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E-mail: [admin-mgr@explolabs.co.za](mailto:admin-mgr@explolabs.co.za)**GOVERNMENT APPROVED TEST LABORATORY**

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

**IA CERTIFICATE**

Date Issued:

**18 Jul 2024**

\*Expiry date:

**18 Jul 2027****Page 1 of 5****Issue: 5****Ex – Type Examination Certificate**

Certificate Number:

**S-XPL/14.0788 X**

Equipment:

**Vibration Level Switch VEGASWING**

Model / Type:

**SG66(\*) \*C\*\*\*\*Z/L\*\*\***

Applicant:

**VEGA Grieshaber KG****Am Hohenstein 113****7761 Schiltach****Germany**

Manufacturer:

**VEGA Grieshaber KG**

Serial No:

All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by

**VEGA Grieshaber KG**

Identified by Inspection Authority Number

**S-XPL/14.0788 X**

And as described in the Expolabs file number **XPL/15139/14.0788** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of the South African National Standards.

**SANS 60079-0: 2019 Ed 6****IEC 60079-0: 2017 Ed 7**

Explosive atmospheres Part 0: Equipment — General requirements

**SANS 60079-11: 2012 Ed 4****IEC 60079-11: 2011 Ed 6**

Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

**SANS 60079-26: 2022 Ed 4****IEC 60079-26: 2021 Ed 4**

Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Very high	Ga Group II	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 0, 1 and 2	T6 (85°C) up to T1 (450°C)
High	Gb Group II	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T6 (85°C) up to T1 (450°C)

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 4.

DOCUMENT No: XPL0213 RELEASE DATE: 30/01/2024 REV: 8

This document is an Expolabs Controlled Document – Responsibility falls on personnel to ensure correct revision is applied as noted in the electronic system.



1.

**GENERAL**

The marking of the Vibration Level Switch VEGASWING shall include the following:

**Ex ia IIC T6...T1 Ga**

**Ex ia IIC T6...T1 Ga/Gb**

**Ex ia IIC T6...T1 Gb**

The vibration level switches of type series VEGASWING SG66(\*)..\*C\*\*\*\*Z/L\*\*\* are used for level measurement in potentially explosive atmospheres requiring EPL-Ga or EPL-Ga/Gb or EPL-Gb equipment. They consist of an electronics housing with the corresponding analyzing electronic system, the process connectors and the sensor.

The vibration level switches of type series VEGASWING SG66(\*)..\*C\*\*\*\*Z/L\*\*\* are used for level measurement in potentially explosive atmospheres requiring Zone 0 or Zone 0/1 or Zone 1 equipment.

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

Extract from the type key

SG66(\*).. \* \* \* \* \* Z/L \*\*\*  
a b c d e f g h i j

a: Area of validity

A = ATEX

I = IECEx

\* = weitere Geltungsbereiche / further areas of application

b: Approval variant

C = ATEX 1G, 1/2G, 2G Ex ia IIC T6

C = IECEx Ex ia IIC T6

\* = Weitere Kombinationen von Ex i mit einem weiteren unabhängigen

Zertifikat / further combinations of Ex i with another independent certificate

g: Electronics

Z = two wire 8/16 mA 9,6...35 VDC

L = two wire 8/16 mA 9,6...35 VDC SIL

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

Zone 0 equipment

The vibration limit switches are installed in potentially explosive atmospheres requiring Zone 0 equipment.

Zone 0/1 equipment

The electronics housing is installed in potentially explosive atmospheres requiring Zone 1 equipment. The process connectors are installed in the partition separating areas requiring Zone 0 or Zone 1 equipment. The sensor is installed in potentially explosive atmospheres for Zone 0 equipment.

Zone 1 equipment

The vibration limit switches are installed in potentially explosive atmospheres requiring Zone 1 equipment.

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

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 4.

DOCUMENT No: XPL0213	RELEASE DATE: 30/01/2024	REV: 8
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Zone 0 equipment

temperature class	permissible ambient temperature for the electronic system	permissible temperature at the sensor
T6	-20 ... +48 °C	-20 ... +48 °C
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 80 kPa (0,8 bar) ... 110 kPa (1,1 bar). For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Zone 0/1 equipment

temperature class	permissible ambient temperature for the electronic system	permissible temperature at the sensor
T6	-50°C ... +48°C	-20°C ... +60°C
T5	-50°C ... +63°C	-20°C ... +60°C
T4, T3, T2, T1	-50°C ... +70°C	-20°C ... +60°C

For applications requiring category-1 equipment, the media process pressure has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

