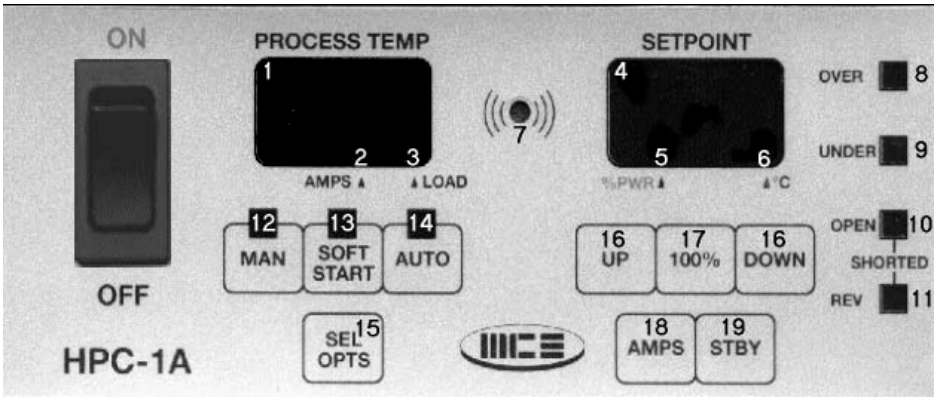
HPC-1A

Temperature Controller
Operator's Manual



BASIC OPERATION

1. Turn power Switch on.
2. The normal operating modes are Ramp Start and Closed loop which are automatically selected on power up. Select Manual mode if needed, once selected the controller will power up in Manual mode until Ramp Start or Closed loop is selected.
3. Select setpoint temperature (or % power in manual mode) by using the up / down keys.
4. After making any changes to modes or the setpoint wait for 'str' to appear on the display. This indicates that the changes have been put into the non-volatile memory. The module will now remember these settings each time it is powered up.

CONTROLS AND DISPLAYS (*Numbers do NOT appear on controller*)

1.Left digital display	Displays: • Process temperature • Error codes • Parameter number (Programming mode)
2.Decimal point (AMPS)	Indicates when measuring current
3.Decimal point (LOAD)	
4.Right digital display	Displays: • Setpoint • Percent power applied to heater (Manual mode) • Parameter values (Programming mode)
5.Decimal point (%PWR)	Indicates that the display is showing percent power (Manual mode)
6.Decimal point (C)	Indicates degrees Celsius mode when lit
7.Audible alarm	Use parameter #2 to turn on or off
8.Over temperature indicator	Flashes when process temperature is above over temperature alarm limit. The over temperature alarm limit is adjustable from +5 to +30 F via Parameter #7
9.Under temperature indicator	Flashes when process temperature is below under temperature alarm limit. The under temperature alarm limit is adjustable from -5 to -30 F via parameter #6
10. Open thermocouple indicator	Flashes when the unit detects an open thermocouple
11. Reverse thermocouple indicator	Flashes when the unit detects a reversed thermocouple
12.MAN Key	Press to enter Manual mode. This LED lights when the unit is in Manual mode

13.SOFT START Key	Press to enter Soft Start mode. The LED lights when the unit is in Soft Start mode. When the controller detects that the heater temperature is below 212 F of 100 C, it automatically goes into the Soft Start mode at cold start up. The unit will enter automatic mode after the Soft Start period expires. The time period is adjustable via parameter #5 (0 to 20 minutes).
14.AUTO Key	Press to enter Automatic mode. This LED lights when the unit is in Automatic mode.
15.SEL OPTS Key	Used to modify parameters
16.UP/DOWN Keys	Used to change the following: • Setpoint (Automatic mode) • Percentage of power applied to the heater (Manual mode) • Parameter values (Programming mode)
17.100% Key	Pressing this key will output 100% power until temperature reaches the upper alarm setting.
18.AMPS Key	Press to view current measurement.
19.STBY Key	Used to toggle the controller in and out of standby mode.
20. Power switch	Controls power to the module.

HOW TO CHANGE PARAMETERS (PROGRAMMING MODE)

To select and change a parameter:

1. Press the parameter key until the upper display shows the parameter that you want to change (PO1 - PO11)
2. Use the **UP/DOWN** keys to change the parameter settings.
3. Repeat step 1 & 2 as needed.
4. To store the new settings, continue pressing the parameter key until you are out of the programming mode and 'str' has appeared on the **Left** display.

PARAMETER CHART

(default values in parenthesis)

PO1	TEMPERATURE DISPLAY MODE	C or F
PO2	AUDIBLE ALARM	(ON) / OFF
PO3	TC BREAK MODE	OFF / (APO) - AVERAGE POWER
PO4	OUTPUT TYPE / CONTROL	(F2y) - FUZZY mode / Pid - PID mode
PO5	SOFT START TIME	0 - 20 MINUTES (5) 0 - DISABLES
PO6	UNDER TEMP ALARM ADJUST	-5 TO (-30) F
PO7	OVER TEMP ALARM ADJUST	+5 TO (+30) F
PO8	GROUND FAULT SENSITIVITY	60 - 180 Ma (120) 181 - DISABLES
PO9	TOH TIME	0 - (120) SECONDS
P10	SOFT START ENABLE AT START UP	(ON) / OFF
P11	KEYPAD LOCKOUT	(ULC) / LOC unlocked / locked

CONTROL PANEL LOCKOUT

(P11 in the parameter chart) - When set to 'LOC' the unit will not allow changes in setpoint, operating modes, or changes to parameters (P01 to P10).

ERROR CODES

9fd	Ground Fault. When the unit detects leakage current between the heater output and earth ground in excess of the setting in the P08 parameter, the unit will indicate a ground fault. Entering 181 in P08 will disable this alarm
tSH	Triac Shorted. When the module detects current being applied to the heater when the triac is off, it will indicate a 'toH' error and the controller will shut off power to the heater.
toH	Open heater, open triac. When the unit detects an under temperature condition for longer than the time selected in the PO9 parameter, the unit will indicate a 'toH' error.