OBELUX
AVIATION LIGHTS

Obelux MOD light series manual

MOD light IR or Combi (IR and Red) Obstruction Lights

MOD NVG Compliant Infrared 850nm and Red 25cd/200cd

CONTENTS

Changelog

Version	Date	Description	Author
0.1	23.05.2025	Document created	JSi
1.0	26.09.2025	Standalone Mode Operating Mode DIP settings	PWe
1.1	06.05.2026	DIP settings change (Modbus Mode and Standalone Mode) for SW v1.60+	PWe

Acronyms and Abbreviations

DDP	Deep discharge protection
FPM	Flashes Per Minute
GPS	Global Positioning System
IR	Infrared
LED	Light emitting diode
LI	Low intensity (Obelux light)
NVG	Night Vision Goggles
PCB	Printed Circuit Board

1 ABOUT THIS PRODUCT

Obelux low intensity (LI) MOD series LED obstruction lights provide Night Vision Goggle (NVG) compliant infrared (850 nm) light and 25 cd or 200 cd color aviation red light. No external controllers are required to install and run these lights. In most use cases, mounting the standalone aviation obstruction light and connecting power supply cable are the only actions needed for operating the light. Obelux LI MOD series products meet MOD obstruction lighting guidance.

Features

- ► Based on LED technology
- ► NVG compliant infrared (IR) 850nm
- ► Low intensity RED 25cd or 200cd
- ► Incorporated photocell for On/Off (Night/Day) switching
- ► Horizontal beam 360° unrestricted
- ► GPS synchronization
- ► Both stand-alone (incorporated alarm signal) and Modbus operation available
- ► Extremely low power consumption
- ► Provides long maintenance-free operating time
- ► Chassis anodized, marine-grade aluminum; clear polycarbonate dome, degree of protection IP65
- ► Robust overvoltage protection (Type II)
- ► Fault monitoring with dry contact alarm relay
- ► Operating temperature range -40°C…+55°C
- ► Thermostat controlled heater
- ► Smart heater (DC models, used in battery powered operation)
- ► Deep discharge protection (DC models)
  Battery powered operation ON/OFF
- ► 5-year warranty
  Optional 10-year warranty

Optional Controllers

- ► CP-XX Series (Interfaces: Ethernet TCP/IP and RS-485/Modbus)
- ► CP-M1 Series (Interface: RS-485/Modbus)

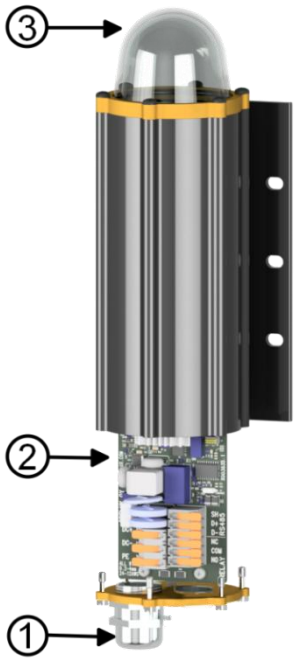
1.1 Product codes

Order code	Output	Operating voltage	Power consumption *	IR	Photocell	Alarm relay	Modbus	GPS sync	Heater
AC MODELS									
MOD-AC-IR-RED-GA	IR+25cd/200cd	100-250VAC	5,5W	Yes	Yes	Yes	No	Yes	Yes
MOD-AC-IR-RED-GAM	IR+25cd/200cd	100-250VAC	5,5W	Yes	Yes	Yes	Yes	Yes	Yes
DC MODELS									
MOD-DC-IR-RED-GA	IR+25cd/200cd	10-60VDC	5,5W	Yes	Yes	Yes	No	Yes	Yes
MOD-DC-IR-RED-GAM	IR+25cd/200cd	10-60VDC	5,5W	Yes	Yes	Yes	Yes	Yes	Yes

* Power consumption: 25cd Red 0,3W, 200cd Red 1,5W, IR 3,5W, 60 FPM
In product codes (-GAM): A = alarm relay, G = GPS, M = Modbus
All models available with IP67 water protection class (append -67 to product code, e.g. MOD-AC-IR-RED-A-67)
All models available with optional 10 year warranty (append -10 to product code, e.g. MOD-AC-IR-RED-A-10, with IP67 option MOD-AC-IR-RED-A-67-10)
Light intensity depends on beam width (default beam width 20°), beam width set in factory
Flash rate and power are software configurable (flashing is not limited to constant rates, any flash sequence can be programmed, e.g. 20, 40 FPM)

DC models idle power consumptions: 0,5W (light off, with GPS on)
Heater increases power consumption by 7W; heater turns on when temperature drops below 10 °C
Heater can be set ON/OFF, factory setting: Heater ON
Water protection class IP65 applies when the light is mounted vertically with the dome facing up

