

INSTALLATION MANUAL

EyeBeam MB Titania

DOC.NO: AVE-EMB-IM

Table of Contents

PART 0 MANUAL ADMINISTRATION.....	3
0.1 DOCUMENT APPROVAL	3
0.2 AMENDMENT RECORD PROCEDURE	4
0.3 AFFECTED PAGES PROCEDURE	4
PART 1 INSTALLATION DATA	5
1.1 EYEBEAM MB TITANIA.....	5
1.2 OPERATING INSTRUCTIONS	5
1.3 INSTALLATION SCHEMATIC / WIRING DIAGRAM.....	6
1.4 CONTROL & POWER INPUTS.....	6
1.5 TECHNICAL SPECIFICATION	6
1.6 TECHNICAL DRAWING.....	7
1.7 WIRING CHART	8
1.8 OPTIC SIMULATION	9
1.9 EQUIPMENT LIMITATION	10
1.10 CARE AND CLEANING OF YOUR AVEO ENGINEERING AVIATION LIGHTS.....	10
1.11 TESTING OF THE LIGHT BEFORE INSTALLATION	11
1.12 NOTES ON INSTALLATION	12
1.13 CONTINUES AIRWORTHINESS INFORMATION.....	12
1.14 ROHS COMPLIANCE STATEMENT	12
1.15 EU REACH REGULATION (EC) No. 1907/2006	13

Part 0 Manual Administration

0.1 Document Approval

This document has been established in accordance with an alternative procedure to DOA approved under EASA AP429.

This installation manual is applicable for part numbers:

- | | |
|------------------------------------------------|--------------------------|
| • EyeBeam MB Titania - Silver | AVE-EMBILW-TS0 |
| • EyeBeam MB Titania - Black | AVE-EMBILW-TB0 |
| • EyeBeam MB Titania II - White/Red - Silver | AVE-EMBILWR-TS0 |
| • EyeBeam MB Titania II - White/Red - Black | AVE-EMBILWR-TB0 |
| • EyeBeam MB Titania II - White/Green - Silver | AVE-EMBILWG-TS0 |
| • EyeBeam MB Titania II - White/Green - Black | AVE-EMBILWG-TB0 |
| • EyeBeam MB Titania IV - Silver | AVE-EMBILRGBW-TS0 |
| • EyeBeam MB Titania IV - Black | AVE-EMBILRGBW-TB0 |



Compiled by: _____ 14. - Apr. - 2021
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Approved by: _____ 14. - Apr. - 2021
Georg Hartl
Head of DO, Aveo Engineering Group, s.r.o.

0.2 Amendment Record Procedure

The master copy of this document shall be kept electronically as a read only document under the control of Aveo Engineering Group, s.r.o. as Master Copy.

ALL amendments to this manual will initiate a raise of issue.

ALL raises of issue will be given a sequential numeric issue ident sequentially from 01 to 99 in Table 01 - **Issue No:** Column– Initial Issue of Document will be "01"

ALL Issues of this document will be approved by Head of DO

Issue No.	Details	Date	Affected Pages
01	Initial Issue	23.Oct.2020	ALL
02	Installation note addition EU REACH Regulation	14.Apr.2021	8, 12 13

Table 01: Document Amendment Record Table

0.3 Affected Pages Procedure

ALL pages affected by ANY raise of issue of this document will be listed in Table 01 - *Affected Pages* Column.

The reason(s) for ALL raise of issue and description of change due to raise of issue will be provided for ALL raises of issue in Table 01 - *Details* Column.

Changes from the previous issue are highlighted by **YELLOW HIGHLIGHTING** over new content. AND **YELLOW HIGHLIGHTING** AND CROSSING OUT of deleted content.

Example (**CROSSING OUT**)

Part 1 Installation Data

1.1 EyeBeam MB Titania

EyeBeam MB Titania™ is interior swivel LED light. It is available in 3 different versions – single color, dual color and four color. All versions have black or natural anodized finish.

