

# **QUBE SQUHT**

## Installation & Maintenance

## Installation Instructions

**WARNING** – Insulation Resistance Testing. Before performing insulation resistance testing, it is crucial to disconnect all EC products from the circuit. Failure to do this can damage the sensitive electronics within these products and is not covered by warranty.

### 1.0 General

- 1.1 It is important these Installation and Maintenance Instructions are fully adhered to.
- 1.2 Full details of the unit supplied are shown on the product nameplate. If in doubt about any detail contact Elta Ltd or its agents for clarification.
- 1.3 All electrical installation must be carried out by suitably qualified and competent personnel in accordance with all current statutory requirements.
- 1.4 These instructions cover only the Elta Ltd product and do not include the supply or installation of any safety equipment that may be required e.g. adequate guarding or protection from rotating parts and proper electrical isolation.
- 1.5 Any declarations made by Elta Ltd about product installation and safety, are dependant on the fan equipment being used within installations which themselves meet the requirements of the relevant Standards and Directives of your region.
- 1.6 The QUBE-HT fan range is designed for use for in duct ambient temperature of -20°C up to +120°C. The fan is not suitable for corrosive or explosive atmospheres.
- 1.7 The installer should provide easy access to the fan to facilitate future maintenance.
- 1.8 The installer should ensure the fan is adequately supported.
- 1.9 This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for their safety. Children should be supervised to ensure that they do not play with the product.
- 1.10 At end-of-life, the unit must be disposed of in an environmentally friendly manner by suitably qualified and competent personnel in accordance with the requirements of applicable Standards and Directives.

**WARNING** – Bulkhead and Pentapost frame may get hot during operation at higher temperatures.

**WARNING** – EC Fans Only: The fan speed may autonomously adjust during operation if the unit experiences excessive load or temperature.

### 2.0 Installation

**WARNING** – The fan must be isolated from the power supply during installation and maintenance. The fan must be earthed in accordance with the local regulations.

- 2.1 Upon receipt, the fan equipment should be visually inspected to check for any damage. Ensure that the impeller is free to rotate.
- 2.2 If there are any queries concerning the fan equipment, Elta Ltd should be contacted prior to the installation.
- 2.3 The fan must be securely mounted and the panels adjusted to suit the desired position to suit the application, straight through or 90° airflow. The fan can be mounted at any angle.
- 2.4 Check the details on the motor/fan rating plate to ensure that the correct power supply (voltage, frequency and phase) is available. An incorrect power supply will lead to permanent damage to the motor.
- 2.5 Refer to the appropriate wiring diagram. Ensure that all earth connections are made.
- 2.6 Means for electrical disconnection must be incorporated in the wiring installation in accordance with the relevant wiring and electrical regulations.
- 2.7 Precaution must be taken to locate the exhaust discharge terminal so as to avoid the backflow of gases into the room from the open flue of gas or other fuel burning appliances.
- 2.8 The SQUHT fan range is designed with rearrangeable panels, providing you with the flexibility to customize the installation according to your specific needs. If in doubt, contact Elta.

### 3.0 Storage

- 3.1 The storage place must be vibration free, clean, dry and not subject to extreme temperature variations.
- 3.2 When storing for prolonged periods, whereby non rotation of motor occurs, we recommend electrical and bearing inspection, as they may have incurred damage or require possible re-lubrication.

### 4.0 Start Up

- 4.1 Before power is supplied to the unit, check that the wiring is correct as per the fan connection diagram.
- 4.2 At initial start-up, check that impeller rotation and airflow direction is correct.
- 4.3 Check that the motor amperage draw does not exceed the nameplate rating.

### 5.0 Fan Maintenance

- 5.1 Inspection of the fan at least once every 12 months is recommended to ensure that the motor, fan blades, and supporting guards, are clean. Any build up of dust and deposits on the blades or guards should be removed using a non-abrasive cleaner.
- 5.2 All fastenings should be checked for tightness. In addition, all rotating items should be checked.
- 5.3 Bearings are of the 'sealed for life' type and will not need a detailed inspection.
- 5.4 The QUBE-HT range has an easily removable panel arrangement fixed to Multi-thread "U" nuts, ideal for frequent cleaning.

