

Installation and Maintenance Instruction Manual



Bourdon tube pressure gauge, model T5500 and T6500

for explosion risk areas pursuant to Directive 2014/34/EU (ATEX)

In the following configuration:

- ###T5500/T6500###ATEX bourdon tube pressure gauge without switching contact
- ###T5500/T6500###I####ATEX bourdon tube pressure gauge with inductive proximity switch



Table of contents:

1	General remarks	3
1.1	Purpose of this Manual	3
1.2	Symbols	3
1.3	Limits of liability	3
1.4	Copyright	3
1.5	Warranty	3
1.6	Manufacturer's address, customer services	3
2	Safety	4
2.1	General sources of hazards	4
2.2	Use in accordance with intended purpose	4
2.3	Operator's responsibility	4
2.4	Staff qualifications (target group assessment)	4
2.5	Signs/Safety markings	4
2.6	Safety equipment	5
2.7	Environmental protection	5
3	Use in explosion risk areas pursuant to Directive 2014/34/EU (ATEX)	5
3.1	T5500/T6500 without switching contact	5
3.2	T5500/T6500 I#### with inductive proximity switch KE###0C0H2	5
4	Technical data	6
5	Labeling on the device	6
5.1	Labeling on the device for explosion risk areas (ATEX)	6
6	Construction and function	7
6.1	Overview	7
6.2	Description of function	7
6.3	Description of components	7
6.4	Accessories	8
7	Transport	8
7.1	Safety	8
7.2	Transport inspection	8
7.3	Storage	8
8	Assembly/Installation	8
8.1	Safety	8
8.2	Preparations (requirements for the installation location)	8
8.3	Mounting/Installation	8
8.4	Starting up	9
8.5	Subsequent relocation of the gauge (by the customer)	10
9	Servicing	10
9.1	Safety	10
9.2	Check on function, and recalibration	11
9.3	Cleaning and maintenance	11
10	Faults	11
10.1	Safety	11
10.2	Conduct in the event of faults	11

10.3	Fault table	11
10.4	Conduct following fault rectification	11
11	Removal, disposal.....	11
11.1	Safety.....	11
11.2	Removal.....	11
11.3	Disposal	11
12	Appendix	12
12.1	Data sheet for Bourdon tube pressure gauge T5500/T6500.....	12
12.2	Declaration of Conformity for device without switching contact	13
12.3	Declaration of Conformity for device with inductive proximity switch	14
12.4	EU design type test certification (dusts) for inductive proximity switches of types SJ KE###0C0H2	15

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 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

Ashcroft Instruments GmbH
Max-Planck-Strasse 1
D-52499 Baesweiler. Germany

Tel.: +49 (0) 2401/808-888
Fax.: +49 (0) 2401/808-999
E-mail: customer.service@ashcroft.com
Web: www.ashcroft.eu

2 Safety

2.1 General sources of hazards

Pressure gauges are pressurized parts where failure can result in hazardous situations. The selection of pressure gauge should be made in accordance with the rules set out in EN 837-2.

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 overpressures, vacuum and compound pressure.

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 for the individual finishes.

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.

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

- Advice on the filling liquid
- Advice on calibration
- Safety marking pursuant to EN 837-1
- Ex (for ATEX configuration)
- Oil-can deleted (if oxygen is used)

- Silicone-free (for use in the automotive industry)

2.6 Safety equipment

This device is fitted with a rear wall or plug capable of being blown out. For a description, please refer to Chapter 6.3.4.

The window uses multi-layer safety glass.

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 2014/34/EU (ATEX)

3.1 T5500/T6500 without switching contact

Area of use:

Explosion risk areas Zone 1 and 2, and 21 and 22, risk from gases and dry dust

Permitted temperatures:

Permitted ambient temperature -40°C to +60 °C.

Permitted medium temperature in the pressure gauge depends on the working conditions, not on the gauge design.



Warning! With gaseous media, the device temperature may increase due to compression heat. In such cases, the rate of the pressure change must be regulated or the permitted temperature of the measuring medium reduced.

Note:

To avoid additional temperature increase, the devices should not be exposed to direct exposure to sunlight when in operation!

The effects of impact are considered as negligible.

For the non-electrical part of the devices, the standards EN 1127-1 (2011), EN 13463-1 (2009), EN 13463-5 (2011), EN 60079-0 (2012) + A11 (2013), EN 60079-11 (2012) and EN 60079-26 (2015) 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:

CE  II 2 GD c IIC Tx

3.2 T5500/T6500 I#### with inductive proximity switch KE##I###0C0H2

Area of use:

Explosion risk areas Zone 1 and 2, risk from gases

Permitted temperatures:

The maximum occurring surface temperature of 95 °C was determined with no covering of dust and with no safety factor.

