SYX66x Quick Setup Guide

V1.10.3

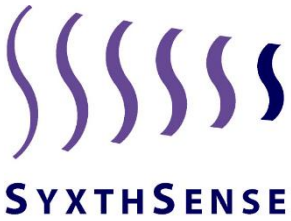


Table of Contents

1. About this Guide

This guide is a quick overview of the controller commissioning process. It should be used only as an aid once the SYX66x configuration manual has been read and understood.

Pages 6 to 10 can be copied and left on site with the client to provide a site configuration record and also provide future support. Any ongoing changes should result in updated setting sheets, please always provide information on when and why changes were made and the settings original and new values. This helps people work to a common objective.

2. Getting Started

2.1 User Interface Overview

The controller can be commissioned using any of three user interfaces:

1. The controllers own LCD interface and buttons/wheel
2. The TPC Touchscreen
3. The 192.168.1.99 browser connection
4. The 192.168.1.99/mo/ browser connection

The choice of interface is user dependent. The options and maps that follow simply use a browser option to make clear the documentation process. The process steps are identical no matter which method is used.

The inbuilt user interface has the advantage that a laptop or computer is not required.

2.2 The TPC Touchscreen

The TPC Touchscreen option will need to be configured before it can be used. As the touchscreen starts up it will display a settings icon at the bottom of the screen. Press this icon and enter the configuration mode.

You must select to configure controller 1 and only change the user passcode to be 0000.

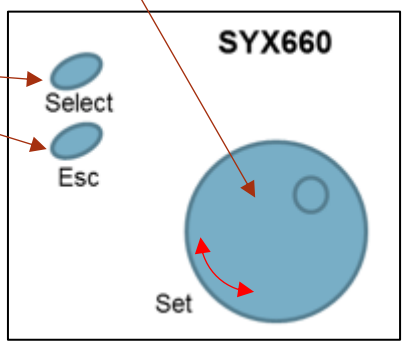
Once this has been changed you can allow the screen to continue starting up. A direct Ethernet connection is required between the controller and the TPC Touchscreen.

2.3 Web Browser Connections

The computer being used must be configured to be on the same IP Address range e.g. 192.169.1.110. A direct Ethernet connection is required between the controller and the computer. The subnet mask is 255.255.255.0. A tutorial on configuring your laptop IP address can be seen on the Video Resources section of our website.

3. Logging On and Entering User Access Codes

Press and Hold the “ESC” for 5 Seconds to access the Logon Screen. Turn the “Wheel” and Press the “Wheel” to select individual numbers, press “ESC” to go backwards if you make a mistake. When you have the correct number press the “Select” button.



Level 0 = 0000	Base User Level
Level 1 = 1111	Supervisory Level
Level 2 = 0112	Set-up and Commissioning Level

4. Notes on Using the Parameter List

This document provides parameter list for the installer to record settings that have be adjusted. The parameter in Question may or may not be required dependent on the controller Mode Selected. If a parameter is relevant to ALL menus then this parameter should be set or noted to be as default. The MODE column in the list indicates which menus use the parameter so an engineer can decide which parameters are important for the project.

Parameter	Mode	Default	As Installed	Description
Heating Override Period	ALL	1h	*1hr*	Time Extension Period in Hours
VT Ratio	Opt/Comp Day/Night Day/Off	3	*Not Used. Left set at 3*	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature.

In the above example The Mode column reflects which mode is using the parameter. ALL means this particular parameter is used by ALL Control Modes

Only the relevant Modes will be shown should a mode not be suitable, in the example shown VT Ratio is not required or important to be set if the MODE of control is set to be Optimiser Only.

Installer modified values should be recorded in the AS INSTALLED column.

5. Controller Commissioning Assistance

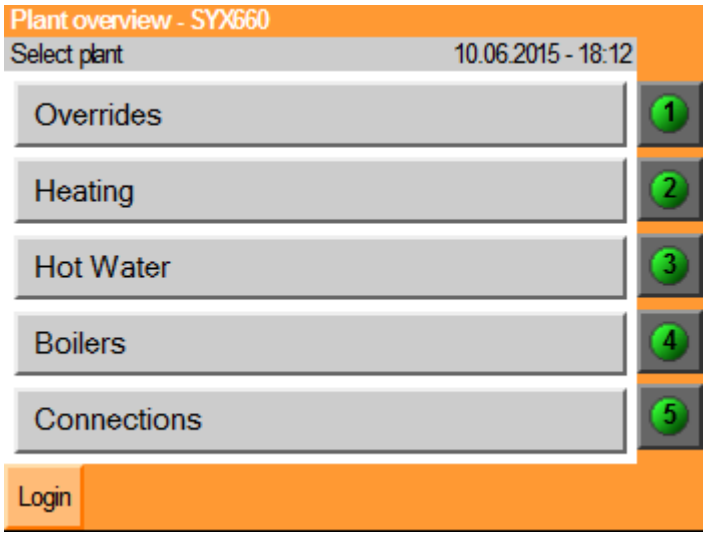
Commissioning Mode: Level 2 Access, Heating Menu

Testing the controller can be simplified by running the controller in the Commissioning Mode. This is simply due to the fact that the controller will try to save energy and the energy saving modes may prevent the plant from running when you need to test it. Often controllers are installed during Summer months so this mode helps save a lot of time.

Energy Saving modes are in the form of: Outside High Limit, Room High Limit, Optimum Off, Flow Economy, Room Influence.

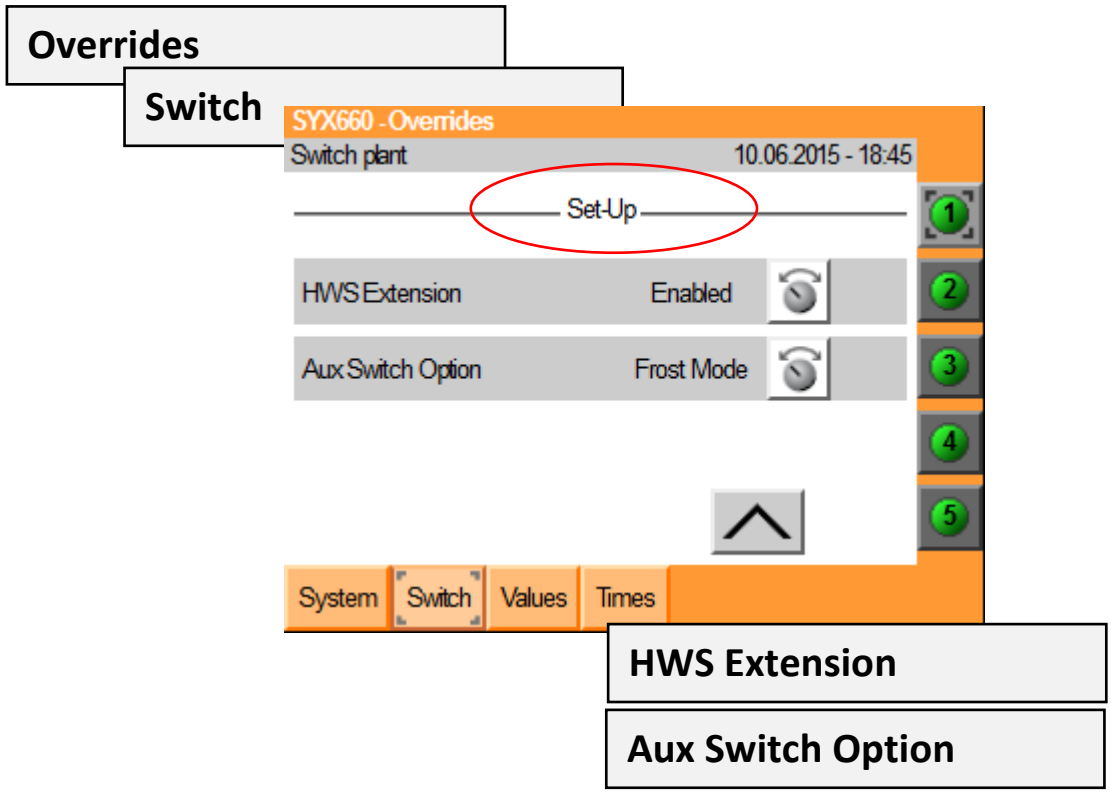
The engineer's mode provides a simple way to by-pass the energy saving features by fixing the outside air sensor to 5'C and the space sensor reading to 18'C. The time settings will still be followed. The engineer's mode will remain active until set to back to Off. The Service Mode Active Lamp will be active during Service mode. Take the controller out of commissioning mode once your testing and demonstrations are complete.

