





Mining And Surface Certification (Pty) Ltd

2015/021934/07

IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT) AND REGULATION 9 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT

IA CERTIFICATE	MASC M/20-8449X	Issue	0
Issue Date	15 October 2020	Expiry Date	15 October 2023
*Based on Certificate No	IECEx ExtC 19.0014X	Issue / Variations / Amendment	0
Requested by	Trolex Limited, 10a Newby Road, Hazel Grove Stockport SK7 5DY, United Kingdom		
Manufacturer	Trolex 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 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 IP 54. 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 to be added.	Type Ex Marking IA Number Warnings	TX8005 Air XD Particulate Monitor Ex ia op is I Ma (TX8005 Air XD) Ex ia I Ma (TX8805 Air XD USB Drive) IECEx ExtC 19.0014X See Base Certificate * and original marking	
Quality Assurance report (QAR) / Notification (QAN) Expiry date:	GB/SIR/QAR07.0017/07		
Compliance: The equipment as described above has been allocated the rating <u>Explosion Protected Ex ia op is I Ma and Ex ia I Ma</u> utilizing the SANS/IEC Standards: <ul style="list-style-type: none"> SANS (IEC) 60079-0:2012 General requirements SANS (IEC) 60079-11:2012 Intrinsic safety "i" SANS (IEC) 60079-28:2016 Protection of equipment and transmission systems using optical radiation 			
Special conditions of safe use "X": <ul style="list-style-type: none"> See "Annex A" below 			
Conditions of manufacture: <ul style="list-style-type: none"> See "Annex A" below 			
 C Welthagen TECHNICAL SPECIALIST		 D.P Visser TECHNICAL SPECIALIST	

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 report
 Any restrictions and conditions enforced by the chief inspector of mines or chief inspector of factories
 Any relevant requirements of the MHS Act.

/ . ANNEX A...

This certificate may only be reproduced in full.
 This certificate is not transferable and remains the property of the issuing body

Mining And Surface Certification (Pty) Ltd
 Unit 5 Lelyta Park, 45 Jurg Ave, Hennospark Ext 87
 Centurion, 0157

IA CERTIFICATE: MASC M/20-8449X

Equipment: Particulate Monitor

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/variatioins)."	
Standard compliance	See Base Certificate *
Special conditions of safe use ("X")	See Base Certificate *
Conditions of manufacture	See Base Certificate *
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 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



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)

Ajay Maira

Date:

2019-11-20

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**

Page 2 of 3

Date of issue: 2019-11-18

Issue No: 0

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

Additional
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.:

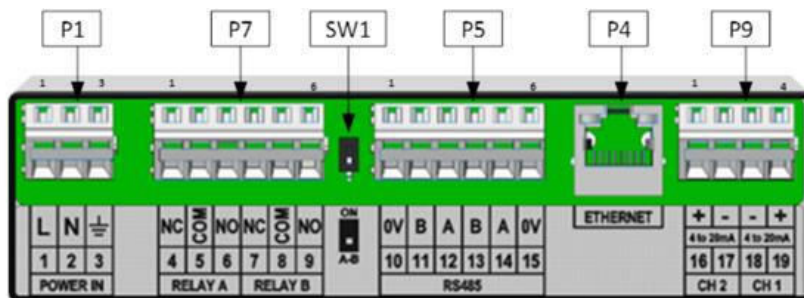
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Specific Conditions of Use pertaining to Issue 0 of this Certificate:

- 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
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

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.

IECEX Certificate of Conformity



Annexe



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