



Katherm QK nano

Ultra-small trench heater with EC tangential fan

▶ **Assembly and installation instructions**

Keep these instructions in a safe place for future use!

4.42 Katherm QK nano – Ultra-small trench heater with EC tangential fan Ready-to-install convector-based floor trenches

Assembly and installation instructions

Key to symbols:



Caution! Danger!

Non-compliance with this information can lead to serious personal injuries or damage to property.



Danger from electrocution!

Non-compliance with this information can lead to serious personal injuries or damage to property by electrocution.

Carefully read these instructions in full prior to any assembly and installation work!

Anyone involved with the installation, commissioning and use of this product is obliged to pass these instructions on to trades people who are involved at the same time or subsequently, as well as to end users or operators. Retain these instructions until final decommissioning!

We reserve the right to make content or design-related changes without prior notice!

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1. Intended use

Kampmann **Katherm** QK nano 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 unit or other material property if they are not properly installed or properly used.

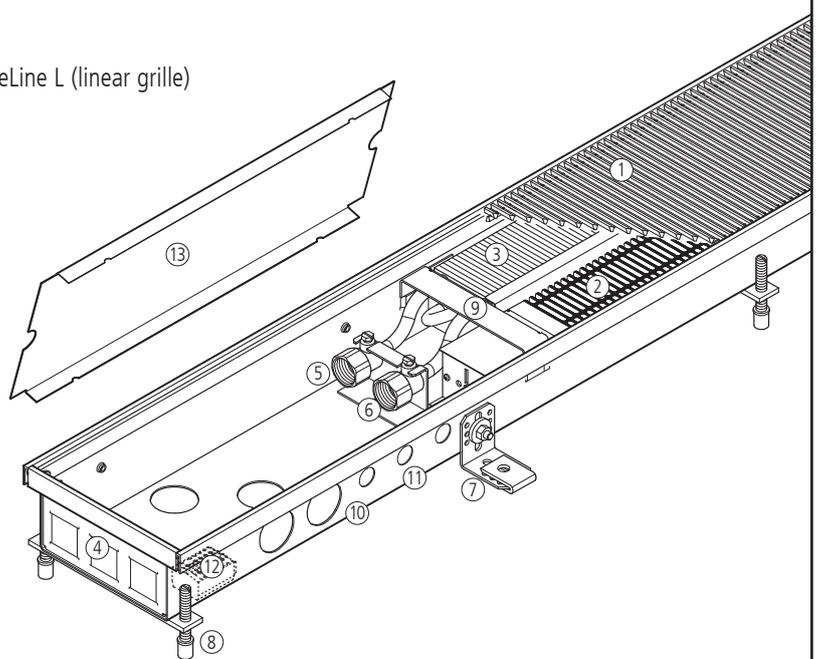
Katherm QK nano are solely intended for use indoors (e.g. residential and commercial properties, showrooms etc.). They are not suitable for use in humid environments, such as swimming pools or outdoors. Protect the products from any moisture during installation. Check the intended use with the manufacturer 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 compliance with the installation instructions described in these instructions.

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

Important: The grilles can be walked on. However, avoid point loads (for instance caused by chair legs) as they can result in permanent damage to the grille.

Katherm QK nano

- ① FineLine Q grille (orthogonal grille) or alternatively FineLine L (linear grille)
- ② EC tangential fan
- ③ Cu/Al heat exchanger
- ④ Floor trench
- ⑤ Supply, 1/2" female
- ⑥ Return, 1/2" female
- ⑦ Height adjustment feet with sound insulation
- ⑧ Raised floor feet with sound insulation
- ⑨ Cross bracing
- ⑩ Water pipe opening
- ⑪ Cable openings
- ⑫ 24 V terminal strip
- ⑬ Junction box cover



Caution: Do not remove bracing

Example: **Katherm** QK nano, 24V model

Limits of operation and use

Limits of operation		
Min./max. water temperature	°C (°F)	15-90 (59-194)
Min./max. air intake temperature	°C (°F)	15-40 (59-104)
Min./max. air humidity	%	15-75
Max. operating pressure	bar (psi)	10 (145)
Min./max. glycol percentage	%	25-50

The following values provide further guidance.

