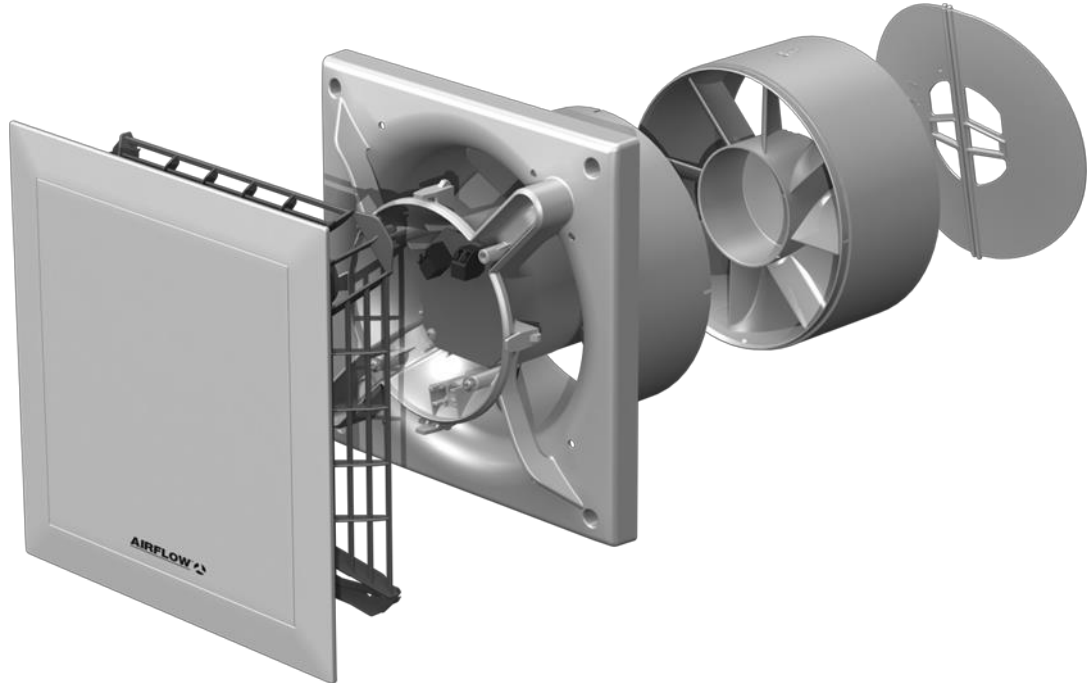




Installation and Operating Instructions
QuietAir 150mm Axial Fan



MODEL:QT 150VS –Variable Speed Fan (50 - 260m³/hr)
With Adjustable Timer control



- Variable Speed with timer
- Low Energy
- Quiet
- Long Life
- Extra Safe

IP45  CE

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CHAPTER 1

GENERAL SAFETY INSTRUCTIONS

1.0 Important information

To ensure a proper function and your own safety manual should be thoroughly read and observed.

This document is part of the product and has to be available and durable at all times to ensure a safe operation of the fan. All equipment-related safety regulations must be adhered to.

DANGER

1.1 Warnings

The adjacent symbols are safety warnings. To avoid any risk of injury and dangerous situations, all safety regulations (symbols) in this document must be strictly observed.

WARNING

CAUTION

DANGER

1.2 Safety Instructions

For use, connection and operation apply special regulations. If in doubt, contact manufacturer for advice. Other information is relevant to standards and legislative texts.

⚠ For all work involving operation of the fan, general applicable safety and accident prevention regulations must be observed.

- **All electrical work and commissioning must be carried out only by authorized and qualified electricians.**
- **Maintenance and installation work must be carried out only by competent personnel.**
- **Before cleaning, maintenance and installation work or before opening the terminal compartment following points must be observed:**
 - **Disconnect the fan from power supply (all-pole) and secure against restarting!**
 - **Wait till the work stoppage of rotating parts!**
 - **After work stoppage of rotating parts, waiting period of 3 min. has to be observed; dangerous voltages can occur by internal capacitors even after disconnection from the network!**
- **All equipment-related safety regulations must be observed! If necessary, further country-specific regulations must be complied with!**
- **Contact protection (or Protection against accidental contact) must be insured according to DIN EN 13857 (see Chapter 2.1)! Contact with rotating parts must be avoided.**

- **Ensure a uniform inflow and free outlet!**
- **During operation of a fire place in ventilated room, sufficient air supply must be provided in all operating conditions (please contact chimney sweep).**

Valid local regulations and laws must be observed!

- **QuietAir 150 VS is not to be used by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety. Children are not allowed to play with the device. Cleaning and maintenance must not be carried out by children without supervision.**

1.3 Warranty claims – Disclaimer

All versions of this manual must be observed; otherwise the guarantee will be annulled. The same applies to liability claims against Airflow Developments. Use of accessories which are not admissible and are not provided by Airflow Developments - is prohibited. Any potential damages are not subject of the guarantee. Changes and modifications to the product are not allowed and will result in a loss of conformity - in such case any warranty and liability shall be excluded.

1.4 Regulations – Guidelines

Properly installed and used for its intended purpose, product complies with the valid regulations and CE-guidelines at the time of its production.

1.5 Transport

The fan is factory-packed so that it is protected against normal transport loads. Run the transport carefully. It is recommended to leave the fan in the manufacturer's original package.

