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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/20.0717 X**
Equipment:	**Microwave sensors**
Model / Type:	**VEGAFLEX FX8*(*)**
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/20.0717 X

And as described in the Explolabs file number **XPL/21518/20.0717 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 **IEC 60079-31: 2013**	Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"

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 Microwave sensors shall include the following:
   Refer to Table 1 for Ex rating

   The Microwave sensors 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 Microwave sensors 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	: Microwave sensors
Model/Type	: VEGAFLEX FX8*(*)
Serial No.	: ---
Ex Rating	: Refer to Table 1 for Ex rating
IA Certificate No	: S-XPL/20.0717 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 TUN 12.0009X Issue No.: 5	Microwave sensors VEGAFLEX 8*	VEGA Grieshaber KG	FX8*(*).*/VC/O/H****A/H/P/FX**** and FX8*(*).*/VC/O/H****A/ HZ****	Ex ia IIC T6…T1 Ga Ex ia IIC T6…T1 Ga/Gb Ex ia IIC T6…T1 Gb
2	EC-Type: TÜV 12 ATEX 098523 X Issue 01	Microwave sensors	VEGA Grieshaber KG	VEGAFLEX FX8*(*).*/VC/U/O/H****A/H/P/FX**** VEGAFLEX FX8*(*).*/VC/U/O/H****A/H/Z****	Ex ia IIC T6…T1 Ga Ex ia IIC T6…T1 Ga/Gb Ex ia IIC T6…T1 Gb
3	EC-Type: IECEx TUN 12.0011X Issue No.: 5	Microwave sensors VEGAFLEX 8*	VEGA Grieshaber KG	FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** and FX81/2/6(*).*/ VE/J/Q****A/HZ****	Ex db IIC T6 ... T1 Gb Ex db IIC T6 ... T1 Ga/Gb
4	EC-Type: TÜV 12 ATEX 098529 X Issue 01	Microwave sensors type series	VEGA Grieshaber KG	VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX**** FX81/2/6(*).*/VE/J/Q/Z****A/HZ****	Ex db IIC T6…T1 Ga/Gb Ex db IIIC T6…T1 Gb
5	EC-Type: IECEx TUN 12.0019X Issue No.: 5	Microwave sensors VEGAFLEX 8*	VEGA Grieshaber KG	FX8*(*).*/VD/I/P****A/H/B/I/UX***	Ex db ia IIC T6…T1 Ga/Gb Ex db ia IIC T6…T1 Gb
6	EC-Type: TÜV 12 ATEX 098525 X Issue 01	Microwave sensors type series	VEGA Grieshaber KG	VEGAFLEX FX8*(*).*/VD/I/V/P****A/H/B/I/UX****	Ex db ia IIC T6…T1 Ga/Gb Ex db ia IIC T6…T1 Gb
7	EC-Type: IECEx TUN 19.0018X Issue No.: 0	Guided radar sensors	VEGA Grieshaber KG	VEGAFLEX FX8*(*).*/VR/H/I/J****A/H/P/F/B/I/UX**** and VEGAFLEX FX8*(*).*/VR/H/I/J****A/HZ****	Ex ta IIIC T* Da Ex ta/tb IIIC T* Da/Db Ex ta/tc IIIC T* Da/Dc Ex tb IIIC T* Db T*: see thermal data
8	EC-Type: TÜV 19 ATEX 231186 X	Guided radar sensors	VEGA Grieshaber KG	VEGAFLEX FX8*(*).*/VR/H/I/J****A/H/P/F/B/I/UX**** and VEGAFLEX FX8*(*).*/VR/H/I/J****A/HZ****	Ex ta IIIC T* Da or Ex ta/tb IIIC T* Da/Db or Ex ta/tc IIIC T* Da/Dc or Ex tb IIIC T* Db T*: see thermal data

Table 2 - Special Conditions of Safe Use (X)			
No.	**EC Type Examination Certificate No.**	**Description**	**Special Conditions**
1	EC-Type: IECEx TUN 12.0009X Issue No.: 5	Microwave sensors type series	i. A t the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VC/O/H****A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/O/ H****A/HZ**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. ii. For EPL Ga resp. EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VC/O/H****A/ H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/O/H****A/HZ****made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. iii. For EPL Ga resp. EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VC/O/H****A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/O/H****A/HZ**** have to be secured effectively against these dangers. Observe manual of the manufacturer. iv. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX FX8*(*).*/VC/O/H****A/H/P/ FX**** resp. VEGAFLEX FX8*(*).*/VC/O/H****A/HZ**** have to be resistant to the media. Observe manual of the manufacturer v. The ambient temperature range depending on temperature class is to be taken from the operating instructions.
2	EC-Type: TÜV 12 ATEX 098523 X Issue 01	Microwave sensors	i. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).*VC/U/O/H****A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. ii. For EPL Ga resp. EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).*VC/U/O/H***A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. iii. For EPL Ga resp. EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensor type series VEGAFLEX FX8*(*).*VC/U/O/H****A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ**** have to be secured effectively against these dangers. Observe manual of the manufacturer. iv. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX FX8*(*).*VC/U/O/H***A/H/P/FX**** resp. VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ**** have to be resistant to the media. Observe manual of the manufacturer. v. The ambient temperature range depending on temperature class is to be taken from the operating instructions.
3	EC-Type: IECEx TUN 12.0011X Issue No.: 5	Microwave sensors type series	i. At the plastic parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. ii. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. iii. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ**** must be secured effectively against these dangers. Observe manual of the manufacturer. iv. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ**** must be resistant to the media. Observe manual of the manufacturer. v. The ambient temperature range depending on temperature class is to be taken from the operating instructions. vi. The flameproof housing of these devices must be provided with cable entries and filler plugs resp. conduits which are certified according to IEC 60079-0 and IEC 60079-1. The connection cable, the cable entries and filler plugs resp. the conduits must be suitable for the respective ambient / operating temperature.

