



INSTALLATION MANUAL
Nubion Plus

DOC.NO:AVE-N09-IM

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Part 0 Manual Administration

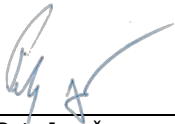
0.1 Document approval

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:

- | | |
|--------------------------------|--------------------------|
| • Nubion Plus Landing (8°) | AVE-N09PANSNL-1WP |
| • Nubion Plus Landing (15°) | AVE-N09PANSNL-2WP |
| • Nubion Plus Taxi (25°) | AVE-N09PANSNT-3WP |
| • Nubion Plus Taxi (45°) | AVE-N09PANSNT-5WP |
| • Nubion Plus Taxi (35° x 55°) | AVE-N09PANSNT-EWP |

Compiled by: _____ 03. – Sep - 2021


Petr Jaroš
Engineer, Aveo Engineering Group, s.r.o.

Approved by: _____ 03. – Sep - 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	03.Sep.2021	ALL

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 Product Info

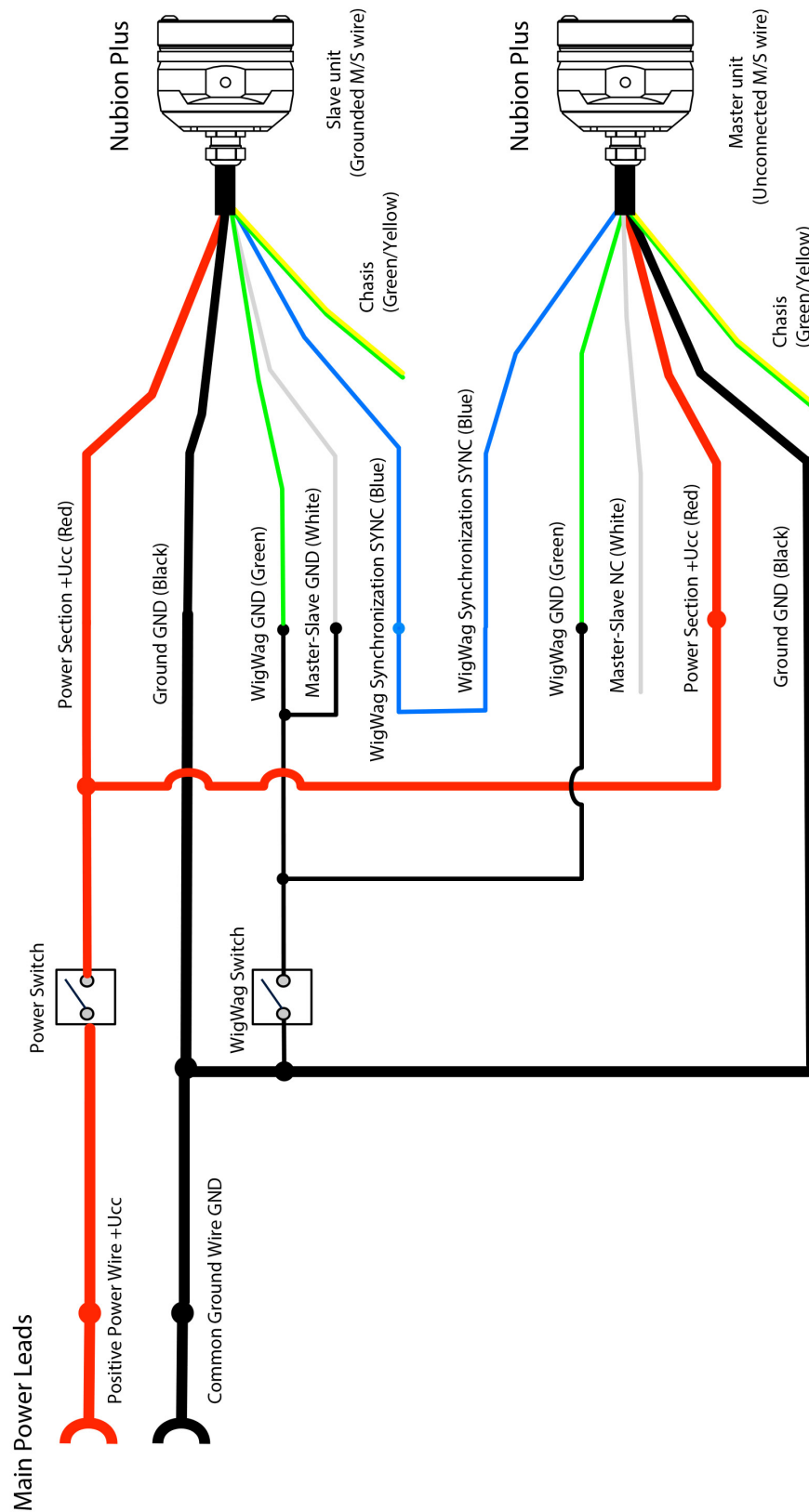
The Nubion Plus™ landing or taxi light is a high powered LED light use in GA and transport category aircraft. It has been designed to be lightweight and with a low power draw to meet the highest requirements of all certified aircraft.

