

Heatmiser Plus

Engineers Set-up Guide



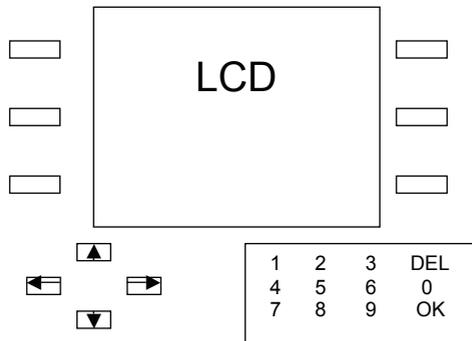
This product should be installed by a qualified electrician.
Improper installation may result injury, death or property damage.

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1. Heatmiser Plus Keypad



Soft Keys

The Heatmiser Plus features “soft keys” which can be seen above down each side of the LCD. If you have used a cash machine, you will be familiar with soft keys. The benefit of soft keys is that the button text is displayed on the LCD and is constantly changed as you use the control. This removes the need for dual purpose buttons which can be confusing.

Navigating the Zones

Pressing the Left and Right arrow keys allows you to scroll through the zones set-up on your system.

Display Back Light

To assist with programming the system, the backlight is permanently on.

2. Standard Terms

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 comfort level. 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. The Heatmiser Plus only optimises on the 1st switching level of each day.

Compensation is a system whereby the Heatmiser monitors the internal temperature according to the preset slope setting in the control. By monitoring the internal and external temperatures the Heatmiser can calculate the flow temperature needed to maintain the programmed room temperatures.

Pump Overrun: To help dissipate the heat from the boiler, a pump overrun time can be set for each zone. When enabled, the pump will run on for a number of minutes (programmable) after the zone has switched off.

Boiler Sequencing: The Heatmiser Plus can sequence up to 6 modular boilers providing the most efficient way of heating a building as only the required number of boilers are used.

Alarm/Override Inputs: The Heatmiser Plus has 10 inputs which can be used as zone overrides or alarm input. When set as an override, the zone will override on/off when the inputs is made or broken. The alarm input mode makes the Heatmiser Plus flash an alarm message on screen when the input is made.

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

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

3. Initial Set-up Procedure

This initial set-up guide has been designed to help you set-up the control to suit your installation.

When setting up the Heatmiser Plus you must first set-up the Boiler zone and then any other zones thereafter.

Apart from the Boiler zones, there are 4 other types available;

Opt: The control will automatically calculate the start up time to ensure the building is warm by the start of the programmed switching time; it does this by monitoring the internal temperature and adjusting the amount of preheat required.

Comp: Compensator. The control will automatically calculate the flow temperature required to maintain room temperature. By monitoring the internal and external sensor temperatures, the flow temperature can be increased or decreased to suit demand. This calculation is worked from a slope factor which can be altered on screen. The slope factor is set to 03 as factory default, which means that for every 1°C rise in outside temperature the flow temperature is decreased by 3°C.

Timer: In this mode, the Heatmiser will simply work to the programmed times – and is not dependant on any temperature settings.

Vent: In this mode, the Heatmiser works in reverse to a normal heating zone. In other words, the output is active when the actual temperature rises above the programmed temperature.

Begin Here . . .

- To run the set-up procedure, press Program, enter the **Engineers Code of 6343** and press OK.
- Select Initial Set-up
- Confirm that you wish to proceed with the set-up routine

Note: This will delete all previous set-up data

Boiler Zone Set-up

You are now asked “Are you enabling the boilers on another Heatmiser Plus”

Select “No” if the boilers are being controlled from **this** Heatmiser Plus. You should then go to **Step A**.

Select “Yes” if the boilers are being controlled from **another** Heatmiser Plus. You should then go to **step F**.

A. Boiler Flow Sensor?

- a. If you have a boiler flow sensor on the pipe-work, answer YES and go to step B.
- b. If you do not have a boiler flow sensor on the pipe-work, answer NO and go to step F.

B. No of Boilers - You are now asked to enter the number of boilers on the system.

C. Fixed or Variable – Select fixed if you require a fixed flow temperature. One reason to select this option is if there is a hot water zone. Select variable if you wish the Heatmiser Plus to calculate the flow temperature (compensate) depending on the external temperature.

You should now set-up the following parameters according to whether you selected Fixed or Variable.

D. Fixed Flow Boiler Parameters

Feature No	Parameter	Typical	Description
1.	Pump Overrun	20 minutes (00 disabled)	The Pump Overrun is used to dissipate the heat from the system
2.	Fixed Flow	80°C	This is the flow temperature that will be maintained when there is a heat demand.
3.	Flow Frost	08°C	Should the flow temperature drop below this setting, even with no demand, the boiler(s) will fire.
4.	Auto Lead / Lag	Yes (Press 1) No (Press 0)	The order of the boilers firing will change at midnight Sunday to even the wear across all boilers.
5.	Boiler On Delay	6 minutes	This is the delay between each boiler firing when there is a demand
6.	Boiler Off Delay	2 minutes	This is the delay between each boiler turning off

