FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: **781 762 4300** F: 781-762-9375 www.fmapprovals.com

Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

I.

RF-a/b. RF-6HA & RF-8HA Series
NI/I/2/ABCD/T6 Ta = +54 ºC; T5 Ta = +65 ºC; T4A Ta = +85 ºC
NI/I/2/IIC/T6 Ta = +54 ºC; T5 Ta = +65 ºC

a = PCB Type: 6HA or 8HA
b = LED Array: 1x4, 1x6 or 3x4

	LED Flasher	*Feature*	*Input*	*Regulated In*	*LEDs*
(1)	8084-0018G,W,Y,R,B, (RF6/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(2)	8084-0018GP,WP,YP,RP,BP, (RF6/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(3)	8084-0020B,G,R,Y,W, (RF6/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(4)	8084-0020BP,GP,RP,YP,WP, (RF6/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(5)	8084-0024B,G,R,Y,W, (RF8/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(6)	8084-0024BP,GP,RP,YP,WP, (RF8/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(7)	8084-0025G,W,Y,R,B, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(8)	8084-0025GP,WP,YP,RP,BP, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place

	LED Flasher	Feature	Input	Regulated In	LEDs
(9)	8084-0042R, (RF8/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(10)	8084-0055G,W,Y,R,B, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(11)	8084-0055GP,WP,YP,RP,BP, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(12)	8084-0057B,G,R,Y,W, (RF8/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(13)	8084-0057BP,GP,RP,YP,WP, (RF8/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(14)	8084-0061B,G,R,W,Y, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(15)	8084-0061BP,GP,RP,WP,YP, (RF8/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(16)	8084-0063G,W,Y,R,B, (RF6/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(17)	8084-0063GP,WP,YP,RP,BP, (RF6/1X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	4-Place
(18)	8084-0072B,G,R,Y,W, (RF6/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(19)	8084-0072BP,GP,RP,YP,WP, (RF6/3X4)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	12-Place
(20)	8084-0108B,G,R,W,Y,W-CR, (RF6/1X6)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	6-Place
(21)	8084-0108BP,GP,RP,WP,YP, (RF6/1X6)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	6-Place
(22)	8084-0109B,G,R,W,Y, (RF8/1X6)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	6-Place
(23)	8084-0109BP,GP,RP,WP,YP, (RF8/1X6)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	6-Place
(24)	8084-0134B,G,R,W,Y, (RF6/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place
(25)	8084-0134BC,GC,RC,WC,YC, (RF6/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place
(26)	8084-0134BP,GP,RP,WP,YP, (RF6/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place
(27)	8084-0135B,G,R,W,Y, (RF8/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place
(28)	8084-0135BC,GC,RC,WC,YC, (RF8/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place
(29)	8084-0135BP,GP,RP,WP,YP, (RF8/1X8)	RS-232/RS-485	10-30 VDC	6.4 W (avg.)	8-Place

Special Conditions of Use:

1. *Shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover.*
2. *May be installed in FA-249 and FA-250 Series Lanterns with Fresnel Lens.*

II.

GOM Model. Retrofit LED LR Light Engine (1x6x4) Series.
NI/I/2/ABCD/T6 Ta ≤ +49 ºC/T5 Ta ≤ +64 ºC/T4A Ta ≤ +84 ºC; IP56
NI/I/2/IIC/T6 Ta ≤ +49 ºC/T5 Ta ≤ +64 ºC; IP56

GOM-abc.
a = PCB Type: 8HA
b = LED Array: 1x6x4
c = Power: 4 W, 6 W, 8 W, 11 W, 12 W, 14.5 W, 16.8 W or 19.2 W

Special Conditions of Use:
1. *Shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover.*
2. *Consideration to the heating condition of the LED arrays is to be taken for determining the Temperature Class of the final assembly enclosure to which the equipment is installed.*

III.

