



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX2084X** Issue: **6**

4 Equipment: **IS-mA1 Sounder, IS-mB1 Beacon, IS-mC1 Combined Sounder/Beacon, IS-mA2 Sounder, IS-mA3 Sounder and IS-mA1M Sounder**

5 Applicant: **European Safety System Limited**

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Acton
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UK

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
IEC 60079-0:2007 (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:

IS-mA1 Sounder, IS-mB1 Beacon, IS-mC1 Combined Sounder/Beacon, IS-mA2 Sounder and IS-mA3 Sounder



II 1 G
Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +60°C)

IS-mA1M Sounder



I M1
Ex ia I Ma (-40°C ≤ Ta ≤ +60°C)

C Ellaby
Certification Officer

Project Number 20910
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13 DESCRIPTION OF EQUIPMENT

The **IS-mA1 Sounder** is designed to provide an audible warning when activated. It consists of the following mounted in an IP 65, flame retardant, ABS enclosure:

- Sounder printed circuit board assembly
- Inductive sounder transducer

External connections are made to terminals mounted on the sounder printed circuit board via cable entry devices mounted in the wall of the enclosure. The parameters for the IS-mA1 Sounder are as follows:

Terminals	Parameters				
	Ui	Ii	Pi	Ci	Li
Terminal + w.r.t. Terminal -	28 V	93 mA	660 mW	0	0
Terminals S2 and S3 w.r.t. Terminal -	28 V	0	-	-	-

The **IS-mB1 Beacon** is designed to provide a flashing warning when activated. It consists the following mounted inside an IP 65, flame retardant, ABS enclosure that is fitted with a transparent polycarbonate 'lens':

- Beacon main printed circuit board assembly
- Beacon LED printed circuit board assembly

External connections are made to terminals mounted on the beacon main printed circuit board via cable entry devices mounted in the walls of the enclosure. The parameters for the IS-mB1 Beacon are as follows:

Terminals	Parameters				
	Ui	Ii	Pi	Ci	Li
Terminal + w.r.t. Terminal -	28 V	660 mA	1.2 W	0	0

The **IS-mC1 Combined Sounder/Beacon** is designed to provide an audible and a flashing warning when activated. It consists of the following mounted inside an IP 65, flame retardant, ABS enclosure that is fitted with a transparent polycarbonate 'lens':

- Sounder printed circuit board assembly
- Inductive sounder transducer
- Beacon main printed circuit board assembly
- Beacon LED printed circuit board assembly

External connections are made to terminals mounted on the sounder printed circuit board assembly and the beacon main printed circuit board assembly via cable entry devices mounted in the walls of the enclosure. The IS-mC1 Combined Sounder/Beacon may be supplied with internal wiring connections between Sounder Terminals + / - and Beacon Terminals + / -, alternatively these connections may be fitted by the user/installer. The parameters for the IS-mC1 Combined Sounder/Beacon are as follows:

	Terminals	Parameters				
		Ui	Ii	Pi	Ci	Li
Without internal connections:	Sounder Terminals + w.r.t. Sounder Terminals -	28 V	93 mA	660 mW	0	0
	Sounder Terminals S2 & S3 w.r.t. Sounder Terminals -	28 V	0	-	-	-
	Beacon Terminal + w.r.t. Beacon Terminal -	28V	660 mA	1.2 W	0	0
With internal connections	Sounder Terminal + w.r.t. Sounder Terminal -	28 V	93 mA	660 mW	0	0
	Sounder Terminals S2 & S3 w.r.t. Sounder Terminals -	28 V	0	-	-	-

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Variation 1 - This variation introduced the following change:

- i. The introduction of two new types of sounder; these are designated the **IS-mA2 Sounder** and the **IS-mA3 Sounder**.

The **IS-mA2 Sounder** is similar to the original IS-mA1 Sounder, the differences being that it has a new printed circuit board layout and a new 'low profile' enclosure base. Cable entry is via a 'knockout' in the bottom of the enclosure base, this enclosure base, and thus the sounder, being designed for attachment to other equipment.

The parameters of the **IS-mA2 Sounder** are as follows:

Terminals	Parameters				
	Ui	Ii	Pi	Ci	Li
Terminal + w.r.t. Terminal -	28 V	93 mA	660 mW	0	0
Terminals S2 and S3 w.r.t. Terminal -	28 V	0	-	-	-

The **IS-mA3 Sounder** is similar to the original IS-mA1 Sounder, the differences being the addition of several components to the circuit, a different connection arrangement, a new printed circuit board layout and a new 'low profile' enclosure base. Cable entry is via a 'knockout' in the bottom of the enclosure base, this enclosure base, and thus the sounder, being designed for attachment to other equipment.

