INSTALLATION GUIDE AND MANUAL

BATTERY ISOLATOR 1L 12V

Automatic Battery Isolator For 12V Vehicles

5 YEAR WARRANTY

Designed and Manufactured in the UK by
LUDO McGURK TRANSPORT EQUIPMENT LTD
WILMSLOW - U.K.

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WARNING!

- THIS PRODUCT MUST BE INSTALLED EXACTLY AS DESCRIBED IN THIS MANUAL.
- THE IGNITION INPUT MUST BE CONNECTED
- FUSES MUST BE INSTALLED AS DESCRIBED
- THE INSTALLATION MUST BE TESTED AS DESCRIBED AND MUST BE PROVEN TO WORK PROPERLY BEFORE VEHICLE COMMISSIONING

FAILURE TO DO THIS MAY RESULT IN AN INTERRUPTION IN THE PRIMARY CONTROLS OF THE VEHICLE AND POSSIBLY CAUSE A FATAL ACCIDENT!

1.INTRODUCTION

This manual describes the installation and operation of the 092-2038 Battery Isolator 1L. This product has been specifically designed to protect a vehicle's battery from being damaged by being excessively discharged. It can also prevent a battery from being discharged to the point where it will be unable to start the vehicle's engine.

The Battery Isolator 1 is of rugged construction and is built to withstand the shock and vibration encountered in vehicle-mounted equipment. The unit uses a high quality latching Relay, which consumes no power when it is on, and will not drop out in the event of a power failure.

The unit also combines an ignition detection input with voltage sensing, to make sure that the unit will not isolate the batteries when the vehicle is being driven or the engine is running.

Many of the Battery Isolator's settings (switching voltages, time delays etc.) are installer programmable via the optional CANPower Programming Interface Module and the free CANPower programmer software. This means that anybody can tailor the Battery Isolator to their individual requirements. The default settings of the charger are optimised for the most common applications.

2.MOUNTING

The Battery Isolator 1L should ideally be mounted as close to the vehicle battery as possible, to minimise the battery cable length. This will allow the battery isolator to sense the vehicle battery voltage as accurately as possible.

The location should be chosen so that the unit will not be exposed to road dirt, moisture or excessive heat. It is important to note that this unit is not waterproof

It is also advisable to mount the battery isolator in a location where the indicator LEDs can be easily seen, and the green CANPower ports are accessible for diagnostic and programming purposes.

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3.ELECTRICAL INSTALLATION

3.1 Fused Feeds

This unit is designed to be installed in the primary feed from a vehicle's battery, so that the battery is disconnected from the loads attached to it in the event that the battery becomes excessively discharged.

In almost all cases there will be some equipment which must never be disconnected from the vehicle's battery, such as:

- Hazard Warning Lights – UK Legislation requires that they remain live at all times
- Tachographs - Must remain live at all time to keep clock running
- ECUs – Certain ECUs may be upset by disconnecting them, causing them to lose settings.

It is up to the installer to determine which circuits must remain live, and how to do this. Usually a new fused feed for each circuit to remain live must be taken from the battery before the battery isolator (see wiring diagram).

The new circuits must be suitably fused for the load connected to them.

3.2 Battery Fuse Protection

The battery wiring to the battery isolator must be protected by suitable fuses.

If the battery isolator is being installed in the original vehicle wiring then the wiring will probably already be suitably fused, but this must be verified. It must also be verified that the maximum relay current rating of 200A will not be exceeded.

If new wiring is being used then the wiring must be fused at a current rating of less than the maximum current rating of the cable that is used.

For example, designing for the maximum load current of 200A, 35mm2 Cable with a 200A fuse must be used.

3.3 Battery Isolator Terminals

Connections to the high current terminals must be made using good quality copper tube terminals which have been correctly crimped or soldered to the appropriate cable.

These connections must be tightened securely, and the supplied spring washers must be used.

3.4 Ground Connection

The Battery Isolator must be connected to a good permanent ground connection, ideally directly to the battery negative terminal for optimum voltage sensing

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3.5 Ignition Wire

This wire is very important, as it stops the battery isolator activating when the vehicle is in use. In all cases it must be connected.

It must be certain that this wire is live at all times when the vehicle is in use.

