

(2) Notes on load

- a) Load with small current or sensitive load sometimes disables off-function as the product maintains on-condition resulting from off state leakage current. In such cases, connect shunt resistance (Rp) to be parallel with load and reduce off state leakage current applied on the load.

$$\text{Shunt resistance (Rp)} < \frac{I_R \times R_L}{I_{LEK} - I_R}$$

IR: Load off current RL: Load impedance

I_{LEK}: Off state leakage current

- b) The product is designed for the purpose of controlling resistance load. If the load has larger inductance, current phase delays comparing to voltage and may cause disoperation when changing the current flow. Please allow your time to pre-check the function.

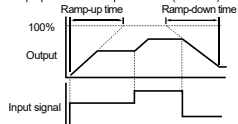
(3) Operation

- a) The product controls output proportional to the input rating (4 to 20 mA DC) by adopting phase control system.

The product is available for use without analog input by applying external volume adjuster.

- b) The Ramp-up/Ramp-down (Soft start) function can be used to suppress rapid change in output voltage by changing the output slowly in case of a rapid change in the output due to input signal changes.

• Ramp-up time and Ramp-down time (Soft start)



* The length Ramp-up and Ramp-down time is the same.

(4) Others

Do not connect products in series to raise strength or in parallel to raise the current volume.

SPECIFICATIONS

1. Ratings

Item	SSNP-15F	SSNP-25F
Maximum Input Current	24 mA DC	24 mA DC
Max. Load Voltage	264 V AC rms	264 V AC rms
Max. Load Current	15 A AC rms	25 A AC rms
1 Cycle Surge Current	145 A	250 A
Isolation Resistance	100 MΩ and above (500 V DC) *	
Dielectric Strength	2500 V AC rms/1 min *	
Ambient Temperature	-20 to +60 °C	
Storage Temperature	-30 to +70 °C	
	(No long and Condensation)	

* Input (①, ②), Ext. Volume (③, ④) - Output (⑤, ⑥),

Power Source (⑦) - Between Cases

2. Electrical Characteristics

(Ta = 25 °C)

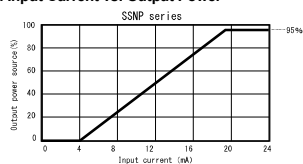
Item	SSNP-15F	SSNP-25F
Input Impedance	250 Ω ± 20 %	
Input Current Range	4 to 20 mA DC	
Load Voltage Range	85 to 264 V AC rms (Sine wave)	
Load Current Range	100 mA AC rms to max. load current *1	
On State Voltage Drop	Below 3.0 V AC rms (at max. output power)	
Off State Leakage Current	Below 9 mA AC rms (load voltage 200 V AC rms, 60 Hz)	
Power Adjustment Range	0 to 95 %	
Load Voltage Frequency Range	50 Hz/60 Hz Auto-change 47 to 53 Hz/57 to 63 Hz	
Current Consumption (⑤-⑦)	5.1 mA AC rms (100 V AC rms, 50 Hz) 7.0 mA AC rms (100 V AC rms, 50 Hz)	
Ext. volume		
Responding Time	Below 1 cycle without Soft start *2	
Ramp-up/Ramp-down Time	Approx. 0.5 to 13 seconds *2	
Weight	Approx. 260 g	
Standard	UL508 category No. NRINT2	

*1 Conduction angle tend to be narrower when the load with minute current applied. Please allow your time to pre-check the function.

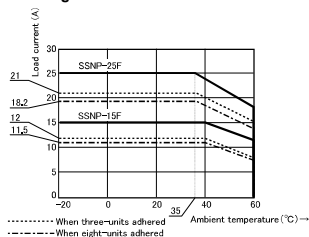
*2 The front volume adjuster reach MAX when turned clockwise and reach ZERO when turned counter-clockwise.

The ratings of approx. 0.5 to 13 seconds, shows changing time of the power from 0 % → 95 % or 95 % → 0 %.

3. Input Current vs. Output Power



4. Load Mitigation



..... When three-units adhered
----- When eight-units adhered

The first edition: MAR. 2005 [IMQ00]
The seventh edition: JUL. 2016 [IMQ00]

RKC RKC INSTRUMENT INC.

IMR02A01-E7

JUL. 2016

Single Phase Power Controller
Phase Control Type

RKC

SSNP-15F/SSNP-25F

User's Manual

RKC INSTRUMENT INC.

IMR02A01-E7

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 the manual in a convenient location for easy reference.

The instruction manual is intended for those who have the knowledge on electronic devices.

SAFETY INSTRUCTION

★ SYMBOLS

WARNING Incorrect application may result in fire or potential hazard to human body.

CAUTION Incorrect application may result in damage to the unit or other equipment.

