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GOVERNMENT APPROVED TEST LABORATORY

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

IA CERTIFICATE

Date Issued: **12 May 2023**
*Expiry date: **12 May 2026**

Issue: 10

Ex – Type Examination Certificate

Certificate Number:	**S-XPL/08484 X**
Equipment:	**Ultrasonic Sensors**
Model / Type:	**Series Vegason SN6*.C***H*** or SN6*.C-**H***
Applicant:	**VEGA Grieshaber KG** **Am Hohenstein 113, 77761 Schiltach** **Germany**
Manufacturer:	**VEGA Grieshaber**
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/08484 X

And as described in the Explolabs file number **XPL/9672/08484 Issue 10** 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 **IEC 60079-0: 2011 Ed 6**	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"
IEC/SANS 60079-26: 2007	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)

i)

This certificate supersedes all previous documents bearing the reference no XPL/9672/08484 Issue 9.

1. GENERAL

The marking of the Ultrasonic Sensors shall include the following:
Ex ia IIC T6...T1 Ga, Ga/Gb, Gb

The Ultrasonic sensors VEGASON type series SN6*.C***H*** or SN6*.C_**H*** are used for level measurement in potentially explosive atmospheres requiring category-1 or category-1/2 or category-2 equipment. They may be also installed and used according to the test documents mentioned in the test report.

The changes concern the application of the above mentioned standards, the internal construction, the electrical data and the marking.

All other specifications and the special conditions remain valid without changes.

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	Temperature at the sensor	Ambient temperature for the electronic system
T6	-20°C...+41°C	-20°C...+41°C
T5	-20°C...+53°C	-20°C...+53°C
T4, T3, T2, T1	-20°C...+60°C	-20°C...+60°C

For applications requiring category-1 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	Temperature at the sensor	Ambient temperature for the electronic system
T6	-20°C...+58°C	-40°C...+57°C
T5	-20°C...+60°C	-40°C...+72°C
T4, T3, T2, T1	-20°C...+60°C	-40°C...+85°C

For applications requiring category-1 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.

When the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** are operated with higher temperatures than indicated in the table above it shall be guaranteed by suitable measures, taking into account a temperature rise of the sensor of 6K, that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronic housing shall not exceed the respective values of the table above.

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

Zone 1 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the electronic system
T6	-20°C...+74°C	-40°C...+57°C
T5	-20°C...+89°C	-40°C...+72°C
T4, T3, T2, T1	-20°C...+90°C	-40°C...+85°C

When the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** are operated with higher temperatures than indicated in the table above, is shall be guaranteed by suitable measures, taking into account a temperature rise of the sensor of 6K, 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.

For the permissible operating temperatures and pressures, reference shall be made to the specifications provided by the manufacturer.

Electrical data:

Supply and signal circuit (terminals 1 [+] & 2[-] in the electronics compartment, for the 2-cell enclosure version in the terminal compartment)	Type of protection Intrinsic Ex ia IIC For connection to a certified intrinsically safe circuit. Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW C_i negligibly low or in the version with permanently mounted connecting cable C_i'core/core = 150pF/m, C_i'core/core = 270 pF/m L_i negligibly low or in the version with permanent mounted connecting cable L_i' = 0.55 µH/m
Control and display circuit (terminals No. 5,6,7,8 in the electronics compartment or plug connector for the 2-cell version)	Type of protection Intrinsic Safety Ex ia IIC For connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 display unit (PTB 02 ATEX 2136 X). The rules for the interconnection of intrinsically safe circuits between the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and the external VEGADIS61/81 display unit are complied with of the total inductance and capacitance of the connecting line between the ultrasonic sensor SN6*.C***H*** or SN6*.C_**H*** and VEGADIS61/81 L_{cable} = 100 µH and C_{cable} = 2.8 µF is not exceeded. A control and display module (PLICSCOM or PLICSCOM2) installed in the VEGASON type series SN6*.C***H*** or SN6*.C_**H** and a connected VEGACONNECT have been considered. For use of delivered connection cable between VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and the external VEGADIS61/81 display unit with a cable length greater than 50 m, the following cable inductance Li and capacitance Ci must be considered: Li = 0.62 µH/m Ci'Ader/Ader= 132 pF/m Ci'Ader/Schirm =208 pF/m Ci'Schirm/Schirm = 192pF/m
Communication circuit (I²C-bus socket in the electronics compartment, and additionally for the 2-cell housing version in the terminal compartment)	Type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe signal circuit of a VEGACONNECT interface converter (PTB 01 ATEX 2007, PTB 07 ATEX 2013 X).
Control and display module circuit (spring contacts in the electronics compartment, additionally for the 2-cell housing version in the terminal compartment.)	Type of protection Intrinsic Safety Ex ia IIC Only for connection to the VEGA control and display module (PLICSCOM or PLICSCOM2). With the 2-cel housing version, the control and terminal display module may be housed either in the electronics compartment

The metal elements of the ultrasonic sensors are electrically connected to the earth terminals.

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

Based on the following documentation: **PTB 03ATEX 2213X Supplement 3**

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)*

If used as a category-1 equipment, the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H***, 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 ultrasonic sensor with plastic enclosure and parts of enclosures out of plastic as well as the sensors include surfaces that can become charged electrostatically (note warning label).

In case of danger of mechanical damage of the sound transducer the ultrasonic sensor shall be installed in such a way that the sound transducer is protected against mechanical damage from the environment.

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
Equipment	: Ultrasonic Sensors
Model/Type	: Series Vegason SN6*.C***H*** or SN6*.C-**H***
Serial No.	: ---
Ex Rating	: Ex ia IIC T6...T1 Ga, Ga/Gb, Gb
IA Certificate No	: S-XPL/08484 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:

ii) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
iii) Any conditions mentioned in the above report;
iv) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
v) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
vi) A revision certificate replaces all previous version of the certificate.
vii) * - Only covers equipment Imported between the "Issued" and "Expire" dates.
viii) 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