

OPERATION OF L&L KILNS WITH A ONE-TOUCH™ (Deg F)

Basic instructions are printed directly on the faceplate for easy reference.

Press the Enter button to start the program you have selected to fire.

Press and hold down Delay to enter a countdown time to delay the start of your program.

Press and hold down Review to see what program you are running.



The display area provides lots of information such as temperatures, program prompts, etc.

Choose one of either the Bisque or Glaze programs. They are preprogrammed for immediate no hassle use. Press for 5 seconds to bring up easy options like cone, heating & cooling rate and hold time

The Custom option allows more experienced users to create and save four of your own ramp/hold programs.

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OPERATION OF L&L KILNS WITH A ONE-TOUCH™ (Deg F)

1. WATCH THE VIDEO FIRST!

We highly recommend watching the video before you read this instruction manual for quicker understanding of how this great control works. *Go to hotkilns.com/one-touch-video*

2. HOW YOUR KILN WORKS

The One-Touch™ Intuitive Kiln Control was designed for busy school teachers, contemporary studios, and hobbyists. No programming is necessary - simple adjustments are easy, yet sophisticated programming is also easy.

The One-Touch automatic program control uses one thermocouple to measure the temperature of the kiln.

The control automatically adjusts power by turning power contactors on and off to control the heat up of the kiln according to the program you are firing.

The preprogrammed Bisque and Glaze programs are set to fire to the most universally accepted versions of these programs, which makes firing basic ceramics easy. These are a **slow bisque to Cone 04** and a **Medium Glaze to Cone 06**.

There are three modes of operation: Simple (just the basic Bisque and Glaze programs as mentioned above); Simple with Changes (you can adjust a few basic parameters like heat up speed, cool down speed, candling time at a low temperature, and the cone to fire to), and Custom where you program all ramps and holds yourself.

3. TYPEFACE CONVENTIONS

1. Typeface font: **CUSTOM** indicates a Button on the control.
2. Typeface font: **CUS↓** indicates what you see in the display.

4. NOTE ABOUT CONES

Cones measure “heat work” rather than just final set point temperature. It is like baking a turkey. You can bake it slow at a low temperature or bake it fast at a high temperature.

The One-Touch™ control adjusts the final set point

temperature based on the *actual* final ramp rate of the kiln (in the last segment of any program). It does this to achieve a particular result (which is the correct bending of the cone) rather than a particular final temperature.

For a full explanation of cones go to hotkilns.com/what-cone-numbers-mean

If you want to see the Orton Cone Chart go to hotkilns.com/orton-cone-chart.

*Note: you can adjust how the kiln fires by adjusting the thermocouple offset. For instance, if your kiln is firing cool (according to a witness cone placed in the kiln) then you can add positive Offset. If it is firing hot then you can reduce the offset or put in a negative offset. See the **OPTIONS** section for instructions on how to do this.*

5. CONE 6 & CONE 10 VERSIONS

There are two versions of the control: Cone 6 and Cone 10. The Cone 6 versions are used on the School-Master kilns to limit the maximum temperature of the kiln. Liberty-Belle, Doll, Fuego and Robin kilns use the Cone 10 version. There are only minor differences as noted in these instructions. The main issue is the maximum temperature that the control will let the kiln go to.

6. DEGREES CENTIGRADE

Your control comes set up to display Degrees Centigrade. This can easily be changed to display in Degrees Fahrenheit (see the **OPTIONS** section).

7. FIRST FIRING

Three of the **CUSTOM** programs have been programmed by the factory to simplify the first firing process.

Once this process has been completed they may be reprogrammed at will.

See the separate PDF called “FIRST FIRING INSTRUCTIONS FOR L&L KILNS WITH A ONE-TOUCH” *Go to hotkilns.com/first-firing-one-touch-control. This will also be found in your complete instruction manual.*

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7.1 FIRST FIRING IN ONE FIRING (16 HOURS)

7.1.1 START.

1. Start with the display reading **IdLE** and flashing a temperature or **StOP** and temperature.

7.1.2 CHOOSE CUSTOM PROGRAMMING

1. Press **CUSTOM**
2. See **CUS t**
3. Press **ENTER**

7.1.3 PICK CUSTOM PROGRAM #1

1. You will see **CUS1**, **CUS2**, **CUS3** or **CUS4**. These are the four custom programs.
2. Scroll to **CUS1** with the **UP** and **DOWN** button.
3. Select **CUS1** by pressing the **ENTER** button.