(Boiler On/Off Delay only required when multiple boilers are being controlled)

- When you have set-up the settings listed above, you need to press OK

E. Variable Boiler Zone Parameters

Feature No	Parameter	Typical	Description
1.	Pump Overrun	20 minutes (00=disabled)	The Pump Overrun is used to dissipate the heat from the system
2.	Flow Frost	08°C	Should the flow temperature drop below this setting, even with no demand, the boiler(s) will fire.
3.	Compensation Slope	03	For every 1°C rise in outside temperature, the flow will be decreased by the “slope setting”
4.	Minimum Flow	40°C	This is the minimum flow setting that will be allowed by the control
5.	Maximum Flow	80°C	This is the maximum flow setting that will be allowed by the control
6.	Auto Lead / Lag	Yes (Press 1) No (Press 0)	The order of the boilers firing will change at midnight Sunday to even the wear across all boilers.
7.	Hysteresis	02	This is the number of degrees above the flow set temperature that the boilers will be turned off.
8.	Boiler On Delay	6 minutes	This is the delay between each boiler firing when there is a demand
9.	Boiler Off Delay	2 minutes	This is the delay between each boiler turning off

(Boiler On/Off Delay only required when multiple boilers are being controlled)

- When you have set-up the settings listed above, you need to press OK

F. No Boiler Flow Sensor Parameters

Feature No	Parameter	Typical	Description
1.	Pump Overrun	20 minutes (00=disabled)	The Pump Overrun is used to dissipate the heat from the system

- When you have set-up the settings listed above, you need to press OK

Notes:

- i. When you have set-up a zone on the Heatmiser Plus, you will be shown a display with the relay outputs and sensor input details. Make a note of these and confirm this is how you have wired this particular zone.
- ii. The settings above are typical; you should confirm that they are suitable for your installation.

Next Zone . . .

You are now prompted to set-up another zone or if you have finished configuring the Heatmiser Plus, press Finish.

We have detailed the different zone types available and their parameters below. After each new zone, confirm the wiring outputs are correct as per the information screen displayed.

The Heatmiser Plus will automatically calculate how many relays you have used and will only offer zone types which can be set-up on the Plus with the relays and sensor connections remaining.

Optimiser Zone Set-up

When you have selected Optimisation, you are prompted to enter the following parameters.

No	Parameter	Typical	Description
1	Enable the Boiler ?	Yes (Press 1) No (Press 0)	When enabled, the boiler will be enabled when there is a demand for heat from this zone.
2	Pump Overrun	20 minutes	The Pump Overrun is used to dissipate the heat from the system
3	Preheat Time	03 Hours	Maximum number of hours the heating can come on before the programmed time.
4	Rate of Change	20 minutes / °C	Number of minutes to raise the building 1°C
5	Hot Water Boost	Yes (Press 1) No (Press 0)	When enabled, the Hot water output is activated for 1 hour at
6	Apply Summer (Follows the Summer Input when made)	Yes (Press 1) No (Press 0)	If enabled, when the summer input is made, the zone will switch into System Frost temp Normally disabled for HW zones
7	Override Limit	08 Hours	This limits the amount of hours the zone can be overridden
8	Override Input	Yes = Override Input (Press 1) No = Alarm Indication (Press 0)	To enable an override input for this zone, select Yes here. For an alarm indication, select No.
9	External Off	Enter the Ext Off Temp	Should the external temperature rise above this temperature, the zone will be turned off
10	Average Sensor	Yes (Press 1) No (Press 0)	In large areas, 2 sensors can be used to take an average temperature reading.

- When you have set-up the settings listed above, you need to press OK

Compensator Zone

The Heatmiser Plus asks you to select the zone **with or without an internal sensor**.

With an internal sensor, the Heatmiser Plus compensates the flow temperature only when the Room temperature is within 2°C of the set temperature. Without an internal sensor, the Heatmiser Plus compensates whenever there is a demand for heat.

When you select a compensator zone, you are prompted to enter the following parameters.

Compensating with an Internal Sensor

No	Parameter	Typical	Description
1	Enable the Boiler	Yes (Press 1) No (Press 0)	When enabled, the boiler will be enabled when there is a demand
2	Pump Overrun	20 minutes	The Pump Overrun is used to dissipate the heat from the system
3	Preheat	03 hours	Maximum number of hours the heating can come on before the programmed time
4	Rate of Change	20 minutes per °C	Number of minutes to raise the building 1°C
5	Flow Frost	08°C	Should the flow temperature drop below this setting, even with no demand, the boiler(s) will fire.
6	Compensation Slope	03	For every 1°C rise in outside temperature, the flow will be decreased by the "slope setting"
7	Minimum Flow	According to your system	This is minimum flow setting that will be allowed by the control
8	Maximum Flow	80°C	This is the maximum flow setting that will be allowed by the control
9	Pulse Time	15 seconds	This is the number of seconds the Plus will signal to open or close the valve
10	Delay Time	150 seconds	This is the number of seconds the Plus will wait after pulsing the valve.
11	Apply Summer Input	Yes (Press 1) No (Press 0)	If enabled, when the summer input is made, the zone will switch into System Frost temp
13	Override Limit	08 hours	This is the maximum override time allowed
14	Override Input	Yes = Override input (Press 1) No = Alarm indication (Press 0)	To enable an override input for this zone, select Yes here. For an alarm indication, select No.
15	External Off	Enter the Ext Off Temp	Should the external temperature rise above above this setting, this zone will switch off
16	Average Sensor	Yes (Press 1) No (Press 0)	In large areas, 2 sensors can be used to take an average temperature reading.

