

# SRH1 Series

## Single phase, Intergrated heatsink type SSR

NEW

### Features

- Superior dielectric strength : 4,000VAC
- Improved reliability by maximizing heat protection efficiency with heatsink integrated design and ceramic board
- Various mounting methods (DIN rail, panel front)
- 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

**SRH 1 - 1 4 60 R**

Function	No Mark	Zero cross turn-on
	R	Random turn-on
Rated load current (Resistive load)	15	15A
	20	20A
	30	30A
	40	40A
	60	60A
Load voltage (Rated)	2	24-240VAC
	4	48-480VAC
Input voltage (Rated)	1	4-30VDC
	2	24VAC
	4	90-240VAC
Control phase	1	Single phase
	SRH	Solid State Relay (Integrated heat sink type)
Item		

Model	Input voltage	Rated load current	Load voltage	Zero cross turn-on/Random turn-on	
SRH1-1215	4-30VDC	15A	24-240VAC	Zero cross turn-on	
SRH1-2215	24VAC				
SRH1-4215	90-240VAC				
SRH1-1220	4-30VDC	20A			
SRH1-2220	24VAC				
SRH1-4220	90-240VAC				
SRH1-1230	4-30VDC	30A			
SRH1-2230	24VAC				
SRH1-4230	90-240VAC				
SRH1-1240	4-30VDC	40A			
SRH1-2240	24VAC				
SRH1-4240	90-240VAC				
SRH1-1260	4-30VDC	60A	48-480VAC	Zero cross turn-on	
SRH1-2260	24VAC				
SRH1-4260	90-240VAC				
SRH1-1420	4-30VDC	20A			Zero cross turn-on
SRH1-1420R					Random turn-on
SRH1-2420	24VAC	30A			Zero cross turn-on
SRH1-1430	4-30VDC				30A
SRH1-1430R		Zero cross turn-on			
SRH1-2430	24VAC	60A			Zero cross turn-on
SRH1-1460	4-30VDC				60A
SRH1-1460R		Zero cross turn-on			
SRH1-2460	24VAC				Zero cross turn-on

# Integrated Heatsink Type SSR

## ■ Specifications

### ◎ Input

4-30VDC input voltage	
Input voltage range	4-32VDC
Max. input current	9mA(Zero cross turn-on), 12mA(Random turn-on)
Pick-up voltage	Min. 4VDC
Drop-out voltage	Max. 1VDC
Turn-on time	Zero cross turn-on
	Random turn-on
Turn-off time	0.5 cycle of load source + 1ms
24VAC input voltage	
Input voltage range (50/60Hz)	19-30VACrms
Max. input current	12mArms(24VACrms)
Pick-up voltage	Min. 19VACrms
Drop-out voltage	Max. 4VACrms
Turn-on time	1.5 cycle of load source + 1ms
Turn-off time	1.5 cycle of load source + 1ms
90-240VAC input voltage	
Input voltage range (50/60Hz)	85-264VACrms
Max. input current	7mArms(240VACrms)
Pick-up voltage	Min. 85VACrms
Drop-out voltage	Max. 10VACrms
Turn-on time	1.5 cycle of load source + 1ms
Turn-off time	1.5 cycle of load source + 1ms

### ◎ Output

24-240VAC load voltage						
Load voltage range (50/60Hz)	24-264VACrms					
Rated load current Ta=25°C	Resistive load (AC-51)	15Arms	20Arms	30Arms	40Arms	60Arms
	Motor load (AC-53a)					
Min. load current	0.15Arms	0.2Arms	0.2Arms	0.5Arms	0.5Arms	
Max. 1 cycle surge current(60Hz)	170A	260A	330A	500A	1000A	
Max. non-repetitive surge current (I <sup>2</sup> t, t=8.3ms)	150A <sup>2</sup> s	300A <sup>2</sup> s	500A <sup>2</sup> s	1000A <sup>2</sup> s	4000A <sup>2</sup> s	
Peak voltage(Non-repetitive)	600V					
Leakage current (240VAC/60Hz, Ta=25°C)	Max. 10mArms					
Output ON voltage drop [Vpk](Max. load current)	Max. 1.6V					
Static off state dv/dt	500V/μs					
48-480VAC load voltage						
Load voltage range (50/60Hz)	48-528VACrms					
Rated load current Ta=25°C	Resistive load (AC-51)	20Arms	30Arms	60Arms		
	Motor load (AC-53a)	5Arms	8Arms	15Arms		
Min. load current	0.5Arms	0.5Arms	0.5Arms			
Max. 1 cycle surge current(60Hz)	300A	500A	1000A			
Max. non-repetitive surge current (I <sup>2</sup> t, t=8.3ms)	350A <sup>2</sup> s	1000A <sup>2</sup> s	4000A <sup>2</sup> s			
Peak voltage(Non-repetitive)	1200V(Zero cross turn-on), 1000V(Random turn-on)					
Leakage current (480VAC/60Hz, Ta=25°C)	Max. 10mArms					
Output ON voltage drop [Vpk](Max. load current)	Max. 1.6V					
Static off state dv/dt	500V/μs					

