Translation

1 # EU-Type Examination Certificate

2 **Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014**

3 EU-Type Examination Certificate Number: **BVS 15 ATEX E 100 X** Issue: **01**

4 Equipment: **Overvoltage protection device type B81-35**

5 Manufacturer: **VEGA Grieshaber KG**

6 Address: **Am Hohenstein 113, 77761 Schiltach, Germany**

7 This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, 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 Report No. BVS PP 15.2194 EU.
This issue of the EU-Type Examination Certificate replaces the previous issue of the EU-Type Examination Certificate BVS 15 ATEX E 100 X including supplement 01.

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

EN IEC 60079-0:2018	**General requirements**
EN 60079-11:2012	**Intrinsic Safety "i"**
EN 60079-25:2010	**Intrinsically safe electrical systems**

Where additional criteria beyond those given here have been used, they are listed at item 18 in 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" listed under item 17 of this certificate.

11 This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. 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 2(1)G Ex ia [ia Ga] IIC T6…T1 Gb
II 2G Ex ia IIC T6…T1 Gb
II 2G Ex ib IIC T6…T1 Gb
II 3G Ex ic IIC T6…T1 Gc
II 2(1)D Ex ia [ia Da] IIIC T135°C Db
II 2D Ex ia IIIC T135°C Db
II 2D Ex ib IIIC T135°C Db
II 3D Ex ic IIIC T135°C Dc

DEKRA Testing and Certification GmbH
Bochum, 2022-08-01

Signed: Dr Rolf Krökel

Managing Director

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13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 15 ATEX E 100 X issue 01

15 **Product description**

15.1 **Subject and type**

Overvoltage protection device type B81-35

15.2 **Description**

The overvoltage protection device type B81-35 is intrinsically safe equipment that limits transient over voltages which could be coupled into protected intrinsically safe circuit. It is assessed in accordance with EN 60079-0 and EN 60079-11. The over voltage protection device type B81-35 is a surge protection device for electrical circuits in Zone 0 or Zone 20 according to EN 60079-25 resp. EN 60079-14, when the device is installed in Zone 1 or Zone 21.
The intrinsically safe circuit is not affected by the connection of the overvoltage protection module in its properties.
The overvoltage protection device type B81-35 shall be mounted only in the corresponding VEGA certificated equipment and their OEM devices.

Reason for this issue

- Updating of the standard
- Change of the electrical parameters
- Deletion of the EPL Ga and EPL Da marking

15.3 **Parameters**

15.3.1 Electrical parameters

Power supply and signal-circuit terminal (+) 1 and terminal (-) 2

Maximum input voltage	U_i	30	V DC
Maximum input current	I_i	131	mA
Or for the use in intrinsically safe FISCO field devices			
Maximum input voltage	U_i	17.5	V DC
Maximum input current	I_i	500	mA
Maximum input power	P_i	5.5	W
Effective internal capacitance	C_i	negligible	
Effective internal inductance	L_i	negligible	
DC spark-over voltage	600 V -20 %/+35 %		
Impulse spark-over voltage	850 V at 100 V/µs 1100 V at 1000 V/µs		
Discharge current (8/20µs-Impulse IEC 60060-1)		10	kA

Power supply and signal-circuit (plug connector)

Output voltage	$U_o = U_o$ of the certified intrinsically safe power supply
Output current	$I_o = I_o$ of the certified intrinsically safe power supply
Output power	$P_o = P_o$ of the certified intrinsically safe power supply

The effective output capacitance C_o and inductance L_o values correspond to the values of the certified intrinsically safe power supply in front of the overvoltage protection device type B81-35.

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15.3.2 Ambient temperature range

For overvoltage protection devices with EPL Gb and Gc
Temperature classes T6, T5, T4, T3, T2, T1 $-40\ °C < T_a < +80\ °C$

For overvoltage protection devices with EPL Db and Dc $-40\ °C < T_a < +80\ °C$

16 Report Number

BVS PP 15.2194 EU, as of 2022-08-01

17 Specific Conditions of Use

17.1 The overvoltage protection device is not examined for electrostatic discharges. To avoid spark ignition caused by electrostatic discharges, the overvoltage protection device type B81-35 must be installed in suitable enclosure with ingress protection level not less than IP20 according to EN 60079-11 (for applications in Group II).

17.2 For applications in potentially explosive dust atmospheres, the overvoltage protection device type B81-35 shall be mounted in suitable enclosure with ingress protection level not less than IP5X according to EN 600079-0.

17.3 The breakdown voltage of the gas discharge tube between intrinsically safe circuit and ground connection is constructional reasons less than 500 V AC.

17.4 The ambient temperature range and the allowed temperature classes are defined in the manufacturer's conditions of use.

18 Essential Health and Safety Requirements

Met by compliance with the requirements mentioned in item 9.

