



# Operating Instructions

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## 1. SAFETY REGULATIONS AND INFORMATION

Read these operating instructions carefully before starting work on the device. Observe the following warnings to prevent malfunctions or danger to persons.

These operating instructions are to be regarded as part of the device. The device is only to be sold or passed on together with the operating instructions.

These operating instructions may be duplicated and distributed to inform about potential dangers and their prevention.

### 1.1 Hazard levels for warnings

These operating instructions use the following hazard levels to indicate potentially hazardous situations and important safety regulations:



#### DANGER

Indicates an imminently hazardous situation which will result in death or serious injury if the specified actions are not taken. Compliance with the instructions is imperative.

#### WARNING

Indicates a potentially hazardous situation which can result in death or serious injury if the specified actions are not taken. Exercise extreme caution while working.

#### CAUTION

Indicates a potentially hazardous situation which can result in minor or moderate injury or damage to property if the specified actions are not taken.

#### NOTE

A potentially harmful situation can occur and, if not avoided, can lead to property damage.

### 1.2 Staff qualifications

The device may only be transported, unpacked, installed, operated, maintained and otherwise used by suitably qualified, trained and authorised staff.

Only authorised specialists are permitted to install the device, to carry out a test run and to perform work on the electrical installation.

### 1.3 Basic safety rules

The safety hazards associated with the device must be assessed again following installation in the final product.

Note the following when working on the device:

- Do not perform any modifications, additions or conversions on the device without the approval of ebm-papst A&NZ.

### 1.4 Voltage

- Check the device's electrical equipment at regular intervals; see chapter 6.2 Safety inspection.
- Replace loose connections and defective cables immediately.



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## WARNING

### Live terminals and connections even with device switched off

Electric shock

- Wait five minutes after disconnecting the voltage at all poles before opening the device.

## CAUTION

### In the event of fault, the rotor and the impeller will be energised

The rotor and impeller have basic insulation.

- Do not touch the rotor and impeller once installed.

## CAUTION

### If control voltage or a stored speed set value is applied, the motor will restart automatically, e.g. after a power failure.

Risk of injury

- Keep out of the device danger zone. When working on the device, switch off the line voltage and ensure that it cannot be switched back on.
- After working on the device, remove any tools or other objects from the device.

## 1.5 Safety and protective features



## DANGER

### Protective device missing and protective device not functioning

Without a protective device there is a risk of serious injury, for instance if the hands reach or are sucked into the device during operation.

- Operate the device only with a fixed protective device and guard grille. The fixed protective device must be able to withstand the kinetic energy of a fan blade that becomes detached at maximum speed. There must not be any gaps which it is possible to reach into with the fingers, for example.
- The device is a built-in component. As the operator, you are responsible for ensuring that the device is secured adequately.
- Stop the device immediately if you notice a missing or ineffective protective device.

## 1.6 Electromagnetic radiation

Interference from electromagnetic radiation is possible, e.g. in conjunction with open and closed-loop control devices.

If impermissible radiation levels occur following installation, appropriate shielding measures have to be taken by the user.

## NOTE

### Electrical or electromagnetic interferences after installing the device in customer equipment.

- Verify that the entire setup is EMC-compliant.

## 1.7 Mechanical movement



## DANGER

### Rotating device

Risk of injury to body parts coming into contact with the rotor or impeller.

- Secure the device against accidental contact.

- Before working on the system/machine, wait until all parts have come to a standstill.



## DANGER

### Ejected parts

Missing protective devices may cause balancing weights or broken fan blades to be ejected and cause injury.

- Take appropriate safety measures.

## WARNING

### Rotating device

Long hair and dangling items of clothing, jewellery and the like can become entangled and be pulled into the device. Injuries can result.

- Do not wear any loose-fitting or dangling clothing or jewellery while working on rotating parts. Protect long hair with a cap.

## 1.8 Emissions

## WARNING

### Depending on the installation and operating conditions, the sound pressure level may exceed 70 dB (A).

Risk of noise-induced hearing loss

- Take appropriate technical safety measures.
- Protect operating personnel with appropriate safety equipment such as hearing protection.
- Also observe the requirements of local agencies.

## 1.9 Hot surface



## CAUTION

### High temperature on electronics housing

Risk of burns

- Ensure sufficient protection against accidental contact.