1.6 Acceptance of delivery

A visual inspection upon delivery should be performed including damage and type accuracy check. In the event of there being damage, the necessary notification of claim immediately has to be reported to the carrier. Any delay in complaint will result in a loss of benefit entitlement.

1.7 Storage

When storing for a long period of time, avoid harmful impacts by following next steps: protect the motor by dry, air and dustproof package (plastic bags with drying agent and moisture indicator). The product should be stored in a vibration-free and water-protected premise at a constant temperature ranging from -20°C up to + 40°C. In compliance to Chapter 8, when storing a product for more than three months (motor standstill), maintenance must be determined before commissioning. In case of transshipment (especially over longer distances: e.g. sea), the packaging has to be checked whether it is suitable for transport and route. Damages caused by improper transportation, storage or installation are not covered by the warranty.

1.8 Operational area

- Appropriate use:

QuietAir 150 fans are used to convey normal or slightly dusty (particles size < 10 µm), little aggressive and humid air, into moderate climate and suitable area of its performance curve (see Airflow Developments sales documents / Internet). Operation permitted only for fixed installation within buildings. Maximum permitted medium and ambient temperature is 40°C. QuietAir 150 fans conform to enclosure protection IP45, protection class II and according to VDE0100 part 701 shall be conformed to install in area 1 of humid areas.

- Rationally foreseeable misuse

The fans are not suitable for use under difficult conditions such as high humidity, aggressive media, longer downtimes, strong pollution, and excessive workload due to climatic, technical or electronic influences. The same applies for the mobile use of the fans (cars, aircrafts, ships, etc.). To perform under these conditions is only possible with release approval by Airflow Developments, in case of standard version it is not applicable.

- Prohibited use

Misuse of the device is not allowed! Solids or solid impurities > 10 µm in transporting medium as well as liquids are not allowed. Transporting medium which are aggressive against the fan material as well as abrasive media is not allowed. Usage of the fan in the explosive environment is prohibited.

1.9 Performance data

The device type plate is binding for the electrical data; this must be conformed to the local supply network. On the test stand fan performance was complied with DIN EN ISO 5801.

1.10 Noise data

The noise data which relate to distances is valid under free field conditions. After installation the sound pressure level can vary significantly from the catalog values since it strongly depends on the installation conditions, for instance the absorption capacity of the room, the room size etc.

CHAPTER 2

GENERAL NOTES

2.0 Qualification of staff

⚠ Maintenance and installation work must be carried out only by an approved electrician.

QuietAir 150 fans should not to be used by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety. Children are not allowed to play with the device. Cleaning and maintenance must not be carried out by children without supervision.

DANGER

2.1 Touch protection

- QuietAir 150 fans are supplied with a standard suction side protective grid. Depending on the installation conditions protection against accidental contact on the discharge side may also be required. Appropriate protective grids are available as an accessory.

- According to the installation method (for instance installation in ventilation canals or covered aggregates) fans are already protected and in such cases they do not need a protective grid. It should be noted that the operator is responsible for compliance with the current requirements and is liable for accidents.

2.2 Motor protection

QuietAir 150 fans use an energy-saving maintenance-free EC Motor with high efficiency. The motor is equipped with a thermal contact, wired in series, which automatically switching on/off after cooling.

If the motor is blocked than attempt to restart it every 3 seconds.

2.3 Start-up performance

To start the motor a certain rotor position is required. If it doesn't detect it, it outputs pulses to the rotor in order to reach this position. This may take a few seconds. After switching off the fan, switch-on inhibit activates the fan for 15 sec. to protect the motor from rapid on/off switching.

CHAPTER 3

SPECIFICATIONS/ DIMENSIONS M1/150 0-10 V

3.0 Specifications

Impeller – Ø	137	Electrical supply	NYM-0 2 x1,5mm ²
Alternating current		Control wire	LiYY 3 x 0,34mm ²
Relay	, ind, µ	Degree of protection	IP 45 (jetwater-proof)
Voltage/frequency	230 V, 50 Hz	Protection class	II
Power input (W)	9	Weight approx. kg	1,2
Ampacity (mA)	80	Rotational speed	1900/980
Flow volume (m ³ /h)	max. 260	Follow-up [min.]	6

