

Translation

(1) **EU-Type Examination Certificate**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**



(3) **Certificate Number** TÜV 12 ATEX 098529 X **issue:** 01

(4) for the product: Microwave sensors type series
VEGAFLEX FX81/2/6(*) *VE/JJ/Q/Z****A/H/P/F/B/I/U/WX****
VEGAFLEX FX81/2/6(*) *VE/JJ/Q/Z****A/HZ****

(5) of the manufacturer: **VEGA Grieshaber KG**

(6) Address: Am Hohenstein 113
77761 Schiltach
Germany

Order number: 8000489411

Date of issue: 2019-06-06

- (7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 19 203 231182.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-1:2014

EN 60079-26:2015

except in respect of those requirements listed at item 18 of the schedule.

- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the product shall include the following:



II 1/2 G Ex db IIC T6...T1 Ga/Gb
II 2 G Ex db IIC T6...T1 Gb

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

Roderf

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Excerpts or changes shall be allowed by the TÜV NORD CERT GmbH



(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 12 ATEX 098529 X issue 01**

(15) **Description of product**

The microwave sensors type series

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 used for evaluation of the distance between a product surface and the sensor via high-frequency microwave pulses. The microwave sensors emit high-frequency microwave pulses, which are carried along a measuring rod resp. a measuring cable. The electronics evaluate the delay time of the signals reflected by the product surface to calculate the distance to this surface.

Type code

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/H/P/F/B/I/U/WX****

VEGAFLEX FX81/2/6(*).*/VE/J/Q/Z****A/HZ****

Electrical data

VEGAFLEX FX8(*).*/VE/J/Q/Z**A/HX****, single chamber housing, electronics and connection compartment**

Supply and signal circuit

$U = 9.6 \dots 35 \text{ V d.c}$

(Terminal 1[+], 2[-])

$U_m = 253 \text{ V a.c/d.c}$

$I \leq 3.5 \dots 22.5 \text{ mA}$ (with superimposed HART signal)

VEGAFLEX FX8(*).*/VE/J/Q/Z**A/HX****, double chamber housing, connection compartment**

Supply and signal circuit

$U = 9.6 \dots 35 \text{ V d.c}$

(Terminal 1[+], 2[-])

$U_m = 253 \text{ V a.c/d.c}$

$I \leq 3.5 \dots 22.5 \text{ mA}$ (with superimposed HART signal)

VEGAFLEX FX8(*).*/VE/J/Q/Z**A/HZ****, double chamber housing, connection compartment**

Supply and signal circuit

$U = 9.6 \dots 35 \text{ V d.c}$

(Terminal 1[+], 2[-])

$U_m = 253 \text{ V a.c/d.c}$

$I \leq 3.5 \dots 22.5 \text{ mA}$ (with superimposed HART signal)

(Terminal 7[+], 8[-])

$U = 9.6 \dots 35 \text{ V d.c}$

$U_m = 253 \text{ V a.c/d.c}$

$I \leq 3.5 \dots 22.5 \text{ mA}$

VEGAFLEX FX8(*).*/VE/J/Q/Z**BX****, double chamber housing, connection compartment**

Supply circuit

$U = 90 \dots 253 \text{ V a.c}$

(Terminal 1[+], 2[-])

$U_m = 253 \text{ V a.c/d.c}$

Active 4 ... 20 mA signal circuit

$U_m = 60 \text{ V a.c/d.c}$

(Terminal 5[+], 7[-])

$I \leq 3.5 \dots 22.5 \text{ mA}$ (with superimposed HART signal)

Passive 4 ... 20 mA signal circuit

$U_m = 60 \text{ V a.c/d.c}$

(Terminal 6[+], 7[-])

$I \leq 3.5 \dots 22.5 \text{ mA}$ (with superimposed HART signal)

Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 098529 X issue 01

VEGAFLEX FX8*(*).*IV/E/J/Q/Z**IX****, double chamber housing, connection compartment**

