ELTA

149-ACO18B

EC/AC AUTO CHANGEOVER PANEL

Installation & Maintenance

These instructions must be read fully before commencing installation.

149-ACO18B

Installation Instructions

Installation and Maintenance Instructions.
THESE INSTRUCTIONS MUST BE READ FULLY BEFORE COMMENCING INSTALLATION.

Owner / installer: The life of this apparatus and its efficiency will be increased if its use and maintenance is carried out in accordance with these instructions and current statutory requirements. The installation and initial adjustments should be carried out by a qualified and competent technician. It is the responsibility of the installer to verify that the installation is in accordance with all current statutory requirements and the owner is given the current User's Manual.

Any modifications to the unit or its installation, even the smallest modification, change or elimination of security components or pieces that influence the efficiency or loss of the system, will result in warranty being cancelled.

Elta Limited have a policy of continual improvement and the right to change a specification at any time without notice is reserved. Whilst every care has been taken to ensure that the contents of this document are correct at time of publication, Elta Limited shall be under no liability whatsoever in respect of such contents.

Elta Limited cannot guarantee the operation of any equipment unless all documented instructions are complied with, without variation.

Introduction
This Manual is intended as a guide to the engineering and commissioning principles of Elta 149-ACO18B Auto Change over Panels and covers the hardware information only.

System Design
IMPORTANT —This document does not cover Electrical system design and you should contact a qualified person for assistance with electrical installation.

WARNING — Do not attempt to install this equipment until you have fully read and understood this manual.
Failure to do so may result in damage to the equipment and could invalidate the warranty.

1 General

1.1 It is important this Installation and Maintenance is fully adhered to.
1.2 Full details of the control panel supplied are shown on the circuit diagrams shown within this manual. If in doubt about any detail, contact Elta or its agents for clarification.
1.3 All electrical installations must be carried out by qualified and competent personnel in accordance with all current statutory requirements.
1.4 These instructions cover only the Elta product and do not include the supply or installation of any safety equipment that may be required, e.g. proper electrical isolation.
1.5 All declarations made by Elta about the product installation and safety, are dependent on the control panel being used within installations which themselves meet the requirements of the relevant Standards and Directives of the region.
1.6 The control panel is designed for use in an ambient temperature of up to 40°C and 95% relative humidity. The control panel is NOT suitable for corrosive or explosive atmospheres.
1.7 It is the Installer's responsibility to provide easy access to the control panel to facilitate future maintenance.
1.8 This product is not intended for the use of young children or infirm persons unless they have been adequately supervised by a responsible person to ensure they can use the product safely. Young children should be supervised to ensure they do not play with the appliance.

At end-of-life, the unit must be disposed of in an environmentally friendly manner by suitably qualified and competent wpersonnel in accordance with the requirements of applicable Standards and Directives.

2. Installation

2.1 Upon receipt, the controller should be visually inspected to check for any damage.
2.2 If there are any queries concerning the fan equipment, Elta Limited should be contacted prior to the installation.
2.3 The controller must be securely mounted in the desired position to suit the application.
2.4 The controller is only suitable for surface mounting and must not be recess mounted.
2.5 Install in a dry sheltered position.
2.6 Do not install in close proximity to a heat source or in areas of high humidity. The maximum ambient temperature for the controller must not exceed 40° C (104° F).
2.7 All electrical installation must be carried out by suitably qualified and competent personnel in accordance with all current statutory requirements.
2.8 Check the details on the rating plate to ensure that the correct power supply (voltage, frequency and phase) is available. An incorrect power supply will lead to permanent damage of the unit.
2.9 Check that the number, size and speed of the fan(s) can safely be controlled by the controller supplied.

Installation Instructions

2.10 Remove the front cover of the controller by unscrewing the cover fixing screws. This provides access to mounting holes and electrical terminals.
2.11 The controller must be connected to a suitably rated fused spur.

