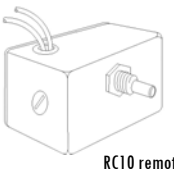
PRODUCT ADVICE SHEET

Model VA8.0 / VA10.0

Solid State Fan Speed Controller

VA8.0/10.0 power controller module



RC10 remote

Switchplate RC10

FANTECH

FEATURES

- Easy stepless electronic speed control of single phase PSC induction motors in fan and blower applications.
- Suitable for all speed controllable fans
- 2000/2400 VA 8/10 amps 240 VAC
- Energy efficient 3-wire motor control
- Multiple / mixed loads capability
- Separate power and remote control modules allow easy installation in a standard wall plate.
- Remote module mounted on an HPM switch plate together with a neon indicator switch mechanism. Can be flush or surface wall mounted.
- Separately adjustable preset minimum speed mounted within remote module.
- Power module may be used on its own as a preset adjustable speed limiter.
- RoHS & C tick compliant

SPECIFICATIONS

RATINGS RMS continuous	240 VAC 50hz. VA8.0 = 8A 2000VA. VA10.0 = 10A 2400VA. Environmental: up to 30°C in free air. De-rate (max VA) by 1.6% x "max VA rating" per °C above 30°C. Max case 70 °C. Controller designed for PSC motor starting and reasonable short term overload conditions. MCB or fuse overload protection recommended for load is usually adequate to protect controller.
TECHNICAL BASIS	Phase angle control of incoming AC mains. 2 and 3 wire PSC control outputs.
ENCLOSURE & MOUNTING	**VA** Power module in aluminium to IP 30. Size 114x63x74mm. Two 4mm mounting holes with centres 111mm. Weight 385 – 400g. Separate **RC10** remote control (size 53x37x42) fitted to HPM wall plate for flush or surface mounting.
CONNECTIONS	Internal 300 VAC screw terminal strips with wire protection plates. Input / output = 30 amp 5 way with each terminal capable of accommodating 2 x 2.5mm² or 1 x 4mm² cable. RC10 remote connection via similar but smaller 5A terminal connectors. Cable entry to terminals is via 3x neoprene grommets on the faceplate. The cable entry faceplate may be left off if installed in a switchboard. **CONNECTIONS: Mains Input** ~L = active, ~Lc = neutral, 4mm earth point outside enclosure **Load** Mm = main, Ma = aux , Mc = common (N) **RC10** remote control wires to Rc & Sel
MINIMUM SPEED	Screwdriver pre-set adjustment of minimum speed setting of the RC10 remote control over a wide power/speed range. Separate preset adjuster in power module when configured as speed limiter.
COMPLIANCE	Fitted with integral EMI suppression network. When installed as per instructions overpage, complies with AS/NZS CISPR 14.1:2003. ACA CTick compliance no. N29529
RELIABILITY	Fantech controllers are built for long service life and are proudly designed & manufactured in Australia for Fantech. Appropriate quality control is ensured throughout their manufacture and all units are hand soldered and assembled using high grade commercial duty rated components. Fantech have a commitment to on-going research and development of their products.
OPTIONS	Preset Speed Limiter version without RC10 remote. Surface mount base for RC10.

GUIDELINES FOR INSTALLING THE VA8.0/VA10.0 CONTROLLER / LIMITER

How does it work? The VA8.0/10.0 controller effectively varies the AC power supplied to a PSC induction motor using phase angle control. In normal fan applications, as the conduction angle is reduced, the effective power decreases and the motor slows. This power reduction is accompanied by a reduction in the AC current and voltage across the load. The reduction in AC voltage can be used as an indicator of the speed change. If a reasonably linear change in speed is required, the motor must be suitable for speed control, it must be optimally sized for the load and the load torque characteristics must increase with speed. Poorly matched motor / load combinations are more difficult to speed control!

Motor considerations Ensure that the motor to be controlled is suitable for speed control and the manufacturers recommendations for connection are followed. For PSC (capacitor) motors, Fantech recommends only the 3-wire method of connection – needs 3 wires (main winding, capacitor, common) between the motor and controller. Although this is slightly more complex than the traditional 2-wire, it offers better efficiency, lower motor temperatures, lower motor noise and better speed control. The VA8.0/10.0 can control more than one motor provided the maximum current of all motors does not exceed 8/10A.

