

PROGRAMMING CONE FIRE MODE

PROGRAMMING STEPS

STEP 1

- From Idle Mode. Press **CONE FIRE**.

Display will read PRHT alternately with 00.00.

STEP 2

- Input a **PREHEAT TIME IN HOURS AND MINUTES**. Press **ENTER**. (See page 23 for more information on Preheat.)

Display will read CONE alternately with the last Cone Value entered.

STEP 3

- Input a **CONE VALUE**. Press **ENTER**.

Display will read Spd alternately with the last Speed entered.

STEP 4

- Press a **SPEED (SLOW, MED or FAST)**. Press **ENTER**.

Display will read HOLD alternately with a Hold time value.

STEP 5

- Input a **HOLD TIME** if one is desired. Press **ENTER**.

Display will flash CPL, then will return to Idle Mode. At this point the program is loaded and ready to start. Before pressing START, it is a good idea to press REVIEW to make sure the program was input correctly. Also, verify that the lid latch is engaged if your kiln is equipped with a lid lifter and check to see the area is clear of all combustible materials.

STEP 6

- Prepare **Venting**.

If your kiln is equipped with and EnviroVent2 you will want to turn it on before pressing start. Be sure the lid is closed (and latched if you have a Lid Lifter) and all the Peep Plugs are in. If your kiln is not equipped with a vent system you will want to prop the lid open until the chamber temperature reaches 1000 °F (538°C). If your kiln is equipped with a Lid Lifter, use the installed Lid Prop. If your kiln does not have a built in Lid Prop, use a wedge of firebrick to prop it approximately 1 to 2 inches. Always use a fire proof glove to remove your prop.

STEP 7

- Press **START**.

Display will read -ON- briefly and then display the current temperature of the kiln. If a delay start has been entered the display will begin counting down the time entered.

When the firing is complete the display will read *CPLT* alternately with the current temperature of the kiln and the time it took to complete the program. To clear this data and return to Idle Mode and press **ENTER**.

DESCRIPTION

STEP 1 - CONE FIRE

The Cone Fire Mode runs a factory installed multi-segment program which is selected based on the Cone Value, Speed, and Hold time you choose. To the right is an example of a program which is run if you choose a Cone Value of 04, a Speed of Medium and Hold time of 5 minutes.

One of the greatest features of Cone Fire Mode is Cone Correlation. It automatically measures the rate of firing during the last hour of the heating program and adjusts the final temperature based on the observed firing rate. This will insure consistent results as the kiln elements become weaker with normal wear from repeated firing. As a result the shutoff temperature may vary between firings.

SEGS	RATE	TEMP	HOLD
1	200 °F/HR	250 °F	0
2	400 °F/HR	1000 °F	0
3	180 °F/HR	1150 °F	0
4	300 °F/HR	1694 °F	0
5	120 °F/HR	1946 °F	00.05

STEP 2 - PREHEAT

Preheat is used to preheat the ware inside of the kiln before the temperature goes above the point when water turns to vapor. If residual water in the clay escapes as vapor too fast it can crack the ware or in extreme cases cause it to explode. Large, thick walled, pieces are more susceptible to damage caused by residual moisture.

When a Preheat time is entered and the program is started the kiln will climb in temperature at a rate of 60°F (15°C) per hour until it reaches 180°F (82 °C). It will then hold at that temperature for as long as the time entered. After the hold is complete, it will begin the Cone Fire program. If you do not wish to preheat your ware, enter 00.00 for the hold time. For instructions on turning this feature off, consult the Menu section of this manual.

STEP 3 - CONE VALUE

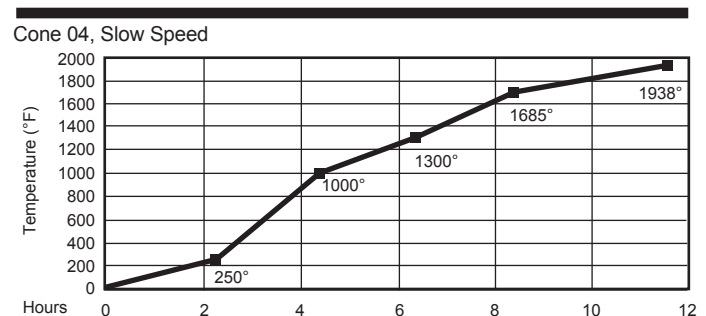
Every clay and glaze should have a Cone Value associated with it. A Cone Value is a measurement of the Heatwork needed for the clay or glaze to mature. The Heatwork is measured through the use of Pyrometric Cones (see pg 42.) The values of these cones used by the KilnMaster controller ranges from Cone 022 through Cone 10. It will not let you enter a cone value outside of this range. **Remember that there is a big difference between values with "0"s in front of them and ones without "0"s. Example: A Cone Value of "6" is much hotter than a cone value of "06".**