7.1.4 MOVE THROUGH THE PROGRAM AND START

1. Press **ENTER** for each display prompt that you see as the control scrolls through the enter **CUS1** program until you see **Fire**.
2. Press **ENTER** again when you see **Fire** and the One-Touch control will start firing the kiln using the **CUS1** program.
3. You will know it is firing because the display just reads the kiln temperature steadily. You will probably also hear the relays clicking on and off.
4. There is a list of Preprogrammed Custom Programs later in this manual which will show you a list of values for **CUS1** you see while pressing **ENTER**.

7.1.5 REVIEW PROGRAM

1. Press the **REVIEW** button to review the program.
2. You can do this when you see the **Fire** display, **CUS1**, **CUS2**, **CUS3**, **CUS4** or while firing (when you see the kiln temperature).
3. The display will scroll though the name of the program (i.e. **CUS4**), then the number of segments, then all the ramps, temperatures and holds in sequence.
4. The display changes rapidly so you may have review more than once to see everything.

7.1.6 COMPLETE

1. When the program is complete, you will see **CPL t**.
2. If the Beep option has been turned to “**On**” then the control will beep about 15 times. If the beep option is set for “**OFF**,” then there is no sound. If the beep option is set for “**FULL**,” the control will beep until

any button is pressed. See the **OPTIONS** section for how to change this option.

7.2 FIRST FIRING IN TWO FIRINGS (2 x 9 HOURS)

1. Go through the above process but do it in two programs. It works the same as above except that you run the two separate programs at different times.
2. **CUS2** is the first program and that takes about 9 hours.
3. **CUS3** is the second program and that also takes about 9 hours.
4. See the list of Preprogrammed Custom Programs later in this manual for a list of values you see while pressing **ENTER**.

8. TURNING ON THE KILN

1. Make sure your circuit breaker or fused disconnect switch is turned on and the kiln is plugged in.
2. Turn on kiln with the toggle On/Off switch on the control box.
3. You will see a software code flash briefly. Then you will see either **IdLE** or **StOP** alternating with a display of the current kiln temperature.

9. THREE MODES OF OPERATION

9.1 SIMPLE (Bisque or Glaze)

1. Press one of two buttons marked **BISQUE** and **GLAZE**.
2. You will then see either **bISC** or **GLA** depending on which button you pressed.
3. The **bISC** is a slow bisque to Cone 04. The **GLA** is a medium glaze to Cone 06.
4. Press **ENTER** and the display reads **Fire**.
5. You can add a delay time to the program by pressing the **DOWN** arrow when you see **Fire** but before you press **ENTER**.
6. After you press the **DELAY** button, you will see **dELA** flashing with a time value, typically **00.00** which represents 00 hours and 00 minutes.
 - After you see this flashing display, you can press the **UP** or **DOWN** button to adjust the time. For instance if you want a delay time of one hour and thirty minutes you

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would enter a value of 01.30.

- Once you have the value you want, press **ENTER** and you will see **FIRE** again.
 - This will delay the start of the actual firing by the number of minutes and hours that you have chosen.
7. Press **ENTER** and the control will begin the firing cycle. If you have entered a delay, then you will see **dLY** flashing with a countdown of the time (for example 01:30 for 1 hour and 30 minutes)
 8. Press the **REVIEW** button to review the program.
 - You can do this when you see the **FIRE** display (which will be before the kiln has started to fire) or while firing (when you just see temperature continuously).
 - The display will scroll though:
 - The name of the program (i.e. **bISC**)
 - Then **CndL** (for candle low fire followed by a time)
 - Then **COnE** followed by a number like 04
 - Then **°F** or **°C** to let you know the temperature scale
 - Then a temperature like 1063 which is the anticipated maximum temperature.
 - Then **HLd** followed by a time value like 00:00, which is any hold time at top temperature that you may have programmed into the control.
 - NOTE: Setting for **COOL** and **HtUP** are not shown so you need to make sure these are right before you fire your program.
 9. Press **ENTER** anytime to stop the program.
 10. When the program is complete, you will see **CPLt**.
 11. If the Beep option has been turned to “On,” then the control will beep about 15 times. If it was set for “OFF,” then there will be no beeping. If it was set for “FULL,” then it will beep until a button is pressed. (See Options later in the manual for how to set this.)

9.2 SIMPLE WITH CHANGES (Bisque or Glaze)

It is easy to change simple options like candle time, cone to fire to, hold time at peak temperature, cool-down rate and heat-up rate (plus, you can restore the default values in case you lose track of where you are).

Note that the heat up rate is what changes a Bisque or a Glaze program to Slow, Medium or High.

