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1. General

PowerFirst Charger PFC0192-24CH08-ME (24V8A) is cooled by 40*40*15mm 12VDC ball-bearing fans Forced air, can work normally under 29.5Vdc/8A, Reverse Protection.



2. Main product specification

Max. output power	Input voltage	Output voltage	Output current range	Combined regulation
240W	115Vac/230Vac	+30.0Vdc	7.9-8A	± 3%

3. Environmental condition

No.	Item	Technical specification	Unit	Remark
1	Humidity	5%-95%		With package
2	Altitude	3000	m	Work normally
3	Cooling	The power supply is cooled by 40*40*15mm 12VDC ball-bearing fans Forced air		Working under full load

4. Electrical characteristics

1 Input characteristics				
No.	Item	Technical specification	Unit	Remark
1.1	Rated input voltage	115/230	Vac	115Vac/230Vac select switch
1.2	Input voltage range	90-132/180-264	Vac	

1.3	AC input voltage frequency	47—63	Hz	
1.4	Inrush current	≤ 100	A	264Vac input/start-up in cold condition /environmental temperature is 25
1.5	Max input current	3	A	Vin=90Vac, rated load

2	Output characteristics			
No.	Item	Technical requirements	Unit	Remark
2.1	Fast charge voltage	29.5	Vdc	
2.2	Floating voltage	28	Vdc	
2.3	Maintain voltage	29.5	Vdc	
2.4	Constant current	8	A	
2.5	Cross regulation	$\pm 3\%$		
2.6	Power efficiency	$\geq 80\%$		Vin=220Vac, rated load
3	Protection characteristics			
No.	Item	Technical requirements	Unit	Remark
3.1	Output over voltage protection		V	Lockout
3.2	Software over voltage protection	The charger software limits the maximum output voltage to a level suitable for the connected battery system		
3.3	Thermal cutback	An internal temperature monitor reduce charger output power in extreme operational temperature to prevent damage		
3.4	Output current limiting protection	8.2A	A	@CC MODE
3.5	Output short circuit protection	Short circuit protection should be automatically recovery after remove the condition		

3.6	Electronic reverse battery protection	The charger is electronically protected against permanent reverse battery connection	
3.7	Cell short circuit timer	Internal software protection	
4	Charger(LED) indicator		
No.	Item	Status LED	Remark
1	Power on	LED (GREEN) ON ALWAYS	
2	Power off	LED (GREEN) OFF ALWAYS	
3	charging	LED (GREEN) FAST FLASH	
4	Full Charging	LED (GREEN) ON ALWAYS	

5. Safety & EMC

No.	Item		Standard (or testing condition)	Remark
1	Electric strength test	Input—output	1500Vac/10mA/1min	No breakdown
2	Isolation resistance	Input—ground	$\geq 10M\Omega @ 500Vdc$	
		Output—ground	$\geq 10M\Omega @ 500Vdc$	
3	Leakage current		<3.5mA	Vin=264Vac,50—60Hz
4	SAFETY		CE IEC60601-1 EN60601-1	
5	EMC	RE	CLASS B	EN55014
		CE	CLASS B	EN55014
		Air discharge	LEVEL 3	EN61000-4-2(discrimination B)
		Contact discharge	LEVEL 3	EN61000-4-2(discrimination B)
		RS	LEVEL 3	EN61000-4-6(discrimination A)
		CS	LEVEL 3	EN61000-4-3 (discrimination A)
		EFT	LEVEL 3	EN61000-4-4 (discrimination B)
		Surge	LEVEL 3	EN61000-4-5, differential module 1 KV, common module 2KV(discrimination B)

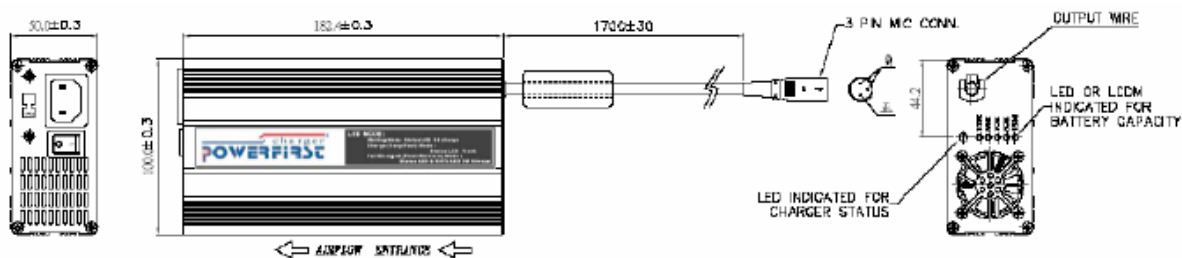
Remark: discrimination A— function OK under technical requirement range; discrimination B--function temporarily debasement without reposition and halt is allowed; discrimination R - - physical damage or failure of equipment are not allowed, but damage of protection device (fuse) caused by interference signal of outside is allowed, and the whole equipment can work normally after replacement of protection device and reset of running parameter.

