CARTEK
MOTORSPORT ELECTRONICS

INSTALLATION GUIDE

BATTERY ISOLATOR XC CLUB

SPECIFICATION

Size:	L = 60mm, W = 50mm.
Weight:	70g.
Battery negative terminal:	M6 stud.
Operational Voltage:	8v - 18v.
Current consumption:	50mA ON, 10mA OFF
Battery negative switching current:	450A cranking, 1500A surge
Positive power switching current:	10A.
Operating temperature:	-10°C - +100°C.
Storage temperature:	-40°C - +125°C

Manufactured in U.K.

For off-road use only

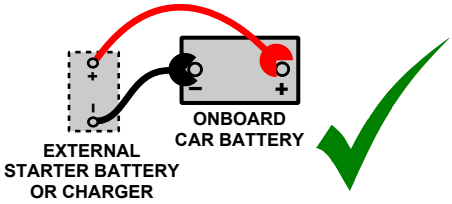
INTRODUCTION

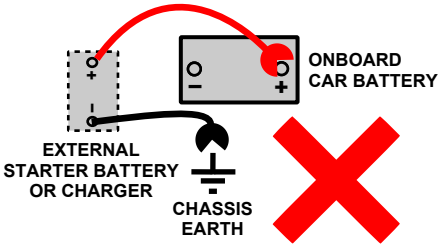
The ***CARTEK*** Solid State Battery Isolator is a fully electronic 'master/kill switch' system designed specifically for race car applications. This system contains no moving parts and the solid construction provides very high resistance to shock, vibration, water and dirt. Using the latest MOSFET technology this isolator provides safe, spark-free isolation of the vehicle's battery and engine electrics in accordance with FIA safety regulations.

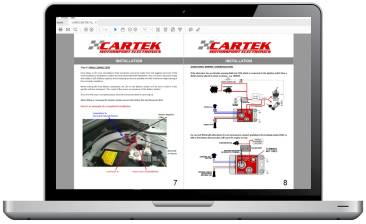
SAFETY NOTES

- Please read through the Instructions thoroughly before installing on your race car. If not installed correctly then damage may occur to the Battery Isolator.
- The Battery Isolator **MUST** be fully connected before starting the engine. If the 'ENGINE STOP' signal wire is not properly connected when the engine is running then damage to the Battery Isolator may occur. (This does not apply to cars without alternators)
- Do not use the ***CARTEK*** Internal ON/OFF pushbutton switch for any other application, it is designed specifically for use with ***CARTEK*** Battery Isolators only.
- The Battery Isolator must be removed if any electric welding is being carried out on the car.

When using a Battery Charger or an external starter/booster battery then it is important to connect both terminals directly to the car battery. **DO NOT CONNECT THE NEGATIVE LEAD OF THE CHARGER OR EXTERNAL BATTERY TO THE CHASSIS. THIS MAY CAUSE DAMAGE TO THE BATTERY ISOLATOR.**







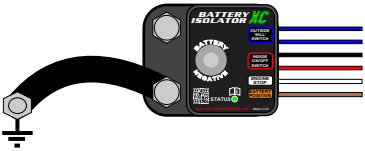
For the latest information and extra installation advice go to:
www.cartekmotorsport.com/downloads

Part Numbers:

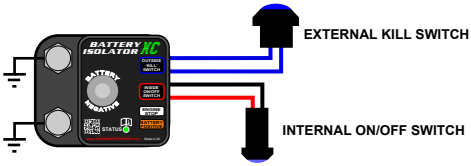
CK-BXC-01	Battery Isolator **XC** unit only.
CK-BXC-04-B	Battery Isolator **XC** kit includes: Battery Isolator **XC** unit, Internal ON/OFF switch, External 'kill' pushbutton (Blue), Safety stickers.

CK-EP-02	External 'kill' pushbutton, Red.
CK-LP-03	External 'kill' pushbutton, Blue.
CK-YP-04	External 'kill' pushbutton, Yellow.
CK-LT-01	Internal ON/OFF pushbutton.
CK-SS-03	Safety Stickers.

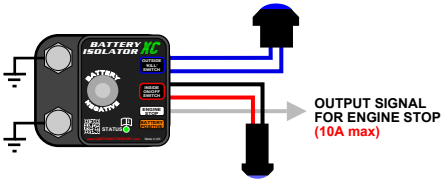
FITTING



1. The Battery Isolator should be mounted directly to the vehicle's metal chassis and close to the vehicle's battery but away from any high temperature sources. The Battery Isolator should be mounted securely with two, unpainted screws/bolts to provide good electrical contact with the chassis.
   If mounting directly to a metal chassis is not possible then an 'earth' cable can be used to connect the the Battery Isolator to a suitable point on the chassis or engine block.



