

## Regulated Ex-Heater

**HEX5-1.08 with internal controller,  
HEX5-2.08 with external controller**

**⊕ Ex II 3 G ⊕ Ex II 3 D**

Instruction Manual  
Version 1.03.00



**Dear customer,**

Thank you for buying our product. In this manual you will find all necessary information about this M&C product. The information in the manual is fast and easy to find, so you can start using your M&C product right after you have read the manual.

If you have any questions regarding the product or the application, please don't hesitate to contact M&C or your M&C authorized distributor. You will find all the addresses in the appendix of this instruction manual.

For additional information about our products, please go to M&C's website [www.mc-techgroup.com](http://www.mc-techgroup.com). There you can find the data sheets and manuals of our products in German and English.

This instruction manual does not claim completeness and may be subject to technical modifications.

© 11/2024 **M&C TechGroup** Germany GmbH. Reproduction of this document or its content is not allowed without permission from **M&C**.

With the release of this version all older manual versions will no longer be valid. The German instruction manual is the original instruction manual. In case of arbitration only the German wording shall be valid and binding.

Version: 1.03.00

## List of Contents

<b>1</b>	<b>General Information.....</b>	<b>4</b>
<b>2</b>	<b>Declaration of Conformity .....</b>	<b>4</b>
<b>3</b>	<b>Safety Instructions.....</b>	<b>5</b>
3.1	Intended Use.....	5
<b>4</b>	<b>Information and Safety Instructions for Using the Heating in Hazardous Areas.....</b>	<b>6</b>
<b>5</b>	<b>Warranty .....</b>	<b>6</b>
<b>6</b>	<b>Used Terms and Signal Indications .....</b>	<b>7</b>
<b>7</b>	<b>Introduction .....</b>	<b>8</b>
7.1	Serial number.....	9
7.2	Power supply.....	10
<b>8</b>	<b>Technical data .....</b>	<b>10</b>
<b>9</b>	<b>Mounting .....</b>	<b>11</b>
<b>10</b>	<b>Electrical connection.....</b>	<b>12</b>
<b>11</b>	<b>Preparations for commissioning.....</b>	<b>14</b>
<b>12</b>	<b>Starting.....</b>	<b>14</b>
<b>13</b>	<b>Closing down.....</b>	<b>15</b>
<b>14</b>	<b>Maintenance.....</b>	<b>15</b>
<b>15</b>	<b>Cleaning .....</b>	<b>16</b>
<b>16</b>	<b>Proper disposal of the device .....</b>	<b>16</b>
<b>17</b>	<b>Risk assessment .....</b>	<b>16</b>
<b>18</b>	<b>Appendix.....</b>	<b>19</b>

## List of illustrations

Figure 1	Version HEX 5-1.08 and Version HEX 5-2.08 .....	9
Figure 2	Dimensions of the temperature regulator HEX 5-2.08 .....	9
Figure 3	Electrical connection HEX 5-1.08.....	13
Figure 4	Electrical connection HEX 5-2.08.....	13
Figure 5	Example Heater HEX5-1.08 on gas sample probe SP3200.....	14
Figure 6	Overview risk assessment .....	17
Figure 7	Connection Diagram HEX 5-1.08.....	20
Figure 8	Connection Diagram HEX 5-2.08.....	21

## Head Office

**M&C TechGroup** Germany GmbH ♦ Rehhecke 79 ♦ 40885 Ratingen ♦ Germany

Telephone: 02102 / 935 - 0

Fax: 02102 / 935 - 111

E - mail: [info@mc-techgroup.com](mailto:info@mc-techgroup.com)

[www.mc-techgroup.com](http://www.mc-techgroup.com)

## 1 General Information

The product described in this manual has been supplied in a safe and tested condition. For safe operation and to maintain this condition, the information and instructions in this manual must be followed. In addition, the appropriate transportation, proper storage and installation as well as careful operation and maintenance are necessary.

For the proper use of this product, all information required for technical personnel is contained in this manual.

## 2 Declaration of Conformity



**CE - Certification**

The product described in this instruction manual complies with the following EU directives:

### **ATEX-Directive**

The product described in this manual is produced in accordance with the directive for devices and protection systems for appropriate use in hazardous areas 2014/34/EU appendix II.

### **EMV-Instruction**

The requirements of the directive 2014/30/EU "Electromagnetic compatibility" are met.

### **Low Voltage Directive**

The requirement of the directive 2014/35/EU "Low Voltage Directive" are met.

### **RoHS Directive**

The requirements of the RoHS2 ("Restriction of Hazardous Substances 2") directive 2011/65/EU and its annexes are met.

### **Declaration of conformity**

The EU Declaration of conformity can be downloaded from the **M&C** homepage or directly requested from **M&C**.

### 3 Safety Instructions

#### Observe the following safety precautions when using this equipment:

- Read these operating instructions carefully before start-up and use of the equipment! The information and warnings given in these operating instructions must be heeded.
- The Certificate of Conformity (see appendix) must absolutely be heeded:
- Work on electrical equipment is only to be carried out by trained specialists as per the regulations currently in force.
- Attention must be paid to the requirements of **VDE 0100** when setting high-power electrical units with nominal voltages of up to 1000 V, together with the associated standards and stipulations.
- For use in hazardous area observe the relevant national and international instructions and regulations.
- Check the details on the type plate to ensure that the equipment is connected up to the correct mains voltage.
- Explosion protection and personal protection at dangerously high electrical voltages: Before opening the equipment, it must be switched off and must be voltage free. This also applies to any external control circuits that are connected.
- The equipment is only to be set within the permitted range of temperatures.
- To prevent burns due to high surface temperatures, cover the heating plate with suitable measures.
- Make sure that you install the device in a weather-protected location. The device should not be exposed to either direct sun, rain or moisture.
- Installation, maintenance, monitoring and any repairs may only be done by authorised personnel with respect to the relevant stipulations.

#### 3.1 Intended Use

The heater is suitable for use in potentially explosive atmospheres of equipment group 3. The device can only be operated under the conditions described in chapter 4 and chapter 8 of these operating instructions. Refrain from any use other than for this purpose. Improper use can lead to serious injury, see the safety instructions at the appropriate place.

## 4 Information and Safety Instructions for Using the Heating in Hazardous Areas

The heater is suitable for use in hazardous areas Device 3.

Markings:

EX Certifications:  II 3 G Ex ec nC IIC Temperature Class T5 to T2 Gc  
 II 3 D Ex tc IIIC T 75 °C to 235 °C Dc

CSA Approval Standard:

CAN/CSA-C22.2 No. 1010.1 and 213-M87, Class I, Div. 2, Groups A/B/C/D,  
Temperature Class T5 to T2.

The certification was issued by DEKRA EXAM.

Detailed information and a copy of the Certificate are enclosed to this operating manual. Installation and operation must be effected according to the conditions respectively installation instructions as stipulated in the Ex-Certificate (see appendix). Only then, a sure operation and function in hazardous areas is guaranteed.

All changes of the standard configuration with parts which are not specified or approved by **M&C** as well as repair and service with not specified parts means a loss of the Ex-Certificated.

*In case of doubt, please contact **M&C** directly or your **M&C** –franchised dealer.*

## 5 Warranty

In case of a device failure, please contact immediately M&C or your M&C authorized distributor.

We have a warranty period of 12 months from the delivery date. The warranty covers only appropriately used products and does not cover the consumable parts. Please find the complete warranty conditions in our terms and conditions.

