



MC200/300

User, Instruction Manual

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Certificate Of Guarantee

POWRMATIC® **Certificate of Guarantee**

This is to certify that this controller is guaranteed for one year from the date of original installation.

To make a claim

In the first instance you must contact your appliance supplier, or installer and provide:-

1. The appliance type and serial number.
2. The original commissioning documentation. As much detail as possible on the fault.
3. Your supplier, or installer, will then contact Powrmatic to make a guarantee claim on your behalf.

Conditions of Guarantee

1. The controller must have been installed by a competent recognised installer, and in accordance with the manufacturer's instructions, I.E.E. regulations and local regulations.
2. The controller has been used in accordance with the manufactures instructions.
3. No unauthorised repairs or modifications have been made. Powrmatic 'General Conditions of Sales' have been observed.
4. Except for the obligation of Powrmatic Ltd to perform warranty repairs during the guarantee period Powrmatic will not be liable in respect of any claim for direct or indirect consequential losses, including loss of profits or increased cost arising from loss of use of the heater, or any event arising there from.

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**Important: This certificate
must be kept with the appliance**

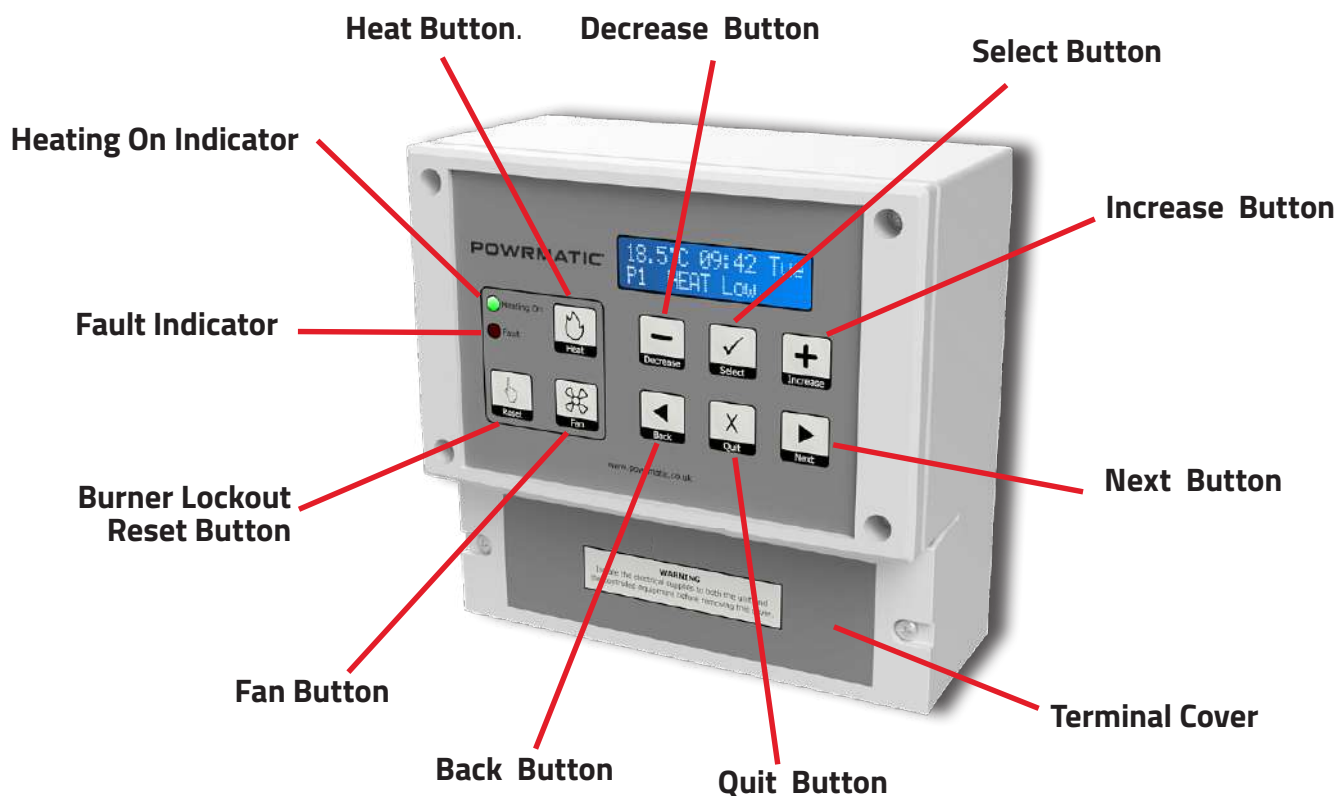
Failure to provide a copy of the commissioning sheet invalidates the heater warranty

Users, Installation and Servicing Instructions

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User Instructions



Heat Button - (Note: this facility may be limited or disabled by the User).

