1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **KIWA 19ATEX0028X** Issue: **3**

4 Equipment: **Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23**

5 Applicant: **VEGA Grieshaber KG**

6 Address: Am Hohenstein 113,
77761 Schiltach
Germany

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment 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 the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-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 shall include the following:

VEGAPULS 21, 31:

II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb

VEGAPULS C 21, C 22, C 23:

II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb
II 1D,1/2D Ex ia IIIC T_{200} 134°C Da, Da/Db

Signed: Michelle Halliwell

Title: Director of Operations

PRODUCTS RvA C 652

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **KIWA 19ATEX0028X**
Issue 3

13 **DESCRIPTION OF EQUIPMENT**

Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in an plastic enclosure converts the reflected microwave echo, indicating the filling level, into an 2-wire 4…20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth).

The sensor is either equipped with a fixed cable (VEGAPULS C 21, C 22, C 23) of 5m, 10 m, 25m or selectable length with a G1", 1"NPT or R1" threaded connection or a 2 wire terminal (VEGAPULS 21, 31) via a M20x1.5 or ½" NPT cable entry.

VEGAPULS 21 and 31 are electrically identical where type 21 is equipped without a display module and a blind cover and type 31 is equipped with a display module and a windowed cover.

Ambient temperature range for VEGAPULS 21, 31: -40 ºC to +70 ºC
Ambient temperature range for VEGAPULS C 21, C 22, C 23: -40 ºC to +80 ºC
Process temperature range: -40 ºC to +80 ºC

Electrical Data

VEGAPULS C 21, C 22, C 23:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci = 0.18 nF/m; Li =0.65 µH/m

VEGAPULS 21, 31:
Supply and output circuit (+ (terminals 1), - (terminal 2)):
in type of protection intrinsic safety Ex ia IIC only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci ≈ 0 nF; Li ≈ 0 µH

Variation 1 - This variation introduced the following changes:

i. Replacement of the current HART chip NCN5193 on SB1505-3 (IC213) and on SB1540-3 (IC213) to introduce an alternate adapter print with component "PULS-DAC-H".
ii. Replacement of IC214 from REF3125 to MAX6033C."
iii. Additional manufacturing location:
VEGA India Level and Pressure Measurement Pvt. Ltd.
Plot No. 1, Gat No. 181, Village - Phulgaon, Tal. Haveli
Pune 412216, India
iv. Change of manufacturing location:

From	To
VEGA Americas, Inc 4241 Allendorf Drive Cincinnati, Ohio 45209 United States of America	VEGA Americas, Inc. 3877 Mason Research Parkway Ohio,Mason 45036 United States of America

v. The report is also to facilitate the transfer of certificates KIWA 19ATEX0028X from Kiwa Nederland B.V., Unit Kiwa ExVision, Wilmersdorf 50, 7327 AC Apeldoorn, The Netherlands to CSA Group.

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

KIWA 19ATEX0028X
Issue 3

Variation 2 - This variation introduced the following changes:

i. Introduce alternative enclosure design according to drawing 1016899 and 1018239.
ii. Minor correction of label drawing for VEGAPULS C 21, C 22, C 23 to include layer depth subscript to T-Code.

14 **DESCRIPTIVE DOCUMENTS**

14.1 **Drawings**

Refer to Certificate Annexe.

14.2 **Associated Reports and Certificate History**

Issue	Date	Report number	Comment
1	07 November 2019	180201206	The release of the prime certificate.
2	09 March 2023	R80149577A	The introduction of Variation 1.
3	13 April 2023	R80158568A	This issue covers the following changes: • The introduction of Variation 2. • Issue 2, Variation 1 text was retrospectively introduced.

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 For electrical and thermal data refer to section 13 above.

15.2 The equipment shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF MANUFACTURE**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

Certificate Annexe

Certificate Number: **KIWA 19ATEX0028X**

Equipment: **Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23**

Applicant: **VEGA Grieshaber KG**

Issue 1: Refer to the report stated in section 14.2.

Issue 2

Drawing	Sheets	Rev.	Date (Stamp)	Title
SB1505-4	1 to 4	4	02 Jan 23	PULSC20-H Sheet 1-4 (Circuit Diagram)
BB1505-4	1 of 1	4	02 Jan 23	PULSC20-H (Component Layout)
SB1540-4	1 to 4	4	02 Jan 23	PULS30-H Sheet 1-4 (Circuit Diagram)
BB1540-4	1 of 1	4	02 Jan 23	PULS 30-H (Component Layout)
SB1667-1	1 of 1	1	02 Jan 23	PULS_DAC_H_Adapter (Circuit Diagram)
BB+LP1667-1	1 of 1	1	02 Jan 23	PULS_DAC_H-Adapter (Component & Trace Layout)

Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
1016899_01	1 of 1	01	31 Mar 23	Sensor Alternative housing
1018239_01	1 of 1	01	31 Mar 23	Sensor Alternative housing

1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **KIWA 19ATEX0028X** Issue: **2**

4 Equipment: **Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23**

5 Applicant: **VEGA Grieshaber KG**

6 Address: Am Hohenstein 113,
77761 Schiltach
Germany

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment 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 the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-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 shall include the following:

VEGAPULS 21, 31:

II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb

VEGAPULS C 21, C 22, C 23:

II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb
II 1D,1/2D Ex ia IIIC T134°C Da, Da/Db

Signed: Michelle Halliwell

Title: Director of Operations

PRODUCTS RvA C 652

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **KIWA 19ATEX0028X**
Issue 2

13 **DESCRIPTION OF EQUIPMENT**

Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in an plastic enclosure converts the reflected microwave echo, indicating the filling level, into an 2-wire 4…20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth).

