

NGBC1222

Operation Guide

Thank You for purchasing another quality GSL Product. This microprocessor controlled booster charger has been designed to overcome the limitations of most auxiliary battery charging systems.

The NGBC1222 is a next generation full 3 stage 22Amp charger which will operate from voltages as low as 11.5V up to 15.5V whilst still providing optimal charge to a variety of lead acid and lithium battery chemistries. Rich in features this unit incorporates revolutionary new concepts in battery charging and is available in two different feature levels NGBC1222-1 and NGBC1222-2.

Features for NGBC1222-1 and NGBC1222-2:

- Constant output power limiting - Giving you more charging current when auxiliary battery is low (Up to 25A Output)
- Automatic voltage drop compensation - calculates and overcomes voltage drop on long wire runs.
- Polymer Encapsulation - Enhanced resistance to weather, dust and in a convection cooled aluminium construction.
- High operating temperatures - Safely work up to 70°C. Full power output to 45°C with gradual power de-rating to 70°C.

NGBC1222-2 Only Features:

- Thermal Compensation - Via external LM series sensor (For lead based chemistries only)
- Automatic Start Assist - Using a solenoid the unit will automatically detect a flat Main battery and will automatically attempt to jump-start from the auxiliary battery.



Ensure when fitting the unit to the vehicle that all directions in this manual are followed and the Chemistry (ORANGE) wire is set according to your specific auxiliary battery type.

The smaller RED and BLACK wires supplied in the harness must only be connected to the Thermal Sensor ONLY. Do Not connect these wires to the larger RED and BLACK wires or any other power source. This will damage your unit.

Operational Parameters	
Maximum Current at Bulk Charge	22Amps
Input Operating Voltage Range	11.5V to 15.5Volts
Maximum Charge Voltage for Flooded Cell (LEAD ACID)	14.6Volts
Maximum Charge Voltage for Lithium	14.4Volts
Maximum Charge Voltage for AGM/GEL	14.2Volts
Float Voltage	13.5Volts
Lithium Maintenance Charge	13.9V
Standby Current	0.003A
Maximum Charge Current With Low Auxiliary	25A
Maximum Operating Temperature	70°C
Automatic Derating Above 45°C	0.7A/°C
Temperature Compensation	0.25%/°C
Dimensions	162mm(L) x 71.5mm(W) x 32.2mm(H)
Weight	560g

Notes:

- Before installation the user shall determine the suitability of the product to ensure correct application.
- Check with your battery manufacturer for the suitability of the charger for your installation.
- Where Lithium battery banks are involved ensure your BMS system is compatible with our charger.
- A large spark can sometimes be generated during connection, due to the current required to charge the capacitors in the charger.
- Do not short output when enabled and operational as this may cause damage to the unit.

The following connection sequence is to be followed: Ground (BLACK), Input (RED), Output (BROWN), Chemistry (ORANGE) & Control (BLUE).

1. Disconnect the battery supply.
2. Choose a mounting position - Select a position with good ventilation where air can pass freely around the unit.
3. Avoid locations such as fuel lines or where external heat is produced e.g. exhaust system or where the batteries are located.
4. Ensure that unit is installed away from any flammable fumes, liquids or materials.

LED Indicators Guide

The remote LED indicator can be installed where it will provide a simple visual indication of the system status.

The LED anode (+) should be connected to the **YELLOW** wire and the cathode (-) to the vehicle chassis or the battery negative.

ON : Auxiliary battery charging

Flashing : Auxiliary battery charging at low voltage

Blinking : Automatic Start Assist operated. This is a latched alarm indicating that there is a serious issue with the main battery or cabling. Please check your main battery for issues. Refer to Automatic Start Assist section for more information.

To reset from latched alarm: the ignition is required to be turned off and on.

OFF: Unit not working or not in operation.

Fig. 1 BASIC SETUP

Choose a cable size suitable for your situation.

We recommend 6mm² cable to be used up to 10M for **RED, BLACK & BROWN**.

Over 10M a larger diameter cable must be used.

⚠ Important: BLACK/Earth must be securely connected to permanent earth e.g vehicle body

