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GOVERNMENT APPROVED TEST LABORATORY
IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: **30 May 2023**
*Expiry date: **30 May 2026**

Issue: 3

Ex – Type Examination Certificate

Certificate Number:	**S-XPL/20.0716 X**
Equipment:	**Radar Sensors VEGAPULS**
Model / Type:	**PS6*/PSSR68(*).**********
Supplied by:	**VEGA Grieshaber KG** **Am Hohenstein 113, 77761 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/20.0716 X

And as described in the Explolabs file number **XPL/21518/20.0716 Issue 3** 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 **IEC 60079-0: 2017 Ed 7**	Explosive atmospheres Part 0: Equipment — General requirements
SANS 60079-1: 2015 Ed 5 **IEC 60079-1: 2014 Ed 7**	Explosive atmospheres Part 1: Equipment protection by flameproof enclosures "d"
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: 2014	Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga
SANS 60079-31: 2014 Ed 2 **IEC 60079-31: 2013 Ed 2**	Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"

This certificate supersedes all previous documents bearing the reference no XPL/21518/20.0716 Issue 2.

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	See Table 1
Very high	Da Group III		Equipment remains functioning in zones 20, 21 and 22	
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	
High	Db Group III		Equipment remains functioning in zones 21 and 22	
Enhanced	Dc Group III	Suitable for normal operation	Equipment remains functioning in zone 22	

1. **GENERAL**
The marking of the Radar Sensors VEGAPULS shall include the following:
Refer to Table 1 for Ex rating

The Radar Sensors VEGAPULS had previously been certified by approved EC Type Examination Test laboratories as Refer to Table 1 for Ex rating (Certificate numbers as in Table). The marking of the Radar Sensors VEGAPULS was assessed for compliance with the requirements of standards listed above and against the certificate submitted. The authenticity of the certificate was assessed as well.

The differences between the standards were evaluated and found to comply.

See Appendix of this certificate for list of certificates.

2. **SAFETY PARAMETERS**
Refer to Appendix, Table 3 of this certificate for complete Safety Parameters.

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.

4. **SPECIAL CONDITIONS FOR SAFE USE** *(denoted by X after certificate number)*
Explosion protected equipment used with special conditions of use are marked with an "X". Refer to Appendix, Table 2 of this certificate for complete special conditions of use.

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 Grieshaber KG
Manufacturer	: VEGA Grieshaber KG
Equipment	: Radar Sensors VEGAPULS
Model/Type	: PS6*/PSSR68(*).********
Serial No.	: ---
Ex Rating	: Refer to Table 1 for Ex rating
IA Certificate No	: S-XPL/20.0716 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:

D Maree
Technical Specialist
EXPLOLABS EXPLOSION PREVENTION SERVICES

Table 1 - Marking					
No.	**EC Type Examination Certificate No.**	**Description**	**Manufacturer**	**Type/Model**	**Ex Rating**
1	EC-Type: IECEx BVS 05.0008X Issue No.: 7	Radar sensor	VEGA Grieshaber KG	VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00) PS 62(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00) PS 63(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00) PS 66(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00) PS 67(*). * B * * * * * * VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00) PSSR 68(*). * * * * * * * * PS 68(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90) PS 62(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90) PS 63(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90) PS 66(*). * * * * * * * * VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90) PS 67(*). * B * * * * * * VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90) PS 68(*). * * * * * * * *	Ex ta IIIC T* Da Ex ta/tb IIIC T* Da/Db Ex ta/tc IIIC T* Da/Dc Ex tb IIIC T* Db IP66 *see manual
2	EC-Type: IECEx PTB 04.0008X Issue No.: 4	Radar sensor	VEGA Grieshaber KG	VEGAPULS PS6*(*).CI(*)***D/H****	Ex ia IIC T6...T1 Ga, Ga/Gb, Gb
3	EC-Type: IECEx PTB 07.0041X Issue No.: 3	Radar Sensors VEGAPULS	VEGA Grieshaber KG	series VEGAPULS PS6*(*).DI(*)***D/E/H/V/K/L/P/F/G/M/B/I****	Ex db ia IIC T6...T1 Ga/Gb, Gb
4	EC-Type: IECEx PTB 11.0081X Issue No.: 0	Radar sensors	VEGA Grieshaber KG	series VEGAPULS PS6*/PSSR68(*).D(*)****J/N****	Ex d ia IIC T6...T1 Ga/Gb, Gb
5	EC-Type: IECEx PTB 08.0018X Issue No.: 2	Radar sensors	VEGA Grieshaber KG	series VEGAPULS PS6*/SR68(*).CI(*)***K/L/P/F****	Ex ia IIC T6...T1 Ga, Ga/Gb, Gb Additional marking: FISCO Field Device
6	EC-Type: BVS 04 ATEX E 080 X Supplement 12	Radar sensor	VEGA Grieshaber KG	VEGAPULS PS6*(*).********	Ex ta IIIC T see manual Da Ex ta/tb IIIC T see manual Da/Db Ex ta/tc IIIC T see manual Da/Dc Ex tb IIIC T see manual Db
7	EC-Type: PTB 03 ATEX 2163 X Issue 1	Radar Sensors type series	VEGA Grieshaber KG	VEGAPULS PS62(*).DX****H/D/V/E**** resp. VEGAPULS PS66/68(*).DX****H/V**** resp. VEGAPULS PS61/63(*).DX****H/D/VE**** resp. VEGAPULS PS65(*).DX****H/V**** resp. VEGAPULS PS62(*).DX****H/D/B/I/G/M/P/F/K/L**** resp. VEGAPULS PS66/68/PSSR68(*).DX****H/B/I/P/F**** resp. VEGAPULS PS61/63(*).DX****H/D/B/I/G/M/P/F/K/L**** resp. VEGAPULS PS65(*).DX****H/B/I/P/F****	Ex db ia IIC T6…T1 Ga/Gb Gb

Table 1 - Marking					
No.	**EC Type Examination Certificate No.**	**Description**	**Manufacturer**	**Type/Model**	**Ex Rating**
8	EC-Type: PTB 03 ATEX 2089 X Issue 1	Radar sensors	VEGA Grieshaber KG	Series VEGAPULS PS62(*).CX****P/F/K/L**** resp. PS66/68/SR68(*).CX****P/F**** resp. PS61/63(*).CX***P/F/K/L**** resp. PS65(*).CX***P/F****	Ex ia IIC T6…T1 Ga, Ga/Gb, Gb
9	EC-Type: BVS 05 ATEX E 056 X Supplement 3	Radar sensors	VEGA Grieshaber KG	VEGAPULS type PS6*(*).TX***(*)***** and VEGAPULS PSSR68(*).TX***(*)H/P/F****	Ex ia I Mb
10	EC-Type: PTB 03 ATEX 2060 X Issue 02	Level measuring instruments on microwave basis type series	VEGA Grieshaber KG	VEGAPULS PS62(*).CX****H/D**** resp. VEGAPULS PS66/68/SR68(*).CX****H**** resp. VEGAPULS PS61/63(*).CX***H/D**** resp. VEGAPULS PS65(*).CX***H****	Ex ia IIC T6…T1 Ga, Ga/Gb, Gb

Table 2 - Special Conditions of Safe Use (X)			
No.	**EC Type Examination Certificate No.**	**Description**	**Special Conditions**
1	EC-Type: IECEx BVS 05.0008X Issue No.: 7	Radar sensor	Variants of the radar sensor VEGAPULS type PS6*.CK/GK******* for which aluminium is used 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 radar sensor VEGAPULS type PS6*.CK/GK******* 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 the measuring sensors which are more than 3 m long.
2	EC-Type: IECEx PTB 04.0008X Issue No.: 4	Radar sensor	i. The radar sensors type series VEGAPULS PS61/62/63(*).CI(*)***H/D**** and VEGAPULS PS65/66/68/SR68(*).CI(*)***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. ii. The radar sensors with plastic enclosure, metal enclosure with display window, with none grounded metallic parts, with enclosure parts made of plastic as well as sensors including surfaces that can become charged electrostatically (note warning label as well as the satety instruction to the nos. 38660, 38664, 38665, 38666, 38667, 39573, 56151, 56152, 56153, 56154, 56155, 56156 to each of the radar sensors). iii. The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. iv. When used as EPL Ga- or EPL Ga/Gb- equipment, the level measuring instruments shall be connected to the equipotential bonding conductor (contact resistance ≤ 1MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically. v. For applications where equipment of EPL Ga- or EPL Ga/Gb is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which they are sufficiently resistant. vi. For the radar sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected. vii. For the radar sensors in the version with flushing connection, it must be observed that the Radar sensors, when operating as EPL Ga/Gb equipment, have protection class IP 67 at the connection to the non-return valve. After removing the check valve or the rinsing device on the non-retum valve, the opening must be sealed with a suitable screw plug so that protection class IP 67 is maintained.
3	EC-Type: IECEx PTB 07.0041X Issue No.: 3	Radar Sensors VEGAPULS	i. The radar sensors type series VEGAPULS PS61/62/63/65/66/68(*).DI(*)***H/D/V/E**** and VEGAPULS PS61/62/63/65/66/68/SR68(*).DI(*)***H/D/B/I/G/M /P/K/F/L**** which include the material aluminum, shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded. ii. The radar sensors with metal enclosure with display window, with enclosure parts made of plastic as well as sensors including surfaces that can become charged electrostatically (note warning label). iii. The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. iv. When used as EPL Ga/Gb-equipment, the radar sensors shall be connected to the equipotential bonding conductor (contact resistance ≤ 1MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically. v. For applications where EPL Ga/Gb-equipment is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which the materials are sufficiently resistant. vi. For the radar sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected. vii. For the radar sensors in the version with flushing connection, it must be observed that the Radar sensors, when operating as EPL Ga/Gb-equipment, have protection class IP 67 at the connection to the non-return valve. After removing the check valve or the rinsing

