O-MAN-00002-OFP

USER MANUAL

OBSTA power unit cabinet

OFP-CAB-1B-RW-048-4M32 // 114100

OFP-CAB-1B-RW-048-4M32-S // 114101

OFP-CAB-1B-RW-048-8M16 // 114102

OFP-CAB-1B-RW-048-8M16-S // 114103

OFP-CAB-1B-RW-240-4M32 // 114110

OFP-CAB-1B-RW-240-4M32-S // 114111

OFP-CAB-1B-RW-240-8M16 // 114112

OFP-CAB-1B-RW-240-8M16-S // 114113

OFP-CAB-2B-RW-048-4M40 // 114200

OFP-CAB-2B-RW-048-6M25 // 114201

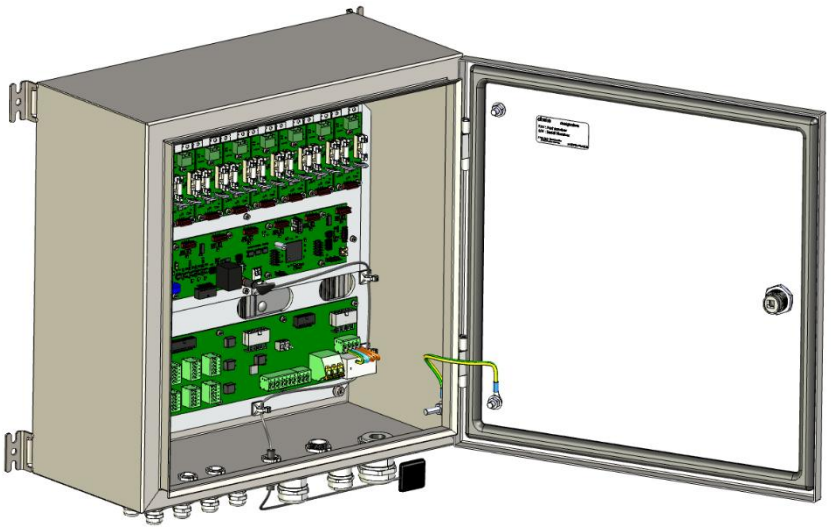
OFP-CAB-2B-RW-240-4M40 // 114210

OFP-CAB-2B-RW-240-6M25 // 114211

OFP-CAB-3B-RW-048-4M40 // 114301

OFP-CAB-3B-RW-240-3M40 // 114300

OFP-CAB-4B-RW-240-4M40 // 114400



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1. Product name and part number

Description	Part number (P/N)	Power supply	QR code
1B (One block)			
OFP-CAB-1B-RW-048-4M32	114100	48 Vdc -5%/+15%	
OFP-CAB-1B-RW-048-4M32-S	114101	48 Vdc -5%/+15%	
OFP-CAB-1B-RW-048-8M16	114102	48 Vdc -5%/+15%	
OFP-CAB-1B-RW-048-8M16-S	114103	48 Vdc -5%/+15%	
OFP-CAB-1B-RW-240-4M32	114110	110-240 Vac ±10%	

OFP-CAB-1B-RW-240-4M32-S	114111	110-240 Vac ±10%	
OFP-CAB-1B-RW-240-8M16	114112	110-240 Vac ±10%	
OFP-CAB-1B-RW-240-8M16-S	114113	110-240 Vac ±10%	
2B (Two block)			
OFP-CAB-2B-RW-048-4M40	114200	48 Vdc -5%/+15%	
OFP-CAB-2B-RW-048-6M25	114201	48 Vdc -5%/+15%	
OFP-CAB-2B-RW-240-4M40	114210	110-240 Vac ±10%	

OFP-CAB-2B-RW-240-6M25	114211	110-240 Vac ±10%	
3B (Three block)			
OFP-CAB-3B-RW-048-4M40	114301	48 Vdc -5%/+15%	
OFP-CAB-3B-RW-240-3M40	114300	110-240 Vac ±10%	
4B (Four block)			
OFP-CAB-4B-RW-240-4M40	114400	110-240 Vac ±10%	

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.

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. Introduction

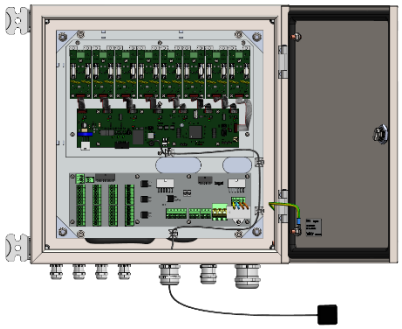
4.1. General information

This manual provides information about the installation, operation and maintenance of the OFP power cabinet manufactured by OBSTA.

4.2. General description

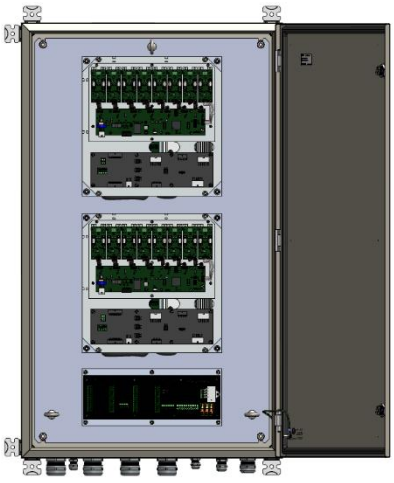
The OBSTA power unit cabinet is a stainless steel or painted steel cabinet whose main function is to power and control OBSTA OFP120 and/or OFP 180 lamps.

The range is divided into four product families: 1 block, 2 blocks, 3 blocks and 4 blocks. 1 block consists of a control board, a power board, an interconnection board and the power supply card (for 240Vac models). The OBSTAFLASH power supply cabinet is also used to control the flashlight. With one controller (one block), you can connect to 6 projectors.



OFP-CAB-1B

OFP-CAB-3B



OFP-CAB-2B

OFP-CAB-4B

4.3. Operation

- **Master/Slave mode:** The master generates the control and synchronization signal, and the slaves follow this signal to ensure simultaneous and coordinated operation of the equipment.
- **DTN mode**: The lamp can be used day and night with automatic switching between day, twilight and night (DTN) modes.
- **GPS synchro**: The light provides the ability to synchronize with a GPS clock, so that a flash sequence starts exactly on second 0, for example, allowing the lights to be fully independently synchronized and comply with regulations.
- **Flash duration and flash frequence**: set the operation of the lamps: fixed mode or flashing mode, night only or permanent, redundancy or simultaneous.
- **Alarm relay**: Returns real-time tag status information (NO/NC contact available). Alarm will be set when some conditions are met, depending on the configuration and switches.
- **CAN**: for the management, monitoring and maintenance of the beacon systems connected to the system.

5. Installation

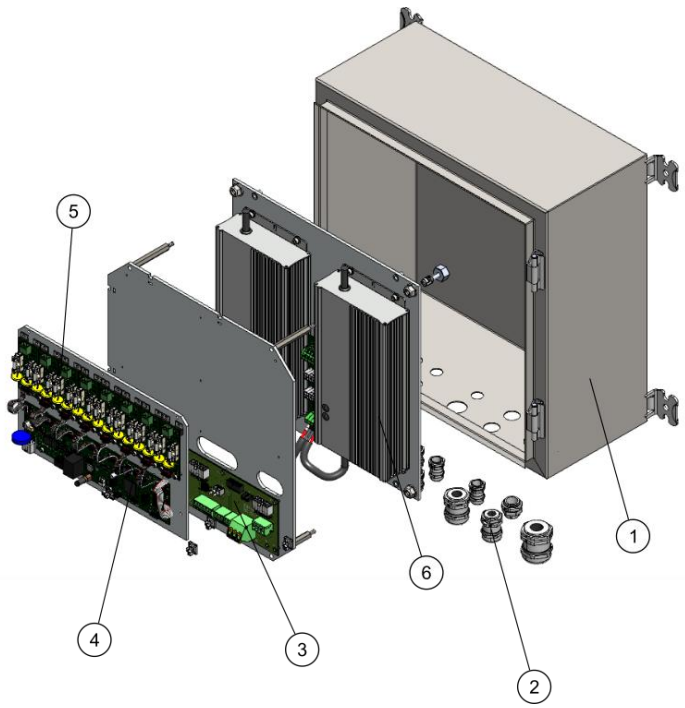
5.1. Unpacking

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.

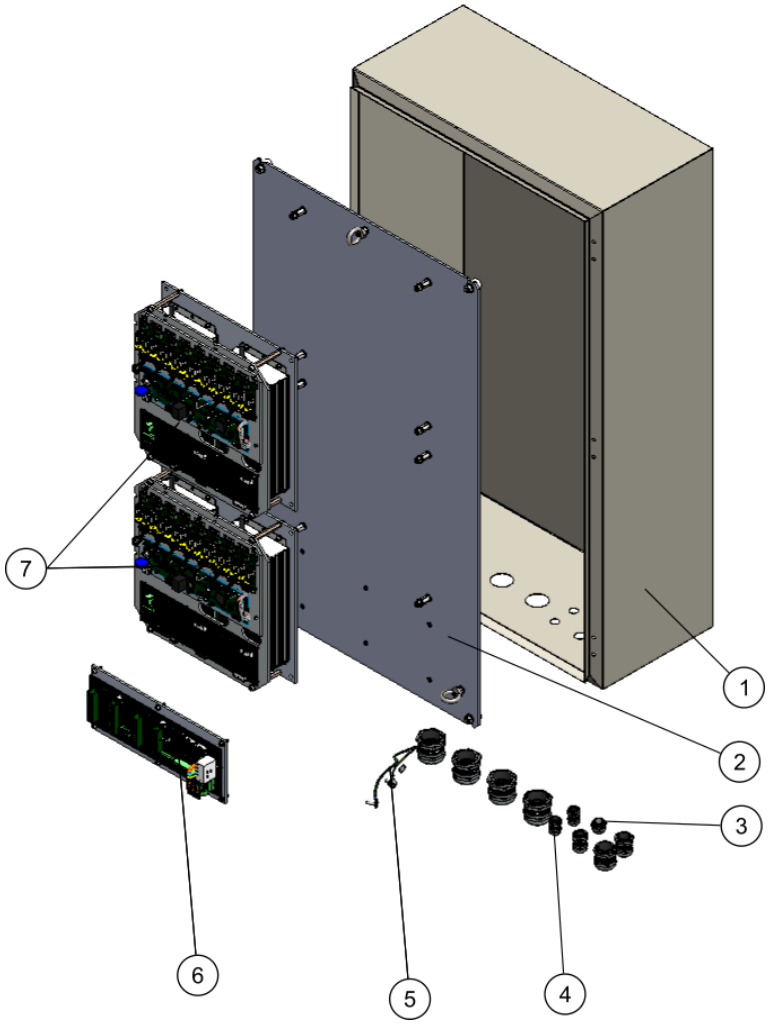
5.2. Overview

5.2.1. 1 block cabinet



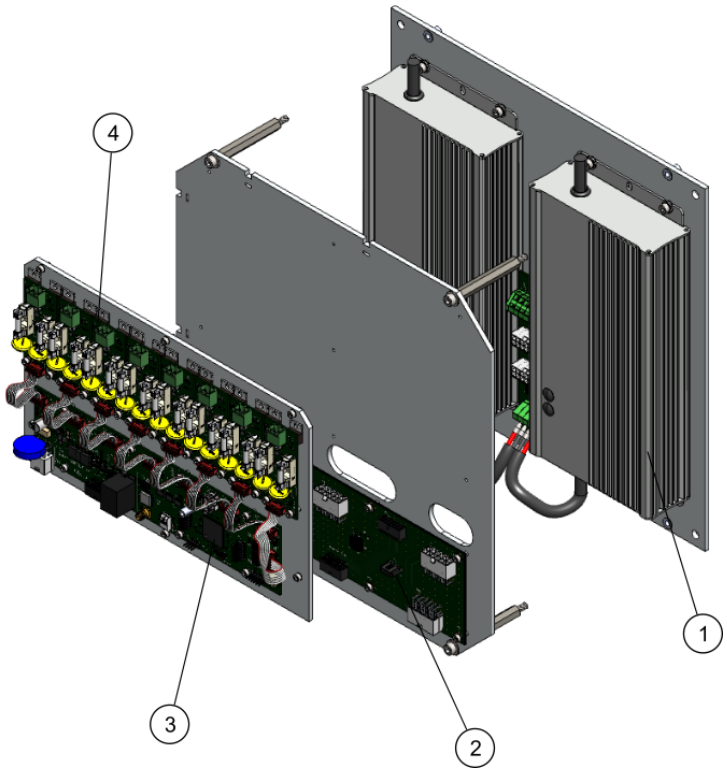
Nbr	Designation	Spare part (P/N)
1	Cabinet	See 5.2.3
2	Cable gland (M16, M20, M25, M32, M40)	
3	Interconnection card	770334
4	Command card	113744B
5	Power card	113741B
6	Power supply and alimentation card (only for 240 Vac version)	228325

5.2.2. Generic block (mounted on 2,3 and 4 blocks)



Nbr	Designation	Spare part (P/N)
1	Cabinet	See 5.2.3
2	Box bottom plate	228420 (2 blocks) 228484 (3 4 & blocks)
3	Ventilation plug	228280
4	Cable gland (M16, M20, M25, M32, M40)	
5	Ground cable	228219
6	Interconnection card	770331
7	Generic block	1425004

Sub-assembly 7: generic block



Nbr	Designation	Spare part (P/N)
1	Power supply and alimentation card (only for 240Vac version)	228325
2	Interconnection card	770331
3	Command card	113744B
4	Power card	113741B

5.2.3. List of possible cabinet configurations

- 400x400x200mm painted steel cabinet – 8M16 (1B) **228413**
- 400x400x200mm stainless steel cabinet – 8M16 (1B) **228321**
- 400x400x200mm painted steel cabinet – 4M32 (1B) **228414**
- 400x400x200mm stainless steel cabinet – 4M32 (1B) **228415**
- 600x1000x300mm painted steel cabinet -4M40 (2B) **228416**
- 600x1000x300mm painted steel cabinet -6M35 (2B) **228417**
- 800x1000x300 painted steel cabinet -4M40 (3B and 4B) **228418**

5.3. Mounting

5.3.1. Mounting

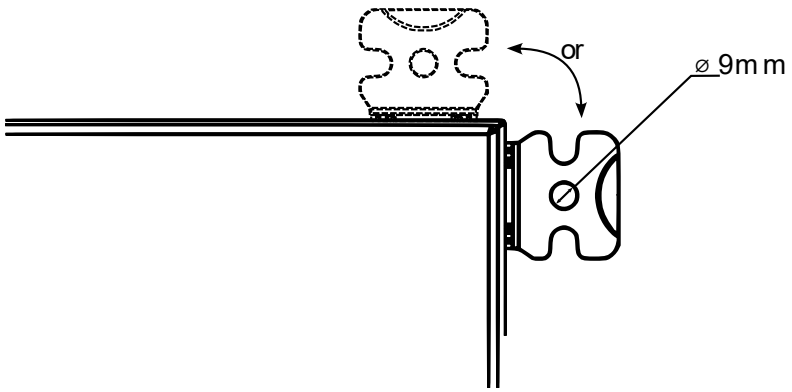
Any manual intervention must be performed on a NON-POWERED product. Human or material issues could occur inducing injury or permanent damage to the product.

