

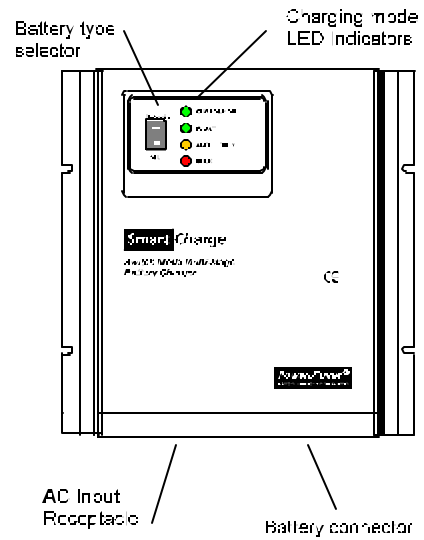


Switch Mode Multi-Stage Smart BATTERY CHARGER

**GPSC-24-10A
GPSC-24-20A**

OPERATION MANUAL

Front View

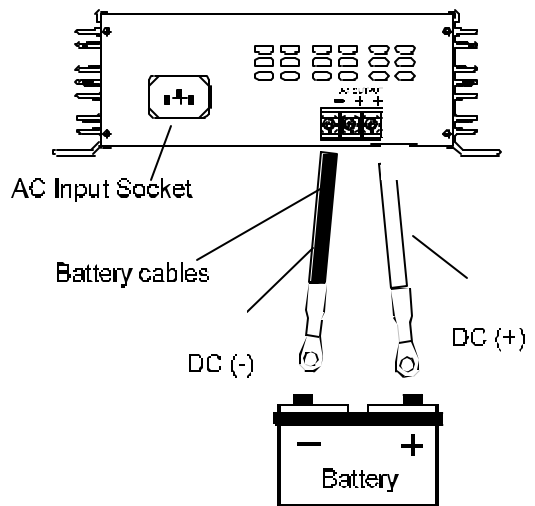


SPECIFICATIONS

MODELS	BC-024-10A	BC-024-20A
INPUT VOLTAGE		
100~120V / 220~230 V	85~135VAC / 170~270VAC 50/60 Hz	
OUTPUT VOLTAGE		
1 st stage - Bulk	charge 28.4V for Gel (maintenance free battery) charge 29.6V for Flooded battery (wet battery)	
2 nd stage - Absorption	charge 28.4V ~ 29.6V current limited	
3 rd stage - Float	charge 27.6V	
OUTPUT		
DC output current	10A max.	20A max.
DC output ripple	<50mA @ full load	
Line regulation	0.1% @ input voltage range	
Load regulation	1.5% @ output current: no load ~ full load	
EFFICIENCY		
Half load	88%	
Full load	86%	
PROTECTION		
Current limiting	Yes	
Output short circuit	Yes	
Battery reverse polarity	DC fuse	
Input EMI filter and surge	Yes	
Output loading with isolator	Yes	
Input isolated	Yes	
PHYSICAL		
Cooling fan	No	Yes
Weight	1.9kg	2.8kg
	4.18lbs	6.16lbs
Size(mm) L x W x H	200 x 215 x 80	240 x 235 x 80

Specifications subject to change without notice.

Battery Connection



INDICATIONS & SWITCH CONTROLS

"CHARGER ON"	- Green LED, input AC voltage present
"FLOAT"	- Green LED, battery is over 90%
"ABSORPTION"	- Yellow LED, battery charging
"BULK"	- Red LED, battery start charging
Battery choice switch controls	- Selected gel battery/flooding battery choice controls

GENERAL INSTRUCTIONS

This battery charger converts AC power to 24V battery. A AC power socket is provided for connecting to the AC power source. Terminal blocks are provided for connecting to the battery. Be sure that the polarity of battery must be connected correctly, or the charger will be damaged.

