



OBSTAFLASH HI LED LIGHTING SYSTEM



INSTALLATION AND OPERATION GUIDE

PARCEL 4.12

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DESCRIPTION	COLOR	POWER SUPPLY	P/N
OFP-120-RW-2-HIA-SC	White/Red		113781SC-2
OFP-CAB-8P-1E-RW-240-HIA	White/Red	120-230 V – 50/60Hz	113782-1E
OFP-CAB-8P-1E-W-240-HIA	White	120-230 V – 50/60Hz	113782-1E
OFH-CTR		120-230 V – 50/60Hz	113625L
ICAO PHOTOCELL 500/50 LUX		48 Vdc	113135

This list is not exhaustive and some options can be added for synchronization and remote alarm control (GPS for wireless synchronization, optical cable for synchronization and/or GPRS interface for remote monitoring) and combination of medium and high intensity system.

BE CAREFUL

Led projectors in this lighting system Produce brilliant flashes of light which can result in temporary or permanent eye damage. **DO NOT LOOK DIRECTLY AT THE PROJECTOR WHILE IT IS IN OPERATION.**

WARRANTY

OBSTA warrants the equipment described in the instruction manual and sold to purchaser 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.

NOTICE

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WARNING!

Modifications to the Power Supply are required for certain applications. Documentation to describe these changes may be found at the end of the manual.

1.0 - GENERAL INFORMATION

1.1 Scope

This manual provides information about the installation, operation, and maintenance of the OBSTAFLASH HI Led High Intensity Obstruction Lighting Systems manufactured by OBSTA. The lighting systems described in this manual are ICAO High intensity type A, for use as high intensity aviation obstruction warning systems.

1.2 General Description

The OBSTAFLASH HI Lighting System is led high intensity systems manufactured to comply with ICAO annex 14 chapter 6. Each system consists of 1 beacon covering 120° in azimuth, an associated power supply with integrated controls, an ambient light sensor (photocells) and the interconnecting cable. System components are shown in Figures 1-1 to 1-8 pages 5 to 11.

The OBSTAFLASH HI beacon consists of 8 led projectors made in hard glass and aluminum, and a stainless bracket. Each projector includes 2 white led circuits working in active redundancy: in case one circuit is out of work, the second one keeps on working in the same azimuth, a remote alarm is activated and related luminous indicator goes red.

The stainless power supply contains:

-
- 9 modular power cards
- 2 command cards to monitor the 8+1 power cards. The command card do have :
 - o 8 luminous indicator for the 8 power cards used during day/twilight
 - o 1 luminous indicator for the power card for the red circuit used during the night
 - o 1 luminous indicator for synchronization signal,
 - o 1 luminous indicator for synchronization failure in case no signal is received
 - o 1 luminous indicator for general alarm
- all related power circuit (surge protection, switch, DC power, test buttons)
- a main switch and an AC power indicator.

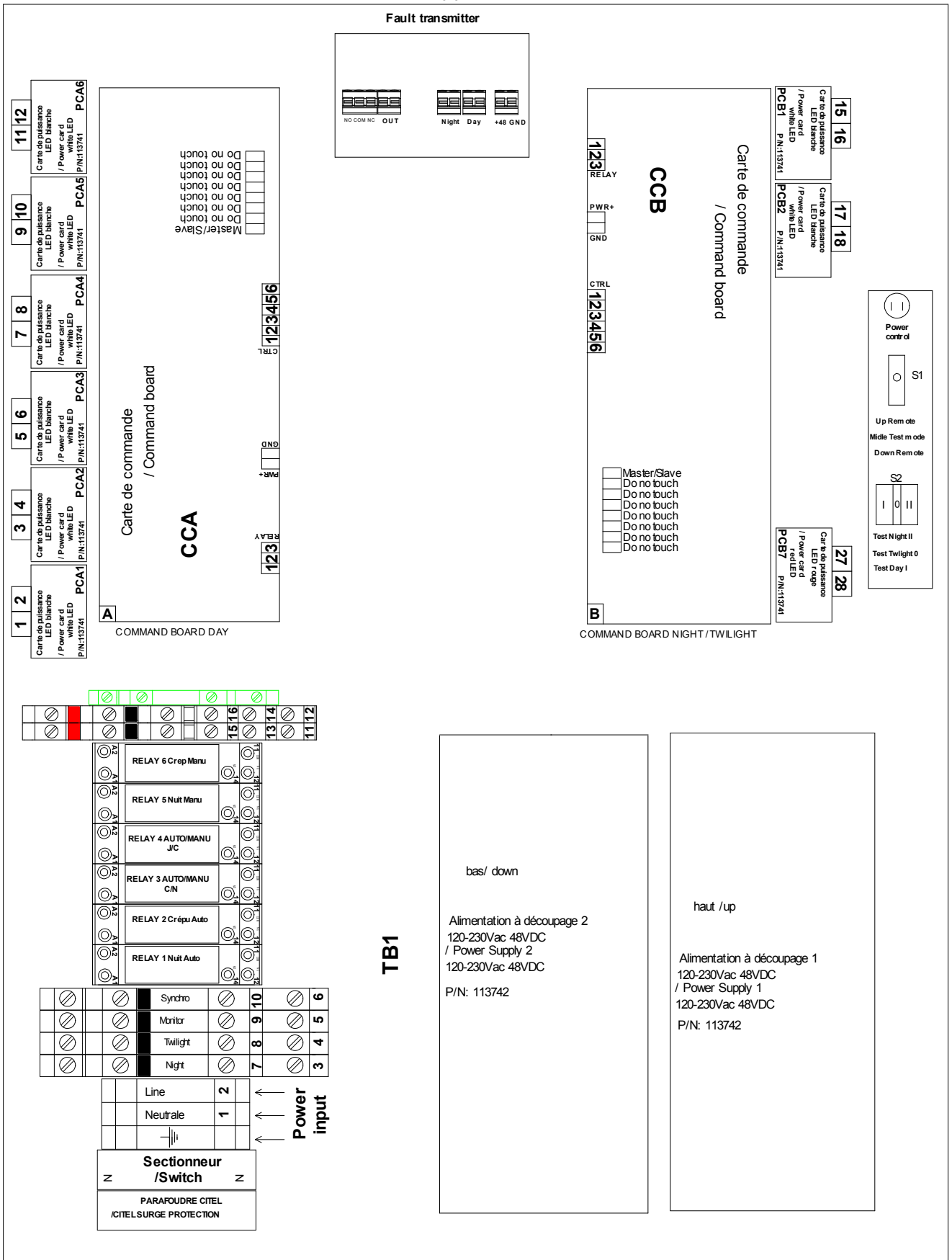
So total is 12 active luminous indicators

The S1 test button allows 3 positions:

- “Up”: remote position, the light is in normal operation
- “Middle”: the light are forced in “day” or “twilight” or “night” mode according to S2
- “Down” remote position, the light is in normal operation

The S2 test button in figure 1-1 page 5 allows 3 positions:

- “Day” position, the light is forced in day mode
- “Twilight” position, the light is forced in day mode
- “Night” position, the light is forced in night mode.



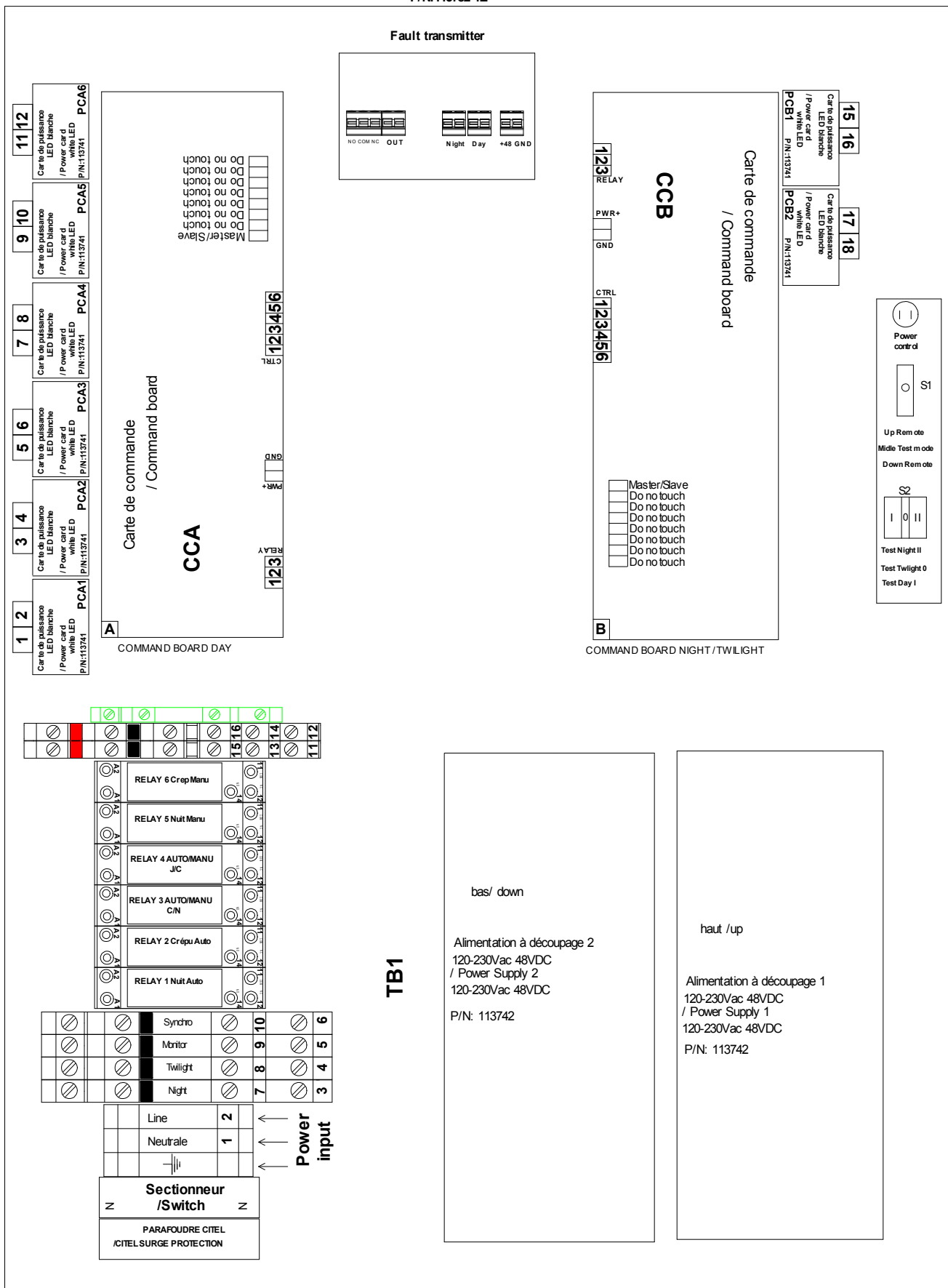


Figure 1-2. Power supply component locations OFP-CAB-8P-1E-W-240-HIA
P/N:113782-1E