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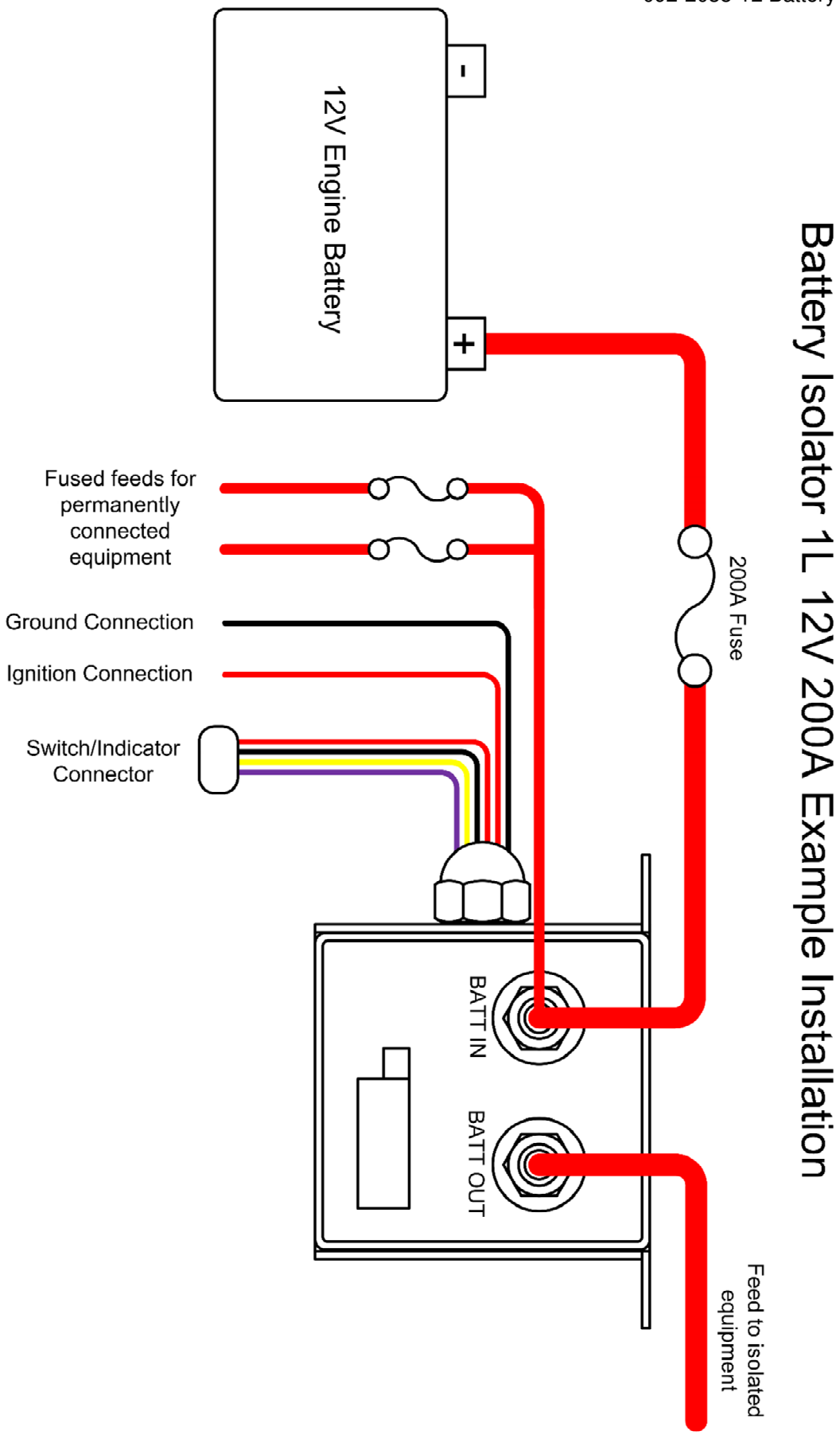

Battery Isolator 1L 12V 200A Example Installation

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4. TESTING AND OPERATION

The following test procedure must be carried out after installation of the Battery Isolator 1L, to verify that the system has been safely installed and operates correctly. If this test procedure is not completed successfully, the system is not safe to use.

1. Initial Power on.

   The unit is connected to the battery, and the ignition is switched off.

   The green Power On LED on the unit should flash once every 5 seconds. This indicates that the unit is powered and operating normally. The unit is supplied with the relay switched off, and when first connected, the Relay On LED should be off.

