

## Katherm NE -

Natural convection with electric heating element

Ready-to-install floor ducts with electric heating element

► **Assembly and Installation Manual**

Please retain this manual carefully for future use!



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Genau mein Klima.

# 2.45 Katherm NE - Natural convection with electric heating element

## Ready-to-install floor ducts with electric heating element

### Assembly and Installation Manual

Explanation of symbols:



**Caution! Danger!**

*The non-observance of this information can result in serious injury to persons or property.*



**Danger of electrocution!**

*Non-observance of this information can result in serious damage to persons or property from electrical power.*

**Read this manual carefully prior to assembly and installation work!**

All persons involved in the installation, commissioning and use of this product are obliged to pass this manual on to all persons working simultaneously or subsequently on this equipment, including the end user. Retain this manual until the equipment is ultimately decommissioned!

**We reserve the right to make changes to the content or design without prior notification!**

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### 1. Safety information

Installation, assembly and maintenance of electrical equipment should only be conducted by a qualified electrician (Association of German Electricians approved or similar). Wiring should comply with current Association of German Electricians' (VDE) guidelines and regulations set out by the regional energy supply companies (EVU).

Non-observance of these guidelines and the operating manual can lead to malfunctions with subsequent damage to the equipment and risk of personal injury. Incorrect wiring can result in fatal injury owing to crossed wires!

Prior to all wiring and maintenance work, all parts of the system have to be made voltage-free and prevented from being reconnected accidentally!



Openings to fit a potential compensation cable have already been made on the floor duct.



### 2. Correct and proper use

Kampmann Katherm NE are manufactured in accordance with state-of-the-art and recognised safety regulations. Personal danger or damage to the equipment or other property can be caused if Kampmann Katherm NE are not installed, commissioned and used correctly and properly..

#### **Katherm NE = Natural convection with electric heating element**

Katherm NE (duct height 120 mm) should only be used indoors (for example in residential and office buildings, salesrooms etc.). They cannot be used in damp areas, such as swimming pools or outdoors. The product should be protected from moisture during installation.

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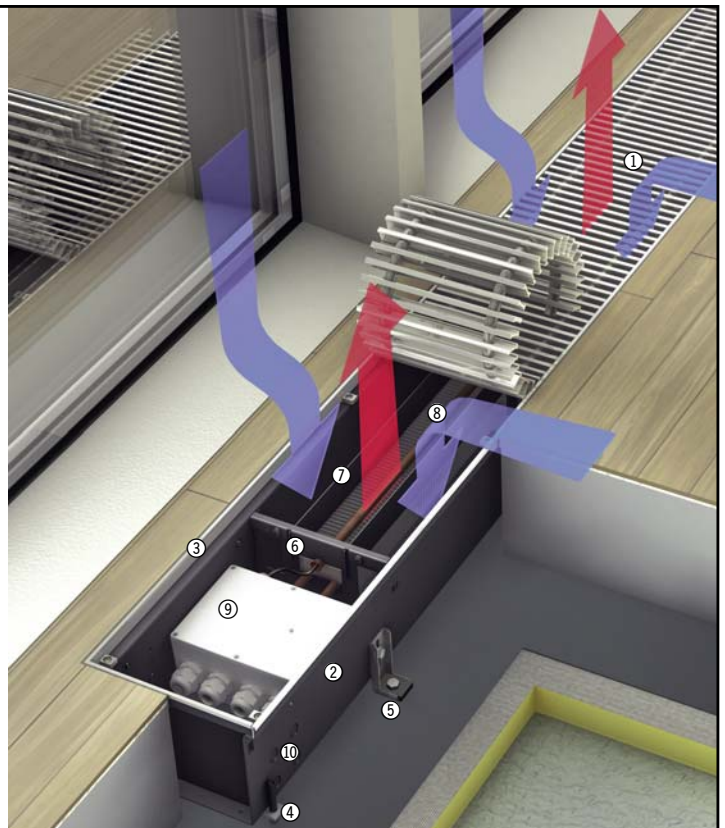
#### Assembly and Installation Manual

In case of doubt discuss the proposed use with the manufacturer. Any other use or any use, other than the aforementioned, will not be deemed to be correct and proper. Any damage resulting from improper use is the sole responsibility of the user/operator of the equipment. Correct and proper use will also be deemed to include observance of all information regarding safety, operation and maintenance/servicing, contained in this manual.

