O-MAN-00017-NAV

USER MANUAL

Low intensity LED beacon with Infrared
FAA L-810 and L-810(F)

NAV-AC-L810 // 114969-85

NAV-DC-L810 // 114965-42

NAV-AC-L810F // 114969-F-64

NAV-DC-L810F // 114965-F-32

NAV-AC-L810-HZ // 114969-65-HZ

NAV-AC-L810F-HZ // 114969-F-07-HZ



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1. Product name and part number

1.1. Model identification

Description	Norm	Part number (P/N)	Power supply	QR code
NAV-AC-L810	Low intensity FAA L-810	114969-85	110-240 Vac	
NAV-DC-L810	Low intensity FAA L-810	114965-42	48 Vdc	
NAV-AC-L810F	Low intensity FAA L-810-F	114969-F-64	110-240 Vac	
NAV-DC-L810F	Low intensity FAA L-810-F	114965-F-32	48 Vdc	
NAV-AC-L810-HZ	Low intensity FAA L-810	114969-65-HZ	110-240 Vac	
NAV-AC-L810F-HZ	Low intensity FAA L-810-F	114969-F-07-HZ	110-240 Vac	

1.2. Note

The "HZ" versions are the UL-certified L810 and L810F versions. The lamps should be used with UL-certified Eaton PLG2SA stopping plugs.

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2. Caution



- Do not proceed with any maintenance job when the product is under operation.
- Power supply must be shut down when opening the flash-head or the cabinet.
- Installation must be performed only by an electrically skilled operator, and National electrical installation rules must be respected.
- Always wear appropriate Personal Protective Equipment (PPE) when installing, maintaining or servicing the system.
- Any installation or maintenance operation performed at height must be carried out in strict compliance with fall-protection procedures.
- Do not look directly at the projector while it is in operation: Led projectors produce brilliant flashes of lights which can result in temporary or permanent eye damage.
- OBSTA products may be affected by ESD, use state of the art precaution before manipulation.
- Unless otherwise specified, all cables must be shielded, and the shielding must be connected to ground.
- All cables connected to PCBs and terminal blocks must be equipped with a cable connector to prevent false contacts when connecting devices.



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3. Warranty

OBSTA warrants the equipment described in the instruction manual and sold to purchasers to be free from defects in material and workmanship at the time of shipment. OBSTA's liability under this warranty being limited to repairing or replacing, at OBSTA's option, items which are returned to it prepaid within twenty-four (24) months from shipment to the original Purchaser, or twelve months from commissioning, and found, to OBSTA's satisfaction, to have been defective. In no event shall OBSTA be liable for consequential damages. NO PRODUCT IS WARRANTED AS BEING FIT FOR A PARTICULAR PURPOSE AND THERE IS NO WARRANTY OF MERCHANTABILITY.

This warranty applies only if: (I) the items are used solely under the operating conditions and in the manner recommended in OBSTA's instruction manual, specifications, or other literature; (II) the items have not been misused or abused in any manner or repairs attempted thereon; (III) written notice of the failure within the warranty period is forwarded to OBSTA and the directions received for properly identifying items returned under warranty are followed; and (IV) such return notice authorizes OBSTA to examine and disassemble returned products to the extent OBSTA deems necessary to ascertain the cause of failure. The warranties stated herein are exclusive.

THERE ARE NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, BEYOND THOSE SET FORTH HEREIN, and OBSTA does not assume, nor does OBSTA authorize anyone else to assume for it, any other obligation or liability in connection with the sale or use of said products. OBSTA's liability on any claim of any kind, including negligence, for loss or damages arising out of or connected with the manufacture, sale, delivery, repair or use of any equipment or services provided by OBSTA shall in no case exceed the price allocable to the item or service or part thereof which gives rise to the claim.

The integrity and reliability of OBSTA aviation obstruction lighting systems is dependent on the use of OBSTA parts and components. To ensure the optimum performance and reliability of your OBSTA system, it is strongly advised that only components and modules manufactured by OBSTA be used.

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4. Introduction

4.1. General information

This manual provides information about the installation, operation, and maintenance of the NAVILITE FAA Intensity Obstruction Lighting Systems manufactured by OBSTA. The lighting systems described in this manual are the low Intensity type A, B, E (ICAO) and FAA type L-810(L)(F).

4.2. Description

The NAVILITE FAA is an LED low intensity system manufactured to comply with ICAO annex 14 chapter 6 and Federal Aviation Administration Advisory Circular 150/5345-43J.

