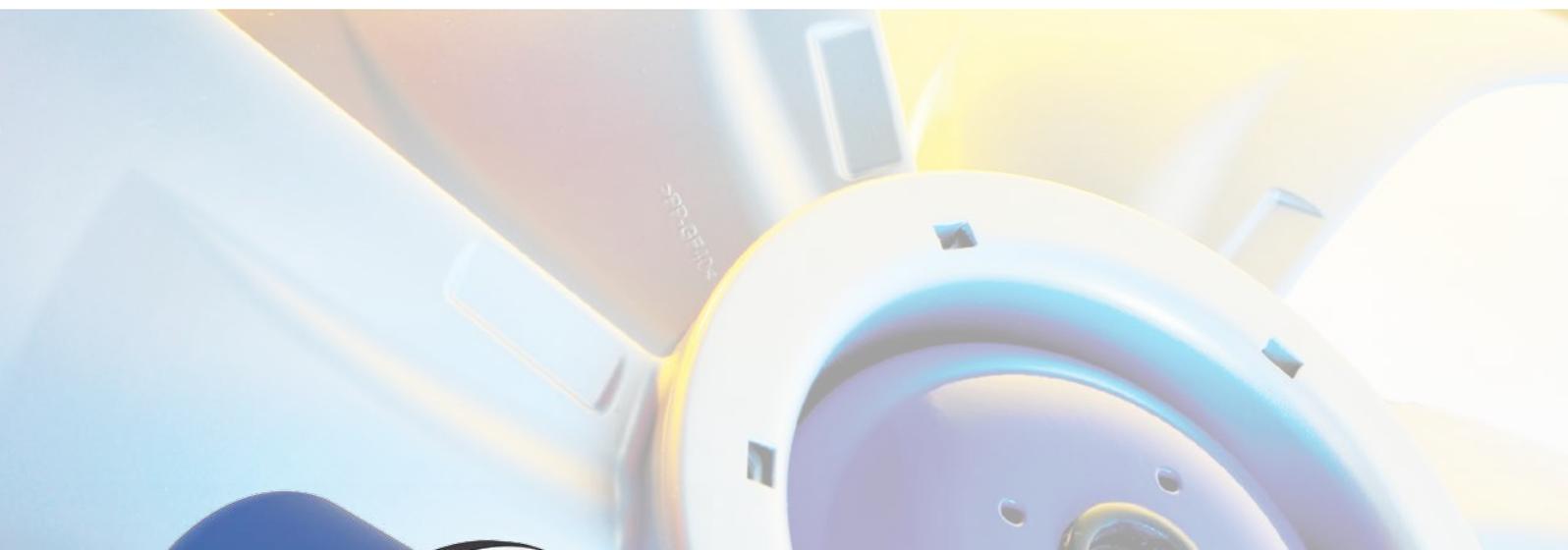


Movement by Perfection



The Royal League in ventilation, control and drive technology



## ECblue high-efficiency motors

The complete range for axial and centrifugal fans

# Choose efficiency:

## The innovative range of ECblue motors.

Save energy, time and effort. Benefit from both the cost-effectiveness of our high-efficiency motors and the depth of our product range. We are your one-stop shop, with a unique variety of motors and fans, control technology and Add-On modules for upgrading to the functionality you want. This slims down your entire workflow and makes it more profitable, from the time saving of standardised technology to the speed of logistical processing and the comfort of comprehensive advice and support.

### Minimum operating costs, maximum success

With ECblue motors from ZIEHL-ABEGG, you can reduce your energy consumption to a minimum. At the same time, you

