

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM18US0206
3. **Equipment:** Capanivo CN 8000, Type CN 8100  
(Type Reference and Name) RFnivo RF 8000, Type RF 8100 and RF 8200  
Capacitance Level Switches  
NivoCapa NC 8000, Type NC 8100  
Capacitance Level Transmitters
4. **Name of Listing Company:** UWT GmbH
5. **Address of Listing Company:** Westendstrasse 5  
Betzigau  
D-87488  
Germany
6. The examination and test results are recorded in confidential report number:  
PR449355 dated 19<sup>th</sup> November 2019
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
FM Class 3600:2018, FM Class 3610:2010, FM Class 3611:2004, FM Class 3615:2018  
FM Class 3616:2011, FM Class 3810:2005, ANSI/ISA 60079-0:2009, ANSI/ISA 60079-11:2009  
ANSI/ISA 61010-1:2004, NEMA 250:1991, ANSI/IEC 60529:2001
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

**Certificate issued by:**

  
\_\_\_\_\_  
J.E. Marquedant  
VP, Manager - Electrical Systems

19 November 2019  
\_\_\_\_\_  
Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
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10. Equipment Ratings:

Applicable to all models CN 8000, RF 8000, and NC 8000:

Explosionproof with intrinsically safe probe for use in Class I, Division 1, Groups A, B, C and D T4 Ta = -40°C to 85°C, Dust-Ignition proof with intrinsically safe probe for use in Class II, III, Division 1, Groups E, F and G T4 Ta = -40°C to 85°C. hazardous (classified) locations (Type 4, IP65, IP68).

Applicable to models CN 8000 and RF 8000 only:

Intrinsically safe for Class I, II, and III Division 1 Groups A, B, C, D, E, F and G temperature class T4 Ta = -40°C to 85°C or T6 Ta = -40°C to 40°C in accordance with Entity requirements when installed per Control Drawing CN8\_gi150917 and RF8\_gi150917 hazardous (classified) locations (Type 4, IP65, IP68).

Applicable to model CN 8000 only:

Nonincendive for use in Class I, Division 2, Groups A, B, C, and D suitable for Class II, III Division 2, Groups F, G temperature class T4; Ta = -40°C to 85°C or T6 Ta = -40°C to 40°C hazardous (classified) locations (Type 4, IP65, IP68).

11. The marking of the equipment shall include:

Applicable to all models CN 8000, RF 8000, and NC 8000:

XP- IS, Class I, Division 1, Groups A, B, C, D; T4 Ta = -40°C to +85°C

DIP-IS, Class II, III, Division 1, Groups E, F, G; T4 Ta = -40°C to +85°C

Applicable to models CN 8000 and RF 8000 only:

IS, Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Ta = -40°C to +85°C or T6 Ta = -40°C to +40°C;

Type 4 – CN8\_gi150917 and RF8\_gi150917; Entity: FISCO

Applicable to model CN 8000 only:

NI, Class I Division 2, Groups A, B, C, D; T4 Ta = -40°C to +85°C or T6 Ta = -40°C to +40°C

NI, Class II, III, Division 2, Groups F, G; T4 Ta = -40°C to +85°C or T6 Ta = -40°C to +40°C

12. **Description of Equipment:**

**General:**

Capacitance Level Switch Capanivo CN 8000, Type CN 8100; RFnivo RF 8000, Type RF 8100 and RF 8200 are used to detect the level of a liquid or a solid medium in storage tanks. The unit is an active capacitance assembly which detects the presence of medium at the probe. There are a variety of probe and electronic output options available.

The Capacitance Level Transmitter Nivo Capa NC8100 is used to measure the level of liquid or solid medium in storage tanks. The unit is an active capacitance assembly which measures the presence of medium throughout the probes length. The output is a 4-20 mA current signal. There are a variety of probe options available.

**Construction:**

The units are provided with an aluminium Type 4, IP65, IP68 rated enclosure with conduit connection.

CN 8000 and RF 8000: The sensitivity of the medium sensor (probe) is adjustable by potentiometer or push buttons or by Profibus. The probe of CN 8000 is stainless steel with active PPS or Teflon (PVDF) lined as integral

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part of the apparatus. The probe of RF 8000 is stainless steel as integral part of the apparatus. The output is and isolated relay or solid state switch (opto coupler driven) or Profibus. On versions with digital electronic in type of protection IS the supply and output circuit and the solid state switch circuit are connected to FM Approved associated intrinsically safe apparatus, per Entity concept.

NC 8000: The sensitivity of the medium sensor (probe) is adjustable by push buttons. The probe is stainless steel as integral part of the apparatus.

