

Electric System Convector

ESK 180-110



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► Symbol key



Warning: Danger of electrical voltage



Warning: Danger zone



Warning: Hot surface



Warning: Hand injuries



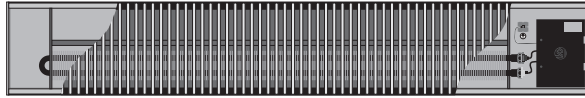
Useful hint/advice

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Museumstraße 54a
DE-38229 Salzgitter
Germany

Internet: www.moehlenhoff.com
e-mail: contact@moehlenhoff.de

Product Overview

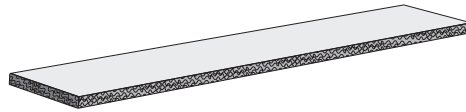
Scope of Supply



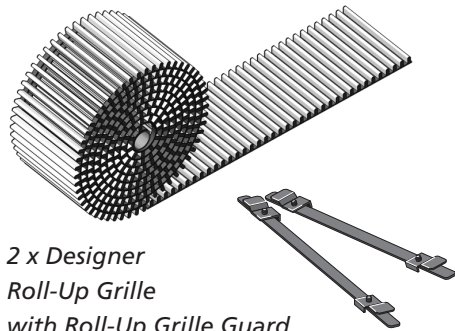
Electric System Convector
ESK 180-110



Manual



Installation Protection Cover



2 x Designer
Roll-Up Grille
with Roll-Up Grille Guard



2 x JB 8.80 without anchors 4 x JB 8.80 with anchors
Adjustment Blocks 8.80 – Set

Standard Components



Alpha Thermostat Standard

AR 2010 S2-S, 230 V, 50/60 Hz

Digital room temperature thermostat for controlling Alpha-Actuators depending on target and actual temperature.

OR



Alpha Thermostat Comfort

AR 2010 K2-S, 230 V, 50/60 Hz

Digital room thermostat with operating mode switch for engaging Alpha-Actuators depending on the target and actual temperature.

OR

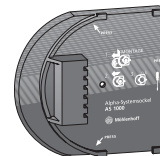


Alpha Thermostat Control

AR 2010 C2-S, 230 V, 50/60 Hz

Digital room thermostat with operating mode switch and plug-in digital clock for engaging Alpha-Actuators depending on the target and actual temperature.

PLUS



Alpha Mounting Base AS 1000

Mounting Base and electrical connection for Alpha-Thermostats. Wall and electrical-box mounting