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
			device on the non-return valve, the opening must be sealed with a suitable screw plug so that protection class IP 67 is maintained. viii. The radar sensors in the version with swiveling holder shall be installed in such a way that using the radar sensors as an EPL Ga/Gb-equipment after the alignment of the antenna by means of the swiveling holder and after screw connection of the clamp flange the degree of protection IP 67 is kept. ix. The flameproof terminal compartment with integrated electronics shall be connected by means of suitable cable entries and conduit systems, which meet the requirements of IEC/SANS 60079-0 and IEC/SANS 60079-1 and for which a separate examination certificate has been issued. x. The connecting cables, the cable entries and sealing plugs or conduit-sealing devices must be suitable for the lowest ambient temperature. xi. Cable entries (conduit threads) and sealing plugs of simple design shall not be used. Should the flameproof terminal compartment with integrated electronics be connected by means of a conduit entry which has been approved for this purpose, the required sealing device shall be provided directly at the housing. xii. Non-used openings of the flameproof terminal box of this equipment must be provided with cable entries and filler plugs resp. conduits which are certified according to IEC/SANS 60079-0 and IEC/SANS 60079-1. The factory mounted filler plug, which is an inherent part of the flameproof terminal box, or the filler plug with the article no. 2.30690 are permissible. xiii. The connecting line of the flameproof terminal compartment with integrated electronic shall be installed to provide for permanent wiring and sufficient protection against mechanical damage. xiv. The terminal for the equipotential bonding of the flameproof terminal compartment is to be connected with the local equipotential bonding of the hazardous area.
4	EC-Type: IECEx PTB 11.0081X Issue No.: 0	Radar sensors	i. The radar sensors type series VEGAPULS PS62(*).D*****J/N**** which include the material aluminium or titanium, shall be installed in such a way that sparking as a result of impact or friction between aluminium resp. titanium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded. ii. The radar sensors with metal enclosure with display window in the Ex-i electronic compartment as well as the sensors include surfaces that can become charged electrostatically (note warning label). iii. The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. iv. For applications where equipment of EPL-Ga/Gb is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which they are sufficiently resistant. v. With the radar sensors in the execution with ball valve it is to be made certain that before the separation of the flange connection the ball valve is locked, so that the degree of protection IP 67 is kept. vi. With the radar sensors in the version with rinsing connector it is to be made certain that using the radar sensors as an apparatus of EPL-Ga/Gb the degree of protection IP 67 at the connection to the reflux valve is guaranteed. After removing the reflux valve or the rinsing system at the reflux valve, the opening is to be locked with a suitable plug in such a way, that the degree of protection IP 67 is kept. vii. The flameproof connecting compartment of the radar sensors must be equipped with sealing plugs which are certified according to IEC/SANS 60079-1. viii. The terminal for the equipotential bonding of the Ex d connecting compartment is to be connected with the local equipotential bonding of the hazardous area. ix. Charging of the battery pack must be done outside the hazardous area. Make sure that the cover of the Ex d connecting compartment will be turned in up to the arrester and secured with the cover locking screw.
5	EC-Type: IECEx PTB 08.0018X Issue No.: 2	Radar sensors	i. The radar sensors VEGAPULS type series PS61/62/63(*).CI(*)***P/F/K/L**** and VEGAPULS PS65/66/68/SR68(*).CI(*)***P/F**** 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.

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
			ii. The radar sensors with plastic enclosure, metal enclosure with display window, with enclosure parts made of plastic as well as sensors including surfaces that can become charged electrostatically (note warning label). iii. The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. iv. When used as EPL Ga- or EPL Ga/Gb- equipment, the level measuring instruments shall be connected to the equipotential bonding conductor (contact resistance ≤ 1MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically. v. For applications where equipment of EPL Ga- or EPL Ga/Gb is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which they are sufficiently resistant. vi. For the radar sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected. vii. For the radar sensors in the version with flushing connection, it must be observed that the radar sensors, when operating as EPL Ga/Gb equipment, have protection class IP 67 at the connection to the non-return valve. After removing the check valve or the rinsing device on the non-return valve, the opening must be sealed with a suitable screw plug so that protection class IP 67 is maintained.
6	EC-Type: BVS 04 ATEX E 080 X Supplement 12	Radar sensor	Variants of the radar sensor VEGAPULS for which aluminium is used 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 radar sensor VEGAPULS 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 the measuring sensors which are more than 3 m long.
7	EC-Type: PTB 03 ATEX 2163 X Issue 1	Radar Sensors VEGAPULS	The radar sensors type series VEGPULS PS61/62/63/65/66/68(*).DX(*)***H/D/V/E**** and VEGAPULS PS61/62/63/65/66/68/SR68(*).DX(*)***H/D/B/I/G/M/P/K/F/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 radar sensors with metal enclosure with display window, with enclosure parts made of plastic as well as sensors including surfaces that can become charged electrostatically (note warning label). The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. When used as zone 0/1 equipment, the radar sensors shall be connected to the equipotential bonding conductor (contact resistance ≤ 1MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically. For applications where equipment of zone 0/1 is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which the materials are sufficiently resistant. For the radar sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected. For the radar sensors in the version with flushing connection, it must be observed that eh Radar sensors, when operating as zone 0/1 equipment, have protection class IP67 at the connection to the non-return valve. After removing the check valve or the rinsing device on

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
			the non-return valve, the opening must be sealed with a suitable screw plug so that protection class IP67 is maintained. The radar sensors in the version with swiveling holder shall be installed in such a way that using the radar sensors as an equipment of zone 0/1 after the alignment of the antenna by means of the swiveling holder and after screw connection of the clamp flange the degree of protection IP67 is kept. The flameproof terminal compartment with integrated electronics shall be connected by means of suitable cable entries and conduit systems, which meet the requirements of IEC/SANS 60079-0 and IEC/SANS 60079-1 and for which a separate examination certificate has been issued. The connecting cables, the cable entries and sealing plugs or conduit-sealing devices must be suitable for the lowest ambient temperature. Cable entries and sealing plugs of simple design shall not be used. Should the flameproof terminal compartment with integrated electronics be connected by means of a conduit entry which has been approved for this purpose, the required sealing device shall be provided directly at the housing. Non-used openings of the flameproof terminal box of this equipment must be provided with cable entries and filled plugs reps. Conduits which are certified according to IEC/SANS 60079-0 and IEC/SANS 60079-1. The factory mounted filler plug, which is an inherent part of the flameproof terminal box, or the filler plug with the article no. 2.30690 are permissible. The connecting line of the flameproof terminal compartment with integrated electronic shall be installed to provide for permanent wiring and sufficient protection against mechanical damage. The terminal for the equipotential bonding of the flameproof terminal compartment is to be connected with the local equipotential bonding of the hazardous are.
8	EC-Type: PTB 03 ATEX 2089 X Issue 1	Radar sensors	The radar sensors VEGAPULS type series PS61/62/63(*).CX(*)***P/F/K/L**** and VEGAPULS PS65/66/68/SR68(*).CX(*)***P/F**** 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 radar sensors with plastic enclosure, metal enclosure with display window, with enclosure prat made of plastic as well as sensors including surfaces that can become charged electrostatically (note waring label). The radar sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. When used as zone 0 or zone 0/1 equipment, the level measuring instruments shall be connected to the equipotential bonding conductor (contact resistance ≤ 10MΩ) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically. For applications where equipment of zone 0 or zone 0/1 is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which the materials are sufficiently resistant. For the radar sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected.

