

# Installation instructions

## PowerKon NT

Please keep safe for future use!

Read these instructions carefully prior to starting commissioning!



# KAMPMANN

Kampmann. Genau mein Klima.

# 1.28 PowerKon NT

## Low temperature heaters

### Mounting and installation instructions

Explanation of the symbols:



**Caution! Danger!**

*The non-observance of this instruction can lead to severe damage to people or property.*



**Danger of electrocution!**

*The non-observance of this instruction can lead to severe damage to people or property through electrocution.*

**Read these instructions carefully prior to starting any assembly and installation work!**

All tradespersons involved in the installation, commissioning and operation of this equipment are dutybound to pass this manual onto any tradespersons currently or subsequently working on this equipment, including the end user. Retain this manual until final decommissioning of the equipment!

**Amendments to the content or style of this manual can be made without prior notice!**

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## 1. Intended Use

Kampmann PowerKon NT are built in line with the state of the art and recognised safety regulations. Nevertheless, their use can result in danger to people or damage to the units or other materials assets if they are not appropriately installed and operated or correctly and properly used.

PowerKon NT should only be used indoors (e.g. living space, offices, showrooms etc.) They are not suitable for use in humid environments, such as swimming pools or outdoors. The products should be protected from any moisture during installation. Check the application with the manufacturer in case of any doubt. Any use other than the use specified above is deemed not to be correct and proper. The operator of the unit is solely responsible for any damage arising as a result of this. Correct and proper use is deemed to include observing the installation instructions described in these instructions.

The installation of this product requires specialist knowledge of heating, cooling and ventilation. This knowledge, generally learned in vocational training in the fields mentioned in section 2, is not described separately. Damage caused by improper installation is the responsibility of the operator..

## 2. Safety Information



Installation, assembly and maintenance work on electrical units should only be performed by a qualified electrician in compliance with the VDE guidelines. The connection should comply with the applicable VDE regulations and provisions laid down by the regional electricity providers.

Non-compliance with the regulations and operating instructions can result in the units malfunctioning with consequential damage and danger to people. The units can be incorrectly connected by the wires being swapped – danger of fatal injury!

All parts of the system should be disconnected from the mains power supply and prevented from being reconnected before starting any connection and maintenance work. Qualified personnel must have undergone training to provide them with adequate knowledge to include the following:

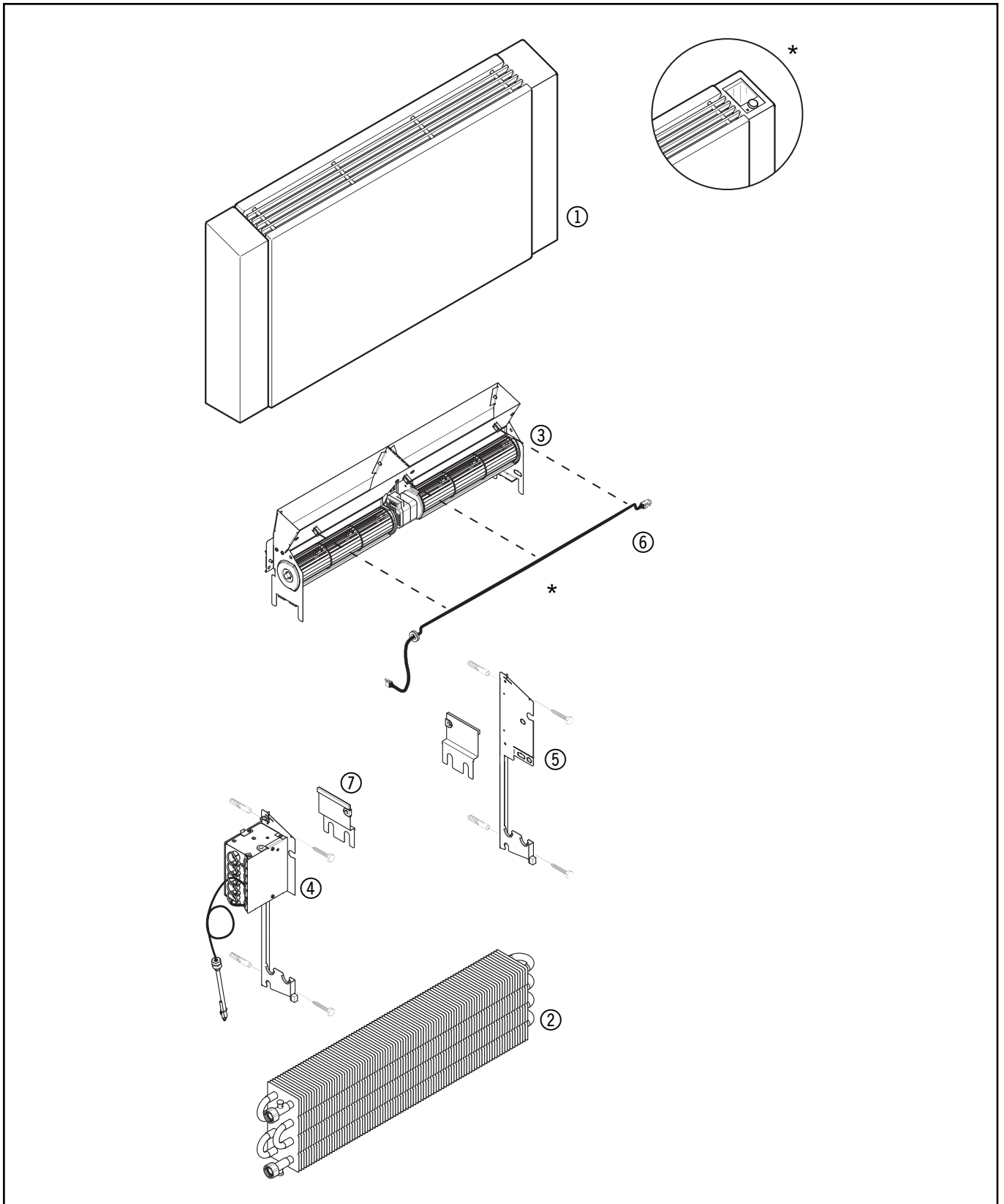
- Safety and accident prevention regulations
- Guidelines and recognised technical regulations, i.e. Association of German Electricians (VDE) regulations
- DIN and EN standards
- Accident prevention regulations VBG, VBG4, VBG9a
- DIN VDE 0100, DIN VDE 0105
- EN 60730 (Part 1)
- Technical wiring regulations (TABs) issued by the regional electricity providers

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### 3. Scope of Delivery - PowerKon NT - electromechanical/ with KaControl



(\* only with the PowerKon NT model with KaControl technology)

#### Components - PowerKon NT - electromechanical/with KaControl

Length	Free-standing casing, single section	Heat exchanger	Fan unit		Mounting bracket incl. control module	Other mounting brackets for wall mounting	Connection cable KaController / control module (only integrated with the (KaController) control unit)	Sealing panels
	①	②	③		④	⑤	⑥	⑦
[mm]	Number	Number	Number		Number	Number	Number	Number
			Tandem fan	Single fan				
750	1	1	-	1	1	1	1	2
1000	1	1	1	-	1	1	1	2
1250	1	1	1	-	1	1	1	2
1500	1	1	1	1	1	1	1	2
1750	1	1	2	-	1	2	1	2
2000	1	1	2	-	1	2	1	2
2250	1	1	2	1	1	2	1	2
2500	1	1	3	-	1	3	1	2
2750	1	1	3	-	1	3	1	2

#### Accessories

Convector connection kit consisting of

- 1/2" thermostatic valve body, angled type ⑧
- 1/2" return shut-off valve, angled type ⑨
- Thermoelectric actuator 24 V ⑩

#### Provided by the customer

Fixing screws and rawlplugs.

