Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(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 03 ATEX 2213 X **Issue: 01**

(4) Product: Ultrasonic sensors VEGASON type series SN6*(*).CX**H****

(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 23-29042.

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

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. M. Tiedens
Direktor und Professor

Braunschweig, April 17, 2023

ZSEx001e c

(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 03 ATEX 2213 X, Issue: 01**

(15) Description of Product

The ultrasonic sensors VEGASON type series SN6*(*).CX**H**** consist of an electronics housing with the associated evaluation electronics with built-in electronics insert with 4 .. 20 mA HART electronics, with a process connection element and a sensor, are installed for level measurement in hazardous areas where category 1 or 1/2 or 2 equipment is required. The adjustment and display module with the designation PLICSCOM or PLICSCOM(*).*B/W/U* (TÜV 15 ATEX 161127 U) or VEGACONNECT can be built into the housing for parameter adjustment or visualization, or the external display VEGADIS61/81 can be connected.

The working frequencies are 30 kHz for the ultrasonic sensor VEGASON type series SN62.CX**H*** and 50 kHz for the ultrasonic sensor VEGASON type series SN61.CX**H***.

Extract from the type key:

VEGASON SN6*(*).C	*	*	*	*	*	*	*	*
	a	a	b	c	d	e	f	g	h

aa: Area of validity.

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6…T1 Ga, Ga/Gb, Gb.

CM = ATEX with ship approval.

CI = IECEx Ex ia IIC T6…T1 Ga, Ga/Gb, Gb.

b: Version / Material

c: Process connection / Material.

d: Electronics.

H = 4… 20mA/ HART.

e: Enclosure / Protection.

f: Cable gland / Plug connection

g: Display / Adjustment module PLICSCOM.

h: Additional equipment.

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

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X, Issue: 01

Category 1-equipment
The ultrasonic sensors are installed in potentially explosive atmospheres requiring category 1-equipment.

Category-1/2 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 the potentially explosive atmosphere for category-1 equipment.

Category-2 equipment
The ultrasonic sensors are installed in potentially explosive atmospheres requiring category 2 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:

Ultrasonic- sensors VEGASON SN6*(*).CXH****:**
For the relationship between the temperature class, the maximum permissible temperature at the sensor and the maximum permissible ambient temperature for the different type series VEGASON SN6*(*).CX**H**** must be observed from the safety instruction document no. 45485-DE, clause 12.

Category 1-Equipment
For applications requiring category-1 equipment, the media process pressure has to be between 80 kPa and 110 kPa (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. For further information refer to the safety instruction document.

Category 1/2-equipment
The process pressure of the media for use with required category 1/2-equipment must be in the range of 80 kPa and 110 kPa (0,8 bar and 1,1 bar).
When the ultrasonic sensors are operated with higher temperatures than indicated in the safety instructions, it shall be guaranteed by suitable measures that no ignition hazard is caused by hot surfaces. In this case the maximum permissible temperature at the electronics / the housing shall not exceed the respective values provided in the safety instructions. 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 further information refer to the safety instruction document.

Category 2-equipment
When the ultrasonic sensors are operated with higher temperatures than indicated in the safety instructions, it shall be guaranteed by suitable measures that no ignition hazard is caused by hot surfaces. In this case the maximum permissible temperature at the electronics / the housing shall not exceed the respective values provided in the safety instructions. 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 further information refer to the safety instruction document.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X, Issue: 01

The operating conditions in operation without explosive mixtures can be found in the manufacturer's instructions. Further information can be found in the safety instructions.

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 Safety 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 permanent mounted connecting cable $C_i'_{core/core}$ = 150 pF/m, $C_i'_{core/screen}$ = 270 pF/m L_i negligibly low or in the version with permanent mounted connecting cable L_i' = 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 VEGADIS81 display unit (PTB 02 ATEX 2136 X). The rules for interconnection of intrinsically safe circuits between the ultrasonic sensor VEGASON type series SN6*.CX**H*** and the external VEGADIS81 display unit are complied with if the total inductance and capacitance of the connecting line between the ultrasonic sensor VEGASON type series SN6*.CX**H*** and VEGADIS81 L_{cable} = 100 µH and C_{cable} = 2.8 µF is not exceeded. A control and display module (PLICSCOM or PLICSCOM 2) installed in the VEGASON type series SN6*.CX**H*** and a connected VEGACONNECT have been considered.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X, Issue: 01

	By using of the provided VEGA connecting cable between VEGASON type series SN6*.CX**H*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: L_i' = 0.62 µH/m $C_i'_{core/core}$ = 132 pF/m $C_i'_{core/screen}$ = 208 pF/m $C_i'_{screen/screen}$ = 192 pF/m
Communication circuit (I^2C-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 For connection to the VEGA control and display module PLICSCOM or PLICSCOM*B/W/U (TÜV 15 ATEX 161127 U) or VEGACONNECT (PTB 07 ATEX 2013 X). With the 2-cell housing version, the control and terminal display module may be housed either in the electronics compartment or the terminal 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.