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
			For the radar sensors in the version with flushing connection, it must be observed that the radar sensors, when operating as zone 0/1 equipment, have protection class IP67 at the connection to the non-return valve. After removing the check valve or the rinsing device on the non-return valve, the opening must be sealed with a suitable screw plug so that protection class IP67 is maintained.
9	EC-Type: BVS 05 ATEX E 056 X Supplement 3	Radar sensors	The radar sensors, if manufactured in the versions sign antenna or swiveling holder extensions, have to be installed in a way which prevents the sensor from hitting the container wall or any metallic parts with sufficient certainty. This installation, which is especially necessary for installation lengths exceeding 3 m, has to consider the container fixtures as well as the flow properties. The radar sensors, if manufactured in the swiveling holder version, have to be installed in such way that the alignment position cannot be changed once the antenna has been aligned by means of the swiveling holder and the wheel flange has been screwed. The metal elements of the radar sensors are electrically connected to the earth terminals. The intrinsically safe supply and signal circuit is safely electrically isolated from earthed elements.
10	EC-Type: PTB 03 ATEX 2060 X Issue 02	Level measuring instruments on microwave basis	The microwave sensors type series VEGAPULS PS61/62/63(*).CX(*)***H/D**** and VEGAPULS PS65/66/68/SR68(*).CX(*)***H**** in all hardware and software versions 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. Microwave sensors with plastic enclosure, metal enclosure with display window, with none grounded metallic parts, with enclosure parts made of plastic as well as sensors including surfaces that can become charged electrostatically (note warning label as well as the safety instructions to the nos. 34231, 34234, 34236, 34237, 34238, 34241, 37310, 37311, 37312, 37313, 37314, 39575 to each of the radar sensors). The microwave sensors in the versions with standpipe or antenna extension shall be installed in such a way that contact between the antenna and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. When used as zone 0 or zone 0/1 equipment, the level measuring instruments shall be connected to the equipotential bonding conductor (contact resistance ≤ 10MΩ) (e.g., using the earthing terminal) in order to prevent metal elements from being charged electrostatically. For applications where equipment of zone 0 or zone 0/1 is required, all parts of the radar sensors which are in contact with the medium must only be used in such media, against which the materials are sufficiently resistant. For applications where equipment of Zone 0 or Zone 0/1 is required, all parts of the microwave sensors which are in contact with the medium must only be used in such media, against which the materials are sufficiently resistant. For the microwave sensors in the version with ball valve, it must be observed that the ball valve is closed before the flange connection is disconnected. For the microwave sensors in the version with flushing connection, it must be observed that the radar sensors, when operating as zone 0/1 equipment, have protection class IP67 at the connection to the non-return valve. After removing the check valve or the rinsing device on the non-return valve, the opening must be sealed with a suitable screw plug so that protection class IP67 is maintained.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
1	EC-Type: IECEx BVS 05.0008X Issue No.: 7	Radar sensor	Hardware-Version ≥ 2.00; Software-Version ≥ 4.00 Electrical data PS62/63(*).RX***D/H/K/L/P/F*** PS67(*).RX**H/P/F*** PS66/68(*).RX***H/P/F*** PSSR68(*).RX***H/P/F*** Supply terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the two cell enclosure version: U = 9.6 .... 30 V DC, Um = 30 V DC PS62/63(*).RX ***B/G*** PS66/68(*).RX***B*** PSSR68(*).RX***B*** PS67(*).RX**B*** supply (terminals 1, 2 in the terminal compartment): AC 90...253 V, 50/60 Hz Um = 253 V AC output (terminals 5[+], 7[-] in the terminal compartment): 4...20 mA with superposed HART-signal passive signal current, input (terminals 6[+], 7[-] in the terminal compartment): 4...20 mA with superposed HART-signal PS62/63(*).RX***I/M*** PS66/68(*).RX***I*** PSSR68(*).RX***I*** PS67(*).RX**I*** supply (terminals 1, 2 in the terminal compartment): AC 20...42 V, 50/60 Hz or DC 9,6...48 V Um = 253 V AC output (terminals 5[+], 7[-] in the terminal compartment): 4...20 mA with superposed HART-signal passive signal current, input (terminals 6[+], 7[-] in the terminal compartment): 4...20 mA with superposed HART-signal PS62/63(*).RX***D/H/K/L/P/F*** PS66/68(*).RX***H/P/F*** PSSR68(*).RX***H/P/F*** PS67(*).RX**H/P/F*** adjustment and indication circuit (terminals 5, 6, 7, 8 in the electronics): in type of protection Intrinsic Safety Ex ia IIC only for connection to the intrinsically safe circuit of the compartment via DIS-ADAPT) associated VEGA adjustment and indication unit VEGADIS 81 according to IECEx PTB 06.0048 X and IECEx BVS 06.0014 L_{Kabel} - cable ≤ 310 µH

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			C_{Kabel} - cable ≤ 2,0 µF adjustment and indication circuit (spring contacts in the electronics (spring contacts in the electronics in type of protection Intrinsic Safety Ex ia IIC only for connection to the intrinsically safe VEGA adjustment and indication unit PLICSCOM (IECEx TUN 16.0002 U) or VEGACONNECT4 (IECEx PTB 20.0007 X) PS62/63(*).RX***G/M/B/I*** PS66/68(*).RX***B/I*** PSSR68(*).RX***B/I*** PS67(*).RX**B/I*** adjustment and indication circuit (spring contacts in the electronics compartment) in type of protection Intrinsic Safety Ex ia IIC only for connection to the intrinsically safe VEGA adjustment and indication unit PLICSCOM (IECEx TUN 16.0002 U) or VEGACONNECT4 (IECEx PTB 20.0007 X) **Thermal data** Permitted process temperature at the probe PS62(*).***X**** X: 2 = FKM(SHS FPM 70C3 GLT) + PTFE / -40 °C...+130 °C 3 = Kalrez 6375 + PTFE / -20 °C...+130 °C 6 = Kalrez 2035 + PTFE / -15 °C...+130 °C 7 = Kalrez 6230 + PTFE / -15 °C...+130 °C A = FKM(SHS FPM 70C3 GLT)+PEEK / -40 °C…+200 °C C = Kalrez 2035 + PEEK / -15 °C…+210 °C E = Kalrez 6230 + PEEK / -15 °C…+250 °C F = Kalrez 6375 + PEEK / -20 °C…+250 °C H =Grafit und Keramik / -196 °C…+450 °C PS63(*).*X***** X: N = PTFE / -40 °C…+200 °C J = PTFE -196 °C…+200 °C R = PTFE (8mm) -40 °C…+200 °C L = PFA -40 °C…+200 °C M = PFA (8mm) -40 °C…+200 °C V = PTFE + FKM -20 °C…+130 °C E = PTFE + EPDM -40 °C…+130 °C U = PTFE (8mm) -196 °C…+200 °C PS66(*).****X**** X: 2 = FKM (A+P GLT FPM 70.16-06) / -40 °C…+150 °C 3 = Kalrez 6375 / -20 °C…+150 °C 5 = EPDM / -40 °C…+150 °C G = graphite and ceramics / with temperature adapter -60 °C…+250 °C H = graphite and ceramics / with temperature adapter -60 °C…+400 °C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			PS67(*).*X***** X: B = PP / -40 °C…+80 °C PS68.***X**** X: 2 = FKM (SHS FPM 70C3 GLT) + PTFE / -40 °C…+130 °C PSSR68(*).***X**** X: 3 = Kalrez 6375 + PTFE / -20 °C…+130 °C 7 = Kalrez 6230 + PTFE / -15 °C...+130 °C A = FKM (SHS FPM 70C3 GLT) + PEEK / -40 °C...+200 °C C = Kalrez 2035 + PEEK / -15 °C…+210 °C E = Kalrez 6230 + PEEK / -20 °C…+250 °C F = Kalrez 6375 + PEEK / -20 °C...+250 °C H = graphite and ceramics / -196 °C...+450 °C Permitted ambient temperature at the electronics enclosure -40 °C…+ 60 °C Maximum surface temperature The max. surface temperature is the higher one of the following: Maximum surface temperature at the probe process temperature + 2 K Maximum surface temperature at the electronics enclosure for installation in Zone 20 PS62/63(*).RX ***D/K/L*** ambient temperature + 86 K PS62/63/66(*).RX ***H/P/F*** ambient temperature + 86 K PS/PSSR68(*).RX ***H/P/F*** ambient temperature + 86 K PS67(*).RX**H/P/F*** ambient temperature + 86 K PS62/63(*).RX***G/M*** with thermo fuse limited to 102 °C PS62/63/66(*).RX***B/I*** with thermo fuse limited to 102 °C PS/PSSR68(*).RX***B/I*** with thermo fuse limited to 102 °C PS67(*).RX**B/I*** with thermo fuse limited to 102 °C Maximum surface temperature at the electronics enclosure for installation in Zone 20 / 21, 20 / 22, 21 PS62/63(*).RX ***D/K/L*** ambient temperature + 36 K PS62/63/66(*).RX ***H/P/F*** ambient temperature + 36 K PS/PSSR68(*).RX ***H/P/F*** ambient temperature + 36 K PS67(*).RX**H/P/F*** ambient temperature + 36 K PS62/63(*).RX***G/M*** with thermo fuse limited to 102 °C PS62/63/66(*).RX***B/I*** with thermo fuse limited to 102 °C PS/PSSR68(*).RX***B/I*** with thermo fuse limited to 102 °C PS67(*).RX**B/I*** with thermo fuse limited to 102 °C Degrees of protection according to IEC/SANS 60529 IP66 Hardware-Version ≤ 1.10; Software-Version ≤ 3.90

