

Mounting

The *SuperReg* is mounted using the grommet and eyelets. Standard servo screws that you would use to mount a high-torque servo work well for this application.

Battery Charge Ports

The *SuperReg* has a charge port for each battery. You can run these to external charge jacks. **One caveat is that you cannot charge both batteries at the same time through the two charge jacks, or if you use mechanical switches, through their charge jacks either.** The reason for this is the way chargers detect the charge current. It is detected on the negative lead which leads to a condition called “common ground condition”. This means the two chargers cannot determine what charge current is their charge current and can result in charger damage or battery fires. This condition is not caused by the *SuperReg* but by the fact that the ground of both batteries end up in a common connection. This condition is present if you used two mechanical switches into a common receiver.

Regulator Specifications

Input Voltage Range:	5.8V to 8.5V Max
Output Voltage Range:	5.4V to 7.4V
Wattage Dissipation:	20W Continuous
Drop-out Voltage:	0.4V

BatShare on battery inputs to protect against lost cell or shorted battery pack and to keep both batteries at equal voltage during use when both battery packs are good.

Additional information, technical help, set-up hints and FAQs can also be found at www.Smart-Fly.com

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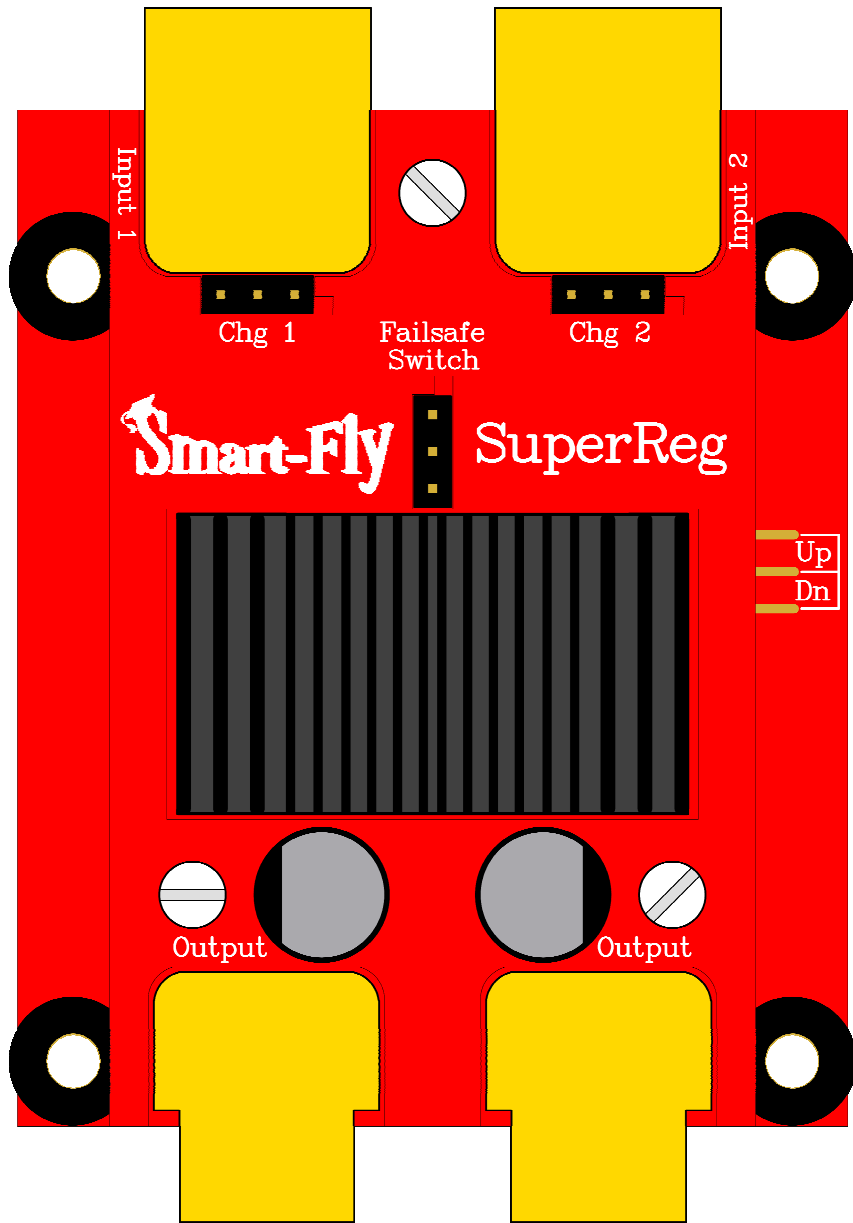


