

## OPERATING INSTRUCTIONS FOR MTO OVENS – ALL SIZES

### 1. UNPACKING

- 1.1 Remove all packing material from between the shelves and inner walls of the oven.

### 2. MAINS SUPPLY

- 2.1 **240-volt units.** Each unit comes supplied with a mains connection lead already fitted with a correctly rated fuse. The fuse rating and other details for each unit is shown on the voltage plate riveted to the back of the unit. It is important that, if the fuse needs to be replaced, it must only be replaced with one of the correct rating.

- 2.2 **110-volt units** are supplied with a cable but without a plug or fuse. These units should be wired in by a suitably qualified electrician to the following:-

BROWN	`L' Live pin	Refer to voltage plate for fuse requirement
BLUE	`N' Neutral pin	
GREEN/YELLOW	`E' Earth pin	

**WARNING**  
**DO NOT CONNECT THE OVEN TO A D.C. MAINS SUPPLY OR**  
**SERIOUS DAMAGE WILL OCCUR**

### 3. OPERATION - THERMOSTATIC CONTROL

- 3.1 Position the shelves within the work chamber.
- 3.2 Place a suitable thermometer into the top tubular, so that the thermometer bulb is about two inches into the chamber.
- 3.3 Switch 'ON' the mains switch, indicated by the green lamp.
- 3.4 Turn the overheat thermostat dial (red cap) to approximately 10°C above the desired working temperature (5°C above the desired working temperature for incubators).
- 3.5 Set the control thermostat dial (white cap) to the desired working temperature and allow the unit to heat up and maintain a steady state before making any adjustments.
- 3.6 On units fitted with a HI-LO switch, set this to HI for oven temperatures above 100°C and incubation temperatures above 50°C.
- 3.7 If a closer overheat thermostat setting is required, at the working temperature turn the overheat downscale until its indicator lamp is ON. Advance the knob very slowly upscale to the point at which the indicator lamp is just extinguished.

**NOTE: The dials may be locked using the Allen key provided. Do not remove the dial lock as this forms part of the scale end stop. For any units fitted with digital control, refer to page 2.**

### **OPERATION - DIGITAL CONTROL**

- 3.8 Position the shelves within the work chamber.
- 3.9 Switch 'ON' the mains switch, indicated by the green lamp.
- 3.10 Turn the overheat thermostat to approximately 10°C above the desired working temperature (5°C above the desired working temperature for incubators).
- 3.11 Set the main temperature controller to the desired temperature by pressing 'P' button once to show `sp1` then use the up or down buttons to alter the set point. The display will revert back to the normal display if no button is pressed for approximately 10 seconds. The operational parameters of the controller have been factory set to cover a wide range of temperature and load conditions.  
*Note: Top display shows actual temperature and bottom display shows set temperature*
- 3.12 If the chamber temperature rises above the overheat set temperature, the red lamp will be illuminated and the heat control circuit will be disabled. Control will switch back the main temperature controller once the chamber temperature falls below the overheat set temperature. If the red lamp will not go out or keeps coming on there may be a problem with the unit. *In this case please consult your supplier.*

### **TIMERS**

#### **3.13 Units fitted with 24-hour time switch.**

Set the clock by turning the dial to the right until the correct time is above the red arrow. Insert the pins into the holes in the dial for the on/off times required. The inner ring is the ON time, the outer ring the OFF. When the off time is reached, the units' heaters will be turned off.

If a digital timer has been fitted, refer to the manufacturer's instruction booklet for setting procedure.

#### **3.14 Units fitted with run-back timer (2 hour or 5 hour).**

For a timed ON period:

Set the timer to the desired period

Set the MAN / TIM switch to the TIM position

Timing will start immediately. At zero time, the heaters will be switched off.

When a 5-hour timer is fitted to a unit with a digital controller, the time period starts 1 or 2°C below the setpoint. At zero time, the heaters will be switched off.

To over-ride the timer, set the MAN / TIM switch to the MAN position.

#### **3.15 Units fitted with process timer (6 hour or 30 hour).**

When a 6 or 30 hour process timer is fitted to a unit with digital control, set the timer to the required period, set the MAN / TIM switch to the TIM position and press the green start button. The time period starts one or two degrees below the set point.

