

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III
(Translation)



[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU04ATEX1211**

[4] Equipment: Sensor-Box Type SB-PA-...
Sensor-Box Type SB-AL-...

[5] Manufacturer: Grüttner Formtechnik

[6] Address: Siemensstr. 5, 41515 Grevenbroich, Germany

[7] This equipment and any acceptable variation thereto are specified in the schedule to this EC-Type Examination Certificate.


[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential test report IB-04-3-304 of 28 October 2004.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50014:1997+A1 +A2, EN 50020:1994 and EN 50281-1-1:1998+A1.

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned in [4] shall include the following:

 II 2G EEx ia/ib IIC/IIB T6


 II 2D IP 65 T 80 °C

The validity of the marking for the type of protection depends on type of protection of the associated apparatus used.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - D-09599 Freiberg
Tel.: 00493731 3805-0 - Fax: 00493731 23650

Authorised for certifications Explosion protection

By order


(Dr. Lösch)



- Seal-
(ID no. 0637)

Freiberg, 29 October 2004

Certificates without signature and seal are not valid.
Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Schedule

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[13] **Schedule**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211**

[15] **Description of equipment**

The Sensor-Boxes SB-PA-... and SB-AL-... consist of separate certificated intrinsically safe Ex-components which are common installed with Ex-terminal strip in a Polyamide- or Aluminiumcase.

| | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature range | from -20 °C to +70 °C (for all variants, except with Sensor PL3-F25-N4-K) from -20 °C to +50 °C (for the variants with Sensor PL3-F25-N4-K) |
| Degree of protection: | IP 65 |
| Input electric circuit: | EEx ia/ib IIC/IIB |
| Nominal voltage: | U _i = 16 V (for variants with PL3... U _i = 15V) |
| Nominal current | I _i = 25 mA |
| Power | P _i = 34 mW |

The internal inductivities and capacities are differently depending on the respective Sensor-type. They are specified on the identification plate.

Safety reference

The electrical dates of the Ex- components, inclusively the existing "Special conditions" or references, can be taken from the actual EC-Type Examination Certificate in-built Ex- components. All metal casing parts (except screws) have to be connected to equipotential bonding conductor. The connecting cable have to be permanently installed.

[16] **Test report**

The test results are recorded in detail in the confidential test report IB-04-3-304 of 28 October 2004.

Summary of the Test Result:

The Sensor-Boxes SB-PA-... and SB-AL-... fulfil the requirements of the type of protection Intrinsic Safety for an electrical apparatus for the Group II, Explosion Group IIC/IIB and Category 2G as well as requirements of Dust Explosion Protection.

[17] **Special conditions**

none

[18] **Essential Health and Safety Requirements**

Confirmed by norms (see [9]).

By order



(Dr. Lösch)

Freiberg, 29 October 2004

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[1] **1st Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211
- Translation -**



[2] Equipment: Sensor-Box Type SB-PA-...
Sensor-Box Type SB-AL-...

[3] Manufacturer: Grüttner Formtechnik



[4] Address: Siemensstr. 5,
41515 Grevenbroich, GERMANY

[5] **Addition / Alteration**
The equipment mentioned under [2] can also be manufactured according to the altered construction documents, that is they can be used with additional empty cases.

[6] **Test documents**
The documentation is part of the Test Report IB-05-3-294 from 12th October 2005.

[7] **Test result**
The Sensor-Boxes type SB-AL/A/S... and SB-VA... as well as with closed lid type SB-PA/G... with the proved modification fulfils likewise requirements of the type of protection Intrinsic Safety for an electrical apparatus for the Group II, Explosion Group IIC/IIB and Category 2G as well as requirements of Dust Explosion Protection.

The marking is unchanged:

 II 2G EEx ia/ib IIC/IIB T6
 II 2D IP 65 T 80 °C

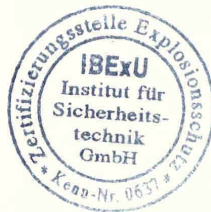
All further information of the EC-Type Examination Certificate remain unchanged for this addition.

