



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 07.0015X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 2 Issue 1 (2017-07-31)
Date of Issue: 2022-05-11 Issue 0 (2007-03-09)
Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany
Equipment: **Vibrating level switch VEGAVIB, type code VB6*(*).C****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
30559 Braunschweig
Germany





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Certificate No.: **IECEX PTB 07.0015X**

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Date of issue: 2022-05-11

Issue No: 2

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

Manufacturing
locations: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

VEGA Americas Inc.
4241 Allendorf Drive, Cincinnati
Ohio 45209
United States of America

**India VEGA India Level and
Pressure Measurement Pvt. Ltd.**
Plot No. 1, Gat No. 181
Village - Phulgaon, Tal. Haveli
Pune 412216
India

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](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-26:2014-10](#) Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

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/ExTR07.0020/02](#)

Quality Assessment Report:

[DE/TUN/QAR06.0002/10](#)



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Date of issue: 2022-05-11

Issue No: 2

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The vibration level switches VEGAVIB, type code VB6*(*)C****N/Z**** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.

The vibration level switches VEGAVIB, type code VB6*(*)C****N/Z**** are used for control of filling levels in explosion hazardous areas. The measuring media are allowed to be combustible liquids, gases, mists or vapours.

The VEGAVIB VB6*(*)C****N/Z**** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.

The sensor of the VEGAVIB VB61/62/63*(*)C****N/Z**** is a mechanical vibration rod.

The VEGAVIB VB6*(*)C****N/Z**** are 2-wire loop powered sensors. The working frequency of the sensor of the VEGAVIB VB61/62/63*(*)C****N/Z**** is about 340Hz. 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 annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Specific conditions of use see annex.



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Date of issue: 2022-05-11

Issue No: 2

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

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

In addition, the certificate PTB 05 ATEX 2077 X issue 1 are integrated in the certificate PTB 04 ATEX 2035 X issue 2, IECEX PTB 07.0015 X issue 2.

This invalidates the PTB 05 ATEX 2077 X issue 1 certificate.

Modification of the temperature tables.

Annex:

[Annex to IECEX PTB 07.0015X_issue2_1.pdf](#)



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

Electrical Apparatus: Vibrating level switch VEGAVIB, type code VB6*(*)C1***N/Z***

Description of equipment

The vibration level switches VEGAVIB, type code VB6*(*)C****N/Z**** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod. The vibration level switches VEGAVIB, type code VB6*(*)C****N/Z**** are used for control of filling levels in explosion hazardous areas. The measuring media are allowed to be combustible liquids, gases, mists or vapours. The VEGAVIB VB6*(*)C1***N/Z*** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor. The sensor of the VEGAVIB VB61/62/63*(*)C1***N/Z*** is a mechanical vibration rod. The VEGAVIB VB6*(*)C1***N/Z*** are 2-wire loop powered sensors. The working frequency of the sensor of the VEGAVIB VB61/62/63*(*)C1***N/Z*** is about 340Hz. 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 type key

VEGAVIB VB6*(*). $\frac{C^*}{ab}$ $\frac{*}{c}$ $\frac{**}{de}$ $\frac{*}{f}$ $\frac{*}{g}$ $\frac{*}{h}$ $\frac{*}{i}$
* = 1, 2, 3,

- 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
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.



EPL Ga-equipment

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

EPL Ga/Gb-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.

EPL Gb-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.

EPL Ga-equipment

2- wire signal / NAMUR-signal

temperature class	permissible temperature for the electronic system	permissible ambient temperature at the sensor
T6, T5, 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.

EPL Ga/Gb-equipment

2- wire signal

tempera- ture class	permissible tempera- ture for the electronic system	permissible ambient temperature at the sensor of the VEGAVIB VB62***	permissible ambient temperature at the sensor of the VEGAVIB VB61/63*** without 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 tempera- ture for the electronic system	permissible ambient temperature at the sensor of the VEGAVIB VB62***	permissible ambient temperature at the sensor of the VEGAVIB VB61/63*** without 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 VEGAVIB, type code VB62(*).C****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 VEGAVIB, type code VB61(*).C****N/Z **** and VEGAVIB VB63(*).C****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.

