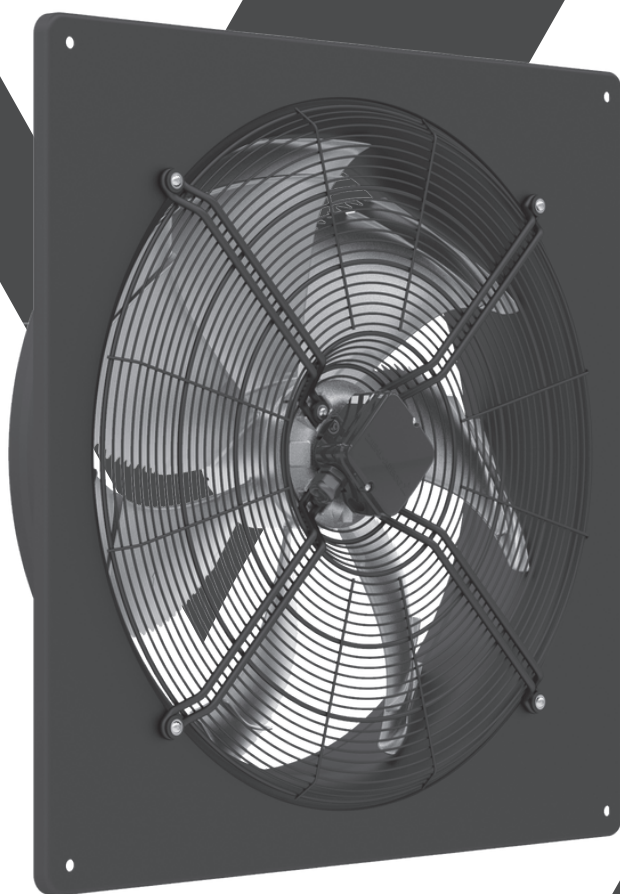
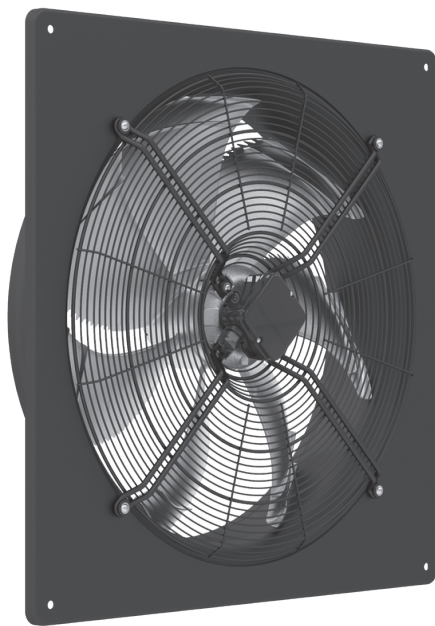


**PLATE FANS**  
(AC & EC)



CONTENTS

1. Operational area .....	3
2. Safety instructions .....	3
3. Transport, storage .....	4
4. Mounting .....	4
5. Operating conditions .....	6
6. Start-up .....	7
7. Communications options for EC fan programming .....	7
8. Maintenance, repair, cleaning .....	8
9. Disposal / Recycling .....	9
10. Wiring Diagram .....	9
13. CE & UKCA markings .....	13



Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given are not observed, the product may not operate safely and may cause a hazard.

Deviations from the following requirements may therefore lead to both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

1. OPERATIONAL AREA

Our Plate fans (type designation see rating plate) with integrated external rotor asynchronous motor are ready to use products, designed as components for air-conditioning, air supply and air extraction. A special motor design makes speed control by voltage reduction possible.

The fans may not be operated until they are installed in line with their intended use. The supplied and certified guard grille of the Plate fans is designed in accordance with DIN EN ISO 13857 Table4 (from the age of 14 up). In the event of deviations, further structural protective measures must be taken for safe operation.

