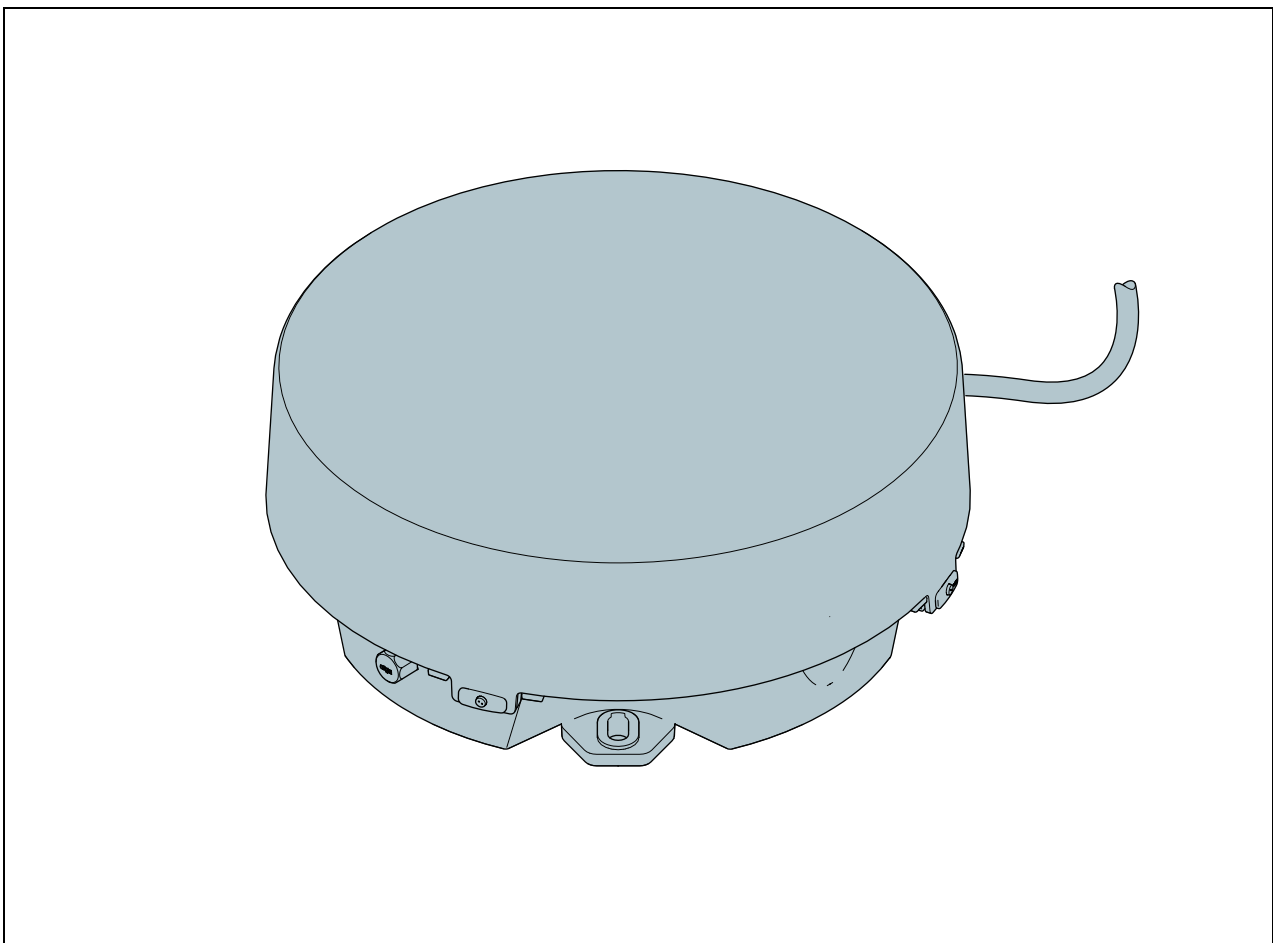




L550

Medium 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 L550 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.

1.3 Terminology

Abbreviation / term	Description
CAA	Civil Aviation Authority
CIP	Communication & Interface Processor
EMC	Electromagnetic compatibility
FAA	Federal Aviation Authority
GPS	Global Positioning System
HHS light	Helicopter hoist status light.
ICAO	International Civil Aviation Organisation
IEC	International Electrotechnical Commission
Label	Sticker or type plate with information of the product.
SRO light	Search and Rescue Operations light.

2 SAFETY

2.1 Intended use

The obstacle light variant provides pilots with visual information on the proximity and height of objects.

The HHS light variant provides pilots with visual information on the turbine status during helicopter hoist operations (wind turbines).

