EN

Movement by Perfection

Control Technology

Main Catalogue
06/2021 Edition

The Royal League in ventilation, **control** and drive technology

ZIEHL-ABEGG

Using air intelligently

Air is always there but is hardly perceived consciously. Directing air in a specific form of movement is the competence of ZIEHL-ABEGG. As the world's leading provider of fans with adapted control technology, ZIEHL-ABEGG relies on the efficiency and reliability of the products. With the trailblazing solutions from ZIEHL-ABEGG, customers use air and energy optimally for their individual requirements.

FANselect
The fan selection program

With the first fully comprehensive certified fan selection program FANselect the customer can find the optimum fans and system components for his needs conveniently, precisely and quickly. The specified values conform to reality. They are determined in the ZIEHL-ABEGG InVent technology centre which houses the world's biggest combined air and noise test benches of the ventilation system branch. More information on www.fanselect.info

Other catalogues

In the ZIEHL-ABEGG catalogues, the reader can find out all about ZIEHL-ABEGG fans, motors and the perfectly adapted control technology. All the catalogues are available on www.ziehl-abegg.de website in the "Downloads" section.

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Wir entwickeln und produzieren die
effizientesten Ventilatoren für die Zukunft
ZIEHL-AB
Die König
der Lu
Regeltechnik und An
Einzigartige
Kunststoffproduktion
für bionische Hightech-
Ventilatoren

Welcome to the world of ZIEHL-ABEGG

Top technology “Made by ZIEHL-ABEGG”

A pioneering spirit and the courage of innovation were the driving forces behind Emil Ziehl’s development of his first external rotor motor over a hundred years ago. With this he laid the corner stone for the success story of ZIEHL-ABEGG in 1910. Today, the family company ZIEHL-ABEGG, with its headquarters in Künzelsau, develops, produces and sells high quality, high-tech components: Fans, special electric motors and their perfectly adapted, state-of-the-art control technology. Still today, Emil Ziehl’s pioneering spirit is the motivator for making good even better and finding new, revolutionary solutions. ZIEHL-ABEGG is based in Southern Germany but is at home all over the world. At the worldwide production and sales sites, thousands of employees develop, produce and sell technical, economical and ecological progress.

Welcome to the world of ventilation, control and drive technology.

Your contact into the world of ZIEHL-ABEGG

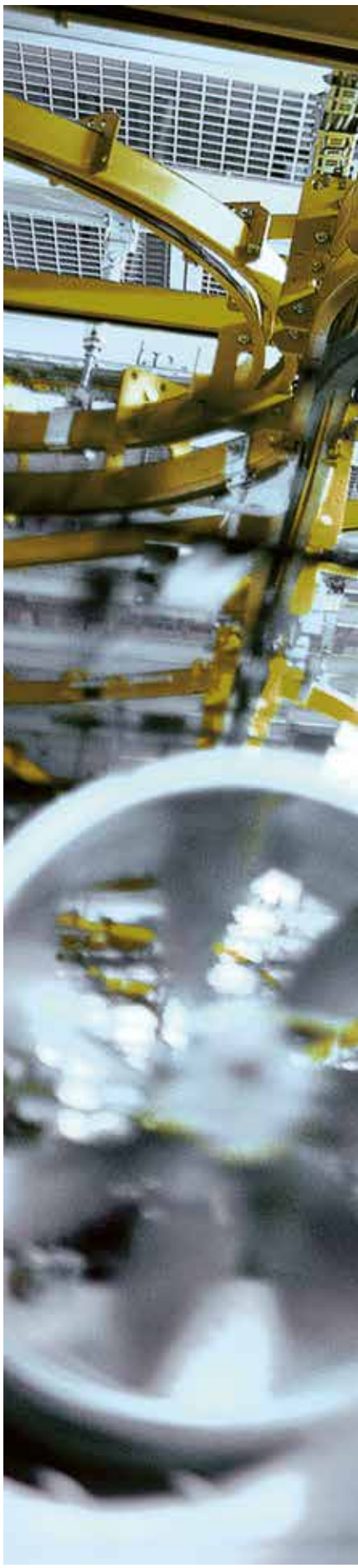
Would you like to learn more about the company ZIEHL-ABEGG, its products and applications? Your current direct contact partners can always be found at www.ziehl-abegg.com

One-stop expertise

Fan, motor and control technology

Whether air conditioning, drying, cooling or ventilating, the efficient fans with adapted drive and control technology from ZIEHL-ABEGG cope with these tasks safely and reliably. Individual and also complex customer requirements are welcome challenges.

At ZIEHL-ABEGG headquarters in Künzelsau, more than 400 engineers and technicians concentrate daily on finding the best solution. In the InVent, one of the most modern technology centres of its kind, they work on the innovations of the future. Their ideas are put into practice by excellently trained specialists on state-of-the-art plants. The production as well as all processes are accompanied by prudent quality management. ZIEHL-ABEGG products are subjected to rigorous testing before being put into operation at the customer's. On the world's biggest air and noise test bench, vibrations and external noises are eliminated and thus ensure top class fan measurements in accordance with ISO and DIN. The result is top class products and services which are marked by the seals "Premium Quality" and "Premium Efficiency".



The world's biggest and most modern test bench for fans at the headquarters in Künzelsau

State-of- the art production lines to meet the highest demands

The right control technology

Products with unique advantages

Offering our customers special advantages. That is our prime goal which we focus on in the development of our control products. To achieve this, we equip our products with special features. For example, we place special emphasis on ease of operation. ZIEHL-ABEGG is also one of the few manufacturers who produces series frequency inverters equipped with integrated, all-pole sinefilters. This brings you, our customers, unique advantages with regard to EMC and reliability in the combination of these frequency inverters with different types of motors. It goes without saying that our products are absolutely energy economical. The products that are responsible for the intelligent control of processes also convince with unique advantages. Sometimes it is not the multfunctional possibilities which many of our products offer that bring the decisive advantage to the application. It is often the reduction to the basics that is implemented consistently in a product and convinces our customers. Special tailor-made products offer the best price-performance ratios.

Products with system competence

ZIEHL-ABEGG is the only fan manufacturer that develops methods to change the speed of fans and produces the control engineering itself.

The result for our customers is perfectly matched products which provide added value in all applications involving moving air.

Together with the fans, perfect system solutions are the result. A major advantage for our customers is the supply of a wide variety of one-stop solutions and technologies. There is a contact person for customers for planning and implementing daily challenges for all products.

A wide range of control engineering products are available to choose from:

Voltage controller | Frequency inverters | Control modules | Motor protection units | Sensors





Options for speed control

Voltage controllers

Voltage controllers have been established for many years. These are available as electronic voltage controllers, so-called phase angle controllers, or as transformer-based controllers.

Typically, voltage variable external rotor motors (asynchronous motors) are controlled using these products.

The advantage of this technology is extremely low investment costs. Electronic voltage controllers are available for rated currents up to 80 A. There are designs for all applications in ventilation technology.

Up till now, transformer-based voltage controllers have been established in simple applications. Integrated 5-step switches are standard and the products control motors and fans without producing electronic running noise.



Electronic voltage controllers and 5-step transformer-based controllers for 1~ and 3~ power supply.

Highly efficient frequency inverters

ZIEHL-ABEGG frequency inverters cover an extremely wide range of applications. To make it very easy for operators, the frequency inverters are equipped so that they can be quickly put into operation and are easy to operate in ventilation system applications. Frequency inverters are available up to an output of approx. 30 kW (rated current 50 – 62 A).

Frequency inverter Fcontrol

The integrated, all-pole sine filter makes the Fcontrol unique among frequency inverters. Comparable to the power supply, the Fcontrol controls motors, fans without increased demands on the winding insulation and motor bearings.
Operation is extremely energy-saving, efficient and without electromagnetic running noise. No shielded motor line is necessary. The cable length is not limited by the Fcontrol. Smooth parallel operation of motors and fans is guaranteed and typical frequency inverter measures are unnecessary.

Fcontrol frequency inverter for 1~ and 3~ power supply. Control of motors and fans (external rotor motors or motors according to the IEC standard).

Frequency inverters Icontrol / PMcontrol / PMIcontrol

The Icontrol standard frequency inverters for inexpensive easy control of motors and fans (internal rotor asynchronous motors according to the IEC standard).

PMcontrol are comparable, but these are designed for PM motors and fans with PM motors (PM = internal rotor motors with permanent magnets according to the IEC standard).

PMIcontrol Basic-M can control both motor types, asynchronous motors and PM motors. These are designed as PMIcontrol Basic-M for direct mounting on internal rotor motors according to the IEC standard.

Highly efficient fan drives ECblue, PM-blue and AMblue

ECblue are highly efficient external rotor motors with permanent magnets and integrated power electronics. The result is a highly compact drive system for controlled operation with a variety of fans with different impeller geometries.
PMblue combines PM motor with permanent magnets and PMcontrol / PMIcontrol frequency inverter. The AMblue drive system combines an asynchronous motor with a mounted PMIcontrol Basic-M.
ZIEHL-ABEGG offers an enormous range of different fan designs with a variety of motor technologies, thus covering an enormous power range for moving air.

ZAcode

The unique fan control philosophy

Market challenge

Manufacturers of products which involve moving air are confronted with a variety of products and technologies.

In addition to fans with asynchronous motors, which are mainly controlled by frequency inverters, the proportion of EC motors (highly efficient motors with permanent magnets and integrated power electronics) is rising.
Solutions are increasingly available involving mounting frequency inverters on internal rotor motors according to the IEC standard.

That is why companies rely on different manufacturers and technologies to cover the power range of smaller than 1 kW to 30 kW.

This involves a great effort in terms of design, documentation and storage of parts as well as employee training.

Interface problems, e.g. the interaction of frequency inverters and fans of different manufacturers, involve effort and expenditure which may delay projects and lead to complaints.

ZIEHL-ABEGG's philosophy

Simple products and solutions.
From the planner via production to installation and maintenance - everyone involved with the system should have an easy time and be able to understand it.

ZIEHL-ABEGG has been busy with this challenge adapting products which cover the decisive power range accordingly. Products have been reduced to the essential, but can be easily expanded to meet requirements at any time.

ZIEHL-ABEGG's products are 100% matched to one another. This means ZIEHL-ABEGG fans and frequency inverters create an energy-saving, quiet and reliably functioning system. The same is true of the combination of control modules with ECblue fans and other products.

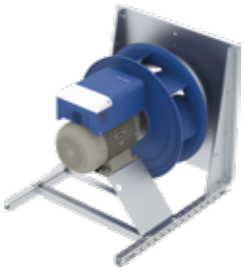
At ZIEHL-ABEGG, you have only one contact person for fans, motors and the perfectly matching one-stop control engineering.

This philosophy makes the effort involved easier in terms of planning, production, installation and maintenance.

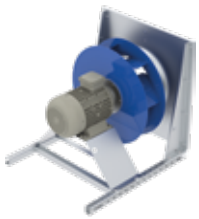
Covering the big power range from < 1 kW up to 30 kW

ECblue Basic
Power: < 1 kW up to 6 kW

AMblue / PMblue
Power: 2.2 kW up to 22 kW



Frequnzumrichter Fcontrol Basic / Icontrol Basic
Power: 1.1 kW up to 30 kW



ZAcode - the solution - your advantages

On a cross-product basis - ZAcode encompasses the key technologies on the market

- Axial and centrifugal fans
- EC technology and AC technology
- Integrated electronics and external electronics for speed control
- Communication and control intelligence

Simplicity

- Can be operated and understood by everyone

Uniformity

- Identical connection concept of the various products and technologies
- Identical communication (add-on modules for required bus systems)
- Identical functionality
- Modular expandability, thus providing a cost-effective basis
- Expandable on demand - sustainable
- Available in a wide power range of smaller than 1 kW to 30 kW

Safety and reliability

- courtesy of perfectly matched systems
- courtesy of error prevention during installation, start-up, operation and maintenance

Speed

- Uniformity ensures speed in relation to engineering. Hence, the short time to market in relation to product development. Fast start-up and service.

Cost savings

- Your processes will become more efficient, e.g. with regard to engineering
- Basic equipment of ZIEHL-ABEGG products = Buy basic equipment and pay, buy add-ons if necessary - buy only what you need!

Flexibility

- Modular system, expandable and customisable
- Customisable to current and future bus systems
- Basic expandability

ZAcode

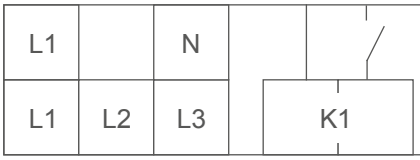
Simple, cross--product, uniform

Fans with ECblue Basic
< 1 kW to approx. 6 kW
Highly efficient external rotor motors with permanent magnets and integrated power electronics



The unique fan co

Same con

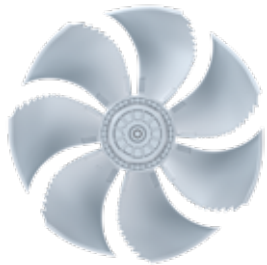


Easily expandable for inte

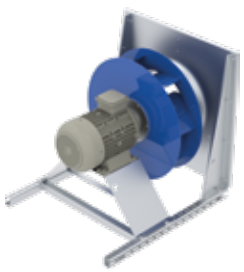
AM-MODBUS AM-CAN-OPEN AM-LON



Fans with asynchronous motors
< 1 kW to approx. 30 kW
Control via mounted Fcontrol Basic or Icontrol Basic frequency inverters







Expandable and combina

AM-PREMIUM UNIcon control modules


ntrol philosophy

nectivity

E1	D1	GND	10V	24V

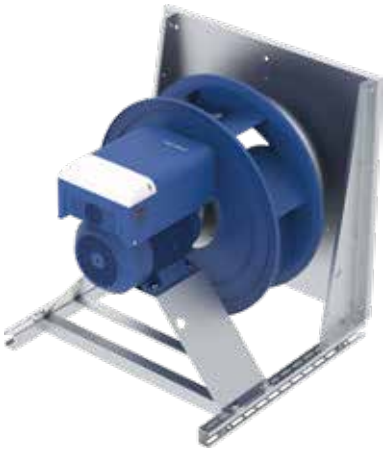
gration into bus systems

M-PROFIBUS AM-ETHERCAT ...

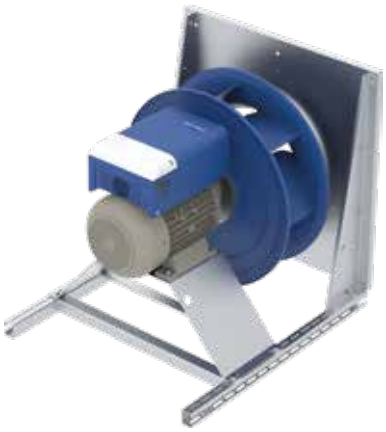


able control intelligence


PMblue centrifugal fans with mounted PMIcontrol Basic-M
< 2.2 kW to approx. 22 kW
PMblue combines PM motor with permanent magnets and mounted frequency inverter (optionally mountable PMcontrol)



AMblue centrifugal fans with mounted PMIcontrol Basic-M
< 2.2 kW to 22 kW
AMblue combines AC motor (asynchronous motor) and mounted frequency inverter



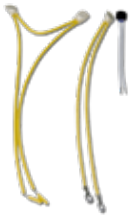

C2
S-DT16E
C1
STOP
TEST
C1
C2
TB1
TB2

Motor protection

Product overview

Motor protection concept

The majority of ZIEHL-ABEGG external rotor motors (excluding ex-motors) are equipped with “TB” thermostats.
Standard protective switches or bi-metal actuators in the motor feed line work dependent of current and thus offer only incomplete protection as the current does not allow conclusions to be made about the motor winding temperature under all conditions.
In contrast, thermostats are bimetal switches embedded in the motor winding and they can react directly to the motor’s winding temperature. They open an electrical contact, as soon as their nominal switch temperature (NST) is attained.



Thermal contact

Fans can be securely protected by ZIEHL-ABEGG motor protection devices. Especially when they are

- speed controlled by voltage,
- operated with excessive switching frequency,
- when they are stalled,
- or exposed to high ambient temperatures.

Thermostats must be connected in the control circuit so that during a malfunction the fans are not independently reconnected after cooling off. ZIEHL-ABEGG devices meet these conditions. Mutual protection of several motors is possible with one protection device. In order to do this, the temperature protectors of the individual motors have to be connected in series. Please pay attention to the fact that all motors are disconnected at the same time in case of a temperature failure in a single motor. In real life applications, motors are grouped, so in case one moror fails it is still possible to run in emergency mode with reduced power.
To ensure optimum motor protection we provide motor protection devices in various designs.

Motor protection devices for 3~ motors

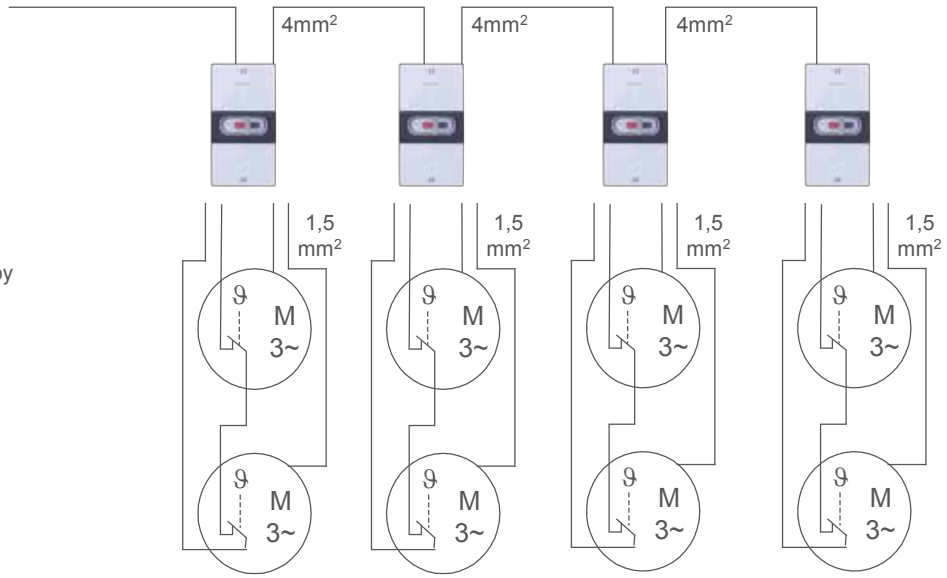
The S-DT motor protection devices for 3~ motors combine several functions:
The motor is protected by “TB“ thermostat monitoring. This ensures direct monitoring of the winding temperature. On top of that, the S-DT has an integrated overcurrent release that protects the lead to the motor from overcurrent. This feature - plus the integrated double terminals- allow the S-DT to be used like a “current distribution“ of sorts.

Motor protection units and system components

Application example with 3 ~ motor protection devices as “current distribution”

Network or control devices output

Single fans or groups of fans protected by thermostats



Motor protection units for 1~ motors

In the 1~ motor protection units, it is intended that each motor is allocated one motor protection device. Motor protection is also carried out using “TB“ thermostat monitoring.

Monitor unit for thermistors

Our U-EK monitor device is available for monitoring “TP“ thermistors, which are also approved for monitoring Ex-protected motors (ATEX approval).

Motor protection and switchgear

For speed selecting motors in which the motor windings are intended for this, we supply the switchgear with integrated monitoring functions for the “TB“ thermostats.

Monitoring unit U-EK230E

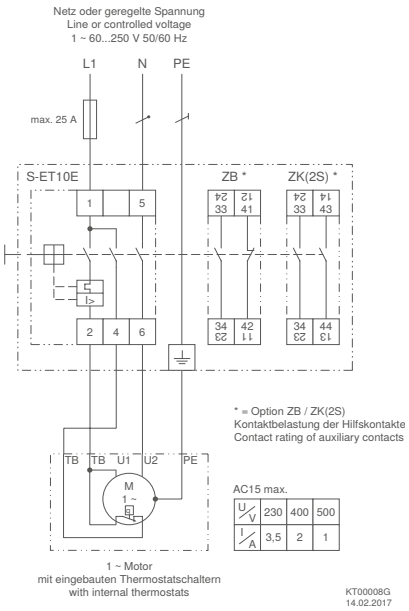
Motor protection devices

For monitoring thermostats (TB)

Complete motor protection is implemented by connecting the thermostat, which is integrated into the motor, to the motor protection unit. Most ZIEHL-ABEGG external rotor motors are equipped with thermostats (TB) in the winding. These thermostats open during high winding temperatures, facilitating the direct monitoring of the temperature in the motor, thus ensuring the direct protection of the motor.When the thermostat opens, the motor protection unit is triggered and has to be manually reset; this is done to prevent an unwanted reconnection after the motor has cooled off.

Additional functions of the 3~ S-DT motor protection units:
They have an overcurrent trigger integrated. That means the device acts like a fuse and can be used for “current distribution”. The adjustable overcurrent trigger protects the cable leading to the connected motors. Dual terminals located on the input and output sides of the motor protection unit facilitate simple wiring of multiple motors or fans on the output side of a powerful controller.

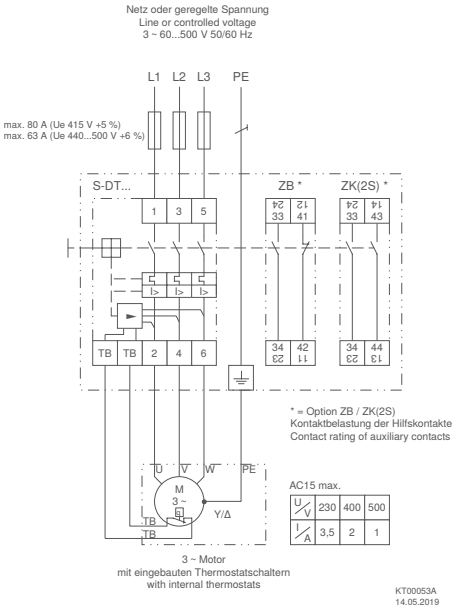
Connection diagram S-ET



① Line or controlled voltage
② Motor with integrated thermostats
③ Contact load of auxiliary contacts

* Option ZB/ZK(2S)

Connection diagram S-DT



① Line or controlled voltage
② Motor with integrated thermostats
③ Contact load of auxiliary contacts

* Option ZB/ZK(2S)

Equipment/Characteristics

Complete motor protection
Automatic shut-off when connected thermostat „TB“ opens (direct temperature monitoring in the motor winding).

Integrated button
Switch connected motors on and off manually. Manual reset after motor fault (protection from unwanted restarting)

Optional: operating status contact
Type “ZB” with one open contact and one close contact
Type “ZK” with two close contacts

Optional padlock feature
Type „Zrep“ for the IP55 housing version. The motor protection unit can be locked during servicing (max. 3 locks)

Cable protection (only in 3~ S-DT devices)
Via integrated overcurrent trigger, which can be adjusted to the cable cross section.

Accessories

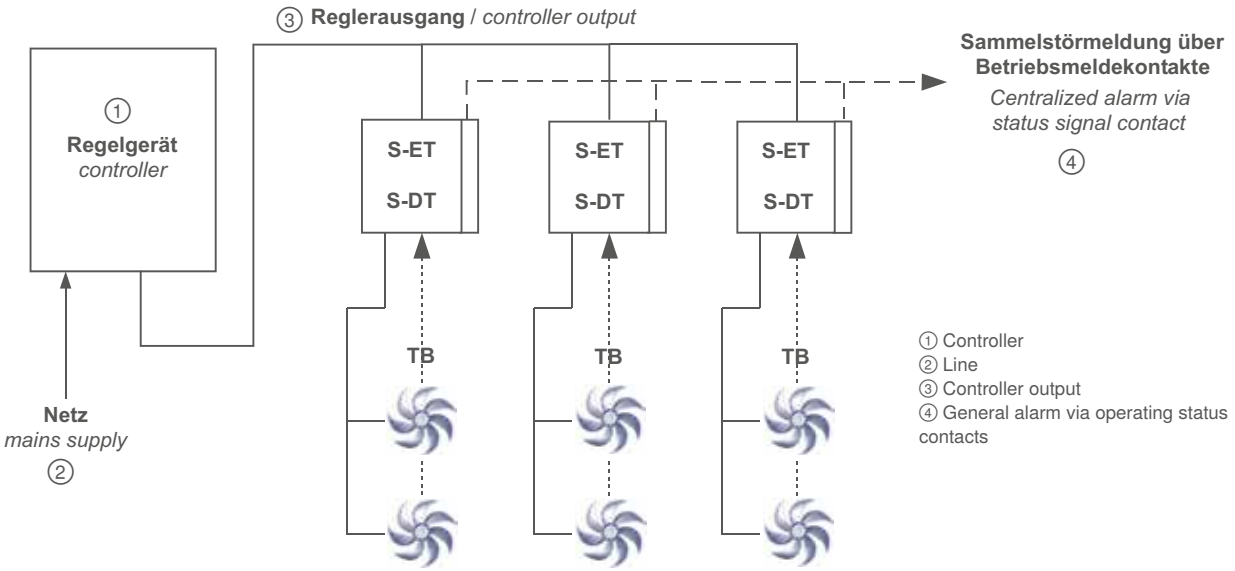
Type	Article no.	Weight kg
ZB	382032	0.03
ZK	382033	0.03
Zrep	382034	0.09

Motor protection units for monitoring thermostats (TB)

Line	Installation	Type	Article no.	Rated current A	Overcurrent trigger	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
1~ 60...250V 50/60Hz	Rail according to EN 60715	S-ET10E	382026	10		-25	55	IP20	0.20	45 x 80 x 83
1~ 60...250V 50/60Hz	Wall mounting	S-ET10	382027	10		-25	40	IP55	0.44	80 x 135 x 96.5
3~ 60...500V 50/60Hz	Rail according to EN 60715	S-DT16E	382028	16	Overcurrent 10...16 A	-25	55	IP20	0.35	54 x 80 x 85.5
3~ 60...500V 50/60Hz	Wall mounting	S-DT16	382029	16	Overcurrent 10...16 A	-25	40	IP55	0.60	80 x 135 x 96.5
3~ 60...500V 50/60Hz	Rail according to EN 60715	S-DT25E	382030	25	Overcurrent 20...25 A	-25	55	IP20	0.35	54 x 80 x 85.5
3~ 60...500V 50/60Hz	Wall mounting	S-DT25	382031	25	Overcurrent 20...25 A	-25	40	IP55	0.60	80 x 135 x 96.5

Application example

Motor protection units S-ET or S-DT, depending on the line. With S-ET monitoring of individual fans, with S-DT monitoring of several fans per motor protection unit possible. Thermostats are wired in series.

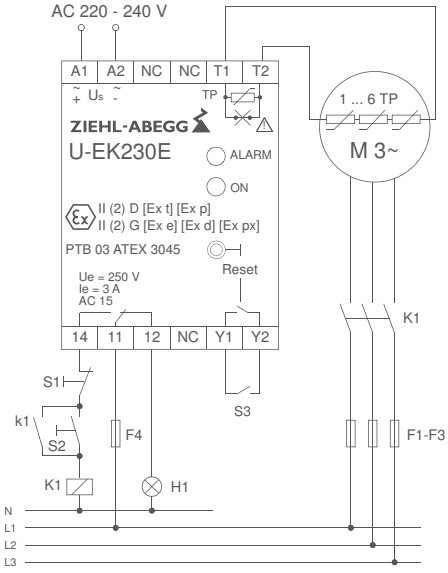


Motor protection devices

for monitoring thermistors (PTC) TP

The motor is protected by connecting the thermistors (TP) built into the motor.
If the TP's respond to too high winding temperature, a relay switches and switches off the motor via a contactor. The device has an electronic switch on lock (can be switched off) to prevent undesirable restarting of the motor. A reset button is installed. Integrated LEDs show the operating state.
Explosion-protected operating equipment in areas with a gas explosion risk (identification G: Gas) or in areas with inflammable dust (identification D: Dust) can be protected.
The motor protection unit U-EK230E is certified according to **ATEX Directive 94/9/EC**.
Note: Mounting of the motor protection unit outside the EX area

Connection diagram



Us = connection voltage
S1 = Off button
S2 = On button
S3 = external reset
H1 = signal lamp fault
F1-F4 = fuses
K1 = motor contactor

Equipment/properties

ATEX approval
According to directive 94/9/EC

1 digital output (relay)
For activating a motor contactor

1 digital input
For external reset

Optional equipment

Plastic housing in IP54
As an accessory a plastic housing with transparent cover for surface mounting is available (Article No. 349069).
Note: This housing is not pressure-proof. Mounting only permissible outside the EX area.

Motor protection unit U-EK230E
1~ 220...240V 50/60Hz

Type	Article no.	Protection class	Max. heat dissipation W	Motor protection	Maximum ambient temperature °C	Weight kg	Dimensions (W x H x D) mm
U-EK230E	382008	IP20	2	TP	55	0.12	35 x 116 x 58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Frequency inverter

Product overview

Frequency inverters

1~ Fcontrol, universal controller with display and bypass main switch

The Fcontrol frequency inverters provide special advantages. Fcontrols have an all pole effective sine filter integrated which provides sinusoidal output voltage that is comparable with the standard mains. That means the frequency inverter enables reliable, demand-oriented and energy-saving control of asynchronous motors (external rotor motors, IEC standard motors) without having to take measures into consideration required by standard frequency inverters.

The advantages provided by the Fcontrol frequency inverter are:
- Operation without shielded motor feed lines
- The line length is not restricted by Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No risk to motors (they do not have to be frequency inverter compatible) since they are supplied with sinusoidal voltage that corresponds to the line voltage.

The benefits are especially advantageous in plants in which motors or fans are operated in parallel on a frequency inverter. Motors connected in parallel often means long cable lengths which is no problem with the Fcontrol. On top of that, unshielded cables can be used.

The Fcontrol universal devices are ideal for the following applications: refrigeration, air conditioning, agriculture, general air supply and ventilation tasks, clean room technology.
Fast commissioning for typical applications in the stated sectors by selecting pre-programmed operating modes possible.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

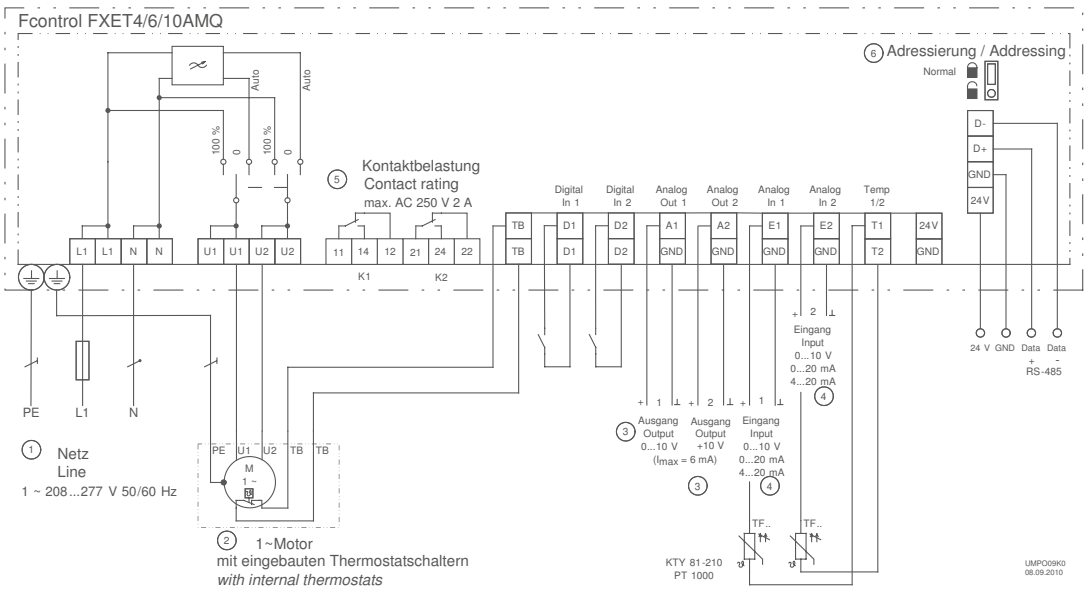
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Output
④ Input
⑤ Contact rating
⑥ Addressing

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated all-pole effective sine filter
Phase to phase and phase to PE conductor. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary**.**

Integrated PFC (Power Factor Controller)
Active power factor adaptation for sinusoidal current consumption. Therefore low line feedback.

Integrated main switch with bypass function
Switch positions: Auto (for control mode), 0 and 100 % (100 % means that the integrated device electronics are bypassed, the applied line voltage is switched to the output).

LC multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes, e.g. for air conditioning, refrigeration or ventilation technology can be selected.

Simple programmability:
Typical settings can be made easily: e.g. setting of a minimum speed, limitation of the maximum speed, inversions and limits. Setting, e.g. for multistep mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent)

2 digital inputs D1 and D2:
Programmable, e.g. enable, setpoint switchover 1 or 2, switchover control or manual mode, switchover E1 or E2, control function reversal, output limitation, display of external fault, reset, direction of rotation reversal

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital output, activation of external devices, e.g. heating, shutters, group control fans, etc.

Integrated motor protection function:
Connection possibility for thermostats TB

Interface RS485 MODBUS RTU:
Integration into bus system

Set protection / memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Querying of occurred events, operating times, etc.

Fcontrol, universal controller with display and bypass main switch
1~ 208...277V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FXET4AMQ	**308134**	230	4	35	16	65	55	IP54	3.40	240 x 284 x 132
FXET6AMQ	**308157**		6	40	16	103	55		5.70	250 x 302 x 212
FXET10AMQ	**308136**		10	50	16	187	55		6.80	250 x 302 x 212

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

1~ Fcontrol, temperature controller with display and bypass main switch

The 1~ Fcontrol frequency inverters with all-pole effective sine filter are available in the version as a temperature control unit. A TFR type temperature sensor (room temperature sensor IP54) is contained in the scope of supply. The frequency inverters control asynchronous motors (external rotor motors, IEC standard motors) gently, requirement-based and energy saving.

Advantages achieved by Fcontrol frequency inverters are:

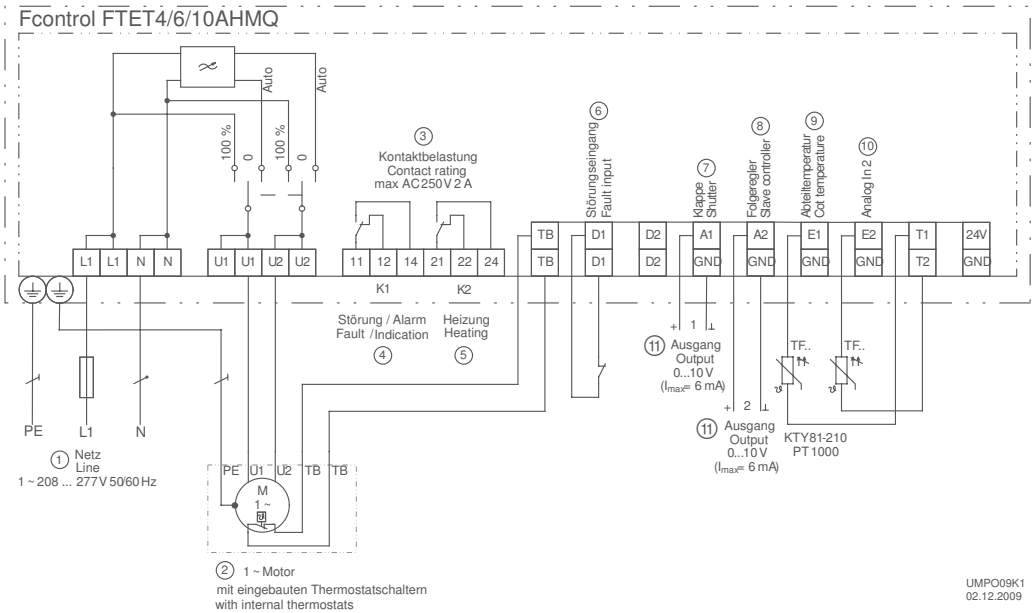
- High energy saving
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

The 1~ Fcontrol temperature control units are especially suitable for the following applications: Agriculture, general ventilation tasks. Fast commissioning is possible by presetting the devices including the integrated inputs and outputs.