9.2.1 TO CHANGE A SIMPLE OPTION

1. When you press **BISQUE** or **GLAZE** and hold it for 5 seconds, then you will see either **CndL**, **COnE**, **HLd**, **COOL**, **rStr**, or **HtUP**.
2. Once you see one of these displays remove your finger from the button. (**NOTE: If you do not hit another button for 5 seconds the control will return to idle. If this happens just start over.**)
3. Once you see any of these displayed options you can scroll to other displayed options by pressing the **UP** or **DOWN** button.
4. Here are the options you can change:

CndL	Candle Time (this is a low temperature firing used to dry moisture from the clay)
COnE	Cone to fire to (022 to 10)
HLd	Hold or Soak time at peak temperature in hours and minutes up to 99 hours and 99 minutes (Format: 00.00)
COOL	Cool down rate. OFF (natural cooling), SL0 (Slow = 52°C/hour), MEd (Med = 121°C/hour), FASt (Fast = 260°C/hour)
rStr	Restore default original values
HtUP	Heat up rates. SL0 (Slow), MEd (Medium), FASt (Fast). This is what changes the program to Slow, Medium or High. The rates depend on whether you are in Glaze or Bisque - see the programs later in the manual for details.

5. Once you see the what you want to change press **ENTER**.
6. Once you have entered a option to change, the **UP** and **DOWN** button will then allow adjustment of the value of that particular option.
7. Once you see the value you want press **ENTER** to select and save.
8. The display will then cycle back to the starting display of the control. (You will see **IdLE** or **StOP** alternating with a display of the current

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kiln temperature).

9. To change another option go through the process again.
10. You can not change more than one option at a time.
11. If you do

9.2.2 EXAMPLE: CHANGE CONE OF BISQUE FIRE

Change the cone that the Bisque program goes to from Δ04 to Δ06:

1. Press the **BISQUE** Button for 5 seconds or more.
2. See **CndL** or **COnE** or **HLd** or **COOL** or **rStr** or **HtUP**.
3. Release your finger from the button.
4. Scroll to **COnE** display by pressing the **UP** or **DOWN** button.
5. Press **ENTER** to change the value of the **COnE** option.
6. See **04** alternating with **COnE**
7. Press the **DOWN** button until you see **06**
8. Press **ENTER**
9. See either **IdLE** or **StOP** alternating with a display of the current kiln temperature.

9.2.3 EXAMPLE: CHANGE SPEED OF BISQUE FIRE

Change the speed of firing for the Bisque program from Slow to Fast.

1. Press the **BISQUE** Button for 5 seconds or more.
2. See **CndL** or **COnE** or **HLd** or **COOL** or **rStr** or **HtUP**.
3. Release your finger from the button.
4. Scroll to **HtUP** display by pressing the **UP** or **DOWN** button.
5. Press **ENTER** to change the value of the **HtUP** option.
6. See **SL0** alternating with **HtUP**
7. Press the **DOWN** button until you see **FASt**
8. Press **ENTER**
9. See either **IdLE** or **StOP** alternating with a display of the current kiln temperature.

Note - the temperatures, ramps and soak times that for the various preset bisque and glaze programs, are shown later on. These charts are for your reference only - when you are using the Simple mode of operation - you can not change any of those ramp and hold settings - just the overall grouping of ramps and holds that makes up the “slow”, “medium” and “fast” setting.

9.3 CUSTOM (Ramps and Holds):

1. Press **CUSTOM** and you have four Ramp/Soak programs available for sophisticated custom programming.
2. Each program has eight segments.
3. Each segment has a ramp, a temperature set point, and a hold time for each segment.
4. See “CUSTOMRAMP/HOLD PROGRAMMING” later in manual for detailed instructions on how to program in the Custom mode of operation.

10. RESETTING FACTORY DEFAULTS

It is natural, when first learning a new technology, to get confused or to put in something you are not sure of and then not know where the beginning is. If you do this and you want to go back to the factory defaults so you begin from scratch do the following:

1. Press the **BISQUE** Button for 5 seconds or more.
2. See **CndL** or **COnE** or **HLd** or **COOL** or **rStr** or **HtUP**
3. Release your finger from the button.
4. Scroll to **rStr** display by pressing the **UP** or **DOWN** button.
5. Press **ENTER** to change restore the control to its factory default values
6. See either **IdLE** or **StOP** alternating with a display of the current kiln temperature.
7. Repeat the same process for **GLAZE**

11. HOW TO CANCEL A FIRING

1. Just press **ENTER** while the kiln is firing.
2. You will see either **IdLE** or **StOP** alternating

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with a display of the current kiln temperature.