## 1.10 Transport

## WARNING

### Transporting the fan

Injuries from tipping or slipping

- Wear safety shoes and cut-resistant safety gloves. The fan is only to be transported in its original packing. The fan is to be transported lying flat, i.e. the motor axis must be vertical. Secure the fan(s) e.g. with a lashing strip to stop anything slipping or tipping.

## 1.11 Storage

- Store the device, partially or fully assembled, in a dry and weatherproof manner in the original packaging in a clean environment.
- Protect the device against environmental effects and dirt until the final installation.
- We recommend storing the device for no longer than one year in order to guarantee trouble-free operation and the longest possible service life.
- Even devices explicitly intended for outdoor use are to be stored as described prior to commissioning.
- Maintain the storage temperature; see chapter 3.5 Transport and storage conditions.



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- Make sure that all screwed cable glands are fitted with dummy plugs.

## 1.12 Disposal

Comply with all relevant local requirements and regulations when disposing of the device.

## 2. INTENDED USE

The device is exclusively designed as a built-in device for moving air according to its technical data.

Any other usage above and beyond this does not conform with the intended purpose and constitutes misuse of the device. Customer equipment must be capable of withstanding the mechanical and thermal stresses that can arise from this product. This applies for the entire service life of the equipment in which this product is installed.

### Intended use also includes

- Using the device only in stationary systems.
- Performing all maintenance work.
- Conveying air at ambient air pressure between 750 mbar and 1050 mbar.
- Using the device within the permitted ambient temperature range, see chapter 3.5 Transport and storage conditions and chapter 3.2 Nominal data.
- Operating the device with all protective devices.
- Following the operating instructions.

### Improper use

In particular, operating the device in the following ways is prohibited and could be hazardous:

- Operating the device in an imbalanced state, e.g. due to dirt deposits or ice formation.
- Operation in medical equipment with a life-sustaining or life-supporting function.
- Operation with external vibrations.
- Conveying solids in the flow medium.
- Painting the device.
- Connections (e.g. screws) coming loose during operation.
- Opening the terminal box during operation.
- Conveying air that contains abrasive particles.
- Conveying highly corrosive air, e.g. salt spray. Exceptions: devices designed for salt spray and correspondingly protected.
- Operating the device close to flammable materials or components.
- Operating the device in an explosive atmosphere.
- Using the device as a safety component or to perform safety related functions.
- Operation with completely or partially disassembled or manipulated protective devices.
- In addition, all application not listed among intended uses.



