

Microsave[®] Speed Control System

TECHNICAL DATA NUAIRE

CI/SfB Ref

(57.7) Xh

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Leaflet 670578
240V 1ph 50Hz
415V 3ph 50Hz
NOVEMBER 2000

NB.
Also available for
60Hz operation
Refer to NuAire
for details.

Dimensions

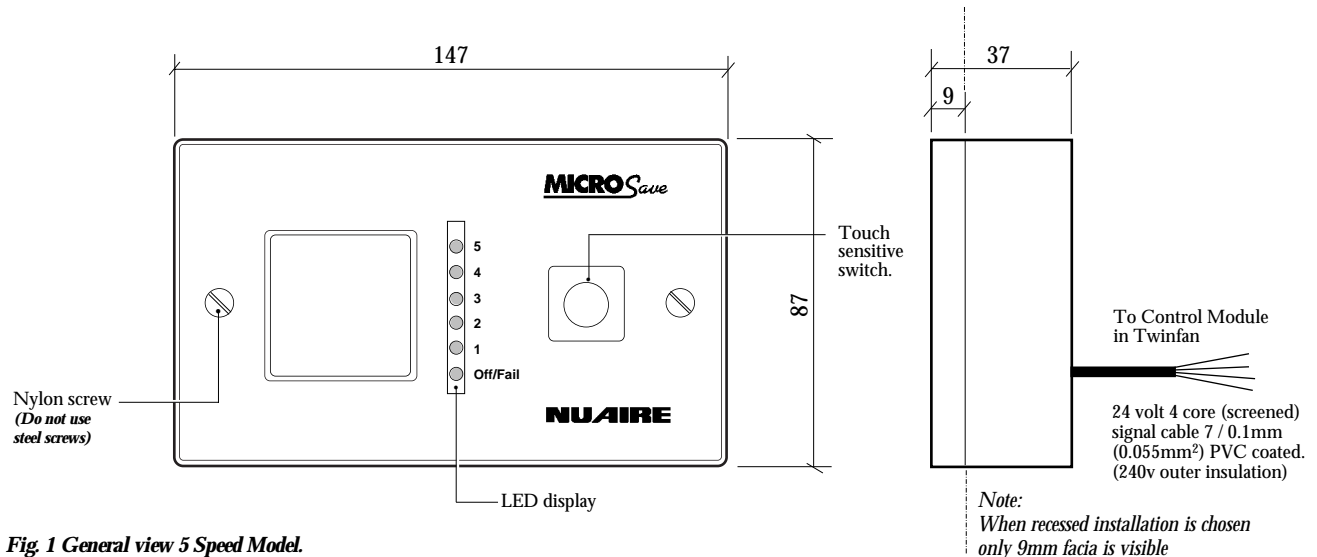


Fig. 1 General view 5 Speed Model.

The NuAire Microsave[®] Speed Control System conforms to EN 50081-1 (1992) EMC Standard (Emissions) and EN 50082-1 (1992) EMC Standard (Immunity).

General Description

The Microsave Fan Speed Control System comprises two electronic modules connected via safe extra low voltage wiring (24v). The Control Module is mounted local to the fan unit (or in any location within the main electricity supply to the fan) and the Interface Control Panel is mounted at the desired point of operation. (See Figs. 1 & 2).

This system has been specifically designed for use with NuAire fans both single and three phase, and utilises **Safe Extra Low Voltage** Circuitry (S.E.L.V.) to control and display the operation of the NuAire fan. The operational control, known as the **Interface Control Panel (I.C.P.)** can be located at any convenient location within the building, its compact size allowing an easy and unobtrusive installation.

STANDARD FEATURES.

The Control Module Selects transformer tapplings to produce the desired speed.

Manual Speed Selection of either three or five speed, controlled via the touch sensitive switch on the I.C.P.

Thermal Overload Protection detected by the heatseeker thermal Protection device (on selected fan ranges) in the motor and current overload.

OPTIONAL FEATURES

Three or Five Speeds

It is possible to specify three or five speeds for both single or three phase applications.

Remote Run / Fail Indicator

A remote Run / Fail Indicator can be connected to the Control Module if more than one display is required.

