1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 06ATEX3313X** Issue: **1**

4 Equipment: **ESB Battery Range**

5 Applicant: **Pyroban Limited** **Pyroban Benelux BV**

6 Address:

Dolphin Road Shoreham-by-Sea BN43 6QG UK	Grotenoord 24-26 3341LT P.O. Box 229 3340 AE Hendrik Ido Ambacht Nederland

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 60079-7:2003 EN 61241-0:2004
EN 61241-1:2004

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 2 G D
Ex e II T4 (Ta –20°C to +48°C)
Ex tD A21 IP 6X T100°C

D R Stubbings BA MIET
Certification Manager

Project Number 51L17965
C. Index 08

Sira Certification Service
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13 DESCRIPTION OF EQUIPMENT

The ESB Battery range comprises an Optima type lead acid battery installed within either a stainless or a mild steel, acrylic painted enclosure. The ESB50 and ESB75 types are suitable where high currents are required and the ESB55 is a deep cycle battery.

The battery is prevented from movement within the outer enclosure by the installation of steel clamping bracket. The outer enclosure provides a level of ingress protection of IP 23 minimum and the lid is offset to act as a ventilation opening to prevent the build up of any hydrogen gas in the event of battery venting. The enclosure is provided with mounting facilities that allow the securing of the battery enclosure and it is also provided with a bonding facility comprising a stainless steel stud, nut and spring washer assembly.

One end of the outer enclosure is provided with two, 'Ex e' cable glands that are certified as compliant to EN 60079-7 or IEC 60079-7 to maintain IP 23, the scope of the approval does not cover the cable installed into the outer enclosure via the 'Ex e' cable glands or the battery clamps secured to the battery threaded terminal posts.

An insulation shroud is provided to insulate the area where the threaded terminal post exits the battery and the unused taper terminal post secured by interference fit.

Variation 1 - This variation introduced the following changes:

i. To permit the ESB Battery Range to be used in dust explosive atmospheres and amend the marking in section 12 accordingly.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	19 February 2007	R51A15499A	The release of the prime certificate.
1	29 August 2008	R51L17965B	This Issue covers the following changes: • All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. • The introduction of Variation 1.

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 06ATEX3313X**
Issue 1

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

15.1 The installation of the battery shall ensure the following:

- Cables and terminals must be used suitably rated for current and likely operating temperatures.
- Only copper tube, hydraulically crimped ring, terminals shall be used and are connected to the battery threaded terminal posts with nuts and shakeproof washers. Taper posts shall not be used.
- Cables shall be routed to avoid mechanical damage and stress.
- When installing the cables and battery connections, terminals shall be fitted with the insulators provided, hence, ensuring that there are no bare conductive parts.
- The maximum allowable creepage and clearance between the terminals or bare conductive parts to the battery casing shall be a minimum of 10 mm.

15.2 The installation shall ensure that the following maximum cranking currents (MCA) are not exceeded in service:

ESB50 – 500 A
ESB55 – 500 A
ESB75 – 500 A

The maximum cranking current (MCA) shall only be applied for a maximum of 3 minutes. After cranking for 3 minutes, a cooling down period of 30 minutes shall be observed before cranking is repeated.

15.3 Any charging system that is installed within the potential explosive atmosphere shall be certified as compliant with EN 60079-0 and any appropriate sub-standard.

The charging circuit shall be separated from any other voltage source(s) and the separation shall satisfy table 1 of EN 60079-7:2003. In addition, the charging system shall be such that, under the condition of one fault, the following charging parameters shall not be exceeded:

Type ESB50 Charging:

Alternator:	13.3 to 15.0 V
Battery Charger:	13.8 to 15.0 V 10 A max 6-12 hrs
Float Charge:	13.2 to 13.8 V 1 A max
Rapid Recharge:	15.6 V max, below 50°C

Type ESB55 Charging:

Alternator:	13.65 to 15.0 V
Battery Charger:	13.8 to 15.0 V 10 A max 6-12 hrs
Float Charge:	13.2 to 13.8 V 1 A max
Rapid Recharge:	15.6 V max, below 50°C
Cyclic or Series:	14.7 V max, below 50°C

Type ESB75 Charging:

Alternator:	13.65 to 15.0 V
Battery Charger:	13.8 to 15.0 V 10 A max 6-12 hrs
Float Charge:	13.2 to 13.8 V 1 A max
Rapid Recharge:	15.6 V max, below 50°C
Cyclic or Series:	14.7 V max, below 50°C

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Issue 1

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 A dielectric strength test, as required by EN 60079-7:2003 Clause 6.6.2, shall be conducted. The insulation resistance shall be at least 1 MΩ.

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Certificate Annexe

Certificate Number: **Sira 06ATEX3313X**

Equipment: **ESB Battery Range**

Applicant: **Pyroban Limited**

sira CERTIFICATION

Issue 0

Drawing No.	Sheet	Rev.	Date	Description
C0323	1 to 2	5	19 Feb 07	Battery ESB Range
C0328	1 of 1	4	05 Feb 07	Battery ESB Range Optima Unit

Issue 1

Drawing No	Sheet	Rev	Date	Description
C0323	1 to 2	8	08 Aug 08	Battery ESB Range
C0388	1 to 3	C	18 Aug 08	ESB50 & ESB75 Battery Assembly Instructions

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