19 Remarks and additional information

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2022-08-01
BVS-HRH/Mu A 20220409 / 342775500

Managing Director

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Translation

(1) EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) No. of EC-Type Examination Certificate: **BVS 15 ATEX E 100 X**

(4) Equipment: **Overvoltage protection device type B81-35**

(5) Manufacturer: **VEGA Grieshaber KG**

(6) Address: **Am Hohenstein 113, 77761 Schiltach, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment report BVS PP 15.2194 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 + A11:2013 General requirements
EN 60079-11:2012 Intrinsic Safety "i"

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II 2(1)G Ex ia [ia Ga] IIC T6...T1 Gb
II 1G Ex ia IIC T6...T1 Ga
II 2G Ex ib IIC T6...T1 Gb
II 3G Ex ic IIC T6...T1 Gc

DEKRA EXAM GmbH
Bochum, dated 2015-10-02

Signed: Simanski
Certification body

Signed: Dr. Eickhoff
Special services unit

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telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

(13) Appendix to

(14) **EC-Type Examination Certificate**
BVS 15 ATEX E 100 X

(15) 15.1 Subject and type

Overvoltage protection device type B81-35

15.2 Description

The overvoltage protection device type B81-35 is intrinsically safe equipment that limits transient over voltages which could be coupled into protected intrinsically safe circuits. It is assessed in accordance with EN 60079-0 and EN 60079-11. The overvoltage protection device type B81-35 is not a surge protection device for zone 0 (EPL Ga) according to IEC/EN 60079-25 e.g. IEC/EN 60079-14.

The intrinsically safe circuit is not affected by the connection of the overvoltage protection module in its properties.

The overvoltage protection device type B81-35 shall be mounted only in the corresponding VEGA certified equipment and their OEM devices.

15.3 Parameters

15.3.1 Electrical parameters

Power supply and signal-circuit terminal (+) 1 and terminal (-) 2

Maximum input voltage	U_i	40	V DC
Maximum input current	I_i	131	mA
Or for the use in intrinsically safe FISCO field devices			
Maximum input voltage	U_i	17.5	V DC
Maximum input current	I_i	500	mA
Maximum input power	P_i	5.5	W
Effective internal capacitance	C_i	negligible	
Effective internal inductance	L_i	negligible	
DC spark-over voltage		600 V -20 %/+35 %	
Impulse spark-over voltage		850 V at 100 V/µs 1100 V at 1000 V/µs	

Power supply and signal-circuit (plug connector)

Output voltage	$U_o = U_o$ of the certified intrinsically safe power supply
Output current	$I_o = I_o$ of the certified intrinsically safe power supply
Output power	$P_o = P_o$ of the certified intrinsically safe power supply

The effective output capacitance C_o and inductance L_o values correspond to the values of the certified intrinsically safe power supply in front of the overvoltage protection device type B81-35.

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15.3.2 Ambient temperature range

For overvoltage protection devices with EPL Ga

Temperature class T6	$-40\ °C < T_a < +63\ °C$
Temperature class T5	$-40\ °C < T_a < +75\ °C$
Temperature classes T4, T3, T2, T1	$-40\ °C < T_a < +85\ °C$

For overvoltage protection devices with EPL Gb and Gc

Temperature class T6	$-40\ °C < T_a < +80\ °C$
Temperature classes T5, T4, T3, T2, T1	$-40\ °C < T_a < +85\ °C$

(16) Test and Assessment Report

BVS PP 15.2194 EG as of 2015-10-02

(17) Special conditions for safe use

17.1. The overvoltage protection device is not examined for electrostatic discharges. To avoid spark ignition caused by electrostatic discharges, the overvoltage protection must be installed in suitable enclosure with ingress protection level not less than IP20.

17.2 The breakdown voltage of the gas discharge tube between intrinsically safe circuit and ground connection is constructional reasons less than 500 V AC.

17.3. The ambient temperature range and the allowed temperature classes are defined in the manufacturer's conditions of use (doc. ID: 50999).

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 2015-10-02
BVS-Bo/Nu A 20150411

Certification body

Special services unit

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Translation

1 # EU-Type Examination Certificate Supplement 1

Change to Directive 2014/34/EU

2 **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 15 ATEX E 100 X**

4 Product: **Overvoltage protection device type B81-35**

5 Manufacturer: **VEGA Grieshaber KG**

6 Address: **Am Hohenstein 113, 77761 Schiltach, Germany**

7 This supplementary certificate extends EC-Type Examination Certificate No. BVS 15 ATEX E 100 X to apply to products designed and constructed in accordance with the specification set out in the Appendix of the said certificate but having any variations specified in the Appendix attached to this certificate and the documents therein referred to.