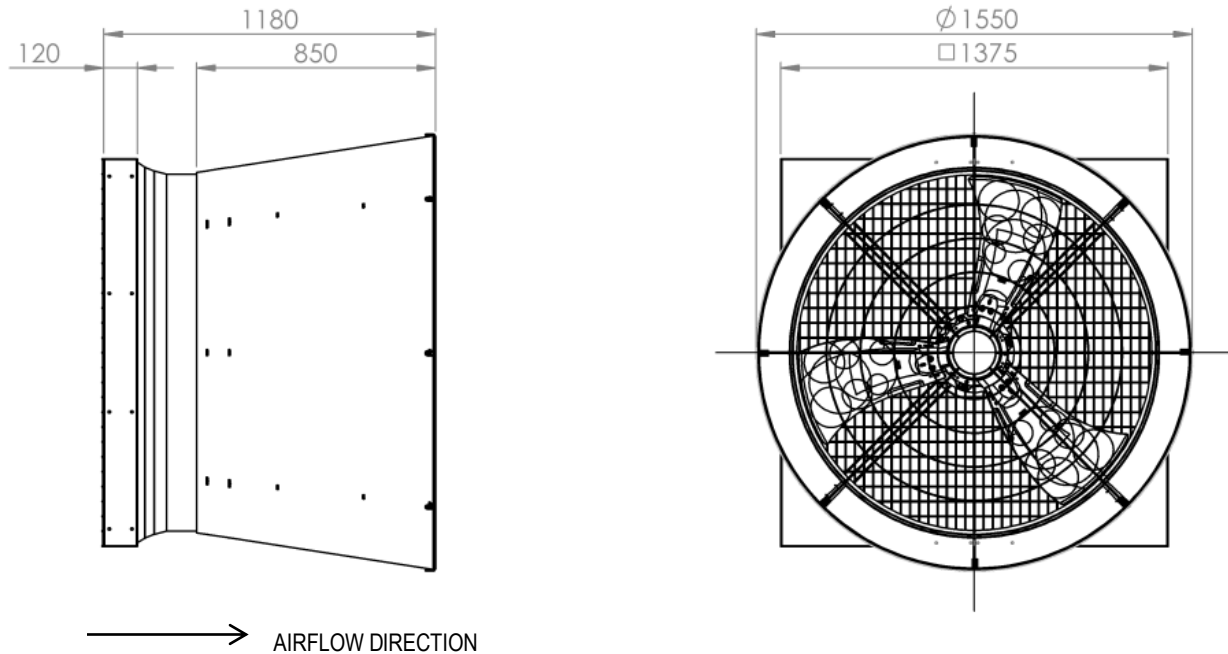
AF1250-001  
AFFB1250-00

ebmpapst

# Operating Instructions

## 3. TECHNICAL DATA

### 3.1 Product drawing



P/N AF1250-001 (as shown)

P/N AFFB1250-00 (is replacement stock for AF1250-001, it is the fan and bracket only)

**All dimensions are in mm**

**Direction of air flow "A"**

#### Fan cable requirement

Power supply and control cable diameter: min. 4 mm, max 10 mm, tightening torque for cable gland  $4 \pm 0.6$  Nm.

#### Fan junction box requirements

Tightening torque  $3.5 \pm 0.5$  Nm.



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## 3.2 Nominal data

Motor	M3G150-NA
Phase	3~
Nominal Voltage / VAC	400
Nominal voltage range / VAC	380 .. 480
Frequency / Hz	50/60

Method of obtaining data	maximum load
Speed / min <sup>-1</sup>	548
Power consumption / W	1800
Current draw / A	2.6
Max. Back pressure / Pa	78
Min. ambient temperature / °C	-25
Max. ambient temperature / °C	60

Subject to change

## 3.3 Technical description

Mass	118 kg
Size	1250 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminium, painted black
Blade material	Die-cast aluminium, painted black
Housing material	Galvanised steel
Guard grille material	Steel phosphate
Number of blades	3
Blade pitch	0°
Airflow direction	"A"
Direction of rotation	Counter clockwise, viewed toward rotor
Degree of protection	IP 55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	F5
Installation position	Shaft horizontal or rotor on top
Condensate drainage holes	On stator side
Mode	S1
Motor bearing	Ball bearing
Technical features	<ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Output 20 VDC, max. 50 mA</li> <li>- Output for slave 0-10 V</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- External 24V input (parameter setting)</li> <li>- External release input</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Power limiter</li> <li>- Motor current limitation</li> <li>- PFC, passive</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Control input 0-10 VDC/PWM</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> </ul>

	<ul style="list-style-type: none"> <li>- Thermal overload protection for electronics/motor</li> <li>- Line under voltage / phase failure detection</li> </ul>
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hook-up	Via terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1, CE
Approval	EAC; UL 1004-7 + 60730; C22 No.77 + CAN/CSA-E60730-1



With regard to cyclic speed loads, note that the rotating parts of the device are designed for a maximum of one million load cycles. If you have specific questions, consult ebm-papst A&NZ for support.

## 3.4 Mounting data

→ Secure the screws against unintentional loosening (e.g. use self-locking screws).

Any further mounting data required can be taken from the product drawing.

## 3.5 Transport and storage conditions

→ Use the device in accordance with its degree of protection.

Max. permissible ambient temp. for motor (transport/storage)	+ 80 °C
Min. permissible ambient temp. for motor (transport/storage)	- 40 °C

## 3.6 Electromagnetic compatibility

EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-4 (industrial environment)



If several devices are switched in parallel on the supply side so that the line current of the arrangement is in the range of 16 – 75 A, then this arrangement conforms to IEC 61000-3-12 provided that the short-circuit power  $S_{sc}$  at the connection point of the customer system to the public power system is greater than or equal to 120 times the rated output of the arrangement. It is the responsibility of the installation engineer or operator/owner of the device to ensure, if necessary after a consultation with the network operator, that this device is only connected to a connection point with a  $S_{sc}$  value that is greater than or equal to 120 times the rated output of the arrangement.



