

OPERATING INSTRUCTIONS FOR 8 STAGE ELECTRIC CONTROLLERS

SELECTING THE REQUIRED PROGRAM

There are 8 user settable PROGRAMS in the controller, which remain set even when the power is OFF. (months)
Each PROGRAM contains 8 STAGES. (These are detailed below).

Turn ON the power, then push and release **[RESET]**.

NOTE: The program light will be ON.
During this section you may check the kiln temperature at any time by pushing and holding **[TEMP]**.

The PROGRAM NUMBER that was LAST SET **[001]** to **[008]** will be displayed.

To CHANGE the program number push **[UP]** or **[DOWN]**.
Push **[ENTER]** when the desired PROGRAM is selected.
(The kiln temperature will be displayed).
When ready push **[CYCLE]** to move on to STAGE 1.

SETTING UP THE SELECTED PROGRAM (Stages 1 to 8)

NOTE: Stage 1 is always an UP stage.

The STAGE NUMBER will appear **[1]** to **[8]**.
Push and hold **[TEMP]** to read the temperature setting.

On release of **[TEMP]** you may now change the setting by pushing **[UP]** or **[DOWN]**.

Enter the TEMPERATURE setting by pushing **[ENTER]** until the kiln temperature appears.

The type of stage set will be indicated.
IF THE TEMPERATURE THAT HAS BEEN SET IS:
HIGHER than previous stage = UP STAGE SET
SAME as previous stage = SOAK/HOLD STAGE SET
LOWER than previous stage = DOWN STAGE SET

Push and hold **[RATE/TIME]** to read RATE or TIME setting.

UP or DOWN stage = RATE (degreas per hour)
SOAK/HOLD stage = TIME (minutes)

On release of **[RATE/TIME]** you may now set the RATE or TIME by pushing **[UP]** or **[DOWN]**.

Enter the RATE or TIME by pushing **[ENTER]** until the kiln temperature appears.

Push and release **[CYCLE]**.

(The NEXT stage number will be displayed).
REPEAT THIS SECTION UNTIL YOU HAVE SET ALL THE STAGES THAT YOU REQUIRE.

UP	SOAK	DOWN
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One blinking		

WARNING: READ THIS

IF YOU HAVE SET ALL OF THE 8 STAGES, THE TIMER LIGHT WILL BE ON AND THE KILN TEMPERATURE WILL BE DISPLAYED.

IF YES — GO TO DELAY START TIME. IF NO — CONTINUE

Push and hold **[CYCLE]** until:

THE GREEN CYCLE OVER LIGHT APPEARS

or

THE RED TIMER LIGHT APPEARS

Push and hold **[ENTER]** until the TIMER light appears.

(not necessary if the TIMER LIGHT is already ON)

You may now set the DELAY START TIME if required.

DELAY START TIME allows the user to set a time that must elapse before the controller will start.

EXAMPLE: If it is now 7.00pm and you want the controller to start at 9.30pm, set the DELAY START TIME to the difference between the two times. (150 minutes).

DELAY START TIME (minutes)

Push and hold **[RATE/TIME]** to read TIME.
The READING will be **[000]** before being set.

On release of **[RATE/TIME]** you may now set the DELAY START TIME by pushing **[UP]** or **[DOWN]**. (Leave at **[000]** if not required).

WHEN YOU HAVE SET THE TIME YOU REQUIRE YOU MAY GO ON.

Push and hold **[CYCLE]** for approximately 1 second.

START UP (# Delay Start set)

The DELAY START TIME will be displayed.

The TIMER light will be ON.

The CONTROL light will be OFF.

The controller will start the cycle when the TIME = **[000]**

During the CYCLE you may check:

CURRENT STAGE NUMBER — Push **[UP]**

TEMPERATURE SETTING — Push **[TEMP]**

RATE/TIME SETTING — Push **[RATE/TIME]**

POWER FAILURE

On return of power the controller will:

- (1) Remain in the reset state.
- (2) Power to kiln or furnace OFF.
(To PROTECT kiln from possible BURNOUT.)

RESTART AFTER POWER FAILURE

- (1) Follow OPERATING INSTRUCTIONS.
- (2) Make sure your settings are still correct. (if not change)
Controller will resume its program.

UP or DOWN

When pushing the UP or DOWN pushbutton, the reading changes slowly at first but increases its speed the longer the button is held. When the change is 100 counts from the original reading it will increment in 100's to allow fast changes.

When you are close to the setting required release the pushbutton and press it again to slow down the rate of change.

4

WHEN CONTROLLER IS RUNNING

You may check the settings of the stage you are on simply by pushing the required button. The stage lights will blink until button released. The controller is not interrupted.

If the controller is in a SOAK STAGE pressing the RATE/TIME button will give you the TIME SET and then the reading will change to give you TIME GONE since entering the SOAK stage.

You may CHECK or CHANGE all settings with controller running by starting at OPERATING INSTRUCTIONS SETTING UP THE SELECTED PROGRAM.

The controller is not interrupted.

