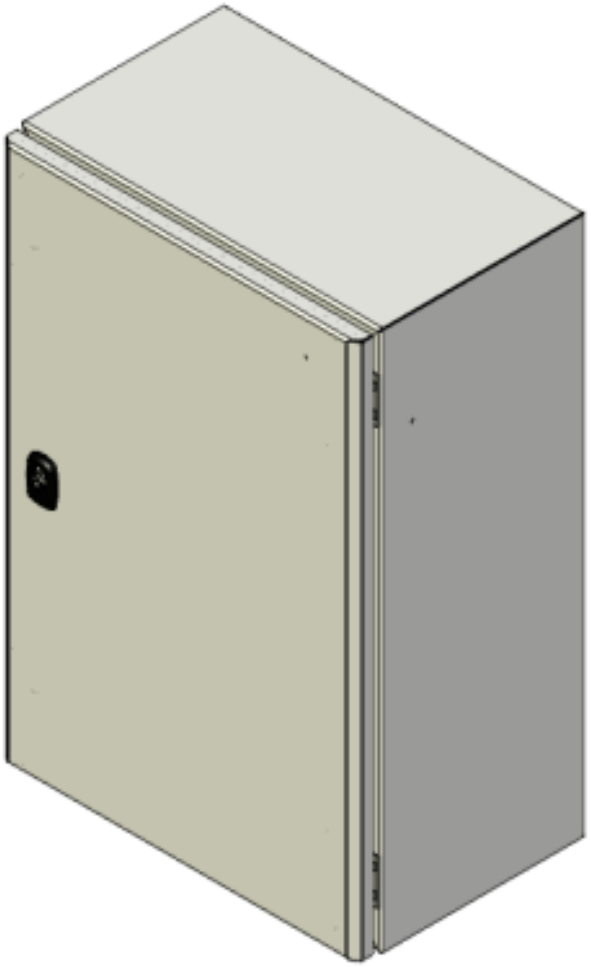
O-MAN-00020-BAT

USER MANUAL

OBSTA supply unit

48V-BAT-18Ah-EL // 113956EL



www.obsta.com

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1. Product name and part number

Description	Part number (P/N)	Power supply	QR code
48V-BAT-18Ah-EL	113956EL	48Vdc +5% -15%	

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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.



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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.