Component for Night Setback Control

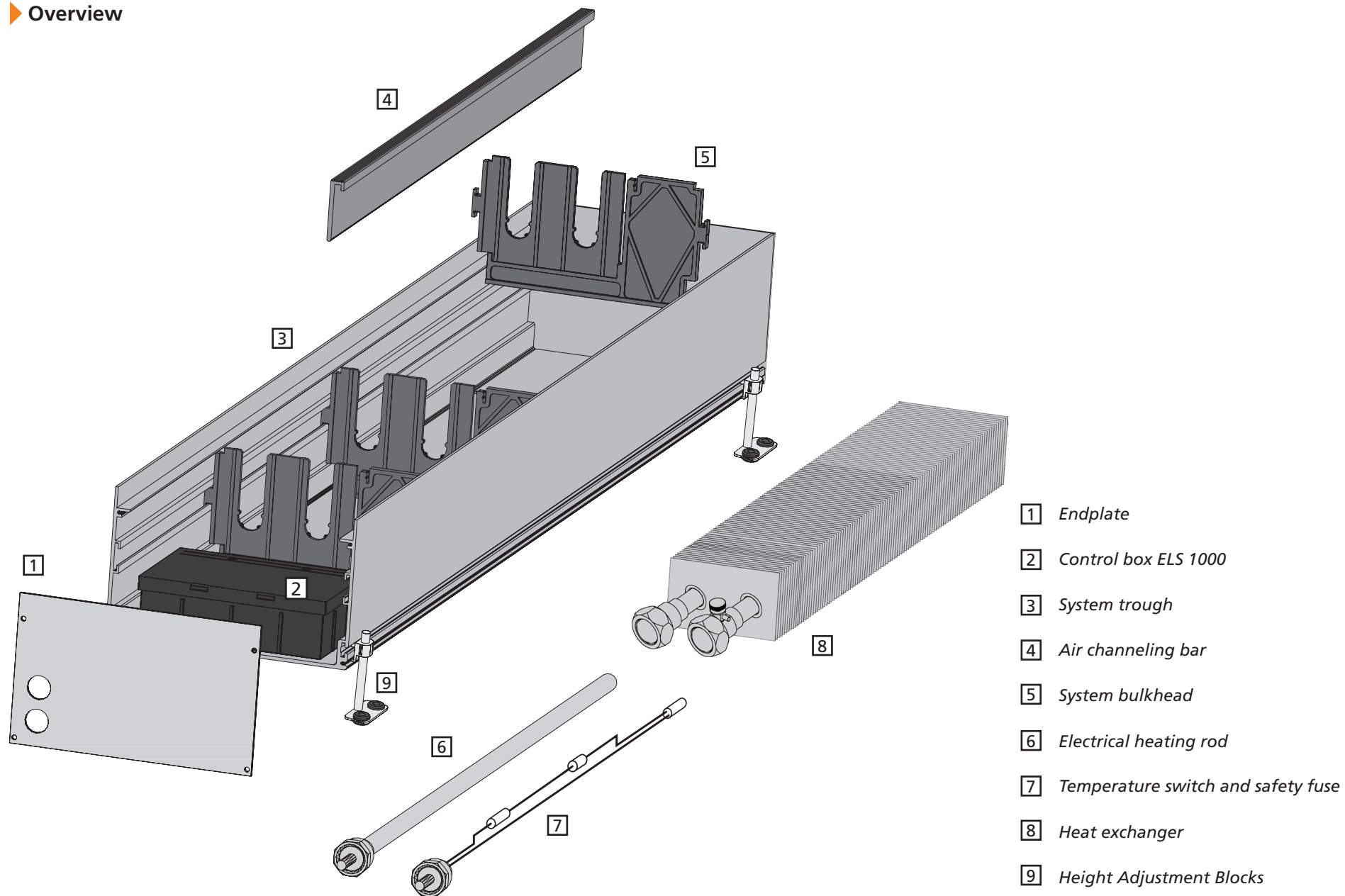


Digital Timer – DS 1000

Together with the digital timer, the fan control with room thermostats and actuators make up for a comfortable and energy-saving individual room control system.

The 2-channel digital timer controls the desired setback times. The clearly visible LCD display and the program keys allow convenient programming of the digital timer.

► Overview



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Product Informations

► Intended Use

Möhlenhoff Electric System Convector are exclusively intended for heating in closed rooms for covering remaining heat demands, or for the full heating of rooms in case of a corresponding heat demand.

► Product Description

The System Convector from Möhlenhoff are high-quality and high-value under-floor devices that are precisely manufactured with current and precise technology. The units are securely packed to prevent damage and wear during shipment.

Through incorrect use or intentional misuse, the Electric System Convector could pose a danger to the user or a third party.

The electric system convector is designed for installation in the floor area (screed level or cavity floor level) and serves for cold air protection in front of floor-level window facades, or as complete heating system in winter gardens. The electric system convector is not a mobile room heating device; after the installation it is a part of the building construction. Mains connection must be performed as fixed connection. Height adaptation is possible by means of adjustment blocks. The convector is covered with a covering grille which can be removed by hand, the "designer roll grille". The designer roll grille is fixed with roll grille protectors.



The Designer Roll-Up Grille is subject to availability. For safety reasons, the **Linear Grille** may **not be used** in combination with the Electric System Convector.

► Areas of Application

The Electric System Convector ESK is used when the architectural situation requires an economical and comfortable room heating system. For example, the high glass façades of modern buildings make a cold-air barrier necessary.

Möhlenhoff under-floor convectors in the ESK series are ideal for the following applications:

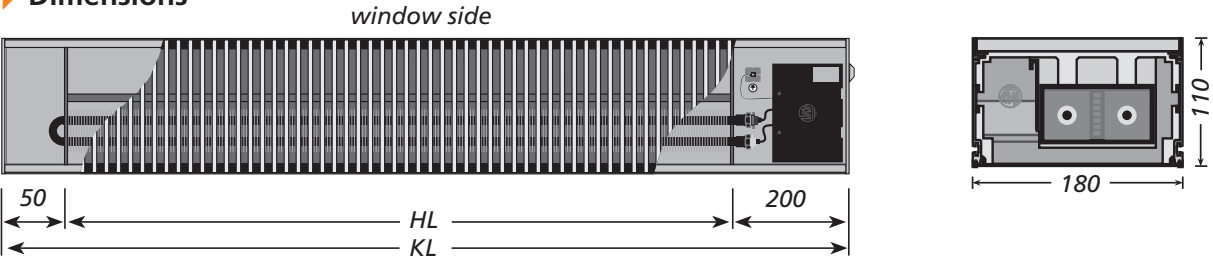
- rooms with quick-heating demand
- exhibition rooms
- living areas
- winter gardens
- restaurants
- foyers and entry-halls
- industrial areas
- office and administration buildings



Möhlenhoff convectors in the ESK product line may not be used in the following areas:

- in or near **areas with danger of explosion** (Danger of explosion)
- in **wet areas** (Danger of malfunction)
- in areas with **dusty or corrosive air** (Danger of malfunction)

► Dimensions





The convector lengths KL follow from the combination of heat exchanger that are 500 mm, 1000 mm, and 1250 mm with connection space on both ends of 250 mm each.

► Technical Data

Heat exchanger	electric
Operation voltage	230 V AC, 50-60 Hz
Electric power output	(see identification label)
Heat exchanger 500 mm	220 W
Heat exchanger 1000 mm	470 W
Heat exchanger 1250 mm	570 W
Temperature protection switch	Integrated, switch at > 70 °C
Safety switch	Integrated into heat exchanger for protection against defective thermostats or accidental covering of unit.
Fuse*	up to 3 x 6.3 AT circuit protection in connection boxes, depending on variant
Protection class	I
Protection type	IP 20
CE rating	EN 60335
Convector length	(see identification label)
Electric plug terminal for max cable width 2.5 mm	Window-view right (left on request)

*Once the fuse is blown, the unit must be reactivated by a qualified craftsman.

