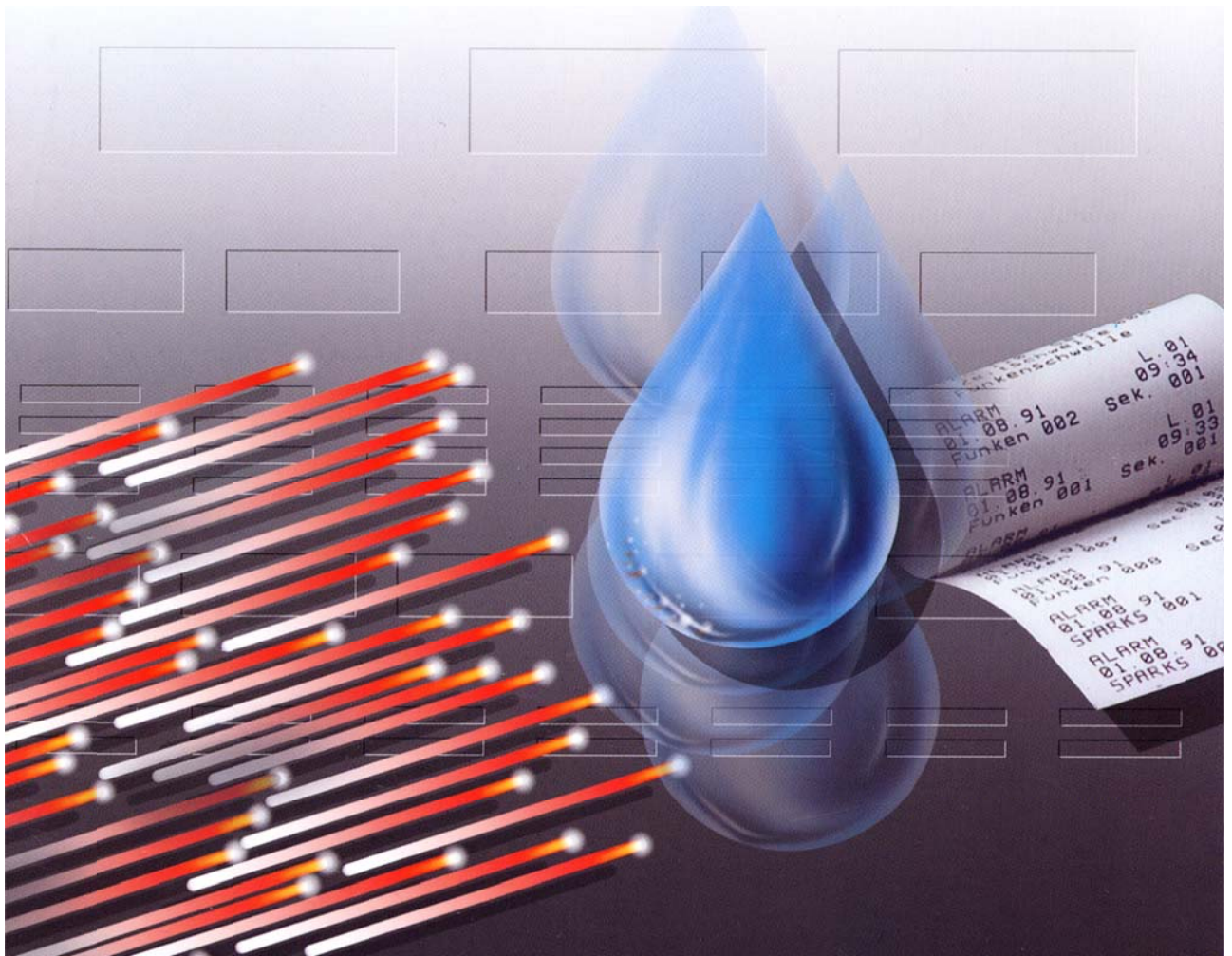


Spark detection and extinguishment system

Trace Heating Type Series HÜ 7000

Instruction Manual



GreCon

Imprint:

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Original operating manual [de]

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1 Conventions

1.1 After-sales service

Our personal customer support is at your service for any questions related to:

- ✓ Spare parts ordering
- ✓ Support contracts
- ✓ Maintenance contracts
- ✓ System training
- ✓ General technical questions

at the following telephone numbers:



+49 (0) 5181-79-0



+49 (0) 5181-79-446



service@grecon.de

Competent staff for our various service areas can be found at:



http://www.grecon.de/grecon_support_de.php

1.2 Scope and Target Group

This manual applies to the construction elements for the protection of the components of a spark extinguishment system against frost damage.

In addition, pay attention to the documentation of the other components of your spark extinguishment system.

This manual is intended for persons who install, operate and maintain the product.

The operating personnel must be trained by a GreCon technician.

1.3 Symbols used in the manual



Danger

Means that death or severe bodily injury could occur if the corresponding safety measures are not taken.



Warning

Means that injuries can occur if the corresponding protective measures are not taken.



Caution

Means that there can be damage to the product if the corresponding protective measures are not taken.



Note

Shows important information about the product, the handling of the product or the relevant part of the documentation that must be paid particular attention.

2 Safety

2.1 Basic Rules for Safety-Conscious Working

2.1.1 Documentation

Always keep the documentation near the machine.

2.1.2 Operation

The spark detection and extinguishment system may only be operated by personnel that were trained when the system was installed.

2.1.3 Specifications

During all work the local regulations (e.g. of supply companies) have to be observed.

2.1.4 Production Stop

Assembly, maintenance and replacement of components may only be carried out with the production plant switched off.

2.1.5 Safety at Work

If you have to mount ladders or working platforms to carry out the work, do not forget to protect yourself from falling.

2.2 Plant Safety

2.2.1 Technical personnel

Installation, maintenance and upkeep work may only be carried out by trained technical personnel from the corresponding discipline.

2.2.2 Start up

The spark extinguishment system may only be started up by a GreCon service technician or by personnel authorised by GreCon.

2.2.3 Plant Care

GreCon spark detection and extinguishment systems are part of the safety system. Operate the spark extinguishing system only in a technically impeccable condition.

The German association of insurance companies (VdS) prescribes that the spark detection and extinguishment system must be serviced at least once a year by an approved company. If the system is installed in a dirty environment or if it is exposed to big forces the intervals have to be shortened.

Disturbances have to be removed immediately after their occurrence. If you cannot eliminate the malfunction by yourself, please contact our service department or your nearest GreCon office.

2.2.4 Selection of the Installation Sites

The installation sites must be chosen so that they comply with the technical requirements and are easily accessible for subsequent maintenance work. (see VDS Directive 2106 Edition 5/2003, Paragraphs 3.2 and 4.8). Compliance is required with the conditions according to the technical data.

2.3 Dedicated use

Trace heating systems may be operated only in GreCon spark extinguishment systems according to the technical specifications in this operating manual. Use of the components specified in this operating manual differently from that described in the technical data will be considered to be not in keeping with intended purpose.

Use approved heat tape only. Only use the heat tape with metal pipes.

The electrical connection and terminal connection of the heat tape must be made with GreCon accessories according to this operating manual. Ignoring this will render all warranty claims null and void.

GreCon insulating bags have been designed for GreCon extinguishment devices.

Do not make any unauthorised changes or modifications. The manufacturer does not accept any liability for any resultant damage or adverse impact on the function.

The manufacturer rejects all liability for damage that is caused by usage not in conformity with intended purpose.

Dedicated use includes observing the instructions given in the manual.

2.4 Disposal

When disposing of the device, please comply with the local regulations applicable to you. Contact the trash disposal agency responsible for you or your area.

Keep the following points in mind:

- The device may not be disposed of with the household trash. When disposing of the device or the individual components, compliance is required with the regional, national and international regulations.
- The device can contain harmful substances. Electrical parts (PCBs, power supplies, transformers, coils, cables and plugs) must be handed over for recycling after dismantling.
- After the dismantling, all the metal parts must be separated by type and handed over for recycling.
- The device or its individual components must be handed over to a recognised trash disposal agency for disposal.

The data in this description is based on our current knowledge and experiences. They do not release the disposing entity from the responsibility of compliance with the regulations and laws that apply at the time of disposal.

3 Description

3.1 Description of the function

The trace heating secures the operational readiness of the extinguishing water pipes and automatic extinguishers in frost-endangered environments.

Function list:

- Depiction of the operational state of the trace heating through visual signal devices in the housing door.
- Depiction of the operational state of the individual heating lines through visual signal devices in the housing door.
- Visual and acoustic warning signals in case of faults.
- Monitoring the operational readiness of the heat tapes for wire fracture or short-circuit.
- Outer temperature-driven switching on and off of the load circuit of the heat tapes.
- Optimising the energy requirement for the heating output through the use of self-regulating heat tapes.
- Protection of the heat tapes against overheating.
- Forwarding the operational state to a spark detection control console (optional).

The heat tape monitoring is set in operation with a key switch. From that moment onwards, all the functions of the heat tape monitoring are active. If the plant is set in operation in such a manner, the thermostat takes over the outer temperature-dependent control of the load circuit of the heat tapes. If the temperatures are such that there is no danger of frost, the load circuit is switched off. If the ambient temperature drops below the value set at the thermostat, the load circuit is switched on. Now the heat tapes get heated. For resource-conserving use, the heat tapes do not heat over the entire length with the same energy. Where it becomes colder, more heat is output than at places with a higher temperature. Thanks to this self-regulation, additionally, overheating of the heat tape is avoided even if heat tapes are overlapping or touching one another.



Note

To complete the frost-protection measures, the pipes must be additionally insulated. The insulation must be projected and installed at the site.

With insulated extinguishing water pipes, the temperature of the heat tape and hence, the heating output depends on the temperature inside the insulation.

The generated heating energy is not monitored. As described, the heat output at every point can be different and can therefore not be determined at all, or can only be determined with great effort.

If the heat tape monitoring detects a fault, the fault lamp on the heat tape monitoring glows, and the signal hooter of the heat tape monitoring sounds. If the heat tape monitoring is connected to a spark detection control console, it shows the fault message "Fault- heat tape".

If the safety of the entire system is to be increased, an optional second thermostat of the version "Heat tape switching on" can be installed. It can take over the function of the first thermostat if the latter fails.

**Note**

If two thermostats of the "heat tape switching on" version are used, it must be ensured that both are installed in the same environment so that they return identical values.

A thermostat of the type "frost warning" is available as an option and signals a trouble message to the control console when the heat tape monitor is switched off. The trouble message indicates that there is danger of frost and that the heat tape monitor has to be switched on.

The automatic extinguishers are protected from frost damage with insulating bags that are easy to install. These insulating bags can be easily removed and thus secure access to the automatic extinguishers for maintenance work.