- ICAO low intensity type A and B with IR.
- L-810(L) type red fixed with IR emissions
- L-810(L)(F) type flashing red and infrared emissions

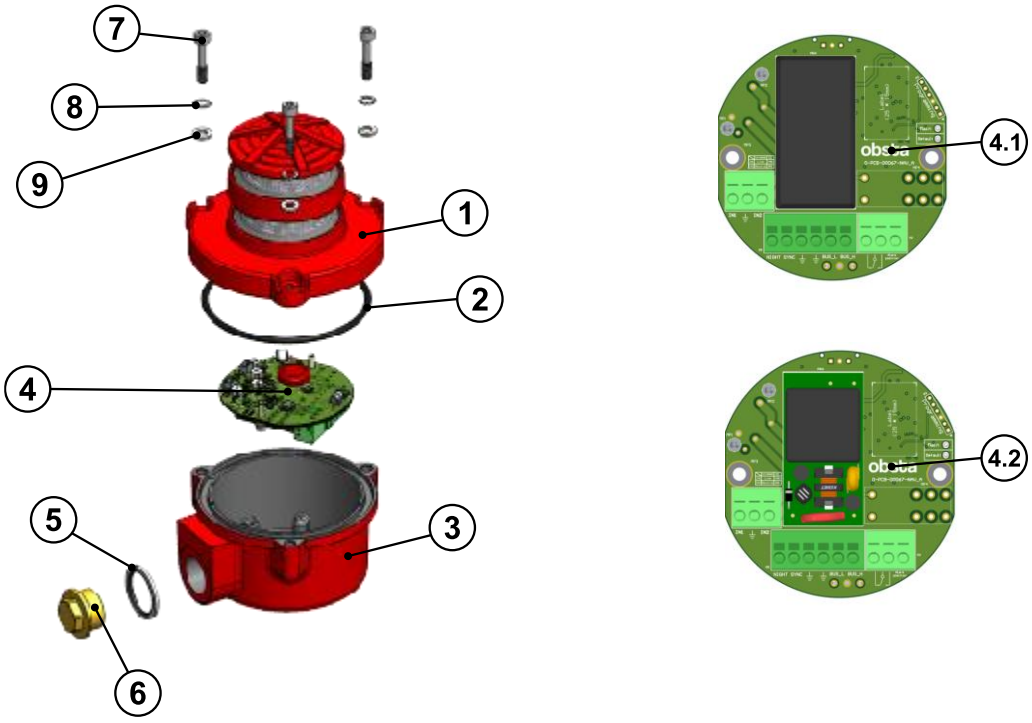
The NAVILITE includes:

- A base with 2 x ¾" NPT threaded holes for mounting.
- A NPT ¾" plug (if one of the two threaded holes is not used.
- Intern PCB), surge protection and alarm.
- A monobloc design with no loose part during installation
- 1 Allen key

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4.3. Beacon

4.3.1. Bill of materials



N°	Designation	Materials	Qty
1	FAA head (lamp)	Aluminum	1
2	O-ring Ø101x 5 80sh	EPDM	1
3	Base	Aluminum	1
4	PCB Navilite		1
4.1	PCB Navilite 230Vac		-
4.2	PCB Navilite 48Vdc		-
5	BS ¾" ring	Zinc-coated steel	1
6	3/4" male plug	Brass	1
7	M6x30 CHC screw	Inox A4	3
8	Lock washer Ø 6	Inox A4	3
9	Washer Ø 6	Inox A4	3

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5. Operation

5.1. System components

- Flash head:
  - Aluminum light head and glass lens
  - Aluminum housing
  - Light perfectly waterproof
  - No corrosion risk
  - No losing parts
  - Bird spike
- Power supply
  - Modular design with separate power supply in aluminum housing mounted
- Surge protection included
- 2 x ¾" NPT threaded holes for mounting (or with stainless bracket P/N: 113928 and standard cable entry in absence of FAA rigid conduit)

5.2. Synchronization

- The lamp can be controlled by an external controller. OBSTA recommend the use of an OBSTA controller.
- The flashing beacon synchronized with L-864 type beacons, only for L-810(L)(F).

5.3. Alarm

The lamp incorporates an alarm system that complies with FAA and FAA EB98 standards, enabling fault information to be relayed to a controller using two distinct methods:

- **Dry contact detection (relay):** The lamp is fitted with a relay capable of handling a maximum load of 250 Vdc and 200 mA. The connection is made to the terminal block via the "ALin" and "ALout" inputs. During normal operation, the relay is closed and current flows between the "ALin" and "ALout" terminals. When a fault is detected by the lamp, the electrical connection between these two terminals is automatically broken to signal the fault.
- **Detection via current measurement:** Lamp condition monitoring can also be managed by detecting the current drawn. This method is based on analyzing the current returned by the equipment. Deviations from the nominal operating values enable the controller to identify the presence of a fault

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In normal operation, the current is as below:

	Product PSU			
	24Vdc	48Vdc	120Vac	240Vac
RED current only (mA)	215	107.5	43	21.5
IR current only (mA)	18.5	9.25	3.7	1.85
RED + IR current (mA)	233	116	46.7	23.5

The lamp is in default when it detects one of the following defects:

- No power supply or power supply failure
- Visible or IR failure: Overconsumption or underconsumption (overcurrent or undercurrent) of the 12V Red LED circuit and/or the 12V Infrared (IR) circuit.
- No synchronization signal received in flash mode

Upon a lamp failure (default condition), the D5 fault LED on the electronic board lights up and plays a specific sequence at the default, and the alarm relay switches to its normally closed (NC) or de-energized state (rest position).

In the event of a fault, the lamp resets every 5 minutes until the fault is rectified..

