

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.:

IECEx PTB 20.0007X

Page 1 of 4

Certificate history:

Issue 0 (2020-04-14)

Status:

Current

2021-11-01

Date of Issue: Applicant:

VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach

Germany

Equipment:

Interface adapter VEGACONNECT, VEGACONNECT 4 resp. USB-Communicator-*(*)

Optional accessory:

Type of Protection:

General Requirements, Intrinsic Safety, Equipment with equipment protection level (EPL) Ga

Marking:

[Ex ia Ga] IIC or [Ex ia Da] IIIC

Approved for issue on behalf of the IECEx Certification Body:

Position:

Signature: (for printed version)

Date:

Dr.-Ing. Martin Thedens

Head of Department "Explosion Protection in Sensor Technology and Instrumentation"

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8.2.22

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Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB) Bundesallee 100 38116 Braunschweig Germany







Certificate No.: IECEx PTB 20.0007X

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Date of issue: 2021-11-01

Issue No: 1

Manufacturer:

VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach

Germany

Additional

VEGA Americas Inc.

manufacturing locations:

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

Explosive atmospheres - Part 0: Equipment - General requirements

Edition:7.0

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

Edition:6.0

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/PTB/ExTR19.0023/00

Quality Assessment Report:

DE/TUN/QAR06.0002/10



Certificate No.:

IECEx PTB 20.0007X

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Date of issue:

2021-11-01

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The interface adapters VEGACONNECT / VEGACONNECT 4 bzw. USB-Communicator-*(*) are used to convert USB standard signals to the industrial standard communication signal HART and the serial standard I^aC-BUS signal. They are designed for operation with e.g. VEGA sensors of the PLICS series (VEGACONNECT 4) or identically constructed sensors of Private Laballer (USB-Communicator-*(*)). The suitability is stated in the certificates of the respective sensor.

The interface adapter VEGACONNECT consists of a connection box with an optionally integrated communication module VEGACONNECT4. The main part of the electronics is located in the disk-shaped VEGACONNECT 4. The other component is the connection box, which contains the connection cables and other accessories necessary for using VEGACONNECT. The connection box has a connection print, mounting location for VEGACONNECT 4. The two components are electrically connected by means of spring contacts/grinding contact surfaces.

For further information see annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Special conditions of safe use apply and are specified in the annex to the Certificate which is available from the On-Line Version.



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Date of issue:

2021-11-01

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

The changes concern the application of the mentioned standards and an adaptation of the type key.

Use of the PLICSCOM adjustment and display module is omitted.

Changes to the electrical structure and layout of the boards.

Annex:

Annex IECEx PTB 20-0007X-01.pdf





Applicant:

VEGA Grieshaber KG

Am Hohenstein 113 77761 Schiltach Germany

Electrical Apparatus:

Interface adapter VEGACONNECT, VEGACONNECT 4 resp.

USB-Communicator-*(*)

Description of equipment

The interface adapters VEGACONNECT / VEGACONNECT 4 bzw. USB-Communicator-*(*) are used to convert USB standard signals to the industrial standard communication signal HART and the serial standard I*C-BUS signal. They are designed for operation with e.g. VEGA sensors of the PLICS series (VEGACONNECT 4) or identically constructed sensors of Private Laballer (USB-Communicator-*(*)). The suitability is stated in the certificates of the respective sensor.

The interface adapter VEGACONNECT consists of a connection box with an optionally integrated communication module VEGACONNECT4. The main part of the electronics is located in the disk-shaped VEGACONNECT 4. The other component is the connection box, which contains the connection cables and other accessories necessary for using VEGACONNECT. The connection box has a connection print, mounting location for VEGACONNECT 4. The two components are electrically connected by means of spring contacts/grinding contact surfaces.

When used as associated equipment, VEGACONNECT / VEGACONNECT 4 resp. USB-Communicator-*(*) must only be operated outside the hazardous area or inside a hazardous area if it is ensured that no potentially explosive atmosphere is present during operation.

The communication module VEGACONNECT 4 can be used in various designs e.g. installed in the connection box as HART- or I²C-BUS interface adaptor or installed in an appropriate sensor series as an I²C-BUS interface adapter.

