

PowerKon QE

► Assembly, installation and operating instructions

Keep these instructions in a safe place for future use!

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1 General

1.1 About these instructions

These instructions ensure the safe and efficient handling of this equipment. These instructions form an integral part of the equipment and have to be kept in the direct vicinity of the equipment and available to personnel at all times.

All personnel must have carefully read through these instructions prior to commencing all work on the equipment. A fundamental prerequisite for safe working is compliance with all the stated safety instructions and other instructions contained in this manual.

In addition all local occupational health and safety at work regulations apply, as do general safety provisions governing the use of the equipment.

Illustrations in this guide are intended to provide a basic understanding and may differ from the actual model.

Ongoing tests and further developments may result in small variations between the unit supplied and the instructions.

1.2 Explanation of Symbols



WARNING!

This combination of symbol and signal word indicates a possible hazardous situation.



IMPORTANT NOTE!

It represents a potentially hazardous situation, which could lead to damage to property or for a measure to optimise workflows.



IMPORTANT NOTE!

This symbol highlights useful hints, recommendations and information for efficient and trouble-free operation.

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Assembly, installation and operating instructions

2 Safety

This section provides an overview of all important safety aspects to ensure optimum protection of personnel as well as safe and trouble-free operation. In addition to the safety instructions in these operating instructions, the valid safety, accident prevention and environmental protection regulations must be observed for the area of use of the unit. It is the duty of the operator to ensure that instructions relating to maintenance (e.g. relating to hygiene) are complied with.

2.1 Correct use

Intended use of the unit also includes adherence to these instructions.

Information in accordance with EN60335-1

- ▶ This unit can be used by children aged 8 years or more and also by people with reduced physical, sensory or mental capabilities or a lack of experience and knowledge, if they are supervised or have been instructed in the safe use of the unit and the resulting dangers. Do not allow children to play with the unit. Do not allow children to clean and maintain the unit without supervision.
- ▶ This unit is not intended for permanent connection to the drinking water supply system.
- ▶ This unit is intended for being accessible to the general public.

Any use beyond or other than the stated intended use is considered as misuse.

Any change to the unit or use of non-original spare parts will cause the expiry of the warranty and the manufacturer's liability.

2.2 Limits of operation and use

Limits of operation		
Min./max. water temperature	°C	-
Min./max. air intake temperature	°C	15-40
Min./max. air humidity	%	15-75
Min. operating pressure	bar/kPa	-
Max. operating pressure	bar/kPa	-
Min./max. glycol percentage	%	25-50

Tab. 1: Limits of operation

Operating voltage	230 V/ 50/60 Hz
Power/current consumption	On the typeplate

Tab. 2: Operating voltage



IMPORTANT NOTE!

Warning of misuse!

In the event of misuse, as itemised below, there is a danger of limited or failing operation of the unit. Ensure that the airflow can circulate freely.

- ▶ Never operate the unit in humid areas, such as swimming pools, wet areas etc.
- ▶ Never operate the unit in rooms with an explosive atmosphere.
- ▶ Never operate the unit in aggressive or corrosive atmospheres (e.g. sea air).
- ▶ Never operate the unit above electrical equipment (such as switch cabinets, computers or other electrical units, or contacts that are not drip-proof).
- ▶ Never use the unit as a construction site heater.
- ▶ Never operate the unit in areas with a high dust content.

2.3 Risk from electrocution!



DANGER!

Risk of fatal injury from electrocution!

Contact with live parts will lead to fatal injury from electrocution. Damage to the insulation or individual components can lead to a fatal injury.

- ▶ Only permit qualified electricians to work on the electrical system.
- ▶ Immediately disconnect the system from the power supply and repair it in the event of damage to the insulation.
- ▶ Keep live parts away from moisture. This can cause a short circuit.
- ▶ Properly earth the unit.

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2.4 Personnel requirements - Qualifications

Expertise

The installation of this product requires specialist knowledge of heating, cooling, ventilation, installation and electrical engineering. This knowledge, generally learned in professional training in one of the fields mentioned above, is not described separately.

Damage caused by improper installation is the responsibility of the operator or installer. The installer of these units should have adequate knowledge of the following gained from specialist professional training

- ▶ Safety and accident prevention regulations
- ▶ Guidelines and recognised technical regulations, i.e. Association of German Electricians VDE regulations, DIN and EN standards.

The installation, operation and maintenance of this unit must comply with the applicable laws, standards, provisions and regulations in the respective country and the current state of the art.

2.5 Personal Protective Equipment

Personal protective equipment is used to protect people from impaired safety and health when working with the unit. The applicable accident prevention regulations at the place of use apply in all cases.

Personnel have to wear personal protective equipment during maintenance and troubleshooting on and with the unit.

3 Transport, storage and packaging

3.1 General transport instructions

Check on delivery for completeness and transport damage.

Proceed as follows in the event of visible damage:

- ▶ Do not accept delivery or only accept with reservations.
- ▶ Record any transport damage on the transportation documents or on the transport company's delivery note.
- ▶ Submit a complaint to the freight forwarder.

**IMPORTANT NOTE!**

Warranty claims can only be made within the applicable period for complaints. (More information is available in the T&Cs on the Kampmann website)

**IMPORTANT NOTE!**

2 people are needed to transport the unit. Wear personal protective clothing when transporting the unit. Only lift the unit on both sides and not by the pipes / valves.

**IMPORTANT NOTE!****Material damage caused by incorrect transport!**

Units being transported can drop or topple over if transported wrongly. This can cause serious material damage.

- ▶ Proceed carefully when unloading the equipment on delivery and when transporting it on site and note the symbols and instructions on the packaging.
- ▶ Only use the holding points provided.
- ▶ Only remove packaging shortly before assembling the unit.

3.2 Scope of delivery

**IMPORTANT NOTE!****Check the scope of delivery!**

- ▶ Check the delivery for damage.
- ▶ Check that the articles and type numbers are correct.
- ▶ Is the delivery and number of items delivered correct?

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3.3 Storage

Store packaging under the following conditions:

- ▶ Do not store outdoors.
- ▶ Store in a dry and dust-free place.
- ▶ Store in a frost-free place.
- ▶ Do not expose to aggressive media.
- ▶ Protect from direct sunlight.
- ▶ Avoid mechanical vibrations and shocks.



IMPORTANT NOTE!

Under certain circumstances, packages can carry storage instructions that exceed the requirements listed here. Comply with these instructions accordingly.

3.4 Packaging

Handling packaging materials



IMPORTANT NOTE!

Dispose of packaging materials in line with the applicable statutory requirements and local regulations.

