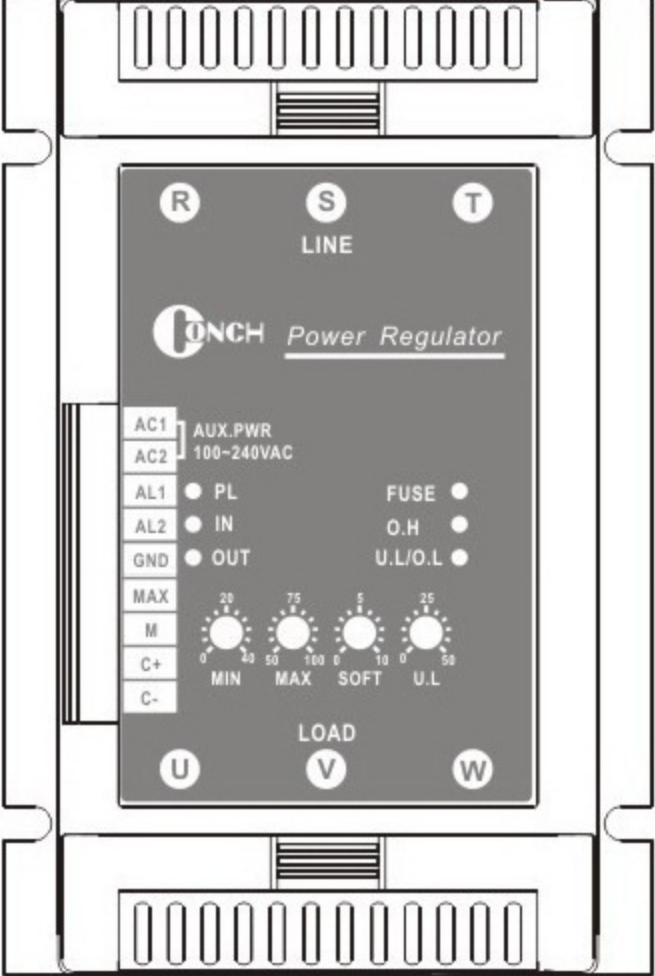


Simple Type

3Φ Power Regulator TRL Series



Input Signal | 0~5V, 1~5V, 0~10V, 1~10V, 0~20mA, 4~20mA -- 6 options

Indicator | PL – Aux. power indicator (LED turned on when aux. power is connected)
IN – Signal input indicator (LED will flash with the intensity of signals)
OUT – SCR output indicator (LED will flash with the output rate)
FUSE – Fuse breaking indicator (LED will go on if the main power isn't fed, phase failure or broken fuse occurs)
O.H. – Heat sink overheat indicator (LED will go on if the temperature of heat sinks is higher than 80° C)

Adjustment | MIN Minimum adjustment: 0 ~ 40% (Default = 0)
MAX Maximum adjustment: 50% ~ 100% (Default = 100)
SOFT Soft-start time: 0~10 sec. (Default = 5 sec.)
Maximum output = Panel max. value x External VR max. value

Alarm contact | Contact capacity: 250VAC/3A

Determining Specification | Calculation of current and determination of specifications:
3Φ → 1 (Amper) = P (Watt) ÷ √3 ÷ 0.85 (15% safety reservation)
Example: 3Φ 380V 15KW heating element (main power supply is 380V)
15000 ÷ 380 ÷ 1.732 ÷ 0.85 = 26.8 → (select the type of 35A)

Note | If temperature inside the cabinet is too high, please use at most 70% of the rated current, or typewith hgiher current rating.

Before changing the fuses or alter the input mode, please cut off the power supply first and follow the following steps:
1. Dismount the top terminal cover
2. Take off the fixing screws on the both side of the topo cover
3. Lift the top cover about 45° (60° at most less the connecting wire should break)

Model Explanation

TRL 4 035 P - L

① Model | TRL | 3Φ 3 L

② Main Power | 2 | AC180~260V
4 | AC340~480V

③ Rated Current | 025 | 25A | Fuse | 40FE
035 | 35A | 50FE
050 | 50A | 63FE
060 | 60A | 80FE