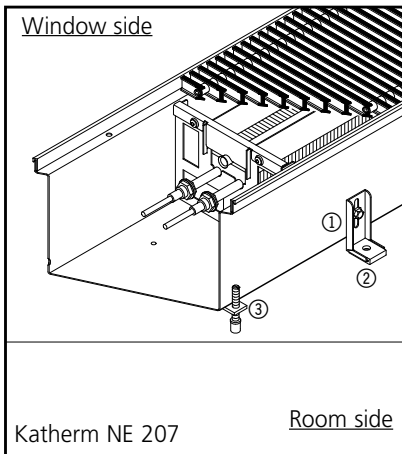
The installation and electrical wiring of this product requires specialist knowledge in the field of heating, cooling and ventilation. This knowledge is generally taught as part of a vocational training course in the aforementioned fields and so is not described separately here. Damage resulting from improper installation is the sole responsibility of the operator.

#### Katherm NE

- ① Roll-up grille
- ② Floor duct, sendzimir galvanised, painted grey
- ③ Frame profile to match grille colour
- ④ Raised floor mounting feet
- ⑤ Height adjustment feet with sound insulation
- ⑥ Steel brackets
- ⑦ Guide wall
- ⑧ Electric heating element
- ⑨ Output controller
- ⑩ Openings for electric connections



Katherm NE 207



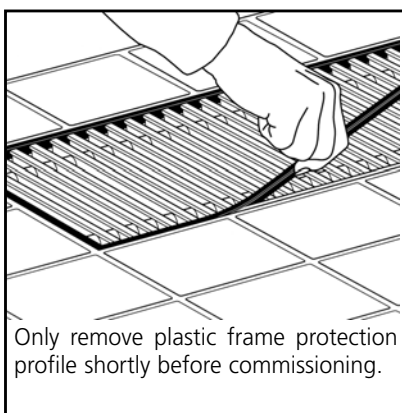
### 3. Models / Scope of delivery

Katherm NE are supplied as standard with:

- Height adjustment feet on the room side, ① with rubber bases for sound insulation ② (with screed); without screws and rawlplugs (by others).
- Raised floor mounting feet with screws for height adjustment ③, with rubber pads for sound insulation.

### 4. Alignment

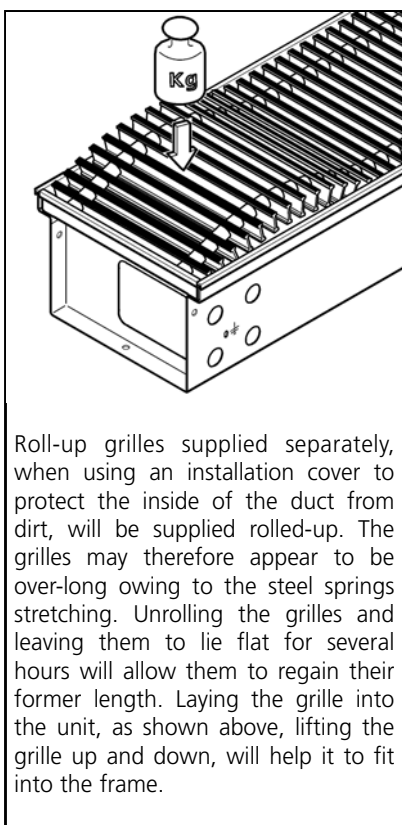
- Remove the outer packaging film and cardboard from the floor duct.
- Position the Katherm NE and adjust the height using the height adjustment feet and adjustment screws.
- Use the openings provided for cable entry.
- Ensure that the installation manual is visible on the floor duct for the electrician and screed layer.
- Cover the grille and floor duct to protect it against dirt or cement.



