[1] **UNITED KINGDOM CONFORMITY ASSESSMENT**

UK-TYPE EXAMINATION CERTIFICATE

[2] **Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1**

[3] UK-Type Examination Certificate No.: **UL21UKEX2283X Rev. 1**

[4] Product: **Radar sensors, types VEGAPULS 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 are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International (UK) Ltd, Approved Body number 0843, in accordance with Regulation 44 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), 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 Schedule 1 of the Regulations.
The examination and test results are recorded in the confidential ATEX Report No 180200754 / IECEx Report No. NL/KIWA/ExTR19.0016/00; ATEX Report No. 191000688 / IECEx Report No. NL/KIWA/EXTR19.0031/0; ATEX Report No. R80149580A and ATEX Report No. R80159632A

[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 60079-18 + A1:2017 EN 60079-31:2014

Except in respect of those requirements listed at section 19 of the schedule to this certificate.

[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 UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations 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:

Ex II 2 G Ex ib mb IIC T4 Gb

2 wire 4-20 mA HART:

Ex II 1 D, 1/2 D
Ex ta, ta/tb IIIC T_{200} 121°C Da, Da/Db
Ex II 2 D Ex tb IIIC T_{200} 134°C Db

4 wire Modules:

Ex II 1 D, 1/2 D
Ex ta, ta/tb IIIC T_{200} 142°C Da, Da/Db
Ex II 2 D Ex tb IIIC T_{200} 155°C Db

Certification Officer
Andrew Moffat

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the UKEx Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Regulations. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2022-06-24
Re-issued: 2023-11-24

Approved Body UL International (UK) Ltd Unit 1-3 Horizon Kingsland Business Park Wade Road, Basingstoke RG24 8AH, UK
Phone : +44 (0)1256 312100

[13]

[14]

Schedule
UK-TYPE EXAMINATION CERTIFICATE No.
UL21UKEX2283X Rev. 1

[15] Description of Product

Radar sensor types VEGAPULS 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 a plastic enclosure converts the reflected microwave echo, indicating the filling level, into a 2-wire 4-20mA HART or 4-wire Modbus 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 equipped with a fixed cable of 5m, 10 m, 25m or selectable length with a G1", 1" NPT or R1" threaded connection.

Variation 1 - This variation introduced the following changes:
- alternate electronics for 4-20 mA HART similar to previously evaluated.
- alternative enclosure design according to drawing 1016899.
- clarification of U_m, the maximum voltage does not change from the previous evaluations.
- clarification of condition of use related to low risk of mechanical danger

[15.1] Temperature range
Ambient and process temperature range for Ex ib mb, Ex tb: -20 ºC to +80 ºC
Ambient and process temperature range for Ex ta, ta/tb: -20 ºC to +67 ºC

[15.2] Electrical data
2-wire 4-20 mA HART:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
U_N = 12 … 35 V, < 1W
U_m = 35 V

4-wire Modbus:
Supply (+ (Brown wire), - (Blue wire)) and output circuit (+ (Black wire), - (White wire)):
U_N = 8 … 30 V, < 1W
U_m = 30 V

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

Routine tests
None.

[16] Test Report No. (associated with this certificate issue)
The test report no. is provided under item no. [8] on page 1 of this UK-Type Examination Certificate.

[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 and that the equipment has been evaluated for installation and use where there is a low risk of mechanical danger.

[18] Conditions of certification:
None.

[19] Essential Health and Safety Requirements (Regulations Schedule 1)
In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

Additional information
The manufacturer shall inform the approved body concerning all modifications to the technical documentation as described in UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1.

[13] [14]