Input for sensors or speed settings through

Connecting temperature sensors,
sensor for input 1, type TFR included in scope of supply
Sensor for input 2, optional

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Contact rating
④ Fault/Alarm
⑤ Heating
⑥ Fault input
⑦ Shutter
⑧ Slave controlle
⑨ Compartment temperaturer
⑩ Analogue In 2
⑪ Output

Equipment/properties

Integrated all-pole effective sine filter
Phase to phase and phase to PE conductor. Thus sinusoidal output voltage. Frequency inverter-typical measures such as shielded motor cables are not necessary.

Integrated PFC (Power Factor Controller)
Active power factor adaptation for sinusoidal current consumption. Therefore low line feedback.

Integrated main switch with bypass function
Switch positions: Auto (for control operation), 0 and 100 % (100 % means that the integrated device electronics are bypassed, the applied mains voltage is switched to the output)

LC multifunction display with clear text display
Different menu languages can be selected

Easy to program
Setpoint range 0-40 °C. Setting of a minimum speed, limiting of the maximum speed. Alarm on exceeding or dropping below measured temperature values. Second control circuit with separate settings for 0-10 V output, e.g. control of a ventilation damper, etc. Separate adjustability of relay K2, for controlling a heater for example.

2 analogue inputs for temperature sensors
A TFR room temperature sensor in IP54 is included in the scope of supply. A second sensor, for example for measuring the supply air temperature, can be connected optionally.

1 digital input
Input D1 switch an external fault

2 digital outputs (relays) K1 and K2
Relay K1: Fault message relay, overtemperature or undertemperature alarm. Relay K2: Control of a heater, e.g.

Integrated motor protection function
Connection possibility for thermostat “TB”

Memory for settings
Restore saved settings

Event memory
For minimum and maximum temperature values, alarms

Fcontrol, temperature controller with display and bypass main switch
1~ 208...277V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FTET4AHMQ	308131	230	4	35	16	65	55	IP54	3.40	240 x 284 x 132
FTET6AHMQ	308132		6	40	16	103	55		5.70	250 x 302 x 212
FTET10AH-MQ	308133		10	50	16	187	55		6.80	250 x 302 x 212

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

1~ Fcontrol, speed controller optional with bypass main switch

The 1~ Fcontrol frequency inverters with all-pole effective sine filter are available in the version as speed controllers. There is an optional version with integrated main switch (Auto – 0 – 100%).

The speed setting can be made by a master control by 0 – 10 V, e.g. by a ZIEHL-ABEGG control module of the UNIcon series. The speed can also be set manually by connecting a potentiometer. Two-stage operation with adjustable speeds is possible optionally. The frequency inverters control asynchronous motors (external rotor motors, IEC standard motors) gently, requirement-based and energy saving.

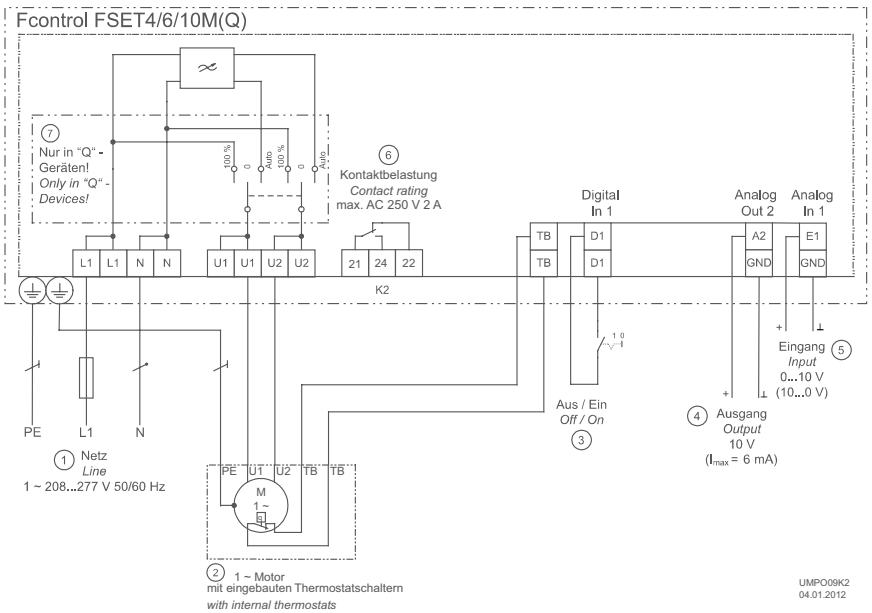
Advantages achieved by Fcontrol frequency inverters are:
- High energy saving
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

The 1~ Fcontrol speed controllers are universally suitable for many different applications: E.g. refrigerant technology, air conditioning, agriculture, general ventilation tasks, clean room technology.

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Off/On
④ Output
⑤ Input
⑥ Contact rating
⑦ Only in "Q"-Devices

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment / Characteristics

Integrated all pole effective sine filter
Phase to phase and phase to grounded conductor thus producing sinusoidal output voltage. Typical measures for frequency inverters such as shielded motor feeder cables are not necessary.

Integrated PFC (Power Factor Controller)
Active power factor adaptation for sinusoidal current consumption, resulting in lower harmonic current emissions.

1 analogue input for speed preset
Input E1 for 0-10 V setpoint signal or 10-0 V depending on device version

1 digital input
Input D1 for enable (standby), for external reset (motor fault)

1 digital output (relay)
Floating change-over contact for error message

Integrated motor protection function
Connection facility for “”TB” thermostat”

Optional equipment

Devices with integrated bypass main switch
Switch positions:
Auto (for speed control mode), 0 and 100% (100% = the integrated device electronics are bypassed, the applied line voltage is switched to the output)

Fcontrol as speed controller
1~ 208...277V 50/60Hz

Input	Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
			V	A	°C	A	W	°C		kg	mm
0-10 V	FSET4M	308128	230	4	35	16	65	55	IP54	3.20	240 x 284 x 115
	FSET6M	308156		6	40	16	103	55		5.50	250 x 302 x 195.5
	FSET10M	308130		10	50	16	187	55		6.60	250 x 302 x 195.5
	FSET4MQ	308154		4	35	16	65	55		3.30	240 x 284 x 132
	FSET6MQ	308155		6	40	16	103	55		5.60	250 x 302 x 212
	FSET10MQ	308187		10	50	16	187	55		6.70	250 x 302 x 212
10-0 V	FSET4M	308158		4	35	16	65	55		3.20	240 x 284 x 115
	FSET6M	308159		6	40	16	103	55		5.50	250 x 302 x 195.5
	FSET10M	308160		10	50	16	187	55		6.60	250 x 302 x 195.5

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol, universal controller with display

The Fcontrol frequency inverters provide special advantages. Fcontrols have an all pole effective sine filter integrated which provides sinusoidal output voltage that is comparable with the standard mains. That means the frequency inverter enables reliable, demand-oriented and energy-saving control of asynchronous motors (external rotor motors, IEC standard motors) without having to take measures into consideration required by standard frequency inverters.

The advantages provided by the Fcontrol frequency inverter are:
- Operation without shielded motor feed lines
- The line length is not restricted by Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No risk to motors (they do not have to be frequency inverter compatible) since they are supplied with sinusoidal voltage that corresponds to the line voltage.

The benefits are especially advantageous in plants in which motors or fans are operated in parallel on a frequency inverter. Motors connected in parallel often means long cable lengths which is no problem with the Fcontrol. On top of that, unshielded cables can be used.

The Fcontrol universal devices are ideal for the following applications: refrigeration, air conditioning, agriculture, general air supply and ventilation tasks, clean room technology.
Fast commissioning for typical applications in the stated sectors by selecting pre-programmed operating modes possible.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

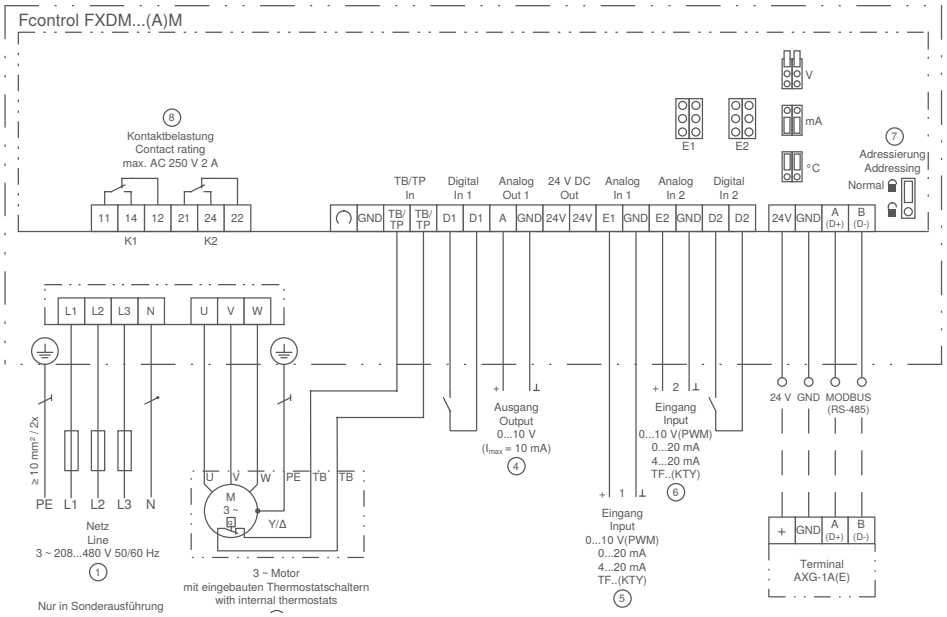
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② Only in special version suitable for IT system!
③ Motor feeder cable
④ Output
⑤ Input
⑥ Addressing
⑦ Contact rating

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Characteristics

Integrated all pole effective sine filter
Phase to phase and phase to grounded conductor which means sinusoidal output voltage. Measures typical for frequency inverters such as shielded motor feed lines are not required.

LC-multifunction display with plain text:
Various menu languages can be selected

Simple commissioning through operating modes:
Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Easy to program:
Typical settings can be made: e.g., default a minimum speed, limit the maximum speed, inverting and limits. Setting, e.g. for 2-stage mode

2 analogue inputs for sensors or setpoint signals:
Analogue input E1 and E2: Setting through operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analogue input E2: programmable, e.g. comparison to Sensor 1, difference to Sensor 1, average calculation, setpoint input, setpoint adjustment (e.g. dependent on outdoor temperature)

Two digital inputs. D2 and D1:
Programmable, e.g. enable, switchover Setpoint 2 or 1 switchover control or manual operation, switchover E2, or E2, reverse control function, limit output, display of external fault, reset, reverse the rotary direction

2, analogue output A1:
Setting through operating modes or manually programmable, e.g., output signal proportional modulation, output signal proportional input signal, invertible, 10 V constant voltage, group control

10 digital outputs (relays) K1 and K2:
Setting through operating modes or manual programming, e.g. operating status, limits, external fault on digital input, enabling external devices, e.g. heating, dampers, group control of fans, etc.

Integrated motor protection function:
Connection facility for PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 MODBUS RTU:
Integration into bus system

Setting protection / memory for settings:
Enable settings protection from unauthorised access, restore implemented settings

Event memory:
Query events that have occurred, operating times, etc.

Optional equipment

Add-on modules for frequency inverters
- IO add-on module type Z-module, Article No. **380052**
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-Modul-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- LON® Add-on module type Z-Modul-L, Article No. **380086**
  For integration into a bus system LON® by a two-wire

Frequency inverters

3~ Fcontrol, universal device with display

Fcontrol, universal controller with display, UL
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FXDM2.5AM	**308099**	400	2.5	40	6	50	55	IP54	3.30	240 x 284 x 115
FXDM5AM	**308138**		5	50	10	100	55		7.20	250 x 302 x 195.5
FXDM8AM	**308140**		8	50	10	150	55		7.90	250 x 302 x 195.5
FXDM10AM	**308142**		10	55	16	210	55		8.20	250 x 302 x 195.5
FXDM14AM	**308144**		14	40	16	310	55		8.70	250 x 302 x 195.5
FXDM18AM	**308174**		18	40	20	400	55		9.10	250 x 302 x 195.5
FXDM22AM	**308108**		22	40	25	520	55		14.50	280 x 355 x 239
FXDM32AM	**308009**		32	50	35	700	55		29.60	386 x 525 x 283
FXDM40AM	**308177**		40	50	50	790	55		29.60	386 x 525 x 283
FXDM50AM	**308183**		50	50	63	910	55		32.80	386 x 525 x 283
FXDM32AME	**308008**		32	50	35	700	55	IP20	33.14	343 x 600 x 280

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Fcontrol, universal controller with display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FXDM32AM	**308009-UL**	400	32	50	35	700	55	IP54	28.50	386 x 525 x 283
FXDM32AME	**308008-UL**		32	50	35	700	55	IP20	33.10	343 x 600 x 280

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol, universal device with display (2nd edition)

The Fcontrol frequency inverters offer special benefits. Fcontrol have an integrated all-pole active sine filter which ensures a sinusoidal output voltage which is comparable with the normal supply network. This means that the frequency inverters enable reliable, requirement-based, energy-saving control of asynchronous motors (external rotor motors, IEC standard motors) without needing to consider measures that must be observed with standard frequency inverters.

Advantages provided by Fcontrol frequency inverters are:
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise-sensitive areas)
- No danger for motors (these need not be frequency inverter compatible) because they are supplied by sinusoidal voltage according to the line voltage.

Especially in systems in which motors or fans are operated parallel to a frequency inverter, the advantages are particularly valuable. Parallel connected motors often mean long cable lengths, this is no problem with the Fcontrol and unshielded cables can also be used.

The Fcontrol universal devices are especially suitable for the following applications: refrigeration, air-conditioning, agriculture, general airing and venting tasks, clean-room application.
For typical applications in the named areas, fast commissioning by selecting pre-programmed operating modes is possible.

Frequency inverters of the 2nd edition enable modern operation by capacitive keys.
This means that no mechanical key is pressed but the operation is capacitive by touching the key surface. In addition there is a directly selectable On/Off key and two keys the functions of which depend on where you currently are in the menu (softkeys). A commissioning wizard and help texts are available for commissioning.
There is a 2nd control circuit in the device and the possibility of retrofitting a clock module as a timer.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

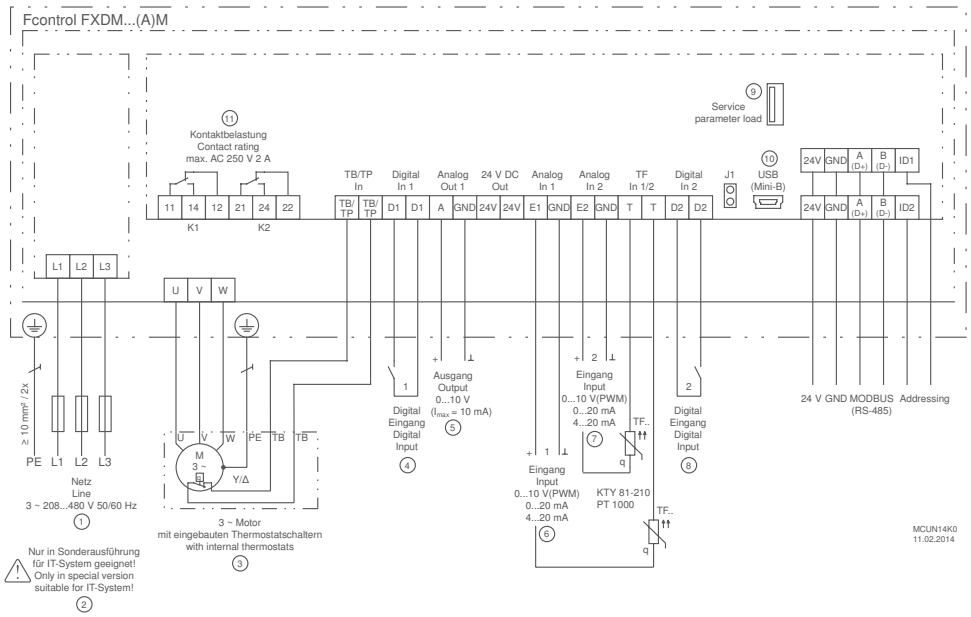
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Mains 3~ 208...480 V 50/60 Hz
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Digital input D1 for potential-free contact
⑤ Output 0...10 V (Imax = 10 mA)
⑥ Input 0...10 V
⑦ Input 0...10 V
⑧ Digital input D2 for potential-free contact
⑨ Parameter interface, only for manufacturer's service purposes!
⑩ USB interface for communication
⑪ Contact load max. 2A / 250 V AC

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated all-pole effective sine filter
Phase to phase and phase to PE conductor. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

LC multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Activation of a 2nd control circuit in the selected operating mode:
By assignment of the sensor function input 2 (E2) for the 2nd control circuit.

Simple programmability:
Typical settings can be made easily: e.g. setting of a minimum speed, limitation of the maximum speed, inversions and limits. Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent), activation of 2nd control circuit.

2 digital inputs D1 and D2:
Programmable, e.g. enable, switch over setpoint 1 or 2, switch over control or manual mode, switch over E1 or E2, control function reversal, output limitation, display of external fault, reset, direction of rotation reversal

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control, activation as output for 2nd control circuit

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, shutters, group control fans, etc.

Integrated motor protection function:
Connection possibility of PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 for MODBUS RTU:
Integration into bus system, addressing of the device manually or automatically possible.

Interface USB:
For software update, communication with PC, etc.

Set protection / memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Querying of occurred events, operating times etc.

Optional equipment

Add-on modules for frequency inverters
- IO add-on module type Z-module, Article No. **380052**
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-Modul-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- Clock module Z-Modul-RTC, Article No. **380056**, for retrofitting real-time clock and timer function. The switching clock can be assigned the same functions are the digital inputs (D1 and D2).

Fcontrol, universal controller with display, 2nd edition
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FXDM25AM	308289	400	25	55	35	550	55	IP54	21.50	279 x 405 x 260
FXDM32AM	308283		32	50	35	700	55		23.10	279 x 405 x 260

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol for compressor control inclusive group control

The 3~ Fcontrol frequency inverters with integrated all-pole effective sine filter are also available as special versions for controlling compressors in refrigerant technology. The integrated sine filter provides for operation of the compressor which is very kind on the motor. No shielded motor cables are required.
The compressor is the component with the greatest energy requirement in the refrigerant circuit. The requirement-based control of this components brings considerable saving potential in comparison with the usual on and off switching operation.
The frequency inverters are set as speed controllers for 0 – 10 V at the factory. The Fcontrol can autarchically control to the desired suction pressure in the plant optionally. For this we supply MBG pressure sensors with the measuring range -1 to +7 bar or 0 to 30 bar.
Fcontrol are able to control up to four compressors with the function “group control”. You need the IO add-on module Z-module-B for this application. This module expands the Fcontrol with the required in- and outputs.

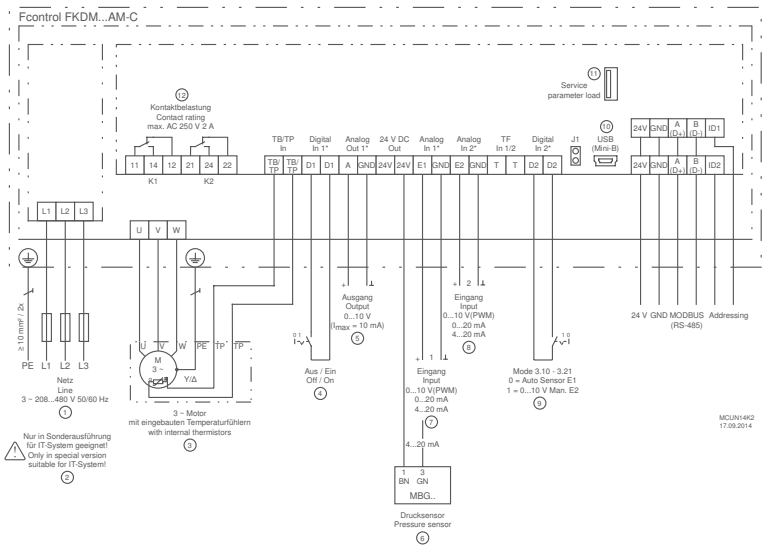
Advantages achieved by Fcontrol frequency inverters are:
- High energy saving
- operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connection of pressure sensors (refrigerant)

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Off / On
⑤ Output
⑥ - ⑧ Input
⑨ Mode 3.10 - 3.21
⑩ USB interface
⑪ Adressing
⑫ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Optional equipment

Add-on modules for frequency inverters

- IO add-on module type Z-Modul-B, Article No. **380052**
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-Modul-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- With the Z-Modul-B the rolling group control of compressors can be realized.
  The first compressor, group 1, is controlled continuously. The other groups 2-4 are switched on and off alternating. Thereby the operation time of the different compressors is evenly spread.
- LON® Add-on module type Z-Modul-L, Article No. **380086**
  For integration into a bus system LON® by a two-wire

Equipment/properties

Integrated all-pole effective sinefilter
Phase to phase and phase to protective earth. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

LC multi-function display with plain text display:
Different menu languages can be selected

Simple start-up by operating modes:
Typical operating modes for the compressor control can be selected.

Simple programmability:
Typical settings can easily be made: e.g. minimum speed setting, limitation of the maximum speed, inversions and limits. Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA

2 digital inputs D1 and D2:
Programmable, e.g. enable, switch over setpoint 1 or 2, switch over control or manual mode, output limitation, display of external fault, reset

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, group control etc.

Integrated motor protection function:
Connection possibility for PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 MODBUS RTU:
Integration into bus system

Set protection / memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Querying of occurred events, operating times etc.

Fcontrol, compressor control with display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FKDM5AM-C	**308344**	400	5	50	10	100	55	IP54	7.20	250 x 302 x 195.5
FKDM8AM-C	**308345**		8	50	10	150	55		7.90	250 x 302 x 195.5
FKDM12AM-C	**308346**		12	55	16	270	55		8.70	250 x 302 x 195.5
FKDM18AM-C	**308347**		18	40	20	440	55		14.20	280 x 355 x 239
FKDM22AM-C	**308348**		22	40	25	520	55		14.50	280 x 355 x 239
FKDM32AM-C	**308353**		32	50	35	700	55		29.60	386 x 525 x 283
FKDM40AM-C	**308351**		40	50	50	790	55		29.60	386 x 525 x 283
FKDM50AM-C	**308352**		50	50	63	910	55		32.80	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol for compressor control (2nd edition)

The 3~ Fcontrol frequency inverters with integrated all-pole effective sine filter are also available as special versions for controlling compressors in refrigerant technology. The integrated sine filter provides for operation of the compressor which is very kind on the motor. No shielded motor cables are required.
The compressor is the component with the greatest energy requirement in the refrigerant circuit. The requirement-based control of this components brings considerable saving potential in comparison with the usual on and off switching operation.
The frequency inverters are set as speed controllers for 0 – 10 V at the factory. The Fcontrol can autarchically control to the desired suction pressure in the plant optionally. For this we supply MBG pressure sensors with the measuring range -1 to +7 bar or 0 to 30 bar.

Advantages achieved by Fcontrol frequency inverters are:
- High energy saving
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

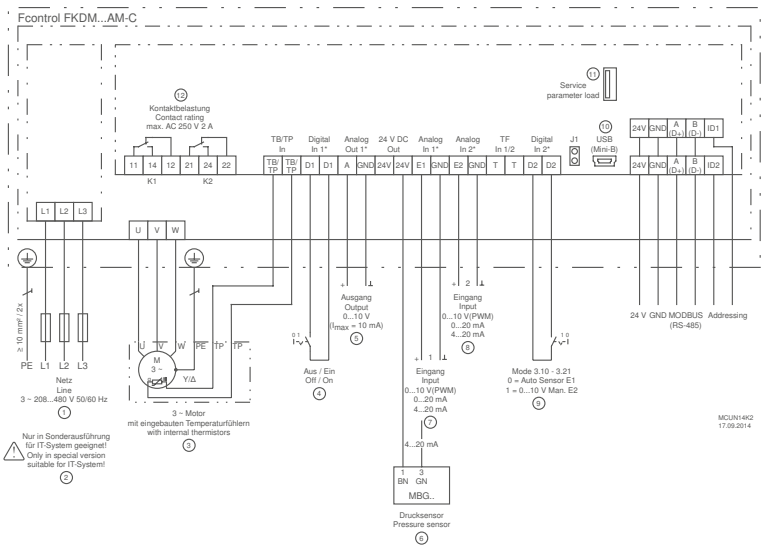
Frequency inverters of the 2nd edition enable modern operation by capacitive keys. This means that no mechanical key is pressed but operation takes place capacitively by touching the key surface. In addition there is a directly selectable On/Off key and two keys the functions of which depend on where you currently are in the menu (softkeys). A commissioning wizard and help texts are available for commissioning. There is a 2nd control circuit in the device and the possibility of retrofitting a clock module as a timer.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connection of pressure sensors (refrigerant)

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Off / On
⑤ Output
⑥ - ⑧ Input
⑨ Mode 3.10 - 3.21
⑩ USB interface
⑪ Adressing
⑫ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated all-pole effective sine filter
Phase to phase and phase to PE conductor. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

LC multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes for compressor control can be selected.

Activation of a 2nd control circuit in the selected operating mode:
By assignment of the sensor function input E (E2) for the 2nd control circuit.

Simple programmability:
Typical settings can be made easily: e.g. setting of a minimum speed, limitation of the maximum speed, inversions and limits. Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA, activation of 2nd control circuit

2 digital inputs D1 and D2:
Programmable, e. g. enable, switchover setpoint 1 or 2, switchover control or manual mode, output limitation, display of external fault, reset

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control, activation as output for 2nd control circuit

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, group control etc.

Integrated motor protection function:
Connection possibility of PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 for MODBUS RTU:
Integration into bus system, addressing of the unit manually or automatically possible

Interface USB:
For software update, communication with PC, etc.

Set protection / memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Query of occurred events, operating times etc.

Optional equipment

Add-on modules for frequency inverters
- IO add-on module type Z-module, Article No. **380052**
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-module-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- Clock module Z-module-RTC, Article No. **380056**, for retrofitting real-time clock and timer function. The switching clock can be assigned the same functions are the digital inputs (D1...D2).

Fcontrol for compressor control
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FKDM25AM-C	**308290**	400	25	55	35	550	55	IP54	21.50	279 x 405 x 260
FKDM32AM-C	**308284**		32	50	35	700	55		23.10	279 x 405 x 260

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontol Basic, modularly extendable speed controllers

The 3~ Fcontrol frequency inverters with integrated all-pole effective sine filter are available in the “Basic” version as speed controllers. The special feature of the Fcontrol Basic without display is the functional extendibility by pluggable add-on modules. This enables integration into different BUS networks. Functional extension as a controller is also possible with add-on modules.

In operation as a speed controller, the speed setting can be made by a master control by 0 – 10 V, e.g. by a ZIEHL-ABEGG control module of the UNIcon product series. The speed can also be set manually by connecting a potentiometer. Two-stage operation with adjustable speeds is also possible optionally.
The frequency inverters control asynchronous motors (external rotor motors, IEC standard motors) gently, requirement-based and energy saving.

Advantages achieved by Fcontrol frequency inverters are:
- High energy saving
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

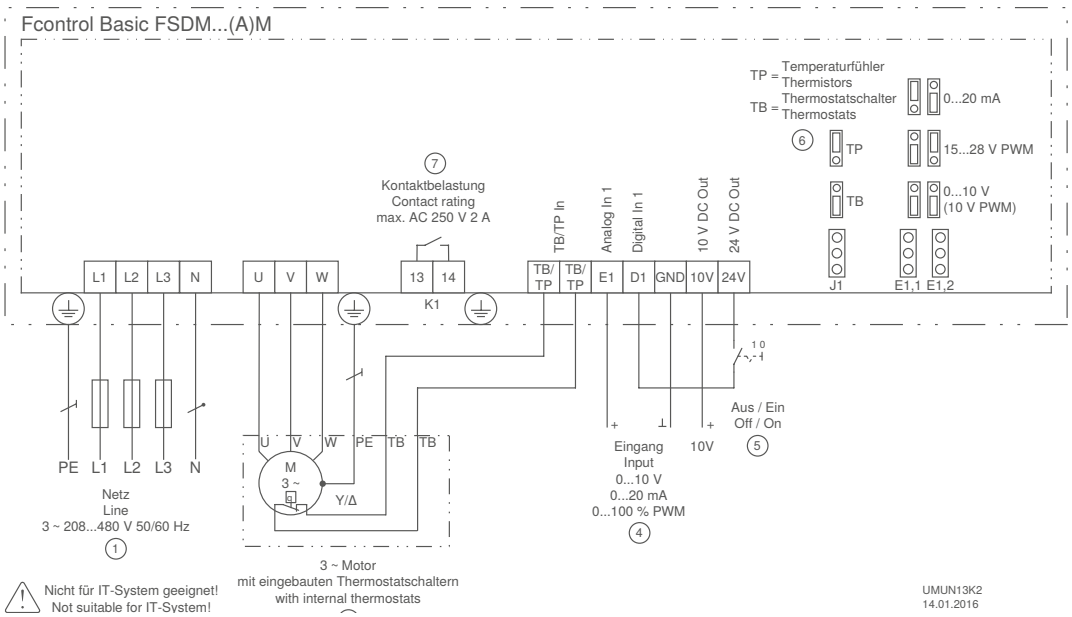
The 3~ Fcontrol Basic inverters are universally suitable for many different applications: E.g. refrigerant technology, air conditioning, agriculture, general ventilation tasks, clean room technology.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Add-on modules for functional extension

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Input
⑤ Off / On
⑥ TP = thermistor
TB = thermostat
⑦ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated all-pole effective sinefilter
Phase to phase and phase to protective earth. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in case of a fault. Max. load 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostats “TB” or thermistors “TP”.

Optional equipment

Add-on modules for functional extension:

Article No.	Type
349045	AM-MODBUS
349050	AM-MODBUS-W
349077	AM-MODBUS-WB
349046	AM-PREMIUM
349051	AM-PREMIUM-W
349065	AM-AMPsignal
349071	AM-ETHERCAT
349064	AM-CAN-OPEN
349049	AM-LON
349063	AM-PROFIBUS
349072	AM-PROFINET
349084	AM-BACNET

Fcontrol Basic without display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FSDM2.5M	**308251**	400	2.5	40	6	50	55	IP54	2.70	240 x 284 x 115
FSDM5M	**308238**		5	55	10	90	55		5.40	250 x 302 x 195.5
FSDM8M	**308239**		8	40	10	140	55		6.30	250 x 302 x 195.5
FSDM10M	**308262**		10	55	16	200	55		6.80	250 x 302 x 195.5
FSDM16M	**308302**		16	40	20	360	55		7.00	250 x 302 x 195.5
FSDM22M	**308314**		22	40	25	520	55		14.30	280 x 355 x 239
FSDM32M	**308316**		32	50	35	700	55		29.40	386 x 525 x 283
FSDM40M	**308318**		40	50	50	790	55		29.40	386 x 525 x 283
FSDM50M	**308320**		50	50	63	910	55		32.60	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol Basic, Speed controller with display

The 3~ Fcontrol frequency inverters with all-pole effective sine filter are available in the “Basic” version with integrated display as speed controllers.

The speed setting can be made by a master control by 0 – 10 V, e.g. by a ZIEHL-ABEGG control module of the UNIcon product series. The speed can also be set manually by connecting a potentiometer. Two-stage operation with adjustable speeds is also possible optionally.
The frequency inverters control asynchronous motors (external rotor motors, IEC standard motors) gently, requirement-based and energy saving.

Advantages achieved by Fcontrol frequency inverters are:
- High energy saving
- Operation without shielded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

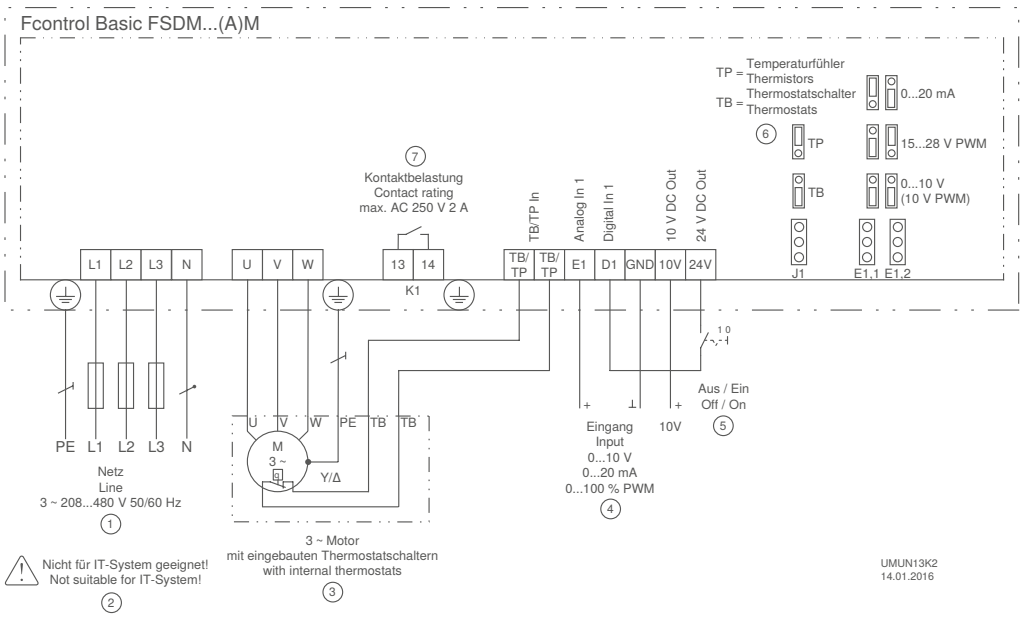
The 3~ Fcontrol Basic inverters are universally suitable for many different applications: E.g. refrigerant technology, air conditioning, agriculture, general ventilation tasks, clean room technology.

Input for sensors or speed settings through

0-10V

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Input
⑤ Off / On
⑥ TP = thermistor
TB = thermostat
⑦ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated all-pole sinefilter
Phase to phase and phase to protective earth. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

LC multi-function display with plain text display:
Setting of desired values: speeds, motor parameters. Display of modulation, operating states etc.

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in case of a fault. Max. load 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostats “TB” or thermistors “TP”.

