

Installation and Maintenance Instruction Manual



All Stainless Steel Gas Actuated Thermometer Model S5500

for explosion risk areas pursuant to Directive 94/9/EC (ATEX)

In the following configuration:

- ###S5500###ATEX gas actuated thermometer without switching contact
- ###S5500###I####ATEX gas actuated thermometer with inductive proximity switches



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1 General remarks

1.1 Purpose of this Manual



This Operating Manual contains fundamental and essential advice to be followed for the installation, operation and servicing of the device. It must be read without fail before assembly and start-up of the device by the fitter, the operator and the specialist personnel responsible for the device. This Operating Manual must be available at the point of use of the device at all times.

The following sections about general Safety information (2) and also the following specific advice regarding the intended purposes (2.2) and through to disposal (11.3) contain important safety information which, if not followed, may result in risks for people and animals, or to property and buildings.

1.2 Symbols



Warning!

This indicates a possibly hazardous situation where failing to follow advice may result in risks to people, animals, the environment and buildings.



Information!

This emphasizes key information for efficient, fault-free operation.

1.3 Limits of liability

Failure to respect this safety information, the envisaged uses or the limit values relating to use indicated in the technical data for the device may result in risk or to injury to people, the environment or the plant.

Claims for compensation for damage against the device supplier are excluded in such an eventuality.

1.4 Copyright

This Operating Manual may only be copied and passed on as a complete document without the special permission of the publisher.

1.5 Warranty

For the product described here, we offer a warranty pursuant to Section 6 Guarantee in Respect of Defects in our General Terms and Conditions of Delivery and Payment.

1.6 Manufacturer's address, customer services

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2 Safety

2.1 General sources of hazards

Temperature gauges are generally a constituent part of a control and measurement system, and their failure can result in hazardous situations. The selection of temperature gauge should be made in accordance with the rules set out in EN 13190 or ASME B40.200.

2.2 Use in accordance with intended purpose

The devices are only to be used for the intended purpose as described by the manufacturer.

The devices are used for direct display of temperatures.

The integrated switching elements are inductive proximity switches with a groove design, supplied by isolating switch amplifiers with certified intrinsically safe power circuits. If the set limit values are exceeded, the output circuits are opened or closed.

For each use scenario, the corresponding set-up regulations must be respected. If used in explosion risk areas, the following conditions are to be respected.

2.3 Operator's responsibility

Safety instructions for proper operation of the device must be respected. They are to be provided by the operator for use by the respective personnel for installation, servicing, inspection and operation. Risks from electrical energy and from the released energy of the medium, from escaping media and from improper connection of the device must be eliminated. The details for this are to be found in the corresponding applicable set of regulations, such as DIN EN, UVV (accident prevention regulations) and in sector-specific instances of use (DVWG, Ex- GL, etc.) the VDE guidelines and the regulations supplied by local utilities companies.

The device must be taken out of service and secured against inadvertently being restarted, if the presumption is that risk-free operation is no longer possible (see Chapter 10: Faults).

Conversion works or other technical alterations to the device by the customer are not permitted. This also applies to installation of spare parts. Possible conversions or alterations may only be carried out by the manufacturer.

The operational safety of the device is only guaranteed where it is used for its intended purpose. The specification of the device must be adapted to the medium used in the plant. The limit values indicated in the technical data must not be exceeded.

The safety information detailed in this Operating Manual, existing national regulations for accident prevention, and the operator's internal regulations regarding working, operations and safety must be respected.

The operator is responsible for all specified servicing, inspection and installation works being carried out by authorized and qualified specialists.

2.4 Staff qualifications (target group assessment)

The device may only be installed and started up by specialist staff who are familiar with installation, start-up and operation of the product.

Specialist staff are people who are able to assess the work assigned to them on the basis of their specialist training, their knowledge and experience and their knowledge of the relevant standards, and can identify possible risks.

For devices in explosion-protected configuration, these staff must have been trained or instructed in, or be authorized for, working on explosion-protected devices in potentially explosive plants.

2.5 Signs/Safety markings

The gauge and its surrounding packaging carry markings. These markings show the article number, measurement range and manufacturer. The gauge can be provided with additional signs and safety markings advising on special conditions:

- Advice on the filling liquid
- Advice on calibration
- Ex (for ATEX configuration)

2.6 Safety equipment

The window uses multi-layer safety glass. This device is fitted with a rear plug capable of being blown out.

2.7 Environmental protection

This device may optionally contain a filling liquid (e.g. glycerin or silicone oil). The provisions set out in the REACH regulation on production and use of chemicals are to be respected, and the relevant safety data sheets from the manufacturers of the chemicals are available on our website for download.