Modifications to the EC-Type-Examination Certificate:

Update to aforementioned standard versions of EN IEC 60079-0, EN 60079-11 and EN 60079-26:2015.

Changes include an extension to the model code.

Consideration of the EU-Type Examination Certificate TÜV 15 ATEX 161127 U for the inclusion of display – and adjustment module PLICSCOM or PLICSCOM(*).*B/W/U* (TÜV 15 ATEX 161127 U) in the "Ex-i" compartment with additional operating modes.

(16) Test Report PTB Ex 23-29042

(17) Besondere Bedingungen

1) Die Ultraschall- Sensoren VEGASON Typenreihe SN6*(*).CX**H**** sind in den Ausführungen, bei denen Aluminium verwendet wird, so zu errichten, dass die Erzeugung von Funken infolge von Schlag- und Reibvorgängen zwischen Aluminium und Stahl (ausgenommen nicht rostender Stahl, wenn die Anwesenheit von Rostpartikeln ausgeschlossen werden kann) ausgeschlossen ist.

2) Die Ultraschall- Sensoren mit Kunststoffgehäuse, mit Metallgehäuse mit Sichtfenster, mit Gehäuseteilen aus Kunststoff sowie die Sensoren enthalten Flächen, die sich elektrostatisch aufladen können (Hinweisschild beachten).

3) Um die Gefahr der elektronischen Aufladung von Metallteilen zu vermeiden, sind die Ultraschall-Sensoren in der Anwendung als Kategorie 1- oder Kategorie ½-Betriebsmittel, an den Potenzialausgleich (Übergangswiderstand ≤ 1MΩ) anzuschließen (z.B. über die Erdanschlussklemme).

4) Alle Medium berührenden Teile der Ultraschall- Sensoren dürfen bei Anwendungen, die Kategorie 1-Betriebsmittel oder Kategorie ½-Betriebsmittel erfordern, nur in solchen Medien verwendet werden, gegen die die Werkstoffe hinreichend beständig sind.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Erfüllt durch Übereinstimmung mit den vorgenannten Normen.

Nach Artikel 41 der Richtlinie 2014/34/EU dürfen EG-Baumusterprüfbescheinigungen nach Richtlinie 94/9/EG, die bereits vor dem Datum der Anwendung von Richtlinie 2014/34/EU (20. April 2016) bestanden, so betrachtet werden, als wenn sie bereits in Übereinstimmung mit der Richtlinie 2014/34/EU ausgestellt wurden. Mit Genehmigung der Europäischen Kommission dürfen Ergänzungen zu solchen EG-Baumusterprüfbescheinigungen und neue Ausgaben. solcher Zertifikate weiterhin die vor dem 20. April 2016 ausgestellte originale Zertifikatsnummer tragen.

Konformitätsbewertungsstelle Sektor Explosionsschutz
Im Auftrag
Dr.-Ing. M. Thedens
Direktor und Professor

Braunschweig, 17. April 2023

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 03 ATEX 2213 X

(4)	Equipment:	Ultrasonic sensor, type series VEGASON SN6*.C***H*** with integrated electronic assemblies SN61-63H
(5)	Manufacturer:	VEGA Grieshaber KG
(6)	Address:	Am Hohenstein 113, 77761 Schiltach, Germany

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 03-23417.

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

EN 50014:1997 + A1 + A2 EN 50020:2002 EN 50284:1999

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

Ex II 1 G resp. II 1/2 G resp. II 2 G EEx ia IIC T6

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, November 11, 2003

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

(15) Description of equipment

The ultrasonic sensor, type series VEGASON SN6*.C***H*** with integrated electronic assemblies SN61-63H, are used for level measurement in potentially explosive atmospheres requiring category-1 or category-1/2 or category-2 equipment. The enclosure may be optionally fitted with the control and display module "A/B module" or "PLICSCOM" for either parameterization or visualization.

The ultrasonic sensor consists of an electronics housing with the corresponding analyzing electronic system, the process connectors and the sensor.

Category-1 equipment
The ultrasonic sensors are installed in potentially explosive atmospheres requiring category-1 equipment.

Category-1/2 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 the potentially explosive atmosphere for category-1 equipment.

Category-2 equipment
The ultrasonic sensors 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 electronic system, reference is made to the following table.

