TOSHIBA

AIR TO AIR HEAT EXCHANGER HEATER KITS

Installation Manual

Model name:

DUCT HEATERS

RBC-VNMH1

RBC-VNMH2

RBC-VNMH3

Model name:

DUCT HEATER CONTROLLER

RBC-VNMC

VN Unit Heater Controls Description and Contents

This manual covers the VN unit heater options. Each of the components are ordered and supplied separately.

RBC-VNMC Heater Controller:

The controller will enable the pre-heater if the temperature falls below 5°C. The heater will only operate when the Heat Exchange Unit is operating and will provide a 30 second run on time to remove any residual heat.

Contents:

- Control Panel
- Duct Sensor
- Installation/Operating Manual.

RBC-VNMH1, RBC-VNMH2, RBC-VNMH3 & RBC-VNMH4 Heat Exchanger Unit Heater Batteries:

The heater batteries are available in three sizes for use with your selected VN unit. The heater batteries can be used as a pre-heater.

Model	Heater Size	Duct Diameter	VN Model
RBC-VNMH1	1x1kW Heater	100	VN-M150HE
RBC-VNMH2	1x1kW Heater	150	VN-M250HE & VN-M350HE
RBC-VNMH3	2x1kW Heater	200	VN-M500HE & VN-M650HE
RBC-VNMH4	2x1kW Heater	250	VN-M800HE & VN-M1000HE

Contents:

- Heater Battery.
- Airflow Pressure Switch
- Installation/Operating Manual.

RBC-VNMC Heater Controller

Installation Instructions:

THE HEATER CONTROLLER AND THE HEAT EXCHANGE UNIT MUST BE SUPPLIED FROM THE SAME PHASE AND SUPPLY

The controller must be used with the correct RBC-VNMHX heater battery for the selected Heat Exchange unit.

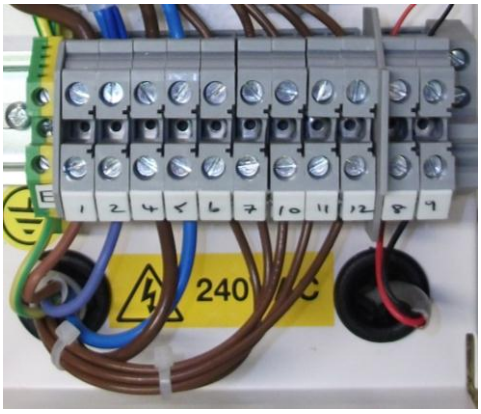
The controller should be mounted adjacent to the Heat Exchange unit and duct heater.

The controller is Class 1 and must be earthed.

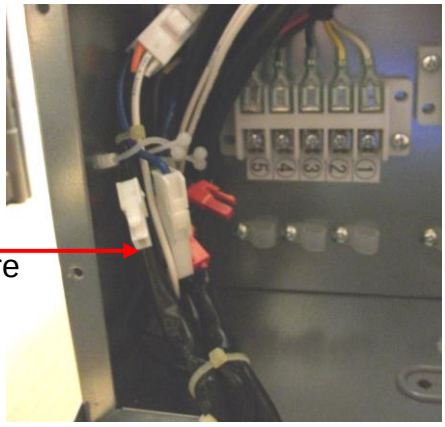
The duct mounted temperature sensor must be fitted after the heater and before the VN unit. The sensor is fitted into the supply ductwork by first preparing a 20mm hole in the duct. The sensor mounting plate is secured to the ducting with two self-tapping screws (supplied by others).

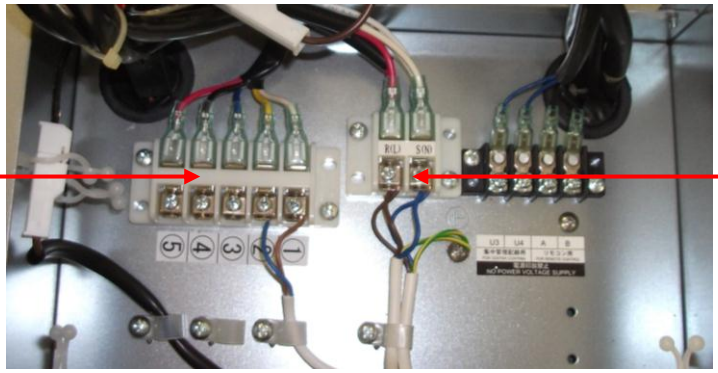
The vinyl tube containing the fan connector is connected to the white connector as shown in the photograph.

