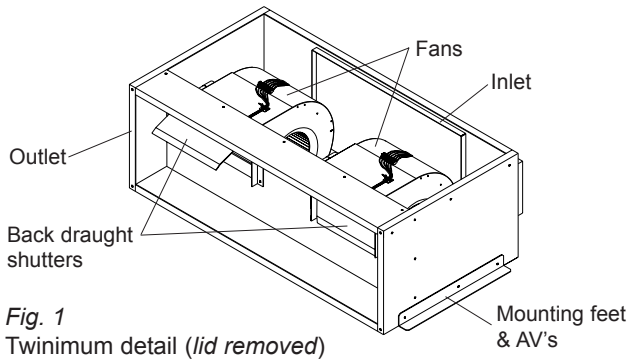




Twinimum Twin Fan Units

Installation, Operation and Maintenance Manual



IMPORTANT !

Only experienced fitters should undertake this work. Take necessary safety precautions when working in elevated positions

The Twinimum will have been supplied for either top or bottom access or for vertical mounting, as indicated on your order and confirmed on our order acknowledgement. Should you need to change the configuration contact VES Customer Service Department for instructions.

It is the installer's responsibility to ensure that access panels are not obstructed in any way and safe working access for maintenance must be provided in line with Health and Safety and Building Regulations.

For optimum unit performance, careful consideration must be paid to the location of the unit in relation to the ductwork and associated items; placing the unit directly adjacent to a bend in ductwork will impede airflow and reduce performance. Where provided, flanges and spigots should not be used to support the ductwork and used solely as a means of ductwork connection.

Consideration must also be given by the installer for adequate illumination of the unit location in order for safe maintenance. The unit can be connected to rectangular ductwork using a 25mm proprietary duct flange system, or to a standard circular ducting. If the unit has been ordered with circular spigots, the spigot will fit inside your circular duct. However if you have ordered flexible connections these will fit over the duct. If a VES matching silencer is to be fitted, ensure that the pointed central splitters face the Twinimum unit.

IMPORTANT !

This manual must be read in full before Installation, Operation and Maintenance of the unit/s supplied

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1 Introduction

The Twinimum is a range of compact twin-fan units with a duty range up to 0.6m³/s. The compact design is ideal for installation where space is at a premium, such as ceiling voids. The standard operating temperature of the unit is -10 to +35°C

For further technical details contact VES on **08702 404340** quoting the sales order (SO) number and the unit type as found on the unit nameplate, or visit **www.ves.co.uk**.

2 Installation

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturer's recommendations, with due regard to the current HEALTH AND SAFETY AT WORK ACT and conforms to all relevant statutory regulations. Where a unit is installed so that a failure of components could result in injury to personnel, precautions should be taken to prevent such an injury.

Immediately upon receipt of goods, check for possible damage in transit, paying particular attention to fan impeller, motor and flexible connections. Prior to installation please check to ensure smooth rotation of the impeller after transit. Also check to ensure that any ancillary items are included. These will normally be supplied fitted or taped to the unit (in the case of small items).

In the event of any damage having occurred or if any item is found to be missing, it is essential to inform VES Andover Ltd. within **7 working days** of delivery quoting sales order number and the unit type as found on the unit nameplate. After this period we will be unable to accept any claim for damaged or missing goods.

IMPORTANT !

If the unit is installed where there is a possibility of persons or objects, coming into contact with the impeller a guard should be fitted to the exposed inlet/outlet opening.

3 Wiring

VES Twinimum twin fan extract units contain two centrifugal fans with either fan acting as standby fan to ensure continuous airflow in the event of a fan or motor failure. Each fan has a set of back draft shutters which prevents recirculation of the air through the standby fan. These shutters operate micro-switches which control the standby fan if the duty fan ceases to move air.

All electrical connections to any unit must be carried out in accordance with the current edition of the I.E.E REGULATIONS and only competent electricians should be allowed to affect any electrical work to our units.

IMPORTANT !