Depending on the application multiple flash units may be required. OBSTA recommends that each unit has its own support (one supports the kit: Flash head + Cabinet). Cabinet or Flash head must be installed in a fixed position. OBSTA also recommends that the cabinet should be in easy access position/orientation for maintenance purposes. Each part of the kit must be correctly fixed to the structures.

The Cabinet must be levelled using a spirit level and the cable gland must face downwards. Cables should be installed with cable clamps to avoid any oscillation movement due to wind pressure.

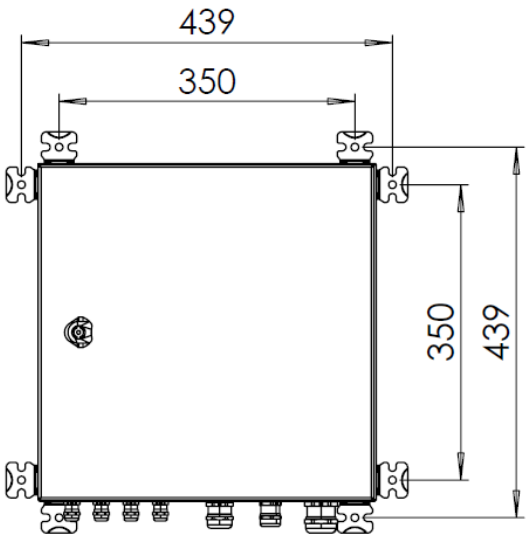
1. Verify that the mounting surface is free of debris.
2. Align the four mounting holes of the cabinet with the holes in the structure mounting plate. The cabinet has 4 holes 9 mm in diameter
3. Fit the screw of the cabinet loosely. Do not tighten up screws yet.
4. Ensure that the cabinet is installed horizontally by using the level provided (air bubble shall be centered).
5. If the cabinet is not leveled, add stainless steel shim material or washers (stainless steel or galvanized) as necessary to level the flash-head.
6. Once leveled, firmly secure the hardware once the cabinet, using the same torque on each screw. Verify that the cabinet is level when the hardware is fully tightened. If not leveled, then loosen the mounting hardware and repeat Step 5 until the beacon is firmly secured horizontally.

In some specific cases with high electromagnetic fields an additional shield is required to ensure proper operating. OBSTA may provide or suggest additional equipment to improve stability and durability of the kit. Please contact OBSTA if the product may be exposed to this kind of perturbation.

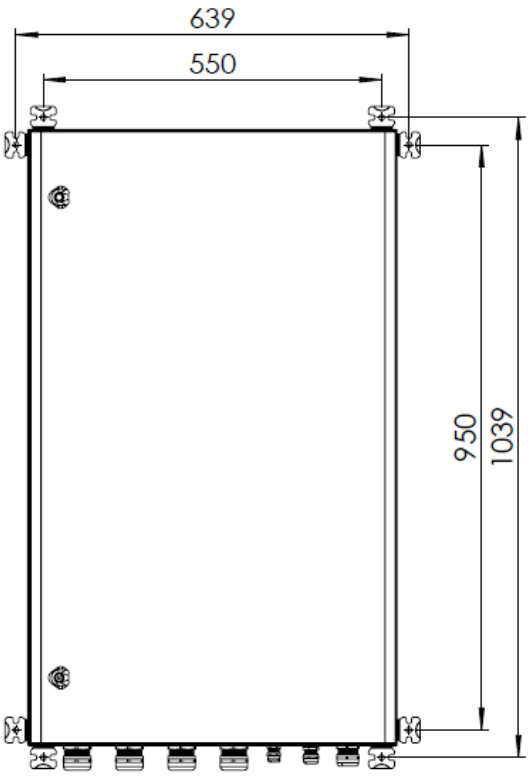


5.3.2. Dimension

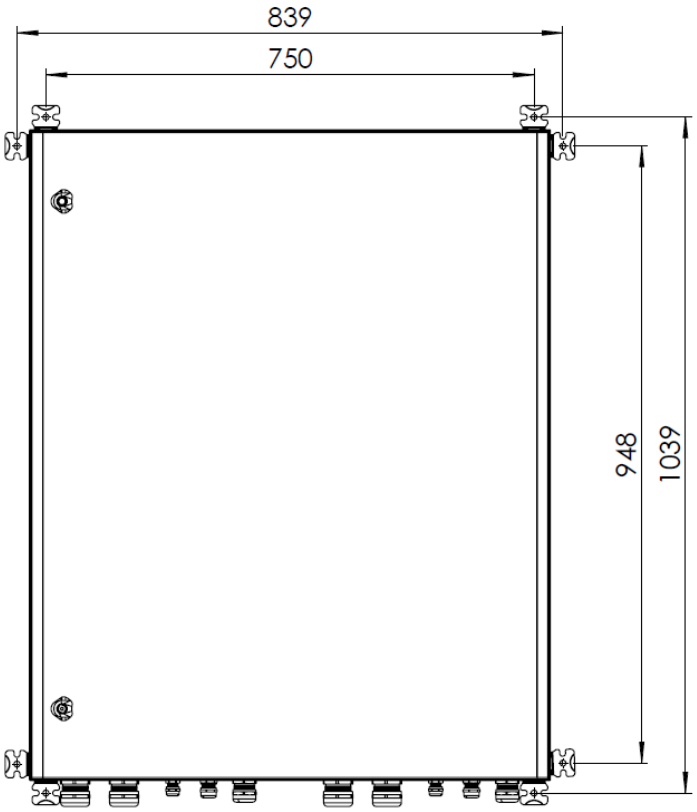
- **1 block cabinet:**



- **2 block cabinet**



- **3 and 4 block cabinet**



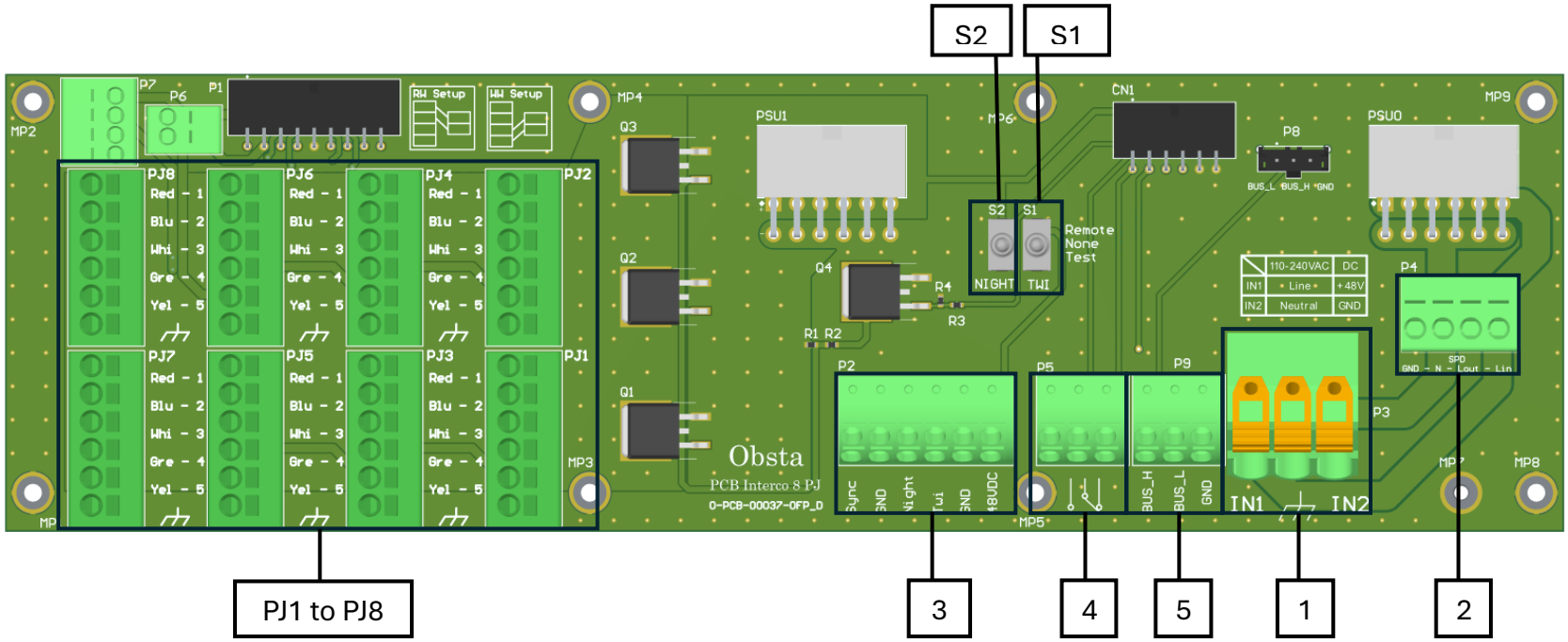
6. Wiring

6.1. 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.
- **Number of lamps**: If more than 1 lamp is connected, all lamps must be wire in parallel.
- **Polarities**: The polarities must be correctly positioned on the DC power. 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.

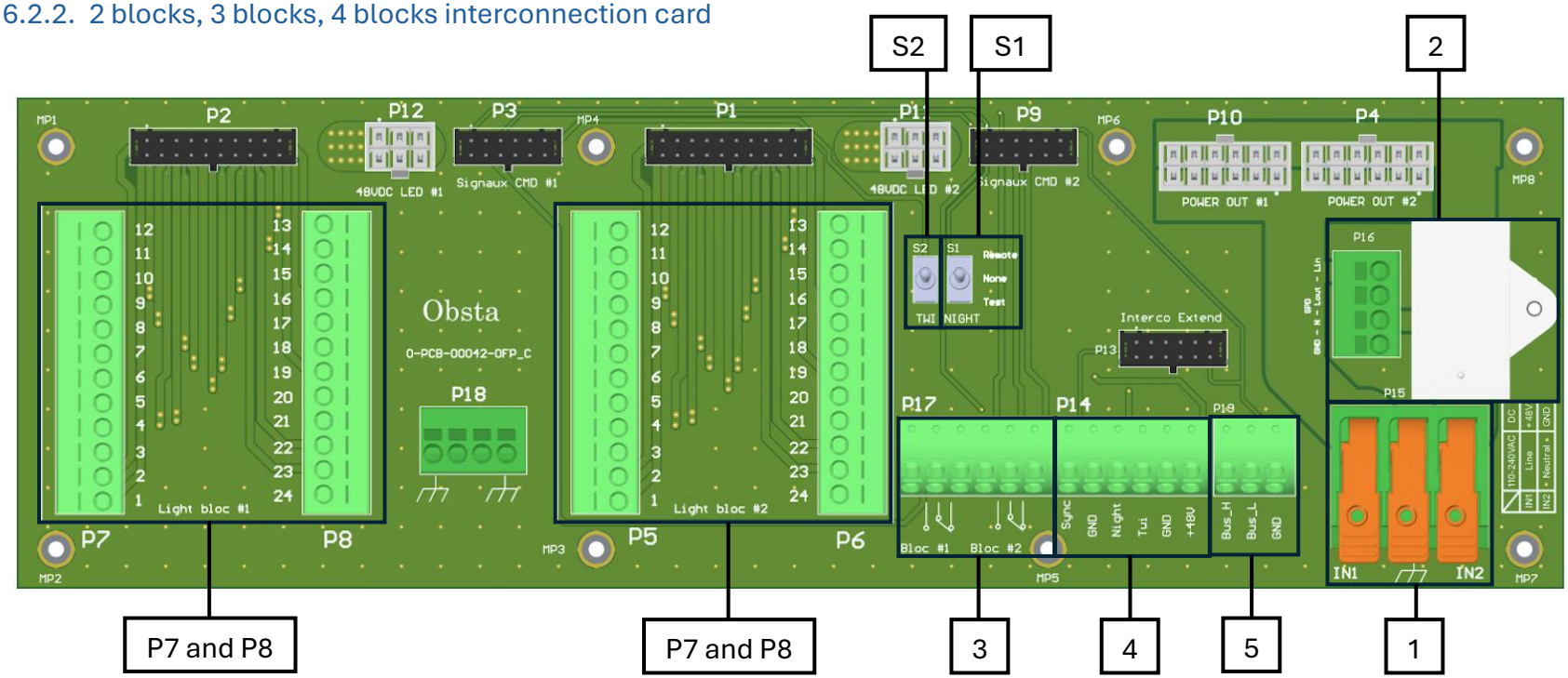
6.2. Overview

6.2.1. 1 block interconnection card



- PJ1 to PJ8/ Projector connector must be connected according to the cable color or number. Other harnesses are cabled directly from the factory. Do not modify the cabling without Obsta's direct consent.
- 1/ Power input: +/-/Earth (Vdc) or L/N/Earth (Vac)
- 2/ Surge protection terminal
- 3/ Communication signal for flash and mode (day, night) from photocell signal and top synchro
- 4/ Alarm: NO/ COM/ NC
- 5/ Communication BUS terminal
- S1/ Test switch for twilight. manual force the signal to twilight (Must be always in remote position for normal operation)
- S2/ Test switch for day/night. manual force the signal day/night (Must be always in remote position for normal operation)