- When you have set-up the settings listed above, you need to press OK

Compensating with no Internal Sensor

No	Parameter	Typical	Description
1	Enable the Boiler	Yes (Press 1) No (Press 0)	When enabled, the boiler will be enabled when there is a demand
2	Pump Overrun	20 minutes	The Pump Overrun is used to dissipate the heat from the system
3	Flow Frost	08°C	Should the flow temperature drop below this setting, even with no demand, the boiler(s) will fire.
4	Compensation Slope	03	For every 1°C rise in outside temperature, the flow will be decreased by the "slope setting"
5	Minimum Flow	40	This is minimum flow setting that will be allowed by the control
6	Maximum Flow	80	This is the maximum flow setting that will be allowed by the control
7	Pulse Time	15 seconds	This is the number of seconds the Plus activate to open or close the valve
8	Delay Time	150 seconds	This is the number of seconds the Plus will wait after pulsing the valve.
9	Apply Summer Input	Yes (Press 1) No (Press 0)	If enabled, when the summer input is made, the zone will switch into System Frost temp
11	Override Input	08	To enable an override input for this zone, select Yes here. For an alarm indication, select No.
12	Override Limit	Yes = Override input (Press 1) No = Alarm Indication (Press 0)	Should the external temperature rise above this setting, this zone will switch off
13	External Off	Enter the Ext Off Temp	Should the external temperature rise above this setting, this zone will switch off

- When you have set-up the settings listed above, you need to press OK

Timer Zone

The Heatmiser Plus allows you to set-up a timer zone. In this mode, the user has 4 switching periods per day available. When you select a Timer Zone you are prompted to enter the following parameters.

Feature No	Parameter	Typical	Description
1	Enable the Boiler	Select Yes or No	When enabled, the boiler will be enabled when there is a demand
2	Apply Summer	Select Yes or No	If enabled, this zone will switch into summer mode when the summer input is made
3	Override Input	Yes = Override Input No = Alarm Indication	To enable an override input for this zone, select Yes here. For an alarm indication, select No.
4	Override Limit	08 hours	Should the external temperature rise above this setting, this zone will switch off
5	External Off	Enter the Ext Off Temp	Should the external temperature rise above this setting, this zone will switch off

- When you have set-up the settings listed above, you need to press OK

Vent Zone

The Heatmiser Plus allows you to set-up a vent zone. In this mode, the user has 4 switching periods per day available. When you select a Vent Zone, you are prompted to enter the following parameters.

Feature No	Parameter	Typical	Description
1	Apply Summer	Select Yes or No	If enabled, this zone will switch into summer mode when the summer input is made
2	Override Input	Yes = Override Input No = Alarm Indication	To enable an override input for this zone, select Yes here. For an alarm indication, select No.
3	Override Limit	08 hours	Should the external temperature rise above this setting, this zone will switch off
4	Average Sensor	Select Yes or No	Should the external temperature rise above this setting, this zone will switch off

- When you have set-up the settings listed above, you need to press OK

Inputs Explained

Inputs 1-7 are reserved as zone override or alarms depending on their configuration.

Input 8 is reserved as the Holiday Input. When this input is made, all of the zones will control to the System Frost temperature. See the User Manual for more information.

Input 9 is reserved as the Summer Input. When this input is made, all of the zones programmed to follow this input will control to the System Frost temperature. It is normal for hot water zones to have this input disabled. You can do this by selecting “No” to the question Apply Summer Input during configuration.

Input 10 is reserved as the Boiler Enable Input. When this input is made, the boilers will switch into Remote Enable mode and will maintain their programmed flow temperatures.

4. Normal Mode Screen Layouts

The screens displayed on your Heatmiser Plus are determined by how it was initially set-up.

Boiler Enable Screen

This screen shows:

1. The current time and date
2. The pump and boiler enable status.
3. Note that on this screen there is only 1 menu button "Program"

Wednesday		15.12	16-08-06	23°C
Program	Pump Status Off Boiler Enable Off			

Boiler Screen

This screen shows:

1. The current time and date
2. The Flow Actual and Set temperatures
3. The Pump and Boiler status
4. Note that on this screen there is only 1 menu button "Program"

Wednesday		15.12	16-08-06	23°C
Program	BOILERS FLOW TEMPERATURE ACTUAL SET 75°C 80°C PUMP STATUS ON BOILER STATUS ON			

Optimiser Zone

This screen shows:

1. The current time and date
2. The actual and set temperatures
3. The heat and pump status
4. Menu Options as displayed

(The pump status will only be displayed if a pump overrun time has been set-up)