### 5. Screeding

Prior to commencing screeding, check whether

- the electrical connection has been made correctly,
- the Katherm NE is aligned correctly in terms of height and distance to the window,
- the grille has been covered (Caution! Cement can destroy the surface of the grille!),
- the screed anchoring lugs have been bent outwards (projecting into the screed),
- sound insulation (not with raised floors) has been fitted under the floorduct,
- there are no sound bridges to the concrete slab, especially around the height adjustment feet,
- all openings in the floor duct heaters have been sealed with a suitable material against the ingress of screed.
- The openings and punched holes in the duct required further sealing when using self-levelling floor screeds or other viscous floor coverings.



#### Caution!

- The Katherm NE should not be compressed by screed or by the floor (e.g. parquet).
- Possibly consider fitting expansion joints.

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### 6. Fitting grilles

High surface temperatures can occur on the electric heating element. For this reason additional grille fixings have been factory-fitted on both sides of the duct to prevent the element being touched. The grille can only be removed using a tool. The grille fixing has to be loosened on one side of the duct to allow access for electrical work. Once the electrical work has been completed, the grille fixing should be refitted.

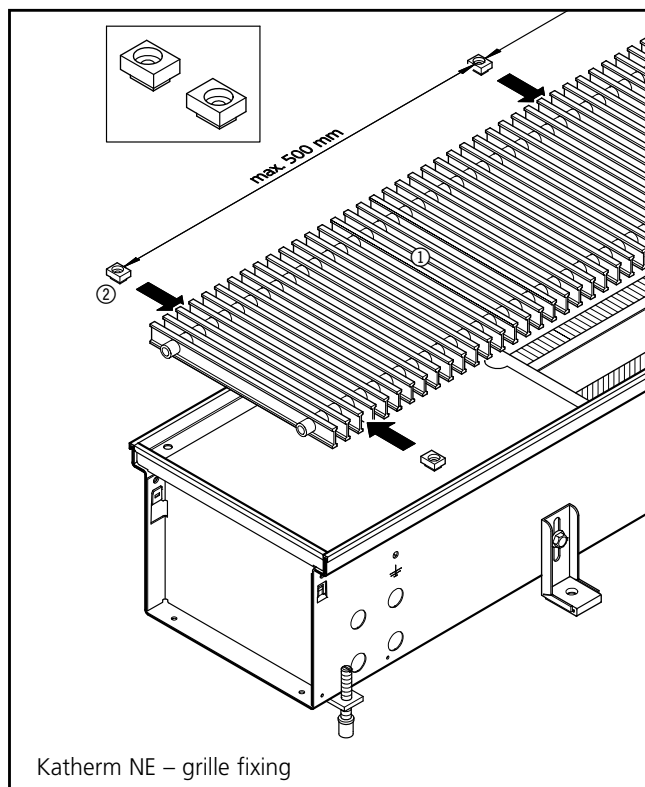
#### Installation cover:



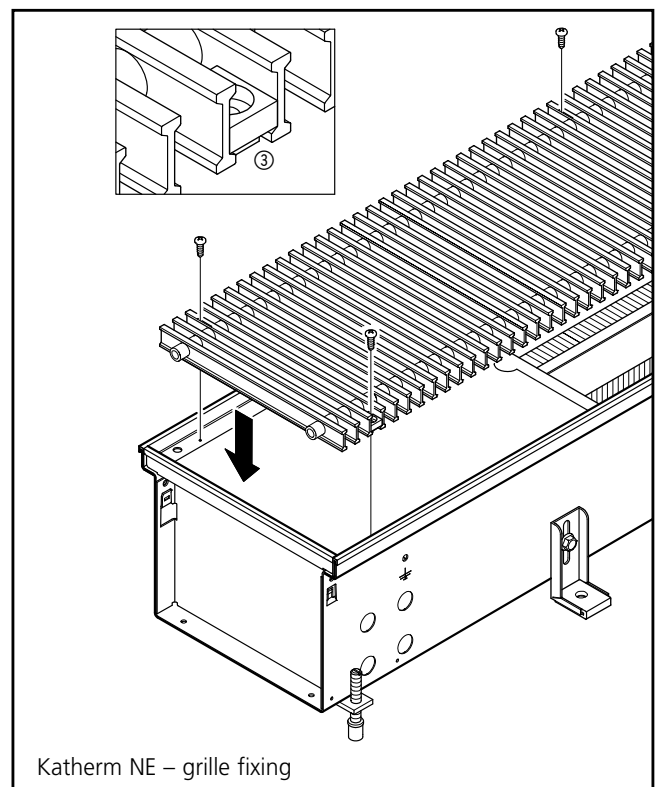
**Caution!** Katherm NE floor duct heaters or the electric heating element itself may not be operated with the installation cover fitted. The grille should be fitted and screwed in place with the grille fixings and self-tapping screws as soon as the installation cover has been removed.



