



DCC Contactor V1.2

Bi-directional DC Contactor
DC 100V, Up to 600A



Thanks for your purchasing the DC contactor.

Read the ENTIRE instruction manual to become familiar with the features/functions of the device before operating.

Feel free to send an email to jasonwang3a@163.com or call at 86 755 2643 6165 should you have any questions and suggestions.

Jason Wang

Features

The DC contactor is designed special work with CHARGERY BMS', the following are some features:

- Bi-directional connection, one DCC can be used in a Common port such as a Solar system, instead of two SSR's (Solid State Relays) or conventional relays.
- The DCC has a Built-in the surge suppressing circuit, thereby eliminating the need for the additional Relay Delay Time board which is used to avoid a surge current when starting to charge or discharge. For other SSR's or mechanical relay, please consider the surge current potentials seriously and make a suitable plan for using a delay board as applicable.
- Over temperature protection. If internal temperatures over heat, the contactor will shut off.
- 1 Intelligent cooling fans turned on automatically
- Approved by CE
- 12 months warranty

Application

- Home application such as Energy Storage Systems.
- Electric drive vehicles

Main Specification

| DC Contactor (DCC) model | DCC-100HB | DCC-200HB | DCC-300HB | DCC-600HB |
|--|----------------|-----------|-----------|------------|
| Driving voltage | 12V | | | |
| Holding current (Avg.) at 12V | 9mA | 11mA | 11mA | 11mA |
| Rated Operating Voltage | 100V | | | |
| Continuous (Carry) Current, Typical | 100A | 200A | 300A | 600A |
| Maximum current, at 85°C for 2 seconds | 200A | 300A | 500A | 1000A |
| Maximum Contact voltage drop at 100A | 200mV | 136mV | 80mV | 40mV |
| Fan start Temperature | | >42°C | >42°C | >42°C |
| Over temperature protection---- Turn off temperature | | >90°C | >90°C | >90°C |
| Turn on temperature automatically | | <80°C | <80°C | <80°C |
| Current mode | bi-directional | | | |
| Size(L*W*H, mm) | 105*55*40 | 105*64*55 | 105*90*55 | 142*105*55 |
| Weight(Kg) | 0.3 | 0.45 | 0.7 | 1.2 |
| Operating Ambient Temperature | -40 to +85 °C | | | |
| Cold pressing copper tube terminal | 10-6 | 25-6 | 50-8 | |
| Screws | M6*16 | | M8*20 | |
| Wire Area(mm ²) requirements | 18 | 30 | 50 | 70 |
| Ambient Temperature | -10--45°C | | | |
| Ambient Humidity | 5%--95% | | | |
| Storage Temp. | -20°C--70°C | | | |
| Storage Humidity | 30%--90% | | | |

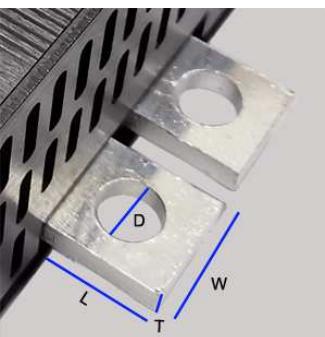


| | |
|------------------|---|
| Status Indicator | Red LED is ON at DCC closed, and OFF at DCC open. |
| Power Indicator | Red LED is ON, The unit is ON. Red LED is OFF, means BMS has cut off charge and/or discharge, or if High/Low temperature protection has been triggered, or Temperature sensor is disconnected from the BMS. |

Chargery DCC installation details.