If heating is ON (via programme)

Pressing the Heat button for **less than 2 seconds** overrides the programme to **OFF**. Any extension time that has been set is cancelled.

Pressing the heat button for **more than 3 seconds** determines that heat will remain on for an extension time after the programmed off time. The extension timer will increase in 30 minute steps, up to the maximum allowed period, and then revert to 0 minutes.

Release the button when the required extension period is showing.

If heating is OFF (via override)

Pressing the Heat button removes override and reverts to the current programme. If heating is OFF (via programme) Pressing the Heat button for less than 2 seconds brings on heating for 30 minutes.

Pressing the heat button for more than 3 seconds will increase the on time in 30 minute steps, up to the maximum allowed period, and then revert to 0 minutes.

Release the button when the required heating period is showing.



Fan Button - (Note: this facility may be limited or disabled by the User).

In **WINTER** mode and **OFF** mode, the Fan button has no control over the air heater fan.

In **SUMMER** mode, the Fan button switches on the fan for air circulation, and another press switches it off. If the fan is left on, it will be automatically switched off at midnight. If the fan is running because the heating is on and the fan is in **AUTO** or **CONST** mode, the Fan button cannot switch it off.

If the fan is in an **ON** mode, it always runs, in **WINTER**, **SUMMER** and **OFF**. The Fan button cannot switch it off.



Reset Button - Press to reset the burner controls from lockout, (when this facility is available on the heater).



Select Button - Press to accept changes.



Decrease Button - Press to decrease values.

User Instructions



Increase

Increase Button - Press to increase values.



Quit

Quit Button - Press to exit without saving changed values.



Back

Back Button - Press to enter User Menu, go back to previous screen.






Next

Next Button - Press to enter User Menu, go forward to next screen.



Indicators

Heating On - Is illuminated when the MC200 is calling for heat (It does not confirm that the heating is actually working).

-  Red - when the heater is either in Hi-Low burn or a Radiant mode. Red will also flash in radiant mode when fan in a delay on or delay off.
-  Yellow - when the heater has a Modulating burner.
-  Green when the heater is a single-stage burner.

Fault - Flashes when the burner control is at lockout, solid light when a service call is due (if this has been set) or when there is a sensor fault. The bottom line of the display will alternate between normal display and type of fault.

B) Display

The first display normally shows:

- the current air temperature as measured by the internal sensor, an external sensor or the average temperature if two sensors are fitted.



- the time of day using 24-hr notation. The colon flashes once per second to confirm that the clock is running.



- the day of the week. Programmes are associated with individual days of the week or day-groups such as weekday or weekend.



- Programme number - Px n (where x represents the active programme number.)



- the current setting of the heater: ON or OFF, as determined by the internal programmes (the display will say ON even if the MC200 is not currently calling for heat because the thermostat is satisfied)



or for High/Low an indication of the heat demand. HEAT HI or HEAT LO,



or for Modulating burners a simple bar-graph display for modulating control heaters where 1 bar is low fire and 10 bars is high fire.



- "Frost Guard" is displayed when Frost/setback is set to ON and the space temperature is lower than the Frost/setback temperature setting.