**Caution!** Do not cover the grille during operation of the unit.



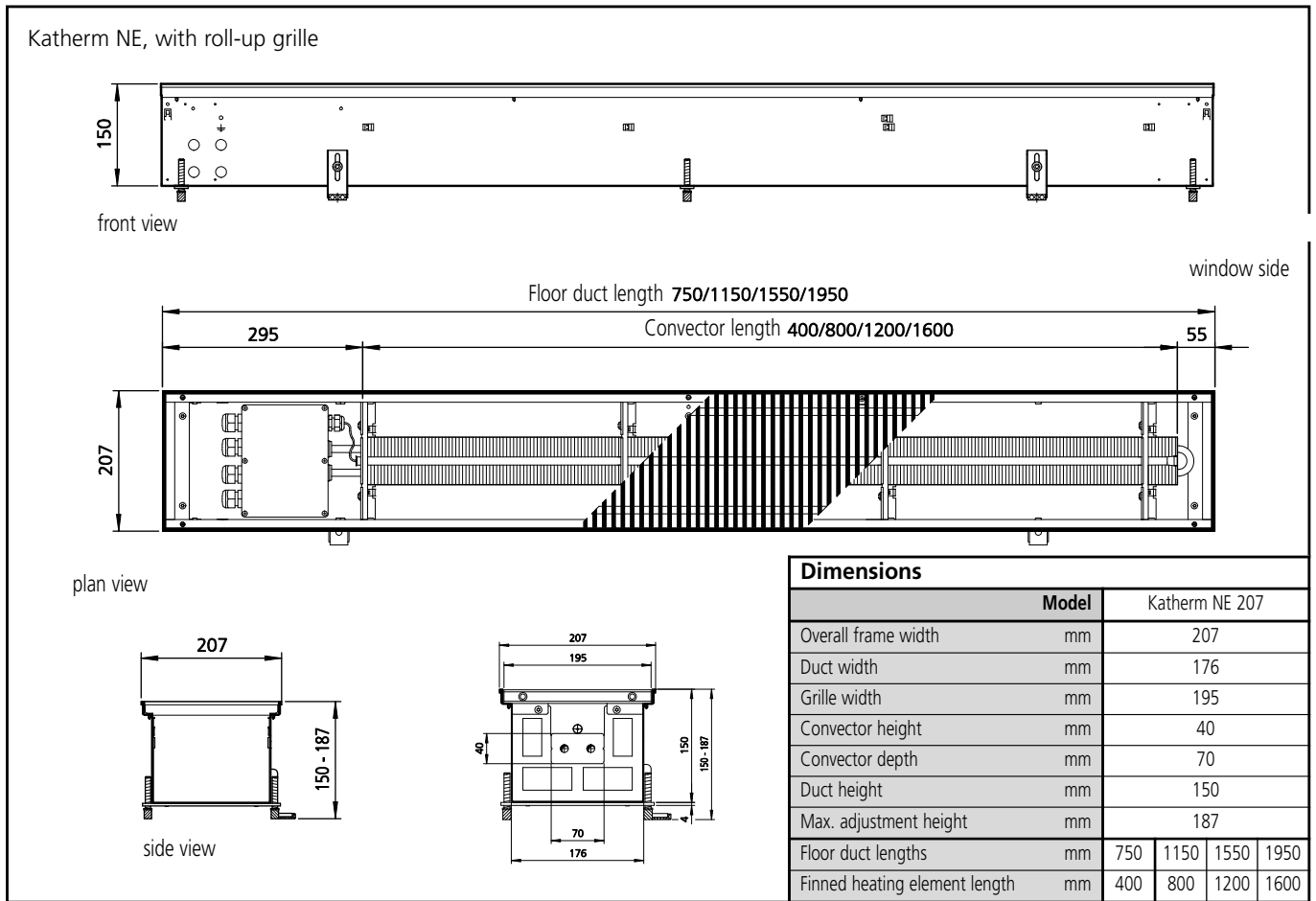
Katherm NE – grille fixing



Katherm NE – grille fixing

- ① Roll-up grille
- ② Grille fixing with self-tapping screws
- ③ Screw grille fixing

### 7. Dimensions • Heat outputs



| Heat outputs                            |                 |
|---|-----------------|
| Model                                   | Katherm NE 207  |
| Duct length K [mm]; NP = standard range | Heat output [W] |
| NP 750                                  | 250             |
| NP 1150                                 | 480             |
| NP 1550                                 | 680             |
| NP 1950                                 | 880             |

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## 8. Wiring

### 8.1 Safety information

The wiring of this product requires specialist knowledge in the field of heating, cooling, ventilation and electrical engineering. This knowledge is generally taught as part of a vocational training course in the aforementioned fields and so is not described separately here.

The installer of this unit should have adequate knowledge about

- Safety and accident prevention regulations
- Guidelines and recognised technical regulations e.g. VDE regulations, - -
- DIN and EN standards
- Accident prevention directives VBG, VBG4, VBG9a
- EN 60730 (Part 1)
- Regional energy supply company technical regulations (TABs)
- DIN VDE 0100, DIN VDE 0105

It is mandatory that the following safety-related information is adhered to prior to working on the controller and the units:

- Disconnect the unit from the mains power supply and ensure that it cannot be reconnected accidentally.
- Wire the unit in accordance with the wiring diagrams supplied.
- Wiring should comply with current Association of German Electricians' (VDE) guidelines and regulations set out by the regional energy supply companies (TABs).
- The unit should only be wired to fixed cables.

### Modifications to the units

Do not undertake any modifications, conversions or additions to the units without consulting the manufacturer, as this would impair the safety and operation of the equipment.

Incorrect wiring or modifications to the unit can result in damage to the unit! The manufacturer cannot be held liable for damage caused by incorrect wiring and/or incorrect installation and operation!

Disregard of the regulations and information contained in the operating manual can cause malfunction of the unit with possible damage to the unit and risk of possible injury. Incorrect wiring and crossed wires can cause fatal injury!



### 8.2 Cabling

- The following information on cable types and cabling must be adhered to in compliance with VDE 0100. Otherwise the correct functioning of the unit cannot be guaranteed and the guarantee will be invalidated.
- Training and operational checks of the unit can be provided by Kampmann technicians or customer service personnel. This should be applied for in writing along with notification of readiness by the contracted installation firm.
- Should the training and functional checks not be able to be fully performed in spite of receipt of notification of readiness (owing to cabling not being laid, power supply to site etc.), then any additional costs incurred will be charged.
- The cross-sections of unshielded cables are not given as the length of cable affects the calculation of the cable cross-section.