Remote Run/Fail Volt Free Contacts RELAY BOX 3

As a further extension of the Microsave Speed Control the RELAY BOX provides volt free contacts for both the RUN and FAIL conditions. Refer to wiring diagram 10.

Interface Control panel (I.C.P.)

At the point of customer control the Safe Extra Low Voltage (S.E.L.V.) circuit is housed behind an ABS fire retardant-moulded facia plate. This plate is supplied fitted onto a standard size, surface mounting, plastic double gang socket box.

Note: It is also possible to fit the facia plate onto a **plastic** double gang power socket box thereby limiting the intrusion into the room to only 9mm. Use nylon fixing screws supplied, do not use metal screws or mount onto a metal back box.

Using the Interface Control Panel, the customer can control the Speed control operation by sequencing the unit through its speed as in fig. 3.

By placing a fingertip into the concave indent on the facia front, the touch sensitive switch sequences the controller through the 'RUN' and 'OFF' functions. Provision is made for three or five speeds. The chosen speed is displayed by a series of green LED's.

The 'OFF' position has an Amber LED. In the event of a failure the I.C.P. will display a red 'FAIL' LED.

Control Module

The Control Module is a box of galvanised steel construction with air vents on the cover. The Control Module is connected to the I.C.P. by one, screened four core (7-0.1mm) PVC coated cable. The screen should be earthed at the Control Module. The fan is operated according to the extra low voltage instructions from the I.C.P. All wiring to and from the Control Module is connected to terminal blocks. Refer to NuAire Installation and Maintenance Instructions for the particular fan type in use.

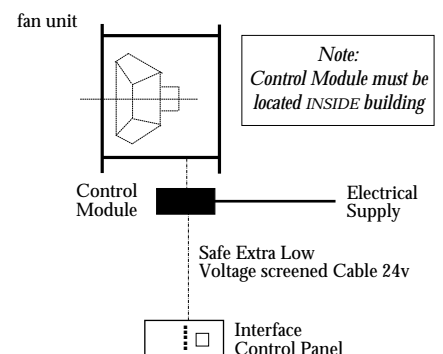


Fig. 2 Schematic layout of system

FOR PRODUCT / MICROSAVE COMPATIBILITY
SEE 'MICROSAVE APPLICATION GUIDE'.

Options & Codes

The Speed Control Option

The Microsave Speed Control System is suitable for use with most NuAire single fan units both single and three phase.

Note: See Microsave Speed Control applications guide. NuAire Leaflet No.670581.

The Safe Extra Low Voltage (SELV) signal instructions from the I.C.P. are used to operate relays within the control module which selects up to a maximum of five transformer tappings (three speed is standard)

Speed control using this method reduces the noise problems often associated with thyristor type controls.

The system uses the Heatseeker thermal protection device fitted in the NuAire fan (on selected ranges) to provide a fail signal in the event of a motor related fault. Each controller is supplied with an overload matched to the selected fan. In the event of current overload the controller also recognises this as a fault condition. The failure is displayed on the I.C.P. by a red LED indicator.

Note that the speed controller does not have a battery back up and if mains supply is withdrawn the controller will default to its off position therefore mains should be supplied to the unit at all times.

If the fan is to be required to be switched on and off at a chosen speed two terminals are provided which should be switched through a volt free contact. When made the terminals will operate the contactor at the chosen speed. When broken the contactor will disengage the supply to the fan (see wiring diagrams 4 & 5)

Sizes and weights of the Control Modules are shown in the relevant NuAire Product Selection Sheet.

Automatic Control by ON/OFF Microsave Thermostats / Humidistats can be achieved by using Microsave starters and 'Stats in conjunction with the Microsave Speed Control (Refer to page 4).

Options Descriptions

Control options include

* Three or Five Speed

* Remote run / fail indicators

* Remote Run / Fail volt free contacts

To identify the correct MicroSave controller for the particular NuAire fan Unit specified please refer to Microsave Applications Guide Leaflet No 670581. This will show the basic NuAire ordering code for the Microsave Speed Control System.

Option Description

Three or Five Speed

The system can be specified with either three or five speed control. Three speed is standard. Five speeds available for most fans - see applications guide.