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6. Installation

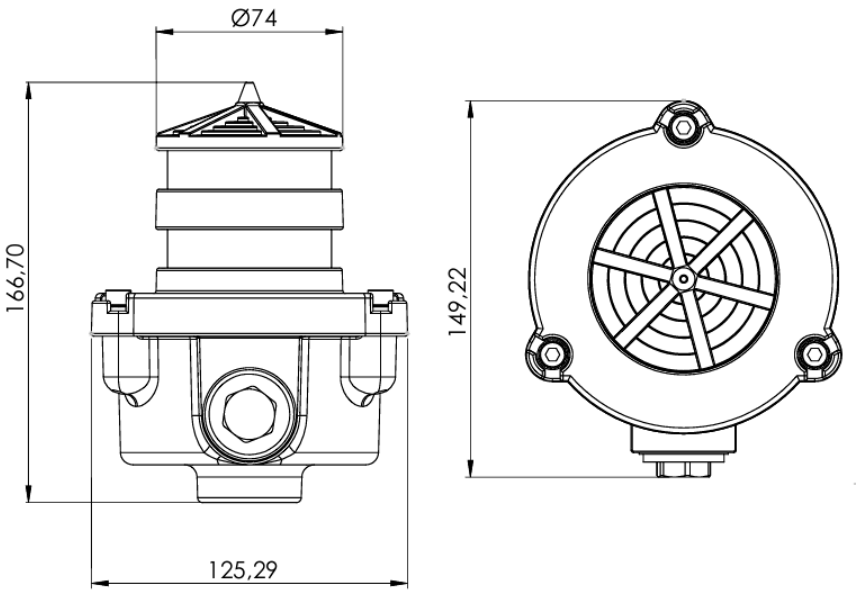
6.1. Unpacking

Carefully unpack the product and remove any internal packing material. Examine each item for obvious physical damage. Immediately report any claims to the carrier.

It's strongly recommended to supply the product and verify that it's working properly at ground level before final installation.

6.2. Mounting

6.2.1. Dimensions



6.2.2. Safety instruction

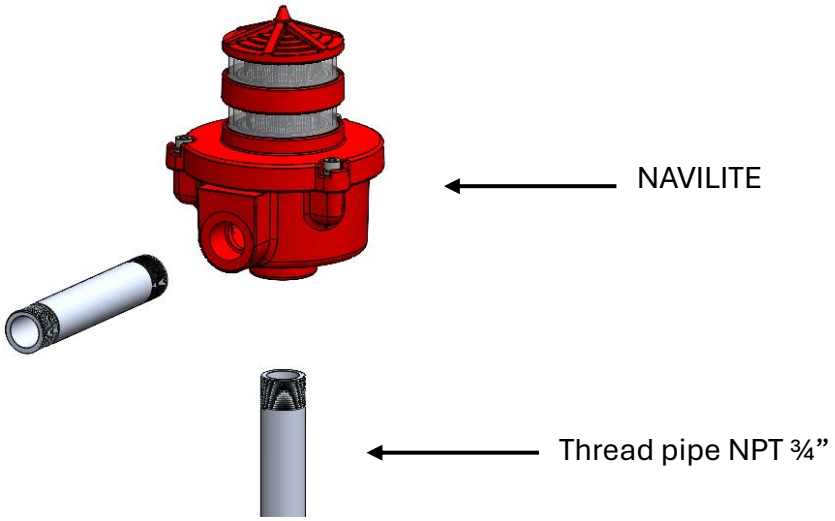
- **If the NAVILITE lamp is installed on a chimney**, it must be positioned below the smoke exhaust outlet to avoid any loss of luminosity.
- **The ambient temperature** around the NAVILITE must not exceed 55 °C, otherwise the converter may be damaged.
- **The operation and lifetime** of the lamp may be affected by the proximity of high-power electromagnetic emitters (omnidirectional antennas, radiating masts, etc.).
- **In environments** disturbed by electromagnetic radiation, the power cable must be shielded and the shielding properly connected to ground.
- **The light assembly fixture** must be mounted perfectly horizontally to meet the optical specification required for Aircraft Obstruction lights. If mounted in another position, the fixture will not be considered as an Aircraft Obstruction lights.

