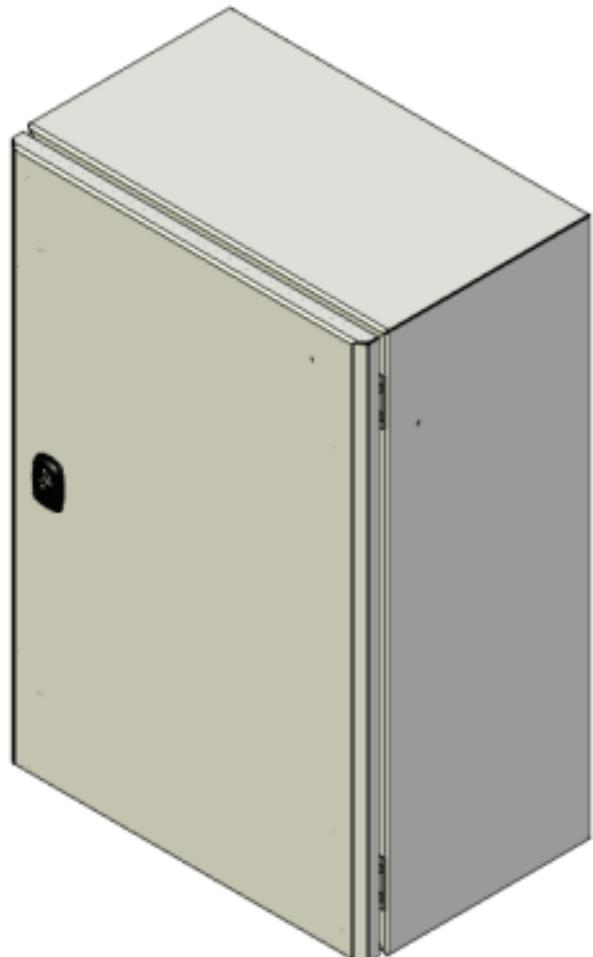




**48V-BAT-18Ah-230-400V // 113956B230-400**

## USER MANUAL

OBSTA supply unit



1. Product name and part number .....	3
2. Caution .....	4
3. Warranty .....	5
4. Introduction .....	6
4.1. Scope .....	6
4.2. General description .....	6
4.3. Dimension .....	6
4.4. Bill of materials .....	7
4.5. Power supply specifications .....	9
5. Wiring .....	10
5.1. Internal wiring .....	10
5.2. Battery .....	11
5.3. Photocell (option) .....	12
5.4. Electrical diagram .....	13
6. Maintenance .....	14
6.1. Annual visit .....	14
6.2. Spare part .....	14
7. Appendix .....	15
7.1. Battery spécifications .....	15

## 1. Product name and part number

Description	Part number (P/N)	Power supply	QR code
<b>48V-BAT-18Ah-230-400V</b>	113956B-230-400	48Vdc +5% -15%	

OBSTA  
3, impasse de la blanchisserie  
51052 Reims CEDEX – France

This document is the property of OBSTA. It may not be reproduced or communicated to third parties without the written permission  
of OBSTA  
Page 3 sur 16