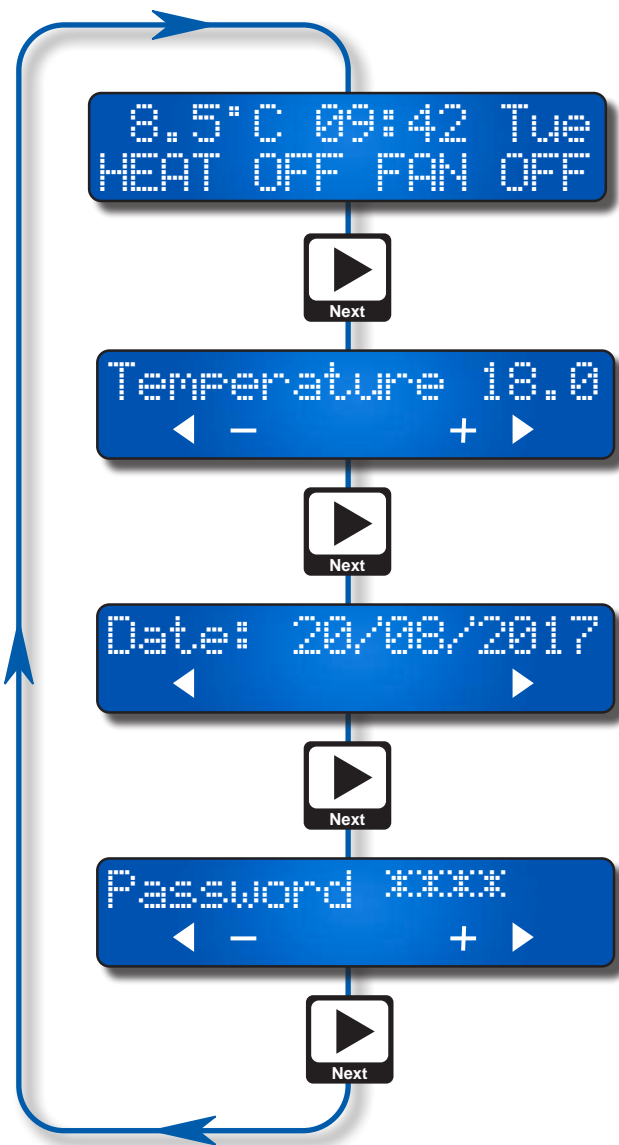
C) Direct Control



Note: If configured during the commissioning stage the User has the following direct control of the heater without using the settings menu.

- If the Fault LED is on because the heater is at lockout, the user can reset the heater by pressing the Reset button.
- The user can switch the heating ON or OFF by pressing the Heat button.
- The user can start or cancel extension time by pressing the Heat button longer than 3 seconds.
- The user can run the fan without heating, by pressing the Fan button.
- Pressing of the next button will scroll through the screen displays available to the user

User Instructions



The top line will show which setting or which part of the programmes you are viewing.

The second line of the display shows which keypad buttons are active (◀ - ✓ X ▶).

After changing any setting, press the ✓ button to save the new setting.

To return to the normal display, press the X button or do not touch any buttons for 15 or more seconds.

Keys ◀, ▶, - and + will auto-repeat if held down longer than approximately half a second.

The + button will automatically wrap round from the maximum value to the minimum value and the - button will wrap the other way.

D) User Settings

Temperature



This shows the temperature set by the currently active programme, and it is the target temperature for thermostatic control. The user can increase or decrease the value to adjust comfort. This will not alter the set temperature associated with the programme, but it will temporarily alter the target temperature for thermostatic control.

The effect of altering the temperature lasts until the current programme expires or until another programme changes the set temperature requirement.



Note: the range of adjustment permitted may be limited during commissioning. Temperature adjustment can be disabled by a setting within the user menu.

- Press the + or - button to increase or decrease the day temperature set point.
- Press the ✓ button to save changes, press the X button to exit without saving, press the ▶ button to move to the next setting.

Clock Set



Sets the current date and the time of day. The correct date allows the MC200 to know the day of the week, allows for automatic BST-GMT changeovers, carries out the holiday shutdown function and permits override password entry.

- Press the ✓ button to alter date and/or time.
- Press the ◀ or ▶ button to select digit to change (digit chosen will flash).
- Press the + or - button to change the digit.
- Press the ◀ or ▶ button to select next digit to change or until 'Set clock?' appears on screen
- Press the ✓ button to save changes, press the X button to exit without saving, press the ▶ button to move to the next setting.

Programme Settings



The MC200 has 14 programmes, each of which can be assigned to any day of the week. Each programme can be given an ON time, an OFF time and a set temperature. The user may organize the programmes in any way that suits. The simplest would be one programme ON in the morning, OFF at the end of the afternoon, active Monday to Friday.

If two or more programmes are active at the same time, for instance one is ON all day and another is ON between 11:00 and 13:00, then the set temperature of the second programme will apply between 11:00 and 13:00, and the set temperature of the first programme will apply during the rest of the working day.

Programme times increment in 5 minute steps.

Extension time (if set) applies when all programmes have reached the end of their set period for that day.

Optimum start applies at the beginning of the first programme to switch on and optimum stop applies at the end of the last programme to switch off.

