

## EU Type Examination Certificate CML 24ATEX2141X Issue 1

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **Sentro X Gas Detector comprising TX6310 Controller, TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc, TX6304 Potentiometer Bloc**
- 3 Manufacturer **Trolex Ltd.**
- 4 Address **Newby Road,  
Hazel Grove,  
Stockport, Cheshire,  
SK7 5DY  
United Kingdom**
- 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\*

- \* **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 EHSRs of the Directive as the previous, harmonised edition. The assessment is included in the flexible scope assessment document.**

- 10 The equipment shall be marked with the following:



Ex ia I Ma

Ta = -20°C to +40°C

## 11 Description

The Sentro X Gas Detector is intended for monitoring flammable gases, toxic gases, and oxygen levels in underground mining environments (Group I). Operating from an intrinsically safe power supply, the product provides a user interface with an OLED screen and a three-button keyboard. The Sentro X Gas Detector offers output connectivity with analogue (4-20mA and 0.4-2V) and RS485 options. An optional Relay Card or Ethernet Card can be fitted for additional output functionality. An optional Audio-Visual Alarm can be fitted for enhanced alarming functionality.

The equipment comprises the following components:

- TX6310 Controller
- TX6320 Remote Sensor
- TX6301 Gas Sensing Bloc (fits inside the Controller or Remote Sensor)
- TX6302 Remote Bloc (fits inside the Controller)
- TX6303 Programming Bloc (fits inside the Controller or Remote Sensor)
- TX6304 Potentiometer Bloc (fits inside the Controller or Remote Sensor)

Featuring hot-swappable TX6301 Gas Sensing Blocs, the system allows for the sensing of various gases utilising pellistor, electrochemical and infrared technology. The TX6302 Remote Bloc, when installed in the Controller, facilitates cable connection to the TX6320 Remote Sensor. The TX6303 Programming Bloc is an accessory that enables convenient on-site firmware updates. The TX6304 Potentiometer Bloc is an accessory that enables convenient manual signal simulation for on-site diagnostics.

The TX6303 Programming Bloc and the TX6304 Potentiometer Bloc are intended for occasional use as part of a brief installation or maintenance routine when the front cover of the TX6310 Controller or TX6320 Remote Sensor is removed. The TX6310 Controller and the TX6320 Remote Sensor do not maintain the minimum IP54 rating without the front cover - the front cover must always be reinstalled after completing these routines.

The equipment has the following safety description:

	TX6310 Controller						TX6320 Remote Sensor
	Power in	Analog	RS485 (each data line)	Relays	Ethernet	TX6302 Remote Bloc	
Ui	16V	16V	16V	23V	7.14V	-	16V
Ii	3.1A	0.132A	-	NOTE 1	-	-	3.13A <sub>(peak)</sub> 0.238A <sub>(continuous)</sub>
Pi	-	0.273W	-	-	-	-	3.44W
Ci	100nF <sup>NOTE 3</sup> 465nF <sup>NOTE 4</sup>	0	0	0	0	-	≤ 5nF <sup>NOTE 5</sup>
Li	0 <sup>NOTE 3</sup> 10μH <sup>NOTE 4</sup>	0	0	0	0	-	≤ 10μH <sup>NOTE 5</sup>
Uo	-	15.75V	5.4V	0	5.5V <sub>(pp-ac)</sub> 0V <sub>(dc)</sub>	16V	-
Io	-	0.35A	13mA	0	0.288 <sub>(pp-ac)</sub> 0A <sub>(dc)</sub>	3.13A <sub>(peak)</sub> 0.238A <sub>(continuous)</sub>	-
Po	-	1.04W	17mW	0	0.049W	3.44W	-
Co	-	15.8μF <sup>NOTE 2</sup>	1000μF <sup>NOTE 2</sup>	-	10μF <sup>NOTE 2</sup>	≤ 5nF <sup>NOTE 5</sup>	-
Lo	-	3.81mH <sup>NOTE 2</sup>	2761mH <sup>NOTE 2</sup>	-	1mH <sup>NOTE 2</sup>	≤ 10μH <sup>NOTE 5</sup>	-
Lo/Ro	-	338μH/Ω	26mH/Ω	-	-	-	-

NOTE 1 – See specific conditions of use

NOTE 2 - the values of inductance and capacitance shown above are allowed when:

- all inductance and capacitance are distributed, for example as in a cable; or
- the total inductance of the circuit (excluding the cable) is less than 1% of the allowed value of inductance; or
- the total capacitance of the circuit (excluding the cable) is less than 1% of the allowed value of capacitance.