► Identification Label

	Möhlenhoff	↑ Fensterseite - Window side ↑
Typ: ESK 180-110-1250		
ID.-Nr.: _____		
Auftrag: _____	Pos.: _____	
Bestell Nr.: _____		1-B92-24-200
0726		

Preconditions

Expert Knowledge

These instructions require special knowledge corresponding to an officially acknowledged degree in one of the following professions:

- **Electrical Equipment Installer or Electronics Engineer**
- **Systems mechanic for sanitary, heating and air condition technology**

according to the profession designations officially announced in the Federal Republic of Germany, as well as according to comparable professions within the European Community Law.

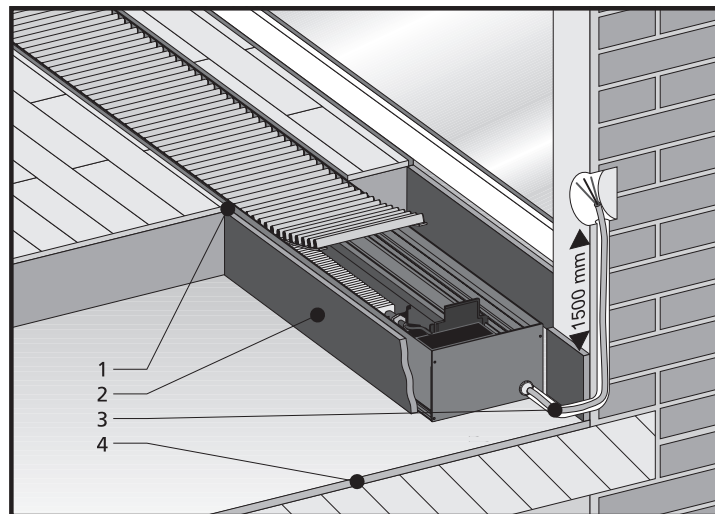
For the preparation of the manual, a state of knowledge corresponding to a technician qualification in the mentioned occupational areas, has been presupposed. Therefore, basic information from these occupational areas is not described separately.

Site of Installation

Möhlenhoff ESK are exclusively intended for a horizontal installation in floor areas. Möhlenhoff ESK can be installed in dry screed and cast plaster areas as well as in cavity floors.

If used in areas with mastic asphalt, special measures have to be taken with respect to temperature shielding, because no part of the ESK may become warmer than 120°C!

Installation Situation



1. Continuously elastic border strips
2. Border acoustic insulation
3. Connection line
4. Step-on acoustic insulation

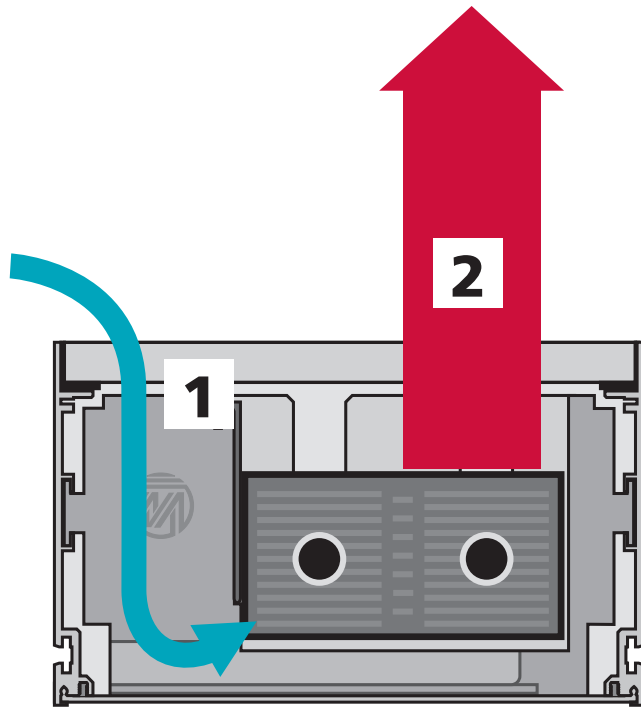
The electrical connection is normally made on the right side of the unit, when facing the window from the inside.



Screed and flooring, particularly hardwood flooring, can compress the trough of the under-floor convector due to the thermal properties. We recommend the planning and use of proper insulation during the installation phase.

Operating Mode

► Convection Principle – Natural Convection (Heating)



- 1. cooled air (cold air gradient)
- 2. warmed air for cold air barrier and room heating

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Installation

► Installation Preparation

1. Carefully remove the ESK from the packaging.
2. Remove the protective covering of the convector trough.
3. Under the protection cover (marked with a point) you will find the required accessories for connection.
4. The final removal of the trough cover should only be made after construction is complete.

