



(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 08 ATEX 1041

(4) Equipment: Temperature transducer, type TTF350-E3...
Temperature transducer, type TTF350-E4...

(5) Manufacturer: ABB Automation Products GmbH

(6) Address: Borsigstr. 2, 63755 Alzenau, 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 08-17106.

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

EN 60079-0:2006

EN 60079-1:2004

(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 Ex d IIC T6, T5 and T4**

Zertifizierungsstelle Explosionsschutz

Braunschweig, July 14, 2008

By order


Dr.-Ing. M. Theiders
Oberregierungsrat



(13)

SCHEDULE

(14)

EC-TYPE-EXAMINATION CERTIFICATE PTB 08 ATEX 1041

(15) Description of equipment

The temperature transducer, type TTF350-E3..., is used together with measuring sensors for acquiring, amplifying and transmitting measured values. The measuring sensors connected at the input end can be resistance thermometers, thermocouples or other sensors with defined resistance and direct-voltage values. A digital HMI type B indicating device can be installed as an optional extra.

The TTF350-E4... version provides intrinsically safe measuring electronics and an intrinsically safe HMI type B indicating device.

The measuring electronics and supply terminals are housed in a type 2 - 2 T enclosure (cast aluminium unit).

Connection is provided by flameproof cable entry fittings in the integrated terminal compartment.

Technical data

TTF350-E3...

Rated voltage $U_N = 42 \text{ V DC}$
Rated current of the fuse $I_{\text{fuse}} = 32 \text{ mA}$

Ambient temperatures depending on power consumption and temperature class:

Power consumption in the electronics / terminal compartment	2.5 W / 1 W		
Temperature class	T6	T5	T4, T3, T2, T1
Permitted ambient temperature range	- 40 °C ... + 65 °C	- 40 °C ... + 80 °C	- 40 °C ... + 85 °C

TTF350-E4...

For the electric data and ambient temperatures, reference is made to the EC Type Examination Certificate issued for the installed intrinsically safe temperature transmitter.

(16) Test report PTB Ex 08-17106

(17) Special conditions for safe use

None

Additional notes for safe operation

Connection conditions

1. The enclosure, type 2 - 2 T, of the temperature transducer, type TTF350-...., has to be connected by means of suitable cable entry fittings or conduit systems, which meet the requirements of EN 60079-1, sections 13.1 and 13.2, and for which a separate examination certificate has been issued.
2. Cable entry fittings (screwed cable glands) and sealing plugs of a simple design must not be used.
3. Any openings that are not used must be closed as specified in EN 60079-1, section 11.9.
4. The connecting lead at the enclosure, type 2 – 2 T, of the temperature measuring transducer, type TTF350-...., must be installed to provide for permanent wiring and adequate protection against damage.
5. If the temperature at entry fittings should exceed 70 °C, the connecting cables used have to be of the temperature-resistant type.
7. If connection is made in the potentially explosive area, the connecting cable (unconnected cable end) must be connected in an enclosure that meets the requirements of an approved type of protection as specified in EN 60079-0, section 1.

Notes to this effect must accompany each device in an adequate form.

Components attached or installed (terminal compartments, bushings, Ex-type cables and cable entry fittings, connectors) have to be of a technical standard that complies with the specifications on the cover sheet as a minimum, and they must be covered by a separate examination certificate. The operating conditions specified in component certificates must be followed.

Enclosure temperature range

According to the experimental tests performed by PTB, temperatures between - 40 °C and + 85 °C are acceptable for the enclosure of the temperature transducer, type TTF350-.....

(18) Essential health and safety requirements

Met by compliance with the afore-mentioned Standards.

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