**WARNING** – Bulkhead and Pentapost frame may get hot during operation at higher temperatures.

**WARNING** – Fuses/circuit breakers are used to provide short circuit protection only. A starter panel with overload protection should be used to protect the motor.

## Installation Instructions

**WARNING –EC Fans Only:** These fans are fitted with an auto-reset thermal contact which switches the fan off in the event of a fault condition. Once the motor cools down the fan may start unexpectedly.

Only a suitably qualified and competent person may carry out maintenance after the electrical supply has been isolated.

**Table 1: Operational Maintenance**

| Activity   | Frequency              |
|--|------------------------|
| Inspect AV mounts for Corrosion or “Sag”   | 6 months               |
| Check earth bonding  | 6 months               |
| Dampers check rubber stops and grease (lithium based) pivot points, by removing plastic caps | Yearly                 |
| Check fixings tightness and conditions of brass track and rivets                             | 26,000 hours / 3 years |
| Inspect and clean impeller   | 26,000 hours / 3 years |
| Remove dirt from motor cooling fins  | 26,000 hours / 3 years |
| Check operation of anti-condensation heaters   | 26,000 hours / 3 years |
| Check for even tip clearance between impeller and casing                                     | 26,000 hours / 3 years |
| Check motor Amps   | 26,000 hours / 3 years |
| Any corrosion - treat with suitable chemicals  | 26,000 hours / 3 years |
| Check casing seals   | 26,000 hours / 3 years |

**Table 2: Terminal Box Maintenance**

| Activity  | Frequency                                  |
|---|--|
| Check that lid seal is in place and not damaged                 | Each time the enclosure is opened          |
| Check that lid fixing screws are in place and secured           | Each time the enclosure is closed          |
| Check that the mounting bolts are tight and free from corrosion | Annually                                   |
| Check security of all cable glands                              | Annually                                   |
| Check that all screw clamps terminals are secure                | Annually and each time enclosure is opened |
| Check enclosure for damage                                      | Annually                                   |

### 6.0 Guarantee

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 provided to have defects as a result of defective materials or workmanship. The goods MUST be returned to Elta Ltd carriage paid for examination.

### 7.0 Recycling

Elta use components, when possible, that are suitable for recycling at the end of the product’s life, components can be segregated as stated below and processed in accordance with local regulations. Metallic items can be segregated and recycled; Electrical and Electronic equipment such as motors, cables and control devices can be segregated for WEEE recycling; Cardboard, wood, packaging, and plastic components can be widely recycled. Items not listed should be segregated in accordance with local authority zero waste hierarchy recommendations.

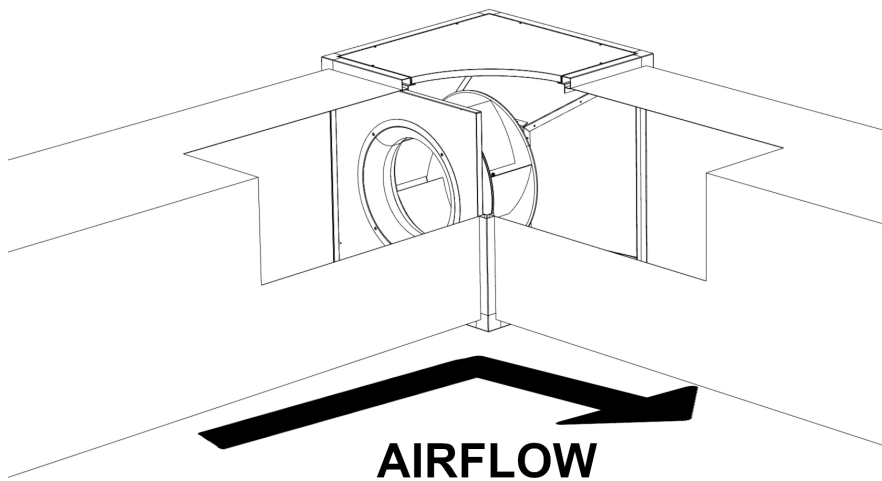
## Installation Instructions

### 8.0 Wiring

**IMPORTANT** - Correct rotation must be ensured as Air flow direction will be correct even if the impeller is rotating in the wrong direction. Incorrect direction of rotation will result in lower air volumes, increased noise and higher electrical current, which will harm the motor.