- Press the ✓ button to set/alter programme.
- Press the ✓ button to alter programme P1 or the + or - button to select specific programme number then press the ✓ button to accept.
- Press the + or - button to alter/set the HEAT ON time.
- Press the ► button to move to the HEAT OFF time
- Press the + or - button to alter/set the HEAT OFF time.
- Press the ► button to move to the temperature
- Press the + or - button to change the temperature.
- Press the ► button to move to the Programmed days
- Press the + or - button to alter between: Mon-Fri; Sat/Sun; 7 days; Off or individual days.
- Press the ► button to and 'Save Prog x?' will appear.
- Press the ✓ button to save changes, press the X button to exit without saving, press the ► button to move to the next setting.

Holiday Date



A future date can be set so that the heating will not operate on that date, and remains "OFF" for a consecutive number of days from that date. The date includes the year number, ensuring that the holiday shutdown date is not automatically repeated the following year.

During the holiday period the heater will only operate if the temperature falls below the frost temperature and if frost temperature operation is selected "ON" in the engineer menu. The night temperature setting is ignored during holidays. During the holiday period, manual operation of the fan or heater is permitted. Any manual operation still on at midnight will be automatically cancelled.

- Press the ✓ button to add a holiday period.
- Press the + or - button to set the start date.
- Press the ► button to select the month to change.
- Press the + or - button to set the month.
- Press the ► button to select the year to change.
- Press the + or - button to set the year.
- Press the ► button to select the number of days.
- Press the + or - button to enter the number of days.
- Press the ► button to and 'Holiday save?' will appear.
- Press the ✓ button to save changes, press the X button to exit without saving, press the ► button to move to the next setting.

Run Mode



The MC200 has three Run modes: **WINTER**, **SUMMER** and **OFF**.

Winter - the heating operates when any programme is in a "HEAT ON" period. The heating also operates to maintain the Night Temperature if this has been set. The heating also operates when the temperature drops below the frost temperature.



NOTE: Summer/Winter mode has no connection with the clock change from GMT to BST.

Summer - the fan operates to circulate air when switched on manually. With certain types of heater or certain types of installation, Fan-only operation may not be appropriate and the fan control circuit should not be used.

In SUMMER the heating never operates unless the temperature drops below the frost temperature. During commissioning the frost temperature operation will be set to be ON or OFF. If the frost setting is OFF, the heater will not operate under frost conditions in any User mode.

OFF - the heater never operates unless the temperature drops below the frost temperature (see above)

- Press the + or - button to change between WINTER, SUMMER & OFF.
- Press the ✓ button to save changes, press the X button to exit without saving, press the ► button to move to the next setting.

User Instructions

User Button Permission



This menu option facilitates the user to enable or disable the following controls separately if it is required to restrict unauthorised access to user controls.



NOTE: User permissions are only effective when User access to the menu is protected by a password.

Reset - Allows operation of the reset button

Change temperature - Allows temporary adjustment of the current set temperature

Heat Override - Allows switching ON/OFF and extension of Heat ON time

Fan override - Allows switching ON/OFF of the fan

- Press the ✓ button to alter the permissions.
- Press the + or - button to toggle between YES & NO..
- Press the ► button to select next digit to change or until 'Save??' appears on screen
- Press the ✓ button to save changes, press the X button to exit without saving, press the ► button to move to the next setting.

Set Password



The user may enter a 4-digit password here. Once set, the password must be given before selected user controls may be accessed or changed. "Set password" cannot be entered unless the password has been given.

As delivered, the MC200 has no User password restrictions, the user password being set to **0000**. Entering a password of 0000 will remove all restrictions.

- Press the + or - button to set the first digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the second digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the third digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the last digit.
- Press the ✓ button to save changes - 'SET OK' will appear briefly, press the X button to exit without saving, press the ► button to move to the next setting.

Extension Time



A user can extend the heating to operate beyond the switch-off time of the last programme of the day, in 30minute increments, by pressing the Heat button. This menu option allows a maximum extension period to be set, in units of 30minutes.

If set to 0 minutes, extension is not permitted.

Factory default setting: 1hour. Maximum setting 3hours.

- Press the + or - button to set the appropriate extended time.
- Press the ✓ button to save changes - 'Setting saved' will appear briefly, press the X button to exit without saving, press the ► button to move to the next setting.

Cost Log



This option shows the total hours run and the total cost of running since the log was last cleared. The display will show the date when it was last cleared. For this option to function it is necessary to enter the fuel cost and heater rating (see Engineer Menu for the latter). The cost log should be cleared whenever the heater type is changed.

For Hi/Lo heaters, there are two heater power entries and the MC200 will calculate the run cost according to the level of heat requested.