RemoteRun / Fail Indicators

TRA ELV

As a remote extension of the Microsave Fan Speed Control System the TRA ELV provides an audible warning of a fault condition. The warning can be silenced by a manually operated muting switch. This lights an LED indicator which remains on as an indication that the audible warning has been switched off.

TRV ELV

Another remote indicating extensions of the speed control system is the TRV ELV which provides visual indication at a remote location of fan condition by means of 'RUN' and 'FAIL' LED indicators. Microsave Speed Controls can be used (depending on fan type) in conjunction with Microsave Starter to give additional controls.

Remote Run / Fail volt free contacts

RELAY BOX 3

As a further extension of the Microsave Fan Speed Control System the RELAY BOX 3 provides volt free contacts for both the RUN and FAIL conditions. Refer to wiring diagram Fig. 10.

Using the Interface Control Panel (I.C.P.)

Manufactured in flame retardant ABS plastic (V.O. rated), the Interface Control Panel is designed to fit a standard double gang power socket.

The unit may be installed using the surface mounting box supplied, or it can be recessed using a plastic flush mounting 2 gang power socket box, (not supplied).

The Fan is operated by a touch sensitive switch on the fascia (see fig. 1). By placing a fingertip in the concave recess the controller will sequence through OFF, Speeds 1-5 and back around to OFF as shown in Fig. 3 below.

When the mains supply is first switched on, the I.C.P. will display an AMBER LED indicating that the fan is 'OFF'. To start the fan, touch the concave recess on the fascia. The I.C.P. will display a GREEN LED indicating that the fan is now 'ON'. If the controller senses a failure condition (Thermal or Current Overload) power is removed from the fan and the RED failure LED illuminates.

Note: If the current overload has tripped it resets itself and the controller latches itself in the above failure mode. Operating the ICP again cancels the failure LED

Sizes and weights of the Control Modules are shown in the relevant NuAire Product Selection Sheet.

Key to Coding

First refer to applications guide for basic code of system.

For example, on NuAire Airmover AM 400-3

MS CON4-5

MS = Microsave Controller

CON4 = Transformer type in applications guide.

-5 = 5 Speed

B.M.S. Compatibility option:

By choosing this option the Microsave Speed Control System can be interfaced with most Building Management Systems.

For full details contact NuAire Technical Sales Department.

