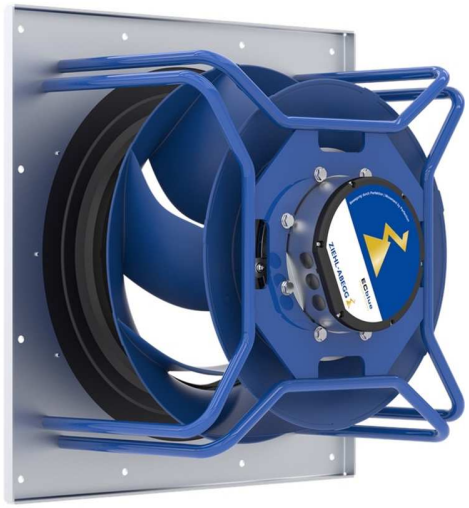
ECblue BASIC-MODBUS, ECblue BASIC

Motor sizes: D (116), G (152)

EC-fans and motors with highest efficiency

Quick Start Guide



Keep for reference!

Detailed Assembly instructions on www.ziehl-abegg.com

L-BAL-F078-GB 2023/06 Index 008 Part.-No. 00706648-D

ZIEHL-ABEGG

Content

1 General notes

Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given especially but not limited for general safety, transport, storage, mounting, operating conditions, start-up, maintenance, repair, cleaning and disposal / recycling are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties.
Deviations from the following requirements may therefore lead 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.

1.1 Validity

This document is valid for motors and fans of the ECblue series. Motor sizes D (116) and G (152).
The used motor size is recognisable from the type designation (see rating plate).

Examples for type designations with motor size **D** = 116		
Motors Type	**Axial fans type**	**Centrifugal fans type**
MK116 -_ I _ . _ _ . _ _	F _ _ _ _-_ I _. **D** _._ _ _ _ D _ _ _ _-_ I _. **D** _._ _ _ _ Z _ _ _ _-_ I _. **D** _._ _ _ _	RH _ _ _-_ I _. **D** _._ _ GR _ _ _-_ I _. **D** _._ _ ER _ _ _-_ I _. **D** _._ _ WR_ _ _-_ I _. **D** _._ _ HR_ _ _-_ I _. **D** _._ _

A total of 2 connection versions are available (see rating plate)

1. ECblue MB ≙ ECblue BASIC-MODBUS
2. ECblue BASIC

Information
In the case of fans with the quality mark (see rating plate), please note the related specifications depending on the application location!

1.2 Structure of the Quick Start Guide

Attention!
This Quick Start Guide contains basic information on safety, use, installation and commissioning. This document explicitly does not replace the detailed assembly instructions that we provide for download. The additional information contained therein must be observed.
To download, go to **https://bal.ziehl-abegg.com** and enter the article number of the product. The available language versions of the operating instructions and the quick start guide are then displayed. The detailed assembly instructions are marked with a “D”, see L-BAL-F078D.

Enter the product article number (see rating plate under P/N:)

1.3 Exclusion of liability

Concurrence between the contents of these assembly instructions and the described hardware and software in the device has been examined. It is still possible that non-compliances exist; no guarantee is assumed for complete conformity. To allow for future developments, construction methods and technical data given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided.
ZIEHL-ABEGG SE is not liable for damage due to misuse, improper use or as a consequence of unauthorized repairs or modifications.

2 Safety instructions

Information
Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electrotechnical regulations (e.g. EN 50110 or EN 60204)!

Danger due to electric current

- It is forbidden to carry out work on live device parts. The degree of protection for the open device is IP00! Potentially fatal voltages can be touched directly.
- The safe isolation from the supply must be checked using a **two-pole** voltage detector.
- The rotor is not protected against indirect contact neither by supplementary or reinforced insulation nor by connection to safety-earth in accordance with EN 60204-1, therefore the motor/fan must be installed so that it is not touchable.
- When the motor runs independently due to air flowing through or if it continues to run down after being turned off, dangerous voltages of over 50 V can arise on the motor internal connections through operation of the generator.
- Even after disconnecting the mains voltage, life-threatening charges can appear between the protective ground “PE” and the mains connection.
- The protective earth is conducting high discharge currents (dependent on the switching frequency, current-source voltage and motor capacity). Earthing in compliance with EN specifications shall therefore be observed even for testing and trial conditions (EN 50 178, Art. 5.2.11). Without earthing, dangerous voltages can be present on the motor housing.
- Systems with residual current protective devices
  - The assessment whether or which residual current protective device should be used is the responsibility of the system operator or electrician commissioned by it.
  - When selecting the tripping characteristics of the residual current protective device, the possible residual current form of the power electronics (system with semiconductors) must be observed in conjunction with the standards and regulations applicable at the place of use.
  - It is essential to observe the additional information on residual current protective devices in the detailed assembly instructions.

Waiting period at least 3 minutes!

- Through use of capacitors, danger of death exists even after switching off the device through directly touching the energized parts or due to parts that have become energized due to faults.
- The controller housing may only be removed or opened when the power line has been switched off and a period of three minutes has elapsed since switching it off.

Attention!

- During commissioning, unexpected and hazardous conditions can arise in the entire installation due to defective adjustments, defective components or incorrect electrical connections. Remove all persons and objects from the hazardous area.
- Before first-time start-up, check the following:
  1. Installation and electrical connection have been properly completed?
  2. Has any leftover installation material and other foreign material been removed from the fan area?
  3. That safety devices -if necessary- are mounted (EN ISO 13857)?
  4. The impeller is out of reach?
  5. Are the condensation water drains holes open or respectively closed according to the suitable installation position?
  6. Connection data complies with the specifications on the rating plate?
- Start-up may only begin when all safety instructions have been verified and any hazards have been ruled out.
  - Check for quiet, low vibration operation. Strong vibrations due to erratic operation (unbalanced), e.g. caused by transportation damage or improper use, can lead to failure.
  - A-rated sound power levels of over 80 dB(A) are possible, see product catalogue.
  - Check for mechanical vibrations after installation into the system. If the tolerances according to ISO 14694 are exceeded, it is possible to exclude certain speed ranges (see Motor Setup).
  - Check the direction of rotation (see rotation direction arrow on the fan blade, impeller base plate or on the fan housing).
- Maintenance work may only be carried out by suitably qualified personnel.

▷ Before working on the fan, this must be disconnected from the power supply and secured against switching back on!
▷ No maintenance work at running fan!
▷ Wear safety shoes and gloves for handling!
▷ Please observe the safety regulations and the worker´s protection rules by all maintenance and service work (EN 50 110, IEC 364).

Attention, automatic restart!
- The fan/motor may switch on and off automatically for functional reasons.
- After power failure or mains disconnection an automatic restart of the fan can takes place after voltage return!
- Wait for the fan to come to a complete standstill before approaching it!
- The exterior rotor turns during operation of the external rotor motor!

Danger of being sucked in!
Do not wear loose or hanging clothing, jewellery, etc., tie together long hair and cover it.

Attention, hot surface!
Temperatures of above 85 °C can occur on the motor surfaces, especially on the controller housing!

2.1 Intended use

Attention!
- The fans are only intended for the conveyance of air or mixtures similar to air.
- Any other use above and beyond this is considered not for the intended purpose unless agreed otherwise by contract. The manufacturer will not be liable for any damage resulting from this. The individual or company using it bears the sole risk.
- Built-in fans with VDE approval (see rating plate) are designed to be installed inside devices and are not suitable for the direct mains connection.
- Reading these document and complying with all contained instructions -especially the safety notifications contained therein -are considered part of intended use.
- To consider is also the documentation of attached components.

2.2 Improper use

Improper use / reasonably foreseeable misuse
- Conveyance of aggressive and explosive gaseous media.
- Use in areas at risk of explosion for conveying gas, mist, vapours or mixtures of the above.
- Transfer of solids or solids content in the transfer medium.
- Operation with iced up impellers.
- Conveyance of abrasive or adhesive media.
- Conveyance of liquid media.
- Operation of plug fans outside devices.
- Connect built-in fans to open flue pipes of gas and other firing devices.
- Use of the fan and add-on parts (e.g. guard grille) as a resting surface or climbing aid.
  – Fans are not designed for walking on even with an additive diffusor attachment (retrofit kit)! Do not climb onto fans without suitable aids.
- Unauthorised constructional modifications to the fan.
- Operation of the fan as a safety component or for the performance of safety-relevant functions in the sense of EN ISO 13849-1.
- Blocking or braking of the fan by inserting objects.
- Use with direct contact with foodstuffs or cosmetic and pharmaceutical products.
- Use of the fan as an independent household appliance.
- Use as a fire gas or smoke extraction fan (special application according to DIN EN 12101-3).
- Use with vibration loading by customer device. Resonant operation and operation with severe vibrations or oscillation.
- Loosening of fan blade, impeller, motor suspension and balancing weight.
- All applications not listed in the intended use.

Attention!
Not the manufacturer, rather the operator of the device is liable for any personal harm or material damage arising from non-intended use.

2.3 Explanations of symbols

Safety instructions are highlighted with warning triangles and are depicted according to the degree of hazard as follows.

	**Attention!** General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!
	**Danger due to electric current** Danger by dangerous, electric voltage! Death or severe injury can occur if the corresponding precautions are not taken!
	**Information** Important additional information and advice for user.

3 Product overview

3.1 Area of application/Notes on use

The fans / motors are not ready-for-use products, but conceived as components for ventilation systems (type designation see rating plate).
The fans may not be operated until they are installed in line with their intended use. The supplied and certified guard grille of ZIEHL-ABEGG SE fans is designed in accordance with DIN EN ISO 13857 Table 4 (from the age of 14 up). In the event of deviations, further structural protective measures must be taken for safe operation.

- Any use below -10 °C is dependent on not being subjected to unusual, sudden or mechanical loads or stresses on the material (see minimal permissible ambient temperature).
- Corrosion is possible at the cutting edges on sendzimir galvanised parts.

Attention!
If the motor/fan is used in applications where a ignitable atmosphere can form in the event of a fault, e.g. due to leakage, the user must assess the risks of ignition and take appropriate precautions to prevent ignition.

3.2 Functional description

ECblue stands for EC fans and 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 are constructed in accordance with the general requirement in EN 61800-2 for adjustable speed electrical power systems and is intended for one-quadrant drives.

3.3 Transport, storage

Attention!