Overload Protection. The VA8.0/10.0 is adequately rated for motor starting and a generous short term overload margin is provided for in its design. Generally it does not need any additional overload protection other than what would normally be recommended by the manufacturer of the fan motor and/or local wiring regulations. As a guide, fit a 'domestic duty 'magnetic/thermal circuit breaker (6 kA type B with C curve) rated at 10 amps for the VA8.0 and 12 or 15 amps for the VA10.0

Electromagnetic Compliance and Earthing When properly installed, the VA8.0 controller meets the Electromagnetic Compliance (EMC) requirements of Australia & New Zealand. Correct installation requires that the conductor between the controller red wire and the motor main winding be screened (shielded), and that the screen be earthed at one point. If more convenient, the screening may be accomplished by enclosing all the cables between the controller and motor in an earthed screen. If the power module is located near and within the same earthed metal enclosure as the motor, then no screening is necessary.

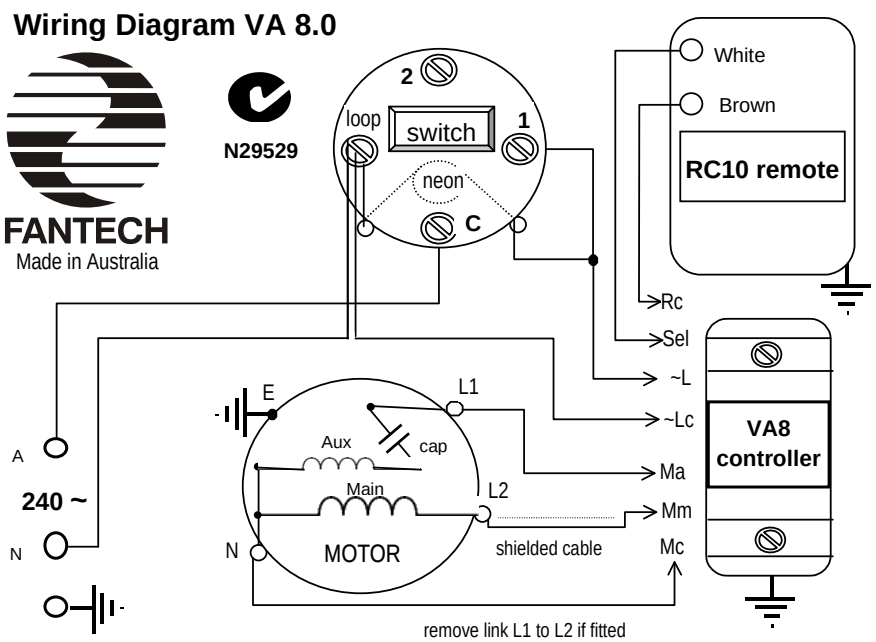
VA8.0 used as a repair or replacement item. The older versions of the VA8.0 prior to 1st July 2008 may have different cable leadout connections, wire colours or terminal connector markings. Please contact Fantech for retro-fit wiring installation information.

Earthing Both modules must be installed in accordance with AS/NZS3000:2000. The cases of both should be earthed. **NB** - the cross-sectional area of the screening on a screened single core cable may not be sufficient for it to be used as an earth conductor and a separate earth should be provided.

How fast / slow? An AC voltmeter between **Mc** and **Mm** will give a "relative reading" proportional to motor speed and can be used as a calibration reference. Please note that as the waveform is not pure AC sine, different voltmeters may shown different readings by up to $^{+}/_{-}$ 20%. If the voltmeter reading is used as a calibration standard, the same make and model voltmeter should always be used.

Recommended Wiring

The wiring diagram shows the recommended 3-wire configuration and how the motor is wired to the VA8.0/10.0 face plate assembly.
The neon indicator tails (thin white wires) are connected between a neutral connected to the "loop" terminal and terminal 1 of the switch.
Use appropriate cable for the RC10 remote control wires (Rc and Sel) which are at 240 VAC live but carry less than 0.1A. Note that for some fan motors, you will need to disconnect one side of the capacitor from the main winding and take it back to the controller as the "3rd wire". Most Fantech fans make this easy with a link that is removed when using a speed control device. However, you will still need to make provision for 3 wires plus an earth from the motor to the power module.



