

PROJECTA – MCU BATTERY CHARGER

OPERATING INSTRUCTIONS

Part No. MC121045C

FOR CALCIUM BATTERIES

CAUTION

There is always some risk of battery explosion but if you follow the Operating Instructions, the risk will be minimised.

1. For charging 12 Volt (6 cell) Calcium, and Lead Calcium batteries between 17Ah (approx. 165CCA) and 80Ah (approx 650CCA).
2. This charger is not recommended to charge normal Lead acid (lead-lead) batteries.
3. Do not attempt to charge non-rechargeable batteries.
4. During charging the battery must be placed in a well-ventilated area.
5. For indoor use, do not expose to rain.
6. Always switch off power before connecting or disconnecting the Battery Charger.
7. Never smoke, strike a match, cause a spark or allow conductive materials in the vicinity of the battery during charging.
8. This appliance is not intended for use by young children or infirm persons without supervision.
9. The battery charger should be used and stored in an appropriate place to prevent misuse or accidents.
10. Never charge a frozen battery.
11. Do not operate the charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Ensure it is checked or repaired by a qualified appliance repair centre before further use.
12. Do not operate 12V appliances from any battery that is being charged or maintained (Float) by the charger.

FEATURES

This battery charger features:

- **c'LOGIX**
c'Logix is unique to Projecta MCU chargers. c'Logix charges the battery faster and more effectively than conventional battery chargers. c'Logix delivers a multi stage charge, Soft Start – Bulk Charge (Constant Current) – Absorption Charge (Constant Voltage) – Calcium Charge (Constant Current 2A) – Float.
- **Recovery Plus**
Recovery Plus is unique to Projecta MCU chargers. Recovery Plus reduces the level of battery sulphation. Sulphation reduces the performance of a battery by preventing the battery plates from reacting with the electrolyte.
- **Metal Case** – robust for industrial applications
- **Toroidal Transformer** – a compact transformer that is energy efficient compared to normal transformers.
- **Wall Mount / Bench** – can be either wall mounted or operated from a bench.
- **Calcium mode** – is specially designed to fully recharge Calcium batteries even after deep discharge. The charger will stay in this mode until the battery voltage achieves 16.25V or times out after 12 hours.

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SPECIFICATIONS

Type of Battery: 12-Volt (6 Cell) Calcium or lead Calcium Battery

Input Voltage: 240-Volt AC 50Hz

Input Current: 0.55A AC

Charging Control: Recovery Plus – Constant Current(CC) – Constant Voltage(CV) –Calcium mode (CM) – Float

Low Battery Recovery: Below 5V, if battery not above 5V after 4 Hours the weak LED illuminates. Yellow LED flashes.

Recovery Plus Test: 25V 0.75A for 30 seconds; Pass when Battery Voltage below 16.5V, Yellow LED ON

Recovery Plus 25V 0.75A for 4 hours; Pass when Battery Voltage below 16.5V or current above 0.3A.

CC: 4.5A Constant

CC – CV: 14.7V \pm 0.25V

CV Constant 14.7V \pm 0.25V

CV Timer If float not achieved within 12 Hours the weak LED illuminates.

CV –CM..... Charger current less than 0.6A \pm 0.25A DC

CM..... Constant current 2Amp

CM-Float Battery voltage achieves 16.25V \pm 0.25V, or times out after 12 hours

Float Mode: 13.5 \pm 0.25V

Float Mode Current: Limited to 2.0A \pm 0.2 DC

Minimum Battery Voltage. ...3.0 volts (To enable polarity indication and soft start features)

Output Protection: Output Short Circuit, Battery Polarity Protection

Leakage Current:..... Less than 0.5-1.5mA when AC power is disconnected.

Primary Protection:..... Automatic reset thermal overload 130°C

..... 2A glass tube fuse with holder

LED Sequence: Red – Battery Charger On;

..... Red Flash – Output reverse polarity or Output short circuit

..... Recovery Plus Yellow – Recovery Plus test mode / Low Battery Voltage

Recovery

..... Recovery Plus Yellow Flash – Recovery Plus

..... Weak Red On – Low Voltage Recover Fail .

..... Blue Flash& Weak Red – 22 Hour Timeout Charge

..... Blue – Charging Mode (CC-CV-CM)

..... Green – Float Mode

Dimensions:..... L210mm x W176mm x H91mm

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CHARGING INSTRUCTIONS

1. Pre Charge Check

(a) Check Battery Electrolyte (Non Sealed Batteries).

Prior to charging the battery, remove the vent caps (if any) to check that the battery electrolyte is at the recommended top up level. Always use distilled water to top up the battery's electrolyte. **ESPECIALLY IMPORTANT WHEN USING A CALCIUM CHARGER.**

(b) Location

Place battery in a well vented area. Locate charger as far away from battery as DC cables allow. Never place the charger directly above battery being charged as gasses from battery will corrode and damage charger.

