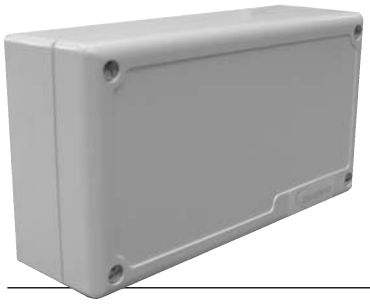


AIREMISER-CM

Automatic Fan Controller with Temperature and Current Sensing Options

Installation and Maintenance

The EMC Directive 2004/108/EC
The Low Voltage directive 2006/95/EC

Introduction

Nuaire AIREMISER-CM automatic fan controller comprise of a main controller with the optional choice of either or both current and temperature sensors which detects when a cooker or shower is in use. This enables the AIREMISER to automatically turn on an extract fan or boost a central ventilation system.

For electric showers and cookers a current sensor is used to detect the flow of current.

For conventional showers (fed from a hot water system) a temperature sensor is used to detect the presence of hot water in the hot water pipe to the shower mixer.

Sensors are supplied with a 12 metre cable length as standard.

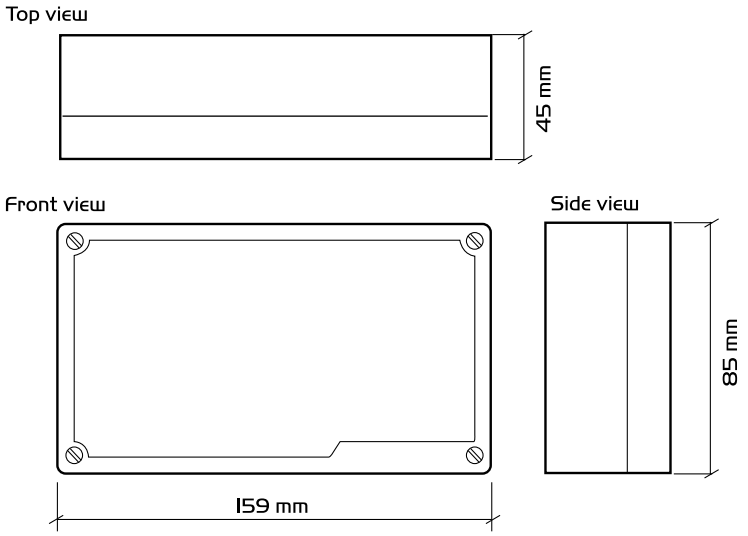
Product description	Product code	Installation area
Main fan control	Airemiser-CM	Kitchen
Current sensor	Airemiser-CS12	Kitchen/bathroom
Temperature sensor	Airemiser-TS12	Bathroom

AIREMISER is a robust controller with the main printed circuit board (PCB) mounted in a stylish white, fire retardant (V0 rated) ABS enclosure.

AIREMISER is suitable for 230V single phase 50 Hz extractor fans up to 2 amps or 500 watts. The control unit has a change over relay rated at 10amps (resistive load).

1.0 Dimensions of fan controller unit

Figure 1.



2.0 Installation

The installation must be carried out by a qualified electrician in accordance with the appropriate authority and conforming to all statutory and governing regulations.

Safety

1. Isolate the feed to the electric cooker/shower at the distribution board by turning off the breaker or removing the fuse.
2. Isolate the fused spur serving the extractor fan at the distribution board by turning off the breaker or removing the fuse.
3. Test electrical tester in a live socket to prove functionality, then test both the electric shower feed and the fused spur serving the fan to ensure they are at zero voltage and safe to work on.

Once items 1 –3 have been carried out, proceed as follows:

IMPORTANT

N.B the control unit must be sited well away from the shower or bath as prescribed in the current IEE regulations. Remember the enclosure is not water proof.

