Fixed Speed Fan Control Panel

Technical Information and Operating Instructions

Introduction.

The SE Controls Fixed Speed Fan Control Panels are a fixed modular design that are built and tested to provide a method of operating a single 415V three phase 50HZ duty/standby fan arrangement. They must not be used forany other application or in conjunction with other manufacturers' products without prior consultation with SE Controls.

Installation of this equipment must only be carried out by competent and qualified persons.

This information pack must be retained for future reference by the client and made available for reference by persons installing, servicing or modifying the panel.

Application.

The Fixed Speed Fan Control Panels is a control system designed to operate 415V3PH/50Hz fans in a duty fan and standby configuration for smoke control in a powered extract system.

Operating from a 415 Volt supply, the Fixed Speed Fan Control Panels can control fans up to 11Kw.

SE CONTROLS

Lancaster House
Wellington Crescent
Fradley Park, Lichfield
Staffordshire WS13 8RZ

+44 (0)1543 443060
sales@secontrols.com
www.secontrols.com

Table of Contents

Important Notices

- Do NOT allow abuse or mishandling of the device.
- Do NOT adjust or alter the device or its enclosure including labelling/marking.
- Do NOT use this controller for any other purpose other than that intended by the manufacturer.
- Do NOT allow installation of this equipment by persons not electrically qualified.
- Damage to the equipment due to failure to test the electrical integrity of external wiring will invalidate any warranties.
- Failure to install the device in accordance with the manufacturer's instructions will invalidate any warranties.
- Failure to follow current electrical regulations governing the installation of fixed equipment can lead to prosecution and may invalidate any warranties.
- Unless otherwise indicated, you must not adjust or remove existing manufacturers cabling or use terminal outputs or inputs forpurposes other than their design without written authorization from SE Controls.
- Consumable items e.g. fuse where replacement is needed must be replaced with parts of equivalent manufacturing standard/compliance and rating.

S E Controls accepts no liability for failure to comply with the above statements or the installation and operation guidance in the following sections of this guide and reserves the right to invalidate the warranty of the controller

SE Controls reserves the right to introduce any modifications and improvements to the contents of this publication without the obligation of giving prior notice.

1. General Information

1.1. General Safety Information

Read and observe the information contained in these instructions.

Please keep these safety instructions for future reference and maintenance. Reliable operation and the prevention of damage and risks are only granted if the equipment is assembled carefully and the settings are carried out
according to these instructions and to the operating instructions of the drives.

Please observe the exact terminal assignment, the minimum and maximum power ratings (see technical data) andthe installation instructions.

1.2. Health and Safety

Electrical Safety: Warning 230 V AC mains supply or 415 V AC three phase can cause death, serious injury or considerable material damage. Disconnect the equipment from the power supply at all poles before opening,assembling or carrying out any work.

Competence; This equipment is designed for professional installation only by qualified, trained and safety consciouselectricians or skilled and trained staff with considerable knowledge of electrical equipment installation. These instructions must be followed and retained for future reference**.**

Application; this equipment is designed exclusively for the purposes of controlling automatically opening smoke andnatural ventilation equipment.

Personal Protective Equipment; It is recommended that suitable PPE is worn at all times during the installation andconnection of actuator products in accordance with a recommended safe system of work.

Handling and storage; This equipment is heavy. Care must be taken in transportation to the installation location andduring fitting. The equipment must not be dropped, impacted, allowed to get wet or abused in any other way.
Mishandling can result in serious damage to the housing and the components therein.

Risk of crushing; this equipment can automatically close windows and other appliances without warning. Risk ofserious injury from crushing of hands or fingers.

1.3. Environment

Redundant electronic products are classified as hazardous waste under the WEEE regulations (Waste Electrical and Electronic Equipment). Electronic parts must be disposed by an authorised and licensed recycler. They must not bedisposed of in household waste or 'general waste' skips.

If recycling facilities are not locally available, contact SE Controls who can arrange for recycling and disposal of oldelectronic products.

