heatmiser™
Effective Temperature Control

HEATMISER SENIOR
OPERATING AND ENGINEERS INSTRUCTIONS

These instructions apply to software versions 9.0 or above.
Software versions less than this may not have all of the features mentioned in this manual.

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Control Terminology

Self Learning Optimisation is a system whereby the Heatmiser Control will automatically calculate the start-up time to ensure the building is up to temperature for the programmed switching time.
It does this by monitoring the internal temperature readings, so that for example, in milder weather conditions heat up times are reduced - thus saving energy.

Preheat is the number of hours the control can come on before the programmed switching time (when in optimising mode)

This is set under the Engineers code and can be set to no more than 8 hours.

Rate of change is the time it takes to raise the building 1oC. The factory default for this setting is 20 minutes but the control will automatically adjust this according to the fabric of the building.

Override Using the Override button on the Heatmiser Keypad allows the user to override the zone for a selected number of hours, to allow for unscheduled use of the system.
A maximum can be set to stop users entering long override periods.

Switching period status
Day is when the control is being controlled to an actual switching time. (For example between 07.00 - 08.00 the control would be in a DAY condition. Outside of those hours the control would be in a NIGHT condition)
Night is when no switching times have been programmed. At these times the control is set back to the night temperature.

Normal RUN mode is when the control is operating normally and is not being programmed.(ie: showing the Time/Day or the Info screen) It is important to remember that when any alterations have been made to the Heatmiser's program, the RUN button is pressed to return the control to the RUN mode.

Hysterysis Value
The hysterysis value is responsible for how the control maintains boiler temperature. With a hysterysis value of 04, and a required boiler temperature of 70 the boiler would fire at 68 and shut down at 72.

Slope Value
This setting controls how the flow temperature adjusts to the outside temperature. For example with a slope temperature of 06, which is the factory default, means that for every 1 degree rise in temperature outside the flow temperature will be reduced by 3 degrees C.

Remote Override Input
A remote override can be wired into the Heatmiser for zones 1-3. Should this input be made it will override the zone ON for the maximum override period.

Remote Holiday Input
A remote Holiday Input can be wired into the Heatmiser. Should this input be made, it will put the entire system into the NIGHT condition.

Remote Summer Input
A remote Summer input can be wired into the Heatmiser. Should this input be made, it will put all zones into the NIGHT condition. If however you have selected boiler enable on Zone 2, relays 1 & 2 will continue to function normally.

User Instructions.

Understanding the Normal Run Mode

The Normal Run Mode is when any of the zone status screens or the Time and Date screen is being displayed.

SAT 16-06-01 14.18.46 N N N

ZONE 1 (04) :16 RELAY OFF

Figure in brackets is the required temp and the figure outside is the actual temp.

Using the scroll key on the Heatmiser Senior enables you to scroll through the Zone Status screens and then back to the Time and Date screen. Depending on the number of zones setup on your system will determine the number of Zone Status screens that you will see.

Using the Override Facility

The Heatmiser Senior allows the user to override the heating to an ON condition or to an OFF condition without the need to alter the programmed switching times.

To override the Heatmiser, press the Override key and the following screen will appear.
At this point, you are required to select the zone you wish to override.

ENTER THE ZONE NUMBER (1-3)

You are then prompted to choose whether you wish to override the zone ON(will maintain the Day temperature) or OFF (will maintain the NIGHT temperature.

OVERRIDE TO 1)ON or 2)OFF

Whether you choose to override the zone ON or OFF you are prompted to enter the length of the override period .The engineer who installed the system will have programmed a maximum override time to prevent long override periods being entered. Should you wish this setting to be altered contact your control installer.

ENTER OVERRIDE (08 hrs MAX):00

The Heatmiser will flash on screen the length of the override left every ten seconds.

OVERRIDE TIME LEFT 59 MINS

!To cancel an override, repeat the steps above reducing the length of the override period to 00 .

Understanding the User Programming section
The Heatmiser Senior has 4 programming options which are available to the user.

These are accessed by pressing the program button from any of the Normal Run Mode screens. You are then prompted to enter the User security code. This code is set to 0000 as a factory default but can be altered by the user, we explain how to do this later in this manual.

Enter code to continue:

You are then presented with the Programming Options Menu and the 4 available options. These are briefly described below.

1)DATA 2)TIME 3)CODE 4)HOLS

Data. Under this section you can alter the DAY and NIGHT temperature settings and the programmed switching times.

Time Under this section you can set the current time and date.

Code Under this section you can view/change the user security code.

Hols Under this section you can set the holiday periods for the year.

Programming the DAY and NIGHT Temperatures

From the Programming Options Menu press 1 for DATA.

You are then prompted to select the zone you wish to alter. If you only have 2 zones under control from the Heatmiser Senior, this screen will list only 1-2 as the available zones.

ENTER THE ZONE NUMBER (1-3)

The DAY temperature for the zone selected is shown on screen. At this point you can either type in a new temperature or to leave the current setting, press the Enter key.

ENTER REQUIRED DAY TEMP. 20

Pressing Enter will display the NIGHT temperature setting. Again, you are able to alter this temperature or pressing Enter accepts the programmed setting. After pressing Enter you are able to continue program the switching times.

ENTER REQUIRED NIGHT TEMP. 04

Programming the Switching Times
From the Programming Options Menu, select 1 for Data and then select the zone number you wish to alter. Press the Enter key to accept the DAY and NIGHT temperature and to advance to the Switching Times settings.

You have 4 switching periods available per day, and remember you should use 24 hour clock notation when programming the Heatmiser.

To program a switching period, begin to type the Start time for example 08.00. Then press the Enter key to accept the Start time and to move to the End time setting. Now type the required End time and when done press the Enter key.

DAY PERIOD 1 MON S:08.00 E:00.00

Pressing the Enter key advances the program to the next switching period. Remember that you have 4 periods available per day. Therefore you are now able to program a further 3 periods for Monday as described above. If you do not wish to use the remaining switching periods simply leave them set to 00.00 and press the Enter key to advance through the program.

After programming the 4 switching periods for Monday you will see a new screen appear prompting you to enter the switching periods for Tuesday.

```
DAY PERIOD 1 TUE
S:00.00 E:00.00
```

At this point you can enter the switching times as described above, or if the switching times are identical to Monday you can press the COPY button. This function copies all of the switching times from Monday into Tuesday, you will then notice the program advances to Wednesday.

```
DAY PERIOD 1 WED
S:00.00 E:00.00
```

Repeat where necessary for the rest of the week. You can press the RUN key at any time to store the entered switching times and return to the Programming Options Menu.

From the Programming Options Menu press the RUN key to return to the Normal RUN mode.

Setting the current Time & Date

From the Programming Options Menu press 2 for Time.

