





EU-TYPE EXAMINATION CERTIFICATE

(Translation)

- (2)Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - Directive 2014/34/EU
- (3)EU-Type Examination Certificate Number:

PTB 00 ATEX 2216 X

Issue: 2

(4) Product:

(1)

Vibration level switches VEGASWING, type code SWING

61/63(*).C*****N/W/Z**

(5)Manufacturer: VEGA Grieshaber KG

(6) Address: Am Hohenstein 113, 77761 Schiltach, Germany

- (7)This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 21-21079.

(9)Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018+AC:2020, EN 60079-11:2012, IEC 60079-26:2021

- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

II 1G Ex ia IIC T6...T1 Ga

or or

II 1/2G Ex ia IIC T6...T1 Ga/Gb

II 2G Ex ia IIC T6...T1 Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz On behalf of PTB:

Braunschweig, October 27, 2021

Regierungsdirektor



sheet 1/9







(13)

SCHEDULE

(14) EU-Type Examination Certificate Number PTB 00 ATEX 2216 X, Issue: 2

(15) Description of Product

The vibration level switches VEGASWING, type code SWING 61/63(*).C******N/W/Z**, are used for level monitoring or control in potentially explosive atmospheres. They consist of an electronics housing, the process connection element and the sensor. Locking screw connections, type series ARV-SG63.2/3**, may alternatively be used as fixing elements.

Extract from the type key

VEGASWING 61/63(*).	C*	***	*	*	*	*	*
<u></u>	ab	cde	f	g	h	ī	j

ab: area of validity

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6

CA = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + WHG

CM = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + Schiffzulassung CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + II 1/2D, 2D Ex tD

CK = ATEX II 1G. 1/2G. 2G Ex ia IIC T6 + II 1/2D. 2D Ex tD + WHG1

cde: process connection / material

f: adapter / process temperature

g: enclosure / protection / cable gland

h: electronics

Z = Two-wire (8/16 mA) 12...36V DC

N = NAMUR-Signal

W = NAMUR-Signal (250ms)

i: switch point

j: measuring location label

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

sheet 2/9

¹ The evaluation for the use with explosive dust, WHG or ship is not subject of this certificate



Electronic Z:

The vibration level switches VEGASWING type 61/63(*). C*****Z** are level measure instruments.

They are 2-wire loop powered sensors.

The vibration level switches VEGASWING type 61/63(*). C******Z** consists of a metal or plastic enclosure with the corresponding evaluating electronics SWING E 60ZEX, the process connector and a vibration fork with a measuring sensor.

Electronic N:

The vibration level switches type series VEGASWING 61/63(*). C******N/W** are level measure instruments.

They are 2-wire loop powered sensors.

The vibration level switches type series VEGASWING 61/63(*).C******N/W** consists of a metal or plastic enclosure with the corresponding evaluating electronics SWING E 60NEX, the process connector and a vibration fork with a measuring sensor. The evaluating electronics SWING E 60NEX is performed in the versions N (normal response time) and W (shorter response time).

Operating as Category-1 apparatus

The vibration level switches are installed in potentially explosive atmospheres for category-1 apparatus.

Operating as Category-1/2 apparatus

The electronics enclosure is installed in potentially explosive atmospheres requiring category 2 apparatus. The process connectors are installed in the partition separating areas requiring category-2 or category-1 apparatus. The measuring sensor is installed in potentially explosive areas requiring category-1 apparatus.

Operating as Category-2 apparatus

The vibration switches are installed in potentially explosive atmospheres for category-2 apparatus.

For the relationship between the temperature class and the maximum permissible temperature at the measuring sensor as well as the maximum permissible ambient temperature for the electronics, reference is made to the tables below.

sheet 3/9



Electronic N/W/Z:

Category-1 equipment

Temperature class	Temperature at the measuring	Ambient temperature for the
	sensor	electronics
Т6	-20 +60 °C	-20 +60 °C
T5	-20 +60 °C	-20 +60 °C
T4, T3, T2, T1	-20 +60 °C	-20 +60 °C

Using the vibration level switches VEGASWING, type code SWING type 61/63(*).C******N/W/Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0.8 bar) ... 110 kPa (1.1 bar).