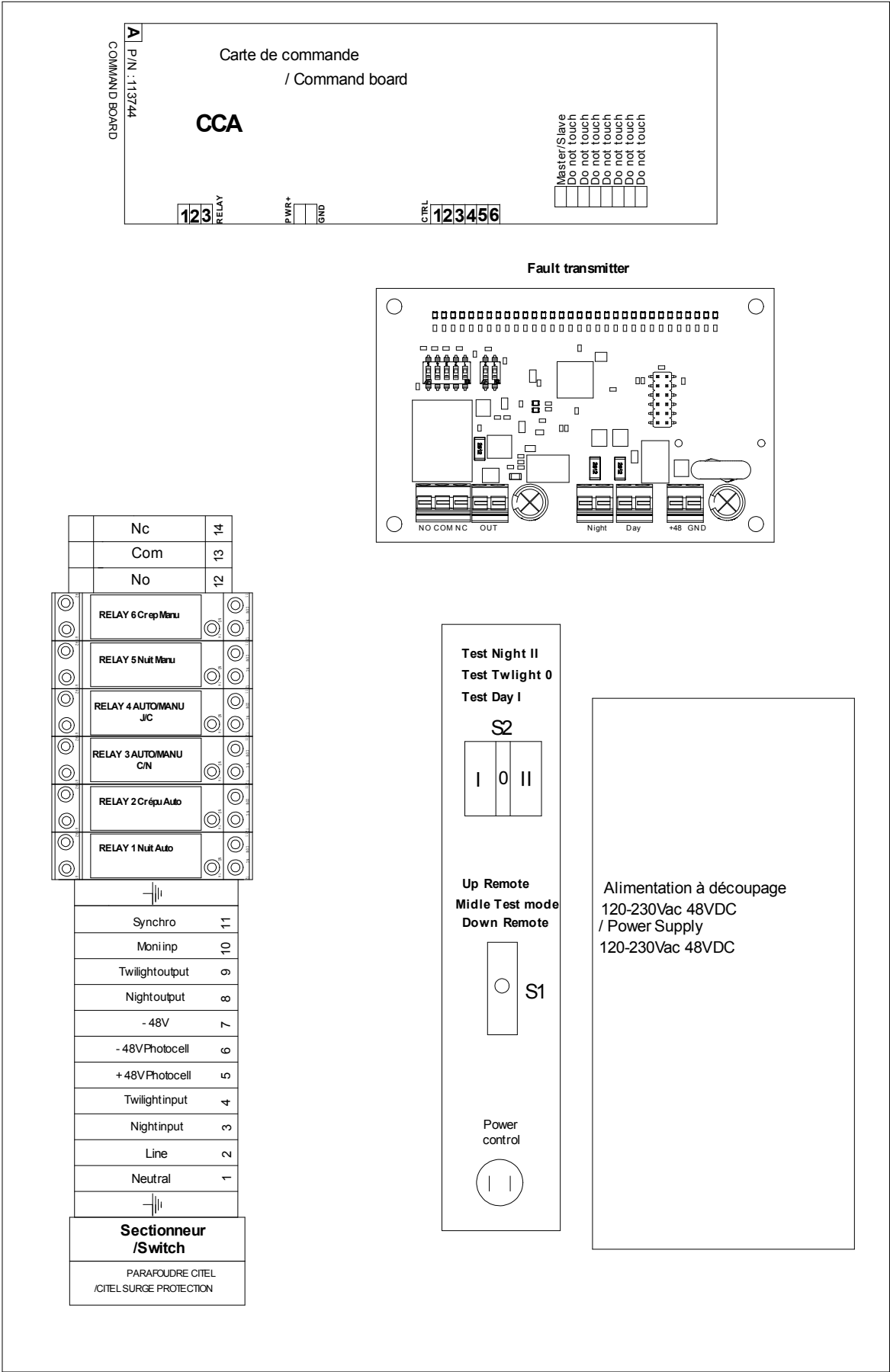


Figure 1-3. Controller component locations113625L

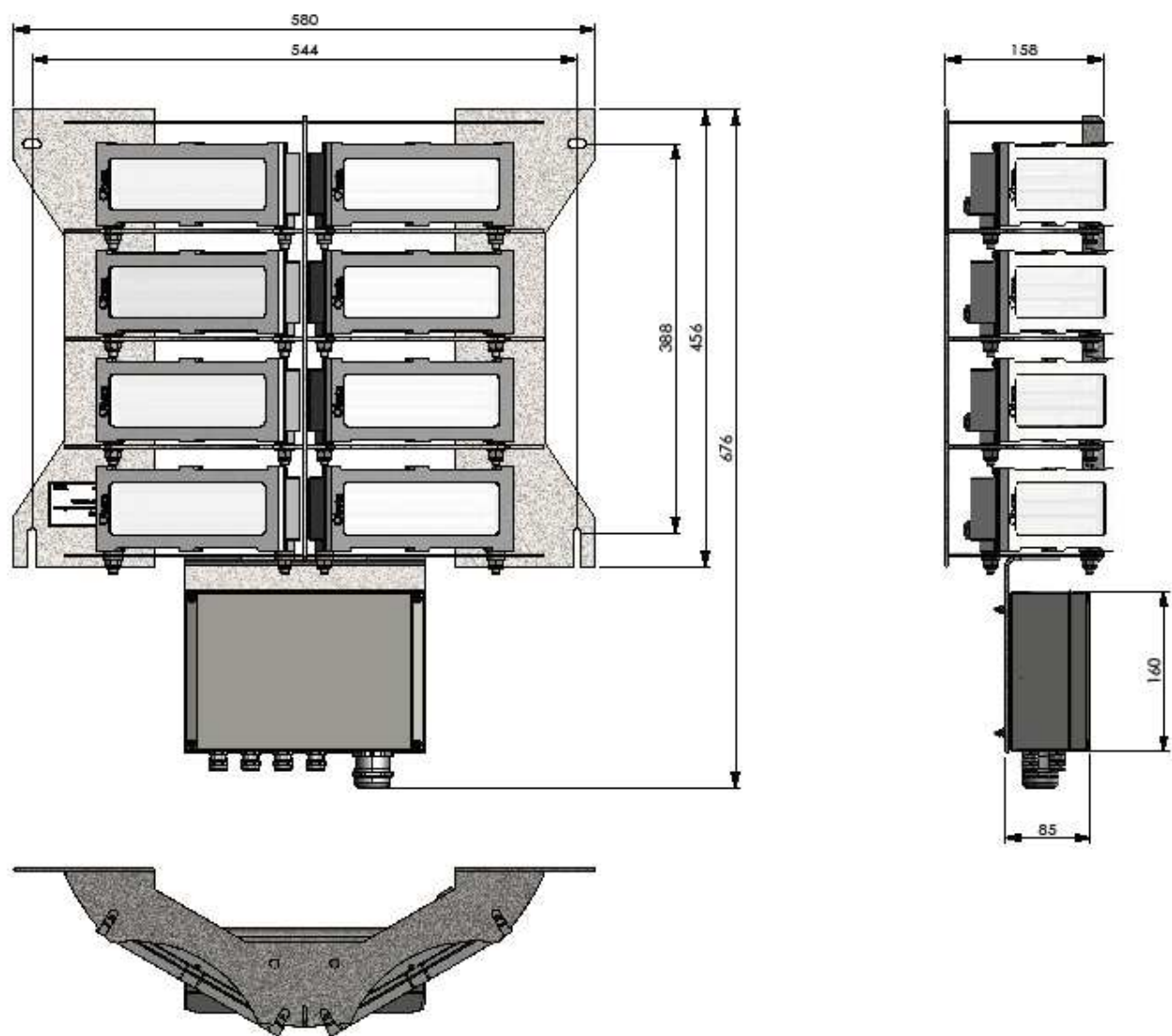


Figure 1-5 Outline and mounting dimensions OBSTAFLASH HI flashhead

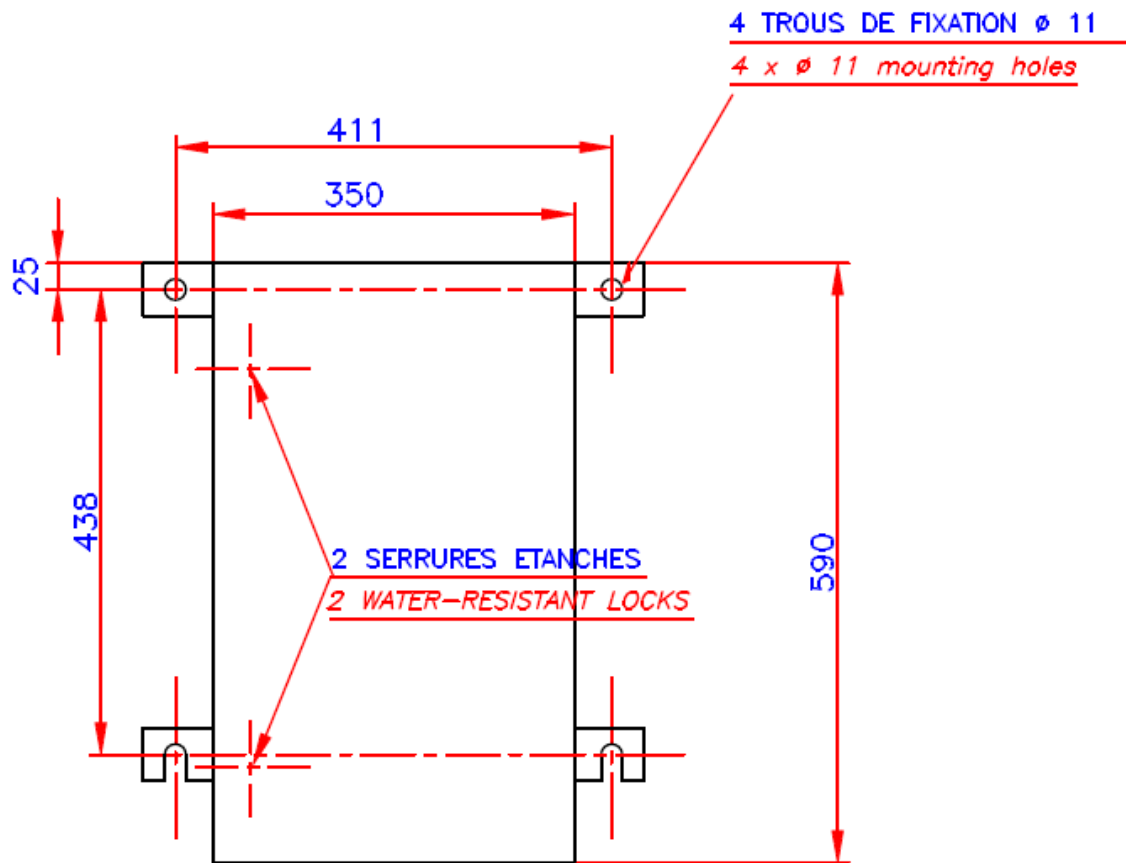


Figure 1-6 OUTLINE AND MOUNTING DIMENSIONS OBSTAFLASH HI POWER SUPPLY.

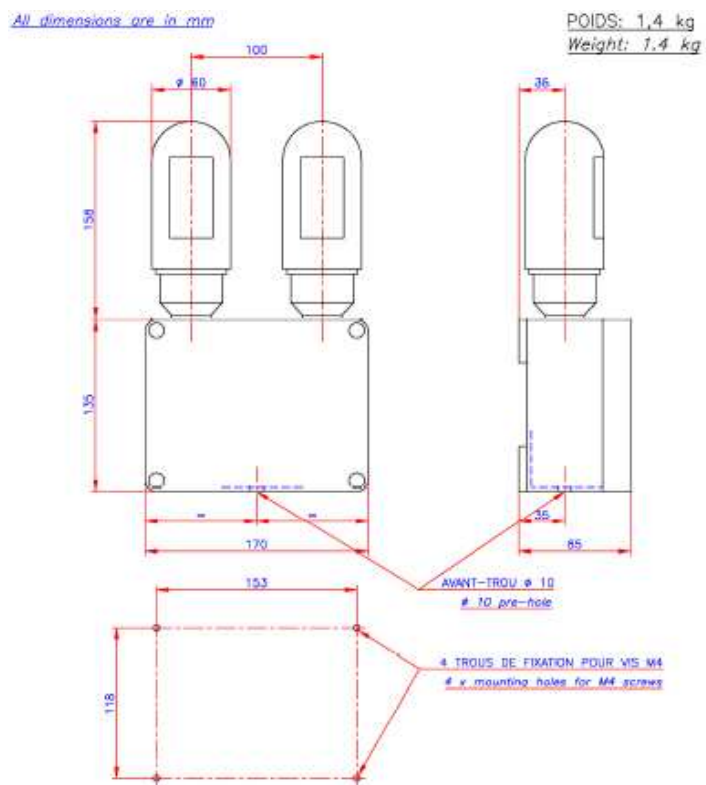
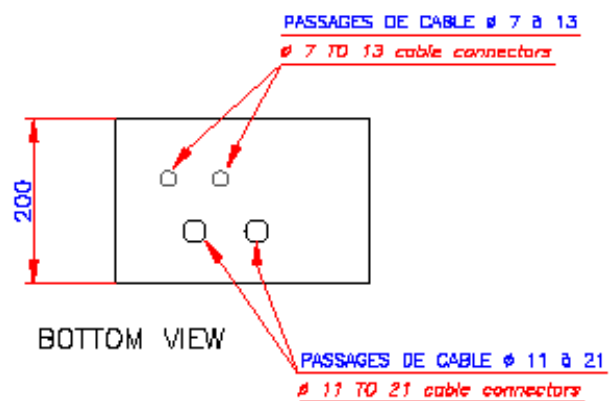
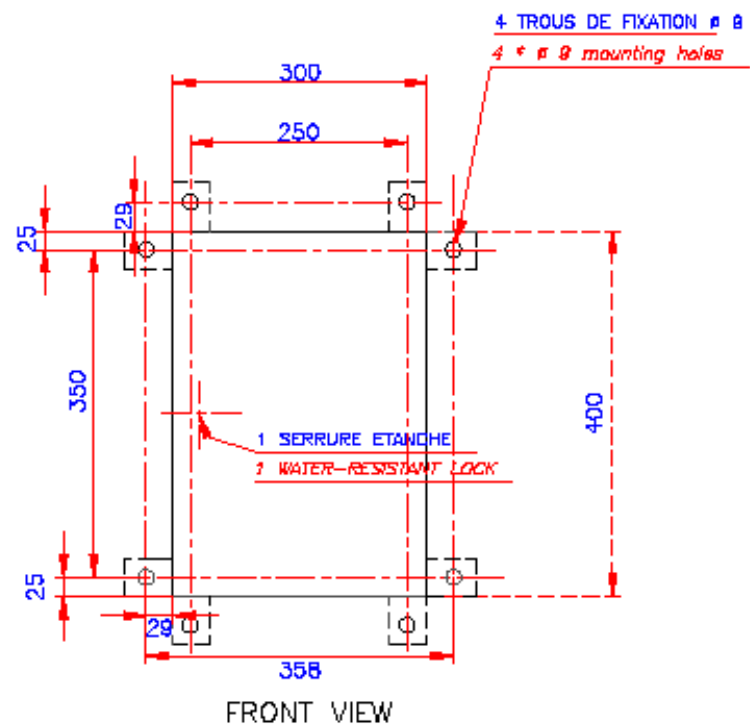


Figure 1-7 Outline and mouting dimensions Photocell Day/Twilight/Night

All dimensions are in mm



Matériel : Inox 316L ep. min. 2mm

Material : Stainless steel thickness min. 2mm

Pas d'équipement dans la porte d'entrée

No equipments in front door

Figure 1-8 Outline and mouting dimensions OBSTAFLASH HI CONTROLLER.

1.3 SPECIFICATIONS

1.3.1 LIGHT OUTPUT

Intensity

Day..... 200 000 $\pm 25\%$ effective candelas, single flash
Twilight 20 000 $\pm 25\%$ effective candelas, single flash
Night 2 000 $\pm 25\%$ effective candelas, single flash

Beam Pattern..... 120° horizontally; 3° min. vertically
Flash Rate: 40 fpm
Master/slave configuration: up to 32 lights can be synchronized
With controller: up to 32 lights can be connected

1.3.2 ELECTRICAL INPUT

Power Supply..... 110V to 220VAC 50/60Hz
Average power consumption during day time..... Below 250W

1.3.3 MECHANICAL PROPERTIES

Obstaflash

Weight 18 kg
Dimensions w = 158 mm x h = 676 mm x l = 580 mm
Surface Area 870cm²
