



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 07ATEX3043X** Issue: **1**

4 Equipment: **HDL105 Portable & Fixed Luminaires**

5 Applicant: **Hadar Lighting Limited**

6 Address: Jubilee Industrial Estate
Ashington
Northumberland
NE63 8UG
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 61241-0:2006
EN 60079-7:2007 EN 61241-1:2004
EN 60079-18:2004

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 emb II T* (-*°C to +*°C)

Ex embd IIC T* (-**°C to +**°C)

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

(Refer to certificate schedule for markings applicable to particular models)

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D R Stubbings BA MIET
Certification Manager



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Issue 1

DESCRIPTION OF EQUIPMENT

Full Product Coding

4 x 55 W, 36 W & 18 W CFL Standard Units:



II 2 G D

Ex emb II T3 (Ta = -20°C to +35°C)

Ex embd IIC T3 (Ta = -20°C to +35°C), with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 55 W, 36 W and 18 W CFL Standard Units:



II 2 G D

Ex emb II T3 (-20°C to +44°C)

Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 58 W, 2 x 36 W & 2 x 18 W T8 Standard Units:



II 2 G D

Ex emb II T4 (Ta = -20°C to +53°C)

Ex embd IIC T4 (Ta = -20°C to +53°C), with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 58 W, 2 x 36 W & 2 x 18 W T8 Emergency Units:



II 2 G D

Ex emb II T4 (Ta = -15°C to +53°C)

Ex embd IIC T4 (Ta = -15°C to +53°C) – with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 36 W and 2 x 18 W CFL Standard Units fitted with Voltage Booster:



II 2 G D

Ex emb II T3 (-20°C to +44°C)

Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 36 W and 2 x 18 W T8 Standard Units fitted with Voltage Booster:



II 2 G D

Ex emb II T3 (-20°C to +44°C)

Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets

Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C



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These Fluorescent Luminaires are suitable for portable lighting or for use in fixed installations, they are available as either a standard version (HDL105S) or an emergency version incorporating an integral battery (HDL105E). The luminaires comprise a clear, circular, polycarbonate lamp envelope with two polycarbonate end mouldings, these are 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/reflector, which is fabricated from steel or aluminium, two M6 screws and dowty washers are used to secure each end cap. A silicone gasket is fitted within a groove on each end cap, thus maintaining the IP66/67/68 (3 m for 30 minutes) ratings; note that when sockets are fitted, only IP66 is applicable. For portable luminaires only, a replaceable polyurethane moulding is attached to the end caps via 4 off M6 screws, which gives additional protection to the luminaire if dropped.

2xCFL Variants – These are suitable for use with 2 x 18, 36 or 55 W compact fluorescent lamps with 2G11 base, the gear tray/reflector contains one encapsulated ballast assembly complete with associated terminal blocks on one side and lamp supports on the other, this distributes light through 180°.

4xCFL Variants - These are suitable for use with 4 x 18, 36 or 55 W compact fluorescent lamps with 2G11 base, each side of the gear tray/reflector contains one encapsulated ballast assembly complete with associated terminal blocks and lamp supports, this distributes light through 360°.

2xT8 Variants – These are suitable for use with 2 x 18, 36 or 58 W T8 fluorescent lamps, either bi pin (G13 cap) or single pin (Fa6 cap), the gear tray/reflector contains one encapsulated ballast assembly complete with associated terminal blocks on one side and bi pin or single pin lampholders on the other side, this distributes light through 180°. On emergency versions, an encapsulated inverter, fuse and Ex e battery are also present alongside the ballast.

The ballast incorporates circuit design with lamp end of life detection, which complies with the requirements of IEC 60079-7 Edition 4, Annex H.

Cable entry holes for suitably ATEX or IECEx certified cable glands are provided in the end caps to facilitate through wiring of the luminaires.

The supply terminal block is either a Wago 262 series terminal block, Wago 264 series terminal block, a Weidmuller Type BK4 terminal block or a Weidmuller Type MK6 terminal block, certified under IECEx PTB 04.0004U, IECEx PTB 04.0003U, IECEx SIR 05.0035U and IECEx SIR 05.0037U respectively. All terminal blocks are coded Ex e II.

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 plugs and sockets may be fitted:

Manufacturer	Type Ref.	Coded	Certificate Number
Cooper Crouse-Hinds GmbH	Type GHG 51.R....	Ex ed [ia] IIC T6 or T5	IECEX BKI 04.0002
Cooper Crouse-Hinds GmbH	Type GHG 57.R....	Ex de IIC T6 Ex tD A21 IP66 T52°C	IECEX BKI 06.0005X
R. Stahl	Type 8591/...-...-....	Ex de IIC T6 Ex ia/ib IIC T6 Ex tD A21 IP66 T52°C	IECEX BKI 07.0001X
ATX	Type PCX	Ex ed IIC T6 or T5 Ex tD A21 IP66 T68°C	IECEX LCI 04.0014

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Sira Certification Service

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The standard and emergency luminaires are designed for use with an electrical supply of either 110 V to 254 V a.c. 50/60 Hz, 110 V to 130 V a.c. 50/60 Hz or 220 to 254 V 50/60 Hz a.c. 50/60 Hz. The standard luminaire is also suitable for used with d.c. voltages.