On screen you will see a display similar to the one shown here. Simply type the new Time, using 24 hour clock notation, where prompted and then press Enter.

```
TIME IS      :12.11
NEW TIME: 12.34
```

You are then shown the following screen.
Here you should type the new Date and press Enter.

```
DATE IS:17-06-01
NEW ONE:18-06-01
```

Finally you need to select the Day. (Eg 01 = Monday 07=Sunday) When you have entered the Day, press Enter to return to the Programming Options Menu.

```
ENTER DAY 01=MON
07=SUN : 01
```

From the Programming Options Menu you can press RUN to return to the Normal RUN mode.

Setting the User Code

From the Programming Options Menu press 3 for Code.

You will then be shown the following screen. From this screen you are able to select whether you wish to set the code for the Manager or for the Override. The Override code simply passwords the Override button and the Manager code locks the switching times and temperatures.

```
1) MANAGER CODE
2) OVERRIDE CODE
```

Pressing either 1 or 2 will present you with the following screen. At this screen you are able to enter a new security code.

```
CODE IS: 0000
NEW CODE: 2222
```

Programmming Holiday Periods

From the Programming Options Menu press 4 for Hols.

You can program upto 5 holiday periods in the Heatmiser

```
HOLIDAY PERIOD 1
S:00-00-00 L:00
```

Senior. To program the Holiday period first enter the Start date and then press Enter. (For example 23-12-01) Then type the Length of the Holiday period and then press Enter. (For example 10)

Repeat the steps above to program further holiday periods.
You can press the RUN key at any time to return to the Programming Options Menu.
From the Programming Options Menu, press the RUN key to return to the Normal RUN mode.

Accessing the Logging Information

Hours Run

From the Normal RUN mode you are able to enter the code 0376 to view the Hours Run data and Temperature Log.

Pressing 1-3 will allow you to view the Hours Run for relays 1-3. You can view the past 4 weeks hours run data.

```
1)R1  2)R2  3)R3
4)S1  5)S2  6)S3
```

Pressing 1 will show you last weeks Hours Run data for relay 1. Keep pressing the Enter key to scroll through the previous 3 weeks.

```
WEEK 18
HOURS RUN 23.04
```

On screen you will see the Week Number and the hours run total for the week. This is shown in hours and minutes.

```
WEEK 17
HOURS RUN 20.19
```

After pressing the Enter key four times, the display will revert back to the main Logging Menu where you can either press the RUN key to return to the Normal RUN mode or you can select another option.

Temperature Log

Selecting 4-6 allows you to look at the temperature log for the relevant zone for the past 24 hours. The temperature is logged every 15 minutes. When you select 4-6 a screen like shown here will be displayed. The log starts at midnight for the current day upto the current time . After the current time, you will be viewing yesterdays log.

```
12.00  16
RELAY OFF  NIGHT
```

For example, if the current time is 20.40 the log from 12.00 until 20.30 will be todays log, after 20.30 will be yesterdays log.

Remember that under the Engineers Code you can delete the Monitoring Log from memory.(Option 4 C.Log)

Understanding the Inputs

The Heatmiser Senior has 5 inputs, used for remote override and summer/holiday shut down. There are two types of inputs, there is a fixed input and a pulse input. The fixed input will give an override for as long as the input is made and the pulse input will give

Input 1 -3 Linking across + and 1, 2 or 3 will put zone 1-3 into an Override condition. The zone will stay on for the length of the maximum Override period. If the input is broken the zone will go off.

Input 4 Linking across + and 4 will put the control into Summer Mode. If the control is configured as a compensator and zone 2 has been programmed to enable the boiler, relay 1&2 will continue to function to allow for normal use of the hotwater.

CONFIGURING THE HEATMISER SENIOR

Notes: The Heatmiser Senior can control upto 3 three zones of radiant tubes or warm air heaters. The limiting factor to the number of heaters that can be controlled within 1 zone is the zone relay, which is rated at 3amps.

There is a 12v output on the Heatmiser Senior which enables you to wire out from the Heatmiser in low voltage, reducing the cost of installation. You will need to fit 12v relays adjacent to each heater if you opt to use the 12v output.

The Senior can compensate 1 zone and can give optimised control of another zone. The compensator can be configured to work direct on the boiler or through a valve.

To begin configuring the Heatmiser Senior press the PROGram button and enter the Engineers code. (A sticker with this code on will have placed inside the control enclosure) If this is missing, contact your control supplier.

```
ENTER CODE TO
CONTINUE: ****
```

You are then given 4 options from the Engineers Setup Menu. These are explained below;

```
1)DATA 2)SETUP
3)CODE 4)C.LOG
```

1) **Data** Allows you to calibrate the sensors and setup the different zones.
2) **Setup** Allows you to setup the control type, number of zones and input type.
3) **Code** Allows you to change the User security code.
4) **C.Log** Clears the monitoring log from memory.

There are two steps to programming the Heatmiser Senior, the first is to setup the Control Type and number of zones. The second is to setup the individual zones.

We have outlined the different configurations below and the setup routine that should be followed.

The three Control types on the Senior, are as follows;
01 = Optimiser
02 = Compensator
03 = High/Low Control
04 = Boiler Sequencer

The Boiler Sequencer is an option and should be specified when ordering.

Configuring the Heatmiser Senior for 1-3 Optimised zones

Before you begin this setup procedure, first view the Zone Status screens and make a note of the actual temperatures for all zones. (This is the temperature outside of the brackets) Write these temperatures down - you will need them later ! !

STEP 1

Control type From the list on page 6 select the Control Type you require. As we require Optimisation, type 01.

ENTER CONTROL TYPE: (1-3): 00

Number of zones You are then prompted to enter the number of zones to be controlled. For example 1-3. When this has been set, press Enter.

ENTER NUMBER OF ZONES: 03

Input type We are now able to set the pulse type. Fixed means that for as long as an input is made the zone will stay on. Pulse means that when a pulse is given to an input, the input will stay on for the maximum override time programmed or until another pulse is given.

INPUTS FIXED (00) PULSE (01) :00

Calibrating the sensors

We now need to complete the setup by configuring the individual zones. So, from the Engineers Setup Menu, press 1 for DATA.

The first thing we must now do is to calibrate the sensors on the system. In this application we will have sensors connected to zones 1-3 depending on the number of zones being controlled. To calibrate the sensors first take a reading from the zone with a thermometer. Now taking the reading you wrote down for Zone 1 before you started this setup, calculate the difference between the two temperatures. (For example, if the reading from your thermometer is 20c and the Heatmiser is showing 17c the difference is 3c. The Heatmiser works in ½degree steps so the actual difference is that the Heatmiser is 6c low. To correct this we need to put a calibration number for NO:1 of 06. This will increase the temperature by 6 ½degree steps.

CALIBRATION NO:1 SETTING :06

When complete, press Enter and then repeat for all other sensors...

Override setting The next setting to be programmed is the Maximum Override setting. This is set to 08 hours as a factory default, but on this screen you can alter this to whatever length you wish. When set, press Enter.