1.2 Product features



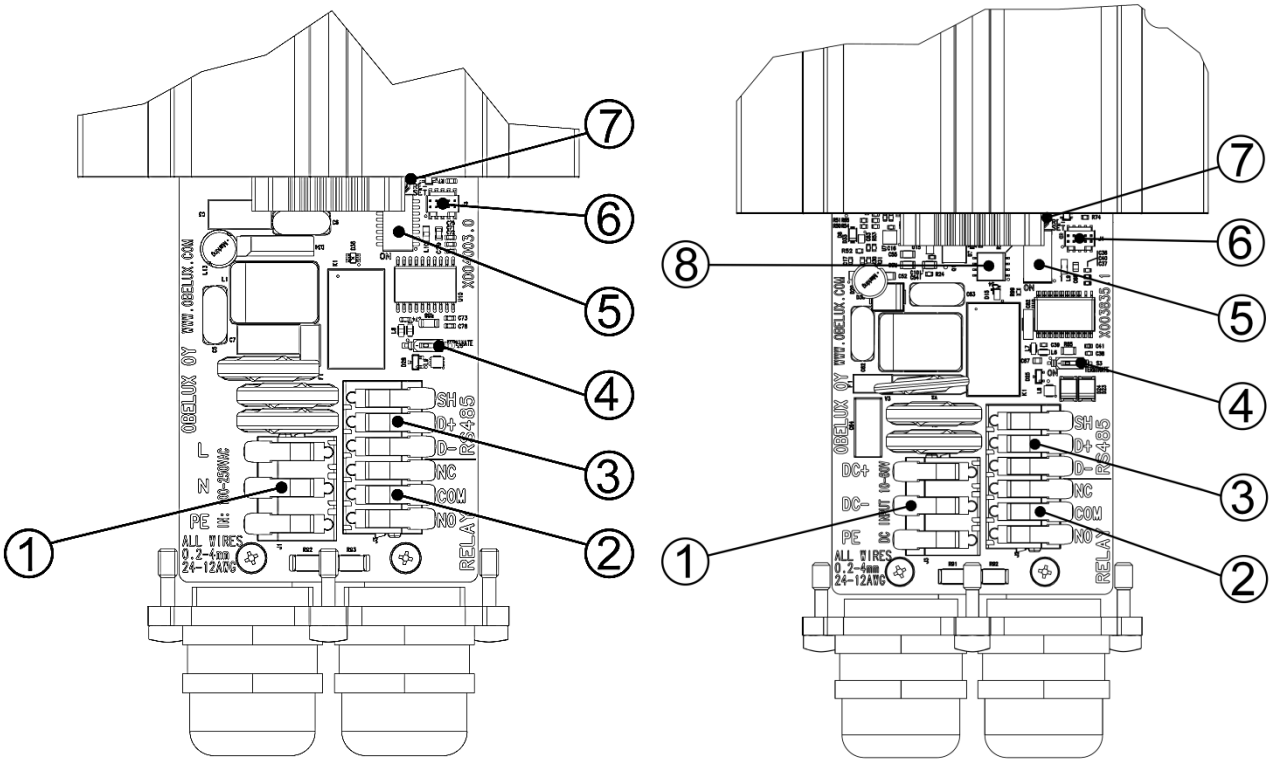
1. Location of cable glands (M25)
2. Controller board
3. Polycarbonate dome, location of GPS, LED indicators and photocell (do not cover)

Factory installation:

- All models: 1 M25 gland attached to light, other gland hole sealed

Accessories:

- 1 M25 gland, 1 gland sealant



AC models DC models

1. Power connector
2. Alarm relay connector
3. RS-485 (Modbus) connector
4. RS-485 termination DIP switch
5. Configuration DIP switches (1-8)
6. Programming terminal
7. Reset button
8. Deep discharge protection switches (1-4) (DC models)

2 SAFETY INSTRUCTIONS

In this section are general safety instructions for the device. Please read the instructions carefully before installing or using the device to avoid any personal, environmental or material damage.

2.1 General considerations

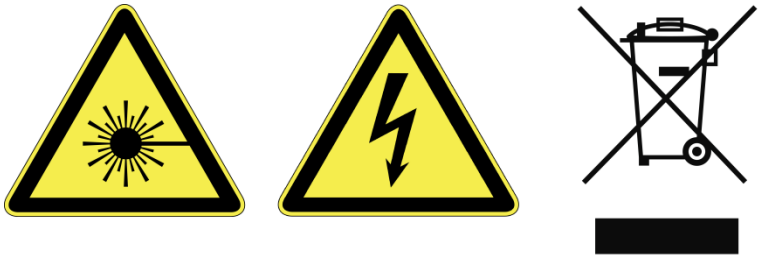
Install device observing manufactures installation guide.
Use only cables and connectors specified by the manufacturer and in compliance with local electrical code.
Keep your device away from heat sources, dust, smoke or other harmful substances.
Do not modify the device unless otherwise approved by the manufacturer.
If you have any error situation with the device, do not try to fix it by yourself, contact your reseller.

2.2 Environmental considerations

The European Parliament and the Council of European Union issued directive 2012/19/EU to contribute to sustainable production and consumption by, as a first priority, the prevention of WEEE and, in addition, by the re-use, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste and to contribute to the efficient use of resources and the retrieval of valuable secondary raw materials.
Obelux aviation obstacle light products sold inside European Union can be returned to the manufacturer if no local WEEE separate collection and re-use services are available. Please contact Obelux for details.