The parameters of the **IS-mA3 Sounder** are as follows:

Terminals	Parameters				
	Ui	Ii	Pi	Ci	Li
Terminal + w.r.t. Terminals S2 and S3	28 V	93 mA	660 mW	0	0

Variation 2 - This variation introduced the following change:

- ii. The introduction of a group I, category M1 version of the **IS-mA1M Sounder**, this version is known as the IS-mA1M Sounder and is marked as detailed in section 12, the parameters are as follows:

Terminals	Parameters				
	Ui	Ii	Pi	Ci	Li
Terminal + w.r.t. Terminals S2 and S3	28 V	93 mA	660 mW	0	0
Terminals S2 & S3 w.r.t. Terminal -	28 V	-	-	-	0

Variation 3 - This variation introduced the following change:

- i. The review and upgrade of the certificates listed to the latest standards: EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007, IEC 60079-0:2007 Ed 5, IEC 60079-11:2006 Ed 5 and IEC 60079-26:2006.



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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	4 August 2005	R52A13291A	The release of the prime certificate.
1	14 October 2005	R52A14095A	Issued to introduce the changes described in report number R52A14095A.
2	15 November 2005	R52A14305A	Re-issued to introduce the changes described in report number R52A14305A.
3	18 August 2006	R52A15304A	Issued to introduce the changes described in report number R52A15304A.
4	7 November 2006	R52A15480A	The introduction of Variation 1.
5	15 January 2007	R52A15912A	The introduction of Variation 2.
6	23 November 2009	R20910A	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 6, Issues 0 to 5 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 3.

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

15.1 Conditions for IS-mA1 Sounder

- The equipment has an ingress protection rating of IP65. However, if it has been supplied without cable entry devices, then the user shall ensure that the devices that are fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better. If only one of the two cable entries are used, then the unused entry 'knockout' shall be left intact or fitted with a blanking device that ensures ingress protection appropriate to the environment in which it is installed i.e. IP20 or better.
- The total capacitance connected to Terminals + wrt - (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.
- The equipment shall only be supplied via Terminals + w.r.t. Terminals - from a barrier having a maximum open circuit voltage U_0 that is ≤ 28 V and a maximum short circuit current I_0 that is ≤ 93 mA, where I_0 is resistively limited. The barrier shall be ATEX certified by a notified body.

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15.2 Conditions for IS-mB1 Beacon

- The equipment has an ingress protection rating of IP65. However, if it has been supplied without cable entry devices, then the user shall ensure that the devices that are fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better. If only one of the two cable entries are used, then the unused entry 'knockout' shall be left intact or fitted with a blanking device that ensures ingress protection appropriate to the environment in which it is installed i.e. IP20 or better.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.

15.3 Conditions IS-mC1 Combined Sounder/Beacon

- The equipment has an ingress protection rating of IP65. However, if it has been supplied without cable entry devices, then the user shall ensure that the devices that are fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better. If only one of the two cable entries are used, then the unused entry 'knockout' shall be left intact or fitted with a blanking device that ensures ingress protection appropriate to the environment in which it is installed i.e. IP20 or better.
- The total capacitance connected to Sounder Terminals + wrt – (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.
- The equipment shall only be supplied via Sounder Terminals + w.r.t. Sounder Terminals – from a barrier having a maximum open circuit voltage U_0 that is ≤ 28 V and a maximum short circuit current I_0 that is ≤ 93 mA, where I_0 is resistively limited. The barrier shall be ATEX certified by a notified body.
- If not already fitted, optional internal wiring connections between Sounder Terminals + / - and Beacon Terminals + / - may be fitted by the user. The wiring used for such connections shall have a minimum radial thickness of insulation of 0.5 mm.

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15.4 Conditions for IS-mA2 Sounder

- The equipment has an ingress protection rating of IP65. However, as cable entry is via a 'knockout' in the bottom of the enclosure base, the user shall ensure that this enclosure base is sealed to whatever it is attached by a method that provides ingress protection appropriate to the environment in which it installed i.e. IP20 or better. An 'O' ring fitted within the outer rim of the bottom of the enclosure base may be used for this purpose.
- The total capacitance connected to Terminals + w.r.t. – (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.
- The equipment shall only be supplied via Terminals + w.r.t. Terminals – from a barrier having a maximum open circuit voltage U_0 that is ≤ 28 V and a maximum short-circuit current I_0 that is ≤ 93 mA, where I_0 is resistively limited. The barrier shall be ATEX certified by a notified body.

15.5 Conditions for IS-mA3 Sounder

- The equipment has an ingress protection rating of IP65. However, as cable entry is via a 'knockout' in the bottom of the enclosure base, the user shall ensure that this enclosure base is sealed to whatever it is attached by a method that provides ingress protection appropriate to the environment in which it installed i.e. IP20 or better. An 'O' ring fitted within the outer rim of the bottom of the enclosure base may be used for this purpose.
- The total capacitance connected to Terminals + w.r.t. Terminals S2 and S3 (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.
- The equipment shall only be supplied via Terminals + w.r.t. Terminals S2 and S3 from a barrier having a maximum open circuit voltage U_0 that is ≤ 28 V and a maximum short-circuit current I_0 that is ≤ 93 mA, where I_0 is resistively limited. The barrier shall be ATEX certified by a notified body.