3 Use in explosion risk areas pursuant to Directive 94/9/EC (ATEX)

3.1 S5500 without switching contact

Area of use:

Gas actuated thermometers are intended for installation in pipes, tanks, plant and machinery to measure the temperatures of gaseous and/or liquid materials. The requirements for the explosion area are limited to Zone I and II, Category 2, Group II for gas and dust.

Permitted temperatures:

A temperature class is not specified, since no heating emanates from the device. The ambient temperature is limited to the range -30 °C to 80 °C.

Applicable standards:

For the non-electrical part of the devices, the standards EN 13463-1, EN 13463-5 and EN 60079-0 are applicable with regard to explosion protection. The relevant requirements of these standards are satisfied.

The documentation has been filed with TÜV-Nord-Cert (see declaration of conformity).

Labeling:

See chapter 5 Labeling on the device.

3.2 S5500 I#### with inductive proximity switches

Area of use:

Gas actuated thermometers are intended for installation in pipes, tanks, plant and machinery to measure the temperatures of gaseous and/or liquid materials. The instruments are provided with one to four separately certified proximity switches. The requirements for the explosion area are limited to Zone I and II, Category 2, Group II for gas and to Zone I and II, Category 2, Group III for dust.

Permitted temperatures:

It must be ensured that the maximum temperature of the fixing nut (process connection) must not exceed the maximum ambient temperature of 70 °C. The maximum surface temperature for dust and for temperature class T4 is 135 °C, for class T5: 100 °C and for T6: 85 °C.

The ambient temperature is limited to the range -25 °C to 70 °C.

Applicable standards:

These instruments were developed, manufactured and checked pursuant to directives 94/9/EC (ATEX), 89/336/EC (EMC) and 97/23/EC (PED). The switches are of the type protection intrinsic safety according to the EC type examination certificate. Electrical data can be found in the added certificate. The brand and model number are marked at the instrument. Installation in accordance with EN-IEC-60079-14: 2008.

Used ATEX standards: EN 60079-0: 2009, EN 60079-11:2007, EN 61241-11: 2006

The relevant requirements of these standards are satisfied.

The documentation has been filed with TÜV-Nord-Cert (see declaration of conformity).

Labeling:

See chapter 5 Labeling on the device.

4 Technical data

The detailed technical information can be found in the documents in the Appendix, Chapter 12.

5 Labeling on the device

The label with the serial number and type designation is located on the outside right of the housing. The nature of the subject characteristics is encoded in the type designation.

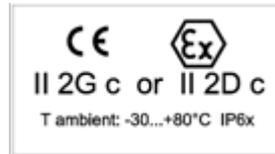
5.1 Labeling on the device for explosion risk areas (ATEX)

The label with the marking for explosion risk areas is located on the housing.

Device without switching contacts:

Type designation

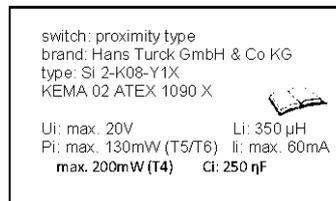
###=S5500=###=ATEX



Device with integrated inductive proximity switch:

###=S5500=###=I#####=ATEX

CE Ex II 2G Ex ia IIC T4 ... T6 Gb or
II 2D Ex ia IIIC T135°C ... T85°C Db
T ambient -25/+70°C



6 Construction and function

6.1 Overview

- 1 Bulb
- 2 Capillary line
- 3 Movement
- 4 Bourdon tube
- 5 Link

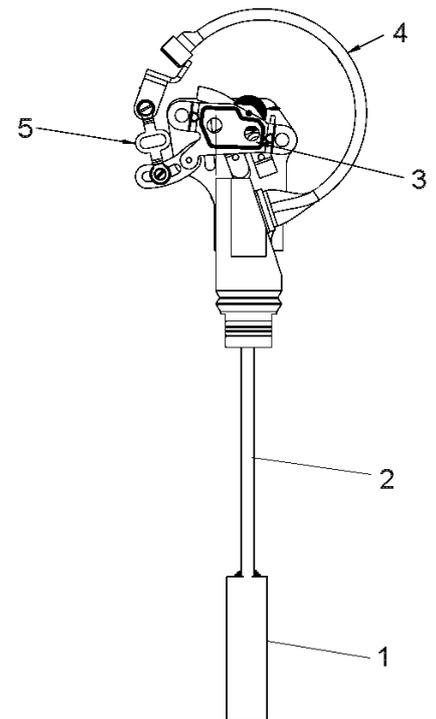
6.2 Description of function

The temperature is transferred via thermal conduction to a compressed inert gas inside the sensor. The properties of gases mean that any temperature change brings about a change in pressure, and this is transferred via a capillary tube (in the fixed stem or executed as a flexible capillary line) to the Bourdon tube on the gauge. This produces a deflection of the Bourdon tube that is proportional to the change in pressure. A rotary movement is produced via a connecting rod and a movement, which is transferred to the indicator arm using an arbor. The angle of rotation for the complete range is approx. 270°.

