



SPECIFICATION

Battery Charger

Model : FSP1800C-1Q01C

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1. General

The unit is the AC to DC li-ion battery charger with fan cooling. It can operate normally under 58.8Vdc/30A, featuring output current limiting protection, short circuit protection, and reverse protection.

2. Basic characteristics

Input voltage	Output voltage	Charge current	Rated output Power
90~264Vac	58.8V \pm 0.2 V	30 \pm 0.6A	1800W

3. Input characteristics:

No	ITEM	SPECIFICATION	REMARK
3.1	Rated Input Voltage:	110/230Vac	
3.2	Input Voltage Range:	90Vac ~ 264Vac	Details in figure 7-1-B
3.3	Input Frequency Range:	47Hz to 53Hz	
3.4	Inrush current:	\leq 40A	230Vac
3.5	Input Current:	\leq 15A	90Vac, Max load
3.6	No load power consumption:	\leq 16W	230Vac No load but with FAN Operation
3.7	Power factor	\geq 0.98	Vin=230Vac, Output: V=58.8V/30A

4. Output Characteristics:

No	ITEM	SPECIFICATION	REMARK
4.1	Charging voltage	28-58.8V \pm 0.2 V	

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4.2	Output Ripple & noise	$\leq 200\text{mv}$	0.1uF ceramic capacitor and 47uF electrolytic capacitor paralleled to the output cable and set the oscilloscope bandwidth 20MHz, with battery
4.3	Efficiency	$\geq 93\%$	Vin=230Vac, Output: V=58V/30A
		$\geq 91\%$	Vin=110Vac, Output: V=58V/20A
4.4	Reverse current	$< 1\text{ mA}$	Current from battery into the charger when disconnecting AC power
4.5	Recharge Function	$< 57\text{V}$	When battery voltage is below 57V, charger will recharge again.
4.6	Charging I-V curve	Referring to figure7-2	

5. Protection Characteristics

No	ITEM	SPECIFICATION	REMARK
5.1	Over voltage protection (Firmware protection)	$63\text{V} \pm 1\text{V}$	The charger can protect, stops charging, LED goes red. That will be return to normal state by AC reset.
5.2	Over voltage protection (Hardware protection)	$\geq 66\text{V}$	No output voltage. Power latch & LED goes red. That will be return to normal state by AC reset.
5.3	Output short circuit protection	No fire, no smoke and no safety issue.	An overload or short circuit is applied between Vo+ and Vo-, the power supply shall shut down and enter latch mode.
5.4	Battery reverse polarity protection	No fire, no smoke and no safety issue.	When the battery polarities are connected reversely, stop charging and flash red light. After the fault is removed, reconnect AC power to resume normal.



5.5	Charger Thermal protection	No fire, no smoke and no safety issue.	The charger is with an internal over temperature protection to cut-off charger output power to prevent the damage. That will be return to normal state after temperature goes down.
5.6	Primary side over current protection	Fuse open	Mount a fuse of proper characteristics on a primary side.
5.7	Timing protection	8hour ±10minutes (It can modify for customized Specifications)	After the battery start charge,if the charging time is more than 8hour ±10minutes, the charger stops charging and LED flash red.
5.8	Battery undervoltage protection	25V	The charger can protect, stops charging, LED goes red. That will be return to normal state by AC reset.

6. LED Indicator:

No	ITEM	SPECIFICATION	REMARK
6.1	Stop AC	LED off	
6.2	Standby mode (No battery)	Green light	
6.3	Charge mode	Green flash	
6.4	Full charge	Green light	
6.5	Error Mode	Flash red light Red light	TTP/ OTP OVP/OCP/Bat UVP

7. Environmental Characteristics:

No	ITEM	SPECIFICATION	REMARK
7.1	Electron Static Discharge Refer to IEC61000-4-2	Normal operation shall be continued	Air Discharge: ± 8 KV Contact Discharge: ± 6 KV
7.2	Electrical Fast Transient/Burst Refer to IEC61000-4-4	Normal operation shall be continued	Impulse: 2KV/5KHz/1min , Class B

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7.3	Lightning Surge: Refer to IEC61000-4-5	Normal operation shall be continued	AC Line to Line: ±6KV AC Line to PE: ±6KV 8/20us · Class B
7.4	Conducted Radio Frequency Disturbance Refer to IEC 61000-4-6	Normal operation shall be continued	3V 1KHZ 0.15-230MHz · Class A
7.5	Voltage Dip & interruptions IEC 61000-4-11	Normal operation shall be continued	
7.6	MTBF	≥ 300,000Hrs	230Vac / Max. load / 25°C (SR-332)
7.7	Burn-in		Rated input voltage, 80%~100% load , 40+/-5°C
7.8	Safety conforming:		IEC/EN 60335-1 IEC/EN 60335-2-19 UL1564
7.9	EMI		EN55014-1
7.10	Fan noise	ISO 10302	≤45 dB
7.11	Protection level	IP65	
7.12	Leakage Current:	≤ 3.5mA	240Vac / 50Hz
7.13	Dielectric Strength: (Hi-Pot)	4242Vdc or 3000Vac/ 10mA	Between AC input and secondary applied 4242Vdc or 3000Vac / test time 1 minute /cut off current shall be less than 10mA Product line: 4242V / test time 3 seconds
7.14	Insulation resistance: (IR)	≥ 100MΩ (min.)	DC 500V
7.15	Operating temperature	-25~+65 °C	Details in figure 7-1-A
7.16	Storage temperature	-40~+80 °C	
7.17	Humidity	10%~90%	
7.18	Altitude	3000≤ meters	
7.19	Cooling:	Cooled by fan	Fan IP55