# Operating Instructions

## 4. CONNECTION AND START-UP

### 4.1 Mechanical connection



**CAUTION**  
**Cutting and crushing hazard when removing fan from packaging.**



- Carefully remove the device from its packaging, grasping it by only the housing. Strictly avoid shocks.
- Wear safety shoes and cut-resistant safety gloves.

**CAUTION**  
**Heavy load when unpacking device**

Risk of physical injury, such as back injuries.  
→ Two people should work together to remove the device from its packaging.

- Check the device for transport damage. Damaged devices are not to be installed.
- Install the undamaged device accordance with your application.



**CAUTION**  
**Possible damage to the device**

If the device slips during installation, serious damage can result.  
→ Ensure that the device is securely positioned at its place of installation until all fastening screws have been tightened.

### 4.2 Electrical connection



**DANGER**  
**Voltage on the device**

Electric shock  
→ Always connect a protective earth first.  
→ Check the protective earth.



**DANGER**  
**Faulty insulation**

Risk of fatal injury from electric shock  
→ Use only cables that meet the specified installation regulations for voltage, current, insulation material, capacity, etc.  
→ Route cables so that they cannot be touched by any rotating parts.



**DANGER**  
**Electrical charge (>50 µC) between phase conductors and protective earth connection after switching off supply with multiple devices connected in parallel.**

Electric shock, risk of injury  
→ Ensure sufficient protection against accidental contact. Before working on the electrical hook up, short the supply and PE connections.

**CAUTION**  
**Voltage**

The fan is a built-in component and has no disconnecting switch.  
→ Only connect the fan to circuits that can be switched off with an all-pole disconnection switch.  
→ When working on the fan, secure the system/machine in which the fan is installed so as to prevent it from being switched back on.

### NOTE

#### Device malfunctions possible

Route the device's control lines separately from the supply line.

- Maintain the greatest possible clearance.  
Recommendation: clearance > 10 cm (separate cable routing)

### NOTE

#### Water ingress into wires or cables

Water ingress at the customer end of the cable can damage the device.

- Make sure the end of the cable is connected in a dry environment.



Only connect the device to circuits that can be switched off with an all-pole disconnection switch.

### 4.2.1 Requirements

- Check whether the data on the nameplate match the connection data.
- Before connecting the device, make sure the power supply matches the device voltage.
- Only use cables designed for the current level indicated on the nameplate. For determining the cross-section, note the sizing criteria according to EN 61800-5-1. The protective earth must have a cross-section equal to or greater than that of the phase conductor.  
We recommend the use of 105°C cables. Ensure that the minimum cable cross-section is at least AWG26/0.13 mm<sup>2</sup>.

### Ground conductor contact resistance according to EN 61800-5-1

Compliance with the impedance specifications according to EN 61800-5-1 for the protective earth connection circuit must be verified in the end application.

Depending on the circumstances of installation, it may be necessary to connect an additional protective earthing conductor to the extra protective earth terminal on the device.

The protective earth terminal is on the housing and has a ground conductor symbol and a bore hole.

### 4.2.2 Supply connection and fuses

Assignment of supply cable cross-sections and their required fuses (line protection only, no equipment protection).

Nominal voltage	Fuse		Automatic circuit breaker	Cable cross-section	Cable cross-section
	VDE	UL	VDE	mm <sup>2</sup>	*AWG
3/PE AC 380-480 VAC	16 A	15 A	C16A	1.5	16
3/PE AC 380-480 VAC	20 A	20 A	C20A	2.5	14
3/PE AC 380-480 VAC	25 A	25 A	C25A	4.0	12
3/PE AC 380-480 VAC	32 A	30 A	C32A	6.0	10



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## 4.2.3 Reactive current



Because of the EMC filter integrated for compliance with EMC limits (interference emission and immunity to interference), reactive currents can be measured in the supply line even when the motor is at a standstill and the line voltage is switched on.

- The values are typically less than 250 mA.
- At the same time, the effective power in this operating state (operational readiness) is typically < 5 W.

