





Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE MINE HEALTH AND SAFETY ACT, ACT NO 29 OF 1996 (AND REGULATIONS), THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993) AND REGULATION 17 OF THE ELECTRICAL MACHINERY REGULATIONS

IA CERTIFICATE	MASC M/20-8449X	Issue	1
Issue Date	05 March 2024	Expiry Date	27 August 2025
** Based on Certificate No	IECEX ExTC 19.0014X	Issue / Variations / Amendment	0
Requested by	Troxel Limited 10a Newby Road, Hazel Grove Stockport SK7 5DY, United Kingdom		
Manufacturer	Troxel Limited 10a Newby Road, Hazel Grove Stockport SK7 5DY, United Kingdom		
Description	<p>The TX8005 Air XD Particulate Monitor is a real-time dust particulates monitor based on optical sensing technology. The Air XD is powered by a separately certified intrinsically safe power supply with communication provided by RS485 and ethernet ports. User interface is provided via a keypad and LCD screen. Two 4-20mA circuits are provided along with two sets of N/O and N/C relay controlled dry contacts. A USB connector is also mounted on the equipment housing for connection of the Troxel TX8805 Air XD USB Drive for download of data in the hazardous area. The main housing is of sheet metal construction providing a degree of protection of at least IP54. The equipment has an integral particle sensor tube which draws external air by a fan mounted within the tube and passes it through the laser sensor and then exhausted back to the external environment.</p> <p>This certificate also covers the use of the TX8805 Air XD USB Drive with the TX8005 Air XD.</p>		
Equipment	Particulate Monitor	Type	TX8005 Air XD
MARKING: Original marking as per certificate ** remains applicable. IA number must be added.	Type: Ex Marking: IA Number: Warnings:	TX8005 Air XD Particulate Monitor TX8005 Air XD: Ex ia op is I Ma -20°C ≤ Tamb ≤ 50°C MASC M/20-8449X (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):		GB/SIR/QAR07.0017/12	
Quality Assurance report (QAR) / Notification (QAN) Expiry date:		27 August 2025	
Compliance: The equipment as described above has been allocated the rating <u>Explosion Protected 'as above'</u> utilizing the SANS/IEC Standards: <ul style="list-style-type: none"> SANS (IEC) 60079-0: 2019 Equipment - General requirements SANS (IEC) 60079-11: 2012 Equipment protection by intrinsic safety "i" SANS (IEC) 60079-28: 2016 Protection of equipment and transmission systems using optical radiation <i>Note: This certificate covers only the listed standards and does not imply compliance to any other standard, related or inferred. It is up to the manufacturer to ensure that the product complies to all relevant standards for the application.</i>			
Special conditions of safe use "X": <ul style="list-style-type: none"> Refer to Annex A below for more details. 			
Conditions of manufacture: <ul style="list-style-type: none"> Refer to Annex A below for more details. 			
 C. WELTHAGEN TECHNICAL SPECIALIST		 N. VILOJEN TECHNICAL OFFICER	
This certificate covers all units sold as long as the QAR/QAN remains valid. According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).			

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

SANS 10086 requirements;

Any conditions mentioned in the above certificate;

Any relevant requirements of the MHS Act;

Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group I equipment) or chief inspector of factories (Group II equipment).

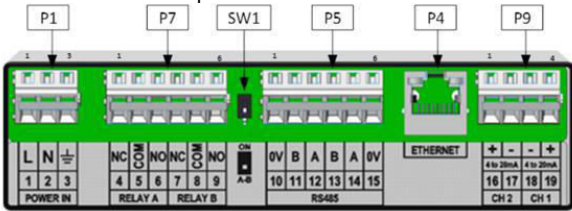
This certificate may only be reproduced in full

The certificate is not transferable and remains the property of the issuing body.

IA CERTIFICATE: MASC M/20-8449X
Equipment: TX8005 Air XD Particulate Monitor
(Expiry date: 27 August 2025)

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ANNEX A

This document is based on and must be read in conjunction with certificate IECEx ExTC 19.0014X.							
Description (According to Base Certificate) **							
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."							
Standard compliance	See Base Certificate **						
Issue	<ul style="list-style-type: none">Issue 1: Supplemented for review as per ARP0108.						
Special conditions of safe use ("X")	<ul style="list-style-type: none">The following parameters shall be observed for each of the equipment connectors:						
		Connector P1 Power In	Connector P7 Relay contacts– Relay A and Relay B	Connector P5 RS485 - All lines combined	Connector P4 Ethernet – All lines combined	Connector P9 4 to 20 mA – CH2, CH1 -Separate channels	
	Terminal no.	1 wrt 2	4, 5, 6 and 7, 8, 9	11, 13 or 12, 14 wrt 10 and 15		16, 17 and 18, 19	
	Ui	16 V	16 V	8.4 V	17.64 V	16 V	
	Ii	3.28 A				132 mA	
	Pi					273 mW	
	Ci	0 µF	0 µF	0 µF	0.48 µF	Negligible	
	Li	0 µH	0 µH	0 µH	0 µH	Negligible	
	Uo		0 V	5.88 V	0 V dc	15.75 V	
	Io		0 A	127 mA	0 A dc	510 mA	
	Po			186 mW	0 W dc	2 W	
	Co			1000 µF	1000 µF	15.8 µF	
	Lo			28 mH	97 µH	1.7 mH	
	Lo/Ro				145 µH/Ω	230 µH/Ω	
	<ul style="list-style-type: none">Refer below for example terminal number identification for external connection:						
							