If the VEGACONNECT / VEGACONNECT 4 resp. USB-Communicator-*(*) is to be operated in an associated sensor or the VEGACONNECT / VEGACONNECT 4 resp. USB Communicator interface adapter *(*) is to be operated as associated equipment in different modes, the additional necessary protective measures must be taken from the safety instructions for use in hazardous areas.

Operation as an associated apparatus (marking 😥 II (1) G [Ex ia Ga] IIC or II (1) D [Ex ia Da] IIIC)

The permissible ambient temperature range for the operation of the VEGACONNECT / VEGACONNECT 4 bzw. USB-Communicator-*(*) as an associated apparatus is specified below:

-20°C up to +60°C

- Version VEGACONNECT 4 as associated equipment, mounted in the associated VEGA sensor
- Version VEGACONNECT 4 as associated equipment, mounted in the terminal box

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Bundesallee 100, 38116 Braunschweig, Germany Postfach 33 45, 38023 Braunschweig, Germany Telephone +49 531 592-0, Telefax +49 531 592-3605





Electrical data

Application as associated equipment:

The communication module VEGACONNECT 4 resp. USB-Communicator-*(*) of the interface adapter VEGACONNECT is mounted in the connection box or

the communication module VEGACONNECT 4 resp. USB-Communicator-*(*) of the interface adapter VEGACONNECT is mounted in an associated sensor.

Supply and signal circuit (USB-standard interface:

via 5-wire connecting cabel with USB-B-

connector at the LapTop, PC, SPS or modem)

Signal circuit

I2C-BUS connecting cable (plug connector or sliding contacts) $U_m = 30 \text{ V AC/DC}$

In type of protection Intrinsic Safety Ex ia IIC resp. Ex ia IIIC

Maximum values:

 $U_0 = 6.0 \text{ V}$

 $I_0 = 59.4 \text{ mA}$

 $P_0 = 89.1 \text{ mW}$

Ci negligibly low

Li negligibly low

Maximum values for individually occurring external reactances (according to EN 60079-11, appendix A):

 $L_0 = 10 \text{ mH}$

 $C_0 = 40 \, \mu F$

Maximum values for common external reactances

(according to ISpark-6.2):

 $L_0 = 10 \text{ mH}$ $C_0 = 1.2 \, \mu F$

For connection to an intrinsically safe I2C-BUS interface.

Maximum values:

 $U_i = 6.0 \text{ V}$

P_i = 360 mW

For connection to an intrinsically safe I2C-BUS interface of associated sensors. The interconnection can be taken from the respective certificates of the sensors.





HART- connecting cable (2 mm plug connector at both ends)

In type of protection Intrinsic Safety Ex ia IIC resp. Ex ia IIIC

Maximum values:

 $U_0 = 6.0 \text{ V}$

 $I_0 = 3.7 \text{ mA}$ $P_0 = 5.6 \text{ mW}$

C_i = 1.2 nF

L_i negligibly low

Maximum values for individually occurring

external reactances:

(according to EN 60079-11, appendix A)

 $L_o = 1 H$ $C_o = 40 \mu F$

Maximum values for common external reactances (according to ISpark-6.2). The value of Ci was taken into account for Co.

 $L_o = 10 \text{ mH}$ $C_o = 1.2 \mu\text{F}$

For connection to intrinsically safe signal and supply circuits of HART-design. For the interconnection, the rules for the interconnection of intrinsically safe circuits shall be considerd, and it shall be guarateed that the maximum values of the intrinsically safe signal and supply circuit of the assoiated sensor are not exceeded.

Maximum value: U_i = 30 V

I2C-BUS connecting cable

In type of protection Intrinsic Safety Ex ia IIC

For connection to the intrinsically safe I²C bus interface of associated suitable sensors. The interconnection is stated in the respective certificates of the sensors.

The intrinsically safe I²C-BUS circuit and the intrinsically safe HART circuit are electrically interconnected.

The electrical isolation between the intrinsically safe circuits I²C-BUS and HART and the non-intrinsically safe USB circuit fulfills the requirements to a peak value of the nominal voltage of 375 V.





