Translation

1 # EU-Type Examination Certificate Supplement 2

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

3 EU-Type Examination Certificate Number: **BVS 11 ATEX E 057 X**

4 Product: **Level limit switch type VIBRANIVO VN 10*0 , VN 20*0, VN 50*0, VN 60*0**

5 Manufacturer: **UWT GmbH**

6 Address: **Westendstraße 5, 87488 Betzigau, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 11 ATEX E 057 X 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.

8 DEKRA Testing and Certification 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 11.2094 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-1:2014	**Flameproof enclosure "d"**
EN IEC 60079-7:2015 + A1:2018	**Increased Safety "e"**
EN 60079-11:2012	**Intrinsic Safety "i"**
EN 60079-26:2015	**Equipment with EPL "Ga"**
EN 60079-31:2014	**Protection by Enclosure "t"**

10 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.

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 product. These are not covered by this certificate.

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12 The marking of the product shall include the following:

	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 2D Ex tb IIIC T*°C Db**	VIBRANIVO VN *020, VN *030, VN *040 with standard housing 2 or 3 and electronic module type A or B
	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 1D Ex ta IIIC T*°C Da**	VIBRANIVO VN *020, VN *030, VN *040 with standard housing 2 or 3 with conductive coating or without coating and electronic module type A or B
	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 2D Ex tb IIIC T*°C Db**	VIBRANIVO VN *050 with standard housing 2 or 3 and electronic module type B
	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 1D Ex ta IIIC T*°C Da**	VIBRANIVO VN *050 with standard housing 2 or 3 with conductive coating or without coating and electronic module type B
	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 2D Ex tb IIIC T*°C Db** **II 1/2G Ex ia IIC T* Ga/Gb** or **II 1 G Ex ia IIC T* Ga**	VIBRANIVO VN *020, VN *030, VN *040, VN *050 with standard housing 2 or 3 and electronic module type C
	**II 1/2D Ex ta/tb IIIC T*°C Da/Db** or **II 1D Ex ta IIIC T*°C Da** **II 1/2G Ex ia IIC T* Ga/Gb** or **II 1 G Ex ia IIC T* Ga**	VIBRANIVO VN *020, VN *030, VN *040, VN *050 with standard housing 2 or 3 with conductive coating or without coating and electronic module type C
	**II 2G Ex db ia IIC T* Gb** or **II 2G Ex db eb ia IIC T* Gb** **II 1/2D Ex ta/tb IIIC T*°C Da/Db**	VIBRANIVO VN 50*0, VN 60*0 with Flameproof enclosure „d" (optional with terminal box in Increased Safety „de") and electronic module type B
	**II 2G Ex db IIC T* Gb** or **II 2G Ex db eb IIC T*°C Gb** **II 1/2D Ex ta/tb IIIC T*°C Da/Db**	VIBRANIVO VN 5020, VN 6020 with Flameproof enclosure „d" (optional with terminal box in Increased Safety „de"), directly mounted and integrated electronic module type A

DEKRA Testing and Certification GmbH
Bochum, 2020-08-13

Signed: Jörg-Timm Kilisch

Managing Director

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13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 11 ATEX E 057 X
Supplement 2

15 **Product 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.)

15.1 **Subject and type**

Level limit switch VIBRANIVO

Basic Type	Series VN 10*0	Series VN 20*0	Series VN 50*0	Series VN 60*0
Dedicated housing	Housing 3	Housing 3	Housing 2, d, de	Housing 2, d, de
Short extension length	VN 1020	VN 2020	VN 5020	VN 6020
Pipe extension	VN 1030	VN 2030	VN 5030	VN 6030
Pipe extension (screwed)	VN 1040	VN 2040	VN 5040	VN 6040
Cable extension	VN 1050	VN 2050	VN 5050	VN 6050

15.2 **Description**

The level limit switch VIBRANIVO VN 10*0, VN 20*0, VN 50*0 and VN 60*0 is a modular concept of level limit switches. It is designed for monitoring the levels in any kind of containers, bins, silos, hoppers and pipes.
The level limit switch is able to detect many kinds of bulk materials which are grained, powdery or muddy. Some types can also detect bulk material inside liquids.