6. Controller Set-Up Method

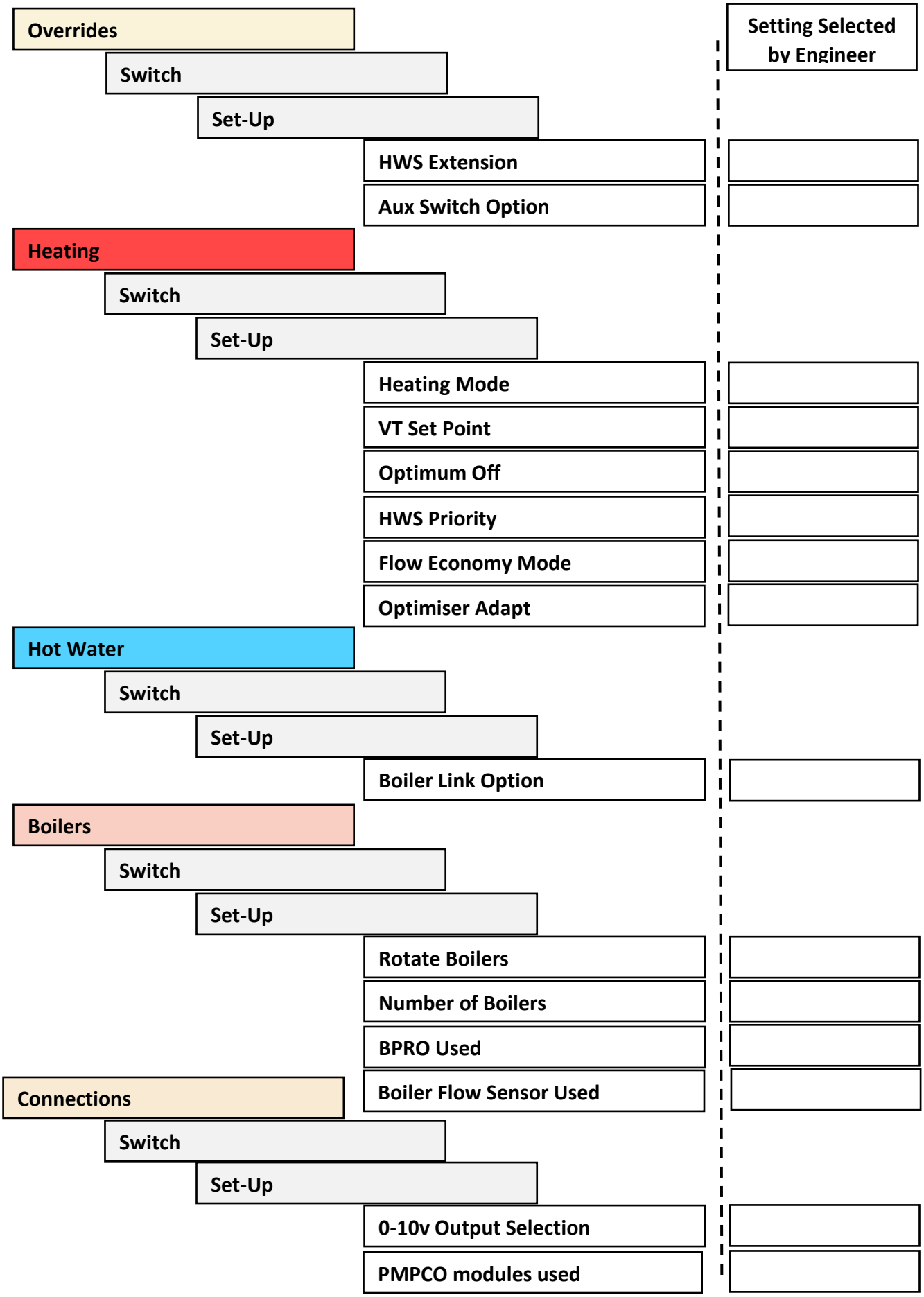


Once you have gained access at Level 2 to the controller you can then work through the Configuration Options. Each of the main menu items show above has menu options inside that configure the controller. Once these have been set you can then fine tune the remaining settings to achieve the performance you require.

Select the menu and then find the Set-Up Options in that Menu by selecting the arrows or by using the wheel



7. Configuration Map



Site and Heating Plant Location:
Engineer Name:
Date:

7.1 Equipment and Location

Terminal	Pin	Function	Used Y/N	Location
13&15	**Pin 1**	**Outside Air Temperature** Part Number:		
14&15	**Pin 2**	**Compensator Flow Sensor** Part Number:		
16&15	**Pin 3**	**Boiler/Heating Return Sensor** Part Number:		
17&15	**Pin 4**	**Boiler Flow Sensor** Part Number:		
31&33	**Pin 5**	**Space Sensor 1** Part Number:		
32&33	**Pin 6**	**Space Sensor 2** Part Number:		
27&28	**Pin 9**	**Remote Day Extend button**		
29&30	**Pin 10**	**Auxiliary Switch Input** (Close switch to activate)		
34 0-10 **36 Gnd**	**Pin 7**	**User Selectable Output** (Configured in Connections Menu)		
35 0v **19 +ve** **(Link 20 to 30)**	**Pin 8**	**Hot Water Plant Enable** (Connect HWS relay A1/A2 across 19 and 35)		
3&4	**Pin 11**	**Boiler No. 1**		
5&6	**Pin 12**	**Boiler No. 2**		
7&8	**Pin 13**	**Pump OR (Optimiser Mode)** **Plant Start/Stop**		
9&10 **11&12**	**Pin 14** **Pin 15**	**Valve Open** **Valve Close**		
Equipment	**VT VALVE**	Actuator Type: Valve Type:		

7.2 As Installed Settings Record

Parameter	Default	As Installed	Provided By:
Heating Times	07:00 – 16:00 Monday to Friday		
Hot Water Times	06:00 – 15:00 Monday to Friday		
Holidays	None		

Parameter	Mode	Default	As Installed	Description
Heating Override Period	ALL	1h		Time Extension Period in Hours
HWS Override Period	ALL	1h		Time Extension Period in Hours
Origin	Opt/Comp Day/Night Day/Off	20°C		The heating flow temperature set point during the day when the outside air temperature is 20°C
Room High Limit Offset	ALL	2°C		Add this value to the space set point to set the room high limit value. If the space temp goes of the high limit set point the heating will be put in Night mode until it falls by 1°C
Space Frost Set point	ALL	10°C		If space temperature falls below the Space Frost limit, the valve will be controlled to the compensated flow high value and pump and boiler will switch on.
VT Ratio	Opt/Comp Day/Night Day/Off	3		Influence on the Heating Flow Set point based on 1'C change in Outside air temperature.
Compensated Flow Low	Opt/Comp Day/Night Day/Off	35°C		Minimum value of compensated flow temperature during compensation.
Compensated Flow High	Opt/Comp Day/Night Day/Off	82°C		Maximum value of compensated flow temperature during compensation. Occurs when the outside temperature is at or below its low value. Also used to control the valve during frost protection and optimum start (heating up)
Flow Night Setback	Day/Night Setback	-15°C		Compensated flow depression – this will cause the subtraction from the calculated compensated flow temperature of x°C.
Space Set point	ALL	20°C		The desired temperature for the controlled space.
Space Night Set point	Day/Night Setback	10°C		The space temperature below which night setback control operates.
Building Warm Up Rate	Opt/Comp Optimised	1.5		Calculated rate of room temperature rise for the building when heating is first turned on
Building Cool Down Rate	Opt/Comp Optimised	0.5		Calculated rate of room temperature fall for the building when heating is turned off

Space Influence	Opt/Comp Day/Night Day/Off	3°C		This will cause the +/- adjustment of the calculated compensated flow temperature set point for each 1°C error in space temperature.
Outside High Set point	ALL (if outside fitted)	18°C		Turns off heating if outside air temp goes above this value. Turns back on 1°C below this value.
Outside Frost Set point	Opt/Comp Day/Night Day/Off	2°C		If outside temperature falls below the Outside Frost limit, the valve will be opened and the heating pump will switch on.
Pump Run On	Opt/Comp Day/Night Day/Off	15 mins		Pump overrun time period. Setting to 0 will disable overrun for next event
VT Valve Time (0 to 100%)	Opt/Comp Day/Night Day/Off	120s		Time for the valve to move from closed to open (seconds)
HWS Primary Set point	ALL	82°C		Set point issued to the boilers when the HWS is in demand for heat and the boiler linked option is made
Schedule Difference	Opt/Comp Day/Night Day/Off	10°C		Used for valve/boiler systems only. This value is used to determine when the boiler can be switched off. If the boiler temperature is greater than the required compensated flow temperature plus the schedule difference, then the boiler will switch off.
Boiler Low	ALL(if boiler flow fitted)	35°C		Sets a Minimum set point limit that the Boilers could run at under normal control
Return Frost Limit	ALL (if sensor fitted)	10°C		If the return temperature falls below the return frost limit, the heating will be controlled to the day set point value and boiler and pump will switch on.
Boiler High	ALL(if boiler flow fitted)	82°C		Sets a Maximum set point limit that the Boilers could run at under normal control. In built Safety High Limit feature adds 10'C to this limit and will shut boilers down until flow temp falls by 15'C
Boiler IA	ALL(if boiler flow fitted)	5 min		Sets the integral action time for the control loop. Typically the time required to raise the flow temp to high from low under light loads.
Boiler PB	ALL(if boiler flow fitted)	50		Sets the temp range of the boilers from min to max on flow temp.

0-10v Boiler Set point Scaling	ALL (if using set point control from 0-10v)	Set point Low Set point High Voltage Low Voltage High		If the 0-10v output is used as a boiler set point then it scaling can be adjusted to suit the boiler(s) being used If Boiler Setp Mode is used and there is a boiler demand the Boiler 1 Relay Output will also be enabled. The output will switch off when the boiler demand ends. This can be used to enable the boilers as required.
Sensor Calibration	Outside Comp Flow Return Boiler Flow Space 1 Space 2	0.0'C 0.0'C 0.0'C 0.0'C 0.0'C 0.0'C		Make changes to the sensor readings by comparing to a calibrated thermometer.

8 Alarms and Management

8.1 Sensor Alarms

All Sensors are monitored for correct connection. Messages will be populated based on the time and date of disconnection. It is essential that wiring of sensors is made when the controller is isolated from a power supply to avoid unwanted alarms.

8.2 Sensor Allocation Reset

Any sensors that have been connected to the controller will then be used by the application and monitored onward for ongoing faults.

If an error is made during the wiring of the sensors during commissioning or during a service visit then the sensor allocations may need to be re-set to avoid sensor alarms.

To do this, first complete any wiring changes required.

Press Once the Alarm Reset (lower button on the left of the controller facia) this will bring the backlight of the controller waking it into action.

When the back light of the controller has come on then hold the same Alarm Reset Button on the controller facia for 30 seconds. Once this process has completed the Manual Override Lamp on the controller facia will flash for 3 seconds to confirm this is complete (This will not affect any manual override conditions in place). You can then release the Alarm Acknowledge button.

Once this process is complete, the sensor alarms in the memory may take up to 2 minutes to clear. The message history can then be fully cleared by holding the Alarm Reset button once more but for 5 seconds. The Malfunction LED will turn off when this process is complete.

Your currently connected sensors will then be as you require them and no unwanted sensor alarms will be monitored.

8.3 Optimiser Alarm

If the controller detects that the warming up rate is below 0.5°C/Hour then the controller will stop any further adaption and raise a system malfunction message.

