

Datasheet
SM-CPVM-2
Charger

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SP-04-029					

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1. Scope

This datasheet defines the specification of two-bay charger developed by axcom battery technology

2. Features

This charger has AC to DC function, which supplies two charging channels and one adapter output.

3. Main Functions

- Constant current and constant voltage charging mode and MPU control.
- Two charging channels with independent charging control and LED display.
- Intelligent charging current selection (2.5A or 5.0A) for fast charging process.
- Automatic switch between charging/adapter mode without mechanic switch.
- Battery installed could be used as power supply through adapter output when there is no AC input.

4. Temperature

- Working temperature: 0°C ~ 45°C, humidity: 30% ~ 85% R.H.
- Storage temperature: -20°C ~ 70°C, humidity: 10% ~ 95% R.H.

5. Parameters

5.1 Input parameters

- Input voltage: rated voltage 100-240VAC, working voltage: 90--265VAC, rated frequency: 50/60Hz, working frequency: 47-63Hz.
- Max. input current: 1.5A (100-240VAC and rated load).
- Working efficiency $\geq 80\%$ (100-240VAC and rated load).
- Power factor PF ≥ 0.9 .

5.2 Output parameters

- Charging channel: 16.8VDC \pm 0.1V and 2.5/5.0A \pm 0.3A.
- Adapter output: 16.7VDC \pm 0.1V and 4.5A.
- Output noise ≤ 50 mV (peak value).

6. Protection Features

- Short circuit protection: when the positive/negative output terminals are shorted, charger will automatically enter the short circuit protection state. After it is recovered,

charger could work normally when connected to AC power.

- Over voltage protection: the output is automatically cut off when the output voltage is greater than 18V.
- Temperature protection: fan is activated when the load current is greater than 2.2A for temperature reduction.
- Insulating resistance test: put the charger into a chamber with temperature set to 25°C ~ 30°C and relative humidity set to 80% ~ 85% for 48 hours and then apply DC voltage at 500V for 1 minute. The insulating resistance between input and output or between input and housing should not be less than 2MΩ.
- Withstand voltage test: apply AC voltage at 3000V for 1 minute (15°C ~ 35°C and R.H. 45% ~ 75%). There should be no electric arc or breakdown and the leakage current should be less than 10mA between input and output or input and housing.
- Leakage current test: the leakage current should be less than 0.5mA between input and output or input and housing based on GB4943 test standard.
- Vibration test

No.	Item	Standard	Result
1	Frequency	10 ~ 500Hz	- function normally - no mechanical damage - no broken part - no loose part
2	Frequency change	1 Octave/min	
3	Acceleration	2.1G	
4	Direction	Once for X,Y and Z	
5	Vibration time	20 minutes	

- Drop test: drop the charge from 900mm height to 18-20mm thick harden wood board on concrete floor and once for X, Y and Z axis. After that, install the batteries to test the charging function and adapter function, which should work normally.
- High-temperature test: put the charge in aging room at 50°C and working for 2 hours at rated load. After that, measure the temperature of main parts, which should conform to the given standard.

7. Working Status

7.1 Gold Mount type charger

- When the charger is powered on without any load, power indicator is red, charging

indicator is red .

- When battery is installed, the charger could automatically identify L or R channel for charging, it will simultaneously charge 2 batteries at 2.5A or 1 battery at 5.0A.
- Charging indicator is red under constant current charging mode.
- Charging indicator is green when the battery is more than 95% charged under constant voltage charging mode.
- Charging time:

Battery	One battery charge (hour)	Two batteries charge (hour)	Two batteries charge order
4.4Ah	approx. 1.2	approx. 2.5	Simultaneous
6.6Ah	approx. 1.8	approx. 3.8	Simultaneous
8.8Ah	approx. 2.5	approx. 5.0	Simultaneous
11Ah	approx. 3.2	approx. 6.5	Simultaneous
13.2Ah	approx. 3.8	approx. 7.6	Simultaneous
15.6Ah	approx. 4.2	approx. 8.5	Simultaneous

7.2 V-lock type charger

- When the charger is powered on without any load, power indicator is red, charging indicator is off., but a fully charged battery is installed the charging indicator is green.
- When battery is installed, the charger could automatically identify L or R channel for charging, it will simultaneously charge 2 batteries at 2.5A or sequentially charge 2 batteries one by one at 5.0A. When L and R channels are installed with batteries $\leq 6.6\text{Ah}$, output current will be 2.5A; when L and R channels are installed with batteries $\geq 8.8\text{Ah}$, the one installed on channel L will be charged first with 5A current. After it has been charged to 85%, the other battery on R channel will be charged next with 5A current.
- Charging indicator is red under constant current charging mode.
- Charging indicator is green when the battery is more than 95% charged under constant voltage charging mode.
- Charging time:

Battery	One battery charge (hour)	Two batteries charge (hour)	Two batteries charge order
4.4Ah	approx. 2.5	approx. 2.5	Simultaneous
6.6Ah	approx. 3.8	approx. 3.8	Simultaneous
8.8Ah	approx. 2.5	approx. 5.0 (one battery has fully charged in 2.5H)	Sequential
11Ah	approx. 3.2	approx. 6.5 (one battery has fully charged in 3.2H)	Sequential
13.2Ah	approx. 3.8	approx. 7.6 (one battery has fully charged in 3.8H)	Sequential
15.6Ah	approx. 4.2	approx. 8.5 (one battery has fully charged in 4.2H)	Sequential

8. Adapter function

- When there is no battery installed, the adapter output is 16.6V/4.5A. When battery is installed, the adapter output is supplied by the battery.

9. Weight and Dimension

- Weight: about 1.0Kg
- Dimension: 230 (L) X 148 (W) X 106 (H)mm