12. STANDARD (SIMPLE) PROGRAMS

1. The following tables show you exactly how the control is set up so you can understand what is going on “under the hood”.
2. You can not change the way the ramps, holds and temperature set points are set - if you need or want to do that then you need to use Custom Programming.
3. The “Default Bisque Program” is a Slow Bisque and the “Default Glaze Program” is a Medium Glaze.
4. “Slow”, “Medium” and “Fast” refer to the ramp speeds and lengths of the programs.
5. When you change the speed of the Cooldown this goes from **OFF** (no controlled cooling or no heat at all when cooling), to **FAST** (Fast = 500°F/hour) **MEd** (Medium = 250°F/hour) to **SLD** (Slow = 125°F/hour).
6. We recommend experimenting with slower cooldowns for interesting effects on glazing. It is usually irrelevant for bisquing.

12.1 STANDARD BISQUE PROGRAMS

1. Slow, Medium and Fast Settings for the Bisque programs are listed.
2. Note: Final temperatures are based on Orton cone charts (Small Self-Supporting Cones). For instance, Cone 04 is 1945°F and Cone 06 is 1828°F. The second-to-last temperature is the cone temperature minus 256°F. If you want to see the Orton Cone Chart go to hotkilns.com/orton-cone-chart.
3. Note: Seg 1 is the candling segment. This segment is skipped if the **CndL** option is set to “00.00”).
4. You can download an Excel spreadsheet that will generate any program (with graph and times) based on a particular cone number at hotkilns.com/one-touch-calculator.
5. Times are calculated assuming a room temperature of 70°F

12.1.1 Slow Bisque (Default Bisque Program)

Δ04 Standard Slow Bisque – SEGS-6 (6 segments)

Seg 1-	10.2 Hrs	RA1 - 25°F/Hr	◦ F1-150°F	HOLD- 7.0
Seg 2-	3.35 Hrs	RA2 - 100°F	◦ F2-185°F	HOLD- 3.0
Seg 3-	4.08 Hrs	RA3 - 200°F	◦ F3-1000°F	HOLD- 00.00
Seg 4-	1.00 Hrs	RA4 - 100°F	◦ F4-1100°F	HOLD- 00.00
Seg 5-	2.95 Hrs	RA5 - 200°F	◦ F5-1689°F	HOLD- 00.00
Seg 6-	2.37 Hrs	RA6 - 108°F	◦ F6-1945°F	HOLD- 00.00

TOTAL FIRING TIME = 23.94 HRS

12.1.2 Medium Speed Bisque

Δ04 Standard Medium Bisque – SEGS-6 (6 segments)

Seg 1-	1.00 Hrs	RA1 - 80°F	◦ F1-150°F	HOLD- 00.00
Seg 2-	0.44 Hrs	RA2 - 80°F	◦ F2-185°F	HOLD- 00.00
Seg 3-	0.81 Hrs	RA3 - 80°F	◦ F3-250°F	HOLD- 00.00
Seg 4-	3 Hrs	RA4 - 250°F	◦ F4-1000°F	HOLD- 00.00
Seg 5-	3.83 Hrs	RA5 - 180°F	◦ F5-1689°F	HOLD- 00.00
Seg 6-	2.37 Hrs	RA6 - 108°F	◦ F6-1945°F	HOLD- 00.00

TOTAL FIRING TIME = 10.45 HRS

12.1.3 Fast Speed Bisque

Δ04 Standard Fast Bisque – SEGS-6 (6 segments)

Seg 1-	0.53 Hrs	RA1 - 150°F	◦ F1-150°F	HOLD- 00.00
Seg 2-	0.23 Hrs	RA2 - 150°F	◦ F2-185°F	HOLD- 00.00
Seg 3-	0.43 Hrs	RA3 - 150°F	◦ F3-250°F	HOLD- 00.00
Seg 4-	2.83 Hrs	RA4 - 300°F	◦ F4-1100°F	HOLD- 00.00
Seg 5-	1.47 Hrs	RA5 - 400°F	◦ F5-1689°F	HOLD- 00.00
Seg 6-	2.37 Hrs	RA6 - 108°F	◦ F6-1945°F	HOLD- 00.00

TOTAL FIRING TIME = 7.54 HRS

12.2 STANDARD GLAZE PROGRAMS

1. Slow, Medium and Fast Settings for the Glaze programs are listed.
2. Note: Final temperatures are based on Orton cone charts (Small Self-Supporting Cones). For instance, Cone 04 is 1945°F and Cone 06 is 1828°F. The second-to-last temperature is the cone temperature minus 256°F. If you want to see the Orton Cone Chart go to hotkilns.com/orton-cone-chart.
3. Note: Seg 1 is the candling segment. This segment is skipped if the **CndL** option is set to “00.00”).
4. You can download an Excel spreadsheet that will generate any program (with graph and times) based

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on a particular cone number at hotkilns.com/one-touch-calculator.

