



Ex-TAM813

## Ex - TAM

Protection class with immersion tube:

Ex II 2G Ex d e IIC T6 Gb

Ex II 1/2D Ex ta/tb IIIC T80 °C Da/Db

The sensor cartridge at the end of the capillary tube is the actual active (temperature-sensitive) part of the sensor. Changes in temperature on the capillary tube have no effect on the

switching point. Pressure-tight installation of the sensor in pressure vessels of all kinds is possible with the aid of an immersion well.



SIL 2 according IEC 61508-2

### Technical data

**Body** Diecast aluminium GD Al Si 12 according to DIN 1725.

**Mounting position** vertically upright

**Permitted ambient temperature at switching device** -20 to +60 °C

**Capillary tube** Cu capillary tube, 1.5 m long  
Other capillary tube lengths are not possible

**Sensor cartridge** 8 mm Ø, 100 mm long, material: Cu

**Contact arrangement** Single pole changeover switch

**Switching capacity** 8 (5) A 250 VAC

**Degree of protection** IP 65 according to DIN EN60529 (with vertical installation)

**Mounting** Temperature sensor with or without immersion tube in containers, air ducts etc.  
Switching device with 2 screws (Ø 4) directly on a flat wall surface

**Calibration** Scale value corresponds to the lower switching point (with falling temperature), the upper switching point is higher by the amount of the switching differential

**Switching temperature** Adjustable via the setting spindle with a screwdriver

**Switching differential** Not adjustable

### Product Summary

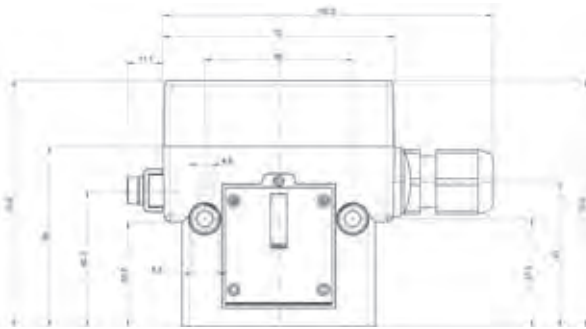
Type	Setting range	Switching differential (mean values)	Max. permissible temperature at sensor
Ex-TAM022	-20 to + 20 °C	1.5 K	110 °C
Ex-TAM150	+10 to + 50 °C	1.5 K	110 °C
Ex-TAM490	+40 to + 90 °C	2.0 K	125 °C
Ex-TAM813	+80 to +130 °C	2.0 K	150 °C

### + Accessories

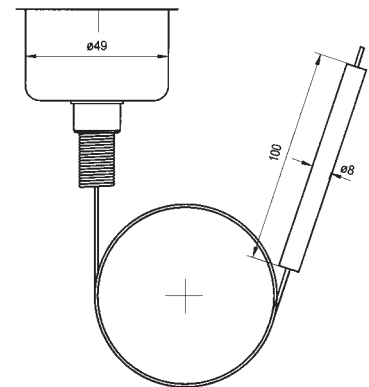
Immersion tube type ... R1, R2, R3, RN1, RN2, page 157.

## Dimensioned drawings (mm)

Switching housing 700 (terminal connection, Ex-d)




Switching housing



Temperature sensor

## Temperature monitoring in explosion-endangered areas

 Temperature switches with special equipment can also be used in explosion risk areas Zone 1, 2 and 21, 22.

The following alternatives are possible:

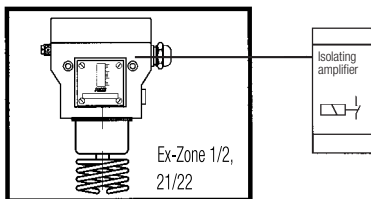
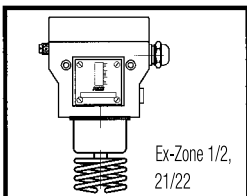
### 1. Type of ignition protection Ex-d, Ex-e and Ex-t:

The thermostat with protection type "Flameproof Ex-d and Increased Safety Ex-e" can be used in hazardous areas of zone 1 and 2 for flammable gas mixtures. For use in dust atmospheres, the protection is "protected by enclosure Ex-t".

The thermostat may be used in hazardous areas of zones 21 and 22 for explosive dusts. In addition, for the dust – explosion protect zone 20 on the sensor (device screwed into container walls, which may occur in the interior permanent dust atmosphere).

The permissible values for switching voltage, switching capacity and ambient temperature please refer to the detailed description of the Ex equipment, and the installation and operating instructions. In addition, please note the general rules for the use and installation of equipment in hazardous atmosphere.

Special circuits, as well as versions with adjustable switching differential or internal interlock (reclosing lock) are not possible.