If the vibration level switches of type series VEGASWING SG66(\*).C\*\*\*\*Z/L\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

Zone 1 equipment

temperature class	permissible ambient temperature for the electronic system**	permissible temperature at the sensor**
T6	-50°C ... + 48°C	-196°C ... + 85°C
T5	-50°C ... + 63°C	-196°C ... + 100°C
T4	-50°C ... + 70°C	-196°C ... + 135°C
T3	-50°C ... + 70°C	-196°C ... + 200°C
T2	-50°C ... + 70°C	-196°C ... + 300°C
T1	-50°C ... + 70°C	-196°C ... + 450°C

\*\*The temperature derating for the process temperatures from -196°C to -40°C and +290°C to +450°C must be observed in accordance with the instruction in the safety instructions.

If the vibration level switches of type series VEGASWING SG66(\*).C\*\*\*\*Z/L\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

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DOCUMENT No: XPL0213	RELEASE DATE: 30/01/2024	REV: 8
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Electrical data

Supply and signal circuit  
(terminals 1 [+], 2 [-] in the  
electronic compartment)

Type of protection Intrinsic Safety Ex ia IIC  
For connection to a certified intrinsically  
safe circuit.

Maximum values:

Ui = 30 V

Ii = 131 mA

Pi = 983 mW

Li negligibly low

Ci negligibly low

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

The metal elements of the vibration level switches of type series VEGASWING SG66(\*).C\*\*\*\*Z/L\*\*\* are electrically connected to the earth terminals.

Based on the following documentation: IECEx PTB 13.0005X Issue No.: 3 and/or PTB 13 ATEX 2006 X

## 2. INSTALLATION INSTRUCTIONS

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

## 3. SPECIAL CONDITIONS FOR SAFE USE *(denoted by "X" after certificate number)*

1. When used as a Zone 0 equipment, the vibration level switches of type series VEGASWING SG66(\*).C\*\*\*\*Z/L\*\*\*, which include the material 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) is excluded.

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

3. When used as Zone 0 or Zone 0/1 equipment, the vibration level switches 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 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 distance pipes exceeding the length of 3 m.

5. For applications where equipment of Zone 0 or Zone 0/1 is required, all parts of the vibration level switches which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

6. 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 <sup>2</sup>	21
2	Metal type label with key ring	100 mm x 30 mm = 3000 mm <sup>2</sup>	52
3	Metal type label with key ring	73 mm x 47 mm = 3431 mm <sup>2</sup>	61

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 4.

DOCUMENT No: XPL0213	RELEASE DATE: 30/01/2024	REV: 8
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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

#### 4. CONDITIONS OF CERTIFICATION

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

#### 5. MARKING

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : VEGA Grieshaber KG  
Manufacturer : VEGA Grieshaber KG  
Equipment : Vibration Level Switch VEGASWING  
Model/Type : SG66(\*) \*C\*\*\*\*Z/L\*\*\*  
Serial No. : ---  
Ex Rating : Ex ia IIC T6...T1 Ga  
Ex ia IIC T6...T1 Ga/Gb  
Ex ia IIC T6...T1 Gb  
IA Certificate No : S-XPL/14.0788 X

*This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:*

- i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
  - ii) Any conditions mentioned in the above report;
  - iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
  - iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- A revision/certificate replaces all previous version of the certificate.
- \* - Only covers equipment Imported between the "Issued" and "Expire" dates.
- If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

**Compiled and Reviewed by:**

**JL Venter**

**Technical Specialist**

#### **EXPLOLABS EXPLOSION PREVENTION SERVICES**

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This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 4.

DOCUMENT No: XPL0213	RELEASE DATE: 30/01/2024	REV: 8
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**GOVERNMENT APPROVED TEST LABORATORY**  
IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

**IA CERTIFICATE**

Date Issued: **13 Sep 2021**  
\*Expiry date: **13 Sep 2024**  
**Page 1 of 5**  
**Issue: 4**

**Ex – Type Examination Certificate**

Certificate Number: **S-XPL/14.0788 X**  
Equipment: **Vibration Level Switch VEGASWING**  
Model / Type: **SG66(\*)IC\*\*\*Z/L\*\*\* and/or SG66(\*)AC\*\*\*Z/L\*\*\***  
Applicant: **Vega Instruments SA (Pty) Ltd**  
**PO Box 692**  
**Wilgeheuwels**  
**1736**  
Manufacturer: **VEGA Grieshaber KG**  
Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by  
**Vega Instruments SA (Pty) Ltd**  
Identified by Inspection Authority number  
**S-XPL/14.0788 X**