### 9.0 Installation Examples

9.1 The image shown is just an example of a typical installation.  
The SQUHT fan range is designed with rearrangeable panels, providing you with the flexibility to customize the installation according to your specific needs. If in doubt, please contact Elta.



## Wiring Diagrams

Please use the table(s) below to match up the product code and the wiring diagram number.

### Single Phase - 220V - 277V / 50Hz / 60HZ

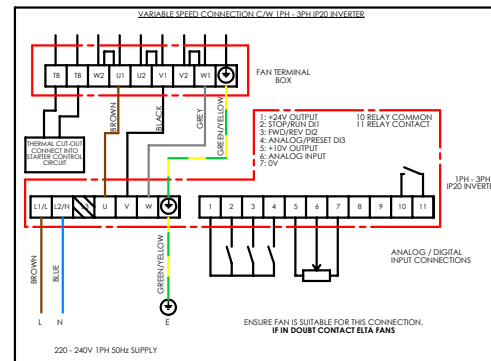
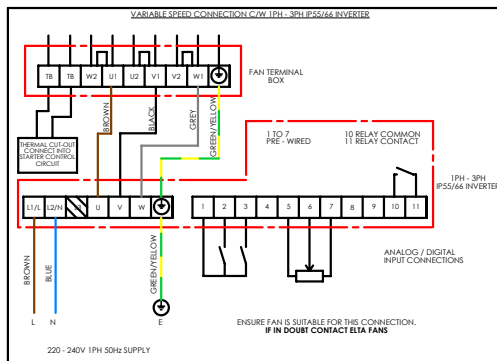
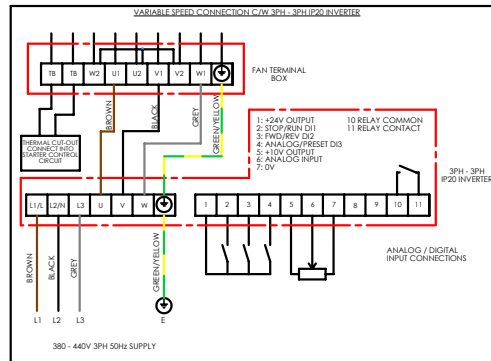
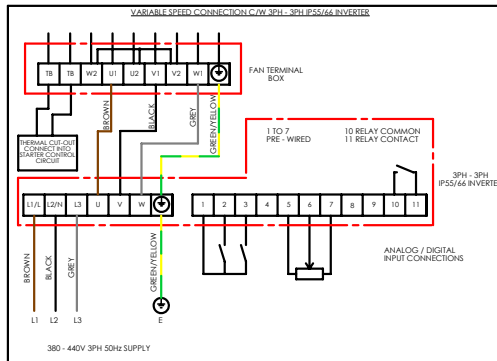
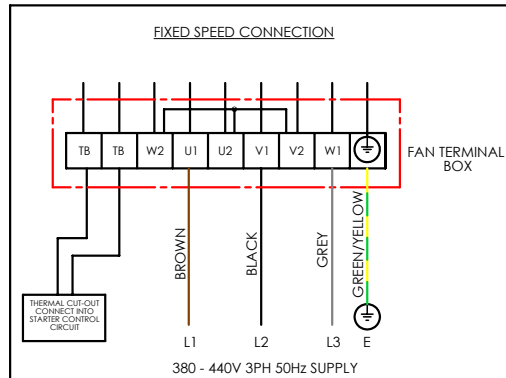
| Page No. | Product Code                     | Wiring Diagram No. |
|----------|----------------------------------|--------------------|
| 8        | <a href="#">SQUHT50/315-EC-1</a> | 152-733            |
| 8        | <a href="#">SQUHT50/355-EC-1</a> | 152-733            |
| 8        | <a href="#">SQUHT67/450-EC-1</a> | 152-733            |
| 8        | <a href="#">SQUHT82/560-EC-1</a> | 152-733            |