6.3 Description of components

6.3.1 Bulb

The temperature sensor has a diameter of 6-10 mm and a length of 55-1000 mm, and contains the inert gas under pressure. Its active length is 55-190 mm, depending on the diameter. The temperature sensor must not be subjected to pressure without a supplementary thermowell.



6.3.2 Capillary line

The capillary tube is located in a protected position within the stem, or is executed as a flexible part with or without additional flexible armor or a plastic sheathing.

6.3.3 Case

The window uses multi-layer safety glass. This device is fitted with a rear plug capable of being blown out.

6.3.4 Dial with pointer

The gauge is equipped with a dial and pointer pursuant to EN 13190.

6.3.5 Instrument connection

The instrument connection is located on the underside of the gauge and can be executed as a threaded or flanged connector. Union instrument connections permit the case to be oriented according to the point of installation.

6.4 Accessories

Please contact the manufacturer regarding special tools and accessories.

7 Transport

7.1 Safety

The thermometer should be protected against the effects of knocks and impacts. The device should only be transported in the packaging provided, to protect against glass breakage. The device should only be transported in a clean condition (free from residues of measuring media).

7.2 Transport inspection

The delivery is to be checked for completeness and damage during transport. In the event of damage during transport, the delivery is not to be accepted, or only accepted subject to reservation of the scope of the damage being recorded and, if necessary, a complaint initiated.

7.3 Storage

The gauge is to be stored in dry, clean conditions, within a temperature range of -20 to +60 °C, protected against direct exposure to sunlight and protected against impact damage.

8 Mounting/Installation

8.1 Safety

Thermowells must be used for all processes and flowing media subjected to pressure. They protect the thermometer stem against corrosion and mechanical damage, and permit the thermometer to be removed without leaks.

8.2 Preparations (requirements for the installation location)

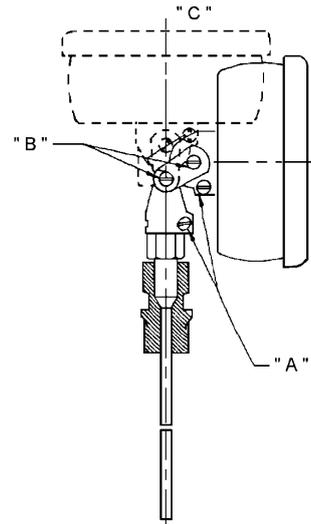
- A check on suitability of the device and of the thermowell that may be required for the medium to be measured, the arrangements in the scope of measurement range and the extent of the protection against special conditions such as vibrations.
- A bracket must be installed to support the gauge if the metering pipe is not able to provide adequate support.
- Devices with a blow-out require a minimum spacing to the rear (20 mm).
- The operating temperature range is -30°C to + 80 °C.

8.3 Mounting/Installation

- Using appropriate accessories, the device can be installed on flat walls, mounting plates, on pipes or in panels or boards.
- Ex works, the device is supplied and calibrated for vertical installation.
- If the installation location deviates from the vertical (max. $\pm 5^\circ$), the zero setting on the indicator must be corrected (see 8.4.1 Zero point adjustment).

8.3.1 Every angle connection (optional)

- Only adjust the every angle connection if this is necessary during fitting or removal.
- Use the every angle connection to place the sensor in the correct position prior to installation, proceeding as follows:
- Position the thermometer housing in a straight alignment (Position "C")
- Using the screws marked "A", loosen until the joint can be turned freely through 180° on the lower part of the housing and the sensor.
- Hold the thermometer housing firmly with one hand, and with the other hand turn the joint piece until the inner part of the joint is showing in the desired direction of bend.
- Firmly tighten the aforementioned Screws "A" again.
- Loose the screws marked "B" and move the joint into the desired direction of bend.
- Firmly tighten the aforementioned Screws "B" again.



8.3.2 Process connection

- Connection only to be undertaken by authorized and qualified specialist staff.
- Use only with the mechanical process connection provided – regarding the configuration, see order code on the device type label.
- When connecting the device without using a thermowell, the pipes must be depressurized.
- Do not allow any mechanical force to be applied to the stem; in particular, pay attention to matching the "S" lengths of the thermometer and the thermowell, to avoid contact against the base of the thermowell.
- A thermal transfer medium (heat conducting paste) in the thermowell improves the reaction time and reduces the measurement error caused by the thermal transfer.
- The minimum capillary line radius is 40 mm (1 ½"). Place it so that it will be protected from damage. Should the capillary line be too long, coil the surplus neatly at a convenient point but **"DO NOT CUT IT."**
- The thermometer system (Bourdon tube, capillary line and temperature sensing bulb) must not, under any circumstances be taken apart, or the capillary line cut.



