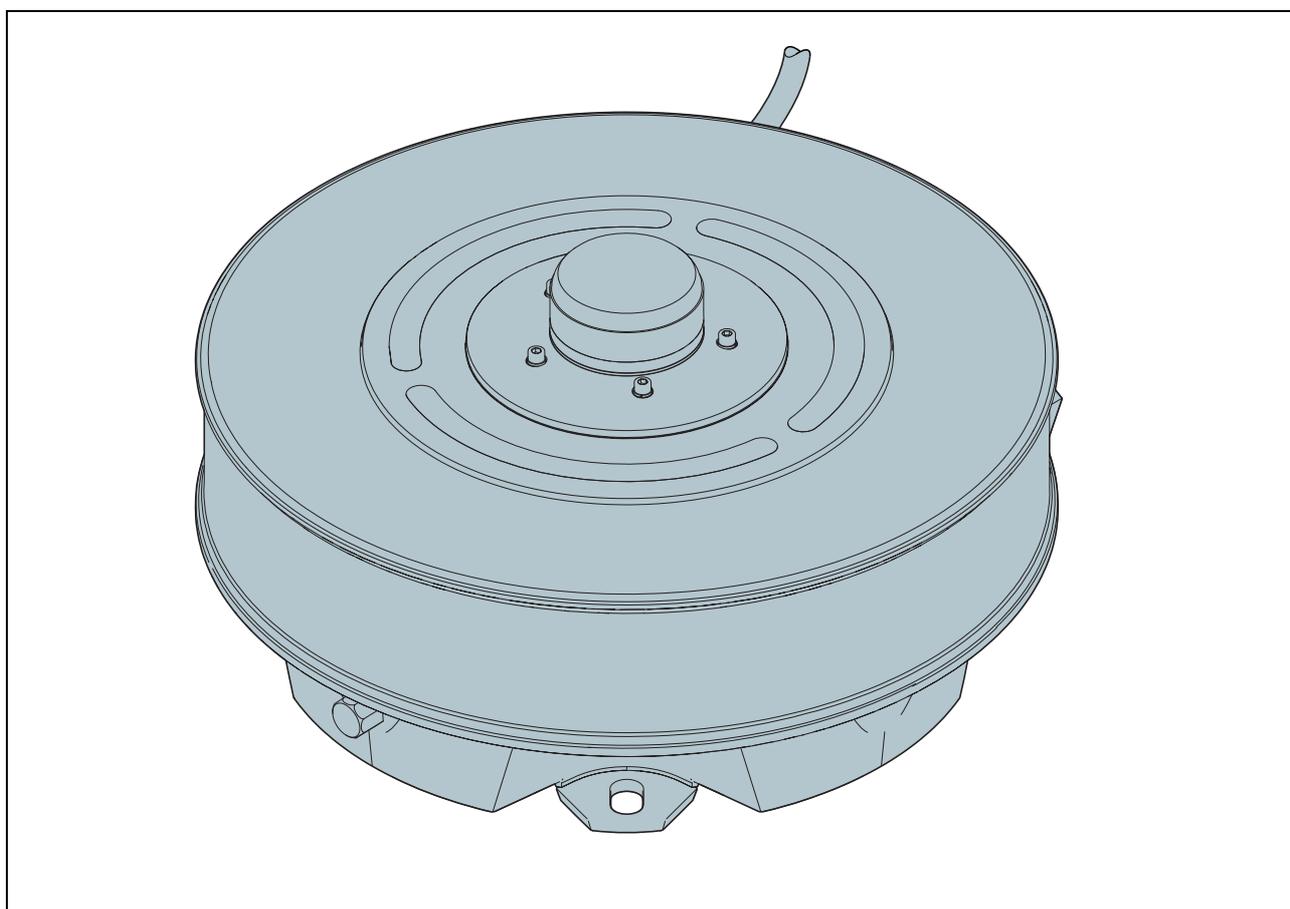




L500

High intensity light

Installation, operation and maintenance manual



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Disclaimer
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1 ABOUT THIS DOCUMENT

This manual gives information about:

- Installation
- Operation
- Maintenance
- Troubleshooting

From here on, this document refers to the L500 light as the 'lighting fixture'.