Permitted ambient temperature -25 °C to +60 °C.

Permitted medium temperature in the pressure gauge ≤ 55 °C.



Warning! With gaseous media, the device temperature may increase due to compression heat. In such cases, the rate of the pressure change must be regulated or the permitted temperature of the measuring medium reduced.

Note:

For a change in differential pressure between 10 % and 90 % of the measuring range and a pulse frequency of < 0.06 Hz, the temperature increase is <10 K.

To avoid additional temperature increase, the devices should not be exposed to direct exposure to sunlight when in operation!

EU design type test certification for the installed inductive proximity switches:

PTB 99 ATEX 2219 X

The integrated proximity switch is indicated on the type label/wiring diagram.

The surrounding housing has protection class IP65 as per EN 60529.



For use in explosion risk areas, the devices must be connected to certified intrinsically safe power circuits:

Max. voltage	U_{\max}	= 16 V
Max. current	I_{\max}	= 25 mA
Max. power	P_{\max}	= 64 mW

Device data (per contact):

max. internal capacitance	$C_i \max$	= 30 nF
max. internal inductance	$L_i \max$	= 100 µH

The permitted limit values for U_i , I_i and P_i for the intrinsically safe feed power circuits depend on the proximity switch type. They are to be found in the respective EU design type test certifications.

For the non-electrical part of the devices, the standards EN 1127-1 (2007), EN 13463-1 (2009) und EN 13463-5 (2011) are applicable with regard to explosion protection. The relevant requirements of these standards are satisfied.

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

Labeling:

CE II 2 GD c IIC T6 and PTB 99 ATEX 2219 X II 2 GD Ex ia IIC T6 for the inductive proximity switch

Recommended isolating switch devices:

MTL 5011B	1-channel, for contacts/inductive proximity switch, operating voltage 20-35 VDC
MTL 5015	2-channel, for contacts/inductive proximity switch, operating voltage 20-35 VDC
KFA6-SR2-Ex1.W	1-channel, for contacts/inductive proximity switch, operating voltage 230 VAC
KFA6-SR2-Ex2.W	2-channel, for contacts/inductive proximity switch, operating voltage 230 VAC

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 of the housing. The materials identifier 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 outside of the housing.

Device without switching contacts:

###T5500####ATEX or ###T6500####ATEX



Ashcroft Instruments GmbH
52499 Baesweiler, Germany

160=T6500=S=D=04=L=1000#=X=ATEX=YW=CS=OS=SM
=MP=SG=NH=C3=C4=HY=EN

P_{max}: 1.5 x FS

IP67

T_{amb}: -40 ... 60°C S/N : 00657674

T_{med}: acc. to Tx File No. : 35134582

CE II 2 GD c IIC Tx



Device with integrated inductive proximity switch

###T5500#### I####ATEX oder ###T6500#### I####ATEX



Ashcroft Instruments GmbH
52499 Baesweiler, Germany

100=T5500_KF=S=D=15=L=4BR=X=ATEX=I1000

P_{max}: 1.3 x FS

IP65

T_{amb}: -25 ... 60°C S/N : 00439921

T_{med}: -20 ... 55°C File No. : 35134582

CE II 2 GD c IIC T6 / Ex ia IIC T6

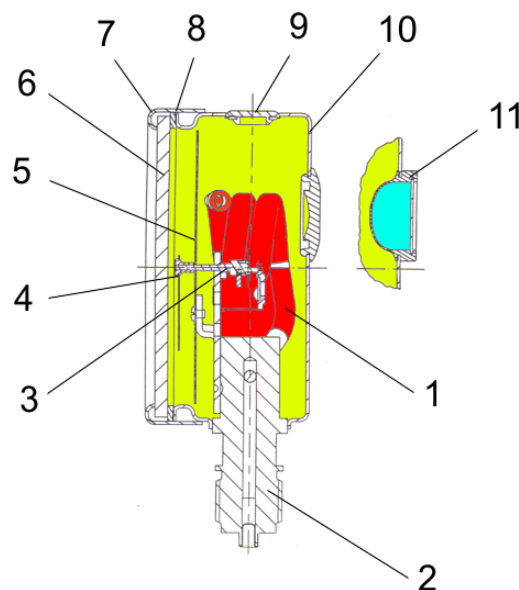
Ui = 16 V li = 25 mA Pi = 64 mW



6 Construction and function

6.1 Overview

- | | |
|----|--------------------------------|
| 1 | Bourdon tube |
| 2 | Socket and process connection |
| 3 | Movement |
| 4 | Pointer |
| 5 | Dial |
| 6 | Window |
| 7 | Bayonet ring |
| 8 | Gasket |
| 9 | Vent valve |
| 10 | Case |
| 11 | Blow-out and compensation plug |



6.2 Description of function

The sensing element, a bourdon tube (C-form or helical) that is welded to the socket, will be exposed from inside with pressure. Under pressure the elastic tube is deflecting against the zero position. This deflection is proportional to the adjacent pressure. The movement transfers the deflection to the pointer.

