

TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive
2014/34/EU

1. **Type Examination Certificate Number:** ITS18ATEX304055 Issue 01
2. **Product:**
Areamaster Generation 2 LED Luminaire, model: **AMLGxyzwBUm**
Areamaster High Lumen (HL) LED Luminaire, model: **AMLHxyzwBUm**
Baymaster LED Luminaire, model: **BLLxyzwNBUm**
Baymaster High Lumen (HL) LED luminaire, model: **BHLxyzwNBUm**
3. **Manufacturer:** Appleton Group LLC
4. **Address:** 9377 W Higgins Rd; Rosemont, IL 60018, USA
5. This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
6. Intertek Testing and Certification Limited, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of the products intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.
7. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11, EN 60079-7:2015, EN 60079-31:2014 except in respect of those requirements referred to within item 14 of the Schedule
8. If the sign "X" is placed after the certificate number, it indicates that the product is subject to the special conditions of use specified in the Schedule to this certificate.
9. This Type Examination Certificate relates only to the design of the specified product and not to specific items subsequently manufactured.
10. The marking of the product shall include the following:



II 3 G Ex ec IIC T3/T4/T5 Gc
II 3 D Ex tc IIIC T85°C/T100°C Dc
-40°C ≤ Ta ≤ +65°C
IP 66/67

Certification Officer: _____

P Moss

Date: _____

31st July 2019

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11. Description of Equipment or Protective System

The Areamaster Generation 2, Areamaster High Lumen (HL), Baymaster and the Baymaster High Lumen luminaires are made up of three main body parts, the driver housing, the LED array board(s) housing and the glass cover frame. The luminaires contain an IECEx certified LED driver (either 100W or 150W), LED array and AC/DC terminal blocks. Areamaster Generation 2/Baymaster models utilize 1 LED driver, while the Areamaster/Baymaster High Lumen (HL) models utilizes 2 LED drivers. Also, the Areamaster Generation 2/Baymaster model luminaires consist of 1 LED module, while the Areamaster/Baymaster High Lumen (HL) luminaires consist of 2 LED modules. The joints on the housing are sealed by a Silicone ring joined by vulcanization which is secured in position in a groove by RTV sealant or for the window an RTV (flexible one-piece Silicone bead) seal is secured in position using clips secured by screws.

The driver housing is comprised of a two-compartment construction, where construction one is the driver housing and compartment two is the integral wiring box. The driver housing is made from Cast Aluminum Alloy, provided with cooling fins on three of the external edges and across the top of the luminaire. The wiring compartment is supplied with two or three ¾-14 NPT threaded conduit entries (one or two sealed with a close-up plug). The cover to the wiring compartment is secured by four #8-32 x 7/8 cap pan head screws and sealed by a Silicone ring joined by vulcanization which is secured in position in a groove by RTV sealant. Inside the driver housing, the driver, wiring and terminal block(s) are secured by mechanical means.

The LED Array board housing is made from Cast Aluminum Alloy, with the external provided with cooling fins on three of the external edges. The array board housing is secured to the driver housing by four ¼-20 x 1-¼ cap hex head bolts and sealed by a Silicone ring joined by vulcanization which is secured in position in a groove by RTV sealant. Inside the array board housing, the LED array(s) is/are secured by mechanical means (via five or twelve 4-40 SS screws).

The glass cover frame is made from Cast Aluminum Alloy. The frame is fitted with either a clear or diffused (frosted) tempered low iron float glass lens, in either 174.24mm x 174.24mm or 231.14mm x 220.98mm size. The glass is secured with four #6-32 x ¼ pan SS screws and clips. The glass is additionally sealed with RTV. The frame is secured to the array board housing by four ¼-20 x 1-¼ cap hex head bolts and sealed by a Silicone ring joined by vulcanization which is secured in position in a groove by RTV sealant.

The only difference between the Areamaster Generation 2, Areamaster High Lumen, Baymaster, and the Baymaster High Lumen is the enclosure powder coating, where the Areamaster luminaires are bronze and Baymaster luminaires are gray in color.