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

Electronic Z:

Category-1/2 equipment

Temperature class	Temperature at the measuring	Ambient temperature for the
	sensor	electronics
T6	-20 +85 °C	-40 +60 °C
T5	-20 +100 °C	-40 +75 °C
T4	-20 +135 °C	-40 +90 °C
**T3	-20 +200 °C	-40 +90 °C
**T2, T1	-20 +250 °C	-40 +90 °C

^{**} as from 150 °C with temperature adapter

Electronic N/W:

Category-1/2 equipment

Temperature at the measuring	Ambient temperature for the
sensor	electronics
-20 +85 °C	-40 +67 °C
-20 +100 °C	-40 +82 °C
-20 +135 °C	-40 +90 °C
-20 +200 °C	-40 +90 °C
-20 +250 °C	-40 +90 °C
	sensor -20 +85 °C -20 +100 °C -20 +135 °C -20 +200 °C

^{**} as from 150 °C with temperature adapter

Using the vibration level switches VEGASWING, type series VEGASWING type code 61/63(*).C******N/W/Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

sheet 4/9



When the sensor elements of the vibration level switches VEGASWING, type code SWING 61/63(*).C******N/W/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 plant owner 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 is made to the specifications provided by the manufacturer.

Electronic Z:

Category-2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-40 + 85 °C	-40 +60 °C
T5	-40 +100 °C	-40 +75 °C
T4	-40 +135 °C	-40 +90 °C
**T3	-50 +200 °C	-40 +90 °C
**T2, T1	-50 +250 °C	-40 +90 °C

^{**} Temperature adapter as from measuring sensor temperatures ≥ 150 °C and/or ≤ -40 °C

Electronic N/W:

Category-2 equipment

Temperature class	Temperature at the measuring	Ambient temperature for the
	sensor	electronics
T6	-40 + 85 °C	-40 +67 °C
T5	-40 +100 °C	-40 +82 °C
T4	-40 +135 °C	-40 +90 °C
**T3	-50 +200 °C	-40 +90 °C
**T2, T1	-50 +250 °C	-40 +90 °C

^{**} Temperature adapter as from measuring sensor temperatures ≥ 150 °C and/or ≤ -40 °C

When the sensor elements of the vibration level switches VEGASWING, type code SWING type 61/63(*).C******N/W/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.

sheet 5/9



When using the vibration level switches VEGASWING, type code SWING 63(*).C*****N/W/Z** with locking screw connections types ARV-SG63.2/3** during operation the conditions of use as well as the permissible temperatures and pressures specified by manufacturer can be found in the manufacturer's instructions.

Electronic Z:

Electrical data

Supply and signal circuit (terminals 1[+] & 2[-])

type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit

Maximum values:

 $U_i = 29 \text{ V}$ $U_i = 24 \text{ V}$ $I_i = 116 \text{ mA}$ or $I_i = 131 \text{ mA}$ $P_i = 841 \text{ mW}$ $P_i = 786 \text{ mW}$

L_i = negligibly low

For the version with fixed cable additionally L_i = 0,55

μH/m is to be considered.

C_i = negligibly low

For the version with fixed cable additionally Ci core/core =

58pF/m and Ci^{core/screen} = 270pF/m is to be

considered.

Electronic N/W:

Electrical data

Supply and signal circuit (terminals 1[+] & 2[-])

type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit.

Maximum values:

 $U_i = 20 \text{ V}$ $I_i = 103 \text{ mA}$ $P_i = 516 \text{ mW}$

L_i = negligibly low

For the version with fixed cable additionally L_i ' = 0,55 μ H/m is to be considered.

21 1/11 13 10 DC 0011314

 $C_i = 2.2 \text{ nF}$

For the version with fixed cable additionally C_i core/core =

58pF/m and C_i core/screen = 270pF/m is to be

considered

Changes to the previous edition

The changes concern the application of the mentioned standards und modification of the type key.

sheet 6/9



In addition, the certificate PTB 00 ATEX 2217 X issue 1 is integrated in the certificate PTB 00ATEX 2216 X issue 2.

The PTB 00 ATEX 2217 X issue 1 will then become invalid.