2. SAFETY INSTRUCTIONS



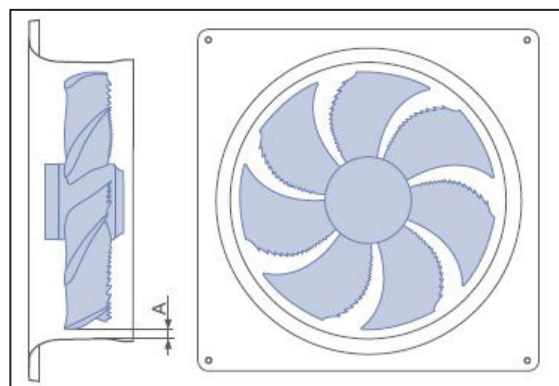
- The fans are intended for the transportation of air of mixtures that are like air. Usage in potentially explosive areas for the transportation of gas, mist, vapors or their mixtures is not permissible. The transportation of solid materials or similar materials in a transport media is also not permissible.
- Mounting, electrical connection and commissioning must be carried out by trained personnel (definition in DIN EN 50 110 or IEC 364).
- Electrical hazard! The rotor is not protected against indirect contact neither by supplementary or reinforced insulation nor by connection to safety-earth in accordance with IEC 60204-1, therefore the system constructor must provide protection by enclosure in accordance with IEC 61140 before the motor is connected to a power source. This protection can be achieved for example by a guard grille.
- The fan is only to be operated within the ranges specified on the type plate! Use the fan only in authorized fashion and only for the tasks and flow media specified in the order!
- Fans are not designed for walking on even with an additive diffusor attachment (retrofit kit)! Do not climb onto fans without suitable aids.
- The temperature monitors (TB) or PTC built into the winding serve as the motor protection and must be connected.
- In models using PTC's, comply with the permissible test voltage max 2.5V!
- For motors without temperature monitors a motor protection switch obligatory must be used!
- The EMC guideline is to be observed in connection with our control units. If the fans are completed with components of other manufacturers, the manufacturer or operator of the entire plant is responsible for keeping to the EMC guideline 2014/30/EU.
- Pay attention to the notes which concerning maintenance and service.
- These assembly instructions are part of the product and are always to be kept accessible.

### 3. TRANSPORT AND STORAGES

- Wear safety shoes and gloves for handling!
- Observe the weight data on the type code.
- Do not transport the fan by the connecting cables!
- Avoid impacts and collisions, especially on fans set-up on devices.
- Watch out for possible damage to the packaging or fan.
- Store the fan in the original packaging in a dry area protected from the weather or protect it from dirt and weather until final installation.
- Avoid exposure to extreme heat and cold.
- Avoid excessive storage periods and inspect the motor bearings for proper operation prior to installation.

### 4. MOUNTING

- Do not loosen the impeller, fan or balancing weight. Installation and electrical connection should only be carried out by trained and qualified personnel. Wear safety shoes and gloves for handling!
- The installation and security information are harmonized with the valid standard and guidelines (DIN EN ISO 12100 / 13857).
- Avoid structural damage or stress with installation. Make sure the surface is flat and even.
- Ensure the clearance gap between the impeller and the casing is maintained. Distortion due to uneven surface may lead to fan failure due to bushing against the fan wheel. A minimum head gap "A" of 2.5mm in all installation positions is necessary.



- Protective measures must be taken against falling parts when mounting with a hanging rotor.
  - In the case of a vertical motor axis the respective lower condensation drain hole must be open (does not apply to protection class IP55 fans).
  - Make sure condensation drain-holes of the motors are not blocked.
  - Connect fan only to electrical circuits that can be disconnected with an all-pole isolating switch.
- Electrical connection corresponding to connection diagram a) in terminal box and b) by cable design connection diagram on cable or on wall ring.

