# IECEx Certificate of Conformity

## 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 07.0048X** | Page 1 of 4 | Certificate history: |
| Status: | **Current** | Issue No: 2 | Issue 1 (2017-10-13)<br>Issue 0 (2007-07-17) |
| Date of Issue: | 2023-02-24 | | |

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
**Germany**

Equipment: **Vibration Level Switch VEGAWAVE, type code WE6*(*).CI***N/Z*****

Optional accessory:

Type of Protection: **General Requirements, Intrinsic Safety, Equipment with equipment protection level (EPL) Ga**

Marking: Ex ia IIC T6...T1 Ga or
Ex ia IIC T6...T1 Ga/Gb or
Ex ia IIC T6...T1 Gb

Approved for issue on behalf of the IECEx Certification Body: **Dr.-Ing. Martin Thedens**

Position: **Head of Department "Explosion Protection in Sensor Technology and Instrumentation"**

Signature:
(for printed version)

Date:
(for printed version)

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**Physikalisch-Technische Bundesanstalt (PTB)**
**Allee 100**
**Braunschweig**
**Germany**

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

# IECEx Certificate of Conformity



Certificate No.: **IECEx PTB 07.0048X**

Date of issue: 2023-02-24

Issue No: 2

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
**Germany**

Manufacturing locations: **VEGA Americas Inc.**
4241 Allendorf Drive
Cincinatti
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<br>Edition:7.0 | Explosive atmospheres - Part 0: Equipment - General requirements |
| IEC 60079-11:2011<br>Edition:6.0 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |
| IEC 60079-26:2021-02<br>Edition:4.0 | Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection |

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/ExTR07.0044/02

Quality Assessment Report:

DE/TUN/QAR06.0002/12

# IECEx Certificate of Conformity



**EQUIPMENT:**
Equipment and systems covered by this Certificate are as follows:

The Vibration Level Switch VEGAWAVE, type code WE6*(*).CI***N/Z*** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.

The Vibration Level Switch VEGAWAVE, type code WE6*(*).CI***N/Z*** are used for control of filling levels in explosion hazardous areas. The measuring media can be combustible liquids, gases, mists or vapors.

The Vibration Level Switch VEGAWAVE, type code WE6*(*).CI***N/Z*** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.

The sensor of the VEGAWAVE WE6*(*).CI***N/Z*** is a mechanical vibration fork. The VEGAWAVE WE6*(*).CI***N/Z*** are 2-wire loop powered sensors with a working frequency of the sensor of about 140Hz. A signal current of 8mA means that the sensor is in vibrating and not covered with product, a signal current of 16mA means that the sensor is covered with product and the vibrating is damped.

For further information see annexe.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**
Specific conditions of use see annex.

# IECEx Certificate of Conformity



**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**
Update to newest standard versions of IEC 60079-0, IEC 60079-11, IEC 60079-26.
In addition, already approved electronic N should be included in this approval IECEx PTB 07.0048 X issue 2.
Modification of the temperature tables.

**Annex:**

Annex to IECEx PTB 07.0048X_issue 2.pdf

Applicant: VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach, Germany

Electrical Apparatus: Vibrating level switch VEGAWAVE, type code WE6*(*).CX***N/Z***

Description of equipment

The vibrating level switch VEGAWAVE, type code WE6*(*).CX***N/Z*** are used for level measurement in potentially explosive gas atmospheres requiring category-1 or category-1/2 or category-2 equipment.

They consist of an electronic housing with the corresponding evaluation electronic, the process connectors and the sensor.

Extract from the type key

| **VEGAWAVE WE6*(*).** | C * | * | ** | * | * | * | * |
|---|---|---|---|---|---|---|---|
| * 1, 2, 3 | a b | c | de | f | g | h | i |

ab: area of validity

| | | |
|---|---|---|
| **CX** | **=** | **ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb** |
| CK | = | ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb + ATEX II 1D 1/2D 2D Ex ta ta/tb tb IIIC T… Da Da/Db Db IP66 |
| CI | = | IECEx Ex ia IIC T6 Ga Ga/Gb, Gb |

c: adapter / process temperature / cable

de: process connection / material

f: electronics

| | | |
|---|---|---|
| Z | = | 2- wire signal |
| N | = | NAMUR-signal |

g: enclosure / protection

h: cable gland / plug connection

i: additional equipment

The full type code can be found in the safety instructions.

