

TPR-3P series

INSTRUCTION MANUAL

Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this manual where you can view it any time.



HANYOUNGNEX CO.,LTD

28, Gilpa-ro 71beon-gil, Michuhol-gu, Incheon, Korea

TEL : +82-32-876-4697

http://www.hanyoungnux.com

HEAD OFFICE

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	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
	WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
	CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

DANGER

To prevent electric shock while it is running, put to earth with the fixed screw of the unit and do not touch the radiator panel since it is very hot. Do not touch or contact the input/output terminals because they cause electric shock.

WARNING

- If this product is used with the machinery which may be caused human injury or serious property damage then use it after surely installing the protection equipment for two or three times.
- If the user use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- To prevent deflection or malfunction of this product, supply proper power voltage in accordance with the rating.
- To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
- Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
- Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.

CAUTION

- Installing location affects the function and life expectancy of this product greatly so please avoid the places given in the below.
- Please avoid the places with the high humidity and bad ventilation system.
- Please avoid the places with the presence of much dust/foreign matters, high ambient temperature and strong shock.
- The contents in this manual may changed without prior notice.
- Please turn OFF the product and perform the wiring.
- Thyristor controller must be installed vertically.
- Please install it in the internal side of panel and install the exhaust fan on the upper part of panel.
- Please avoid the places where corrosive gas (especially noxious gas, ammonia and etc) and inflammable gas exist
- Please avoid the places where vibration and impact carry into the product directly.
- Please avoid the places where liquid, oil, medical substances, dust, salt or iron contents exist (avoid place of pollution level 1 or 2)
- Do not clean the product with the organic solvent such as alcohols, benzene and etc. (Use neutral detergents)
- Please avoid the places where huge inductive interference exists and places where static electricity/self noise are generated.
- Please avoid the places where heat accumulates due to the direct sunlight, radiation and etc
- If the device is touched or contacted by water then short-circuit and fire may occur so please inspect the device carefully.
- Do not wire anything to the un-using terminal.
- Please check the polarity of terminal before wiring.
- The warranty period is one year including the parts only under the condition where the product is used properly
- When installing more than 1 devices close to each other, must have gap at least 100 mm

Suffix code

Model	Code	Description
TPR-3P	<input type="checkbox"/> <input type="checkbox"/>	3-phase thyristor regulator
Power supply voltage	220	220 V AC
	380/440	380 V AC / 440 V AC
Rated current	200	200 A
	250	250 A
	320	320 A
	500	500 A

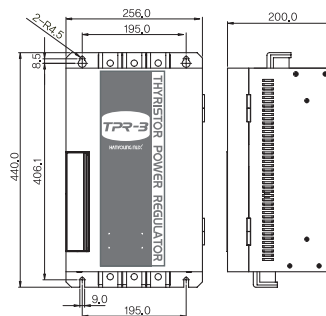
Specification

Model	TPR-3P		
Power supply voltage	220 V a.c. / 380 V a.c. / 440 V a.c.		
Applying frequency	50/60 Hz ((Dual usage)		
Rated current	200 A	250 A	500 A
Protective circuit	Short detection by fuse, Overcurrent detection alarm, Heatsink overheat alarm		
Applying load	Resistive load		
Control input	Current Input	4 - 20 mA d.c.	
	Voltage Input	0 - 5 V d.c., 1 - 5 V d.c., 0 - 10 V d.c.	
	Contact Input	ON/OFF	
	External V.R	External volume (10 KΩ)	
Control type	Phase control, ON/OFF control, Fixed cycle control		
Start type	Soft start / Soft down		
Output voltage	More than 95 % of the input voltage (with the max current input)		
Cooling type	Forced cooling Separate power supply for fan operation		
Display method	Output displayed by the LED		
Insulation resistance	minimum 100 MΩ (500 V d.c. mega standard)		
Output adjustable range	0 ~ 100 %		
Dielectric strength	For 1 minute at 2000 V a.c. 50/60 Hz		
Line noise	Noise (2 kV) by the noise simulator		
Ambient temperature · humidity	0 ~ 40 °C, 35 ~ 85 % RH (but no icing allowed)		
Storage temperature	-25 ~ 70 °C		
Weight	200/250 A : approx.15kg, 320 A : approx.22kg, 500 A : approx.35kg		