Wind Load..... 35 kg at 240 Km/h

Power Supply Obstaflash

Weight 15 kg
Dimensions w = 350 mm x h = 590 mm x l = 250 mm

Controller

Weight 12 kg
Dimensions w = 300 mm x h = 400 mm x l = 200 mm

1.3.4 OPERATING ENVIRONMENT

Operating Temperature -40°C to +55°C
Humidity 95% relative humidity

1.3.5 SYSTEM OPERATING STATUS INDICATORS

- 1 red indicator for power supply
- On the command card: 12 luminous indicators see figure 1-1
- Fault indication: Relay closure, contact rating of 3A at 220VAC

SECTION 2 : PRINCIPLES OF OPERATION

2.1 Power supply P/N 113742

The main power input is converted in 48VDC through the AC power supply that feeds the 2 command cards and power cards.

2.2 Power cards P/N 113741

The system includes 9 power cards that regulate the current sent to the 16 white led circuits and 1 red led circuit as per figure 2-2:

- 8 power cards for white led circuits: each card regulates the current of 2 white led circuits of the same projector during daytime and twilight;
- 1 power card that regulates the current of the 1 red led circuit during night time; the red led circuit is in serial with 2 projectors.

Those power cards are connected to the command card through connector. The status of the command cards and their respective led circuits are indicated by the luminous indicators D6 to D12 on the command card (figure 2-1 below). Those indicators are normally off and red blinking in case of default.

