# 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

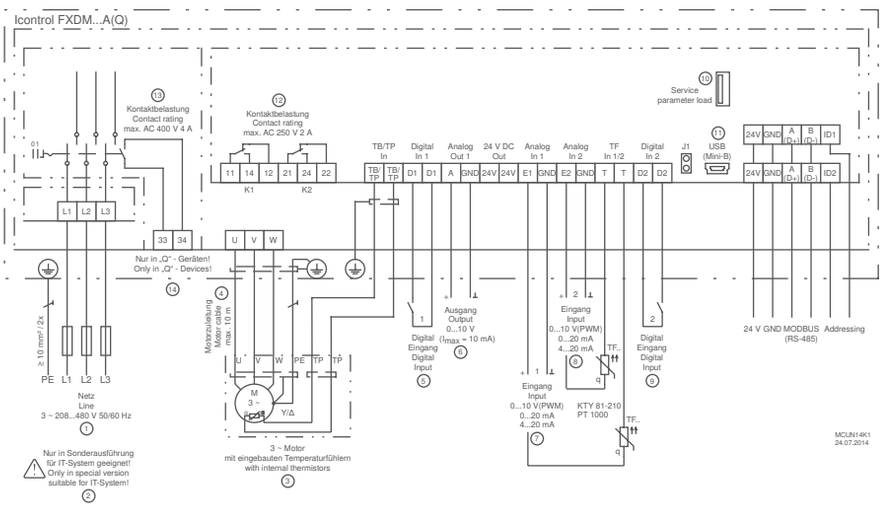
°C — Connection of thermistors, e. g. sensors type TF.. e. g. active sensor type MTG..

△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

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

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.

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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 |

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