

**Translation**

(1) **EU-Type Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**



(3) **Certificate Number** TÜV 17 ATEX 196722 X **issue:** 00

(4) for the product: Portable Measuring Transformer  
NivuFlow Mobile Typ NFM-0xxx x E

(5) of the manufacturer: NIVUS GmbH

(6) Address: Im Täle 2  
75031 Eppingen

Order number: 8000469992

Date of issue: 2018-07-04

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 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 ATEX Assessment Report No. 18 203 196722.

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

EN 60079-0:2012+A11:2013    EN 60079-11:2012    EN 60079-7:2015  
EN 60079-18:2015

except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule 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 equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

 II 2 G Ex eb ib [ib] mb IIB T4 Gb

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



Roder

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Excerpts or changes shall be allowed by the TÜV NORD CERT GmbH

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 17 ATEX 196722 X issue 00**

(15) Description of product

Together with the belonging sensors, the "Portable Measuring Transformer" NivuFlow Mobile type NFM-0xxx x E is used for the measurement of the flow speed and the flow level in partly or fully filled pipes and channels via supersonic technology.

The Portable Measuring Transformer type NivuFlow Mobile NFM is operated stationary.

The permissible ambient temperature range is -15 °C ... +50 °C.

Electrical data

Supply voltage .....  $U_n = 12 \text{ V d. c.}$   
 (Internal plug connections) Powered with max. 2 x 12 V/15Ah VRLA-Pb-batteries;

1 wire circuit ..... in type of protection Intrinsic Safety Ex ib IIB  
 (CSM connector X10E [GND], Maximum values:  
 X10F [1 wire];

DSM connector X8E [GND], X8F [1 wire])  $U_o = 3.7 \text{ V}$   
 $I_o = 57.3 \text{ mA}$   
 $P_o = 53 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
	max. permissible external inductance	65 mH	10 mH
max. permissible external capacitance	9.4 $\mu\text{F}$	21 $\mu\text{F}$	37 $\mu\text{F}$

5 V circuit ..... in type of protection Intrinsic Safety Ex ib IIB  
 (CSM connector X10E [GND], Maximum values:  
 X10J [+5 V-Ex];

DSM connector X8E [GND], X8J [+5 V-Ex])  $U_o = 5.93 \text{ V}$   
 $I_o = 91.7 \text{ mA}$   
 $P_o = 135.9 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
	max. permissible external inductance	25 mH	10 mH
max. permissible external capacitance	4.4 $\mu\text{F}$	7.3 $\mu\text{F}$	14 $\mu\text{F}$

RS485 interface pressure, output ..... in type of protection Intrinsic Safety Ex ib IIB  
 (CSM connector X10G [- RxTx], Maximum values:  
 X10H [+ RxTx])

$U_o = 3.7 \text{ V}$   
 $I_o = 95.1 \text{ mA}$   
 $P_o = 88 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
	max. permissible external inductance	25 mH	10 mH
max. permissible external capacitance	11 $\mu\text{F}$	18 $\mu\text{F}$	36 $\mu\text{F}$

**Schedule to EU-Type Examination Certificate No. TÜV 17 ATEX 196722 X issue 00**

RS485 interface pressure, input ..... in type of protection Intrinsic Safety Ex ib IIB  
 (CSM connector X10G [- RxTx],  
 X10H [+ RxTx])  
 Only for connection to an intrinsically safe circuit  
 Max. values:  
 $U_i = 7.21 \text{ V}$   
 $I_i = 176 \text{ mA}$   
 $P_i = 317.2 \text{ mW}$   
 The effective internal capacitances and inductances  
 are negligibly small.

Radar sensor supply ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1A, X1B)  
 Maximum values:  
 $U_o = 9.87 \text{ V}$   
 $I_o = 629 \text{ mA}$   
 $P_o = 6.21 \text{ W}$   
 Characteristic line: rectangular

Ex ib	IIB		
max. permissible external inductance	0.2 mH	0.1 mH	0.05 mH
max. permissible external capacitance	5 $\mu\text{F}$	8 $\mu\text{F}$	11.9 $\mu\text{F}$

RS485 interface, output ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1C, X1D)  
 Maximum values:  
 $U_o = 3.7 \text{ V}$   
 $I_o = 95.1 \text{ mA}$   
 $P_o = 88 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	25 mH	10 mH	1 mH
max. permissible external capacitance	11 $\mu\text{F}$	18 $\mu\text{F}$	36 $\mu\text{F}$

RS485 interface, input ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1C, X1D)  
 Only for connection to an intrinsically safe circuit  
 Max. values:  
 $U_i = 10.21 \text{ V}$   
 $I_i = 248.8 \text{ mA}$   
 $P_i = 633.8 \text{ mW}$   
 The effective internal capacitances and inductances  
 are negligibly small.

