Vol.0406E2

Thyristor Power Regulators User Manual
SPR-Pro / TPR-Pro Series

CE

Thank you very much for selecting Sanup power regulator. For your safety, please read the following before using.

Feature

- Micro Processor based power control
- Soft start function for the load protect
- Optional current limit by internal CT
- Compact size with big heat sink

Caution for Safety

■ Please keep these instructions and review before using this controller.
■ This instruction manual uses WARNING and CAUTION as signal words for safety.

WARNING indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

1. In case of using this unit with machineries (warehouse, medical equipments, vehicle, train, airplane, nuclear power or safety device etc.), it requires installing fail-safe device.
   • **It may result in serious damage, fire or human injury.**
2. Use a rated voltage to prevent damage or trouble.
   • **It may result in fire.**
3. Check the number of terminal when connect each line and signal input.
   • **It may cause fire or trouble.**
4. Do not turn on the power until the wiring completed.
   • **It may cause electric shock.**
5. Do not repair, wiring or checkup when electric power on.
   • **It may cause electric shock.**
6. Installation the controller where there is no dust, corrosive or explosive gas, direct ray of the sun, mechanical vibration or shock present.
   • **It may cause fire or explosive.**
7. This controller must be mounted on panel.
   • **It may cause electric shock.**
8. Do not repair beyond of authorized technician.
   • **It may cause trouble.**

CAUTION indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury and at other times will result in death or serious injury. I may also be used to alert against unsafe practice.

Installation Guidelines

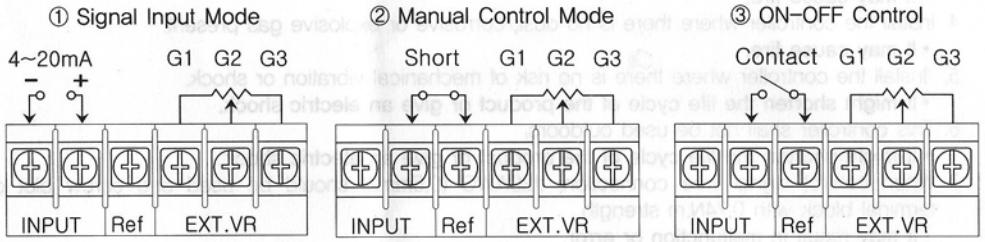
1. Ensure the surrounding ambient operating temperature is between 0~50°C (32~122°F)
   • **It may cause fire or wrong operation.**
2. Altitude over 0~2000m use.
3. Ensure the power supply for the controller does not fluctuate greatly. Main supply voltage fluctuations not exceed ±10% of the normal voltage.
   • **It may cause fire.**
4. Install the controller where there is no dust, corrosive or explosive gas present.
   • **It may cause fire.**
5. Install the controller where there is no risk of mechanical vibration or shock.
   • **It might shorten the life cycle of the product or give an electric shock.**
6. This controller shall not be used outdoors.
   • **It might shorten the life cycle of the product or give an electric shock.**
7. When control signal wire connection, #20AWG (0.5mm2) should be used and screw blot on terminal block with 0.74N.m strength.
   • **It may result in malfunction or error.**
8. Keep the controller away from high current and voltage circuits. The controller and connection wires (esp. compensation conductors and RTD lead wires) should be kept approximately 30cm(12") away from high current or voltage circuits to limit the possible affect of noise.
   • **It may cause display fluctuation or error.**
9. Do not use a place where temperature fluctuates or icing occurs.
   • **It may cause fire, explosive or error.**
10. In cleaning the controller, do not use water or an oil-based detergent.
    • **It might cause an electric shock or fire that will result in damage to the product.**
11. Do not inflow dust or dregs into inside of this controller.
    • **It may cause fire or trouble.**
12. Check the number of terminal when connect signal input line.
    • **It may cause fire or trouble.**