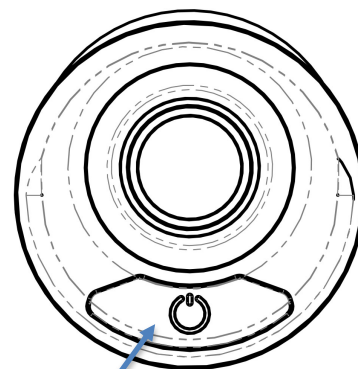
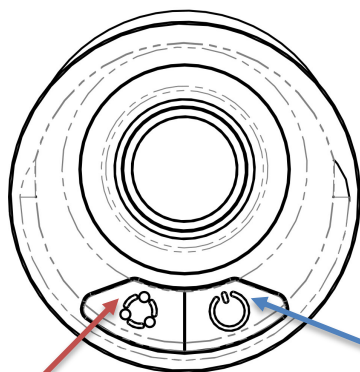
- | | |
|------------------------------------------------|--------------------------|
| • EyeBeam MB Titania - Silver | AVE-EMBILW-TS0 |
| • EyeBeam MB Titania - Black | AVE-EMBILW-TB0 |
| • EyeBeam MB Titania II – White/Red - Silver | AVE-EMBILWR-TS0 |
| • EyeBeam MB Titania II – White/Red - Black | AVE-EMBILWR-TB0 |
| • EyeBeam MB Titania II – White/Green - Silver | AVE-EMBILWG-TS0 |
| • EyeBeam MB Titania II – White/Green - Black | AVE-EMBILWG-TB0 |
| • EyeBeam MB Titania IV – Silver | AVE-EMBILRGBW-TS0 |
| • EyeBeam MB Titania IV – Black | AVE-EMBILRGBW-TB0 |

1.2 Operating Instructions

Operating Voltage range is 9-36VDC. When installed on the aircraft, using the aircraft's power (14 or 28 volts), the light will be at its maximum intensity.

AVE-EMBILWR-TS0
AVE-EMBILWR-TB0
AVE-EMBILWG-TS0
AVE-EMBILWG-TB0
AVE-EMBILRGBW-TS0
AVE-EMBILRGBW-TB0

AVE-EMBILW-TS0
AVE-EMBILW-TB0



COLOR CHANGE:

Every single **SHORT press** switching colors

AVE-EMBILWR-TS0 (TB0)
RED / WHITE

AVE-EMBILWG-TS0 (TB0)
GREEN / WHITE

AVE-EMBILRGBW-TS0

- 1. GREEN**
- 2. RED**
- 3. BLUE**
- 4. WHITE**

LONG press switches the light OFF

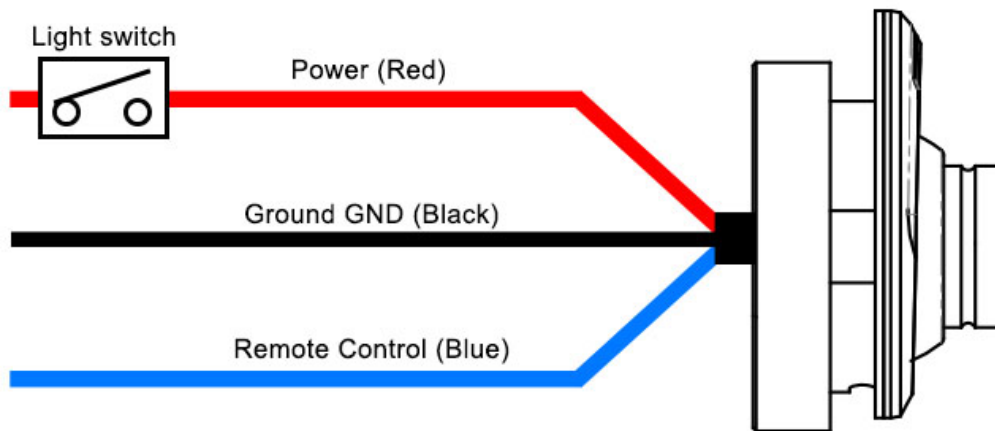
Every single **SHORT press** switching in sequence:

- 1. DIM (NVG)**
- 2. FULL Bright**
- 3. DIM (NVG)**
- 4. OFF**

LONG press switches the light OFF

If the microswitch is STUCK the light will be switched OFF and after ~10 secs the button backlight starts blinking indicating a problem

1.3 Installation Schematic / Wiring Diagram



1.4 Control & Power Inputs

- BLACK** – Negative power supply line (ground)
- RED** – Positive power supply line
- BLUE** – Connecting to GND turns the DIM/WHITE LIGHT ON
Disconnecting from GND turns the LIGHT OFF