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
4	EC-Type: TÜV 12 ATEX 098529 X Issue 01	Microwave sensors type series	At the plastic parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX*** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX*** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX*** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ**** must be secured effectively against these dangers. Observe manual of the manufacturer. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX*** resp. VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ**** have to be resistant to the media. Observe manual of the manufacturer. The ambient temperature range depending on temperature class is to be taken from the operating instructions. The flameproof housing of these devices must be provided with cable entries and filler plugs resp. conduits which are certified according to IEC 60079-0 and IEC 60079-1. The connection cable, the cable entries and filler plugs resp. the conduits must be suitable for the lowest ambient temperature.
5	EC-Type: IECEx TUN 12.0019X Issue No.: 5	Microwave sensors type series	i. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/P****A/H/B/I/UX**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. ii. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/P****A/H/B/I/UX**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. iii. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/P****A/H/B/I/UX**** have to be secured effectively against these dangers. Observe manual of the manufacturer. iv. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/P****A/H/B/I/UX**** have to be resistant to the media. Observe manual of the manufacturer. v. The ambient temperature range depending on temperature class is to be taken from the operating instructions. vi. The flameproof housing of these devices 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 connection cable, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.
6	EC-Type: TÜV 12 ATEX 098525 X Issue 01	Microwave sensors type series	i. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/V/P****A/H/B/I/UX**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label. ii. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/V/P****A/H/B/I/UX**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer. iii. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*).*/VD/I/V/P****A/H/B/I/UX**** have to be secured effectively against these dangers. Observe manual of the manufacturer. iv. For EPL Ga/Gb applications the medium tangent materials of the microwave sensors type series VEGAFLEX

Table 2 - Special Conditions of Safe Use (X)

No.	EC Type Examination Certificate No.	Description	Special Conditions
			FX8*(*).*/VD/I/V/P****A/H/B/I/UX**** have to be resistant to the media. Observe manual of the manufacturer. v. The ambient temperature range depending on temperature class is to be taken from the operating instructions. vi. The flameproof housing of these 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 connection cable, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.
7	EC-Type: IECEx TUN 19.0018X Issue No.: 0	Guided radar sensors	i. The guided radar sensors type VEGAFLEX FX8*(*).*/VR/H/I/J****A/H/P/F/B/I/U**** and VEGAFLEX FX8*(*).*/VR/H/I/J****A/HZ*** have to be installed in such a way, that process-related electrostatical charges, e.g. due to passing media, can be excluded. ii. The permissible process temperature at the sensor resp. the permissible ambient temperature at the electronics housing and the maximum surface temperature T* at the electronics housing depending on the ambient temperature range can be taken from the operating instructions. iii. The cable glands as well as the blanking elements, if used, have to be separately assessed and certified in accordance with IEC 60079-31. In the end-use application the degree of protection min IP6X shall be maintained in accordance with IEC 600079-0 and in compliance with IEC 60529. iv. For installation in EPL Da areas, the maximum power provided to the guided radar sensors type VEGAFLEX FX8*(*).*/VR/H/I/J****A/HX****, VEGAFLEX FX8*(*).*/VR/H/I/J ***A/HZ****, VEGAFLEX FX8*(*).*/VR/H/I/J ****P/FX**** and VEGAFLEX FX8*(*).*/VR/H/I/J****UX**** must be limited to $P_{max} \leq 2$ W. Where appropriate, an external protective device shall be used.
8	EC-Type: TÜV 19 ATEX 231186 X	Guided radar sensors	v. The guided radar sensors type VEGAFLEX FX8*(*).*/VR/H/I/J****A/H/P/F/B/I/U**** and VEGAFLEX FX8*(*).*/VR/H/I/J****A/HZ*** have to be installed in such a way, that process-related electrostatical charges, e.g. due to passing media, can be excluded. vi. The permissible process temperature at the sensor resp. the permissible ambient temperature at the electronics housing and the maximum surface temperature T* at the electronics housing depending on the ambient temperature range can be taken from the operating instructions. vii. The cable glands as well as the blanking elements, if used, have to be separately assessed and certified in accordance with IEC 60079-31. In the end-use application the degree of protection min IP6X shall be maintained in accordance with IEC 600079-0 and in compliance with IEC 60529. viii. For installation in EPL Da areas, the maximum power provided to the guided radar sensors type VEGAFLEX FX8*(*).*/VR/H/I/J****A/HX****, VEGAFLEX FX8*(*).*/VR/H/I/J ***A/HZ****, VEGAFLEX FX8*(*).*/VR/H/I/J ****P/FX**** and VEGAFLEX FX8*(*).*/VR/H/I/J****UX**** must be limited to $P_{max} \leq 2$ W. Where appropriate, an external protective device shall be used.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
1	EC-Type: IECEx TUN 12.0009X Issue No.: 5	Microwave sensors type series	**VEGAFLEX FX8*(*).*/VC/O/H****A/HX****, single chamber housing, Ex i electronics and connection compartment** Supply and signal circuit (Terminals 1[+], 2[-]) — in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li` = 0.55 µH/m Ci`$_{wire/wire}$ = 58 pF/m Ci`wire/shield = 270 pF/m **VEGAFLEX FX8*(*).*/VC/O/H****A/HX****, double chamber housing, Ex i connection compartment** Supply and signal circuit (Terminals 1[+], 2) — in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 10 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li` = 0.55 µH/m Ci`$_{wire/wire}$ = 58 pF/m Ci`$_{wire/shield}$ = 270 pF/m **VEGAFLEX FX8*(*).*/VC/O/H****P/FX****, single chamber housing, Ex i electronics and connection compartment** Supply and signal circuit (Terminals 1[+], 2) — in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The apparatus is suitable for connection to a fieldbus system according to

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				the FISCO concept (IEC/SANS 60079-11), e. g. Profibus PA. or Ui = 24 V Ii = 250 mA Pi = 1.2 W The effective internal capacitance and inductance are negligibly small. In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li` = 0.55 µH/m Ci`$_{wire/wire}$ = 58 pF/m Ci`$_{wire/shield}$ = 270 pF/m
			VEGAFLEX FX8*(*).*/VC/O/H**P/FX****, double chamber housing, Ex i connection compartment**	
			Supply and signal circuit (Terminals 1[+], 2[-])	in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The apparatus is suitable for connection to a fieldbus system according to the FISCO concept (IEC/SANS 60 079-11), e. g. Profibus PA. or Ui = 24 V Ii = 250 mA Pi = 1.2 W The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li` = 0.55 µH/m Ci`$_{wire/wire}$ = 58 pF/m Ci`$_{wire/shield}$ = 270 pF/m
			VEGAFLEX FX8*(*).*/VC/O/H**AH/Z****, double chamber housing, Ex i connection compartment**	
			Supply and signal circuit I (Terminals 1[+], 2[-])	in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH
			Supply and signal circuit II (Terminals 7[+], 8[-])	in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH
			VEGAFLEX FX8*(*).*/VC/O/H**A/H/P/FX****, single chamber housing, Ex i electronics and connection compartment** Display and adjustment (Terminals 5, 6, 7, 8)	in type of protection „Intrinsic Safety“ Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i". The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded When using the supplied VEGA connection cable, then the permissible cable length is L_{length}= 341 m.
			VEGAFLEX FX8*(*).*/VC/O/H**A/H/P/FX****, double chamber housing, Ex i connection Compartment** Display and adjustment circuit (Terminals 5, 6, 7, 8)	in type of protection „Intrinsic Safety“ Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i". (IECEx PTB 06.0048). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded When using the supplied VEGA connection cable, then the permissible cable length is L_{length}= 341 m.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

VEGAFLEX FX8*(*).*/VC/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/O/H****A/HZ****, double chamber housing, Ex i electronics compartment**

Adapter circuit (Internal plug connection)	in type of protection „Intrinsic Safety“ Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i". (IECEx PTB 06.0048). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded When using the supplied VEGA connection cable, then the permissible cable length is Llength= 341 m.