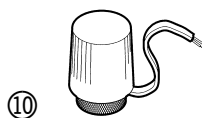
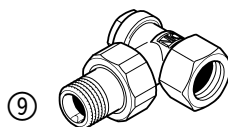
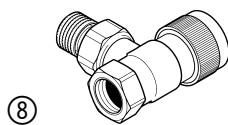


Fig.: Accessories

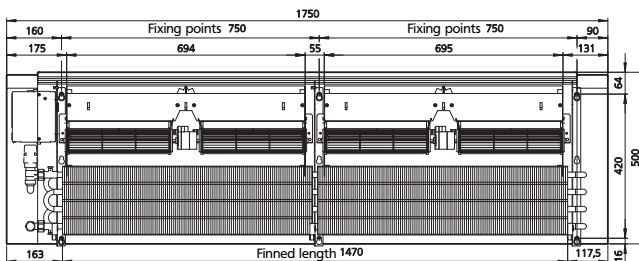
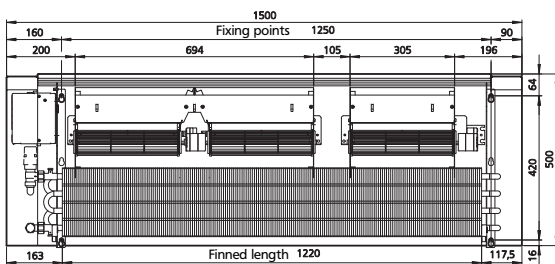
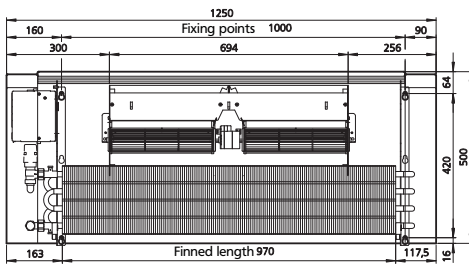
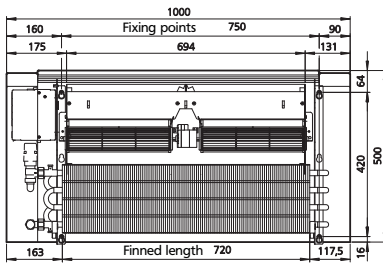
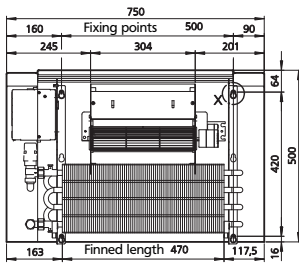
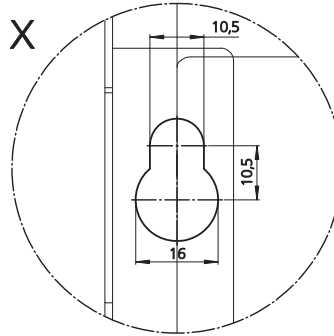
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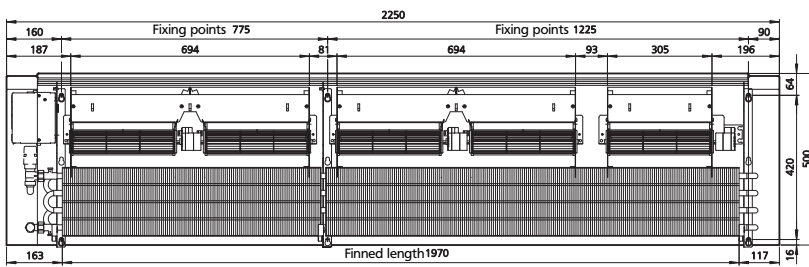
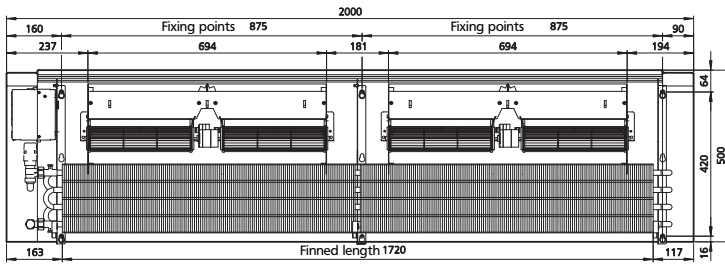
### Mounting and installation instructions

#### 4. Mounting distances for brackets

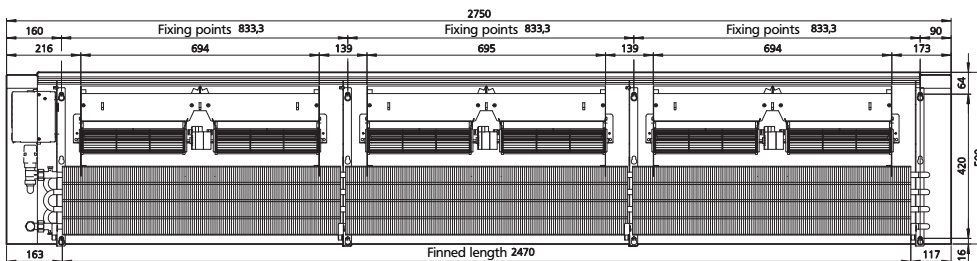
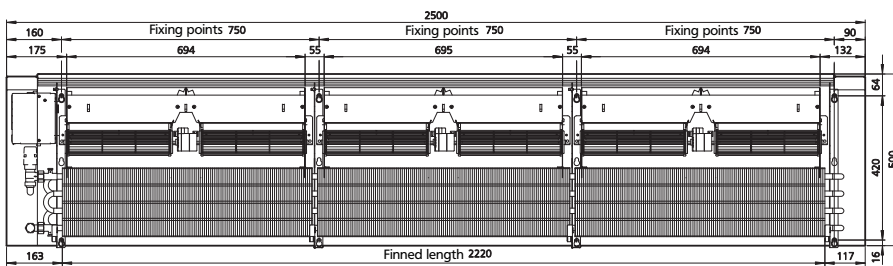
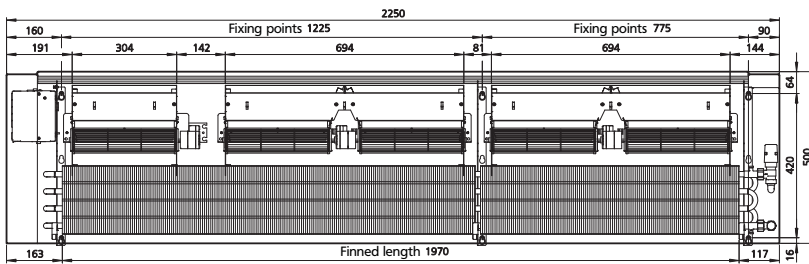
Detail X



Shown: electromechanical version  
All dimensions in mm



BG 2250: Fixing dimensions for right hand side connection (bracket offset)



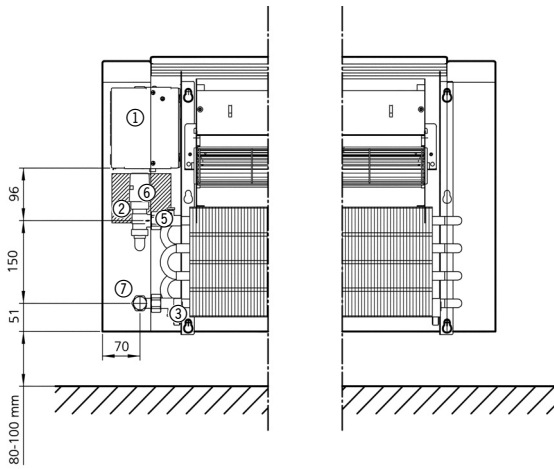
Shown: electromechanical version  
All dimensions in mm

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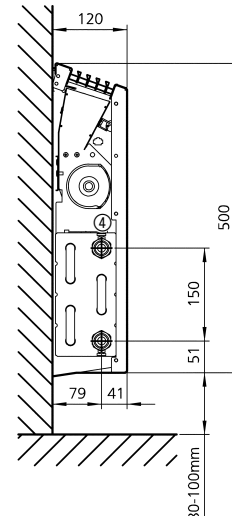
## Low temperature heaters

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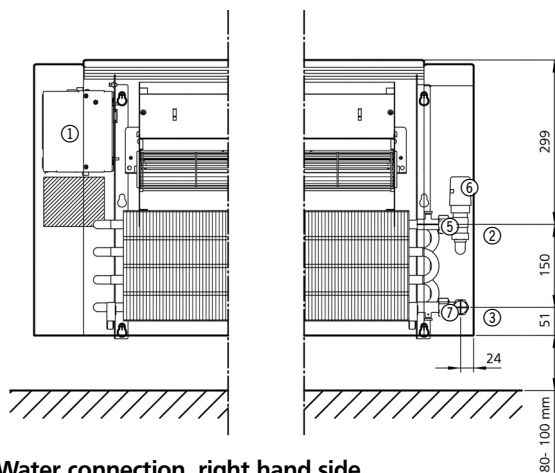
#### 5. Dimensions of valve connection\*, electric connection



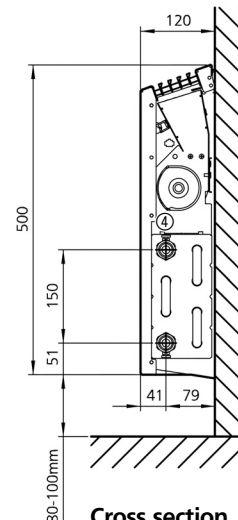
Water connection, left hand side (standard)



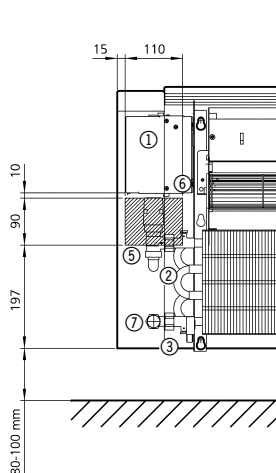
Cross section



Water connection, right hand side




Cross section



Electric connection

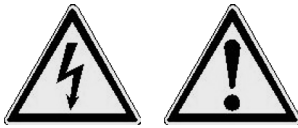
- ① Electric connection and control module
- ② Supply connection 1/2"
- ③ Return connection 1/2"
- ④ Air vent
- ⑤ Thermostatic valve, angled 1/2" (accessory)
- ⑥ Thermoelectric actuator 24 V (accessory)
- ⑦ Return shut-off valve, angled 1/2" (accessory)

Shown: electromechanical version

 Flush-mounted installation area for mains supply 230 V / 50 Hz

\*Dimensions matching with Kampmann connection set Type 128102 (optional accessory).  
All dimensions in mm.