1.1 Before you start



WARNING

Do not continue before you understand the contents in this manual.

1. Make sure that you know and understand the contents in this manual.
2. Follow all procedures in this manual.
3. Never change the sequence of the procedures.

1.2 Icons used in this document

The icons below are used in this document to indicate danger or to give extra information.



WARNING

Can cause personal injury.



WARNING

Electrical danger. Can cause personal injury.



CAUTION

Can cause damage to the equipment.



NOTE

Gives further/extra information.

2 SAFETY

2.1 Intended use

The lighting fixture provides pilots with visual information on the proximity and height of objects.

2.2 Safety instructions



WARNING

- Make sure that the mains power supply is disconnected before you do work on the system.
- Do not touch the electrical system for at least 2 minutes after the mains power supply is disconnected. The voltage in the capacitors can be dangerous, even if the power supply is disconnected.
- Do not open the device.
- Make sure that the power supply complies with the local safety regulations.
- Use EMC cable glands on both ends of the Strobeline cable, to prevent damage by lightning and static electric emissions.
- Do not connect the screen of the Strobeline cable to earth.
- Only an electrical engineer is allowed to do work on the electrical system.



WARNING

- Make sure that the system is off, before you do inspections or maintenance on the lights. The light can flash, this bright light can temporarily dazzle you.
- Install the light in the correct location and orientation. Refer to section 4.2.



CAUTION

- Do not look directly at the light from a short distance. The bright light can temporarily dazzle you.
- Do not use plastic washers. Use the correct fasteners. Refer to section 4.5.
- Always hold and support the light at the base.



Note

This lighting fixture has visible light and infrared light sources (IR). The IR light sources can be seen from a long distance at night by a pilot with night vision goggles.

2.3 Safety instructions for operation

There are no specific safety precautions necessary.

2.4 Warranty policy

THE FOLLOWING IS THE STANDARD LIMITED WARRANTY FOR THE ORGA SYSTEMS AND PRODUCTS (“PRODUCTS”) SUPPLIED BY ORGA B.V., SCHIEDAM – THE NETHERLANDS, HEREINAFTER: “ORGA”. THIS WARRANTY APPLIES UNLESS A DIFFERENT WARRANTY HAS BEEN SPECIFICALLY AGREED TO AND SIGNED BY AN ORGA AUTHORISED REPRESENTATIVE.

LIMITED WARRANTY

(a) ORGA warrants, subject to the following limitations, that at time of delivery to Buyer, its Products will conform to applicable ORGA drawings and Product specifications and will be free from defects in workmanship and material. If applicable, ORGA warrants that at the time of delivery Products are compliant to applicable national and/or international rules and regulations. However, unauthorised maintenance or repair could invalidate compliance with such rules and regulations.

(b) The Products are not in conformity as meant under (a) in the case of a defect in workmanship or material becoming apparent under normal authorised use consistent with ORGA Product instructions and specifications. Normal wear and tear (including but not limited to lamp failure) or problems with electrical power, relatively minor anomalies which are customary and/or technically unavoidable, or the need for periodic maintenance shall not constitute non-conformity.

These warranties shall be available to the initial purchaser, and may be transferable to its successors and assigns.

The duration of these warranties shall be as follows: Twelve (12) months after commissioning, with a maximum of eighteen (18) months after shipment of the Product ex works, Schiedam, the Netherlands¹⁾.

(c) All Products repaired or replaced hereunder shall be warranted only for the unexpired portion of the original warranty period. If ORGA is of the opinion that the complaint about the defect is justified, ORGA will repair or replace at its own option any faulty Product returned within the warranty period at its cost (including material and labour costs, excluding shipping costs). Repaired or replaced Products will be delivered ex works, Schiedam, the Netherlands¹⁾. The risk of loss or damage to all Products in transit shall be borne by Buyer.