VEGAFLEX FX8*(*).*/VC/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/O/H****A/HZ****, single and double chamber housing, Ex i electronics and connection compartment**

Display and adjustment module resp. the interface adapter (Spring contacts)	in type of protection „Intrinsic Safety“ Ex ia IIC Only for connection to the display and adjustment module PLICSCOM

VEGAFLEX FX8*(*).*/VC/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/O/H****A/HZ****

HF circuit	in type of protection „Intrinsic Safety“ Ex ia IIC The length of the coax connection cable between the electronics housing and the sensor housing may not exceed L_{cable} = 50 m for all versions of VEGAFLEX 81, 82, 83, 86 with separate sensor.

The intrinsically circuits are safe galvanically separated from the parts which can be earthed.

Thermal data:
If the VEGAFLEX FX8*(*).*/VC/O/H****A/H/P/FX**** and VEGAFLEX FX8(*).*/VC/O/H****A/HZ**** are operated in hazardous areas for EPL Ga, EPL Ga/Gb and EPL Gb applications, the permissible temperature range on the electronics / housing as well as on the sensor (measuring part, rod) depending on the temperature class can be found in the following table:

Temperature class	Ambient temperature range (Electronics/housing)	Medium temperature range at measuring sensor
T6	-50 °C … +46 °C	-60°C … +80 °C
T5	-50 °C … +61 °C	-60°C … +95 °C
T4	-50 °C … +70 °C	-60°C … +130 °C
T3	-50 °C … +70 °C	-60°C … +195 °C
T2	-50 °C … +70 °C	-60°C … +290 °C
T1	-50 °C … +70 °C	-60°C … +440 °C

Table 3 - Safety parameters

<table>
<tr><th>No.</th><th>EC Type Examination Certificate No.</th><th>Description</th><th>Safety Parameters</th></tr>
<tr><td></td><td></td><td></td><td>Low-temperature execution down to -196 °C
<table>
<tr><th>Temperature class</th><th>Ambient temperature range (Elektronics/housing)</th><th>Medium temperature range at measuring sensor</th></tr>
<tr><td>T6</td><td>-50 °C … +46 °C</td><td>-60°C … +80 °C</td></tr>
<tr><td>T5</td><td>-50 °C … +61 °C</td><td>-60°C … +95 °C</td></tr>
<tr><td>T4</td><td>-50 °C … +70 °C</td><td>-60°C … +130 °C</td></tr>
<tr><td>T3</td><td>-50 °C … +70 °C</td><td>-60°C … +195 °C</td></tr>
<tr><td>T2</td><td>-50 °C … +70 °C</td><td>-60°C … +290 °C</td></tr>
<tr><td>T1</td><td>-50 °C … +70 °C</td><td>-60°C … +440 °C</td></tr>
</table>
The measuring sensors are allowed to be operated in areas for EPL Ga, EPL Ga/Gb and EPL Gb applications only if atmospheric conditions exist (Temperatures: see tables above and pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.
The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.</td></tr>
<tr><td>2</td><td>EC-Type:
TÜV 12 ATEX 098523 X
Issue 01</td><td>Microwave sensors</td><td>Electrical data
VEGAFLEX FX8*(*).*/VC/U/O/H****A/HX**** single chamber housing, Ex i electronics and connection compartment
Supply and signal circuit .. ..
(Terminals 1 [+], 2[-]
in type of protection "Intrinsic Safety" Ex ia IIC
Only for connection to a certified intrinsically safe circuit
Maximum values:
Ui = 30 V
Ii = 131 mA
Pi = 983 mW
The effective internal capacitance is negligibly small.
Effective internal inductance: 5µH
In the execution with connection cable mounted fixed, the following values have to be observed additionally:
Li' =0.55 µH/m
Ci' $_{wire/wire}$ = 58 pF/m
Ci' $_{wire/shield}$ = 270 pF/m

VEGAFLEX FX8*(*).*/VC/U/O/H****A/HX**** double chamber housing, Ex i electronics and connection compartment
Supply and signal circuit .. ..
(Terminals 1 [+], 2[-]
in type of protection "Intrinsic Safety" Ex ia IIC
Only for connection to a certified intrinsically safe circuit
Maximum values:
Ui = 30 V
Ii = 131 mA
Pi = 983 mW
The effective internal capacitance is negligibly small.
Effective internal inductance: 10µH</td></tr>
</table>

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
				In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li' =0.55 µH/m Ci' $_{wire/wire}$ = 58 pF/m Ci' $_{wire/shield}$ = 270 pF/m
			VEGAFLEX FX8*(*).*/VC/U/O/H**P/FX****, single chamber housing, Ex i electronics and connection compartment** Supply and signal circuit .. .. (Terminals 1 [+], 2[-]	in type of protection "Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The apparatus is suitable for connection to a fieldbus system according to the FISCO concept (IEC 60079-11), e.g. Profibus PA. or Ui = 24 V Ii = 250 mA Pi = 1.2 W The effective internal capacitance and inductance are negligibly small. In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li' =0.55 µH/m Ci' $_{wire/wire}$ = 58 pF/m Ci' $_{wire/shield}$ = 270 pF/m
			VEGAFLEX FX8*(*).*/VC/U/O/H**P/FX****, double chamber housing, Ex i connection compartment** Supply and signal circuit .. .. (Terminals 1 [+], 2[-]	in type of protection "Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The apparatus is suitable for connection to a fieldbus system according to the FISCO concept (IEC 60079-11), e.g. Profibus PA. or Ui = 24 V Ii = 250 mA Pi = 1.2 W The effective internal capacitance is negligibly small. Effective internal inductance: 5µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: Li' =0.55 µH/m Ci' $_{wire/wire}$ = 58 pF/m

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			$Ci'_{wire/shield}$ = 270 pF/m **VEGAFLEX FX8*(*).*/VC/U/O/H****A/HX****double chamber housing, Ex i connection compartment** Supply and signal circuit .. .. (Terminals 1 [+], 2[-] in type of protection "Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5µH Supply and signal circuit .. .. (Terminals 7 [+], 8 [-] in type of protection "Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5µH **VEGAFLEX FX8*(*).*/VC/U/O/H****A/H/P/FX****single chamber housing, Ex i electronics and connection compartment** Display and adjustment circuit .. .. in type of protection "Intrinsic Safety" Ex ia IIC (Terminals 5, 6, 7, 8) For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i" PTB 02 ATEX 2136X). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded. When using the supplied VEGA connection cable, then the permissible cable length is L_{lenght} = 341 m. **VEGAFLEX FX8*(*).*/VC/U/O/H****A/H/P/FX****double chamber housing, Ex i electronics and connection compartment** Display and adjustment circuit .. ..in type of protection "Intrinsic Safety" Ex ia IIC (Terminals 5, 6, 7, 8) For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i" PTB 02 ATEX 2136X). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded. When using the supplied VEGA connection cable, then the permissible cable length is L_{lenght} = 341 m.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

VEGAFLEX FX8*(*).*/VC/U/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ****, double chamber housing, Ex i electronics compartment**

Adapter circuit	in type of protection "Intrinsic Safety" Ex ia IIC
(internal plug connection)	For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic Safety "i" (PTB 02 ATEX 2136 X). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded. When using the supplied VEGA connection cable, then the permissible cable length is L_{lenght} = 341 m.

