



# 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](http://www.iecex.com)

Certificate No.: **IECEX SIR 18.0043X** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 2 [Issue 1 \(2019-02-08\)](#)  
[Issue 0 \(2018-10-05\)](#)  
Date of Issue: 2021-05-21  
Applicant: **TSI Incorporated**  
500 Cardigan Rd  
Shoreview, MN 55126-3996  
**United States of America**  
Equipment: **Model SidePak AM520i Personal Aerosol Monitor**  
Optional accessory:  
Type of Protection: **Intrinsic Safety**  
Marking: Ex ia I Ma  
Ex ia IIC T4 Ga  
0°C to +50°C

Approved for issue on behalf of the IECEx  
Certification Body:

**Neil Jones**

Position:

**Certification Manager**

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](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**CSA Group Testing UK Ltd**  
**Unit 6, Hawarden Industrial Park**  
**Hawarden, Deeside CH5 3US**  
**United Kingdom**

**sira**  
CERTIFICATION





# IECEX Certificate of Conformity

Certificate No.: **IECEX SIR 18.0043X**

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Date of issue: 2021-05-21

Issue No: 2

Manufacturer: **TSI Incorporated**  
500 Cardigan Rd  
Shoreview, MN 55126-3996  
**United States of America**

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 60079-0:2011](#) Explosive atmospheres - Part 0: General requirements  
Edition:6.0

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

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 Reports:

[GB/SIR/ExTR18.0175/00](#)

[GB/SIR/ExTR19.0027/00](#)

[GB/SIR/ExTR21.0086/00](#)

Quality Assessment Report:

[CA/CSA/QAR16.0008/02](#)



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Date of issue: 2021-05-21

Issue No: 2

## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The SidePak AM520i Personal Aerosol Monitor is a portable, battery-powered device designed to continuously measure the particle mass concentration of the ambient atmosphere. The Sidepak AM520i contains an IEC Class 1 approved laser assembly. External air is drawn through an inlet into an internal optical chamber where the scattered laser light is measured to determine particle mass concentration. The Sidepak AM520i is contained within a polymeric enclosure having an inlet and an outlet port for the ambient flow path and an external USB connection. The removable battery pack contains a barrel-type DC connector used for charging the pack outside of the hazardous area. The user interacts with the instrument through a membrane switch on the front of the enclosure. The equipment has approximate overall dimensions of 87.63 mm (W) x 129.03 mm (H) x 75.44 mm (D).

Refer to the Annexe for additional information.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

Refer to the Annexe.



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Certificate No.: **IECEX SIR 18.0043X**

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Date of issue: 2021-05-21

Issue No: 2

## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

This issue, Issue 2, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Recognise updates to 11 drawings (based on the original Manufacturer's Documents list), with all changes to the equipment having been assessed as maintaining compliance with the standards listed.
2. Recognise updates to the Manufacturer's Documents list itself, as the original list contained zip files with multiple documents; the relevant documents have been extracted, stamped, and are hereby added to the Manufacturer's Documents list.

## **Annex:**

[IECEX SIR 18.0043X Issue 2 Annexe\\_1.pdf](#)

Annexe to: IECEx SIR 18.0043X Issue 2  
Applicant: TSI Incorporated  
Apparatus: Model SidePak AM520i  
Personal Aerosol Monitor

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## Equipment:

The SidePak AM520i Personal Aerosol Monitor is a portable, battery-powered device designed to continuously measure the particle mass concentration of the ambient atmosphere. The Sidepak AM520i contains an IEC Class 1 approved laser assembly. External air is drawn through an inlet into an internal optical chamber where the scattered laser light is measured to determine particle mass concentration. The Sidepak AM520i is contained within a polymeric enclosure having an inlet and an outlet port for the ambient flow path and an external USB connection. The removable battery pack contains a barrel-type DC connector used for charging the pack outside of the hazardous area. The user interacts with the instrument through a membrane switch on the front of the enclosure. The equipment has approximate overall dimensions of 87.63 mm (W) x 129.03 mm (H) x 75.44 mm (D).

Data downloading while the unit is in the non-hazardous area may be performed via the Micro USB 2.0 Type B port connected to a computer. The output parameters at this USB port are:  $U_o = +6.51V$ ,  $I_m = 62 \text{ mA}$ ; limited by the certified on-board 62 mA Littlefuse fuse part number 259.062 (IECEX BAS 10.0098U) and two parallel 6.51V SMBJ5341B Zener diode devices in addition to the Micro USB 2.0 Type B standard international protocol powered by the certified SELV power source.

## Specific Conditions of Use:

1. The AM520i Personal Aerosol Monitor shall only be used in conjunction with battery pack assembly model number 803322.
2. For applications in the hazardous area, connection to the Micro USB 2.0 Type B port terminal shall not be made. When used outside of the hazardous area, the USB terminal may be connected to non-intrinsically safe mating Micro USB 2.0 Type B port of a computer that shall be:
  - a. Powered only by a certified safety extra low-voltage (SELV) supply (per IEC 60950) having a  $U_m$  output voltage limit of [25 Vdc at 90 Watts].
3. The AM520i shall only be charged in the non-hazardous area using the charger specifically supplied for use with the unit approved as SELV or Class 2 equipment against IEC 60950. The maximum output voltage from the charger shall not exceed 12 Vdc.

## Conditions of Manufacture:

1. Connector J201 on the Main board shall not be used as a condition of this certification.

## Full Certificate Change History

Issue 1 – this Issue introduced the following changes:

1. Addition of Group I marking i.e. Ex ia I Ma to the product.
2. Modification of label drawing to accommodate new markings.
3. Creation of a new scheduled drawing for the membrane switch.
4. Creation of a new scheduled drawing with the content of the instructions manual to be controlled.
5. Deletion of 2 drawings from the list of manufacturer's documents.

**Annexe to:** IECEx SIR 18.0043X Issue 2  
**Applicant:** TSI Incorporated  
**Apparatus:** Model SidePak AM520i  
Personal Aerosol Monitor

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**Issue 2** – this Issue introduced the following changes:

1. Recognise updates to 11 drawings (based on the original Manufacturer's Documents list), with all changes to the equipment having been assessed as maintaining compliance with the standards listed.
2. Recognise updates to the Manufacturer's Documents list itself, as the original list contained zip files with multiple documents; the relevant documents have been extracted, stamped, and are hereby added to the Manufacturer's Documents list.