

Solid State Relay

RKC®

SSN SERIES Installation Manual

Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place this manual in a convenient location for easy reference.

RKC INSTRUMENT INC.

IMR01R01-E4

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SYMBOLS

WARNING

: This mark indicates precautions that must be taken if there is danger of electric shock, fire, etc., which could result in loss of life or injury.

CAUTION

: This mark indicates that if these precautions and operating procedures are not taken, damage to the instrument may result.



: This mark indicates that all precautions should be taken for safe usage.



: This mark indicates important information on installation, handling and operating procedures.



: This mark indicates supplemental information on installation, handling and operating procedures.



: This mark indicates where additional information may be located.



WARNING

- An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to instrument and equipment. In addition, in order to prevent an electric shock, use the instrument with the cover closed while the power is turned on.
- Do not use this instrument which is not covered with the specifications described. If used, instrument combustion or failure may result.
- Do not use the instrument at places where fire may be caused or heat generated. If so, instrument combustion or smoke emission may result.
- Do not touch this instrument while the power is turned on or just after the power is turned off as it may be at high temperatures. If touched, burning may result.
- RKC is not responsible if this instrument is repaired, modified or disassembled by other than factory-approved personnel. Malfunction can occur and warranty is void under these conditions.

CAUTION

- Tighten each output terminal screw at an appropriate torque value. If the product is used with the screw loosened, product combustion may result due to heat generated in the terminal board.
- Do not block the circulation of air by convection around the product. If so, shorting or combustion of the output element may result from abnormal heat generation.

- If ambient temperatures rise due to self-heating of this product, install forced ventilation fans so that the product can be fully ventilated.
- Do not apply overvoltage or overcurrent to this product. If so, its output elements may be damaged.

NOTICE

- This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
- RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage.
- RKC is not responsible for any damage and/or injury resulting from the use of instruments made by imitating this instrument.
- Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice.
- No portion of this document may be reprinted, modified, copied, transmitted, digitized, stored, processed or retrieved through any mechanical, electronic, optical or other means without prior written approval from RKC.

1. OUTLINE

This product is a single-phase SSR integrated with heat radiation fins and mounted on DIN rails. Load current can be specified from 15 A, 25 A and 45 A.

This installation manual describes their great caution, mounting and wiring.

■ Model code

SSN-15F (15 A type)

SSN-45F (45 A type)

SSN-25F (25 A type)

2. MOUNTING



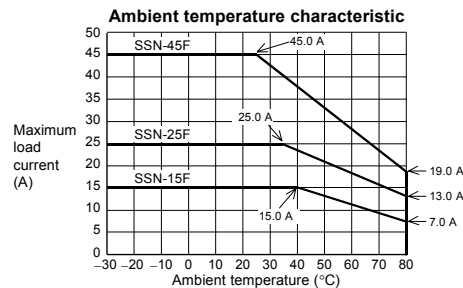
WARNING

To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

2.1 Mounting Environment

Avoid the following conditions when selecting the mounting location:

- Ambient temperature of less than -30 °C or more than +80 °C.



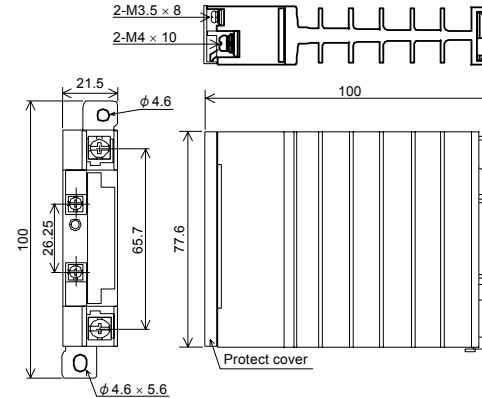
- Rapid changes in ambient temperature which may cause condensation.
- Corrosive or inflammable gases.
- Direct vibration or shock to the mainframe.
- Water, oil, chemicals, vapor or steam splashes.
- Excessive dust, salt or iron particles.
- Excessive induction noise, static electricity, magnetic fields or noise.
- Exposure to direct sunlight.
- Excessive heat accumulation.

