

COTEK

BP-□□□□A Series Switch-Mode 3 Stage Battery Charger User's Manual



CE

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1. Important Safety Information



WARNING!

Before installing or using BP-□□□□A Battery Charger, you need to read following safety information carefully.

1-1. General Safety Precautions

- 1-1-1. Do not expose BP-□□□□A Battery Charger to water, mist, snow, or dust. To reduce the risk of fire, do not cover or obstruct the ventilation shaft.
Do not install BP-□□□□A Battery Charger in a zero-clearance Compartment. Overheating may occur.
- 1-1-2. To avoid the risk of fire and electronic shock, make sure that existing wiring is in good electrical condition and not undersize.
Do not operate BP-□□□□A Battery Charger with damaged or substandard wiring.
- 1-1-3. Do not charge non-rechargeable batteries.
- 1-1-4. Do not charge batteries in a non-ventilated enclosures.
- 1-1-5. Only the wire with IEC socket is allowed to plug to the battery charger.
- 1-1-6. If the power supply cord is damaged, it must be replaced by the manufacturer, the service agent, or a related qualified person in case of a hazard.

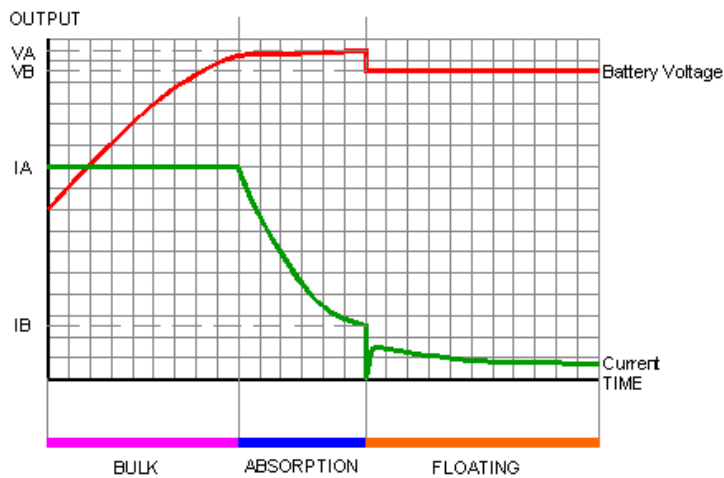
1-2. Battery Precautions

- 1-2-1.If battery acid contacts your skin or clothing, you shall wash it out with soap and water immediately. If battery acid contacts your eyes, you shall wash it out with cold running water for at 1 least 20 minutes and get medical attention immediately.
- 1-2-2.Never smoke or make a spark or flame in the vicinity of the battery or the engine.
- 1-2-3.Do not drop metals on the battery. The resulting spark or short-circuit on the battery or other electrical parts may cause an explosion.
- 1-2-4.Remove personal metal items such as rings, bracelets, necklaces, and watches when operating with lead-acid batteries. Doing so may cause short circuit and very high temperature, which can melt metal items and even burn you.

2. Features

- High-performance 3-stage charging effect
- 0.98 typical power factor
- Advanced 8 bit microprocessor control circuit
- Reverse polarity protected by fuse
- Ignition protection
- Output short circuit protection
- Over power protection
- Switch mode technology
- Statue of charge indication by LED
- Compact and lightweight design