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15.6 Conditions for IS-mA1M Sounder

- The equipment has an ingress protection rating of IP65. However, if it has been supplied without cable entry devices, then the user shall ensure that the devices that are fitted will provide an ingress protection that is appropriate to the environment in which it is installed i.e. IP20 or better. If only one of the two cable entries are used, then the unused entry 'knockout' shall be left intact or fitted with a blanking device that ensures ingress protection appropriate to the environment in which it is installed i.e. IP20 or better.
- The total capacitance connected to Terminals + wrt – (i.e. the capacitance of the cable plus any other capacitance) shall not exceed 83 nF.
- The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces, additionally, cleaning of the equipment should be done only with a damp cloth.
- The equipment shall only be supplied via Terminals + w.r.t. Terminals – from a barrier having a maximum open circuit voltage U_o that is ≤ 28 V and a maximum short circuit current I_o that is ≤ 93 mA, where I_o is resistively limited. The barrier shall be ATEX certified by a notified body.

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.

Certificate Annexe

Certificate Number: Sira 05ATEX2084X
Equipment: IS-m*** Sounders and Beacons
Applicant: European Safety System Limited



Issue 0 to 2 (The drawings listed with these Issues were rationalised and superseded by those detailed in Issue 3)

Issue 3

Drawing	Sheets	Rev.	Date	Title
CD 5011	1 of 1	A	09 May 05	Circuit Diagram - Sounder Board
CD 5012	1 of 1	A	09 May 05	Circuit Diagram - Beacon Board
D 5014	1 of 1	A	03 Jun 05	Certification Label - Sounder - ATEX
D 5015	1 of 1	C	21 Apr 06	Certification Label - Beacon - ATEX
D 5016	1 of 1	C	21 Apr 06	Certification Label - Combined Sounder / Beacon - ATEX
D 5017	1 of 1	A	01 Aug 05	General Assembly - Sounder
D 5018	1 of 1	A	03 Jun 05	General Assembly - Beacon
D 5019	1 of 1	A	01 Aug 05	General Assembly - Combined Sounder / Beacon
D 5021	1 of 1	A	24-Jun-05	PCB Assembly - Sounder
PL 5021	1 of 1	A	03 Jun 05	Parts List - Sounder PCB
D 5022	1 of 1	A	24 Jun 05	PCB Assembly - Beacon
PL 5022	1 of 1	A	03 Jun 05	Parts List - Beacon PCB
D 5032	1 of 1	A	29 Jun 06	Certification Label - Sounder - ATEX/IECEX/FM
D 5033	1 of 1	A	29 Jun 06	Certification Label - Beacon - ATEX/IECEX/FM
D 5034	1 of 1	A	29 Jun 06	Certification Label - Combined Sounder/Beacon - ATEX/IECEX/FM

Issue 4

Drawing	Sheets	Rev.	Date	Title
CD 5041	1 of 1	A	17-Oct-06	Circuit Diagram - IS-mA2 and IS-mA3 Sounders
D 5041	1 of 1	A	17-Oct-06	PCB Assembly - IS-mA2 and IS-mA3 Sounders
PL 5041	1 of 1	A	02 Aug 06	Parts List - IS-mA2 Sounder
D 5042	1 of 1	A	02 Aug 06	General Assembly - IS-mA2 and IS-mA3 Sounders
PL 5042	1 of 1	A	02 Aug 06	Parts List IS-mA3 Sounder
D 5043	1 of 1	A	02 Aug 06	Certification Labels - IS-mA2 Sounder
D 5044	1 of 1	A	02 Aug 06	Certification Labels - IS-mA3 Sounder

Issue 5

Drawing	Sheets	Rev.	Date	Title
CD 5011	1 of 1	A	09 May 05	Circuit Diagram - Sounder Board
D 5017	1 of 1	A	01 Aug 05	General Assembly - Sounder
D 5021	1 of 1	A	24 Jun 05	PCB Assembly - Sounder
PL 5021	1 of 1	A	03 Jun 05	Parts List - Sounder PCB
D 5051	1 of 1	A	12 Dec 06	Certification Label ATEX - IS-mA1M Sounder

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Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D 5032	1 of 1	B	11 Nov 09	IS-mA1 Sounder Label (ATEX, IECEX, FM)
D 5033	1 of 1	B	11 Nov 09	IS-mB1 Beacon Label (ATEX, IECEX, FM)
D 5034	1 of 1	B	11 Nov 09	IS-mC1 Combined Label (ATEX, IECEX, FM)
D 5043	1 of 1	B	11 Nov 09	IS-mA2 Sounder Label (ATEX, IECEX, FM)
D 5044	1 of 1	B	11 Nov 09	IS-mA3 Sounder Label (ATEX, IECEX, FM)
D 5051	1 of 1	B	11 Nov 09	IS-mA1M Sounder Label (ATEX, IECEX, FM)

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