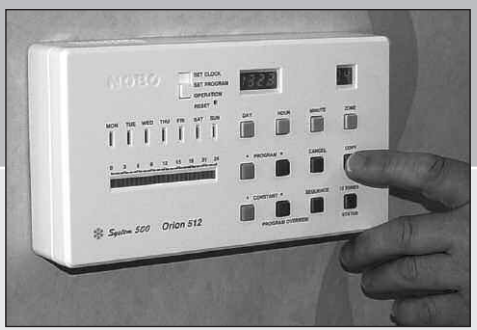
ORION 512

NOBO
HEATING UK LIMITED

Mains Signalling Instruction Manual



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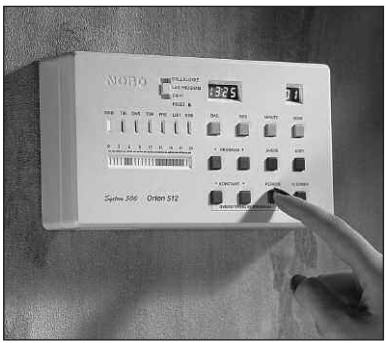


Introduction

Welcome to your NOBO heating system from NOBO heating Ltd.

This is a sophisticated yet easy to use system giving fine control of electric panel heaters and full flexibility in use, including override, holidays, frost protection, extensibility etc.

Series 8 panel heaters
The series 8 panel heater is completely silent in operation, has been tested and approved by BEAB.

Panel heater control module
Each panel heaters is fitted with a multi function electronic control thermostat, giving fast and accurate temperature regulation. It can be set to provide your choice of – comfort temperature, economy temperature or off. The receiver unit in each panel heater control operates on receipt of signals from the orion 512 programme control unit.

Orion 512 control unit
The ORION 512 is an easy to use electronic control centre, which transmits radio frequency signals through the mains wiring, to receivers in the Series 8 panel heaters.

The ORION 512 has 12 zones that may be separately programmed, and a different programme for each day of the week is possible, for example, bedrooms can be switched from economy to comfort settings at any selected time, and principal rooms can be switched down from comfort to economy at any time.

A zone is one or more rooms or heaters or appliances which follow a set programme over 24 hours, 7 days a week.

Accessories
A wide range of accessories is available to improve even further the versatility of your system, for example a 13 amp plug-in adaptor with a built in receiver, to provide programmed control of other appliances such as table lights, automatic curtain motors etc. Full details are provided in section 4.

Panel Heaters

The NOBO series 8 panel heater with full multi-function electronic proportional control thermostat is completely silent in operation, providing fast and accurate temperature regulation.

In a room where more than one heater is used, the temperature setting should be balanced so that all heaters work together. The setting should be made in a warm room and adjustment made until all heaters feel equally warm to touch.

Safety

The heater should never be covered, or anything placed on, against or over the heater. The heater is fitted with an over temperature cut-out which will switch off the element if the heater becomes too hot. The element will not be switched back on again until the heater has cooled.

NOBO panel heaters have been tested and approved by BEAB.

Cleaning

The heater may be cleaned with a damp cloth and mild detergent. The heater may be tilted forwards on its mounting bracket for cleaning and decorating behind the heater (see figure 1). Pressing the clips downwards at the back of the heater will release the heater from the mounting bracket.

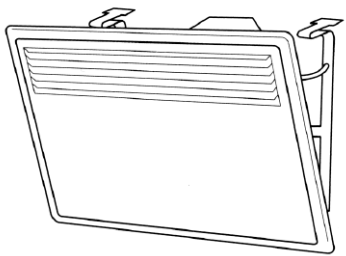


Figure 1

Panel Heaters

Understanding your heaters and thermostat controls

5124 heater control module operating instructions

Switch the heater on with switch **8**
Set chosen comfort temperature with control **1**
Set chosen economy temperature with control **2**
Set control zone with rotary switch **3**

PLEASE NOTE
When red light (**4**) is visible the heater will operate in comfort mode.

When the green light (**5**) is visible the heater will operate in economy mode, or will maintain frost protection (7ºc) according to settings on the ORION 512.

If the heater is switched on but neither red (**4**) nor green (**5**) lights are visible, the system may be suspended according to settings on ORION 512.

Switch (**9**) may be used to override the current programme from either comfort to economy or economy to comfort until the next programme change.

