EU Type Examination Certificate CML 26ATEX2018X Issue 0

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

2 Equipment **TX592x.35(.xx…) Vortex Gas Flow Sensor/Transmitter**

3 Manufacturer **Trolex Limited**

4 Address **Hazel Grove,**
Stockport,
Cheshire,
SK7 5DY, U.K.

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 Eurofins CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, 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 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 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN IEC 60079-11:2024*

Note*: Although this standard does not appear on the harmonised list, the content has been reviewed and as it is the latest technical knowledge and addresses all the same requirements as the previous edition, it is accepted as meeting the same ESHR's of the Directive as the previous, harmonised edition

10 The equipment shall be marked with the following:

Ex I M1	Ex II 1 G
Ex ia I Ma	Ex ia IIC T4 Ga
Ta=-20°C to +60°C	Ta=-20°C to +60°C

11 Description

The TX592x.35(.xx…) Vortex Gas Flow Sensor/Transmitters comprise three PCBs housed in an anti-static plastic enclosure. A polycarbonate window is fitted to allow viewing of the liquid crystal display. The Vortex Gas Flow Sensor, which projects from the enclosure or is mounted remotely via a flying lead, comprises a single PCB in a stainless-steel cylindrical case.

There are three types of sensor/Transmitters:

TX5921: rear-projecting sensor
TX5922: side-projecting sensor
TX5923: remote sensor

Each of these types may be manufactured in one of four versions:

Group I: 4 to 20 mA version
Group I: 0.4 to 2 V version
Group II: 4 to 20 mA version

The supply to the equipment is via terminals T3 and T4. The equipment is designed to detect the rate of gas flow by creating a stream of vortices, through which an ultrasonic beam is passed. The received signal, which is modulated by the vortex stream, is then converted into an output at terminals T1 and T2.

The TX5921/2/3 have the following safety descriptions:

Version	T3/T4 (supply)	T1/T2 (signal out) [See notes 1-3]
Group I: 4-20 mA version	Ui = 16.5 V; Ci = 4 nF; Li = 0	Ui = 16.5 V; Pi = 1.72 W Ci = 15 nF; Li = 0 Uo = 16.5 V; Io = 220 mA Po = 0.91 W Co = 11.9 µF; Lo = 2.6 mH
Group I: 0.4 – 2 V version	Ui = 16.5 V; Ci = 4 nF; Li = 0	Ui = 16.5 V; Pi = 1.72 W Ci = 15 nF; Li = 0 Uo = 16.5 V; Io = 41 mA Po = 0.17 W Co = 11.9 µF; Lo = 2.6 mH

Version	T1/T2/T3/T4 (total inputs to ‘supply’ and ‘signal out’)
Group II 4 – 20 mA version:	Ui = 28 V; Ii = 120 mA Pi = 0.84 W Ci = 18.3 nF; Li = 0

Note 1: In some applications, T1 and T2 are inputs, in which case these output parameters are not relevant.

Note 2: For Group I builds, the connections to terminals T1/T2 and T3/T4 shall be from the same power supply. The user should note that the power to terminals T1/T2 must be limited to 1.72 W via a supply with a minimum source resistance of 40 Ω. There is no specific power limitation to terminals T3/T4, so terminals T1/T2 and T3/T4 should be regarded as separate intrinsically safe circuits.

Note 3: The user should refer to the parameters of the equipment connected to terminals T1/T2 and compare these to the parameters listed in the table. The more onerous set of parameters should be used.

Note 4: Terminals T5, T6 and T8 are connections to the Vortex Head which may be integral with the main part of the apparatus (TX5921 and TX5922) or connected by a cable not exceeding 10 m in length (TX5923). T7 is not connected.

TX592x.35(.x…)-Series Vortex Sensing Head

The TX592x.35(.x…) Vortex Gas Flow Sensor Remote Head is a stand-alone item of apparatus designed to be powered from a suitable barrier or isolator, or alternatively via a sensor/transmitter. The Vortex Head comprises a single PCB in a stainless-steel cylindrical case. The apparatus is designed to detect the rate of gas flow by creating a stream of vortices, through which an ultrasonic beam is passed. The received signal is modulated by the vortex stream.

There are two types of sensing heads:

1 TX5924: hand-held
2 TX5925: fixed mount

Both of these types as manufactured for Group I and Group II applications. The construction of the Group I and Group II versions are identical. The Vortex Head has the following safety descriptions:

	Group I (Total of supply plus signal)	Group II (Total of supply plus signal)
Ui	16.5 V;	30 V;
Ii	390 mA	390 mA
Pi	1.61 W	1.2 W
Ci	0	0
Li	15 µH	15 µH

12 Certificate history and evaluation reports

Issue	Date	Associated Report	Notes
0	14 Apr 2026	R19432A/00	Issue of Prime Certification.

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

i. The only sensor that may be used with the TX5923 (remote sensor head version) is that supplied by Trolex. The maximum length of cable allowed is 10 m.

ii. The plastic enclosure and polycarbonate window are non-conducting and may generate an ignition-capable level of static under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure stream) which might cause a build-up of static on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.

Certificate Annex

Certificate Number	**CML 26ATEX2018X**
Equipment	**TX592x.35(.xx…) Vortex Gas Flow Sensor/Transmitter**
Manufacturer	**Trolex Limited**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved Date	Title
P5430-04	1 to 2	A	14 Apr 2026	Output PCB
P5431.142	1 of 1	A	14 Apr 2026	Output PCB, Certified Circuit Diagram
P5431.02	1 of 1	G	14 Apr 2026	General Assembly
P5431.03	1 of 1	D	14 Apr 2026	Head P.C.B. Artwork
P5431.37	1 of 1	D	14 Apr 2026	Head PCB Certified Circuit Diagram
P5431.42	1 of 1	A	14 Apr 2026	Certified Block Diagram
P9000.100	1 of 1	C	14 Apr 2026	Alternative Housing Arrangement
P5430.01	1 of 1	A	14 Apr 2026	Control PCB Certified Circuit Diagram
P5431.1800	1 of 1	A	14 Apr 2026	ATEX Certification Marking – Group I – TX592x.35(.xx…) Vortex Gas Flow Sensor/Transmitter
P5431.1801	1 of 1	A	14 Apr 2026	ATEX Certification Marking – Group II – TX592x.35(.xx…) Vortex Gas Flow Sensor/Transmitter
P5431.1802	1 of 1	A	14 Apr 2026	ATEX Certification Marking – TX592x.35(.xx…) Vortex Sensing Head