

Single-phase SSR with Detachable Heatsink



SR1 Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Compact, universal design for flexible installation
- High heat dissipation efficiency with ceramic PCB
- Zero cross turn-on, random turn-on models available
- Input Indicator (green)

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

SR1 - ① ② ③ ④ - N

① Rated input voltage

1: 4 - 30 VDC=
4: 90 - 240 VAC~

② Rated load voltage

2: 24 - 240 VAC~
4: 48 - 480 VAC~

③ Rated load current

Number: Rated load current (unit: A)

④ Function

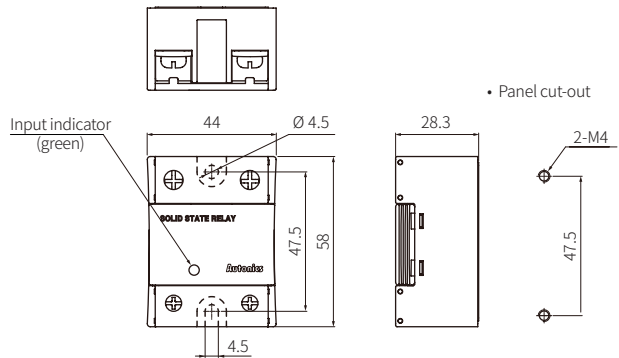
No-mark: Zero cross turn-on
R: Random turn-on

Product Components

- Product
- Instruction manual

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- When installing to the panel, tightening the screw with a torque of 1.8 to 2.5 N m.



Specifications

Input

Rated input voltage range	4 - 30 VDC≡	90 - 240 VACrms~ (50 / 60 Hz)
Allowable input voltage range	4 - 32 VDC≡	85 - 264 VACrms~ (50 / 60 Hz)
Max. input current	18 mA	18 mA Arms (240 VACrms~)
Operating voltage	≥ 4 VDC≡	≥ 85 VACrms~
Releasing voltage	≤ 1 VDC≡	≤ 10 VACrms~
Operate time	Zero cross turn-on	≤ 0.5 cycle of load power + 1 ms
	Random turn-on	≤ 1 ms
Release time	≤ 0.5 cycle of load power + 1 ms	≤ 2 cycle of load power + 1 ms

Output

Rated load voltage range	24 - 240 VACrms~ (50 / 60 Hz)										
Allowable load voltage range	24 - 264 VACrms~ (50 / 60 Hz)										
Rated load current	Resistive load (AC-51) ⁰¹⁾		10 Arms	15 Arms	20 Arms	25 Arms	30 Arms	40 Arms	50 Arms	75 Arms	
Min. load current			0.15 Arms	0.2 Arms	0.2 Arms	0.2 Arms	0.5 Arms				
Max. 1 cycle surge current (60 Hz)			160 A	250 A	400 A	1000 A					
Max. non-repetitive surge current (I ² t, t = 8.3 ms)			130 A ² s	300 A ² s	910 A ² s	4000 A ² s					
Peak voltage (non-repetitive)	600 V										
Leakage current (Ta = 25 °C)	≤ 10 mA Arms (240 VAC~/60 Hz)										
Output ON voltage drop [Vpk] (max. load current)	≤ 1.6 V										
Static off state dv/dt	500 V/μs										

Rated load voltage range	48 - 480 VACrms~ (50 / 60 Hz)										
Allowable load voltage range	48 - 528 VACrms~ (50 / 60 Hz)										
Rated load current	Resistive load (AC-51) ⁰¹⁾		10 Arms	15 Arms	20 Arms	25 Arms	30 Arms	40 Arms	50 Arms	75 Arms	
Min. load current			0.5 Arms	0.5 Arms	0.5 Arms	0.5 Arms	0.5 Arms				
Max. 1 cycle surge current (60 Hz)			300 A	500 A	500 A	1000 A					
Max. non-repetitive surge current (I ² t, t = 8.3 ms)			350 A ² s	1000 A ² s	1000 A ² s	4000 A ² s					
Peak voltage (non-repetitive)	1200 V (zero cross turn-on), 1000 V (random turn-on)										
Leakage current (Ta = 25 °C)	≤ 10 mA Arms (480 VAC~/60 Hz)										
Output ON voltage drop [Vpk] (max. load current)	≤ 1.6 V										
Static off state dv / dt	500 V/μs										

01) AC-51 is utilization category at IEC60947-4-3.