Wednesday		15.12	16-08-06	23°C
Program	ZONE 1 TEMPERATURE ACTUAL SET 20°C 22°C PUMP STATUS ON HEAT STATUS ON		Override View Holiday	

Compensation Zone

This screen shows:

1. The current time and date
2. The actual and set flow temperatures
3. The actual and set room temperatures
4. The Pump and Valve status
5. The alarm status
6. Menu Options as displayed

Wednesday		15.12	16-08-06	23°C
Program	ZONE 2 FLOW TEMPERATURE ACTUAL SET 70°C 80°C ROOM TEMPERATURE ACTUAL SET 20°C 18°C PUMP OFF VALVE WAITING HEAT OFF ALARM: CLEAR		Override View Holiday	

Timer Zone

This screen shows:

1. The current time and date
2. The Timer status
3. The alarm status
4. Menu Options as displayed

Wednesday		15.12	16-08-06	23°C
Program	ZONE 3 FLOW TEMPERATURE ACTUAL SET 70°C 80°C ROOM TEMPERATURE ACTUAL SET 20°C 18°C PUMP OFF VALVE WAITING HEAT OFF ALARM: CLEAR			Override View Holiday

Vent Zone

This screen shows:

1. The current time and date
2. The actual and set room temperature
3. The vent status
4. Menu Options as displayed

Wednesday		15.12	16-08-06	23°C
Program	ZONE 4 ROOM TEMPERATURE ACTUAL SET 20°C 18°C STATUS VENT ON ALARM: CLEAR			Override View Holiday

5. Zone Set-up Complete

You have now completed to set-up the zones within the Heatmiser Plus.
You now need to calibrate each sensor connected to the Heatmiser Plus.

6. Sensor Calibration

Each sensor connected to the Heatmiser Plus should be calibrated to ensure the reading is accurate. We suggest you wait 1 hour after installation before calibrating.

You should have taken an accurate temperature reading from a digital thermometer for each zone prior to beginning the calibration process.

To calibrate the sensor, follow the steps below:

- Press Program, enter the **Engineers Code of 6343** and press OK
- Select Zone Set-up
- You need to work through each zone, so highlight the boiler zone and press OK
- Select Sensor Cal from the menu
- You will now see the current sensor readings (all sensors for this zone are shown on one screen) For the Boiler zone, the flow sensors and external sensors are shown.
- You should now enter, using the numeric keypad, the calibrated reading.
- Select OK to confirm
- Press Back and then repeat this process for each zone

7. Title Set-up

You are able to program titles for a) Each Zone, b) Each Relay and c) Each Alarm. This allows you to easily identify each zone on the system.

Note: The Boiler zone titles cannot be customised.

Zone Title

A zone title of up to 12 characters can be programmed.
To customise the zone title, follow these steps.

- Press program, enter the Engineers code **6343** and press OK
- Select Zone Setup
- Highlight the zone you wish to alter, and press OK
- Select Titles
- Select Zone Title
- Using the Heatmiser keypad, you can enter the desired title.
- Press OK to store

Relay Title

A Relay title of up to 12 characters can be programmed.
To customise the relay title, follow these steps.

- Press Program, enter the Engineers code 6343 and press OK
- Select Zone Setup
- Highlight the zone you wish to alter, and press OK
- Select Titles
- Select Relay Title
- Using the keypad, you can enter the desired title.
- Press OK to store
- OR
- Move the cursor to the end of the Relay Title, and you will notice the cursor jumps down to the Pump Title (if on the system). You can enter this title in the same way
- Using the keypad, enter the desired title
- Press OK to store

Alarm Title

An alarm title of up to 12 characters can be programmed.
To customise the alarm title, follow these steps.

- Press program, enter the Engineers code and press OK
- Select Zone Setup
- Highlight the zone you wish to alter, and press OK
- Select Titles
- Select Alarm Title
- Using the keypad, you can enter the desired title.
- Press OK to store

8. Set-up Complete

The Heatmiser Plus is now set-up and is ready for use. You should now consult the User Operators Guide for information on how to operate the product.

We suggest you now complete the commissioning form found at the back of this manual and file this manual with the documentation for this particular site for future reference.

9. Viewing the Zone Set-up

Once you have configured the Heatmiser Plus you can view the setting for each zone by following the steps below.

- Press Program and enter the configuration code (6343)
- Select Zone Set-up
- You can now select the zone you wish to view
- Select View Config

You will then be presented with the configuration screen which will display the settings for the zone selected.

Note: You are unable to alter any setting on this screen, it is for viewing only.

Wednesday	15.12	16-08-06	23°C
	1.	ENABLE THE BOILER	Y
	2.	PUMP OVERRUN	00M
	3.	PREHEAT	03H
	4.	RATE OF CHANGE	20M
	5.	HOT WATER BOOST	N
	6.	APPLY SUMMER	N
	7.	OVERRIDE LIMIT	08H
	8.	OVERRIDE INPUT	N
	9.	EXTERNAL OFF	00C

10. Altering a Zone Set-up

Once you have configured the Heatmiser Plus you are able to change any of the zone parameters, but you are not able to make changes to say the number of boilers or add additional sensors etc..