	<ul style="list-style-type: none">The USB connector on the base of the equipment shall only be connected to the Trolex TX8805 Air XD USB Drive in the hazardous area. USB drives with no power source (eg standard USB stick) may be connected to the USB connector in the safe area for test purposes etc.The TX8005 must be earthed at pin 3 of the POWER IN connector (P1) to prevent excess static charge accumulation.						
	Conditions of manufacture	<ul style="list-style-type: none">None.					
	Conditions of Certification	<ul style="list-style-type: none">This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate.As per ARP 0108 a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date).The apparatus must be additionally marked with the MASC marking details above.This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate.The certification on which this IA Certificate is based must remain valid.The extent of the requirements in the ARP 0108 (or regulations), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged.The Ex-quality assurance notification/report for the equipment must remain valid.					
	Conclusion:	<ul style="list-style-type: none">From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate **.The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).					

This document may only be reproduced in full.
This certificate is not transferable and remains the property of the issuing body.
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07
Directors: Roelof Viljoen & Francois du Toit
Unit #5, Lelyta Park, 45 Jurg Avenue, Hennospark Ext 87, Centurion, 0157
P.O. Box 14344, Clubview, 0014
Tel: 012 653 2959 ♦ Fax: 086 605 8568
e-mail: info@masc-ex.co.za

IA CERTIFICATE: MASC M/20-8449X
Equipment: TX8005 Air XD Particulate Monitor
(Expiry date: 27 August 2025)

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This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment / inspection is representative and accurately performed, and that a report / certificate is accurate in the quoted results and conclusions drawn from the test / assessment / inspection, MASC or its directors/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report / certificate issued pursuant to a test / assessment / inspection.

MASC takes no responsibility for any non-conformances, exclusions, or any results / assessments / inspections not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer / applicant attests on his own responsibility that the equipment / installation has been designed and constructed in accordance with the applicable requirements of the relevant standards and documentation, that the routine verifications / routine tests have been correctly completed and the equipment / installation complies with the documentation and standard(s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practices.

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Tel: 012 653 2959 ♦ Fax: 086 605 8568
e-mail: info@masc-ex.co.za



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx ExTC 19.0014X	Page 1 of 3	Certificate history:
Status:	Current	Issue No: 0	
Date of Issue:	2019-11-18		
Applicant:	Trox Limited 10a Newby Road Hazel Grove Stockport SK7 5DY United Kingdom		
Equipment:	TX8005 Air XD Particulate Monitor		
Optional accessory:			
Type of Protection:	Intrinsic Safety		
Marking:	TX8005 Air XD: Ex ia op is I Ma -20°C ≤ Tamb ≤ 50°C TX8805 Air XD USB Drive: Ex ia I Ma -20°C ≤ Tamb ≤ 50°C		

Approved for issue on behalf of the IECEx
Certification Body:

Ajay Maira

Position:

Certification Authority

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Ex Testing and Certification Pty Ltd
1/30 Kennington Drive
Tomago NSW 2322
Australia



TESTING & CERTIFICATION



IECEx Certificate of Conformity

Certificate No.: **IECEx ExTC 19.0014X**

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Date of issue: 2019-11-18

Issue No: 0

Manufacturer: **Trolex Limited**
10a Newby Road
Hazel Grove Stockport SK7 5DY
United Kingdom

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-28:2015](#) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
Edition:2

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[AU/EXTC/ExTR18.0040/00](#)

Quality Assessment Report:

[GB/SIR/QAR07.0017/07](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx ExTC 19.0014X**

Page 3 of 3

Date of issue: 2019-11-18

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The TX8005 Air XD Particulate Monitor is a real-time dust particulates monitor based on optical sensing technology. The Air XD is powered by a separately certified intrinsically safe power supply with communication provided by RS485 and ethernet ports. User interface is provided via a keypad and LCD screen. Two 4-20mA circuits are provided along with two sets of N/O and N/C relay controlled dry contacts. A USB connector is also mounted on the equipment housing for connection of the Trolex TX8805 Air XD USB Drive for download of data in the hazardous area. The main housing is of sheet metal construction providing a degree of protection of at least IP54. The equipment has an integral particle sensor tube which draws external air by a fan mounted within the tube and passes it through the laser sensor and then exhausted back to the external environment.

