Three phase AC solid state voltage regulator series

OPERATION MANUAL

■General

1. Three phase AC solid state voltage regulator adopt LSI，has three phase trigger circuit, one way SCR, RC circuit and power circuit. it can adjust load voltage in automatic or manual，so as to adjust three phase output power。That is to say with the effect of input control, it bring a three phase strong pulse trigger signal, then control the SCR each, and accomplish the no level adjust in that the three phase load voltage change from 0V to Grid voltage.
2. Support the automatic or manual input of 4-20mA, 0-5Vdc, 0-10Vdc, 1-5Vdc, 0-10mA etc. The output voltage can be linearly adjust from 0V to the max, the input adjust range is wide, and with high output adjust accuracy, good three phase symmetry, strong resisting noise. Has no instant surge output when switch on.
3. The Y module has high capability built-in switch power, don't need to connect a transformer additionally, also don't need to connect a DC power additionally.
4. The module can connect inductive load, such as transformer etc, and also can connect to resistive load, such as heating equipment, the load wring method may adopt Δ type or Y type, when use Y type, the load center point don’t need to connect to N wire. The every phase power of three phase load should same.
5. The module also fit to the speed adjust of small power three phase moment motor, fan, pump, and also fit to the slowly starting up of AC motor。
6. The module adopt SMT technics, DCB china basic board, with small volume, seldom wiring around, stable performance, convenient use, high reliability.
7. With LED power indicator and output adjustable value indicator.
8. The module already has SCR protective circuit, don’t need to connect a more。
9. The Y type module fit to three phase four wires circuit, AC 380V±10%, 50Hz frequency. Judge the phase order automatically, so don't demand the order of R,S,T input wires.
10. It is isolated design among each input terminal and the switch power and strong main circuit, the dielectric strength is more than 2000 Vac.

■Model and load output current

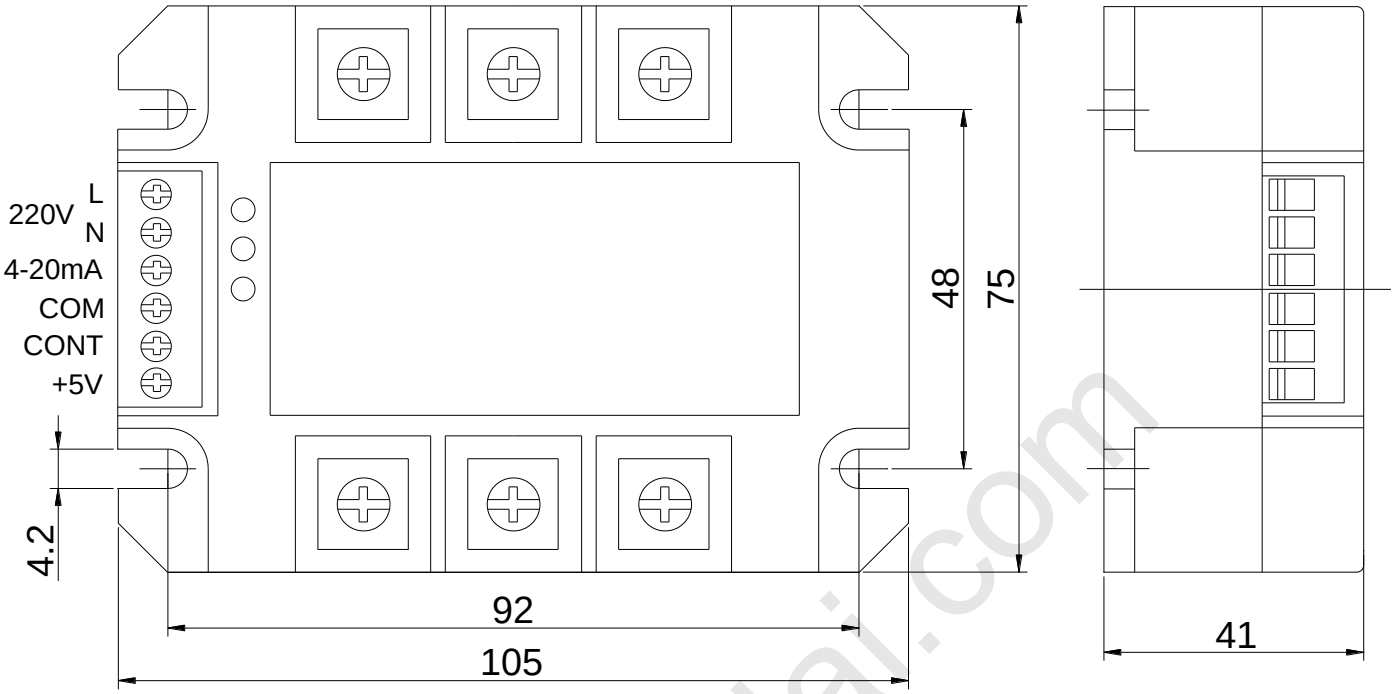
Model number	Rated current	Model number	Rated current
LSA-TH3P15Y	15A	LSA -TH3P90Y	90A
LSA -TH3P35Y	35A	LSA -TH3P120Y	120A
LSA -TH3P50Y	50A	LSA -TH3P150Y	150A
LSA -TH3P70Y	70A	LSA -TH3P200Y	200A