## 4.2.4 Residual current circuit breaker (RCCB)



Only universal residual current devices (type B or B+) are allowed. As with variable frequency drives, residual current devices cannot provide personal safety while operating the device.

When the device's power supply is switched on, pulsed charging currents from the capacitors in the integrated EMC filter can lead to the residual current devices tripping without delay. We recommend the use of residual current circuit breakers with a trip threshold of 300 mA and delayed tripping (super-resistant, characteristic K).

## 4.2.5 Leakage current



For asymmetrical power systems or if a phase fails, the leakage current can increase to a multiple of the nominal value.

## 4.2.6 Locked-rotor protection



Due to the locked-rotor protection, the starting current (LRA) is equal to or less than the nominal current (FLA).

## 4.3 Connection in terminal box

### 4.3.1 Preparing cables for connection

Only strip the cable as far as necessary, ensuring that the cable gland is sealed and there is no strain on the connections. For tightening torque, see chapter 3.1 Product drawing.

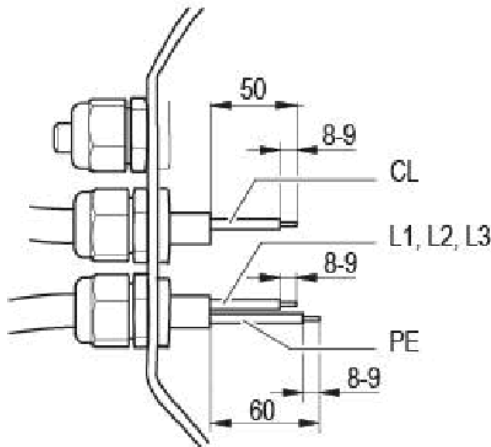


Fig. 1: Recommended stripping lengths in mm (inside terminal box)  
Legend: CL = control lines.

### 4.3.2 Connecting wires to terminals

#### WARNING

**Live terminals and connections even with device switched off**

Electric shock

→ Wait five minutes after disconnecting the voltage at all poles before opening the device.

- Remove the cap from the cable gland. Only remove caps where cables are fed in.
- Equip the cable glands with the seals inserts provided in the terminal box.
- Route the wire(s) (not included in the scope of delivery) into the terminal box.
- First connect the "PE" (protective earth).
- Connect the wires to the corresponding terminals. Use a screwdriver to do so. When connecting, ensure that no wire ends fan out.

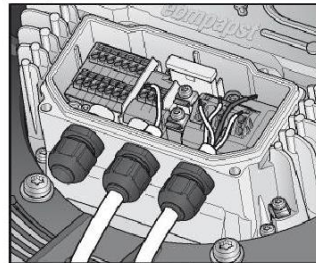


Fig. 2: Connecting the wires to terminals

- Seal the terminal box.



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### 4.3.3 Cable routing

Water must be prevented from reaching the cable gland along the cable.

#### Fans installed upright

When routing the cable, make sure that the cable glands are located at the bottom. The cables must always be routed downwards.

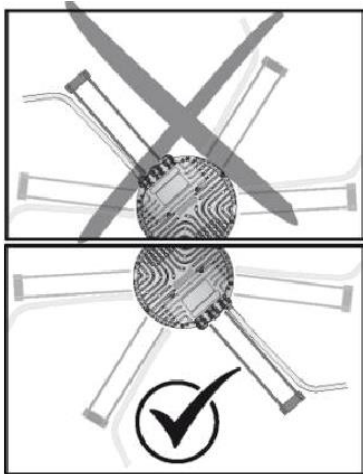


Fig. 3: Cable routing for fans installed upright.

### 4.4 Factory settings

Factory settings made for the device by ebm-papst.

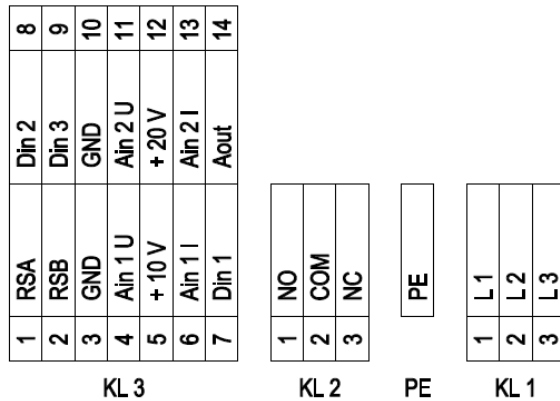
Motor parameter set 1	PWM controlling
Motor parameter set 2	PWM controlling
Fan / device address	1
Max. PWM / %	100
Min. PWM / %	5
Save set value to EEPROM	Yes
Set value requirement	Analogue (linear)
Direction of action parameter set 1	Positive (heating)
Direction of action parameter set 2	Positive (heating)