4 Technical data

PowerKon QE						
Control signal [V]	Heat output [W]	Air volume flow [m ³ /h]	Nominal current [A]	Sound pressure level [dB (A)] ⁴	Sound power level [dB(A)]	Weight [kg] ⁹
Casing length 825 mm, casing height 200 mm, casing width 205 mm						
10	800	91	3.5	28	36	15.4-16.7
8	660	86		26	34	
6	500	70		21	29	
4	320	52		<20 ⁶	<28 ⁶	
2	160	43		<20 ⁶	<28 ⁶	
Casing length 1250 mm, casing height 200 mm, casing width 205 mm						
10	1600	183	7	31	39	21.9-23.8
8	1320	172		29	37	
6	1000	139		24	32	
4	640	104		<20 ⁶	<28 ⁶	
2	320	87		<20 ⁶	<28 ⁶	
Casing length 1700 mm, casing height 200 mm, casing width 205 mm						
10	2400	274	10.6	33	41	28.9-31.5
8	1980	258		31	39	
6	1500	209		26	24	
4	960	156		<20 ⁶	<28 ⁶	
2	480	130		<20 ⁶	<28 ⁶	

⁴ The sound pressure level was calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

⁹ Depending on the grille design

⁶ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

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5 Construction and function

5.1 Overview

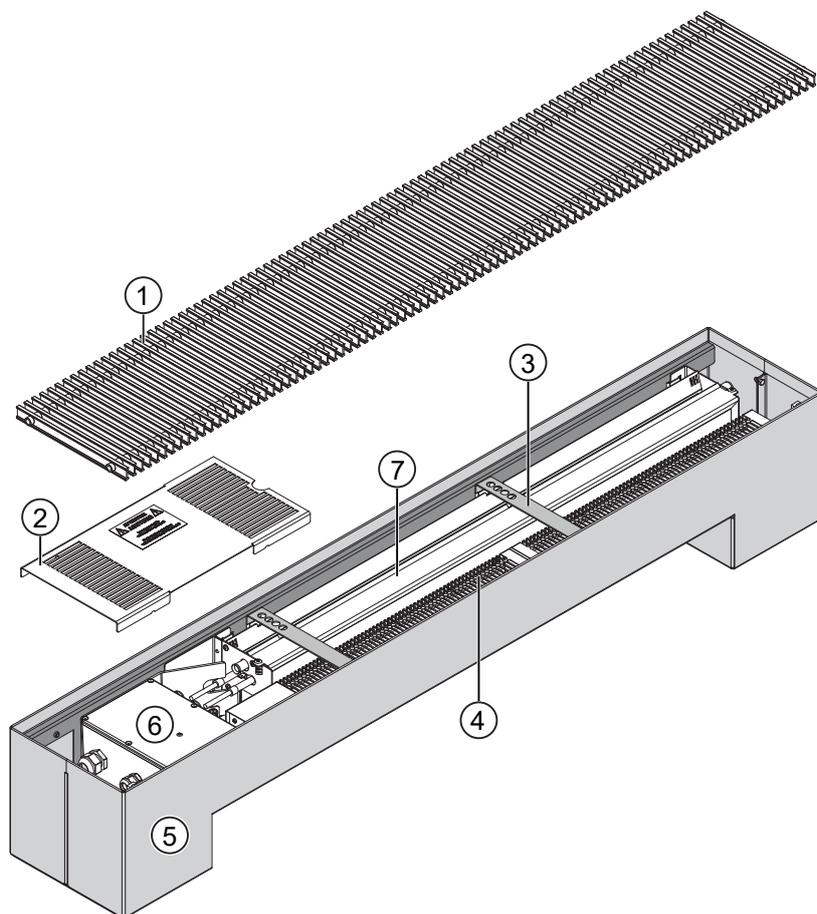


Fig. 1: PowerKon QE at a glance

1	Roll-up grille	2	Cover for electrical junction box
3	Cross bracing	4	EC tangential fan
5	Casing	6	Electrical junction box
7	Electric heating coil with safety switch		

5.2 Brief description

PowerKon QE are free-standing decentralised units for the heating of room air with an electric heating coil and EC tangential fan for use in hotels, offices and business premises etc. PowerKon QE is an ideal solution when the use of an LPHW convector or coil is impossible. All PowerKon QE are arranged with the heating coil on the window side and the tangential fan on the room side. The air from the heating coil rising up the façade forms a drum of warm air and flows draught-free into the room. The warm air heats up the room.

6 Installation and wiring

6.1 Requirements governing the installation site

Only install and assemble the unit if the following conditions are met:

- ▶ Make sure that the unit is securely suspended/standing.
- ▶ Ensure that the airflow can circulate freely.
- ▶ Provide adequate space for appropriately sized flow and return water connections on site (Connection to the pipe network).
- ▶ There is a power supply on site (Maximum electrical rating values [▶ 20]).

6.2 Installation

2 people are needed to install the unit.



CAUTION!

Risk of injury from sharp metal housing!

The inner metal of the casing can have sharp edges.

- ▶ Wear suitable protective gloves.