The water used should be free of contamination, such as suspended substances and reactive substances.

Water quality		
pH value*1		8-9
Conductivity*1	µS/cm	< 700
Oxygen content (O ₂)	mg/l	< 0.1
Hardness	°dH	4-8.5
Sulphur ions (S)		not measurable
Sodium ions (Na ⁺)	mg/l	< 100
Iron ions (Fe ²⁺ , Fe ³⁺)	mg/l	< 0.1
Manganese ions (Mn ²⁺)	mg/l	< 0.05
Ammonia ions (NH ⁴⁺)	mg/l	< 0.1
Chlorine ions (Cl)	mg/l	< 100
CO ₂	ppm	< 50
Sulphate ions (SO ₄ ²⁻)	mg/l	< 50
Nitrite ions (NO ₂ ⁻)	mg/l	< 50
Nitrate ions (NO ₃ ⁻)	mg/l	< 50

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2. Safety Information

Only allow a qualified electrician to perform installation, assembly and maintenance work on electrical units in compliance with NEC guidelines. Wiring should comply with the applicable NEC 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. There is a danger of fatal injury caused by wires being swapped due to incorrect wiring! Disconnect all parts of the system from the mains power supply and prevent them from being reconnected before starting any connection and maintenance work! The unit should only be connected to fixed cabling.

Please read this manual in full to ensure correct and proper installation.

Please note the following safety-relevant information:

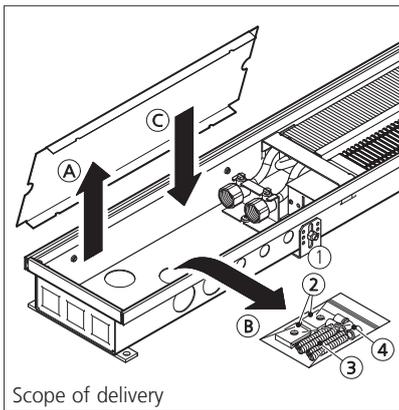
- Disconnect all parts of the system that are being worked on.
- Ensure that the system cannot be accidentally re-connected!
- Before commencing installation/maintenance work, wait until the fan has come to a standstill after the unit has been switched off.
- Caution! Pipes, casings and fittings can become very hot depending on the operating mode!
- Qualified personnel must have undergone training to provide them with adequate knowledge of the following:
- Safety and accident prevention regulations
- Guidelines and recognised technical regulations, i.e. National Electric Code (NEC)
- CSA and UL
- Technical wiring regulations issued by the regional electricity providers

Modifications to the unit

Do not undertake any modifications or upgrades on Katherm QK nano without discussing them with the manufacturer as they can impair the safety and operation of the unit. Do not carry out any measures on the unit not described in this manual. Make sure that on-site systems and cabling are suitable for connection to the intended system!

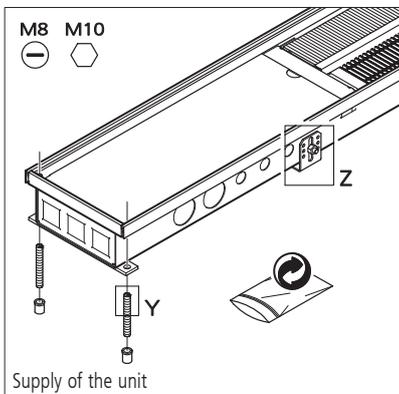


The floor duct has openings provided for the installation of a potential compensation line.