ENTER MAXIMUM OVERRIDE : 08

STEP 2

We are then prompted to select the zone number to configure.
NB: If you have configured the control to be a 2 zone optimiser you will only be able to select 1-2.

ENTER THE ZONE NUMBER (1-3)

This screen is only shown if the system is setup as a compensator. When you configure the second zone you are asked whether you want to enable the boiler if there is a demand for heat in zone.

OPT<00> TIME<01> OR VENT <02> :00

This screen is only for compensated systems

You now have three ON/OFF options available depending on how you want zone 1 to function.

ON/OFF Option 00 = *Optimiser*
Selecting 00 will setup the zone to be an optimiser. The control will calculate at what time the heating should come on to be at temperature for the start of the switching on time. Type 00 and press Enter.

OPT<00> TIME<01> OR VENT <02> :00

Summer fan You are now prompted to enter whether you require summer fan facility. Should a programmed temperature be acheived the control can send an output to the heater to activate the summer fan. This function is only available for zones 1&2.

SUMMER FAN REQD Y(01) N(02) :00

Preheat You are now prompted to enter the maximum preheat time. This is the number of hours the heating can come on before the programmed switching time. The default is 03 hours.

ENTER MAXIMUM PREHEAT: 03

Rate of change You are now prompted to enter the rate of change. This is the setting that tells the control how quick the temperature in the building rises. For example the default is 20, which means it takes 20 minutes to raise the building by 1degree C. However as the control is self learning, this figure will be adjusted automatically by the Heatmiser.

ENTER RATE OF CHANGE: 08

Pressing enter at this point allows you to proceed to the temperature setting screens. Here you are able to alter the required temperature settings (Day, Night and if selected Summer Fan Temp) To advance through these settings use the Enter key until you get to the Switching times where you can press the RUN key to return to the Engineers Setup Menu.

!NOTE: To disable optimisation simply reduce the Preheat & Rate of Change to 00

ON/OFF Option 01 = *Time*
Selecting 01 for Time completes the setup for the zone. The zone will work as a simple timeclock, working to the programmed switching time. No temperature setpoints can be programmed. When you get to the switching time screen you can press the Run key to return to the Engineers Setup Menu.

ON/OFF Option 02 = *Vent*
Selecting 02 for Vent makes the control work in reverse. In other words the relay will stay inactive until a temperature is reached. When the temperature is reached the relay is energised.

Vent option is only available on zones 1 & 3.

When you get to the switching time screen you can press the Run key to return to the Engineers Setup Menu.

ENTER VENTILATION
TEMP: 21

Repeat the following setup steps for all three zones.

Below is a setup table which shows the relay outputs and sensor inputs for the specific configurations.

Zone 1 Type	Relay Outputs	Sensor Input
Optimiser no summer fan	Relay 1 HEAT	Sensor 1
Optimiser with summer fan	Relay 1 HEAT Relay 4 Summer FAN	Sensor 1
Timer	Relay 1 HEAT	Not Used
Ventilation	Relay 1 Ventilation	Sensor 1

Zone 2 Type	Relay Outputs	Sensor Input
Optimiser no summer fan	Relay 2 HEAT	Sensor 2
Optimiser with summer fan	Relay 2 HEAT Relay 5 Summer FAN	Sensor 2
Timer	Relay 2 HEAT	Not Used

Zone 3 Type	Relay Outputs	Sensor Input
Optimiser no summer fan	Relay 3 HEAT	Sensor 3
Timer	Relay 3 HEAT	Not Used
Ventilation	Relay 3 Ventilation	Sensor 3

Input Description	Connection	Action
Remote Override for Zone 1	+ to 1	Relay 1,4 active
Remote Override for Zone 2	+ to 2	Relay 2,4,5 active
Remote Override for Zone 3	+ to 3	Relay 4,5 active
Remote Summer Switch	+ to 4	All relays inactive
Remote Holiday Switch	+ to 5	All relays inactive

Configuring the Heatmiser Senior for Compensation

From the Engineers Setup Menu choose 2 for Setup.

Control Type When prompted to enter the Control Type select 02 for compensator and press Enter.

ENTER CONTROL TYPE: 02

Number of zones Then you need to enter the number of zones on the system. We are able to have a further zone of ON/OFF type.(Optimiser or Timer) To configure this consult this ON/OFF configuration section of this manual.

ENTER NUMBER OF ZONES: 01

Input type We are now able to set the pulse type. Fixed means that for as long as an input is made the zone will stay on. Pulse means that when a pulse is given to an input, the input will stay on for the maximum override time programmed or until another pulse is given.

INPUTS FIXED (00) PULSE (01) :00

When you have selected whether you wish to have another ON/OFF zone press Enter.

Calibrating the sensors We now need to complete the setup by configuring the individual zones. So, from the Engineers Setup Menu, press 1 for DATA.

The first thing we must now do is to calibrate the sensors on the system. In this application we will have sensors connected to zones 1-3 depending on the number of zones being controlled. To calibrate the sensors first take a reading from the zone with a thermometer. Now taking the reading you wrote down for Zone 1 before you started this setup,c calculate the difference between the two temperatures. (For example, if the reading from your thermometer is 20c and the Heatmiser is showing 17c the difference is 3c. The Heatmiser works in ½degree steps so the actual difference is that the Heatmiser is 6c low. To correct this we need to put a calibration number for NO:1 of 06. This will increase the temperature by 6 ½degree steps.

CALIBRATION NO:1 SETTING :06

When complete, press Enter and then repeat for all other sensors…

Maximum override time The next setting to be programmed is the Maximum Override setting. This is set to 08 hours as a factory default, but on this screen you can alter this to whatever length you wish. When set, press Enter.

ENTER MAXIMUM OVERRIDE : 08

If you have selected to have another ON/OFF zone we are now prompted to enter the zone to configure so press 1, if you have not then we are automatically presented with the configuration screens for the Compensated zone.

Preheat We are now prompted to enter the preheat. This is the maximum number of hours that the heating can come on before the programmed swithing time. 03 hours is the factory default.

ENTER MAXIMUM PREHEAT : 03

Rate of change We are now prompted to enter the rate of change. This is the length of time the building takes to raise the temperature by 1 degree. The default is 20 minutes but the control will automatically adjust this figure.

ENTER RATE OF CHANGE m/c: 20

Flow Slope setting We are now required to enter the desired flow temperature slope. This setting controls how the flow temperature adjusts to the outside temperature. For example with a slope setting of 06, which is our factory default setting, means that for every 1 degree rise in outside temperature the flow temperature will be reduced by 3 degrees.

ENTER FLOW TEMP SLOPE: <1-10> :06

Setting the slope to 07 would change the slope factor so that for every 1 degree rise outside the flow would be reduced by 4 degrees.

We must now select whether you are compensated directly off the boiler or through a valve.