The warranty includes a free-of-charge repair in our production facility or the free replacement of the device. If you return a device to M&C, please be sure that it is properly packaged and shipped with protective packaging. The repaired or replaced device will be shipped free of delivery charges to the point of use.

## 6 Used Terms and Signal Indications



**Danger**

This means that death, severe physical injuries and/or important material damage **will occur** in case the respective safety measures are not fulfilled.



**Warning**

This means that death, severe physical injuries and/or important material damage **may occur** in case the respective safety measures are not fulfilled.



**Caution**

This means that minor physical injuries **may occur** in case the respective safety measures are not fulfilled.



Toxic!

Acute toxicity (oral, dermal, inhalation)! Toxic when in contact with skin, swallowed or inhaled.



Corrosive!

These substances destroy living tissue and equipment upon contact. Do not breathe vapors; avoid contact with skin and eyes.

**Caution**

Without the warning triangle means that a material damage may occur in case the respective safety measures are not met.



**Note**

These are important information about the product or parts of the operating manual which require user's attention.

**Qualified personnel**

'Qualified personnel' are experts who are familiar with the installation, commissioning, maintenance and operation of these types of products. The following knowledge is at least required for the work:

- Instructed person in EX-protection
- Trained person in the electrotechnical field
- Detailed knowledge of the manual and the applicable safety regulations



These are important information about the product or parts of the instruction manual referring to operating in hazardous areas.



High voltages!

Protect yourself and others against damage which might be caused by high voltages.



Hot surface!

Contact may cause burn! Do not touch!



Wear protective gloves!  
Working with chemicals, sharp objects or extremely high temperatures requires wearing protective gloves.



Wear safety glasses!  
Protect your eyes while working with chemicals or sharp objects. Wear safety glasses to avoid getting something in your eyes.



Wear safety footwear!



Use safety helmet and full protective goggles

## 7 Introduction

The electrical heater is designed to heat metal bodies (e.g. M&C sample gas probe SP., M&C filter FT-H..).

Only M&C personnel will mount the heater to the specified object.

The heater consists of an aluminium heating plate with a heating element (power consumption of up to 830 W), an electronic thermostat with limiter and a temperature sensor (PT100).

There are two versions available:

Type HEX 5-1.08 Heater with thermostat integrated in a wall mount enclosure

Type HEX 5-2.08 Heater with terminal box in a wall mount housing and an external temperature controller.

There is a warning label located on top of the heater.

The controller will be programmed according to the required temperature class by M&C personnel, and the device will leave M&C protected against unauthorized access.

The temperature controller is equipped with an over temperature limiter which automatically shuts off the heating, when the temperature is 5 °C [ $\Delta T = 9$  °F] higher than the adjusted set-point temperature. The heater can be restarted either by interrupting the power supply or by pressing the 'Exit'-button. Indication on regulator K2 is in normal operating "AN" (ON).

For temperature monitoring, the temperature controller is equipped with a low temperature alarm, which sets off when the temperature is 10 °C [ $\Delta T = 18$  °F] lower than the set-point temperature. This status alarm is available as a potential-free contact inside the terminal box. The contact is closed and the Indicator on controller K1 is "AN" (ON), when the heater has reached the operating temperature. Indicator K3 shows that the heater is activated.



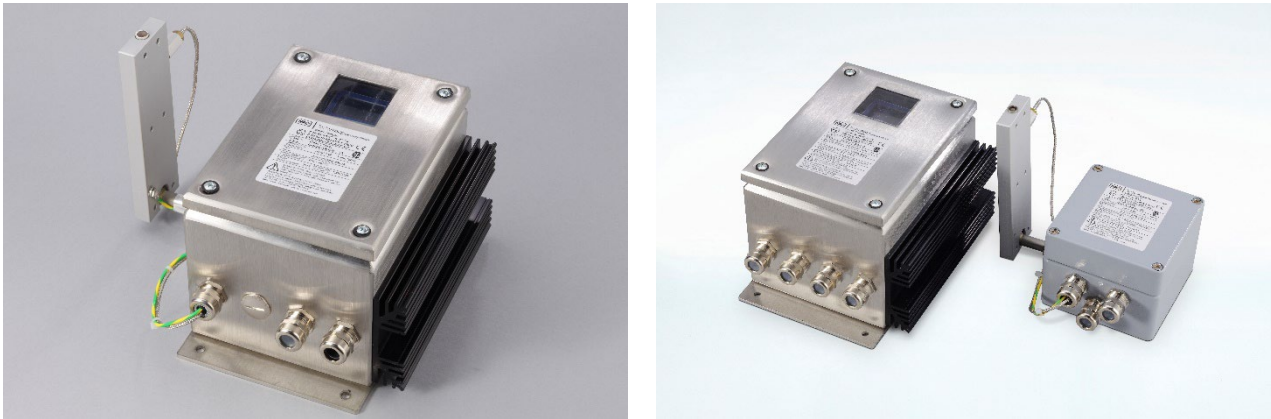


Figure 1 Version HEX 5-1.08 and Version HEX 5-2.08

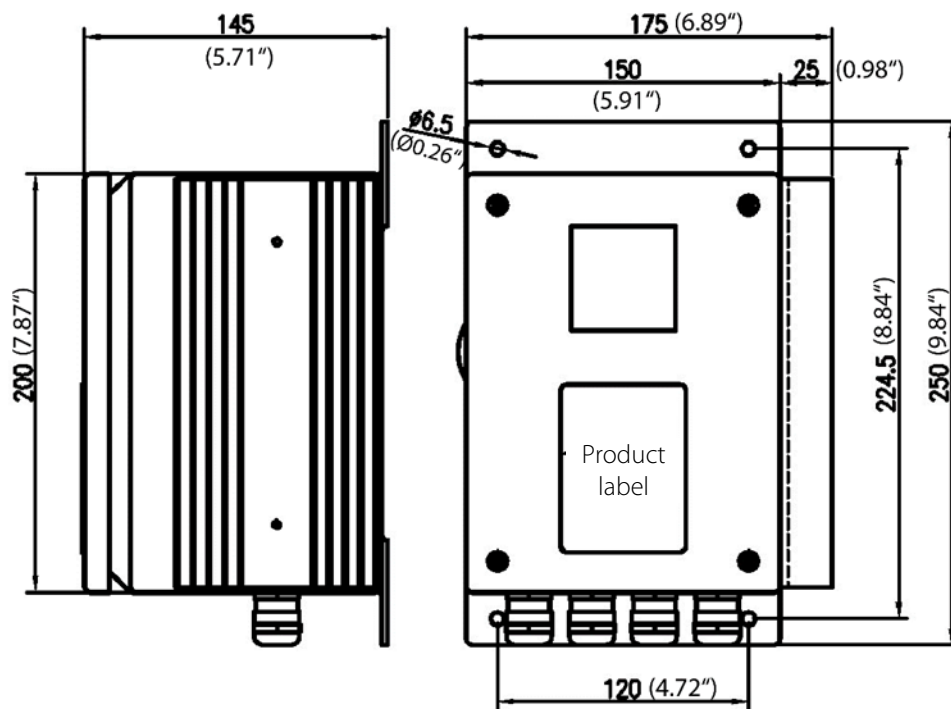


Figure 2 Dimensions of the temperature regulator HEX 5-2.08

## 7.1 Serial number

The product label with the serial number is located on the top of the temperature controller. Please refer to this serial number if you have any questions about your device or if you need to order spare parts or consumables.