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(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 13th October 2005

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- [1] **2nd Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211
- Translation -**



- [2] Equipment:
a) Title corresponding to IBExU04ATEX1211:
Sensor-Box
Type SB-PA-... and SB-AL-...
- b) Supplementary titles: Sensor-Box
Type SB-PA-...-U and SB-AL-SJ 3,5-SN-T
- [3] Manufacturer:
a) Title corresponding to IBExU04ATEX1211:
Grüttner Formtechnik
- b) Altered title: Rauter sensor-boxes
- [4] Address:
a) Corresponding to IBExU04ATEX1211:
Siemensstr. 5
41515 Grevenbroich
Germany
- b) Altered address: Düsseldorf Straße 186
41460 Neuss
Germany


- [5] **Addition / Alteration**
The additions / alterations of equipment mentioned under [2] b) compared with the certify equipment [2] a) concern in singles:
a) An expansion of the series of sensor boxes around the type SB-PA-...-U for applications in the mining as intrinsically safe electrical apparatus of the group I category M2.
b) An expansion of the series of sensor boxes around the type SB-AL-SJ 3,5-SN-T for applications in the depression temperature range till -45 °C, existing only from components which are at least suitable for this temperature.

- [6] **Test Report**
The proof of the explosion protection the under [2] b) mentioned equipment explained in the Test Report IB-06-3-057 from 13th March 2006. The test documents are component of the Test Report.

- [7] **Test result**
IBExU certifies, that the under [2] b) mentioned equipment fulfils the in Annex II of the RL 94/9/EC fixed Essential Health and Safety Requirements by accordance with EN 50014:1997+A1+A2, EN 50020:2002 and EN 50281-1-1:1998.

The sensor-box type SB-AL-SJ 3,5-SN-T for applications in the depression temperature range till -45 °C fulfils the requirements of the equipment group II, category 2G, type of protection intrinsic safety ia/ib, Explosion group IIC/IIB into dependence of the supply electrical circuit.

The marking of the sensor-box type SB-AL-SJ 3,5-SN-T shall include the following:

 II 2G EEx ia/ib IIC/IIB T6

 II 2D IP 65 T 80
-45 °C ≤ T_a ≤ +70 °C

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The sensor-box type SB-PA-...-U for applications in the mining fulfils the requirements of the equipment group I, category M2, type of protection intrinsic safety ia/ib into dependence of the supply electrical circuit.

The marking of the sensor-box type SB-PA-...-U shall include the following:

Ⓢ I M2 EEx ia/ib I
-20 °C ≤ T_a ≤ +70 °C

**This addition only is in connection with the EC-Type Examination Certificate
IBExU04ATEX1211 of 29th October 2004 valid.**

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Authorized for certifications
- Explosion protection -

By order



(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 14th March 2006

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- [1] **3rd Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211
- Translation -**



- [2] Equipment: Sensor-Box
Type SB-PA-... and SB-AL-...

- [3] Manufacturer:
a) Title corresponding to IBExU04ATEX1211:
Grüttner Formtechnik
b) Current title: Rauter sensor-boxes

- [4] Address:
a) Corresponding to IBExU04ATEX1211:
Siemensstr. 5
41515 Grevenbroich
Germany
b) Current address: Düsseldorf Straße
41460 Neuss
Germany

- [5] **Addition / Alteration**
The additions / alterations of equipment mentioned under [2] compared with the certify equipment concern in singles:
The sensor boxes can be added with a membrane vent type POV/Metal Vent M12x1,5 in the box-ground.

- [6] **Test Report**
The proof of the explosion protection the under [2] mentioned equipment explained in the Test Report IB 06-3-163 from 29th May 2006. The test documents are component of the Test Report.

- [7] **Test result**
IBExU certifies, that the under [2] mentioned equipment fulfils the in Annex II of the RL 94/9/EC fixed Essential Health and Safety Requirements by accordance with EN 50014:1997 +A1+A2, EN 50020:2002 and EN 50281-1-1:1998.

The cryogenic temperature-sensor-box type SB-AL-SJ 3,5-SN-T for applications in extreme cold is with the membrane vent only till - 40 °C approved.