1.4. User Responsibilities

United Kingdom Only

BS 7346-8:2013 is a British Standard code of practice for the planning, design, installation, commissioning and maintenance of smoke control systems. Section 9 of the standard (Maintenance and Servicing) states that frequentinspection of the system should be undertaken by a named suitably-trained member of the premises management team.

Routine inspection of the system should be carried out in accordance with BS

9999:2008, Annex V.**For countries outside the United Kingdom**

Please check with the local the fire authority in your area regarding smoke control legislation, different userresponsibilities may apply.

Smoke control equipment should only be maintained by a competent person with specialist knowledge of smokecontrol systems and sufficient information regarding the system.

1.5. Maintenance

A smoke control system should be checked and serviced periodically in accordance to local smoke control legislation.

Smoke control systems have to be serviced and checked for defects at least once per year by an authorised, trainedand competent person.

Within the UK a suitable service contract with SE Controls is recommended for this purpose (see page 6 for contact tinformation).

The system must be protected against unintentional start-up!

After maintenance, modification or repair the system must be functionally retested.

Compatibility: this equipment should only be used to operate with motors and other products approved by SE Controls. No liability will be accepted and neither guarantee nor service is provided if unapproved products are usedin conjunction with this equipment.

1.6. Installation and Connection

Installation should be carried out by an authorised, trained and competent electrician.

Ensure correct cable type is used throughout the installation. All low voltage cables are to be routed separately from mains voltage cables and other electrically noisy cables. Flexible cables must not be plastered over and freely suspended cables must be provided with strain relief. Cables must be installed in such a way that they cannot be sheared, twisted, pierced or otherwise damaged during installation or use. Junction boxes should be accessible for inspection and maintenance.

Do not attempt to install or alter the installation of the panel whilst connected to the power supply.

1.7. Fault Finding

In the unlikely event that a problem occurs with the control panel, users are urged to contact SE Controls for assistance.

There are no user repairable parts. Fault rectification must only be carried out by authorised and competent persons.

1.8. Contact Information

For sales, technical support and maintenance please contact:

SE Controls
Lancaster House,
Wellington Crescent
Fradley Park
Lichfield
Staffs
WS13 8RZ
Tel: 01543 443060
Website: www.secontrols.com

2. Specification

2.1. Device Overview

Part number	FCS00220000
Dimensions	500 x 500 x 200 mm (H x W x D)
Mass Approx.	21 KG
Supply	415VAC 50/60 Hz from a maximum of 25 A supply
Output	22.5 A
Cable Entries	Cable entries are via up to 9 off 20mm top mounted cable glands
IP Rating	IP32
Humidity Range	10 to 90% Non-Condensing
Storage	– 20°C to 75°C
Operating Temp	– 5°C to 40°C

2.2. External Indication

Lamp	**Detail**
Standby	Lit when panel is heathy
Duty fan activated	Lit when duty fans are running
Standby fan activated	Lit when standby fans are running
Pressure sensor fault	Lit when a pressure sensor fault has been detected

2.3. Volt Free Indication

Terminal	**Description**
TB09	Duty Fan Activated
TB10	Standby Fan Activated

2.4. Miniature Circuit Breakers

MCB	**Rating**	**Function**
C/B01	16 Amp	Duty Fan
C/B02	16 Amp	Standby Fan
C/B03	4 Amp	230 V Supply

2.5. Recommended Cables Types

Cabling For	Minimum number of cores	Recommended Cable Type
Incoming Supply	3 + Earth	FP 600
Duty Fan	3 + Earth	FP 600
Standby Fan	3 + Earth	FP 600
Network	2+ Screen	FP Plus

All cabling should be in accordance with relevant standards and regulations for electrical Installation such as BS7671.