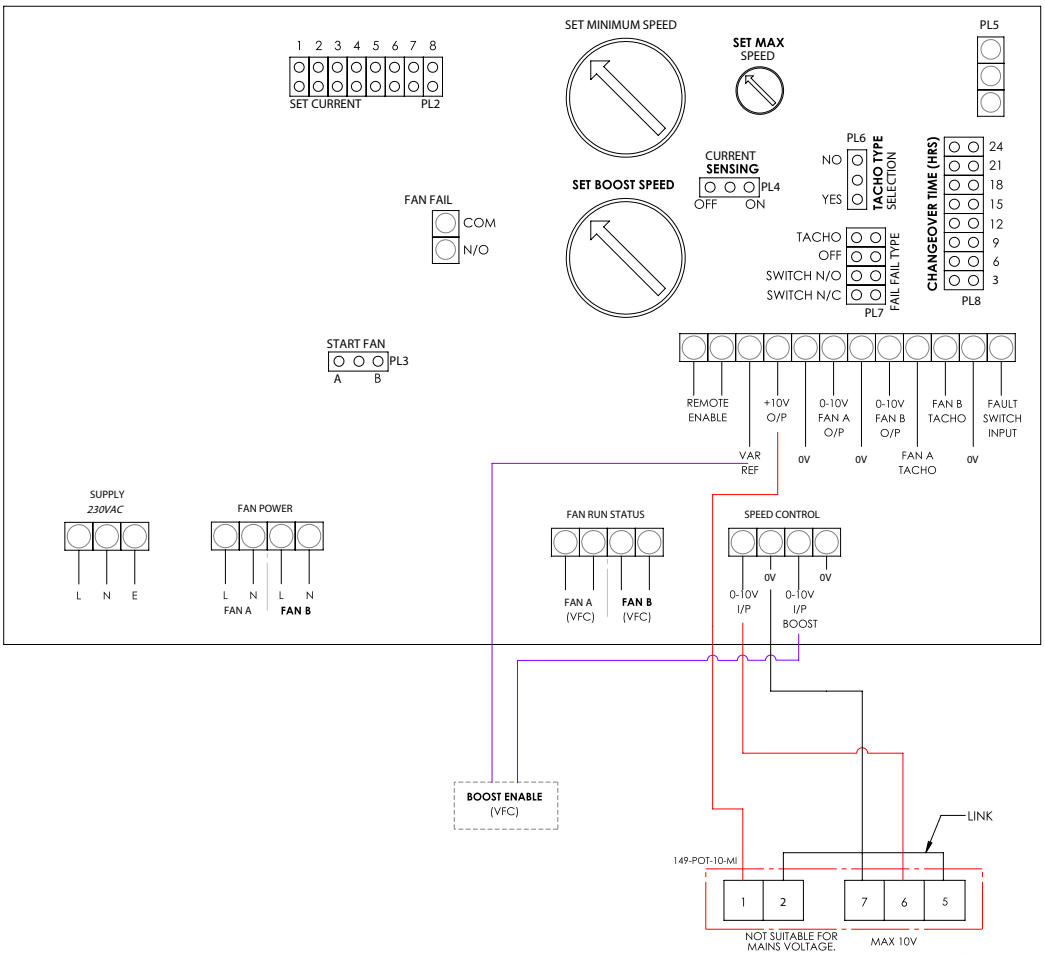
3. Wiring
3.1 Select the correct wiring diagram for the fan and controller supplied. Ensure that all earth connections are made.
3.2 All wiring and control equipment MUST comply with the latest IEE regulations.
3.3 In the event that the wiring connections for the fan supplied do not correspond to diagrams shown, please refer to the fan instructions or contact Elta for further assistance.