3.2 Individual Components of a Trace Heating

Insulating bag



Heat tape



Connection fittings

for connecting the heat tape to the heat tape monitoring;



Holding strap



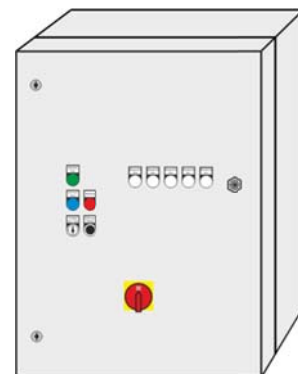
Caution

Do not use any fixing tape with softeners.



Heat tape monitoring

Example of the wall housing



Thermostat

Version heat tape switching on



4 Technical Data

4.1 Heat tape

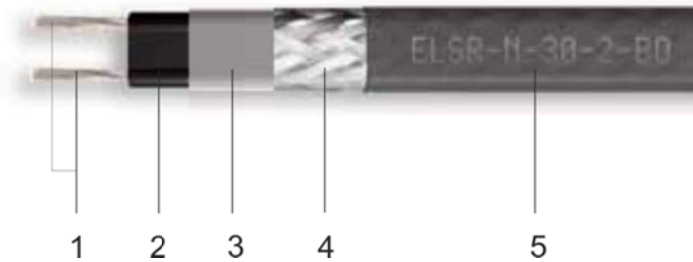


fig. 1: Heat tape

- 1 Supply wire
- 2 Self-regulating heating element
- 3 Insulating envelope of the heating element
- 4 Protective braiding, Cu tin-plated
- 5 Outer jacket

Material of the outer jacket:	TPE-O (Thermoplastic Elastomer on olefin base
Material of the supply conductor:.....	Cu, galvanised
Mains voltage:	230 V
Fuse:.....	16 A slow-blow (C-characteristic)
Rated heating output:	10 W / m at 10 °C ambient temperature
Ambient temperature:	switched off max. 80 °C
	switched on max. 65 °C
Laying temperature:.....	-45 °C to +60 °C
Bending radius:.....	min. 25 mm
Cross-section of the main wire:	2 x 1.23 mm ²
Outer dimensions:	14.1mm x 5.8 mm
Weight:	108 g/m
Length per heating line:	max. 150 m
Labelling:	none
Ambient temperature, storage:	min. -20 °C, max. +60 °C
Relative humidity:	0-95%, non-condensing



Caution

If dry storage is not possible, the heat tape must be sealed with end seals.

4.2 Connection Set



fig. 2: Connection set

- 1 Connection box
- 2 Silicon paste for watertight assembly of the rubber insulation and the plastic pipes
- 3 Insulation of the protective conductors (braid of the heat tape)
- 4 Cable gland for the voltage supply or the signal feedback.
- 5 Plastic pipe as end-seals for storage or prolonged work interruption
- 6 Cable glands for the heat tape
- 7 Cable end sleeves, 2 pieces for the heat tape, 1 piece for the braid, 1 piece for the voltage supply or the signal feedback
- 8 Rubber insulation for the supply wires of the heat tape



Note

When using the Grecon heat tape monitoring, 2 connection sets per heating line are required. If the heating line is laid piecemeal, additional connection sets will be required according to the interruptions.

4.3 Heat tape monitoring

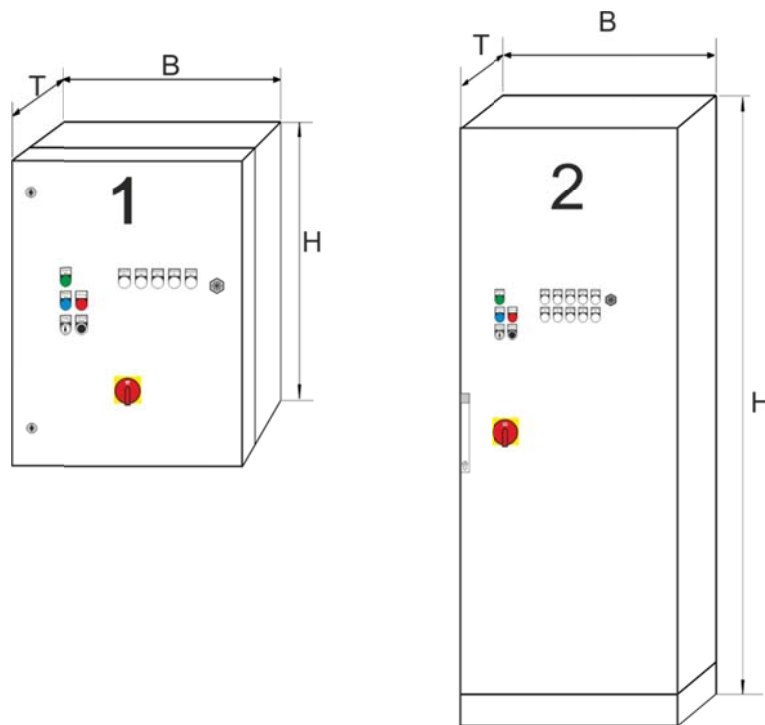


fig. 3: Heat tape monitoring

Type of the base version	HÜ 7001	HÜ 7005	HÜ 7010
Number of heating lines	max. 1	max. 5	max. 10
System is expandable	Yes, to max. 5 heating lines	no	Yes, to max. 15 heating lines
Dimensions (H x B x T)	800 x 600 x 300	800 x 600 x 300	2200 x 800 x 600
Weight	approx. 40 kg	approx. 45 kg	approx. 210 kg
Power drawn max.	1.5 kW	7.5 kW	15 kW
Operating voltage	230 V at 47-63 Hz	400 V at 47-63 Hz	400 V at 47-63 Hz
Fuses, load circuit	32 A	32 A	32 A
Fuses, control circuit	2 A	2 A	2 A
Protection class	IP 55	IP 55	IP 55
Housing type	1	1	2

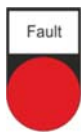
4.3.1 Operating elements and display elements



Glows when the system is switched on.



Always glows when the key switch is in the 'System off' position.



Fault indication
Glows during faulty operation of one or more heat tapes.



Key switch for switching ON / OFF the monitoring circuits.



Reset key
Key for resetting a fault indication. When this key is pressed after elimination of a fault, the hooter goes silent and the red fault indication goes off. If the cause of the fault has not yet been eliminated when this key is pressed, only the hooter goes silent. The fault indication continues to glow.



Glows when the corresponding heat tape is operating without any trouble. The key switch has to be in the System ON position.
If there is a fault at the corresponding heat tape, this display goes off.



The hooter sounds when there is a fault at one or more heat tapes.
The hooter can be reset with the Reset button.



Main switch for rendering the heat tape monitoring free of electrical energy.

4.4 Thermostat

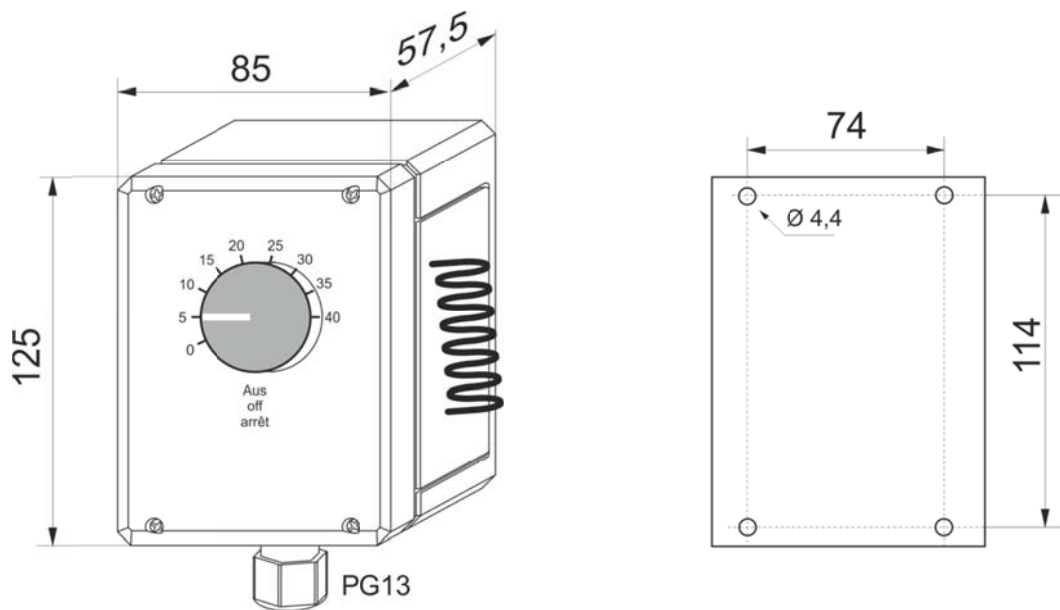


fig. 4: Thermostat

Ambient temperature:	-20 °C to +50 °C
Adjusting range:	0 to + 40°C
Standard setting:	+ 5°C
Switching difference:	approx. 1.5 K
Switching accuracy:	± 2 K at 40 °C ± 4 k at 0 °C
Contact type:	Toggling contact
Switching capacity, resistive load:	terminals 1-3: 16 A 250 V AC 10 A 400 V AC Terminals 1-2: 8 A 250 V AC 4 A 400 V AC
Degree of protection:	IP 54
Protection class:	I according to EN 60730
Resistance to:	sea air, vapours containing ammonia
Weight:	approx. 310 g
Usage as:	Thermostat, heat tape switching on Thermostat frost warning

4.5 Insulating bag

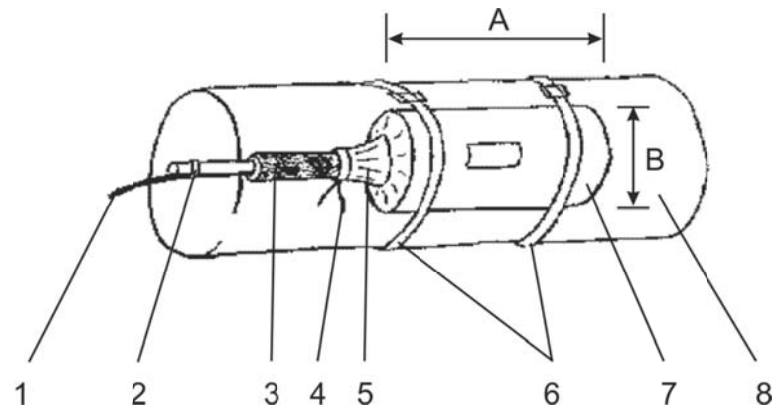


fig. 5: Insulating bag

1	Heat tape	5	Overlap
2	Holding strap	6	Holding belt
3	Permanent insulation	7	Insulating bag
4	Holding strap	8	Pipe
A	approx. 800 mm (LS1) / approx. 1000 mm (LS2)	B	270mm

Ambient temperature max. 260°C

Material.....	PTFE-coated glass fabric
Material thickness.....	10 mm
Water inlet	left/ right
Length of a fastening belt	4 m
Length of the overlap	120 mm
Labelling	none

4.6 EC Declaration of Conformity



697352

Declaration of Conformity CE

Product designation: Spark extinguishing system
 Type: BS 7
 External certification authority: TÜV Nord Cert 0044
 VdS

We herewith confirm compliance with the essential protection requirements specified in the following guidelines of the council for adaptation of the legal regulations of the member states:

- Electromagnetic compatibility 2004/108/EC
- Low voltage directive 2006/95/EC
- Equipment and protective systems in potentially explosive atmospheres 94/9/EC

The following harmonised standards were applied:

- DIN EN 61000-3-2:2006 DIN EN 61000-6-2:2006 DIN EN 61000-6-4:2007
- DIN EN 61140:2007
- EN 13463-1:2009 DIN EN 60079-0:2009 DIN IEC 60079-31:2009
- DIN EN 61241-0:2007 DIN EN 61241-1:2005

The following national standards and technical specifications were applied:

- VDE 0100 VdS CEA 4033:2007-10 DIN EN 61508-3:2001

This declaration applies to all specimens, the construction of which is identical to the construction stipulated in the system documentation. This declaration is made on responsibility of the manufacturer:

Fagus GreCon Greten GmbH & Co. KG
Hannoversche Str. 58
D-31061 Alfeld

issued by:
 Mr. Kai Greten
 (Managing Director)

Mr. Michael Stets
 (Authorized Document Responsible)

Alfeld 16.07.2012
 Legally valid signature:
 (Managing Director)

FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS GRECON FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN	FUGUS GRECON ALFELD FUGUS GRECON GRETEN FUGUS GRECON HILFINGEN
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5 Installation

5.1 Unpacking

Using the delivery note of the freight forwarder, check whether all listed items have been supplied.