► Height Adjustment

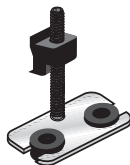
There are 4 types of Adjustment Blocks for adjusting the height and leveling the convector unit:



- Outer Adjustment Blocks with Feet JBA 8.80



- Inner Adjustment Blocks with Feet JBI 8.80



- Outer Adjustment Blocks with Anchors JBA 8.80



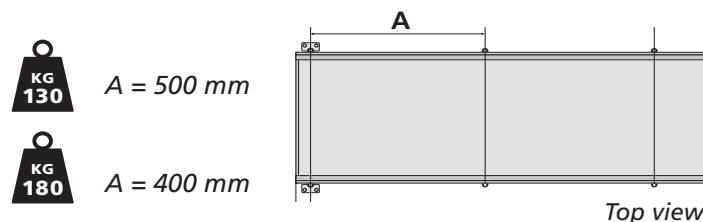
- Inner Adjustment Blocks with Anchors JBI 8.80

6 Adjustment Blocks are included with delivery of each ESK: 3 sets of Outer Adjustment Blocks.



The number of included Adjustment Blocks (JB) is only enough for leveling purposes! To handle a full load, i.e. for traverse, the ESK must be further supported by either a pressure (and heat) resistant insulation or an increased number of Adjustment Blocks (see free / full load capacities)!

► Free/Full load Capacity



Interior adjustment blocks for ESK on the fan side are only available with a distance of 500 mm.

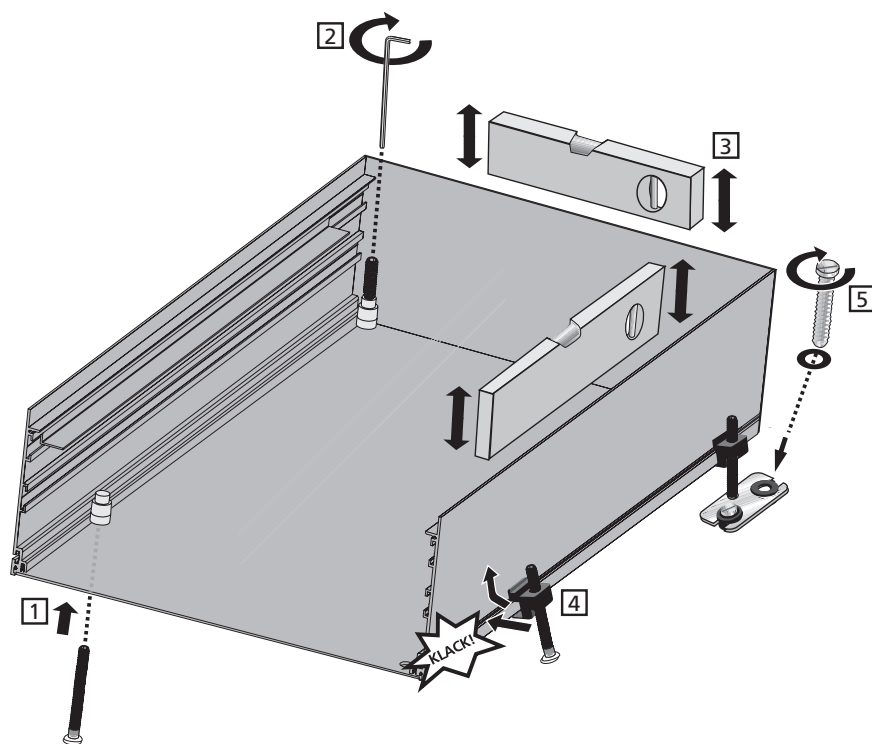
The following applies for free/complete step-on ability in case of exterior adjustment blocks without support:

- capacity up to 130 kg/m if distance between support max 500 mm
- capacity up to 180 kg/m if distance between support max 400 mm

Installation Preparation

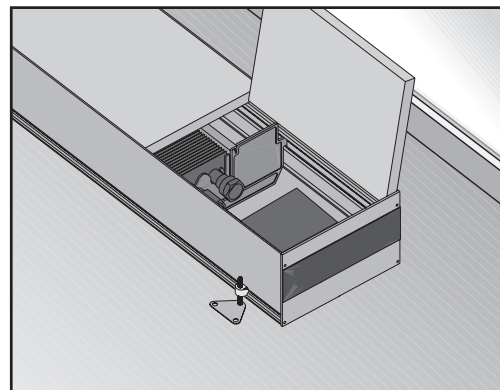


To prevent the movement or warping of the ESK during the use of wet or hot screed, we recommend that the unit be anchored in at least 4 points to the unfinished floor with Adjustment Blocks!

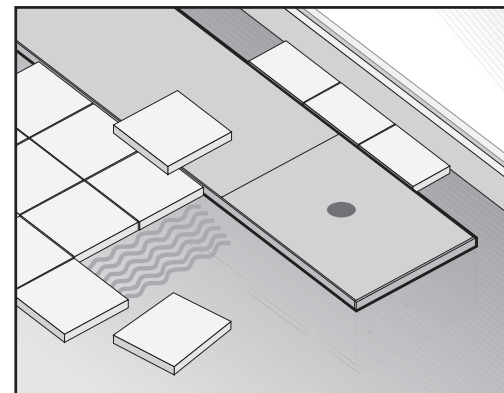


- 1 Interior adjustment block: Screw in the threaded bolts
- 2 Interior adjustment block: Height adjustment
- 3 Levelling
- 4 Outer adjustment block: Latch into the trough profile
- 5 Outer adjustment block: Fix with screws

Protection Cover



Remove the protective cover permanently only after finishing the installation of the system convector and after finishing all building work. By this you avoid contamination and damage to the system convector.

