



EU-TYPE EXAMINATION CERTIFICATE

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

Certificate Number: **Sira 02ATEX5339U** Issue: **5**

Component: **'SMARTpurge' Microprocessor Purge System**

Applicant: **Azonix Corporation**

Address: 101 Billerica Ave
Building #4
North Billerica
Massachusetts 01862
USA

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

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 component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of a component 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.

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:

IEC 60079-0:2011 EN 60079-2:2007 EN 60079-7:2007 IEC 60079-11:2011 EN 60079-18:2009

The sign 'U' is placed after the certificate number to indicate that the product assessed is a component and may be subject to further assessment when incorporated into equipment. Any limitations of use are listed in the schedule to this certificate.

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

The marking of the component shall include the following:



II 2(2)G
Ex e mb[ia] [py] IIC Gb

Project Number 1993

Signed:

Title: Director of Operations

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CSA Group Netherlands B.V.
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Netherlands



SCHEDULE

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13 DESCRIPTION OF COMPONENT

The SMARTpurge Microprocessor Purge System is designed to control the purge and pressurisation of purged apparatus. The unit contains three printed circuit boards: power, controller and LED boards.

The power and controller boards are separately encapsulated with a two-part epoxy compound, connected by a cable containing intrinsically safe circuits derived from the power board. The LED indicator board is not encapsulated and provides indication of the components' operation. It is connected to the controller board by a flying lead carrying an isolated intrinsically safe supply derived from the power board.

The non-intrinsically safe connections interface with the intrinsically safe circuitry via isolating relays. The apparatus is to be supplied with a voltage not exceeding 250 Vrms.

The SMARTpurge is available in two versions:

- i) internal purge: utilising the enclosure of the pressurised equipment
- ii) external purge: the sub-assemblies are all housed inside a steel enclosure and connected by a flying lead to a separate reased safety enclosure which contains the connection facilities.

Variation 1 - This variation introduced the following changes:

- i. The introduction of Schrack relays, types RTD3L012 & RT33L012.

Variation 2 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents previously listed in section 9, EN 50014:1997 (amendments A1 to A2), EN 50019:2000, EN 50020:2002 and EN 50028:1987, were replaced by those currently listed, the markings in section 12 were updated accordingly and the conditions were amended to recognise the new standards.
- ii. The Condition of Certification number 17.3 in Issue 2 was removed as it does not have a bearing on the intrinsic safety aspects of the product.

Variation 3 - This variation introduced the following changes:

- i. The Special Condition for Safe Use number 15.4 was removed and has been orporated into Condition of Certification clause 17.5, the previous testing associated with this Condition was also clarified.
- ii. The manufacturing address was changed from 900 Middlesex Turnpike, Billerica, MA 01821, USA to 101 Billerica Ave, Building #4, North Billerica, Massachusetts 01862, USA.
- iii. The addition of drawing 19-102010 to indicate the location of the thermal fuse.



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	11 April 2003	R52A9216A	The release of the prime certificate.
1	17 July 2003	52V10390	The prime certificate was re-issued to permit the introduction of information relevant to the 'external purge' version.
2	27 April 2011	R24749A/00	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 2, Issues 0 to 1 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.The introduction of Variation 1.
3	14 November 2011	R25100A/00	The introduction of Variation 2.
4	09 December 2013	R70004832A	The introduction of Variation 3.
5	31st October 2019	1993	<ul style="list-style-type: none">Transfer of certificate Sira 02ATEX5339U from Sira Certification Service to CSA Group Netherlands B.V..EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i>

15 SPECIAL CONDITIONS FOR SAFE USE

- 15.1 The ambient temperature range of the SMARTpurge is -20°C to +50°C. It is responsibility of the user to ensure that the protective gas is not supplied at a temperature exceeding 40°C.
- 15.2 When determining the temperature class of the equipment into which the SMARTpurge is installed, note that the maximum temperature rise under fault conditions of the encapsulated circuits is 65 K and the power to any component on the unencapsulated LED indicator board does not exceed 0.446 W.
- 15.3 The SMARTpurge (internal purge version) shall be installed in a location or enclosure that provides a minimum degree of protection of IP54 and adequate segregation between intrinsically safe and non-intrinsically safe conductors, in accordance with IEC 60079-11:2011 clause 6.2.1.
- 15.4 Before the SMARTpurge can be used in conjunction with any pressurised enclosure, a functionality test shall be carried out by the Approvals Body to ensure the correct operation of all safety features. For this test, the SMARTpurge shall be connected to the enclosure that it is monitoring.
- 15.5 The SMARTpurge contains shunt zener diode interfaces, which require the ground connection at J4 to be connected to a suitable intrinsically safe earth in accordance with EN 60079-14 clause 12.2.4.

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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.

