EU Type Examination Certificate CML 13ATEX3005X Issue 12

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

2 Equipment **PLX Portable Luminaires**

3 Manufacturer **Petrel Ltd**

4 Address **22 Fortnum Close, Mackadown Lane, Kitts Green, Birmingham West Midlands, B33 0LB United Kingdom**

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 6738671, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018	EN IEC 60079-7:2015+A1:2018	EN 60079-11:2012
EN IEC 60079-18:2015+A1:2017	EN 60079-31:2014	

10 The equipment shall be marked with the following:

Ex II 2 GD	Ex II 2 GD
Ex eb mb IIC T4 Gb	Ex eb ib mb IIC T4 Gb
Ex tb IIIC T80°C Db	Ex tb ib IIIC T80°C Db
Ta = -20°C to +55°C	Ta = -20°C to +55°C
IP66	IP66

11 Description

The Petrel PLX LED is a range of portable luminaires for use in explosive atmospheres, consisting of encapsulated driver circuits, encapsulated LED strip units and connecting devices for a supply cable. These are built onto a gear tray within an enclosure comprising a clear polycarbonate tube fitted with a clear anti-static sleeve, between shock absorbing and dissipative plastic endplates. The luminaire is fitted with a supply cable through a suitably certified cable gland or socket and plug receptacle. An emergency option is also available powered via an encapsulated battery pack and inverter. An additional guard may be fitted to provide additional protection to impacts, this does not form part of the protection concepts applied.

The range of luminaires are rated at 110 or 230 V 50/60 Hz.

Design Options

The PLX LED may be fitted with an intrinsically safe switch.

Low voltage versions are additionally available rated at 12 V AC/DC or 24/42 V AC/DC 50/60 Hz.

Variation 1
The following changes were introduced:

i. Alternative marking for +50°C (T8 fluorescent luminaires) or +55°C (LED luminaires) ambient.
ii. Two alternative encapsulant compounds were introduced.
iii. Introduction of an LED driver inverter unit, permitting emergency operation.
iv. Modification to the method of reducing the risk of static hazards.
v. An alternative plug and socket receptacle manufactured by Stahl, type 8570 covered by PTB 03ATEX1227 coded Ex d e IIC T6, Ex tD A21 IP66.
vi. Amendments to marking and the introduction of a special condition for safe use.

Variation 2
The following changes were introduced:

i. An alternative design of potting box and filling procedure.
ii. To up issue the current label drawing to allow dual ATEX and IECEx marking.

Variation 3
The following changes were introduced:

i. To allow the use of an alternate design of the LED strip.
ii. Changes to the driver including new thermal fuse layout, new option of power supply and change of encapsulant.
iii. Amended marking for optical radiation and increased safety.
iv. To update the certificate to refer to ATEX directive 2014/34/EU.
v. To update the marking to remove the T5 temperature class and +40°C upper ambient option.
vi. Inclusion of an RFID tag.
vii. Update of applicable standards to the latest editions and inclusion of reference to EN 60079-28.

viii. Removal of the T8 fluorescent tube version of the luminaires from the certification. A complete list of drawings showing which drawings remain relevant at the current issue has been included in the certificate annex.

ix. Update of the product description. The updated description reflects the changes, including the removal of the T8 version.

Variation 4

The following changes were introduced:

i. The addition of a shorter model to the range.
ii. To remove the option for the Hytrel End Caps.

Variation 5

The following changes were introduced:

i. The addition of low voltage versions to the range.
ii. The addition of a switch version to the range.
iii. Updates the product description and marking for the latest changes

Variation 6

The following changes were introduced:

i. To allow use of two alternative LED strips
ii. To allow the use of an alternative LED encapsulant
iii. Allow use of alternative low power driver for 24/42V luminaire
iv. Allow use of up to four high power drivers
v. Allow use of alternative emergency driver
vi. To update plug and socket references on drawings
vii. Change to end cap fixing
viii. Update to routine testing in conditions of manufacture in line with all options

Variation 7

The following changes were introduced:

i. To allow an alternative construction of a current LED Emergency driver module.

Variation 8

The following changes were introduced:

i. Addition of new supplier for the LED Strip
ii. Transfer of Certificate to CML BV.

Variation 9

The following changes were introduced:

i. Standards update of EN 60079-0:2012+A11:2013 / IEC 60079-0:2011 Ed. 6, EN 60079-7:2015 / IEC 60079-7:2015 Ed. 5 and EN 60079-18:2015 / IEC 60079-18 Ed. 4 to the latest editions.
ii. Remove EN 60079-28:2015 / IEC 60079-28:2015 Ed. 2 from the scope.
iii. The additional option of a 110V emergency driver board.
iv. New Impact protection boot materials have been assessed for suitability.

