Certificate of Compliance

Certificate:	80043162	**Master Contract:**	153857
Project:	80149579	**Date Issued:**	April 18, 2023

Issued To: **Vega Grieshaber KG**
Am Hohenstein 113
Schiltach, Baden-Württemberg, 77761
Germany

Attention: Udo Ressel

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: Awais Hameed

PRODUCTS

CLASS - C225802 - PROCESS CONTROL EQUIPMENT For Hazardous Locations
CLASS - C225803 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non Incendive Systems - For Hazardous Locations
CLASS - C225882 - PROCESS CONTROL EQUIPMENT For Hazardous Locations - Certified to US Standards
CLASS - C225883 - PROCESS CONTROL EQUIPMENT Intrinsically Safe and Non-Incendive Systems-For Hazardous Locations-Certified to U.S. Standards

Class I, Division 2, Groups A, B, C, D T4
Class II, Division 1, Groups E, F, G T4; Class III
Ta: -20°C to +80°C

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Radar sensors type 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 1" NPT or ½" NPT threaded connection. Threaded connection at the antenna side can be of G1 ½", R1 ½" or NPT 1 ½" (for VEGAPULS C 21, C 22 only).
For 2-wire 4-20mA HART, supply and output circuit (+ (Brown wire), - (Blue wire)): 12-35VDC, 1W max.
For 4-wire MODBUS, supply and output circuit (+ (Brown wire), - (Blue wire)) and output circuit (+ (Black wire), - (White wire): 8-30VDC, 1W max.
Process temperature range: Same as ambient.
Process pressure: -1…+3bar (refer to point 5 under conditions of Acceptability)
Enclosures are Type 4X/6P, IP66/68 3bar, 24hrs.
Safety Instructions document: 64735.

Class I, Division 2, Groups A, B, C, D T4
Class II, Division 1, Groups E, F, G T4; Class III
Ex ib mb IIC T4 Gb
Class I, Zone 1 AEx ib mb IIC T4 Gb

2-wire 4-20mA HART:
Ex ta, ta/tb IIIC T121°C Da, Da/Db
Zone 20, 20/21 AEx ta, ta/tb IIIC T121°C Da, Da/Db
Ex tb, IIIC T134°C Db
Zone 21, AEx tb IIIC T134°C Db

4-wire MODBUS:
Ex ta, ta/tb IIIC T142°C Da, Da/Db
Zone 20, 20/21 AEx ta, ta/tb IIIC T142°C Da, Da/Db
Ex tb, IIIC T155°C Db
Zone 21, AEx tb IIIC T155°C Db

Ta: -20°C to +67°C for EPL Da, Da/Db
Ta: -20°C to +80°C for EPL Gb, Db, Class I, Division 2, Class II, Division 1, and Class III

Radar sensors types VEGAPULS C 21, 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 1" NPT threaded connection. Threaded connection at the antenna side (applicable to VEGAPULS C21 only) can be of G1 ½", R1 ½" or NPT 1 ½".
For 2-wire 4-20mA HART, supply and output circuit (+ (Brown wire), - (Blue wire)): 12-35VDC, 1W max.

For 4-wire MODBUS, supply and output circuit (+ (Brown wire), - (Blue wire)) and output circuit (+ (Black wire), - (White wire): 8-30VDC, 1W max.
Process temperature range: Same as ambient.
Process pressure: -1…+3bar (refer to point 5 under conditions of Acceptability)
Enclosures are Type 4X/6P, IP66/68 3bar, 24hrs.
Safety Instructions document: 64735.

PULS C 21S, C 23S

Radar sensors types PULS C 21S, 23S are identical to VEGAPULS C 21, C 23 in every aspect and are only different in enclosure shape, color, and type of connection cable.
Safety Instructions document: 62428.

Conditions of Acceptability:

1. To be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 and UL 61010-1 Third Edition.
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.
3. The equipment shall be wired using NPT threads identified on the enclosure using the 1 NPT threads for Zones, either the 1 NPT or ½ NPT threads for Divisions, and in accordance with the applicable area electrical code. The integral cable shall be mechanically protected and terminated in a suitably rated terminal or junction box.
4. VEGAPULS C 21, C 22, C 23 was tested for the given process pressure of "-1 to +3bar" as per CSA C22.2 No 61010-1-12 and UL 61010-1 3rd Ed (2018) and passed without any leakage.
5. In the case when an explosive atmosphere occurs the assessment of the equipment is based on the following atmospheric conditions:
   - temperature –20 °C to +60 °C (in the process) and
   - pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar); and
   - air with normal oxygen content, typically 21 % v/v.