And as described in the Explolabs file number **XPL/15139/14.0788 Issue 4** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

**SANS 60079-0: 2012 Ed 5** Explosive atmospheres Part 0: Equipment — General requirements  
**IEC 60079-0: 2011 Ed 6**  
**SANS 60079-11: 2012 Ed 4** Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"  
**IEC 60079-11: 2011 Ed 6**  
**IEC/SANS 60079-26: 2014** Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL) Group	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
Very high	Ga Group II	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 0, 1 and 2	T6 (85°C) ... T1 (450°C)
High	Gb Group II	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T6 (85°C) ... T1 (450°C)

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 3.  
DOCUMENT No: XPL0213 RELEASE DATE: 29/05/2018 REV: 7



## 1. GENERAL

The marking of the Vibration Level Switch VEGASWING shall include the following:

**Ex ia IIC T6...T1 Ga, Ga/Gb, Gb**

**Description of equipment**

The vibration level switches of type series VEGASWING SG66(\*).IC\*\*\*\*Z/L\*\*\* and/or SG66(\*).AC\*\*\*\*Z/L\*\*\* are used for level measurement in potentially explosive atmospheres requiring EPL-Ga or EPL-Ga/Gb or EPL-Gb equipment.

They consist of an electronics housing with the corresponding analysing electronic system, the process connectors and the sensor.

**Extract from the type key**

**SG66(\*)**    \*    \*    \*    \*    \*    \*    Z/L    \*\*\*  
              a    b    c    d    e    f    g        hij

- a: Area of validity  
     A        = ATEX  
     I        = IECEX  
     \*        = further areas of application
- b: Approval variant  
     C        = ATEX 1G, 1/2G, 2G Ex ia IIC T6  
     C        = IECEX Ex ia IIC T6  
     \*        = further combinations of Ex i with another independent certificate
- g: Electronics  
     Z        = two wire 8/16 mA 9,6...35 VDC  
     L        = two wire 8/16 mA 9,6...35 VDC SIL

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 EPL-Ga equipment.

**EPL-Ga/Gb equipment**

The electronics housing is installed in potentially explosive atmospheres requiring EPL-Gb equipment. The process connectors are installed in the partition separating areas requiring EPLGb or EPL-Ga equipment. The sensor is installed in potentially explosive atmospheres for EPLGa equipment.

**EPL-Gb equipment**

The vibration level switches are installed in potentially explosive atmospheres requiring EPL-Gb equipment.

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

**EPL-Ga equipment**

temperature class	permissible ambient temperature for the electronic system	permissible temperature at the sensor
T6	-20 ... +48 °C	-20 ... +48 °C
T5, 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 (0,8 bar) ... 110 kPa (1,1 bar).

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

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 3.

DOCUMENT No: XPL0213    RELEASE DATE: 29/05/2018    REV: 7



## EPL-Ga/Gb equipment

temperature class	permissible ambient temperature for the electronic system	permissible temperature at the sensor
T6	-50°C ... +48°C	-20°C ... +60°C
T5	-50°C ... +63°C	-20°C ... +60°C
T4, T3, T2, T1	-50°C ... +70°C	-20°C ... +60°C

For applications requiring EPL-Ga equipment, the media process pressure has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

If the vibration level switches of type series VEGASWING SG66(\*).IC\*\*\*\*Z/L\*\*\* and/or SG66(\*).AC\*\*\*\*Z/L\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

## EPL-Gb equipment

temperature class	permissible ambient temperature for the electronic system**	permissible temperature at the sensor**
T6	-50°C ... + 48°C	-196°C ... + 85°C
T5	-50°C ... + 63°C	-196°C ... + 100°C
T4	-50°C ... + 70°C	-196°C ... + 135°C
T3	-50°C ... + 70°C	-196°C ... + 200°C
T2	-50°C ... + 70°C	-196°C ... + 300°C
T1	-50°C ... + 70°C	-196°C ... + 450°C

\*\*The temperature derating for the process temperatures from -196°C to -40°C and +290°C to +450°C must be observed in accordance with the instruction in the safety instructions.

If the vibration level switches of type series VEGASWING SG66(\*).IC\*\*\*\*Z/L\*\*\* and/or SG66(\*).AC\*\*\*\*Z/L\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

**Electrical data**

Supply and signal circuit  
(terminals 1 [+], 2 [-] in the electronic compartment)

Type of protection Intrinsic Safety Ex ia IIC  
For connection to a certified intrinsically safe circuit.  
Maximum values:  
Ui = 30 V  
Ii = 131 mA  
Pi = 983 mW  
Li negligibly low  
Ci negligibly low

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

The metal elements of the vibration level switches of type series VEGASWING SG66(\*).IC\*\*\*\*Z/L\*\*\* and/or SG66(\*).AC\*\*\*\*Z/L\*\*\* are electrically connected to the earth terminals.