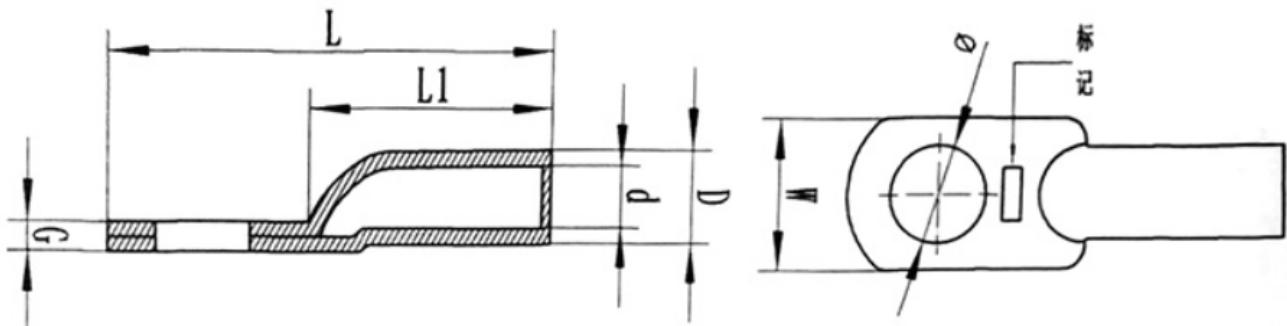
Warning:

- When installing Lugs, DO NOT Allow the lugs to make contact with the DCC Casing.
- Do not allow the lugs to touch each other & short out.
- The CHARGERY DCC should be installed on the battery positive, The ISO board should be between the DCC & BMS. The Shunt must be installed on battery negative.
- Ensure that there is Free Airflow to & from the vents on the DCC to prevent overheating.

| | DCC MODEL /Terminal size | L/mm | W/mm | T/mm | D/mm | Bolt Size |
|---|--|------|------|------|------|-----------|
|  | DCC-100HB | 25 | 18 | 3 | 7 | M6 - 1/4 |
| | DCC-200HB | 25 | 18 | 3 | 7 | M6 - 1/4 |
| | DCC-300HB | 30 | 18 | 5 | 9 | M8 - 5/16 |
| | DCC-600HB | 30 | 18 | 5 | 9 | M8 - 5/16 |
|  |  | | | | | |
| DCC-100HB, 100A | DCC-200HB, 200A | | | | | |
|  |  | | | | | |
| DCC-300HB, 300A | DCC-600HB, 600A | | | | | |
|  |  | | | | | |
| DCC-600HB, 600A | BMS8T is connected to DCC-600HB | | | | | |

Cold pressing copper tube lugs Specifications

These lugs will be delivered with DCC



| DCC model | DCC-100HB | DCC-200HB | DCC-300HB | DCC-600HB |
|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|------------------------------------|
| Terminal Model | 10-6 | 25-6 | 50-8 | |
| D \pm 0.2mm | 8 | 10 | 13 | |
| d \pm 0.2mm | 5.6 | 7.3 | 10 | |
| G\pm0.3mm | 2.5 | 2.8 | 3 | |
| L \pm 1.5mm | 38 | 45 | 54 | |
| L1 \pm 1mm | 21 | 25 | 30 | |
| W \pm 1mm | 12 | 14 | 19 | |
| \varnothing \pm 0.5mm | 6.5 | 6.5 | 8.5 | |
| Cable AWG | AWG5 (16.8mm ²) | AWG2 (33.6mm ²) | AWG1/0 = 0 (53.5mm ²) | AWG2/0 = 00 (67.5mm ²) |



Chargery DC Contactor (DCC) Operation Instructions

1. Connect all device according to manual. But keep all device turn off, including inverter/charger and DCC.
2. Connect Battery positive to DCC then connect to charger positive/ load positive, if possible install a fuse between DCC and battery positive.
3. Connect charger negative/load negative to shunt (the shunt must be installed between battery negative and charger/inverter, and the shunt should be placed as close to battery as possible.), the charger and / or loader/inverter can monitor battery voltage if these device is with LCD (actual value is lower than battery voltage), but cannot charge or discharge because of the pre-charge circuit.
4. Turn off DCC, connect BMS to ISO board, two LEDs (charge LED and discharge LED) will be on if there is not any warnings trigger on BMS, then connect ISO board to DCC. No charge current or discharge current flow DCC, even BMS has not any warning.
5. Turn on DCC, The power LED and STATUS LED will be on, if there is warning trigger, the Status LED is off. At the same time, one or both LED on ISO board will be OFF, the LED on ISO board can indicate charge or discharge is cutting off.
6. Turn on charger, charge current flow DCC, if over charge triggered, the charge LED on ISO board and Status LED on DCC will be off.
7. Or turn on loader/inverter, discharge current flow DCC, if over discharge/cell voltage difference/ SOC /temperature protection etc triggered, the discharge cut off. The discharge LED on ISO board and Status LED on DCC will be off.