## 6. Electrical Connection

### 6.1 Safety information

The following safety information should be checked and observed before starting any work on the controllers and units:

- Disconnect the system and ensure that it cannot be accidentally reconnected.
- Only use the wiring diagrams enclosed to carry out the electrical connection.
- Carry out the electrical connection only in accordance with the VDE and EN regulations that are currently in force as well as the technical wiring regulations (TBAs) issued by the regional electricity providers.
- The unit should only be connected to fixed cabling.

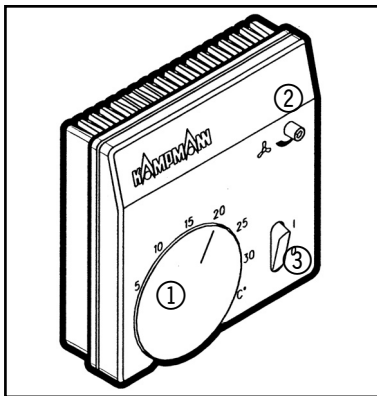


Fig.: Room thermostat with integral speed selector knob, type 146924

### Modifications to the unit

Do not undertake any modifications or upgrades to the unit without discussing these with the manufacturer as these can impair the safety and operation of the unit.

Errors with the connection or modifications can lead to the unit being damaged! The manufacturer is not liable for any damage caused by the wrong connection and/or improper handling.

### Motor fault

A motor fault occurs if one of the shafts is not turning when the fan stage is switched on. Check if one of the shafts is blocked. If this is the case, the motor shuts down automatically for safety reasons. Disconnect the motor and remove the object causing the blockage to rectify the fault. The fan will start again normally once you have reconnected the motor. Contact the manufacturer if the shaft still does not turn.

### 6.2 Electrical connection/connection values

- Remove the cover from the control module.
- Connect the mains supply cable and all other cables (actuator, room thermostat) to the terminal block according to the enclosed connection diagram.
- Refit the cover following the successful commissioning of the unit.

Length	750	1000	1250	1500	1750	2000	2250	2500	2750
Fan motors	1	1	1	2	2	2	3	3	3
Fan impellers	1	2	2	3	4	4	5	6	6
Number of control modules	1	1	1	1	1	1	1	1	1
Max. electrical power consumption [W]	27	27	27	52	52	52	77	77	77
Max. number of PowerKon NTs connected per thermostat KaController	6								
	6								
Room thermostat with speed selector knob, type 146924	Max. switched current 4A								

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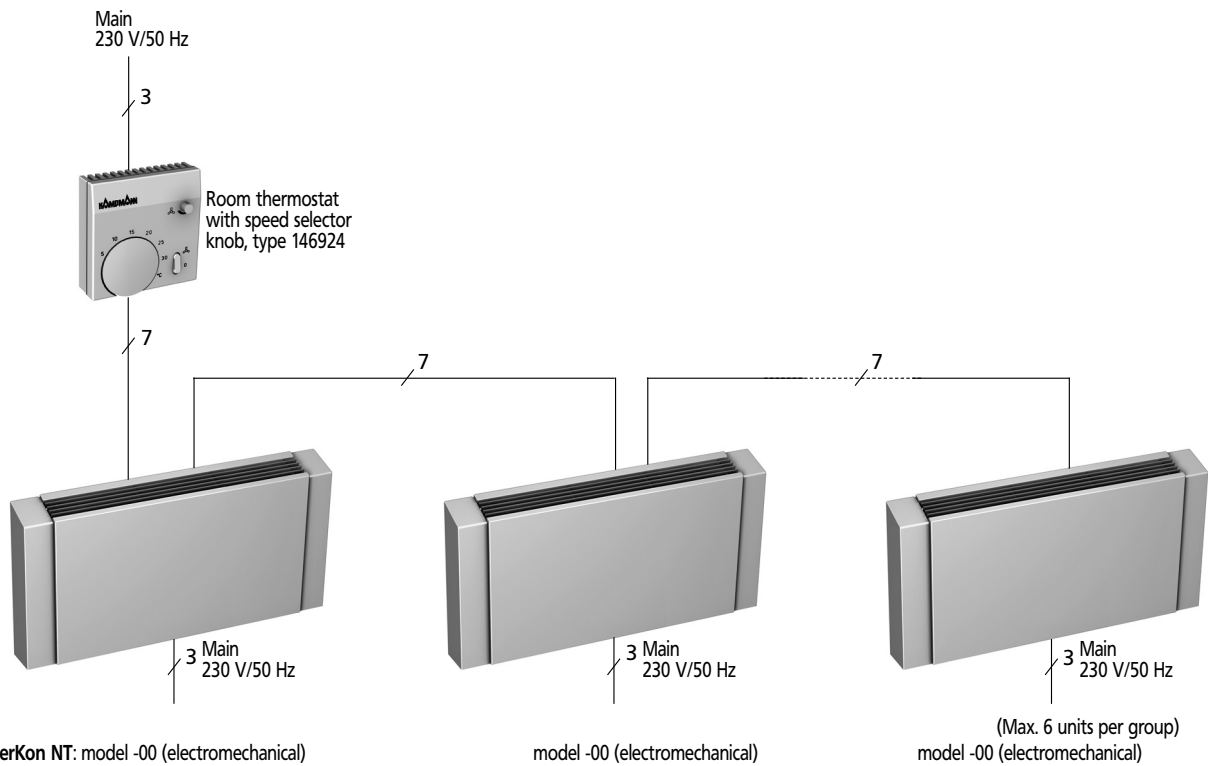
### Mounting and installation instructions

#### 6.3 Electromechanical control variant

Combination of room thermostat with speed selector knob and the corresponding number of actuators and valves:

- The required room temperature is set on the room thermostat ①. If this falls below the set value, the cross-flow fan starts up with the set fan speed ② and the thermoelectric actuator opens the valve on the waterside at the same time.
- Switch ③ : position 0=unit OFF; position 1=unit ON
- An operation with natural convection is achieved if the speed controller ② is turned back in a counter-clockwise direction until it stops.

#### Electromechanical control variant



All cables: NYM-J cable types or similar

#### Electromechanical controller accessories (external)



#### Room thermostat with speed selector knob, type 146924

with thermal setback and On/Off fan switch; combination of room thermostat and speed selector knob for infinitely variable actuation of the speed electronics (last digit of type of control option - 00)

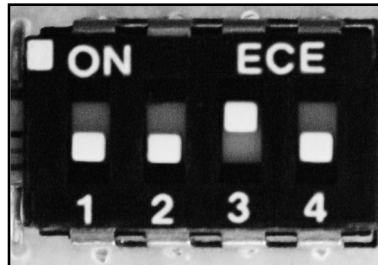
Casing	Surface-mounted, white
Voltage	230 V/50 Hz
Temperature setting range	5 - 30 °C
Max. current load	4 A
Switching differential	0,6 K
Protection class	IP 30
Dimensions	B x H x T: 74 x 74 x 29 mm

#### 6.4 Control PCB configuration: electromechanical control variant

Configuration of analogue input to the speed setpoint:

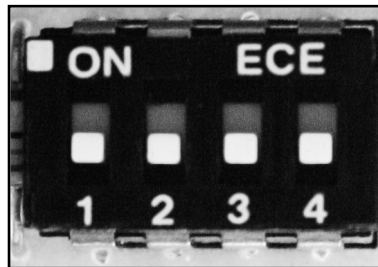
The speed setpoint can be set in two ways:

It can be set using DIP switch 3 (see under presentation) on the control PCB.