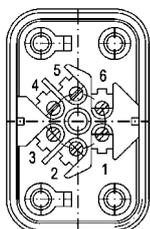
Safety notice: Only mount using the correct open-jawed wrench, and do not twist the device itself.
Do not insert moist or oily stems into hot thermowells.

8.3.3 Electrical connection



Take note of the electrical data in the EU design type test certification and the locally-applicable regulations and guidelines for installing and operating electrical plant in explosion risk areas (e.g. EN 60079-14, etc.).

- Connection to be undertaken by authorized and qualified specialist staff only.
- The electrical connection of the device is to be undertaken in accordance with the relevant regulations of the VDE and the regulations supplied by the local utilities company.
- Disconnect the plant from the mains supply before wiring electrical connections.
- Install appropriate fuses upstream.



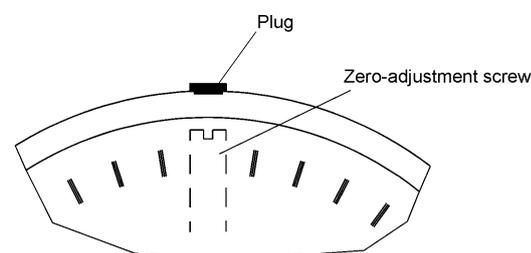
Please refer to type label for configuration of connections.

8.4 Starting up

- The precondition for start-up is correct installation. All connecting lines must be laid such that no mechanical forces can act on the device.
- Before start-up, the seal on the thermowell in the pipe must be checked.

8.4.1 Zero point adjustment

- On thermometers with an external adjustment option, remove the plug at the top of the case and rotate using a screwdriver until the pointer is showing the desired temperature on the scale.

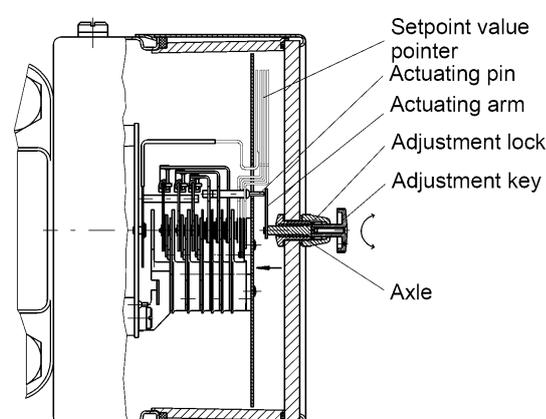


8.4.2 Setting the switch point

An adjustable lock is fitted in the front panel of the thermometer. Using the removable adjustment key, the contacts mounted on the target value indicators can be set to any point on the range covered by the scale.

For reasons relating to accuracy of switching and the lifetime of mechanical measurement systems, the switch points should be positioned between 10% and 90% of the range.

- Place the adjustment key on the axle of the adjustable lock.
- Press the axle inwards, until the carrier arm grips behind the adjuster pin on the target value indicator.
- By turning the key, adjust the target value indicator to the desired switch point.



Release the pressure on the axle, and remove the adjustment key.

8.4.3 Contact function

Function 1: Close contacts with the indication rising in a clockwise direction.

Function 2: Open contacts with the indication rising in a clockwise direction.

Contact assignment:

1st contact left target value indicator, 2nd contact middle target value indicator, 3rd contact right target value indicator

9 Servicing

The device is maintenance-free. However, to ensure reliable operation and a long lifetime for the device, we recommend that it is checked regularly.

9.1 Safety

When undertaking servicing work on the device fitted without a thermowell, the lines must be depressurized, the electrical connections isolated from the mains supply and the plant secured against being switched on again.

9.2 Check on function, and recalibration

The check on function and recalibration is carried out at regular intervals, depending on the application. The precise testing cycles should be adjusted in line with the operating conditions and ambient conditions.

- Check on display.
- Check the thermowell for damage and seal.
- Check of electrical connections.

9.3 Cleaning and maintenance

Cleaning is carried out using a non-aggressive cleaning agent, respecting the protection category of the device.

10 Faults

10.1 Safety

Defective or faulty gauges put the operational safety and process safety of the plant at risk, and can lead to a risk or injury to persons, the environment or the plant.

10.2 Conduct in the event of faults

All defective or faulty devices are to be taken out of service. If a repair is required, the device is to be sent directly to our Repairs Department. We request that all returns of devices are agreed with our Service Department.

10.3 Fault table

Possible situations indicating a fault:

- Jerky or random movement of the pointer
- No correspondence between the measured value being displayed and actual temperature
- Bent or loose pointer
- Cracked window
- Damage to housing
- Bended stem or bulb
- Sharp edged bended capillary line
- Extended storage at temperatures above 60 °C

In these instances, replacement of the gauge is always required.