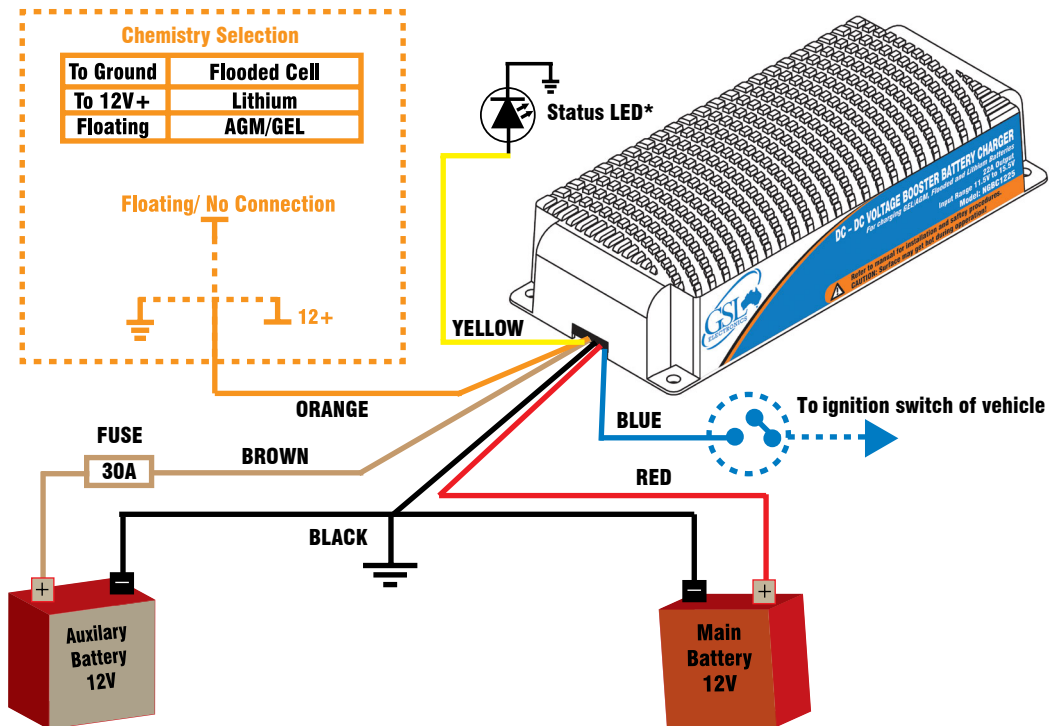


Fig. 2 REMOTE SETUP
(Where ignition source is not available at installation)

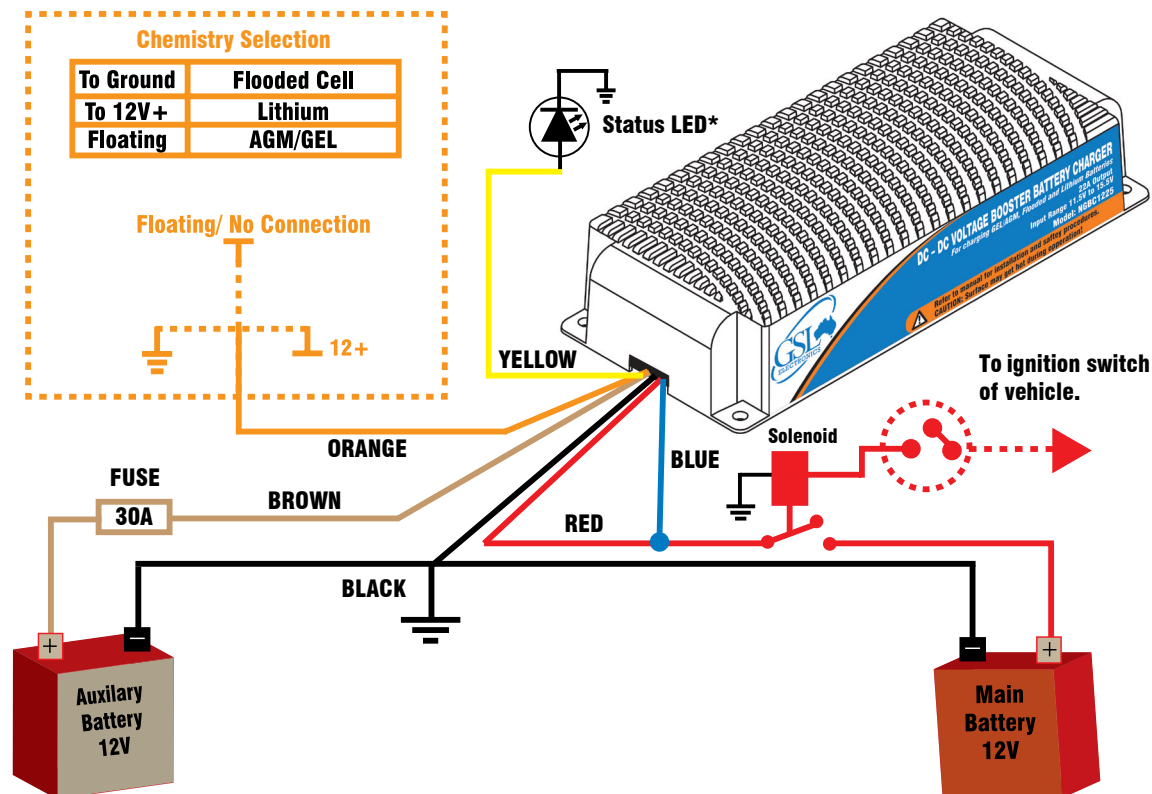
Choose a cable size suitable for your situation.