- Do not use metal compression-gland fittings with plastic terminal boxes.
- Use a dummy plug seal for the compression-gland fitting.
- When opening cable glands on the fan/motor, check the condition of the threaded connections and seals.
- Only use lines which can guarantee a permanent seal around the cable glands.
- Depending on the type pf cable gland, attach a water drain sleeve or use a sealing compound.
- Screw on plastic terminal box covers should be sealed with sealant.
- Starting torque for screw on covers, plastic version 1.3 Nm, metal version 2.6 Nm.
- Secure fan connection cable with cable fasteners or cable clips.
- Depending on the model the motors
  - Can be equipped with PTC's, internally connected thermal contacts, lead-out thermal contacts or without thermal protection.
- Connect them as below:
  - PTC on PTC triggering device
  - Internally connected thermo-contact: no external connection feasible or necessary.
  - Lead-out temperature monitors must be integrated in the control circuit in such a way that, if a fault occurs, the motor cannot switch on again automatically after it has cooled down. The protection of several motors using one protection device is possible by connecting the temperature monitors of the individual motors in series. It must be remembered that if a temperature fault occurs at one motor, all motors will then be switched off. In practice, motors are therefore assembled in groups so that emergency operation with reduced performance is still possible if a motor fails.
  - Without thermal protection: use a motor protection switch!
- When in fan motors for 1~230V +/-10% the mains voltage is permanently over 240V, in extreme cases the temperature monitor can trigger. In such cases a capacitor-type with the next smaller capacity should be used instead of the stated capacity.

## 5. OPERATING CONDITIONS

- Do not operate fans in an explosive atmosphere.
- Duty type of fan
  - Continuous operation with occasional starts (S1) according to DIN EN 60034-1:2011-02.
  - Occasional starting between -40°C and -25°C is permissible.
  - Continuous operation below -25°C only with special bearings (on request).
  - Any use below -10°C is dependent on not being subjected to unusual, sudden or mechanical loads or stresses on the material
- The Plate Fans are suitable for operation with frequency inverters when the following points are compiled:
  - Between the inverter and the motor, sinusoidal filters should be incorporated which are effective for all phases (sinusoidal output voltage, phase against phase, phase against protective conductor) as offered by manufacturers.
  - du/dt filters (also called motor or suppression filters) cannot be used in place of sinusoidal filters.
  - When using sinusoidal filters, screened motor leads, metal terminal boxes, and a second earth connection to the motor, if necessary, can be omitted. Check back by the manufacturer of sinusoidal filter.
- If the operational leakage current exceeds 3.5mA, earthing in compliance with DIN EN 50 178, art. 5.2.11.1 must be provided. For this purpose, there is a connection for a second protective earth on the stator flange. Tightening torque 2.7 Nm.
- When speed controlling through electronic voltage reduction (phase control), depending on the installation situation, increased noise formation caused by resonances can occur. In such cases we recommend the use of a frequency changer with integrated sine filter.
- The EC fans are with EC motors with maximum efficiency. Highly efficient, electronically commutated motors with permanent magnets are used, the speed of which is controlled by the integrated controller.
- The devices of the EC fans are constructed in accordance with the general requirement in EN61800-2 for adjustable speed electrical power systems and is intended for one-quadrant drives.
- We cannot guarantee that competitive makers of voltage control devices and frequency converters will function properly and not damage the motor when used for a rotational-speed control of our fans.
- IP55 fans with a seal which is rubbing may cause additional noise.