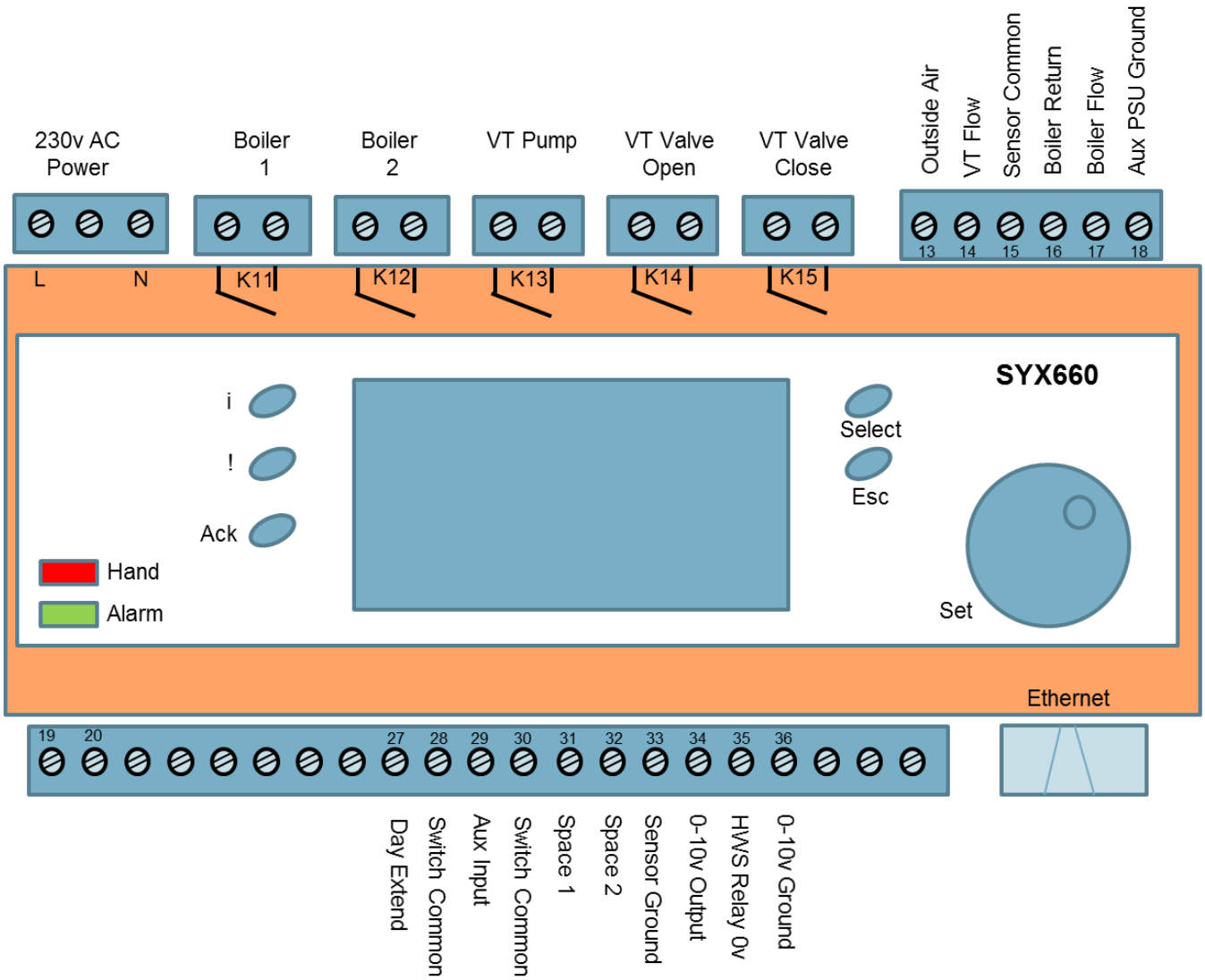
The rectification for this malfunction message is for the user to manually reset the optimiser Warming rate to a new value greater than 0.5. This is achieved by logging in at level 2 and setting the Warming Up rate to the new value (e.g. 1.5).

The reason for the slow run up rate should then be investigated. Typical reasons are as follows:

- Faulty Heating Plant (Boiler/Pump)
- Isolated or disabled heat source in the room where the sensor is located.
- TRV set too low
- Secondary controls not permitting the Day Set point to be achieved (TRV, Room Thermostat for Convectors or Underfloor System for example)
- Room Sensor in poor location and not being influenced by heating system being controlled

If there are costs associated to the resolution and the change cannot be made swiftly then the Optimiser adaption should be inhibited until the change can be made.

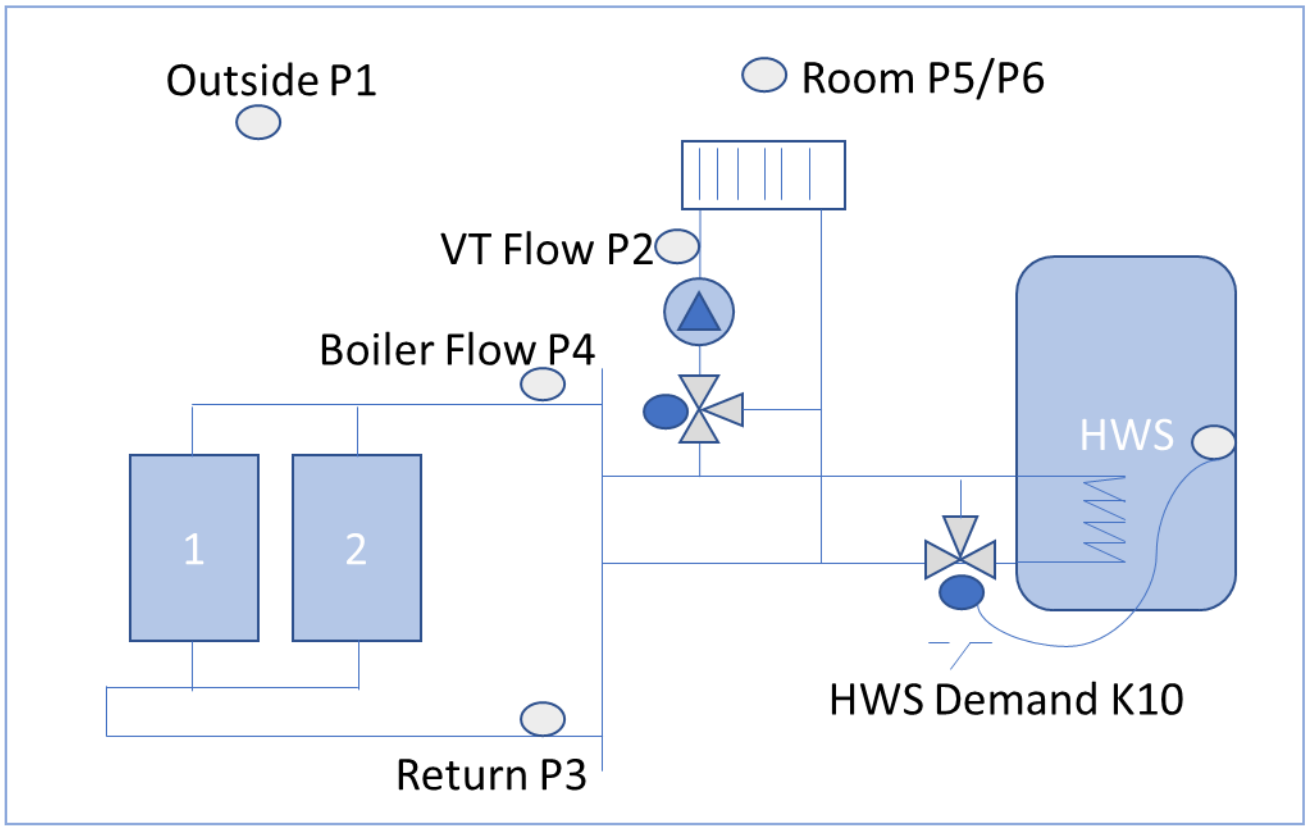
9 Wiring Summary



Connection Notes:

- If the temperature sensors are polarity sensitive connect the –ve side to the Ground (Term 15 or 33)
- Connect 0-10v output common to 0-10v Ground (Term 36)
- Connect the 0v of your 24v AC/DC Power Supply for your 0-10v Actuator or Boiler Modules onto Term 18
- Use 28 & 30 for the common side of Day Extend and Aux Input
- Connect 20 to Term 30 if using the HWS Relay
- Use Screen cable for all sensors, switched inputs and 0-10v outputs
- Connect cable screen to Earth at one point on each run
- K11 to K15 are rated to switch 5A(3A) 230v. Use Auxiliary Relays/Contactors as required
- K11 to K15 require a switch feed. The controller does not provide this supply
- Check all connections are correct before power is applied to the controller

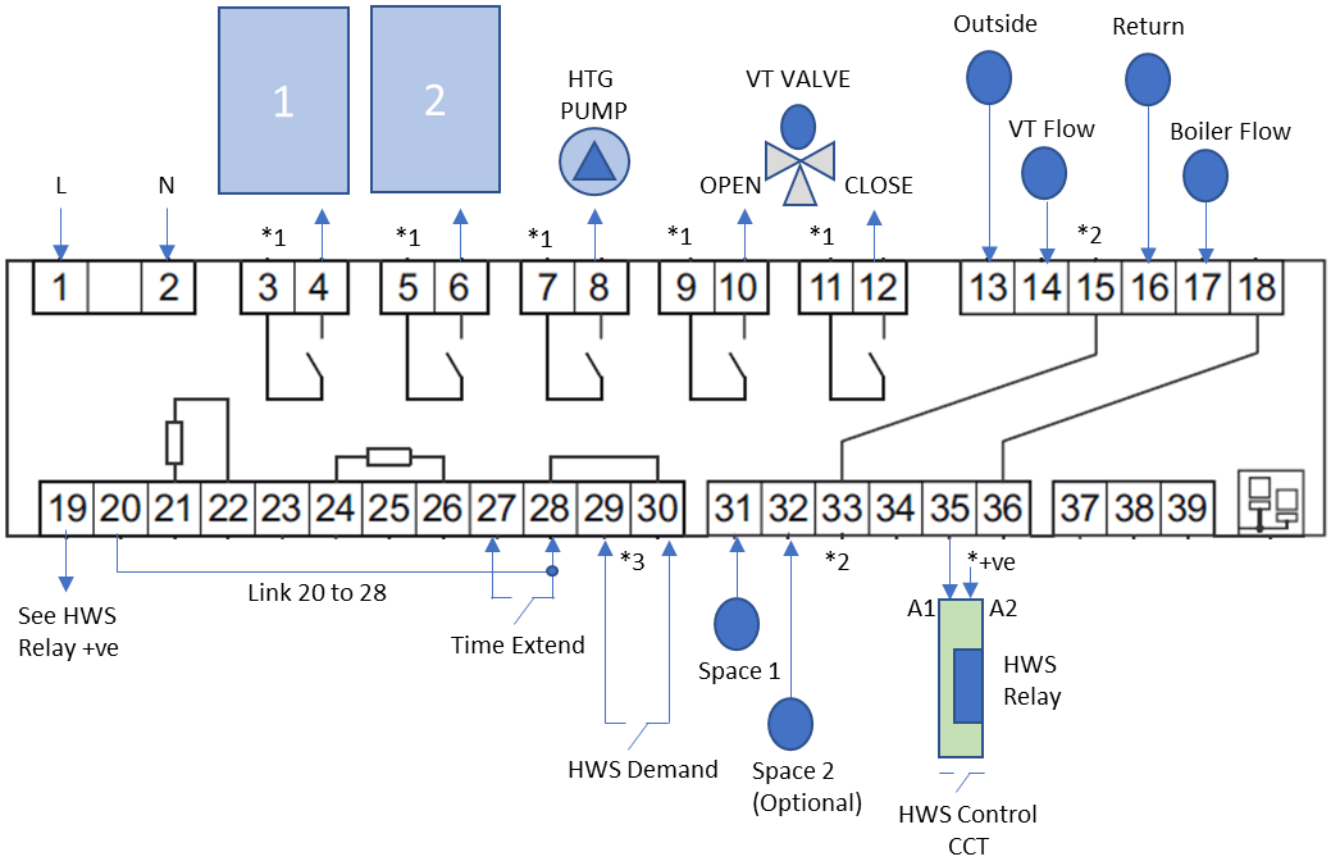
BASIC SETUP APP 1: School
2 off Boilers, VT Valve Compensation - HWS Calorifier Linked



Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*HWS Demand*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Enabled (Default)*
HWS	Boiler Link	*Boiler Linked*
Boilers	Number of Boilers	*2*
	Rotate	*Enabled*
	Bpro Used	*No (Default)*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*VT Valve (Default)*
	PMPCO Used	*No (Default)*

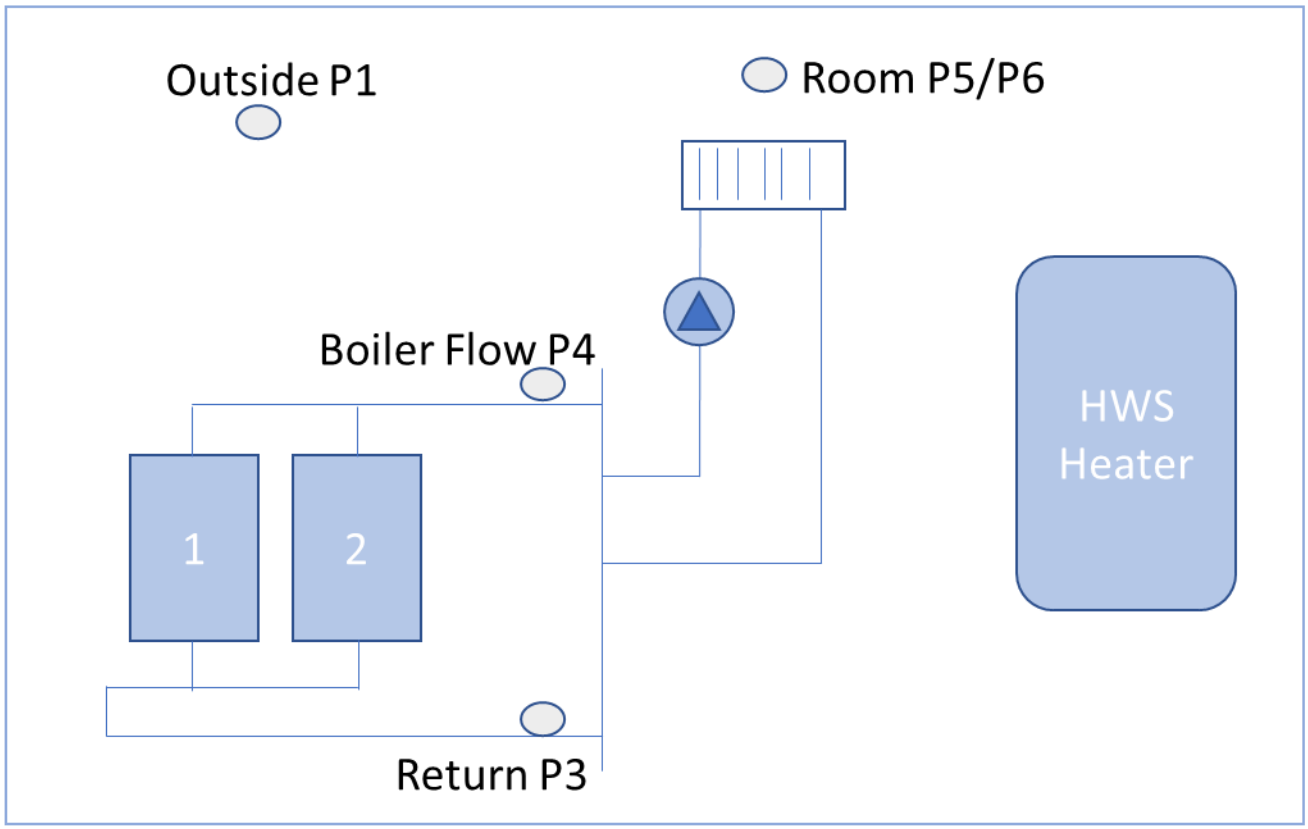
TYPICAL SETTINGS TO CHANGE FOR APP 1: School
2 off Boilers, VT Valve Compensation - HWS Calorifier Linked

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Minimum value of compensated flow temperature during compensation. 20 is typical in this scheme
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
VT Valve Time (0 to 100%)	120s	10 to 600s	Check your actuator running time from open to close.
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1- Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth.
*3 – Voltage Free. Close to request heat from Boilers to heat HWS

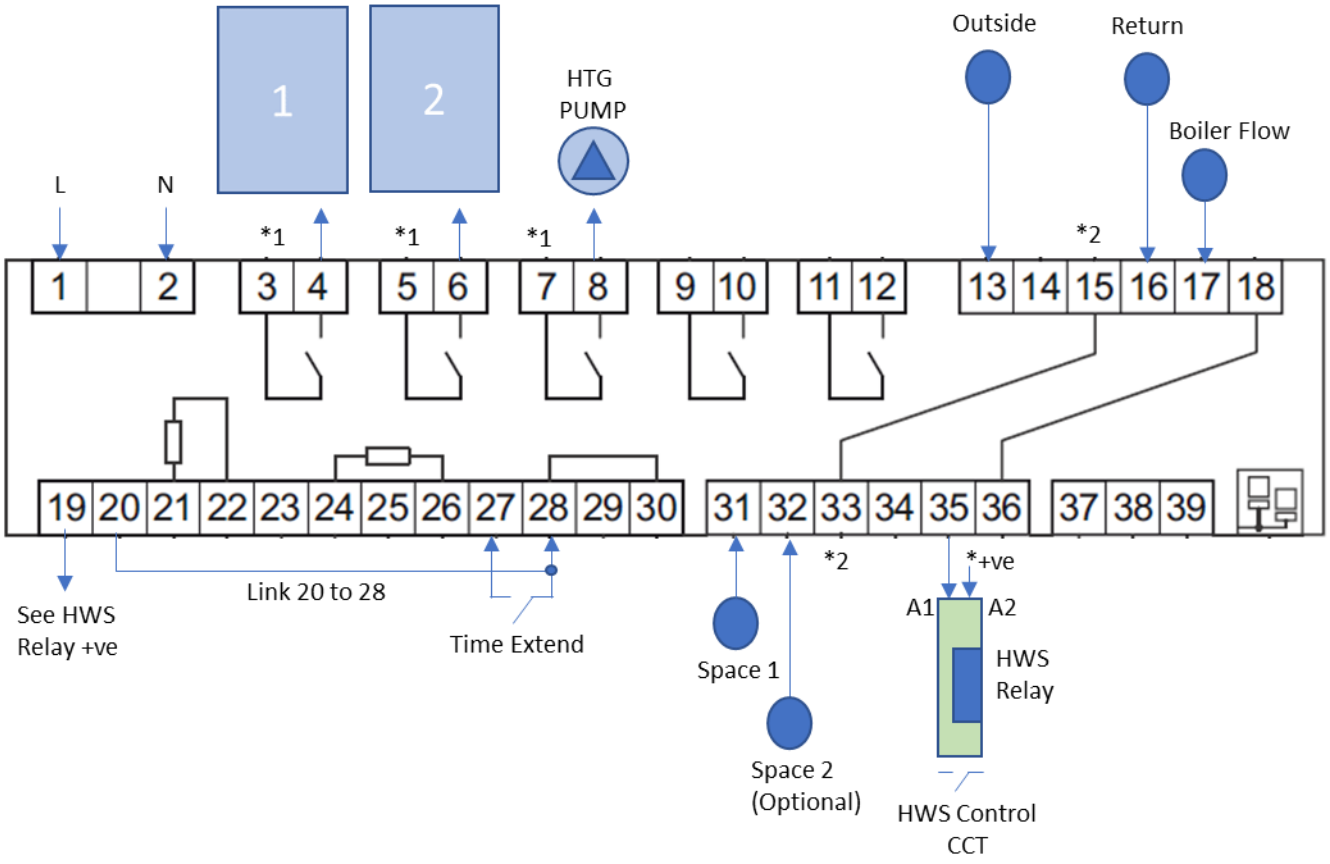
BASIC SETUP APP 2: School
2 off Boilers Direct Compensated - HWS Independent



Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Frost (Default)*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Enabled (Default)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*2*
	Rotate	*Enabled*
	Bpro Used	*No (Default)*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*VT Valve (Default)*
	PMPCO Used	*No (Default)*