2-1. Battery Charging Curve



IuU Charging Characteristic

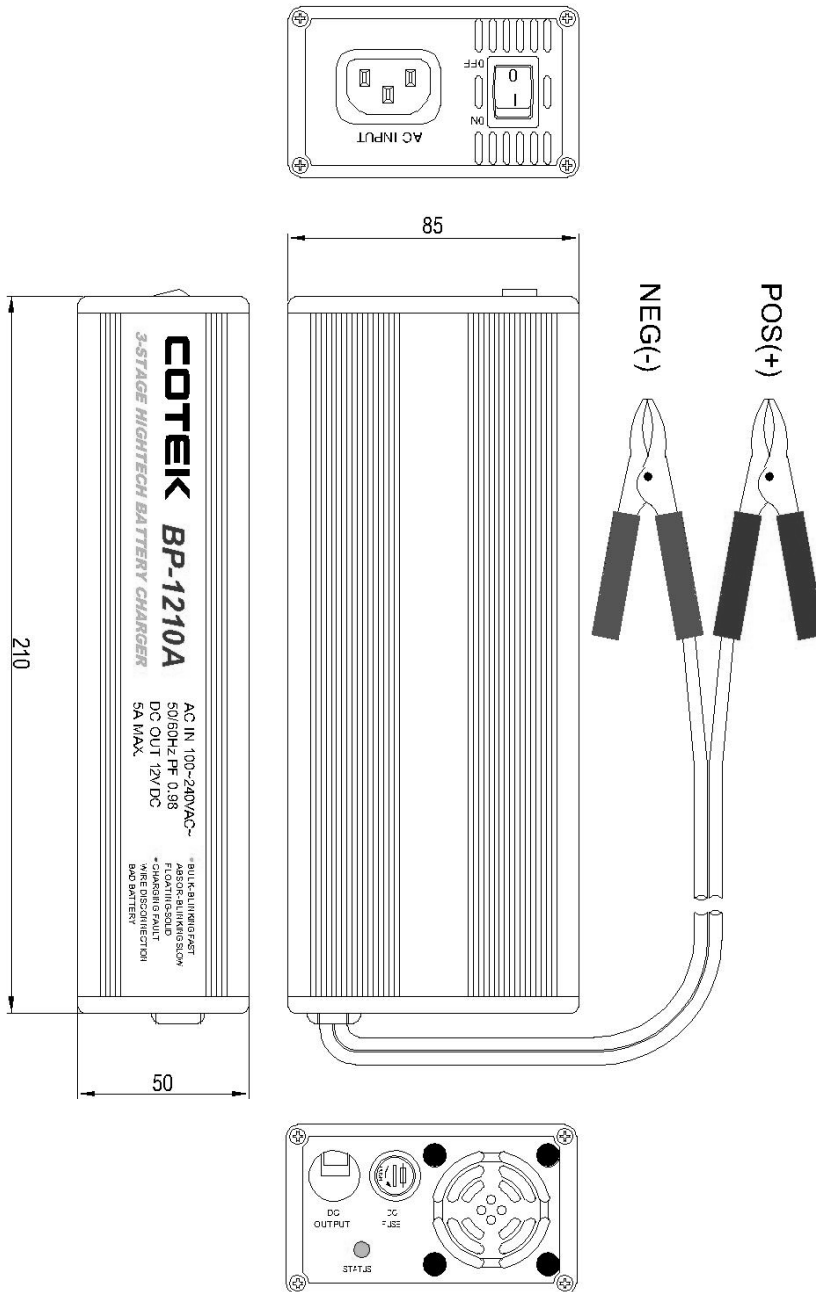
Model	12V / 5A	12V / 10A	24V / 5A	24V / 3A
VA	14.4V	14.4V	28.8V	28.8V
VB	13.6V	13.6V	27.2V	27.2V
IA	5A	10A	5A	2.5A
IB	0.75A	1.5A	0.75A	0.38A