NORMAL RESPONSE

Connect AC input to the AC source. The "CHARGER ON" LED will light up, indicate input AC voltage presents. The "FLOAT" LED will also light up. The case shows that no current flows though the output and can be neglected. Press "GEL" for maintenance free battery or press "FLOODED" for wet battery.

Connect DC output to the battery. The "BULK" LED will light up. The battery begins to be charged up under current limited mode.

When the battery has been charged up to the voltage, which is equal to the output voltage, "BULK" LED will OFF and the "ABSORPTION" indicator will light up. The battery continues to be charged up with an output voltage 28.4 V for GEL or 29.9 V for FLOODED type battery..

When the battery has reached 90% of its capacity, "ABSORPTION" will OFF and "FLOAT" will light up. Battery is over 90% and continues to be charged with 27.2V constant voltage. The battery is ready to be used.

For the GPSC-024-20A, the cooling fan is thermal controlled. It will operate if the charger inside temperature is over 40°C. The battery temperature sensor interface is provided. User can choose the battery temperature sensor(option) to get maximum protection of battery. If the TEMPERATURE SENSOR has been connected, the "CHARGER ON" will be

OPERATION TIPS

For optimum performance, the battery charger should only be used in

- operation that meets the following requirements:
- Dry - do not allow water to drip or splash on the charger.
 - Cool - ambient air temperature should be between 0°C and 40°C, ideally between 15°C and 25°C.
 - Ventilation - at least 1 inch of clearance around the charger for air flow.

NOTICE

- Each output terminal of the charger is isolated. The total output current is equal to the maximum output of the model.
- The charger and the battery will not damage if you press GEL for wet battery or press FLOODED for maintenance free battery. However the SPECIAL FUNCTION: Charge gel battery with 28.4V or flooded battery with 29.6V will be void.
- It is advisable to disconnect the charger from the battery when it is not charge. Indication LED may light up when AC input is absent but output is connected to the battery.

CAUTION

- SAFETY- DO NOT USE THE CHARGER NEAR FLAMMABLE MATERIALS OR IN ANY LOCATION WHICH MAY ACCUMULATE FLAMMABLE FUMES OR GASES.**
- HOT SURFACE WHEN OPERATION, ESPECIALLY AT FULL LOAD CONDITION.**
- DO NOT CONNECT 24V CHARGER TO THE 12V BATTERY.**
- DO NOT REVERSE THE POLARITY OF THE CONNECTION OF THE BATTERY.**

PROTECTIONS

- | | |
|----------------------------------|---|
| a) Current limiting: | Current is limited by the max. output current. |
| b) Output short circuit: | Charger shutdown and restart when the problem is corrected. |
| c) Battery reverse polarity: | DC fuse break when harmful reverse current flows. |
| d) Input EMI filter and surge: | The AC input is surge protected. |
| e) Output loading with isolator: | Outputs are isolated to each other. |
| f) Input isolated: | Input and output are isolated. |

CABLE SELECTION GUIDE

Models	Suggested cable size
BC-024-10A	2 mm ²
BC-024-20A	4 mm ²

Note: Using cable which is thinner than suggested size will cause lower efficiency or the battery charging will be poor.

TROUBLE SHOOTING

Status	Possible cause	Suggest remedy
No DC output or charger can't startup	No AC input.	Check the AC power source.
	Over temperature shutdown.	Allow charger to cool down.
	Poor contact with battery terminal.	Check the connection between charger and battery.
Output short circuit.		
Battery charging not stable	too high or too low input voltage.	Keep input voltage within the acceptable input range.
	Press "GEL" when charge wet battery or press "FLOODED" when charge maintenance free battery.	Press correctly.
	Battery is poor.	Change new battery.
Battery cannot charge to "FLOAT".	Cable connected to battery is too thin.	Use cable which is suggested.
	Battery is poor.	Change new battery.

WARNING !!!

DANGEROUS HIGH VOLTAGE PRESENT.
DO NOT OPEN UNIT IF CONNECTED TO AC POWER SOURCE.