Special conditions for safe use

- The different modes of application of the interface adaptor VEGACONNECT / VEGACONNECT 4 bzw. USB-Communicator-*(*) are stated in the safety instructions for use in hazardous areas.
- 2. In the application "USB communication", VEGACONNECT / VEGACONNECT 4 resp. USB-Communicator-*(*), mounted in the connection box As VEGACONNECT or in an associated sensor, must only be operated for service purposes on the intrinsically safe I²C interface of the associated sensor. In this application, the connection box with mounted VEGACONNECT 4 resp. USB-Communicator-*(*) or the VEGACONNECT 4 resp. USB-Communicator-*(*) mounted in the associated sensor must be operated outside the hazardous area or it must be ensured that no explosive atmosphere is present during operation.
- In the application as associated equipment with marking II (1) G [Ex ia Ga] IIC or II (1) D
 [Ex ia Da] IIIC, the interface adapter VEGACONNECT / VEGACONNECT 4 resp. USBCommunicator-*(*) must only be operated with associated sensors which are approved for
 hazardous areas with gas or dust.
- The I²C-BUS connecting cable and the HART-connecting cable shall not be used simultaneously.
- A Bluetooth USB adapter and a HART resistor are supplied as standard components in the box of the interface adapter VEGACONNECT / VEGACONNECT 4 resp. USB-Communicator-*(*). The Bluetooth USB adapter and the HART resistor must only be operated outside the hazardous area.



INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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Certificate No.:

IECEX PTB 20.0007X

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Certificate history:

Status:

Current

Issue No: 0

Date of Issue:

2020-04-14

Applicant:

VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach

Germany

Equipment:

Interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*).CI**

Optional accessory:

Type of Protection:

General Requirements, Intrinsic Safety, Equipment with equipment protection level (EPL) Ga

Marking:

[Ex ia Ga] IIC or [Ex ia Da] IIIC or Ex ia IIC T6 Ga, Gb

Approved for issue on behalf of the IECEx Certification Body:

Certification Body

Position:

Signature: (for printed version)

Date:

Dr. F. Lienesch

Head of department "Explosion protection in Sensor Technology

and instrumentation"

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Physikalisch-Technische Bundesanstalt (PTB) Bundesallee 100 38116 Braunschweig Germany







Certificate No.:

IECEX PTB 20.0007X

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Date of issue:

2020-04-14

Issue No: 0

Manufacturer:

VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach Germany

Additional 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

Explosive atmospheres - Part 0: Equipment - General requirements

Edition:7.0

IEC 60079-11;2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"

Edition:6.0

Explosive atmospheres - Part 26: Equipment with Equipment Protection Level (EPL) Ga

60079-26:2014-10 Edition:3.0

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/PTB/ExTR19.0023/00

Quality Assessment Report:

DE/TUN/QAR06.0002/09



Certificate No.:

IECEX PTB 20.0007X

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Date of issue:

2020-04-14

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*), CI** is used to convert USB standard signals to the industrial standard communication signal HART and the serial standard PC-BUS signal.

They are designed for operation with e.g. VEGA sensors of the PLICS series (VEGACONNECT CONNECT.CI**) or identically constructed sensors of Private Labeller (USB-Communicator USB-COM-*(*). CI**). The suitability of the respective sensor is stated in the certificates of the respective sensor.

The interface adapter VEGACONNECT / USB communicator consists of a connection box with an optionally integrated communication module VEGACONNECT4, version CONNECT.CIA4 / USB communicator, version USB-Com-*(*),CIA4 or with integrated communication module PLICSCOM, version CONNCECT.CIAP / USB-Com-*(*),CIAP. The version CONNCECT.CIAP / USB-Com-*(*),CIAP is also called "handheld".

For further information see annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Special conditions of safe use apply and are specified in the annex to the Certificate which is available from the On-Line Version.

Annex

Annex IECEx PTB 20-0007X-00.pdf





Applicant:

VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach Germany

Electrical Apparatus:

Interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*).CI**

Description of equipment

The interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*).CI** is used to convert USB standard signals to the industrial standard communication signal HART and the serial standard I²C-BUS signal.