- Observe the weight specifications (see rating plate) and the permissible carrying loads of the means of transport.
- Wear safety clothing / shoes and cut-resistant safety gloves when handling!
- Do not transport the fan by the connecting cable!
- Avoid shocks and impacts to the device during the transport.
- Avoid extreme humidity, heat or exposure to cold (see technical data).
- Watch out for possible damage to the packaging or fan.
- Secure pallets during transport.
- Do not stack pallets.
- Only handle with suitable hoisting gear.
- Position the lifting beam transversely to the motor axis. Pay attention to adequate width of the lifting beam.
- Never stand underneath the suspended fan because defective transport equipment could cause death.

- Store the fan / motor in the original packaging in a dry area protected from the weather and protect it from dirt and weather until final installation.
- Avoid prolonged storage; we recommend a maximum of one year (consult the manufacturer before starting if stored for longer).
- Inspect the bearing for proper operation prior to installation.
  - Recommendation: Turn the impeller evenly by hand to avoid jamming and damaging the bearing.
- Transport the fan(s) either in the original packaging or, in the case of larger fans, on the dedicated transportation fixtures.
  - axial fans: holes drilled in support arms, wall ring plates and motor block
  - centrifugal fans depending on type: holes drilled in the housing flange, motor block, fastening brackets and support plates,
- Radial impellers, fans with scroll RG.., RD.. or built-in fans type ER../GR.., WR.. are generally delivered on europallets, and can be transported using lift trucks.
- **Design RG.. / RD.. / ER.. / GR../ WR../HR..** : Fan unit may only be lifted and transported when using a suitable hoisting device (load spreader). Ensure sufficient cable or chain length.
  - Design WR: lifting several fan units mounted on top of one another or next one other is not permitted!
- **Design FV.. / DN..** : The fan must be fastened to 4 points during transport so the flanges do not warp.

3.4 Disposal / Recycling

Disposal must be carried out professionally and in an environmentally friendly way in accordance with the respective national legal stipulations.
▷ Separate the materials by type and in an environmentally-friendly way.
▷ If necessary, commission a specialist company with the waste disposal.

4 Mounting

4.1 General notes

Attention!

- Mounting is only to be undertaken by trained service personnel. The system manufacturer or the machine builder and/or the user is responsible that the inherent installation and security information are harmonized with the valid standard and guidelines (EN ISO12100 / 13857).
- Check the fan for damage, e.g. cracks, dents or damage to the electric cables, before assembly. Start-up is not allowed in the case of transport damage!
- Wear safety clothing / shoes and cut-resistant safety gloves when handling!
- At a weight greater than 25 kg for men / 10 kg for women, the fan should be lifted out by two persons (according to REFA). The values may differ from country to country.
- Lift the fan out of the packaging with a lifting gear (lifting beam). Attachment points are solely the holes on the housing flange, motor bed, support plate, motor suspensions, fastening brackets and any crane eyes of the fan (depending on the design of the fan).
- The chain/rope may not touch the impeller and the possibly mounted frequency inverter when lifting with the lifting beam, otherwise damage is possible.
- The custom designs must suit the prevailing conditions.
- Take into account easy access for cleaning and maintaining the fan.
- Before installing the fan, make sure the safety distances are maintained compliant with EN ISO 13857 or in household equipment according to EN 60335.
  - If the mounting height (danger area) above the reference plane is greater than or equal to 2700 mm and is not reduced by auxiliary means such as chairs, ladders, working platforms or floor space on vehicles, a guard grille is not necessary on the fan.
  - If the fan is located in danger zone, then the manufacturer or operator shall ensure that hazards shall be prevented by appropriare protective constuctions which meet the requirements to EN ISO 13857.
- Tighten the fastenings with the specified torques.
- Drilling chips, screws and other foreign bodies must not be located inside the device! Before the first switch-on, remove any items that may be present (drilling chips, screws and other foreign objects) from the intake area - risk of injury from any objects that may fly out!
- For fans, the alignment must be adhered to during operation, e.g. if this is indicated by “Oben/Top”.

⚠ WARNING

Parts of the rotor or the entire rotor coming loose in case of a fault (e.g. excessive vibrations) can result in personal injury and material damage.

▷ Use guard grilles or suitable design measures for critical applications (e.g. refrigerating systems with refrigerant subject to the ordinance on hazardous substances).

4.2 Version with separate junction box

For products supplied by ZIEHL-ABEGG with a separate junction box, note the following information.

1	Separate junction box made of plastic or metal
2	Lid screws Tightening torque: Plastic box 1.3 Nm/12 Lb In, metal box 2.6 Nm/23 Lb In
3	Cable glands (see table below)
4	Screw plugs, plastic/brass Tightening torque: 2.5 Nm/22 Lb In

Cable glands

Thread size	Material	Tightening torques M_A	
M12x1.5	Plastic	1.5 Nm	13 Lb In
	Brass	4 Nm	35 Lb In
M16x1.5	Plastic	2.5 Nm	22 Lb In
	Brass	5 Nm	44 Lb In
M20x1.5	Plastic	4 Nm	35 Lb In
	Brass	6.5 Nm	58 Lb In
M25x1.5	Plastic	6.5 Nm	58 Lb In
	Brass	6.5 Nm	58 Lb In
M32x1.5	Plastic	6.5 Nm	58 Lb In

4.3 Installation of axial fans

Information

The axial supply from the unit/system structure must be as twist-free as possible and should have no additional air resistance.

Disturbances in the supply can impair the function of the fan. This is particularly important for flange ring fans of design “F”, as these are supplied without an inlet nozzle.

4.3.1 Fans design A, D, K, S and W (without nozzles)

For attachment to fixed motor flange use screws with property class 8.8 or A2-70 (stainless steel) to EN ISO 4014 and provide with suitable screw locking.

Permissible tightening torques M_A			
Motor size	D	D	G
Thread size	M6 (Special application with 5-pitch)	M8	M10
Property class 8.8, friction coefcient µges = 0.12	9.5 Nm	23 Nm	40 Nm
Stainless steel A2-70, friction coefcient µges = 0.12	7 Nm	17 Nm	33 Nm
Screw penetration	≥ 1.5 x d	≥ 1.5 x d	≥ 1.5 x d

When using screws with different friction values or strength classes, different tightening torques may be necessary.

4.3.2 ZAplus fans

When mounting ZAplus fans, ensure plastic-compliant connectors.

Recommended tightening torques M_A when using flat fastening discs according to EN ISO 7089 or DIN125			
ZAplus size (type: SG.., ZC.., ZG.., ZN.., ZF..)	040	045 - 063	> 071
Thread size	M8	M10	M12
Property class 8.8, friction coefcient µges = 0.12	12 Nm	24 Nm	40 Nm

Tightening torque guard grille fitting: 6 Nm

Information
- Since the concrete bolt or screw varies by customer unit, these recommendations must be checked for each respective situation.
- Secure the cable covering (if present) against loss after connecting the motor by securing with 2 cable ties.
- For a version with a square rear wall (design Q), removal of this square plastic plate is prohibited.

4.3.3 Assembly of MAXvent fans type FV, DN,

For attachment to fixed motor flange use screws with property class 8.8 or A2-70 (stainless steel) to EN ISO 4014 and provide with suitable screw locking.

Observe the following points for all types of fans:
- Do not install without suitable supports/brackets.
- Fasten the fan with suitable bolts using all the fastening points of the flanges.
- Attach the fan with the mounting feet supplied (depending on the scope of delivery) with suitable screws.
  - In a horizontal installation position, 2 screws are required for each mounting foot.
  - In a vertical installation position, 4 screws are required for each mounting foot.
- Fasten the accessories with suitable bolts.

Tightening torques for fastening the fan and accessories:

Tightening torques M_A				
Thread size	M6 (Special application with 5-pitch)	M8	M10	M12
Property class 8.8, friction coefcient µges = 0.12	9.5 Nm	23 Nm	46 Nm	79 Nm
Stainless steel A2-70, friction coefcient µges = 0.12	6.4 Nm	15.3 Nm	31 Nm	52 Nm
Screw penetration	≥ 1.5 x d	≥ 1.5 x d	≥ 1.5 x d	≥ 1.5 x d

When using screws with different friction values or strength classes, different tightening torques may be necessary.

4.4 Mounting of centrifugal fans

4.4.1 Mounting of centrifugal fans design RE, RH, RM, RZ

For attachment to fixed motor flange use screws with property class 8.8 to EN ISO 4014 and provide with suitable screw locking.

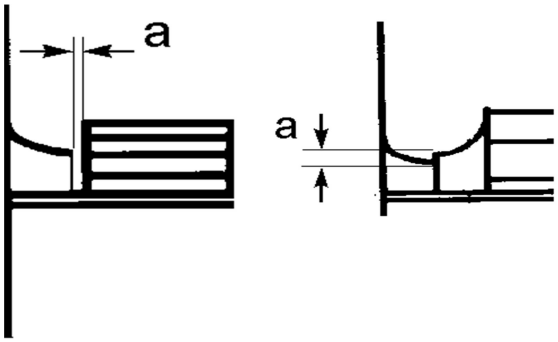
Permissible tightening torques M_A		
Motor size	D	G
Thread size	M8	M10
Property class 8.8, friction coefcient µges = 0.12	23 Nm	40 Nm
Screw penetration	≥ 1.5 x d	≥ 1.5 x d

When using screws with different friction values or strength classes, different tightening torques may be necessary.

Mounting of centrifugal fans, RZ design

Attachment to motor fan wheel mounting according to device manufacturer's specifications.

- Pay attention to a sufficient screw-in length in the motor flange.
- Excess screw length not permissible and it may result in the rotor being brushed against or blocked.
- Every screwing case is different. The tightening torque adapted to it must be determined by the appropriate screw tests.
- In the case of a vertical motor axis, the respective lower drain hole must be open.



Ensure that the clearance (gap) “a” see fig. between the fan impeller and the stationary housing section is constant. Distortion due to uneven surface may lead to fan failure.

4.4.2 Mounting of centrifugal fans design RG.. / RD..

Fastening depending on housing design on flange or fastening brackets.

Information
An additional bracket is required for fastening to the flange. This is available as an accessory.

Attention!
- Avoid structural damage or stress with installation. Flange and mounting bracket must be fixed flat on a level surface.
- Provide screwed connections with suitable screw locking.