Do not connect any unit to an electrical supply voltage outside of that indicated on the motor nameplate

A local isolator must be fitted and mains cables should be suitably sized and terminated. Electrical details and wiring diagrams are shown in *fig. 2-6 & 9-13*.

Twinimum units are supplied prewired to a terminal box as standard, with options for prewired isolator or AF500 auto-changeover control panel / isolator. AF300 & AF400 auto-changeover control panels are supplied loose. See order acknowledgement for confirmation of details.



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3 Wiring Continued

When wiring is complete, check the free running of the fan impeller prior to starting. Check the direction of airflow on start-up to ensure correct wiring (refer to wiring diagram) and direction of rotation. If a fan speed controller is being used, study the wiring diagram and set-up procedure carefully at time of installation. Ensure that the fan is operating against the resistance specified on the order, as too high a resistance may cause the auto-changeover system to malfunction.

Model	Motor output power (Watts)	FLC (A)	Fan speed (RPM)	Supply voltage
TM1	109	0.45	1510	230V 1PH 50Hz
TM2	325	1.37	1800	230V 1PH 50Hz
TM3	405	1.80	1280	230V 1PH 50Hz
TM4	612	2.96	1380	230V 1PH 50Hz

Fig. 2
Electrical details

Fig.3
Standard wiring arrangement
230v 1Ph 50Hz

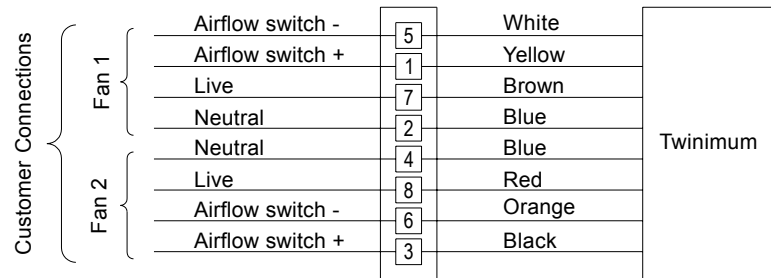


Fig.4
Wiring arrangement for optional fitted Isolator
230v 1Ph 50Hz

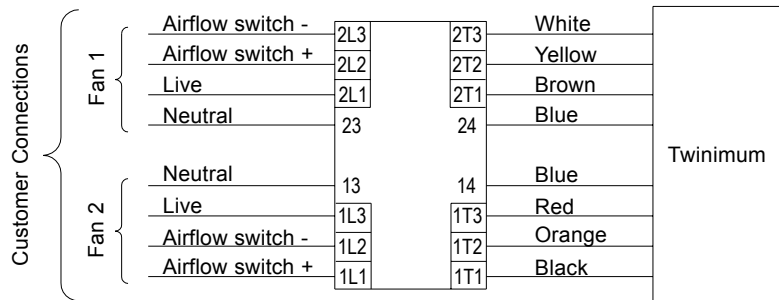


Fig.5
Wiring arrangement for optional fitted AF500 & Isolator
230v 1Ph 50Hz

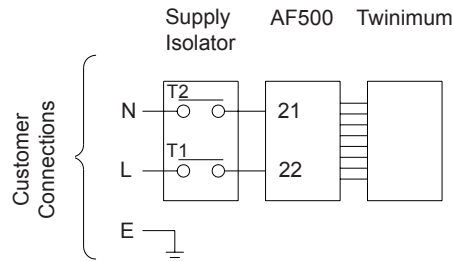
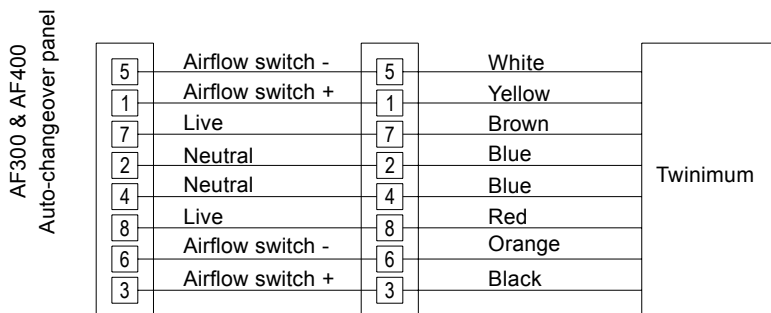


