CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM16US0075X**
3. **Equipment:** **Nivobob® NB3x00 Level Measuring System**
   (Type Reference and Name)
4. **Name of Listing Company:** **UWT GmbH**
5. **Address of Listing Company:** **Westendstrasse 5**
   Betzigau 87488
   Germany
6. The examination and test results are recorded in confidential report number:

   3034461 dated 23 June 2009

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   FM Class 3600:2011, FM Class 3810:2005, ANSI/NEMA 250:1991, ANSI/IEC 60529:2004

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.
10. Equipment Ratings:

    Refer to 12.A and 12.B: Suitable for use in ordinary (unclassified) locations, indoors and outdoors (Type 4, IP66).

    Refer to 12.C and 12.D: Dust-ignitionproof for Class II, Division 1, Groups E, F and G; Class III, Division 1 hazardous (classified) locations, indoors and outdoors (Type 4, IP66).

Certificate issued by:

J. E. Marquedant
Manager, Electrical Systems

16 May 2016
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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11. The marking of the equipment shall include:

Refer to 12.A and 12.B: Type 4, IP66

Refer to 12.C and 12.D: Class II, Division 1, Groups E, F, G, Class III, Division 1; Type 4, IP66

12. **Description of Equipment:**

General - The Nivobob® NB3x00 Level Measuring System is an electromechanical level measuring instrument used in the continuous measurement of level or volume in silos, hoppers or tanks. The level measuring system is primarily designed for measuring powder, granulate, and small or course bulk goods. Typically, the Nivobob® NB3x00 Level Measuring System is mounted on the top of a silo. A sensor weight, attached to the end of a tape or rope wound on a motor driven roller, is lowered down into the silo. Upon contact with the bulk material, the motor reverses direction and the sensor weight is returned to the upper position. During the downwards movement of the sensor weight, the distance is measured electronically according to the number of revolutions of the tape/rope roller. The measured distance is converted into an output signal which is a volumetric signal based on the silo geometry, which is preprogrammed by the end user. The output signal is continuously updated until the sensor weight touches the bulk material and the motor reverses direction. The last measurement is retained until a new measurement cycle is initiated, whether manually or using an external timing signal or by using the integrated timer function. The Nivobob® NB3x00 Level Measuring System is available with an optional heater (thick film power resistor) which prevents the motor and roller system from freezing. The heater operates when the motor is not running and is disabled when the ambient temperature is above +10°C. The system is also supplied with a thermal cut-off fuse installed inside the enclosure in the vicinity of the heater and motor which is rated at 128°C to cut-off the supply power in the event of an overheating conditioning. The thermal fuse is installed on all systems.

Construction - The Nivobob® NB3x00 Level Measuring System consists of a rectangular enclosure with bolt-on covers. The covers are provided with gaskets for ingress protection. The enclosure contains an electronics compartment and a separate compartment, open to the process connection, which contains the tape/rope roller. The electronics compartment is provided with one (1) ¾ inch NPT and two (2) ½ inch NPT openings with two (2) ½ inch NPT blind plugs, but can be configured with up to five (5) entries in any combination of ½ inch and ¾ inch NPT openings. The electronics compartment cover is available with or without a viewing window. On models equipped with the viewing window, a manual “start” button is also supplied for initiating measurement cycles at the unit. The system can be configured with any of a wide array of sensor weights depending on the measurement application.

Ratings - The Nivobob® NB3x00 Level Measuring System operates on 98-253 Vac or 20-28 Vdc. The system is available with a 4-20 mA output, SPST relay outputs and an electronic counting pulse (optocoupler) output. The system is capable of communications via Modbus RTU and Profibus DP. The Nivobob® NB3x00 Level Measuring System is intended for use in the following ambient temperatures: -20°C to +60°C or -40°C to +60°C for units with the optional heater installed. The maximum ambient temperature is limited to +40°C for versions rated for process temperatures of +150°C. The system is intended for process temperatures ranging from -40°C to +80°C, +150°C or +250°C. A version intended for ordinary locations only is available for process temperatures up to +650°C.

12.A ***NB3x00abcdezfzzghijklmnzzzz. Nivobob® NB3x00 Level Measuring System.***
a = Basic type C or D.
b = Certificate M or K.

c = Process temperature A, S, T or Z.
d = Power supply 1 or 3.
e = Signal output A, D, E or B.
f = Increased lifetime 1 or 2.
g = Weather protection cover 0 or X.
h = Measurement range (50m) 0 or X.
i = Window in lid and outside start/reset button 0 or X.
j = Internal heater 0 or X.
k = Length of socket pipe 0, A, B or any length up to 4100mm.
l = Pneumatic air connector 0 or X.
m = Increased corrosion resistance 0 or X.
n = Increased process pressure 0 or X.
z = Options not affecting product safety.

