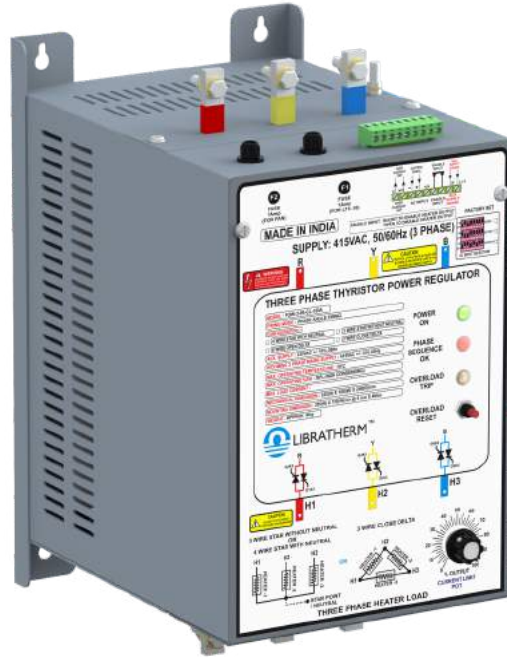


## Three Phase Thyristor Power Regulators for Resistive and Inductive loads



# POW-3-PA-CL

### MODEL WISE DESCRIPTION

Sr. no.	Model	Product Description
1	POW-3-PA-CL	Three Phase SCR Power Regulator – suitable for 3 phase heaters connected in 3 or 4 wire Star or 3 wire close or open delta configurations with current control and over load protection.
2	POW-3-DCR-CL	Three Phase SCR based DC Power Rectifier with shunt feedback

### FEATURES

- 25 Amps to 500 Amps capacity (32KW to 360KW).
- Suitable for 3 or 4 wire star configuration / 3 or 6 wire delta configurations/
- 1 or 2 or 3 phase DC rectifier configuration
- Auto / Manual operation.
- Accepts (4-20)mA / (0-5)VDC / (0-10)VDC control input (user selectable)
- Soft start and step less smooth control.
- Adjustable current control and over load trip feature.
- Isolated heat sink for safety.
- Simple and Modular design for easy servicing of firing cards and thyristors.

## APPLICATION

Thyristor Power Controller has a varied application and can be used with heating elements like nichrome, Canthal, Super Canthal, Silicon Carbide, Molybdenum, Infra-Red, step up or step down transformer etc. where precise and accurate power and temperature control is required. There is a significant electrical power savings with respect to conventional contactor type temperature control system. Thyristors have many direct and indirect advantages compared to electro - mechanical contactor. Ideally suitable for resistive, transformer, inductive or heating loads like Silicone Carbide and Molybdenum which exhibits significant changes of resistance with increase in temperature.

## Description of Thyristor Power Regulators

Libratherm offers ready to use SCR power controller for electrical heating loads ranging from 5 KW/Single phase to 360KW/3-phase. This power regulator module comprises suitable triggering card model LTC-12 or LTC-13 or LTC-15 or LTC-18, suitably rated back to back connected SCR modules (with electrically isolated base, mounted on the heat sink, input and output clip-on type heavy duty connectors or Aluminum/Copper bus bars, semiconductor fuses and thermal cutouts. The entire assembly is mounted on MS powder coated enclosure, which in turn can be easily mounted inside the closed control panel as desired. Complete ready to use control panel with suitable PID / Program temperature controller can also be supplied as per the user's specifications and requirement. For DC rectified output the assembly remains the same, except the SCRs are connected in bridge configurations as shown above in the diagram.