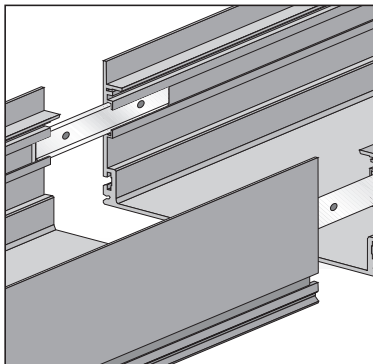


The electric connection side is marked „•“ on the protective cover.

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► System Extensions

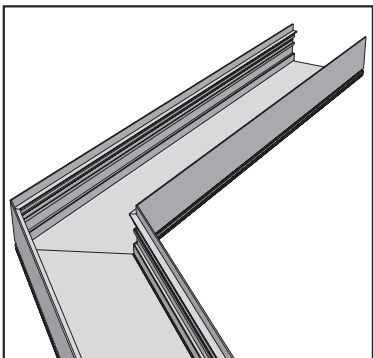
System Connectors (option)



SV *System connectors serve for connecting two system convector troughs, or two convector parts, respectively.*

Push the connectors in even distances into the grooves of the convector trough. Pull together the convector troughs and fix the connection by means of stud screws M6 and an allen key of size 3.

Mitre Fit



GPS *System convector parts with mitre fit are delivered ready-to-plug-in; they are also installed with system connectors.*

► Electrical Connection

Note for electrical connection

there are 3 heating element types:

- 220 W 500 mm length
- 470 W 1000 mm length
- 570 W 1250 mm length

All ESK are equipped with the ELS 1000 for the electrical connection. Through this controller, the resistance and control current are, in relation to the connection conditions and power, virtually independent. With an AR 40xx, a total of 15 ELS 1000 can be active.