WARNING

DCC must be turned on finally. Otherwise the surge current may blow FUSE or other device.

Chargery DC Contactor (DCC) configuration

Common and Separate Port

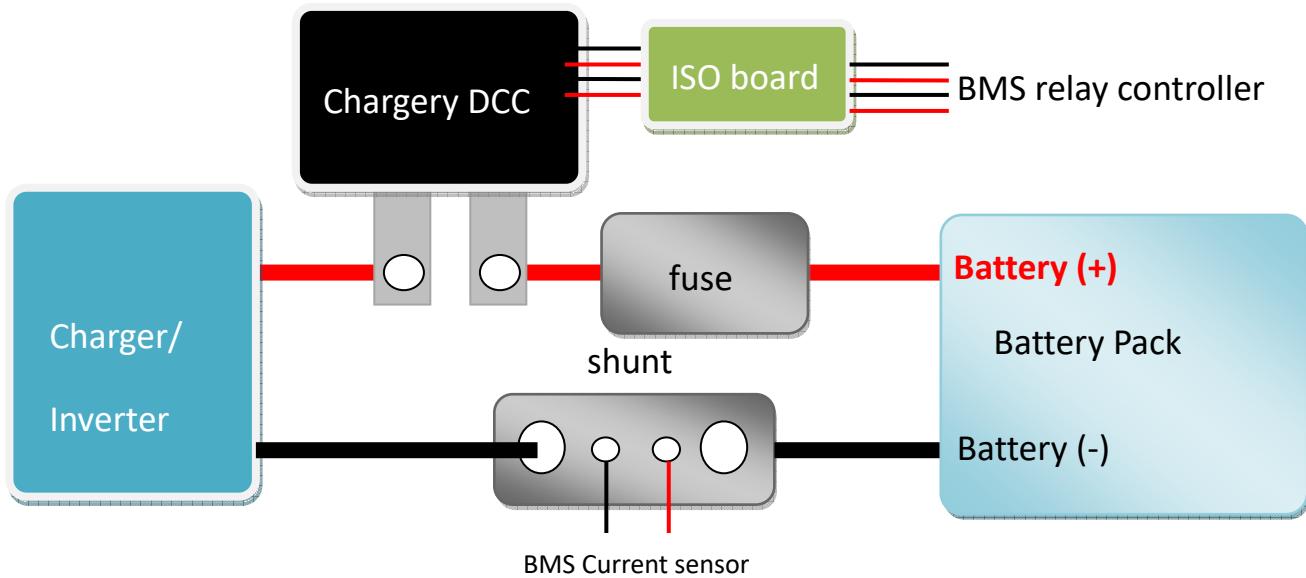
CHARGERY DCC should be installed on the battery positive (**must fit with ISO board**). It has the following advantage:

- Lower holding current (under 11mA for 600A DC Contactor), save more battery energy.
- Bi-directional allows it to be used in common port and separate port configurations.
- Nothing extra is needed to have both charge and discharge control signals to control one DCC in common port application.
- The Relay Delay Time Board Even is not needed to avoid surge current, as it is built-in.

