# 2 / 3-Phase SSR with Detachable / Integrated Heatsink

## SR2 / SR3 / SRH2 / SRH3 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

- Two mounting hole types and sizes
- Alarm function (overheat prevention)
  : alarm indicator (red), disconnect output, alarm output
- Improved dielectric strength: 4,000 VAC~ (some are 2,500 VAC~ model)
- Rated input voltage : 4 - 30 VDC⎓, 24 VAC~, 90 - 240 VAC~
- Rated load voltage : 24 - 240 VAC~, 48 - 480 VAC~
- Rated load current : 15 A, 30 A, 40 A, 50 A, 75 A
- High heat dissipation efficiency with ceramic PCB and integrated heatsink
- 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.

| SR | ❶ | ❷ | - | ❸ | ❹ | ❺ | ❻ |
|---|---|---|---|---|---|---|---|

**❶ Type**
No mark: detachable heatsink
H: Integrated heatsink

**❷ Number of the control phase**
2: 2-phase
3: 3-phase

**❸ Rated input voltage**
1: 4 - 30 VDC⎓
2: 24 VAC~
4: 90 - 240 VAC~

**❹ Rated load voltage**
2: 24 - 240 VAC~
4: 48 - 480 VAC~

**❺ Rated load current (resistive load)**
Number: rated load current (unit: A)

**❻ Function**
No mark: Zero cross turn-on
R: Random turn-on

## Product Components

- Product
- Instruction manual

## Specifications

### ■ Input

| | | | | |
|---|---|---|---|---|
| **Rated input voltage range** | | **4 - 30 VDC⎓** | **24VACrms~ (50/60 Hz)** | **90 - 240 VACrms~ (50/60 Hz)** |
| **Allowable input voltage range** | | 4 - 32 VDC⎓ | 19 - 26.4 VACrms~ (50/60 Hz) | 85 - 264 VACrms~ (50/60 Hz) |
| **Max. input current** | | 25 mA | 15 mA | 25 mA |
| **Operating voltage** | | ≥ 4 VDC⎓ | ≥ 19 VACrms~ | ≥ 85 VACrms~ |
| **Releasing voltage** | | ≤ 1 VDC⎓ | ≤ 4 VACrms~ | ≤ 10 VACrms~ |
| **Operating time** | Zero cross turn-on | ≤ 0.5 cycle of load power + 1 ms | ≤ 1.5 cycle of load power + 1 ms | ≤ 1.5 cycle of load power + 1 ms |
| | Random turn-on | ≤ 1 ms | - | - |
| **Releasing time** | | ≤ 0.5 cycle of load power + 1 ms | ≤ 1.5 cycle of load power + 1 ms | ≤ 1.5 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] | 15 Arms | 30 Arms | 50 Arms | 75 Arms |
| **Min. load current** | | 0.15 Arms | 0.2 Arms | 0.5 Arms | 0.5 Arms |
| **Max. 1 cycle surge current (60 Hz)** | | 250 A | 400 A | 1000 A | 1000 A |
| **Max. non-repetitive surge current ($I^2t$, t = 8.3 ms)** | | 340 $A^2s$ | 1000 $A^2s$ | 4000 $A^2s$ | 4000 $A^2s$ |
| **Peak voltage (non-repetitive)** | | 600 V | | | |
| **Leakage current (Ta = 25 °C)** | | ≤ 10 mArms (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] | 15 Arms | 30 Arms | 40 Arms | 50 Arms | 75 Arms |
| **Min. load current** | | 0.5 Arms | | | | |
| **Max. 1 cycle surge current (60 Hz)** | | 300 A | 500 A | 500 A | 1000 A | 1000 A |
| **Max. non-repetitive surge current ($I^2t$, t = 8.3 ms)** | | 350 $A^2s$ | 1000 $A^2s$ | 1000 $A^2s$ | 4000 $A^2s$ | 4000 $A^2s$ |
| **Peak voltage (non-repetitive)** | | 1200 V (zero cross turn-on), 1000 A (random turn-on) | | | | |
| **Leakage current (Ta = 25 °C)** | | ≤ 10 mArms (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.

### ■ Alarm output (overheat prevention function)

| | | | |
|---|---|---|---|
| **Rated input voltage range** | **4 - 30 VDC⎓** | **24 VACrms~ (50/60 Hz)** | **90 - 240 VACrms~ (50/60 Hz)** |
| **Load voltage** | ≤ 30 VDC⎓ | ≤ 30 VDC⎓ | ≤ 30 VDC⎓ |
| **Load current** | ≤ 100 mA | ≤ 50 mA | ≤ 50 mA |
| **Turn-off time** | ≤ 20 ms | ≤ 40 ms | ≤ 40 ms |

- Overheat prevention function is when SSR internal temperature is overheated, the load output is cut off to prevent internal device damage and also the alarm indicator and alarm output turn ON.

