

# EX HKA ... /100 AT

Heating element with temperature controller - limiter



### Characteristics

- high capacity
- optimizes radiation by black lacquer and dense heating ribs
- controller and limiter integrated in the connector block
- mounting bracket included

The heating element consists of two flat tube heat conductors, which are pressed into heating ribs. The standard version is galvanized and enamelled. The junction box includes the temperature limitation, temperature control and possibly the temperature signaling and it has been poured with resin. The connection cable is about 1,20 m long and in the standard version made of silicone.

Custom-built version:

1. V2A protective sleeve over connection cable
2. Thermostat für signaling (TH)
3. PTFE - coated

For the attachment of mounting bars four holes with a diameter of 6,5 mm are provided. The heating elements can be installed in two different positions into the cabinet, vertical and horizontally. Because of this and because of the low space requirements they can be easily retrofitted in existing, with devices equipped, cabinets.

### PRODUCTION NUMBER

xxxx / 03.03

	Year
	Month
	Serial number

### ORDER REFERENCE

EX HKA 1 100AT 2 3 4

<b>1</b>		Internal resistance (see table 1)
<b>2</b>	-	Temperature signal by monitor (see table 2)
	M	Monitoring limiter
<b>3</b>	-	standard
	s	with protective sleeve
	T	with Teflon coating
	sT	with protective sleeve and Teflon coating
<b>4</b>	-	T3 version
	4	T4 version

Table 1

Internal resistance in Ohm	130	105	80	33	20
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Table 2

Temperature monitoring in °C	5	10	20	40
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### GENERAL TECHNICAL DATA

Main circuit	
Series voltage	≤ 252 V ~
Rated output power	370 W
Dimensions	210 mm x 273 mm x 54 mm
Weight	3,5 kg
Type of protection	IP 65 / DIN 60529:1991+A1:2000+A2:2013
Temperature switching point	100 °C
Hysteresis	≤ ± 7 K
Limiter	112 °C
Temperature rating	see operating manual, chapter 3.1
Ambient temperature range	-55°C to +80°C
Fuse	≤ 16 A
Control circuit / monitor	
Rated voltage	230 V~
Rated current	10 A
Electrical connection	Connection cable, silicone 3 x 1,5 mm <sup>2</sup> bzw. 5 x 1,5 mm <sup>2</sup> , 1,2 m lang, Ø 6-8 mm
Compliance with standards	The equipment meets the technical requirements of the EN 60079-0:2012+A11:2013, EN 60079-1:2014 EN 60079-7:2015 und 60079-18:2015
Request class	AK4
Type of ignition protection (gas)	II 2 G Ex eb mb db IIC T3 bzw. T4
EU-type examination certificate	PTZ 16 ATEX 0022 X
Identification	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;"> <p>0344</p> </div> <div style="text-align: center;"> <p>II 2 G Ex eb mb db IIC T3 bzw. T4</p> </div> </div>

## APPLICATION SECTOR

The various electrical heating elements of the type Ex HKA are used for the heating of cabinets, in particular of instrument protection cabinets. The heating element is designed for room heating with high specific need of heat (2W/Liter) at the lowest possible temperature difference in the room. The different internal resistances are provided for series circuit of different heating elements and needs of heat at constant flow systems with e.g. 3 A.

## TEMPERATURE LIMITING

In how far the built-in reset limiter can be used also as limiter for the entire heating device after the establishment, must be determined through a appropriate design calculation. In case of doubt an evaluation can only be decided by an expert on site. This is in particular for in row switched, further active components.

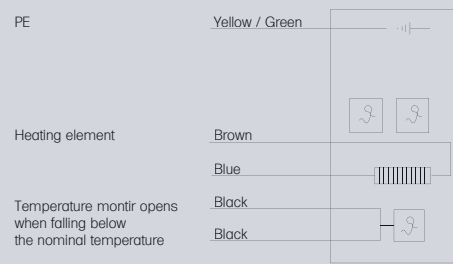
## PROTECTIVE MEASURES

As stated in the specifications, a 16 A fuse must be pre-switched to the heating element. The heater must be involved into the potential compensation. Because of the often long lead and the subsequently capacitive fault currents, which can still increase due to the moisture saturation of the isolation, fault circuit interrupters with 300 mA are recommended. This advice is based on that, dependant on the manufacturer, fault circuit interrupters respond differently with capacitive fault currents.

## INSTALLATION

1. The devices may not be thrown or fall. If a deformation is visible at the device, the radiator must be sent back for inspection.
2. The cable must not be damaged. Especially in the case of the unprotected version damage due to metal parts or the radiator itself should be avoided.
3. The heater may not be carried on the cord.
4. The installation should always be horizontal in the cabinet: with vertical installation the connection must be running sideways.
5. Due to the max. Leistung of the Ex HKA of about. 370 W if used properly, the max. temperature in the protective cabinet can be estimated at known thermal conditions. In case of doubt measurements on site are advisable. In normal operation 100°C can not be exceeded, if no other heating elements are present. Heat loss and other temperature limiters usually lead to significantly lower temperatures inside the cabinet than the quoted value..
6. It is to check, if at max. ambient temperature of the protective cabinet this and further installations are not exposed to unacceptable overheating due to the achievable indoor temperature. The indications for the max. ambient temperature of the used components must be observed.
7. The connection cable must be laid mechanically protected.
8. If the protection cabinet is opened for the purpose of operation, it should be noted that the radiator can be in operation. Therefore the installation of a touch guard for the radiator is recommended or that a sufficient cooling period is kept after switching off.
9. In the installed state a load up to 5 kg is admissible for a short time, provided that a sufficient assembly is guaranteed.
10. When working on the piping in the protective cabinet the radiator must be removed.
11. Do not store any objects on the heating element.
12. Damages or overloading, which result by connecting with other equipment must be avoided.

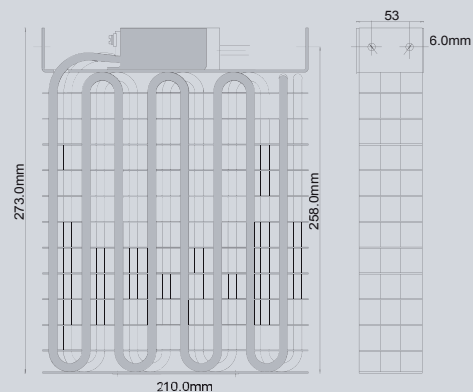
## CONNECTION PLAN



## DIMENSIONS

View

View from the side



Top view



## NAMEPLATE



1-	Monitoring authority	7-	Ambient temperature range
2-	Serial number	8-	Ex marking
3-	Rated Current	9-	Type
4-	Internal resistance	10-	Guardian characteristics
5-	Series voltage	11-	EU-Type examination certificate
6-	voltage	12-	Type of protection

Please take further information from the operating instructions. Download on [www.erich-ott.de](http://www.erich-ott.de)