



Blue Box 8/16

8 Channel Input
16 Amplified & Multiplexed Outputs

Fail-Safe Power Distribution System
Active Power-Alert LED Indicators
Regulated 1.5A, 5.0V Receiver Power Bus
48A Servo Power Bus
Fully Compatible with all PPM, PCM, and 2.4 GHz Systems

Before you begin:

The Blue Box allows the user to select a wide range of power sources to power the system. Due to the high power distribution capability of the Blue Box, it is advised that your power source consist of two independent battery systems, with ability to produce at least 10A each continuously. The innovative source selector automatically uses the best source that is plugged into it, ensuring your aircraft always has the power it needs. 42 Percent recommends two 2200-4200mAh 7.4V LiPo packs rated at 20C or more.

Note: A123 packs can be used with caution, but for the sake of your aircraft, check the pack voltage after every flight. Never let the voltage fall under 6.2V @ 2A with A123 types, and never let the voltage fall under 7.0V @ 2A with Lilon packs.

Use at least 16-gauge wire when wiring the packs to the inputs of the system. The Blue Box has Deans connectors pre-installed for power inputs. *Make absolutely sure that your packs combined can generate 10A or more safely.*

Don't install the Blue Box if you are not absolutely confident your power source is sufficient for your servo load, 42 Percent products is not liable for damage to your aircraft. If you do not think that you must meet the requirements specified above please return the Blue Box to 42 Percent or your dealer for a full refund.

Warning!

The Blue Box is a high-power signal distribution system and your selection of batteries, switches and wires directly affects the safety and performance of your aircraft. Using insufficient wire gauges, switches or batteries can create a safety risk or fire hazard. It is up to you, the user, to determine whether the system is fit to your application or airplane. You and you alone are in control of your aircraft and its safe operation. If you do not understand anything presented in this guide, call or e-mail 42 Percent for guidance. We are here for your support and will answer any questions you might have!

42 Percent and your dealer can help you with any questions you have before you begin your installation of the Blue Box. We offer complete package bundles based on size of your aircraft, please contact us or your dealer for a tailor made drop-in system. 42 Percent offers plug-n-play giant-scale systems with Blue Box (1), Batteries (3), Switches (2), and Opto Gas Kill, with other options available to meet any need from 25% to 50% scale. Contact 42 Percent or your dealer for a custom flight-ready system you can count on for the highest performance possible.

Please read and understand this guide before further opening and installing this product.

If you require phone support in the U.S.A call (916) 821-2635 or on the web @ www.42-percent-products.com

E-mail: sales@42-percent-products.com

Installation:

Begin by finding a suitable mounting location for the Blue Box. Leave at least an inch or so of room on all sides to facilitate easy connector access and wire routing. Servo leads frequently plugged/unplugged should be done so directly to the Blue Box (ie. Aileron servo leads). Avoid using short extensions or Y-adapters as these increase lead resistance and decrease performance and reliability. The high-quality gold-plated connectors present on the Blue Box minimize these derogatory effects.

Use the provided male-male cables (extras are inexpensively available from 42 Percent) to connect the receiver to the input box. Do not plug the receiver into the servo output ports or damage to the receiver could result. Take advantage of the break-out functionality of the Blue Box to avoid Y-adapters. If you want to use the Flight Dock of the Blue Box, mount the receiver using rubber bands or double-sided foam tape. Wrapping the receiver in foam rubber is not necessary (if mounting it on the Flight Dock) because of the rubber grommet mounting system of the Blue Box. It is not a good idea to wrap the receiver in foam rubber to prevent overheating, but a square of foam rubber underneath the receiver is acceptable. The Flight Dock is scored to be removable if not desired, if you want to do so, simply snap it off. A light sanding of the PCB edge is required afterwards. Mount the receiver such that connections are short and direct to the inputs of the Blue Box. Remember that once the Flight Deck is removed, it cannot be re-attached.

Power Source Setup:

Your power source can be regulated or unregulated, as long as voltage output never drops below 6.2V at any current. The upper voltage limit is determined by the servos you are using. It is recommended that each of the two power inputs to the Blue Box be able to provide 10A continuously.