VEGAFLEX FX8*(*).*/VC/U/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ****, single and double chamber housing, Ex i electronics compartment**

Display and adjustment module resp. the Interface adapter Spring contacts)	in type of protection "Intrinsic Safety" Ex ia IIC Only for connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

VEGAFLEX FX8*(*).*/VC/U/O/H**A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ****

HF circuit	in type of protection, Intrinsic Safety" Ex ia IIC The length of the coax connection cable between the electronics housing and the sensor housing may not exceed L_{cable} = 50 m for all versions of VEGAFLEX 81, 82, 83, 86 with separate sensor

The intrinsically circuits are safe galvanically separated from the part which can be earthed.

Thermal data

If the VEGAFLEX FX8*(*).*/VC/U/O/H****A/H/P/FX**** and VEGAFLEX FX8*(*).*/VC/U/O/H****A/HZ**** are operated in hazardous areas for EPL Ga, EPL Ga/Gb and EPL Gb applications, the permissible temperature range on the electronics/housing as well as the sensor (measuring part, rod) depending on the temperature class can be found in the following table:

Temperature class	Ambient temperature range (Electronics/Housing)	Medium temperature range at measuring sensor
T6	-50°C…+46°C	-60°C…+80°C
T5	-50°C…+61°C	-50°C…+95°C
T4	-50°C…+70°C	-50°C…+130°C
T3	-50°C…+70°C	-50°C…+195°C
T2	-50°C…+70°C	-50°C…+290°C
T1	-50°C…+70°C	-50°C…+440°C

Table 3 - Safety parameters

<table>
<tr><th>No.</th><th>EC Type Examination Certificate No.</th><th>Description</th><th>Safety Parameters</th></tr>
<tr><td></td><td></td><td></td><td>
Low-temperature execution down to -196°C
<table>
<tr><th>Temperature class</th><th>Ambient temperature range (Electronics/Housing)</th><th>Medium temperature range at measuring sensor</th></tr>
<tr><td>T6</td><td>-50°C…+46°C</td><td>-60°C…+80°C</td></tr>
<tr><td>T5</td><td>-50°C…+61°C</td><td>-50°C…+95°C</td></tr>
<tr><td>T4</td><td>-50°C…+70°C</td><td>-50°C…+130°C</td></tr>
<tr><td>T3</td><td>-50°C…+70°C</td><td>-50°C…+195°C</td></tr>
<tr><td>T2</td><td>-50°C…+70°C</td><td>-50°C…+290°C</td></tr>
<tr><td>T1</td><td>-50°C…+70°C</td><td>-50°C…+440°C</td></tr>
</table>
The measuring sensors are allowed to be operated in areas for EPL Ga, EPL Ga/Gb and EPL Gb applications only if atmospheric conditions exist (Temperatures: see tables above and pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.

The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.
</td></tr>
<tr><td>3</td><td>EC-Type:
IECEx TUN 12.0011X
Issue No.: 5</td><td>Microwave sensors type series</td><td>
VEGAFLEX FX8*(*).*/VE/J/Q****A/HX****, single chamber housing, electronics and connection compartment
Supply and signal circuit (Terminal 1[+], 2[-]) U = 9.6 … 35 V d.c
Um = 253 V a.c/d.c
I ≤ 3.5 … 22.5 mA (with superimposed HART signal)

VEGAFLEX FX8*(*).*/VE/J/Q****A/HX****, double chamber housing, connection compartment
Supply and signal circuit (Terminal 1[+], 2[-]) U = 9.6 … 35 V d.c
Um = 253 V a.c/d.c
I ≤ 3.5 … 22,5 mA (with superimposed HART signal)

VEGAFLEX FX8*(*).*/VE/J/Q****A/HZ****, double chamber housing, connection compartment
Supply and signal circuit (Terminal 1[+], 2[-]) U = 9.6 … 35 V d.c
Um = 253 V a.c/d.c
I ≤ 3.5 … 22.5 mA (with superimposed HART signal)
(Terminal 7[+], 8[-]) U = 9.6 … 35 V d.c
Um = 253 V a.c/d.c
I ≤ 3.5 … 22.5 mA

VEGAFLEX FX8*(*).*/VE/J/Q****BX****, double chamber housing, connection compartment
Supply circuit (Terminal 1[+], 2[-]) U = 90 … 253 V a.c
Um = 253 V a.c/d.c
Active 4 … 20 mA signal circuit (Terminal 5[+], 7[-]) Um = 60 V a.c/d.c
I ≤ 3.5 … 22.5 mA (with superimposed HART signal)
Passive 4 … 20 mA signal circuit Um = 60 V a.c/d.c
</td></tr>
</table>

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			(Terminal 6[+], 7[-]) I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VE/J/Q****IX****, double chamber housing, connection compartment** Supply circuit U = 9.6 … 48 V d.c; 42 V a.c (Terminal 1[+], 2[-]) Um = 253 V a.c Active 4 … 20 mA signal circuit Um = 60 V a.c/d.c (Terminal 5[+], 7[-]) I ≤ 3.5 … 22.5 mA (with superimposed HART signal) Passive 4 … 20 mA signal circuit Um = 60 V a.c/d.c (Terminal 6[+], 7[-]) I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VE/J/Q****UX****, double chamber housing, connection compartment** Supply circuit U = 8 … 32 V d.c (Terminal 1[+], 2[-]) Um = 35 V a.c Signal circuit U = 5 V with Modbus signal (telegram) (Terminal MB[+], MB[-]) USB connection Umax = 5 V with USB signal (USB protocol) (6-pole mini USB-socket) **VEGAFLEX FX8*(*).*/VE/J/Q****WX****, single chamber housing, electronics and connection compartment** Supply circuit in the electronics and connection compartment, single chamber housing: (Terminal 1[+], 2[-]) U = 8 … 30 V d.c (Terminal 5[+], 6[-]) Um = 30 V a.c Signal circuit U_{max} = 5 V with Modbus signal (telegram) (Terminal IN 3[D0+], 4[D1] (Terminal OUT 7[D0+], 8[D1] **VEGAFLEX FX8*(*).*/VE/J/Q****P/FX****, single chamber housing, electronics and connection compartment** Supply and signal circuit U = 9 … 32 V d.c (Terminal 1[+], 2[-]) Um = 253 V a.c/d.c **VEGAFLEX FX8*(*).*/VE/J/Q****P/FX****, double chamber housing, connection compartment** Supply and signal circuit U = 9 … 32 V d.c (Terminal 1[+], 2[-]) Um = 253 V a.c/d.c **Display and adjustment circuit** Terminal 5, 6, 7, 8) For connection to the circuit of the passive indicating unit VEGADIS 81 in ignition protection type flameproof enclosure "d" (IECEx BVS 13.0069). **Display and adjustment circuit** (Spring contacts in the connection compartment) Only for connection to the display and adjustment module PLICSCOM or for service purposes to the interface adapter VEGACONNECT, if it is ensured that no explosive atmosphere is present. The circuits of VEGAFLEX 81, 82, 86 are galvanically separated from ground.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

The circuits of VEGAFLEX 81, 82, 86 are galvanically connected to ground potential vial the earth terminals.
The metallic parts of VEGAFLEX 81, 82, 86 are electrically connected with the earth terminals.