If you are looking to make significant changes to the set-up of the control, you must run the Initial Setup Procedure – this is to ensure the product is configured properly therefore removing any risk of conflict.

To adjust the configuration of a zone, follow the steps below.

- Press Program and enter the configuration code (6343)
- Select Zone Set-up
- You can now select the zone you wish to view
- Select Re-Config
- You can make any adjustments necessary
- Press OK to save

11. Comms Setup

When the Heatmiser Plus is used as part of a network system, a unique communication address must be entered.

12. User Code Reset

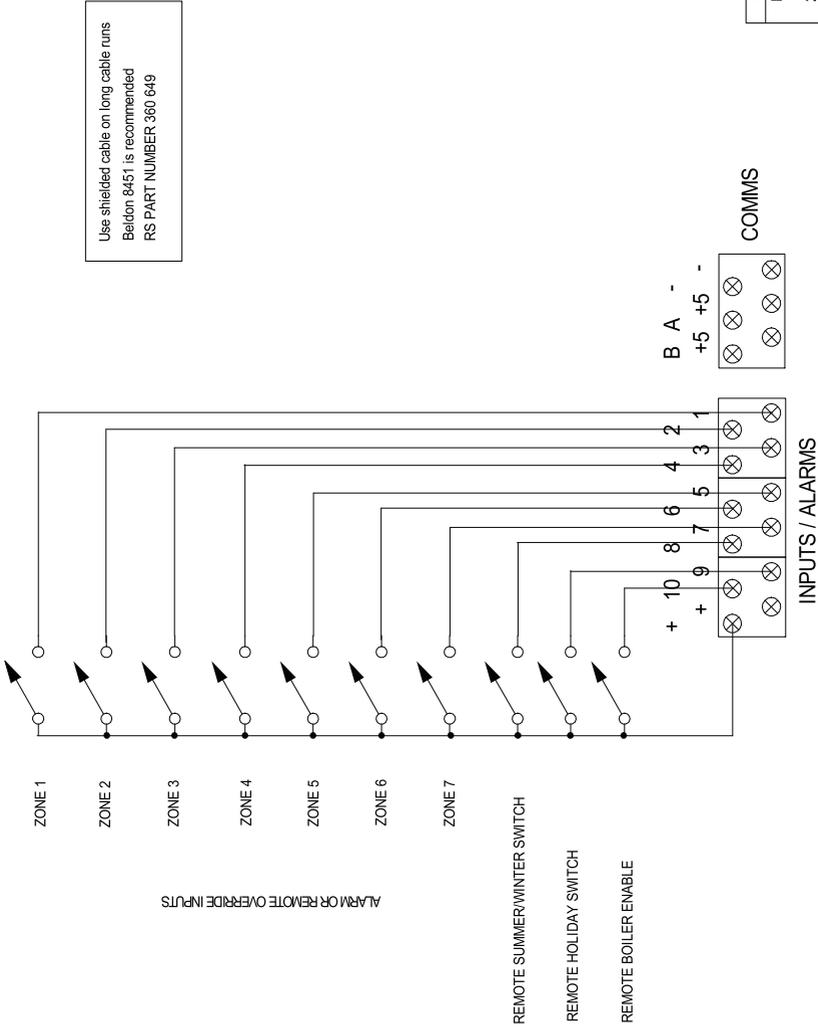
Should you forget the User code, you can use this feature to reset it.

- Press Program, enter the Engineers code **6343** and press OK
- Select Code
- The Heatmiser Plus will display the Old User code
- You can now enter a new code using the keypad
- And press Confirm to store

13. System Reset

Should you need to reset the Heatmiser Plus back to the factory defaults, you can do so by using this function. You should note that all your settings will be lost after resetting the Plus.

