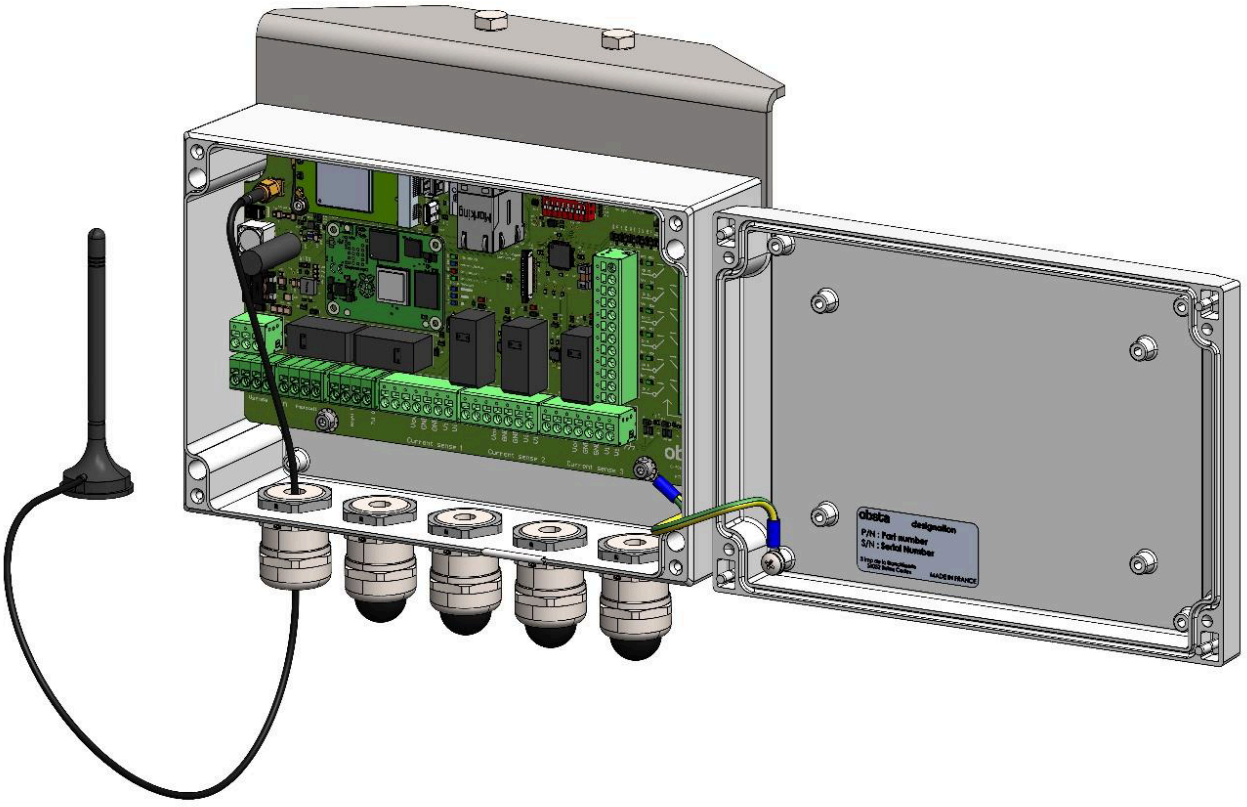
RELIABILITY IN OBSTRUCTION LIGHTING
BALISAGE AÉRIEN

OBSTALINK-DC - 114800



Obsta
3, impasse de la blanchisserie
51052 Reims CEDEX - FRANCE

1. Product name and part number

Description	P/N	Norm	Power supply	QR code
OBSTALINK-DC	114800	IP66	8- 56 Vdc	

2. Be careful

- Do not proceed 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
- 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.
- Otherwise specified all cable must be shielded.
- All cables connected to PCBs and terminal blocks must be equipped with a cable connector to prevent false contacts when connecting devices.

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.

4. General information

4.1 Scope

This document defines the detailed requirements of the IOT-GATEWAY project, manufactured by OBSTA, describing its functional behavior.

The IOT-GATEWAY acts as a gateway between monitored devices (lighting, etc.) and a control/monitoring system.

