Safety information

Before using the product, please read the safety information thoroughly and use it properly. Alerts declared in the manual are classified to Danger, Warning, and Caution by their criticality.

Danger

- Mostly indicates an imminent hazardous situation which, if not avoided, will result in death or serious injury.
- To prevent electric shock while it is running, put to earth with the fixed screw of the unit and do not touch the radiator.
- Natural cooling (40 A, 55 A, 70 A, 90 A, 130 A, 160 A) are classified to Danger, Warning and Caution by their criticality.

Warning

- Mostly indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- Please install appropriate protective circuit on the outside if malfunction or an incorrect operation may be a cause of leading to a serious accident.
- If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.

Caution

- Mostly indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
- Since the product operating environment influences the product performance and expected life span, please avoid using in the following places:
  - A place where humidity is high and air flow is insincere.
  - A place where dust or impurity accumulate, ambient temperature is high and vibration level is high.
  - A place where corrosive gas (such as harmful gas, ammonia, etc.) and flammable gas occur.
  - A place where there is water, oil, chemicals, steam, dust, salt, iron or others (Contamination class 1 or 2).
  - A place where dust or impurity accumulates, ambient temperature is high and air flow is inappropriate.

Information

- Please connect the product and other units after turning off all the power of the product, instruments and units.
- Please do not wipe this product with organic solvents such as alcohol, benzene and others. (Please use mild detergent)
- Always connect the positive and negative terminals when using the product.
- Please attach RUN contact while it is operating.

Suffix code

<table>
<thead>
<tr>
<th>Code</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Sim type 3-phase power regulator</td>
</tr>
<tr>
<td>040</td>
<td>Rated current</td>
</tr>
<tr>
<td>055</td>
<td>55 A</td>
</tr>
<tr>
<td>070</td>
<td>70 A</td>
</tr>
<tr>
<td>130</td>
<td>130 A</td>
</tr>
<tr>
<td>160</td>
<td>160 A</td>
</tr>
<tr>
<td>L</td>
<td>Power supply voltage (Low)</td>
</tr>
<tr>
<td>H</td>
<td>380 ~ 480 V AC (High)</td>
</tr>
<tr>
<td>N</td>
<td>16 Fuse</td>
</tr>
<tr>
<td>Nc</td>
<td>Circuit and FAN need 100 ~ 240 V AC voltage power separately</td>
</tr>
</tbody>
</table>

Specification

<table>
<thead>
<tr>
<th>Model</th>
<th>Low</th>
<th>Power supply voltage</th>
<th>Circuit input power</th>
<th>Power frequency</th>
<th>Rated current</th>
<th>Power supply voltage</th>
<th>Circuit input power</th>
<th>Power frequency</th>
<th>Rated current</th>
<th>Power supply voltage</th>
<th>Circuit input power</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPR-3SL040L</td>
<td>040</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>40 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>40 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
</tr>
<tr>
<td>TPR-3SL055L</td>
<td>055</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>55 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>55 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
</tr>
<tr>
<td>TPR-3SL070L</td>
<td>070</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>70 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>70 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
</tr>
<tr>
<td>TPR-3SL130L</td>
<td>130</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>130 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>130 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
</tr>
<tr>
<td>TPR-3SL160L</td>
<td>160</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>160 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
<td>50 Hz / 60 Hz (Dual usage)</td>
<td>160 A</td>
<td>100 ~ 240 V AC (Low)</td>
<td>100 ~ 240 V AC</td>
</tr>
</tbody>
</table>

Connection diagram

- Inside of TPR, the fuse is installed in the R, S, T input power supply portion depending on the specification of options.
- When connecting terminals, please use crimp connectors and securely fasten them due to the high current flow.