The display of the measured value is given on a 270° scale.

6.3 Description of components

6.3.1 Scale with pointer

The pressure gauge is equipped with a dial face and pointer pursuant to EN 837-1, nominal size 100 mm or 160 mm.

6.3.2 Instrument connection

The instrument connection is located on the bottom side (T5500 and T6500) or at the back side (T5500) of the pressure gauge and is a threaded connection.

6.3.3 Vent valve

The vent valve for the housing is located on the top side. If the nipple is pulled out, the housing is ventilated and the pressure which has built up in the housing due to the influence of temperature is discharged. With the valve closed, protection class IP 67 (for T6500 dry execution IP65) is achieved.

6.3.4 Rear wall / plug with blow-out capability

The pressure gauge has a plug capable of blowing out on the rear wall of the housing (Model T5500) or a rear wall capable of blowing out (Model T6500). These act as a safety feature pursuant to EN 837-1 and simultaneously allow for temperature compensation for the housing, via a rubber membrane.

6.4 Accessories

Please contact the manufacturer regarding special tools and accessories.

7 Transport

7.1 Safety

The pressure gauge 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 of residues of measuring media).

7.2 Transport inspection

The delivery must be checked for completeness and damage during transport. In the event of damage during transport, the delivery must not 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 pressure gauge must be stored in dry, clean conditions, within a temperature range of -40 to +70 °C, protected against direct exposure to sunlight and protected against impact damage.

8 Assembly/Installation

8.1 Safety

To ensure safe working during installation and servicing, suitable shut-off valves must be installed in the plant (see 6.4 Accessories), enabling the device:

- To be depressurized or taken out of operation;
- To be disconnected from the mains supply for repair or checks within the relevant plant;
- Or to enable function tests of the device to be performed "on site".

During the works to mount/install the gauge, the plant must be protected against being switched back on.

8.2 Preparations (requirements for the installation location)

- A check on suitability of the device for the medium to be measured, the scope of the measurement range and of the protection against special conditions such as vibrations, pulsations and pressure spikes.
- A bracket must be installed to support the pressure 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 installation location should be chosen such that the work-spaces for operating personnel are not located to the rear of the pressure gauge.

8.3 Mounting/Installation

8.3.1 Process connection

As standard, the device is equipped for pipework mounting with a pressure connection shank pursuant to DIN EN 837-1. The device is calibrated ex works for vertical installation.

- Connection to be undertaken by authorized and qualified specialist staff only.

- Use only with the mechanical process connection provided – regarding the configuration, see order code on the device type label, with a matching threaded seal.
- When connecting the device, the pipes must be depressurized.
- The pressure metering pipe must be laid inclined in such a way that, for example, for measurements of fluids no air pockets can form, and for measurements of gases no water pockets. If the necessary incline is not achieved, then at suitable points water separators or air separators must be installed.
- The pressure metering pipe must be kept as short as possible and laid without sharp bends, to avoid the occurrence of irritating delays.
- With liquid measurement media, the pressurized connection pipe must be degassed, since any gas bubble inclusions result in measurement error.
- If water is used as the measurement medium, the device must be frost-protected.



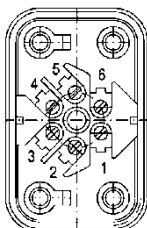
Safety notice: Only mount using the correct open-jawed wrench, and do not twist the device itself.

8.3.2 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 proper installation of all electrical feed lines and metering pipes. All connecting lines must be laid such that no mechanical forces can act on the device.

Before start-up, the seal on the pressurized connection line must be checked.

8.4.1 Zero point adjustment

The pressure gauges are supplied calibrated ex works, so that as a rule there is no need for calibration works at the installation point.

For devices with Micrometer pointer (see. order code), zero point adjustment on site is possible. For this, proceed as follows:

- Depressurize the pressure metering pipe.
- Open the bayonet ring and remove ring and window.
- Hold the pointer in place while turning the screw, until the pointer (after releasing again) has the correct position.
- Close the case again and pay attention to correct fit of window, gasket and bayonet ring.



Liquid filled gauges must be demounted before the zero point adjustment can be done (on a horizontal area to prevent leaking).