(d) The integrity and reliability of ORGA systems and Products are dependent on the use of ORGA parts and components. To ensure the optimum performance and reliability of your ORGA system, it is strongly advised that only components and modules manufactured by ORGA be used. No other parts can be used without prior written permission from ORGA.

Any right under this warranty shall lapse if the Product has been exposed or subjected to

- 1 Any maintenance or lack of maintenance, repair, installation, handling, transportation, storage, operation, treatment, failure to observe the instructions for use or use which is improper, excessive or otherwise is not in compliance with ORGA’s instructions; or
- 2 Any direct intervention, alteration, modification, transformation or repair by anyone other than ORGA or those specifically authorised in writing by ORGA, without prior written permission from ORGA; or
- 3 Any accident, contamination, foreign object damage, abuse, misuse, neglect, negligence or any other circumstances after delivery to Buyer; or

1) EXW, Incoterms

- 4 Any damage induced by failure of an Orga supplied Product not under warranty or by any Product not supplied by Orga.

Orga shall not be responsible for Buyer's or any third party's Product, Product information, or memory data contained in, sorted on, or integrated with any Product returned to Orga, whether under warranty or not. Buyer is responsible for backing up its programs and data to protect against loss or corruption.

(e) Repair or redelivery as meant in the previous paragraphs shall in principle be effected only within the Netherlands. Repair and or redelivery outside the Netherlands shall only be effected if this can reasonably be requested of Orga, such to be judged exclusively by Orga. With respect to noticeable defects, the Buyer must submit a claim in writing within three (3) working days after delivery, failing which any claim on Orga will lapse.

Claims with respect to other defects must be made in writing within ten (10) working days after their appearance, failing which any claim on Orga will lapse.

In respect of Products or parts of Products which Orga received from third parties, the warranty obligations granted by Orga to the Buyer shall never exceed in nature nor in duration the warranty obligations granted by those third parties to Orga.

(f) This warranty is exclusive and in lieu of all other warranties, whether written or oral, express, implied or statutory, including, without limitation, any implied warranties of merchantability, fitness for particular purpose, or non-infringement, all of which are hereby expressly disclaimed. No extension or expansion of this warranty shall be binding upon Orga unless set forth in writing and signed by Orga's authorised representative.

(g) All disputes existing between parties shall be heard exclusively by the Rotterdam District Court, unless Orga prefers another competent forum. This warranty notice is subject to Dutch law. The stipulations specified in the Convention of International Sale of Goods of 11 April 1980 (Weens Koopverdrag) do not apply, nor does any future international regulation concerning the purchase of moveable property of which parties can make use.

(h) Orga reserves the right to modify its warranty at any time, at its sole discretion.