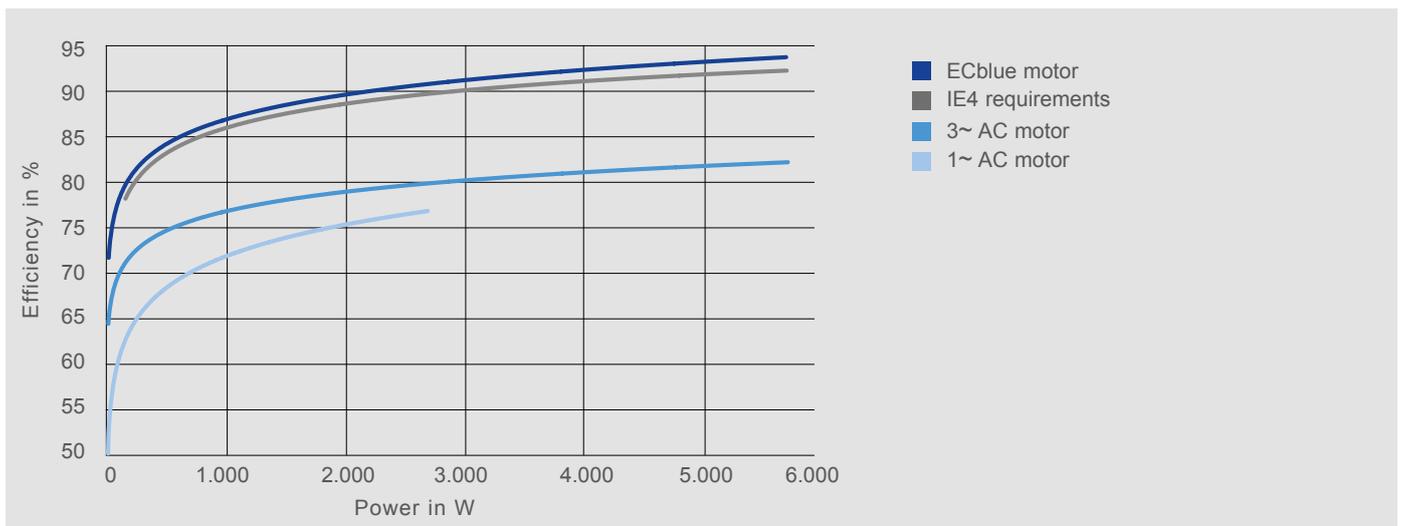
ensure that your systems meet market and customer needs for environmentally friendly technology. Naturally, ECblue motors fulfil all relevant EU energy efficiency directives. The efficiency level of ECblue motors lies above the minimum efficiency level required by the IE4 class (Super Premium Efficiency).

### Outstanding efficiency, even in partial load range

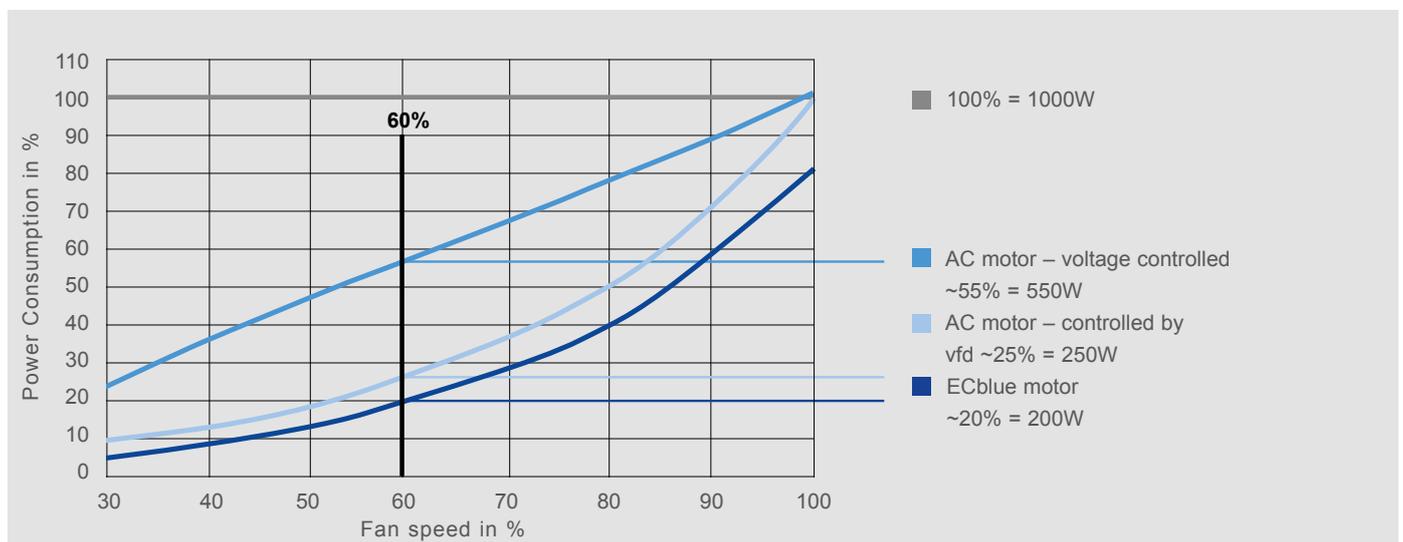
The benefits of EC technology can be seen by comparing EC and AC external-rotor motors.