5. Times are calculated assuming a room temperature of 70°F

12.2.1 Slow Glaze

Δ06 Slow Glaze – SEGS–3 (3 segments)

Seg 1-	0.45 Hrs	RA1 - 400°F	◦ F1–250°F	HOLD-	00.00
Seg 2-	3.31 Hrs	RA2 - 400°F	◦ F2–1572°F	HOLD-	00.00
Seg 3-	2.00 Hrs	RA3 - 128°F	◦ F3–1828°F	HOLD-	00.00

TOTAL FIRING TIME = 5.31 HRS

12.2.2 Medium Glaze (Default Glaze Program)

Δ06 Medium Glaze – SEGS–3 (3 segments)

Seg 1-	0.29 Hrs	RA1 - 400°F	◦ F1–185°F	HOLD-	00.00
Seg 2-	3.76 Hrs	RA2 - 400°F	◦ F1–1572°F	HOLD-	00.00
Seg 3-	1.71 Hrs	RA3 - 150°F	◦ F2–1828°F	HOLD-	00.00

TOTAL FIRING TIME = 5.17 HRS

12.2.3 Fast Glaze

Δ06 Fast Glaze – SEGS–3 (3 segments)

Seg 1-	0.20 Hrs	RA1 - 570°F	◦ F1–185°F	HOLD-	00.00
Seg 2-	2.43 Hrs	RA2 - 570°F	◦ F2–1572°F	HOLD-	00.00
Seg 3-	1.28 Hrs	RA3 - 200°F	◦ F3–1828°F	HOLD-	00.00

TOTAL FIRING TIME = 3.71 HRS

12.3 SIMPLE COOL DOWN SPEEDS

Note: These are entered as one of the simple options in the Simple Programming (C00L).

Cool Down options are as follows:

Slow = 125°F/hour

Med = 250°F/hour

Fast = 500°F/hour

13. CUSTOM RAMP/HOLD PROGRAMMING

1. Each fully customizable program has eight segments.
2. Each segment has a ramp rate, a hold time and a temperature set point.
3. Ramp Rate is some number of degrees centigrade per hour either increasing or decreasing in temperature. For example a ramp rate of 27 means that the program will move from the temperature at the

beginning of the segment to the temperature at the end of the segment at 27 degrees centigrade per hour.

4. Hold time is a time that the program holds the temperature reached at the end of the segment. It can be set for 00.00 and, in fact, in most cases is.
5. The temperature set point is the final temperature intended to be reached in the segment.
6. At the end of the segment, i.e. when the program reached the temperature set point and finishes any hold time the control will move to the next segment. If it is the last segment then the program will be complete (CPLt).

13.1 REUSE A PREVIOUS PROGRAM

1. Start with the display reading **IdLE** and flashing a temperature or **StOP** and temperature.
2. Select **CUSTOM**
3. See **CUS t**
4. Press **ENTER**
5. You will see **CUS1**, **CUS2**, **CUS3** or **CUS4**.
6. These are the four custom programs.
7. You can scroll to other ones with the **UP** and **DOWN** button.
8. When the display shows the one you want to select press **ENTER**.
9. After you have selected your program with **ENTER** press the **REVIEW** button.
10. This will scroll through all the segments so you can see what is programmed in that custom program and the end up with **FIrE**. Press **ENTER** when you see **FIrE** and the program will start.

13.2 CHANGING A PROGRAM (STEP BY STEP)

13.2.1 START

1. Start with the display reading **IdLE** and flashing a temperature or **StOP** and temperature.

13.2.2 CHOOSE CUSTOM PROGRAMMING

1. Select **CUSTOM**
2. See **CUS t**
3. Press **ENTER**

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13.2.3 PICK A PROGRAM

1. You will see **CUS1**, **CUS2**, **CUS3** or **CUS4**.
2. These are the four custom programs.
3. You can scroll to other ones with the **UP** and **DOWN** button.
4. When the display shows the one you want to select press **ENTER**.

13.2.4 SPECIFY NUMBER OF SEGMENTS

1. Once you have chosen a program, you need to specify the total number of segments that you will use.
2. All programs consist of 1 or more segments, as shown in the sample profiles in this manual.
3. Each segment has 3 parts: a ramp rate (speed of temperature rise in degrees centigrade per hour), hold temperature (in degrees centigrade), and hold time (in hours and minutes) at the hold temperature.
4. It is helpful to draw your profile to see how many segments you will need.
5. Then, use the **UP** and **DOWN** buttons to display the desired number of segments, and press **ENTER** to store the value when you see the number you want.