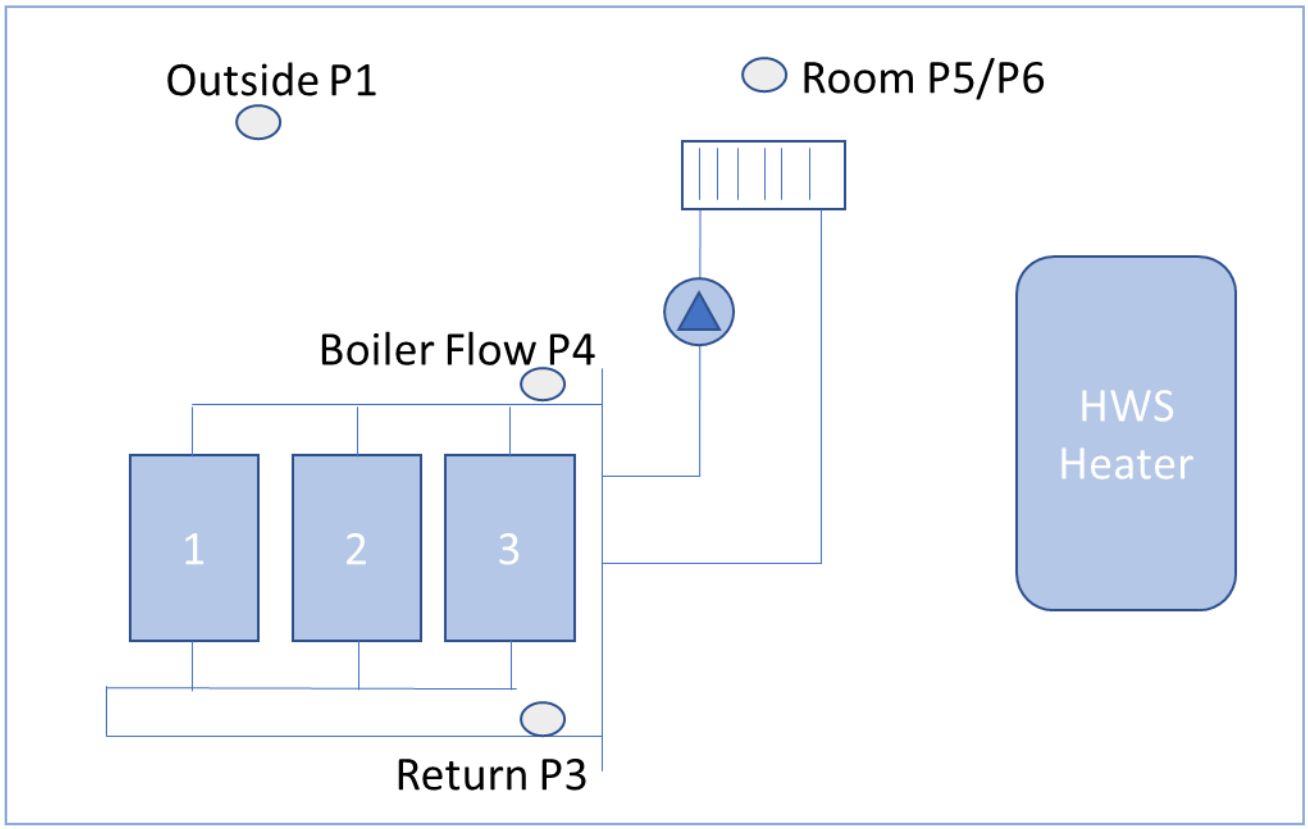
TYPICAL SETTINGS TO CHANGE FOR APP 2: School
2 off Boilers Direct Compensated - HWS Independent

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Minimum value of compensated flow temperature during compensation. 20 is typical in this scheme
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
VT Valve Time (0 to 100%)	120s	10 to 600s	Check your actuator running time from open to close.
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1- Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth.

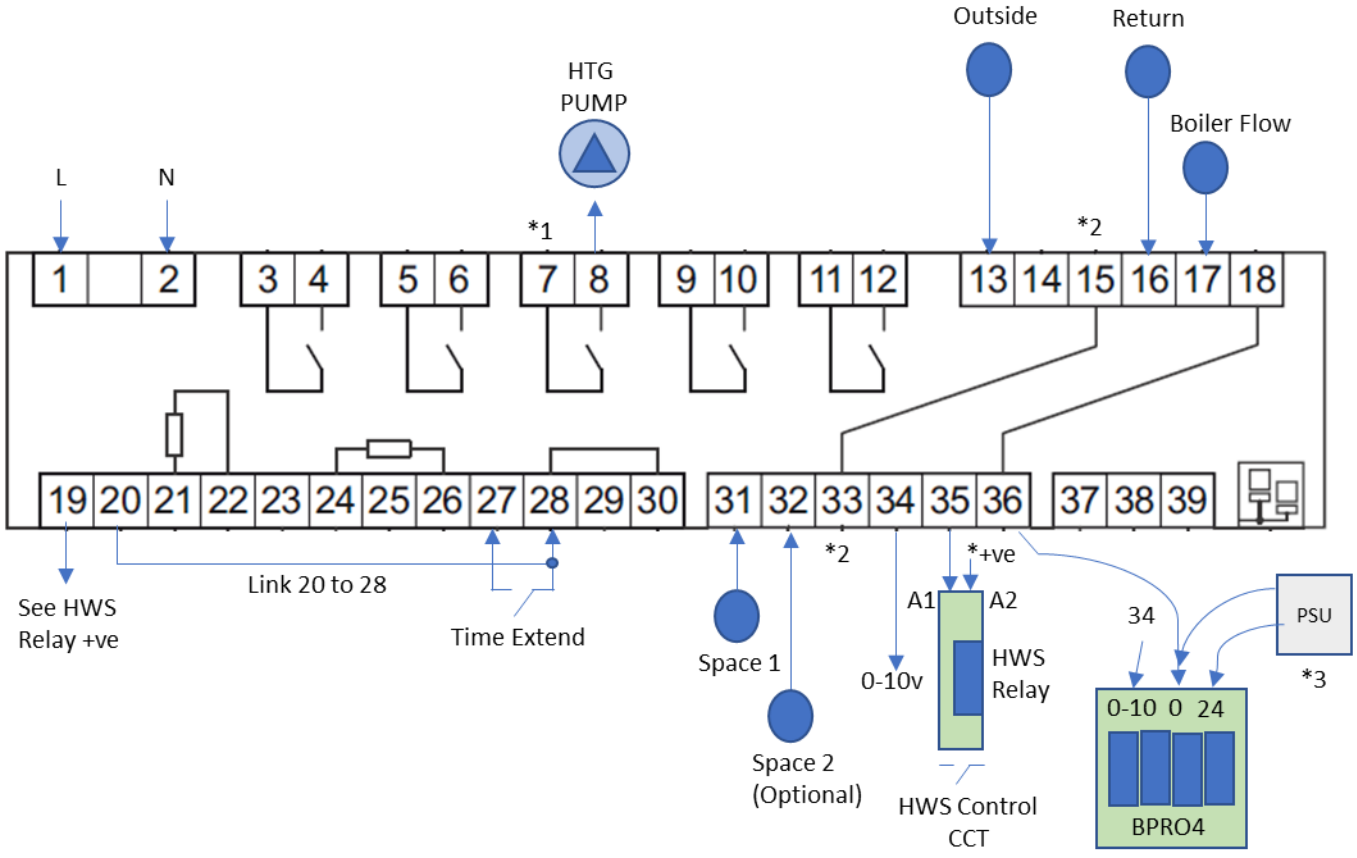
BASIC SETUP SHEET APP 3: School
3 off Boilers Direct Compensated - HWS Independent



Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Frost (Default)*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Enabled (Default)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*1 (Default)*
	Rotate	*Disabled (Default)*
	Bpro Used	*Yes*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*Boiler Demand*
	PMPCO Used	*No (Default)*

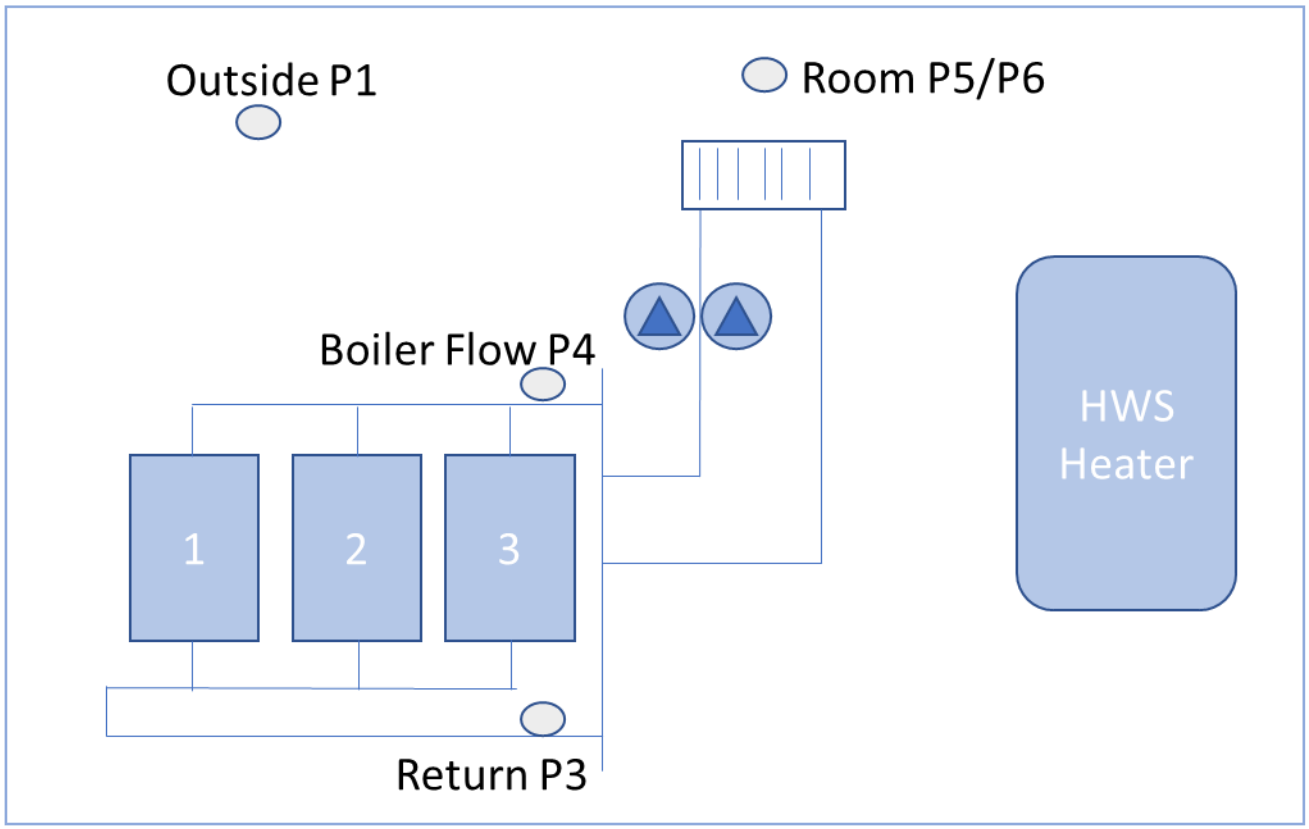
TYPICAL SETTINGS TO CHANGE FOR APP 3: School
3 off Boilers Direct Compensated - HWS Independent