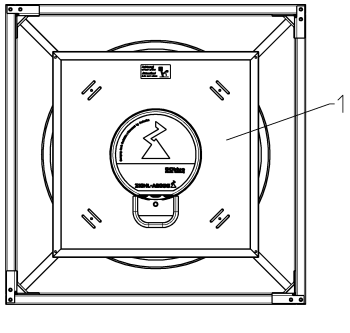
4.4.3 Erecting the equipment: Design ER.. / GR.. / WR..

- To avoid the transference of disruptive vibrations, we recommend de-coupling the entire plug fan to avoid sounds transmitted through solids. (Spring and/or attenuation units are not a constituent part of the standard scope of delivery). Look at our catalogue for positioning the decoupling elements or request a dimensions sheet stating the type designation and Part.-No.
- Erect in the open air only if this is expressly mentioned and confirmed in the ordering information. There is a risk of damage to the bearings if the fan remains stopped in a moist environment. Avoid corrosion by suitable protective measures. Roofing is required.
- In the case of a vertical motor axis, the respective lower drain hole (if available) must be open.
- The GR design in position “H” (horizontal shaft) should be installed in the preferred direction. The cable guides should point downwards (angled sideways by approx. 30°). This is indicated by the “OBEN/TOP” warning sign on the device.
- Design ER.. / WR.. is only permissible with horizontal motor shaft.

Attention!
- All contact points must be fixed securely. If the fixing is inadequate there is a risk of the fan overturning.
- Making your own alterations/conversions on the fan module is unacceptable - safety risk.

Design WR: maximum permissible number for installing several fan units on top of one another		
Size	**External dimensions [mm]**	**Permissible number**
1	607 x 607	5
2	760 x 760	5
3	912 x 912	5

Example for version with Optimizer



The Optimizer can be removed temporarily for better accessibility (e.g. for laying of cables or cleaning).
Depending on the version, the Optimizer is engaged or attached to the ventilation module with screws (tightening torque 5.4 Nm).

1 Optimizer

Attention!
An external mechanical stress on the Optimizer, e.g. by holding on to it or attaching assembly elements is not permitted.

4.5 Mounting the motor

Motors design MK
Fastening to fixed motor flange, see assembly of axial fans / fans of design A, D .. and assembly of radial fans of design RH.

- If the motor is used to drive fan impellers or other components, please note the maximum permissible speeds of the impeller or the component to be driven.
- The max. permissible mass of the impeller or the component to be driven must be inquired from and confirmed in writing by ZIEHL-ABEGG.

Design K (with rotor flange) or D (with offset rotor flange) as a drive for fans:

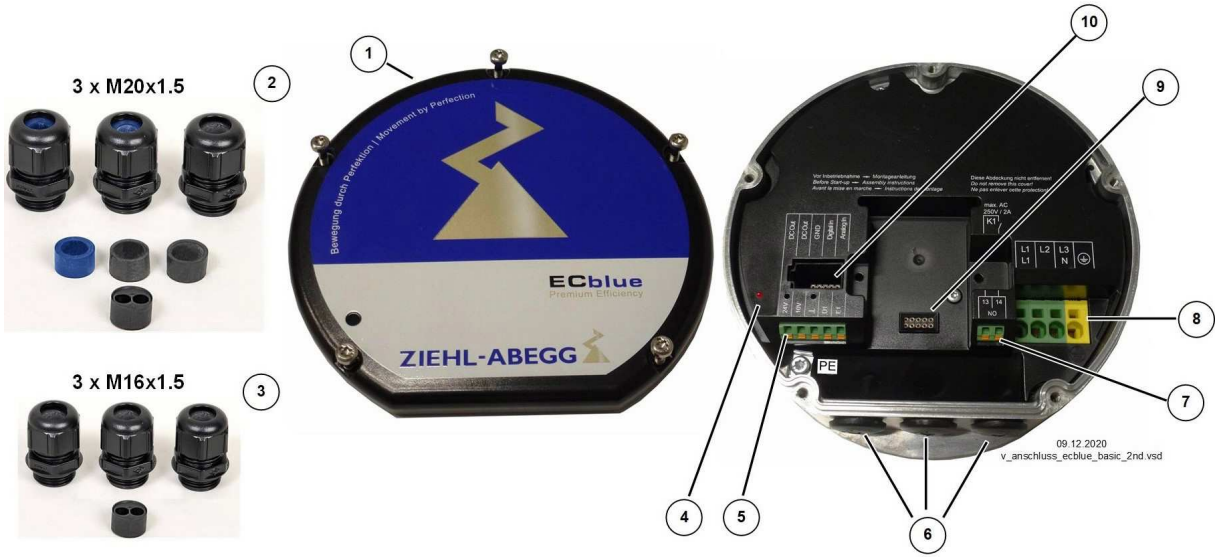
- During assembly of the fan impellers or other components, no inadmissible force may be applied to the motor bearing.
- Centre the fan impeller accurately and mount without tension on the rotor flange, the fan wheel must lie flat.
- Use suitable screws for fastening the fan impeller on the rotor flange and fit as suitable screw lock.
- Every screwing case must be tested for suitability.
- The permissible area pressing of the steel flange may never be exceeded (depending on the contact surface).
- Too great a screw overhang is not permitted and can lead to scraping or blocking of the rotor on the fixed motor flange.
- Motors are not balanced as standard, a complete balancing with mounted fan impeller is necessary. The balancing must be done on the fan impeller. The pertinent regulations must be observed.

Permissible tightening torques M_A		
Motor size	D	G
Thread size	M6	M8
Property class 8.8, friction coefcient µges = 0.12	9.5 Nm	23 Nm
Screw penetration	≥ 0.83 x d	≥ 0.83 x d
Max. permissible screw overhang	1.0 mm	1.5 mm

5 Electrical installation

5.1 Version without connection cables

ECblue BASIC connection version example

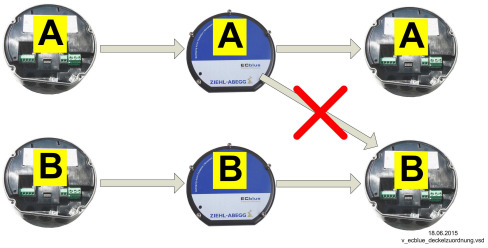


1 Cover of controller housing
2 Version with cable glands 3 x M20x1.5
inserted: 1 x Black seal insert for cables with 8...12 mm outer diameter
inserted: 2 x Blue seal insert for cables with 6...7.9 mm outer diameter
optional: 2 x Black seal insert for cables with 8...12 mm outer diameter
optional: 1 x Blue seal insert for cables with 6...7.9 mm outer diameter
optional: 1x Seal insert with 2 boreholes (6 mm) for two cables
3 Version with cable glands 3 x M16x1.5
inserted: 3 x Seal insert for cables with 4...10 mm outer diameter
optional: 1 x Seal insert with 2 boreholes (5 mm) for two cables
4 Status LED
5 Connection control system
6 Cable entry points with plastic fastener
7 Connection Relays
8 Voltage supply
9 Slot for AM auxiliary module ("add-on" module function)
10 Slot for AM-STICK-WB

Procedure:

1. Remove the cover from the controller housing for the connection.
2. All 3 cable entry points are in a sealed condition at delivery. Remove plastic fastener if necessary, and insert enclosed cable glands, entry points that are not used must remain sealed!
3. Insert and connect lines correctly (note the respective connection diagram).
4. Attach cover of controller housing again carefully in correct position before start-up.

Attention!
The seal of the end cap can adopt the contour of the stator bushing in time.
Therefore mount the cover on the same motor that it was removed from to achieve maximum tightness.



Do not mix the covers!

Attention!

- Temperatures up to 80 °C can be present on the controller housing.
- To connect, always use heat resistant wires or, as an alternative, silicon tubes.
- Only use lines which can guarantee a permanent seal around the cable glands (pressure-resistant, dimensionally-stable, round-centred jacket; e.g. by means of gusset filling)! Lines with filling fleece are not permissible because moisture can penetrate due to the capillary effect!
- Make absolutely sure that different connections do not come into contact (e.g. by splaying or loose connecting wires).
- Remants from installation and foreign object may not remain on the inside!
  Remants from installation, foreign objects and dirt has to be removed from the sealing area between cover and controller housing!

Tightening torques M_A

	Thread size	**Tightening torques M_A**		**Remarks**
		[Nm]	[Lb In]	
Plastic cable gland	M16x1.5	2.5	22	Sealing area for cables with outer diameter 4…10 mm
Plastic cable gland	M20x1.5	4	35	Sealing area with black seal insert for cables with outer diameter 8…12 mm Sealing area with blue seal insert for cables with outer diameter 6…7.9 mm
Brass cable gland	M16x1.5	5	44	Sealing area for cables with outer diameter 5.5…10 mm
Brass cable gland	M20x1.5	6.5	58	Sealing area for cables with outer diameter 6…12 mm
Locking screw	M16x1.5 M20x1.5	2.5	22	Slotted screwdriver
Cover of controller housing *	M4	2.5	22	
Protective earth connection *	M4	2.5	22	
Fastening add-on module *	M4	1.2	11	
Terminals add-on module *	M2	0.24	2.2	

* *Recommended tightening speed maximum 400 min^{-1}*

Connection data of terminals

Terminal	Voltage supply	Brake control	Add-on module AM-
Stripping length	15 mm	10 mm	4 mm
Conductor cross-section rigid min.	0.2 mm^2	0.2 mm^2	0.2 mm^2
Conductor cross-section rigid max.	10 mm^2	1.5 mm^2	1.5 mm^2
Conductor cross-section flexible min.	0.2 mm^2	0.25 mm^2	0.2 mm^2
Conductor cross-section flexible max.	6 mm^2	1.5 mm^2	1.5 mm^2
Conductor cross section flexible with wire end ferrule without plastic sleeve min.	0.25 mm^2	0.25 mm^2	0.25 mm^2
Conductor cross section flexible with wire end ferrule without plastic sleeve max.	6 mm^2	1.5 mm^2	0.75 mm^2
Conductor cross section flexible with wire end ferrule with plastic sleeve min.	0.25 mm^2	0.25 mm^2	0.25 mm^2
Conductor cross section flexible with wire end ferrule with plastic sleeve max.	4 mm^2	1.5 mm^2	0.75 mm^2
Conductor cross-section AWG/kcmil min.	24	24	28
Conductor cross-section AWG/kcmil max.	8	16	16
The data refer to the connection possibilities of the terminals. The necessary conductor cross section must be dimensioned according to the respective prevailing conditions.			