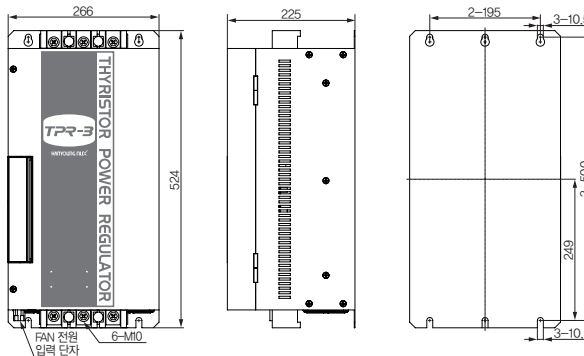
Dimension and installation panel cutout

(Unit : mm)

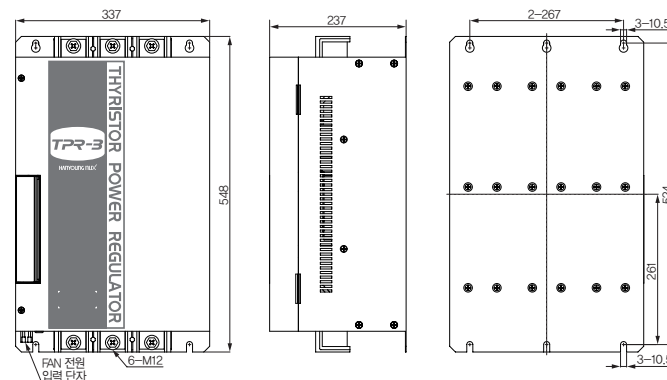
200 A, 250 A



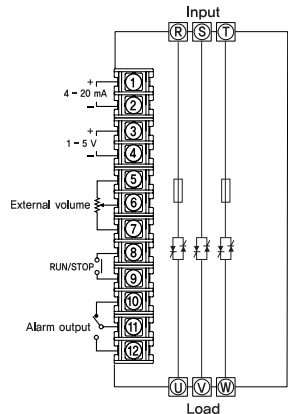
320 A



500 A



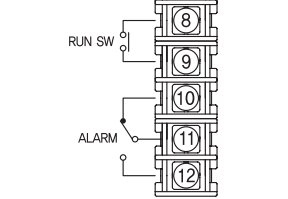
Connection diagram



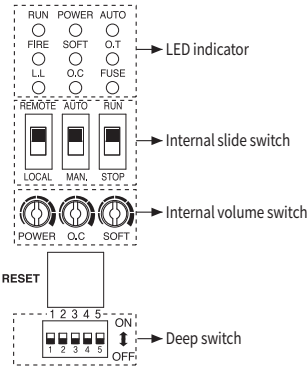
How to wire the input signal terminal

- Using 4 - 20 mA DC
 - 4 - 20 mA
- Using 1 - 5 V, 0 - 5 V, 0 - 10 V DC
 - 1 - 5 V d.c
- Using ON/OFF
 - ON/OFF
- Using external manual volume
 - VR 10 kΩ

Using RUN S/W, ALARM RELAY



Parts Name



LED indication

- RUN: Always ON when operating (OFF when selecting STOP)
- POWER: ON when AC power is supplied in
- FIRE: ON when output is generated and becomes ON proportional to an amount of output (Continuously ON with 100 % output)
- AUTO: ON when selecting the AUTO MODE
- SOFT: ON when using the SOFT START function
- OT: ON when heat-sink is over heated, alarm output, operation stops
- LL: ON when value less than the load break set value is generated and ON when load current is less than 1A.
- OC : ON when value more than O.C set value is generated, alarm output, operation stops
- FUSE : ON when internal FUSE breaks, alarm output, operation stops.

Internal slide switch (SLIDE S/W)

- REMOTE: Use external volume (VR)
- AUTO: Use control input
- RUN: Always set at RUN when operating
- STOP: All function stop when selecting stop during operation
- LOCAL: Use internal volume (VR)
- HAND: Ignores the control input

Example of usage -

	<ul style="list-style-type: none"> - External manual volume operation - Ignore the internal PW.MAX VR operation - Use the control input
	<ul style="list-style-type: none"> - External manual volume operation - Ignore the internal PW.MAX VR operation - Ignore the control input
	<ul style="list-style-type: none"> - Ignore the external manual volume operation - Internal PW.MAX VR operation - Use the control input
	<ul style="list-style-type: none"> - Ignore the external manual volume operation - Internal PW.MAX VR operation - Ignore the control input

Internal volume (VR)



• **Output voltage limitation (Power)**
This is the function that limits the output voltage. Turning the VR to all the way left will make an output amount to 0 % and turning the VR to all the way right will make an output amount to 100 %.