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			Electrical data PS66/68.GI ***V*** PS62/63.GI ***E/V*** PS67.GI**V*** supply (terminals 1, 2 in the terminal compartment): AC 20...253 V, 50/60 Hz or DC 20...253 V, $P_{max} \leq 1W$ output (terminals 3, 4 in the terminal compartment): 4...20 mA with superposed HART-signal PS66/68(*).GI***H*** PS62/63(*).GI***D/H*** Supply and signal circuit terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the two cell enclosure version: in type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit with the following maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW linear characteristics Li ≈ 5 µH Ci negligible Thermal data Permitted process temperature at the probe PS62.***X**** PS62(*).***X**** X: 2 = Viton -30 °C…+130 °C 3 = Kalrez 6375 -20 °C…+150 °C 4 = Viton with temperature adapter -40 °C…+200 °C 5 = Kalrez 6375 with temperature adapter -20 °C…+200 °C 7 = Kalrez 6230 + PTFE (FDA) -15 °C...+130 °C 9 = Kalrez 6230 + PTFE with temperature adapter -15 °C...+200 °C B = FKM(SHS FPM 70C3 GLT)+PP max. 3 bar -40 °C… +80 °C D = Kalrez 6375 + PP max. 3 bar -40 °C… +80 °C PS63.***X**** X: N = PTFE / -40 °C…+200 °C PS63(*).***X**** J = PTFE -196 °C…+200 °C R = PTFE (8mm) -40 °C…+200 °C U = PTFE (8mm) -196 °C…+200 °C A = TFM-PTFE(8mm) -40 °C…+150 °C P = TFM-PTFE -40 °C…+150 °C G = Alloy 400 (2.4360), TFM-PTFE(8mm) -10 °C…+150 °C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			W = PCTFE(8mm) -40 °C…+200 °C * other horn atennas PS67.*X***** X: B = PP -40 °C…+80 °C PS67(*).*X***** * other horn atennas PS66.****X**** X: 2 = Viton -30 °C…+130 °C PS66(*).****X**** 3 = Kalrez 6375 -20 °C…+150 °C 5 = EPDM (A+P 75.5/KW75F) -40 °C…+150 °C G = graphite and ceramics with temperature adapter -60 °C…+250 °C H = graphite and ceramics with temperature adapter -60 °C…+400 °C PS68.***X**** X: 2 = Viton -40 °C…+130 °C PULS PS68(*).***X**** 3 = Kalrez 6375 -20 °C…+150 °C 4 = Viton with temperature adapter -40 °C…+200 °C 5 = Kalrez 6375 with temperature adapter -20 °C…+200 °C 7 = Kalrez 6230 + PTFE (FDA) -15 °C...+130 °C 9 = Kalrez 6230 + PTFE with temperature adapter -15 °C...+200 °C The max. surface temperature is the higher one of the following: Permitted process temperature at the probe process temperature +2 K Permitted ambient temperature at the electronics enclosure PS62/63/66/67/68.GI ****H**** ambient temperature + 43 K PS62/63.GI ****D**** ambient temperature + 43 K PS62/63/66/67/68.GI***V**** with thermo fuse limited to 98 °C PS62/63.GI****E**** with thermo fuse limited to 98 °C Degrees of protection according to IEC/SANS 60529 IP66
2	EC-Type: IECEx PTB 04.0008X Issue No.: 4	Radar sensor	Hardware version _ 1.10, Software version _ 3.90: Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment or for the 2-cell enclosure version in the terminal compartment of VEGAPULS) **VEGAPULS PS66/68(*).CI****H**** **VEGAPULS PS62(*).CI****H/D**** **VEGAPULS PS65(*).CI***H**** **VEGAPULS PS61/63(*).CI***H/D**** In 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 Ci negligibly low or in the version with fixed connected cable VEGAPULS type series

Table 3 - Safety parameters				
No.	**EC Type Examination Certificate No.**	**Description**	**Safety Parameters**	
				PS61/62/63/65/66/68.C(*)****D/H3/4/5/9*** $Ci'_{Core/Core}$ = 58 pF/m, $Ci'_{Core/Screen}$ = 270 pF/m Li negligibly low or in the version with fixed connected cable VEGAPULS type series PS61/62/63/65/66/68.C(*)****H3/4/5/9*** Li' ≤ = 0,55 µH/m
			Control and display circuit (terminals Nos. 5, 6, 7, 8 in the electronic compartment or plug connector for the 2-chamber enclosure version)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81(IECEx PTB 06.0048 X). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).CI*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).CI*** and VEGADIS61 (L_{cable} = 100 mH and C_{cable} = 2.8 mF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).CI*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length ≥50 m: Li' = 0,62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the electronic compartment, additionally for the 2- chamber enclosure version in the terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the VEGA control and display module PLICSCOM or PLICSCOM*B/W/U (IECEx TUN 16.0002 U) With the 2-cell-enclosure version the operating and display module may either be fitted in the electronics compartment or in the terminal compartment.
			Communication circuit I²C-bus socket in the “Ex i” terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe signal circuit of a VEGA interface converter VEGA CONNECT (PTB 01 ATEX 2007, PTB 07 ATEX 2013X).
			The metal elements of the level measuring devices based on radar technology type series VEGAPULS PS6* are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*(*).CI(*)***D/H**** the intrinsically safe circuit is electrically isolated from elements that may be earthed. The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.	
			Hardware version _ 2.00, Software version _ 4.00:	**VEGAPULS PS66/68/SR68 (*).CI****H**** **VEGAPULS PS62(*).CI****H/D**** **VEGAPULS PS65(*).CI***H****

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			VEGAPULS PS61/63(*).CI*H/D****
			Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment or for the 2-chamber enclosure version in the terminal compartment of the VEGAPULS): In 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 Ci negligibly low or in the version with fixed cable, $Ci'_{core/core}$ = 58 pF/m, $Ci'_{core/screen}$ = 270 pF/m Li ≤ 5 µH or in the version with fixed cable Li = L' (0,55 µH/m) + 5 µH
			Control and display circuit (terminals Nos. 5,6,7,8 in the electronic compartment or plug connector for the 2-chamber enclosure version): In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (IECEx PTB 06.0048 X). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).CI*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).CI*** and VEGADIS61 (L_{cable} = 310 mH and C_{cable} = 2 mF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).CI*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are take into consideration from a length > 50 m: Li' = 0,62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the electronic compartment, additionally for the 2-chamber-enclosure version in the terminal compartment): In type of protection Intrinsic Safety Ex ia IIC For connection to the VEGA control and display module PLICSCOM or PLICSCOM*B/W/U (IECEx TUN 16.0002 U) or VEGACONNECT. 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 level measuring devices based on radar technology type series VEGAPULS PS6*/SR6*** are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*/SR6*** the intrinsically safe circuit is electrically isolated from elements that may be earthed. The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.
3	EC-Type: IECEx PTB 07.0041X Issue No.: 3	Radar Sensors VEGAPULS	Hardware version ≤ 1.10, Software version ≤ 3.90: **VEGAPULS PS62(*).DI***H/D**** resp. **VEGAPULS PS66/68(*).DI***H**** resp. **VEGAPULS PS61/63(*).DI***H/D**** resp. **VEGAPULS PS65(*).DI***H****

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the "Ex d"-terminal compartment)	U = 20 V ... 36 V DC Um = 253 V AC I = 4 … 20 mA Two- wire-Signal HART **VEGAPULS PS62(*).DI****V/E**** resp. **VEGAPULS PS66/68(*).DI****V**** resp. **VEGAPULS PS61/63(*).DI***V/E**** resp. **VEGAPULS PS65(*).DI***V****
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the "Ex d"-terminal compartment)	U = 20 V … 253 V AC Um = 253 V AC
			Signal-circuit (terminals KL3 [+], KL4 [-] in the "Ex d"-terminal compartment)	I = 4 ... 20 mA Four- wire-Signal HART Um = 253 V AC **VEGAPULS PS62(*).DI****H/D/V/E**** resp. **VEGAPULS PS66/68(*).DI****H/V**** resp. **VEGAPULS PS61/63(*).DI***H/D/VE**** resp. **VEGAPULS PS65(*).DI***H/V****
			Control and display circuit (terminals 5, 6, 7, 8 or plug-in bushing in the "Ex i" connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).DI*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).DI*** and VEGADIS61 (Lcable = 100 µH and Ccable = 2.8 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DI*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li' = 0,62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the "Ex i" connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the VEGA control and display module PLICSCOM or VEGACONNECT
			Communication circuit (I²C-bus socket in the "Ex i" terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe signal circuit of a VEGA interface converter VEGACONNECT.
			The metal elements of the radar sensors type series VEGAPULS PS6*(*).DI(*)***H/D/V/E**** are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*(*).DI(*)***H/D/V/E**** Hardware version ≤ 1.10, Software version ≤ 3.90 the intrinsically safe circuits are earthed and connected to the external and internal earthing terminal.	

