



RAPTOR BRIDGE

Protection module for parallel connection of
service batteries in parallel

INSTALLATION AND USAGE MANUAL
1.1

CE

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1. Introduction

RAPTOR Bridge is a module based on the relay component whose function is to divert the electrical loads of the primary circuit to the secondary circuit.

The device has a signal (and power) connection port that drives the relay coil.

The second connection port is the power circuit, which has three terminals forming an NC + NO system with a common contact.

The device is intended for use in all applications where the primary electrical system needs to be bypassed under special conditions.

The use of this product is only intended for qualified installers who are able to make the connections of the product as prescribed by the manufacturer and, in addition, the installers must be able to make and check the connections of the system in which the device is inserted.

2. Foreword

Notwithstanding the care and attention taken in the creation, updating and integration of the contents and information contained in the manual, such contents and information may contain printing errors, inaccuracies or inconsistencies in relation to which GES INTERNATIONAL SRL provides no warranty - whether express or implied - not even by way of mere reliance or expectation. In particular, purely by way of example and without limitation, no assurance or guarantee is provided as to their completeness, exhaustiveness and compliance with the current organization, corporate structure or type, characteristics, marketability or suitability for the purpose of the products, services and activities of GES INTERNATIONAL SRL, which is available to provide all necessary information to interested parties.

GES INTERNATIONAL SRL reserves the right to make changes to the information contained in its manual without prior notice, as well as to vary and modify the products, services and activities described therein without giving rise to any rights of any kind on the part of third parties.

3. Declaration of conditions

In order to reduce the consumption of paper, we have decided to reduce the descriptions of the use and installation of this manual to an essential minimum, while at the same time keeping it as explicit as possible. It is important to keep this booklet for future reference. In the event of sale, transfer or removal, ensure that it remains attached to the product to inform the new owner of its operation and warnings. Please read the instructions carefully: there is important information on installation, use and safety. In the interest of improving internal design, operational functionality and/or reliability, GES INTERNATIONAL SRL reserves the right to make changes to the products described in this manual without prior notice or communication in written or electronic form. GES INTERNATIONAL SRL accepts no responsibility when using or applying the products or circuit diagrams described.

4. Norms and guarantee

All GES INTERNATIONAL SRL products are guaranteed for 24 months from the date of purchase throughout Europe. The warranty is valid for products with structural and functional factory defects. In no case does the warranty apply on site. The installer is responsible for detecting the defect, disassembling the product, shipping the damaged product to GES INTERNATIONAL SRL's premises and all expenses related to the work in progress. GES INTERNATIONAL SRL warrants the product and its functionality only if the product is installed correctly without any adaptations for its sole purpose of use; all other uses outside of the intended use shall render the warranty null and void. GES INTERNATIONAL SRL cannot be held responsible for damage caused to property or persons as a result of the improper use or installation of the product, nor for damage resulting from failure to use the product due to damage or defect, loss of earnings, inactivity or unusability. It is the installer's responsibility to report any defects as soon as possible by contacting the manufacturer by e-mail. Following a summary evaluation after carrying out the tests indicated by GES INTERNATIONAL SRL, the defective or non-functioning product may be returned for repair/replacement. The new or repaired product sent back will not benefit from the 24 month warranty again but will follow the normal official warranty issued at the time of purchase. All products that are damaged by power surges, thunderstorms and adverse weather conditions, earthquakes, flooding or attempted break-ins and manipulation, incorrect connections or polarity reversals are not covered by the warranty.

5. Product description

RAPTOR Bridge is a module developed to make it easier and more professional to connect and recharge the services battery via the alternator when the engine is running.

The operation of this module allows more efficient recharging of the services battery, eliminating the risk of damage to the electrical parts and original wiring due to the passage of high currents that could jeopardise the correct operation of the equipment and lead to a loss of warranty.

Parallel connection using RAPTOR Bridge is suitable for charging lead-acid and lithium batteries.

The advantage of installing RAPTOR Bridge, with the appropriate sizing of the connection cables, is that higher currents can flow directly to the battery during charging, reducing and optimising charging times. In addition, the parallel connection management drastically reduces energy losses due to heating of the wiring, reducing the voltage drop on the system.

It also prepares the system for the connection of a booster.

Compatible with Smart Alternators.