2.2 Dimensions

- SSN-15F/SSN-25F

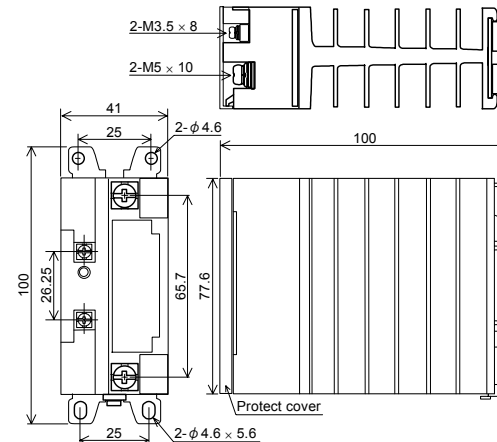
The dimension of SSN-15F is the same as that for SSN-25F.

Unit: mm



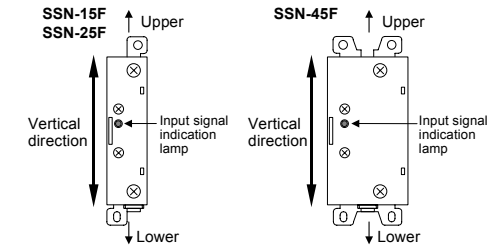
- SSN-45F

Unit: mm



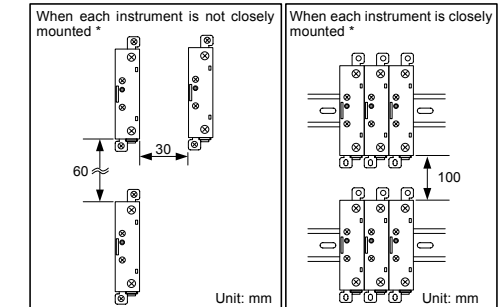
2.3 Mounting direction

Mount and then use this instrument in the direction shown below.



2.4 Mounting

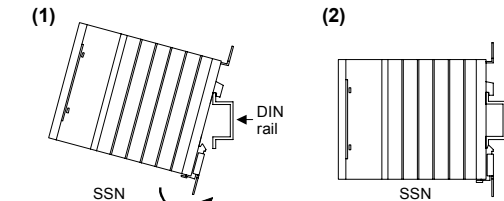
- Some space between each instrument is required for heat radiation as shown in the following.



* Mounting instructions for SSN-45F are the same as those for SSN-15F/SSN-25F.

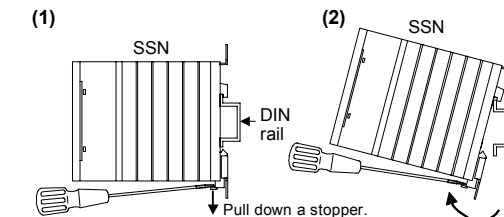
• DIN rail mounting

Firmly fix DIN rails on the panel or wall surface.



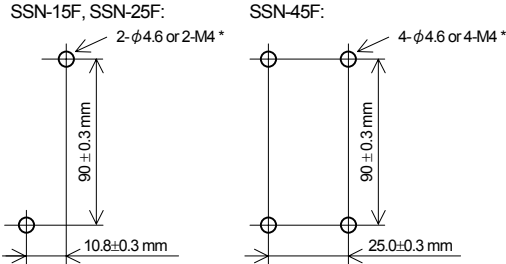
• DIN rail removing

Pull down a stopper with a blade screwdriver. Lift the instrument from bottom, and take it off.



● Direct mounting

Make screw holes in the mounting panel by referring to the mounting dimensions.



* Screw type: M4 SEMS pan-head screws
Recommended tighten torque: 1.2 N·m [12 kgf·cm]



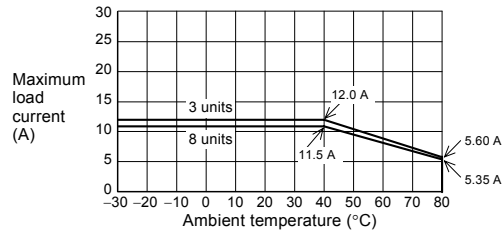
Customer must provide the set of screws.

● Close mounting

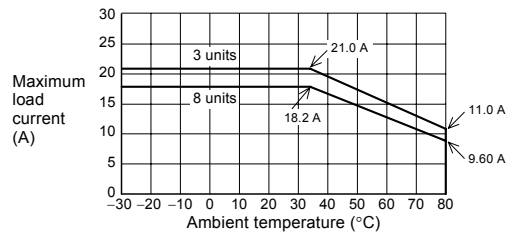
When mounting SSN closely, reduce the maximum load current by referring to the ambient temperature characteristics.