3.1 Product lifetime

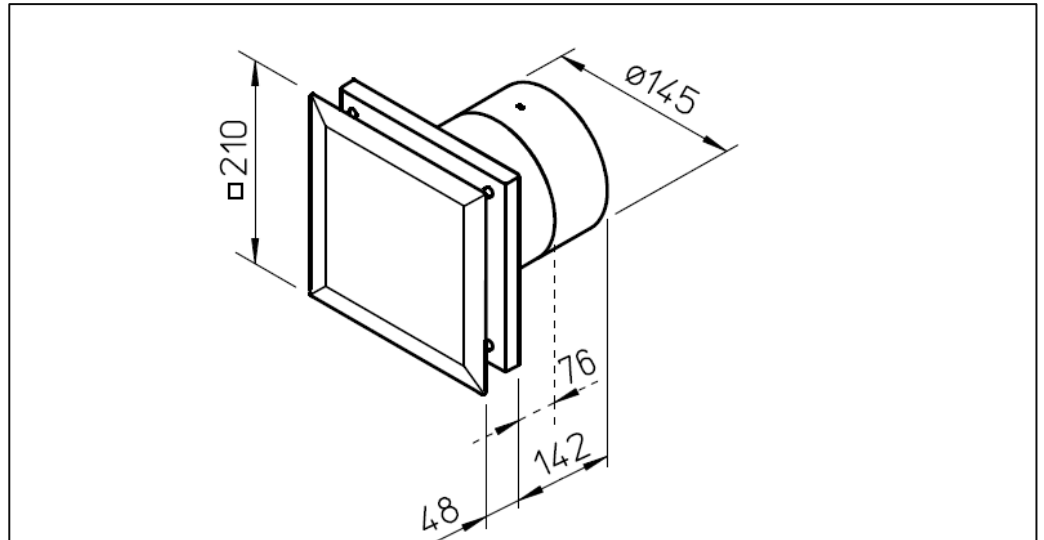
This unit is designed for a product life of at least 40.0000 hrs in Speed 1 operation with maximum power in the maximum permissible ambient temperature.

3.2 Accessories

9041569 3 Amp Stepless Speed Controller

Order

3.3 Dimensions



CHAPTER 4

FUNCTION

4.0 Function description

⚠ All of the following information and instructions are intended for use by authorized electricians. All times may vary slightly due to component tolerances and ambient temperatures.

QuietAir QT150 VS can be continuously operated by e.g. connecting an external 3-Amp Stepless Speed Controller (accessory) or 0-10 V set point generator.

1. Speed setting

The adjustment of the speed can be limited internally via internal potentiometer settings. In delivery condition, the full scope of the control range becomes available.

2. Scaling

Scaling can be set through the internal potentiometer, i.e. it will set the assignment set point input (0-10 V) for speed control (20-100%).

No change must in principle be carried out in default activation with an external potentiometer. Change can be made e.g. when connecting a sensor sense, when a smaller control range is to be used.

3. Relay output

When the fan is running regardless of the speed an operational message is displayed. The relay output is, for example, for connecting an external flap.

CHAPTER 5

CLEANING / DEINSTALLATION

DANGER

DANGER

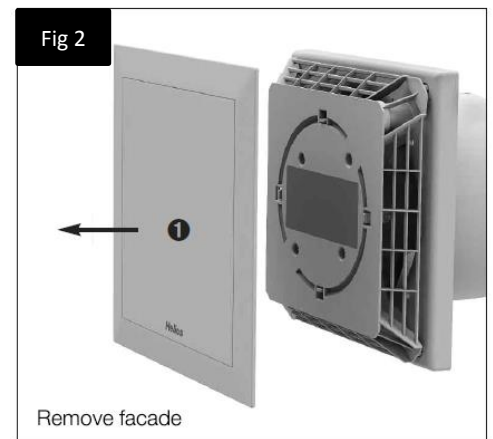
5.0 Cleaning

⚠ Safety instructions listed in Chapter 1.2 must be observed!

- Before cleaning always ensure that the fan unit is isolated from the power supply and secured against restarting!
- Clean facade, protective guard and visible housing parts (the external housing of the fan) with a damp cloth!
- Do not use any aggressive, paint solvent cleaning agents!
- High pressure cleaner or spray water is not permitted!

5.1 Cover Dismantling

1. Isolate the fan unit from the power supply and secured against restarting.
2. Pull the side pieces (cover plates) of the upper part of the housing outwards (see fig 1/fig 2) to unlatch it and upwards until the cover plate is opened.



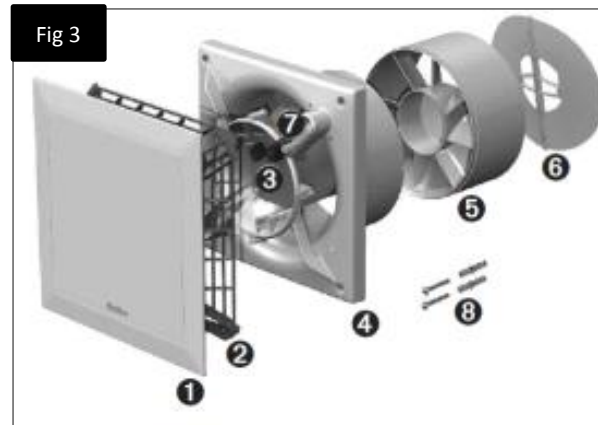
All of the following information and instructions are only for authorized electricians.

**CHAPTER 6
INSTALLATION**

6.0 Scope of delivery / Mechanical Installation

A visual inspection upon delivery should be performed including a check to ensure all components are present. Take the delivery unit out of the box immediately before installation in order to avoid possible damage and contamination during the transport as well as at the construction site.

Scope of delivery:



1. **Facade**
2. **Terminal compartment cover** incl. 4x fastening screws
3. **Control board**
4. **Plastic housing** with impeller
5. **Guide vane**, with limited mounting depth removable
6. **Backdraft shutter**, removable
7. **Cable support sleeve** x 2
8. **Mounting kit**
2x screws with dowels for a wall mounting
9. **Foam strips**

DANGER

6.1 Preparation for wall mounting

⚠ Safety instructions listed in Chapter 1.2 must be observed!

