

Single phase, Heatsink separated type SSR

NEW

■ Features

- Increase user convenience with general and small design
- Superior dielectric strength : 4,000VAC
- Improved reliability by maximizing heat protection efficiency with ceramic board
- Supports Zero cross turn-on/Random turn-on type
- Checks input status by Input LED(green)



⚠ Please read "Caution for your safety" in operation manual before using.



■ Ordering information

SR 1 - 1 4 20 R

| | | | |
|------|-------------------------------------|---|--------------------|
| Item | Control phase | 1 | 4-30VDC |
| | Input voltage(rated) | 4 | 90-240VAC |
| | Load voltage(rated) | 2 | 24-240VAC |
| | | 4 | 48-480VAC |
| | Rated load current (resistive load) | 15 | 15A |
| | | 25 | 25A |
| | | 40 | 40A |
| | | 50 | 50A |
| | | 75 | 75A |
| | Function | No Mark | Zero cross turn-on |
| | R | Random turn-on | |
| | SRC | Solid State Relay(detachable heatsink type) | |

| Model | Input voltage | Rated load current | Load voltage | Zero cross/Random turn-on |
|-----------|---------------|--------------------|--------------------|---------------------------|
| SR1-1215 | 4-30VDC | 15A | 24-240VAC | Zero cross turn-on |
| SR1-4215 | 90-240VAC | | | |
| SR1-1225 | 4-30VDC | 25A | | |
| SR1-4225 | 90-240VAC | | | |
| SR1-1240 | 4-30VDC | 40A | | |
| SR1-4240 | 90-240VAC | | | |
| SR1-1250 | 4-30VDC | 50A | | |
| SR1-4250 | 90-240VAC | | | |
| SR1-1275 | 4-30VDC | 75A | | |
| SR1-4275 | 90-240VAC | | | |
| SR1-1415 | 4-30VDC | 15A | 48-480VAC | Zero cross turn-on |
| SR1-1415R | | | | Random turn-on |
| SR1-4415 | 90-240VAC | 25A | | Zero cross turn-on |
| SR1-1425 | 4-30VDC | | | Zero cross turn-on |
| SR1-1425R | | 40A | | Random turn-on |
| SR1-4425 | 90-240VAC | | | Zero cross turn-on |
| SR1-1440 | 4-30VDC | 50A | | Zero cross turn-on |
| SR1-1440R | | | | Random turn-on |
| SR1-4440 | 90-240VAC | 75A | | Zero cross turn-on |
| SR1-1450 | 4-30VDC | | | Zero cross turn-on |
| SR1-1450R | | 40A | Random turn-on | |
| SR1-4450 | 90-240VAC | | Zero cross turn-on | |
| SR1-1475 | 4-30VDC | 50A | Zero cross turn-on | |
| SR1-1475R | | | Random turn-on | |
| SR1-4475 | 90-240VAC | 75A | Zero cross turn-on | |
| SR1-1475 | 4-30VDC | | Zero cross turn-on | |
| SR1-1475R | | 40A | Random turn-on | |
| SR1-4475 | 90-240VAC | | Zero cross turn-on | |

- (A) Photo electric sensor
- (B) Fiber optic sensor
- (C) Door/Area sensor
- (D) Proximity sensor
- (E) Pressure sensor
- (F) Rotary encoder
- (G) Connector/ Socket
- (H) Temp. controller
- (I) SSR/ Power controller
- (J) Counter
- (K) Timer
- (L) Panel meter
- (M) Tacho/ Speed/ Pulse meter
- (N) Display unit
- (O) Sensor controller
- (P) Switching mode power supply
- (Q) Stepper motor& Driver&Controller
- (R) Graphic/ Logic panel
- (S) Field network device
- (T) Software
- (U) Other

SR1 Series

■ 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) | 7mArms(240VACrms) |
| Pick-up voltage | | 4VDC | 85VACrms |
| Drop-out voltage | | 1VDC | 10VACrms |
| 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 | Max. 1.5 cycle of load source + 1ms |