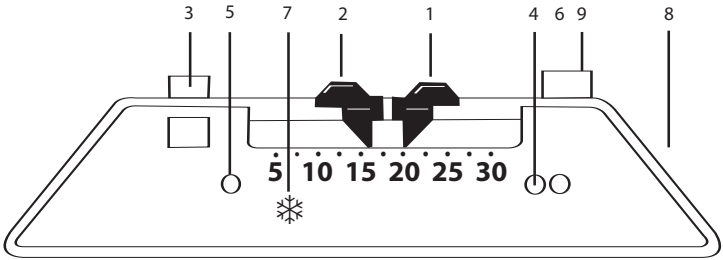
The amber operating light (**6**) indicates that the element is giving heat and will be seen to go on and off as the thermostat adjusts the amount of heat supplied. When room temperature is more than 1c below the thermostat set point the heater will operate continuously but during the last 1c. Operation will be proportionally reduced.

When the mode of operation is either frost protection or suspended, ORION 512 has control and both the heater economy and comfort controls are inoperative.

When Zone (**11**) green ECONOMY is selected on ORION 512 all heaters on the system will respond by overriding all settings and providing frost protection only.

When Zone (**12**) green ECONOMY is selected on ORION 512 a suspended instruction is sent and all heaters will be inoperative.

Panel Heaters



5124 Heater Control Module

1 COMFORT TEMPERATURE ADJUSTMENT
2 ECONOMY TEMPERATURE ADJUSTMENT
3 CONTROL ZONE SELECTOR SWITCH
4 RED COMFORT MODE INDICATOR LIGHT
5 GREEN ECONOMY MODE INDICATOR LIGHT
6 AMBER OPERATING INDICATOR LIGHT
7 FROST PROTECTION SYMBOL
8 ON/OFF SWITCH, L = ON, O = OFF
9 OVERRIDE SWITCH

Control unit – Orion 512

Display (see page 9)

The clock display (**2**) shows the time in hours and minutes.

The days of the week display (**4**) shows the day for which the programme selected (**5**) applies. The zone display (**3**) shows the zone for which the programme selected (**5**) applies.

Operating Buttons

1 FUNCTION SWITCH
2 CLOCK DISPLAY
3 ZONE DISPLAY
4 DAYS OF THE WEEK
5 PROGRAMME DISPLAY
6 DAY / HOUR / MINUTES
Used to set the clock.
7 ZONE
Used to select Zone required
8 PROGRAMME
Red and Green
Used to set control programme (comfort / economy).
9 CANCEL
Used to correct incorrect entries and cancel overrides.
10 COPY
Used to copy from zone to zone or from day to day.
11 CONSTANT OVERRIDE
Provides continuous comfort or continuous economy operation in any or all programmes.
12 SEQUENCE OVERRIDE
May be used to override the current programme from either comfort to economy or economy to comfort until the next programme change.
13 STATUS
Shows current situation in all 12 zones
14 RESET
(recessed)
Used to erase all programmes. If this is used Orion 512 must then be reprogrammed.

REMEMBER RED = COMFORT, GREEN = ECONOMY

Setting the programme control – Orion 512

Step one – set time

With function switch (**1**) in 'SET CLOCK position, the day/hour/minutes buttons are used to set the day and time, shown on the day display (**4**) and clock display (**2**)

Step two

Decide on heating requirements for each zone, Red (comfort) or Green (economy).

G	G	G	G	G	G	R	R	R	R	R	R	R	R	G	G	G	R	R	R	G	G	G

Step three – setting a programme

Place function switch (**1**) in 'set programme' position. Now enter the step two selected heating settings by pressing the red or green programme buttons (**8**) until all 24 programme display lights are on. Each segment on the display represents 1 hour.

Useful tip *– copying a programme*

If one or more zones require the same programme for other days, press the copy button (**10**) for 2 to 3 seconds. The zone (**3**) and the day (4) lamps will flash. Now press DAY button (**6**) to set the day for the same programme. Press the COPY button (**10**) to complete the copy. The lights will stop flashing. This can be repeated for copies to all days and all zones. The Orion 512 can store up to 84 programmes.

On completion press the day button (**6**) to proceed to set Tuesday's programme. Continue this way to programme all seven days. The press zone button (**7**) to obtain zone 2 and set to Monday with Day button 6. Repeat the setting procedures for zone 2 and the other zones which are to be used.