Fig.6
Wiring arrangement for optional fitted AF300 or AF400 Auto-changeover panel
230v 1Ph 50Hz





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3 Wiring Continued

Auto changeover panels:

AF300 & 400

The AF300 allows manual selection of either fan, with automatic changeover in the event of airflow failure from the selected fan. The AF400 has the additional feature of automatic duty sharing between the two fans. Both types provide immediate visual indication of the system status with red, green and amber lights. For standard wiring arrangement see *fig. 3*.

Also supplied - AF300/S and AF400/S unit with special features:

- Volt free contacts to show fan failure
- Volt free contacts to show fan run and fail
- 240 volt signal to indicate fan run and fan fail
- 7 day time clock operation for BMS
- Run on timer plus remote switch
- Remote on/off
- P.I.R. operation
- Further operation
- Auto changeover panel fitted to unit

Fault finding

VES Twin fan units and controllers are factory run-tested prior to depatch, because of this, faults occurring on site can be considered due to the following:

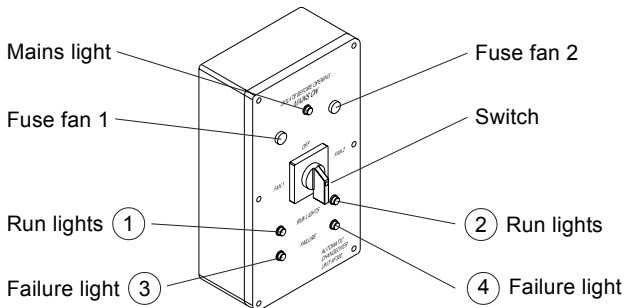


Fig. 7
AF300 Auto-changeover panel

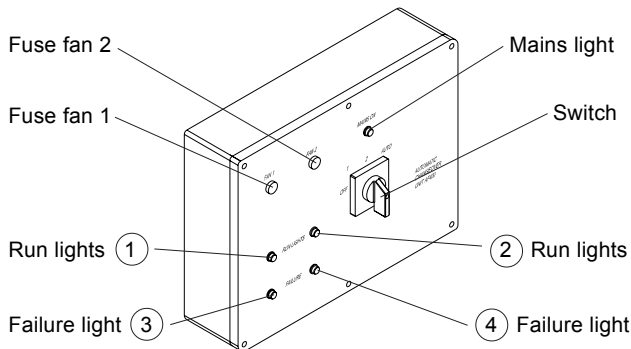


Fig. 8
AF400 Auto-changeover panel

AF300 & AF400

Select No.1 fan to run

- (1) (2) (3) (4) Will light automatically
- (1) Remains on - no problem
- (1) (2) (3) (4) Remains on - flaps remain closed
 - virtually no airflow, check flaps opening
 - check resistance
- (1) (2) (3) Fan 1 may have failed or ceased to operate - check fan and connections
- (1) (2) (3) (4) Flashing - bend or restriction too close to outlet - wired incorrectly
- (2) (3) (4) Fuse 1 has blown - check fan motor and circuit before replacing fuse

No.2 fan operates in a similar fashion

AF400

As for AF300, includes an internal duty sharing clock; may need resetting if power supply to the unit is off for a period longer than the power reserve.

Auto changeover panels:

AF500

Optional pre-wired AF500 auto-changeover panel terminated to local isolator as shown in *fig. 5* complete with AF-REM twin fan unit remote status indicator supplied loose for connection by others see *fig. 10*.

