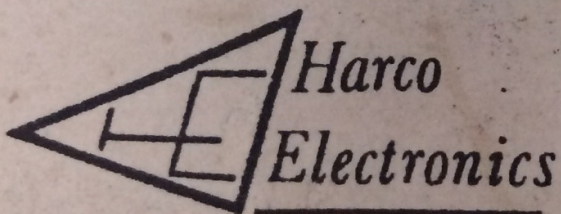


HE388U
OPERATORS
MANUAL

MANUFACTURED BY



5 Gillian Street
KOTARA SOUTH
N.S.W. 2288
Ph. (049) 43 0330

Dear Customer Purchaser,

The following booklet is set out specifically to assist you in becoming familiar with your new controller.

If you follow the steps and examples you should have little difficulty in understanding the unit.

However should a problem arise do not hesitate in contacting your local agent for assistance.

The unit has been carefully designed for ease of use and maximum reliability and should give you years of trouble free running.

Although each unit is carefully assembled and factory tested it is possible that a defective component may slip through, therefore in the event of a fault occurring you are protected during the initial period by the warranty set out in the booklet.

As an Australian manufacturer I personally feel that a good reputation is only acquired by producing quality products, which leads to satisfied customers.

Harcombe

Manager,

HARCO ELECTRONICS.

HE388U OPERATING PROCEDURE.

In the diagrams to follow: ● indicates light on
○ indicates light off

The number () indicates the step just completed.
B indicates lights blinking. S indicates lights steady.

UP or DOWN.

When pushing UP or DOWN button the reading changes slowly at first but speeds up the longer the button is held.
When the change is 100 counts from the original reading it will increment in 100's. (To allow large changes quickly.)
When close to the reading required, release the button and push again. (The rate of change will again be slow.)

WARNING! ALWAYS START WITH STAGE1 or 3.

As soak temperatures (stage2 or 4) are set by them.

- (1) Turn ON kiln or furnace.
- (2) Push and hold RESET button.
- (3) Select program number.
Then release RESET button.
- (4) Push CYCLE button.

Do you require stage1 ?

YES continue

NO set TEMP. & RATE to ZERO.

- (5) Push TEMPERATURE button.
- (6) Set TEMPERATURE by pushing UP or DOWN.
- (7) Push RATE button.
- (8) Set RATE by pushing UP or DOWN.
- (9) Push TEMP. or RATE to check settings.

(If incorrect go to step (5))

- (10) Push CYCLE button.

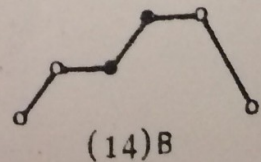
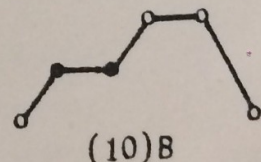
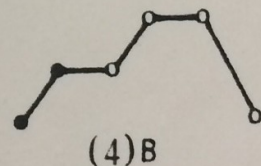
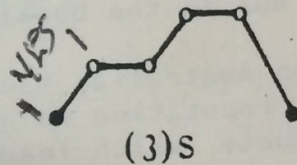
Do you require stage2 ?

YES continue

NO set TIME TO ZERO.

TEMP. already set in stage1.

- (11) Push TIME button.
- (12) Set TIME by pushing UP or DOWN.
- (13) Check TIME by pushing TIME button.
(If incorrect go to step (12))



(14) Push CYCLE button.

Do you require stage 3 ?

YES continue

NO set TEMP. & RATE to ZERO

(15) Push TEMPERATURE button.

(16) Set TEMP. by pushing UP or DOWN.

(17) Push RATE button.

(18) Set RATE by pushing UP or DOWN.

(19) Push TEMP. or RATE to check settings.

(If incorrect go to step (15))

(20) Push CYCLE button.

Do you require stage 4 ?

YES continue

NO set TIME to ZERO.

TEMP. already set in stage 3.

(21) Push TIME button.

(22) Set TIME by pushing UP or DOWN.

(23) Check TIME by pushing TIME button.

(If incorrect go to step (22))

(24) Push CYCLE button.

Do you require stage 5 ?

YES continue

NO set TEMP. & RATE to ZERO.

(25) Push TEMPERATURE button.

