



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEX SIR 17.0085X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 6	Issue 5 (2020-09-24)
Date of Issue:	2021-06-16		Issue 4 (2020-04-03)
Applicant:	Appleton Group LLC 9377 West Higgins Road Rosemont, IL 60018 United States of America		Issue 3 (2019-02-08)
Equipment:	Mercmaster LED Generation 3 Luminaires and Mercmaster LED Low Profile Luminaires		
Optional accessory:			
Type of Protection:	Increased Safety ec, Optical Isolation and Dust Protection by Enclosure tb and tc		
Marking:	Ex tb IIIC T*°C Db Ex ec IIC T* Gc Ex tc IIIC T*°C Dc * Refer to ambient range table which is contained in the Annexe		

Approved for issue on behalf of the IECEx
Certification Body:

Neil Jones

Position:

Certification Manager

Signature:
(for printed version)

Date:

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Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom





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Date of issue: 2021-06-16

Issue No: 6

Manufacturer: **Appleton Group LLC**
9377 West Higgins Road
Rosemont
Illinois 60018
United States of America

Additional manufacturing locations: **EGS Mexico S. de R.L. de C.V.**
Via Monterrey Matamoros no. 598 Parque Industrial
Milenium C.P. 66626 Apodaca
Mexico

Emerson
Emerson Street No. 4
Parc Industrial Tetarom 2
Cluj Napoca, 400641
Romania

Emerson Climate Technologies Arabia
Building No. 7874 Unit No. 1
Dammam 34332-3620
Saudi Arabia

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/CSAE/ExTR21.0008/00](#)
[GB/SIR/ExTR19.0023/00](#)

[GB/SIR/ExTR17.0265/00](#)
[GB/SIR/ExTR20.0069/00](#)

[GB/SIR/ExTR18.0195/00](#)
[GB/SIR/ExTR20.0112/00](#)

Quality Assessment Report:

[FR/LCI/QAR07.0008/16](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Mercmaster LED Generation 3 Luminaires (MLG, MLGX) and Mercmaster LED Low Profile Luminaires (MLLED, MLT) are intended to be used in Zone 2, 21 & 22 classified hazardous locations. The LED Luminaires have metallic enclosures with joints containing gaskets and are suitable for indoor & outdoor use, down light, pole mounted & stanchion applications and are designed to operate within voltages 120-277 VAC, 50/60 Hz, 125-300 VDC. They are offered with below lumen levels:

They are offered with lumen levels shown in the Annexe.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Mercmaster LED Series Luminaires with clear and diffused polycarbonate globes may generate ignition capable levels of electrostatic charge. When installing the equipment in a location where external conditions are conducive to the build-up of electrostatic charge on the plastic surface, the equipment shall only be cleaned with a damp cloth and the instructions in the manual followed.



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Date of issue: 2021-06-16

Issue No: 6

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, Issue 6, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Add two additional non-metallic materials for the clear and diffused lenses/globes used for the equipment. The two polycarbonate materials are Makrolon 2407 and Makrolon 2607 manufactured by Covestro.

Annex:

[IECEX SIR 17.0085X Issue 6 Annexe_1.pdf](#)

Rating

Mercmaster LED Generation 3 Luminaires with driver:

- APMS050C135UD: Input: 120-277 VAC 50/60 Hz, 125-300 VDC
Output: 22-56 VDC at 0.45-1.35 A (50 W)
- APMS100C105UD: Input: 120-277 VAC 50/60 Hz, 125-300 VDC,
Output: 57-150 VDC at 0.45-1.05 A (100 W)
- APMS150C105UD: Input: 120-277 VAC 50/60 Hz, 125-300 VDC,
Output: 86-214 VDC at 0.45-1.05 A (150 W)

Mercmaster LED Low Profile Luminaires:

- APMS050C135UD: Input: 120-277 VAC 50/60 Hz, 125-300 VDC,
Output: 22-56 VDC at 0.45-1.35 A (50 W)

Ambient Temperature ranges:

Mercmaster LED Generation 3 Luminaires – Little Primo:

Ambient Temperature	EPL	Model Number/MaxDriver Output			
		MLG* L3**** BU 550 mA	MLG* L5**** BU 860 mA	MLG* L7**** BU * 390 mA	MLG* L9**** BU 480 mA
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Gc	T4	T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		T4	T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}^{\dagger}$		T4	T3	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}^{\dagger}$		-	-	T4	-
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Db, Dc	81°C	81°C	81°C	81°C
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		88°C	88°C	88°C	88°C
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}^{\dagger}$		94°C	94°C	94°C	94°C
$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}^{\dagger}$		-	-	99°C	-

Mercmaster LED Generation 3 Luminaires – Big Primo:

Ambient Temperature	EPL	Model Number/Max Driver Output			
		MLG* H9**** B U* 480 mA	MLG* H1**** B U* 595 mA	MLG* H3**** BU 720 mA	MLG* H6**** BU 900 mA
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Gc	T4	T3	T3	T3
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		T3	T3	T3	T3
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}^{\dagger}$		T3	T3	T3	T3
$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}^{\dagger}$		T3	T3	-	-
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Db, Dc	61°C	64°C	66°C	71°C
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		74°C	77°C	79°C	84°C
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}^{\dagger}$		83°C	83°C	86°C	95°C
$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}^{\dagger}$		88°C	88°C	-	-



Mercmaster LED Generation 3 Luminaires – Big Primo (MLGX):

Ambient Temperature	EPL	Model Number/Max Driver Output	
		MLG* X1**** BU 1040 mA	MLG* X5**** BU 1300 mA
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Gc	T3	T3
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		T3	T3
$-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}^1$		T3	-
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Db, Dc	82°C	92°C
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		102°C	104°C
$-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}^1$		102°C	-

Mercmaster LED Low Profile Luminaire:

Ambient Temperature	EPL	Model Number/Max Driver Output		
		MLLED* 2*** BU/720 mA	MLLED* 3*** BU/1000 mA	MLLED* 4*** BU/1300 mA
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Gc	T5	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		T5	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$		T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Dc	66°C	66°C	66°C
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		79°C	79°C	79°C
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$		88°C	88°C	88°C

Mercmaster LED Low Profile Luminaires MLT:

Ambient Temperature	EPL	Model Number/Max Driver Output		
		MLT* L3**** BU 780 mA	MLT* L4**** BU 780 mA	MLT* L5**** BU 780 mA
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Gc	T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$		T4	T4	T4
$-40^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	EPL Db, Dc	82°C	82°C	82°C
$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$		82°C	82°C	82°C
$-40^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$		82°C	82°C	82°C

1 - For MLG* L7, MLG* L9, MLG* H9, MLG* H1, MLG* H3, MLG* H6 and MLG* X1 with voltage range of 125 VDC to 169 VDC operating temperature range is -40°C to $+55^{\circ}\text{C}$.

Mercmaster LED Generation 3 Luminaires (MLG, MLGX) and Mercmaster LED Low Profile Luminaires (MLLED, MLT) are intended to be used in Zone 2, 21 & 22 classified hazardous locations. The LED Luminaires have metallic enclosures with joints containing gaskets and are suitable for indoor & outdoor use, down light, pole mounted & stanchion applications and are designed to operate within voltages 120-277 VAC, 50/60 Hz, 125-300 VDC. They are offered with below lumen levels:

Mercmaster LED Generation 3 Luminaires (MLG)	
Nominal Lumens	Model Number
3500	MLGL3
5500	MLGL5
7500	MLGL7
9500	MLGL9
9500	MLGH9
11,500	MLGH1
13,500	MLGH3
16,000	MLGH6
20000	MLGX1
25000	MLGX5

Annexe to: IECEx SIR 17.0085X Issue 6

Applicant: Appleton Group LLC

Apparatus: Mercmaster LED Series Luminaires:



Mercmaster LED Low Profile Luminaires (MLLED, MLT)	
Nominal Lumens	Model Number
3000	MLLED2
4000	MLLED3
5000	MLLED4
3500	MLTL3
4500	MLTL4
5500	MLTL5

Project Model Numbers

Generation 3, Little Primo, Big Primo – MLG:

Catalogue number MLG may be followed by A, C, R, S, T or W, followed by L3, L5, L7, L9, H9, H1, H3, H6, X1 or X5, may be followed by 2, 3, 4, 5 or 6 followed by C, M, N, R or W, may be followed by D, G or P, may be followed by 1, 3, 5 or W, followed by BU, optionally may be followed by A.