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6.2.1 Installing the unit

Dimensions

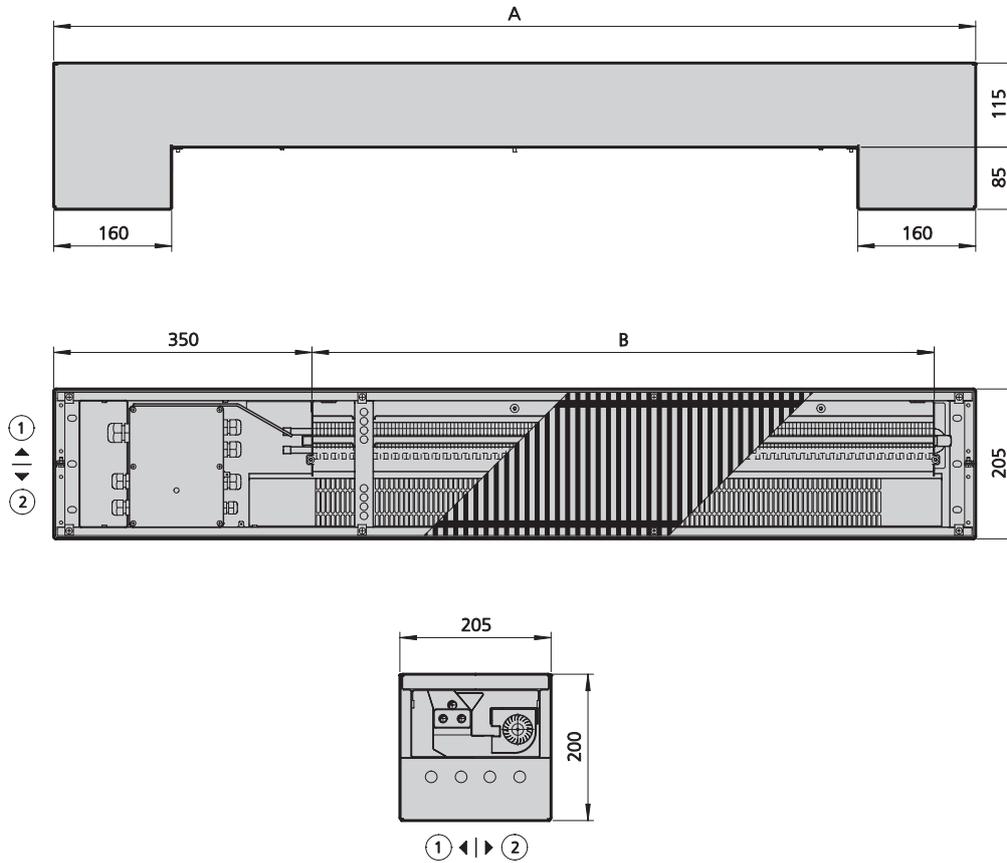


Fig. 2: Dimensions of the PowerKon QE

1	Window side	2	Room side
A	825 mm // 1250 mm // 1700 mm	B	400 mm // 835 mm // 1270 mm

Fixing points

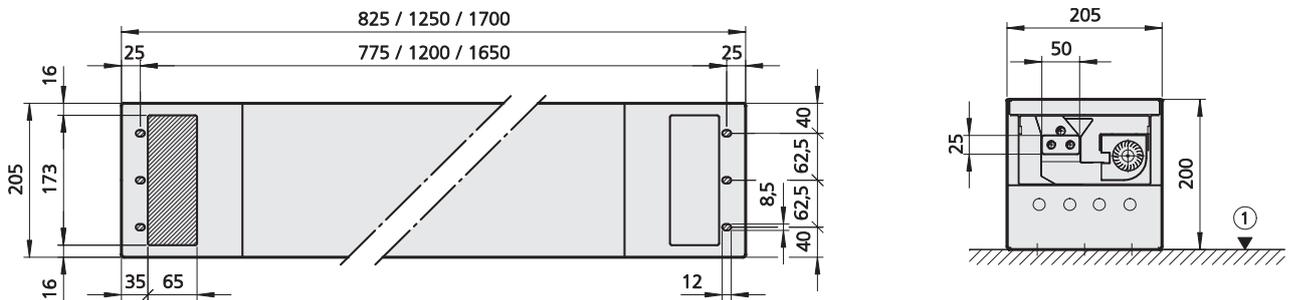
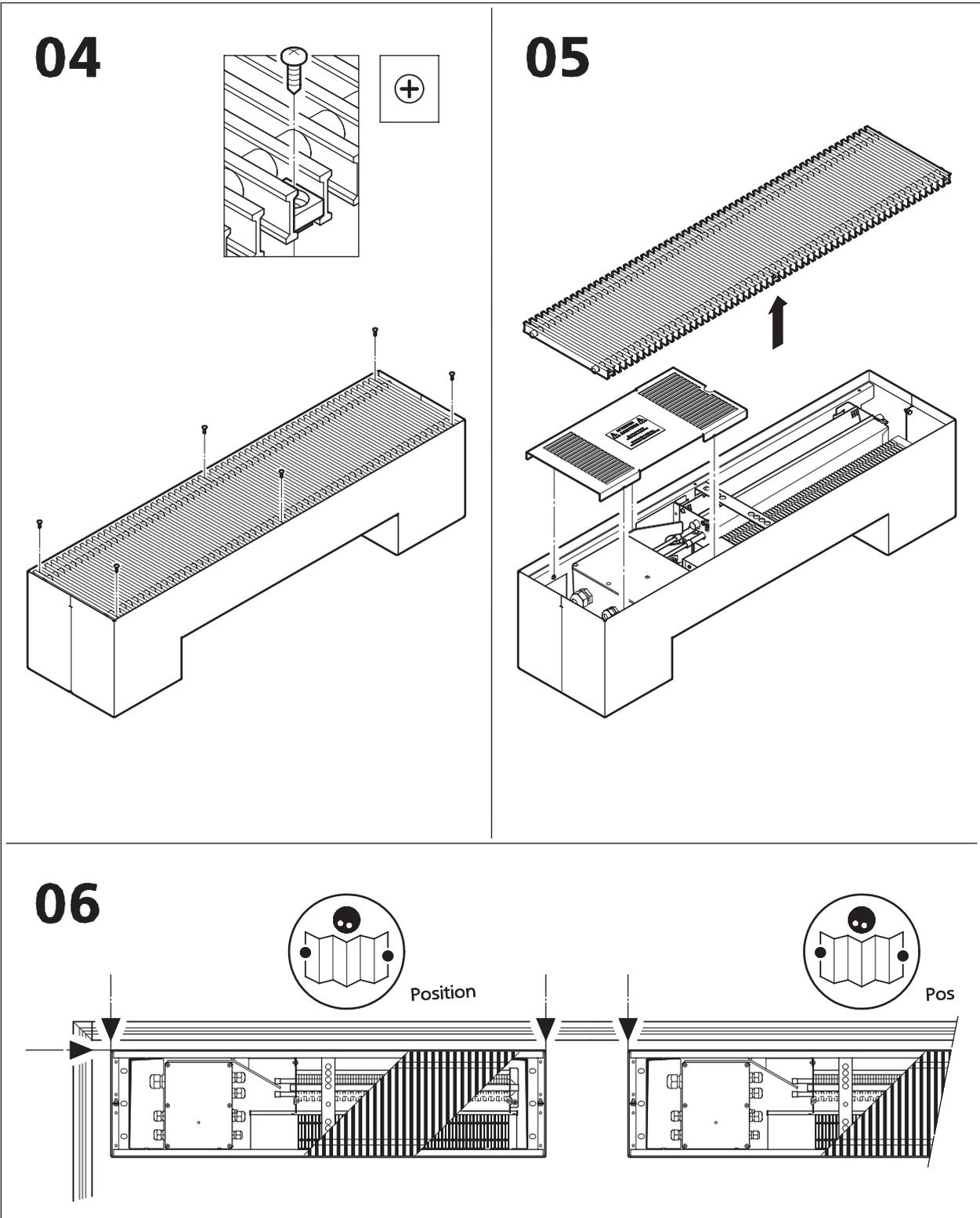


