

1 EU - Type Examination Certificate

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: ExVeritas 16 ATEX 0187X Issue: 0

4 Equipment: TD PM Lighting Segment

5 Manufacturer: Pharos Marine Ltd

6 Address: 6 Steyning Way,
Hounslow
Middlesex.
TW4 6DL

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 ExVeritas, Notified Body number 2585 in accordance with Article 9 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:

EN 60079-0: 2012+A11:2013 EN 60079-7: 2015 EN 60079-11: 2012
EN 60079-18: 2015 EN 60079-28: 2015

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

 II 2 G Ex eb ib mb op is IIB T4 Gb -40°C ≤ Tamb ≤ +55°C



No. 8613

On behalf of ExVeritas

S Clarke CEng MSc MIET
Certification Manager

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The certificate is only valid when it carries an original signature.

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ExVeritas, Units 16-18, Abenbury Way, Wrexham Industrial Estate, Wrexham, United Kingdom LL13 9UZ.

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Schedule

13 Description of Equipment or Protective System

The TD/PM lighting segments consist of groups of either yellow or green LED elements, with either two or three LED's in each segment. The LED elements are mounted on laminated aluminium deck plates, which along with the segments and subsections are friction coated/painted.

The segments and subsections are fully encapsulated Ex "mb" LED driver boards, which supply an intrinsically Ex ib safe LED circuit. They are pre-mounted to the laminated aluminium base plate and internally connected to a junction box, which is mounted on the helideck. The segments and subsections are electrically connected through the laminated aluminium base plates using an integrated Ex "eb" terminal housing.

The enclosure provides an ingress protection rating of IP66/67.

14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R0891/A/2	28-03-2017	0	Initial issue of the Prime Certificate

14.2 Compliance Drawings:

Issue 0

Number	Date	Issue	Description
TDPM-EX-01-CERT-03	13/03/2017	1	Segment – General Arrangement Pages 1 to 5
TDPM-EX-01-CERT-04	13/03/2017	1	Interplate JB - General Arrangement Pages 1 to 2
TDPM-EX-01-CERT-05	13/03/2017	1	Terminal Lid Insert - General Arrangement Page 1 of 1
TDPM-EX-01-CERT-06	13/03/2017	1	Lid Support (JB) - General Arrangement Page 1 of 1
TDPM-EX-01-CERT-07	13/03/2017	1	Nameplate
TDPM-EX-01-CERT-08	24/03/2017	1	3x Green LED Main PCB Layouts Page 1 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	3x Green LED Main PCB Layout – Detailed Page 2 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	3x Green LED Main PCB Layout - Component Location Page 3 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	3x Yellow LED Main PCB Layouts Page 4 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	3x Yellow LED Main PCB Layout – Detailed Page 5 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	3x Yellow LED Main PCB Layout - Component Location Page 6 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	Green LED PCB Layouts Page 7 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	Yellow LED PCB Layouts Page 8 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	Zener Diode PCB Layouts Page 9 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	Base Plate interconnect board Page 10 of 11
TDPM-EX-01-CERT-08	24/03/2017	1	Interconnect PCB Layouts Page 11 of 11
TDPM-EX-01-CERT-09	24/03/2017	1	Driver PCB Zener Diode Assembly Page 1 of 3
TDPM-EX-01-CERT-09	24/03/2017	1	Yellow Driver LED Schematic Page 2 of 3
TDPM-EX-01-CERT-09	24/03/2017	1	Green Driver LED Schematic Page 3 of 3

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15 Conditions of Certification

15.1 Special Conditions for Safe Use

- The system must be fed from a galvanically isolated supply with a U_{max} of 15Vdc
- The interplate cable bushing assembly must be protected from torque during transport and installation to prevent damage of the bushing. In addition the cable protection cover must be installed upon installation.
- The lid of the encapsulated driver board must not be removed. Refer to user manual for details.

15.2 Conditions Of Manufacture (Routine Tests)

- Each Ex mb unit must be subjected to a visual inspection of the encapsulation compound in accordance with clause 9.1 of EN/IEC 60079-18. No visible damage of the compound shall be evident, such as cracks, exposure of the encapsulated parts, flaking, impermissible shrinkage, discoloration, swelling, decomposition, failure of adhesion or softening.
- A Dielectric strength test must be completed on each interplate cable bushing assembly, both between the circuit and the frame and each circuit. The test shall be conducted in accordance with clause 6.1 of EN/IEC 60079-7:2017 at 500Vac for at least 1 minute. Alternatively the test can be carried out at 1.2x the test voltage for at least 100ms.
- A Dielectric strength test must be made on each unit in accordance with clause 9.2 of EN/IEC 60079-18 at 500Vac for at least 1 second. Alternatively the test can be carried out at 1.2x the test voltage for at least 100ms.

16 Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.