

CADAMP LTD

OPERATING MANUAL
LOW PRESSURE HOT WATER CONTROLLER
LPHW RANGE

MODEL NO. _____
SERIAL NO. _____

THIS OPERATING MANUAL SHOULD BE LEFT WITH THE CONTROLLER

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Introduction

The LPHW range provides an all in one controls package for Low Pressure Hot Water heating and ventilation systems. Temperature control is achieved by circuitry which either (depending on valve actuator) modulates the valve or opens/closes the valve.

LPHW range features

- Door interlocking isolator
- Auto/Hand selector switch
- Fan/Off/Heat selector switch
- Visual indication of Power, Fan run, Heat on, Fan trip
- Individual MCB's fitted for control circuit and fans
- Thermal overload protection for fans
- Run on timer to dissipate residual heat after switch off

Enclosure

The LPHW range of control panels are supplied in a steel enclosure with a polyester epoxy powder finish in grey RAL7035

Installation

The control panel should be located so as to allow easy access for the user. Fix the enclosure to the wall using the 4 corner holes provided in the enclosure. The gland plate should be removed for drilling.

Wire up the panel in accordance with current applicable regulations.

No modifications are to be made to the panel without authorization from the manufacturer as this will invalidate the warranty

ENSURE THE FOLLOWING CABLES ARE CONNECTED:

See notes on next page for further information

Appropriate mains electrical supply.

All earth connections have been made where applicable

Connections to heating valve actuator

Connections to supply fan

Connections to extract fan (if applicable)

Connections to external time clock /voltage free contacts (if applicable).

Connections to duct or room temperature sensor

Frost thermostat

Voltage free contacts to enable pump (if req'd)

Voltage free contacts to enable boiler (if req'd)

Return water pipe clamp on thermostat

Any other connections E.G. Fire relay, damper actuators

Wiring information

Electrical Supply

Ensure the correct electrical supply is connected.

Heating valve actuator

Ensure the correct valve actuator is been fitted and is electrically compatible with the control panel

Supply fan

Ensure the supply fan is correctly matched for the control panel I.E. Electrical supply/ Full Load Current.

Extract fan

Ensure the extract fan is correctly matched for the control panel I.E. Electrical supply/ Full Load Current.

External timeclock or volt free contacts

If an external timeclock is connected ensure that the wiring is as follows

LPHW control panel connection	Timeclock connection
1	Live
2	Neutral
3	Switched live from timeclock

Duct or room temperature sensor

If a duct temperature sensor is been used this should be mounted in the supply duct approx 3 metres downstream of the heater. If a room temperature sensor is been used care should be taken not to mount this adjacent to heat sources e.g. direct sunlight.

Frost Thermostat

If the temperature at the frost thermostat falls below the setpoint of the thermostat then the normally open volt free contacts to enable the pump and boiler will close and the heating valve will open. The fan will not run.

Volt free contacts to enable pump

The control panel is fitted with terminals that provide a set of volt free contacts to enable a pump. These contacts are normally open and close when either heat is selected or when heat is not selected but there is a frost condition (when the temperature at the frost thermostat is lower than the setpoint of the thermostat).

Volt free contacts to enable boiler

The control panel is fitted with terminals that provide a set of volt free contacts to enable a boiler. These contacts are normally open and close when either heat is selected or when heat is not selected but there is a frost condition (when the temperature at the frost thermostat is lower than the setpoint of the thermostat).

Return water clamp on thermostat

To prevent the fan(s) from running if water temperature is below set point level at thermostat: Link out terminals 10-11 if thermostat not used. This function is only present when heat is selected.

Bypass damper connections (when fitted)

Where the control panel has connections fitted for a bypass damper this will be operated either by a summer/winter switch on the front of the control panel or automatically via a duct thermostat.

Summer/Winter switch bypass damper operation

The position of this switch will dictate the position (open or closed) of the bypass damper as follows:

Summer: The bypass damper will be open

Winter: The bypass damper will be closed

Duct thermostat bypass damper operation

The temperature at the duct thermostat will dictate the position (open or closed) of the bypass damper as follows:

Temperature above thermostat setpoint: The bypass damper will be open

Temperature below thermostat setpoint: The bypass damper will be closed

Inlet (supply fan) and outlet (extract fan) damper motor connections (when fitted)

Where the control panel has connections for inlet and outlet damper motors then these dampers will open when the associated fan contactor is energized and close when the associated fan contactor is not energized.

