

1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres –
Directive 94/9/EC – Annex III

3 EC Type Examination **TRAC12ATEX0031X**
Certificate No.:

4 Equipment: **Ultrasonic Transducers,
i-Series Intelligent Sensors**

5 Manufacturer: **Nivus GmbH,**

6 Address: **Im Täle 2, 75031 Eppingen, Germany**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 TRaC Global Ltd, Notified Body number 0891 in accordance with Article 9 of the Council Directive 94/9/EC 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 or protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report **TRA-008917-33-02A**.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in section 18 of the schedule to this certificate, has been assured by compliance with:

EN60079-0:2009

EN60079-18:2009

10 If the sign "X" is placed after the certificate number then this indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of this equipment or protective system shall include the following:

 **II 2 G Ex mb IIC T4 Gb** **T_{amb} = -40°C to +80°C**

II 2 D Ex mb IIIC T130°C Db

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the TRaC Ex Certification Scheme.

S.P. Winsor

S P Winsor, Certification Officer

Issue date: 2012-09-06

Copy No.: 1e

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0031X**

15 **General description of equipment or protective system included within the scope of this certificate**

The "i-Series Intelligent Sensors" are ultrasonic transducers. They are a range of 4-20 mA loop-powered, compact acoustic measurement devices and are intended to be powered by a control unit (not part of this certified equipment) which also processes the measurement data received. The transducers are protected by a fuse in line with the power supply.

The range of transducers consists of slightly different constructions with respect to dimensions but all have a non-metallic enclosure which houses 2 internal electronic PCBs and a piezo crystal. The free space internally is potted with 1 of 2 types of material. Each unit has an integral screened cable for the power supply and some of the models use syntactic foam as a facing material.

The equipment is marked with a maximum voltage rating of $U_m = 28V$ and is current limited by an internal fuse.

A list of controlled Manufacturer's Documents is given in Appendix A to this schedule.

16 **Test report No.:** **TRA-008917-33-02A.**

17 **"Special Conditions of Safe Use" for Ex Equipment, if any:**

1. The "i-Series Intelligent Sensors" must be routinely inspected to avoid the build up of dust layers when installed in a Zone 21 & 22.
2. The "i-Series Intelligent Sensors" must only be wiped with a damp or antistatic cloth.
3. Only the fuse value listed on drawing D-0804-0978-A is permitted to be used with the Ex approved "i-Series Intelligent Sensors".

18 **Essential health and safety requirements**

Covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report listed in section 16 of this certificate.

19 **Additional information**

"Routine tests", if any:

None.

"Special conditions for manufacture", if any:

1. Wiring and potting of the "i-Series Intelligent Sensors" shall be manufactured in accordance with document ref. Special process instruction 9.0, i potting rev 1.0 dated 2012-06-13.
2. Conditions for manufacturing and production control are the same as for equipment detailed within report **TRA-008917-33-01A.**




Other information, if any:

None.

Photographs



Details of markings

| | | | |
|--|--|---|---|
| <p>A-800-0414-A Serien Nr. XXXXX</p> |   |  | <p>Gefahr von elektrostatischer Aufladung! Nur mit feuchtem Tuch reinigen!</p> <p>TRAC 12ATEX0031X Um=28V PROSPECTIVE SHORT II 2 G Ex mb IIC T4 Gb $T_{max} = -40^{\circ}\text{C to } +80^{\circ}\text{C}$ II 2 D Ex mb IIIC T130°C Db</p> |
| <p>A-800-0415-A Serien Nr. XXXXX</p> |   |  | <p>Gefahr von elektrostatischer Aufladung! Nur mit feuchtem Tuch reinigen!</p> <p>TRAC 12ATEX0031X Um=28V PROSPECTIVE SHORT II 2 G Ex mb IIC T4 Gb $T_{max} = -40^{\circ}\text{C to } +80^{\circ}\text{C}$ II 2 D Ex mb IIIC T130°C Db</p> |
| <p>A-800-0416-A Serien Nr. XXXXX</p> |   |  | <p>Gefahr von elektrostatischer Aufladung! Nur mit feuchtem Tuch reinigen!</p> <p>TRAC 12ATEX0031X Um=28V PROSPECTIVE SHORT II 2 G Ex mb IIC T4 Gb $T_{max} = -40^{\circ}\text{C to } +80^{\circ}\text{C}$ II 2 D Ex mb IIIC T130°C Db</p> |
| <p>A-800-0417-A Serien Nr. XXXXX</p> |   |  | <p>Gefahr von elektrostatischer Aufladung! Nur mit feuchtem Tuch reinigen!</p> <p>TRAC 12ATEX0031X Um=28V PROSPECTIVE SHORT II 2 G Ex mb IIC T4 Gb $T_{max} = -40^{\circ}\text{C to } +80^{\circ}\text{C}$ II 2 D Ex mb IIIC T130°C Db</p> |

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0031X

Details of variations to this certificate

- None.

Notes to CE marking

In respect of CE Marking, TRaC Global Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

Notes to this certificate

TRaC certification reference: **TRA-008917-32-00**.

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.



CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0031X

APPENDIX A - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS

| Title: | Drawing No.: | Rev. Level: | Date: |
|---|------------------|-------------|------------|
| Intelligent Transducer General Layout | D-804-0948-A | A | 2011-12-01 |
| HIPA (Hart, imp, PA) Schematic For ATEX Certification | D-804-0949-A | A | 2012-01-03 |
| HIPA PCB (3 pages) | D-804-0950-B | B | 2012-01-03 |
| ATEX Certified HIPA Ping BOM (2 pages) | * | 1.1 | 2012-06-19 |
| Hart CPU Schematic For ATEX Certification | D-804-0951-A | A | 2012-01-03 |
| Hart CPU PCB (4 pages) | D-804-0952-B | B | 2012-01-03 |
| ATEX Certified Hart Transducer Processor BOM (3 pages) | * | 1.1 | 2012-06-19 |
| NIVUS i 3, 6, 10 & 15 HART Transducer Wraparound Labels for Ex mb | D-804-0996-B | * | 2011-09-26 |
| i Transducer Block Diagram For Exm | D-804-0978-A | A | 2012-04-23 |
| i Transducer Potting Thickness | D-804-0969-A | A | 2012-03-13 |
| i Transducer Cap | D-804-0980-A | A | 2012-04-23 |
| i 3 Standard Housing | D-804-0981-A | A | 2012-04-23 |
| i 6 Standard Housing | D-804-0982-A | A | 2012-04-23 |
| i 10 Standard Housing | D-804-0983-A | A | 2012-04-23 |
| i 15 Standard Housing | D-804-0984-A | A | 2012-04-23 |
| i 3 Threaded Nose Housing | D-804-0985-A | A | 2012-04-23 |
| i 6 Threaded Nose Housing | D-804-0986-A | A | 2012-04-23 |
| i 10 Threaded Nose Housing | D-804-0987-A | A | 2012-04-23 |
| i Housing Extension Ring | D-804-0988-A | A | 2012-04-23 |
| Special Process Instruction 9.0 i Potting | * | 1.0 | 2012-06-13 |
| Instruction Manual for i-Series Intelligent Sensors | i-Series Sensors | 00 | 2012-07-20 |

* no information provided.