

Autonics

Solid State Relay SRC1 SERIES

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

※ Please keep these instructions and review them before using this unit.

※ Please observe the cautions that follow;

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

※ The following is an explanation of the symbols used in the operation manual.

Caution: Injury or danger may occur under special conditions.

Warning

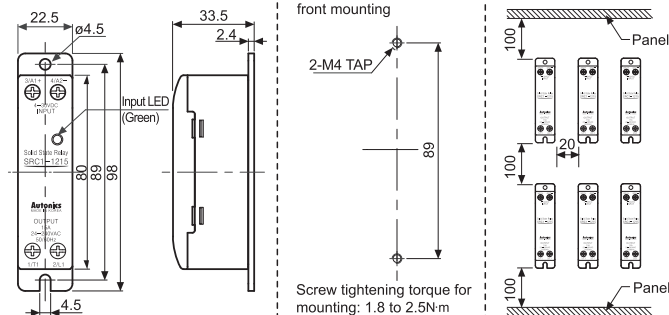
- In case of using this unit with machinery(Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.**
It may cause a fire, human injury or damage to property.
- Install the unit on a panel.**
It may give an electric shock.
- Do not connect, inspect or repair when power is on.**
It may give an electric shock.
- Do not disassemble the case. Please contact us if it is required.**
It may cause an electric shock or a fire.

Caution

- This unit shall not be used outdoors.**
It might shorten the life cycle of the product or give an electric shock.
 - Please observe the rated specifications.**
It might shorten the life cycle of the product and cause a fire.
 - In cleaning unit, do not use water or an oil-based solvent and use dry towels.**
It may cause an electric shock or a fire.
 - Do not use this unit in place where there are flammable or explosive gas, humidity, direct rays, radiant heat, vibration and impact etc.**
It may cause a fire or an explosion.
 - Do not inflow dust or wire dregs into the unit.**
It may cause a fire or a malfunction.
 - Do not touch SSR output terminals right after power switch OFF.**
It may cause an electric shock due to an electric charge in snubber circuit.
- ※ The above specifications are subject to change and some models may be discontinued without notice.

Dimensions & Mounting

※Dimensions



Ordering information

SRC	1	-	1	4	20	R
						Function
						Rate load current (Resistive load)
						Load voltage(Rated)
						Input voltage(Rated)
						Control phase
						Item
						No Mark
						Zero cross turn-on
						R
						Random turn-on
						15
						15A
						20
						20A
						30
						30A
						2
						24-240VAC
						4
						48-480VAC
						1
						4-30VDC
						4
						90-240VAC
						1
						Single phase
						SRC
						Solid State Relay(Compact size)

Model	Input voltage	Rated load current	Load voltage	Zero cross turn-on/Random turn-on
SRC1-1215	4-30VDC	15A		
SRC1-4215	90-240VAC	15A		
SRC1-1220	4-30VDC	20A	24-240VAC	Zero cross turn-on
SRC1-4220	90-240VAC	20A	24-240VAC	Zero cross turn-on
SRC1-1230	4-30VDC	30A		
SRC1-4230	90-240VAC	30A		
SRC1-1420	4-30VDC	20A	48-480VAC	Random turn-on
SRC1-4420	90-240VAC	20A	48-480VAC	Random turn-on
SRC1-1420R	4-30VDC			

Specifications

※Input

	4-30VDC input voltage	90-240VAC input voltage
Input voltage range	4-32VDC	85-264VACrms(50/60Hz)
Max. input current	9mA(Zero cross turn-on), 13mA(Random turn-on)	7mA(240VACrms)
Pick-up voltage	4VDC	85VACrms
Drop-out voltage	1VDC	10VACrms
Turn-on time	Zero cross turn-on Random turn-on	Max. 0.5 cycle of load source + 1ms Max. 1.5 cycle of load source + 1ms
Turn-off time	Max. 0.5 cycle of load source + 1ms	Max. 1.5 cycle of load source + 1ms

※Output

	24-240VAC load voltage	48-480VAC load voltage
Load voltage range(50/60Hz)	24-264VACrms	48-528VACrms
Rated load current	Resistive load(AC-51) Ta=25°C	15Arms 20Arms 30Arms
	Motor load(AC-53a)	- 5Arms
Min. load current	0.15Arms	0.2Arms
Max. 1cycle surge current(60Hz)	190A	270A
Max. non-repetitive surge current (1/1, t=8.3ms)	150A ² S	300A ² S
Peak voltage(Non-repetitive)	600V	1200V(Zero cross turn-on) 1000V(Random turn-on)
Leakage current(Ta=25°C)	Max. 10mA	
Output on voltage drop(Vpk)(Max. load current)	Max. 1.6V	
Static off-state dv/dt	500V/μs	