The sensor is either equipped with a fixed cable (VEGAPULS C 21, C 22, C 23) of 5m, 10 m, 25m or selectable length with a G1", 1"NPT or R1" threaded connection or a 2 wire terminal (VEGAPULS 21, 31) via a M20x1.5 or ½" NPT cable entry.

VEGAPULS 21 and 31 are electrically identical where type 21 is equipped without a display module and a blind cover and type 31 is equipped with a display module and a windowed cover.

Ambient temperature range for VEGAPULS 21, 31: -40 ºC to +70 ºC
Ambient temperature range for VEGAPULS C 21, C 22, C 23: -40 ºC to +80 ºC
Process temperature range: -40 ºC to +80 ºC

Electrical Data

VEGAPULS C 21, C 22, C 23:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci = 0.18 nF/m; Li =0.65 µH/m

VEGAPULS 21, 31:
Supply and output circuit (+ (terminals 1), - (terminal 2)):
in type of protection intrinsic safety Ex ia IIC only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci ≈ 0 nF; Li ≈ 0 µH

14 **DESCRIPTIVE DOCUMENTS**

14.1 **Drawings**

Refer to Certificate Annexe.

14.2 **Associated Reports and Certificate History**

Issue	Date	Report number	Comment
1	07 November 2019	180201206	The release of the prime certificate.
2	09 March 2023	R80149577A	The introduction of Variation 1.

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 For electrical and thermal data refer to section 13 above.

15.2 The equipment shall be installed and maintained such that hazards caused by electrostatic discharge are excluded

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **KIWA 19ATEX0028X**
Issue 2

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF MANUFACTURE**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

Certificate Annexe

Certificate Number: **KIWA 19ATEX0028X**

Equipment: **Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23**

Applicant: **VEGA Grieshaber KG**

Issue 1: Refer to the report stated in section 14.2

Issue 2

Drawing	Sheets	Rev.	Date (Stamp)	Title
SB1505-4	1 to 4	4	02 Jan 2023	PULSC20-H Sheet 1-4 (Circuit Diagram)
BB1505-4	1 of 1	4	02 Jan 2023	PULSC20-H (Component Layout)
SB1540-4	1 to 4	4	02 Jan 2023	PULS30-H Sheet 1-4 (Circuit Diagram)
BB1540-4	1 of 1	4	02 Jan 2023	PULS 30-H (Component Layout)
SB1667-1	1 of 1	1	02 Jan 2023	PULS_DAC_H_Adapter (Circuit Diagram)
BB+LP1667-1	1 of 1	1	02 Jan 2023	PULS_DAC_H-Adapter (Component & Trace Layout)

CERTIFICATE

1 EU – Type Examination Certificate

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU

3 EU – Type Examination Certificate Number: **KIWA 19ATEX0028 X Issue: 1**

4 Product: **Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23**

5 Manufacturer: **VEGA Grieshaber KG**

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

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

8 Kiwa Nederland B.V., Notified Body number 0063 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 confidential ATEX Assessment Report No. 180201206.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0 : 2018 **EN 60079-11 : 2012** **EN 60079-26 : 2015**

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:

VEGAPULS 21, 31:
II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb
VEGAPULS C 21, C 22, C 23:
II 1G,1/2G Ex ia IIC T4 Ga, Ga/Gb
II 1D,1/2D Ex ia IIIC T134°C Da, Da/Db

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Kiwa Nederland B.V.

Ronald Karel
Managing Director

Issue date: 7 November 2019

First issue:

This certificate shall, as far as applicable, be revised before the date of cessation of presumption of conformity of (one of) the included standards above as communicated in the Official Journal of the European Union.

13 **SCHEDULE**

14 **EU – Type Examination Certificate KIWA 19ATEX0028 X Issue No. 1**

15.1 **Description of Product**

Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in an plastic enclosure converts the reflected microwave echo, indicating the filling level, into an 2-wire 4…20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth).
The sensor is either equipped with a fixed cable (VEGAPULS C 21, C 22, C 23) of 5m, 10 m, 25m or selectable length with a G1", 1"NPT or R1" threaded connection or a 2 wire terminal (VEGAPULS 21, 31) via a M20x1.5 or ½" NPT cable entry.

VEGAPULS 21 and 31 are electrically identical where type 21 is equipped without a display module and a blind cover and type 31 is equipped with a display module and a windowed cover.

Ambient temperature range for VEGAPULS 21, 31: -40 ºC to +70 ºC
Ambient temperature range for VEGAPULS C 21, C 22, C 23: -40 ºC to +80 ºC
Process temperature range : -40 ºC to +80 ºC

15.2 **Electrical Data**

VEGAPULS C 21, C 22, C 23:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
U_i = 30 V; I_i = 131 mA; P_i = 983 mW; C_i = 0.18 nF/m; L_i =0.65 µH/m
VEGAPULS 21, 31:
Supply and output circuit (+ (terminals 1), - (terminal 2)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
U_i = 30 V; I_i = 131 mA; P_i = 983 mW; $C_i \approx 0$ nF; $L_i \approx 0$ µH

15.3 **Instructions**

The instructions provided with the product shall be followed in detail to assure safe operation.

16 **ATEX Assessment Report Number**

180201206.

17 **Specific Conditions of Use**

- For electrical and thermal data refer to 15.1 and 15.2.
- The equipment shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.

13 # SCHEDULE

14 ## EU – Type Examination Certificate KIWA 19ATEX0028 X Issue No. 1

18 **Essential Health and Safety Requirements**

All relevant Essential Health and Safety Requirements are covered by the standards listed at section 9.
For this product the standard EN IEC 60079-0 : 2018 is equivalent to the harmonized standard EN 60079-0 : 2012 + A11 : 2013 in terms of safety.

19 **Drawings and Documents**

As listed in ATEX Assessment Report No. 180201206.