ECblue motors achieve an efficiency level of up to 93%, 3~ AC external rotor motors up to 82% and 1~ AC external rotor motors up to 77%.

### Motor Efficiency Level



### Power Consumption for speed control



**ECblue high-efficiency motors give you cutting-edge technology in an extremely compact package. The motors can be connected at any time with compatible system components and are also easy and**

**convenient to operate. Combined with ZIEHL-ABEGG impellers and blades, which are equally efficient in their material and design, you benefit from a unique total package.**

Discover more:

**The innovative EC technology:**

Solutions for the future from ZIEHL-ABEGG.

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**The full product portfolio:**

ECblue high-efficiency fans

Size: 55, 74, 90, 116, 152

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**Overview:**

Centrifugal fans - Size: 175mm to 800mm

Axial fans - Size: 250mm to 1250mm

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**The complete system:**

ECblue and PMblue motors up to 15kW

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One system for all your applications

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**Application areas:**

Benefit in every respect.

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Bewegung durch Perfektion | Movement by Perfection



**ECblue**  
Premium Efficiency

**ZIEHL-ABEGG** 

# Innovative EC technology:

## Solutions for the future from ZIEHL-ABEGG

Since the middle of the 80's, ZIEHL-ABEGG has been performing pioneering work in the development and production of efficient EC external rotor motors for fans. Nearly 25 years later, a new era in EC technology begins: ECblue. ECblue is ZIEHL-ABEGG's third generation of EC motors. This latest EC technology sets new standards for control, efficiency and reliability.

These EC motors are external rotor DC motors that are fitted with permanent magnets. When the motor turns, the electronics determine the position of the rotor, which is then used to actuate the motor windings. This form of actuation is known as commutation. The inherent advantage of the compact external rotor motor is combined with the gain in efficiency resulting from the DC motor. This in turn ensures that only the exact amount of energy required to induce rotary motion is actually supplied, resulting in a highly efficient form of operation. The motor itself is not operated directly from the mains, but rather has electronics connected upstream. The electronics supply variable voltage in the right frequency and voltage level for the respective operating point. Contemporary EC motors often have these electronics integrated directly in the motor.

### Everything under control: ZAsset mobile



ZAsset

ZAsset mobile is the mobile version of the ZAsset configuration and diagnostics tool for ZIEHL-ABEGG fans and frequency inverters. It allows easy commissioning, configuration, control, monitoring and parametrisation of all the Modbus functions of a fan. As a result, ZAsset mobile provides time-saving support for rapid commissioning and for all servicing and assembly tasks.

The dashboard on a smartphone or tablet displays all relevant motor data such as speed, current, power consumption, fan condition, temperature and faults. This allows easy and low-cost monitoring of all devices. The high-speed mobile solution can not only reduce downtimes but also help to optimise maintenance and operation. These are factors that have a positive impact on cost saving and extend the service life of the fan.

ZAssetmobile makes connection easy. The app can perform a fast search for all ZIEHL-ABEGG devices in the area and connects to them once a security code has been entered. This makes ZAsset mobile an alternative solution to the A-G-247NW hand terminal and the ZAsset desktop version for Windows and rounds off the fan and control technology range.

### ECblue inside: The facts

#### Integrated power electronics

For efficient motor speed control

#### Integrated motor protections

Protects the motor and power electronics

#### Continuous speed control

0-10V, PWM signal oder Modbus

#### Outstanding efficiency

Even in partial load range

#### Active temperature management

Extremely reliable, even under the toughest operating conditions

#### Wireless communication\*

Easy to configure and read out data

#### Power factor correction

Power factor of virtually 1 across a wide operating range

#### Top EMC standard

Integrated filters enable compliance with:

Interference emission according to EN 61000-6-3

(household applications)

Interference immunity according to EN 61000-6-2 (industry)

#### ECblue: simple & functional

Even the Basic configuration provides the functionality required to cover around 90% of all applications.

