IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 15.0084X**

Certificate history:
Issue 1 (2016-06-21)
Issue 0 (2015-10-12)

Status: **Current**

Issue No: 2

Date of Issue: 2022-09-01

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

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

Optional accessory:

Type of Protection: **Intrinsic Safety "i"**

Marking:

Gas applications	Dust Applications
Ex ia [ia Ga] IIC T6…T1 Gb	Ex ia [ia Da] III C T135°C Db
Ex ia IIC T6…T1 Gb	Ex ia III C T135°C Db
Ex ib IIC T6…T1 Gb	Ex ib III C T135°C Db
Ex ic IIC T6…T1 Gc	Ex ic III C T135°C Dc

Approved for issue on behalf of the IECEx Certification Body: **Dr Michael Wittler**

Position: **Deputy Head of Certification Body**

Signature: (for printed version)

Date: (for printed version) 01.09.2022

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2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 15.0084X**

Date of issue: 2022-09-01

Issue No: 2

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Manufacturing locations: **VEGA Americas, Inc**
4241 Allendorf Drive
Cincinnati
Ohio 45209
United States of America

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Edition:7.0 — Explosive atmospheres - Part 0: Equipment - General requirements

IEC 60079-11:2011 Edition:6.0 — Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/BVS/ExTR15.0081/02

Quality Assessment Report:

DE/TUN/QAR06.0002/11

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

General product information:

The overvoltage protection device type B81-35 is intrinsically safe equipment that limits transient overvoltages which could be coupled into protected intrinsically safe circuit. It is assessed in accordance with IEC 60079-0 and IEC 60079-11. The overvoltage protection device type B81-35 is a surge protection device for electrical circuits in Zone 0 or Zone 20 according to IEC 60079-25 resp. IEC 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.

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. The overvoltage protection device is not examined for electrostatic discharges. To avoid spark ignition caused by electrostatic discharges, the overvoltage protection device must be installed in suitable enclosure with ingress protection level not less than IP20 according to IEC 60079-11 (for applications in Group II).

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 IEC 60079-11.

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

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

5. The over voltage protection device type B81-35 is a surge protection device for Zone 0 (EPL Ga) or Zone 20 (EPL Da) according to IEC 60079-25 e.g. IEC 60079-14, when it is installed in Zone 1 resp. Zone 21.

Equipment (continued):

Parameters:

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	

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.

2. Ambient temperature range

For overvoltage protection devices with EPL Gb and Gc

Temperature class T6, T5, T4, T3, T2, T1	$-40\ °C < T_{amb} < +80\ °C$
For overvoltage protection device with EPL Gb and Gc	$-40\ °C < T_{amb} < +80\ °C$

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Updating of the standard
- Change of the electrical parameters
- Omitted of the EPL Ga and EPL Da marking
- The standard IEC 60079-25 is omitted

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 15.0084X issue No.:1	Certificate history: Issue No. 1 (2016-6-21) Issue No. 0 (2015-10-12)
Status:	**Current**	
Date of Issue:	**2016-06-21**	Page 1 of 5

Applicant:
VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Equipment:
Optional accessory:
Overvoltage protection device type B81-35

Type of Protection:
Equipment protection by intrinsic safety "i", Intrinsically safe electrical systems

Marking:

Gas applications	Dust Applications
Ex ia [ia Ga] IIC T6...T1 Gb	Ex ia [ia Da] IIIC T135°C Db
Ex ia IIC T6...T1 Ga	Ex ia IIIC T135°C Da
Ex ib IIC T6...T1 Gb	Ex ib IIIC T135°C Db
Ex ic IIC T6...T1 Gc	Ex ic IIIC T135°C Dc

Approved for issue on behalf of the IECEx Certification Body: G. Schumann

Position: Deputy Head of Certification Body

Signature:
(for printed version)

Date: 2016-06-21

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3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2016-06-21** Issue No.: **1**

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Additional Manufacturing location (s):
VEGA Americas, Inc
4241 Allendorf Drive
Cincinnati
Ohio 45209
United States of America

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-25 : 2010-02 Edition: 2.0	Explosive atmospheres – Part 25: Intrinsically safe electrical systems

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR15.0081/01

Quality Assessment Report:

DE/TUN/QAR06.0002/06

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2016-06-21** Issue No.: **1**

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

General product information:

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.

CONDITIONS OF CERTIFICATION: YES as shown below:

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 according to IEC/EN 600079-11 (for applications in Group II).

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 IEC/EN 600079-11.

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

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

5. The over voltage protection device type B81-35 is a surge protection device for zone 0 (EPL Ga) or zone 20 (EPL Da) according to IEC/EN 60079-25 e.g. IEC/EN 60079-14, when it is installed in zone 1 resp. zone 21.

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2016-06-21** Issue No.: **1**

EQUIPMENT(continued):

Parameters:

1. Electrical parameters (unchanged)

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.

2. Ambient temperature range

For overvoltage protection device with EPL Ga	
Temperature class T6	$-40\ °C < T_{amb} < +63\ °C$
Temperature class T5	$-40\ °C < T_{amb} < +75\ °C$
Temperature classes T4, T3, T2, T1	$-40\ °C < T_{amb} < +85\ °C$
For overvoltage protection device with EPL Gb and Gc	
Temperature class T6	$-40\ °C < T_{amb} < +80\ °C$
Temperature classes T5, T4, T3, T2, T1	$-40\ °C < T_{amb} < +85\ °C$
For overvoltage protection devices with EPL Da, Db and Dc	$-40\ °C < T_{amb} < +85\ °C$

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2016-06-21** Issue No.: **1**

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The device is assessed for the 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 resp. 20 according to IEC/EN 60079-25 e.g.
IEC/EN 60079-14.

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 15.0084X	issue No.:0	Certificate history:
Status:	**Current**		
Date of Issue:	**2015-10-12**	Page 1 of 4	

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Electrical Apparatus: **Overvoltage protection device type B81-35**
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i"**

Marking: Ex ia [ia Ga] IIC T6...T1 Gb
Ex ia IIC T6...T1 Ga
Ex ib IIC T6...T1 Gb
Ex ic IIC T6...T1 Gc

Approved for issue on behalf of the IECEx Certification Body: H.-Ch. Simanski

Position: Head of Certification Body

Signature:
(for printed version)

Date: 12.10.2015

1. This certificate and schedule may only be reproduced in full.
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3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
DEKRA EXAM GmbH

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2015-10-12** Issue No.: **0**

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Additional Manufacturing location (s):
VEGA Americas, Inc
4241 Allendorf Drive
Cincinnati
Ohio 45209
United States of America

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR15.0081/00

Quality Assessment Report:

DE/TUN/QAR06.0002/06

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2015-10-12** Issue No.: **0**

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

General product information:

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 not a surge protection device for zone 0 according to IEC/EN 60079-25 e.g. IEC/EN 60079-14.
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.

CONDITIONS OF CERTIFICATION: YES as shown below:

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.

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

3. The ambient temperature range and the allowed temperature classes are defined in the manufacturer's conditions of use (doc. ID: 51001).

4. The over voltage protection device type B81-35 is used only to limit transient over voltages in intrinsically safe circuits. The over voltage 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.

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 15.0084X

Date of Issue: **2015-10-12** Issue No.: **0**

EQUIPMENT(continued):

Parameters:

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.

2. Ambient temperature range

For overvoltage protection devices with EPL Ga

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

For overvoltage protection devices with EPL Gb and Gc

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