## 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

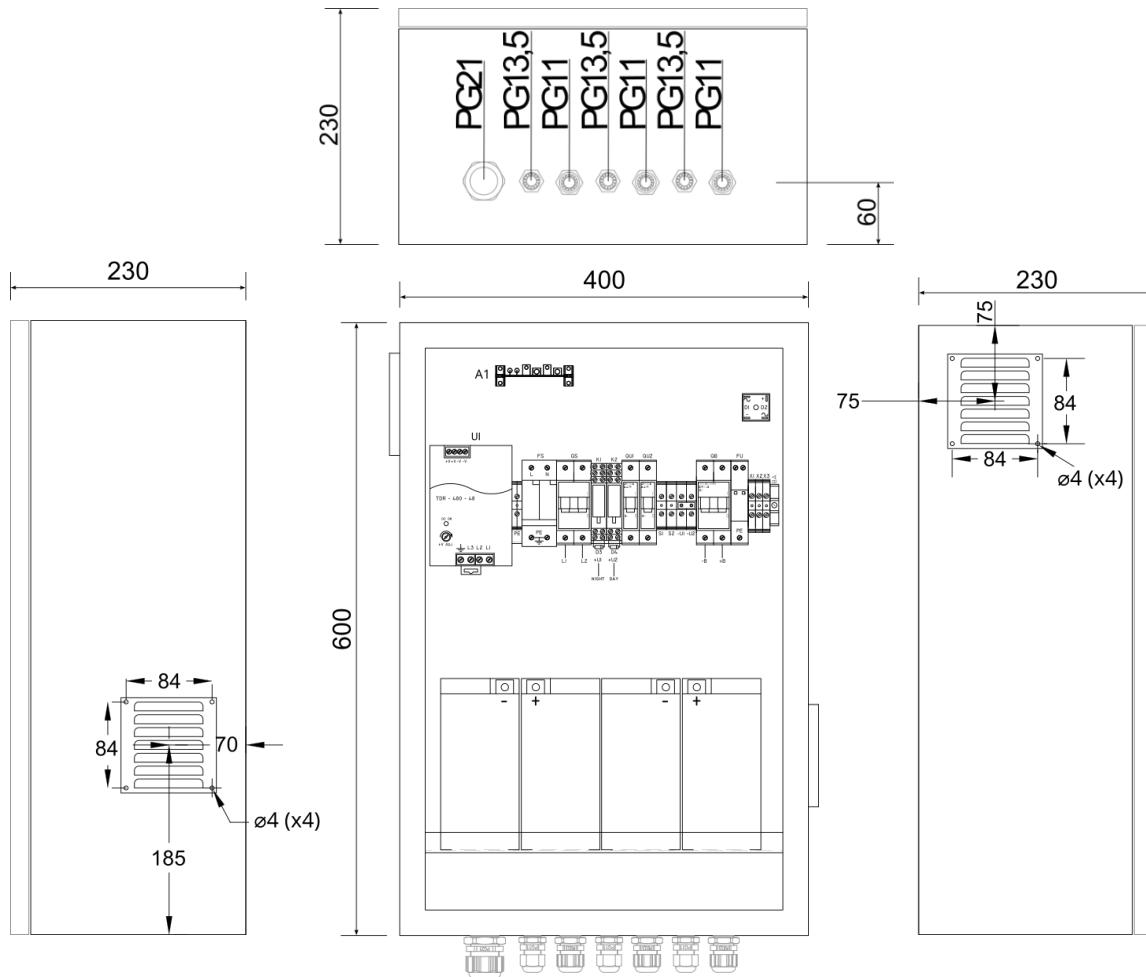
### 4.1. Scope

The OBSTA power supply unit ensures power supply to the light heads in the event of a power cut.

