FEEDBACK CONTROL ECO-SPEED FANS

INSTALLATION INSTRUCTIONS

FANTECH

Electrical Connection

WARNING:

Motor is not to be switched on and off using the input power supply. This will cause the motor to fail. Use the enable switch to turn fan ON / OFF during day to day use.

If 240 VAC must be turned on / off for maintenance purposes or during commissioning, then the fan must be left off for 15 minutes before being switched back on, to avoid damage to the motor's internals.

If the fan is to be used with a backup power supply or emergency power supply, then a switch over delay of 15 minutes must be used, and backup power MUST be true *sinusoidal* wave form 240 VAC.

1. Fans are fitted with a terminal box on the fan case for power connection to 240V AC, 50Hz supply.

2. Fans are fitted with a second terminal box on the case for the fan control connections.

3. Controlling the fan should be done via the 0-10V or the 4-20mA output control cables available in the fan control terminal box.

4. Control systems that incorporate temperature sensors, pressure sensors, etc: and controllers to operate them with the compatible outputs 0-10V or 4-20mA should be capable of operating these fans.

5. **WARNING:** Incorrect connecting of control cables can result in permanent damage to the fan motor. Power and control cables are at very high voltage when mains power is applied. Regardless of whether the motor is being operated there may be high external control voltages. After disconnecting, wait at least 10 minutes before removing covers from the motor terminal or capacitor box. This allows the capacitor time to dissipate. **Note:** Motors should only be disassembled by a licensed repairer.

6. Cable connections (refer to wiring diagrams):
   Blue = Min Speed Override, overrides the controller regardless of input and runs the fan at minimum speed (450rpm)
   Yellow = 4-20mA, output connection
   White = Enable, This enables the fan to be switched off manually. It requires +10V to operate.
   Black = 0-10V PWM, This is the control output of the fan.
   Green = GND, This is the ground for the +10V and 4-20mA control.
   Red = +10V, this is the +10V output from the fan.

Installation:

1. All fans are to be connected to 240V AC, 50Hz supply.
2. Install fans so access is available to the terminal boxes mounted on the fan case.
3. Refer to general fan installations below for further details.

Protection

Eco-speed feedback control fans are fitted with internal overload protection. To reset and restart electrically, isolate the motor completely from the supply for a minimum of 10 minutes. Mains wiring should be protected against a short circuit by fuses at the switchboard.

Safety Considerations:

1. **WARNING:** Power cables may still be live when the fan impeller is not rotating.
2. Impeller speed may increase or decrease without warning.

General fan installation instructions

Important Notes:

With all horizontally mounted axial fans it is preferable that the fan is installed with the motor mounted on top of the motor plate. ie. not suspended under the motor plate. To obtain rated performance, the following recommendations should be followed:-

Duct Mounted Fans - General

1. Inlet and outlet ductwork should be free from obstructions.
2. Duct transitions should be 60° inlet/15° outlet.
3. Avoid sharp bends on inlet or outlet.
4. Do not use ductwork smaller in area than the fan.
5. Flexible duct connections should be taut.
6. Ductwork connections should be well aligned.
7. Inlet cones must be fitted to free inlet applications.
8. Ensure that the fan orientation is correct for the required air flow direction.

Off-loading

During off-loading inspect fans for damage. If the casings, cowls or impellers are damaged, notify your local Fantech distributor immediately. Fantech cannot be held responsible for any loss or damage incurred to goods during transport, off-loading or on site.

Site Storage

The fans must be stored in a clean, dry, protected and vibration-free area. The fan impellers should be rotated daily to prevent bearing damage.

Maintenance

Install fans and accessories to allow service access for maintenance and for the replacement of assemblies and component parts, without disturbance of other items, of plant and building elements. Most motors are fitted with sealed-for-life bearings which are maintenance-free. It is recommended that fans be inspected initially at 3 monthly intervals, to clean the blades and motor and to check for tightness of fastenings.

Where fans are used for kitchen exhaust or other applications where the air contains high amounts of dust, residue and other contaminants, fans should be cleaned and maintained at more frequent intervals appropriate for the application.

Electrical Supply

Read the fan serial plate to determine the number of phases and amperage drawn by the unit. Check that the available supply is suitable.

Earthing
All fans must be earthed in accordance with AS/NZS3000:2000 and local supply regulations.

Wiring
Wiring must be in accordance with AS/NZS3000:2000 and local supply regulations. Wiring diagrams are provided on all fans.

Starting Safety
Rotating fan impellers can be a danger to personnel.

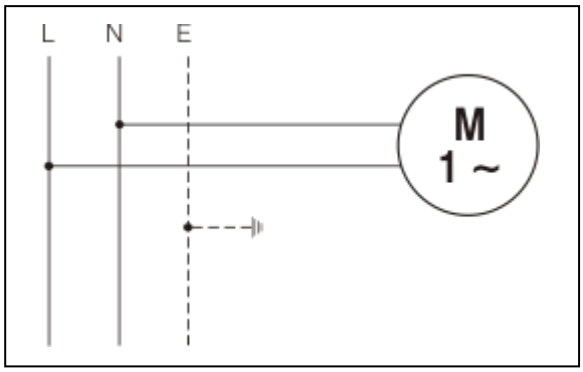
The following precautions must be taken:-

1. Electrically isolate the fan motor prior to undertaking any work.
2. Regularly check impeller fasteners for tightness.
3. Where fans are accessible to personnel or directly exposed to habitable areas, it is the responsibility of the installers to ensure that fans will have guards which comply with the latest Australian Standard AS4024.1 safeguarding of machinery.
4. Prior to fan start-up, ensure loose debris will not be sucked into the fan. All ductwork should be clean.

