

BATTWIN

Battery Redundancy System

USER MANUAL

Description

BaTTwin was designed specifically for large RC models. It allows to use two identical batteries as the main power for the receiver and servos. Its main task is to diversify and power redundancy, thereby significantly reducing the risk of control loss in the case of failure of one battery or power pack. It should be added that BaTTwin it self also has two independent and redundant power circuits.

Protection against:

- **In the case of an internal short-circuit in one battery, or contact one of the input side of BaTTwin** (eg in a switch, or frayed wires). The receiver will constantly receive power from the second battery. Switching occurs transparently and without any interruption to the power supply and servos. However, in the case of short-circuit the battery, it is possible to catch fire of the battery. Shorting a one battery **WILL NOT AFFECT** a second battery.
- **In case of failure of one battery** (sudden voltage drop, or reduction in the capacity of the old package) receiver will constantly receive power from the second battery, switching takes place in a way that is not noticeable and without interruption to the power supply and servos.
- **In case of disconnection of one battery** (failure or malfunction in switch contacts). The receiver will continually receive power from the second battery, switching takes place in a way that is not noticeable and without interruption to the power supply and servos.
- **Protection when connecting the battery in reverse polarity.** There will be no voltage at the BaTTwin outputs.

The failure of one of the battery can be seen as they are charged. Because thanks to BaTTwin discharge them equally, while charging both should adopt the same or a similar amount of energy.

Installation

BaTTwin should be installed between the power supply batteries and receiver or power regulator. Note that the main power switches can be installed both before and behind BaTTwin. BaTTwin requires two switches (for each separate battery - When connecting the switch before BaTTwin. Two or one switch - When connecting the switch behind BaTTwin) Fig. 1 and Fig. 2.

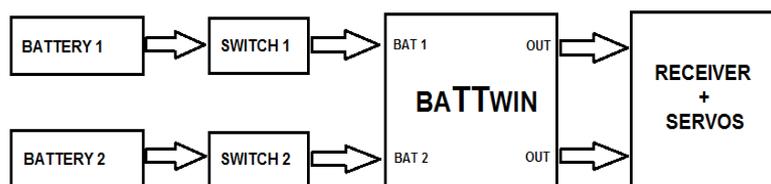


Fig. 1. The placement of switches on the BaTTwin input.

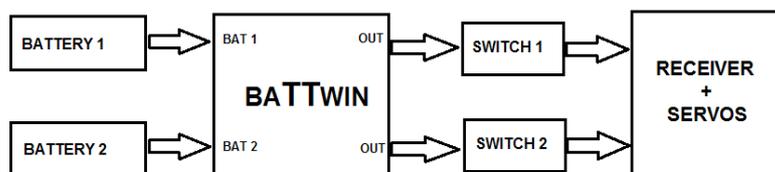


Fig. 2. Placing the switch on the BaTTwin output.

BaTTwin has NO POWER CONSUMPTION in standby mode, no matter where is a power switch located (input or output). Installing switches at the output of BaTTwin device has the additional advantage of raising safety in case of failure of one battery and one switch at a time.

BaTTwin is designed primarily for high voltage receivers and servos (standard HV voltage 7.4V). Without additional voltage regulators. However, if necessary, to work properly connect the voltage regulator at the BaTTwin output(s). Fig. 3.

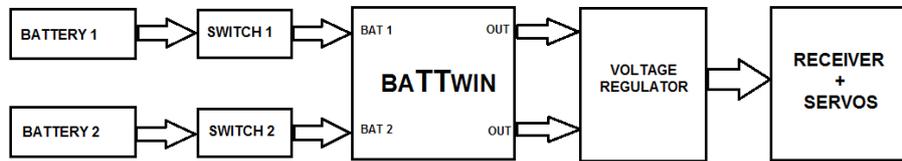


Fig 3. The voltage regulator must be installed behind BaTTwin.

CAUTION !!!

If the voltage regulator has its own main power switch, it can be used. Additional switches are not needed (Figure 4). (for this purpose must first refer to the instructions supplied with the voltage regulator).

CAUTION !!!

Voltage regulators CAN NOT be installed on the BaTTwin input side.

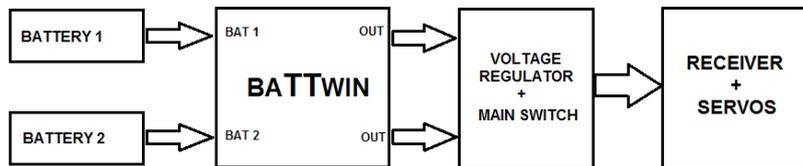


Fig. 4. Applying a voltage regulator that contains a main power switch.
No need to install additional switches.

At both BaTTwin outputs the voltage is ALWAYS the same, regardless of whether the two batteries are connected and efficient, or only one. It is recommended to connect two BaTTwin outputs to the receiver (or regulator), thus providing a greater load current and reducing the risk of contacts failure. During normal operation, the voltage drop is approx. 0.4 V under heavy load. If all channels in the receiver are used, connect one BaTTwin output using a Y cable (for this purpose, first read the instructions to connect the power to the receiver).

Although the BaTTwin device will properly work with different batteries of different capacities. It is recommended to use the same type and capacity of both battery packs. The device continuously monitors the voltage level of both batteries and always charged the one with the higher momentary voltage - switching between battery is unobtrusive and cyclically without interruption to the power supply even at high power consumption. In case of use the same batteries they will be discharged simultaneously. The use of such two batteries for example. Lipo 7.4V 2200mAh - results that there is 4400mAh available for flight.

Charging batteries

Charging the batteries should be carried out by disconnecting the BaTTwin device and charging with main power connector, or through the prepared charging ports to charge the battery without disconnecting from the BaTTwin device. Charging ports can be prepared on the side of the battery itself or by removing the protective heat shrink, locate the prepared soldering pads for the charging wires (Fig. 5) and solder the wires to charge for each battery separately. It is recommended that when using soldering pads for battery charging, the power switches are installed at the BaTTwin output.



Fig. 5. Pads for charging wires.

CAUTION !!!

It is NOT POSSIBLE to charge batteries using BaTTwin outputs..

Maximum current

The device is designed to withstand a load of 2 x 10A. However, the commonly used Futaba / JR connectors have a continuous current capacity of about 3.5amps. This gives 7A (two BaTTwin output plugs). If you plan to power the receiver and servos with higher current consumption it is recommended to replace the output cables and connectors.

Technical data

- dimensions: 46 mm x 25 mm x 5 mm
- RX wires [OUT]: Futaba / JR female, 22AWG, 200mm
- battery wires: [BAT1/2]: 18 AWG, 200 mm
- works with: LiPo, Li-Ion, LiFe, NiMh, NiCd
- input voltage: 5.0V – 30.0V, max 2 x 10A
- weight 20 gram (0.7 oz)
- RX plugs max 7A (3,5 A on each)
- voltage drop ab. 0.4 V
- **batteries 4,8V are NOT SUITABLE (4 cell NiMh/NiCd)**

Thank you for the trust and purchase of devices. Simultaneously we wish successful flights and unforgettable moments while piloting your wonderful models.

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