(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 power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/Logic panel

(S) Field network device

(T) Production stoppage models & replacement

# SRH1 Series

## Specifications

### General Specifications

Dielectric strength(Vrms)	4000VAC 50/60Hz for 1 min. (Input-Output, I/O-Case)
Insulation resistance	Min. 100MΩ (at 500VDC megger)
Vibration	10 to 55Hz double amplitude 0.75 mm in each X, Y, Z direction for 1 hour
Protection	IP20(IEC standards)
Input LED	Green
Ambient temperature	-20 to 80°C / -20 to 70°C (In case of 90-240VAC is input voltage), 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 <sup>2</sup> (1×AWG20) Max. 2×1.5mm <sup>2</sup> (2×AWG16)
Output terminal connection	<ul style="list-style-type: none"> <li>Case width 22.5mm(M4 terminal bolt): Min. 1×0.75mm<sup>2</sup>(1×AWG18) Max. 2×2.5mm<sup>2</sup>(2×AWG14)</li> <li>Case width 45mm(M5 terminal bolt): Min. 1×1.5mm<sup>2</sup>(1×AWG16) Max. 2×6mm<sup>2</sup>(2×AWG10)</li> </ul> ※Use wires compliant with load current capacity to connect to the terminal.
Input terminal fixed torque	0.75N·m to 0.95N·m
Output terminal fixed torque	<ul style="list-style-type: none"> <li>Case width 22.5mm(M4 terminal bolt): 1N·m to 1.35N·m</li> <li>Case width 45mm(M5 terminal bolt): 1.6N·m to 2.2N·m</li> </ul>
Unit weight	<ul style="list-style-type: none"> <li>Rated load current (Resistive load) 15A/20A : Approx. 225g</li> <li>Rated load current (Resistive load) 30A/40A : Approx. 410g</li> <li>Rated load current (Resistive load) 60A : Approx. 680g</li> </ul>

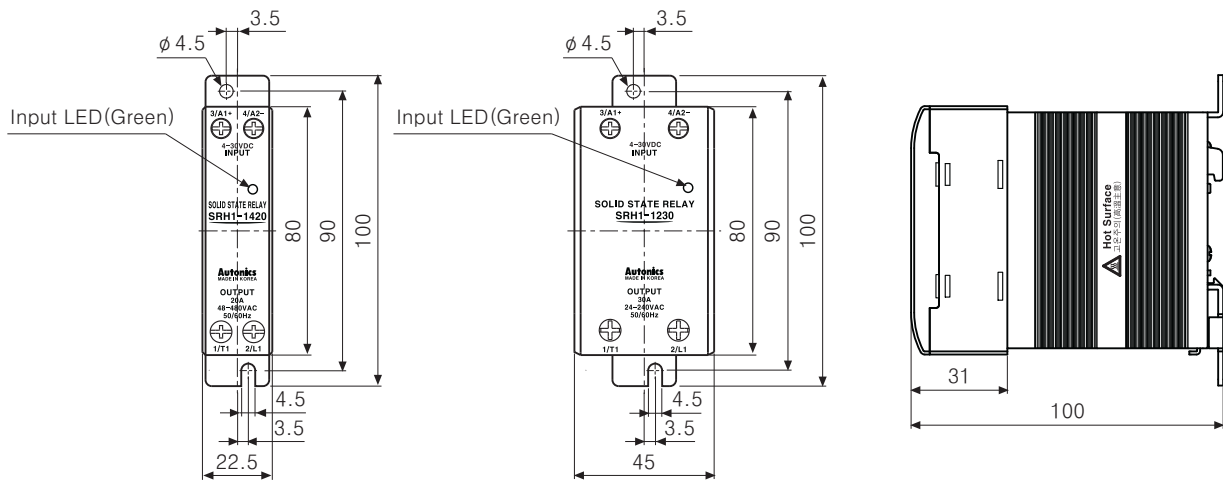
※Condition for use in Environment is no freezing or condensation.