<01>BOILER
<01>VALVE

COMPENSATION OPTION 01 = BOILER

Hysterysis We must now enter the Hysterysis Value. This setting controls how the boilers are controlled. With a setting of 04 the boiler will turn off when the temperature rises 2 degrees above the set flow temperature. And like wise the boiler will turn on when the temperature drops 2 degrees below the set flow temperature.

ENTER HYSTERYSIS VALUE (‘C) :04

Minimum flow A minimum flow temperature should now be entered in order to protect the back end of the boiler. Consult the boiler manufacturers literature for the recommended temperature.

ENTER MINIMUM FLOW TEMP. 45

Flow frost setting A flow frost setting should be entered in order to protect the system against frost. A temperature of 08 degrees is recommended.

ENTER FLOW FROST PROTECTION :08

Pump Overrun You are now able to program a pump overrun, this is to help disipate the heat from the boiler and will help prevent overheat problems. 20 minutes is the recommended figure.

PUMP OVERRUN
TIME <MINS> :20

Pressing enter at this point allows you to proceed to the temperature setting screens. Here you are able to alter the required temperature settings (Day, Night and if selected Summer Fan Temp) To advance through these settings use the Enter key until you get to the Switching times where you can press the RUN key to return to the Engineers Setup Menu.

COMPENSATION OPTION 01 = VALVE

Pulse Time We must set the pulse time for the Valve. This setting is the number of seconds the valve will be pulsed open or closed. We recommend a setting of 10 seconds (02)

ENTER PULSE TIME
<1=5 SECS> :02

Delay Time We must now set the delay time. This is the time the control waits to see what has happened in relation to the actual and desired temperature before instructing the valve to open or close. We recommend a delay time of 2 minutes, so therefore we should enter a setting of 24.

ENTER DELAY TIME
(1=5 SECS) :24

When controlling a valve a minimum flow temperature is not required. A setting should only be entered here if you are controlling underfloor heating. Consult the manufacturers literature for recommended settings.

Flow Frost A flow frost setting should be entered in order to protect the system against frost. A temperature of 08 degrees is recommended.

ENTER FLOW FROST
PROTECTION :08

Pump Overrun You are now able to program a pump overrun, this is to help disipate the heat from the boiler and will help prevent overheat problems. 20 minutes is the recommended figure.

ENTER PUMP
OVERRUN :20

Pressing enter at this point allows you to proceed to the temperature setting screens. Here you are able to alter the required temperature settings (Day, Night and if selected Summer Fan Temp) To advance through these settings use the Enter key until you get to the Switching times where you can press the RUN key to return to the Engineers Setup Menu.

COMPENSATION SETUP

Zone 1 Type	Relay Outputs	Sensor Input
Compensator direct on boiler	Relay1 = BOILER	Sensor 1 - Internal
	Relay2 = HW Pump	Sensor 2 - Hot Water
	Relay3 = Heating Pump	Sensor 3 - Flow
	Relay 4 = Not Used	Sensor 4 External
	Relay 5 = Not Used	
Input Number	**Input Connection**	**Action**
Input 1	+ and 1	Relays 1,3,4 active
Input 2	+ and 2	Relays 2,4,5 active
Input 3	+ and 3	No function
Input 4	+ and 4	Summer Mode - All relays inactive (Note that when compensated directly on the boiler - there is no boiler enable)
Input 5	+ and 5	Holiday Mode - All relays inactive
---	---	---
Compensator via Valve	**Relay Outputs**	**Sensor Inputs**
	Relay 1 = Not used	Sensor 1 - Internal
	Relay 2 = Hot Water Pump	Sensor 2 - Hot Water
	Relay 3= Heating Pump	Sensor 3 - Flow
	Relay 4 = Valve Open	Sensor 4 - External
	Relay 5 = Valve Close	
Input Number	**Input Connection**	**Action**
Input 1	+ and 1	Relays 1,3, 4 or 5
Input 2	+ and 2	Relays 1 and 2
Input 3	+ and 3	Not used
Input 4	+ and 4	All relays inactive (If boiler enable selected HW continues to function.
Input 5	+ and 5	All relays inactive

Zone 2 Type	Relay Outputs	Sensor Input
Optimiser	Relay 2 HEAT	Sensor 2
Timer	Relay 2 HEAT	Not Used

Configuring the Heatmiser Senior for 1 zone of High/Low and 1 ON/OFF zone

From the Engineers Set-up Menu choose 2 for Set-up.

Control type When prompted to enter the Control Type select 03 for HIGH/LOW and press Enter.

ENTER CONTROL TYPE: 03

Number of zone Then you need to enter the number of zones on the system. You are able to have an extra ON/OFF zone. If you select this, consult the ON/OFF configuration section of this manual.

ENTER NUMBER OF ZONES: 02

Pulse type We are now able to set the pulse type. Fixed means that for as long as an input is made the zone will stay on. Pulse means that when a pulse is given to an input, the input will stay on for the maximum override time programmed or until another pulse is given.

INPUTS FIXED (00) PULSE (01) :00

Note: You are only able to have 1 zone of High/Low on the Heatmiser Senior.

Calibrating the sensors

We now need to complete the set-up by configuring the individual zones. So, from the Engineers Set-up Menu, press 1 for DATA.

CALIBRATION NO:1 SETTING :06

The first thing we must now do is to calibrate the sensors on the system. In this application we will have sensors connected to zones 1-3 depending on the number of zones being controlled. To calibrate the sensors first take a reading from the zone with a thermometer. Now taking the reading you wrote down for Zone 1 before you started this set-up calculate the difference between the two temperatures. (For example, if the reading from your thermometer is 20c and the Heatmiser is showing 17c the difference is 3c. The Heatmiser works in ½degree steps so the actual difference is that the Heatmiser is 6c low. To correct this we need to put a calibration number for NO:1 of 06. This will increase the temperature by 6 ½degree steps.

When complete, press Enter and then repeat for all other sensors…

Maximum override time The next setting to be programmed is the Maximum Override setting. This is set to 08 hours as a factory default, but on this screen you can alter this to whatever length you wish. When set, press Enter.

ENTER MAXIMUM OVERRIDE : 08

At this point we are prompted to enter the Zone to configure. See the ON/OFF configuration section for details on how to set-up zone 2.
To configure zone 1 (high/low) press 1.

HIGH/LOW SETUP

Summer fan We are first asked if we require summer fan. Should a programmed temperature be achieved the control can send an output to the heater to activate the summer fan.

SUMMER FAN REQD
Y(01) N(00) :00

Preheat You are now prompted to set the desired preheat.
This is the maximum number of hours the heating can come on before the programmed switching time in order to get the heating up to temperature by the programmed switching time. The default setting is 03. Press enter when set.

ENTER MAXIMUM
PREHEAT HRS: 03

Rate of change You are now prompted to enter the rate of change. This is the amount of time (in seconds) it takes to raise the building by 1 degree. The default setting is 20 minutes.