4. Features
4.1 The unit is suitable for use with either an AC motor or EC motor fan products as stipulated by Elta Limited.
4.2 Individual fused mains outputs to fans.
4.3 Remote activation option by switching a low voltage / current by means of a set of external volt free contacts.
4.4 Adjustable current sensing from 1 to 8 Amps with the option of disabling by just leaving out the selection jumper.
4.5 Low current sensing to indicate an open circuit of a connection problem. This function is of particular importance in small motors where the line current rise is insignificant when the motor is stalled and the motors built in thermal protection is used.
4.6 Low current detection disabling via jumper for when a fan is also switched by a secondary source.
4.7 Individual volt free contacts for each fan that switch on with the activation of the corresponding fan. This can be used for enabling extra-low or low voltage up to 230 volts with a maximum current of 8 amps.
4.8 BMS output / remote fault indicated by an individual set of contacts capable of maximum controlling a load up to 230 volts at 8 Amps.
4.9 Manual speed control from the speed potentiometer on the board or the option of a secondary control via the connector shown in the connection diagram. Whichever of these has the highest setting takes priority.
4.10 Mixing extra-low voltage signals from external sources applied to the Boost, 0 to 10 inputs along with min speed setting on the board or the signal applied via the potentiometer input on the board.
4.11 Individual switching of the extra-low voltage mixed signal to relevant fan that is activated.
4.12 Duty sharing option selected by the set time jumper with time intervals from 3 hours to 24 hours in 3-hour steps. If this function is unwanted the jumper can be omitted and the selected start up fan will run till a fault occurs.
4.13 High limit to control voltage switched to fans by means of the preset marked set max.
4.14 Tacho sensing on each fan.
4.15 Tacho pull up resistor selectable for use where one is not incorporated in the fan.
4.16 Switch input normally open or normally closed can trigger fault depending on PI7 setting EC Fan switched fault switch can be connected to switch input or air switch.
4.17 Deactivation / activation of n/o or n/c switch or tacho achieved by jumper setting on board.
4.18 Start up fan selection by means of a jumper, this can also be used on installation to check the operation of both fans.
4.19 Time delay on fault detection on startup / fan switches over to allow current, switch input n/o or n/c, tacho levels to normalise.
4.20 Variable voltage set by preset on board that can be used by external switching and fed into either the boost or signal inputs.
4.21 Enclosure is covered by IP56.

WARNING – The fan must be isolated from the power supply during installation and maintenance. Only a suitably qualified and competent person may carry out maintenance after the electrical supply has been isolated.

152-729

Wiring Diagrams



SUPPLY:

L: LINE
N: NEUTRAL
E: EARTH

FAN POWER:
L: LINE
N: NEUTRAL

FAN RUN STATUS:
VOLT FREE CONTACTS
CLOSED WHEN FAN A OR B IS RUNNING

SPEED CONTROL:
0-10V I/P: 10VDC INPUT
0V: 0V/GND
0-10V I/P BOOST: 10VDC INPUT (BOOST SPEED)
0V: 0V/GND

PL2:
SELECTOR FOR OVER CURRENT

PL3:
SELECTOR FOR STARTING FAN

PL4:
ENABLE/DISABLE CURRENT SENSING
(DISABLE FOR EC FANS)

PL5:
REMOTE POT SPEED CONTROL

PL6:
TACHO TYPE SELECTION

PL7:
FAN FAIL TYPE SELECTION

PL8:
CHANGEOVER (DUTY SHARE) TIME SELECTOR (IN HOURS)

CONTROL TERMINALS:
+10V O/P: 10VDC OUTPUT
0V: 0V/GND
0-10V FAN A O/P: 0-10VDC SPEED OUTPUT (FAN A)
0-10V FAN B O/P: 0-10VDC SPEED OUTPUT (FAN B)
FAN A TACHO: FAN A TACHO INPUT
FAN B TACHO: FAN B TACHO INPUT
SWITCH: INPUT FROM VFC (IF SWITCH SELECTED ON PL7)

All wiring and control equipment must comply to the latest IEE regulations, in particular part 552-01-02/03.
152-729 Issue B: 07/02/24
Check the individual product accessories table for fan controller compatibility.

149-ACO18B

Installation Instructions

PCB PRESETS
Min speed preset controls the lowest voltage that the controlling 0 to 10 output will go down to.
This adjustment will control down to zero when turned fully anticlockwise and up 10 volts fully clockwise if the limit has not been set to a lower level.

Limit preset limits the maximum voltage that the controlling 0 to ten output will go to.
By turning anti clockwise will reduce the possible maximum voltage on the selected 0 to 10 output right down to 4 volts.

Set Boost Speed. This preset sets a voltage between zero to ten on the terminal var of the terminal block and used by remote switch like a PIR and fed into signal or boost input.

5. Guarantee

5.1 Elta Ltd will, free of charge, within a period of 1 year from the date of dispatch from their works, repair or at its option replace any goods which are proved to have defects as a result of defective materials or workmanship. The goods MUST be returned to Elta Fans Ltd carriage paid for examination.