Note: When the current is more than 150A, may use three phase trigger TSR and random type SSR or three phase triggerT3SCRH and SCR, the cost performance is higher, and the malfunction damage is less.

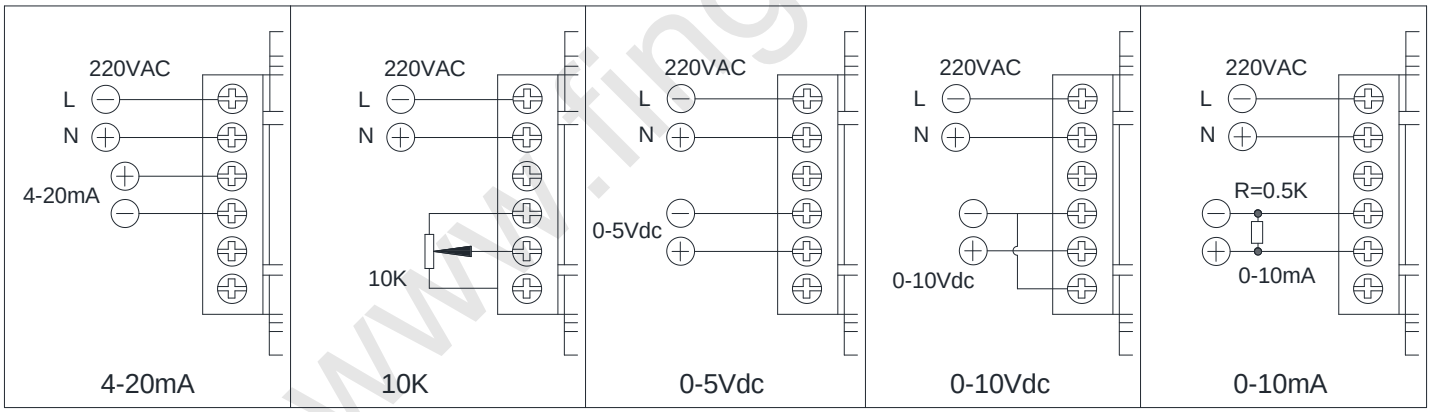
■Model description

LSA	-	T	H	3	P	90	Y
Desgin code		Three phase	Enhance none - general	Rated work voltage 3: 280-430Vac	Out put form p: AC random trigger	Rated work current 90 - 90A	Module Y - integration

■External dimensions



■Diagram Wiring



■Operation instruction

1. Special multiple input control mode, with 0-5Vdc、0-10Vdc、4-20mA、1-5Vdc、0-10mA etc automatic control type, don't need special custom-made, also may use potentiometer manual control.