DIP switch 3 "ON" (factory setting):

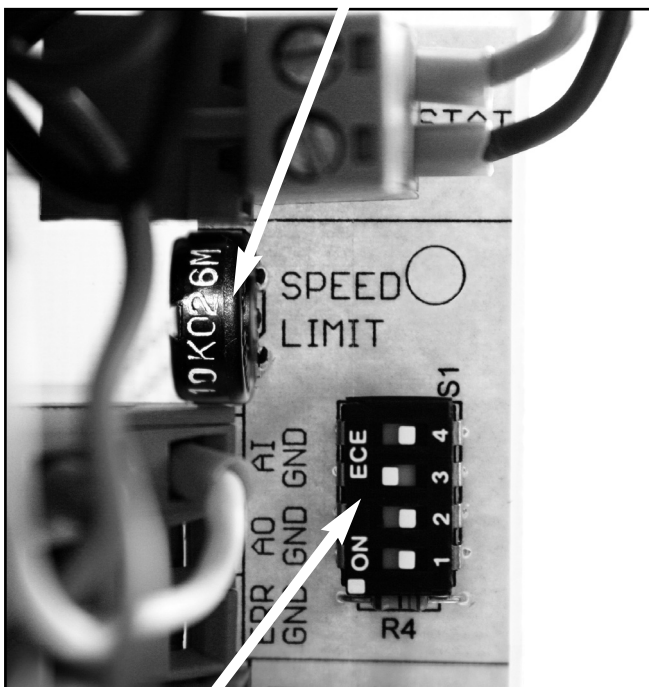
Actuation using the speed selector knob as a potentiometer 0–100 k $\Omega$ ; room thermostat with speed selector knob, type 146924.



DIP switch 3 "OFF":

Operation as a "slave unit," actuated by a 0–10 V signal from an upstream speed control ("master unit"); actuated by a 0–10 V signal from an external DDC system.

Potentiometer (B)  
Maximum speed limit



DIP switch (A)

DIP switch 1: min. speed:

If the switch is set, the fan units run at a minimum speed when heat is required.

Factory setting: OFF (no min. speed),

DIP switch 2: factory-set function

DIP switch 3: 0–10V / potentiometer

DIP switch 4: no function

Maximum speed limit:

The maximum speed of the fan units can be limited using the potentiometer (B)(see image).

Factory setting: 100%

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#### 6.5 Control variant with KaControl technology

##### PowerKon NT with KaControl technology

The PowerKon NT with KaControl technology provides a fully pre-wired solution for ultra-simple installation on site. The KaController (control unit) is factory-integrated into the PowerKon NT (control option - C0) or is available as an external control unit (control option -C1).

- Rapid heat-up by manual actuation of the power stage
- Cooling mode possible (dry cooling)

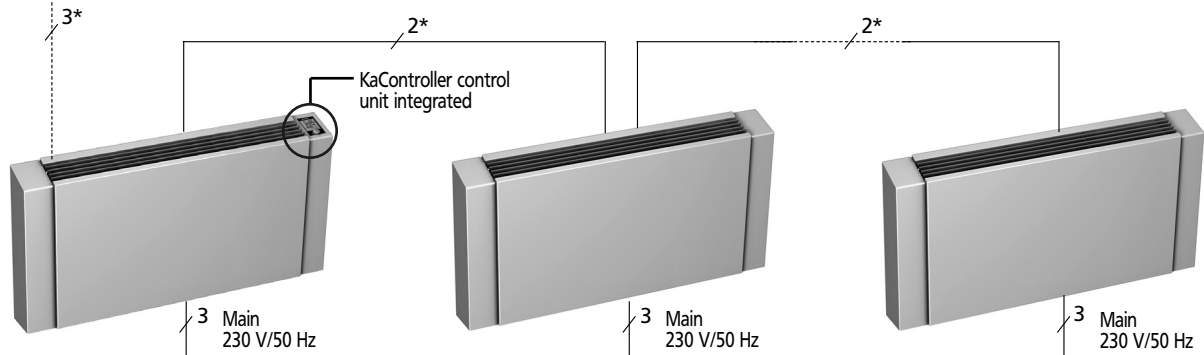
##### KaControl technology control functions:

The PowerKon NT is initially operated with natural convection depending on the heat requirement measured in the room. The infinitely adjustable energy-saving EC fan is used for additional support as required.

#### Control variant with KaControl technology



Optional:  
KaController, type 3210001,  
for wall mounting  
(flush-mounted backbox)



Mains power supply cable: NYM-J cable types or similar

\*Bus cabling min. CAT5 STP

(Max. 6 units per group)

#### KaControl accessories (external)



##### KaController, type 3210001 for wall mounting

Only in conjunction with PowerKon NT for connection to an external control unit (last digit of type of control option -C1)

Casing	Surface-mounted, white
Voltage	System voltage
Protection class	IP 30
Protection class	Protective low voltage
Wall mounting dimensions	B x H x T: 85 x 85 x 35 mm (incl. control knob)
Installation depth of flush-mounted backbox	30 mm

## Operation of the KaController

### Setting the room temperature:

A new temperature setpoint can be set by turning the navigator in the standard view.

The set value is applied by pressing the navigator and the standard view is called up.



Standard view

**i** If no action is carried out using the navigator for longer than 3 seconds, the last change made is saved and the standard view is called up.



Temperature setpoint setting

### Activating the power stage:

Use the power stage for the rapid heat-up of a room. You can choose between power stages 3, 4 and 5 as required.

The display switches to the "power stage" menu by pressing the navigator. You can select the required power stage 3, 4 or 5 by turning the navigator.

The power stage is activated for 15 minutes by pressing the navigator again.

This reverts to automatic mode once the 15 minutes have elapsed.



"Power stage" menu

**i** If no action is carried out using the navigator for longer than 3 seconds, the last change made is saved and the standard view is called up.



Power stage 5

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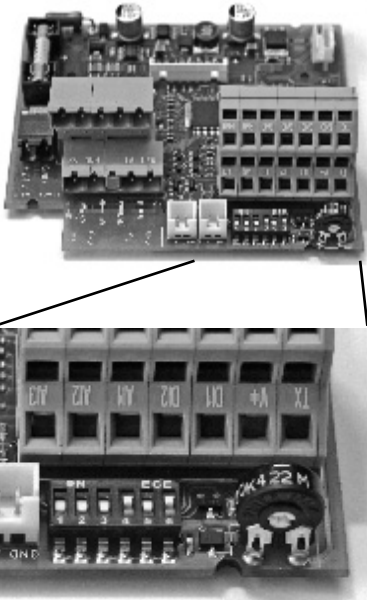
## Low temperature heaters

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#### 6.6 Control PCB configuration: KaControl technology control variant

##### Setting the DIP switches

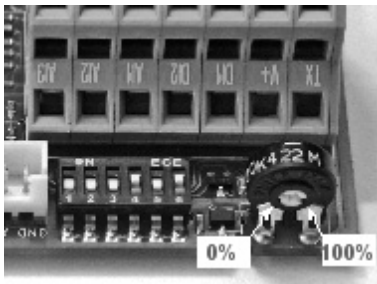
- Disconnect the controller before starting to set the DIP switches.
- Remove the cover on the control unit to set the DIP switches. The DIP switches are located on the control PCB.
- Select the model of the PowerKon NT using the DIP switches (integral/external control unit, inlet air sensor yes/no, clip-on sensor yes/no).
- Note: The DIP switch factory settings are adjusted to the unit's delivery state and must only be adjusted in case of modifications and additions during commissioning



DIP switches on the KaControl control PCB

	OFF	ON	Observations
DIP1	x		DIP1 must always be set to OFF
		x	-----
DIP2	x		DIP2 must always be set to OFF
		x	-----
DIP3	x		Clip-on sensor not installed (standard)
		x	Clip-on sensor installed
DIP4	x		Heating/cooling changeover via clip-on sensor
		x	Heating/cooling changeover via DI2 (standard)
DIP5	x		DIP5 must always be set to OFF
		x	-----
DIP6	x		Inlet temperature sensor installed (room temperature measurement using an inlet air sensor with an integral control unit)
		x	Inlet temperature sensor not installed (room temperature measurement using an external control unit)

#### Setting the potentiometer



Potentiometer-Einstellung  
KaControl Steuerplatine

- Disconnect the controller before starting to set the potentiometer.
- Remove the cover on the control unit to set the potentiometer. The potentiometer is located on the control PCB right next to the DIP switches.
- The maximum speed can be limited in automatic mode using the potentiometer.
- Potentiometer factory setting: 33%. The defined heat output at 28dB(A) is achieved based on the specification data using the 33% factory settings!

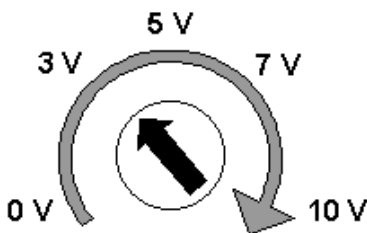
Limiting the maximum fan speed is only active in automatic mode.  
Limiting the maximum fan speed is inactive in the power stage.