2-2. Electrical Characteristics

Model		BP-1210A	BP-1205A	BP-2405A	BP-2403A
Output	DC Voltage Range	14.4V	14.4V	28.8V	28.8V
	Rated Current	10A	5A	5A	2.5A
	Current Range	0 ~ 10A	0 ~ 5A	0 ~ 5A	0 ~ 2.5A
	Rated Power (max.)	144W	72W	144W	72W
	Battery Charger Mode	3 - stage Battery Chargers (Refer to Battery Charging Curve)			
	Indication LED	Refer to LED Status			
Input	Voltage Range	88 ~ 264VAC			
	Frequency Range	47Hz ~ 63Hz			
	Efficiency (Typ.) at 230Vac	80%	78%	83%	80%
	AC Current (Max.)	1.9 A / 90VAC 0.95A / 180VAC			
	Inrush Current (Typ.)	Cold Start 30A / 230VAC			
	Leakage Current	< 0.75mA / 240VAC			
Protection	Over Load	102~110% rated output power Protection type : Constant current limiting, Hiccup mode, recovers automatically after fault condition is removed			
	Over Temperature	85°C ± 5°C (TH1) detect on heat sink Protection type : Shut down output voltage, recovers automatically after temperature goes down			
Environment	Working Temp.	- 20°C ~ 50°C			
	Working Humidity	20 ~ 90% RH non-condensing			
	Storage Temp., Humidity	- 40 ~ +85°C			
	Temp.Coefficient	± 0.03% / °C (0 ~ 50°C)			
	Vibration	10 ~ 500Hz, 1G 0.5Oct/min, period for 60min. Each along X,Y,Z axes			
Safety & EMC	Safety Standards	IEC 60950-1, 1st Edition (2001) ; EN 60950-1, 1st Edition (2001+A11)			
	Withstand Voltage	I/P - O/P:3KVAC I/P - FG:1.5KVAC O/P-FG:0.5KVAC, 1 minute			
	Isolation Resistance	I/P - O/P, I/P - FG, O/P - FG:100M Ohms/500VDC			
	EMI Conduction & Radiation	EN 55022 : 2006 Class B			
	Harmonic Current	EN 61000-3-2 : 2006 ; EN 61000-3-3 :1995+A1 : 2001+A2 : 2005 ; EN 55024 : 1998+A1:2001+A2 : 2003 ;			
	EMS Immunity	IEC 61000-4-2 Edition 1.2 : 2001 -04 ; IEC 61000-4-4 : 2004 IEC 61000-4-5 Edition 1.1 : 2001-04 ; IEC 61000-4-6 Edition 2.1 : 2004-1 IEC 61000-4-8 Edition 1.1 : 2001-03 ; IEC 61000-4-11 Second Edition : 2004-03			
Others	MTBF Compliance: MIL-HDBK-217F	343.3 KHRS	343.1 KHRS	302.2 KHRS	265.5 KHRS
	Dimension (L*W*H) (mm)	210 (L) x 85 (W) x 50 (H) mm / 8.26 (L) x 3.34 (W) x 1.96 (H) Inch			
	Packing	1 kg. / 2.2 Lbs.			
Note	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. The power supply is considered a component which will be installed into a final equipment.</p> <p>3. The final equipment must be re-confirmed that it still meets EMC directives.</p>				

*Note : The specifications are subject to change without notice.

