

# Pressure gauges Model 232.XX.063 per directive 94/9/EC (ATEX) with alarm contacts Model 831

Ex II 2 GD c



Part of your business

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Enclosure 1: Declaration of conformity  
for Models 232.XX.63 with  
alarm contacts Model 831

Enclosure 2: EC-type examination certificate  
(Ex approval for gases and dust) for slot-  
type proximity sensors Si2-K08-Y1X  
(WIKAL-Model 831)

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## 1. Safety instructions

### Caution

The appropriate national safety regulations (e.g. VDE 0100 / EN 60 079-14 / EN 837-2) must be observed when installing, putting into operation and running these instruments.

- Do not work on gauge while under voltage
- Serious injuries and/or damage can occur should the appropriate regulations not be observed
- Only appropriately qualified persons should work on these instruments

## 2. Description

- Nominal size 63 mm
- The pressure gauges measure the pressure by means of resilient bourdon tube measuring elements
- The measuring features are in accordance with the standards EN 837-1
- In addition the case and bezel ring as well as the pressurised components of models 232.3X also meet the requirements of this standard on safety pattern pressure gauges with solid baffle wall (code S3).

The built-in electrical alarm contacts are non-contact slot-type inductive proximity sensors, which are supplied from control units with circuits that are certified to be intrinsically safe. When the adjustable set points are reached, their output circuits will be opened or closed.

The connection values of the switches are in accordance with EN 60 947-5-6 ("NAMUR").

## 3. Technical data and intended use

### Working pressure

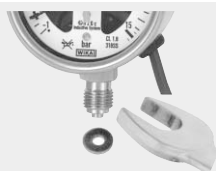
Steady: full scale value  
Fluctuating:  $0.9 \times$  full scale value  
Short time:  $1.1 \times$  full scale value

### Pressure connection

- According to the general technical regulations for pressure gauges, respectively (e.g. EN 837-2 "Selection and installation recommendations for pressure gauges").

When screw-fitting the gauges the force required for sealing must not be applied through the case but, using a suitable tool, only through the spanner flats provided for this purpose at the square of the connector.

Installation with  
open-ended spanner



Temperature effect

When temperature of the pressure element deviates from reference temperature (+20 °C):  
max. ±0.4 %/10 K of true scale value

IP Ingress protection

Enveloping case IP 54 resp. IP 65 as special feature (EN 60 529 / IEC 60 529)

Materials

- Wetted parts: Stainless steel
- Movement: Stainless steel
- Dial and pointer: Aluminium
- Case, bezel ring: Stainless steel
- Window: Polycarbonate

Installation

- Nominal position per EN 837-1 / 9.6.7 Figure 9: 90° (⊥)
- Pressure connection: lower mount (LM) or back mount (BM)
- In order to ensure that with models 232.3X pressure can be safely and reliably vented through the case back, a distance of at least 25 mm has to remain free behind the case!
- In order to avoid any additional heating, the instruments must not be exposed to direct solar irradiation while in operation!

Permissible vibratory stress at the mounting location

- As a matter of principle the instruments should only be mounted at locations without vibratory stresses
- Where required, a decoupling from the mounting location can be achieved e.g. by a flexible connecting line from the measuring point to the pressure gauge and mounting via a measuring instrument bracket.
- If this is not possible, the following limits must not be exceeded:  
Frequency range < 150 Hz  
Acceleration < 0.5 g (5 m/s²)

Operating Temperature

Ambient: -25 ... +60 °C  
**Attention:** Footnote 1) under table 1 must be absolutely taken into account!  
Medium: see table 1

**Attention!** With gaseous substances the temperature may increase as a result of the compression temperature. In such cases the pressure change rate has to be slowed down resp. the permissible medium temperature has to be reduced.

Table 1: Permissible medium temperature (only mechanical part)

Ignition temperature of the ambient atmosphere (temperature class)	Permissible maximum medium temperature (in the pressure system)
T 6 ( > 85 °C)	+70 °C
T 5 ( > 100 °C)	+85 °C
T 4 ( > 135 °C)	+120 °C
T 3 ( > 200 °C)	+185 °C
T 2 ( > 300 °C)	+200 °C
T 3 ( > 450 °C)	+200 °C

1) The permissible upper ambient temperature for the electrical components is determined by the electrical connection values and the ignition temperature of the ambient gases, vapours and dusts. Therefore the maximum permissible ambient temperatures specified in the EC-type examination certificates for slot-type sensors and SN sensors must be observed as well. The **lower** of these two values is to be considered the maximum permissible ambient temperature!

4. Alarm contacts

EC-type examination certificates

The proximity sensors are in accordance with EC-type examination certificate KEMA 01 ATEX 1264 X.  
The built-in sensor type is stated on the product label of the pressure gauge.