1.5 Technical Specification

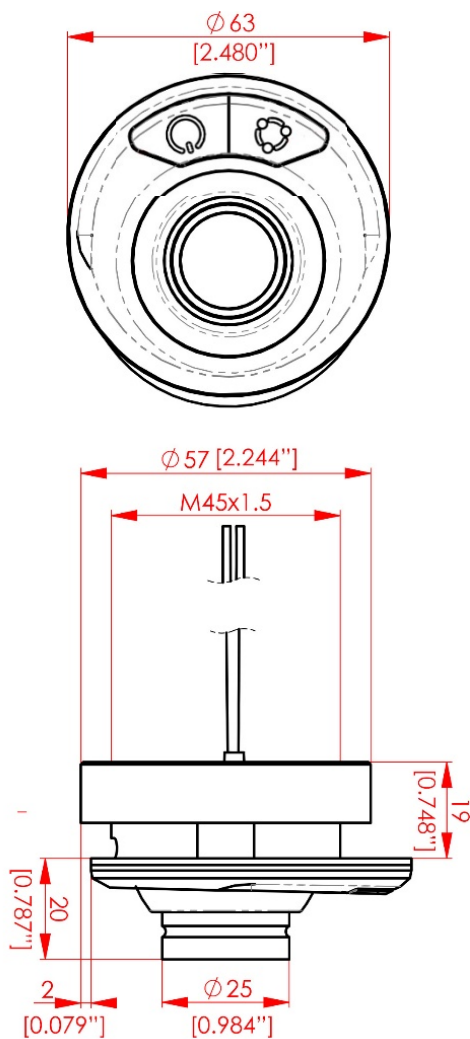
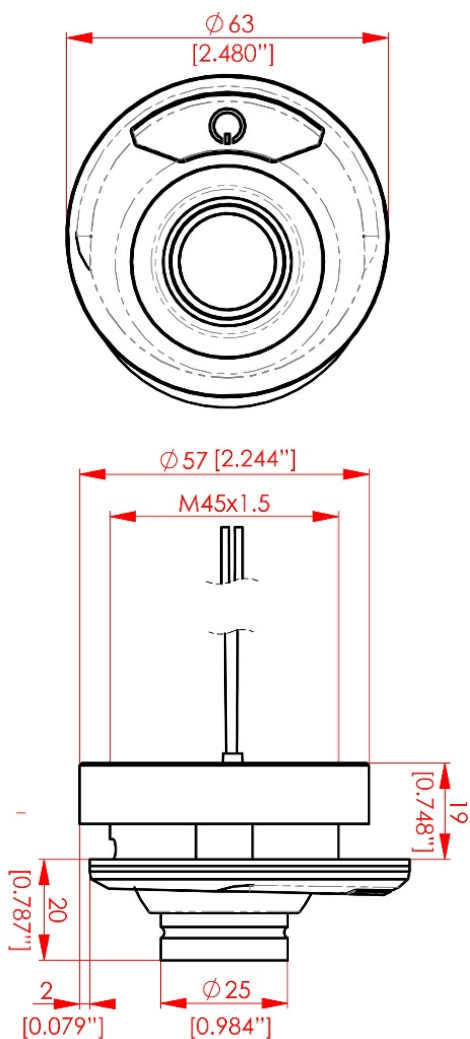
Electronic specification - Ambient temperature (25°C):

Operating voltage range:	9-36V DC
Dimensions:	See section #1.6 – Technical Drawing
Performance:	
FULL Input current:	0.139A @14V 0.085A @28V
DIM Input current:	0.006A @14V 0.006A @28V
FULL Input power:	1.9W @14V (typ) 2.38W @28V (typ)
DIM Input power:	0.084W @14V (typ) 0.168W @28V (typ)
Operating temperature:	-40°C to +85°C / -40°F to +185°F
Weight:	3.7 oz / 105 g

