DC to DC
BATTERY CHARGER

Model No. GW-3212 20A
GW-3212 30A
GW-3212A 30A
GW-3212B 30A
GW-3212D 30A
GW-3212F 30A

User's Manual

GW-3212 DC to DC Battery Charger

Thank you for purchasing our DC to DC Battery Charger. Properly used, this product will provide years of reliable service. Please read this manual carefully, understand and comply with all instructions before use.

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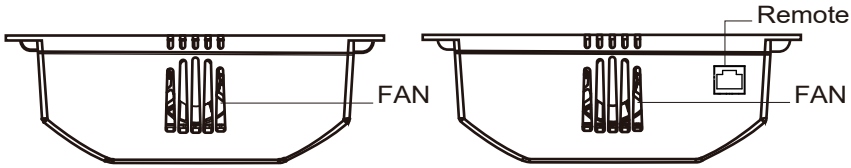
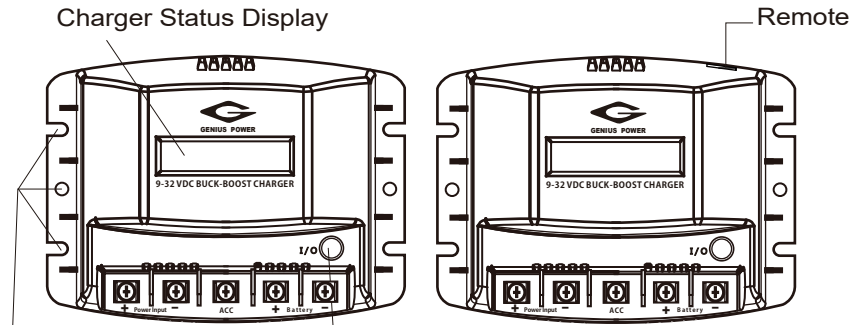
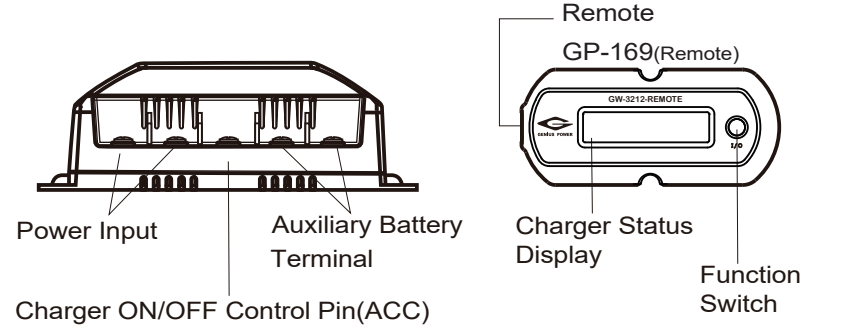
1.Overview



GW-3212B 30A Only



GW-3212B 30A Only



2. Specification

Mode No.			GW-3212 20A	GW-3212 30A	GW-3212A 30A	GW-3212B 30A
Power Input	Voltage Range		DC 9~32V			
	Current Range		DC 30A	DC 40A(max.)		
	Efficiency(%)		92%			
DC Output	Battery Charging Type		Lead acid	AGM		GEL
			Selectable			
	Charging Current Max.		20A	30A	5 / 10 / 15 / 20 / 30A Selectable	
	Charging Voltage		DC14.4V	DC14.7V		DC14.1V
	Floating Charging Voltage		DC13.3V	DC13.6V		DC13.1V
	Charging Mode	Step 1	Constant-Current			
		Step 2	Constant-Voltage			
		Step 3	Floating			
Protection	DC Input High Voltage		>32V			
	DC Input Low Voltage		<9V			
	DC Input Polarity Protection		YES(By Fuse)			
	DC Input Fuses		15A*2pcs	20A*2pcs		
	DC Output Short Protection		YES			
	Overtemp Protection		YES			
Input/ Output Terminal	Power Input(+)		Terminal block			
	Power Input(-)					
	ACC Input					
	Battery Connect (+)					
	Battery Connect (-)					
Display	LCD Display		Charging Information			
			Battery Voltage			
			Charging Current			
Remote Unit (GP-169)	LCD Display		NA			Charging Information
						Battery Voltage
						Charging Current
	Connector Type					RJ45
	Wire Length					10m Max.
Function Selection			By Switch			
Cooling			Temperature Controlled Fan			
Wire Connection			Terminal With M4 Screw			
Operating Temperature Range			–20°C~ 40°C / – 4°F~104°F			
Storage Temperature Range			–20°C ~ 65°C / – 4°F~149°F			
Dimension			180(W)*134(H)*60(D)mm			
Weight			385g			