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4. Introduction

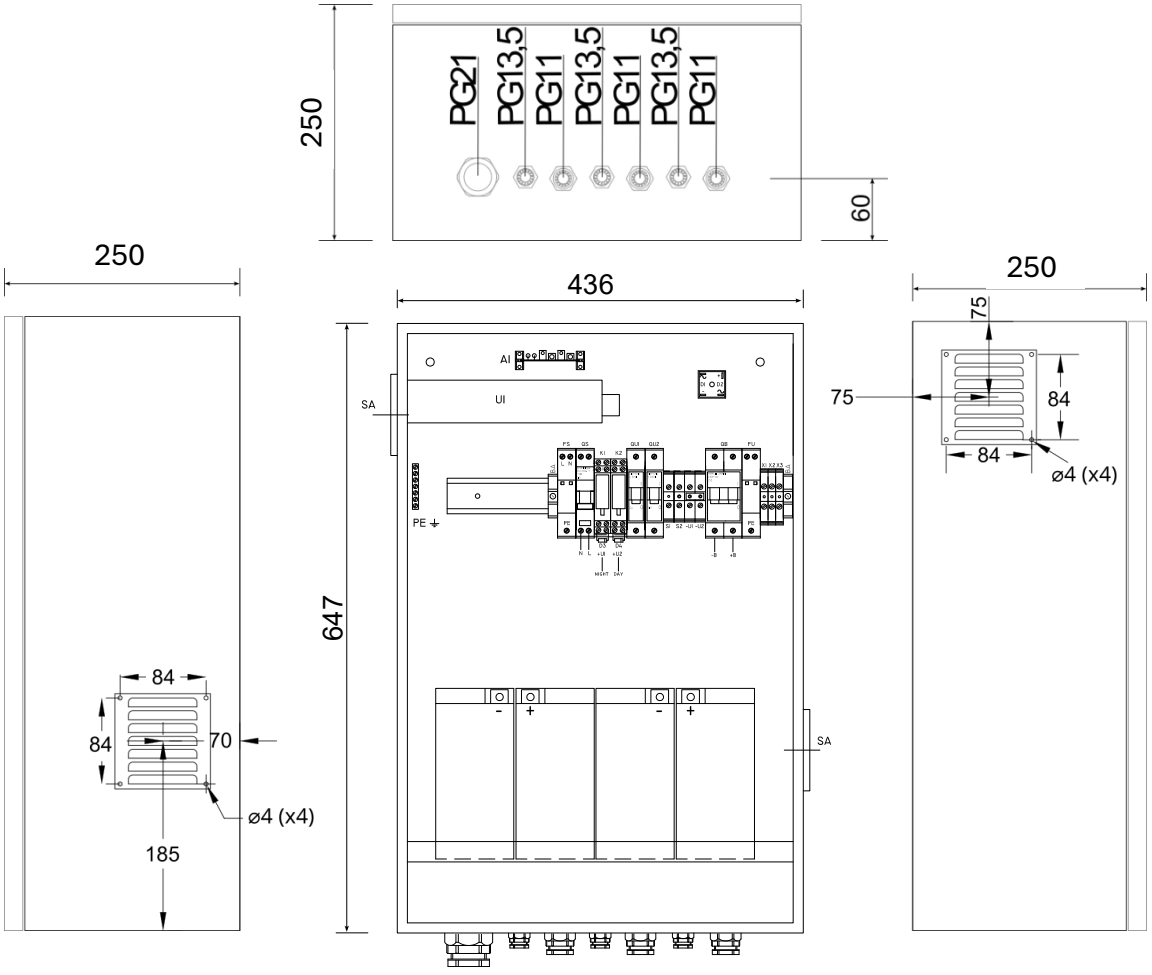
4.1. Scope

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

4.2. General description

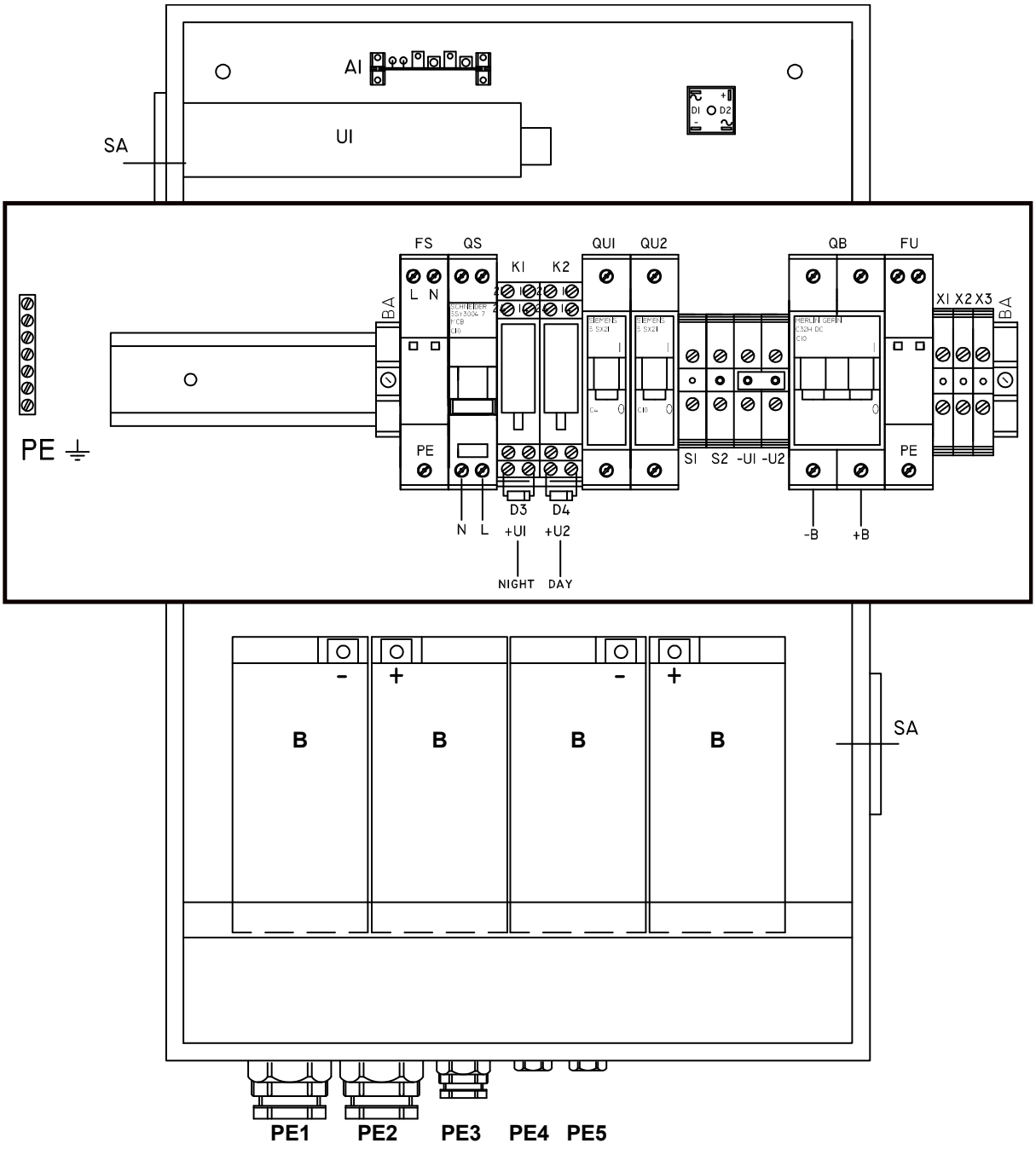
The steel cabinet is connected to a 240Vac power supply, and contains input and output overvoltage protection, as well as 4 batteries to keep OBSTA lamps running for up to 12 hours in the event of a power supply.