Supply circuit
(Terminal 1[+], 2[-])

$U = 9.6 \dots 48 \text{ V d.c.; } 42 \text{ V a.c}$
 $U_m = 253 \text{ V a.c}$

Active 4 ... 20 mA signal circuit
(Terminal 5[+], 7[-])

$U_m = 60 \text{ V a.c/d.c}$
 $I \leq 3.5 \dots 22.5 \text{ mA (with superimposed HART signal)}$

Passive 4 ... 20 mA signal circuit
(Terminal 6[+], 7[-])

$U_m = 60 \text{ V a.c/d.c}$
 $I \leq 3.5 \dots 22.5 \text{ mA (with superimposed HART signal)}$

VEGAFLEX FX8*(*).*IV/E/J/Q/Z**UX****, double chamber housing, connection compartment**

Supply circuit
(Terminal 1[+], 2[-])

$U = 8 \dots 32 \text{ V d.c}$
 $U_m = 35 \text{ V a.c}$

Signal circuit
(Terminal MB[+], MB[-])

$U = 5 \text{ V with Modbus signal (telegram)}$

USB connection
(6-pole mini USB-socket)

$U_{\max} = 5 \text{ V with USB signal (USB protocol)}$

VEGAFLEX FX8*(*).*IV/E/J/Q/Z**WX****, single chamber housing, electronics and connection compartment**

Supply circuit
(Terminal 1[+], 2[-])
(Terminal 5[+], 6[-])

$U = 8 \dots 30 \text{ V d.c}$
 $U_m = 30 \text{ V a.c}$

Signal circuit
(Terminal IN 3[D0+], 4[D1]
(Terminal OUT 7[D0+], 8[D1])

$U_{\max} = 5 \text{ V with Modbus signal (telegram)}$

VEGAFLEX FX8*(*).*IV/E/J/Q/Z**P/FX****, single chamber housing, electronics and connection compartment**

Supply and signal circuit
(Terminal 1[+], 2[-])

$U = 9 \dots 32 \text{ V d.c}$
 $U_m = 253 \text{ V a.c/d.c}$

VEGAFLEX FX8*(*).*IV/E/J/Q/Z**P/FX****, double chamber housing, connection compartment**

Supply and signal circuit
(Terminal 1[+], 2[-])

$U = 9 \dots 32 \text{ V d.c}$
 $U_m = 253 \text{ V a.c/d.c}$

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" (BVS 13 ATEX E 054).

Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 098529 X issue 01

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 via 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

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

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VEGAFLEX FX81/2/6(*)*/NE/J/Q/Z****B//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(*)*/NE/J/Q/Z****B//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.

- (16) Drawings and documents are listed in the ATEX Assessment Report No. 19 203 231180

Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 098529 X issue 01

(17) Specific Conditions for Use

1. 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.
2. 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.
3. 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**** have to be secured effectively against these dangers. Observe manual of the manufacturer.
4. 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.
5. The ambient temperature range depending on temperature class is to be taken from the operating instructions.
6. The flameproof housing of these devices must be provided with cable entries and filler plugs resp. conduits which are certified according to EN 60079-0 and EN 60079-1. The connection cable, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.

(18) Essential Health and Safety Requirements

No additional ones

- End of Certificate -

Translation

(1) **EU-Type Examination Certificate**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**



(3) **Certificate Number** TÜV 12 ATEX 098529 X **Issue:** 00

(4) for the product: Microwave sensors
type series VEGAFLEX FX8*(*).*IV/J/Z/Q****A/H*****

(5) of the manufacturer: **VEGA Grieshaber KG**

(6) Address: Am Hohenstein 113
77761 Schiltach
Germany

Order number: 8000462858

Date of issue: 2016-12-08

- (7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 16 203 185289.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013 **EN 60079-1:2014** **EN 60079-26:2015**

except in respect of those requirements listed at item 18 of the schedule.

- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

 **II 1/2 G resp. II 2 G Ex d IIC T6 ... T1 Ga/Gb resp. Gb**

TÜV NORD CERT GmbH, Langemarkstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



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(13) SCHEDULE

(14) EU-Type Examination Certificate No. TÜV 12 ATEX 098529 X Issue 00

(15) Description of product

The microwave sensors type series VEGAFLEX FX8*(*).*VE/J/Z/Q****A/H***** are used for evaluation of the distance between a product surface and the sensor via high-frequency microwave pulses. The microwave sensors emit high-frequency microwave pulses, which are carried along a measuring rod resp. a measuring cable. The electronics evaluate the delay time of the signals reflected by the product surface to calculate the distance to this surface.

Changes:

1. Extension, installation and mounting of the display and adjustment module PLICSCOM 3
2. Update of type key: FX8*(*).*VE/J/Z/Q****A/H*****
3. Technical update
4. Update to actual standards
5. Usage with external housings.

The specifications in the

- EC-Type Examination Certificate TÜV 12 ATEX 098529 X / Test Report 12 203 098529 and
 - 1. Supplement TÜV 12 ATEX 098529 X / Test Report 13 203 119777
 - 2. Supplement TÜV 12 ATEX 098529 X / Test Report 15 203 152552
- are also still valid for the original versions.

(16) Drawings and documents are listed in the ATEX Assessment Report No. 16 203 185289

(17) Specific Conditions for Use

1. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).AE****A/H***** resp. VEGAFLEX FX8*(*).A/VE/J/Q/Z****A/H***** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label.
2. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).AE****A/H***** resp. VEGAFLEX FX8*(*).A/VE/J/Q/Z****A/H***** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
3. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*).AE****A/H***** resp. VEGAFLEX FX8*(*).A/VE/J/Q/Z****A/H***** have to be secured effectively against these dangers. Observe manual of the manufacturer.
4. For EPL Ga/Gb applications the medium tangent materials have to be resistant to the media. Observe manual of the manufacturer.
5. The flameproof housing of this equipment must be provided with cable entries and filler plugs resp. conduits which are certified according to EN 60079-0 and EN 60079-1. The connection cables, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.

(18) Essential Health and Safety Requirements no additional ones

- End of Certificate -

Translation

2. SUPPLEMENT

to Certificate No. TÜV 12 ATEX 098529 X

Equipment: Guided Wave Radar sensors type series
VEGAFLEX FX8*(*).AE/J/Z/Q****A/H*****

Manufacturer: VEGA Grieshaber KG

Address: Am Hohenstein 113
77761 Schiltach
Germany

Order number: 8000442060

Date of issue: 2015-03-19

For the Guided Wave Radar sensors type series VEGAFLEX FX8*(*).AE****A/H*****, the following changes were performed:

- New type designation: Guided Wave Radar sensor type series VEGAFLEX FX8*(*).AE/J/Z/Q****A/H*****
- Different colours for the housing
- Modifications at the process connections
- Modifications at the measuring sensors
-

All other details remain unchanged.

The equipment according to this supplement meets the requirements of these standards:

EN 60079-0:2012 EN 60079-1:2007 EN 60079-26:2007

(16) The test documents are listed in the test report No. 15 203 152552.

(17) Special conditions for safe use

Unchanged; but see new type designation.

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



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Translation

1. SUPPLEMENT

to Certificate No.	TÜV 12 ATEX 098529 X
Equipment:	Microwave sensors type series VEGAFLEX FX8*(*)..AE**** A/H *****
Manufacturer:	VEGA Grieshaber KG
Address:	Am Hohenstein 113 77761 Schiltach Germany
Order number:	8000420027
Date of issue:	2013-06-26

For the microwave sensors type series FX8*(*)..AE****A/H*****, the following changes were performed:

- Modified PLICSCOM module with additional power limitation for the LED
- Change of components (according to VEGAFLEX FX8*(*)..AC****A/H*****, TÜV 12 ATEX 098523 X) in the following circuitries: Digital part, power supply part, HF part
- Permissible ambient temperature of the electronics and the electronic housings down to -50 °C

The "Special conditions for safe" use and the electrical data remain unchanged.

