1 EU - TYPE EXAMINATION CERTIFICATE

2 **Product or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU – Annex III**

3 EU - Type Examination Certificate No.: **TRAC09ATEX21226X (incorporating variations V1 to V2)**

4 Product: **Clamp-On Transducer K1Ex, K4Ex**

5 Manufacturer: **Katronic Technologies Ltd.,**

6 Address: **Earls Court, 13 Warwick Street, Earlsdon, Coventry, CV5 6ET, United Kingdom**

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

8 Element Materials Technology, Notified Body number 2812, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 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 report **16-0071-003870**.

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

EN60079-0:2006 **EN60079-18:2004** **EN61241-0:2006**

EN61241-18:2004

Except in respect of those requirements listed at section 18 of the schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of 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 product. These are not covered by this certificate.

12 The marking of this product shall include the following:

II 2 G Ex mb IIC T4 – T6 X **T_{amb} = -50°C to +115°C**

II 2 D Ex mbD 21 IP68 T80°C – T120°C X

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

S P Winsor, Certification Manager

Issue date: 2019-11-01

Voorerf 18, 4824 GN Breda, Netherlands
Element Materials Technology Rotterdam B.V.
Registered in the Netherlands. Registered Office: PO Box 6854, 4802 HW, Breda, Netherlands
Company Reg No. 24170257

13 SCHEDULE TO EU - TYPE EXAMINATION CERTIFICATE

14 CERTIFICATE NUMBER TRAC09ATEX21226X (incorporating variations V1 to V2)

15 Description of Product

The clamp-on transducer, model type K1Ex and K4Ex, are ultrasonic transducers designed to transmit and receive ultrasonic signals pulsed from a controlling flow transmitter (e.g. the Katflow 150), which is installed in a safe area or suitably protected by an appropriate ATEX protection concept if it is in the hazardous area. There is a tri-axial cable (5m length) for connecting the transducers to a flow transmitter device. The transducers are designed to be clamped onto the outside of the pipe, ultrasound signals are emitted by the first transducer on one side of the pipe, reflected and received by a second transducer on the opposite side.

The K1Ex and K4Ex transducers are enclosed on 3 sides in a metallic enclosure and completely encapsulated. The fourth side is made from PEEK plastic and is the side that fits to the pipe.

The transducers are connected to specialist apparatus which must conform to signal parameters and thermal protection conditions as outlined in the special conditions for safe use.

16 Test Report No. (as added for this issue of the certificate): N/A

17 Specific Conditions of Use

1. The transmitting circuitry must be protected from a mains transient fault by fuses and they shall be rated in accordance with IEC 60127 or ANSI/UL 248-1, the fuse time-current characteristic shall ensure that the COT of the encapsulating compound and T class are not exceeded and shall have a breaking capacity greater than 1500A. In addition, the fuses shall be non-resettable and shall only be replaced by opening the enclosure. The separation distance across the fuse shall meet Table 5 of EN60079-11.
2. The pulsed supply to the transducers must not exceed 330V at a maximum frequency of 4 MHz.
3. Where the interconnecting cable may be subject to mechanical damage then the user shall provide additional mechanical protection.

Attention is drawn to the operating and installation instructions which may contain useful information in relation to conditions of use.

18 Essential Health and Safety Requirements (Directive Annex II)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

19 Drawings and Documents

The list of controlled technical documentation is given in Appendix A to this schedule.

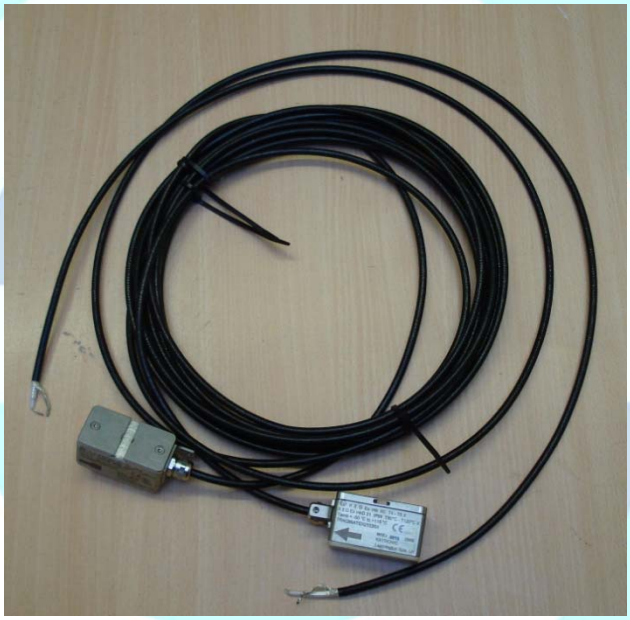
20 Routine Tests

None.