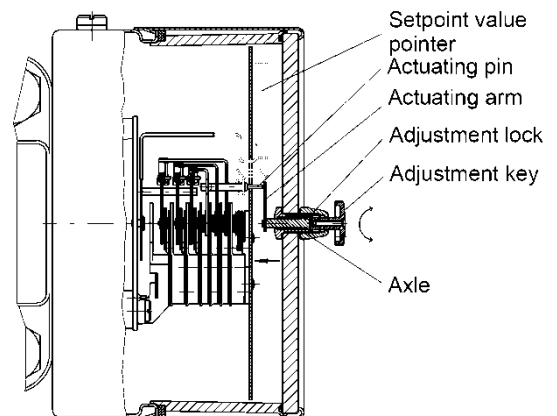
8.4.2 Setting the switch point

An adjustable lock is fitted in the front panel of the pressure gauge. 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

8.5 Subsequent relocation of the gauge (by the customer)



Recommendation: Do not remove the pressure gauge from one metering point and fit it in a different place, as there is a risk of the measuring media being mixed, with unforeseeable chemical reactions.

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, the pressure lines must be depressurized 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. In the event of various device components interacting, the operating instructions for all other devices should also be taken into account.

- Check on display.
- Check on function, in conjunction with downstream components.
- Check of pressurized connection pipes for seal condition.
- Check of electrical connections.

9.3 Cleaning and maintenance

Cleaning is carried out using a non-aggressive cleaning agent, with the ventilation valve closed and respecting the protection category of the device.

10 Faults

10.1 Safety

Defective or faulty pressure 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 must be taken out of service. If a repair is required, the device must 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
- Pointer does not set to zero for pressure less display
- Bent or loose pointer
- Cracked window
- Leaks when the device is filled
- Damage to housing
- Indications that the measurement system seal is imperfect (discoloration to dial display or of filling liquid)

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

10.4 Conduct following fault rectification

See Chapter 8.3 Mounting/Installation

11 Removal, 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 must be adopted. If necessary, the devices must be cleaned thoroughly (see advice in safety data sheets).

11.2 Removal

- When undertaking servicing work on the device, the pressure 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 Data sheet for Bourdon tube pressure gauge T5500/T6500

Detailed data sheet is available from supplier's website (see 1.6 Manufacturer's address, customer services)

This table refers to specific documents:

Model	Description	Document
T5500	Stainless steel pressure gauge model T5500	DS T5500
T6500	Stainless steel pressure gauge Solid Front design model T6500	DS T5500
T5500-KF	Stainless steel pressure gauge with inductive proximity switch model T5500-KF	DS T5500-KF
T6500-KF	Stainless steel pressure gauge Solid Front design with inductive proximity switch model T6500-KF	DS T5500-KF
T5500-KF T6500-KF	Electrical contact devices for pressure and temperature gauges	G1.K55

12.2 Declaration of Conformity for device without switching contact



EU-Konformitätsbescheinigung

EU-Declaration of Conformity

DIN EN ISO IEC 17050-1:2010



Ashcroft Instruments GmbH


Max-Planck-Straße 1

52499 Baesweiler

erklärt in alleiniger Verantwortung das die mit CE gekennzeichneten Produkte
declares in sole responsibility that the products marked with CE

Gerät: Druckmessgerät vom Typ T5500 / T6500 mit federelastischem
 Equipment: Messglied
Pressure gauge Type T5500 / T6500 with elastic measure element

Kennzeichnung:
 Marking:

CE  II 2 GD c IIC Tx
 TA = -40°C to +60°C

Herstellungsdatum: ab 01.01.2019
 Date of manufacture: from 01.01.2019

die grundlegenden Sicherheits- und Schutzanforderungen erfüllen, in Übereinstimmung mit den unten genannten Richtlinie und Normen. Die Konformitätsaussage bezieht sich auf die Konzeption und Fertigung der oben genannten Produkte.
the fundamental safety and protection requirements passed in accordance with the guideline and standards listed below. This declaration of conformity refers to the design and manufacture of the above products.

Richtlinie <i>Directive</i>	2014/34/EU „Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen“ <i>“equipment and protective systems intended for use in potentially explosive atmospheres”</i>
Angewendete harmonisierte Normen <i>Used harmonized Standards</i>	EN 1127-1:2011, EN 13463-1:2009, EN 13463-5:2011
Benannte Stelle <i>Notification Body</i>	Code number of notified Body: 0044 TÜV NORD CERT Langemarkstrasse 20, 45141 Essen, Germany
Hinterlegungsnummer: <i>Dossier File No.:</i>	35134582
Richtlinie <i>Directive</i>	⁽¹⁾ 2014/68/EU „Druckgeräterichtlinie“ <i>“Pressure Equipment Directive”</i>
Angewendete Prüfnormen: <i>Used test standards:</i>	EN 837-1:1996
⁽¹⁾ PS >200 bar und V <0,1l, Artikel 4 Drucktragende Ausrüstungsteile, Modul A <i>PS >200 bar and V <0,1l, Article 4 Pressure Accessories, Module A</i>	