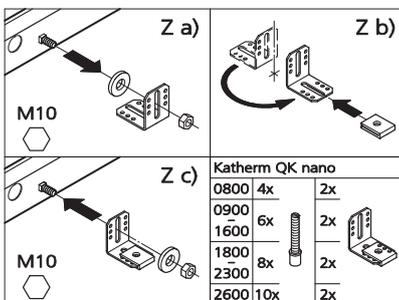
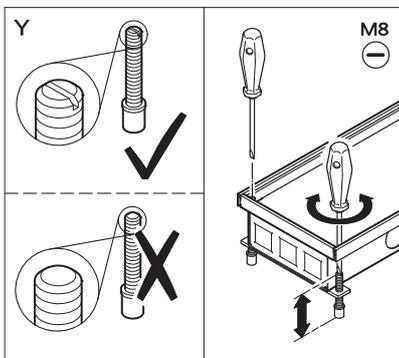


Scope of delivery

Example shown: **Katherm QK nano**, 24V model



Supply of the unit



3. Scope of delivery

Trench heaters are delivered as standard with:

- Height adjustment feet ① with rubber pads for acoustic decoupling ②, screws and rawplugs to be provided on site
- Raised floor feet with plastic cap for acoustic decoupling ③, ④

4. Levelling

- Remove the outer film and the packaging.
- Flap open the transparent protective cover.
- **Caution:** Do not remove bracing during installation and operation.
- Arrange the Katherm QK nano with the convector on the window side.
- **Caution:** The height adjustment feet are already fitted to the floor trench. They are fixed the wrong way round for transport reasons. To install and adjust the height of the trench, loosen the outer fixing nuts on the adjustment feet and turn the height adjustment feet 180° so that the foot is pointing outwards (see Fig.)
- Then level the trench heater and adjust the height using the adjustment feet and adjustment screws on the raised floor brackets ③.
- Please take care that the floor trench is installed in straight alignment and is not twisted. Otherwise it will not be possible to lay a rigid grille (e.g. the FineLine grille) flat into the trench.
- Use screws and dowels to fix the height-adjustment feet ① with rubber pads.

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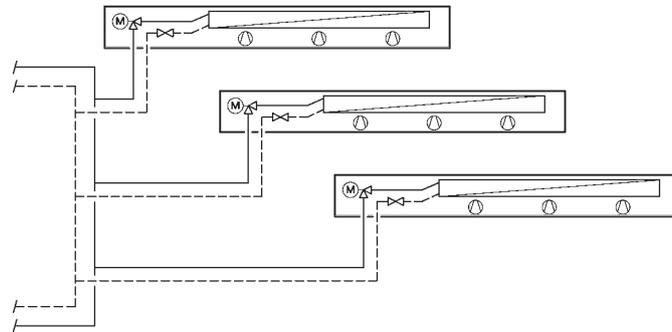
Assembly and installation instructions

5. Water connections

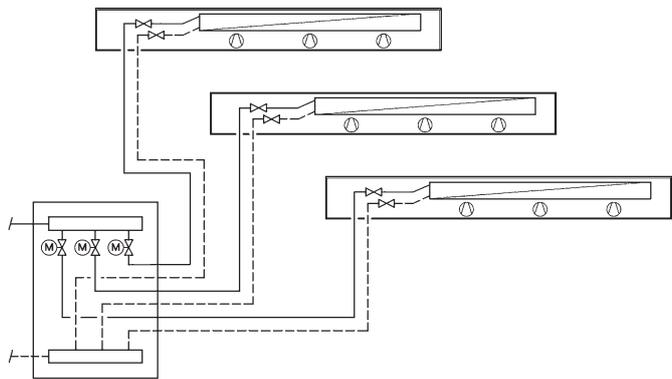
- Use the pipe openings for the water-side connection. Screw the connecting accessories until tight onto the convector connections.
- Then fit the flow and return pipes.
- Perform a pressure test.
- Adhere these installation instructions very visibly to the trench heater for subsequent trades.
- Cover the grille and trench with the installation cover to protect it from dirt or cement.

Caution: Grilles can be walked upon. However, avoid point loads (e.g. chair legs)!

