



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 18ATEX2150X** Issue: **3**

4 Equipment: **Model SidePak AM520i Personal Aerosol Monitor**

5 Applicant: **TSI Inc**

6 Address: **500 Cardigan Road
Shoreview, MN 55126
USA**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., Notified Body Number 2813 in accordance with Articles 17 and 21 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 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0: 2012/A11:2013 EN 60079-11:2012

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



I M1
II 1G
Ex ia I Ma
Ex ia IIC T4 Ga
0°C to +50°C

Project Number 80035918

Signed: J A May

Title: Director of Operations

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
The Netherlands



SCHEDULE

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13 DESCRIPTION OF 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 (Baseefa02ATEX0071U) 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.

Variation 1 - This variation introduced the following changes:

- i. Addition of Group I marking i.e. I M1 Ex ia I Ma to the product.
- ii. Modification of label drawing to accommodate new markings.
- iii. Creation of a new scheduled drawing for the membrane switch.
- iv. Creation of a new scheduled drawing with the content of the instructions manual to be controlled.
- v. Deletion of 2 drawings from the list of manufacturer's documents.

Variation 2 - This variation introduced the following changes:

- i. 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.
- ii. 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.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

| Issue | Date | Report no. | Comment |
|-------|------------------|------------|--|
| 0 | 05 October 2018 | R70177294A | The release of the prime certificate. |
| 1 | 08 February 2019 | R70203637A | The introduction of Variation 1. |
| 2 | 15 October 2019 | 4069 | Transfer of certificate Sira 18ATEX2150X from Sira Certification Service to CSA Group Netherlands B.V. |
| 3 | 21 June 2021 | R80035918A | The introduction of Variation 2. |

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 The AM520i Personal Aerosol Monitor shall only be used in conjunction with battery pack assembly model number 803322.

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- 15.2 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:
- 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].
- 15.3 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.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**
- The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF MANUFACTURE**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

Certificate Annexe



Certificate Number: Sira 18ATEX2150X
 Equipment: Model SidePak AM520i Personal Aerosol Monitor
 Applicant: TSI Inc

Issue 0

| Drawing no. | Sheets | Rev. | Date (Sira stamp) | Title |
|-------------|---------|------|-------------------|---|
| AM520I | 1 to 5 | B | 31 AUG 2018 | BOM, AM520I Top-Level |
| 6009036 | 1 of 1 | E | 31 AUG 2018 | Top Case, AM520 |
| 6009037 | 1 of 1 | C | 31 AUG 2018 | Bottom Case, AM520 |
| 6009102 | 1 of 1 | B | 31 AUG 2018 | BOM, Battery Connection PCA |
| 6009829 | 1 to 67 | D | 31 AUG 2018 | Manual, Sidepak AM520i |
| 6010380 | 1 of 1 | A | 31 AUG 2018 | BOM, Main PCA |
| 6011382 | 1 of 1 | A | 31 AUG 2018 | BOM, Display PCA |
| 6011385 | 1 of 1 | B | 31 AUG 2018 | BOM, Battery Pack PCA |
| 10000032033 | 1 of 1 | B | 31 AUG 2018 | Gerber Files, Battery Connection PCA |
| 10000034517 | 1 of 1 | C | 31 AUG 2018 | General Assembly, AM520i "Exploded View" drawing |
| 10000034518 | 1 of 1 | B | 31 AUG 2018 | General Assembly, Battery Pack "Exploded View" drawing |
| 10000035222 | 1 of 1 | B | 31 AUG 2018 | General Assembly, Display assembly |
| 10000043145 | 1 of 1 | B | 31 AUG 2018 | Schematic, Assembly, Gerber Files, Battery Pack PCA |
| 10000043718 | 1 of 1 | A | 31 AUG 2018 | Gerber Files, Main PCA |
| 10000043987 | 1 to 4 | A | 31 AUG 2018 | Assembly Drawing, Main and Battery Assembly |
| 10000044340 | 1 of 1 | A | 31 AUG 2018 | Schematic, Assembly, Gerber Files, Battery Connection PCA |
| 10000044458 | 1 of 1 | A | 31 AUG 2018 | Label, Intrinsic Safety |
| 10000044903 | 1 of 1 | A | 31 AUG 2018 | Label, Battery Pack |
| 6009443 | 1 of 1 | C | 4 OCT 2018 | Belt Clip |
| 6009729 | 1 to 3 | D | 2 OCT 2018 | Membrane Switch |