The marking of the sensor-box type SB-AL-SJ 3,5-SN-T with the membrane vent shall include the following:

 II 2G EEx ia/ib IIC/IIB T6

 II 2D IP 65 T 80 °C

-40 °C ≤ T_a ≤ +70 °C

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Safety notes

- At use in Group II outside of the normal temperature range at a minimal ambient temperature up to max. -40 °C the Membrane Vent must be installed and operated mechanically protected according to the low risk of mechanical danger according to EN 60079-0: 2004, paragraph 26.4.2.
- At the use of the Membrane Vent in Group I the mounting location must be selected in such a way, that it is protected against the risk of mechanical danger during the normal operation based on the requirements of EN 60079-0:2004, paragraph 9.2.
- Damaged Membrane Vents have to be replaced immediately.

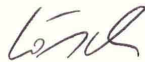
This addition only is in connection with the EC-Type Examination Certificate IBExU04ATEX1211 of 29th October 2004 valid.

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Authorized for certifications

Explosion protection

By order



(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 30th May 2006

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[1] **4th Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211
- Translation -**



[2] Equipment: Sensor-Box
Type SB-PA-... SB-AL-...and SB-VA-...

[3] Manufacturer: Rauter Sensor-Boxes

[4] Address: Düsseldorf Straße
41460 Neuss
Germany

[5] **Addition / Alteration**

The additions / alterations of the equipment mentioned under [2] compared with the certified equipment concern in particular:

- a) The sensor boxes fulfil also the requirements of the standard series EN 60079-0 and EN 61241-0.
- b) The sensor boxes can also be equipped with the cable entries type U28 of the comp. Pflitsch, type GHG 960 9235 P0023 (Neoprene sealing ring), of the comp. CEAG/Cooper-Crouse Hinds or type Skintop MS-M20 of the comp. Lapp.
- c) At the use of the cable entries mentioned under b) the ambient temperature range can be extended on -25 °C to +70 °C.
- d) The sensor boxes also can also be equipped with a Becker-Hirschmann-Adapter type BHA 01.
- e) Another high-grade steel enclosure type KL of the comp. Rittal can alternatively be used.

[6] **Test Report**

The proof of the explosion protection of the under [2] mentioned equipment is explained in the Test Report IB-07-3-276/1 of 26th October 2007. The test documents are part of the Test Report.

[7] **Test result**

IBExU certifies that the under [2] mentioned equipment fulfils the in Annex II of the Directive 94/9/EC fixed Essential Health and Safety Requirements by compliance with EN 60079-0:2004, EN 60079-11:2007, EN 62241-0:2006 and EN 61241-1:2004.

The marking of the sensor-boxes shall include the following:

⊕ II 2G Ex ia/ib IIC/IIB T6
⊕ I M2 Ex ia/ib I
⊕ II 2D Ex tD A21 IP 65 T 80 °C

Changed temperature range at use of the under [5] b) mentioned cable entries:
 $-25\text{ °C} \leq T_a \leq +70\text{ °C}$

Safety instructions

- The correct safety notes and special conditions of the used Ex-components have to be taken into account.
- The extended temperature range is ensured only at use of the sealing compounds allowed for this.

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This addition is only valid in combination with the EC-Type Examination Certificate
IBExU04ATEX1211 of 29th October 2004 and the additions 1 to 3 valid.

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Authorized for certifications
- Explosion protection -

By order



(Dr. Lösch)



- Seal -
(Identification No. 0637)

Freiberg, 29th October 2007

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shall prevail.

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- [1] **5th Addition to EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211**
according to Directive 94/9/EC, Annex III
- Translation -



- [2] Equipment:
a) Designation corresponding to IBExU04ATEX1211:
Sensor-Box
Type SB-PA-... and SB-AL-...
- b) Supplementary types: Type SB-PA-... SB-AL-...and SB-VA-...
- [3] Manufacturer:
a) Name corresponding to IBExU04ATEX1211:
Grüttner Formtechnik
- b) Altered Name: Rauter Sensor-Boxes
- [4] Address:
a) Address corresponding to IBExU04ATEX1211:
Siemensstr. 5, D-41515 Grevenbroich
- b) Altered address:
Düsseldorfer Straße 186
41460 Neuss
Germany

- [5] **Addition / Alteration**
This is a summarized addition, which included all previous alterations and one new addition:
- a) An expansion of the series of sensor boxes around the type SB-PA-...-U for applications in the mining as intrinsically safe electrical apparatus of the group I category M2.
- b) An expansion of the series of sensor boxes around the type SB-AL-SJ 3,5-SN-T for applications in the depression temperature range to -45 °C.
- c) The sensor boxes can also be equipped with a membrane vent and different cable entries.
- d) A further high-grade steel enclosure type KL of the company Rittal can alternatively be used.
- e) The sensor boxes also can be equipped with a Becker-Hirschmann-Adapter type BHA 01 or different Harting plug-in connectors.