Hydraulic set-up options

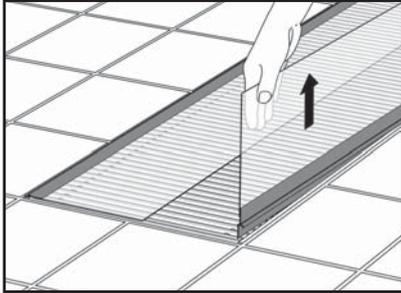


Decentralised valve control



Central heating circuit distributor

6. Screed works



Dust and protective cover:
(Remove the transparent dust and protective cover before commissioning the unit)

Before commencing screeding, check whether

- the water connection has been correctly done,
- the electrical connection has been correctly done,
- the height and distance of the trench from the window is correct,
- the grille is covered (Caution! Cement destroys the surface of the grille!),
- sound insulation (not with raised floors) is fitted underneath the trench heater,
- there are no sound bridges to the concrete slab, especially close to the height-adjustment feet,
- appropriate materials have been used to seal all openings and punched openings in the trench heater from the ingress of screed.
- the openings and punched openings on the trench are sealed when using screed or other low-viscosity floor coverings.

Caution: Do not allow screed or the floor to compress the floor trench. Provide expansion joints if necessary.

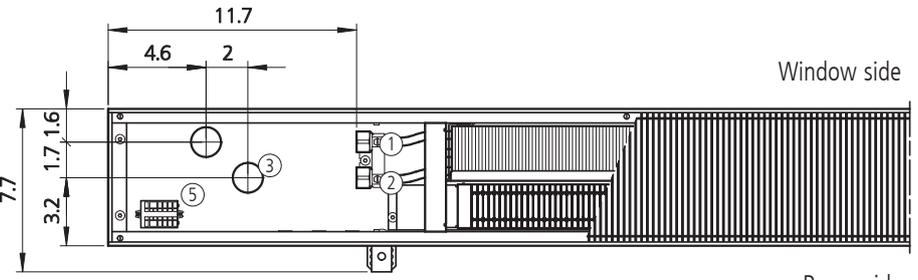
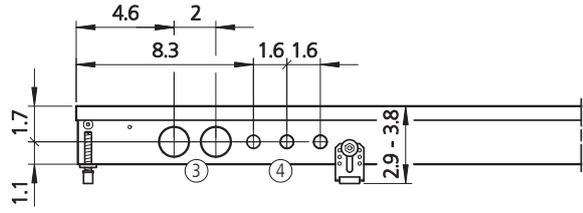
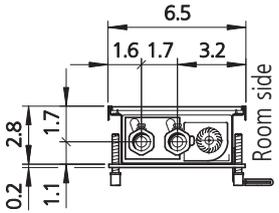
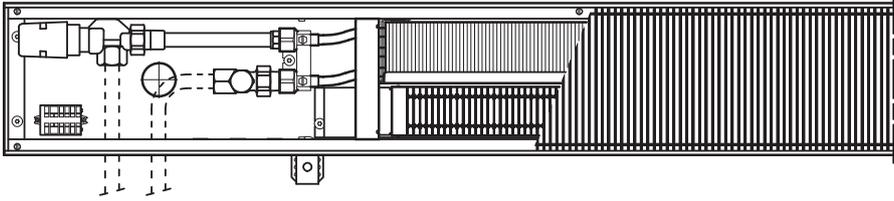
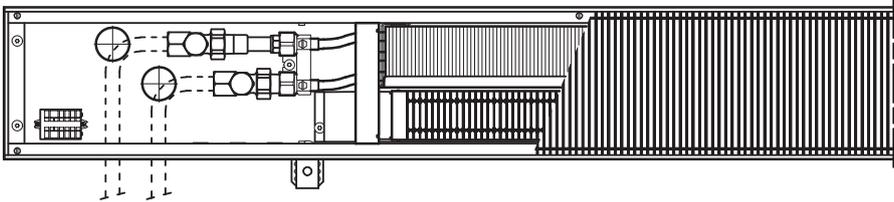
4.42 Katherm QK nano – Ultra-small trench heater with EC tangential fan