Ambient temperature characteristic:

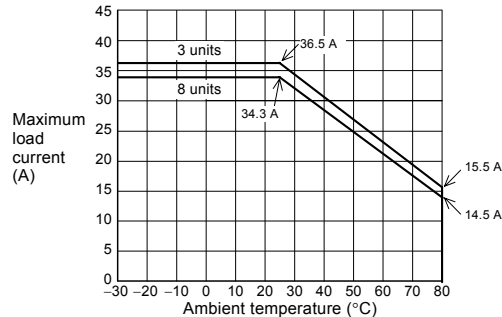
SSN-15F (15 A type)



SSN-25F (25 A type)



SSN-45F (45 A type)



3. WIRING

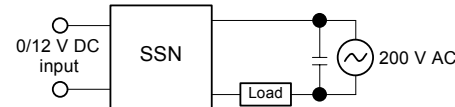


WARNING

To prevent electric shock or instrument failure, do not turn on the power until all the wiring is completed.

3.1 Wiring cautions

- Separate wiring on the input side of this instrument from that on the output side.
- This instrument may malfunction if its input side is affected by noise. In that case, take the following measures.
 - Keep input wiring as short as possible.
 - Use twisted pair or shielding wires.
- Use wires satisfying the rated current capacity.
- If current exceeding the rated surge current flows through the output side, the internal element of this product may be damaged. In order to protect the internal element, install a fuse in series with the load on the output side.
- This instrument conforms to "EN55011 Noise Terminal Voltage" with a capacitor connected as shown in the following.



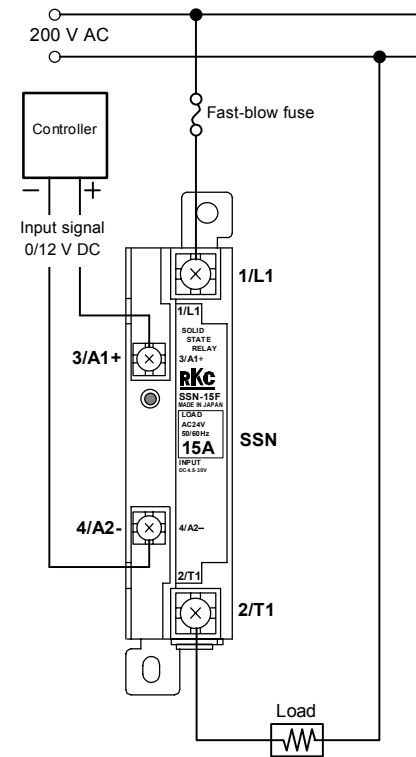
Recommended capacitor: ECQU2A225KL (2.2 μF)
(Manufactured by Matsushita Electronic Components Co., Ltd.)

- Use the solderless terminal appropriate to the screw size. In addition, imperfect terminal screw tightening may result in product combustion due to heat generation while the power is being turned on. Therefore, tighten each terminal screw at an appropriate torque value.

	SSN-15F/SSN-25F	SSN-45F
Output terminals (1/L1, 2/T1)	<p>Screw type: M4 × 10 Recommended tighten torque: 1.2 N·m [12 kgf·cm]</p>	<p>Screw type: M5 × 10 Recommended tighten torque: 2.4 N·m [24 kgf·cm]</p>
Input terminals (3/A1+, 4/A2-)	<p>Screw type: M3.5 × 8 Recommended tighten torque: 0.8 N·m [8 kgf·cm]</p>	

3.2 Wiring example

Conduct wiring by referring to the following figure.



4. SPECIFICATIONS

Maximum load current	15 A AC (SSN-15F) 25 A AC (SSN-25F) 45 A AC (SSN-45F)
Making Current (Maximum moment inrush current)	15 A AC: 150 A 25 A AC: 250 A 45 A AC: 450 A
Input signal	Voltage pulse input (DC) LOW (OFF): 0 V HIGH (ON): 4.5 to 30 V
Input impedance	450 Ω to 3.0 kΩ (Built-in constant current circuit: 10 mA)
Response speed	1/2 cycle or less + 1 ms
Input protection	Protection of reverse polarity connection
Output protection	CR protection circuit and Varistor
Output ON voltage drop	1.0 V or less (200 V AC)
Load voltage	60 to 280 V AC
Insulation resistance	100 MΩ or more at 500 V DC
Withstand voltage	1 minute at 2500 V AC
Leakage current	9 mA or less (240 V AC)
Insulation method	Phototriac
Standard	Safety standards: UL: UL508 cUL: CAN/CSA C22.2 No.14 CE marking: EN 60947-4-3 TUV: EN 60947-4-3
Dimensions	See "2.2 Dimensions."
Weight	SSN-15F/25F: Approx. 220 g SSN-45F: Approx. 390 g

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