The OBSTALINK-DC operates with 12Vdc, 24Vdc, and 48Vdc power supplies, with a maximum allowable voltage of 56 VDC.

4.2 Technical specifications

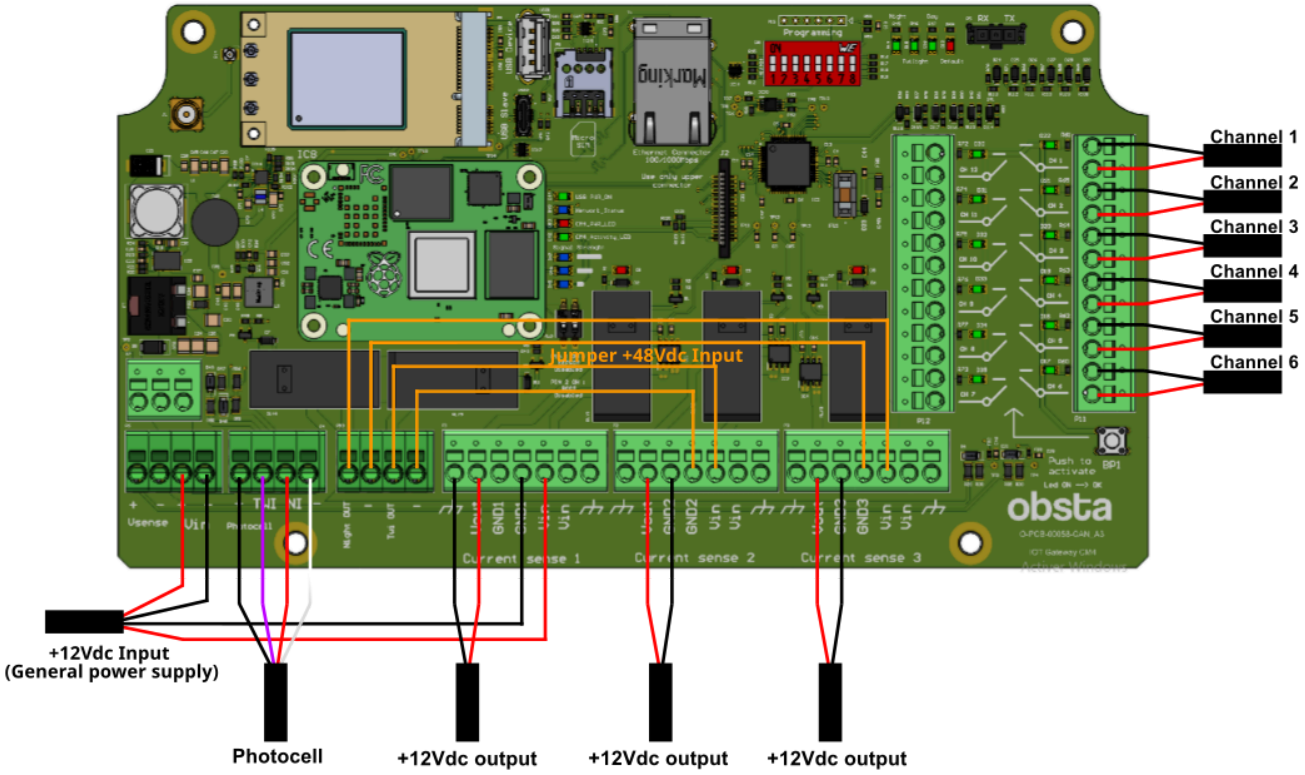
Name	Parameter	Min	Nominal	Max	Unit
DC version					
V_{in}	Power supply	8	12	56	Vdc
I_{in}	Input current at 12V	140	-	650	mA
I_{in_ruch}	Startup inrush current at 12V	500	-	1200	mA
P_{avg}	Power average at 12V	-	2.4	3	W
P_{max}	Maximum power during over the air communication	-	-	8	W
Signal					
$V_{out\_dry\_c}$	Dry contact output voltage	4.8	5	5.2	Vdc
$V_{in\_dry\_c}$	Dry contact input voltage	-	5	5.2	Vdc
$V_{ih\_dry\_c}$	High level input voltage for dry contact	4	-	-	Vdc
V_{sens}	Voltage sensor for external analog signal	0	-	V_{in}	Vdc
Photocell					
V_{PSU_PC}	PSU voltage for photocell	-	V_{in}	-	Vdc
$V_{in\_PC\_signal}$	Input voltage for twilight and night signals	10	-	60	Vdc
$V_{oh\_PC\_signal}$	High output voltage for Twilight and night signals	V_{in}-1	V_{in}	V_{in}+1	Vdc
Current sense					
I_{CS1_beacon}	Current for beacon sensing	0	-	5	A
I_{CS2_beacon}	Current for beacon sensing	0	-	10	A
I_{CS3_beacon}	Current for beacon sensing	0	-	10	A
I_{beacon}	Current for beacon relay (at 24Vdc)	-	-	16	A
I_{beacon}	Current for beacon relay (at 48Vdc)	-	-	5	A