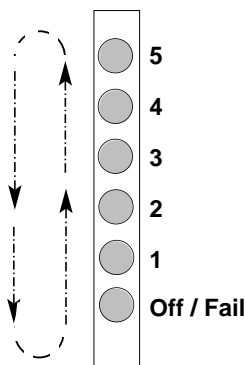
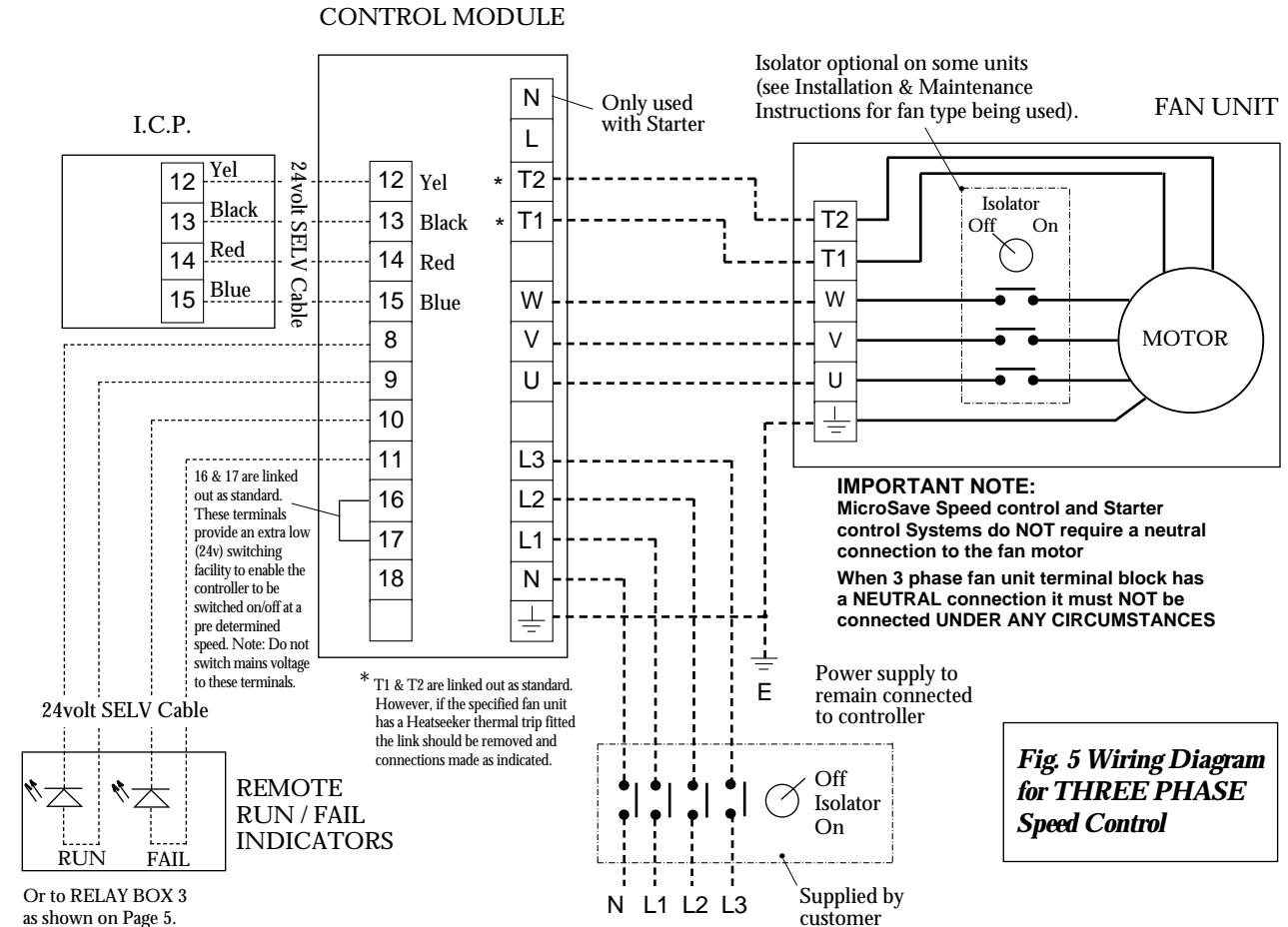