Mercmaster LED Low Profile Luminaires – MLLED:

Cat. No. MLLED, may be followed by A, C, R, S, T or W, followed by 2, 3, or 4, may be followed by 2, 3, 4, 5 or 6, followed by C, N or W, may be followed by P5, D5 or G5, followed by BU.

Mercmaster LED LT Luminaires – MLT:

Cat. No. MLT, may be followed by A, C, R, S, T or W, followed by L3, L4 or L5, may be followed by 2, 3, 4, 5 or 6, followed by C, M, N, R or W, followed by D, G or P, followed by 1, 3, 4 or W, followed by BU.

Conditions of Manufacture

1. 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 CSA/Sira of any modifications of the devices that may impinge upon the explosion safety design of their products.
2. In accordance with IEC 60079-7:2017 clause 7.1, each manufactured sample of the equipment shall be subjected to an electric strength test using a test voltage of $2U+1000V$ rms for 60 seconds between input and ground wire. Alternatively, a voltage of 20% higher may be applied for 1s. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.

Date: 16 June 2021

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Annexe to: IECEx SIR 17.0085X Issue 6

Applicant: Appleton Group LLC

Apparatus: Mercmaster LED Series Luminaires:



Full Certificate change history

Issue 1 – this Issue introduced the following change:

1. Certificate re-issued to correct a typographical error in the Ambient Temperature range tables.

Issue 2 - this Issue introduced the following changes:

1. The introduction of an additional manufacturing location: Emerson, Emerson Street No. 4, Parc Industrial Tetarom 2, Cluj Napoca, 400641, Romania, was recognized.
2. Assessment of minor drawing modifications, the correction of notes, which are included for clarification/correction only.

Issue 3 - this Issue introduced the following changes:

1. The introduction of an additional DC Input rating (125-169 VDC)
2. Minor modifications in nomenclature of the product.

Issue 4 - this Issue introduced the following changes:

1. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, the previously listed standard is replaced as follows: IEC 60079-0:2011 Edition 6 is replaced by IEC 60079-0:2017 Edition 7
2. Add an alternate construction for the Little Primo and Big Primo LED Luminaires to include a modified Driver Housing part and additional terminal block.
3. Add a new high lumen version of the Big Primo LED Luminaire by adding a second driver to the construction.
4. Add an external metallic visor as an optional accessory.
5. Add an alternate supplier of LED chip components (Nichia) for the 36 and 51 LED arrays.
6. Add 3500 K CCT and 4500 K CCT LED components.
7. Add high ambient temperature variants based on extrapolation.
8. Removal of OP IS type of protection and applicable standard IEC 60079-28:2015.
9. Add a new high lumen version of the Mercmaster LED Low Profile luminaire (series MLT) by installing the 36 LED array already in use in the Little Primo.
10. Recognition of minor drawing amendments, none of which affect compliance with the standards.
11. The description was amended to reflect the above changes.

Issue 5 - this Issue introduced the following changes:

1. The introduction of an additional manufacturing location in Saudi Arabia.
2. Recognition of minor drawing amendments, none of which affect compliance with the standards.
3. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, the previously listed standard is replaced as follows: IEC 60079-7:2015 Edition 5 is replaced by IEC 60079-7:2017 Edition 5.1.

Issue 6 - this Issue introduced the following changes:

1. Add two additional non-metallic materials for the clear and diffused lenses/globes used for the equipment. The two polycarbonate materials are Makrolon 2407 and Makrolon 2607 manufactured by Covestro.

Date: 16 June 2021

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