



## Translation

# (1) EC-Type Examination Certificate

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

(3) **DMT 01 ATEX E 110**

(4) **Equipment: Level limit switch VIBRANIVO Type VN\*0\*0**

(5) **Manufacturer: UWT GmbH**

(6) **Address: D 87488 Betzigau**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment 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 test and assessment report BVS PP 01.2081 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50281-1-1:1998      Dust explosion protection

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment 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 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 shall include the following:

**II 1 / 2 D IP 6X T** see 15.3.2

**Deutsche Montan Technologie GmbH**

Essen, dated 26. July 2001

Signed: Dill

Signed: Eickhoff

DMT-Certification body

Head of special services unit



(13) Appendix to

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

**DMT 01 ATEX E 110**

(15) 15.1 Subject and type

Level limit switch VIBRANIVO Type VN\*0\*0  
Shaft without pipe extension Type VN2020, VN 4000  
Shaft with pipe extension Type VN2030

15.2 Description

The Level limit switch VIBRANIVO Type VN\*0\*0 is used for the detection of the level in containers in which granular, powdery or sludge materials are stored.

It consists of an extension part with two oscillating rods conforming to category 1 and an electronics enclosure conforming to category 2.

Both oscillating rods are triggered to mechanical oscillations by a piezo transducer which are transformed, intensified and analysed into electrical signals.

If the oscillating rods are not covered by bulk goods then they can oscillate freely. If the bulk goods reach the oscillating rods then they are dampened. These two situations are electronically registered. The output signal is provided either in the form of a relay contact or a transistor switch.

15.3 Parameter

15.3.1 Electrical data

15.3.1.1 Electronic module  
in transistor version (PNP or NPN)

Voltage		DC 18...55	V
Max. power dissipation		1,5	W
Transistor output: max. current		0,4	A

15.3.1.2 Electronic module "Wide Range Voltage"

Voltage	AC 19... 253	V	DC 19..60	V
Max. power dissipation	3	VA	2	W
Frequency (AC-version)			50...60	Hz

Contact rating of the relay output:

	AC	DC
max. voltage	253 V	253 V
max. current	4 A	4 A
max. switching power	500 VA	60 W

at  $\cos\varphi = 1$

**15.3.2 Thermal data**

 Permitted process temperature  
 (extension category 1) -25 °C...+ 150 °C

 Permitted ambient temperature  
 (electronics enclosure category 2) -25 °C...+ 60 °C

 Permitted temperature at the threading bush -25 °C...+ 80 °C

 Maximum surface temperature at the electronics enclosure (category 2)  
 (thermo fuse) limited to 93 °C

 Maximum surface temperature of the extension (category 1)  
 see following table

Maximum surface temperature T	ambient temperature in Zone 21	process temperature in Zone 20
90 °C	60 °C	90 °C
100 °C	60 °C	100 °C
110 °C	60 °C	110 °C
120 °C	60 °C	120 °C
130 °C	60 °C	130 °C
140 °C	60 °C	140 °C
150 °C	60 °C	150 °C

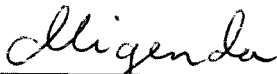
**15.3.3 Degree of protection according to EN 60529** IP 6X
**15.3.4 Pressure**  
 In applications where Category 1 or 1/2 devices are required: 0,8 to 1,1 bar  
 For other applications (for test purposes) 17 bar

 (16) Test and assessment report  
 BVS PP 01.2081 EG as of 26.07.2001

 (17) Special conditions for safe use  
 None

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.

 45307 Essen, 16.04.2003  
 BVS-Hk/Ar

**Deutsche Montan Technologie GmbH**

  
 \_\_\_\_\_  
 DMT-Certification body


  
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 Head of special services unit



**Translation**  
**1<sup>st</sup> Supplement**

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate**  
**DMT 01 ATEX E 110**

**Equipment:** Level limit switch VIBRANIVO Type VN 00  
**Manufacturer:** UWT GmbH  
**Address:** D - 87488 Betzigau

Description

Alternatively two other electronic modules "2-wire contactless" (pl1000162) or " Allvoltages DPDT" (pl100165) can be used (electrical data see below).

Alternatively to the use of a cable gland an adapter can be used to enable the installation with a conduit system. It is possible to use either one or two connections.

The permitted temperature range is expanded to – 40 °C.

The types VN1020, VN 1030 and VN 1030 are added to the type code of the Level limit switch VIBRANIVO type VN \*0\*0.