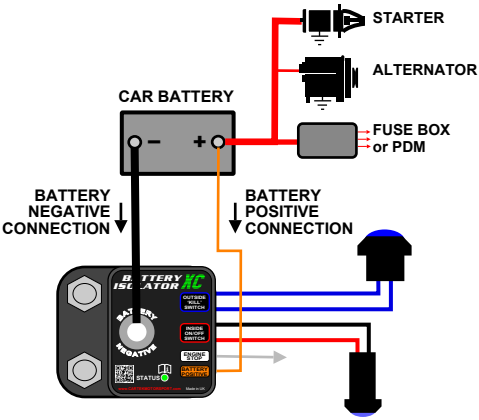
2. Make the connections to the **External Kill** switch and the **Internal ON/OFF** switch. Thin, low current wire can be used here.



3. Make the the **Engine Stop** connection.
   This signal wire outputs **+12V (10A)** when the Battery Isolator is **ON** and **0V (Grounded)** when **OFF**.

   This output can be connected directly to motorsport ECUs and PDMs that have a dedicated Ignition-Switch or Engine-Kill input.

   Alternatively, it can be used to control a Main Engine Relay or power to Ignition Coils.



4. Make the **Battery Positive** connection.

5. Finally, make the **Battery Negative** connection.

   This connection should be made with cable of 100-200Amp capacity and by keeping as short as possible will offer maximum weight saving of the complete installation. No other cable should be attached to the negative side of the battery.

   Always make the Battery Negative connection last during installation but disconnect first during removal.

6. Switch the Battery Isolator ON by operating the ON/OFF switch. The Battery Isolator status LED should show Green. If the LED displays anything other than Green when ON then consult the **Fault Diagnosis** page.

MOTORSPORT IS DANGEROUS.
THIS PRODUCT IS DESIGNED FOR MOTORSPORT USE ONLY AND SHOULD NOT BE USED ON ROAD/STREET VEHICLES OR ON PUBLIC HIGHWAYS.
NO WARRANTY IS MADE OR IMPLIED REGARDING ANY CARTEK PRODUCTS TO PROTECT USERS FROM INJURY OR DEATH.
USER ASSUMES ALL RISKS.

FAULT DIAGNOSIS

Once fully installed, the Isolator is switched ON by activating the internal ON/OFF switch/button. On activation, the Isolator performs a system check before the battery connection function occurs. If any fault is detected then the Isolator will remain in the OFF state and display an error code via the status LED in a sequence of **RED** flashes:

2 or 6 flashes - **Maximum temperature exceeded.**
The Battery Isolator will automatically switch OFF if maximum temperature is exceeded.
This may occur after very prolonged engine cranking or if the Battery Isolator is mounted close to a source of heat e.g. engine, coolant pipes, exhaust, radiator fan, etc.

3 flashes - **External Kill Button pressed or External Kill Button circuit broken.**
If the External Kill Button has not been activated then check for loose or poor connection between the Battery Isolator and the External Kill switch.

4 flashes - **Maximum current in ENGINE STOP circuit exceeded.**
The maximum current this Engine Stop signal can deliver is 10Amp continuous and 15Amp surge.

5 flashes - **Low Battery Voltage.**
The car battery voltage dropped below 8 Volts.

7 or 8 flashes -**Maximum current in NEGATIVE circuit exceeded or short circuit detected.**
Check for a short circuit from battery positive to chassis such as broken cables, faulty Alternator or Starter Motor.

9 flashes - **Fault with installation or internal fault detected.**
Check wiring for installation errors.

Once the fault is remedied the Battery Isolator can be reset by switching the internal switch/button OFF then switching ON again. The unit will also be fully reset by disconnecting from the vehicle battery and reconnecting.

Note: When connecting to the car battery, the LED will flash BLUE 2 times to indicate a power-up reset has occurred. When in the OFF/Standby state, this LED can also be seen to pulse BLUE, slowly. This is not an error code.

POSSIBLE ERRORS

1. Make sure there is only one cable attached to the negative terminal of the battery and that this cable connects to the Battery Isolator and nowhere else. There must be no cable between the negative terminal of the battery and chassis.

2. If the Battery Isolator does not switch ON when the internal button is pressed to the ON position then observe any flashing LED error code and identify the fault from the list above. If the Battery Isolator does not switch ON and does not display any error code then check the connections between battery and Battery Isolator, make sure the battery is fully charged. Also check connections to the Internal ON-OFF switch.

3. If the Battery Isolator is left in the ON state for a long period of time and the battery voltage drops below 11 Volts and remains low for 90 minutes then the Battery Isolator will turn itself OFF to reduce current draw and help protect the battery. Note, this will not occur when the engine is running or when the car is being driven as long as the alternator maintains a battery voltage higher than 11 Volts.

4. **Note that, when the Battery Isolator is in the OFF state the integrated LED will flash Blue very slowly to indicate that it is connected to the battery and receiving power.**

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