Unpack all the equipment in clean surroundings. As far as possible, preserve the packaging for subsequent use.

Remove the documentation in the packaging and preserve it carefully.

Check the devices carefully for signs of damage.

If items are missing or damaged, notify either the freight forwarder, GreCon or the GreCon representative responsible for you.

All the important components have a serial number.

If there are any deviations, inform GreCon or the GreCon representative responsible for you.

If the machines or parts have to be stored till installation, ensure suitable storage conditions.

5.2 Mounting instructions

5.2.1 General Instructions

- The heat tape is to be handled carefully. When cutting the heat tape, the desired length of the heat tape should be uncoiled from the roller. The heat tape must not be pulled off the roll in any case.

**Caution**

There must not be any large tensile forces acting on the heat tape.

- Unevenness like sharp burr or the like must be removed from the surface to be heated. Alternatively, sharp edges, e.g. the tips of threads, can be cushioned with a thick layer of fastening tape to protect the heat tape.
- Clean and de-grease the surface of the areas to be heated.
- To prevent the penetration of heat insulation material between the heat tape and the surface to be heated, the heat tape must be covered with the fastening tape over its entire length.
- The fixing tape must not contain any softener.
- If a heat insulation with sheet jacket is used, an insulation sleeve gland should be used as protection of the heat tape from mechanical damage.
- Care must be taken without fail that the maximum permissible ambient temperatures of the heat tapes are not exceeded.

**Caution**

The maximum ambient temperature can be exceeded even solely by sunlight on an uninsulated heat tape.

- For extending the heat tape or when making the transition from a heat tape to conductor cores, GreCon connection technology (connection set) must always be used.
- The heat tape must be protected against the penetration of moisture.

**Caution**

If a heating line cannot be completed till the end of work, the heat tape end must be sealed with an end seal.

5.2.2 Diagram of Plant

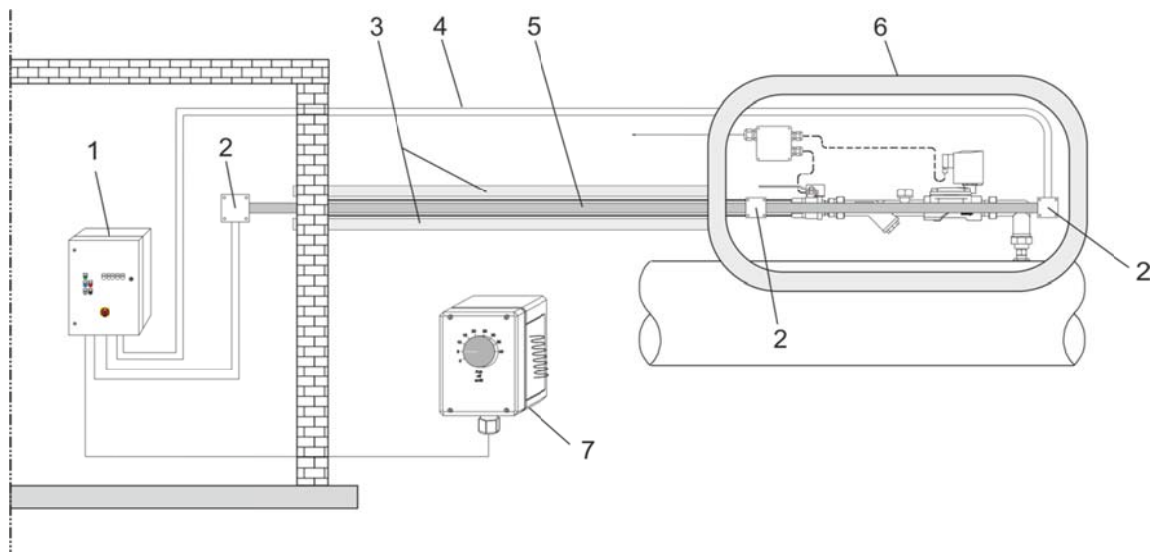


fig. 6: Diagram of Plant

- 1 Heat tape monitoring
- 2 Terminal box of a connection set
- 3 Insulation of the piping
- 4 Return pipes
- 5 Heat tape
- 6 Insulating bag
- 7 Thermostat

- The terminal box of the first connection set of a heat tape must be located within the building.
- The terminal box of the last connection set of a heat tape must be located within the insulating bag.
- The thermostat must not be exposed to outer influences such as direct sunlight or wind and has to be mounted outside the building at a representative place.

5.2.3 Distribution of the heat tape over the periphery of the pipe

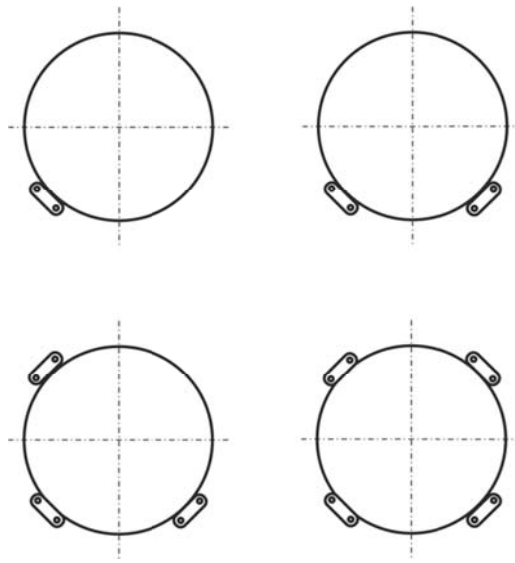


fig. 7: One or more heat tapes on the periphery of the pipe

5.2.4 Laying the heat tape in the vicinity of pipe joints



Note

Lay the heat tape in several coils around the pipe joint.

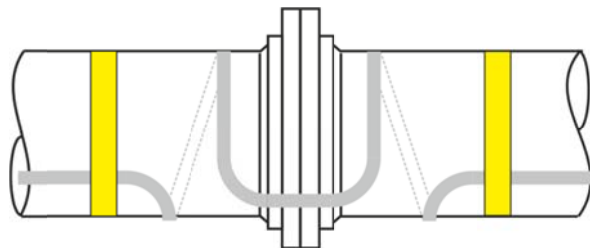


fig. 8: Guiding the heat tape around threaded joints

5.2.5 Laying the heat tape when the pipe is horizontal



Note

For optimum heat transfer, it is necessary that the heat tape should be in direct contact with the pipe. Therefore, an additional strip of the aluminium fastening tape must be glued in the longitudinal direction over the entire length of the heat tape.

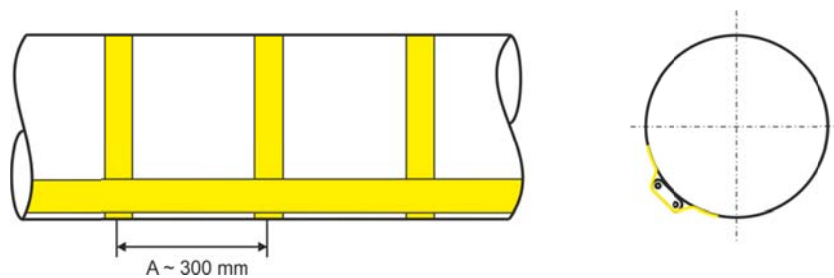


fig. 9: Distance of the fastening tapes to one another and position of the heat tape

5.2.6 Laying the heat tape at pipe bends



Note

Lay the heat tape on the outer side of the pipe bend. Pay attention to the minimum bending radius.

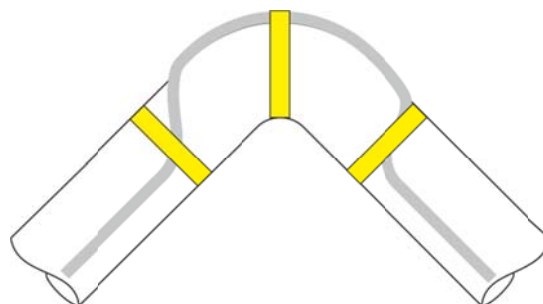


fig. 10: Guiding the heat tape at pipe bends

5.2.7 Laying the heat tape in the vicinity of pipe bearings



Caution

The heat tape may not be clamped between the pipe bearing and the pipe.

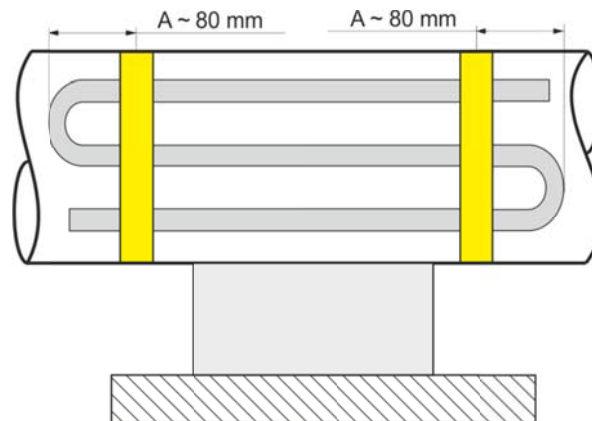


fig. 11: Guiding the heat tape in the vicinity of pipe bearings

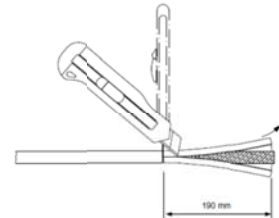
5.3 Installation of the connection set



Caution

The supply wires of the heat tape may not be connected with one another.

