



1 **EU TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 12ATEX3177X** Issue: **8**

4 Equipment: **LX-XXX LinkEx LED Luminaires**

5 Applicant: **Wolf Safety Lamp Company Limited**

6 Address: **Saxon Road Works, Sheffield S8 0YA, England**

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 Articles 17 and 21 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 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 60079-0:2012+A11:2013

EN 60079-7:2015

EN 60079-18:2015

EN 60079-28:2015

EN 60079-31:2014

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

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

11 This EU-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:

Luminaires fitted with Mk1 Drivers

Luminaires fitted with Mk2 Drivers



II 2GD

Ex eb mb op is IIC T3 Gb

Ex tb op is IIIC T170°C Db IP6X



II 2GD

Ex eb mb op is IIC T4 Gb

Ex tb op is IIIC T135°C Db IP 6X

Ta = -20°C to +55°C

Ta = -20°C to +45°C with protective cover fitted

Luminaires that are fitted with either Stahl Type 8575 or Stahl Type 8591 Sockets are not dust approved as detailed below:

Luminaires fitted with Mk1 Drivers

Luminaires fitted with Mk2 Drivers



II 2G

Ex eb mb op is IIC T3 Gb



II 2G

Ex eb mb op is IIC T4 Gb

Ta = -20°C to +55°C

Ta = -20°C to +45°C with protective cover fitted

Project Number 70156822

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The LX-XXX LinkEx LED Luminaires are suitable for temporary lighting installations. The luminaires comprise a clear, tubular, polycarbonate lamp envelope with two polycarbonate end mouldings. The lamp envelope is all treated with a clear anti static coating to safely dissipate any static electricity. The end mouldings are secured to the tube via the internal gear tray, which is fabricated from steel or aluminium, two M5 and two M6 screws and bonded seals are used to secure each end cap. A silicone gasket is fitted within a groove on each end cap, thus maintaining the IP54/IP64 (as applicable) ratings. The luminaires have additionally been independently tested according to the requirements of EN 60529 to meet IP 67, with no sockets fitted, IP 66 when sockets are fitted and IP54 for Stahl Type 8575 or 8591 sockets.

The luminaires are fitted with replaceable bump ring clamped between the seal ring and end plate, giving additional protection to the luminaire.

180° variant – These comprise a main gear tray, with the driver and terminal connection blocks on the underside with two encapsulated LED strips fitted to the upper, distributing the light through 180°.

360° variant – These comprise two gear trays and two narrow channels, with the driver and terminal connection blocks fitted along with two encapsulated LED strips, one fitted to each side, distributing the light through 360°.

The following optional supply terminal blocks may be fitted:

Manufacturer	Type Ref.	Coded	Certificate no.
Weidmüller	Type BK	Ex e II	Sira 01ATEX3247U
Weidmüller	Type MK6	Ex e II	Sira 01ATEX3249U
Phoenix Contact GmbH & Co. KG	Type G5/...-EX	Ex e II	PTB 06ATEX1034U

Luminaires can be supplied with sockets fitted to the end caps with bolts, nuts and sealing washers and/or various lengths of cable with plugs fitted. The following optional certified sockets may be fitted to the linkable versions only:

Manufacturer	Type Ref.	Coded	Certificate no.
Cooper Crouse-Hinds GmbH	Type GHG 51.R....	Ex de IIC T6 or T5 Ex tD A21 IP66 T80°C	PTB 99ATEX1040U
R. Stahl	Type 8591/...-...-....	Ex de IIC T6	PTB 03 ATEX1097X
ATX	Type PCX	Ex de IIC T6 or T5 Ex tD A21 IP66 T68°C	LCIE 02 ATEX 0001U
Marechal	Type DXN1	Ex de IIC T* Ex tD A21 IP66/67 T*	LCIE 99ATEX6027X
Stahl	Type 8570	Ex de IIC T6 Ex tD A21 IP 66 T80°C	PTB 03 ATEX 1227
Stahl	Type 8575	Ex ed IIC IP54	PTB 01 ATEX 1045U

The luminaires when fitted with MK1 drivers are designed for use with an electrical supply of either 85 Vac to 264 Vac, 50/60 Hz or 19 Vdc/ac, rms to 28 Vdc/ac, rms.