v. Additional testing conducted to impact the lens and at 7 J instead of 4 J in accordance with the requirements of IEC 60079-0 Ed.7, table 15 for transportable luminaires.
vi. Update the conditions of manufacture to reference the latest edition of the standards.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
1	09 Dec 2013	R31A/00	Issue of Prime Certificate
2	27 Mar 2014	R82A/00	Introduction of Variation 1
3	15 Dec 2014	R378A/00	Introduction of Variation 2
4	11 Jun 2015	R378A/01	Amendment of Variation 2 and drawing corrections
5	10 Feb 2017	R1697A/00	Introduction of Variation 3
6	19 Sep 2017	R2204A/00	Introduction of Variation 4
7	08 Nov 2017	R1901A/00	Introduction of Variation 5
8	19 Jan 2018	-	Re-issued to clarify the Conditions of Manufacture
9	29 May 2018	R11662A/00	Introduction of Variation 6
10	31 Jul 2018	R12744A/00	Introduction of Variation 7
11	22 Jul 2019	R12588A/00	Introduction of Variation 8
12	22 Feb 2022	R14271A/00	Introduction of Variation 9

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
ii. A dielectric strength test shall be carried out on all units manufactured in accordance with EN IEC 60079-7:2015+A1:2018 clause 7.1 and EN IEC 60079-18:2015+A1:2017 clause 9.2 at 1500 V AC or 2100 DC (circuit voltage 90V and over) or 500 V AC or 700 DC (circuit voltages up to 90V) for 1 minute. No breakdown shall occur. Tests shall be carried out between each circuit and earth and between each circuit and the surface of encapsulated parts.
iii. A visual inspection shall be carried out on the encapsulated parts to check for damage, in accordance with EN IEC 60079-18:2015+A1:2017 clause 9.1.

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. The end user shall take precautions to prevent the anti-static coating from coming into contact with glycol ether or acetone. Refer to manufacturer's instructions.

Certificate Annex

Certificate Number	**CML 13ATEX3005X**
Equipment	**PLX Portable Luminaires**
Manufacturer	**Petrel Ltd**

The following documents describe the equipment or component defined in this certificate:

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
PORT-110	1 of 1	1	9 Dec 2013	Battery Pack Details
PORT-001	1 of 1	1	9 Dec 2013	Portable Luminaire Certification Drawing
PORT-001LED	1 of 1	3	9 Dec 2013	Portable Luminaire Certification Drawing - LED
PORT-001T8	1 of 1	1	9 Dec 2013	Portable T8 Certification Drawing
PORT-002	1 of 1	2	9 Dec 2013	End Cap & End Protector Certification Drawing
PORT-003	1 of 1	2	9 Dec 2013	Portable Labels
PORT-004	1 of 1	1	9 Dec 2013	Portable Luminaire T8 Electrical Layouts
PORT-005	1 of 1	2	9 Dec 2013	Encapsulation certification drawing for T8 inverter and LED driver
PORT-006	1 of 1	3	9 Dec 2013	Portable Luminaire Tray Layouts
PORT-007	1 of 1	2	9 Dec 2013	T8 PCB Certification Drawing
PORT-008	1 of 1	3	9 Dec 2013	T8 Wire Attachment
PORT-LED	1 of 1	1	9 Dec 2013	Encapsulation Procedure for Portable LED Strip
PORT-016	1 of 1	5	9 Dec 2013	LED Portable Luminaire Tray Layouts
PORT-111	1 of 1	1	9 Dec 2013	16W LED PCB Certification Drawing
PORT-112	1 of 1	1	9 Dec 2013	LED PCB Certification Drawing
PORT-113	1 of 1	1	9 Dec 2013	35W LED PCB Certification Drawing
PORT-114	1 of 1	1	9 Dec 2013	110V LED PCB Certification Drawing
PORT-150	1 of 1	2	9 Dec 2013	LED Encapsulation Certification Drawing
PORT-140	1 of 1	3	9 Dec 2013	Emergency LED Assembly (battery condition LED)

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
PORT-007	1 of 1	3	26 Mar 2014	T8 PCB certification drawing
PORT-LED	1 of 1	2	26 Mar 2014	Encapsulation procedure for Portable LED strip
PORT-001	1 of 1	2	26 Mar 2014	Portable luminaire generic certification drawing

Certificate Annex

Certificate Number **CML 13ATEX3005X**

Equipment **PLX Portable Luminaires**

Manufacturer **Petrel Ltd**

Drawing No	Sheets	Rev	Approved date	Title
PORT-001T8	1 of 1	2	26 Mar 2014	Portable T8 certification drawing
PORT-001-LED	1 of 1	4	26 Mar 2014	Portable Luminaire certification drawing - LED
PORT-003	1 of 1	3	26 Mar 2014	Labels certification drawing
PORT-005	1 of 1	3	26 Mar 2014	Inverter charger certification drawing
PORT-016	1 of 1	6	26 Mar 2014	LED tray layout certification drawing
PORT-150	1 of 1	3	26 Mar 2014	LED encapsulation certification drawing
PORT-114	1 of 1	2	26 Mar 2014	110V LED Emergency PCB assembly certification drawing
PORT-111	1 of 1	2	26 Mar 2014	16W LED PCB certification drawing
PORT-112	1 of 1	2	26 Mar 2014	LED PCB assembly certification drawing
PORT-113	1 of 1	2	26 Mar 2014	35W LED PCB certification drawing

