1 **EU TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **CSANe 20ATEX1077X** Issue: **0**

4 Equipment: **The TRICOR TCMQ Sensor comprises of two flameproof 'Ex d' component parts, a TCD9010/DSL housing and TRICOR TCMQ**** flow sensor**

5 Applicant: **KEM Kueppers Elektromechanik GmbH**

6 Address: Liebigstraße 5
85757 Karlsfeld
Germany

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

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

EN 60079-0:2012+A11:2013	EN 60079-1:2014	EN 60079-11:2012
EN 60079-26:2007	EN 60079-31:2014	

10 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.

11 This EU type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 1/2 G	Ex db ia IIC T* Ga/Gb	(Ta = -40°C to +*°C)
II 1/2 G	Ex db IIC T* Ga/Gb	(Ta = -40°C to +*°C)
II 1 D	Ex ia IIIC T*°C Da/Db	(Ta = -40°C to +*°C)
II 2 D	Ex tb IIIC T*°C Db	(Ta = -40°C to +*°C)

* The temperature class and the maximum surface temperatures for hazardous dusts are dependent on the maximum ambient temperature and the maximum process temperature as detailed in the Specific Conditions Of Use and Conditions Of Manufacture.

Project Number 80040208

Signed: J A Ma

Title: Director of Operations

CSA Group Netherlands B.V.
Utrechtseweg 310, Building B42,
6812AR, Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **CSA Ne 20ATEX1077X**
Issue 0

13 DESCRIPTION OF EQUIPMENT

The TRICOR TCMQ flow sensor comprises an enclosure consisting of a tube which is welded to an intersecting flattened hemispherical housing. Both the tube and housing are manufactured in stainless steel or Hastelloy C-22. Manifolds, which are welded to each end of the tube, provide ingress and egress for two pipes which run through the enclosure. The pipes, in turn, are welded to the manifolds, and thus the process medium which passes through the pipes is isolated from the interior of the enclosure. Internally, the enclosure is provided with sensors which are mounted adjacent to the pipes, in order to monitor temperature and Coriolis Effect. External cabling to the sensors is achieved via a pedestal assembly, mounted at the midpoint of the tube, which incorporates a glass to metal bushing through which the permanently attached cables pass. The TRICOR TCMQ sensor may be provided in several sizes, being designated DN15, DN25, DN50, DN80, DN100 and DN150.

The TRICOR TCMQ DSL Housing comprises an aluminium cylindrical enclosure with threaded cover. The cover is locked in place by a locking screw which impinges on the ribbed side wall of the cover. One end of the enclosure is fitted with a pedestal arrangement, for mounting the housing directly to the TRICOR TCMQ sensor. The mounting arrangement allows for the interconnection of a cable between the TRICOR TCMQ DSL housing transmitter and TRICOR TCMQ sensor. The TRICOR TCMQ DSL enclosure wall is provided with an M20 threaded entry fitted with either a 4-Pin Flameproof 'Ex d' 4-pin electrical connector or a separately approved ATEX/IECEx flameproof 'Ex d' cable gland to allow for the remote electrical connection of the TRICOR TCMQ DSL circuit to the TCD9200-a-bcde-fgh–iii Transmitter via several meters of cable. The enclosure is provided with internal and external earthing facilities.

Intrinsically safe installations: The complete TRICOR TCMQ**** equipment has the following safety description:

4-Pin Connection – A, B, 0 and 15 V or Connector X700
(Pin 1 = 15 V, Pin 2 = 0 V, Pin 3 = A and Pin 4 = B)

Ui = 20 V Ii = 484 mA Pi = 2.3 W Ci = 1894 pF Li = 602 nH

Non-intrinsically safe installations (Ex db and Ex tb): rated voltage = 24 V d.c.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	18 March 2021	R80040208A	The release of prime certificate.

14.3 Certificate number SIRA 11ATEX1341 Issue 7

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 The apparatus housing shall be connected to the potential equalising conductor in the hazardous area.