The luminaires when fitted with MKII drivers are designed for use with an electrical supply of either 0 Vac to 264 Vac 50/60 Hz or 0 V to 50 V ac/dc, 50/60 Hz

The luminaires may be mounted in any attitude and are suitable for use with accessories.

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Variation 1 - This variation introduced the following changes:

- i. The luminaires were re-designated as 'temporary lighting', the Description of Equipment was therefore amended accordingly, as a consequence, the warning label, 'Do not move when energised', is no longer required.
- ii. The specified marking information was clarified to recognise that dust marking is not applicable to luminaires that are fitted with either a Stahl Type 8575 Socket or Type 8591 Socket.
- iii. The anti-static coating on the end caps and bump rings was removed; in addition, optional ribs were added to the end cap.
- iv. A statement about independent Ingress Protection testing was introduced into the Description of Equipment.
- v. The fuse rating on drawing LX-924 was corrected and is now defined as 5 A, 125 V.
- vi. An optional 'ferrite' was added to the 24 V driver.
- vii. Minor changes to the gear tray were recognised.
- viii. Plastic wire supports were added to the encapsulated LED assemblies.
- ix. Alternative protective ring materials were introduced.
- x. An alternative potted fuse construction was recognised.
- xi. The introduction of alternative driver box grommets.
- xii. The type reference name of the silicone gasket was changed.
- xiii. An alternative, external, non-metallic label may was allowed to be fitted.
- xiv. The certificate reference for the Type GHG 51 sockets was changed from PTB 99ATEX1039 to PTB 99ATEX1040U.
- xv. The use of additional thermal protective fuses was permitted.
- xvi. Drawing number LX-710 was removed since the information it detailed that is relevant to explosion safety has now been included on other drawings.
- xvii. Addition of clamp/magnet accessory.
- xviii. Removal of ATX socket certificate numbers; IECEx LCI 04.0014 LCIE 02ATEX6068 and replacement with LCIE 02 ATEX 0001U and IECEx LCI 07.0012U, which are the flange mounted versions.

Variation 2 - This variation introduced the following changes:

- i. The use of the MK2 Low Voltage (LV) and MK2 High Voltage (HV) LED Driver Units was recognised; in addition, it was clarified that the devices used in the original Luminaires are referred to as the MK1 Low Voltage (LV) and MK1 High Voltage (HV) LED Driver Units.
The MK1 LV Driver Units have a certified rating of 19 Vdc/ac, rms to 28 Vdc/ac, rms.
The MK1 HV Driver Units have a certified rating of 85 Vac to 264 Vac, 50/60 Hz
The MK2 LV Driver Units have a certified rating of 0 V to 50 V a.c./d.c.
The MK2 HV Driver Units have a certified rating of 0 V to 264 V a.c.
New temperature markings were introduced for Luminaires which use the MK2 Driver Units.
- ii. The introduction of the following design options:
 - The Ex terminal block may optionally be mounted to the chassis instead of the end cap with the associated mounting claws on the end cap optionally removed.
 - The option of including a larger bump ring on the socket fitted to the linkable versions of the product.
- iii. The dust marking was brought into line with the specific requirements of the compliance standards.
- iv. The introduction of a textile or plastic material to cover both end-caps.

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Variation 3 - This variation introduced the following change:

- i. The correction of the routine dielectric condition to allow the dc alternative test and to provide the 500 V test option for the low voltage driver.

Variation 4 - This variation introduced the following changes:

- i. Following appropriate assessment to demonstrate compliance with the requirements of more up to date standards, EN 60079-0:2009, EN 60079-7:2007, EN 60079-18:2009 & EN 60079-31:2009 were replaced by EN 60079-0:2012+A11:2013, EN 60079-7:2015, EN 60079-18:2015 & EN 60079-31:2014, the marking was amended accordingly.
- ii. Conduct appropriate assessment to demonstrate compliance with the requirements of EN 60079-28:2015, the marking was amended accordingly.
- iii. The use of additional resistors was permitted on the HV Mk2 variant.
- iv. Alternative Types of emitters (LEDs) have been permitted for equipment incorporating the Mk2 Drivers only.
- v. Alternative PCB layout to accommodate linked pairs of fuses has been permitted for equipment incorporating the Mk2 Drivers only.
- vi. Addition of optional paint spray protection sleeve has been permitted for the Mk2 variant luminaire, resulting in a reduced maximum ambient from +55°C to +45°C, as a result two new conditions of Manufacture were added.