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7.20	Drop Test	Weight Drop high < 10kg 0.10m 10~25kg 0.075m 25~50kg 0.05m ≥50kg 0.025m Surface : S1 ; Corner : E1、E3 ; Angel : C1、C2 one drop each	Nonpacked

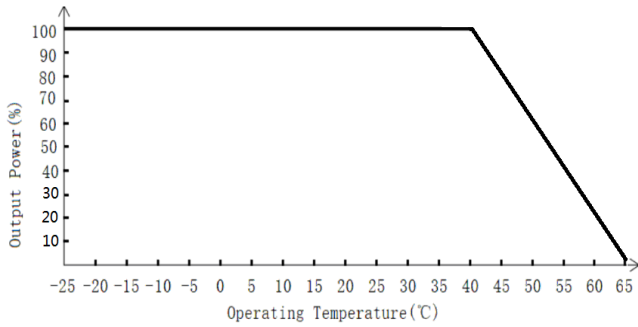


Figure 7-1-A

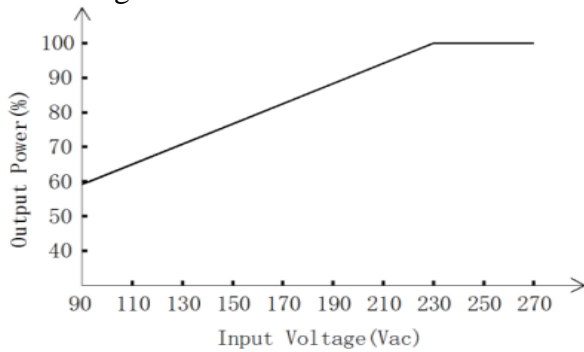


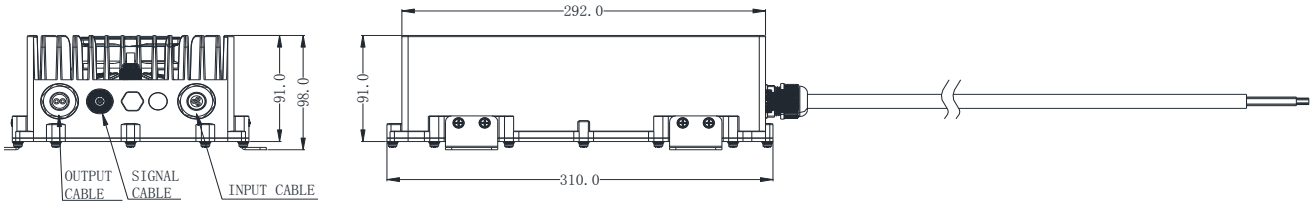
Figure 7-1-B

8. Mechanical characteristics:

No	ITEM	SPECIFICATION	REMARK
8.1	Dimension (Length x Width x Height):	310mm * 190 mm * 91mm	
8.2	Input AC Type:	Single phase	
8.3	Weight	About 5KG	
8.4	Mechanical Drawing	Referring as below	

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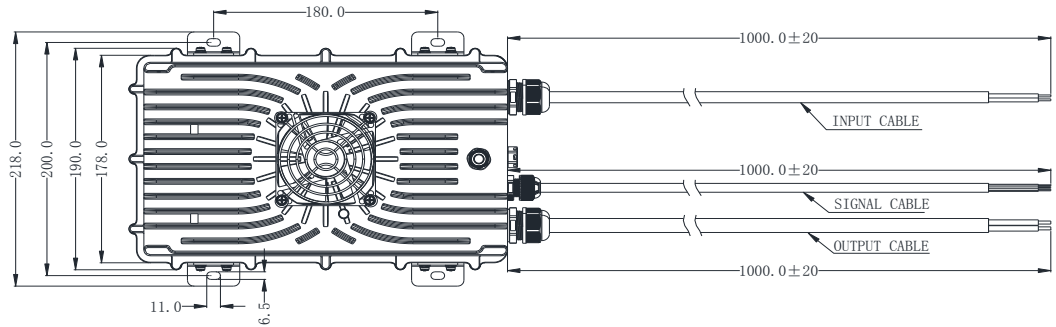
Mechanical Drawing:



Input Cable definition	
Item	Wire Color
AC Input L	Brown
AC Input N	Blue
AC Input PE	Yellow/Green

Output Cable definition	
Item	Wire Color
DC Output +	Red
DC Output -	Black

Signal Cable definition	
Signal	Wire Color
CAN L	Gray
CAN H	Green
COM_GND	Black
Interlock	Red
Vok	Yellow
VCD	White
SYS_GND	Orange
CC	Brown
CP	Blue



Cable	Definition	Wire Color	REMARK
INPUT Cable	AC Input L	Brown	
	AC Input N	Blue	
	AC Input PE	Yellow/Green	
SIGNAL Cable	CAN L	Gray	
	CAN H	Green	
	COM_GND	Black	
	Interlock	Red	High Operation
	Vok(11.4-12.6Vdc output/0.3A)	Yellow	
	VCD	White	Low battery, supply power to the CC,CP
	SYS_GND	Orange	
	CC	Brown	
	CP	Blue	
OUTPUT Cable	DC Output +	Red	
	DC Output -	Black	