2.3 Command cards P/N 113744L and 113744R

The 2 command cards are powered in 48V

- First command card P/N113744L is used for day only and monitor the power cards of the 6 lower projectors. This command card is switch off during twilight and night mode
- Second command card P/N113744R is used in day, twilight and night mode and monitor the power cards of the 2 upper projectors

Both those command cards allow to detect the alarm of the complete system with 9 luminous indicators described in figure 2-1,

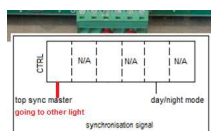
The second command card P/N113744R allows to define through the dip-switches below

- the color during twilight/night,
- master or slave mode of the system (dipswitch n°1). Without controller or GPS, one command card 113744R must be set up in master mode and all command cards from other flashheads be in slave mode. In case of GPS or external controller is used, all command cards must be set up in slave mode.

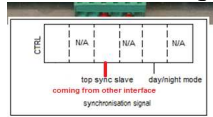
Note: The configuration of the 2 command cards is done in the factory and shall not be modified by the end-user.

Dip switches on the command card 113744R

- Color during night time: dipswitch n°6 « on » -> red color (default setting), « off » -> white color
- when set-up in master mode (dipswitch n°1 on « on »), the command card P/N113744R creates a top sync pulse indicated by D14 sent to second command card 113744L and other flash-heads from terminal 1



- when set-up in slave mode (dipswitch n°1 on « off»), the command card waits for a top sync pulse on terminal 3, D14 also blink at the same frequency



- If no pulse is received from terminal 3, D14 is off and light flashes on its own at 15 fl per minute as per D13

Warning: In case changing master/slave dipswitch n°1 position, do not forget to change the position on the terminal connection 1 to/from 3 of the pulse wire accordingly on the command card

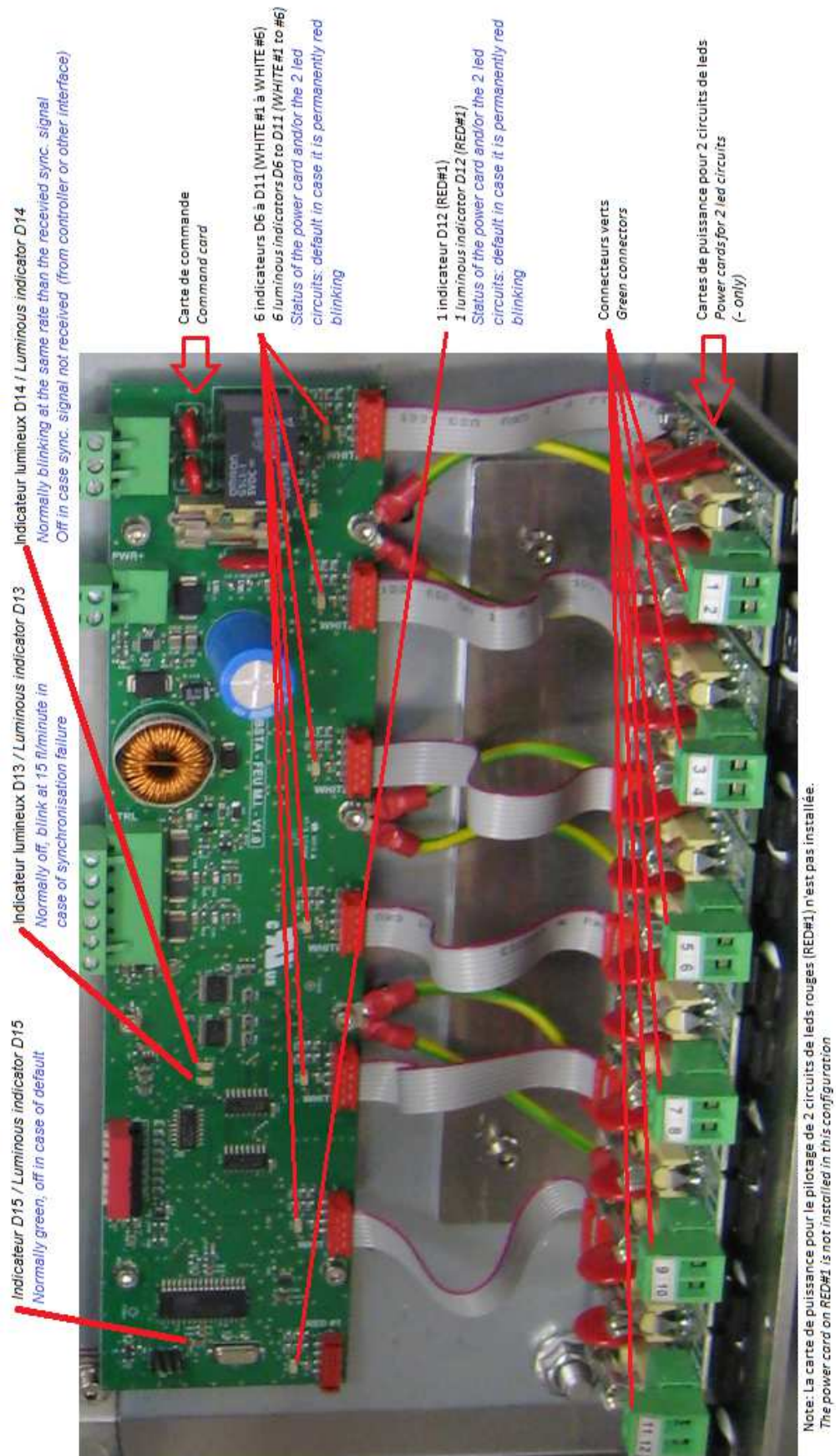


Figure 2-1. Luminous indicators on the command card

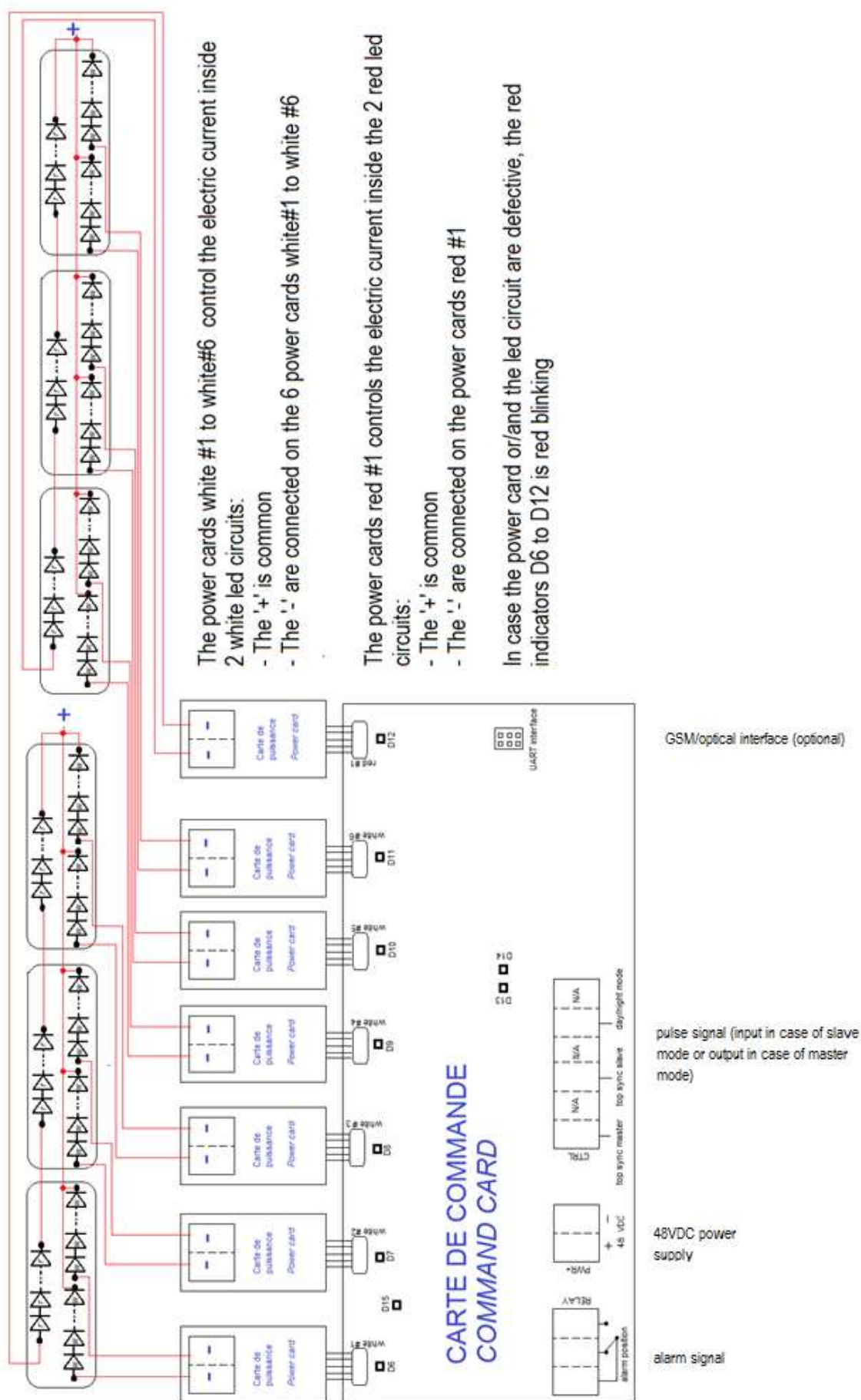


Figure 2-2. Wiring of led circuits on the command card

SECTION 3.0 – INSTALLATION (wiring diagram 3-1 to 3-7 page 18 to 24)

3.1 Unpacking

Carefully unpack each item and remove any internal packing material from the power supply and the obstaflash. Examine each item for obvious physical damage. Report any claims to the carrier immediately. Pertinent data such as installation drawings, schematics, interconnection drawings, and operation manuals are included in the power supply carton.