## Technical Specifications

Available Ratings	15KW Three phase to 360KW Three phase
Available Configuration	Three phase (3 or 4 wire star and 3 or 6 wire delta) or DC rectifier configuration.
Control Action	Phase angle control (self-synchronized)
Control Signal	(4-20)mA / (0-5)VDC / (0-10)VDC / Potentiometer – user selectable
Output	0 to 240VAC or 0 to 415V/440AC variable voltage proportional to the control signal. 0 to 200VDC, 0 to 400VDC, 0 to 560VDC rectified output proportional to control signal.
DI DO control	a) Potential free contact input (DI) to remotely start/stop the Thyristor b) Potential free contact output (DO1) to indicate status of Thyristor ON or OFF. c) Potential free contact output (DO2) to indicate Over Load condition (Trip Contact) . Available only with all the models marked CL
Smooth Control	Adjustable Ramp Up and Ramp Down Time for soft increase and decrease of output voltage. (Settable in the range of 2 to 20 seconds)
Current Control	Using on card Current Limit and Over Load Trip settings. Available only with all the models marked CL
Settings	For adjusting voltage and current per phase using ON card presets
Load Type	Suitable for both resistive and inductive / transformer load
Aux. Supply Voltage	240VAC +/- 10%, 50/60 Hz

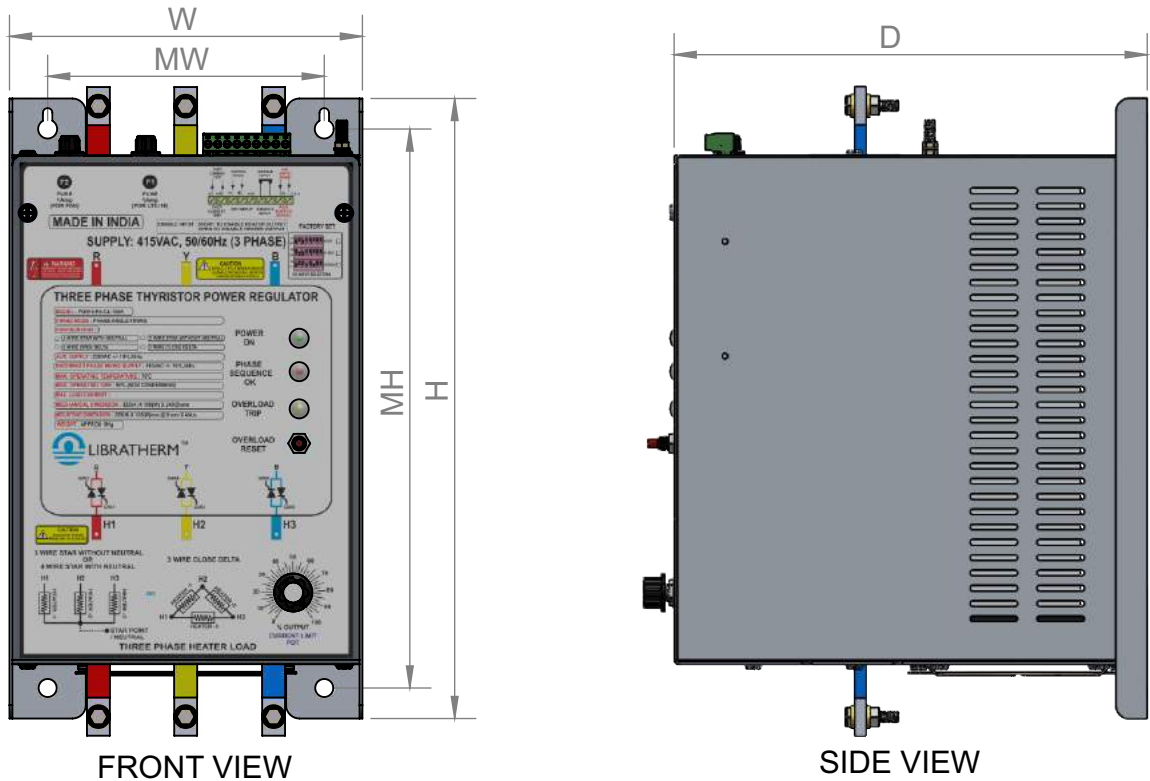
Available Models	As given in the above table (Under Model wise description)
Other accessories provided with each Thyristor power regulator/rectifier	a) RC snubber / MOV across the SCRs to protect against voltage transients dv/dot b) Thermal cut out switch on the heat sink – to protect thyristors against overheating. c) Cooling fan on heat sinks for all Thyristor regulators. d) Heavy duty input/output terminals or Copper or Aluminum Bus bars or supply and heater Connections.
Size	As per the Thyristor Ordering Information table given below.
Mounting	Thyristor power regulators can be mounted on the base plate of the control panel using 4 screws/bolts.