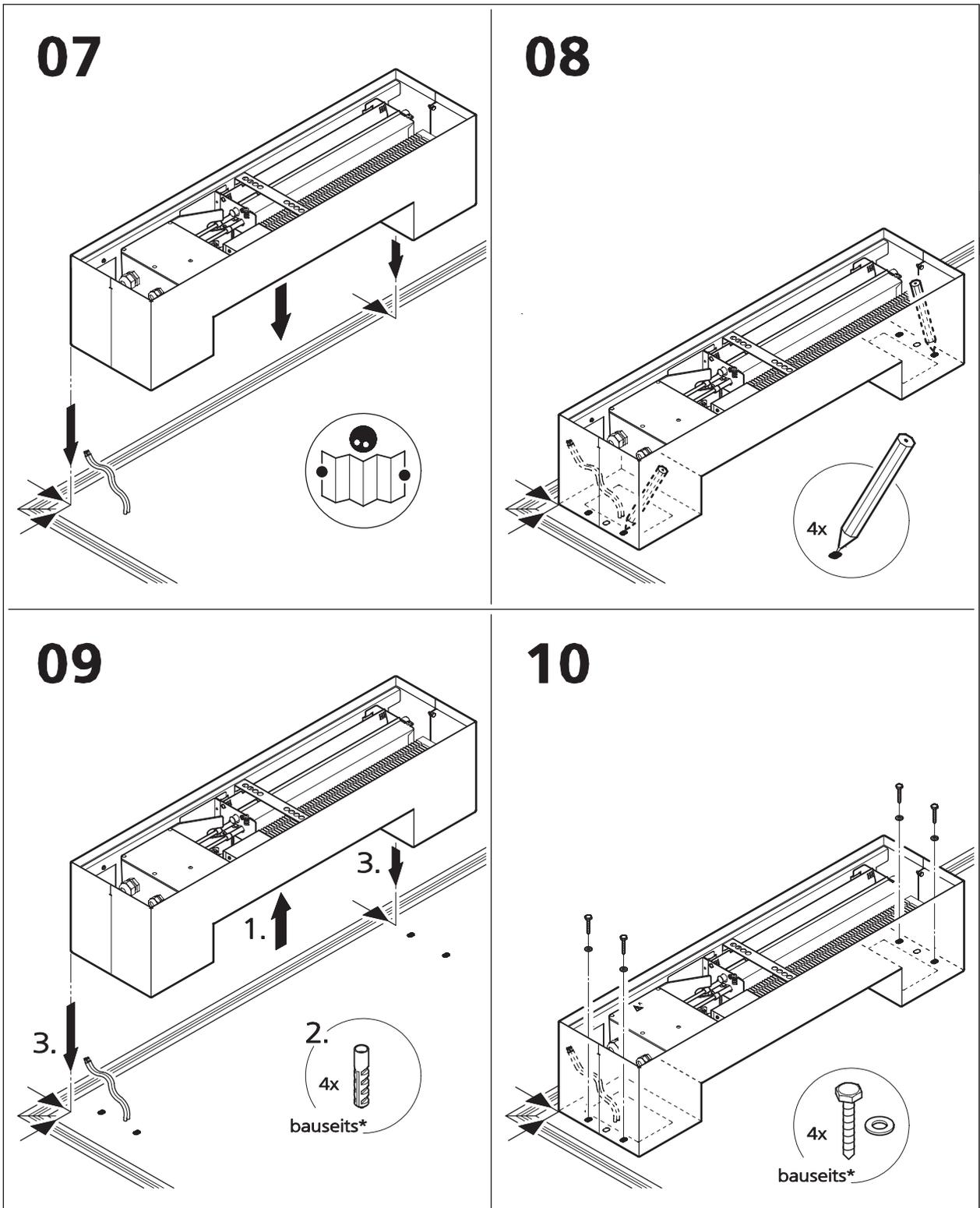
Fig. 3: All dimensions in mm

1) Upper edge of finished floor

PowerKon QE

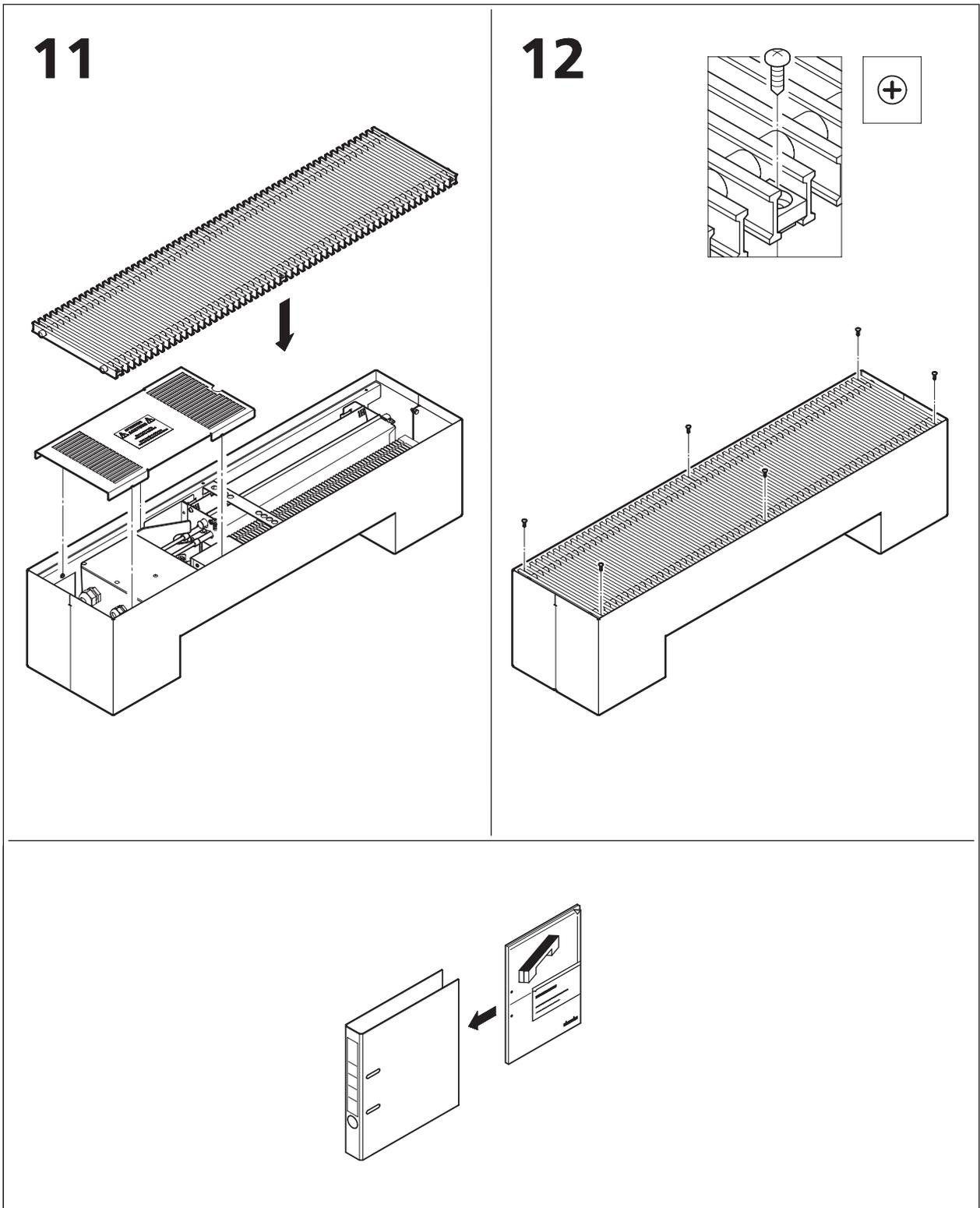
Assembly, installation and operating instructions