4.3. Dimension



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4.4. Bill of materials



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Reference	Designation	Qty
PE	Grounding bar	1
UI	DELTA PMT-48V350W2BR	1
A1	RVU card 1521-3	1
B	12V - 18Ah battery [228435]	4
D1-D2	Bridge rectifier	1
FS	DS215-230/G – surge protection	1
FU	DS230-48DC - surge protection	1
D3-D4	Diode	2
K1-K2	48V relay	2
QU1	Circuit breaker 1P C4	1
QU2	Circuit breaker 1P C10	1
QB	Circuit breaker 2P C10	1
QS	Circuit breaker 2P C6	1
X1-X2-X3	Terminal block ZS6	3
U1-U2	Terminal block ZS16	2
S1-S2	Terminal block ZS16	2
BA	Stop blocks BAM3	2
PE1-PE2	Cable gland M25	2
PE3	Cable gland M20	1
PE4-PE5	Ventilated cable gland	2
SA	Square ventilation grid 100x100	2
-	Cabinet	1
-	DIN rail	1
-	4x10 rivet pop	8
-	ICAO label 57x27	1

The plexiglass protective plate and document holder are not shown.

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4.5. Power supply specifications

DELTA PMT-48V350W2BR :

Model Number	PMT-12V350W2B□□	PMT-24V350W2B□□	PMT-36V350W2B□□	PMT-48V350W2B□□

Input Ratings / Characteristics

Nominal Input Voltage	100-120 Vac, 200-240 Vac (Selectable by Switch)			
Input Voltage Range	90-132 Vac, 180-264 Vac (Selectable by Switch)			
Nominal Input Frequency	50-60 Hz			
Input Frequency Range	47-63 Hz			
Input Current	6 A typ. @ 115 Vac, 3.4 A typ. @ 230 Vac			
Efficiency at 100% Load @ 230Vac	84.5% typ.	87% typ.	88% typ.	88% typ.
No Load Power Consumption	0.75 W typ. @ 230 Vac			
Max Inrush Current (Cold Start)	60 A typ. @ 230 Vac			
Leakage Current	< 0.75 mA @ 240 Vac			

Output Ratings / Characteristics*3

Nominal Output Voltage	12 Vdc	24 Vdc	36 Vdc	48 Vdc
Factory Set Point Tolerance	12 Vdc ± 1.5%	24 Vdc ± 1%	36 Vdc ± 1%	48 Vdc ± 1%
Output Voltage Adjustment Range	10.8-13.2 Vdc	21.6-26.4 Vdc	32.4-39.6 Vdc	43.2-52.8 Vdc
Output Current	29.0 A 43.5 A / 1S*5	14.6 A 21.9 A / 1S*5	9.7 A 14.55 A / 1S*5	7.3 A 10.95 A / 1S*5
Output Power	348 W Max. 522 W Max./1S*5	350.4 W Max. 525.6 W Max./1S*5	349.2 W Max. 523.8 W Max./1S*5	350.4 W Max. 525.6 W Max./1S*5
Line Regulation	± 0.5% typ. @ 100-132 Vac, 180-264 Vac (Selectable by Switch)			
Load Regulation	±1% @ 100-132 Vac, 180-264 Vac (Selectable by Switch)	±0.5% typ. @ 100-132 Vac, 180-264 Vac (Selectable by Switch)		
PARD*4 (20MHz)	< 150 mVpp @ 0°C to 70°C 450 mVpp typ. @ -30°C to 0°C	< 200 mVpp @ 0°C to 70°C 600 mVpp typ. @ -30°C to 0°C		
Rise Time	30 ms typ. @ 115 Vac & 230 Vac			
Start-up Time	1500 ms typ. @ 115 Vac & 230 Vac			
Hold-up Time	20 ms typ. @ 115 Vac & 230 Vac			
Dynamic Response (Overshoot & Undershoot O/P Voltage)	± 10% @ 115 & 230 Vac input, 10-100% load (Slew Rate: 2.5 A/μS, 50% duty cycle @ 5 Hz & 10 KHz)			
Start-up with Capacitive Loads	8,000 μF Max	8,000 μF Max	3,000 μF Max	2,000 μF Max

*3 For power de-rating from > 50°C to 70°C, see power de-rating on page 3.