Where both the total inductance and capacitance of the circuit (excluding the cable) are greater than or equal to 1% of the shown values of inductance and capacitance, the allowed values shall be halved. The reduced capacitance of the circuit (including cable) shall not be greater than 1μF.

NOTE 3 – applicable to the Fixed Gas Detector configuration.

NOTE 4 - Applicable to the Remote Gas Detector configuration (TX6310 Controller fitted with TX6302 Remote Bloc, TX6320 Remote Sensor and the interconnecting cable). The stated Ci parameter is equal to the internal capacitance and interconnecting cable (max 5nF). The stated Li parameter is equal to the inductance of the interconnecting cable (max 10μH).

NOTE 5 - The C and L Parameters represent the maximum allowed capacitance and inductance of the remote cable connected between the TX6302 Remote Bloc and TX6320 Remote Sensor, when the remote cable is selected by the user. If the remote cable is supplied by Trolex, it already meets those parameters.

## Variation 1

This variation introduces the following changes:

- i. Minor changes to the Controller and Remote Sensor general arrangements.
- ii. Minor changes to the Remote Bloc PCB, Terminal PCB, and Remote Bottom PCB components.
- iii. Revised IS parameters.
- iv. Update of referred standard.

## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	25 Nov 2024	R17519A/00	Issue of Prime Certificate
1	21 Mar 2025	R18605A/00	The introduction of Variation 1

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.
- ii. The manufacturer shall ensure that any cable glands provided with the equipment provide a minimum ingress protection rating of IP54 and are suitable for the equipment temperature range.

## 14 Specific Conditions of Use (Special Conditions)

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

- i. For TX6310 Controller fitted with the optional Relay Card, the end-user must ensure that the current supplied to the relay contacts in normal operation does not exceed the rated current of the relay, i.e. 0.25 A, and is from an intrinsically safe source.
- ii. The TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc and TX6304 Potentiometer Bloc shall only be used as part of a Sentro X Gas Detector with a TX6310 Controller.

# Certificate Annex



**Certificate Number** CML 24ATEX2141X Issue 1  
**Equipment** Sentro X Gas Detector comprising TX6310 Controller, TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc, TX6304 Potentiometer Bloc  
**Manufacturer** Trolex Ltd.

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

## Issue 0

Drawing No	Sheets	Rev	Approved Date	Title
<b>Controller</b>				
TX6310.CERT	1 to 4	A	25 Nov 2024	Controller - General Arrangement
P5600.13.CERT	1 to 6	A	25 Nov 2024	Terminal PCB - Schematic and BOM
P5600.14.CERT	1 to 3	A	25 Nov 2024	Terminal PCB - PCB Layout
P5600.15.CERT	1 to 6	A	25 Nov 2024	Terminal PCB - PCB Assembly
P5600.28.CERT	1 of 1	A	25 Nov 2024	Interposer PCB - Schematic and BOM
P5600.29.CERT	1 to 2	A	25 Nov 2024	Interposer PCB - PCB Layout
P5600.10.CERT	1 to 5	A	25 Nov 2024	Display & Control PCB - Schematic and BOM
P5600.11.CERT	1 to 2	A	25 Nov 2024	Display & Control PCB - PCB Layout
P5600.12.CERT	1 to 4	A	25 Nov 2024	Display & Control PCB - PCB Assembly
P5600.16.CERT	1 to 3	A	25 Nov 2024	Relay Card - Schematic and BOM
P5600.17.CERT	1 to 2	A	25 Nov 2024	Relay Card - PCB Layout
P5600.18.CERT	1 to 3	A	25 Nov 2024	Relay Card - PCB Assembly
P5093.27	1 of 1	D	25 Nov 2024	Reed Relay
P5600.19.CERT	1 to 3	A	25 Nov 2024	Ethernet Card - Schematic and BOM
P5600.20.CERT	1 to 2	A	25 Nov 2024	Ethernet Card - PCB Layout
P5600.21.CERT	1 to 3	A	25 Nov 2024	Ethernet Card - PCB Assembly
P5600.46.CERT	1 to 2	A	25 Nov 2024	AV Alarm PCB - Schematic and BOM
P5600.47.CERT	1 of 1	A	25 Nov 2024	AV Alarm PCB - PCB Layout
P5600.48.CERT	1 to 2	A	25 Nov 2024	AV Alarm PCB - PCB Assembly
P5600.1803	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6310 Controller
<b>Remote Sensor</b>				
TX6320.CERT	1 of 1	A	25 Nov 2024	Remote Sensor - General Arrangement
P5600.63.CERT	1 to 2	A	25 Nov 2024	Remote Top PCB - Schematic and BOM
P5600.66.CERT	1 to 3	A	25 Nov 2024	Remote Bottom PCB - Schematic and BOM
P5600.67.CERT	1 to 2	A	25 Nov 2024	Remote Bottom PCB - PCB Layout
P5600.68.CERT	1 to 3	A	25 Nov 2024	Remote Bottom PCB - PCB Assembly
P5600.1804	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6320 Remote Sensor