Based on the following documentation:

IECEx PTB 13.0005X Issue No.: 2 and/or PTB 13 ATEX 2006 X Issue No.: 2

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 3.

DOCUMENT No: XPL0213 RELEASE DATE: 29/05/2018 REV: 7



**2. INSTALLATION INSTRUCTIONS**

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

**3. SPECIAL CONDITIONS FOR SAFE USE** (*denoted by "X" after certificate number*)

- i. When used as an EPL-Ga equipment, the vibration level switches of type series VEGASWING SG66(\*)..IC\*\*\*\*Z/L\*\*\* and/or SG66(\*)..AC\*\*\*\*Z/L\*\*\*, which include the material 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) is excluded.
- ii. The vibration level switches with plastic enclosure, with metal enclosure with inspection window as well as coated sensors or distance pipe include surfaces that can become charged electrostatically (note warning label).
- iii. When used as an EPL-Ga or EPL-Gb equipment, the vibration level switches 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.
- iv. The vibration level switches 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 distance pipes exceeding the length of 3 m.
- v. For applications where equipment of EPL Ga or EPL Ga/Gb is required, all parts of the vibration level switches which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

**4. SCHEDULE OF LIMITATIONS** (*denoted by "U" after certificate number*)

None.

**5. CONDITIONS OF CERTIFICATION**

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 3.

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV: 7
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**6. MARKING**

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Vega Instruments SA (Pty) Ltd  
Manufacturer : VEGA Grieshaber KG  
Equipment : Vibration Level Switch VEGASWING  
Model/Type : SG66(\*).LC\*\*\*Z/L\*\*\* and/or SG66(\*).AC\*\*\*Z/L\*\*\*  
Serial No. : ---  
Ex Rating : Ex ia IIC T6...T1 Ga, Gb, Gc  
IA Certificate No : S-XPL/14.0788 X

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- ii) Any conditions mentioned in the above report;
- iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- v) A revision certificate replaces all previous version of the certificate.
- vi) \* - Only covers equipment Imported between the "Issued" and "Expire" dates.
- vii) If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

**Responsible Testing Officer:****L Odendaal****Technical Specialist****EXPLOLABS EXPLOSION PREVENTION SERVICES**

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This certificate supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 3.

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV: 7
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Rea No: 1999/027771/07

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## GOVERNMENT APPROVED TEST LABORATORY

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

### IA CERTIFICATE

Date Issued:

02 Mar 2020

\*Expiry date:

02 Mar 2023

Page 1 of 4

Issue: 3

### Ex – Type Examination Certificate

Certificate Number: **S-XPL/14.0788 X**  
Equipment: **Vibration Level Switch**  
Model / Type: **VEGASWING SG66(\*).AC\*\*\*\*Z/L \*\*\*\***  
Applicant: **Vega Instruments SA (Pty) Ltd**

**PO Box 692**  
**Wilgeheuwels**  
**1736**

Manufacturer: **VEGA Grieshaber KG**

Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by  
**Vega Instruments SA (Pty) Ltd**  
Identified by Inspection Authority number  
**S-XPL/14.0788 X**

And as described in the Explolabs file number **XPL/15139/14.0788** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

**SANS 60079-0: 2012 Ed 5** Explosive atmospheres Part 0: Equipment — General requirements  
**IEC 60079-0: 2011**

**SANS 60079-11: 2012 Ed 4** Explosive atmospheres Part 11: Equipment protection by intrinsic safety  
**IEC 60079-11: 2011 Ed 6** "i"

**SANS 60079-26: 2007 Ed 2** Explosive atmospheres – Part 26: Equipment with equipment protection  
**IEC 60079-26: 2006 Ed 2** level (EPL) Ga

### Risk Assessment

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Very high	Ga Group II	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 0, 1 and 2	T6 (85°C) --- T1 (450°C)
High	Gb Group II	Suitable for normal operation and frequently occurring disturbances o equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T6 (85°C) --- T1 (450°C)

DOCUMENT No: XPL0213 RELEASE DATE: 29/05/2018 REV: 7

This report supersedes all previous documents bearing the reference no XPL/15139/14.0788 Issue 2.

