



Marine & Offshore

Certificate number: 42947/B0 BV

File number: LSA 2477/2

Product code: 6004H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

*This certificate is issued to***ACR ELECTRONICS INC.**

Fort Lauderdale, FL - UNITED STATES OF AMERICA

*for the type of product***LIFEJACKET LIGHTS**

Firefly Pro Waterbug Light

Requirements:

SOLAS 74 Convention, as amended, Regulations III/4, III/7, III/22, III/26, III/32, III/34, X/3
 IMO Res. MSC.48(66) -(LSA Code)- amended by MSC.207(81), MSC.218(82), MSC.272(85), MSC.293(87), MSC.320(89),
 MSC.368(93), MSC.425(98) and MSC.459(101) I, VI
 IMO Res. MSC.36(63) -(1994 HSC Code)- as amended, 8
 IMO Res. MSC.97(73) -(2000 HSC Code)- as amended, 8
 IMO Res. MSC.81(70) amended by MSC.200(80), MSC.226(82), MSC.274(85), MSC.295(87), MSC.321(89), MSC.323(89),
 MSC.378(93), MSC.427(98) and MSC.472(101)
 MSC.1/Circ.1628

Transport Canada Requirements:

Transport Canada Life Saving Equipment Regulations, TP14475 and TP14612

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.***This certificate will expire on: 23 Aug 2026****For Bureau Veritas Marine & Offshore,**

At BV PORT EVERGLADES CENTRE, on 01 Oct 2021,

Flavio Rosas



This certificate is recognized by Transport Canada

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Trademark	ACR Electronics Inc.	ACR Electronics Inc.
Type	FIREFLY PRO SOLAS	FIREFLY PRO Waterbug
P/N	3970.3 (Carded) / 3970.4(Bulk)	3971.3 (Carded) / 3971.4(Bulk)

Dimensions	Weight without batteries
11.7cm X 5.7 cm X 2.8 cm	68g

As per the information transmitted by the applicant.

2. DOCUMENTS AND DRAWINGS :

- Manufacturer's specification and drawings:

Code	Title	Revision	Date
A3-06-2806	Final Assembly MS-2000 LED	D	04/24/17
A1-18-2337	Main Housing Decal, MS-2000 LED	F	04/08/16
A1-15-0276	Housing, Main	V	04/04/17
A1-20-1733	Decal Artwork, Front Side MS-2000 LED	A	10/07/13
A1-20-1734	Decal Artwork, Back Side Housing MS-2000 LED	K	04/15/21
A1-05-0630	Ultrasonic Insert	A	08/08/94
A1-05-0001	"O" Ring	CG	06/23/21
A2-09-0087	Lubrificant, Silicone	A	04/29/97
A1-17-1235	External Water Contact	C	09/20/04
A3-06-2777	PCB Assembly, Complete MS-2000 LED	D	07/24/15
A1-18-1532	Lens, Dome	C3	03/07/08
A3-06-1964	Battery Door Assembly	L	12/02/09
A1-17-1246	Switch Plate	D1	10/02/02
A3-06-1965	Switch Assembly	C	02/20/03
A1-18-1331	Switch Stop	M	03/31/21
A3-06-2691	Lanyard, Cut, Tied, Double Overhand Knot	D	11/05/15
A1-20-1746	Label, MFGDate	A	11/27/13
A1-18-0688	Fastener Hook Velcro, Modified	K	11/15/13
A1-20-1963	Label Artwork, Back Side Housing, MS-2000 LED	B	04/13/21

- Manuals for installation, use and maintenance.

No departure from the drawings shall be made without the prior consent of the Society.

3. TEST REPORTS :

Date	Test report	
08/12/2016	19833-2B	Solas Certification Tests for MS-2000 With LED Light Source and Water Activated Switch
08/12/2016	19833-3B	Solas Certification Tests for MS-2000 With LED Light Source and Manual Activation Switch
04/05/2004	16437-1	Solas Approval Tests of Firefly 3

Type tests have been performed with following batteries:

Manufacturer	Energizer
Item Number	ENERGIZER E91
Designation	ANSI-15A, IEC-LR6

4. APPLICATION / LIMITATION :

- The scope of the appraisal made by Bureau Veritas to issue this certificate is strictly restricted to the relevant requirements stated on the front page of this certificate.
- Application/limitation as per products description and requirements stated on front page of this certificate.
- Instructions are to be provided on how to attach the light.
- Attachment and operating instructions shall be supplied in a format suitable for insertion into the vessel's training manual.
- Position-indicating lights for lifejackets using disposable batteries as power source, batteries shall be changed annually.
- Each Position-indicating lights for lifejackets will be supplied with its instructions for use, inspections and on-board maintenance complying with Regulations stated on the front page of this certificate.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - Position Indicating Lights are to be supplied by **ACR Electronics, Inc, USA** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **ACR Electronics, Inc, USA** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

The manufacturer shall institute a quality control procedure to ensure that position indicating Lights are produced to the same standard as the approved prototype and shall keep records of any production tests carried out in accordance with instructions given in IMO Resolution MSC.81 (70) Part 2.

Each equipment, or batch of equipment, is to be supplied with its Manual(s) for Installation, use & maintenance

5.4 - For information, **ACR Electronics, Inc, USA** has declared to Bureau Veritas the following production site(s):

ACR Electronics Inc.
5757 Ravenswood Road
Fort Lauderdale, FL, 33312

6. MARKING OF PRODUCT :

Brief instructions or diagrams clearly illustrating the use of the Position-indicating lights for lifejacket shall be printed on the casing.

Position-indicating lights for lifejackets using disposable batteries as the power source, the words "CHANGE BATTERIES ANNUALLY" shall be permanently and legibly marked on each light.

All necessary markings shall be in English and French.

The signal body shall bear the following marks:

- Trade name or logo
- Date of manufacture (also to be considered as the lot or batch number) and date of expiry
- SOLAS approved
- BV TAC number : 42947/B0 BV

7. OTHERS :

It is **ACR Electronics, Inc, USA** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

This certificate supersedes the previous Type Approval Certificate N° 42947/A2 BV issued on 14/08/2019 by the Society.

***** END OF CERTIFICATE *****