UL: note for cable entrances
According to UL the attached locking screws (made of plastic) are acceptable for transport.
According to UL the supplied cable glands can be used without conduit when they are being used in an installation according to **NFPA79**.

5.1.1 Assembly notes for cable glands

Correct use of the cable glands is of crucial importance for high operational reliability; note the following instructions.

Construction of a cable gland

1. O-ring
2. Collar with connecting thread
3. seal insert
4. Union nut

Attention!
If the tightening torque of the cable gland is too low or too high, this prevents the O-ring from having sufficient contact with the housing and the seal insert on the cable. This results in leaks and/or poor strain relief on the cables.

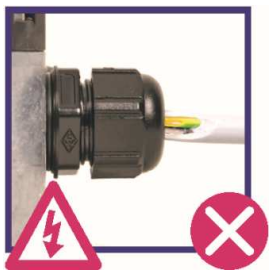
Fitting cable glands

- ▷ Select the size of the cable gland and the seal insert to match the outer diameter of the cable.
- ▷ Check the housing for damage in the area of the sealing surface before installing the cable gland.
- ▷ Ensure that the O-ring and seal insert are fitted.
- ▷ Place the cable gland at a right angle on the housing and screw in.

Inserting the cable, tightening method

- ▷ Tighten the collar to the specified torque with a suitable torque wrench.
- ▷ Insert the cable through the cable gland into the housing.
- ▷ Fit the union nut by hand and tighten slightly.
- ▷ Tighten the union nut to the specified torque of the cable gland using the torque wrench.
- ▷ To insert two cables through one cable gland, use a seal insert with 2 boreholes.
- ▷ The seal insert supplied can only be used for a limited range of cable diameters. It is also possible to use seal inserts with a different inner diameter.

Seal insert for 2 cables

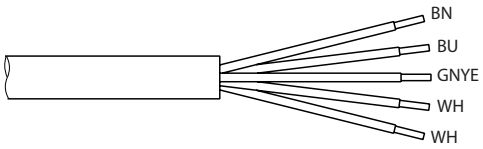
<table>
<tr>
<td> 
2 x black
Sealing area 8…12 mm</td>
<td> 
1 x blue
Sealing area 6…7.9 mm</td>
<td>Version with cable glands 3 x M20x1.5
▷ As delivered, the 3 enclosed cable glands are fitted with one black seal insert and two blue seal inserts.
▷ In addition, two black and one blue seal inserts are included separately, and can be used if required.
Sealing areas
Black seal insert: For cables with 8…12 mm outer diameterBlue seal insert: For cables with 6…7.9 mm outer diameter</td>
</tr>
<tr>
<td>  </td>
<td>  </td>
<td>Cables and installation position
▷ Depending on the installation position and load, run the connecting cables to the cable gland from below or fit a water draining pipe elbow.</td>
</tr>
<tr>
<td>  </td>
<td>  </td>
<td rowspan="2">Notes
▷ Do not use any additional cable sheathing (e.g. with insulating tape or shrink hose) in the area of the sealing ring.
▷ The cable must be dry and free of contamination (grease, dust or other impurities).
▷ Use of a damaged cable is not allowed.
▷ Two lines may only be fed through one cable gland with a sealing insert for two lines.
▷ When using the seal insert for two cables it is not permissible to use the corresponding cable gland with only one cable.
▷ Only use cables with a cylindrical cross-section. For other cross-sections (e.g. ribbon cables), special seal inserts are required.</td>
</tr>
<tr>
<td>  </td>
<td>  </td>
</tr>
</table>

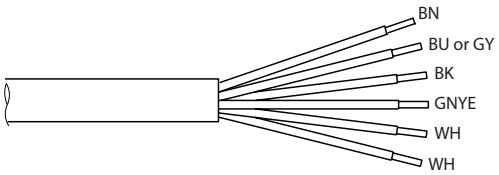
5.2 Version with connection cables

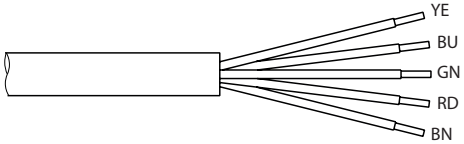
Information

- In versions with connecting leads the connection is made to the colour coded wires. Note the cable bands on the connecting leads and the respective connection diagram.
- The type, length, colour coding and connection assignment of the connecting leads may vary depending on the version.
- Read the following chapter “Version without connection cables” for a new connection to the terminals in the terminal compartment.

ECblue BASIC connection version example

1 ~ ECblue, for line and relay: hose cable 5 x 1.5 mm² (LiF9Y11Y-JB)			
	brown	L1	Line
	blue	N	
	green-yellow	PE	
	white	11	Relay
	white	14	K1

3 ~ ECblue, for line and relay: hose cable 6 x 1.5 mm² (LiF9Y11Y-JB)			
	brown	L1	Line
	blue or grey	L2	
	black	L3	
	green-yellow	PE	
	white	11	Relay
	white	14	K1

1 ~ and 3 ~ ECblue, for control: hose cable 5 x 0.5 mm² (LiF9Y11Y-0B)			
	yellow	E1	Analog In 1
	blue	GND	
	green	D1	Digital In 1
	red	10V	DC Out
	brown	24V	DC Out

5.3 Version with connection via M12 connector

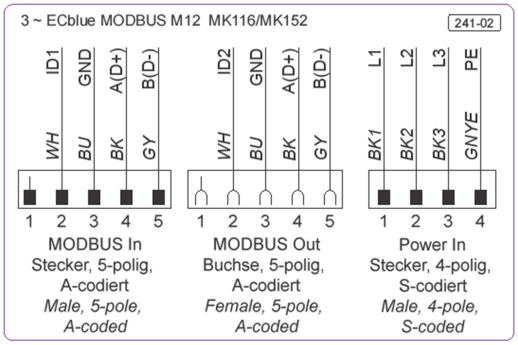
Information

- When assembling the connecting cables with M12 connectors, refer to the connection diagrams with pin assignment supplied and the connection diagram contained in the instructions (depending on connection version).
- The type, count, coding and pin assignment of the plug connections may vary depending on the version.
- Tighten the ring nut on the side of the connecting cable hand tight to lock the plug connection.
- **It is not necessary to remove the lid for the connection.**

Example: Connection version 3 ~ ECblue BASIC-MODBUS with automatic addressing

1 *Mains voltage*
2 *MODBUS Out (PORT 2)*
3 *MODBUS In (PORT 1)*

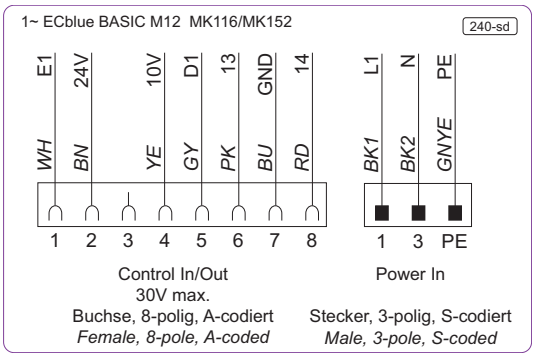
Pin assignment of plug connections



Example: Connection version 1 ~ ECblue BASIC with input 0...10 V

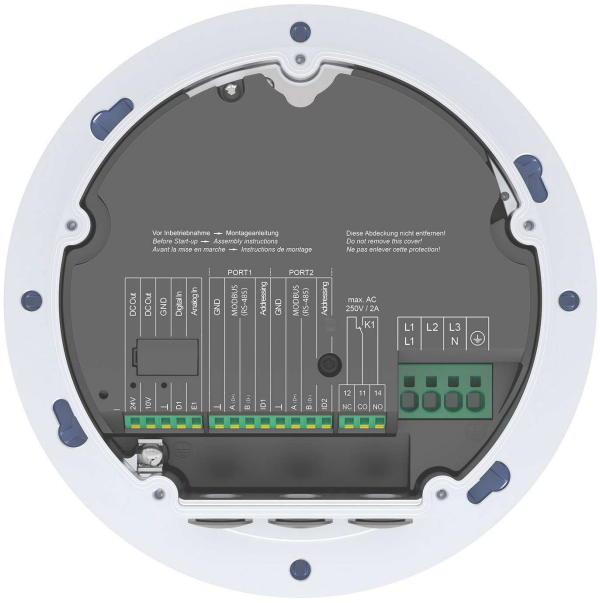
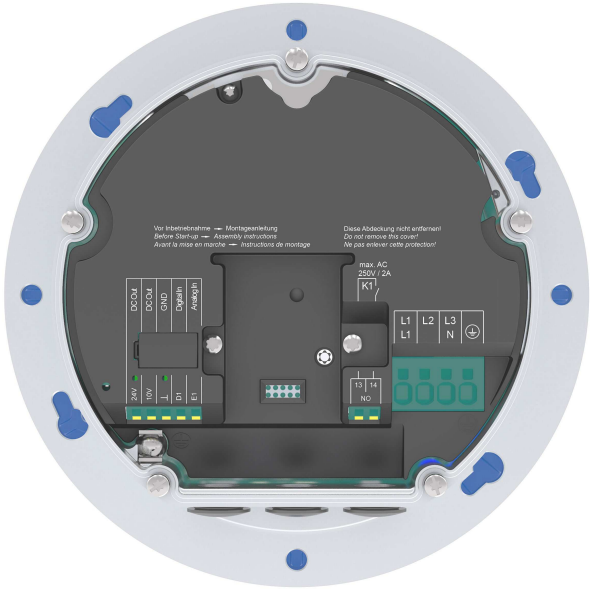
1 *Mains voltage*
2 *Control*

Pin assignment of plug connections



5.4 Connection versions

Each version can be supplied with an integrated AM-STICK-WB Bluetooth communication module, and this option is indicated by the addition of “WB” to the type designation (see rating plate), e.g. ECblue BASIC WB.