#### A motor for all applications, anywhere in the world

Power electronics with wide voltage range:

1~ 100...130V, 50/60Hz

1~ 200...277V, 50/60Hz

3~ 200...240V, 50/60Hz

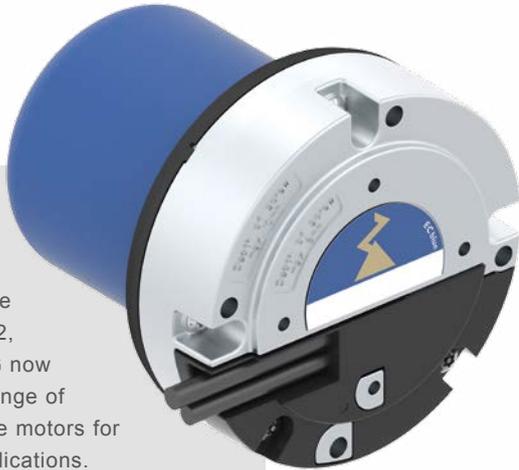
3~ 380...480V, 50/60Hz

3~ 200...480V, 50/60Hz on request



# The full product range: ECblue high-efficiency motors

With the EC055 and its proven motors in frame sizes up to 152, ZIEHL-ABEGG now offers you a range of small and large motors for all of your applications.



## EC055

### Voltage supply

- 1~ 200...240V 50/60Hz
- 1~ 100...130V 50/60Hz

Power up to 170W

Protection class IP54

Continuous speed control  
via 0-10V signal

### Final products

- ZAvblue Centrifugal fan 175 - 250mm
- Housing fan 108 - 150mm,  
RD...R 133 - 146mm
- Axial fans FE2owlet 250 - 400mm

### Applications

Ventilation, heat pumps, electronics cooling, cooling devices, refrigeration

## EC090

### Voltage supply

- 1~ 200...277V 50/60Hz
- 1~ 100...130V 50/60Hz

Power up to 800W

Protection class IP54,  
IP20 for clean room

Continuous speed control  
via 0-10V signal or MODBUS

MODBUS as standard

Active PFC as standard

### Final products

- Centrifugal fans ZAvblue 250 - 450mm, Vpro 250 - 500mm,  
Cpro/Calu 250 - 315mm
- Housing fans RG...R 180 - 280mm, RD...R 250 - 280mm
- Axial fans FE2owlet 300 - 710mm,  
FE2owlet ZAprus ECblue 450 - 710mm

### Applications

Ventilation, air-conditioning, heat pumps, electronics cooling, cooling devices, cleanroom, refrigeration





## EC116

### Voltage supply

- 1~ 200...277V 50/60Hz
- 3~ 200...240V 50/60Hz
- 3~ 380...480V 50/60Hz

Power up to 4000W

Protection class IP54, IP20 for clean room, IP55 on request

Continuous speed control via 0-10V signal or MODBUS (Add-On)

Basic electronics plus Add-On modules for individual customisation

Encapsulated electronics for maximum reliability

### Final products

- Centrifugal fans ZAvblue 355 - 560mm, Vpro 355-560mm, Cpro/Calu 315-450mm
- Housing fans RG...R 250-315mm, RD...R 315mm
- Axial fans FE2owlet 500-910mm, FE2owlet ZAplus ECblue 500-910mm, FFowlet 500-910mm

### Applications

Ventilation, air-conditioning, heat pumps, electronics cooling, cooling devices, cleanroom, refrigeration, agriculture



## EC152

### Voltage supply

- 3~ 200...240V 50/60Hz
- 3~ 380...480V 50/60Hz

Power up to 6000W

Protection class IP54, IP55 on request

Continuous speed control via 0-10V signal or MODBUS (Add-On)

Basic electronics plus Add-On modules for individual customisation

Encapsulated electronics for maximum reliability

### Final products

- Centrifugal fans ZAvblue 450 - 630mm, Vpro 450-630mm, Cpro 400 - 630mm, Calu 400 - 800mm
- Housing fans RG...R 315 - 450mm, RD...R 400 - 450mm
- Axial fans FE2owlet 630 - 1250mm, FE2owlet ZAplus ECblue 630 - 910mm

### Applications

Ventilation, air-conditioning, heat pumps, refrigeration, agriculture

# Overview of fans:

When combined with outstanding impellers and blades, ECblue high-efficiency motors really come into their own. The unique efficiency of the motors is augmented by that of the impellers and blades. This is down to high-performance composite materials and

innovations like the ZAmid technology for centrifugal impellers and the revolutionary bionic blade geometry for axial fans. That makes every ZIEHL-ABEGG fan a high-performance package for the users' benefit.