④ Control Mode | P | Phase Control
Z | Zero Crossing Control

Aux. Power | AC100~240V 50/60HZ 6VA

Load & Temperature

Output limit setting

Soft-start Time

Mode Selection

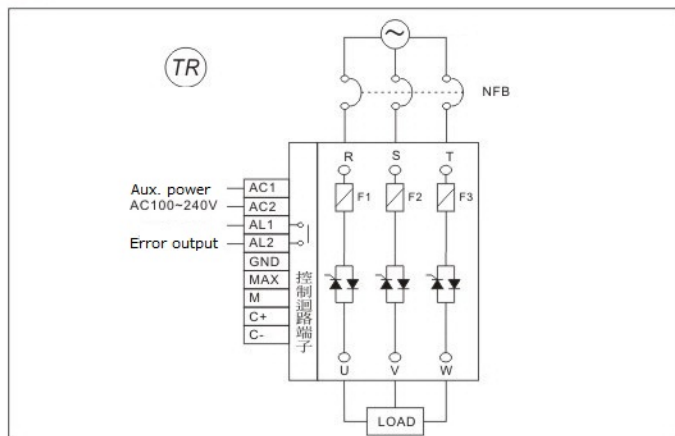
Control Mode	Input Signal	J4	J3	J2	J1	Marking
Phase Control	0~5V	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	■ : ON □ : OFF → Default
	1~5V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	0~10V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	2~10V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	0~20mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	4~20mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Zero Crossing Control	0~5V	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	→ Default
	1~5V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	0~10V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	2~10V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	0~20mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	4~20mA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

※ If mode is changed, please reboot to activate the change.

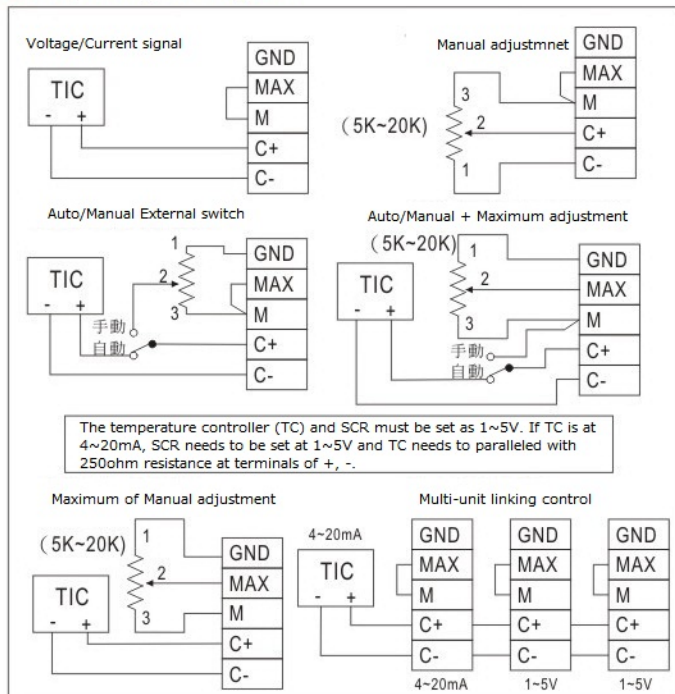
Output Method and Application

Phase Control	10%	50%	90%
Advantages:	Can be applied to such load types as fixed resistance, variable resistance and lighting adjusting. No Interrupted signal in continuous output.		
Disadvantages:	May cause harmonic interference when triggered.		
Zero Cross Control	10%	50%	90%
Advantages:	Won't cause harmonic interference. No components of half waves so as to reach the hgihest power factor.		
Disadvantages:	Only applicable to heaters of fixed resistive type. When outputting, the current indicator might appear with dithering. Likely to cause burn-in to the heating element.		