ECblue BASIC-MODBUS (ECblue MB)	ECblue BASIC
	

Connection options	**Versions**	
	ECblue BASIC-MODBUS	**ECblue BASIC**
Analog input for rotational speed specification via analog signal, PWM signal, potentiometer	0...10 V, 0...20 mA, 4...20 mA, PWM, R 10 kΩ	0...10 V, 0...20 mA, 4...20 mA, PWM, R 10 kΩ
Bus interface for MODBUS (RS-485) with 2 ports, automatic addressing possible	X	- *
Voltage supply for external devices	10 V, 24 V	10 V, 24 V
Digital input functional programmable, factory enable (device ON/OFF)	X	X
Digital output functional programmable, factory fault indication	Changeover contact	Normally open contact (NO)
Slot for auxiliary module with universal control function or for integration into different networks	-	X

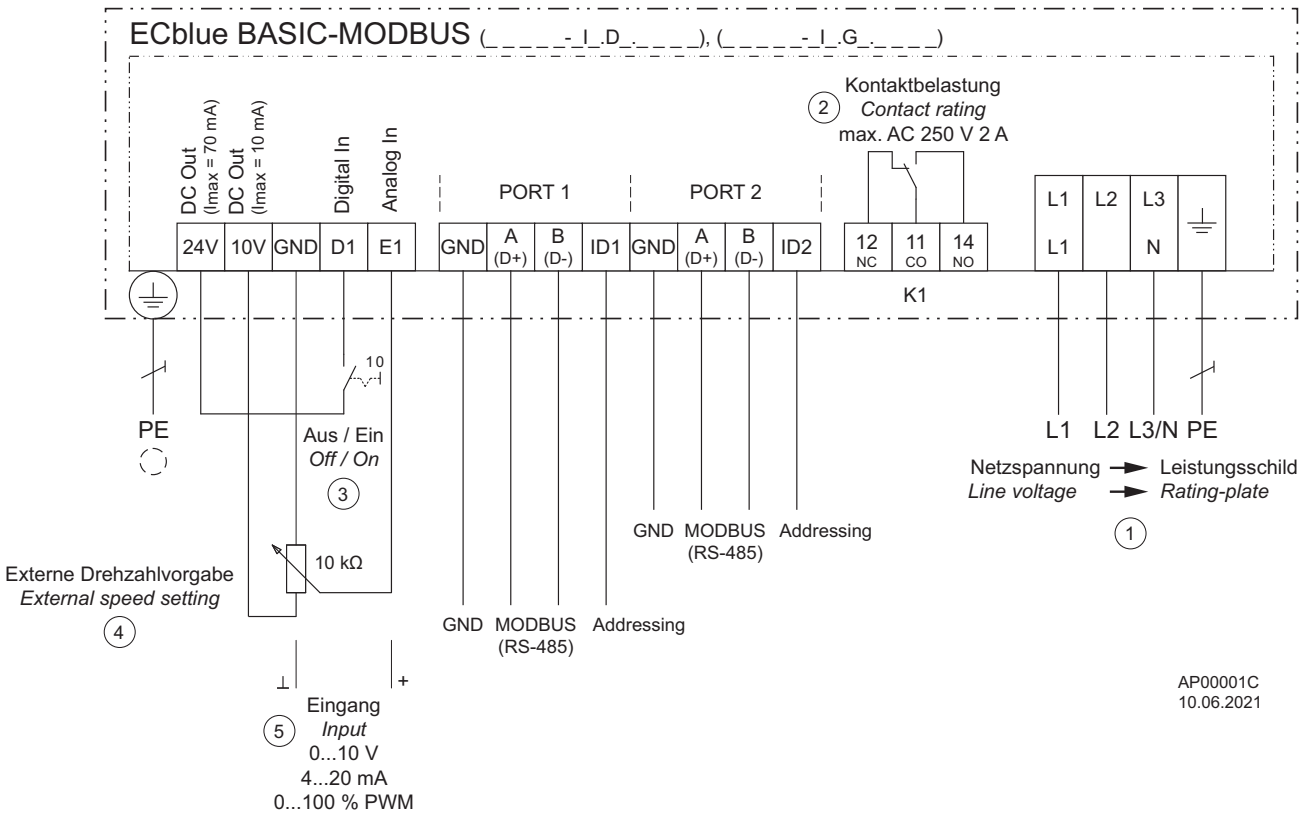
* *With AM-MODBUS auxiliary module possible*

5.5 Connection diagrams

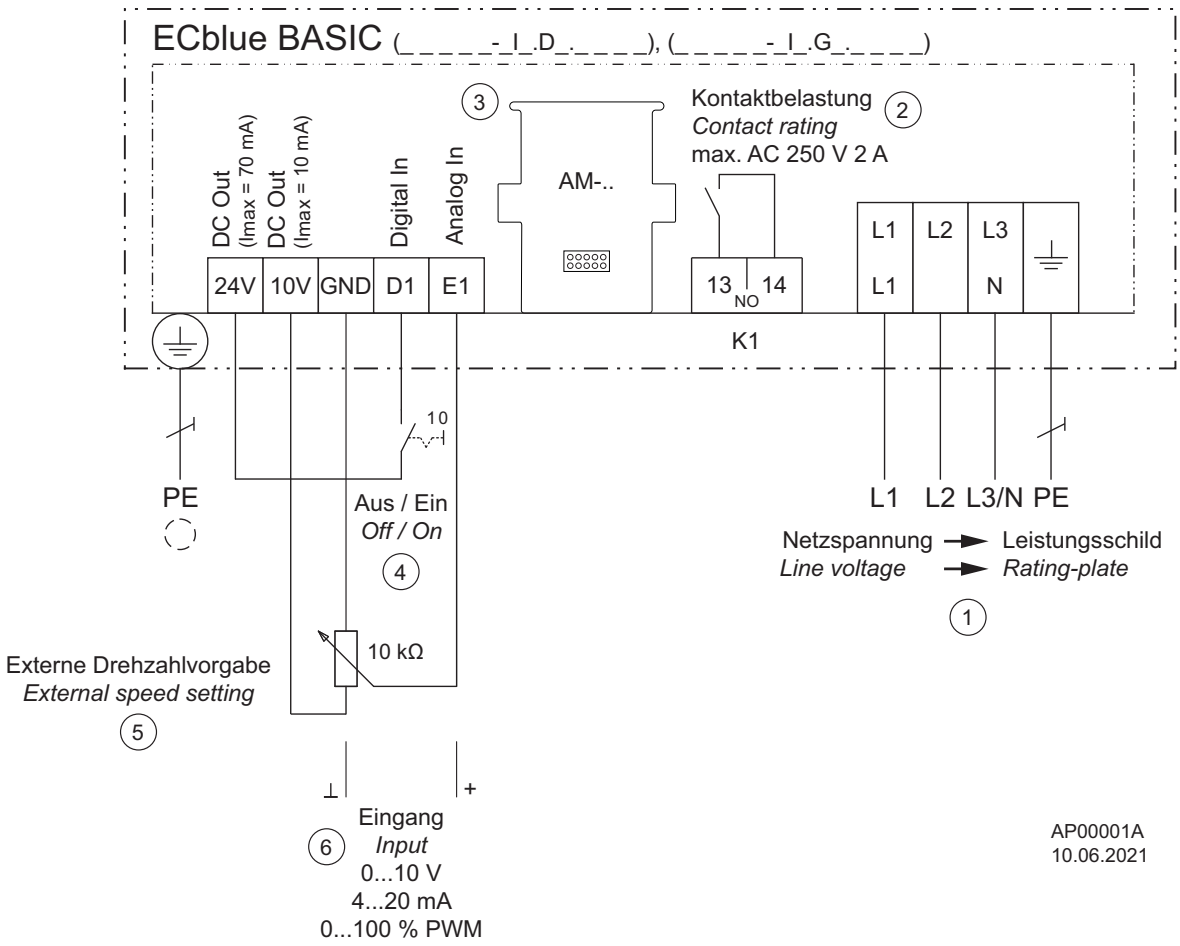
Note the following information and select the correct connection diagram for the relevant version.

UL: Input (Line)
Copper connecting leads with an insulation temperature of at least 80 °C must be used!

Initialisation time for relay
After switching on the line voltage, an initialisation time of a maximum 7.5 seconds is required for the device's electronics to be operational. Subsequently, a reliable status message will be possible. If no malfunction is detected, the relay will be energised after the initialisation time.



1 Line voltage see rating plate
2 Relay output "K1" for fault reporting (factory function), max. contact load AC 250 V 2 A
- During operation the relay is energised, i.e. the connections "11" and "14" are bridged
- In case of a fault, the relay is de-energised, i.e. the connections "11" and "12" are bridged
- In case of a shutdown using the enable (D1 = Digital In 1) the relay remains energised
3 Digital enable input (factory function)
- Device "ON" when contact closed
- Device "Off" when contact open
4 External speed setting
5 Input 0...10 V, 4...20 mA, 0...100 % PWM



1 Line voltage see rating plate
2 Relay output "K1" for fault reporting (factory function), max. contact load AC 250 V 2 A)
- During operation the relay is energised, i.e. the connections "13" and "14" are bridged
- In case of a fault, the relay is de-energised
- In case of a shutdown using the enable (D1 = Digital In 1) the relay remains energised
3 Slot for AM-add-on module
4 Digital enable input (factory function)
- Device "ON" when contact closed
- Device "Off" when contact open
5 External speed setting
6 Input 0...10 V, 4...20 mA, 0...100 % PWM

6 Commissioning

6.1 Prerequisites for commissioning

Attention!

- During commissioning, unexpected and hazardous conditions can arise in the entire installation due to defective adjustments, defective components or incorrect electrical connections. Remove all persons and objects from the hazardous area.
- Do not start the fan until all safety instructions (EN 50110, IEC 60364-1)have been checked, the fan is out of range (EN ISO 13857)and danger can be ruled out.
- A-rated sound power levels of over 80 dB(A) are possible, see product catalogue.

Before first-time start-up, check the following:

1. Installation and electrical connection have been properly completed?
2. Has any leftover installation material and other foreign material been removed from the fan area?
3. That safety devices -if necessary- are mounted (EN ISO 13857)?
4. The impeller is out of reach?
5. Are the drain holes (as far as available) open or respectively closed according to the suitable installation position?
6. Connection data complies with the specifications on the rating plate?