2.1. Specification

Mode No.			GW-3212D 30A			
Power Input	Voltage Range		DC 9~32V			
	Current Range		DC 40A(max.)			
	Efficiency(%)		92%			
DC Output	Battery Charging Type		Lead acid	AGM	GEL	LiFePO4
			Selectable			
	Charging Current Max.		5 / 10 / 15 / 20 / 30A Selectable			
	Charging Voltage		DC14.4V	DC14.7V	DC14.1V	DC14.6V
	Floating Charging Voltage		DC13.3V	DC13.6V	DC13.1V	N/A
	Charging Mode	Step 1	Constant-Current			
		Step 2	Constant-Voltage			
		Step 3	Floating			N/A
Protection	DC Input High Voltage		>32V			
	DC Input Low Voltage		<9V			
	DC Input Polarity Protection		YES(By Fuse)			
	DC Input Fuses		20A*2pcs			
	DC Output Short Protection		YES			
	Overtemp Protection		YES			
Input/ Output Terminal	Power Input(+)		Terminal block			
	Power Input(-)					
	ACC Input					
	Battery Connect (+)					
	Battery Connect (-)					
Display	LCD Display		Charging Information			
			Battery Voltage			
			Charging Current			
Function Selection			By Switch			
Cooling			Temperature Controlled Fan			
Wire Connection			Terminal With M4 Screw			
Operating Temperature Range			–20°C~ 40°C / – 4°F~104°F			
Storage Temperature Range			–20°C ~ 65°C / – 4°F~149°F			
Dimension			180(W)*134(H)*60(D)mm			
Weight			385g			

2.2. Specification

Mode No.			GW-3212F 30A
Power Input	Voltage Range		DC 9~32V
	Current Range		DC 40A(max.)
	Efficiency(%)		92%
DC Output	Battery Charging Type		LiFePO4
			Selectable
	Charging Current Max.		5 / 10 / 15 / 20 / 30A Selectable
	Charging Voltage		DC14.6V
	Floating Charging Voltage		N/A
	Charging Mode	Step 1	Constant-Current
		Step 2	Constant-Voltage
		Step 3	N/A
Protection	DC Input High Voltage		>32V
	DC Input Low Voltage		<9V
	DC Input Polarity Protection		YES(By Fuse)
	DC Input Fuses		20A*2pcs
	DC Output Short Protection		YES
	Overtemp Protection		YES
Input/ Output Terminal	Power Input(+)		Terminal block
	Power Input(-)		
	ACC Input		
	Battery Connect (+)		
	Battery Connect (-)		
Display	LCD Display		Charging Information
			Battery Voltage
			Charging Current
Function Selection			By Switch
Cooling			Temperature Controlled Fan
Wire Connection			Terminal With M4 Screw
Operating Temperature Range			–20°C~ 40°C / – 4°F~104°F
Storage Temperature Range			–20°C ~ 65°C / – 4°F~149°F
Dimension			180(W)*134(H)*60(D)mm
Weight			385g

3. Recommendation of Lead Acid Battery Capacity

Charging Current	Auxiliary DC12V Battery Capacity (Min.)
5A	20AH
10A	40AH
15A	60AH
20A	80AH
30A	120AH
No exceed charging current 0.25C to maximize the battery life	

Attention :

1.Auxiliary battery capacity : it recommends 4 times of max. charging current. According to battery manufacturer, it can maximize the battery life span if to charge battery with current less than 0.25C.

e.g. 1C = the battery capacity

1C = DC12V / 80AH, 0.25C = 20A

2.Please charge the battery at least once every 3 months

3.Battery voltage checking:

Battery Voltage	Battery Status
>DC13V	Battery is full
<DC12.4V	need to recharge battery

Remark: Above DC13V is just a reference, please check the specifications provided by the battery supplier for exact data.