Baesweiler, den 01.01.2019
 Ort und Datum
Place and date


 Werksleiter
Operation Manager

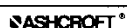
ASHCROFT
 Instruments GmbH
 Max-Planck-Str. 1
 D-52499 Baesweiler

Ashcroft Instruments GmbH

Fon: +49 (0)2401-808-888

Fax: +49 (0)2401-7027

www.ashcroft.eu



12.3 Declaration of Conformity for device with inductive proximity switch

<p>ASHCROFT®</p>	<p>EU-Konformitätsbescheinigung EU-Declaration of Conformity DIN EN ISO IEC 17050-1:2010</p>		
<p>Ashcroft Instruments GmbH Max-Planck-Straße 1 52499 Baesweiler</p>			
<p>erklärt in alleiniger Verantwortung, dass die mit CE gekennzeichneten Produkte <i>declares in sole responsibility that the products marked with CE</i></p>			
<p>Gerät: Equipment:</p>	<p>Druckmessgerät Typ T5500-KF / T6500-KF mit induktivem Näherungsschalter <i>Pressure gauge Type T5500-KF / T6500-KF with inductive proximity switch</i></p>		
<p>Kennzeichnung: Marking:</p>	<div style="display: flex; align-items: center; justify-content: center;"> <div style="font-size: 2em; margin-right: 10px;">CE</div> <div style="font-size: 2em; margin-right: 10px;">Ex</div> <div> II 2 GD c IIC T6 / Ex ia IIC T6 TA = -25°C to +60°C </div> </div>		
<p>Herstellungsdatum: Date of manufacture:</p>	<p>ab 20.04.2016 from 20.04.2016</p>		
<p>die grundlegenden Sicherheits- und Schutzanforderungen erfüllen, in Übereinstimmung mit den unten genannten Richtlinie und Normen. Die Konformitätsaussage bezieht sich auf die Konzeption und Fertigung der oben genannten Produkte. <i>the fundamental safety and protection requirements passed in accordance with the guideline and standards listed below. This declaration of conformity refers to the design and manufacture of the above products.</i></p>			
<p>Richtlinie <i>Directive</i></p>	<p>2014/34/EU „Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen“ <i>“equipment and protective systems intended for use in potentially explosive atmospheres”</i></p>		
<p>Angewendete harmonisierte Normen <i>Used harmonized Standards</i></p>	<p>EN 1127-1:2011, EN 13463-1:2009, EN 13463-5:2011 EN 60079-0:2012 + A11:2013, EN 60079-11:2012, EN 60079-26:2015</p>		
<p>Benannte Stelle <i>Notification Body</i></p>	<p>Code number of notified Body: 0044 TÜV NORD CERT Langemarkstrasse 20, 45141 Essen, Germany</p>		
<p>Hinterlegungsnummer: <i>Dossier File No.:</i></p>	<p>35134582</p>		
<p>EG- Baumusterprüfbescheinigung <i>EC-Type-Certified</i></p>	<p>Induktiver Näherungsschalter <i>inductive proximity switch</i></p>	<p>PTB 99 ATEX 2219X</p>	
<p>Richtlinie <i>Directive</i></p>	<p>⁽¹⁾2014/68/EU „Druckgeräterichtlinie“ <i>„Pressure Equipment Directive“</i></p>		
<p>Angewendete Prüfnormen: <i>Used test standards:</i></p>	<p>EN 837-1:1996</p>		
<p>⁽¹⁾ PS >200 bar und V <0,1l, Artikel 4 Drucktragende Ausrüstungsteile, Modul A <i>PS >200 bar and V <0,1l, Article 4 Pressure Accessories, Module A</i></p>			
<p>Baesweiler, den 11.04.2016 Ort und Datum <i>Place and date</i></p>		<div style="display: flex; align-items: center; justify-content: center;"> </div> <p>Werksleiter <i>Operation Manager</i></p>	
<p>Ashcroft Instruments GmbH</p>		<p>Fon: +49 (0)2401-808-888</p>	<p>Fax: +49 (0)2401-7027</p>
<p>www.ashcroft.eu</p>		<p>www.ashcroft.eu</p>	
<p>ASHCROFT®</p>		<p>HEISE®</p>	

12.4 EU design type test certification (dusts) for inductive proximity switches of types SJ KE##I##0C0H2

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin



EG-Baumusterprüfbescheinigung

(1)

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

(3) EG-Baumusterprüfbescheinigungsnummer

PTB 99 ATEX 2219 X

(4) Gerät: Schlitzinitiatoren Typen SJ... und SC...