Thermal data:
If the VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/B/I/U/WX**** and VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ**** are operated in hazardous areas for EPL Ga/Gb and EPL Gb applications, the permissible temperature range on the electronics / housing as well as on the sensor (measuring part, rod) depending on the temperature class can be found in the following table:

VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/WX**** and
VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ****

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-60°C … +80 °C	-60°C … +60 °C	-50 °C … +60 °C
T5	-60°C … +95 °C	-60°C … +61 °C	-50 °C … +61 °C
T4	-60°C … +130 °C	-60°C … +70 °C	-50 °C … +70 °C
T3	-60°C … +195 °C	-60°C … +70 °C	-50 °C … +70 °C
T2	-60°C … +290 °C	-60°C … +70 °C	-50 °C … +70 °C
T1	-60°C … +440 °C	-60°C … +70 °C	-50 °C … +70 °C

VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/H/P/F/WX**** and
VEGAFLEX FX81/2/6(*).*/VE/J/Q****A/HZ****, Low-temperature execution down to -196 °C

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C … +80 °C	-60°C … +60 °C	-50 °C … +60 °C
T5	-196°C … +95 °C	-60°C … +61 °C	-50 °C … +61 °C
T4	-196°C … +130 °C	-60°C … +70 °C	-50 °C … +70 °C
T3	-196°C … +195 °C	-60°C … +70 °C	-50 °C … +70 °C
T2	-196°C … +290 °C	-60°C … +70 °C	-50 °C … +70 °C
T1	-196°C … +440 °C	-60°C … +70 °C	-50 °C … +70 °C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			VEGAFLEX FX81/2/6(*).*/VE/J/Q****B/I/UX****

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-60°C … +80 °C	-60°C … +60 °C	-50 °C … +60 °C
T5	-60°C … +95 °C	-60°C … +60 °C	-50 °C … +60 °C
T4	-60°C … +130 °C	-60°C … +60 °C	-50 °C … +60 °C
T3	-60°C … +195 °C	-60°C … +60 °C	-50 °C … +60 °C
T2	-60°C … +290 °C	-60°C … +60 °C	-50 °C … +60 °C
T1	-60°C … +440 °C	-60°C … +60 °C	-50 °C … +60 °C

VEGAFLEX FX81/2/6(*).*/VE/J/Q****B/I/UX****, Low-temperature execution down to -196 °C

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C … +80 °C	-60°C … +60 °C	-50 °C … +60 °C
T5	-196°C … +95 °C	-60°C … +60 °C	-50 °C … +60 °C
T4	-196°C … +130 °C	-60°C … +60 °C	-50 °C … +60 °C
T3	-196°C … +195 °C	-60°C … +60 °C	-50 °C … +60 °C
T2	-196°C … +290 °C	-60°C … +60 °C	-50 °C … +60 °C
T1	-196°C … +440 °C	-60°C … +60 °C	-50 °C … +60 °C

The sensors (measuring part, measuring rod) may only be operated in areas for EPL Ga/Gb and EPL Gb applications if atmospheric conditions are present (pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.

The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.

4	EC-Type: TÜV 12 ATEX 098529 X Issue 01	Microwave sensors type series	**Electrical data** **VEGAFLEX FX8*(*).*/VE/J/Q/Z****A/HX***, single chamber housing, electronics and connection compartment** Supply and signal circuit (Terminals1[+], 2[-]): U= 9.6…35 V d.c Um = 253 V a.c/d.c I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VE/J/Q/Z****A/HX***, double chamber housing, connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 9.6…35 V d.c Um = 253 V a.c/d.c I ≤ 3.5…22.5 mA (with superimposed HART signal)

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			VEGAFLEX FX8*(*).*/VE/J/Q/Z**A/HX***, double chamber housing, connection compartment** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9.6…35 V d.c; Um = 253 V a.c/d.c; I ≤ 3.5…22.5 mA (with superimposed HART signal) (Terminal 7[+], 8[-]): U = 9.6…35 V d.c; Um = 253 V a.c/d.c; I ≤ 3.5…22.5 mA **VEGAFLEX FX8*(*).*/VE/J/Q/Z****BX***, double chamber housing, connection compartment** Supply and signal circuit (Terminals 1[+], 2[-]): U = 90…253 V a.c; Um = 253 V a.c/d.c Active 4…20 mA signal circuit (Terminal 5[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminal 6[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5…22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VE/J/Q/Z****IX***, double chamber housing, connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 9.6…48 V d.c; 42 V a.c.; Um = 253 V a.c/d.c Active 4…20 mA signal circuit (Terminal 5[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminal 6[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5…22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VE/J/Q/Z****UX***, double chamber housing, connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 8…32 V d.c.; Um = 35 V a.c. Signal circuit (Terminal MB[+], MB [-]): U = 5 V with Modbus signal (telegram) USB connection (6-pole mini USB-socket): U_{max} = 5 V with USB signal (USB protocol) **VEGAFLEX FX8*(*).*/VE/J/Q/Z****WX***, single chamber housing, electronics and connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 8…30 V d.c.; (Terminal 5[+], 6[-]): Um = 30 V a.c. Supply circuit (Terminals IN 3[D0+], 4[D1] (Terminal OUT 7[D0+], 8[D1]): U_{max} = 5 V with Modbus signal (telegram) **VEGAFLEX FX8*(*).*/VE/J/Q/Z****P/FX***, single chamber housing, electronics and connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 9…32 V d.c.; Um = 253 V a.c/d.c.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

VEGAFLEX FX8*(*).*/VE/J/Q/Z**P/FX***, double chamber housing, electronics and connection compartment**

Supply circuit (Terminals 1[+], 2[-])	U = 9…32 V d.c. Um = 253 V a.c/d.c.
Display and adjustment circuit (Terminals 5, 6, 7, 8)	For connection to the circuit of the passive indicating unit VEGADIS 81 in ignition protection type flameproof enclosure “d” (BVS 13 ATEX E 054).
Display and adjustment circuit (Spring contacts in the connection compartment)	Only for connection to the display and adjustment module PLICSCOM or for service purposes to the interface adapter VEGACONNECT, if it is ensured that no explosive atmosphere is present.