## 6. START-UP

- Before first-time start-up check the following:
  - Installation and electrical connection have been properly completed?
  - Electrical connection carried out in accordance with wiring diagram
  - Turning diagram corresponds to turning direction arrow on fan housing. The airflow direction or turning direction determines the functionality of the fan, not the motor rotation field.
  - Is the protective earth connected?
  - Connection data complies with the specifications on the type plate.
  - Motor operating capacitor data complies with the specification of the type plate (1 ph).
  - Safety equipment is in place.
  - Temperature monitor/motor protection switch are professionally connected and operating properly.
  - All leftover installation materials and other foreign materials have been removed from the fan cavity.
  - Cable gland is sealed.
  - Do the installation position and the arrangement of the condensation drain holes in the motor corresponds to each other (does not apply to protection class IP55 fans).
- The designated use of the Plate fans with VDE certification assumes connection in a device or via a control unit.
- Start-up may only begin when all safety instructions have been verified and any hazards have been ruled out.
- Check for low vibration operation, strong vibration due to erratic operation (unbalanced), e.g. caused by transportation damage or improper use, can lead to failure.

## 7. COMMUNICATIONS OPTIONS FOR EC FAN PROGRAMMING

Depending on the connection version and the auxiliary modules installed, there are different options for communicating with the EC fan motor.

- With the ECBlue Basic connection version, the “AM-MODBUS-WB” auxiliary module provides an additional option for programming using a mobile app.
- The MODBUS interface in the ECBlue BASIC-MODBUS connection version and the ECBlue Basic with AM-MODBUS auxiliary module enables programming using the A-G-24NW hand-held terminal or a PC software.

For detailed information on installation and operation, please contact Woods Air Movement.

## 8. MAINTENANCE, REPAIR, CLEANING

- During all work on fan in the hazardous area:
  - Maintenance work to be only performed by trained service personnel.
  - Observe the safety and labour regulations (DIN EN 50 110, IEC 364).
  - The rotor must be stand still!
  - Open the electrical circuit and secure against being switched back on.
  - Verify the absence of voltage.
  - No maintenance work on running fan.
- Wear safety shoes and gloves for handling.
- Keep the airways of the fan free – danger because of objects dropping out!
- Wet cleaning under voltage may lead to an electrical shock – danger to life!
- Regular inspection, if necessary, with cleaning, is required to prevent imbalance due to ingress of dirt.
- Do not use any aggressive, paint solvent cleaning agents when cleaning.
- Never use a high-pressure cleaner or spray jet to clean.
- Avoid letting water permeate into the motor and the electrical installation.
- After cleaning the motor must be operated for 30 mins at 80-100% of the max. speed to let it dry out.  
This will allow any inside water to dry out.
- Ball bearing service life
  - According to standard calculation methods, bearing service life expectation of the motor integrated ball bearings is mainly determined by the grease service life F10 and amounts for standard application to approx. 30,000 to 40,000 operating hours. The fan or motor is maintenance-free due to the use of ball bearings lifetime lubrication. Once the grease operating life F10h has been reached, it may be necessary to replace the bearing. The bearing service life expectation may change compared to the specified value, if operating conditions such as increased vibration or shocks, increased or too low temperatures, humidity, dirt in the ball bearing or unfavourable control modes are present. A service life calculation for special applications can be provided on request.
- The service life of EC fans with power electronics is decisively dependent on the ambient temperatures. The longer electronic components are exposed to high ambient temperatures, the faster the deterioration and the more probable the failures. The power electronics protects itself against excessive temperatures by active temperature management (power reduction).
- Take note of abnormal operating noise.
- Watch-out for vibration free motion.
- Please consult our service department with regards to changing the bearing as for all other damage (e.g. to the coil).
- On 1 phase motors, condenser rating can decrease with time, life expectancy approx. 30,000 hours, as per DIN EN 60252.
- Outdoor fans – if a fan is stationary for long periods in a moist atmosphere, it should be switched ON for minimum of 2 hours every month to remove any moisture that may have condensed within the motor.
- Fan with IP55 degree of protection or higher: open the existing sealed condensation bores at-least every 6 months.

## 9. DISPOSAL / RECYCLING

Disposal must be carried out professionally and environment friendly in accordance with the legal stipulations.