APPLICABLE REQUIREMENTS

Standard Number	Issue Date / Edition	Title
CAN/CSA C22.2 No. 61010-1-12	2012 / UPD1: 2015, UPD2: 2016, AMD1: 2018	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1 General Requirements
CAN/CSA C22.2 No. 94.2	2015 / 2nd Edition	Enclosures for Electrical Equipment, Environmental Considerations
CSA C22.2 No. 25	2017 / 4th Edition	Enclosures for Use in Class II, Division 1, Groups E, F and G Hazardous Locations

Standard Number	Issue Date / Edition	Title
CSA C22.2 No 213	2017 / 3rd Edition	Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations
CSA C22.2 No. 60079-0	2019 / 4th Edition	Explosive Atmospheres - Part 0: Equipment - General Requirements
CAN/CSA C22.2 No. 60079-11	2014 / 2nd Edition	Electrical apparatus for explosive gas atmospheres - Part 11: intrinsic safety “i”
CAN/CSA C22.2 No. 60079-18	2016 / 2nd Edition	Explosive atmospheres - Part 18: Equipment protection by encapsulation “m”
CAN/CSA C22.2 No. 60079-31	2015 / 2nd Edition	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
UL 61010-1	2012 / 3rd Edition, AMD1: 2018	Standard for Safety - Electrical Equipment for Measurement, Control, and Laboratory use; Part 1: General requirements
UL Standard No. 50E	2015 / 2nd Edition	Enclosures for Electrical Equipment, Environmental Considerations
UL 121201	2017 / 9th Edition	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
ANSI/UL 60079-0	2019 / 7th Edition	Explosive Atmospheres - Part 0: Equipment - General Requirements
ANSI/UL 60079-11	2018 / 6th Edition	Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety “i”
ANSI/UL 60079-18	2019 / 4th Edition	Explosive atmospheres - Part 18: Equipment protection by encapsulation “m”
ANSI/UL 60079-31	2015 / 2nd Edition	Equipment dust ignition protection by enclosure “t”
FM Class 3600	2018	Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements
FM Class 3616	2011	Dust-Ignitionproof Electrical Equipment - General Requirements

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

A. VEGAPULS C 21, C, 22, C 23

The following markings are LASER etched directly on the housing on the cylindrical surface of the housing.

- Manufacturer's identification: "*VEGA Grieshaber KG* ", or "www.vega.com", or CSA Master Contract Number "153857".
- Model designation: As specified in the PRODUCTS section, above.
- Electrical ratings: As specified in the PRODUCTS section, above.
- Ambient temperature rating: As specified in the PRODUCTS section, above.
- Manufacturing date in MMYY format, or serial number, traceable to year and month of manufacture.
- Enclosure ratings: As specified in the PRODUCTS section, above.
- The CSA Mark, with or without the "C" and "US" indicators, as shown on the Certificate of Conformity.
- The designation "CSA 80043162" (applicable to VEGAPULS C 21, C 22, C 23, Divisions).
- The designation "CSA 20CA80043162X" (applicable to VEGAPULS C 21, C 23, Zones and Divisions).
- Hazardous Location designation: As specified in the PRODUCTS section, above. The word "Class" may be abbreviated "Cl", the word "Division" may be abbreviated "Div", and the word "Groups" may be abbreviated "Grp" or "Gp".
- Temperature code: As specified in the PRODUCTS section, above.
- Maximum temperature for dust for Zone marking (applicable to VEGAPULS C 21, C 23 only).
- ISO 3864 Symbol B.3.1  or ISO 7000 symbol 0434  (triangle with exclamation point).
- The following words:
  - "Install per Document 64735".
- The following warning statement both in French and English:
  WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
  AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ELECTROSTATIQUES – VOIR INSTRUCTION

Sample of Marking for VEGAPULS C 21, C 23 (for Division and Zone):

Extracted from Descriptive Document VEGAZW-6-58290.

2-wire HART

VEGAPULS C 21, C 23, Approval F= CSA-C-US + FM-C-US			
Approval		**Code**	**Certificate No. and Marking** (line 1 …line 3 or 4)
CSA-C-US FM-C-US	Ex ib mb, IIC, Ex t	FB	***FM20CA0015X, CSA 20CA80043162X,*** Cl I Div 2 Gp ABCD T4 Ta= -20°C…+80°C, Cl I Zn 1 AEx/Ex ib mb IIC T4 Gb, Zn 20 AEx/Ex ta IIIC T121°C Da Ta=-20°C…+67°C Zn 21 AEx/Ex tb IIIC T134°C Db Ta=-20°C…+80°C Cl II Div 1, Gp EFG Cl III T4 Ta= -20°C…+80°C **Install per Document 64735,** Um=35V FCC: O6QBRA200, IC: 3892A-BRA200