## 7.2 Power supply

The heater can be operated on alternating current in the range of 240 V 50/60 Hz with max. 800 W or alternatively 120 V 50/60 Hz with max. 830 W.

## 8 Technical data








Electrical Heater	Version HEX 5-1.08	Version HEX 5-2.08
Temperature regulator	Integrated	Externally
Part No. 240 V power version	20S9650	20S9655
Part No. 120 V power version	20S9650a	20S9655a
Power supply	240 V 50/60 Hz max. 800 W or 120 V, 50/60 Hz max. 830 W	
Electr. Connection	Screwed cable gland Range for cable glands 6 -12 mm [ $\approx$ 0.24"-0.47"], Terminals; max. 4 mm <sup>2</sup>	
System of protection	IP65 EN 60529	
Ex Protection 	<b>Temperature controller with heating</b>  II 3 G Ex ec nC IIC T2 – T5 Gc  II 3D Ex tc IIIC T75 – 235°C Dc BVS 09 ATEX E 107 IECEx BVS 16.0025  Class I, Div. 2, Groups A/B/C/D, T2 –T5	<b>Temperature controller</b>  II 3G Ex ec nC IIC T5 Gc  II 3D Ex tc IIIC T75 Dc BVS 09 ATEX E 107 IECEx BVS 16.0025  Class I, Div. 2, Groups A/B/C/D, T5  <b>Heating with connection box</b>  II 3G Ex ec IIC T2 – T5 Gc  II 3D Ex tc IIIC T75 – 235°C Dc BVS 09 ATEX E 107 IECEx BVS 16.0025  Class I, Div. 2, Groups A/B/C/D, T2 –T5
	Temperature classes see next page	
Ambient temperature	Temperature controller 0 to +50 °C [32 to +122 °F]	Temperature controller 0 °C to +50 °C [32 to +122 °F] Heater terminal box -20 to +70 °C [-4 to +158 °F]
Operating temperature	0 to max 230 °C [32 to max. 446 °F] depending on Temp.-class. Please specify with order.	
Temperature status alarm	10 °C [18 °F] lower than T <sub>SET</sub> Switch capacity 250 V 3 A AC, 0.25 A DC. 1 contact NO, potential-free.	
Over temperature limiter	5 °C [9 °F] higher than T <sub>SET</sub> , manual Reset	
Ex Standards	IEC 60079-0: 2011 Ed.6 EN 60079-0:2012 + A11:2013 IEC 60079-7: 2015 Ed.5 EN 60079-7:2007 IEC 60079-15: 2010 Ed.4 EN 60079-18:2009 IEC 60079-31: 2013 Ed.2 EN 60079-31:2014	

Table temperature class									
M&C Part No	NEC 500 Temperature class			Atex Temperature class Cenelec/IEC/Nec 505			Parameter for the controller configuration		
	NEC 500	NEC 500 °C	Max °C - 20%	Atex	Atex °C	Atex Max °C Atex -5 °C	Limiter °C	Operating temperature °C	Status °C
20S9608	<b>T2</b>	300 [572 °F]	240 [464 °F]	<b>T2</b>	235 [455 °F]	230 [446 °F]	235 [455 °F]	230 [446 °F]	220 [428 °F]
20S9609	<b>T2A</b>	280 [536 °F]	224 [435.2 °F]	<b>T2</b>			220 [428 °F]	215 [419 °F]	205 [401 °F]
20S9610	<b>T2B</b>	260 [500 °F]	208 [406.4 °F]	<b>T3</b>	200 [392 °F]	195 [383 °F]	190 [374 °F]	185 [365 °F]	175 [347 °F]
20S9611	<b>T2C</b>	230 [446 °F]	184 [363.2 °F]	<b>T3</b>			180 [356 °F]	175 [347 °F]	165 [329 °F]
20S9612	<b>T2D</b>	215 [419 °F]	172 [341.6 °F]	<b>T3</b>			165 [329 °F]	160 [320 °F]	150 [302 °F]
20S9613	<b>T3</b>	200 [392 °F]	160 [320 °F]	<b>T3</b>			155 [311 °F]	150 [302 °F]	140 [284 °F]
20S9614	<b>T3A</b>	180 [356 °F]	144 [291.2 °F]	<b>T3</b>			140 [284 °F]	135 [275 °F]	125 [257 °F]
20S9615	<b>T3C</b>	160 [320 °F]	128 [262.4 °F]	<b>T4</b>	135 [275 °F]	130 [266 °F]	125 [257 °F]	120 [248 °F]	110 [230 °F]
20S9616	<b>T4</b>	135 [275 °F]	108 [226.4 °F]	<b>T4</b>			100 [212 °F]	95 [203 °F]	85 [185 °F]
20S9617	<b>T4A</b>	120 [248 °F]	96 [204.8 °F]	<b>T5</b>	100 [212 °F]	95 [203 °F]	90 [194 °F]	85 [185 °F]	75 [167 °F]
20S9618	<b>T5</b>	100 [212 °F]	80 [176 °F]	<b>T5</b>			75 [167 °F]	70 [158 °F]	60 [140 °F]

*The temperature controller is programmed and locked at M&C.*

## 9 Mounting



### Warning

Make sure to mount the device in a weather-protected location. The device should not be exposed to either sun, direct rain or any other liquids.

The electrical heating HEX 5-1.08 is already mounted completely with temperature controller at the device by **M&C**. For the electrical heating HEX 5-2.08 the temperature controller in a wall mounting housing is delivered separately and has to be mounted at desired place and than electrically connected with the connection box of the heating. The mounting dimensions are shown in figure 2.

- In case of the externally mounted temperature regulator, the maximum ambient temperature of the heater connection box that is allowed is +70°C [158 °F].



The heated part of the device must be tightly mounted. A minimum distance of 100 mm [ $\approx 3.94$ "] to other components has to be kept in order to avoid an accumulation of heat.

## 10 Electrical connection



When connecting the equipment, make sure that the supply voltage is identical with the information provided on the model type plate!



Only carry out work on the open device, when the area has been proved to be "safe".



The installation and commissioning of the device must conform to the requirements of VDE 0100 (IEC 364) 'Regulations on the Installation of Power Circuits with Nominal Voltages below 1000 V' and must be in compliance with all relevant regulations and standards.

- The cables used for connecting the heater must have a diameter of 6-12 mm [ $\approx 0.24$ " to 0.42"].
- Depending on the ambient temperature at the mounting location, the cables used for the wiring must be temperature resistant according to requirement.
- Connect the housing of the temperature controller, and if applicable the electrical connection box of the HEX5.2-08, to earth (equipotential bonding).