Fault finding

VES Twin fan units and controllers are factory run-tested prior to depatch, because of this, faults occurring on site can be considered due to the following:

If the LED on the remote twin fan status indicator is flashing red and green check:

- Flaps not opening (possibly due to excessive resistance in the system)
- Check fan connections
- Fan fuse has blown
- Motor failure
- Very dirty fan
- Micro-switch not operating
- Correct speed controller is fitted

If the LED on the remote is solid red, both fans have failed, check:

- Fan fuses
- Electrical connections
- PCB failure in AF 500
- Condensation

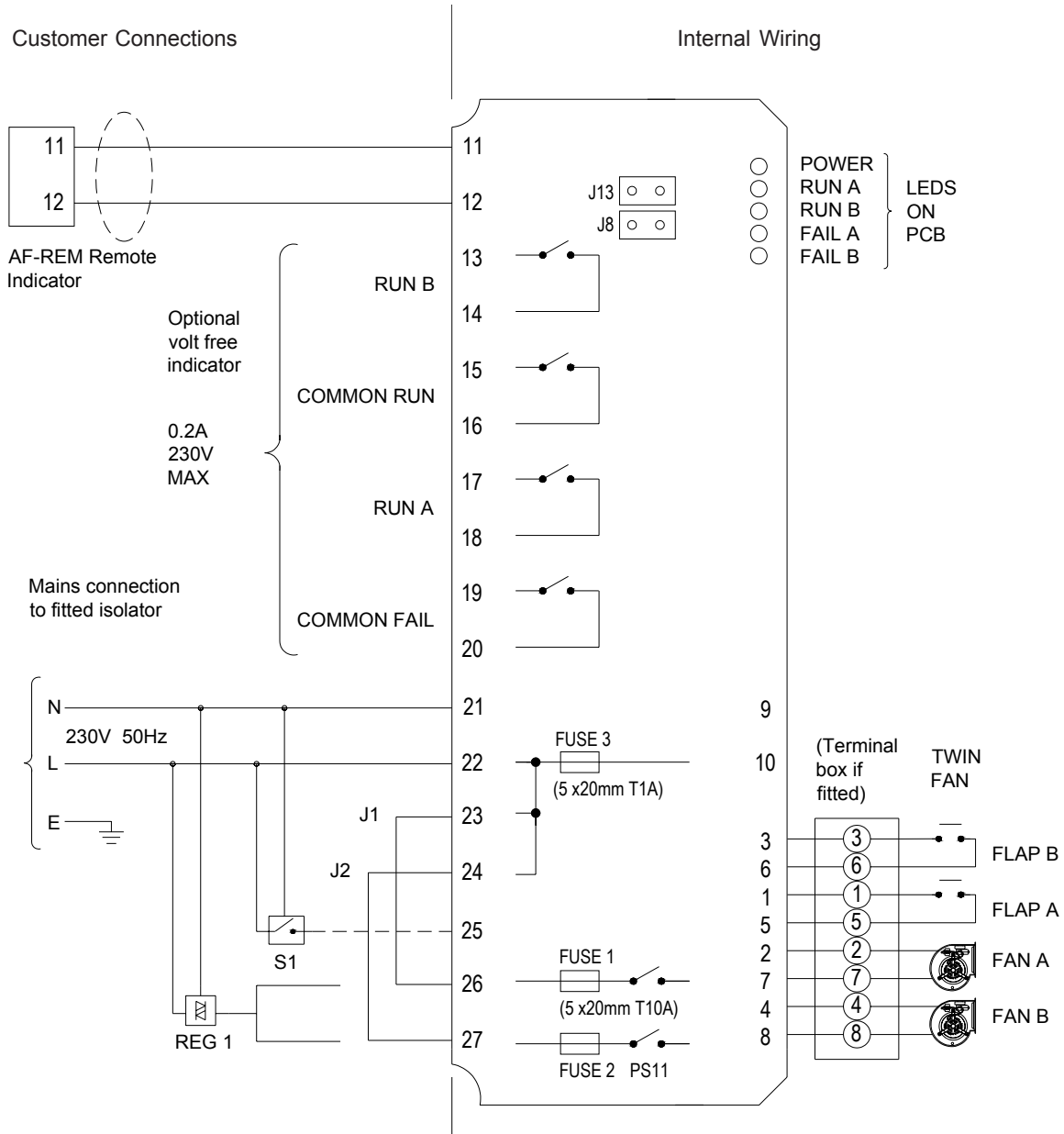


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3 Wiring Continued

Fig.9
 AF 500 Wiring diagram



Details

- Supply: 230V 50Hz
- Ambient: -10 to +35°C
- Protection: IP54
- Fan use: 5 x 20mm T10A
- Volt free indicator: 230V 0.24A maximum
- Duty share time: 12 hours run time memory