2. Connect Battery Charger to Battery

(a) Battery out of vehicle

1. Connect the red lead from the charger to the positive (+) battery terminal.
2. Connect the black lead from the charger to the negative (-) battery terminal.
3. Connect the battery charger to 240V mains power.

(b) Battery in vehicle

1. Determine if the vehicle is positively (+) or negatively (-) earthed.
 - a. Negatively earthed – Connect the red (+) battery charger lead to the positive (+) battery post and then connect the black (-) battery charger lead to the vehicle's chassis remote from the fuel line.
 - b. Positively earthed – Connect the black (-) battery charger lead to the negative (-) battery post and then connect the red (+) battery charger lead to the vehicle's chassis remote from the fuel line.
2. The battery charger is then to be connected to the 240V mains power.

3. Turn Mains Power On to Charge Battery

- Turn on 240V Mains Power. The red "POWER" and yellow LED "Sulphation check" will illuminate for 30 seconds.
- If the battery requires de-Sulphation mode the yellow LED will flash during de-Sulphation mode which can take up to 4 hours.
- Then blue "BULK CHARGE" LED will illuminate to confirm that the battery is being charged. The charging modes are:-
 - Bulk – Constant current until 14.7 volt is achieved.
 - Absorption – Constant voltage until current is less than 0.6A.
 - Calcium – Constant current until 16.25V is achieved or times out after 12 hours.
- The red "POWER" LED will flash if you have reverse connected the leads. This MC121045 is a fully automatic battery charger.

4. When Green "FLOAT" LED illuminates

The battery is now fully charged and will be maintained at a constant float voltage of 13.5 Volts.

5. Disconnect Battery Charger from Battery

(a) Battery out of vehicle

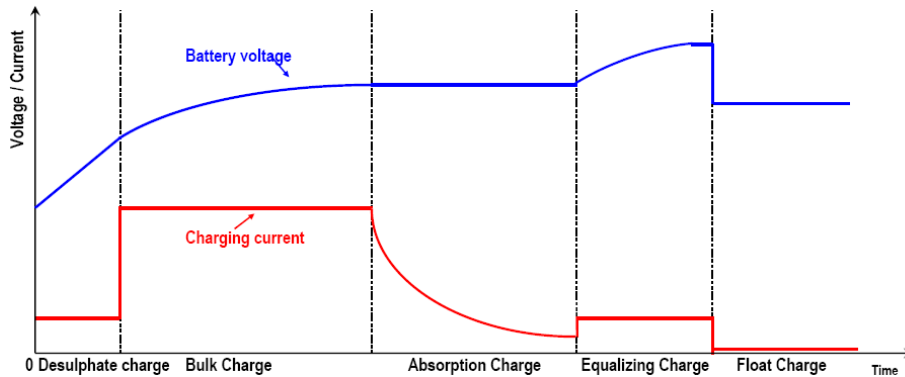
1. Turn battery charger off.
2. Remove the black lead and then the red lead.
3. Check electrolyte if possible. This may need to be topped up after charging.

(b) Battery in vehicle

1. Turn battery charger off.
2. Remove the chassis connection
3. Remove the battery connection.
4. Check electrolyte if possible. This may need to be topped up after charging.

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Charging stages



FREQUENTLY ASKED QUESTIONS

Q. What is a Calcium Battery?

- A. When the battery has Calcium added to the Lead plates either just one plate (this is called a Calcium hybrid) or both plates (Calcium - Calcium). This is done for a number of reasons:-
- Lower internal resistance which provides a small increase in CCA performance.
 - The ability to withstand higher engine bay temperatures.
 - Low self discharge rate, which increases the shelf life typical 4 times longer than a Lead – Lead battery.

Q. Why do I need a special Calcium charger?

- A. Because of the different chemistry that makes a Calcium battery, a different charging algorithm is required.

Also calcium batteries suffer when deeply discharged and when used heavily. They need to be recharged by a calcium charger to fully recharge the battery, helping the battery be more reliable.

Q. Why does it take so long to charge?

- A. To fully charge a Calcium battery the battery needs an extra charging stage called Calcium mode or Equalization Charge. This is where a constant 2A is feed in to the battery, which rejuvenates the cells. This charging stage can take up to 12 hours.

Q. How do I know if the battery is charged?

- A. The battery charger's green "FLOAT" LED will illuminate to indicate when the battery is fully charged. For those more technical use a Battery Hydrometer, (Projecta P/No BH100), a reading of 1.250 in each cell indicates the battery is full (Non Sealed Batteries).

Q. What does the red weak LED indicate?

- A. The red weak LED indicates that the charger was unable to return the battery to its original condition. The main reason the weak LED will come on is a faulty battery cell.

12 Volt batteries contain 6 cells and one faulty cell is enough to ruin your battery. If after eight hours of charging your battery is still flat, you should test the cells by using a hydrometer(Non Sealed Batteries). If one reading is lower than the other it indicates a faulty cell. It is pointless to continue charging, as you may need a new battery.

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