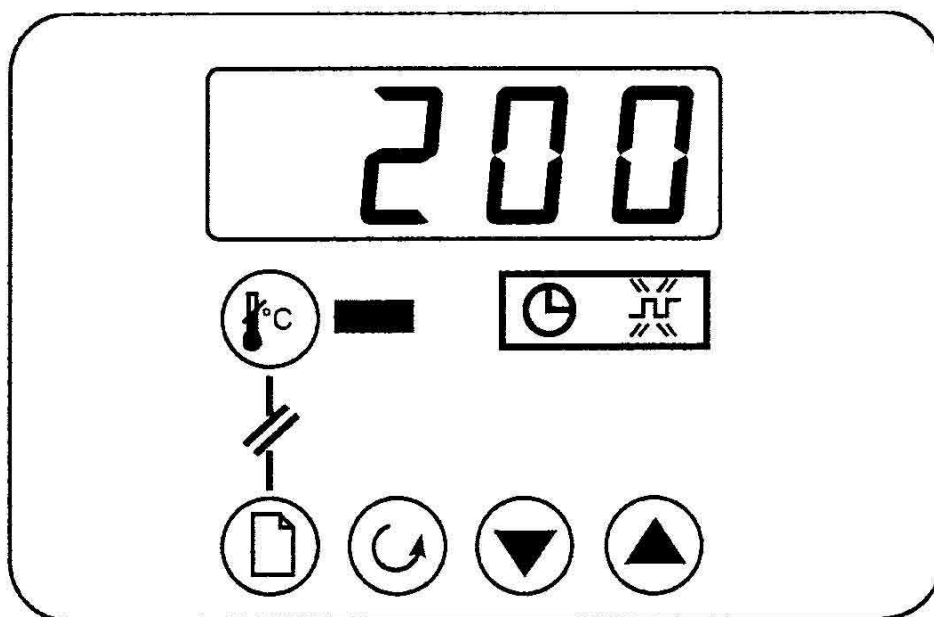




**OPERATION MANUAL FOR**

# **TYPE-200**

**Temperature Controller**



---

**M.R.C LTD.**

OFFICES: HAHYSTADRUT 84, HOLON 58394

P.O.B. 1684, TEL-AVIV 61016, ISRAEL

TEL: 972-3-5593105,972-3-5595252 FAX: 972-3-5594529

### **1 DESCRIPTION.**

#### **1.1 200 Controller**

The model 200 controller is a simple on/off controller made especially for mrc by Eurotherm. It physically resembles the model 201 PID controller, but does not exhibit the PID or certain other advanced features. It is supplied as an integrated part of the control section of the oven or furnace.

The 200 is designed for easy use as a simple temperature controller, where on setting the required temperature the controller immediately attempts to reach and maintain it.

The controller does not contain a real-time calendar, and is not subject to century-end date problems.

#### **1.2 Model 200 Overtemperature Controller**

The 200 is optionally available as a dual unit containing the main controller and an overtemperature controller. The two components share the same display and buttons, but are otherwise independent.

The operational features in the overtemperature controller include:

- Easy setting of the overtemperature limit (setpoint);
- A visible alarm on overtemperature condition;
- A latching alarm output used to cut power to the heating elements; this alarm output can also be used to power an optional audible alarm;
- 2-key alarm acknowledgement.

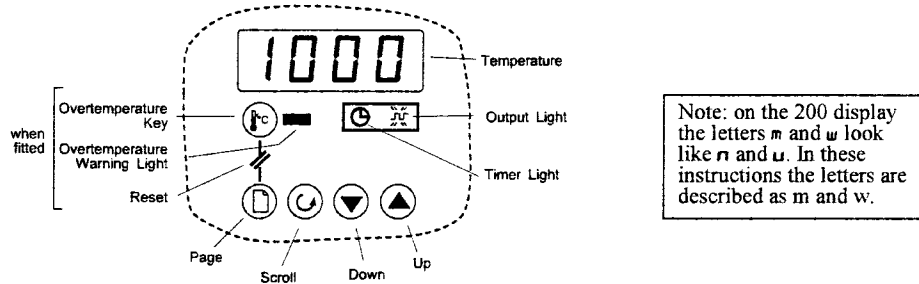
## 2 BASIC OPERATING INSTRUCTIONS

### 2.1 Oven Controls


Most mrc products are fitted with an "Instrument Switch" which cuts off power to the controller and other parts of the control circuit. See the instruction manual for the oven for the overall operating instructions.


To operate the 200 there must be power to the oven, and the Instrument switch must be on. If a time switch is included in the oven circuit, this must be in an On period.



### 2.2 The 200 – Operation







When switched on, the controller lights up, goes through a short test routine, and then displays the measured temperature and starts to control. The output light glows or flashes as heating occurs.

The **Page** key  allows access to parameter lists within the controller; most lists and parameters are hidden and cannot be accessed by the operator because they contain factory-set parameters which should not be changed.

A single press of the page key  displays the temperature units, normally set to °C; further presses reveal the lists shown in the Navigation Diagram in section 6.

The **Scroll** key  allows access to the parameters within a list. Some parameters are display-only; others may be altered by the operator. A single press of the scroll key  displays the temperature units; further presses reveal the parameters indicated in the Navigation Diagram.



