

# Ordinary Location VEGAPULS 11, 21, 31 VEGAPULS C 11, C 21, C 22, C 23

FM19NCA0004 FM19NUS0009





Document ID: 64167









# CERTIFICATE OF CONFORMITY



**ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS** 

2 Certificate No: FM19NCA0004

3 Equipment: (Type Reference and Name) VEGAPULS 11, 21 & 31 Series VEGAPULS C 11, C 21, C 22 & C 23 Series **Level Transmitters** 

Name of Listing Company:

Vega Grieshaber KG

5. Address of Listing Company: Am Hohenstein 113 Schiltach D-77761 Germany

The examination and test results are recorded in confidential report number:

PR453585 dated 19th March 2020

FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

CAN/CSA-C22,2 No. 61010-1:2012, CSA-C22,2 No. 94,2:2015, & CAN/CSA-C22,2 No. 60529:2016

- 8. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- Equipment Ratings:

Suitable for use in ordinary (non-hazardous) locations, indoor and outdoor, with Degree of Protection IP66/67, or IP66/68 (IPX8 @ 3 bar, 24 hr) as well as Type 4X and Type 6P.

Certificate issued by:

19 March 2020 Date

J/E. Marguedant

F 333 (Jun 16)

Marquestio VP, Manager - Electrical Systems

To verify the availability of the Approved product, please refer to www.approvalguide.com

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# 10. Description of Equipment:

#### General

The VEGAPULS 11, 21 & 31 Series and the VEGAPULS C 11, C 21, C 22 & C 23 Series Level Transmitters are level measurement transmitters based on the FMCW (frequency modulated continuous wave) measurement principle, an indirect method of distance measurement. The devices use high-frequency microwave signals in the GHz range to detect the distance between the sensor and the product surface level.

## VEGAPULS 11, 21, 31 Series

The VEGAPULS 11, 21, 31 Series Level Transmitters have non-metallic enclosures primarily yellow in color. The top part of the enclosure includes a solid yellow or transparent threaded window cover for accessing the wiring area and possibly viewing an optional display present on the final equipment that would use the enclosures. A single ½" NPT threaded entry or a single M20x1.5 entry with a suitably-rated cable gland is provided on the side of the enclosure for wiring entry and connection. The bottom of the enclosure is gray in color and includes a R 1½", G 1½", or 1½" NPT male thread intended for connection to an industrial process. All seams and joints present on the enclosure employ suitable gaskets and o-rings for environmental sealing in order to maintain the ratings for Degree of Protection IP66/IP67.

The VEGAPULS 11 Series Level Transmitters are rated for an ambient operating temperature range as well as a process temperature range of -40°C to +60°C, for process pressures from -1...+3 bar, and for Degree of Protection [P66/I/P67.

The VEGAPULS 21 & 31 Series Level Transmitters are rated for an ambient operating temperature range of -40°C to +70°C and for a process temperature range of -40°C to +80°C, for process pressures from -1...+3 bar, and for Degree of Protection IP66/IP67.

# VEGAPULS C 11, C 21, C 22 & C 23 Series

The VEGAPULS C 11, C 21, C 22 & C 23 Series Level transmitters have non-metallic enclosures that are gray in color. The top part of the enclosure includes an integral cable and gland as well as an R 1", G 1", or 1", NPT male thread for connection to conduit via direct connection via the NPT thread option or via a suitable coupling. The bottom of the enclosure is gray in color, and for the C 11, C 21 and C 22 enclosures, includes an R 1½", G 1½", or 1½" NPT male thread intended for connection to an industrial process. The enclosures may offer means for wall or ceiling mounting which do not penetrate the enclosure. Gaskets and o-rings are provided for environmental sealing of the integral cable gland and there are no other seams nor joints present on these enclosures.

The VEGAPULS C 11 Series Level Transmitters are rated for an ambient operating temperature range as well as a process temperature range of -40°C to +60°C, for process pressures from -1...+3 bar, and for Type 6P and IP66/IP68 (3 bar. 24 hrt).

The VEGAPULS C 21, C 22 & C 23 Series Level Transmitters are rated for an ambient operating temperature range as well as a process temperature range of -40°C to +80°C, for process pressures from -1...+3 bar, and for Type 6P and IP66/IP68 (3 bar, 24 hr).

## **Electrical Ratings**

The equipment is intended for wiring to a limited energy circuit as defined by ANSI/UL 61010-1. The 4...20mA/HART electronics options operate at 12...35 VDC, and the SDI-12 and Modbus electronics options operate at 8...30 VDC; all with less than 1 Watt maximum power consumption.

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## VEGAPULS 11. Level Transmitter.

