

AVATAR INSTRUMENTS B1P OPERATING MANUAL

DESCRIPTION The B1P is a proportional, infinitely variable power controller capable of delivering 1-98% of the applied line voltage to inductive loads. This is accomplished by phase angle firing a TRIAC. The B1P is specifically designed to drive transformers, but will drive resistive loads too.

OPERATION The B1P takes a 4-20mA input signal from a front-end controller and varies the voltage applied to the load (see "WIRING DIAGRAM"). At 4mA input, the B1P will start applying voltage to the load, at 12mA the load will have approximately 50% of the line voltage applied to it, and at 20mA, 98% of the line voltage will be applied to the load. The B1P is a POWER CONTROLLER, it CANNOT create more voltage or current. There is no "tuning" or "tuning adjustments" associated with it. The B1P 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 10AWG for a 30 amp B1P and a minimum of 6AWG for a 55 amp B1P. For best results keep control signal and power wires separated.

OPTIONS

SOFT START: For use with transformers that have high inrush heaters wired to them, tungsten (T-3) heaters, etc. 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. B1P current ratings are derated by X2 with this option (example: 30 amp controller to be used on loads not exceeding 15 amps). For higher current applications use an Avatar B2P 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.

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.