During start-up check the following:

1. Check the direction of rotation (see rotation direction arrow on the fan blade, impeller base plate or support plates on suction side or rating plate).
2. Check for quiet, low vibration operation. Strong vibrations due to erratic operation (unbalanced), e.g. caused by transportation damage or improper use, can lead to failure.
3. If resonance vibrations occur, it is possible to hide certain speed ranges (see Motor Setup).
4. Check the system for resonances. If they lead to unacceptably high vibrations on the fan, the system must not be started up.
5. Fans from ZIEHL-ABEGG SE are delivered balanced in accordance with DIN ISO 21940-11 for the appropriate fan category in accordance with ISO 14694 Check the fan for mechanical vibrations after installation. If the limit values of the corresponding fan category are exceeded in start-up, you must have the motor/impeller unit checked by an expert and rebalanced if necessary before continuous operation is permitted.

7 AM-STICK-WB

7.1 Bluetooth communication module AM-STICK-WB (option)

Available with integrated AM-STICK-WB Bluetooth communication module on request, and this option is indicated by the addition of "WB" to the type designation (see rating plate), e.g. ECblue BASIC WB.
Alternatively, you can purchase the AM-STICK-WB communication module as an accessory and upgrade.

Attention!

- The module, and therefore also the end device in which it is installed (fan/frequency inverter), is not designed for use in life-sustaining devices or systems where a malfunction can lead to serious personal injury.
- It is not permissible to use the module, or the end device in which it is installed, as a critical component if the failure or malfunction of the component can impair the safety or functionality of life-sustaining devices.
- Customers who sell or use these ZIEHL-ABEGG products for these applications do so at their own risk. They undertake to reimburse ZIEHL-ABEGG in full for any possible costs that may occur.
- Those customers also agree to assign a new and secure access code (PIN) during the installation of the module device. They are required to disclose the access code to their customers.

7.2 Function

The AM-STICK-WB includes a Bluetooth LE (BLE) module that enables the user to take advantage of the 4.0+ Bluetooth technology with an Android device, iPhone, iPad or laptop.
BLE stands for **B**luetooth **L**ow **E**nergy or Bluetooth Smart as of Bluetooth version 4.0.
The “ZAset Mobile” app supplied by ZIEHL-ABEGG can be downloaded from the Google Play Store or Apple App Store.
The app requires Android devices from version 4.4 onwards and iOS devices from version 11 onwards.
In a hard-wired system, wireless communication is primarily designed to provide a second interface for communicating with the device (e.g., for configuration and diagnostics). The wireless communication uses the MODBUS protocol (MODBUS-TCP). The Bluetooth addressing takes place via the Bluetooth address.
The Bluetooth scan automatically detects all devices within range. The app can then connect with these devices via the Bluetooth address.
It is necessary to use the app to create a link between the device serial number and the AM-STICK-WB.
Unlike in the case of RS-485 communication, you can protect your device with an access code by PIN (0 - 9999) for wireless communication via the AM-STICK-WB.
During installation, it is essential to assign a dedicated secure PIN to a Bluetooth device or an associated group of Bluetooth devices.
If the PIN is set to the factory setting, the app will prompt you to change it.

Information

- You can change the PIN later in the “Controller Setup” under the“Wireless Network Key” parameter; after making a change you must re-establish the Bluetooth connection.
- The connection to the AM-STICK-WB is only possible with the correct PIN. If you have forgotten the PIN, the only option is to export it using the device MODBUS RS-485 interface.

The MODBUS address is read and displayed as part of a Bluetooth scan. This means that you can also identify the device via its MODBUS address if one has been assigned. Therefore, it is a good idea to assign a MODBUS address even if the MODBUS network is not in use.
You can change the MODBUS address via the app in the device “IO Setup”; see the “Bus Address” parameter. Then apply the same procedure to the next device.

Technical data for wireless Communication

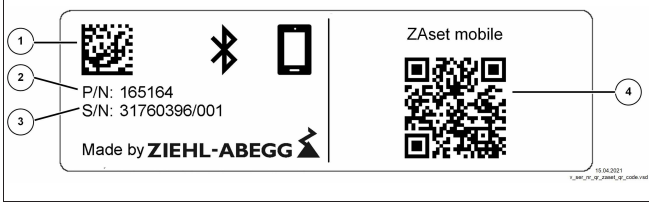
Frequency	2.4 GHz
Communications range	Approx. 10 m in rooms, up to 30 m in the free field, generally depends strongly on external influences and the installation situation. For ECblue fans with aluminum controller housing cover, the communication range is reduced by at least 50 %.

7.3 Label Datamatrix-Code serial number

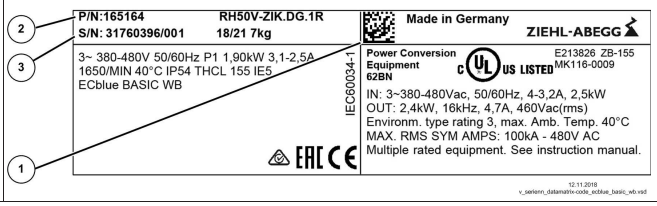
Every ZIEHL-ABEGG product (fan/inverter), supplied with a built-in AM-STICK-WB or with a slot for it, comes with an additional sticker for addressing via Bluetooth®.
This sticker is individualized for the final product. On the sticker is the serial number, which is unique to each product and matches the serial number on the product rating plate. For fans with two rating plates (GR/ER) only the rating plate on the stator flange or electronics housing has the correct serial number for Bluetooth addressing.
Attach the additional sticker at an easily accessible position and make sure that clear assignment to the relevant product is possible. This enables you to guarantee that even if the rating plate is covered up (e.g. due to the installation situation) easy commissioning and service via Bluetooth are possible.
There is also a QR code on the sticker, which is used to download the “ZAset mobile” app.
The serial number to link to the AM-STICK-WB can be entered manually or be scanned.

Example of sticker and rating plate with identical serial numbers

Additional sticker



Rating plate on the stator flange or electronics housing



1 Serial number data matrix code (only the code on the additional adhesive label has the necessary size for scanning the serial number)
2 Article number Product
3 Serial number for manual entry
4 QR code for ZIEHL-ABEGG website to download the “ZAset mobile” app

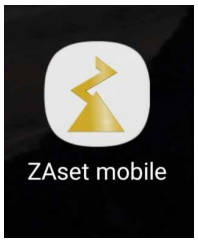
Information
When simultaneously unpacking multiple products, make sure the enclosed stickers remain with the relevant product and do not get mixed up.

7.4 Establishing the Bluetooth connection

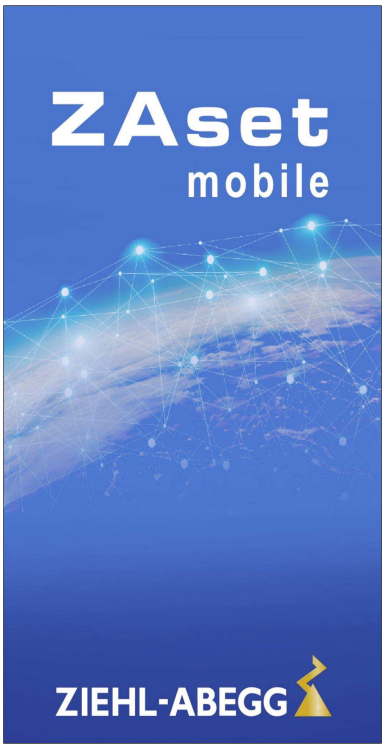
Proceed as follows:

▷ Depending on your device, download and install the "ZAset mobile" app from Google Play Store or Apple App Store.
▷ Switch on the line voltage to the fan/frequency converter in compliance with the safety instructions.
▷ Activate the Bluetooth connection on the mobile device (smartphone). Additionally allow location determination in Android.
▷ Start the app.

Icon of the app



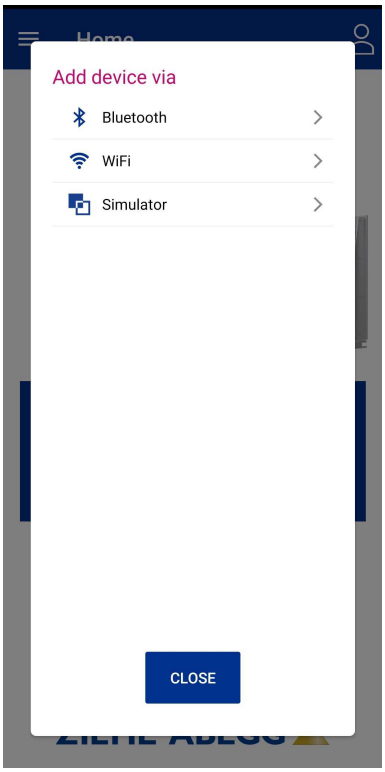
Intro



▷ Tap the “Add device” button and select Bluetooth to create a system with a Bluetooth LE data connection.
ZAset checks whether Bluetooth is activated on your smartphone, and prompts you to activate it if necessary.

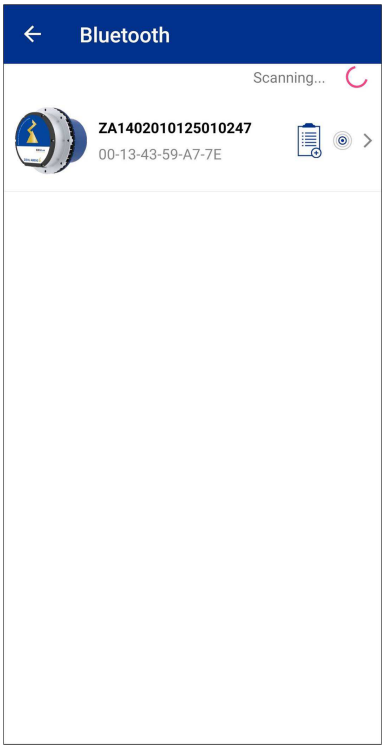
Main page

Choose Bluetooth

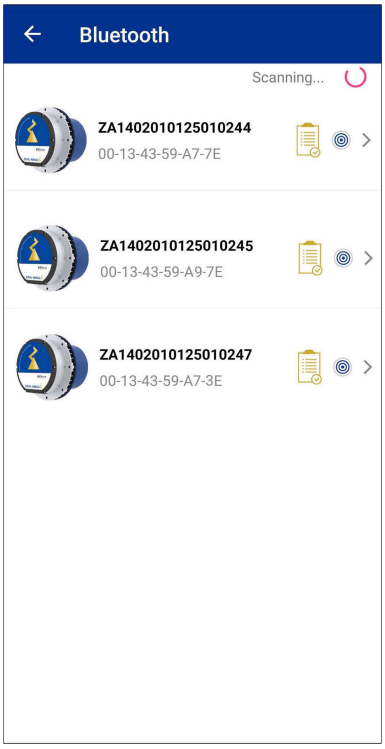


▷ ZAset then starts searching for devices in range and adds compatible devices to a list.

