



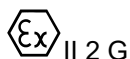
## EU Type Examination Certificate CML 16ATEX3026X Issue 2

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **Nimbus LED Driver NDU\*\***  
**Nimbus Emergency LED Driver NDEU\*\***  
**Nimbus LED Panel NIMBUS\*\***
- 3 Manufacturer **Abtech Ltd**
- 4 Address 199 Newhall Road  
Lower Don Valley  
Sheffield  
S9 2QJ  
United Kingdom
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Certification Management Limited, Unit 1 Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK, Notified Body Number 2503, 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 60079-0:2012:A11:2013 Corr 3    EN 60079-5:2015    EN 60079-7:2015  
EN 60079-11:2012

- 10 The equipment shall be marked with the following:

### Driver Modules

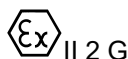


II 2 G

Ex eb [ib Gb] qb IIB T4 Gb

Ta= -20 °C ≤ Ta ≤ +45 °C

### LED Panel



II 2 G

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## 11 Description

The NIMBUS \*\* LED Panel is a range of various sized LED flat panels which are supplied by an intrinsically safe supply from the Nimbus Driver Unit (NDU).

The Nimbus LED Driver is designed to be supplied from a source voltage of between 90Vac and 250Vac 50/60Hz. The Abtech Zag aluminium enclosure comprises of two compartments, one containing a switch mode power supply and a LED driver circuit, which are protected by sand filling the void. The other compartment contains a terminal block to permit the connection of both the mains and the intrinsically safe output.

Intrinsic safety is provided by duplicated voltage and current trips that provide the following outputs:

Um	=	250Vac
Uo	=	13.5V
Io	=	2A
Co	=	0
Lo	=	0

Intrinsic safety of the Nimbus LED Driver is achieved by limiting energy storage and discharge, and by connecting to the non-hazardous area via the intrinsically safe LED Driver

The LED panel consists of an acrylic (PMMA) panel with an aluminium surround and a series of LED's which illuminate the acrylic panel. The panel can be laid into a modular ceiling or attached to a surface by means of fixing brackets or screws directly into the frame surround. The panel is connected to the NDU by means of a 2 core cable which is permanently attached to the panel. The Nimbus LED Panels come in four sizes:

Size (L x W) mm	Nominal Voltage	Nominal Power
150 x 150	12V	13W
300 x 300	12V	17W
600 x 275	12V	20W
600 x 300	12V	20W

Each version has the following input parameters:

Ui	=	13.5V
Ii	=	2A
Ci	=	0
Li	=	0

The NDU consists of an intrinsically safe LED driver pcb, housed in an enclosure which is protected by sand filling. The complete sand filled driver unit is housed in an Ex e component certified Abtech Zag aluminium enclosure under Sira 99ATEX3174U and IECEx SIR12.0116U.



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Termination for the mains input and the panel output supply is via a component certified Wago terminal block certified ATEX and IECEx under PTB 03ATEX1189U & IECEx PTB 05.0034U.

### **Emergency version:**

The Nimbus Emergency LED Driver NDEU\*\* is designed to be supplied from a source voltage of between 90Vac and 250Vac 50/60 Hz. The driver also incorporates the use of Saft type VTD70 Size D or Saft cell VNT D U HC Size D rechargeable nickel cadmium cells.

Termination for the mains input and the panel output supply as well as battery connections are connected via component certified BK 6/E terminal blocks certified ATEX and IECEx under Sira 01ATEX3247U and IECEx SIR 05.0035U.

### **Variation 1**

The following changes were implanted as part of this variation:

- i. The introduction of an emergency driver module version, which additionally includes the following changes to the original design:
  - Use of an alternate power supply with different input ratings.
  - Change of enclosures sizes
  - Addition of emergency power supply batteries.
  - Alternative terminal blocks

The product description, Conditions of manufacture and Conditions of Certification/Special Conditions of Safe Use have been modified to take into account the above changes.

### **Variation 2**

The following changes were implanted as part of this variation:

- i. To increase the upper ambient temperature limit from +40°C to +45°C.

## **12 Certificate history and evaluation reports**

<b>Issue</b>	<b>Date</b>	<b>Associated report</b>	<b>Notes</b>
0	01 July 2016	R329A/00	Issue of prime certificate.
1	07 Oct 2016	R1426A/00	Introduction of variation 1
2	28 Jun 2017	R2364A/00	Introduction of variation 2

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



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### **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. Each powder filled enclosure shall be subjected to a routine overpressure test at 50 kpa (0.5 bar) in accordance with EN 60079-5:2015, clause 5.2.1. for a minimum of 10 seconds. There shall be no permanent deformation exceeding 0.5 mm in any of its dimensions. Alternatively, bath testing in accordance with clause IEC / EN 60079-5:2015, clause 5.2.1 may be conducted.
- iii. Each batch of the filling material shall be subjected to a dielectric strength test in accordance with EN 60079-5:2015 clause 5.2.2 for a minimum of 60 seconds.
- iv. The panel, when assembled to the driver must be subjected to a routine electric strength test of 500 V in accordance with IEC 60079-11 clauses 6.3.13, 10.3 and 11.2.