13.2.5 ENTER RAMP RATE

1. You will see **rA1**, followed by a value like **150**.
2. The **rA1** stands for Ramp One.
3. The value represents a rate of temperature rise expressed in degrees per hour.
4. Use the arrow buttons to adjust the rate and press **ENTER** to store the value.
5. To help you visualize what is typical of various ramps read the following:
 - Slow rates range from 1-50 degrees per hour, and are used for thick glass projects.
 - Medium rates range from 60 to 200 degrees per hour, and are used for thick, hand-built ceramics.
 - Fast rates range from 250–1000 degrees per hour, and are used for glazes, thin ceramics and small glass projects.
6. A rate of **9999** sets the kiln to ramp as fast as possible.
7. Also, see the various ramps in the standard programs for an idea of what works.

13.2.6 ENTER HOLD TEMPERATURE

1. You will see **°F1** followed by a value like **0300**.
2. The **°F1** stands for Temperature One.
3. For a single segment program, this is the top temperature of the firing.
4. For multi-segment programs, this can be a temperature where you want to hold to dry the ware or for carbon burn-out, or to equalize the temperature across the item or it can be where you just want to switch ramp rates without a hold.
5. Adjust the temperature with the **UP** and **DOWN** buttons and press **ENTER** to store the displayed value.

13.2.7 ENTER HOLD TIME

1. You will see **HLd1** followed by a value like **00:00**.
2. The **HLd1** stands for Hold One.
3. Hours are displayed to the left of the decimal point and minutes to the right (HH.mm).
4. Use the **UP** and **DOWN** buttons to adjust the hold time at the soak temperature.
5. Use a zero (**00.00**) hold time if you just want to move to the next segment.
6. Drying ware can take several hours, while holds at peak temperature usually range 10–15 minutes to even out the kiln. Feel free to experiment - there is no one right way to program a kiln.

13.2.8 REPEAT STEPS FOR EACH SEGMENT

1. For segment two, the display will read **rA2**, **°F2** and **HLd2**
2. For segment three, the display will read **rA3**, **°F3** and **HLd3** etc.

13.2.9 SET A DELAY (OPTIONAL - CAN BE SKIPPED)

1. If you want to set a delay, you can do it when the display says **FIRE**.
2. You can add a delay time to the program by pressing the **DOWN** arrow when you see **FIRE** but before you press **ENTER**.
3. After you press the **DELAY** button you will see **dELA** flashing with a time value, typically **00.00** which represents 00 hours and 00 minutes.
4. After you see this flashing display, you can press the **UP** or **DOWN** button to adjust the delay time.
5. Once you see the value you want, press **ENTER** and you will see **FIRE** again.

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13.2.10 This will delay the start of the actual firing by the number of minutes and hours that you have chosen.

START FIRING!

1. The display will show **FIrE** (ready to fire) when all segments have been entered.
2. Press **ENTER** to start the firing.

Caution should be taken to make sure that no one can place anything around or on the kiln during the delay start. Treat the kiln as firing during the delay start.

13.2.11 REVIEW PROGRAM

1. Press the **REVIEW** button to review the program.
2. You can do this when you see the **FIrE** display, **CUS1**, **CUS2**, **CUS3**, **CUS4** or while firing.
3. The display will scroll though and show you the following:
 - The name of the program (i.e. **CUS4**)
 - Then the number of segments (i.e. **2**)
 - Then all the ramps, temperatures and holds in sequence.

13.2.12 COMPLETE THE FIRING

1. When the firing is complete, you will see **CPLt**.
2. If the Beep option has been turned to “**On**” then the control will beep about 15 times. If it was set for “**OFF**,” then there will be no beeping. If it was set for “**FULL**,” it will beep until a button is pressed. (See Options later in the manual for how to set this.)

14. KILN OPERATION DURING A CUSTOM FIRING PROGRAM

14.1 DESCRIPTION

1. At the start of a firing, the controller sets its moving set-point to the current temperature in the kiln.
2. The moving set-point is where the controller wants the kiln temperature to be.
3. The controller will then move the moving set-point up at the programmed rate, and cycle power to the elements to make the temperature of the kiln follow the moving set-point.
4. You will hear the relays clicking to regulate the kiln temperature.
5. The elements will receive power when the

temperature is below the moving set-point.

6. The relays will click off when the temperature is above the moving set-point.
7. The current segment and moving set-point can be viewed by pressing the **UP** arrow during a firing.
8. The control can not make the kiln go any faster than it is capable of so there may be a lag between what the control wants to do and what the kiln can do. This is normal and is only of concern if the kiln starts firing slower than it normally has done in the past.