FA-249HAa. FA-249HAa Gimbaled Light Engine Series.
FA-250HAa. FA-250HAa L-864 Light Engine Series.
NI/I/2/ABCD/T*; IP56
NI/I/2/IIC/T*; IP56

a = LED assembly: (see below)
*** = Only available for FA250 series*

	LED Assembly	*Average Power (W)*	*T-Code*	*Tamb Max (°C)*
(1)	1X6X4	18 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(2)	1X6X8**	49.6 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(3)	1X6X12**	81.6 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(4)	1X9X4	18 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(5)	1X9X8**	49.6 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(6)	1X9X12**	81.6 W (avg.)	T4A	+48.5 °C
			T4	+63.5 °C
(7)	1X16X4	42.6 W (avg.)	T4A (T4)	+68 °C
			T5	+49 °C
(8)	1X16X8**	85.2 W (avg.)	T4A (T4)	+60 °C
			T5	+42 °C
(9)	1X16X12**	85.2 W (avg.)	T4A (T4)	+60 °C
			T5	+42 °C
(10)	1X18X4	51.1 W (avg.)	T4A (T4)	+68 °C
			T5	+49 °C

	LED Assembly	Average Power (W)	T-Code	Tamb Max (°C)
(11)	1X18X8**	85.2 W (avg.)	T4A (T4)	+62 °C
			T5	+42 °C
(12)	1X18X12**	85.2 W (avg.)	T4A (T4)	+62 °C
			T5	+42 °C
(13)	1X22X4	51.1 W (avg.)	T4A (T4)	+63 °C
			T5	+43 °C

Special Conditions of Use:

1. *Shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover.*
2. *Consideration to the heating condition of the LED arrays is to be taken for determining the Temperature Class of the final assembly enclosure to which the equipment is installed.*

FM Approvals®

Member of the FM Global Group

Equipment Ratings:

I.

Nonincendive for use in Class I, Division 2, Groups A, B, C & D, and Class I, Zone 2, Group IIC, Hazardous (Classified) Locations

II.

Nonincendive for use in Class I, Division 2, Groups A, B, C & D, and Class I, Zone 2, Group IIC, IP56, Hazardous (Classified) Locations

III.

Nonincendive for use in Class I, Division 2, Groups A, B, C & D, and Class I, Zone 2, Group IIC, IP56, Hazardous (Classified) Locations

FM Approved for:

Pharos Marine Automatic Power Inc.
10810 West Little York Road, Suite 130
Houston, TX 77041-4051
United States

FM Approvals

Member of the FM Global Group

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	2011
Class 3611	2004
Class 3810	2005
ANSI/ISA 61010-1	2004

Original Project ID: 3020528 Approval Granted: April 12, 2005

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
061214	February 1, 2007		
3033871	August 11, 2008		
090320	April 9, 2009		
3043687	October 26, 2011		
3043121	December 2, 2011		
120815	October 11, 2012		

FM Approvals LLC

J. E. Marquedant
Group Manager, Electrical

11 October 2012
Date

U.S. Department of Homeland Security

United States Coast Guard

Commandant (CG-54131)
United States Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001

Phone: (202) 372-1546
Fax: (202) 372-1931
Email:erik.s.anderson@uscg.mil

16500

NOV - 1 2007

Mr. Steve Trenchard
Automatic Power, Inc.
213 Hutchenson St
Houston, TX 77223-0738

Dear Mr. Trenchard:

This is in response to your letter of October 12, 2007 requesting Coast Guard approval of your 250 LED LR and FA-249 LED Gimbaled lanterns for use on Class A structures in the 8th Coast Guard District.

Based on the test data provided in your report, the white 250 LED LR and FA-249 LED Gimbaled lanterns using the LED 1x6 4 watt, operating at an input power of 4.0 watts with a Quick Flash rhythm (0.3 seconds ON) will provide a minimum effective intensity of 144 candela, satisfying the requirements of 125 candela for class "A" structures.

As a result, API is authorized to identify the white 250 LED LR and FA-249 LED Gimbaled lanterns using the LED 1x6 4 watt, operating at an input power of 4.0 watts as being **"U. S. Coast Guard Approved"** for Class "A" structures when operated under the jurisdiction of the 8th Coast Guard District.

Sincerely,

E. S. ANDERSON
Commander, U. S. Coast Guard
Chief, Visual Navigation Branch
By direction

Post-it® Fax Note 7671	Date 12-3	# of pages ▶ 1
To ALAN T	From TONY F	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 713-228-3717	Fax # 757-220-8166	