3 DESCRIPTION

3.1 Overview and function of the lighting fixture

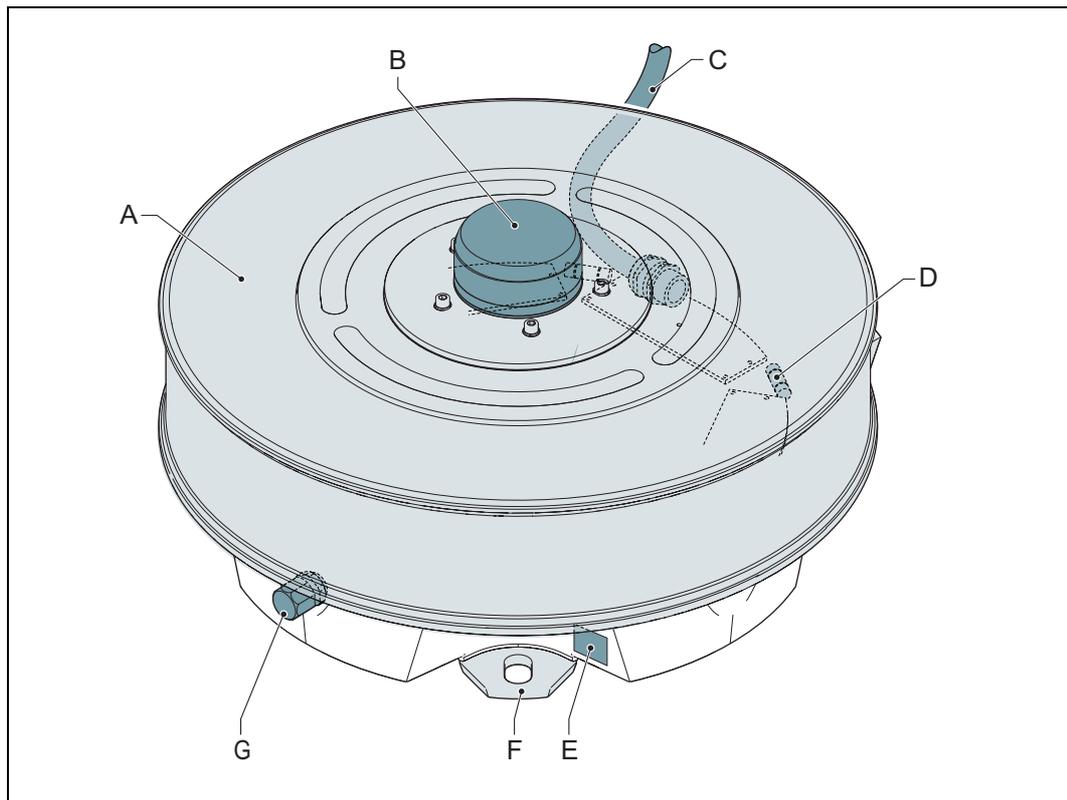
The L500 is a light source for the marking of aviation hazards, typically highrise structures as wind turbines, communication towers, broadcast antennas, electricity transmission and distribution towers, chimneys, bridges and buildings, and can be used stand alone or as a part of a obstacle light system.

The built-in photocell measures the ambient light level. Based on this measurement, the lighting fixture can automatically switch between day, twilight and night operating mode. The -G variant has a GPS flash synchronizer. All -G version lights are synchronised with the GPS signal and will flash at the same time.

The internal monitoring system warns in the case of a malfunction in these components:

- LED light source
- Photocell
- GPS signal

If the light does not operate, the internal fail contact comes on and if applicable a warning signal is sent to the CIP.



- A Dome
- B GPS receiver
- C Strobeline cable (Junction box)
- D Level indicators
- E Label
- F Mounting feet
- G Photocell

4 INSTALLATION

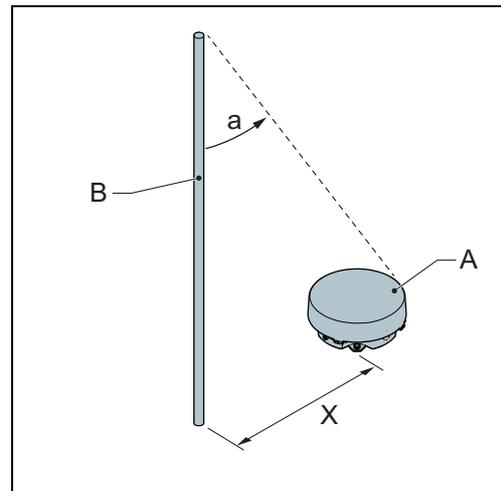
4.1 Unpack the delivery

1. Do a check on the delivery for completeness.
2. Do a check on the delivery for damage.
3. Report damages or missing parts immediately to Orga. Refer to the last page for the contact information.