Ready-to-install convector-based floor trenches

Assembly and installation instructions

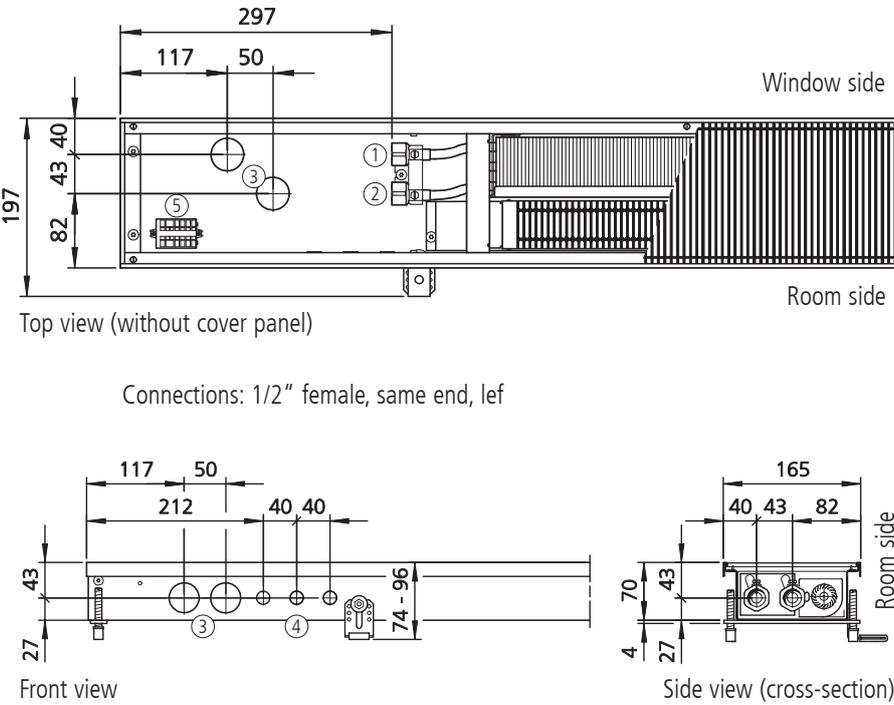
7. Connection openings Pipe openings

Katherm QK nano, 24 V electromechanical model (dimensions in inch)

Model	Room-side connection
<p>Katherm QK nano, 24 V electromechanical</p> <ul style="list-style-type: none"> ① Supply ② Return ③ Pipe openings ④ Cable openings ⑤ Terminal strip 	<div style="text-align: right; margin-bottom: 10px;">Window side</div>  <p style="text-align: center;">Top view (without cover panel)</p> <p style="text-align: center;">Connections: 1/2" female, same end, left</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p style="text-align: center;">Front view</p> </div> <div style="text-align: center;">  <p style="text-align: center;">Side view (cross-section)</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p style="text-align: center;">Example shown: Valve control in trench with valve kit type 442100.</p> </div> <div style="text-align: center; margin-top: 20px;">  <p style="text-align: center;">Example shown: Valve control via central heating circuit distributor, connection kit type 442101 used to shut off the convector.</p> </div>

7. Connection openings Pipe openings

Katherm QK nano, 24 V electromechanical model (dimensions in mm)

Model	Room-side connection
<p>Katherm QK nano, 24 V electromechanical</p> <ul style="list-style-type: none"> ① Supply ② Return ③ Pipe openings ④ Cable openings ⑤ Terminal strip 	 <p>Top view (without cover panel)</p> <p>Connections: 1/2" female, same end, left</p> <p>Front view</p> <p>Side view (cross-section)</p> <p>Example shown: Valve control in trench with valve kit type 442100.</p> <p>Example shown: Valve control via central heating circuit distributor, connection kit type 442101 used to shut off the convector.</p>

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8. Number of height-adjustment feet and raised floor feet

Trench length		Number of	
[mm]	[inch]	Height adjustment feet	Raised floor height adjustment feet
900	35.4	2	3
1400	55.1	2	3
1800	70.9	2	4
2100	82.7	2	4
2600	102.4	2	5

9. Maintenance

Notes

Maintenance of the **Katherm** QK nano trench heater should only be carried out by qualified personnel trained in compliance with the installation and operating instructions as well as any regulations currently in force. Regularly maintain and inspect **Katherm** QK nano units to ensure their proper function and performance.