The complete type code is:  
Shaft without pipe extension Type VN 1020, VN2020, VN 4000  
Shaft with pipe extension Type VN 1030, VN 2030

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50281-1-1:1998+A1 Dust explosion protection

Electrical data

Electronic module with transistor output (PNP or NPN)

supply voltage			DC 18...	55	V
max. power				1,5	W
transistor output:					
max. current				0,4	A

Electronic module allvoltages

supply voltage	AC 19...	253	V	DC 19...	60	V
max. power		3	VA		2	W
frequency		50...	60	Hz		
contact rating of the relay output						
max. voltage	AC	253	V	DC	253	V
max.current		4	A		4	A
max. power		500	VA		60	W

cosφ =1

Electronic module 2-wire contactless

supply voltage	AC 19... 253	V	DC 19...60	V
max.power	8	VA	3	W
frequency	50...60	Hz		
load	min. 10	mA		
	max. 500	mA permanent		
	max. 2	A < 200 ms		
	max. 5	A < 200 ms		

Electronic module allvoltages DPDT (with two relay outputs)

supply voltage	AC 19... 253	V	DC 19...60	V
max.power	3	VA	2	W
frequency	50... 60	Hz		
contact rating of the relay output:				
max. voltage	AC 253	V	DC 253	V
max. current	4	A	4	A
max.power	500	VA	60	W
	cosφ =1			

Test and assessment report

BVS PP 01.2081 EG as of 07.01.2004

**EXAM BBG Prüf- und Zertifizier GmbH**

Bochum, dated 07. Januar 2004

Signed:

\_\_\_\_\_

Certification body

Signed:

\_\_\_\_\_

Special services unit

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.

44809 Bochum, 07.01.2004

BVS-Hk/Mi A 20030302

**EXAM BBG Prüf- und Zertifizier GmbH**

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Certification body

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Special services unit



Translation  
**2nd Supplement**

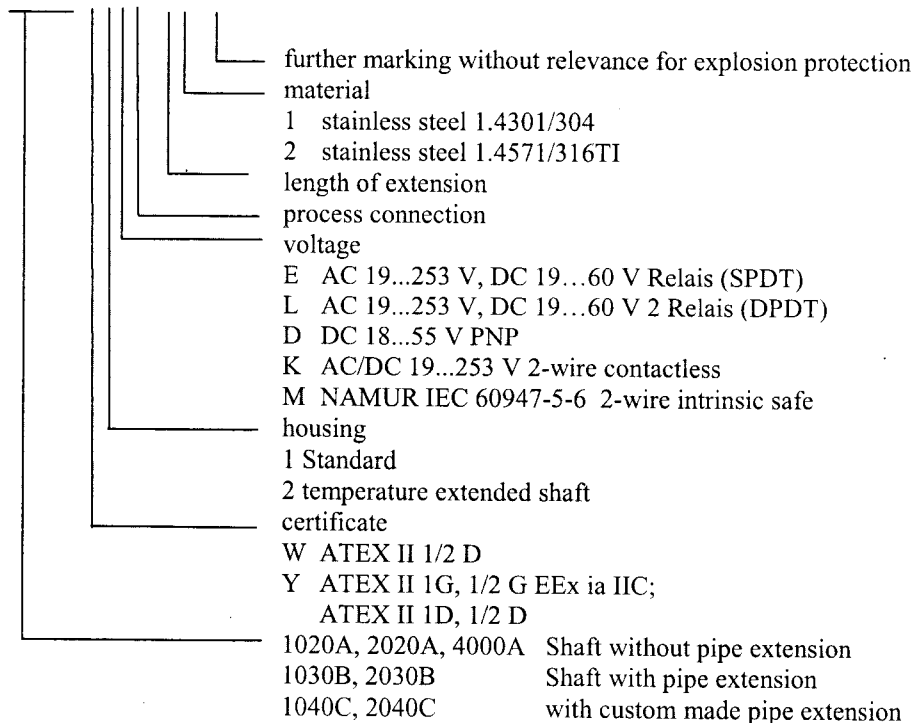
(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate  
DMT 01 ATEX E 110**

**Equipment:** Level limit switch VIBRANIVO Type VN\*0\*0  
**Manufacturer:** UWT GmbH  
**Address:** D - 87488 Betzigau

(15) 15.1 Subject and Type

Level limit switch VIBRANIVO type  
VN\*0\*0\* \*\*\*\*3\*\*.\*



15.2 Description

Type VN1040C and Type VN2040C are added.

The electronics enclosure can be equipped with an inspection glass.