Begin by attaching a single battery pack to either of the two Deans power inputs of the Blue Box. The Active Power-Alert LEDs will go into a flashing pattern to indicate the system is working properly. After a few seconds, the flashing will stop and the red LED corresponding to the plug you have chosen will illuminate.

If using twin voltage regulators for your source, you can now plug in the second source. If the regulators are adjustable, tune one of the regulators such that the output voltages are equal. In this case the center green power-equal indicator LED will light, and both red LEDs will turn off. This means the power-sharing circuitry of the Blue Box is effectively balancing the power drawn from each source.

Now that the system is powered up and receiver installed, plug a servo into each output to verify proper operation. If all is good, proceed to physical installation.

Active Power-Alert (APA) System Description:

The APA system shares power load between the two sources. The higher voltage of the two sources will be used and indicated by that source's red LED. Should the sources be equal, both red LEDs turn off and the center green LED will illuminate, indicating that both sources are being drawn from equally. This system ensures that your airplane will always have the power, even if one source completely fails. It also guarantees highest output current levels as two sources can effectively combine output current capabilities.

Note: The APA system does not indicate that your power source is fully charged. Please measure your battery voltages frequently to avoid under-voltage situations. Check that all servos in your airplane are functioning properly before every flight.

It is recommended that the user take a single servo. Once all channels inputs are plugged in and tested to be active, mount receiver on Flight dock being careful not to break off flight deck by putting adverse pressure on it as it is scored to be one time removable once removed it can't be replaced.

Physical Installation:

Mount the Blue Box on a hard surface, such as hardwood rails or lite-ply. Use the provided standoffs and screws with the grommets installed on the Blue Box to provide vibration isolation and cooling air for the Blue Box. Do not over-tighten the screws into the grommets, or vibration isolation will be compromised. When done, the Blue Box should be able to move slightly – if not, loosen the mounting screws through the grommets. Use CA or thread locker to secure all screws.

All wiring and should be neatly bundled and tied before completing installation. Ensure receiver and power connections are as short as possible.

Final Testing and Setup:

Power the system up, verify power input selection and check that all servos function correctly. If using regulators for power inputs, tune the regulators such that the APA indicates equal inputs. If anything is not working properly DO NOT ATTEMPT FLIGHT. Contact 42 Percent before proceeding.

Warnings

Always use the provided standoffs for mounting; the Blue Box has amplifiers on the bottom surface that must have an air space for proper cooling. If you lose the standoffs, contact 42 Percent or a dealer for replacements before flying again.

Never plug servos directly into the receiver when it is powered from the 5V regulated supply of the Blue Box. This 5V supply is only rated for 1.5A and cannot sustain the power requirements of a servo.

Never short any of the outputs of the Blue Box. This could result in damage to power sources, the Blue Box, or connected servos.

Electrical specifications:

Max current output all channels driven Power lines only – 64 amps (Both power inputs driven 32 amps ea) 6.2 to 10.0 volts output.

Max current servo **signal lines** 16 outputs driven – 1.28 Amps 10 meters wire max per output X 16 (32 ohm servo drive Ea Output).

Max current to radio receiver 1.5 amps max in Burst mode 1.0 amps normal sustained operation @ 4.98 to 5.0 volts output regulated and filtered.

Max voltage input A/B 10.0 volts MAX

Min voltage to any Power input A/B 6.2 volts this must be a sustained and regulated type. *A123 Cells can be used in 2S mode 6.6 volts *

Min servo signal Trigger 1.8 volts Futaba “FASST” and “Spektrum” compatible input Bus system.

All radios have been tested 512, 1024, 2048, and all 2.4Ghz Brands.

Servo voltage output matches the main rail of the voltage inputs i.e. if the main power input is 7.6 volts the servo signal lines are at 7.6 volts they are voltage and current amplified types.

Safe operational temp range 25 F ~ 165 F exceeding this range would force the shut down of the internal regulation system shutting off radio 5.0 volt!

System restarts immediately in Burp mode (pulsed output) once over current condition or temp stabilizes again it restarts automatically and sustains normal operation.