1.6 Technical Drawing

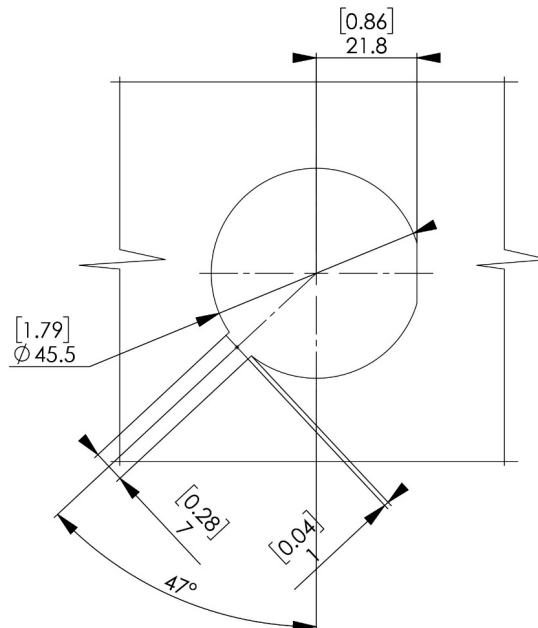
AVE-EMBILW-TS0
AVE-EMBILW-TB0

AVE-EMBILWR-TS0
AVE-EMBILWR-TB0
AVE-EMBILWG-TS0
AVE-EMBILWG-TB0
AVE-EMBILRGBW-TS0
AVE-EMBILRGBW-TB0



**dimensions in mm [inches]*

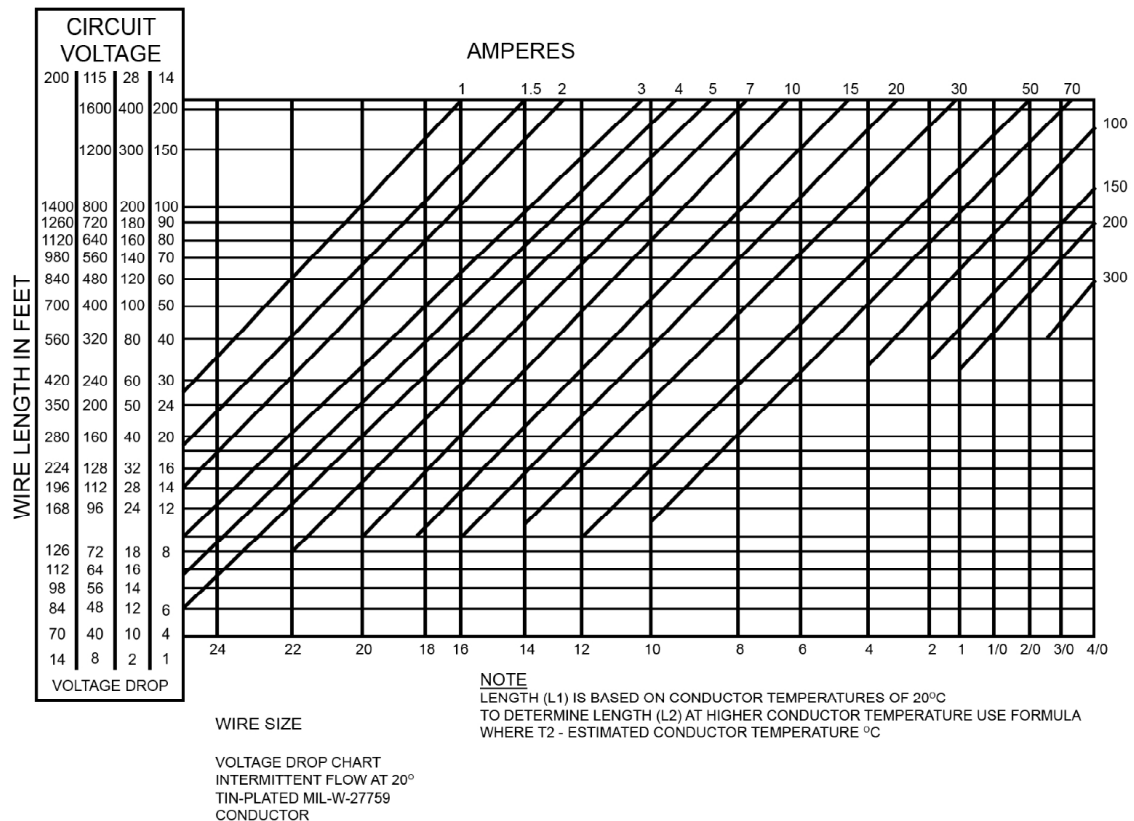
MOUNTING HOLE



*dimensions in mm [inches]