- | | |
|--------------------------------|--------------------------|
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| • Nubion Plus Taxi (35° x 55°) | AVE-N09PANSNT-EWP |

1.2 Operating Instructions

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

1.3 Installation Schematic / Wiring Diagram



1.4 Control & Power Inputs

RED	Input Power, AWG 22
BLACK	Power Return, AWG 22
GREEN/YELLOW	Chassis, AWG 22
WHITE	Master/Slave, AWG 24
BLUE	Synchro, AWG 24
GREEN	WigWag, AWG 24

1.5 Technical Specification

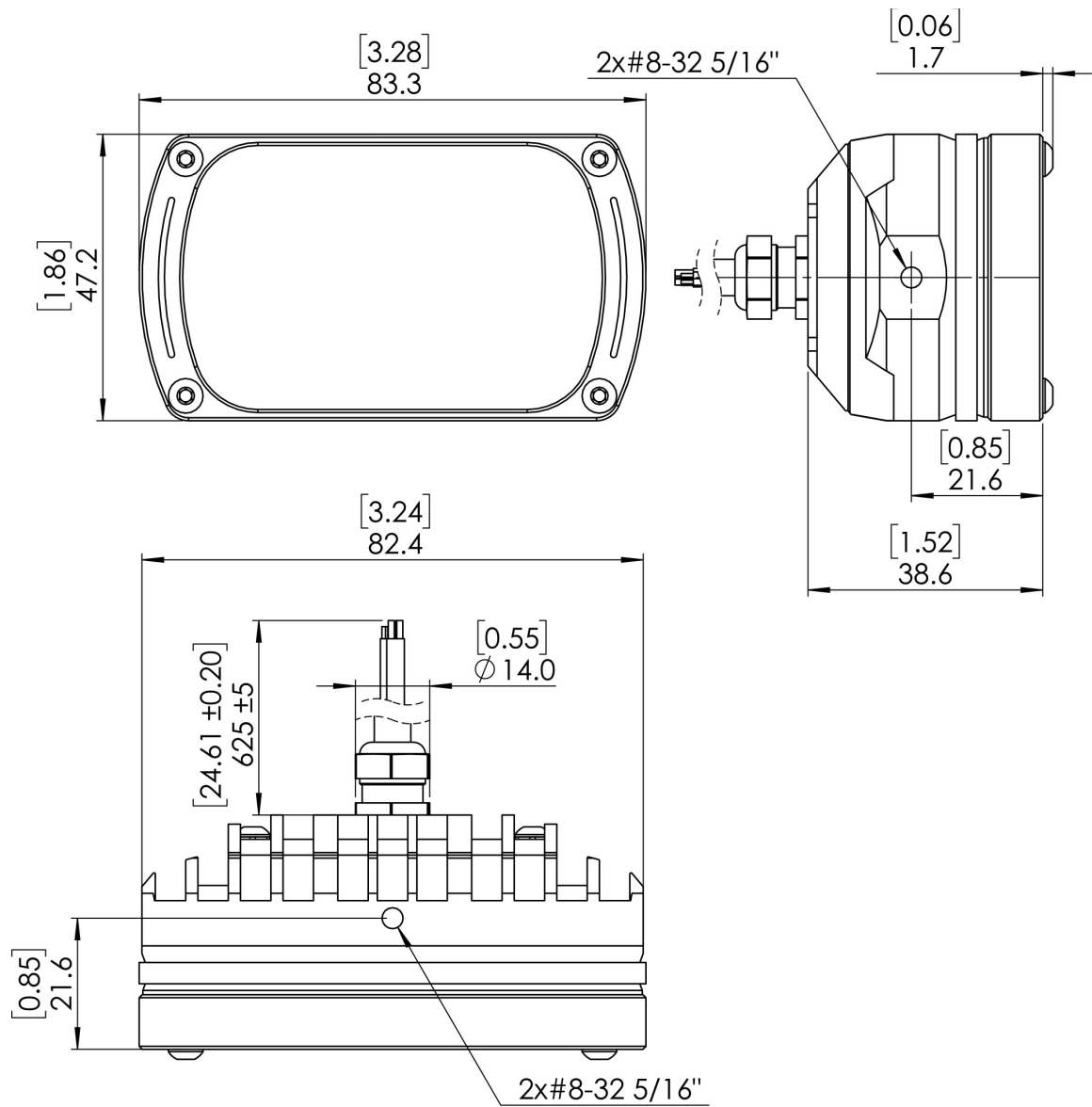
Electronic specification - Ambient temperature (25°C):