The Controller is to be connected to the heater battery and the Heat Exchange Unit as per the wiring diagram on page 6.



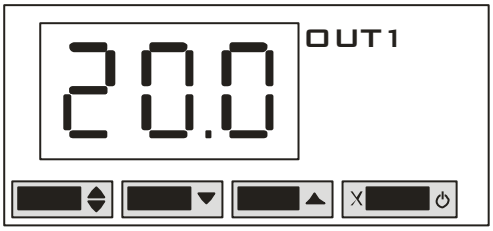
VNMC Connections





1 Stage Electronic Controller

Changing the set point:



To change the set point press and hold the ▲▼ button to display the set point value.

Press and hold the ▲▼ button whilst pressing either the ▲ or ▼ button to increase or decrease the set point until the desired value is shown on the display.

Release the ▲▼ button and the new value is stored.

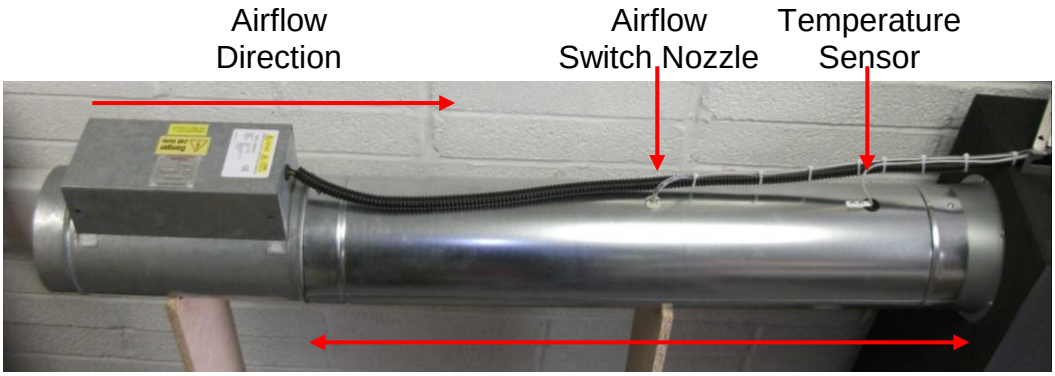
The control is pre-set for a range of 0-15°C and is set at 5°C.

The X button has no function.

RBC-VNMH1, RBC-VNMH2 RBC-VNMH3 & RBC-VNMH4 Heat Exchanger unit Heater Batteries

Installation Instructions:

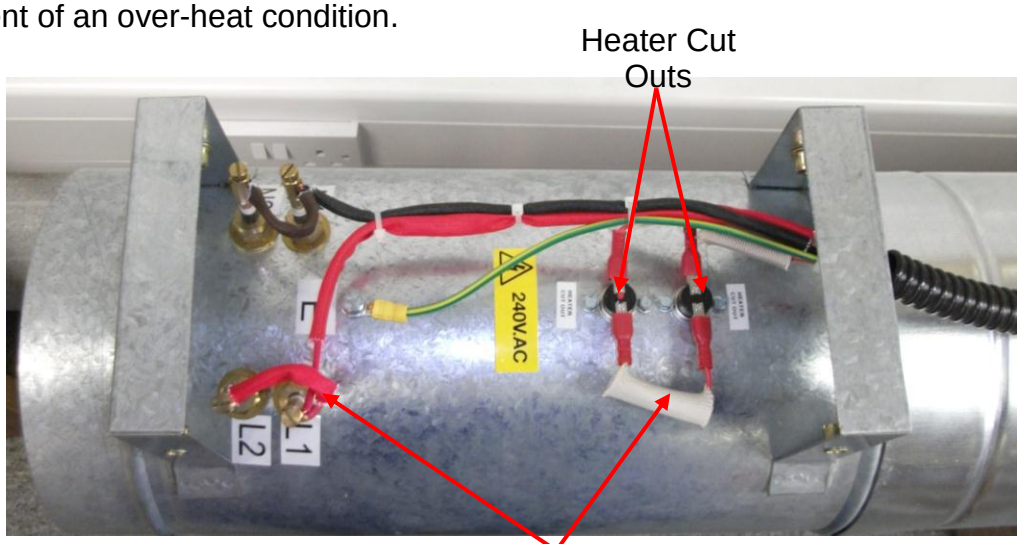
The electric heater is of the resistance type. Care should be taken to ensure the heater is correctly mounted in the ductwork system with the terminal box accessible. The heater should not be mounted near to materials that can be damaged by heat. A minimum of one-metre minimum of duct before the VN unit is required.



