High Limit Electronic Controller for Gas Kilns

3 KEY LIMIT CONTROLLER
software lmtcntrC

Summary-

The model 3K 100 – limit, has 3 main modes of operation – STOP, PROGRAMMING, and FIRING. From STOP, pressing "enter" will take you to the PROGRAMMING mode. While in the PROGRAMMING mode, use the arrow keys to adjust the limit set point then press "enter" to save the setting and go to the FIRING mode. While in the FIRING mode press "enter" to go to the STOP mode.

MODES OF OPERATION

1   FIRING MODE – The controller will display the current temperature (no flashing) and its output will be on if the temperature is less than the programmed "°F 1" limit temperature. If the temperature goes higher than the programmed °F 1, the controller will switch to "limit exceeded" mode.

     While in the FIRING mode, press "enter" to go to the STOP mode

2   LIMIT EXCEEDED

     LMT mode – The controller will turn the output off and the display will flash LMT and then the current temperature. Pressing "enter" will go to the stop mode.

3   ERROR CODE (the output is off at all error conditions)

     a   tc fail – The thermocouple has failed.

     b   tc—   The controller has detected a negative reading. Probably due to the thermocouple connected backwards.

     c   errd – The controller detected that the temperature was 100 °F above the limit set point.

4   PROGRAMMING

     Program limit temperature (°F 1) – The display will flash between the current set point and °F 1. Use the arrow keys to adjust the limit temperature and press "enter" to store the displayed value as the new limit. After pressing "enter", the controller goes to the FIRING mode.

5   REVIEW FIRING TIMES –During the firing mode, pressing the down arrow will display t 1 and the amount of time that the temperature has been below the limit point. The firing times are reset after programming.

6 STOP – In the STOP mode, the display will flash the current temperature and "stop". From the STOP mode, press "enter" to go to the PROGRAMMING mode.

EDIT OPTIONS

Pressing and holding the "enter" key while the controller powers up will put the controller in the EDIT mode. Release the key when the display shows "EDIT". The first option to set is the power-up mode. It can be set to "on" (which causes the controller to power-up in the same operating mode that it was in when it lost power) or "off" (which causes the controller to always power-up in the STOP mode). Use the arrow keys to toggle between on/off and press "enter" to accept the displayed option.

The second option to set is temperature scale (°F or °C). Use the arrow keys to toggle between °F/°C and press "enter" to accept the displayed option.

The last option to set is the maximum programmable set point. There are 3 options (1700°F/927°C, 2000°F/1093°C or 2350°F/1288°C). Use the arrow keys to toggle between the options and press "enter" to accept the displayed option. The controller will go back to normal operation.

Single Set Point controller
setptB software

The set point controller has 4 modes – stopped, firing, programming set point, and programming the hold time.

Controller status	Controller Display
Stopped	Flashes stop and current temperature
Ramping to temperature	Shows current temperature
Holding for programmed time	Flashes between current temperature and remaining hold time.
Holding indefinitely	Flashes between current temperature and "Hld" to show that the hold is indefinite.
Program set point	Flashes between °F and the current set point
Program hold time	Flashes between "Hold" and the current hold time. The display shows hours left of the decimal point and minutes to the right.

Programming
The set point or hold time can be adjusted while firing or stopped.

Adjusting hold time
Press the down arrow to initiate adjusting the hold time. The display flashes between "Hold" and the current hold time. The display shows hours left of the decimal point and minutes to the right. Use the up or down arrow to adjust the hold time and then press enter to accept. For an indefinite hold, press and hold the up arrow until the display reads "indF" then press enter. The hold time will increment up to a hold time of 99.58 and then "indF".

Adjust set point temperature
Press the up arrow to initiate adjusting the set point temperature where the controller will hold. "°F " and the current set point will flash on the display. Use the arrow keys to adjust the set point then press enter to accept the change.

Start / Stop a firing
One press of the start/stop button will change the controller from firing to stopped or from stopped to firing. While firing, the output will be on whenever the temperature is below the set point and off when it is above the set point. The above table describes the display during the various modes of firing or when stopped.