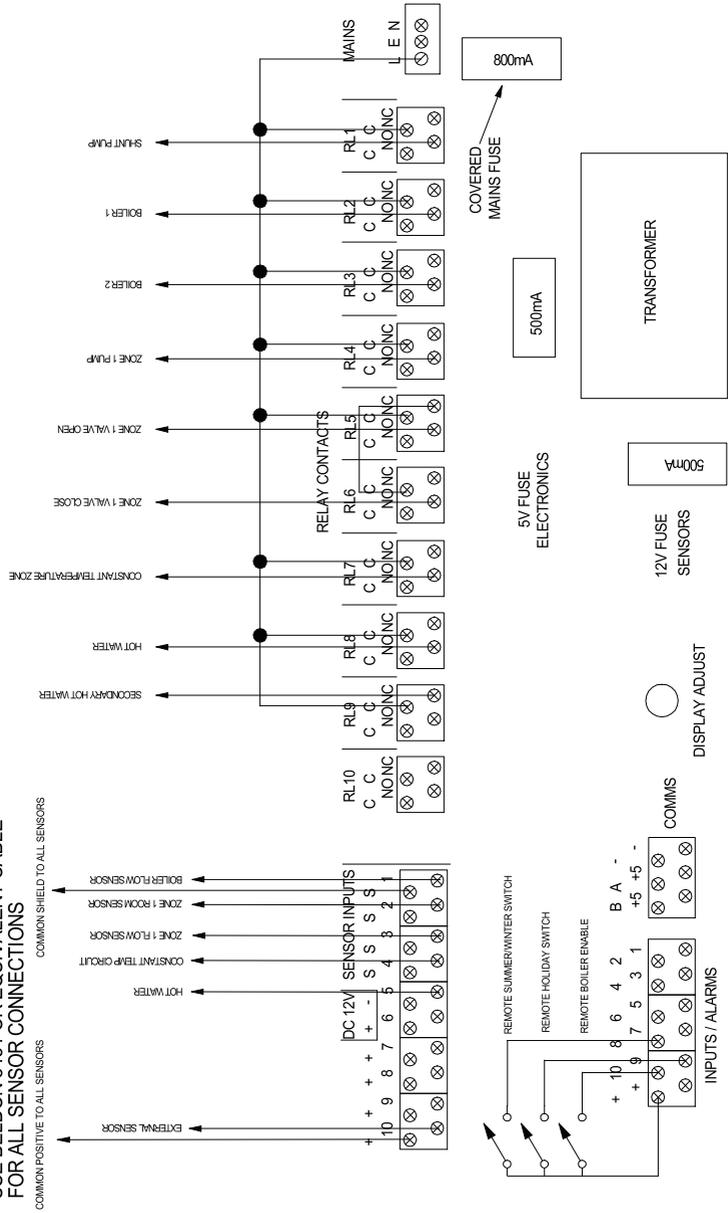
CONNECTING ALARM AND REMOTE OVERRIDE INPUTS



Use shielded cable on long cable runs
Beldon 8451 is recommended
RS PART NUMBER 360 649

**2 BOILER SEQUENCER WITH SHUNT PUMP 1 COMPENSATED ZONE, 1 CONSTANT TEMPERATURE ZONE,
HOT WATER PRIMARY AND SECONDARY HOT WATER TIMELOCK**

**USE BELDON 8451 OR EQUIVALENT CABLE
FOR ALL SENSOR CONNECTIONS**



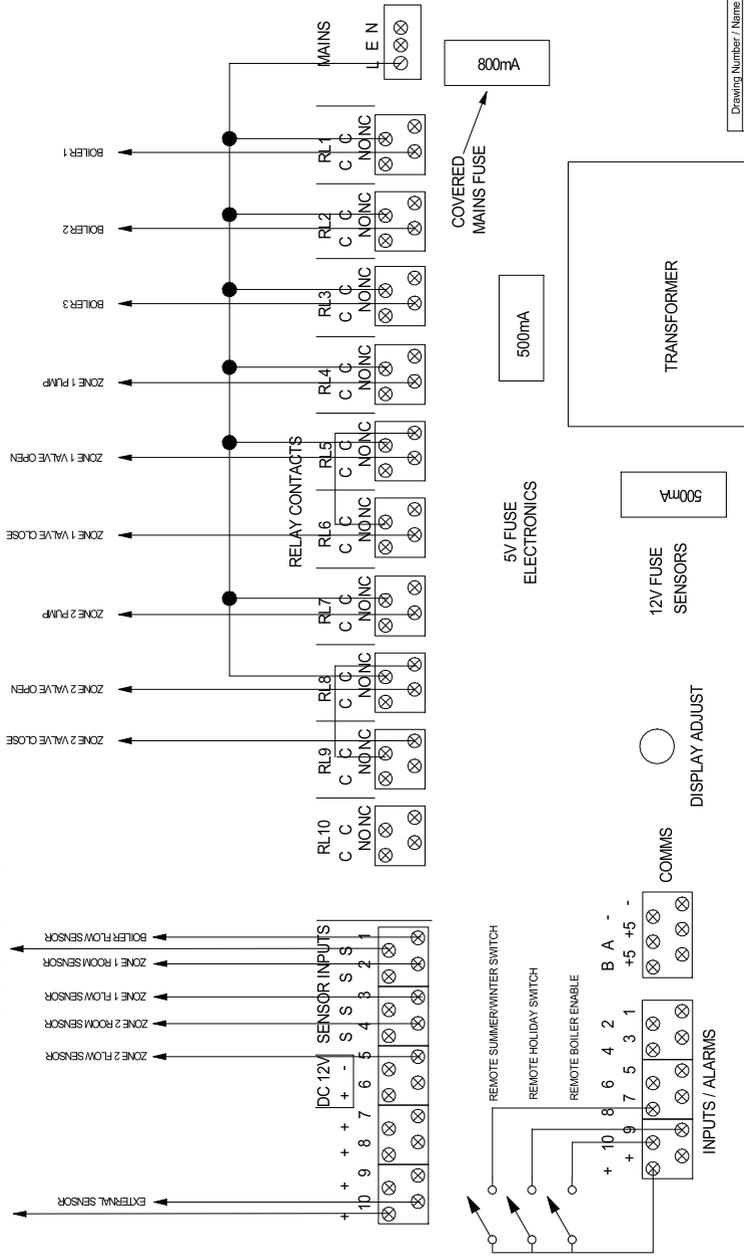
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 HEATMISER UK LTD
 25th SEPTEMBER 2006