3. Connections

3.1. Connections

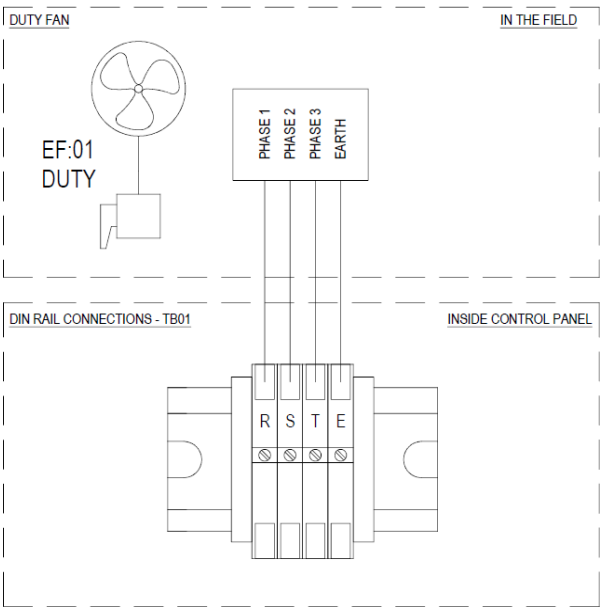
All terminals have a cable capacity of 2.5mm^2 stranded or 4mm^2 solid. Each terminal is identified with a 2 letter code which is expanded on the terminal label.

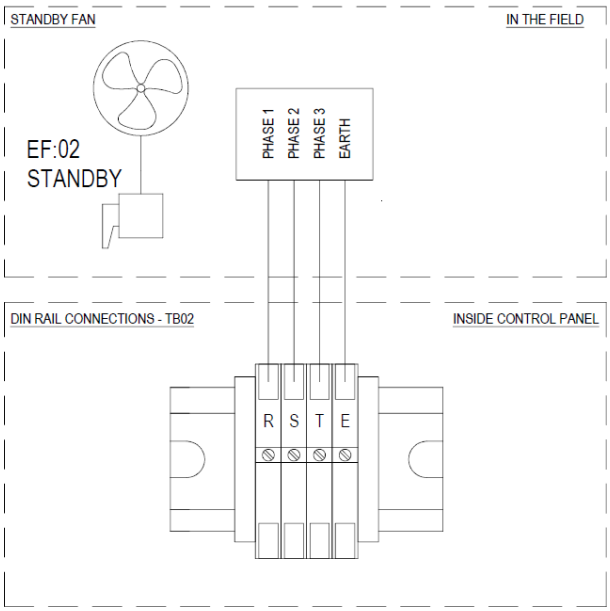
The following sections are to be used for guidance only and are subject to change.

Strip the outer sheath of all cables back to the entry point of the enclosure. Ensure enough sheath is left to providemechanical protection against cable movement over time.

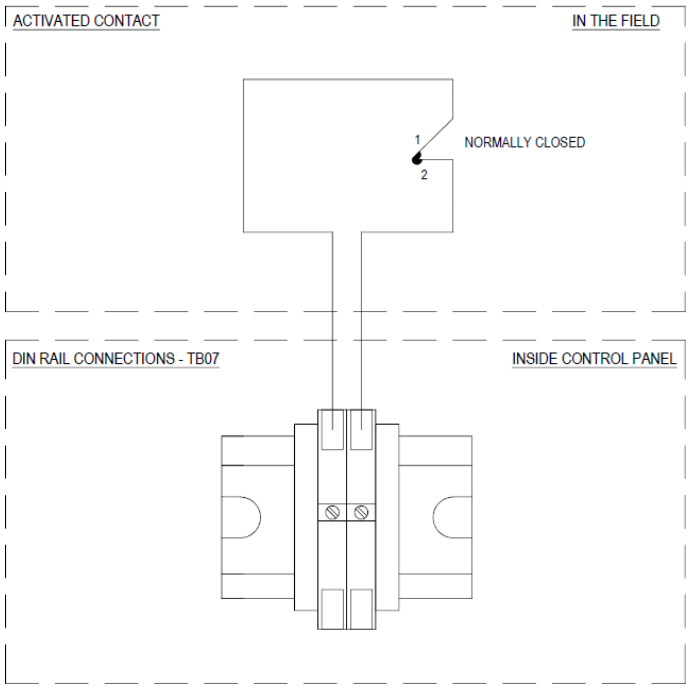
Inner cable cores should be dressed under the edges of the terminals. This provides a neater and more ordered solution. Only strip inner cores sufficiently to make a good electromechanical contact with the terminal blocks.