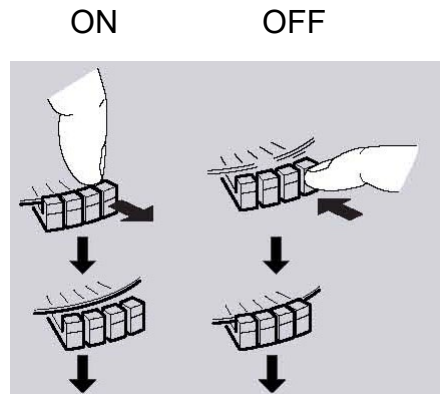
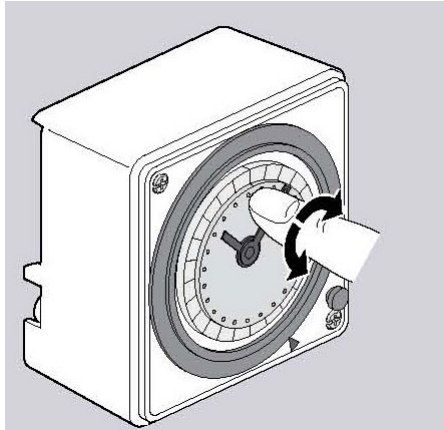
Fire relay connections (If fitted)

If the control panel has connections for a fire alarm relay then this relay is to be configured so as to give a set of normally closed contacts that open under a fire condition. When the contacts are closed the panel will function as detailed under "commissioning", when the contacts open then the panel will shut down and only the POWER lamp will remain lit

Internal Timeclock (Sangamo Analogue Type)

Where an internal timeclock is fitted see diagrams below for setting

Set clock to show correct time



Move tappets outwards (to reveal red segments) to set ON period. Move tappets inwards (to conceal red segments) to set OFF period.

Panel Lamps

The LPHW range of controllers has visual indication for the Following

Power: This lamp will illuminate when the door interlocking is in the ON position

Fan run: This lamp will illuminate when the fan contactor(s) are energized

Heat On: For control panels for use with a modulating valve the heat on lamp will illuminate when HEAT is selected. For control panels for use with a motor open, spring return valve the heat on lamp will illuminate when the valve is open.

Fail trip: This lamp will illuminate if the fan thermal overload(s) within the control panel trip

Filter Dirty (if fitted): If a filter pressure switch is used to monitor the filter the filter dirty lamp will light when the set differential pressure is reached.

Commissioning

1a. Temperature set point adjuster (For control panels operating a motor open spring return valve)

Set the required temperature setpoint using this



dial. The temperature set point adjuster

1b. Temperature set point adjuster (For control panels operating a modulating valve)

Set the required temperature setpoint using this



dial. The temperature set point adjuster

2. Place front panel selector switches to HAND and OFF.

3. Switch on electrical supply
Power lamp should be lit

4. Place FAN/OFF/HEAT switch in FAN position.
The fan(s) should start running the fan run lamp should light.

5. Place OFF/FAN/HEAT switch to OFF position.
The fan(s) should continue to run for a further 3 minutes (approx)

6. Place OFF/FAN/HEAT switch in HEAT position.
The fan(s) should start running providing the return water pipe clamp on thermostat is sensing a temperature above the thermostat set point.

The normally open volt free contacts to enable the pump will close

The normally open volt free contacts to enable the boiler will close

The heating valve will operate to maintain the required setpoint.

Run the system and check air temperature adjusting temperature set point for exact temperature requirement.

Ensure the system is left electrically safe with the enclosure locked.

Operation/switch settings

HAND: The panel will function as dictated by the position of the FAN/OFF/HEAT switch

AUTO: The panel will function as dictated by the position of the OFF/FAN/HEAT switch IF there is a time clock fitted within the panel or connected to the panel AND the time clock has reached an ON period

OFF: Neither the fan(s) nor the heating will run

FAN: The fan(s) will run

HEAT: The fan(s) will run and the heating will run as dictated by temperature