PowerExpander Micro and Receiver Unit Mounting

The PowerExpander Micro-12G and receiver combination should be mounted such that the PowerExpander Micro12G's pigtails have some slack in them.

Power Connections

Power is supplied to the unit through the two Deans UltraPlug connectors which are connected to the PowerExpander Micro-12G by 18ga silicon wires. The inputs will tolerate voltages up to 8.5V (lithium-ion or lithium-polymer 2-cell packs). The power inputs are protected from each other in case of a dead cell or short. There is less than a half-volt drop between the battery inputs and the servo outputs.

CAUTION: Input voltage to the PowerExpander Micro-12G should be at least 5.8V. This is due to the 0.45V drop across the "BatShare" and the 0.35V dropout voltage of the receiver regulator to maintain a 5.0V output to the receiver.

It is highly recommended that you use two battery packs for redundancy and to provide extra current to the unit. The BatShare will attempt to keep the battery packs at the same voltage. It has been found that because A123 batteries have such low internal impedance that the current sharing between two packs may not be as good as other battery chemistries with higher internal impedance. The BatShare will isolate a pack that has lost a cell or has shorted. Its advised that you check the batteries before every flight to be sure you have not lost a pack.

Optional Failsafe-switch

The PowerExpander Micro-12G supports the addition of a failsafe switch (optional package). When using the failsafe-switch, the switch lead is plugged into the input on the servo side of the unit between the DG1 and DG2 channels.

Smart-Fly can supply two types of failsafe switches. First is the standard slide switch that most people are familiar with. This is a small slide switch without a charge jack. The second failsafe-switch is the Pin & Flag switch, where a pin, with a flag on it, is inserted into the switch to turn the system off. To fly, the pin is pulled out of the switch. The advantage of the Pin & Flag switch is that the system cannot accidentally be turned off, as can be the case with a slide switch. The failsafe switch lead can be extended using a standard Futaba extension.

Additional information and technical help can be found at www.Smart-Fly.com

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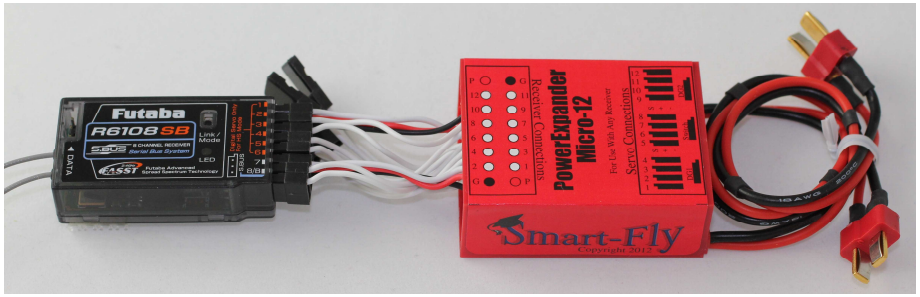
Smart-Fly

PowerExpander Micro-12G User Guide

Thank you for purchasing the Smart-Fly PowerExpander Micro-12G!

This manual takes you through the installation and operation of the Smart-Fly PowerExpander Micro-12G that is designed for use with any standard R/C receiver. The Micro-12G provides all the famous PowerExpander features in an incredibly small and light-weight package. The Micro-12G is great for space constrained applications like jets, scale and soaring aircraft.

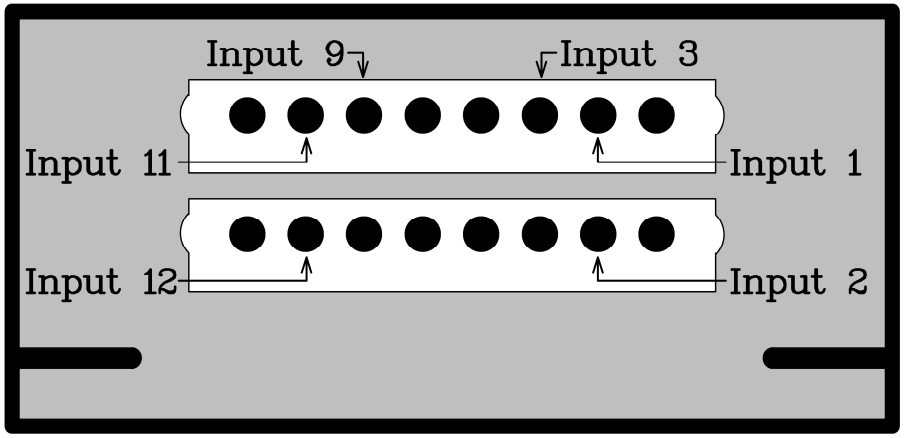


PowerExpander Micro-12G connected to a Futaba R6108SB 8-channel receiver

Some of the features of the PowerExpander Micro-12G:

- **For use with any brand standard receiver**
- **Can be used on any size plane**
- **Light weight, 1.3oz, 37g**
- **Low Power, less than 10mA idle current**
- **Compact design, footprint is 2.0" x 1.5"**
- **Accepts up to 8.5V battery inputs**
- **Inputs protect against cell failure or power shorts**
- **Filtered and regulated 5.0V power to the receiver**
- **Dual regulators for receiver**
- **Fully buffered outputs on all channels**
- **Full filtration of all signals in and out of the unit**
- **Can be used with optional failsafe switch**

Receiver Connections

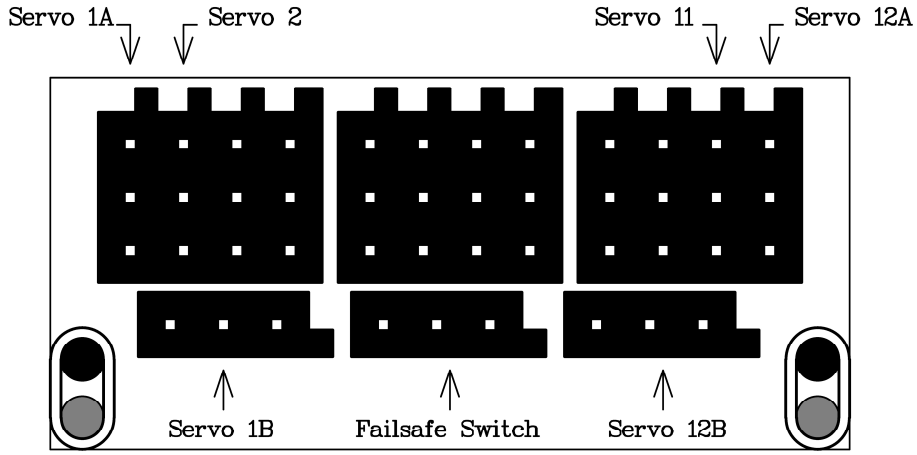


This figure shows the receiver end of the PowerExpander Micro-12G where the white areas are the wire holders that the receiver pigtails extend from. The figure is meant to show the relative positions of the twelve channel pigtails exiting the front of the Micro-12G. The input numbers correspond to the servo output numbers, i.e. input 2 drives servo output 2. The inputs to the Micro-12G come from the servo outputs of the receiver. The Micro-12G inputs 1 and 12 supply power to the receiver as well as taking the servo signal from the receiver. The pigtails coming off the Micro-12G can be inserted into any receiver servo channel. Inputs 1 and 12 both have two servo outputs. These two outputs are a simple "Y"s. This can be useful if you have two servos per aileron, you can use inputs 1 and 12 for your left and right aileron channels. For instance, if you have a JR receiver, input 1 would go into "AILE" and input 12 would go into "AUX1" if AUX1 is your secondary aileron channel. The unit provides no matching so be sure your servos are matched in some other way to avoid gear wear or possible servo failure.

You should always use input pigtails 1 and 12, as these both supply power to the receiver and using both will insure you have power redundancy to your receiver. If you have less than a 12-channel receiver, do not use one or more of the channels with a single wire connection to the plug.

WARNING: Do not plug any pigtail into the receiver BATTERY, BIND or DATA ports. Plugging any of the Micro-12G pigtails into one of these receiver ports could cause the receiver to malfunction.

Servo Connections



This figure shows the servo end of the PowerExpander Micro-12G. The servo outputs correspond directly to the Micro-12G inputs. Inputs 1 and 12 have two servo outputs each. These are shown as 1A, 1B and 12A, 12B in the figure above. On the unit label DG1 is servo 1B and DG2 is servo 12B. In addition, there is a connection for a failsafe switch which will be discussed later. All servo outputs get the full battery voltage minus a few tenths of a volt the BatShare in the unit causes (0.45V max at 12 amps). You should make sure your servos are compatible with your battery types. For instance, if you were running two Fromeco 7.4V packs on the PowerExpander Micro you must run high-voltage servos since the servos will see around 8.0V when the battery packs are fully charged.