3.2. Standby and Duty Fan Connections (TB01&TB02)

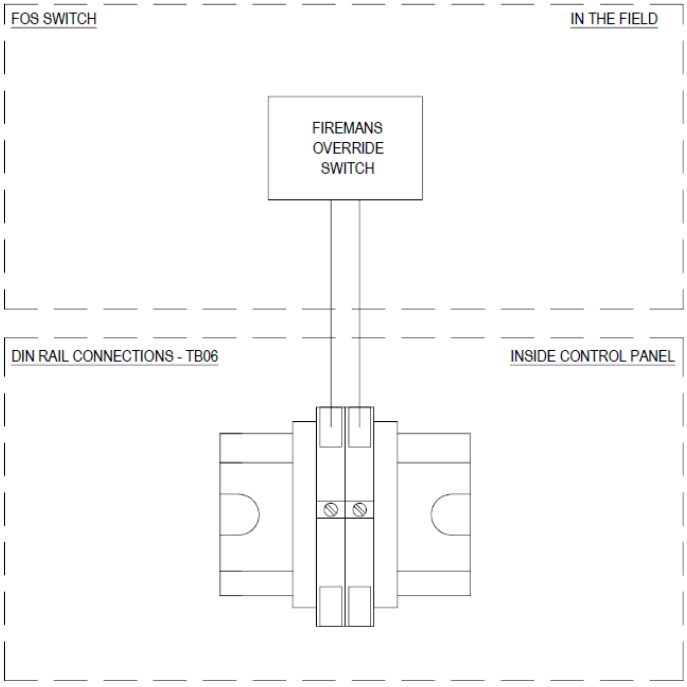




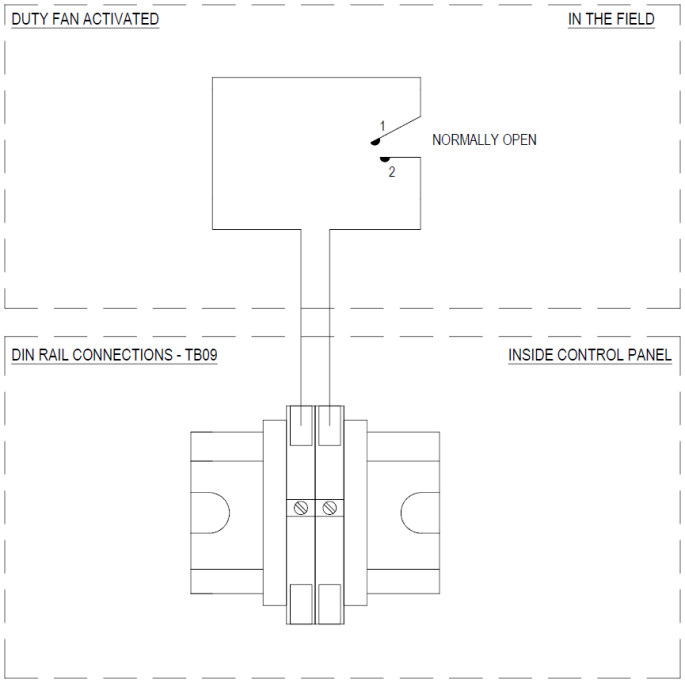
3.3 Activation Contact (TB07)