Only intrinsically safe inductive sensor are used, which are separately certified in accordance with Directive 94/9/EC. The values of the sensors for inductance und capacitance are inherited at the outside type label.

Technical data

Ambient temperature: from -20 °C to +70 °C (for all variants, apart from PL3-F25-N4-K)
from -20 °C to +40 °C (with sensor PL3-F25-N4-K)
from -25 °C to +70 °C (when cable entries are applicable)
from -45 °C to +70 °C (type SB-AL-SJ 3,5-SN-T)

Degree of protection: IP 65

Input electric circuit in type of protection intrinsic safety Ex ia/ib IIC/IIB:

Nominal voltage: $U_i = 16 \text{ V}$ (for variants with PL3... $U_i = 15 \text{ V}$)

Nominal current: $I_i = 25 \text{ mA}$

Power: $P_i = 34 \text{ mW}$

- [6] **Test Report**
The proof of the explosion protection of the under [2] mentioned equipment is explained in the Test Report IB-10-3-415 of 16 March 2011. The test documents are part of the Test Report.

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[7] **Test result**

The sensor boxes Type SB-PA-... SB-AL-...and SB-VA-... fulfil the requirements of explosion protection for equipment of Group I and II, type of protection Intrinsic safety „ia“ respectively „ib“ Category 2G, 2D and M2.

IBExU certifies that the under [2] mentioned equipment fulfils the in Annex II of the Directive 94/9/EC fixed Essential Health and Safety Requirements by compliance with EN 60079-0:2009, EN 60079-11:2007 and EN 61241-11:2006.

The marking of the alterations sensor-boxes type SB-PA-..., SB-AL-...and SB-VA-...shall include at least one of the following details:

⊕ II 2G Ex ia/ib IIC/IIB T6
⊕ II 2D Ex ia IIIC T 80 °C
⊕ I M2 Ex ia I (type SB-PA-...-U)
-45 °C/-25 °C/-20 °C ≤ T_a ≤ +40 °C/+70 °C

[8] **Safety instructions**

- The correct safety notes and special conditions of the used Ex-components, particularly membrane vent and cable entries, have to be taken into account.
- The extended temperature range is ensured only at use of the sealing compounds allowed for this.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU04ATEX1211 of 29th October 2004.

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Authorized for certifications
- Explosion protection -

By order



(Dr. Wagner)



- Seal -
(Identification No. 0637)

Freiberg, 16 March 2011

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In case of dispute, the German text shall prevail.

IBExU Institut für Sicherheitstechnik GmbH
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- [1] **6th Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1211**
according to Directive 94/9/EC, Annex III
- Translation -



- [2] Equipment: **Sensor-Box**
Type SB-PA-... SB-AL-...and SB-VA-...
- [3] Manufacturer: Rauter Sensor-Boxes
- [4] Address: Düsseldorf Straße 186
41460 Neuss
Germany

- [5] **Addition / Alteration**
The additions / alterations of the equipment mentioned in [2] compared with the equipment already certified concern in detail:

- a) Optional extension of the maximum power to 64 mW with a decreasing of max. permissible ambient temperature at +66 ° C.
- b) The sensors meet the requirements of the current standard EN 60079.

- [6] **Test Report**
The proof of the explosion protection of the equipment mentioned in [2] is explained in the Test Report IB-15-3-167 of 14 September 2015. The test documents are part of the Test Report.

- [7] **Test result**
The sensor boxes Type SB-PA-... SB-AL-...and SB-VA-... fulfil the requirements of explosion protection for equipment of Group I and II, type of protection Intrinsic safety „ia“ respectively “ib” Category 2G, 2D and M2.

IBExU certifies that the equipment mentioned in [2] fulfils the in Annex II of the Directive 94/9/EC fixed Essential Health and Safety Requirements by compliance with EN 60079-0:2012+A11:2013 and EN 60079-11:2012.