#### Short description of the automatic mode - power stage

The room temperature is initially controlled with natural convection in automatic mode and then by continually adjusting the fan speed. Users have the option of activating a power stage (rapid heat-up) using the KaController if a large amount of heat is required in the room at short notice.

The controller switches back to automatic mode after no longer than 15 minutes or once the required room temperature has been reached.

#### Average sound pressure level



Setting the potentiometer  
(schematic view)

Potentiometer default	Sound pressure level
0 V	0 dB (A)
3 V	28 dB (A)
5 V	41 dB (A)
7 V	46 dB (A)
10 V	51 dB (A)

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#### 7. Maintenance/Cleaning

**Caution:** Disconnect the unit before starting any maintenance and cleaning work!

##### 7.1 Information

Maintenance on the PowerKon NT should only be carried out by qualified personnel trained in compliance with the installation and operating instructions as well as with any regulations currently in force. The PowerKon NT should be maintained and checked regularly to ensure its proper function and performance!

##### 7.2 Fan unit

- Inspect the cross-flow fans and air ducts every six months for dirt and damage (visual inspection).
- Clean the fan shafts and air ducts carefully using a cloth if dirty.

##### 7.3 Heat exchanger

- Inspect the integral heat exchanger every six months for dirt and possible damage. A visual inspection is sufficient here.
- Carefully vacuum the heat exchanger if dirty.

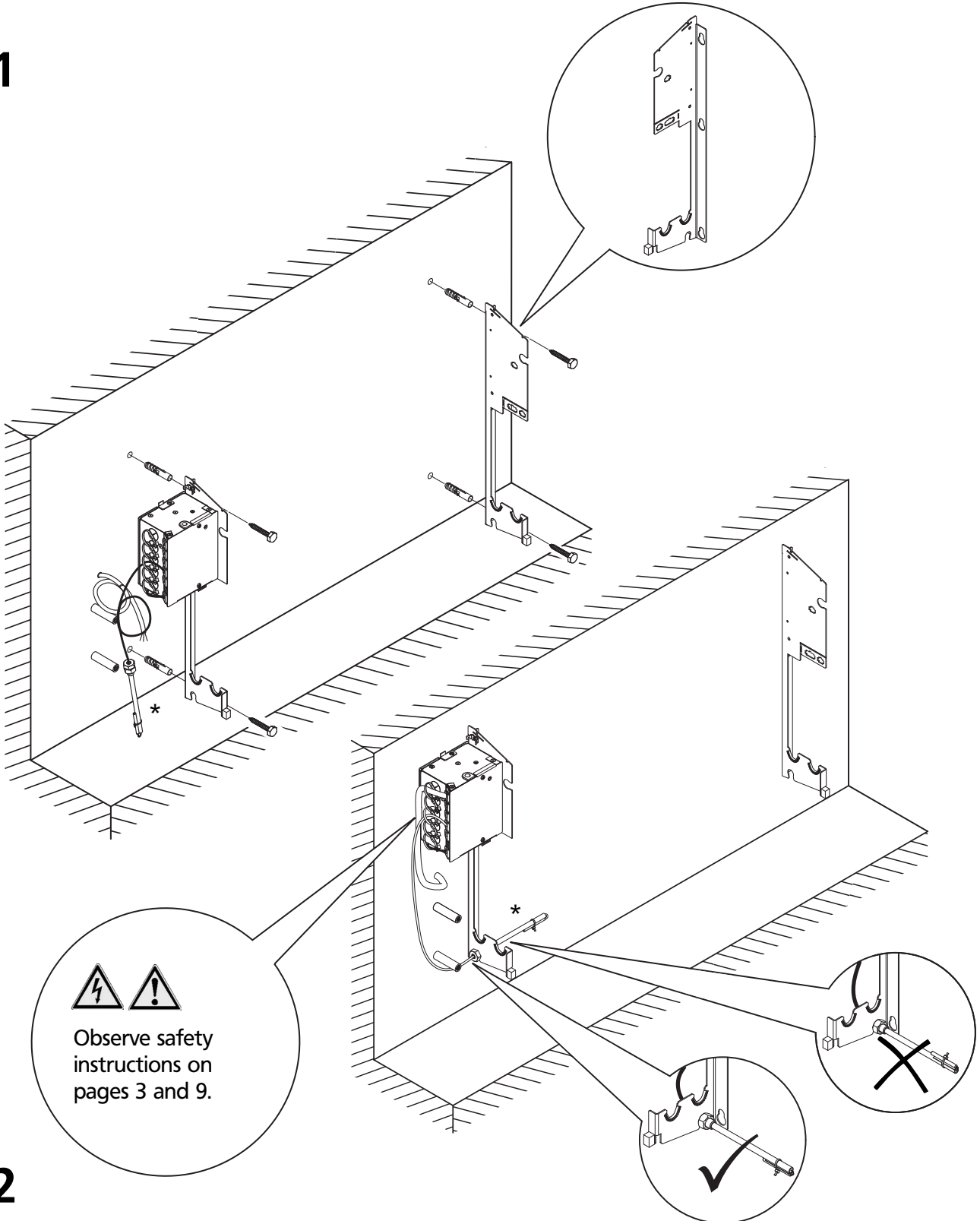
##### 7.4 Valves

- Inspect the valves as well every 12 months and check the leak-tightness (visual inspection).



#### 8. Powerkon NT Mounting steps

1



2

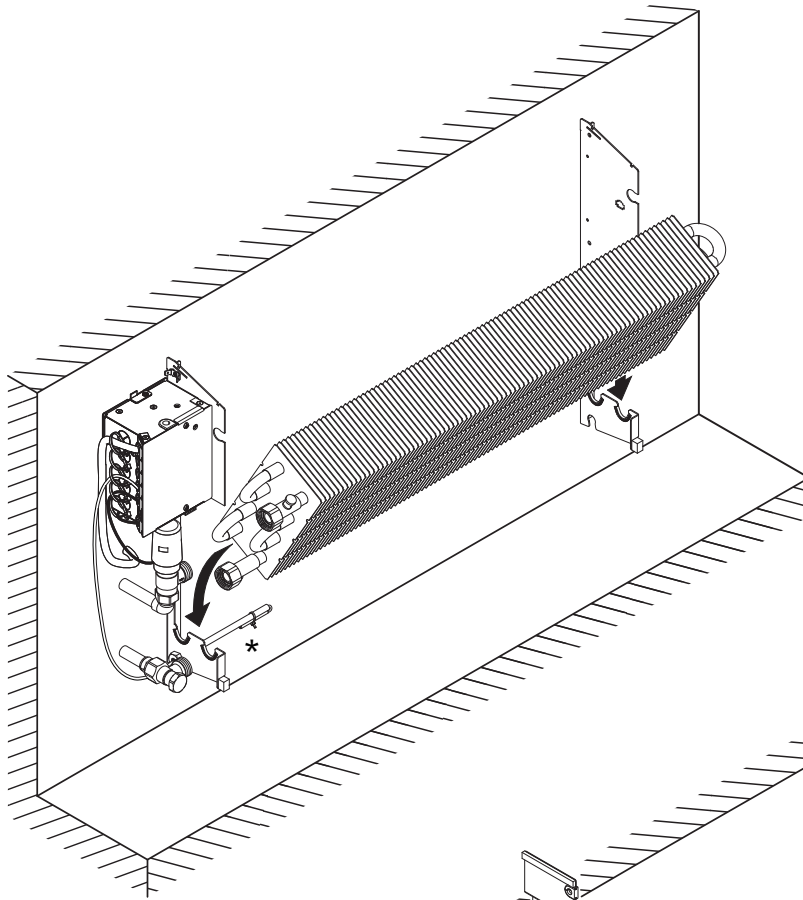
(\*only for Powerkon NT with KaControl technology)