Fcontrol Basic, Speed controller with display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
FSDM2.5AM	**308252**	400	2.5	40	6	50	55	IP54	2.90	240 x 284 x 115
FSDM5AM	**308240**		5	55	10	90	55		5.60	250 x 302 x 195.5
FSDM8AM	**308241**		8	40	10	140	55		6.50	250 x 302 x 195.5
FSDM10AM	**308260**		10	55	16	200	55		7.00	250 x 302 x 195.5
FSDM16AM	**308303**		16	40	20	360	55		7.20	250 x 302 x 195.5
FSDM22AM	**308315**		22	40	25	520	55		14.50	280 x 355 x 239
FSDM32AM	**308317**		32	50	35	700	55		29.60	386 x 525 x 283
FSDM40AM	**308319**		40	50	50	790	55		29.60	386 x 525 x 283
FSDM50AM	**308321**		50	50	63	910	55		32.80	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Fcontrol Basic 5-Step, Speed controller

The 3~ Fcontrol frequency inverters with all-pole effective sine filter are available in the “Basic” version with integrated 5-step switch as speed controllers.

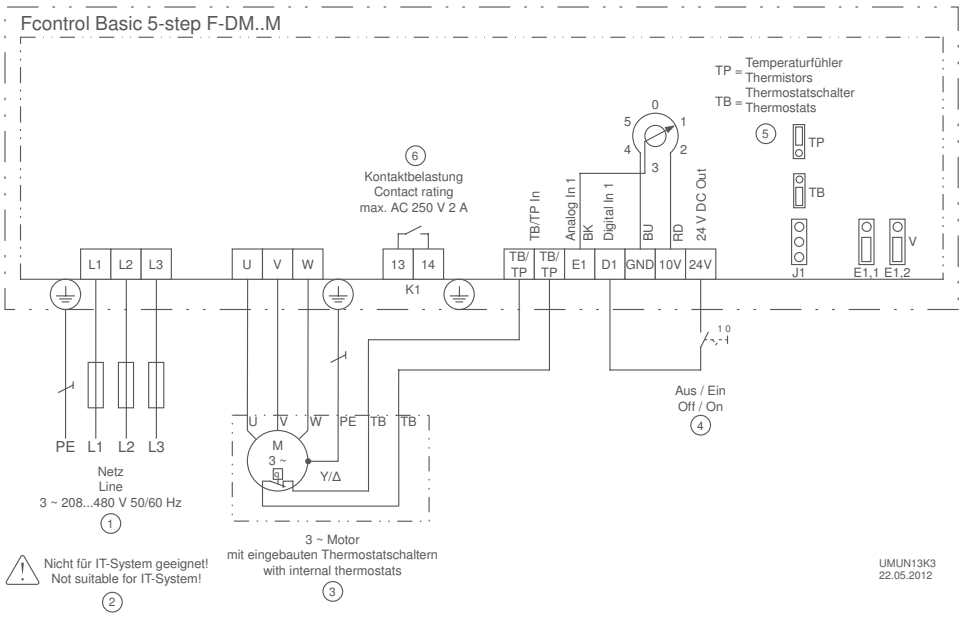
The speed setting is made by setting manually directly in the unit. This makes the devices perfectly suitable for replacing transformer control units by the modern frequency inverters.
The frequency inverters control asynchronous motors (external rotor motors, IEC standard motors) gently, requirement-based and energy saving.

Advantages achieved by Fcontrol frequency inverters are:

- High energy saving
- Operation without shoelded motor cables
- The cable length is not limited by the Fcontrol
- Operation without electromagnetic motor noises (ideal for noise sensitive areas)
- No danger to motors (these must not be suitable for frequency inverters) because they are supplied with sinusoidal voltage according to the mains voltage.

The 3~ Fcontrol Basic 5-Step inverters are especially suitable for the following applications: General ventilation tasks, agriculture.

Connection diagram



① Mains 3~ 208...480 V 50/60 Hz
② Not suitable for IT system!
③ 3~ motor with built-in thermostats
④ Off / On
⑤ TP = thermistor; TB = thermostat
⑥ Contact load max. AC 250 V 2 A

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment / properties

Integrated, all-pole effective sine filter
Phase to phase and phase to PE conductor. Thus sinusoidal output voltage. Frequency inverter typical measures such as shielded motor cables are not necessary.

Simple operation and setting
Desired speeds are set by the 5-step switch

1 digital input
D1 – 24 V: Enable function On/Off

1 potential-free fault indication contact
The contact drops out in the event of a fault. Max. load 250 V, 2A

Integrated motor protection function
Connection possibility for thermostat “TB” or thermistor “TP”

Fcontrol Basic 5-step
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
F-DM2.5M	**308255**	400	2.5	40	6	50	55	IP54	2.80	240 x 284 x 132
F-DM5M	**308256**		5	55	10	90	55		5.50	250 x 302 x 212
F-DM8M	**308257**		8	40	10	140	55		6.40	250 x 302 x 212
F-DM10M	**308258**		10	55	16	200	55		6.90	250 x 302 x 212
F-DM16M	**308304**		16	40	20	360	55		7.10	250 x 302 x 212

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Frequency inverters

3~ Icontrol, universal controller with display

The Icontrol frequency inverters are provided preferably for the requirement-based and energy saving speed control of internal rotor motors (IEC standard motors).
All ZIEHL-ABEGG sensors can be combined with the universal frequency inverters. The actual value measured at the sensor is compared with the setpoint. This results in activation of the connected fan.It can be controlled to air flow or differential pressure especially for application in air conditioning.
Simple start-up is possible with the selectable operating modes available in the device.
Processes in other application areas can also be controlled. The frequency inverters can be used flexibly.
Versions with integrated main switch are available optionally.

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 / 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

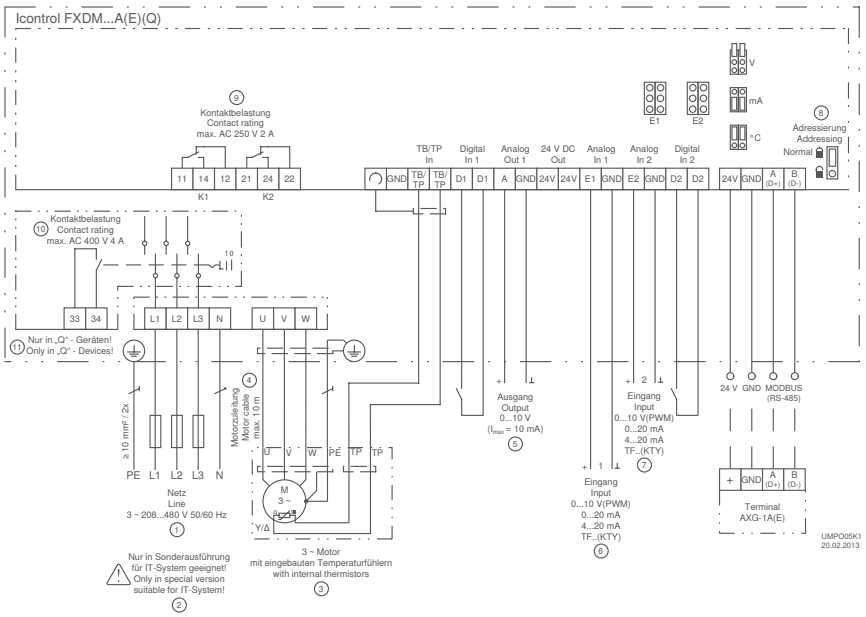
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Mains
② 3~ motor with thermistors
③ Motor supply line
④ Output
⑤ Input 1
⑥ Input 2
⑦ Addressing
⑧ Max. contact rating
⑨ Max. contact rating

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/characteristics:

Multifunctional display with plain text:
Various menu languages can be selected

Simple commissioning through operating modes:
Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Easy to program:
Typical settings can be made: e.g., default a minimum rotational speed, limit the maximum rotational speed, inverting and limits. Setting, e.g. for 2-stage mode

2 analogue inputs for sensors or set-point signals:
Analogue input E1 and E2: Setting through operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analogue input E2: programmable, e.g. comparison to Sensor 1, difference Sensor 1, average calculation, setpoint input, setpoint adjustment (e.g. dependent on outdoor temperature)

2 digital inputs D1 and D2:
Programmable, e.g. enable, switchover setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, invert control function, output limitation, display of external fault, reset, reverse the rotary direction

1 analogue output A1:
Setting through operating modes or manually programmable, e.g. e.g. output signal proportional control, output signal proportional input signal, invertible, 10 V fixed voltage, group control

2 digital outputs (relays) K1 and K2:
Setting through operating modes or manual programming, e.g. operating status, limits, external fault on digital input, enabling external devices, e.g. heating, dampers, group control of fans, etc.

Integrated motor protection function:
Connection facility for PTC thermistors or alternatively thermal contacts (TB or TP).

Interface RS485 MODBUS RTU:
Integration into bus system

Settings protection:
Enable settings protection from unauthorised access, restore implemented settings

Event memory:
Query events that have occurred, operating times, etc.

Optional equipment

The Icontrol frequency inverters are also available with an integrated main switch.

Type designation FXDM…AQ
The integrated main switch has the switch positions 0 and I (On/Off). In position 0 the switch can be locked with a padlock. An integrated auxiliary contact can be used to indicate the switch position. This enables you to recognise whether the switch has been actuated, for example, when a fault indication relay drops out.

Add-on modules for frequency inverters
- IO add-on module type Z-Modul-B, Article No. 380052
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-Modul-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- LON® Add-on module type Z-Modul-L, Article No. 380086
  For integration into a bus system LON® by a two-wire

Frequency inverter

3~ Icontrol, universal controller with display

Icontrol without main switch 3~ 208...480V 50/60Hz											
Type	**Article no.**	Rated voltage V	Rated current A	Rated power kW	Rated temperature °C	Max. line fuse A	Max. heat dissipation W	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
FXDM2.6A	**308063**	400	2.6	1.1	40	6	45	55	IP54	3.20	240 x 284 x 115
FXDM4.2A	**308148**		4.2	1.5	40	10	70	55		6.40	250 x 302 x 195.5
FXDM5A	**308149**		5	2.2	40	10	80	55		6.40	250 x 302 x 195.5
FXDM7.5A	**308150**		7.5	3	40	10	125	55		7.30	250 x 302 x 195.5
FXDM8.5A	**308151**		8.5	4	40	10	150	55		7.30	250 x 302 x 195.5
FXDM12A	**308152**		12	5.5	40	16	210	55		7.50	250 x 302 x 195.5
FXDM17A	**308153**		17	7.5	40	20	300	55		7.50	250 x 302 x 195.5
FXDM25A	**308112**		25	11	40	35	480	55		12.50	280 x 355 x 239
FXDM32A	**308078**		32	15	50	35	750	55		24.50	386 x 525 x 283
FXDM39A	**308080**		39	18.5	55	50	900	55		26.30	386 x 525 x 283
FXDM46A	**308088**		46	22	50	50	1050	55		26.30	386 x 525 x 283
FXDM62A	**308092**		62	30	40	63	1250	55		26.30	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverter

3~ Icontrol, universal controller with display

Icontrol with main switch 3~ 208...480V 50/60Hz											
Type	**Article no.**	Rated voltage	Rated current	Rated power	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	kW	°C	A	W	°C		kg	mm
FXDM2.6AQ	**308161**	400	2.6	1.1	40	6	45	55	IP54	3.40	240 x 284 x 149
FXDM4.2AQ	**308162**		4.2	1.5	40	10	70	55		6.60	250 x 302 x 229.5
FXDM5AQ	**308163**		5	2.2	40	10	80	55		6.60	250 x 302 x 229.5
FXDM7.5AQ	**308164**		7.5	3	40	10	125	55		7.50	250 x 302 x 229.5
FXDM8.5AQ	**308165**		8.5	4	40	10	150	55		7.50	250 x 302 x 229.5
FXDM12AQ	**308166**		12	5.5	40	16	210	55		7.70	250 x 302 x 229.5
FXDM17AQ	**308167**		17	7.5	40	20	300	55		7.70	250 x 302 x 229.5
FXDM25AQ	**308168**		25	11	40	35	480	55		12.80	280 x 355 x 273
FXDM32AQ	**308169**		32	15	50	35	750	55		25.30	386 x 525 x 317
FXDM39AQ	**308170**		39	18.5	55	50	900	55		27.10	386 x 525 x 317
FXDM46AQ	**308171**		46	22	50	50	1050	55		27.10	386 x 525 x 317
FXDM62AQ	**308172**		62	30	40	63	1250	55		27.10	386 x 525 x 317

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverters

3~Icontrol, universal device control with display (2nd edition)

The Icontrol frequency inverters are intended primarily for requirement-based and energy-saving speed control of internal rotor motors (IEC standard motors).
All ZIEHL-ABEGG sensors can be combined with the universal frequency inverters. The actual value measured at the sensor is compared with the setpoint. This results in control of the connected fan.
Control to volumetric air flow or differential pressure is possible for example especially for use in air-conditioning technology. Simple start-up is possible with the selectable operating modes in the device.
Processes in other application areas can also be controlled. The frequency inverters can be used flexibly.

Frequency inverters of the 2nd edition enable modern operation by capacitive keys. This means that no mechanical key is pressed but operation takes place capacitively by touching the key surface.
In addition, there is a directly selectable On/Off key and two keys the function of which depends on where you currently are in the menu (softkeys). A commissioning wizard and help texts are available for commissioning. There is a 2nd control circuit in the device and the possibility of retrofitting a clock module as a timer.

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

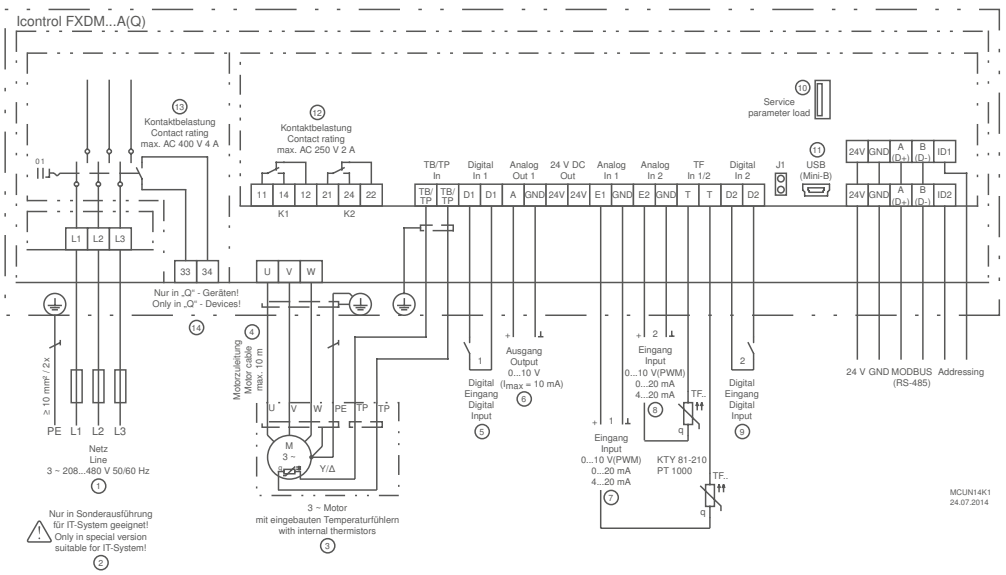
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m^3/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Mains
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermistors
④ Motor power line max. 10 m
⑤ Digital input 1
⑥ Output
⑦ Input 1
⑧ Input 2
⑨ Digital input 2
⑩ Service parameter load
⑪ USB (Mini-B)
⑫ Contact load
⑬ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Activation of a 2nd control circuit in the selected operating mode:
By assignment of the sensor function input 2 (E2) for the 2nd control circuit.

Simple programmability:
Typical settings can be made: e.g. setting of a minimum speed, limitation of the maximum speed, inversions and limits.
Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature dependent), activation of 2nd control circuit

2 digital inputs D1 and D2:
Programmable, e.g. enable, switchover setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, invert control function, output limitation, display of external fault, reset, direction of rotation reversal

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control, activation as output for 2nd control circuit

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operation indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, shutters, group control fans, etc.

Integrated motor protection function:
Connection possibility for PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 for MODBUS RTU:
Integration into bus system, addressing of the device manually or automatically possible.

Interface USB:
For software update, communication with PC, etc.

Set protection:
Activation set protection against unauthorised access, restoration of made settings

Event memory:
Query of occurred events, operating times etc.

Optional equipment

Add-on modules for frequency inverters
- IO add-on module type Z-Modul-B, Article No. **380052**
  If the integrated inputs and outputs are not sufficient, other inputs and outputs can be created with the Z-Modul-B. These are also programmable:
  - 1 analog input
  - 1 analog output
  - 3 digital inputs
  - 2 digital outputs (relays)
- Clock module Z-Modul-RTC, Article No. **380056**, for retrofitting real-time clock and timer function. The switching clock can be assigned the same functions are the digital inputs (D1...D2).

Icontrol, universal device control with display and main switch (2nd edition)
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated power	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	kW	°C	A	W	°C		kg	mm
FXDM25AQ	**308288**	400	25	11	55	35	430	55	IP54	18.40	279 x 405 x 294
FXDM32AQ	**308282**		32	15	55	35	540	55		19.80	279 x 405 x 294

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Icontrol, universal device control with display (2nd edition)
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated power	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	kW	°C	A	W	°C		kg	mm
FXDM25A	**308287**	400	25	11	55	35	430	55	IP54	18.20	279 x 405 x 260
FXDM32A	**308281**		32	15	55	35	540	55		19.60	279 x 405 x 260

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverters

3~ Icontrol Basic, modularly extendable speed controllers

The Icontrol frequency inverters are intended preferably for requirement-based and energy saving speed control of internal rotor motors (IEC standard motors).
The special feature of the Icontrol Basic without display is the functional extendibility by pluggable add-on modules. This enables integration into different BUS networks. Functional extension as a controller is also possible with add-on modules.

In operation as a speed controller, the speed setting can be made by a master control by 0 – 10 V, e.g. by a ZIEHL-ABEGG control module of the UNIcon product series. The speed can also be set manually by connecting a potentiometer. Two-stage operation with adjustable speeds is also possible optionally.

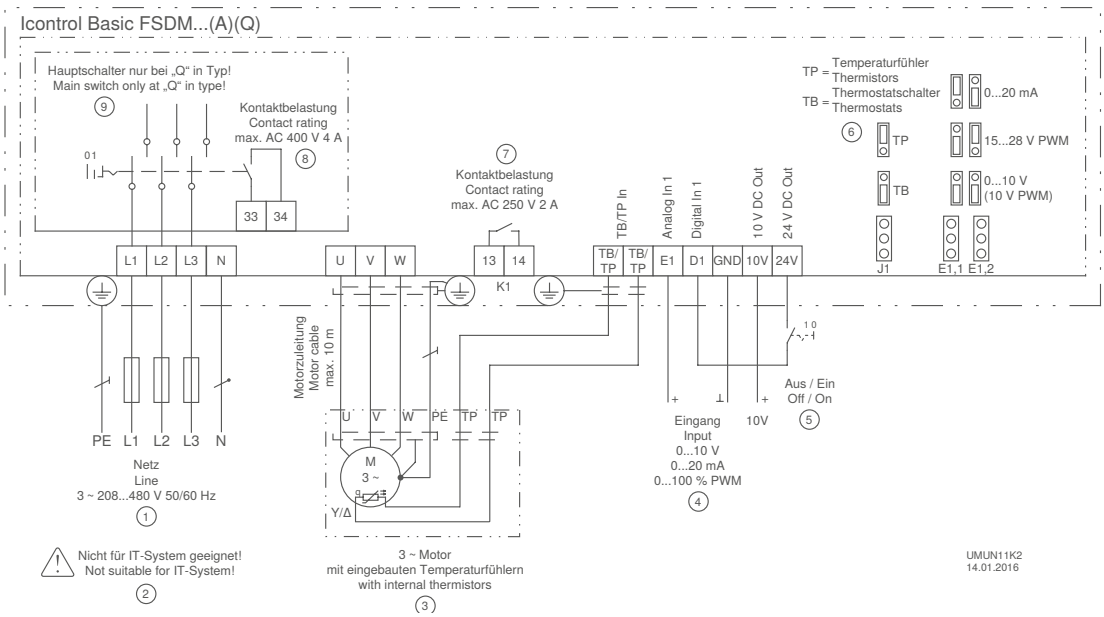
The 3~ Icontrol Basic inverters are universally suitable for many different applications: E.g. air conditioning, general ventilation tasks, combination with medium pressure axial fans MAXvent.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Add-on modules for functional extension

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Input
⑤ Off / On
⑥ TP = thermistor
TB = thermostat
⑦ Contact load max. AC 250 V 2 A
⑧ Contact load max. AC 400 V 4 A
⑨ Main switch only in “Q” in type!

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in case of a fault. Max. load 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostats “TB” or thermistors “TP”.

Optional equipment

Add-on modules for functional extension:

Article No.	Type
349045	AM-MODBUS
349050	AM-MODBUS-W
349077	AM-MODBUS-WB
349046	AM-PREMIUM
349051	AM-PREMIUM-W
349065	AM-AMPsignal
349071	AM-ETHERCAT
349064	AM-CAN-OPEN
349049	AM-LON
349063	AM-PROFIBUS
349072	AM-PROFINET
349084	AM-BACNET

Icontrol Basic without display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Rated power	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	kW	A	W	°C		kg	mm
FSDM2.6	**308214**	400	2.6	50	1.1	6	40	55	IP54	2.50	240 x 284 x 115
FSDM3.6	**308215**		3.6	40	1.5	6	55	55		2.60	240 x 284 x 115
FSDM5	**308216**		5	55	2.2	10	80	55		4.60	250 x 302 x 195.5
FSDM7	**308217**		7	50	3	10	105	55		4.70	250 x 302 x 195.5
FSDM8.5	**308218**		8.5	55	4	10	130	55		5.60	250 x 302 x 195.5
FSDM12	**308264**		12	55	5.5	16	175	55		5.70	250 x 302 x 195.5
FSDM17	**308269**		17	50	7.5	20	260	55		5.90	250 x 302 x 195.5
FSDM25	**308322**		25	40	11	35	480	55		12.30	280 x 355 x 239
FSDM32	**308324**		32	50	15	35	750	55		24.30	386 x 525 x 283
FSDM39	**308326**		39	55	18.5	50	900	55		26.10	386 x 525 x 283
FSDM46	**308328**		46	50	22	50	1050	55		26.10	386 x 525 x 283
FSDM62	**308330**		62	40	30	63	1250	55		26.10	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverters

3~ Icontrol Basic, speed controller with display, main switch optional

The Icontrol frequency inverters are intended for requirement-based and energy saving speed control of internal rotor motors (IEC standard motors).
The Icontrol Basic inverters are available as speed controllers in the version with integrated display and main switch.

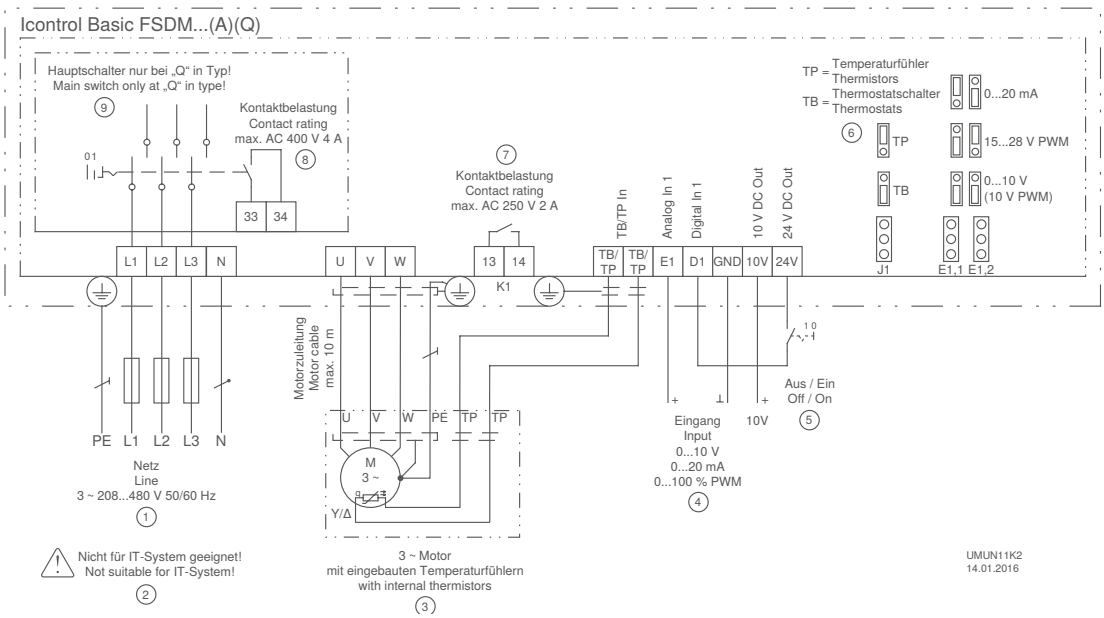
The speed setting can be made by a master control by 0 – 10 V, e.g. by a ZIEHL-ABEGG control module of the UNIcon product series. The speed can also be set manually by connecting a potentiometer. Two-stage operation with adjustable speeds is also possible optionally.

The 3~ Icontrol Basic inverters are universally suitable for many different applications: E.g. air conditioning, general ventilation tasks, combination with medium pressure axial fans MAXvent.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connection diagram



① Line
② Only suitable for IT system in special version!
③ 3~ motor with built-in thermostats
④ Input
⑤ Off / On
⑥ TP = thermistor
TB = thermostat
⑦ Contact load max. AC 250 V 2 A
⑧ Contact load max. AC 400 V 4 A
⑨ Main switch only in “Q” in type!

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

LC multi-function display with plain text display:
Setting of desired values: Speeds, motor parameters Display of modulation, operating states etc.

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in case of a fault. Max. load 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostats “TB” or thermistors “TP”.

Optional version with integrated main switch:
Switch settings 0 - I. The main switch can be locked with a padlock in position 0.

Icontrol Basic with display
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Rated power	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	kW	A	W	°C		kg	mm
FSDM2.6A	308228	400	2.6	50	1.1	6	40	55	IP54	2.70	240 x 284 x 115
FSDM3.6A	308230		3.6	40	1.5	6	55	55		2.80	240 x 284 x 115
FSDM5A	308232		5	55	2.2	10	80	55		4.80	250 x 302 x 195.5
FSDM7A	308234		7	50	3	10	105	55		4.90	250 x 302 x 195.5
FSDM8.5A	308236		8.5	55	4	10	130	55		5.80	250 x 302 x 195.5
FSDM12A	308265		12	55	5.5	16	175	55		5.90	250 x 302 x 195.5
FSDM17A	308267		17	50	7.5	20	260	55		6.10	250 x 302 x 195.5
FSDM25A	308323		25	40	11	35	480	55		12.50	280 x 355 x 239
FSDM32A	308325		32	50	15	35	750	55		24.50	386 x 525 x 283
FSDM39A	308327		39	55	18.5	50	900	55		26.30	386 x 525 x 283
FSDM46A	308329		46	50	22	50	1050	55		26.30	386 x 525 x 283
FSDM62A	308331		62	40	30	63	1250	55		26.30	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Icontrol Basic with display and main switch
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Rated power	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	kW	A	W	°C		kg	mm
FSDM2.6AQ	308229	400	2.6	50	1.1	6	40	55	IP54	2.90	240 x 284 x 149
FSDM3.6AQ	308231		3.6	40	1.5	6	55	55		3.00	240 x 284 x 149
FSDM5AQ	308233		5	55	2.2	10	80	55		5.00	250 x 302 x 229.5
FSDM7AQ	308235		7	50	3	10	105	55		5.10	250 x 302 x 229.5
FSDM8.5AQ	308237		8.5	55	4	10	130	55		6.00	250 x 302 x 229.5
FSDM12AQ	308266		12	55	5.5	16	175	55		6.10	250 x 302 x 229.5
FSDM17AQ	308268		17	50	7.5	20	260	55		6.20	250 x 302 x 229.5
FSDM25AQ	308332		25	40	11	35	480	55		12.80	280 x 355 x 273
FSDM32AQ	308333		32	50	15	35	750	55		25.30	386 x 525 x 317
FSDM39AQ	308334		39	55	18.5	50	900	55		27.10	386 x 525 x 317
FSDM46AQ	308335		46	50	22	50	1050	55		27.10	386 x 525 x 317
FSDM62AQ	308336		62	40	30	63	1250	55		27.10	386 x 525 x 317

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverters

PMcontrol Basic, modularly extendable speed controllers

The PMcontrol Basic frequency inverters are intended for requirement-based, energy saving speed control of PM motors (permanent magnet excited synchronous motors).
In the “Basic” version the frequency inverters are speed controllers and can be controlled, for example, by 0 - 10 V. The products can also be extended functionally by pluggable add-on modules if necessary.
Add-on modules enable integration into different bus networks. Functional extension as a controller is also possible by add-on modules.

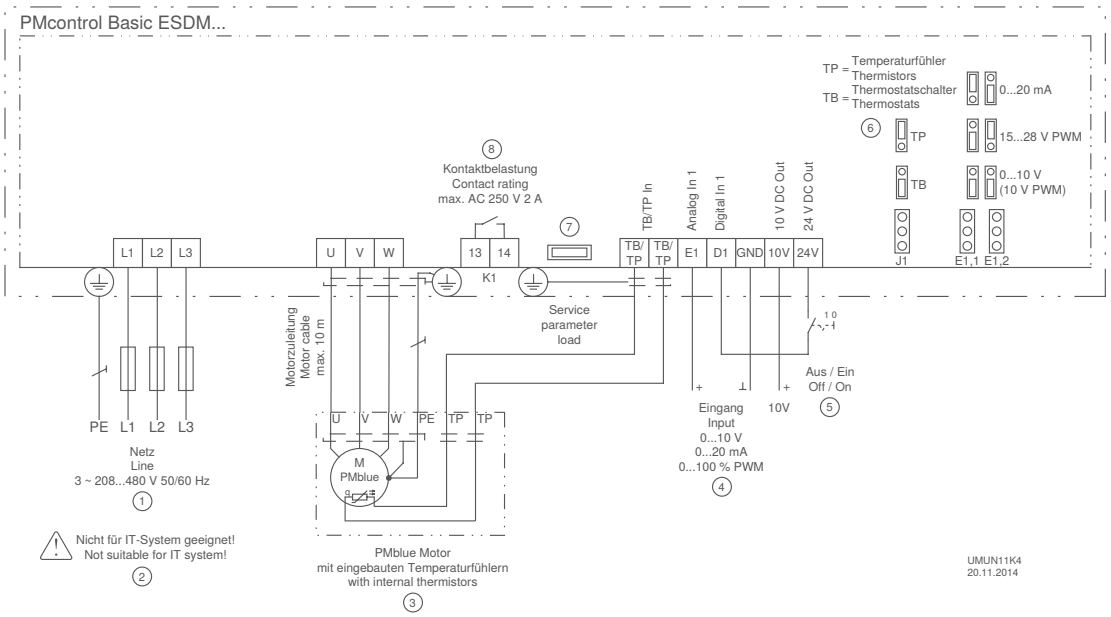
For fast commissioning, the frequency inverter is equipped with a slot for the ZAstick parameter memory. Necessary operating and motor data for optimum energetic and acoustic operation of the appropriate motor or fan are saved on the pluggable ZAstick parameter memory for the frequency inverter. As soon as voltage is applied to the frequency inverter, the data are loaded and saved as a factory setting.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Add-on modules for functional extension

Connection diagram



① Line 3~ 208 V...480 V, 50/60 Hz
② Not suitable for IT system!
③ PMblue motor with built-in thermistors
④ Input: 0...10 V, 0...20 mA, 0...100 % PWM
⑤ Enable device off/on
⑥ TP = thermistor
TB = thermostat
⑦ Interface for transfer of the motor parameters with ZAstick
⑧ Contact load max. 2 A / 250 V AC

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in the event of a fault. Max. load capacity with 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostat “TB” or thermistor “TP”.

Slot for ZAstick parameter memory:
As soon as voltage is applied to the frequency inverter, the data of the assigned motor or fan are loaded and saved as a factory setting. The ZAstick can stay in the slot or can be removed after installation.

Optional equipment

Add-on modules for functional extension:

Article No.	Type
349045	AM-MODBUS
349050	AM-MODBUS-W
349077	AM-MODBUS-WB
349046	AM-PREMIUM
349051	AM-PREMIUM-W
349065	AM-AMPsignal
349071	AM-ETHERCAT
349064	AM-CAN-OPEN
349049	AM-LON
349063	AM-PROFIBUS
349072	AM-PROFINET
349084	AM-BACNET

PMcontrol Basic, modularly extendable speed controllers
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Rated power	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	kW	A	W	°C		kg	mm
ESDM8.5	**306619**	400	8.5	55	4.0	10	200	55	IP54	5.60	250 x 302 x 195.5
ESDM17	**306620**		17	55	7.5	20	400	55		5.90	250 x 302 x 195.5
ESDM32	**306621**		32	55	15	35	650	55		19.60	279 x 405 x 260

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Frequency inverters

PMIcontrol Basic-M, for setting up internal rotor motors

The PMIcontrol Basic-M frequency inverters are specially developed frequency inverters for mounting on internal rotor motors. The AMblue drive system is created by combination with IEC standard motors (asynchronous motors). The PMblue drive system is created in combination with PM motors (permanent magnet excited synchronous motors).

In the “Basic” version the frequency inverters are speed controllers and can be controlled, for example, by 0 - 10 V. The products can be extended functionally by pluggable add-on modules if necessary. Add-on modules enable integration into different bus networks. Functional extension as a controller is also possible by add-on modules.

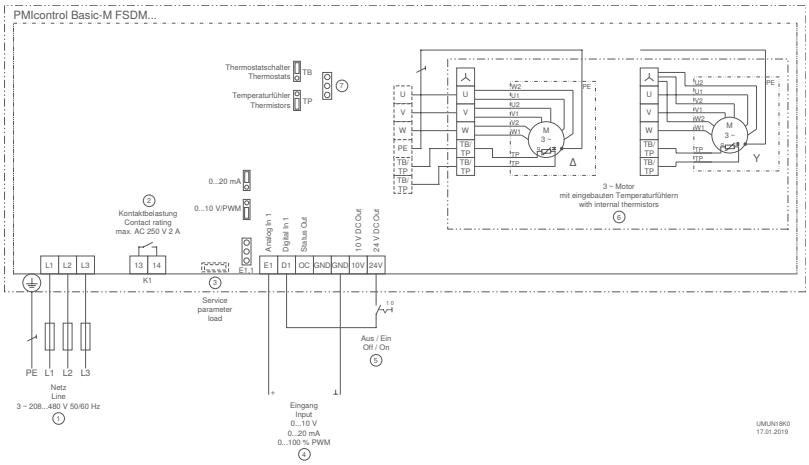
For fast commissioning, the frequency inverter is equipped with a slot for the ZAstick parameter memory. Necessary operating and motor data for optimum energetic and acoustic operation of the appropriate motor or fan are saved on the pluggable ZAstick parameter memory for the frequency inverter. This configuration also sets the frequency inverter to the respective motor technology (IEC standard motor or PM motor). As soon as voltage is applied to the frequency inverter, the data are loaded and saved as a factory setting.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0...10 V

Add-on modules for functional extension

Connection diagram



① Line 3~ 208...480 V, 50/60 Hz
② Not suitable for IT system!
③ Contact load max. 2A / 250 V AC
④ Interface for transfer of motor parameters with ZAstick
⑤ Input: 0...10 V, 0...20 mA, 0...100 % PWM
⑥ Enable device off/on
⑦ 3~ motor with built-in thermistors
⑧ TP = thermistor, TB = thermostat

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

1 analog input for speed setting:
Analog input E1: Setting by jumper to desired setting signal: 0-10 V, 0-20 mA or PWM

1 digital input:
D1 - 24 V: Enable function On/Off

1 potential-free fault indication contact:
The contact drops out in the event of a fault. Max. load capacity with 250 V, 2 A.