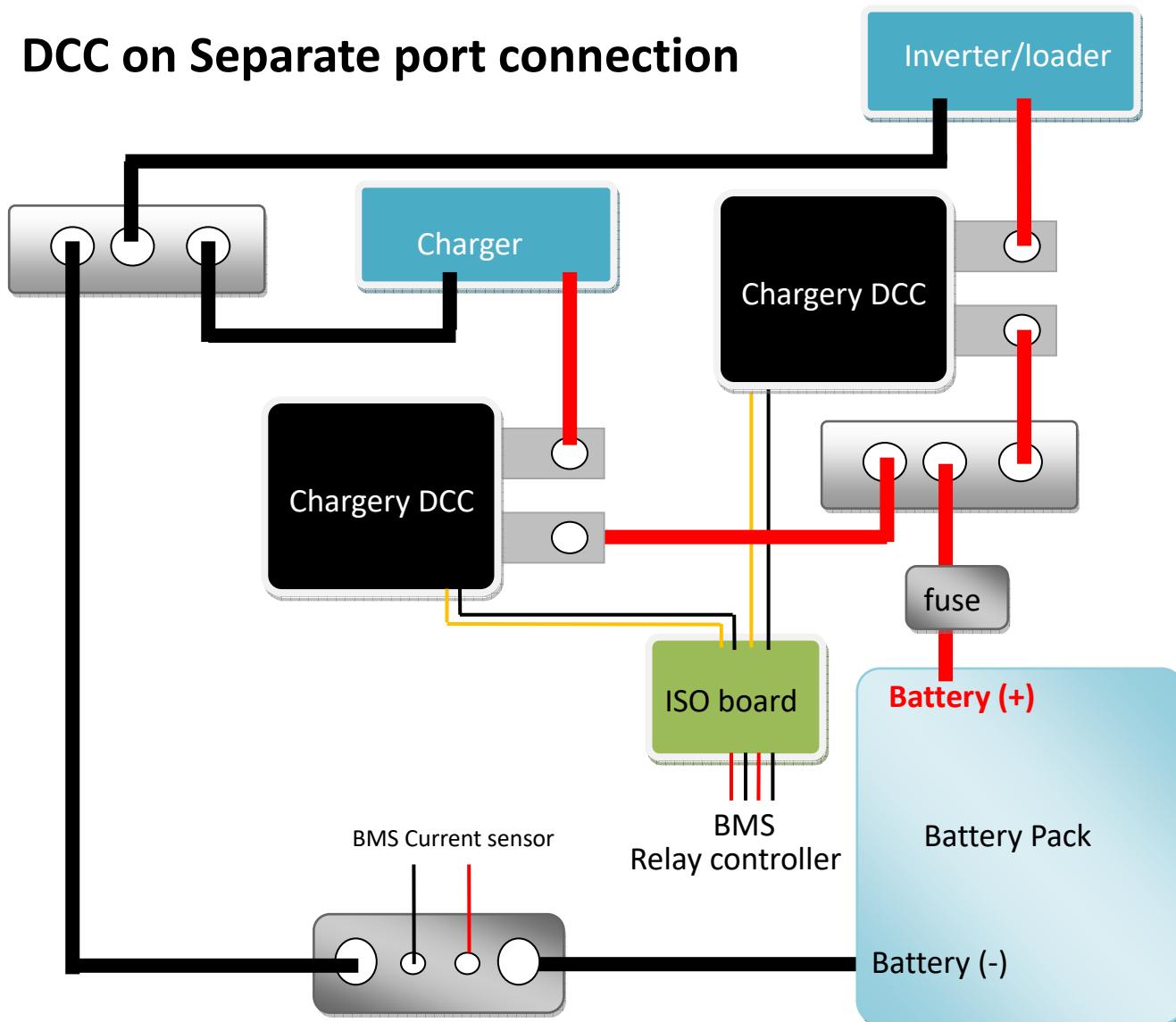
Compare with SSR (Solid State Relay), the Chargery DCC is bi-directional and can handle up to 600A current at 100V DC. **ONE** Chargery bi-directional DCC can be used in common port, and receive both HV and LV cut off signal. If not using the Chargery DCC, you would require two SSR's or two relays, which would increase power consumption and have a higher cost.

The Chargery DCC installation diagram is as below.