STEP 4 - SPEED

The Firing Speed you select will determine how long the kiln will take to heat up. This is important because if you heat some pieces too quickly, they can crack or explode. There are three available speeds to choose from. Below is a description of each speed along with a graph showing the firing profile.

CONE FIRE - SLOW

Slow Speed will take approximately 12 hours to complete. Slow Speed is recommended for large or thick walled pieces. We recommend that most teachers use Slow Speed because it is often hard to tell how thick the walls are in a student's project. If you are unsure if the piece is completely dry, use this speed.



CONE FIRE – MEDIUM

Medium Speed will take approximately 7.5 hours to fire. Medium Speed is fine for most firings. When in doubt, use the Slow Speed

CONE FIRE – FAST

Fast Speed will take approximately 4 hours. This speed is only recommended for items such as lusters and decals which can handle the fast increase in temperature.

STEP 5 – HOLD TIME

HOLD is another important feature of CONE FIRE MODE. Once the kiln has achieved its peak firing temperature, HOLD can maintain that temperature for a set amount of time. This allows the user to make fine tune adjustments to the firing process by introducing more heatwork which can help witness cones reach maturity. Additionally, a HOLD permits the kiln to equalize temperature, allowing for even firings and firings that fall between cone temperatures, for example cone 05.5.

CAUTION: Excessive hold time can result in over firings. A common mistake is to enter ten hours when a ten-minute hold is desired. 00.10 equals ten minutes, 10.00 equals ten hours.

STEP 6 – PREPARE VENTING - (SEE DESCRIPTION ON PAGE 15)**STEP 7 – START**

Start initiates the CONE FIRE MODE firing program. If a Delay is entered the kiln will start a countdown from the amount of entered delay time. Before pressing START, verify that the lid latch is engaged, and that all combustible materials are moved out of the vicinity

ADVANCED CONE FIRE MENU FEATURES

In Cone Fire mode, the operator has the ability to modify the firing program. They can do this in one of two ways. The first method allows the user to program custom Cone Fire programs. The second involves controlling the rate in which the kiln cools down

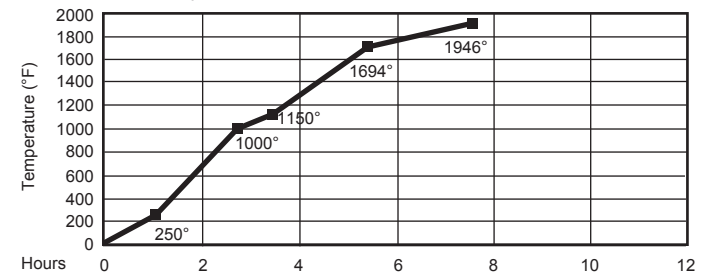
WRITING CUSTOM CONE FIRE PROGRAMS

This new feature on the 700 Board allows you to utilize the cone correlation benefits of Cone Fire Mode coupled with the flexibility of RAMP/HOLD Mode. To use Cone Correlation to calculate your final temperature during a RAMP/HOLD program press **CONE TABLE** instead of entering a temperature for your final heating segment. Input the Cone Value you would like to correlate and Press **ENTER**.

SLOW COOLING (CONE FIRE CONTROLLED COOLING)

COOL is a feature that allows you to add a 1-segment cooling program to the end of a Cone Fire program. When COOL is toggled "ON" it will prompt you to enter a "Rate", "Temperature", and "Hold Time" after you finish entering the Hold Time for a Cone Fire program. This is helpful when trying to achieve certain glaze effects.

Cone 04, Medium Speed



Cone 04, Fast Speed