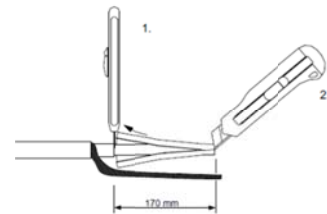
- Cut the outer insulation of the heat tape in the peripheral and longitudinal direction.
- Remove the outer insulation.



Caution

When doing so, do not damage the protective conductor braiding.

- Widen the protective conductor braiding and pull the heating pipe through it.
- Stretch, but do not twist, the protective conductor braiding.
- Just like the first step, remove the grey insulation of the heating conductor



Expose the supply wire and remove the heating matrix.

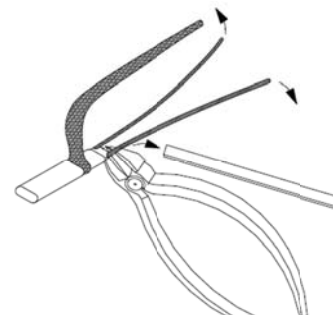
Method 1

- On the outer sides of the heating element, expose the supply wire by shaving off the insulation with a knife.
- Pull the supply wire from the heating element with pliers.
- Shorten the heating element with pliers.

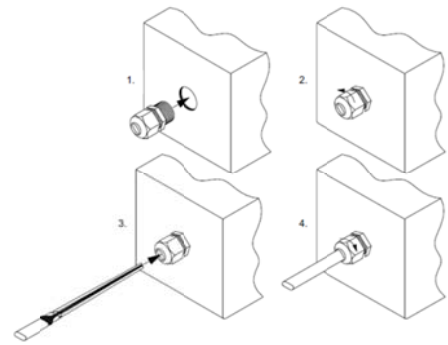


Method 2 (no diagram):

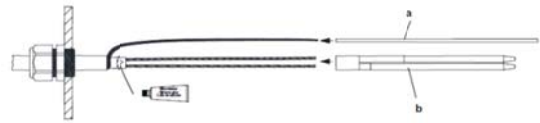
- Using a knife, cut the heating element between the supply wires lateral to the longitudinal direction.
- Warm up the heating element with a hot air blower and pull it off the supply wires.



Fit the cable gland as shown in the pictures alongside.



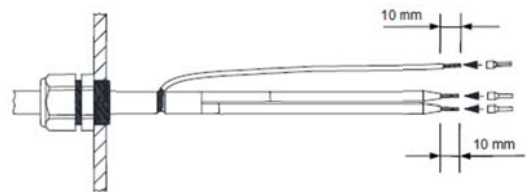
Rubber insulation (a) for the supply wires and the insulation (b) for the protective conductor braiding.



Caution

Do not forget the silicon paste.

Fit end sleeves.



5.4 Insulation of the piping

Piping heated with heat tape must always be protected with insulation. The insulation must be applied till up to the main inlet valves of the automatic extinguishers. GreCon insulating bags are to be used for the insulation of the automatic extinguisher.



Note

Pipe insulation is to be projected, planned and applied at the site.

5.5 Mounting of the insulating bag

For using insulating bags for extinguishment devices exposed to frost, the following instructions must be observed right from the time of running the extinguishment water pipes:

- The extinguishing water pipe must be led straight over a length of about 900 mm at the extinguishing point (where the extinguishing nozzle is fitted), so that the insulating bag fits without difficulty. The extinguishing water pipe must be horizontal and parallel to the piping in this section.
- The place where the automatic extinguisher is fitted must be easily accessible to simply inspection of the extinguishing nozzle and on the insulating bag.

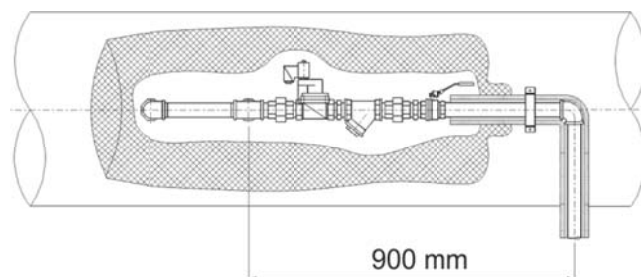
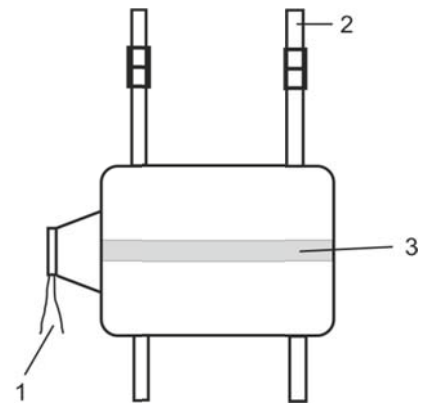


fig. 12: Automatic extinguisher in insulating bag

5.5.1 Fitting the insulating bag

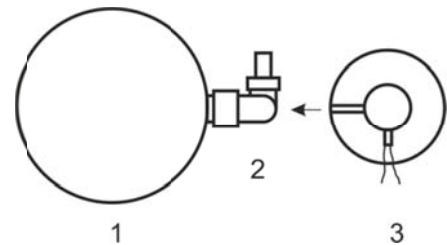
- Loosen the zips at the side opening of the insulating bag and the fastening strap at the overlap.

- 1 *Fastening strap*
- 2 *Fastening belt*
- 3 *Overlap for transition to the fixed insulation*



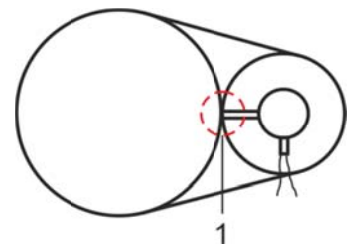
- Push the bag from the side onto the automatic extinguisher.

- 1 *Pipe*
- 2 *Extinguishment device*
- 3 *Insulating bag*



- Fasten the insulating bag with both the fastening belts to the pipe.

Tighten the belt to such an extent that the insulating bag fits closely on the pipe in the zone of the contact point (1).



- Push the overlapping at the water inlet over the fixed insulation and tighten with the fastening strap.

6 Start up

6.1 Setting the low-current relay



Caution

The settings of the low-current relay must be adjusted with every change in the fitted heat tape lengths.

There is a low-current relay fitted in the heat tape monitoring for every heat tape. This low-current relay must be set according to the test values of every heating line.



fig. 13: Low-current relay IK 9271

6.1.1 Determining and setting the test values for low current:

$$\text{Test value in } A = \left(0,040 \frac{A}{m} \times L_{\text{Heat tape}} \right) \times \frac{50}{100}$$

40 mA / m current drawn per meter heat tape at 5°C ambient temperature

L_{heat tape} Fitted heat tape length of the relevant heating line

50/100 Correction value

Example with $L_{\text{heat tape}} = 75 \text{ m}$

$$\text{Test value in } A = \left(0,040 \frac{A}{m} \times 75 \text{ m} \right) \times \frac{50}{100} = 1,5 \text{ A}$$

The determined value is set at the rotary potentiometers (1,2).

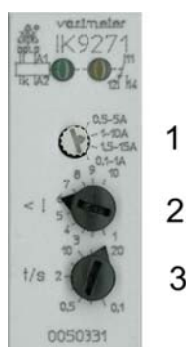


fig. 14: Example of setting of low-current relay IK 9271

6.1.2 Setting the test value delay time

The delay time is set with the lower rotary potentiometer (3). This potentiometer must always be set to the maximum possible value (here, 20).

6.2 Spark detection control console

If the trace heating is connected to a spark detection control console, it must be configured. In that context, please get in touch with the GreCon representative responsible for you.

6.3 Final Testing

Upon completion of a heating line, and before assembly of the heat insulation, the following steps must be carried out:

- Visual inspection of the heat tape for mechanical damage and checking for compliance with the assembly guidelines.



Danger

Any damage that has occurred must be eliminated immediately. For short heat tape lengths, by replacing the heat tape, and for greater heat tape lengths, by cutting out the damaged part and inserting a new heat tape piece.

- Checking the insulation resistance.
The insulation resistance of every heating line is to be measured between every individual supply wire and the metal enveloping (protective braid) and recorded. Test voltage minimum 500VDC, recommended, 2500VDC. Regardless of the heating line length, the insulation resistance must not be less than 20 MOhm. If the insulation resistance is smaller, the cause of the fault must be determined and eliminated.
- Checking the heating line function (only in conjunction with the heat tape monitoring provided).
- After completion of the heat insulation, the tests are to be repeated.
- If these tests go through without any fault, the commissioning is over.



Note

Electrically heated systems should be marked at meaningful intervals with warning notices "Electrical trace heating" on the heat insulation (distance on piping approx. 5 m or at least 1 warning notice per pipe branch).

7 Electrical Installation

7.1 Mounting instructions



Note

Dripping loop on the cable when installing outdoors.
The result of non-compliance can be that moisture penetrates into the device.

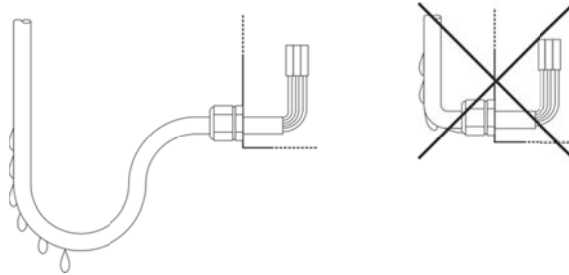


fig. 15: Cable bending and dripping loop



Note

Avoiding kinking of the cable.
Kinks in the cable can result in cable ruptures. A rough guide value for bends is a radius that is 10 times the outer diameter.

For the heat tape, note the specified minimum bending radius according to the chapter Technical Data.



Note

Avoid tractive force, thrust and torsion.
Impermissible forces acting on the cable ends can cause kinks in the cable.
Cable coils must be suspended at suitable places to relieve the cable ends of the weight of the cable coil.