One Metre Minimum

The heaters are supplied in different sizes depending on the VN unit that has been selected.

The heaters are fitted with two thermal cut-outs. The cut-outs are to be wired in series with the airflow switch. The thermal cut-outs are of the manual reset type and their purpose is to ensure the power supply is disconnected in the event of an over-heat condition.



Use High Temperature Sleeving Inside Heater

For 2kW heaters link L1-L2 (live) and N1-N2 (neutral)
For 1kW heaters connect to L1 (live) and N1 (neutral)

THE SAFETY CIRCUITS MUST BE CONNECTED, FAILURE TO DO THIS COULD RESULT IN SERIOUS BUILDING DAMAGE

Wiring:

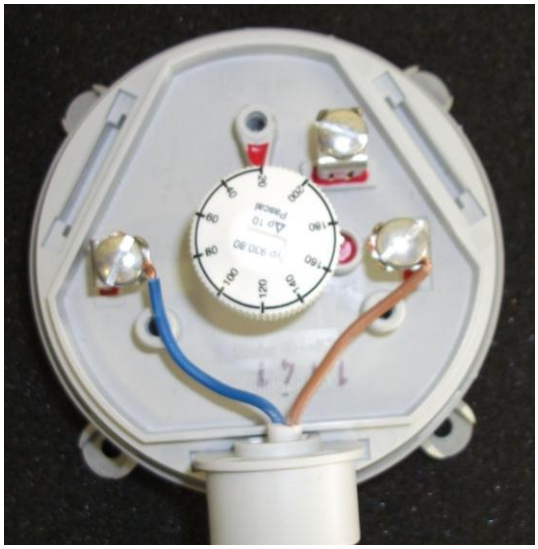
The wiring should be under-taken by a competent electrician taking into account current IEE wiring regulations. The wiring should be in accordance with the supplied wiring diagram on page 6. Local isolation should be included where necessary. It is important that the cables connected to the heaters are insulated with suitable heat protective sleeving.

Airflow Switch:

The airflow switch that is provided is to be connected into the safety circuit as indicated on the wiring diagram on page 6**.** The airflow pressure switch ensures the heater will not operate without the fan in the VN unit operating. The airflow switch should be set up in accordance with the supplied installation instructions on page 7.