In addition, the changes concern a new glass feedthrough, the high temperature drive and an adaptation of the temperature tables.

(16) Test Report PTB Ex 21-21079

(17) Specific conditions of use

- 1. Some of the surfaces of the type code SWING 63(*).C******N/W/Z** with locking screw connections, types ARV-SG63.2/3**, with plastic enclosure or metal enclosure with plastic parts and/or plastic-coated or enamelled measuring sensors can be charged electrostatically. A warning label shall point to this danger.
- 2. When used as category-1 equipment, the vibration switches that include aliminium shall be installed in such a way that sparking as a result of impact or friction between aluminium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) will positively be excluded.
- 3. When used as category-1 or category-1/2 equipment, the vibration switches shall be electrostatically (contact resistance $\leq 1 M \Omega$) connected to the equipotential bonding conductor (e.g. using the ground terminal).
- 4. Additional tests have shown that the vibration switches type code SWING 61/63(*).C******Z** with locking screw connections, types ARV-SG63.2/3**, may also be operated under the following conditions:

Category-1/2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T4, T3, T2, T1	-20 +60 °C	-40 +90 °C

For applications requiring category-1/2 equipment, the process pressure of the media has to range from 0 to 600 kPa (6 bar). Should the above mentioned conditions not be met at the measuring sensor, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the plant owner is responsible for the safe operation of the plant regarding the pressures/temperatures of the materials used.

sheet 7/9





5. The capacitance measurements at the measuring point identification signs resulted in the following values:

Pos.	Description	Dimension and area	capacitance in pF
1	Metal type label with key ring	45 mm x 23 mm= 1035 mm2	21
2	Metal type label with key ring	100 mm x 30 mm= 3000 mm2	52
3	Metal type label with key ring	73 mm x 47 mm = 3431 mm2	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.

sheet 8/9



(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz On behalf of PTB: Braunschweig, October 27, 2021

Dr.-Ing. M. Thedens Regierungsdirektor

sheet 9/9







(1) EU-TYPE-EXAMINATION CERTIFICATE

(Translation)

- (2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - Directive 2014/34/EU
- (3) EU-Type Examination Certificate Number:

PTB 00 ATEX 2216 X

Issue: 01

(4) Product:

Vibration limit switches, type series VEGASWING 61/63(*). C*****Z**

(5) Manufacturer:

VEGA Grieshaber KG

(6) Address:

Am Hohenstein 113, 77761 Schiltach, Germany

- (7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 17-25248.

- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0:2012+A11:2013, EN 60079-11:2012, EN 60079-26:2015
- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

🖾 II 1 G, 1/2G, 2G Ex ia IIC T6...T1 Ga Ga/Gb, Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, May 4, 2017

On behalf of PTB:

Dr.-Ing. F. Lienesch Regierungsdirektor

sheet 1/6





(13)

SCHEDULE

(14) EU-Type Examination Certificate Number PTB 00 ATEX 2216 X, Issue: 01

(15) Description of Product

The vibration limit switches, type series VEGASWING 61/63(*).C*****Z**, are used for level monitoring or control in potentially explosive atmospheres. They consist of an electronics housing, the process connection element and the sensor. Locking screw connections, type series ARV-SG63.2** resp. ARV-SG63.3** may alternatively be used as fixing elements.

Extract from the type key

VEGASWING 61/63(*).	C*	***	*	*	*	*	*
TECHOTIMO OTTOOL 1.	$\underline{\circ}$		-	-	-	_	_
	ab	cde	f	a	h	i	i

ab: area of validity

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6

CA = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + WHG

CM = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + Schiffzulassung

CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + II 1/2D, 2D Ex tD

CI = IECEx Ex ia IIC T6

cde:process connection / material

f: adapter / process temperature

g: enclosure / protection / cable gland

h: electronics

Z = Zweileiter (8/16 mA) 12...36V DC

N = NAMUR-Signal

W = NAMUR-Signal (250ms)

i: switch point

j: measuring location label

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

Operating as Category-1 apparatus

The vibration limit switches are installed in potentially explosive atmospheres for category-1 apparatus.

sheet 2/6



Operating as Category-1/2 apparatus

The electronics enclosure is installed in potentially explosive atmospheres requiring category 2 apparatus. The process connectors are installed in the partition separating areas requiring category-2 or category-1 apparatus. The measuring sensor is installed in potentially explosive areas requiring category-1 apparatus.