## ORDERING CODE

Sr. no.	POW-3	MEDIUM & HIGH RATINGS THREE PHASE THYRISTORS (3 OR 4 WIRE STAR / 3 WIRE CLOSE DELTA 6 WIRE OPEN DELTA CONFIGURATION) (16KW TO 360KW)	Size (h x w x d)	PART NO.
1	POW-3-PA-CL-50A (32KW)	Three phase thyristor power regulator - suitable for max. 32KW @ 415/440VAC with current control and over load protection (PANEL MOUNT)	305 x 185 x 220	2603-1
2	POW-3-PA-CL-100A (60KW)	Three phase thyristor power regulator - suitable for max. 60KW @ 415/440VAC with current control and over load protection (PANEL MOUNT)	325 x 185 x 245	2603-2
3	POW-3-PA-CL-150A (93KW)	Three phase thyristor power regulator - suitable for max. 93KW @ 415/440VAC with current control & over load protection (PANEL MOUNT)	345 x 185 x 285	2603-3
4	POW-3-PA-CL-200A (144KW)	Three phase thyristor power regulator - suitable for max. 144KW @ 415/440VAC with current control & over load protection (PANEL MOUNT)	425 x 285 x 300	2603-4
5	POW-3-PA-CL-250A (156KW)	Three phase thyristor power regulator - suitable for max. 156KW @ 415/440VAC with current control & over load protection (PANEL MOUNT)	425 x 285 x 300	2603-5
6	POW-3-PA-CL-300A (190KW)	Three phase thyristor power regulator - suitable for max. 190KW @ 415/440VAC with current control and over load protection (PANEL MOUNT)	450 x 350 x 350	2603-6
7	POW-3-PA-CL-400A (270KW)	Three phase thyristor power regulator - suitable for max. 270KW @ 415/440VAC with current control and over load protection (PANEL MOUNT)	450 x 350 x 350	2603-7
8	POW-3-PA-CL-500A (360KW)	Three phase thyristor power regulator-suitable for max. 360KW @ 415/440VAC with current control & over load protection (PANEL MOUNT)	500 x 400 x 300	2603-8