4. Establish a suitable position for the main control unit, and secure to wall, or timber.
5. Wire live neutral and earth from fused spur into the controller as indicated in figure 3. (**i.e. "LIVE IN", "NEUTRAL IN" and EARTH).**
6. Wire live neutral and earth from the controller to the fan as indicated in figure 3. (**i.e. "N.O./LIVE OUT", "NEUTRAL OUT" and EARTH.**

Nuaire Limited Western Industrial Estate Caerphilly United Kingdom CF83 1NA T: 029 2088 5911 F: 029 2088 7033
E: info@nuaire.co.uk W: www.nuaire.co.uk

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2.1 Current Sensing

Current Sensing (Cookers)

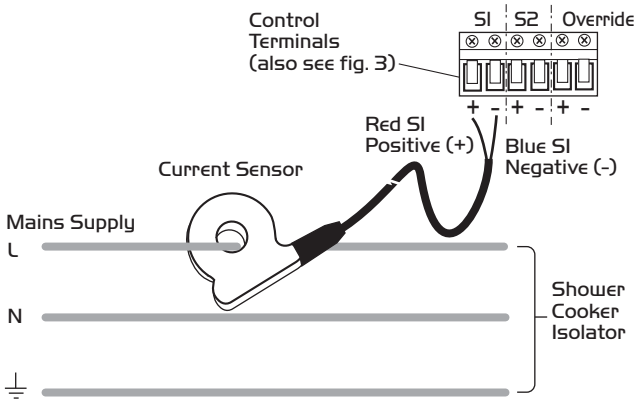
7a. Remove the cooker switch by removing the screws (check that there is still no voltage, using tester). Carefully pull the switch away from the back box and decide upon the best possible position within the back box to mount the sensor. Disconnect the live conductor from the switch and carefully thread the sensor over same. Slide the sensor over the conductor to a position where it will not be trapped.
Reconnect the live conductor back into the terminal from where it was removed.

(Showers)

7b. Where used for current sensing to an electric shower, find a suitable position to fit the current sensor, this could be in a local isolator, at the distribution board or inside the shower unit.

Once the position has been determined, (check that there is still no voltage using tester). Disconnect the live conductor from the switch or shower and carefully thread the sensor over same. Slide the sensor over the conductor to a position where it will not be trapped. Reconnect the live conductor back into the terminal from where it was removed.

Figure 2. Typical current sensor installation.



8. From where ever the sensor is fitted, find a suitable route to run the sensor control wiring to the main controller. If fitted in a shower unit **ensure that you do not damage the waterproof integrity in any way.** At all times ensure the wire does not get damaged by trapping of the cable when re instating casings or covers to isolators.

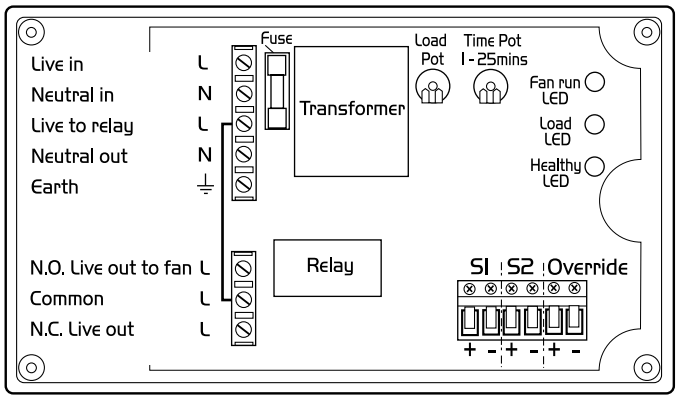
9. Wire the cable into the terminals as indicated in the wiring diagram figure 2/3 **(i.e. S1).**

10. Test out all wiring, ensure that fan has a good earth by carrying out a continuity test between the fused spur and the fan.

IMPORTANT

Safety: Take care not to touch the mains terminals whilst the front cover is not in place when adjusting the time and load pots.

Figure 3. Internal layout of AIREMISER control.



11. Turn on the breaker and switch to the fused spur, the healthy LED should flash/blink.

12. Turn down the Load Pot to the mid position and Time Pot to minimum.

13. Turn on the breaker and the cooker/shower isolating switch.

14. Turn on the cooker/shower to low power and the middle LED should light up. After approximately five second the third LED should light up and the fan should run.

15. Adjust the load pot if necessary. Anti-clockwise to increase the sensitivity and clockwise to decrease the sensitivity.