Schedule
UK-TYPE EXAMINATION CERTIFICATE No.
UL21UKEX2283X Rev. 1

[20] Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
Type-Plate UL21UKEX2283X VEGAPULS C 21, C 22, C 23	VEGAZW-6-76983	0	2021-10-01
Sicherheitshinweise VEGAPULS C 21, C 22, C 23 (German)	62413	-	2021-10-06
Safety instructions VEGAPULS C 21, C 22, C 23 (English)	62413	-	2021-10-06
Application Document for models of VEGAPULS C 21, C 22, C 23 with the protection type: Encapsulation “m” and protection by enclosure “t”	VEGAZW-6-47041	07	2020-04-03
VEGAPULS C 21	GE4055	-	2019-02-08
VEGAPULS C 22	GE4063	-	2019-08-28
VEGAPULS C 23	GE4056	-	2019-02-08
PULSC20-MODBUS circuit diagram	SB1549-3	3	2019-07-26
PULSC20-MB component layer	BB1549-3	3	2019-08-08
PULSC20-MB trace layout	LP1549-3	3	2019-08-08
PULSC20-H1 circuit diagram	SB1585-3	3	2019-07-25
PULSC20-H1 component layer	BB1585-3	3	2019-08-08
PULSC20-H1 trace layout	LP1585-3	3	2019-08-08
Layout Description PULS C 21, C 22, C 23	VEGAZW-6-54527	03	2019-10-14
Refer to UKRCC-4790037837.6.1 addendum for actual titles in [ ] parenthesis.			
[Application Document for models of Alternate Construction with the protection type: Encapsulation “m” and protection by enclosure “t”]	VEGAZW-6-54874	03	2020-04-06
[VEGAPULS C 21 Alternate Construction]	GE4155	0	2020-04-06
[VEGAPULS C 23 Alternate Construction]	GE4156	0	2019-06-25
Submergence Shield	25410056	3	2018-03-01
PULSC20-H1 Sheet 1-4 (Circuit Diagram)	SB1585-4	4	2023-01-31
PUSC20-H1 (Component Layout)	BB1585-4	4	2023-01-31
PULS_DAC_H_Adapter (Circuit Diagram)	SB1667-1	1	2023-01-31
PULS_DAC_H-Adapter (Component & Trace Layout)	BB+LP1667-1	1	2023-01-31
SENSOR VEGAPULS C 23, dimensional drawing	1023313	00	2023-04-26
Alternative enclosure design for VEGAPULS C23	1016899	1	202305-02
SENSOR alternative housing, dimensional drawing	1023314	0	2023-05-02

[1]

UNITED KINGDOM CONFORMITY ASSESSMENT

UK-TYPE EXAMINATION CERTIFICATE

[2]

Product or Protective System Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1

[3] UK Type Examination Certificate No.: **UL21UKEX2283X Rev. 0**

[4] Product: **Radar sensors, types VEGAPULS 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 are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International (UK) Ltd, Approved Body number 0843, in accordance with Regulation 44 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), 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 Schedule 1 of the Regulations. The examination and test results are recorded in the confidential report **UKRCC-4790037837.6.1**

[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 60079-18:2015 + A1: 2017 EN 60079-31:2014

Except in respect of those requirements listed at section 19 of the schedule to this certificate.

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

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

Ex II 2 G Ex ib mb IIC T4 Gb

2 wire 4-20 mA HART:

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Certification Manager
Andrew Moffat

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Date of issue: 2022-06-24

Approved Body UL International (UK) Ltd Unit 1-3 Horizon Kingsland Business Park Wade Road, Basingstoke RG24 8AH, UK
Phone : +44 (0)1256 312100

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Schedule
UK-TYPE EXAMINATION CERTIFICATE No.
UL21UKEX2283X Rev. 0

[15] **Description of Product**

Radar sensor types VEGAPULS 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 a plastic enclosure converts the reflected microwave echo, indicating the filling level, into an 2-wire 4-20mA HART or 4-wire Modbus 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 equipped with a fixed cable of 5m, 10 m, 25m or selectable length with a G1", 1"NPT or R1" threaded connection.

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Ambient and process temperature range for Ex ib mb, Ex tb: -20 to +80 ºC
Ambient and process temperature range for Ex ta, ta/tb: -20 to +67 ºC

[15.2] Electrical data
2-wire 4-20 mA HART:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
UN = 12 … 35 V, < 1W
4-wire Modbus:
Supply (+ (Brown wire), - (Blue wire)) and output circuit (+ (Black wire), - (White wire)):
UN = 8 … 30 V, < 1W

Routine tests
None.

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

[16] Test Report No. (associated with this certificate issue)
ATEX Report No 180200754/ IECEx Report No. NL/KIWA/ExTR19.0016/00
and ATEX Report No. 191000688/ IECEx Report No. NL/KIWA/EXTR19.0031/00

[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 and that there is a low risk of mechanical danger.

[18] Conditions of certification:
None

[19] Essential Health and Safety Requirements (Regulations Schedule 1)
In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

The manufacturer shall inform the approved body concerning all modifications to the technical documentation as described in Annex III to UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1

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[14]

Schedule
UK-TYPE EXAMINATION CERTIFICATE No.
UL21UKEX2283X Rev. 0

[20] Drawings and Documents

Technical Documents			
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[VEGAPULS C 21 Alternate Construction]	GE4155	0	2020-04-06
[VEGAPULS C 23 Alternate Construction]	GE4156	0	2019-06-25
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