## Centrifugal fans



**C-Alu**

**Product specification:**

Free running impeller with 7 backwards-curved blades in frame sizes 225 to 1,120 mm. Impeller made of sheet steel with surface protection provided by powder coating. Version with hub (taper lock or fixed hub) and inlet nozzle with measurement device for volume flow measurement. Volume flow rates up to around 110,000 m<sup>3</sup>/h free blowing, max. static pressure increase up to 2,500 Pa possible.



**Cpro**

**Product specification:**

Free running Cpro impeller made from the ZAmid high-performance composite material with 7 backwards-curved, fluted blades in frame sizes 250 to 630 mm. Volume flow rates up to around 30,000 m<sup>3</sup>/h free blowing, static pressure increase up to 2,500 Pa possible. Version with hub and inlet nozzle with measurement device for volume flow measurement.



**Vpro**

**Product specification:**

Free running Vpro impeller with 6 backwards-curved, fluted blades in frame sizes 190 to 630 mm. Impeller made of high-performance composite material. Version with inlet nozzles. Volume flow rate up to around 18,000 m<sup>3</sup>/h free blowing, max. static pressure increase up to 1,300 Pa possible.

## Axial fans



**FE2owlet**

**Product specification:**

Fluted, sickle-shaped blades based on bionic insights. Available dimensions 250 - 1,250 mm, volume flow rates up to 52,000 m<sup>3</sup>/h and static pressure increase up to 418 Pa.



**FFowlet**

**Product specification:**

Fluted, sickle-shaped blades based on bionic insights. Available dimensions 500 - 910 mm, volume flow rates up to 24,500 m<sup>3</sup>/h and static pressure increase up to 150 Pa.



**ZAplus**

**Product specification:**

Optimised full nozzle with guide vane, motor suspension, and short diffuser. Fluted, sickle-shaped blades based on bionic insights. Available dimensions 450 - 910 mm, volume flow rates up to 36,500 m<sup>3</sup>/h and static pressure increase up to 420 Pa.





**ZAvblue**

**Product specification:**

Free running ZAvblue impeller with 7 backwards-curved, fluted blades in frame sizes 175 to 630 mm. Impeller made of high-performance composite material. Version with inlet nozzle made of plastic. Volume flow rate up to around 19,000 m<sup>3</sup>/h free blowing, max. static pressure increase up to 800 Pa possible.



**Housing fan**

**Product specification:**

Single-ended/double-ended extracting EC centrifugal fans in the optimised spiral housing with forwards-curved blades. Energy-optimised for operation in a spiral housing for a high level of efficiency and favourable acoustic characteristics. Available in frame sizes 180 to 450 mm (single-ended) and 250 to 450 mm (double-ended). This allows for volume flow rates of up to 9,000 m<sup>3</sup>/h and static pressures of up to 1,100 Pa.



**ZApilot**

**Product specification:**

Fan system with built-in air feed for even greater efficiency. Modules contain free running ZAvblue impeller with 7 backwards-curved blades in frame sizes 175 to 250 mm. Impeller made of high-performance composite material. Volume flow rate up to around 1,600 m<sup>3</sup>/h free blowing, max. static pressure increase up to 1,000 Pa possible.

# The complete system: ECblue and PMblue motors up to 22kW

## Different motors, one single control system, many Add-Ons

PMblue, the ZIEHL-ABEGG motor range with larger and even more powerful high-efficiency motors, takes over where ECblue leaves off.

Aside from the large and complete product range, another benefit is that all motors are operated according to the same standard concept.



## Control and modulation: Build on a solid base with Add-On modules for expanded functionality

ECblue motors have an integrated frequency inverter. This compact concept for PMblue combines with a directly installed frequency inverter, PMcontrol Basic-M. Expansion modules MODBUS

Wireless and MODBUS Premium are available, enabling respectively, wireless communication or enhanced functionality. Sensor control modules can be used for simple system regulation.