The circuits of VEGAFLEX 81, 82, 86 are galvanically separated from ground.
The circuits of VEGAFLEX 81, 82, 86 are galvanically connected to ground potential vial the earth terminals.
The metallic parts of VEGAFLEX 81, 82, 86 are electrically connected with the earth terminals.

Thermal data
If the VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX**** and VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ**** are operated in hazardous areas for EPL Ga/Gb and EPL Gb applications, the permissible temperature range on the electronics/housing as well as on the sensor (measuring part, rod) depending on the temperature class can be found in the following table:

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/WX**** and VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ ****

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-60°C…+80°C	-60°C…+60°C	-50°C…+60°C
T5	-60°C…+95°C	-60°C…+61°C	-50°C…+61°C
T4	-60°C…+130°C	-60°C…+70°C	-50°C…+70°C
T3	-60°C…+195°C	-60°C…+70°C	-50°C…+70°C
T2	-60°C…+290°C	-60°C…+70°C	-50°C…+70°C
T1	-60°C…+440°C	-60°C…+70°C	-50°C…+70°C

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/WX**** and VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ ****, Low-temperature execution down to -196°C

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C…+80°C	-60°C…+60°C	-50°C…+60°C
T5	-196°C…+95°C	-60°C…+61°C	-50°C…+61°C
T4	-196°C…+130°C	-60°C…+70°C	-50°C…+70°C
T3	-196°C…+195°C	-60°C…+70°C	-50°C…+70°C
T2	-196°C…+290°C	-60°C…+70°C	-50°C…+70°C
T1	-196°C…+440°C	-60°C…+70°C	-50°C…+70°C

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z***B/I/UX ****

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-60°C…+80°C	-60°C…+60°C	-50°C…+60°C
T5	-60°C…+95°C	-60°C…+60°C	-50°C…+60°C
T4	-60°C…+130°C	-60°C…+60°C	-50°C…+60°C
T3	-60°C…+195°C	-60°C…+60°C	-50°C…+60°C
T2	-60°C…+290°C	-60°C…+60°C	-50°C…+60°C
T1	-60°C…+440°C	-60°C…+60°C	-50°C…+60°C

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z***B/I/UX****, Low-temperature execution down to -196°C

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C…+80°C	-60°C…+60°C	-50°C…+60°C
T5	-196°C…+95°C	-60°C…+60°C	-50°C…+60°C
T4	-196°C…+130°C	-60°C…+60°C	-50°C…+60°C
T3	-196°C…+195°C	-60°C…+60°C	-50°C…+60°C
T2	-196°C…+290°C	-60°C…+60°C	-50°C…+60°C
T1	-196°C…+440°C	-60°C…+60°C	-50°C…+60°C

The measuring sensors are allowed to be operated in areas for EPL Ga/Gb and EPL Gb applications only if atmospheric conditions exist (Temperatures: see tables above and pressure from 0.8 bar to 1.1 bar).
If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).
If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.
The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
5	EC-Type: IECEx TUN 12.0019X Issue No.: 5	Microwave sensors type series	**VEGAFLEX FX8*(*).*/VD/I/P****A/HX****, double chamber housing, Ex d connection compartment** Supply and signal circuit (Terminals1[+], 2[-]): U= 15 … 35 V d.c; Um = 253 V a.c/d.c; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VD/I/P****BX****, double chamber housing, Ex d connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 90 … 253 V d.c; Um = 253 V a.c/d.c Active 4 … 20 mA-signal circuit (Terminals 5[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) Passive 4 … 20mA-signal circuit (Terminals 6[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VD/I/P****IX****, double chamber housing, Ex d connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 9.6 … 48 d.c; 42 V a.c; Um = 253 V a.c Active 4 … 20 mA-signal circuit (Terminals 5[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) Passive 4 … 20 mA-signal circuit (Terminals 6[+], 7[-]): Um = 60 V a.c/d.c; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8*(*).*/VD/I/P****UX****, double chamber housing, Ex d connection compartment** Supply circuit (Terminals 1[+], 2[-]): U = 8 … 32 V d.c; Um = 253 V a.c Signal circuit (Terminals MB[+], MB[-]): U = 5 V with Modbus signal (telegram); Um = 253 V a.c USB-Connection (6-pin mini USB connector): U = 5 V with USB signal (USB protocol); Um = 253 V a.c **Display and adjustment circuit, Ex d connection compartment:** Display and adjustment circuit (Terminals 5, 6, 7, 8): For connection to the circuit of the passive indicating unit VEGADIS 81 in ignition protection type flameproof enclosure "d" (IECEx BVS 13.0069). **Intrinsically safe circuit for the external display and adjustment unit, Ex i-electronics compartment:** Intrinsically safe circuit for the external display and adjustment unit: (Terminals 5, 6, 7, 8): In ignition protection type intrinsic safety Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety "i" (IECEx PTB 06.0048). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded When using the supplied VEGA connection cable, then the permissible cable length is Lzul = 341 m.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

Display and adjustment circuit

Spring contacts in the Ex d connection compartment	Only for connection to the display and adjustment module PLICSCOM or for service purposes the interface adapter VEGACONNECT, if it is ensured that no explosive atmosphere is present.
Spring contacts in the Ex i electronics compartment	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module PLICSCOM.

The circuits of VEGAFLEX 81, 82, 83, 86 are galvanically separated from ground.

The circuits of VEGAFLEX 81, 82, 83, 86 are galvanically connected to ground potential vial the earth terminals.

The metallic parts of VEGAFLEX 81, 82, 83, 86 are electrically connected with the earth terminals.

Thermal data:
The following temperature tables are valid for all housing and electronics versions.

The relationship between the permissible ambient temperature for the electronics housing depending on the area of application and the maximum surface temperatures, temperature classes, can be seen in the following tables.

VEGAFLEX FX8*(*).*/VD/I/P**A/HX******

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C … +80 °C	-60°C … +46 °C	-50 °C … +46 °C
T5	-196°C … +95 °C	-60°C … +61 °C	-50 °C … +61 °C
T4	-196°C … +130 °C	-60°C … +70 °C	-50 °C … +70 °C
T3	-196°C … +195 °C	-60°C … +70 °C	-50 °C … +70 °C
T2	-196°C … +290 °C	-60°C … +70 °C	-50 °C … +70 °C
T1	-196°C … +440 °C	-60°C … +70 °C	-50 °C … +70 °C

VEGAFLEX FX8*(*).*/VD/I/P**A/HX******, Low-temperature execution down to -196 °C**

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C … +80 °C	-60°C … +46 °C	-50 °C … +46 °C
T5	-196°C … +95 °C	-60°C … +61 °C	-50 °C … +61 °C
T4	-196°C … +130 °C	-60°C … +70 °C	-50 °C … +70 °C
T3	-196°C … +195 °C	-60°C … +70 °C	-50 °C … +70 °C
T2	-196°C … +290 °C	-60°C … +70 °C	-50 °C … +70 °C
T1	-196°C … +440 °C	-60°C … +70 °C	-50 °C … +70 °C