6. Environmental testing requirements

No.	Item	Technical specification	Remark
1	High temperature ambient operating	+40	Features ok
2	Low temperature ambient operating	-10	Features ok
3	High temperature storage	+70	Work normally after recovery under normal temperature for two hours
4	Low temperature storage	-40	Work normally after recovery under normal temperature for two hours
5	Random Vibration	20Hz to 2000Hz 3Grms 20hours per axis	
6	Repetitive Shock	40g peak 3 orthogonal axes,3+ and 3- in each axis ,11ms Pulse width	
7	Thermal shock:	-35 to +75 ,<3minute transition,2.5hour dwell,200cycle	
8	Drop test:	BS EN60068-2-32:1993 Test Ed:Free fall,appendix B	

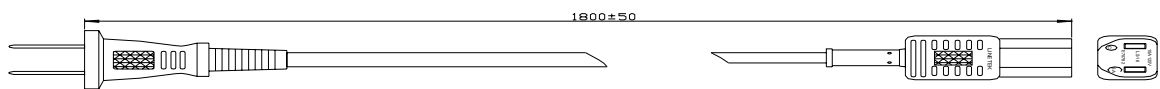
7. Mechanical characteristics

Outline dimension (Unit : mm) length×width×height=182×100×50



Tolerance of outline dimension is ±0.5mm , others are ±0.2mm in the diagram;

1)、 Input terminator diagram & definition



2)、 Output terminator diagram & definition

3)、 WEIGHT: (ABOUT 1.25Kg)

8. Package, transportation & storage

1)、 Package

There are product name, model, making of manufacturer, safety approval, manufacturing date on the package box, and manual of specifications and packing list in the package box.

2)、 Transportation

Suitable for transportation by truck, ship or by air. The products should be shielded by tent from sunshine, and loaded and unloaded carefully.

3)、 Storage

Products should be stored in package box when it is not used. And warehouse temperature should be $-40 \text{ }^{\circ}\text{C}$ — $+70 \text{ }^{\circ}\text{C}$, and relative humidity is 5%—95%. In the warehouse, there should not be harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field affection. The package box should be over ground at least 20cm height, and 50cm away from wall, thermal source, and

vent. Under this requirement, product has 2 years of storage period, and should be rechecked when over 2 years.

9. Reliability requirements

1)、 Reliability

MTBF (standard, environmental temperature, load requirement) ≥ 15 Khour ; testing condition : 25 , full load , testing proved value. **(2 year full warranty)**

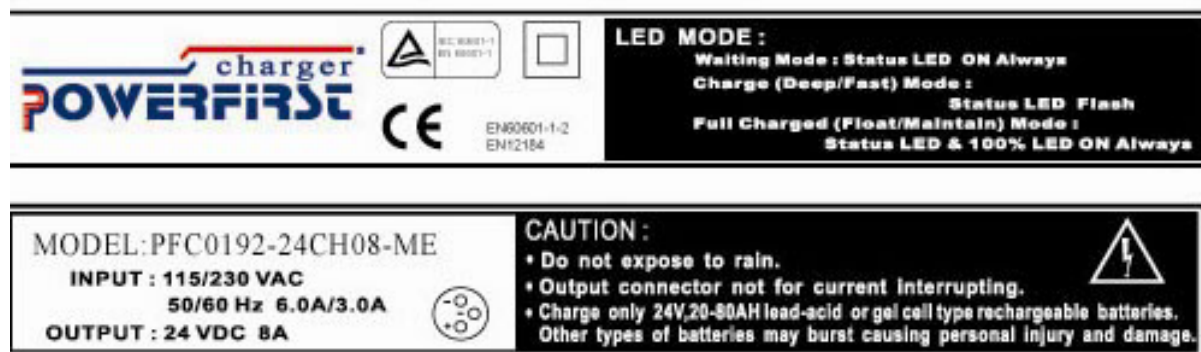
10. Charger wiring

The basic power wiring for the charger is shown in figure 2

1)、 A spark often on first connection of the charge to the battery terminals due to charging the internal output capacitors ,This is Normal and should not lead to undue concern, care should be taken to ensure the battery vent caps are closed and there are no flammable object in the vicinity of where the connection will be made