1. Specification

Model	SPR-Pro	TPR-Pro
Control Signal	4~20mA dc	
	ON/OFF Control (by external dry contact)	
	Manual Control (by internal or external V.R 1kΩ)	
Rate	30A	50A,75A. 100A. 120A. 150A. 190A. 240A
Protection	Current Limit by internal CT (optional)	
Element	Triac	Thyristor (SCR Module)
Cooling	30~75A : Natural air. 100~240A : Cooling fan	
Control Mode	Phase Angle Control	
Possible Load	Resistance load	Resistance. T.R primary (by Order)
Source Power	AC 110, 220, 240, 380, 415, 440, 460V by order ±5%	
Control Range	0~98% or more	
Frequency	50 / 60 Hz. Self Recognition	
Soft Start Time	0~60 sec. Setting suitable time for the load	
Ext. V.R	B 1kΩ 1W	
Operating Temp. & Humi.	0~50℃ at non-freezing 35~85%RH without condensation	

2. Wiring and Setting

1) Wiring



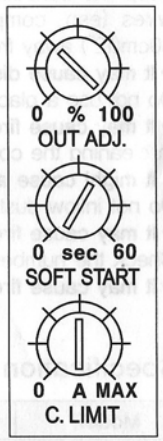
Note. External V.R rate is 1kΩ.

2) Setting Front V.R

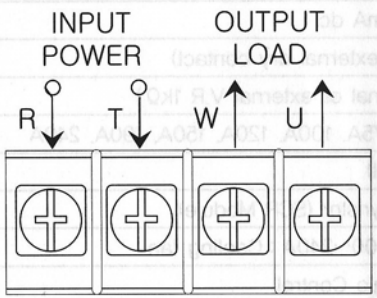
Output adjustment (OUT. ADJ) : Set output voltage limit value within Input power voltage. It enables when ON-OFF control.

Soft start (SOFT START) : Setting suitable soft start time for the load. Set full output delay time from 0 to 60 sec. If set to "0", disable.

Current limit (C. LIMIT) : Protects thyristor element by shutting off the over current detected by a load current monitoring CT. Set load current limit value within full current range. If not select, this function is not operation.



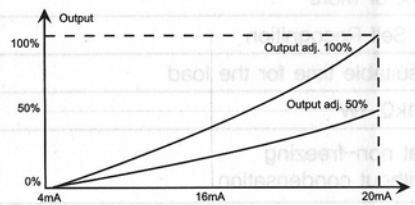
3. Connecting Power and Output



a. Required external fuse on input line for protection Thyristor element and load. The Fuse type must be rapid fuse for semiconductors.

b. Tighten the power connections correctly. Poor tightening can lead to incorrect operation of the Thyristor unit and can have serious consequences on the installation

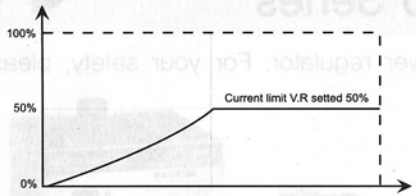
4. Output Adjustment



- V.R is located at 100%, output power will be full at 20mA.
- V.R is located at 50%, output power will be approximately 50% at 20mA.

5. Current Limit Output

Operating when detected line U average current is over set current limit value.



- Applicable to loads with rush current on starting and continuous usage over current condition such as pure metallic, tungsten and molybdenum heater.
- Install external rapid fuse for perfect protection for the thyristor device and the power line from the over current of the short circuit and the grounding.

6. Dimension

Model	Dimension (Unit : mm)	Rate
SPR-Pro	86 × 130× 76	30A
TPR-Pro	126 X 191 X 129	50A, 75A
	190 X 280 X 190	100A
	200 X 350 X 240	120A, 150A, 190A, 240A

7. Checking the Characteristics

Before switching on the power regulator, make sure that the identification code of the power regulator corresponds to the coding specified in the order and that the characteristics of the power regulator are compatible with the installation.

Load Current :
The maximum load current must be less than (about 70% or under) the value of the nominal current of the power regulator taking the load and power supply variations into account.

Note) Use only rapid fuse for semiconductor.
Note) Exhortation controller capacity is 70% or less than max. range.
Note) This manual is subject to change without notice.

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