Cancel

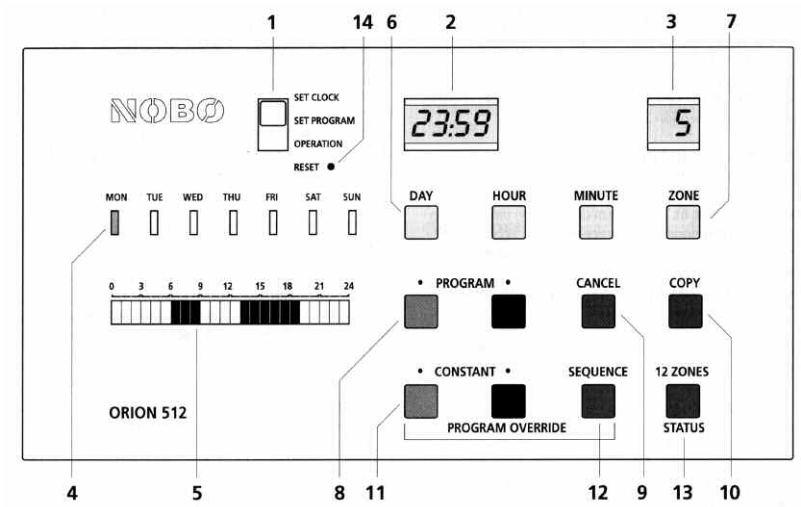
An incorrect entry during programming can be deleted by using the cancel button (**9**). The last selected programme will then appear in the programme display (**5**) and the programming can start again.

Checking programmes

With the function switch (**1**) set to 'set programme' use the day button (**6**) and zone button (**7**) to check entered programme.

ZONES 11 & 12

It is good practice to enter red signals to all segments on all days on zones 11 and 12. This allows changes at a later date for frost protection or a stop instruction.



Section Five

OPERATING THE SYSTEM AFTER PROGRAMMING

The system consists of the control unit ORION 512, and all panel heaters with receiver units, or separate receiver units. This section deals with operating the ORION 512 control unit. The setting and operating of Panel Heaters is covered in Section 2.

Orion 512 Normal Operation

Set function switch (**1**) to 'OPERATION' position, the correct day and time will be displayed, and other displays will be lit. The control unit will be transmitting signals to the panel heater receiver units according to the settings entered into the control unit. All receivers which are switched on will act on these signals. All programmes can be viewed on programme display (**5**) by use of the zone button (**7**).

By holding the status button (**13**) the programme display will change to show the current status of the 12 zones. Each one of the first 12 segments of the display represents a zone.

The SEQUENCE button (**12**) may be used to provide temporary override of the programme on display. Use of this button reverses the current mode of operation in the indicated zone to the opposite mode for the remainder of the programme period. eg. If the programme on display is in red (comfort) mode then the sequence will change it to green (economy) mode and vice versa. Where there is no programme change the override will remain in action.

The red and green constant buttons provide permanent override of the programme on display. Use of either button will override the current programme with the chosen constant mode.

The cancel button (**9**) removes zone overrides and simultaneously returns operations to the original programme.

A short press (less than 2 seconds) will remove only the override of the programme on display.
A long press (More than 3 seconds) will remove all overrides – the Zone (**3**) and Day (**4**) LED's will flash while the cancel button is being pressed to confirm removal of all overrides.

Tamperproofing
(protecting your programme settings)

To avoid unauthorised interference the operation buttons can be locked. The Zone (**7**), Green programme (**8**) and Day (**6**) should be pressed simultaneously. To cancel the lock just repeat the same procedure.

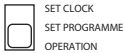
Checking the programme

With the Function switch (**1**) in set programme position use Zone (**7**) day (**6**) to run through the programme settings. Return the Functions switch to 'Operation on completion.

Changing your programme settings

Please refer to section 4 if you wish to change any settings. Remember to reset the Function switch (**1**) to 'Operation' on completion.

Normal Operation



Status Check

Press to show current status off all zones, on first 12 segments of display.

Temporary Override

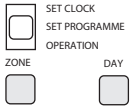
Permanent Override

Cancel Overrides and Return to Original Programme

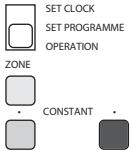
Holiday Function

If you are leaving the premises unattended use zone button (**7**) to set operation to zone 11 and set the CONSTANT button (**11**) to green ECONOMY, the system will provide frost protection in all zones. On return from holiday use CANCEL button (**9**) to resume normal operation.

Check Programme Settings



Holiday Settings



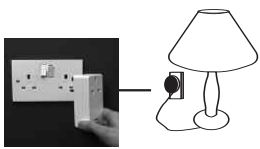
Additional Features

Power Reserve

All lights on the unit will be extinguished when the power is disconnected. The clock has 14 days reserve power. If the power is disconnected for more than 14 days, the clock (2) will have to be reset when the supply is reconnected. This will be indicated by the clock display flashing. The clock display and 'Monday' will flash to show that it is necessary to reset the clock.