(5) Hersteller: Pepperl + Fuchs GmbH

(6) Anschrift: D-68307 Mannheim

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Physikalisch-Technische Bundesanstalt bescheinigt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 99-29175 festgelegt.

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

EN 50014:1997

EN 50020:1994

(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 Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes.

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



II 2 G EEx ia IIC T6

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Braunschweig, 22. Dezember 1999

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Seite 1/3

EG-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.
Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

(13)

A n l a g e

(14)

EG-Baumusterprüfbescheinigung PTB 99 ATEX 2219 X(15) Beschreibung des Gerätes

Die Schlitzinitiatoren Typen SJ... und SC... dienen zur Umformung von Wegänderungen in elektrische Signale.

Die Schlitzinitiatoren dürfen mit eigensicheren Stromkreisen, die für die Kategorien und Explosionsgruppen [EEx ia] IIC oder IIB bzw. [EEx ib] IIC oder IIB bescheinigt sind, betrieben werden. Die Kategorie sowie die Explosionsgruppe der eigensicheren Schlitzinitiatoren richtet sich nach dem angeschlossenen, speisenden eigensicheren Stromkreis.

Elektrische Daten

Auswerte- und

Versorgungsstromkreis in Zündschutzart Eigensicherheit EEx ia IIC/IIB
bzw. EEx ib IIC/IIB
nur zum Anschluß an bescheinigte eigensichere Stromkreise
Höchstwerte:

Typ 1	Typ 2	Typ 3	Typ 4
$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$
$I_i = 25 \text{ mA}$	$I_i = 25 \text{ mA}$	$I_i = 52 \text{ mA}$	$I_i = 76 \text{ mA}$
$P_i = 34 \text{ mW}$	$P_i = 64 \text{ mW}$	$P_i = 169 \text{ mW}$	$P_i = 242 \text{ mW}$

Der Zusammenhang zwischen dem Typ des angeschlossenen Stromkreises, der höchstzulässigen Umgebungstemperatur und der Temperaturklasse sowie den wirksamen inneren Reaktanzen für die einzelnen Typen der Schlitzinitiatoren ist der Tabelle zu entnehmen:

Seite 2/3

EG-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Anlage zur EG-Baumusterprüfbescheinigung PTB 99 ATEX 2219 X

Typen	C _i [nF]	L _i [µH]	Typ 1			Typ 2			Typ 3			Typ 4		
			Höchstzulässige Umgebungstemperatur in °C bei Einsatz in Temperaturklasse											
			T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1
SC2-N0...	150	150	72	87	100	65	80	100	40	55	75	23	38	54
SC3,5-N0-Y...	150	150	72	87	100	65	80	100	40	55	75	23	38	54
SC3,5...-N0...	150	150	73	88	100	66	81	100	45	60	89	30	45	74
SJ1,8-N-Y...	30	100	73	88	100	67	82	100	45	60	78	30	45	57
SJ2,2-N...	30	100	73	88	100	67	82	100	45	60	78	30	45	57
SJ2-N...	30	100	73	88	100	67	82	100	45	60	78	30	45	57
SJ3,5-...-N...	50	250	73	88	100	66	81	100	45	60	89	30	45	74
SJ3,5-H...	50	250	73	88	100	66	81	100	45	60	89	30	45	74
SJ5-...-N...	50	250	73	88	100	66	81	100	45	60	89	30	45	74
SJ5-K...	50	550	72	87	100	66	81	100	42	57	82	26	41	63
SJ10-N...	50	1000	72	87	100	66	81	100	42	57	82	26	41	63
SJ15-N...	150	1200	72	87	100	66	81	100	42	57	82	26	41	63
SJ30-N...	150	1250	72	87	100	66	81	100	42	57	82	26	41	63

(16) Prüfbericht PTB Ex 99-29175

(17) Besondere Bedingungen

1. Beim Einsatz der Schlitzinitiatoren Typen SJ... und SC... im Temperaturbereich von -60°C bis -20 °C sind diese durch Einbau in ein zusätzliches Gehäuse vor Schlageinwirkung zu schützen.
2. Die Anschlußteile der Schlitzinitiatoren Typen SJ... und SC... sind so zu errichten, daß mindestens der Schutzgrad IP20 gemäß IEC-Publikation 60529:1989 erreicht wird.
3. Der Zusammenhang zwischen dem Typ des angeschlossenen Stromkreises, der höchstzulässigen Umgebungstemperatur und der Temperaturklasse sowie den wirksamen inneren Reaktanzen für die einzelnen Typen der Schlitzinitiatoren ist der Tabelle unter Punkt (15) dieser EG-Baumusterprüfbescheinigung zu entnehmen.
4. Es ist die Vermeidung von unzulässiger elektrostatischer Aufladung des Kunststoffgehäuses der Schlitzinitiatoren Typ SJ30-N... zu beachten (Warnhinweis auf dem Gerät).