Variation 5 - This variation introduced the following changes:

- i. The replacement of a diode.
- ii. The relocation of components for noise filtering in the thermal fuse.
- iii. Updated capacitor values to improve EMC.
- iv. Additional option for wire without 5 mm minimum bare conductor.
- v. 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:
 - (a) Removed Gerber reference.
 - (b) Addition of optional information for separate equipment.
 - (c) Removal of optional component.

Variation 6 - This variation introduced the following changes:

- i. The product description was amended, clarifying that the LEDs are encapsulated.
- ii. The addition of an alternative RTV potting compound.
- iii. The introduction of an alternative LED heatsink assembly.
- iv. Removal of reference to 0.2mm paint spray cover thickness.
- v. Correction of pad spacing.
- vi. Alternative positioning of D1, D3, R3 and R8.
- vii. Clarification of paint protection film and bag requirements.
- viii. Clarification of distance to metal enclosure.
- ix. Clarification of paint protection film and bag requirements temperature marking.

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Variation 7 - This variation introduced the following change:

- i. The introduction of the LX-XXXE Luminaire which incorporates a battery pack and is intended to provide an emergency lighting function. The marking is as follows:



II 2 GD
Ex eb mb op is IIC T4 Gb
Ex tb op is IIIC T135°C Db IP 6X Ta = -20°C to +55°C
Ta = -20°C to +45°C with protective cover fitted

Luminaires that are fitted with either Stahl Type 8575 or Stahl Type 8591 Sockets are not dust approved as described below



II 2 G
Ex eb mb op is IIC T4 Gb Ta = -20°C to +55°C
Ta = -20°C to +45°C with protective cover fitted

Variation 8 – This variation introduced the following:

- i. Board modifications.
ii. Update of certified component sockets to remove:

Manufacturer	Type	Coded	Certificate
Copper Crouse Hinds GmbH	Type GHG 51.R....	Ex de IIC T6 or T5 Ex tD A21 IP66 T80°C	PTB 99ATEX1040U

And replace with:

Manufacturer	Type	Coded	Certificate
Copper Crouse Hinds GmbH	Type GHG 5118* ** * ****	Ex db eb IIC/IIB Gb Ex tb IIIC Db	BVS 15ATEX E101U

- iii. Amendment to certificate conditions.
iv. Administrative certificate modifications.
v. Administrative drawing modifications.
vi. Addition of sealant between LEDs and light pipes.
vii. Modification to battery pack.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	29 May 2012	R25444A/00	The release of the prime certificate.
1	02 November 2012	R28442A/00	The introduction of Variation 1.
2	15 December 2015	R70010385	The introduction of Variation 2.

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Issue	Date	Report no.	Comment
3	21 April 2016	R70060480A	This Issue covers the following changes: <ul style="list-style-type: none">• EC-Type Examination Certificate in accordance with 94/9/EC updated to EU-Type Examination Certificate in accordance with Directive 2014/34/EU.• <i>(In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC-Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)]</i>• The introduction of Variation 3.
4	01 September 2016	R70070895A	The introduction of Variation 4.
5	06 September 2017	R70122913A	The introduction of Variation 5.
6	08 March 2018	R70156822A	The introduction of Variation 6
7	18 July 2018	R70162808A	The introduction of Variation 7
8	Inserted on Issue	R70188339A	The introduction of variation 8

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- The user/installer shall ensure that, when the luminaire is fitted with a previously certified plug or socket that has associated specific conditions of use, they shall take into account any restrictions or conditions for safe use that are applicable to these devices.