The two vibrating rods are actuated to mechanical oscillation by an actuating piezo-crystal. Another piezo-crystal converts the mechanical oscillations into an electrical signal, which is electronically amplified and applied to the actuating piezo-crystal.
If the vibrating rods are not covered by the filling material, they can vibrate freely. If the filling material covers the vibrating rods, they become damped in their oscillation. The oscillation is electronically analysed and converted into an electrical output signal.

In general a whole unit consists of three subassemblies: an extension including two vibration rods, a process connection to connect it to the bin and a housing which includes the electronic. The housing can be separated from the process connection (Type VN *020 and VN *030 with separate housing).

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The general the design of the units can vary in:

- the type of housing
- the cable inlets
- the electronics:
  - Type A Power supply / signal output none intrinsically safe; circuits to vibrating fork none intrinsically safe
  - Type B Power supply / signal output none intrinsically safe; circuits to vibrating fork intrinsically safe "ia"
  - Type C Power supply / signal output intrinsically safe "ia"; circuits to vibrating fork intrinsically safe "ia"
- the form of the extension
- the form of the process connection (for example different threaded bushes and flanges)
- the length of the vibration rods
- the materials for the process connection and the extension

Reasons for the supplement:

- Clarified presentation of electrical parameters

15.3 Parameters

15.3.1 Electrical parameters

15.3.1.1 Universal voltage SPDT (electronic module type A, B)

15.3.1.1.1 Power supply circuit (terminals 1 – 2)

rated voltage (+10%* 50/60Hz)		AC	19 ... 230	V
rated power			8	VA
or				
rated voltage (+10%*)		DC	19 ... 55	V
rated power			1.5	W
Type B only (intrinsically safe connection between electronic module and vibrating fork):				
maximum voltage	U_m	AC	265	V

15.3.1.1.2 Relay contact circuits (terminals 3 – 5)

VN 10*0 / 20*0:				
switching voltage		AC	253	V
switching current			4	A
rated power (cos Phi = 1)			500	VA
or				
switching voltage		DC	253	V
switching current			4	A
rated power			60	W
VN 50*0 / 60*0:				
switching voltage		AC	250	V
switching current (non-inductive)			8	A
or				
switching voltage		DC	30	V
switching current (non-inductive)			5	A
Type B only (intrinsically safe connection between electronic module and vibrating fork):				
maximum voltage	U_m	AC	265	V

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15.3.1.2 Relay DPDT (electronic module type A, B)

15.3.1.2.1 Power supply circuit (terminals 1 – 2)

Rated voltage (+10%* 50/60Hz)		AC	19 ... 230	V
Rated power			18	VA
or				
Rated voltage (+10%*)		DC	19 ... 36	V
Rated power			2	W
Type B only (intrinsically safe connection between electronic module and vibrating fork):				
Maximum voltage	U_m	AC	265	V

15.3.1.2.2 Relay contact circuits (terminals 3 – 5 and 7 - 9)

VN 10*0 / 20*0:			
switching voltage	AC	253	V
switching current		4	A
rated power (cos Phi = 1)		500	VA
or			
switching voltage	DC	253	V
switching current		4	A
rated power		60	W
VN 50*0 / 60*0:			
switching voltage	AC	250	V
switching current (non-inductive)		8	A
or			
switching voltage	DC	30	V
switching current (non-inductive)		5	A
Type B only (intrinsically safe connection between electronic module and vibrating fork):			
Maximum voltage U_m	AC	265	V

15.3.1.3 3 wire PNP (electronic module type A, B)

power supply circuit (terminals 1 – 3)			
rated voltage (+10%*)	DC	18 ... 50	V
rated power		1.5	W
maximum rated current (transistor)		0.4	A
Type B only (intrinsically safe connection between electronic module and vibrating fork):			
Maximum voltage U_m	AC	265	V

15.3.1.4 2 wire without contact (electronic module type A, B)

15.3.1.4.1 power supply circuit (terminals 1 – 2)

Rated voltage (+10%* 50/60Hz)	AC	19 ... 230	V
Rated power		1.5	VA
or			
Rated voltage (+10%*)	DC	19 ... 230	V
Rated power		1	W
Type B only (intrinsically safe connection between electronic module and vibrating fork):			
Maximum voltage U_m	AC	265	V

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15.3.1.4.2 Contactless switch (terminals 1 – 2)

maximum rated current	permanent load		500	mA
maximum rated current	< 200 ms		2	A
maximum rated current	< 50 ms		5	A