SuperReg User Guide

Thank you for purchasing the Smart-Fly SuperReg!

This manual takes you through the operation and installation of the Smart-Fly *SuperReg* regulator. The *SuperReg* provides the user with battery redundancy, failsafe operation with remote on/off switch and an adjustable regulator. Its dual battery inputs have isolation between the batteries so, in case of a catastrophic failure of one battery, the other can continue to supply power to the aircraft. The *SuperReg*'s input and output power connectors are XT-60s to handle the high current the *SuperReg* is capable of handling and long-term reliability. The *SuperReg*'s output voltage is continuously adjustable from 5.4 volts to 7.4 volts (factory set to its lowest value) and can supply 7.5 amps continuous current when the input voltage is 8.4 volts and the regulator is set to an output voltage of 6.0 volts.

Consideration: When the failsafe switch is used to turn the regulator on and off the regulator will draw a slight amount of current (approximately 10mA a day, usually much less) even when in the off position. If you are going to let the aircraft sit for an extended period you should unplug the batteries from the *SuperReg*. If you have a 2200mAh battery and you return home with ½ the charge left, the battery can stay connected for at least 110 days without discharging the battery to its maximum discharge point.



Battery Inputs

The *SuperReg* has two battery inputs. Each input can supply 30 amps of power to the unit. The inputs are isolated from each other so that in

case of catastrophic battery failure the bad battery cannot affect the good battery.

The unit can be used with a single battery input if desired. The isolation results in a 0.40V drop which results in a regulator dropout voltage of approximately 0.50V at 7.5 amps.

The recommended way to turn the unit on and off is by using the optional Failsafe Switch. We have several version of the Failsafe Switch. Mechanical switches can also be use but be aware they can cause considerable voltage drop across their contacts.

The regulator will draw a slight amount of current (approximately 10mA per day) even when in the off position when using the failsafe switch. If you are going to let the aircraft sit for an extended period you should unplug the batteries from the SuperReg.

Regulator Outputs

The *SuperReg* provides two battery outputs. The two outputs are wired in parallel and it does not matter which output you use if you use only one output. If you are using the *SuperReg* with one of the Smart-Fly PowerExpanders, both outputs can be used to tie to the PowerExpander to provide redundancy in the unlikely event that one of the cables should have a failure.

Adjusting The Output Voltage

The *SuperReg* comes from the factory set to its lowest setting, approximately 5.4 volts. The regulator's output voltage is adjusted by momentarily (less than a second) shorting one of the adjustment pins to the center pin. This can be done with any metal object such as a screwdriver. To increase the voltage, short the pin designated "Up" to the center pin momentarily. To decrease the voltage, short the pin designated "Dn" to the center pin momentarily. If you hold the pins shorted for longer than one second the voltage will increase or decrease at a rate of about one quarter volt a second. There are 32 steps over the adjustment range.

Power Handling Capability

The *SuperReg* can dissipate 20 watts continuously. The actual current handling is dependent on the input voltage and output voltage difference. The power calculation should use the maximum charged voltage of the battery pack used. (7.4V packs actually charge to 8.4V, 6.6V packs actually charge to 7.2V).

$$\text{Watts} = ((\text{Volts In} - \text{Volts Out}) * \text{Current})$$