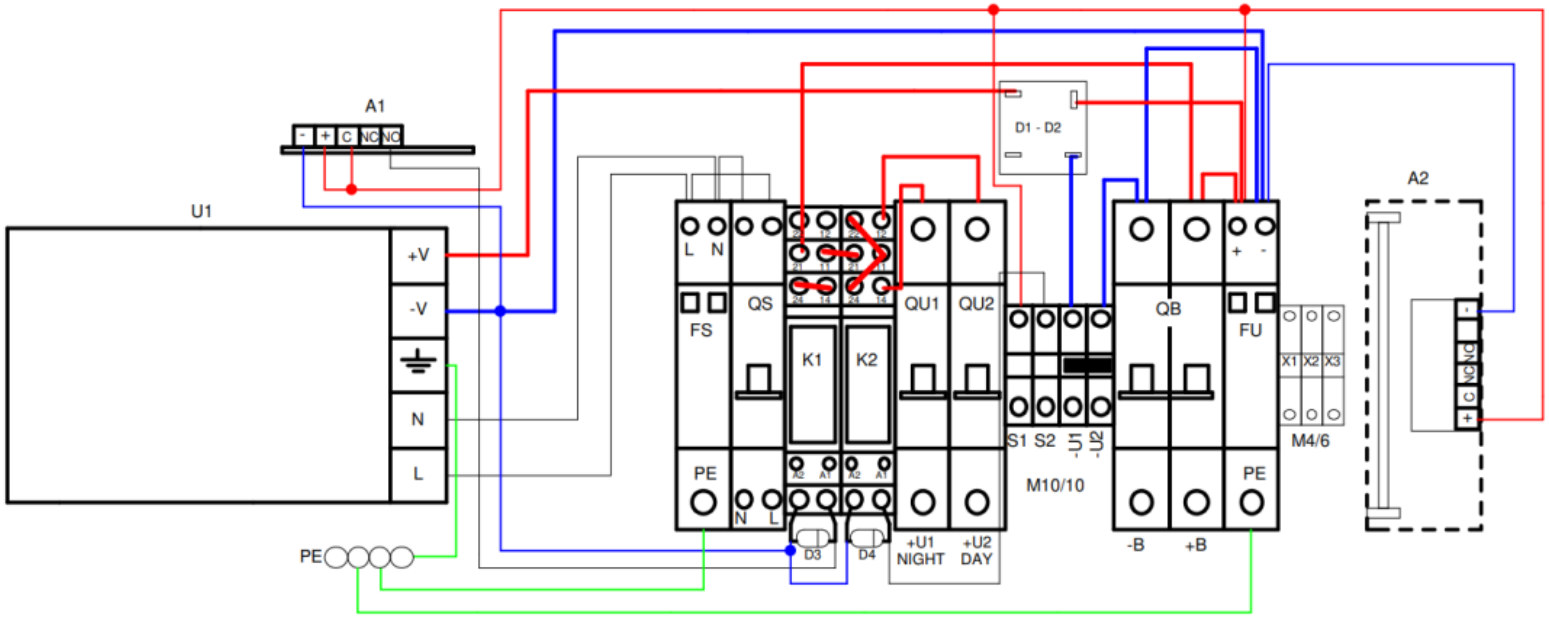
*4 PARD is measured with an AC coupling mode, and in parallel to end terminal with 0.1μF ceramic capacitor & 47μF electrolytic capacitor. PSU need to burn in > 5 minutes when AMB ≤ 0℃