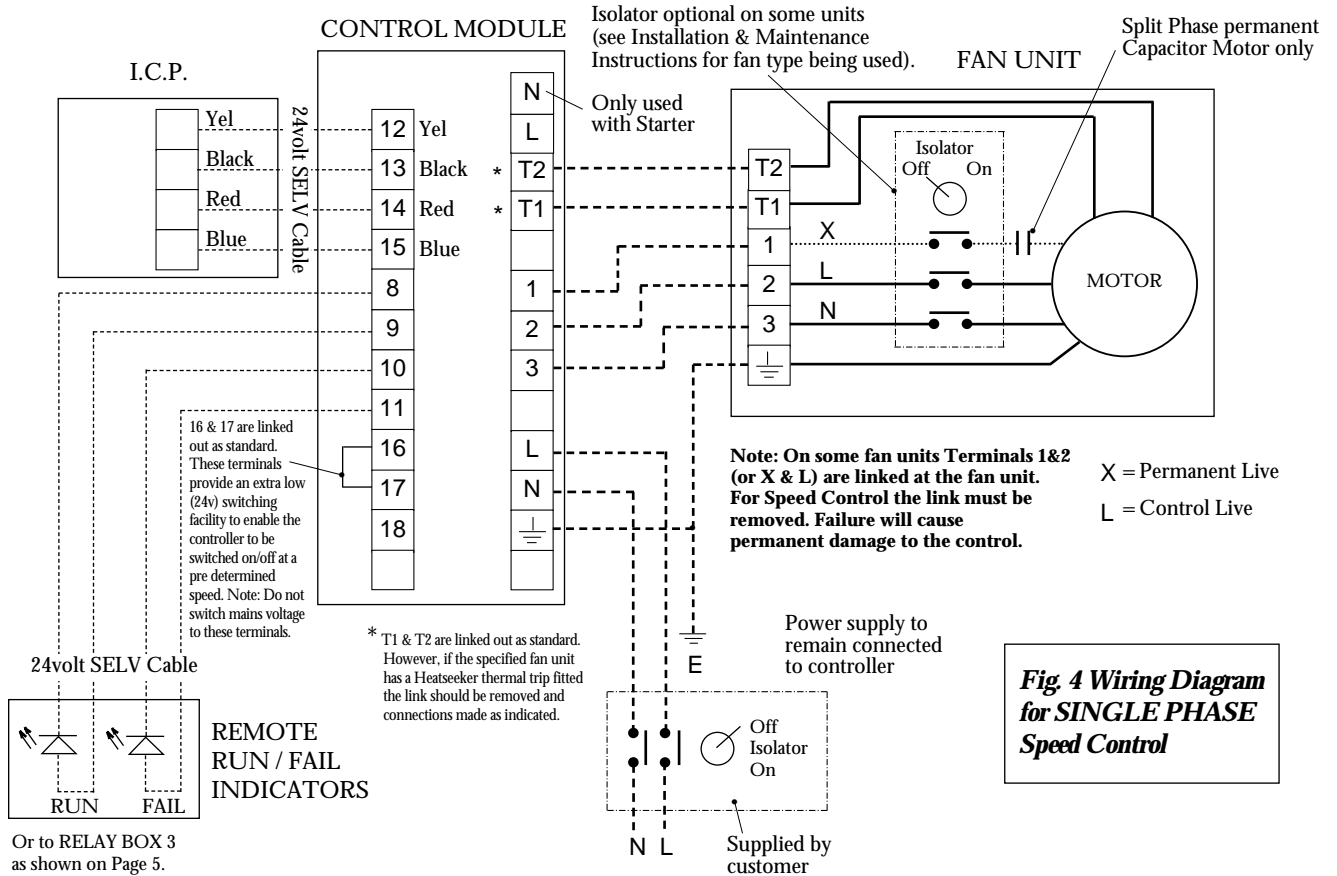