Table 3 - Safety parameters

<table>
<tr><th>No.</th><th>EC Type Examination Certificate No.</th><th>Description</th><th>Safety Parameters</th></tr>
<tr><td></td><td></td><td></td><td>
VEGAFLEX FX8*(*).*/VD/I/P****B/I/UX****
<table>
<tr><th rowspan="2">Temperature class</th><th rowspan="2">Temperature on the sensor (measuring cable, rod)</th><th colspan="2">Ambient temperature on the electronics</th></tr>
<tr><th>Housing lid without inspection window</th><th>Housing lid with inspection window</th></tr>
<tr><td>T6</td><td>-60°C … +80 °C</td><td>-60°C … +46 °C</td><td>-50 °C … +46 °C</td></tr>
<tr><td>T5</td><td>-60°C … +95 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
<tr><td>T4</td><td>-60°C … +130 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
<tr><td>T3</td><td>-60°C … +195 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
<tr><td>T2</td><td>-60°C … +290 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
<tr><td>T1</td><td>-60°C … +440 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
</table>
VEGAFLEX FX8*(*).*/VD/I/P****B/I/UX****, Low-temperature execution down to -196 °C
<table>
<tr><th rowspan="2">Temperature class</th><th rowspan="2">Temperature on the sensor (measuring cable, rod)</th><th colspan="2">Ambient temperature on the electronics</th></tr>
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<tr><td>T5</td><td>-196°C … +95 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
<tr><td>T4</td><td>-196°C … +130 °C</td><td>-60°C … +60 °C</td><td>-50 °C … +60 °C</td></tr>
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</table>
The measuring sensors are allowed to be operated in areas for EPL Ga/Gb and EPL Gb applications only if atmospheric conditions exist (Temperatures: see tables above and pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.

The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.
</td></tr>
<tr><td>6</td><td>EC-Type:
TÜV 12 ATEX 098525 X
Issue 01</td><td>Microwave sensors type series</td><td>
Electrical data
VEGAFLEX FX8*(*).*/VD/V/P/I****A/H/X****, double chamber housing, Ex d connection compartment
Supply and signal circuit
(Terminals 1[+], 2[-]) U = 15…35 V d.c.
Um = 253 V a.c./d.c.
I ≤ 3.5…22.5 mA (with superimposed HART signal)

VEGAFLEX FX8*(*).*/VD/V/P/I****BX****, double chamber housing, Ex d connection compartment
Supply circuit U = 90…253 V d.c.
(Terminals 1[+], 2[-]) Um = 253 V a.c.

Active 4…20 mA-signal circuit Um = 60 V a.c/d.c.
</td></tr>
</table>

This certificate supersedes all previous documents bearing the reference no XPL/21518/20.0717 Issue 2.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters	
			(Terminals 5[+], 7[-])	I ≤ 3.5…22.5 mA (with superimposed HART signal)
			Passive 4…20 mA-signal circuit (Terminals 6[+], 7[-])	Um = 60 V a.c/d.c. I ≤ 3.5…22.5 mA (with superimposed HART signal)
			VEGAFLEX FX8*(*).*/VD/V/P/I**IX****, double chamber housing, Ex d connection compartment**	
			Supply circuit (Terminals 1[+], 2[-])	U = 9.6…48 V d.c.; 4.2 V a.c Um = 253 V a.c.
			Active 4-20 mA signal circuit (Terminals 5[+], 7[-])	Um = 60 V a.c/d.c. I ≤ 3.5…22.5 mA (with superimposed HART signal)
			Passive 4-20 mA signal circuit (Terminals 6[+], 7[-])	Um = 60 V a.c/d.c. I ≤ 3.5…22.5 mA (with superimposed HART signal)
			VEGAFLEX FX8*(*).*/VD/V/P/I**UX****, double chamber housing, Ex d connection compartment**	
			Supply circuit (Terminals 1[+], 2[-])	U = 8…32 V d.c Um = 253 V a.c
			Signal circuit (Terminals MB[+], MB[-])	U = 5 V with Modbus signal (telegram) Um = 253 V a.c
			USB-connection (6-pin mini USB connector)	U = 5 V with USB signal (USB protocol) Um = 253 V a.c.
			Display and adjustment circuit, Ex d connection compartment	
			Display and adjustment circuit (Terminals 5, 6, 7, 8)	for connection to the circuit of the passive indication unit VEGADIS 81 in ignition protection type flameproof enclosure “d” (BVS 13 ATEX E 054).
			Intrinsically safe circuit for the external display and adjustment unit, Ex i-electronics compartment	
			Intrinsically safe circuit for the external display and adjustment unit: (Terminals 5, 6, 7, 8)	In ignition protection type intrinsic safety Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external indicating unit VEGADIS 81 in ignition protection type Intrinsic safety “i” (PTB 02 ATEX 2136X). The proof for intrinsic safety of the interconnection rendered if the total inductance and total capacitance of the connection cable L_{cable} = 212 µH and C_{cable} = 1.98 µF is not exceeded. When using the supplied VEGA connection cable, then the permissible cable length is L_{zul} = 341 m
			Display and adjustment circuit Spring contacts in the Ex d connection compartment	Only for connection to the display and adjustment module PLICSCOM or for service purposes the interface adapter VEGACONNECT, if it is ensured that no explosive atmosphere is present.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters

Spring contacts in the Ex i electronics compartment — In ignition protection type intrinsic safety Ex ia IIC
Only for connection to the display and adjustment module PLICSCOM.

The circuits of VEGAFLEX 81, 82, 83, 86 are galvanically separated from ground.
The cirucits of VEGAFLEX 81, 82, 83, 86 are galvanically connected to ground potential vial the earth terminals.
The metallic parts of VEGAFLEX 81, 82, 83, 86 are electrically connected with the earth terminals.

Thermal data
The following temperature tables are valid for all housing and electronics versions.
The relationship between the permissible ambient temperature for the electronics housing depending on the area of application and the maximum surface temperatures, temperature classes, can be seen in the following tables.

