

Translation

EU-Type Examination Certificate Supplement 2

Change to Directive 2014/34/EU

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 04 ATEX E 268**

Product: **Vibrations-Grenz-Schalter type OPTISWITCH 3*00C VF3*4.GX/CK/LK *******

Manufacturer: **KROHNE S.A.S**

Address: **2, Allée des Ors, BP98, 26103 Romans-Sur-Isère, France**

This supplementary certificate extends EC-Type Examination Certificate No. BVS 04 ATEX E 268 to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 04.2181 EU.

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

EN 60079-0:2012 + A11:2013 General requirements
EN 60079-31:2014 Protection by Enclosure "t"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

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 product. These are not covered by this certificate.

The marking of the product shall include the following:

 **II 1D Ex ta IIIC T* Da**
II 1/2 D Ex ta/tb IIIC T* Da/Db
II 2D Ex tb IIIC T* Db
IP66

*- see manual

DEKRA EXAM GmbH
Bochum, 2018-02-02

Signed: Dr Franz Eickhoff

Certifier

Signed: Dr Michael Wittler

Approver

13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 04 ATEX E 268
Supplement 2

15 **Product description**

15.1 **Subject and type**

Vibrating level switch type type OPTISWITCH 3100C or 3300C

VF3*4*****

Additional features

X = without

cable entry

M = M20x1.5

N = 1/2NPT

enclosure / type of protection

A = aluminium enclosure IP66

V = stainless steel enclosure IP66

electronics

C = contactless switch AC/DC 20...253 V

R = relay output DC 20...72 V / AC 20...253 V

T = floating transistor (NPN/PNP) DC 10...55 V

Z = two-wire (intrinsic safe version)

N = NAMUR EN60947-5-7-6

process connection see manual

version/temperature range/ material

A = standard / -40 °C...150 °C / 1.4435 (316 L)

B = with adapter / -40 °C...250 °C / 1.4435 (316 L)

C = detection of solids in water / -40 °C...150 °C / 1.4435 (316 L)

D = detection of solids in water / -40 °C...+250 °C

E = with Carbocer coating; minimizing buildup,

no protection against corrosion/abrasion / -40 °C...+150 °C

F = with Carbocer coating; minimizing buildup,

no protection against corrosion/abrasion / -40 °C...+250 °C

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 ¹⁾

CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 ¹⁾ +

ATEX II 1D, 1/2D, 2D Ex ta, ta/tb, tb IIIC T* Da, Da/Db, Db IP66

GX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb, tb IIIC T* Da, Da/Db, Db IP66

LK = ATEX II 1/2G, 2G Ex d IIC T6 ¹⁾ +

ATEX II 1D, 1/2D, 2D Ex ta, ta/tb, tb IIIC T* Da, Da/Db, Db IP66

1, 3

¹⁾ The assessment for use in explosive gas atmospheres is **not** part of this certificate.

Vibrating level switch type type OPTISWITCH 3200C

VF324*****

Additional features

X = without

cable entry

M = M20x1.5

N = 1/2NPT

enclosure / type of protection

A = aluminium enclosure IP66

V = stainless steel enclosure IP66

electronics

C = contactless switch AC/DC 20...253 V

R = relay output DC 20...72 V / AC 20...253 V

T = floating transistor (NPN/PNP) DC 10...55 V

Z = two-wire (intrinsic safe version)

N = NAMUR EN60947-5-7-6

process connection see manual

version/temperature range/ material

T = rope PUR/-40 °C...80 °C/1.4435 (316 L)

C = detection of solids in water / -20 °C...+80 °C

K = cable PUR / -20 °C...+80 °C / with Carbocer coating;
minimizing buildup, no protection against corrosion/abrasion

M = detection of solids in water / -20 °C...+80 °C /
with Carbocer coating; minimizing buildup,
no protection against corrosion/abrasion

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6¹⁾

CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6¹⁾ +

ATEX II 1D, 1/2D, 2D Ex ta, ta/tb, tb IIIC T* Da, Da/Db, Db IP66

GX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb, tb IIIC T* Da, Da/Db, Db IP66

¹⁾ The assessment for use in explosive gas atmospheres is not part of this certificate.