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The model nomenclature for the Areamaster and Baymaster LED luminaires is shown below:

Areamaster Generation 2 Model Series AMLGxyzwBUm LED luminaire	Baymaster Model Series BLLxyzwNBUM LED luminaire
<p>Model code breakdown for AMLGxyzwBU:</p> <p>x = Lumens (L6=9000 lumens, L7=15000 Lumens or L8=19000 Lumens)</p> <p>y = Correlated Color Temperature – CCT (C=5000K, N=4000K or W=3000K)</p> <p>z = Glass Type (G=Clear Glass or F=Frosted Glass)</p> <p>w = Beam Pattern (6=(no optic) or 7=(with optic))</p> <p>m = Metric M20 adaptor option (M=M20 adaptor included)</p>	<p>Model code breakdown for BLLxyzwNBUM:</p> <p>x = Lumens (L6=9000 lumens, L7=15000 Lumens or L8=19000 Lumens)</p> <p>y = Correlated Color Temperature – CCT (C=5000K, N=4000K or W=3000K)</p> <p>z = Glass Type (G=Clear Glass or F=Frosted Glass)</p> <p>w = Beam Pattern (A=Aisle(with optic), M=Medium(no optic), W=Wide(with optic))</p> <p>m = Metric M20 adaptor option (M=M20 adaptor included)</p>
Note: Option L6 utilizes the 100W driver and L7 and L8 utilize the 150W driver.	

Areamaster High Lumen (HL) Model Series AMLHxyzwBUm LED luminaire	Baymaster High Lumen (HL) Model Series BHLxyzwNBUM LED luminaire
<p>Model code breakdown for AMLHxyzwBU:</p> <p>x = Lumens (L1=24000 lumens, L2=30000 Lumens or L3=38000 Lumens)</p> <p>y = Correlated Color Temperature – CCT (C=5000K, N=4000K or W=3000K)</p> <p>z = Glass Type (G=Clear Glass or F=Frosted Glass)</p> <p>w = Beam Pattern (3=Very Narrow (with Optic) 5=Narrow (with Optic) 6=(no optic) 7=wide (with optic))</p> <p>m = Metric M20 adaptor option (M=M20 adaptor included)</p>	<p>Model code breakdown for BHLxyzwNBUM:</p> <p>x = Lumens (L1=24000 lumens, L2=30000 Lumens or L3=38000 Lumens)</p> <p>y = Correlated Color Temperature – CCT (C=5000K, N=4000K or W=3000K)</p> <p>z = Glass Type (G=Clear Glass or F=Frosted Glass)</p> <p>w = Beam Pattern (W=Wide (with optic), M=Medium(no optic), N=Narrow (with optic) V=Very Narrow (with optic))</p> <p>m = Metric M20 adaptor option (M=M20 adaptor included)</p>
Note: Option L1 utilizes the 100W drivers and L2 and L3 utilize the 150W drivers.	

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Electrical parameters/ratings for the above luminaire models is shown below:

120 – 277 VAC, 50/60 Hz

125-300 VDC

150 W (max), 1.8A (max) for AMLG and BLL models

315 W (max), 2.7A (max) for AMLH and BHL models

Temperature codes assigned to each model type based on driver current is shown below:

Areamaster Generation 2 and Baymaster models for Gas/Dust atmospheres with the following light engines (LED arrays):

- LLOMAFF-A3N201A (3000K-W), LLOMAFF-A3N602A (5000K-A), LLOMAFF-A3N202A (3000K-A), LLOMAFF-A3N601A (5000K-W), LLOMAFF-A3N601B (5000K-no optic), LLOMAFF-A3N604A (5000K-S), or LLOMAFF-A3N204A (3000K-S), 59660049001 (5000K), 59660049002 (4000K), 59660049003 (3000K), 59660047001 (5000K), 59660047002 (4000K), 59660047003 (3000K)

Ambient temperature	Ex ec IIC			Ex tc IIIC		
	100W Driver	150W Driver		100W Driver	150W Driver	
	410mA	680mA	930mA	410mA	680mA	930mA
-40°C≤Ta≤+40°C	T5	T4	T3	T85°C	T85°C	T85°C
-40°C≤Ta≤+55°C	T4	T3	T3	T85°C	T85°C	T100°C
-40°C≤Ta≤+65°C	T4	T3	T3	T85°C	T100°C	T100°C

Areamaster High Lumen and Baymaster High Lumen models for Gas/Dust atmospheres with the following light engines (LED arrays):

- LLOMAGA-A4N601B (5000K-no optic), LLOMAGA-A4N601A (5000K-W), LLOMAGA-A4N201A (3000K-W), LLOMAGA-A4N604A (5000K-S), or LLOMAGA-A4N204A (3000K-S), 59660048001 (5000K), 59660048002 (4000K), 59660048003 (3000K), 59660046001 (5000K), 59660046002 (4000K), 59660046003 (3000K)

Ambient temperature	Ex ec IIC			Ex tc IIIC		
	100W Driver	150W Driver		100W Driver	150W Driver	
	530mA	680mA	915mA	530mA	680mA	915mA
-40°C≤Ta≤+40°C	T4	T4	T3	T85°C	T85°C	T85°C
-40°C≤Ta≤+55°C	T4	T4	T3	T85°C	T100°C	T100°C
-40°C≤Ta≤+65°C	T4	T3	--	T100°C	T100°C	--