DCC on Common port connection

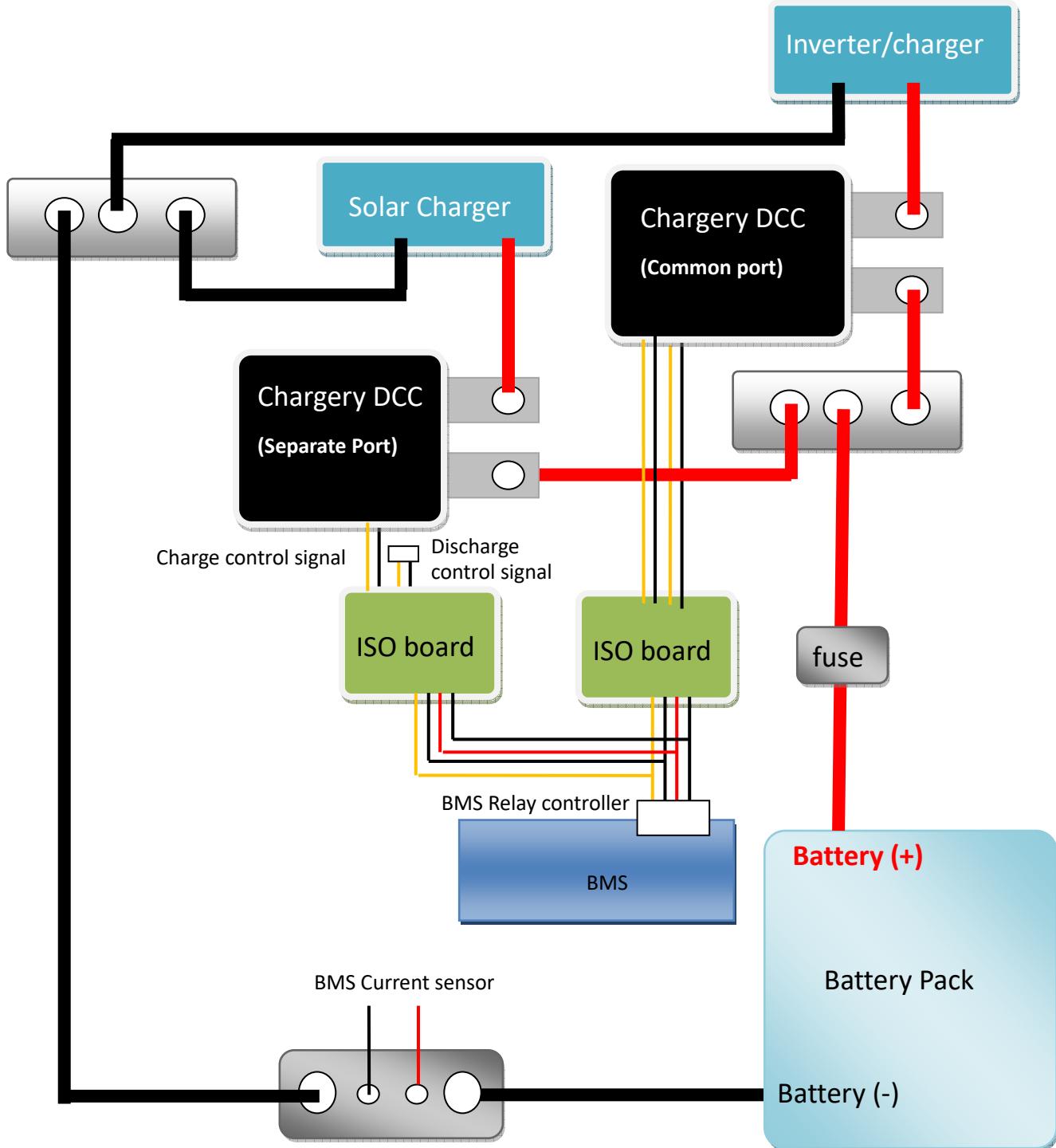


DCC on Separate port connection



DCC on Separate and common port connection

Inverter as load and charger, Solar panel charge battery too



ISO board

The board is designed special for DCC, as we know the DCC install on the positive side is better and more safe than install on negative, so we designed the board.