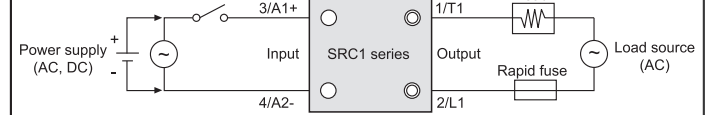
※General Specifications

Certification	UL508, CSA22.2 No.14, IEC/EN 60947-4-3
Type of the coordination of conditional short-circuit current	type 1
Dielectric strength(Vrms)	4000VAC 50/60Hz 1min.(Input-Output, I/O-Case)
Insulation resistance	Min. 100MΩ(at 500VDC Megger)
Vibration	10 to 55Hz double amplitude 0.75mm in each X, Y, Z direction for 1hour
Input LED	Green
Environ-ment	Ambient temperature: -30 to 80°C, Storage: -30 to 100°C (Rated load current capacity is different based on the surrounding temperature. Refer to SSR Characteristic curve.) Ambient humidity: 45 to 85%RH, Storage: 45 to 85%RH
Input terminal connection	Min. 1×0.5mm ² (1×AWG 20) Max. 1×1.5mm ² (1×AWG 16) or 2×1.5mm ² (2×AWG 16)
Output terminal connection	Min.1×0.75mm ² (1×AWG 18) Max. 1×4mm ² (1×AWG 12) or 2×2.5mm ² (2×AWG 14)
Input terminal fixed torque	0.75 to 0.95N·m
Output terminal fixed torque	1 to 1.35N·m
Unit weight	Approx. 85g

※Condition for use in Environment is no freezing or condensation.

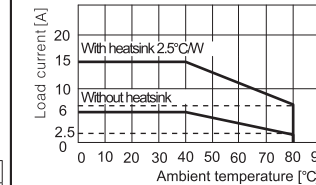
※For wiring the terminal, an O-ring terminal must be used.

Connections

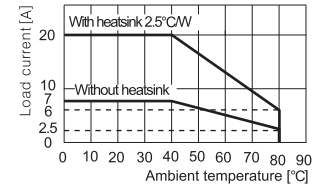


SSR Characteristic curve

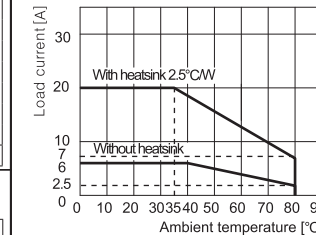
※SRC1-1215, SRC1-4215



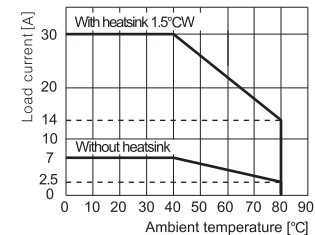
※SRC1-1220, SRC1-4220



※SRC1-1420, SRC1-4420, SRC1-1420R



※SRC1-1230, SRC1-4230



※ Please supply less than 50% of the rated load current when installing several SSRs closely due to decreasing effectiveness of protection against heat.

Caution for using

- Attach a heatsink and ventilate for smooth convection current. If not, congested heat transfer may cause product failure or malfunction.
- For mounting multiple SSR, please keep certain installation intervals for heat prevention. For horizontal installation(when the heights of input part and output part are equal), it is recommended to apply less than 50% of the rated load current.
- Make sure do not touch the heatsink or the unit body while power is supplied or right after load power is turned OFF. If not, it may cause a burn.
- Connect the proper cable for the rated load current with output terminal.
- Use rapid fuse of which I_t is under 1/2 of SSR I_t in order to protect the unit from load's short-circuit current.
- In case of a short-circuit please replace the fuse with a 1/2 of SSR I_t value specified semiconductor protective type.
- In case that load's current is lower than SSR min. load current, connect dummy resistance to the load in parallel so as to make load's current higher than SSR min. load current.
- When selecting phase control with random turn-on model, install the noise filter between load and load's source.
- Make sure that the screw on output terminal is tightly fastened. Using the unit with loose bolt may cause product failure or malfunction.
- Do not touch the load's terminal even if output is OFF. It may cause an electric shock.
- The signal input of the 4-30VDC model should be supplied by the insulated and limited voltage/current or by Class 2 power supply.
- To attach the heatsink, use Thermal Grease as below or that of equal specification.
※ Thermal Grease: GE TOSHIBA(YG6111), KANTO-KASEI(FLOIL G-600), SHINETSU(G746)
- Proper application environment (Avoid following environments to install)
①Where temperature/humidity is beyond the specification
②Where dew condensation occurs due to temperature change
③Where inflammable or corrosive gas exists
④Where direct rays of light exist
⑤Where severe shock, vibration or dust exists
⑥Where near facilities generating strong magnetic forces or electric noise
- Installation environment
①It shall be used indoor
②Pollution Degree 2
③Altitude Max. 2,000m
④Installation Category III

Major products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/sockets
- 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, CO₂, Nd:YAG)
- Laser welding/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate)meters
- Display units
- Sensor controllers

Autonics Corporation
<http://www.autonics.com>

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②Stepper motors/drivers/motion controllers
③Graphic/logic panels
④Field network devices
⑤Laser marking system(Fiber, CO₂, Nd:YAG)
⑥Laser welding/soldering system

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