Power Wiring Diagram



Input Signal Diagram



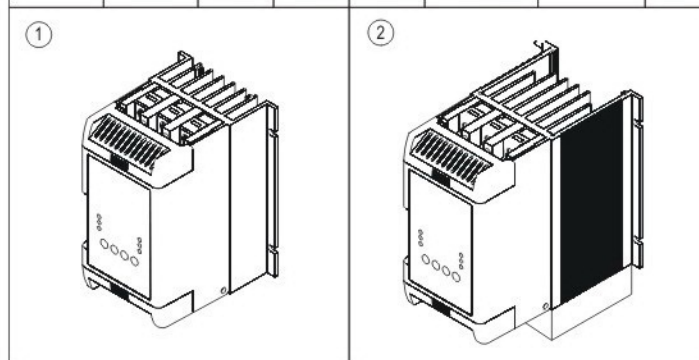
Error Display & Troubleshooting

PL Power Lamp is not alit	<ol style="list-style-type: none"> 1. Aux. power is not connected or the voltage is abnormal - check if the power at AC 1, 2 terminal is normal 2. Over-voltage or exceptional surge causes power protecting circuit of the control board burnt.
FUSE Indicator alit	<ol style="list-style-type: none"> 1. Main power disconnected, under phase with the power, supply voltage or phase sequence abnormal. 2. Fuse breaks.
O. H Indicator alit	<ol style="list-style-type: none"> 1. Ambient temperature too high or bad air circulation in the cabinet. 2. The fan is not switched on - breaks down or jammed by a foreign body. 3. Wrong specification or over-current at the load. 4. Terminal unfastened which caused high contact resistance and heat at the contact.
Output Voltage doesn't coordinate with input command	<ol style="list-style-type: none"> 1. Check if the VRs of Min and Max. on the panel are adjusted. 2. External input signal is not corresponding to mode setting.
SCR does not output	<ol style="list-style-type: none"> 1. Aux. power disconnected - PL lamp does not turn on. 2. Input signal disconnected - IN lamp does not turn on. 3. Main power disconnected or under phase - FUSE lamp turns on. 4. Heat sink overheated - O.H. lamp turns on. 5. IN lamp on, OUT lamp off and no error message - M and Max signal is not short-circuited
SCR fails to shut down	<ol style="list-style-type: none"> 1. VR of MIN (minimum adjustment) changed. Please switch to minimum counter-clockwise. 2. External input signal is not corresponding to mode setting. 3. Check if the load and housing short-circuited. 4. Check the common point of the load and N-phase short-circuited. 5. Harmonics interference (i.e. generator) causes SCR unable to be shut down. 6. The power components of SCR are short-circuited or the controlling board fails.
3F current unbalanced	<ol style="list-style-type: none"> 1. Check if the 3-phases of the impedance at load resistance are balanced. 2. 3 Voltage unbalanced - inadequate power capacity, or caused by the generator. 3. SCR'S sync signal is abnormal due to harmonic interference, like the generator

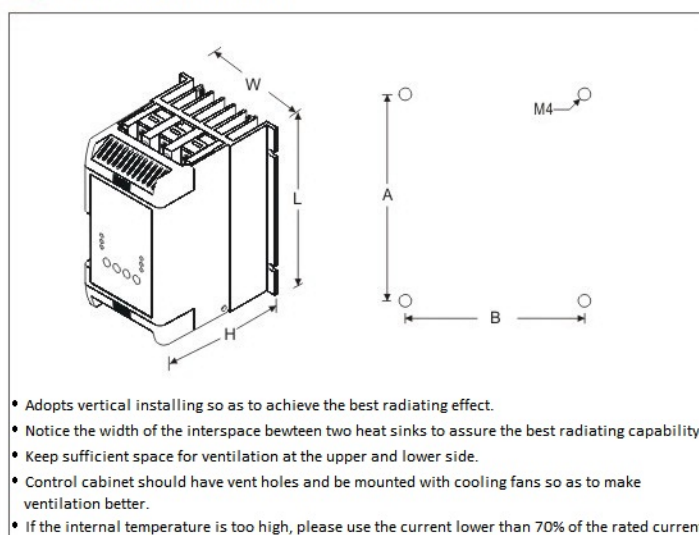
If trouble can't be solved after even though the above troubleshooting is completely taken, please contact our staff for advanced solutions.

Dimension

Model	Rated Current	L (mm)	W (mm)	H (mm)	Fixed Size A & B (mm)	Cooling Method	Fig.
TRL 3φ 3W	25A	145	96	110	100,88	Self-cooling	1
	35A	175	96	110	100,88	Fan cooling	1
	50A	175	96	152	100,88		2
	60A	175	96	152	100,88		2



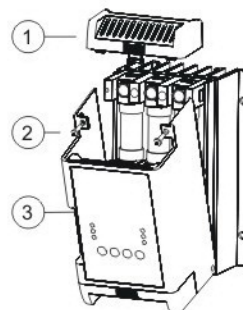
Installing Instruction



Instruction of changing the fuse

1. Dismount the top terminal cover.
2. Take down the two M3 screws.
3. Pull up the cover about 45 degree.

Don't let the angle exceed 60 degree when opening the cover in case the wires inside should break



Safety Notice

<p>Caution</p>	<ul style="list-style-type: none"> Please connect lines according to National Electrical Code to prevent hazard to human and equipment. To prevent electric shock, please make sure that power is turned off before replacing the fuse.
<p>Dangerous</p>	<ul style="list-style-type: none"> Please do not use beyond the rated current. If the power is unsteady, please retain sufficient current safety reservation. Please lock terminal screws tightly to prevent components from being burned due to the surge of overheat of contacts. The internal parts of the device are components with high voltage and high temperature. Do not touch any terminal to prevent hazard if it is electrified.