Appearance

- 40/55/70 A (Max space for solder less terminal connection is 40/55/70 A : 16 mm, 90/130/160 A : 26 mm)

Connection diagram of signal and alarm terminal

- No. ①, ② and ③ : manual V.R
- No. ④ and ⑤ : Alarm 1 - Warning
- No. ⑥ and ⑦ : Alarm 2 - Caution
- No. ⑧ and ⑨ : ON/OFF control
- No. ⑩ and ⑪ : SCR short-circuit, Fuse Disconnection, Power problem
- No. ①1 : Alarm 2 - Caution
- No. ①2 : Alarm 1 - Warning
- No. ①3 : Load
- No. ①4 : SCR short-circuit
- No. ①5 : Fuse Disconnection
- No. ①6 : Power problem
- No. ①7 : ON/OFF control
- No. ①8 : Alarm 2 - Caution
- No. ①9 : Alarm 1 - Warning
- No. ①10 : Load
- No. ①11 : SCR short-circuit
- No. ①12 : Fuse Disconnection
- No. ①13 : Power problem
**PARTS NAME AND FUNCTION**

- **NO. 1** Variable cycle control
- **NO. 2** Fixed cycle control
- **NO. 3** Phase control
- **NO. 4, 5** Cycle control
- **NO. 7** External control
- **NO. 8** Internal control

**Function description**

- **Phase control**
  - Control the AC power supply applied to the load proportionally according to the control input signal as changing phase angle (0 ~ 180°) in each half cycle, 8.33 ms.

- **Fixed cycle control**
  - As setting the constant cycle of the output, (1 sec), fixed cycle control is to control the AC power supply repeatedly with a constant rate of ON/OFF according to the control input.

- **Variable cycle control**
  - Without setting a constant cycle, variable cycle control is to control AC power supply with using the number of cycle.

**Diagram of input signal and power terminal**

- Current input: 4 ~ 20 mA DC (connect no. 1 and 3)
- Voltage input: 1 ~ 5 V DC (connect no. 2 and 3)
- Extra input power supply (for circuit power and FAX operation power): 100 ~ 240 V AC (4, 6) Have to connect power to operate unit (Even if it does not need to use FAN).

**LED indicator and explanation**

<table>
<thead>
<tr>
<th>LED indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>Power indicator is ON when the power is being supplied to the control unit</td>
</tr>
<tr>
<td>FIRE</td>
<td>Fire indicator is ON proportionally to the control input</td>
</tr>
<tr>
<td>SOFT</td>
<td>To use Soft start, Soft up/down function, turn Soft VR clockwise and SOFT indicator will be ON</td>
</tr>
<tr>
<td>O.C</td>
<td>If the current flows higher than set value of O.C volume when there is overcurrent then O.C indicator is ON and it is continuously ON if it outputs 100 % continually.</td>
</tr>
<tr>
<td>L.L.</td>
<td>When Load disconnected - In a situation where output is over 10 %, it load current is not founded, alarm rings</td>
</tr>
<tr>
<td>O.T.</td>
<td>When heat sink temperature rise over 85 °C, it light up. Alarm 2 output will be out but TPR operates without stop. And when temperature go down under 75 °C, alarm will be off</td>
</tr>
<tr>
<td>FUSE</td>
<td>When inner fuse is disconnected, when load power is not connected, in a situation where circuit power supply (100 ~ 240 V AC) is connected, if any one phase of load power supply is not working or inner part of FUSE is disconnected, alarm output ALARM ring</td>
</tr>
</tbody>
</table>

**Control input (%)**

- VR setting value (%): 20, 40, 60, 80, 100
- Input voltage (%): 20, 40, 60, 80, 100

**Installation**

1. Please install it perpendicularly, if the product is installed vertically in unavoidable circumstances, please use 50 % of rated current.
2. When multiple products are closely installed, please install them with a distance of more than a width of 5 cm and a length of 10 cm as shown in the picture.
3. In order to prevent short circuit, please use wiring ducts less than the half of the height of the heat sink height.
4. Please consider whether the air flow is good enough when installing the product, if the ambient temperature is too low, please refer to the following graph. However, if the ambient temperature is higher than 40 °C, the maximum load current is decreasing by the below.
5. When wiring, please use crimp connectors to high current flows terminal, if the contact surface of the connectors and terminals are poor, it may lead to a fire since the wires and terminal gets overheated.
6. Before applying power, this model needs more than the third class grounding to prevent electric shock.