## 1. GENERAL

The marking of the Vibration Level Switch shall include the following:

**Ex ia IIC T6...T1 Ga, Ga/Gb, Gb**

The vibration limit switches of type series VEGASWING SG66(\*).AC\*\*\*\*Z/L\*\*\*\* are used for level measurement in potentially explosive atmospheres requiring Zone 0 or Zone 0/1 or Zone 1 equipment.

They consist of an electronics housing with the corresponding analyzing electronic system, the process connectors and the sensor.

Zone 0 equipment

The vibration limit switches are installed in potentially explosive atmospheres requiring Zone 0 equipment.

Zone 0/1 equipment

The electronics housing is installed in potentially explosive atmospheres requiring Zone 1 equipment. The process connectors are installed in the partition separating areas requiring Zone 0 or Zone 1 equipment. The sensor is installed in potentially explosive atmospheres for Zone 0 equipment.

Zone 1 equipment

The vibration limit switches are installed in potentially explosive atmospheres requiring Zone 1 equipment.

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

Zone 0 equipment

temperature class	permissible temperature for electronic system	the permissible ambient temperature at the sensor
T5	-20 ... +45 °C	-20 ... +45 °C
T4, T3, T2, T1	-20 ... +60 °C	-20 ... +60 °C

For applications requiring Zone 0 equipment, the media process pressure has to be between 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.

Zone 0/1 equipment

temperature class	permissible temperature for electronic system	the permissible ambient temperature at the sensor
T6	-50 °C ... +49 °C	-20 °C...+60 °C
T5	-50 °C ... +64 °C	-20 °C...+60 °C
T4, T3, T2, T1	-50 °C ... + 70 °C	-20 °C ... +60 °C

For applications requiring Zone 0 equipment, the media process pressure has to be between 0.8 bar and 1.1 bar.

If the vibration limit switches of type series VEGASWING SG66(\*).AC\*\*\*\*Z/L\*\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

Zone 0 equipment

temperature class	permissible temperature for the electronic system	permissible ambient temperature at the sensor
T6	-50°C ... + 49°C	-196°C ... + 85°C
T5	-50°C ... + 64°C	-196°C ... + 100°C
T4	-50°C ... + 70°C	-196°C ... + 135°C
T3	-50°C ... + 70°C	-196°C ... + 200°C
T2	-50°C ... + 70°C	-196°C ... + 300°C
T1	-50°C ... + 70°C	-196°C ... + 450°C

If the vibration limit switches of type series VEGASWING SG66(\*).AC\*\*\*\*Z/L\*\*\*\* 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 hot surfaces. In this case the temperature at the electronics / the housing shall not exceed the respective values of the table above.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer (see also safety notes for use in hazardous areas).

Safety Parameters

Supply and signal circuit  
(terminals 1 [+], 2 [-] in the electronic compartment)

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

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

The metal elements of the vibration limit switches of type series VEGASWING SG66(\*).AC\*\*\*\*Z/L\*\*\*\* are electrically connected to the earth terminals.

Based on the following documentation: PTB 13 ATEX 2006X

**2. SPECIAL CONDITIONS OF USE (X)**

- When used as a Zone 0 equipment, the vibration limit switches of type series VEGASWING SG66(\*).AC\*\*\*\*Z/L\*\*\*\*, which include the material 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) is excluded.
- The vibration limit switches with plastic enclosure, with metal enclosure with inspection window as well as coated sensors or distance pipe include surfaces that can become charged electrostatically (note warning label).
- When used as Zone 0 or Zone 0/1 equipment, the vibration limit switches 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.
- The vibration limit switches 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 distance pipes exceeding the length of 3 m.
- For applications where equipment of Zone 0 or Zone 0/1 is required, all parts of the vibration limit switches which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

**3. INSTALLATION INSTRUCTIONS**

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV : 7
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4. **SCHEDULE OF LIMITATIONS** (denoted by "U" after certificate number)  
None.

5. **CONDITIONS OF CERTIFICATION**

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

6. **MARKING**

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Vega Instruments SA (Pty) Ltd  
Manufacturer : VEGA Grieshaber KG  
Equipment : Vibration Level Switch  
Model/Type : VEGASWING SG66(\*).AC\*\*\*\*Z/L \*\*\*\*  
Serial No. : ---  
Ex Rating : Ex ia IIC T6...T1 Ga, Gb, Gc  
IA Certificate No : S-XPL/14.0788 X

**Responsible Testing Officer:**



**P van Staden**

**Technical Specialist**

**EXPLOLABS EXPLOSION PREVENTION SERVICES**

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