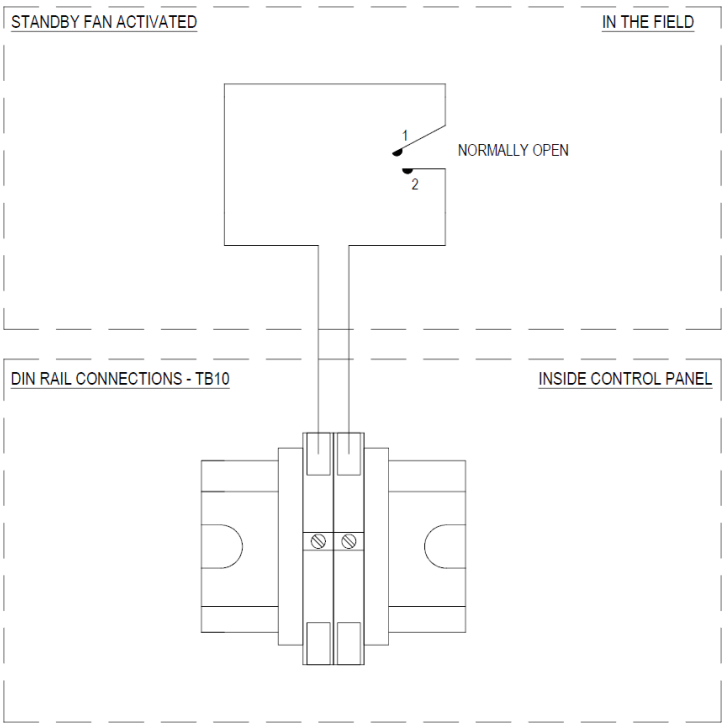
3.4 FOS Switch (TB06)



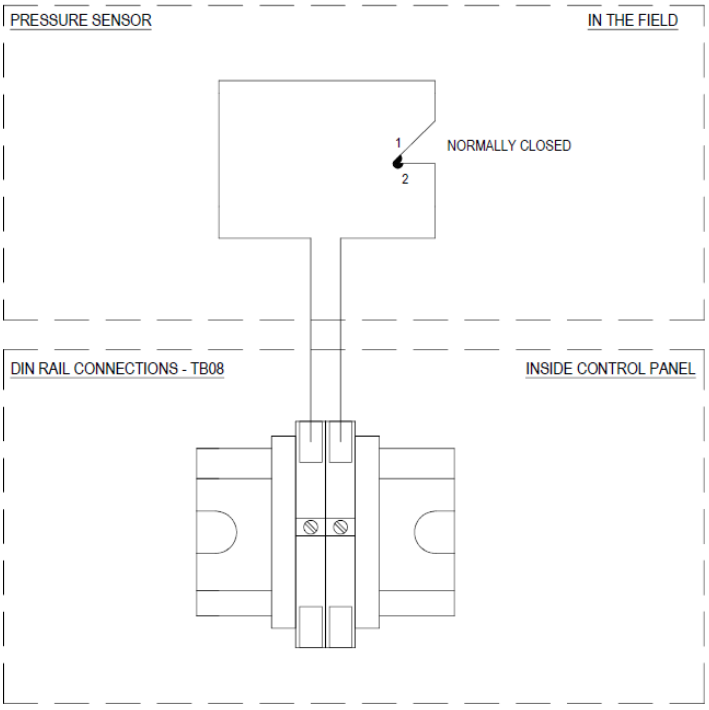
3.5 Duty Fan Activated (TB09)