2.3 Personal considerations

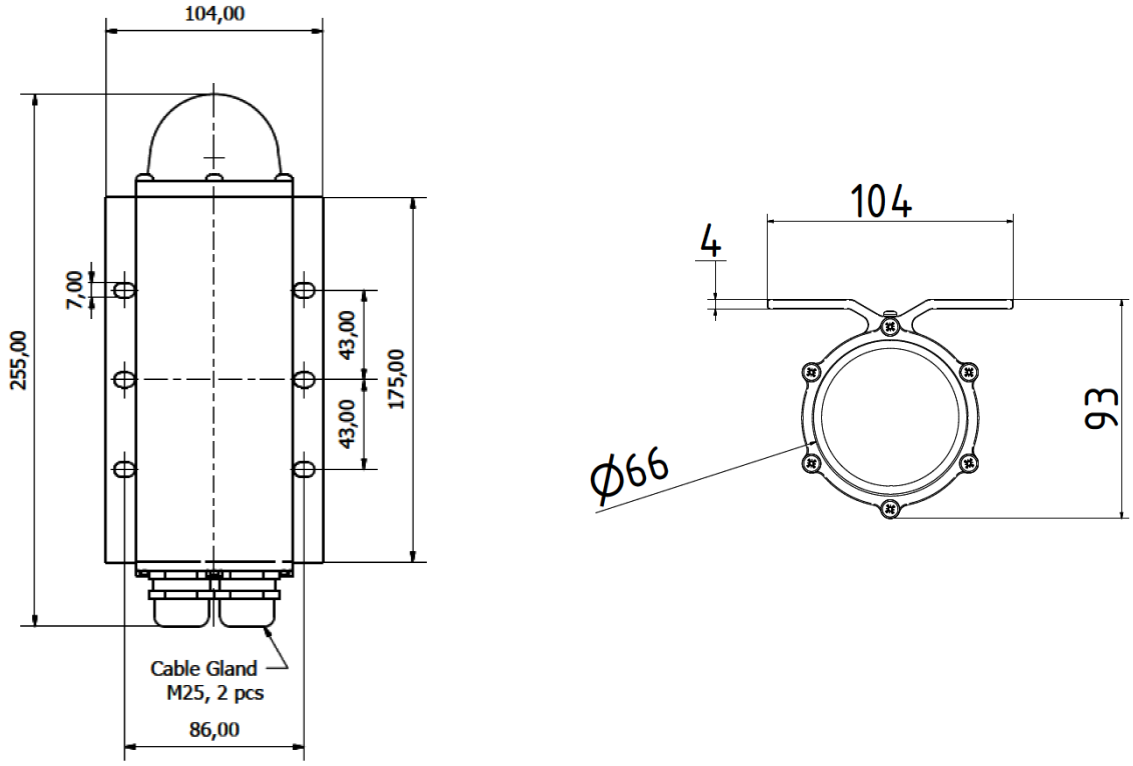
HIGH VOLTAGE! This device may contain high voltage. Do not try to service the device when it is powered on.
Obelux aviation obstruction lights are Class 2M LED devices. This class is safe for accidental viewing under all operating conditions. However, it may not be eye-safe for a person who deliberately stares into the LED beam by overcoming their natural aversion response to the very bright light.



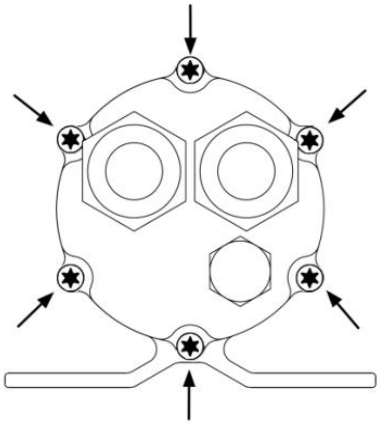
3 INSTALLATION

3.1 Device installation

The light has 6 holes for M6 bolts on the bottom. The Photocell is located on top of the light under the dome and should have an uninterrupted view of the sky to work correctly. M25 cable glands accept cables of 6-17 mm in diameter. Make sure that all unused glands or gland holes are sealed. When the back plate is open, check that there is no inflow of water (incl. hail and snow) into the light.



Dimensions (mm)

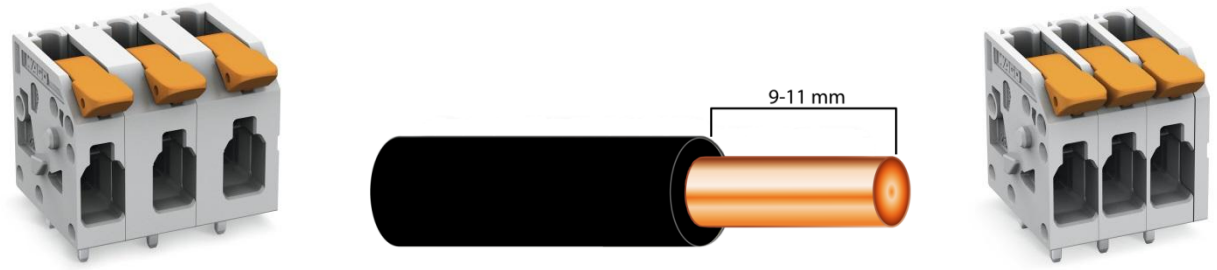


Back plate screws (T20)

3.2 Wiring

Open the back plate screws. Back plate and the main circuit board slide out. Route cables through cable glands on back of the light.

Power **Alarm relay/RS-485**



Terminal block connectors and wire strip length

3.2.1 AC Input (AC models)

Mark	Description	Information
L	Live terminal	Connect the mains Live wire into this pole.
N	Neutral terminal	Connect the mains Neutral wire into this pole.
PE	Protective earth	Connect the protective earth (yellow/green) wire into this pole.

Use a power supply with Protective Earth. The connectors are Wago Push-in CAGE CLAMP® type. Use the same connector to distribute power to next light if necessary.

Conductor cross-section	0.2mm² - 4mm² (24-12 AWG)
Recommended conductor size	2.5mm² (14 AWG)
Power supply type	100-250VAC, 50/60Hz, 1 phase

3.2.2 DC Input (DC models)

Mark	Description	Information
DC+	Positive	Connect the power supply positive wire into this pole.
DC−	Negative	Connect the power supply negative wire into this pole.
PE	Ground	Connect the power supply ground wire into this pole.

The connectors are Wago Push-in CAGE CLAMP® type. Use the same connector to distribute power to next light if necessary.

Conductor cross-section	0.2mm² - 4mm² (24-12 AWG)
Recommended conductor size	2.5mm² (14 AWG)
Power supply type	10-60VDC

3.2.3 RS-485 (Modbus)

Mark	Description	Information
D+	Data +	RS-485 non-inverting pin
D−	Data −	RS-485 inverting pin
SH	Shield	Use shielded cable and connect the shield to the SH pin

Isolated RS-485 bus. Unused connectors can be left floating, i.e. no wiring is required. The connector is Wago Push-in CAGE CLAMP® type. Use the same connector to distribute data signals to next light if necessary.