Contact function index

The contact function of the switch is identified by the indices 1 or 2.  
831.1 = NO - normally open, contact makes (clockwise pointer motion)  
831.2 = NC - normally closed, contact breaks (clockwise pointer motion)

Wiring details

- The electrical connections should be made by qualified electricians
- Cable outlet 2 m length, conductor cross section 0.14 mm², flying leads
- The terminal assignment is stated on the connection plate at the pressure gauge



- The instruments are to be included in the equipotential bonding of the plant!

The permissible limits of the intrinsically safe supply circuits:

$U_i = 15\text{ V}$   
 $I_i = 60\text{ mA}$   
 $P_i = 100\text{ mW}$  for temperature class T6 resp. 150 mW for temperature class T4

Suitable switch amplifiers are e.g.:

Model designation of the manufacturer Fa. Pepperl & Fuchs	EC-type examination certificate	WIKA- Model
KFD2-SR2-Ex1	PTB 00 ATEX 2080	904.31
KFD2-SR2 Ex2	PTB 00 ATEX 2080	904.32
KHA6-SR2-Ex1	PTB 99 ATEX 2141	904.28
KHA6-SR2-Ex2	PTB 99 ATEX 2141	904.29

Electromagnetic compatibility

EMC according to EN 60 947-5-2.  
The instruments are to be protected against strong electromagnetic fields.

To adjust red set pointers

The red set pointers for the alarm contacts are adjustable over the adjustment lock in the window with the aid of the adjustment key (included in delivery).



The red set pointers for the alarm contacts are adjustable over the full range of the instrument. Switching points shall be set in the ranges between 10 % und 90 % of the scale to ensure switching accuracy and long life of the mechanical measuring system.

5. Commissioning

During the commissioning process pressure peaks must be absolutely avoided. Open the shut-off valves slowly.

6. Maintenance and servicing / cleaning

The instruments require no maintenance or servicing.  
The indicator and switching function should be checked once or twice every 12 months. The instrument must be disconnected from the process to check with a pressure testing device.

The instruments should be cleaned with a damp cloth moistened with soap solution.  
Remainder of the pressure medium in dismounted pressure gauges may be hazardous or toxic. This should be considered when handling and storing the removed pressure gauges.

7. Repairs

Repairs are to be only carried out by the manufacturer or appropriately trained personnel.  
For further details see WIKA data sheet PM 02.02, PM 02.04 or PM 02.11.

8. Disposal

Dispose of instrument components and packaging materials in accordance with the respective waste treatment and disposal regulations of the region or country to which the instrument is supplied.

<p><b>Konformitätserklärung</b> Richtlinie 94 / 9 / EG (ATEX)</p> <p>Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte, <b>Druckmessgeräte mit Rohrfeder</b>, gemäß gültigem Datenblatt mit der Richtlinie übereinstimmen und dem Konformitätsbewertungsverfahren "Interne Fertigungskontrolle" unterworfen wurden.</p>	<p><b>Declaration of Conformity</b> Directive 94 / 9 / EC (ATEX)</p> <p>We declare under our sole responsibility that the products mentioned below, <b>bourdon tube pressure gauges</b>, according to the current data sheet correspond with the directive and were subjected to the conformity assessment procedure "Internal Control of Production".</p>
<p><b>WIKKA – Typ</b>    Datenblatt</p> <p>232.30.063    PM 02.04 232.50.063    PM 02.02</p> <p>Die Unterlagen werden aufbewahrt unter der Artikelnummer: 8000550026, bei der benannten Stelle 0032</p> <p>TOV NORD CERT Am TÜV 1 D-30519 Hannover</p> <p>Die Geräte werden gekennzeichnet mit</p> <p>  II 2 GD c</p>	<p><b>WIKKA model</b>    data-sheet</p> <p>232.30.063    PM 02.04 232.50.063    PM 02.02</p> <p>The dossier is retained under file no. 8000550028 at the notified body 0032</p> <p>TOV NORD CERT Am TÜV 1 D-30519 Hannover</p> <p>The gauges are marked with</p> <p>  II 2 GD c</p>
<p>Angewandte Normen:</p> <p>EN 13463-1 "Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen"</p> <p>- Grundlagen und Anforderungen"</p> <p>EN 13463-5 "Schutz durch konstruktive Sicherheit „c“"</p> <p>Die eingebauten <b>Schaltkontakte 831</b> sind EG-baumutergeprüft. Die Nummern der Prüfbescheinigungen und die Kennzeichnung</p> <p><b>KEMA 02 ATEX 1090 X</b> bzw.</p> <p> II 1 G Ex Ia IIC T4 ... T6 Ga oder</p> <p> II 2 G Ex Ia IIC T4 ... T6 Gb und/oder</p> <p> II 1 D Ex Ia IIC T95°C oder T115°C Da</p>	<p>Applied standards:</p> <p>EN 13463-1 "Non electrical equipment for potentially explosive atmospheres"</p> <p>- Basic method and requirements"</p> <p>EN 13463-5 "Protection by constructional safety „c“"</p> <p>The built-in <b>switch contacts 831</b> are EC-type-certified. Numbers of certificates and marking</p> <p><b>KEMA 02 ATEX 1090 X</b> bzw.</p> <p> II 1 G Ex Ia IIC T4 ... T6 Ga or</p> <p> II 2 G Ex Ia IIC T4 ... T6 Gb and/or</p> <p> II 1 D Ex Ia IIC T95°C oder T115°C Da</p>
<p><b>WIKKA</b> <b>Alexander Wiegand SE &amp; Co. KG</b> Killingenbergr, 08.05.2014</p> <p> Thorsten Seefried Leiter Prozessergate Company Division PI-PP</p>	<p><b>WIKKA</b> <b>Alexander Wiegand SE &amp; Co. KG</b> Killingenbergr, 08.05.2014</p> <p> Thorsten Seefried Leiter Qualitätssicherung Quality Assurance Manager</p>