I_{beacon}	Current for beacon relay (at 240Vac)	-	-	16	A
Operating environments					
T	Temperature	-35	-	+55	°C
IP	Norm	-	66	-	IP

4.3 End user connectors

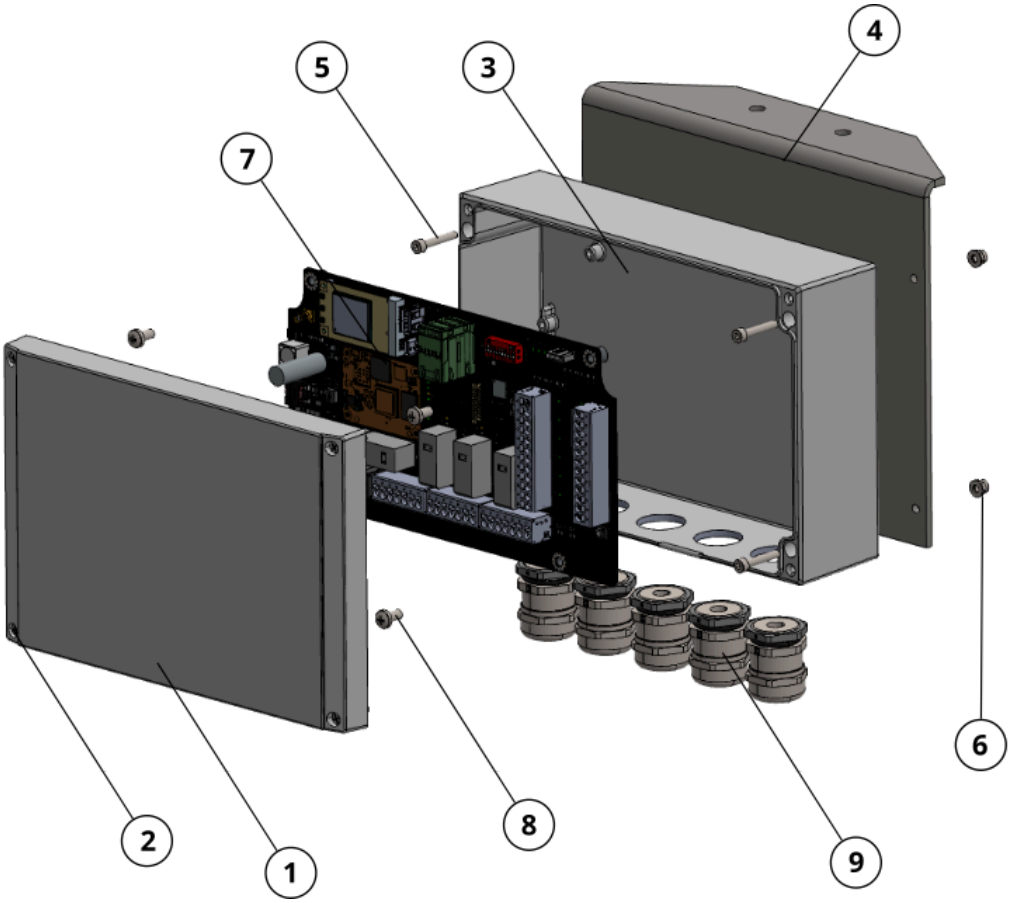
All connectors described as follows have a compatibility of 2.5mm² .