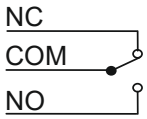
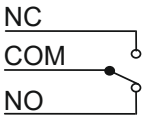
Conductor cross-section	0.2mm² - 4mm² (24-12 AWG)
Recommended conductor size	0.75mm² - 1.5mm² (20-16 AWG) or CAT cable

3.2.4 Relay (Alarm relay)

Mark	Description	Information
NO	Normally Open	Normally open contact; in alarm, connected with COM
COM	Common	Common relay contact
NC	Normally Connected	Normally connected with COM; in alarm, open contact

Unused alarm relay connectors can be left floating, i.e. no wiring there is required. The connector is Wago Push-in CAGE CLAMP® type.

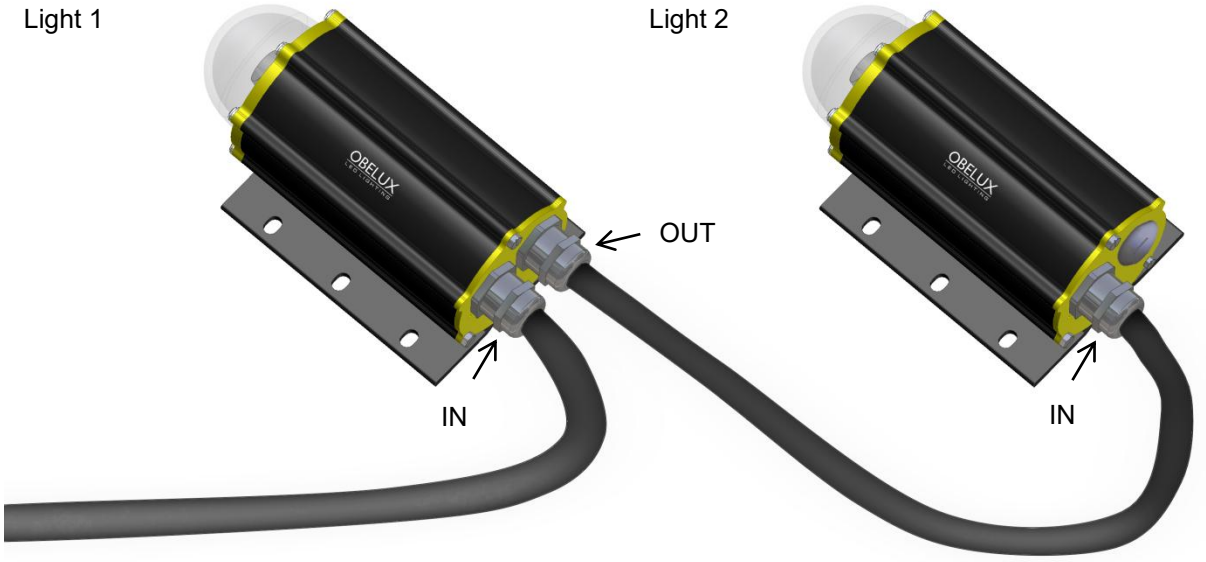
Conductor cross-section	0.2mm² - 4mm² (24-12 AWG)
Recommended conductor size	0.75mm² - 1,5mm² (20-16 AWG) or CAT cable
Relay maximum loads	250VAC @ 8A; 50VDC @ 1A

	
Alarm relay during normal operation	Alarm relay during start-up, active alarm and/or during loss-of-power

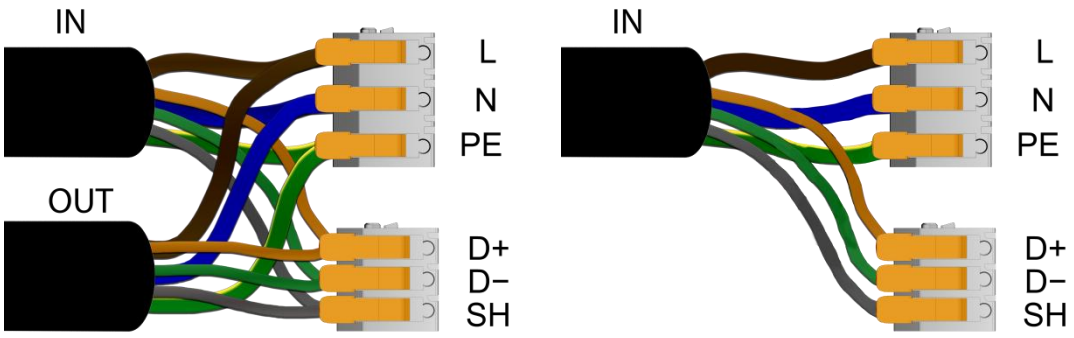
NC: Normally Closed, COM: Common, NO: Normally Open
During normal operation, terminals ALARM COM and ALARM NC are connected (short-circuit) and ALARM COM and ALARM NO are not connected (open circuit). If an alarm is raised, ALARM COM and ALARM NO are short-circuit and ALARM COM and ALARM NC are open circuit.
Note that the ALARM COM and ALARM NO are short-circuited during light start-up.

3.2.5 Chaining Lights

Lights are easy to chain together (no need for junction box) (connection can be protected with a 6A or 10A fuse or with a circuit breaker (C curve: C6A or C10A)).

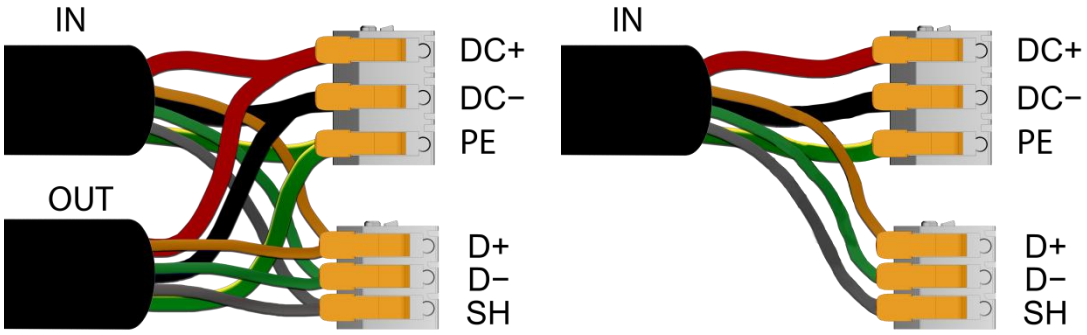


Chaining lights



Light 1 Light 2

Distributing power and data to next light on the network (AC version)