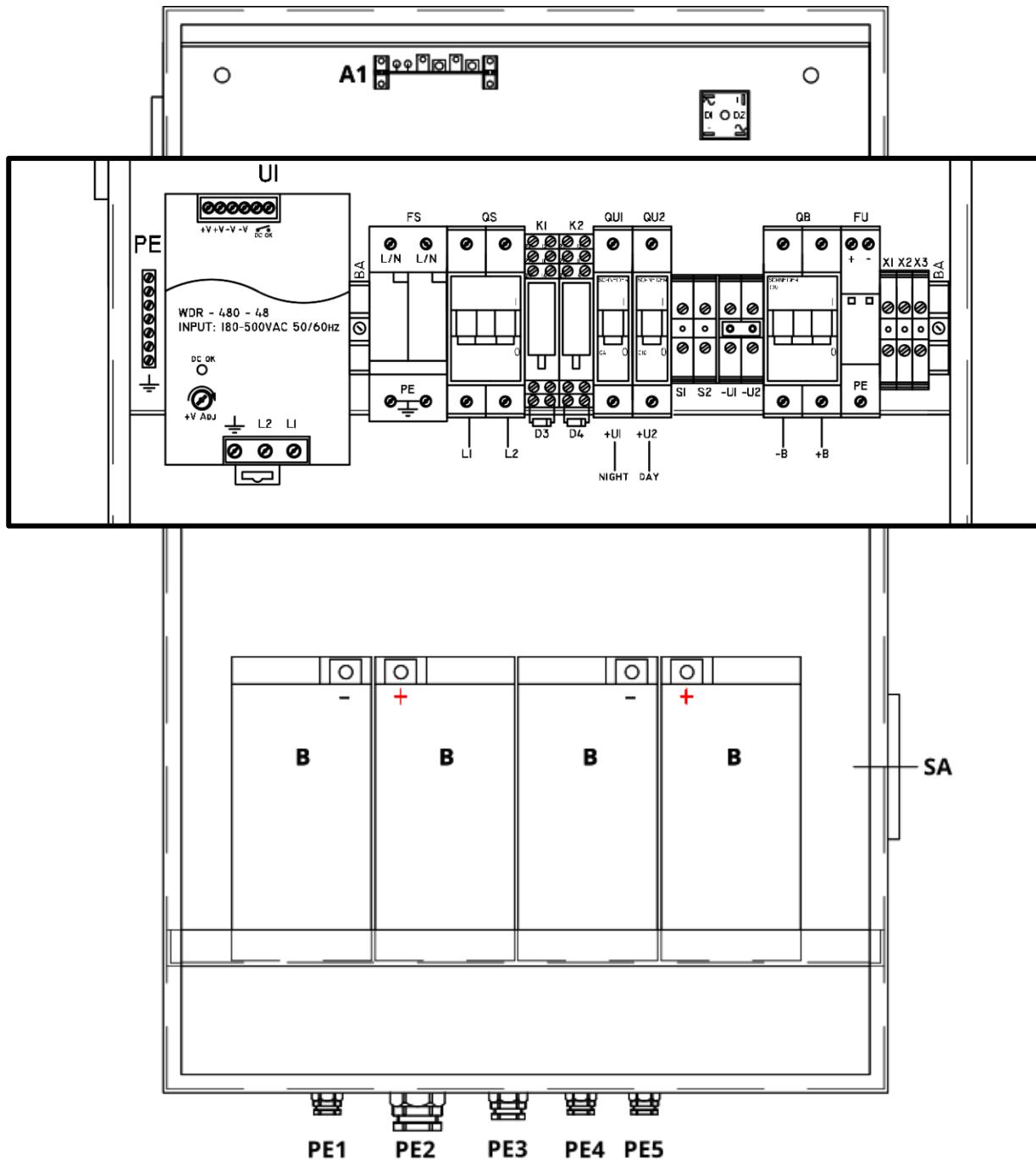
### 4.2. General description

The steel cabinet is connected to a 240Vac power supply, and contains input and output overvoltage protection, as well as 4 batteries to keep OBSTA lamps running for up to 12 hours in the event of a power supply.

### 4.3. Dimension



## 4.4. Bill of materials



<b>Reference</b>	<b>Designation</b>	<b>Qty</b>
<b>PE</b>	Grounding bar	1
<b>UI</b>	AC-DC WDR-480-48	1
<b>A1</b>	RVU card 1521-3	1
<b>B</b>	12V - 18Ah battery	4
<b>D1-D2</b>	Bridge rectifier	1
<b>FS</b>	DS42-400 - surge protection	1
<b>FU</b>	DS230-48DC - surge protection	1
<b>D3-D4</b>	Diode	2
<b>K1-K2</b>	48V relay	2
<b>QU1</b>	Circuit breaker 1P C4	1
<b>QU2</b>	Circuit breaker 1P C10	1
<b>QB</b>	Circuit breaker 2P C10	1
<b>QS</b>	Circuit breaker 2P C6	1
<b>X1-X2-X3</b>	Terminal block ZS6	3
<b>U1-U2</b>	Terminal block ZS16	2
<b>S1-S2</b>	Terminal block Zs16	2
<b>BA</b>	Stop blocks BAM3	2
<b>PE1-PE4-PE5</b>	Cable gland PG11	3
<b>PE3</b>	Cable gland PG13	1
<b>PE2</b>	Cable gland PG21	1
<b>SA</b>	Square ventilation grid 100x100	2
-	Cabinet	1
-	DIN rail	1
-	4x10 rivet pop	8
-	ICAO label 57x27	1

## 4.5. Power supply specifications

WDR-480-48:

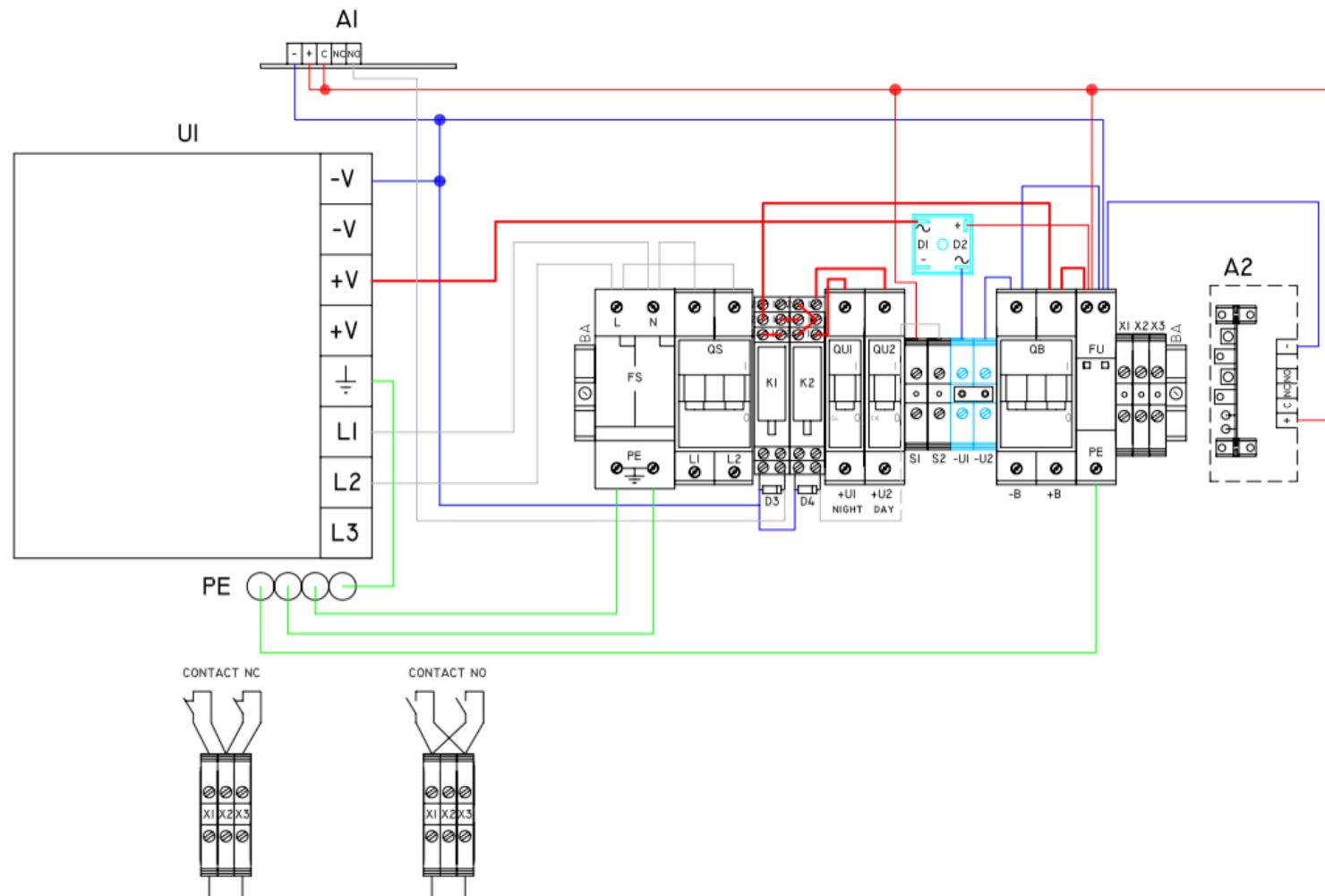
MODEL	WDR-480-24	WDR-480-48
OUTPUT	DC VOLTAGE	24V
	RATED CURRENT	20A
	CURRENT RANGE	0 ~ 20A
	RATED POWER	480W
	RIPLE & NOISE (max.) Note.2	100mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V
	VOLTAGE TOLERANCE Note.3	±1.0%
	LINE REGULATION	±0.5%
	LOAD REGULATION	±1.0%
INPUT	SETUP, RISE TIME	800ms, 150ms/400VAC 2000ms, 150ms/230VAC at full load
	HOLD UP TIME (Typ.)	18ms / 400VAC 16ms / 230VAC at full load
PROTECTION	VOLTAGE RANGE Note.6	180 ~ 550VAC 254 ~ 780VDC
	FREQUENCY RANGE	47 ~ 63Hz
	POWER FACTOR (Typ.)	PF≥0.84/400VAC PF≥0.84/230VAC
	EFFICIENCY (Typ.)	92%
	AC CURRENT (Typ.)	1.6A/400VAC 4A/230VAC
	INRUSH CURRENT (Typ.)	COLD START 50A
FUNCTION	LEAKAGE CURRENT	<3.5mA / 530VAC
	OVERLOAD	105 ~ 130% rated output power Protection type : Constant current limiting, unit will shut down after 3 sec., auto-recovery after 1 minute if the fault condition is removed
	OVER VOLTAGE	29 ~ 33V 56 ~ 65V Protection type : Shut down o/p voltage, auto-recovery after 1 minute if the fault condition is removed
ENVIRONMENT	OVER TEMPERATURE	95°C ±5°C (TSW) detect on heatsink of power switch Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
	DC OK REALY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load
	WORKING TEMP. Note.5	-30 ~ +70°C (Refer to "Derating Curve")
	WORKING HUMIDITY	20 ~ 95% RH non-condensing
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH
SAFETY & EMC (Note 4)	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6
	SAFETY STANDARDS	UL508,EAC TP TC 004 approved,IEC62368-1 CB approved by SIQ,design refer to BS EN/EN62368-1,AS/NZS 62368.1,GL; (meet BS EN/EN60204-1)
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC
OTHERS	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN61204-3, heavy industry level, EAC TP TC 020 approved
NOTE	MTBF	825.4K hrs min. Telcordia SR-332 (Bellcore) ; 112.8K hrs min. MIL-HDBK-217F (25°C)
	DIMENSION	85.5*125.2*128.5mm (W*H*D)
	PACKING	1.7Kg; 8pcs/14.6Kg/0.9CUFT
1. All parameters NOT specially mentioned are measured at 400VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 47 μF parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. (as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> ) 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. Derating may be needed under low input voltage. Please check the derating curve for more details. 7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 8. Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>		

OBSTA

3, impasse de la blanchisserie  
51052 Reims CEDEX – France

## 5. Wiring

### 5.1. Internal wiring



OBSTA  
 3, impasse de la blanchisserie  
 51052 Reims CEDEX – France

This document is the property of OBSTA. It may not be reproduced or communicated to third parties without the written permission of OBSTA