Options

- i. The Portable versions of the luminaires may be transported whilst energised. They are fitted with polyurethane mouldings to the end caps with lamp ratings:
 - 4 or 2 x 18 W Compact Fluorescent Lamps
 - 4 or 2 x 36 W Compact Fluorescent Lamps
 - 4 or 2 x 55 W Compact Fluorescent Lamps
- ii. Fixed installation luminaires, lamps ratings:
 - 4 or 2 x 18 W Compact Fluorescent Lamps
 - 4 or 2 x 36 W Compact Fluorescent Lamps
 - 4 or 2 x 55 W Compact Fluorescent Lamps
 - 2 x 18 W T8 Lamps Standard & Emergency Units
 - 2 x 36 W T8 Lamps Standard & Emergency Units
 - 2 x 55 W T8 Lamps Standard & Emergency Units
- iii. The HDL105 T8 lamp variants may be used as an emergency luminaires when fitted with a battery pack.
- iv. The HDL105 luminaires may be mounted in any attitude and are suitable for use with Unistrut or equivalent accessories. Alternatively, when used as a portable luminaire, a carrying strap can be fitted.
- v. The HDL105 luminaires are suitable for use with either T8 bi-pin or single pin lamps or compact fluorescent lamps.
- vi. The HDL105 luminaire may be fitted with certified plugs and sockets to the end caps.

Markings applicable to particular models

4 or 2 x 55 W, 36 W & 18 W CFL Standard Units:	Ex emb II T3 (Ta = -20°C to +35°C) Ex embd IIC T3 (Ta = -20°C to +35°C), with plugs & sockets Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C
2 x 55 W, 2 x 36 W & 2 x 18 W T8 Standard Units:	Ex emb II T3 (Ta = -20°C to +53°C) Ex embd IIC T3 (Ta = -20°C to +53°C), with plugs & sockets Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C
2 x 55 W, 2 x 36 W & 2 x 18 W T8 Emergency Units:	Ex emb II T4 (Ta = -15°C to +53°C) Ex embd IIC T4 (Ta = -20°C to +53°C) – with plugs & sockets Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C



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Variation 1 - This variation introduced the following changes:

- i. The correction of typographical errors in the equipment coding the equipment marking has been amended accordingly
- ii. The option of aluminium end caps to be fitted.
- iii. The option of the luminaires to be installed in areas of high mechanical risk when fitted with the aluminium end caps.
- iv. The 2 x 55 W, 36 W and 18 W compact fluorescent models to be coded as follows:

2 x 55 W, 36 W and 18 W CFL Standard Units:

Ex emb II T3 (-20°C to +44°C)
Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets
Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

- v. The option of an encapsulated voltage booster rated at 24 VDC or 48 VDC to be fitted to the 2 x 36 W and 2 x 18 W compact fluorescent models and the 2 x 36 W and 2x 18 W T8 models. When the voltage booster is fitted the coding changes as follows:

2 x 36 W and 18 W CFL Units fitted with Voltage Booster:

Ex emb II T3 (-20°C to +44°C)
Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets
Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

2 x 36 W and 18 W T8 Standard Units fitted with Voltage Booster:

Ex emb II T3 (-20°C to +44°C)
Ex embd IIC T3 (-20°C to +44°C) – with plugs & sockets
Ex tD A21 IP 66/IP 67/IP 68 (3 m for 30 minutes) T100°C

- vi. Addition of the following Plugs & Sockets:

Manufacturer	Type Ref.	Coded	Certificate Number
R. Stahl	Type 8570/...-.-.....	Ex de IIC T6 Ex de [ia] IIC T6 Ex tD A21 IP66 80°C	IECEx PTB 05.0023

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 June 2007	R51A16144A	The release of the prime certificate.
1	27 September 2007	R51A16926A	The introduction of Variation 1.

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- 15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)
- 15.1 The encapsulant has not been tested for resistance to moisture absorption because the enclosure is designed to maintain IP 66/67/68 (3 m for 30 minutes). The luminaire shall be installed such that the IP 66/67/68 (3 m for 30 minutes) ratings will be maintained.
- 15.2 The HDL105 Luminaires shall only be installed in areas of low mechanical risk when fitted with plastic end caps, although the lens of the luminaire is suitable for high impacts.
- 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 The following routine tests shall be performed on each product manufactured:
- i 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 60079-18:2004 Clause 7.1.
 - ii 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 60079-7:2003 Clause 6.1. No breakdown shall occur.
- 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.

Certificate Annexe

Certificate Number: Sira 07ATEX3043X
Equipment: HDL105 Portable & Fixed Luminaires
Applicant: Hadar Lighting Limited



Issue 0

Number	Sheet	Rev.	Date	Description
ALC0002	1 of 1	-	28 Jun 06	Ex e Increased Safety Bi Pin Lamp Holder
ALC0003	1 of 1	-	28 Jun 06	Ex e Encapsulated Fuse Assembly
ALC0004	1 of 1	-	28 Jun 06	Ex e Increased Safety Ni/Cd Battery Assembly
ALC0006	1 of 1	-	05 Jul 06	Ex m Encapsulated Ballast & Ballast/Inverter
ALC0008	1 of 2	0	20 Jun 07	HDL105S & HDL105E Increased Safety Luminaire
ALC0008	2 of 2	0	29 Jun 07	HDL105S & HDL105E Increased Safety Luminaire

Number	Sheet	Rev	Date	Description
ALC0006	1 of 3	1	26 Feb 07	Ex m Voltage Booster & Alternative Arrangement for Ballast
ALC0006	2 of 3	0	26 Feb 07	Ex m Voltage Booster & Alternative Arrangement for Ballast
ALC0006	3 of 3	0	26 Feb 07	Ex m Voltage Booster & Alternative Arrangement for Ballast
ALC0008	1 of 3	1	18 Jul 07	HDL105S & HD105E Ex e Fluorescent/Portable Luminaire
ALC0008	2 of 3	1	18 Jul 07	HDL105S & HD105E Ex e Fluorescent/Portable Luminaire
ALC0008	3 of 3	0	18 Jul 07	HDL105S & HD105E Ex e Fluorescent/Portable Luminaire

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