Thread type process side:

G1½ 1½ NPT R1½

Thread type wiring side:

½ NPT M20x1 5

- Electronics:

Two-wire 4...20 mA

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+60°C

FM Approved equipment models also include additional options that are not related to compliance with the applicable standards as listed on the certificate; for example but not limited to: measurement range, overfill protection, shipboard and/or foodstuff/pharmaceutical certification, and smartphone communication capabilities.

## VEGAPULS 21. Level Transmitter.

Thread type process side:

G1½ 1½ NPT

R1½
Thread type wiring side:

½ NPT M20x1.5

- Electronics:

Two-wire 4...20 mA / HART

Maximum Working Pressure Rating (MWPR): 3 bar

Process Temperature Range: -40°C ... +80°C

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## VEGAPULS 31. Level Transmitter.

Thread type process side:

G1½ 1½ NPT

R11/2

Thread type wiring side:

1/2 NPT

M20x1.5

Electronics:

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Two-wire 4...20 mA / HART

with display

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Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

FM Approved equipment models also include additional options that are not related to compliance with the applicable standards as listed on the certificate; for example but not limited to: measurement range, overfill protection, shipboard and/or foodstuff/pharmaceutical certification, smartphone communication capabilities, and optional local display interface.

# VEGAPULS C 11. Level Transmitter.

- Thread type process side / wiring side:

G1½ / G1 1½ NPT / 1 NPT R1½ / R1

Cable material / length:

PVC / 1m PVC / 5m PVC / 10m PVC / 25m PVC / custom length

Electronics:

Two-wire 4...20 mA

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+60°C

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# VEGAPULS C 21. Level Transmitter.

 Thread type process side / wiring side: G1½ / G1

> 1½ NPT / 1 NPT R1½ / R1 naterial / length:

Cable material / length:

PUR / 1m PUR / 5m PUR / 10m PUR / 25m

PUR / custom length

- Electronics:

Two-wire 4...20 mA / HART MODBUS SDI-12

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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# VEGAPULS C 22. Level Transmitter.

Thread type process side:
 G1½

G1½ 1½ NPT R1½

Thread type wiring side:

Without 1/2 NPT

Cable material / length:

PUR / 1m PUR / 5m PUR / 10m

PUR / 25m PUR / custom length

Electronics:

Two-wire 4...20 mA / HART

MODBUS SDI-12

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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## VEGAPULS C 23. Level Transmitter.

Thread type wiring side:

G1 1 NPT

- R1
- Cable material / length:

PUR / 1m PUR / 5m PUR / 10m

PUR / 25m PUR / custom length

Electronics:

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Two-wire 4...20 mA / HART MODBUS

SDI-12

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Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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# 11. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Requirements.

## 12. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

## 13. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
19th March 2020	Original Issue.

# FM Approvals

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# CERTIFICATE OF CONFORMITY



1. ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. Certificate No:

FM19NUS0009

3. Equipment: (Type Reference and Name) VEGAPULS 11, 21 & 31 Series VEGAPULS C 11, C 21, C 22 & C 23 Series Level Transmitters

4. Name of Listing Company:

Vega Grieshaber KG

5. Address of Listing Company:

Am Hohenstein 113 Schiltach D-77761 Germany

The examination and test results are recorded in confidential report number:

PR453585 dated 19th March 2020

FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3810:2018, ANSI/UL 61010-1:2012, ANSI/UL 50E:2015, & ANSI/IEC 60529:R2011

- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- Equipment Ratings:

Suitable for use in ordinary (non-hazardous) locations, indoor and outdoor, with Degree of Protection IP66/67, or IP66/68 (IPX8 @ 3 bar, 24 hr) as well as Type 4X and Type 6P.

Certificate issued by:

19 March 2020

Date

J.E. Marguedant

F 332 (Jun 16)

VP, Manager - Electrical Systems

To verify the availability of the Approved product, please refer to www.approvalguide.com

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## VEGAPULS 11, 21, 31 Series

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The VEGAPULS 11 Series Level Transmitters are rated for an ambient operating temperature range as well as a process temperature range of -40°C to +60°C, for process pressures from -1...+3 bar, and for Degree of Protection IP86/IP67.

The VEGAPULS 21 & 31 Series Level Transmitters are rated for an ambient operating temperature range of -40°C to +70°C and for a process temperature range of -40°C to +80°C, for process pressures from -1...+3 bar, and for Degree of Protection IP66/IP67.

# VEGAPULS C 11, C 21, C 22 & C 23 Series

The VEGAPULS C 11, C 21, C 22 & C 23 Series Level transmitters have non-metallic enclosures that are gray in color. The top part of the enclosure includes an integral cable and gland as well as an R 1", G 1", or 1", NPT male thread for connection to conduit via direct connection via the NPT thread option or via a suitable coupling. The bottom of the enclosure is gray in color, and for the C 11, C 21 and C 22 enclosures, includes an R 1½", G 1½", or 1½" NPT male thread intended for connection to an industrial process. The enclosures may offer means for wall or ceiling mounting which do not penetrate the enclosure. Gaskets and o-rings are provided for environmental sealing of the integral cable gland and there are no other seams nor joints present on these enclosures.