6. Disposal and Recycling

6.1 Information on disposal of units at the end of life.
This product complies with EU Directive 2002/96/EC.
The symbol of the crossed-out dustbin indicates that this product must be collected separately from other waste at the end of its life.
The user must, therefore, dispose of the product in question at suitable electronic and electro-technical waste disposal collection centres, or else send the product back to the retailer when purchasing a new, equivalent type device.
Separate collection of decommissioned equipment for recycling, treatment and environmentally compatible disposal helps to prevent negative effects on the environment and on health and promotes the recycling of the materials that make up the equipment.
Improper disposal of the product by the user may result in administrative sanctions as provided by law.

149-ACO3/B
AC THREE PHASE
MPN: ACO3TO-ADS

149-ACO3/BDV
AC THREE PHASE C/W
DUTY SHARE & VFC FAIL
MPN: ACO3TO-ADS-VFC

Installation & Maintenance

These instructions must be read fully before commencing installation.

INSTALLATION AND OPERATING INSTRUCTIONS FOR AUTO CHANGEOVER PANEL ACOTO RANGE

The ACOTO range of changeover panels are designed to suit either single phase or three phase (Direct On Line starting) twin fan units fitted with or without airflow switches. The changeover panels incorporate industrial contactors fitted with thermal overloads pre-set to your requirements. The control panel fascia has a power lamp, fan fail lamp and a rocker switch. The ACOTO range of auto changeover panels are compatible with our EFSC and ATC range of speed controllers. The ACOTO range are not suitable for use with inverters.

Model no.	Electrical supply	Rating	Dimensions (H x W x D)	Mounting
Manual duty share models				
ACO1TO-MDS	230v 1Ph 50Hz	As marked	315mm x 235mm x 130mm	Surface
ACO3TO-MDS	400v 3Ph 50Hz & neutral	As marked	315mm x 235mm x 130mm	Surface
Automatic duty share models				
ACO1TO-ADS	230v 1Ph 50Hz	As marked	315mm x 235mm x 130mm	Surface
ACO3TO-ADS	400v 3Ph 50Hz & neutral	As marked	315mm x 235mm x 130mm	Surface

Installation

Check that the auto changeover panel supplied is compatible with the fan motors.
Install in a dry sheltered position. Do not install in close proximity to a heat source.
Remove the front cover of the controller by unscrewing the fascia fixing screws. This provides access to mounting holes and electrical terminals. All wiring must be carried out by a suitably qualified and competent person and comply with current applicable regulations.

ACOTO Range Features

- Fan A/B selector switch on manual duty share version
- Internal timer on auto duty share version to provide 12hr duty cycle for each fan
- Auto changeover on tripping of thermal overload or loss of airflow (if airflow switches fitted)
- Optional fan fail output
- Enable connections available as optional extra allowing duty fan to be enabled from a set of volt free contacts (230v ac rated)
- Compatible with EFSC & ATC speed controllers

Auto Changeover

The control panel will automatically changeover from the duty fan to the standby fan if the thermal overload trips or on loss of airflow detected by airflow switches (if airflow switches are fitted to the twin fan unit)

Manual duty share models

Manual duty share models are fitted with a 2-position (Fan A/Fan B) rocker switch enabling the user to manually select the duty fan. The control panel will auto changeover from the duty fan to the standby fan as described in Auto Changeover above

Auto duty Share models

Auto duty share models are fitted with an electronic timer to provide a 12 hour cycle time for each fan.The timer has a jumper link to allow testing of the auto changover on a 1 minute test cycle for each fan. After testing the jumper link should be fitted back in the 12hr cycle time position The position of the jumper link for the test cycle and 12 hour cycle are shown below.