KEMA

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(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 01ATEX1264 X**

(4) Equipment or protective system: **Proximity Switch Type SI 2-NOB-Y1X and Type BIM-INT-Y1X**

(5) Manufacturer: **Hans Turck GmbH & Co. KG**

(6) Address: **Witzlebenstraße 7, 45472 Mülheim an der Ruhr, Germany**

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

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that the equipment or protective system 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 confidential report no. 2011237.


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

**EN 5014 : 1997    EN 50020 : 1994    EN 50284 : 1999**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include the following:


**RIG    EEx ia IIC T4 ... T6**

Amstern, 20 December 2001

KEMA Quality B.V.




T. Pijper  
Certification Manager

\* This Certificate may only be reproduced in its entirety and without any change.

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ACCREDITATION



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(13)

**SCHEDULE**

(14)

to EC-Type Examination Certificate KEMA 01ATEX1264 X

(15) **Description**

Proximity Switch Type SI2-K08-Y1X is a contactor which is contactless activated by the approach or passing by of a metal object.

Proximity Switch Type BIM-INT-Y1X is a contactor which is contactless activated by a magnetic object.

The Proximity Switches are provided with a permanently connected cable, with a maximum length of 10 m.

Ambient temperature range: -25°C ... +70 °C.

**Electrical data**

Supply and output signal .....  
(brown and blue wires)

in type of explosion protection intrinsic safety EEx ia  
is IIC, only for connection to a certified intrinsically  
safe circuit, with following maximum values:

U <sub>i</sub> =	15 V	
I <sub>a</sub> =	60 mA	
P <sub>i</sub> =	100 mW	for temperature class T6
	150 mW	for temperature class T4

The effective internal inductance L<sub>i</sub> and the  
effective external capacitance C<sub>e</sub> are in accordance  
with following table:

Type	L (µH)	C (nF)
SI2-K08-Y1X	268	41
BIM-INT-Y1X	50	30

(16) **Report**

KEMA No. 2011237.

(17) **Special conditions for safe use**

For the ambient temperature range, refer to the description at (15).

For the parameters of the intrinsically safe circuits, refer to the electrical data mentioned at (15).

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

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KEMA 01ATEX1264 X • D-Nr.: 5502

02.07.04 • 1/3

(13)	<b>SCHEDULE</b>	<b>AMENDMENT 1</b>	
(14)	to EC-Type Examination Certificate KEMA 01ATEX1264 X	to EC-Type Examination Certificate KEMA 01ATEX1264 X	
(19)	<b>Test documentation</b>		
1.	Certificate of Conformity PTB No. Ex-86/2177.X Certificate of Conformity BVS No. 89.C.2021 X		
2.	Description (5 sheets)	3/2000	
3.	Drawing No. WIEB-412		
	SP 12176600		
	BP 12176600 (2 sheets)	03.12.2001	
	862 800000		
	12254300 (3 sheets)		
	DZ 135		
4.	Components list No. 12176601		
	Components list No. 12254301		
5.	Samples		
<b>Description</b>			
In future, the Two Wire Proximity Sensors Type BIM-INT-Y1X, may also be used in explosive atmospheres caused by the presence of combustible dust.			
Compliance with the Essential Health and Safety Requirements has been assured by conformity with EN 50201-1-1:1996.			
The marking of the Two Wire Proximity Sensors shall include the following:			
II 1 G    Ex in IIC T4...T5 II 1 D    T 65°C			
The maximum surface temperature T 95 °C of the enclosure is based on a maximum ambient temperature of 70 °C.			
<b>Special conditions for safe use</b>			
The Two Wire Proximity Sensor assembly must be mounted in such a way that it is protected against impact.			
All other data remain unchanged.			
<b>Test documentation</b>			
		(dated)	
	Drawing No. INT_Kabelstähne.FH8	18.05.2004	
Amhem, 22 June 2004 KEMA Quality is V.			
T. Pijpe Certification Manager			