

**EXPLOLABS**  
Explosion Prevention Services

Reg No: 1999/027771/07

(Pty) Ltd

7 Spanner Rd / PO Box 467  
Olifantsfontein  
1665  
Tel: +27 (11) 316 4601  
Fax: +27 (11) 316 5670  
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: **05 Apr 2023**  
\*Expiry date: **05 Apr 2026**  
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**Issue: 1**

**Ex – Type Examination Certificate**

Certificate Number: **S-XPL/21.0897 X**  
Equipment: **vibration level switches VEGASWING**  
Model / Type: **code SWING 61/63(\*).C\*\*\*\*\*N/W/Z\*\***  
Applicant: **Vega Instruments (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 (Pty) Ltd**  
Identified by Inspection Authority number  
**S-XPL/21.0897 X**

And as described in the Explolabs file number **XPL/22271/21.0897 Issue 1** 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: 2019 Ed 6** Explosive atmospheres Part 0: Equipment — General requirements  
**IEC 60079-0: 2017 Ed 7**

**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: 2021** 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) ...
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	T1 (450°C)



This certificate supersedes all previous documents bearing the reference no XPL/22271/21.0897.

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## 1. GENERAL

The marking of the vibration level switches VEGASWING shall include the following:

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

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

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

Electrical Apparatus: Vibration limit switches VEGASWING, type code SWING 61/63(\*).C\*\*\*\*\*N/W/Z\*\*

**Description of equipment**

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 ARVSG63.2/ 3\*\* may alternatively be used as fixing elements.

Extract from the type key**VEGASWING 61/63(\*).**

C*	***	*	*	*	*	*
ab	cde	f	g	h	i	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 + Ship approval

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

CI = IECEX Ex ia IIC T6 Ga, Ga/Gb, Gb

CM = IECEX Ex ia IIC T6 Ga, Ga/Gb, Gb + Ship approval

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

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.

**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 an EPL-Ga apparatus**

The vibration limit switches are installed in potentially explosive atmospheres for EPL-Ga apparatus.

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Operating as an EPL-Ga/Gb apparatus

The electronics enclosure is installed in potentially explosive atmospheres requiring EPL-Gb apparatus. The process connectors are installed in the partition separating areas requiring EPL-Gb or EPL-Ga apparatus. The measuring sensor is installed in potentially explosive areas requiring EPLGa apparatus.

Operating as an EPL-Gb apparatus

The vibration switches are installed in potentially explosive atmospheres for EPL-Gb 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.

Electronic N/W/Z:EPL-Ga equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-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 limit 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:EPL-Ga/Gb 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

Electronic N/W:EPL-Ga/Gb equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-20 ... +85 °C	-40 ... +67 °C
T5	-20 ... +100 °C	-40 ... +82 °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

Using the vibration limit 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).

When sensor elements of the vibration limit 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.

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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:

##### EPL-Gb 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  $\geq 150$  °C and/or  $\geq -40$  °C

#### Electronic N/W:

##### EPL-Gb equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the 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  $\geq 150$  °C and/or  $\geq -40$  °C

When sensor elements of the vibration limit 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.

When using the vibration limit switches VEGASWING, type code SWING type 61/63(\*).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:

Ui = 29 V

Ui = 24 V

Ii = 116 mA

Ii = 131 mA

Pi = 841 mW

Pi = 786 mW

Li = negligibly low

For the version with fixed cable additionally Li' = 0,55  $\mu$ H/m is to be considered.

Ci = negligibly low

For the version with fixed cable additionally Ci' <sub>core/core</sub> = 58pF/m and Ci' <sub>core/screen</sub> = 270pF/m is to be considered.

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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:

$U_i = 20 \text{ V}$

$I_i = 103 \text{ mA}$

$P_i = 516 \text{ mW}$

$L_i = \text{negligibly low}$

For the version with fixed cable additionally  $L_i' = 0,55 \mu\text{H/m}$   
is to be considered.

$C_i = 2,2 \text{ nF}$

For the version with fixed cable additionally  $C_{i' \text{ core/core}} =$   
 $58 \text{ pF/m}$  and  $C_{i' \text{ core/screen}} = 270 \text{ pF/m}$  is to be considered.

Changes to the previous edition

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

In addition, the certificate PTB 00 ATEX 2217 X issue 2 is integrated in the certificate PTB 00 ATEX 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 adaption of the temperature tables.

Based on the following documentation:

IECEx PTB 04.0014X Issue No. 3 and/or PTB 00 ATEX 2216 X Issue No. 2

**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. Some of the surfaces of the vibration limit switches VEGASWING, type code SWING type 61/63(\*).C\*\*\*\*\*N/W/Z\*\* with locking screw connections, type series 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.
- ii. When used as an EPL-Ga 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.
- iii. When used as an EPL-Ga or EPL-Ga/Gb 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).
- iv. Additional tests have shown that the vibration limit switches VEGASWING, type code SWING type 61/63(\*).C\*\*\*\*\*N/W/Z\*\* with locking screw connections, types ARV-SG63.2/3\*\*, may also be operated under the following conditions:

EPL-Ga/Gb 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 EPL-Ga/Gb 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.

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

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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

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

Not applicable.

## 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 (Pty) Ltd  
 Manufacturer : VEGA Grieshaber KG  
 Equipment : vibration level switches VEGASWING  
 Model/Type : code SWING 61/63(\*).C\*\*\*\*\*N/W/Z\*\*  
 Serial No. : ---  
 Ex Rating : Ex ia IIC T6...T1 Ga or  
                   Ex ia IIC T6...T1 Ga/Gb or  
                   Ex ia IIC T6...T1 Gb

IA Certificate No : S-XPL/21.0897 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:

- SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- Any conditions mentioned in the above report;
- Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- 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

## Responsible Testing Officer:



**D Maree**

**Technical Specialist**

**EXPLOLABS EXPLOSION PREVENTION SERVICES**

This report/certificate shall not be reproduced except in full without the written approval of the company Explolabs (Pty) Ltd shall not be liable for any losses or damages sustained on account of any failure or omission to properly perform our duties in terms of any contract undertaken by us. This disclaimer is immutable and automatically incorporated in any contract undertaken by us; notwithstanding anything to the contrary, save for the express written waiver of our managing director. By marking the equipment in accordance with the documentation/standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and tests have been successfully completed and that the product complies with the documentation and standard(s). The contents of electronic reports/certificates cannot be guaranteed. Original certification documents will be kept on file at Explolabs (Pty) Ltd

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