

DESCRIPTION The C1P is a proportional, infinitely variable power controller capable of delivering 1-98% of the applied line voltage to the directly connected electric heaters. This is accomplished by phase angle firing a pair of inversely connected SCR's. The C1P will not control transformers or motors.

OPERATION The C1P takes a 4-20mA input signal from a front-end controller and varies the voltage applied to the electric heaters (see "WIRING DIAGRAM"). At 4mA input, the C1P will start applying voltage to the heaters, at 12mA the heaters will have approximately 50% of the line voltage applied to them, and at 20mA, 97% of the line voltage will be applied to the heaters. The C1P is a POWER CONTROLLER; it CANNOT create more voltage or current. There is no "tuning" or "tuning adjustments", the C1P operates very similar to a power amplifier, a small input signal produces a proportionally small output signal (voltage) and a large input signal produces a large output signal (voltage). TROUBLESHOOTING TIP: Overall process control results are set by the dynamic characteristics of the heaters, transfer medium, sensor, and the tuning of the front-end controller, not the power controller

INSTALLATION



WARNING: FIRE HAZARD!! Even the best electronic components CAN FAIL SHORTED, KEEPING FULL POWER ON! Provide a completely SEPARATE (redundant) OVER TEMPERATURE SHUTDOWN MEANS to switch power off if safe temperature is exceeded.



WARNING: HIGH VOLTAGE!! This control must be installed in a GROUNDED enclosure by a qualified electrician. Provide a safety interlock on door to remove power before gaining access to device.

ELECTRICAL CONNECTIONS See "WIRING DIAGRAM" on back. Check the Avatar serial tag and verify the correct voltage/ ampere ratings and input control signal for your application. Wiring must be performed in accordance with any and all applicable local and national codes. Use a minimum wire size of 8AWG for a 40 amp C1P and a minimum of 6AWG for a 60 amp C1P. For best results keep control signal and power wires separated.

OPTIONS

SOFT START: For use with Tungsten (T-3) heaters. This option provides a slow power ramp up function when a control signal is applied. This option is required when using heaters with a low cold resistance. For higher current applications use an Avatar A1P/A3P SCR power controller with a -S10 or -S20 option.

VOLTAGE LIMIT: Use calibration pot to reduce max. output voltage.

MANUAL CONTROL: Use Avatar MAP. Isolated Potentiometer.

LINEAR 0-5 or 0-10 VDC Analog Signal: Use Avatar MAI.



NRNT FILE # E350716

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WARRANTY All Avatar Instruments products carry a full three year, from date of purchase, parts and labor warranty against component failure and defects in workmanship. In the event your controller fails to perform properly, **contact Avatar to obtain a return authorization number**. Controllers sent to Avatar for warranty service that have no apparent defect will be treated as a standard repair and a \$50.00 charge will be applied. Avatar will repair or replace any unit that failed due to defective parts or assembly. This warranty DOES NOT cover damage due to shipping, abuse, misapplication or operation beyond specified rating. Further more fuses and improperly fused SCR's are NOT COVERED by this warranty. Avatar is not responsible for any subsequent or other damage experienced in use of this device.

SPECIFICATIONS

INPUT SIGNAL: 4-20mA (1.5V) 75 Ohm impedance (Soft Start 4 VDC 200 Ohms)
4-20mA INPUT TERMINAL TORQUE RATING: 5 in-lbs

SUPPLY VOLTAGE: 120, 208-240, 277, 380, 480, 575-600 VAC, 50/60Hz

POWER CONSUMPTION (max)

C1P-XX-40: 48 watts

C1P-XX-60: 72 watts

CURRENT RATING (vertically mounted)

C1P-XX-40: 40 amps

C1P-XX-60: 60 amps

OPERATING TEMPERATURE (ambient)

0-50°C/122°F

FUSE REQUIREMENTS (SCR Protection)

semi-conductor/ rectifier I²T

RESPONSE TIME

10 mS (without soft start)