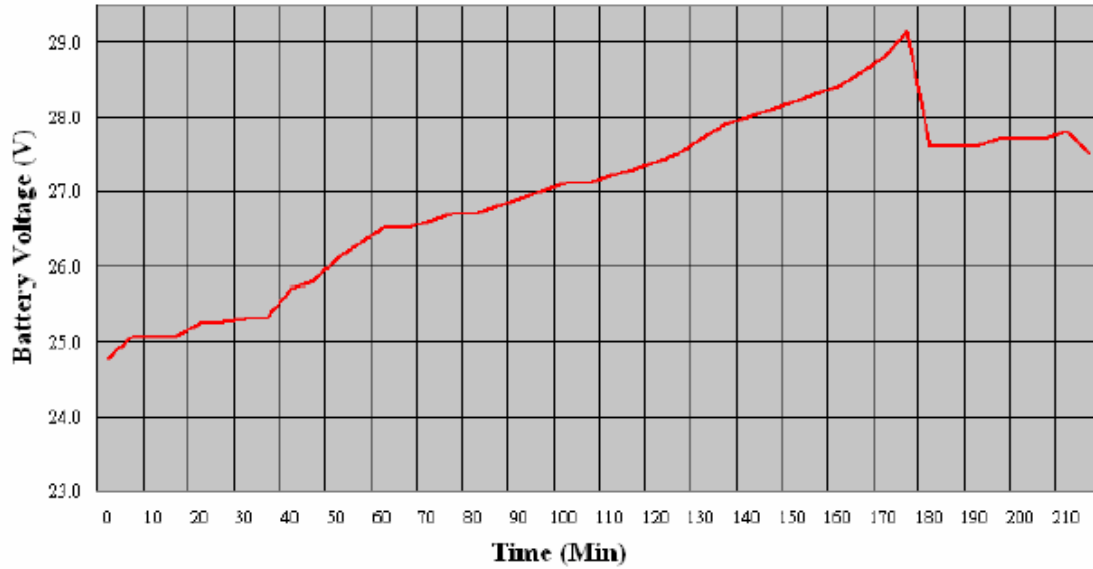
2)、 The charger has been calibrated to take account of the voltage drop in the DC output cables during operation, To prevent the possibility of over or under charging of the battery it is recommended the DC output cable are connected directly to the battery without modification. PowerFirst are able to customize cable lenghs and connections for volume customers with specific requirements.

11. Label



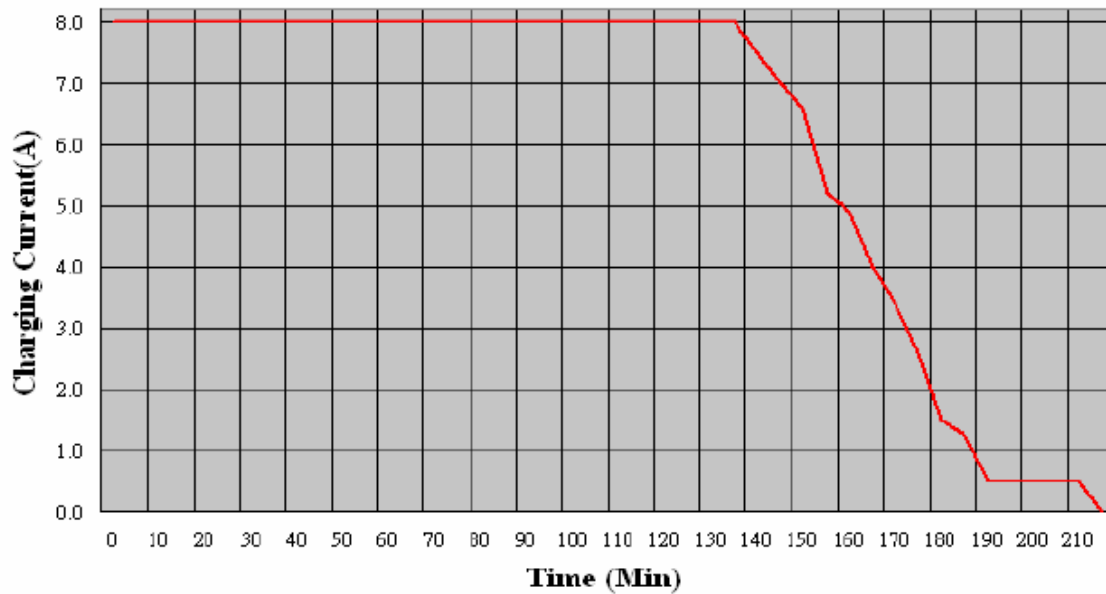
12. TEST REPORT (Wave form tested on 24V70AH Gelled batteries)

24V/8A TEST REPORT (Voltage wave)



Current Waveform

24V/8A TEST REPORT (Current wave)



13. Mechanical outline