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Durch vorgenannte Normen abgedeckt.

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, 22. Dezember 1999

Seite 3/3

EG-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.
Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

1. ERGÄNZUNG

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

zur EG-Baumusterprüfbescheinigung PTB 99 ATEX 2219 X

Gerät: Schlitzinitiatoren Typen SJ... und SC...

Kennzeichnung:  II 2 G EEx ia IIC T6

Hersteller: Pepperl + Fuchs GmbH

Anschrift: Königsberger Allee 87, 68307 Mannheim, Deutschland

Beschreibung der Ergänzungen und Änderungen

Die nachfolgend aufgeführten Schlitzinitiatoren der Typenreihe SJ... und SC... dürfen zukünftig auch in explosionsgefährdeten Bereichen eingesetzt werden, die den Einsatz von Kategorie 1-Geräten erfordern.

Die Änderungen betreffen ausschließlich die "Elektrischen Daten" (geänderte höchstzulässige Umgebungstemperaturen für den Einsatz als Kategorie 1-Gerät, Reduzierung des eigensicheren Auswerte- und Versorgungsstromkreises auf die Kategorie ia), sowie die Kennzeichnung der nachfolgend aufgeführten Typen der Schlitzinitiatoren.

SC2-N0...	SJ5-...-N...
SC3,5-N0-Y...	SJ5-K...
SC3,5-...-N0...	SJ10-N...
SJ2-N...	SJ15-N...
SJ3,5-...-N...	SJ30-N...

Die Kennzeichnung der oben aufgeführten Schlitzinitiatoren lautet für den Einsatz als Kategorie 1-Gerät zukünftig:

 II 1 G EEx ia IIC T6

Die "Besonderen Bedingungen" gelten unverändert auch für den Einsatz als Kategorie 1-Gerät.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. Ergänzung zur EG-Baumusterprüfbescheinigung PTB 99 ATEX 2219 X

Elektrische Daten

Auswerte- und

Versorgungsstromkreis in Zündschutzart Eigensicherheit EEx ia IIC/IIB
nur zum Anschluss an bescheinigte eigensichere Stromkreise
Höchstwerte:

Typ 1	Typ 2	Typ 3	Typ 4
$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$	$U_i = 16 \text{ V}$
$I_i = 25 \text{ mA}$	$I_i = 25 \text{ mA}$	$I_i = 52 \text{ mA}$	$I_i = 76 \text{ mA}$
$P_i = 34 \text{ mW}$	$P_i = 64 \text{ mW}$	$P_i = 169 \text{ mW}$	$P_i = 242 \text{ mW}$

Der Zusammenhang zwischen dem Typ des angeschlossenen Stromkreises, der höchstzulässigen Umgebungstemperatur für den Einsatz als Kategorie 1-Gerät und der Temperaturklasse, sowie den wirksamen inneren Reaktanzen für die einzelnen Typen der Schlitzinitiatoren ist der nachfolgenden Tabelle zu entnehmen:

Typen	C _i [nF]	L _i [µH]	Typ 1			Typ 2			Typ 3			Typ 4		
			Höchstzulässige Umgebungstemperatur in °C bei Einsatz in Temperaturklasse											
			T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1	T6	T5	T4-T1
SC2-N0...	150	150	55	67	95	48	60	88	23	35	63	6	18	46
SC3,5-N0-Y...	150	150	55	67	95	48	60	88	23	35	63	6	18	46
SC3,5...-N0...	150	150	56	68	96	49	61	89	28	40	68	13	25	53
SJ2-N...	30	100	56	68	96	49	61	89	28	40	68	13	25	53
SJ3,5...-N...	50	250	56	68	96	49	61	89	28	40	68	13	25	53
SJ5...-N...	50	250	56	68	96	49	61	89	28	40	68	13	25	53
SJ5-K...	50	550	55	67	95	48	60	88	25	37	65	9	21	49
SJ10-N...	50	1000	55	67	95	48	60	88	25	37	65	9	21	49
SJ15-N...	150	1200	55	67	95	48	60	88	25	37	65	9	21	49
SJ30-N...	150	1250	55	67	95	48	60	88	25	37	65	9	21	49

Prüfbericht: PTB Ex 03-23133

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, 29. Oktober 2003

Seite 2/2

EG-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin



2. E R G Ä N Z U N G

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

zur EG-Baumusterprüfbescheinigung PTB 99 ATEX 2219 X

Gerät: Schlitzinitiatoren, Typen SJ... und SC...
 Kennzeichnung: II 1 G EEx ia IIC T6
 Hersteller: Pepperl + Fuchs GmbH
 Anschrift: Lilienthalstraße 200, 68307 Mannheim, Deutschland

Beschreibung der Ergänzungen und Änderungen

Die Schlitzinitiatoren, Typen SJ... und SC... dürfen künftig auch nach den im Bewertungs- und Prüfbericht aufgelisteten Prüfungsunterlagen gefertigt und betrieben werden.