## 10. WIRING DIAGRAMS

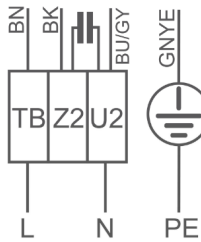
### AC 1 Phase

#### SIZE 250mm - 310mm

1~ motor with capacitor and thermostatic switch (if built in).

BN	brown
BU	blue
BK	black
OG	Orange
WH	white
GNYE	green-yellow

Counter Clockwise rotation

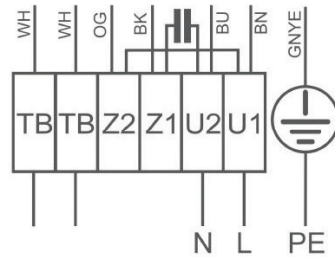


#### SIZE 350mm - 630mm

1~ motor with capacitor and thermostatic switch (if built in).

BN	brown
BU	blue
BK	black
OG	Orange
WH	white
GNYE	green-yellow

Counter Clockwise rotation



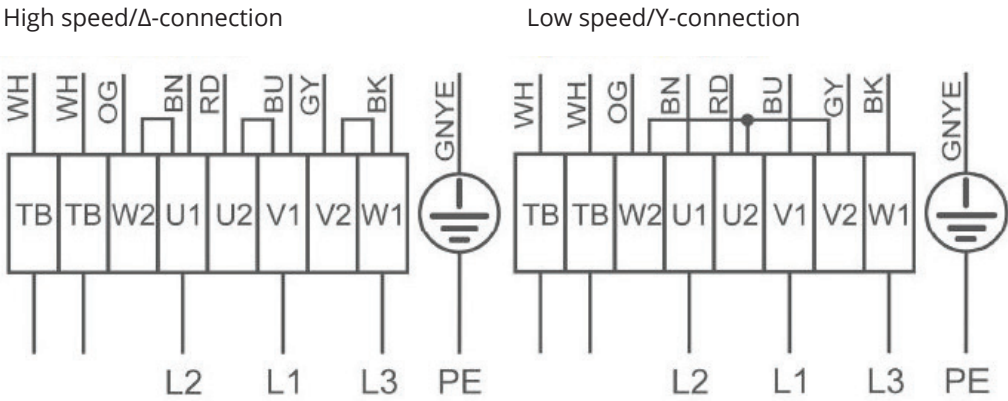


AC 3 Phase

SIZE 310mm – 710mm

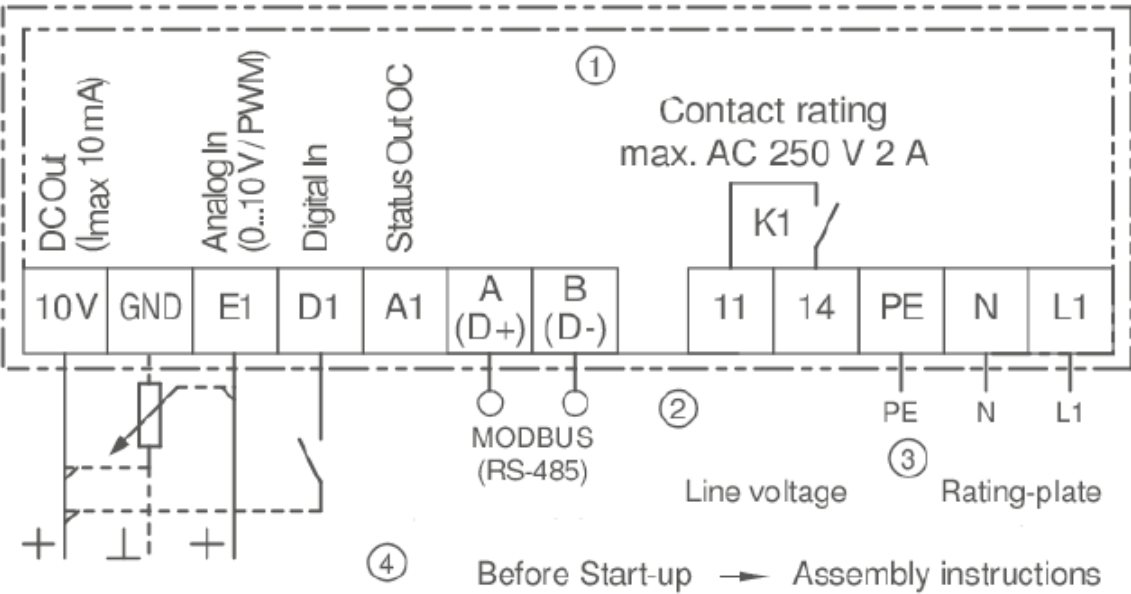
3~ motor, 2 speeds ( $\Delta$ /y switch over) with thermostatic switch (if built in).  
Without bridge when using speed change-over switch.