6. Installation guidelines

All GES INTERNATIONAL SRL products are certified and guaranteed only when installed by qualified personnel. Before starting the installation, make sure that the system is fully compatible with your power supply circuit. In no event shall GES INTERNATIONAL SRL and its resellers be held liable for incorrect purchases, incompatibility of products sold and/or installed by unqualified personnel, lost profits or loss of money resulting from the malfunction of GES INTERNATIONAL SRL systems. THE INSTALLATION AND CONNECTION OF THE PRODUCTS MUST TAKE PLACE IN THE ABSENCE OF ELECTRICITY.

GES INTERNATIONAL SRL accepts no responsibility for any damage caused to persons, pets or property as a result of failure to comply with the above regulations. The entire system downstream of the power supply is low voltage (12V) and does not constitute a danger to persons.

7. Installation

Installation should only be carried out by specialist personnel who have been trained in the installation of electrical systems.

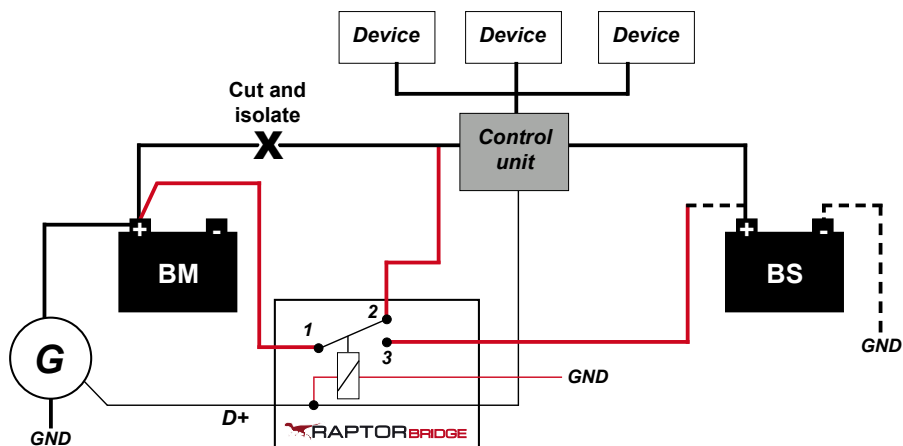
Fix the container box on a stable surface using fixing screws.

Make the connections inside the container box, taking care not to damage the cables, the board and the container.

Close the container box, checking that the internal components are correctly positioned.

For the passage of cables, use cable glands of a suitable size for the container box and the cable.

8. Connection on vehicles equipped with built in parallel relè into control unit and D+ signal from alternator (indicatively until 2005)



G = Alternator D+ = 12V signal present with engine running BM = Engine battery
 BS = Services battery GND = Negative to chassis ground or directly to the negative pole BM

8.1. Power connection of RAPTOR Bridge

Disconnect the cable from the engine battery (BM) that was originally connected to the Control Unit and connect it to terminal 2 of the RAPTOR Bridge.

Prepare a 25/35/50 mm² cable and connect terminal 1 of the RAPTOR Bridge to the positive

terminal of the engine battery, interposing a 75A fuse.

Make the connection between RAPTOR Bridge terminal 3 and the positive pole of the services battery using a 25/35/50 mm² cable depending on the length of the cable.

The connection cables to the negative pole of the Service battery must also be replaced.

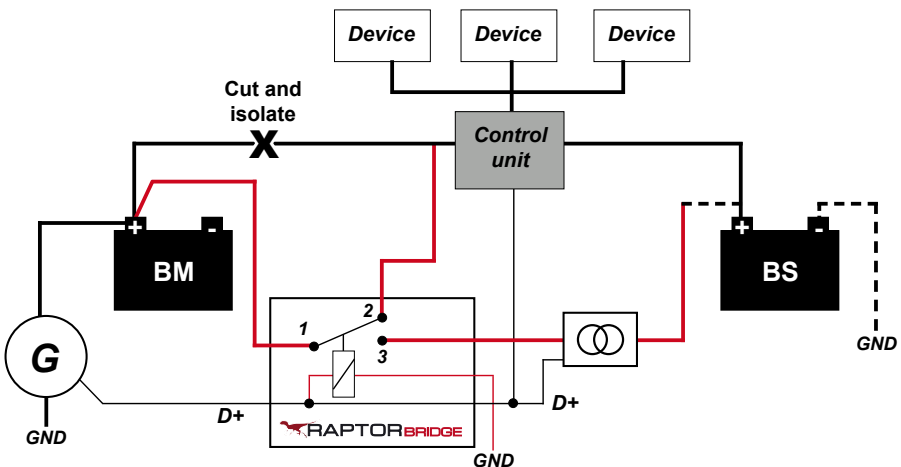
8.2. Connection for RAPTOR Bridge activation

Connect the engine on signal (D+) generated by the alternator to the terminal marked D+ on the green RAPTOR Bridge connector using a 1.5 mm² cable, which can also be found at the input output of the vehicle's Service Centre or present in the refrigerator's AES control unit, interposing a 3A fuse.