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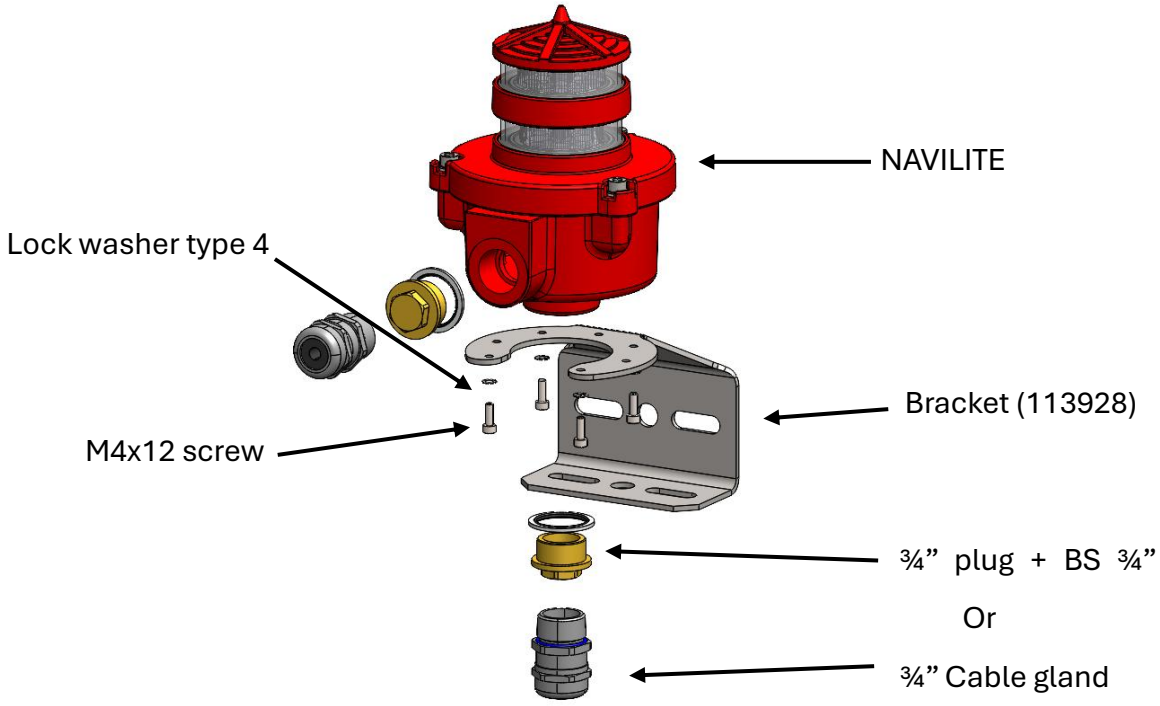
6.2.3. Mounting option

Various mounting options are available: on a ¾" NPT pipe, on an OBSTA bracket (ref. 113928) or on U-bolt brackets with a diameter between 50 and 273 mm.

Tube ¾" NPT: This fitting allows the lamp to be connected directly to a 3/4" threaded pipe. When connecting to a flexible pipe, OBSTA recommends using a mounting bracket (P/N 113928 or P/N 114009-30).



OBSTA bracket with cable gland in absence of conduit:



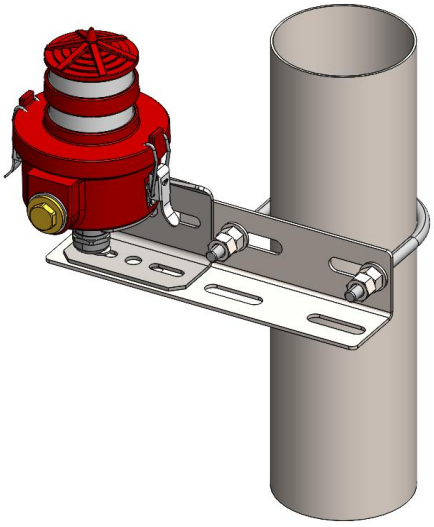
Note: The "HZ" version should be used with UL-certified Eaton PLG2SA stopping plugs

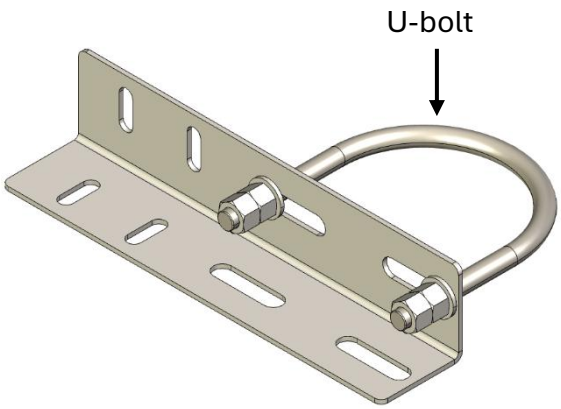
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Square and U-bolt:

The size of the U-bolt depends on the size of the tubular bracket:

- DN40: 1”1/2 - 48,3 mm tube *P/N [**113789-NAV-48**]*
- DN50: 2” - 60.3 mm tube *P/N [**113789-NAV-60**]*
- DN65: 2”1/2 - 76.1 mm tube *P/N [**113789-NAV-76**]*
- DN80: 3” - 88.9 mm tube *P/N [**113789-NAV-89**]*
- DN100: 4” - 114.3 mm tube *P/N [**113789-NAV-114**]*
- DN150: 6” - 168.3 mm tube *P/N [**113789-NAV-168**]*
- DN175: 7” - 193.7mm tube *P/N [**113789-NAV-194**]*
- DN225: 9” - 244 mm tube *P/N [**113789-NAV-244**]*
- DN250: 10” - 273 mm tube *P/N [**113789-NAV-273**]*