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6.2.2 Fitting the grille

High surface temperatures occur at the electric heating coil. For this reason, additional grille fixings are factory-fitted on both longitudinal sides of the duct as a safety guard. They can be removed using a screwdriver. The grille fixing only needs to be removed on one side, the electrical connection side, when wiring. Once wiring has been completed, attach the grille fixing again as per the figure.

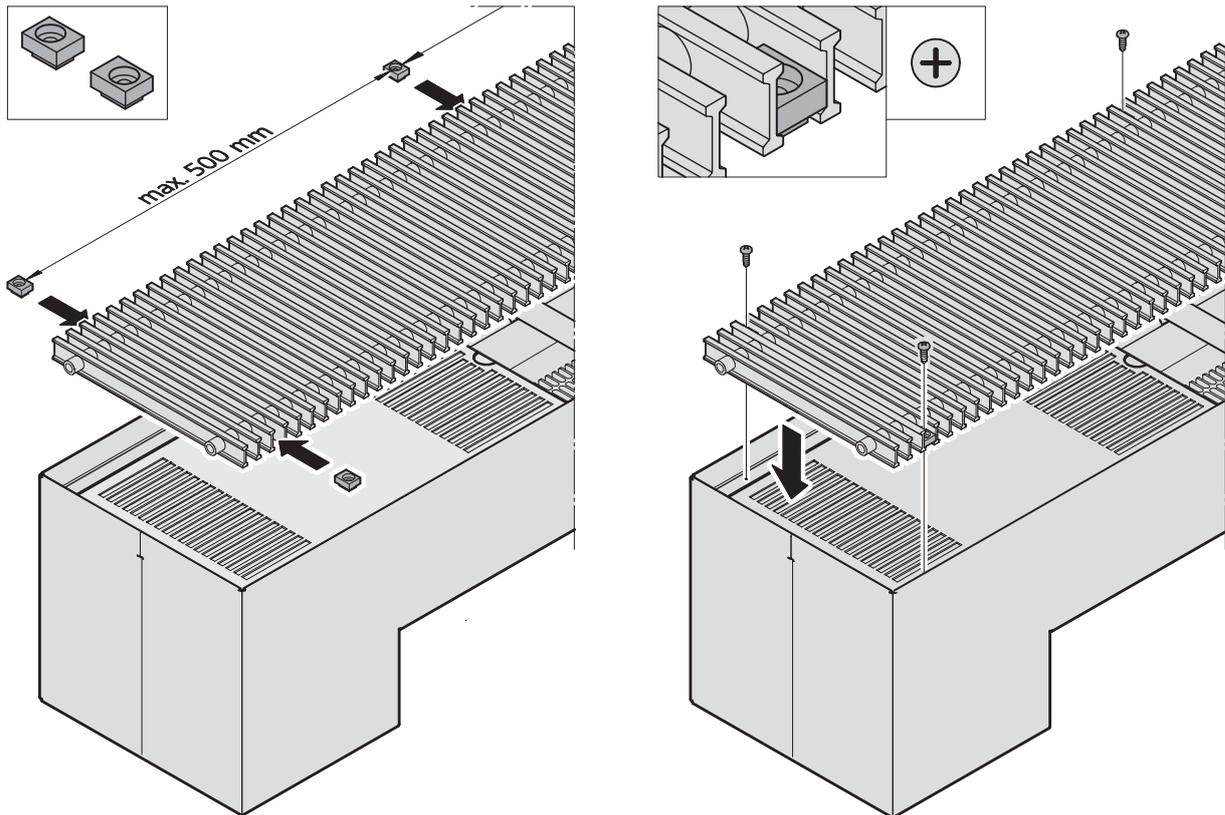


Fig. 4: Installation of the roll-up grille

CAUTION: Do not cover the roll-up grille when the units are in operation!

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7 Electrical connection



IMPORTANT NOTE!

Provide an all-pole mains separator in the electrical installation on site that can be reliably secured to avoid the system being reconnected (e.g. a lockable switch with a contact opening of at least 3 mm up to a rated voltage of 480 V). No protective measures are indicated in the wiring diagrams. These must be provided when installing the system and when connecting the units in accordance with VDE 0100 and the regulations of each energy supply company.

7.1 Maximum electrical rating values

PowerKon QE, 230 V electromechanical version (*00)

Length [mm]	Nominal voltage [V AC]	Mains frequency [Hz]	Nominal power [W]	Nominal current [A]	Ri analogue input [kΩ]	Protection class [IP]	Protection class
825	230	50	800	3.5	100	21	I
1250	230	50	1600	7.0	100	21	I
1700	230	50	2400	10.6	100	21	I

Tab. 3: Maximum electrical rating values, electromechanical model 230 V

7.2 Electromechanical connection, 230 V (*00)

Circuit description PowerKon QE

- ▶ PowerKon QE requires a 230 V AC power supply.
- ▶ The output of the electric heating coil and EC fan can be controlled continuously variably by a 0-10 V DC signal.
- ▶ Internal safety shut-down: In the event of improper use, the heat output is reduced or switched off.
- ▶ Faults (motor malfunction, electric heater fault etc.) are issued by a potential-free collective alarm contact (max. 60 V/ 1 A).
- ▶ Once the cause of the fault has been rectified, the fault message is acknowledged by resetting the supply voltage.