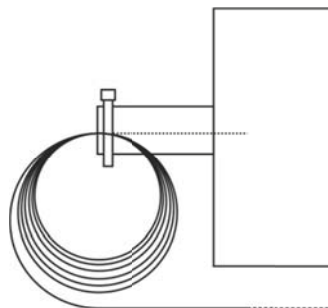


fig. 16: Hanging the cable coils

7.2 Switching principle

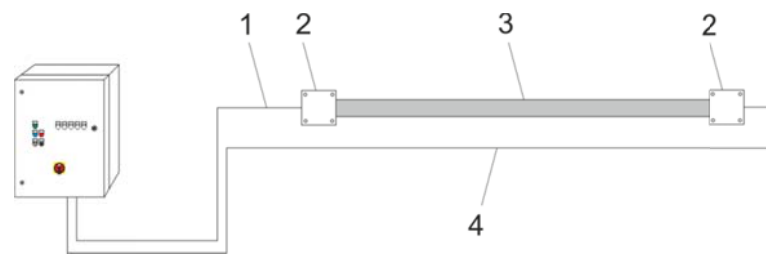


fig. 17: Unseparated branch

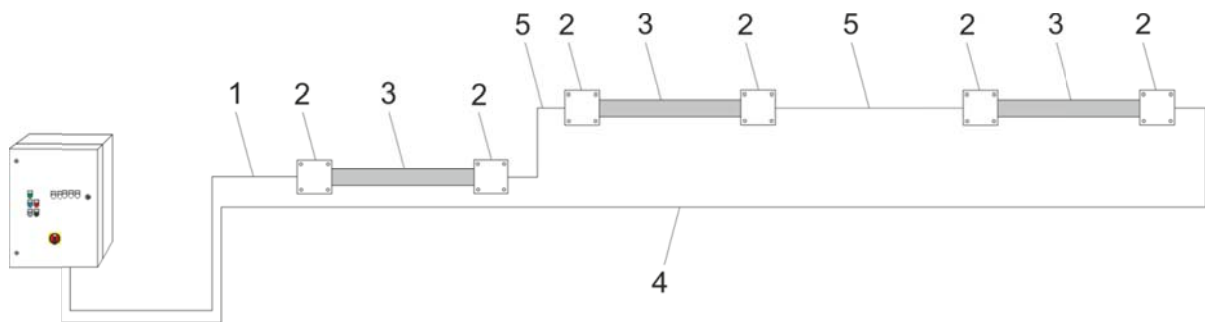


fig. 18: Separated branch

- 1 Voltage supply
- 2 Connection set
- 3 Heat tape
- 4 Return line
- 5 Forwarding



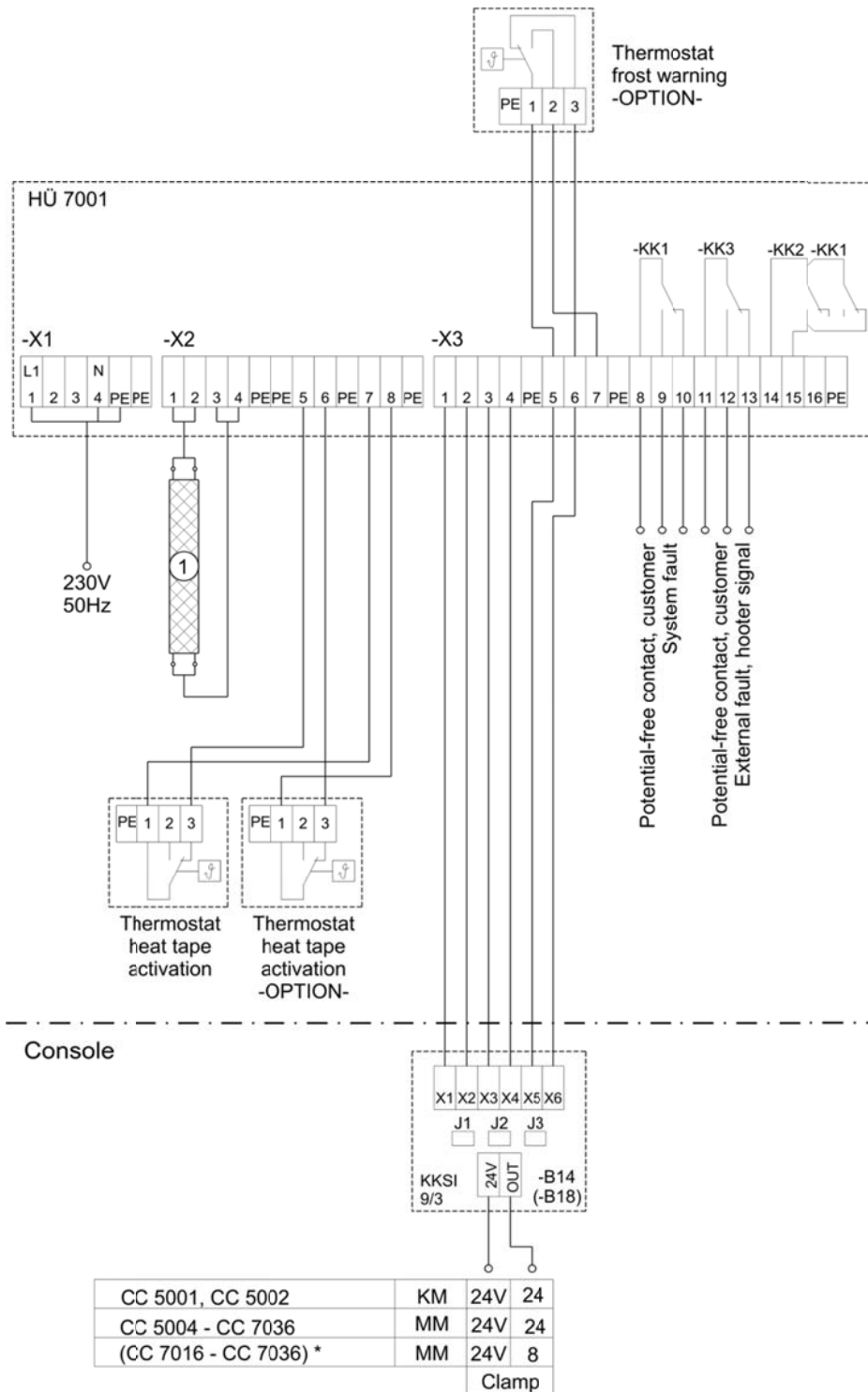
Caution

A heating line can consist of one or more sub-sections. The maximum permissible length of a heating line may not be exceeded by the sum of the sub-sections.

Only heat tapes of one rating class may be used in one heating line. Mixing is not allowed.

The specifications for the voltage supply cable, the forwarding cable and the return cable depend on the installed heat tape rating. Please see your system-specific documents for more exact values of the required cables.

7.3 Connecting a HÜ 7001 to CC 5000 and CC 7000

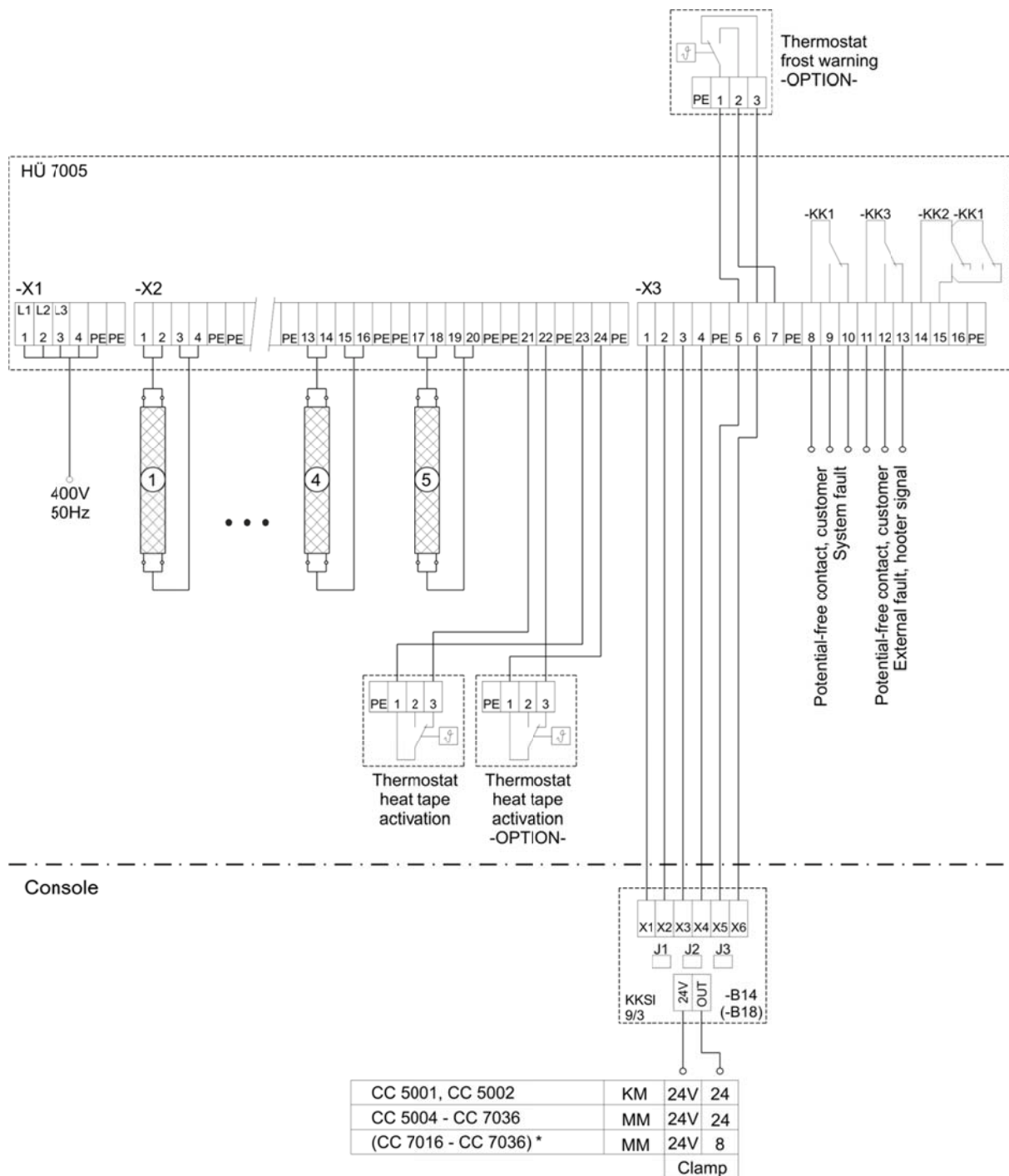


MM Master module

KM Combination module

* To be connected at IO-level 2 (B18)