ENTER RATE OF
CHANGE m/c :20

High/Low differential You must now set the High/Low differential. This is the setting that controls at what point the control switches to High and Low or just Low flame.

ENTER THE HI-LO
DIFFERENCE: 03

With a Hi-Lo differential of 03 the control will use both the High and Low flame if the actual temperature is 1 ½degrees or more below set-point. As the temperature rises and is less than 1 ½degrees lower only the Low flame will fire. When the desired temperature is achieved the low flame goes off also.

Pressing enter at this point allows you to proceed to the temperature setting screens. Here you are able to alter the required temperature settings (Day, Night and if selected Summer Fan Temp) To advance through these settings use the Enter key until you get to the Switching times where you can press the RUN key to return to the Engineers Set-up Menu.

Zone 1 Type	Relay Outputs	Sensor Input
High Low	Relay 1 LOW Flame Relay 3 HIGH Flame	Sensor 1
High Low with Summer fan	Relay 1 LOW Flame Relay 3 HIGH Flame Relay 4 Summer FAN	Sensor 1

Zone 2 Type	Relay Outputs	Sensor Input
Optimiser no summer fan	Relay 2 HEAT	Sensor 2
Optimiser with summer fan	Relay 2 HEAT Relay 5 Summer FAN	Sensor 2
Timer	Relay 2 HEAT	Not Used

Input Description	Connection	Action
Remote Override for Zone 1	+ to 1	Relay 1,3,4 active
Remote Override for Zone 2	+ to 2	Relay 2,4,5 active
Remote Override for Zone 3	+ to 3	Relay 4,5 active
Remote Summer Switch	+ to 4	All relays inactive
Remote Holiday Switch	+ to 5	All relays inactive

Configuring the Heatmiser Senior for Boiler Sequencer
(This is an option and should be specified when ordering)

To configure the control first enter the Engineers code and press 2 for Setup.

You will be prompted to enter the number of boilers on the system.

ENTER NUMBER OF BOILERS: 02

Setting this to 00 will use the internal clock to switch the sequencer on and off. A setting of 01 will disable the clock and the unit will work from an external enable.

EXT. ENABLE (01) OR CLOCK (00) :00

To continue configuring the control, press 1 for Data.

This is the time delay between boilers switching on when the flow is under temperature.

BOILER ON DELAY (1=15 SECS) :16

This is the time delay between boilers switching off when the flow temperature is satisfied.

BOILER OFF DELAY (1=15 SECS) :04

If this is set to 01 the boilers will reverse their lead and lag every 7 days.

AUTO REVERSE (01) OR FIXED (00) :00

If this is set to 00 the unit will compensate the flow. If set to 75c for example the flow will control the flow to 75c

ENTER FIXED FLOW TEMPERATURE: 00

SPECIFICATION

Function	Specification
Zones	7 Control zones with a maximum of eight digital sensors
Time bases	7 time-base can be programmed with a maximum of 4 switching periods per day, 7 days a week
Outputs	5 off 3 amp relays (4=Normally open contacts) (1=Normally open, normally closed contacts)
Sensor Type	Heatmiser Digital Sensors Only (NTC Type)
Battery Backup	10 Years Batter Back-up
Supply	230v AC $\pm$ 10% 50Hz
Relay Output	230v AC 3 amp Resistive
Dimensions	158mm x 62mm x 199mm
Weight	1.4kg
Enclosure	ABS

Troubleshooting

1.The control has been functioning correctly, but now all of the sensors are reading NC or ??.
The first thing to check is that the fuse responsible for the 12v output from the PCB is OK. The location of this fuse is described in the Heatmiser Senior Technical Sheet.
If this is not the fault, and you have checked the external wiring you should contact the control manufacturer

2.The LCD is showing strange characters and does not appear to be functioning correctly.
Check that the ribbon cable which connects the top LCD board to the main circuit is firmly plugged into the ribbon sockets at both ends. If the fault persists contact your control manufacturer.

3. We have just installed the Heatmiser and are unable to get any sensors to read.
Check that you have used BELDON 8451 cable and that you have connected the +(positive) -(negative) and the s(screen) at both the control and the sensor.

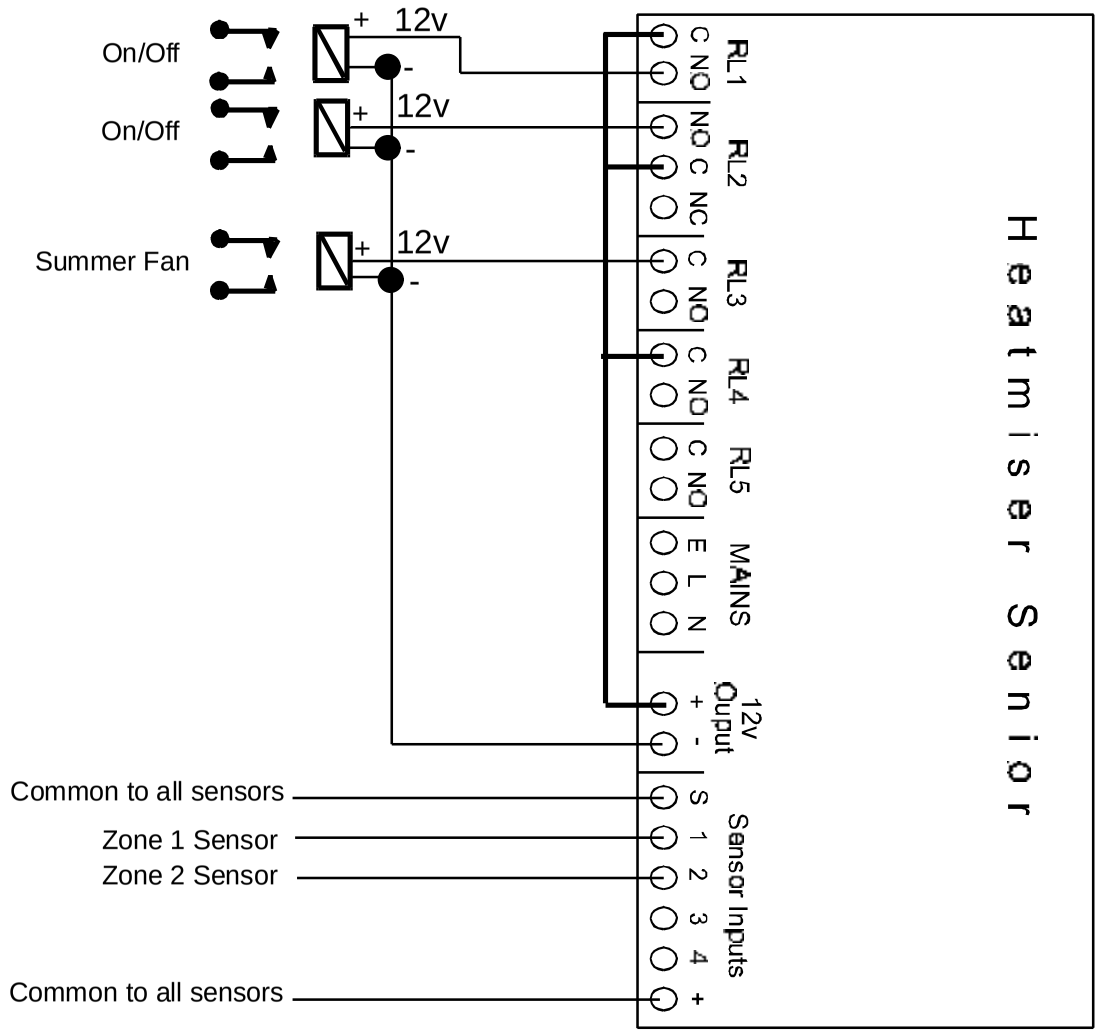
4.We have set a switching period but the control appears to come on much earlier than the set time.
The control is in the optimising mode. This means the control will come on before the programmed switching time to ensure the zone being controlled is up to temperature for the start of the programmed switching time. You can disable optimisation if required. Consult your control installer should you wish to do this.