Fan

- Inspect the tangential fans every 6 months for dirt and damage (visual inspection).
- Clean the fan shafts carefully with a cloth if dirty.

Convector

- Inspect the integral convector every 6 months for dirt and possible damage. Visual inspection is sufficient here too.
- Carefully vacuum the convector if dirty.

Valves

- Inspect the valves every 12 months and check that they are leak-tight (visual inspection)!

10. Electrical wiring

Personnel:

- Installation personnel
- Qualified electrician

Protective equipment:

- Safety shoes
- Protective gloves
- Workwear



Only allow qualified electricians to perform electrical work. Further connections, for instance to building control systems or external controllers, may be necessary. Refer to the manufacturer's literature in this respect.

- Wire the unit in accordance with the enclosed wiring diagram.
- Only wire the unit in accordance with currently applicable NEC guidelines, as well as Technical Wiring Regulations stipulated by the regional energy supply companies.
- Only connect the unit to fixed cables.



Important note:

Provide an all-pole mains separator in the wiring 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 Kampmann wiring diagrams. These must be provided additionally when installing the system and when connecting the units in accordance with the NEC and the regulations of each of the respective energy supply companies.

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Assembly and installation instructions

10.1 Overview of controls



The unit is available in a series of different electrical versions. Connect the unit via a terminal strip in the electrical junction box, located on the side of the unit's water connection. Wire the unit as per the wiring diagram, which is different for each version.

Model	Art. no. suffix
24 V electromechanical	_24

Example of 24 V electromechanical:
44217072211124

Ask a qualified electrician to determine the type of cable and cable cross-sections: the cable cross sections basically depend on the fuses for the cable length and the wiring capacity of the electric motors on site.

Lay control lines separately from supply lines.
Use CAT5 (AWG 23) or similar as data cables.
Wire the unit in series: star cabling is not allowed.

Electrical power consumption

Unit length	[mm]	900	1400	1800	2100	2600
	[inch]	35.4	55.1	70.9	82.7	102.4
Power consumption	[W]	5	6	7	8	12