To return to the Home list at any time, press Page  and Scroll  together, or wait for 45 seconds.

The **Down**  and **Up**  keys are used to alter the setpoint or other parameter values.

### 2.3 Basic Operation

Normally no operator action is required other than entering the setpoint, as the 200 starts to control on being switched on, as described above.

### 2.4 Altering the Setpoint

With the display at "home", showing the measured temperature, press Down  or Up  once to display the setpoint; press again or hold down to adjust it. The display returns to the measured temperature when no key is pressed for 0.5 seconds.

### **3    OVERTEMPERATURE OPTION**

*This is only fitted when the overtemperature option is ordered. To identify whether it is fitted, observe the controller panel: if it is fitted the overtemperature key and warning light are present.*

The overtemperature key must be held depressed continuously while viewing or adjusting the overtemperature controller. If the Overtemperature key is released, the display reverts to the main controller.

With the key pressed the overtemperature setpoint is normally displayed. To alter the value, use Down and Up. To view the measured temperature, press Scroll until *PU* (process variable) is displayed, then press Down or Up. Keep the overtemperature key depressed during these operations.

When an overtemperature condition is reached, the overtemperature warning light changes from green to flashing red. To "accept" or "reset" this alarm condition, press the Overtemperature key and the Page key together; the warning light changes to continuous red. Once the overtemperature condition is cleared (by the temperature falling), the light changes to green.

#### **Audible Alarm (option only)**

If an audible alarm is supplied for use with the overtemperature condition, then it is normally configured to sound on overtemperature, and to go off when the alarm is acknowledged as described above.

It is not possible to cover in this manual other possible alarm features which may be included by customer special order.

### **4    POWER LIMIT**

There is no power limit parameter in the model 200.

Any reference to the power limit in the oven manual can be disregarded. If a power limit is required, the 200 cannot be used.

## 5 USER CALIBRATION

The controller is calibrated for life at manufacture against known reference sources, but there may be sensor errors or other system errors. User calibration allows compensation for such errors, and the 200 allows for a user 2-point calibration. This setting is password protected to avoid accidental alteration.

Page to *P*, scroll to *CALP*, and use Up ▲ to alter the password. The password is *3*. If the correct password is entered, the display shows *PR55*. Scroll to *CAL* and use ▼ or ▲ to observe the setting *FACt* (factory values, as manufactured) or *USEr* (user values). Change to *USEr*.

NOTE: before checking the calibration of the controller, or of the complete system, remember to reset the 201 to factory calibration values by setting the *CALP* parameter to *FACt*.

To enter a user calibration, scroll to each of the following parameters in turn and set the desired values.

*PntL* low temperature for which an offset is to be entered

*OF5L* offset value for the low temperature

*PntH* high temperature for which an offset is to be entered

*OF5H* offset value for the high temperature

Example: the controller reads 3°C low at 400°C, and 5°C low at 1000°C. The parameter values should be *PntL*=400, *OF5L*=3, *PntH*=1000, *OF5H*=5.

Negative or positive values can be entered: if the controller is reading high, negative offsets would be appropriate.

Fig 4 gives a graphical representation of the 2-point calibration.

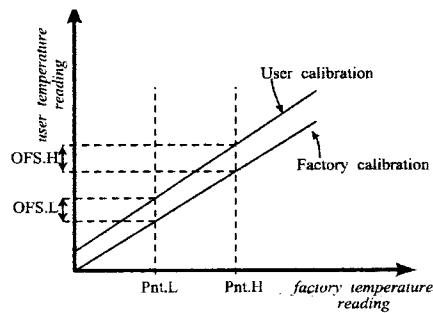
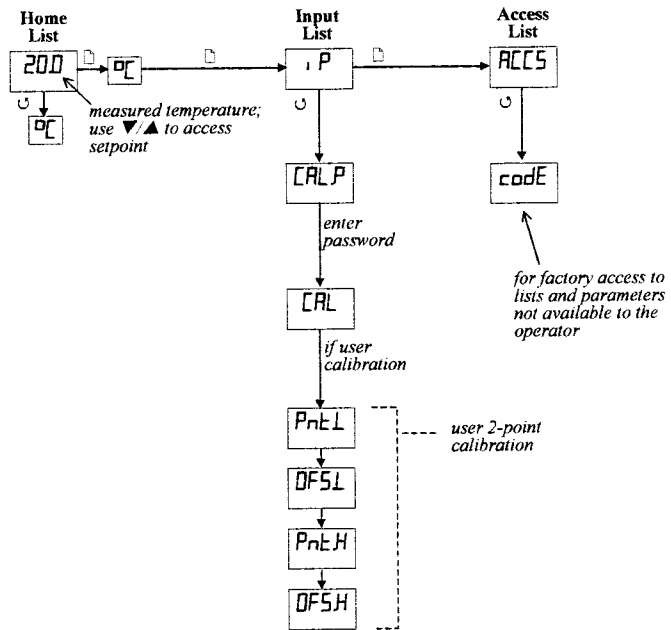


fig 2 - 2-point calibration

6 NAVIGATION DIAGRAMS

6.1 Main Controller



6.2 **Overtemperature Controller**

Hold the Overtemperature Key to make the parameters in this diagram available.

