

# Omron Controller Manual

## SEMI-AUTO With Energy % Regulator



**NOTE:** Please read instructions before using your kiln.  
Failure to do so may result in damage to the kiln and it's contents.

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## SECTION 1 - Getting to know your Controller

The Omron Digital Temperature controller when setup as a Semi-Auto configuration with a Energy Regulator dial operates to turn the kiln off once top temp is reached. The Ramp rate functions are disabled and therefore can't be used. To adjust the speed at which the kiln gains temperature you will need to adjust the % power dial throughout the firing.

The Controller has two rows of the digital read out:

The Top row is the **PV** or **Present Value**

This represents the Temperature of the Kiln at that moment. This is the temperature being measured at that moment by the Thermocouple (the internal thermometer that protrudes into kiln).

The Bottom row is the **SV** or **Set Value**

This is the Set Value for the Temp

The  button to the bottom left of the controller cycles through the three values. The "▲" or "▼" arrows adjust the Set Value.

The **AT** button is auto tune mode and should not be used.

The Out Light on the lower left just below PV lights up when the Elements are ON.

The ALM light indicates that the program has finished and the Kiln is cooling.

Please insure the door is closed before using the Kiln, the Interlock light should come on.

## SECTION 2 – Programming your Controller

### 2.0 Turning the Kiln On

- I. Turn power ON at the power point (if not already hardwired).
- II. Turn the BLACK on/off switch on the front of the control panel to the ON position.  
The "Cycle End" light should be illuminated.

### 2.1 Setting the Firing temperature

Set the Temperature you wish to fire to by pressing the "▲" or "▼" arrows on the front of the digital controller. The longer you hold the buttons down the faster the setting changes (Like an alarm clock).

## **SECTION 3 - Running the Kiln**

### **3.1 To Start the Firing**

It is advised that you always turn the Kiln OFF and then back ON between or after each firing. This resets the controller so it knows to begin a new firing and ensures it does not become confused.

To begin Firing Press the square **Black** Start Button.

The "Cycle End" light will turn off.

The controller will indicate that the kiln elements are being turned on by illumination of a small square indicator light (marked OUT). A small hum or clicking should also be heard.

## SECTION 4 - Firing Time

### 4.1 Energy Regulator Settings

To adjust the firing rate we can suggest the following settings for the % Energy Regulator given the temperature the kiln is at:

Kiln Temp	Energy %
0-100C	25%
101-250C	33%
251C-800C	50%
801C +	100%

### 4.2 Influences on Firing Time

For kilns & kilns fitted with Non Indicating Control firing time depends upon many use factors including the type of ware, the mass of the ware and the temperature which the furnace is required to operate at. Once the operator has learned the heating time taken for the particular process for which the kiln is being used, this time should be noted so that in future, the kiln can be checked to observe that it is not taking an unusually long time to reach the set temperature-which could indicate a problem with the kiln.

**NOTE:** The firing time will vary slightly with variations in the mass of the load, but this is normal.

### 4.3 Firing Time - Influences on Firing Time

It is possible to set the firing rate to a speed that is faster than the kiln power can provide. Therefore it is important to learn what the kiln is capable of providing particularly at the very end of the firing. The maximum firing rate will be influenced by many factors including the type of ware, the mass of the ware and the maximum temperature to which the kiln is required to operate. Once the operator has learned the maximum heating rates and has the times, then the firing rate can be set so that it is always controlling the kiln and so the firing time (for a particular setting rate) from one firing to another will always be the same. The kiln can be checked to observe that it is not taking an unusually long time to reach the set temperature-which could indicate a problem with the kiln.