AVATAR INSTRUMENTS C1P-TP OPERATING MANUAL

DESCRIPTION The C1P-TP 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 TRIAC. The C1P-TP will not control heaters with high inrush current (tungsten lamps), transformers or motors.

OPERATION The C1P-TP takes a 3-32 VDC pulsed input signal from a front-end controller, integrates (filters) it and produces a "smooth" continuously variable voltage to the electric heaters (see "WIRING DIAGRAM"). Upon receiving small duty cycle (short) pulses, the C1P-TP will start applying voltage to the heaters, as the pulse width nears 50%, the heaters will have approximately 50% of the line voltage applied to them, as the pulse width nears 100%, 98% of the line voltage will be applied to the heaters. The C1P-TP is a POWER CONTROLLER, it CANNOT create more voltage or current. There is no "tuning" or "tuning adjustments" associated with it. The C1P-TP operates similar to a power amplifier, a narrow (small) input pulse produces a proportionally small output signal (voltage) and a wide (large) pulse input 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. Set temperature control to fastest time proportioning and no filtering or averaging.

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 12AWG for a 20 amp C1P-TP and a minimum of 10AWG for a 30 amp C1P-TP. For best results keep control signal and power wires separated.

OPTIONS

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

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/ TRIAC's are NOT COVERED by this warranty. Avatar is not responsible for any subsequent or other damage experienced in use of this device.

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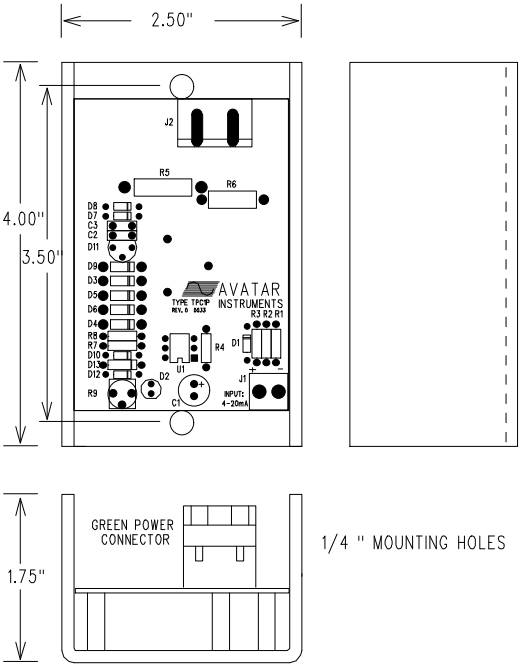
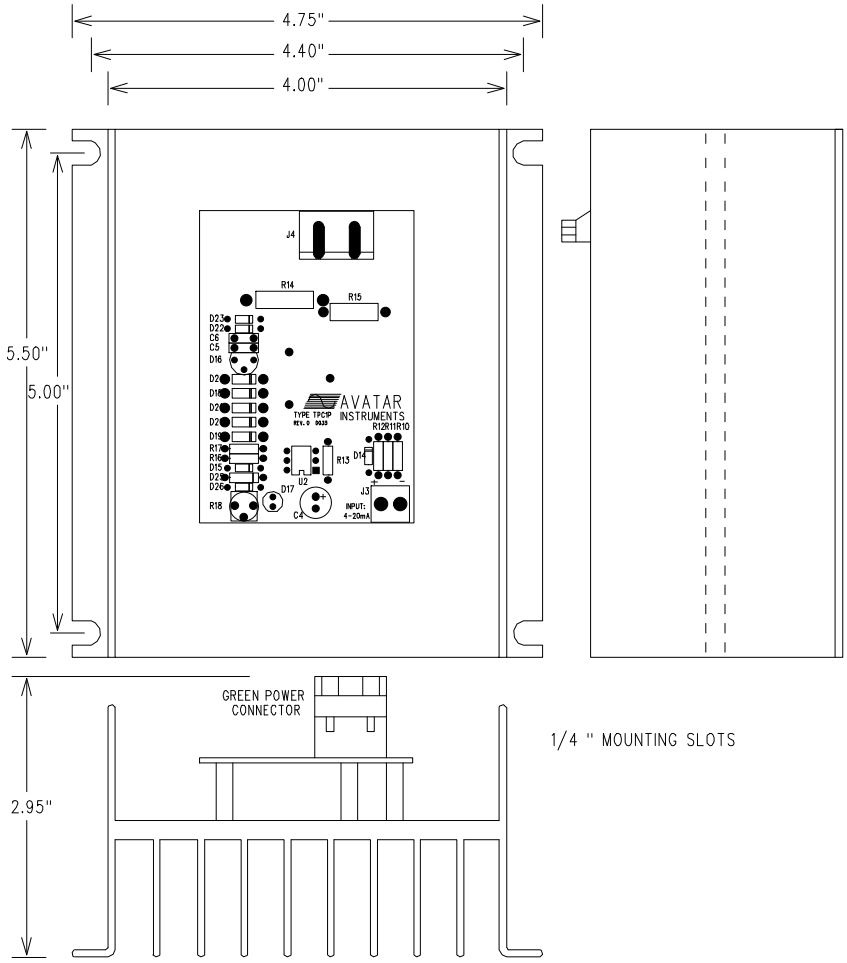
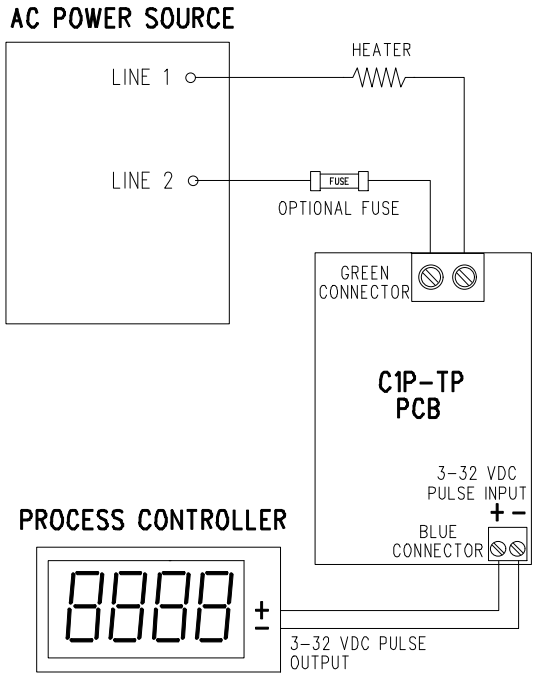
PHYSICAL DIMENSIONS (15/20 AMP)



PHYSICAL DIMENSIONS (25/30 AMP)



WIRING DIAGRAM:



SPECIFICATIONS:

INPUT SIGNAL	3–32 VDC pulse
SUPPLY VOLTAGE	120/240/480 VAC, 50/60 Hz
POWER CONSUMPTION (max)	
C1P-TP-12/24-20	30 watts
C1P-TP-12/24-30	45 watts
CURRENT RATING (vertically mounted)	
C1P-TP-12/24-20 (unmounted)	12 amps
C1P-TP-12/24-20 (mtd to metal plate)	20 amps
C1P-TP-12/24-30	30 amps
C1P-TP-48-15 (mtd to metal plate)	15 amps
C1P-TP-48-25	25 amps
OPERATING TEMPERATURE (ambient)	0–50°C
FUSE REQUIREMENTS (TRIAC protection)	semi-conductor/ rectifier I^2T
RESPONSE TIME	1 second
CONTROL METHOD	phase angle, proportional
OUTPUT VOLTAGE	1–98% of supply voltage
INPUT ISOLATION	2500 volts
VOLTAGE LIMIT	consult Avatar