Category-1 equipment

temperature class	temperature at the sensor	ambient temperature for the electronic system
T6	-20 ... +41 °C	-20 ... +41 °C
T5	-20 ... +53 °C	-20 ... +53 °C
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. 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.

Category-1/2 equipment

temperature class	temperature at the sensor	ambient temperature for the electronic system
T6	-20 ... +58 °C	-40 ... +57 °C
T5	-20 ... +60 °C	-40 ... +72 °C
T4, T3, T2, T1	-20 ... +60 °C	-40 ... +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. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

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

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 compartment, for the 2-cell enclosure version in the terminal compartment)	Type of protection Intrinsic Safety EEx 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 L_i negligibly low
Control and display circuit (terminals Nos. 5,6,7,8 in the electronics compartment or plug connector for the 2-cell enclosure version)	Type of protection Intrinsic Safety EEx ia IIC For connection to the intrinsically safe supply and signal circuit of the corresponding external VEGA display unit VEGADIS61 (PTB 02 ATEX 2136 X).

	The rules for interconnection of intrinsically safe circuits between the ultrasonic sensor, type series VEGASON and the external VEGADIS61 display unit are complied with if the total inductance and capacitance of the connecting line between ultrasonic sensor, type series VEGASON and the external VEGADIS61 display unit (L_{Kabel} = 96 µH and C_{Kabel} = 2.8 µF) is not exceeded.
	A control and display module (A/B module or PLICSCOM) installed in the ultrasonic sensor, type series VEGASON and a connected VEGACONNECT3 have been considered.
Communication circuit (I²C-bus socket in the electronics compartment, for the 2-cell enclosure version in additionally the terminal compartment)	Type of protection Intrinsic Safety EEx ia IIC For connection to the intrinsically safe signal circuit of a VEGA VEGACONNECT3 interface converter (PTB 01 ATEX 2007).
Control and display module circuit (spring contacts in the electronics compartment, for the 2-cell enclosure version in additionally the terminal compartment)	Type of protection Intrinsic Safety EEx ia IIC For connection to the VEGA control and display module (A/B module or PLICSCOM). With the 2-cell-enclosure version the operating and display module may either be fitted in the electronics compartment or in the terminal compartment.

The metal elements of the ultrasonic sensors are electrically connected to the earth terminals. The intrinsically safe circuits are safely electrically isolated from elements that may be earthed.

(16) Test report PTB Ex 03-23417

(17) Special conditions for safe use

1. If used as a category-1 equipment the ultrasonic sensor, type series VEGASON SN6*.C***H*** with integrated electronic assemblies SN61-63H, 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 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).
3. In case of danger of mechanical damage of the sound transducer the ultrasonic sensors VEGASON shall be installed in such a way that the sound transducer is protected against mechanical damage from the environment.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, November 11, 2003

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

(Translation)

Equipment: Ultrasonic sensors type series VEGASON SN6*.C***H*** with integrated electronic assemblies SN61-63H

Marking: ⟨Ex⟩ **II 1 G or II 1/2 G or II 2 G EEx ia IIC T6**

Manufacturer: VEGA Grieshaber KG

Address: Am Hohenstein 113, 77761 Schiltach, Germany

Description of supplements and modifications

The name of the ultrasonic sensors type series VEGASON SN6*.C***H*** with integrated electronic assemblies SN61-63H is changed into ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H***.

Other changes concern the internal and the external construction, the electrical data as well as the relationship between the temperature class and the maximum permissible temperature at the sensor and the maximum permissible ambient temperature for the electronic system and the "Special Conditions".

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.

Category-1 equipment

temperature class	temperature at the sensor	ambient temperature for the electronic system
T6	-20 ... +41 °C	-20 ... +41 °C
T5	-20 ... +53 °C	-20 ... +53 °C
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. 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.

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

Category-1/2 equipment

temperature class	temperature at the sensor	ambient temperature for the electronic system
T6	-20 ... +58 °C	-40 ... +57 °C
T5	-20 ... +60 °C	-40 ... +72 °C
T4, T3, T2, T1	-20 ... +60 °C	-40 ... +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 6 K, 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 process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

temperature class	temperature at the sensor	ambient temperature for the electronic system
T6	-20 ... +74 °C	-40 ... +57 °C
T5	-20 ... +89 °C	-40 ... +72 °C
T4, T3, T2, T1	-20 ... +90 °C	-40 ... +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, it shall be guaranteed by suitable measures, taking into account a temperature rise of the sensor of 6 K, 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.