The SRO light variant provides pilots with visual information on the target turbines and/or windparks in case of emergency.

2.2 Safety instructions



WARNING

- Only an electrical engineer is allowed to do the electrical installation.
- 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 lighting fixture.
- 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 lighting fixture. The light can flash, this can temporarily dazzle you.
- Install the lighting fixture on the correct location and orientation. Refer to section 4.4.



CAUTION

- Do not look directly at the light from a short distance. The bright light can temporarily dazzle you.
- Do not wind the (strobeline) cables. This can cause damage to the electrical installation
- Do not use plastic washers. Use the correct fasteners. Refer to section 4.5.
- Always hold and support the lighting fixture 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 Warranty policy

THE FOLLOWING IS THE STANDARD LIMITED WARRANTY FOR THE ORGA SYSTEMS AND PRODUCTS ("PRODUCTS") SUPPLIED BY ORGA AVIATION 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:

- 1 For LED-based Lighting fixtures sixty (60) months after shipment of the Product ex works, Schiedam, the Netherlands¹⁾.
- 2 For xenon strobe lights twenty-four (24) months after shipment of the Product ex works, Schiedam, the Netherlands¹⁾.
- 3 All other Products 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

1) EXW, Incoterms

- 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
- 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.

3 DESCRIPTION

3.1 Overview and function of the lighting fixture

The L550 obstacle light is a light source for the marking of aviation hazards, typically on highrise structures as wind turbines, communication towers, broadcast antennas, electricity transmission and distribution towers, chimneys, bridges and buildings.

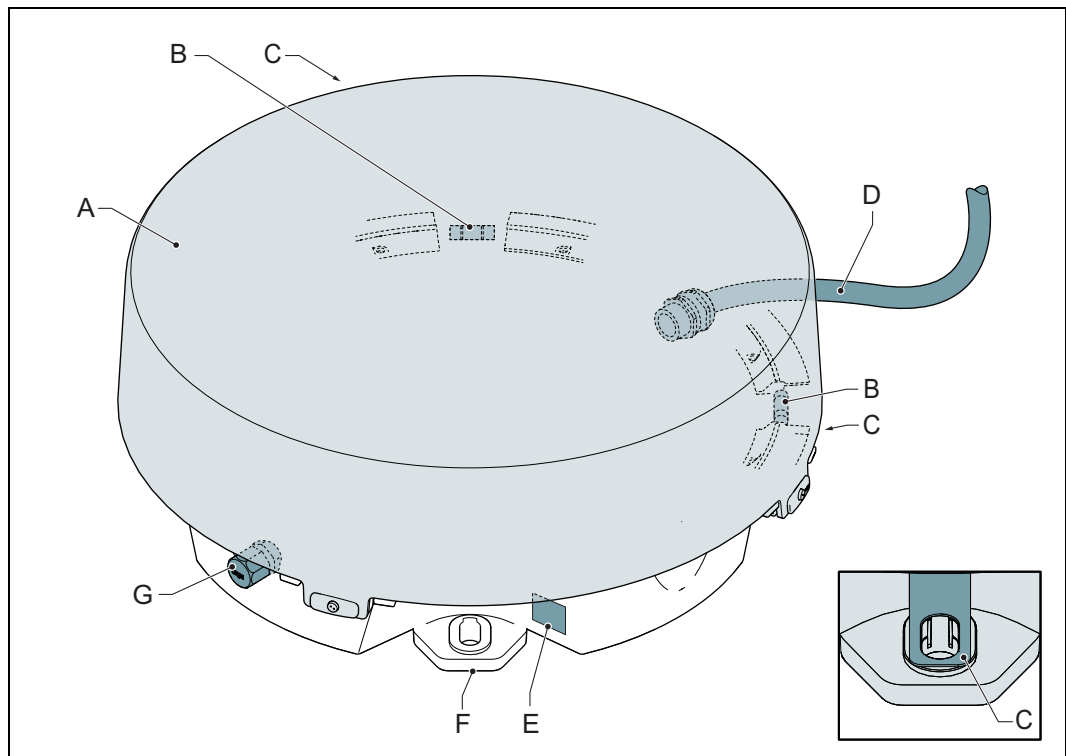
Other variants are intended as Helicopter hoist status light or target indication during rescue operations, typically on wind turbines and can be used stand-alone or as part of a light system.

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. If the type name contains - G the lighting fixture has a GPS flash synchronizer. All GPS variants are synchronized with the GPS signal and 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 lighting fixture does not operate, this will set the internal fail contact. If applicable a warning signal is sent to the CIP.