### Three Phase - 380V to 415V / 50Hz

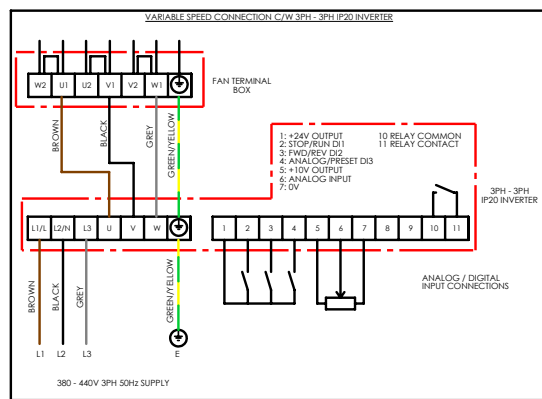
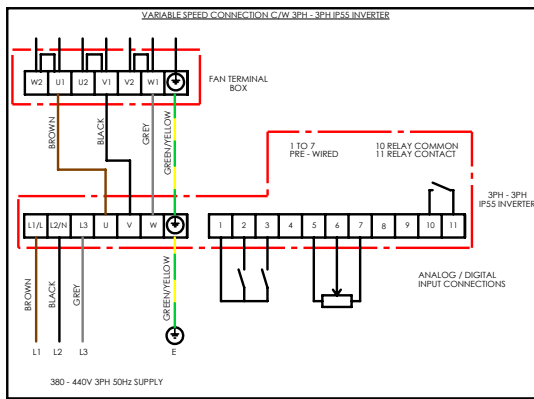
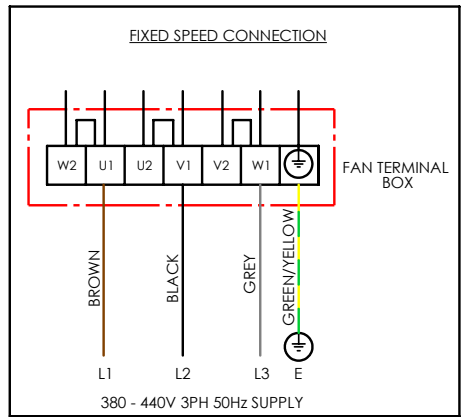
| Page No. | Product Code                     | Wiring Diagram No. |
|----------|----------------------------------|--------------------|
| 6        | <a href="#">SQUHT67/450-4-3</a>  | 152-611            |
| 6        | <a href="#">SQUHT82/500-4-3</a>  | 152-611            |
| 6        | <a href="#">SQUHT82/560-4-3</a>  | 152-611            |
| 7        | <a href="#">SQUHT102/630-4-3</a> | 152-613            |