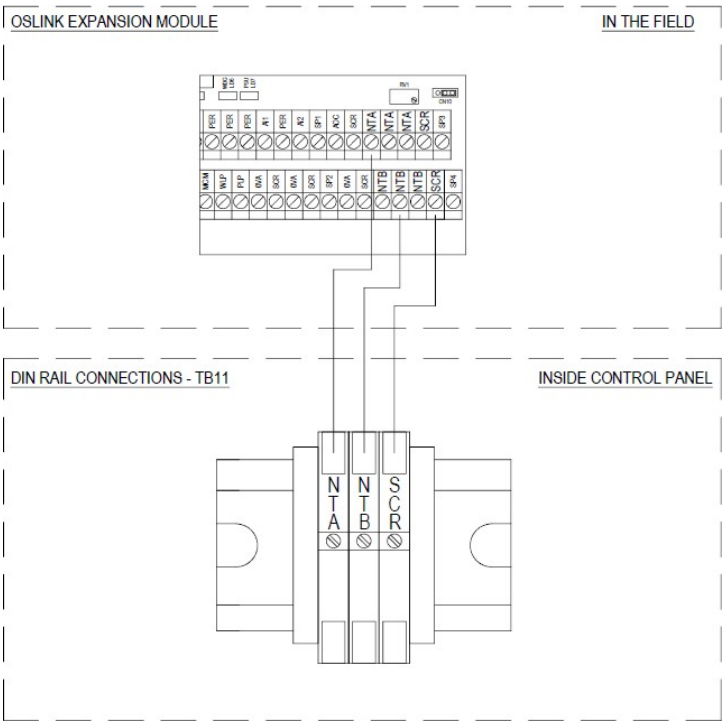
3.6 Standby Fan Activated (TB10)



3.7 Pressure sensor (TB08)



3.8 Network In (TB11)



4. System Design.

4.1. System Design

Design of a smoke and heat control scheme is a technically complex task and needs to consider both national legal requirements and local fire/building regulations. This is beyond the scope of this document. If in doubt, consult SE Controls or approved agents who can give further guidance.

The system design documentation should include a 'Cause and Effect' list or similar to identify the essential smokecontrol functions of the system.

Before installation of any system, the following should be considered and documented where necessary.

4.2. Design checklist for Fan Control Panel:

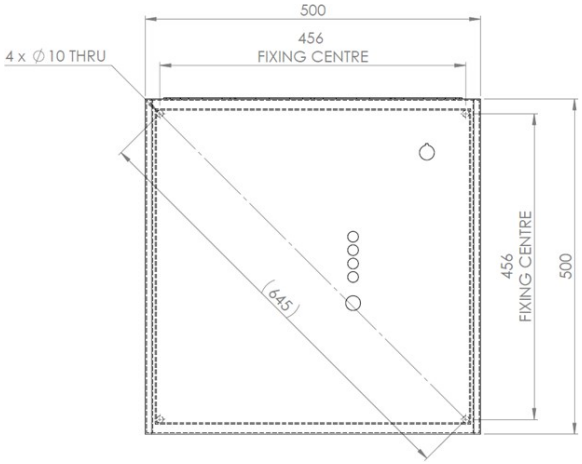
- Location: Installation is in a clean, dry and secure location, accessible for maintenance.
- Location: Not installed in sealed enclosure.
- Location: Distance to the fans. Cable voltage drop is proportional to cable length, so locating the panel farfrom the load may require heavier gauge of cable.
- Environment: The equipment must not be subject to very cold or excessively warm ambient temperatures.
- Electrical Load: Maximum total fan current is within specification (<22.5A).
- Electrical: Provision of locally fused, isolatable 3 Phase power supply
- Communication options: OSLink card for OSLink networks or stand-alone

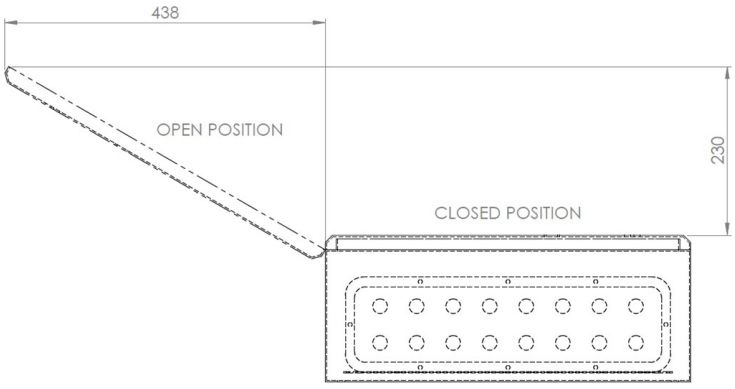
5. Installation, Commissioning and Fault finding

5.1. Fixing

Hold the panel against the surface to which it is to be fixed. Mark through the holes. Drill appropriate sized pilot/fixing holes and use plastic plugs/cavity fixings where appropriate. Use 4 10mm bolts to secure the panel firmly.

