not touch the load terminal.**  
Failure to follow this instruction may result in electric shock.

**■ Model**

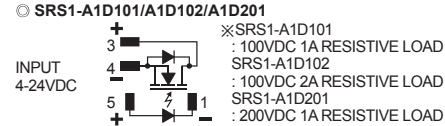
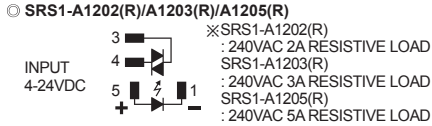
Model	Rated input voltage	Rated load current	Rated load voltage	Function
SRS1-A1202	4-24VDC	2A	24-240VAC	Zero cross turn-on
SRS1-A1202R				Random turn-on
SRS1-A1203		3A		Zero cross turn-on
SRS1-A1203R				Random turn-on
SRS1-A1205		5A		Zero cross turn-on
SRS1-A1205R				Random turn-on
SRS1-A1D101	5-100VDC	1A	5-100VDC	—
SRS1-A1D102				2A
SRS1-A1D201		1A		5-200VDC
SRS1-A1X201				5-240VAC/5-200VDC

**■ Dimensions**



- ※When installing multiple SSRs, please keep space between SSRs for heat radiation.
- ※The above specifications are subject to change and some models may be discontinued without notice.
- ※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

**■ Connections**



**■ Specifications**

**○ Input**

Rated input voltage range	4-24VDC≒	Max. input current	15mA	Pick-up voltage	Min. 4VDC≒
Allowable input voltage range	4-26.4VDC≒		(Random turn-on)	Drop-out voltage	Max. 1VDC≒

**○ Output (AC)**

Model	SRS1-A1202(R)	SRS1-A1203(R)	SRS1-A1205(R)
Rated load voltage range	24-240VACrms~ (50/60Hz)		
Allowable load voltage range	24-264VACrms~ (50/60Hz)		
Rated load current (AC-51)*1	2Arms	3Arms	5Arms
Min. load current	0.15Arms	0.2Arms	
Max. 1 cycle surge current (60Hz)	126A	250A	
Max. non-repetitive surge current (I <sup>2</sup> t, t=8.3ms)	65A <sup>2</sup> s	400A <sup>2</sup> s	
Peak voltage (non-repetitive)	600V		
Leakage current (Ta=25°C)	Max. 2mArms		
Output ON voltage drop [Vpk] (max. load current)	Max. 1.6V		
Static off-state dv/dt	500V/μs		
Turn-on time	Zero cross turn-on	Max. 0.5 cycle of load source + 1ms	
	Random turn-on	Max. 1ms	
Turn-off time	Max. 0.5 cycle of load source + 1ms		

**○ Output (DC, AC/DC)**

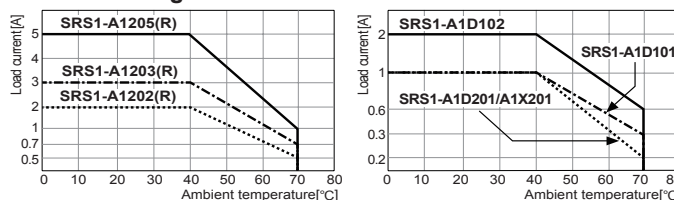
Model	SRS1-A1D101	SRS1-A1D102	SRS1-A1D201	SRS1-A1X201
Rated load voltage range	5-100VDC≒		5-200VDC≒	5-240VAC~ (50/60Hz), 5-200VDC≒
Allowable load voltage range	3-120VDC≒		3-220VDC≒	3-264VAC~ (50/60Hz), 3-220VDC≒
Rated load current (AC-51)*1	1A <sub>dc</sub>	2A <sub>dc</sub>	1A <sub>dc</sub>	1Arms/1A <sub>dc</sub>
Min. load current	10mA			
Max. surge current (t=10ms)	5A	10A	4A	
Leakage current (Ta=25°C)	Max. 100uA			Max. 2mArms
Output ON voltage drop [Vpk] (max. load current)	Max. 1.1V			Max. 2.2V
Static off-state dv/dt	500V/μs			
Turn-on time	Max. 1ms	Max. 2ms	Max. 1ms	Max. 2ms
Turn-off time	Max. 1ms			

**○ General specifications**

Dielectric strength (Vrms)	2,500VAC 50/60Hz for 1 min (input-output, input/output-case)			
Insulation resistance	Over 100MΩ (at 500VDC megger)			
Indicator	Input indicator: red LED			
Environment	Ambient temp. -20 to 70°C, storage: -30 to 100°C (The rated load current capacity is different depending on ambient temperature. Refer to 'SSR Derating curve'.) Ambient humi. 45 to 85%RH, storage: 45 to 85%RH			
Protection	IP10 (Protection structure of socket, SK-G05)			
Approval	CE, UL, etc.			
Weight*2	Max. 3A: Approx. 270g (approx. 17g), 5A: Approx. 380g (approx. 28g)			

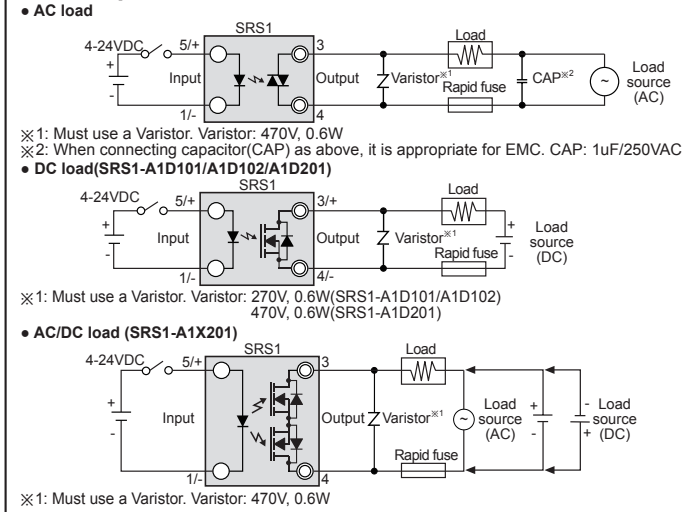
- ※1: AC-51 is utilization category at IEC60947-4-3.
- ※2: The weight is per 10 units with packing and the weight of parenthesis is per 1 unit.
- ※Environment resistance is rated at no freezing or condensation.

**■ SSR Derating curve**



- ⚠ Since effectiveness of the heat radiation is decreased when multiple SSRs are installed closely, please supply less than 50% of the rated load current.
- ※Above SSR derating curves obtained approval from the UL certification authority.

**■ Example of Connection**



**■ Cautions during Use**

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 4-24VDC signal input should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Install the unit in the well ventilated place.
- While supplying power to the load or right after turning off the power of the load, do not touch the body.  
Failure to follow this instruction may result in a burn due to the high temperature.
- In order to protect the product from the short-circuit current of the load, use rapid fuse of which I<sup>2</sup>t is under the 1/2 of SSR I<sup>2</sup>t. When short-circuited, replace the fuse to those of same specification with the used rapid fuse.
- Install dummy resistance in parallel with the load, to keep the sum of current flowing in the load and dummy resistance being over SSR minimum load current.
- When using random turn-on model for phase control, install noise filter between the load and the power of the load.
- Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
  - ①Indoors (in the environment condition rated in 'Specifications')
  - ②Altitude max. 2,000m
  - ③Pollution degree 2
  - ④Installation category II

**■ Major Products**

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Socket
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, CO<sub>2</sub>, Nd: YAG)
- Laser Welding/Cutting System

**Autonics Corporation**  
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