USE BELDON 8451 OR EQUIVALENT CABLE FOR ALL SENSOR CONNECTIONS

COMMON POSITIVE TO ALL SENSORS

COMMON SHIELD TO ALL SENSORS

3 BOILER SEQUENCER 2 COMPENSATED ZONES

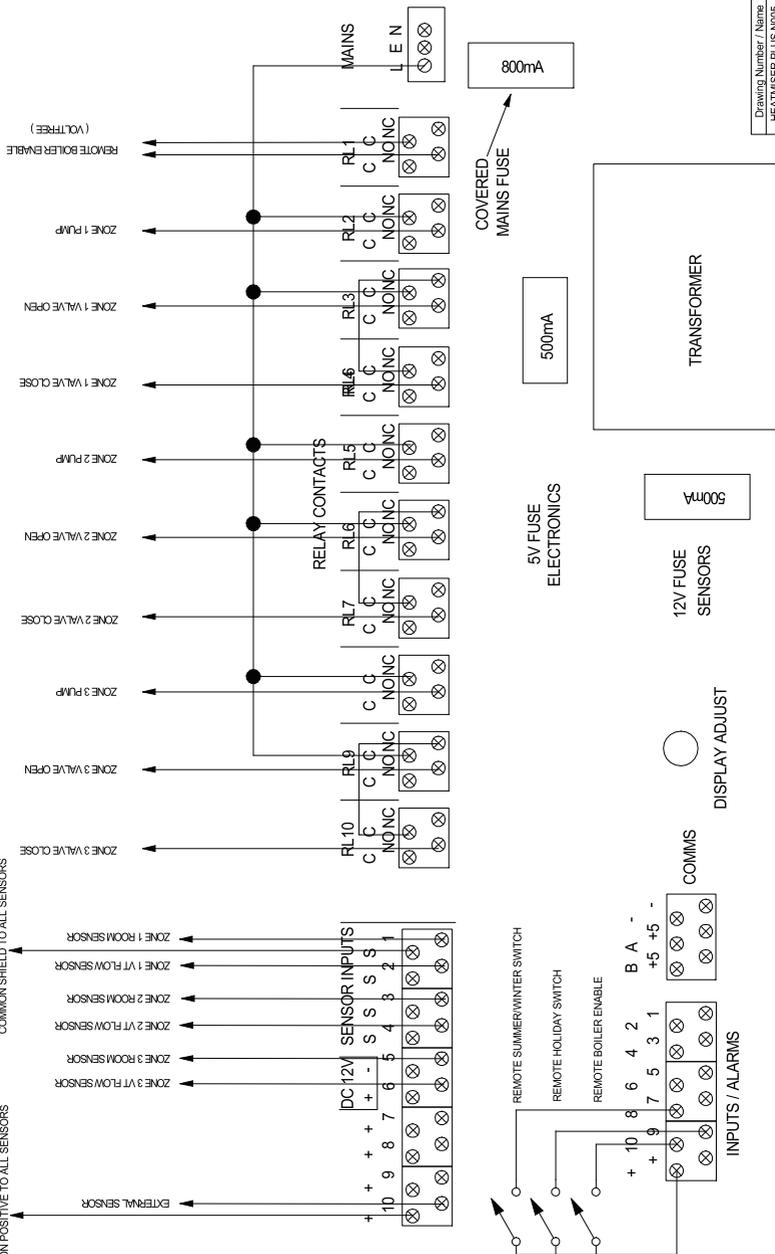


Drawing Number / Name
HEATMISER PLUS N004
HEATMISER UK LTD
25th SEPTEMBER 2006

**USE BELDON 8451 OR EQUIVALENT CABLE
FOR ALL SENSOR CONNECTIONS**

COMMON POSITIVE TO ALL SENSORS
COMMON SHIELD TO ALL SENSORS

3 COMPENSATED ZONES WITH REMOTE BOILER ENABLE

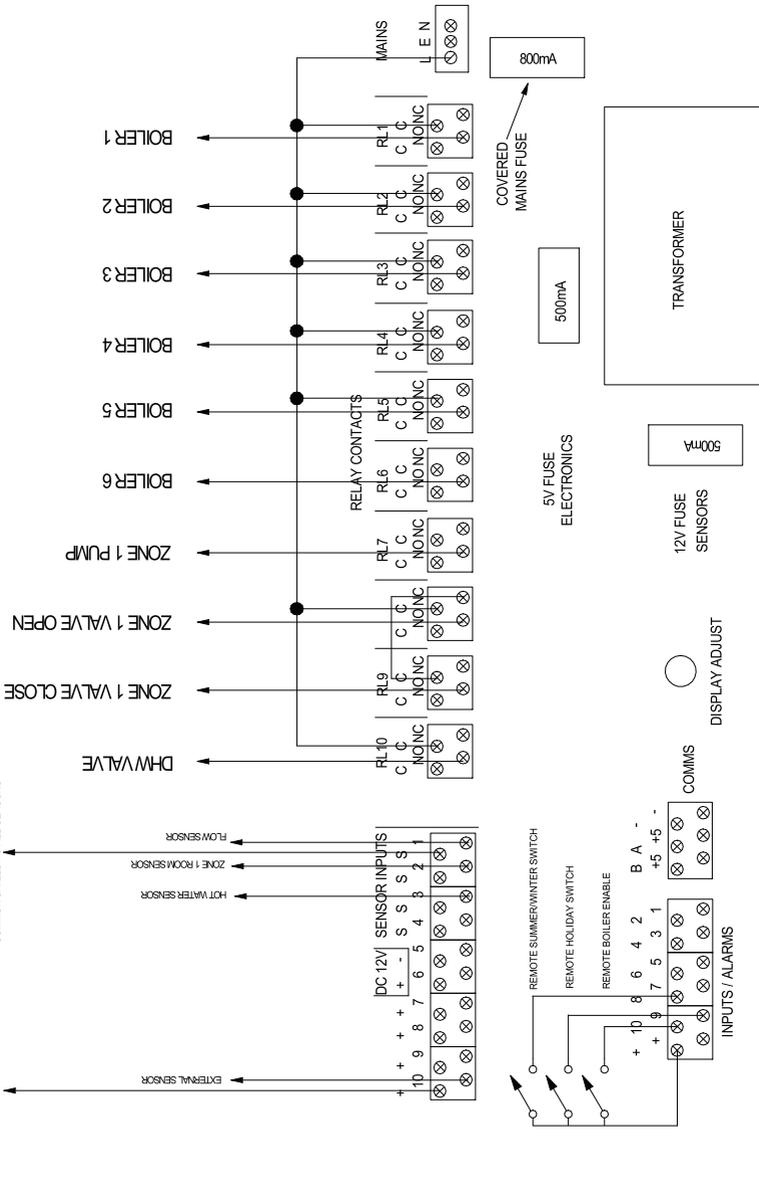


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6 BOILER SEQUENCER WITH 1 COMPENSATED ZONE AND HOT WATER

USE BELDON 8451 OR EQUIVALENT CABLE
FOR ALL SENSOR CONNECTIONS