10.4 Conduct following fault rectification

See Chapter 8 Mounting/Installation

11 Demounting, disposal

11.1 Safety



Residues of measuring media in and on removed gauges can constitute a risk to people, the environment and equipment. Adequate precautionary measures are to be adopted. If necessary, the devices are to be cleaned thoroughly (see advice in safety data sheets).

11.2 Demounting

- When undertaking servicing work on the device fitted without a thermowell, the lines must be depressurized, the electrical connections isolated from the mains supply and the plant secured against being switched on again.
- Demount the gauge using a suitable tool.

11.3 Disposal



Please help to protect the environment and dispose of or recycle the devices and components used in accordance with the applicable regulations.

12 Appendix

12.1 Datasheets for all stainless steel gas actuated thermometers

More detailed datasheets are available direct from the manufacturer (see 1.6 Manufacturer address, customer services).

The table below contains an overview of the individual documents.

Model	Description	Document
S5500	All stainless steel gas actuated thermometer, Model S5500 pursuant to EN 13190	G2.S5500
K5500	Electrical contact devices for pressure and temperature gauges	G1.K5500

12.2 Declaration of conformity for S5500 without switching contacts


EG-Konformitätsbescheinigung
 (gemäß RL 94/9/EG Anhang X)

EC-Declaration of Conformity
 (according to RL 94/9/EC appendix X)

Die Firma Ashcroft Instruments GmbH erklärt in alleiniger Verantwortung die Übereinstimmung mit den harmonisierten Europäischen Normen für mechanische Betriebsmittel in explosionsgefährdeten Bereichen für gasgefüllte Thermometer Typ S5500.
Ashcroft Instruments GmbH declares in sole responsibility the conformity with the harmonized European Standards for mechanical equipment in potentially explosive areas for gas filled thermometer model S5500.

Kennzeichnung
 Marking:



Die Unterlagen werden aufbewahrt unter der Aktennummer 35087702 bei der benannten Stelle 0044, TÜV NORD CERT.
The dossier is retained under file no. 35087702 at the notified body 0044, TÜV NORD CERT.

Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch die Übereinstimmung mit
The fundamental safety and health requirements are fulfilled in compliance with

DIN EN 13463-1 DIN EN 13463-5

Diese Konformitätserklärung bezieht sich auf Konzeption und Fertigung des oben beschriebenen Gerätes gemäß der Richtlinie 94/9/EG (ATEX).
This declaration of conformity applies to the development and production of the above-mentioned equipment according to directive 94/9/EC (ATEX).

Baesweiler, September 2011

(Operation Manager)

12.3 Declaration of conformity for S5500 with inductive proximity switches



EG-Konformitätsbescheinigung

(gemäß RL 94/9/EG Anhang X)
EC-Declaration of Conformity
(according to RL 94/9/EC appendix X)



Die Firma Ashcroft Instruments GmbH erklärt in alleiniger Verantwortung die Übereinstimmung mit den harmonisierten Europäischen Normen für mechanische Betriebsmittel in explosionsgefährdeten Bereichen für gasgefüllte Thermometer Typ S5500 mit Grenzwertschalter Typ 1.

Ashcroft Instruments GmbH declares in sole responsibility the conformity with the harmonized European Standards for mechanical equipment in potentially explosive areas for gas filled thermometer model S5500 with Limit Switch Type 1.

Kennzeichnung
Marking:

  II 2 G Ex ia IIC T4...T6 Gb or
II 2 D Ex ia IIIC T135°C...T85°C Db

Die Unterlagen werden aufbewahrt unter der Aktennummer 35087702 bei der benannten Stelle 0044, TÜV NORD CERT.

The dossier is retained under file no. 35087702 at the notified body 0044, TÜV NORD CERT.

Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch die Übereinstimmung mit

The fundamental safety and health requirements are fulfilled in compliance with

DIN EN 60079-0:2009 DIN EN 60079-11:2007 DIN EN 61241-11:2006

Diese Konformitätserklärung bezieht sich auf Konzeption und Fertigung des oben beschriebenen Gerätes gemäß der Richtlinie 94/9/EG (ATEX).

This declaration of conformity applies to the development and production of the above-mentioned equipment according to directive 94/9/EC (ATEX).

Baesweiler, September 2012

Reinhold Schwartz
Operation Manager

12.4 EU design type test certification (gas and dust) for inductive proximity switches of typesY1...../.....



(13) ANLAGE

(14) zur EG-Baumusterprüfbescheinigung KEMA 02ATEX1090 X Ausgabe Nr. 4

(15) Beschreibung

Zweidraht-Näherungsschalter TypY1...../..... werden verwendet für Befähigung von signalisierenden oder schaltenden Funktionen auf Erreichung einer eingestellten Abstand. Die Typbezeichnung der Reihe von Zweidraht-Näherungsschaltlern TypY1...../..... ist wie angegeben in Tabelle 1 in Annex 1.