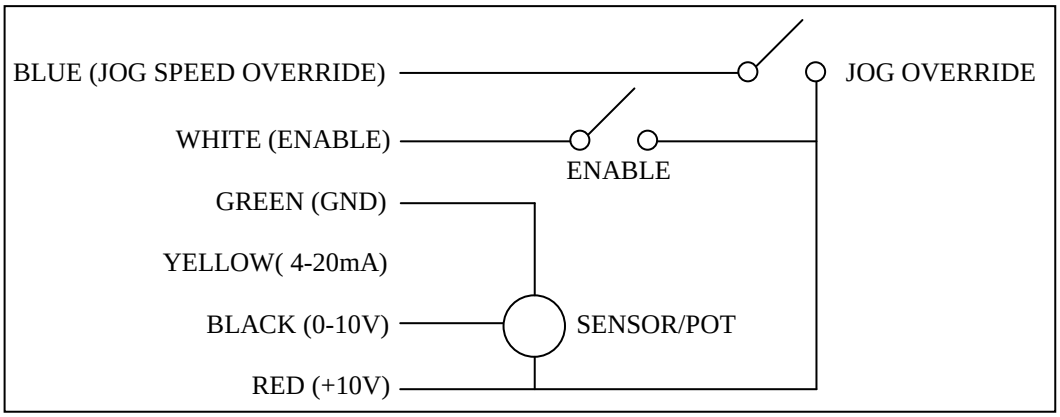
Direction of Rotation
The correct rotation and direction of air flow is shown on each individual fan. All single-phase motors will rotate in the correct direction when correctly connected.

Wiring Diagrams

Power Connection -

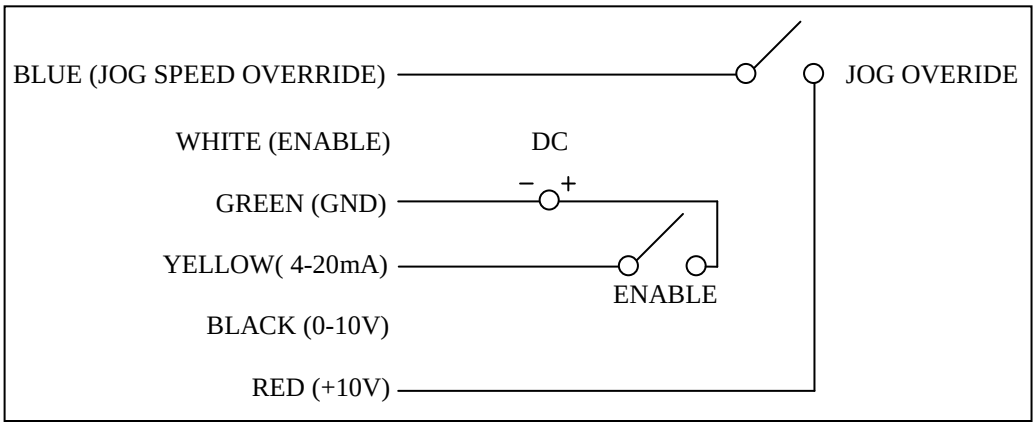


0-10V Control Connection -



Notes
- The enable switch needs to be closed for the fan to operate.
- When the Jog Override switch is closed the fan will run at minimum rpm regardless of signal input.

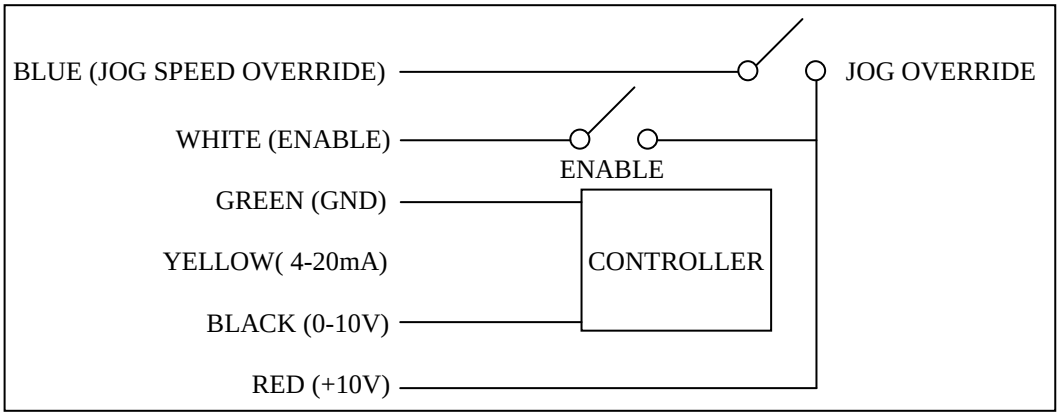
4-20mA Control Connection -



Notes

- The enable switch needs to be closed for the fan to operate.
- When the Jog Override switch is closed the fan will run at minimum rpm regardless of signal input.

0-10V Two Wire Control Connection -



Notes

- The enable switch needs to be closed for the fan to operate.
- Controller has its own power supply

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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