### **14 Special Conditions for Safe Use (Conditions of Certification)**

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

- i. The cable supplied with the panel for connection to the Driver Unit has a maximum length of 4 metres and must not be lengthened. It may be cut to a required length to suit.
- ii. Only one Nimbus LED Panel may be connected to the Nimbus NDU / NDEU driver unit.
- iii. Nimbus \*\* LED Panel - Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces e.g. locate the equipment where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present. In addition, the equipment shall only be cleaned with a damp cloth.
- iv. Nimbus \*\* LED Panels – The enclosure is manufactured from aluminium. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.

# Certificate Annex



**Certificate Number** CML 16ATEX3026X  
**Equipment** Nimbus Emergency LED Driver NDEU\*\*  
**Manufacturer** Abtech Ltd

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

## Issue 0

Drawing No	Sheets	Rev	Approved date	Title
ABT28999	1 of 1	A	30/06/2016	NIMBUS Panel Label – Zone 1
ABT29000	1 of 1	A	30/06/2016	NIMBUS Driver Label – Zone 1
ABT30093	1 of 1	A	30/06/2016	ZAG 6 Assembly GA NIMBUS
ABT28933	1 of 1	A	30/06/2016	NIMBUS LED Panel Certification Drawing
ABT28503	1 of 1	B	30/06/2016	Intrinsically Safe Driver / Enclosure Certification Drawing
ABT28940	1 of 1	C	30/06/2016	Nimbus Sand filling instructions
ABT28498	1 of 3	B	30/06/2016	IS LED Driver Overview
ABT28499	2 of 3	A	30/06/2016	IS LED Driver Crowbar System
ABT28500	3 of 3	A	30/06/2016	IS LED Driver LED Driver
ABT28501	1 of 1	A	30/06/2016	IS LED Driver Parts List
ABT30864	1 of 1	A	30/06/2016	NIMBUS Driver - Top Component Layout
ABT30866	1 of 1	A	30/06/2016	NIMBUS Driver - Top Layout
ABT30867	1 of 1	A	30/06/2016	NIMBUS Driver - Bottom Layout
ABT30865	1 of 1	A	30/06/2016	NIMBUS Driver - Bottom Component Layout
ABTQ218	1 of 1	-	30/06/2016	Sand filling procedure

## Issue 1

Drawing No	Sheets	Rev	Approved date	Title
ABT30906	1 of 1	A	07 Oct 2016	Nimbus emergency label drawing (Z1)
ABT30360	1 of 1	A	07 Oct 2016	Nimbus emergency 27W driver enclosure certification drawing
ABT30361	1 of 1	A	07 Oct 2016	Nimbus emergency driver GA certification drawing
ABT30900	1 of 1	A	07 Oct 2016	Ex ec increase safety Ni/Cd battery assembly 6V 4Ah
ABT30891	1 of 1	A	07 Oct 2016	Nimbus emergency driver top component layout
ABT30889	1 of 1	A	07 Oct 2016	Nimbus emergency driver top layer
ABT30892	1 of 1	A	07 Oct 2016	Nimbus emergency driver bottom component layout
ABT30888	1 of 1	A	07 Oct 2016	Nimbus emergency driver bottom layer
ABT30890	1 of 1	A	07 Oct 2016	Nimbus emergency driver BOM
ABT28933	1 of 1	B	07 Oct 2016	Nimbus LED panel certification drawing – zone 1
ABT30886	1 to 5	1	07 Oct 2016	Emergency Nimbus Driver Board

## Certificate Annex



**Certificate Number** CML 16ATEX3026X  
**Equipment** Nimbus Emergency LED Driver NDEU\*\*  
**Manufacturer** Abtech Ltd

Drawing No	Sheets	Rev	Approved date	Title
ABT28503	1 of 1	B	07 Oct 2016	Intrinsically safe driver / enclosure certification drawing

### Issue 2

Drawing No	Sheets	Rev	Approved date	Title
ABT29000	1 of 1	C	28 Jun 2017	NIMBUS Driver Label – Zone 1
ABT30906	1 of 1	B	28 Jun 2017	Nimbus Emergency Label Drawing (Z1)
ABT28999	1 of 1	B	28 Jun 2017	NIMBUS Panel Label – Zone 1