3.2 Mounting and Preparation

3.2.1 OBSTAFLASH HI beacon

Normally almost 3 obstaflash beacons are mounted at 120° around the obstacle at each level on the structure on a vertical plan.

3.2.2 OBSTAFLASH Power Supply

The power supply is connected to its respective obstaflash via the 2 meters cable provided with each led projector. If you required longer length of cable, consult your OBSTA representative.

3.2.3 Ambient Light Sensor P/N113135

The ambient light sensor should be mounted upright, away from artificial light (eg., floodlights), and in a location that will enable its sensor window to have an unobstructed view of the polar sky (eg., pointed north in the northern hemisphere). The ambient light sensor should be connected on the master light (if there is no controller) or on the controller (if there is a controller).

The ambient light sensor is powered through 48VDC and contains 2 photocells each returning a 0V or 48Vdc output to indicate day/twilight or twilight/night to the system

First “Photocell twilight” returns a 0V during day and 48Vdc during twilight/night

Second “Photocell night” returns a 0V during day/twilight and 48Vdc at night

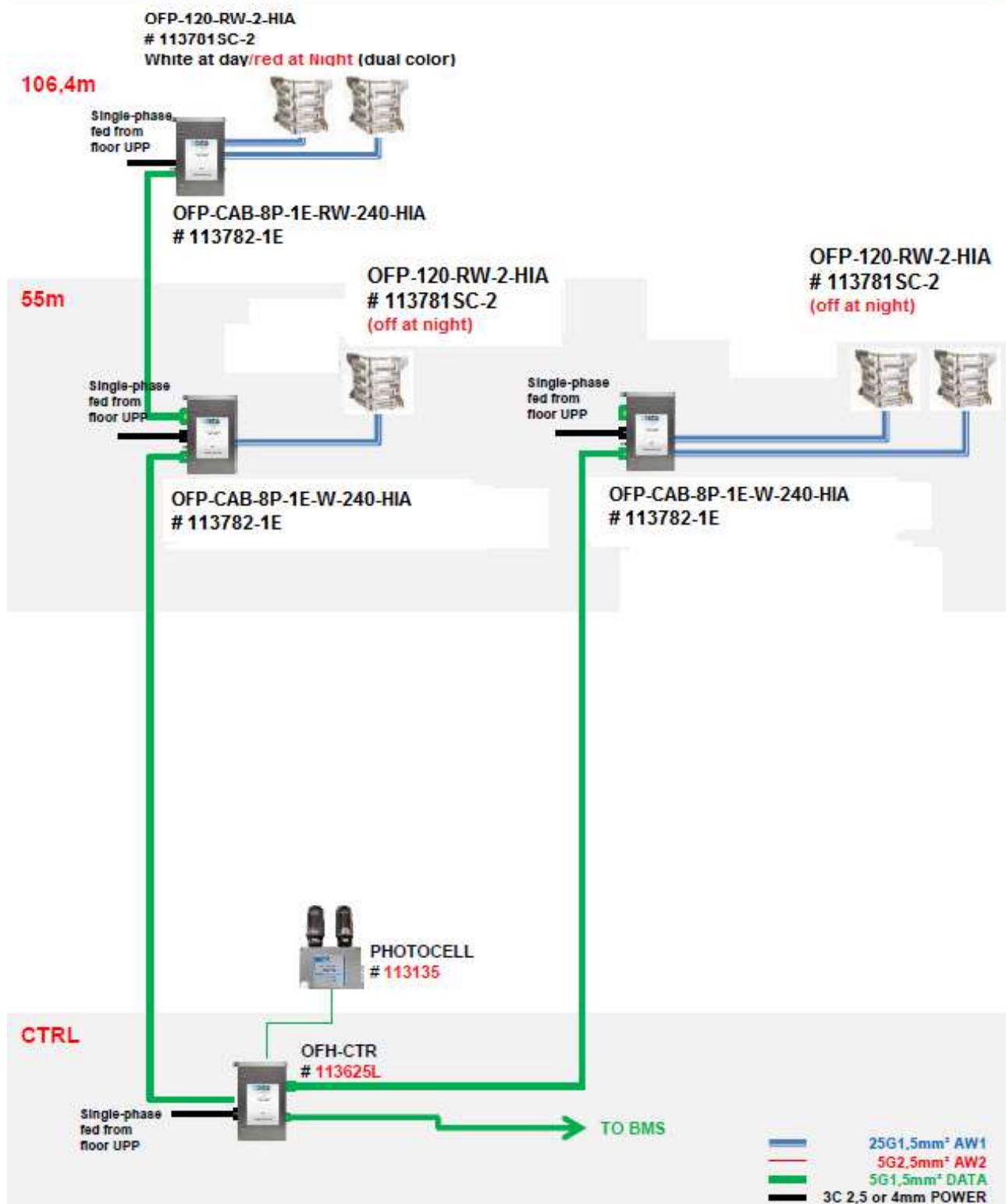
3.2.4 Wireless synchronization by GPS P/N113746 (option)

If included with the system, the GPS is a DIN rail module fixed inside the power supply of each light. It comes with an external antenna to be mounted in an unobstructed location of the sky.

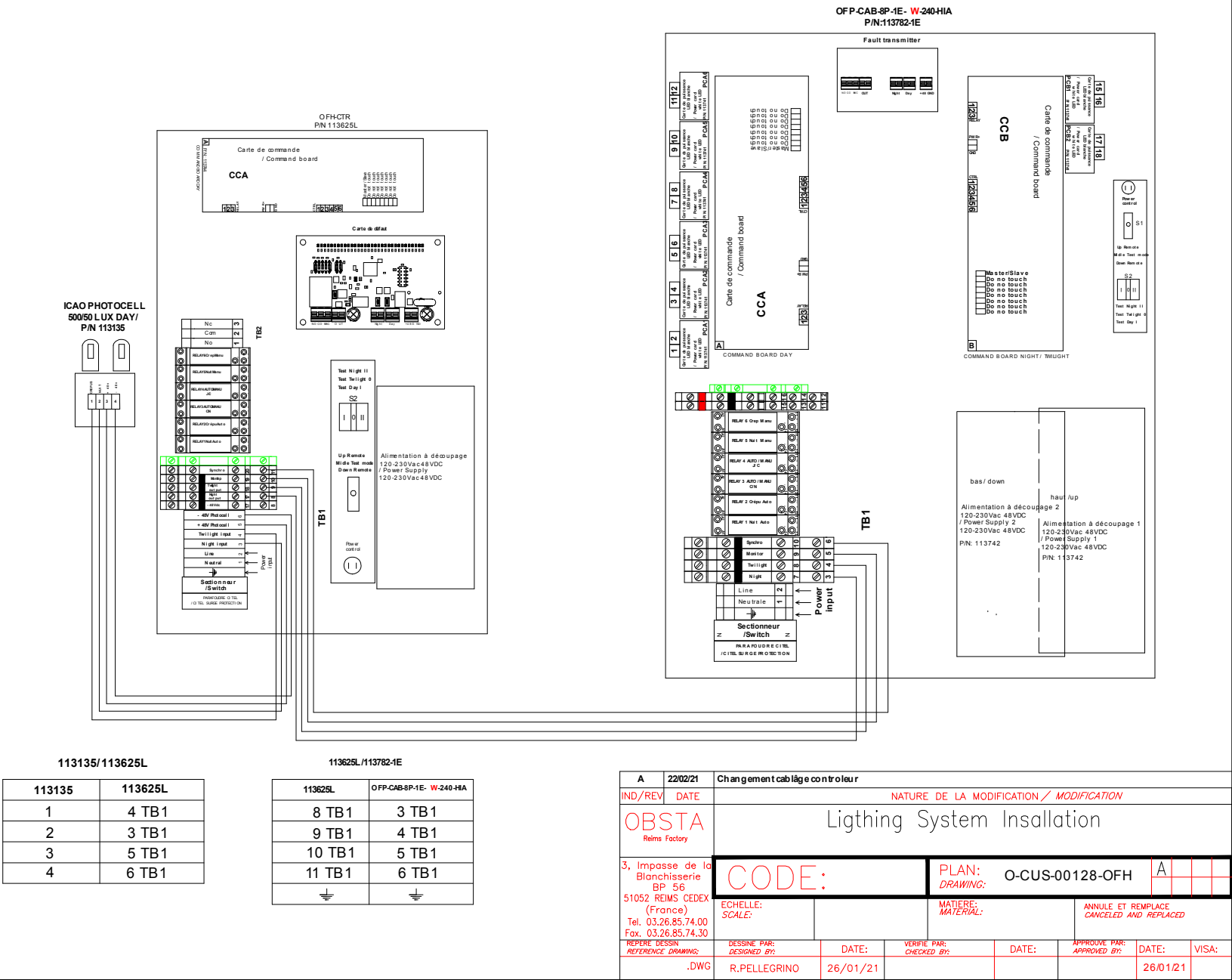
The GPS module does have 2 luminous indicators that give the information received from the satellite (usually 5 to 10 minutes after initialization):

- 1 green indicator blinking at 40 flashes per minute
- 1 red indicator switched off during day/twilight time and switched on during night time that optionally can be used instead ambient light sensor