Light 1 Light 2

Distributing power and data to next light on the network (DC version)

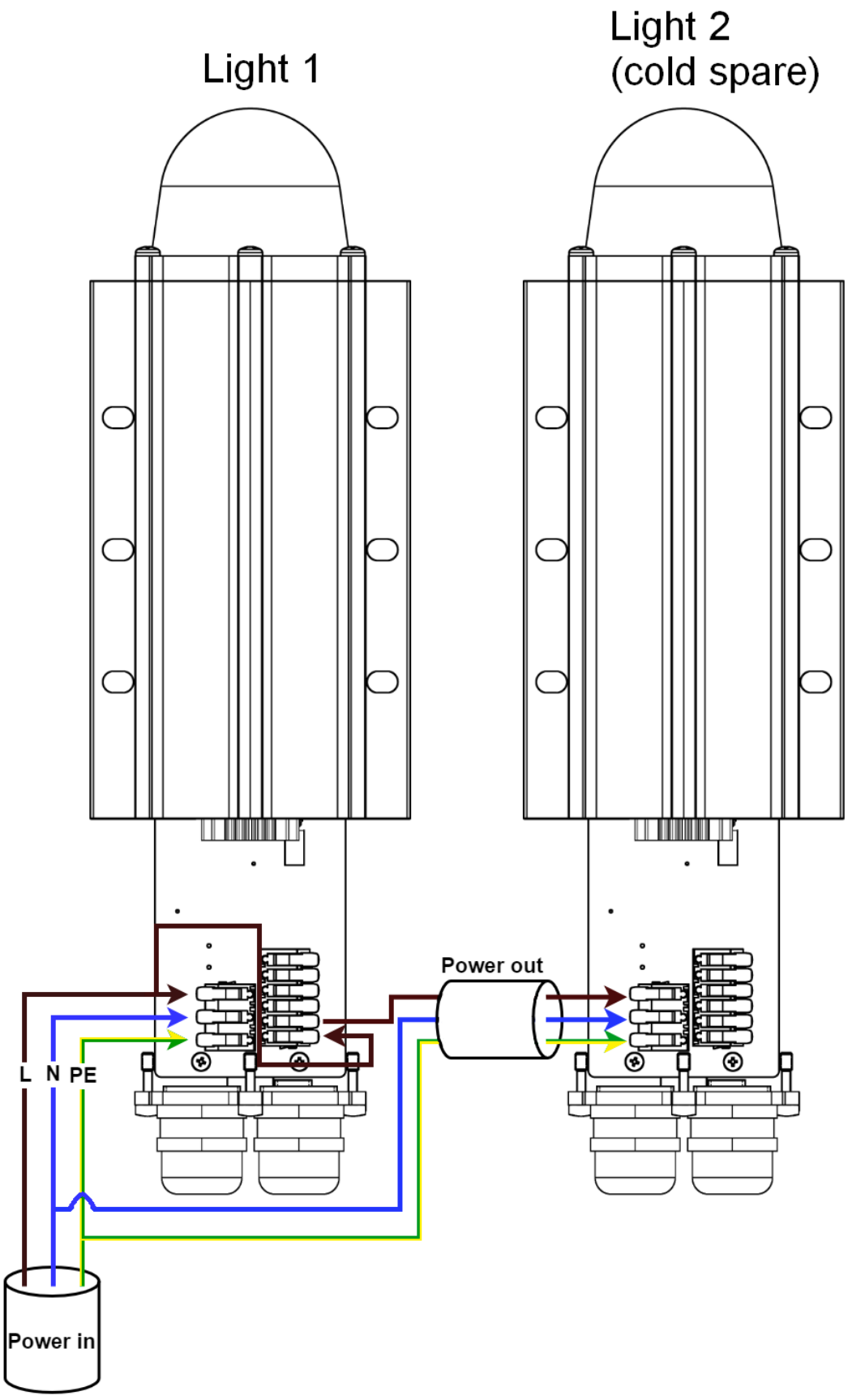
When chaining the RS-485 connectors, note the maximum conductor size of 1.5mm² (16 AWG).
Remember to set the RS-485 termination DIP switch on both ends of the RS-485/Modbus bus.

3.2.6 Cold spare connection

In cold spare operation, when primary light (Light 1) has an alarm, the spare light (Light 2) turns on.
When alarm turns on in light 1, the NO-COM pins in its alarm relay will short and provide L (phase) to light 2 powering it on. Light 2 will turn off if alarm condition of light 1 clears. Note that both lights can have lights on during the light 1 alarm.

Chaining lights via alarm relay for stand-by redundant operation.

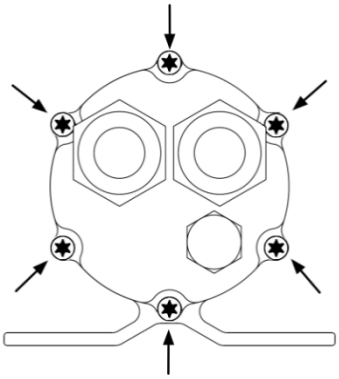
Light 1		Light 2 (cold spare)
Power in connector	Alarm relay connector	Power in connector
L →	NO	
	COM →	L
N →		N
PE →		PE

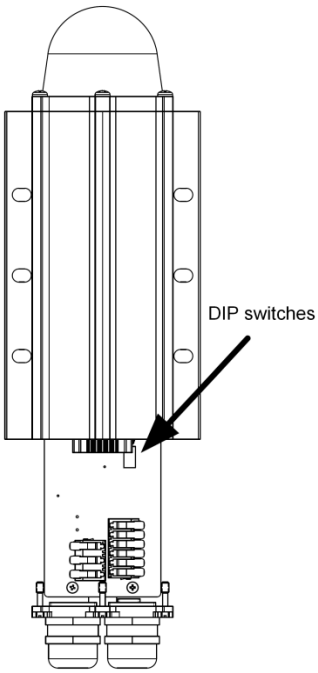


Wiring picture

4 OPERATION

To configure the obstruction light, open screws on back of the light to gain access to DIP switches on controller board. Using the configuration DIP switches, configure the desired parameters into the light. The configuration DIP switches are numbered 1-8. Embedded software in the obstruction light reads configuration switches regularly. Configuration change becomes effective within a few seconds.
The light can be configured to different operating modes. The light requires a reset to change operating mode.