Type VN1020A, VN2020A, VN1030B and VN2030B can have a separate housing.

The Level limit switch VIBRANIVO Type VN\*0\*0A/B/C \*\*\*\*3\*\*.\* has the degrees of protection IP 66.

Additional to the existing electronic modules the version "2-wire NAMUR" (electronic module typepl10008\*) shall be added. In this case the type code is VIBRANIVO Type VN\*0\*0A/B/C \*\*M\*3\*\*-\* and this type meets category 1/2D or 1D as well as 1/2 G or 1G in type of protection Intrinsic Safety EEx ia IIC.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety 'i'
EN 50284:1999	Equipment Group II, categorie 1G
EN 50281-1-1:1998 +A1	Dust explosion protection

### 15.3 Parameters

Electrical data

Type VN\*0\*0A/B/C \*\*D\*3\*\*-\*

Electronic module

with transistor output (PNP or NPN)

supply voltage

DC 18... 55 V

max. power

1,5 W

transistor output :

max. current

0,4 A

Type VN\*0\*0A/B/C \*\*E\*3\*\*-\*

Electronic module allvoltages

supply voltage

AC 19... 253 V DC 19... 60 V

max. power

3 VA 2 W

frequency

50... 60 Hz

contact rating of the relay output:

max. voltage

AC 253 V DC 253 V

max. current

4 A 4 A

max. power

500 VA 60 W

cosφ =1

Type VN\*0\*0A/B/C \*\*K\*3\*\*-\*

electronic module

2-wire contactless

supply voltage

AC 19... 253 V DC 19...60V

max. power

8 VA 3 W

frequency

50... 60 Hz

load

min. 10 mA

max. 500 mA permanent

max. 2 A < 200 ms

max. 5 A < 200 ms

Type VN\*0\*0A/B/C \*\*L\*3\*\*-\*

Electronic module allvoltages DPDT (with two relay outputs)

supply voltage

AC 19... 253 V DC 19... 60 V

max. power

3 VA 2 W

frequency

50... 60 Hz

rating of the relay output:

max. voltage

AC 253 V DC 253 V

max. current

4 A 4 A

max. power

500 VA 60 W

bei cosφ =1

Type VN\*0\*0A/B/C \*\*M\*3\*\*-\*  
 electronic module NAMUR IEC 60947-5-6  
 power supply/ signal circuit IS output A

in type of protection Intrinsic Safety EEx ia IIC only for connection to a certified intrinsically safe circuit with the following maximum values:

voltage	Ui	DC	20	V
current	Ii		67	mA
power	Pi		0,17	W
effective internal inductance	Li	negligible		
effective internal capacitance	Ci	negligible		

Thermal data

Permitted process temperature (extension)

Type VN1020A \*\*E/L/D/K\*3\*\*-\*, VN2020A \*\*E/L/D/K\*3\*\*-\*, VN1030B \*\*E/L/D/K\*3\*\*-\*,  
 VN2030B \*\*E/L/D/K\*3\*\*-\*, VN1040C \*\*E/L/D/K\*3\*\*-\*, VN2040C \*\*E/L/D/K\*3\*\*-\*,  
 and VN4000A \*\*E/L/D/K\*3\*\*-\*

-40 °C...+ 150 °C

Type VN1020A \*\*E/L/D/K\*3\*\*-\*, VN2020A \*\*E/L/D/K\*3\*\*-\*, VN1030B \*\*E/L/D/K\*3\*\*-\*,  
 and VN2030B \*\*E/L/D/K\*3\*\*-\* with separate housing

-40 °C...+ 110 °C

Permitted ambient temperature (electronics enclosure)

-40 °C...+ 60 °C

Permitted temperature at the threaded bush

-40 °C...+ 80 °C

maximum surface temperature at the electronics enclosure

Type VN\*0\*0A/B/C \*\*E/L/D/K\*3\*\*-\*

with thermo fuse limited to

100 °C

Type VN\*0\*0A/B/C \*\*M\*3\*\*-\*

with Pi limited to

100 °C

Max. surface temperature of the extension see following table

VIBRANIVO Type VN\*0\*0A/B/C \*\*E/L/D/K/M\*3\*\*-\*

max. surface temperature T	ambient temperature in zone 21	process temperature in zone 20
90 °C	60 °C	90 °C
100 °C	60 °C	100 °C
110 °C	60 °C	110 °C
120 °C	60 °C	120 °C *
130 °C	60 °C	130 °C *
140 °C	60 °C	140 °C *
150 °C	60 °C	150 °C *

