Mold Control Systems, Inc.

SITC 15
Temperature Controller
Operator's Manual

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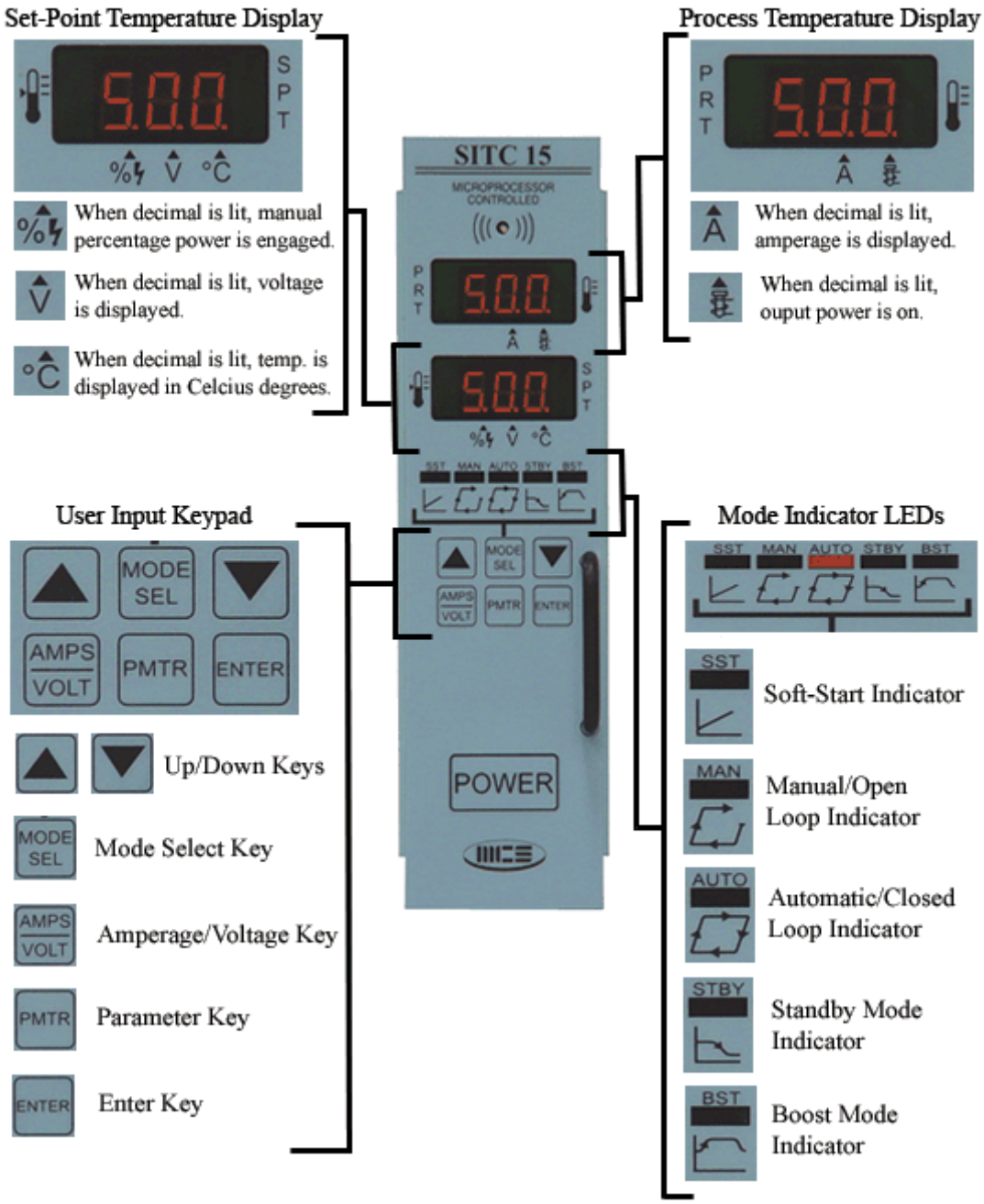
Controller Layout



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Basic Operation Procedures

The SITC-15 controller is ready to run from factory settings.