5.We have programmed a switching time but the control does not control to these times. The start time is 08.00 and the end time is 00.00 (midnight)
The Heatmiser does not recognise 00.00 as a time. You should re-enter a time of 23.59

heatmiser
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.

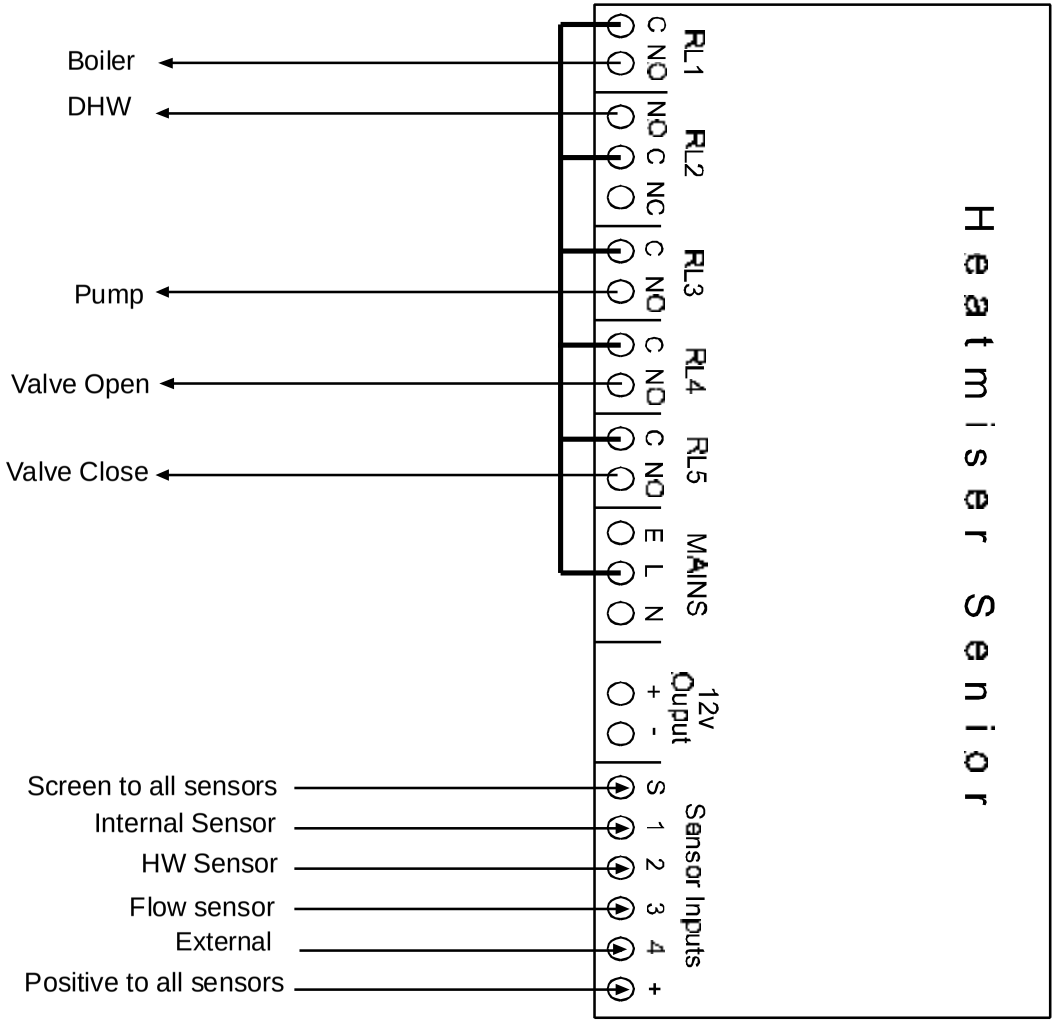


HEATMISER SENIOR	
Two zones of warm air with summer fan	Drawing # hs-006

heatmiser™
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.