Fig. 3 Fascia LED sequence

Wiring Diagrams

240V 1ph 50Hz
415V 3ph 50Hz



Microsave Speed Control and Microsave Starter

It is possible to use both the Microsave Speed Control and Starter on the same installation. In this way the features of the starter control can be utilised on a standard Speed Control application. This allows the client to operate a pre-selected speed by an integral timeclock (within the starter I.C.P.) or Microsave Thermostat / Humidistat. The system would therefore comprise a speed control and starter control module, each being controlled by its appropriate I.C.P. Each control module is interconnected with the other and therefore it is suggested that they are mounted adjacent to one another. Refer to Microsave application guide for the specific NuAire fan being controlled which shows dimensions and weights of the modules used.

The combination is available single and three phase. However it is important to realise the relative positions of the starter and speed control in relation to the fan and the mains supply as shown in figs 6 & 7.

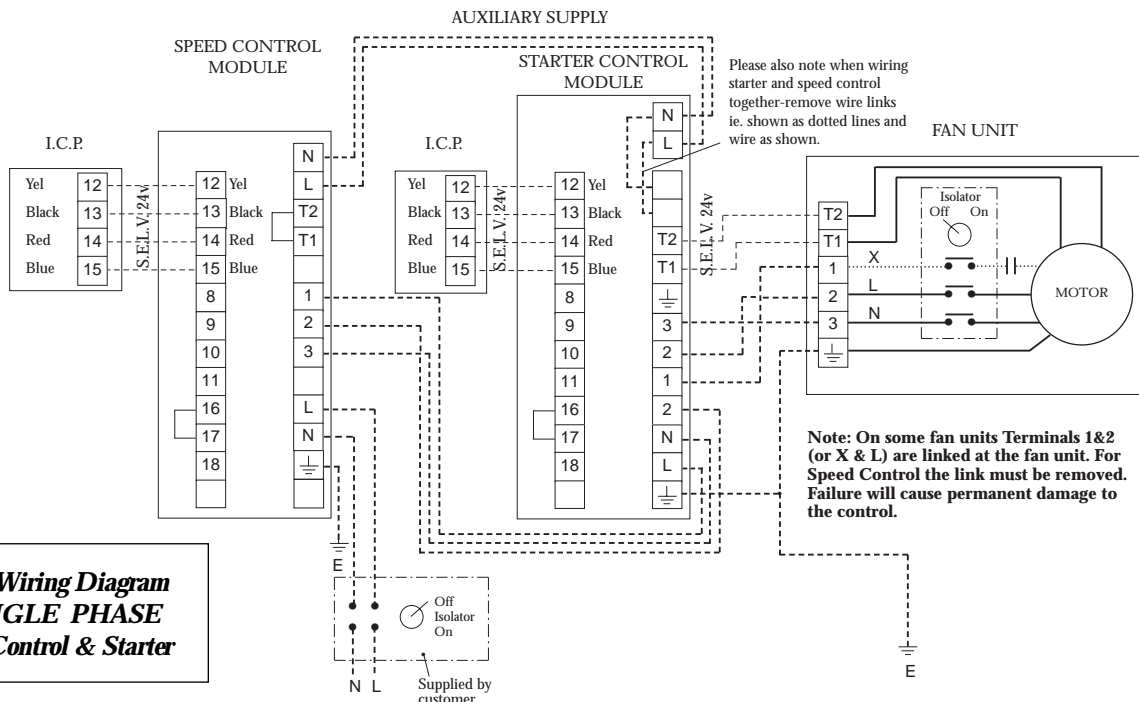
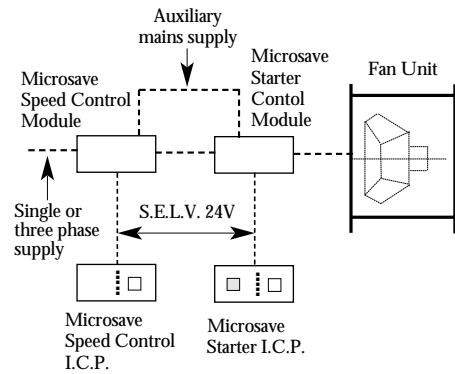