The marking of the alterations sensor-boxes type SB-PA-..., SB-AL-...and SB-VA-...shall include at least one of the following:

⊕ II 2G Ex ia/ib IIC/IIB T6 Gb
⊕ II 2D Ex ia IIC T 80 °C Db
⊕ I M2 Ex ia I Mb (type SB-PA-...-U)
-45 °C/-25 °C/-20 °C ≤ T_a ≤ +40 °C/+66 °C/+70 °C

This addition is only valid in combination with the EC-Type Examination Certificate IBExU04ATEX1211 of 29th October 2004 and their 5th addition. The special conditions contained in the schedule to the EC-Type Examination Certificate keep their validity.

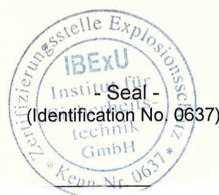
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Authorized for certifications
- Explosion protection -

Freiberg, 14 September 2015

By order

(Dipl.-Ing. Willamowski)



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IBExU Institut für Sicherheitstechnik GmbH
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[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**



[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU04ATEX1211** | Issue 1

[4] Product: **Sensor-Box**
Type: SB-PA-... SB-AL-... and SB-VA-...

[5] Manufacturer: **Rauter sensor-boxes**

[6] Address: Düsseldorf Straße 186
41460 Neuss
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-17-3-0189.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN 60079-0:2012+A11:2013 and EN 60079-11:2012 except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

II 2G Ex ia/ib IIC/IIB T6 Gb
 II 2D Ex ia/ib IIIC T80°C Db
 I M2 Ex ia/ib I Mb (type SB-PA-...-U)
-45 °C/-20 °C ≤ Ta ≤ +40 °C/+66 °C/+70 °C

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By order

Dipl.-Ing. (FH) A. Henker



- Seal -
(Notified Body number 0637)

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Freiberg, 2018-02-12

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An-Institut der TU Bergakademie Freiberg

[13] **Schedule**

[14] **Certificate number IBExU04ATEX1211 | Issue 1**

[15] **Description of product**

The SB-PA -..., SB-AL -... and SB-VA- ... sensor boxes consist of separately certified intrinsically safe Ex components which are housed together with Ex terminals in a polyamide, aluminum or stainless steel housing , The sensor boxes can also be equipped with a pressure compensation element and various cable glands, a Becker-Hirschmann adapter type BHA 01 or various Harting connectors.

Technical data

Ambient temperature:

| | Power P_i | temperature range | variant ...-T |
|--------------------------------|-------------|-------------------|-------------------|
| sensor PL3-F25-N4-K | 34 mW | -20 °C to +40 °C | -45 °C to +40 °C* |
| all except sensor PL3-F25-N4-K | 34 mW | -20 °C to +70 °C | -45 °C to +70 °C* |
| all except sensor PL3-F25-N4-K | 64 mW | -20 °C to +66 °C | -45 °C to +66 °C* |

* only if all Ex components are suitable for this temperature range. Intermediate values at the minimum ambient temperature are also possible.

Degree of protection: IP 65

Electrical data

Supply circuit in intrinsic safety Ex ia or ib:

U_i 16 V (for variant with PL3... U_i 15 V)
 I_i 25 mA
 P_i 34 mW/64 mW

The internal inductances and capacities differ according to the type of sensor and are indicated on the marking plate.

Safety instructions

- The correct safety notes and special conditions of the used Ex-components, particularly membrane vent and cable entries, have to be taken into account.
- The extended temperature range is only guaranteed if the approved sealing materials and Ex-components are used.
- All metal casing parts (except screws) have to be connected to equipotential bonding conductor.
- The connecting cables have to be permanently installed.

Changes compared to the first registration

Other pressure compensation elements can be used as an alternative.

[16] **Test report**

The test results are recorded in the confidential test report IB-17-3-0198 of 2018-02-12. The test documents are part of the test report and they are listed there.

Summary of the test results

The SB-PA -..., SB-AL -... and SB-VA- ... sensor boxes fulfills the requirements of type of protection intrinsic safety for explosion-proof equipment for groups I and II, explosion group I, IIC / IIB and IIIC and the categories M2, 2G and 2D.