The board should connect between BMS relay controller port and DCC. There are two LEDs, one indicate charge control signal, another indicate discharge control signal. As below.

When over charge triggered, BMS cut off charging, the charge LED on ISO board and Status LED on DCC will be off.

When over discharge triggered, BMS cut off discharging, the discharge LED on ISO board and Status LED on DCC will be off.



Alternator Saver

The alternator on a car or boat needs 12V or 24V in order to magnetise the field on the alternator. Without that it will produce no current at all. Regulating this current is used in the internal regulation on an alternator to regulate the output of the alternator. The same capability is used on external regulators as Balmar or Grassder Smart Charge one or Sterling ProReg-D. When the batteries have reached floating level they will send less current through the magnetising field of the alternator in order to limit the output.

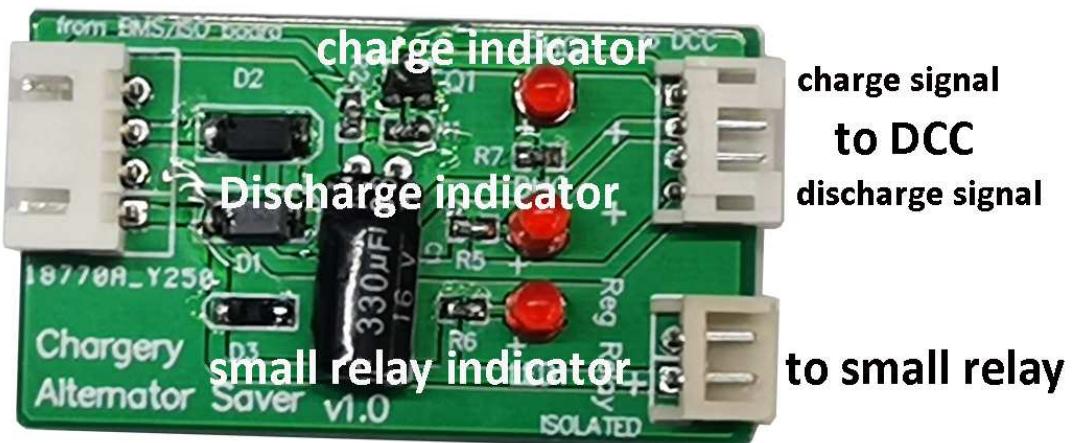
When BMS cut off charging by "open" DCC or relay directly, this will burn the diodes in the alternator.

The Alternator saver can switch off the magnetising current to the field of the alternator just 3 seconds before the contactor switch off, so protect the diodes of the alternator.

A small isolated relay cutting the power to the magnetising field could do the trick, the relay will be "open" first by the Saver board before DCC cut off charging.