\* not for types with separate housing

Temperature class  
 VIBRANIVO Typ – type VN\*0\*0A/B/C \*\*M\*3\*\*-\*

temperature class	process temperature
T6	< 80 °C
T5	< 95 °C
T4	<130 °C bzw. < 110 °C for types with separate housing
T3	<150 °C

Degrees of protection according to EN 60529

IP 66

Marking

VIBRANIVO Type VN\*0\*0A/B/C \*\*E/L/D/K\*3\*\*-\*

 **II 1 / 2 D IP 66 T** see manual

VIBRANIVO Type VN\*0\*0A/B/C \*\*M\*3\*\*-\*

**II 1/2 D IP 66 T** see manual or

 **II 1 D IP 66 T** see manual or

**II 1/2 G EEx ia IIC T** see manual or

**II 1 G EEx ia IIC T** see manual

Test and assessment report

BVS PP 01.2081 EG as of 19.05.2004

**EXAM BBG Prüf- und Zertifizier GmbH**

Bochum, dated 19. May 2004

Signed: Dr. Jockers

Signed: Dr. Eickhoff

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 Certification body

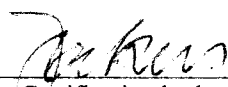
\_\_\_\_\_  
 Special services

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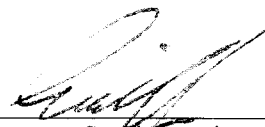
44809 Bochum, 19. May 2004

BVS-Hk/Kw A 20040058

**EXAM BBG Prüf- und Zertifizier GmbH**



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 Certification body



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 Special services



Translation  
**3<sup>rd</sup> Supplement**

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate  
DMT 01 ATEX E 110**

**Equipment:** Level limit switch VIBRANIVO Type VN\*0\*0  
**Manufacturer:** UWT GmbH  
**Address:** D - 87488 Betzigau

Subject and Type

Level limit switch VIBRANIVO type  
VN\*0\*0\* \*\*\*\*3\*\*-\*

	further marking without relevance for explosion protection material
1	stainless steel 1.4301/304
2	stainless steel 1.4571/316TI
	length of extension
	process connection
	voltage
E	AC 19...253 V, DC 19...60 V Relais (SPDT)
L	AC 19...253 V, DC 19...60 V 2 Relais (DPDT)
D	DC 18...55 V PNP
K	AC/DC 19...253 V 2-wire contactless
M	NAMUR IEC 60947-5-6 2-wire intrinsic safe
N	2-wire 8/16mA or 4-20 mA
	housing
1	Standard
2	temperature extended shaft
	certificate
W	ATEX II 1/2 D
Y	ATEX II 1G, 1/2 G EEx ia IIC; ATEX II 1D, 1/2 D
1020A, 2020A, 4000A	Shaft without pipe extension
1030B, 2030B	Shaft with pipe extension
1040C, 2040C	with custom made pipe extension

Description

Additional to the existing electronic modules the version "2-wire 8/16mA or 4-20 mA" (electronic module type pl10009\*) shall be added. In this case the type code is VIBRANIVO Type VN\*0\*0 A/B/C\*\*N\*3\*\*-\*.

Type VN\*0\*0A/B/C Y\*N\*3\*\*-\* meets category 1/2D or 1D as well as 1/2 G or 1G in type of protection Intrinsic Safety EEx ia IIC.

Type VN\*0\*0A/B/C W\*N\*3\*\*-\* meets category 1/2D.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety 'i'
EN 50284:1999	Equipment Group II, categorie IG
EN 50281-1-1:1998 +A1	Dust explosion protection

#### Parameters

##### Electrical data

Type VN\*0\*0A/B/C \*\*D\*3\*\*\*-

##### Electronic module

with transistor output (PNP or NPN)

supply voltage		DC	18... 55	V
max. power				1,5 W
transistor output :				
max. current				0,4 A

Type VN\*0\*0A/B/C \*\*E\*3\*\*\*-

##### Electronic module allvoltages

supply voltage	AC	19... 253	V	DC	19... 60	V
max. power			3 VA			2 W
frequency		50... 60	Hz			

##### contact rating of the relay output:

max. voltage	AC	253	V	DC	253	V
max. current		4	A		4	A
max. power		500	VA		60	W
			cosφ =1			