Fig 6 Wiring Diagram for SINGLE PHASE Speed Control & Starter

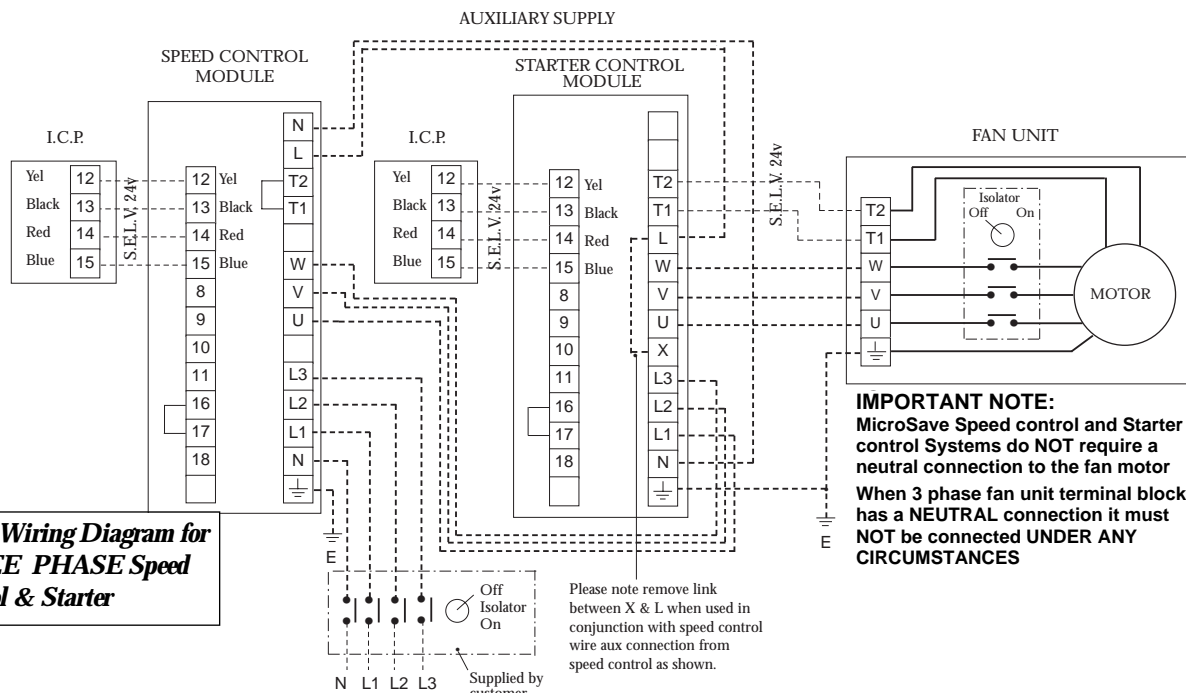


Fig 7 Wiring Diagram for THREE PHASE Speed Control & Starter

IMPORTANT NOTE:
MicroSave Speed control and Starter control Systems do NOT require a neutral connection to the fan motor
When 3 phase fan unit terminal block has a NEUTRAL connection it must NOT be connected UNDER ANY CIRCUMSTANCES

Wiring Diagrams for Remote Run / Fail indicators

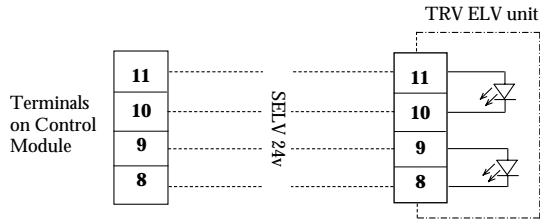


Fig. 8. TRV ELV Option remote 'Run and Fail' indicator (visual warning).

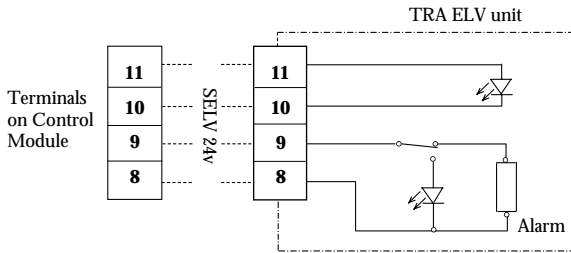


Fig. 9. TRA ELV Option remote 'Run and Fail' indicator (audible warning).

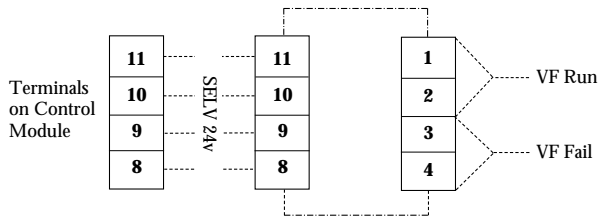


Fig. 10. RELAY - BOX 3 Run and Fail volt free.
(Note: Volt free contacts are rated at 240V 2A 50 Hz)

Specifications

240V 1ph 50Hz
415V 3ph 50Hz

Short Form Specification

General Note for all systems except B.M.S. and ITA options

All fans shall be controlled by a NuAire Microsave Control System utilising the Extra Low Voltage Interface System.
code ref:

The system to comprise a Control Module fitted within the mains supply to the fan unit which shall interface with the Interface Control Panel (I.C.P.) via 24V 4 core screened signal cable 7 / 0.1mm (0.055mm²) PVC coated (240v outer insulation).

The I.C.P. shall have a touch sensitive switch to select the fan mode and shall incorporate coloured L.E.D.'s to indicate fan status.

The I.C.P. shall be the same size as a surface mounted double gang power socket. Dimensions: 87mm x 147mm x 37mm and the fascia plate incorporating electronics shall be suitable for recessing into a plastic double gang power socket.

The I.C.P. shall be manufactured in fire retardant ABS plastic (VO rated).

Manual Speed Control

(with 'FAIL' indication).

The control shall allow manual 'OFF' and three (or five) speed selection via a touch sensitive switch on the I.C.P. control fascia and shall include a 'FAIL' indication by means of a red LED.

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make to make such alterations without prior notice.