15.3.1.5 2 wires 8/16 mA (electronic module type A, B)

15.3.1.5.1 Power supply circuit (terminals 1 – 2)

rated voltage (+0%*)	DC	12.5 ...	36	V
rated power			0.8	W

Type B only (intrinsically safe connection between electronic module and vibrating fork):

maximum voltage	U_m	AC	265	V
rated current			8/16	mA

15.3.1.6 NAMUR (IEC 60947-5-6) **(electronic module type C)**

Power supply/ signal circuit (terminals 1 – 2)
Level of protection Ex ia

Rated voltage		DC	7...9	V
Rated current (NAMUR)			< 1 mA or > 2.2 mA (max. 5 mA)	
Maximum rated power			0.17	W

Only type C (terminals 1 - 2)

Maximum input voltage	U_i	DC	20	V
Maximum input current	I_i		67	mA
Maximum input power	P_i		0.17	W
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		negligible	

15.3.1.7 2-wires 8/16 mA or 4-20 mA (electronic module type A, C)

Power supply/ signal circuit (terminals 1 – 2)
only type C: Level of protection Ex ia

Rated voltage (+10 %*)	type A:	DC	12.5 ... 36	V
	type C:	DC	12.5 ... 30	V
Rated power			0.8	W
Rated current (selectable)			8/16 mA or 4-20 mA	

only type C (terminals 1 - 2)

Maximum input voltage	U_i	DC	30	V
Maximum input current	I_i		130	mA
Maximum input power	P_i		0.8	W
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		negligible	

* inclusive 10 % of EN 61010-1.

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15.3.2 Thermal data

Temperature at changeover between beam and box max. +80 °C
Permitted ambient temperature at the electronics enclosure
VIBRANIVO VN *020, VN *030, VN *040 -40 °C ≤ T_{amb} ≤ +60 °C (50 °C)
VIBRANIVO VN *050 -20 °C ≤ T_{amb} ≤ +60 °C (50 °C)

max. surface temperature and temperature class of electronic module type C

max. T_{amb}	max. $T_{process}$	max. surface temperature $T_{surface}$ (EPL Db)	max. surface temperature T_{200} (EPL Da)	temperature class
50 °C	70 °C	80 °C	80 °C	T6
60 °C	80 °C	85 °C	85 °C	T5
60 °C	90 °C	90 °C	90 °C	T5
60 °C	100 °C	100 °C	100 °C	T4
60 °C	110 °C	110 °C	110 °C	T4
60 °C	120 °C	120 °C	120 °C	T4
60 °C	130 °C	130 °C	130 °C	T4
60 °C	140 °C	140 °C	140 °C	T3
60 °C	150 °C	150 °C	150 °C	T3

max. surface temperature and temperature class of electronic module type A and B

max. T_{amb}	max. $T_{process}$	max. surface temperature $T_{surface}$ (EPL Db)	max. surface temperature T_{200} (EPL Da)	temperature class
60 °C	80 °C	120 °C	120 °C	T4
60 °C	90 °C	120 °C	120 °C	T4
60 °C	100 °C	120 °C	120 °C	T4
60 °C	110 °C	120 °C	120 °C	T4
60 °C	120 °C	120 °C	120 °C	T4
60 °C	130 °C	130 °C	130 °C	T4
60 °C	140 °C	140 °C	140 °C	T3
60 °C	150 °C	150 °C	150 °C	T3

max. surface temperature of the electronic enclosure with thermo fuse limited to 117 °C

15.3.3 Degree of protection according to IEC 60529
enclosure IP6x
terminal department in type of protection Increased Safety "e" IP66

16 Report Number

BVS PP 11.2094 EU, as of 2020-08-13

17 Special Conditions for Use

17.1 The flameproof joints are not intended to be repaired.

17.2 When used in potentially explosive atmosphere requiring equipment with EPL Ga the apparatus shall be installed in way that even in the event of rare incidents an ignition source due to impact or friction between enclosure and iron/steel is avoided.

17.3 When used in potentially explosive atmosphere requiring equipment with EPL Ga, EPL Ga/Gb, EPL Gb, EPL Da/Db or EPL Db the apparatus shall be installed in way that danger caused by electrostatic charges is avoided.

DAkkS Deutsche Akkreditierungsstelle D-ZE-17338-02-00

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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 Testing and Certification GmbH
Bochum, 2020-08-13
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