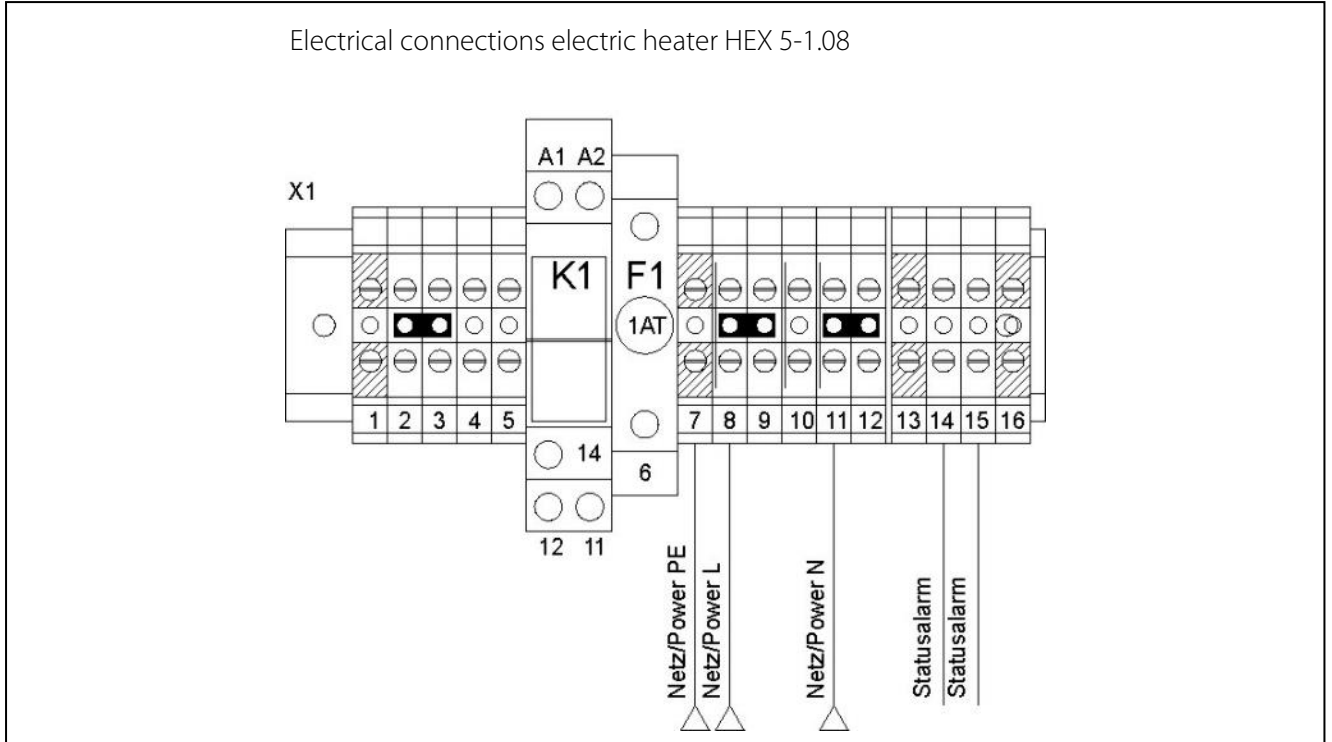


Figure 3 Electrical connection HEX 5-1.08

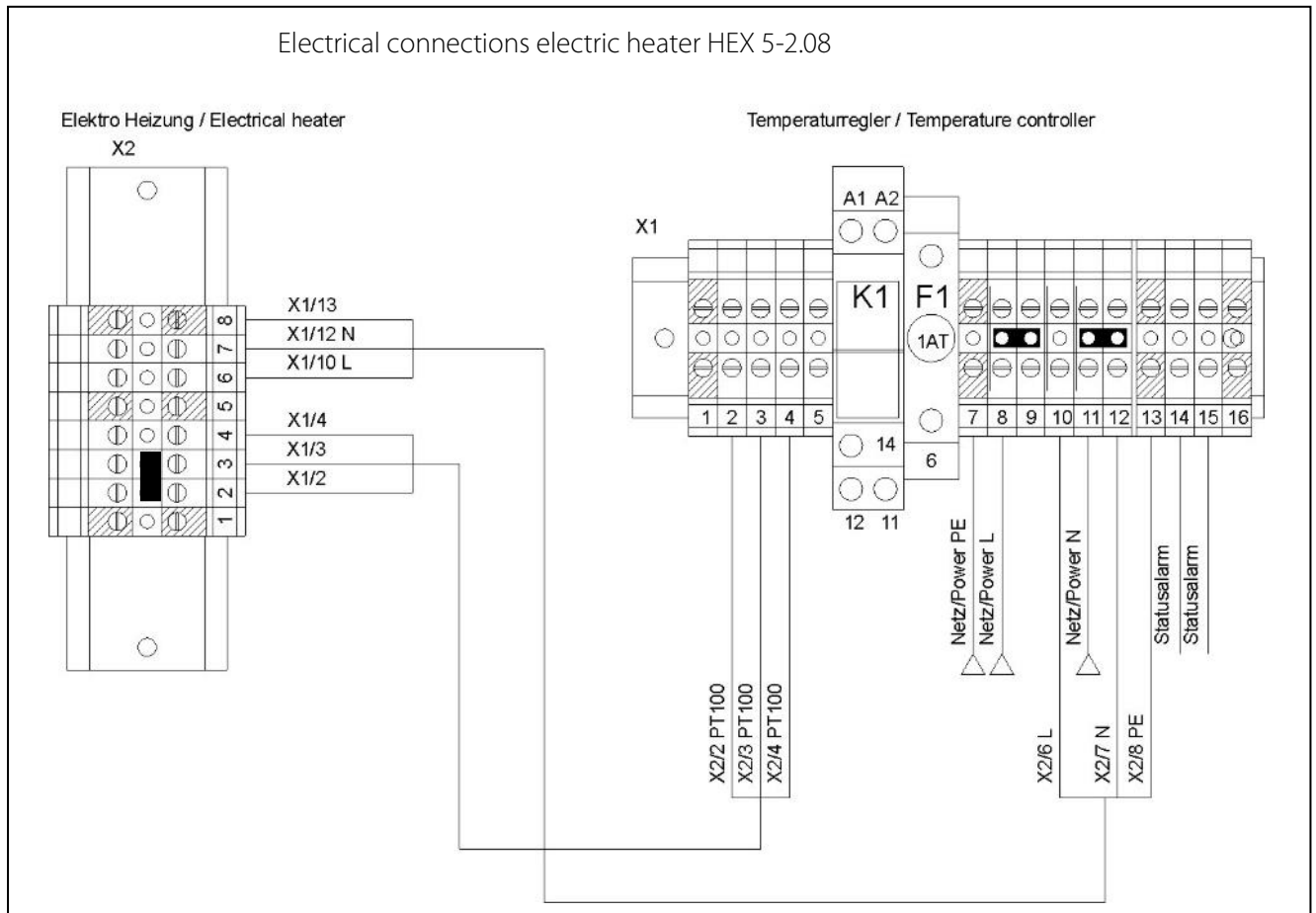


Figure 4 Electrical connection HEX 5-2.08

## 11 Preparations for commissioning

Before initial startup, all plant- and process-specific safety measures must be observed. It is mandatory for the operator to complete the enclosed risk assessment of the product.

The gas exposure risk must be assessed by the operator with regard to the hazards posed by process and calibration gas and the setup at the installation site (e.g. tubing, system cabinet/container/plant). If the risk assessment reveals increased exposure hazards, further measures are required.

A visible label must be attached to the installation site in accordance with the risk assessment provided by the operator.

## 12 Starting

- Before starting the device, check if the power supply corresponds with the indications on the type plate.
- Before starting the device, check if the housing of the temperature controller and if applicable the connection box (HEX 5-2.08) are connected to the equipotential bonding.
- Then close lid of the housing and switch on the power supply.



High surface temperatures!

Touching may result in burns.

When the ambient temperature is higher than 40 °C [104 °F], the temperature of the protection and isolating cover will be more than 60 °C [140 °F].