4.2 Requirements on the location and orientation

Make sure that the location of the lighting fixture obeys these conditions:

- The location and orientation must be correct. Refer to ICAO Annex 14, Volume 1, FAA or national CAA regulations.
- The structure must have a good primary lightning arresting system. Refer to i.e.NFPA-780 or DIN 48801.
- The lighting fixture (A) must have a lightning protection rod or equivalent grounded metal structure (B):
 - $a < 45^\circ$, preferred: $a = 30^\circ$
 - $x > 15\text{ cm}$ ($x > 0.5\text{ ft}$), preferred: $50\text{ cm} \leq x \leq 150\text{ cm}$ ($1.5\text{ ft} \leq x \leq 5\text{ ft}$)
- The lighting fixture (A) must be installed on a mounting bracket. Make sure the special ground tags on the bottom of the lighting fixture are correctly connected.
- Both the mounting bracket and the lightning protection device must be grounded correctly. Make sure that they are grounded refer to the lightning currents that realistically can occur.
- The cable length that is exposed to lightning must be as short as possible.
- Make sure that the lighting fixture is accessible.
- For -G versions it is necessary that the GPS antenna can receive signals from as many satellites as possible. Make sure that the GPS antenna has a clear sky visibility. *Do not install the lighting fixture on a location near large areas of conductive metal.*



Make sure that the photocell has the clearest possible view on the environment. Make sure that the photocell points away from obstacles, such as:

- Wind turbine blades
- Light sources
- Other lights
- Other equipment
- Structures



Note

If the light will be exposed to high RF (radio frequency) radiation, ask Orga for more instructions before installation.

4.3 Do a pre-installation test



WARNING

Do not look directly at the light from a short distance.
The bright light can temporarily dazzle you.

It is recommended to do a test before you install the lighting fixture.

1. Refer to section 4.6.4 for the wire colour code.
2. Connect the power wires to the mains power supply. The light comes on within 2 minutes.

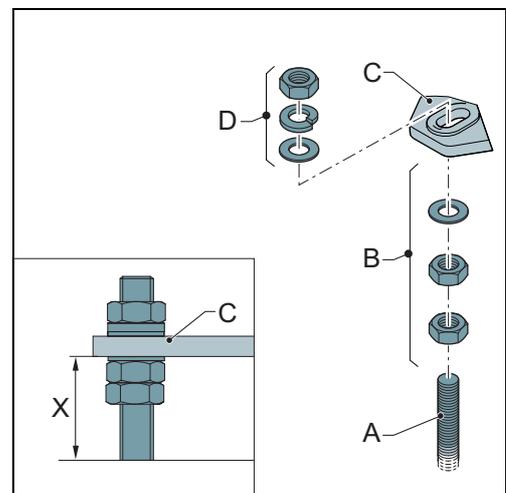
4.4 Install the lighting fixture



CAUTION

- Use the correct fasteners. Refer to section 4.2.
- Make sure that the light is horizontal:
 - This provides an optimal visibility to air traffic.
 - This prevents light scatter at ground level.
- Before you tighten the fasteners, make sure that all mounting feet rest on the nuts and washers (C). If you do not, this can cause damage to the light.

1. Make sure that the location is correct. Refer to section 4.2.
2. Install the threaded rods (A) on the structure. Refer to section 4.5.
3. Put the lighting fixture (C) in position on the fasteners (B):
 - a. Make sure the light has the correct orientation. Refer to section 4.2.
 - b. Make sure that you have enough clearance to level the lighting fixture. *The recommended minimum gap X is 25 mm (1 ").*
 - c. Make sure that the light is horizontal. Use the level indicators.
 - d. Tighten the both nuts (B).
4. Install and tighten the fasteners (D) with the correct torque. Refer to section 4.5.



4.5 Fasteners for installation

| Number | Fastener | Description | Material | Torque |
|--------|---------------------|----------------------------------------------------------|----------------------------------------------------------------|----------|
| 4 | Threaded rod | Length: 90 - 120 mm (3.5 - 4 ") Diameter: M12 (1/2 ") | Silicon bronze (If this is not possible, use stainless steel.) | |
| 12 | Nuts | M12 (1/2 ") | Same as the threaded rod | 10-12 Nm |
| 12 | Plain washers | M12 (1/2 ") | Same as the threaded rod | |
| 12 | Spring lock washers | M12 (1/2 ") | Same as the threaded rod | |

4.6 Connect the light fixture

4.6.1 Connect the Strobeline cable to the control panel



Note

This procedure shows the steps for the connection for stand-alone operation. If the light is part of an Orga obstacle light system, connect the cable to the CIP control panel. Refer to the manual of the CIP control panel.