General specifications

Dielectric strength (Vrms)	Input-output, input / output-case : 2500 VAC~ 50 / 60 Hz for 1 min
Insulation resistance	Input-output, input / output-case : ≥ 100 MΩ (500 VDC≡ megger)
Indicator	Input indicator (green)
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min
Shock	300 m/s ² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature ⁰¹⁾	-30 to 80 °C (in case of the rated input voltage 90 - 240 VAC~: -20 to 70 °C), storage: -30 to 100 °C (no freezing or condensation)
Ambient humidity	45 to 85 %RH, storage: 45 to 85 %RH (no freezing or condensation)
Input terminal connection	≥ 1 × 0.5 mm ² (1 × AWG 20), ≤ 1 × 1.5 mm ² (1 × AWG 16) or ≤ 2 × 1.5 mm ² (2 × AWG 16)
Output terminal connection ⁰²⁾	≥ 1 × 1.5 mm ² (1 × AWG 16), ≤ 1 × 16 mm ² (1 × AWG 6) or ≤ 2 × 6 mm ² (2 × AWG 10)
Input terminal fixed torque	0.75 to 0.95 N m
Output terminal fixed torque	1.6 to 2.2 N m
Approval	CE, RoHS, ENEC
Weight (packaged)	≈ 73 g (≈ 111g)

01) See the 'SSR Derating Curve' because the capacity of the rated load current is differ depending on the ambient temperature.

02) Connect the wire met the capacity of the load current to the output terminal.

SSR Derating Curve

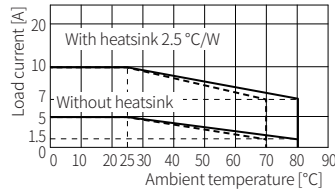
• Be aware that the ambient temperature and the derating curve is different by the rated input voltage when using the product.

——	Rated input voltage 4 - 30 VDC≡ (SR1-1□□□-N)
----	Rated input voltage 90 - 240 VAC~ (SR1-4□□□-N)

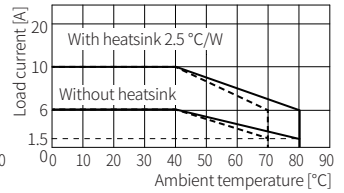
• ⚠ Since the effectiveness of the heat radiation is decreased when multiple SSRs are installed closely, be sure to supply less than 50 % of the rated load current.

• SSR derating curves obtained approval from the UL certification authority.

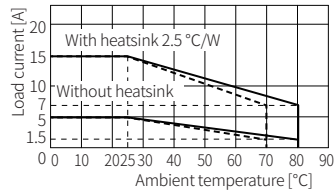
SR1-1210 / 4210-N



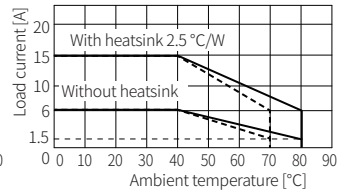
SR1-1410 / 1410R / 4410-N



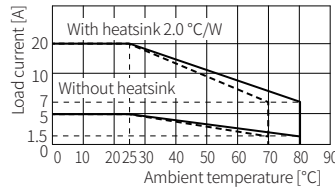
SR1-1215 / 4215-N



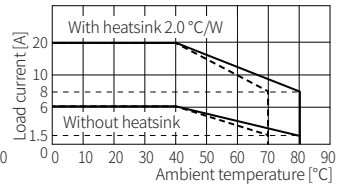
SR1-1415 / 1415R / 4415-N



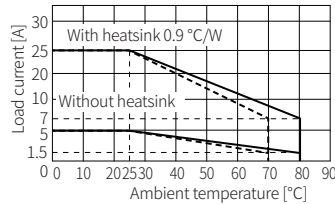
SR1-1220 / 4220-N



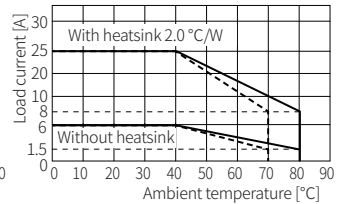
SR1-1420 / 1420R / 4420-N



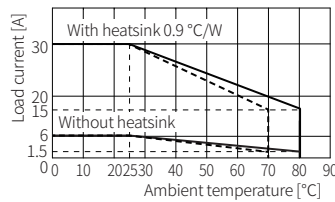
SR1-1225 / 4225-N



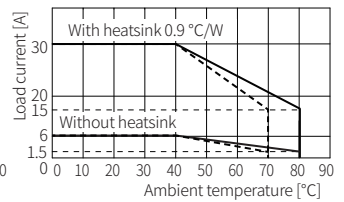
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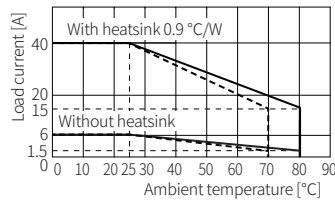
SR1-1230 / 4230-N



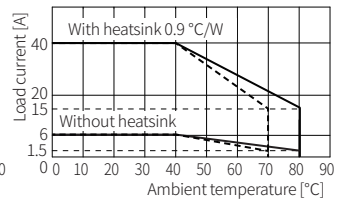
SR1-1430 / 1430R / 4430-N



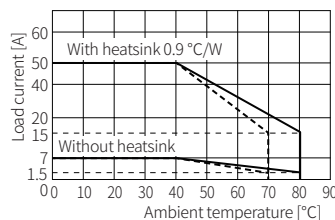
SR1-1240 / 4240-N



SR1-1440 / 1440R / 4440-N



SR1-1250 / 1450 / 1450R-N SR1-4250 / 4450-N



SR1-1275 / 1475 / 1475R-N SR1-4275 / 4475-N