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

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 Safety EEx 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 VEGASON type series SN6*.C***H3/4/5*** or SN6*.C_**H3/4/5*** $C_i'_{core/core}$ = 58 pF/m, $C_i'_{core/screen}$ = 270 pF/m L_i negligibly low or in the version VEGASON type series SN6*.C***H3/4/5*** oder SN6*.C_**H3/4/5*** L_i' = 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 EEx ia IIC For connection to the intrinsically safe supply and signal circuit of the external VEGADIS61 display unit (PTB 02 ATEX 2136 X). The rules for interconnection of intrinsically safe circuits between the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and the external VEGADIS61 display unit are complied with if the total inductance and capacitance of the connecting line between the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and VEGADIS61 L_{cable} = 100 µH and C_{cable} = 2.8 µF is not exceeded. A control and display module (A/B module or PLICSCOM) installed in the VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and a connected VEGACONNECT3 have been considered.
Communication circuit (I^2C-bus socket in the electronics compartment, and additionally for the 2-cell housing version in the terminal compartment)	type of protection Intrinsic Safety EEx ia IIC Only for connection to the intrinsically safe signal circuit of a VEGACONNECT3 interface converter (PTB 01 ATEX 2007).

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 EEx ia IIC Only for connection to the VEGA control and display module (A/B module or PLICSCOM). With the 2-cell housing version, the control and terminal display module may be housed either in the electronics compartment or the terminal 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.

Special conditions for safe use

1. 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.
2. 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).
3. In case of danger of mechanical damage of the sound transducer the ultrasonic sensors shall be installed in such a way that the sound transducer is protected against mechanical damage from the environment.

Test report: PTB Ex 05-25334

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, January 18, 2006

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

(Translation)

Equipment: Ultrasonic sensors VEGASON type series SN6*.C***H*** or SN6*.C_**H***

Marking: ⟨Ex⟩ **II 1 G or II 1/2 G or II 2 G EEx ia IIC T6**

Manufacturer: VEGA Grieshaber KG

Address: Am Hohenstein 113, 77761 Schiltach, Germany

Applied standards

EN 60079-0:2006 **EN 60079-11:2007** **EN 60079-26:2007**

Description of supplements and modifications

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 external construction (stainless steel forming housing and a second pressure compensation element), the internal construction, the electrical data and the marking.

The marking changes as follows: ⟨Ex⟩ **II 1 G or 1/2 G or II 2 G Ex ia IIC T6**

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 Safety 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

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

	C_i negligibly low or in the version VEGASON type series SN6*.C***H3/4/5/9*** or SN6*.C_**H3/4/5/9*** $C_i'_{core/core}$ = 58 pF/m, $C_i'_{core/screen}$ = 270 pF/m L_i negligibly low or in the version VEGASON type series SN6*.C***H3/4/5/9*** oder SN6*.C_**H3/4/5/9*** L_i' = 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 display unit (PTB 02 ATEX 2136 X). The rules for interconnection of intrinsically safe circuits between the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and the external VEGADIS61 display unit are complied with if the total inductance and capacitance of the connecting line between the ultrasonic sensor VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and VEGADIS61 L_{cable} = 100 µH and C_{cable} = 2.8 µF is not exceeded. A control and display module (A/B module or PLICSCOM) installed in the VEGASON type series SN6*.C***H*** or SN6*.C_**H*** and a connected VEGACONNECT have been considered.
Communication circuit (I^2C-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 (A/B module or PLICSCOM). With the 2-cell housing version, the control and terminal display module may be housed either in the electronics compartment or the terminal 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.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

All other specifications remain without changes.

Test report: PTB Ex 08-27378

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, February 22, 2008

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

3. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

(Translation)

Equipment: Ultrasonic sensors VEGASON type series SN6*.C***H*** or SN6*.C_**H***

Marking:  **II 1 G or II 1/2 G or II 2 G Ex ia IIC T6**

Manufacturer: VEGA Grieshaber KG

Address: Hohenstein 113, 77761 Schiltach, Germany

Description of supplements and modifications

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.

The marking changes as follows

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

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

3. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

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 Safety 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 permanent mounted conecting cable $C_i'_{core/core}$ = 150 pF/m, $C_i'_{core/screen}$ = 270 pF/m L_i negligibly low or in the version with permanent mounted conecting 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 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 if the total inductance and capacitance of the connecting line between the ultrasonic sensor VEGASON type series 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 indictance 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= 192 pF/m

3. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2213 X

Communication circuit (I^2C-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-cell housing version, the control and terminal display module may be housed either in the electronics compartment or the terminal 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.

Applied standards

EN 60079-0:2012 **EN 60079-11:2012** **EN 60079-26:2007**

Test report: PTB Ex 14-23178

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, March 25, 2014

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 22