Screen printing	Fonction	Wiring
V_{in} (+ / -)	Power supply	+12Vdc (General power supply)
Photocell (+ / TWI / NI / -)	Photocell	Photocell
Night OUT / - / Twi OUT / -	Distribute +12Vdc from photocell to beacons	Jumper +12Vdc Input
Current sense 1 to 3	Beacon connection	+12Vdc output
CH 1 to 12	Beacon state relay	Channel 1 to 6 (7 to 12 not represented)



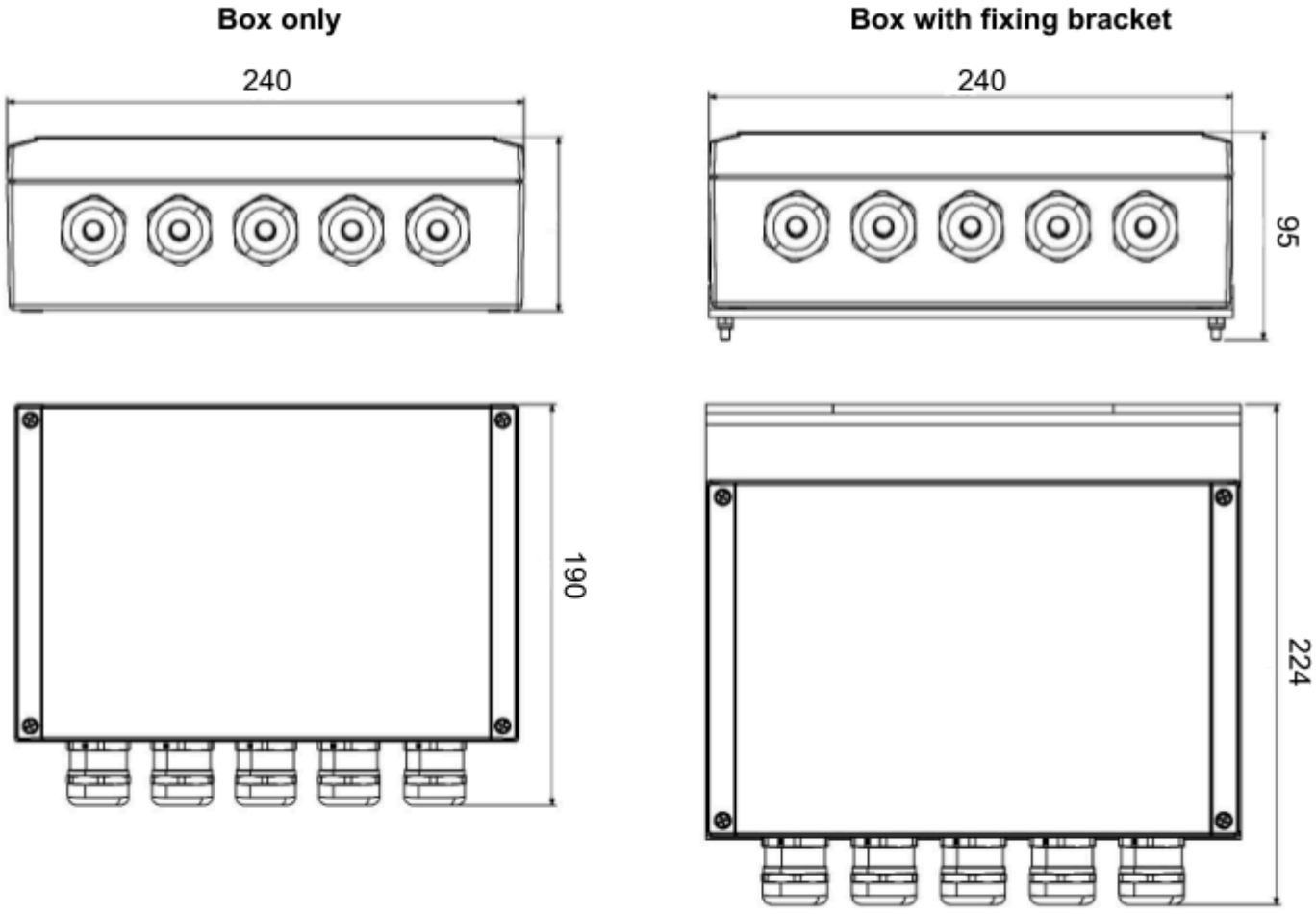
5. Operation

5.1 Bill of material



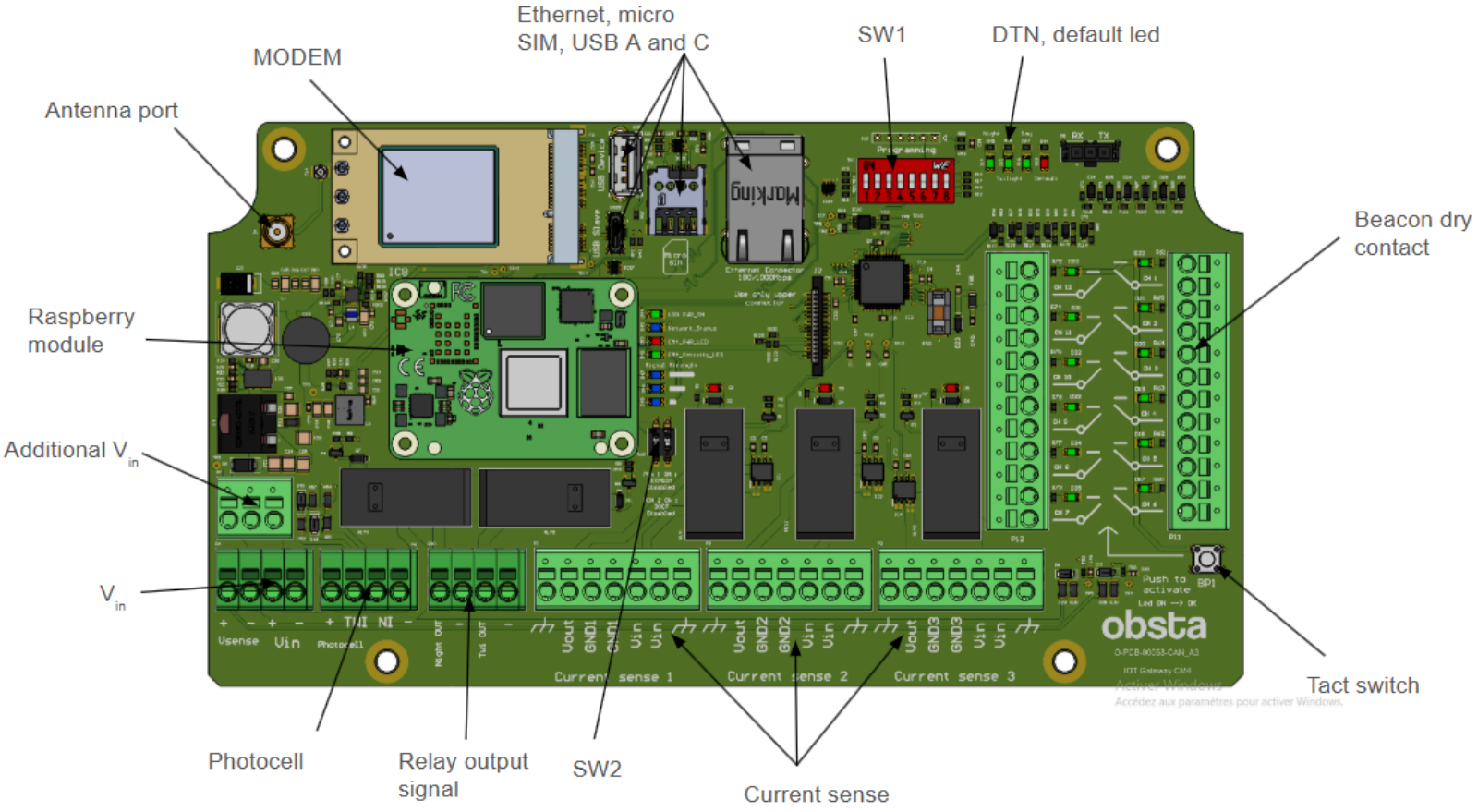
N°	Designation	Qty
1	Lid	1
2	Lid screw	4
3	Bottom box	1
4	Bracket	1
5	M4x25 screw	4
6	M4 washer + lock nuts	4
7	PCB	1
8	M5x10 screw (for PCB)	4
9	M25 cable gland	5