## ■ General specifications

| | |
|---|---|
| **Dielectric strength (Vrms) : 24-240 VAC~** | Rated load current 15 / 30 A<br>: 2500 VAC~ 50/60 Hz for 1 min (input-output, input/output-case)<br>Rated load current 50 / 75 A<br>: 4000 VAC~ 50/60 Hz for 1 min (input-output, input/output-case) |
| **Dielectric strength (Vrms) : 48-480 VAC~** | 4000 VAC~ 50/60 Hz for 1 min<br>(input-output, input/output-case) |
| **Insulation resistance** | ≥ 100 MΩ (500 VDC⎓ megger)<br>(input-output, input/output-case) |
| **Indicator** | Input indicator (green), alarm indicator (red) |
| **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~: -30 to 70 °C), storage: -30 to 100 °C<br>(no freezing or condensation) |
| **Ambient humidity** | 45 to 85%RH, storage: 45 to 85%RH<br>(no freezing or condensation) |
| **Input terminal connection / alarm output terminal connection** | ≥ 1×0.5 mm$^2$ (1×AWG 20),<br>≥ 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),<br>≥ 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 cULus EAC |

01) Refer to the 'SSR Derating Curve' in the product manual 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.

| | | Weight (packaged) |
|---|---|---|
| **Detachable heatsink type** | | ≈ 275 g (≈ 365 g) |
| **Integrated heatsink type** | **15 / 30 / 40 A** | ≈ 686 g (≈ 896 g) |
| | **50 A** | ≈ 1268 g (≈ 1508 g) |
| | **75 A** | ≈ 2064 g (≈ 2354 g) |

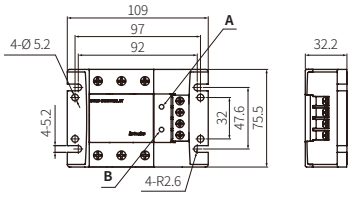
# Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

| | | | |
|---|---|---|---|
| **A** | Input indicator (green) | **B** | Alarm indicator (red) |

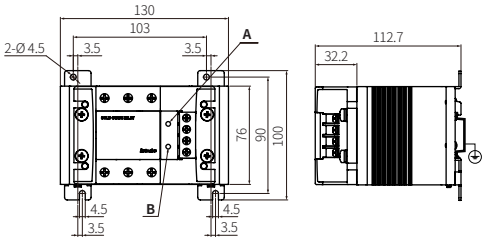
- When installing to the panel, tightening the detachable heatsink type screw with a torque of 2.5 to 3 N m, in case of the integrated heatsink type screw, the tightening torque with 1.35 N m.

## ■ Detachable heatsink type

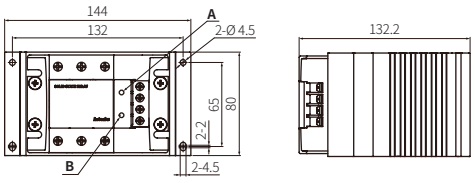



## ■ Integrated heatsink type

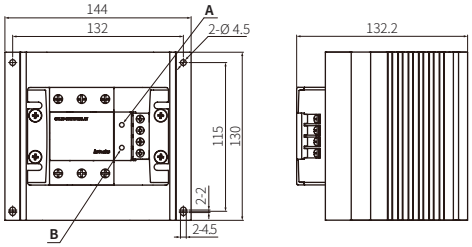
- Rated load current 15 / 30 / 40 A




- Rated load current 50 A

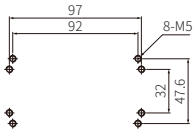



- Rated load current 75 A

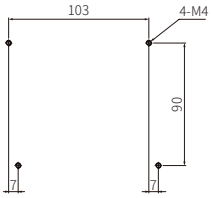



## ■ Panel cut-out

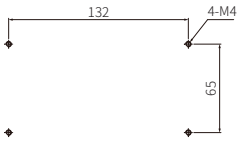
- Detachable heatsink type



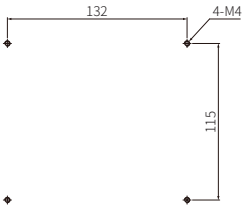

- Integrated heatsink type (rated load current 15 / 30 / 40 A)




- Integrated heatsink type (rated load current 50 A)

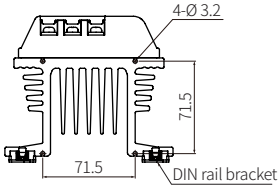



- Integrated heatsink type (rated load current 75 A)