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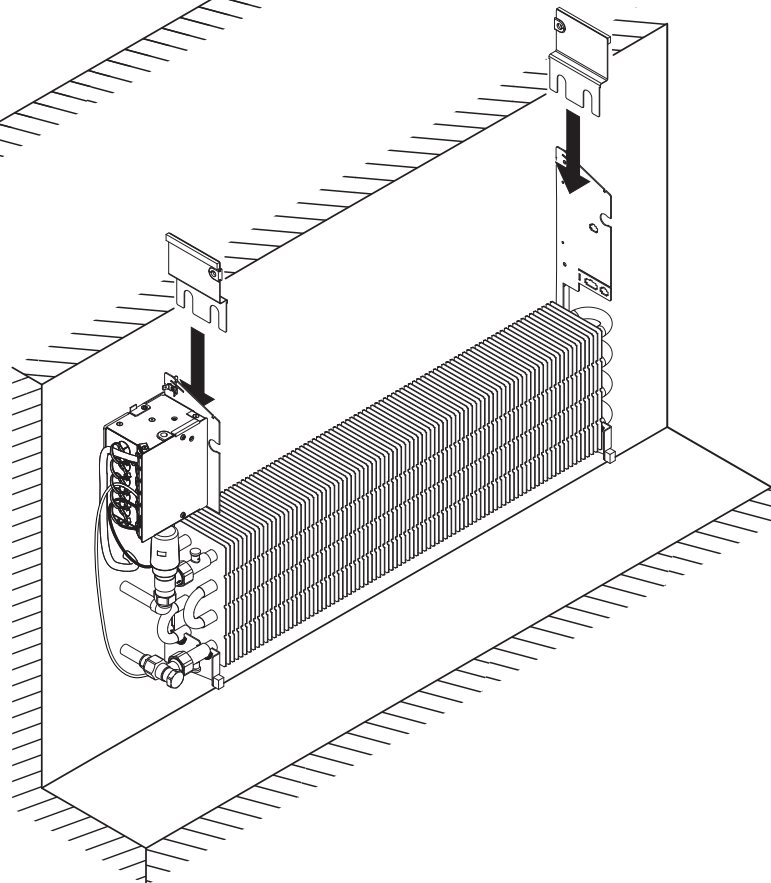
Low temperature heaters

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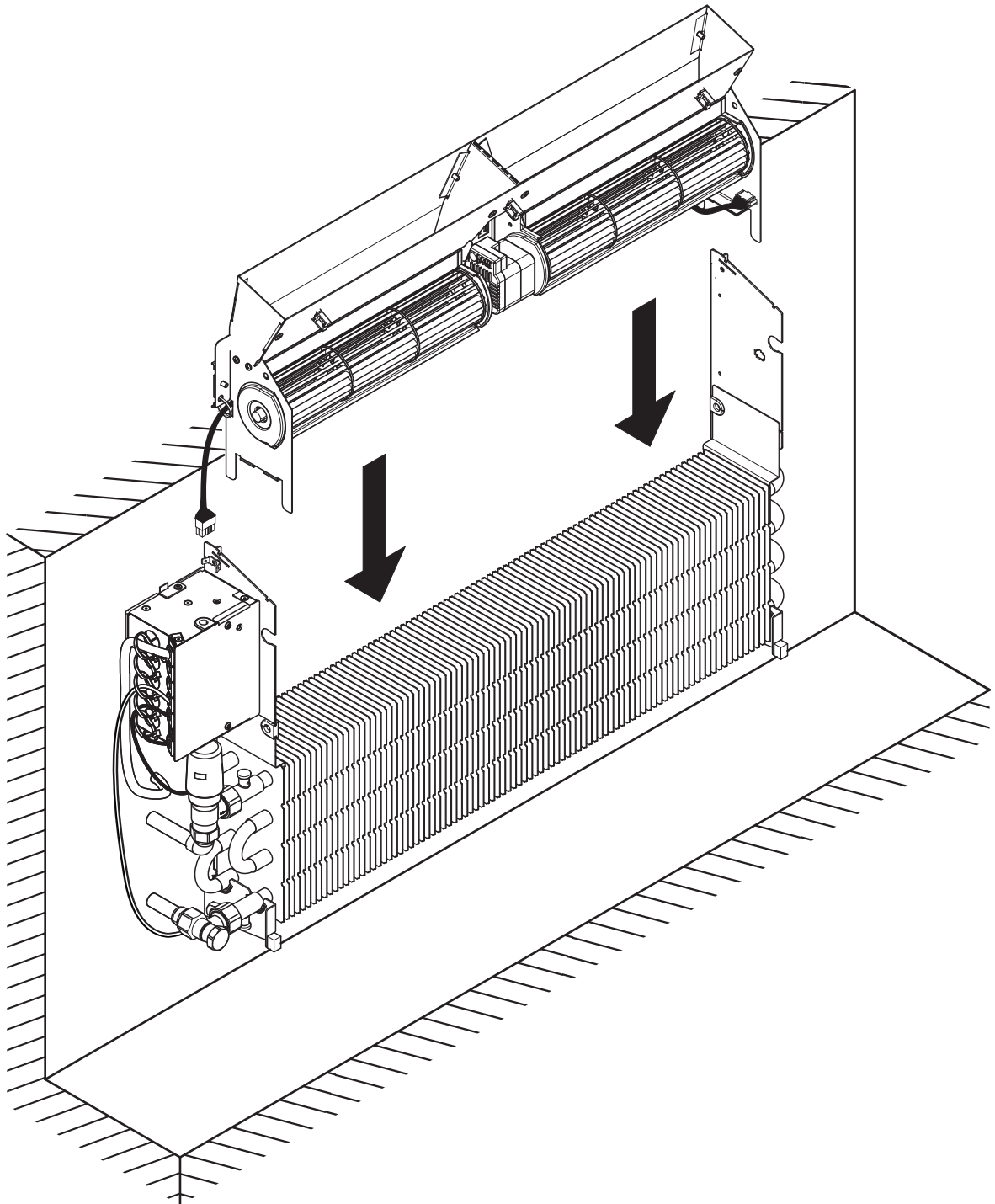


4



(\*only for Powerkon NT with KaControl technology)

5

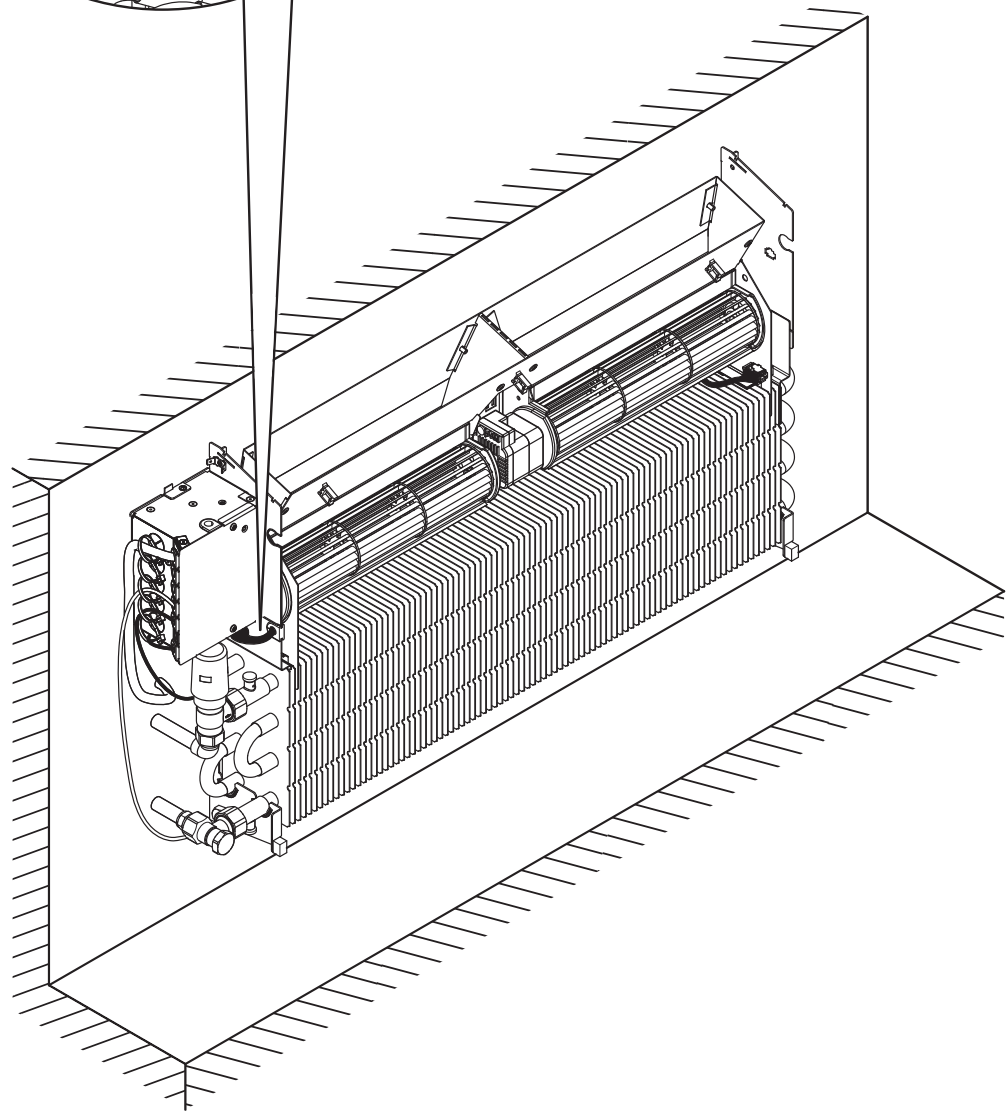
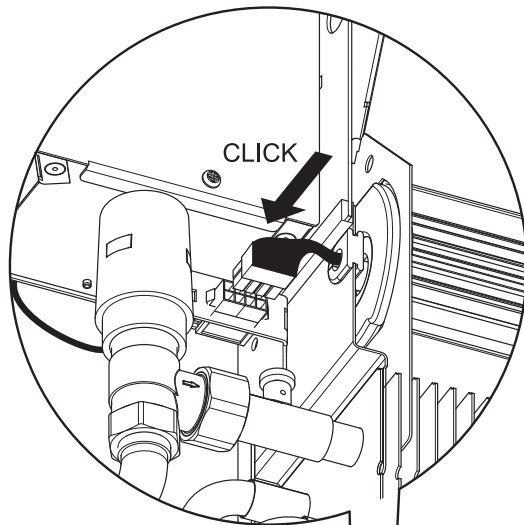