5.2 Dimension



6. Cards feature

6.1 PCB



6.2 DTN, default led

LED	Behavior		
	INIT (3s)	**After init, if no internet**	**Nominal operation**
Default	ON	OFF	OFF if no default. Displays sequence of highest priority if default(see chapter “default”)
Day	ON	Flash (100ms period)	If corresponding mode is forced : Fast blincking every 100ms for 1sec every 4sec Else: ON for 1sec every 4sec
Twilight	ON		
Night	ON		

6.3 SW1 configuration

SW1								
N°	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
ON	Channel 1 used	Channel 2 used	Channel 3 used	DTN 1	DTN 1	Reserved		
OFF	Channel 1 not used	Channel 2 not used	Channel 3 not used	DTN 0	DTN 0			

SW2.4	SW2.5	Force Day, Twilight, Night mode (DTN)
0	**0**	Do not force mode
1	**0**	Force Night mode
0	**1**	Force Day mode
1	**1**	Force Twilight mode

6.4 SW2 configuration

SW2 is required to manage the raspberry module.

SW2		
N°	**1**	**2**
ON	EEPROM disabled	Boot disabled
OFF	-	-

6.5 Beacon dry contact

Connect the beacons to a dry contact. To test whether the beacon has a problem, press the "tact switch". If the green LED lights up, the beacon is OK.

On the dry contact connector per channel there is a 5Vdc logical signal emitted and Input to check the beacon.

For dry contact connection in normal mode (no default) the “OBSTALINK DC” is expecting to receive the 5Vdc signal emitted by the connector. That means the beacon must be cabled in a way that allows this signal to be going through when everything is operating normally.

6.6 Photocell

A photocell can be connected for the Day, Twilight and Night (DTN) detection. For connection, see Photocell instruction (P/N- 100756 or 100757).

6.7 Current sense

Continuously measures the current flowing through the connected beacons and determines the presence or absence of faults. 3 connection terminals are available (1 per beacon). For connection, see “8. Wiring”.

6.8 Input peripherals / Additional PCB

6.8.1 Raspberry / MODEM

A raspberry module 4 board and a MODEM are added to the main board for program management (Rasberry) and 2G/3G/4G data management (MODEM)

6.8.3 USB / Ethernet / SIM

- USB-C is used for programming the Rasberry. When in use, all other peripherals are disabled.
- The USB-A port is used as a peripheral port (for keyboard, mouse, etc.).
- The SIM port is used for the MODEM
- Ethernet connection is possible at 100 to 1000 Mb per second (only on the top port).

7. Operation

7.1 Unpacking

Carefully unpack the light and remove any internal packing material. Examine each item for obvious physical damage. Immediately report any claims to the carrier. Installation drawings are included in the power supply carton.

7.2 Installation

7.2.1 Installation of the product

The IOT assembly fixture must be mounted perfectly horizontally. If mounted in any other position, the product will not be able to maintain its intended sealing requirements.

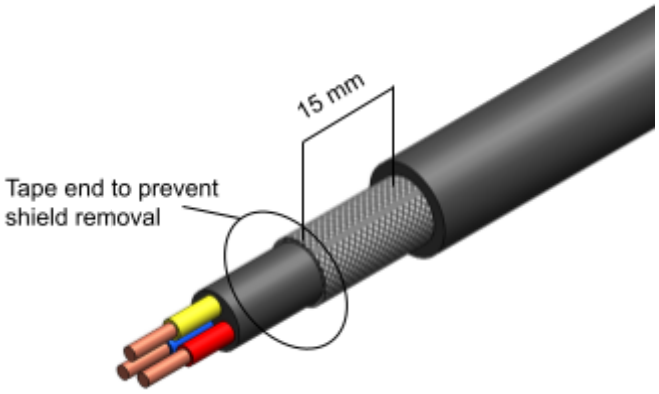
We recommend that the metallic base of the product be connected through a grounding kit to the local grounding of the tower.