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			Hardware version ≥ 2.00, Software version ≥ 4.00:	**VEGAPULS PS62(*).DI****H/D**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***H**** resp. **VEGAPULS PS61/63(*).DI***H/D**** resp. **VEGAPULS PS65(*).DI***H****
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the “Ex d”-terminal compartment)	U = 14 V ... 36 V DC Um = 253 V AC I = 4 … 20 mA Two- wire-Signal HART **VEGAPULS PS62(*).DI****P/F/K/L**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***P/F**** resp. **VEGAPULS PS61/63(*).DI***P/F/K/L**** resp. **VEGAPULS PS65(*).DI***P/F****
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the “Ex d”-terminal compartment)	U = 14 V ... 32 V DC Um = 253 V AC Profibus PA/FF **VEGAPULS PS62(*).DI****B/G**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***B**** resp. **VEGAPULS PS61/63(*).DI***B/G**** resp. **VEGAPULS PS65(*).DI***B****
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the “Ex d”-terminal compartment)	90 … 250 V AC Um = 253 V AC **VEGAPULS PS62(*).DI****I/M**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***I**** resp. **VEGAPULS PS61/63(*).DI***I/M**** resp. **VEGAPULS PS65(*).DI***I****
			Supply circuit (terminals Kl1 [+], Kl2 [-] in the “Ex d”-terminal compartment)	U = 9,6 V ... 48 V DC or U = 20 V ... 42 V AC Um = 253 V AC **VEGAPULS PS62(*).DI****B/I/G/M**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***B/I**** resp. **VEGAPULS PS61/63(*).DI***B/I/G/M**** resp. **VEGAPULS PS65(*).DI***B/I****
			Active signal-circuit (terminals KL5 [+], KL7 [-] in the “Ex d”-terminal compartment)	I = 4 ... 20 mA Four- wire-Signal HART Um = 60 V AC/DC
			Passive signal-circuit (terminals KL6 [+], KL7 [-] in the “Ex d”-terminal compartment)	I = 4 ... 20 mA Four- wire-Signal HART Um = 60 V AC/DC
			Control and display circuit (terminals 5,6,7,8 or plug-in bushing in the	**VEGAPULS PS62(*).DI****H/D/P/F/K/L**** resp. **VEGAPULS PS66/68/PSSR68(*).DI***H/P/F**** resp. **VEGAPULS PS61/63(*).DI***H/D/P/F/K/L**** resp. **VEGAPULS PS65(*).DI***H/P/F**** In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe supply and signal circuit of the

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			"Ex i" connection compartment)	external VEGADIS61/81. The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).DI*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).DI*** and VEGADIS61 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DI*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li' = 0,62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m **VEGAPULS PS62(*).DI****B/I/G/M**** resp. **VEGAPULS PS66/68/PSSR68(*).DI****B/I**** resp. **VEGAPULS PS61/63(*).X***B/I/G/M**** resp. **VEGAPULS PS65(*).DI***B/I****
			Control and display module circuit (spring contacts in the "Ex i" connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 or for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 via the adapter VEGADIS-ADAPT. The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).D*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).D*** and VEGADIS61 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DI*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li' = 0,62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m **VEGAPULS PS62(*).DI****H/D/P/F/K/L**** resp. **VEGAPULS PS66/68/PSSR68(*).DI****H/P/F**** resp. **VEGAPULS PS61/63(*).DI***H/D/P/F/K/L**** resp. **VEGAPULS PS65(*).DI***H/P/F****
			Control and display module circuit (spring contacts in the "Ex i" connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the VEGA control and display module PLICSCOM or VEGACONNECT.
			The metal elements of the radar sensors type series VEGAPULS PS6* are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*(*).DI(*)***D/H/K/L/P/F/**** the intrinsically safe signal circuits are	

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			galvanically isolated from the supply circuit up to a peak value of the nominal voltage of 375 V. In the versions of the radar sensors VEGAPULS PS6*(*).DI(*)***G/M/B/I****, Hardware version ≥ 2.00 and Software version ≥ 4.00 the intrinsically safe circuits are earthed and connected to the external and internal earthing terminal.
4	EC-Type: IECEx PTB 11.0081X Issue No.: 0	Radar sensors	Charge/supply circuit (5.5 mm supply coupling in the Ex d connecting compartment) — Urat=24 V DC, Um=250 V Control and display module circuit (spring contacts in the Ex-i electronic compartment) — type of protection Intrinsic Safety Ex ia IIC, Only for connection to the VEGA control and display module PLICSCOM or CONNECT (PTB 07 ATEX 2013 X) The metal elements of the radar-sensors type series VEGAPULS PS62(*).D*****J/N**** are electrically connected to the earth terminals. The intrinsically safe circuits are safely electrically isolated from elements that may be earthed.
5	EC-Type: IECEx PTB 08.0018X Issue No.: 2	Radar sensors	Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment or for the 2-chamber enclosure version in the terminal compartment of the VEGAPULS) **VEGAPULS PS66/68/SR68 (*).CI****P/F**** **VEGAPULS PS62(*).CI****P/F/K/L**** **VEGAPULS PS65(*).CI***P/F**** **VEGAPULS PS61/63(*).CI***P/F/K/L**** In type of protection Intrinsic Safety Ex ia IIC For connection to a certified intrinsically safe circuit. Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W Ci negligibly small. Li ≤ 10 µH. The instrument is suitable for connection to a Fieldbus system according to the FISCO model, e.g. Profibus PA, Foundation Fieldbus. or: Ui = 24 V Ii = 250 mA Pi = 1.2 W Ci negligibly small or in the version with fixed cable, Ci = $Ci'_{core/core}$ = 159 pF/m + $Ci'_{core/screen}$ = 270 pF/m Li ≤ 10 µH or in the version with fixed cable Li = L' (0,55 µH/m) + 10 µH.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			Control and display circuit (terminals Nos. 5,6,7,8 in the electronic compartment or plug connector for the 2-chamber enclosure version): In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81. The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS type series PS6*/SR68(*).CI** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS type series PS6*/SR68(*).CI*** and VEGADIS61/81 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS type series PS6*/SR68(*).CI** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li' = 0.62 µH/m $Ci'_{core/core}$ = 132 pF/m $Ci'_{core/screen}$ = 208 pF/m $Ci'_{screen/screen}$ = 192 pF/m Control and display module circuit (spring contacts in the electronic compartment, additionally for the 2-chamber-enclosure version in the terminal compartment): In type of protection Intrinsic Safety Ex ia IIC. For connection to the VEGA control and display module PLICSCOM or PLICSCOM*B/W/U (IECEx TUN 16.0002 U) or VEGACONNECT. With the 2-chamber-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 radar sensors VEGAPULS type series PS6*/SR6*** are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS type series PS6*/SR6*** the intrinsically safe circuit is electrically isolated from elements that may be earthed.
6	EC-Type: BVS 04 ATEX E 080 X Supplement 12	Radar sensor	**Parameters** Hardware version ≥ 2.00; Software version ≥ 4.00 Electrical data PS62/63(*).RX***D/H/K/L/P/F*** PS67(*).RX**H/P/F*** PS66/68(*).RX***H/P/F*** PSSR68(*).RX***H/P/F*** Supply terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the two cell enclosure version: U = 9.6 ..... 30 V DC, Um = 30 V DC PS62/63(*).RX ***B/G*** PS66/68(*).RX***B***

This certificate supersedes all previous documents bearing the reference no XPL/21518/20.0716 Issue 2.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			PSSR68(*).RX***B*** PS67(*).RX**B*** supply AC 90... 253 V, 50/60 Hz (terminals 1, 2 in the terminal compartment) Um = 253 V AC output 4... 20 mA with superposed HART-signal (terminals 5[+], 7[-] in the terminal compartment) passive signal current, input 4... 20 mA with superposed HART-signal (terminals 6[+], 7[-] in the terminal compartment) PS62/63(*).RX***I/M*** PS66/68(*).RX***I*** PSSR68(*).RX***I*** PS67(*).RX**I*** supply AC 20.... 42 V, 50/60 Hz or (terminals 1, 2 in the terminal compartment) DC 9,6 V...48 V Um = 253 V AC output 4...20 mA with superposed HART-signal (terminals 5[+], 7[-] in the terminal compartment) passive signal current, input 4...20 mA with superposed HART-signal (terminals 6[+], 7[-] in the terminal compartment) PS62/63(*).RX***D/H/K/L/P/F*** PS66/68(*).RX***H/P/F*** PSSR68(*).RX***H/P/F*** PS67(*).RX**H/P/F*** adjustment and indication circuit in type of protection Intrinsic Safety Ex ia IIC (terminals 5, 6, 7, 8 in the electronics only for connection to the intrinsically safe circuit of the compartment via DIS-ADAPT) associated VEGA adjustment and indication unit VEGADIS81 according to PTB 02 ATEX 2136X and BVS 05 ATEX E 023 $L_{Kabel - cable} \leq$ 310 µH $C_{Kabel - cable} \leq$ 2.0 µF adjustment and indication circuit in type of protection Intrinsic Safety Ex ia IIC (spring contacts in the electronics compartment) only for connection to the intrinsically safe VEGA adjustment and indication unit (PLICSCOM) or VEGACONNECT4 (PTB 07 ATEX 2013X). PS62/63(*).RX***G/M/B/I*** PS66/68(*).RX***B/I*** PSSR68(*).RX***B/I*** PS67(*).RX**B/I*** adjustment and indication circuit in type of protection Intrinsic Safety Ex ia IIC (spring contacts in the electronics compartment) only for connection to the intrinsically safe VEGA adjustment and indication unit (PLICSCOM) or VEGACONNECT4 (PTB 07 ATEX 2013X). <u>Thermal data</u> Permitted process temperature at the probe:

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters			
			PS62(*).***X****	X:	2 = FKM(SHS FPM 70C3 GLT) + PTFE /	-40 °C...+130 °C
					3 = Kalrez 6375 + PTFE /	-20 °C...+130 °C
					6 = Kalrez 2035 + PTFE /	-15 °C...+130 °C
					7 = Kalrez 6230 + PTFE /	-15 °C...+130 °C
					A = FKM(SHS FPM 70C3 GLT)+PEEK /	-40 °C… +200 °C
					C = Kalrez 2035 + PEEK /	-15 °C… +210 °C
					E = Kalrez 6230 + PEEK /	-15 °C… +250 °C
					F = Kalrez 6375 + PEEK / H =	-20 °C… +250 °C
					graphite and ceramics /	-196 °C… +450 °C
			PS63(*).*X*****	X:	N = PTFE /	-40 °C…+200 °C
					J = PTFE	-196 °C…+200 °C
					R = PTFE (8mm)	-40 °C…+200 °C
					L = PFA	-40 °C…+200 °C
					M = PFA (8mm) V =	-40 °C…+200 °C
					PTFE + FKM	-20 °C…+130 °C
					E = PTFE + EPDM U =	-40 °C…+130 °C
					PTFE (8mm)	-196 °C…+200 °C
			PS66(*).****X****	X:	2 = FKM (A+P GLT FPM 70.16-06) /	-40 °C to+150 °C
					3 = Kalrez 6375 /	-20 °C to+150 °C
					5 = EPDM /	-40 °C to +150 °C
					G = graphite and ceramics / with temperature adapter	-60 °C to+250 °C
					H = graphite and ceramics / with temperature adapter	-60 °C to+400 °C
			PS67(*).*X*****	X:	B = PP /	-40 °C to +80 °C
			PS68.***X****	X:	2 = FKM (SHS FPM 70C3 GLT) + PTFE /	-40 °C to+130 °C
			PSSR68(*).***X****	X:	3 = Kalrez 6375 + PTFE /	-20 °C to+130 °C
					7 = Kalrez 6230 + PTFE /	-15 °C to+130 °C
					A = FKM (SHS FPM 70C3 GLT) + PEEK /	-40 °C to+200 °C
					C = Kalrez 2035 + PEEK /	-15 °C to+210 °C
					E = Kalrez 6230 + PEEK /	-20 °C to+250 °C
					F = Kalrez 6375 + PEEK /	-20 °C to+250 °C
					H = graphite and ceramics /	-196 °C to+450 °C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			Permitted ambient temperature at the electronics enclosure -40 °C to+ 60 °C Maximum surface temperature The max. surface temperature is the higher one of the following: Maximum surface temperature at the probe process temperature + 2 K Maximum surface temperature at the electronics enclosure for installation in zone 20 PS62/63(*).RX ***D/K/L*** ambient temperature + 86 K PS62/63/66(*).RX ***H/P/F*** ambient temperature + 86 K PS/PSSR68(*).RX ***H/P/F*** ambient temperature + 86 K PS67(*).RX**H/P/F*** ambient temperature + 86 K PS62/63(*).RX***G/M*** with thermo fuse limited to 102 °C PS62/63/66(*).RX***B/I*** with thermo fuse limited to 102 °C PS/PSSR68(*).RX***B/I*** with thermo fuse limited to 102 °C PS67(*).RX**B/I*** with thermo fuse limited to 102 °C Maximum surface temperature at the electronics enclosure for installation in zone 20/21, 20/22, 21 PS62/63(*).RX ***D/K/L*** ambient temperature + 36 K PS62/63/66(*).RX ***H/P/F*** ambient temperature + 36 K PS/PSSR68(*).RX ***H/P/F*** ambient temperature + 36 K PS67(*).RX**H/P/F*** ambient temperature + 36 K PS62/63(*).RX***G/M*** with thermo fuse limited to 102 °C PS62/63/66(*).RX***B/I*** with thermo fuse limited to 102 °C PS/PSSR68(*).RX***B/I*** with thermo fuse limited to 102 °C PS67(*).RX**B/I*** with thermo fuse limited to 102 °C Degrees of protection according to IEC/SANS 60529 IP66 Hardware version ≤ 1.10; Software version ≤ 3.90 <u>Electrical data</u> PS66/68.GX ***V*** PS62/63.GX ***E/V*** PS67.GX**V*** supply AC 20...253 V, 50/60 Hz or (terminals 1, 2 in the terminal compartment) DC 20...253 V Pmax ≤ 1 W output 4...20 mA with superposed HART-signal (terminals 3, 4 in the terminal compartment)

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

PS66/68(*).GK***H***
PS62/63(*).GK***D/H***

Supply and signal circuit in type of protection Intrinsic Safety Ex ia IIC terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the two cell enclosure version only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui	= 30 V
Ii	= 131 mA
Pi	= 983 mW
linear characteristics	
Li	≤ 5 µH
Ci	negligible

Thermal data

Permitted process temperature at the probe

PS62.***X****	X:		
PS62(*).***X****		2 = Viton	-30 °C…+130 °C
		3 = Kalrez 6375	-20 °C…+150 °C
		4 = Viton with temperature adapter	- 40 °C…+200 °C
		5 = Kalrez 6375 with temperature adapter	-20 °C…+200 °C
		7 = Kalrez 6230 + PTFE (FDA)	-15 °C...+130 °C
		9 = Kalrez 6230 + PTFE with temperature adapter	-15 °C...+200 °C
		B = FKM(SHS FPM 70C3 GLT)+PP	-40 °C…+80 °C max. 3 bar
		D = Kalrez 6375 + PP	-40 °C…+80 °C max. 3 bar
PS63.***X****	X:	N = PTFE /	-40 °C…+200 °C
PS63(*).***X****		J = PTFE	-196 °C…+200 °C
		R = PTFE (8 mm)	-40 °C…+200 °C
		U = PTFE (8 mm)	-196 °C…+200 °C
		A = TFM-PTFE(8 mm)	-40 °C…+150 °C
		P = TFM-PTFE	-40 °C…+150 °C
		G = Alloy 400 (2.4360), TFM-PTFE(8 mm)	-10 °C…+150 °C
		W = PCTFE(8 mm)	-40 °C…+200 °C
		* other horn antennas	
PS67.*X*****	X:	B = PP	-40 °C…+80 °C
PS67(*).*X*****		* other horn antennas	
PS66.****X****	X:	2 = Viton	-30 °C…+130 °C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			PS66(*).****X**** 3 = Kalrez 6375 -20 °C…+150 °C 5 = EPDM (A+P 75.5/KW75F) -40 °C…+150 °C G = graphite and ceramics with temperature adapter -60 °C…+250 °C H = graphite and ceramics with temperature adapter -60 °C…+400 °C PS68.***X**** X: 2 = Viton -40 °C…+130 °C PS68(*).***X**** 3 = Kalrez 6375 -20 °C…+150 °C 4 = Viton with temperature adapter -40 °C…+200 °C 5 = Kalrez 6375 with temperature adapter -20 °C…+200 °C 7 = Kalrez 6230 + PTFE (FDA) -15 °C...+130 °C 9 = Kalrez 6230 + PTFE with temperature adapter -15 °C...+200 °C The max. surface temperature is the higher one of the following: Permitted process temperature at the probe process temperature +2 K Permitted ambient temperature at the electronics enclosure PS62/63/66/67/68.GX ****H**** ambient temperature + 43 K PS62/63.GX ****D**** ambient temperature + 43 K PS62/63/66/67/68.GX****V**** with thermo fuse limited to 98 °C PS62/63.GX****E**** with thermo fuse limited to 98 °C Degrees of protection according to IEC/SANS 60529 IP66
7	EC-Type: PTB 03 ATEX 2163 X Issue 1	Radar Sensors VEGAPULS	Hardware version ≤ 1.10, Software version ≤ 3.90: **VEGAPULS PS62(*).DX****H/D**** resp. **VEGAPULS PS66/68(*).DX****H**** resp. **VEGAPULS PS61/63(*).DX***H/D**** resp. **VEGAPULS PS65(*).DX***H**** Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment) U = 20 V … 36 V DC Um = 253 V AC I = 4…20 mA Two-wire-Signal HART **VEGAPULS PS62(*).DX****V/E**** resp. **VEGAPULS PS66/68(*).DX****V**** resp. **VEGAPULS PS61/63(*).DX***V/E**** resp. **VEGAPULS PS65(*).DX***V**** Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment) U = 20 V … 253 V DC Um = 253 V AC Supply circuit (terminals KL3 [+], KL4 [-] in the Ex d – terminal compartment) I = 4 …20 mA Four-wire Signal HART Um = 253 V AC **VEGAPULS PS62(*).DX****H/D/V/E**** resp.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				VEGAPULS PS66/68(*).DX**H/V**** resp. **VEGAPULS PS61/63(*).DX***H/D/V/E**** resp. **VEGAPULS PS65(*).DX***H/V****
			Control and display circuit (terminals 5, 6, 7, 8 or plug-in bushing in the Ex I connection compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).DX*** and the external VEGADIS61/81 display unit are compiled with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).DX*** and VEGADIS61 (L_{cable} = 100 µH and C_{cable} = 2.8 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DX*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li = 0.62 µH/m $Ci_{core/core}$ = 132 pF/m $Ci_{core/screen}$ = 208 pF/m $Ci_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the Ex i connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the VEGA control and display module PLICSCOM or VEGCONNECT (PTB 07 ATEX 2013 X).
			Communication circuit I^2C-bus socket in the Ex i terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the intrinsically safe signal circuit of a VEGA interface converter VEGACONNECT (PTB 01 ATEX 2007, PTB 07 ATEX 2013X).
			The metal elements of he radar sensors type series VEGAPULS PS6*(*).DX(*)***H/D/V/E**** are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*(*).DX(*)***H/D/V/E**** Hardware version ≤ 1.10, Software version ≤ 3.90 the intrinsically safe circuits are earthed and connected to the external and internal earthing terminal.	
			Hardware version ≤ 2.00, Software version ≤ 4.00:	**VEGAPULS PS62(*).DX****H/D**** resp. **VEGAPULS PS66/68(*).DX****H**** resp. **VEGAPULS PS61/63(*).DX***H/D**** resp. **VEGAPULS PS65(*).DX***H****
			Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment)	U = 20 V … 36 V DC Um = 253 V AC I = 4…20 mA Two-wire-Signal HART **VEGAPULS PS62(*).DX****P/F/K/L**** resp. **VEGAPULS PS66/68(*).DX****P/F**** resp. **VEGAPULS PS61/63(*).DX***P/F/K/L**** resp.**