VEGAFLEX FX8*(*),*/VD/I/V/P****A/HX****

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-60°C…+80°C	-60°C…+46°C	-50°C…+46°C
T5	-60°C…+95°C	-60°C…+61°C	-50°C…+61°C
T4	-60°C…+130°C	-60°C…+70°C	-50°C…+70°C
T3	-60°C…+195°C	-60°C…+70°C	-50°C…+70°C
T2	-60°C…+290°C	-60°C…+70°C	-50°C…+70°C
T1	-60°C…+440°C	-60°C…+70°C	-50°C…+70°C

VEGAFLEX FX8*(*),*/VD/I/V/P****A/HX****, Low temperature execution down to -196°C

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics	
		Housing lid without inspection window	Housing lid with inspection window
T6	-196°C…+80°C	-60°C…+46°C	-50°C…+46°C
T5	-196°C…+95°C	-60°C…+61°C	-50°C…+61°C
T4	-196°C…+130°C	-60°C…+70°C	-50°C…+70°C
T3	-196°C…+195°C	-60°C…+70°C	-50°C…+70°C
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VEGAFLEX FX8*(*).*/VD/I/V/P****B/I/UX****

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VEGAFLEX FX8*(*),*/VD/I/V/P****B/I/UX ****, Low temperature execution down to -196°C

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The measuring sensors are allowed to be operated in areas for EPL Ga/Gb and EPL Gb applications only if atmospheric conditions exist (Temperatures: see table above and pressure from 0.8 bar to 1.1 bar).
If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).
If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded.
The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.
</td></tr>
<tr><td>7</td><td>EC-Type:
IECEx TUN 19.0018X
Issue No.: 0</td><td>Guided radar sensors</td><td>
For the variants FX8*(*).*/VR/H/I/J****A/HX****, FX8*(*).*/VR/H/I/J****A/HZ****, FX8*(*).*/VR/H/I/J****P/FX**** and FX8*(*).*/VR/H/I/J****UX**** it must be observed, that when installed as EPL Da devices the maximum power at the sensor must be limited to the Pmax ≤ 2 W.
VEGAFLEX FX8(*).*/VR/H/I/J****A/HX**** in the electronics and connection compartment, single chamber housing

Supply and signal circuit (Terminals1[+], 2[-]) — U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5 … 22.5 mA (with superimposed HART signal)

VEGAFLEX FX8(*).*/VR/H/I/J****A/HX**** in connection compartment, double chamber housing
Supply and signal circuit (Terminals 1[+], 2[-]) — U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal)
</td></tr>
</table>

This certificate supersedes all previous documents bearing the reference no XPL/21518/20.0717 Issue 2.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			VEGAFLEX FX8(*).*/VR/H/I/J**A/HZ**** in connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal) (Terminals 7[+], 8[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****BX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 90 … 253 V DC; Um = 253 V AC/DC Aktive 4…20 mA signal circuit (Terminals 5[+], 7[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminals 7[+], 8[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****IX**** in the connection compartment, double chamber housing** Supply (Terminals 1[+], 2[-]): U = 9.6 … 48 V DC; 42 V AC; Um = 253 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Aktive 4…20 mA signal circuit (Terminals 5[+], 7[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminals 7[+], 8[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****UX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 8…32 V DC Signal circuit (Terminals MB[+], MB[-]): U = 5 V with Modbus signal (telegram) USB connection (6-pole mini USB socket): U_{max} = 5 V with USB signal (USB protocol) **VEGAFLEX FX8(*).*/VR/H/I/J****P/FX**** in the electronics and connection compartment, signal chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9…32 V DC; Um = 253 V AC/DC **VEGAFLEX FX8(*).*/VR/H/I/J****P/FX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9…32 V DC; Um = 253 V AC/DC Display and adjustment circuit: (Terminals 5, 6, 7, 8): For connection to the circuit of the passive indicating unit VEGADIS 81 in ignition protection type Protection by enclosure “t” (IECEx BVS 13.0069). Display and adjustment circuit: (Spring contacts in the connection: Only for connection to the display and adjustment module PLICSCOM, if it is ensured that no explosive atmosphere is present.

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			compartment) The circuits of VEGAFLEX FX8(*).*/VR/H/I/J****A/H/P/F**** are galvanically separated from ground. The circuits of VEGAFLEX FX8(*).*/VR/H/I/J****B/I/U**** are galvanically connected to ground potential via the earth terminals. The metallic parts of VEGAFLEX 81, 82, 83 and 86 are electrically connected with the earth terminals.
8	EC-Type: TÜV 19 ATEX 231186 X	Guided radar sensors	For the variants FX8*(*).*/VR/H/I/J****A/HX****, FX8*(*).*/VR/H/I/J****A/HZ****, FX8*(*).*/VR/H/I/J****P/FX**** and FX8*(*).*/VR/H/I/J****UX**** it must be observed, that when installed as EPL Da devices the maximum power at the sensor must be limited to the Pmax ≤ 2 W. **VEGAFLEX FX8(*).*/VR/H/I/J****A/HX**** in the electronics and connection compartment, single chamber housing** Supply and signal circuit (Terminals1[+], 2[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5 … 22.5 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****A/HX**** in connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****A/HZ**** in connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal) (Terminals 7[+], 8[-]): U = 9.6 … 35 V DC; Um = 253 V AC/DC; I ≤ 3.5…22 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****BX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]): U = 90 … 253 V DC; Um = 253 V AC/DC Aktive 4…20 mA signal circuit (Terminals 5[+], 7[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminals 7[+], 8[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) **VEGAFLEX FX8(*).*/VR/H/I/J****IX**** in the connection compartment, double chamber housing** Supply (Terminals 1[+], 2[-]): U = 9.6 … 48 V DC; 42 V AC; Um = 253 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Aktive 4…20 mA signal circuit (Terminals 5[+], 7[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal) Passive 4…20 mA signal circuit (Terminals 7[+], 8[-]): Um = 60 V AC/DC; I ≤ 3.5…22.5 mA (with superimposed HART signal)

Table 3 - Safety parameters

No.	EC Type Examination Certificate No.	Description	Safety Parameters
			VEGAFLEX FX8(*).*/VR/H/I/J**UX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]) — U = 8…32 V DC Signal circuit (Terminals MB[+], MB[-]) — U = 5 V with Modbus signal (telegram) USB connection (6-pole mini USB socket) — U_{max} = 5 V with USB signal (USB protocol) **VEGAFLEX FX8(*).*/VR/H/I/J****P/FX**** in the electronics and connection compartment, signal chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]) — U = 9…32 V DC; Um = 253 V AC/DC **VEGAFLEX FX8(*).*/VR/H/I/J****P/FX**** in the connection compartment, double chamber housing** Supply and signal circuit (Terminals 1[+], 2[-]) — U = 9…32 V DC; Um = 253 V AC/DC Display and adjustment circuit: (Terminals 5, 6, 7, 8) — For connection to the circuit of the passive indicating unit VEGADIS 81 in ignition protection type Protection by enclosure “t” (IECEx BVS 13.0069). Display and adjustment circuit: (Spring contacts in the connection compartment) — Only for connection to the display and adjustment module PLICSCOM, if it is ensured that no explosive atmosphere is present. The circuits of VEGAFLEX FX8(*).*/VR/H/I/J****A/H/P/F**** are galvanically separated from ground. The circuits of VEGAFLEX FX8(*).*/VR/H/I/J****B/I/U**** are galvanically connected to ground potential via the earth terminals. The metallic parts of VEGAFLEX 81, 82, 83 and 86 are electrically connected with the earth terminals.