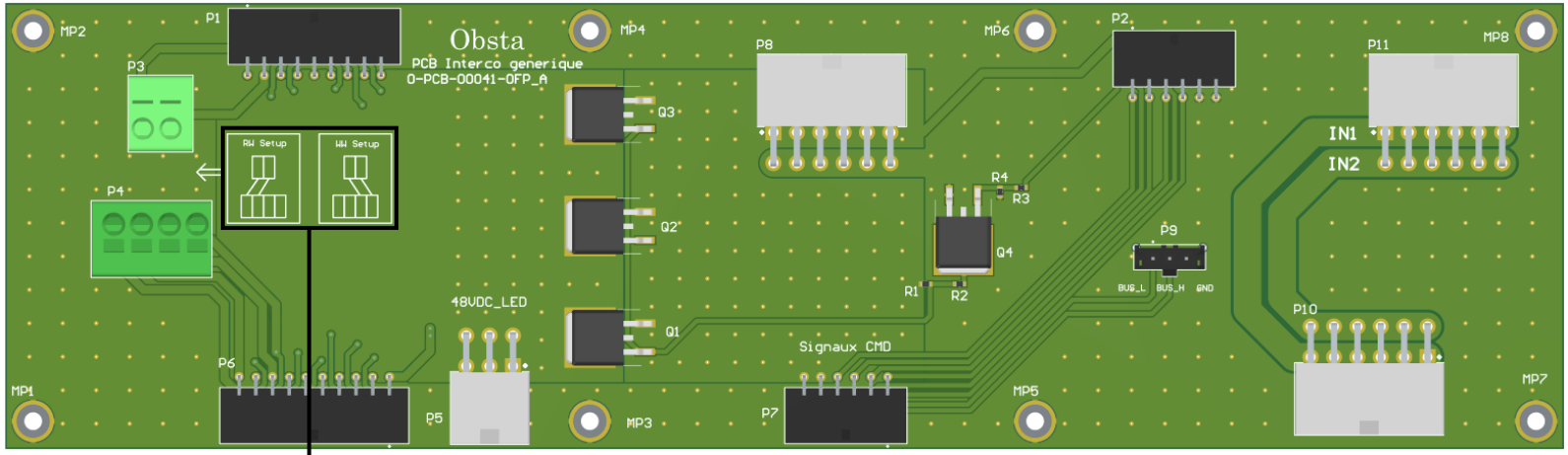
6.2.2. 2 blocks, 3 blocks, 4 blocks interconnection card

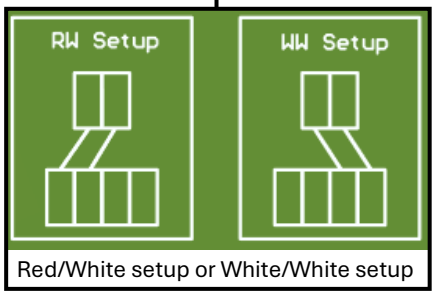


- P5, P6, P7 and P8/ Projector connectors must be connected according to the cable color or number. Other harnesses are cabled directly from the factory. Do not modify the cabling without Obsta's direct consent.
- 1/ Power input: +/-/Earth (Vdc) or L/N/Earth (Vac)
- 2/ Surge protection terminal
- 3/ Alarm : NO / COM/ NC
- 4/ Communication signal for flash and mode (day, night) from photocell signal and top synchro
- 5/ CAN terminal
- S1/ Test switch for twilight. manual force the signal to twilight (Must be always in remote position for normal operation)
- S2/ Test switch for day/night. manual force the signal day/night (Must be always in remote position for normal operation)
- Inside 3 blocks and 4 blocks cabinets, there are 2 interconnection cards, connected through a harness. All communication signals are connected. For this reason, user needs only to fully cable one of the PCB for signal. Both cards need to be cabled separately for power.

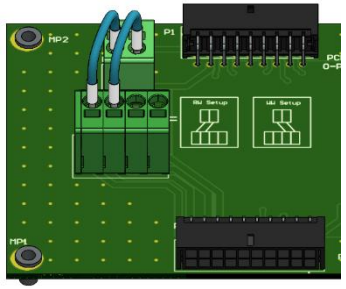
6.2.3. 2 blocks, 3 blocks and 4 blocks generic card

This generic card is only used to relay harnesses and signal to each block from the main interconnection card.

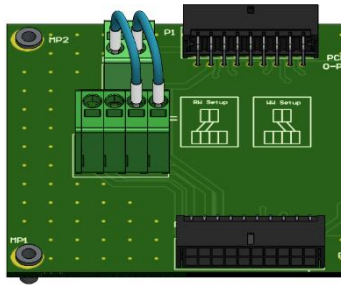




Red/White setup or White/White setup

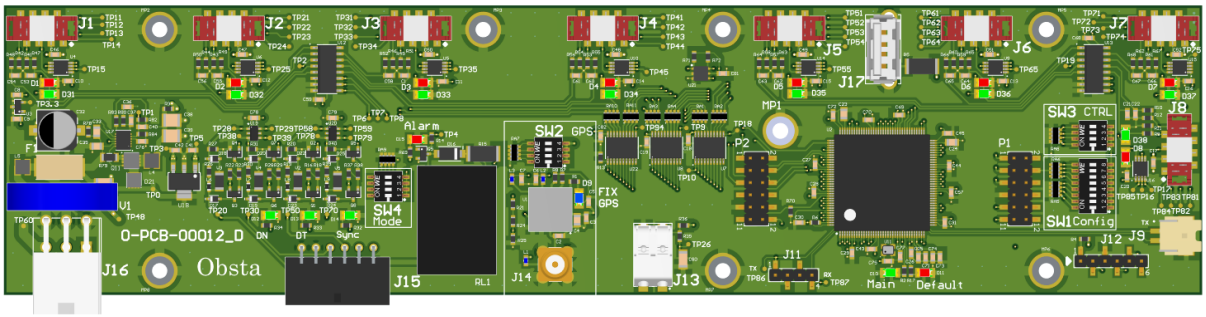


For bicolor (red/white) projector



For white projector

6.2.4. Command card



This part is responsible for managing the while flash head. The embedded microcontroller can analyze input signals (such as GPS, various external signals) and act accordingly.

**Detail on next page*

- **J1 to J7**: Connected to a dedicated power card. Near each connector, a pair of led (Green & Red) signals the status of the power card hence the associated projector, see figure 4 below.
- **J9**: Connected to another command board for internal synchronization (specific).
- **J13**: Connector for photo resistor application (specific).
- **J14**: Connector for GPS antenna.
- **J16**: USB connector used for reprogramming the Card and retrieving event log (don't operate any USB device without Obsta's consent).

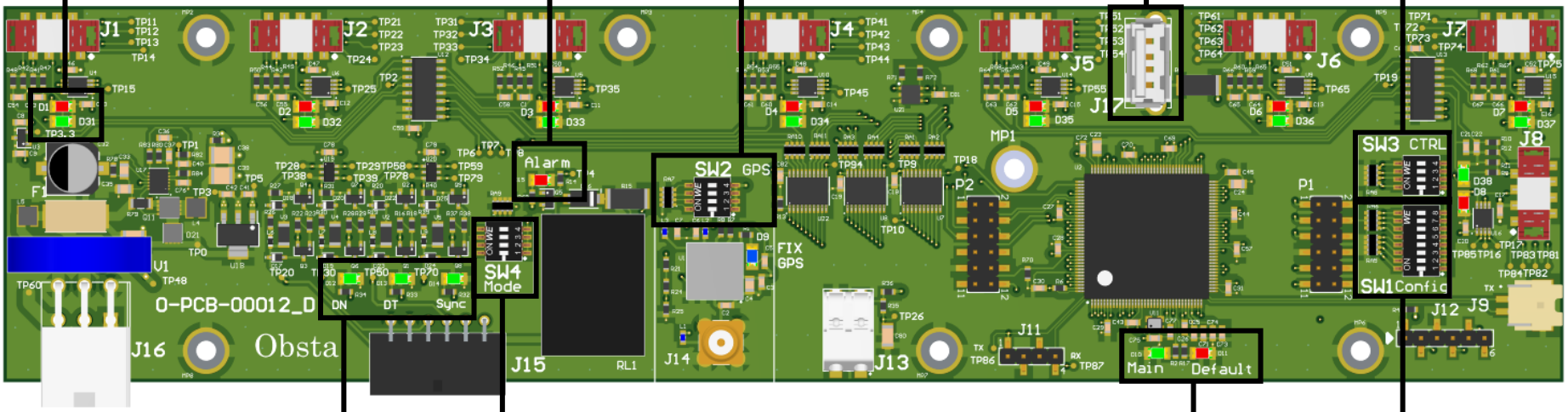
Power card led:
Red led: blinking if default on channel(s)
Green led: ON when channel(s) is flashing
(same for J1 to J7)

Alarm led: ON if relay is OFF (relay OFF means COM and NO connected)

SW2: GPS configuration

USB port: to connect a mass storage device and process to connect a mass storage device and process

SW3: Beacon control



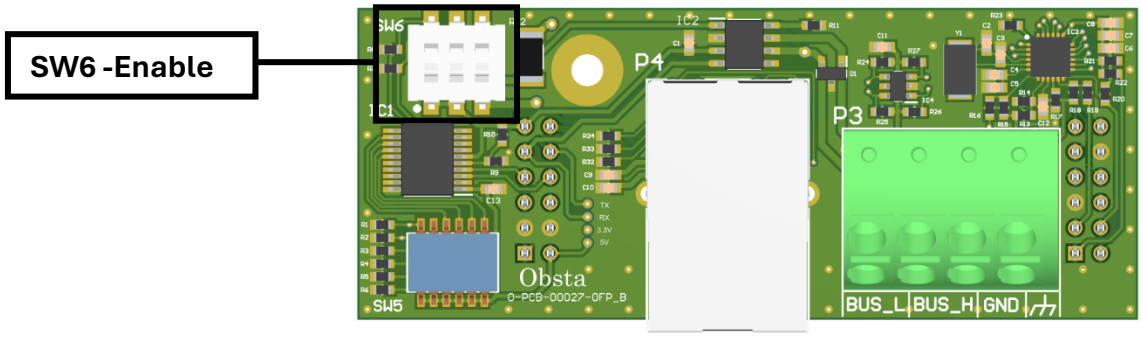
Mode led:
DN led: ON if DN input is set
DT led: ON if DT input is set
SYNC led: ON if SYNC input or output is set

SW4: Day/Twilight/Night (DTN) detection mode

Operation led:
Default led: plays a sequence if general default condition
Main led: ON during flash

SW1: FAA or ICAO configuration

6.2.5. CAN card



If the Ethernet/CAN PCB module is connected, the command card can manage CAN communication, with light status reporting, command processing, flash and DTN synchronization.

SW6-Enable			
	1	2	3
ON	CAN BUS	Ethernet	CAN terminal resistor
OFF	-	-	-

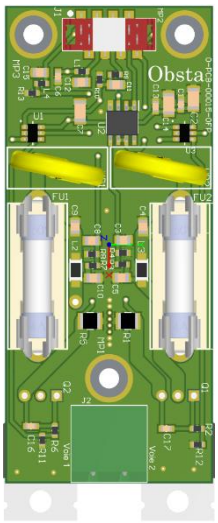
Enable condition for slave mode:

- System is in slave mode (SW3-2 is ON)
- CAN bus is enabled (SW6-1 is ON)

Connection status:

CAN is considered as “Connected” if any CAN message has been received less than 30 seconds ago. If no message is received after this delay, CAN is considered as “not connected” status.

6.2.6. Power card



The power supply unit includes 8 power cards per block. Those cards regulate the current 16 led circuits, 2 per PCBa (Depending on the installation).

The 8 power cards drive the white (or red/IR) led circuits inside each projector.

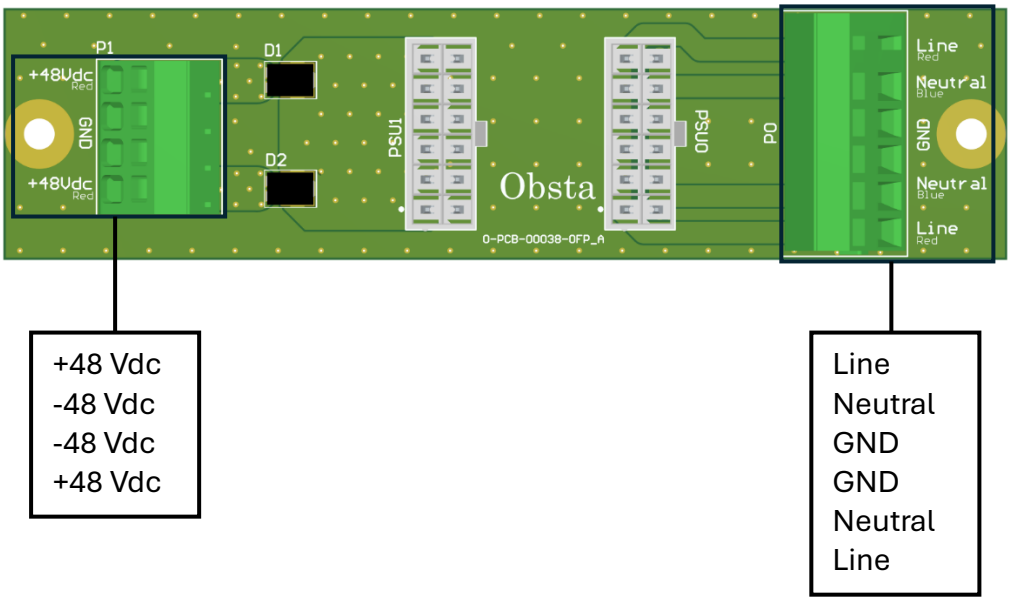
For white configuration: each card is affected by the associated projector number on the interconnection board. The power cards #1 to #8 are associated to white led circuits inside projectors from left to right (PJ1 → Power card #1, PJ2 → Power card #2 … PJ8 → Power card #8). One power card for one white projector.

For red configurations: the red and infrared circuits of the projectors are connected in series. Unlike “white” connections, one power card can control several red and/or infrared projectors.

6.2.7. Alimentation card

The alimentation card is used to connect two power supplies (**MEANWELL-HLG-480H-48A**) to the system. It is therefore only used for 240Vac models.

Do not modify any factory preset or cabling without OBSTA consent.