Control via 0 – 10 V DC

control signal	Function
0 V	Off
2 V – 9 V	0 – 100%

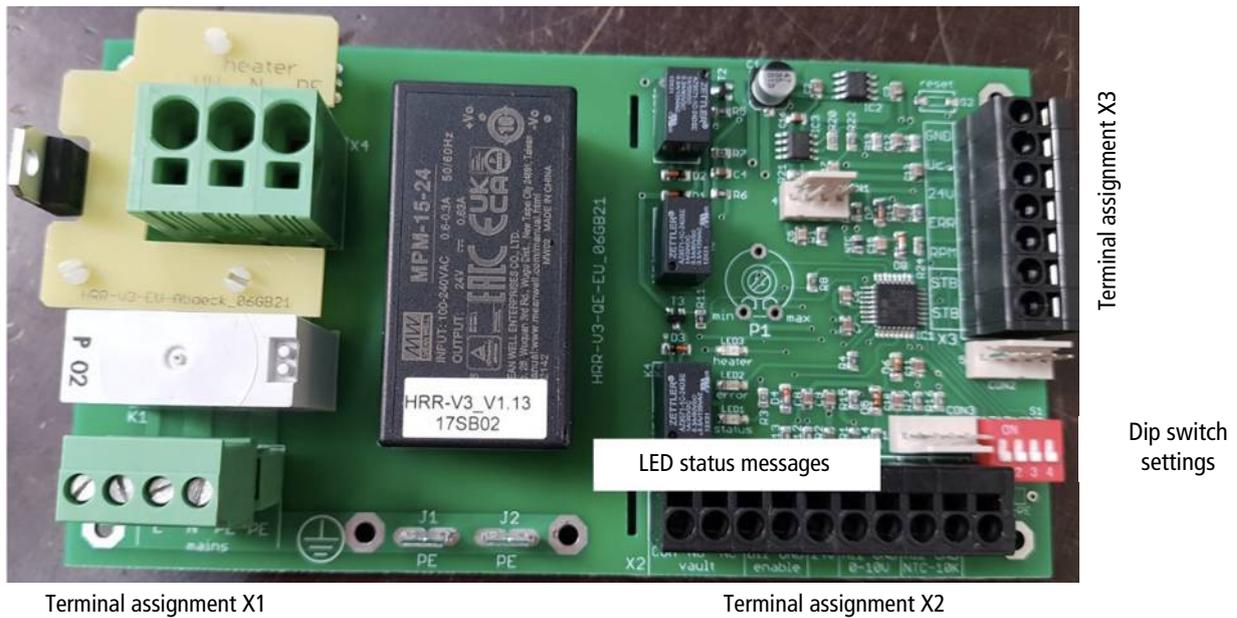


Fig. 5: PowerKon QE circuit board

Terminal assignment		
X1	mains	Mains connection (230 V/50 Hz)
X2	Fault	Potential-free fault alert output (max. load 60 V AC/DC 1 A)
	Enable	DI1, potential-free enable contact
	24 V	Voltage output 24 V DC (max. 40 mA)
	0 - 10 V	AI1, Control signal 0...10 V = Heat output 0...100% (Ri = 100 KΩ)
	NTC 10K	AI2, temperature sensor
X3	Safety temperature limiter	Safety temperature limiter
	RPM	Input signal of the number of revolutions of the EC tangential fan
	ERR	Input signal of the status of the EC tangential fan
	24 V	Supply voltage (+) for the EC tangential fan
	GND	Supply voltage (-) for the EC tangential fan

DIP switch settings

DIP	Factory setting	OFF	ON
DIP 1	OFF	Enable not required	Enable required
DIP 2	OFF	Speed increase Off	Speed increase On
DIP 3	OFF	Minimum heat output = 20%	Minimum heat output = 30%
DIP 4	OFF	Power reduction 100%	Power reduction 90%

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LED status messages

LED	Function	Colour	Code	Description
1	Status	Green	OFF	No voltage / Error
			Flashes cyclically	Control active
			Alternating fast/slow flashing	No DI1 enable
			Lights up	Standby
2	Fault alarm	Red	1x flashing	EC motor fault
			2x flashing	EC motor speed
			3x flashing	PCB temperature sensor has triggered
			4x flashing	Power reduction over 50%
			5x flashing	Sensor short circuit
			Lights up	STB has triggered
3	Heating	Yellow	Flashes cyclically	Electric heater PWM signal
			Lights up	Electric heater 100%

Status coding of the red LED fault signal

Lights up = Continuously lit

1 x flashing = On (0.2 sec.) Off (0.8 sec.) ...

2 x flashing = On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (2 sec.) ...

3 x flashing = On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (2 sec.) ...

4 x flashing = On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (2 sec.) ...

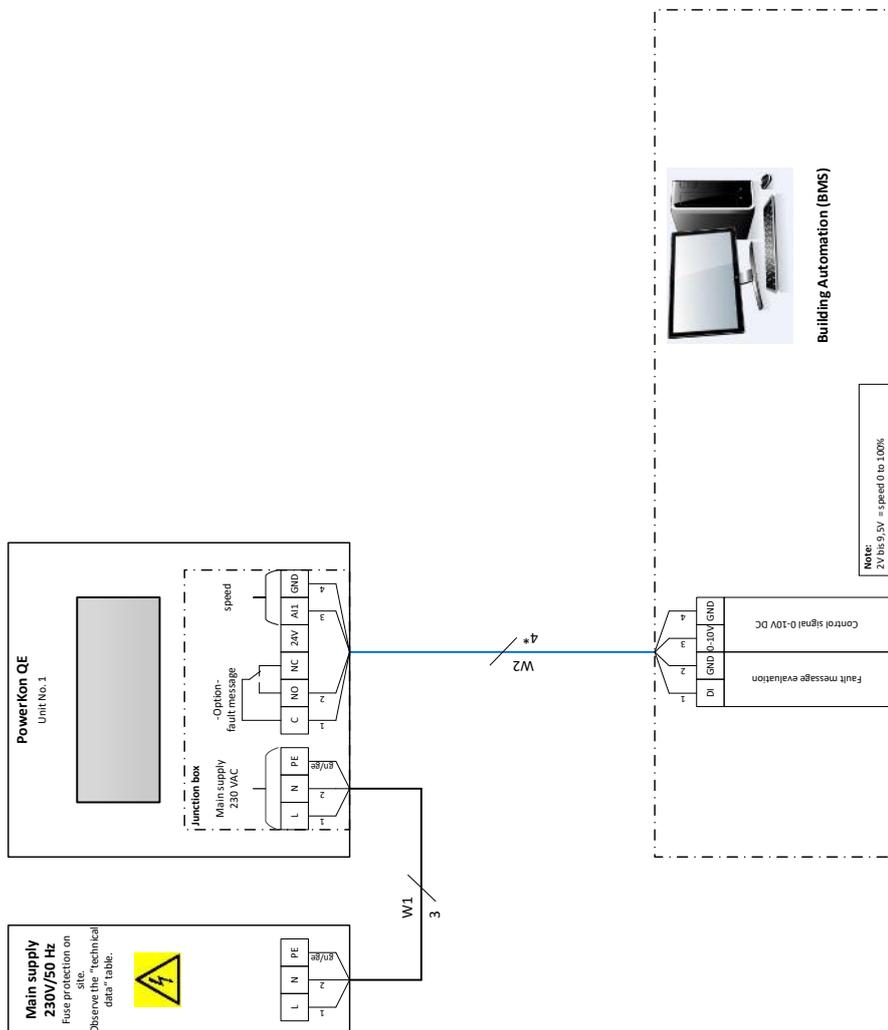
5 x flashing = On (0.2 sec.) Off (0.8 sec.) On (0.2 sec.) Off (2 sec.) ...