EPL Gb-equipment

2- wire signal

tempera- ture class	permissible tempera- ture for the electronic system	permissible ambient temperature at the sensor of the VEGAVIB VB62***	permissible ambient temperature at the sensor of the VEGAVIB VB61/63*** without 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



NAMUR-signal

tempera- ture class	permissible tempera- ture for the electronic system	permissible ambient temperature at the sensor of the VEGAVIB VB62***	permissible ambient temperature at the sensor of the VEGAVIB VB61/63*** without with temperature adapter	
T6	-40°C ... +61°C	-40°C ... +70°C	-50°C...+ 85°C	-60°C ...+ 85°C
T5	-40°C ... +76°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 VEGAVIB, type code VB6*(*)C****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.

2- wire signal

Electrical data

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:

$U_i = 30 \text{ V}$

$I_i = 131 \text{ mA}$

$P_i = 983 \text{ mW}$

C_i negligibly low or in the version with fixed con-
nected cable, VEGAVIB, type code
VB6*(*)CX***Z3/5**, $C_{i\text{core/core}} = 58 \text{ pF/m}$,

$C_{i\text{core/screen}} = 270 \text{ pF/m}$,

L_i negligibly low or in the version with fixed con-
nected cable, VEGAVIB, type code
VB6*(*)CX***Z3/5**, $L_i' = 0.55 \text{ }\mu\text{H/m}$



NAMUR-signal

Electrical data

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:

$$U_i = 20 \text{ V}$$

$$I_i = 103 \text{ mA}$$

$$P_i = 516 \text{ mW}$$

C_i : negligibly low or in the version with fixed connected cable, VEGAVIB, type code

$$VB6^{(*)}.CX^{***}Z3/5^{**}, C_{i\text{core/core}} = 58 \text{ pF/m,}$$

$$C_{i\text{core/screen}} = 270 \text{ pF/m,}$$

$L_i \leq 5 \mu\text{H}$ or in the version with fixed connected cable, VEGAVIB, type code

$$VB6^{(*)}.CX^{***}Z3/5^{**}, L_{i\text{core/core}} = 0.55 \mu\text{H/m}$$

The intrinsically safe circuits are safely electrically isolated from elements that may be earthed. The metallic parts of VEGAVIB 61, 62, 63 are electrically connected to the earth terminals. In applications requiring category Ga or Ga/Gb equipment, the intrinsically safe supply and signal circuit must correspond to protection level ia. In applications requiring category Ga or Ga/Gb equipment, VEGAVIB 61, 62, 63 should preferably be connected to the corresponding equipment with galvanically separated, intrinsically safe circuits. For applications requiring category Gb equipment, the intrinsically safe supply and signal circuit may correspond to protection level ia or ib. When connecting to a circuit with protection level ib, the ignition protection code is Ex ib IIC T6.

Special conditions for safe use

1. When used as a EPL Ga-equipment, the vibration level switches VEGAVIB, type code $VB6^{(*)}.C^{****}N/Z^{****}$, 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 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 category-1 or EPL Ga/Gb-equipment, the vibration level switches VEGAVIB shall be connected to the equipotential bonding conductor (contact resistance $\leq 1\text{M}\Omega$) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically.
4. The vibration level switches VEGAVIB 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, cable and distance pipe lengths exceeding the length of 3 m.



- For applications where equipment of EPL Ga or EPL Ga/Gb is required, all parts of the vibration level switches VEGAVIB which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.
- Further examinations showed, that the vibration level switches VEGAVIB, type code VB61(*).C****N/Z**** and VB63(*).C****N/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.
- 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 07.0015X

Issue No: 1

Certificate history:

Issue No. 1 (2017-07-31)

Issue No. 0 (2007-03-09)

Status: **Current**

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Date of Issue: **2017-07-31**

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

Equipment: **Vibration Level Switch type series VEGAVIB VB6*(*)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:

15.8.17

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Certificate issued by:

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





IECEX Certificate of Conformity

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

Additional Manufacturing location(s):

VEGA Americas Inc.
4241 Allendorf Drive, Cincinnati
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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
IEC 60079-26 : 2014-10 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/EXTR07.0020/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0002/07](#)



IECEx Certificate of Conformity

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Vibration Level Switch type series VEGAVIB VB6*(*)..CI***Z**** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.

The Vibration Level Switch type series VEGAVIB VB6*(*)..CI***Z**** are used for control of filling levels in explosion hazardous areas. The measuring media are allowed to be combustible liquids, gases, mists or vapours.