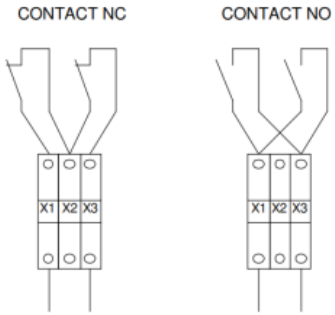
*5 PMT-□V350W2BR□ models only

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5. Wiring

5.1. Internal wiring





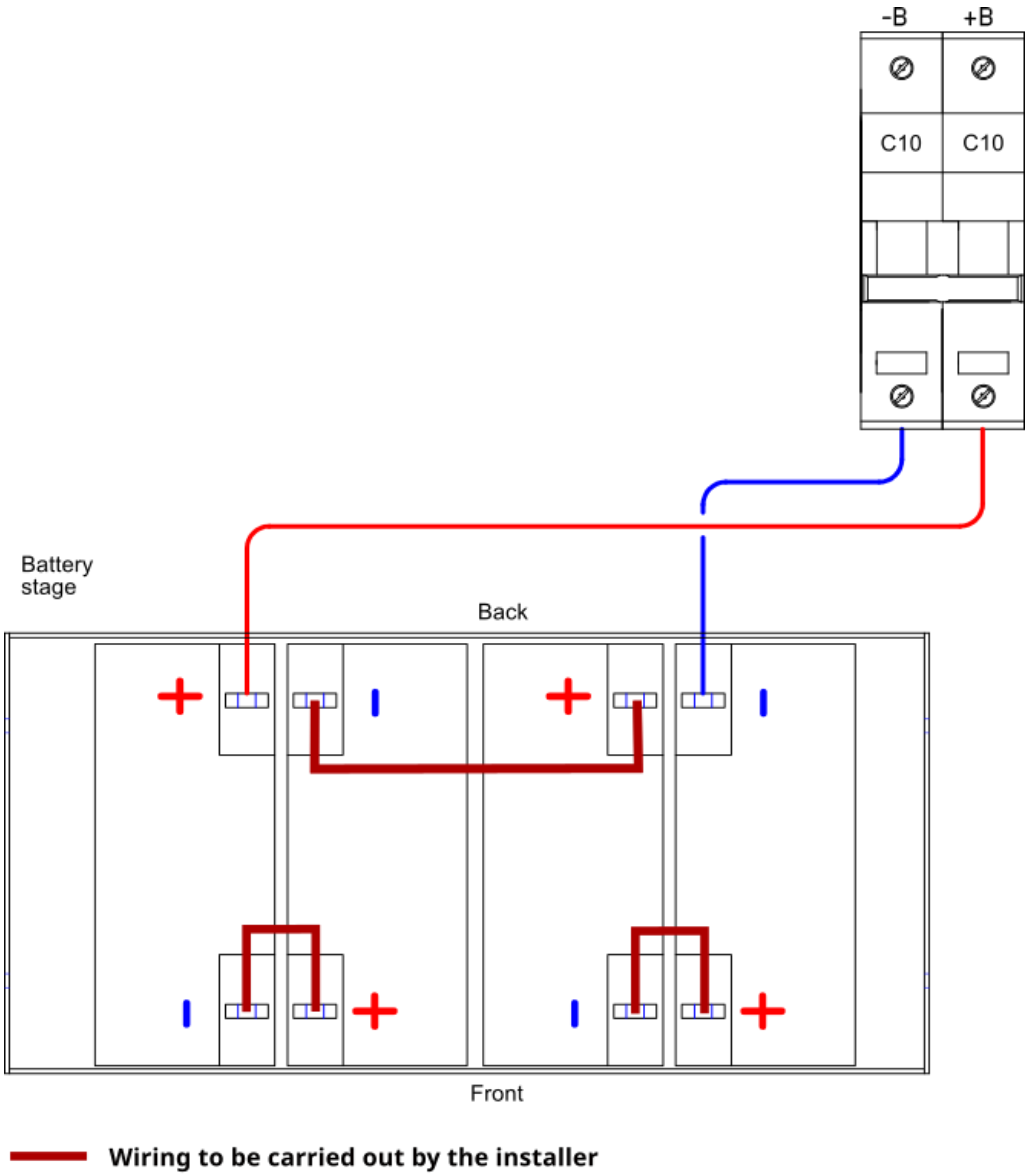
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5.2. Battery

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.

