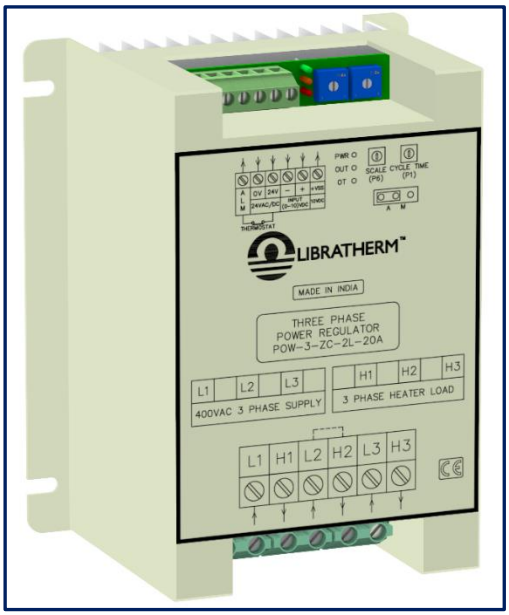
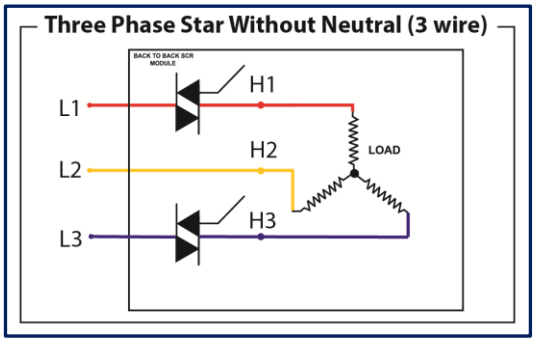
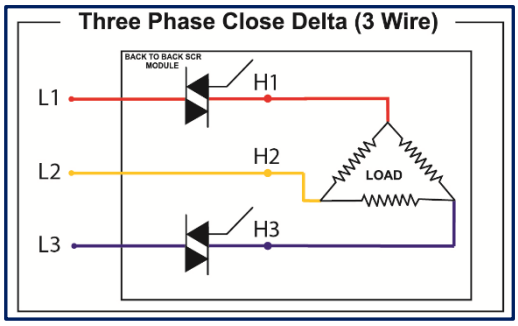
LIBRATHERM™
INSTRUMENTS PVT LTD

CERTIFIED ISO 9001

Three-phase thyristor Power Regulators (Switch) for Duct Heaters (6KW to 21KW)







Model Wise Description:

Model	Product Description	Size (W x H x D) mm
POW-3-ZC-2L-10A	Three Phase Heater power regulators for 6KW @380-480VAC	130 x 155 x 75
POW-3-ZC-2L-15A	Three Phase Heater power regulators for 9KW @380-480VAC	130 x 175 x 75
POW-3-ZC-2L-18A	Three Phase Heater power regulators for 12KW @380-480VAC	130 x 185 x 75
POW-3-ZC-2L-21A	Three Phase Heater power regulators for 15KW @380-480VAC	130 x 195 x 75
POW-3-ZC-2L-25A	Three Phase Heater power regulators for 18KW @380-480VAC	130 x 205 x 85
POW-3-ZC-2L-30A	Three Phase Heater power regulators for 21KW @380-480VAC	130 x 215 x 85

Partners in Measurement and Control (DOC:05122024)
401-403, Diamond Industrial Estate, Ketki Pada Road, Dahisar east, Mumbai 400068, Maharashtra, India,
Tel/Fax: 91-22- 42555334, 42555339. Email: libratherm@libratherm.com sales@libratherm.com

Features:

- Solid-state, field-proven, rugged and reliable design.
- Operates on 24VAC/DC
- Control signal 4-20mA/0-5V/0-10V/Potentiometer (Factory set to 0-10V)
- Three phase two leg - zero cross-over Burst fire switching control
- LED indications for Power ON, Input Command and Over temperature of the heatsink.
- Built-in thermostat for Auto-Reset Over-Temperature protection
- Designed for three-phase heater load of 6KW to 25KW@ 415VAC

Applications:

- Air Heater power control in AHU duct
- Power control of Resistive heater used in Industrial Applications

Description:

Libratherm offers a three-phase heater power regulator model **POW-3-ZC-2L-XXA** for electric power control of resistive heating loads operating on three-phase 415VAC. This regulator accepts the user-selectable DC control signal of 0-5V, 0-10V, and 4-20mA and can be easily interfaced with BMS, DDC, PID, or PLC. An external potentiometer can also be used for manual control. The On-Off duty cycle of voltage across the heaters can gradually vary proportionally to the input signal. For a preset cycle time of 4 seconds, 50% power will be delivered by keeping the heater ON for 2 seconds and OFF for 2 seconds.