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 MANUFACTURE

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

17.2 Holders of EU-Type Examination certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

17.3 The following routine tests shall be performed on each product manufactured:

- The encapsulated parts of the apparatus shall be subjected to a visual inspection. No visible damage of the compound shall be evident, such as cracks, exposure of the encapsulated parts, flaking, impermissible shrinkage, discoloration, swelling decomposition or softening, as required by EN 60079-18:2015 Clause 9.1.
- For equipment rated in excess of 90 V peak, an electric strength test of $2U+1000$ V (where U is the supply voltage) with a minimum of 1500 V ac, shall be applied between circuit and casing for at least 1 minute, as required by EN 60079-7:2015, Clause 6.1. No breakdown shall occur.
- For equipment rated less than 90 V peak, and electric strength test of 500 V r.m.s. shall be applied between the circuit and the casing for at least 1 minute, as required by EN 60079-7:2015, Clause 6.1. No breakdown shall occur.

Alternatively a test at 1.2 times the test voltage may be applied for at least 100 ms.

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The test is also permitted to be conducted at a dc voltage of 140% of the specified ac r.m.s. test voltage.

- 17.4 The products covered by this certificate incorporate previously certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform Sira of any modifications of the devices that may impinge upon the explosion safety design of their products.
- 17.5 When the luminaire is fitted with a socket that has associated special conditions for safe use, the manufacturer shall take all reasonable steps to ensure that the user/installer complies with these conditions.
- 17.6 The manufacturer shall select suitable materials for accessories as defined on certified drawings LX-702 & LX-703.

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Certificate Annexe

Certificate Number: Sira 12ATEX3177X
Equipment: LX-XXX LinkEx LED Luminaires
Applicant: Wolf Safety Lamp Company Limited

Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
LX-701	1 of 1	1	29 May 12	LinkEx Compact GA
LX-710	1 of 1	1	29 May 12	LinkEx Compact 360 Assembly
LX-711	1 of 1	1	29 May 12	LinkEx Compact 180 Assembly
LX-802	1 to 2	1	29 May 12	HV Driver Potted Assembly
LX-804	1 of 1	1	29 May 12	LED Heatsink Assembly
LX-824	1 of 1	1	29 May 12	24V Driver Potted Assembly
LX-902	1 of 1	1	29 May 12	Schematic (HV)
LX-920	1 of 1	1	29 May 12	Potted Fuses
LX-924	1 of 1	1	29 May 12	Schematic 24V

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
LX-701	1 of 1	2	27 Nov 12	LinkEx Compact GA
LX-711	1 of 1	2	27 Nov 12	LinkEx Compact 180 Assembly
LX-802	1 to 2	2	26 Oct 12	HV Driver Potted Assembly
LX-804	1 of 1	2	26 Oct 12	LED Heatsink Assembly
LX-824	1 of 1	2	26 Oct 12	24V Driver Potted Assembly
LX-920	1 of 1	2	26 Oct 12	Potted Fuses
LX-924	1 of 1	2	26 Oct 12	Schematic 24V
LX-720	1 of 1	1	28 Nov 12	LED LinkEx – Accessory Clamp

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
LX-701	1 of 1	3	02 Dec 15	LinkEx Compact GA
LX-702	1 of 1	1	02 Dec 15	LinkEx Compact GA – MK2 Driver
LX-711	1 of 1	3	09 Dec 15	LinkEx Compact 180 Assembly
LX-803	1 of 1	1	30 Nov 15	LED LinkEx Compact HV MK2 Potted Driver Assembly
LX-825	1 of 1	1	30 Nov 15	LED LinkEx Compact LV MK2 Potted Driver Assembly
LX-903	1 to 2	1	30 Nov 15	LED LinkEx Compact HV MK2 Schematic
LX-925	1 to 3	1	30 Nov 15	LED LinkEx Compact LV MK2 Schematic

Issue 3 No new drawings were introduced.