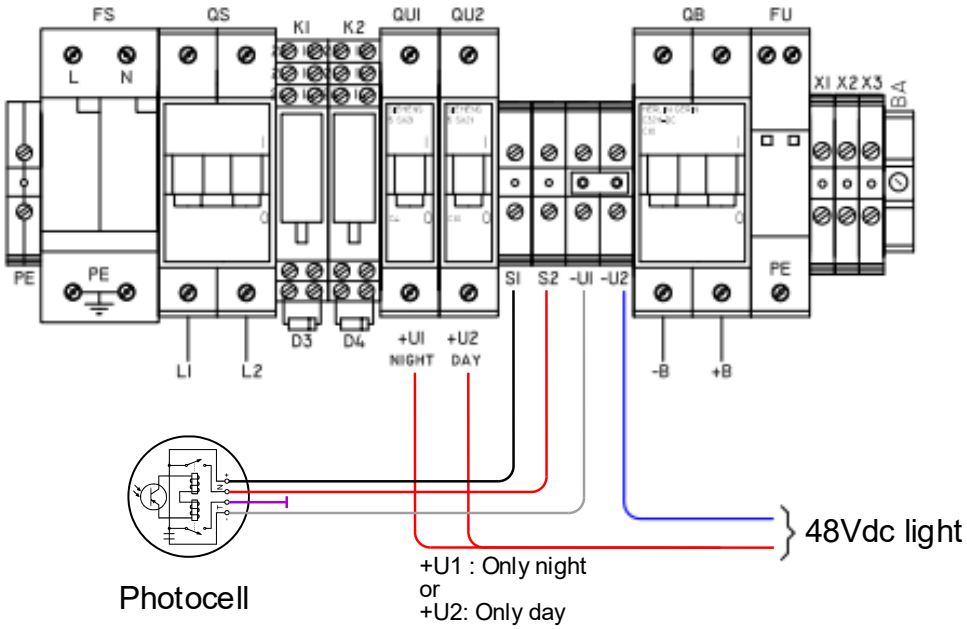
Recommendation: Avoid short-circuiting terminals. NEVER expose to flame. Avoid contact with any type of oil, solvent, petroleum-based detergent or ammonia solution, as this may damage the batteries.



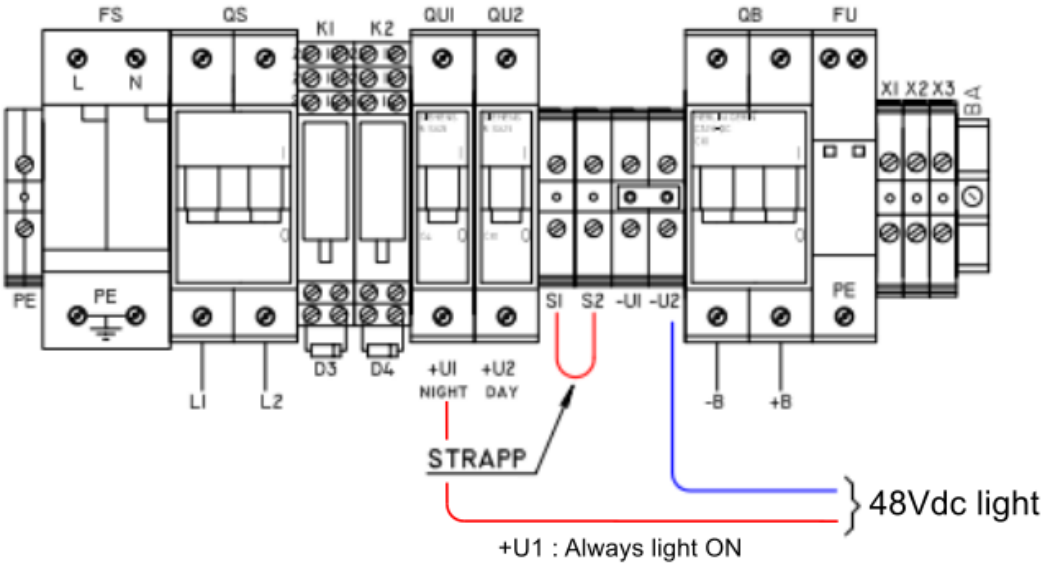
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5.3. Photocell (option)