15.2 Description

With this supplement the certificate is changed to Directive 2014/34/EU.

(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

The Vibrating Level Switch type OPTISWITCH 3*00C VF3*4***** is used for level monitoring, controlling and regulating in silos with dust generating material.

The probe of the Vibrating Level Switch vibrates at its mechanical resonant frequency. In case the probe is covered with material, the vibration is damped and a signal is generated.

Reasons for the supplement:

- change to Directive 2014/34/EU
- updating to the current standards
- additional Namur variant
- version with aluminium double chamber enclosure IP66 is omitted
- modified type designation code

15.3 Parameters

15.3.1 Electrical data

15.3.1.1 Type OPTISWITCH 3*00 VF3*4GX***C*** with built in electronics insert VB60C

supply voltage	DC/AC	20 up to 253	V
output	contactless switch		
current		< 5	mA
load current		min. 10	mA
		max. 400	mA

15.3.1.2 Type OPTISWITCH 3*00 VF3*4GX***R*** with built in electronics insert VB60R

supply voltage	AC	20 up to 253	V (3A)
or	DC	20 up to 72	V
power consumption		1 up to 8 VA, max.	1.6 W
relay circuit			
max. values:		250 V, 3 A, 500	VA
		250 V, 1 A, 54	W

15.3.1.3 Type OPTISWITCH 3*00 VF3*4GX***T*** with built in electronics insert VB60T

supply voltage	DC	10 up to 55	V
power consumption		max. 0.5	W
load current		max. 400	mA

15.3.1.4 Type OPTISWITCH 3*00 VF3*4GX***Z*** with intrinsically safe built in electronics insert VB60Z

Supply and signal circuit	in type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit with the following maximum values:		
	U_i	= 30	V
	I_i	= 131	mA
	P_i	= 983	mW

effective internal capacitance negligible
effective internal inductance negligible

15.3.1.5 Type OPTISWITCH 3*00 VF3*4GX***N*** with intrinsically safe electronics insert VB60N built in supply and signal circuit

in type of protection Intrinsic Safety Ex ia IIC/IIB
or Ex ib IIC/IIB only for connection to a certified
intrinsically safe circuit
with the following maximum values:

U_i	= 20	V
I_i	= 103	mA
P_i	= 516	mW

effective internal capacitance negligible
effective internal inductance $L_i < 5 \mu H$

15.3.2 Thermal data

15.3.2.1 Permitted process temperature at the probe Type OPTISWITCH 31/300C VF3*4**A/C/E***** Type OPTISWITCH 31/300C VF3*4**B/D/F***** Type OPTISWITCH 3200C VF3*4**T/C/K/M*****

- 40 °C...+150 °C
- 40 °C...+250 °C
- 40 °C...+ 80 °C

15.3.2.2 Max. surface temperature T at the probe

process temperature + 3 K

15.3.2.3 Permitted ambient temperature at the electronics enclosure category 1D or category 2D

- 40 °C...+ 60 °C

15.3.2.4 Maximum surface temperature at the electronics enclosure category 2D

Type OPTISWITCH 3*00C VF3*4*****C/R/T***
with thermo fuse limited to

98 °C

Type OPTISWITCH 3*00C VF3*4*****Z/N***

ambient temperature + 17 K

15.3.2.5 Maximum surface temperature at the electronics enclosure category 1D

Type OPTISWITCH 3*00C VF3*4*****C/R/T***
with thermo fuse limited to

98 °C

Type OPTISWITCH 3*00C VF3*4*****Z/N***

ambient temperature + 12 K

15.3.3 Degrees of protection according to EN 60529

IP66

16 **Report Number**

BVS PP 04.2181 EU, as of 2018-02-02

17 **Special Conditions for Use**

None

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
Bochum, dated 2018-02-02
BVS-Hk/Nu A 20151243



Certifier



Approver