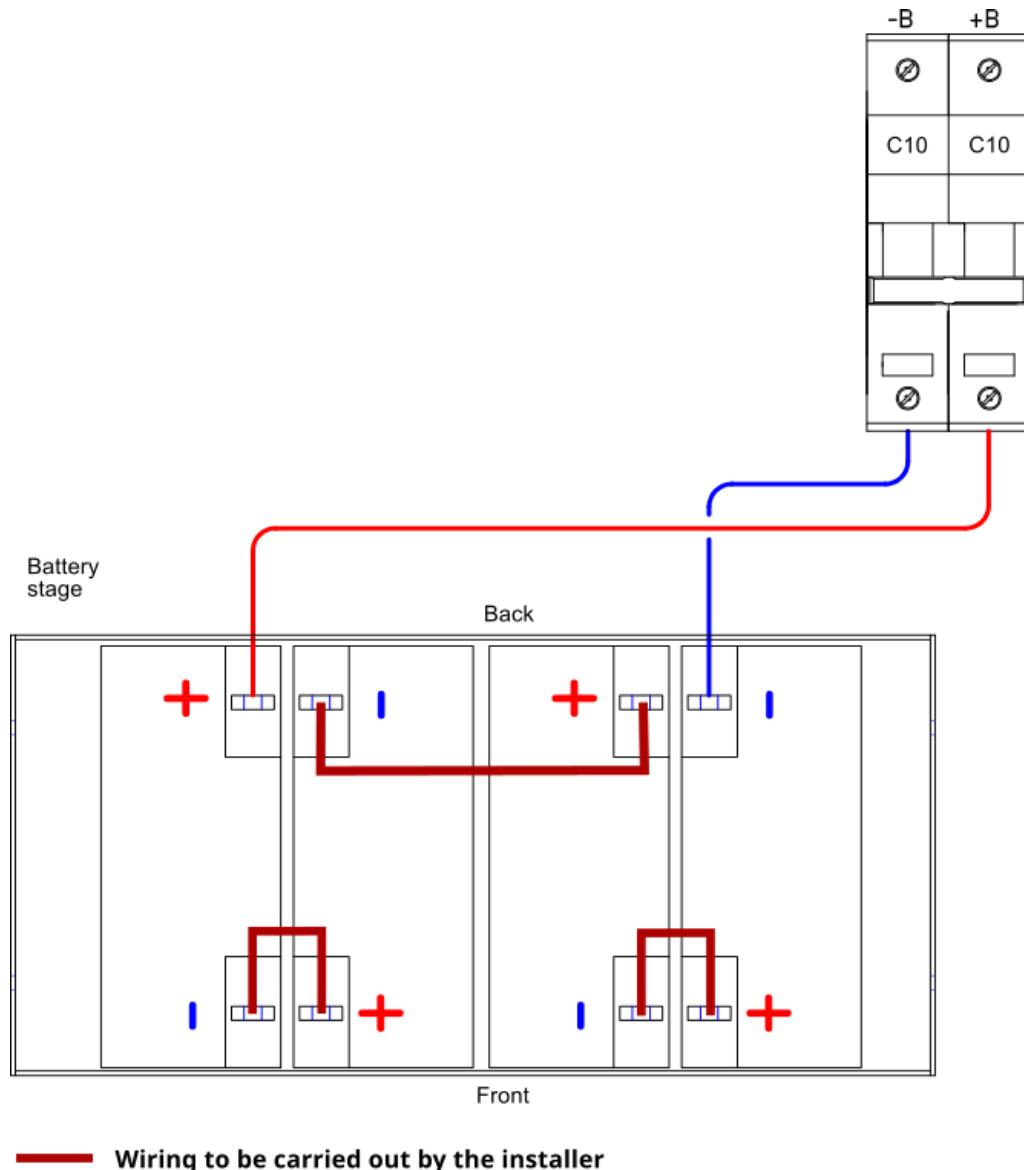
Page 10 sur 16

## 5.2. Battery

**Storage:** Always store batteries fully charged. If a battery is stored for a long period, it will top up every 6 months. Store batteries in a cool, dry place.

**Temperature:** Keep batteries at a temperature between -15°C and +50°C during charging and discharging. Avoid installing batteries near heat sources.

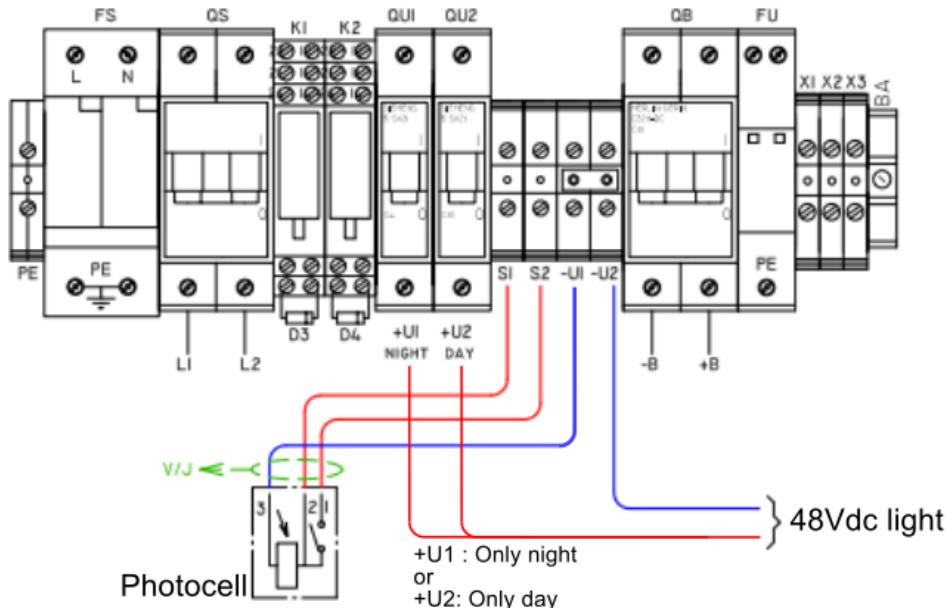
**Recommendation:** Avoid short-circuiting terminals. NEVER expose to flame. Avoid contact with any type of oil, solvent, petroleum-based detergent or ammonia solution, as this may damage the batteries.