Operating voltage:	9-36V DC
Voltage protection:	a. Over-voltage protection: 80V/1s b. Over-voltage lockout: 38.5V c. Under-Voltage protection: 7V
Reverse polarity protection:	Yes
LED quantity:	6 pcs
Performance:	
Input current:	2.23A @14V DC 1.07A @28V DC
Input power:	31.2W @14V DC 29.8W @28V DC
Operating temperature:	-55°C to +85°C / -67°F to +185°F
Over-Temperature protection:	Yes
Weight:	7.48 oz (212 g)

Device RTCA/DO160 qualified:

Environment	Section	Category
Temperature / Altitude	4	F2
Temperature / Altitude	4	F2
Temperature Variation	5	A
Humidity	6	C
Operational Shock and Crash Safety	7	B
Crash Safety	7	A
Vibration	8	U curve G
Vibration	8	H, curve P
		R curve E & E1
Explosive Atmosphere	9.6.1	A
	9.6.2	
Waterproofness	10	R
Fluids Susceptibility	11	F
Sand and Dust	12	D
Fungus	13	F
Salt Fog	14	T
Magnetics Effects	15	Y
Power Input	16	A
Voltage Spike	17	A
Audio Freq. Conducted Susceptibility	18	Z
Induced Signal Susceptibility	19	ZC
Radiated and Conducted Susceptibility	20	TT
Radiated and Conducted Emissions	21	H
Lightning Induced Transient Susceptibility	22	X
Icing	24	A
Electrostatic Discharge	25	A

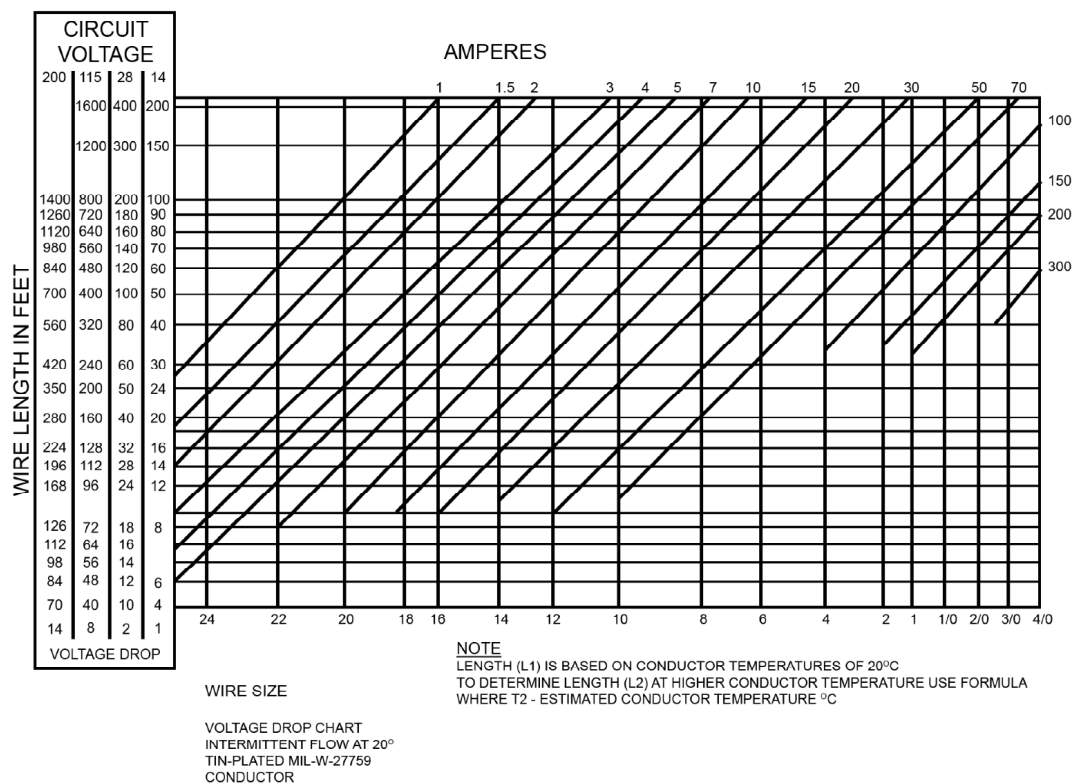
1.6 Technical Drawing



*dimensions in mm [inches]