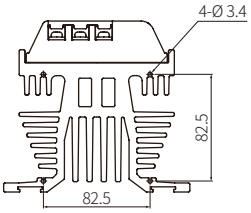



## ■ Cooling fan mounting hole

- Rated load current 30 / 40 A



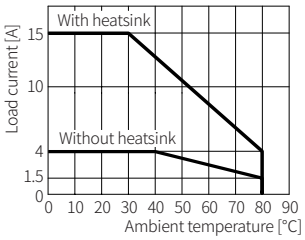

- Rated load current 50 / 75 A



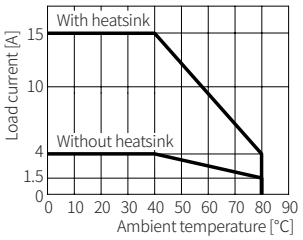
## SSR Derating Curve

- The heatsink of the curves is dedicated for the SRH2/SRH3.
- Install SR2 / SR3 Series on the metal plate (min. 130 × 120 mm).
- Be aware that the ambient temperature and the derating curve is different by the rated input voltage when using the product.
- ⚠ When installing multiple SSRs, be sure to keep space between SSRs for heat radiation. When installing SSRs horizontally (input part and output part on the same height), be sure to supply less than 50 % of the rated load current.
- SSR derating curves obtained approval from the UL certification authority.

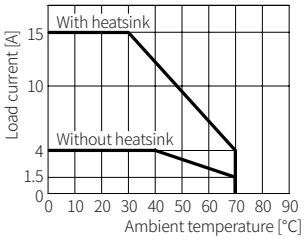
### ■ SR(H)2 / SR(H)3-1215



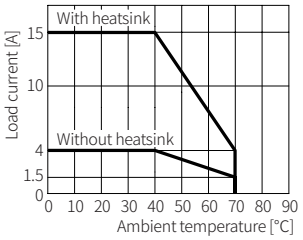

### ■ SR(H)2 / SR(H)3-1415 / 1415R / 2415



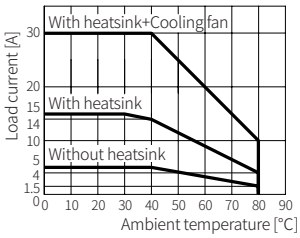

### ■ SR(H)2 / SR(H)3-4215



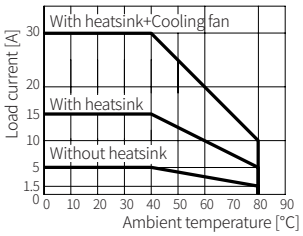

### ■ SR(H)2 / SR(H)3-4415



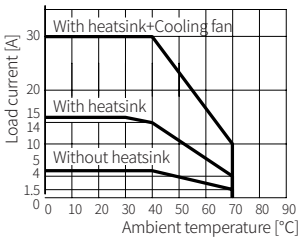

### ■ SR(H)2 / SR(H)3-1230



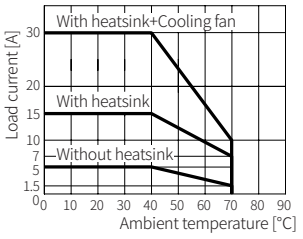

### ■ SR(H)2 / SR(H)3-1430 / 1430R / 2430



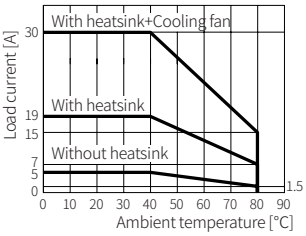

### ■ SR(H)2 / SR(H)3-4230



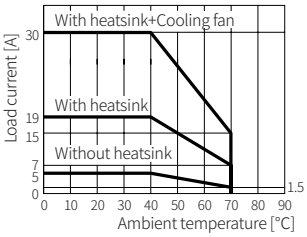

### ■ SR(H)2 / SR(H)3-4430



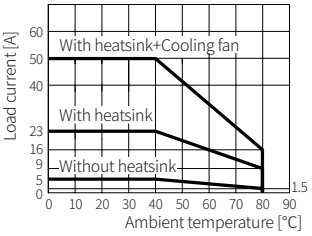

### ■ SR(H)2 / SR(H)3-1440 / 1440R / 2440



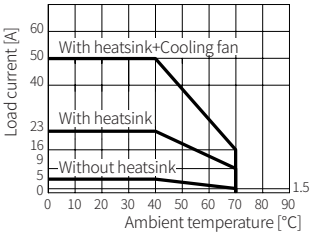

### ■ SR(H)2 / SR(H)3-4440



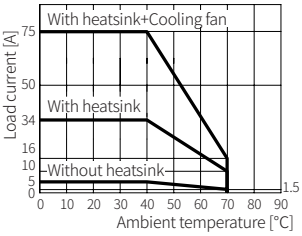

### ■ SR(H)2 / SR(H)3-1250 / 1450 / 1450R / 2450




### ■ SR(H)2 / SR(H)3-4250 / 4450




### ■ SR(H)2 / SR(H)3-4275 / 4475




### ■ SR(H)2 / SR(H)3-1275 / 1475 / 1475R / 2475