We strongly recommend taping the cable glands through which the connection cables pass after tightening.

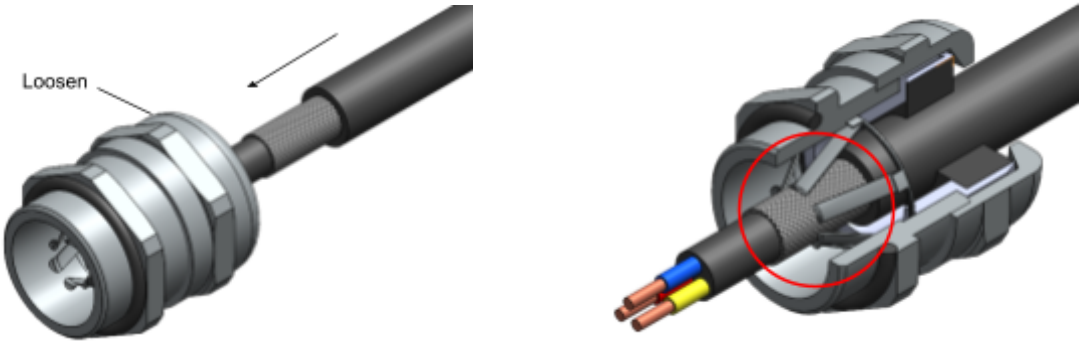
7.2.2 Cable gland installation

As a reminder, all shielded cables must be earthed at both ends. It is the installer's responsibility to check that OBSTA cabinets and lamps are correctly wired.

- Strip excess cable length to expose shielding.
- Leave 15mm of shielding, strip the rest.



- Thread the cable through the cable gland (the ring is loosened but not removed) so that the shield is in contact with the gland springs.
- The gasket must be correctly positioned flat and in its housing for optimum sealing.



- Tighten the gland ring with the appropriate wrench.
- Once the cable has been clamped in the cable gland, cut and strip the wires to the length required to connect the terminal blocks (don't forget to fit cable ferrules before connection).

CEM	Cable diam min (mm)	Cable diam max (mm)	Pressure nut wrench	Locknut wrench
M25	9	17	29	29