1.7 Wiring Chart

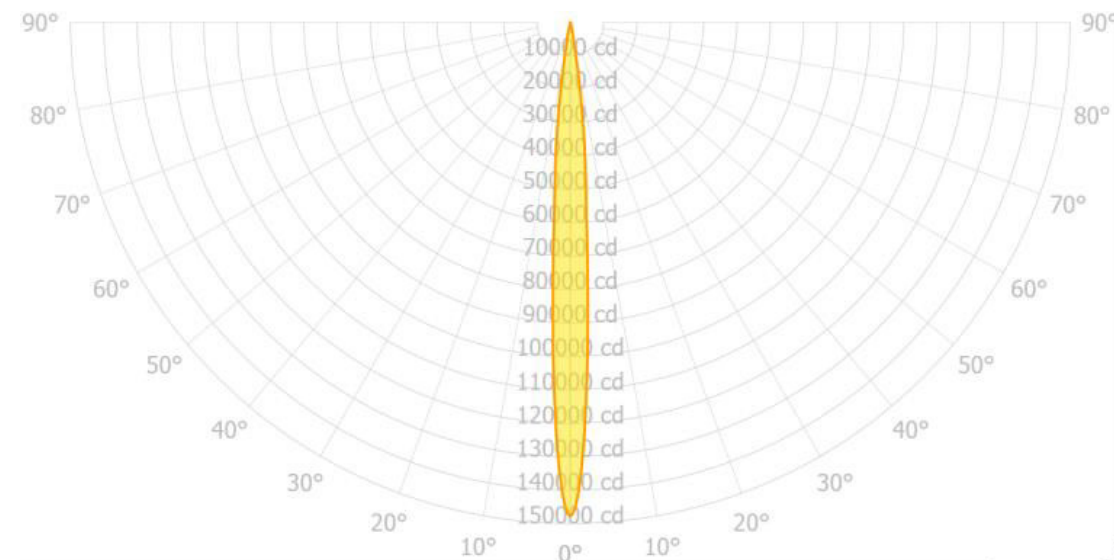
Use diagram below defining the wiring size depending on the current and the wire length. Make sure you add up the current for all connected lights. If current is not given, then divide the power by the voltage.



1.8 Optic Simulation

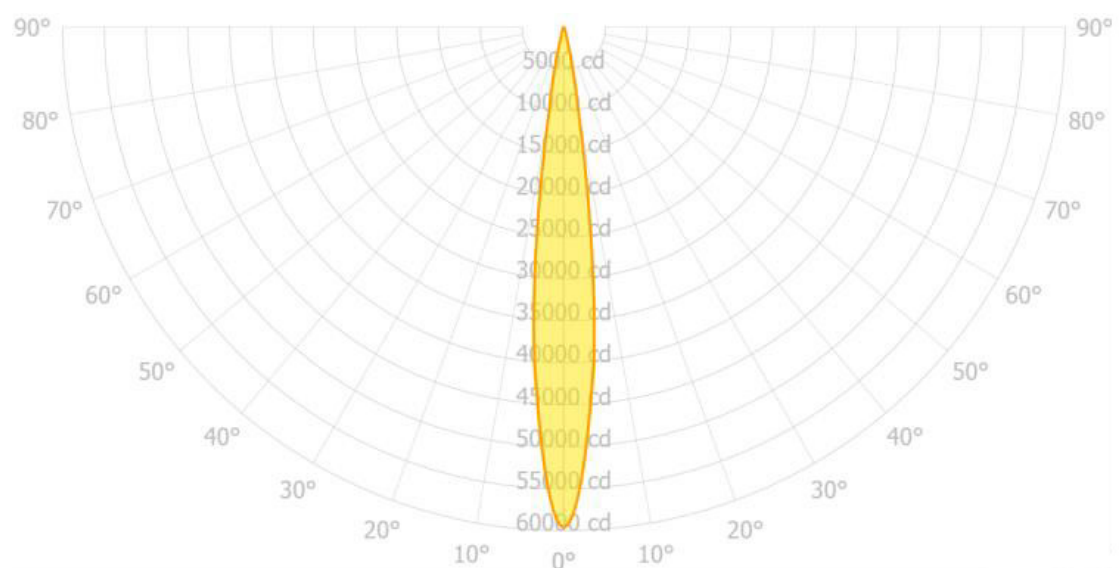
Nubion Plus LANDING (8°) PN: AVE-N09PANSNL-1WP