# Certificate Annex



**Certificate Number** CML 24ATEX2141X Issue 1

**Equipment** Sentro X Gas Detector comprising TX6310 Controller, TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc, TX6304 Potentiometer Bloc

**Manufacturer** Trolex Ltd.

Drawing No	Sheets	Rev	Approved Date	Title
<b>Gas Sensing Bloc</b>				
TX6301.CERT	1 of 1	A	25 Nov 2024	Gas Sensing Bloc - General Arrangement
P5600.04.CERT	1 to 4	A	25 Nov 2024	Electrochem PCB - Schematic and BOM
P5600.07.CERT	1 to 4	A	25 Nov 2024	Infrared PCB - Schematic and BOM
P5600.08.CERT	1 to 2	A	25 Nov 2024	Infrared PCB - PCB Layout
P5600.09.CERT	1 to 3	A	25 Nov 2024	Infrared PCB - PCB Assembly
P5600.43.CERT	1 to 4	A	25 Nov 2024	Pellistor PCB - Schematic and BOM
P5600.1805	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6301 Gas Sensing Bloc
<b>Remote Bloc</b>				
TX6302.CERT	1 of 1	A	25 Nov 2024	Remote Bloc - General Arrangement
P5600.25.CERT	1 to 2	A	25 Nov 2024	Remote Bloc PCB - Schematic and BOM
P5600.26.CERT	1 to 2	A	25 Nov 2024	Remote Bloc PCB - PCB Layout
P5600.27.CERT	1 to 3	A	25 Nov 2024	Remote Bloc PCB - PCB Assembly
P5600.1806	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6302 Remote Bloc
<b>Programming Bloc</b>				
TX6303.CERT	1 of 1	A	25 Nov 2024	Programming Bloc - General Arrangement
P5600.22.CERT	1 to 4	A	25 Nov 2024	Programming Bloc PCB - Schematic and BOM
P5600.1807	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6303 Programming Bloc
<b>Potentiometer Bloc</b>				
TX6304.CERT	1 of 1	A	25 Nov 2024	Potentiometer Bloc - General Arrangement
P5600.912.CERT	1 to 3	A	25 Nov 2024	Potentiometer Bloc PCB - Schematic and BOM
P5600.1808	1 of 1	A	25 Nov 2024	ATEX Certification Marking - TX6304 Potentiometer Bloc

# Certificate Annex



**Certificate Number** CML 24ATEX2141X Issue 1  
**Equipment** Sentro X Gas Detector comprising TX6310 Controller, TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc, TX6304 Potentiometer Bloc  
**Manufacturer** Trolex Ltd.

## Issue 1

The following drawings supersede the drawings listed within Issue 0 of this certificate.