(26) Set TEMP. by pushing UP or DOWN.

(27) Push RATE button.

(28) Set RATE by pushing UP or DOWN.

(29) Push TEMP. or RATE to check settings.

(If incorrect go to (25))

(30) Push CYCLE button.

Only the GREEN light should be blinking.

If TIMER INCLUDED & REQUIRED go to (32)

(31) When ready to START push CYCLE button.

CONTROLLER IS RUNNING.

Lights will be steady on YOUR 1st stage.

(32) Push TIME button.

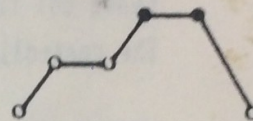
(33) Set TIMER by pushing UP or DOWN.

(34) Check TIME by pushing TIME. (Reading in MINUTES)

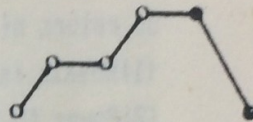
(If incorrect go to (33))

(35) Push CYCLE button.

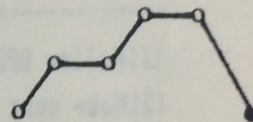
TIME will appear and decrement till unit STARTS.



(20)B



(24)B



(30)B

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 till button released.

The controller is not interrupted.

You may CHECK or CHANGE all settings with controller running by starting at OPERATING PROCEDURE step (5).

Miss steps referring to UP or DOWN unless changes required.

LEAVE OUT TIMER.

The controller is not interrupted.

POWER FAILURE.

On return of power the controller will:

(1) Remain in the reset state. (diagram (4)S.)

(2) Power to kiln or furnace OFF.

(To PROTECT kiln or furnace from possible BURNOUT.)

RESTART AFTER POWER FAILURE.

(1) Follow OPERATING PROCEDURE.

(2) Make sure your settings are still correct. (If not change)
IF KILN OR FURNACE OVER 100 Deg.C. YOU MUST PUSH UP OR DOWN
AFTER OPERATING PROCEDURE TO TELL THE CONTROLLER TO RETURN
TO AN UP STAGE (1) or (3) or DOWN STAGE (5).

Kiln will resume its program.

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.

(checks (2) & (3) done over a time depending on rate set.

(4) for relay circuit failure. (which could cause BURNOUT)

STEPS (1), (2) & (3) SOUND ALARM AND SHUT POWER OFF KILN.

STEP (4) SOUNDS ALARM BUT IS UNABLE TO SHUT POWER OFF KILN.

EXAMPLES

- 1(a) You require the kiln to climb to a temperature of 600 deg.C at a rate of 100 deg.per hour.
(b) Then climb to 1100 deg.C at a rate of 300 deg.per hour.

Procedure.

Stage1	TEMPERATURE	600	RATE	100
Stage2	ALREADY SET TO	600	TIME	000
Stage3	TEMPERATURE	1100	RATE	300
Stage4	ALREADY SET TO	1100	TIME	000
Stage5	TEMPERATURE	000	RATE	000

- 2(a) You require the kiln to climb to a temperature of 1000 deg.C at a rate of 120 deg.C per hour.
(b) Soak for 15 minutes.
(c) Cut off.

Procedure.

Stage1	TEMPERATURE	1000	RATE	120
Stage2	ALREADY SET TO	1000	TIME	015
Stage3	TEMPERATURE	000	RATE	000
Stage4	ALREADY SET TO	000	TIME	000
Stage5	TEMPERATURE	000	RATE	000