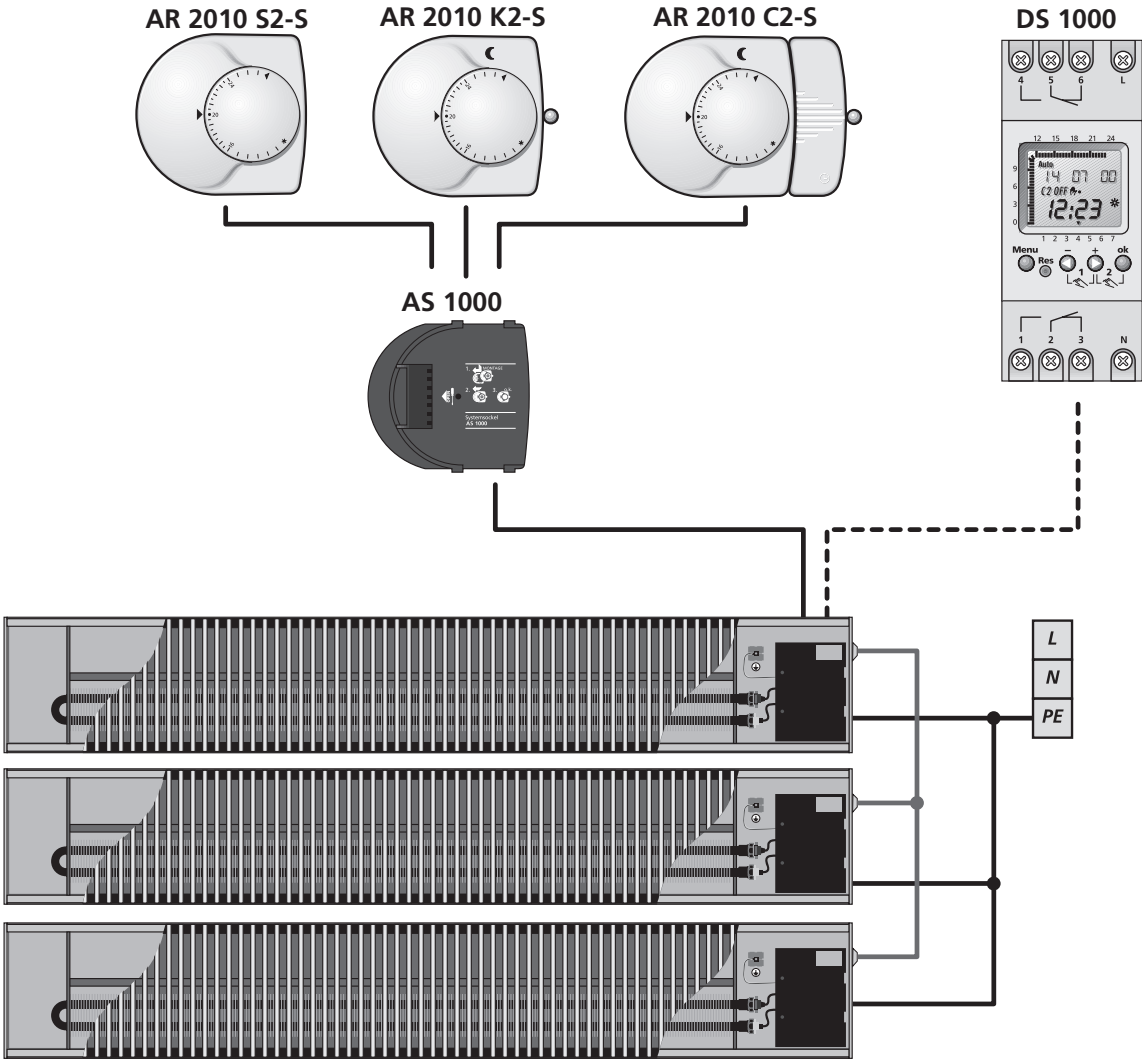


Electrical voltage! Danger to life! Disconnect the entire system power to work on the Electric System Convector!

► Circuit Plan



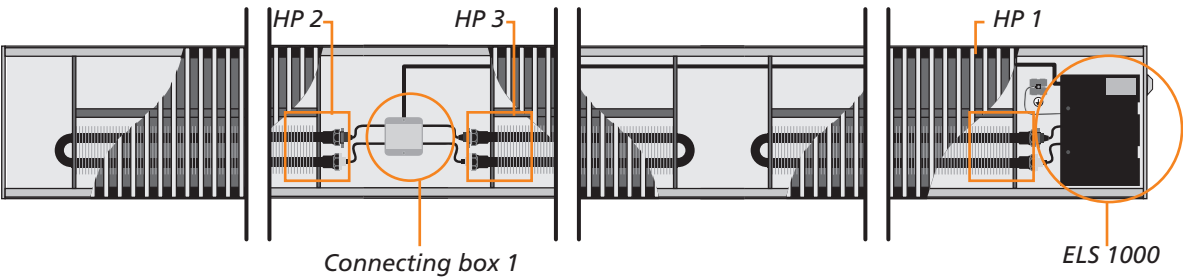
All connection and circuit diagrams are given without electrical protection devices/measures!



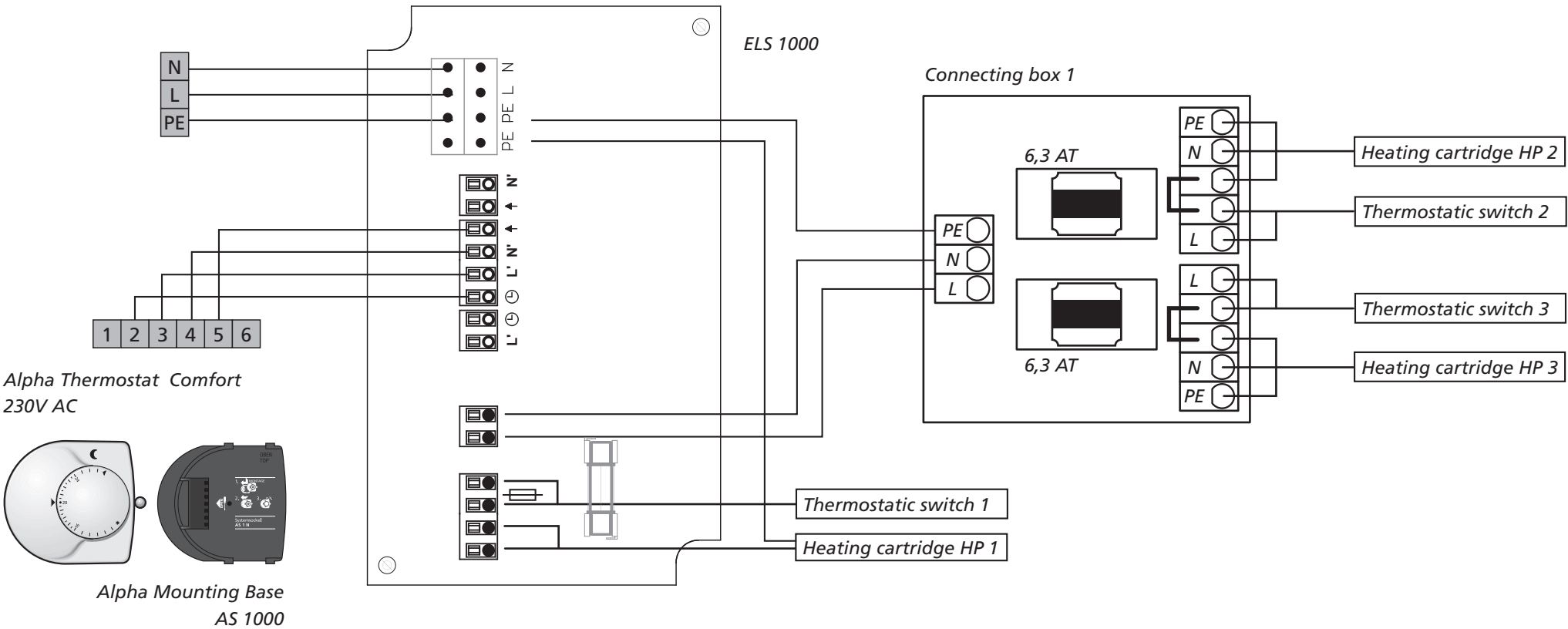
Optional controller for temperature setback without an Alpha-Thermostat Control