7.4 Connecting a HÜ 7005 to CC 5000 and CC 7000

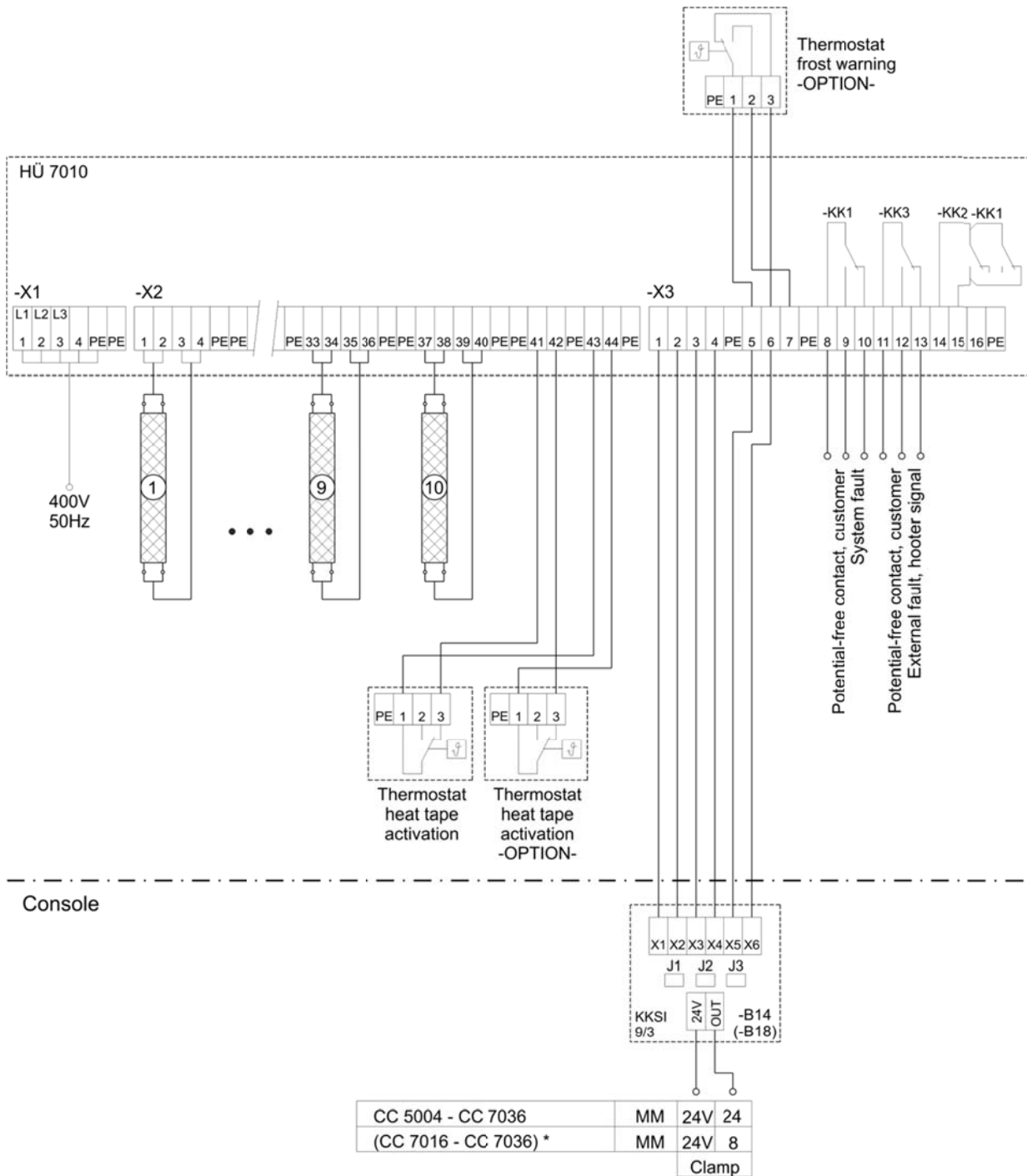


MM Master module

KM Combination module

* To be connected at IO-level 2 (B18)

7.5 Connecting a HÜ 7010 to CC 5000 and CC 7000

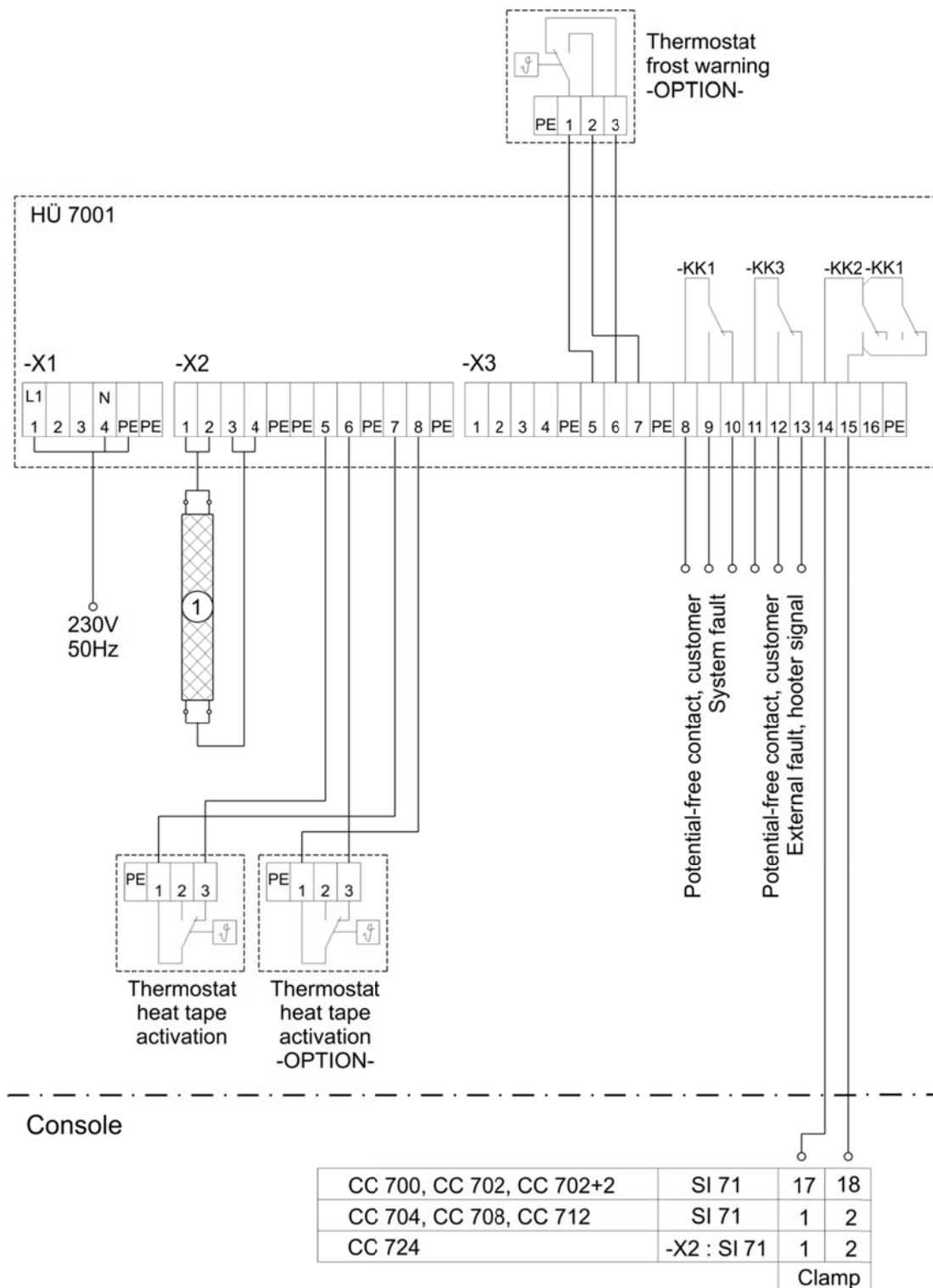


MM Master module

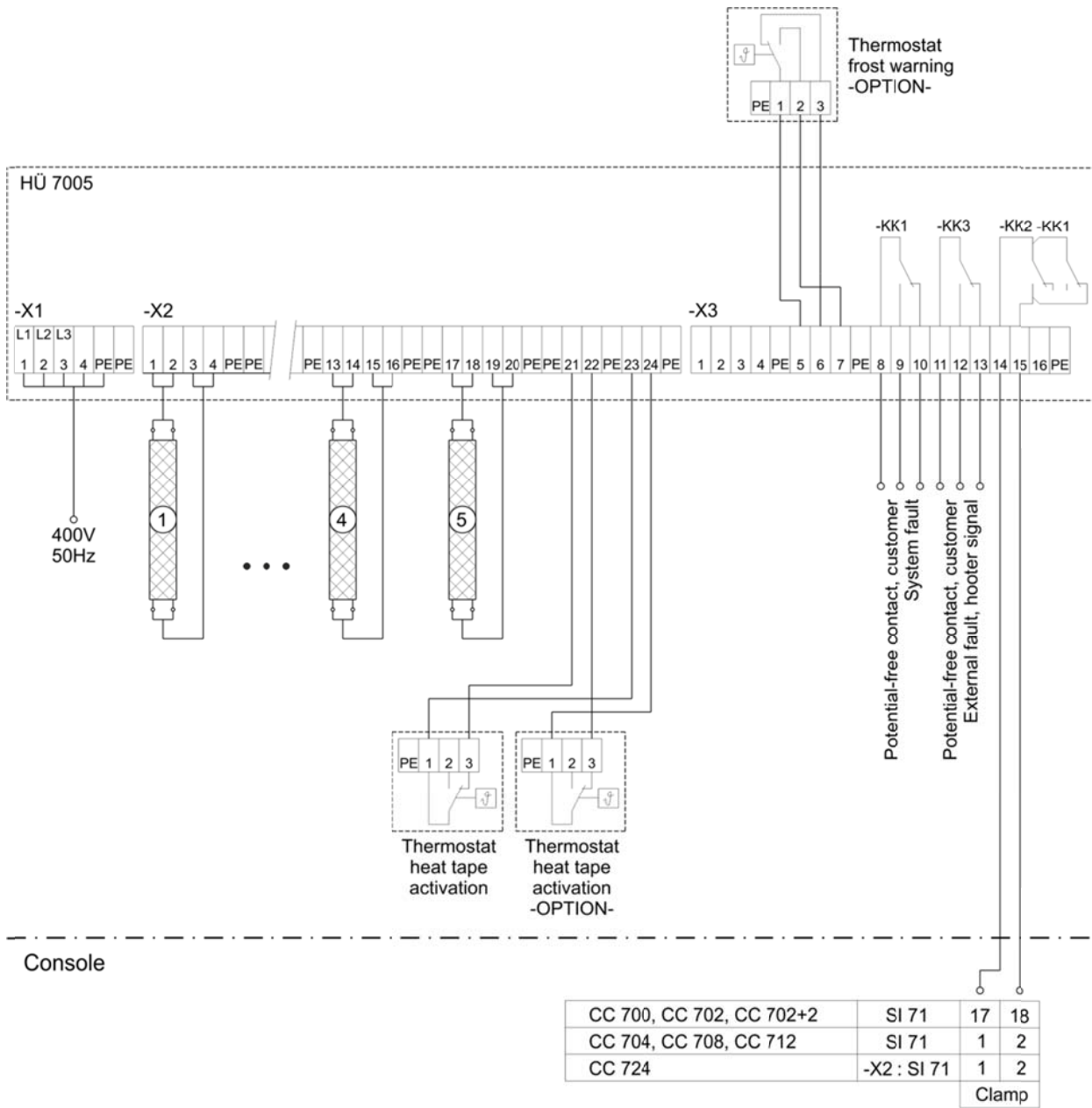
KM Combination module

* To be connected at IO-level 2 (B18)