6.3. Internal wiring

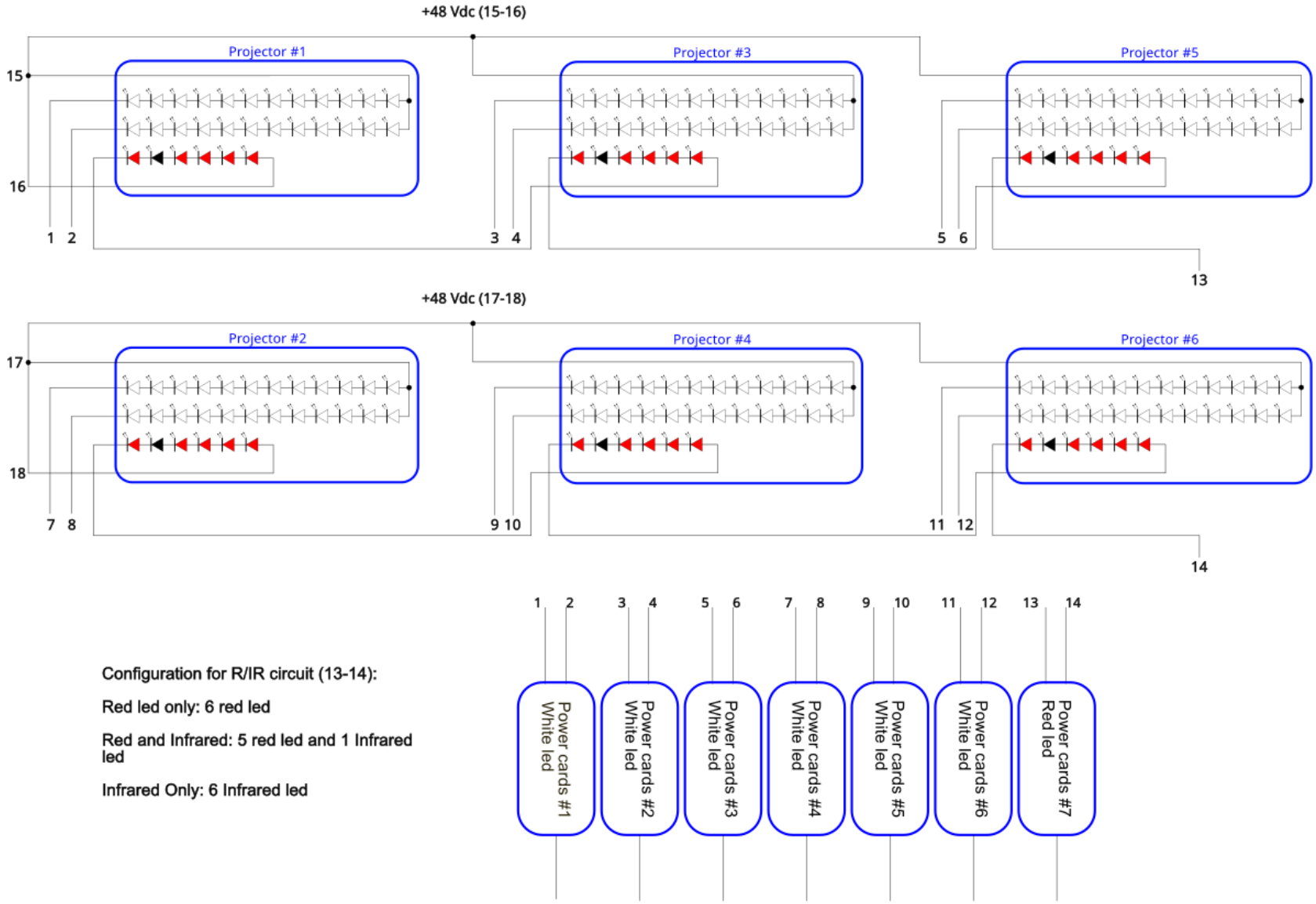
All cards are connected by cable harness. There are 4 harnesses in total:

- AC Power harness → From Interconnection to Power Supply card
- DC Power harness → From Interconnection to Power Supply card
- Signal harness → From Interconnection to Command card
- Projector harness → From Interconnection to Power card (1 to 7)

All harnesses are installed in the OBSTA factory. If any operation is needed, please contact OBSTA before any intervention. Harness must be manipulated with care, do not pull the harness with the wire. Avoid using tools (Screwdriver) for removing connectors from the card, this could damage the harness or the card.

As a reminder:

- For 240 Vac version, the wiring between the interconnection card and power supply is the same for all versions (1 block, 2 blocks, 3 blocks and 4 blocks).
- The interconnection card is different between 1 block and 2, 3 and 4 blocks versions.
- For 2 blocks, 3 blocks and 4 blocks, there is an additional generic card.

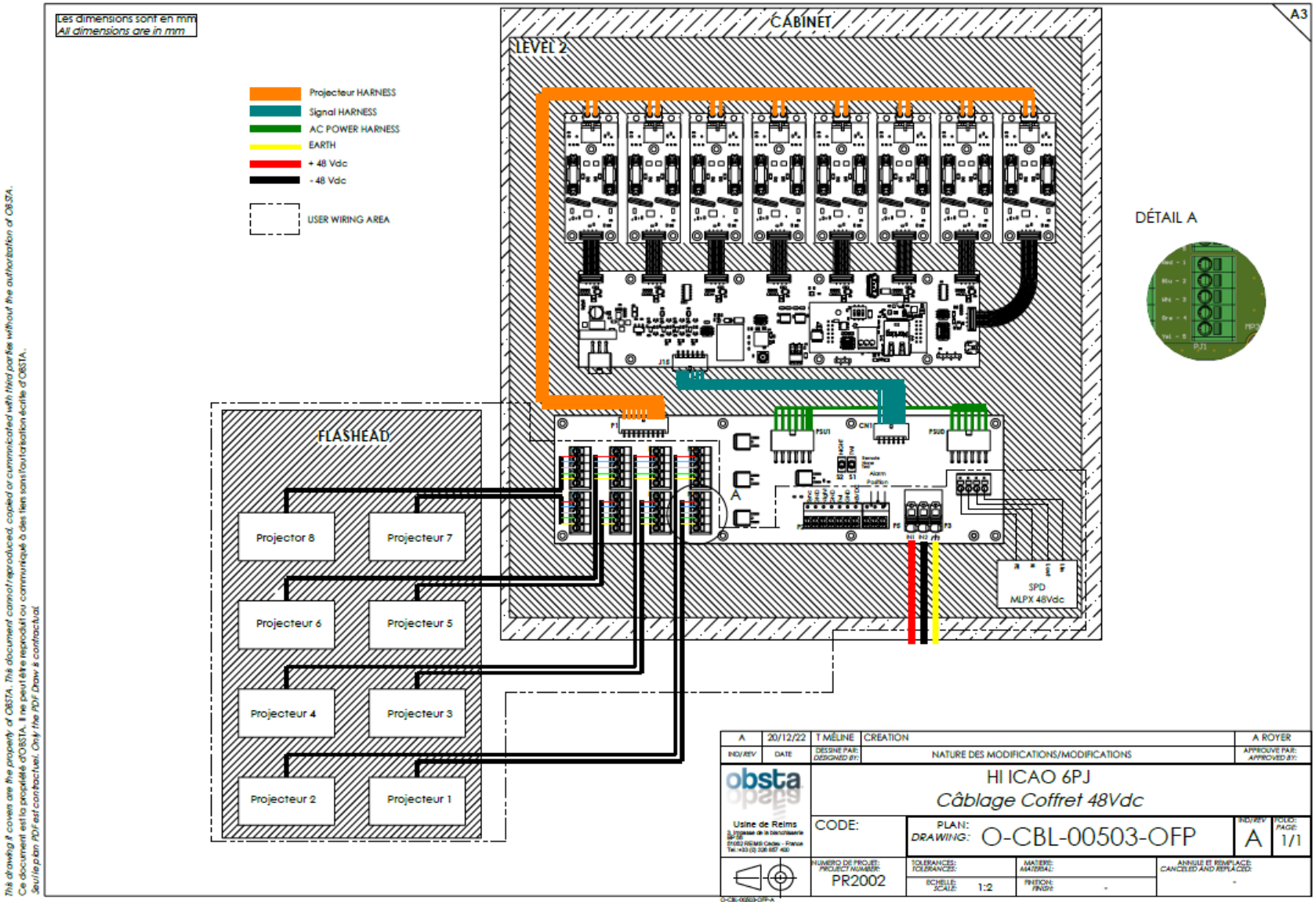


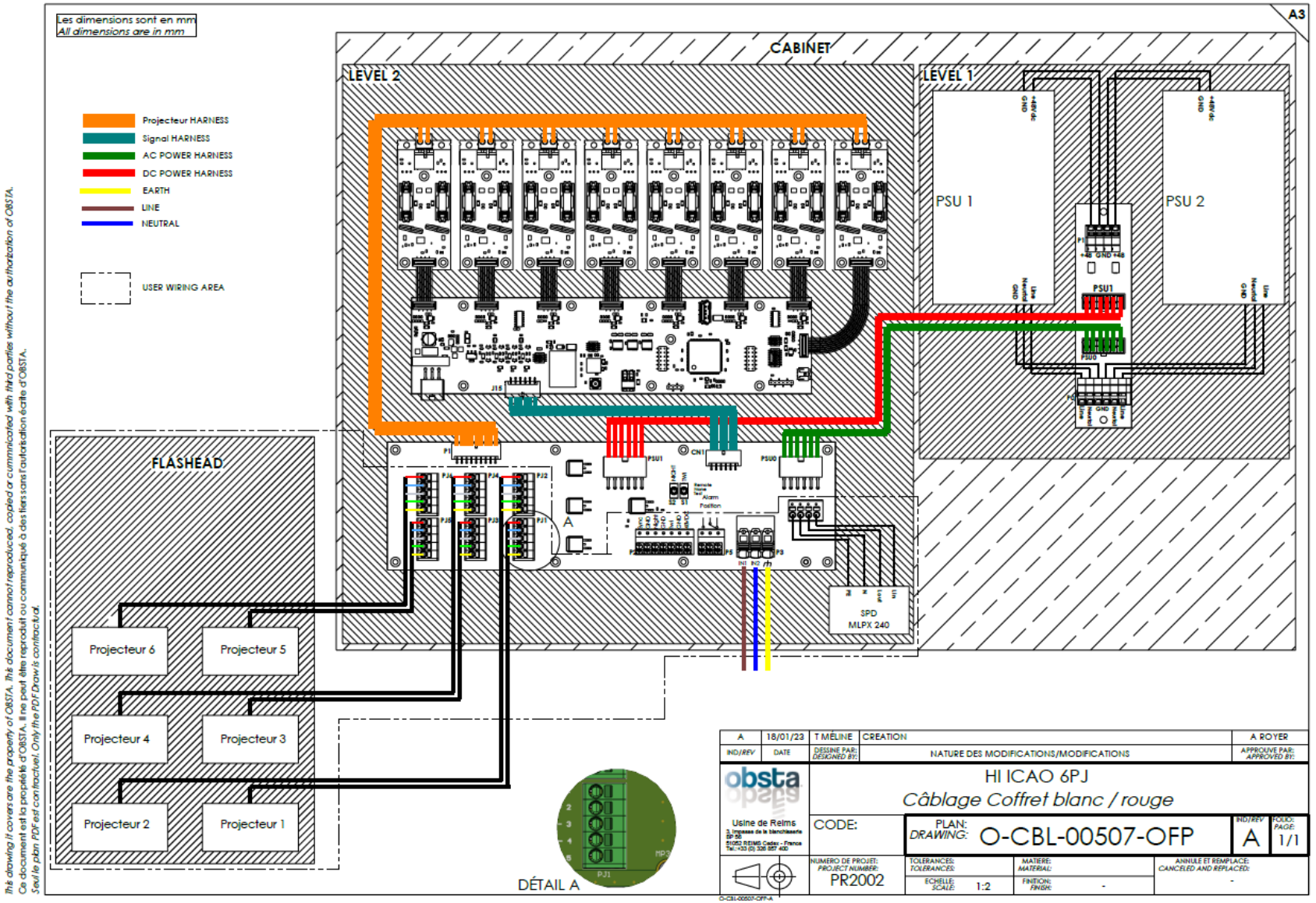
Configuration for R/IR circuit (13-14):