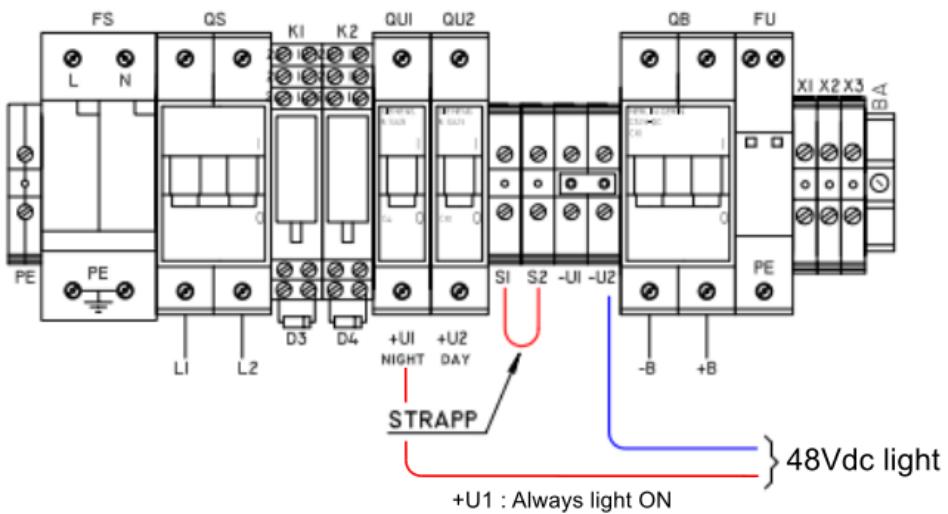
— Wiring to be carried out by the installer