This certificate also covers the use of the TX8805 Air XD USB Drive with the TX8005 Air XD.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Annexe for details.

Annex:

[Certificate Annex IECEx ExTC 19.0014X-0.pdf](#)

IECEx Certificate of Conformity



Annexe



Annexe for Certificate No.:

IECEx ExTC 19.0014X

Issue No.:

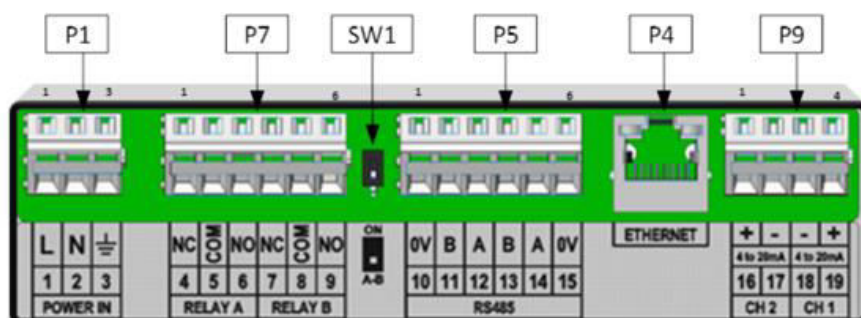
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Specific Conditions of Use pertaining to Issue 0 of this Certificate:



- 1) The following parameters shall be observed for each of the equipment connectors:

	Connector P1 Power In	Connector P7 Relay contacts – Relay A and Relay B	Connector P5 RS485 - All lines combined	Connector P4 Ethernet – All lines combined	Connector P9 4 to 20 mA – CH2, CH1 - Separate channels
Terminal no.	1 wrt 2	4, 5, 6 and 7, 8, 9	11, 13 or 12, 14 wrt 10 and 15		16, 17 and 18, 19
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Uo		0 V	5.88 V	0 V dc	15.75 V
Io		0 A	127 mA	0 A dc	510 mA
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Lo			28 mH	97 μ H	1.7 mH
Lo/Ro				145 μ H/ Ω	230 μ H/ Ω

Refer below for example terminal number identification for external connection:



- 2) The USB connector on the base of the equipment shall only be connected to the Trolex TX8805 Air XD USB Drive in the hazardous area. USB drives with no power source (eg standard USB stick) may be connected to the USB connector in the safe area for test purposes etc.
- 3) The TX8005 must be earthed at pin 3 of the POWER IN connector (P1) to prevent excess static charge accumulation.

<h1 style="text-align: center;">IECEX Certificate of Conformity</h1> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <h2 style="margin: 0;">Annexe</h2> </div>  </div>			
Annexe for Certificate No.:	IECEX ExTC 19.0014X	Issue No.:	0

Drawing list pertaining to Issue 0 of this Certificate:

Manufacturer's Documents				
Title:	Drawing No.:	Pages	Rev. Level:	Date:
MCU Schematic (Various Titles)	P5625.05.IECEX	6	B	2019-09-25
MCU PCB Layout	P5625.06.IECEX	9	B	2019-09-25
Memory Module (Various Titles)	P5625.13.IECEX	3	D	2019-09-23
Memory Module PCB Layout	P5625.14.IECEX	7	D	2019-09-23
LCD Schematic (Various Titles)	P5625.17.IECEX	3	A	2018-12-17
LCD IECEX PCB Layout	P5625.18.IECEX	7	A	2019-02-27
OPC Sensor PCB Schematic (Various Titles)	P5628.01.IECEX	5	A	2019-11-07
OPC Sensor Board IECEX Certification Layout	P5628.02.IECEX	3	A	2019-09-12
OPC Barrier Board IECEX Schematic (Various Titles)	P5628.04.IECEX	8	A	2019-10-14
OPC Barrier Board Layout	P5628.05.IECEX	6	A	2019-09-30
Interface Board Schematic (Various Titles)	P5628.16.IECEX	8	A	2019-11-04
Interface Board PCB Layout	P5628.18.IECEX	8	A	2019-11-08
OPC Top Cap Sensor Board (Various Titles)	P5628.67.IECEX	2	A	2019-08-07
OPC Top Cap Sensor Board Layout	P5628.68.IECEX	1	A	2019-08-21
Air XD USB Drive, General Arrangement	TX8805.IECEX	2	A	2019-11-04
Air XD General Arrangement	TX8005.IECEX	2	A	2019-10-22

IECEX Certificate of Conformity



Annexe



Annexe for Certificate No.:

IECEX ExTC 19.0014X

Issue No.:

0

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Air XD IECEx Certification Label	P5628.2005	1	A	2019-10-22
Air XD USB Drive Certification label	P5628.2009	1	A	2019-10-22
Certification Information for User Manual	P5628.1800	3	A	2019-11-16