Red led only: 6 red led

Red and Infrared: 5 red led and 1 Infrared led

Infrared Only: 6 Infrared led




Les dimensions sont en mm
All dimensions are in mm
A3
CABINET
LEVEL 2
LEVEL 1
Projecteur HARNESS
Signal HARNESS
AC POWER HARNESS
DC POWER HARNESS
EARTH
LINE
NEUTRAL
USER WIRING AREA
PSU 1
PSU 2
FLASHEAD
Projecteur 6
Projecteur 5
Projecteur 4
Projecteur 3
Projecteur 2
Projecteur 1
SPD
MLPX 240
DÉTAIL A
A 18/01/23 T MÉLINE CREATION A ROYER
IND/REV DATE DESSINÉ PAR: DESIGNED BY: NATURE DES MODIFICATIONS/MODIFICATIONS APPROUVÉ PAR: APPROVED BY:
obsta
Usine de Reims
HI ICAO 6PJ
Câblage Coffret blanc / rouge
CODE:
PLAN: DRAWING: O-CBL-00507-OFP
IND/REV A
FEUILLE: PAGE: 1/1
NUMERO DE PROJET: PROJECT NUMBER: PR2002
TOLERANCES: TOLERANCES:
MATIÈRE: MATERIAL:
ANNULE ET REMPLACE: CANCELED AND REPLACED: -
ECHELLE: SCALE: 1:2
FINITION: FINISH: -
O-CBL-00507-OFP-A
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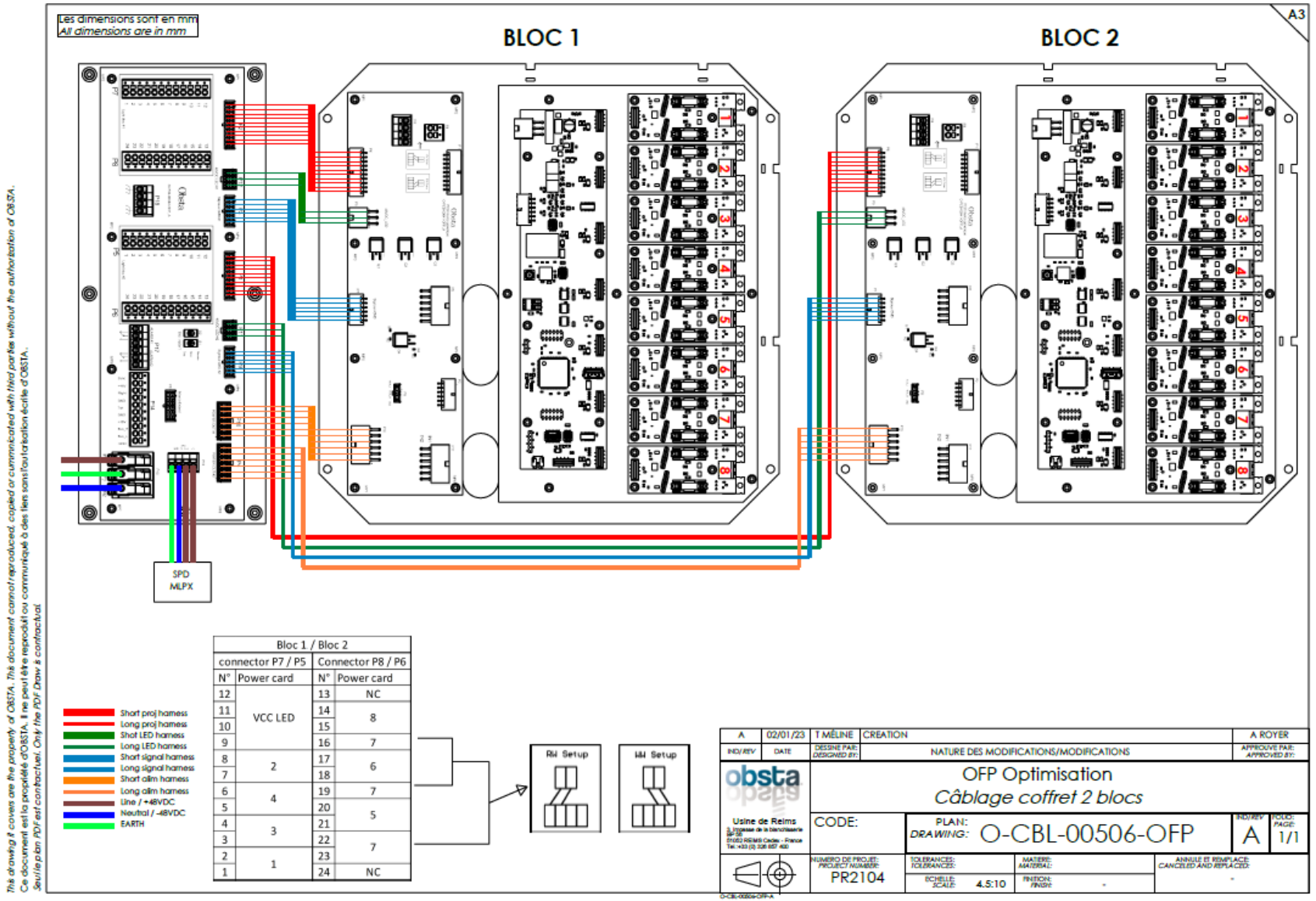
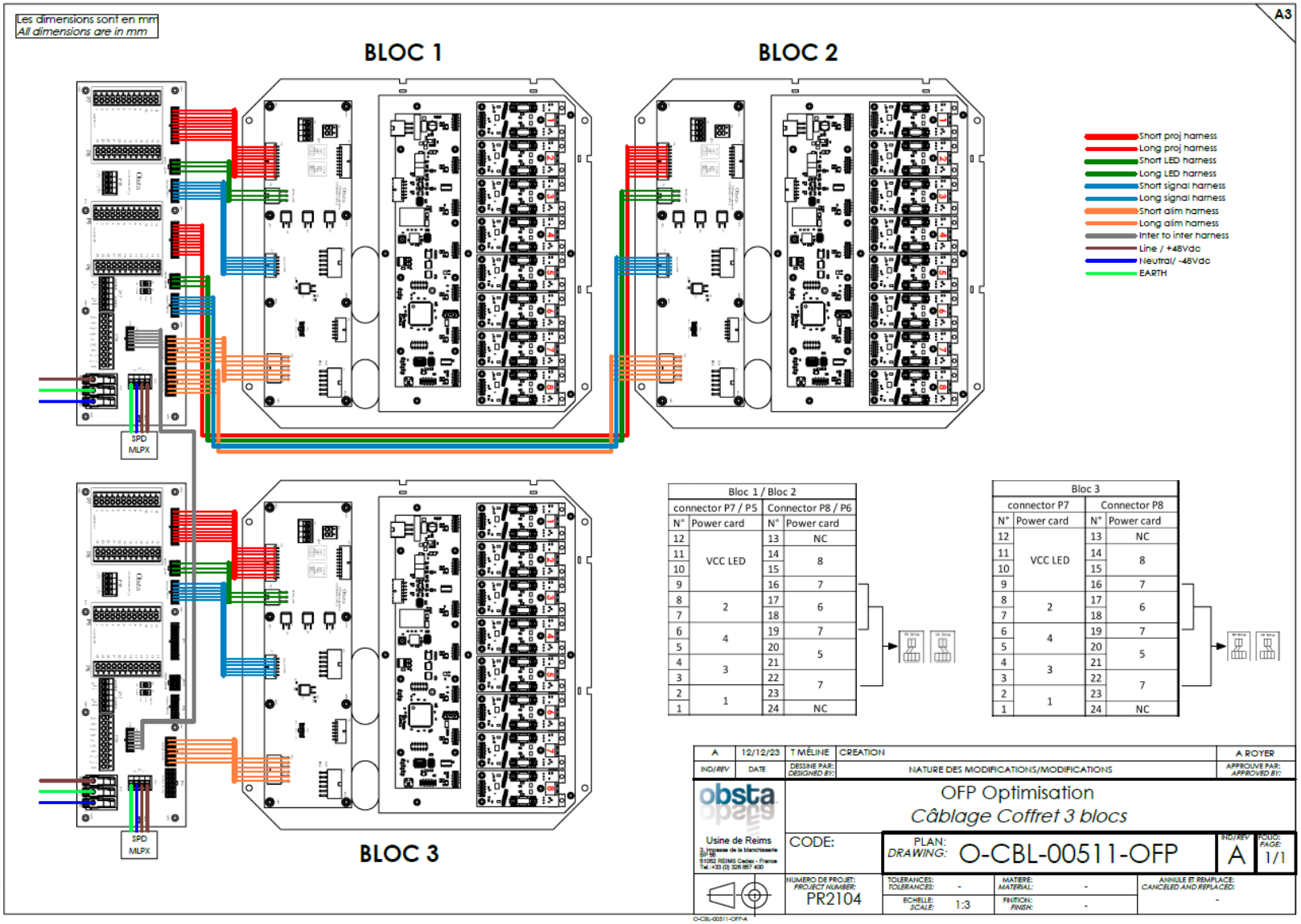
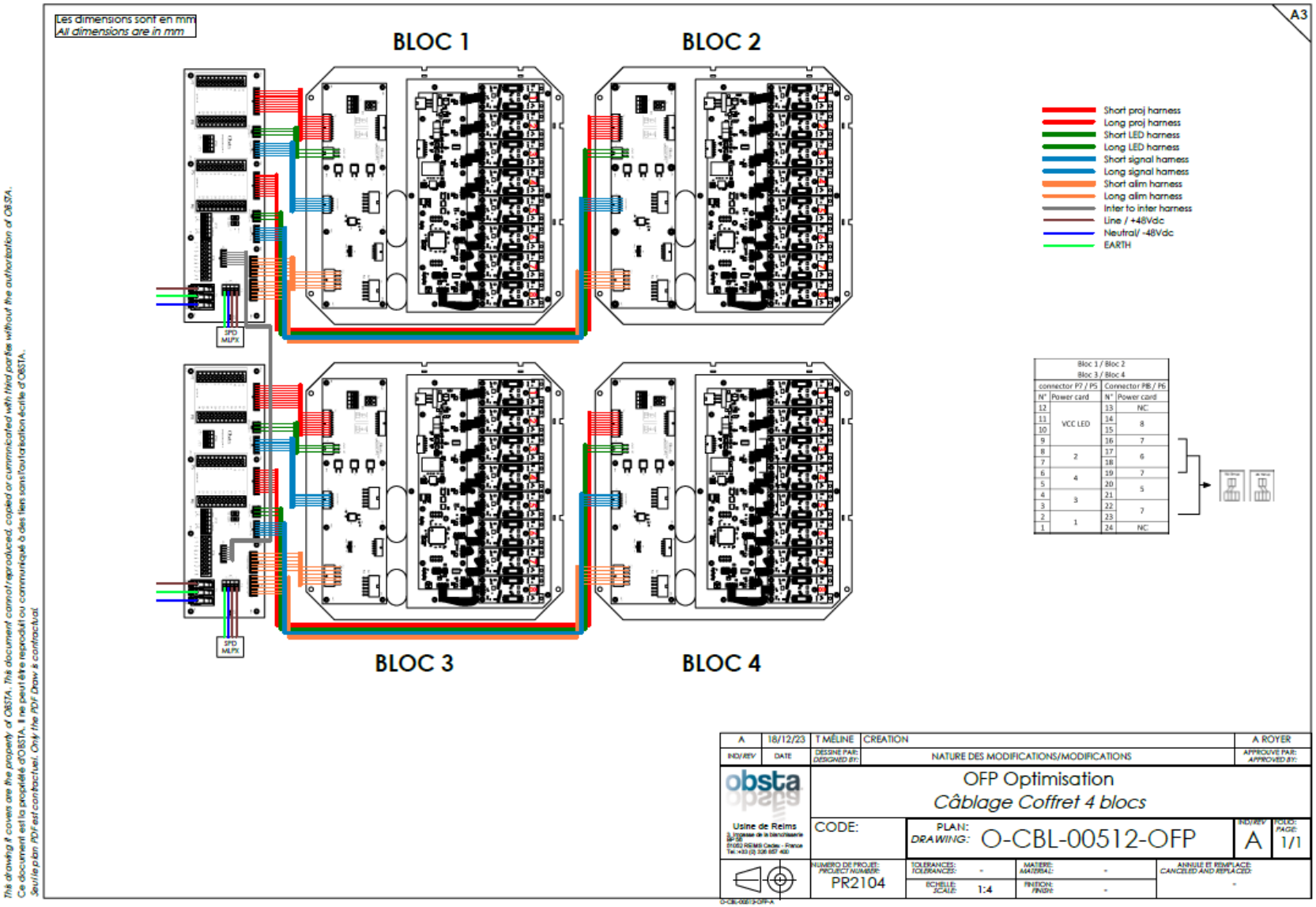
Seul le plan PDF est contractuel. Only the PDF Draw is contractal.



Bloc 1 / Bloc 2			
connector P7 / P5		Connector P8 / P6	
N°	Power card	N°	Power card
12	VCC LED	13	NC
11		14	8
10		15	
9		16	7
8	2	17	6
7		18	
6	4	19	7
5		20	5
4	3	21	
3		22	7
2	1	23	
1		24	NC

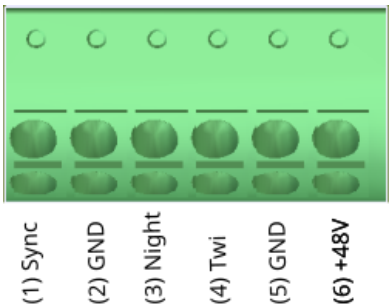




6.4. Terminal connection wiring

The terminal block can be connected using 1.5 mm² wire or 2.5 mm² wire only with a long wire lug (with the exception of the power terminal block (16 mm² max)).

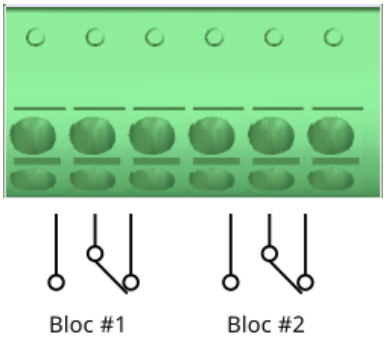
6.4.1. Synchronization



(1) Synchronization: in cases where several blocks are connected to lamps that need to be synchronized, connect the two “sync” terminals with a cable. This is referred to as a master/slave configuration. All settings (flash sequence, photocell, etc.) must be managed solely by the master unit. To define the slave units, use the dip switches (5.2 Switch configuration).
(2) Ground
(3) Night: The change of state occurs when the photocell switches to “night” mode.
(4) Twilight: The state change occurs when the photocell switches to “twilight” mode.
(5) Ground
(6) +48V : Photocell supply

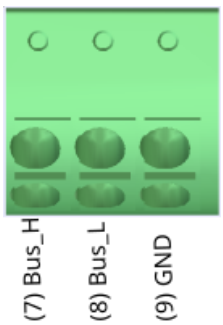
6.4.2. Alarm relay

Bloc #1: Alarm relay NO / COM / NC
Bloc #2: Alarm relay NO / COM / NC



6.4.3. Bus CAN

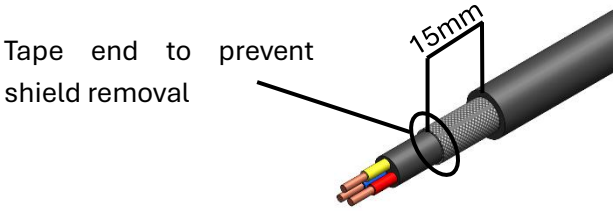
(7) Bus_H : Only with controller OFH-CTR-CAN
(8) Bus_L: Only with controller OFH-CTR-CAN
(9) Ground



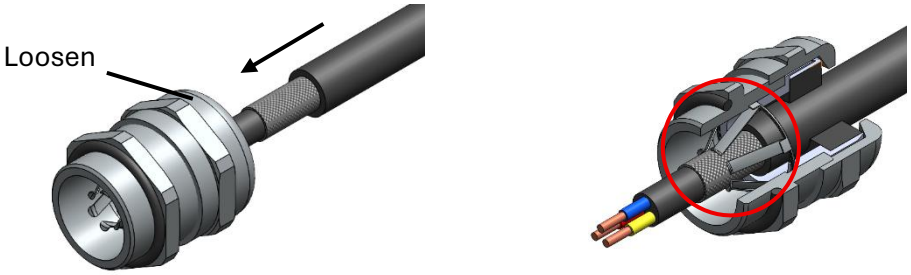
6.5. Cable gland installation

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.