Category-1 equipment

The vibration level switches are installed in potentially explosive atmospheres requiring category-1 equipment.

Category-1/2 equipment

The electronics housing is installed in potentially explosive atmospheres requiring category-2 equipment. The process connectors are installed in the partition separating areas requiring category-2 or category-1 equipment. The sensor is installed in potentially explosive atmospheres for category-1 equipment.

Category-2 equipment

The vibration level switches are installed in potentially explosive atmospheres requiring category-2 equipment.

For the relationship between the temperature class and the maximum permissible temperature at the sensor and the maximum permissible ambient temperature for the evaluation electronic, reference is made to the following table.

Category-1 equipment
2- wire signal / NAMUR-signal

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor |
|---|---|---|
| T6 | -20 ... +60 °C | -20 ... +60 °C |
| T5 | -20 ... +60 °C | -20 ... +60 °C |
| T4, T3, T2, T1 | -20 ... +60 °C | -20 ... +60 °C |

For applications requiring category-1 equipment, the media process pressure has to be between 0.8 bar and 1.1 bar. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-1/2 equipment
2- wire signal

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor of the VEGAWAVE WE62*** | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** without temperature adapter | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** with temperature adapter |
|---|---|---|---|---|
| T6 | -40 °C … +55 °C | -20 °C … +60 °C | -50 °C…+ 85 °C | -50 °C …+ 85 °C |
| T5 | -40 °C … +70 °C | -20 °C … +60 °C | -50 °C…+100 °C | -50 °C …+100 °C |
| T4 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+135 °C | -50 °C …+135 °C |
| T3 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+150 °C | -50 °C …+200 °C |
| T2, T1 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+150 °C | -50 °C …+250 °C |

NAMUR-signal

| tempera-ture class | permissible temperature for the electronic system | permissible ambi-ent temperature at the sensor of the VEGAWAVE WE62*** | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** without temperature adapter | with temperature adapter |
|---|---|---|---|---|
| T6 | -40 °C … +61 °C | -20 °C … +60 °C | -50 °C…+ 85 °C | -50 °C …+ 85 °C |
| T5 | -40 °C … +76 °C | -20 °C … +60 °C | -50 °C…+100 °C | -50 °C …+100 °C |
| T4 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+135 °C | -50 °C …+135 °C |
| T3 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+150 °C | -50 °C …+200 °C |
| T2, T1 | -40 °C … +80 °C | -20 °C … +60 °C | -50 °C…+150 °C | -50 °C …+250 °C |

For applications requiring category-1 equipment, the media process pressure of the vibration level switches of type series VEGAWE62(*).CX***N/Z*** have to be between 0.8 bar and 1.1 bar. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

When the vibration level switches of type series VEGAWE61(*).CX***N/Z*** and VEGAWE63(*).CX***N/Z*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the respective values of the table above. In the process, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.

For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

2- wire signall

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor of the VEGAWAVE WE62*** | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** without temperature adapter | with temperature adapter |
|---|---|---|---|---|
| T6 | -40 °C … +55 °C | -40 °C … +70 °C | -50 °C…+ 85 °C | -60 °C …+ 85 °C |
| T5 | -40 °C … +70 °C | -4 0°C … +80 °C | -50 °C…+100 °C | -60 °C …+100 °C |
| T4 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+135 °C | -60 °C …+135 °C |
| T3 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+150 °C | -60 °C …+200 °C |
| T2, T1 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+150 °C | -60 °C …+250 °C |

NAMUR-signal

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor of the VEGAWAVE WE62*** | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** without temperature adapter | with temperature adapter |
|---|---|---|---|---|
| T6 | -40 °C … +61 °C | -40 °C … +70 °C | -50 °C…+ 85 °C | -60 °C …+ 85 °C |
| T5 | -40 °C … +70 °C | -4 0°C … +80 °C | -50 °C…+100 °C | -60 °C …+100 °C |
| T4 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+135 °C | -60 °C …+135 °C |
| T3 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+150 °C | -60 °C …+200 °C |
| T2, T1 | -40 °C … +80 °C | -40 °C … +80 °C | -50 °C…+150 °C | -60 °C …+250 °C |

When the vibration level switches of type series VEGAWAVE WE61(*).CX***N/Z*** and VEGAWAVE WE63(*).CX***N/Z*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the respective values of the table above. In the process, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.