15.2 The maximum allowable process fluid temperatures with respect to temperature class for the device when used with potentially explosive gases in the following maximum ambient temperatures are:

Ta (°C)	Maximum Process Temperature per Temperature Class (°C)			
	T6	T5	T4	T3
60	70	70	70	70

Ta (°C)	Maximum Process Temperature per Temperature Class (°C)			
	T6	T5	T4	T3
55	85	100	100	100
50	85	100	130	130
45	85	100	135	160
40	85	100	135	190
35	85	100	135	200
30	85	100	135	200

15.3 The maximum allowable process fluid temperatures with respect to maximum surface temperatures for hazardous dusts for the device when used with hazardous dusts in the following maximum ambient temperatures are:

Applications with up to 500mm dust or isolation		Applications with up to 5mm dust or isolation	
Ta (°C)	Tprocess max (°C)	Ta (°C)	Tprocess max (°C)
60	-40	60	70
55	-10	55	100
50	20	50	130
45	50	45	160
40	80	40	190
35	110	35	200
30	140	30	200
• If Tprocess ≤85°C, maximum surface temperature = 85°C. • If Tprocess >85°C, maximum surface temperature = process temperature.			

15.4 The maximum pressure associated with the process medium in the internal pipes shall be limited to 160 bar.

15.5 The equipment internal circuits at the 4-Pin Connection – A, B, 0 and 15 V or Connector X700 (Pin 1 = 15 V, Pin 2 = 0 V, Pin 3 = A and Pin 4 = B) are not capable of withstanding a 500 V r.m.s. a.c. test to earth as required by clause 6.3.13 of IEC 60079-11:2011. This shall be taken into account in any equipment installation.

15.6 When the equipment is installed as 'Ex d', the connector (1/2" NPT or M20) shall be replaced with a suitably certified Ex d cable gland or Ex d Conduit Sealing Device and the voltage of the equipment shall not exceed 60 V d.c.

15.7 If the equipment is installed as flameproof only, it shall not subsequently be installed as intrinsically safe unless it can be verified that there has been no damage to the safety components within the intrinsically safe circuit on which safety depends by, for example, an over-voltage at the supply terminals. The safety components on which intrinsic safety depends have been assessed up to an input voltage of 60 V d.c.

15.8 Intrinsically safe installations only: A temporary connection of the TRICOR TCMQ to an uncertified programming or data download device is permitted, when the TRICOR TCMQ is located in the non-hazardous area (typically prior to installation). Alternatively, such a connection may be made when the TRICOR TCMQ remains in the hazardous area, but the area is declared 'gas-free'. The uncertified programming or data download device shall be suitably-approved as a SELV supply to IEC 60950-1, IEC 61010-1 or an equivalent standard, with a maximum output voltage of 60 V. The input terminals of the TRICOR TCMQ have a maximum voltage Um = 60V.

If the equipment is installed as flameproof only, it shall not subsequently be installed as intrinsically safe unless it can be verified that there has been no damage to the safety components within the intrinsically safe circuit on which safety depends by, for example, a voltage above 60 V at the supply terminals.

15.9 If the Sensor is mounted remotely from the Adapter, the wiring shall be given protection against torsional and tensile stresses (e.g. by the use of conduit).

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF MANUFACTURE**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

Certificate Annexe

Certificate Number: **CSA Ne 20ATEX1077X**

Equipment: **The TRICOR TCMQ Sensor comprises of two flameproof 'Ex d' component parts, a TCD9010/DSL housing and TRICOR TCMQ**** flow sensor**

Applicant: **KEM Kueppers Elektromechanik GmbH**

Issue 0

Drawing	Sheets	Rev	Date (Stamp)	Title
TCMQ-ATEX-MRK-LBL-MTR-MNT-1	1 of 1	RO3	21 Jan 21	Labels TCMP Transducer + TCD 9010 Transmitter Meter Mount
TCMQ-ATEX-MRK-LBL-RMT-MNT-1	1 of 2	RO1	21 Jan 21	TCD-9200-R/L-xxxx-xx for TCMQ-series