150,000 cd



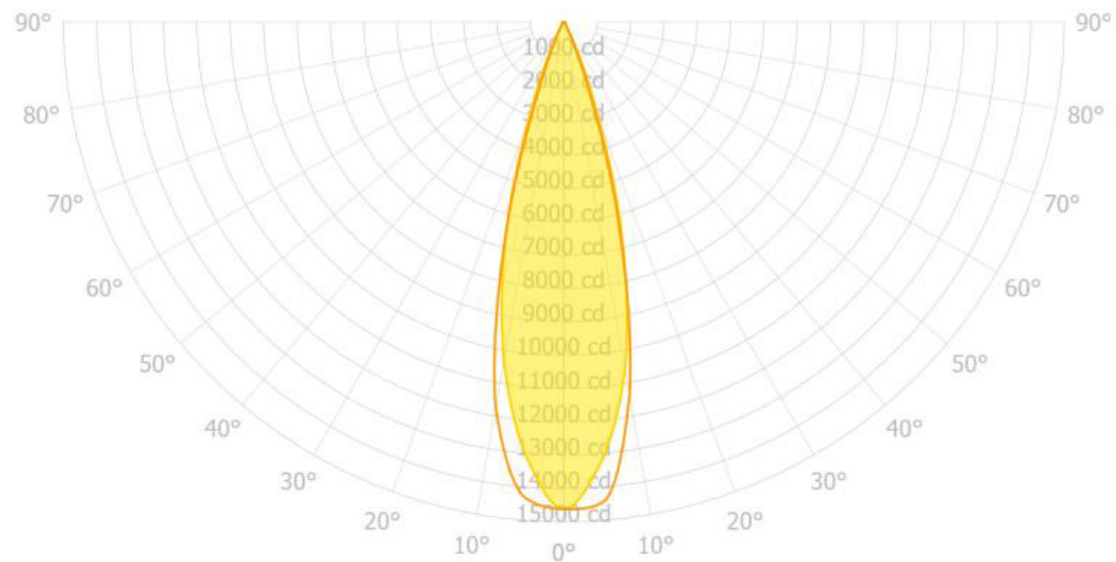
Nubion Plus LANDING (15°) PN: AVE-N09PANSNL-2WP

60,000 cd



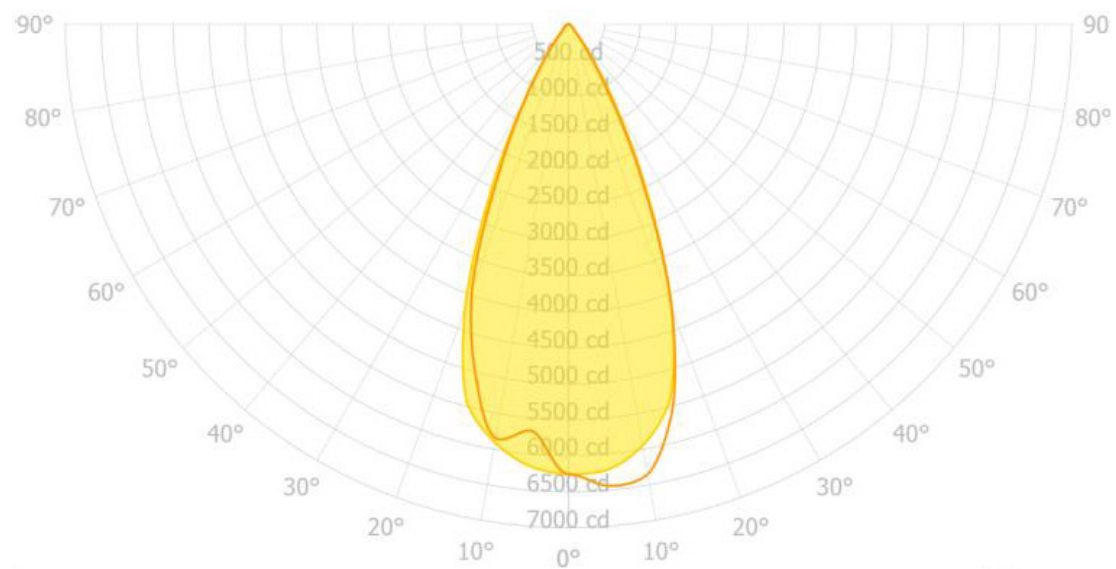
Nubion Plus TAXI (25°) PN: AVE-N09PANSNT-3WP