For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Electrical data 2- wire signal

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment, for the 2-cell enclosure version in the terminal compartment)

Type of protection Intrinsic Safety Ex ia IIC
For connection to a certified intrinsically safe circuit.
Maximum values:
$U_i$ = 30 V
$I_i$ = 131 mA
$P_i$ = 983 mW
$C_i$ negligibly low or in the version with fixed connected cable, type series VEGAWAVE WE6*(*).CX***Z3/5**, $C_{i'core/core}$ = 58 pF/m, $C_{i'core/screen}$ = 270 pF/m,
$L_i$ negligibly low or in the version with fixed connected cable, type series VEGAWAVE WE6*(*).CX***Z3/5**, $L_{i'}$ = 0.55 µH/m

| | |
|---|---|
| Electrical data NAMUR-signal<br>Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment, for the 2-cell enclosure version in the terminal compartment) | Type of protection Intrinsic Safety Ex ia IIC<br>For connection to a certified intrinsically safe circuit.<br>Maximum values:<br>$U_i$ = 20 V<br>$I_i$ = 103 mA<br>$P_i$ = 516 mW<br>$C_i$ negligibly low or in the version with fixed connected cable, type series VEGAWAVE WE6*(*).CX***Z3/5**, $C_{i'core/core}$ = 58 pF/m, $C_{i'core/screen}$ = 270 pF/m,<br>$L_i$ negligibly low or in the version with fixed connected cable, type series VEGAWAVE WE6*(*).CX***Z3/5**, $L_{i'}$ = 0.55 µH/m |

The metal elements of the vibration level switches VEGAWAVE are electrically connected to the earth terminals.

The intrinsically safe supply and signal circuit is safely electrically isolated from elements that may be earthed.

Special conditions for safe use

1. When used as a category-1 equipment, the vibrating level switch VEGAWAVE, type code WE6*(*).CX***N/Z***, which include the material aluminum, shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.

2. The vibration level switch VEGAWAVE with plastic enclosure, with metal enclosure with display window as well as coated sensors, carrying cable or distance pipe include surfaces that can become charged electrostatically (note warning label).

3. When used as catagory-1 or category-1/2 equipment, the vibration level switch VEGAWAVE shall be connected to the equipotential bonding conductor (contact resistance $\leq$1MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electro-statically.

4. The vibration level switch VEGAWAVE shall be installed in such a way that contact between the measuring sensor and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. This applies, in particular, to cable and distance pipes exceeding the length of 3 m.

5. For applications where equipment of category 1 or category 1/2 is required, all parts of the vibration level switch VEGAWAVE which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

6. Further examinations showed, that the vibrating level switch VEGAWAVE, type code WE6*(*).CX***N/Z*** may also be used as category-1/2 equipment in hazardous areas which deviate from the atmospheric conditions (0.8 bar…1.1 bar and -20°C …+60°C). For permissible operating temperatures and pressures for the operation reference is made to the manufacturer´s specifications. In this process, it shall be considered that the measuring sensors (even in case of fault) do not show any self-heating and that the owner is responsible for the safe operation of the system as regards the pressures/temperatures of the media used.