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## 9. Controller unit Katherm NE

### 9.1 Electric heating element

Every Katherm NE unit is fitted with an integral output controller for the electric heating element. The heat output is set by an active 0-10 V signal. The heat output of the electric heating element is directly proportional to the 0-10 V signal and is operated by an integral output controller. Room temperature control and the associated 0-10 V signal is provided by a room thermostat or the building management system. Group control of multiple Katherm NE units is possible without further accessories. The connection of the Katherm NE units has to be compliant to VDE 0100 / IEC 60364-1.



The electric heating element is equipped with a safety circuit. If the temperature of the grille surface increases too much, e.g. after covering the grille of the Katherm NE unit, the electric heating element is switched off by a safety temperature limiter. As soon as the temperature decreased below a certain level, the safety temperature limiter switches on the unit again. If the temperature increases further for unknown reasons, the safety temperature limiter switches off and locks. The triggering of the safety temperature limiter can be reported by a potential-free fault alert contact.

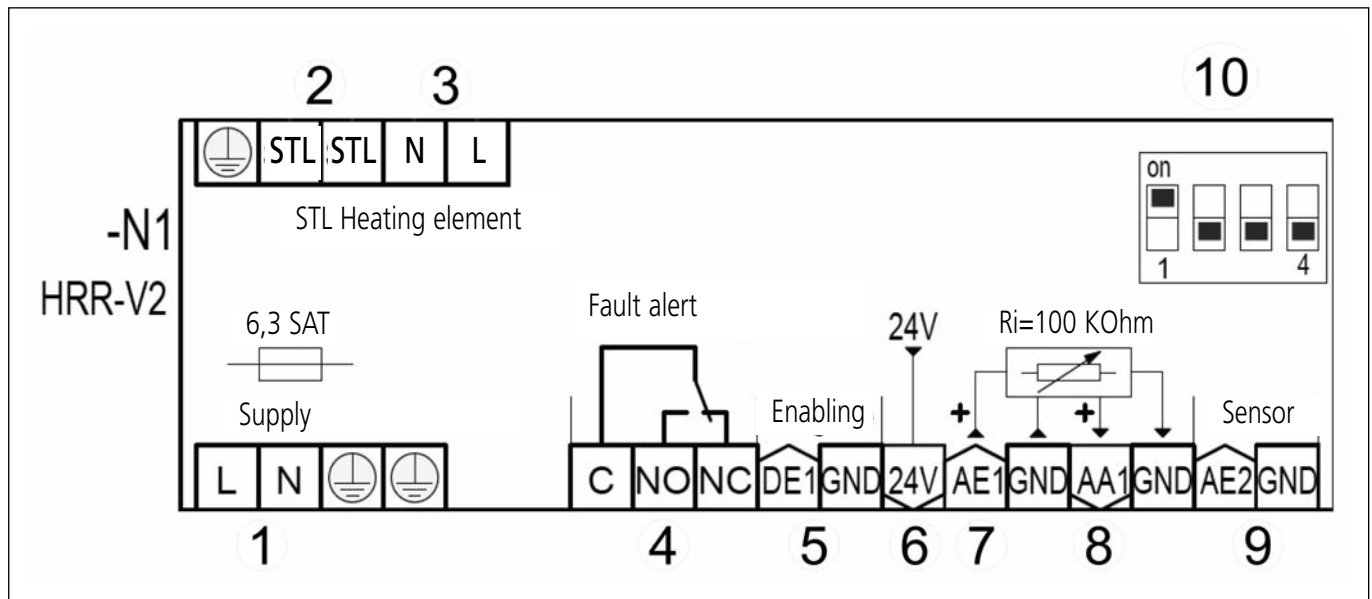
### 9.2 Inputs/Outputs

#### Inputs:

| Title   | Description  |
|---|--|
| Supply voltage                                | power supply 230V / 50 Hz  |
| Control voltage BMS/Thermostat                | Active control signal 0-10 V   |
| Actual room temperature value NTC             | NTC resistor for temperature measurement   |
| Enabling contact                              | Enabling contact (normally open contact), by others<br>Contact open = No enabling<br>Contact closed = Enabling<br>Active signal 24 VDC<br>0V = No enabling<br>24V = Enabling |
| Temperature sensor (STL)+<br>temperature fuse | STL Safety temperature limiter   |

| Title                             | Description   |
|-----------------------------------|---|
| Heating element                   | 230 V max. 880 W                                      |
| Control voltage BMS / Thermostate | Control voltage 0-10V for additional Katherm NE units |
| Fault alert                       | Potential-free fault alert contact 1A 60V             |
| Power supply 24V                  | Power supply 24V DC/GND for additional thermostats    |