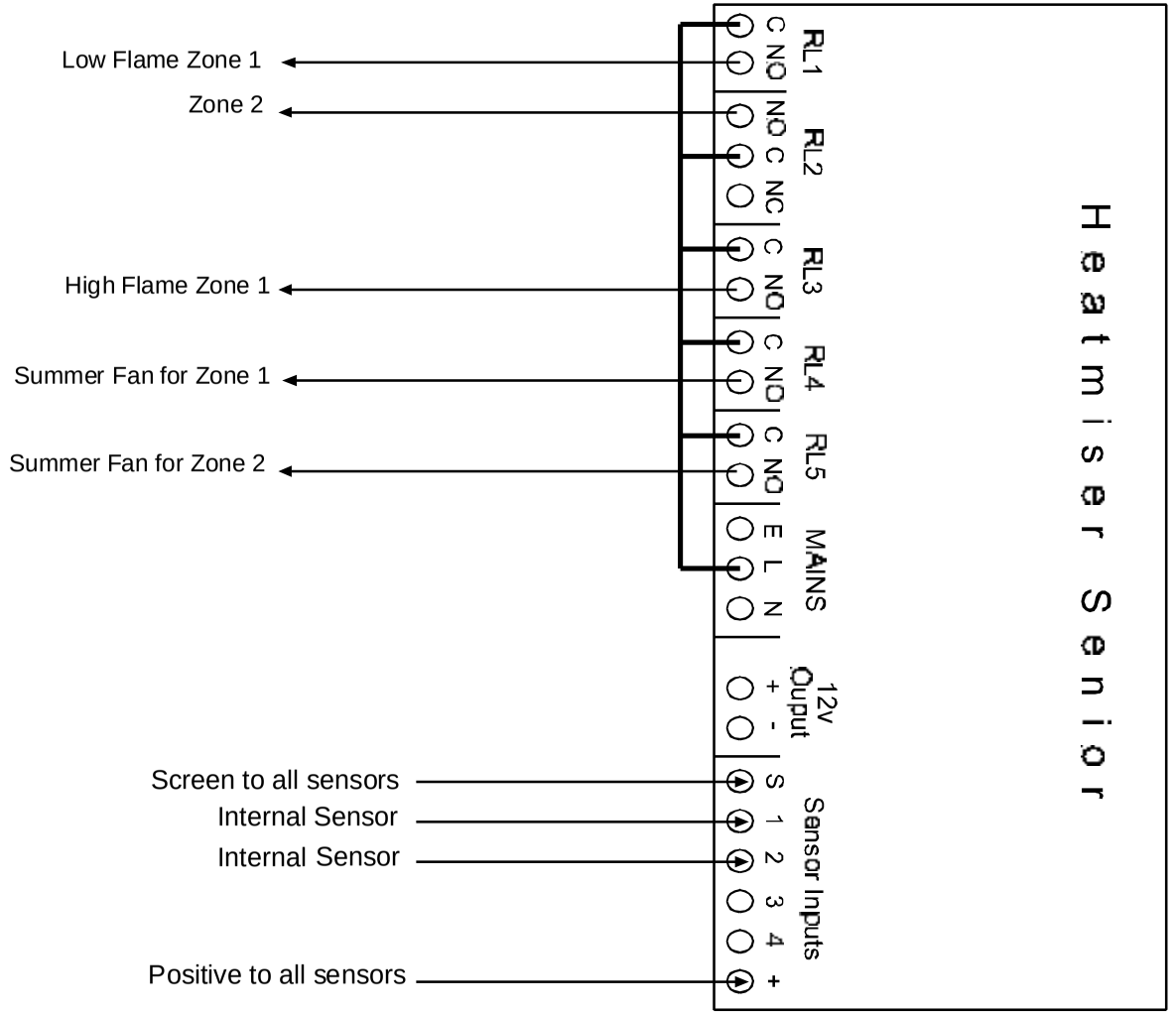


HEATMISER SENIOR	
Compensation through Valve	HS-009

heatmiser™
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.



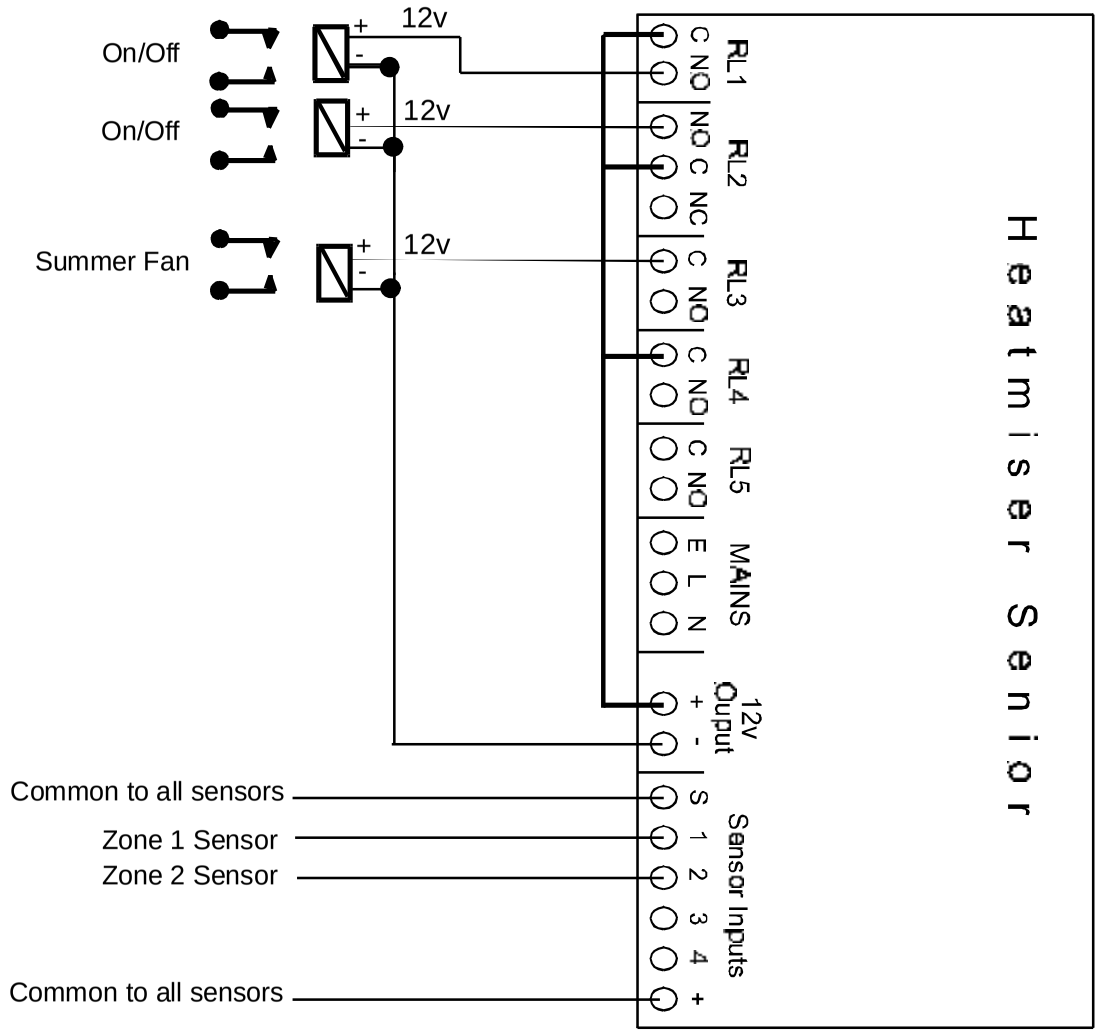
HEATMISER SENIOR

One zone High/Low, One zone On/Off

heatmiser™
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.