They are designed for operation with e.g. VEGA sensors of the PLICS series (VEGACONNECT CONNECT.CI**) or identically constructed sensors of Private Labeller (USB-Communicator USB-COM-*(*).CI**). The suitability of the respective sensor is stated in the certificates of the respective sensor.

The interface adapter VEGACONNECT / USB communicator consists of a connection box with an optionally integrated communication module VEGACONNECT4, version CONNECT.CIA4 / USB communicator, version USB-Com-*(*),CIA4 or with integrated communication module PLICSCOM, version CONNCECT.CIAP / USB-Com-*(*),CIAP, The version CONNCECT,CIAP / USB-Com-*(*),CIAP is also called "handheld".

The interface adapter VEGACONNECT / USB-Communicator with the communication module PLICSCOM can be operated inside or outside hazardous areas. Inside the hazardous area, the operation of the interface adapter VEGACONNECT / USB-Communicator with the communication module PLICSCOM is permissible as category 1 or 2 equipment.

The communication module VEGACONNECT4 / USB-Communicator can be used in various designs e.g. installed in the connection box as HART- or I²C-BUS interface adaptor or installed in an appropriate sensor series as an I²C-BUS interface adapter.

If the interface adapter VEGACONNECT / USB-Communicator should be operated in an appropriate sensor or the interface adapter VEGACONNECT / USB-Communicator should be operated as an associated equipment in different modes, the additional necessary protective measures are specified in the safety instructions for use in hazardous areas.

Operation as an associated apparatus (marking [Ex ia Ga] IIC or [Ex ia Da] IIIC)
The permissible ambient temperature range for the operation of the CONNECT4 / USB-Communicator as an associated apparatus is specified below:

-20°C up to +60°C

- Version CONNECT.CIA4 / USB-COM-*(*).CIA4 (application for "USB communication" with integrated CONNECT4 / USB communicator) in the connection box)
- Version CONNECT.CIX4 / USB-Com-"(*).CIX4 (application for "USB communication" with integrated CONNECT4 / USB communicator in an appropriate sensor).

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Operation as EPL 1- or 2-equipment (marking Ex ia IIC T6 Ga, Gb)

With the interface adapter VEGACONNECT CONNECT.CIAP / USB-COM-"(*).CIAP (application as "handheld"), the relationship of the temperature class to the maximum permissible temperature in the area of the electronics is specified in the following temperature class table:

temperature class	ambient temperature range
T6	-20 +46 °C
T5, T4, T3, T2, T1	-20 +60 °C

Furthermore, the temperature class tables of the corresponding sensor must be observed.

Electrical data

Application as an associated equipment:

The communication module VEGACONNECT4 / USB-Communicator of the interface adapter VEGACONNECT CONNECT.CIA4 / USB-Communicator USB-COM-*(*).CIA4 is installed in the connection box or

the communication module VEGACONNECT4 / USB-Communicator of the interface adapter VEGACONNECT CONNECT.CIX4 / USB-Communicator USB-COM-*(*),CIX4 is mounted in an associated sensor.

Supply and signal circuit (USB-standard interface: via 5-wire connecting cable with USB-Bconnector at the LapTop, PC, SPS or modem) Signal circuits

Signal circuits I²C-BUS connecting cable (plug connector or sliding contacts) U ≤ 6 V U_m = 16 V AC/DC

In type of protection Intrinsic Safety Ex ia IIC resp. Ex ia IIIC

Maximum values: U₀ = 6.0 V

 $I_0 = 59.4 \text{ mA}$ $P_0 = 89.1 \text{ mW}$

C_i negligibly low

L negligibly low

Maximum values for individually occurring external reactances (according to EN 60079-11,

appendix A): L_o = 10 mH

C. = 40 µF

Maximum values for common external reactances (according to ISpark-6.2):

L_o = 0.8 mH

 $C_0 = 2,6 \, \mu F$

For connection to an intrinsically safe I²C-BUS interface.