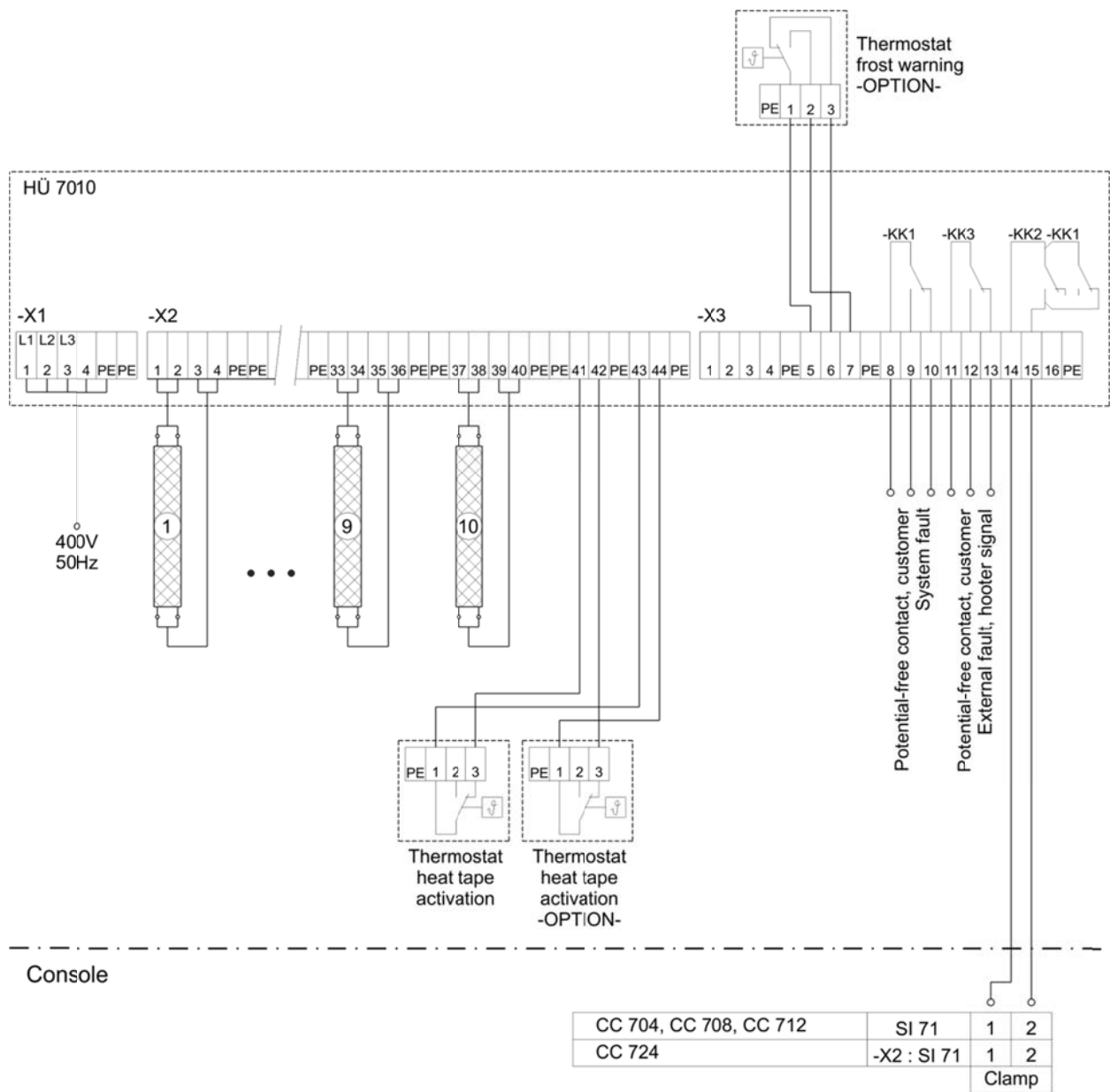
7.6 Connecting a HÜ 7001 to CC 700



7.7 Connecting a HÜ 7005 to CC 700



7.8 Connecting a HÜ 7010 to CC 700



8 Maintenance

8.1 General Maintenance Instructions

This chapter describes to you the maintenance work and function tests that you must yourself carry out at the given intervals.

The maintenance work includes preventive measures and cleaning work. Regular maintenance increases the operational safety of the spark extinguishment system.



Note

The following tests could cause fault messages at the spark detection control console.

The maintenance work and function checks may only be carried out by trained technical personnel. All maintenance work must be entered in the operations logbook and signed.

8.2 Maintenance interval 6 months and additionally before frost periods

- Visual inspection of the insulating bag for correct fastening and seating.
- Visual inspection of the insulation at the site.
- Cleaning the thermostat (sensor)
- Checking the function of the individual heating lines.
- Checking the FI-switch for correct functioning.

If a fault current circuit breaker gets switched off upon actuating the Test button, it is an indicator of its mechanically correct working, but not that the devices in this circuit are correctly connected and grounded.

The efficacy of the automatically switching off of the power supply by a fault current circuit breakers (RCDs) must be checked with suitable measurement devices according to DIN EN 61557-6 (VDE0413-6). The measurement values must be documented in suitable test reports. Specifications for this test are treated in the accident prevention specification "BGV A3" of the professional guild.

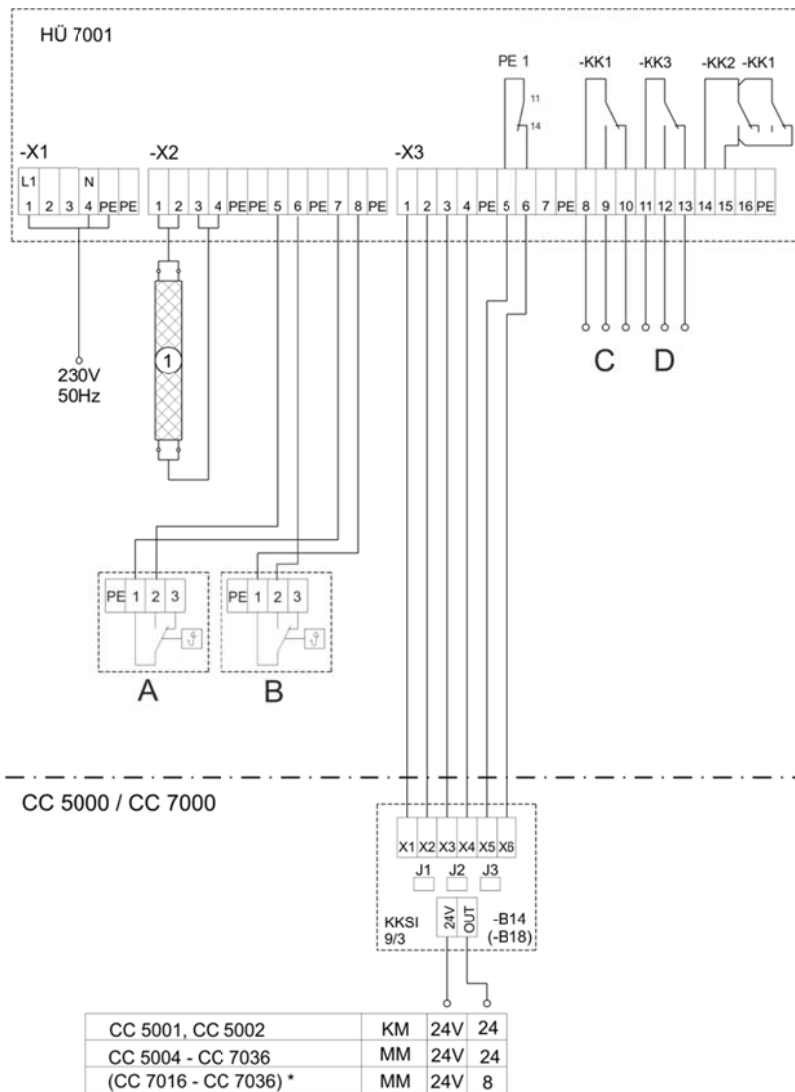
- Check the thermostat(s) for correct functioning.

8.3 Maintenance interval monthly in frost periods

- Checking the function of the individual heating lines.

1 Correction Electrical Installation

1.1 Connecting a HÜ 7001 to CC 5000 and CC 7000



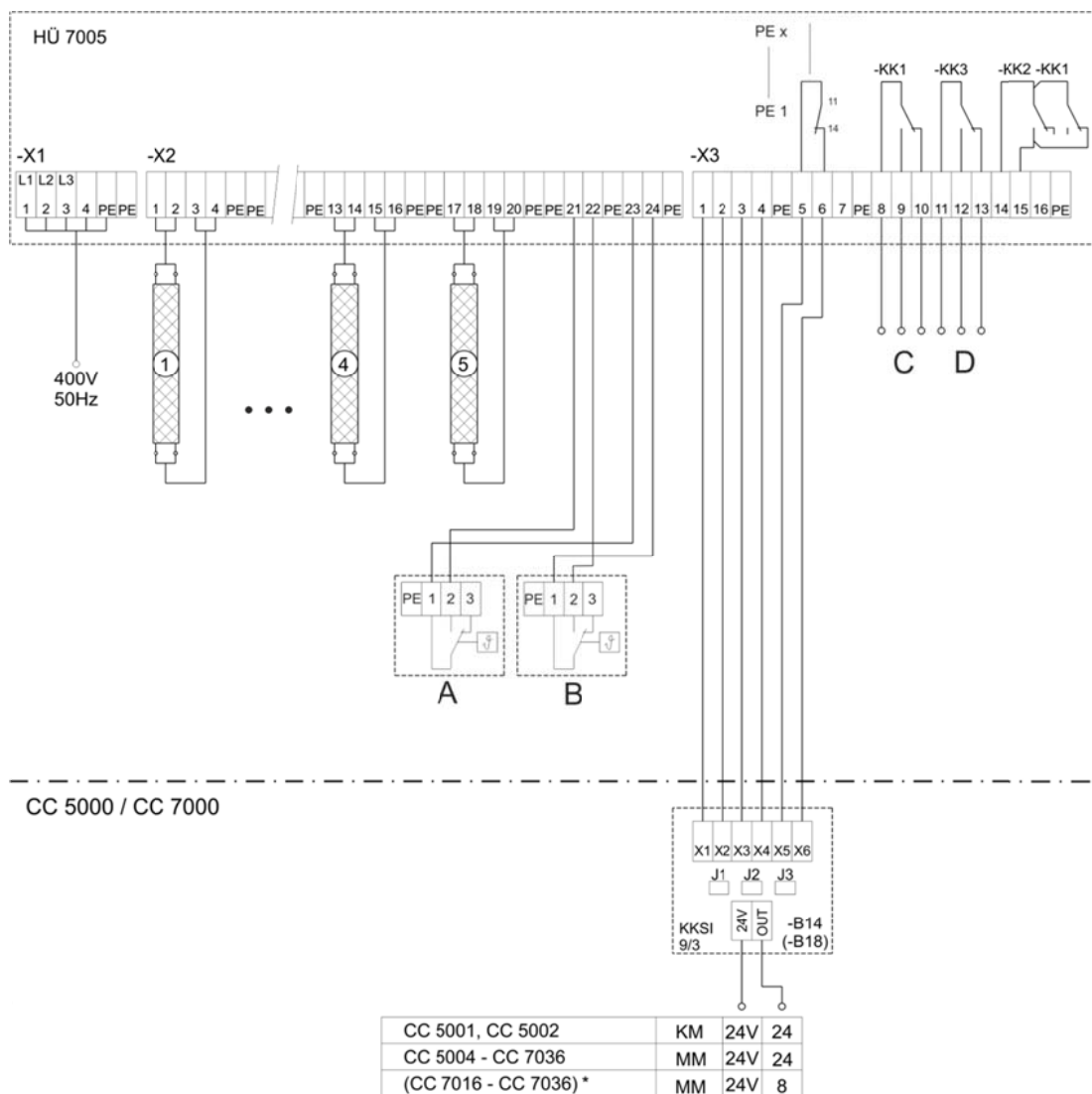
- | | | | |
|------------|--|----------|--|
| <i>MM</i> | <i>Master module</i> | <i>A</i> | <i>Thermostat heat tape activation</i> |
| <i>KM</i> | <i>Combination module</i> | <i>B</i> | <i>Thermostat heat tape activation OPTION</i> |
| * | <i>To be connected at IO-level 2 (B18)</i> | <i>C</i> | <i>Potential-free contact customer system operation fault-free</i> |
| <i>PE1</i> | <i>Undercurrent relay</i> | <i>D</i> | <i>Potential-free contact customer external fault horn signal</i> |



Note

Unpopulated terminals of the KKS I 9/3 must be bridged with a jumper.