The facility is also provided to protect against the regulator's overheating. Under normal conditions, the built-in thermostat switch will remain closed and will open when the device or heat sink temperature crosses around 90^{o}C. The user can connect an external alarm relay to the interlock. Under normal conditions, the external relay will remain energised, and in case of overtemperature, the relay will de-energise.

Auto control is done through an external signal of 0-10V, and manual control is done using an on-card preset that is user-selectable using a jumper link.

These POW-3-ZC-2L-XXA models are available in a rugged powder-coated metallic enclosure with an extruded aluminium heat sink and can be easily fitted inside the panel.

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Technical Specifications:

Item	Three Phase 2 Leg Control Thyristor-based heater power regulator
Model	POW-3-ZC-2L-XXA (As specified in the above table)
Control Signal Input (Linear)	0-5V, 0-10V, 4-20mA or using an external 10K potentiometer. (Factory set to 0-10V)
Control Technique	Zero Cross Over Burst Firing control
Aux. Supply Voltage	24VAC/DC +/-10% @ max 10watt.
Heater Supply Voltage	380 to 480VAC three phase @ 50/60Hz
Max. Load Current	10A to 30A @ 380 to 480VAC (As per the model specified in the above table)
Auto/Manual Control	The on-card jumper is selectable. The heater output voltage is scalable using the SCALE on-card single-turn preset.
Over Temperature Protection	A thermostat of 90^{o}C is mounted on a heatsink. (NC type).
Alarm Output	24VAC/DC supply point is available at the terminal in series with the NC contact of the Thermostat.
Mounting	Base plate mounting using four screws.
Connections	5A Terminal PCB connectors for Auxiliary Supply and control signal, heavy-duty Terminal PCB connectors for Heater Supply and Heater load.
Cooling	Natural Air cooling
Dimensions	As given in the above table.
CE Certification	Low Voltage Directives - 2014/35/EU and EMC Directives – 2014/30/EU

Specifications are subject to change due to continuous product up-gradation.

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Ordering Information:

Model	Product Description	Part Number
POW-3-ZC-2L-10A	Three Phase Heater power regulators for 6KW @380-480VAC (10A max)	2751
POW-3-ZC-2L-15A	Three Phase Heater power regulators for 9KW @380-480VAC (15A max)	2752
POW-3-ZC-2L-18A	Three Phase Heater power regulators for 12KW @380-480VAC (18A max)	2753
POW-3-ZC-2L-21A	Three Phase Heater power regulators for 15KW @380-480VAC (21A max)	2754
POW-3-ZC-2L-25A	Three Phase Heater power regulators for 18KW @380-480VAC (25A max)	2755
POW-3-ZC-2L-30A	Three Phase Heater power regulators for 21KW @380-480VAC (30A max)	2756

Note: Heater KW is calculated for 415VAC 3-phase supply.
For example, in 6KW/415VAC, the heater current, I per phase, is
I = 6000/415x1.732 = 8.35A and hence max. 10A.
The current drawn by the heater rated for 6KW @ 380VAC = 9.11A
The current drawn by the heater rated for 6KW @ 480VAC = 7.2A