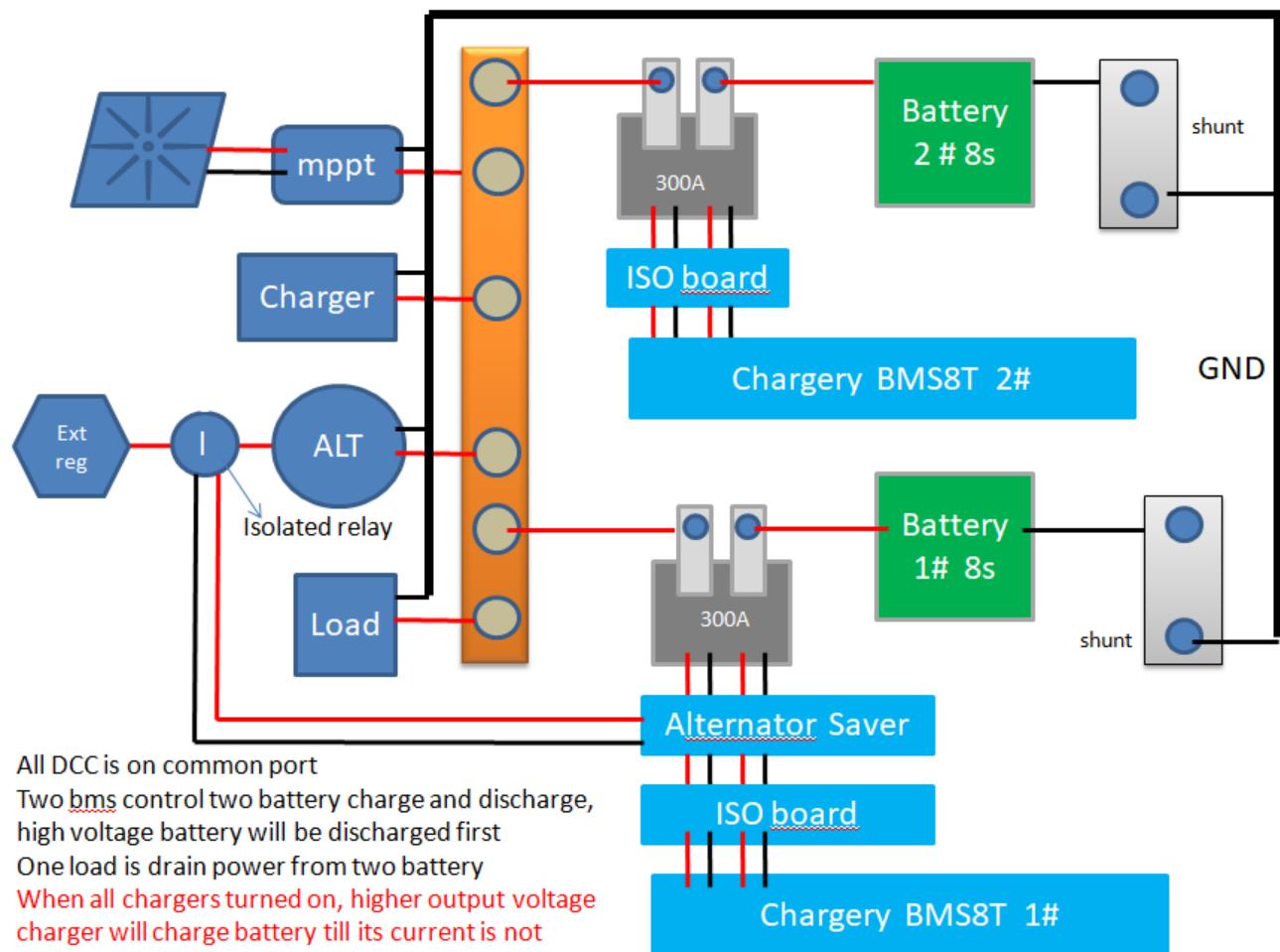
The feature could be useful for many boaters and others who charges with alternators.