CAUTION

- Use EMC cable glands on both ends of the cable, to prevent damage by lightning and static electric emissions.
- Do not connect the screen of the Strobeline cable to earth.

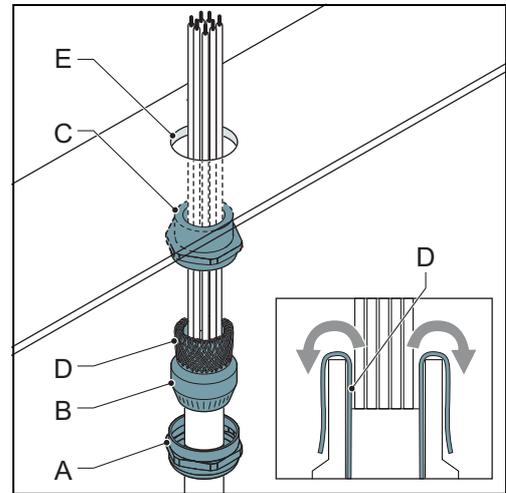
1. Prepare the cable. Refer to section 4.6.2.
2. Install the EMC cable gland on the cable. Refer to 4.6.3.
3. Connect the power wires. Refer to section 4.6.4 for the wire colour code.
4. Connect the fail output wires. Refer to section 4.6.4 for the wire colour code.

4.6.2 Prepare the cable

1. Measure the necessary wire length from the cable entry in the control panel to the connection terminals.
2. Remove this length of the cable jacket and the cable screen.
3. Cut the data cable. Refer to section 4.6.4 for the wire colour code.
4. Remove the wire insulation from the end of the wires.
5. Apply wire pins at the end of the wires.

4.6.3 Install the EMC cable gland

1. Remove 15 mm (5/8 ") of the cable jacket.
2. Put the cable through these parts:
 - a Sealing nut (A)
 - b Claw (B)
 - c Body (C)
3. Fold 15 mm (5/8 ") of the screen of the cable (D) around the claw (B). Make sure that the screen of the cable is evenly distributed around the claw.
4. Screw the body of the cable gland (C) in the cable entry (E) of the enclosure.
5. Fasten the body of the cable gland (C).
6. Screw the cable gland together.



4.6.4 Strobeline cable colour coding

| Description | Terminal | Worldwide except USA/Canada/Japan | USA/Canada/Japan |
|-----------------------------------------------------------------------|----------------|-----------------------------------|------------------|
| Power wires | Phase/Live (L) | Brown | Black |
| | Neutral (N) | Blue | White |
| | Earth/Ground | Green/Yellow | Green |
| Data cable (Used for communication with an Orga CIP control panel) | A | Orange | Orange |
| | B | Yellow | Yellow |
| | Screen (SCN) | Shrink sleeve | Shrink sleeve |
| Fail output wires (Used for stand-alone operation) | Common | Red | Red |
| | NC | Purple | Purple |

5 MAINTENANCE

5.1 Preventive maintenance



WARNING

Make sure that the system is off, before you do inspections or maintenance on the lights. The light can flash, the bright light can temporarily dazzle you.

Preventive maintenance on the light is not necessary. However, Orga recommends to do a visual check on the lighting fixture if a qualified engineer is present.

1. Clean the lighting fixture:
 - a. Make sure that the dome is clean.
 - b. Make sure that the photocell is clean.
2. Do a check on these conditions:
 - a. The lighting fixture is securely fixed
 - b. The lighting fixture is level. Do a check on the level indicators.
 - c. The lighting fixture is connected to the earth/ground path.
 - d. The lighting fixture is not damaged.
 - e. No significant moisture is inside the lighting fixture. (A small quantity of condensation is normal)
 - f. The cable is not damaged.
 - g. The lightning rod is not damaged and connected to the primary lightning arresting system.
 - h. For -G versions: The light flashes at the same time as the other lights on the site.