Die Reihe von Zweidraht-Näherungsschaltlern TypY1...../..... besteht aus verschiedenen Bauformen die eingeteilt sind in zehn Typ-Gruppen. Die Identifizierung der zugehörigen Typ-Gruppe ist in Beziehung gesetzt zum Bauform und kann aus der Tabelle 15.1 in Annex 1 ermittelt werden.

Kategorie II 1 G gilt nur für die Bauformen wie angegeben in Tabelle 15.2 in Annex 1.

Umgebungstemperaturbereich -25 °C ... +70 °C für alle Typen, mit den Ausnahmen wie angegeben in Tabelle 15.3 in Annex 1.

Die Temperaturklasse der verschiedenen Sensortypen, abhängig von Umgebungstemperatur, I₁ und P₁, kann ermittelt werden aus den Tabellen 15.4, 15.6, 15.8 und 15.10 (siehe Annex 1).

Bei Verwendung in explosionsgefährdeten Bereichen durch Luft/Staub Gemische gilt für die Typgruppen AX und OX die maximale Oberflächen-Temperatur T₁₁₅ °C und für alle anderen Zweidraht-Näherungsschalter die maximale Oberflächen-Temperatur T₈₅ °C bei einer maximalen Umgebungstemperatur von 70 °C.

Elektrische Daten

Siehe Annex 1.

(16) Prüfbericht

KEMA Nr. 212040300

(17) Besondere Bedingungen für die sichere Anwendung

Bei Verwendung in einem explosionsgefährdeten Bereich, in dem Geräte der Kategorie 2 G gefordert sind: Wenn ein Teil des Gehäuses aus Kunststoff ist und die projizierte Oberfläche ist größer als 20 cm² dann wird der Sensor geliefert mit einer Warnung zur Vermeidung statischer Aufladung. Diese Warnung gilt nur wenn der Sensor als Gruppe IIC Betriebsmittel benutzt wird. In diesem Fall müssen Maßnahmen getroffen werden damit die Gefahr für statische Aufladung des Gehäuses ausgeschlossen wird.

Für den Umgebungstemperaturbereich siehe (16).

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Von den Normen unter (9) abgedeckt.

(19) Prüfungsunterlagen

Wie erwähnt in Prüfbericht Nr. 212040300.

CERT11 V1.1

Seite 2/2

1 / 4

KEMA 02ATEX 1090X • D-Nr.: Z5791

2009-03-03



Übersetzung, Originalsprache: Englisch

(1) EG-BAUMUSTERPRÜFBESCHEINIGUNG

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - Richtlinie 94/9/EG

(3) EG-Baumusterprüfbescheinigung Nummer: KEMA 02ATEX1090 X Ausgabe Nummer: 4

(4) Gerät: Zweidraht Näherungsschalter TypY1...../.....

(5) Hersteller: Hans Turck GmbH & Co. KG

(6) Anschrift: Witzlebenstrasse 7, 45466 Mülheim an der Ruhr, Deutschland

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser EG-Baumusterprüfbescheinigung und in den zugehörigen Unterlagen festgelegt.

(8) KEMA Quality B.V. beschließt, als benannte Stelle Nr. 0344 nach Artikel 9 der Richtlinie 94/9/EG des Rates der Europäischen Gemeinschaften vom 23.12.1994, für dieses Gerät die Erfüllung der grundlegenden Sicherheitsanforderungen des Artikels 10 der Richtlinie 94/9/EG zu bestätigen. Die entsprechenden Unterlagen sind im Zusammenhang mit der bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Das Ergebnis der Prüfung sind im vertraulichen Prüfbericht Nr. 212040300 festgelegt worden.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

- EN 60078-0 : 2006
- EN 60078-1 : 2007
- EN 61241-0 : 2006
- EN 61241-1 : 2006
- EN 60078-26 : 2004

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konstruktion, Überprüfung und Tests des spezifizierten Gerätes in Übereinstimmung mit Richtlinie 94/9/EG. Weitere Anforderungen der Richtlinie gelten für das Herstellungsverfahren und die Umrüstung dieses Gerätes. Diese sind von vorliegender Bescheinigung nicht abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:



II 1 G Ex Ia IIC T4 ... T6 oder
II 2 G Ex Ia IIC T4 ... T6 oder
II 1 D Ex IAD 20 IP67 T 95 °C oder T 115 °C

Diese Bescheinigung ist erstellt am 16. Dezember 2006 und ist, soweit zutreffend, zu revidieren vor dem Datum der Beendigung der Annahme der Konformitätsvermutung (einer der oben erwähnten Normen, wie angehängt im Anhang der Europäischen Union).

KEMA Quality B.V.