1.2 Connecting a HÜ 7005 to CC 5000 and CC 7000



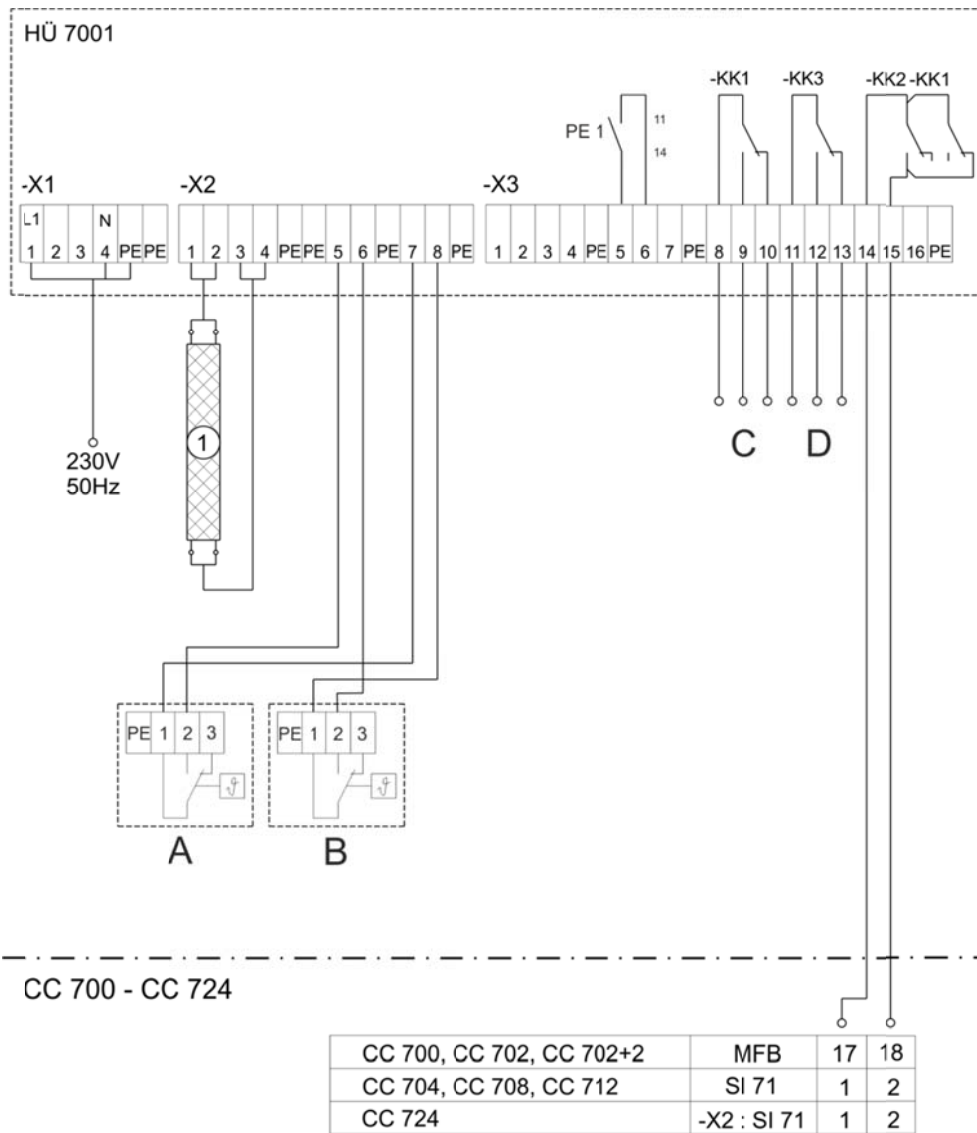
- | | | | |
|-------------------|--|----------|--|
| <i>MM</i> | <i>Master module</i> | <i>A</i> | <i>Thermostat heat tape activation</i> |
| <i>KM</i> | <i>Combination module</i> | <i>B</i> | <i>Thermostat heat tape activation OPTION</i> |
| * | <i>To be connected at IO-level 2 (B18)</i> | <i>C</i> | <i>Potential-free contact customer system operation fault-free</i> |
| <i>PE1....PEx</i> | <i>Undercurrent relay</i> | <i>D</i> | <i>Potential-free contact customer external fault horn signal</i> |



Note

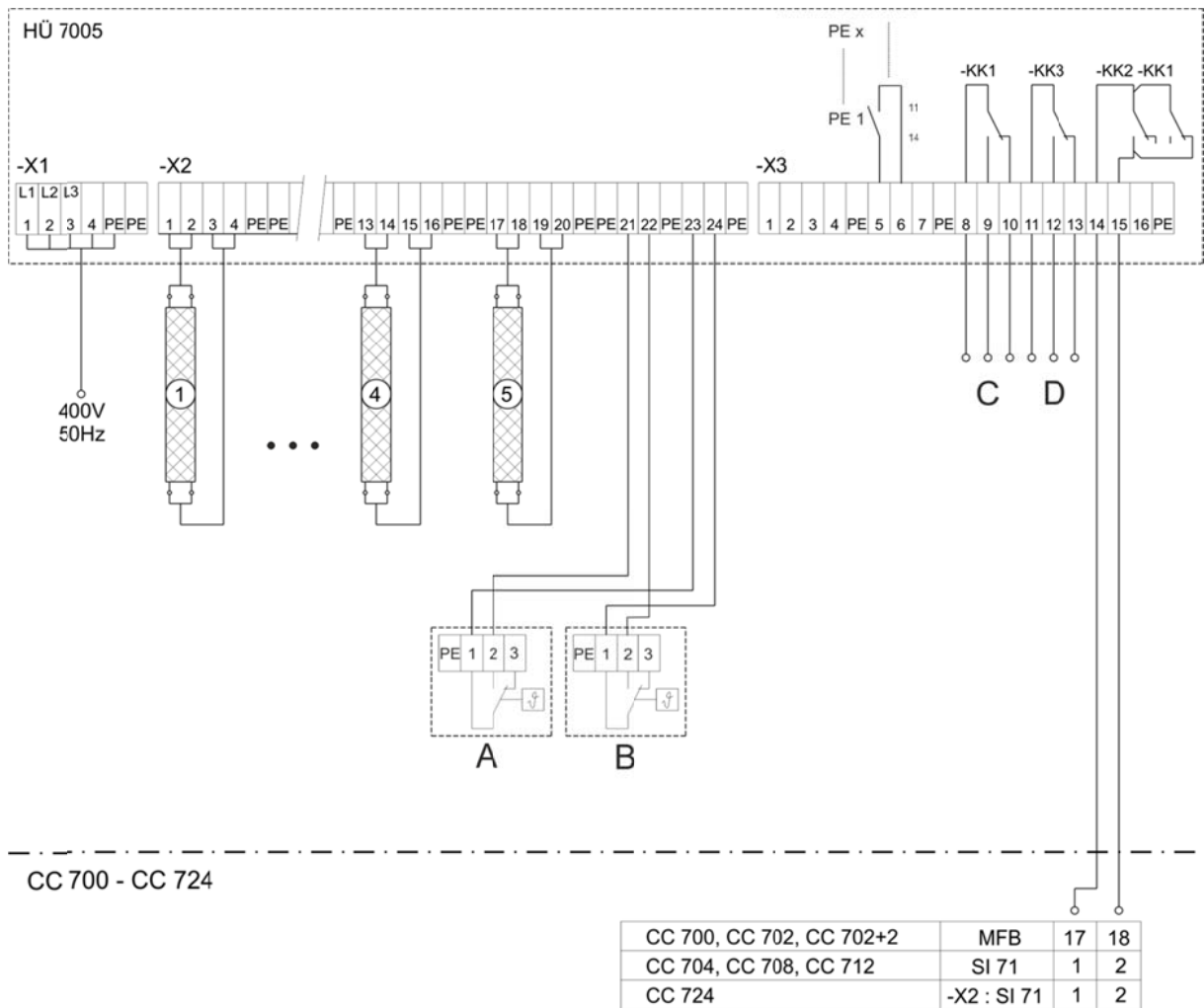
Unpopulated terminals of the KKS1 9/3 must be bridged with a jumper.

1.3 Connecting a HÜ 7001 to CC 700



- | | | | |
|-------------------|-------------------------------------|----------|--|
| <i>MFB</i> | <i>Mainboard area system inputs</i> | <i>A</i> | <i>Thermostat heat tape activation</i> |
| <i>SI 71</i> | <i>System input card</i> | <i>B</i> | <i>Thermostat heat tape activation OPTION</i> |
| <i>PE1....PEx</i> | <i>Undercurrent relay</i> | <i>C</i> | <i>Potential-free contact customer system operation fault-free</i> |
| | | <i>D</i> | <i>Potential-free contact customer external fault horn signal</i> |

1.4 Connecting a HÜ 7005 to CC 700



<i>MFB</i>	<i>Mainboard area system inputs</i>	<i>A</i>	<i>Thermostat heat tape activation</i>
<i>SI 71</i>	<i>System input card</i>	<i>B</i>	<i>Thermostat heat tape activation OPTION</i>
<i>PE1....PEx</i>	<i>Undercurrent relay</i>	<i>C</i>	<i>Potential-free contact customer system operation fault-free</i>
		<i>D</i>	<i>Potential-free contact customer external fault horn signal</i>



GreCon

POSTFACH 1243
D-31042 ALFELD/HANNOVER
DEUTSCHLAND

TEL.: +49 (0) 5181-790
FAX: +49 (0) 5181-79229
E-MAIL: sales@grecon.de
WEB: www.grecon.de