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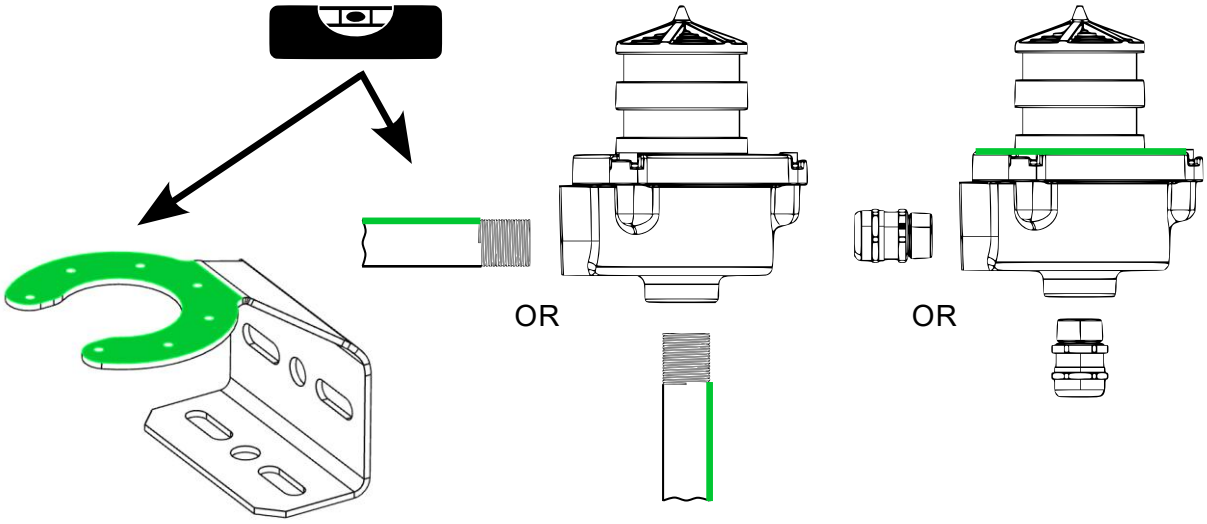
6.2.4. Leveling

Leveling of the light is the explicit responsibility of the installation. Installer must use a spirit level.

- ¾" NPT pipe mounting leveling must be performed on the tube either horizontally or vertically.
- 4 M4 holes: leveling must be performed on the bottom of the light

We strongly advise that the metallic base of the light be connected through a grounding kit to the local grounding of the tower.

To level the lamp, the spirit level must be placed on the green areas as shown below:



Bracket [**113928**]

Thread pipe NPT ¾"

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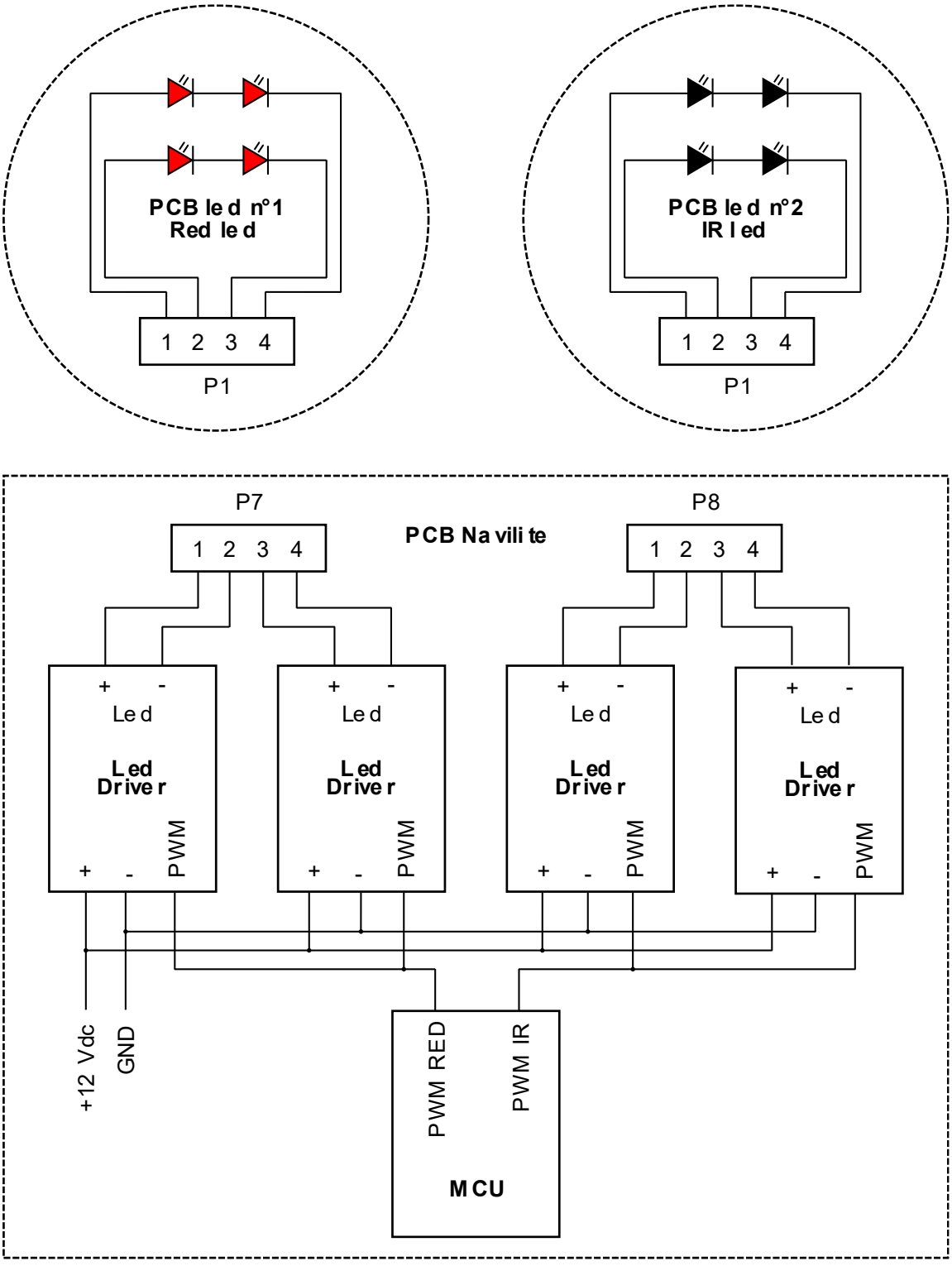
7. Wiring