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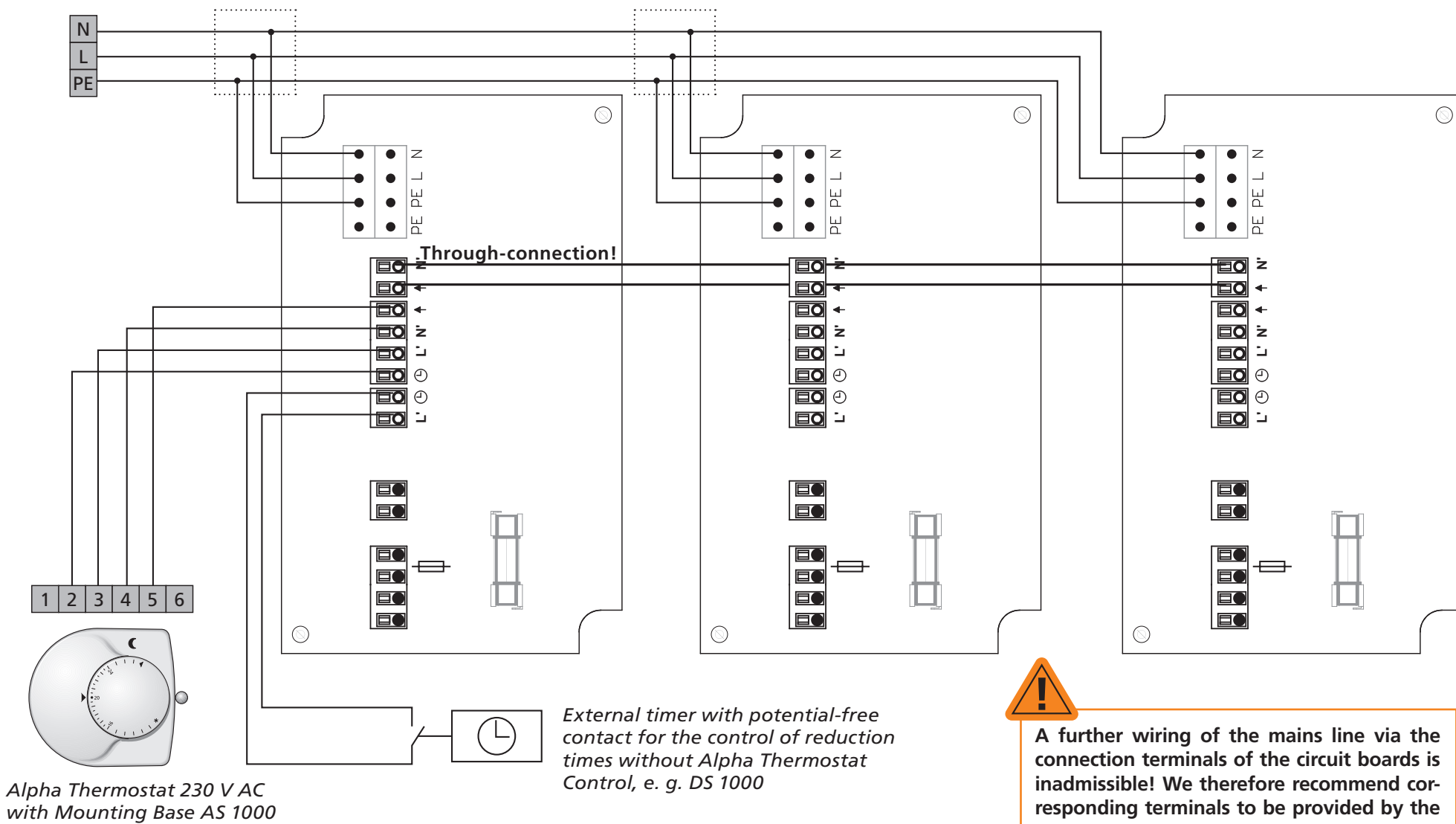
Internal Wiring



Detailed Connection Plan



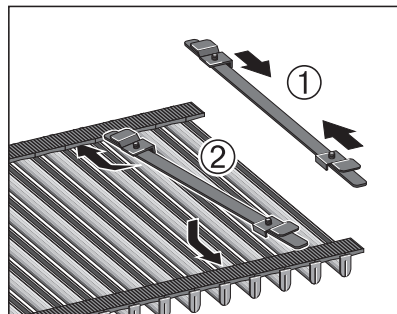
► Connection Plan



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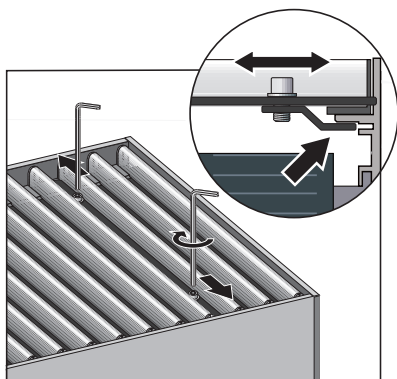
► Designer Grille Roll

Designer grille roll protector



Danger of jamming! Always fix the designer grille roll protector above the convector fan. It serves as a protection against reaching into the fan.