7. The capacitance measurements at the measuring point identification signs resulted in the following values (measured without grounding):

| Pos. | Description | Dimension and area | capacitance in pF |
|---|---|---|---|
| 1 | Metal type label with key ring | 45 mm x 23 mm= 1035 $mm^2$ | 21 |
| 2 | Metal type label with key ring | 100 mm x 30 mm= 3000 $mm^2$ | 52 |
| 3 | Metal type label with key ring | 73 mm x 47 mm = 3431 $mm^2$ | 61 |

The measuring point identification plate must be connected to the ground connection using the accessories supplied. To ensure that this connection is always present, it must be checked at regular intervals

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION
## IEC Certification Scheme for Explosive Atmospheres

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

| | | | |
|---|---|---|---|
| Certificate No.: | IECEx PTB 07.0048X | Issue No: 1 | Certificate history: |
| Status: | Current | | Issue No. 1 (2017-10-13) |
| | | Page 1 of 4 | Issue No. 0 (2007-07-17) |
| Date of Issue: | 2017-10-13 | | |

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
**Germany**

Equipment: **Vibration Level Switches type series VEGAWAVE WE6*(*).CI***Z*****

*Optional accessory:*

Type of Protection: **General Requirements, Intrinsic Safety, Equipment with equipment protection level (EPL) Ga**

Marking:

Ex ia IIC T6 Ga, Ga/Gb, Gb

*Approved for issue on behalf of the IECEx Certification Body:* Dr.-Ing. Frank Lienesch

*Position:* Department Head "Explosion Protection in Sensor Technology and Instrumentation"

*Signature:*
*(for printed version)*

*Date:* 2.11.17

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Certificate issued by:

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

PTB
Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

# IECEx Certificate of Conformity

| | | |
|---|---|---|
| Certificate No: | IECEx PTB 07.0048X | Issue No: 1 |
| Date of Issue: | 2017-10-13 | Page 2 of 4 |

Manufacturer:

**VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
**Germany**

Additional Manufacturing location(s):

**VEGA Americas Inc.**
4241 Allendorf Drive,
Cincinatti
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 electrical apparatus 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 : 2011**<br>Edition:6.0 | Explosive atmospheres - Part 0: General requirements |
| **IEC 60079-11 : 2011**<br>Edition:6.0 | **Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"** |
| **IEC 60079-26 : 2014-10**<br>Edition:3.0 | **Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga** |

*This Certificate **does not** indicate compliance with electrical 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/ExTR07.0044/01

Quality Assessment Report:

DE/TUN/QAR06.0002/07

# IECEx Certificate of Conformity

Certificate No: IECEx PTB 07.0048X Issue No: 1

Date of Issue: 2017-10-13 Page 3 of 4

**Schedule**

**EQUIPMENT:**

*Equipment and systems covered by this certificate are as follows:*

The Vibration Level Switches type series VEGAWAVE WE6*(*).CI***Z*** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.

The Vibration Level Switches type series VEGAWAVE WE6*(*).CI***Z*** are used for control of filling levels in explosion hazardous areas. The measuring media can be combustible liquids, gases, mists or vapors.

The VEGAWAVE WE6*(*).CI***Z*** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.

The sensor of the VEGAWAVE WE61/62/63(*).CI***Z*** is a mechanical vibration fork. The VEGAWAVE WE61/62/63(*).CI***Z*** are 2-wire loop powered sensors with a working frequency of the sensor of about 140Hz. A signal current of 8mA means that the sensor is in vibrating and not covered with product, a signal current of 16mA means that the sensor is covered with product and the vibrating is damped.

For further information see annexe.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

Specific conditions of use see annex.

# IECEx Certificate of Conformity

Certificate No: IECEx PTB 07.0048X Issue No: 1

Date of Issue: 2017-10-13



**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Update to newest standard versions of EN 60079-0, EN 60079-11, EN 60079-26.

The modifications include the internal assembly of the electronic, the connection of external cable, enclosures with special colors and one additional process connection.

Optional protection - coating of the vibrating rod with the material CARBOCER and related extension of the model coding of VEGAWAVE WE6*(*).CI***Z*** with locking screw connections, types ARV-1 resp. ARV-2 resp. ARV-2 PN25 resp. ARV-WE63.2* resp. ARV-VB63.2B* resp. ARV VB63.2*.