Accessories and Spare Parts

A 13 amp plug adaptor with a built in receiver is available to enable the ORION 512 mains signalling system to control other appliances such as table lights, automatic curtain motors etc.



Other accessories available include tamperproof covers for switch and temperature controls, to prevent unauthorised adjustment of the heater controls. A full range of spare parts is available through NOBO Heating in Birmingham, including the following:

Front Panel	Electronic control module
Wall bracket	Switch assembly
Heating element	Cable

To order accessories and spares it is necessary to know the type number of the heater and it's electronic the back of the heater.

Towel Rails using the RS Receiver

12 channel Slave switch for control of fixed appliances. Switches the power supply on/off on receipt of coded signals from System 500 mains Signalling control.

Switches 10 amps. Zone 10 is often designated for control of Bathroom Towel Rails.

Typically used for control of Bathroom Towel Rails. Normally installed outside the Bathroom in a flush box beside the appliance isolation switch.

Glass Panel Heater using TR 36 Thermostat

Wall mounted thermostat for control of fixed appliances, providing proportional temperature control between 18c and 30ºc. With preset temperature setback control. Switches the power supply on/off on receipt of coded signals from the System 500 mains Signalling control.

Water Heating using RSX Receiver

12 channel slave switch for control of fixed appliances. Switches the power supply on/off on receipt of coded signals from the System 500 Mains Signalling control. Switches 16 amps. Zone 8 is often designated for control of Water heating.

Typically used for control of the immersion heater. Normally installed in a box beside the fuseboard or in a box in the cylinder cupboard.

Typically used for control of Radiant Glass Panels. The thermostat defaults to 'ON' and only switches 'OFF' on receipt of an economy signal (green) from the Orion system.

Problems with Heaters

Heater does not get warm

Not switched on

Switch on side of Heater 'I' = on, 'O' = off.
Power point on wall switched off.
Fuse in wall power point blown.

Switched on

Heater shut down because grill is covered.
Thermostat setting is too low.
Receiving Green signal on zone 11 or 12.

Heater on but not responding

Switch heater off for 5 minutes and then switch back on again.

When a heater is first switched on it will always operate in comfort mode and can take up to 5 minutes before it responds to the programme signals. The signals are transmitted every 5 minutes incremental from 2 minutes past each hour. If you change the zone number (selector switch 3) on a heater, the thermostat will reset to its default setting and it can take up to 5 minutes before the heater responds to the new zone number.

Problems with the orion 512 control unit

Clock display flashing

After a power interruption, the clock display may flash to indicate the need for the time to be reset. If a power interruption has been longer than 14 days it will be necessary to reset the clock. If the power supply receives high voltage transients (electrical noise, may occur during a thunderstorm) the Orion 512 may lockup and not respond to programme settings. If all attempts to adjust it fail, you may need some help. Telephone NOBO Heating Technical Support Line.

Cannot adjust the unit

The unit appears to work but cannot be adjusted. Check the anti-tamper function (section 5) to ensure that the key pad is not locked.

Signal conflicts

The signal produced by the ORION 512 unit is a high frequency pulse that is injected into the mains wiring. Every circuit in your premises will carry this pulse, which allows complete freedom in the positioning of heaters and receivers, but it also presents a potential problem is for any reason you introduce some other system that uses the same signal protocol. Some wireless burglar alarms for example use a high frequency signal, and if this is on or near to 120Khz there may be conflicts. A filter is fitted in the main incoming supply cable to your premises, and this should prevent signals from outside your premises from coming in.

Maintenance and spare parts

Little or no maintenance is necessary on a routine basis, the only attention that may be required will be when an appliance gets damaged or fails to operate correctly.
A periodic check of each appliance should be made to ensure that it is correctly adjusted and operating efficiently.
In the event of an appliance being damaged or the controlling system failing, a full range of spare parts may be obtained from NOBO Heating Limited. Any orders for spare parts should include the model number of the appliance and/or the control module. The identification labels to be found on the rear of the equipment describe the model and control item fitted.

Technical support

Our technical department is able to provide you with a detailed route to compliance based on either a domestic or commercial application. Contact us or send us your plans.

The telephone service is available between 8.30 am and 5.00 pm Monday to Thursday. 8.30 am to 3.30 pm Friday.

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