16. Now set the time pot by turning it clockwise. It has a range of 1 to 25 minutes for optimum performance and energy conservation, a 20 minute overrun time is probably the best starting point. **N.B. the overrun time serves two functions: the first to ensure the fan does not cycle with the cooker/shower thermostat and the second to clear residual steam following, after showering has finished.**

17. Turn off the fused spur and fit the front cover plate to complete the installation.

2.2 Temperature Sensing

18. Where used for temperature sensing to a normal shower, the sensor must be fitted to the hot water dead leg, find a convenient position, the pipework must be uninsulated, remove any paint or corrosion from the pipe, apply thermal grease to the flat part of the sensor then firmly secure the sensor to the pipe using the clip provided. It is most important that good thermal conductivity is obtained.

19. From where ever the sensor is fitted, find a suitable route to run the sensor control wiring to the main controller. At all times ensure the wire does not get damaged by trapping of the cable.

20. Wire the cable into the terminals as indicated in the wiring diagram figure 3 **(i.e. S1 or S2).**

21. Test out all wiring, ensure that fan has a good earth by carrying out a continuity test between the fused spur and the fan. Either wire the fan for high speed operation or turn the fan on to high speed and fix the setting.

22. Turn on the breaker and switch to the fused spur, the healthy LED should flash/blink.

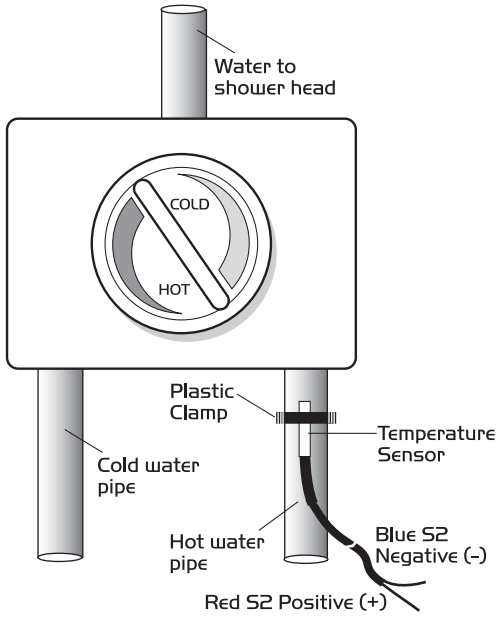
23. Turn down the Load Pot to the mid position and Time Pot to minimum.

24. Turn on the shower wait 30 seconds after the hot water is being delivered, if the middle LED does not light up, then turn the load pot very slightly in an anticlock wise direction, do not turn the Pot below the 50% position as this will allow the fan to run when not required. If a lower setting is needed first check that the temperature of the hot water is above 60°C as it should be to kill off legionella, if it is at this temperature then the integrity of the conduction of heat from the pipe to the sensor should be carefully checked.

25. Now set the time pot by turning it clockwise. It has a range of 1 to 25 minutes for optimum performance and energy conservation, a 20 minute overrun time is probably the best starting point. **N.B. the overrun time should be set to ensure the fan clears all residual steam after showering has finished.**

26. Turn off the fused spur and fit the front cover plate to complete the installation.

Figure 4. Typical temperature sensor installation.



2.3 Operation both Current and Temperature

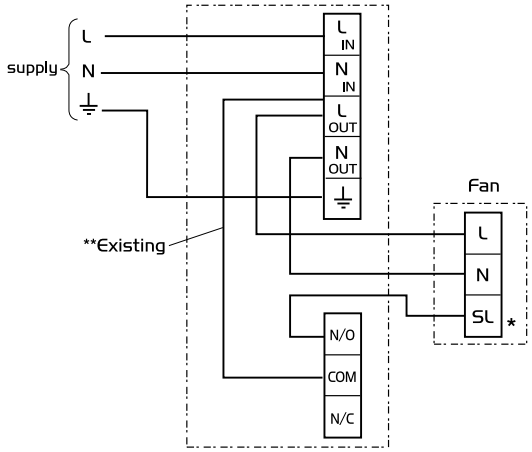
Set the on/off switch on the fan to the on position and fix.

Set the speed setting to the level which will provide sufficient ventilation to remove all steam and condensation within the run on period.