Connection with twilight sensor

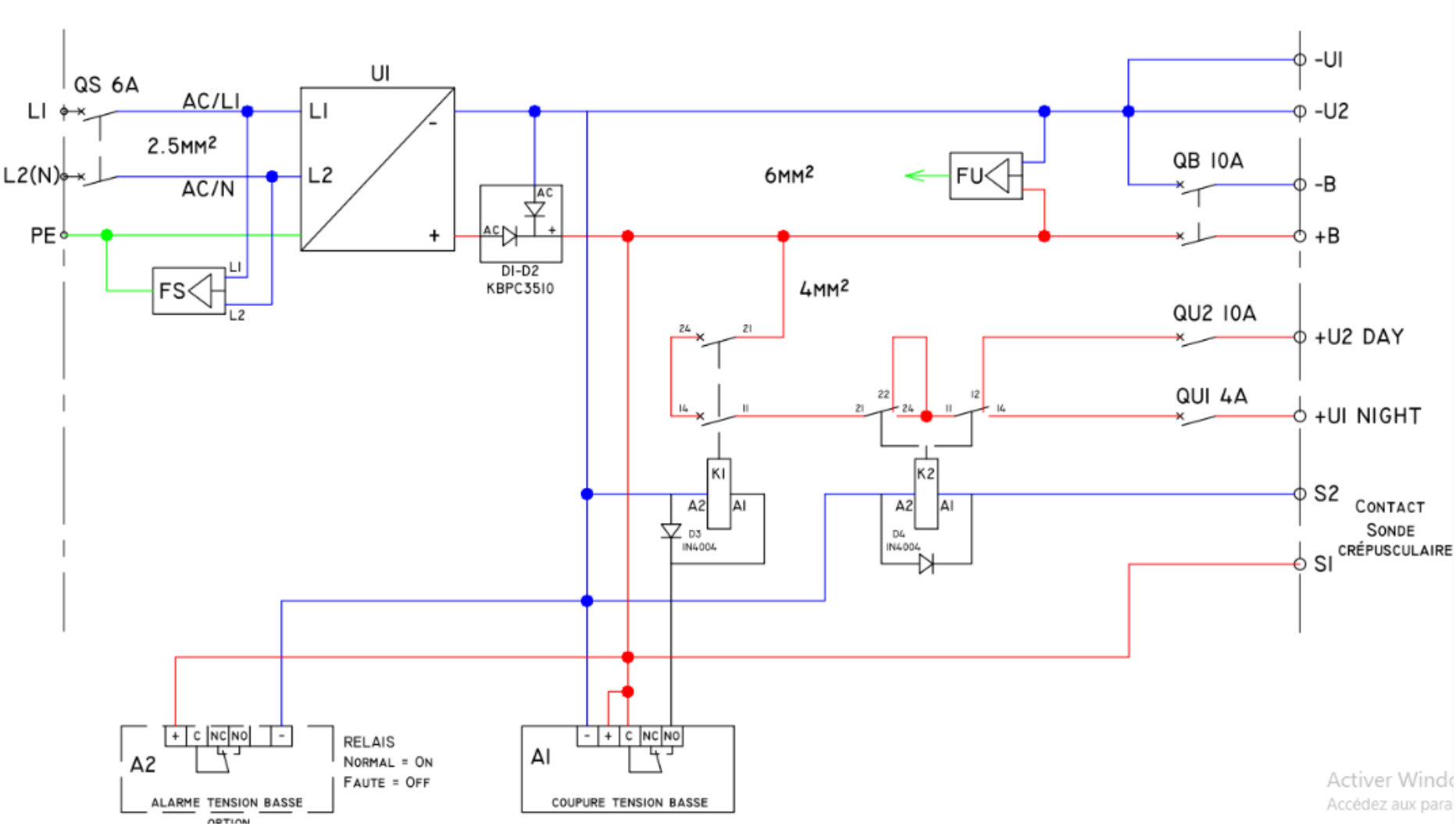


Connection without twilight sensor



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5.4. Electrical diagram



Activer Windo
Accédez aux para

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6. Maintenance

6.1. 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
Aspect (rust, dust…)	Annual	Exterior cleaning	Malfunction

6.2. Spare part

kit Batterie 18 Ah + cosse	**113956-BAT**
Relay K1-K2	**113956-RELAY**
Pont de diode	**113956-DB**
Carte RVU 1521-3	**113956-RVU**
Carte Alarme tension basse RV 1521-1	**113956-RV**
Parafoudre DC **- DS230-48VDC**	**390401**
Parafoudre AC **- DS215-230/G**	**451721**

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7. Appendix

7.1. Battery spécifications



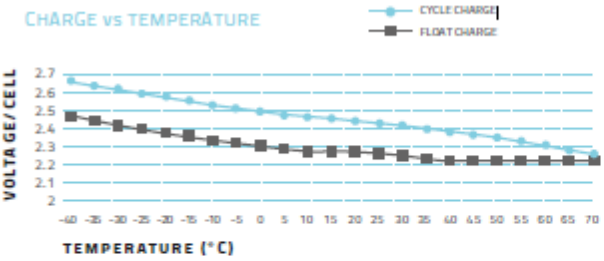
SPECIFICATION

Nominal Voltage		12V	
Rated Capacity (10 hour rate)		18 AH	
Dimension	Total Height (top of terminal)	170 mm	6.69"
	Height	170 mm	6.69"
	Length	181 mm	7.13
	Width	76 mm	2.99"
Weight		Approximately 6.2 kg /13.66 lbs	
Capacity 25°C	120 hour rate (200mA)	22 AH	
	20 hour rate (1.0A)	20 AH	
	10 hour rate (1.8A)	18 AH	
Internal Resistance	Fully charged Battery (25°C)	12mΩ	
Self-Discharge 25°C	Capacity after 3 month storage	95%	
	Capacity after 6 month storage	85%	
	Capacity after 12 month storage	80%	
Max Discharge Current 25°C	180A (5S)		
Terminal	Standard	F5	
	Optional		
Charging (Constant Voltage)	Cycle	Initial Charging Current 5.4A 14.7V/ (25°C)	
	Float	13.6V/ (25°C)	