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Minimum value of compensated flow temperature during compensation. 20 is typical in this scheme
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
Boiler IA **Boiler PB**	5 Min 50	DEL (---) to 600 1 - 200	Watch the boiler control. Increase the PB if boilers cycle.Reduce the IA if loop too slow
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1- Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth
*3 - PSU for Boiler Pro is external supply. Output 0v to connect to 18 or 36

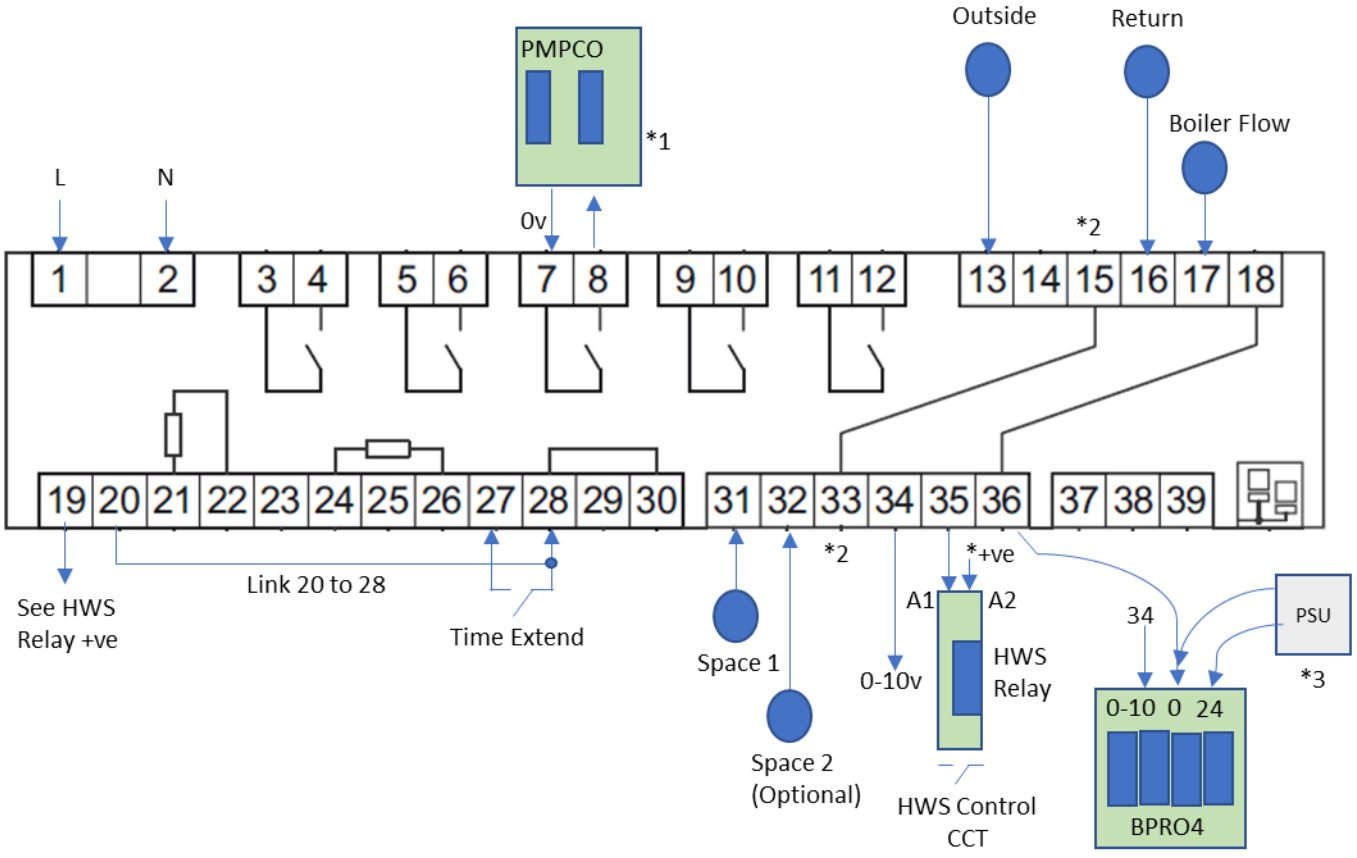
BASIC SETUP SHEET APP 4: School
3 off Boilers Constant Temp, Twin Pump - HWS Independent



Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Frost (Default)*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Enabled (Default)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*1 (Default)*
	Rotate	*Disabled (Default)*
	Bpro Used	*Yes*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*Boiler Demand*
	PMPCO Used	*Weekly Change*

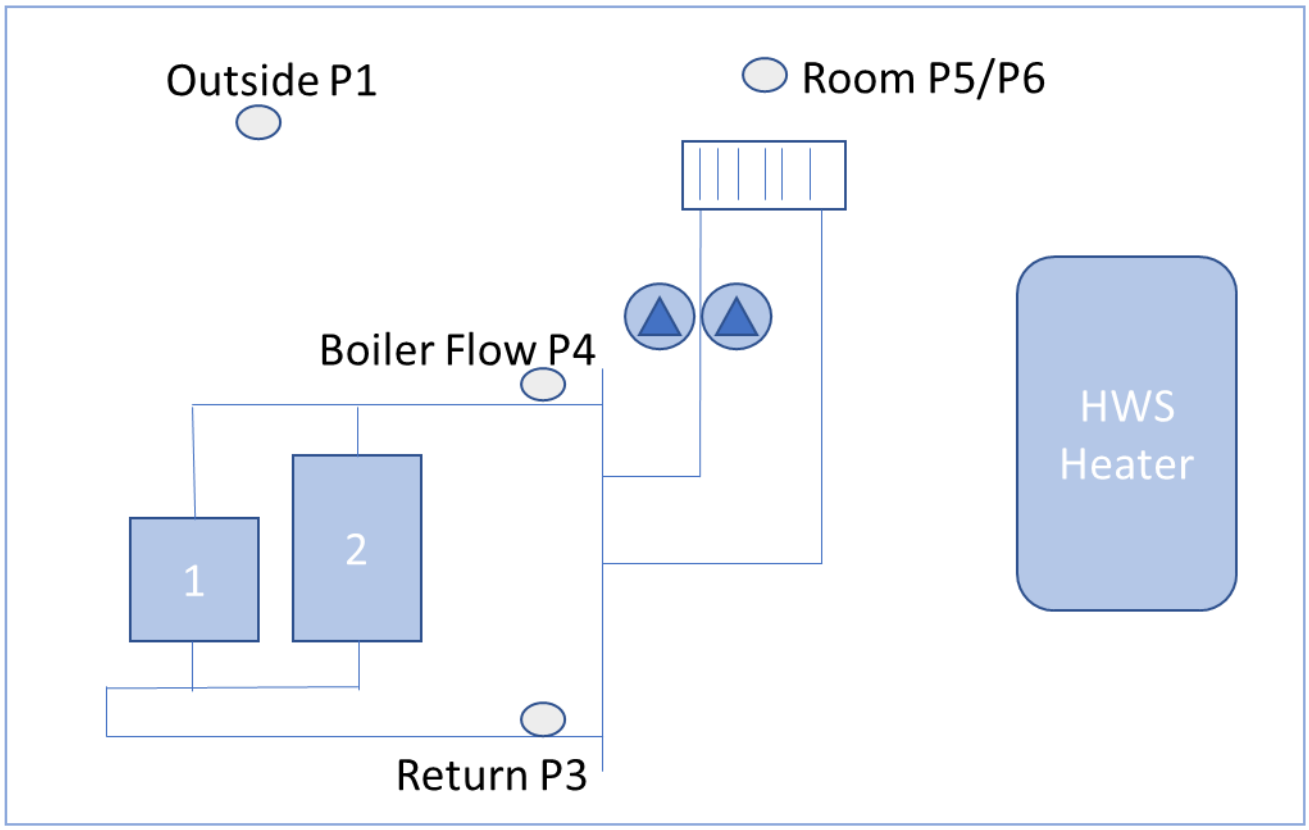
TYPICAL SETTINGS TO CHANGE FOR APP 4: School
3 off Boilers. Constant Temp, Twin Pumps - HWS Independent

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Set this to the Same as Flow High to make the Heating provide Constant Temp. e.g. 82
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
Boiler IA **Boiler PB**	5 Min 50	DEL (---) to 600 1 - 200	Watch the boiler control. Increase the PB if boilers cycle.Reduce the IA if loop too slow
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1 – Connect PMPO Module as per its data sheet.
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth
*3 - PSU for Boiler Pro is external supply. Output 0v to connect to 18 or 36

BASIC SETUP SHEET APP 5: School
2 Different Boilers, Constant Temp, Twin Pump - HWS Independent