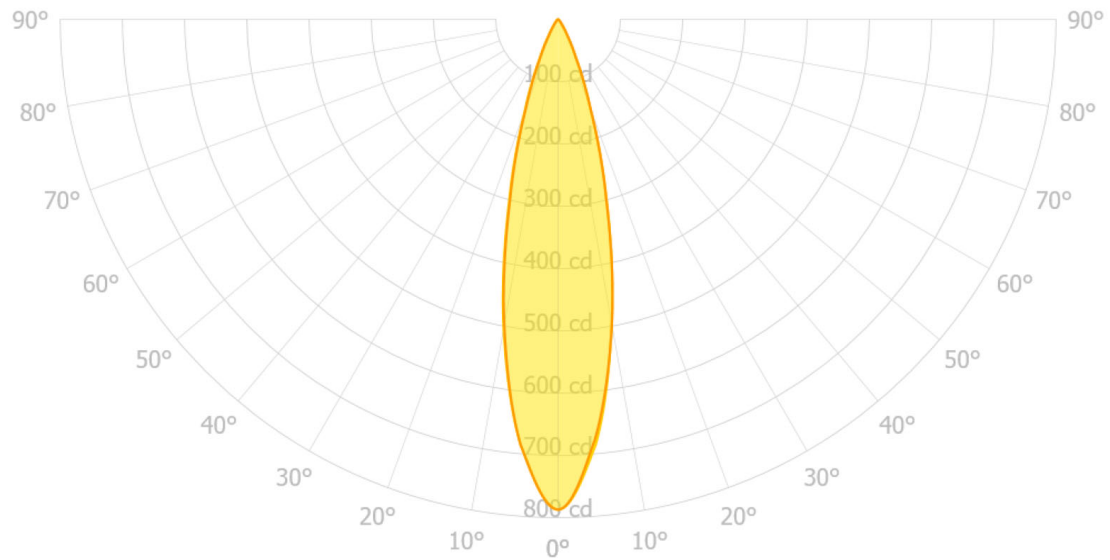
1.7 Wiring Chart

Use diagram below defining the wiring size depending on the current and the wire length. Make sure you add up the current for all connected lights. If current is not given, then divide the power by the voltage.



1.8 Optic Simulation

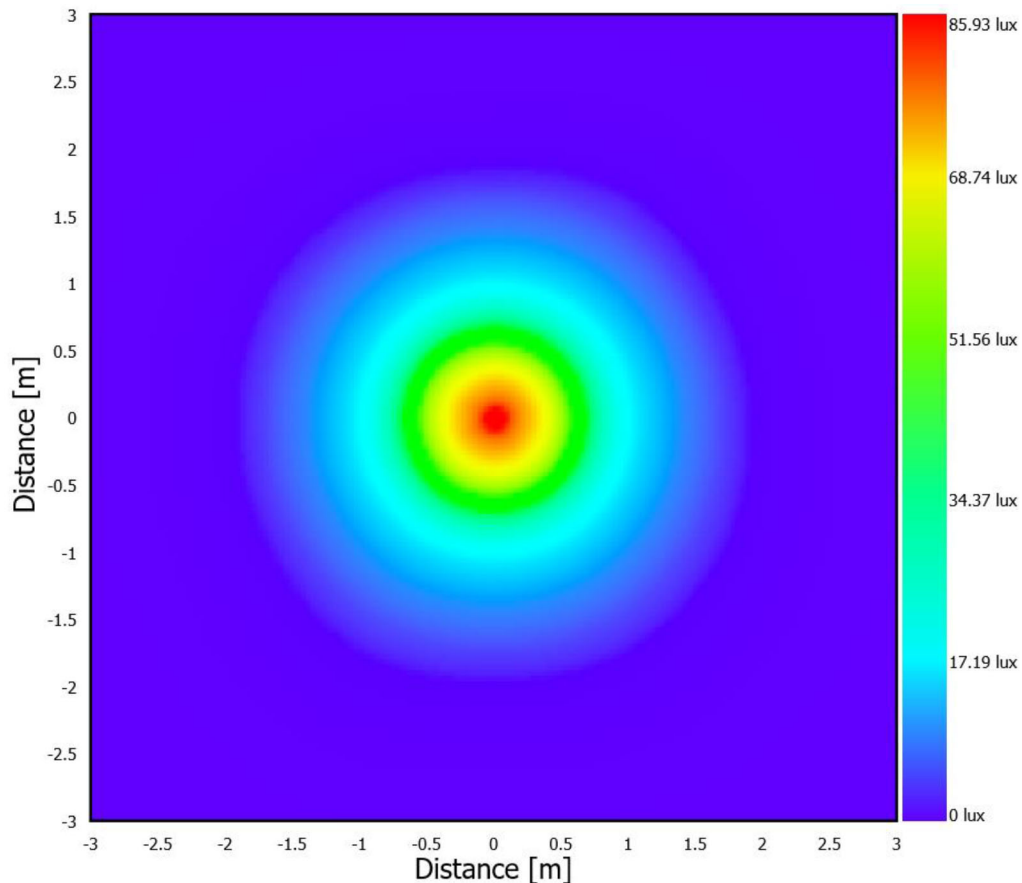
**Standard lens
White LED
Intensity: 780 cd
Beam angle: 25°**