Drawing No	Sheets	Rev	Approved Date	Title
<b>Controller</b>				
TX6310.CERT	1 to 4	B	21 Mar 2025	Controller - General Arrangement
P5600.13.CERT	1 to 6	B	21 Mar 2025	Terminal PCB - Schematic and BOM
P5600.14.CERT	1 to 3	A	21 Mar 2025	Terminal PCB - PCB Layout
P5600.15.CERT	1 to 6	A	21 Mar 2025	Terminal PCB - PCB Assembly
P5600.28.CERT	1 of 1	A	21 Mar 2025	Interposer PCB - Schematic and BOM
P5600.29.CERT	1 to 2	A	21 Mar 2025	Interposer PCB - PCB Layout
P5600.10.CERT	1 to 5	A	21 Mar 2025	Display & Control PCB - Schematic and BOM
P5600.11.CERT	1 to 2	A	21 Mar 2025	Display & Control PCB - PCB Layout
P5600.12.CERT	1 to 4	A	21 Mar 2025	Display & Control PCB - PCB Assembly
P5600.16.CERT	1 to 3	A	21 Mar 2025	Relay Card - Schematic and BOM
P5600.17.CERT	1 to 2	A	21 Mar 2025	Relay Card - PCB Layout
P5600.18.CERT	1 to 3	A	21 Mar 2025	Relay Card - PCB Assembly
P5093.27	1 of 1	D	21 Mar 2025	Reed Relay
P5600.19.CERT	1 to 3	A	21 Mar 2025	Ethernet Card - Schematic and BOM
P5600.20.CERT	1 to 2	A	21 Mar 2025	Ethernet Card - PCB Layout
P5600.21.CERT	1 to 3	A	21 Mar 2025	Ethernet Card - PCB Assembly
P5600.46.CERT	1 to 2	A	21 Mar 2025	AV Alarm PCB - Schematic and BOM
P5600.47.CERT	1 of 1	A	21 Mar 2025	AV Alarm PCB - PCB Layout
P5600.48.CERT	1 to 2	A	21 Mar 2025	AV Alarm PCB - PCB Assembly
P5600.1803	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6310 Controller
<b>Remote Sensor</b>				
TX6320.CERT	1 of 1	B	21 Mar 2025	Remote Sensor - General Arrangement
P5600.63.CERT	1 to 2	A	21 Mar 2025	Remote Top PCB - Schematic and BOM
P5600.66.CERT	1 to 3	B	21 Mar 2025	Remote Bottom PCB - Schematic and BOM
P5600.67.CERT	1 to 2	A	21 Mar 2025	Remote Bottom PCB - PCB Layout
P5600.68.CERT	1 to 3	A	21 Mar 2025	Remote Bottom PCB - PCB Assembly
P5600.1804	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6320 Remote Sensor

# Certificate Annex



**Certificate Number** CML 24ATEX2141X Issue 1

**Equipment** Sentro X Gas Detector comprising TX6310 Controller, TX6320 Remote Sensor, TX6301 Gas Sensing Bloc, TX6302 Remote Bloc, TX6303 Programming Bloc, TX6304 Potentiometer Bloc

**Manufacturer** Trolex Ltd.

Drawing No	Sheets	Rev	Approved Date	Title
<b>Gas Sensing Bloc</b>				
TX6301.CERT	1 of 1	A	21 Mar 2025	Gas Sensing Bloc - General Arrangement
P5600.04.CERT	1 to 4	A	21 Mar 2025	Electrochem PCB - Schematic and BOM
P5600.07.CERT	1 to 4	A	21 Mar 2025	Infrared PCB - Schematic and BOM
P5600.08.CERT	1 to 2	A	21 Mar 2025	Infrared PCB - PCB Layout
P5600.09.CERT	1 to 3	A	21 Mar 2025	Infrared PCB - PCB Assembly
P5600.43.CERT	1 to 4	A	21 Mar 2025	Pellistor PCB - Schematic and BOM
P5600.1805	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6301 Gas Sensing Bloc
<b>Remote Bloc</b>				
TX6302.CERT	1 of 1	A	21 Mar 2025	Remote Bloc - General Arrangement
P5600.25.CERT	1 to 2	B	21 Mar 2025	Remote Bloc PCB - Schematic and BOM
P5600.26.CERT	1 to 2	A	21 Mar 2025	Remote Bloc PCB - PCB Layout
P5600.27.CERT	1 to 3	A	21 Mar 2025	Remote Bloc PCB - PCB Assembly
P5600.1806	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6302 Remote Bloc
<b>Programming Bloc</b>				
TX6303.CERT	1 of 1	A	21 Mar 2025	Programming Bloc - General Arrangement
P5600.22.CERT	1 to 4	A	21 Mar 2025	Programming Bloc PCB - Schematic and BOM
P5600.1807	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6303 Programming Bloc
<b>Potentiometer Bloc</b>				
TX6304.CERT	1 of 1	A	21 Mar 2025	Potentiometer Bloc - General Arrangement
P5600.912.CERT	1 to 3	A	21 Mar 2025	Potentiometer Bloc PCB - Schematic and BOM
P5600.1808	1 of 1	A	21 Mar 2025	ATEX Certification Marking - TX6304 Potentiometer Bloc