14.2 OPTIONS DURING FIRING

14.2.1 DISPLAYING THE CURRENT SET-POINT AND ACCESSING THE FOLLOWING OPTIONS

1. During a firing, you may advance from the current segment to the next ramp rate by using **Skip Step (SStP)**; or, if you are in a hold period, you may add time (**tME**) and temperature (**tMP**) to the hold period.
2. When the **UP** button is pressed during a firing, the current ramp or hold is displayed, followed by the current or moving set-point, then **SStP** is displayed.
3. If you do not press a button within several seconds, the display will return to showing the current temperature in the kiln.

14.2.2 SKIP STEP

1. This option allows you to skip from the present segment to the next ramp rate.
2. Press the **UP** button, the display will show the current segment, then the set-point, then **SStP**.
3. When **SStP** is displayed, press **ENTER** to skip to the next ramp rate.

14.2.3 ADD TIME TO HOLD PERIOD

1. This is available only during a hold period.
2. This option allows you to add time in 5 minute increments to a hold (soak) period.
3. During a hold or soak, the temperature in the kiln will be alternating in the display with the remaining hold time.

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- When in a hold period, press the **UP** button.
- When **SS tP** is displayed, press the **UP** button 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.

14.2.4 ADD TEMPERATURE TO HOLD PERIOD

- This is available only during a hold period.
- This option allows you to add temperature in 5 degree increments to a hold (soak) period.
- During a hold or soak, the temperature in the kiln will be alternating in the display with the remaining hold time.
- When in a hold period, press the **UP** button.
- When **SS tP** is displayed, press the **UP** button twice more and **tMP** will be displayed.
- Press **ENTER** and 5 minutes will be added to the hold time.
- You may use the add temperature procedure as many times as necessary to get the hold temperature desired.

15. CUSTOM PROGRAMS

- There are the four programs (shown in Degrees F) that can be fully customized.
- Three of these have been preprogrammed by the factory to simplify the first firing process.
- Once this process has been completed they may be reprogrammed anyway you like.

15.1 CUSTOM PROGRAM 1

Standard First Firing Program:

Δ5 Standard Slow Bisque – SEGS–5 (5 segments)

Seg 1-	2.15 Hrs	RA1 - 80°F	◦ F1–250°F	HOLD-	00.00
Seg 2-	3.75 Hrs	RA2 - 200°F	◦ F2–1000°F	HOLD-	00.00
Seg 3-	1.00 Hrs	RA3 - 100-°F	◦ F3–1100°F	HOLD-	00.00
Seg 4-	4.58 Hrs	RA4 - 180-°F	◦ F4–1915°F	HOLD-	00.00
Seg 5-	3.12 Hrs	RA5 - 80-°F	◦ F5–2165°F	HOLD-	00.00

TOTAL FIRING TIME = 15.6 HRS

15.2 CUSTOM PROGRAM 2

Split First Firing (First Segment):

Seg 1-	2.15 Hrs	RA1 - 80°F	◦ F1–250°F	HOLD-	00.00
Seg 2-	3.75 Hrs	RA2 - 200°F	◦ F2–1000°F	HOLD-	00.00
Seg 3-	1.00 Hrs	RA3 - 100-°F	◦ F3–1100°F	HOLD-	00.00
Seg 4-	2.22 Hrs	RA4 - 180-°F	◦ F4–1500°F	HOLD-	00.00

TOTAL FIRING TIME = 9.12 HRS

15.3 CUSTOM PROGRAM 3

Split First Firing (Second Segment):

Seg 1-	0.85 Hrs	RA1 - 200°F	◦ F1–250°F	HOLD-	00.00
Seg 2-	2.50 Hrs	RA2 - 500°F	◦ F2–1500°F	HOLD-	00.00
Seg 3-	2.30 Hrs	RA3 - 180-°F	◦ F3–1915°F	HOLD-	00.00
Seg 4-	3.12 Hrs	RA4 - 80-°F	◦ F4–2165°F	HOLD-	00.00

TOTAL FIRING TIME = 8.77 HRS

15.4 CUSTOM PROGRAM 4

Blank

16. OPTIONS

16.1 ACCESSING OPTIONS

- Options are accessed by holding the **ENTER** button while turning the power onto the control (by turning on the kiln with the toggle switch) and continuing to hold onto the **ENTER** button until **EdIt** is displayed.
- This activates the Options Menu.
- The first thing you will see after turning the power on while pressing **ENTER** is **LL - G** or **1t - 1** (This is the software version).
- Then you will see **1288** if it is a Cone 10 control or **1249** if it is a Cone 6 control.
- Then you will see **EdIt** and you will hear a beep. You can now let go of the **ENTER** button.

16.2 OPTIONS

16.2.1 SOUND: BEEPING ON OR OFF AT END OF PROGRAM

- The first thing to change is the action of the beeper.
 - OFF** turns off the beeper.