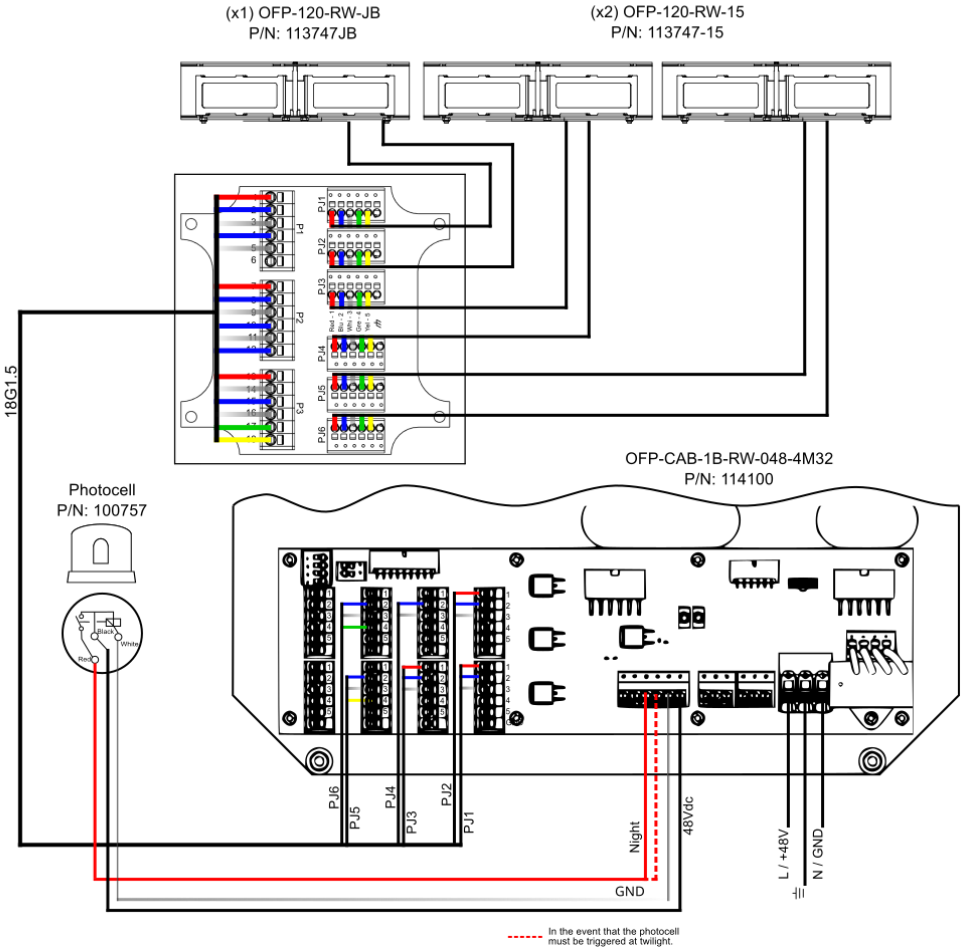


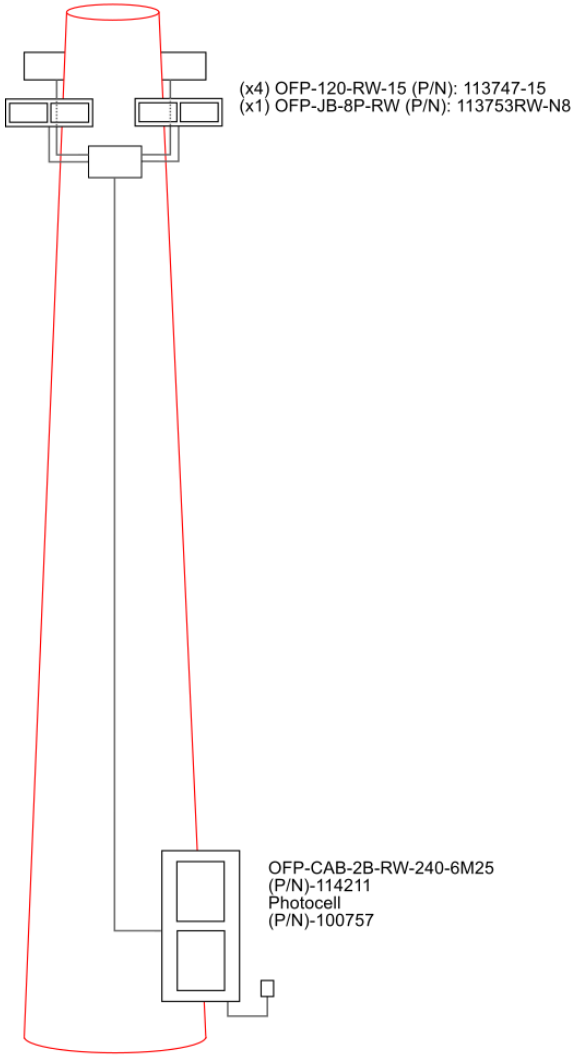
- Tighten the gland ring with the appropriate wrench.
- Once the cable has been clamped in the cable gland, cut and strip the wires to the length required to connect the terminal blocks (don't forget to fit cable ferrules before connection).

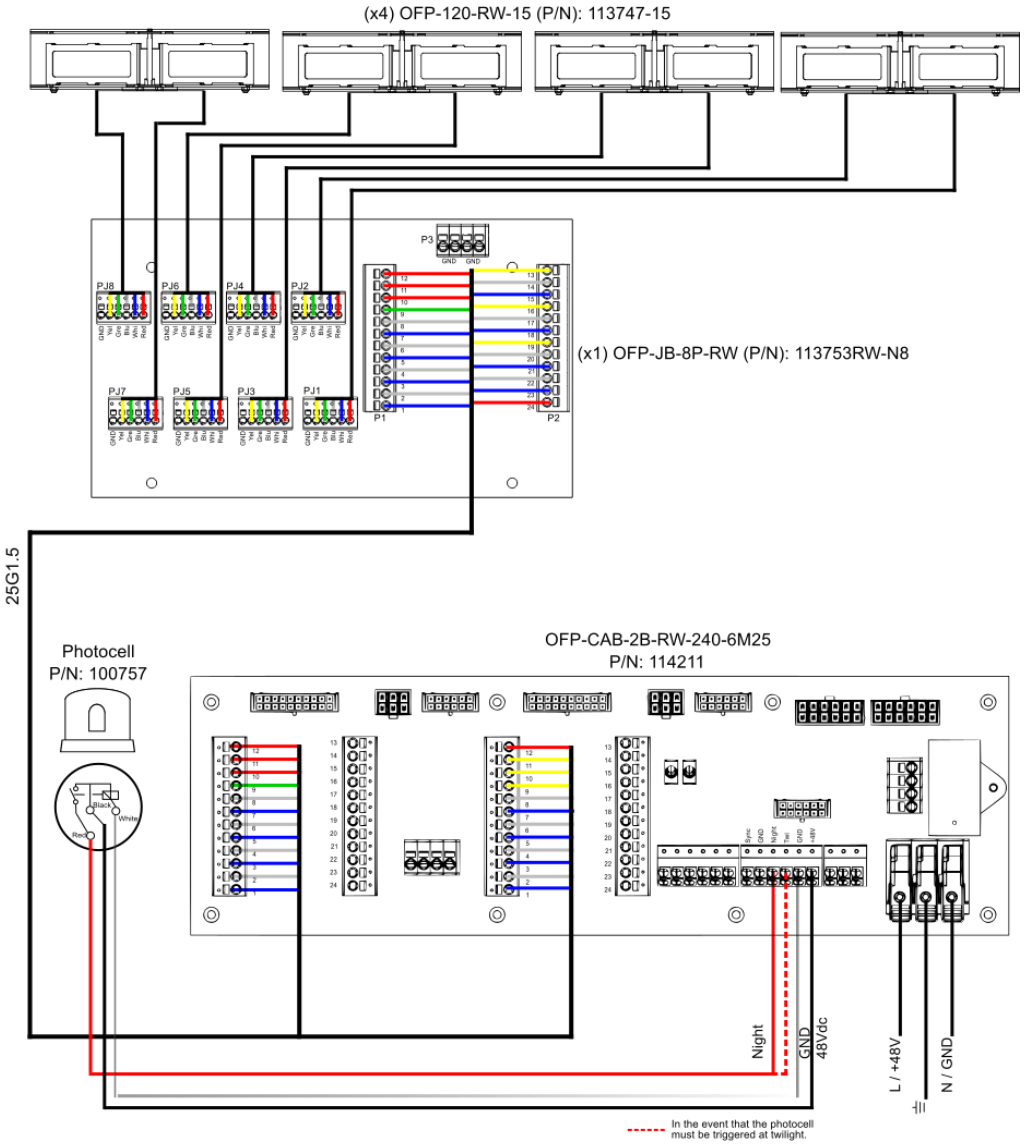
CEM	Cable diam min (mm)	Cable diam max (mm)	Pressure nut wrench	Locknut wrench
M16	4.5	10	20	20
M20	7	13	24	24
M25	9	17	29	29
M32	11	21	36	36
M40	19	28	45	45

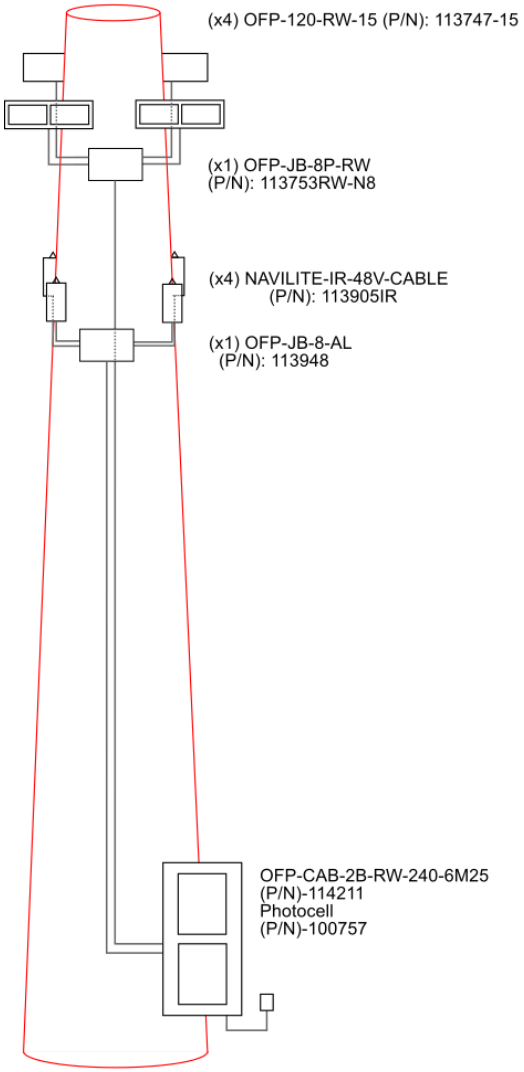
6.6. Typical wiring

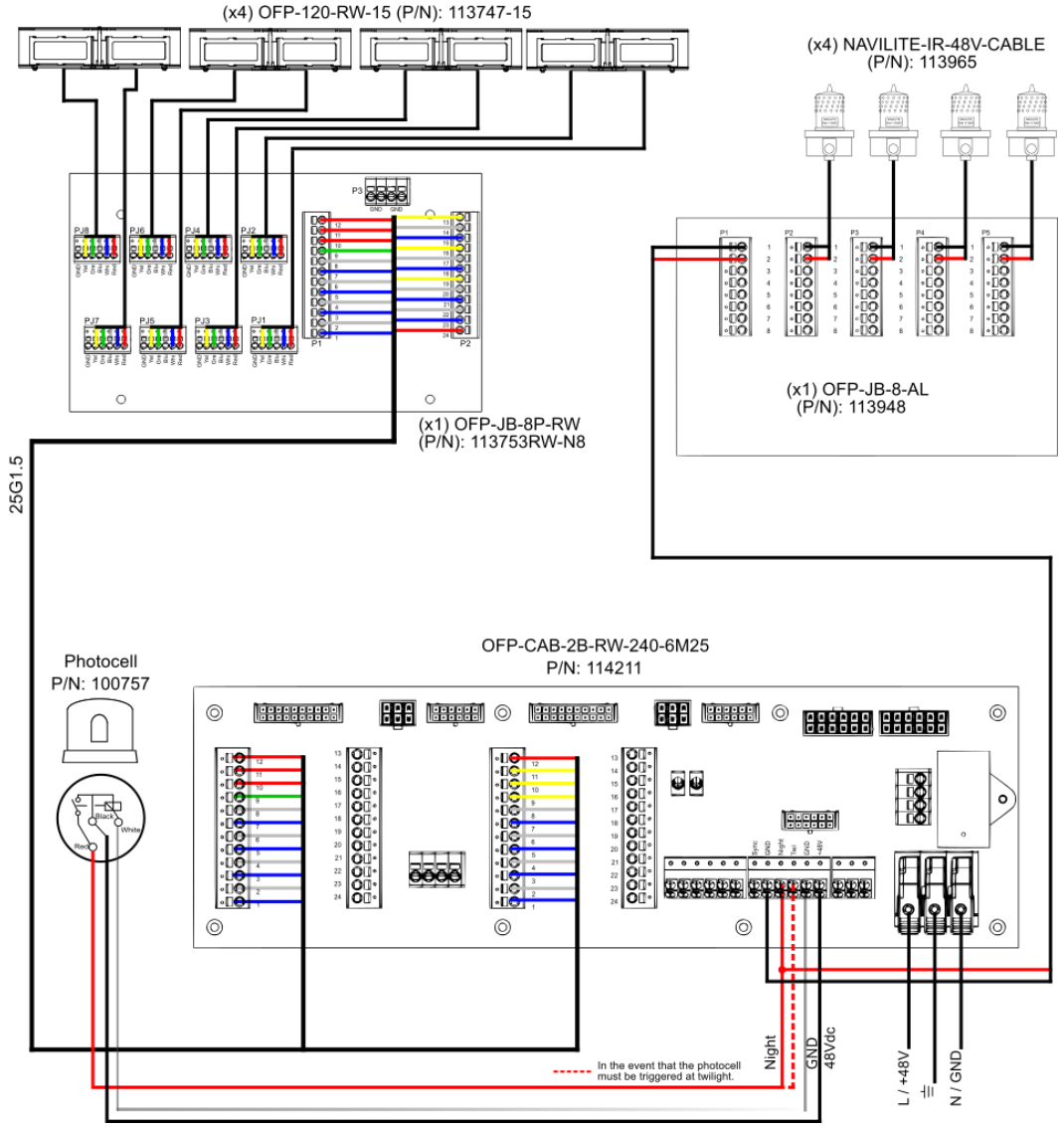
The following typical wiring are provided for illustrative purposes only.