Integrated motor protection function:
Connection possibility for thermostat “TB” or thermistor “TP”.

Slot for ZAstick parameter memory:
As soon as voltage is applied to the frequency inverter, the data of the assigned motor or fan are loaded and saved as a factory setting. The ZAstick can stay in the slot or can be removed after installation.

Optional equipment

Add-on modules for functional extension:

Article No.	Type
349045	AM-MODBUS
349050	AM-MODBUS-W
349077	AM-MODBUS-WB
349046	AM-PREMIUM
349051	AM-PREMIUM-W
349065	AM-AMPsignal
349071	AM-ETHERCAT
349064	AM-CAN-OPEN
349049	AM-LON
349063	AM-PROFIBUS
349072	AM-PROFINET
349084	AM-BACNET

PMIcontrol Basic-M, for setting up internal rotor motors
3~ 208...480V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Rated power	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	kW	A	W	°C		kg	mm
FSDM5	**308340-UL**	400	5	55	2.2	10	80	55	IP54	3.42	203 x 285 x 141
FSDM7.5	**308341-UL**		7.5	50	3	10	120	55		3.47	203 x 285 x 141
FSDM8.5	**308342-UL**		8.5	40	4	10	140	55		3.47	203 x 285 x 141
FSDM12	**306622-UL**		12	55	5.5	20	175	55		6.10	254.2 x 344.2 x 154.5
FSDM17	**306623-UL**		17	50	7.5	20	260	55		6.10	254.2 x 344.2 x 154.5
FSDM25	**308309-UL**		25	40	11	35	430	55		18.60	320 x 430 x 214.5
FSDM32	**308310-UL**		32	50	15	35	560	55		19.60	320 x 430 x 214.5
FSDM39	**308311-UL**		39	40	18.5	50	730	55		22.60	366 x 476 x 214.5
FSDM46	**308312-UL**		46	40	22	50	900	55		22.70	366 x 476 x 214.5

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance
rated power = power rating of the internal rotor motor. The motor rated current is decisive for the assignment of the frequency inverter.

Fan with highly efficient AMblue or PMblue drive system

We offer controller motor adapter sheets for combining the PMIcontrol Basic-M with the motor.
AMblue = asynchronous motor combined with PMIcontrol Basic-M
PMblue = PM motor combined with PMIcontrol Basic-M

Frequency inverters

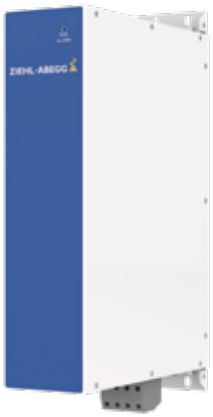
PMIcontrol Basic-M, for setting up internal rotor motors

Adapter sheet controller-motor

Manufacturer motor	Series	Size	Rated output power [kW]								
			2,2	3,0	4,0	5,5	7,5	11	15	18,5	22
ZIEHL-ABEGG	IMB3	090	00167300	-	-	-	-	-	-	-	-
		100	00167300	00167300	-	-	-	-	-	-	-
		112	00167300	-	00167300	-	-	-	-	-	-
		132	-	00167300	00167300	00160850	00160850	-	-	-	-
		160	-	-	00167301	00160850	00160850	00167158	00167158	-	-
		180	-	-	-	-	-	00167158	00167158	00167191	00167191
		200	-	-	-	-	-	-	00167158	00167191	00167191
		225	-	-	-	-	-	-	-	00167191	00167191
Siemens	1LE1	090	00167302	-	-	-	-	-	-	-	-
		100	00167302	00167302	-	-	-	-	-	-	-
		112	00167302	-	00167302	-	-	-	-	-	-
		132	-	00167302	00167302	00160883	00160883	-	-	-	-
		160	-	-	-	00160883	00160883	00167158	-	-	-
		180	-	-	-	-	-	00167140	00167158	00167192	00167192
		200	-	-	-	-	-	-	00167140	00167192	00167192
		225	-	-	-	-	-	-	-	00167192	00167192

Active harmonic filter

for frequency inverters or ECblue fans (EC motors)

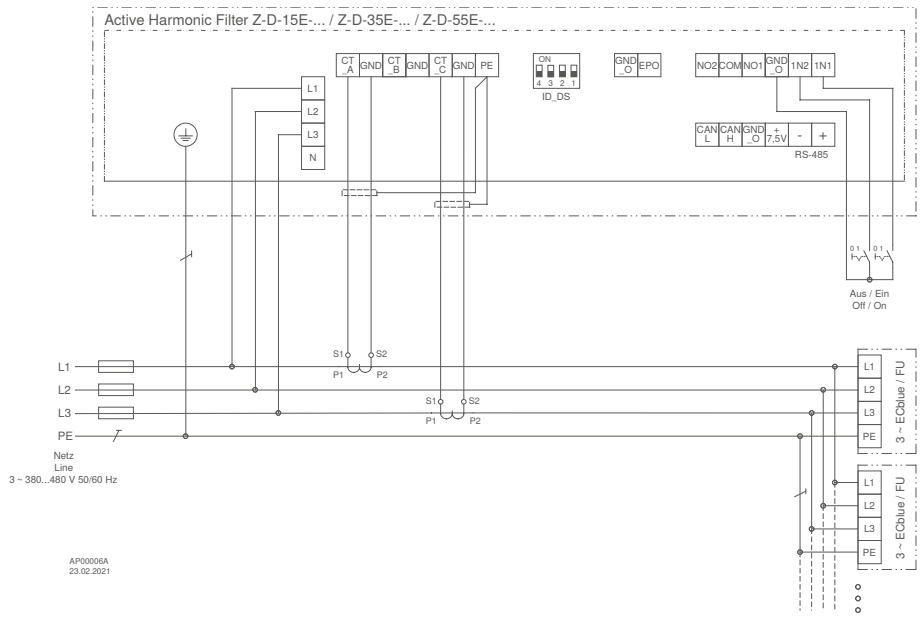


Active harmonic filters primarily reduce harmonics. These are caused by the characteristic power consumption of non-linear loads. Products with power electronics have become indispensable in our daily life. These are LED lamps, IT and telecommunication devices, as well as frequency inverters, pumps, compressors, uninterruptible power supplies, charging stations of electric cars, inverters of solar systems and many more.

Especially critical infrastructure institutions that contribute to the maintenance of important societal functions as well as use sensitive electrical equipment, such as hospitals, data centers or airports, attach great importance to reliability, voltage quality and stability of their supply.

With the different available sizes of the active harmonic filters of 15 A, 35 or 55 A a wide range of applications can be covered. The combination of this filters with ZIEHL-ABEGG ECblue fans and further control technology products, guarantees a perfect matching system, which also fulfills the requirements of the future.

Connection diagram



Equipment/properties

Active harmonic filter for the reduction of harmonic distortion of non-linear loads. Innovative SiC technology and Schottky diodes, combined with a continuously optimized algorithm, ensure highly harmonic compension. This active harmonic filter typically reduces the total harmonic distortion of the current (THDi) from 35% to below 5% for a fan or frequency power range of 8 - 30 kW, depending from chosen filter version. Different power ranges on request.

1x active harmonic filter with 2x calibrated current transformers, according to the maximum load current.

Auto Mode avaiable including
- Compensation of 2nd to 60th order harmonics
- Power factor correction
- Compensation of mains unbalance

Integrated LED:
For status display and error message

Interface RS485:
Setting and control via a computer

Note for product selection:

The rated current 15 / 35 / 55 A of the active filter, is the harmonically distorted current of the connected power electronic (e. g. ECblue fans, frequency inverters). This is to be determined via the respective THDi value of the connected power electronics.

Please request the required values to select the rated current for filter selection at ZIEHL-ABEGG.

The rated current of the current transformer (e. g. …-060 / -100 / -200) depends from the connected load.

Active harmonic filter
3~ 380…480V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	W	°C		kg	mm
Z-D-15E-060	349114	15	40	207	50	IP20	10.00	89 x 417 x 260
Z-D-35E-100	349117	35	40	415	50		17.00	105 x 560 x 360
Z-D-55E-200	349120	55	40	721	50		19.00	105 x 560 x 360

Products with UL authorisation on request


20
300
200
400
100
500
600
bar
15
50

Control module

Product overview

Control modules

UNIcon universal control module with MODBUS Master function

All ZIEHL-ABEGG sensors can be combined with the UNIcon CXE/CXG universal control module. The actual value measured at the sensor is compared with the setpoint. This results in the 0-10 V output signal. Two 0-10 V outputs are integrated. These serve to activate EC fans, frequency inverters and other devices.
Optionally, connected field devices can be activated by MODBUS-RTU. ZIEHL-ABEGG frequency inverters or ECblue fans can be conveniently addressed quickly and automatically. Universal control module also contains two separate control circuits, a real time clock and timer functions.
UNIcon universal control modules are especially suitable for the following applications: Refrigeration, air conditioning, general ventilation tasks, clean room technology. For applications in the areas mentioned, fast start-up is possible by selecting preset operating modes.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

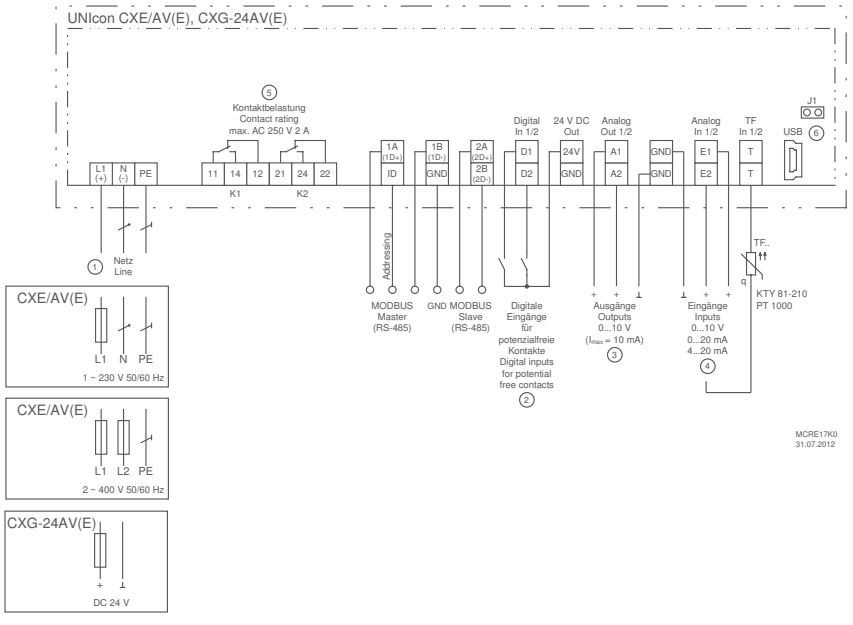
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m^3/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② Digital inputs for potential-free contacts
③ Outputs
④ Inputs
⑤ Contact load
⑥ Jumper for boot loader

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Activation of a second control circuit in the selected operating mode:
By assignment of the sensor function input 2 (E2) for the second control circuit.

Simple programmability:
e. g. setting of a minimum speed, limitation of the maximum speed, inversions and limits.
Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent)

2 digital inputs D1, D2:
Programmable, e.g. enable, switch over setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, control function reversal, output limitation, display of external fault

2 analog outputs for controlling external speed controllers, EC fans, other devices:
Analog output A1 and A2: Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, group control fans, etc.

2 interfaces RS485:
a) For connecting ZIEHL-ABEGG field devices with MODBUS RTU interface (e.g. field devices with integrated add-on module “AM-MODBUS”). With the possibility of automatic addressing of these field devices.
b) MODBUS Slave function of the UNIcon, for connection to a master control station (GLT).

Set protection/memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Query of occurred events, operating times etc.

Integrated real-time clock with timer:
The timer function behaves like a digital input, the desired function can be selected accordingly. Up to four switching times per day can be set for the desired function.

Optional equipment

Z-Modul-B02, article no. 380099, as additional I/O expansion.
- Two additional inputs E3 + E4 (0-10 V), option to program as digital inputs (see inputs D1,D2)
- One additional analog output (0-10 V), adjustable (see output A1, A2)

UNIcon universal control module

Line	Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
			A	W	°C		kg	mm
1~ 230V 50/60Hz	CXE/AV	320053	10	10	55	IP54	0.90	223 x 200 x 115
1~ 230V 50/60Hz	CXE/AVE	320056	10	10	55	IP00	0.65	166 x 106 x 55 mm / mounting depth: max. 105
2~ 400V 50/60Hz	CXE/AV	320055	10	10	55	IP54	0.90	223 x 200 x 115

Panel-mounting AVE (when installed IP54)

UNIcon universal control module
DC 24 V

Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	W	°C		kg	mm
CXG-24AV	320057	10	10	55	IP54	0.75	223 x 200 x 115
CXG-24AVE	320058	10	10	55	IP00	0.50	166 x 106 x 55 mm / mounting depth: max. 105

Panel-mounting AVE (when installed IP54)

Control module

UNIcon universal control module with MODBUS Master function (2nd edition)

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All ZIEHL-ABEGG sensors can be combined with the UNIcon CXE/CXG universal control module. The actual value measured at the sensor is compared with the setpoint. This results in the 0-10 V output signal. Two 0-10 V outputs are integrated. These serve to activate EC fans, frequency inverters and other devices.
Optionally, connected field devices can be activated by MODBUS-RTU. ZIEHL-ABEGG frequency inverters or ECblue fans can be conveniently addressed quickly and automatically. Universal control module also contains two separate control circuits, a real time clock and timer functions.
UNIcon universal control modules are especially suitable for the following applications: Refrigeration, air conditioning, general ventilation tasks, clean room technology. For applications in the areas mentioned, fast start-up is possible by selecting preset operating modes.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

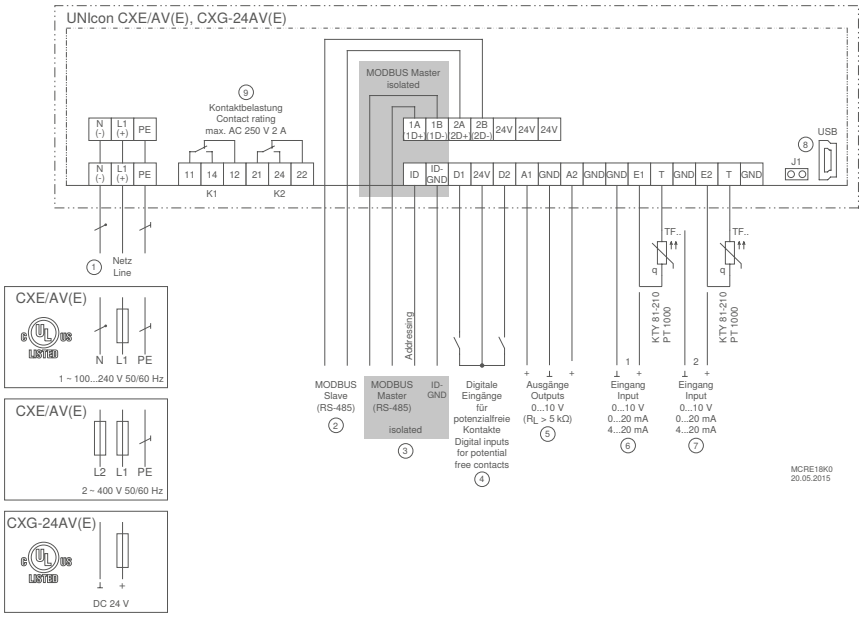
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② MODBUS Slave
③ MODBUS Master
④ Digital inputs for potential-free
⑤ Outputs A1 and A2
⑥ Input E1
⑦ Input E2
⑧ Jumpter for boot loader
⑨ Digital outputs (Relais)

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Activation of a second control circuit in the selected operating mode:
By assignment of the sensor function input 2 (E2) for the second control circuit.

Simple programmability:
e. g. setting of a minimum speed, limitation of the maximum speed, inversions and limits.
Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent)

2 digital inputs D1, D2:
Programmable, e.g. enable, switch over setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, control function reversal, output limitation, display of external fault

2 analog outputs for controlling external speed controllers, EC fans, other devices:
Analog output A1 and A2: Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, group control fans, etc.

2 interfaces RS485:
③ For connecting ZIEHL-ABEGG field devices with MODBUS RTU interface (e.g. field devices with integrated add-on module “AM-MODBUS”). With the possibility of automatic addressing of these field devices.
② MODBUS Slave function of the UNIcon, for connection to a master control station (GLT).

Set protection/memory for settings:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Query of occurred events, operating times etc.

Integrated real-time clock with timer:
The timer function behaves like a digital input, the desired function can be selected accordingly. Up to four switching times per day can be set for the desired function.

Optional equipment

Z-Modul-B02, article no. 380099, as additional I/O expansion.
- Two additional inputs E3 + E4 (0-10 V), option to program as digital inputs (see inputs D1,D2)
- One additional analog output (0-10 V), adjustable (see output A1, A2)

AM-BACNET-U, article no. 349088, for integration of the UNIcon MODBUS Master 2nd edition
into BACNET networks.

UNIcon universal control module, with UL authorisation (2nd edition)
1~ 100...240V 50/60Hz

Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	W	°C		kg	mm
CXE/AV	320066	10	10	55	IP54	0.63	166 x 175 x 60
CXE/AVE	320067	10	10	55	IP00	0.55	182 x 118 x 57.5

UNIcon universal control module, with UL authorisation (2nd edition)
24 V DC, max. 70 mA

Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	W	°C		kg	mm
CXG-24AV	320068	10	10	55	IP54	0.60	166 x 175 x 60
CXG-24AVE	320069	10	10	55	IP00	0.52	182 x 118 x 57.5

UNIcon universal control module, without UL authorisation (2nd edition)
2~ 400V 50/60Hz

Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	W	°C		kg	mm
CXE/AV	320070	10	10	55	IP54	0.74	166 x 175 x 60

Control module

UNIcon universal control module for pressure/temperature with control of “Adiabatik” moistening stages.

The UNIcon control module controls fans mounted on coolers, for example, dependent on pressure or temperature. For this, a 0-10 V signal is output.
To additionally increase the cooling performance (in peak load times), the control module can switch on up to three moistening stages by relays. Usually these relays activate servo motors which open valves and ensure moistening of the air sucked in by the cooler. The air can be cooled additionally by evaporation and ensures and increase in the cooler performance.
The UNIcon also controls the pump for the water supply line, closes or opens valves for the frost protection function (close main supply line, open valves for draining).

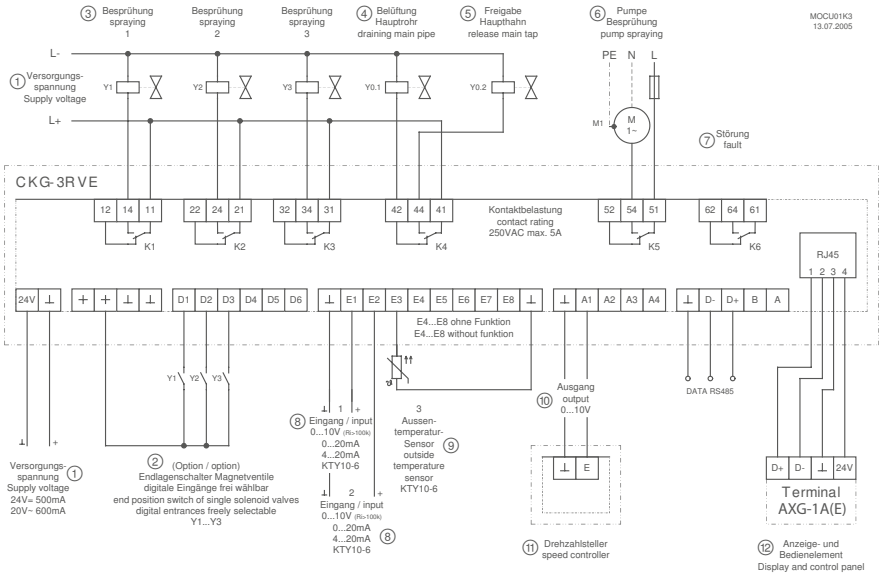
Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connecting pressure sensors (refrigeration),
e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

Connection diagram



① Supply voltage
② Option: Limit switches solenoid valves, digital inputs freely selectable
③ Spraying
④ Venting
⑤ Enable supply cock
⑥ Pump spraying
⑦ Fault
⑧ Input
⑨ Outdoor temperature sensor
⑩ Output
⑪ Speed controller
⑫ Display and operating element

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

LC multi-function display with plain text display:
Different menu languages can be selected

Simple start-up by opeating modes:
You can choose between different operating modes, for example, external activation, temperature control, pressure control condensers.

Simple programmability:
Typical settings for the activation of fans and activation of the spraying stages can be made easily.

3 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4 – 20 mA.
For input E2, special functions (external manual mode, external setpoint, measurement value for limit messages) can be programmed.
Input E3: To measure the outdoor temperature (the CKE-3ARV includes a TFR thermistor for this). Relay switching points for frost protection can be set depending on the outdoor temperature

6 digital inputs D1 to D6:
Setting by operating modes or manually programmable. Limit switches for valves, enable, switch over setpoint 1 or 2, external fault, control function inversion, output limitation, manual mode.

2 analog outputs A1 and A2:
Output A1: 0-10 V for activation of fans, e.g. by external speed controller (e.g. Fcontrol frequency inverter).
Output A2 manually programmable, e.g. 0-10 V proportional modulation, constant voltage, proportional input signal.

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable. Spraying stages 1 / 2 / 3, activation supply cock/pump (frost protection), operating indication, fault indication,
limits, external fault at digital input.

Optional equipment

Built-in module CKG-3RVE:
- Display and operating terminal AXG-1AE, Article No. 349008 for control panel installation.
  Alternative AXG-1A, Article No. 349008 in IP54 housing for wall mounting.
- STEP POWER power supply unit Article No. 380067 for DIN rail mounting
- Thermistor IP54 for measuring the outdoor temperature TFR, Article No. 00089846.

UNIcon with control of „Adiabatik“ moistening stages
1~ 100…240V 50/60Hz

Type	Article no.	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		W	°C		kg	mm
CKE-3ARV	320087	30	40	IP54	3.26	270 x 323 x 154

UNIcon with control of „Adiabatik“ moistening stages
DC 24 / AC 20 V

Type	Article no.	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		W	°C		kg	mm
CKG-3RVE	320017	10	40	IP20	0.40	157 x 111 x 59

Control modules

UNIcon sensor control module for pressure

The sensor control module for pressure measures and displays the pressure, for instance in refrigeration circuits. Depending on the desired setpoint and control range, the sensor control module generates
0-10 V to control the EC fan or, for example, a frequency inverter.

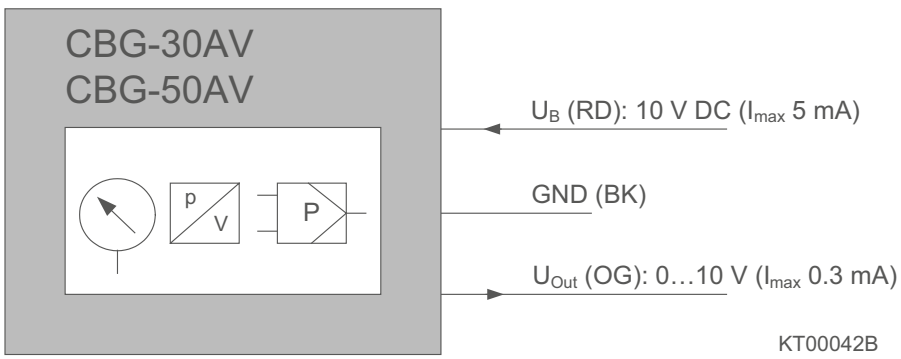
The sensor control module is supplied with 10 V DC from the fan or frequency inverter that it controls. No additional supply voltage is required.

Input for sensors or speed settings through

0-30
0-50
bar

Pressure sensor and control intelligence are combined in one device

Connection diagram



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Equipment/properties:

Analog pressure display for measured actual value:
Device versions for 0-30 bar and 0-50 bar are available
Display of the system pressure also without energy supply
A second scale shows the pressure in PSI

Setting of the desired system pressure by integrated potentiometer:
Version 0-30 bar: Setpoint 6-21 bar settable
Version 0-50 bar: Setpoint 10-35 bar settable

Setting of the desired control range by integrated potentiometer:
Version 0-30 bar: Control range 3-9 bar settable
Version 0-50 bar: Control range 5-15 bar settable

Extended, 3-wire cable approx. 2 m:
1 x output 0-10 V: for controlling EC fans, frequency inverters, other devices
1 x supply with 10 V DC: From the connected EC fan, frequency inverter, other device
1 x GND

Application/Function

The sensor control module is screwed through a female thread with the Schrader valve directly onto the refrigerant circuit on the condenser outlet.
Under the influence of pressure, an integrated elastic tube spring measuring element deforms. The measured pressure can be read immediately.
Through a Hall sensor, the deformation is transmitted non-contact and wear-free to the integrated control electronics. An automatic alignment with the measured value is made through the facility of being able to set the desired pressure in the plant with a potentiometer on the unit. The consequential 0-10 V signal controls connected EC fans, frequency inverters or other devices.

UNIcon sensor control module for pressure
DC 10 V

Type	Article no.	Minimum ambient temperature °C	Maximum ambient temperature °C	Set value range	Protection class	Weight kg
CBG-30AV	**320039**	-20	60	6...21 bar	IP65	0.17
CBG-50AV	**320040**	-20	60	10...35 bar	IP65	0.17

Suitable for all refrigerants except NH_3

Control modules

UNIcon sensor control module for differential pressure/air flow (2nd edition)

The sensor control module for differential pressure and volume flow measures and indicates the pressure or, optionally, the volume flow in a ventilation system. The calculation of the volume flow is performed by entering the K-factor of the fan inlet ring.

Depending on the desired setpoint and control range, the sensor control module generates 0-10 V to control the EC fan or e.g., a frequency inverter.

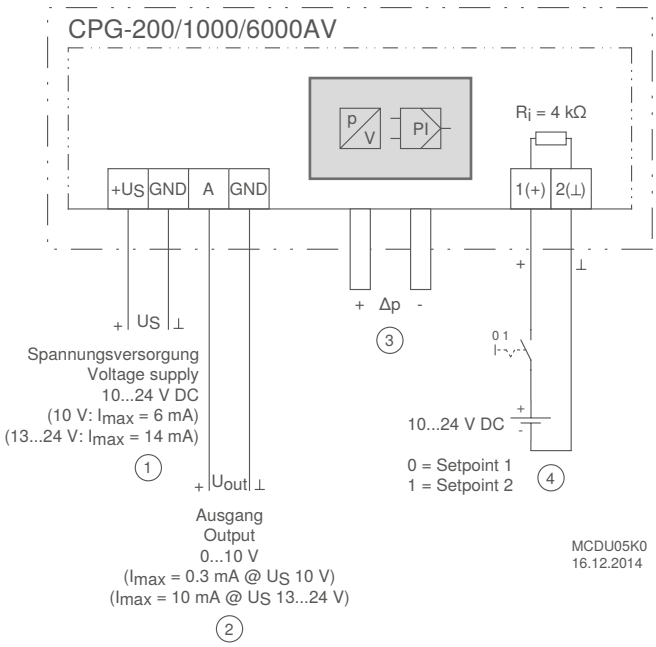
The sensor control module is supplied by the fan or frequency inverter which it controls, e.g., with 10-24 V DC. No additional supply voltage is necessary.

Input for sensors or speed settings through

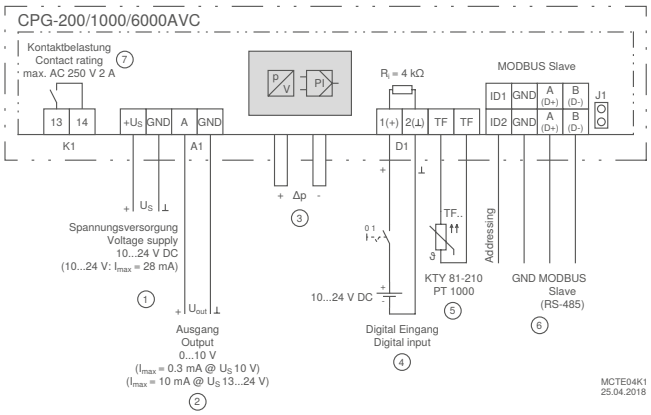
△Pa — Pressure sensor and control intelligence are combined in one device

m³ — Air flow sensor (by input of K-factor) and control intelligence are combined in one device

Connection diagram



① Line
② Outout
③ Connection sockets
④ Voltage input for switch



① Voltage supply 10...24 V DC
② Output 0...10 V
③ Pressure connections
④ Digital input (voltage ON/OFF)
⑤ Outdoor temperature sensor KTY81-210 or PT 1000
⑥ MODBUS Slave interface RS-485 (J1 plugged = Bus terminating resistor 150 Ω active)
⑦ Contact rating max. AC 250 V 2 A

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

Integrated display:
For pressure or volumetric air flow display and for programming
It is possible to switch over the display from SI units to Imperial units.

Simple commissioning by operating modes:
Operation as pressure or volumetric air flow sensor
Operation as pressure or volumetric air flow controller

Simple programmability by 3 buttons:
Selection of measuring range, input of setpoints (1/2),
Control range, K-factor for volumetric air flow determination,
minimum or maximum output signal.

Different measuring ranges can be selected depending on the version:
CPG-200AV(C): 0-50 / 100 / 150 / 200 Pa
CPG-1000AV(C): 0-200 / 300 / 500 / 1000 Pa
CPG-6000AV(C): 0-2000 / 3000 / 4000 / 6000 Pa
Maximum air flow measuring range: 65,000 m^3/h

Voltage input D1 (digital input):
Version CPG-...AV: switch over setpoint 1 or 2
Extended versions CPG-...AVC:
Enable, display of external fault, switch over setpoint 1 or 2

1 analog output:
for activation of EC fans, frequency inverters, other devices

Additional CPG-...AVC
Digital output K1 in CPG-...AVC:
Operating indication, fault indication, external fault at digital input, indication of limits.

Real-time clock with timer in CPG-...AVC:
For example automatic setpoint switch over

Possibility to shift the setpoint depanding from outdoor temperature with CPG-...AVC:
In operation as pressure- or volumetric air flow controller the set-point can be shifted depending from outdoor temperature (to bring in less air during cold outdoor temperature)

CPG-...AVC with interface RS485 für MODBUS RTU:
Integration into network, manually or automatic addressing possible.

Application/Function

The sensor control module is connected to the ventilation system via 2 pressure ports (pressure socket + and -).
The differential pressure registered on the ventilation system affects the sensor on a silicone membrane in the device. The deformation of the membrane is registered through a measuring element and transmitted to the integrated electronics. Function: Pressure rise on +, compared to pressure on - connection.
Optionally, the device can be operated as a pressure sensor, i.e., pressure indicator and proportional output signal 0-10 V corresponding to the set measurement range.
Optional operation as a volume flow sensor, i.e. volume flow (by entering the K-factor of the centrifugal fans) and 0-10 V proportional output signal corresponding to the set measurement range.
Optional operation as a control module for pressure or volume flow. The entered setpoint is compared to the actual value; the 0-10 V output signal results from that. That is used to trigger EC fans, frequency inverters or other devices.

UNIcon sensor control module for pressure
DC 10...24 V

Type	Article no.	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
CPG-200AV	320063	-10	60	IP54	0.23	106.3 x 137 x 56
CPG-1000AV	320064	-10	60	IP54	0.23	106.3 x 137 x 56
CPG-6000AV	320065	-10	60	IP54	0.23	106.3 x 137 x 56
CPG-200AVC	320075	-10	60	IP54	0.25	106.3 x 137 x 56
CPG-1000AVC	320076	-10	60	IP54	0.25	106.3 x 137 x 56
CPG-6000AVC	320077	-10	60	IP54	0.25	106.3 x 137 x 56

Dimensions with cable gland

Control modules

UNIcon temperature control module (2nd edition)

The CTG temperature control module can be combined with various temperature sensors.

The actual value measured on the sensor is compared with the set-point. That produces the 0-10 V output signal. This is used to trigger EC fans, frequency inverters or other devices.

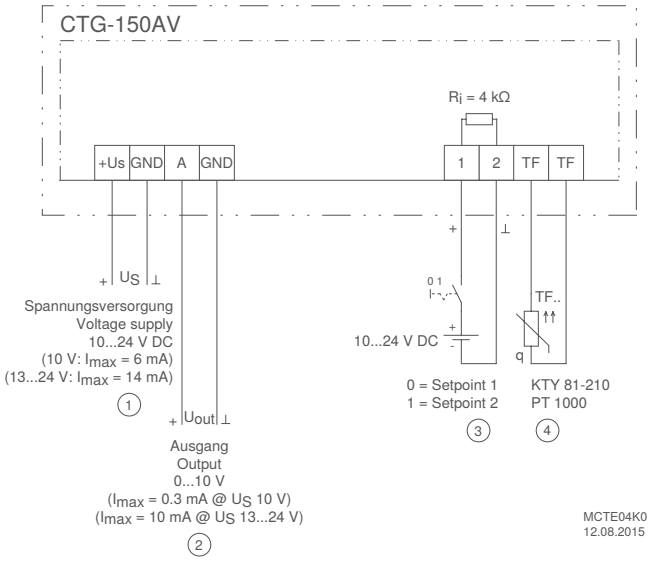
The control module is supplied with 10-24 V DC from the fan or frequency inverter it is triggering. No additional power supply necessary.

Optionally, the module can also be used as a temperature display. The 0-10 V output signal is then proportional to the set measurement range.