[17] **Specific conditions of use**

None

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[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report: None

[19] Drawings and Documents

The documents are listed in the test report.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order



Dipl.-Ing. (FH) A. Henker

Freiberg, 2018-02-12

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **EU-TYPE EXAMINATION CERTIFICATE - Translation**



[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU04ATEX1211** | Issue 2

[4] Product: **Sensor-Box**
Type: SB-PA-..., SB-PE-..., SB-AL-... and SB-VA-...

[5] Manufacturer: **Rauter sensor-boxes**

[6] Address: Düsseldorf Straße 186
41460 Neuss
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.




The examination and test results are recorded in the confidential test report IB-18-3-0190.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN 60079-0:2012+A11:2013 and EN 60079-11:2012 except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

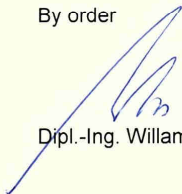
[12] The marking of the product shall include the following:

 II 2G Ex ia or ib IIC or IIB T6 Gb
 II 2D Ex ia or ib IIIC T80°C Db
 I M2 Ex ia or ib I Mb (type SB-PA-...-U)
-45 °C...-20 °C ≤ Ta ≤ +40 °C...+70 °C

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By order



Dipl.-Ing. Willamowski



Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2019-01-09

IBEXU Institut für Sicherheitstechnik GmbH

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[13]

Schedule

[14]

Certificate number IBExU04ATEX1211 | Issue 2

[15]

Description of product

The SB-PA ..., SB-PE-..., SB-AL ... and SB-VA- ... sensor boxes consist of separately certified intrinsically safe Ex components which are housed together with Ex terminals in a polyamide, polyester, aluminum or stainless steel housing , The sensor boxes can also be equipped with a pressure compensation element and various cable glands, a Becker-Hirschmann adapter type BHA 01 or various Harting connectors. Optionally, a 3D visual display can be mounted on the cover.

Technical data

Ambient temperature:

| | Power P _i | temperature range | variant ...-T |
|---------------------------------|----------------------|-------------------|-------------------|
| sensor PL3-F25-N4-K | 34 mW | -20 °C to +40 °C | -45 °C to +40 °C* |
| all except sensor PL3-F25-N4-K | 34 mW | -20 °C to +70 °C | -45 °C to +70 °C* |
| all except sensor PL3-F25-N4-K | 64 mW | -20 °C to +66 °C | -45 °C to +66 °C* |
| Sensor Ri...P.-DSU35...-Eli-Exi | 600 mW | -20 °C to +66 °C | -25 °C to +66 °C* |

* only if all Ex components are suitable for this temperature range. Intermediate values at the minimum ambient temperature are also possible.

Degree of protection: IP 65

Electrical data

Sensor PL3...

Supply circuit in intrinsic safety Ex ia or ib:

U_i 16 V (for variant with PL3... U_i 15 V)
I_i 25 mA
P_i 34 mW/64 mW

Sensor Ri...P.-DSU35...-Eli-Exi

Supply circuit in intrinsic safety Ex ia or ib:

U_i 30 V
I_i 120 mA
P_i 600 mW

The internal inductances and capacities differ according to the type of sensor and are indicated on the marking plate.

Safety instructions

- The correct safety notes and special conditions of the used Ex-components, particularly membrane vent and cable entries, have to be taken into account.
- The extended temperature range is only guaranteed if the approved sealing materials and Ex-components are used.
- All metal casing parts (except screws) have to be connected to equipotential bonding conductor.
- The connecting cables have to be permanently installed.

Changes compared to the first registration

- Extension by a new type SB-PE- ... with polyester housing
- Use of an inductive angle sensor
- Optional installation of a 3D visual display

[16] **Test report**

The test results are recorded in the confidential test report IB-18-3-0190 of 2019-01-09. The test documents are part of the test report and they are listed there.

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Summary of the test results

The SB-PA-..., SB-PE-..., SB-AL -... and SB-VA- ... sensor boxes fulfills the requirements of type of protection intrinsic safety for explosion-proof equipment for groups I and II, explosion group I, IIC / IIB and IIIC and the categories M2, 2G and 2D.

[17] **Specific conditions of use**

None

[18] **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report: None

[19] **Drawings and Documents**

The documents are listed in the test report.

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