If the microwave sensors are used in explosion hazardous areas for EPL Ga/Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T6	-50 °C ... +60 °C	-20°C ... +60 °C
T5	-50 °C ... +60 °C	-20°C ... +60 °C
T4, T3, T2, T1	-50 °C ... +60 °C	-20°C ... +60 °C

The measuring sensors are allowed to be operated in an explosion hazardous area for EPL Ga applications, only if atmospheric conditions exist (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.

1. Supplement to Certificate No. TÜV 12 ATEX 098529 X

If the microwave sensors are used in explosion hazardous areas for EPL Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics)	Medium temperature range (measuring sensor)
T6	-50 °C ... +60 °C	-60 °C ... +85 °C
T5	-50 °C ... +60 °C	-60 °C ... +100 °C
T4	-50 °C ... +60 °C	-60 °C ... +135 °C
T3	-50 °C ... +60 °C	-60 °C ... +200 °C
T2	-50 °C ... +60 °C	-60 °C ... +300 °C
T1	-50 °C ... +60 °C	-60 °C ... +450 °C

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

VEGAFLEX FX86(*).AE****A/H*****, low-temperature execution down to -196 °C

If the microwave sensors are used in explosion hazardous areas for EPL Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics)	Medium temperature range (measuring sensor)
T6	-50 °C ... +60 °C	-196 °C ... +85 °C
T5	-50 °C ... +60 °C	-196 °C ... +100 °C
T4	-50 °C ... +60 °C	-196 °C ... +135 °C
T3	-50 °C ... +60 °C	-196 °C ... +200 °C
T2	-50 °C ... +60 °C	-196 °C ... +300 °C
T1	-50 °C ... +60 °C	-196 °C ... +450 °C

If the measuring sensors of the microwave sensors VEGAFLEX FX86(*).AE****A/H***** 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. If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

All types VEGAFLEX FX8(*).AE****A/H*****

The ambient temperature derating at process temperatures up to +150 °C, +200 °C, +250 °C, +280 °C, +450 °C and down to -196 °C has to be taken from the manual of the manufacturer.

The equipment according to this supplement meets the requirements of these standards:

EN 60079-0:2012

EN 60079-1:2007

EN 60079-26:2007

1. Supplement to Certificate No. TÜV 12 ATEX 098529 X

(16) The test documents are listed in the test report no. 13 203 119777.

(17) Special conditions for safe use

1. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*)..AE****A/H***** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label.
2. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*)..AE****A/H***** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
3. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*)..AE****A/H***** have to be secured effectively against these dangers. Observe manual of the manufacturer.
4. For EPL Ga/Gb applications the medium tangent materials have to be resistant to the media. Observe manual of the manufacturer.
5. The flameproof housing of this equipment must be provided with cable entries and filler plugs resp. conduits which are certified according to EN 60079-0 and EN 60079-1. The connection cables, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



Meyer

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Translation

(1) **EC-Type-Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**

(3) **Certificate Number** TÜV 12 ATEX 098529 X

(4) for the equipment: Microwave sensors
type series VEGAFLEX FX8*(*).*E****A/H****


(5) of the manufacturer: VEGA Grieshaber KG

(6) Address: Am Hohenstein 113
77761 Schiltach
Germany

Order number: 8000405998

Date of issue: 2012-05-03

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 12 203 098529.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2009 EN 60079-1:2007 EN 60079-26:2007
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:

 II 1/2 G resp. II 2 G Ex d IIC T6 ... T1 Ga/Gb resp. Gb

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(13) **SCHEDULE**

(14) **EC-Type-Examination Certificate No. TÜV 12 ATEX 098529 X**

(15) Description of equipment

The microwave sensors type series VEGAFLEX FX8*(*).*E****A/H***** executed in type of protection flameproof enclosures "d" are used for evaluation of the distance between a product surface and the sensor via high-frequency microwave pulses.