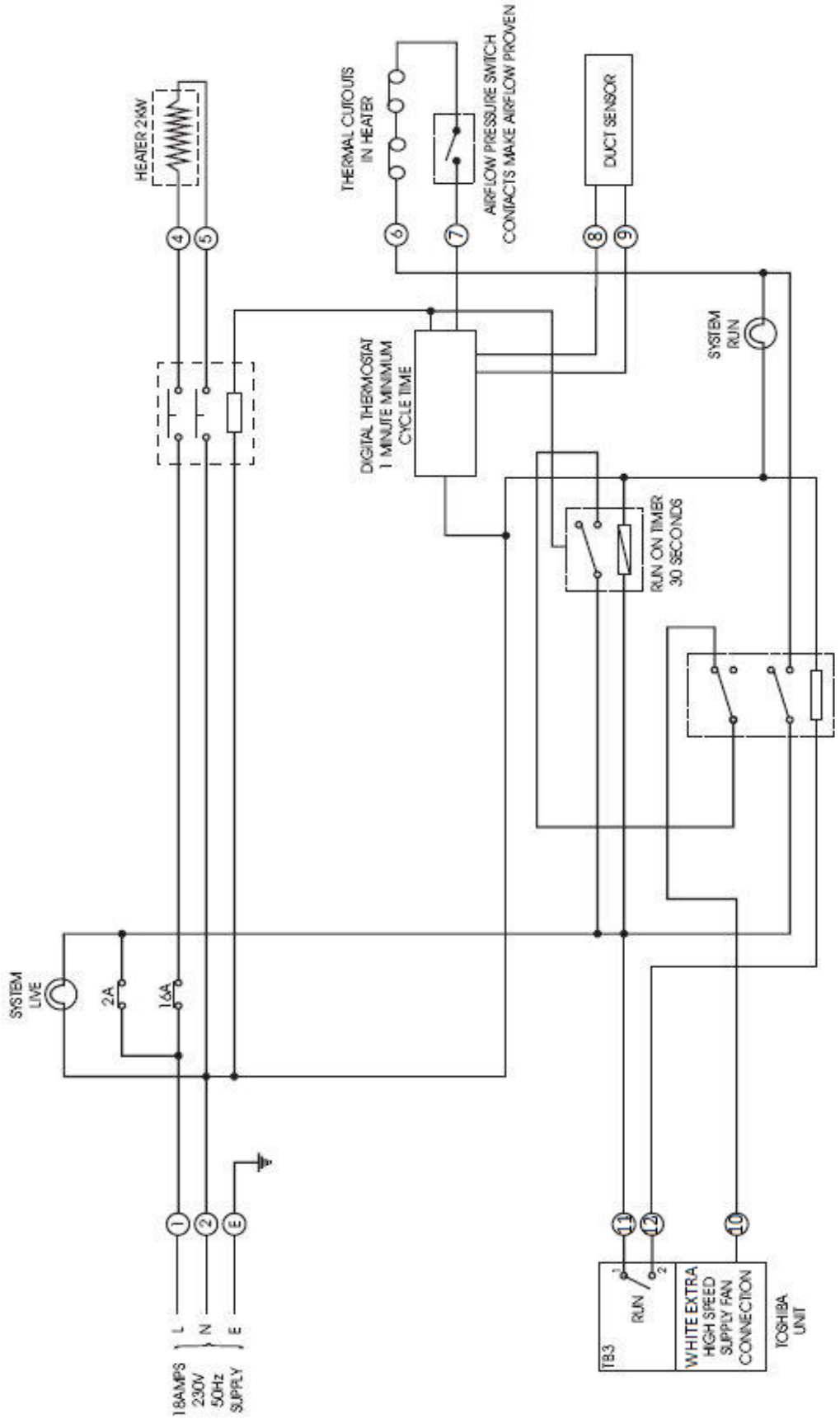
Leave This Nozzle Open

Connect Tube to This Nozzle



Wire Airflow Switch As Shown

Wiring Diagram



Airflow Pressure Switch Installation Instructions

1) Mount airflow switch on a flat surface in a clean dry environment. Mount the switch in vertical plane so that the nozzles are pointing down (as shown in fig. 1).

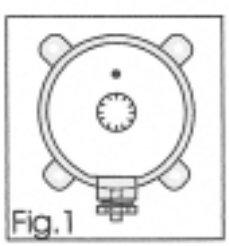


Fig.1

2) Remove plastic cover from P2- nozzle of airflow switch. Both P1+ and P2- are now open to atmosphere.

3) Mount nozzle in duct where positive air pressure is to be monitored, and well away from fan turbulence (as in fig.2).

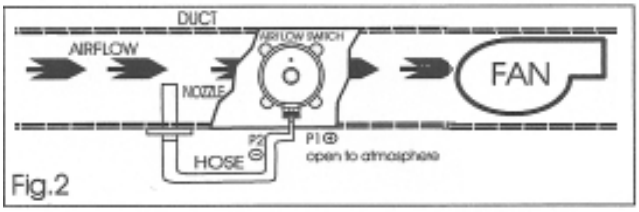
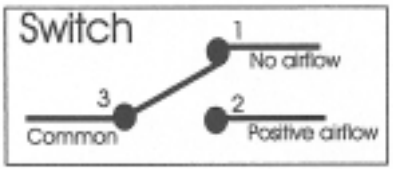


Fig.2

4) Connect plastic tube between nozzle and P2- nozzle of airflow switch. Please note this is because air flowing across the nozzle will suck air from the nozzle as in a pitot tube.

5) Using a meter check the continuity between terminals 1 and 3 of the airflow switch with no airflow in the duct.



6) Turn the fan on and measure between terminals 1 and 3 of the airflow switch, adjust switch until continuity is broken. If no switching action is obtained, try repositioning the nozzle to a position where a higher pressure is in the duct, and check the tube is not kinked. Avoid areas where turbulence may occur, ensuring nozzle is at a right angle to the airflow.

7) With the fan still on check continuity between terminals 2 and 3 of airflow switch.

8) Turn off fan and measure between terminals 2 and 3 there should be no continuity.

9) To wire up switch for continuity when airflow proven, use terminals 2 and 3.

10) Replace cover on airflow switch and use appropriate safety labels if mains voltage is switched.

MAXIMUM VOLTAGE 250VAC - MAXIMUM CURRENT 1.5A RESISTIVE

WARNING: SWITCH OFF POWER BEFORE REMOVING PLASTIC COVER