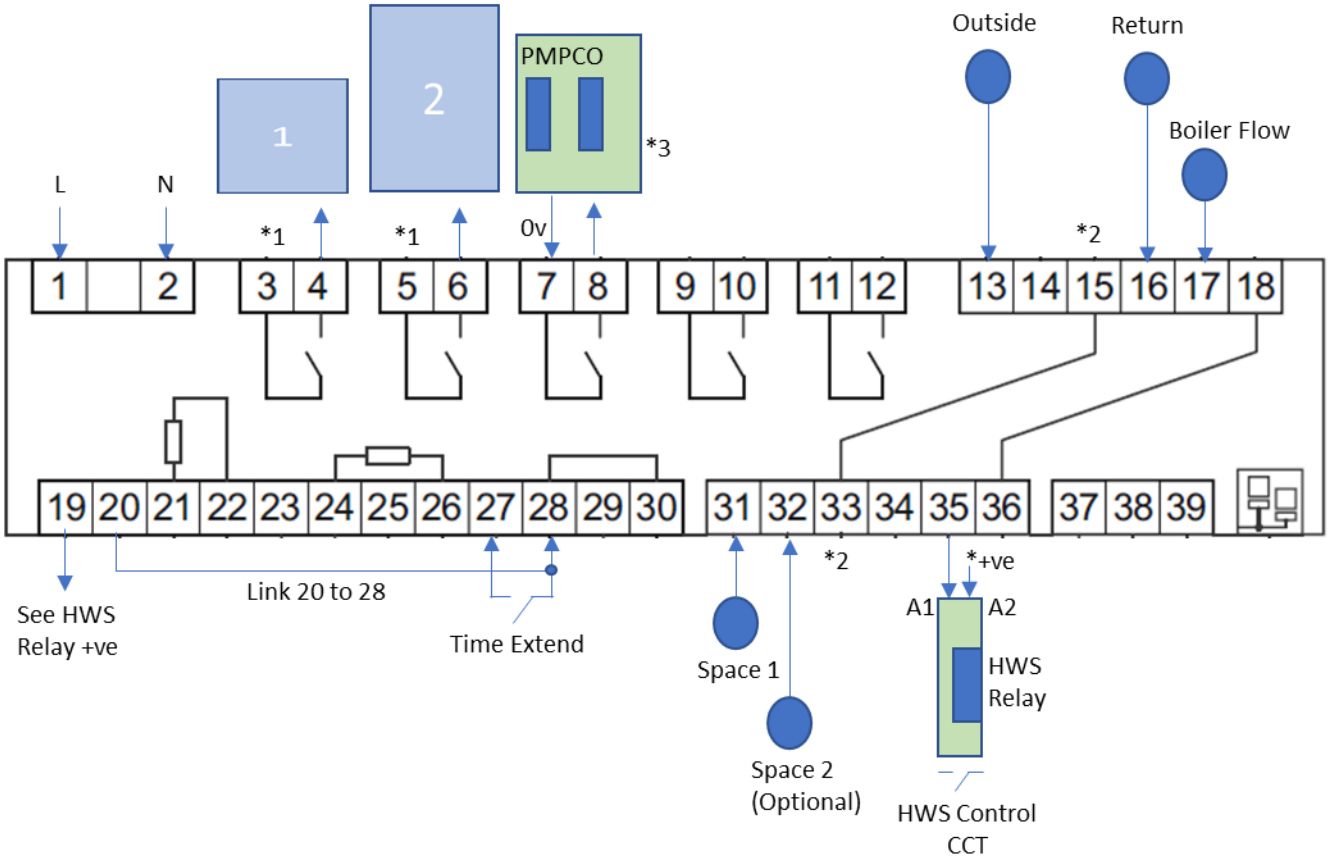


Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Frost (Default)*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Enabled (Default)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*2*
	Rotate	*Disabled (Default)*
	Bpro Used	*No (Default)*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*VT Valve (Default)*
	PMPCO Used	*Weekly Change*

Notes: Set Boiler Flow Min/Boiler flow Max to required CT Requirement to ensure constant temp control

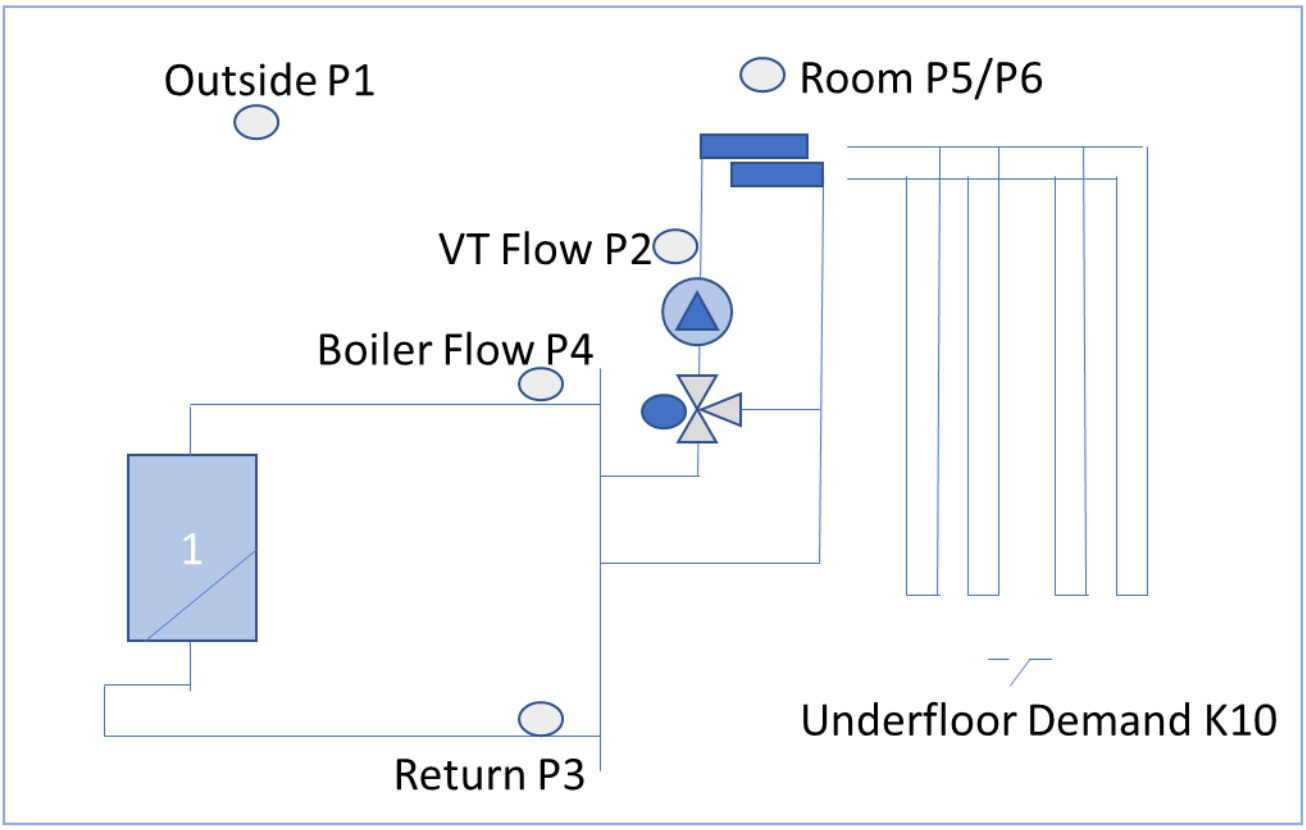
TYPICAL SETTINGS TO CHANGE FOR APP 5: School
2 Different Boilers, Constant Temp, Twin Pump - HWS

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Set this to the Same as Flow High to make the Heating provide Constant Temp. e.g. 82
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1- Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth.
*3 – Connect PMPO Module as per its data sheet.

BASIC SETUP SHEET APP 6: School
1 Boiler Lo/Hi Fire, VT Valve Compensation – Underfloor Heating

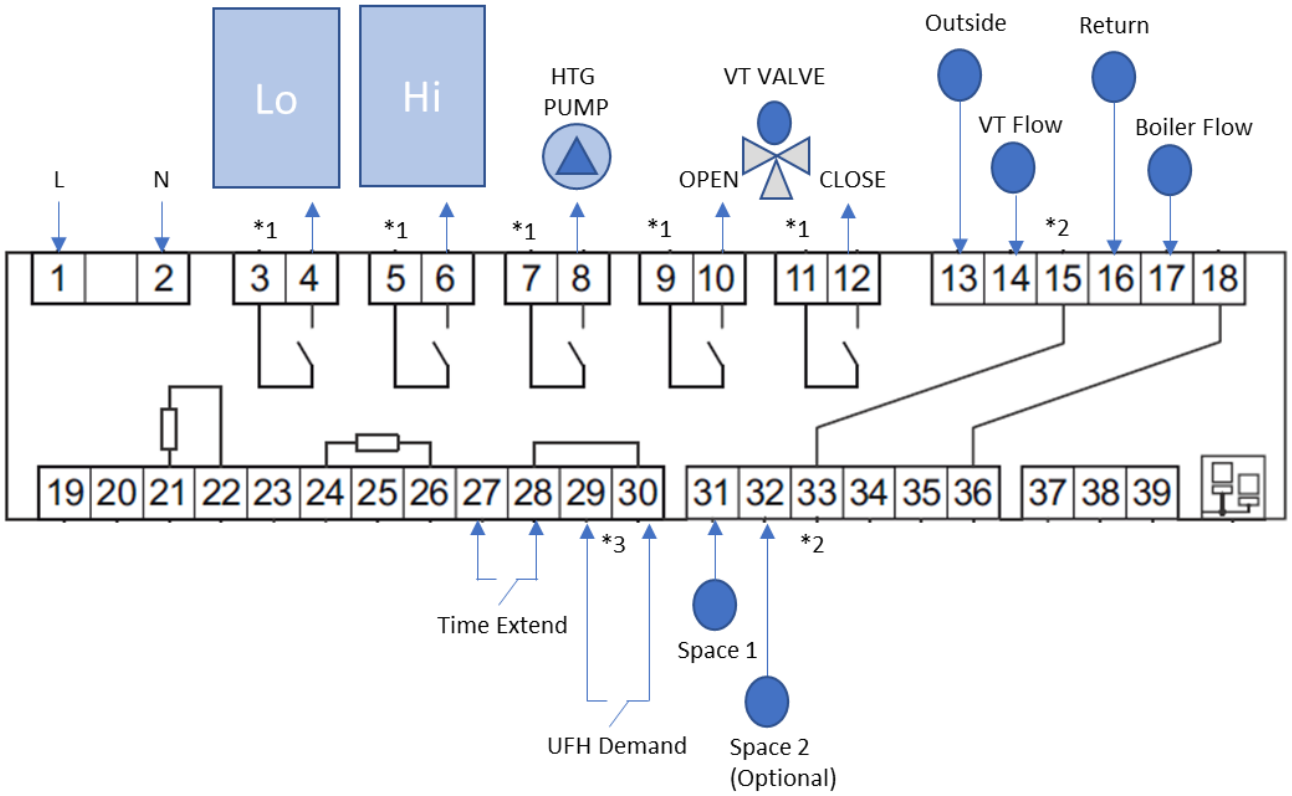


Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Underfloor Demand*
Heating	Mode	*Optimiser/Compensator (Default)*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Disabled (See note)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*2 (note Boiler is Lo/Hi Fire)*
	Rotate	*Disabled (Default)*
	Bpro Used	*No (Default)*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*VT Valve (Default)*
	PMPCO Used	*No (Default)*

Notes: Underfloor Demand taken from Manifold Controller. Optimiser Adapt is Disabled due to room controls being independent of SYX controller. HWS is optional. Reduce Heating Flow Max to 50'C.