Additional Sensor - An additional sensor may be installed with either version these should be installed in the same manner as described above except the additional sensors should be wired **into S2 as shown in figure 3.**

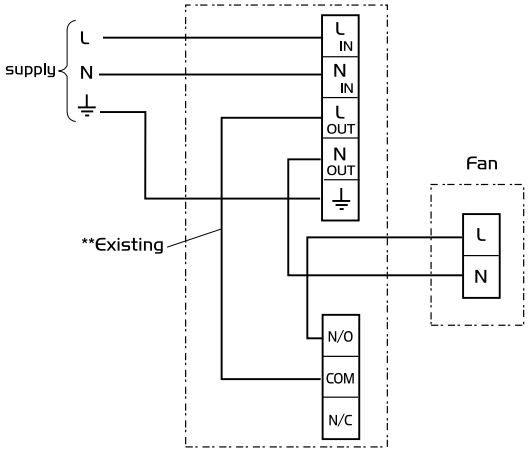
N.B. During field trials it was noted that RF emissions from certain fans can cause interference which results in intermittent problems with the on board microprocessor. Nuaire cannot be held responsible for such occurrences however, if this problem is encountered with your installation we will use best endeavours to resolve the problem. Please contact us to discuss the solutions to such problems.

Figure 5. Typical wiring to boost fan or MEV.



***Refer to fan installation and maintenance document for specific terminal identification. Run-on-timer in fan to be set to minimum.**

Figure 6. Wiring for on/off installation with facility for adjustable run-on-timer.



IMPORTANT

****If used for volt-free switching e.g. for Nuaire HPKF, this link has to be removed and the COM and N/O connections used.**

2.4 Installing a manual fan push switch (momentary) e.g. MK - Reference: K4878P-WHI

27. Turn off the fused spur to the control unit and remove the front cover.

28. Wire the cable into the terminals as indicated in the wiring diagram figure 3 **(i.e. OVERRIDE)**.

29. Run the cable to suitable location for the override switch and fix securely.

30. Test the operation of the switch. Push and hold until the fan starts running, this will give an override time of approximately 25 minutes. Push and hold the switch until the fan turns off, this will disable the override during the 25 minute period.

31. Turn off the fused spur and fit the front cover to complete the installation.

3.0 Special Notes regarding Temperature Sensing

IMPORTANT

Where plastic pipework is used a section of copper pipe will need to be introduced for sensing purposes.

1. There will be an inevitable delay between hot water being delivered at point of use and the controller sensing the temperature, this is due to the time taken by the conduction of heat from the water through to the outside of the pipe and then to the clamp on sensor. This time delay will vary with ambient conditions, hot water temperature and pipe wall thickness. it is most important therefore that great care is taken when fixing the sensor to maximise the heat conduction process.

   Please pay particular attention to cleaning the pipe, applying the thermal grease and clamping the sensor.

2. Similarly there will be a delay in the unit turning off the fan as it will take time for the dead leg to loose heat, again this will vary with ambient conditions, hot water temperature and pipe wall thickness. The time of this natural cooling process should be taken account of when setting the run on timer. As a guide, at an ambient temperature 21°C and a hot water temperature of 50°C. the cooling down process will be 5 – 10 minutes and this should be taken into account when setting the overrun timer.

4.0 Trouble shooting

Problem	Action to determine the fault
1. The LED does not blink.	Check that there is 240 volts between Live in and Neutral
2. The middle LED does not illuminate	Fit wire across overrun terminals this will prove sensor i.e. if the LED illuminates check sensor wiring.

5.0 Maintenance

The unit does not require any maintenance. However, for optimum performance, it is advisable to remove any accumulated dust with a low power vacuum cleaner.

NOTE: Installation and Maintenance of the equipment must be as directed in the instructions provided with the unit.

6.0 Warranty

The 1 year warranty starts from the day of delivery and includes parts and labour.

7.0 Service Enquiries

Nuaire can assist you in all aspects of service. Our service department will be happy to provide any assistance required, initially by telephone and If necessary arrange for an engineer to call.

Telephone 029 2085 8585
Fax 029 2085 8586