**Figure 5** Example Heater HEX5-1.08 on gas sample probe SP3200

The heating up is regulated to 1.5 °C/min [2.7 °F per minute] by default via a programmed temperature ramp. The total time of heating up is approx. 2 h for example in case of the heated object Gas Sample Probe SP3200 HEX5-1/2.08 regulated to 180 °C [356 °F]. Signal is given by the temperature alarm.

### 13 Closing down



Note

The ambient temperature at the device location needs to correspond to the stated minimum and maximum ambient temperatures, even when the unit has been switched off!

### 14 Maintenance



Warning

Before carrying out any type of maintenance work, pay close attention to the specific system and process safety measures!



Warning

When working during operation:

High surface temperatures!

Touching may result in burns.



Wear protective gloves and assure that no unauthorized person will touch the equipment!



Warning

Only carry out work on the open device, when the area has been proved to be „safe“.



The installation and commissioning of the device must conform to the requirements of VDE 0100 (IEC 364) 'Regulations on the Installation of Power Circuits with Nominal Voltages below 1000 V' and must be in compliance with all relevant regulations and standards.

Only change the fine-wire fuse F1 (1 AT (time-lag), 5 x 20) when the power supply is disconnected. Spare fuse has to have a CSA/UL approval, M&C part number: 90K0055



Danger

Attention! The controller will be programmed according to the required temperature class, and will leave M&C protected against unauthorized access. A wire strap on the terminal strip X1/5 protects against unauthorized access.



The programming of the temperature class affects the complete heater and can only be modified by M&C personnel.

## 15 Cleaning



### Note

Clean the outside of the terminal box and the controller housing with a damp cloth with a soap solution.

## 16 Proper disposal of the device

At the end of the life cycle of our products, it is important to take care of the appropriate disposal of obsolete electrical and non-electrical devices. To help protect our environment, please follow the rules and regulations of your country regarding recycling and waste management.

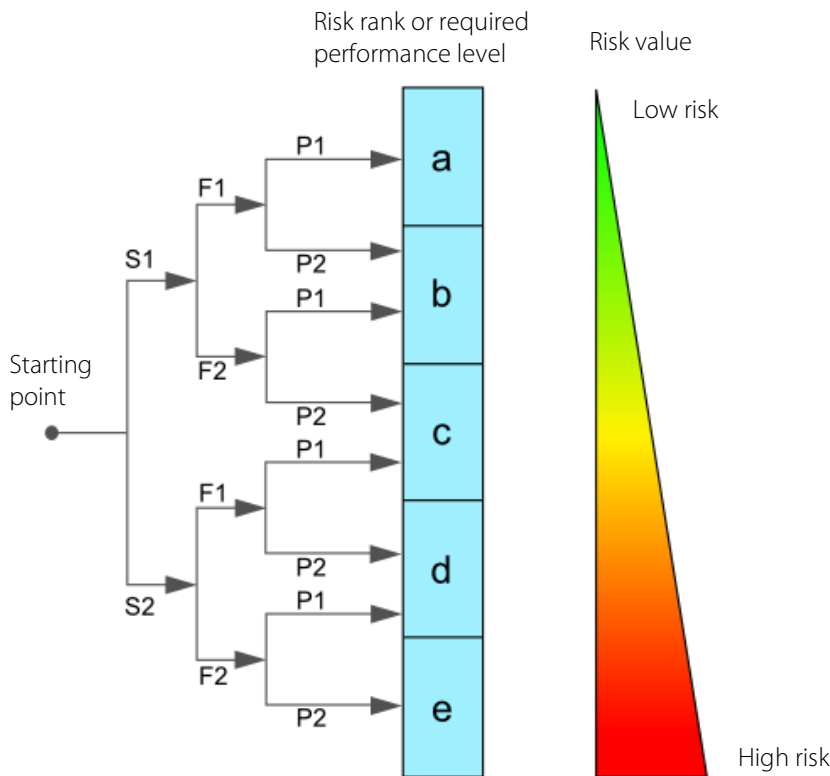
## 17 Risk assessment

The risk assessment provided in this chapter is intended for all work activities on the product. The hazards can occur in the work steps of assembly, commissioning, maintenance, disassembly and in the event of a product fault. During normal operation, the product is protected by a system cabinet or appropriate covers. Only qualified personnel is permitted to perform the work. The following minimum knowledge is required for the work:

- Employee instruction provided in process engineering
- Employee instruction provided in electrical engineering
- Detailed knowledge of the instruction manual and the applicable safety regulations

The product complies with the current regulations according to state-of-the-art science and technology. Nevertheless, not all sources of danger can be eliminated while observing technical protective measures. Therefore, the following risk assessment and the description of exposure hazards refer to the work steps mentioned above.





**Severity of injury:**

S1 = 1 = minor (reversible injury)  
 S2 = 2 = serious (irreversible injury, death)

**Frequency and duration:**

F1 = 1 = infrequent or short exposure to hazard  
 F2 = 2 = frequent (more than once per hour/shift)

**Possibility of preventing or limiting the damage**

P1 = 1 = possible  
 P2 = 2 = hardly possible

**Figure 6 Overview risk assessment**



**Aggressive condensate possible**

**Risk rank group A**

Chemical burns due to aggressive media possible!  
 This applies to all liquids in vessels and in the product.  
 In general, for electrical and mechanical work on the product, wear personal protective equipment (PPE) in accordance with the risk assessment.



### Caution hot surfaces

#### Risk rank group A

The temperature inside the product can be higher than  $> 180\text{ }^{\circ}\text{C}$ .

The hot parts are shielded by mechanical devices. Before opening the products, they must be disconnected from the power supply and a cooling time of more than  $> 180$  minutes must be observed. In general, for electrical and mechanical work on the product, wear personal protective equipment (PPE) in accordance with the risk assessment.



### Caution electric shock

#### Risk rank group C

When installing high-power systems with nominal voltages of up to 1000 V, the requirements of VDE 0100 and their relevant standards and regulations must be observed!

This also applies to any connected alarm and control circuits. Before opening the products, they must always be disconnected from the power supply.



### Gas hazard

#### Risk rank group A-B-C

The hazard potential mainly depends on the gas to be extracted.

If toxic gases, oxygen displacing or explosive gases are conveyed with the product, an additional risk assessment by the operator is mandatory.

In principle, the gas paths must be purged with inert gas or air before opening the gas-carrying parts.

The escape of potentially harmful gas from the open process connections must be prevented.

The relevant safety regulations must be observed for the media to be conveyed. If necessary, flush the gas-carrying parts with a suitable inert gas. In the event of a gas leakage, the product may only be opened with suitable PPE or with a monitoring system.

Furthermore, the work safety regulations of the operator must be observed.



### Caution crushing hazard

#### Risk rank group A

The work must be performed by trained personnel only.

This applies to products weighing less than  $< 40\text{ kg}$  [ $\approx 88.2\text{ lbs}$ ]:

The product can be transported by 1 to 2 person(s). The instructions for appropriate personal protective equipment (PPE) must be observed.

The weight specifications are contained in the technical data of this product.

Furthermore, the work safety regulations of the operator must be observed.