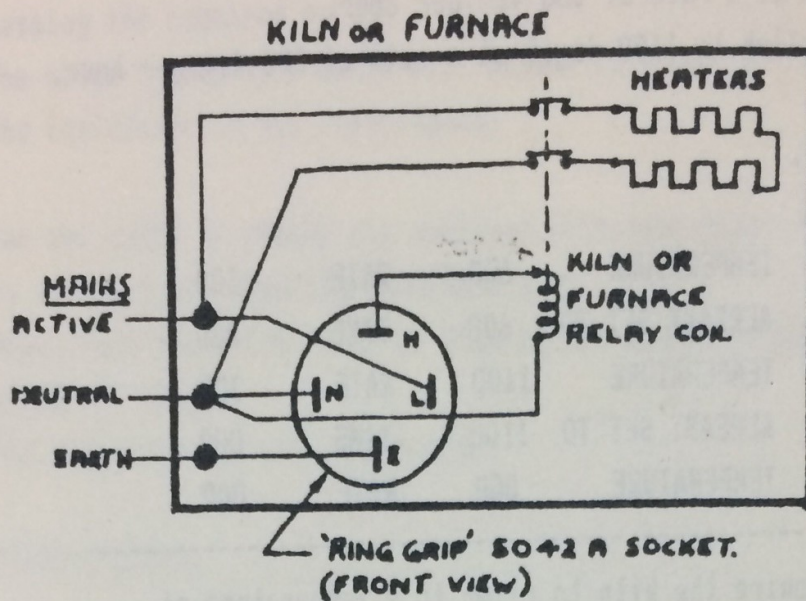
- 3(a) You require the kiln to go to a temperature of 600 deg.C at a rate of 90 deg.per hour
(b) Soak for 10 minutes.
(c) Then climb to 1180 deg.C at a rate of 250 deg.per hour.
(d) Soak for 30 minutes.
(e) Then drop to 500 deg.C at a rate of 50 deg.per hour.

Procedure.

Stage1	TEMPERATURE	600	RATE	090
Stage2	ALREADY SET TO	600	TIME	010
Stage3	TEMPERATURE	1180	RATE	250
Stage4	ALREADY SET TO	1180	TIME	030
Stage5	TEMPERATURE	500	RATE	050

DIRECT WIRING THE CONTROLLER

(Using the kiln or furnace relay)



- (1) Mount 'RING GRIP' 5042A socket on kiln or furnace.
- (2) Connect ACTIVE (L), NEUTRAL (N) & EARTH (E) to socket.
(mains supply for controller)
- (3) Disconnect controlled active line which goes to the kiln or furnace relay coil.
(Usually has a door switch and simmerstat in series with relay coil. Disconnect on active side of these.)
- (4) Connect wire to (H) (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.

THERMOCOUPLE

HE388C--	Use only	CHROMEL/ALUMEL	TYPE K
HE388P--	Use only	PLATINUM/RHODIUM	TYPE R

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

WARNING

When turning unit off :

- (1) Push and hold reset.
- (2) Select program zero [0]
- (3) Release reset button.
- (4) Turn unit off.

Failure to do so may result in
loss of part of current program.

CHECK PROGRAM BEFORE STARTING.

LOSS OF PRESET PROGRAMS.

If the unit is OFF for long periods
such as months it is possible that
programs may be lost due to low
battery voltage.

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

WARRANTY

(Applicable only to products marketed and used within the Commonwealth of Australia)

During the first period of ownership, i.e. 6 months from the date of purchase as the original purchaser of the equipment, Harco Electronics guarantees that any part which we find defective in materials or workmanship will be repaired or replaced free of charge for the parts and service labour, provided that all service is performed by Harco Electronics or by an Authorized Agent. If service is required at place of installation nominal service fee will be charged or the appliance returned to Harco Electronics or Authorized Agent at cost to purchaser.

N.B. This protection is yours for HOUSEHOLD USE only. Commercial usage would restrict the warranty to 90 days from the date of purchase. Six months may apply to commercial usage if written approval is given by Harco Electronics.

Naturally the warranty does not cover failure due to accidental damage, misuse, negligence, consequential damage, modification, or where the appliance is not installed and operated in accordance with any statutory regulations, the appropriate installation code, or with details appearing on the appliance rating plate. The warranty is valid wherever you live in Australia even if you move. For ready recognition of your warranty, record the date of purchase hereon and retain this for your records. Also retain proof of purchase as you may be asked to produce same in event of a service claim.

This warranty is the sole guarantee by the manufacturers and they are not responsible for any other obligations assumed or expressed by any other person or persons.

No other remedy shall be available to the buyer (except the conditions contained in this warranty) for damage to kilns, ware or property, lost profits or lost sales or any other consequential or incidental loss.

PURCHASER:
ADDRESS :
POSTCODE : TELEPHONE NUMBER :
EQUIPMENT: DATE OF PURCHASE :
SERIAL NO: RETAILER :

Please look after your warranty. It is reassuring to know that you have its protection, even though you may never need it.