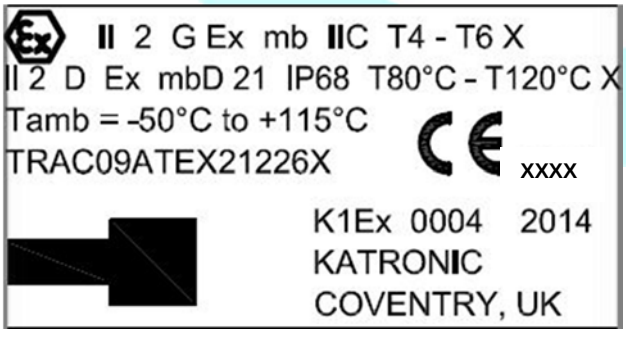
21 Specific Conditions for Manufacture

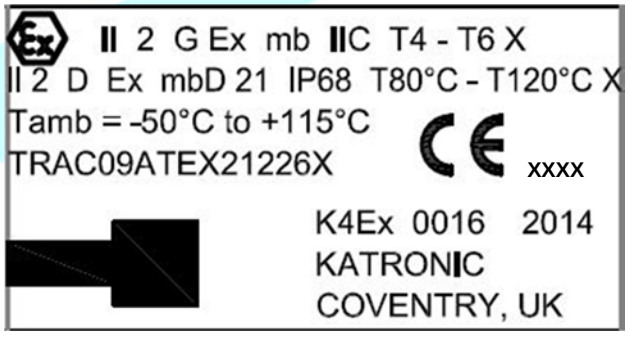
1. During encapsulation, it shall be ensured that both the signal wire and ground wire maintain a distance of >3mm from the outer metal enclosure and also to maintain a distance >1mm from each other.
2. The manufacturing process shall ensure that each sample is free of voids during encapsulation.
3. Each piece of 'm' apparatus shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling and decomposition, failure in adhesion or softening.
4. A 1600V dielectric strength test shall be performed between the signal wire and the metallic enclosure on each sample for a minimum 1s with no breakdown occurring
5. Prior to connecting the external signal wires the insulation at the ends shall be stripped back so that at least 5mm of bare conductor exists. It also must be ensured that the 3mm separation is maintained between these conductors and the inner surface of the enclosure.

22 Photographs



23 Details of Markings





24 Details of Variations to this Certificate

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following variations:

- Variation V1 – Update of certificate and drawings to reflect address change.
- Variation V2 - This certificate was originally issued by Notified Body number 0891 under Directive 2014/34/EU. The technical file has been transferred to Element Notified Body number 2812 without further assessment or evaluation.

25 Notes to CE marking

In respect of CE Marking, Element Materials Technology accepts no responsibility for the compliance of the product against all applicable Directives in all applications.

26 Notes to this certificate

Element Materials Technology certification reference: **NR-KATQ-0001**

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

Notified Body number 2812 is the designation for Element Materials Technology Rotterdam BV.

In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variation certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

27 Conditions for the validity of this certificate

This certificate remains valid for so long as:

(i) The equipment listed in section 4 is manufactured in accordance with the documents listed in Appendix A of this certificate.

(ii) The standards listed in section 9 of this certificate continue to satisfy the Essential Health and Safety Requirements of Annex II of Directive 2014/34/EU and the generally acknowledged state of the art (e.g. as determined by the publishers of those standards).

SCHEDULE TO EU - TYPE EXAMINATION CERTIFICATE

CERTIFICATE NUMBER TRAC09ATEX21226X (incorporating variations V1 to V2)

APPENDIX A - TECHNICAL DOCUMENTS

Title:	Drawing No.:	Rev. Level:	Date:
Sensor Housing and Gland Assy General Arrangement	DWG-K1Ex-001E	E	2014-01-10
Sensor Housing and Gland Assy General Arrangement	DWG-K4Ex-001E	E	2014-01-10
K1/K4Ex Stainless Steel Housing	DWG-K1_K4Ex-002A	-	2009-11-23
Sensor Wedge V04.1	DWG-K1_K4Ex-003A	-	2009-11-24
Sensor Cover V03.1	DWG-K1_K4Ex-004A	-	2009-11-24
Ex Sensor Wiring	DWG-K1_K4Ex-005	A	2009-10-09
K1/K4 Ex Sensor PE Connection	DWG-K1_K4Ex-007A	-	2009-11-20
Ex Sensor K1Ex Part List	DWG-K1Ex-001A_SensorPartList_091124.doc	-	2009-10-29
Ex Sensor K4Ex Part List	DWG-K4Ex-001A_SensorPartList_091120.doc	-	2009-10-29
Ex Sensor Marking	DWG-K1Ex_K4Ex-001C	C	2014-04-10
Supplement ATEX Safety Instructions	Version V11E0510	-	2010
Work Instructions	7.5_AA_Ex-K1-K4-Gehausemontage_02.09.10	-	2010-01-14
Manufacturing Instructions	ManufacturingInstructions_ExSensors_100916.odt	-	2010-08-16