Jumper link in 1 minutes test position

Jumper link in 12 hour cycle position

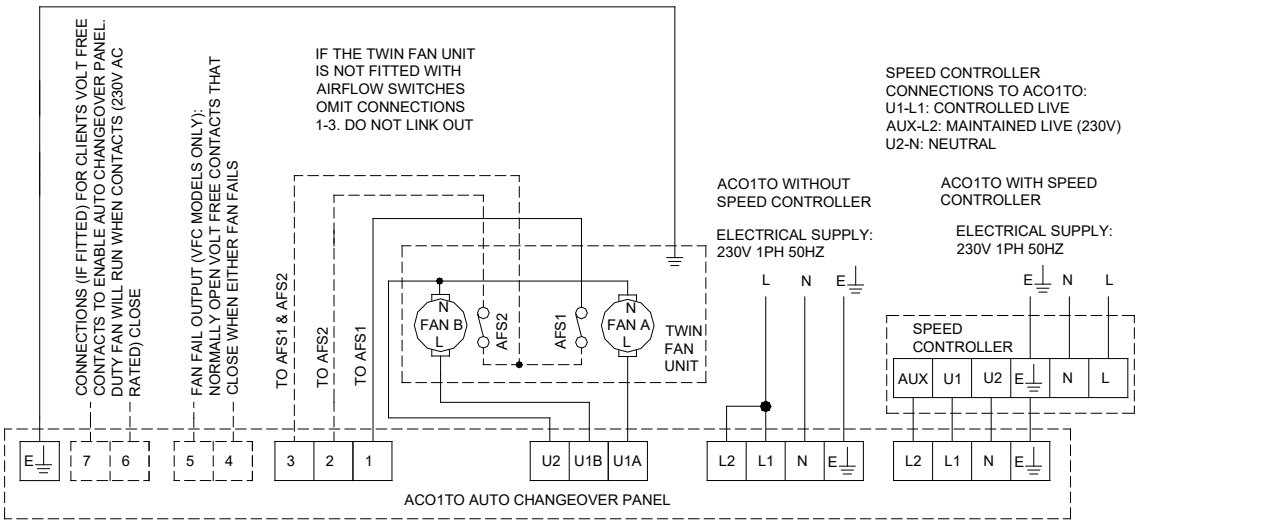
Volt free contacts (VFC Models)

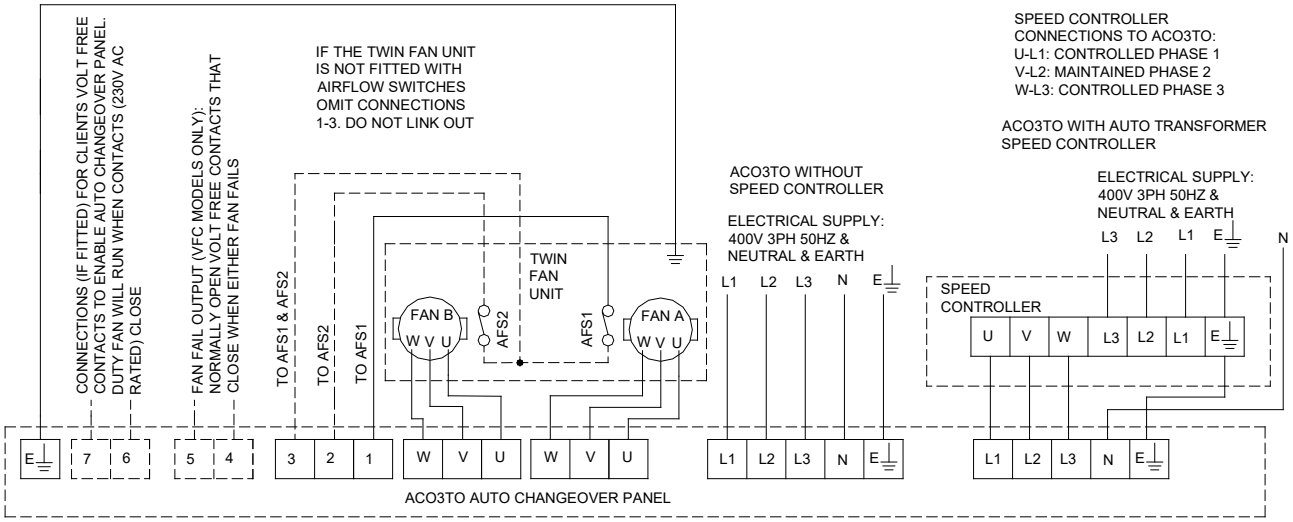
These models are suffixed with VFC and feature 1 set of volt free contacts for a common fan fail status. The contacts are normally open and close when either fan fails.

Volt free contact enable connections (if fitted)

The control panel has the facility for the user to enable the duty fan using an external set of volt free contacts e.g. Building Management system. The duty fan will run when the contacts close.

Wiring diagrams





ELTA

Tel **+44 (0) 1384 275800**
Email **info@eltauk.com**
eltauk.com

ACP-IOM Issue B