The microwave sensors emit high-frequency microwave pulses, which are carried along a measuring rod resp. a measuring cable.

The electronics evaluate the delay time of the signals reflected by the product surface to calculate the distance to this surface.

The VEGAFLEX microwave sensors type series VEGAFLEX FX8*(*).*E****H***** are 2 wire 4-20 mA sensors with superposed HART signal.

The VEGAFLEX microwave sensors type series VEGAFLEX FX8*(*).*E****A***** are 2 wire 4-20 mA sensors with superposed HART signal and with additional SIL qualification.

Electrical data

Supply and signal circuit U = 9.6 ... 35 V d. c.
(Terminals 1[+], 2[-]) U_m = 253 V a. c.

Operation and indication circuit Only for connection to the signal circuit of the
(Terminals 5, 6, 7, 8) belonging external passive VEGA indication unit type VEGADIS61 or VEGADIS81 in type of protection flameproof enclosures "d".

The supply and signal circuit is safe galvanically separated from the parts which can be earthed.

If the microwave sensors are used in explosion hazardous areas for EPL Ga/Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T6	-40 °C ... +60 °C	-20°C ... +60 °C
T5	-40 °C ... +60 °C	-20°C ... +60 °C
T4, T3, T2, T1	-40 °C ... +60 °C	-20°C ... +60 °C

The measuring sensors are allowed to be operated in an explosion hazardous area for EPL Ga applications, only if atmospheric conditions exist (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.

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If the microwave sensors are used in explosion hazardous areas for EPL Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics)	Medium temperature range (measuring sensor)
T6	-40 °C ... +60 °C	-60 °C ... +85 °C
T5	-40 °C ... +60 °C	-60 °C ... +100 °C
T4	-40 °C ... +60 °C	-60 °C ... +135 °C
T3	-40 °C ... +60 °C	-60 °C ... +200 °C
T2	-40 °C ... +60 °C	-60 °C ... +300 °C
T1	-40 °C ... +60 °C	-60 °C ... +450 °C

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.

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

VEGAFLEX FX86(*) *E****A/H*****, low-temperature execution down to -196 °C

If the microwave sensors are used in explosion hazardous areas for EPL Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics)	Medium temperature range (measuring sensor)
T6	-40 °C ... +60 °C	-196 °C ... +85 °C
T5	-40 °C ... +60 °C	-196 °C ... +100 °C
T4	-40 °C ... +60 °C	-196 °C ... +135 °C
T3	-40 °C ... +60 °C	-196 °C ... +200 °C
T2	-40 °C ... +60 °C	-196 °C ... +300 °C
T1	-40 °C ... +60 °C	-196 °C ... +450 °C

If the measuring sensors of the microwave sensors VEGAFLEX FX86(*) *E****A/H***** 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.

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

All types VEGAFLEX FX8(*) *E****A/H*****

The ambient temperature derating at process temperatures up to +150 °C, +200 °C, +250 °C, +280 °C, +450 °C and down to -196 °C has to be taken from the manual of the manufacturer.

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(16) Test documents are listed in the test report No. 12 203 098529

(17) Special conditions for safe use

1. At the plastic parts of the microwave sensors type series VEGAFLEX FX8*(*).*E****A/H***** there is a danger of ignition by electrostatic discharge.
- Observe manual of the manufacturer and warning label.
2. For EPL Ga/Gb applications, at the metallic parts of the microwave sensors type series VEGAFLEX FX8*(*).*E****A/H***** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
3. For EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the microwave sensors type series VEGAFLEX FX8*(*).*E****A/H***** have to be secured effectively against these dangers. Observe manual of the manufacturer.
4. For EPL Ga/Gb applications the medium tangent materials have to be resistant to the media. Observe manual of the manufacturer.
5. The flameproof housing of this equipment must be provided with cable entries and filler plugs resp. conduits which are certified according to EN 60079-0 and EN 60079-1. The connection cables, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.

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no additional ones