2-3. Mechanical Drawing

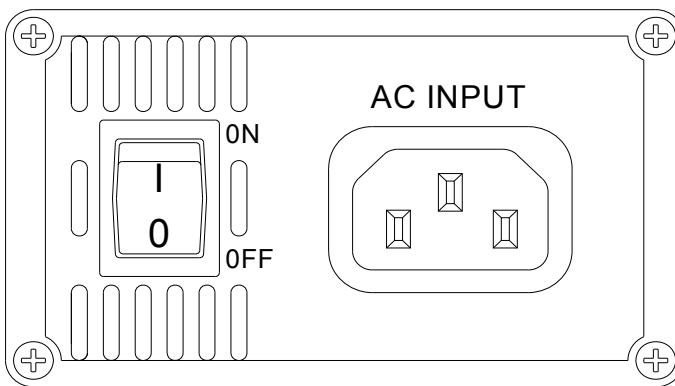


3. Instructions

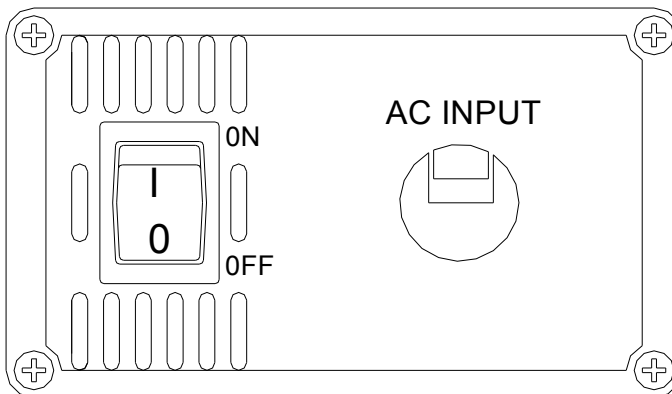
BP-□□□□A series are high frequency switch-mode 3-stage battery chargers equipped with micro-controller and PFC circuit to manage battery intelligently and to provide highly reliable operations. Before using BP-□□□□A, read all instructions and precautions marking on this manual.

3-1. Front Panel Operation :

3-1-1. Front view :



IEC RECEPTACLE TYPE



POWER CORD TYPE

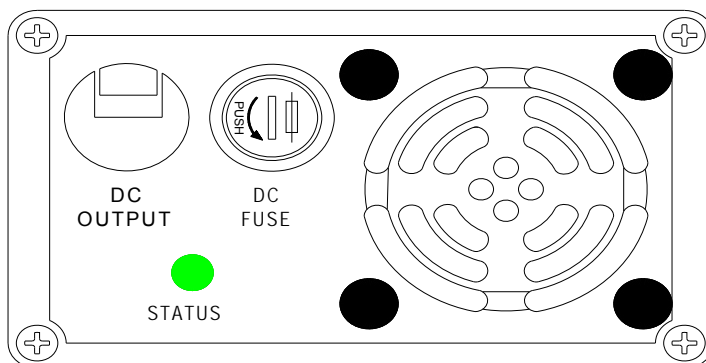
3-1-2.ON / OFF switch :

Power ON / OFF switch, leave the status OFF during installation.

3-1-3.LED Status

Charging Status	LED Signal	LED Indication
Bulk Charge	Fast Green Blink
Absorption Charge	-----	Slow Green Blink
Floating Charge	—————	Solid Green
Charging Failure or Wire Disconnection	-----	Red Blink

3-2. Rear Panel Operation :



3-2-1.Ventilation Shaft :

Be sure to keep it a distance (at least one inch) from surrounding things.

3-2-2.DC Output Terminals :

Connect it to 12V/24V batteries.

【+】 indicates positive, 【-】 indicates negative. Reverse polarity connection will blow the internal fuse and may damage BP-□□□□A permanently.

3-3. Troubleshooting :

Problems and Symptoms	Possible Cause	Solutions
"Red" LED blink	Battery is disconnected	Check the battery connection.
	Polarity reverse	Place proper polarity. Check DC fuse. If broken, replace the same rating fuse.
	DC fuse broken	Check DC output fuse
LED light off	No AC power delivering	Check input power connection.
	Thermal shutdown	Make sure the ventilation shaft is not obstructed. Improve ventilation. Lower the temperature Surrounding it.

3-4. Battery Type Selections :

Sealed lead acid and open lead acid batteries are as follows :

Model No.	Battery Capacity (Min.)	Battery Capacity (Max.)
BP-1205A	12V / 15Ah	12V / 50Ah
BP-1210A	12V / 30Ah	12V / 100Ah
BP-2403A	24V / 7.5Ah	24V / 25Ah
BP-2405A	24V / 15Ah	24V / 50Ah

COTEK

No. 33, Rong Hsin Rd., Pa Teh City, Tao Yuan County, Taiwan

Phone : 886-3-3661581 FAX : 886-3-3676029

E-mail : sales@cotek.com.tw http : // www.cotek.com.tw