4.Auxiliary battery: Only apply to 12V battery. It will cause the battery charger damage if use different voltage battery.

4.Safety Instructions and Warnings

The Charger should be installed in a location that meets the following requirements.

1.Dry- Do not allow water to drip or splash on the charger

2.Cool- Ambient air temperature should be between 0 and 40°C, the cooler the better.

3.Safe- Do not install in a battery compartment or other areas where flammable fumes may exist, such as fuel storage areas or engine compartments.

4.Ventilated- Allow at least one inch of clearance around the charger for air flow.
Ensure the ventilation openings on the rear and front of the unit are not obstructed.

5.Dust- Do not install the charger in a dusty environments where are dust, wood particles or other filings/ shavings are present. These dust can be pulled into the unit when the cooling fan is operating.

6.Close to batteries- Avoid excessive cable lengths but do not install the charger in the same compartment as batteries.
Your cables should be as short as possible enough to handle the required current in accordance with the electrical codes or regulation application.

Also do not mount the charger where it will be exposed to the gases produced by the battery.
These gases are very corrosive and prolonged exposure also will damage the charger.

WARNING!

Shock Hazard. Before proceeding further, carefully check that the charger is NOT connected to any batteries, and that all wiring is disconnected from any electrical sources.
Make sure all the wire connection are tight.
Loose connections could result overheat in a potential hazard.
Do not open or disassemble the charger.
Attempting to service the unit yourself may result in a risk of electrical shock or fire.

5. Maintenance

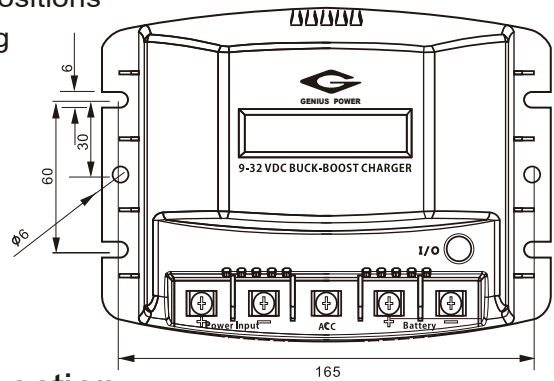
Very little maintenance is required to keep your charger operating properly.
You should clean the exterior of the unit periodically with a damp cloth to prevent accumulation of dust and dirt.
At the same time, tighten the screws on the power input , battery and ACC terminals.

6. Mounting The Charger

6-1.For installing in a car or boat environment, the charger should be mounted vertically. This provides the best thermal performance and drip protection.

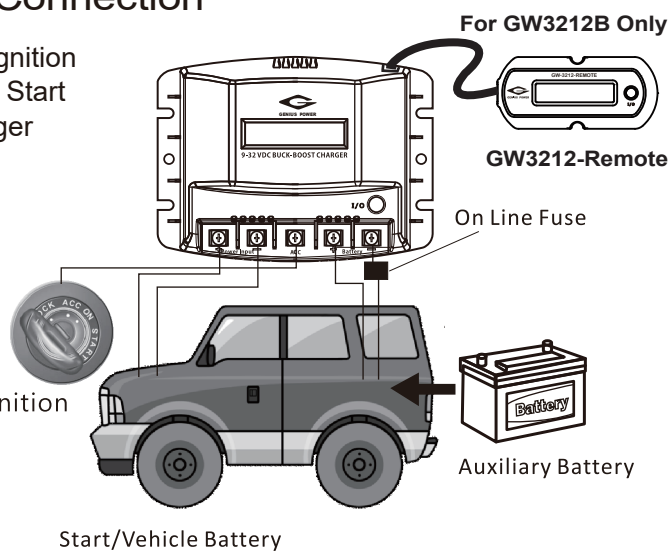
6-2.Use the base of the charger as a mounting template to mark the positions of the fixing screws.