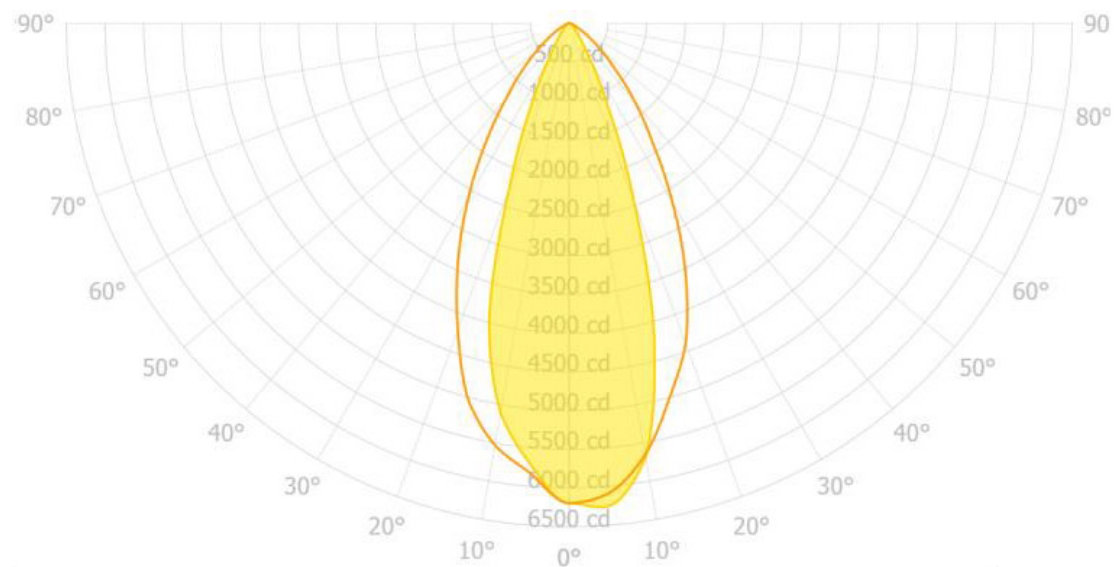
15,000 cd



Nubion Plus TAXI (45°) PN: AVE-N09PANSNT-5WP

6,500 cd



Nubion Plus TAXI (35°x55°) PN: AVE-N09PANSNT-EWP**6,200 cd**

1.9 Equipment Limitation

Nubion Plus™ should only be powered by 9-36VDC.

1.10 Care and Cleaning of Lights

Aveo Engineering Aviation Lights are factory polished and delivered as ready to install on the aircraft.

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

1.11 Testing the Lights 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 **Nubion Plus** light, and wish to test the function of the light prior to installation on your aircraft, please observe the following procedure:

1. Review the written information that is enclosed in the packaging. Warranty information as well as a cautionary note about power supply removal is enclosed in each package.

2. Remove the light from the package.

Note that there are six (6) wires:

RED	Input Power
BLACK	Power Return
GREEN/YELLOW	Chassis
WHITE	Master/Slave
BLUE	Synchro
GREEN	WigWag

3. Testing the function of the light can be accomplished using a regular 14V/10A DC or 28V/5A DC power supply (not a battery charger).

Connect the black wire to the ground (negative) leads of a power supply, then connect the red wire to the positive (+) leads on the power supply. The light should start lighting.

When installed on the aircraft and using the aircraft's power (14 or 28 volts), the light will be at its maximum intensity.

If the tests are successfully completed, the lights can be installed on the aircraft.

IMPORTANT NOTES:

Under no circumstances should any power supply other than a 9-36V DC, 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

Stainless steel screws SHCS #8-32 UNC or equivalent mounting screws are recommended to be used for installation. Screw length depends on placement of screws on aircraft.

Spread the tightening forces evenly around the mounting hole.

1.13 Continued Airworthiness Information

Periodic Inspection Procedure for Nubion Plus.

The **Nubion Plus** light 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.