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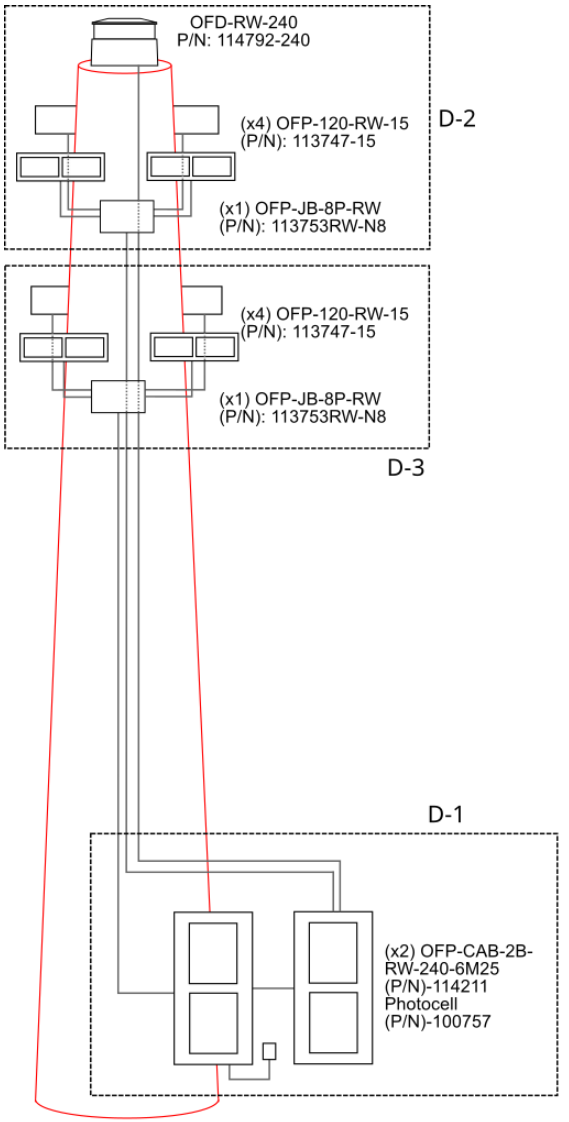
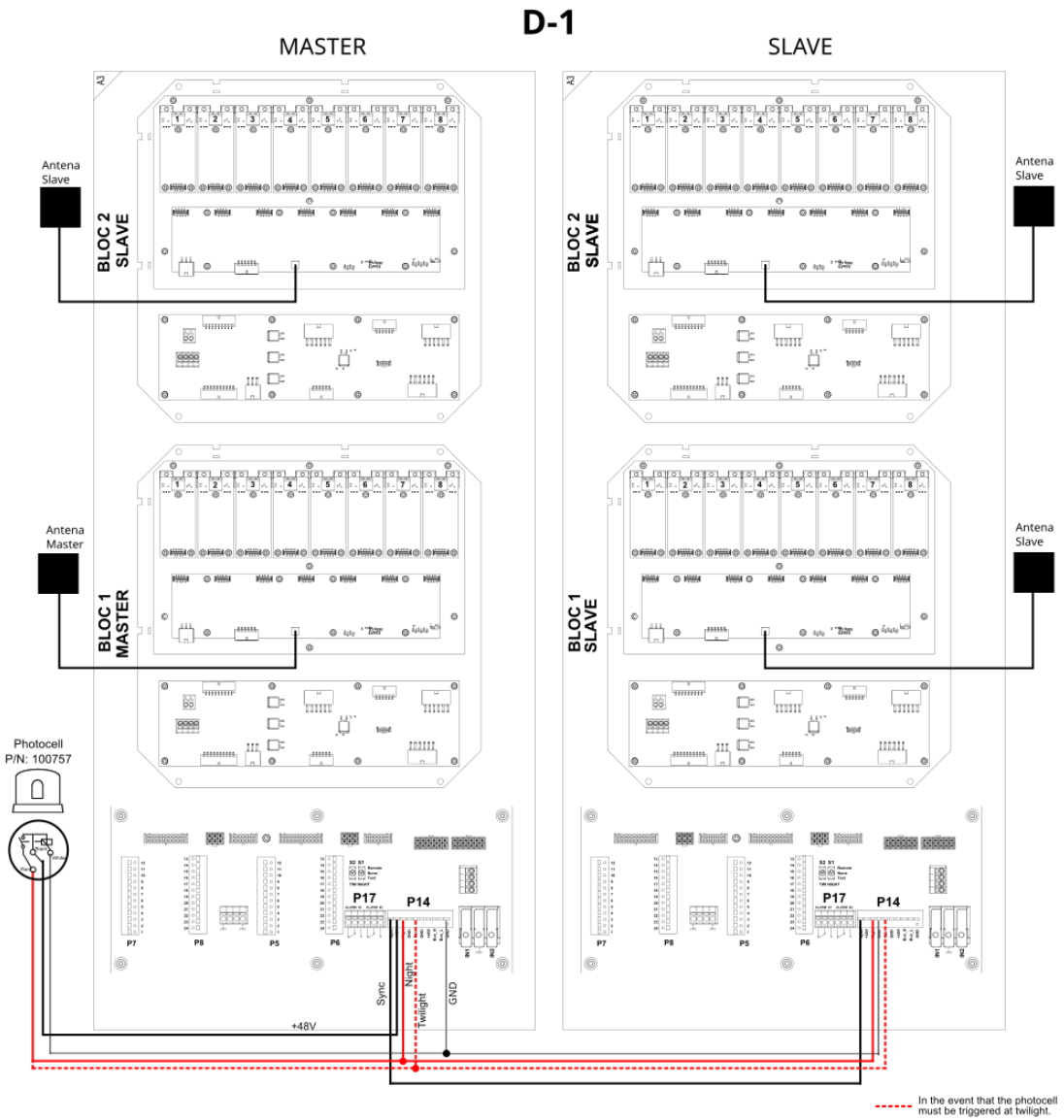
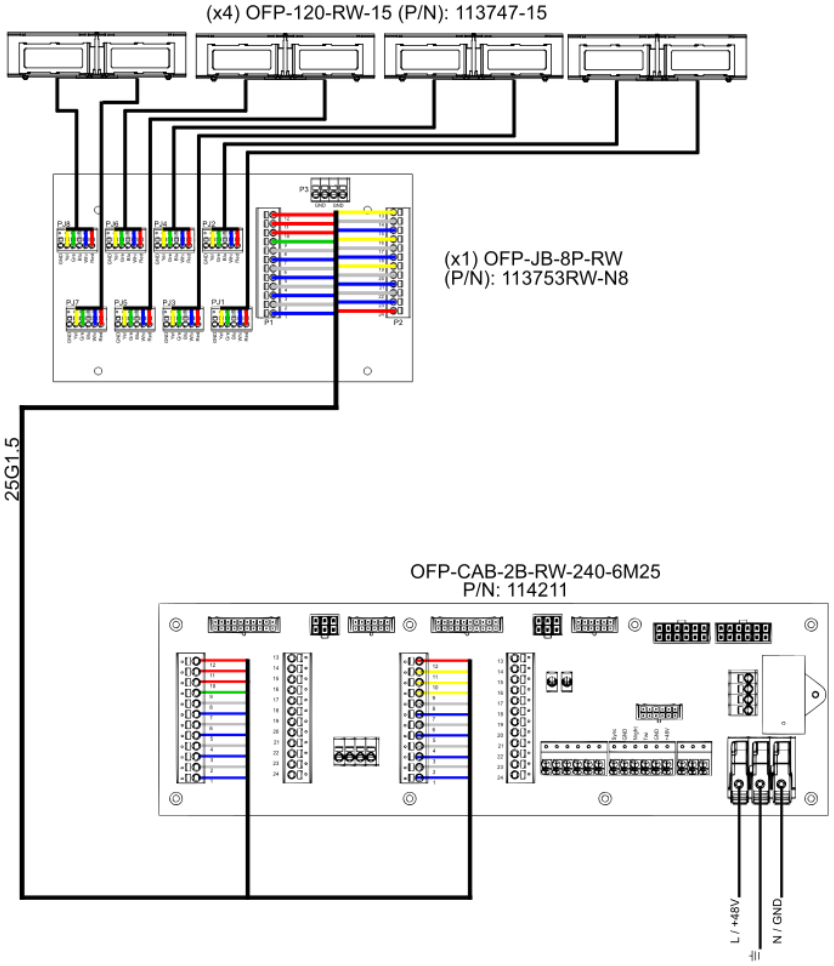
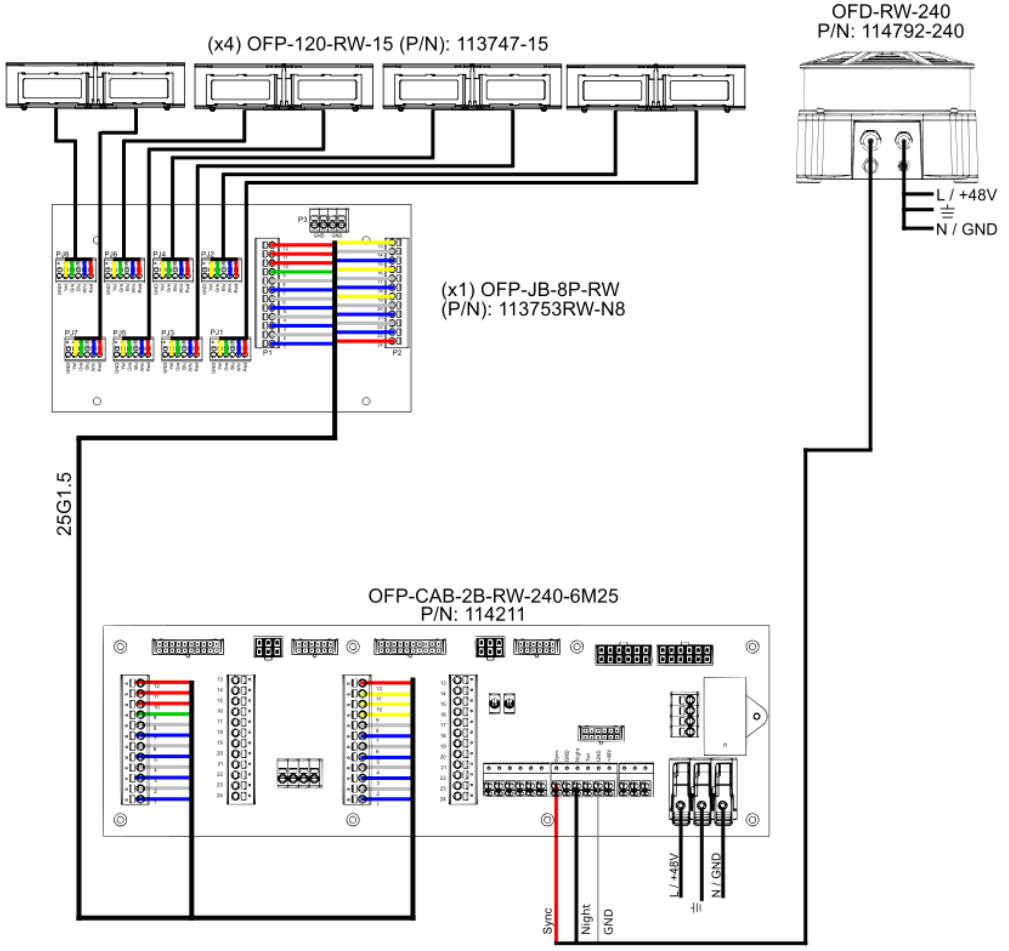


