UNITED KINGDOM CONFORMITY ASSESSMENT

1 # UK TYPE EXAMINATION CERTIFICATE

2 Equipment Intended for use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: **CSAE 21UKEX3580X** Issue: **0**

4 Product: **ESB Battery Range**

5 Manufacturer: **Pyroban Limited**

6 Address: Dolphin Road
Shoreham-by-Sea
BN43 6PB
UK

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

8 CSA Group Testing UK Limited, Approved Body number 0518, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations. 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 has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-7:2015** **EN 60079-31:2014**

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

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

11 This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall be in accordance with Regulation 41 and include the following:

With silicone sealant over the battery terminals

II 2 G D
Ex eb IIC T4 Gb
Ex tb IIIC T100°C Db
Ta = -20°C to +48°C

Without silicone sealant over the battery terminals

II 2 G
Ex eb IIC T4 Gb
Ta = -20°C to +48°C

Signed: J A May

Title: Director of Operations

13 DESCRIPTION OF PRODUCT

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.

The Battery Cell has been independently tested to meet IP 6X.

Incorporated Amendments:

i. To permit the ESB Battery Range to be used in dust explosive atmospheres and amend the marking in section 12 accordingly.
ii. The IP rating for the battery cells has been added to the description.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	13 December 2021	R80100669A	The release of the prime certificate.

15 SPECIFIC CONDITIONS OF 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. 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

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 PRODUCTION CONTROL

17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders

17.2 An insulation resistance test, as required by EN 60079-7 Clause 6.6.2, shall be conducted. The insulation resistance shall be at least 1 MΩ.

Certificate Annexe

Certificate Number: **CSAE 21UKEX3580X**

Product: **ESB Battery Range**

Manufacturer: **Pyroban Limited**

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
C0388	1 of 3	C	18 Aug 08	ESB50 & ESB75 Battery Assembly Instructions
C0328	1 of 1	4	05 Feb 07	Battery ESB Range Optima Unit
C0323	1 of 2	11	03 Dec 21	Battery ESB Range
C0323	2 of 2	11	03 Dec 21	Battery ESB Range