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Areamaster High Lumen and Baymaster High Lumen models for Gas/Dust atmospheres where very narrow optic (3 x 3 beam) is used (AMLHxyz3BU and BHLxyzVNBV):

Ambient temperature	Ex ec IIC			Ex tc IIIC		
	100W Driver	150W Driver		100W Driver	150W Driver	
	530mA	680mA	915mA	530mA	680mA	915mA
-40°C≤Ta≤+40°C	T4	T4	T3	T100°C	T100°C	T100°C
-40°C≤Ta≤+55°C	T4	T4	T3	T100°C	T100°C	T100°C
-40°C≤Ta≤+65°C	T4	T3	--	T100°C	T100°C	--

12. Report Number

Intertek Report: 103941167DAL-002 Issue: 1 Dated: July 30, 2019.

13. Conditions of Certification

(a). Special Conditions of Use

- None

(b). Conditions of Manufacture - Routine Tests

- Routine Dielectric Strength testing of the LED luminaires per EN 60079-7:2015, Clause 7.1 is applicable. Dielectric strength shall be verified by test at the following test voltage and maintained for at least 1 min without dielectric breakdown occurring:
For other electrical equipment and Ex Components, where working voltages exceeding 90 V peak are present: (1 000 + 2U) V r.m.s. + 5/0 % or 1 500 V r.m.s. +5 0 %, whichever is greater, where U is the working voltage. The LED luminaire shall be tested as follows:

- Between inputs and ground (frame of the enclosure) – 1600V r.m.s.

Alternatively, a test shall be carried out at 1.2 times the test voltage, but maintained for at least 100ms.

- Where the equipment incorporates certified components, the manufacturer shall ensure that any changes to those components do not affect the compliance of the certified product that is the subject of this certificate.

14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) affected by this variation have been identified and assessed in Intertek Report: 103941167DAL-002 Issue: 1 Dated: July 30, 2019.

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15. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
COVER TERMINAL BOX CASTING AREAMASTER LED HIGH LUMEN	609160	N	10/25/2016
HOUSING HEATSINK CASTING AREAMASTER LED GEN 2.0	609172	L	8/23/2018
HOUSING DRIVER CASTING AREAMASTER LED GEN 2.0	609173	P	05/03/2017
COVER CASTING AREAMASTER LED GEN 2.0	609174	K	11/04/2016
CLEAR TEMPERED AR COATING GLASS AREAMASTER GEN 2	609204	E	06/27/2018
*AREAMASTER LED GEN 2.0	615044	E	06/19/2019
*NO MOUNT BAYMASTER LED GEN 2.0	615064	C	06/19/2019
DIFFUSED TEMPERED AR COATING GLASS AREAMASTER GEN 2	615025	D	06/27/2018
GASKET, O-RING DIA 0.26 AREAMASTER LED	615060	D	06/27/2018
GASKET SILICONE HOLLOW O-RING AREAMASTER LED	615057	C	06/27/2018
ZONE 2 RATED LED DRIVER (100W – BU VERSION)	299707455	05	06/01/2018
ZONE 2 RATED LED DRIVER (150W – BU VERSION)	299707456	05	06/01/2018
LED ENGINE – WIDE 3000K AREAMASTER LED – GEN 2	603278	D	11/20/2017
LED ENGINE – AISLE 5000K AREAMASTER LED – GEN 2	603279	D	11/20/2017
LED ENGINE – AISLE 3000K AREAMASTER LED – GEN 2	603280	D	11/20/2017
LED ENGINE - WIDE 5000K AREAMASTER LED – GEN 2	609175	D	11/20/2017
LED ARRAY – 5000K WITHOUT SECONDARY OPTICS AREAMASTER LED – GEN 2	609207	C	11/20/2017
LED ENGINE – AISLE WIDE 5000K AREAMASTER LED – GEN 2	615038	B	11/20/2017
LED ENGINE – AISLE WIDE 3000K AREAMASTER LED – GEN 2	615039	B	11/20/2017
AREAMASTER HIGH LUMEN ARRAY LAYOUT	634611	A	10/13/2017
AREAMASTER/BAYMASTER LED GEN2 LED ARRAY BOARD	637008	A	11/20/2017
THREADED PLUG – SQUARE RECESS	503712	C	10/31/2016
G5-3 FACTORY WIRING TERMINAL PHOENIX G5/3-EX-2703172	609194	C	10/25/2016
TERMINAL BLOCK PHOENIX UT-4, 3044	609197	C	08/23/2018
TERMINAL BLOCK PHOENIX UT4-PE 3044128	609198	C	08/23/2018
END CLAMP-CLIPFIX 35-5 PHOENIX #3022276	609199	B	10/25/2016
SHUNT PHOENIX CONTACT TYPE FBS 2-6 3030336	609196	B	07/17/2017