The fan is supplied as a standard complete unit, which is delivered ready for connection. The installation and set-up of the fan should be performed only after final cleaning to avoid damage and contamination of the ventilation unit.

After unpacking and before installation the following points must be checked:

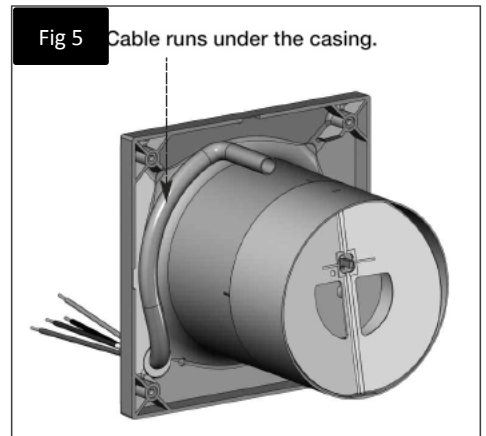
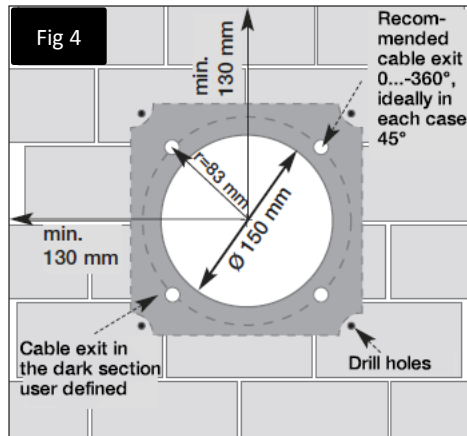
- if any transport damage is noticed,
- broken or bent parts
- free running of the impeller

6.2 Installation

The QuietAir 150 is designed for direct wall mounting. The housing must not be deformed or warped during the installation. Ensure to choose a flat location for mounting. Fans can be heavy and are sometimes unwieldy. Proper precautions must be taken, to ensure the assembly is well supported and stable before lifting into position. Fans should be mounted only on sufficiently strong and stable nature using appropriate fasteners. Ensure a sufficient additional flow! If necessary, read an instruction from DIN 1946-6.

1. Cable outlet in the wall

- Position of the cable outlet in the dark area is variable (fig 4).
- Clearance to the pipe centre depending on the cable outlet $r = 83 \text{ mm}$ (at a variable position from 0 up to 360°).
- For an easy assembly, recommended to place outlet as shown (90° rotatable). The optimal position is at 45° when the cable outlet placed directly at the position of the cable support sleeve.
- QuietAir 150 Pipe inner diameter = $\varnothing 150 \text{ mm}$
- Clearance to room corners: at least 130 mm from the pipe centre
- During the wiring the side recess for the cable entry in housing (fig 7, Pos.1) must be broken out.

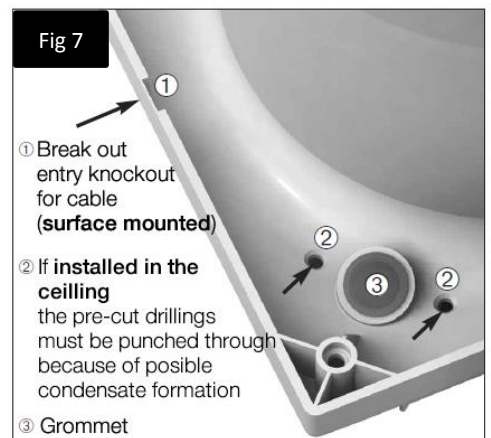
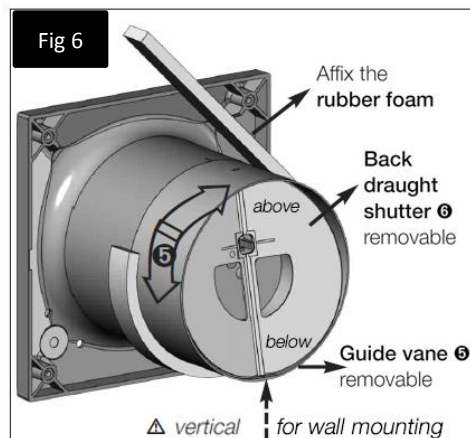


2. Boreholes

Position the housing, then mark and drill the holes and mount it with at least two fastening screws and wall plugs.

3. Backdraft shutter and guide vane

- If required backdraft shutter (scope of delivery) can be installed behind the guide vane (fig 6).
- During the housing installation, the guide vane must be mounted vertically.
- Before final assembly stick on the foam strips (scope of delivery) (fig.6).



6.3 Electrical installation/Commissioning

⚠ Safety instructions listed in Chapter 1.2 must be observed

- All electrical installation to be carried out by an approved electrician in accordance with presented manual and wiring diagrams.
- Fan should be fitted with 3A fuse at all times.
- The relevant standards, safety regulations (for instance DIN VDE 0100) and technical connection regulations of the energy supply company must be observed!
- An all-pole mains switch/isolation switch, with at least a 3 mm contact opening (VDE 0700 T1 7.12.2 / EN 60335-1) is mandatory by law!
- Network configuration, voltage and frequency of the power source must match the information on the rating plate.

6.4 Cable connection 230 V / control line (10 V=)

On the circuit board there are areas 230 V~ and 10 V= decoupled together. In order to maintain the galvanic isolation several things must be observed with regards to connection and cable wiring within the housing.