Operating as Category-2 apparatus

The vibration switches are installed in potentially explosive atmospheres for category-2 apparatus.

For the relationship between the temperature class and the maximum permissible temperature at the measuring sensor as well as the maximum permissible ambient temperature for the electronics, reference is made to the tables below.

Category-1 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-20 +45 °C	-20 +45 °C
T5	-20 +56 °C	-20 +56 °C
T4, T3, T2, T1	-20 +60 °C	-20 +60 °C

Using the vibration limit switches, type series VEGASWING type 61/63.C*****Z** resp. even at usage of type series VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0.8 bar) ... 110 kPa (1.1 bar).

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

Category-1/2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-20 +85 °C	-40 +60 °C
T5	-20 +100 °C	-40 +75 °C
T4	-20 +135 °C	-40 +90 °C
**T3	-20 +200 °C	-40 +90 °C
**T2, T1	-20 +250 °C	-40 +90 °C

^{**} as from 150 °C with temperature adapter

sheet 3/6



Using the vibration limit switches, type series VEGASWING type 61/63.C*****Z** resp. even at usage of type series VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

When the sensor elements of the vibration switch VEGASWING 61/63.C*****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 plant owner 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 is made to the specifications provided by the manufacturer.

Category-2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-40 +85 °C	-40 +60 °C
T5	-40 +100 °C	-40 +75 °C
T4	-40 +135 °C	-40 +90 °C
**T3	-50 +200 °C	-40 +90 °C
**T2, T1	-50 +250 °C	-40 +90 °C

^{**} Temperature adapter as from measuring sensor temperatures ≥ 150 °C and/or ≤ -40 °C

When the sensor elements of the vibration switch VEGASWING 61/63.C*****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.

When using the vibration switches VEGASWING 63.C*****Z** with locking screw connections types ARV-SG63.2/3** during operation the conditions of use as well as the permissible temperatures and pressures specified by manufacturer can be found in the manufacturer's instructions.



Electrical data

Supply and signal circuit (terminals 1[+] & 2[-])

type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit.

Maximum values:

 L_i negligibly low For the version with fixed cable additionally L_i ' = 55 μ H/m is to be considered. C_i negligibly low For the version with fixed cable additionally C_i ' core/core = 58pF/m and C_i ' core/screen = 270pF/m is to be considered.

Modifications to the EC-Type-Examination Certificate:

The changes concern the application of the mentioned standards, changing the mechanical construction as well as modification of the type code.

(16) <u>Test Report</u> PTB Ex17-25248

(17) Specific conditions of use

- Some of the surfaces of the VEGASWING 61/63.C******Z** resp. VEGASWING 63.C******Z**
 with locking screw connections, types ARV-SG63.2/3**, with plastic enclosure or metal
 enclosure with plastic parts and/or plastic-coated or enamelled measuring sensors can be
 charged electrostatically. A warning label shall point to this danger.
- When used as category-1 equipment, the vibration switches that include aluminium shall be installed in such a way that sparking as a result of impact or friction between aluminium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) will positively be excluded.
- 3. When used as category-1 or category-1/2 equipment, the vibration switches shall be electrostatically (contact resistance $\leq 1 \text{M}\Omega$) connected to the equipotential bonding conductor (e.g. using the ground terminal).

sheet 5/6



4. Additional tests have shown that the vibration switches type series VEGASWING 61/63.C******Z** or VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, may also be operated under the following conditions:

Category-1/2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T4, T3, T2, T1	-20 +60 °C	-40 +90 °C

For applications requiring category-1/2 equipment, the process pressure of the media has to range from 0 to 600 kPa (6 bar). Should the above mentioned conditions not be met at the measuring sensor, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the plant owner is responsible for the safe operation of the plant regarding the pressures/temperatures of the materials used.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz On behalf of PTB:

Braunschweig, May 4, 2017

Dr.-Ing. F. Lienesch Regierungsdirektor