7.1. Caution before wiring

- **Power OFF**: Always ensure the main power supply is completely turned off before starting any wiring work.
- **Verify voltage**: Confirm the voltage level of the circuit. Be aware of high-voltage hazards.
- **Use proper PPE**: Wear personal protective equipment (insulated gloves, safety glasses and safety shoes).
- **Secure the work area**: Ensure the aera below is cordoned off to prevent injury from falling tools or components.
- **Chek equipment ratings**: Confirm the product's voltage and current ratings match the installation circuit.
- **Inspect components**: Examine all parts (wires, connectors, terminals) for damage before wiring.
- **Proper tools**: Use insulated tools appropriate for electrical work.
- **Follow wiring diagram**: Refer to the OBSAT's schematic to ensure correct connections.
- **Grounding**: verify proper grounding/earthing for all metal parts and enclosures.
- **Secure wiring**: Fasten cable properly to prevent strain, chafing, or accidental disconnection.
- **Verify before powering**: Double check all connections before restoring power.
- **Shielded cable**: Cables must be shielded when used in electromagnetic fields.
- **Position**: The lamps shall be installed as close as possible from the command box from it using a 2x1.5mm^2 cable.
- **Polarities**: The polarities must be correctly positioned on the DC power supply. If reversed, the printed circuit board may be seriously damaged.
- **Configuration:** Do not forget to set the dipswitches as required by the warning lights: Unless specified, dipswitch settings configurations are factory preset.

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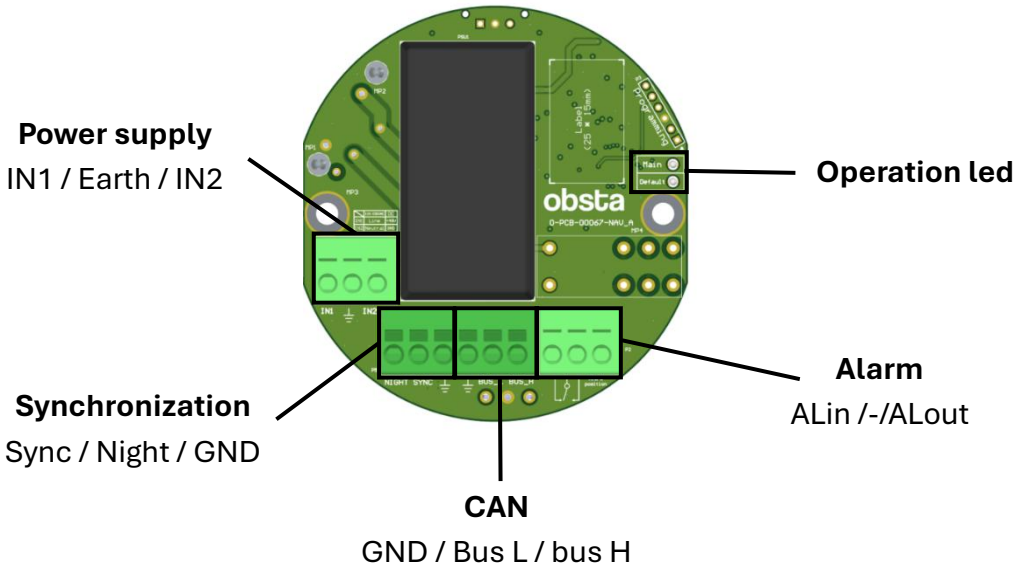
7.2. Overview



The P1 connectors on the LED circuit boards are connected to the P7 and P8 connectors on the NAVILITE circuit board using cables (not shown in the diagram). The black strand corresponds to the IR stage and the red strand to the red stage.