C.S. van Es
Certification Manager



Seite 1/2

* ursprüngliche Verifizierung dieser Bescheinigung und zugehörigen Prüfberichte ist erlaubt. Diese Bescheinigung darf nur angefordert und verwendet werden.

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Annex 1 to: Test Report No. 212030400, KEMA 02ATEX1090 X Issue 4
 Applicant: Hans Turck GmbH & Co. KG
 Equipment: Two Wire Proximity Sensors TypeY1...../...../.....

Electrical data Elektrische Daten

For models BC.....Y1...../..... and NC.....Y1...../....., the effective internal inductance L_i as listed in table 15.5, 15.7, 15.9 and 15.11 below does not apply. Instead L_i is negligibly small for these models.

For Dual Sensors, which are in Type Groups AD, GD and MD, the listed electrical data apply per sensor circuit.
 For Sensor Models BI-ISM-Y1PT...../....., the listed values of U_i and I_i apply per sensor circuit and the listed value of P_i applies as a maximum value for both circuits combined.

Für die Typen BC.....Y1...../..... und NC.....Y1...../..... ist die wirksame innere Induktivität L_i wie erwähnt in Tabellen 15.5, 15.7, 15.9 und 15.11 nicht zutreffend. Statt dessen ist L_i vernachlässigbar klein für diese Typen.

Für Doppelsensoren, welche in Typ-Gruppen AD, GD und MD eingestuft sind, gelten die elektrischen Daten pro Sensor-Stromkreis.
 Für Typ-BI-ISM-Y1PT...../....., gelten die erwähnten Werte von U_i und I_i pro Sensorstromkreis und der erwähnte Wert von P_i gilt als Maximalwert für beide Stromkreise zusammen.

Type Groups A, AD, G and GD, Typ-Gruppen A, AD, G und GD:

Supply and output signal Speisungs- und Signalstromkreis:
 in type of protection intrinsic safety Ex ia IIC or Ex iAD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.4.
 in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iAD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.4.

Maximum ambient temperature Maximale Umgebungs-temperatur	Category Kategorie	Temperature class Temperatur Klasse	U_i (Vdc)	I_i (mA) (resistively limited) (widerstands limitiert)	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	200
+80 °C	II 1 G, II 2 G	T5	20	60	200
+70 °C	II 1 G, II 2 G	T6	20	60	200
+70 °C	II 1 D	-	20	60	200

Table 15.4 Temperature class and circuit parameters for Type Groups A, AD, G and GD.
Temperaturklasse und Stromkreisparameter für Typ-Gruppen A, AD, G und GD.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.5. Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.5 ermittelt werden.

Type Group Typ-Gruppe	C_i (nF)	L_i (µH)
A, AD, G, GD	150	150
	250	350

Table 15.5 Effective C_i and L_i values for Type Groups A, AD, G and GD.

Annex 1 to: Test Report No. 212030400, KEMA 02ATEX1090 X Issue 4
 Applicant: Hans Turck GmbH & Co. KG
 Equipment: Two Wire Proximity Sensors TypeY1...../...../.....

Type Groups M, MD and S, Typ-Gruppen M, MD und S:

Supply and output signal Speisungs- und Signalstromkreis:
 in type of protection intrinsic safety Ex ia IIC or Ex iAD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.8.
 in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iAD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.8.

Maximum ambient temperature Maximale Umgebungs-temperatur	Category Kategorie	Temperature class Temperatur Klasse	U_i (Vdc)	I_i (mA) (resistively limited) (widerstands limitiert)	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+80 °C	II 1 G, II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	130
+80 °C	II 1 G, II 2 G	T5	20	60	130
+70 °C	II 1 G, II 2 G	T6	20	60	130
+70 °C	II 1 D	-	20	60	130

Table 15.6 Temperature class and circuit parameters for Type Groups M, MD and S.
Temperaturklasse und Stromkreisparameter für Typ-Gruppen M, MD und S.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.7. Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.7 ermittelt werden.

Type Group Typ-Gruppe	C_i (nF)	L_i (µH)
M, MD, S	150	150
	250	350

Table 15.7 Effective C_i and L_i values for Type Groups M, MD and S.

Type Group K, Typ-Gruppe K:

Supply and output signal Speisungs- und Signalstromkreis:
 in type of protection intrinsic safety Ex ia IIC or Ex iAD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.8.
 in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iAD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.8.