# POW-3-PA-CL

## DIMENSIONAL DIAGRAM:-



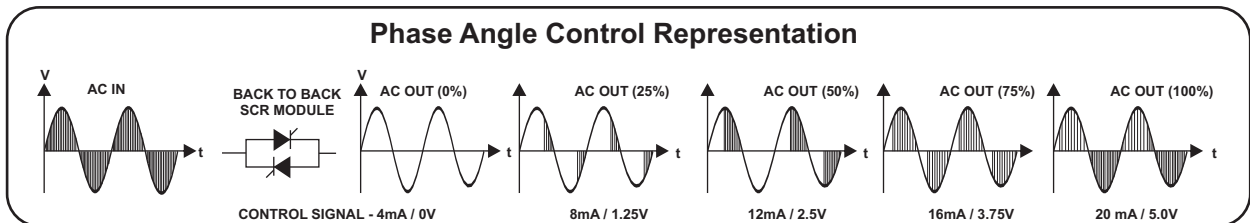
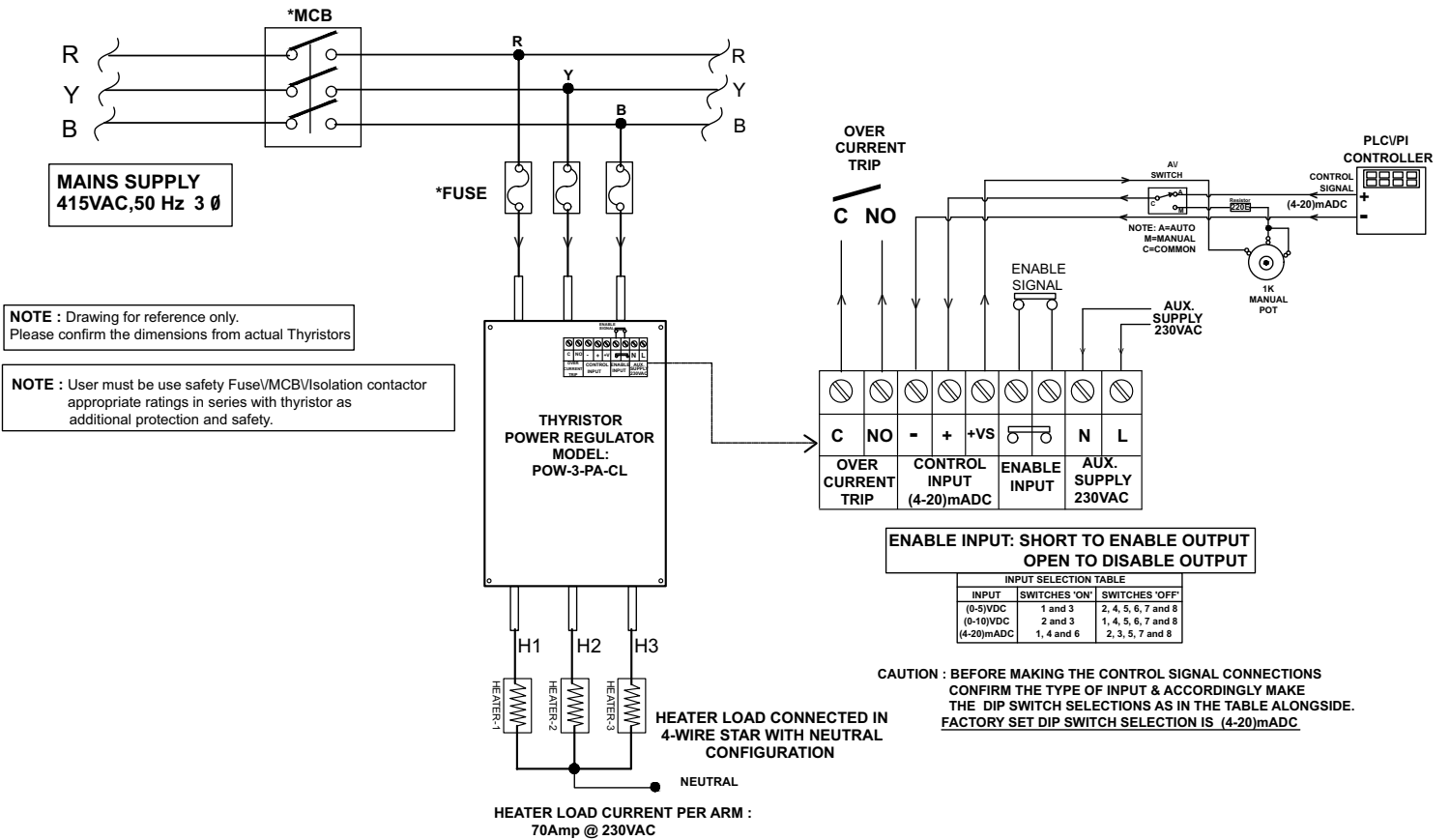
ALL DIMENSIONS ARE IN mm

## DIMENSIONAL TABLE:-

SR NO.	MODEL NAME	HEIGHT (H)	WIDTH (W)	DEPTH (D)	MOUNTING HOLE HEIGHT (MH)	MOUNTING HOLE WIDTH (MW)
1	POW-3-PA-CL-50A	305	185	220	275	155
2	POW-3-PA-CL-100A	325	185	245	295	155
3	POW-3-PA-CL-150A	345	185	285	315	145
4	POW-3-PA-CL-200A	425	285	300	395	255
5	POW-3-PA-CL-250A	425	285	300	395	255
6	POW-3-PA-CL-300A	450	350	350	420	320
7	POW-3-PA-CL-400A	450	350	350	420	320
8	POW-3-PA-CL-500A	500	400	300	470	370

Note: Dimensions and specifications are subjected to change during product upgradation.

## WIRING DIAGRAM



## VARIOUS LOAD CONFIGURATIONS