## Dimensions & Mounting

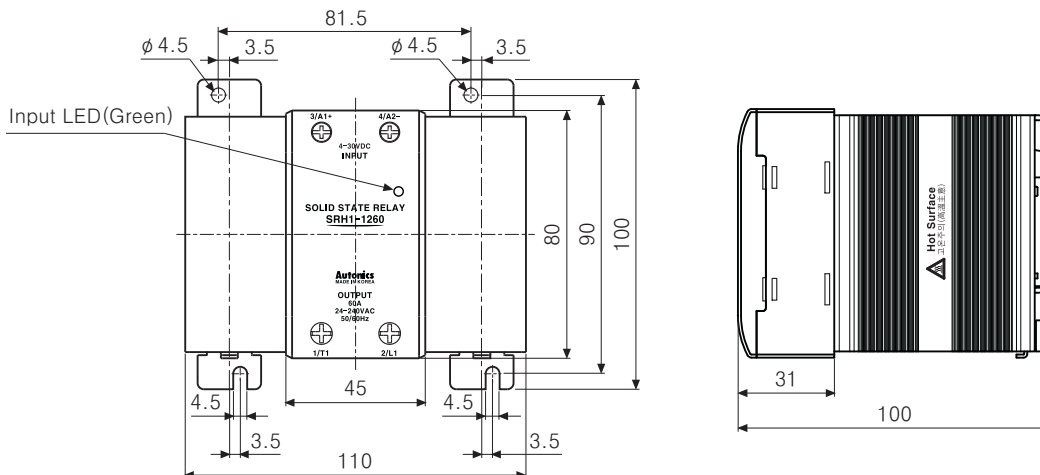
### Dimensions

●15A/20A Rated load current

●30A/40A Rated load current



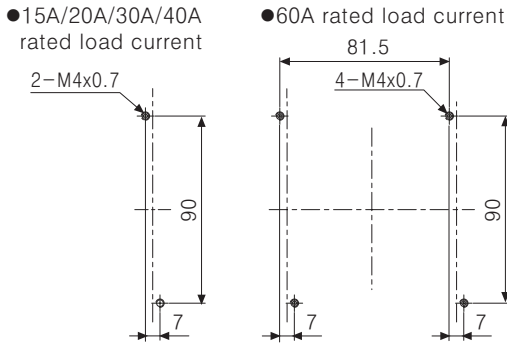
●60A Rated load current



(Unit:mm)

# Integrated Heatsink Type SSR

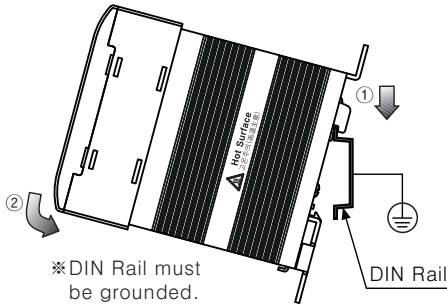
## ○Hole cut-out for panel front mounting



※Tightening torque for mounting : 1.8~2.5N · m

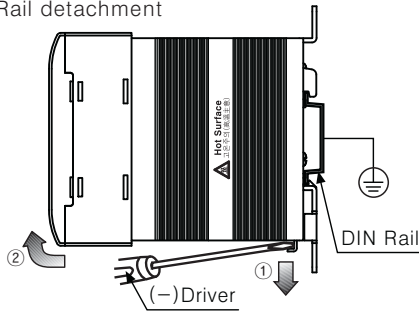
## ○DIN Rail mounting

●DIN Rail attachment

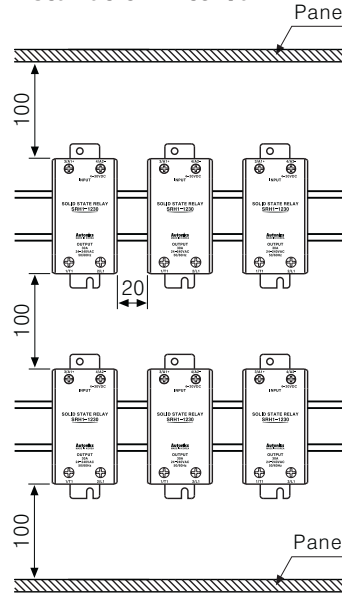


※DIN Rail must be grounded.

●DIN Rail detachment



## ○Installation interval



※ For mounting multiple SSR, please keep certain installation intervals for heat prevention.