Alternating = On (0.5 sec.) Off (0.2 sec.) On (0.1 sec.) Off (0.2 sec.) ...

Note these points in the following layout plans for PowerKon QE with electromechanical control 230 V(*00):

- ▶ Comply with the details on cable types and cabling with due consideration of VDE 0100.
- ▶ Without *: NYM-J. The requisite number of wires, including PE conductor, is stated on the cable. Cross-sections are not stated, as the cable length is involved in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8mm. Lay separately from high voltage lines.
- ▶ If other types of cables are used, they must be at least equivalent.
- ▶ The terminals on the unit are suitable for a maximum wire cross-section of 2.5 mm².
- ▶ We recommend type F when using RCCBs. Refer to the provisions of DIN VDE 0100 Parts 400 and 500 when configuring the rated fault current.
- ▶ Note the electrical data when rating the in-situ mains power supply and fuse.

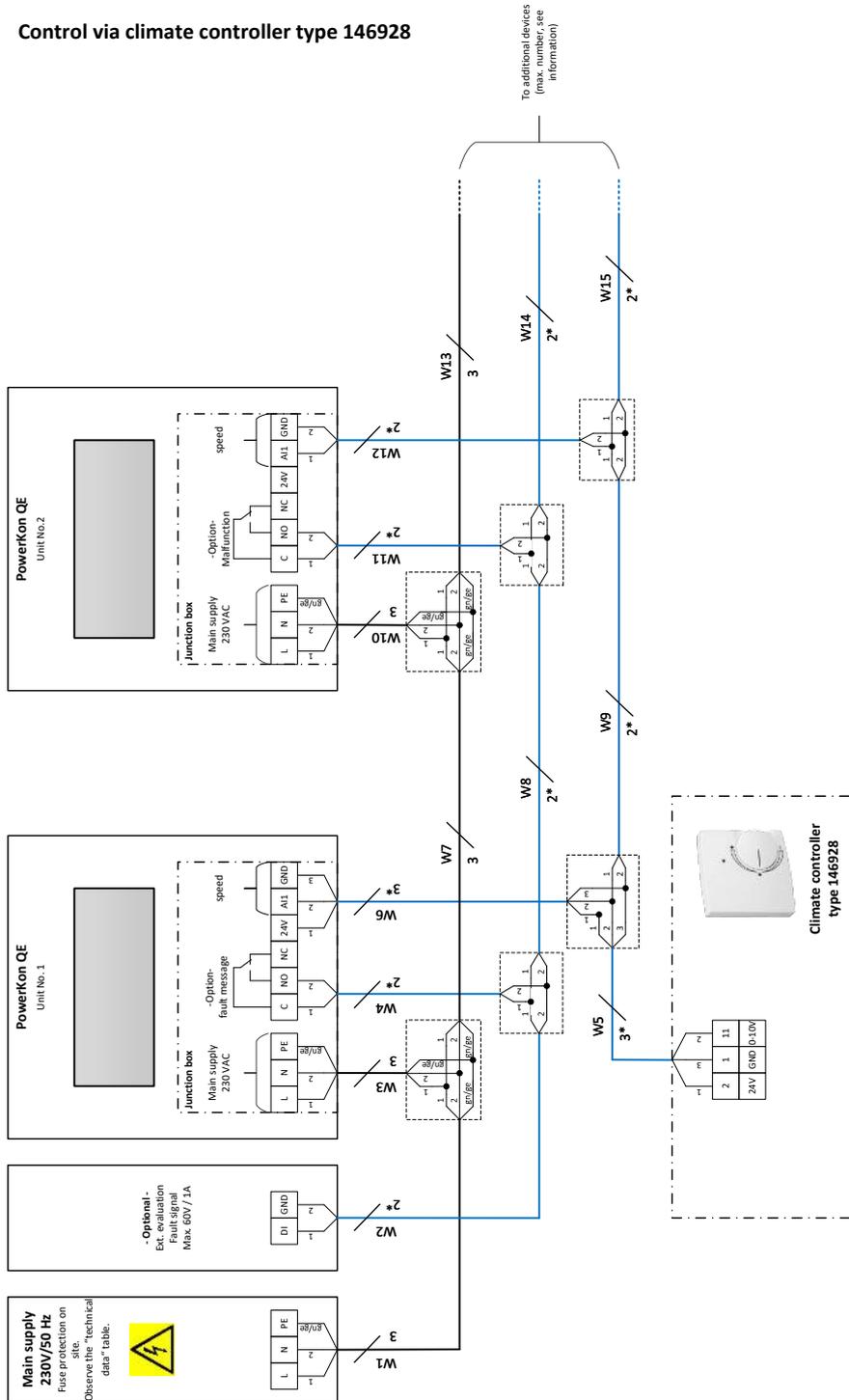
Control 0-10V DC via BMS



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Assembly, installation and operating instructions

Control via climate controller type 146928



8 Pre-commissioning checks

Before initial commissioning, check whether all the necessary conditions have been met so that the unit can function safely and properly.

Structural tests

- ▶ Check that the unit is securely standing and fixed.
- ▶ Check the horizontal installation/suspension of the unit.
- ▶ Check whether all components are properly fitted.
- ▶ Check whether all dirt, such as packaging or site dirt, has been removed.

Electrical tests

- ▶ Check whether all lines have been properly laid.
- ▶ Check whether all lines have the necessary cross-section.
- ▶ Are all wires connected in accordance with the electric wiring diagrams?
- ▶ Is the earth wire connected and wired throughout?
- ▶ Check all external electrical connections and terminal connections are fixed in place and tighten if necessary.
- ▶ Check whether DIP switches have been correctly set in accordance with the wiring diagram.