Stand-alone mode: In this mode, lights operation is configured with its DIP switches. No additional controllers are needed. The light will use its internal photocell to measure the ambient luminosity. The light will change its flashing mode based on photocell data and how user has configured the light. The lights will synchronize their flashing with the built-in GPS module. After light start-up, it will take some time for the light to acquire a GPS lock. All models can operate in Stand-alone mode.

Modbus mode: In this mode, light is being controlled with an additional Obelux controller. If connection is lost to the controller, the light will keep working on its own. The light will use its internal photocell and GPS to synchronize flashing and determine the flashing mode. The light will return to normal operation when the connection is recovered.

4.1 Stand-alone mode

The function of the Photocell is configured with DIP switches 1-2. With the photocell operation enabled, the obstruction light turns on when the ambient light lux level has dropped below the selected value. The light turns off when the ambient light level has exceeded the selected value. The turn-on and turn-off times are approximately 3 minutes. It is recommended to keep the light on all the time. The power consumption is very small. Having the light on all the time adds to the light's life expectancy.

DIP switch		Photocell threshold
1	2	
off	off	Photocell disabled * (light on all the time)
on	off	200 lx
off	on	400 lx
on	on	1600 lx (between twilight and midday) (recommended if photocell is used)

DIP switch 4 selects red light intensity between 25 cd and 200 cd.

DIP switch	Red intensity
4	
off	25 cd *
on	200 cd

The operating mode of the light is configured using DIP switches 5-6. Available modes are IR only, Red only, Combi (IR and Red) and Morse Code W (MOD Offshore Specification IR + Red (Combi Light)). The flash rate is 60 FPM for the monotonously blinking modes.

DIP switch		Operating Mode
5	6	
off	off	IR only
on	off	Red only
off	on	Red + IR (Combi) *
on	on	Morse Code W (6 second cycle)

The heater is controlled with DIP switch 7.

DIP switch	Heater
7	
off	Disabled
on	Activation enabled *

In DC models, battery power, it is recommended to set the heater to off or use Smart heater feature to reduce power consumption.

DIP switch 8 selects operating mode between Stand-alone and Modbus. Switch it to off for Stand-alone mode.

DIP switch	Operating mode
8	
off	Stand-alone *
on	Modbus

*) Factory default

4.2 Modbus mode

This mode is only applicable to lights that have Modbus (-GAM models). Configuration DIP switches are used to configure the light for Modbus mode operation.

DIP switches 1-3 are used to assign a Modbus address to the light. Duplicate addresses on the same bus are not allowed. Give each device a unique address. The addresses need to be set from lowest to highest in order. E.g. if 3 devices are used, they need to be in addresses 1, 2 and 3.

DIP switch			Modbus Address
1	2	3	
on	off	off	Address 01
off	on	off	Address 02
on	on	off	Address 03
off	off	on	Address 04
on	off	on	Address 05
off	on	on	Address 06
on	on	on	Address 07

DIP switch 4 selects red light intensity between 25 cd and 200 cd.

DIP switch	Red intensity
4	
off	25 cd *
on	200 cd

The MOD operating mode of the light is configured using DIP switches 5-6. Available modes are IR only, Red only, Combi (IR and Red) and Morse Code W (MOD Offshore Specification IR + Red (Combi Light)). The flash rate is 60 FPM for the monotonously blinking modes.

DIP switch		MOD Operating Mode
5	6	
off	off	IR only
on	off	Red only
off	on	Red + IR (Combi) *
on	on	Morse Code W (6 second cycle)

The heater is controlled with DIP switch 7.

DIP switch	Heater
7	
off	Disabled
on	Activation enabled *

In DC models, battery power, it is recommended to set the heater to off or use Smart heater feature to reduce power consumption.

In Modbus mode the light will be controlled and monitored by an Obelux controller. To enable the Modbus mode use DIP switch 8.

DIP switch	Operating mode
8	
off	Stand-alone *
on	Modbus

Setting this switch OFF enables Stand-alone mode DIP settings (also for Modbus capable lights).

*) Factory default

RS-485 bus should be terminated with on-board 120 ohm resistors by turning on the RS-485 termination DIP switch on devices at both ends of the communications bus.

4.3 Test mode

Configuration DIP switches are used to configure test mode. To enter test mode, power off the light and set DIP switches 7 and 8 on. Turn off other DIP switches. The light will enter test mode when power is turned on. To leave the test mode, power off the light and configure it to normal use.

DIP switch		Test mode
7	8	
on	on	Test mode enabled
off	off	Test mode disabled

Light mode is selected with DIP switches 1 and 2. There is normally a delay when light turns on/off based on photocell data. Using accelerated photocell mode will decrease the delay to a minimum.

DIP switch		Light mode
1	2	
off	off	Accelerated photocell light behavior
on	off	RED light only
off	on	IR light only
on	on	Reserved

Flashing rate is selected with DIP switches 4 and 5.

DIP switch		Flash rate (FPM)
4	5	
off	off	Steady
on	off	20
off	on	40
on	on	60

The light can be dimmed by using DIP switches 6 and 7. Dimming reduces lights' intensity by reducing its power.
Note that the light stays in test mode despite DIP switch 7 being turned off.