## 18 Appendix

- Connection diagrams
- Type Examination Certificate
- Type Examination Certificate Supplement 1
- CSA- Certificate of Compliance
- IECEx Certificate of Conformity



For additional manuals and data sheets please look on our home page  
[www.mc-techgroup.com](http://www.mc-techgroup.com)

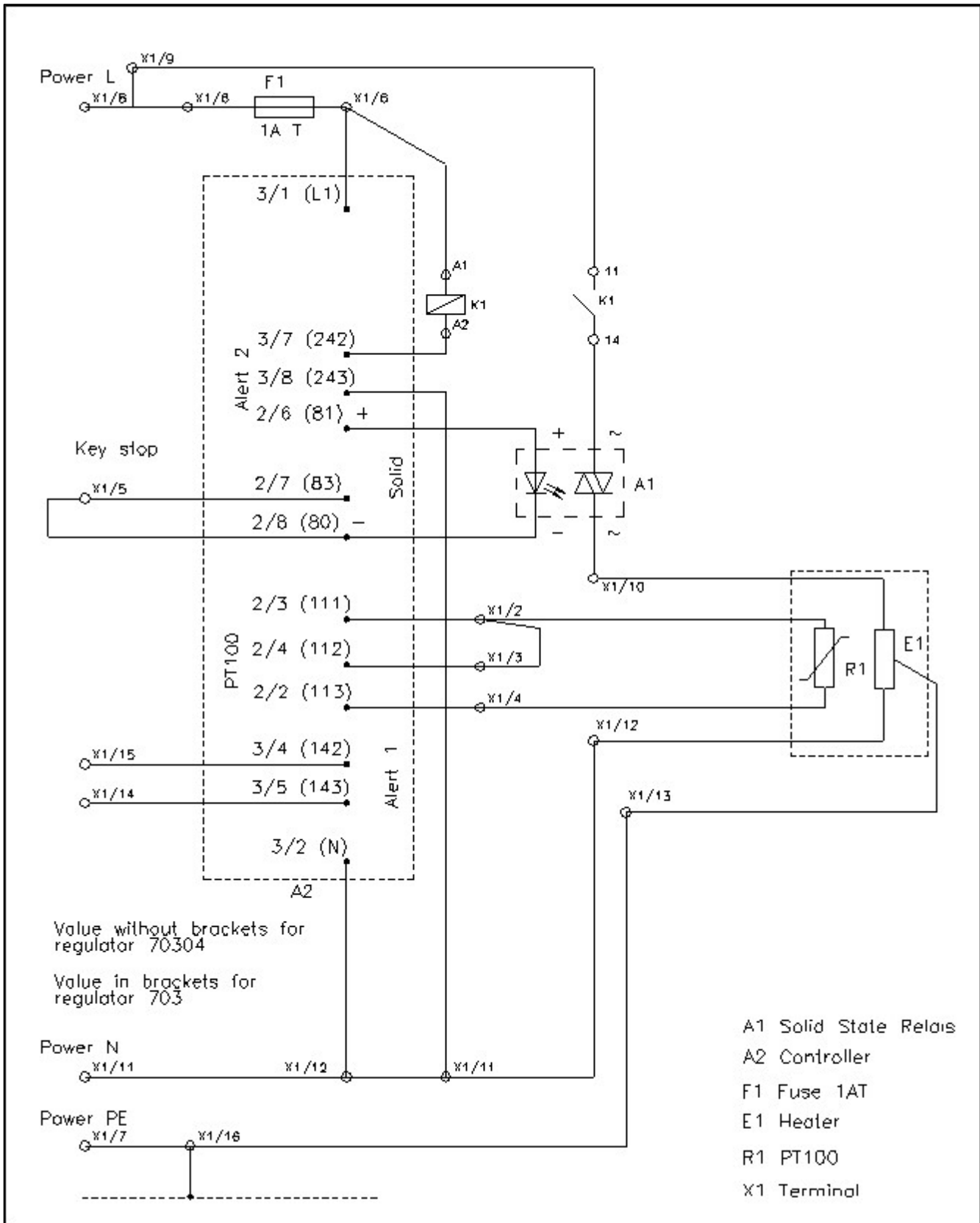


Figure 7 Connection Diagram HEX 5-1.08

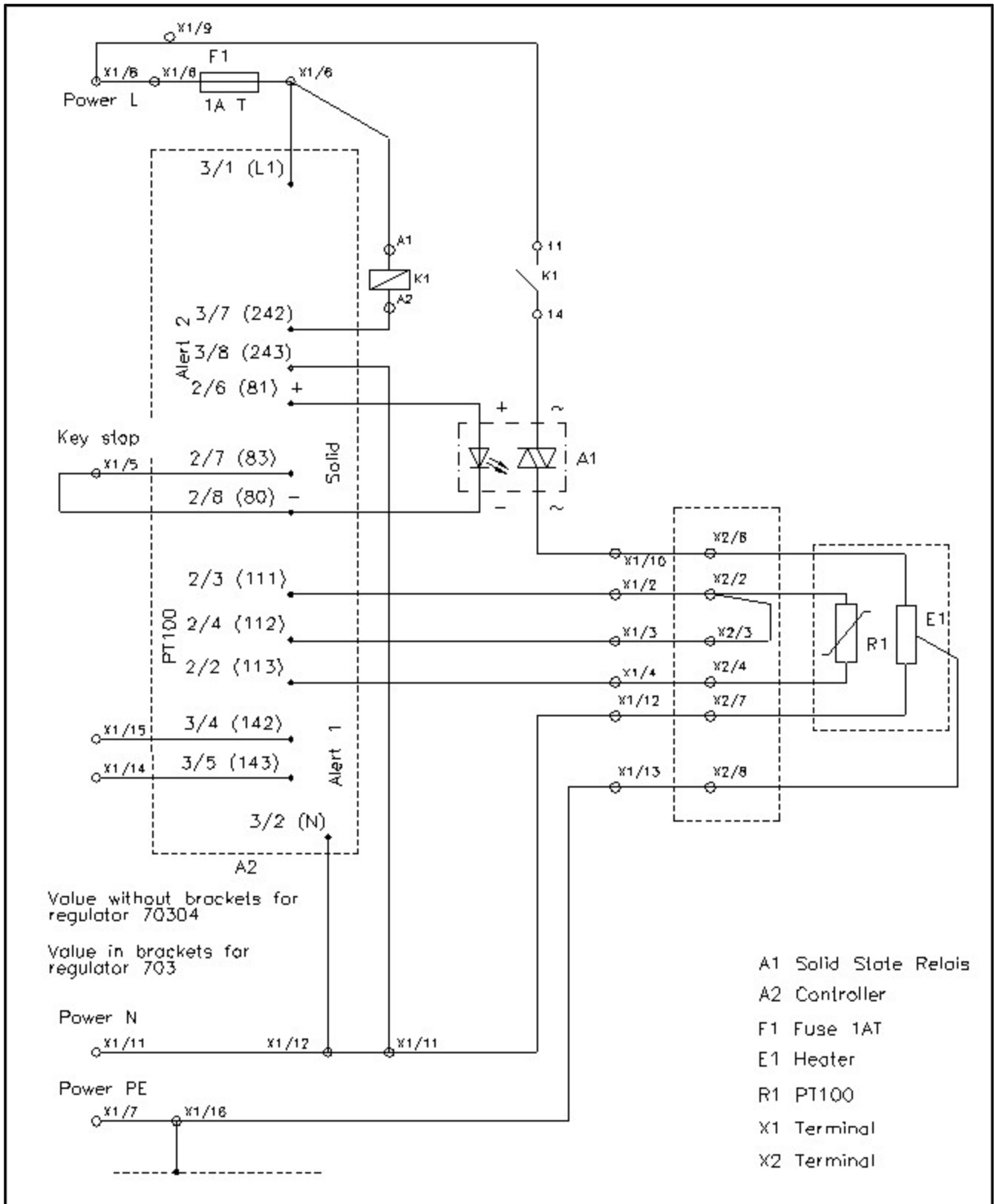


Figure 8 Connection Diagram HEX 5-2.08



## Translation

## EC-Type Examination Certificate

- (1) **EC-Type Examination Certificate**
- (2) **- Directive 94/9/EC -**  
Equipment and protective systems intended for use  
in potentially explosive atmospheres
- (3) **BVS 09 ATEX E 107**
- (4) **Equipment:** Heater HEX5-\*.08
- (5) **Manufacturer:** M&C TechGroup Germany GmbH
- (6) **Address:** 40885 Ratingen, Germany
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.  
The examination and test results are recorded in the test and assessment report BVS PP 09.2139 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- |                  |                               |
|------------------|-------------------------------|
| EN 60079-0:2006  | General requirements          |
| EN 60079-15:2005 | Type of protection 'n'        |
| EN 61241-0:2006  | General requirements          |
| EN 61241-1:2004  | Protection by enclosures 'tD' |
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.  
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate
- (12) The marking of the equipment shall include the following:

	<b>II 3G Ex nA nC nL IIC T2-T5</b>	type HEX5-1.08
	<b>II 3D Ex tD A22 IP65 T 75°C – 235°C</b>	with integrated temperature control
	<b>II 3G Ex nA II T2-T5</b>	type HEX5-2.08
	<b>II 3D Ex tD A22 IP65 T 75°C – 235°C</b>	with connection box
	<b>II 3G Ex nA nC nL IIC T2-T5</b>	type HEX5-2.08
	<b>II 3D Ex tD A22 IP65 T 75°C – 235°C</b>	controller

### DEKRA EXAM GmbH

Bochum, dated 07<sup>th</sup> September 2009

Signed: Simanski

Signed: Dr. Eickhoff

---

 Certification body

---

 Special services unit

Page 1 of 3 of BVS 09 ATEX E 107

This certificate may only be reproduced in its entirety and without change

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 234/3696-105 Fax +49 234/3696-110 E-mail zs-exam@dekra.com



(13) Appendix to

(14) **EC-Type Examination Certificate**

**BVS 09 ATEX E 107**

(15) 15.1 Subject and type

Heater type HEX5-\*.08

- 1 – Heater with integrated temperature control in the wall construction of the enclosure
- 2 – Heater with connection box externally mounted and temperature control inside the wall construction of the enclosure

15.2 Description

The heater HEX5-\*.08 serves the purpose of heating metal bodies and consists of an aluminium heating plate and a heating cartridge of type of protection nA, of a temperature control with a limiter and a temperature sensor.

There are two variants of heater HEX5-\*.08:

Type HEX 5-1: in this case, the temperature control is integrated in the wall construction of the enclosure of type of protection nA.

Type HEX 5-2: in this case, the heater is connected to a connection box of type of protection nA, whereas the temperature control is integrated in the wall construction of the enclosure of type of protection nA.

The relay contacts used comply with the requirements of the type of protection nC, the sensor circuit of the controller complies with the requirements of the type of protection nL.

15.3 Parameters

15.3.1 Electrical data

15.3.1.1	Power supply			
	Voltage	AC	240	V
	Frequency		50/ 60	Hz
	Power		800	W
	or			
	Voltage	AC	120	V
	Frequency		50/ 60	Hz
	Power		830	W

15.3.1.2 Alarm contact 250 V AC 3 A, DC 0.25 A

15.3.2 Thermal data

Ambient temperature		
Temperature control	0 °C... 50	°C
Heater connection box	20 °C... 70	°C



Temperature classes/max. surface temperature T

Temperature class	Controller parameters		Max. surface temperature T [°C]
	Limiter [°C]	Service temperature [°C]	
T2	235	230	235
T2	220	215	220
T3	190	185	190
T3	180	175	180
T3	165	160	165
T3	155	150	155
T3	140	135	140
T4	125	120	125
T4	100	95	100
T5	90	85	90
T5	75	70	75

15.3.3 Degree of protection as per EN 60529

IP65

(16) Test and assessment report

BVS PP 09.2139 EG as of 07.09.2009

(17) Special conditions for safe use

None

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 20.01.2010  
BVS-Hk/Ar E 0046/10

**DEKRA EXAM GmbH**

  
\_\_\_\_\_  
Certification body

  
\_\_\_\_\_  
Special services unit



## Translation

# Type Examination Certificate Supplement 1

Change to Directive 2014/34/EU

Equipment or Protective System intended for use in potentially explosive atmospheres  
Directive 2014/34/EU

Type Examination Certificate Number: **BVS 09 ATEX E 107**

Product: **Heizung Typ HEX5-\*.08**

Manufacturer: **M&C TechGroup Germany GmbH**

Address: **Rehhecke 79, 40885 Ratingen, Germany**

This supplementary certificate extends Type Examination Certificate No. BVS 09 ATEX E 107 to apply to products designed and constructed in accordance with the specification set out in the Appendix of the said certificate but having any variations specified in the Appendix attached to this certificate and the documents therein referred to.

DEKRA EXAM GmbH certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in the confidential Report No. PP 09.2139 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

<b>EN 60079-0:2012 + A11:2013</b>	<b>General requirements</b>
<b>EN 60079-7:2015</b>	<b>Increased Safety "e"</b>
<b>EN 60079-15:2010</b>	<b>Type of Protection "n"</b>
<b>EN 60079-31:2014</b>	<b>Protection by Enclosure "t"</b>

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the appendix to this certificate.

This Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

<p><b>II 3G Ex ec nC IIC T2-T5 Gc</b> <b>II 3D Ex tc IIIC T75°C - 235°C Dc</b></p> <p></p>	<p>Type HEX5-1.08 with integrated temperature control</p>
<p><b>II 3G Ex ec IIC T2-T5 Gc</b> <b>II 3D Ex tc IIIC T75°C - 235°C Dc</b></p> <p></p>	<p>Type HEX5-2.08 Heater</p>
<p><b>II 3G Ex ec nC IIC T2-T5 Gc</b> <b>II 3D Ex tc IIIC T75°C - 235°C Dc</b></p> <p></p>	<p>Type HEX5-2.08 Controller</p>

DEKRA EXAM GmbH  
Bochum, 2016-04-21

Signed: Simanski  
Certifier

Signed: Dr. Eickhoff  
Approver



Page 1 of 3 of BVS 09 ATEX E 107 / N1  
This certificate may only be reproduced in its entirety and without any change.

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,  
telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com



13 **Appendix**14 **Type Examination Certificate**

**BVS 09 ATEX E 107  
Supplement 1**

15 **Product description**15.1 **Subject and type**

Heizung Typ HEX5-\*08

- └ 1 – Internal controller
- 2 – External controller

15.2 **Description**

With this supplement the certificate is changed to Directive 2014/34/EU.  
(Annotation: In accordance with Article 41 of Directive 2014/34/EU, Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

Reason for the supplement:

Reason for this supplement is the updating of the applicable standards.

Description of Product

The heater HEX5-\*08 serves for heating of metallic bodies.  
It consists of a heating cartridge in type of protection Increased Safety "e" according to BVS 04 ATEX E 253, a temperature controller with limiter and a temperature sensor.

The two variants of the heater HEX5-\*08:

Type HEX 5-1: The heating cartridge and the temperature controller are mounted together in an enclosure in type of protection Increased Safety resp. Protection by Enclosure.