COMMON SHIELDED TO ALL SENSORS

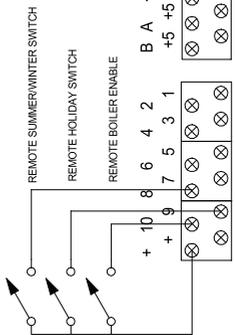
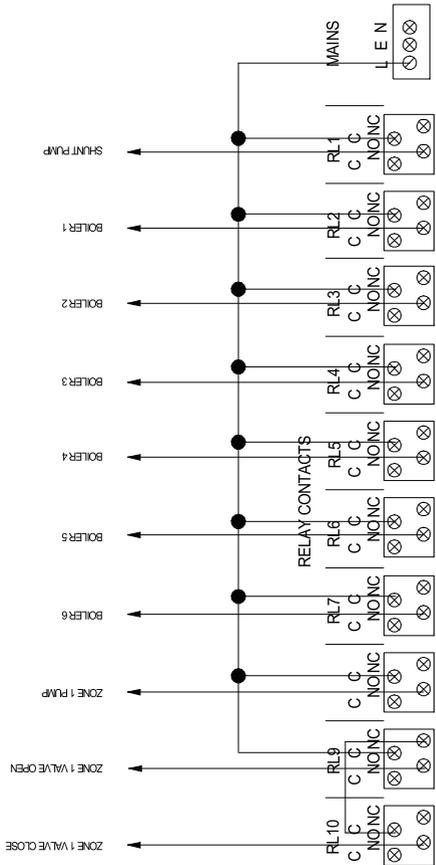
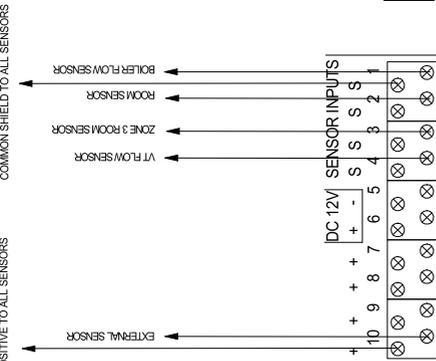


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6 BOILER SEQUENCER WITH SHUNT PUMP AND 1 COMPENSATED ZONE

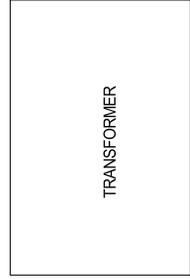
USE BELDON 8451 OR EQUIVALENT CABLE
FOR ALL SENSOR CONNECTIONS

COMMON SHIELD TO ALL SENSORS
COMMON POSITIVE TO ALL SENSORS



12V FUSE
SENSORS

500mA



500mA

5V FUSE
ELECTRONICS

800mA

COVERED
MAINS FUSE

INPUTS / ALARMS

COMMS

DISPLAY ADJUST

12V FUSE
SENSORS

500mA

TRANSFORMER

500mA

COVERED
MAINS FUSE

800mA

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