- Installation of the panel in very warm locations (e.g. boiler rooms, hot plant rooms) should be avoided as hightemperatures. Temperatures should generally be below 35°C and never exceed 40°C. Avoid installation adjacent to boilers, hot water pipes, etc.
- The PSU has been tested at -5°C and may be operated down to this temperature.
- The panel must be firmly fixed to a solid surface. The panel can be mounted on any vertical surface such as a wall.
- The panel must be accessible for maintenance.
- Locating the panel a long distance from the actuator will increase cable voltage drops on long cables, and may require use of more expensive cables with greater cross-section.



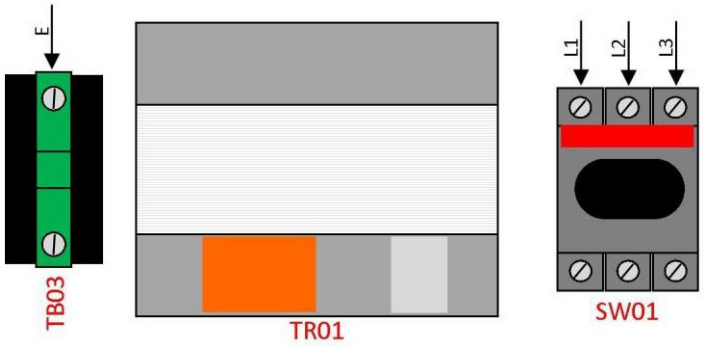


5.2. Low Voltage Connections

Make connections to the power and control board or PSU as detailed in section 3.

5.3. Three Phase Power in Connection

Ensure the supply is securely isolated before connecting. Connect to the L1, L2, L3, and E screw terminals of themains input.



5.4. First Power-Up Tests.

Full commissioning of a new system requires the availability of three phase electrical supply.

If activation is via a fire alarm-controlled relay, ensure the fire alarm is normally closed when the system is healthy.

For networked systems, an unbound, faulty or disconnected OSlink card may cause a fault indication. For OSLink,Check the green status led of the network, and if necessary re-initialise the network by pressing the button on theOSLink card.

Test the operation of the fans by activation of the system.

Where a 'Cause and Effect' (functional specification) is available, this will document a complete list of the requiredfunctions which must all be verified in turn. If this specification detail is not available, the commissioning engineer must ensure that each input is tested. This may require triggering of smoke detectors and simulating of fire alarm inputs.

5.5. Basic Fault Finding

Symptom	**Possible cause**
No operation, No LEDs illuminated.	- Check if the C/B03 is tripped. - Measure the voltage between the terminal 1 and 3 of C/B03,which should be around 240Va.c. - Measure the voltage between the terminal 1 of TB04 andterminal 1 of TB05, which should be around 24Va.c. - Check the voltage in between the terminals of the StandbyLED, which should be around 24Va.c.
Contactors tripping after activation	- Check the adjustment of the overload relay.
Duty Fan not running	- Check the connections between TB08 and the Duty Fan. - Check the connections between TB06 and the Fireman'sswitch. - Check if the contactor is energizing after activation. - Check the connections between TB01 and the Duty Fan.
Standby Fan not running	- Check if the contactor is energizing. - Check the connections between TB02 and the Standby Fan.
Permanent Activation	- Check the connections between TB07 and the fire alarmsystem.

Notes.

SE Controls
Lancaster House,
Wellington Crescent,
Fradley Park,
Lichfield,
Staffs. WS13 8RZ

Tel 01543 443060
www.secontrols.com