Type VN\*0\*0A/B/C \*\*K\*3\*\*\*-

##### electronic module

2-wire contactless

supply voltage	AC	19... 253	V	DC	19...60V	
max. power			8 VA			3 W
frequency		50... 60	Hz			
load	min.		10 mA			
	max.		500 mA permanent			
	max.		2 A < 200 ms			
	max.		5 A < 200 ms			

Type VN\*0\*0A/B/C \*\*L\*3\*\*\*-

##### Electronic module allvoltages DPDT (with two relay outputs)

supply voltage	AC	19... 253	V	DC	19... 60	V
max. power			3 VA			2 W
frequency		50... 60	Hz			

##### rating of the relay output:

max. voltage	AC	253	V	DC	253	V
max. current		4	A		4	A
max. power		500	VA		60	W
			bei cosφ =1			

Type VN\*0\*0A/B/C \*\*M\*3\*\*-\*  
 electronic module NAMUR IEC 60947-5-6  
 power supply/ signal circuit IS output A

in type of protection Intrinsic Safety EEx ia IIC only for connection to a certified intrinsically safe circuit with the following maximum values:

voltage	Ui	DC	20	V
current	Ii		67	mA
power	Pi		0,17	W
effective internal inductance	Li	negligible		
effective internal capacitance	Ci	negligible		

Type VN\*0\*0A/B/C Y\*N\*3\*\*-\*  
 electronic module p110009\*  
 power supply/ signal circuit IS output A

voltage	Ui	DC	30	V
current	Ii		130	mA
power	Pi		0,8	W
effective internal inductance	Li	negligible		
effective internal capacitance	Ci	negligible		

Type VN\*0\*0A/B/C W\*N\*3\*\*-\*

supply voltage	DC	12,5...36	V
max. power		0,8	W
signal current	8/16 bzw. 4 -	20	mA

#### Thermal data

Permitted process temperature (extension) -40 °C...+ 150 °C

for types with separate housing -40 °C...+ 110 °C

Permitted ambient temperature (electronics enclosure) -40 °C...+ 60 °C

Permitted temperature at the threaded bush -40 °C...+ 80 °C

maximum surface temperature at the electronics enclosure

Type VN\*0\*0A/B/C \*\*E/L/D/K\*3\*\*-\*

with thermo fuse limited to 100 °C

Type VN\*0\*0A/B/C \*\*M\*3\*\*-\*

with Pi limited to 100 °C

Max. surface temperature of the extension see following table

VIBRANIVO Type VN\*0\*0A/B/C \*\*E/L/D/K/M\*3\*\*-\* and type VN\*0\*0A/B/C W\*N\*3\*\*-\*

max. surface temperature T	ambient temperature in zone 21	process temperature in zone 20
90 °C	60 °C	90 °C
100 °C	60 °C	100 °C
110 °C	60 °C	110 °C
120 °C	60 °C	120 °C *
130 °C	60 °C	130 °C *
140 °C	60 °C	140 °C *
150 °C	60 °C	150 °C *

\* not for types with separate housing

Temperature class

VIBRANIVO Typ – type VN\*0\*0A/B/C \*\*M\*3\*\*-\* and type VN\*0\*0A/B/C Y\*N\*3\*\*-\*

temperature class	process temperature
T6	< 80 °C
T5	< 95 °C
T4	<130 °C bzw. < 110 °C for types with separate housing
T3	<150 °C

Degrees of protection according to EN 60529

IP 66

The marking of the equipment shall include the following:

VIBRANIVO type VN\*0\*0A/B/C \*\*E/L/D/K\*3\*\*-\*

VIBRANIVO type VN\*0\*0A/B/C W\*N\*3\*\*-\*



**II 1 / 2 D IP 66 T** see manual

VIBRANIVO type VN\*0\*0A/B/C \*\*M\*3\*\*-\*

VIBRANIVO type VN\*0\*0A/B/C Y\*N\*3\*\*-\*

**II 1/2 D IP 66 T** see manual



**II 1 D IP 66 T** see manual

**II 1/2 G EEx ia IIC T 6**

**II 1 G EEx ia IIC T 6**

Test and assessment report  
BVS PP 01.2081 EG as of 30.03.2005

**EXAM BBG Prüf- und Zertifizier GmbH**  
Bochum, dated 30. March 2005

Signed: Dr. Eickhoff

\_\_\_\_\_  
Certification body

Signed: Leiendecker


\_\_\_\_\_  
Special services unit

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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.

44809 Bochum, 30.03.2005  
BVS-Hk/Mi A 20040795

**EXAM BBG Prüf- und Zertifizier GmbH**

  
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Certification body

  
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Special services unit