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The VEGAPULS C 21, C 22 & C 23 Series Level Transmitters are rated for an ambient operating temperature range as well as a process temperature range of -40°C to +80°C, for process pressures from -1...+3 bar, and for Type 6P and IP66/IP68 (3 bar, 24 hr).

## **Electrical Ratings**

The equipment is intended for wiring to a limited energy circuit as defined by ANSI/UL 61010-1. The 4...20mA/HART electronics options operate at 12...35 VDC, and the SDI-12 and Modbus electronics options operate at 8...30 VDC; all with less than 1 Watt maximum power consumption.

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## VEGAPULS 11. Level Transmitter.

Thread type process side:

G1½ 1½ NPT R1½

Thread type wiring side:

½ NPT M20x1 5

- Electronics:

Two-wire 4...20 mA

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+60°C

FM Approved equipment models also include additional options that are not related to compliance with the applicable standards as listed on the certificate; for example but not limited to: measurement range, overfill protection, shipboard and/or foodstuff/pharmaceutical certification, and smartphone communication capabilities.

## VEGAPULS 21. Level Transmitter.

Thread type process side:

G1½ 1½ NPT

R1½

Thread type wiring side:

½ NPT M20x1.5

Electronics:

Two-wire 4...20 mA / HART

Maximum Working Pressure Rating (MWPR): 3 bar

Process Temperature Range: -40°C ... +80°C

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## VEGAPULS 31. Level Transmitter.

Thread type process side:

G1½ 1½ NPT

R11/2

Thread type wiring side:

1/2 NPT

M20x1.5

Electronics:

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Two-wire 4...20 mA / HART

with display

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Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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# VEGAPULS C 11. Level Transmitter.

Thread type process side / wiring side:

G11/2 / G1 1% NPT / 1 NPT R11/2 / R1

Cable material / length:

PVC / 1m PVC / 5m PVC / 10m PVC / 25m PVC / custom length

Electronics: Two-wire 4...20 mA

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+60°C

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# VEGAPULS C 21. Level Transmitter.

Thread type process side / wiring side: G1%/G1

> 11/2 NPT / 1 NPT R11/2 / R1

Cable material / length:

PUR / 1m PUR / 5m **PUR / 10m PUR / 25m** PUR / custom length

Electronics:

Two-wire 4...20 mA / HART MODBUS SDI-12

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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# VEGAPULS C 22. Level Transmitter.

- Thread type process side: G11/2
  - 11/2 NPT R11/2
- Thread type wiring side:
  - Without 1/2 NPT
- Cable material / length:
  - PUR / 1m PUR / 5m
  - **PUR / 10m**
  - PUR / 25m PUR / custom length
- Electronics:
  - Two-wire 4...20 mA / HART
  - MODBUS SDI-12

Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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## VEGAPULS C 23. Level Transmitter.

- Thread type wiring side:
  - G1 1 NPT
  - R1
- Cable material / length:
  - PUR / 1m PUR / 5m

  - PUR / 10m PUR / 25m
  - PUR / custom length
- Electronics:

Two-wire 4...20 mA / HART

MODBUS

SDI-12

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Maximum Working Pressure Rating (MWPR): 3 bar Process Temperature Range: -40°C...+80°C

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# 11. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements

## 12. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

## 13. Certificate History

Details of the supplements to this certificate are described below:

Date	Description	
19th March 2020	Original Issue.	

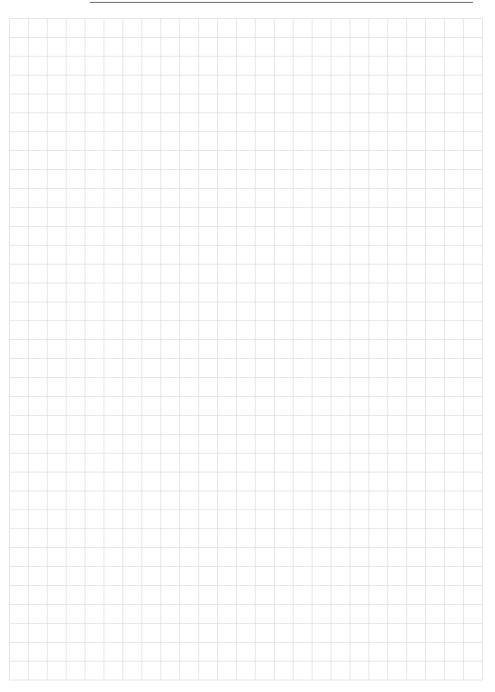
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# Printing date:



All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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