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 (voltage/cell)	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

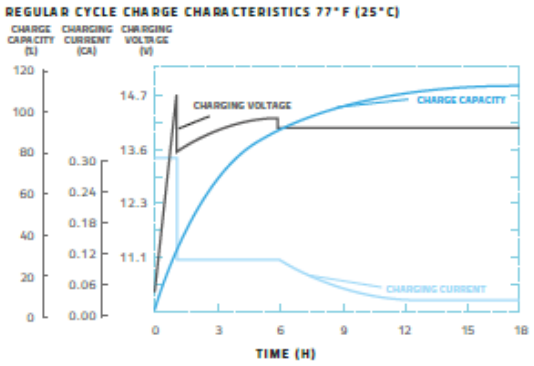
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL (25°C)

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

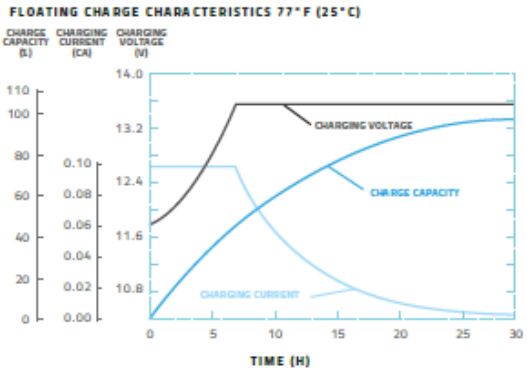
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6-CNFJ-18 12V/18Ah

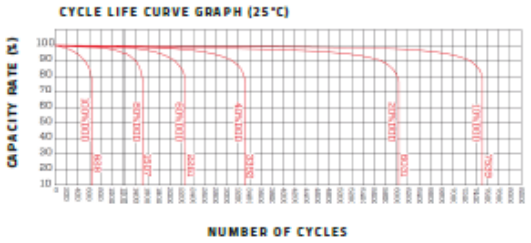
CYCLE CHARGE CHARACTERISTIC (25°C)

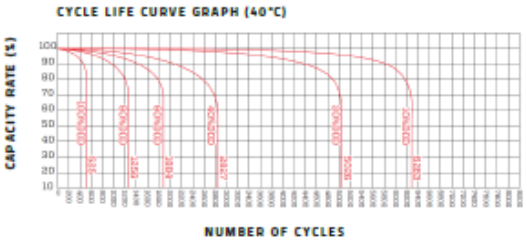


FLOATING CHARGE CHARACTERISTIC (25°C)

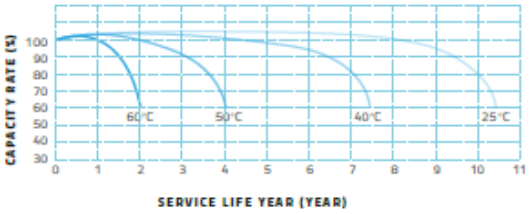


CYCLE LIFE CURVE GRAPH

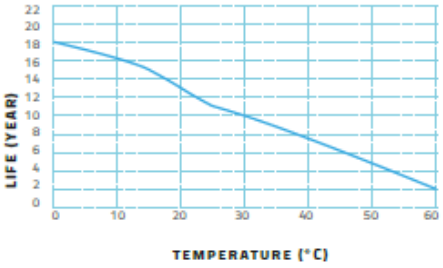




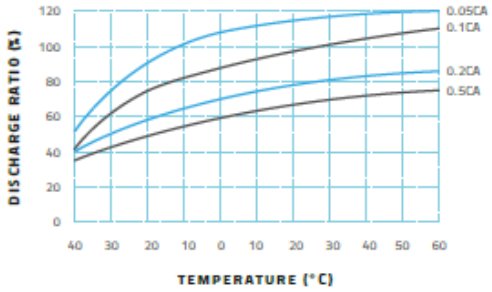
TEMPERATURE & FLOAT SERVICE LIFE



FLOAT SERVICE LIFE CURVE GRAPH



TEMPERATURE & DISCHARGE CAPACITY



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