### 9.3 Katherm NE control board



- 1: Supply voltage 230 V 50 Hz
- 2: Temperature sensor (safety temperature limiter)
- 3: Electric heating element
- 4: Potential-free fault alert contact 60 V 1A
- 5: Enabling contact
- 6: Power supply 24V DC (Thermostat)
- 7: Control voltage 0-10V (input)
- 8: Control voltage 0-10V (output) for additional Katherm NE units
- 9: Actual room temperature value (NTC)
- 10: DIP switch

### 9.4 DIP Switches

The DIP switches are used for controlling. By switching them it is possible to determine the operation mode of the Katherm NE unit. For operating more than one unit in the same mode it is necessary to set all DIP switches to the same position.

| DIP | Function         | Description   |
|-----|------------------|---|
| 1   | Control function | OFF: Active signal 0-10 V, enabling not required<br>ON: Active signal 0-10 V, enabling required |

### Operating modes:

| Program | DIP 1 | DIP 2 | DIP 3 | DIP 4 | Description   |
|---------|-------|-------|-------|-------|---|
| 1       | ON    | OFF   | OFF   | OFF   | Mode BMS with enabling contact  |
| 2       | OFF   | OFF   | OFF   | OFF   | Mode BMS / thermostat without enabling contact (Enabling internally bypassed) |

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#### **10. Operating modes**

##### **10.1 Operation by an external BMS**

If the units are operated by an external BMS, the BMS has to provide a constant 0-10 V control signal. The heat output of the heating element is directly proportional to the control signal. Furthermore, the Katherm NE unit can be enabled or locked by an enabling signal. When operating more than one unit the control signal and the enabling signal can be connected in parallel. The triggering of the safety temperature limiter can be sent to the BMS by a fault alert contact. Heat output control is only done by the BMS and the control signal has to be set depending on the deviation.



Refer to the wiring diagram for the electrical connection.

### 10.2 Operation by a thermostat

The room temperature is measured by an internal temperature sensor of the thermostat. In case of a deviation from the actual value to the set value the controller changes the control voltage continuously between 0-10V (max. 5mA per output). The heat output of the electrical heating element is proportional to the control voltage of the thermostat. The thermostat has to be provided with a 24V AC/DC power supply. The control range is between 5 and 30°C.