- Fan test: Both fans are run in sequence at power up, commencing with non-duty fan

10sec fan test - 10sec flap test - 10sec fan test - Run

Fan fail: To reset, remove power from AF500

For additional features contact VES





Twinimum Twin Fan Units

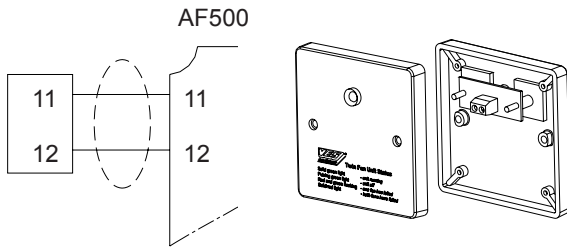
Installation, Operation and Maintenance Manual

3 Wiring Continued

Fig.10

Twin fan unit remote status indicator

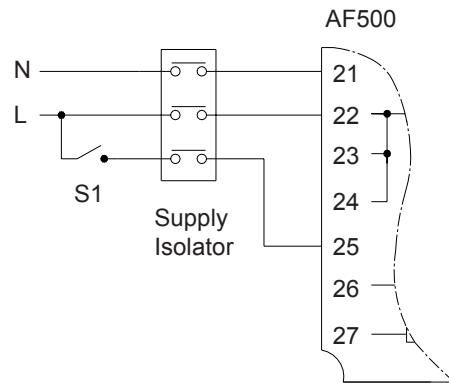
Remote single multi coloured LED indicator informs the operator of the current status of the Twinimum unit.
 Fits standard single gang switch box. 2-core screened cable connection, maximum length 50 metres.
 Below is a list of the LED states and what they indicate.



- | | |
|---------------------|--------------------------------|
| Solid green | - Unit running |
| Pulsing green | - Unit standby |
| Alternate green/red | - One fan failed - One fan run |
| Solid red | - Both fans failed |

Fig.11

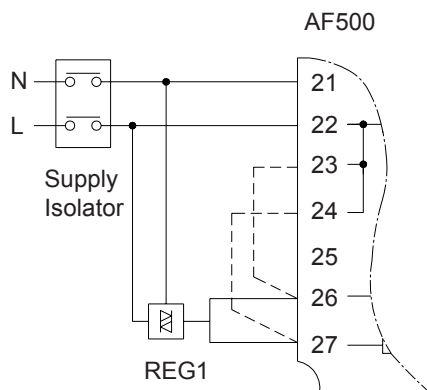
Remote on/off (230V)