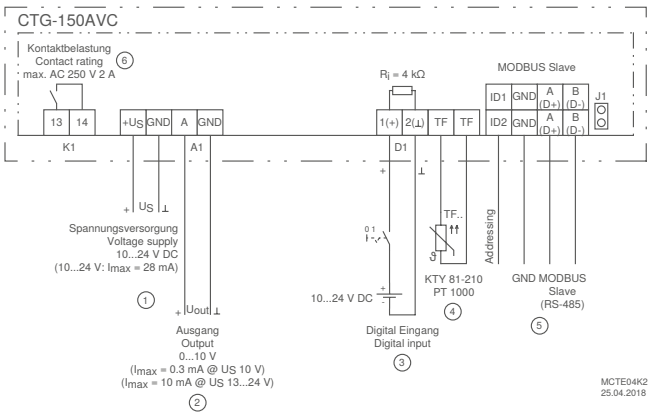
Input for sensors or speed settings through

Connection of temperature sensors,
e.g. Type TF.. sensors, device measurement range -50...+150 °C

Connection diagram



① Input 10...24V DC
② Output 0...10 V
③ Temperature sensor KTY 81-210 or PT 1000
④ Voltage input for switch



① Input 10...24 V DC
② Output 0...10 V
③ Digital input (voltage ON/OFF)
④ Temperature sensor KTY 81-210 or PT 1000
⑤ MODBUS Slave interface RS-485 (J1 plugged = Bus terminating resistor 150 Ω active)
⑥ Contact rating max. AC 250 V 2 A

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-1 (domestic)

Equipment/Characteristics

Integrated display:
For temperature display and for programming

Simple commissioning of the operating modes:
Operation as temperature sensor or temperature controller

Easy to program using 3 buttons:
Select measurement range, enter setpoint (1/2), control range, Minimum or maximum output signal

Adjustable measurement range when using as temperature sensor:
-50 °C...+150 °C

Voltage input D1 (digital input)
Versions CTG-150AV: Switchover setpoint 1 or 2
Extended versions: CTG-150AVC:
Enable, display of external fault, switch over setpoint 1 or 2

1 analogue output:
To control EC fans, frequency inverters, other devices

Additional CTG-150AVC:
Digital output K1 in CPG-150AVC:
Operating indication, fault indication, external fault at digital input, indication of limits two-posititon controller “heating/cooling”

Real-time clock with timer in CTG-150AVC:
For example automatic setpoint switch over

CTG-150AVC with interface RS485 for MODBUS RTU:
Integration into network, manually or automatic addressing possible

UNIcon temperature control module
DC 10...24 V

Type	Article no.	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
CTG-150AV	320073	-10	60	IP54	0.21	106.3 x 137 x 56
CTG-150AVC	320074	-10	60	IP54	0.22	106.3 x 137 x 56

Dimensions with cable gland


Esc
ZIEHL-ABEGG

Electronic voltage controllers

Product overview

Electronic voltage controllers

1~ Acontrol, universal controller with display and bypass main switch

Most ZIEHL-ABEGG external rotor motors can be voltage controlled. For simple and cost-effective speed control of these motors and fans, electronic voltage controllers are available.

For the various applications in refrigeration, air-conditioning and general ventilation technology we supply universal controllers from the Acontrol product family.

These universal controllers provide a facility for controlling temperature, pressure (for example, refrigerant pressure in cooling devices), differential pressure in ventilation systems and other physical factors.

These units have a multifunctional display used for programming and to display the measured values. A bypass main switch is integrated which allows bypassing the internal device electronics. In the bypass position the applied mains voltage is switched directly to the output.

The Acontrol universal devices are ideal for the following applications: refrigeration, air conditioning, agriculture, general air supply and ventilation, clean room technology.
Quick commissioning is facilitated for typical applications in the stated areas by selecting pre-programmed operating modes.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connecting pressure sensors (refrigeration),
e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

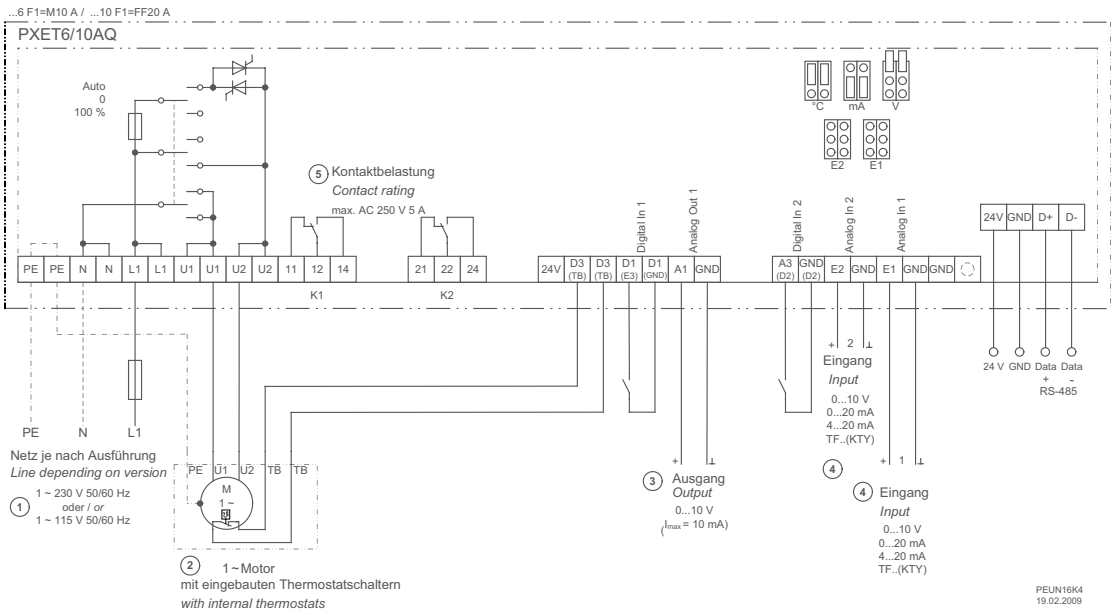
Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

Connecting differential pressure sensors (air conditioning),
e.g. type MPG.. sensors, measuring range 0...6000 Pa,
acquisition of volume flows up to 65000 m³/h

Connecting air velocity sensors,
e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

Connecting additional sensors,
e.g. combination sensors, CO_2,
sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Output
④ Input
⑥ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

LC multifunction display with clear text display:
Different menu languages are selectable

Simple commissioning by operating modes:
Typical operating modes e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

Easy programmability:
Typical settings can be made easily: e.g. setting of a minimum speed, limitation of the maximum speed, inversions and limits. Setting, e.g.for 2-step mode

2 analog inputs for sensors or setting signals:
Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent)

2 digital inputs D1 and D2:
Programmable, e.g. enable, switchover setpoint 1 or 2, switchover control or manual mode, switch over E1 or E2, control function reversal, output limitation, display of external fault, reset

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, shutters, group control, fans, etc.

Integrated motor protection function:
Connection possibility for thermostats “TB”.

Interface RS485 MODBUS RTU:
Integration into bus system

Set protection:
Activation of set protection against unauthorised access, restoration of made settings

Event memory:
Query of occurred events, operating times etc.

Acontrol, universal controller with display and bypass main switch
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PXET6AQ	303610	6	45	10	20	55	IP54	1.40	223 x 200 x 131
PXET10AQ	303611	10	40	16	40	55	IP54	2.40	240 x 284 x 132

Electronic voltage controllers

1~ Acontrol, universal controller with bypass main switch

A rotary knob is integrated into the front of these devices for speed or setpoint presetting. The illuminated display integrated into the rotary knob indicates the operating condition

A bypass main switch is integrated which facilitates bypassing the internal device electronics. In the bypass position, the applied mains voltage is switched directly to the output.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

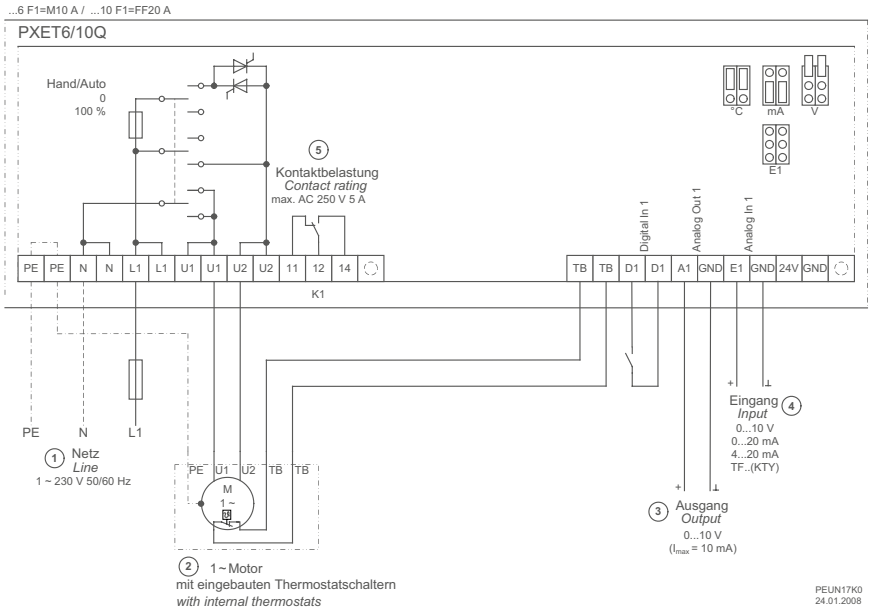
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m^3/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Output
④ Input
⑤ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Properties

Simple commissioning:
This takes place by Dip switches, potentiometers or jumpers.
By setting the Dip switches accordingly, the desired device function (operating modes: speed controller, temperature or pressure controller) can be set. The setpoint setting is made by potentiometers.

An analog input for sensors or setting signal
Analog input E1: Setting/activation by selection of the operating modes (Dip switches, jumpers) e.g. 0-10 V, 4-20 mA. In operation as a controller connection of the appropriate sensor.

1 digital input D1
For connection of an external, potential-free contact.
Enable function On/Off, external reset after motor fault, control function reversal, e.g. heating, cooling

1 analog output A1
Output signal proportional to modulation or constant voltage +10 V (max. 10 mA) for connection of an external potentiometer for speed setting

1 potential-free fault indication relay K1:
The relay drops out in the event of a fault. Max. load 250 V, 5 A.

Integrated motor protection function
Connection possibility for thermostats “TB”

Acontrol, universal controller with bypass main switch
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PXET6Q	303612	6	45	10	20	55	IP54	2.20	223 x 200 x 131
PXET10Q	303613	10	40	16	40	55		2.30	240 x 284 x 132

Electronic voltage controllers

1~ Acontrol, universal controller with high rated current

These versions do not have any controls on the front of the device. Commissioning is through internal dip switches, potentiometer or jumper. Along with higher rated current, these devices also have a wide voltage range.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

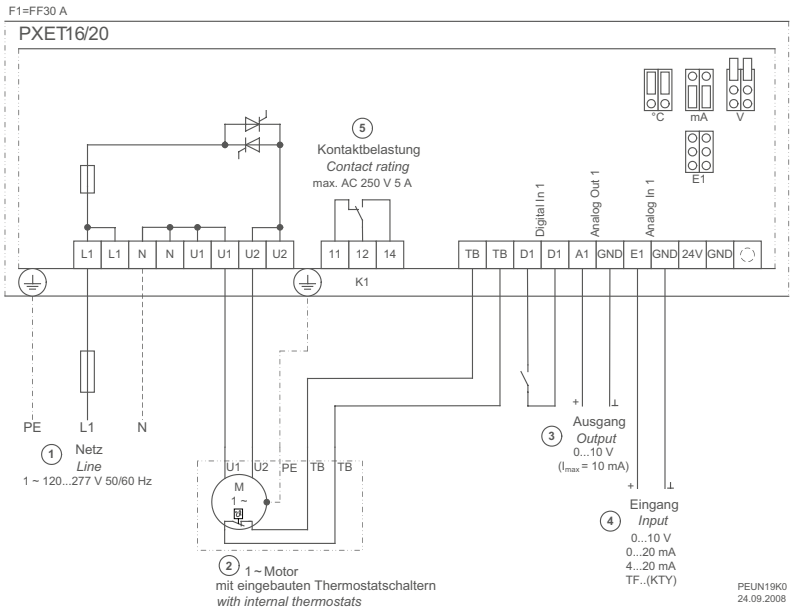
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Output
④ Input
⑤ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Properties

Simple commissioning:
This takes place by Dip switches, potentiometers or jumpers.
By setting the Dip switches accordingly, the desired device function (operating modes: speed controller, temperature or pressure controller) can be set. The setpoint setting is made by potentiometers.

An analog input for sensors or setting signal
Analog input E1: Setting/activation by selection of the operating mode (Dip switches, jumpers) e.g. 0-10 V, 4-20 mA. In operation as a controller connection of the appropriate sensor.

1 digital input D1
For connection of an external, potential-free contact.
Enable function On/Off, external reset after motor fault, control function reversal, e.g. heating, cooling

1 analog output A1
Output signal proportional to modulation or constant voltage +10 V (max. 10 mA) for connection of an external potentiometer for speed setting

1 potential-free fault indication relay K1:
The relay drops out in the event of a fault. Max. load 250 V, 5 A.

Integrated motor protection function
Connection possibility for thermostats “TB”

Acontrol, universal controller with high rated current
1~ 120...277V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PXET16	303598	230	16	55	20	25	55	IP54	1.90	240 x 284 x 115
PXET20	303599	230	20	55	25	30	55		2.30	240 x 284 x 115

Electronic voltage controllers

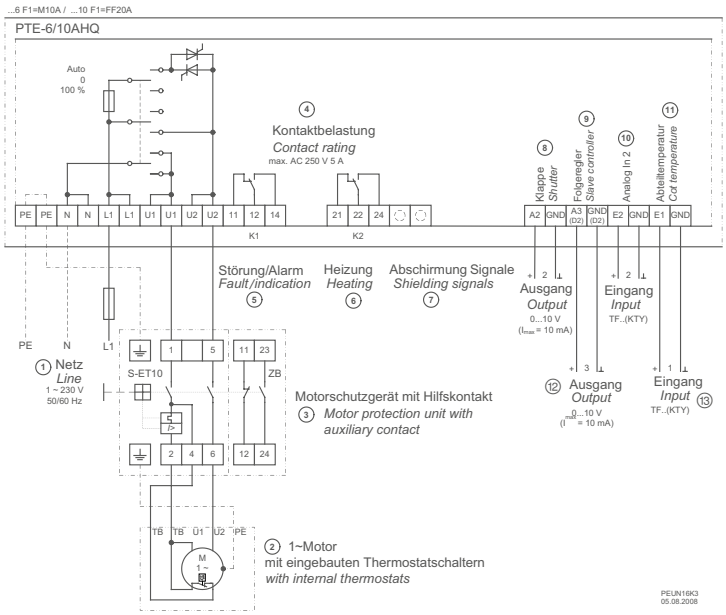
1~ Acontrol, temperature controller with display and bypass main switch

These versions are ideal for stable climate control in agriculture or for classic temperature-dependent air supply and ventilation jobs. These devices have a multifunctional display used for programming and to display the measured values. A bypass main switch is integrated which provides a facility to bypass the internal device electronics. In the bypass position, the applied line voltage is switched directly to the output.
A room temperature sensor in IP54 is included in the scope of delivery.

Input for sensors or speed settings through

Connecting temperature sensors,
sensor for input 1, type TFR included in scope of supply
Sensor for input 2, optional

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Motor protection unit with auxiliary contact
④ Contact rating
⑤ Fault/Alarm
⑥ Heating
⑦ Shielding signals
⑧ Shutter
⑨ Slave controller
⑩ Analogue In 2
⑪ Compartment temperature
⑫ Output
⑬ Input

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Characteristic

LC-Multifunctional display with plain text display
Various menu languages can be selected

Simple commissioning:
The device menu for the temperature control regulates the setpoints for triggering the fans, controlling a ventilation damper, triggering a heater, displaying messages in case the temperature is above or below the parameters, etc.l
Adjustable setpoint range: 0-40 °C

Input for temperature sensors:
Analogue input E1: Connection for room temperature sensor (included in scope of delivery)
Analogue input E2: Connection facility for an air-supply temperature sensor type TF…, or alternatively as a sensor for dampers or heating control possible

2 analogue outputs
Analogue output A2: to control a ventilation damper
Analogue output A3: as a follow-up controller or to control a heater.

2 digital outputs (relays) K1 and K2
K1: alarm relay, message in case the temperature is above or below set parameters.
K2: K2: Relay to controll a heater
K1 + K2 max. load with 250 V 5 A

Acontrol, function temperature controller with display and bypass main switch
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PTE-6AHQ	**303606**	6	45	10	20	55	IP54	1.50	223 x 200 x 131
PTE-10AHQ	**303607**	10	40	16	40	55		2.50	240 x 284 x 132

Electronic voltage controllers

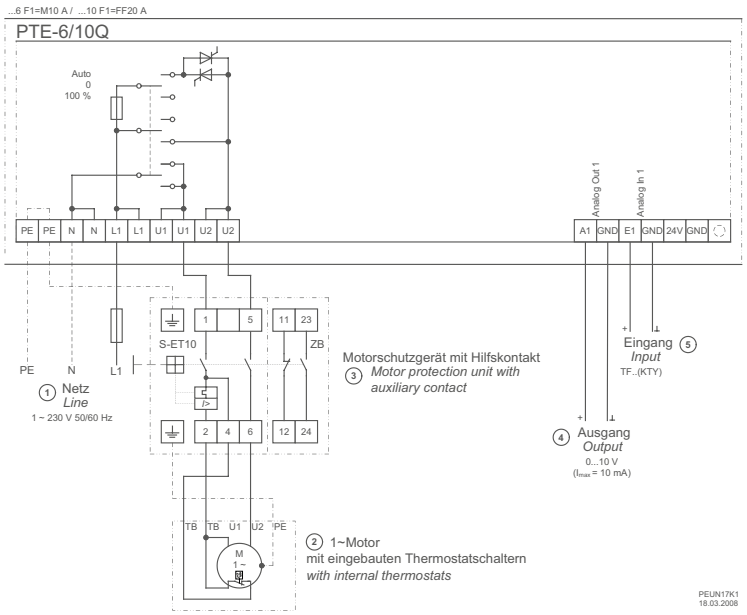
1~ Acontrol, temperature controller with bypass main switch

These versions are ideal for stable climate control in agriculture or for classic temperature-dependent air supply and ventilation jobs. A rotary knob is integrated in the front of the device to set the setpoint temperature. The illuminated display in the rotary knob indicates the operating condition. A bypass main switch is integrated, providing a facility to bypass the internal device electronics. In the bypass position, the applied line voltage is switched directly to the output.
A room temperature sensor in IP54 is included in the scope of delivery.

Input for sensors or speed settings through

Connection of thermistors,
Sensor for input 1, type TFR included in the scope of supply

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Motor protection unit with auxiliary contact
④ Output
⑤ Input

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Characteristics

Simple commissioning:
Set the desired temperature setpoint via a rotary knob. Setpoint 0...40 °C (or alternatively -26…+ 76 °C). Additional settings possible with internal potentiometer and dip switch.

Input for temperature sensors:
Analogue input E1: Connection for room temperature sensor (included in scope of delivery)

1 analogue output A1
Control for follow-up controller

Acontrol, temperature controller with bypass main switch
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PTE-6Q	**303618**	6	45	10	20	55	IP54	1.30	223 x 200 x 131
PTE-10Q	**303619**	10	40	16	40	55		2.30	240 x 284 x 132

Electronic voltage controllers

1~ Acontrol, speed controller or pressure/temperature controller

These versions are primarily used as speed controllers. They are beneficial for upstream control applications or if the device is combined with control modules from the ZIEHL-ABEGG UNIcon product family.
Depending on the device version, speeds can be pre-set. They can also be set to second stage operation with external switchover, or implemented via an external potentiometer.
The Acontrol voltage control devices also provide an option to control based on temperature or pressure (for example, refrigerant pressure in cooling equipment).

Input for sensors or speed settings through

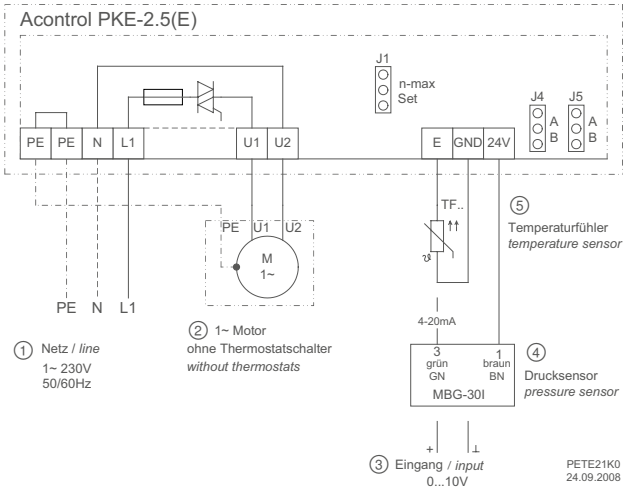
0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

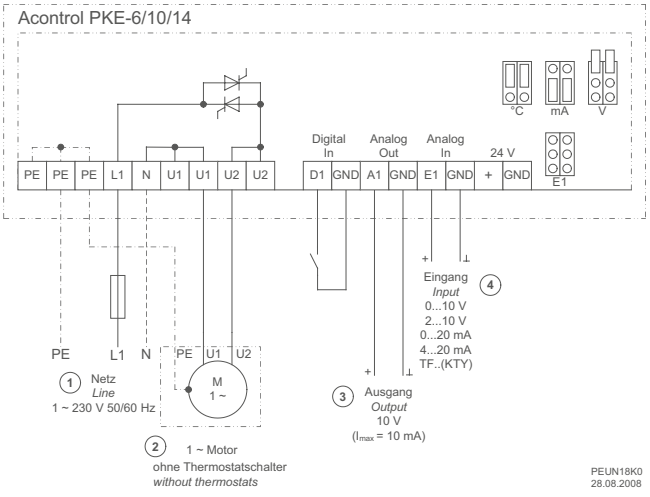
0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram





① Line
② 1~ Motor without thermostats
③ Input
④ Pressure sensor
⑤ Thermistor

① Line
② 1~ Motor without thermostats
③ Output
④ Input

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Motor line not shielded
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Characteristics

Simple commissioning:
Depending on the device version, commissioning through dip switch, potentiometer or jumper.
Set the corresponding dip switch to implement the desired device function (operating modes: speed controller, temperature or pressure controller). Set the setpoint default via potentiometer.

One analogue input for sensors or default signal
Analogue input E: Set/enable by selecting the operating mode (dip switch, jumper) e.g. 0-10 V, 4-20 mA. When operating as controller connection of corresponding sensor.

1 digital inputs D1
(only for versions 6-14 A):
For connecting an external, floating contact.
D1: enable function On/Off

1 analogue output A1
(only for versions 6-14 A):
Output signal proportional modulation or constant voltage +10 V (max. 10 mA) to connect an external potentiometer for speed preset

Acontrol, speed controller or pressure/temperature controller for cooling
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PKE-2.5E	**303620**	2.5	40	10	10	40	IP20	0.26	93 x 96 x 42
PKE-2.5	**303600**	2.5	40	10	10	40	IP54	0.45	100 x 190 x 75
PKE-6	**303614**	6	40	10	15	55		0.60	100 x 190 x 75
PKE-10	**303615**	10	40	16	25	55		0.90	100 x 190 x 75
PKE-14	**303625**	14	40	20	35	55		2.00	240 x 284 x 115

Electronic voltage controllers

1~ Acontrol, PID controller for e.g. differential pressure, air velocity

These versions are ideal especially suitable for the differential pressure control in refrigeration technology (control of roof fans, central ventilation systems) or for air velocity control (constant airflow in clean rooms).
The integrated voltage supply +24 V, max. 65 mA, is designed to connect differential pressure or air velocity sensors.

Input for sensors or speed settings through

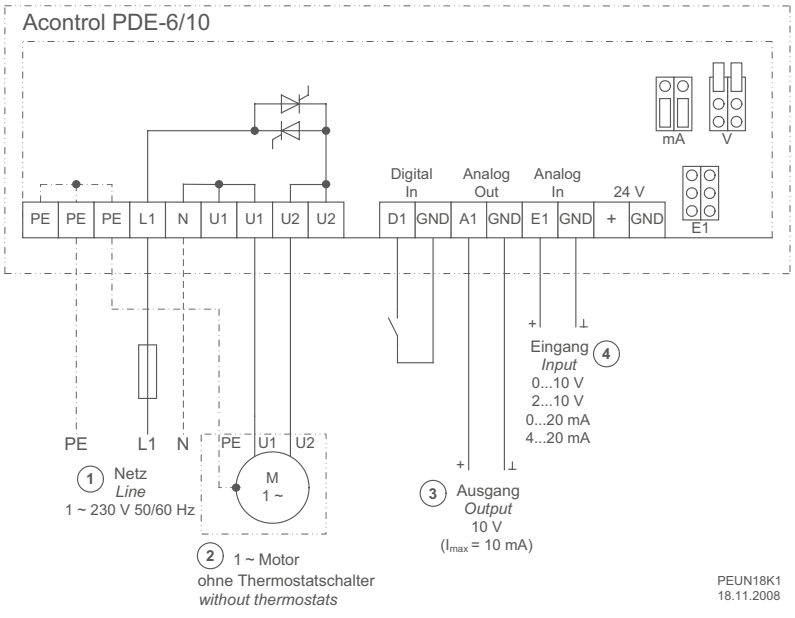
△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

Acontrol, PID controller for, e.g., differential pressure, air velocity
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PDE-6	**303623**	6	40	10	15	55	IP54	0.60	100 x 190 x 75
PDE-10	**303624**	10	40	16	25	55		0.80	100 x 190 x 75

Connection diagram



① Line
② 1~ Motor without thermostats
③ Output
④ Input

Electronic voltage controllers

1~ speed controller with rotary knob

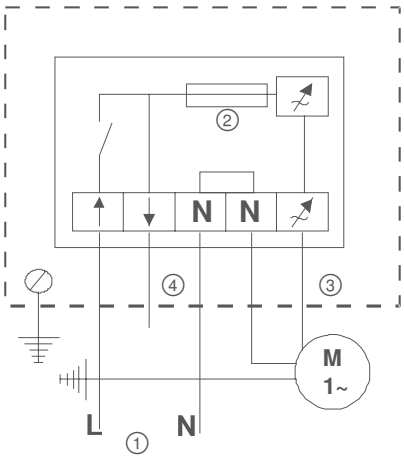
These devices for continuous speed control of one or more voltage-controlled 1~ fans have a knob installed at the front. This knob sets the desired speed. The speed controller starts with maximum output voltage for safe start-up of the fan.
An integrated operating indicator lamp shows the operating state of the speed controller.
Versions up to 4 Ampere:
Integrated switch function with the knob. One switched output for max. 1 Ampere.
Versions 6 and 10 Ampere:
Side integrated switch. One switched output for max. 6 Ampere.

Acontrol, function temperature controller with display and bypass main switch
1~ 230V 50/60Hz

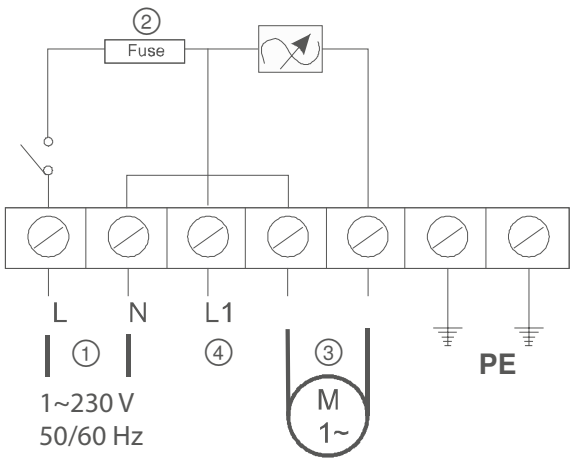
Type	Article no.	Rated current	Rated temperature	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	°C		kg	mm
P-E-1	303586	1	35	35	IP54 / IP44	0.24	82 x 82 x 65
P-E-2.5	303587	2.5	35	35		0.18	82 x 82 x 65
P-E-4	303588	4	35	35	IP54	0.36	82 x 82 x 65
P-E-6	303632	6	35	35		0.58	124 x 205 x 97
P-E-10	303633	10	35	35		0.62	124 x 205 x 97

Connection diagram

P-E-1...4



P-E-6/10



① Mains connection: 1~230 V, 50/60 Hz
② Built-in fuse
③ Controlled output to the motor
④ Uncontrolled output 230 V, or bridging of the ON/OFF contact

Electronic voltage controllers

3~ Ucontrol, universal controller with display

Most ZIEHL-ABEGG external rotor motors are voltage controllable. For simple and cost-effective speed control of these motors or fans, electronic voltage controllers can be supplied.

For the various applications in refrigeration, air-conditioning and general ventilation technology we supply universal devices from the Ucontrol product family.

These universal control devices also provide an option to control based on temperature, pressure (for example refrigerant pressure in cooling equipment), differential pressure in ventilation systems, or other physical factors.

The Ucontrol universal devices are ideal for following applications: refrigeration, air conditioning, agriculture, general air supply and ventilation jobs, clean room technology. By selecting pre-programmed operating modes, fast commissioning for typical applications in the stated sectors is possible.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

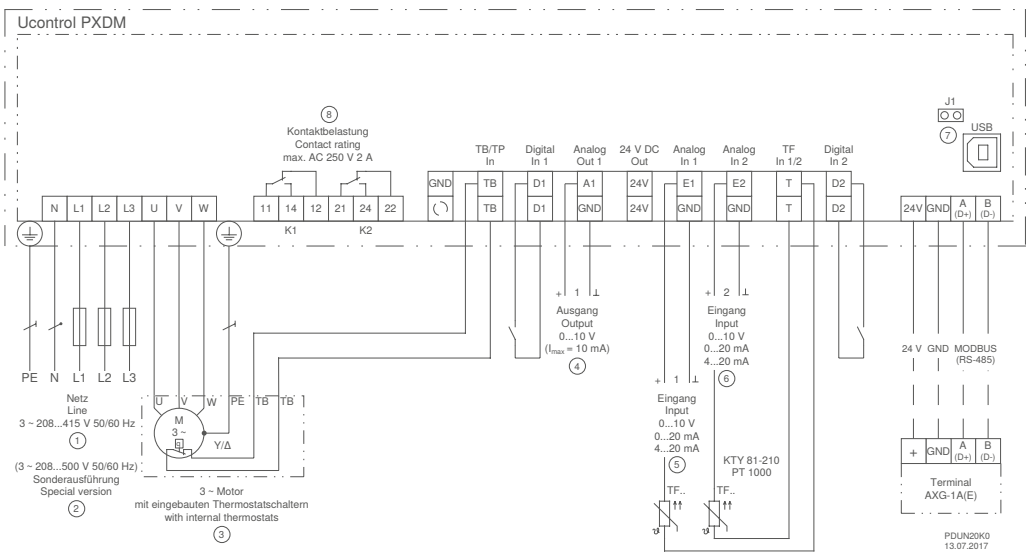
°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



① Line
② Special version
③ 3~ motor with built-in thermostats
④ Output
⑤ Input
⑥ Jumper for boot loader
⑦ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/properties

LC multi-function display with plain text display:
Different menu languages can be selected

Simple start-up by operating modes:
Typical operating modes, e.g. for air conditioning, refrigerant or ventilation technology can be selected.

Simple programmability:
Typical settings can be made easily: e.g. minimum speed setting, limitation of the maximum speed, inversions and limits. Setting, e.g. for 2-step mode

2 analog inputs for sensors or setting signals:
analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA
analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outdoor temperature-dependent)

2 digital inputs D1 und D2:
Programmable, e.g. enable, switchover setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, invert control function, output limitation, display of external fault, reset

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

2 digital outputs (relays) K1 and K2:
Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, shutters, group control, fans, etc.

Integrated motor protection function:
Connection possibility for PTC thermistors or alternatively thermostats (TB or TP).

Interface RS485 MODBUS RTU:
Integration into bus system

Interface USB:
For e.g. software update, communication with PC

Set protection:
Activation set protection against unauthorised access, restoration of made settings

Event memory:
Querying of occurred events, operating times, etc.

Optional equipment

IO add-on module type Z-Modul-B, Article No. **380052**
if the integrated inputs and outputs are not sufficient
other inputs and outputs can be created with the Z-Modul-B
. These are also programmable:
1 analog input
1 analog output
3 digital inputs
2 digital outputs (relays)

LON® Add-on module type Z-Modul-L, Article No. **380086**

Ucontrol, universal controller with display
3~ 208...415V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PXDM6A	**304594**	400	6	40	10	30	55	IP54	2.25	240 x 284 x 115
PXDM10A	**304595**		10	45	16	50	55		2.75	240 x 284 x 115
PXDM12A	**304596**		12	40	16	75	55		3.65	270 x 323 x 146
PXDM15A	**304597**		15	40	20	100	55		4.95	270 x 323 x 146
PXDM20A	**304598**		20	45	25	200	55		5.50	250 x 302 x 195.5
PXDM25A	**304599**		25	45	35	270	55		11.10	280 x 355 x 239
PXDM35A	**304600**		35	50	50	440	55		11.15	280 x 355 x 239
PXDM50A	**304639**		50	40	63	170	55		20.00	386 x 525 x 283
PXDM80A	**304640**		80	40	100	270	55		21.00	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Ucontrol, universal controller for increased ambient temperature with display
3~ 208...415V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PXDM6AZ	**304607**	400	6	50	10	25	55	IP54	2.25	240 x 284 x 115
PXDM10AZ	**304608**		10	50	16	45	55		2.75	240 x 284 x 115
PXDM12AZ	**304609**		12	50	16	70	55		3.65	270 x 323 x 146
PXDM15AZ	**304610**		15	50	20	95	55		4.95	270 x 323 x 146
PXDM20AZ	**304611**		20	50	25	190	55		5.50	250 x 302 x 195.5
PXDM25AZ	**304612**		25	50	35	260	55		11.10	280 x 355 x 239
PXDM35AZ	**304613**		35	55	50	430	55		11.15	280 x 355 x 239
PXDM50AZ	**304645**		50	50	63	160	55		18.60	386 x 525 x 283
PXDM80AZ	**304646**		80	50	100	255	55		19.60	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Electronic voltage controllers

3~ Ucontrol, universal controller with display and bypass main switch

Most ZIEHL-ABEGG external rotor motors are voltage controllable. For simple and cost-effective speed control of these motors or fans, electronic voltage controllers can be supplied.

For the various applications in refrigeration, air-conditioning and general ventilation technology we supply universal devices from the Ucontrol product family.

These universal control devices also provide an option to control based on temperature, pressure (for example refrigerant pressure in cooling equipment), differential pressure in ventilation systems, or other physical factors.

The Ucontrol universal devices are ideal for following applications: refrigeration, air conditioning, agriculture, general air supply and ventilation jobs, clean room technology. By selecting pre-programmed operating modes, fast commissioning for typical applications in the stated sectors is possible.

These versions have an additionally integrated bypass main switch. This offers the possibility of bypassing the internal device electronics. In the bypass position, the applied line voltage is switched directly to the output.

Input for sensors or speed settings through

0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V

0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

°C — Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

△Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m^3/h

m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s

CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Ucontrol, universal controller with display and bypass main switch
3~ 208…415V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PXDM6AQ	**304614**	400	6	40	10	30	55	IP54	2.55	240 x 284 x 132
PXDM10AQ	**304615**		10	45	16	50	55		3.05	240 x 284 x 132
PXDM12AQ	**304616**		12	40	16	75	55		4.00	270 x 323 x 162
PXDM15AQ	**304617**		15	40	20	100	55		5.30	270 x 323 x 162
PXDM25AQ	**304618**		25	45	35	270	55		11.40	280 x 355 x 256
PXDM35AQ	**304619**		35	50	50	440	55		11.45	280 x 355 x 256
PXDM50AQ	**304641**		50	40	63	170	55		20.70	386 x 525 x 299.5
PXDM80AQ	**304642**		80	40	100	270	55		22.80	386 x 525 x 299.5

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Electronic voltage controllers

3~ Dcontrol, speed controller or pressure/temperature controller

These versions are primarily used as speed controllers.This is beneficial for upstream control applications or when the devices are combined with control modules from the ZIEHL-ABEGG UNIcon product family. Alternatively, speeds can be pre-set. They can also be set to second stage operation with external switchover, or implemented via an external potentiometer.The Dcontrol voltage controllers also provide an option to control based on temperature or pressure (for example, refrigerant pressure in cooling equipment).