1). 4-20mA control type: refer to 4-20mA figure, may accept 4-20mA analog signal of temperature controller etc. The internal input resistance of module between 4-20mA and COM is 250Ω. When use this type, +5V and CONT are blank.

2). Potentiometer manual control type: refer to the 2k-10k figure, the middle potentiometer end connect to CONT terminal，the other two ends of potentiometer connect to COM and +5V separately. When control terminal signal (CONT) change from 0 to 5Vdc, the AC load voltage will change from 0 to max, the more the CONT voltage, the more the output voltage. +5V is made by the module itself, not be provided by external power, just match the potentiometer control type, don't have other effect, the potentiometer's resistance value is between 2kΩ to 10kΩ. When use this type, 4-20mA terminal is blank.

3). 0-5Vdc control type: please refer to the 0-5Vdc figure, may accept the 0-5Vdc signal of single chip etc, The input positive pole connect to CONT, negative pole connect to COM, the internal input resistance of module between CONT and COM is more than 30KΩ. When use this type, +5V and 4-20mA are blank.
4). 0-10Vdc control type: refer to 0-10Vdc figure, may accept 0-10Vdc analog signal of PLC etc，the internal input resistance of module between 0-10Vdc and COM is more than 15KΩ. When use this type, 4-20mA are blank, +5V terminal should connect to COM for short circuit, 0-10Vdc control signal will be input in 0-5Vdc terminal.
5). 0-10mA control type: refer to 0-10mA figure. When adopt this type, should connect a 500Ω, 1/2W resistance between CONT and COM, when input 0mA, the corresponding CONT is 0Vdc, when input 10mA, the corresponding CONT is 5Vdc.
2. Each function is positive pole from COM, the COM is negative pole, if the polarity is contrary, the main circuit output of module maybe run away.
3. Every function terminal of module is positive pole, that is to say the higher control voltage, the higher output voltage of module main circuit.
4. At the same time should use one input control type, if there are two, the stronger signal will be valid. If use manual type and automatic type, such as connect to 4-20mA for automatic control, and connect to 0-5V for manual control, may transpose the function by double throw switch.

■The wiring of force electricity main circuit output

Mounting type:
1. Wall hanging vertical mounting. Screw down each screw, the power is input above and output under.
2. It don't has the order demand in the three phase AC input cable(R,S,T), the cable size is according to the work current.
3. N wire is just for the internal switch power, it is ok to use 1 square mm thin wire, it is full isolated among the N wire and the other input terminal.
4. U, V, W output may connect to 380Vac △ type load or 220Vac Y type load(don't need to connect N wire).
5. Over current protection: if has this phenomenon in the operation, at fire, should inspect the load whether has the short circuit etc. may install a fuse in front of input wire R, S, T terminal, the size may be 1.5 times reality load current.
6. The module should match heat sink, and should have enough space with other equipments in distributing cabinet. May install fan to force to dispel the heat if need. The heat radiation effect is not only relative the size of current and the heat sink, but also to ambient temperature (summer, winter), ventilation condition (cooling naturally, cooling forcibly, wind speed) and mounting density.
7. The diagram wiring of Y module, apply to three phase four wires

■Indicator description:

Green LED: Power indicator.
If L and N (220V power supply) is no electricity, the green light will not shine, please check whether the L and N was connected well, and note the L and N can't be reversed.
Red LED: Input signal indicator.
If the input signal is very small, or not yet added to the control terminals, the red light will not shine. The red light intensity represents the intensity of the input signal. The bigger the control signal, the brighter the red light, the greater the voltage output value of the module.
Yellow LED: Status indicator.
When the module output is zero, yellow light will shine, if has output, will not shine.
There are several statuses when the yellow light shines:
1. No control signal, the module output voltage is zero at this time.
2. Has control signal, but it is too small, the module output voltage is zero at this time.
3. Over temperature alarm. If the module itself has reached 75℃ temperature, it will automatically stop working, please cut off the power promptly at this time, enhance cooling first then let it work.