   If the battery voltage is above the upper threshold voltage (Default 13.0V) for more than the on time delay (Default 2s), then the relay should switch on (should hear click) and the Relay on LED should be lit.

   If the battery voltage is below the upper threshold voltage, then the relay should stay off. The green indicator on the switch should flash once every two seconds, to indicate that the battery has been isolated.

   If the indicator is not flashing, check that the battery voltage is greater than 8V.

2. Manual enable test

   With the isolator activated, and the green switch indicator flashing, hold down the battery isolator switch for greater than 3 seconds.

   The isolator relay should switch on (should hear click), the Relay On LED should be lit, and the green switch indicator should stop flashing.

   It should now be possible to start the vehicle.

   If the green switch indicator is not flashing, and the relay does not switch on, check that the battery voltage is greater than 8V.

3. Ignition Inhibit test

   With the battery isolator deactivated, and the vehicle ignition switched on, hold down the battery isolator switch for greater than 3 seconds.

   At no point should the battery isolator activate. This is very important. If the battery isolator activates then check the ignition feed as it has not been wired correctly.

   This test should be performed with and without the engine running.

4. Manual Isolate Test

   With the battery isolator deactivated, and the vehicle ignition switched off, hold down the battery isolator switch for greater than 3 seconds.

   The battery isolator should now be active, and the green switch indicator should be flashing.

   If the green switch indicator is not flashing, and the isolator does not activate, check that the battery voltage is greater than 8V.

5. Automatic Isolate Test.

   With the battery isolator deactivated, and the vehicle ignition switched off do one of the following.

   - Leave the vehicle with its equipment (lights etc) switched on until the battery voltage falls below the isolator's lower voltage threshold (Default 12V)
   - Connect a dummy load (e.g. large halogen lamp) across the vehicle battery to cause the voltage to drop below the isolator's lower voltage threshold (Default 12V)

   Once the battery voltage has fallen below the lower voltage threshold, and stayed there for more than the off time delay (Default 5mins), the battery isolator relay should activate.

   If the battery voltage falls below 8V before the off time delay has passed, then the battery isolator relay will not activate, and the battery will not be isolated. This is for safety purposes, as the battery isolator cannot operate below 8V.

5. PROGRAMMING AND DIAGNOSTICS

Disclaimer: Ludo McGurk Transport Equipment Ltd. Will not accept responsibility for damage to vehicle batteries that has been caused by inappropriate voltage/time settings which have been customer programmed. Changing these settings must be done very carefully. Make sure that the settings that you choose are suitable for the batteries that the vehicle is fitted with. If you are unsure then contact us for advice.

With the CANPower Programming Interface Module you can use a Windows PC loaded with the CANPower Programmer software to alter some of the default settings of the Battery Isolator 1L

- You want to increase the time delay before battery isolator isolates the battery.
- You want to increase the time delay before the battery isolator automatically reconnects the battery.
- You want to modify the voltage at which the battery isolator isolates the battery.
- You want to modify the voltage at which the battery isolator reconnects the battery.

It is also a very useful tool to have should there be any problems with the battery isolator installation. The programming window shows useful information such as the input status, input voltages and relay status.

If you do not have a CANPower Programming Interface Module then we can supply the battery isolator pre-programmed with settings that you specify at the time of ordering.