Type 146928



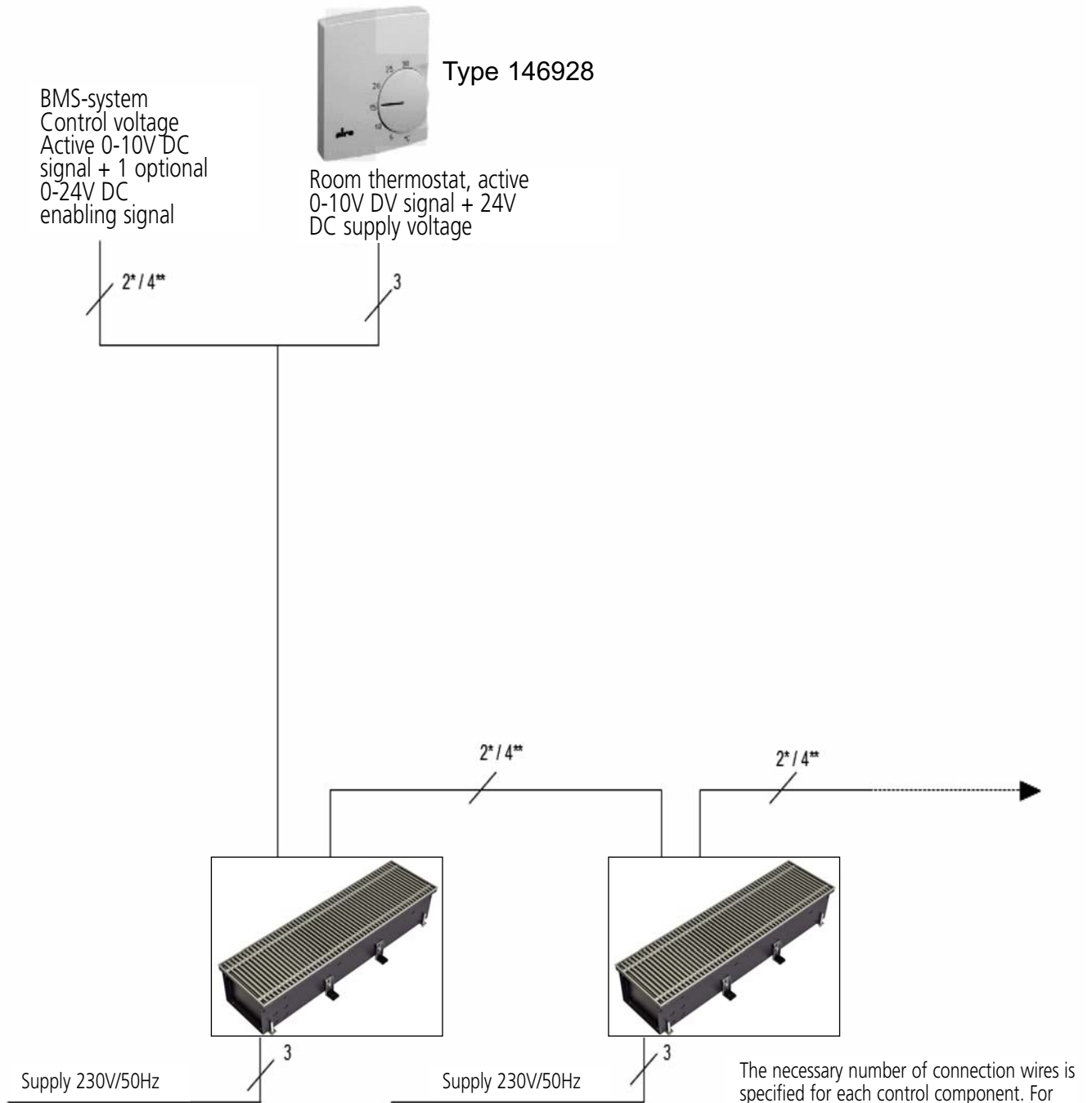
Refer to the wiring diagram for the electrical connection.

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#### 10.3 Connection schematic of the operation modes



+ Only one active 0-10V DC signal  
++ One active 0-10V DC signal + 0-24V DC enabling signal

The necessary number of connection wires is specified for each control component. For the supply voltages the specified number includes the ground wire.  
Max. 5 Katherm NE units can be connected in one control zone if the units are operated by a room thermostat Type 146928.  
If the units are operated by an external BMS, the max. number of Katherm NE units per control zone depends on the output power of the external BMS signal.

### 11. Faults

In case of the triggering of the safety temperature limiter the Katherm NE unit is switched off and the fault alert contact is activated.

| Fault                            | Action   | Possible cause  |
|----------------------------------|--|---|
| Safety temperature limiter (STL) | <ul style="list-style-type: none"><li>• Katherm NE unit is turned off</li><li>• Fault alert contact is triggered</li></ul> | <ul style="list-style-type: none"><li>• Katherm NE unit is covered</li><li>• Electrical heating element is faulty</li></ul> |

[Kampmann.co.uk/katherm\\_ne](http://Kampmann.co.uk/katherm_ne)

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