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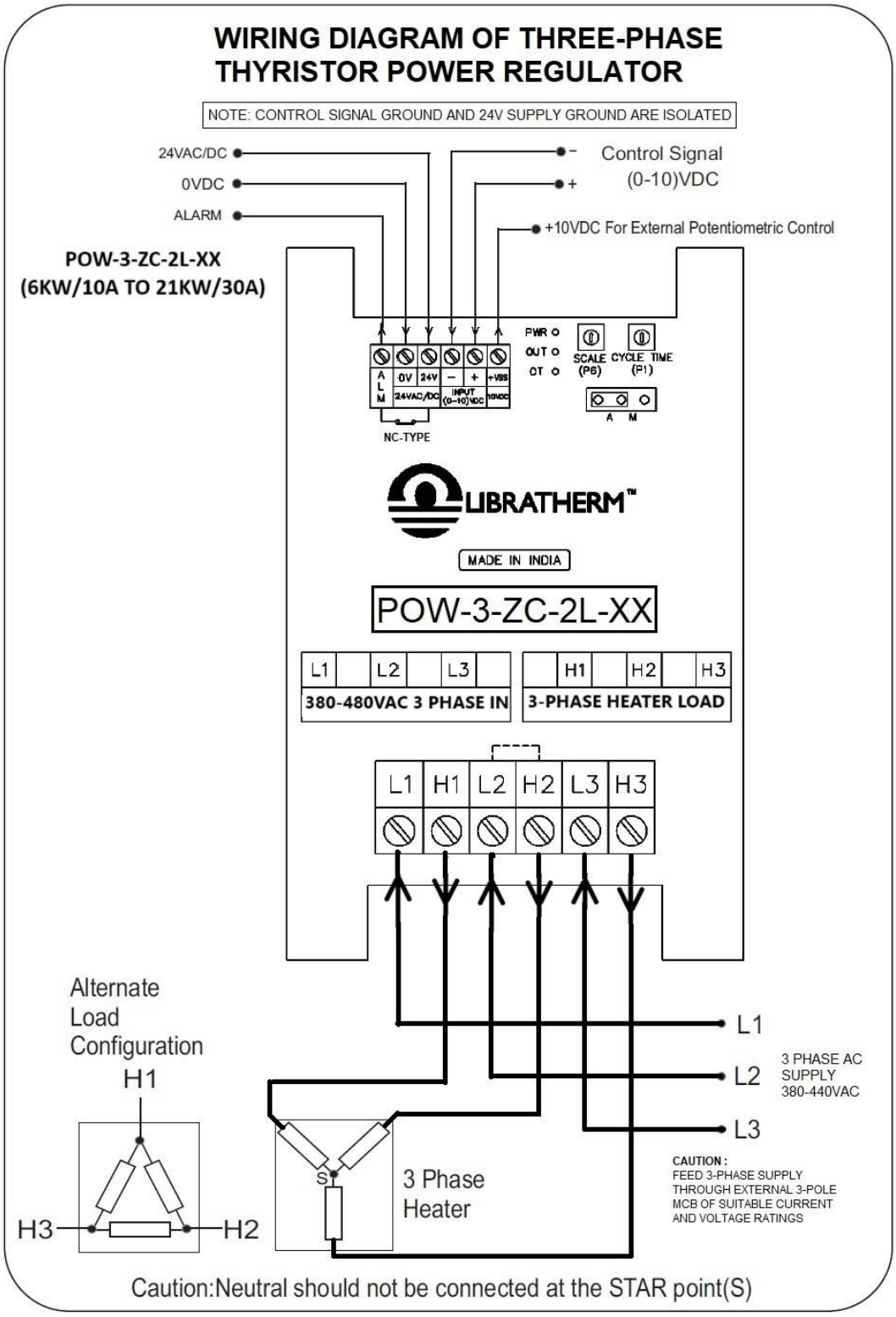
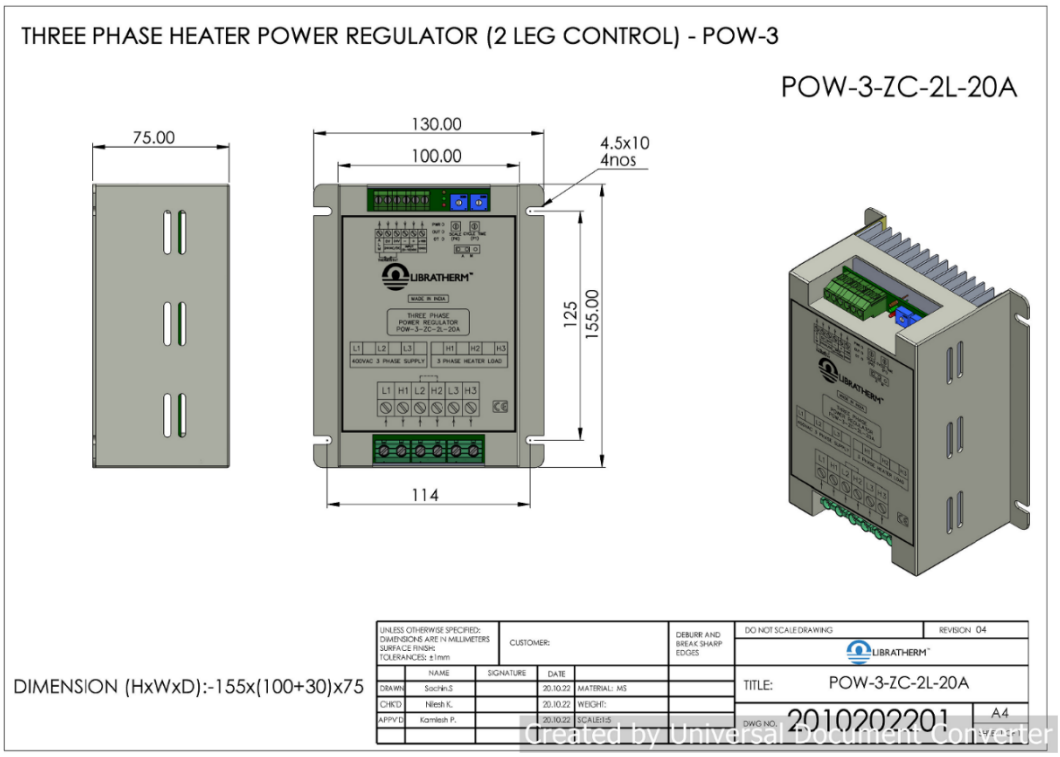
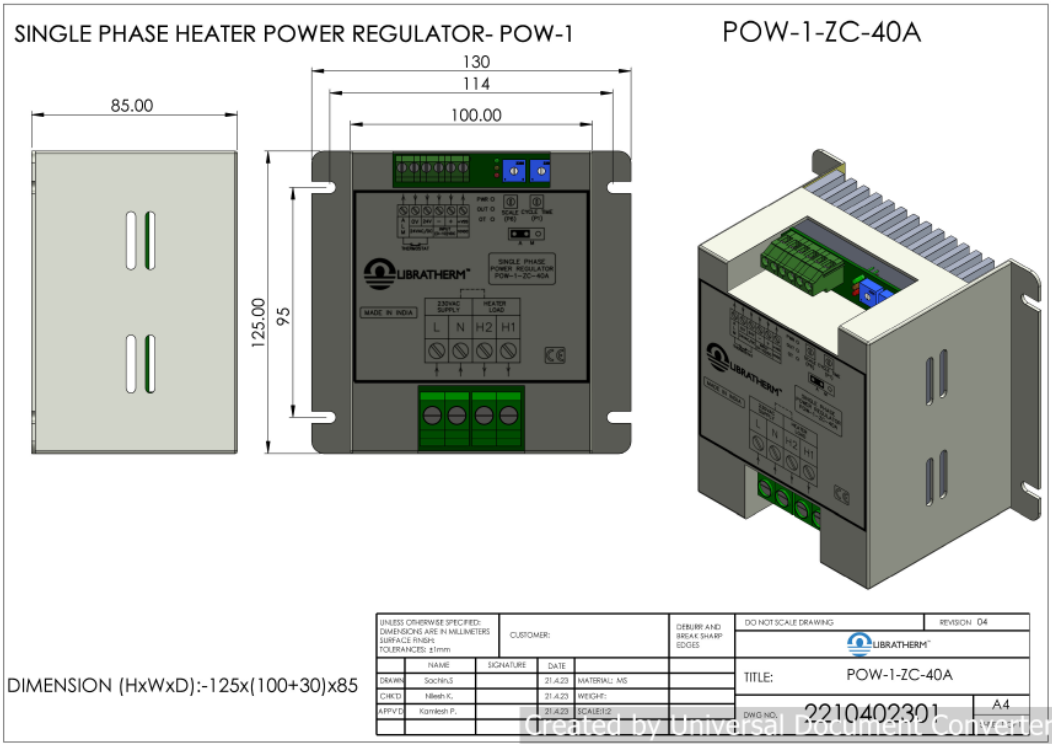
Wiring Diagram:



Dimensional Drawing:





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Precautions: The user is advised to follow the guidelines while installing and operating this power regulator.

- Fix the unit on a flat surface using 4 x M4 screws.
- Connect three pole MCB or 3 x Fuse of suitable ratings in series with the Heater supply line.
- Heater and supply cables must be insulated, and copper conductors must be of proper gauge.
- Use a shielded cable for the control signal wiring.
- Connect the Earth lug with the mounting screw.
- Ensure proper air ventilation at the installation area; if required, install exhaust fans in the panel or –the enclosure.
- Environment temperature should be within 55oC.
- Refer to the wiring diagram while making the connections.
- Avoid disturbing the on-card blue colour preset settings.
- These are all factory set (Cycle Time is fixed at around 4 sec).

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