In the case of modulating control heaters, the cost is an estimate based on half the full heater power.

- Press the ✓ button to enter the submenu. Display shows Start Date.
- Press the ► button to select next screen 'Total Hours'.
- Press the ► button to select next screen 'Total Cost'.
- Press the ► button to select next screen 'Clear Log?'.
- Press the ✓ button to clear log. This will reset the start date to the current date.
- Press the ► button to select next screen 'costs per kWh'
- Press the + or - button to change the cost per kWh.
- Press the ✓ button to save changes, press the X button to exit without saving, press the ► button to move to the next setting.

Password



Once a password has been set, the password must be entered at this menu option to allow access to selected user controls.

Once entered the password gives access to the User menu functions for 60 minutes.

To re-apply the restrictions before the end of the 60 minute period, select the 'Enter password' option and press the ✓ button without entering any digits. The display will show 'Password CLOSED'.

- Press the + or - button to set the first digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the second digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the third digit.
- Press the ► button to select the next digit.
- Press the + or - button to set the last digit.
- Press the ✓ button to save changes - VALID will appear briefly, press the X button to exit without saving, press the ► button to move to the next setting. If 'FAIL' appears on the screen, the incorrect password has been entered. Repeat entry sequence.

E) Additional notifications

Service Date

When the MC200 is installed the Commissioning Engineer may have entered a date for when the heating equipment requires servicing.

When this date is reached the MC200 fault indicator will be illuminated and the display will alternate between the normal display and "Service due, call engineer".



The Service Engineer can clear this display by entering a new service date when the heating equipment has been serviced.

Fault displays and Fault Finding

Heater Lockout

'Heater lockout' appears on the display if the MC200 receives a fault voltage onto terminal 7. The Fault LED will also be illuminated.



The lockout can be cleared by pressing the reset button on the front of the controller. This will send a pulse of neutral back up to the heater to remove the lockout condition.

If the lockout continues to display once the reset has been pressed, it may mean the interconnecting reset cable to the heater is not wired correctly or the heater has developed a permanent fault that requires a service engineer to identify.

Sensor Fault

'Sensor fault' appears when there is a break in the circuit between terminals 'SEN1' and 'COM' or if fitted, 'IN2 and 'COM'.



This could be either a faulty sensor bead, an incorrect terminal connection or a break in a cable.

Clock Fault

'Clock failure' will appear on the screen if the in-built battery has gone flat. This specially occurs if the power has been turned off to the controller for a long period.



Leave the power connected for at least 48hrs to re-charge the battery (one whole week is more realistic dependent on the age of the battery itself)

Also check the ribbon cable between the two pcb's is making good contact

Service Date

When the MC200 is installed the Commissioning Engineer may have entered a date for when the heating equipment requires servicing.

When this date is reached the MC200 fault indicator will be illuminated and the display will alternate between the normal display and "Service due, call engineer".



The Service Engineer can clear this display by entering a new service date when the heating equipment has been serviced.

Blank Screen

A blank screen is present on the display but the backlit light is still on.



Before replacing the MC200 ensure the controller has been powered up for more than 48hrs.

If the screen is still blank, isolate the power and remove the controller fascia pad. Ensure the ribbon cable is connected to the pcb and pushed in tightly to its terminal housing on the backboard.

*With the power back on check the display. If still blank, push the power reset button on the rear of the pcb.



**only be undertaken by a competent person.*

If the screen remains blank, contact Powrmatic technical department.

Fault displays and Fault Finding

No Supply to Heat In/Fan In

If there is voltage at the mains terminals (L,N & E) and there is no mains supply on the Heat In or Fan IN terminals and you are utilising terminal 14 (L Out) to energise these terminals, then the 6.3A fuse requires replacing.



Isolate the power and remove the controller fascia pad. Pull off the clear plastic fuse cover and replace with new fuse.

No Heat

If the display shows 'HEAT ON' but no heat output, then the room temperature may be greater than set point.



Follow the 'PROGRAMMING' procedure and raise the programme temperature. Also check above.

No Heat On LED

Pressing the Heat Button has no effect - no heating on LED.

1. The room temperature may be greater than the set point.



Navigate to the 'Temperature' setting and increase the day set point using the + button.

If the temperature wont adjust, check the permissions setting as above.

If the temperature doesn't increase past a particular point, the range could be limited within the engineers setting.



Increase the max available temperature.

2. The heat button may be turned off within the permissions settings



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