Scanning process



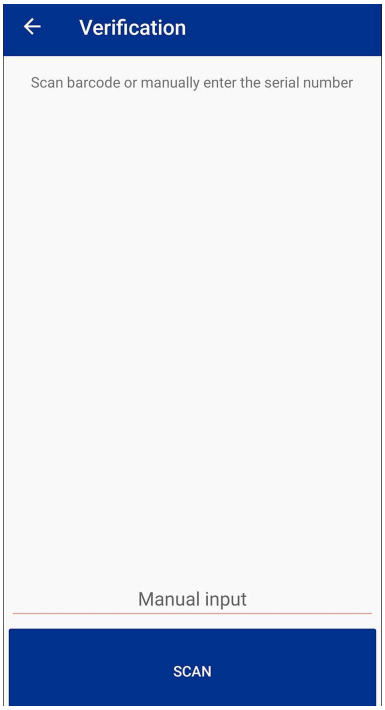
3 Connections made



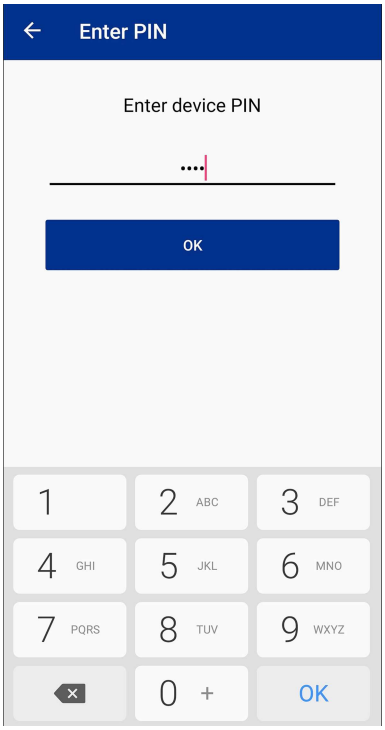
▷ Briefly tap the desired device in the list to select it. ZAset mobile then immediately establishes a data connection with this device.
▷ As soon as a connection to the device is established, a two-stage authentication process is initiated.

▷ First stage: Binding (linking AM-STICK-WB with device serial number).
The app checks whether the MAC address of the stick has already been assigned a serial number. If not, a dialog automatically opens to link with the serial number. If a binding already exists, you have to enter the PIN (see second stage).
The serial number can either be entered manually by reading it off and entering it in a text field or by scanning the data matrix code (see additional adhesive label).
▷ Second stage: Access code (PIN)
Enter the PIN 9999 (factory setting) and confirm with “OK”.

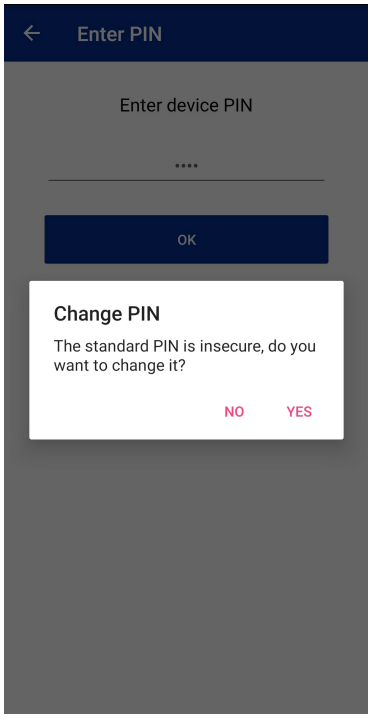
First stage: enter serial number



Second stage: Enter PIN 9999

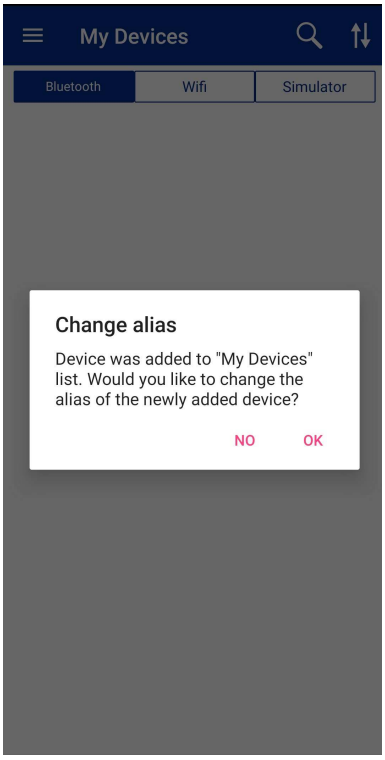


▷ Set a new PIN to prevent unauthorised access.

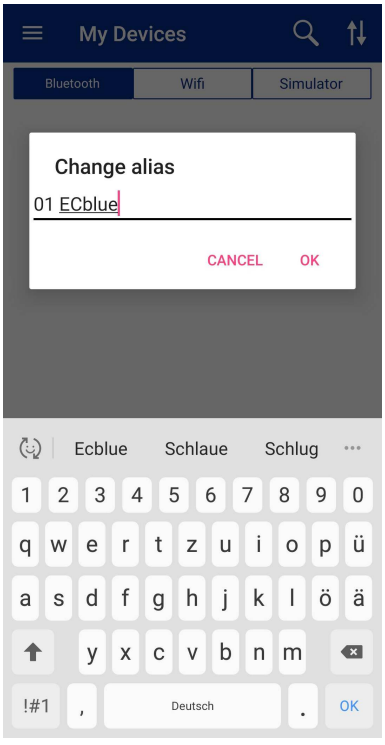


▷ If required, enter a name of your choice (alias).

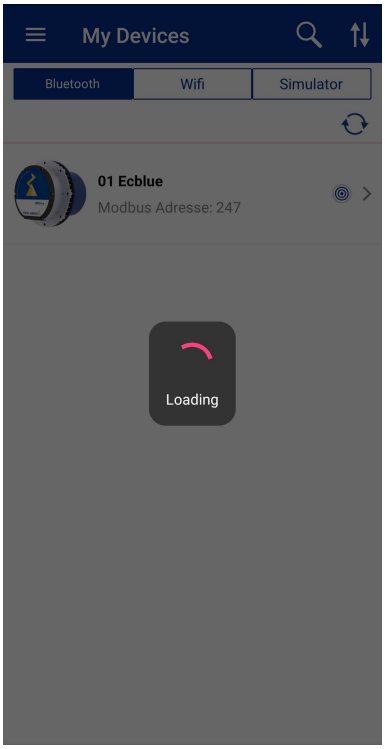
Change alias



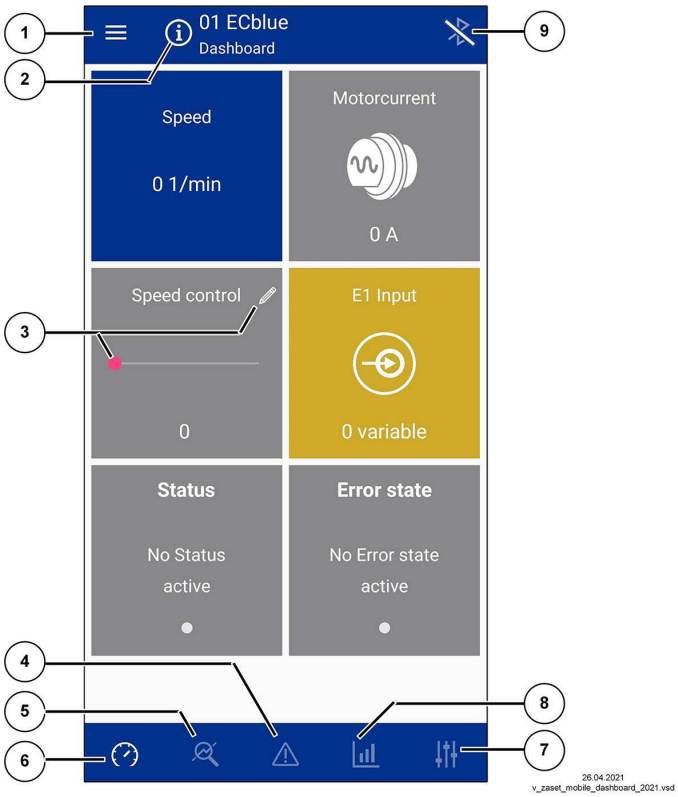
Example: 01_ECblue



▷ Touch the device's button to establish a connection.



▷ Display of actual values on the dashboard when the connection is successful. Buttons for subsequent operation can be found on the dashboard.