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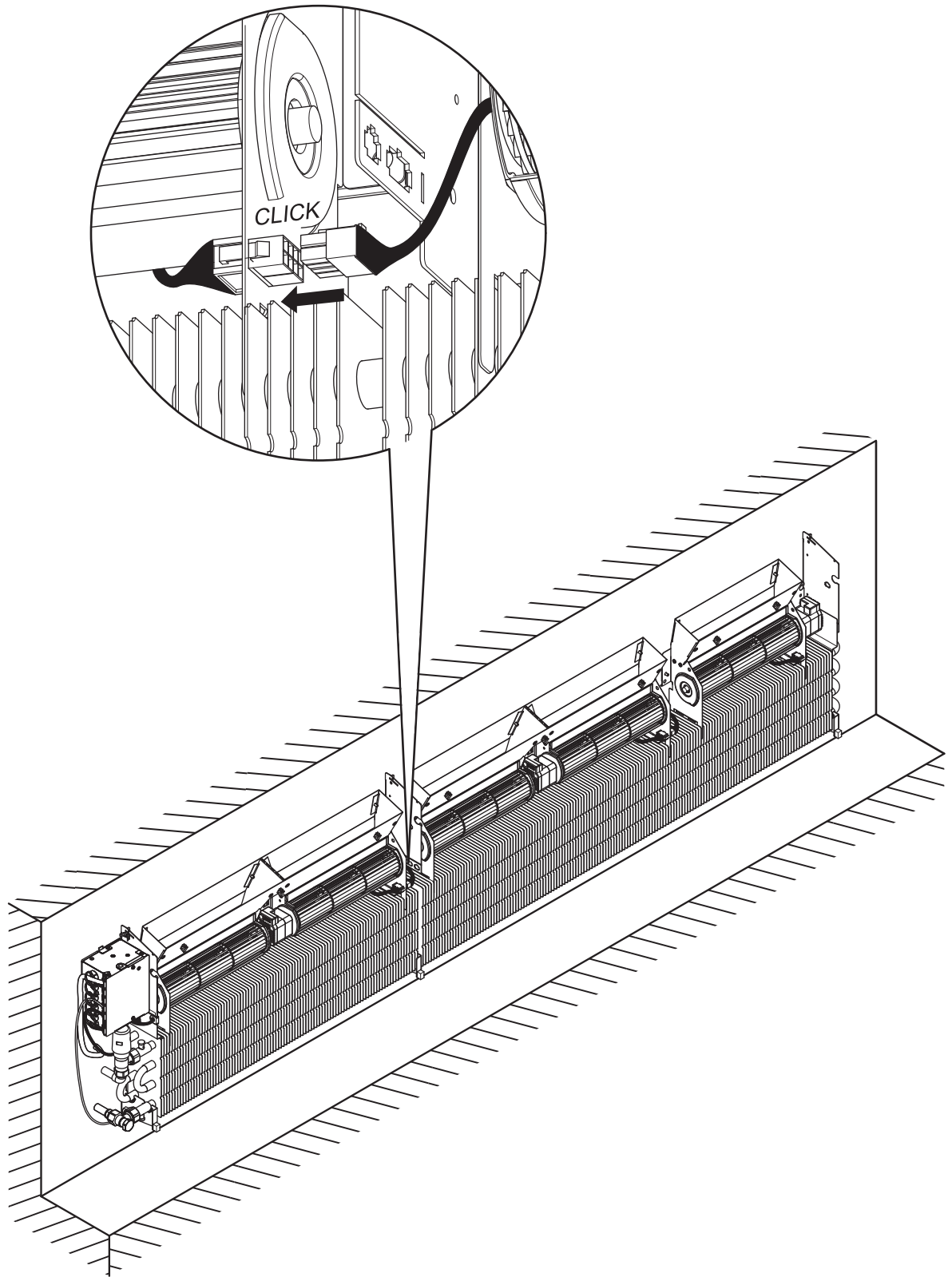
Low temperature heaters