10.2 24 V electromechanical electrical model

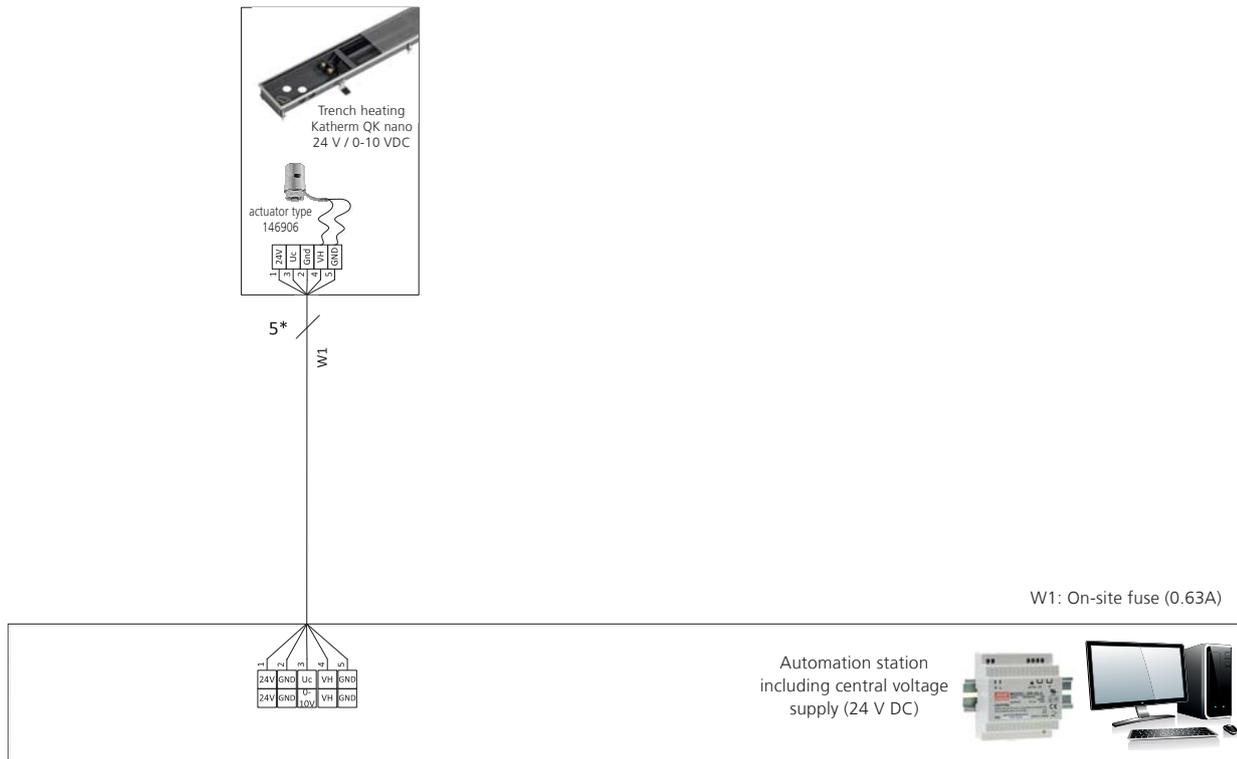
Product features

The operating voltage must be provided by a central on-site 24 V DC voltage supply.

Kampmann offers a range of switching power units in different output classes as accessories for the voltage supply (24 V DC).

The fan automatically switches off in the event of a motor fault.

Cabling - BMS control



* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.

W1: Voltage supply and control signal for fan and actuator. Fuse for fan 0.63 A.

Subject to technical modifications: Refer to the control accessory documentation in the event of deviation from the circuit diagrams!

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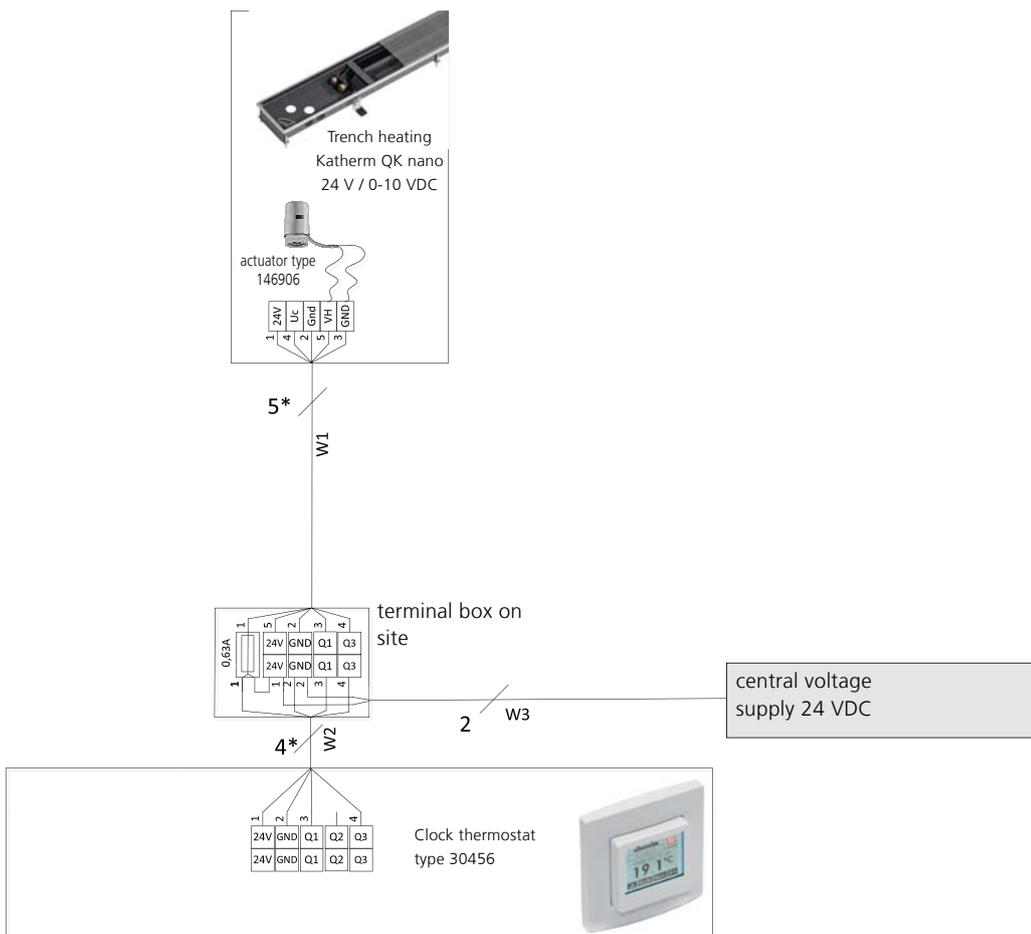
Fig.: Clock thermostat

