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:** 01

(4) for the product: Portable Measuring Transformer NivuFlow Mobile Typ NFM-0xxx x E and NivuLevel Mobile Typ NFM-0050 x E

(5) of the manufacturer: NIVUS GmbH

(6) Address: Im Täle 2
75031 Eppingen

Order number: 8003009451

Date of issue: 2019-10-28

(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. 19 203 251874.

(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:

Ex 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

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Roder

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(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 17 ATEX 196722 X issue 01**

(15) Description of product

Together with the belonging sensors, the Portable Measuring Transformer
NivuFlow Mobile type NFM-0xxx x E and
NivuLevel Mobile type NFM-0050 x E
are 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 NivuFlow Mobile/NivuLevel Mobile type NFM... is operated stationary.

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

Electrical data

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

External suppy circuit ..... in type of protection Intrinsic Safety Ex ib IIB
(X1R [Uin],
X1B [GND]) Only for connection to an intrinsically safe circuit
Maximum values:
U_i = 14.5 V
I_i = 1.25 A
P_i = 18.1 W
The effective internal capacitances and inductances are negligibly small.

1 wire circuit ..... in type of protection Intrinsic Safety Ex ib IIB
(CSM connector X10E [GND],
X10F [1 wire];
DSM connector X8E [GND], X8F [1 wire]) Maximum values:
U_o = 3.7 V
I_o = 57.3 mA
P_o = 53 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	65 mH	10 mH	1 mH
max. permissible external capacitance	9.4 µF	21 µF	37 µF

5 V circuit ..... in type of protection Intrinsic Safety Ex ib IIB
(CSM connector X10E [GND],
X10J [+5 V-Ex];
DSM connector
X8E [GND], X8J [+5 V-Ex]) Maximum values:
U_o = 5.93 V
I_o = 91.7 mA
P_o = 135.9 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	1 mH	0.2 mH	0.1 mH
max. permissible external capacitance	14 µF	23 µF	30 µF

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RS485 interface pressure, output .....
(CSM connector X10G [- RxTx],
X10H [+ RxTx])

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:

U_o = 3.7 V
I_o = 95.1 mA
P_o = 88 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	25 mH	10 mH	1 mH
max. permissible external capacitance	11 µF	18 µF	36 µF

RS485 interface pressure, input .....
(CSM connector X10G [- RxTx],
X10H [+ RxTx])

in type of protection Intrinsic Safety Ex ib IIB
Only for connection to an intrinsically safe circuit
Maximum values:
U_i = 7.21 V
I_i = 176 mA
P_i = 317.2 mW
The effective internal capacitances and inductances are negligibly small.

Radar sensor supply .....
(Connector X1A, X1B)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 9.87 V
I_o = 629 mA
P_o = 6.21 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 µF	8 µF	11.9 µF

RS485 interface, output .....
(Connector X1C, X1D)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 3.7 V
I_o = 95.1 mA
P_o = 88 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	25 mH	10 mH	1 mH
max. permissible external capacitance	11 µF	18 µF	36 µF

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RS485 interface, input .....
(Connector X1C, X1D)

in type of protection Intrinsic Safety Ex ib IIB
Only for connection to an intrinsically safe circuit
Maximum values:
U_i = 10.21 V
I_i = 248.8 mA
P_i = 633.8 mW
The effective internal capacitances and inductances are negligibly small.

Analogue input no. 1 /2 .....
(Connector X1G, X1F; X1H, X1J
NivuLevel Mobile type NFM-0050 x E:
Connector X7C, X7E; X7B, X7D)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 22.2 V
I_o = 33 mA
R = 48 Ω
P_o = 624 mW
Characteristic line: trapezoidal

Ex ib	IIB		
max. permissible external inductance	20 mH	1 mH	0.1 mH
max. permissible external capacitance	0.52 µF	0.56 µF	1 µF

Analogue input no. 3 .....
(Connector X1K, X1M)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 3.7 V
I_o = <1 mA
P_o = <1 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	100 mH	10 mH	1 mH
max. permissible external capacitance	19 µF	24 µF	38 µF

Analogue input no. 3 .....
(Connector X1K, X1M)

in type of protection Intrinsic Safety Ex ib IIB
Only for connection to an intrinsically safe circuit
Maximum values:
U_i = 5.53 V
I_i = 33.5 mA
P_i = 185.4 mW
The effective internal capacitances and inductances are negligibly small.

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Analogue output .....
(Connector X1L, X1M)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 15.78 V
I_o = 177.4 mA
P_o = 700 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	5.5 mH	1 mH	0.1 mH
max. permissible external capacitance	1 µF	2.4 µF	2.6 µF

Digital input .....
(Connector X1N, X1P)

in type of protection Intrinsic Safety Ex ib IIB
Maximum values:
U_o = 3.7 V
I_o = < 1 mA
P_o = < 1 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	100 mH	1 mH	0.1 mH
max. permissible external capacitance	19 µF	38 µF	81 µF

Digital input .....
(Connector X1N, X1P)

in type of protection Intrinsic Safety Ex ib IIB
Only for connection to an intrinsically safe circuit
Maximum values:
U_i = 19.69 V
I_i = 4.23 mA
P_i = 83.3 mW
The effective internal capacitances and inductances are negligibly small.

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
Maximum values:
U_i = 26 V
I_i = 100 mA
P_i = 2.6 W
The effective internal capacitances and inductances are negligibly small.

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SIM-card circuit ..... in type of protection Intrinsic Safety Ex ib IIB
(SIM-CARD connector)
Maximum values:
U_o = 4.5 V
I_o = 283 mA
P_o = 319 mW
Characteristic line: linear

Ex ib	IIB		
max. permissible external inductance	1 mH	0.1 mH	0.02 mH
max. permissible external capacitance	21 µF	51 µF	120 µF

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

(16) Drawings and documents are listed in the ATEX Assessment Report No. 19 203 251874.

(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 is only permitted to be used outside of the explosion hazardous area at the USB port.
6. The change of the SIM card is only permitted outside of the explosion hazardous area. See "Electrical data" for operation in the explosion hazardous area.
7. Operation is only allowed in vertical position (plug-connectors downwards).
8. The housing has to be additionally secured by an interlock provided by the manufacturer.
9. The battery in the right-hand housing part (connections MP1/MP2) is not allowed to be connected, if the external power supply is used.
10. The connections at X8 are only permissible for use of the manufacturer for firmware-updates in the safe area.

(18) Essential Health and Safety Requirements

no additional ones

- End of Certificate -