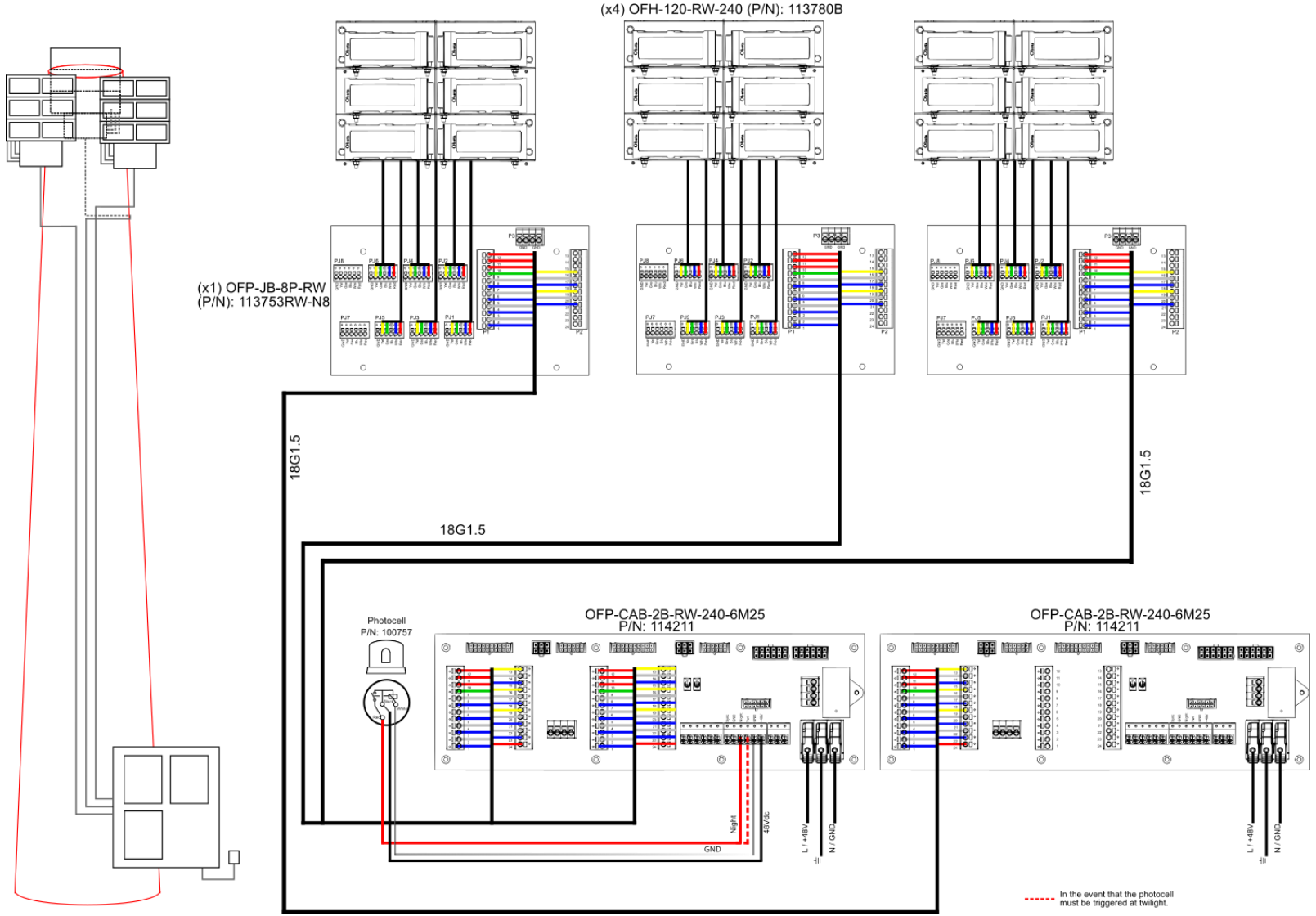


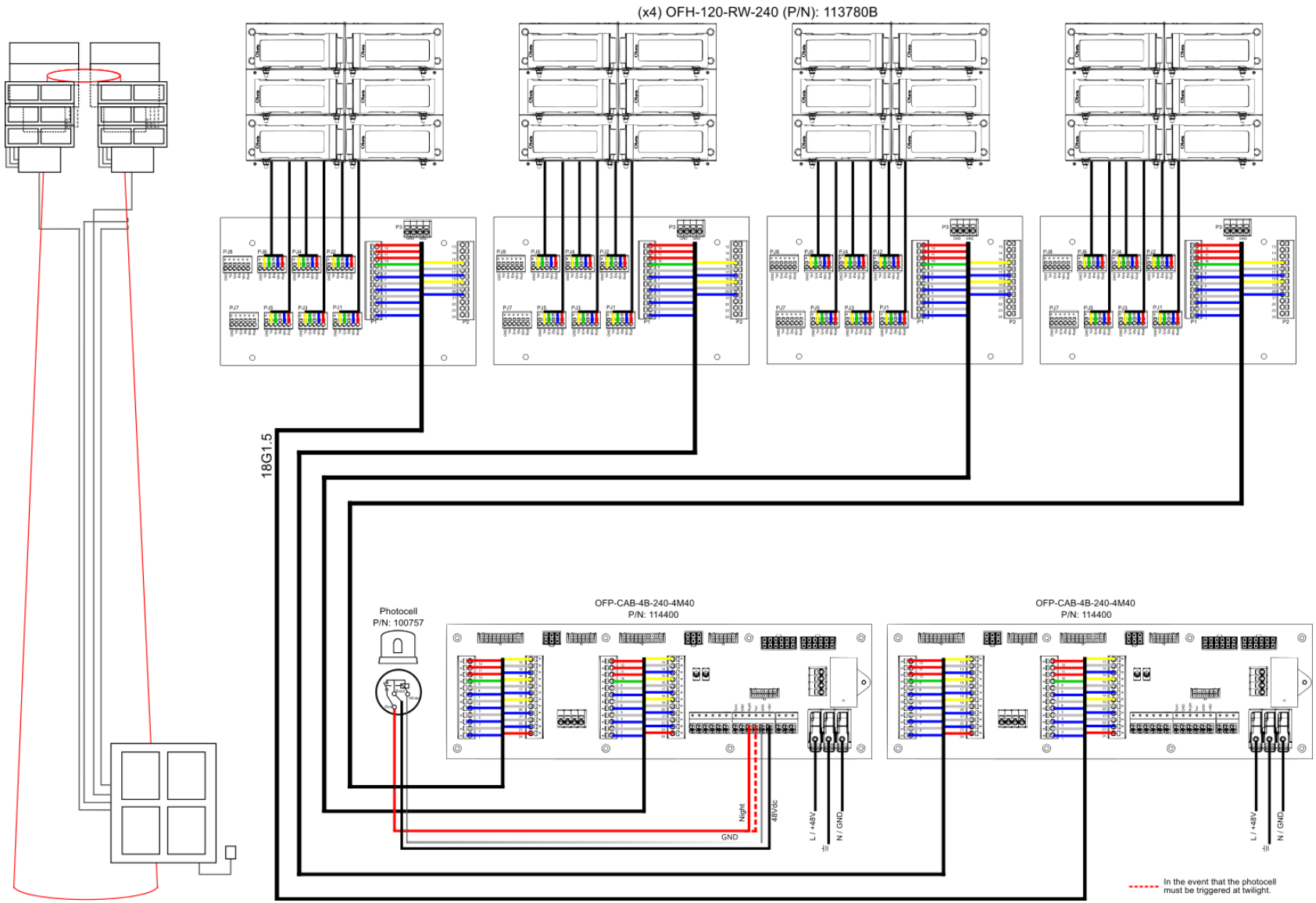
D-2



D-3







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3, impasse de la blanchisserie
51052 Reims CEDEX – France

7. Startup and configuration

7.1. 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.

7.2. Configuration

Any change in the position of the dip switches must be made with the agreement of OBSTA.

7.2.1. SW1-Configuration

Configuration is set in the factory as the topology of the systems.
Changing the switches without OBSTA approval may cause irreversible damage either to the lamp or the power supply.

	1	2	3	4	5	6	7	8	Operating mode
FAA main configuration, only for USA version (Part number with "U")									
n°3	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	L-865 / L-864
n°4	**OFF**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	L-865
n°5	**ON**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	L-864
ICAO main configurations									
n°6	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A and B 20FPM **Configuration by default**
n°7	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A (night with change of light output) 20FPM
n°8	**OFF**	**OFF**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A 20FPM
n°9	**ON**	**OFF**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A and C 20FPM
n°10	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A and B 40FPMM (day) 20FPM (night)
n°11	**ON**	**ON**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A (night with change of light output) 40FPM
n°12	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A 40FPM
n°13	**ON**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	Medium intensity type A and C 40FPM
n°19	**ON**	**ON**	**OFF**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	Medium intensity type B 20 FPM (only night)
n°20	**OFF**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**OFF**	**OFF**	Medium intensity type C Only red at night

7.2.2. SW2 - GPS

Configuration of the GPS (***GPS antenna with 5m RG174 SMA male***) for flash synchronization (***the SW3 must be set to master***).

GPS is used to synchronize flashes based on the UTC clock.

N°	1	2	3	4
ON (I)	GPS used	Sync 0.0	Sync 1.0	ORD → Override the mode and force it into Day mode
OFF (0)	GPS not used	Sync 0.1	Sync 1.1	ORN → Override the mode and force it into Night mode

*2 (Sync 0)	*3 (Sync 1)	Comment
OFF	**OFF**	Flash sequence starts at the second “0” of each minute (Default setting as per regulation)
OFF	**ON**	Flash sequence delayed by 1/13th of period from second 0 (Special case for catenary lighting)
ON	**OFF**	Flash sequence delayed by 3/13th of period from second 0 (Special case for catenary lighting)
ON	**ON**	Flash sequence starts at the second “1” of each minute (Setting as per old installation)

During initialization after start-up, the GPS chip waits for a precise signal. When preliminary signals are received, the GPS status LED may blink or light up (Operation led).

Once the preliminary signals have been received, it may take up to 15 minutes for the card to receive a complete, valid signal, enabling the product to synchronize correctly. During this phase, synchronization may not be fully valid, and a GPS fault may occur. We recommend waiting at least 20 minutes before considering the synchronization valid. If a GPS default is still activated after 20 minutes, the product is not receiving signals correctly.

If GPS is used and signals are not found:

- Flash rate is set up at 15 FPM
- If also used for Day/Twilight/Night mode, the mode is forced to night mode.

If the system is in slave mode and using external signals for synchronization coming from a top sync or a controller, in case of defect of signal, the GPS is automatically used for the flash and day/twilight/night mode:

- Flash synchronization is done as per dipswitches 3 and 4 on SW2
- Day/Twilight/Night mode is done as per astronomical twilight (the sun is -6° below the horizon)

7.2.3. SW3 – Control

N°	1	2	3*	4*
ON (I)	Operation	Master	ORN – 0.0	ORD - 1.0
OFF (0)	Reset	Slave	ORN – 0.1	ORD – 1.1

- ORD → Override the mode and force it into Day mode
- ORN → Override the mode and force it into Night mode
- ORT (ORN + ORD) → Override the mode and force it into Twilight mode

*2 (ORN)	*3 (ORT)	Comment
OFF	**OFF**	-
OFF	**ON**	ORD
ON	**OFF**	ORN
ON	**ON**	ORT

7.2.4. SW4 – Mode

This switch selects which Day / Twilight / Night sensors are used on the product:

N°	1	2	3*	4*
ON (I)	Photores (detected from D/T/N)	External	GPS	Alarm used
OFF (0)	-	-	-	Alarm not used

If GPS is selected, the GPS will use the astronomical definition for Twilight / Night mode.

7.3. Troubleshoot – malfunction

When the beacon is in operation, several LEDs located on the command card indicate the operating status of the system. Specific sequences indicate whether the beacon or system is operating correctly or has failed.

7.3.1. Operation led

In operating conditions

- ····· Power supply voltage problem (Over-voltage or under-voltage)
- — ··· Configuration is invalid. Means inconsistency in dipswitches
  - GPS is disabled and Sync 1 + Sync 0 are set
  - Several sensors for switching mode are set
  - The selected configuration number does not exist
- ·· Default mode activated due to channels errors
- · Relay activated due to channels errors
- — · Slave out of synchronization (no TOP SYNCHRO received)
- — ·· GPS out of synchronization
- ··· HIFAA internal communication problem (between the two PCB)
- — Day/Twilight/Night mode unchanged (in the last 48 hours)
- — — External (CAN or Ethernet) communication problem
- = GPS lost synchronization after less than 15 minutes

During USB firmware update process

- ····· Log retrieval has been processed successfully
- ····· Software update has been processed successfully
- ····· The IP configuration was correctly done (· and · alternate 12 times)
- — · — Error mounting the file system
- — — ·· Error in the format of the ip.cfg file
- · Empty USB key
- — · Error opening Mi.bin file
- — ·· Error while waiting for write access to flash memory
- — ··· Error during MI.bin file reading (Input/Output error or invalid file size)
- · — Error decrypting the MI.bin file
- ·· — Error writing MI.bin file to flash memory
- ··· — CRC incorrect (this error may be caused by an incorrect encryption key)
- ·· Error during mi_log.bin file encryption
- ··· Error when writing the mi_log.bin file
- — Error when unmounting the file system (this event reported AFTER the USB key has been removed, for 10 sec)
- — — Error processing USB events: unexpected events

7.3.2. Power card led

Errors when starting up the card

The following cases appear when the card is started up, when the configuration is incomplete, and prevent the program from running. All red leds on the power card:

- Flash at the same time if the program is for production and the series number has not been programmed.
- Light up one after the other if Ethernet is enabled but the IP address has not been configured.

Errors in operating conditions

7 pairs of 2 led indicators are present to inform about the operation status of each power card (J1 to J7).

· Short circuit

· — Full open circuit: Both led circuits piloted by the power card are in open circuit

· — — Full regulation problem: Power card cannot set the according current on both circuits led

— One channel open circuit: One of the two leds circuits piloted by the power card is in open circuit

— · One channel regulation problem: Power card cannot set the according current on one circuit led

7.3.3. Mode led

3 leds are present to inform about synchronization and “Mode” information:

- Top sync: blink at each lamp flash in master configuration or at each flash request received from the controller.
- DT: for twilight mode (depending on switch 4 configuration and model).
- DN: for night mode (depending on switch 4 configuration and model).

7.3.4. Alarm led

The LED lights up when the alarm relay wired to the “supply card” is triggered (switching to NO).

8. Maintenance

8.1. Annual visit

Test	Frequency	Preventive action	Risk
Wiring	Annual	Visual control Tightening cable glands Tightening PCB wires	Water infiltration Poor circuit Cable degradation
Waterproof	Annual	Visual verification Search for the water leak	Water infiltration Short circuit Lamp in default mode (or light off)
Clamping	Annual	Checking tightness	Cabinet falling Water infiltration
Ampect (rust, dust…)	Annual	Exterior cleaning	Malfunction
	10 years	Changing headlamps	Lamp in default mode (or light off)
	15 years	Changing PSU and cable strand	Lamp in default mode (or light off)

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

8.2. Spare part

	Designation	**[P/N]**
-	COMMAND-CARD-48VDC-6P-RW	[**113744B**]
-	POWER CARD 48VDC	[**113741B**]
-	PCBa OFP MI CAN Extension Card	[**770327**]
-	PCBa 1 block Interco RW	[**770334**]
-	PCBa Interco 2 bloc	[**770331**]
-	PCBa Intercom multi blocks	[**770332**]
-	PCBa 1 block PSU	[**770333**]
-	Harness Wire Kit 1 block	[**113760B**]
-	MLPX1-48DC-W / OBSTA	[**71161489]**
-	MLPX1-240L-W / OBSTA	[**71121489**]

9. Technical specifications

Electrical properties

Designation	Min	Nominal	Max	Unit
AC power input voltage	100	100 / 240	264	*Vac*
DC power input voltage	45	48	54	*Vdc*
AC frequency	50	-	60	*Hz*
Current	0	-	20	*A*

Mechanical properties

Designation	Min	Nominal	Max	Unit
Mass for 1 blocks cabinet	-	20	-	*kg*
Mass for 2 blocks cabinet	-	60	-	*kg*
Mass for 3 blocks cabinet	-	70	-	*kg*
Mass for 4 blocks cabinet	-	80	-	*kg*

Wind properties (Face / lateral)

Designation	Min	Nominal	Max	Unit
Max wind force under 324 km/h (1B)	-	711 / 366	-	*N*
Max wind force under 324 km/h (2B)	-	2670 / 1435	-	*N*
Max wind force under 324 km/h (3B and 4B)	-	3560 / 1336	-	*N*
Cabinet dimension (1B)	-	400x400x300	-	*mm*
Cabinet dimension (2B)	-	600x1000x300	-	*mm*
Cabinet dimensions (3B and 4B)	-	800x1000x300	-	*mm*