The clock thermostat 30456 permits the operation and temperature control of 24 V electromechanical **Katherm** QK nano units.

The room temperature is set by sensor-controlled functional keys.

Complete with 10-stage fan speed adjustment in manual and automatic operating mode, including automatic summer/winter changeover and a day or week program.

Cabling - Clock thermostat control, type 30456



* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.

W1: Voltage supply and control signal for fan (On-site fuse 0,63A) and actuator.

W2: Voltage supply and control signal for fan and actuator.

W3: Voltage supply (On-site fuse)

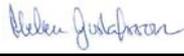


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Address: Friedrich-Ebert-Str. 128-130 49811 Lingen	Address: Friedrich-Ebert-Str. 128-130 49811 Lingen
Country: Germany	Country: Germany
Party Authorized To Apply Mark: Same as Manufacturer	
Report Issuing Office: Intertek Deutschland GmbH, Kaufbeuren	

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Standard(s):	Heating and Cooling Equipment>Valid without technical revision: 01Jan2024< [UL 1995:2015 Ed.5+R:17Aug2018]
Product:	Heating And Cooling Equipment [CSA C22.2#236:2015 Ed.5] Trench Heating / Cooling convectors
Brand Name:	
Models:	Katherm QK may be followed by nano; followed by one to four numbers; followed by 24; followed by three numbers; followed by /; followed by three numbers; followed by /; followed by two to five numbers; followed by R-Rost, L- Rost; followed by one to three numbers; followed by alu. natur elox, steel, wood or brass. Katherm HK may be followed by 2-Lt., 4-Lt.; followed by 24; followed by three numbers; followed by /; followed by three numbers; followed by /; followed by two to five numbers; followed by R-Rost, L- Rost; followed by one to three numbers; followed by alu. natur elox, steel, wood or brass. Baseboard HK. Baseboard QK.



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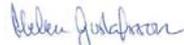


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Address: Friedrich-Ebert-Str. 128-130 49811 Lingen	Address: ul. Lotnicza 21f 99-100 Łęczycza
Country: Germany	Country: Poland
Party Authorized To Apply Mark: Same as Manufacturer	
Report Issuing Office: Intertek Deutschland GmbH, Kaufbeuren	

Control Number: 5017050 **Authorized by:** 
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Product:	Heating And Cooling Equipment [CSA C22.2#236:2015 Ed.5] Trench Heating / Cooling convectors
Brand Name:	
Models:	Katherm QK may be followed by nano; followed by one to four numbers; followed by 24; followed by three numbers; followed by /; followed by three numbers; followed by /; followed by two to five numbers; followed by R-Rost, L- Rost; followed by one to three numbers; followed by alu. natur elox, steel, wood or brass. Katherm HK may be followed by 2-Lt., 4-Lt.; followed by 24; followed by three numbers; followed by /; followed by three numbers; followed by /; followed by two to five numbers; followed by R-Rost, L- Rost; followed by one to three numbers; followed by alu. natur elox, steel, wood or brass. Baseboard HK. Baseboard QK.



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