## 5.3. Photocell (option)

## Connection with twilight sensor



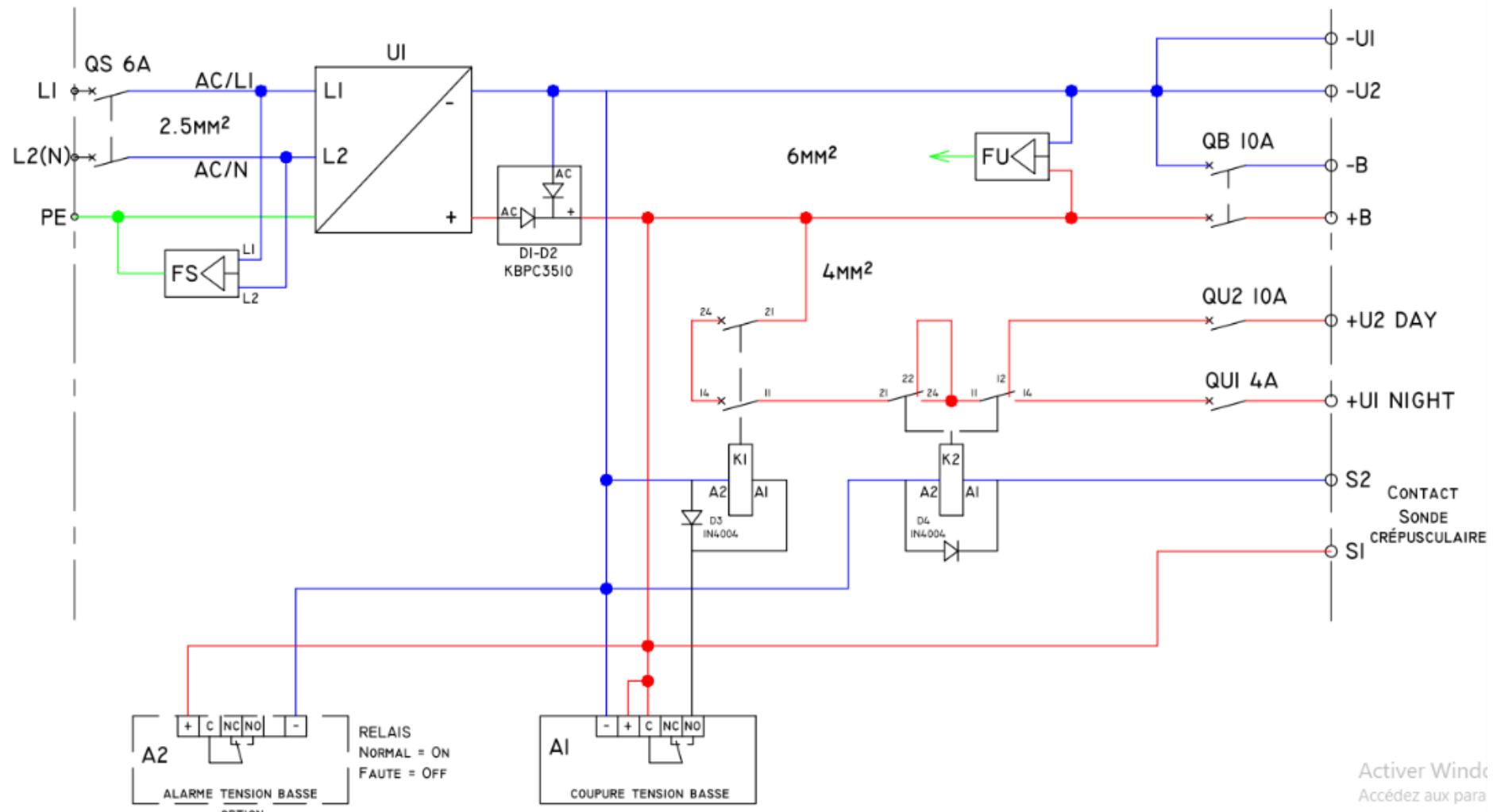
## Connection without twilight sensor



OBSTA

 3, impasse de la blanchisserie  
 51052 Reims CEDEX – France

## 5.4. Electrical diagram



OBSTA  
3, impasse de la blanchisserie  
51052 Reims CEDEX – France

This document is the property of OBSTA. It may not be reproduced or communicated to third parties without the written permission of OBSTA.

Page 13 sur 16

## 6. Maintenance

### 6.1. Annual visit

Test	Frequency	Preventive action	Risk
<b>Wiring</b>	Annual	Visual control Tightening cable glands Tightening PCB wires	Water infiltration Poor circuit Cable degradation
<b>Waterproof</b>	Annual	Visual verification Search for the water leak	Water infiltration Short circuit Lamp in default mode (or light off)
<b>Clamping</b>	Annual	Checking tightness	Cabinet falling
<b>Aspect (rust, dust...)</b>	Annual	Exterior cleaning	Malfunction

### 6.2. Spare part

POWER SUPPLY WDR-480-48	<b>113956-WDR</b>
kit Batterie 18 Ah + cosse	<b>113956-BAT</b>
Relay K1-K2	<b>113956-RELAY</b>
Pont de diode	<b>113956-DB</b>
Carte RVU 1521-3	<b>113956-RVU</b>
Carte Alarme tension basse RV 1521-1	<b>113956-RV</b>

## 7. Appendix

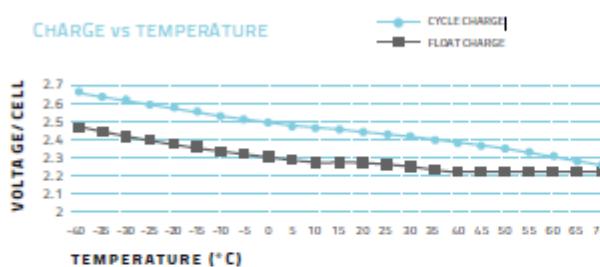
### 7.1. Battery spécifications



#### DISCHARGE CURRENT AND END VOLTAGE

Discharge current (A)	End voltage (V)
0.05C or below or Intermittent discharge	11.4
0.05C of current close to it	11.1
0.1C of current close to it	10.8
0.2C of current close to it	10.5
From 0.2C to 0.5C	10.2
From 0.5C to 1C	9.6
From 1C to 3C	9.0
Current in excess of 3C	7.8

#### CHARGE vs TEMPERATURE



#### CHARGE vs TEMPERATURE CHART

temperature	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.40	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

#### CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES (25°C)

End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	66.05	34.96	21.12	15.40	12.40	7.11	5.16	4.05	3.45	2.93	2.24	1.86	1.56	1.02	0.83
1.67V	61.39	33.81	20.81	15.29	12.38	7.08	5.07	4.03	3.40	2.91	2.23	1.84	1.56	1.01	0.83
1.70V	60.76	33.29	20.60	15.09	12.28	7.01	5.04	4.01	3.35	2.88	2.23	1.84	1.56	1.01	0.83
1.75V	55.66	32.25	20.39	14.98	12.07	6.88	5.01	3.96	3.32	2.86	2.22	1.82	1.55	1.01	0.83
1.80V	49.94	30.17	19.56	14.57	11.76	6.77	4.99	3.94	3.28	2.83	2.21	1.80	1.54	0.97	0.82
1.83V	47.74	27.68	19.25	14.05	11.24	6.71	4.80	3.78	3.20	2.73	2.16	1.73	1.48	0.96	0.81
1.85V	44.73	26.84	18.00	13.53	10.92	6.44	4.67	3.72	3.12	2.64	2.13	1.71	1.46	0.95	0.81

#### DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL (25°C)

End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	110.38	61.38	39.53	28.82	23.18	13.42	9.81	7.77	6.56	5.64	4.35	3.60	3.03	2.02	1.65
1.67V	105.07	60.44	37.93	28.61	23.20	13.42	9.69	7.76	6.56	5.63	4.35	3.59	3.03	2.02	1.65
1.70V	104.45	60.03	37.92	28.61	22.99	13.32	9.66	7.73	6.46	5.59	4.32	3.56	3.00	2.01	1.65
1.75V	97.27	59.30	37.96	28.61	22.89	13.21	9.64	7.72	6.44	5.54	4.30	3.53	3.00	2.01	1.64
1.80V	89.26	56.28	37.14	28.09	22.78	13.21	9.63	7.70	6.40	5.54	4.29	3.52	3.00	1.96	1.64
1.83V	86.14	51.70	36.83	27.26	21.85	13.11	9.36	7.44	6.33	5.37	4.29	3.41	2.94	1.94	1.63
1.85V	79.79	50.56	34.23	26.22	21.22	12.80	9.10	7.34	6.15	5.26	4.12	3.38	2.89	1.91	1.62

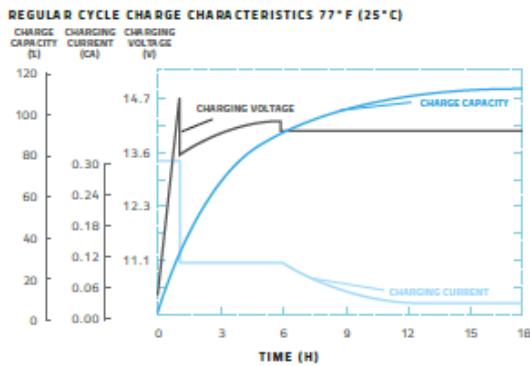
OBSTA

 3, impasse de la blanchisserie  
 51052 Reims CEDEX – France

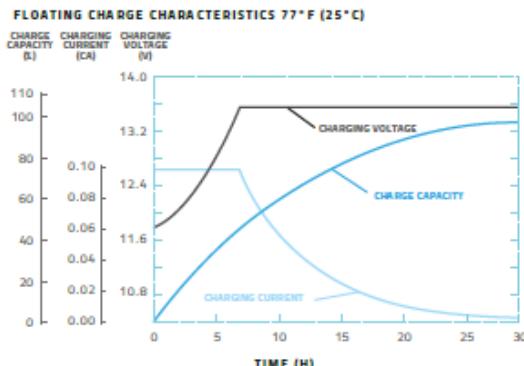
This document is the property of OBSTA. It may not be reproduced or communicated to third parties without the written permission of OBSTA

## 6-CNFJ-18 12V/18Ah

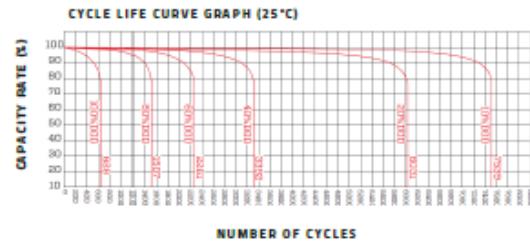
## CYCLE CHARGE CHARACTERISTIC (25°C)



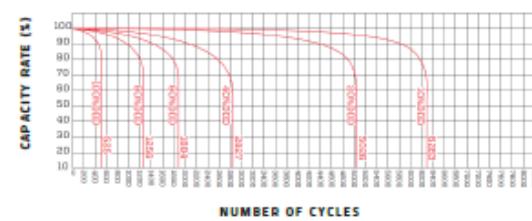
## FLOTTING CHARGE CHARACTERISTIC (25°C)



## CYCLE LIFE CURVE GRAPH



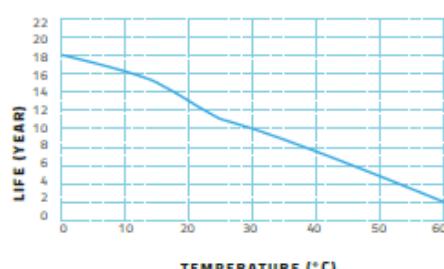
## CYCLE LIFE CURVE GRAPH (40°C)



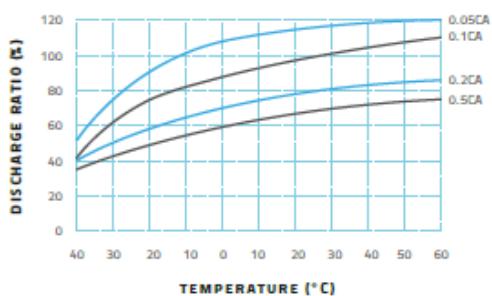
## TEMPERATURE &amp; FLOT SERVICE LIFE



## FLOT SERVICE LIFE CURVE GRAPH



## TEMPERATURE &amp; DISCHARGE CAPACITY



## OBSTA

3, impasse de la blanchisserie  
51052 Reims CEDEX – France

This document is the property of OBSTA. It may not be reproduced or communicated to third parties without the written permission of OBSTA