Basic operation procedure:

1. Turn power on by pressing the *POWER* key.

2. Controller will start in SOFT START mode. To change set-point, press the *UP* or *DOWN* keys to the desired temperature indicated in the SPT display. The controller will save changes automatically after 3 seconds.

*Note: After the soft-start procedure, the controller will go to AUTO unless the controller was in MANUAL mode previously, then it will enter MANUAL mode. The amount of time the controller is in soft-start is configurable in parameter(P16).

*Note: The minimum and maximum values for temperature set point are
- 32° - 999° Fahrenheit
- 32° - 650° Celsius
- Percentage Power: 0 -100

Mode change procedure:

There are 4 running modes available: manual (open loop), automatic (closed loop), standby, and boost modes. A solid lit LED signifies the current mode the controller is in.

To change the mode:

1. Press the *MODE SELECT* key. A blinking LED will indicate a selectable mode. Press the *MODE SELECT* key until the blinking LED is over the desired mode.

2. Press *ENTER*.

3. If the mode button was mistakenly pressed, press the *UP* or *DOWN* key to go back to normal operation.

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Standby and boost modes:

The controllers have two possible configurations for standby and boost modes: manual, or auto.

Standby: In auto standby mode, the controller will reduce the temperature to a specified set-point that is adjustable in parameter (P15). In manual standby mode, the controller reduces the percentage power output to a specified level set in parameter (P14). The controller will stay in standby mode until another mode is selected or the *MODE SELECT* key then the *UP* or *DOWN* key is pressed.
Boost: In auto boost mode, the temperature set point will be increased by the amount that is in parameter (P12). Once the boost temperature has been obtained, it will stay at this temperature until the elapsed amount of time in parameter (P11).

In manual boost mode, the controller will raise the percentage power output to a specified level adjustable in parameter (P13). The controller will stay in this mode until the set time in parameter (P11) has in elapsed.

Parameter Changes:

*Note: Most configurations will not require any changes to the parameters. The controller is set to be “plug-and-run” by default under most conditions.

Parameter Change Procedure:

1. Press the *PMTR* key once and the controller will enter into its parameters state. Cycle through parameters by pressing the *PMTR* key until the desired parameter is reached.

2. Press the *UP* or *DOWN* keys to cycle through the options/values for the parameter selected. If another parameter needs to be changed, press the *PMTR* key until the next desired option is selected and make adjustments.

3. When finished, press the *ENTER* key. Changes are automatically stored to memory.

4. If the parameter state was entered mistakenly, press *ENTER* without any changes to return to normal running mode.

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#	PARAMETERS:	Defaults:
P01	Auto Power On – (YES or NO)	YES
P02	Control Type – Fuzzy Logic Control Phase or Burst mode (PH or BT)	PH
P03	Load Current – (1-21) Amps	16
P04	Temperature Format – Celsius or Fahrenheit (°C or °F)	F
P05	Thermocouple Type – Type J or Type K (J or K)	J
P06	Over-temperature Alarm – (8° – 30° Fahrenheit), (6° – 17° Celsius)	30
P07	Under-temperature Alarm – (5°- 30° Fahrenheit), (5°- 17° Celsius),	30
P08	Thermocouple Pinched – (1 – 250) seconds or (000 = disabled)	60
P09	Open TRIAC or Heater – (1 – 240) seconds or (000 = disabled)	60
P10	APO Enable – (YES or NO)	YES
P11	Boost Time Setting – (5 – 999) seconds	30
P12	Boost Temperature – (5° – 250° Fahrenheit), (5° – 120° Celsius)	75
P13	Manual Boost Power – (5 – 100%)	25%
P14	Manual Standby Power – (5 – 100%)	10%
P15	Standby Temperature – (50° – 350° Fahrenheit), (50° – 175° Celsius)	250
P16	Soft Start Time – (0 – 20) minutes	5
P17	Soft-start Lock – (YES or NO)	YES
P18	Audible Alarm – (YES or NO)	YES
P19	Keypad Lock – (YES or NO)	NO
P20	Frequency (Hertz) DISPLAY ONLY	

Defaults are set in factory.