DIP switch		Dimming
6	7	
off	off	100% power
on	off	30% power
off	on	100% power
on	on	10% power

4.4 Master light mode (Master – Slave functionality)

This mode is only applicable to lights that have Modbus (-GAM models).

Any Obelux low intensity obstruction light that has Modbus can be set as a master of a network of Obelux Modbus connected lights. Only one light shall be the master in the network. Master unit broadcasts time and illumination data to slave units via RS-485 / Modbus. Time data is typically received from GPS and illumination data comes from photocell. If the information flow from the master unit to slave units is interrupted, the slave units will use local photocell setting and local time in their operations. As the data flow resumes, the slaves automatically synchronize themselves with the master unit.

Chain the lights as shown in chapter 'Chaining lights'.
By using configuration DIP switches, set a light to master mode by switching its DIP switch 7 on. Set DIP switch 7 off in the slave lights to put them to slave mode.

DIP switch 7	Master/Slave mode
off	Slave
on	Master

Set the master light to stand-alone mode and the slave lights to Modbus mode with DIP switch 8.

DIP switch 8	Operating mode
off	Stand-alone (master)
on	Modbus (slaves)

Use configuration DIP switches 1-5 to give the slave lights Modbus addresses. Refer to Modbus address DIP switch configuration table in 'Modbus mode' chapter. Duplicate addresses on the same bus are not allowed. Give lights connected to the same RS-485 bus an address starting from one. RS-485 bus should be terminated with on-board 120 ohm resistors by turning on the RS-485 termination DIP switch on both ends of the communications bus.

Additionally, the light's software configuration is necessary.
In the master light, use Obelux light configuration tool to configure the following settings:

► Settings -> Num. Slaves
Set the number of slave lights.
► Settings -> Slave Options
- Transmit Behavior Bits

► Settings -> Slave Behavior
- LI Red Twilight
  Low intensity lights have red light on during Twilight.
- MI Red Twilight
  Medium intensity lights have red light on during Twilight.
- HI Red Twilight
  High intensity lights have red light on during Twilight.
- LI Flash (visible)
  Low intensity lights flash visible light.
- LI Flash (IR)
  Low intensity lights flash infrared light.

► Settings -> Options2
- Transmit FPM (Master mode only)
- Hot-Spare function

► Settings -> Slave Timeout
How long to wait for answer from Modbus slave units.

In the slave lights, use light configuration tool to configure the following settings:

► Settings -> Options2
- Do not use own photocell (will use default ToD, if no master connection)
- Use Default FPM if master connection lost
- Failsafe FPM when no Master connection

Then reset the lamps for the settings to take effect.

The master can monitor the slave alarms from:

► Modbus -> Alarm State
Currently active alarm sources

- B14: Slaves

And:

► Status -> Slave Alarms
Currently active slave alarms are displayed.

4.5 Updating lights software settings

Lights software and configuration settings are upgradable via programming terminal with a RS-232 configuration cable (Part code: CONFIG01-RXTX) or via RS-485 (Modbus) terminal with a RS-485 configuration cable (Part code: CONFIG01-RS-485). The programming terminal is used in lights that don't have the Modbus option. Setting a flash rate, photocell threshold and special flash sequences are possible. The configuration cables connect to a computer via USB. Programming software used is Obelux light configuration tool.

4.6 Heater operation

All models have an integrated 7 W heater element. The heater turns on when the lights internal temperature drops below 10 °C and reaches 100% operation when temperature drops below 5 °C. The heater turns off after the temperature rises above 10 °C.
In cold climates, the heater is meant to evaporate moisture and keep the light thawed from snow and ice. Low-intensity lights power consumption is very low and it doesn't produce a lot of heat, so in cold and damp conditions using the heater is recommended. The heater is beneficial to keep the light operating more reliably.

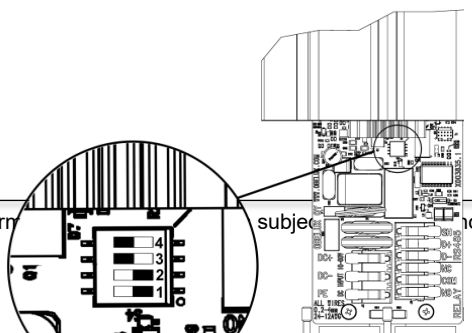
4.7 Smart heater (DC models)

Smart heater means that the heater can be programmatically set ON/OFF based on light's input voltage.

- Monitors light's input voltage and turns off heater if the input voltage falls below a configured value
- Software controlled
- Smart heater requires that heater must be set on with configuration DIP switch 6
- Heater is thermostat controlled, it is OFF if temperature is above 10 °C
- Smart heater is configurable via RS-485 (Modbus) and programming terminals and configuration software on a computer.
- Settable threshold voltage in which the heater will be disabled.
  The voltage is set slightly below battery's charging voltage. The charging voltage depends on the types of battery and charger.
  Recommendation: Set the heater threshold voltage 1V below battery charging voltage (with 24V battery)
  Example: 24V battery, battery charging voltage 27.5V, set the threshold voltage to 26.5V
- Heater off during battery discharge enables longer power on time for the light
- Factory setting: Heater is in use, Smart heater is not in use

4.8 Battery deep discharge protection (DDP) (DC models)

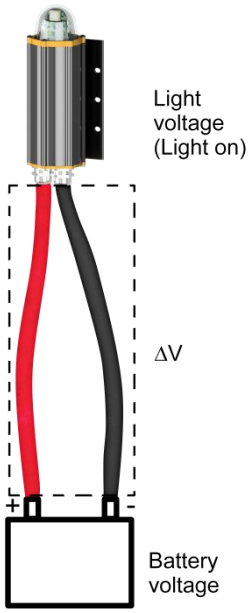
DIP switch				Battery voltage	Light voltage (light turns off)
1	2	3	4		
off	off	off	off	12V	Power off
off	off	off	on	12V	10.84V



off	off	on	off	12V	10.4V
off	off	on	on	12V	10.08V *
off	on	off	off	24V	Power off
off	on	off	on	24V	22.02V
off	on	on	off	24V	21.18V
off	on	on	on	24V	20.38V
on	off	off	off	48V	Power off
on	off	off	on	48V	44.3V
on	off	on	off	48V	42.55V
on	off	on	on	48V	40.9V
on	on	off	off	Reserved	
on	on	off	on	Reserved	
on	on	on	off	Reserved	
on	on	on	on	Reserved	