Issue 1

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|-------------|--------|------|-------------------|------------------------------------|
| 10000045946 | 1 to 6 | A | 14 Jan 19 | MNL AM520i Sidepak Agency DWG |
| 10000045902 | 1 to 4 | A | 14 Jan 19 | Membrane Switch IECEx CSA Approval |
| 10000044458 | 1 of 1 | B | 14 Jan 19 | AM520i Label Set IECEx |

The following drawings are removed from the list of documents:

| Drawing | Sheets | Rev. | Title |
|---------|---------|------|------------------------|
| 6009829 | 1 to 67 | D | Manual, Sidepak AM520i |
| 6009729 | 1 to 3 | D | Membrane Switch |

Issue 2. No new drawings were introduced

Issue 3.

| Drawing | Sheets | Rev. | Date (stamp) | Description |
|-------------|--------|------|--------------|-------------------------------|
| AM520I | 1 to 3 | C | 01 Apr 21 | BOM, AM520I Top-Level |
| 6009036 | 1 of 1 | F | 01 Apr 21 | Top Case, AM520 |
| 6009037 | 1 of 1 | E | 01 Apr 21 | Bottom Case, AM520 |
| 10000045946 | 1 to 6 | C | 01 Apr 21 | MNL AM520i SidePak Agency DWG |
| 6011380 | 1 to 2 | C | 01 Apr 21 | BOM, Main PCA |
| 6011385 | 1 to 2 | D | 01 Apr 21 | BOM, Battery Pack PCA |

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Certificate Annexe



Certificate Number: Sira 18ATEX2150X

Equipment: Model SidePak AM520i Personal Aerosol Monitor

Applicant: TSI Inc

| Drawing | Sheets | Rev. | Date (stamp) | Description |
|-------------|--------|------|--------------|---|
| 10000035222 | 1 of 1 | C | 01 Apr 21 | General Assembly, Display Assembly |
| 6011385SC | 1 of 1 | D | 01 Apr 21 | Schematic, Battery Pack PCA |
| 6011385AD | 1 to 2 | D | 01 Apr 21 | Assembly, Battery Pack PCA |
| 6011380SC | 1 to 5 | C | 01 Apr 21 | Schematic, Main PCA |
| 6011380AD | 1 to 2 | C | 01 Apr 21 | Assembly, Main PCA |
| 10000043987 | 1 to 4 | B | 01 Apr 21 | Assembly Drawing, Main and Battery Assembly |
| 6011382SC | 1 of 1 | A | 01 Apr 21 | Schematic, Display PCA |
| 6011382AD | 1 of 1 | A | 01 Apr 21 | Assembly, Display PCA |
| 6009102SC | 1 of 1 | B | 05 Apr 21 | Schematic, Battery Connection PCA |
| 6009102AD | 1 of 1 | B | 05 Apr 21 | Assembly, Battery Connection PCA |
| 10000044458 | 1 of 1 | C | 07 Apr 21 | AM520i Label Set IECEx |

The following drawings are removed from the list of Manufacturer's Documents:

| Drawing | Sheets | Rev. | Date (Sira stamp) | Description |
|-------------|--------|------|-------------------|---|
| 10000043145 | 1 of 1 | B | 31 AUG 18 | Schematic, Assembly, Gerber Files, Battery Pack PCA |
| 10000043718 | 1 of 1 | A | 31 AUG 18 | Schematic, Assembly, Gerber Files, Main PCA |
| 10000044340 | 1 of 1 | A | 31 AUG 18 | Schematic, Assembly, Gerber Files, Display PCA |
| 10000032033 | 1 of 1 | B | 31 AUG 18 | Schematic, Assembly, Gerber Files, Battery Connection PCA |

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