To reset the system for another cycle at the same temperature and time period - simply press the green start button. The timer resets automatically

\* Note - both the 6 hour and 30 hour timers are multi-range, i.e. can be set for 6 seconds / minutes / 60 minute etc., by inserting a small screwdriver into the range adjusting screw in the front of the timer. As supplied, timers will be set to maximum time (hours).

### 3.16 Units fitted with **Tempatron Timer (99.9 hour).**

#### **THE TIMER CAN ONLY BE PROGRAMMED WHEN THE MAN/TIM SWITCH IS IN THE MAN POSITION.**

##### **Programming of timer**

- ◆ Press the 'set' button once to wake up timer
- ◆ Press the 'set' button again (once) first digit will flash
- ◆ Press the 'Δ' to adjust this digit
- ◆ Press the 'set' button once, second digit will flash
- ◆ Press the 'Δ' to adjust this digit
- ◆ Press the 'set' button once third digit will flash
- ◆ Press the 'Δ' to adjust this digit
- ◆ Press the 'set' button once display will go blank"
- ◆ The count down time is now set.

##### **Operation of timer**

- ◆ Set temperature as previously described (3.1 - 3.7)
- ◆ Switch 'Man / Tim' to 'Tim' mode
- ◆ Press the green reset button
- ◆ The unit will now control at set temperature until the timer counts down to zero
- ◆ The elements will then be switched off.

## **4. MAINTENANCE**

### **ROUTINE CHECKS ON EACH OCCASION OF USE**

4.1 Check the condition of supply lead and plug top. These should be sound and undamaged.

4.2 Connect to mains supply and check:-

Supply switch operation.

Supply indicators are working.

At working temperature, the heat indicator functions correctly (shown by the amber lamp cycling on and off without the overheat coming into operation).

## **5. PREVENTATIVE MAINTENANCE**

Ensure that the unit is maintained in a clean, dry condition and when not in use, stored in a normal warm atmosphere.

### **Minimum recommendation every six months:-**

5.1 Check the plug top connections are tight and the fuse rating is correct.

5.2 Check the operation of the overheat protection system by raising the desired temperature above the overheat temperature.

5.3 Carry out an electrical safety check (Portable Appliances) using an appropriate appliance tester operated by a competent person.

5.4 Check that the control temperature is maintained within limits.

The manufacturer can offer the above service on request.

## 6. SAFETY

When the unit is to be used for the incubation of microbiological specimens, please consider carefully the siting and use of the unit to ensure safe operating conditions for all users. Appropriate safety precautions are essential for any microbiological work and any guidelines issued (for example, The Department of Education and Science guidelines) on this subject must be followed exactly. They are necessary to protect both people and animals from infection and to protect cultures of micro-organisms from infection by unwanted contaminants.

If liquids contained in partially sealed vessels are to be heated in the unit, then at all times the temperature setting must be such that no appreciable pressure build-up is allowed to occur within the vessel. The risk of explosion becomes high if the temperature setting is higher than that of the boiling point of the liquid. Therefore, any vessels that require heating **SHOULD NOT** be completely sealed. These units are not suitable for use where inflammable solvents are being used where the solvent concentration can reach inflammable or explosive levels.

When the unit is in use, the thermostat / heating control should be locked where a dial lock is fitted and / or a notice warning against unauthorised tampering with either the temperature setting or the work in progress should be prominently displayed.

## 7. GENERAL

- Mop up any spilled liquid from the floor of the unit.
- Do not place samples on the chamber floor.
- Take the normal precautions not to allow water to come into contact with the electrical components.
- The outer surfaces can be cleaned with a warm, damp, soapy cloth or any proprietary cleaner suitable for a painted surface (do not use solvents or harsh abrasives).
- The work chamber may also be cleaned as above.

## PLEASE NOTE

Quote the model and serial number (shown on the voltage plate on the back of the unit) for replacement parts. Fitting instructions are supplied with any replacement parts ordered.

Refer to the additional instruction booklet for units fitted with programmed systems.