- BN brown
- BU blue
- BK black
- RD red
- GY grey
- OG Orange
- WH white
- GNYE green-yellow



EC 1 Phase

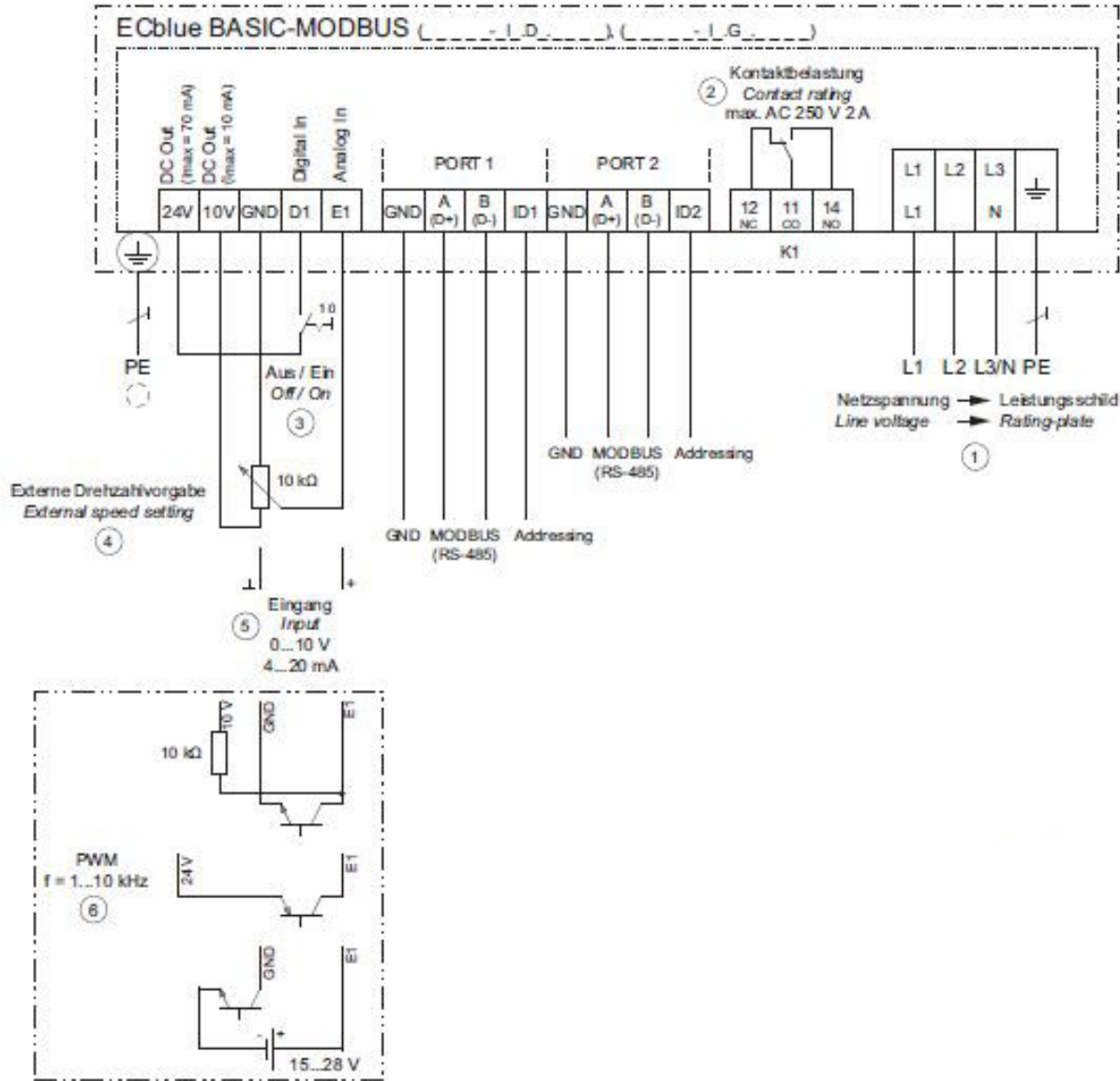
SIZE 300mm – 710mm



EC 3 Phase

SIZE 450mm – 710mm

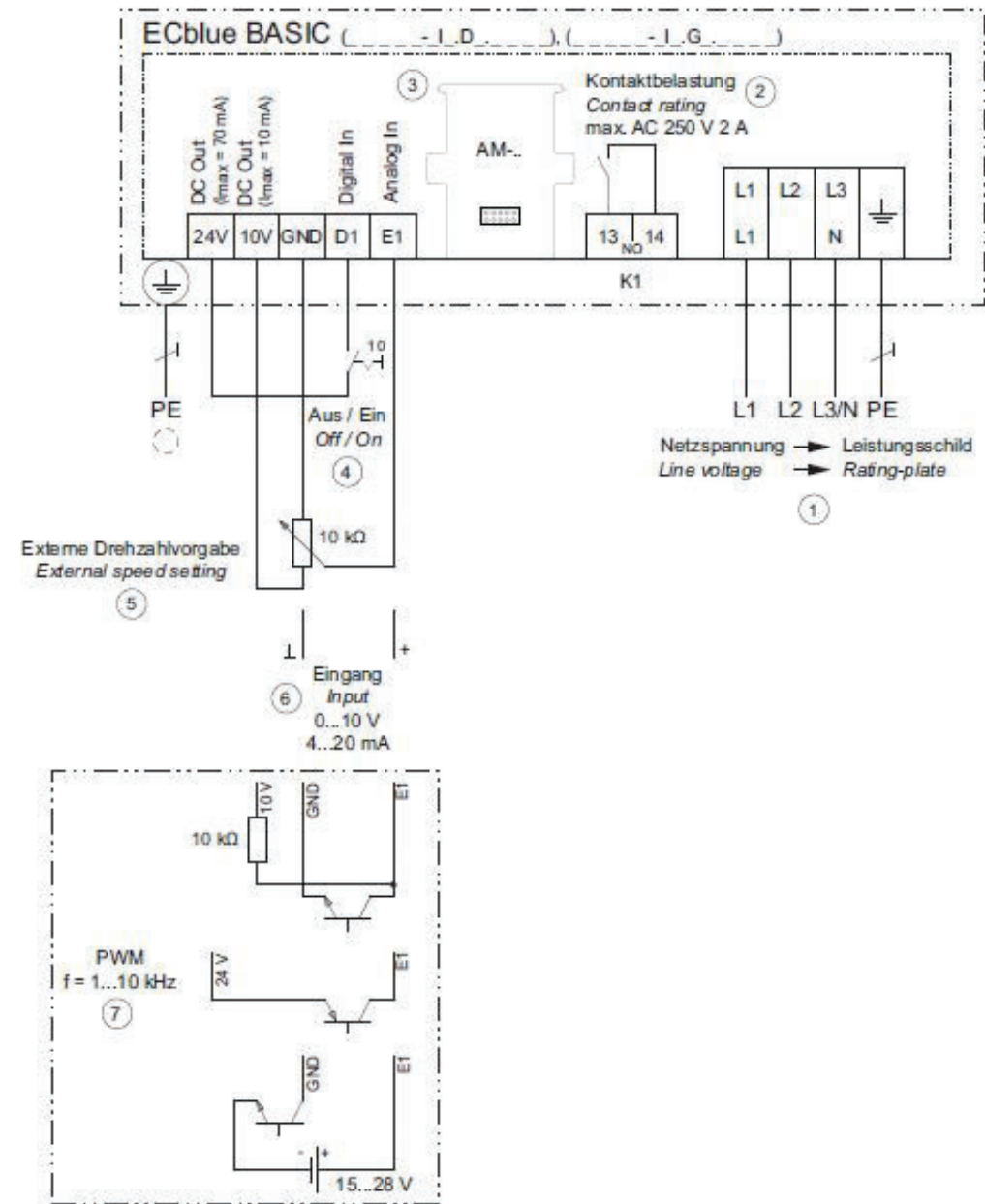
ECblue BASIC-MODBUS



EC 3 Phase

SIZE 450mm – 710mm

ECBlue BASIC



11. CE & UKCA MARKING

11.1 Declaration of Conformity



We hereby declare under our sole responsibility that Woods Air Movement products comply with the requirements of the applicable UK and EC/EU directives.

The Declaration of Conformity for compliance with the applicable directives exclusively refers to fans that are connected according to the operating instructions and operated independently with sinusoidal power supply.

The Declaration of Conformity for compliance with the ErP directive and associated regulations is only valid in conjunction with the ErP-related data in the product information and nameplate.

## 11.2 Declaration of Incorporation

These products fall under the terms of an incomplete machine. For this reason, the following Declaration of Incorporation has been prepared. The Declaration of Incorporation applies only to products mentioned in this manual.