8 DEKRA EXAM GmbH, Notified Body number 0158, 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 Report No. PP 15.2194 EU.

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

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-11:2012	**Intrinsic Safety "i"**
EN 60079-25:2010	**Intrinsically safe electrical systems**

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 appendix 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.

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12 The marking of the product shall include the following:

II 2(1)G Ex ia [ia Ga] IIC T6...T1 Gb
II 1G Ex ia IIC T6...T1 Ga
II 2G Ex ib IIC T6...T1 Gb
II 3G Ex ic IIC T6...T1 Gc
II 2(1)D Ex ia [ia Da] IIIC T135°C Db
II 1D Ex ia IIIC T135°C Da
II 2D Ex ib IIIC T135°C Db
II 3D Ex ic IIIC T135°C Dc

DEKRA EXAM GmbH
Bochum, 2016-06-15

Signed: Schumann
Certifier

Signed: Dr. Wittler
Approver

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13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 15 ATEX E 100 X
Supplement 1

15 **Product description**
15.1 **Subject and type**

Overvoltage protection device type VB81-35

15.2 **Description**

With this supplement the certificate is changed to Directive 2014/34/EU.
(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

Reason for the supplement:
The device was assessed for use in dust explosive atmospheres. The over voltage protection device type B81-35 is assessed for the use as surge protection device for electrical circuits in zone 0 or zone 20 according to IEC/EN 60079-25 e.g. IEC/EN 60079-14.

Description of Product:
The overvoltage protection device type B81-35 is intrinsically safe equipment that limits transient over voltages which could be coupled into protected intrinsically safe circuit. It is assessed in accordance with IEC 60079-0 and IEC 60079-11. The over voltage protection device type B81-35 is a surge protection device for electrical circuits in zone 0 or zone 20 according to IEC/EN 60079-25 e.g. IEC/EN 60079-14, when the device is installed in zone 1 or zone 21.
The intrinsically safe circuit is not affected by the connection of the over voltage protection module in its properties.
The overvoltage protection device type B81-35 shall be mounted only in the corresponding VEGA certificated equipment and their OEM devices.

15.3 **Parameters**

15.3.1 Electrical Parameters

Power supply and signal-circuit terminal (+) 1 and terminal (-) 2

Maximum input voltage	U_i	40	V DC
Maximum input current	I_i	131	mA
Or for the use in intrinsically safe FISCO field devices			
Maximum input voltage	U_i	17.5	V DC
Maximum input current	I_i	500	mA
Maximum input power	P_i	5.5	W
Effective internal capacitance	C_i	negligible	
Effective internal inductance	L_i	negligible	
DC spark-over voltage		600 V -20 %/+35 %	
Impulse spark-over voltage		850 V at 100 V/µs	
		1100 V at 1000 V/µs	

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telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

Power supply and signal-circuit (plug connector)

Output voltage	$U_o = U_o$ of the certified intrinsically safe power supply
Output current	$I_o = I_o$ of the certified intrinsically safe power supply
Output power	$P_o = P_o$ of the certified intrinsically safe power supply

The effective output capacitance C_o and inductance L_o values correspond to the values of the certified intrinsically safe power supply in front of the overvoltage protection device type B81-35.

15.3.2 Ambient temperature range

For overvoltage protection devices with EPL Ga

Temperature class T6	$-40\ °C < T_a < +63\ °C$
Temperature class T5	$-40\ °C < T_a < +75\ °C$
Temperature classes T4, T3, T2, T1	$-40\ °C < T_a < +85\ °C$

For overvoltage protection devices with EPL Gb and Gc

Temperature class T6	$-40\ °C < T_a < +80\ °C$
Temperature classes T5, T4, T3, T2, T1	$-40\ °C < T_a < +85\ °C$

For overvoltage protection devices with EPL Da, Db and Dc $-40\ °C < T_a < +85\ °C$

16 **Report Number**

BVS PP 15.2194 EU, as of 2016-06-15

17 **Special Conditions for Use**

17.1 The overvoltage protection device is not examined for electrostatic discharges. To avoid spark ignition caused by electrostatic discharges, the overvoltage protection device type B81-35 must be installed in a suitable enclosure with ingress protection level not less than IP20 according to IEC/EN 600079-11 (for applications in Group II).

17.2 For applications in potentially explosive dust atmospheres, the overvoltage protection device type B81-35 shall be mounted in a suitable enclosure with ingress protection level not less than IP5X according to IEC/EN 600079-11.

17.3 The breakdown voltage of the gas discharge tube between intrinsically safe circuit and ground connection is constructional reasons less than 500 V AC.

17.4 The ambient temperature range and the allowed temperature classes are defined in the manufacturer's conditions of use.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements covered by the standards are listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
Bochum, dated 2016-06-15
BVS-Bo/Nu A 20160297

Certifier

Approver

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