3. SINGLE LINE DIAGRAM



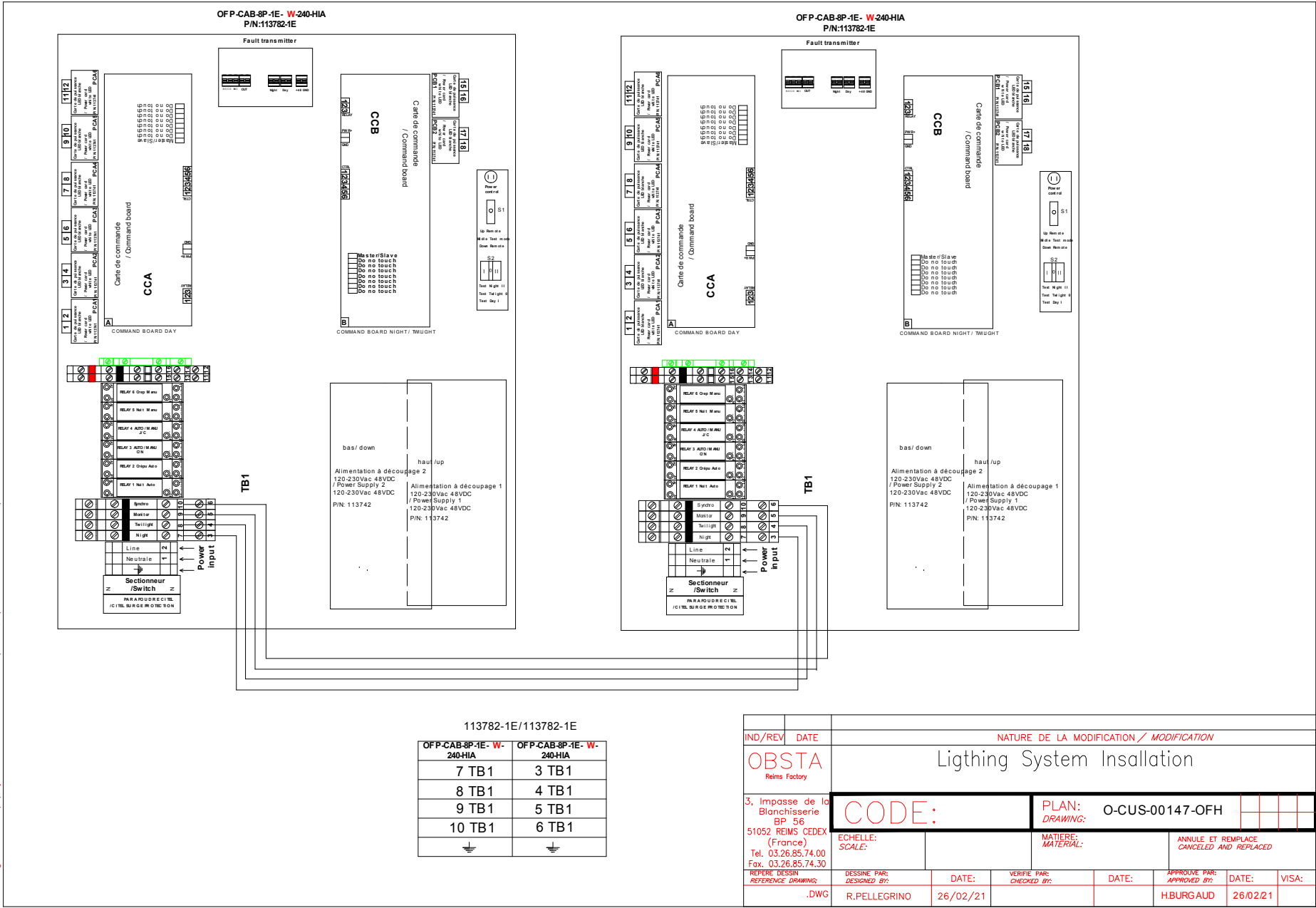
3-1 : Wiring between Photocell 113135 and controller 113625L and Power supply 113782-1E

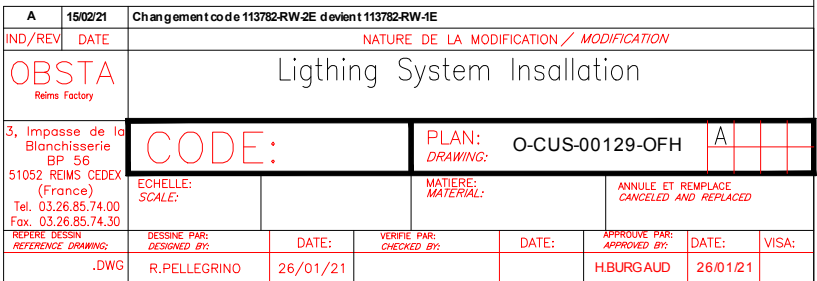
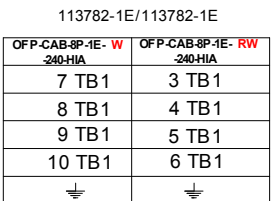


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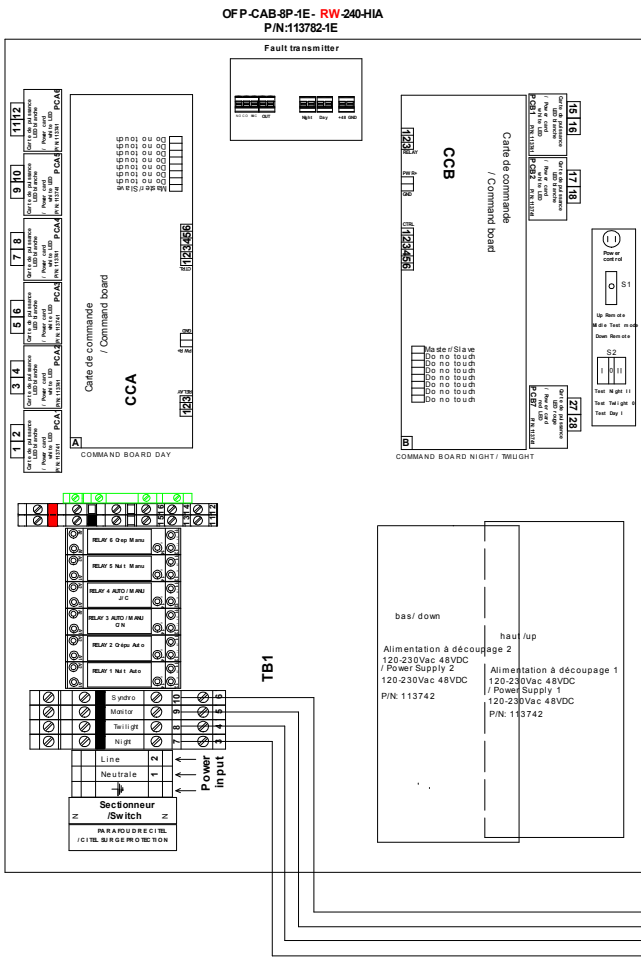
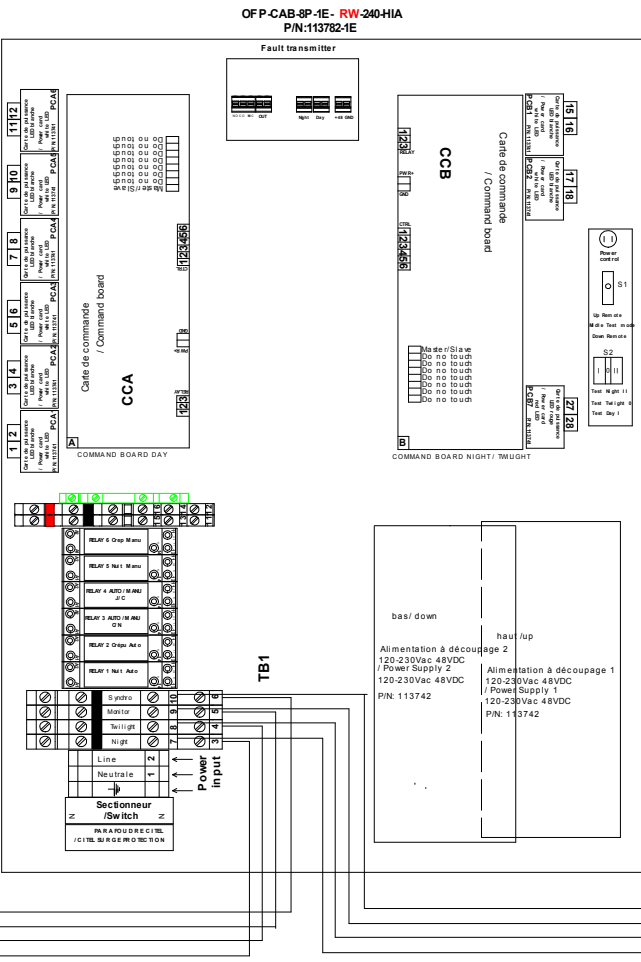
3-2 : Wiring between Power supply 113782-1E and Power supply 113782-1E

VLSB0 p d'installation et de montage des composants électriques et électroniques. Les VLSB0 p d'installation et de montage des composants électriques et électroniques sont des documents de référence et ne doivent pas être utilisés pour la conception ou la fabrication de produits.