Candela Polar Plot



Test Illuminance plane at 1m, plane dimensions 1x1m.



Test Illuminance plane at 3m.

1.9 Equipment Limitation

EyeBeam MB Titania™ should only be powered by 9-36VDC.

1.10 Care and Cleaning of your Aveo Engineering Aviation Lights

When you receive your Aveo Engineering Aviation Lights, they will have been factory polished and ready to install on the aircraft.

If the lights require a deeper cleaning, they should be polished with a quality lamb's wool sheet and can also be used for deeper polishing. Under no circumstances should any petroleum based product be used to clean the lights.

1.11 Testing of the Light Before Installation

All Aveo Aviation lights undergo rigorous testing prior to being released from our engineering manufacturing department. This testing involves a burn-in time as well as other function testing. No light is released for sale without undergoing this extensive operational testing.

When you receive the **EyeBeam MB Titania™** light, and wish to test the function of the light prior to installation on your aircraft, please note the following:

1. Please review the written information that is enclosed in the packaging. Warranty information as well as a cautionary note about power supply removal is enclosed with each package.
2. Remove the light from the package. Note that there are three (3) wires:
Black (-) Negative lead
Red (+) Positive lead
Blue Remote control - Connecting to GND turns the DIM/WHITE LIGHT ON / Disconnecting from GND turns the LIGHT OFF
3. Testing of the function of the light can be done with a regular 14V or 28V/5A dc power supply (not a battery charger). Connect the black wire to the ground (negative) leads of a power supply, and then connect the red wire to the positive (+) leads on the power supply. The EyeBeam MB Titania light should start lighting. When installed on the aircraft, using the aircraft's power (14 or 28 volts), the light will be at its maximum intensity. After testing, the light can be installed on the aircraft.