Unit: mm



7. Wire Connection

Use Car Ignition Switch To Start The Charger



Caution:Please pay attention to polarity while connect wire.
Wrong connection will cause the product damage.

Operation:

1.Wire ACC and Vehicle Ignition Switch

2.Use Start / Vehicle battery to charge the Auxiliary Battery via Vehicle Ignition Switch.

The battery charger is powered when Ignition Switch turn to "ON" and start to charge battery.

The battery charger stop charging when Ignition Switch turn to "LOCK", and insulate the Start/Vehicle battery for power saving.

8. Display During Operation

8.1 For GW-3212 20A / GW-3212 30A/ GW-3212(A)(B)(D) 30A

Step 1:

When the charger power up, the back light on.

Step 2:

Understanding the display information:

When detect Input and Battery Voltage, it shows:

BATTERY TESTING

If input voltage is out of range, it shows:

VI : ERROR

If Aux. battery voltage is out of range, it shows:

WRONG BATTERY

Please refer to Step 3 if Input Voltage & Battery Voltage operate normally

Step 3:

* When Battery Charging Start, display is showing as below:

LEAD ACID MODE
Vb: 14.4V I:20.0A

LEAD ACID MODE
Vb: 14.4V I:30.0A

"LEAD ACID MODE" : Charging Lead Acid Battery

"Vb: 14.4V" : Battery Voltage

"I:20.0A", "I:30.0A" : Battery Charging Current

* Battery Charging Stop or Change Charging Mode:

3-1. Press the Function Switch for 3 seconds in charging mode, buzzer sounds and gets into stand-by mode.

READY TO CHARGE
LEAD ACID MODE

3-2. Press 2 times consecutively the Function Switch in stand-by status to change the charging mode.

Charging Lead Acid Battery (Default)

Charging Voltage: DC14.4V

Floating Charging Voltage: DC13.3V

READY TO CHARGE
LEAD ACID MODE

Charging AGM Battery

Charging Voltage: DC14.7V

Floating Charging Voltage: DC13.6V

READY TO CHARGE
AGM MODE

Charging GEL Battery

Charging Voltage: DC14.1V

Floating Charging Voltage: DC13.1V

READY TO CHARGE
GEL MODE

3-3. Press the Function Switch for 3 seconds in stand-by mode, buzzer sounds and move back to Charging mode, the setting will be recorded as default for next charging.

Step 4:

* Battery Charging Finish

4-1-1. While display shows Vb (Battery Voltage) consecutively same as voltage as following, it means battery charger is in floating mode and battery is fully charged.

LiFePO4 MODE: Vb:14.6V

LEAD ACID MODE: Vb:13.3V

AGM MODE: Vb:13.6V

GEL MODE: Vb:13.1V

LiFePO4 MODE
Vb: 14.6V I:0.0A

LEAD ACID MODE
Vb: 13.3V I:01.0A

AGM MODE
Vb: 13.6V I:01.0A

GEL MODE
Vb: 13.1V I:01.0A

* Battery Voltage Display Function

4-2-1. It gets into Sleep Mode when the Ignition Switch off but battery is connected.

4-2-2. Display shows Battery Voltage if to press the Function Switch in Sleep Mode

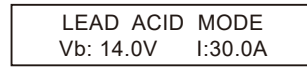
AUX BATT LiFePO4 14.6V
OTHERS: 13V

4-2-3. It moves back to Sleep Mode again after 10 seconds.