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- **FULL** makes the beeper stay on until any button is pushed.
 - **On** makes the beeper sound 15 times and then turn off.
2. If you don't want to change this option then press **ENTER**.

16.2.2 MAXIMUM TEMPERATURE

1. **On a Cone 6 Version (School-Master): Maximum Temperature** (Deg C) **927**, **1093**, and **1249** are options.
2. **On a Cone 10 Version (Liberty-Belle, Doll, Fuego, Robin):** Cone 10 models have a preset maximum temperature limit of **1288** and you will not see the "Maximum Temperature" option come up.

16.2.3 TEMPERATURE INDICATION

1. **°F** (Deg F) or **°C** (Deg C).
2. When you are in Deg C, you will always see a little dot in the display at the bottom right to remind you.
3. Use the **UP** or **DOWN** button to change the value and then press **ENTER**.

16.2.4 THERMOCOUPLE OFFSET

1. **OFFS** (+/- deg F)
2. Display shows **OFFS**.
3. Press the **UP** arrow to enter a positive offset.
4. Press the **DOWN** arrow to add a negative sign to the offset, and then the **UP** arrow to add negative offset to the control.
5. The control comes with a pre-programmed +18 Deg F offset to compensate for the thermocouple protection tube.
6. Note: if you first press the **DOWN** button you can only set a negative value or if you first press the **UP** button you can only enter a positive value.
7. You can go back and change this later if you make a mistake.

Note: you can adjust how the kiln fires by adjusting the thermocouple offset. For instance, if your kiln is

firing cool (according to a witness cone placed in the kiln) then you can add positive Offset. If it is firing hot then you can reduce the offset or put in a negative offset. Try doing this in 5 degree increments.

17. MESSAGES & DISPLAYS

CndL Candle Time (this is a low temperature firing used to dry moisture from the clay)

COnE Cone to fire to

COOL Cool down rate. **OFF** (natural cooling), **SL0** (Slow), **MEd** (Medium), **FAST** (Fast)

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. (# stands for numbers 1 through 8)

°C# Segment temperature in °C – Set temperature for a user program. A decimal point will display in lower right corner. (# stands for numbers 1 through 8)

EdIt Edit the default options (beeping at complete, temperature scale, cone fire, delay, maximum programmable temperature)

ErrP There has been a power interruption that has stopped the firing. Press any button to clear.

FAST Fast (Heat up or Cool down rate)

FiRE Ready to fire current program. Press **START** to begin firing.

FULL Beeps continuously at end of firing until a button is pressed.

HtUP Heat up rates. **SL0** (Slow), **MEd** (Medium), **FAST** (Fast)

HLd Hold or Soak time at peak temperature

HLd# Soak time in hours:minutes at a hold temperature. (# stands for numbers 1 through 8)

IdLE This shows up when the control is not firing or is not being programmed. Message alternates with the

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current kiln temperature. Similar to **StOP**.

lt-1 This comes on when you first turn on the control if it is a Cone 10 control.

LL-6 This comes on when you first turn on the control if it is a Cone 6 control.

MEd Medium (Heat up or Cool down rate)

OFF No beeping when firing is complete. Or could be that an option is off when setting options. Also used to show that Cooling is off.

On Beeps for 15 seconds at end of firing.

rA# Ramp Number (rate per hour of temperature increase or decrease). (# stands for numbers 1 through 8)

rStr Restore default original values

SEG Short for Segments. You can enter up to 8 segments in a program.

SL0 Slow (Heat up or Cool down rate)

SStP Skip Step (used to advance to the next ramp)

StOP The kiln is at idle and ready to be programmed. Message alternates with the current kiln temperature.

CUS1, CUS2, CUS3, CUS4 Custom program number displayed.

18. ERROR CODES

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

Errd Displayed whenever the kiln temperature is 100°F (38°C) 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.

Err1 Displayed whenever the kiln temperature is rising during an up ramp slower than 15°F/hr. (9°C/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.

ErrP 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 be no indication of a power failure. To clear the error, press any key.

ErrF Displayed whenever the kiln temperature is decreasing during a down ramp slower than 15°F/hr (9°C/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.

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

19. SOFTWARE VERSION

These instructions apply to software version **LL-6** for the Cone 6 version of the control or **lt-1** for the Cone 10 version of the control. You will see this code flash when you first turn on the control.

20. CENTIGRADE INSTRUCTIONS

These instructions are available in a Fahrenheit version. *Go to hotkilns.com/basic-one-touch-c*

21. SPECIFICATIONS

Go to hotkilns.com/one-touch-specifications