1. The cable entry of NYM (230 V~) always takes place through the cable entry at the bottom left (fig 8).

2. The cable entry of LiYY (10 V=) control line always takes place through the cable entry on the top right (fig 8).

The connection of the relay contacts must be according to the following selection criteria:

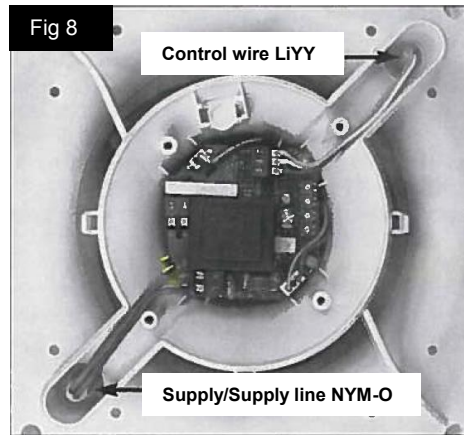
- 230 V-consumers are introduced via input cable grommet
- Low voltage consumers are introduced via the control line grommet

The relay terminal, combined with supply or control line, must take place in one wire. Insertion of 2 wires in the grommet is not allowed.

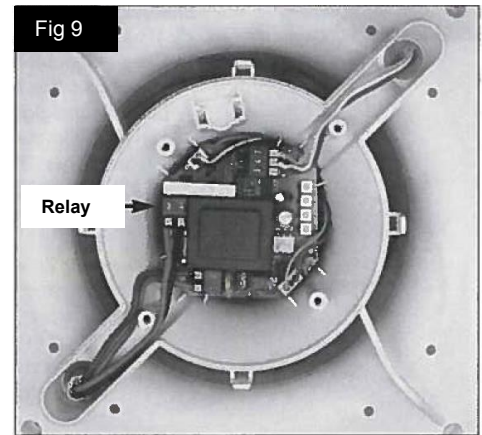
In the wiring make sure that wires are placed not on the board, but on the edge along the housing (fig 9/10).

For LiYY control line a maximum cable length permitted is 30m. A shield is not necessary.

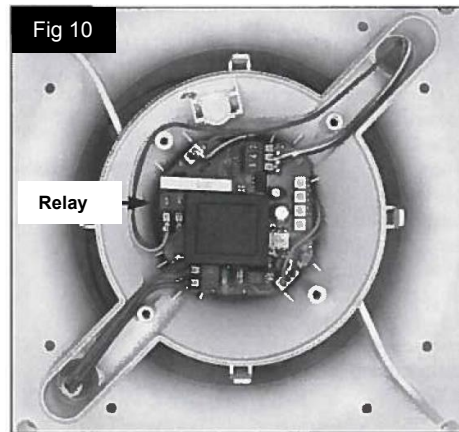
- Prepunch grommet with a round tool or pierce directly with the supply line (fig 7, Pos. 3)
- Remove cable sheath to a length of 135 mm. Strip back each wire's insulation about 8 mm.
- Carefully slide cable through the grommet.
- The wiring diagram (SS-1083) should always be used to ensure proper wire placement.
- Check sealing of the connection cables and cable wires clamp.
- If mounted at the inlet spout the sheathed cable does not enclose evenly, the spout must be additionally sealed with silicone. Otherwise, the IP protection will be compromised.
- The connection cable should be positioned in such a way that in case of water entering, water may not penetrate along the cable. Cables must be laid in such a way that they do not run over sharp edges.
- Check the fan according to the intended use.
- Supply voltage has to match the name plate data.
- Ensure secure mounting and proper electrical installation of the device.
- Check the freewheeling of the impeller.
- All parts of the fan, especially screws and protective grid must be checked for tightness. Do not lose included screws!
- **Ensure that the necessary protective guard is installed, as a device cannot be operated without it.**
- During the trial run the fan is checked for vibrations and noise.
- Power consumption has to match the name plate data.



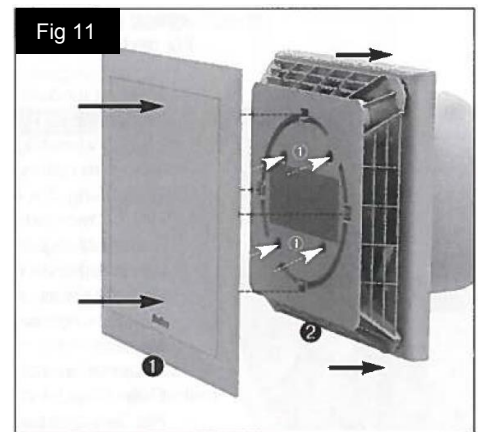
- Cable entry NYM-O (on the bottom left)
 - Cable entry LiYY (on the top right)
- Rotated mounting positions must be observed!**



- Relay with 230V-consumers
- Connection combined with supply cable through NYM-O $4 \times 1.5 \text{mm}^2$