### Basic products/basic control

### Expanded functionality



ECblue Motor



PMblue with PMcontrol Basic-M



Fcontrol and Icontrol Basic-M



Sensor control module



UNIcon sensor control module



Add-On-Module



# Application areas:

## Benefit in every respect

You are a specialist at what you do, we are specialists in providing outstanding all-round solutions for your applications. From refrigeration to air-conditioning, from cooling of data centres and switch cabinets to electronic components and transformers, from train and transport companies to wind

energy, from clean room technology to agriculture. Covering your various applications with ZIEHL-ABEGG means you can benefit from synergies and smooth processes.



Refrigeration



Buildings



Food



IT & Telecommunication



*Machines and industrial processes*



*Energy & Environment*



*Mobile Applications*

# One system for all your applications

Add-On modules help realise our customers' individual wishes without making things more complicated for them. We believe in offering customers the greatest possible benefit in a way

that is well thought-out and convenient for them. An example of this is the flexibility to use different bus systems with the help of Add-On modules.



*UNICON MODBUS master field device for addressing and commissioning ZA-MODBUS field devices with patented auto-addressing.*



*A smartphone can be used to read out motor data wirelessly or via cable.*



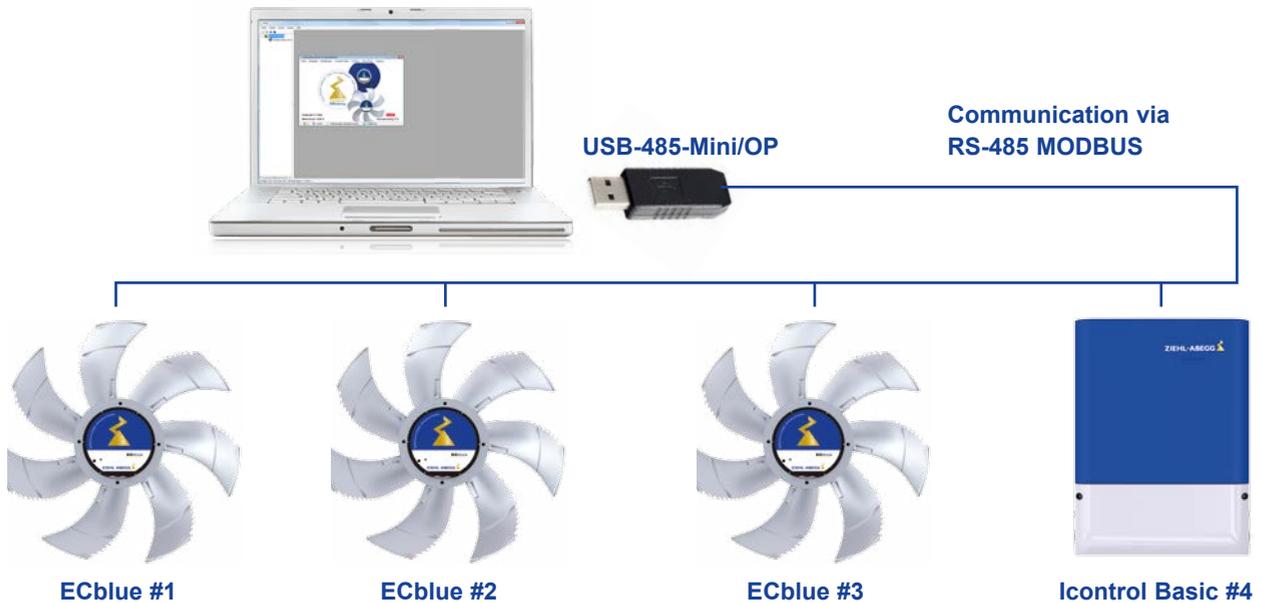
**ZAsst**

*ZAsst allows easy commissioning, configuration, control, monitoring and parametrisation of all the Modbus functions of a fan.*

## ZAsst: Quick and simple configuration via PC.

ZIEHL-ABEGG's MODBUS field devices can be commissioned and configured easily with a PC via a USB interface. You have

the choice between menu-led and tabular programming.



# The Royal League