## **Ratings:**

Ambient -40°C to 85°C  
Process connection Threaded or Flanged with various sizes

### ***Capanivo CN 8100 and RFnivo RF 8100/RF 8200 with Standard Electronics***

In type of protection XP-IS, DIP-IS, NI:  
Rated Input 12 to 250V DC or AC, 2W  
Solid state switch 30V DC or AC, 82 mA  
Relay output 30V DC /5A, 250V AC / 8 A (resistive load)

### ***Capanivo CN 8100 and RFnivo RF 8100/RF 8200 with Digital Electronics***

In type of protection XP-IS, DIP-IS, NI:  
Rated Input 12 to 30V, 12,5mA  
Solid state switch 30V DC or AC, 82 mA

In type of protection IS, see Entity and FISCO parameters below

### ***NivoCapa NC 8100***

In type of protection XP-IS, DIP-IS, NI:  
Rated Input 12 to 30V, 4-20mA

### ***Capanivo CN 8000 – CN 8100-Aabcde1fgh\*j\* Capacitance Level Switch***

a = Certificate;

H (Type of protection NI)  
N (Type of protection DIP-IS)  
U (Type of protection XP-IS)  
P (Type of protection IS)

b = Temperature extended shaft; 1, 2

c = Electronic module; E, F

de = Process connection

0A, 0B, 0C, 0D, 1A, 1B, 1D, 3A, 3B, 3D, (threaded)

5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5J, 5K, 5L, 5M, 5N, 5P, 5Q, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6J, 6K  
(flanged)

f = Length of extension L; A, B, C, D, E, F, G, H, J, K, L, Y, P, Q, Z

g = Material of process connection and extension L; 2, 3

h = Material of sensor; A, B

j = Cable entry;

Pos.33x 2x M20x1,5 (Type 4, IP65)

Pos.33e 2x M20x1,5 (Type 4, IP68)

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Pos.33a 2x NPT 1/2" (Type 4, IP65)

Pos.33f 2x NPT 1/2" (Type 4, IP68)

\* = Additional information (not in code)

In Type of protection IS:

Entity Parameters:

Groups	Output Option	$V_{Max}$ (V)	$I_{Max}$ (mA)	$P_i$ (W)	$C_i$ (nF)	$L_i$ ( $\mu$ H)
A, B, C, D, E, F, G	Solid State Output	30	110	0.825	0	0
C, D, E, F, G	Solid State Output	30	200	1.5	0	0

FISCO Parameters:

Groups	Output Option	$V_{Max}$ (V)	$I_{Max}$ (mA)	$P_i$ (W)	$C_i$ (nF)	$L_i$ ( $\mu$ H)
A, B, C, D, E, F, G	Current Loop Output	24	380	5.32	5	10
C, D, E, F, G	Current Loop Output	24	380	5.32	5	10

**RFnivo RF 8000 – RF 8a00-bcdef1ghj\*k\* Capacitance Level Switch**

a = Basic Type;

A (RF 8100)

B (RF8200)

b = Certificate;

N (Type of protection DIP-IS)

U (Type of protection XP-IS)

P (Type of protection IS)

c = Temperature extended shaft; 1, 2

d = Electronic module; E, F

ef = Process connection

0A, 0B, 0C, 0D, 1A, 1B, 1D, 3A, 3B, 3D, (threaded)

5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5J, 5K, 5L, 5M, 5N, 5P, 5Q, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6J, 6K (flanged)

g = Length of extension L; A, B, C, D, Y, P, Q, Z

h = Active Shield length; A, B, C

j = Material of process connection and extension L; 2, 3, 4

k = Cable entry;

Pos.33x 2x M20x1,5 (Type 4, IP65)

Pos.33e 2x M20x1,5 (Type 4, IP68)

Pos.33a 2x NPT 1/2" (Type 4, IP65)

Pos.33f 2x NPT 1/2" (Type 4, IP68)

\* = Additional information (not in code)

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In Type of protection IS:

Entity Parameters:

Groups	Output Option	$V_{Max}$ (V)	$I_{Max}$ (mA)	$P_i$ (W)	$C_i$ (nF)	$L_i$ ( $\mu$ H)
A, B, C, D, E, F, G	Solid State Output	30	110	0.825	0	0
C, D, E, F, G	Solid State Output	30	200	1.5	0	0

FISCO Parameters:

Groups	Output Option	$V_{Max}$ (V)	$I_{Max}$ (mA)	$P_i$ (W)	$C_i$ (nF)	$L_i$ ( $\mu$ H)
A, B, C, D, E, F, G	Current Loop Output	24	380	5.32	5	10
C, D, E, F, G	Current Loop Output	24	380	5.32	5	10

## **NivoCapa NC 8000 – NC 8100-Aabcde1fg\*h\* Capacitance Level Transmitter**

a = Certificate;

N (Type of protection DIP-IS)

U (Type of protection XP-IS)

b = Temperature extended shaft; 1, 2

c = Electronic module; A

de = Process connection

0A, 0B, 0C, 0D, 1A, 1B, 1D, 3A, 3B, 3D, (threaded)

5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5J, 5K, 5L, 5M, 5N, 5P, 5Q, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6J, 6K  
(flanged)

f = Active Shield length; A, B, C

g = Material of process connection and extension L; 2, 3

h = Cable entry;

Pos.33x 2x M20x1,5 (Type 4, IP65)

Pos.33e 2x M20x1,5 (Type 4, IP68)

Pos.33a 2x NPT 1/2" (Type 4, IP65)

Pos.33f 2x NPT 1/2" (Type 4, IP68)

\* = Additional information (not in code)

### 13. Specific Conditions of Use:

None

### 14. Test and Assessment Procedure and Conditions:

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This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
19 <sup>th</sup> November 2019	Original Issue.

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