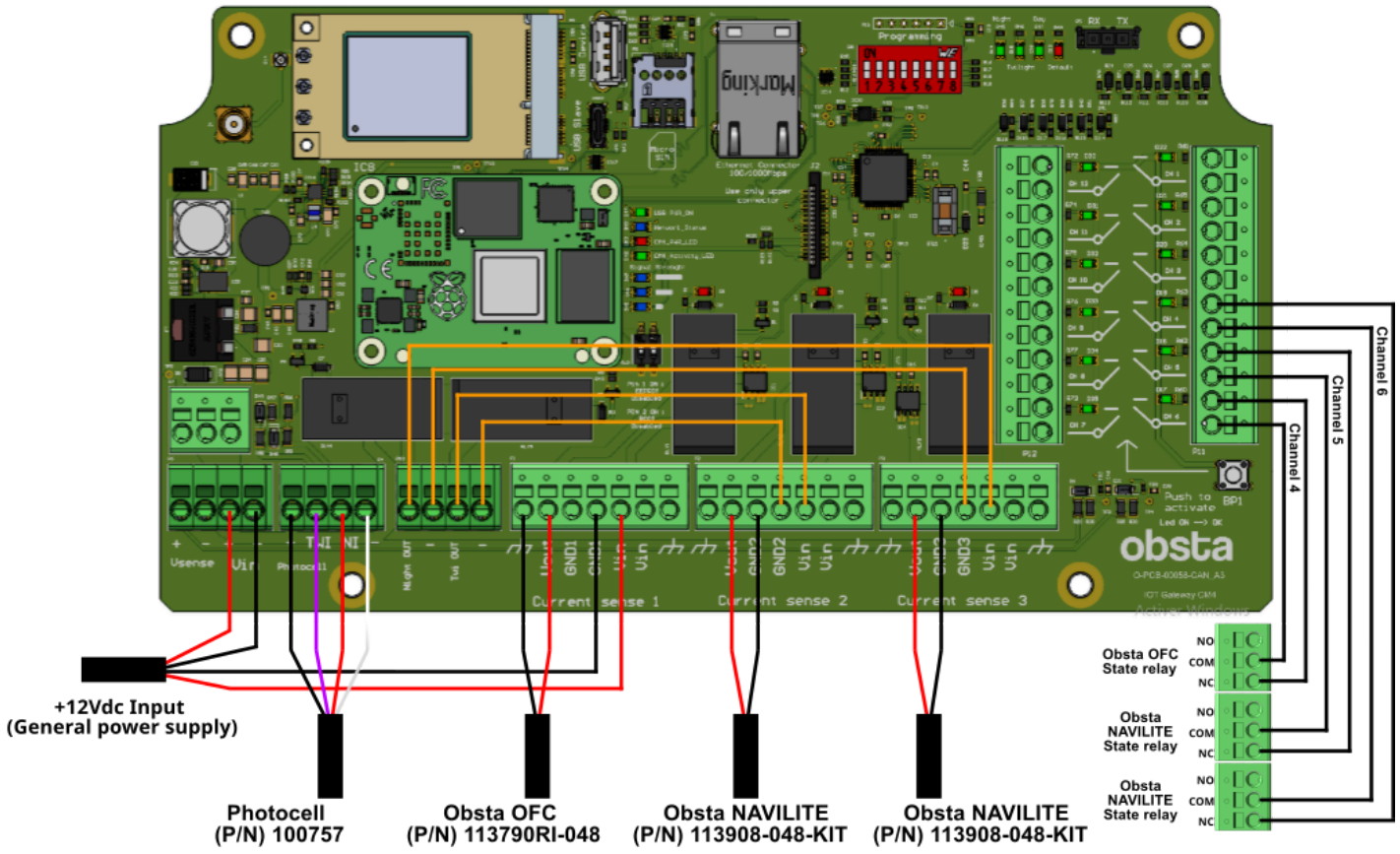
8. Default

In the event of a major failure resulting in a complete shutdown of the OBSTALINK-DC system, the operation of the connected beacons remains unaffected. They continue to operate normally in autonomous mode.

IOT-GATEWAY goes in default given any of the following conditions (in priority order):

Default	Condition	Red led signal
External communication problem	Internet communication via 2G, 3G, 4G modem is down.	—— 2 long
Internal monitoring problems	At least one I²C error encountered since the last 60 seconds.	—· 1 long and 1 short
DTN mode unchanged	The DTN mode did not change for the last 48 hours.	— 1 long
Light alarm	At least one configurated dry input is on open-circuit.	· 1 short
Configuration issues	A channel is not configured but dry input is detected.	—··· 1 long and 3 short
Not enough disk space	There is less than 5% of free disk space.	——·· 2 long and 2 short

9. Typical wiring



Explanation of this example of wiring:

- The photocell is connected to the main power supply.
- The OFC is connected directly to the 48 Vdc power supply, allowing it to operate continuously or in a flashing mode (for example, 40 FPM with a 300ms duration) day and night. In this case, the flash setting is configured on the OFC unit, and the server verifies the correct flash rate and duration via current analysis.
- The NAVILITE connected to current sense 2 is powered by the photocell's 48 Vdc twilight output (TWI OUT/-). In this configuration, the NAVILITE is a steady red light and will switch on when the photocell enters twilight mode? The server will then verify the correct current consumption only during the twilight period.
- The NAVILITE connected to current 3 is powered by the photocell's 48Vdc night output (NIG OUT / -). In this configuration, the NAVILITE is also a steady red light and will switch on when the photocell enters night mode. The server will then verify the correct current consumption only during the night period.
- Optionally, the alarms "normally close" for all three beacons can also be connected, allowing for real-time status monitoring via channels 4, 5 and 6 in addition to the current analysis.