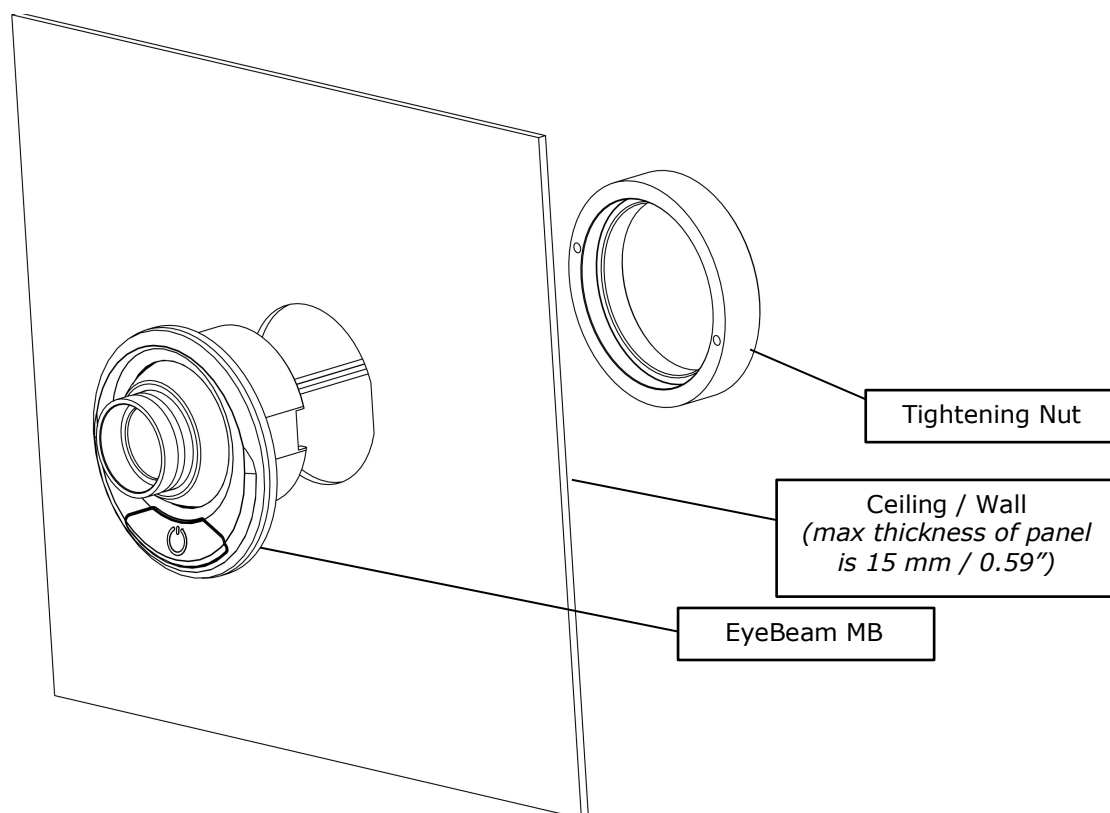
IMPORTANT NOTES:

1. Under no circumstances should any power supply other than a 9-36 VDC, or a 14 or 28 volt battery be used to test the light. Do not use: Battery chargers, battery back-up power devices, or other bench avionics testing methods to test the aviation light. The light is functional between 9 and 36 volts. Use of a battery charger or other power unit to test the light will void the warranty and may damage the light.

If you have any questions about the installation of the lights, please refer to our web site: www.aveoengineering.com

1.12 Notes on Installation

Mount EyeBeam on the wall as it is described on the image below.



1.13 Continues Airworthiness Information

Periodic Inspection Procedure for EyeBeam MB Titania series.

The **EyeBeam MB Titania™** lights should always be checked for proper operation during preflight. This procedural information is already provided in all general aviation aircraft flight manuals.

The lights should be visually inspected for general condition, proper operation, and correct installation at each annual and/or 100 hours inspection. In addition refer to section 1.10 of installation manual for detailed cleaning instructions.

1.14 RoHS Compliance Statement

Scope

This statement clarifies Aveo Engineering's compliance with European Union Directive 2015/863/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("RoHS") that took effect on June 4, 2015. The RoHS Directive restricts the sale of electronic equipment containing certain hazardous substances in the European Union including:

Cadmium(Cd): 0.01%
Mercury: 0.1%
Lead(Pb) : 0.1%
Hexavalent chromium (Cr6+) : 0.1%
Polybrominated biphenyls (PBB): 0.1 %;
Polybrominated diphenyl ethers (PBDE): 0.1 %
Bis(2-Ethylhexyl) phthalate (DEHP): 0.1% (added in 2015);
Benzyl butyl phthalate (BBP): 0.1% (added in 2015);
Dibutyl phthalate (DBP): 0.1% (added in 2015);
Diisobutyl phthalate (DIBP): 0.1% (added in 2015)

Compliance

Aveo Engineering certifies that all products sourced from manufacturing facilities comply with the environmental standards set forth by the Directive 2015/863/EU, recast amendment of RoHS Directive 2011/65/EU Article (4), and do not contain any of the above-mentioned, 10 hazardous substances above the specified limits. All products manufactured by Aveo Engineering are RoHS-compliant. With regards to RoHS-2 CE marking, product packaging is labeled attesting conformity if required.

References

Directive 2015/863/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

1.15 EU REACH Regulation (EC) No. 1907/2006

Aveo Engineering declares that no chemicals are produced and that none of the chemicals used during the production process or needed for the product maintenance or service, is listed on the current European Chemicals Agency's Candidate list of Substances of Very High Concern for Authorization.