Model 3K Programming

General Information

The Model 3K controller with RMPATE software has four User programs. Each program can have up to eight segments with each segment consisting of a ramp rate, a target temperature, and a hold time. Programming consists of choosing the User program (1, 2, 3, or 4), choosing how many segments you want (up to 8), then programming the ramp (rA), temperature (°F), and hold time (HLD) for each segment.

Programming the Model 3K Controller

When the power is first turned on either ErrP or StOP/current temperature is displayed.
If **ErrP** is displayed press any key to clear this error message.
If **StOP** alternating with the **current temperature** is displayed, you are ready to begin programming.
Press **ENTER** to begin.
The previously fired program will be displayed, USr1, USr2, USr3, or USr4.
Select the user number you want to program by using the UP and DOWN keys, and press ENTER.
dELA is displayed alternating with 00:00. Press ENTER if no delay is wanted. **When firing glass no delay is used**. Use the UP and DOWN keys to delay the start of the firing (Hours**:** Minutes). Press ENTER when the desired delay time is displayed.
SEG alternating with the last selected number of segments is displayed. Use the UP and DOWN keys to select the number of segments, then press **ENTER.** NOTE: Each segment consists of a ramp rate to a temperature and a hold time. There are 8 segments available for programming.
rA 1 alternates with the ramp rate. Use the UP and DOWN keys to select the desired rate and press ENTER. A rate of 9999 will cause the kiln to heat (or cool if in a down ramp) at maximum rate. **The first segment must always be an "up" ramp.**
°F 1 alternates with the currently selected temperature. Use the UP and DOWN keys to select the desired temperature and press ENTER.
HLd1 alternates with the currently selected hold time. Use the UP and DOWN keys to select the desired hold time and press ENTER.
Repeat the above 3 steps for each additional segment for the ramp rate, temperature, and hold time.
rEdl will be displayed after the last segment is entered. Press ENTER to begin firing.

To re-fire the last used program, press the DOWN key when **StOP** is displayed. The program will be quickly reviewed and **rEdl** will be displayed. Press START to begin the firing.

Options During Firing

<u>Displaying the current set-point and accessing the following options.</u> During a firing you may advance from the current segment to the next ramp rate by using Skip Step or if you are in a hold period you may add time and temperature to the hold period. When the UP key is pressed during a firing the current ramp or hold is displayed followed by the current or traveling set-point, then "SStP" is displayed. If you do not press a key within several seconds the display will return to showing the current temperature in the kiln.

<u>Skip Step</u> **Available only during a hold period.** This option allows you to skip from the present hold segment to the next ramp rate. Press the UP key, the display will show the current segment, then the set-point, then "SStP". When "SStP" is displayed press ENTER to skip to the next ramp rate.

<u>Add Time to Hold Period</u> This option allows you to add time in 5 minute increments to a hold (soak) period. When in a hold period (during a hold or soak, the temperature in the kiln will be alternating in the display with the remaining hold time), press the UP key. When "SStP" is displayed press the UP key again and "tME" will be displayed. Press ENTER and 5 minutes will be added to the hold time. You may use this procedure as many times as necessary to get the hold time that you want.

<u>Add Temperature to Hold Period</u> This option allows you to add temperature in 5 degree increments to a hold (soak) period. When in a hold period (during a hold or soak, the temperature in the kiln will be alternating in the display with the remaining hold time), press the UP key. When "SStP" is displayed press the UP key twice more and "tMP" will be displayed. Press ENTER and 5 minutes will be added to the hold time. You may use this procedure as many times as necessary to get the hold temperature that you want.

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Error Codes

Err1 Error 1 indicates the temperature in the kiln is rising during an up ramp slower than 15°F/hr. If this rate continues for 8 minutes the firing will be stopped. Err1 may be an indication that the elements are worn or that a relay has stopped working.

ErrF Error F indicates the temperature in the kiln is decreasing during a down ramp less than 15°F/hr. If this rate continues for 8 minutes the firing will be stopped. ErrF may be an indication that a relay has stuck in the on position.

Errd Error d indicates that the kiln temperature is 100°F above the traveling set-point, which is the current desired temperature in the kiln. The traveling set-point will increase or decrease according to the programmed rate.

ErrP ErrP is displayed whenever there is a power interruption that is long enough to stop the firing. If the power interruption is brief the kiln will continue to fire when power is restored; in this case there will no indication of a power failure. To clear the error, press any key.

tC FAIL tC alternating with FAIL indicates the thermocouple has failed. Replace the defective thermocouple. To clear the error, press any key.

tC- - The red and yellow thermocouple wires are reversed.

Display Messages

CPLt	Firing Cycle Complete (firing time is alternately displayed).
dELA	Delay. Displays when entering the delay time (hour:minutes) until the start of the firing.
DLy	Delay. Alternates with the remaining delay time until the start of the kiln.
°F #	Segment temperature in °F – Set temperature for a user program.
°C #	Segment temperature in °C – Set temperature for a user program. A decimal point will display in lower right corner.
EdIt	Edit the default options (beeping at complete, temperature scale, maximum programmable temperature)
Err1	Error 1, kiln was heating less than 15°/hr and it has been stopped.
Errd	Error d, kiln temperature is 50° hotter than the set-point temperature. Kiln has been stopped.
ErrF	Error F, similar to Err1 but during a down ramp the temperature is decreaseing less than 15°/hr. Kiln has been stopped.
ErrP	There has been a power interruption that has stopped the firing. Press any key to clear.
FULL	Beeps continuously at end of firing until a key is pressed.
HLd#	Soak time in hours:minutes at a hold temperature.
OFF	No beeping when firing is complete.
On	Beeps for 15 seconds at end of firing.
rA #	Ramp Number (rate per hour of temperature increase or decrease).
rEdI	Ready to fire current program. Press START to begin firing.
SEG	Short for Segments. You can enter up to 8 segments in a program.
SStP	Skip Step (used to advance to the next ramp)
StOP	The kiln is at idle and ready to be programmed. Stop alternates with the current kiln temperature.
USr #	User program number displayed