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment)	**VEGAPULS PS65(*).DX***P/F**** U = 14 V … 32 V DC Um = 253 V AC Profibus PA/FF **VEGAPULS PS62(*).DX****B/G**** resp. **VEGAPULS PS66/68(*).DX****B**** resp. **VEGAPULS PS61/63(*).DX***B/G**** resp. **VEGAPULS PS65(*).DX***B****
			Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment)	90 … 250 V AC Um = 253 V AC **VEGAPULS PS62(*).DX****I/M**** resp. **VEGAPULS PS66/68(*).DX****I**** resp. **VEGAPULS PS61/63(*).DX***I/M**** resp. **VEGAPULS PS65(*).DX***I****
			Supply circuit (terminals KI1 [+], KI2 [-] in the Ex d – terminal compartment)	U = 9.6 V … 48 V DC or U = 20 V … 42 V AC Um = 253 V AC **VEGAPULS PS62(*).DX****B/I/G/M**** resp. **VEGAPULS PS66/68(*).DX****B/I**** resp. **VEGAPULS PS61/63(*).DX***B/I/G/M**** resp. **VEGAPULS PS65(*).DX***B/I****
			Active signal-circuit (terminals KL5 [+], KL7 [-] in the Ex d terminal compartment) Passive signal-circuit (terminals KL6 [+], KL7 [-] in the Ex d terminal compartment)	I = 4…20 mA Four-wire-Signal HART Um = 60 V AC/DC I = 4…20 mA Four-wire-Signal HART Um = 60 V AC/DC **VEGAPULS PS62(*).DX****H/D/P/F/K/L**** resp. **VEGAPULS PS66/68(*).DX****H/P/F**** resp. **VEGAPULS PS61/63(*).DX***H/D/P/F/K/L**** resp. **VEGAPULS PS65(*).DX***H/P/F****
			Control and display circuit (terminals 5, 6, 7, 8 or plug-in bushing in the Ex I connection compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).DX*** and the external VEGADIS61/81 display unit are compiled with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).DX*** and VEGADIS61 (L_{cable} = 100 µH and C_{cable} = 2.8 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DX*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li = 0.62 µH/m

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				$Ci_{core/core}$ = 132 pF/m $Ci_{core/screen}$ = 208 pF/m $Ci_{screen/screen}$ = 192 pF/m **VEGAPULS PS62(*).DX****B/I/G/M**** resp. **VEGAPULS PS66/68(*).DX****B/I**** resp. **VEGAPULS PS61/63(*).DX***B/I/G/M**** resp. **VEGAPULS PS65(*).DX***B/I****
			Control and display circuit (terminals 5, 6, 7, 8 or plug-in bushing in the Ex I connection compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136) or for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136) via the adapter VEGADIS-ADAPT. The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS PS6*(*).D*** and the external VEGADIS61/81 display unit are compiled with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*(*).D*** and VEGADIS61 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).DX*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li = 0.62 µH/m $Ci_{core/core}$ = 132 pF/m $Ci_{core/screen}$ = 208 pF/m $Ci_{screen/screen}$ = 192 pF/m **VEGAPULS PS62(*).DX****H/D/P/F/K/L**** resp. **VEGAPULS PS66/68(*).DX****H/P/F**** resp. **VEGAPULS PS61/63(*).DX***H/D/P/F/K/L**** resp. **VEGAPULS PS65(*).DX***H/P/F****
			Control and display module circuit (spring contacts in the Ex i connection compartment)	In type of protection Intrinsic Safety Ex ia IIC. Only for connection to the VEGA control and display (PTB 07 ATEX 2013 X).
			The metal elements of the radar sensors type series VEGAPULS PS6* are electrically connected to the earth terminals. In the versions of the radar sensors VEGAPULS PS6*(*).DX(*)***D/H/K/L/P/F/**** the intrinsically safe signal circuits are galvanically isolated from the supply circuit up to a peak value of the nominal voltage of 375 V. In the versions of the radar sensors VEGAPULS PS6*(*).DX(*)***G/M/B/I****, Hardware version ≤ 2.00, Software version ≤ 4.00 the intrinsically safe circuits are earthed and connected to the external and internal earthing terminal.	
8	EC-Type: PTB 03 ATEX 2089 X	Radar sensors		**VEGAPULS PS66/68/SR68(*).CX****P/F**** **VEGAPULS PS62(*).CX****P/F/K/L****

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
	Issue 1			**VEGAPULS PS65(*).CX***P/F**** **VEGAPULS PS61/63(*).CX***P/F/K/L****
			Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment or for the 2-chamber-enclosure version in the terminal compartment of the VEGAPULS)	In type of protection Intrinsic Safety Ex ia IIC. For connection to a certified intrinsically safe circuit. Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W Ci negligibly smaller Li ≤ 10 µH The instrument is suitable for connection to a Fieldbus system according to the FISCO model, e.g. Profibus PA, Foundation Fieldbus. Or: Ui = 24 V Ii = 250 mA Pi = 1.2 W Ci negligibly small or in the version with fixed cble, Ci = $Ci_{core/core}$ = 159 pF/m + $Ci_{core/screen}$ = 270 pF/m Li ≤ 10 µH or in the version with fixed cable Li = L' (0.55 µH/m) + 10 µH.
			Control and display circuit (terminals 5, 6, 7, 8 in the electronic compartment or plug connector for the 2-chamber-enclosure version)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS type series PS6*/SR68(*).CX** and the external VEGADIS61/81 display unit are compiled with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*/SR68(*).CX*** and VEGADIS61/81 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*/SR68(*).CX** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m: Li = 0.62 µH/m $Ci_{core/core}$ = 132 pF/m $Ci_{core/screen}$ = 208 pF/m $Ci_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the electric compartment, additionally for the 2-chamber-enclosure version in the terminal compartment)	In 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 2013X). With the 2-chamber-enclosure version the operating and display