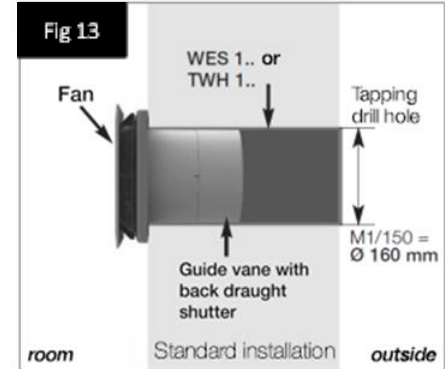
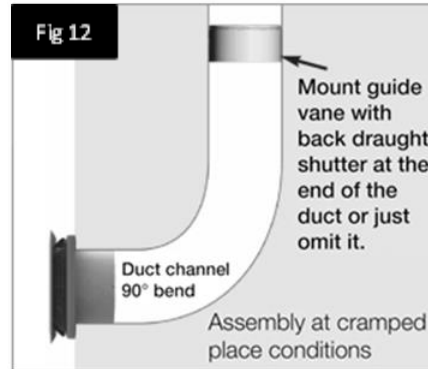


- Relays with low voltage consumers
 - Connection combined with control line through LiYY $5 \times 0,34 \text{mm}^2$
- Wire transfer not over the board!**



1. Insert and tighten the terminal compartment cover on plastic housing
2. Fit and snap the façade connection

6.5 Mounting



DANGER

6.6

Operation

⚠ Safety instructions listed in Chapter 1.2 must be observed!

To guarantee the proper function of the fan, the following need to be checked regularly:

- Appearance of dust or dirt in the housing (on the motor and impeller)
- Free running of the impeller
- Appearance of excessive vibration and noise

In case of problems with one of the points listed above maintenance should be carried out according to the instructions in Chapter 8.

CHAPTER 7

INSTALLER FUNCTION

7.0 Function description QuietAir QT150 VS

QuietAir QT150 VS can be continuously operated by e.g. connecting a 3 Amp-Stepless Speed Controller (accessory) or 0-10 V set point generator. The control board is on terminal 7 where a potentiometer supply of +10 V is available. Alternatively, a set point can be set via an external control voltage of the category "SELV" safety extra-low voltage at the terminals 5 (GND) and 6 (+ 0-10V). If the Control voltage <0.5 VDC, the fan will completely switch off.

1. Terminal assignment

- Terminal N / L

Terminal N and L have to be connected to the 230V operating voltage.

- Terminal 5

Terminal 1 activates the low stage.

- Terminal 6

Terminal 2 activates the high stage.

- Terminal 7

+10 VDC

- Terminal 3, 4

The last specification conducts independently with or without timer.

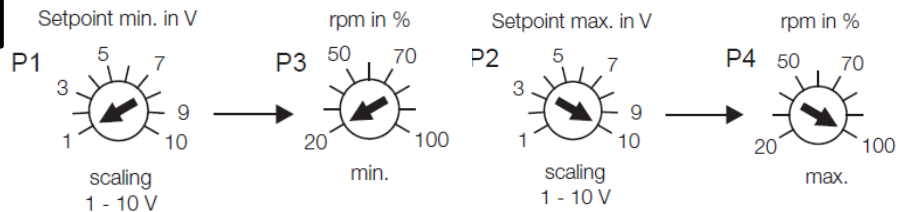
By simultaneous operation of two stages - conducts stage 2.

A change of the DIP switch settings must be carried out only by authorized and qualified electricians. The device must be disconnected (all-pole) from power supply. A change of the DIP switch is allowed only after switching off mains supply.

2. Activation of the timer function

Timer function (turn-on delay, post-run time) can be activated at the requested stage or deactivated via 7 and 8 DIP switches.

Fig 14



DANGER

2.1 Speed setting / adjustment

By using a potentiometer P3 and P4, the adjustment range of the speed is limited internally.

P3 = minimum speed, supply turn to left stop = 20%

P4 = maximum speed, supply turn to right stop = 100%

As a result of factory settings the entire range of the control spectrum is available. If potentiometer P4 is set lower than potentiometer P3, the fan runs constantly with the value set at potentiometer P3.

2.2 Scaling

The scaling can be adjusted via the potentiometer P1 and P2, ie. it will set the allocation setpoint input (0-10 V=) for speed control (20-100%).

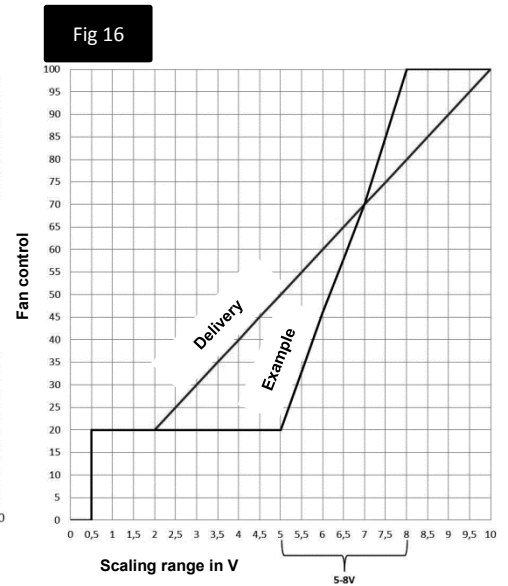
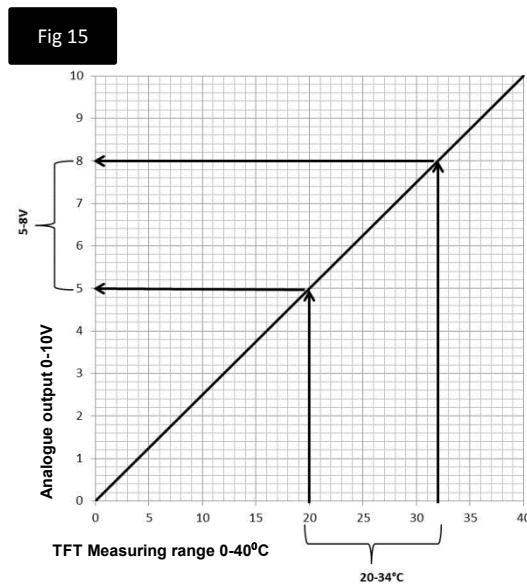
Implication:

With a setpoint of 1V control with 20% of the speed starts processing work, wherein the setpoint of 10 V, the controller will reach the maximum value of 100%. Thus, in the delivery state, complete bandwidth set is available for both - setpoint input and speed control. This corresponds to 0 V - 10 V at the setpoint input of motor control of 20-100%.

In a standard control in principle no amendment has to be done with a potentiometer. An amendment can take place, for example, when connecting a sensor sense when a lower control range is used.

Example:

A temperature sensor has a measuring range of 0-40°C and supplies 0-10 V. The fan is to be controlled in a range of 20°C to 34°C (fig 15). Accordingly, a control range produces 5-8V. Potentiometer 1 is set to 5V, potentiometers 2 to 8V. (fig 16) shows the resulting fan control.



At a scaling value on potentiometer 1, which exceeds the value of potentiometer 2, the fan runs at the minimum speed.

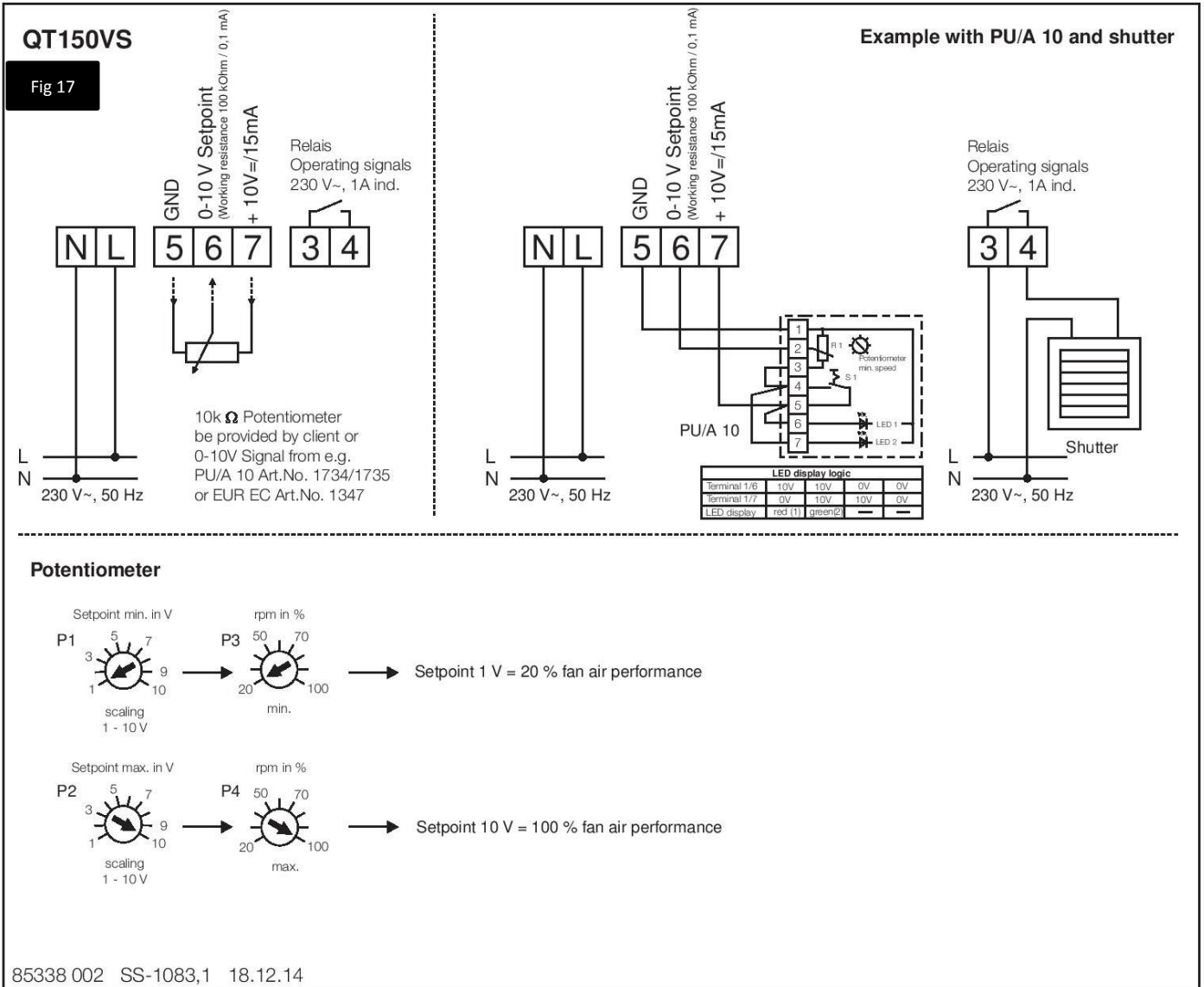
Note:

Minimum air operation and minimum rate of air can be achieved by electronic temperature sensors, such as the ETR-Type (see accessories).