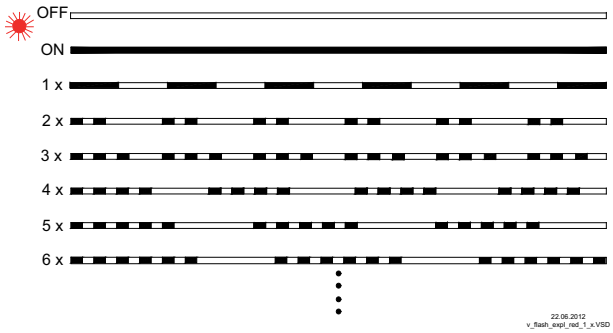


1 Menu: Start, List my devices, Settings
2 Info: BLE vesion, MODBUS address, identification etc.
3 Speed control via slider or variable
4 Error history
5 Analysis
6 back to Dashboard
7 Parameter
8 Statistics
9 Disconnecting the Bluetooth connection

8 Diagnostics / Faults

Status output with flashing code

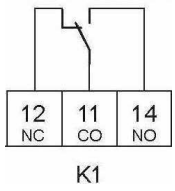
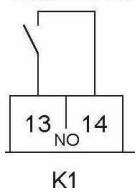
Vision panel for status LED in the case of plastic cover design



LED Code	Relays K1*	Cause Explanation
OFF	**0**	No voltage supply.
ON	**1**	Normal operation without fault
1 x ——	**1**	No enable = OFF
2 x –	**1**	Temperature management active
3 x –	**0**	Error rotor position
4 x –	**0**	Line failure (only for 3 ~ types)
5 x –	**0**	Motor blocked
6 x –	**0**	Failure power module
7 x –	**0**	DC link undervoltage
8 x –	**0**	DC link overvoltage
9 x –	**1**	Cooling down period power module
10 x –	**0**	Communication fault
11 x –	**0**	Error motor start
12 x –	**0**	Line voltage too low
13 x –	**0**	Line voltage too high
14 x –	**0**	Error peak current
17 x –	**0**	Temperature alarm
18 x –	**0**	System error
20 x –	**0**	Vibration values/Lifetime
21 x –	**0**	Error PFC-Control (only for version with 3 ~ PFC)
∞ x –	**0**	Internal communication error
1 x —— 2 x –	**1**	MODBUS Recovery Function

* *Relays K1 programmed function at factory (Fault indication not inverted)*
0 Relays de-energized
1 Relays pulled up

Display for relay K1 de-energised = “0”

Changeover contact for ECblue BASIC-MODBUS	NO contact in ECblue BASIC
	

9 Enclosure

9.1 Technical data

Line voltage* (see rating plate)	1 ~ 200...277 V, 50/60 Hz 3 ~ 200...240 V, 50/60 Hz 3 ~ 380...480 V, 50/60 Hz 3 ~ 200...480 V, 50/60 Hz (Versions for DC power supply on request)
Maximal line fuse**	16 A for all types 1 ~ and 3~
Max. load limit integral of cut-in current approx.	2.0 A^2s
Switching Freq.	16 kHz
Input resistance for signal set for the rotational speed	@ 0...10 V: R_i = 300 kΩ @ 4...20 mA: R_i = 350 Ω @ PWM: R_i = 3 kΩ
Specification speed setting signal PWM	Switching frequency: 1...10 kHz On-off ratio: 0...100 % U_{in} high level: 15...28 V U_{in} low level: 0...10 V
Voltage supply for external devices	+10 V, I_{max} 10 mA (short-circuit-proof)
	+24 V ±20 %, I_{max} 70 mA (short-circuit-proof)
Digital input “D1”	Input resistance: R_i approx. 4 kΩ @ 24 V U_{in} high level: 7...30 V U_{in} low level: 0...2 V
Duty type of motor/fan	Continuous operation with occasional starts (S1) according to DIN EN 60034-1:2011-02. Occasional starting between -35 °C and -25 °C is permissible. Continuous operation below -25 °C only with special bearings for refrigeration applications on request.
Permissible minimum and maximum ambient temperature for operation	Please refer to the technical documentation of the product for the minimum and maximum ambient temperature valid for the respective fan. Operation below -25 °C as well as partial load operation for refrigeration applications is only possible with special bearings for refrigeration applications on request. If special bearings for refrigeration applications are installed in the fan, please observe the permissible maximum temperatures in the technical documentation of the product. To avoid condensation the drive must be continuously energized due to the application of heat, with interruptions such that cooling to the point of condensation does not occur.
Permissible temperature range for storage and transport	-40...+80 °C
Permissible installation height	In “Constant speed mode” 0...4000 m amsl ≤ 1000 m: no limitation > 1000 m: max. permissible input current = current indication rating plate minus 5 % / 1000 m > 2000 m: max. permissible line voltage = max. voltage indication name plate minus 1.29 % / 100 m
	In “Constant torque mode” 0...4000 m amsl Max. permitted specification signal = 10 V (100 % PWM, 20 mA, MODBUS) minus 2.3 % / 1000 m > 2000 m: max. permissible line voltage = max. voltage indication name plate minus 1.29 % / 100 m
Permissible rel. humidity	The motor is released for a relative humidity of 100 % at continental climate without other ambient influences. Other ambient conditions on request.

Ball bearing life	The bearing service life of the motor-integrated ball bearings determined in accordance with the standard calculation method is largely determined by the grease service life F10h and is approx. 30,000 to 40,000 operating hours in standard use, taking into account a temperature and load spectrum. The fan or motor is maintenance-free due to the use of ball bearings with life-time lubrication. Once the grease service life F10h has been reached, it may be necessary to change the bearing. The bearing service life may change compared to the specified value if operating conditions such as increased vibrations, increased shocks, increased or excessively low temperatures, humidity, dirt in the ball bearing or unfavourable control modes are present. A service life calculation for special applications can be created on request.
Electromagnetic compatibility for the standard voltage 230 / 400 V according to IEC 60038	Interference emission EN 61000-6-3 (domestic household applications)
	Interference immunity EN 61000-6-2 (industrial applications)
Harmonics current	**For 1 ~ types and 3 ~ types with PFC** Active power factor adjustment for sinusoidal input current (PFC = Power - Factor - Correction), harmonic current in accordance with EN 61000-3-2 are guaranteed.
	For 3 ~ types without PFC According to EN 61000-3-2 (see Assembly instructions / Electrical installation / EMC-compatible installation / Harmonics current for 3 ~ types without PFC).
Contact rating of the internal relay	AC 250 V 2 A
Max. leakage current according to the defined networks of EN 60990	< 3.5 mA
dB(A) values	see product catalogue
Protection class of motor according to EN 60529	IP55
Weight	see rating plate

* *In terms of the mains connection, according to the applicable standard EN 61800-3 these devices are classed as category "C2" equipment. The increased requirements for interference emissions > 2 kHz for category "C1" devices are also met.*

** *Max. line fuse on site (line protection fuse) according to EN 60204-1 Classification VDE0113 Part 1 (see also Assembly instructions / Electrical installation / Voltage supply / Line protection fuse).*

For motors/fans with the corresponding quality mark (see rating plate)		
Authorization:	FILE No. E213826	UL 61800-5-1 CAN/CSA C22.2 No. 274
	c UL us LISTED	Power Conversion Equipment 62BN
Environmental type rating: 3		

For motors/fans with the corresponding quality mark (see rating plate)		
Authorization:	FILE No. E213826	UL 61800-5-1 CAN/CSA C22.2 No. 274
	c UL us	Power Conversion Equipment 62BN
Environmental type rating: 3		

9.2 EC Declaration of Incorporation

- Translation -
(english)

ZA87-GB 2022/17 Index 012

as defined by the EC Machinery Directive 2006/42/EC, Annex II B

The design of the partly completed machine:

Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., VN.., VR.., ZC.., ZF.., ZG.., ZN..Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..Cross-flow fan QD.., QG.., QK.., QR.., QT..,

Motor type:

Induction internal or external rotor motor (also with integrated frequency inverter)Electronically commutated internal or external rotor motor (also with integrated EC controller)

Complies with the requirements in Appendix I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 in EC Machinery Directive 2006/42/EC.

Manufacturer: **ZIEHL-ABEGG SE**
Heinz-Ziehl-Straße
74653 Künzelsau, Germany

The following harmonized standards have been applied:

EN 60204-1:2018	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 13857:2019	Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
Note:	Compliance with EN ISO 13857:2019 relates only to the installed contact protection if it is part of the scope of delivery.

The special technical documents in accordance with Appendix VII B have been created and are available in full.

The following persons are authorized to compile the technical documents, address see above.

Upon reasonable request, the special documents shall be transmitted to the public authority. The transfer can be made electronically, on data carriers or on paper. All property rights remain with the aforementioned manufacturer.

Start-up of this incomplete machine is prohibited until it is ensured that the machine in which it has been installed complies with the provisions of the EC Machinery Directive.

Künzelsau, 27.04.2022
(Location, date of issue)

ZIEHL-ABEGG SE
Tobias Gauss
Deputy Head of Technics Ventilation Technology
(name, function)

(signature)

ZIEHL-ABEGG SE
Moritz Krämer
Head of Electrical Systems
(name, function)

(signature)

9.3 UKCA Declaration of Incorporation

- Original -
(english)

ZA87_UK-GB
2022/17 Index 002

as defined by the Supply of Machinery (Safety) Regulations 2008
No. 1597, PART 2 / Annex II B

The design of the incomplete machine:

Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., VN.., VR.., ZC.., ZF.., ZG.., ZN..Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..Cross-flow fan QD.., QG.., QK.., QR.., QT..,

The motor type:

Asynchronous internal or external rotor motor (also with integrated frequency inverter)Electronically commutated internal or external rotor motor (also with integrated EC controller)

complies with the requirements in Annex I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 in Supply of Machinery (Safety) Regulations 2008 No. 1597.

The manufacturer is **ZIEHL-ABEGG SE**
Heinz-Ziehl-Straße
D-74653 Künzelsau

The following harmonised standards have been used:

EN 60204-1:2018	Safety of machinery; electrical equipment of machines; Part 1: General requirements
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13857:2019	Safety of machinery; safety distances to prevent danger zones being reached by the upper limbs
Note:	The maintenance of the EN ISO 13857:2019 relates only to the installed accidental contact protection, provided that it is part of the scope of delivery.

The specific technical documentation in accordance with Annex VII B has been written and is available in its entirety.

The following persons are authorized to compile the technical documents, address see above.

The specific documentation will be transmitted to the official authorities on justified request. The transmission can be electronic, on data carriers or on paper. All industrial property rights remain with the above-mentioned manufacturer.

It is prohibited to commission this incomplete machine until it has been secured that the machine into which it was incorporated complies with the stipulations of the Machinery (Safety) Regulations.

Künzelsau, 27.04.2022
(location, date of issue)

ZIEHL-ABEGG SE
Tobias Gauss
Deputy Head of Technics Ventilation Technology
(name, function)

(signature)

ZIEHL-ABEGG SE
Moritz Krämer
Head of Electrical Systems
(name, function)

(signature)

9.4 Manufacturer reference CE

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

ZIEHL-ABEGG SE
Heinz-Ziehl-Straße
74653 Künzelsau
phone: +49 (0) 7940 16-0
info@ziehl-abegg.de
http://www.ziehl-abegg.com

9.5 Service note

If you have any technical questions while commissioning or regarding malfunctions, please contact our technical support for control systems - ventilation technology.
phone: +49 (0) 7940 16-800
Email: fan-controls-service@ziehl-abegg.de

Our worldwide contacts are available in our subsidiaries for deliveries outside of Germany, see www.ziehl-abegg.com.