**Annex:**

Annex IECEx PTB 07.0048X Issue-1.pdf

Applicant: VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach/Germany

Electrical Apparatus: **Vibration level switches, type series VEGAWAVE WE6*(*).CI***Z*****

Description:
The Vibration Level Switches type series VEGAWAVE WE6*(*).CI***Z*** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.
The Vibration Level Switches type series VEGAWAVE WE6*(*).CI***Z*** are used for control of filling levels in explosion hazardous areas. The measuring media can be combustible liquids, gases, mists or vapors.
The VEGAWAVE WE6*(*).CI***Z*** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.
The sensor of the VEGAWAVE WE61/62/63(*).CI***Z*** is a mechanical vibration fork. The VEGAWAVE WE61/62/63(*).CI***Z*** are 2-wire loop powered sensors with a working frequency of the sensor of about 140Hz. A signal current of 8mA means that the sensor is in vibrating and not covered with product, a signal current of 16mA means that the sensor is covered with product and the vibrating is damped.

Extract from the nomenclature

| **VEGAWAVE WE6*(*).** * = 1, 2, 3 | C* | * | ** | * | * | * | * |
|---|---|---|---|---|---|---|---|
| | ab | c | de | f | g | h | i |

ab: Area of validity

| | | |
|---|---|---|
| CX | = | ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb |
| CK | = | ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb + ATEX II 1D 1/2D 2D Ex ta ta/tb tb IIIC T… Da Da/Db, Db IP66 |
| **CI** | **=** | **IECEx Ex ia IIC T6 Ga Ga/Gb, Gb** |

c: Adapter / Process Temperature / Cable

de: Process Connection / Material

f: Elektronics

Z = 2-wire-loop

g: Enclosure / Protection

h: Cable gland / Plug connection

i: Additional equipment

The complete nomenclature must be observed from the safety instruction documents.

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

EPL Ga-equipment
The level measuring devices are installed in potentially explosive atmospheres requiring EPL Ga-equipment.

EPL Ga/Gb-equipment
The electronic housing is installed in potentially explosive atmospheres requiring EPL Gb-equipment. The process connectors are installed in the partition separating wall requiring EPL Ga- or Gb-equipment. The sensor is installed in the potentially explosive atmosphere for EPL Ga-equipment.

EPL Gb-equipment
The level measuring devices are installed in potentially explosive atmospheres requiring EPL-Gb equipment.

For the relationship between the temperature class, the maximum permissible temperature at the sensor and the maximum permissible ambient temperature for the electronic system, reference is made as follows:

**Table for permissible ambient temperatures and temperature classes EPL Ga-equipment**

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor |
|---|---|---|
| T6 | -20 ... +39 °C | -20 ... +39 °C |
| T5 | -20 ... +51 °C | -20 ... +51 °C |
| T4, T3, T2, T1 | -20 ... +60 °C | -20 ... +60 °C |

For applications requiring EPL Ga-equipment, the media process pressure has to be between 80 kPa and 110 kPa (0,8 bar and 1,1 bar). The permissible ambient temperatures specified are based on the 80% rule in section 6.4.2 of EN 1127-1.
For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer. For further information refer to the safety instruction document.

**Table for permissible ambient temperatures and temperature classes EPL Ga/Gb-equipment**

| Temperature class | Permissible temperature at the electronics | Permissible temperature at the sensor VEGAWAVE WE62*** | Permissible temperature at the sensor VEGAWAVE WE61/63*** | |
|---|---|---|---|---|
| | | | **without** temperature adapter | **with** temperature adapter |
| T6 | - 40°C... + 55°C | - 40°C... + 70°C | - 50°C...+ 85°C | - 60°C...+ 85°C |
| T5 | - 40°C... + 70°C | - 40°C... + 80°C | - 50°C.. + 100°C | - 60°C...+100°C |
| T4 | - 40°C... + 80°C | - 40°C... + 80°C | - 50°C.. + 135°C | - 60°C...+135°C |
| T3 | - 40°C... + 80°C | - 40°C... + 80°C | - 50°C.. + 150°C | - 60°C...+200°C |
| T2,T1 | - 40°C... + 80°C | - 40°C... + 80°C | - 50°C.. + 150°C | - 60°C...+250°C |