Analogue input no. 1 /2 ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1G, X1F; X1H, X1J)  
 Maximum values:  
 $U_o = 22.2 \text{ V}$   
 $I_o = 33 \text{ mA}$   
 $R = 48 \text{ }\Omega$   
 $P_o = 624 \text{ mW}$   
 Characteristic line: trapezoidal

Ex ib	IIB		
max. permissible external inductance	20 mH	1 mH	0.1 mH
max. permissible external capacitance	0.52 $\mu\text{F}$	0.56 $\mu\text{F}$	1 $\mu\text{F}$

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Analogue input no. 3 ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1K, X1M)  
 Maximum values:  
 $U_o = 3.7 \text{ V}$   
 $I_o = <1 \text{ mA}$   
 $P_o = <1 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	100 mH	10 mH	1 mH
max. permissible external capacitance	19 $\mu\text{F}$	24 $\mu\text{F}$	38 $\mu\text{F}$

Analogue input no. 3 ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1K, X1M)  
 Only for connection to an intrinsically safe circuit  
 Max. values:  
 $U_i = 5.53 \text{ V}$   
 $I_i = 33.5 \text{ mA}$   
 $P_i = 185.4 \text{ mW}$   
 The effective internal capacitances and inductances are negligibly small.

Analogue output ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1L, X1M)  
 Maximum values:  
 $U_o = 15.78 \text{ V}$   
 $I_o = 177.4 \text{ mA}$   
 $P_o = 700 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	5.5 mH	1 mH	0.1 mH
max. permissible external capacitance	1 $\mu\text{F}$	2.4 $\mu\text{F}$	2.6 $\mu\text{F}$

Digital input ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1N, X1P)  
 Maximum values:  
 $U_o = 3.7 \text{ V}$   
 $I_o = <1 \text{ mA}$   
 $P_o = <1 \text{ mW}$   
 Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	100 mH	1 mH	0.1 mH
max. permissible external capacitance	19 $\mu\text{F}$	38 $\mu\text{F}$	81 $\mu\text{F}$

Digital input ..... in type of protection Intrinsic Safety Ex ib IIB  
 (Connector X1N, X1P)  
 Only for connection to an intrinsically safe circuit  
 Max. values:  
 $U_i = 19.69 \text{ V}$   
 $I_i = 4.23 \text{ mA}$   
 $P_i = 83.3 \text{ mW}$   
 The effective internal capacitances and inductances are negligibly small.

**Schedule to EU-Type Examination Certificate No. TÜV 17 ATEX 196722 X issue 00**

Piezo circuits ..... (CSM connector X10 A/B and C/D, DSM connector X8 A/B and C/D)	in type of protection Intrinsic Safety Ex ib IIB Only for connection to the belonging sensors of the manufacturer Max. output energy: 146 µJ
Relay output ..... (Connector X1S, X1T, X1U)	in type of protection Intrinsic Safety Ex ib IIB Only for connection to an intrinsically safe circuit Max. values: $U_i = 26 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 2.6 \text{ W}$ The effective internal capacitances and inductances are negligibly small.

The rules for interconnection of intrinsically safe circuits have to be observed.

(16) Drawings and documents are listed in the ATEX Assessment Report No. 18 203 196722.

(17) Specific Conditions for Use

1. Electrostatic charge has to be avoided for all housing parts and the interlock; the manual of the manufacturer has to be observed.
2. Charging of the supply batteries is only permitted outside of the explosion hazardous area with the charger of the manufacturer or with a separately certified charger (intrinsically safe charge circuit); the manual of the manufacturer has to be observed.
3. Change of the supply batteries / backup battery is only permitted outside of the explosion hazardous area.
4. Only permissible batteries according to the manufacturer's operating instructions are allowed to be used.
5. The memory stick and the SIM card are only permitted to be used outside of the explosion hazardous area at the USB port resp. at the SIM card connector.
6. Operation is only allowed in vertical position (plug-connectors downwards).
7. The housing has to be additionally secured by an interlock provided by the manufacturer.

(18) Essential Health and Safety Requirements

no additional ones

- End of Certificate -