



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 04ATEX2010** Issue: **4**

4 Equipment: **SharpEye Type 20/20MI-XX-S-C, 20/20MR-XX-S-C and 20/20MH-XX-S-C Flame Detector**

5 Applicant: **Spectrex Inc.**

6 Address: **218 Little Falls Road
Cedar Grove
New Jersey 07009
USA**

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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 60079-0:2006 EN 60079-11:2007 EN 60079-26:2007 EN 60079-31:2009
EN 60079-0:2009 (used for guidance in respect of marking)

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC 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:



II 1GD
Ex ia IIC T4 Ga (-40°C<Ta<+85°C)
Ex ia IIC T5 Ga (-40°C<Ta<+60°C)
Ex ta IIIC T123°C (-40<Ta<+85°C)

D R Stubbings BA MIET
Certification Manager

Project Number 25017

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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The SharpEye Type 20/20MI Flame Detector is designed to detect the presence of a flame. It comprises two printed circuit boards (PCBs) with three infra red (IR) sensors, all encapsulated as a module and housed in a stainless steel enclosure with a window to permit the IR sensors to see. External electrical connections are made to a multiway output connector mounted in the enclosure wall and the connections are as follows:

| Pin | Ref | Ui | Ii | Pi | Ci | Li |
|-----|-----------------|-------|--------|------|----|----|
| 1 | Vin | 30 V | 200 mA | 1.0W | 0 | 0 |
| 2 | GND | | | | | |
| 3 | 4-20 mA IN | 30 V | 162 mA | 1.0W | 0 | 0 |
| 4 | 4-20 mA OUT | | | | | |
| 6 | RS485A+ | ±12 V | 80 mA | 1.0W | 0 | 0 |
| 7 | RS485B- | | | | | |
| 8 | Fault relay | 30 V | * | * | 0 | 0 |
| 9 | Fault relay rtn | | | | | |
| 10 | Alarm relay | 30 V | * | * | 0 | 0 |
| 11 | Alarm relay rtn | | | | | |
| 13 | Shield | 0 | 0 | 0 | 0 | 0 |
| 14 | EXT_BIT_SW | 0 | 0 | 0 | 0 | 0 |

* These are dry contacts of a relay to be connected to an intrinsically safe supply.

The temperature marking of equipment, T123°C, is linearly corrected to the maximum ambient in service, 85°C.

Variation 1 - This variation introduced the following changes:

- i. The input parameters were increased to enable connection to suitable I.S. Barriers; the circuit parameters, including those for the 4-20mA and the RS485, have been included in the table above.

Variation 2 - This variation introduced the following changes:

- i. The electrical parameters of the 4-20mA output were changed and included in the table above.
- ii. The option to reduce the number of infra red (IR) sensors in the detector to one thus forming a new Single IR detector model no. 20/20MR-XX-X-C was approved.
- iii. The recognition of minor drawing modifications; these amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.

Variation 3 - This variation introduced the following changes:

- i. The introduction of a new model that utilises a new type of infra-red sensor was approved; when fitted with this new sensor, the equipment is re-designated as a model 20/20MH-XX-S-C.
- ii. The addition of a 1 mm deep groove around the threaded hole in the housing used to fit the cable gland/external connector was endorsed.

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Sira Certification Service

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Variation 4 - 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 50020:2002, EN 50284:1999 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

| Issue | Date | Report number | Comment |
|-------|-------------------|---------------|--|
| 0 | 15 September 2005 | R52V11392A | The release of the prime certificate. |
| 1 | 15 September 2005 | R52A11392A | The introduction of Variation 1. |
| 2 | 15 September 2005 | R52A11392A | The introduction of Variation 2. |
| 3 | 24 August 2006 | R51A13638A | The introduction of Variation 3. |
| 4 | 02 August 2011 | R25017C/00 | This Issue covers the following changes: <ul style="list-style-type: none">• All previously issued certification was rationalised into a single certificate, Issue 4, Issues 0 to 3 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 4. |

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 None

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 CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 This product shall be uniquely marked with the label identified in section 14.1 of this certificate.

17.4 The version of the SharpEye Type 20/20MI Flame Detector that is covered by this variation shall be fitted with a certification label that bears all the relevant information detailed on drawing number 787841, issue F, dated 23 Nov 04, only the model number shall be changed to 20/20MH-XX-S-C.

17.5 The P.C. Board Assembly Part No. 787111-2 that is listed on drawing number 787111, dated 10 May 05 shall not be used as part of any 20/20MI Flame Detector products that are covered by this certification.

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Certificate Annexe

Certificate No.: Sira 04ATEX2010

Equipment: SharpEye Type 20/20MI-XX-S-C, 20/20MR-XX-S-C
and 20/20MH-XX-S-C Flame Detector

Applicant: Spectrex Inc.



Issues 0 and 1

| Drawing No. | Sheet | Rev. | Date (Sira stamp) | Description |
|-------------|--------|------|-------------------|-------------|
| 787831 | 1 of 1 | A | 15 Sep 05 | Label |

Issue 2

| Drawing No. | Sheet | Rev. | Date (Sira stamp) | Description |
|-------------|--------|------|-------------------|-------------|
| 787831 | 1 of 1 | A | 15 Sep 05 | Label |

Issue 3

| Drawing No. | Sheet | Rev | Date (Sira stamp) | Description |
|-------------|--------|-----|-------------------|-------------|
| 787831 | 1 of 1 | C | 24 Aug 06 | Label |

Issue 4

| Drawing No. | Sheets | Rev. | Date (Sira stamp) | Description |
|-------------|--------|------|-------------------|-------------|
| 787831 | 1 of 1 | E | 08 Jul 11 | Label |

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