Certificate Annexe



Certificate Number: Sira 02ATEX5339U

Component: 'SMARTpurge' Microprocessor Purge System

Applicant: Azonix Corporation

Issue 0

Drawing No.	Sheet	Rev.	Date	Title
10-500155	1 of 1	1	30 Oct 02	Schematic – controller board
10-500156	1 of 1	1	31 Mar 03*	Schematic – LED board (MiniPurge)
11-500156	1 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) – silkscreen
11-500156	2 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) - solder layer
11-500156	3 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) - component layer
10-500161	1 of 1	1	21 Mar 03	Schematic – LED board (PPS2/005)
11-500161	1 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) – silkscreen
11-500161	2 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) - solder layer
11-500161	3 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) - component layer
10-500172	1 of 1	2	18 Oct 02	Schematic – DC power supply
11-500172	1 of 1	2	31 Mar 03*	Artwork – DC power supply (silkscreen)
11-500172	2 of 3	2	31 Mar 03*	Artwork – DC power supply (top layer)
11-500172	3 of 3	2	31 Mar 03*	Artwork – DC power supply (bottom layer)
10-500330	1 of 1	1	18 Oct 02	Schematic – AC power supply
11-500330	1 of 3	1	31 Mar 03*	Artwork – AC power supply (silkscreen)
11-500330	2 of 3	1	31 Mar 03*	Artwork – AC power supply (top layer)
11-500330	3 of 3	1	31 Mar 03*	Artwork – AC power supply (bottom layer)
16-100196	2 of 2	4	01 Apr 03	Label
17-200260	1 of 1	0	06 Dec 02	General arrangement (external purge)
17-200261	1 of 1	0	06 Dec 02	General arrangement (internal purge)
38-100024	1 of 1	0	01 Apr 96	Functional block diagram

* Date stamped by Sira

Issue 1

Drawing No.	Sheet	Rev.	Date	Title
10-500155	1 of 1	1	30 Oct 02	Schematic – controller board
10-500156	1 of 1	1	31 Mar 03*	Schematic – LED board (MiniPurge)
11-500156	1 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) – silkscreen
11-500156	2 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) - solder layer
11-500156	3 of 3	1	31 Mar 03*	Artwork – LED board (MiniPurge) - component layer
10-500161	1 of 1	1	21 Mar 03	Schematic – LED board (PPS2/005)
11-500161	1 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) – silkscreen
11-500161	2 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) - solder layer
11-500161	3 of 3	0	31 Mar 03*	Artwork – LED board (PPS2/005) - component layer
10-500172	1 of 1	2	18 Oct 02	Schematic – DC power supply
11-500172	1 of 1	2	31 Mar 03*	Artwork – DC power supply (silkscreen)
11-500172	2 of 3	2	31 Mar 03*	Artwork – DC power supply (top layer)
11-500172	3 of 3	2	31 Mar 03*	Artwork – DC power supply (bottom layer)
10-500330	1 of 1	1	18 Oct 02	Schematic – AC power supply
11-500330	1 of 3	1	31 Mar 03*	Artwork – AC power supply (silkscreen)
11-500330	2 of 3	1	31 Mar 03*	Artwork – AC power supply (top layer)
11-500330	3 of 3	1	31 Mar 03*	Artwork – AC power supply (bottom layer)
16-100192	2 of 2	1	01 May 03	Label – external purge

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Certificate Number: Sira 02ATEX5339U

Component: 'SMARTpurge' Microprocessor Purge System

Applicant: Azonix Corporation

Drawing No.	Sheet	Rev.	Date	Title
16-100196	2 of 2	4	01 Apr 03	Label
17-200260	1 of 1	1	30 May 03	General arrangement (external purge)
17-200261	1 of 1	0	06 Dec 02	General arrangement (internal purge)
38-100024	1 of 1	0	01 Apr 96	Functional block diagram

* Date stamped by Sira

Issue 2

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
10-500172	1 of 1	3	26 Apr 11	Schematic – DC power supply

Issue 3

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
10-500172	1 of 1	4	11 Nov 11	Schematic – DC power supply
10-500330	1 of 1	2	11 Nov 11	Schematic – AC power supply
16-100192	1 to 2	2	11 Nov 11	Label (external purge)
16-100196	1 to 2	5	11 Nov 11	Label (internal purge)
17-200260	1 of 1	2	11 Nov 11	Functional diagram (external purge)
17-200261	1 of 1	1	11 Nov 11	Functional diagram (internal purge)
17-200358	1 to 3	A	11 Nov 11	General assembly (external purge)
17-200359	1 to 2	A	11 Nov 11	General assembly (power supply)
19-102000	1 to 2	A	11 Nov 11	Critical component list

Issue 4

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
16-100192	1 to 2	A	06 Dec 13	Label (external purge)
16-100196	1 to 2	A	06 Dec 13	Label (internal purge)
19-102010	1 to 3	A	06 Dec 13	Work instruction, purge power supply, AC and DC

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