For applications requiring EPL Ga/Gb-equipment, the media process pressure of the vibration level switches of type series VEGAWAVE WE62(*).CI***Z*** have to be between 0.8 bar and 1.1 bar. For the type series VEGAWAVE WE62(*).CI***Z*** the specified permissible ambient temperatures are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer. When the vibration level switches of type series VEGAWAVE WE61(*).CI***Z*** and VEGAWAVE WE63(*).CI***Z*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the


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respective values of the table above. In the process it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.
For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

**Table for permissible ambient temperatures and temperature classes EPL Gb-equipment**

| temperature class | permissible temperature for the electronic system | permissible ambient temperature at the sensor of the VEGAWAVE WE62*** | permissible ambient temperature at the sensor of the VEGAWAVE WE61/63*** | |
|---|---|---|---|---|
| | | | **without** temperature adapter | **with** temperature adapter |
| T6 | -40°C ... +55°C | -40°C ... +70°C | -50°C...+ 85°C | -60°C ...+ 85°C |
| T5 | -40°C ... +70°C | -40°C ... +80°C | -50°C...+100°C | -60°C ...+100°C |
| T4 | -40°C ... +80°C | -40°C ... +80°C | -50°C...+135°C | -60°C ...+135°C |
| T3 | -40°C ... +80°C | -40°C ... +80°C | -50°C...+150°C | -60°C ...+200°C |
| T2, T1 | -40°C ... +80°C | -20°C ... +80°C | -50°C...+150°C | -60°C ...+250°C |

When the vibration level switches of type series VEGAWAVE WE61(*).CI***Z*** and VEGAWAVE WE63(*).CI***Z*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the respective values of the table above. In the process, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.
For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Electrical data:

Supply and signal circuit:
(Terminals 1[+], 2[-] in the electronic compartment of the 2-cell enclosure version in the terminal compartment)

In type of protection type Intrinsic Safety Ex ia IIC
For connection to a certified intrinsically safe circuit.
Maximum values:
$U_i$ = 30 V
$I_i$ = 131 mA
$P_i$ = 983 mW

$C_i$ negligibly low or in the version with fixed connected cable type series VEGAWAVE WE6*(*).CI***Z3/5**, $C_{i'Core/Core}$ = 58 pF/m, $C_{i'Core/Screen}$ = 270 pF/m.
$L_i$ negligibly low or in the version with fixed connected cable type series VEGAWAVE WE6*(*).CI***Z3/5**, $L_{i'}$ = 0.55 µH/m.

The intrinsically safe circuits are safely electrically isolated from elements that may be earthed.

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The metal elements of the vibration limit switches VEGAWAVE are electrically connected to the earth terminals.

Special conditions for safe use

1) When used as EPL Ga-equipment, the vibration level switches of type series VEGAWAVE WE6*(*).CI***Z***, which include the material aluminum, shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
2) The vibration level switches with plastic enclosure, with metal enclosure with display window as well as coated sensors, carrying cable or distance pipe include surfaces that can become charged electrostatically (note warning label).
3) When used as or EPL Ga/Gb-equipment, the vibration level switches VEGAWAVE shall be connected to the equipotential bonding conductor (contact resistance $\leq 1M\Omega$) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically.
4) The vibration level switches VEGAWAVE shall be installed in such a way that contact between the measuring sensor and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. This applies, in particular, to cable and distance pipes exceeding the length of 3 m.
5) For applications where equipment of EPL Ga or EPL Ga/Gb is required, all parts of the vibration level switches VEGAWAVE which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.
6) Further examinations showed, that the vibration level switches of type series VEGAWAVE WE61(*).CI***Z*** and VEGAWAVE WE63(*).CI***Z*** may also be used as EPL Ga/Gb-equipment in hazardous areas which deviate from the atmospheric conditions (0.8 bar…1.1 bar and -20°C …+60°C). For permissible operating temperatures and pressures for the operation reference is made to the manufacturer´s specifications. In this process, it shall be considered that the measuring sensors (even in case of fault) do not show any self-heating and that the owner is responsible for the safe operation of the system as regards the pressures / temperatures of the media used.

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