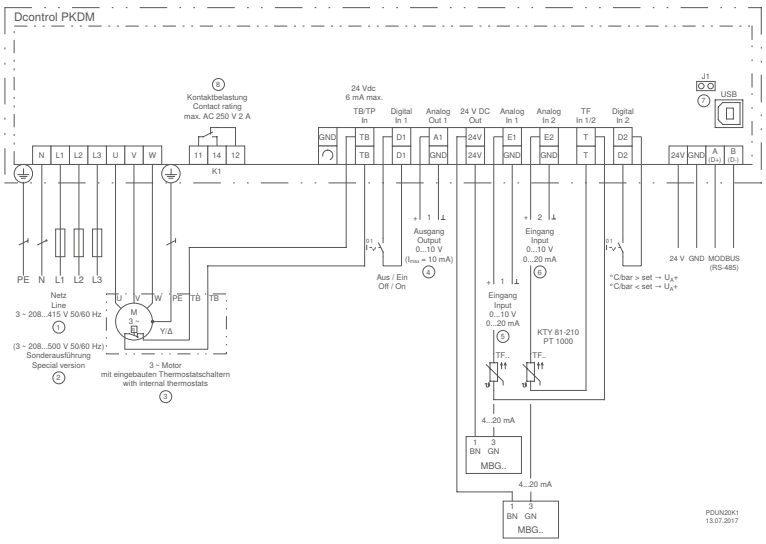
Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

Connection diagram



① Line 3~ 208..415 V 50/60 Hz
② Special version UL 3~ 208...500 V 50/60 Hz
③ 3~ motor motor with built-in thermostats
④ Output
⑤ Input
⑥ Input
⑦ USB interface
⑧ Contact load

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Characteristics

Simple commissioning with dip switch and potentiometer:
The controls are accessible directly in the device terminal compartment. Set the dip switch to select the desired device function (operating modes: speed controller, temperature, or pressure controller). The setpoint preset is set with the potentiometer.

Two analogue inputs for sensors or default signal
Analogue input E1 and E2: Set/enable by selecting the operating mode (dip switch), e.g., 0-10 V, 4-20 mA. When operating as a controller, e.g. connection of two sensors for controlling the higher value (e.g., two-loop condenser)

2 digital inputs D1 and D2
For connecting an external, floating contact.
D1: Enable function On/Off
D2: Reverse the control function, e.g. heating, cooling

1 analogue output A1:
Output signal proportional modulation or constant voltage
+10 V (max. 10 mA) to connect an external potentiometer for speed prese

1 floating alarm relay K1:
During a fault, the relay drops out. Max. load 250 V, 2 A.

Integrated motor protection function
Connection facility for thermostat “TB” or thermistor “TP”

Interface RS485 MODBUS RTU
Connection to bus system

Interface USB
e.g. for software update, communication with PC
(not on 50, 80 Ampere devices)

Dcontrol, speed controller or pressure/temperature controller
3~ 208...415V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PKDM6	**304587**	400	6	40	10	30	55	IP54	2.20	240 x 284 x 115
PKDM10	**304588**		10	45	16	50	55		2.70	240 x 284 x 115
PKDM12	**304589**		12	40	16	75	55		3.60	270 x 323 x 146
PKDM15	**304590**		15	40	20	100	55		4.90	270 x 323 x 146
PKDM20	**304591**		20	45	25	200	55		5.45	250 x 302 x 195.5
PKDM25	**304592**		25	45	35	270	55		11.05	280 x 355 x 239
PKDM35	**304593**		35	50	50	440	55		11.10	280 x 355 x 239
PKDM50	**304631**		50	40	63	170	55		19.50	386 x 525 x 283
PKDM80	**304632**		80	40	100	270	55		20.50	386 x 525 x 283

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Dcontrol, speed controller or pressure/temperature controller for increased ambient temperature
3~ 208...415V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PKDM10Z	**304601**	400	10	50	16	45	55	IP54	2.70	240 x 284 x 115
PKDM12Z	**304602**		12	50	16	70	55		3.60	270 x 323 x 146
PKDM15Z	**304603**		15	50	20	95	55		4.90	270 x 323 x 146
PKDM20Z	**304604**		20	50	25	190	55		5.45	250 x 302 x 195.5

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Electronic voltage controllers

3~ Dcontrol, with UL certification

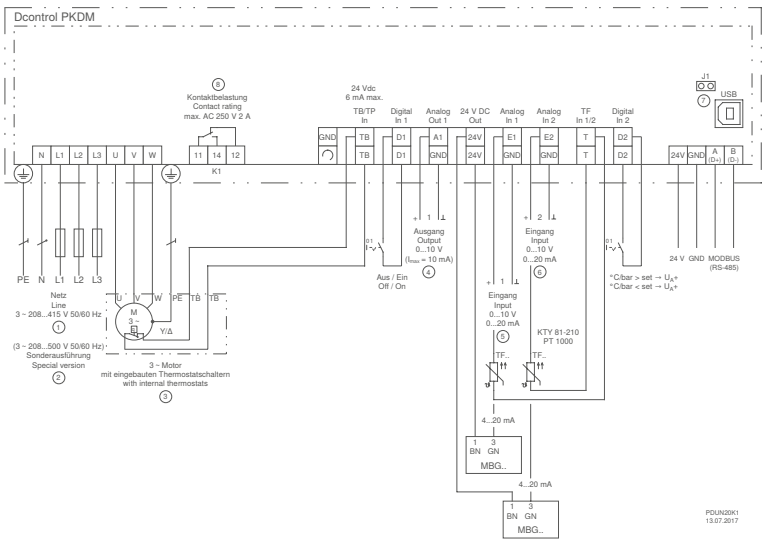
Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

Connection diagram



① Line 3~ 208..415 V 50/60 Hz
② Special version UL 3~ 208...500 V 50/60 Hz
③ 3~ motor motor with built-in thermostats
④ Output
⑤ Input
⑥ Input
⑦ USB interface
⑧ Contact load

Dcontrol, with UL certification

3~ 208...500V 50/60Hz

Type	Article no.	Rated voltage	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		V	A	°C	A	W	°C		kg	mm
PKDM10 (500V)	**304628**	500	10	45	16	50	55	IP54	2.80	240 x 284 x 115
PKDM15 (500V)	**304629**	500	15	40	20	100	55		5.00	270 x 323 x 146
PKDM25 (500V)	**304630**	500	25	45	35	270	55		11.20	280 x 355 x 239

Devices with a rated temperature below 55 °C can be used up to 55 °C with a reduction in performance.

Electronic voltage controllers

3~ Dcontrol, basic device for 5 amps

Version PKDT5 can be supplied for a maximum of 5 A rated current. The device is designed for a 400-415 V line voltage and is a cost-effective alternative to devices with a larger voltage range.

Input for sensors or speed settings through

Setting of the desired speed through device or by external default, e.g. 0…10 V

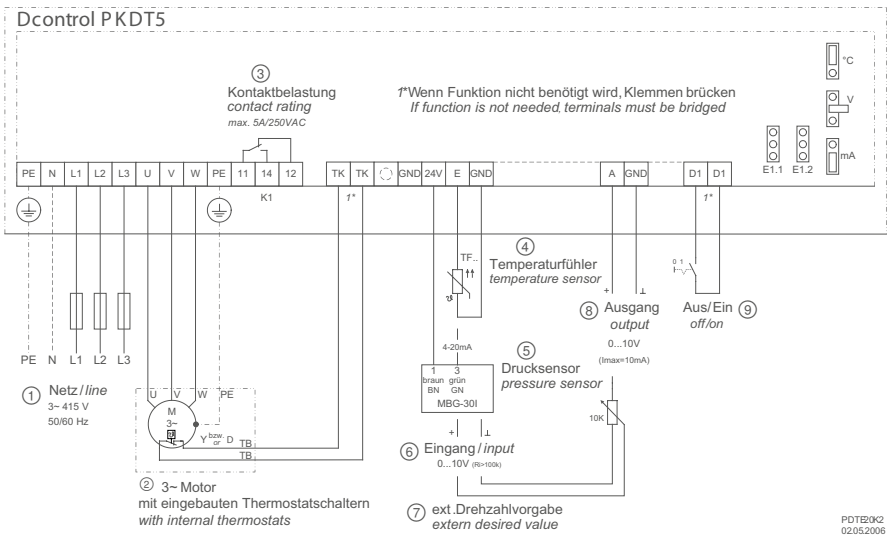
Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

Connection of thermistors,
e. g. sensors type TF..
e. g. active sensor type MTG..

Dcontrol, basic device for 5 amps
3~ 415V 50/60Hz

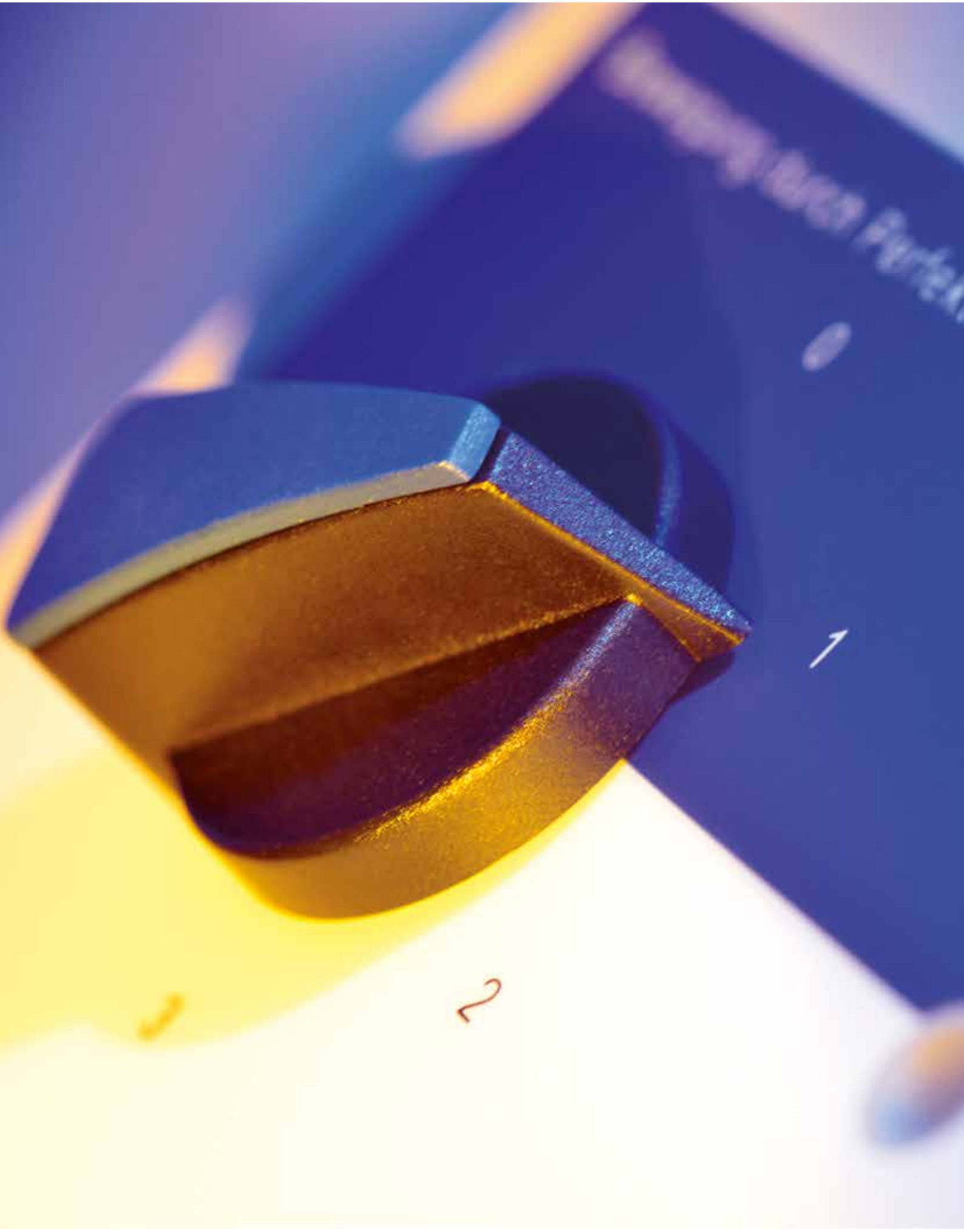
Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
PKDT5	**304555**	5	40	10	25	55	IP54	2.92	240 x 284 x 115

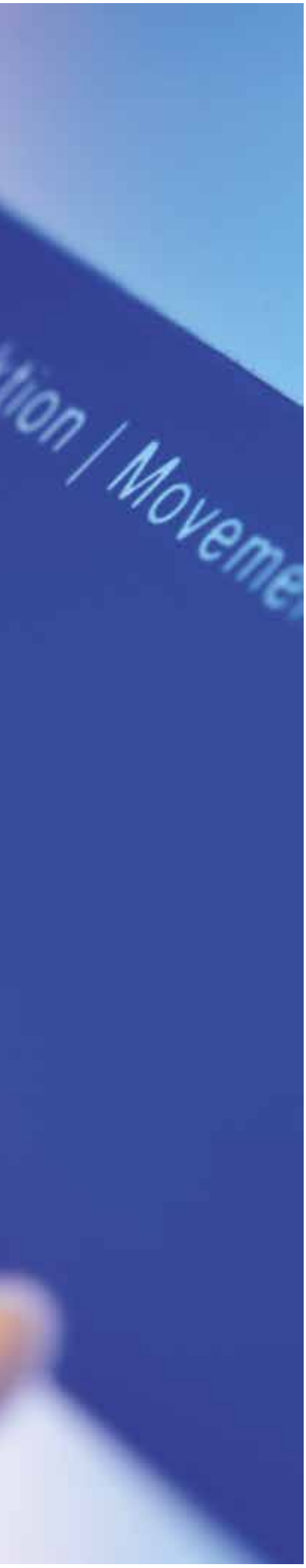
Connection diagram



① Line
② 3~ Motor with integrated thermostats
③ Contact rating
④ Temperature sensors
⑤ Pressure sensor
⑥ Input
⑦ External speed setting
⑧ Output
⑨ On/Off

1* If function is not needed terminals must be bridged





Transformer-based controllers

Product overview

Transformer-based controllers

Description

Most ZIEHL-ABEGG external rotor motors are voltage controllable. For simple and cost-effective speed control of these motors and fans, transformer-based controllers are available. These can be supplied in various versions. In addition to versions that only generate the corresponding voltage by setting the 5-stage switch, there are also devices that can control dampers or valves.

Versions, that switch between two adjustable stages via an external contact, are also available. Versions, that are controlled via a 5-step thermostat, are also available. Another, great advantage of transformer-based control devices is speed control without electromagnetic excitation in the motors. The products are therefore also recommended for areas that are sensitive of noise.

Correspondingly, we supply thermostats which can be combined without the need of transformer-based controllers.

Equipment/Characteristics

Operating indicator lamp
for status indication. Device on/off.

Speed setting
The desired speed is set via the integrated 5-step switch. Devices with two adjustable speeds or devices with 0-10 V control can also be supplied.

Output voltage:
1~ units: 65 - 110 - 135 - 170 - 230 V
3~ units: 95 - 145 - 190 - 240 - 400 V

Please refer to the respective device connection diagram, depending on model.

Digitale Input
For external, floating contact to issue an authorisation for the preselected step (on/off); e.g. connect room thermostat SRE1G.

Digital input for frost protection
For external, floating contact. If a frost protection thermostat responds, the device switches off. Resetting to switch position 0 required to restore.

Integrated motor protection function
Connection facility for thermostat “TB”

Switched output in operation
Switched phase 1~ 230 V, max. 1 A, e.g. for damper servo-motor.

Change-over relay
Floating change-over relay, max. load 250 V AC, 2 A, to control external devices.

Optional supply of individual transformers

The type of transformers that are predominantly used in our control devices, can also be supplied individuallyPlease note that they are designed as special versions intended for control cabinet integration, including installation pad and connection terminal. There are 1~ 230 V transformers and 3~ 400 V transformers. For 3~ 400 V, two transformers are connected in a V-circuit.

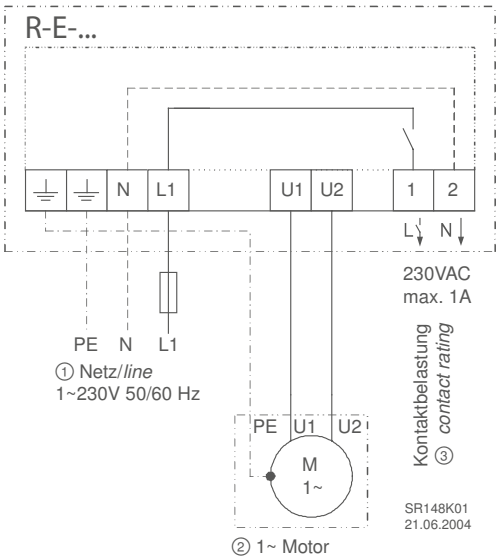
Transformer-based controllers

1~ with 5-step switch

Tranformer based controllers 1~ with 5- step-switch
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
R-E-1.5G	**302001**	1.5	40	4	20	40	IP54	1.74	105 x 180 x 98
R-E-2G	**302107**	2	40	16	20	40		2.10	166 x 230 x 118
R-E-3.5G	**302108**	3.5	40	16	30	40		3.50	166 x 230 x 118
R-E-6G	**302109**	6	40	16	35	40		4.90	166 x 230 x 118
R-E-7.5G	**302053**	7.5	40	8	40	40		6.00	240 x 284 x 132
R-E-9G	**302055**	9	40	16	50	40		10.50	270 x 323 x 162
R-E-12	**302056**	12	40	20	80	40	IP21	9.10	270 x 323 x 162
R-E-14G	**302057**	14	40	20	105	40	IP54	10.80	270 x 323 x 162

Connections / equipment see connection diagram



② 1~ Motor
ohne Thermokontakte
without thermocontacts

① Line
② 1~motor without thermal contacts
③ Contact load

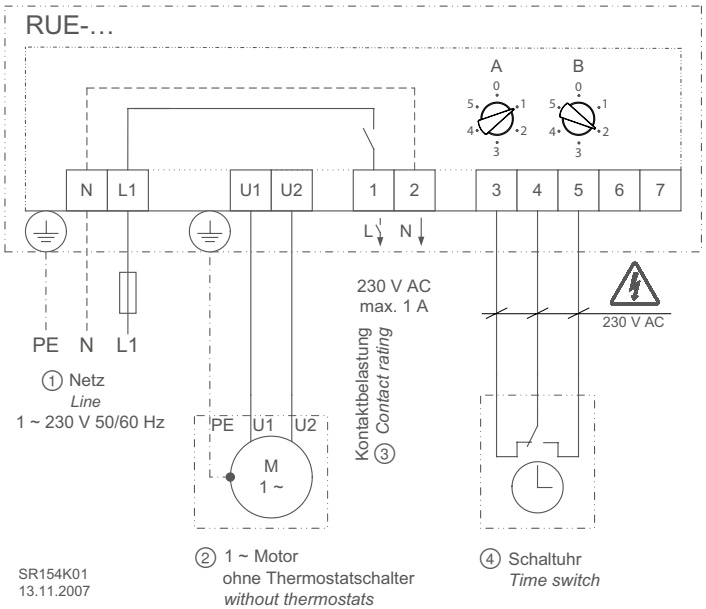
Transformer-based controllers

1~ with two 5-step switches, two speeds can be externally switched

Transformer based controllers 1~ with two 5-step-switch, two speeds external changing
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
RUE-2G	**302063**	2	40	4	25	40	IP54	3.55	240 x 284 x 132
RUE-4G	**302064**	4	40	6	35	40		4.80	240 x 284 x 132
RUE-7.5G	**302065**	7.5	40	8	45	40		6.30	240 x 284 x 132

Connections / equipment see connection diagram



① Line
② 1~ Motor without thermal contacts
③ Contact rating
④ Timer

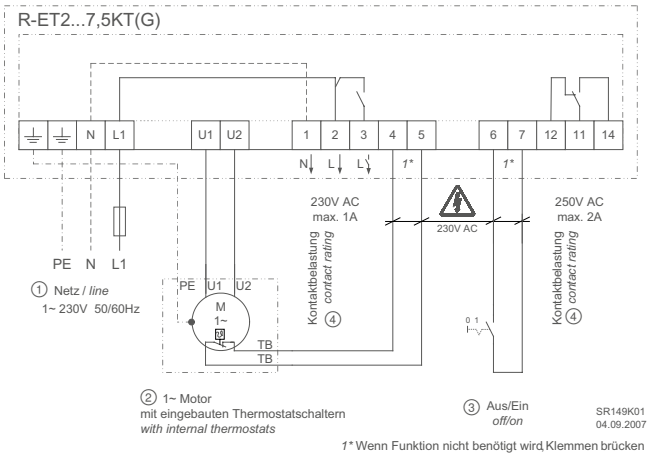
Transformer-based controllers

1~ with 5-step switch, with additional functions

Transformer-based controllers 1~ with 5-step-switch, with additional functions
1~ 230V 50/60Hz

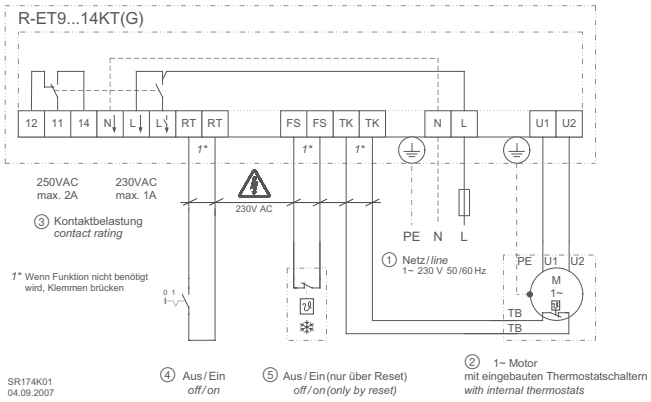
Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
R-ET2KTG	**302104**	2	40	16	25	40	IP54	2.10	166 x 230 x 118
R-ET3.5KTG	**302105**	3.5	40	16	35	40		3.50	166 x 230 x 118
R-ET6KTG	**302106**	6	40	16	40	40		4.90	166 x 230 x 118
R-ET7.5KTG	**302054**	7.5	40	8	45	40		6.10	240 x 284 x 132
R-ET9KTG	**302058**	9	40	16	55	40		10.50	270 x 323 x 162
R-ET12KT	**302059**	12	40	20	85	40	IP21	10.50	270 x 323 x 162
R-ET14KTG	**302060**	14	40	20	110	40	IP54	12.50	270 x 323 x 162

Connection diagram



① Line
② 1~ Motor with integrated thermostats
③ Off/On
④ Contact rating

1* If function is not needed, terminals must be bridged



① Line
② 1~ Motor with integrated thermostats
③ Contact rating
④ Off/On
⑤ Off/On (only via reset)

1* If fuction is not needed, terminals must be bridged

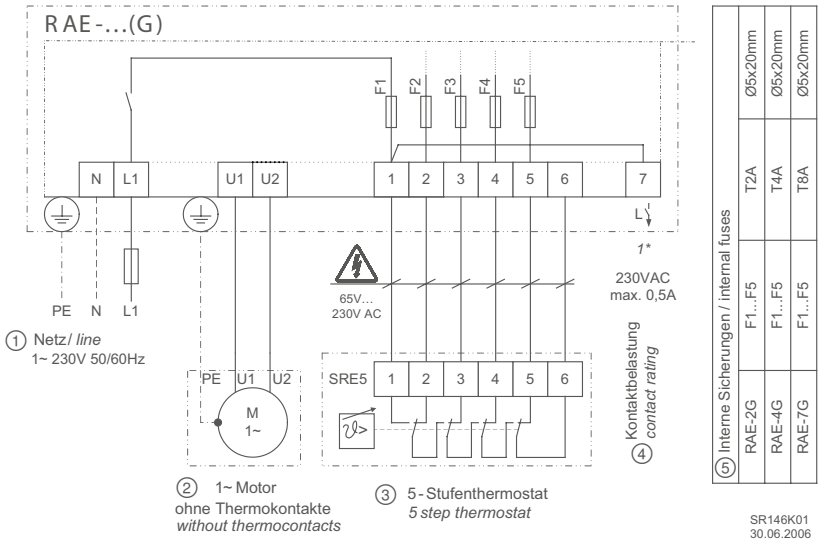
Transformer-based controllers

1~ with 5-step switch or external via 5-step thermostat

Transformer based controllers 1~ with 5-step-switch or external by 5-step thermostat
1~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
RAE-2G	**302067**	2	40	4	20	40	IP54	3.30	240 x 284 x 132
RAE-4G	**302068**	4	40	6	30	40		4.55	240 x 284 x 132
RAE-7G	**302069**	7	40	8	40	40		6.05	240 x 284 x 132
RAE-9G	**302061**	9	40	16	50	40		10.50	270 x 323 x 162

Connection diagram



1* (nur / *only* RAE-2G & RAE-4G)
Der maximale Gesamtstrom von Motor und Kontakt darf den Bemessungsstrom der internen Sicherung nicht überschreiten!
The maximum total current of motor and contact should not exceed the rated current of the internal fuse

① Line
② 1~ Motor without thermostats
③ 5-step thermostat
④ Contact rating
⑤ Internal fuses

1* only RAE-2G and RAE-4G:
The maximum total current of motor and contact should not exceed the rated current of the internal fuse

Transformer-based controllers

3~ with two 5-step switches, two speeds can be externally switched

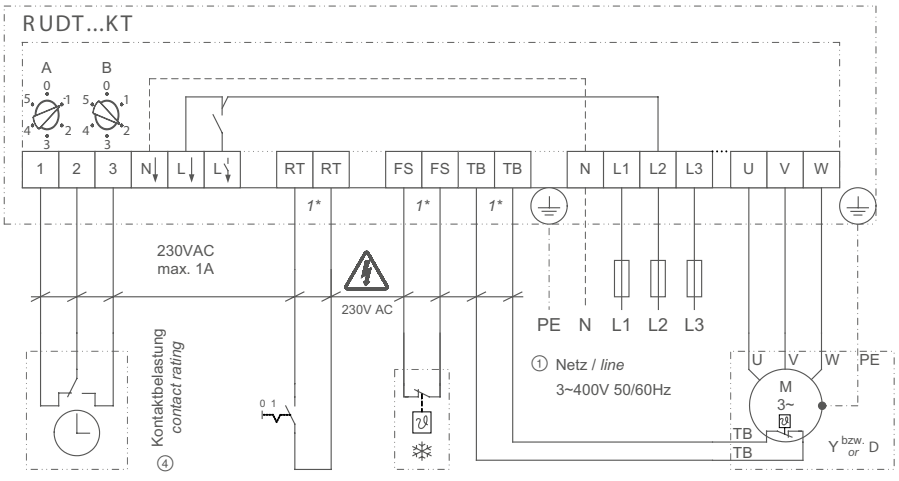
Transformer based controllers 3~ with two 5-step-switch, two speeds external changing
3~ 400V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
RUDT2T	**302640**	2	40	4	50	40	IP21	6.20	270 x 323 x 162
RUDT4T	**302641**	4	40	6	75	40		11.20	270 x 323 x 162
RUDT7T	**302642**	7	40	16	110	40		15.80	270 x 323 x 162

Transformer based controllers 3~ with two 5-step-switch, two speeds external changing
3~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
RUDT3.5T	**302643**	3.5	40	6	65	40	IP21	6.20	270 x 323 x 162
RUDT7T	**302644**	7	40	16	80	40		11.20	270 x 323 x 162
RUDT10T	**302645**	10	40	16	85	40		15.60	270 x 323 x 162

Connection diagram



① Line
② 3~Motor with integrated thermostats
③ Timer
④ Contact rating
⑤ Off/On
⑥ Off/On (only via reset)

1* If function is not needed, terminals must be bridged

③ Schaltuhr
time switch

⑤ Aus/Ein
off/on

⑥ Aus/Ein (nur über Reset)
off/on (only by reset)

② 3~ Motor
mit eingebauten Thermoschaltern
with internal thermostats

*1** Wenn Funktion nicht benötigt wird, Klemmen brücken
If function is not needed, terminals must be bridged

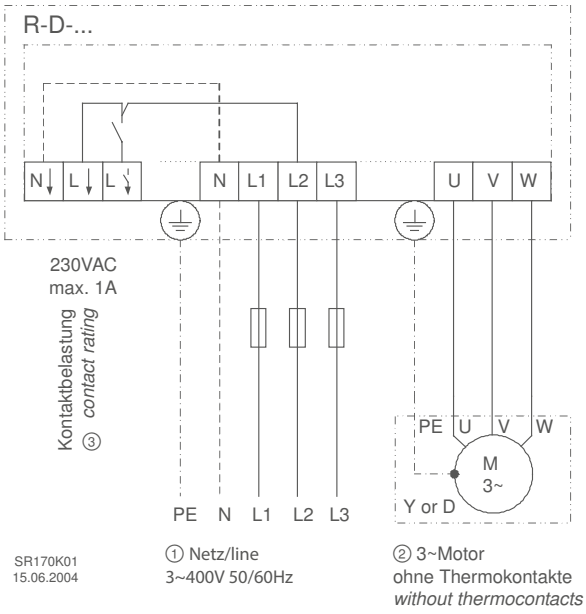
RDNT08K1
16.02.2006

Transformer-based controllers

3~ with 5-step switch

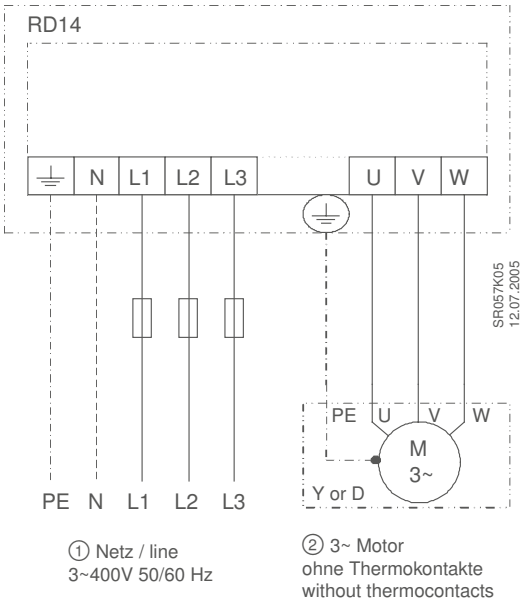
Tranformer based controllers 3~ with 5- step-switch 3~ 400V 50/60Hz									
Type	**Article no.**	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
R-D-1G	**302571**	1	40	4	35	40	IP54	4.50	240 x 284 x 132
R-D-2G	**302572**	2	40	4	45	40		7.20	240 x 284 x 132
R-D-3G	**302573**	3	40	6	55	40		10.80	270 x 323 x 162
R-D-4	**302574**	4	40	6	75	40	IP21	11.00	270 x 323 x 162
R-D-5.2G	**302575**	5.2	40	13	80	40	IP54	15.60	270 x 323 x 162
R-D-7	**302576**	7	40	16	110	40	IP21	15.60	270 x 323 x 162
RD14	**302560**	14	40	25	145	40		30.20	450 x 290 x 164

Connection diagram



① Netz/line
3~400V 50/60Hz

② 3~Motor
ohne Thermokontakte
without thermocontacts



① Netz / line
3~400V 50/60 Hz

② 3~ Motor
ohne Thermokontakte
without thermocontacts

① Line
② 3~ Motor without thermostats
③ Contact rating

① Line
② 3~ Motor without thermostats

Transformer-based controllers

3~ with 5-step switch, with additional functions

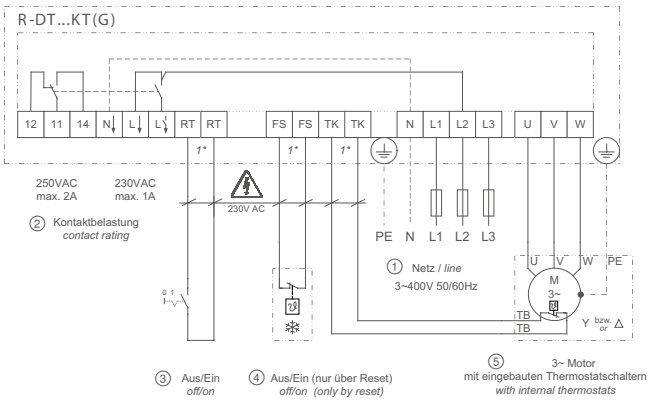
Tranformer-based controllers 3~ with 5-step-switch, with additional functions
3~ 230V 50/60Hz

Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
R-DT3.5KTG	**302592**	3.5	40	6	65	40	IP54	7.40	240 x 284 x 132
R-DT7KT	**302593**	7	40	16	80	40	IP21	11.00	270 x 323 x 162
R-DT10KT	**302594**	10	40	16	85	40		15.60	270 x 323 x 162

Tranformer-based controllers 3~ with 5-step-switch, with additional functions
3~ 400V 50/60Hz

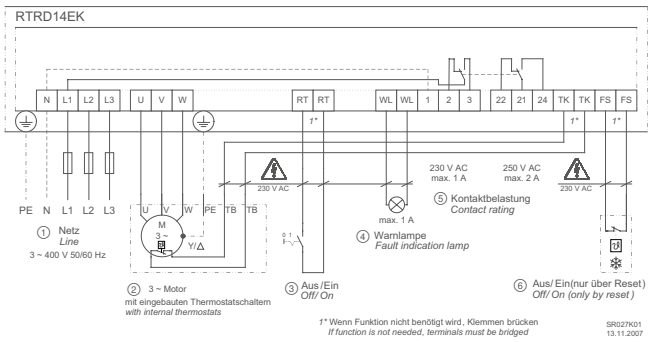
Type	Article no.	Rated current	Rated temperature	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	°C	A	W	°C		kg	mm
R-DT1KTG	**302581**	1	40	4	40	40	IP54	4.70	240 x 284 x 132
R-DT2KTG	**302582**	2	40	4	50	40		6.20	240 x 284 x 132
R-DT3KTG	**302583**	3	40	6	60	40		11.00	270 x 323 x 162
R-DT4KT	**302584**	4	40	6	75	40	IP21	11.00	270 x 323 x 162
R-DT5.2KTG	**302585**	5.2	40	13	80	40	IP54	15.60	270 x 323 x 162
R-DT7KT	**302586**	7	40	16	110	40	IP21	15.60	270 x 323 x 162
RTRD14E	**302561**	14	40	25	145	40		30.50	450 x 290 x 164
RTRD14EK	**302562**	14	40	25	145	40		30.60	450 x 290 x 164

Connection diagram



① Line
② Contact rating
③ Off/On
④ Off/On (only via reset)
⑤ 3~ Motor with integrated thermostats

1* If function is not needed, terminals must be bridged



① Line
② 3~ Motor with integrated thermostats
③ Off/On
④ Warning lamp
⑤ Contact rating
⑥ Off/On (only via reset)

1* If function is not needed, terminals must be bridged

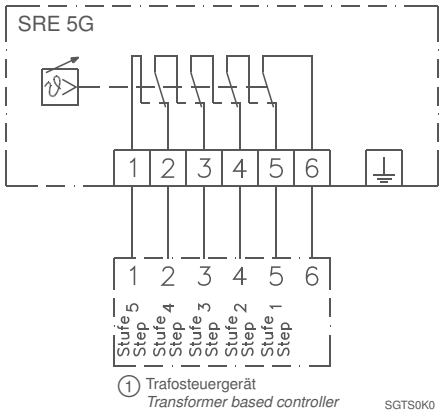
Thermostat

For transformer based controllers

Thermostats for combination with our transformer-based controllers. Versions with switch over contact or 5-step thermostat are available.
Values of the switching capacity in brackets: cos φ to 0.6

5-step thermostat for industrial areas and outdoor use
Technical data SRE5G, Art. no. 380003

Adjustable temperature range: 0 °C... 40 °C
Switching differential: approx. 2 K (+/- K)
Protection class: IP54
Switching capacity:10 (4) A, 230 V AC



① Tranformer based controller


00388564 TFA 00153407

System components

Product overview

Sensors

Temperature sensors

TFR

TFW

TFT

TFA

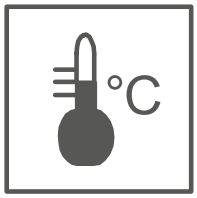
TFK

Different ZIEHL-ABEGG PTC (Positive Temperature Coefficient) thermistors are available. The ZIEHL-ABEGG control unit detects the ambient temperature at the measuring point by the change in resistance in the sensor (KTY81-210). Resistance at 25 °C = 2 kΩ (tolerance 1 %). The polarity can be ignored when connecting. The temperature measuring range depends on the properties of resolution or programming of the allocated ZIEHL-ABEGG control unit.