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			module may either be fitted in the electronics compartment or in the terminal compartment	
			The metal elements of the radar sensors type series VEGAPULS PS6*/SR6*** are electrically connected to the earth terminals.	
			In the version of the radar sensors VEGAPULS type series PS6*/SR6*** the intrinsically safe circuits is electrically isolated from elements that may be earthed.	
				VEGAPULS PS66/68/SR68(*).CX**P/F**** **VEGAPULS PS62(*).CX****P/F/K/L**** **VEGAPULS PS65(*).CX***P/F**** **VEGAPULS PS61/63(*).CX***P/F/K/L****
			Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment or for the 2-chamber-enclosure version in the terminal compartment of the VEGAPULS)	In type of protection Intrinsic Safety Ex ia IIC. For connection to a certified intrinsically safe circuit. Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W Ci negligibly smaller Li ≤ 10 µH The instrument is suitable for connection to a Fieldbus system according to the FISCO model, e.g. Profibus PA, Foundation Fieldbus. Or: Ui = 24 V Ii = 250 mA Pi = 1.2 W Ci negligibly small or in the version with fixed cable, Ci = $Ci_{core/core}$ = 159 pF/m + $Ci_{core/screen}$ = 270 pF/m Li ≤ 10 µH or in the version with fixed cable Li = L' (0.55 µH/m) + 10 µH.
			Control and display circuit (terminals 5, 6, 7, 8 in the electronic compartment or plug connector for the 2-chamber-enclosure version)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136). The rules for interconnection of intrinsically safe circuits between the radar sensors VEGAPULS type series PS6*/SR68(*).CX** and the external VEGADIS61/81 display unit are compiled with if the total inductance and capacitance of the connecting line between the radar sensors VEGAPULS PS6*/SR68(*).CX*** and VEGADIS61/81 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*/SR68(*).CX** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length > 50 m:

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			Control and display module circuit (spring contacts in the electric compartment, additionally for the 2-chamber-enclosure version in the terminal compartment)	Li = 0.62 µH/m Ci $_{core/core}$ = 132 pF/m Ci $_{core/screen}$ = 208 pF/m Ci $_{screen/screen}$ = 192 pF/m In 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 2013X). With the 2-chamber-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 radar sensors type series VEGAPULS PS6*/SR6*** are electrically connected to the earth terminals. In the version of the radar sensors VEGAPULS type series PS6*/SR6*** the intrinsically safe circuits is electrically isolated from elements that may be earthed.	
9	EC-Type: BVS 05 ATEX E 056 X Supplement 3	Radar sensors	VEGAPULS PS6(*).TX***(*)D/H**** VEGAPULS PS68/PSSR68(*).TX****H**** Supply and signal circuit (terminals 1 [+] 2 [-] in the electronics compartment or in the terminal compartment regarding the double chamber enclosure)	In type of protection Intrinsic Safety Ex ia/ib I Only for connection t a certified intrinsically safe circuit with the following maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW Linear characteristics Li ≤ 5 µH Ci negligible
			VEGAPULS PS6(*).TX***(*)K/L/P/F**** VEGAPULS PS68/PSSR68(*).TX****P/F**** Supply and signal circuit (terminals 1 [+] 2 [-] in the electronics compartment or in the terminal compartment regarding the double chamber enclosure)	In type of protection Intrinsic Safety Ex ia/ib I Only for connection t a certified intrinsically safe circuit with the following maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 mW The equipment is suitable for connection to a Fieldbus system according to the FISCO model, e.g. PROFIBUS-PA or foundation fieldbus. Or Ui = 24 V Ii = 250 mA Pi = 1.2 W Li ≤ 10 µH

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			Ci negligible VEGAPULS PS6*(*).TX***(*)D/H/K/L/P/F*** and VEGAPULS PS68/PSSR68(*).TX****H/P/F**** with electronics insert type PS60** Adjustment and indication circuit (terminals Nr. 5, 6, 7, 8): In type of protection Intrinsic Safety Ex ia I with the following maximum values: Uo = 6.0 V Io = 214 mA Po = 321 mW Li negligible Ci negligible Co = 8.1 µF At simultaneous Lo = 8.5 mH Linear characteristics VEGAPULS PS6*(*).TX***(*)D/H/K/L/P/G**** and VEGAPULS PS68/PSSR68(*).TX***H/P/F**** with electronics insert type PS60** Frequency range of all sensors: 5 up to 26 GHz Max. radiant power at nominal rating: 20 µW Max. radiant power at failure rating (double fault – ia): 300 mW Thermal data Permitted process temperature at the probe: -40°C…+70°C Permitted ambient temperature at the electronics enclosure: -40°C…+70°C Type of protection according to IEC/SANS 60529 Electronic enclosure, Zone 21: IP66 Probe, Zone 21: IP68
10	EC-Type: PTB 03 ATEX 2060 X Issue 2	Level measuring instruments on microwave basis	Hardware version ≤ 1.10, Software version ≤ 3.90: **VEGAPULS PS66/68(*).CX****H**** **VEGAPULS PS62(*).CX****H/D**** **VEGAPULS PS65(*).CX***H**** **VEGAPULS PS61/63(*).CX***H/D**** Supply and signal circuit (terminals 1 [+], 2 [+] in the electronic compartment or for the 2-cell enclosure version in the terminal compartment of VEGAPULS): In 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 Ci negligibly low or in the version with fixed connected cable VEGAPULS type series PS61/62/63/65/66/68.C(8)****D/H/3/4/5/9*** $Ci_{core/core}$ = 58 pF/m $Ci_{core/screen}$ = 270 pF/m Li negligibly low or in the version with fixed connected cable

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				VEGAPULS type series PS61/62/63/65/66/68.C(*)****H3/4/5/9*** Li ≤ = 0.55 µH/m
			Control and display circuit (terminals Nos. 5, 6, 7, 8 in the electronic compartment or plug connector for the 2-chamber enclosure version)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136 X). The rules for interconnection of intrinsically safe circuits between the microwave sensors VEGAPULS PS6*(*).CX*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the microwave sensors VEGAPULS PS6*(*).CX*** and VEGADIS61 (L_{cable} = 100 µH and C_{cable} = 2.8 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).CX*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length ≥ 50 m: Li = 0.62 µH/m $Ci_{core/core}$ = 132 pF/m $Ci_{core/screen}$ = 208 pF/m $Ci_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the electronic compartment, additionally for the 2-chamber-enclosure version in the terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the VEGA control and display module PLICSCOM or PLICSCOM*B/W/* (TÜV 15 ATEX 161127 U) With the 2-cell-enclsoure version the operating and display module may either be fitted in the electronics compartment or in the terminal compartment.
			Communication circuit I^2C-bus socket in the Ex i terminal compartment)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe signal circuit of a VEGA interface converter VEGACONNECT (PTB 01 ATEX 2007, PTB 07 ATEX 2013 X).
			The metal elements of the level measuring device based on microwave technology type series VEGAPULS PS6*** are electrically connected to the earth terminals.	
			In the versions of the microwave sensors VEGAPULS PS6*** the intrinsically safe circuit is electrically isolated from elements that may be earthed.	
			The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.	
			Hardware version ≤ 2.00, Software version ≤ 4.00:	**VEGAPULS PS66/68/SR68(*).CX****H**** **VEGAPULS PS62(*).CX****H/D**** **VEGAPULS PS65(*).CX***H**** **VEGAPULS PS61/63(*).CX***H/D****
			Supply and signal circuit (terminals 1 [+], 2 [+] in the electronic compartment or for the 2-cell enclosure	In type of protection intrinsic Safety Ex ia IIC For connection to a certified intrinsically safe circuit.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			version in the terminal compartment of VEGAPULS)	Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW Ci negligibly low or in the version with fixed cable Ci $_{core/core}$ = 58 pF/m Ci $_{core/screen}$ = 270 pF/m Li ≤ 5 µH or in the version with fixed cable Li = L (0.55 µH/m) + 5 µH
			Control and display circuit (terminals Nos. 5, 6, 7, 8 in the electronic compartment or plug connector for the 2-chamber enclosure version)	In type of protection Intrinsic Safety Ex ia IIC Only for connection to the intrinsically safe supply and signal circuit of the external VEGADIS61/81 (PTB 02 ATEX 2136 X). The rules for interconnection of intrinsically safe circuits between the microwave sensors VEGAPULS PS6*(*).CX*** and the external VEGADIS61/81 display unit are complied with if the total inductance and capacitance of the connecting line between the microwave sensors VEGAPULS PS6*(*).CX*** and VEGADIS61 (L_{cable} = 310 µH and C_{cable} = 2 µF) is not exceeded. By using of the provided VEGA connecting cable between VEGAPULS PS6*(*).CX*** and the external display unit VEGADIS61/81 the following cable inductance and cable capacitance are taken into consideration from a length ≥ 50 m: Li = 0.62 µH/m Ci $_{core/core}$ = 132 pF/m Ci $_{core/screen}$ = 208 pF/m Ci $_{screen/screen}$ = 192 pF/m
			Control and display module circuit (spring contacts in the electronic compartment, additionally for the 2-chamber-enclosure version in the terminal compartment)	In 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-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 level measuring device based on microwave technology type series VEGAPULS PS6*** are electrically connected to the earth terminals. In the versions of the microwave sensors VEGAPULS PS6*** the intrinsically safe circuit is electrically isolated from elements that may be earthed. The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.	