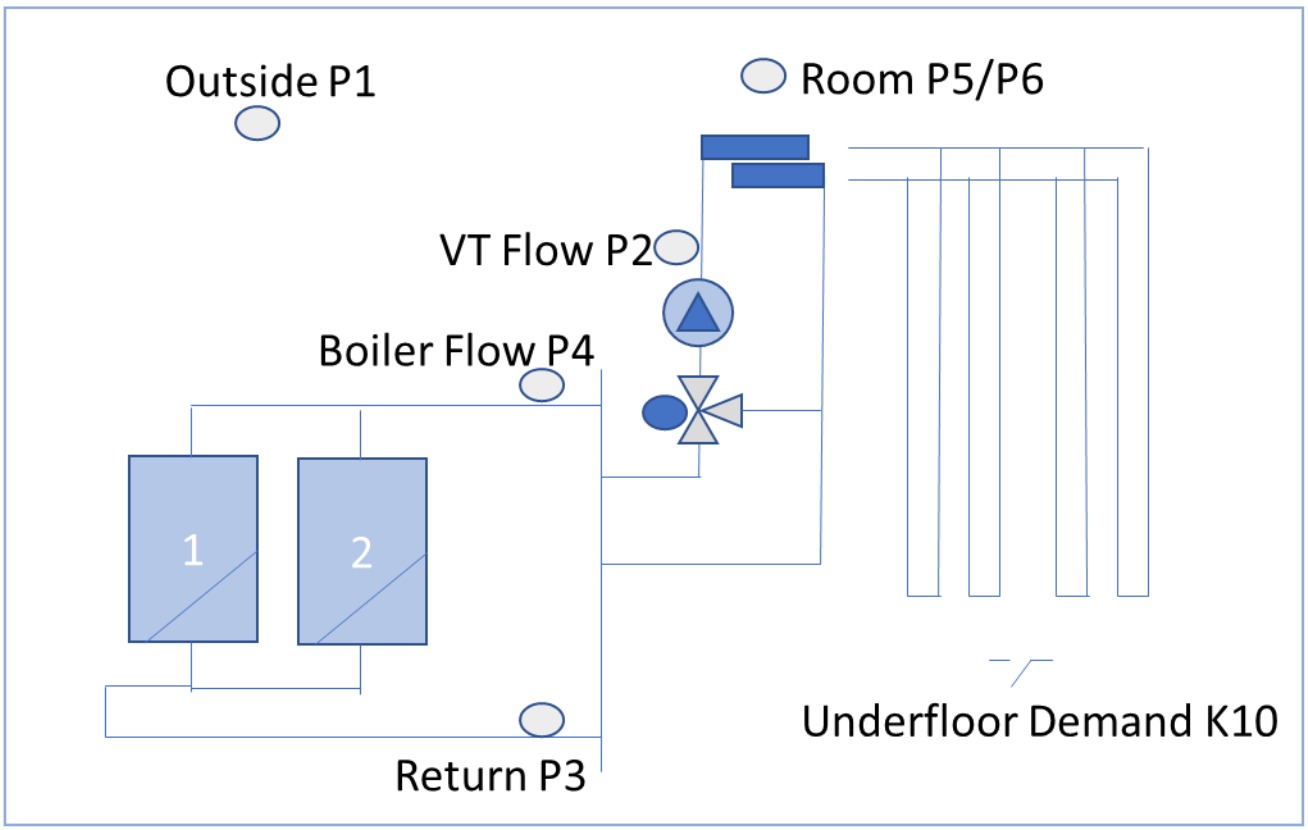
TYPICAL SETTINGS TO CHANGE FOR APP 6: School
1 Boiler Lo/Hi Fire, VT Valve Compensation – Underfloor Heating

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Minimum value of compensated flow temperature during compensation. 20 is typical in this scheme
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
VT Valve Time (0 to 100%)	120s	10 to 600s	Check your actuator running time from open to close.
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1- Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth.
*3 – Voltage Free. Close to request heat from SYX to heat Underfloor Zones

BASIC SETUP SHEET APP 7: Retirement Home
2 Boilers Lo/Hi Fire, VT Valve Compensation – Underfloor Heating

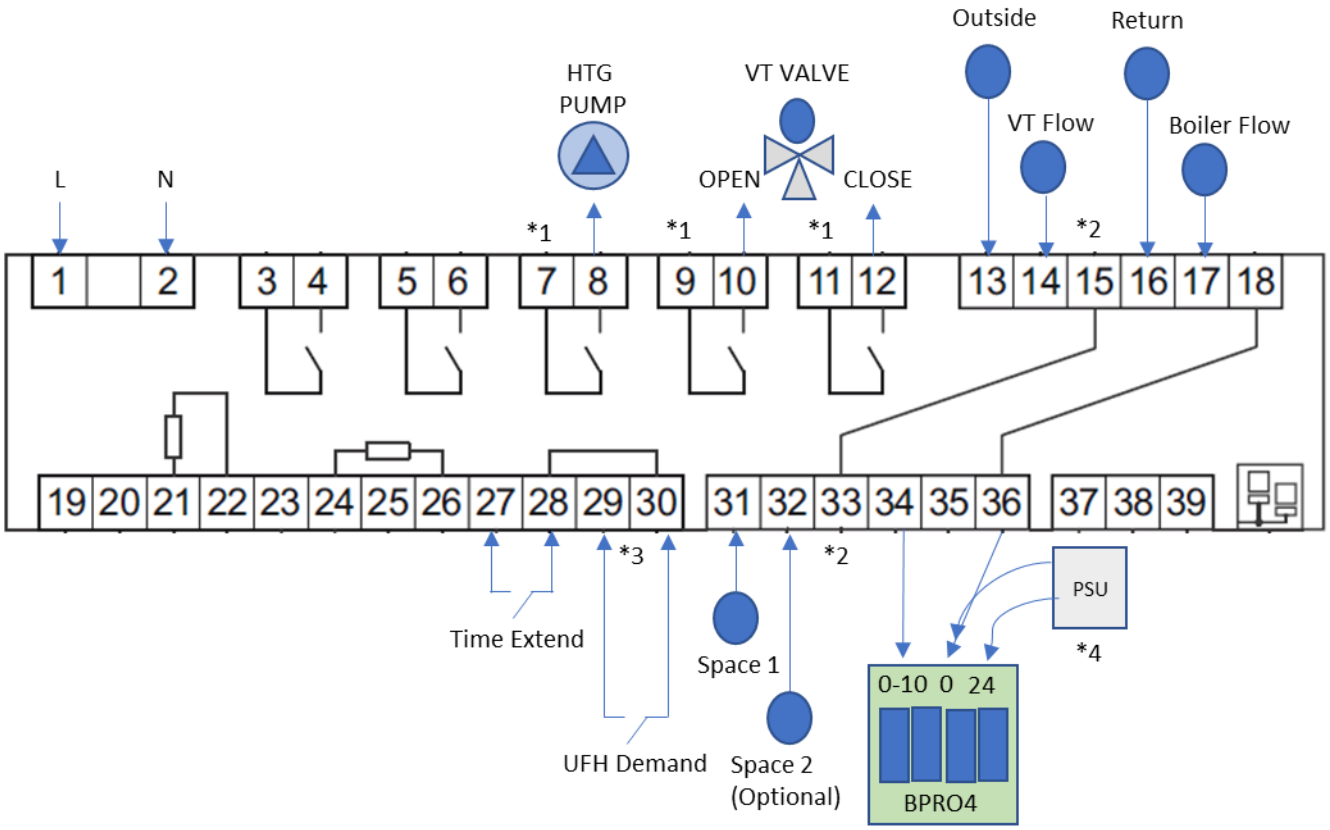


Setup	Option	Selection
Overrides	HWS Extend	*Enabled (Default)*
	Aux Switch Input	*Underfloor Demand*
Heating	Mode	*Night Setback*
	VT Setpoint	*Self –Adaptive (Default)*
	Optimum Off	*Enabled (Default)*
	HWS Priority	*No Priority (Default)*
	Flow Eco Mode	*Active (Default)*
	Opt Adapt	*Disabled (See note)*
HWS	Boiler Link	*Independent (Default)*
Boilers	Number of Boilers	*1 (Default)*
	Rotate	*Disabled (Default)*
	Bpro Used	*Yes*
	Boiler Flow Sensor	*Yes (Default)*
Connections	0-10v Output	*Boiler Control (Use Bpro)*
	PMPCO Used	*No (Default)*

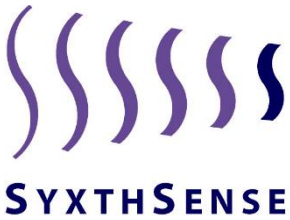
Notes: Underfloor Demand taken from Manifold Controller. HWS is optional. Reduce Heating Flow Max to 50'C.

TYPICAL SETTINGS TO CHANGE FOR APP 7: Retirement Home
2 Boilers Lo/Hi Fire, VT Valve Compensation – Underfloor Heating

Parameter	Default	Range	Typical Setting
Origin	20°C	10°C - 80°C	For Radiators 20'C, maybe 35'C if building is inefficient/cold.
VT Ratio	3	0 – 10	Influence on the Heating Flow Set point based on 1'C change in Outside air temperature. 3 is typical but if the Origin is raised reduce the ratio to suit. E.g. Ratio = Flow Max-Flow Min/Origin
Compensated Flow Low	20°C	0°C – 85°C	Minimum value of compensated flow temperature during compensation. 20 is typical in this scheme
Compensated Flow High	82°C	10°C – Max = Boiler High Value	Check access to the radiators and consider the use of the apace. Children etc. Check with heating system design requirements.
Boiler Low **Boiler High**	35°C 82°C	5°C to 95°C 5°C to 95°C	Set the lowest and highest running temp permitted by the boilers and heating system.
Space Set point	20°C	5°C – 50°C	The desired temperature for the controlled space. Make sure this can be achieved. Check all equipment can allow this, e.g. TRV, Local Thermostats, Sensor location.
VT Valve Time (0 to 100%)	120s	10 to 600s	Check your actuator running time from open to close.
Outside High Set point	18°C	10°C - 50°C	Typically 18'C but sometimes this is changed to suit the customers comfort or economic goals.



*1 - Connect required switch signal for the connected appliance
*2 – Common Sensor Ground Connection. Do not connect Screens or Earth.
*3 – Voltage Free. Close to request heat from SYX to heat Underfloor Zones
*4 – Configure BPRO to suit application. Consult BPRO4 datasheet.



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