Maximum ambient temperature Maximale Umgebungs-temperatur	Category Kategorie	Temperature class Temperatur Klasse	U_i (Vdc)	I_i (mA) (resistively limited) (widerstands limitiert)	P_i (mW)
+100 °C	II 2 G	T4	20	60	200
+80 °C	II 1 G, II 2 G	T4	20	60	200
+85 °C	II 2 G	T5	20	60	80
+80 °C	II 1 G, II 2 G	T5	20	60	80
+70 °C	II 1 G, II 2 G	T6	20	60	200
+70 °C	II 1 G, II 2 G	T6	20	60	80
+70 °C	II 1 D	-	20	60	80
+80 °C	II 1 G, II 2 G	T6	20	60	130
+80 °C	II 1 D	-	20	60	130

Table 15.8 Temperature class and circuit parameters for Type Group K.
Temperaturklasse und Stromkreisparameter für Typ-Gruppe K.



Annex 1 to:
 Applicant:
 Equipment:
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 Hans Turck GmbH & Co. KG
 Two Wire Proximity Sensors TypeY1...../.....

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.9. Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.9 ermittelt werden.

Type Group / Typ-Gruppe	C_i (nF)	L_i (µH)
K	150	150

Table 15.9 Effective C_i and L_i - Wirksame C_i und L_i

Type Groups AX and GX Typ-Gruppen AX und GX:

Supply and output signal Speisungs- und Signalkreis:
 in type of protection intrinsic safety Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit, with the maximum values shown in table 15.10.
 in Zündschutzart Eigensicherheit Ex ia IIC oder Ex iaD, nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, mit Höchstwerten wie erwähnt in Tabelle 15.10.

Maximum ambient temperature / Maximale Umgebungstemperatur	Category / Kategorie	Temperature class / Temperaturklasse	U_i (Vdc)	I_i (mA) (resistively limited) / (widerstands limitiert)	P_i (mW)
+100 °C	II 2 G	T4	20	50	200
+80 °C	II 1 G, II 2 G	T4	50	50	200
+70 °C	II 1 G, II 2 G	T4	50	50	200
+65 °C	II 2 G	T5	20	50	200
+80 °C	II 1 G, II 2 G	T5	20	20	200
+70 °C	II 1 G, II 2 G	T5	20	20	200
+70 °C	II 1 G, II 2 G	T6	20	20	200
+70 °C	II 1 G	T6	20	20	200

Table 15.10 Temperature class and actual parameters for Type Groups AX and GX. Temperaturklasse und Stromkreisparameter für Typ-Gruppen AX und GX.

The effective internal capacitance C_i and the effective internal inductance L_i can be determined from table 15.11. Die wirksame innere Kapazität C_i und die wirksame innere Induktivität L_i können aus Tabelle 15.11 ermittelt werden.

Type Group / Typ-Gruppe	C_i (nF)	L_i (µH)
AX	150	150
GX	250	350

Table 15.11 Effective C_i and L_i - Wirksame C_i und L_i

Konformitätserklärung
 Declaration of Conformity



Diese Konformitätserklärung entspricht der Europäischen Norm EN 45014. Allgemeine Kriterien für Konformitätserklärungen von Anbietern. Die Grundlage der Kriterien sind internationale Dokumente, insbesondere ISO/IEC Leitfaden 22, 1992. Information on manufacturer's declaration of conformity with standards or other technical specifications.
 This Declaration of Conformity complies with the European Standard EN 45014. General criteria for as supplier's declaration of conformity with standards or other technical specifications.
 Information on the manufacturer's declaration of conformity with standards or other technical specifications.

Wir/ir We
HANS TURCK GMBH & CO KG
WITZLEBENSTR. 7, D - 45472 MÜLHEIM A. D. RUHR

erklären in alleiniger Verantwortung, dass die Produkte
 declare under our sole responsibility that the products
NAMUR Sensoren nach EN 60947-5-6 TypenreiheY1...../.....

auf die sich die Erklärung bezieht, mit den folgenden Normen übereinstimmen
 to which this declaration relates are in conformity with the following standards
EN 60947-5-6:2000

und wo anwendbar
 and where applicable
EN 60079-0:2006 EN 60079-11:2007 EN 60079-26:2004
EN 61241-0:2006 EN 61241-11:2006

Gemäß den Bestimmungen der Richtlinie (inkl. zutreffend)
 Following the provisions of Directive (if applicable)
EMV - Richtlinie / EMC Directive 2004 / 108 / EG 15. Dez. 2004
Richtlinie ATEX 100a / Directive ATEX 100a 94 / 9 / EG 23. März 1994

Weitere Normen
 addition at standards

Aussteller der EG-Baumusterbescheinigung:
 KEMA Quality B.V.
 Utrechtseweg 310, 6812AR Arnhem, NL
 Kenn-Nr. 0344, Registernummer: KEMA 02 ATEX 1090 X
 Kennzeichnung: **II 1 G** oder **II 2 G** oder **II 1 D** (typenabhängig)

Mülheim, den 19.10.07
 Ort und Datum der Ausstellung /
 Place and date of issue
 (i.V. W. Stoll)
 Name und Unterschrift des Befugten /
 Name and signature of authorized person