Issue 3

Drawing No	Sheets	Rev	Approved date	Title
PORT-003	1 of 1	4	15 Dec 2014	Labels certification drawing
PORT-005	1 of 1	4	20 Nov 2014	Inverter charger certification drawing

Issue 4

Drawing No	Sheets	Rev	Approved date	Title
PORT-005	1 of 1	5	11 Jun 2015	Inverter charger certification drawing

Issue 5

Drawing No	Sheets	Rev	Approved date	Title
PORT-001LED	1 of 1	5	03 Feb 2017	Portable Luminaire Certification Drawing - LED
PORT-LED	1 of 1	3	03 Feb 2017	Encapsulation Procedure for Portable LED Strip (Temperature range -20°C to +55°C)
PORT-003	1 of 1	5	03 Feb 2017	Portable Labels
PORT-160	1 of 1	1	03 Feb 2017	LED Encapsulation Certification Drawing
PORT-001	1 of 1	3	03 Feb 2017	Portable Luminaire Generic Certification Drawing
PORT-180	1 of 1	1	03 Feb 2017	LED Drivers Thermal Fuse Positions

Certificate Annex

Certificate Number **CML 13ATEX3005X**

Equipment **PLX Portable Luminaires**

Manufacturer **Petrel Ltd**

Drawing No	Sheets	Rev	Approved date	Title
PORT-005	1 of 1	6	03 Feb 2017	Encapsulation Certification Drawing for LED Drivers
PORT-170	1 of 1	1	03 Feb 2017	Portable Fitting with Protective Outer Tube
PORT-110*	1 of 1	1	9 Dec 2013	Battery Pack Details
PORT-002*	1 of 1	2	9 Dec 2013	End Cap & End Protector Certification Drawing
PORT-006*	1 of 1	3	9 Dec 2013	Portable Luminaire Tray Layouts
PORT-140*	1 of 1	3	9 Dec 2013	Emergency LED Assembly (battery condition LED)
PORT-016*	1 of 1	6	26 Mar 2014	LED tray layout certification drawing
PORT-150*	1 of 1	3	26 Mar 2014	LED encapsulation certification drawing

Note: The above is a complete list showing all drawings which are relevant to Issue 5 of the certificate. Drawings marked with an asterisk were approved under previous issues of the certificate but are included for completeness.

Issue 6

Drawing No	Sheets	Rev	Approved date	Title
PORT-001	1 of 1	4	19 Sep 2017	Portable Luminaire Generic Certification Drawing

Issue 7

Drawing No	Sheets	Rev	Approved date	Title
PORT-190	1 of 1	1	08 Nov 2017	LED Drivers Thermal Fuse Positions
PORT-001	1 of 1	5	08 Nov 2017	Portable Luminaire Generic Certification Drawing
PORT-001LED	1 of 1	6	08 Nov 2017	Portable Luminaire Certification Drawing - LED
PORT-002	1 of 1	3	08 Nov 2017	End Cap and End Protector Certification Drawing
PORT-003	1 of 1	6	08 Nov 2017	Portable Labels

Issue 8

None.

Issue 9

Drawing No	Sheets	Rev	Approved date	Title
PORT-001	1 of 1	6	29 May 2018	Portable Luminaire Generic Certification Drawing

Certificate Annex

Certificate Number **CML 13ATEX3005X**

Equipment **PLX Portable Luminaires**

Manufacturer **Petrel Ltd**

Drawing No	Sheets	Rev	Approved date	Title
PORT-001LED	1 of 1	7	29 May 2018	Portable Luminaire Certification Drawing - LED
PORT-005	1 of 1	7	29 May 2018	Encapsulation certification drawing for LED drivers
PORT-150	1 of 1	4	29 May 2018	LED encapsulation certification drawing
PORT-160	1 of 1	2	29 May 2018	LED Encapsulation Certification Drawing
PORT-190	1 of 1	2	29 May 2018	LED Drivers Thermal Fuse Positions
PORT-LED	1 of 1	4	29 May 2018	Encapsulation procedure for portable LED strip

Issue 10

None.

Issue 11

Drawing No	Sheets	Rev	Approved date	Title
PORT-001LED	1 of 1	8	22 Jul 2019	Portable luminaire certification drawing - LED
PORT-200	1 of 1	1	22 Jul 2019	LED Strip
PORT-160	1 of 1	3	22 Jul 2019	LED Encapsulation Certification Drawing
PORT-LED	1 of 1	5	22 Jul 2019	Encapsulation procedure for portable LED Strip
PORT-003	1 of 1	7	22 Jul 2019	Portable Labels

Issue 12

Drawing No	Sheets	Rev	Approved date	Title
PORT-003	1 of 1	8	22 Feb 2922	Portable Labels
11812540	1 of 1	D	22 Feb 2922	Portable Endcap Overboot
PORT-001LED	1 of 1	9	22 Feb 2922	Portable Luminaire Certification Drawing-LED
PORT-180	1 of 1	2	22 Feb 2922	LED Gear Thermal Fuse Positions