○ Output

| | | 24-240VAC load voltage | | | | | 48-480VAC load voltage | | | | |
|---|------------------------|------------------------|---------------------|---------------------|----------------------|--------|--|----------------------|--------|----------------------|--------|
| Load voltage range(50/60Hz) | | 24-264VACrms(50/60Hz) | | | | | 48-528VACrms(50/60Hz) | | | | |
| Rated load current Ta=25°C | Resistive load (AC-51) | 15Arms | 25Arms | 40Arms | 50Arms | 75Arms | 15Arms | 25Arms | 40Arms | 50Arms | 75Arms |
| | Motor load (AC-53a) | — | | | | | 5Arms | 8Arms | | 15Arms | |
| Min. load current | | 0.15Arms | 0.2Arms | | 0.5Arms | | 0.5Arms | | | | |
| Max. 1cycle surge current (60Hz) | | 190A | 270A | 330A | 1000A | | 300A | 500A | | 1000A | |
| Max. non-repetitive surgecurrent(I ² t, t=8.3ms) | | 150A ² S | 300A ² S | 500A ² S | 4000A ² S | | 350A ² S | 1000A ² S | | 4000A ² S | |
| Peak voltage(non-repetitive) | | 600V | | | | | 1200V(zero cross turn-on), 1000V(random turn-on) | | | | |
| Leakage current(Ta=25°C) | | Max. 10mArms | | | | | | | | | |
| Output on voltage drop[Vpk] (Max. load current) | | Max. 1.6V | | | | | | | | | |
| Static off-state dv/dt | | 500V/μs | | | | | | | | | |

※ For controlling motor load, use the product which load voltage range is within 48-480VACrms.

○ General Specifications

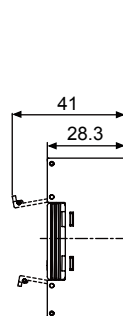
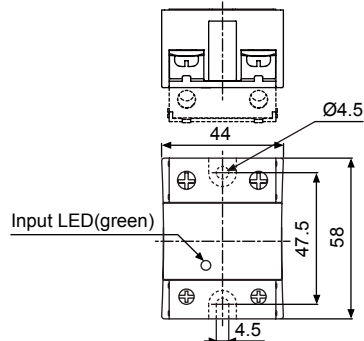
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|------------------------------|---|---|
| Certification | UL508, CSA22.2 No.14 and IEC/EN 60947-4-3 | |
| Dielectric strength(Vrms) | 4000VAC 50/60Hz 1min.(input-output, input/output-case) | |
| Insulation resistance | Min. 100MΩ(at 500VDC megger) | |
| Input LED | Green | |
| Environment | 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 Derating curve'.) |
| | Ambient humidity | 45 to 85%RH, storage: 45 to 85%RH |
| Input terminal connection | Min. 1×0.5mm ² (1×AWG20) Max. 1×1.5mm ² (1×AWG16) or 2×1.5mm ² (2×AWG16) | |
| Output terminal connection | Min. 1×1.5mm ² (1×AWG16) Max. 1×16mm ² (1×AWG6) or 2×6mm ² (2×AWG10) | |
| Input terminal fixed torque | 0.75 to 0.95N·m | |
| Output terminal fixed torque | 1.6 to 2.2N·m | |
| Unit weight | Approx. 73g | |

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

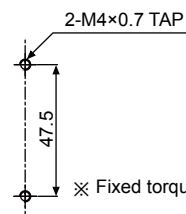
※ Environment resistance is rated at no freezing or condensation.

■ Dimensions

(unit: mm)