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9 Operation

9.1 Operation of electromechanical control



Room temperature controller type 146928

- ▶ room temperature controller for 2- and 4-pipe applications, surface-mounted wall installation on a flush-mounted box
- ▶ setpoint display by threshold arrows
- ▶ heating or cooling via active 0-10 V signals
- ▶ option for external room sensor connection
- ▶ digital input for ECO operation
- ▶ for use with PowerKon QE, max. 5 units

10 Maintenance

10.1 Securing against reconnection



DANGER!

Risk of death by unauthorised or uncontrolled restart!

Unauthorised or uncontrolled restarting of the equipment can result in serious injury or death.

- ▶ Before restarting, ensure that all safety devices are fitted and working properly and that there is no hazard to humans.

Always follow the procedure described below to prevent accidental restart:

1. de-energise.
2. Prevent accidental re-connection.
3. Check that the equipment is de-energised.
4. Cover and cordon off adjacent live parts.

10.2 Maintenance Schedule:

The sections below describe maintenance work needed for the proper and trouble-free operation of the equipment.

If there are signs of increased wear during regular checks, shorten the required maintenance intervals to the actual wear and tear. Contact the manufacturer with any questions about maintenance work and intervals.

Interval	Maintenance task	Personnel
As required	Regular visual checks and acoustic checks for damage, dirt and function.	User
every six months	Check the electrical wiring.	Qualified personnel
every six months	Clean components/surfaces that come into contact with air.	Qualified personnel
every six months	Check the heating coil for dirt and clean it.	Qualified personnel

10.3 Maintenance work

10.3.1 Clean the inside of the unit

Check all elements that come into contact with air (internal surfaces of the unit, outlet elements etc.) for dirt or deposits during maintenance and use a commercially available product to remove.

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11 Faults

The following chapter describes possible causes of faults and the work needed to rectify them. Should faults occur frequently, shorten the maintenance intervals in line with the actual loading on the unit.

Contact the manufacturer with any faults that cannot be rectified using the following information.

Behaviour in the event of faults

The following applies:

1. Immediately switch off the unit with faults that pose an immediate danger to persons or property!
2. Determine the cause of the fault!
3. Switch off the unit and prevent it from being reconnected if rectifying the fault requires work in the hazard area. Immediately advise a supervisor on site about the fault.
4. Either rectify the fault yourself or have it repaired by authorised personnel, depending on the nature of the fault.

The Fault table [► 28] provides information on who is authorised to rectify and remedy faults.

11.1 Fault table

Fault	Possible cause	Remedy
No function.	No power supply.	Check voltage, switch on repair switch.
		Replace fuse.

11.2 Start-up after rectification of fault

After correction of the fault, carry out the following steps for recommissioning:

1. Make sure that all maintenance covers and access openings are sealed.
2. Switch off the unit.
3. Acknowledge the fault on the controller, if necessary.

12 Certificates



EU-Konformitätserklärung

EU Declaration of Conformity
 Déclaration de Conformité CE
 Deklaracja zgodności CE
 EU prohlášení o konformite

Wir (Name des Anbieters, Anschrift):

We (Supplier's Name, Address):
 Nous (Nom du Fournisseur, Adresse):
 My (Nazwa Dostawcy, adres):
 My (Jméno dodavatele, adresa):

KAMPMANN GMBH & Co. KG
 Friedrich-Ebert-Str. 128-130
 49811 Lingen (Ems)

erklären in alleiniger Verantwortung, dass das Produkt:

declare under sole responsibility, that the product:
 déclarons sous notre seule responsabilité, que le produit:
 deklarujemy z pełną odpowiedzialnością, że produkt:
 deklarujeme, vědomi si své odpovědnosti, že produkt:

Type, Modell, Artikel-Nr.:	Katherm QE	242***
Type, Model, Articles No.:	PowerKon QE	137***
Type, Modèle, N° d'article:		
Typ, Model, Nr artykułu:		
Typ, Model, Číslo výrobku:		

auf das sich diese Erklärung bezieht, mit der / den folgenden Norm(en) oder normativen Dokumenten übereinstimmt:

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):
 auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s):
 do którego odnosi się niniejsza deklaracja, jest zgodny z następującymi normami lub innymi dokumentami normatywnymi:
 na který se tato deklarace vztahuje, souhlasí s následující(mi) normou/normami nebo s normativními dokumenty:

DIN EN 55014-1 ; -2	Elektromagnetische Verträglichkeit
DIN EN 61000-3-2 ; -3-3	Elektromagnetische Verträglichkeit
DIN EN 61000-6-1 ; -6-2 ; -6-3	Elektromagnetische Verträglichkeit
DIN EN 60335-1 ; -2-30	Sicherheit elektr. Geräte für den Hausgebrauch und ähnliche Zwecke. Besondere Anforderungen für Raumheizgeräte

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Gemäß den Bestimmungen der Richtlinien:

Following the provisions of Directive:
Conformément aux dispositions de Directive:
Zgodnie z postanowieniami Dyrektywy:
Odpovídající ustanovení směrnic:

**2014/30/EU
2014/35/EU**

**EMV-Richtlinie
Niederspannungsrichtlinie**

Frank Bolkenius

Lingen (Ems), den 07.07.2022

Ort und Datum der Ausstellung

Place and Date of Issue
Lieu et date d'établissement
Miejsce i data wystawienia
Místo a datum vystavení

Name und Unterschrift des Befugten

Name and Signature of authorized person
Nom et signature de la personne autorisée
Nazwisko i podpis osoby upoważnionej
Jméno a podpis oprávněné osoby

2/2

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49811 Lingen (Ems)

Registergericht: Osnabrück, HRA 205688
USt-IdNr: DE313505294
WEEE-Reg.-Nr. DE 81675477

Persönlich haftende Gesellschafterin:
Kampmann Beteiligungsgesellschaft mbH
Sitz: Lingen (Ems)

Registergericht: Osnabrück, HRB 211684
Geschäftsführer: Hendrik Kampmann,
Frank Bolkenius, Stefan Reisch, Martin Weißling

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<https://www.kampmanngroup.com/hvac/products/perimeter-heating/powerkon-qe>

Country	Contact
Great Britain	Kampmann UK Ltd.
	Dial House, Govett Avenue
	Shepperton, Middlesex, TW17 8AG
	T +44 1932/ 228592
	F +44 1932/ 228949
	E info@kampmann.co.uk
	W Kampmann.co.uk