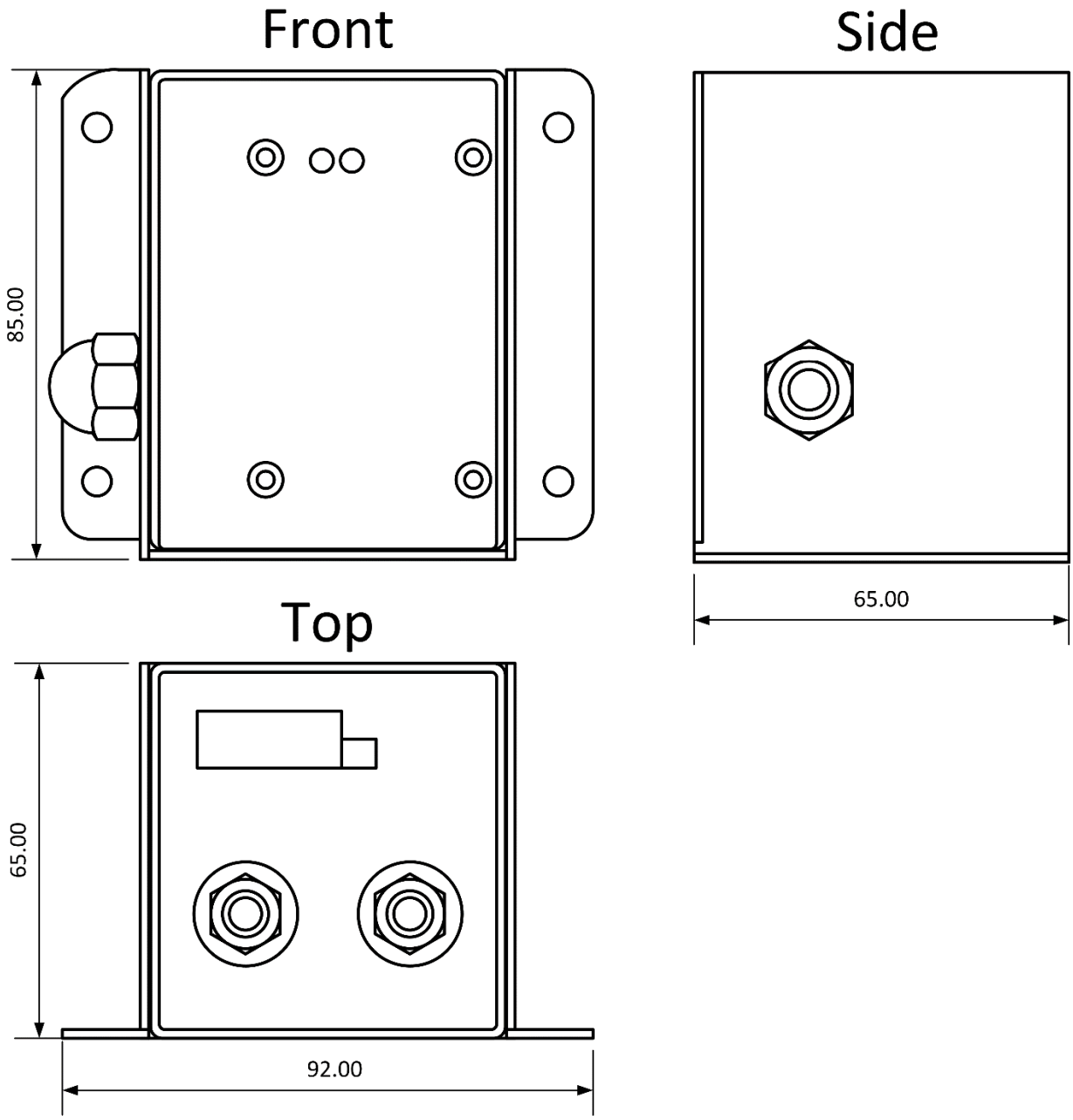
6. SPECIFICATION AND OUTLINE DRAWING

Weight of all models: 0.6Kg

Model Specifications:

Part No.	Battery Voltage	Relay Current
092-2038-12-200	12V DC	200A DC Constant
092-2038-24-200	24V DC	200A DC Constant

Outline Drawing:



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7. TROUBLESHOOTING

If you are having any of the following problems then use this troubleshooting guide to try and solve the problem. If the problem you are having is not described below or you still cannot find the cause, then contact us for help.

Symptom	Possible Cause	Solution
Battery Isolator relay will not operate	Battery voltage is less than 8V.	Charge battery and re-test system.

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WARRANTY

All products of Ludo McGurk Transport Equipment Ltd. are warranted to be free of defects of material or workmanship. Liability is limited to repairing or replacing at our factory, without charge, any material or defects which become apparent in normal use during the warranty period as shown on the front of this manual. The warranty period runs from the date the equipment was originally shipped from Ludo McGurk Transport Equipment Ltd to you. Equipment is to be returned; shipping charges prepaid and will be returned after repair, return shipping charges paid.

Ludo McGurk Transport Equipment Ltd shall have no liability for damages of any kind to associated equipment arising from the installation and /or use of any Ludo McGurk Transport Equipment Ltd products. The purchaser, by the acceptance of the equipment, assumes all liability for any damages, which may result from its installation, use or misuse, by the purchaser, his/her or its employees or others.

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