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SILICONE ADHESIVE/SEALANT RTV – GENERAL PURPOSE	669014	N	06/15/2018
CONDUCTIVE COMPOUND	669166	B	09/28/2017
AREAMASTER LED HIGH LUMEN AND GEN 2 NAMEPLATE LABEL	663474	E	12/11/2018
BAYMASTER LED HIGH LUMEN AND GEN 2 NAMEPLATE LABEL	663475	D	12/11/2018
*AREAMASTER LED HIGH LUMEN AND GEN 2 IECEX NAMEPLATE LABEL	663476	D	07/30/2019
*BAYMASTER LED HIGH LUMEN AND GEN 2 IECEX NAMEPLATE LABEL	663477	D	07/30/2019
SERIAL NUMBER NAMEPLATE	663570	A	10/2/2017
THERMAL PAD FOR AMLED GEN2 ZONE2	606204	C	01/04/2018
THERMAL PAD FOR AMLED HL ZONE2	606206	C	01/04/2018
COVER SUB ASSEMBLY AREAMASTER LED HIGH LUMEN	618367	A	07/17/2018
COVER SUB ASSEMBLY AREAMASTER LED GEN 2	618366	A	07/17/2018
HEATSINK HOUSING & GASKET SUBASSEMBLY AREAMASTER LED HIGH LUMEN	609254	B	09/04/2017
DRIVER HOUSING & GASKET SUBASSEMBLY AREAMASTER LED HIGH LUMEN	609255	B	09/04/2017
LED ENGINE SUBASSEMBLY AREAMASTER / BAYMASTER LED HIGH LUMEN	609257	C	12/22/2017
*NO MOUNT BAYMASTER LED HIGH LUMEN	609354	C	06/19/2019
*AREAMASTER LED HIGH LUMEN	615043	C	06/19/2019
Installation Instructions for Appleton Areamaster High Lumen LED Luminaire – Yoke Mount	650525-000	F	01/10/2019
Installation Instructions for Appleton Areamaster GEN 2 LED Luminaire – Yoke Mount	650525-001	E	01/10/2019
Installation Instructions for Appleton Baymaster HL LED Luminaire – No Mount	650547-000	D	01/10/2019
Installation Instructions for Appleton Baymaster LED Luminaire – No Mount	650547-001	D	01/10/2019
LED ENGINE – WIDE 3000K AREAMASTER LED – HIGH LUMEN	603270	D	11/20/2017
LED ENGINE – WIDE 5000K AREAMASTER LED – HIGH LUMEN	609165	D	11/20/2017
LED ENGINE – NARROW 3000K AREAMASTER LED – HIGH LUMEN	603271	D	11/20/2017
LED ENGINE – NARROW 5000K AREAMASTER LED – HIGH LUMEN	609166	D	11/20/2017

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LED ARRAY – 5000K WITHOUT SECONDARY OPTICS AREAMASTER LED – HIGH LUMEN	609206	C	11/20/2017
LED ENGINE – AISLE WIDE 5000K AREAMASTER LED – HIGH LUMEN	615036	B	11/20/2017
LED ENGINE – AISLE WIDE 3000K AREAMASTER LED – HIGH LUMEN	615037	B	11/20/2017
LED LENS 3X3 PATTERN BAYMASTER LED	615051	C	01/15/2018
3/4" NPT TO M20 REDUCER	609399	01	11/13/2018

*Note: An * is included before the title of documents that are new or revised.*

16. Details of Certificate changes Issue 1

Revision of the existing certificate is in order to add the following light engines (LED arrays) to the equipment construction:

- Areamaster Gen 2/Baymaster with light engine (LED array) 59660049001 (5000K), 59660049002 (4000K), 59660049003 (3000K)
- Areamaster Gen 2/Baymaster with light engine (LED array) 59660047001 (5000K), 59660047002 (4000K), 59660047003 (3000K)
- Areamaster/Baymaster LED High Lumen with light engine (LED array) 59660048001 (5000K), 59660048002 (4000K), 59660048003 (3000K)
- Areamaster/Baymaster LED High Lumen with light engine (LED array) 59660046001 (5000K), 59660046002 (4000K), 59660046003 (3000K)

All light engines (LED arrays) have been evaluated with secondary LED array optics (lens).

Also, the above specified LED array models introduce 4000K color temperature option to the luminaire construction.