We recommend 6mm² cable to be used up to 10M for **RED, BLACK & BROWN**.

Over 10M a larger diameter cable must be used.

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Solenoid or Relay must be capable of switching at least 30A DC.



NGBC1222-2 Features

Automatic Start Assist:

This optional extra enables the automatic use of the energy stored in the auxiliary battery to start a vehicle with a faulty or discharged main battery.

When using this option a high current solenoid is activated for approx. 30 seconds following an ignition attempt where the main battery drops below 7V.

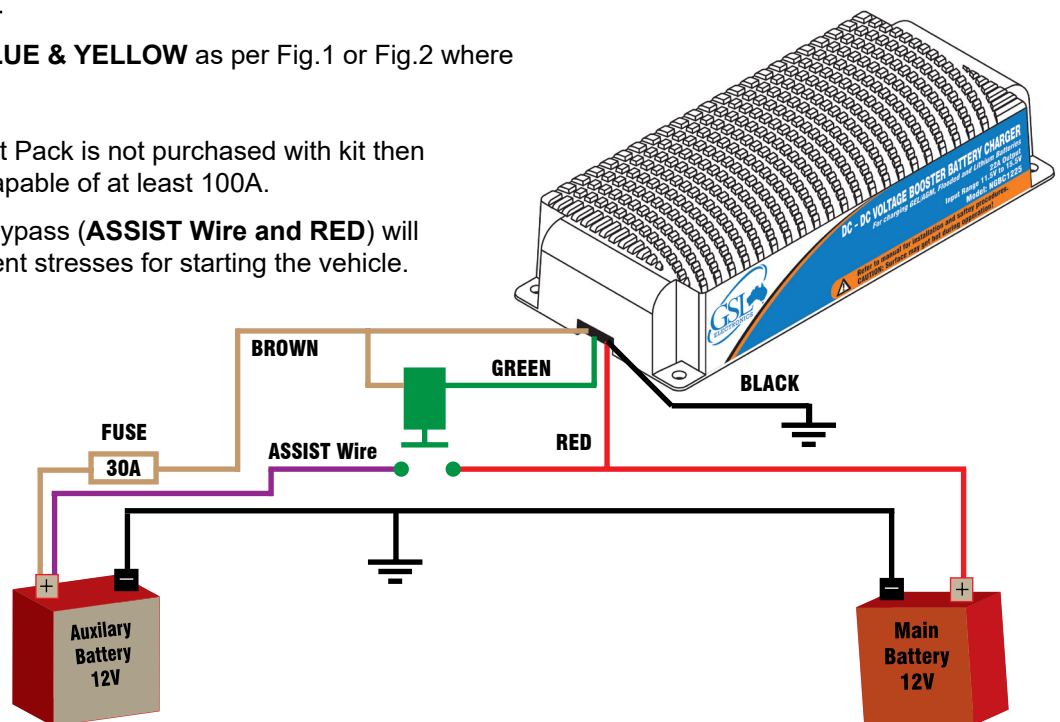
Once activated the led indicator will start flashing, to indicate a possible fault with the main battery or alternator, and no auxiliary battery charge will take place, to insure the main battery is replenished as soon as possible, until the next ignition attempt.

Fig. 3 Automatic Start Assist

Follow connections for **ORANGE, BLUE & YELLOW** as per Fig.1 or Fig.2 where applicable.

⚠ Important: If Optional Start Assist Pack is not purchased with kit then make sure that the solenoid is capable of at least 100A.

Cabling used in the start assist bypass (**ASSIST Wire and RED**) will need to be suitable for high current stresses for starting the vehicle.



Temperature Compensation : *(This feature is for lead based chemistries only.)*

Temperature compensation of the battery charging voltage extends the battery life and improves the charging process. Fixed charging voltage can result in either undercharging the battery at low temperatures or overcharging it at high temperatures.

The NGBC1222-2 applies a small negative coefficient to the programmed voltage (Approx. $-5\text{mV}/^{\circ}\text{C}$) to compensate for the variation of the battery operating temperature.

Attach supplied Thermal sensor to the smaller Black and Red wires (Not the Main and Auxiliary wires) and mount the sensor near the battery to measure ambient temperatures at the charging/auxiliary battery

If the temperature compensation is not required then simply cut the wire to the thermal sensor and isolate and tape up wires to avoid abnormal charging.

Warranty Conditions: Our products come with guarantees that cannot be excluded under the Australian Consumer Law.

The customer is entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage.

The customer is also entitled to have the products repaired or replaced if the products fail to be of acceptable quality and the failure does not amount to a major failure.

GSL Electronics (GSL) warrants that its products will, under normal use and service, be free of defects in material and workmanship for a period of two (2) years from the date of the original purchase by the customer as marked on the customer's original invoice.

Please refer to our website for full warranty and return information which can be found at <http://www.gsl.com.au/faq.html>