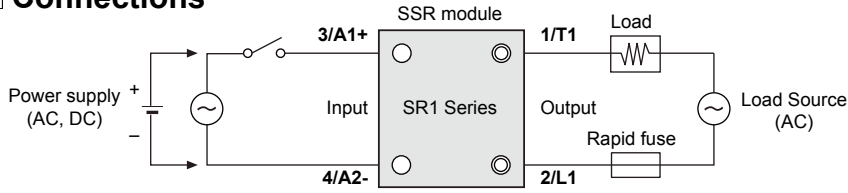
○ Hole cut-out for panel front mounting



※ Fixed torque : 1.8 to 2.5N·m

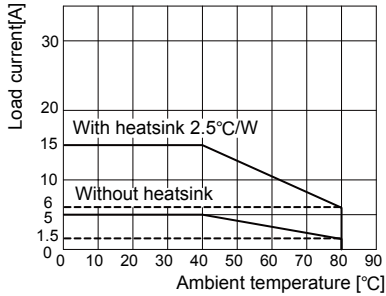
Heatsink separated Type SSR

Connections

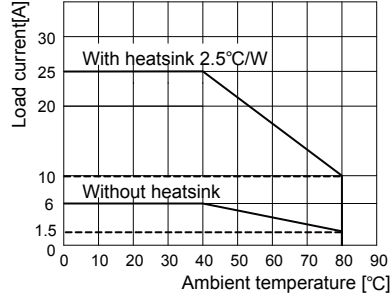


SSR Characteristic curve

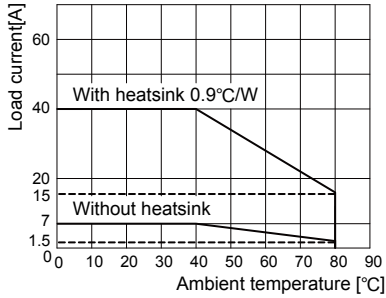
SR1-1215/4215



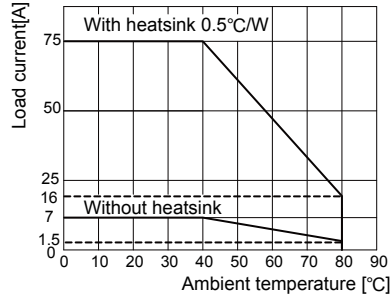
SR1-1225/4225



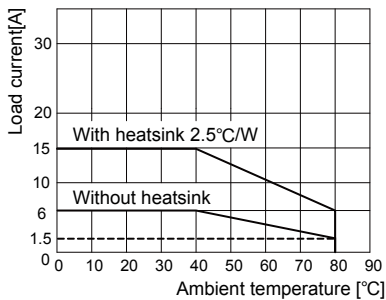
SR1-1240/4240



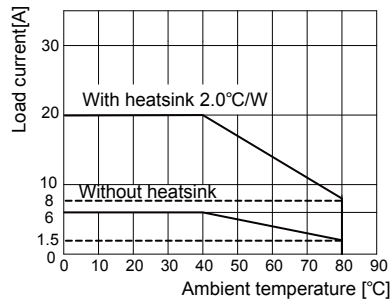
SR1-1275/1475/1475R/4275/4475



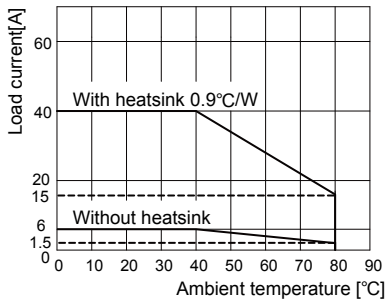
SR1-1415/1415R/4415



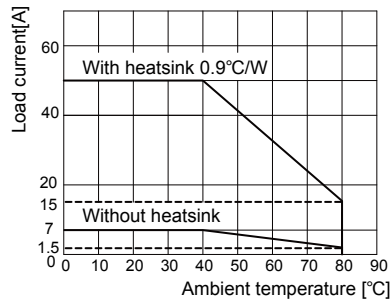
SR1-1425/1425R/4425



SR1-1440/1440R/4440



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



(A) Photo electric sensor

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(G) Connector/Socket

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■ Proper usage



High temperature caution

Make sure do not touch the heat sink or the unit body while power is supplied or right after load power is turned off. If not, it may cause a burn.



Caution for using

1. Attach a heatsink and ventilate for smooth convection current. If not, congested heat transfer may cause product failure or malfunction.
2. 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.
3. 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.
4. Connect the proper cable for the rated load current with output terminal.
5. Use rapid fuse of which I^2t is under 1/2 of SSR I^2t in order to protect the unit from load's short-circuit current.
6. In case of a short-circuit please replace the fuse with a 1/2 of SSR I^2t value specified semiconductor protective type.
7. 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.
8. When selecting phase control with random turn-on model, install the noise filter between load and load's source.
9. Make sure that the screw on output terminal is tightly fastened. Using the unit with loose bolt may cause product failure or malfunction.
10. Do not touch the load's terminal even if output is OFF. It may cause electric shock.
11. The signal input of the 4-30VDC model should be supplied by the insulated and limited voltage/current or by Class 2 power supply.
12. 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)
13. Proper application environment (Avoid following environments to install)
 - ① Where temperature/humidity is beyond the specification
 - ② Where dew condensation occurs due to temperature change
 - ③ Where inflammable or corrosive gas exists
 - ④ Where direct rays of light exist
 - ⑤ Where severe shock, vibration or dust exists
 - ⑥ Where near facilities generating strong magnetic forces or electric noise
14. Installation environment
 - ① It shall be used indoor
 - ② Altitude Max. 2,000m
 - ③ Pollution Degree 2
 - ④ Installation Category III