### EC – Declaration of Incorporation

As defined by the EC Machinery Directive 2006/42/EC

Manufacturer Woods Air Movement  
Axial Way  
Colchester CO4 5ZD, GB

Herewith we declare that the incomplete machine:

Designation of the machine	Model or Type of machine	Since year of manufacture
Plate Fan (AC)	PFA...	2021
Plate Fan (EC)	PFE...	2021

Along with motor type:

- Induction internal or external rotor motor
- Electronically commuted internal or external rotor motor

meets the basic requirements in Appendix I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 of the guidelines in **EC Machine Directive (2006/42/EC)**.

The following harmonized standards are applied:

EN 60204-1/A1:2009	EN 12100:2010	EN ISO 13857:2008	
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The specific technical documentation in accordance with Appendix VII B has been written and is available in its entirety.

The specific documentation will be transmitted to the official authorities on justified request through electronic means, on data carriers or on paper.

*The commissioning of the incomplete machine is prohibited until the incomplete machine has been installed in a machine which then meets the requirements of the EC Machine Directive 2006/42/EC.*

Name of the representative for documentation:

Address of the nominated person:

see manufacturers address

EC-Declaration of incorporation was issued:

Colchester, 16-Feb-21

Place, Date

A handwritten signature in black ink, appearing to read 'S. Chapman'.

Simon Chapman  
**R&D Director Woods Air Movement**





Woods Air Movement delivers smart and energy efficient Air Movement and Fire Safety solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported. The widest range of Air Movement and Ventilation products in the market, and strong market presence with over 100 years of experience and manufacturing of products, guarantees that we are always by your side, ready to deliver Excellence in Solutions.

**Contact our friendly sales team today  
for more information**

Call: +44 (0) 1206 222 555

Email: [quotations.woods@flaktgroup.com](mailto:quotations.woods@flaktgroup.com)  
[www.woodsairmovement.com](http://www.woodsairmovement.com)