4-wire Modbus

VEGAPULS C 21, C 23, Approval F = CSA-C-US + FM-C-US			
Approval		**Code**	**Certificate No. and Marking** (line 1 …line 3 or 4)
CSA-C-US FM-C-US	Ex ib mb, IIC, Ex t	FB	***FM20CA0015X, CSA 20CA80043162X,*** Cl I Div 2 Gp ABCD T4 Ta=-20°C…+80°C, Cl I Zn 1 AEx/Ex ib mb IIC T4 Gb, Zn 20 AEx/Ex ta IIIC T142°C Da Ta=-20°C…+67°C Zn 21 AEx/Ex tb IIIC T155°C Db Ta=-20°C…+80°C Cl II Div 1, Gp EFG Cl III T4 Ta= -20°C…+80°C **Install per Document 64735,** Um=30V FCC: O6QBRA200, IC: 3892A-BRA200

Sample of Marking for VEGAPULS C 21, C22, C 23 (for Division):

Extracted from Descriptive Document VEGAZW-6-58290.

2-wire HART

VEGAPULS C 21, C 22, C 23, Approval F= CSA-C-US + FM-C-US			
Approval		**Code**	**Certificate No. and Marking** (line 1 …line 3 or 4)
CSA-C-US FM-C-US	Ex ib mb, IIC, Ex t	FR	***FM20CA0015X, CSA80043162,*** Cl I Div 2 Gp ABCD T4 Ta= -20°C…+80°C, Cl II Div 1, Gp EFG Cl III T4 Ta= -20°C…+80°C **Install per Document 64735,** Um=35V FCC: O6QBRA200, IC: 3892A-BRA200

4-wire Modbus

VEGAPULS C 21, C 22, C 23, Approval F = CSA-C-US + FM-C-US			
Approval		**Code**	**Certificate No. and Marking** (line 1 …line 3 or 4)
CSA-C-US FM-C-US	Ex ib mb, IIC, Ex t	FR	***FM20CA0015X, CSA80043162,*** Cl I Div 2 Gp ABCD T4 Ta= -20°C…+80°C Cl II Div 1, Gp EFG Cl III T4 Ta= -20°C…+80°C **Install per Document 64735,** Um=30V FCC: O6QBRA200, IC: 3892A-BRA200

B. PULS C 21S, C 23S

Note - Siemens models SITRANS LR110, and LR120 are the private label option (Multiple Listed version) of PULS C 21S, and C 23S.

Sample of Marking PULS C21S, C 23S:

Extracted from Descriptive Document VEGAZW-6-59472, model SITRANS LR110 is shown below.

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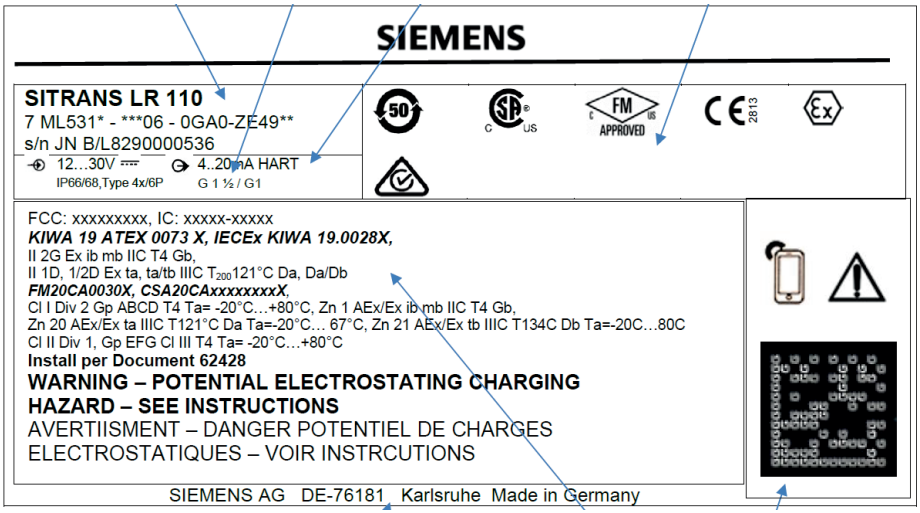
Project: 80149579

Master Contract: 153857
Date Issued: April 18, 2023



Notes:

Products certified under Class C225802, C225803, C225882, C225883 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca

Supplement to Certificate of Compliance

Certificate: 80043162 **Master Contract:** 153857

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80149579	2023-04-18	Update to Report 80043162 to introduce alternate electronics for 4-20 mA HART similar to previously evaluated.
80043162	2020-09-30	Original CSA certification of VEGAPULS C21, C22, C23 Radar Sensors for marking Cl I, Div 2, Grp ABCD T4; Cl II, Div 1, Grp EFG T4; Cl III; Cl I, Zn 1, A/Ex ib mb IIC T4 Gb; Zn 20, 20/21 A/Ex ta, ta/tb IIIC T*°C Da, Da/Db; Zn 21, A/Ex tb IIIC T*°C Db based on acceptance of IECEx certificate and report by notified body and FM reports for enclosure assessments and DIP method of protection.