5.2 Replace the lighting fixture



Note

The lighting fixture does not have user replaceable parts. If the light is damaged or defect, replace the lighting fixture and the cable.

1. Disconnect the mains power supply.
2. Wait 2 minutes.
3. Disconnect the cable.
4. Remove the lighting fixture and the cable.
5. Install the new lighting fixture. Refer to section 4.4.
6. If you return the old lighting fixture: Fill in the RMA form on <http://www.orga.nl/service/>.

6 TROUBLESHOOTING

6.1 Troubleshooting table

| Problem | Fail signal | Possible cause | Solution |
|----------------------------------------------------------------------------|-------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (A part of) The light does not come on. | ON | The light is disconnected. | Correct the connection. |
| | ON | The light is defect. | Replace the light. |
| | ON | The wrong type or sub-type is programmed. | Configure the correct light in the CIP control panel. |
| The light does not flash at the same time as the other lights on the site. | OFF | The light does not have a GPS flash synchronizer. | Make sure that you have a -G version. Refer to the label. |
| | OFF | The GPS flash synchronizer starts up. | Wait for 15 minutes after the power is connected. |
| | OFF | The location is not correct. | Choose a correct location. Refer to section 4.2. |
| | ON | The GPS flash synchroniser does not operate correctly. | Replace the light. |
| The light operates in the wrong operating mode (day, twilight, night). | OFF | The photocell is dirty. | Clean the photocell. |
| | OFF | The positioning of the photocell is not correct. | Choose a correct location. Refer to section 4.2. |
| | ON | The photocell is defect. | <ol style="list-style-type: none"> 1. Disconnect the power. 2. Wait one minute. 3. Connect the power. 4. If the problem is not solved, replace the light. |



EU-Declaration of Conformity

Deze conformiteitsverklaring wordt afgegeven onder volledige verantwoordelijkheid van de fabrikant Orga B.V..

This declaration of conformity is issued under the sole responsibility of the manufacturer Orga B.V..

Voorwerp van de verklaring:

Object of the declaration:

AERONAUTICAL OBSTRUCTION LIGHT type L500

Het hierboven beschreven voorwerp van de verklaring is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

RADIO EQUIPMENT RICHTLIJN (RED): 2014/53/EU

RED DIRECTIVE: 2014/53/EU

RoHS Richtlijn: 2011/65/EU

ROHS DIRECTIVE: 2011/65/EU

Relevante geharmoniseerde norm(en) en andere normatieve documenten:

Relevant harmonised standard(s) or other normative document(s):

EN 61000-6-2 : 2005 + AC : 2005

EN 61000-6-4 : 2007 + A1 : 2011

EN 60598-1 : 2021 + A11 : 2022

EN 303 413 V1.1.1 (2017-06)

EN IEC 63000 : 2018

Schiedam, 09/05/2023

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UK Declaration of Conformity

Deze conformiteitsverklaring wordt afgegeven onder volledige verantwoordelijkheid van de fabrikant Orga B.V..

This declaration of conformity is issued under the sole responsibility of the manufacturer Orga B.V..

Voorwerp van de verklaring:
Object of the declaration:

AERONAUTICAL OBSTRUCTION LIGHT type L500

Het hierboven beschreven voorwerp van de verklaring is in overeenstemming met de desbetreffende Britse wettelijke instrumenten:

The object of the declaration described above is in conformity with the relevant UK statutory instruments:

RADIO EQUIPMENT REGULATIONS (RED): 2017 No. 1206

RoHS REGULATIONS: 2012 No. 3032

Relevante norm(en) en andere normatieve documenten:
Relevant designated standard(s) or other normative document(s):

EN 61000-6-2 : 2005 + AC : 2005

EN 61000-6-4 : 2007 + A1 : 2011

EN 60598-1 : 2021 + A11: 2022

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Schiedam, 09/05/2023



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For information about maintenance or repair that is not in this manual, please contact the Orga service support department.

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