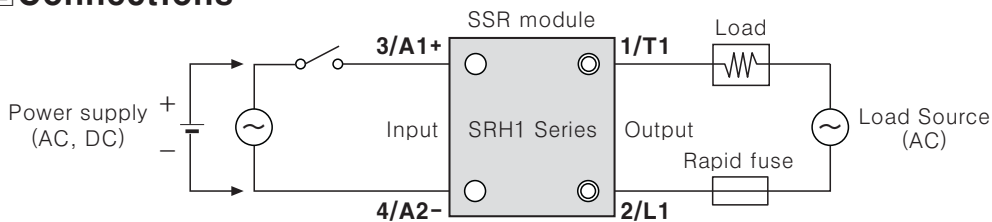
For horizontal installation (when the heights of input part and output part are equal), it is recommended to apply 50% of rated load current.

(Unit:mm)

### High temperature caution

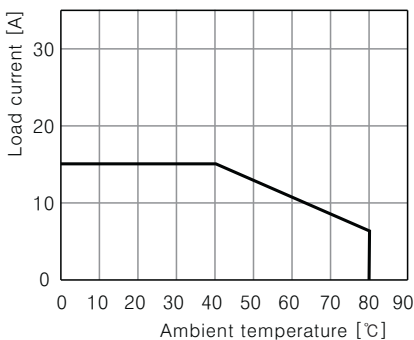
Make sure do not touch the heat sink or the unit body while power is supplied or right after load power is turned off. If not, it may cause a burn.

## ■Connections

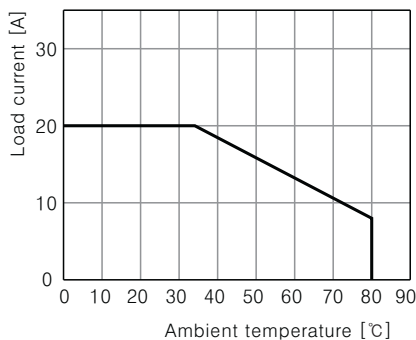


## ■SSR Characteristic curve

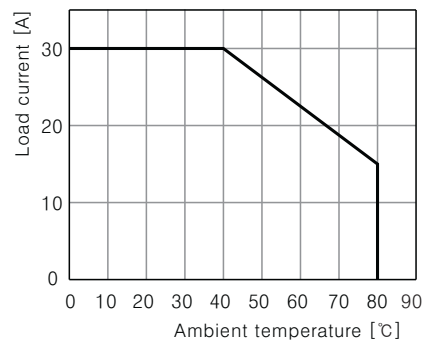
○SRH1-1215/2215/4215



○SRH1-1220/2220/4220  
SRH1-1420/1420R/2420



○SRH1-1230/2230/4230

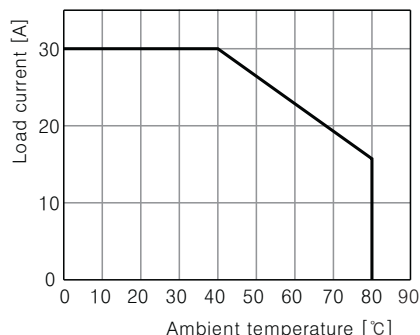


(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/Socket
(H)	Temp. controller
(I)	SSR/Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/Speed/Pulse meter
(N)	Display unit
(O)	Sensor controller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

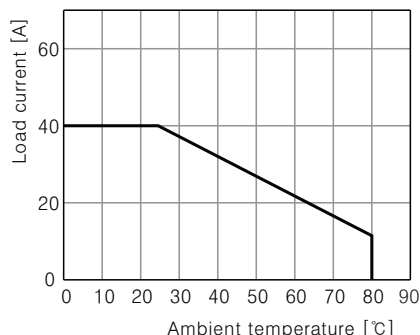
# SRH1 Series

## ■ SSR Characteristic curve

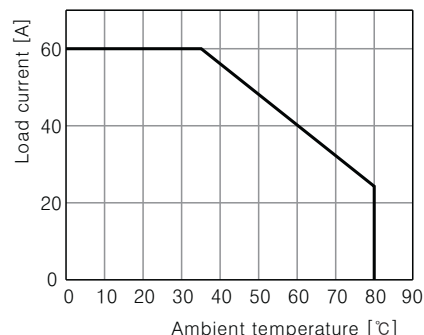
○ SRH1-1430/1430R/2430



○ SRH1-1240/2240/4240



○ SRH1-1260/1460/1460R  
SRH1-2460/2260/4260



## ■ 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. Please 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 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.
7. When selecting phase control with random turn-on model, install the noise filter between load and load's source.
8. Make sure that the screw on output terminal is tightly fastened. Using the unit with loose bolt may cause product failure or malfunction.
9. Do not touch the load's terminal even if output is OFF. It may cause an electric shock.
10. 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
11. Installation environment
  - ① It shall be used indoor
  - ② Altitude Max. 2,000m
  - ③ Pollution Degree 2
  - ④ Installation Category III