

SARUM ELECTRONICS LIMITED

6 STEP HEATER CONTROL



SARUM ELECTRONICS LIMITED
Clump Farm Ind Est.
Blandford
Dorset
DT11 7TD
Tel : 01258 480802
Fax : 01258 480803



MULTI STAGE ~ ELECTRIC HEATING CONTROL PANEL

INTRODUCTION

The control panel is designed to give a fast and easy installation. External wiring is kept to a minimum.

On site a main supply is connected to the panel door interlocked isolator, then outputs to the fan, heater, safety circuits (heater over temp., airflow switch, fire alarm) are wired in.

The sensor supplied with the panel can be mounted into the extract or return air duct or, if ordered as a room sensor, in the room itself. It should never be positioned near the heater.

Switches on the panel then allow control of the fan and heater. The heater is interlocked with the fan circuit and can only run with the fan switched on. To prevent overheating of the heater elements the fan will continue to run for approx. 2 minutes after switching off.

All outputs to the fan and each heater element are protected by 32 x 6.3mm fuses or MCB's.

The whole panel can be controlled via a fire alarm contact or 7 day time clock to turn on or off in a controlled manner.

INSTALLATION INSTRUCTIONS

The panel is designed for wall mounting in a clean, dry environment where the ambient temperature does not exceed 30°C.

A space of approximately 50mm should be left around the enclosure to allow for heat dissipation.

Fix enclosure to the wall using proprietary fixings. Remove gland plate and drill and grommet for necessary cable entry and exits. Replace gland plate and wire panel in accordance with the wiring diagram.

All wiring must comply with current regulations and be in compliance with the Health and Safety at Work Act.

Particular care should be taken with step controls to ensure that a neutral connection is made to each heater element and that this cable is correctly sized.

When cables are connected to the heater elements special high temperature cable or high temperature sleeving must be used. Temperatures in heater terminal boxes may exceed the safe limits of even high temperature p.v.c. (105 °C).

The sensor should be positioned in the return or extract air duct or if a room sensor is used it should be mounted out of direct sunlight or other heat sources approximately 2/3 of the way up the wall.

SWITCH ON AND TEST PROCEDURE

OPEN DOOR WITH ISOLATOR IN 'OFF' POSITION

1. With the door open ensure panel is securely fixed in a safe position.
2. Check all wiring, especially cable sizes and in heater terminal box (High Temperature Sleeved). Ensure a neutral wire is connected to all heater elements.
3. Carry out electrical safety tests including earth loop impedance and record results.
4. Check all safety switches and interlocks are correctly set.
5. Check sensor is correctly positioned.
6. Select temperature required on the printed circuit board cover plate.
7. Close door with isolator in 'off' position.
8. Turn door isolator to 'on' position. 'Panel Live' indicator will illuminate.
9. Switch fan on. 'Fan Run' indicator will illuminate.
10. Check fan rotation and airflow.
11. Switch fan off. Fan will continue to run for approximately 2 minutes then stop.
12. Switch fan on then switch heater on. Fan and heater run indicators will illuminate. Check heater is giving correct output.
13. Switch fan off. Heater should switch off and the fan continue to run for approximately 2 minutes.
14. Ensure end user is familiar with controls

NOTES

The electronic thermostat is designed to have a time delay on each step of heating switching on to prevent high start current surges. A fixed temperature differential between stages ensures economic use of the heater but still maintaining the set control temperature.

PROBLEM SOLVING

PROBLEM:	No Panel Live indicator illuminated
SOLUTION:	Check: electrical supply - door isolator is on - MCB in panel is in 'on' position. Investigate reason for failure.
PROBLEM:	No Fan Run indicator illuminated
SOLUTION:	Check: fire alarm circuit - fan switch is in 'on' position- MCB is in 'on' position. Investigate reason for failure.
PROBLEM:	No Heater Run indicator illuminated
SOLUTION:	Check: fan is running - heater switch is in 'on' position.
PROBLEM:	Fan trip indicator illuminated.
SOLUTION:	Check: MCB is in 'on' position. Investigate reason for failure.
PROBLEM:	Heater Trip indicator illuminated.
SOLUTION:	Airflow pressure switch not operated or heater high temperature cut-out operated. Switch off and reset heater high temperature cut-out and investigate reason for failure.

SPECIFICATION

Epoxy painted steel enclosure - dimensions 400 x 500 x 150mm	
Door interlocked isolator	
Individual switches for fan and heater	
Individual run and trip indicators for fan and heater	
Panel live indicator	
Mains input:	400v 50Hz 3 phase and neutral; or 230v 50Hz 1 phase
Maximum output:	Heater 6 x 3kW 1phase elements Fan 1 x 1 phase 6.3 A full load current max.
Number of steps of heater control:	6
Fan run-on timer:	2 minutes approximately
Sensor	N.T.C. Thermistor type with 10 metres of cable suitable for duct mounting
Cable entry to panel: In top of enclosure (or bottom if specified when ordered) via gland plate.	

CAUTION

Do not switch fans or heater on or off via Door Isolator. Use correct switches and when Run indicator ceases to be illuminated use Door Isolator. Failure to adopt this procedure may lead to high temperature cut-out operating. Always ensure panel is electrically isolated before carrying out any adjustments or maintenance. The addition of a speed control for the fan is not recommended as it may allow the airflow to be reduced below a safe limit or the fan to be switched off without switching the heater off.

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