DDP switches (switches in factory default setting (off, off, on, on))

* Factory setting = lowest operating voltage



DDP is intended to protect against battery voltage dropping too low to prevent damage to the battery. External deep discharge protection is not needed. Typical application for battery powered lights is cranes.
In the above table, light voltage means the voltage where the light turns off if voltage at light's input drops below this level. Lower voltages allow the use of longer cables (more voltage drop) or longer operation time at the expense of more discharged battery.
Use settings highlighted in yellow for maximum battery protection.

If more battery utilization is needed, use the formula below.

Formula to calculate DC voltage drop in cable: $\Delta V = \frac{IL2R}{1000}$, where

I = Current in amperes

Light's current can be calculated from Product Code tables by formula $I = P/U$, where

P = light's power consumption in watts

U = battery voltage in volts

L = Cable length in meters

R = Cable resistance in ohm/km

Conductor resistance of copper:

1.50 mm^2 conductor - 13.3 ohm/km
2.50 mm^2 conductor - 7.98 ohm/km

Example. MOD-DC-IR-RED-GAM (5.5W), 50m cable 1.5 mm^2, 12V battery

$$\Delta V = \frac{IL2R}{1000} = \frac{\left(\frac{P}{U}\right)L2R}{1000} = \frac{\left(\frac{5.5}{12}\right) * 50 * 2 * 13.3}{1000} \approx 0.61V$$

DIP switches				Light voltage (DDP voltage level)	Battery voltage (approximately)
1	2	3	4		
off	off	off	off	POWER OFF	POWER OFF
off	off	off	on	10.84V	11.48V

off	off	on	off	10.4V	11.06V
off	off	on	on	10.08V	10.76V

Voltages of light and battery of the example at light turn off point.

Alternatively, the voltages in the battery's + and − terminals and lights input + and − terminals can be measured and the difference calculated.

4.9 Causes for alarms

The following events can cause an alarm:

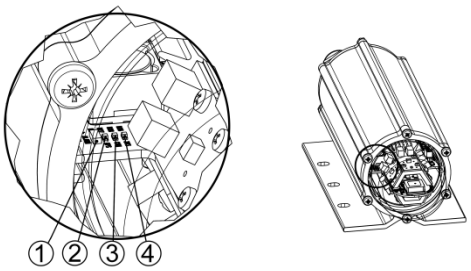
- Internal hardware or power failure.
- Light source failure, including decreased intensity level below rated level of light.
- Loss of GPS synchronization signal or GPS module failure.
- Incorrect photocell operation.

The alarm LED will turn on and alarm relay will activate.

4.10 On-board indicator LEDs

Status indication LEDs are located on the lights controller board. Some of the status indicators have three operating states (off, on and flashing).

	LED	Description
1	ALARM	**Alarm indicator (RED)** LED OFF: Normal operation, no alarms LED ON: Active alarm condition
2	GPS	**GPS (GREEN)** LED OFF: No GPS fix LED FLASHING: Lights GPS module has malfunction. Light is not synchronized. LED ON: Lights GPS module has fully resolved the UTC time. It may take several minutes for the GPS module to receive the necessary data.
3	COM	**Communication (GREEN)** LED OFF: Waiting for external signals LED FLASHING: Master-slave communications occurring on the network
4	3V3	**Internal operating voltage (GREEN)** LED OFF: power off LED ON: power on



4.11 GPS

In stand-alone mode, lights will automatically synchronize their flashing with their built-in GPS module. After light start-up, its GPS receiver may take up to 30 mins to obtain correct time data from GPS satellites. This operation requires data from several GPS satellites.

4.12 Troubleshooting

Light doesn't start

- No power (check that the operating voltage status LED is illuminated).
- Incorrect configuration (check DIP switches, make sure Test mode is turned off).

- Loose wires (check that all wires are properly seated in terminal block connectors).
- Do not exceed maximum operating voltage. Mains power supply input is protected with overvoltage protection circuit that is tuned to stated operating voltage range.

No Modbus data connection to Obelux controller

- Check DIP switch settings. Check that light has a correct Modbus address and that there are no conflicting addresses. Make sure the light is configured to Modbus mode (DIP switch 8 ON).
- Multiple masters on the same bus. Modbus allows only one master. Make sure that there is only one master per bus. All other devices on the bus must be configured to Modbus slave mode.
- Too many RS-485 termination resistors (120 ohm) on the same RS-485 communication bus. The bus should be terminated with on-board 120 ohm resistors on both ends of the communications bus only.
- Check Modbus wiring.

Light does not turn on/off

- Check that the photocell has an uninterrupted view of the sky.
- Check that there are no external light sources that interfere with the photocell.
- Photocell is sampled once in a minute and read values are averaged to avoid sudden state changes. Unless test mode is enabled, it takes approx. three (3) minutes for the light to change state.

Light does not flash in sync

GPS antenna is mounted on top of obstruction light's PCB under the dome. Antenna needs a non-blocked view to GPS satellites in orbit. After start-up, GPS receiver may take up to 30 mins to obtain correct time data from GPS satellites. This operation requires data from several GPS satellites.

4.13 Part codes

Code	Information
CONFIG01-RXTX	configuration RS-232 cable Usages: special flash settings, photocell threshold, Smart heater and Master – Slave functionality
CONFIG01-RS-485	configuration RS-485 cable (Modbus) Usages: special flash settings, photocell threshold, Smart heater and Master – Slave functionality