### Three Phase - 220V - 277V / 50Hz / 60HZ

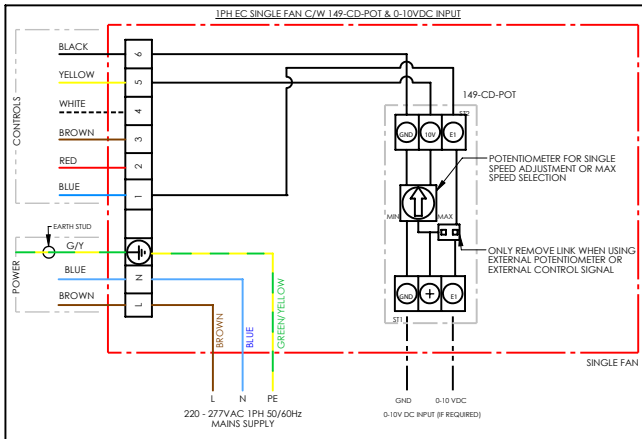
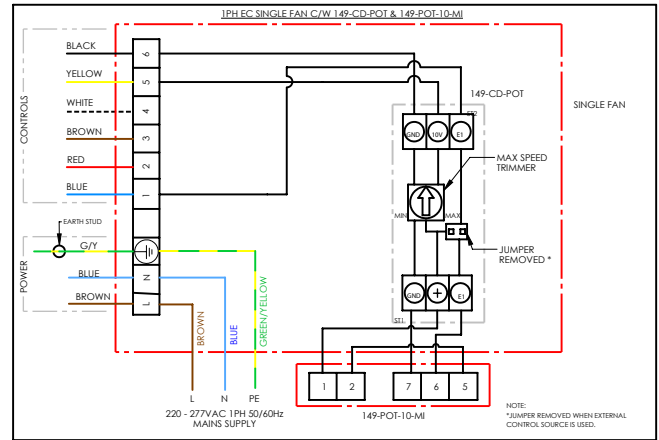
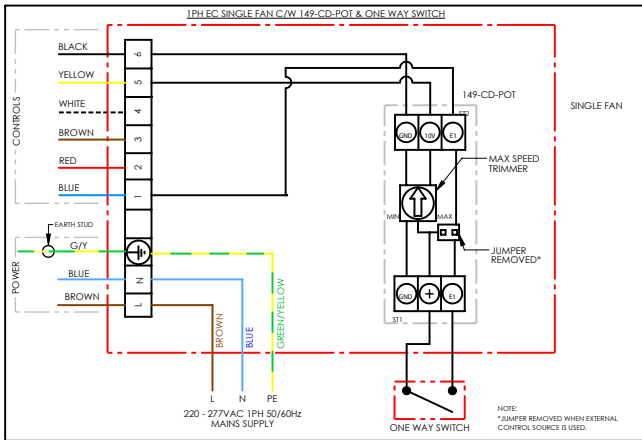
| Page No. | Product Code                       | Wiring Diagram No. |
|----------|------------------------------------|--------------------|
| 9        | <a href="#">SQUHT67/450-EC-3</a>   | 152-734            |
| 9        | <a href="#">SQUHT82/500-EC-3</a>   | 152-734            |
| 9        | <a href="#">SQUHT82/560-EC-3</a>   | 152-734            |
| 9        | <a href="#">SQUHT82/630-EC-3</a>   | 152-734            |
| 9        | <a href="#">SQUHT102/630B-EC-3</a> | 152-734            |



All wiring and control equipment must comply to the latest IEE regulations, in particular part 552-01-02/03.  
152-611 Issue C: 21.05.2015  
Check the individual product accessories table for fan controller compatibility.



All wiring and control equipment must comply to the latest IEE regulations, in particular part 552-01-02/03.  
 152-613 Issue A: 10.12.12  
 Check the individual product accessories table for fan controller compatibility.



| CONTROL CABLE LENGTHS |                      |
|-----------------------|----------------------|
| Control Type          | Max. Length          |
| VDC (voltage control) | 30m                  |
| PWM (Frequency)       | 10m                  |
| DC Current            | 300m (UL 1015 18AWG) |
| Speed Feedback        | 10m                  |
| External Controller   | 10m                  |