12.B ***NB3x00abAcdze1zfghijkIzzzz. Nivobob® NB3x00 Level Measuring System.***

a = Basic type E or F.
b = Certificate M or K.
c = Power supply 1 or 3.
d = Signal output A, D, E or B.
e = Increased lifetime 1 or 2.
f = Weather protection cover 0 or X.
g = Window in lid and outside start/reset button 0 or X.
h = Internal heater 0 or X.
i = Length of socket pipe 0, A, B or any length up to 4100mm.
j = Pneumatic air connector 0 or X.
k = Increased corrosion resistance 0 or X.
l = Increased process pressure 0 or X.
z = Options not affecting product safety.

12.C ***NB3x00abcdezfzzghijkl00zzzz. Nivobob® NB3x00 Level Measuring System.***

a = Basic type C or D.
b = Certificate L or N.
c = Process temperature A, S or T.
d = Power supply 1 or 3.
e = Signal output A, D, E or B.
f = Increased lifetime 1 or 2.
g = Weather protection cover 0 or X.
h = Measurement range (50m) 0 or X.
i = Window in lid and outside start/reset button 0 or X.
j = Internal heater 0 or X.
k = Length of socket pipe 0, A, B or any length up to 4100mm.
l = Pneumatic air connector 0 or X.
z = Options not affecting product safety.

12.D ***NB3x00abAcdze1zfghij0kzzzz. Nivobob® NB3x00 Level Measuring System.***

a = Basic type E or F.
b = Certificate L or N.
c = Power supply 1 or 3.
d = Signal output A, D, E or B.

e = Increased lifetime 1 or 2.
f = Weather protection cover 0 or X.
g = Window in lid and outside start/reset button 0 or X.
h = Internal heater 0 or X.
i = Length of socket pipe 0, A, B or any length up to 4100mm.
j = Pneumatic air connector 0 or X.
k = Increased process pressure 0 or X.
z = Options not affecting product safety.

13. **Specific Conditions of Use:**

Refer to 12.C:

1. The manufacturer's operating ambient temperature ranges are defined as follows:
   -20°C to +60°C (standard)
   -20°C to +40°C (for models with process temperature option 'S')
   -40°C to +60°C (for models with optional heater)
   -40°C to +40°C (for models with optional heater and process temperature option 'S')
2. The manufacturer's T-code ratings are defined by the maximum ambient temperature and either the thermal fuse rating or maximum process temperature, whichever is greater. See table below for permissible T-codes:

Max. ambient temp	Max. process temp	Max. surface temp	T-code
40°C	90°C	130°C	T4
	100°C	130°C	T4
	110°C	130°C	T4
	120°C	130°C	T4
	130°C	130°C	T4
	135°C	135°C	T4
	140°C	140°C	T3C
	150°C	150°C	T3C
60°C	80°C	130°C	T4
	130°C	130°C	T4
	135°C	135°C	T4
	140°C	140°C	T3C
	150°C	150°C	T3C
	160°C	160°C	T3C
	165°C	165°C	T3B
	170°C	170°C	T3A
	180°C	180°C	T3A
	190°C	190°C	T3
	200°C	200°C	T3
	210°C	210°C	T2D
	215°C	215°C	T2D
	220°C	220°C	T2C
	230°C	230°C	T2C
	240°C	240°C	T2B
	250°C	250°C	T2B

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Refer to 12.D:
1. The manufacturer's operating ambient temperature ranges are defined as follows:
   -20°C to +60°C (standard)
   -40°C to +60°C (for models with optional heater)
2. The manufacturer's maximum declared process temperature is +80°C.

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

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
23 June 2009	Original Issue.
2nd May 2016	Supplement 1: Report Reference: RR204873 dated 2nd May 2016 Description of the Change: Generate new certificate format with certificate number. Minor documentation and model code updates not affecting the product safety. The model code has also been revised to more accurately depict the complete and existing model code structure. The majority of the model code has not changed but had been previously truncated by FM.
16th May 2016	Supplement 2: Report Reference: RR205203 dated 16th May 2016 Description of the Change: FM Approvals generated revision request to correct the Equipment field on page 1 with the manufacturer's correct product information.