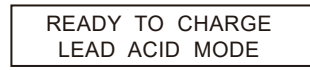
4-2-4. Press the Function Switch in Sleep Mode and battery voltage is less than 10.5V, buzzer sounds for 10 seconds, then moves back to Sleep Mode again.

8.2 For GW-3212A-30A / GW-3212B-30A / GP-169 (Remote) /
GW-3212D-30A

Step 1: When battery in charging, display shows:

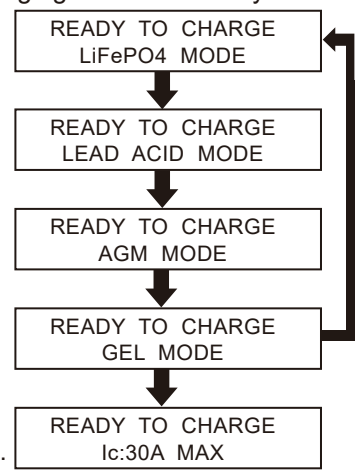


Press the Function Switch continuously for 3 seconds, then release the Function Switch after buzzer sound, it stops charging and gets into the voltage setting mode.
display shows:



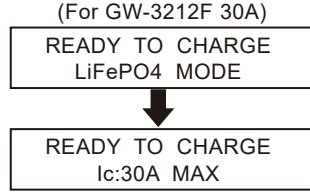
Step 2:
Press 2 times consecutively the Function Switch under the voltage setting mode, it can switch three battery charging modes circularly.

* if LiFePO4 battery, display shows:
* if Lead Acid battery, display shows:
* if AGM battery, display shows:
* if GEL battery, display shows:



Press the Function Switch for 3 seconds once the battery charging mode selection is completed, and release the Function Switch after buzzer sounds.Then the setting is saved.

(For GW-3212F 30A)



Step 3:
Press 2 times consecutively the Function Switch under the current setting mode,it can switch between five max. charging currents circularly.

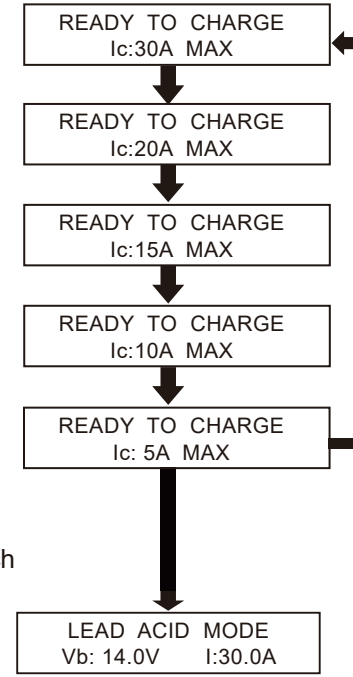
* if 30A, it shows:

* if 20A, it shows:

* if 15A, it shows:

* if 10A, it shows:

* if 5A, it shows:



Press the Function Switch for 3 seconds once the charging current selection is completed,and release the Function Switch after buzzer sounds.
It starts charging, and display shows:

9. The Error Code

(See table description below for more information)

The Display Code	Description	How buzzer operate
V I : ERROR	Input voltage error	Continuous Alarm
WRONG BATTERY	Low Battery Voltage	a short beep
WRONG BATTERY	High Battery Voltage	two short beeps
NO BATTERY	Battery disconnection	a short beep
TEMP . ERROR	Temp deviant	three short beeps

10. Troubleshooting

Problem	Buzzer	Possible Cause	Solution
No Charging (no display)	No beep	Low input voltage	Check voltage & current
		Input fuse burned	Please change by the experienced engineer
		Wrong wire connection	Check connection and wires
No Charging (with display)	Long beep	Input voltage deviant	Check voltage & current
	1 short beep	Battery is not connected	Check if poor wiring
	1 short beep	Low battery voltage	Check if poor battery condition or wrong voltage
	2 short beeps	High battery voltage	Check if wrong voltage
No charging after prolonged use	3 short beeps	Over temperature	Improve ventilation Reduce ambient temperature