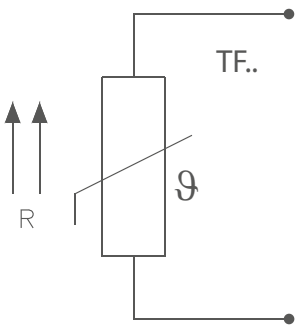
The following types of passive thermistors are available:

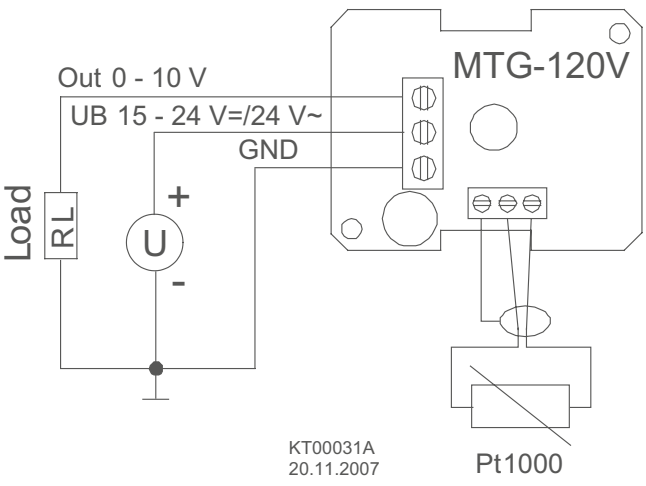
- Room sensor TFR with plastic box for outdoor or industrial use
- Living room sensor TFW with plastic housing
- Immersed sensor TFT for installation in on-site immersed sleeve
- Plant sensor TFA for pipework
- Duct sensor TFK with housing and sensor rod for air ducts

Alternatively, the active MTG-120V thermistor can be supplied. This consists of a connection housing to which a 2 m long cable with sensor element is firmly connected.
Application possibilities as contact sensor or immersed sensor, e.g. in oil cooler. The MTG… has the measuring range -10 to 120 °C and generates 0 – 10 V proportionally over the measuring range.



Connections





Thermistors „passive“						
Type	**Article no.**	Protection class	Line/connection	Measuring range	Weight kg	Dimensions (W x H x D) mm
TFR	**00089846**	IP54			0.05	75 x 75 x 37
TFR-E	**00153406**				0.00	
TFT	**00154797**	IP43	Lead length: approx. 1.9m		0.07	d7 x 50
TFT (XL)	**384027**		Lead length: approx. 4m	Temp. -20...+105°C	0.15	
TFA	**00153407**	IP67	Lead length: approx. 2m		0.03	d6 x 50
TFK	**384022**	IP65		Temp. -50...+120°C	0.10	
TFW	**384066**	IP30			0.04	84,5 x 84,5 x 25

Thermistors „active“ DC 15...24 / AC 24 V						
Type	**Article no.**	Protection class	Line/connection	Measuring range	Weight kg	Output
MTG-120V	**384031**	IP65 / IP67	Length of sensor cable: approx. 2m	-10...+120 °C	0.15	0...10 V, max. 2 mA

Sensors

Differential pressure sensors (2nd edition)

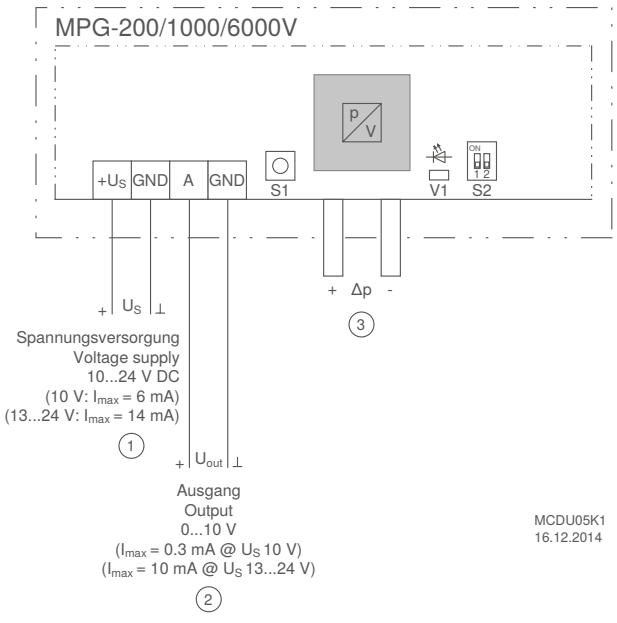
Sensors for measuring differential pressure. Used in air ducts, faninlet nozzles (e.g. in air conditioning box devices), roof fans, etc. The differential pressure sensor is connected to the ventilation system by two pressure connections. The differential pressure thus acts on a silicone membrane, the change in position of which is evaluated electronically.
The sensor generates a 0 – 10 V signal proportionally over the respective measuring range. Depending on the connected control unit, the control can thus be made based on differential pressure or air flow.

The sensors have switchable measuring ranges.
With three versions, the pressure range from 0 up to 6000 Pa can be covered. Each version has four calibrated, selectable measuring ranges.
Through the gradation of the units, exact measuring results with only three versions are possible..

△Pa

m³

Connections



MCDU05K1
16.12.2014

① Voltage supply
② Output
③ Connection sockets

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/Properties

Electrical connection:
Electrical connection at 3-pole clamp into the unit.

Measuring range:
Three versions cover the measuring range from 0 up to 6000 Pa. Each version, has four selectable measuring ranges, for exact measuring results into the corresponding application.

Status LED:
Information regarding the status of the unit through LED into the terminal compartment.

Zero point calibration:
Through integrated push button into the terminal compartment.

Differential pressure sensor
DC10...24 V

Type	Article no.	Measuring range	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
MPG-200V	384057	0...200/150/100/50 Pa	-10	70	IP54	0.21	106.3 x 137 x 56
MPG-1000V	384058	0...1000/500/300/200 Pa	-10	70		0.21	106.3 x 137 x 56
MPG-6000V	384059	0...6000/4000/3000/2000 Pa	-10	70		0.21	106.3 x 137 x 56

Dimensions with cable gland

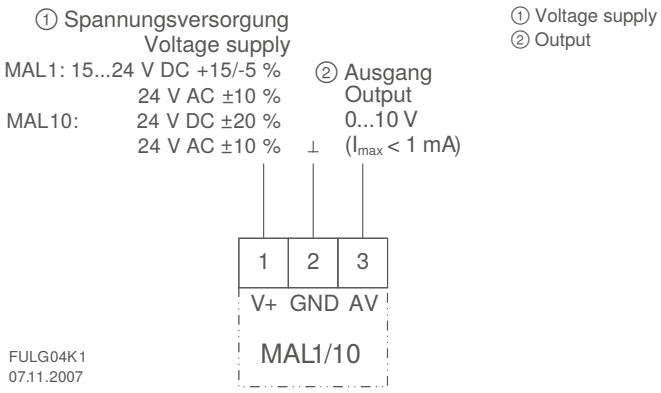
Sensors

Air velocity sensors

m / s

Air velocity sensors which are specially optimised for application for clean rooms and air conditioning.
The “hot film pressure gauge principle” is applied as a measuring method which enables very high measuring accuracy from 0.15 m/s.
The sensors are available for measuring ranges from 0 – 1 m/s to 0 – 20 m/s and output 0 – 10 V or 4 – 20 mA proportionally over their measuring range.
The design of the measuring head enables a direction-independent measurement over a wide range. The air velocity sensors are therefore easy to mount. A mounting flange is included in delivery which allow a continuous installation depth, for example into a duct.
The sensors have a connection housing which contains the evaluation electronics. The output signal, the measuring range and the response time can be selected by jumpers. Optionally the connection housing is mounted firmly on the sensor element or connected permanently by a 2 m long connecting cable.

Connections



① Voltage supply
② Output

Technical data

- Current consumption MAL1:
  < 40 mA at DC / < 100 mA at AC (with 0 – 10 V output signal)
  < 50 mA at DC / < 130 mA at AC (at 4 – 20 mA output signal)
- Current consumption MAL10:
  < 40 mA at DC / < 120 mA at AC (at 0 – 10 V output signal)
  < 50 mA at DC / < 150 mA at AC (at 4 – 20 mA output signal)

Equipment/properties

Measuring range switchable:
MAL1: 0 - 1 / 0 – 1.5 / 0 - 2 m/s
MAL10: 0 - 10 / 0 - 15 / 0 - 20 m/s

Air velocity sensors

Supply voltage V	Type	Article no.	Measuring range	Protection class	Weight kg	Specification
DC 15...24 / AC 24	**MLG-1V**	**384061**	0...1 m/s	IP65 / IP20	0.19	Werkszeugnis
DC 15...24 / AC 24	**MLG-1V**	**384062**	0...1 m/s		0.19	Abnahme-pruefzeugnis
DC 15...24 / AC 24	**MLG-1VX**	**384063**	0...1 m/s		0.26	Werkszeugnis
DC 15...24 / AC 24	**MLG-1VX**	**384064**	0...1 m/s		0.26	Abnahme-pruefzeugnis
DC 24 / AC 24	**MLG-10V**	**384065**	0...10 m/s		0.19	Werkszeugnis

Factory certificate according to DIN EN 10204-2.2 (3 measuring points)
Acceptance test certificate according to DIN EN 10204-3.1 (5 measuring points)

Sensors

Pressure sensors

Robust pressure sensors for measuring the system pressure, for example in refrigerant circuits. The sensors are suitable for all refrigerants, including NH_3. Depending on the measured value, fans or also the compressor can be controlled.
Supply to the sensors, e.g. by 24 V, from a frequency inverter, EC fan or other device.

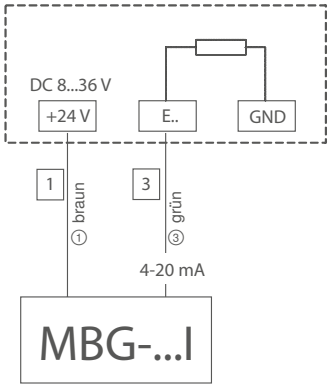
The sensors output 4-20 mA proportionally over their measuring range.

The following types are available:
- Pressure sensors with approx. 2 m long connecting cable. Pressure ranges 0-30 and 0-50 bar.
- Pressure sensors with angled jumper for connecting an on-site cable. Pressure ranges -1-7, 0-30 and 0-50 bar.

Pressure sensors

Supply voltage V	Type	Article no.	Cable/connection	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Measuring range
DC 7...30	**MBG-7I (plug)**	**384042**	Connector M12, angled 90°	-25	85	IP67	-1...7 bar
DC 8...36	**MBG-30I**	**384000**	Lead length: approx. 2m	-40	100		0...30 bar
DC 8...36	**MBG-50I**	**384030**	Lead length: approx. 2m	-40	100		0...50 bar
DC 8...36	**MBG-30I (plug)**	**384028**	Connector M12, angled 90°	-40	100		0...30 bar
DC 8...36	**MBG-50I (plug)**	**384036**	Connector M12, angled 90°	-40	100		0...50 bar

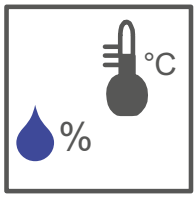
Connection diagram



① brown
③ green

Sensors

Combined sensor humidity - temperature



Combined sensor for the exact measurement of relative humidity and temperature, especially suitable for applications in agriculture and air conditioning. Application possibility in polluted atmospheres. The sensor has a connection housing which contains the evaluation electronics.
The relative humidity is output by a 0 – 10 V signal. This corresponds to the measuring range of 0 – 100 % relative humidity. The temperature measurement is made by the change in resistance of the built-in PTC (Positive Temperature Coefficient) element (KTY81-210).
Resistance at 25 °C = 2 kΩ.

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-1 (domestic)

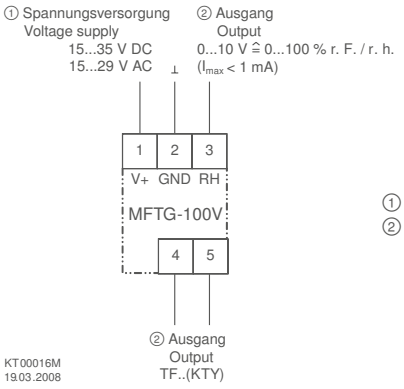
Equipment/properties

Measuring range:
The temperature measuring range depends on the properties or the programming of the assigned ZIEHL-ABEGG controller.

Protection of the sensor element by stainless steel sinter filter

Combined sensor humidity - temperature DC 15...35 / AC 24 V					
Type	**Article no.**	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg
MFTG-100V	**384046**	-40	60	IP65	0.16

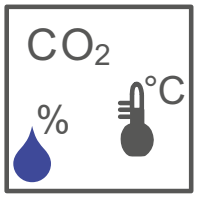
Connections



① Voltage supply
② Output

Sensors

Combined sensor CO_2 - humidity - temperature



Combined sensor for measuring carbon dioxide (CO_2), relative humidity and temperature. Especially suitable for applications in air conditioning, for optimum ventilation of apartments, office buildings, event rooms and in gastronomy.
The sensor has a connection housing which contains the evaluation electronics. A proportional 0 – 10 V signal is output over the respective measuring range depending on the measuring variable. This can be combined with ZIEHL-ABEGG control units. There are three 0 – 10 V outputs in total. A display is integrated for showing the measured values which are displayed on this alternately.

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-1 (domestic)

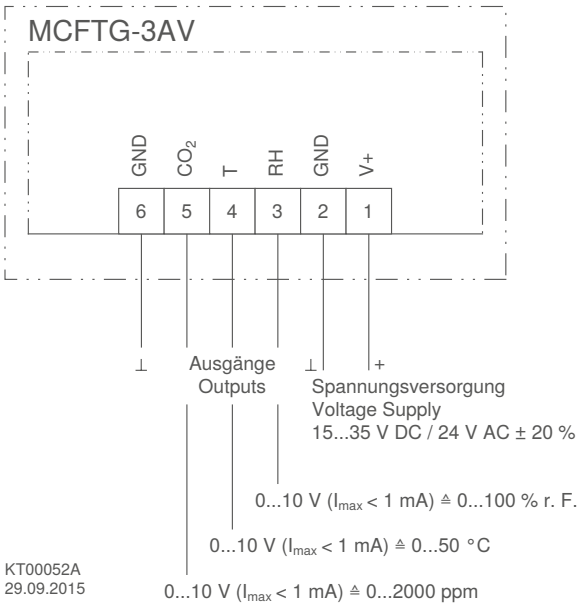
Equipment/properties

Measuring range:
The temperature measuring range depends on the properties or the programming of the assigned ZIEHL-ABEGG controller.

Protection of the sensor element by stainless steel sinter filter

Combined sensor CO2 - humidity - temperature DC 15...35 / AC 24 V					
Type	**Article no.**	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg
MCFTG-3AV	**384047**	-20	60	IP30	0.09

Connections



KT00052A
29.09.2015

Sensors

Differential pressure switch

High-precision differentail pressure switch for monitoring or simple control of differential pressure. Suitable for monitoring tasks in air conditioning, e.g. monitoring the filter contamination in air conditioning box devices.
The switching point of the integrated alternating relay is set by a rotary disk (scale 0.2 to 3 mbar).

Equipment/properties

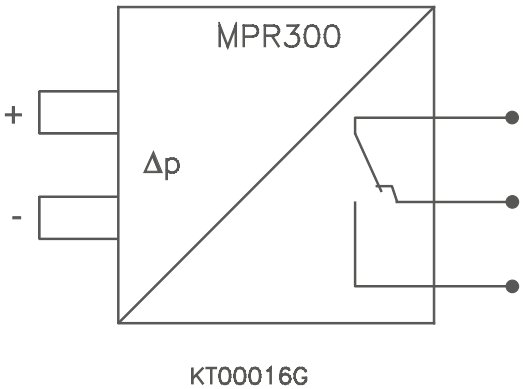
Measuring range:
20 – 300 Pa

Accessories included:
hose sleeve and adapter 1/8”

Differential pressure switch

Type	Article no.	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg
MPR300	**384020**	-30	75	IP54	0.20

Connections



KT00016G

Potentiometer 5-step

Potentiometer with 5 steps for activating EC fans and controllers. The potentiometer is supplied with a supply voltage of (10 V) from the EC fan or the controller producing a control voltage of 0-10 V depending on the switch position.

The operating status can be displayed via an integrated LED.

Standard conformity

Interference emission according to EN 61000-6-3 (domestic)
Interference immunity according to EN 61000-6-2 (industrial)

Equipment/characteristics:

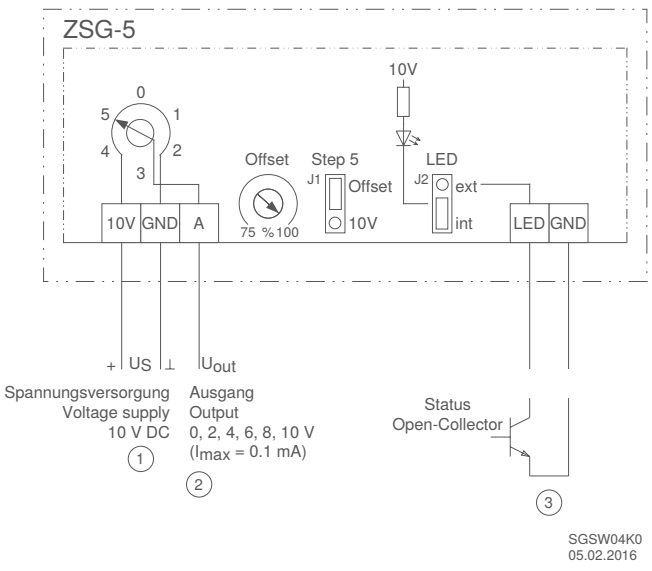
5-step switch
For setting five output voltages. Factory settable: Step 0/1/2/3/4/5 = 0/2/4/6/8/10 V

Internal potentiometer offset
Control voltage reduction option. The max. control voltage of 10 V is factory set. It can be selected to only move down the control voltage of steps 1 - 4, or to move down step 5, too.

Activation options via LED
Internal activation: LED lights up in position 1 - 5.
External activation: By means of a potential-free contact or via an open collector output, the status of an external device can be displayed via the LED.

Potentiometers DC 10 V					
Type	**Article no.**	Mounting type	Protection class	Weight kg	Dimensions (W x H x D) mm
ZSG-5	**349073**	Wall mounting	IP54	0.20	106.3 x 137 x 72.5

Connection diagram



SGSW04K0
05.02.2016

Potentiometer

Infinitely variable potentiometers for activating EC fans and controllers. The potentiometers are supplied with a supply voltage (10 V) from the EC fan or controller with a control voltage output of 0 - 10 V depending on the rotary knob setting.
Alternatively, the control voltage can be preset as a nominal value setting (external setpoint for the control) 0 - 10 V.

Equipment/Characteristics:

Rackmount version:
e.g. for installation in control cabinet doors
Axis length 50 mm, ∅ 6 mm
Included front plate: 40 x 40 mm
Included rotary knob

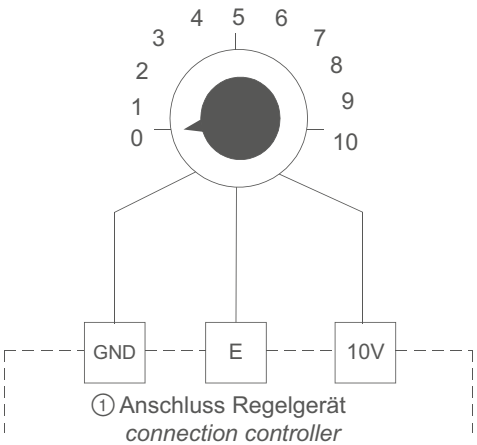
Design version in housing:
Surface mounting or mounting in existing flush receptacles. Device with additional switch contact.

Simple control via rotary knob
Set the desired resistance

Potentiometers

Type	Article no.	Mounting type	Setpoint range	Protection class	Weight kg	Dimensions (W x H x D) mm
Potentiometer 1K	**00153986**	Panel mounting	0...1kOhm	IP00	0.04	Shaft d 6 x 50
Potentiometer 10K	**00153989**	Panel mounting	0...10kOhm	IP00	0.04	Shaft d 6 x 50
Potentiometer 10K (IP54)	**380058**	Wall mounting	0...10kOhm	IP54	0.15	82 x 82 x 65

Connections



① Connection control unit

Add-on modules

AM-MODBUS (-W) for Basic Frequency inverter and ECblue

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
With the AM-MODBUS/-W add-on modules, the devices integrated into MODBUS networks or the A-G-247NW operating terminal can be connected. Parameterization and data polling by radio (with AM-MODBUS-W) are optionally possible.
Whole groups of frequency inverters or ECblue motors and fans that are equipped with these AM-MODBUS add-on modules can be addressed quickly and automatically by a ZIEHL-ABEGG UNIcon control module with MODBUS-Master function. These devices are then controlled conveniently by the UNIcon “master” device.

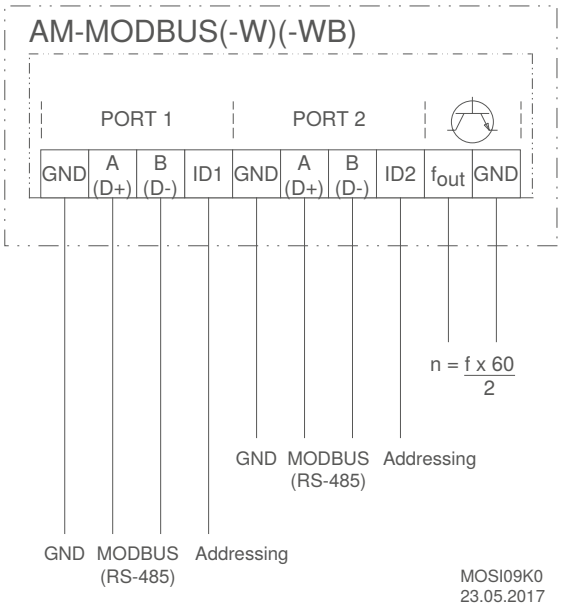
Equipment/properties

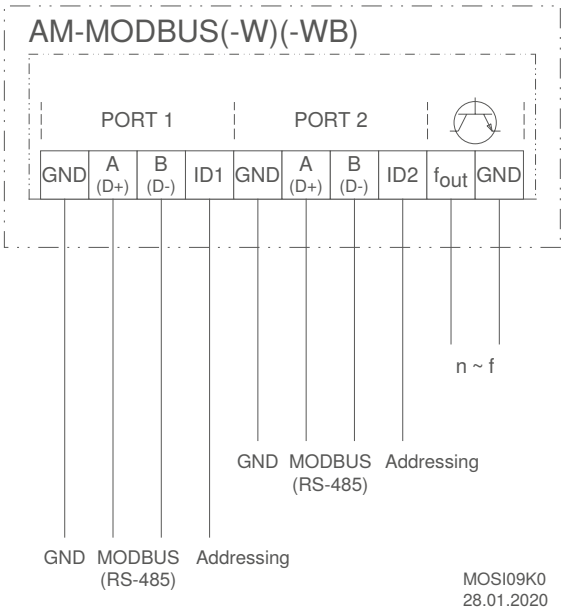
2 x interface RS485:
For integration into a MODBUS RTU network (MODBUS Slave). With the possibility of automatic addressing by a UNIcon control module with MODBUS-Master function.

Add-on module - AM-MODBUS (-W)		
Type	**Article no.**	Weight kg
AM-MODBUS	**349045**	0.03

Add-on module - AM-MODBUS (-W) (2nd edition)		
Type	**Article no.**	Weight kg
AM-MODBUS	**349087**	0.03

Connection diagram





Add-on modules

AM-MODBUS-WB for Basic Frequency inverter and ECblue fans

Bluetooth®

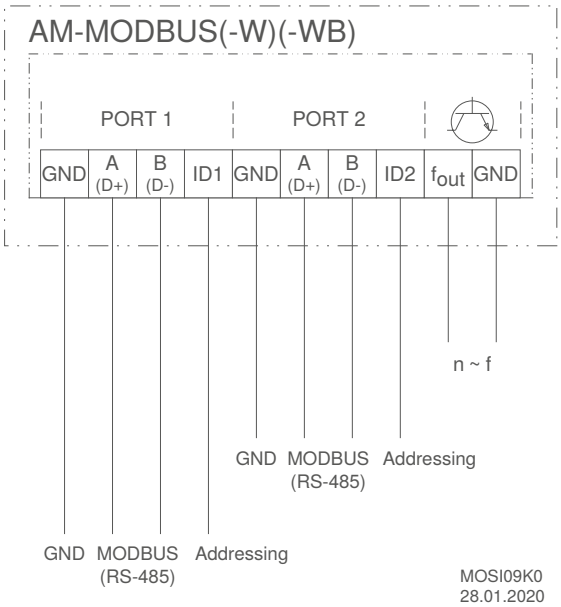
cULus

Pluggable add-on modules for function extensions of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without an integrated display, as well as ECblue motors and fans.
With the AM-MODBUS-WB add-on modules, access to the respective frequency inverter or ECblue fan can take place wirelessly using Bluetooth.
For this purpose, the ZIEHL-ABEGG “ZAset mobile” app for mobile terminals is available in the Android and IOS Store.

The devices can be integrated into MODBUS networks with the AM-MODBUS-WB add-on modules. Whole groups of frequency inverters or ECblue motors and fans, which are equipped with these AM-MODBUS-WB add-on modules, can be addressed quickly and automatically by means of a ZIEHL-ABEGG UNIcon control module with MODBUS master function. These devices are then controlled conveniently by the UNIcon “master” device.

Add-on module - AM-MODBUS-WB		
Type	**Article no.**	Weight kg
AM-MODBUS-WB	**349077**	0.04

Connection diagram



Add-on modules

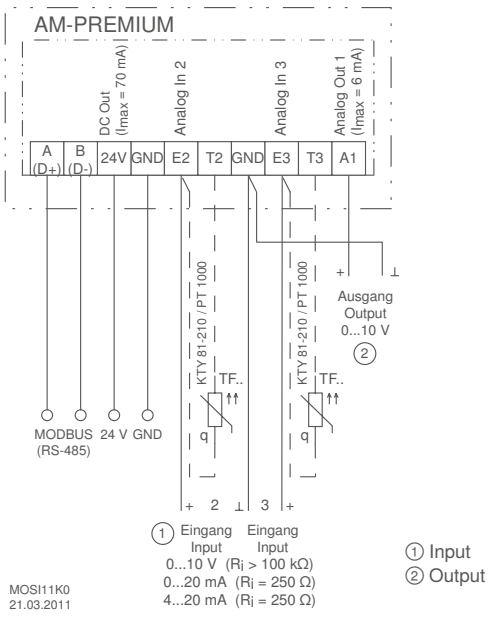
AM-PREMIUM (-W) for Basic Frequency inverter and ECblue

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
With the AM-PREMIUM/-W add-on modules, the devices can be functionally extended as a control unit. In addition, it is possible to link to MODBUS networks or connect operating terminals (A-G-247NW / AXG-1A / AXG-1AE). Radio parameterization and data polling (with AM-PREMIUM-W) is also possible as an option.

Input for sensors or speed settings through

- 0-10V — Setting of the desired speed through device or by external default, e.g. 0…10 V
- 0-30 0-50 bar — Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar
- °C — Connection of thermistors, e. g. sensors type TF.. e. g. active sensor type MTG..
- △Pa — Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h
- m / s — Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s
- CO_2 % °C — Connecting additional sensors, e.g. combination sensors, CO_2, sensor signal 0...10 V / 0...20 mA / 4...20 mA

Connection diagram



Equipment/properties

Simple start-up by operating modes:
When an operating terminal is connected to the AM-PREMIUM add-on module plugged into the frequency inverter (for AM-PREMIUM-W via radio), typical operating modes, e.g. for air conditioning, refrigerant or ventilation technology can be selected.

2 analog inputs for sensors or setting signals:
analog input E2 and E3: Setting by operating modes or manually programmable, e.g. 0-10 V, 0,20 mA, 4-20 mA
analog input E3: Programmable, e.g. comparison with sensor E2, difference to sensor E2, average value formation, setpoint setting, setpoint adaptation (e.g. outdoor temperature-dependent) connection of passive thermistors: On E2 and T2, E3 and T3.

1 analog output A1:
Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control.

Functional extension: Digital input D1 in the basic device:
programmable, e.g. enable, switch over setpoint 1 or 2, switch over control or manual mode, switch over E1 or E3, control function inversion, output limitation, external fault, reset, reversal of direction of rotation.

Functional extension: Digital output K1 in the basic device:
setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, shutters, group control fans, etc.

1 x interface RS485:
For linking to a MODBUS RTU network (MODBUS Slave). Manual addressing of the devices in the network

Add-on module AM-PREMIUM (-W)		
Type	**Article no.**	Weight kg
AM-PREMIUM	**349046**	0.03

Add-on modules

AM-AMPsignal for Basic Frequency inverter and ECblue fans

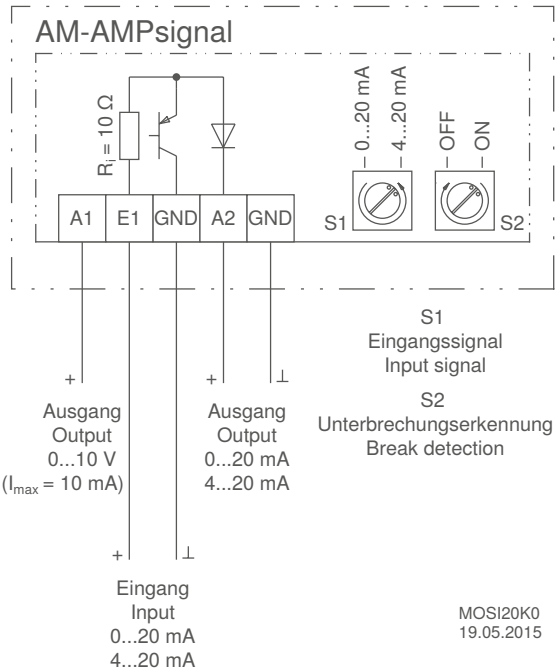
Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
The add-on module AM-AMPsignal transforms a current signal (0-20 mA, 4-20 mA) into a voltage signal (0-10 V). Several basic frequency inverters or ECblue fans can then be controlled by the 0-10 V input.

Equipment/properties

2 integrated rotary switches
Setting input signal (4-20mA, 0-20mA) by rotary switch “S1”.
Setting fractured wire detection (detection active, not active) by rotary switch “S2”.

Add-on module AM-AMPsignal		
Type	**Article no.**	Weight kg
AM-AMPsignal	**349065**	0.03

Connection diagram



Add-on modules

AM-ETHERCAT for Basic Frequency inverter and ECblue

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
With the AM-ETHERCAT add-on modules the frequency inverters or ECblue fans can be integrated into EtherCat networks.

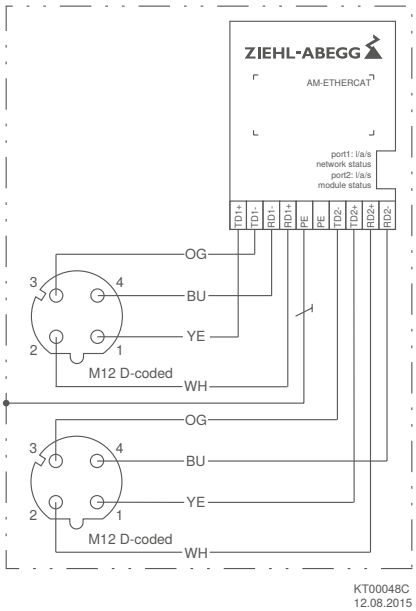
A device master data filed (ESI file) is required for integration of the device into an EtherCat network. If there is any doubt about the use or procurement of the ESI file for this add-on module, our Control Technology Support Department will be very glad to help.

Equipment/properties

4 integrated LED
For status display and error message:
Network status, status module, status port 1 / port 2.

Add-on module AM-ETHERCAT		
Type	**Article no.**	Weight kg
AM-ETHERCAT	**349071**	0.03

Connection diagram



KT00048C
12.08.2015

Add-on modules

AM-BACNET for Basic frequency inverters and ECblue fans

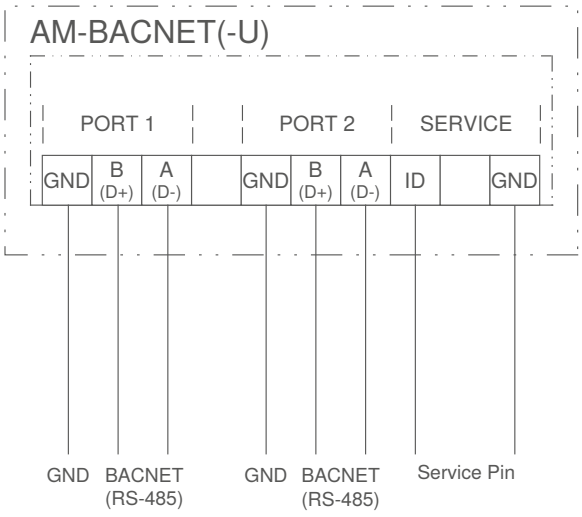
Einsteckbare Add On Module zur Funktionserweiterung der Basic Frequenzumrichter „Icontrol Basic“ und „Fcontrol Basic“ ohne integriertes Display sowie ECblue Ventilatoren.
Mit den Erweiterungsmodulen AM-BACNET können die Frequenzumrichter oder ECblue Ventilatoren in BACNET Netzwerke eingebunden werden.