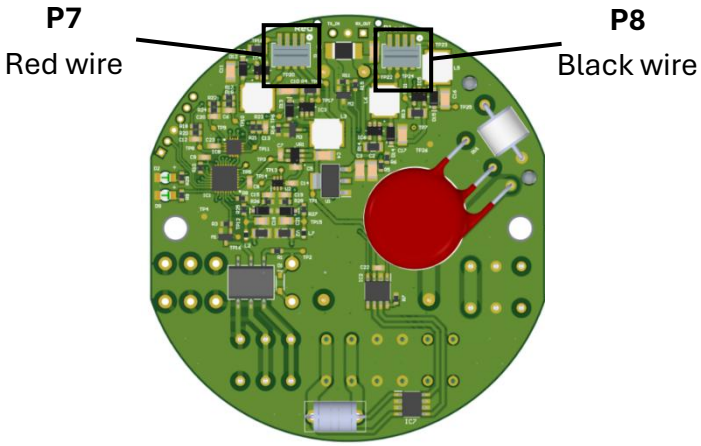
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- **PCB NAVILITE front panel**



	AC version	DC version
IN1	Line	+ 48Vdc
IN2	Neutral	-48 Vdc (GND)

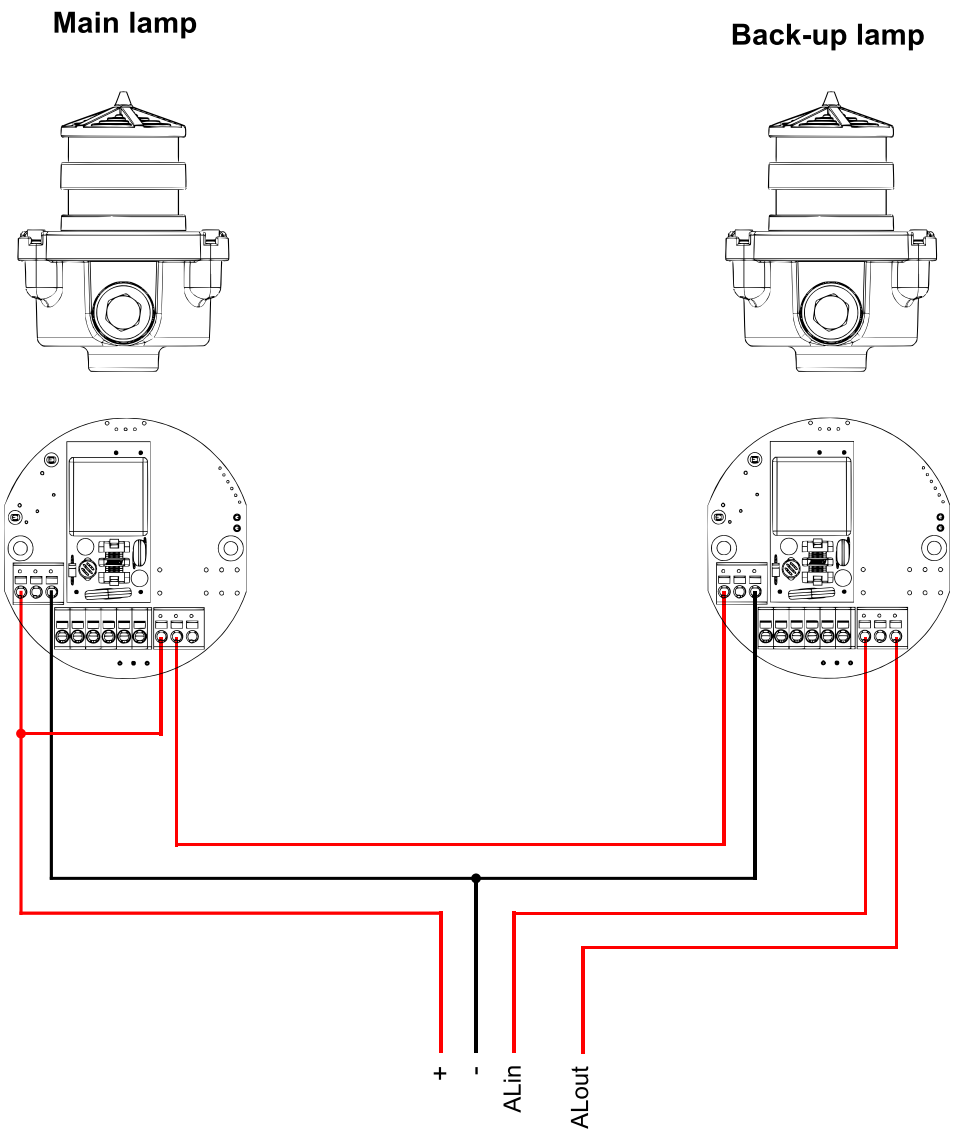
- **PCB NAVILITE back panel**



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7.3. Typical wiring

NAVILITE (48Vdc) in “Main and Back-up” configuration



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8. Startup and configuration

8.1. Power-up

Before turning on the power, ensure that all electrical connections are properly made and that the supply voltage matches the product specifications. Check that the wiring is secure and that there are no bare wires or conductive elements that could cause a short circuit.

8.2. Configuration

The configuration is programmed by OBSTA operators at the factory. If a specific configuration is required, OBSTA can reprogram the lamp.