**NOTE: TAG REFERENCES RELATE TO MOTOR CONTROL WIRES, AND NOT 149-POT-10-MI**

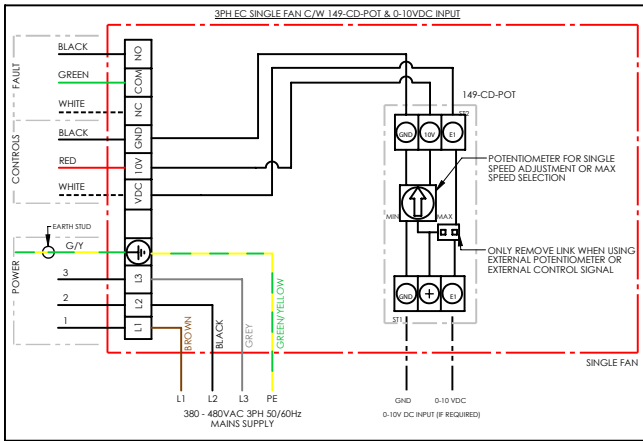
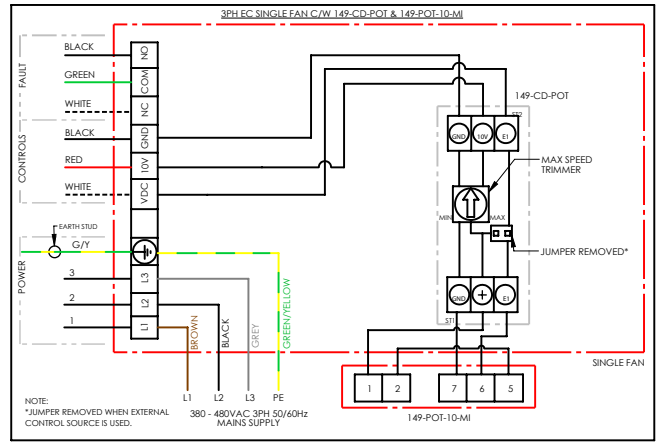
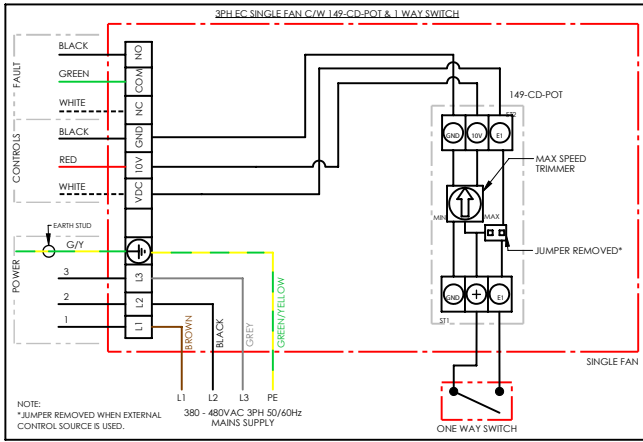
| Tag | Purpose             | Description   |
|-----|---------------------|---|
| L   | Live                | Live power supply, 220-277V   |
| N   | Neutral             | Neutral from power supply   |
| ⊕   | Permanent Earth     | Permanent earth from power supply   |
| 1   | DC Voltage [2-10V]  | DC control voltage input (2 to 10VDC input)                                       |
| 2   | DC Current [4-20mA] | DC control current input (4 to 20mA input)  |
| 3   | Frequency [10-95%]  | Frequency duty-cycle (PWM) Voltage: 10 to 24Vpk Frequency: 80Hz (10 to 95% input) |
| 4   | Speed Reference     | Tacho output  |
| 5   | 10VDC output        | 10VDC source output   |
| 6   | GND / Common        | DC Common   |

All wiring and control equipment must comply to the latest IEE regulations, in particular part 552-01-02/03.  
MK-152-600 Issue B: 29.04.2015  
Check the individual product accessories table for fan controller compatibility.



# 152-734

## Wiring Diagrams



### CONTROL CABLE LENGTHS

| Control Type          | Max. Length |
|-----------------------|-------------|
| VDC (voltage control) | 30m         |

| Tag | Purpose            | Description  |
|-----|--------------------|--|
| L1  | Phase 1            | Line 1, Power Supply   |
| L2  | Phase 2            | Line 2, Power Supply   |
| L3  | Phase 3            | Line 3, Power Supply   |
| ⊕   | Protective Earth   | Protective earth from power supply   |
| VDC | DC Voltage [2-10V] | DC control voltage input (2 to 10VDC input)                                |
| 10V | 10VDC output       | 10VDC source output  |
| GND | DC Ground          | DC Ground  |
| NC  | Normally Closed    | Normally closed contact<br>Will open between NC and COM in fault condition |
| COM | Common             | Common for fault contacts  |
| NO  | Normally Open      | Normally open contact<br>Will close between NO and COM in fault condition  |

All wiring and control equipment must comply to the latest IEE regulations, in particular part 552-01-02/03.

MK-152-734 Issue A: 08.01.24

Check the individual product accessories table for fan controller compatibility.





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