to ISO Board

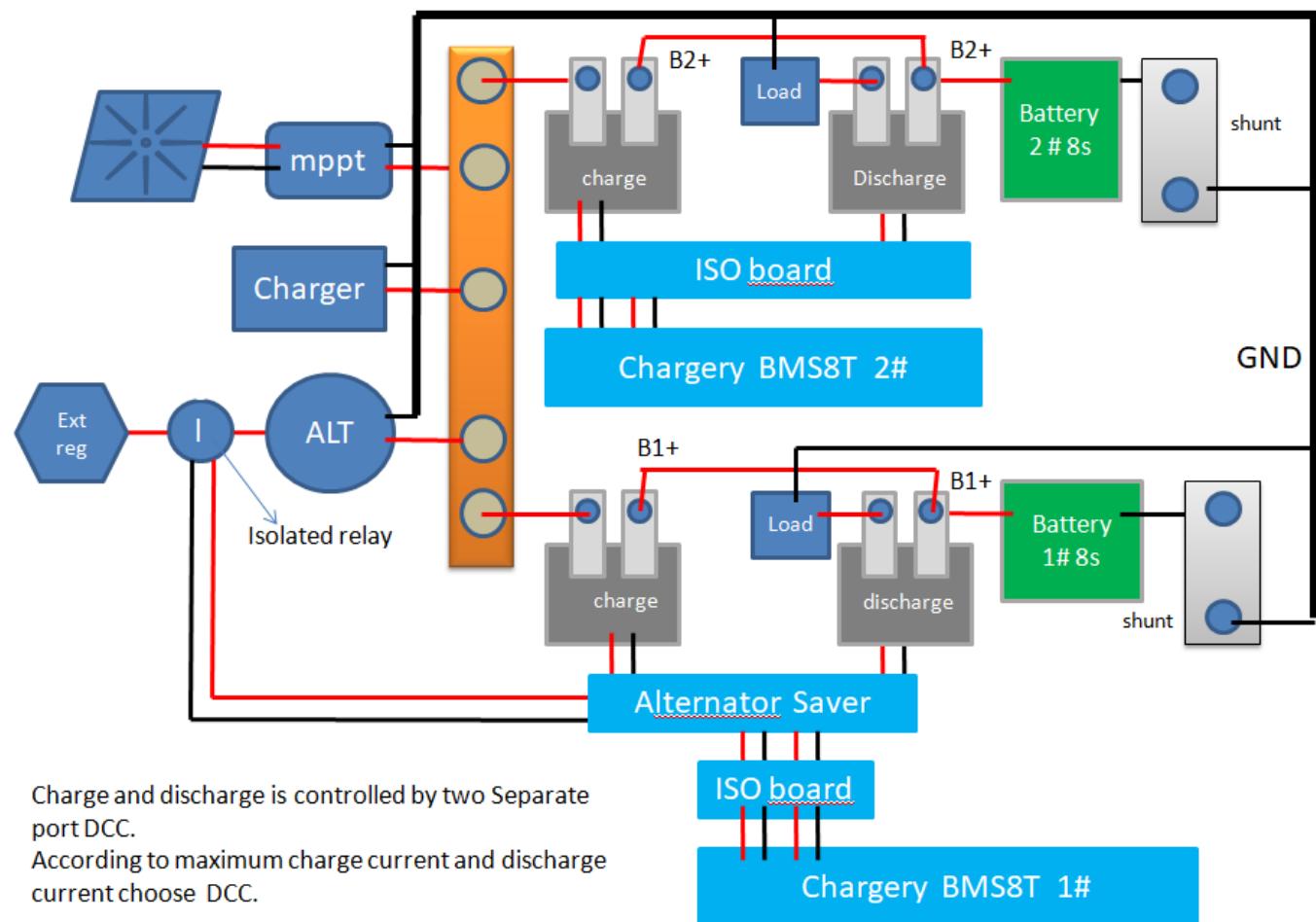


when any cell voltage reach OVP setting, BMS signal cut off small relay (cut off magnetising current to the field of the alternator)
 3 seconds later, cut off DCC (disconnet charging current from Alternator)

Common port DCC connection diagram with 2 8S batteries.



Separate port DCC connection diagram with 2 8S batteries.



Packaging Information

- DCC base unit: 1pcs
- Connection wire: 2pcs
- ISO board: 1pcs
- Lugs: 2 pcs
- Screws: 2 pcs



The connection wire connect BMS to ISO board or connect ISO board to one DCC on common port.

The connection wire connect ISO board to two DCC on separate port. Please identify the charge and discharge control signal.



Warranty and Service

Chargery Power Co., Ltd. as manufacturer of R/C, E-Vehicle and UAV power warrants DCC to be free of defects in material and workmanship. This warranty is effective for **12** months from date of purchase. If within the warranty period the customer is not satisfied with the products performance resulting from a manufacturing defect, the accessory will be replaced or repaired. This warranty does not cover the damage due to wear, misuse, incompetent handling or using of incorrect accessories.



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