Fit the designer grille roll into the convector trough in a way that a space of the size of a grille rod is over the recess in the side parts of the convector. Insert the protector in a way that its medium part is located above the grille rod connectors (gummed step-on acoustic insulation) and its exterior fixing lugs are located below the grille rod connectors.



Insert the designer grille roll into the system convector trough. Using an Allen key (size 3), push the fixing screws to the outside, and thus, the fixing lugs into the recesses of the side parts. Finally, tighten the screws.

Start-up

► Preparation for Start-up



The ESK cannot be covered by any objects (rugs, furniture, etc.)!
Danger of heat accumulation and damage.

The electrical installation of the entire system, the component of which is the ESK, was completed as described in this manual.

Electric:

- All power cable and control unit connections have been performed by a certified electrical tradesman and comply with all current and valid national standards for electrical devices.
- A check of all the electrical components, including customer specified safety devices, has been successfully performed.

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► Operation/Use

Switch on the electric circuit for the power supply of the ESK.
For AR 20xx-x-S, the desired temperature can be set. Further information can be found in the user manual of the Alpha-Thermostat.

Maintenance

► Maintenance/Cleaning

Cleaning intervals	ESK	Execution: see maintenance and cleaning instructions
	in months	
Cover Grille	6	see point 1
Ventilation duct	6	see point 2
Heat exchanger	12	see point 3



Electrical voltage! Danger to life! Perform all maintenance and cleaning work on system convectors only under absence of voltage, in particular in case of moist or wet cleaning! For this, switch off the corresponding fuse switches of the voltage supply.



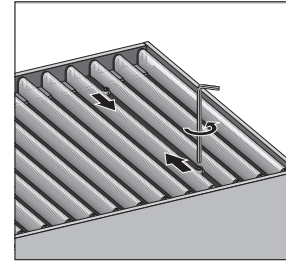
Danger of burns! Be always very careful during maintenance and repair work near the heat exchanger. The heat exchanger can become very hot depending on its state of operation.



Danger of injuries! Ensure during maintenance and cleaning work that no persons or animals step into or enter the open system convectors.

The following procedures (1 –3) can be performed by the end user:

1. Clean the Designer Grille



Dry:

Vacuum the Designer Grille at regular cleaning intervals during normal cleaning.

Wet:

Loosen possible grille protectors with a No. 3 Allen key as shown.

Designer Roll-Up Grille: Roll the cover-grill up without bending or kinking.

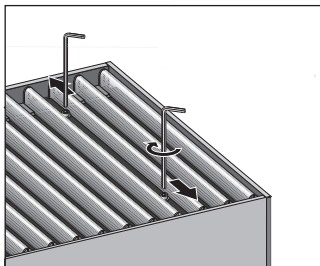
- **Clean in Washing Machine:** The DR is washing machine safe evenly up to a temperature of 60°C with normal (non-industrial strength) dish-washer cleaner. After washing and drying, the grille can be replaced on the convector trough and re-secured.
- **Cleaning without Washing Machine:** Remove the grille from the convector and unroll in a place where it can be cleaned. For cleaning, we recommend normal detergent and, if needed, a soft cleaning brush. After washing and drying, the grille can be replaced on the convector trough and re-secured.

2. Clean the Convector Trough

Remove the Designer Grille and, if needed, the filter. To clean the hand-accessible area of the trough, we recommend a dry dust cloth or broom. Hard to reach places can be cleaned with a vacuum cleaner (a soft brush nozzle can be useful). Difficult to remove dirt can be removed with a moist towel. Replace the filter, if needed, and the Designer Grille.

3. Clean the Heat Exchanger

Remove the Designer Grille. To clean the hand-accessible area of the heat exchanger, we recommend a dry dust cloth or broom. Hard to reach places can be cleaned with a vacuum cleaner equipped with a soft brush nozzle or a soft brush. Replace the filter, if needed, and the Designer Grille.



Danger of injuries! Do not forget to secure the Designer grille roll!

► Declaration of Conformity



The manufacturer declares in sole responsibility that the product ESK complies with all applicable requirements of the guidelines 2004/108/EG and 2006/95/EG.

The following standards were used for the assessment:

- EN 60335-1:2002
- EN 60335-2-30:2003+A1:2004

► Manual storage



All trades participating on the installation, connection and commissioning of the ESK need information from this manual in order to perform their work. Please ensure that the manual is disclosed correspondingly after the termination of the individual parts of the work.

Please give this manual to the later users as a document for revision in the scope of commissioning and hand over of the equipment, because it includes important notes on maintenance and care.

► Technical Support

Technical support

Mo to Thu: 7:30 to 17:00 Uhr
 Fr: 7:30 to 15:00 Uhr
 Service-Telephone: +49 (0) 53 41 8475 - 470
 Service-Fax: +49 (0) 53 41 8475 - 999
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