WARNING

1. Risk of electric shock

- Power source should be disconnected when wiring.
- The terminal cover should be attached whenever it is operating.
- Do not remove the outer case.
- Do not touch the product when operating.
- Do not touch the terminal immediately after it is switched off. It may cause an electric shock by electricity charged in the condenser.

2. Risk of fire or fire burn

- Do not touch the heat sink while on operation or immediately after it is switched off.
- Do not use the product near inflammable gas or explosive gas.
- Keep combustibles away from the product.
- Apply fuse or breaker for safety reason in order to prevent overcurrent, short circuit, or breakdown.
- Wiring to terminals must be screwed with adequate torque. (It may cause excessive heat generation on terminals.)

3. Others

- Use the unit within the specified ratings.
- Do not drop the product on any of your body parts.

The following accessories may be available from us.

Accessories	Model code
External Volume (Complete with Volume, Scale plate and Knob.)	NPZP-S01
Rapid blow fuse For 15 A For 25 A	660CF15UL 660CF25UL
Fuse holder	HK1038UL
Fuse holder cover *	HC10

* Same fuse holder/cover for 15 A, 25 A

CAUTION

- Do not soak the product in water, washing liquid or chemicals.
- Do not put any metallic particles or conducting materials inside the product.
- Do not overhaul or remodel them.
- Use correct size of wires according to the current.
- Do not drop the product, give vibration or physical shock.
- Use the power source within the rated frequency range.
- Using the product under the following condition may cause failure, malfunction or degradation.
 - Exposed to water, oil or chemicals.
 - Exposed to corrosive gas.
 - In the high heat or high humidity.
 - Exposed to dust or metal powders.
- As the product self-heats while on operation, heat sink is attached as a radiator. If the heat convection is obstructed by surrounding equipment and parts, it will lead to possible cause of fire or damage by excessive heat generation.
- Check the polarity of wires and apply adequate voltage.
- The load should be within the rated range.

NOTICE

- a) When using outside, using under the condition with potential damage by chemicals or electric obstruction or under the condition not specified in the instruction manual or specifications.
- b) Any facilities of nuclear power control, incineration, railways, airways, vehicles, medical devices, safety devices and the facilities regulated by administrative organs or private sectors.
- c) Any system or machinery which may endanger person or property.
- d) Any facilities which requires high reliability such as the suppliers of gas, electricity and water or the system continuously operating 24 hours.
- e) Any other application when an advanced security is required.

HOW TO MOUNT

1. Dimensions and Mounting

This product can be mounted on a DIN-rail and the wall of a panel

(1) Dimensions

91
55.6
21.5
4

Protective cover (LUB: mm)

100
75
4

Ramp-up / Ramp-down (soft start) / set up volume

2-M4 x 8
M3.5 x 6

128.5
135.0

1000 ml

(2) Panel processing

(Unit: mm)

3-4.6
or M4

60

10.8±0.3

6-6.4
or M4

50±1.3

22.0

When mounting the product onto the panel, the tightening torque should be 1.18 to 1.47 N·m.

• Vertical direction

Panel

• Horizontal direction

Panel

The load current should be below 70 % of the specified ratings.

When a load is not connected rightly, a fault may be happened. Please connect the load according to the connection example.

[illegible]

- When connecting a load (*), make sure one side of the load is connected to terminal ③ (T1) as shown above. Do not connect the load between terminals ⑥ (L1) and ⑦ (L2).

The volume is available as an optional part from us

- Single wire: 0.14 to 0.5 mm²
- Stranded wire: 0.14 to 0.5 mm²
- AWG: 20 to 26

Figure 1 is a side view diagram of a connector assembly. It shows a 'Precision driver or other tools with pointed tip' being used to press a 'Connector' into a hole in a larger block. The label '(SIDE VIEW)' is positioned to the right of the diagram.

cause of bad contact or disconnection.

a) Ring terminals

Terminal No.	Item	ϕA	ϕB
⑤/⑥	Output terminal (T1/L1)	Below 9.5 mm	Above 4.3 mm
⑦	Power terminal (L2)	Below 6.5 mm	Above 3.7 mm

Terminal No.	Item	Max. rate	Recommendation
⑤/⑥	Output terminal (T1/L1)	1.47 N·m	1.18 to 1.37 N·m
⑦	Power terminal (L2)	0.78 N·m	0.64 to 0.74 N·m

(1) Protective circuit on output side

- a) The product is composed of semi-conductor elements and there is a possibility that the unit fails due to surge voltage and overcurrent. Failures are generally caused by short circuit and it becomes uncontrollable when load is on at state. It is, therefore, more secured to use the product with breaker or contactor as the protective circuit.
- b) Output element damages if output side has short-current or overcurrent.
- Apply rapid blow fuse within the following range on load circuit.
- Isurge > If > Ir
- Isurge: 1 cycle surge on current
- If: Fusing current of rapid blow fuse
- Ir: Inrush current of load