4. Relay output

An operating message will be displayed on terminals 3 and 4. Regardless of the fan speed, the relay contact is closed, as soon as the fan continues to run.

5. Schematic overview for QuietAir QT150 VS



CHAPTER 8

8.0 Care and maintenance

CARE AND MAINTENANCE

DANGER

⚠ Safety instructions listed in Chapter 1.2 must be observed!

- **Prior to all work always ensure that the fan unit is isolated from the power supply and secured against restarting!**
- In principle the devices are maintenance-free; the unit is not user serviceable. Nevertheless all necessary maintenance work must be carried out by qualified electricians!
- Excessive deposits of dirt, dust, fats etc. on the impeller, motor, protective grids and especially between housing and impeller are not allowed; as it can lead to heavy imbalance in the impeller, overheat the motor or even block the impeller. In those instances the device has to be cleaned.
- In case of no longer use the unit must be serviced before operation.

Should be examined:

- Secure mounting of the fan / replace if in doubt
- Remove contaminant deposits
- Mechanical damage, shut down the device, replace damage parts
- Firm seating of bolt connections, loosen screws
- Housing quality (cracks, brittleness of the plastic)
- Overrunning of the impeller, the impeller doesn't run freely, note possible causes of failure in Chapter 8.1
- Bearing noise
- Vibrations – see Chapter 8.1
- Power consumption according to the specifications on the type plate – see Chapter 8.1

8.1 Troubleshooting

DANGER

⚠ Safety instructions listed in Chapter 1.2 must be observed!

Attention: If the impeller or motor is blocked use 3 seconds for the restart interval.

Error	Causes	Solution
Fan doesn't start	- no voltage	Mains voltage check Check connection according to wiring diagram
	- no set point > 0,5V	Clear blockage, clean or replace
	- blocked impeller	Contact Airflow technical support
	- blocked motor	Contact Airflow technical support
	- switched off motor	Switch on protection (15sec.) await
Fuse releases	- inter-turn short-circuits in motor	Contact Airflow technical support
	- damaged cable or connector	Replace parts, if necessary replace motor (Contact Aiffow technical support)
	- connected incorrectly	Check the connection, modify
Vibrations	- contamination	Clean
	- mounting vibrancy	Check mounting, repair
Abnormal noises	- grinding impeller	Clean impeller, replace
	- bearing damages	Contact Airflow customer service
	- mechanical damages	Perform maintenance
Fan doesn't perform properly	- insufficient air conveyance	Check inflow and outflow / keep clear
	- wrong voltage	Check connection / modify
	- contamination	Clean
	- insufficient back-flow	Extend back-flow

CAUTION



8.2 Decommissioning and disposal

Safety instructions listed in Chapter 1.2 must be observed!
During transportation safety instructions listed in Chapter 1.4 must be observed.

Parts and components of the fan which have reached the end of their lifespan, for instance because of the wear, corrosion, mechanical loading, fatigue and/or other effects that could not be directly discerned, should be disposed in accordance with local and international laws and regulations. The same applies to auxiliary materials such as oils, greases or other substances. The conscious or unconscious re-use of used components such as impellers, bearings, belts, etc. may endanger persons, the environment as well as the equipment itself. Relevant locally operating regulations must be observed and applied.

Warranty:

Applicable to units installed and used in the United Kingdom. Airflow's Warranty covers the QuietAir fan for TWO years. The Warranty can be upgraded to THREE years from date of purchase against faulty material or workmanship by registering on our web site at www.airflow.com. The Warranty covers the product only and not the installation cost.

In the event of any defective parts being found, Airflow Developments Ltd reserve the right to repair or at our discretion replace without charge provided that the unit

1. Has been installed and used in accordance with the fitting and wiring instructions supplied with each unit
2. Has not been connected to an unsuitable electrical supply
3. Has not been subjected to issue, neglect or damage.
4. Has not been modified or repaired by any person not authorised by Airflow Developments Ltd.
5. Has been installed in accordance with latest Building Regulations and IEE wiring regulations.

Airflow Developments shall not be liable for any loss, injury or other consequential damage, in the event of a failure of the equipment or arising from, or in connection with, the equipment excepting only that nothing in this condition shall be construed as to exclude or restrict liability for negligence.

This warranty does not in any way affect any statutory or other consumer rights.



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airflow.com

Addendum – 10/2016

The Building Regulations 2010, Statutory Instrument Part 9, paragraph 42, imposes a requirement that testing and reporting of mechanical ventilation performance is conducted in accordance with an approved procedure.

Compliance with this requirement by an assessed and registered 'Competent Person' should follow a 'Best Practice' process and adopt air flow measurement, Method A – The Unconditional Method – using a suitable UKAS certified measuring instrument. Generically referred to as a 'Zero Pressure Air Flow Meter' or 'Powered Flow Meter'.

Further information on this method is detailed in NHBC Building Regulations Guidance Note G272a 10/13 and BSRIA 'A Guide to Measuring air flow rates' document BG46/2015