X + 1



113782-RW-1E/113782-RW-1E

OFF-CAB-8P-1E- RW-240-HIA	OFF-CAB-8P-1E- RW-240-HIA
7 TB1	3 TB1
8 TB1	4 TB1
9 TB1	5 TB1
10 TB1	6 TB1

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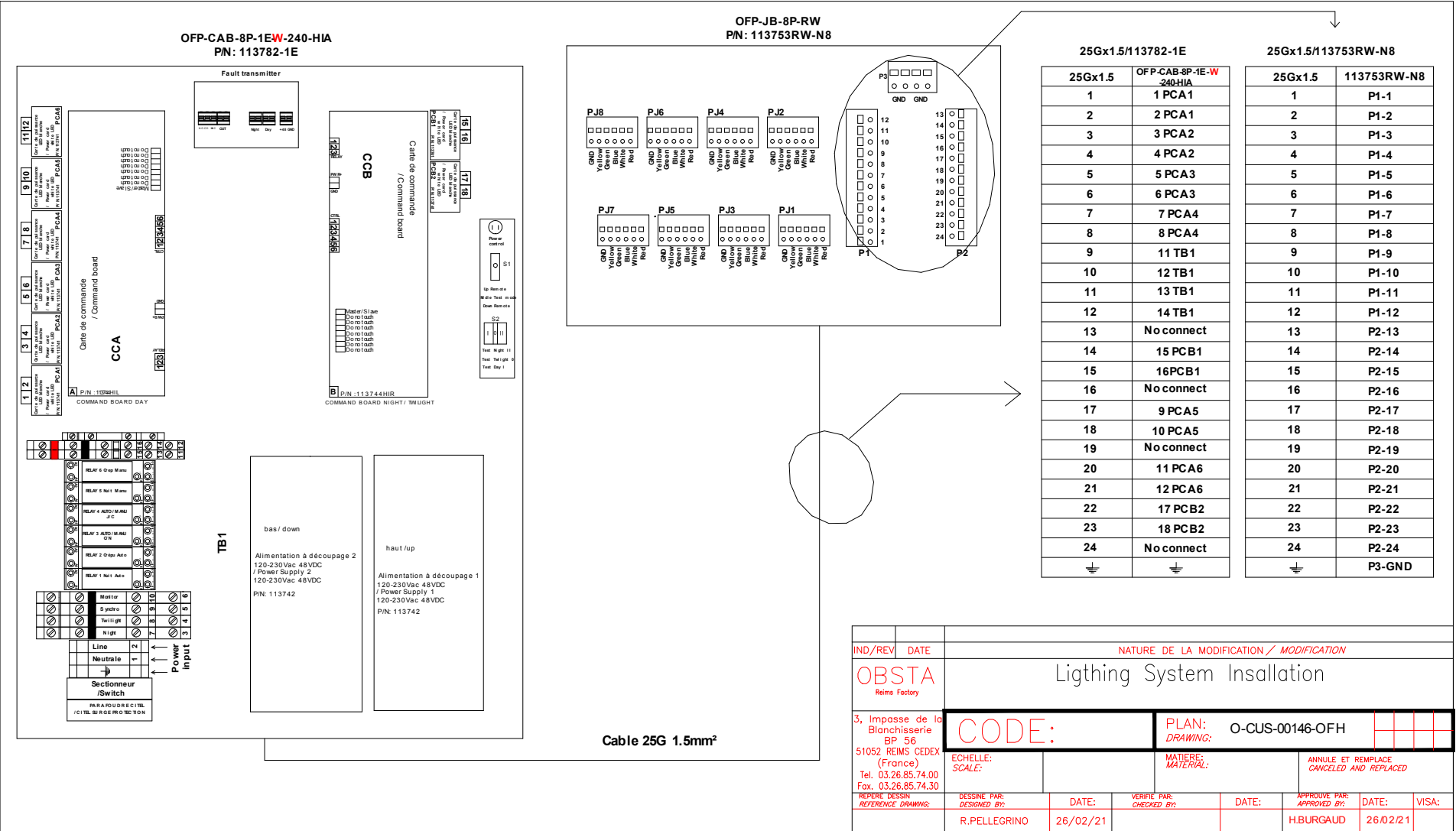
3-4 : Wiring between Power supply 113782-1E and Power supply 113782-RW-1E

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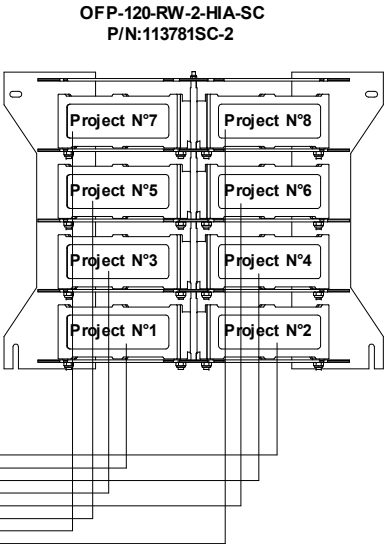
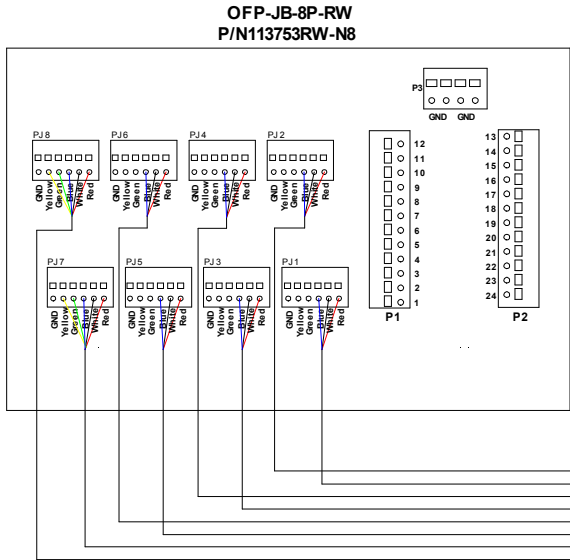


3-6 : Wiring between Flashhead 113781SC-2 and junction box 113753RW-N8

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113781SC-2/113753RW-N8

Project N°1	113753RW-N8
Blue	PJ1 Blue
White	PJ1 White
Red	PJ1 Red

Project N°2	113753RW-N8
Blue	PJ2 Blue
White	PJ2 White
Red	PJ2 Red

Project N°3	113753RW-N8
Blue	PJ3 Blue
White	PJ3 White
Red	PJ3 Red

Project N°4	113753RW-N8
Blue	PJ4 Blue
White	PJ4 White
Red	PJ4 Red

Project N°5	113753RW-N8
Blue	PJ5 Blue
White	PJ5 White
Red	PJ5 Red

Project N°6	113753RW-N8
Blue	PJ6 Blue
White	PJ6 White
Red	PJ6 Red

Project N°7	113753RW-N8
Blue	PJ7 Blue
White	PJ7 White
Red	PJ7 Red
Green	PJ7 Green
Yellow	PJ7 Yellow

Project N°8	113753RW-N8
Blue	PJ8 Blue
White	PJ8 White
Red	PJ8 Red
Green	PJ8 Green
Yellow	PJ8 Yellow

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OBSTA		Lighting System Insallation			
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3.3.2 Controller

In the controller, there is one Receiver Block (plugged into a Fault Receiver Board) for every eight lights. This card is used to view faulty lamps.



3.3.2 Power supply flashhead

In each power supply of the flash fire heads, there is an emitter board which must be assigned a unique light number (up to 32) corresponding to the light number in the controller. The fault transmitter is located in each electrical cabinet figure 1-2 page 6 and photo 2-3-3-a below:.

On the fault transmitter card, the light number should be assigned in the dipswitch S2 according to the table 3-5:

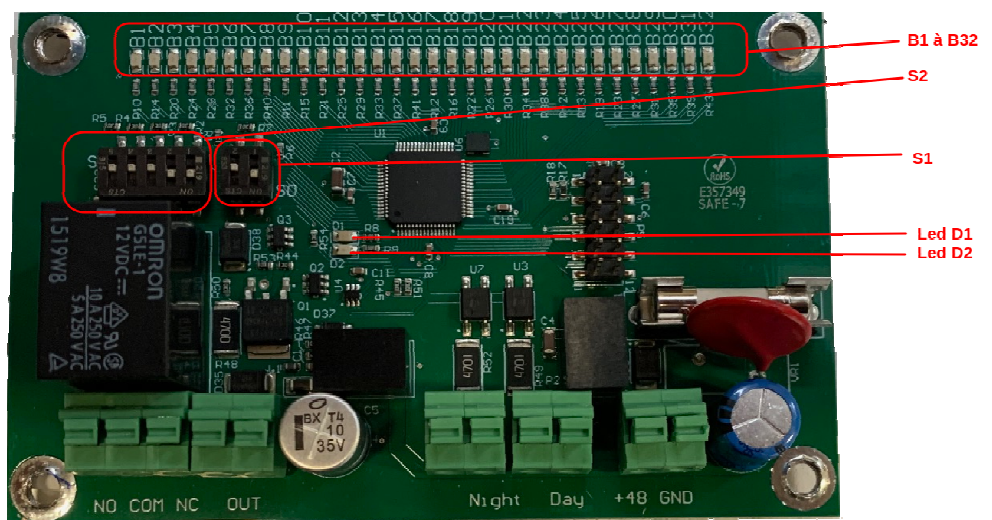


Photo 2-3-3

Numéro de lampe	Micro interrupteurs SW1				
	1	2	3	4	5
1	-	-	-	-	-
2	On	-	-	-	-
3	-	On	-	-	-
4	On	On	-	-	-
5	-	-	On	-	-
6	On	-	On	-	-
7	-	On	On	-	-
8	On	On	On	-	-
9	-	-	-	On	-
10	On	-	-	On	-
11	-	On	-	On	-
12	On	On	-	On	-
13	-	-	On	On	-
14	On	-	On	On	-
15	-	On	On	On	-
16	On	On	On	On	-

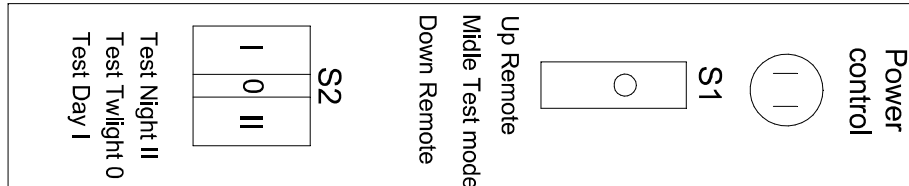
Numéro de lampe	Micro interrupteurs SW1				
	1	2	3	4	5
17	-	-	-	-	On
18	On	-	-	-	On
19	-	On	-	-	On
20	On	On	-	-	On
21	-	-	On	-	On
22	On	-	On	-	On
23	-	On	On	-	On
24	On	On	On	-	On
25	-	-	-	On	On
26	On	-	-	On	On
27	-	On	-	On	On
28	On	On	-	On	On
29	-	-	On	On	On
30	On	-	On	On	On
31	-	On	On	On	On
32	On	On	On	On	On

3-5 : Coding

3.3.4 Final Check with controller

Before applying power to the equipment, check all wire connection according to figure 3-1 and 3-2 and ensure that any user-installed wiring does not interfere.