Die Änderungen betreffen die Verwendung alternativer Vergussmassen und Materialien für das Typenschild sowie eines geänderten Gehäusematerials und zusätzlicher LED-Typen. Die Herstelleranschrift ändert sich wie oben angegeben. Desweiteren erfolgt eine Anpassung an den aktuellen Normenstand und somit eine Änderung der Kennzeichnung.

Die Kennzeichnung lautet künftig:

II 1 G Ex ia IIC T6 bzw. II 2 G Ex ia IIC T6

Die „Besonderen Bedingungen“ und alle weiteren Angaben der EG-Baumusterprüfbescheinigung einschließlich der 1. Ergänzung gelten unverändert auch für diese 2. Ergänzung.

Angewandte Normen

EN 60079-0:2006

EN 60079-11:2007

EN 60079-26:2007

Bewertungs- und Prüfbericht:

PTB Ex 11-20276

ZSEx10101d.dot

Zertifizierungssektor Explosionsschutz
 Im Auftrag

Braunschweig, 25. November 2011

Dr.-Ing. U. Johannsmeyer
 Direktor und Professor



Seite 1/1

EG-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
 Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
 Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.
 Physikalisch-Technische Bundesanstalt • Bundesallee 100 • 38116 Braunschweig • DEUTSCHLAND

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

Zertifizierungsstelle, Zertifizierungssektor Explosionsschutz

Physikalisch-Technische Bundesanstalt, Postfach 33 45, 38023 Braunschweig

Pepperl + Fuchs GmbH
z. H. Herrn Bernhard Wanninger

Lilienthalstraße 200
68307 Mannheim
Deutschland

Ihr Zeichen: Bernhard Wanninger
Ihre Nachricht vom: 16. Oktober 2012
Unser Zeichen: 3.6-4492/12-Gb
Unsere Nachricht vom:

Bearbeiter von: Dipl.-Ing. Mario Graube
Telefondurchwahl: +49 (0) 531-592-3710
Telefaxdurchwahl: +49 (0) 531-592-3605
E-Mail: mario.graube@ptb.de

Datum: 21.12.2012

Normengenerationsänderung nach EN 60079-0:2009 (IEC-Ed. 5)

Change of the standard generation to EN 60079-0:2009 (IEC-Ed. 5)

Schlitzinitiatoren Typen SJ... und SC...

Slot-type initiators types SJ... and SC...

Bescheinigungsnummer

PTB 99 ATEX 2219 X

Sehr geehrte Damen und Herren,

Dear Sirs,

Ihre Selbsterklärung vom 2012-10-16 auf Übereinstimmung des o.g. Gerätes mit den vorgenannten Normen, entsprechend Ihrer Checkliste 16-0891a, hat die PTB zur Kenntnis genommen und den zugehörigen Prüfungsunterlagen beigelegt.

Your statement of 2012-10-16 concerning the conformity the a.m. equipment with the aforementioned standards, according to your Checklist 16-0891a, was acknowledged by PTB and added to the related test documentation.

Bitte nehmen Sie dieses Schreiben mit in Ihre Zulassungsunterlagen auf und reichen Sie diese Änderung in einer möglichen späteren Ergänzung mit ein.

Please add this letter to your approval documents and include this modification in a possible later supplement.

Mit freundlichen Grüßen / *Best regards*

Im Auftrag / *By order*

Dipl.-Ing. Mario Graube

Dipl.-Ing. Mario Graube



Hausadresse, Lieferanschrift
Bundesallee 100
38115 Braunschweig
DEUTSCHLAND

Telefon: +49 531 592-0
Telefax: +49 531 592-9292
E-Mail: poststelle@ptb.de
Internet: <http://www.ptb.de>

Deutsche Bundesbank, Filiale Leipzig
Kto.-Nr. 860 010 40 BLZ 860 020 00
IBAN, DE 86 000 000 000 000 000 000 00
BIC MARKDEF3333 VAT-Nr. DE 811 240 527

PTB, Berlin-Charlottenburg
Abbest. 2-12
10687 Berlin
DEUTSCHLAND