CONTROL METHOD

phase angle, proportional

OUTPUT VOLTAGE

1-97% of supply voltage

LINE VOLTAGE COMPENSATION

up to 300%

INPUT ISOLATION

2500 volts

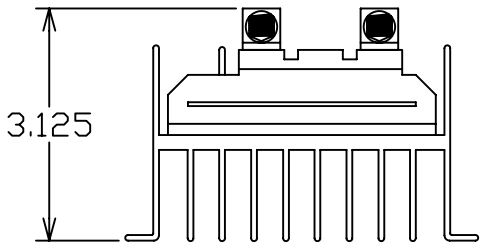
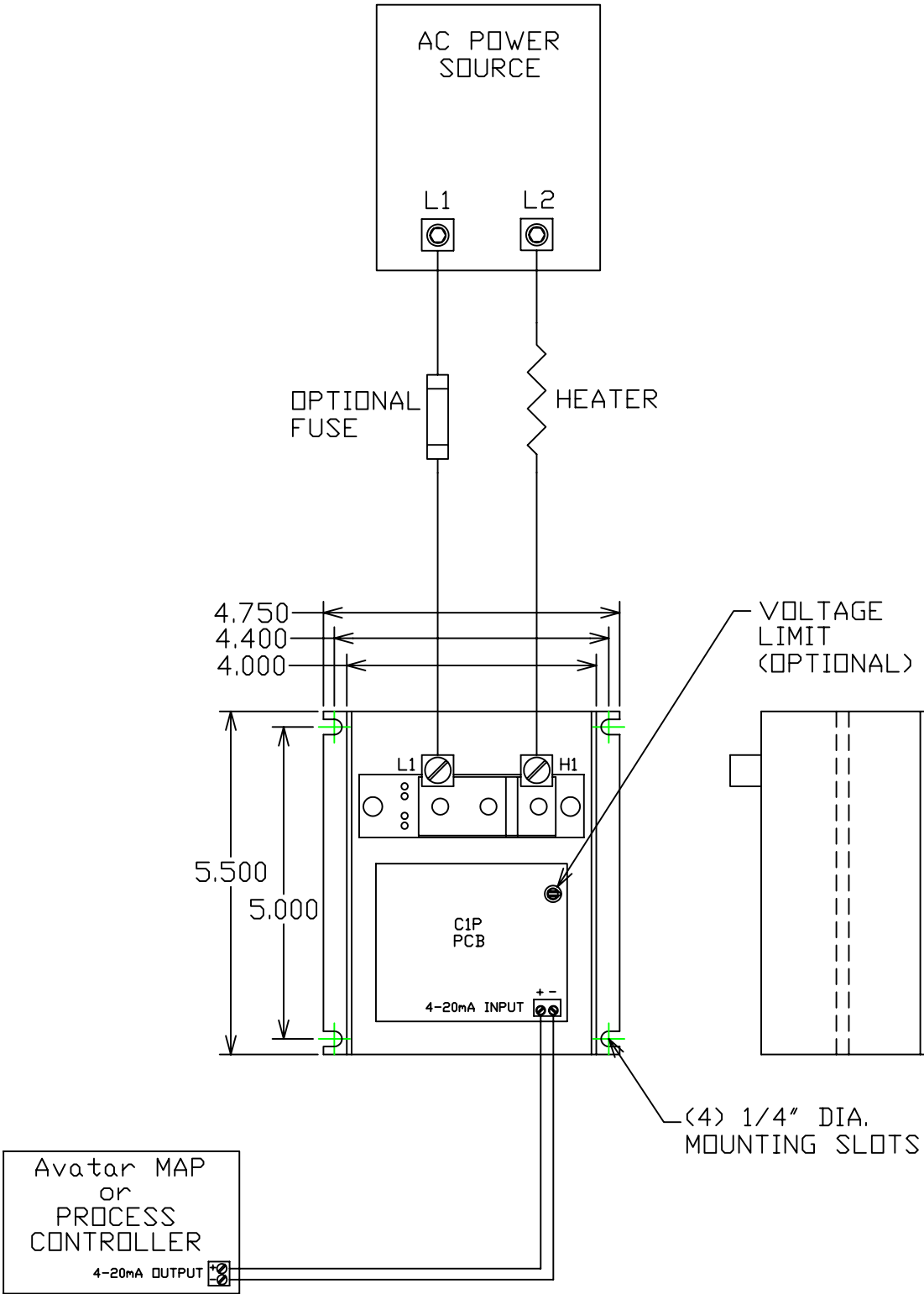
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PHYSICAL DIMENSIONS and WIRING DIAGRAM

C1P - 40 & 60 AMP



ORDERING CODES

C1P- _____ - _____ - _____ - _____
Voltage Amperes Options Options

VOLTAGE DESIGNATIONS:

- (12) 120 VAC 50/60 Hz
- (24) 208-240 VAC 50/60 Hz
- (27) 277 VAC 50/60 Hz
- (38) 380 VAC 50/60 Hz*
- (48) 480 VAC 50/60 Hz*
- (57) 575 VAC 50/60 Hz*
- (60) 600 VAC 50/60 Hz*

LOAD IN AMPS:

40, 60 Amperes

OPTIONS:

Soft Start

3 Second (S)

Current Limit (CL)

(CLP) with panel mounted potentiometer

Voltage Limit

Standard 1 turn PCB (VL)
25 turn PCB (VL25)

Example:

C1P-24-60-S is a 240VAC, 60 Ampere controller with a 3 second soft start.

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