S1 = Switch timeclock/PIR etc. remove link J8

Fig.12

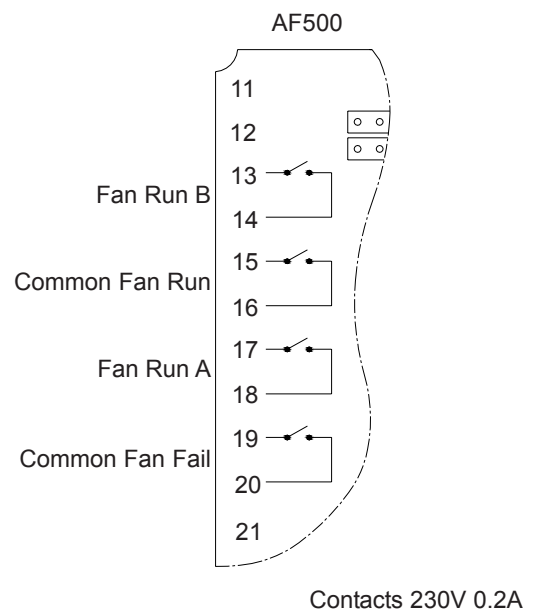
Remote wiring options: Speed control



REG 1 refer to VES for speed control
 Remove links 23/26 and 24/27

Fig.13

Volt free status indicator



Contacts 230V 0.2A



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4 Maintenance

IMPORTANT



Before attempting to carry out any work on our units, the unit **MUST BE COMPLETELY ISOLATED** from its electrical supply. Ensure a minimum of two minutes after electrical disconnection before commencing work. This will allow any moving part to come to a rest

In general, this series of units require very little maintenance. All fan and motor bearings are supplied fully greased and lubricated and sealed for life. In the unlikely event of component failure, spares are available from stock at VES Andover Ltd.

IMPORTANT



Before attempting to carry out maintenance work or repair work on our units, all accompanying documentation including warning labels on the unit must be referenced

Recommended checks

Check inside the unit for accumulation of dust, grease etc. If the fan impeller is heavily soiled, clean out carefully (ensure the unit is properly isolated). Failure to do this periodically could lead to a loss of performance or the fan to become out of balance, leading ultimately to bearing failure.

Three Monthly Check

The security of fastenings and the integrity of components should be checked regularly as part of the routine maintenance operation.

WEEE Directive



At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre.
Do not dispose of with normal household waste.
Do not burn

When enquiring after or ordering spares contact VES Spares Department, quoting the sales order (SO) number and unit type as found on the unit nameplate.

Telephone	08702 40 43 40
Fax	08702 40 45 50



PLEASE ENSURE THAT THIS DOCUMENT IS PASSED ON TO THE END USER.

We reserve the right to alter the specification without notice

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5 Warranty

Extended Warranties

All VES Andover Products come with a one year guarantee from date of dispatch, which covers parts and labour. You can now extend this with the following options:

Option 1. **FREE extended Warranty**

We can offer you a maintenance agreement that keeps this equipment in tip-top condition.

If you take out this agreement, we will extend the warranty **free of charge for up to 5 years**, providing the regular maintenance agreement remains in place.

Option 2. **12-24 Month Extended Warranty**

12-24 months from the date of dispatch. This can be covered at a cost of just 3% of order value. (minimum charge £50.00).

Option 3. **12-36 Month Extended Warranty**

12-36 months from date of dispatch. For this cover, the charge is 6% of order value (Minimum charge £80)

Please State which option you require when you place your order. A transferable certificate will then be issued to you. *Please note, this offer excludes condensing units. We would be happy to quote you for these separately.*

Register for separate spares reminders and get a 10% discount

Register for this free service and we will automatically send you a regular reminder detailing the consumable spares for this unit, together with their current list prices.

You will then be entitled to a 10% discount off any spares.

To arrange any of these options.

or **Phone: 023 8046 1150**
Email: spares@ves.co.uk

Stating the sales order and reference number from the unit.



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Declaration of Conformity

Date: 1st of May 2005
Product: Twinimum – Twin Fan Units
Type: TM
Manufacturer: VES Andover Limited

The product above is produced in accordance with EC Council Directives:

98/37/EC (Machinery Directive)
89/336/EEC and amendment 92/31/EEC (Electromagnetic Compatibility Directive)
73/223/EEC and amendment 93/68/EEC (Low Voltage Directive)

The European Harmonised Standards applied are:

BS EN ISO 12100, EN 294, EN61000, EN 60204-1

The National Standards applied in particular are :

BS 848 Part 1

Basis of Self attestation:

Quality Assurance to ISO 9001-2000, BSI Reg. Firm Cert. No. Q5375

Signature of Manufacturer:

Position of Signatory:

Technical Director