SAFETY CHECKS

During normal operation the controller checks:

- (1) for thermocouple failure.
 - (2) that thermocouple is in the kiln or furnace.
 - (3) for shorts in thermocouple compensation lead.
 - (4) checks (2) & (3) done over a time depending on rate set.
 - (5) for relay circuit failure. (which could cause BURNOUT)
- STEPS (1), (2), (3) & (4) SOUND ALARM AND SHUT POWER OFF KILN.
STEP (5) SOUNDS ALARM BUT IS UNABLE TO SHUT POWER OFF KILN.

LOSS OF PROGRAMS

If the unit is OFF for LONG periods of time (months) it is possible that programs may be lost due to low battery voltage.

When using again replace your programs and leave ON for a couple of days to recharge the battery.

THERMOCOUPLE

HE388 K	Use only	CHROME/LALUMEL	TYPEK
HE388 R	Use only	PLATINUM/RHODIUM	TYPER
HE388 N	Use only	NISILNICROSIL	TYPEN

The RED connector in the compensation lead is NEGATIVE.
Check connection by HEATING the end of the THERMOCOUPLE.
If READING DECREASES reverse the connections.

5

DIRECT WIRING THE CONTROLLER

(Using the kiln or furnace relay)

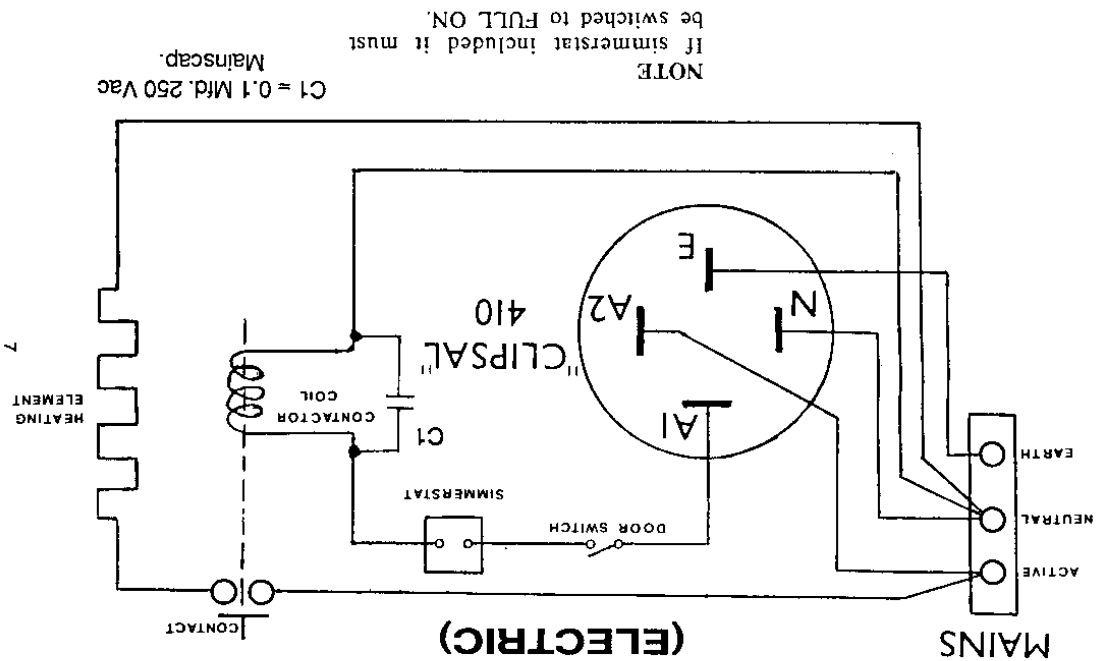
- (1) Mount "CLIPSAAL" 410 socket on kiln or furnace.
- (2) Connect ACTIVE (A2), NEUTRAL (N) & EARTH (E) to socket.
(mains supply for controller)
- (3) Disconnect controlled active line which goes to the kiln or furnace relay coil. (COIL MUST BE 240 VAC)
(Usually has a door switch and simmerstat in series with relay coil. Disconnected on active side of these.)
- (4) Connect wire to (A1) (controlled active) on the socket.
THE CONTROLLER SHOULD BE READY TO BE PLUGGED IN.
The simmerstat must be set to MAXIMUM.
THE CONTROLLED ACTIVE FROM CONTROLLER IS RATED AT 240 VOLTS A.C. at 5 AMPS MAXIMUM.

MOST COMMON PROBLEMS

- (1) ALARM SOUNDS WITHIN MINUTES. (of starting)
CHECK that CONTROL LIGHT is coming ON.
IF YES:
 - (a) CHECK that DOOR SWITCH is operating.
 - (b) LISTEN for KILN CONTACTOR closing.
 - (c) CHECK THERMOCOUPLE and CONNECTIONS to it.
 - (2) NOT COMPLETING CYCLE. (not reaching SET TEMPERATURE.)
CHECK that CONTROL LIGHT IS ON.
IF YES:
 - (a) Possible HEATING ELEMENT FAILURE.
 - (b) DOOR SWITCH opening with heat.
 - (3) DISPLAY BLANK.
CHECK that lights on controller are ON.
IF YES:
 - (a) CHECK THERMOCOUPLE for open circuit.
 - (b) CHECK for bad connections to THERMOCOUPLE.
- IF NO:
CHECK POWER TO CONTROLLER.

6

KILN WIRING (ELECTRIC)



7