Equipment/properties

4 integrated LED
For status display and error message

Add-on module AM-BACNET		
Type	**Article no.**	Weight kg
AM-BACNET	**349084**	0.03

Connection diagram



MOSI24K0
17.10.2018

Add-on modules

AM-CAN-OPEN for Basic Frequency inverter and ECblue

Pluggable add-on modules for a function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
With the AM-CAN-OPEN add-on modules the devices can be integrated into CANopen networks.

An Electronic Datasheet (EDS file) is required for a device integration into the CANopen network.
This file is provided free of charge by our Control Engineering Support Department.

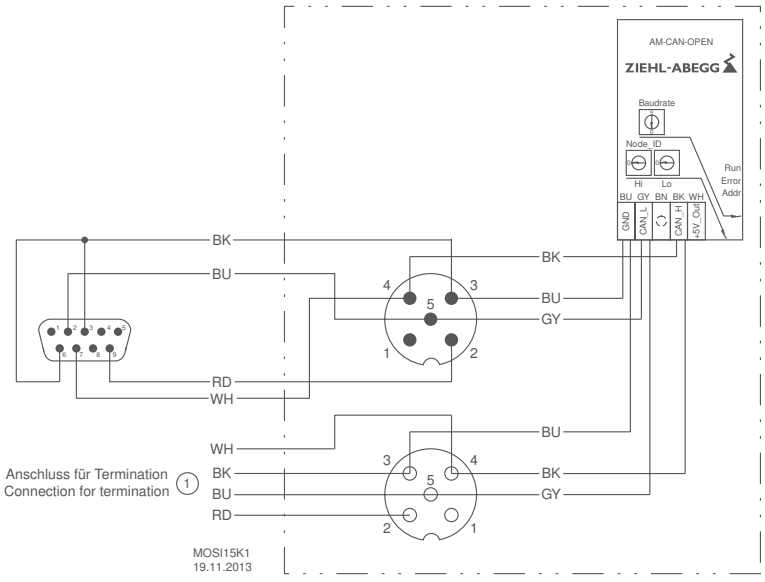
Equipment/properties

3 integrated LEDs
For status display and error message.

3 integrated rotary switches
2 rotary switches for manual address setting.
1 rotary switch for setting the baud rate

Add-on module - AM-CAN-OPEN		
Type	**Article no.**	Weight kg
AM-CAN-OPEN	**349064**	0.03

Connection diagram



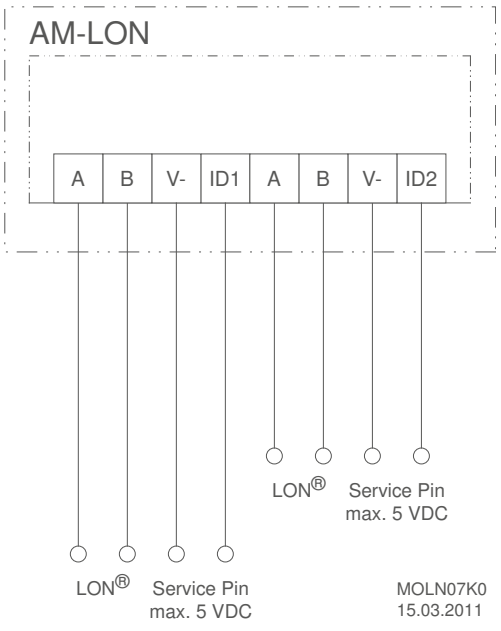
Add-on modules

AM-LON for Basic Frequency inverter and ECblue

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters without integrated display as well as ECblue motors and fans.
With AM-LON add-on modules the devices can be integrated into LON networks.

Add-on module - AM-LON		
Type	**Article no.**	Weight kg
AM-LON	**349049**	0.03

Connection diagram



Add-on modules

AM-PROFIBUS (-PD) for Basic Frequency inverter and ECblue

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol Basic” without integrated display as well as ECblue motors and fans.
With the AM-PROFIBUS add-on modules the devices can be integrated into PROFIBUS networks. The AM-PROFIBUS-PD is used for integration into PROFIBUS-PD (Powerdrive) networks.
A device master data file (GSD file) is required for integration of the device into the PROFIBUS network. This is provided free by our Control Engineering Support Department.

Equipment/properties

3 integrated LEDs
For status display and error message.

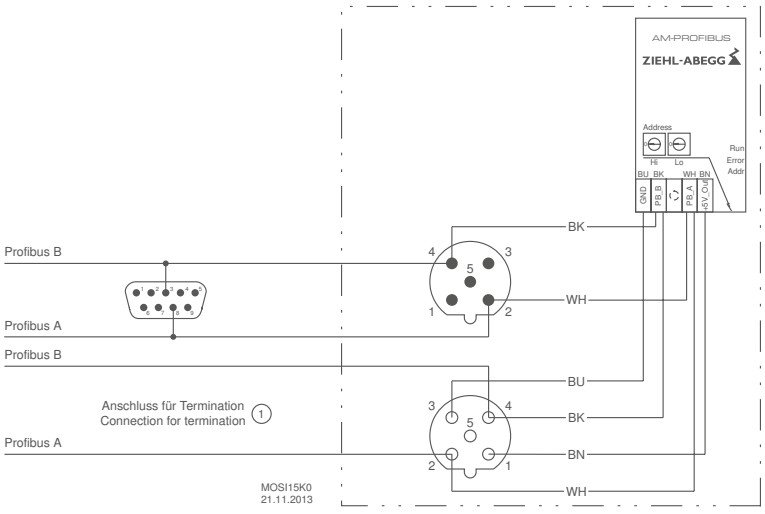
2 integrated rotary switches
For manual address setting.

Automatic baud rate detection

Optionally available connectors
Plug with connecting wires 80 mm:
5-pole, M12, wall installation M16, Article No. 00161258
5-pole, M12, wall installation M20, Article No. 00161263
Socket with connecting wires 80 mm:
5-pole, M12, wall installation M16, Article No. 00161259
5-pole, M12, wall installation M20, Article No. 00161264

Add-on module AM-PROFIBUS		
Type	**Article no.**	Weight kg
AM-PROFIBUS	**349063**	0.03
AM-PROFIBUS-PD	**349103**	0.03

Connection diagram



Add-on modules

AM-PROFINET for Basic Frequency inverter and ECblue fans

Pluggable add-on modules for function extension of the “Icontrol Basic” and “Fcontrol” and “Fcontrol Basic” without integrated display (as well as ECblue motors and fans).
With the AM-PROFINET add-on modules the frequency inverters or ECblue fans can be integrated into PROFINETnetworks.

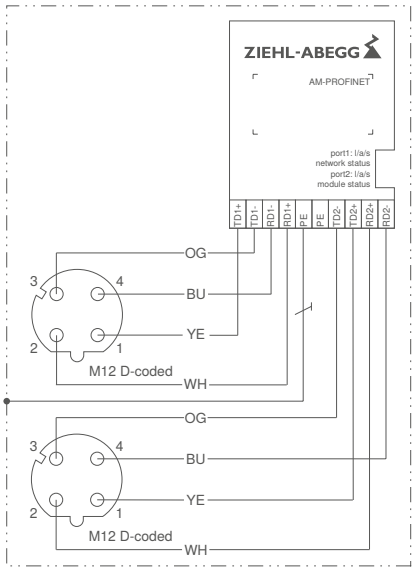
A device master data file (GSD file) is required for integration of the device into the PROFINET network. If there is any doubt about the use or procurement of the GSD file for this add-on module, our Control Engineering Support Department will be very glad to help.

Equipment/properties

4 integrated LED
For status display and error message:
Network status, status module, status port 1 / port 2.

Add-on module AM-PROFINET		
Type	**Article no.**	Weight kg
AM-PROFINET	**349072**	0.03

Connection diagram



KT00048D
09.12.2015

Gateway

NETcon Gateway PROFIBUS-MODBUS

For connecting a MODBUS system to a PROFIBUS system
The gateway operates as a MODBUS-Master which is controlled by PROFIBUS. Up to 64 MODBUS members can be connected to the gateway.
Optionally, groups of connected frequency inverters or EC motors and fans can be addressed automatically for convenience and to save time.
The gateway has a USB interface for bus monitoring by a PC/Laptop.

A device master data file (GSD file) is required for integration of the device into the PROFIBUS network. This is provided free by our Control Engineering Support Department.

Equipment/properties

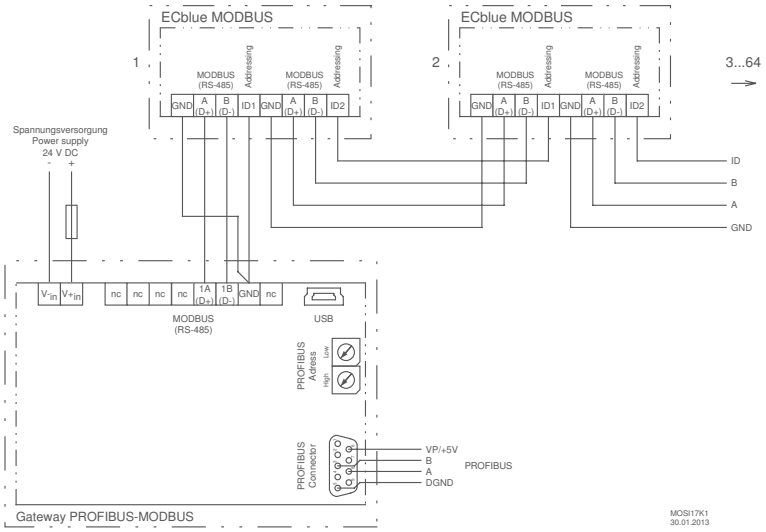
3 integrated LEDs
For status display and error message.

Automatic baud rate detection in Profibus

2 integrated rotary switches
For manual address setting.

Gateway PROFIBUS-MODBUS		
Type	**Article no.**	Weight kg
D-G-64NE	**380094**	0.08

Connection diagram



Gateway

NETcon Gateway PROFINET-MODBUS

For connecting a MODBUS system to a PROFINET system.
The gateway operates as a MODBUS master, which is selected via PROFINET. Up to 64 MODBUS participants can be connected to the gateway.
The connected MODBUS participants (slaves) can be conveniently addressed quickly and automatically.

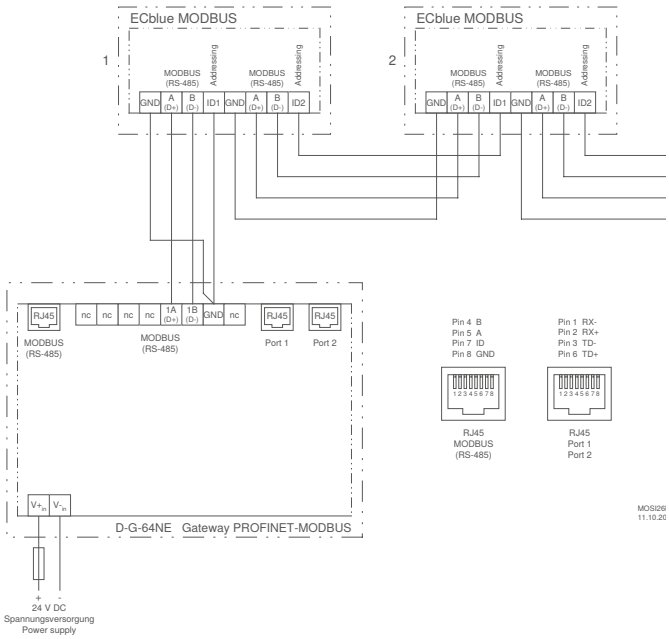
To integrate the device into the PROFINET network, a device master data file is required (GSD file). This is provided free by our Control Engineering Support Department.

Equipment/properties

4 integrated LEDs
For status display and error message.

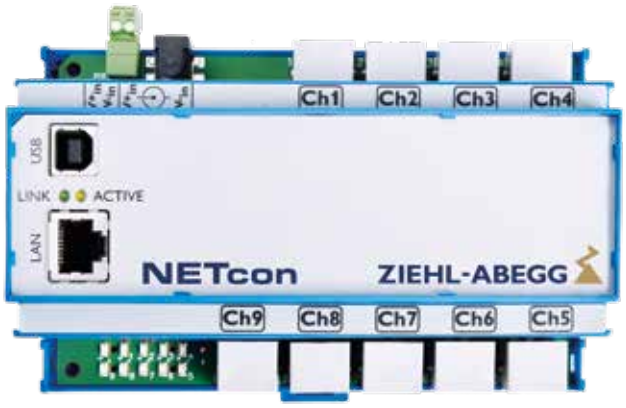
Gateway PROFINET-MODBUS		
Type	**Article no.**	Weight kg
D-G-64NE	**380102**	0.18

Connection diagram



Gateway

NETcon Gateway MODBUS-RTU to MODBUS TCP/IP



Connection of fans/frequency inverters with MODBUS-RTU to Ethernet.
The gateway serves to connect ECblue fans or frequency inverters via MODBUS-RTU (MODBUS integrated or by means of AM-MODBUS add-on module) to control with MODBUS TCP/IP.
The connected MODBUS participants (slaves) can be conveniently addressed quickly and automatically.

Equipment/properties

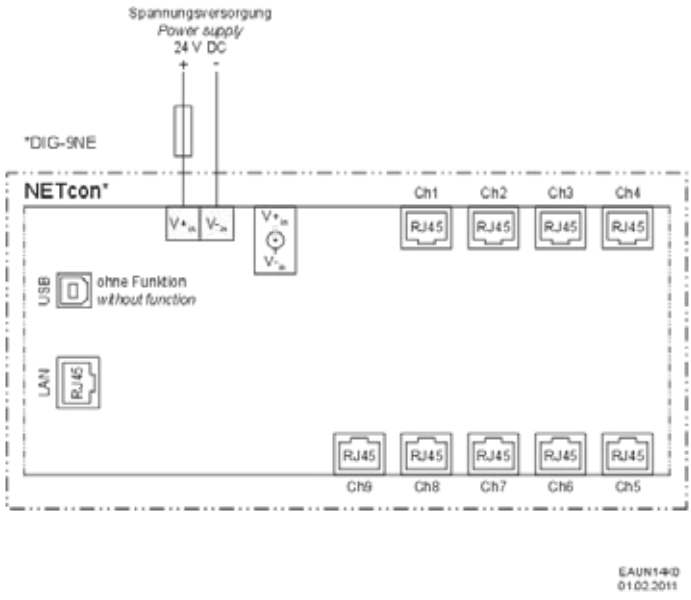
10 integrated LEDs
9 LEDs to display the activity of the channels
1 operation indicator LED

9 RJ45 connectors for MODBUS-RTU channels (9 RS485 channels)
For up to 63 MODBUS-RTU nodes, in total for up to 567 MODBUS-RTU addresses

1 RJ45 connector on the front of the device
For connection to an Ethernet network

Gateway MODBUS-RTU to TCP/IP		
Type	**Article no.**	Weight kg
DIG-9NE	**380075**	0.24

Connection diagram



Repeater

NETcon MODBUS repeater (supports auto addressing)

The device is a MODBUS amplifier with complete galvanic separation. Up to 63 MODBUS-RTU nodes can be connected to this repeater.
The connected MODBUS participants (slaves) can be conveniently addressed quickly and automatically.

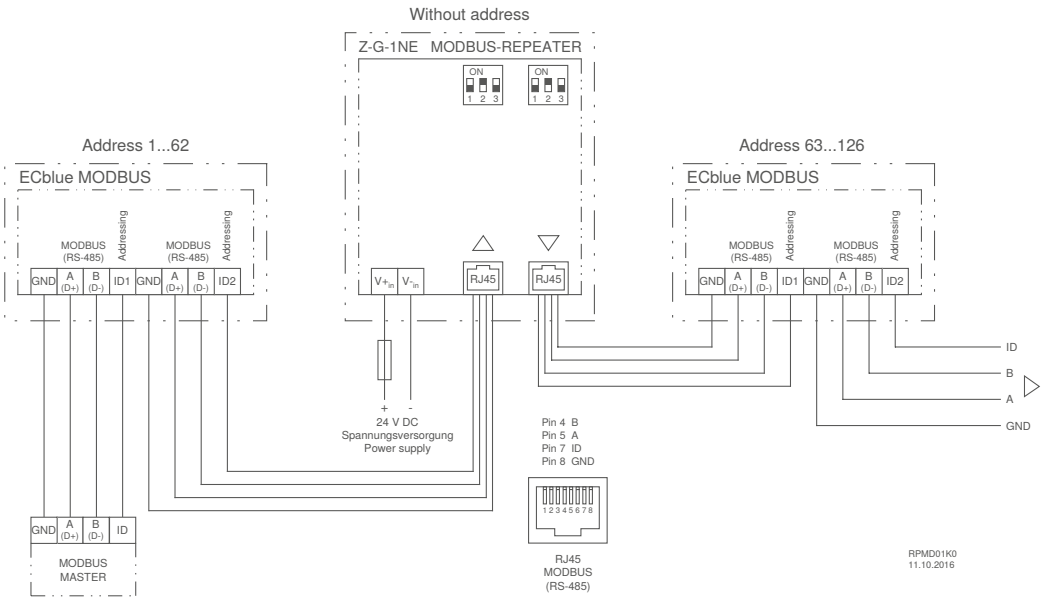
Equipment/properties

2 integrated switches
2 DIP switches for setting the baud rate and parities

Connection type:
- 380097 Connection via RJ45 sockets
- 380105 Connection via terminals

MODBUS-Repeater		
Type	**Article no.**	Weight kg
Z-G-1NE	**380097**	0.09
Z-G-1NE	**380105**	0.10

Connection diagram



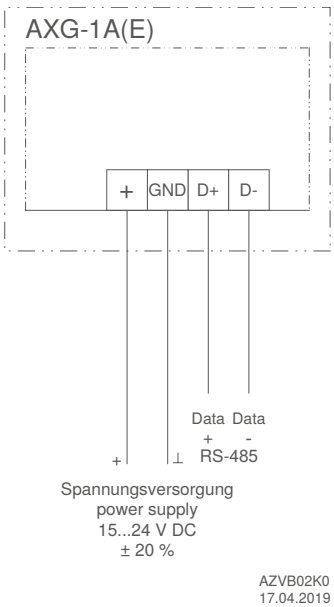
Display and operating terminal

For frequency inverter without integrated display and ECblue

Display and operating terminal for parameterization and operation of the basic frequency inverters “Icontrol Basic” and “Fcontrol Basic” as well as ECblue motors an fans.
The basic frequency inverters without integrated display and ECblue motors have a slot for the AM-PREMIUM add-on modules. By plugging the add-on modules, the AXG-1A(E) operator terminal or the A-G-247NW hand held terminal can be connected.

The display and operator terminal AXG-1A can be installed flexibly in plants or machines in the IP54 housing. Alternatively, a unit for control panel integration is available (AXG-1AE).
The + 24 V voltage supply comes from the frequency inverter, a separate mains supply is not required.

Connection diagram



Technical data

- Voltage supply: 15-24 VDC (I_{max} 24 V: 50 mA / 14 V: 80mA)
- Maximum ambient temperature: + 40 °C

Equipment/properties

LC multi-function display with plain text display:
Different menu languages can be selected. Display of the connected frequency inverter menu.

1 interface RS485:
for connection to an AM-PREMIUM add-on module. Frequency inverters as well as ECblue motors and fans can be parameterized and operated with this.

Display and operating terminals
DC 15...24 V

Type	Article no.	Mounting type	Protection class	Weight kg	Dimensions (W x H x D) mm
AXG-1A	349082	Wall mounting	IP54	0.56	166 x 175 x 60
AXG-1AE	349083	Panel mounting	IP00	0.45	182 x 118 x 57.5

Hand held terminal

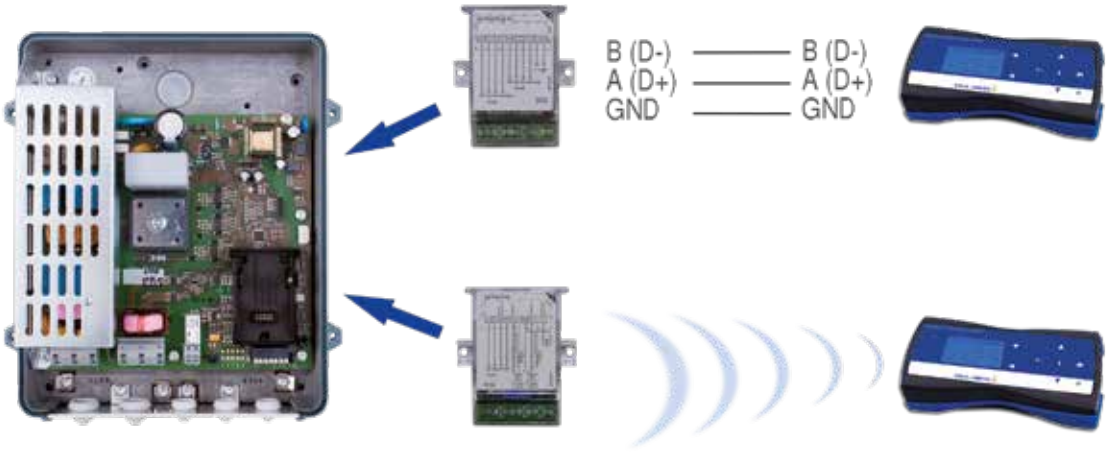
Parameterization of the basic frequency inverters and ECblue

Hand held terminal for parameterization and operation of the “Icontrol Basic” and “Fcontrol Basic” frequency inverters as well as ECblue motors and fans.
The basic frequency inverters without integrated display and ECblue motors can be extended with AM-MODBUS or AM-PREMIUM add-on modules. The A-G-247NW operating terminal can be connected to this by plugging add-on modules.
When using the AM-MODBUS-W or AM-PREMIUM-W add-on modules, communication with this operator terminal can take place without cables, wirelessly, by radio.

The hand held terminal enables storing of data records and transmission of these to other devices.

Application example

Optional connection of the hand held terminal by cable (connection by interface RS485, MODBUS RTU) or radio communication.



Technical data

- External voltage supply:
  by plug power pack (1~ 230 V, 50/60 Hz)
- Internal voltage supply:
  3 x Mignon rechargeable batteries (NIMh 1.2 V)

Equipment/properties

LC multi-function display with plain text display:
Different menu languages can be selected

1 x Mini USB interface:
voltage supply / data transfer with a PC

1 x interface RS485:
for connection to an AM-MODBUS or AM-Premium add-on module. Frequency inverters, ECblue motors and fans can be parameterized and operated with this. It is possible to save data records and transfer them to these devices.

Data transmission by radio:
for communication with AM-MODBUS-W or AM-Premium-W add-on module.

Hand held terminal		
Type	**Article no.**	Weight kg
A-G-247NW	**380090**	0.42

Selection amplifier

Selection of the strongest available sensor signal

For controlling fans on coolers and condensers, systems with several refrigerant circuits have several sensors.
In this application the highest signal that is passed on to the control unit must be selected. The selection amplifiers AWV-K2 select the highest pressure signal (refrigerant pressure). Alternatively, the highest temperature signal of a temperature sensor TF ... are selected.
The AWV and the connected sensors are fed by the control unit.

Input for sensors or speed settings through

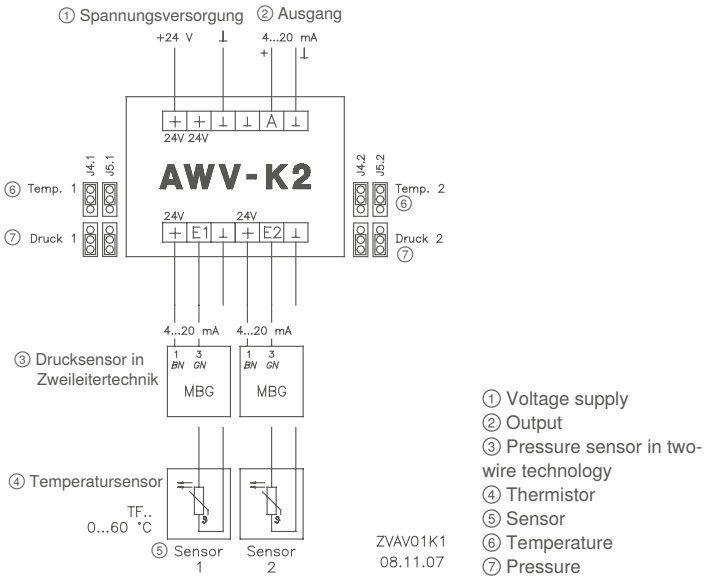
0-30
0-50
bar

Connecting pressure sensors (refrigeration),
e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar

°C

Connection of thermistors type TF...
(only for AWV-K2)

Connection diagram



① Voltage supply
② Output
③ Pressure sensor in two-wire technology
④ Thermistor
⑤ Sensor
⑥ Temperature
⑦ Pressure

Equipment/properties

LEDs
For displaying the switched through sensor signal

Analog inputs for sensors
Connection possibility for pressure sensors 4 – 20 mA (ZIEHL-ABEGG sensors MBG…).
In addition to the connection possibility for pressure sensors alternative connection possibility for ZIEHL-ABEGG thermistors TF…

Optional equipment

- Housing with transparent cover IP54. Art. No. 349069
  Dimensions (W x H x D): 105 x 175 x 110 mm
- Power supply unit “STEP POWER” Art. No. 380067
  Dimensions (W x H x D): 54 x 90 x 61 mm

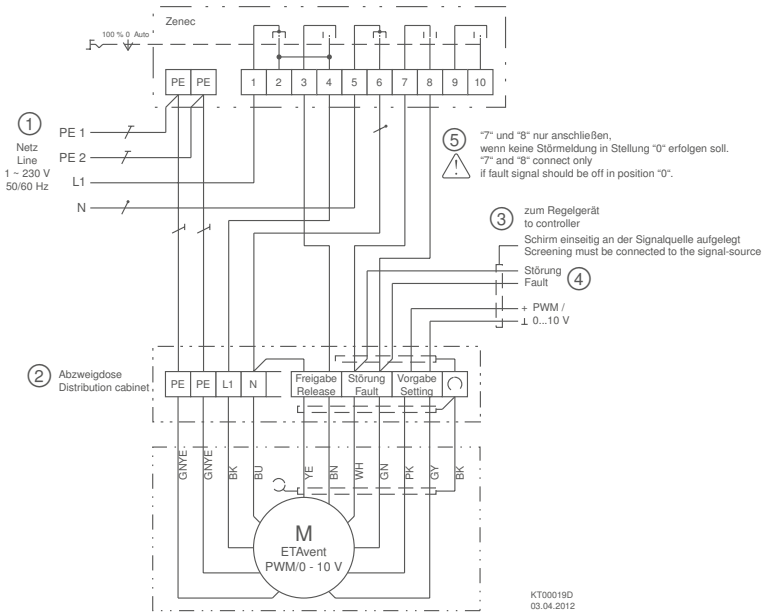
Selection amplifier AWV DC 24 V					
Type	**Article no.**	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
AWV-K2	**380005**	40	IP20	0.11	48 x 96 x 42

Main switch for EC-fans

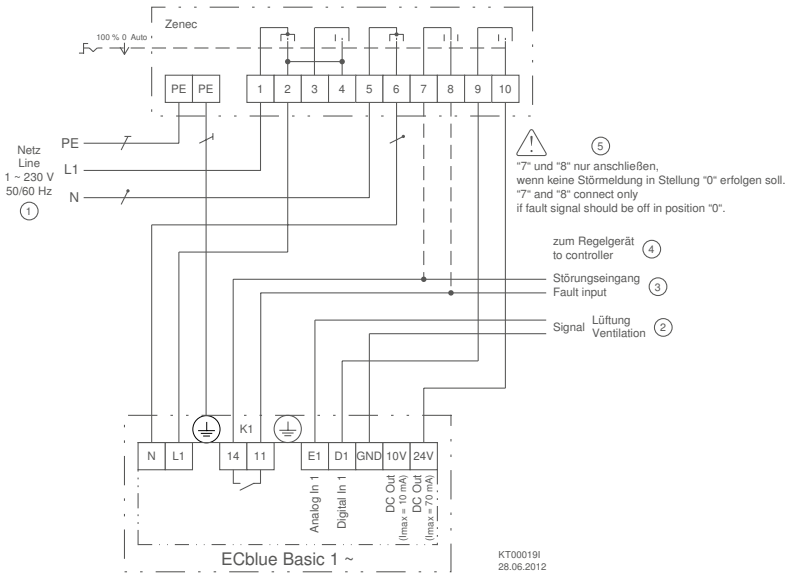
1~/3~ Zenec with bypass function

Zenec main switch for 1~/3~ EC fans from the ETAvent and ECblue series with 100% function.
EC fans are controlled via an external control signal, e.g. 0 – 10 V. If the control signal drops due to a technical defect, the Zenec can be used to manually switch the connected EC fan to 100 %. To do this, the EC fan must have the control possibility for the 100 % function. ETAvent fans and ECblue for agriculture normally have this function. In livestock farming in particular, this function is very important to ensure ventilation in the animal housing.
In addition, the Zenec can supress the fault indication issued by an external device when the Zenec is switched to the “0” position.

Connection diagram



① Line 1~ 230 V 50/60 Hz
② Distribution cabinet
③ To controller
Screening must be connected to the signal source
④ Fault
⑤ [7] and [8] connect only if fault indication should be off in position 0



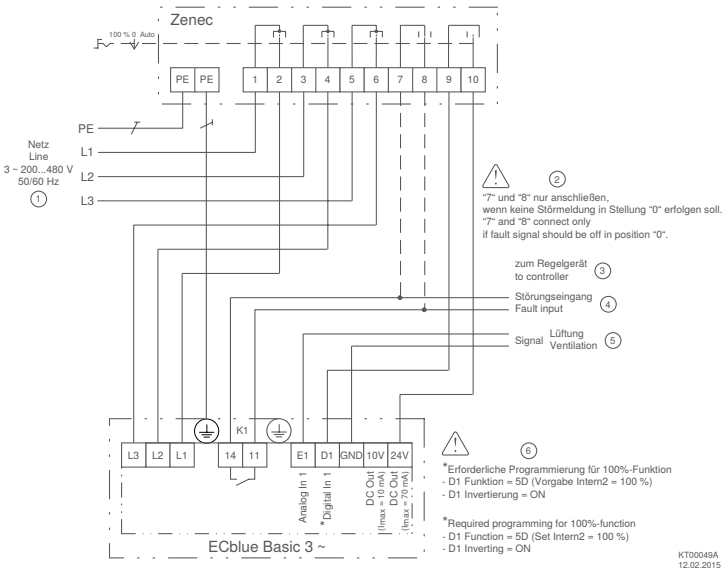
① Line 1~ 230 V 50/60 Hz
② Signal ventilation
③ Fault input
④ To controller
⑤ [7] and [8] connect only if fault indication should be off in position 0

Equipment / properties

Version
For combination with1~ and 3~ EC fans that support the control possibility for the 100 % function: 1~ ETAvent and 1~/3~ ECblue for agriculture.

Switch positions
100 %: Full speed of EC fan
0: Fan switched off. The switch can be locked in this position with a padlock
Auto: Standard operation via external setting signal

Main switches 1~/3~								
Type	**Article no.**	Rated current	Max. line fuse	Minimum ambient temperature	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	A	°C	°C		kg	mm
Zenec	**349068**	20	25	-25	60	IP65	0.24	90.5 x 90.5 x 107



① Line 3~ 200...480 V 50/60 Hz
② [7] and [8] connect only if fault indication should be off in position 0
③ To controller
④ Fault input
⑤ Signal ventilation
⑥ Required programming for 100%-function
- D1 Function = 5D (Set Intern2 = 100 %)
- D1 Inverting = ON

Main switch with bypass function

Controlled operation and 100% operation of fans on the frequency inverter

The main switches have three switch positions.
In position 1 or Auto a connected frequency inverter is supplied. The controlled output of the frequency inverter goes back to the switch which uses it to supply fans for example.
100% or bypass means that the connected mains supply is switched directly to fans or motors. This enables 100% operation in certain situations, for example, emergency operation. An integrated auxiliary contact reports this switch position.
In position 0 or Off this switch can be locked with a padlock.
For the combination with frequency inverter without sinefilter, EMC inserts are available which can be inserted into the switches.

Equipment/properties

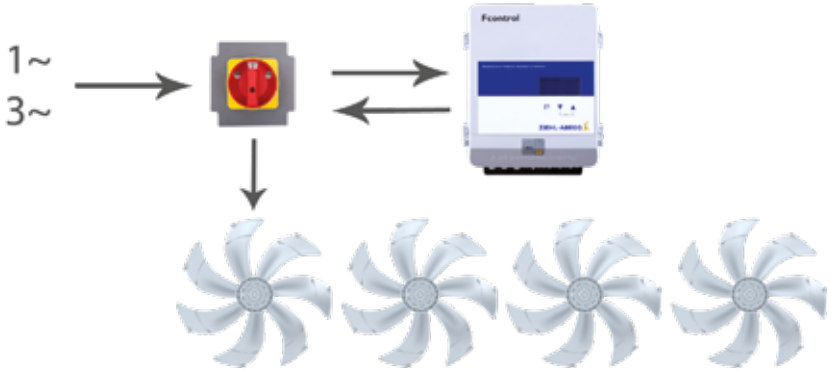
Versions
For combination with 1~ or 3~ control units (e.g. frequency inverter Fcontrol, voltage control units). Mains supply 1~ or 3~.

Main switches

Line	Type	Article no.	Max. line fuse	Minimum ambient temperature	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
			A	°C	°C		kg	mm
1~ 230V 50/60Hz	S-E-20	349048	25	-25	40	IP65	0.30	90.5 x 90.5 x 139
3~ 690V 50/60Hz	S-D-25	349035	35	-25	40	IP65	0.60	115 x 115 x 163
3~ 690V 50/60Hz	S-D-50	349040	63	-25	40	IP65	1.15	145 x 145 x 188

Application example

A group of fans is controlled by the Fcontrol frequency inverter. The frequency inverter can be bypassed in certain situations, the mains supply is switched directly to the fans in bypass operation.



Empty housings

We supply empty housings as accessories for ZIEHL-ABEGG control technology products or as housings for auxiliary devices.
The housing with transparent cover (**Article No. 349069**) can be used, for example, for the motor protection unit for U-EK… PTV thermistors or for the AWV… selection amplifier.
The housing with closed plastic cover (**Article No. 00154598**) has a die-cast aluminium bottom section and can therefore house electronics which must dissipate heat.

Empty housings

Type	Article no.	Protection class	Weight kg	Dimensions (W x H x D) mm
Housings and parts	**00154598**	IP54	1.42	240 x 284 x 115
Housings and parts	**349069**	IP65	0.41	101 x 174 x 111

Power supply unit

STEP POWER

The STEP POWER power supply unit is available for providing low voltage (supply of auxiliary devices or sensors).

- **Article No. 380067**
- Nominal voltage: 1~ 100...240 V
- 50/60 Hz
- Output voltage: 24 V DC
- Output current: 1.75 A
- Mounting on DIN rail (control cabinet installation)
- Dimensions W x H x D: 54 x 90 x 61 mm

General notes

The information and data contained in this catalogue were composed to the best of our best ability and do not absolve the user from its duty to check the suitability of the products with respect to its intended application.

The customer is obligated to inform the supplier about general information concerning the intended use, the type of installation, the operating conditions and any other conditions that need to be taken into consideration if the order is not based on catalogue information.

ZIEHL-ABEGG SE reserves the right to make design changes, which are used for continuous technical improvement.

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