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## 4.5 Connection diagram



No.	Conn.	Designation	Function/assignment
KL 1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL 2	1	NO	Status relay, floating status contact; make for failure
KL 2	2	COM	Status relay, floating status contact; changeover contact; common connection; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL 2	3	NC	Status relay, floating status contact; break for failure
KL 3	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL 3	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL 3	3 / 10	GND	Reference ground for control interface; SELV
KL 3	4	Ain1 U	Analog input 1, set value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain1 I; SELV
KL 3	5	+ 10 V	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV
KL 3	6	Ain1 I	Analog input 1, set value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain1U; SELV
KL 3	7	Din1	Digital input 1: enable electronics, enable: pin open or applied voltage 5-50 VDC disable: bridge to GND or applied voltage < 1 VDC reset function: triggers software reset after a level change to < 1 VDC; SELV
KL 3	8	Din2	Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: pin open or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	9	Din3	Digital input 3: according to EEPROM setting, the integrated controller's direction of action can be selected as normal/inverse via bus or digital input normal: pin open or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	11	Ain2 U	Analog input 2, measured value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain2I; SELV
KL 3	12	+ 20 V	Fixed voltage output 20 VDC, +20 V ±25/-10%, max. 50 mA, short-circuit-proof power supply for external devices (e.g. sensors); SELV
KL 3	13	Ain2 I	Analog input 2, measured value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain2U; SELV
KL 3	14	Aout	Analog output 0-10 VDC, max. 5 mA, output of current motor modulation level / motor speed adjustable curve; SELV



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## 4.6 Checking connections

- Ensure isolation from supply (all phases).
- Make sure a restart is impossible.
- Check the cables for proper fit.
- Screw the terminal box cover back on again. Terminal box tightening torque, see chapter 3.1 Product drawing.
- Route the cables in the terminal box so that the terminal box cover closes without resistance.
- Use all plug screws. Insert the screws by hand to avoid damage to the threads.
- Make sure that the terminal box is completely closed and sealed and that all screws and cable glands have been properly tightened.

## 4.7 Switching on the device

The device may only be switched on if it has been installed properly and in accordance with its intended use, including the required safety mechanisms and professional electrical hook up. This also applies for devices which have already been equipped with plugs and terminals or similar connectors by the customer.



### WARNING

#### Hot motor housing

Risk of fire

→ Ensure that no combustible or flammable materials are located close to the fan.

- Before switching on, check the device for visible external damage and make sure the protective devices are functional.
- Check the fan's air flow paths for foreign matter and remove any foreign matter found.
- Apply the nominal supply voltage.
- Start the device by changing the input signal.

## 4.8 Switching off the device

Switching off the device during operation:

- Switch off the device via the control input.
  - Do not switch the motor (e.g. in cyclic operation) on and off via power supply.
- Switching off the device for maintenance:
- Switch off the device via the control input.
  - Do not switch the motor (e.g. in cyclic operation) on and off via power supply.
  - Disconnect the device from the power supply.
  - When disconnecting, be sure to disconnect the ground connection last.

## 5. INTEGRATED PROTECTIVE FEATURES

The integrated protective functions cause the motor to switch off automatically in the event of the faults described in the table.

Fault	Safety features description/function
Rotor position detection error	An automatic restart follows.
Blocked rotor	→After the blockage is removed, the motor restarts automatically.
Line under voltage (line voltage outside of permitted nominal voltage range)	→If the line voltage returns to permitted values, the motor restarts automatically.
Phase failure	A phase of the supply voltage fails for at least 5 s. →When all phases are correctly supplied again, the motor automatically restarts after 10–40 s.



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## 6. MAINTENANCE, MALFUNCTIONS, POSSIBLE CAUSES AND REMEDIES

Do not perform any repairs on your device. Send the device to ebm-papst A&NZ for repair or replacement.