Connect the negative terminal of the green connector to the negative terminal of the engine battery.

NB: Ensure that the D+ signal is reset when the vehicle's engine is switched off, otherwise excessive discharge of the engine battery may occur.

9. Booster connection on vehicles equipped with built in parallel relè into control unit and D+ signal from alternator (indicatively until 2005)



G = Alternator

D+ = 12V signal present with engine running

BM = Engine battery

BS = Services battery

GND = Negative to chassis ground or directly to the negative pole BM

9.1. Power connection of RAPTOR Bridge

Disconnect the cable from the engine battery (BM) that was originally connected to the Control Unit and connect it to terminal 2 of the RAPTOR Bridge.

Prepare a 25/35/50 mm² cable and connect terminal 1 of the RAPTOR Bridge to the positive terminal of the engine battery, interposing a 75A fuse.

Make the connection between terminal 3 RAPTOR Bridge and the IN +12V terminal of the Booster. Connect the OUT+12V terminal to the positive pole of the Services Battery using a 25/35/50 mm² cable according to the length of the cable.

The connection cables to the negative pole of the Service battery must also be replaced.

9.2. Connection for RAPTOR Bridge activation

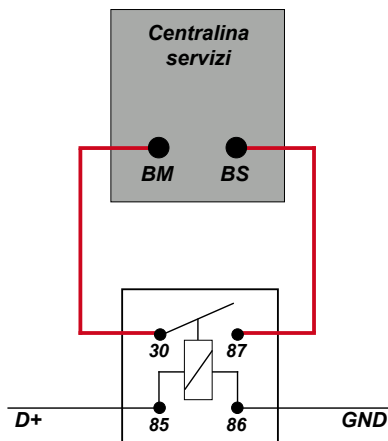
Connect the engine on signal (D+) generated by the alternator to the terminal marked D+ on the green RAPTOR Bridge connector using a 1.5 mm² cable, which can also be found at the input output of the vehicle's Service Centre or present in the refrigerator's AES control unit, interposing a 3A fuse.

Connect the negative terminal of the green connector to the negative terminal of the engine battery.

NB: Ensure that the D+ signal is reset when the vehicle's engine is switched off, otherwise excessive discharge of the engine battery may occur.

10. Connection on vehicles equipped with last generation control unit (indicatively after 2005) with self-generated D+ signal

If the service control unit is of the latest generation and the D+ signal is generated by its internal electronics when the engine is running, before connecting the diagram in point 8 or 9, connect an auxiliary automotive relay (code REL101, not included) of 30/40A with contact 30 and 87 (Normally Open) as described in the following diagram:



D+ = 12V signal present with engine running BM = Engine battery

BS = Services battery GND = Negative to chassis ground or directly to the negative pole BM

Connect pin 85 of the relay to the D+ signal generated by the service unit and pin 86 to the negative of the BM, all with 1.5 sq mm cables.

Derive a 4 sq mm cable from terminal BM of the service unit and connect it to pin 30 of the relay, while at pin 87 connect another 4 sq mm cable derived from terminal BS of the service unit.

11. Technical specification

Working voltage	12 Vdc \pm 15%
Current consumption	300 mA
Working temperature	-25°C +55°C
Current of contact P	75 A
Maximum voltage connection	14 Vdc
N° exchange contacts	1
Control thresholds	Pos.: 12 V
Control current	300 mA
Connection to P1	Cables of any type up to 30 m in length, suitably sized for the required load. Protect lines with MAX 75 A fuse..

12. Disposal

Pursuant to Legislative Decree 14 March 2014, no. 49 "Implementation of Directive 2012/19/EU on waste electrical and electronic equipment (WEEE)". The crossed-out wheeled bin symbol on the equipment indicates that the product at the end of its useful life must be collected separately from other waste. The user must therefore deliver the equipment which has reached the end of its useful life to the appropriate separate collection centres for electronic and electrotechnical waste, or return it to the retailer when purchasing new equipment of an equivalent type, on a one-to-one basis. Appropriate separate collection of waste equipment for subsequent recycling, treatment and disposal helps to avoid possible negative effects on the environment and health and favours the reuse and/or recycling of the materials of which the equipment is composed. Illegal disposal of the product by the user entails the application of the administrative sanctions provided for by current legislation.





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