After parameter customization has been set, press ENTER to store to memory.

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PARAMETER DESCRIPTIONS:

P01) Auto Power On
After a power outage, the controller will automatically power up upon the return of power if enabled.

P02) Output type
Temperature control algorithm (PH or BT)

- PH – phase mode
- BT – burst mode

P03) Load Current
Maximum amperage the controller will output.

P04) Temperature Format
Select temperature display in degrees Celsius or Fahrenheit.

P05) Thermocouple Type
Select thermocouple types J or K.

P06) Over-temperature alarm
Sounds alarm when over set point temperature by parameter set amount.

P07) Under-temperature alarm
Sounds alarm when under set point temperature by parameter set amount.

P08) Thermocouple Pinched
The length of time, in seconds, that the controller will use to detect a pinched thermocouple.

P09) Open TRIAC/Heater
The length of time, in seconds, that the controller will use to detect an open TRIAC or an open heater.

P10) APO Enable
In the event of a broken thermocouple when the controller is at set point, the controller uses an averaged output to maintain temperature. Thermocouple must be repaired as soon as possible. APO – average power output

P11) Boost Time setting
Amount of time desired for boost mode.

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P12) Auto Mode Boost Temperature
Temperature desired over set point for boost (Set-point temperature + boost temperature).

P13) Manual Mode Boost Power
Desired percentage output during boost mode.

P14) Manual Mode Standby Power
Desired power output during standby mode.

P15) Auto Mode Standby temperature
When standby mode is selected, controller lowers temperature below set-point value to desired setting. Controller will stay in standby until mode is changed.

P16) Soft-Start Time
The length of time, in minutes, that the controller will go through during the Soft-Start sequence.

P17) Soft-Start Lock
This setting will prevent users from changing the mode while the controller is in soft-start.

P18) Audible Alarm
Enables or disables the audible alarm.

P19) Keypad Lock
Disables all keys, except for the *PMTR* key, to prevent unwanted changes. Once this is enabled, it must be disabled before any changes can be made.

P20) Frequency
The AC frequency that is being used by the controller. (Display only).

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DISPLAY CODES: Displayed on PRT (Process Temperature Display)

Display Code	Description	Explanation
Hi	High temperature	Temperature has exceeded set-point temperature by amount set in parameters.
Lo	Low temperature	Temperature has dropped below set-point by the amount set in parameters.
OTC	Open thermocouple	Thermocouple line has opened or broken.
RTC	Reverse thermocouple	Wire pair has been reversed.
PTC	Pinched thermocouple	Shorted thermocouple, wire pair has been “pinched”.
TOH	Open TRIAC/heater	TRIAC or heater is open
TSH	TRIAC shorted	TRIAC gate shorted open.
HIA	Over current detection	Load has exceeded current set in parameters.
APO	Average power output	Thermocouple is open and APO is currently running.
P(XX)	Parameter (XX) selected	Current selected parameter that will be modified

ACTIONS UPON ERROR:

Upon detection of the following errors, the controller will open relays and disable the TRIAC, the controller must be power cycled to clear the error, once the issue has been repaired.

- TOH
- TSH
- HIA

Upon detection of the following errors, depending on parameters, the controller will disable the TRIAC, once the error has been addressed, the controller will begin to operate:

- OTC
- RTC
- PTC

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WARNING: The SITC-15 is compatible only with Mold Control Systems, Inc. manufactured mainframes not using the communications expansion backplane, and manufacturers NOT utilizing the upper accessory pins used for communication or other accessory features. Please do not attempt to use the controller with older mainframe systems using a boost/standby rocker switch with backplane board and timers for damage may occur to the module.