Issue 4

Drawing	Sheets	Iss.	Date (Sira stamp)	Title
LX-701	1 of 1	4	30 Aug 16	LinkEx Compact GA - MK1 Driver
LX-702	1 of 1	2	23 Aug 16	LinkEx Compact GA - MK2 Driver
LX-803	1 of 1	2	23 Aug 16	LED LinkEx Compact HV MK2 Potted Driver Assembly
LX-804	1 of 1	4	23 Aug 16	LED Heatsink Assembly
LX-825	1 of 1	2	23 Aug 16	LED LinkEx Compact LV MK2 Potted Driver Assembly
LX-903	1 to 2	2	23 Aug 16	LED LinkEx Compact HV MK2 Schematic
LX-925	1 to 3	2	23 Aug 16	LED LinkEx Compact LV MK2 Schematic Control Cct

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Certificate Annexe

Certificate Number: Sira 12ATEX3177X
 Equipment: LX-XXX LinkEx LED Luminaires
 Applicant: Wolf Safety Lamp Company Limited

Issue 5

Drawing	Sheets	Iss.	Date (Sira stamp)	Title
LX-803	1 of 1	4	08 Aug 17	LED LinkEx Compact HV MK2 Potted Driver Assy
LX-825	1 of 1	3	08 Aug 17	LED LinkEx Compact LV MK2 Potted Driver Assy
LX-903	1 to 2	3	08 Aug 17	LED LinkEx Compact HV MK2 Schematic

Issue 6

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
LX-702	1 of 1	3	10 Jan 18	LinkEx Compact GA - MK2 Driver
LX-803	1 of 1	5	10 Jan 18	LED LinkEx Compact HV MK2 Potted Driver Assembly
LX-804	1 of 1	5	10 Jan 18	LED Heatsink Assembly
LX-825	1 of 1	4	10 Jan 18	LED LinkEx Compact LV MK2 Potted Driver Assembly
LX-903	1 of 2	4	10 Jan 18	LED LinkEx Compact HV MK2 Schematic

Issue 7

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
LX-703	1 of 1	1	31 May 18	LED LinkEx Emergency – GA
LX-805	1 of 2	1	10 Jul 18	LED LinkEx Emergency LV Potted Driver - Assembly
LX-805	2 of 2	1	10 Jul 18	LED LinkEx Emergency LV Potted Driver - Assembly
LX-806	1 of 1	1	10 Jul 18	LED LinkEx Emergency HV Potted Driver - Assembly
LX-806	1 of 1	1	10 Jul 18	LED LinkEx Emergency HV Potted Driver - Assembly
LX-807	1 of 1	1	10 Jul 18	LED LinkEx - Control PCB
LX-808	1 of 1	1	10 Jul 18	LED LinkEx Emergency – Battery Pack
LX-810	1 of 1	1	16 Jul 18	LED LinkEx Emergency Heatsink Assembly
LX-875	1 of 1	1	16 Jul 18	LED LinkEx Temperature Sensor
LX-904	1 of 1	1	31 May 18	LX-400E, 18-55 Volt input stage
LX-905	1 of 1	1	31 May 18	LX-400E, 90-264V input stage
LX-906	1 of 5	1	31 May 18	LX-400E, Top Level Interconnect complete system
LX-906	2 of 5	1	31 May 18	LX-400E, Control Board, Micro controller sub circuit
LX-906	3 of 5	1	31 May 18	LX400E, Control Board, Charger sub-circuit
LX-906	4 of 5	1	31 May 18	LX-400E, Control Board, LED Driver
LX-906	5 of 5	1	31 May 18	LX-400E, Control Board, Battery protection
LX-920	1 of 1	3	05 Jun 18	LinkEX Compact - Potted Fuses

Issue 8

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
LX-703	1 of 1	4	14 Feb 19	LED LinkEx Emergency - GA
LX-702	1 of 1	4	14 Feb 19	LinkEx Compact GA - MK2 Driver
LX-711	1 of 1	6	14 Feb 19	LinkEx Compact 180 Assembly
LX-904	1 of 1	2	14 Feb 19	LX-400E, 18-25 Volt Input Stage
LX-905	1 of 1	2	14 Feb 19	LX-400E, High Voltage Input Stage
LX-906	1 to 5	2	14 Feb 19	Battery Charger and LED Driver
LX-920	1 of 1	4	14 Feb 19	LinkEx Compact - Potted Fuses
LX-807	1 of 1	2	14 Feb 19	LED LinkEx - Control PCB
LX-808	1 of 1	2	14 Feb 19	LED LinkEx Emergency - Battery Pack

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