Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 03 ATEX 2027 X

(4) Equipment: Thermostat, types TS and TSE

(5) Manufacturer: Intertec-Hess GmbH

(6) Address: Raffineriestrasse 8, 93333 Neustadt/Donau, Germany

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC 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 confidential report PTB Ex 03-22314.

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

EN 50014:1997 + A1 + A2 **EN 50028:1987** **EN 50281-1-1:1998**

(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 schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the 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:

II 2 G EEx m II T6, T5, T4, T3 and
II 2 D IP 65 T 80 °C, T 95 °C, T 130 °C, T 195 °C

Zertifizierungsstelle Explosionsschutz
By order:

i.V. U. Johannsmeyer

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, 23 May 2003

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2027 X

(15) Description of equipment

The thermostat is used for the thermostatization of the inside of protective casings, protective housings or, for instance, for electric trace heating of thermally insulated piping. The type TS thermostat is installed as a supply line for an electric heater of the explosion-protected type. The miniature room thermostat type TSE has only one open-ended line, which is why it must be connected in series in an Ex-type terminal box in parallel with the electric heater.

Technical data

Rated voltage U_e , up to	230 V	
Rated current I_e	10 A	
related to utilization category	AC-1	AC-3

Provided the making and breaking capacities defined in the relevant regulations are met, rated values other than those specified above are acceptable and will be defined by the manufacturer on the basis of the operating mode, utilisation category, etc.

Contacts	1 NCC or 1 NOC
Switching capacity	2000 W
Rated cross section	3 x 1.0 mm^2

(16) Test report PTB Ex 03-22314

(17) Special conditions for safe use

1. Each thermostat shall be provided on the line side with a short-circuit protection in the form of a 16-A fuse in compliance with DIN 41571 or IEC 60127. This fuse may be accommodated in the corresponding power supply unit or it shall be connected separately on the line side. The fuse voltage rating shall be the same or greater than the voltage rating specified for the temperature regulator. The breaking capacity of the fuse link shall be the same or greater than the maximum short-circuit current expected at the place of installation (normally 1500 A).
2. The ambient temperature range of the thermostat must not exceed -50 °C and +80 °C during operation.
3. The thermostat and its connecting lead (open-ended line) shall be installed to provide for adequate protection against mechanical damage.
4. If connection is made in the potentially explosive area, the connecting lead of the thermostat shall be connected in an enclosure that meets the requirements of an approved type of protection in compliance with EN 50014, section 1.2.

5. The quality of the connecting lead shall be such that it complies with the thermal requirements within the duty range.
6. Equipotential bonding and earthing shall be safeguarded by the way the thermostat is connected with the complete system.
7. The thermostats TS and TSE shall be installed in an additional enclosure that has passed the tests specified in EN 50028:1987, sections 5.1 and 5.2.

(18) Essential health and safety requirements

Met by compliance with the aforementioned Standards.

Zertifizierungsstelle Explosionsschutz
By order:

i. V. U. Johannsmeyer

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

Braunschweig, 23 May 2003

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2027 X

(Translation)

Equipment: Thermostat, types TS and TSE

Marking: ⟨Ex⟩ **II 2 G EEx m II T6, T5, T4, T3**
and II 2 D IP65 T80°C, T95°C, T130°C, T195°C

Manufacturer: INTERTEC-Hess GmbH

Address: Raffineriestraße 8
93333 Neustadt/Donau, Germany

Description of supplements and modifications

The ambient temperature range is extended to – 60 °C. In addition the nominal voltage is increased to 265 V.

In the future the "Special Conditions" apply as follows:

1. A fuse with a rated current of 10 A acc. to IEC 60127-2-1 or a motor protection switch with instantaneous short-circuit or thermal tripping (adjusted to 10 A) shall be connected in series to each thermostat as short-circuit protection. The fuse or the motor protection switch may be accommodated in the corresponding power supply unit or it shall be connected in series separately. The rated voltage of the fuse shall be the same as or higher than the maximum operating voltage specified for the thermostat. The breaking capacity of the fuse link shall be the same as or higher than the maximum short-circuit current expected to occur at the place of installation (usually 1500 A).
1. The ambient temperature range of the thermostat must not exceed – 60 °C and + 80 °C during operation.
2. The thermostat and its connecting cable (open-ended cable) shall be installed to provide for adequate protection against mechanical damage.
3. The connecting cable shall be connected inside of an enclosure which complies with the requirements of an acknowledged type of protection according to EN 60079-0:2006 section 1, if the connection is intended inside the hazardous area.
4. The connecting cable shall be of such quality that it complies with the thermal requirements of the field of operation.

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1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2027 X

5. Equipotential bonding and earthing shall be safeguarded by mounting the thermostat to the complete system.
6. The thermostat shall mounted into an additional enclosure that meets the requirements acc. to EN 60079-0:2006.

In the future the equipment shall be marked as follows:

⟨Ex⟩ II 2 G Ex mb IIC T6, T5, T4 and T3
⟨Ex⟩ II 2 D Ex tD A21 IP 65 T80°C

Applied standards

EN 60079-0:2006, EN 60079-18:2004, EN 61241-0:2006, EN 61241-1:2004

Assessment and test report: PTB Ex 10-20073

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, 20. Januar 2011

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2027 X

(Translation)

Equipment: Thermostat, types TS and TSE

Marking: **II 2 G Ex mb IIC T6, T5, T4, T3**
II 2 D Ex tD A 21 IP65 T80°C

Manufacturer: INTERTEC-Hess GmbH

Address: Raffineriestraße 8, 93333 Neustadt/Donau, Germany

Description of supplements and modifications

In the future the thermostat types TS and TSE shall be marked as follows:

II 2 G Ex mb IIC T6
II 2 D Ex tb IIIC T80°C

All other specifications of the EC-type-examination certificate and the supplement apply without changes.

Applied standards

EN 60079-0:2009, EN 60079-18:2009, EN 60079-31:2009

Test report: PTB Ex 13-22368

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, April 29, 2013

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

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