The VEGAVIB VB6*(*)..CI***Z**** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.

The sensor of the VEGAVIB VB61/62/63*(*)..CI***Z**** is a mechanical vibration rod and the sensor of the VEGAVIB VB65/66/67*(*)..CI***Z**** is a mechanical vibration fork.

The VEGAVIB VB6*(*)..CI***Z**** are 2-wire loop powered sensors. The working frequency of the sensor of the VEGAVIB VB61/62/63*(*)..CI***Z**** is about 340Hz. The working frequency of the sensor of the VEGAVIB VB65/66/67*(*)..CI***Z**** is 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 annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Specific conditions of use see annex.



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DETAILS OF CERTIFICATE CHANGES (for Issues 1 and above):

Update to newest standard versions of IEC 60079-0, IEC 60079-11 and IEC 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 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*.

Optional protection - coating of the vibrating rod with the material CARBOCER and related extension of the model coding of VEGAVIB VB6*(*)CI***Z***.

Annex:

[Annex to IECEx PTB 070015X-1.pdf](#)

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

Electrical Apparatus: **Vibration level switch,
type series VEGAVIB VB6*(*).CI***Z*****

Description:

The Vibration Level Switch type series VEGAVIB VB6*(*).CI***Z*** are level measure instruments and based on a mechanical vibration sensor, a vibration fork or a vibration rod.

The Vibration Level Switch type series VEGAVIB VB6*(*).CI***Z*** are used for control of filling levels in explosion hazardous areas. The measuring media are allowed to be combustible liquids, gases, mists or vapors.

The VEGAVIB VB6*(*).CI***Z*** consist of an electronic enclosure with the corresponding evaluation electronic, the process connector and the sensor.

The sensor of the VEGAVIB VB61/62/63(*).CI***Z*** is a mechanical vibration rod and the sensor of the VEGAVIB VB65/66/67(*).CI***Z*** is a mechanical vibration fork.

The VEGAVIB VB6*(*).CI***Z*** are 2-wire loop powered sensors. The working frequency of the sensor of the VEGAVIB VB61/62/63(*).CI***Z*** is about 340Hz. The working frequency of the sensor of the VEGAVIB VB65/66/67(*).CI***Z*** is 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

VEGAVIB VB6*(*).

* = 1, 2, 3, 5, 6, 7

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: Electronics
 - 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 document.

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 VEGAVIB VB62/66***	Permissible temperature at the sensor VEGAVIB VB61/63/65/67***	
			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-equipment, the media process pressure of the vibration level switches of type series VEGAVIB VB62/66(*).C1***Z**** has to be between 0.8 bar and 1.1 bar. For the type series VEGAVIB VB62/66(*).C1***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 VEGAVIB VB61/65(*).C1***Z**** and VEGAVIB VB63/67(*).C1***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. For further information refer to the safety instruction document.

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

Temperature class	Permissible temperature at the electronics	Permissible temperature at the sensor VEGAVIB VB62/66***	Permissible temperature at the sensor VEGAVIB VB61/63/65/67***	
			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

When the vibration level switches of type series VEGAVIB VB6*(*)..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. For further information refer to the safety instruction document.

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:

$U_i = 30\text{ V}$
 $I_i = 131\text{ mA}$
 $P_i = 983\text{ mW}$

C_i negligibly low or in the version with fixed connected cable VEGAVIB type series VB6*(*)..CI***Z3/5**,
 $C_{i\text{wire/wire}} = 58\text{ pF/m}$, $C_{i\text{wire/Screen}} = 270\text{ pF/m}$.
 L_i negligibly low or in the version with fixed connected cable VEGAVIB type series VB6*(*)..CI***Z3/5**,
 $L_r = 0.55\text{ }\mu\text{H/m}$.

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

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

Special conditions for safe use

- 1) When used as a category-1 equipment, the vibration level switches of type series VEGAVIB VB6*(*).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 EPL Ga- or EPL -Ga/Gb equipment, the vibration level switches VEGAVIB shall be connected to the equipotential bonding conductor (contact resistance $\leq 1\text{M}\Omega$) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically.
- 4) The vibration level switches VEGAVIB 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, cable and distance pipe lengths 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 VEGAVIB 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 VEGAVIB VB61/65(*).CI***Z*** and VEGAVIB VB63/67(*).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 ... $+60^{\circ}\text{C}$). 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.