### 2. Ignition protection Ex-i

All thermostat with features for intrinsically safe circuits can be used in hazardous areas Zone 1 and 2 (Gas) and zones 21 and 22 (Dust). A circuit is considered to be "intrinsically safe" if the amount of energy conveyed therein is not capable of generating an ignitable sparks. This thermostat can only be operated in combination with a suitable isolating switching amplifier, which is approved for the type Ex-i. Because of the low voltages and currents in intrinsically safe circuits, micro switches with gold contacts are used for temperature monitors with automatic reset. FEMA thermostats for use in intrinsically safe circuit are marked by blue terminals and cable entries. In addition, the thermostats has been tested by a "notified body". The units get a serial number and the nameplate inform about the ignition protection and registration number.

### Igniton protection for pressure monitoring in Zone 0 (20), 1 (21) and 2 (22)

<b>Pressure-proof encapsulation Ex-d (EN60079-0:2009)</b>	<b>Intrinsically safe Ex-i (EN 60079-11:2012)</b>
<b>Enhanced safety Ex-e (EN60079-7:2007)</b>	<b>T...-513, ...-563</b>
<b>Protection via housing Ex-t (EN60079-31:2009)</b>	
<b>Ex-T...</b>	

Marking, use in thermowell: CE 0035  II 2G Ex d e IIC T6 Gb CE 0035  II 1/2D Ex ta/tb IIIC T80°C Da/Db Exception: EX-TRM...: CE 0035  II 2G Ex d e IIC T6 Gb CE 0035  II 2D Ex tb IIIC T80°C Db	Marking: CE 0035  II 2G Ex ia IIC T6 Gb CE 0035  II 2D Ex ia IIIC T80°C Db
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ATEX approval for the complete switching device	ATEX approval for the complete switching device ATEX approval for isolating amplifiers
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Thermostat with a silver contact	Thermostat with gold-plated contacts
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Switching capacity: max. 3 A, 250 VAC min. 2 mA, 24 VDC	Rated value without resistor combination ...-513 /...-563: Ui: 24VDC Ii: 100mA Ci: 1nF Li: 100µH
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Thermostat can be installed within the Ex-Zone	Thermostat will be installed in Ex-Zone. The isolating amplifier must be installed outside the Ex-Zone.
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# Mechanical thermostats

## Principal technical data



Terminal connection

Ex version

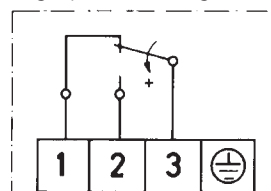
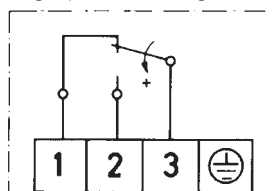
...500 (Ex-i)

...700 (Ex-d)

**Switch housing**  
**Switching function and connection scheme**  
(applies only to version with microswitch)

Diecast aluminium GDAISi 12  
Floating changeover contact  
With rising pressure  
single pole switching from 3-1 to 3-2

Diecast aluminium GDAISi 12  
Floating changeover contact.  
With rising pressure  
single pole switching from 3-1 to 3-2



**Switching capacity**  
(applies only to version with microswitch)

max. 100 mA, 24 VDC  
min. 2 mA, 24 VDC

3 A at 250 VAC  
2 A at 250 VAC inductive  
3 A at 24 VDC  
0.03 A at 250 VDC  
min. 2 mA, 24 VDC  
Vertically upright

**Mounting position**

Vertical or horizontal,  
vertically upright  
IP 65

IP 65

**Protection class**  
(in vertical position)

**Explosion protection**  
with immersion well

Ex II 1/2G Ex ia IIC T6 Ga/Gb  
Ex II 1/2D Ex ia IIIC T80 °C

CE 0035 Ex II 2G Ex d e IIC T6 Gb  
CE 0035 Ex II 1/2D Ex ta/tb IIIC T80 °C Da/Db

**Exception: EX-TRM...:**

Ex II 2G Ex d e IIC T6 Gb  
Ex II 2D Ex tb IIIC T80 °C Db

**Electrical connection**

Terminal connection

Terminal connection

**Cable entry**  
**Ambient temperature**  
**Switching point**

M 16 x 1.5  
-15 to +60 °C  
Adjustable with spindle after  
the terminal box cover is removed

M 16 x 1.5  
-20 to +60 °C  
Adjustable with spindle after  
the terminal box cover is removed

**Switching differential**  
**Medium temperature**  
**Vibration strength**

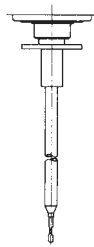
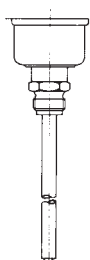
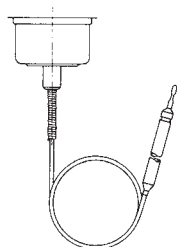
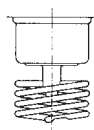
not adjustable  
Max. 60 °C  
No significant deviations up to 4 g.  
At higher accelerations, the switching differential is reduced slightly.  
Use over 25 g is not permitted.

Not adjustable  
Max. 60 °C

**Isolation values**

Overvoltage category III, contamination class 3, reference surge voltage 4000 V.  
Conformity to DIN VDE 0110 is confirmed.

**Sensor systems**



Room sensor TRM

Capillary tube sensor TAM

Rod sensor TX+R10

Air duct sensor TX+R6



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