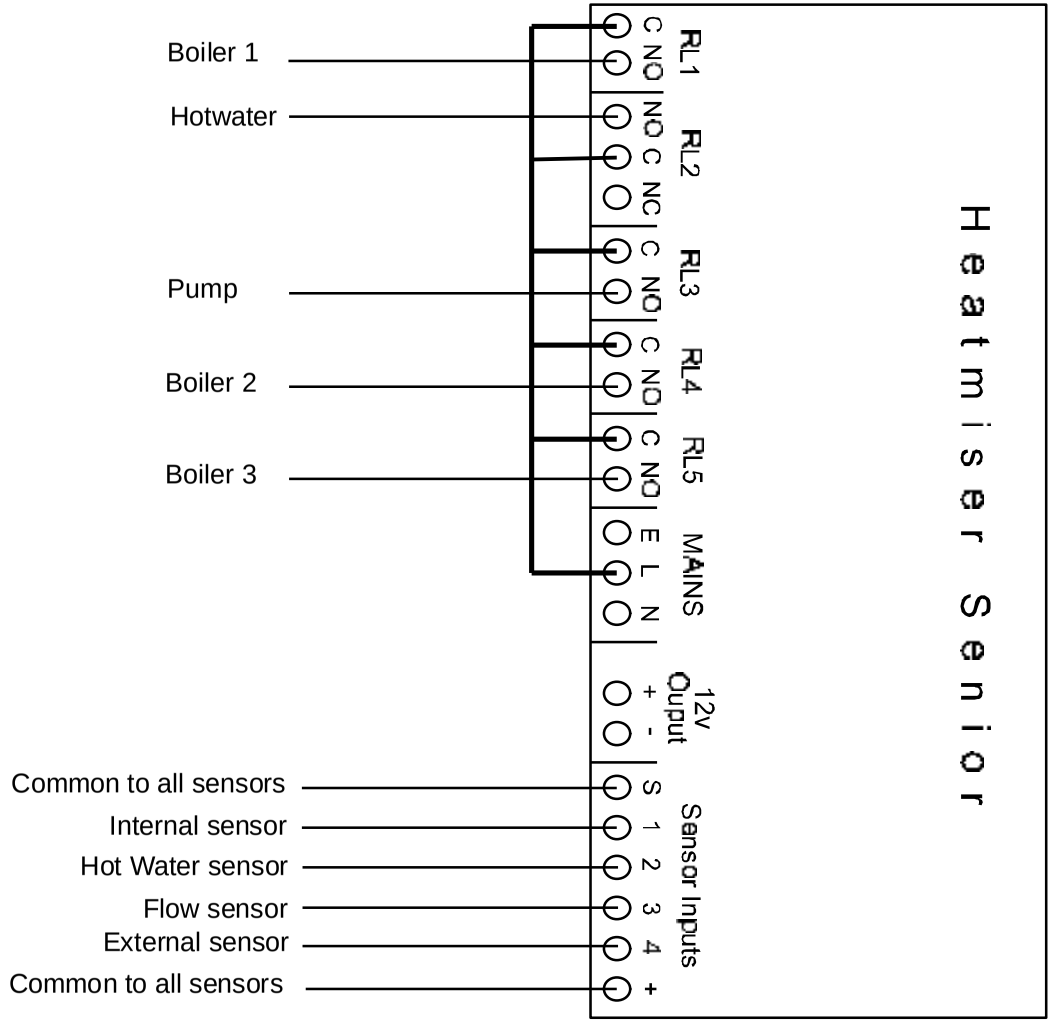


HEATMISER SENIOR	
Two zone optimiser (Low Voltage) With summer fan	Drawing # hs-006

heatmiser
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.

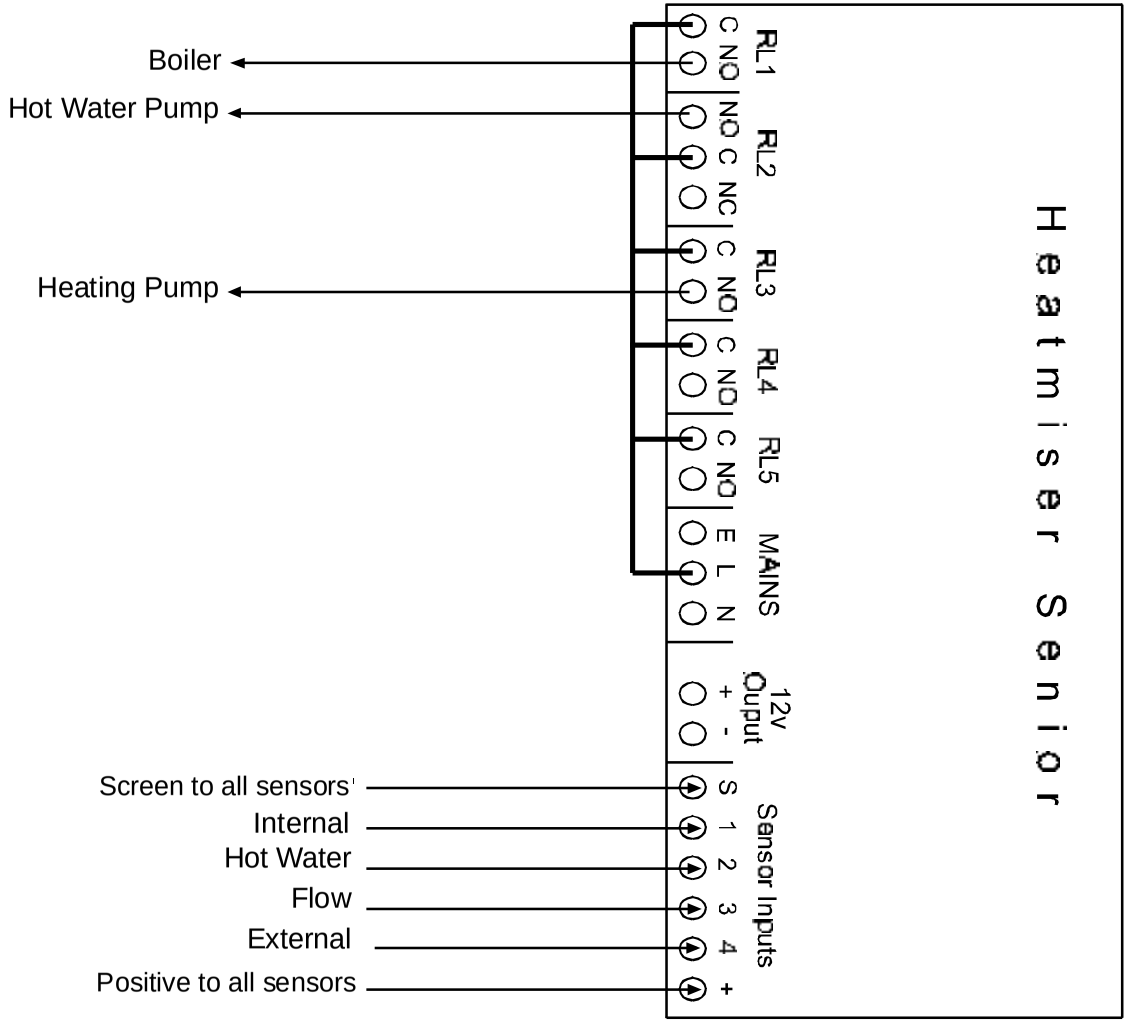


HEA	
Boiler sequencer	HS-011

heatmiser
Effective Temperature Control

Beldon 8451 Twisted, screened cable must be used when connecting the Heatmiser sensors.

All relays are rated at 3 amps.



HEATMISER SENIOR	
Direct compensation on boiler with Hotwater	HS-008