- A Dome
- B Spirit level indicators
- C Earth tag (on the mounting feet on both sides of the cable gland)
- D Light system cable
- E Label
- F Mounting feet
- G Photocell

4 INSTALLATION

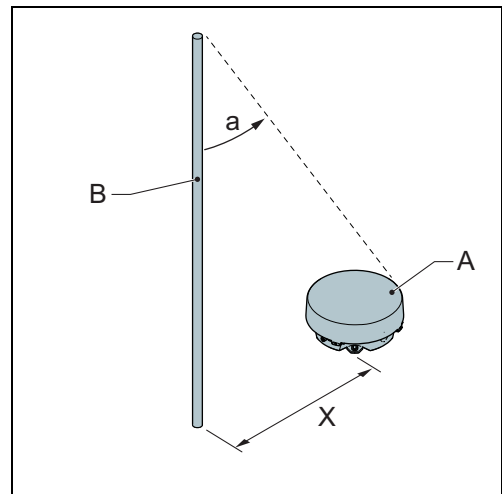
4.1 Unpack the delivery

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 lighting fixture 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 beam from a short distance.
The bright light can temporarily dazzle you.

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

1. Refer to section 4.6.2 for the wire colour code.
2. Connect the power wires to the mains power supply. The light comes on within 2 minutes.

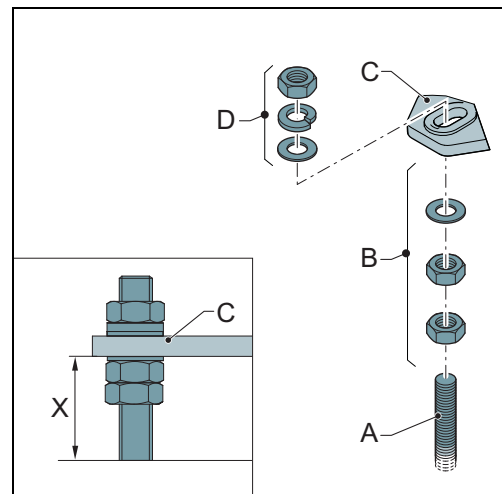
4.4 Install the lighting fixture



CAUTION

- Use the correct fasteners. Refer to section 4.2.
- Make sure that the lighting fixture 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 lighting fixture.

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 lighting fixture 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 lighting fixture 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 lighting fixture

4.6.1 Connect the Strobeline cable (Stand-alone operation)



Note

This procedure shows the steps for the connection for stand-alone operation. If the lighting fixture 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 a EMC cable gland to prevent damage by lightning and static electric emissions.
- Obey the basic EMC requirements to make sure that the operation of the equipment is protected from interference.
- Do not connect the screen of the Strobeline cable to earth.

1. Isolate the data wires. Refer to section 4.6.2 for the wire colour code.



Note

Orga recommends to install 3 additional terminals and connect the data wires to the terminals. This data connection allows an Orga service engineer to access the light if necessary.

2. Install the EMC cable gland refer to the manufacturer specifications. *Make sure that the outer screen of the cable enters the cable gland correctly.*
3. Connect the power wires. Refer to section 4.6.2 for the wire colour code.
4. Connect the fail output wires. Refer to section 4.6.2 for the wire colour code.

4.6.2 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 lighting fixture can flash, the bright light can temporarily dazzle you.

Preventive maintenance on the lighting fixture 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 Maintenance procedures

**CAUTION**

For cleaning:

- Always use a damp cloth or fresh water to prevent potential electrostatic charging hazards.
- Never use solvents of any kind.

5.3 Replace the lighting fixture

**Note**

The lighting fixture does not have user replaceable parts. If the lighting fixture 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 lighting fixture is disconnected.	Correct the connection.
	ON	The lighting fixture is defect.	Replace the lighting fixture.
	ON	The wrong type or subtype is programmed.	Configure the correct light in the CIP control panel.
The lighting fixture does not flash at the same time as the other lights on the site.	OFF	The lighting fixture 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 lighting fixture.
The lighting fixture 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 lighting fixture.



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 L550

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 L550

Het hierboven beschreven voorwerp van de verklaring is in overeenstemming met de desbetreffende Britse wettelijke instrumenten (en diens wijzigingen):

The object of the declaration described above is in conformity with the relevant UK statutory instruments (and their amendments):

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

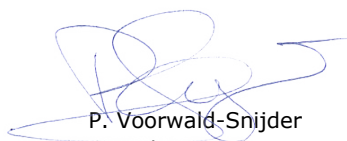
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For information about maintenance or repair that is not in this manual, please contact the Orga service support department.

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