3.6 Test button (S1 in the middle position)



The S1 test button allows 3 positions:

- “Up”: remote position, the light is in normal operation
- “Middle”: the light are forced in “day” or “twilight” or “night” mode according to S2
- “Down” remote position, the light is in normal operation

The S2 test button allows 3 positions:

- “Day” position, the light is forced in day mode
- “Twilight” position, the light is forced in day mode
- “Night” position, the light is forced in night mode.

Inside power cabinet, a voltage indicator is present

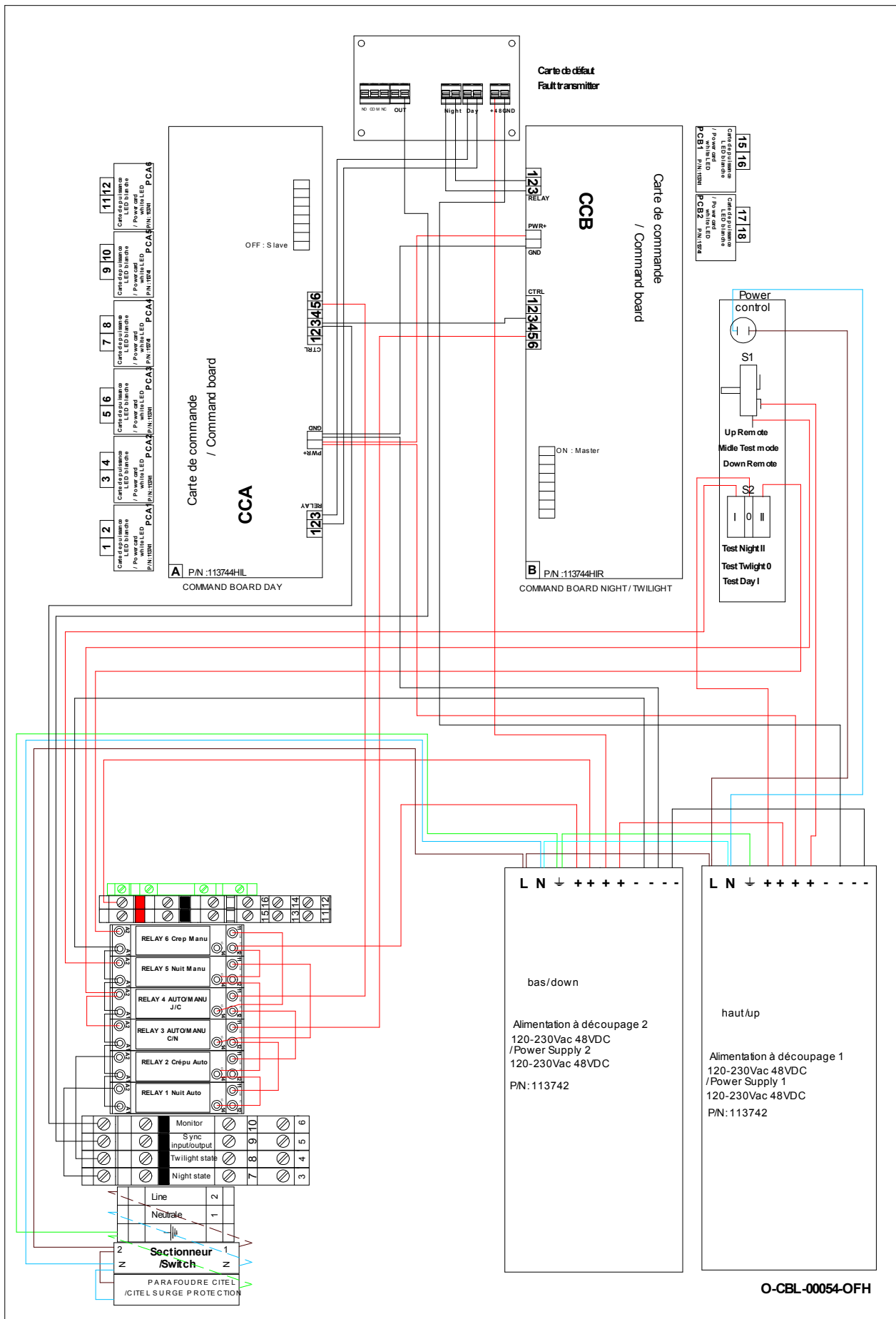


Figure 3-7. Wiring diagram of the Power supply 13782-1E

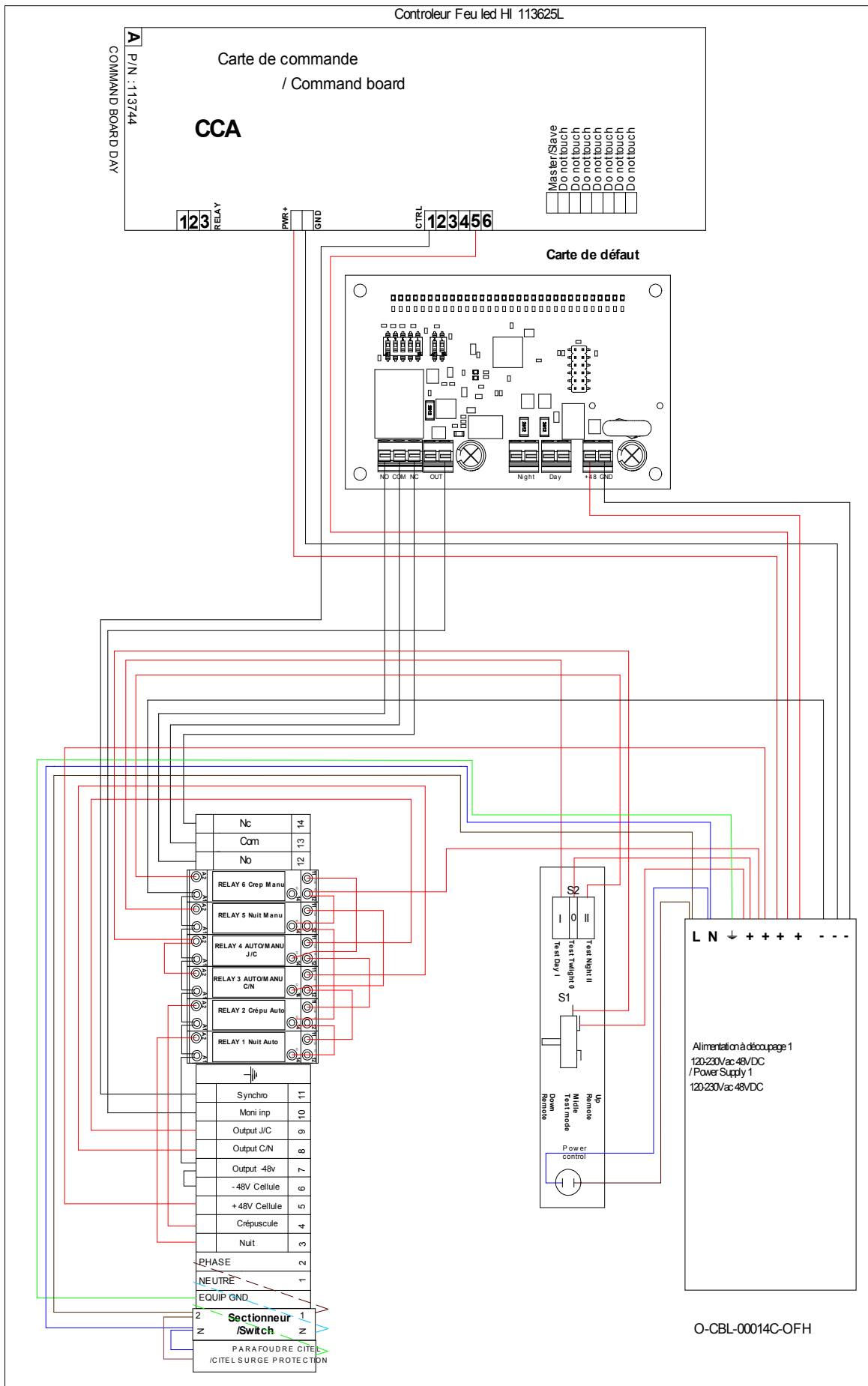


Figure 3-8. Wiring diagram of the Controller 113625L

SECTION 4.0 - MAINTENANCE

4.1 Obstaflash beacon

No special or preventive maintenance is required for the obstaflashes, but only that which can be performed on an as-needed basis.

4.2 Obstaflash power supply

No special maintenance is to be done on the power cabinet except when it is necessary, however it is recommended to tight screws once a year

4.3 Photocell

The only maintenance required for this unit is the periodic cleaning of the Photocells. Frequency of cleaning will depend on the environment to which they are exposed

SECTION 5 – SPARE PARTS

Beacon-obstaflash

Led projector.....113761L2SC

Power supply

Command card 48V on the left.....113744L
Command card 48V on the right.....113744R
Power card 48V.....113741B
Security switch and test button.....113743B
Fault transmitter button card (option)113749B
Photocell 48V 500 lux (twilight).....113136
Photocell 48V 50 lux..(night).....100755
Surge protection 220V.....451721
220V Power supply.....113742