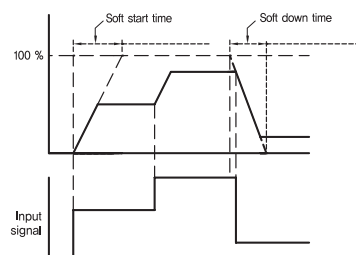
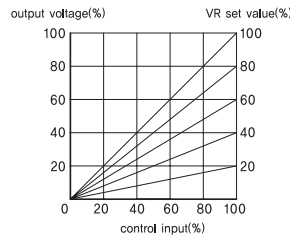
• **Over current protection (O.C)**
If the current more than the VR set value is supplied in then OC LED will become ON immediately and if it is maintained for more than 0.5 then alarm will be generated.

- Set range
200 A, 250 A : Default 250 A
320 A, 500 A : Default 500 A

SOFT START

When using it with the capacitive load such as inductive load and etc, turning ON the power switch for the first time will supply in the max value power and doing so may damage the load and power devices. Therefore this function let load voltage to increase gradually.

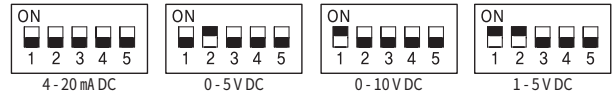
- Set time : 0 ~ 50 sec
- Set the soft start volume as minimum then soft start function will not be operated.
- Using the soft start function in the ON/OFF control fixed cycle control is meaningless



Deep switch(DIP S/W)

Input set	SW1	SW2	Operation	SW3	Load broken wire	SW4	SW5
4 - 20 mA	OFF	OFF	Phase control	OFF	NON	OFF	OFF
0 - 5 V	OFF	ON	Cycle control	ON	30%	ON	OFF
0 - 10 V	ON	OFF			40%	OFF	ON
1 - 5 V	ON	ON			50%	ON	ON

Example of usage -

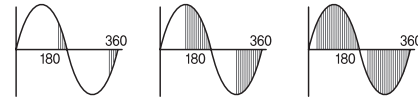


RESET

All function becomes stop temporarily (HOLD) when ERROR occurs or alarm operates. RESET function is used when restoring.

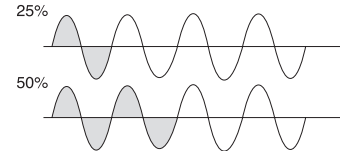
Phase Control

AC power has 50/60 Hz frequency and 60Hz 1/2CYCLE displays numerical value 180 degree for approx 8.33 ms. Phase control type inputs 1/2 CYCLE to the AC power and depending on the control signal, it generates the power proportionally in between 180 degree for approx 8.33 ms. Also, method is minutely adjusted depending on AC wave shape so it can easily control the electrical device such as AC motor and etc.



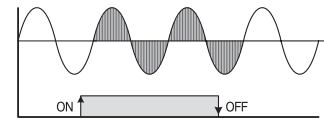
Fixed cycle control

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.

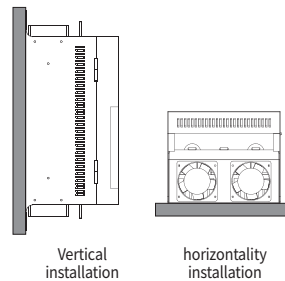


ON/OFF control (ZERO CROSS)

It generates 100 % output depending on the control input signal and always ON/OFF at the ZERO point or around the ZERO point.

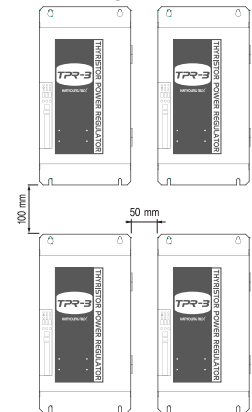


Installation method



Product installing direction should be vertical direction. If you need to install this product as the horizontal direction due to the space problem or etc, please only use 50 % of the load current

Installation gap



When installing more than 1 devices close to each other, please have the gap at least 50 mm horizontally and 100 mm vertically.

Control board installation type

- Be cautious of the air stream.
- As the internal temperature decreases, the durability and reliability of product increase.
- Please minimize the elements that disturb the air stream above the product.
- Be cautious for the ventilation system (Panel internal temperature should be less than 40 °C)
- When OT LED becomes ON, please check for the panel internal temperature and check if the cooling fan located under the TPR heat sink is working properly.
- Check for the proper wiring of the R, S, T phase.