Maximum values:

U = 6.0 V

 $P_i = 360 \text{ mW}$

or

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Postfach 33 45, 38023 Braunschweig, Germany Telephone +49 531 592-0, Telefax +49 531 592-3605 Page 2 of 4





HART- connecting cable (2mm plug connector at both ends) For connection to an intrinsically safe I²C-BUS interface of associated sensors. The interconnection can be taken from the respective certificates of the sensors.

In type of protection Intrinsic Safety Ex ia IIC resp. Ex ia IIIC

Maximum values: U₀ = 6.0 V

 $I_0 = 3.7 \, \text{mA}$

 $P_0 = 5.6 \, \text{mW}$

C = 1.2 nF

L_i negligibly low

Maximum values for individually occurring external reactances (according to EN 60079-11, appendix A):

L. = 1 H

 $C_o = 40 \mu F$

Maximum values for common external reactances (according to ISpark-6.2). The value of Ci was taken into account for Co.

Lo = 100 mH Co = 1.5 uF

For connection to intrinsically safe signal and supply circuits of HART-design. For the interconnection, the rules for the interconnection of intrinsically safe circuits shall be considered, and it shall be guaranteed that the maximum values of the intrinsically safe signal and supply circuit of the associated sensor are not exceeded.

Maximum value: U = 30 V

Application as an intrinsically safe equipment:

As "handheld" application, the indicating and adjustment module PLICSCOM or PLICSCOM (*).*B/W* (TÜV 15 ATEX 161127 U edition 01) is mounted in the connection box of the interface adapter VEGACONNECT CONNECT.CIAP / USB communicator USB-COM-*(*).CIAP.

I²C-BUS connecting cable

In type of protection intrinsic safety Ex ia IIC For connection to the intrinsically safe I²C bus interface of associated suitable sensors. The interconnection is stated in the respective certificates of the sensors.

The intrinsically safe I²C-BUS circuit and the intrinsically safe HART circuit are electrically interconnected.

The electrical isolation between the intrinsically safe circuits I²C-BUS and HART and the nonintrinsically safe USB circuit fulfills the requirements to a peak value of the nominal voltage of 375 V.

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Special conditions for safe use

- The different modes of application of the interface adaptor VEGACONNECT CON-NECT.CI** / USB-Communicator USB-COM-*(*).CI** are stated in the safety instructions for use in hazardous areas.
- 2. In the application "USB communication", VEGACONNECT4 / USB communicator, installed in the connection box of VEGACONNECT as CONNECT.CIA4 / USB communicator as USB-COM-*(*).CIA4 or in an associated sensor as CONNECT.CIX4 / USB-COM-*(*).CIX4, must only be operated for service purposes at the intrinsically safe I*C interface of the associated sensor. In this application, the connection box with mounted VEGACONNECT4 / USB communicator or the VEGACONNECT4 / USB communicator installed in the associated sensor must be operated outside the hazardous area or it must be ensured that no explosive atmosphere is present during operation.
- For the application as associated apparatus with the marking [Ex ia] IIC or [Ex ia] IIIC the
 interface adaptors VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM*(*).CI** may only be operated with associated sensors which are approved for potentially explosive gas or dust atmospheres.
- The I²C-BUS connecting cable and the HART-connecting cable shall not be used simultaneously.
- The interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*). CI** contains surfaces which can become electrostatically charged. In the version VEGACONNECT CONNECT.CIAP / USB-Communicator USB-COM-*(*).CIAP used as "Handheld" an appropriate warning note (warning label) shall point to this danger.
- A Bluetooth USB adapter and a HART-resistor are supplied as standard components in the box of the interface adapter VEGACONNECT CONNECT.CI** / USB-Communicator USB-COM-*(*).CI**. The Bluetooth USB adapter and the HART-resistor may only be operated outside the hazardous area.
- 7. When operating the interface adapters VEGACONNECT CONNECT.CIAP / USB-Communicator USB-COM-*(*). CIAP as EPL Ga, Gb equipment with marking Ex la IIC T6 Ga, Gb, the relationship of the temperature class to the max. permissible temperature in the electronics area is stated in the temperature class tables of the associated sensor. Note that when using the indicating and adjustment module PLICSCOM (*).*B/W*, a self-heating of PLICSCOM of 34 Kelvin must be taken into account.