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8.3. Default

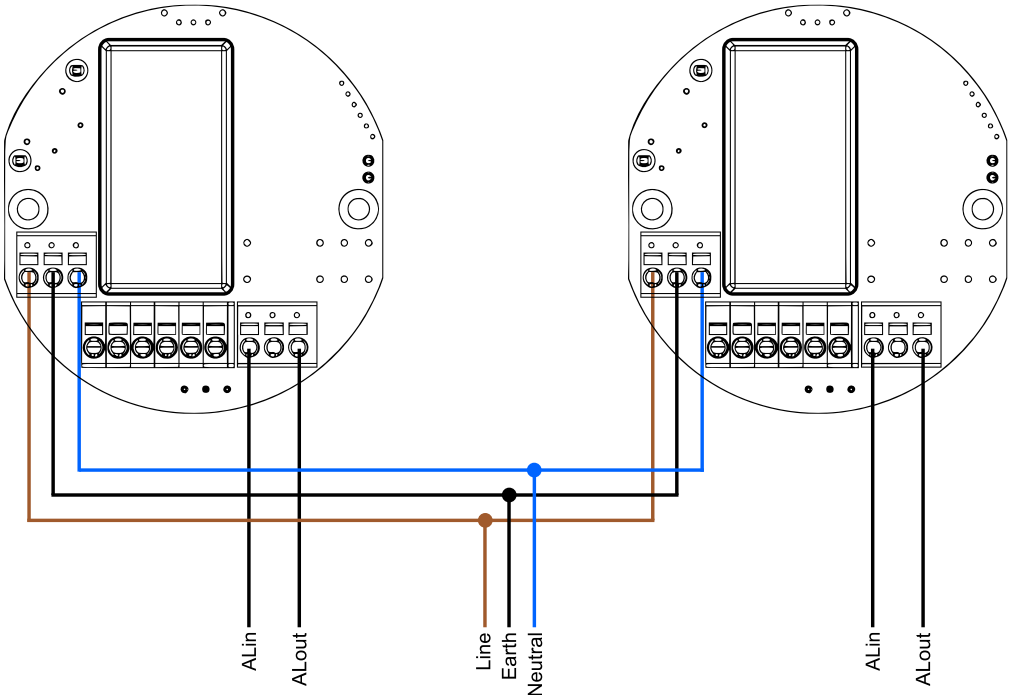
The light manages default condition (short-circuit, LED failure, etc...), resulting in certain warning behaviors and affecting its main function (flashes). Fault conditions are tested regularly and can be automatically cleared once the situation disappears. Except for lamp dysfunction default, the status is retained until the reset of the product.

Description	Condition of default	Led pattern
Power supply	Under or overvoltage	· · · · · · · · · · Short blinking
Short circuit	Short circuit	· · 2 short
Open circuit	Open circuit	· 1 short
Slave out of synchronization	Light is configured as slave, current configuration sequence is not a continuous flash, and no top synchro signal has been received in the last 10 seconds	— · 1 long and 1 short
DTN unchanged	The DTN mode did not change and has not been forced since the last 48h	— 1 long
Configuration	Configuration parameters sent by CAN do not match product version	— · · 1 long and 2 short

The relay switches off when one or more of these defaults are present.

When several defaults are present at the same time, the led displays the most important one.

To reset the alarm: switch off, then switch on again after 1 minute.



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9. Maintenance

9.1. Annual visit

Test	Frequency	Preventive action	Risk
Wiring	Annual	Visual control Tightening cable glands Tightening PCB wires	Cable degradation Poor contact Lamp in default mode
Waterproof	Annual	Lamp visual verification	Water infiltration Short circuit Lamp off
Light performance	Annual	Verification of external Clean beacon Check lamp default	Poor brightness Lamp in default mode
Clamping	Annual	Checking tightness	Lamp falling Tightness degradation
Aspect (rust, dust…)	Annual	Exterior cleaning Check if resin bleaches over time	Malfunction

Before opening the lamp and carrying out any work, check that there is no current in the lamp.

9.2. Spare part

- FAA head (lamp) NAV-FAA-LIGHT [**114013-29**]
- PCBa 48Vdc NAV-PCB-048 [**114011-51**]
- PCBa 240 Vac NAV-PCB-240 [**144012-90**]

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10. Technical specifications

10.1. Light output

Designation	Min	Nominal	Max	Unit
IR luminosity	2.4	-	-	mW/sr
Red luminosity	32.5	-	-	Cd
IR beam spread	-	>10	-	°
Red beam spread	-	>10	-	°
Beam pattern	-	360	-	°
Flash mode (L-810(L)(F))		250		ms
Fixed mode (L-810(L))	-	Continuous	-	ms

10.2. Electrical input

Designation	Min	Nominal	Max	Unit
Voltage 48Vdc version	20	48	60	Vdc
Voltage 240Vac version	99	110-240	264	Vac
Voltage synchro input	12	-	60	Vdc
Top synchro duration	2	-	100	ms
Alarm relay	-	-	1	A

10.3. Mechanical properties

Weight	1.439 kg
Attachment	¾ NPT X4 M4 screw

10.4. Operating environment

Name	Min	Nominal	Max	Unit
Wind load			320	Km/h
Humidity (without condentation)	5	-	95	%
Operating temperature	-35		+55	°C

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