Use as a speed limiter or 2-speed switch

The VA8.0/10.0 can be used a stand-alone preset adjustable speed limiter in those situations where the fan speed is required to be reduced permanently without the option of user control or as a 2-speed switchable system with the lower speed preset adjustable. Eg Reducing fan speed on fan coil units, or an exhaust fans that is too noisy. Leave out the RC10 remote and connect a link between terminals **SEL** and **LIM** on the small terminal block. This configures the power module to be preset adjustable via a preset adjuster that is located behind the end plate opposite the terminal end (remove end plate for access to the adjuster). As an additional option, if a simple 240 VAC rated switch is connected between Mm and Ma, then the unit can be 2-speed switchable with the lower speed preset-adjustable via the above preset adjuster.

Minimum Speed Adjustment

The knob on the RC10 remote wall plate will vary the motor speed between full speed and a minimum speed. The minimum speed is set after the controller has been installed, by turning the wall plate front knob fully anti-clockwise and then carefully adjusting the blue min speed trim potentiometer, located on the side of the RC remote module, until the required lowest speed is attained. Turning the trim pot anti-clockwise will reduce the min speed setting. Be careful not to force the blue trim potentiometer beyond its stops. The minimum speed preset is factory set to a recommended 120 VAC or approximately 40% of motor speed. Do not set the minimum speed too low as the fan motor relies on air flow to keep it cool and a low setting may cause overheating. Generally, the motor case temperatre should not exceed 70 ^{0}C.

If you are unsure of any aspect of the contents of this product advice sheet, connection, wiring, application, or operation, please contact your nearest Fantech branch or agent.

GOODS AND WARRANTY

1. When supplying goods to a consumer, the following mandated statement applies:
   "Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure."

2. The benefits of this warranty are in addition to any rights and remedies imposed by Australian State and Federal legislation that cannot be excluded. Nothing in this warranty is to be interpreted as excluding, restricting or modifying any State or Federal legislation applicable to the supply of goods and services which cannot be excluded, restricted or modified.

3. Subject to the conditions and limitation below, the Company warrants products of its manufacture to be free of defects in workmanship and/or materials at the time of delivery to the Buyer.

4. Any part, assembly or portion thereof found to be defective within one year from the date of commissioning or eighteen (18) months from date of shipment from our factory, whichever is the sooner, unless expressly stated otherwise in the Company's Publications or Literature, will be repaired or exchanged F.O.B factory.

5. The Company reserves the right to replace defective parts of the goods with parts and components of similar quality, grade and composition where an identical component is not available.

6. Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the goods.

7. Goods or parts that have been returned for repair (except where the repair is as a result of the Company's failure to comply with the statutory guarantees in the ACL) or warranty assessment are deemed to have been abandoned by the Buyer if not collected within 30 days after the Company has notified the Buyer in writing of the warranty assessment outcome or the completed repair.

8. The Company reserves the right to dispose or otherwise deal with an abandoned product or part at its discretion.

9. This warranty does not apply if:
   (i) the goods have not been paid for by the Buyer as per the credit terms provided; or
   (ii) the goods have not been installed in accordance with AS NZS 3000/2000 Australian/New Zealand Wiring rules; or
   (iii) the goods have been misused or neglected.

10. The Company assumes no responsibility under this warranty for the labour costs involved in the removal of defective parts, installation of new parts or service charges related thereto.

11. If a fault covered by this warranty occurs, the Buyer must first contact the Company at the contact address listed below.

12. Any warranty claim must be accompanied by:
    (i) proof of purchase;
    (ii) written details of the alleged defect; and
    (iii) appropriate documentation (such as installation and maintenance records etc).

13. The Company shall have the option of requiring the return of the defective part (transportation prepaid by the Buyer) to establish the claim.

14. The Company makes no warranties or representations other than set out in this clause 7.

15. The repair or exchange of the goods or part of the goods, is the absolute limit of the Company's liability under this express warranty.

FANTECH
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