### WARNING

**Live terminals and connections even with device switched off**

Electric shock

→ Wait five minutes after disconnecting the voltage at all poles before opening the device.

### CAUTION

**If control voltage or a stored speed set value is applied, the motor will restart automatically, e.g. after a power failure.**

Risk of injury

→ Keep out of the devices danger zone. When working on the device, switch off the line voltage and ensure that it cannot be switched back on.

→ After working on the device, remove any tools or other objects from the device.



If the device is out of use for over four months, we recommend switching it on for at least three hours at full speed to allow any condensate to evaporate and to move the bearings.

Malfunction / fault	Possible cause	Possible remedy
Impeller not running smoothly	Imbalance in rotating parts	Clean the device; replace it if imbalance persists after cleaning. Make sure no weight clips are removed during cleaning.
Motor not turning	Mechanical blockage	Switch off, isolate from supply and remove mechanical blockage.
	Line voltage faulty	Check line voltage, restore power supply. Attention! The error message resets automatically. Device restarts automatically without warning.
	Faulty connection	Isolate from supply, correct connection, see connection diagram.
	Broken motor winding	Replace device
	Deficient cooling	Improve cooling. Let the device cool down. To reset the error message, switch off the line voltage for at least 25 s and switch it on again. Alternatively, reset the error message by applying a control signal of <0.5 V to DIN1 or by shorting Din1 to GND.
	Ambient temperature too high	Reduce the ambient temperature. Let the device cool down. To reset the error message, switch off the mains supply voltage for a min. of 25 s and switch it on again. Alternatively, reset the error message by applying a control signal of <0.5 V to DIN1 or by short circuiting Din1 to GND.
	Impermissible point of operation (e.g. back pressure too high)	Correct the operating point. Let the device cool down. To reset the error message, switch off the line voltage for at least 25 s and then switch it on again. Alternatively, reset the error message by applying a control signal of <0.5 V to DIN1 or by short Din1 to GND.



If you have any other problems, contact ebm-papst A&NZ



# Operating Instructions

## 6.1 Cleaning

**NOTE**

**Damage to the device during cleaning**

Malfunctions possible

- Do not clean the device using a high-pressure cleaner. Do not use acid, alkali or solvent-based cleaning agents.
- Do not use any pointed or sharp-edged objects for cleaning.

**Instructions for cleaning**

- Check the unit regularly, with particular attention to smooth operation and dust build up on the impeller and motor housing.
- Heavy dust build up, especially on the motor housing and the impeller, and/or strong vibrations, can destroy the fan. In this case, switch off the fan immediately and clean it.
- If heavy corrosion is identified on load-bearing or rotating parts of the unit, switch it off without delay and replace it. Repair of load-bearing or rotating parts is not permitted.
- Only clean the unit when it is stopped; disconnect it from the power supply and secure it against restarting.
- Do not use aggressive cleaning agents!
- Only direct water jets at the rotor side, never at the motor side.
- Avoid directing the water jet at the condensation drainage hole. Maximum water pressure: 80 bar.
- After cleaning, run the fan for at least an hour at maximum speed.
- Make sure that the condensation drainage hole (if present) is not obstructed by dirt.
- Adjust maintenance intervals to the level of dust exposure.

Insulation of cables for damage	Visual inspection	At least every 6 months	Replace cables
Tightness of cable gland	Visual inspection	At least every 6 months	Retighten replace if damaged
Condensate discharge holes for clogging, as necessary	Visual inspection	At least every 6 months	Open holes
Weld for crack formation	Visual inspection	At least every 6 months	Replace device

## 6.2 Safety inspection

**NOTE**

**High-voltage test**

The integrated EMC filter has Y capacitors. The trigger current is exceeded when AC testing voltage is applied.

- Test the device with DC voltage when you perform the legally required high-voltage test. The voltage to be used corresponds to the peak value of the AC voltage required by the standard.

What to check?	How to check?	How often	What action?
Contact protection cover for intactness or damage.	Visual inspection	At least every 6 months	Repair or replacement of the device
Device for damage to blades and housing	Visual inspection	At least every 6 months	Replacement of the device
Fastening the cables	Visual inspection	At least every 6 months	Fasten