Type HEX 5-2: The heating cartridge and the temperature controller are mounted into two different enclosures in type of protection Increased Safety resp. Protection by Enclosure.

The relays are carried out in type of protection nC.

15.3 **Parameters**15.3.1 **Electrical data**15.3.1.1 **Power supply**

Voltage	AC	240	V
Frequency		50/60	Hz
Power		800	W
or			
Voltage	AC	120	V
Frequency		50/60	Hz
Power		830	W

15.3.1.2 Alarm contact 250 V AC 3 A, DC 0.25 A

15.3.2 **Thermal data**

Ambient temperature 0 °C...50 °C  
Temperature control 20 °C... 70 °C  
Heater connection box



DEKRA

DEKRA

DEKRA

DEKRA

DEKRA

DEKRA

DEKRA

Temperature classes/max. surface temperature T

Controller parameters			
Temperature class	Limitier [°C]	Service temperature [°C]	Max. surface temperature T [°C]
T2	235	230	235
T2	220	215	220
T3	190	185	190
T3	180	175	180
T3	165	160	165
T3	155	150	155
T3	140	135	140
T4	125	120	125
T4	100	95	100
T5	90	85	90
T5	75	70	75

15.3.3 Degree of protection as per EN 60529 IP65

16 Report Number

PP 09.2139 EU, as of 2016-04-21

17 Specific Conditions of Use

None  
None additional to those listed previously.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements covered by the standards listed under item 9.

19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH  
Bochum, dated 2016-04-21  
BVS-Pe/Mu A 20150037

\_\_\_\_\_  
Certifier

\_\_\_\_\_  
Approver



Page 3 of 3 of BVS 09 ATEX E 107 / N1  
This certificate may only be reproduced in its entirety and without any change.

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,  
telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com



# Certificate of Compliance

Certificate: 1480900

Master Contract: 222408

Project: 2075585

Date Issued: October 28, 2008

Issued to: M & C TechGroup Germany GmbH  
Rehhecke 79  
40885 Ratingen  
Germany

*The products listed below are eligible to bear the CSA Mark shown*



Issued by: Eric Giusti

Authorized by: M.H.J. Hoendervangers  
Area Director, Europe



## PRODUCTS

CLASS 2258 02 – PROCESS CONTROLL EQUIPMENT- For Hazardous Locations

Permanently connected heating element with a temperature controller, Model HEX 5-1 and HEX 5-2.

Heating element with a temperature controller for Class I, Div. 2, Gps ABCD, T2B/ .../T5.

## ELECTRICAL RATINGS:

Voltage: 120 or 240 Vac, 50/60 Hz

Power: 830 VA

## NOTE:

For use in other equipment where the suitability of the combination is to be determined by CSA International.



Certificate: 1480900

Project: 2075585



Master Contract: 222408

Date Issued: October 28, 2008

**APPLICABLE REQUIREMENTS**

CAN/CSA-C22.2 No. 1010.1-92 - Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1; General Requirements

CAN/CSA-C22.2 No. 213-M87 - Non-Incendive Electrical Equipment for Use in Class I, Division Hazardous Locations





### Supplement to Certificate of Compliance

Certificate: 1480900

Master Contract: 222408

*The products listed, including the latest revision described below,  
are eligible to be marked in accordance with the referenced Certificate.*

#### Product Certification History

Project	Date	Description
2075585	October 28, 2008	Update of report 1480900 to cover an alternative approved temperature controller
1634862	Jan. 19, 2005	Update of report -1480900, addition of Tcodes T2 and T2A
1480900	Sept. 23, 2003	Original Certification. Model HEX 5-1 and HEX 5-2.



## IECEX Certificate of Conformity

### INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX BVS 16.0025</b>	Page 1 of 5	<a href="#">Certificate history:</a> <a href="#">Issue 0 (2016-05-02)</a>
Status:	<b>Current</b>	Issue No: 1	
Date of Issue:	2020-03-23		
Applicant:	<b>M&amp;C TechGroup Germany GmbH</b> Rehhecke 79 40885 Ratingen Germany		
Equipment:	<b>Heater type HEX5-*.08</b>		
Optional accessory:			
Type of Protection:	<b>Type of protection "n", Dust ignition protection by enclosure "t", Increased safety "e"</b>		
Marking:	Ex ec nC IIC T2 - T5 Gc      or      Ex ec IIC T2 - T5 Gc Ex tc III C T75°C - 235°C Dc      Ex tc III C T75°C - 235°C Dc		

Approved for issue on behalf of the IECEx  
Certification Body:

**Jörg Koch**

Position:

**Head of Certification Body**

Signature:  
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**DEKRA Testing and Certification GmbH**  
Certification Body  
Dinnendahlstrasse 9  
44809 Bochum  
Germany

 **DEKRA**  
On the safe side.



## IECEX Certificate of Conformity

Certificate No.: **IECEX BVS 16.0025** Page 2 of 5

Date of issue: 2020-03-23 Issue No: 1

Manufacturer: **M&C TechGroup Germany GmbH**  
Rehhecke 79  
40885 Ratingen  
Germany

Additional  
manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2011 Explosive atmospheres - Part 0: General requirements  
Edition:6.0

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"  
Edition:4

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"  
Edition:5.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

#### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/BVS/ExTR16.0028/00](#)

Quality Assessment Report:

[DE/BVS/QAR17.0009/00](#)





## IECEX Certificate of Conformity

Certificate No.: **IECEX BVS 16.0025**

Page 3 of 5

Date of issue: 2020-03-23

Issue No: 1

### EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

#### Description

The heater HEX5-\*.08 serves for heating of metallic bodies.

It consists of a heating cartridge in type of protection Increased Safety "e" according to BVS 04 ATEX E 253, a temperature controller with limiter and a temperature sensor.

The two variants of the heater HEX5-\*.08:

Type HEX 5-1: The heating cartridge and the temperature controller are mounted together in an enclosure in type of protection Increased Safety resp. Protection by Enclosure.

Type HEX 5-2: The heating cartridge and the temperature controller are mounted into two different enclosures in type of protection Increased Safety resp. Protection by Enclosure.

The relays are carried out in type of protection nC.

#### Subject and Type

See Annex

**SPECIFIC CONDITIONS OF USE: NO**



# IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 16.0025**

Page 4 of 5

Date of issue: 2020-03-23

Issue No: 1

**Equipment (continued):**

**Parameters**

Electrical data

Supply

Supply voltage 240 V  
 Frequency 50/60 Hz  
 Power 800 VA

or

Supply voltage 120 V  
 Frequency 50/60 Hz  
 Power 830 VA

Alarm contact

Voltage 230 V  
 Current AC 3 A  
 DC 0.25 A

Thermal data

Ambient temperature controller 0 °C up to 50 °C  
 Ambient temperature terminal box - 20 °C up to 70 °C

Temperature class / max. surface temperature T

Controller			
Temperature class	Limiter [°C]	Service temperature [°C]	Max. surface temperature T [°C]
T2	235	230	235
T2	220	215	220
T3	190	185	190
T3	180	175	180
T3	165	160	165
T3	155	150	155
T3	140	135	140
T4	125	120	125
T4	100	95	100
T5	90	85	90
T5	75	70	75



## IECEX Certificate of Conformity

Certificate No.: **IECEX BVS 16.0025**

Page 5 of 5

Date of issue: 2020-03-23

Issue No: 1

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

This new issue of the Certificate is to cover a change in the ExCB for conducting surveillance assessment and issuing of QARs.