## Mounting and installation instructions

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7

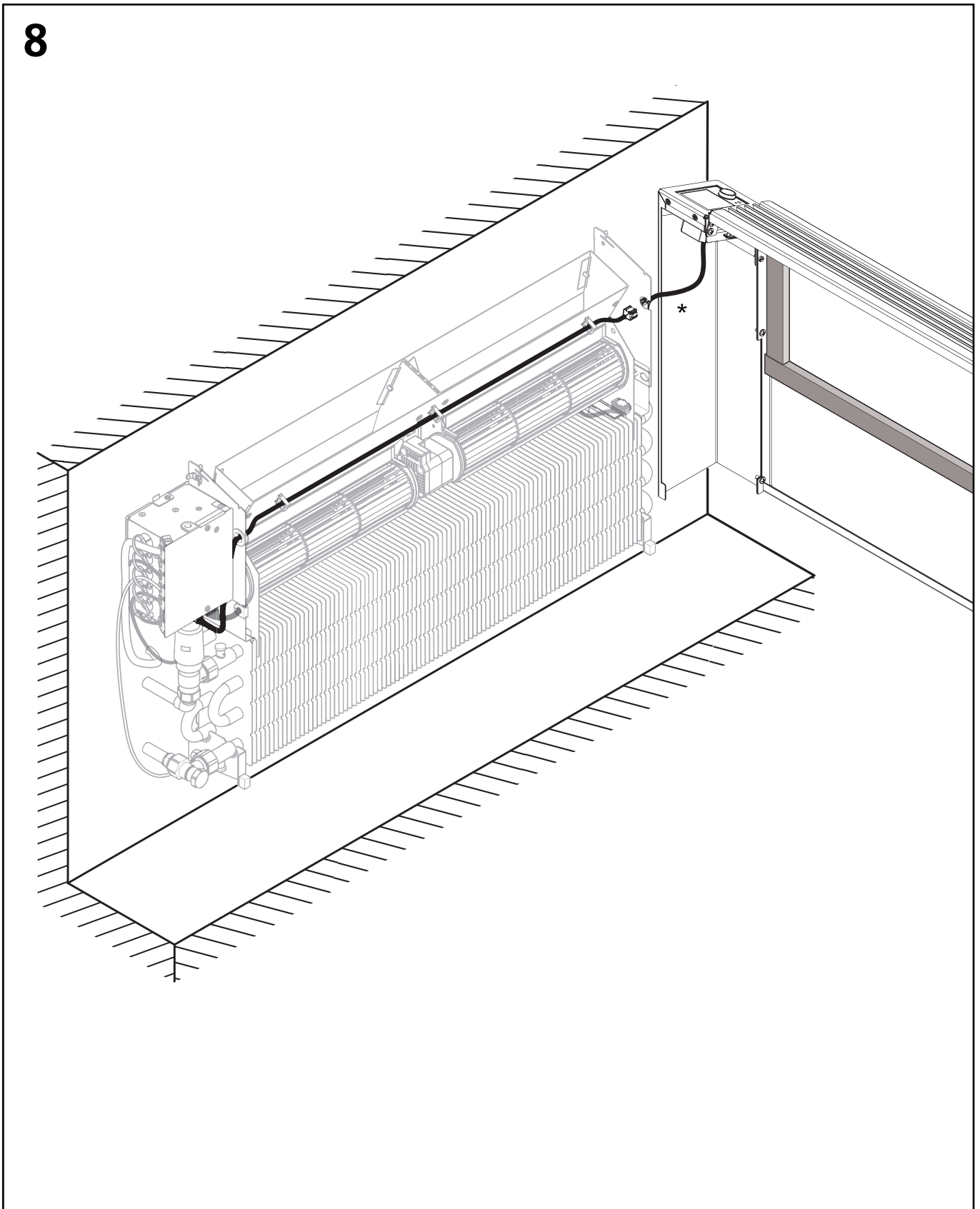


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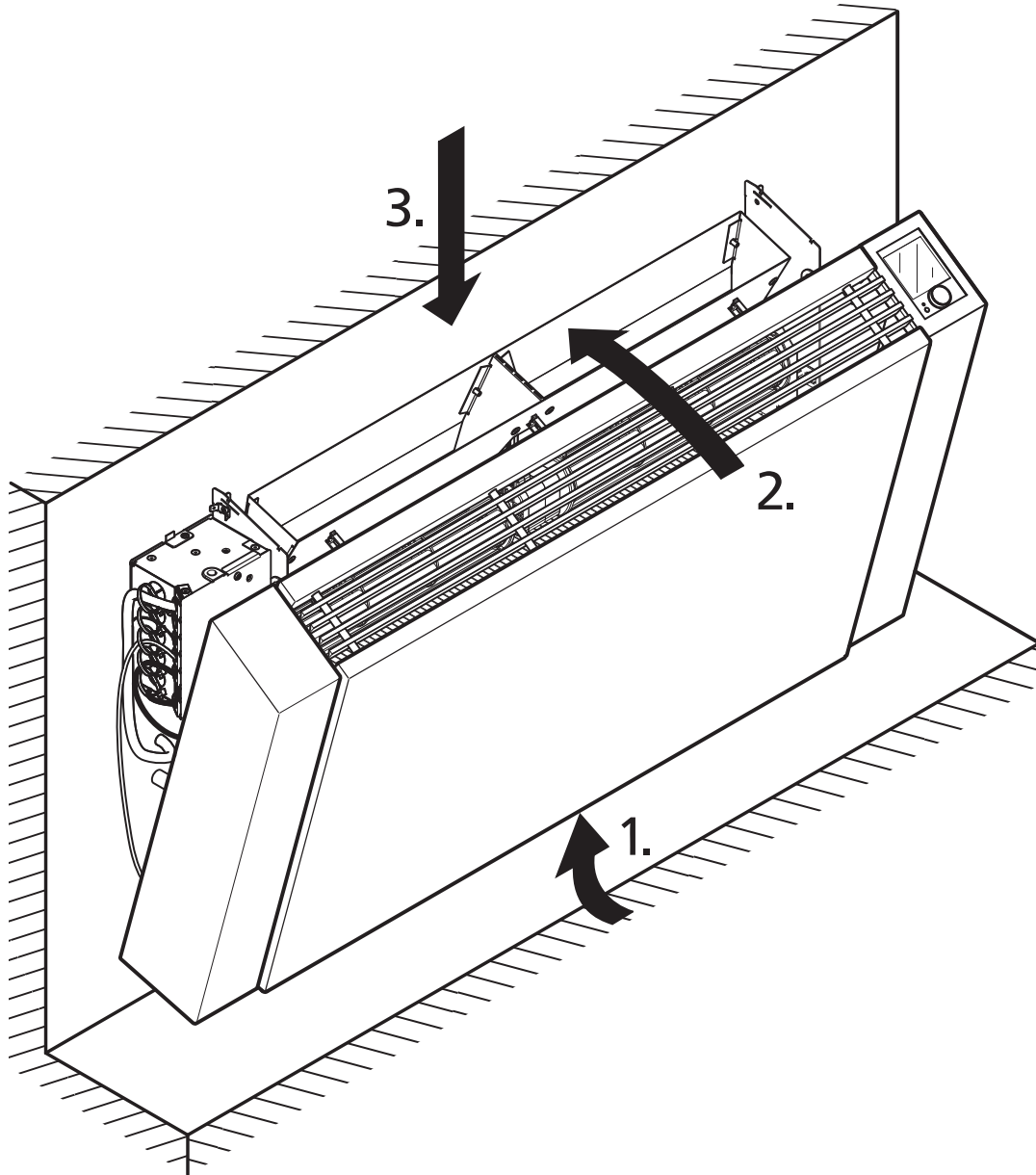
## Mounting and installation instructions

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(\*only for Powerkon NT with KaControl technology)

9



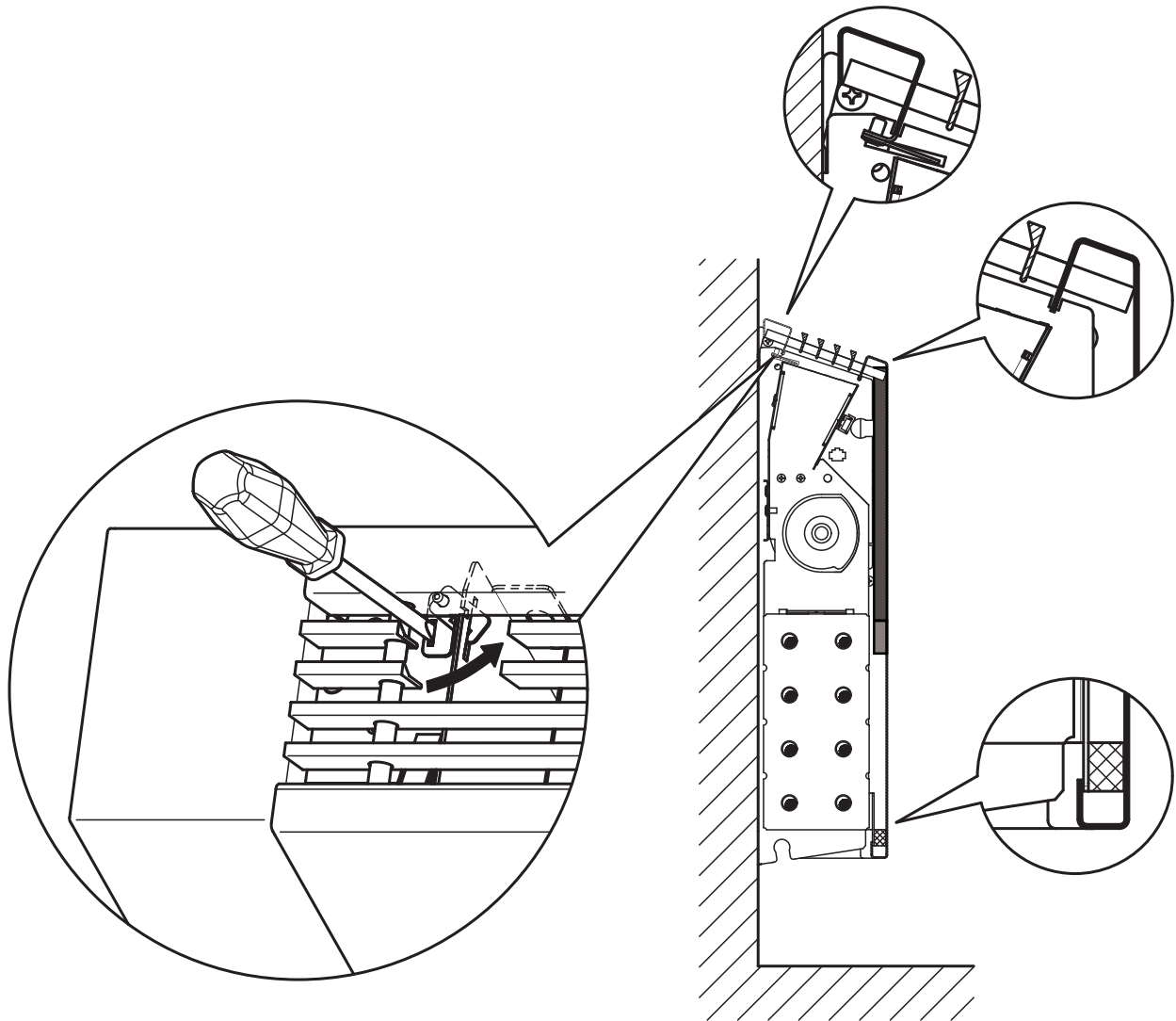


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Mounting and installation instructions



# Kampmann.de

**Kampmann GmbH** . Friedrich-Ebert-Straße 128-130 . 49811 Lingen (Ems) . Germany  
Tel. +49 591 7108-0 . [info@kampmann.de](mailto:info@kampmann.de)

**Kampmann GmbH** . UK Office  
Dial House . Govett Avenue . Shepperton, Middlesex . TW17 8AG . UK  
Tel. +44 1932 228592 . Fax +44 1932 228949  
[info@kampmann-uk.co.uk](mailto:info@kampmann-uk.co.uk) . [www.kampmann-uk.co.uk](http://www.kampmann-uk.co.uk)

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